

DENMARK

# CASE STUDY

# Copenhagen Airport Kastrup (CPH) in Copenhagen, Denmark

Airport surface management and Vehicle Tracking System

#### Introduction:

Copenhagen Airport (official entitled CA Kastrup - Københavns Lufthavn, Kastrup in Danish) is one of Europe's largest airports and a major center for airport traffic in Scandinavia and northern Europe. The airport is located on the island of Amager, only 8 kilometres south of the Copenhagen city centre, and 24 kilometres west of the Malmö city centre on the other side of the Øresund Bridge. Copenhagen serves as the main hub out of the three used by Scandinavian Airlines and is also the hub for Thomas Cook Airlines Scandinavia and Norwegian Air Shuttle. Copenhagen Airport handles 60 scheduled airlines and serves more than 62,000 passengers per day. 23.3 million passengers passed through the facility in 2012 making it the busiest airport in the Nordic countries. It is also one of the oldest international airports in Europe. With a European and global network of direct flight connections, Copenhagen's operations and expansion are critical to supporting the growth of not only Denmark but European and global industry.

#### Challenge:

The growth and success of Copenhagen Airport places a premium on surface management and the safety of increasing operations. Secondary Surveillance Radar (SSR) solutions for surface management lacked the comprehensive coverage and ability to track all aircraft and vehicles over Copenhagen's airport surface zones. Copenhagen needed to achieve a single-view of aircraft and vehicle movement which to put it simply could no longer be supplied effectively or economically by traditional radar solutions. Copenhagen began researching the proven benefits of a multi-sensor approach to surveillance with an Advanced





### CHALLENGES:

Growth of operations

Increased incursion risk

Incomplete surface coverage

### SOLUTIONS:

A-SMGCS

Multilateration positional data

Complete surveillance coverage

Real-time position and identification

Airport vehicle tracking

### **BENEFITS**:

Highly accurate

Enhance the flow of traffic

Automatic identification of all tracks

Situational awareness in all weather conditions

Cost-effective

### **STANDARD**:

Eurocae ED - 117

© Copyright ERA a.s.

NextGen Surveillance Solutions

## DENMARK

CASE STUDY

Surface Movement Guidance and Control System (A-SMGCS) which integrated multilateration and ADS-B surveillance with existing radar data sources.

#### Solution:

NAVIAIR, the Danish Air Navigation Service Provider, required improved airport surface surveillance in order to maintain a high level of safety for airport operations during adverse weather conditions and to reduce the risk of runway incursion. NAVIAIR also required a single-view of aircraft and vehicle movements over the complete surface coverage.

In 2003, after an international competition, Copenhagen awarded the program to HITT as the prime contractor for the A-SMGCS integrating MSS with the ERA network of sensors and SQUID by ERA vehicle tracking units. To meet the challenge and solve NAVIAIR's problems, HITT developed and delivered an A-SMGCS system compliant with EUROCONTROL and ICAO requirements. HITT's solution comprised two Terma X-band Scanter Surface Movement Radars (SMR), an ERA MLAT system, and an HITT A-SMGCS processing and display system.

The system supplied by HITT and ERA successfully completed full system acceptance testing in January 2005. HITT's A-SMGCS solution fused the highly accurate positional data from ERA's ground-based stations (currently 23 stations) and vehicle tracking units (238 pieces in operation at present) with radar data in one consistent traffic presentation. The system underwent three rounds of extension by ERA single-handedly (finished in 2012 - 2013) and has been in successful operations ever since, as illustrated by the Danish Civil Aviation Authority's granting of authorization to the airport to use the A-SMGCS for air traffic control purposes.

#### Partner:

Holland Institute of Traffic Technology (HITT) is a leading provider of quality traffic management and surveillance systems. HITT develops technology to improve safety, security and efficiency at airports and in marine environments. HITT Traffic provides turn-key solutions for: Advanced Surface Movement Guidance and Control Systems (A-SMGCS), Vessel Traffic Services (VTS), Platform Protection and Coastal Surveillance Systems (CSS).

"Copenhagen Airport is using SQUID beacons by ERA and we are very satisfied with the operational ATC performance of these **ADS-B transmitters** and further report them as being a reliable product under all weather conditions. Copenhagen Airport uses the SQUID beacons in our ASMGCS systems and is very happy with the performance and accuracy that the SQUIDS provide."

Thomas Lantz-Pedersen, Københavns Lufthavn, Kastrup



The multilateration performance with accuracy expressed by the coloured contours in meters. Accuracy is based on theoretical model and is affected by terrain data.





ERA a.s. | Prumyslova 387, 530 03 Pardubice, Czech Republic Tel.: +420 467 004 253 | Fax: +420 467 004 555 | E-mail: info@era.aero | www.era.aero