
Viasat
+Inmarsat
INTRODUCING
LAISR
GLOBAL MOBILITY L-BAND SUBSCRIPTION SERVICE
FOR MISSION-CRITICAL BLOS COMMUNICATIONS

LOW SWAP, HIGH-THROUGHPUT SOLUTION FOR ISR MISSIONS

Inmarsat Government's award-winning LAISR solution offers high-speed, beyond line-of sight (BLOS) connectivity using low-size weight and power (SWaP) user terminals that maximize range for highly mobile crewed and uncrewed Intelligence, Surveillance and Reconnaissance (ISR) missions worldwide.

LAISR SERVICE: FLEXIBLE AND HIGHLY AVAILABLE

LAISR is a global mobility, subscription service that provides users with access to speeds up to 3 Mbps (forward and return) delivered through low SWaP user terminals starting at 4.7 lbs. LAISR offers high-speed throughput ISR capabilities within the complete coverage area of ELERA seamless, worldwide L-band network with 99.9% all-weather resilience and network reliability. All traffic passes through Satellite Access Stations (SAS) located in NATO/Five Eye nations and is backhauled via our secure and resilient Multiprotocol Label Switching (MPLS) network to the customer's specific destination – ground control stations, operation centers, cloud-based services, or remote terminals anywhere worldwide - via private terrestrial line connections, the public Internet or SATCOM. Managed 24/7 by U.S.-based, security-cleared operations and engineering teams, LAISR solutions can be configured to meet the unique requirements of government customers.

RESPONSIVE END-TO-END SERVICE INTEGRATION

Our ecosystem of in-house and partner teams of experienced SATCOM engineers work to identify the hardware options and network configurations to meet your specific SWaP, mission and budget requirements.

FLEXIBLE SERVICE PLANS

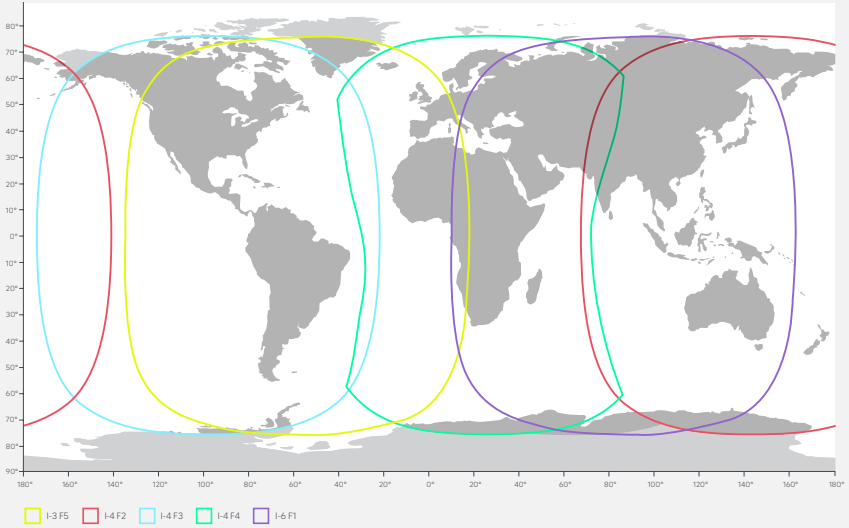
LAISR service is offered via flexible subscription plans that allow users to deploy and operate worldwide multiple user terminals to share capacity or offer globally portable mobile service that can be rapidly stood up or relocated to enable operations worldwide.

LAISR SWAP-OPTIMIZED USER TERMINALS

LAISR is accessible via type approved LAISR lightweight (LW) and ultra lightweight (ULW) user terminals optimized for SWaP constrained platforms. LAISR terminals are comprised of a common Core Module (CM) and an antenna. Multiple antenna options, which vary both in size and performance are offered, allowing customers the flexibility to customize the solution to meet their individual needs.

A variety of antennas associated with LW and ULW core modules are available and are an important part of optimizing LAISR service operation for the customer. Size and performance of each of the available antennas provide an ala carte approach to ensuring the best possible solution based on factors such as platform environmental considerations, flight profiles for aero platforms, available space and power on the platform, and desired data rate performance among other considerations.

ELERA COVERAGE MAP



LATEST SERVICE INNOVATION: ENHANCED LAISR ON DEMAND

Our latest innovation—Enhanced LAISR—delivers highly available, flexible and secure LAISR on-demand capability enabled by Inmarsat's ELERA seamless, global L-band space and ground network.

This global mobility, on-demand L-band service offers airborne, maritime and land users the "go-anywhere, anytime" communications flexibility they require.

Existing LAISR terminals can be configured to operate on Enhanced LAISR.

New LAISR terminals are coming soon that will enable access to Enhanced LAISR and deliver reliable, high-speed, seamless connectivity and uniform global capabilities – all via LAISR COTM, ELMA and LACE III's reduced, low SWaP form factor.

BENEFITS OF LAISR

FEATURES

- Global mobility L-band subscription service that provides BLOS communications and high performance
- Delivered through low SWaP user terminals, anywhere in the world
- Data rate up to 3 Mbps from the platform
- Dedicated bandwidth, not contended
- ELERA's L-band continuous, consistent connectivity
- All-weather resilience with up to 99% reliability
- Satellite and SAS diversity options for highly resilient operations

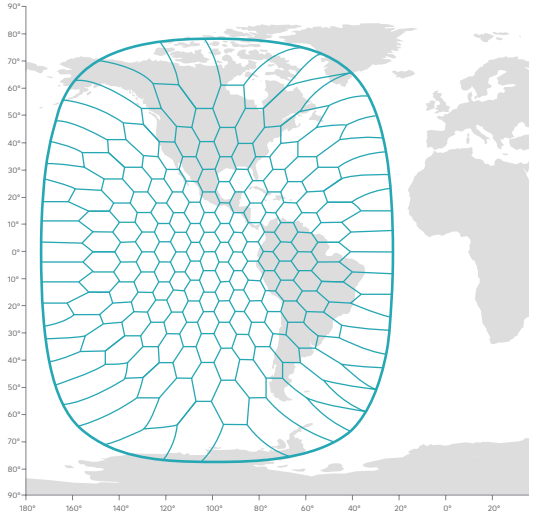
END-TO-END SOLUTION

- Secure, diverse terrestrial network
- Compatible with Type 1 encrypted payloads
- Supports multicast/ unicast delivery of encrypted payload data
- Terrestrial and/or forward-deployed VSAT options for backhaul of customer traffic

LAISR OPERATION EXAMPLE

LAISR operation includes antennas, core modules, satellite and terrestrial connectivity, service provisioning and monitor and control. In a typical scenario, a customer might partner with Inmarsat Government to integrate LAISR on a family of Class Two UAS platforms. Based on the user requirement, the optimized LAISR solution would be agreed to by both parties, integrated onto the platform and evaluated for performance. This evaluation provides the customer understanding of the end-to-end LAISR architecture helping the customer make the best decisions for the required end-to-end service going forward. LAISR capacity is provisioned on an I-4 satellite.

I4F3 AMER / AMERICAS 98°W



SATELLITE CHARACTERISTICS

- 630 x 200 kHz channels, dynamically allocated to beams
- 256 beams
- I4 satellite channel size is 200 kHz
- Each I4 channel can be further broken down into two 100 kHz blocks
- Depending on LAISR antenna nad Core Module a single 200 kHz channel can provide data throughputs up to 850 Kbps full duplex
- Up to 4 channels can be bonded together to provide additional data throughputs up to 3.7 Mbps full duplex

LAISR TERMINAL CATALOGUE

LAISR-LW

Low-profile comms on the move for airborne crewed and uncrewed platforms - when and where you need it. The LAISR Light Weight (LW) family of user terminals is optimized for SWaP constrained aero platforms and enables subscription L-band service and uniform worldwide capabilities.

Terminal	LAISR-LW 3010	LAISR-LW CM
Size	5.3" x 5.3" x 1.3"	12.8" x 8.0" x 2.9"
Weight	0.8 lbs.	7.8 lbs.
Total Weight	8.6 lbs.	
Data rate *	~2 Mbps	---
Max Power	---	28 VDC, 115 W
UAS Group	2	---
LRUs	2	---

Terminal	LAISR-LW 3035	LAISR-LW CM	LAISR-LW SASU
Size	12.9" x 9.3" x 1.9"	12.8" x 8.0" x 2.9"	2.9" x 2.7" x 1.8"
Weight	1.5 lbs.	7.8 lbs.	0.5 lbs.
Total Weight	9.8 lbs.		
Data rate *	2.5 Mbps	---	---
Max Power	28 VDC, 5 W	28 VDC, 115 W	28 VDC, 2 W
UAS Group	3	---	---
LRUs	3	---	---

Terminal	LAISR-LW 3040	LAISR-LW CM	LAISR-LW SASU
Size	10.1" x 10.1" x 9.7"	12.8" x 8.0" x 2.9"	2.9" x 2.7" x 1.8"
Weight	4.0 lbs.	7.8 lbs.	0.5 lbs.
Total Weight	12.3 lbs.		
Data rate *	3 Mbps	---	---
Max Power	28 VDC, 22.4 W	28 VDC, 115 W	28 VDC, 2 W
UAS Group	3	---	---
LRUs	3	---	

Terminal	LAISR-LW 3050	LAISR-LW CM	LAISR-LW SASU
Size	18.3" x 7.6" x 2.0"	12.8" x 8.0" x 2.9"	2.9" x 2.7" x 1.8"
Weight	4.6 lbs.	7.8 lbs.	0.5 lbs.
Total Weight	12.9 lbs.		
Data rate *	3 Mbps	---	---
Max Power	28 VDC, 21 W	28 VDC, 115 W	28 VDC, 2 W
UAS Group	3	---	---
LRUs	3	---	---

** Data rates may vary and depend upon terminal type, bandwidth leased, operating location, etc.*

LAISR ULW

Our latest innovation, LAISR ULW offers customers an ultra-lightweight option to complement the LAISR family of L-band user terminals. This terminal delivers access to high availability, high-performance, full-duplex, secure BLOS communications via our reliable, global ELERA L-band network for airborne crewed and uncrewed platforms, while reducing the total terminal weight to as low as 4.7 lbs. LAISR ULW delivers high data rate throughput up to 3 Mbps and optimal spectrum utilization.

Its highly compact core module features the ULW Radio Frequency Front End (RFFE). LAISR ULW is enabled by the Black ICE Software Defined Radio (SDR), a family of modems which offer access to the powerful and highly efficient DVBS2X waveform in a low-SWaP form factor. The ULW RFFE delivers advanced filtering capabilities, automatic LTE/ ATC interference protection, low Error Vector Magnitude (EVM) characteristics and constant output power gain control. Similar to the LW LAISR terminals, the LAISR ULW leverages Inmarsat Government's MPLS terrestrial backbone to securely transport customer traffic from the platform to its destination. Multiple backhaul options are available, including via Global Xpress service, private terrestrial line, or the public Internet.

LAISR-ULW can be implemented in a stand-alone configuration or can be retrofitted into an existing Inmarsat enabled aircraft with either an un-steered low-profile patch antenna, or one of three steered options: the IGA-4000, HGA-6000, or AMT-1800. The IGA-4000 (available now) and the HGA-6000/AMT-1800 (available soon) are steered directly by the ULW core module, thus eliminating the need for a separate external control device or steering inputs from the host platform. For customers that already have Inmarsat services-enabled aircraft, installations can be simplified through use of modification kits that enable LAISR ULW to be integrated with the existing type-approved aero antenna.


Terminal	LAISR-ULW 4010	LAISR-ULW CM
Size	5.0" x 5.0" x 1.0"	8.6" x 5.3" x 1.8"
Weight	0.8 lbs.	3.9 lbs.
Total Weight *	4.7 lbs.	
Data rate **	~2 Mbps	---
Max Power	---	28 VDC, 140 W
UAS Group	2	---
LRUs	2	---


Terminal	LAISR-ULW 4035	LAISR-ULW CM
Size	12.3" x 9.4" x 1.9"	8.6" x 5.3" x 1.8"
Weight	1.5 lbs.	3.9 lbs.
Total Weight *	5.4 lbs.	
Data rate **	3 Mbps	---
Max Power	28 VDC, 5 W	28 VDC, 140 W
UAS Group	3	---
LRUs	2	---


Terminal	LAISR-ULW 4040	LAISR-ULW CM
Size	10.0" x 9.7" x 10.0"	8.6" x 5.3" x 1.8"
Weight	4.0 lbs.	3.9 lbs.
Total Weight *	7.9 lbs.	
Data rate **	3 Mbps	---
Max Power	28 VDC, 22.4 W	28 VDC, 140 W
UAS Group	3	---
LRUs	2	---


Terminal	LAISR-ULW 4050	LAISR-ULW CM
Size	18.3" x 7.6" x 2.0"	8.6" x 5.3" x 1.8"
Weight	4.6 lbs.	3.9 lbs.
Total Weight *	8.5 lbs.	
Data rate **	3 Mbps	---
Max Power	28 VDC, 21.0 W	28 VDC, 140 W
UAS Group	3	---
LRUs	2	---

** Weight does not include required heat sink/cold plate. Customer may provide their own or purchase our ULW thermal kit. Our ULW thermal kit attaches directly to the chassis bottom and weighs ~1.5 lbs.*

*** Data rates may vary and depend upon terminal type, bandwidth leased, operating location, etc.*

ELMA

ELMA (Enhanced L-band Maritime Antenna) is the latest innovation in LAISR terminals that provide access to the Enhanced LAISR global mobility on-demand L-band service.

ELMA is a small-size, high-throughput user terminal suitable for communications on the move (COTM) applications. It provides maritime vessels and land expeditionary uses with worldwide connectivity at data rates of up to 3 Mbps, operating on the global ELERA network, i.e., I-4 and I-6 satellite constellations.

ELMA enables access to dedicated data services without contention from other users. It can work as a standalone solution or in conjunction with Global Xpress maritime terminals to provide a highly available secondary communications path.

SPECIFICATIONS

Dimensions

ADE (LxWxH)	12 x 12 x 14 inches
BDU (LxWxH)	19 x 1.69 x 8.66 inches

Weight

ADE	12 lbs
BDU	8 lbs

Power

ADE	32 VDC @ 175 W
BDU	32 VDC @ 220 W
TX Gain	12 dbi
EIRP	22 dBW
RX Gain	12 dbi
G/T	-13 dB/K

Operating Frequency

Receive band	1,518 to 1,559 GHz
Transmit band	1,626 to 1,675 GHz

Data Rate

Standard	512 kbps Duplex
Maximum	3 Mbps Duplex

ADE ENVIRONMENTAL

Temperature

Operating	-40 to +60°C
Storage	-55 to +85°C
Operating Humidity	>95% at +40°C

IP class

ADE	IP56
BDU	IP31

Operational Vibration

Random spectrum 1.05 g rms x 3 axes:

5 to 20 Hz	0.02 g 2 /Hz
20 to 150 Hz	-3 dB/octave
Shock	Half sine, 20 g/11 ms
Turn Rate	6 deg/second
Roll	+/-30 deg/8 seconds
Pitch	+/-10 deg/6 seconds
Yaw	+/-8 deg/50 seconds

Interface

1 x COAX N-Type ADU / TNC BDU, 50 OHm
1 x Data (Ethernet)
1 x Redundancy Controller (Ethernet)
1 x M&C (Ethernet)

LACE II

Integrating the latest advancements in compact high-throughput L-band terminals, LACE II (L-band Advanced Communications Element) is a two-way Beyond Line of Sight (BLOS) communication back packable user terminal that delivers highly reliable, multi-megabit data connectivity to land expedition users worldwide.

Government-tested and in use today, LACE II is a lightweight, easy to use, rapid-pointing terminal the size of a laptop and weighs only 10.8 lbs. From the moment the transit case is opened, connectivity is established in less than two minutes. Service reliably supports duplex data rates up to 3 Mbps.

The compact and rugged design of LACE II supports on-demand services with steadily increasing speeds. It allows small teams to return large quantities of video and sensor data while simultaneously maintaining the reliability, ease of use, and weather-tolerant operation provided by Inmarsat ELERA network.

Our next-generation LACE III solution will be serviced by our advanced Enhanced LAISR service, allowing for access to critical high-speed, resilient communications on-demand, worldwide.

SPECIFICATIONS

Size	17.5" x 11.3" x 1.7"
Weight	12.4 lbs
TX	1626.5-1675 MHz
RX	1518-1559 MHz
EIRP	23 dBW
G/T	-10.4 dB/K
Data Rate	3 Mbps

Power

AC	90-305, 130 W
DC	10-32, 130 W
Battery	2 x BB-2590 3 hrs, typical

Temperature

Operating	-20 to +60°C
Storage	-40 to +85°C
IP class	IP66

Interface

2 x RJ45 (Ethernet)
Wi-Fi
LED display
Android App (Bluetooth)
Web GUI

COMING SOON:
LAISR-COTM
(COMMS-ON-THE-MOVE)

Latest in our LAISR terminal innovation, LAISR COTM operates on Enhanced LAISR and delivers low-profile communications on the move for crewed and uncrewed maritime and land platforms, when and where you need it.

Access reliable, high-speed and seamless connectivity from the Enhanced LAISR on-demand, global mobile L-band service that provides uniform global capabilities – all via LAISR COTM's reduced, low SWaP form factor.

TO LEARN MORE

inmarsatgov.com/contact/

inmarsatgov.com/capability/l-band/laisr/