International Civil Aviation Organization

**Twenty Eighth Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/28)
of APANPIRG**

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**Agenda Item 11: Capacity Building, Including Human Factors and Air Traffic Safety
Electronics Personnel (ATSEPs) Related Training**

**TRAINING INITIATIVES FOR AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL
(ATSEP) TO ENHANCE AVIATION SAFETY**
(Presented by MALAYSIA)

SUMMARY

This working paper presents the training initiatives for Air Traffic Safety Electronics Personnel (ATSEP) by the Civil Aviation Authority of Malaysia (CAAM) and Advanced Air Traffic Systems (AAT) Sdn Bhd. The paper outlines the development of the ATSEP Basic Training Manual and Standardized Training Packages (STPs) in accordance with ICAO Doc 10057, aiming to enhance the competency of ATSEP in maintaining Communications, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) systems.

1. INTRODUCTION

The Next Generation of Aviation Professional (NGAP) initiatives were launched to ensure the availability of qualified aviation professionals for the future international air transport system. The effective performance of the Air Traffic Management (ATM) system depends on competent and qualified professionals. Air traffic safety electronics personnel (ATSEP) are critical for the safe operation of CNS/ATM systems, responsible for their installation, operation, and maintenance. It is the responsibility of Air Navigation Service Providers (ANSP) to define the scope of ATSEP activities as per the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868). This paper discusses the competency-based training and assessment programs for ATSEP developed by AAT in collaboration with CAAM and the Malaysia Aviation Training Center (MAvA).

2. DISCUSSION

2.1 Competency-Based Training for ATSEP

Air Traffic Safety Electronics Personnel (ATSEP) are personnel proven competent in the installation, operation, and/or maintenance of a Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) system. It is the responsibility of the ANSP to define the scope of ATSEP activities as per the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868). ATSEP plays a significant role in the safe operation of CNS/ATM systems. All those involved in the development of competency-based training and assessment programs for ATSEP should have a detailed understanding of the regulatory environment in which they work.

The ICAO Doc 10057 Manual on ATSEP Competency-based Training and Assessment provides the framework for developing training programs. AAT, in collaboration with CAAM, has developed the ATSEP Basic Training Manual, including Appendix B Recommended Training Objectives for Initial Training. This manual serves as a foundation for training ATSEP in the critical skills required for maintaining CNS/ATM systems.

2.2 Standardized Training Packages (STP)

AAT, in collaboration with MAvA, has developed Standardized Training Packages (STP) based on the taxonomy levels in ICAO Doc 10057. These STPs, validated by ICAO Trainair Plus, ensure a standardized approach to training across different modules. The STPs include:

- **Performing ADS-B System Equipment Maintenance**
- **DVOR System Equipment Maintenance**

These courses aim to equip ATSEP with the necessary knowledge, skills, and attitudes to ensure maintenance activities are carried out properly in accordance with international standards and Standard and Recommended Practices (SARPs).

2.3 Course Descriptions

Performing Automatic Dependent Surveillance - Broadcast (ADS-B) System Equipment Maintenance

Goal: To provide Air Traffic Surveillance Engineers with the necessary skills to ensure maintenance procedures deliver maximum system operational availability in compliance with ICAO standards.

Learning Objectives:

1. Complete theoretical questions on ADS-B principles and system architecture.
2. Perform ADS-B system equipment maintenance procedures.
3. Justify solutions and types of interventions.
4. Describe intervention procedures for faulty ADS-B equipment.

Primary Target Population: Air Traffic Surveillance Engineers

Entry Requirements:

- At least one year of experience in Air Traffic Surveillance Systems.
- Basic knowledge of ADS-B systems.
- Scheduled to start active operations on ADS-B maintenance within 90 days.

Doppler VHF Omnidirectional Range (DVOR) System Equipment Maintenance

Goal: To provide ATSEP (Navigation) with the skills required to ensure that maintenance procedures are implemented in accordance with international standards.

Learning Objectives:

1. Perform scheduled maintenance of DVOR equipment.
2. Resolve non-scheduled maintenance for DVOR equipment.
3. Assess Flight Calibration Results.

Primary Target Population: ATSEP (Navigation)

Entry Requirements:

- Basic knowledge of DVOR navigation systems.
- At least one year of experience in Air Traffic Surveillance Systems.

2.4 Conclusion

With reference to the International Civil Aviation Organization (ICAO) Doc 10057 Manual on Air Traffic Safety Electronics Personnel (ATSEP) Competency-based Training and Assessment, Advanced Air Traffic Systems (AAT) Sdn Bhd, in collaboration with the Civil Aviation Authority of Malaysia (CAAM) has developed an ATSEP Basic Training Manual that includes Appendix B: Recommended Training Objectives for Initial Training.

In collaboration with the Malaysia Aviation Training Center (MAvA), AAT has also developed Standardized Training Packages (STP) based on the taxonomy levels in Doc 10057 for all STP modules. The definition of verbs for each level of accomplishment are as follows:

LEVEL DESCRIPTIONS:

- **Level 0:** *Denotes a simple level of awareness.*
- **Level 1:** *Requires basic knowledge of the subject. The trainee is able to remember essential points and is expected to memorize and retrieve data.*
- **Level 2:** *The student understands the subject sufficiently to discuss it intelligently. Individuals can represent objects and events to act upon them.*
- **Level 3:** *Requires thorough knowledge of the subject and the ability to apply it with accuracy. Students should be able to make use of their repertoire of knowledge to develop plans and activate them.*
- **Level 4:** *Ability to establish a line, within a unit of known applications, following the correct chronology and adequate methods to resolve a problem situation. This involves the integration of known applications in a familiar situation.*
- **Level 5:** *Ability to analyze a new situation in order to elaborate and apply one or other relevant strategy to solve a complex problem. The defining feature is that the situation is qualitatively different from those previously met, requiring judgment and evaluation of options.*

Upon completion of the STP (validated by ICAO Trainair plus), MAvA has been recognized as a Regional Training Center of Excellence (RTCE), and its personnel certified as qualified ICAO Trainair Plus Validators. The completed STP includes courses on Performing ADS-B System Equipment Maintenance and DVOR System Equipment Maintenance, developed by AAT ICAO Qualified Course Developers (IQCD). These courses aim to equip ATSEP with the necessary knowledge, skills, and attitudes to ensure maintenance activities are carried out properly in accordance with international standards and Standard and Recommended Practices (SARPs).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- Note the information provided in this paper.
- Share their experiences in developing STP programs with others.

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