



ICAO

International Civil Aviation Organization

**The Combined Tenth Meeting of the South Asia/Indian Ocean
ATM Coordination Group (SAIOACG/10) and Twenty—
Seventh Meeting of the South East Asia ATS Coordination
Group (SEACG/27)**

Bangkok, Thailand, 30 March – 03 April 2020

Agenda Item 4: Implementation of CNS/ATM Systems

ASIA/PACIFIC UNMANNED AIRCRAFT SYSTEMS UPDATE

(Presented by the Secretariat)

SUMMARY

This paper presents outcomes from the Third Meeting of the Asia/Pacific Unmanned Aircraft Systems Task Force, and the subsequent information and discussions at the Seventh Meeting of the Air Traffic Management Sub-Group of APANPIRG.

1. INTRODUCTION

1.1 The Third Meeting of the Asia/Pacific Unmanned Aircraft Systems (UAS) Task Force (APUAS/TF/3) was held in Bangkok, Thailand from 04 – 07 March 2019. The outcomes of the meeting were subsequently reported to the Seventh Meeting of the ATM Sub-Group of APANPIRG (ATM/SG/7, Bangkok, Thailand, 05 to 09 August 2019).

1.2 The APUAS/TF/3 meeting included a mini-seminar, discussed UAS issues relevant to the Asia/Pacific Region, and reviewed draft regional guidance material for the management of UAS within the National Airspace System (NAS).

1.3 APUAS/TF/3 papers, mini-seminar presentations and final report are available on the meeting web-page at <https://www.icao.int/APAC/Meetings/Pages/2019-APUAS-TF3.aspx>.

1.4 The information reported by APUAS/TF/3 to ATM/SG/7, and subsequent discussion outcomes, are provided below.

2. DISCUSSION

Mini-Seminar

2.1 A mini-seminar conducted before the opening of the APUAS/TF/3 meeting provided information on: the ICAO DRONE ENABLE/2 Symposium held in 2018, including the ICAO Unmanned Aircraft Systems (UAS) effort, Aircraft Registration Network, and a summary of symposium outcomes; IATA's UAS update; UAS Traffic Management (UTM) developments in Japan; authorization or exclusion of operations near aerodromes in the USA, and USA's UAS integration update.

IFALPA Position on UAS Security

2.2 The IFALPA Position Paper on UAS Security, as updated in December 2018, was provided for consideration by the meeting. While the majority of the issues canvassed in the paper fell outside the scope of work of APUAS/TF, there were several that could be considered for inclusion in the UAS principles that formed the foundation of the regional guidance that was under development. The meeting noted that relevant items from the paper were incorporated in the guidance document's principles, for final consideration by the task force.

Restructuring of Very Low Altitude Airspace to Enable UAS Operations

2.3 India presented the initiatives taken in restructuring Very Low Altitude (VLA) airspace, typically that airspace used by manned or tethered balloons, kites, paragliders, paramotors, model aircraft and unmanned aircraft (drones), in addition to manned aircraft such as helicopters. Use of unmanned aircraft was increasing, and in the near future VLA airspace would be managed through UTM systems.

Proposed UAS Element in the Asia/Pacific Seamless ATM Plan

2.4 The APUAS/TF/3 meeting was presented with information supporting a proposed performance expectation of UAS integration into the National Airspace System (NAS) of each APAC Administration, for inclusion in the 2019 update of the Asia/Pacific Seamless ATM Plan. The proposal responded to the Terms of Reference (TOR) of APUAS/TF, which included *inter alia* the requirement to support an Asia/Pacific Seamless ATM Plan element.

2.5 The meeting agreed to the inclusion in the Seamless ATM Plan of the background information and performance expectation detailed in **Attachment A**. It was noted by APUAS/TF/3 that the element in the Seamless ATM Plan were expected to reference Global Air Navigation Plan (GANP) – Aviation System Block Upgrade (ASBU) module B1-RPAS. However, this module was not present in the revised GANP that was intended to be presented for endorsement by the ICAO Assembly in 2019.

2.6 The amendment proposal was subsequently carried into the proposed revision of the Seamless ANS Plan (formerly Seamless ATM Plan), approved by APANPIRG/30 (Bangkok, Thailand, 04 to 06 November 2019).

Process for Authorization or Exclusion of UA Operations Near Airports

2.7 India and USA presented information on the processes adopted for either excluding or authorizing operations of unmanned aircraft in the proximity of aerodromes, in response to a task assigned by APUAS/TF. The information provided was included as examples of such processes in the draft regional guidance material.

Oversight Mechanism of UAS Operations

2.8 Indonesia presented discussion of the urgency of developing oversight mechanisms for UAS operations. Information was provided on the UAS approvals mechanism in operation in Indonesia, and the obligations of the State to develop a proper oversight mechanism for UAS operations within their airspace.

2.9 Noting that Indonesia had proposed an action urging the ICAO Regional Office to provide guidance material on an oversight mechanism for UAS operations, APUAS/TF/3 was informed that such guidance may be considered at some time in the future, once the current task of developing regulatory guidance for the integration of UAS in the NAS had been completed.

2.10 The APUAS/TF/3 meeting noted that Indonesia's regulations permitted UAS operations at altitudes not above 500 feet above ground level (AGL). However, most States permitted such operations not above 400 feet AGL in order to provide a buffer between UAS and conventional aircraft that were permitted to operate at altitudes not below 500 feet AGL.

2.11 Post-meeting, the draft regional guidance material was updated to include the following discussion:

5.11 When specifying height and distance limitations, States should be aware of the human factors affecting the assessment of such distances by both the person operating the controls of the UA and the pilot of a conventional aircraft. The primary example of this is the potential for inaccuracy in the person on the ground's judgement of the height above terrain, and in the judgement of the pilot of a conventional aircraft when operating at the lowest permissible height for Visual Flight Rules (VFR) operations (*Annex 2 – Rules of the Air - Section 4.6*), particularly over undulating terrain. Similarly, UAS may be equipped with height measurement and reporting capability, but in many cases this only measures height above the take-off point, and not above the terrain over which the UA may operate.

5.12 While the typical limitation of the operation of an UA to not more than 400 feet AGL may provide a degree of segregation from VFR aircraft operating not below 500 feet AGL, it should be noted that some States limit the operation of UA to not more than 200 feet AGL, except where a specific authorization applies.

Need for Guidance Materials for Implementation of UAS Detection and Interception Technologies

2.12 Hong Kong, China informed the APUAS/TF/3 meeting that, while UAS were increasingly popular for deployment for various purposes, their operation posed serious hazards to flight safety when operated without authorization in the vicinity of aerodromes. Apart from legislative and regulatory regimes, a wide variety of detection and interception technologies was available to mitigate such hazards. It was proposed that it was essential that a harmonized approach supported by the development of guidance materials be adopted for implementation of UAS detection and interception technologies.

2.13 The APUAS/TF/3 meeting was informed that the Secretariat had consulted on the matter with the relevant technical officers in ICAO Headquarters, and the consolidated ICAO response to the subject was provided. The meeting noted that the concerns expressed by Hong Kong, China were shared globally. However, the ICAO position was that, while there was a need for global guidance on the subject, ICAO and its technical bodies were not yet in the position to draft such guidance. It was also noted that the TOR of the task force related to regulatory guidance for the integration of UAS in non-segregated airspace in the NAS, which necessarily included the Air Traffic Management (ATM) contingency response to unauthorized drones, but the detection and interception of unauthorized drones was primarily a flight safety and/or security matter.

Drone Incursions – Aerodromes and Airspace

2.14 CANSO presented information on drone incursions, including examples, the danger, methods of coping with unauthorized drones, potential paths to prevention, and CANSO's efforts in this area.

2.15 It was noted that a key activity was the development and availability of educational material, not only at the point of sale but also at points of entry into the State, and that close coordination, cooperation and planning with enforcement agencies was essential.

Breakout Sessions – Regulatory Guidance Development

2.16 Two APUAS/TF/3 breakout groups examined and proposed a number of amendments to the latest draft regulatory guidance. The outcomes of the breakout groups' discussions were included in the draft *Regional Guidance for the Regulation and Safe Operation of Unmanned Aircraft Systems within National Airspace*.

2.17 The APUAS/TF/3 meeting agreed that the finalization of the regional guidance would be achieved by:

1. Circulation of a final DRAFT copy of the *Asia/Pacific Regional Guidance for the Regulation and Safe Operation of UAS within Non-Segregated Airspace* to the APUAS/TF Small Working Group for review;
2. Circulation of the reviewed document to all task force members for final review; and
3. Presentation to the Seventh Meeting of the ATM Sub-Group of APANPIRG (ATM/SG/7) in August 2019 for adoption.

2.18 A significant change in the final draft document was the inclusion of words to clarify the difference between the *operator* of an unmanned aircraft and the person operating the controls of the unmanned aircraft. While the use of the term remote pilot was considered, this term has specific meaning in Annex 1 *Personnel Licensing*, where it is referred to in Chapter 2 B *Licences and ratings for remote pilots*. Noting that matters relating to the operation of Remotely Piloted Aircraft (RPA) operated in accordance with the new Annex 6 Operation of Aircraft Part IV (under development) and flown by a licensed remote pilot from a certified Remote Pilot Station, are not within the scope of APUAS/TF.

2.19 The draft regulatory guidance instead included the phrase *person operating the controls of the unmanned aircraft*.

Regional Guidance Material

2.20 The APUAS/TF/3 meeting agreed to ***Draft Conclusion APUAS/TF/3-1: Regional Guidance for the Regulation and Safe Operation of UAS within National Airspace***, which was subsequently agreed by ATM/SG/7:

Conclusion ATM/SG/7-9: Regional Guidance for the Regulation and Safe Operation of UAS within National Airspace

That, the Asia/Pacific Regional Guidance for the Regulation and Safe Operation of UAS within National Airspace at Appendix H to the Report be adopted, and uploaded to the ICAO Asia/Pacific Regional Office eDocuments web-page.

2.21 The abovementioned regional guidance document is available on the ICAO Asia/Pacific Regional Office eDocuments web-page:

<https://www.icao.int/APAC/Pages/eDocs.aspx>.

Dissolution of APUAS/TF

2.22 The APUAS/TF/3 meeting noted that on completion of the guidance document the APUAS/TF objective would be met. Further noting that any residual tasks in the Task List would be assumed by the Secretariat for completion or for re-assignment to ATM/SG, the meeting agreed to a Draft Decision dissolving the Task Force, which was supported by ATM/SG/7 and agreed by APANPIRG/30:

Decision APANPIRG/30-9: Dissolution of the APUAS/TF

That, noting that the APUAS/TF has met its objective, and any residual tasks had been reassigned to the Secretariat, the APUAS/TF be dissolved.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) note the need for all organizations active in the UAS domain to coordinate their efforts, to ensure conformance with developing global standards, guidance and expectations;
- c) note the UAS element now included in the Performance Improvement Plan of the 2019 update of the Asia/Pacific Seamless ANS Plan; and
- d) note ***Conclusion ATM/SG/7-9: Regional Guidance for the Regulation and Safe Operation of UAS within National Airspace*** and ***Decision APANPIRG/30-9: Dissolution of the APUAS/TF***
- e) discuss any relevant matters as appropriate.

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AMENDMENT TO THE ASIA/PACIFIC SEAMLESS ANS PLAN¹

Insert new paragraphs as follows:

SECTION 5 – BACKGROUND INFORMATION

Regulation and Safe Operation of Unmanned Aircraft Systems

5.x The 27th Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/27, Bangkok, Thailand, 05 to 08 September 2016), noted that ICAO was developing standards for Remotely Piloted Aircraft Systems (RPAS, generally above 25 kg) that were focused on international IFR RPAS operations.

5.x APANPIRG/27 noted the challenges from many thousands of Unmanned Aircraft Systems (UAS) that operate outside the scope of the developing ICAO standards, and agreed to a recommendation that a specific UAS element be incorporated within the Asia/Pacific Seamless ATM Plan to facilitate a harmonized approach.

5.x The Asia/Pacific UAS Task Force (APUAS/TF) was therefore formed by APANPIRG to develop guidance material that supports an Asia/Pacific Seamless ATM Plan element, including regional expectations for the regulation and safe operation of UAS that fall outside the scope of the ICAO RPAS Panel, within non-segregated airspace and from an ATM perspective, by November 2019.

5.x Asia/Pacific regional guidance material developed by APUAS/TF is expected to be available in the late 2019 - mid-2020 timeframe, and will be published in the ATM section of the ICAO Asia/Pacific Regional Office eDocuments web-page at:

<https://www.icao.int/APAC/Pages/new-eDocs.aspx>

5.x The ICAO Headquarters Secretariat, supported by the Unmanned Aircraft Systems Advisory Group (UAS-AG), has also developed a global resource of information and guidance material, as including:

- The UAS Toolkit, providing general guidance on such issues as UAS regulations and risk-based approaches to regulation, training and education needs and authorizations, and examples of, and links to, existing UAS regulations of 39 States; and
- A UAS Traffic Management (UTM) framework, summarizing key principles, lessons learned and best practices in the establishment of requirements for approval of UTM service providers.

Note: the UTM framework is subject to ongoing development, in line with the growth of global knowledge and experience in UTM.

5.x The UAS Toolkit, UTM framework and other relevant information is available on the ICAO Unmanned Aviation web pages at:

<https://www.icao.int/safety/UA/Pages/default.aspx>

¹ Amendment included in the 2019 update of the Asia/Pacific Seamless ANS Plan. *APANPIRG Conclusion 30-5* Refers.

5.x Considering the rapid growth of the UAS industry, and the consequent economic and social benefits arising, there is an immediate need for an aviation regulatory response to facilitate access to non-segregated airspace while protecting the safety and access to airspace of conventional airspace users. For this purpose, an Asia/Pacific regional performance expectation for the regulation of UAS is included in PARS Phase II.

SECTION 7 – PERFORMANCE IMPROVEMENT PLAN

PARS Phase II (expected implementation by 07 November 2019)

Unmanned Aircraft Systems

7.x States should implement regulations supporting the integration of UAS operations in non-segregated airspace, using a risk-based approach and in accordance with the Asia/Pacific Regional Guidance for the Regulation of UAS, as a minimum.

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