

Remote Towers

INTRODUCTION

The introduction of Remote Towers represents a change to the functional ATM system. Replacing the traditional out-of-the-window view with cameras and transferring data between airports and a Remote Tower Center (RTC) introduces new hazards and challenges to flight operations.

Remote Towers are also known as Digital ATS for Aerodromes (DATS), Remote Aerodrome ATS (RAATS), Remote Tower Services (RTS), Digital Tower, or Virtual Tower. The many designations, together with a variety of concept designs and modes of operation, add additional layers of complexity when discussing Remote Towers. For clarity and consistency, this paper will use the term Remote Towers.

The scope of this Position Paper is to present the flight-operational consequences IFALPA and ECA¹ identify with the implementation of Remote Towers. When referring to “alternate” in this Position Paper, the focus is on the destination alternate. Other alternates may become relevant in the future but are currently considered outside the scope of this paper.

BACKGROUND

ICAO Annex 6, Operation of Aircraft Part I International Commercial Air Transport — Aeroplanes, and Doc 9976, Flight Planning and Fuel Management Manual (FPFMM), are written with the assumption that an alternate aerodrome, in operational terms, is independent of the destination. With the introduction of Remote Towers, this condition has changed.

Manufacturers, ANSPs and authority representatives involved in the early implementation of Remote Towers have not identified the associated flight operations hazards. The main reason is that the Air Traffic Control Officer (ATCO) was defined as the end user of the new concept. The implications for other airspace users have not been sufficiently considered, and ICAO Annex 6 and Doc 9976 have not been addressed.

¹ ECA published a [Position Paper in Nov 2020](#) outlining the European pilots’ perspective and position on Remote Towers, updating its 2014 position

The industry has been focused on assuring regulators and airspace users that technical redundancy meets the contingency obligations, with a typical design of three independent communication lines. Confusion between technical redundancy and operational contingency has resulted in an unprotected operation, in which the closure of an RTC can potentially affect both the destination and the alternate aerodrome. The responsibility to ensure safe flight in the Remote Tower environment is thereby not clarified.

POSITION

1. Remote Towers depends on an uninterrupted data transfer between the airport and an RTC. This includes images, voice communication and, depending on design, control of airport systems. Cybersecurity is a critical challenge that needs to be addressed to support these operations.

RTCs are typically designed to provide ATS to multiple aerodromes. This approach is central to the Remote Tower concept, as described in ASBU DATS-B1/1, which envisions a single ATCO managing more than one aerodrome.

Considering the potential severity of a closed RTC, IFALPA and ECA stress the importance of ensuring that the alternate is independent of the destination regarding aerodrome ATS provision, unless appropriate operational contingency procedures are established to allow access to a runway without delay. Transparency for operators and crew on which airports are being controlled from which RTC is imperative.

2. "Multiple mode of operation," where one ATCO controls more than one aerodrome simultaneously, is challenged by many stakeholders as an area lacking adequate experience and scientific grounding, especially regarding human performance. This new mode of operation introduces challenges for pilots and ATCOs that have not yet been addressed, e.g., combined frequencies requiring new phraseology and radio communication routines.

IFALPA and ECA do not support the implementation of "multiple mode of operation".

If one ATCO provides ATS to more than one aerodrome on a sequential basis, not simultaneously, but to one aerodrome at a time, we do not consider this as a specific mode of operation but rather a methodology within the "single mode of operation" concept.

RECOMMENDATIONS

IFALPA and ECA identify a need to define provisions for aerodrome ATS provided to several aerodromes from a single location.

IFALPA and ECA also highlight the need for regulations that prohibit selecting an alternate aerodrome controlled by the same RTC as the destination, unless appropriate operational contingency procedures have been established.

Additionally, IFALPA and ECA recommend that ICAO review the relevant parts of Annex 6 and Doc 9976 regarding flight planning methodology and the protection of the alternate aerodrome.

CONCLUSION

Remote Towers should only be implemented following successful Safety Assessments, as required by ICAO Annex 11 (para 2.29) and ICAO Doc 4444 PANS-ATM (para 2.6.1). These assessments should be made available to end users, and the flight operations perspective needs to be thoroughly addressed.

The provision of Remote Tower services should meet the performance and quality standards set out in ICAO Annexes.

IFALPA and ECA emphasize that technological innovations, such as Remote Towers, should not compromise safety. Instead, they should deliver equal or higher levels of safety and service quality compared to traditional ATS.