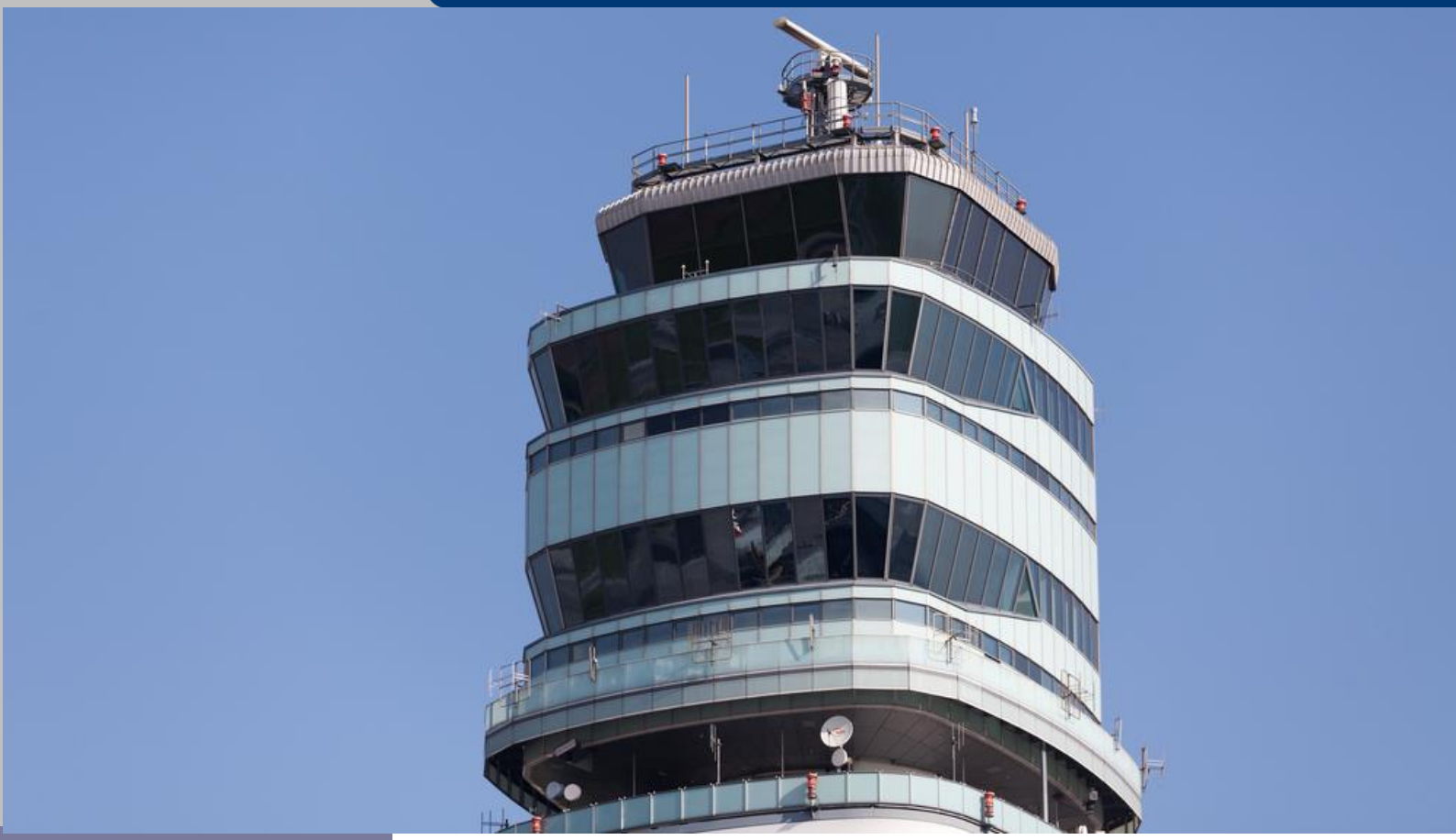

Air Traffic Control Recording

ICAO and CAP 670 Compliant ATC Incident Reconstruction

Features

- Records audio, radar, video, screen capture and IP networks
- Easy to use interface designed by ATC operators
- Robust architecture to ensure the integrity of the recorded data

Ultra Electronics ATC recording solution has been deployed in over 30 countries and has recorded over 1 billion hours on over 50,000 channels.

Introduction

While air traffic accidents and near misses are relatively rare, it is still critical that they are investigated fully to determine the cause so that similar incidents can be prevented in the future. In order to meet International Civil Aviation Organization (ICAO) mandated requirements and to facilitate investigations, all communications between air traffic control and planes, the controller workstation position screens and the ambient noise need to be recorded.

For over fifteen years, Ultra Electronics Surveillance and Security Systems has provided air traffic controllers with highly scalable and flexible audio, screen, and radar recording solutions to meet these requirements. These systems meet a wide variety of operational requirements from recording simple ground-to-air communication through to complete incident reconstruction. They ensure that evidence of the incident is accurately recorded to assist with accident investigations.

Recording

The system simultaneously records data form multiple sources which include:

- Controller workstation positions
- Primary and secondary radar
- Voice communication control systems (VCCS)
- Digital/analogue telephony
- Voice-over-IP / ED-137B
- Serial data
- Closed Circuit Television (CCTV)
- Ambient audio

Recorded data can be:

- Stored locally on a fault tolerant RAID array
- Archived to removable media
- Stored centrally on storage area networks (SANs) or network attached storage (NAS) devices

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Replay

When an incident occurs, it is critical that the relevant data is rapidly located. The user interface has been designed in conjunction with SATCO, ATCO and ATC managers to make incident investigation, searching and replaying recordings simple and easy. It allows operators to quickly and efficiently find the required data even if hundreds of channels across different data types are being recorded. The different data channels are graphically presented so that operators can visualize all of the activity in order to point and click on the portion of the recording to be investigated. This workflow significantly reduces the time take to start the investigation process.

Once the relevant portion of the recording has been selected:

- it can be locked to prevent recordings from being deleted
- additional copies can be burned to DVD to be replayed at Board of Enquiry hearings
- a synchronized replay of audio, radar and the operator screens can be viewed locally directly on the recorder or on a local PC
- the radar data can be replayed back into a radar system
- single audio channels can be replayed through the built-in media player
- the controller workstation position screen recordings and audio data can be selectively merged and exported to industry standard files for replay in any Windows media player

Security and Management

The integrity of the recording system is maintained by:

- security controls based on hierarchical groups which prevent unauthorized access by those without sufficient privileges
- a redundant architecture which ensures that there is no single point of failure
- a easy-to-use web-based management interface that automatically discovers recorders on the network and allows the operator to perform common configuration tasks remotely reducing the requirement for expensive site visits
- extensive audit trails of user actions to ensure data integrity
- sophisticated monitoring, built-in test facilities and alarm notifications to ensure the health and integrity are maintained
- external time synchronization to ensure the recordings are time stamped accurately

Support for Future Requirements

The recording system's flexible architecture has been designed to meet future capacity and technology requirements. It supports the recording of the new ED-137B voice-over-IP in air traffic management standard that was released in February 2012 and has a fully documented API to allow customers to integrate with third party systems.

Technical Specifications

For a full list of the technical specifications, please see the separate *Technical Specifications* datasheet.

Ultra Electronics
SURVEILLANCE AND SECURITY SYSTEMS
316 Botley Road
Burridge
SO31 1BQ
United Kingdom
Tel: +44 (0)1489 557 373
Email: information@ultra-sss.com
www.ultra-sss.com
www.ultra-electronics.com