SESAR	Achieved									APT
AOP09	**Implement Optimised Dependent Parallel Operations**									
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

The purpose of this operational change is to increase utilisation of the parallel runway operations. It aims at reducing dependencies between the runways by implementing more accurate surveillance techniques and controller tools as well as associated procedures.

Capacity gains can be achieved by increased utilisation of the combined runways. Dependencies between multiple runways determine the practical runway capacity which in most cases is lower than the combined single runway capacities.

Applicability Area(s) & Timescale(s)

APP AREA	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/12/2012		
Full operational capability		31/12/2015	

References

European ATM Master Plan

OI step -	[AO-0403]-Optimised Dependent Parallel Operations							
	Enablers -	A/C-48	PRO-067					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Implementing Regulation (EU) No 1034/2011 of 17 October 2011 on safety oversight in air traffic management and air navigation services and amending Regulation (EU) N° 691/2010 18-10-2011

Essential Operational Changes

- none -

SESAR Solution

ICAO GANP - ASBUs

- none -

Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By

AOP09	Implement Optimised Dependent Parallel Operations

AOP09-REG01	Approve the procedures for optimised dependant parallel operations	01/01/2012	31/12/2015
AOP09-REG02	Conduct safety oversight of the changes	01/01/2012	31/12/2015
AOP09-REG03	Certify and deliver operational approval	01/01/2012	31/12/2015
AOP09-ASP01	Upgrade and put into service surveillance systems to support optimised dependent parallel operations	01/01/2012	31/12/2015
AOP09-ASP02	Upgrade and put into service ATS systems to support optimised dependent parallel operations	01/01/2012	31/12/2015
AOP09-ASP03	Develop and validate procedures for optimised dependant parallel operations	01/01/2012	31/12/2015
AOP09-ASP04	Develop safety assessment for the changes	01/01/2012	31/12/2015
AOP09-ASP05	Train operational and technical staff	01/01/2012	31/12/2015
AOP09-ASP06	Revise and publish Aeronautical Information documents	01/01/2012	31/12/2015
AOP09-USE01	Obtain airworthiness certification	01/01/2012	31/12/2015
AOP09-USE02	Obtain operational approval	01/01/2012	31/12/2015
AOP09-USE03	Update training manual and train crew	01/01/2012	31/12/2015

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	N/A
Capacity:	Increased runway utilisation
Operational Efficiency:	-
Cost Efficiency:	N/A
Environment:	N/A
Security:	N/A

Detailed SLoA Descriptions

AOP09-REG01	Approve the procedures for optimised dependant parallel operations	From: 01/01/2012	By: 31/12/2015
Action by:	**National Supervisory Authorities (NSAs)**		
Description & purpose:	Approve the procedures for optimised dependant parallel operations prior putting them in place at all eligible airports. The tasks to be done are as follows: - Analyse the specified procedure; - Review available validation data and information; - Prepare relevant information for the publication. These procedures shall comply with the relevant requirements specified in the ICAO doc 9643 and ICAO PANS OPS. This procedure shall be used in the operational environment as specified in the safety assessment.		
Supporting material(s):	ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016 Url : https://store.icao.int/ ICAO - Doc 9906-Volume 1 - Quality Assurance Manual for Flight Procedure Design - Volume 1 - Flight Procedure Design Quality Assurance System - Edition 1 / 12/2009 Url : https://store.icao.int/		
Finalisation criteria:	0 - Formal approval of the procedures for optimised dependant parallel operations has been delivered to ANSP.		
AOP09-REG02	Conduct safety oversight of the changes	From: 01/01/2012	By: 31/12/2015
Action by:	**National Supervisory Authorities (NSAs)**		
Description & purpose:	Oversee safety of changes induced by introduction of optimised dependant parallel operations. The tasks to be done are as follows: - Analyse the safety case; - Review safety arguments; - Prepare the material for the acceptance of changes.		

AOP09	Implement Optimised Dependent Parallel Operations

Supporting material(s):	EUROCAE - ED-126 - Safety, Performance and Interoperability Requirements Document for ADS-B-NRA Application 12/2006
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCAE - ED-161 - Safety, Performance and Interoperability Requirements Document for ADS-B-RAD Application 09/2009
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCAE - ED-163 - Safety, Performance and Interoperability Requirements Document for ADS-B Airport Surface Surveillance Application (ADS-B-APT) 12/2010
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCONTROL - EAM 4/GUI 2 - ESARR 4 and related Safety Oversight - Edition 4.0 / 03/2006
	Url : http://www.eurocontrol.int/articles/esarr-4-risk-assessment-and-mitigation-atm
Finalisation criteria:	1 - Formal acceptance by the NSA of the proposed changes communicated to ANSP.

AOP09-REG03	**Certify and deliver operational approval**	From:	By:
		01/01/2012	31/12/2015

Action by:	**National Supervisory Authorities (NSAs)**
Description & purpose:	Certify and deliver operational approval for ADS-B 1090 MHz out equipped aircraft. The tasks to be done are as follows: - Instruction of the certification application file delivered by the applicant in accordance with the appropriate certification process; - Approval of pertinent training programs, checklists, operations manuals or training manuals, maintenance programs, minimum equipment lists or other pertinent documents or document revisions applicable to that operator. The requirements for certification and operation of ADS-B within the EU Member States, Norway and Switzerland are covered in EU-OPS 1.
Supporting material(s):	EUROCAE - ED-102A - Minimum Operational Performance Specification for 1090 MHz Extended Squitter Automatic Dependant Surveillance - Broadcast (ADS-B) & Traffic Information Services - Broadcast (TIS-B) with Corrigendum 1 01/2012
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
Finalisation criteria:	1 - Operational approval is delivered to aircraft operators having submitted an application as required by the competent authority. 2 - Airworthiness certification is provided for ADS-B 1090 MHz out equipped aircraft.

AOP09-ASP01	**Upgrade and put into service surveillance systems to support optimised dependent parallel operations**	From:	By:
		01/01/2012	31/12/2015

Action by:	**ANS Providers**
Description & purpose:	Upgrade and put into service surveillance systems to allow the deployment of system enablers associated with OI step listed in -References- section. The tasks to be done are as follows: - Define requirements which fit with local operational/technical context and are based on relevant standards; - Upgrade surveillance systems to comply with defined requirements; - Upgrade operator HMI to comply with defined requirements; - Verify compliance with Interoperability Regulation(s); - Integrate upgraded surveillance systems into the EATM Network; - Put into service upgraded surveillance systems. The upgraded surveillance systems and their HMI shall enable the operators to perform the operations defined in optimised dependant parallel operations procedures.

AOP09	Implement Optimised Dependent Parallel Operations

Supporting material(s):	EUROCAE - ED-126 - Safety, Performance and Interoperability Requirements Document for ADS-B-NRA Application 12/2006
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCAE - ED-161 - Safety, Performance and Interoperability Requirements Document for ADS-B-RAD Application 09/2009
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCAE - ED-163 - Safety, Performance and Interoperability Requirements Document for ADS-B Airport Surface Surveillance Application (ADS-B-APT) 12/2010
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCAE - ED-102A - Minimum Operational Performance Specification for 1090 MHz Extended Squitter Automatic Dependant Surveillance - Broadcast (ADS-B) & Traffic Information Services - Broadcast (TIS-B) with Corrigendum 1 01/2012
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	ETSI - EN 303 213-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 2: Level 2 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1. / 09/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	EUROCONTROL - Mode S Transponder in an Airport/A-SMGCS Environment - Edition 1.1 / 05/2005
	Url : https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs
Finalisation criteria:	1 - The surveillance systems upgraded. For EU+ States: For the surveillance system, the technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the National Supervisory Authority (NSA). Note: For states where Regulation (EC) No 552/2004 on the interoperability of the European Air Traffic Management network does not apply, ANSPs should apply compliance procedures as defined by their competent National Authority. 2 - The surveillance systems put into operation.

AOP09-ASP02	**Upgrade and put into service ATS systems to support optimised dependent parallel operations**	From: 01/01/2012	By: 31/12/2015
Action by:	**ANS Providers**		
Description & purpose:	Upgrade and put into service ATS systems to allow the deployment of system enablers associated with OI step listed in -References- section. The tasks to be done are as follows: - Define requirements which fit with local operational/technical context and are based on relevant standards; - Upgrade ATS systems to comply with defined requirements; - Upgrade operator HMI to comply with defined requirements; - Verify compliance with Interoperability Regulation(s); - Integrate upgraded ATS systems into the EATM Network; - Put into service upgraded ATS systems. The upgraded ATS systems and their HMI shall enable the operators to perform the operations defined in optimised dependant parallel operations procedures.		

AOP09	Implement Optimised Dependent Parallel Operations

Supporting material(s):	EUROCAE - ED-126 - Safety, Performance and Interoperability Requirements Document for ADS-B-NRA Application 12/2006
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCAE - ED-161 - Safety, Performance and Interoperability Requirements Document for ADS-B-RAD Application 09/2009
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EUROCAE - ED-102A - Minimum Operational Performance Specification for 1090 MHz Extended Squitter Automatic Dependant Surveillance - Broadcast (ADS-B) & Traffic Information Services - Broadcast (TIS-B) with Corrigendum 1 01/2012
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	ETSI - EN 303 213-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 2: Level 2 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1. / 09/2020
	Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
	EUROCONTROL - Mode S Transponder in an Airport/A-SMGCS Environment - Edition 1.1 / 05/2005
	Url : https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs
Finalisation criteria:	1 - ATS systems upgraded. For EU+ States, the technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). Note: For states where Regulation (EC) No 552/2004 on the interoperability of the European Air Traffic Management network does not apply, ANSPs should apply compliance procedures as defined by their competent National Authority. 2 - Upgraded ATS systems put into service.

AOP09-ASP03	Develop and validate procedures for optimised dependant parallel operations	From: 01/01/2012	By: 31/12/2015

Action by:	**ANS Providers**
Description & purpose:	Design and develop procedures for optimised dependant parallel operations.
	Prepare necessary material to undertake required validation of the procedures
	Test and validate the established procedures and provide relevant results/data to the National Supervisory Authority.
Supporting material(s):	ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016
	Url : https://store.icao.int/
	ICAO - Doc 9906-Volume 1 - Quality Assurance Manual for Flight Procedure Design - Volume 1 - Flight Procedure Design Quality Assurance System - Edition 1 / 12/2009
	Url : https://store.icao.int/
ATM Master Plan relationship:	[PRO-067]-ATC Procedures for optimising operations on dependent parallel runways
Finalisation criteria:	1 - Successfully completed validation and tests for the procedures and results delivered to the NSA.

AOP09-ASP04	Develop safety assessment for the changes	From: 01/01/2012	By: 31/12/2015

Action by:	**ANS Providers**

AOP09	Implement Optimised Dependent Parallel Operations

Description & purpose:	Develop safety assessment of the changes, notably upgrades of ATS and surveillance systems and associated procedures for optimised dependant parallel operations. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.
Supporting material(s):	EUROCAE - ED-126 - Safety, Performance and Interoperability Requirements Document for ADS-B-NRA Application 12/2006 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-161 - Safety, Performance and Interoperability Requirements Document for ADS-B-RAD Application 09/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - EAM 4/GUI 2 - ESARR 4 and related Safety Oversight - Edition 4.0 / 03/2006 Url : http://www.eurocontrol.int/articles/esarr-4-risk-assessment-and-mitigation-atm
Finalisation criteria:	1 - Safety assessment report including safety arguments for the changes submitted to the NSA.

AOP09-ASP05	**Train operational and technical staff**	From: 01/01/2012	By: 31/12/2015

Action by:	**ANS Providers**
Description & purpose:	Train aerodrome control staff (tower runway controller and tower ground controller) in the use of optimised dependant parallel operations procedures for the provision of aerodrome control services. Train technical staff to supervise and maintain the upgraded surveillance systems. The tasks to be done are as follows: - Develop training package (material); - Update training plans; - Determine staff population to be trained; - Apply the training plan.
Supporting material(s):	EUROCONTROL - EAM 5/GUI 3 - Explanatory Material on ESARR 5 Requirements for Engineers and Technical Personnel - Edition 2.0 / 02/2006 Url : http://www.eurocontrol.int/articles/esarr-5-atm-services-personnel EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF
Finalisation criteria:	0 - - The training plan and package have been developed by the ANSP. - All concerned personnel have been trained.

AOP09-ASP06	**Revise and publish Aeronautical Information documents**	From: 01/01/2012	By: 31/12/2015

Action by:	**ANS Providers**
Description & purpose:	Revise and publish Aeronautical Information documents regarding the use of procedures for optimised dependant parallel operations. The tasks to be done are as follows: - Prepare necessary material for publication in AIP; - Publish relevant sections of AIP accordingly .
Supporting material(s):	ICAO - Doc 8126 - Aeronautical Information Services Manual - Edition 6 / 09/2009 Url : https://store.icao.int/ EUROCONTROL - SPEC-146 - EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP) - Edition 2.1 / 10/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-electronic-aeronautical-information-publication-eaip
Finalisation criteria:	1 - AIC and AIP has been published taking due account of the impact of this deployment.

AOP09-USE01	**Obtain airworthiness certification**	From: 01/01/2012	By: 31/12/2015

Action by:	**Airspace Users**
Description & purpose:	Obtain airworthiness certification and operational approval for ADS-B 1090 MHz out equipped aircraft. Obtain airworthiness certificate for the airframes equipped with ADS-B 1090 MHz out equipment as specified in EASA ETSO-C166a. Provide a certification application case to the competent authority for the state of registry of the aircraft to obtain airworthiness certification for their airframes equipped with ADS-B 1090 MHz out equipment.

AOP09	Implement Optimised Dependent Parallel Operations

Supporting material(s):	EUROCAE - ED-102A - Minimum Operational Performance Specification for 1090 MHz Extended Squitter Automatic Dependant Surveillance - Broadcast (ADS-B) & Traffic Information Services - Broadcast (TIS-B) with Corrigendum 1 01/2012
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EASA - ETSO-C166a - Extended Squitter Automatic Dependent Surveillance - Broadcast (ADS-B) and Traffic Information Services (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz) - ED Decision 2008/012/R / 11/2008
	Url : http://www.easa.europa.eu/agency-measures/certification-specifications.php
ATM Master Plan relationship:	[A/C-48a]-Air broadcast of aircraft position/vector (ADS-B OUT) compliant with DO260B
Finalisation criteria:	1 - Aircraft operators receive airworthiness certificate by the National Regulator, for ADS-B 1090 MHz out equipped aircraft.

AOP09-USE02	Obtain operational approval	From:	By:
		01/01/2012	31/12/2015

Action by:	Airspace Users
Description & purpose:	Obtain operational approval for ADS-B 1090 MHz out equipped aircraft. In order to obtain operational approval by the National Regulator of the State from which they hold an Air Operator Certificate, operators must provide, to the competent authority for the state of registry of the aircraft, evidence which pertains to: - Changes to training and maintenance programmes; - Changes to manuals, operational procedures, minimum equipment lists; - Other areas necessary for safe and effective ADSB use and the qualification of aircrews through the approved training programmes, as specified by the competent authority.
Supporting material(s):	EUROCAE - ED-102A - Minimum Operational Performance Specification for 1090 MHz Extended Squitter Automatic Dependant Surveillance - Broadcast (ADS-B) & Traffic Information Services - Broadcast (TIS-B) with Corrigendum 1 01/2012
	Url : https://eshop.eurocae.net/eurocae-documents-and-reports
	EASA - ETSO-C166a - Extended Squitter Automatic Dependent Surveillance - Broadcast (ADS-B) and Traffic Information Services (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz) - ED Decision 2008/012/R / 11/2008
	Url : http://www.easa.europa.eu/agency-measures/certification-specifications.php
Finalisation criteria:	1 - Aircraft operators received operational approval by the National Regulator, for ADS-B 1090 MHz out equipped aircraft.

AOP09-USE03	Update training manual and train crew	From:	By:
		01/01/2012	31/12/2015

Action by:	Airspace Users
Description & purpose:	Update aircrew training manual and train crew to include procedures for optimised dependant parallel operations. The manual shall assist pilots when performing optimised dependant parallel operations.
Finalisation criteria:	1 - Aircrew training manual has been updated and crew has been trained.