



TELEDYNE CONTROLS

Avionics Explorer

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Wireless GroundLink™ Takes Flight

By Greg Gibbens, Manager Flight Safety Systems, Qantas Airways Ltd.

"We are pleased to have such a forward-looking airline as Qantas partner with us in proving this new technology." George E. Simmons, Senior Director of Marketing, Sales and Services.

Qantas has maintained a FOQA program for the past 12 years and whilst QAR airborne technology has advanced considerably during this period, a significant data loss problem remains within the process system where data is sourced from individual media such as tapes, disks and PC cards. A successful FOQA operation requires the aircraft data to have both efficiency and to also reflect all of the flights within the aircraft operational schedule.

The problem of data loss is compounded within Qantas

because of our extensive route structure within the Asian region and because our long haul operation requires aircraft to be away from main base for extended periods.

Late changes in the aircraft operating schedule also means that we lose track of how much data has been recorded.

Typically we lose about 20 percent of sectors on the B747-400 aircraft due to lost or misplaced media, or where the media is not replaced prior to the recording capacity being exceeded. If we don't replace the media quickly enough, we lose data for those flights where the media is full and if we increase the capacity to over-

come this, we then lose efficiency of information on some aircraft flying short sectors.

The above conditions often result in pilots having difficulty in recalling a specific event that may be under investigation, or the lack of timeliness for technical investigations that in some cases may be critical to the dispatch of the aircraft.

Following discussion between Qantas and Teledyne, it was decided to modify an aircraft to enable the trial of a new technology wireless QAR that would transmit data automatically at the end of flight via the local mobile telephone network. A base station was installed at our Flight (continued page 2)

Airborne Executive Office™ Debuts

Envision the ability to have an Internet connection at 30,000 feet that's as fast as the network in your office. Picture yourself trading stock options or buying a last-minute gift. Imagine keeping in touch with faxes and e-mail when you would normally be far out of reach. Passengers on corporate jets want and need the same productivity and connectivity they enjoy at their desks. To-

day, Airborne Executive Office™ makes all of this a reality.

Airborne Executive Office™ provides you an integral web server and an e-mail server. In addition to providing live, onboard Internet connections via satellite, the application supports live web surfing and cached web sites through standard laptop browsers. Passengers can tie to e-

commerce and high-speed data transmission, connect to corporate intranets, and even network their laptops together to communicate with other business contacts around the world or on the same aircraft.

Airborne Executive Office™ is a product line comprised of several growth and expansion products from Teledyne Controls supporting (continued page 2)

Updates....

The Teledyne **Optical Quick Access Recorder (OQAR)** has been selected by Boeing Long Beach and the United States Air Force as the Recording Solution for the C-17 following extensive in-house comparison testing of competing devices. This marks the first military jet transport to have a commercial off the shelf Data Recording System that has the capability of meeting the Air Information Program directive. Deliveries are anticipated to meet production schedule through 2009.

New Additions and Changes....

Keith Lockwood is now heading North America Airline Accounts as the Director of Sales and Services.

Eric Chayet joins us from ACA as a former captain on the J-81 aircraft. Eric is the new North America Airlines Sales Manager.

John Kobielusz joins us from Litton as the new North America-OEMs Sales Manager.

Matt Wing has switched gears from Sales to Marketing as the Senior Manager of DataLink Programs.

Hans-Juergen Neufert joins Teledyne Controls as a Europe & CIS Sales Manager based out of Germany.

Chris Huggett has joined the Marketing Support team as the new Marketing Analyst.

Airborne Executive Office™ Debuts (continued)

executive class of aircraft including TeleLink®, GroundLink™, MagnaStar® and Satellite communications systems. Managed Communications services for both the voice and data communication needs for business aircraft as well as our traditional flight data acquisition products are offered as a bundle package. Teledyne's Airborne Executive Office™ Services provide our customers with turnkey equipment, services and billing packages supporting these multiple communications options. In addition to the provision of basic avionics subsystems, Teledyne provides single point billing services for air to ground, ground to ground, and satellite services for its customers. This approach allows the customer to tailor their services packages to specifically meet their individual requirements. As part of our Airborne Executive Office™ Service provisioning, Teledyne provides single point, 24/7 back office support of all components that enable the customer one con-

tact for the inclusive management of customer service, system activation and maintenance for all services and equipment.

Airborne Executive Office™ will debut at NBAA Trade Show, which will include live connections from air to ground, ground to ground, and a live satellite feed. Executive Airborne Executive Office™ is a fully integrated system that lets the user tailor make: Air to Ground, Ground to Ground, High Speed Data Satcom, KU Band Satcom, Entertainment Subscription Services, E-mail Services, Turn Key/ Inclusive Billing Services, Customer Service, System Activation and Maintenance to meet their needs.

Teledyne Controls is an established participant in the business jet industry for over thirty seven years and has a proven track record that companies have grown to rely on. Airborne Executive Office™ maintains a dedicated air to ground network with turnkey one stop solutions that meets the specific needs for our customers.

For more information on Airborne Executive Office™ please contact:

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Mockup of the Airborne Executive Office™ that will be debuting at NBAA Tradeshow

Wireless GroundLink™ Takes Flight (continued)

Safety Systems facility at Sydney to process the received data.

A conservative approach was adopted during the aircraft modification process. Precautions were taken to ensure that other aircraft systems were not interfered with as a result of the installation and that WQAR downlink transmissions would only occur when the aircraft was at the arrival location following completion of the flight.

To date, the trial operation has been re-

stricted to the USA CDMA environment and has been extremely successful. Data return is being carefully monitored has been noted to be consistently at 100 percent of expectations. Rates of received data will vary with such factors as compression ratios, network traffic and aircraft recording rates, however we are typically observing about one hour of received aircraft data for one minute of network time.

The next phase of the trial process will be to extend the WQAR operation to add the GSM network. This will then allow automatic data return from most flights thereby enabling us to observe a typical operational structure and to therefore quantify WQAR operational costs versus the savings that will result from the removal of existing infrastructure.



The Wireless GroundLink™ that has been operating successfully on Qantas' Flights



The Qantas B747-400 aircraft with Wireless GroundLink™ installed

For further information about Wireless GroundLink™ please contact:

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World Class Customer Service – Global Yet Local

The world-wide presence of our Total Integrated Support Network means that as a service organization, Teledyne Controls never sleeps. A prime example of our commitment to providing world class customer service is our European Support Facility. Our Facility in Scotland now offers:

- Repair Station Services -Product Repair and Upgrades
- Field Support Services – Product Technical assistance
- Sales and Marketing Support

Closely integrated with Teledyne Controls headquarters in Los Angeles, the Facility in Scotland is focussed on the provision of **same-time-zone** support to our customers in Europe, Africa, Middle East and CIS.

In 1994 we established our JAR145 and FAR145 approved Avionics Repair Facility in Scotland to provide product repair, upgrade and loaner services in the European Region. Since then, we have been able to give a more responsive service and a quicker turn around time which is key in any maintenance, repair or overhaul organisation.

Airlines often prefer to send repairs to the original equipment manufacturer (OEM) - we not only represent the OEM – we **are** Teledyne Controls in Europe.

A comprehensive technical documentation library is maintained locally as well as a stock of over 4000 different spare parts required to provide the level of service demanded by today's airlines. We are continuously increasing our capabilities to support new products as they enter the market, and our highly skilled staff of experienced technicians are kept up to date through attending product training courses at our Los Angeles facility.

Sales and Service

We now provide full sales and service support to our customers in the region from our Scotland facility:

- Technical or Product Support enquiries
- Information on our latest products
- Sales enquiries

Teledyne Controls visits customers periodically to review our business relationships, and we are pleased to offer best value and innovative solutions to meet customer requirements.

Our on-site Field Support Engineer provides “first-line” **same-time-zone** technical support in the region, offering technical assistance, product support and demonstrations. We are in daily contact with

our Los Angeles Product Support staff to ensure customers receive a seamless service in the region.

We at Teledyne in Scotland wish to thank our European customers for the opportunity to provide the most efficient, best-quality service available in our industry today and we look forward to continuing to strengthen our relationships into the future.



Teledyne Controls Employees in the Cumbernauld, Scotland Facility

Teledyne Completes CMU VDL Mode 2 Development

Teledyne Controls has completed development of the VDL Mode 2 router capability for the ARINC 758 Communications Management Unit (CMU). Working closely with ARINC, Teledyne has successfully completed pre-AQP testing and will begin formal AQP acceptance testing at ARINC on September 17th.

Integration of the VDL Mode 2 capability into the CMU will support interoperability with any dual mode (Mode A & Mode 2) ARINC 750 VHF Digital Radio (VDR), allowing 31.5K b.p.s. digital communication over the new ARINC and SITA air/ground networks. Completion of the VDL Mode 2 development is a crucial step towards

CNS/ATM and demonstrates Teledyne's commitment to supporting airline driven ATC initiatives such as Controller-pilot Datalink Communications (CPDLC). Further, Teledyne is actively negotiating with major US airlines to participate as trial partners in the Build 1 CPDLC trial in the en-route Miami airspace.



ARINC AQP and SITA VAQ testing at Teledyne Controls Laboratory

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Leader**



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Field Offices