CASE STUDY

The SiteHawk® Cable and Antenna Analyzer Keeps Planes in the Air

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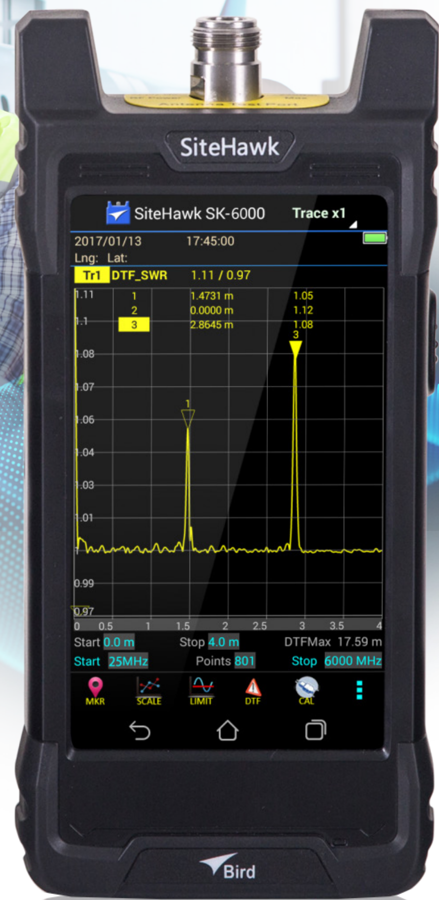
An Expensive Problem

Over $200,000 — that is the cost per day that a major airline incurs when a plane is grounded. A communication problem was plaguing an airplane in the fleet of a commercial carrier. The plane kept getting grounded due to the failure of the pilots' communication system. In addition to the danger of lost communication in the air, replacing airplanes can lead to flight delays, crew rescheduling, and other logistical issues.

The maintenance technicians believed they were solving the problem by replacing the RF communication electronics in the cockpit. The system worked well on the ground. The pilots had clear communication with the control tower. However, once the plane reached a cruising altitude, excessive static made conversation with the control tower unintelligible. The plane had to return to the airport, creating another expensive day for the carrier.



SiteHawk® Identifies the Root Cause of the Problem

The maintenance supervisor contacted his Bird representative for help with finding the problem that his team had not been able to resolve. The maintenance supervisor described the situation and the steps his technicians had been taking to fix the system. The Bird representative went to the maintenance facility and took a SiteHawk Cable and Antenna Analyzer with him because the maintenance supervisor had not mentioned that the technicians had tested the system's cable and its antenna.

The representative introduced SiteHawk to the maintenance supervisor and the technicians, and he explained that the RF cable and antenna were important components of the complete system and needed investigation. SiteHawk could easily check for cable faults and antenna match characteristics.

First, the group went to an airplane with a working communication system. The representative indicated that he wanted to characterize cable insertion loss and antenna match quality on a known good system. Using SiteHawk, they tested the cable and the antenna individually. The representative interpreted the displayed results for the maintenance team and saved the data.

The group went to the airplane with the problematic communication system. The representative helped them test the RF cable from the radio electronics to the antenna. The results, compared with the data from the cable in the known good system, did not show a significant difference. The cable did not have a fault.

Next, the team connected SiteHawk to the antenna and measured return loss and VSWR. Both were high and substantially different from the data measured on the working system. The technicians inspected the antenna more closely and discovered a crack at the connection to the cable. They replaced the antenna and repeated the return loss and VSWR measurement with SiteHawk. The data correlated well with the data from the working system. The perplexing problem was solved, and the airplane was returned to service.

A New, Essential Tool for the Team

The maintenance supervisor bought a SiteHawk for his team. He said, "We can't afford not to have an instrument like SiteHawk. It is small and handheld, so we can get anywhere with it. It is easy to use, and the technicians are very comfortable with it. An instrument like this that can help us quickly get our planes back in service is extremely valuable."

The investment in SiteHawk provides the airline* with an outstanding return for every day a plane is not on the ground with a communication problem.

SiteHawk is available in three versions with frequency ranges out to 4.5, 6, and 9 GHz. One complete kit is specifically designed for avionics applications.

Model	Description	
SK-4500-TC	**1 MHz – 4.5 GHz SiteHawk Cable and Antenna Analyzer**	
SK-6000-TC	**1 MHz – 6 GHz SiteHawk Cable and Antenna Analyzer**	
SK-9000-TC	**1 MHz – 9 GHz SiteHawk Cable and Antenna Analyzer**	
FH-AV-KIT	**FlightHawk® Aviation RF Cable and Antenna Analyzer Kit** **Contents:** • Customized SK-6000-TC with aviation-specific cable parameters • 5017D-AV 100 MHz to 1.3 GHz wideband power sensor • 4240-401 adapter kit for N, BNC, TNC, UHF, and SMA • ARINC 600 Size 1 and 5 Coax adapters • 25W termination/load resistor	

* *The customer name in this case study has been omitted given the sensitive nature of the airline industry.*