

# CASE STUDY



## Large SATCOM Customer

Satellite Communications | US-Based

### Overview

A promising Satellite Communications company looked to Calspan to flight test and provide real-time data to validate their antenna system.

“Calspan took all the worry out of figuring out how we got in the air to test, which allowed us to focus on delivering the best product to our commercial customers”

### The Experience

Not every customer knows what they need when it comes to flight testing, but that's where Calspan shines. The Calspan team can offer as much or as little guidance, engineering and program management as needed. The airborne testbeds are aircraft uniquely configured to carry experimental and prototype airborne systems. All have been modified with mechanical, electrical power and aircraft state data installation provisions to allow us to efficiently install the customer's systems, flight test information and provide data in the shortest time frame possible.

### About Us

With more than 70 years of experience in airborne research, development, test and evaluation, Calspan has modified and configured a fleet of airborne testbeds to support cost-effective flight testing of airborne components and systems for manned and unmanned aircraft. Our experienced staff has designed our testbeds to be modular, making it simple and straightforward for customers to bring their equipment on-board, fly and get the data they need.

### The Challenge

In flight entertainment and connectivity has almost become a necessity when airlines provide their service packages. Simply offering internet connectivity isn't good enough these days, it's critical that airlines deliver a superior customer experience, which means that broadband connectivity companies must deliver a solid product. The difficulty is proving that a new, competitive satellite communications system will perform when it's installed.

### The Approach

In-flight testing of equipment and service levels prior to installing at the commercial site provides added value to prove the performance to commercial airlines.

### The Solution

Calspan's Gulfstream III airframe was equipped with a radome used for airborne flight testing of a complete SATCOM integration of a 737 installation. The GIII platform provided the customer with long-flight durations (5+ hours) at a range of altitude levels for testing. Calspan was able to work closely with the customer to understand their requirements and be available to perform the required flights. Which allowed the customer to worry about their product, and not have to worry about how or when they would be in the air.





## Recommended Airborne Testbed for SATCOM testing: **Gulfstream GIII**

Calspan has responded to the growing need for large-scale testing of avionics, radar and sensor systems by developing a testbed based on a Gulfstream G-III aircraft. This system is specifically designed to handle large Fire Control Radars, Electro-Optical/Infra-Red (EO/IR) sensors and heavy external stores.

Feature	Benefit
Useful load of 5,600 lbs. for aircrew, test equipment and airborne systems	The upper fuselage antenna installations are certified to carry external equipment weighing up to 450lbs
Large performance envelope with long range and endurance (3,400 NM, 7 hours)	The typical flight envelope for flight tests allows up to 45,000 ft. altitude at speeds approaching Mach 0.8
Main cabin is equipped with full length seat rails to accommodate up to eight full Flight Test Engineer (FTE) work stations, each including a 19 inch equipment rack, seat, electrical power and aircraft state data provisions <ul style="list-style-type: none"> <li>• Roll-on, roll-off capability</li> <li>• Can be reconfigured in days</li> <li>• Equipment mounting to seat rails</li> </ul>	Ample room for a team of up to 8 flight engineers to analyze data, validate performance requirements and make adjustments. The space is configured to allow for easy transition from ground to flight.
Common Systems Radome on upper fuselage for SATCOM antenna testing	Accommodates up to an 18" parabolic and steerable antenna, or multiple 12" antennas; Supports both Ka and Ku-Band testing
Mid-dorsal radome installation	Accommodates multiple size flat and array style antenna systems; Supports installations designed for large commercial aircraft
ARINC 429 data available in main cabin <ul style="list-style-type: none"> <li>• Flight Management System</li> <li>• Inertial Data</li> <li>• Air Data</li> </ul>	Data can be provided real time or post flight test; sensors can be custom installed for additional monitoring as required
Electrical power distribution <ul style="list-style-type: none"> <li>• 28 VDC, 60 and 400 Hz AC readily available in main cabin</li> <li>• Dedicated power switch for testbed equipment</li> </ul>	The aircraft has approximately 23kVA of mission equipment power available to support antenna and cabin equipment

## Contact Us

To schedule flight testing with Calspan's fleet of airborne test beds, contact our aerospace business development team.

