



KNOWLEDGE IS POWER



Satcom Direct Training and Certification

Empowering Business Aviation Worldwide





Training and Certification, Powered by Satcom Direct

EDUCATION

"The better we can educate our customers, the more likely they are to get the functionality they need out of these systems, from flight deck to cabin."

Satcom Direct training programs are developed for aviation professionals by some of the best and brightest experts in satellite communication, technology, data security and, of course, aviation. Training is a core value at Satcom Direct, and is driven by the company's unwavering focus on innovation and commitment to providing world class support. "The key message about training is that today's aircraft are no longer mainly mechanical with some base level electronics systems," said Ken Bantoft, Satcom Direct's Vice President of Technology and Innovation. "Aircraft now have multiple computers and systems onboard that communicate with each other and outside the airplane."

How To Sign Up for Satcom Direct Training

Most Satcom Direct classes and other events have online registration, which can be found at www.satcomdirect.com. Current Satcom Direct customers interested in training (at a Satcom Direct facility, or their own), including a visit from the Mobile Training Lab (RV) are invited to contact their Satcom Direct salesperson or field rep directly, or email training@satcomdirect.com. Enrollment requirements vary, and depending on the course, you do not have to be a customer of Satcom Direct to participate.

THE FUTURE IS NOW

Without a doubt, the training that many of today's experienced aviation technicians received in the past was focused on mechanical systems and basic avionics. But over the last 10 years, complex server-based networks have evolved for the cockpit and even more so for the cabin. Training for operation and maintenance of these systems had not kept pace, so Satcom Direct decided to create training programs that would encompass all of these new technologies, systems and advanced avionics, and to bring this training to its customers.

"Well-informed customers are more satisfied customers, and well-trained pilots and support personnel are better at their jobs," Bantoft said. "They need to understand how the on-board systems work. Then, when things go wrong, they are not in the dark—they know how to troubleshoot and maintain them." Scott Hamilton, Satcom Direct's Chief Strategy Officer, said, "The more information and the more knowledge we can impart to our customers about the communications systems on their aircraft, the more they will use them. The key focus of our training programs is around how the systems operate and what troubleshooting techniques they can use when something doesn't

work. The better we can educate our customers, the more likely they will be to get the functionality they need out of these systems, from the flight deck to the cabin.”

CABIN COMMUNICATIONS TECHNICAL TRAINING

“Our first major training initiative was our Inspection Authorization [IA] course on cabin communications, which the FAA certified four years ago. This class remains one of our most popular courses,” explained Josh Wheeler, Technical Training Manager for the company. A key training aid of the class is the satellite communications lab, which includes custom-built racks of satellite equipment connected to antennas to provide hands-on training in a live environment.

“The IA course provides 16 credit hours over two days,” said Mark Mata, Director of Training – Americas for Satcom Direct, who developed the course. “It includes classroom theory on the background of the satellite networks—Inmarsat and Iridium—and on Satcom Direct itself, and goes into what systems may be on board. The idea is to offer customers information on how to use their satellite systems, no matter which equipment manufacturer’s systems they have or which satellite network they use.”

Although the course was designed primarily for aircraft technicians, Satcom Direct has found that it also attracts pilots, flight attendants and even aircraft owners, who want to know more about how to configure and troubleshoot their satcom systems, experience hands-on training using Satcom Direct’s lab equipment, and learn about the company’s mobile apps and services. “IA is an overview of all

the satellite networks with which we partner,” said Wheeler. “We explain the four variations of satellite constellations and their capabilities. Then we go into Satcom Direct-specific training about the existing equipment on your aircraft, how to troubleshoot it and how to repair it.”

While previously this class was just about radio communications, now the networking aspect of satcoms—such as packet-based networks, how to configure a router and so on—is growing in popularity. Because the routers on aircraft need to be more robust, configuring them is more in-depth. “Bandwidth management is one of our newest courses,” Wheeler continued. “It is actually a subset of the IA course and is also certified by the FAA. Our support team members are often asked, ‘What can I do about slow Internet?’ Well, there is only so much you can do, but there are some tweaks and strategies you can employ that can make a big difference. When we go on site to do specialized training for a customer, we’ll typically cover bandwidth too, because it’s all about the Internet these days, and this course is applicable across the board.”



AIRFRAMES AND MORE

Satcom Direct secures training partnerships with the best industry resources to ensure they are equipping flight departments with the most relevant tools and information.

“After establishing the IA class at Satellite Beach in Florida, we then established a relationship with FlightSafety International to provide a comprehensive course on the satcom systems on Gulfstream aircraft to support our Gulfstream operators,” Hamilton said.

The classroom portion of this training takes place at FlightSafety’s Maintenance Training Center in Savannah, Georgia, while the hands-on training is conducted at Satcom Direct’s Savannah office.

“We continued that philosophy with FlightSafety at Teterboro Airport in New Jersey, where we set up another lab,” he continued, adding that although Dassault Falcon also is at Teterboro, “this

Satcom training lab is not exclusive to any OEM.”

The stationary training labs at both FlightSafety locations and at Satcom Direct’s facility at TAG Aviation on Farnborough Airport in the UK have racks of satellite equipment designed to provide experiential training to better prepare participants for scenarios they may encounter.

“Historically, most of the training activity has been based in the U.S. and centered around our U.S. customers,” Hamilton explained. “But over the past year and a half we have created our new international Training Programme, so that we serve our international customers in a similar way. Last year we rolled out our first training lab outside the U.S., at our Farnborough location. I expect that we will establish some more partnerships potentially with other FlightSafety locations [and with] other key partners.”

Why Internet-in-the-Sky Is Different

The reality of satellite communications systems on aircraft is that they operate differently from the communications systems in homes and offices. “This is because with an airplane you’re in a big metal tube moving 450 knots at 40,000 feet. Just the nature of the physics involved means that, from a communications point of view, you may have to do some things differently than you would do in a stationary setting,” Scott Hamilton, Satcom Direct’s Chief Strategy Officer, explained. “Our mission is to make the experience on the airplane as close as possible to what it would be in an office or home.” One major difference between ground-based and satellite Internet connections is the distance the data must travel. “Although radio signals travel at the speed of light, the distances between a satellite, an airplane, and a ground station are far enough to cause significant delays in transmissions, also known as latency,” explained Mark Mata, Satcom’s Director of Training – Americas. “In an office environment, it takes just a few milliseconds for data to move from one place to another,” he said, “In an airplane, we see delays of 1,500 milliseconds. That’s almost two seconds [2,000 milliseconds], which is a lifetime in computer talk.”



CERTIFICATION

"Today's sophisticated avionics and satcom systems mean there is an increasing need for IT expertise on the team, which makes training more important than ever. That's why we created the AeroIT certification."

AeroIT, A TRAINING GAME CHANGER

Another way Satcom Direct is raising the bar in the satcom industry is with its AeroIT professional certification, via an agreement with CompTIA, a non-profit trade association focused on information technology. "With AeroIT we hope to create a standard in the industry," Mata said. "It is a certification credential, not just a certificate."

THE NEXT STEP

"Cabin communications is one of the more important systems in the aircraft, because it affects the VIPs in the back," Mata continued. "But time and time again we have seen flight departments send someone out to fix the system who does not fully understand networking or how the system truly operates. You would not do this with an engine or landing gear problem. You would send experts. Until now, there was no certification for cabin communication or networking for aviation," he added. "This is the need we plan to fill."

"We saw a big learning gap between what a traditional airframe and power plant technician knows and what it takes to install a routing scheme for Internet," Wheeler recalled. "We wanted to bridge the gap

between a basic overview of products, services and the configuration of Internet services to, 'How do I troubleshoot a network?' This is what led us to creating the AeroIT certification with CompTIA."

Mata said, "CompTIA works with the American National Standards Institute and ISO to develop curriculum; AeroIT certifications are written to these standards. Internally, all of our support staff is required to obtain Cisco Certified Network Associate [CCNA] and CompTIA Network+ credentials," he continued. "These credentials are for office environments, so they cover many of the same systems that we're bringing to the airplane. Networks and wireless services function the same wherever they are. Of course, you do have challenges on an airplane, such as latency, but the knowledge of networking definitely helps us to support our customers and also to troubleshoot the systems."

Wheeler said, "All of our courses are created by subject-matter experts, who have been in the field for years. Many of these experts are the people who actually developed the hardware. Certifying the courses with the FAA makes our courses different, and now offering AeroIT with CompTIA is another differentiator." The AeroIT CompTIA certification will be valuable to technicians from a networking standard alone, as it will be very much like a Network+ certification. [The Network+ certification is an internationally recognized validation of the technical knowledge required of foundation-level IT network practitioners.]

"Typically, a certification like this is valid for three years, and must be renewed," Wheeler said. "To get re-certified, you can take that same course and exam again, or you can take other equivalent courses; taking the AeroIT course is equivalent coursework that will give the Network+ holder some credit toward renewal." AeroIT certification is not brand-specific; therefore, similar to a Cisco Certified Network Associate certification, it demonstrates expertise in information technology and will be recognized as such by employers. "Our goal is to create this sort of accepted certification for the aviation field," Wheeler said.

Satcom Direct will offer "boot camp" training on AeroIT in classrooms; additionally, Satcom Direct is currently developing an AeroIT textbook that can be used for self-paced study to prepare for the AeroIT certification exam. "There are probably some experts in the field now who could pass the test without too much study," Wheeler speculated, "but we think most people will



CERTIFICATION



want to attend our class.”

Whether one takes an AeroIT class at Satcom Direct or does self-study, he or she will be able to take the qualification exam at any Pearson VUE test center worldwide (where other CompTIA exams are administered). Satcom Direct is installing a Pearson VUE approved test facility in its new headquarters under construction in Melbourne, Florida and slated for completion in late 2015. Satcom Direct held its first AeroIT class in January, and the world's first AeroIT certification recipient was its own Vice President of Information Technology, John Zban. The entire Satcom Direct support team is also obtaining AeroIT certifications. “Our training leadership is not just about meeting industry needs, it's also about leading by example ourselves,” Mata said. The company expects to announce the authorization of AeroIT by CompTIA at the end of the first quarter of this year.

“Our plan doesn't stop there,” said Mata. “In the future we're looking to offer different levels of AeroIT, similar to Cisco, such as associate, professional and expert. The idea is to help create technology certification standards for the aviation industry.”

INTERNATIONAL EXPANSION

Reflecting the realities of “the rest of the world,” where satcom on business aircraft is growing exponentially and becoming a must-have option, Satcom Direct's training

programs outside North America are comparable to, but different from, those developed in the U.S. Providing training to customers with diverse language and cultural needs is an exciting challenge that is well underway by Sanaa Saadani, Satcom Direct's Head of International Training.

“Satcom Direct's international Training Programme follows accredited training practices, which are the standard internationally,” Saadani explained. “To meet this standard, we use certified trainers, which means that the trainers abide by the latest learning and development trends. We created new courses based on market needs which are primarily related to raising the level of technical expertise, effectively troubleshooting satcom on aircraft, and an introduction to IP/IT networks.

“Because we follow accredited training protocols, we have the ability to create certified, custom-tailored courses for clients from Greenland to New Zealand,” Saadani said. “This means that, upon successful completion of each course, an attendee receives a certificate which is recognized by accredited boards such as the Learning Performance Institute (LPI). These certifications strengthen their professional qualifications, just like a Microsoft or Cisco credential.”

After conducting considerable research and analysis of international customer needs, Saadani created the one-day Satcom Direct Product and Services class, which provides an overview of all the company's innovative products and services and is suitable for all aviation professionals. The two-day Foundation Course for Satcom Aviation is primarily for maintenance technicians. “The first day is theoretical, providing the fundamentals of the Inmarsat, Iridium and ViaSat satellite systems for aviation,” Saadani said. The second day is practical and hands-on, teaching users how to troubleshoot and fix voice and Internet systems. “We have equipment we can mix and match to replicate various scenarios,” she added. In 2014, classes were rolled out in Basel, Switzerland; Farnborough, UK and Hong Kong.

The Introduction to IP and Voice Networks Course, for sales, maintenance and operational personnel, aims to provide a basic understanding of voice and Internet networks. It fulfills the fundamental requirement for taking intermediate IP or Cisco courses. Coming in the spring of this year is the Introduction to Inmarsat Services in Aviation, a one-day course for all aviation professionals. This basic course will provide a thorough overview of all the Inmarsat satellite communication systems available to aviation. Saadani added that several more intermediate courses are under consideration. The Satcom Direct Router Technical Course is another course that is meant primarily for maintenance personnel, although many pilots find it useful, too. This one-day course has a specific focus on operating and troubleshooting the unique capabilities of the router.

Troubleshooting Your Satcom System

What should you do if your satcom is not working? Satcom Direct has developed a clever way to monitor all the mobile and computing devices on the aircraft and even to transmit a report back to the company's engineers in Satellite Beach, Florida. It's a mobile app called “MATA,” which stands for Mobile Access Troubleshooting Application. “There is certain information we need to troubleshoot what is wrong,” explained Mark Mata, Director of Training - Americas. “So instead of requiring the customer to get out a laptop and start typing in commands, this application runs various checks automatically and wirelessly, providing information about the router, the devices onboard and the Internet connection in general. When customers call us, we simply say, ‘Read me what the app diagnostic says.’ MATA makes a quick check of the system.” Mata

added that many pilots use the app as part of their preflight checks to make sure the system works without their having to test each part of it separately.

The app also includes a scanner, which provides a list of devices that are connected, in order to help identify which devices are taking up bandwidth and perhaps could be shut down. With the MATA app, customers can email the results of all the checks it has performed to Satcom Direct's support team, who can then analyze the results for problems. “We may call back and say, ‘Try resetting your circuit breaker,’ or ‘Turn off some of the devices onboard,’” Mata said. “We may see that the data is being held up at a particular point on the ground, maybe at the customer's own facility, or that there's a problem with the router and that it could be bypassed.”

DIVERSIFICATION

A BROAD RANGE OF EDUCATIONAL OFFERINGS AND METHODS

Training opportunities include an array of course offerings including in-depth training on various satcom provider networks, instruction specific to a variety of hardware manufacturers, as well as technical training like the Introduction to IP and Voice Networks. On-site seminars and webcasts are scheduled every month throughout 2015. For those seeking professional accreditation, Satcom Direct offers several options.

The Cabin Communications Technical Training Class includes instruction that, when successfully completed, gives attendees 16 hours of credit toward their Inspector Authorization (IA). Satcom Direct typically offers this class four times a year. "We also offer four to eight IA credits at our annual Connecting-with-Customers Conference," said Mata. In its eleventh year, the event brings together the latest in satcom products, technology advancements, technical training, and updates on industry trends. The 2015 conference will be held March 2 to 5 in San Diego, California.

MOBILE TRAINING LAB

Like satellite communications itself, Satcom Direct's training programs have evolved over time and continue to evolve. The company offers many of its satcom training courses free to customers, including its workshops, webinars, annual seminars and other events focused on fundamentals. Not to be missed is the company's Mobile Training Lab, a souped-up, brightly painted RV that travels to flight departments and events around the U.S., recently appearing at NBAA's annual convention. Affectionately called "the ice cream truck" by employees, the "rolling lab" includes functioning Satcom Direct equipment and closely emulates how it all works in the airborne environment.

While the lab provides hands-on training with live connections to the satcom systems, there are differences between a stationary environment on the ground and the in-flight environment: airspeed is not an issue on the ground; the vibration generated by an aircraft in flight is missing; and there's no need to switch satellites as the airplane moves out of signal coverage. Taking these differences into account, satcom trainers provide a broad range of troubleshooting techniques, and demonstrate how to



The Americas



Satcom Direct Training Programme

Europe,
MEA, APAC

Training Partners

CompTIA • FAA • FlightSafety International • TAG Global Training

Training and Certification, Powered by Satcom Direct

install and use new applications. The Mobile Training Lab features a similar, but smaller, rack of satcom and network equipment than what is found at the company's training facilities at Satellite Beach, Savannah, Teterboro and Farnborough.

The RV also includes high-definition satellite antennas and a DIRECTV antenna to facilitate showing some of the company's services and subscriptions, and therefore serves as a stage to demonstrate Inmarsat SB200, ViaSat Yonder®, as well as the company's platform for the future, the Satcom Direct Router (SDR). Also featured are services developed exclusively by Satcom Direct, including AeroX®, SkyShield, AeroV®, SDFlightTracker and FlightDeck 360®.

"The rolling lab may be set up on an airport ramp or parking lot," said Wheeler. "Here we can showcase the SDR, demonstrate various satellite component systems and failure scenarios, and broadband management. Customers even bring out their iPhones and we show them ways they can reduce bandwidth usage on a flight. At the end of the training day, we'll often cook-up a full barbecue. Having the RV creates a great environment not only to demonstrate our products and services, but to bring people together." For 2015, the company is planning a three- to four-month coast-to-coast tour with the rolling lab, visiting customers, providing support services, and conducting on-site training. "It's just another way of providing better service and showing our appreciation to our customers," Wheeler said.

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Introducing the World's First IT Certification for Aviation



Powered by Satcom Direct®

You told us you needed more IT-based training. We listened.



AeroIT is the world's first information technology certification for aviation. It's a CompTIA certification designed to help aircraft technicians expand their expertise with today's sophisticated SATCOM systems and avionics, as well as network configuration and troubleshooting. Get AeroIT certified and you'll have the state-of-the-art knowledge you need to keep your state-of-the-art aircraft operating optimally and safely.

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