Airport Safety Nets associated with A-SMGCS Level 2 (RMCA)

A Live V3 Trial at Riga

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Some Facts & Figures about Riga Airport

ICAO / IATA Identifiers: EVRA – RIX - Elevation (feet): 36
One Runway (Mixed Ops): 18/36 length 3200 m, width 45 m. One main TWY and 4 aprons.
Movements: 74,839 (2017)
Passengers: 6,097,765 (2017)
Main Operators: Air Baltic, Ryanair, Turkish, Finnair, Aeroflot, WizzAir, Norwegian, LOT
LVP: Approx. 50 cases a year (48 in 2015)
LGS Riga Tower


Major Equipment: A-SMGCS since 2007 (Surveillance and RMCA), EFS Datalines since 1999, Meteo; ATC Support Systems
SESAR SOLUTIONS COVERED

SESAR Solution #2

**Airport Safety Nets** for controllers: RMCA *(DP Family 2.2.1)*, New CATC and CMAC Alerts *(DP Family 2.5.1)*.

SESAR Solution #22

Automated Assistance to Controller for Surface Movement Planning and Routing *(DP Family 2.4.1)*.

SESAR Solution #23

Data link services *(D-TAXI)* used for provision of ground related clearances and information

**SESAR Solution #24**– Improved Vehicle Guidance, corresponding to OI step AO-0215; Airport ATC provision of ground-related clearances and information to vehicle drivers via datalink.

SESAR Solution #47 AGL  **Follow the Greens**. The airfield ground lighting and stop bars are managed automatically according to the mobile’s taxi route, position and controller clearances.

*(SESAR Solution #36) 2 x A-CWP were used to integrate and test the above solutions)*
Validation Platform

Two A-CWPs were prepared for the validation

**NATMIG (INDRA NAVIA) A-CWP**: included all SESAR prototypes developed in the context Airport Safety Support Alerts (2.2.1 & 2.5.1), Routing (2.4.1) and Guidance. The INDRA NAVIA A-CWP was used to enter ATCO clearances via voice.

**EUROCONTROL A-CWP Integrated Tower Working Position (ITWP)**: demonstrator included the same A-SMGCS services and included a 32” touch screen and data link functionality (D-TAXI service).
The Validation test room below the Tower
INDRA A-SMGCS HMI display at Riga
Validation Information

Date: 25 January - 2 February 2016 (including the weekend)

- SESAR Release 5 – V3 exercise - Live and Shadow mode trial
- It took a year and a half to plan, with various on and off site testing sessions.
- Control positions studied Tower Runway Controller and Tower Ground Controller (also doing Clearance Delivery)
- Large support team – 15-20 persons (including engineers, drivers, Human Performance, datalink expert (Airtel))
- Four operational ATCOs from Riga participating (2 per day)
Live and Shadow Mode procedures

Shadow Mode (mainly for Airport Safety Nets and Routing)

ATCOs listened to R/T and made inputs to the platform (which was not connected to the real system)
One ATCO in the Tower and one in the Test Room.

Live Trial (mainly for Guidance)

The TWR supervisor would switch the AGL and Stop bar to allow it to be controlled by the SESAR platform. ATCOs would listen to the R/T and make the inputs.
Vehicles would position at required starting point and wait until quite moment in the traffic
Vehicles obtained clearances from Real ATCOs
When the clearance was received the request was made by ECTL staff in vehicle directly with Test Room
Two Vehicles were used – One of them configured to simulate an aircraft
Live and Shadow Mode procedures
Results on Airport Safety Nets

- Most of the Airport Safety Support Alerts worked correctly and were liked by the ATCOs.

- There could be a link between CATC and RMCA, e.g. if there is an intruder (RWY Incursion) it should show a CATC for any aircraft which could LUP/LND/TOF.

- One or two CATC were not working as planned - configuration issue, very difficult to test in certain conditions, and some were not considered as useful, mainly CROSS vs CROSS/ENTER as there aren’t many opposite crossing movements at Riga.
The RWY CLOSED Information Alert should have the possibility to add a time parameter to avoid showing alerts on aircraft that might be far away on approach when the RWY is only closed 5 minutes inspection.
Additional MLAT sensors were foreseen and have subsequently been implemented to improve surveillance around the terminal.

False alerts in the apron areas where poor surveillance is known.
Results on Airport Safety Support Alerts

• Suppress (or have a more flexible parameter) ROUTE DEVIATION alert on Line-Up as many aircraft do not stay on the centreline.

• EFS clearances need to be stored for when track is lost to avoid false alerts like NO TAXI.

• New Airport Safety Support Alerts worked well in unison with RMCA.

• New Airport Safety Support Alerts were considered to increase Safety, Situational Awareness (and Workload on the Runway position if there were false or nuisance alerts).
Initial Feedback on the Routing Service

The Routing Service performed well on both platforms throughout the validation with only one or two configuration issues that were not picked up in the preparation period *(we were time constrained!)*.

This highlighted the need for thorough testing in all possible runway configurations for future implementation.
Follow the Greens issues (to be further developed in S2020).
Summary

• Good **Surveillance** coverage *(2.2.1)* essential with published transponder operating procedures.

• Important to have an **easy to use HMI** adapted to the airport operating environment.

• Organising a live trial creates **high coordination** workload (safety, security, many staff involved with different languages)

• The Airport Safety Support Alerts *(2.5.1)* and Routing *(2.4.1)* were considered as mature V3.

• Guidance Service on the movement area (Follow the Greens and Datalink (D-TAXI)) was considered not to have reached mature V3 and further validation will continue in S2020.
“Tower, confirm you want me to Follow the Greens?”

Any other Questions?

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