

SESAR		Active							LOC/APT	
AOP14.1		Remote Tower Services								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

### Subject matter and scope

The remote tower concept enables air traffic control services (ATS) and aerodrome flight information services (AFIS) to be provided at aerodromes where such services are either currently unavailable, or where it is difficult or too expensive to implement and staff a conventional manned facility.

This Objective proposes to remotely provide ATC services and AFIS for one aerodrome handling low to medium traffic volumes or two low-density aerodromes (simultaneous by one operator), typically with traffic schedules comprising single movements, rarely exceeding two simultaneous movements per aerodrome. The basic configuration, which does not include augmentation features, is considered suitable for ATC and AFIS provision at low density airfields. However, the level and flexibility of service provision can be enhanced through the use of augmentation technology, such as an ATC surveillance display, surveillance and visual tracking, infra-red cameras etc.

This Objective also covers the possibility to apply the remote tower concept as a contingency solution in facility known as Remote Contingency Tower (RCT). This solution can be used when the local tower is not available and services need to be provided from a back-up location. The target environment for the majority of RCTs will be medium density aerodromes that are economically important.

NOTE 1: Being a Local objective, to be applied at individual States or ATC Unit level, to achieve their performance targets the objective does not have a mandatory implementation deadline. As indicative guidance, the FOC of the OI Steps on which all the three SESAR Solutions (#12; #13, #52; #71) are based are 31/12/2024 for SDM-0201 and 15/11/2023 for SDM-0205.

NOTE 2: This objective is linked to SESAR Solutions #12, #13, #71, and #52.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

### Applicability Area(s) & Timescale(s)

<b>Applicability Area</b> (Low to medium complexity aerodromes, subject to local needs)			
<b>Timescales:</b>		<b>From:</b>	<b>By:</b>
IOC used for Analytics functioning only - not for implementation planning		31/05/2019	Applicability Area
FOC used for Analytics functioning only - not for implementation planning			01/01/2030

### References

#### European ATM Master Plan

OI step -	<a href="#">[SDM-0201]-Remotely Provided Air Traffic Service for Single Aerodrome</a>									
	Enablers -	AERODROME -ATC-52	AERODROME -ATC-53	CTE-S02d	REG-0509					
OI step -	<a href="#">[SDM-0204]-Remotely Provided Air Traffic Service for Contingency Situations at Small to Medium Aerodromes (with a Single Main Runway)</a>									
	Enablers -	AERODROME -ATC-51								
OI step -	<a href="#">[SDM-0205]-Remotely Provided Air Traffic Services for Two Low-density Aerodromes</a>									
	Enablers -	AERODROME -ATC-54	CTE-S02d	REG-0525						

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
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#### Applicable legislation

-none-
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<b>AOP14.1</b>	<b>Remote Tower Services</b>
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## Essential Operational Changes

Virtualisation of Service Provision
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## SESAR Solution

#12 - Single Remote Tower operations for medium traffic volumes, #13 - Remotely Provided Air Traffic Service for Contingency Situations at Aerodromes, #52 - Remote Tower for two low density aerodromes, #71 - ATC and AFIS service in a single low density aerodrome from a remote CWP
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## ICAO GANP - ASBUs

RATS-B1/1	Remotely Operated Aerodrome Air Traffic Services
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## Deployment Programme

- none -
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## European Plan for Aviation Safety

RMT.0624	Remote aerodrome ATS
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## Operating Environments

Airport
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## Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP14.1-REG01	Supervise compliance with regulatory provisions		
AOP14.1-ASP01	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of remote tower		
AOP14.1-ASP02	Define and implement system improvements allowing for the implementation of remote tower		
AOP14.1-ASP03	Develop and implement procedures for the use of Remote Tower		
AOP14.1-ASP04	Train all operational and technical personnel concerned		
AOP14.1-ASP05	Implement remotely provided air traffic service for contingency situations		
AOP14.1-APO01	Define and implement local airport procedures and processes for the implementation of remote tower concept		
AOP14.1-APO02	Train all operational and technical personnel concerned		

Description of finalised and deleted SLoAs is available on the eATM Portal @ [https://www.eatmportal.eu/working/depl/essip\\_objectives](https://www.eatmportal.eu/working/depl/essip_objectives)

## Expected Performance Benefits

<b>Safety:</b>	-
<b>Capacity:</b>	-
<b>Operational Efficiency:</b>	Improve the uniformity of service provision at low to medium density and remote aerodromes and sustain or increase the availability of the service (for example allowing ATS to be provided at an aerodrome, which previously was unable to financially support a service).
<b>Cost Efficiency:</b>	Cost reduction for ATS by optimisation of working time and conditions of ATCOs. Remote ATS facilities with several remote tower modules will be cheaper to maintain, and enable lower operating costs due to equipment economies of scale. The financial benefit may be further increased when operating in multiple mode, although in spring 2022 no multiple operations has been approved yet. It will also significantly reduce the requirement to maintain tower buildings and infrastructure. Cost benefits of RCT due to customer retention and reduced economic loss during contingency events.
<b>Environment:</b>	-
<b>Security:</b>	-

## Detailed SLoA Descriptions

AOP14.1-REG01	Supervise compliance with regulatory provisions	From:	By:
		-	-
<b>Action by:</b>	<b>Regulatory Authorities</b>		

AOP14.1	Remote Tower Services		
<b>Description &amp; purpose:</b>	Supervise compliance with regulatory provisions for implementation of remote tower concept. The tasks to be done cover among others: - Ensure that all aerodromes where remote tower concept will be implemented are certified in accordance with applicable regulations. - Ensure the safety oversight of change related to the implementation of remote tower concept. - Ensure that all concerned operational and technical personnel received appropriate ratings/endorsements for their job functions in relation to the implementation of remote tower concept.		
<b>Supporting material(s):</b>	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : <a href="https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r">https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r</a> EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : <a href="https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b">https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b</a>		
<b>ATM Master Plan relationship:</b>	<a href="#">[REG-0509]-Regulatory Provisions for the harmonised deployment of Remote Towers Operations (for a single aerodrome)</a> <a href="#">[REG-0525]-Regulatory provisions for the harmonised deployment of Remote Towers Operations (for two aerodromes)</a>		
<b>Finalisation criteria:</b>	1 - The regulatory authorities have evidence of the status of compliance with regulatory provisions for aerodromes where remote tower concept is implemented.		
<b>AOP14.1-ASP01</b>	<b>Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of remote tower</b>	From: -	By: -
<b>Action by:</b>	<b>ANS Providers</b>		
<b>Description &amp; purpose:</b>	Develop safety assessment of the change to functional system imposed by the introduction of the remote tower concept (including Remote Contingency Tower, where applicable). 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.		
<b>Supporting material(s):</b>	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&amp;from=EN">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&amp;from=EN</a> EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : <a href="https://www.eurocontrol.int/tool/safety-assessment-methodology">https://www.eurocontrol.int/tool/safety-assessment-methodology</a> EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : <a href="https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r">https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r</a> EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : <a href="https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b">https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b</a>		
<b>Finalisation criteria:</b>	1 - The safety argument has been delivered to the NSA, for all changes generated by the implementation of remote tower concept.		
<b>AOP14.1-ASP02</b>	<b>Define and implement system improvements allowing for the implementation of remote tower</b>	From: -	By: -
<b>Action by:</b>	<b>ANS Providers</b>		

AOP14.1		Remote Tower Services	
Description & purpose:	When implementing a remote tower module, a number of system improvements should be implemented in order to display to ATCO/AFISO an "out of the window like" (OTW) image of the airport and its vicinity and to increase ATCO/AFISO situational awareness. In addition, all the tools and facilities available to a tower controller will also need to be remotely controlled, including, inter alia, ground-ground and ground-air communications, traffic light controls and aerodrome lighting controls. A mix of basic and advanced technical features should be considered including: - Basic features: * Visual (panorama) presentation (OTW); and * Binocular functionality camera(s). - Advanced features: * additional visual 'hot spot' cameras * the use of infrared or other optical sensors/cameras outside the visible spectrum * binocular functionality automatically following moving objects (commonly referred to as 'PTZ tracking') * dedicated means to facilitate the detection, identification and automatic following of aircraft or vehicles in the visual presentation (e.g. by labels based on surveillance data, complemented by flight plan correlation when available, commonly referred to as 'radar tracking'); * dedicated means to facilitate the detection and following of moving objects in the visual presentation (e.g. by highlighting/framing such objects based on image processing systems, commonly referred to as 'visual tracking'); * other overlaid information in the visual presentation such as framing and/or designation of runways, taxiways, etc., compass directions, meteorological information, aeronautical information (NOTAM, SNOWTAM, etc.), other operational information (e.g. runway conditions like water, snow or mud presence, coefficient of friction, etc.); * ATS surveillance (air and/or ground radar presentation).		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : <a href="https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r">https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r</a> EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : <a href="https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b">https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b</a> EUROCAE - ED-240A - Minimum Aviation System Performance Standards (MASPS) for Remote Tower Optical Systems 10/2018 Url : <a href="https://eshop.eurocae.net/eurocae-documents-and-reports/ed-240a/#">https://eshop.eurocae.net/eurocae-documents-and-reports/ed-240a/#</a>		
ATM Master Plan relationship:	<a href="#">[AERODROME-ATC-52]-Provide Remote Tower Controller position with visual reproduction of both remotized aerodrome views and other sensor data.</a> <a href="#">[AERODROME-ATC-53]-Remote Tower controller position enhanced with additional sources for low visibility conditions</a> <a href="#">[AERODROME-ATC-54]-Provide a Remote CWP that enables one ATCO to control 2 remote towers (low-density) simultaneously</a> <a href="#">[CTE-S02d]-Video Based Surveillance</a>		
Finalisation criteria:	1 - The ANSP system has been upgraded according to the specifications for the remote tower concept.		
AOP14.1-ASP03	Develop and implement procedures for the use of Remote Tower	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Ensure that all procedures and processes applicable for the remote tower concept are updated to the chosen operating scenario for remote tower aerodrome. These procedures should take into account if the concept is being implemented for a single or for multiple aerodromes, the traffic volumes as well as the acceptable number of simultaneous movements as derived from the safety assessment and approved by the NSA.		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : <a href="https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r">https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r</a> EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : <a href="https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b">https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b</a>		
Finalisation criteria:	1 - The ATC/AFIS procedures have been updated to take on board the remote tower requirements.		
AOP14.1-ASP04	Train all operational and technical personnel concerned	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Ensure that all operational and technical personnel concerned are adequately trained and hold appropriate ratings/endorsements for their job functions in relation to the approved implementation of remote tower (including for Remote Contingency Tower, where applicable).		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : <a href="https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r">https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r</a> EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : <a href="https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b">https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b</a>		
Finalisation criteria:	1 - Training plans covering remote tower requirements have been developed and implemented.		

AOP14.1		Remote Tower Services	
AOP14.1-ASP05	Implement remotely provided air traffic service for contingency situations	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Implement the remote tower concept for contingency situations when the local tower is not available and services are to be provided from the contingency location. This specific solution should cover the following steps: - Definition and implementation of system improvements allowing for the implementation of remote tower for contingency situations, - Definition and implementation of procedures and processes in support of network and local dimension imposed by the implementation of remote tower for contingency situations, including regular training for operational and technical personnel concerned.		
Supporting material(s):	SJU - SESAR Solution 13: Data Pack for Remotely provided air traffic service for contingency situations at aerodromes Url : <a href="https://www.sesarju.eu/sesar-solutions/remotely-provided-air-traffic-service-contingency-situations-aerodromes">https://www.sesarju.eu/sesar-solutions/remotely-provided-air-traffic-service-contingency-situations-aerodromes</a>		
ATM Master Plan relationship:	<a href="#">[AERODROME-ATC-51]-Remote Tower Centre (RTC) position that in contingency situation hosts ATCO that will no longer be located at the local Tower.</a>		
Finalisation criteria:	1 - Remote Contingency Tower (RCT) in place and available for operational use.		
AOP14.1-APO01	Define and implement local airport procedures and processes for the implementation of remote tower concept	From:	By:
		-	-
Action by:	Airport Operators		
Description & purpose:	Ensure that all procedures and processes applicable for the remote tower concept are updated to the chosen operating scenario for remote tower aerodrome and agreed with the ATSP.		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : <a href="https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r">https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r</a> EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : <a href="https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b">https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b</a>		
Finalisation criteria:	1 - The local airport procedures have been updated to take on board the remote tower service provision.		
AOP14.1-APO02	Train all operational and technical personnel concerned	From:	By:
		-	-
Action by:	Airport Operators		
Description & purpose:	Ensure that all operational and technical personnel concerned are adequately trained for their job functions in relation to the implementation of remote tower.		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : <a href="https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r">https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r</a> EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : <a href="https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b">https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b</a>		
Finalisation criteria:	1 - Training plans covering remote tower requirements have been developed and all operational and technical personnel concerned has been trained.		

