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Ref.:   AN 12/48-18/88   10 August 2018

Subject: Approval of Amendment 6 to the PANS-TRG

Action required: a) Implementation of the amendment
on 3 November 2022; and b) Publication of any
differences as of 3 November 2022

Sir/Madam,

1.   I have the honour to inform you that the Air Navigation Commission, acting under delegated authority, on 15 June 2018, approved Amendment 6 to the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868) for applicability on 3 November 2022. The amendment was approved on 6 August 2018 by the President of the Council on behalf of the Council in accordance with established procedure. A copy of the amendment is available as an attachment to the electronic version of this State letter on the ICAO-NET (http://portal.icao.int) where you can access all other relevant documentation.

2.   Amendment 6 stems from proposals arising from the fifth and sixth meetings of the Remotely Piloted Aircraft Systems Panel (RPASP/5 and RPASP/6) addressing the introduction of Standards on remote pilot licences consequential to those introduced in Annex 1 — *Personnel Licensing* and the provision of a global framework for the regulation of remotely piloted aircraft systems (RPAS) licensing.

3.   An implementation task list, including an outline of guidance material, and an impact assessment for the amendment are presented in Attachments B and C, respectively.

4.   Your Government is invited by the Council to implement the provisions of the PANS-TRG. In this connection, I draw your attention to the decision taken by the Council, on 1 October 1973, to discontinue the publication of differences in Supplements to PANS documents and, instead, to request States to publish up-to-date lists of significant differences from PANS documents in their Aeronautical Information Publications (AIPs).

5.   Given that the implementation of the competency-based training provisions is optional for aircraft maintenance, air traffic controllers and air traffic safety electronics personnel, should your

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Government choose not to implement these provisions for those categories of personnel, there is no need to publish a difference in the AIP. However, should your Government use a competency-based training application which differs from that in Amendment 6, you are requested to publish the differences in your State's AIP.

6.   May I, therefore, invite your Government to publish in your AIP a list of any significant differences which will exist on 3 November 2022 between the provisions of the PANS-TRG and your national regulations and practices.

Accept, Sir/Madam, the assurances of my highest consideration.

Fang Liu
Secretary General

Enclosures:
    A — Amendment to the Foreword of the PANS-TRG
    B — Implementation task list and outline of guidance material
        in relation to Amendment 6 to the PANS-TRG
    C — Impact assessment in relation to Amendment 6 to the
        PANS-TRG

ATTACHMENT A to State letter AN 12/48-18/88

**AMENDMENT TO THE FOREWORD OF THE PANS-TRG, DOC 9868
FIRST EDITION**

Add the following at the end of Table A:

Amendment	Source(s)	Subject	Approved Applicable
6	Fifth and sixth meetings of the Remotely Piloted Aircraft Systems Panel (RPASP/5 and RPASP/6)	Regulatory structure for the issuance of remote pilot licences and the provision of a global framework for the regulation of remotely piloted aircraft systems (RPAS) licensing.	6 August 2018 3 November 2022

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IMPLEMENTATION TASK LIST AND OUTLINE OF GUIDANCE MATERIAL
IN RELATION TO AMENDMENT 6 TO THE PANS-TRG, DOC 9868

1. IMPLEMENTATION TASK LIST

1.1　　　　Essential steps to be followed by a State in order to implement the proposed amendment leading to consequential changes that will be reflected in the next amendment to the PANS-TRG:

　　　　　a) familiarize relevant oversight personnel with the proposed amendment;

　　　　　b) conduct a gap analysis between the new ICAO provisions and national regulatory framework;

　　　　　c) identification of the rule-making process necessary to transpose the new ICAO provisions into national regulations, where necessary;

　　　　　d) plan the necessary modifications to the national regulations and means of compliance; and

　　　　　e) initiate first phase of training of relevant oversight personnel prior to implementation of the new provisions.

2. STANDARDIZATION PROCESS

2.1　　　　Approval date: 6 August 2018

2.2　　　　Applicability date: 3 November 2022

2.3　　　　Embedded applicability date(s): N/A

3. SUPPORTING DOCUMENTATION

3.1　　**ICAO documentation**

Title	Type (PANS/TI/Manual/Circ)	Planned publication date
Manual of Criteria for the Qualification of Flight Simulation Training Devices (Doc 9625)	Manual	2018
Manual of Procedures for Establishment and Management of a State's Personnel Licensing System (Doc 9379)	Manual	2018
Manual on Remotely Piloted Aircraft Systems (RPAS) (Doc 10019)	Manual	2019

3.2   **External documentation**

Title	External Organization	Publication date
N/A		

4.   **IMPLEMENTATION ASSISTANCE TASKS**

Type	Global	Regional
Workshops		

5.   **UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME (USOAP)**

5.1   The content of this paper may require an amendment of the Universal Safety Oversight Audit Programme (USOAP) continuous monitoring approach (CMA) protocol questions (PQs) in the area of licences to assess effective implementation by concerned States. The existing PQs may need to be amended or new PQs may be required. This will be assessed during the next amendment cycle of the PQs.

— — — — — — — —

IMPACT ASSESSMENT IN RELATION TO
AMENDMENT 6 TO THE PANS-TRG, DOC 9868

1.   **INTRODUCTION**

1.1   Amendment 6 to the PANS-TRG, Doc 9868, address the introduction of Standards on licensing consequential to those introduced in Annex 1 — *Personnel Licensing* relating to remotely piloted aircraft systems (RPAS).

2.   **IMPACT ASSESSMENT**

2.1   *Safety impact*: RPAS is a new component of the aviation system that needs to be integrated safely into the aviation system as it is today. Competency-based training leading to licensing is an essential aspect of aviation safety. The remote pilot training framework will, therefore, ensure minimum competency of remote pilots for safe operations of RPAS and integration into international traffic.

2.2   *Financial impact*:   For States, this proposal will require an increase in resources for an effective implementation of competency-based training and assessment (CBTA) activities and the oversight of approved training organizations. For the industry, resources will be needed for the development and implementation of CBTA programmes to ensure remote pilot proficiency over time. Some training for other stakeholders of the aviation industry may be required.

2.3   *Security impact*: No security impact with the implementation of this proposal.

2.4   *Environmental impact*: No environmental impact with the implementation of this proposal.

2.5   *Efficiency impact*: Standardization and harmonization of competency-based training for remote pilots will improve airspace integration of RPAS in a safe manner.

2.6   *Expected implementation time*: Between three to five years.

— END —

AMENDMENT No. 6

TO THE

PROCEDURES
FOR
AIR NAVIGATION SERVICES

TRAINING

(Doc 9868)

INTERIM EDITION

The text of Amendment No. 6 to the PANS-TRG (Doc 9868) was approved by the President of the Council on behalf of the Council on **6 August 2018** for applicability on **3 November 2022**. This interim edition is distributed to facilitate implementation of the amendment by States. Replacement pages incorporating Amendment No. 6 are expected to be distributed in October 2022. (State letter AN 12/48-18/88 refers.)

AUGUST 2018

INTERNATIONAL CIVIL AVIATION ORGANIZATION

NOTES ON THE PRESENTATION OF THE AMENDMENT
TO THE PANS-TRG (DOC 9868)

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

~~Text to be deleted is shown with a line through it.~~   text to be deleted

New text to be inserted is highlighted with grey shading.   new text to be inserted

~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.   new text to replace existing text

TEXT OF AMENDMENT 6 TO THE

PROCEDURES FOR AIR NAVIGATION SERVICES — TRAINING (DOC 9868)

. . .

FOREWORD

1. HISTORICAL BACKGROUND

. . .

1.8   In 2016, the Remotely Piloted Aircraft System Panel (RPASP) developed competency frameworks for remote pilots, RPAS instructors and remote pilot licence (RPL) examiners to complement SARPs being incorporated into Annex 1, Chapter 2, in a new subpart B. This edition of the PANS-TRG has been restructured and amended concerning the introduction of RPAS.

2. SCOPE AND PURPOSE

. . .

2.2   The PANS-TRG specifies, in greater detail than in the SARPs, the actual procedures to be applied by training organizations when providing training for aeronautical personnel. This edition contains procedures for the development and implementation of various competency-based training programmes designed to meet the Annex 1 requirements for the MPL, the RPL and the AMMTE licence, as well as those flight crew training programmes developed under the EBT concept, which provides an alternative means of satisfying the recurrent training requirements of Annex 6 — *Operation of Aircraft*, Part I — *International Commercial Air Transport — Aeroplanes*. It also details the methodologies to successfully introduce aeroplane UPRT training at the commercial pilot (aeroplane) and MPL levels, as well as providing UPRT in a flight simulation training device at the commercial air transport pilot and type rating level to support the UPRT provisions promulgated in Annex 1 and Annex 6, Part I. The PANS-TRG also specifies procedures for the harmonized implementation of training procedures for ATM personnel.

. . .

4. IMPLEMENTATION

The implementation of PANS-TRG procedures is the responsibility of Contracting States; they are applied in the actual training only after, and in so far as, States have enforced them. However, with a view to facilitating their processing towards implementation by States, they have been prepared in language that will permit direct use by the personnel of approved training organizations (ATOs) and others associated with the development and implementation of a training programme for the MPL, RPL, flight crew recurrent training, aeroplane UPRT, the AMMTE licence and ATM personnel.

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Part I

GENERAL PROCEDURES

. . .

Chapter 1

DEFINITIONS AND ACRONYMS

1.1   DEFINITIONS

. . .

Performance criteria. Simple, evaluative statements on the required outcome of the competency element and a description of the criteria used to judge whether the required level of performance has been achieved.

Remote pilot station (RPS). The component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

Remotely piloted aircraft (RPA). An unmanned aircraft which is piloted from a remote pilot station.

Remotely piloted aircraft system (RPAS). A remotely piloted aircraft, its associated remote pilot stations, the required command and control links and any other components as specified in the type design.

Repair. The restoration of an aeronautical product to an airworthy condition to ensure that the aircraft continues to comply with the design aspects of the appropriate airworthiness requirements used for the issuance of the type certificate for the respective aircraft type, after it has been damaged or subjected to wear.

. . .

1.2   ACRONYMS

. . .

QS	Quality system
RPA	Remotely piloted aircraft
RPAS	Remotely piloted aircraft system
RPL	Remote pilot licence
RPS	Remote pilot station
SARPs	Standards and Recommended Practices

. . .

Chapter 3

QUALIFICATIONS OF INSTRUCTORS

. . .

3.2   INSTRUCTOR QUALIFICATIONS

. . .

Editorial note.— Renumber subsequent paragraphs accordingly.

3.2.4   RPAS instructors shall meet the requirements specified in Annex 1, 2.11.7 and 2.14, as appropriate. In addition, the RPAS instructor shall have experience, acceptable to the Licensing Authority, in RPAS operations.

. . .

Part II

TRAINING AND ASSESSMENT
FOR AIRCRAFT OPERATIONAL PERSONNEL

This part provides guidance on the training and assessment for aircraft operational personnel, including flight crew, cabin crew and flight dispatchers/flight operations officers. Section 1 introduces the training and assessment for flight crew. Chapter 1 outlines the principles and procedures for competency-based training and licensing for the multi-crew pilot licence (MPL). Chapter 2 contains evidence-based training (EBT) and Chapter 3 deals with upset prevention and recovery training (UPRT). Chapter 6 outlines the principles and procedures for competency-based training and licensing for the remote pilot licence (RPL).

Note. — Additional chapters will be introduced to Part II as procedures become available.

Section 1

FLIGHT CREW TRAINING AND ASSESSMENT

. . .

Chapter 2

EVIDENCE-BASED TRAINING (EBT)

This chapter is intended to provide guidance to civil aviation authorities, operators and approved training organizations in the recurrent training of pilots and remote pilots to develop and evaluate crew performance according to a set of competencies and the related knowledge, skills and attitudes (KSA).

. . .

Editorial Note.— Insert new Chapter 6 as per below.

Chapter 6

**COMPETENCY-BASED TRAINING AND ASSESSMENT
FOR REMOTE PILOT LICENCE (RPL)**

6.1   Introduction

6.1.1   This chapter outlines the principles and procedures that are applicable to the development and implementation of a remote pilot competency-based training and assessment programme and that shall be followed using the methodology outlined in Chapter 2. Appendix to this chapter contains the ICAO RPL Competency framework.

6.1.2   The approved training organizations (ATO) conducting approved RPL training and the Licensing Authorities shall comply with the procedures in Chapter 6.

6.1.3   The ICAO RPL Competency framework in Appendix to Chapter 6 shall be used as the basis for the development of an *adapted competency model* and approval of competency-based training and assessment programmes specific to the RPAS operational context.

6.2   Assessment

6.2.1   The assessment process developed by the ATO, which includes the assessment (evidence) guide, conditions and competency standards required for assessing applicants shall be approved by the Authority.

6.2.2   The RPL applicant shall successfully complete the approved competency-based training programme.

6.3   Training

6.3.1   All competency-based training for RPLs shall be developed using ADDIE principles.

6.3.2   The competency-based training programme for RPL shall consist of an integrated programme of theoretical and practical instruction.

6.4   RPAS instructor and RPL examiner qualifications

6.4.1   RPAS instructors and RPL examiners shall meet the following necessary requirements:

   a)   demonstrate competencies described in Appendix to Chapter 6; and

   b)   hold the qualifications to provide instruction for RPL training.

6.4.2   All RPL examiners shall receive refresher training and be authorized or re-authorized using a documented process acceptable to the Licensing Authority implemented by an approved training organization at intervals established by the Licensing Authority.

Appendix to Chapter 6

ICAO COMPETENCY FRAMEWORK FOR RPL

Note 1. — Paragraph 2.5 of Part I, section 2 states that this framework should be adapted to the RPAS operational context. It does not address the specific definition of duties, sharing of tasks, ratings and proficiency levels existing in the RPAS operator organization. The competencies in the table are not listed according to a pre-defined priority.

Note 2.— The principles of threat and error management should be integrated in the development of competency-based training programmes.

Competency	*Competency description*	*Observable behaviour*
Situational awareness	Perceives and comprehends the operational situation of the moment and all of the relevant information available and anticipates what could happen that may affect the operation.	• Identifies and assesses accurately the state of the RPAS • Identifies and assesses accurately the RPA's vertical and lateral position, and its anticipated flight path. • Identifies and assesses accurately the general environment as it may affect the flight, including the air traffic neighbouring the RPA operation and the meteorological conditions that could impact the operation • Conducts the operation in accordance with the airspace configuration where the RPAS operation is taking place • Keeps track of time and energy • Maintains awareness of the people involved in or affected by the operation and their capacity to perform as expected • Anticipates accurately what could happen, plans and stays ahead of the situation • Develops effective contingency plans based upon potential threats • Recognizes and effectively responds to indications of reduced situational awareness

Competency	Competency description	Observable behaviour
Application of Procedures	Identifies and applies procedures in accordance with published operating instructions and applicable regulations, using the appropriate knowledge.	• Identifies the source of operating instructions • Follows SOPs (Standard Operating Procedures) unless a higher degree of safety dictates an appropriate deviation • Identifies and follows all operating instructions in a timely manner • Correctly operates the RPAS and associated equipment • Complies with applicable regulations • Applies relevant procedural knowledge
Communication	Demonstrates effective oral, written, and other non-verbal communications, in normal and non-normal situations.	• Ensures the recipient is ready and able to receive the information • Selects appropriately what, when, how and with whom to communicate • Conveys messages clearly, accurately and concisely • Confirms that the recipient correctly understands important information • Listens actively and demonstrates understanding when receiving information • Asks relevant and effective questions • Adheres to standard radiotelephony phraseology and procedures • Accurately reads and interprets required documentation for the operation of RPAS • Accurately reads, interprets, constructs and responds to datalink messages • Completes accurate reports as required by operating procedures • Correctly interprets non-verbal communication • Where applicable, uses eye contact, body movement and gestures that are consistent with and support verbal messages

Competency	Competency description	Observable behaviour
RPA flight path management, automation	Controls the RPA flight path through automation, including appropriate use of flight management system(s) and guidance.	• Controls the RPA through automation with accuracy and smoothness as appropriate to the situation • Contains the RPA within the normal flight envelope • Maintains the desired flight path during flight using automation • Takes appropriate action in case of deviations from the desired RPA trajectory • Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload • Effectively monitors automation, including engagement and automatic mode transitions • Controls the RPA safely in degraded automation using only the relationship between RPA attitude, speed and thrust if applicable

Competency	Competency description	Observable behaviour
Leadership, teamwork and self- management	Demonstrates effective leadership, team working and self-management.	• Understands and agrees with the crew's roles and objectives. • Creates an atmosphere of open communication and encourages team participation • Uses initiative and gives directions when required • Admits mistakes and takes responsibility for own performance, detecting and resolving own errors • Anticipates and responds appropriately to other crew members' needs • Carries out instructions when directed • Communicates relevant concerns and intentions • Gives and receives feedback constructively • Confidently intervenes when important for safety • Demonstrates empathy and shows respect and tolerance for other people • Engages others in planning and allocates activities fairly and appropriately according to abilities • Addresses and resolves conflicts and disagreements in a constructive manner • Demonstrates self-control in all situations • Self-evaluates the effectiveness of actions

Competency	Competency description	Observable behaviour
Problem solving and decision-making	Accurately identifies risks and resolves problems. Uses the appropriate decision-making processes.	• Seeks accurate and adequate information from appropriate sources • Identifies and verifies what and why things have gone wrong • Employ(s) proper problem-solving strategies • Perseveres in working through problems without reducing safety • Uses appropriate and timely decision-making processes • Identifies and considers options effectively • Monitors, reviews, and adapts decisions as required • Identifies and manages risks and threats to the safety of the RPAS and people effectively • Changes behaviour and responds as needed to deal with the demands of the changing situation
Workload management	Manages available resources efficiently to prioritize and perform tasks in a timely manner under all circumstances.	• Plans, prioritizes and schedules tasks effectively • Manages time efficiently when carrying out tasks • Offers and accepts assistance, delegates when necessary and asks for help early • Reviews, monitors and cross-checks actions conscientiously • Verifies that tasks are completed to the expected outcome • Manages and recovers from interruptions, distractions, variations and failures effectively

Competency	Competency description	Observable behaviour
Coordination and handover	Manages coordination and handover between personnel in operational positions and with other affected personnel.	• Coordinates with personnel and other stakeholders, in a timely manner • Selects coordination/handover method based on circumstances, including urgency of coordination, status of facilities and prescribed procedures • Coordinates the handover using the prescribed coordination procedures • Coordinates changes of status of operational facilities such as equipment, systems and functions • Coordinates changes of status of airspace and aerodrome resources, as applicable • Uses clear and concise terminology for verbal coordination • Uses standard message formats and protocols for non-verbal coordination • Uses clear and concise non-standard coordination methods when required • Conducts effective briefings during position handover
Management of non-normal situations	Detects and responds to emergency and non-normal situations related to RPAS operations and manages the degraded modes of operation of the RPAS	• Identifies the possibility for the development of an emergency or non-normal situation from the information available • Determines the nature of the non-normal situation emergency • Prioritizes actions based on the urgency of the situation • Decides the most appropriate actions to initiate • Follows the prescribed procedures for managing the RPAS in emergency situations • Detects potential degradation to RPAS and/or equipment with particular attention to the potential loss of the C2 Link • Assesses the impact of the degraded mode

Competency	Competency description	Observable behaviour
		of operation • Takes actions, when required, to ensure the safety of the people overflown • Creates solutions when no guidance or procedure for a given non normal situation

Editorial Note.— End of new text

— END —