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Participation in ICAO PERSONNEL TRAINING AND LICENSING PANEL (PTLP)

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SUMMARY

The Personnel Training and Licensing Panel (PTLP) established to enable the coordinated review and development of personnel training and licensing requirements within and across technical disciplines.

1. **INTRODUCTION**

   1.1. PTLP undertake specific studies and develop ICAO provisions related to aviation personnel training and licensing, including studies to ensure that proposed amendments to the applicable provisions reflect current and emerging requirements, improvements in training tools and technologies, new training methodologies while reviewing automation dependency and possible mitigations.

   1.2. Active work programme items of PTLP:

   1) CBTA implementation and new technologies in Pilot Licensing SARPs;
   2) More effective use of STDs in training due to the inclusion of new aircraft technologies and opening the document for all aviation sectors such as Air Traffic Controllers, Remote Pilots and Maintenance Personnel;
   3) CBTA Implementation And New Technologies In ATCO Licensing SARPs;
   4) Women And Minority And Ethnic Groups In Aviation Professions;
   5) Automation Dependency;
   6) CBTA implementation and new technologies in licensing for aircraft maintenance personnel (Ref: Job Card PTLP.006)

2. **DISCUSSION**

   2.1. **CBTA implementation for all personnel licences**

   Problem statement:

   - The competencies and tasks required by civil aviation personnel to perform their jobs have evolved and expanded over time. This has resulted in development of competency-based training and assessment methodologies, which have been generally agreed as a very effective and efficient means for developing and assuring the competence of aviation personnel. However, this means that divergent CBTA methodologies have proliferated, which results in challenges for States to recognize each other's licences, ratings and certifications. PANS-TRG provides a single CBTA methodology which supports States in their obligation to recognize each other's licences, ratings and certifications. In addition, PANS-TRG is not adequately connected to Annex 1;

   - The evolution of training and licensing combined with the need to incorporate adaptive training and assessment practices while at the same time retaining required levels of standardisation, such as the competency-based training and assessment (CBTA) concept as a route to licensing should be addressed in a harmonized manner so that States will have confidence to recognise licences from other

States. Several general concerns are affecting the international licence recognition, such as the lack of global harmonization in competency-based assessment. ICAO should support States in their efforts to adopting CBTA as detailed in the PANS-TRG. Additionally, there is limited data available to support consideration of significant changes to licencing SARPs.

*Expected benefits***:**

Harmonization of licensing and training practices and methods enabling States to take full advantage of modern training and assessment practices, maintaining an overall improved level of safety and facilitating the international licence recognition.

*Actions***:**

1) Amend Annex 1 to advance the use of CBTA as a route to licensing for all air traffic controller licences and ratings;
2) Review and update Doc 9868 (Procedures for Air Navigation Services – Training) for consistency with the amendments to Annex 1 for air traffic controller licences and ratings;
3) Review and update Doc 10056 (Manual on Air Traffic Controller Competency-based Training and Assessment) for consistency with the amendments to Annex 1 and Doc 9868;
4) Review and update Doc 9379 (Manual of Procedures for Establishment and Management of a State's Personnel Licensing System) for consistency with the amendments to Annex 1 and Doc 9868 for air traffic controller licences and ratings;
5) Assess if Annex 1 needs to specify qualification requirements for persons to provide instruction in a CBTA programme for air traffic controller licences and ratings.

Reference Documents:

Annex 1 — Personnel Licensing;
Doc 9868 Procedures for Air Navigation Services - Training;
Doc 9841 – Manual on the Approval of Training Organizations;
Doc 9379 – Manual of Procedures for Establishment and Management of a State's Personnel Licensing System

CBTA Implementation And New Technologies In ATCO Licensing SARPs

The amendments to Annex 1 and PANS-TRG were proposed. The purpose of the proposed amendments was to address requirements for instructors providing instruction in a CBTA programme.
The analysis of the State and industry survey data regarding CBTA for air traffic controller (ATCO) personnel is being analyzed.

2.2. Qualification criteria for flight simulation training devices (FSTDs) and other simulation training devices (STDs)

Problem statement:

- Qualification criteria for flight simulation training devices (FSTDs) and other simulation training devices (STDs) are not aligned with the latest simulation and aircraft technology evolutions and with the latest pedagogic methodologies. It is also to be noted that ICAO Doc 9625 – Manual of Criteria for the Qualification of Flight Simulation Training Devices is not extensively used by CAAs and incorporated or referenced in their national regulation. The related guidance does not benefit from the most efficient regulatory oversight processes and does not address the air traffic controllers (ATCO) and aircraft maintenance technician/engineer/mechanic (AMTEM) training and licensing needs. The aforementioned elements impact mutual recognition of FSTD qualification and approvals for usage in training and licensing amongst civil aviation authorities (CAAs);

- For safety and training effectiveness reasons, more and more training courses rely on the use of flight simulation training devices (FSTD) for pilot training and other simulation training devices (STD) for ATCO and AMTEM. ICAO Doc 9625 – Manual of Criteria for the Qualification of Flight

Simulation Training Devices provides the necessary specifications for the qualification of FSTDs. ICAO guidance material needs to be updated or created to address new concept aircraft and new simulation technological developments applicable to pilots, ATCOs and AMTEMs';

- ATCOs and AMTEMs already make use of STDs for training purposes. However, due to an absence of harmonised guidance, the applicable regulations for the approval and use of STDs in approved training programs are different and fragmented. Individual ICAO Contracting States would benefit from guidance material that enables Licensing Authorities to develop national regulations to ensure that STDs used for licensing purposes are fit for their intended purposes. Establishing a common framework for the categorisation and use of STDs would enable an effective environment for sharing of best practices, and enabling any future developments that may require standardisation of the use of STDs;

- New simulation technologies such as extended reality (virtual reality-VR, mixed reality-MR, augmented reality-AR), the simulated ATC environment (SATCE) and the use of artificial intelligence in FSTDs and STDs are currently not included in Doc 9625;

- The capabilities of FSTDs in Doc 9625 are currently related to tasks, but not to competencies or observable behaviours. Therefore, Doc 9625 doesn't explain how these devices could or should be used for CBTA.

Expected Benefits:
More effective use of FSTDs/STDs in training of aviation professionals due to the inclusion of new and emerging aircraft types, simulation technologies and amending the document (or creating new document(s)), where appropriate, for other aviation sectors such as the training of ATCOs) and AMTEMs. More effective and efficient oversight of FSTD manufacturers and FSTD operators, and better international harmonization and mutual recognition of the qualifications and regulatory approvals of these training devices.

Actions:

1) Determine the feasibility and merit of introducing global provisions for the use of STDs in ATCO and AMTEM training and licensing;
2) Assess the benefits (safety, training effectiveness, international harmonisation) associated with implementing global provisions;
3) If appropriate, suggest the most effective way(s) to introduce global provisions for the regulation of STDs for ATCOs and AMTEM;
4) Determine if guidance on the use of existing and/or new and emerging simulation technologies, such as extended reality visual systems (virtual reality - VR, mixed reality - MR, augmented reality- AR), artificial intelligence - AI or simulated air traffic control environment (SATCE) are needed for ATCO training;
5) Update Doc 9625 to include new or updated qualification criteria for STDs for new and emerging simulation technologies, such as extended reality visual systems (virtual reality - VR, mixed reality - MR, augmented reality- AR), artificial intelligence - AI or simulated air traffic control environment (SATCE)';
6) Determine if specific guidance is needed for the implementation of STDs in ATCO environments to cover issues such as (but not limited to) functional considerations, benefits and relation to operational/live training;
7) If required, propose the creation and the content of a specific guidance to establish qualification criteria for STDs used for the training and licencing of ATCO personnel.

Reference Documents:
ICAO Annex 1 — Personnel Licensing
ICAO Annex 6 — Operation of Aircraft
ICAO Doc 9625 - Manual of Criteria for the Qualification of FSTDs
ICAO PANS-Training (Doc 9868)
ICAO Doc 9841 – Manual on the Approval of Training Organizations
ICAO Doc 9379 – Manual of Procedures for Establishment and Management of a State's Personnel Licensing System

ICAO Doc 9995 – Manual of Evidence/based Training

State and Industry Survey on the use of STDs in ATCO training programmes
There was provided an analysis of the State and industry survey data regarding the use of STDs for air traffic controller (ATCO) training programmes. 77 States, representing all seven ICAO regions, responded to the survey. 34 industry representatives responded to the survey. 31 of the industry representatives were from the Europe and North Atlantic (EUR/NAT) region; consequently, the sample was not globally representative.

There are three conclusions from the results of the survey. The first conclusion is that use of STDs in ATCO training programmes is widespread, mature, and effective. The second conclusion is that despite the different approaches States regulate the use of STDs, no safety concerns have been raised. The third conclusion is that future amendments to Annex 1 or guidance documents should not destabilise the current benefits of the use of STDs in ATCO training or impose additional constraints that do not provide tangible benefits.

2.3. Air Traffic Controller Licences and Ratings

Problem statement:
-   Air Traffic Controller (ATC) licensing SARPs do not reflect the current practices and needs of the industry in terms of ratings, endorsements, knowledge, experience and age requirements, and privileges.
-   The air traffic controller ratings, endorsements, and privileges have not evolved with the increase in complexity of air traffic control in the past two decades. States are implementing discrete methods of addressing the impact of this complexity on air traffic controller licenses. This has led to a lack of uniformity in the application of regulations and standards for ATC personnel, as urged by the Chicago Convention Article 37. Issues highlighted as not reflecting current practices include the use of STDs for training, possible need for ratings for ATC On-the-Job training instructors and Assessors, granularity of ratings, relevance of the minimum age limit, suitability of the minimum experience requirements, suitability of the current knowledge requirements and new methods of training.

Expected benefits:
Harmonization of air traffic controller licensing, training, and privileges which contributes to overall increase in aviation safety and public trust.

Actions:
1) Review of ATCO licensing requirements to assess the suitability of current SARPs; Subject to the results of the review, amendments to Annex 1;
2) Update those sections of Doc 9868 that are associated with ATCO licensing/rating/endorsement provisions, for consistency with the amendments to Annex 1;
3) Review and update Doc 9379 for consistency with the amendments to Annex 1;
4) Review and update Doc 10056 for consistency with the amendments to Annex 1 and Doc 9868';
5) Review and update Doc 8984 for consistency with the amendments to Annex 1, if required;
6) Assess the impact of emerging instructional technologies (e.g., distance learning) on training and assessment, delivery and methods to determine if amendments are necessary to Annex 1 or Doc 9868;
7) If required, amend ICAO Annex 1 to include the use of STDs for ATCO training and licensing.

Reference Documents:
Annex 1 — Personnel Licensing
Doc 9379 – Manual of Procedures for Establishment and Management of a State's Personnel Licensing System
Doc 9868 - Procedures for Air Navigation Services – Training
Doc 10056 – Manual on Air Traffic Controller Competency-based Training and Assessment.

2.4. English language proficiency

Problem statement:
- Safety concerns have been expressed due to an increasing number of safety reports being filed about language proficiency. The safety reports refer to significant differences in English language proficiency of personnel (pilots and air traffic controllers) in operational settings despite the personnel having the same Annex 1 referred English language proficiency rating scale level;
- The English language proficiency assessment outcomes may differ from each other due to the differences in tests and associated methodologies that arise from varied applications of ICAO language proficiency requirements resulting in a considerable number of different types of language tests and language testing organizations;
- While there is a high level of implementation of the language proficiency requirements, several reports/statistics point to safety concerns due to communication issues related to English language proficiency (EUROCONTROL and IATA) indicating that the same language level is given to actually differing proficiency levels;
- Consistency of language proficiency assessment outcomes for all aviation personnel is necessary to avoid disparities of the ability to speak and understand the language used for radiotelephony communications in the same operational level of the ICAO language proficiency rating scale;
- Based on first analysis performed during the last two years by the PTLP, this issue should be explored to propose new or updated criteria defining the necessary components to reach a consistent and harmonized implementation of the English language proficiency requirements.

Expected benefit:
An overall improved level of safety due to improved consistency and clarity of radiocommunications conducted in the English language.

Actions:
- Review and update Doc 9835 chapter 6 to include the criteria for testing-teams qualification and language testing organizations;
- Review and update Doc 9379 for consistency with the updates to Doc 9835 concerning the criteria for testing-teams qualification and language testing organizations;
- Conduct a survey to retrieve traceable data of the implementation language proficiency requirements (LPR) and the applicable guidance providing statistics by countries on the amount of granted levels (level 4, 5, 6), test being used and language testing organizations;
- Investigate if existing surveys (e.g. IATA, EUROCONTROL, …) on issues related to language proficiency can be updated and extended to other regions in coordination with ICAO regional offices;
- Review and update Doc 9835 for the appropriate criteria regarding the design of tests for the ICAO language proficiency requirements (LPRs) for pilots and ATCOs;
- Review and update Doc 9379 for consistency with the updates to Doc 9835 concerning the appropriate criteria regarding the design of tests for the ICAO language proficiency requirements (LPRs) for pilots and ATCOs;
- Review and update Doc 9835 to support: - a harmonized implementation of language proficiency requirements (LPR) by means of a defined procedure for approval of language testing organizations (LTO); and - a harmonized oversight process by States for sustainable LPR implementation.

Reference Documents:
Annex 1 — Personnel Licensing
Doc 9379 – Manual of Procedures for Establishment and Management of a State's Personnel Licensing System
9835 Manual on the Implementation of ICAO Language Proficiency Requirements

2.5. Women And Minority and Ethnic Groups In Aviation Professions

It is identified that there is a lack of State policies to foster the formation and qualification of minorities in the aviation industry
The States, with ICAO support, must develop and implement Inclusion Policies with the objective of granting access to Civil Aviation System to women, minority, and ethnic groups.

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3.   RECOMMENDATIONS

    3.1.   It is recommended that this report be accepted as information paper.

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