Airborne Separation Assistance System (ASAS)  
Thematic Network 2:  
ASAS applications maturity assessment

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Introduction

• ASAS Thematic Network 2
  – Sponsored by European Commission Directorate General Research 6th Framework
  – Three year project from April 2005
  – Aim: to accelerate the application of ASAS operations in European Airspace taking into account global applicability in order to increase airspace capacity and safety.
  – Managed by consortium: BAE Systems, ENAV, LFV, NLR, Thales Air Systems & Thales Avionics, EUROCONTROL (leader)
Objectives

• 5 ASAS workshops & final seminar
  – Malmo (Oct 2005), Rome (Apr 2006)
  – Glasgow (Sep 2006), Amsterdam (Apr 2007),
  – Toulouse (Sep 2007)

• Web-based ASAS related documentation

• Annual assessment of the maturity of global ADS-B/ASAS applications by ASAS-TN2 partners
• Automatic Dependent Surveillance – Broadcast (ADS-B) Mode S Extended Squitter in Europe:
  – In Jan 2008, 97% of flights Mode S equipped (95% in Oct 2006) of which 78% ADS-B Extended Squitter capability (57% in Oct 2006).
Method (1/3)

• 19 ASAS applications:
  – ADS-B surveillance
  – Airborne traffic situational awareness
  – Airborne spacing
  – Airborne separation
  – Airborne self-separation

• 12 ASAS specialists from:
  BAE systems (UK), ENAV (Italy), LFV (Sweden), NLR (The Netherlands), Thales ATM (France), Thales Air Systems (France) and EUROCONTROL
Method (2/3)

- **Maturity metrics scale 0 to 4 (±0.5):**
  - Operational concepts
  - Benefits and constraints
  - Safety assessment
  - Procedures and human factors
  - Systems, HMI and technology
  - Transition issues

- **Results reviewed by selected peers from US, Europe and Australia**
Example metric:

Operational concept

1 = Problem statement, identify solutions, concept generation (concept of operations)
2 = Preliminary Operational Concept Description (R&D Operational Service and Environment Description (OSED))
3 = Draft Requirements Focus Group (RFG) OSED in development (e.g. from R&D OSEDs, trials and experiments, initial OSED) – mature and in review.
4 = Consolidated OSED - Published
Results (1/4) - overview

ASAS applications

- ADS-B
- ATSA
- ASPA
- ASEP
- SSEP

Graph showing total maturity score for years 2006, 2007, and 2008 for various ASAS applications.
Results (2/4) – highest/lowest

Highest maturity score
ATC surveillance in non-radar areas

Lowest maturity score
Vertical crossing and passing (Airborne separation)
Results (3/4) – fastest/newest

Largest increase in maturity score

Sequencing and merging
(Airborne spacing)

New application

In-trail merge
(Airborne separation)
“ASAS-TN2 aim: to accelerate the application of ASAS operations…”
Conclusion

- Of 19 applications assessed, 9 have maturity scores of at least 12 (out of 24)
- Maturity has ‘accelerated’ from 10% increase in total scores (2006-7) to 13% (2007-8)
- Maturity cases:
  - Highest: ADS-B-NRA (operational Australia)
  - Lowest: ASEP-VC&P (score 6/24)
  - Fastest: ASPA-S&M (UPS M&S operational approval)
- Versions 1, 2 & 3 of report on ASAS-TN2 website (http://www.asas-tn.org/reports)