



# IntelSat Global Connectivity Solution

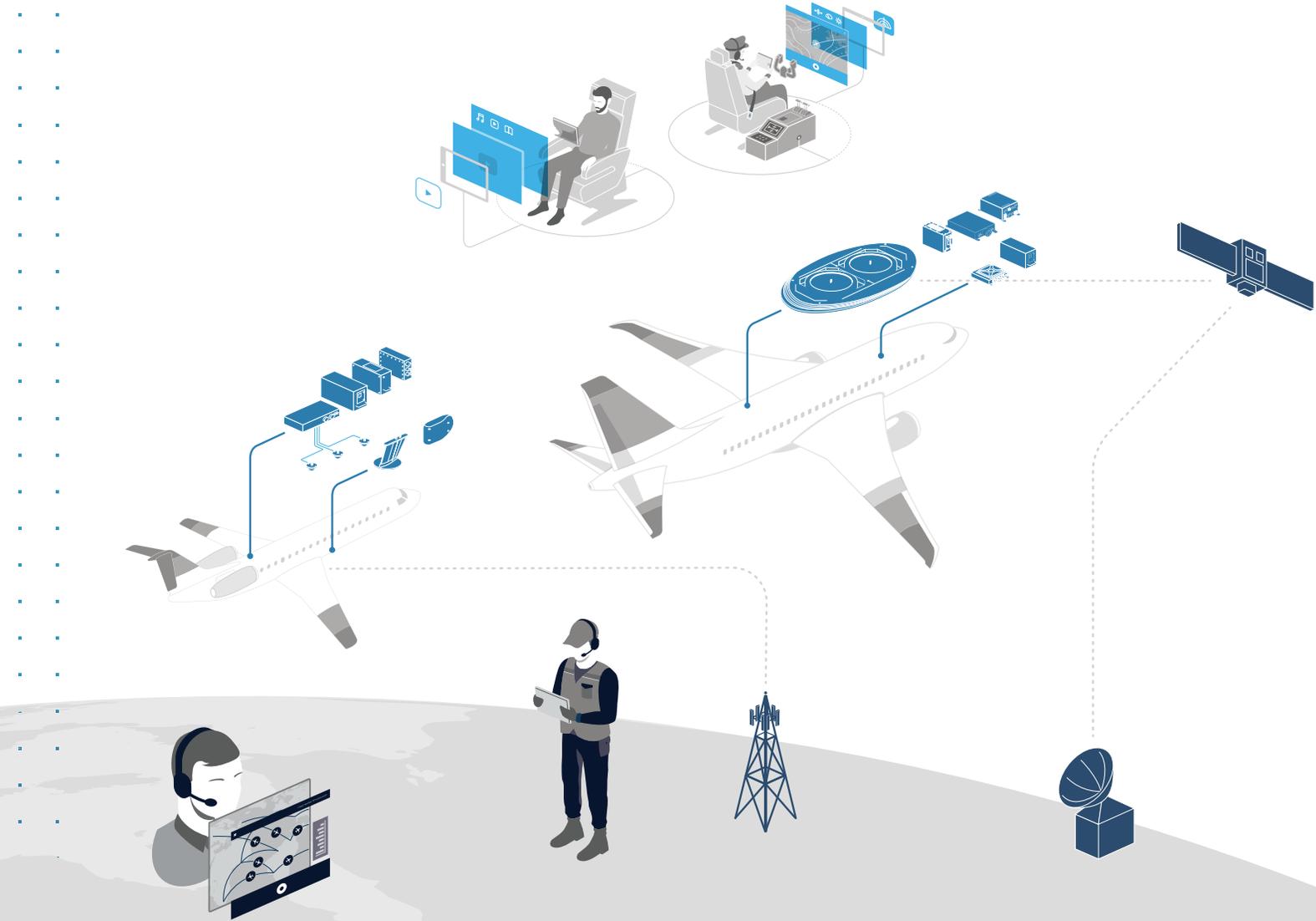


# Intelsat Global Connectivity Solution

The global coverage and scalable capacity of the Intelsat Global Network enables streaming-quality Wi-Fi and Live TV to the entire cabin. Our access technology features a unique dual-phased-array antenna and proprietary modem for unsurpassed performance and industry-leading system availability. Intelsat can also help you efficiently manage the bandwidth you need to provide the service you want so you get the most out of your investment.

Intelsat's open architecture design leverages today's Ku-band satellites and offers future-ready performance with high-throughput satellites (HTS). This allows Intelsat Commercial Aviation to deliver on the coverage and capacity needs for commercial airlines with global flight routes today—and tomorrow.

The Intelsat Commercial Aviation Portfolio delivers best-in-class inflight experiences through powerful, integrated onboard systems, aero networks, and support.



## Inflight Experiences

### Connectivity Services

Wi-Fi Internet Packages  
Onboard Portal / Unified Onboard Portal / Onboard Portal Manager  
IFC to Seatback Integration

### Entertainment Services

Wireless Inflight Entertainment  
Inflight Live TV

### Connected Aircraft Services

eEnablement  
Aircraft Data Access  
Partner App Manager

## Onboard Systems & Software

### Access Technologies

2Ku global satellite access  
ATG4 North American ground access

### Onboard Experience

Onboard Experience (OX) Platform

### In-cabin Network

2Ku In-cabin Wi-Fi Network  
ATG4 In-cabin Wi-Fi Network

## Aero Networks

### Global Ku Satellite

Global Ku Aero Network

### NA Regional ATG

Regional North American Air-to-Ground Network

## Operational Support

### In-service Maintenance

Aircraft Technical Services (ATS)  
Transmitting Portable Electronic Device (T-PED) Testing  
Tools (Onboard Maintenance App)  
Training (Line Maintenance Training, Train the Trainer)  
On-site Line Maintenance Support (FSRs)  
Operations Control Center (OCC) Support  
Customer Care  
Intelsat Sphere  
Wi-Fi Onboard System Health

### Prototype

Aircraft Technical Services (ATS) (STC, EO, De-mod)  
Telecommunications Agency Certification

### Production Installation

On-site Installation Support  
Tools (Procedural Config and Testing (PCAT) Tool)  
Training (Wi-Fi Crew Training, Installation Training)  
Sustaining Engineering Services (STC)

# Our airline partners



# Satellite Access Technology

The Satellite Onboard System incorporates modular hardware technologies to access the coverage and capacity of the Intelsat Global network.



## 2Ku antenna

- Two large aperture phased-array antennas
- Advanced beam forming and steering



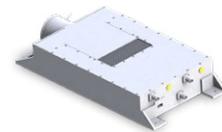
## A791 MODMAN

Hosts the next-generation modem which modulates and demodulates L-band signals



## KANDU

Provides power to the satellite antenna and uses aircraft navigational data to control its movement



## KRFU

Converts L-band to Ku-band frequencies from the modem to prepare for transmission to the satellite; governs this process in reverse as well

## In-cabin Network

The In-cabin Network consists of the essential airborne hardware that interfaces with aircraft access technology to power the passenger experience. An onboard server enables a new cabin standard where content is accessed wirelessly via any device, including seatback screens over the dedicated in-cabin network.



### ACPU-2 | A791 MODMAN

Onboard server options include the ACPU-2 or the A791 MODMAN depending on aircraft configuration. The A791 MODMAN serves as both modem and onboard server in Service Bulletin (SB) and Linefit (LF) configurations.

### In-Cabin A628 WAP

Wireless Access Points provide the Wi-Fi signal to devices in the cabin and support the latest 802.11 standards, including 802.11ac

## Configurations for any aircraft

The Satellite Onboard System is suitable for either large commercial aircraft with global flight routes or narrow-body aircraft in regional fleets. With emerging linefit offerability, OEM SB, and STC/retrofit options, it's ideal for mixed fleets.





## **Reliable, high-speed inflight internet: everywhere, all the time**

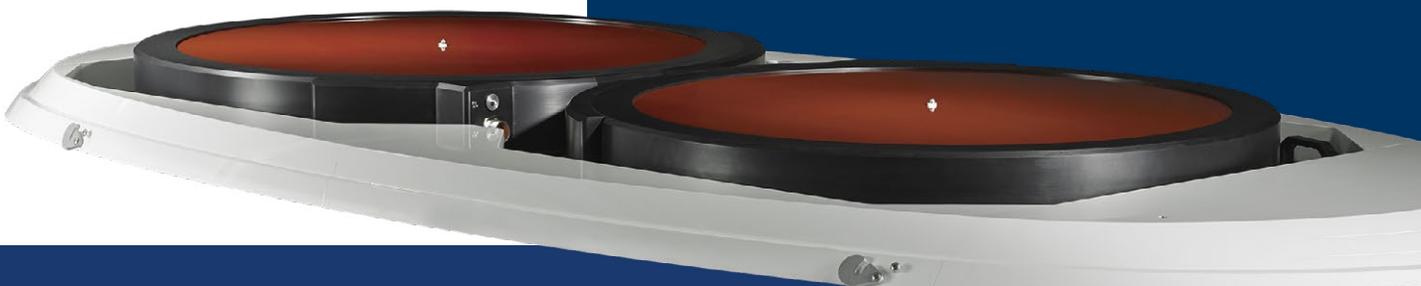
The Intelsat Satellite Onboard System includes all the onboard hardware and software needed to deliver inflight internet access to passengers around the globe.

The heart of the system is the Satellite access technology that includes two antennas—one for the forward link, which transmits data to the aircraft, and one for the return link, which receives data.

Built to deliver significantly more bandwidth to aircraft, our high-throughput modem minimizes service disruptions associated with beam switching, allowing faster satellite handoffs and a more consistent passenger experience.

### **Consistency drives CSAT**

The Satellite Onboard System helps deliver a seamless, consistent passenger experience—a key driver of higher customer satisfaction scores for airlines worldwide.





## Enable unique inflight experiences

### Connectivity and Entertainment Services

- Wi-Fi internet packages for messaging, browsing, and streaming
- The Onboard System delivers the connectivity options your passengers expect, everywhere they go
- Live TV: With the high bandwidth delivered by Intelsat Satellite access technology, your passengers can watch live sports, news, or other live broadcasts on their own devices or the seatback
- Seatback integration with existing third-party IFE systems: Integrate connectivity with existing seatback IFE systems to enhance the passenger experience

## Connected Aircraft Services

### eEnablement

- Connect pilot EFBs and crew mobile devices with broadband internet

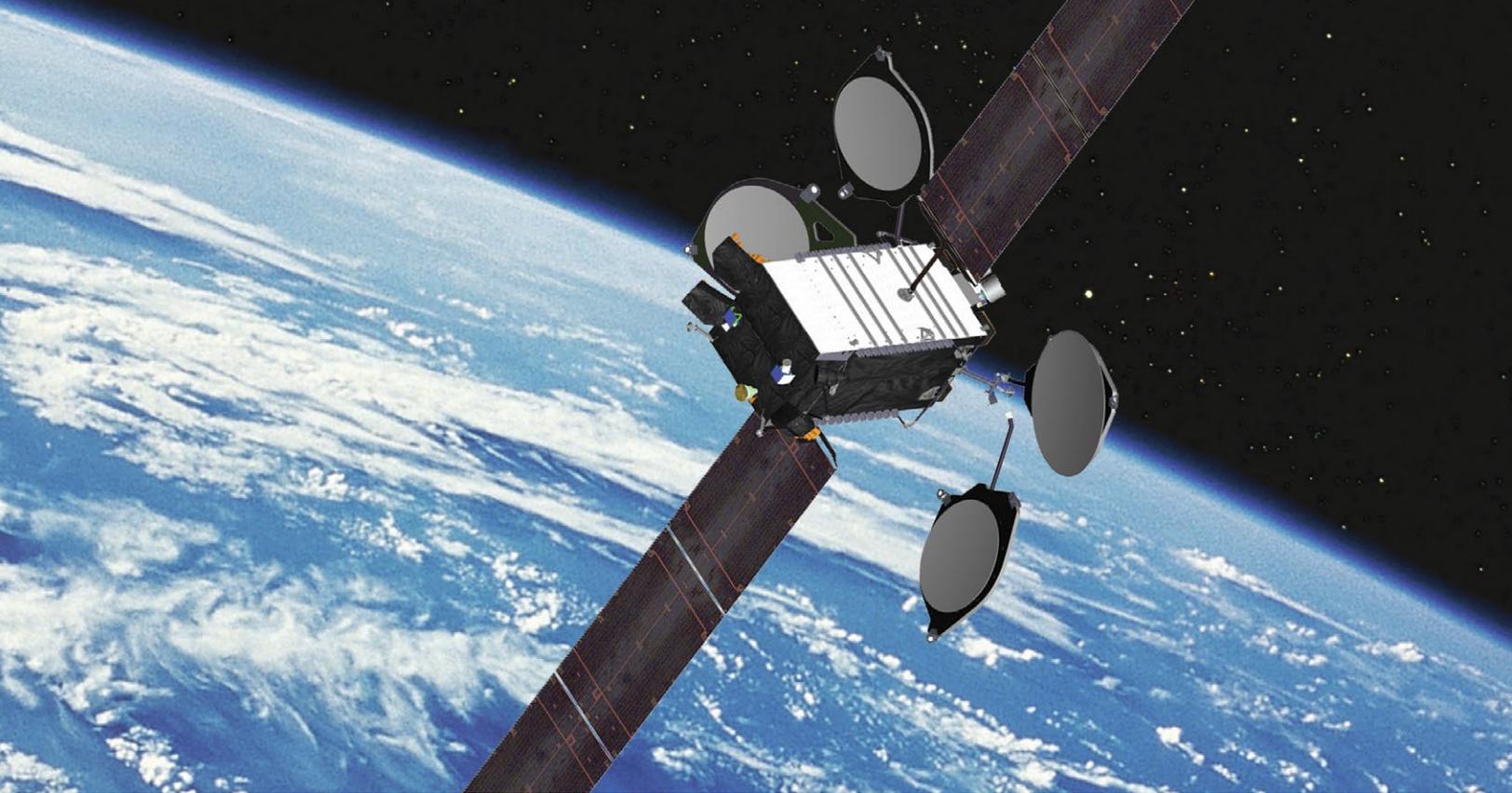
### Aircraft Data Access

- Bring aircraft data to pilot devices in real-time

### Operational Solutions

- Integrate connectivity services with third-party applications





## Intelsat Global network

The Intelsat Global network offers a higher degree of flexibility that's ready for the future. The solution can leverage any Ku band satellite.

2Ku leverages our existing Ku-band network to deliver reliable, redundant coverage around the globe. Unlike other providers who rely on only a handful of satellites, the Intelsat network relies on the Ku ecosystem of satellites, offering built-in redundancy.

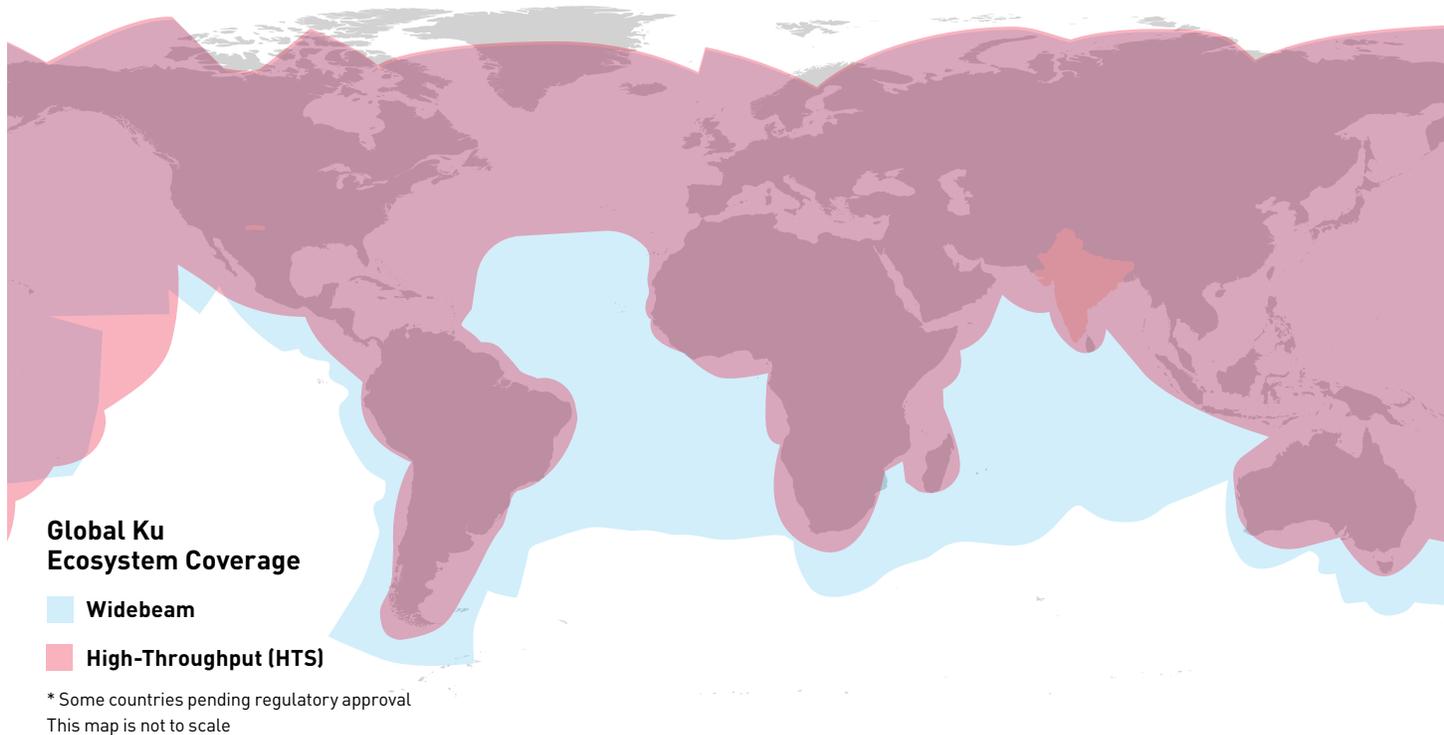
As demand for capacity increases, Intelsat can define extra bandwidth utilizing its rapidly growing network to ensure supply and keep passengers connected worldwide.

### Optimized antenna design for Ku satellites

- Consistent satellite handoffs for minimal interruption in service for passengers and crew
- Worldwide telecommunications and spectrum regulatory approvals
- Ability to add capacity
- Future-ready performance with minimal downtime

## Global Coverage, scalable capacity

We stand behind our Global Satellite network and its ability to deliver reliable inflight internet. We can layer-on additional high-throughput (HTS) capacity when needed, especially over hub cities and other congested areas. Our Service Level Agreements (SLAs) define everything from speed expectations to latency to network reliability.



## The benefits of using multiple Ku satellite providers

Our partnership with global Ku satellite operators gives us access to HTS satellites, which will deliver increased capacity across most of the world's flight routes for an improved customer experience.

More importantly, we can add capacity on demand, strengthen our network, and maintain redundancy.

- Global coverage
- Technological innovation
- Redundant network
- Flexible capacity

### HTS satellites

High-throughput satellites provide significantly higher data transfer speed than conventional satellites (around 200 Mbps to the aircraft), primarily by employing spot beams that cover a smaller area. Our ability to harness these beams provides a solid foundation for a long-term, low-risk investment.

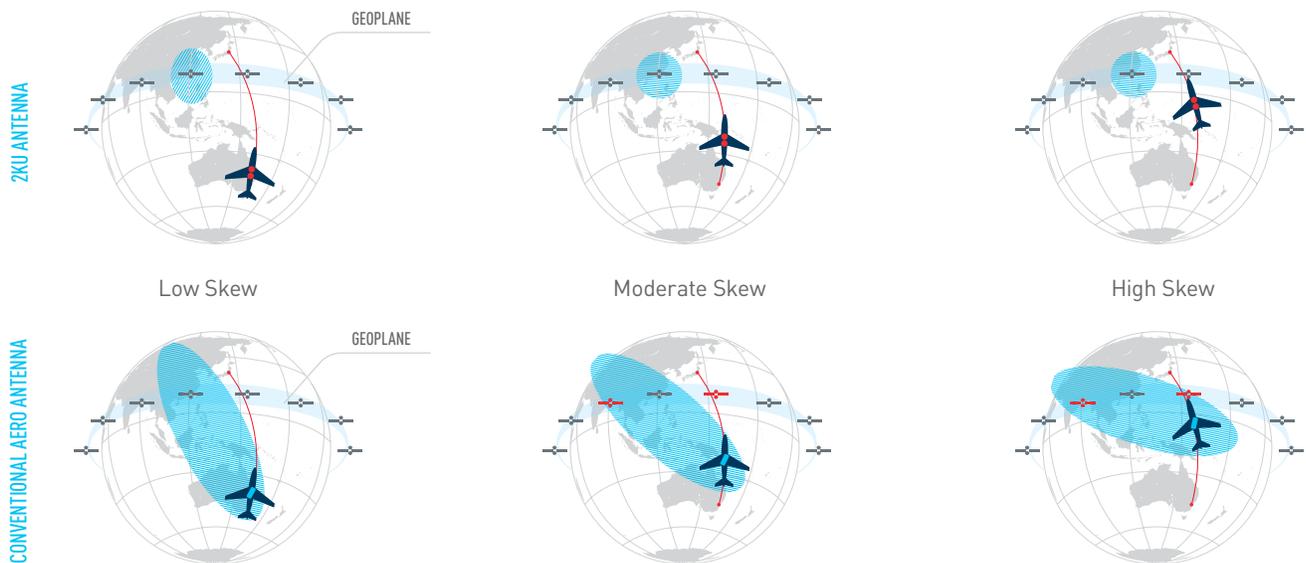
## Superior equatorial performance

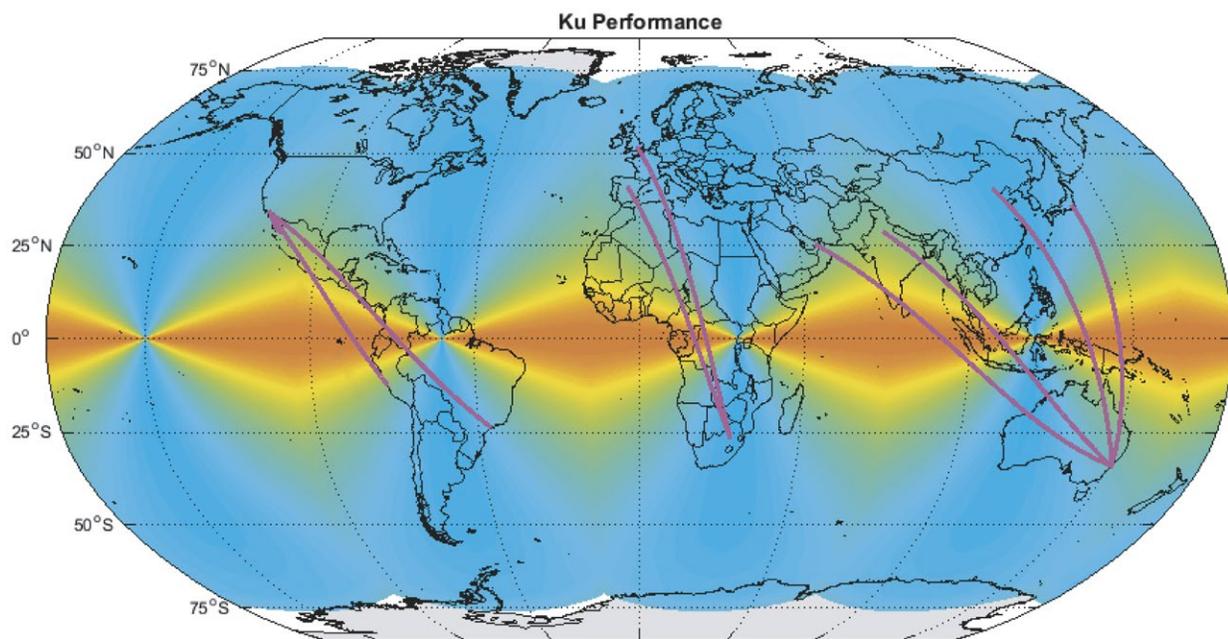
Compared to conventional aero antennas, Intelsat CA access technologies are designed to provide strong connectivity in areas where other antennas suffer. This is particularly important for airlines traveling across certain areas of South America, Asia and Africa.

A typical south to north airline route will start out in a region with lower skew angle.

As the flight nears the equator, the oval-shaped beam produced by conventional aero antennas interferes with adjacent satellites (shown in red). To avoid this interference, the conventional aero antenna lowers transmit power even further, reducing data rates both to and from the aircraft.

The Satellite Access antenna terminal projects a narrow beam, which avoids adjacent satellite interference and delivers a more consistent internet experience on flights near the equator.





The performance of conventional aero antennas suffers in high skew angle regions (illustrated in yellow/orange on map). With conventional aero antennas, long-haul flights that operate in equatorial regions may operate with poor performance. For example, a flight leaving California headed to Peru, can suffer from outages of up to 76% of flight time.



## Installation Options

As airlines replace aging aircraft and expand their fleets, linefit installation is an area of continued focus for us. We continue to progress with an expanding number of Service Bulletins (SBs) and Linefit options at major OEMs for the most in-demand aircraft.

In addition to our secured Supplemental Type Certificates (STCs), Intelsat also offers fleet survey, design substantiation and comprehensive engineering support for retrofit installations.

Talk to us about the best option for your specific aircraft needs and timing.

Intelsat can also provide the engineering and kits needed to remove third-party Outside Aircraft Equipment (OAE) to allow installation of the onboard system with minimal deviations.



## **Operational Support**

Intelsat is committed to full support and service for every fleet, everywhere, around the world. We offer end-to-end support throughout the lifecycle of your Intelsat-equipped fleet to ensure the smoothest and most reliable performance possible.

## Linefit deliveries

### Crew Support

- Prepare flight crews with training on the inflight experience, connecting to Onboard Systems, and passenger service-issue interaction
- Train your airline technical operations and third-party partners on Onboard System maintenance

### Maintenance Tools

- Increase visibility into the Onboard System with Wi-Fi Onboard System Health and enable flight crews to communicate system issues while in flight to resolve them quickly and efficiently
- Leverage Built-in Testing to help airline maintenance teams and/or third-party partners actively maintain and trouble shoot onboard systems

### Line Maintenance Support

- Receive on-site support for line maintenance, troubleshooting, and diagnostics from Field Service Representatives (FSRs). We also provide an AMCC Tech Support line around the clock – 24/7/365 to help technicians with system troubleshooting

### Network and Systems Monitoring

- Monitor Aero Networks, equipment, and data centers around the clock - 24/7/365 with Intelsat Network Operations Center

### Customer Care

- Assist airline passengers with issues or account questions on the ground and in the air around the clock – 24/7/365 with Intelsat-trained, multilingual customer representatives





## Retrofit installations

### Prototype Phase

- Certify system hardware from telecommunications agencies in countries where an airline's aircraft are registered or based to ensure RF regulatory compliance
- Complete the process to obtain a new Supplemental Type Certificate (STC), make minor updates, or obtain an amendment from civil aviation authorities to install Intelsat Onboard Systems

### Production Installation

- Receive on-site support for production installations or troubleshooting of Onboard Systems
- Train your airline technical operations and third-party installers on Onboard System installation

### In-service Maintenance

- Intelsat supports retrofit installs with the same in-service maintenance support as linefit deliveries in addition to Aircraft Technical Services (ATS) support

## About Intelsat

As the foundational architects of satellite technology, Intelsat operates the largest, most advanced satellite fleet and connectivity infrastructure in the world. We apply our unparalleled expertise and global scale to reliably and seamlessly connect people, devices and networks in even the most challenging and remote locations. Transformation happens when businesses, governments and communities build a ubiquitous connected future through Intelsat's next-generation global network and simplified managed services.

At Intelsat, we turn possibilities into reality. Imagine Here, with us, at [Intelsat.com](https://www.intelsat.com).

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