Prospect ATCOs' Branch Position Paper On Remote Tower Operations

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Position Paper on Remote Tower Operations

Executive Summary

Prospect ATCOs' Branch is responsible for Air Traffic Control Officers working in the United Kingdom representing them on Professional and Industrial issues. Additionally the ATCOs' Branch represents other Air Traffic specialist grades such as Watch Managers, Supervisors, Flight Information Officers, Capacity Managers, Training Staff and many other key roles within UK Air Traffic Management.

Concept

'Remote Tower Operations' (ROT) is the concept of providing air traffic control or air traffic information services from a location other than a traditional air traffic tower at an aerodrome. Using different surveillance technologies such as CCTV cameras, a tower view can be recreated virtually on computer screens at a remote location, such as another air traffic facility or dedicated remote tower centre.

Types of Operation

In broad terms the concept of remote tower operations can be categorised into 4 different methods;

- **Single tower operation**

An air traffic control service provided to one aerodrome from a remote location.

- **Multi tower operation**

An air traffic control service provided to two or more aerodromes with only one aerodrome being provided with a service at any one time from a remote location.

- **Simultaneous Multi Tower operation**

An air traffic control service provided to 2 or more aerodromes with a service being provided to more than one aerodrome simultaneously.

- **Contingency operation**

An air traffic control service provided from a remote location to be used as a contingency in the event of a failure of the traditional facility.

There is also scope for any of the above options to have provision for an Approach service (procedural or radar) to be provided as well.

Current Regulatory Requirements

The provision of Air Traffic Services is set out in ICAO Annex 11 'Air Traffic Services', Doc 4444, Doc 7030 and Doc 9426. The provision of aerodrome air traffic services is based on the principle of direct visual observation of the traffic by the air traffic controller or the aerodrome flight information officer in their area of responsibility.

As defined in Article 2.32 of Commission Implementing Regulation (EU) No 923/2012, as well as in Annex 11 and ICAO Doc 4444 (PANS-ATM,) ATS includes the following elements:

- Flight information service.
- Alerting service.
- Air traffic advisory service.
- Air traffic control service.

The air traffic control service is provided by licensed air traffic controllers for the purpose of preventing collisions between aircraft on the manoeuvring area, aircraft and vehicles on the manoeuvring area and between aircraft and obstructions. Additionally ATCOs are responsible for expediting and maintaining an orderly flow of air traffic.

The aerodrome flight information service (AFIS) is the term used to describe the provision of information useful for the safe and efficient conduct of aerodrome traffic. With regard to the aerodrome flight information service (AFIS), the aerodrome flight information officer (AFISO) is the person properly trained, competent and duly authorised to provide AFIS. Except in cases when relaying clearance from air traffic control, AFISOs shall only pass information and warnings to pilots. Pilots are therefore wholly responsible for maintaining proper spacing in conformity with the applicable rules of the air.

The remote tower concept will also need to allow for an alerting service to be provided, and this is defined as the service provided to notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

The increasing number of initiatives taken worldwide to provide remote aerodrome ATS have been recognised by ICAO, as per the ICAO Global Air Navigation Plan (Doc 9750) and in the Working Document for the 'Aviation System Block Upgrades' of 28 March 2013 (Section B1-RATS Remotely Operated Aerodrome Control).

The meaning of 'visual observation' referenced in the relevant ICAO documents is unclear and has been questioned, and the various organisations involved in developing ROT have different interpretations of its meaning. It is necessary to establish clarity and a common understanding of this term in order to ensure that the established ICAO procedures and documents are compatible with the concept of a service being provided from a ROT installation. If necessary further guidance, procedures and requirements may need to be developed.

Regulatory Approach

The European Aviation Safety Agency (EASA) recently concluded a rule-making task on the subject of remote towers and this resulted in limited guidance material through the issuing of ED 2015/014/R.

In our view this approach to regulating remote tower activity is wholly inadequate and does not provide a Europe-wide, fit for purpose, regulatory approach to the operation of Remote Towers. Furthermore this guidance is limited to single operations only. Whilst the guidance material does provide some relatively comprehensive suggestions for the operation of a remote tower, the fact that it is only guidance material does not provide a strong enough regulatory framework. EASA has consistently been striving to harmonise regulation across Europe and this effectively allows member states to proceed on their own initiative without a common approach, as guidance material is not mandatory. The guidance material could also result in ANSPs selectively choosing which areas they take cognisance of (if any at all,) particularly if it is perceived to be too great a cost or an

inconvenience to the commencement of operations. This will lead to inconsistencies in many areas including operation, training and regulatory approach resulting in a 'free for all' which is completely contrary to current European aviation policy and best practice. Furthermore the guidance issued is limited in its scope to a single operation. It is our firm position that EASA should revisit its remote tower rulemaking task to provide a proper regulatory framework for remote tower operations.

Branch underlying principle

Prospect ATCOs' Branch is of the firm view that an equivalent level of safety must be maintained by any remote tower facility that would be found at a traditional tower. Any efficiency benefits derived from remote tower facilities must not be at the expense of safety.

Licencing requirements

As specified in the ATCO Licence regulation 2015/340 there are rating endorsements for Aerodrome Control – namely ADI and ADV. Due to the specific nature of the technologies, human factor considerations and possible operating differences it is our view that, as is common with other rating endorsements such as OCS and TCL, a specific rating endorsement should be created for remote tower operations. This would ensure that Air Traffic Controllers operating in a remote tower environment are properly trained in the specific nature of providing a service remotely. This is consistent with the approach for other rating endorsements in specific specialist areas such as OCS and TCL.

Training Requirements

A separate remote towers rating endorsement training program should be required to ensure that the detailed technical and operational elements of remote towers are well understood. This could be a small conversion course from the ADI rating, or a full stand-alone rating course. For each remote tower to be operated a unit endorsement training plan would need to be followed detailing all of the normal procedures and practices associated with the specifics of that particular location.

Technical Requirements

The visual representation at the remote tower facility typical sees the compressing of the 360-degree view outside from a traditional tower cab to a smaller 270-degree view represented on monitors. This changes the perception of position, and also depth perception for the air traffic controller in question. It is likely that additional tools will need to be provided to compensate for this and to aid the monitoring of traffic. Equally when observing aircraft in the circuit on final approach or climb out visual representation is very different from the optical direct visual contact at a traditional tower. This results in a different level of ability to accurately observe the aircraft that will result in another means of surveillance being needed, such as radar. This could involve mandating the carriage of transponder equipment or other equipment, which would have a potential cost implication to operators and the GA community.

Operating Concerns

As experience of remote tower operations is still at a very low level, small incremental steps in size and complexity of operation must be taken to prove the concept. Detailed and independent Human Factors studies will be required to

understand and mitigate the different operating techniques and impact of the technology on performing the air traffic function.

It may be appropriate in time for an air traffic controller to hold the endorsement of more than one remote tower aerodrome, but Prospect ATCOs' Branch is firmly of the position that these must never be exercised simultaneously. Further appropriate studies need to be completed to determine the relevant responsibility free break time required between operating different remote towers.

Weather could also be difficult to judge and situational awareness could easily be lost due to the reduction of local knowledge of weather patterns. Confusion could also be introduced when operating multiple towers.

Human Factors

Appropriate human factors requirements and understanding is essential to the operation of remote towers. The physical remoteness from the operation will provide a different environment and could result in a perception of being disconnected to the airport to which the service is being provided. Proper human factors assessments and training will be imperative to the safe and efficient operation of the remote tower facility.

The technological solutions will need to be designed and procedures implemented which take in to account these issues, with particular focus on the new technological solutions and any alarms or alerting systems to ensure they are appropriate and fit for purpose without providing a high level of false alerts.

There are also concerns over screen pixilation and resolution with consequent problems involving depth perception and identifying runways and taxiways, particularly at night.

Human factors concerns exist in the operation of multiple towers and it is imperative that if different towers are operated in succession, or an approach function is provided, adequate mitigation is put in place to ensure confusion of task and individual airport characteristics does not occur.

Reliability

The physical installations providing data to the remote tower sensor must be appropriately maintained. Camera installations must have a responsive cleaning and maintenance program to ensure they are free from environmental contamination (rain, condensation, bird activity etc.)

All data will need to be secure and on dedicated transmission systems that are adequately protected from outside interference. The remote tower centre will need adequate fallback procedures and any evacuation of a centre could result in the cessation of services to multiple towers. This could have an impact to aircraft operations with respect not only to scheduled operations but also choice of diversion aerodromes etc.

Market Concerns

Prospect ATCOs' Branch questions the possible financial and operational efficiencies of ROT 'centres' unless they were to be run by a single ANSP. It is also our view that such an operation would not be sustainable, or deemed openly fair or competitive within the current open airports ATC tower market within the UK. It is therefore our position that ROT technology should only be permitted by a

single business that is fully regulated by UK government. In addition, the ATCOs' Branch will lobby parliament to ensure that such ROT operations are based within the UK to primarily ensure proper safety regulation can be applied in the interests of the flying public and to ensure that a healthy employment market for ATC professionals is maintained.

Social Aspects

Prospect ATCOs' Branch only supports remote tower operations at airfields where a ROT service will deliver a tangible social benefit to the community served by that airport, in addition to any commercial and economic benefits gained. The term 'social benefits' refers to the benefits a manned tower provides to the local community, for example increased access to air services, extended airport opening hours or greater service availability and increased access for medical/humanitarian flights. A ROT facility should continue to be able to provide this and also enhance the local community for example with the provision of improved communication links (i.e. the data connections and bandwidth required to be installed to support a ROT system at an airfield could also allow internet speeds for the local area to be improved at the same time.)

The proper consultation, and where required negotiation, on the working conditions of those ATCOs changing role as they relocate, or are otherwise impacted by the introduction of a ROT installation, will be required. All available support must be given to both them and their families to ensure a smooth and seamless transition.

From a wider moral and community point of view it is also imperative that the adverse impacts of losing an ATC community on the local area are identified and mitigated where possible (employment prospects, benefit to the local economy, investment etc.)

Conclusion

Prospect ATCOs' Branch accepts the significant development of Remote Tower Operations. Its' introduction into the Aviation community must be evaluated, considered and regulated correctly; additionally it is essential that ATCOs are involved in all stages of development and implementation.

Our position;

- **Remote Towers License endorsement**

  Required: appropriate licensing.

- **One Tower, One ATCO, One Time.**

  The ATCOs' Branch is opposed to the operation of multiple Remote Tower operations by a single ATCO simultaneously.

  The ATCOs' Branch is not opposed to the concept of Remote Tower centers with multiple single operations.

- **Training/procedures**.

ATCOs must be provided with the same level of surveillance as currently provided by visual operations. Any Human factors issues must be researched and implemented

The requirement for new operational procedures to be based upon a robust safety case.

Appropriate Airspace redesign will be developed as necessary.

Weather data and knowledge of local environment must be provided.

- **Transition.**

  Introduction of remote operations shall be subject to full safety analysis.

- **Contingency arrangements.**

  Robust contingency arrangements are in place and practised.

- **Security and Data integrity**.

  The appropriate procedures and safeguards are in place to provide system integrity.

- **Social issues/Employment conditions**.

  Terms and conditions should be protected, including methods of operations, manning levels, hours and rosters.

ATCOs' Branch Executive

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