

IP prepares for take-off

Tests using Internet Protocol (IP) data exchanges point to radical change in airspace communications devices

A radical data communications concept that could underpin US air traffic management in the future will be put to practical test this year.

The US Federal Aviation Administration (FAA) is on track to demonstrate a technology that could become one of the cornerstones of the Next Generation Air Transportation System (NGATS), and reflects NGAT's user-centric approach to airspace management 20 years from now.

Labelled Airborne Networking, the scheme forms the basis of a broadband general-purpose aviation network capable of supporting not only NGATS, but also communications for passengers and in-flight entertainment, air transport operations and administration, and safety and security. Airborne Networking envisages the deployment of an open-standard mesh network of ground stations, specially equipped aircraft, satellites and unmanned aerial systems (UAVs) to carry two-way broadband to aircraft of all classes for use by passengers, operators and air traffic control centres.

Key difference

One of the key differences between this plan and existing satellite-only broadband data systems is the fact that all the participating aircraft will act as air-to-air relays. Each will operate in a peer-to-peer relationship with other aircraft and will support the service whether or not it is



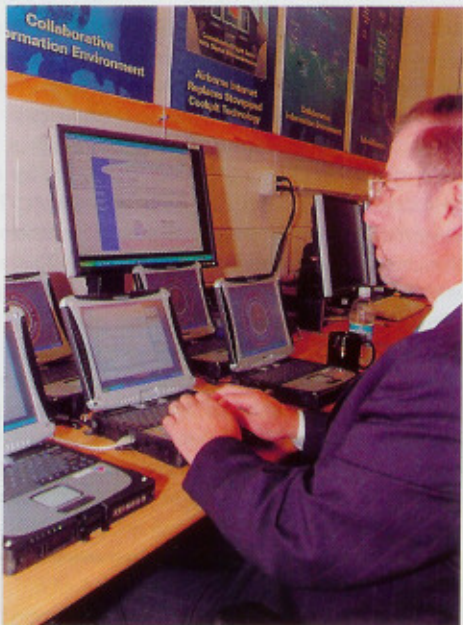
Flight tests carried out by the FAA in November 2005 demonstrated the concept of a broadband general-purpose aviation communications network.

consuming bandwidth for its own purposes. This will also be useful in supporting long-range communications over oceanic airspace.

The FAA plans to fly a demonstration of the concept in June and was due to complete the installation of prototype hardware from two different US contractors – AeroSat and PMEI – in three of its test aircraft, and to install the Aerosat ground station, by April. PMEI's VHF/VDL-based airborne equipment was used in the proof-of-concept work carried out by NASA in June 2005, under the Small Aircraft

Transportation System (SATS) programme. The FAA carried out test flights at the FAA Technical Center in Atlantic City in November 2005.

The Airborne Networking effort has been led since 1999 by originator and programme manager Ralph Yost, former telecommunications test director at the FAA Technical Centre in Atlantic City. "The purpose of the forthcoming demo is to show that NGATS technologies and capabilities are available today," he says. "The live-flight portion will rely heavily on the AeroSat and PMEI systems. Each has its own way of supply-



The FAA aircraft employed to carry out flight demonstrations are fitted with PMEI and Aerosat communications equipment.