AIDC implementation – Singapore

Kwek Chin Lin
Head (ATM Operations Systems)
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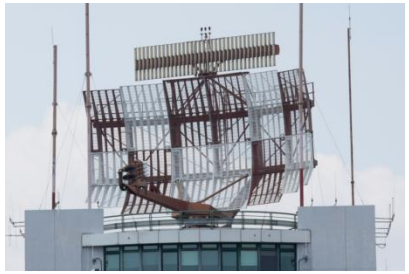
Civil Aviation Authority of Singapore

LORADS III ATC System

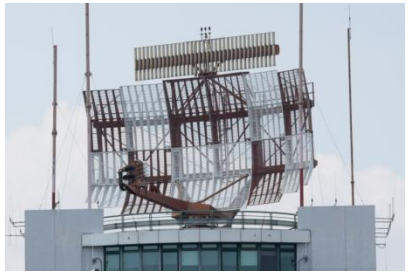
- Customized state-of-the-art system developed by Thales
- Basic system commissioned in Feb 2013 and operational with effect from 16 Oct 2013
- System planned for management of air traffic to 2025; Air traffic in the Singapore FIR projected to be double that of 2010 by then
- Platform and tools for controllers to work smarter, faster and with greater safety

Key Components of LORADS III

Air Traffic Management System



Mode-S
Approach Radar

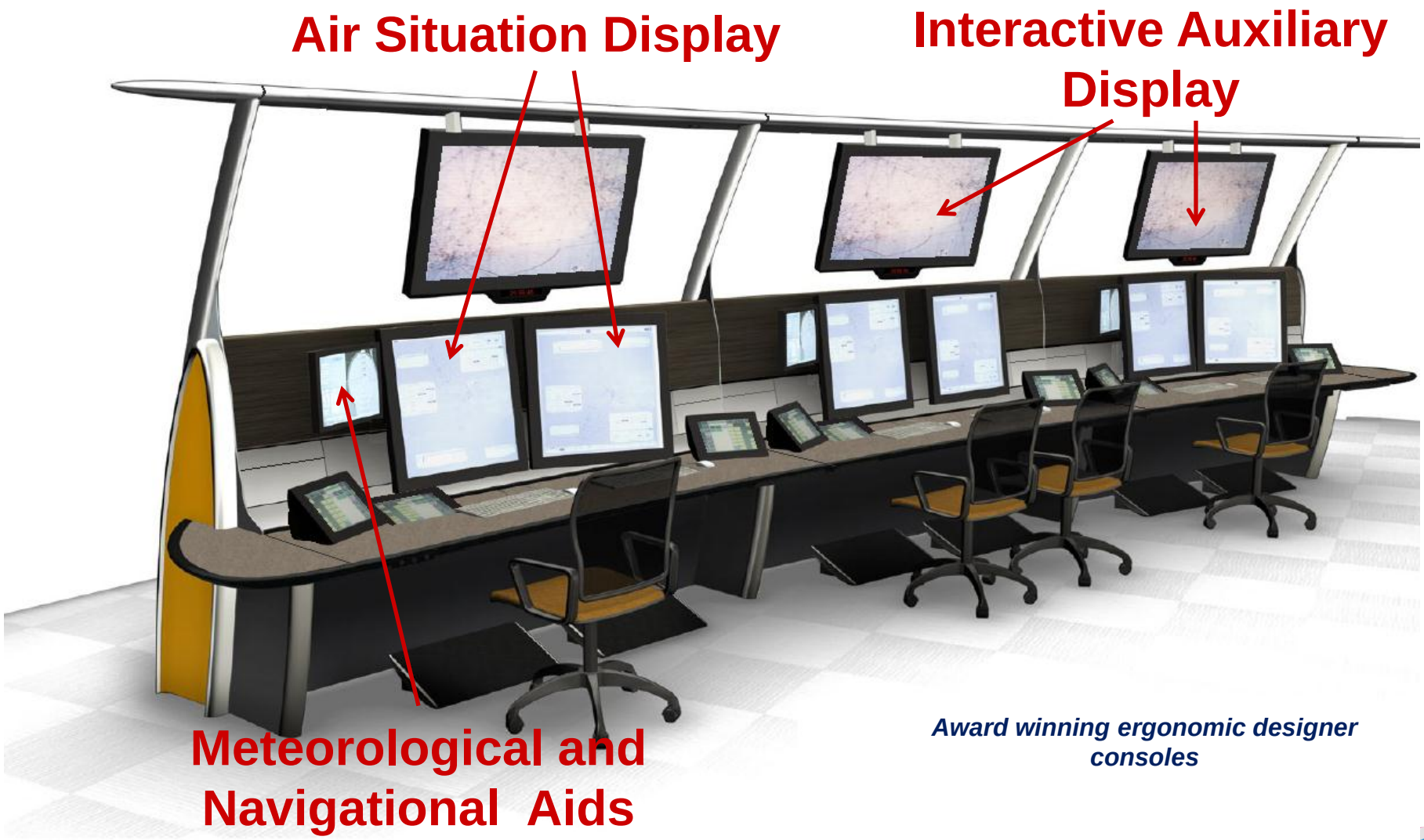


Mode-S
Long Range Radar

Integrated Voice
Communications System

LORADS III
building

Enhanced ATC Workstations

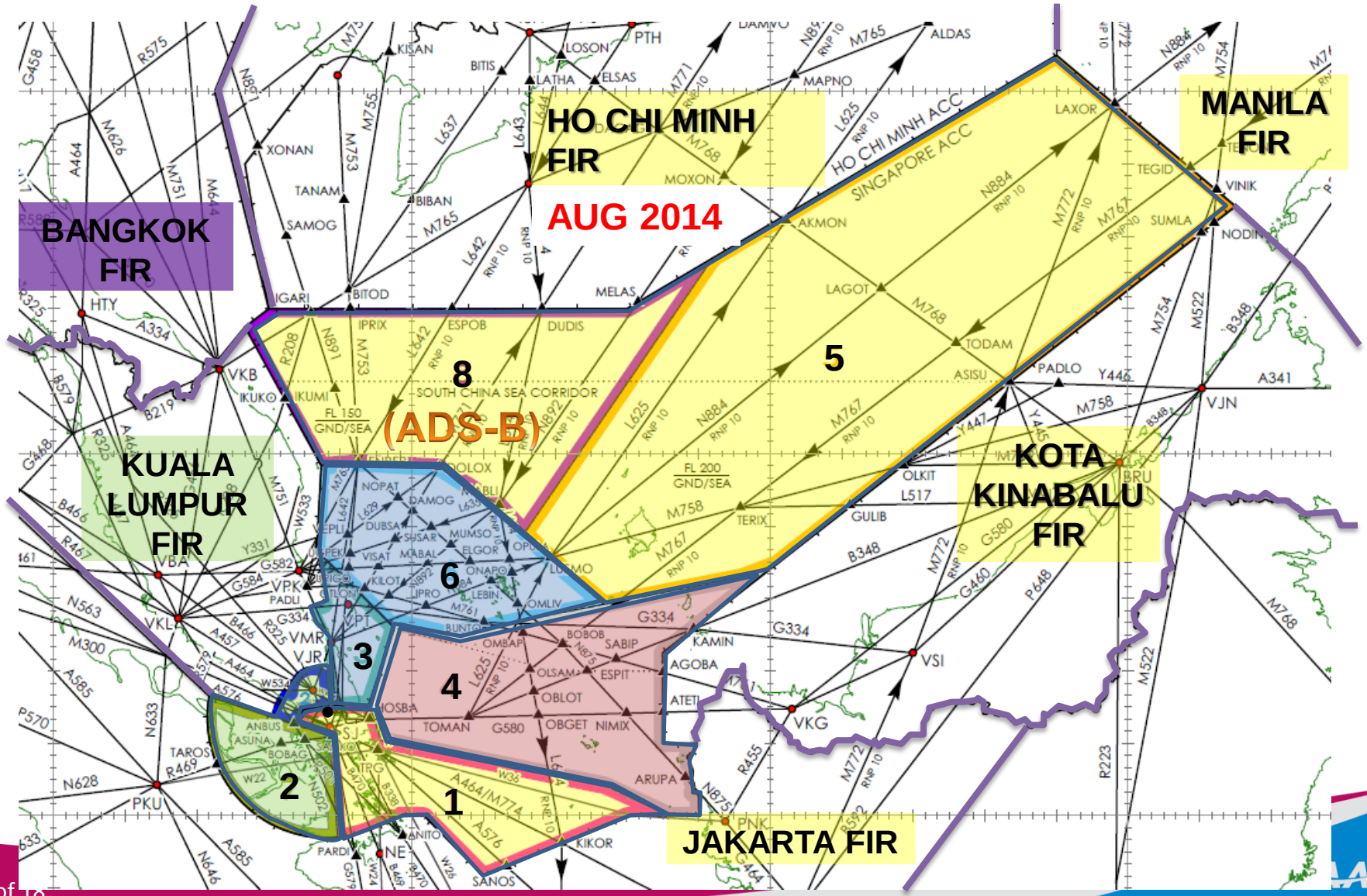


Award winning ergonomic designer consoles

Advanced LORADS III Features

- Advanced ATC automation features
  - Silent coordination for both internal and inter-centre tasks (e.g. AIDC with HCM ACC)
  - Tasks are performed on objects of interest e.g. labels, maps
  - Better management of flight information
- Enhanced decision-making tools
  - Integrated Arrival Manager
- Many layers of safety nets
  - Flight plan conflict probe
  - Short term conflict alert
  - Vertical and lateral adherence monitoring
  - New alerts such as Holding Adherence Monitoring

Singapore Area Control Sectors



Singapore AIDC Implementation Status

- Vietnam
  - Phase 1 operational trials commenced in April 2014
  - Operationalized in August 2014
    - ✓ EST, ACP, LRM and LAM
  - Phase 2 planned for 1st quarter 2015
    - ✓ Addition of AIDC messages (eg. ABI, TOC, AOC, CDN, CPL, REJ)
    - ✓ Technical testing to start by early 2015
- Malaysia
  - Initiate technical trials (mid Nov 2014-2015)
    - ✓ Kota Kinabalu ATCC
    - ✓ Kuching ATCC
    - ✓ KL ATCC

AIDC Implementation Status

- Philippines – Manila ACC
  - ATMS upgrade of existing system
    - ✓ Test with Singapore ATM system n Dec 2014
  - Operational trials in 3rd Q 2015
  - *New system:* Target initiation of technical trials in December 2016
  - *New system*: Target operational implementation in 4Q 2017

- Indonesia – Jakarta ACC
  - Target initiation of technical trials in December 2015
  - Target operational implementation in 4Q 2016

Operational Issues

- Controller/user need to be conversant with AIDC messages and expected behaviour
- ATMS capability will affect effectiveness of AIDC
- Coordination workload reduced
- Human errors in flight plan updates minimized
- ICAO message relevance is important but basic set can already yield significant benefits

Technical Issues/considerations

- Processing of adjacent centre's SID/STAR info (ABI msg) – manual intervention
- Flexibility to configure AIDC messages and message trigger conditions
- Reception of out-of-sequence messages e.g. ACP before LAM for EST.
- Issues caused by communications link (AFTN)
- HMI for AIDC operations weaved into ATMS


Thank You
CAAS
Civil Aviation Authority of Singapore