



TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 2: Aerodrome operations – improving airport performance

2.1: Airport capacity

FUTURE AERODROME CONCEPT

(Presented by the International Federation of Air Traffic Controllers' Associations)

SUMMARY

ICAO block upgrade B1-81 introduces the concept of remotely operated towers. IFATCA acknowledges the research, which currently carried out on this concept. IFATCA has studied the future aerodrome concept and recommends that the States, which envisage introducing any new form of aerodrome control concept, link it to the definition of ATM service delivery level as defined in the ICAO concept.

1. INTRODUCTION

1.1 Airport capacity has been identified as a limiting factor to growth of air transport. The management and operational changes which will allow the integration of future aerodrome concepts into the modernisation roadmaps of the future ATM (e.g. block upgrades) need to include the handling of airports and their possible future concepts.

1.2 Cooperation is essential for efficient aerodrome operations. Aerodrome owners have to provide the needed ground infrastructure, and be committed to the value in making changes to existing infrastructure (like other members of the ATM community do). Airspace users, operating at the most critical stages of their flight (landing and take-off), have to interface with a number of services in the air and on the ground, often influencing the predictability of their own operations. ATM service providers are providing separation services with aircraft and other vehicles operating in very close proximity to each other and must react to uncontrollable events such as a change in wind direction, which can require complete changes to the traffic pattern in the air and on the ground. Environmental issues, such as noise and visual intrusion, affect operational choices (ref IFATCA statement on the future of ATM).

1.3 Whereas it is important to keep in mind the conceptual approach to the future air traffic management at airports and aerodromes, IFATCA acknowledges the ongoing research on remote tower concept.

1.4 ICAO Module B1-81 on Remotely Operated Aerodrome Control summarizes the concept as: to provide a safe and cost effective ATS from a remote facility, to one or more aerodromes where dedicated, local ATS is no longer sustainable or cost effective, but there is a local economic and social benefit from aviation. This can also be applied to contingency situations and depends on enhanced situational awareness of the aerodrome under remote control.

1.5 The concept of a remote tower is currently being studied in Europe, Australia and US in order to improve the efficiency of the ATM system. These regional research projects address the possibility to provide aerodrome services from remote locations. They include single – and/or multiple towers, as well as contingency towers. In some of the research projects, remote refers to the use of visual reproduction as well as the use of new electronic (sense) means to enable the air traffic controller to maintain situational awareness.

2. DISCUSSION

2.1 IFATCA has studied the concept of visual operation in light of new aerodrome control tower concepts since 2007, and has addressed the various issues pertinent to visual observation and the use of mitigation (human, technical and procedural) to replace the human operator “in-situ” for efficient and safe aerodrome operations.

2.2 The studies came to the conclusion that in any future aerodrome concept the controller shall be provided with at least the same level of surveillance as currently provided by visual observation;

- a) the controller shall be provided with at least the same level of surveillance as currently provided by visual observation;
- b) the introduction of aerodrome control service concepts shall be subject to a full safety analysis and relevant safety levels shall be met;
- c) contingency procedures shall be in place; and
- d) controllers shall be involved in the development of aerodrome control service.

2.3 Visual observation in ATM has been defined by IFATCA as the observation through direct eyesight of objects situated within the line of sight of the observer possibly enhanced by binoculars. Whereas the Watch shall be maintained by visual observation, augmented by radar or other approved surveillance systems when available. When talking about the notion of an aerodrome control tower, IFATCA introduced as its global recommendation that the tower cab shall be constructed as to provide aerodrome controllers the capability to maintain a continuous watch on all flight operations on and in the vicinity of the aerodrome as well as vehicles and personnel on the maneuvering area.

2.4 ICAO Doc 9426, Part III states that an aerodrome control tower has to fulfill two main operational requirements:

- a) the tower must allow the controller to **visually survey** those portions of the aerodrome and its vicinity over which he exercises control; and
- b) the tower must be equipped so as to ensure rapid and reliable **communications** between the controller and the concerned aircraft.

2.5 ICAO Doc 4444, Fifteenth Edition, 7.1.1.2 states that aerodrome controllers “shall keep a **continuous watch** on all flight operations on and in the vicinity of an aerodrome **as well as vehicles and personnel** on the maneuvering area. Watch shall be maintained by **visual observation**, augmented in low visibility conditions by an ATS surveillance system when available”.

2.6 New concepts in ATM should be assessed against the ATM service delivery as stated in the ICAO *Global Air Traffic Management Operational Concept* (Doc 9854).

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 IFATCA acknowledges the need to address future aerodrome concepts as part of the modernisation roadmap and welcomes the description in the block upgrade Module B1-81.

3.2 IFATCA follows the current research projects, which are ongoing in various regions of the world, and has since 2007 worked on establishing studies and recommends in its policies to have a transparent and explicit approach to the possible changes of the concept of aerodrome service delivery.

3.3 We invite the Conference to:

- a) note the content of this paper;
- b) that any future activities on remote tower operations are assessed against the level of air traffic management services delivered at such potential aerodrome;
- c) that States and service providers shall include in their future work on new aerodrome tower concept the need to define the level of service delivered so that all providers and users are fully aware of the level of service to be expected when operating remotely operated towers; and
- d) that ICAO not act on amending Standards and Recommended Practices or procedures until extensive research, simulation and analysis is conducted and concluded, taking into consideration safety, efficiency and human factors issues.

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