



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

NAM/CAR/CATC/WG/2 — WP/10
26/11/14

**Second NAM/CAR Civil Aviation Training Centres Working Group Meeting
(NAM/CAR/CATC/WG/2)**

ICAO NACC Regional Office, Mexico City, Mexico, 2 to 5 December 2014

**Agenda Item 5 Analysis of Courses Offered in Each NAM/CAR Region CATC
5.2 Identification and Analysis of NAM/CAR Region Training Needs**

**IDENTIFICATION OF TRAINING NEEDS IN AERONAUTICAL MESSAGE HANDLING
SYSTEM (AMHS) IMPLEMENTATION**

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This paper presents the AMHS training needs to be considered by the Civil Aviation Training Centres (CATCs) for supporting the implementation, operation and maintenance of the AMHS Systems.	
Action:	Suggested action are presented in Section 3
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency• Environmental Protection
<i>References:</i>	<ul style="list-style-type: none">• Message Handling System (AMHS) Task Force Meeting, Boca Chica, Dominican Republic, 27 September 2013

1. Introduction

1.1 The Human factor and the necessary training are fundamental for developing the competencies required to efficiently and effectively manage, operate, design, implement, maintain and support any CNS/ATM System. Some States had implemented a comprehensive programme of training, certification and in some cases, licensing, while other States were still looking for appropriate guidance.

1.2 The 12th Air Navigation Conference (AN-Conf/12) with the approval of the Aviation System Block Upgrades (ASBUs) and under the Global Air Navigation Plan (GANP) – Framework for Global Planning, recommended that for implementation of the GANP, ICAO assist States and regions in training and capacity-building towards implementation of the relevant modules of the ASBUs and that the future direction of the GANP will be based on the successful rollout of new concepts and technologies dependent on well synchronized strategies for education and training.

1.3 The constant evolution of CNS/ATM technology brings new challenges to air navigation, such the case of the new systems like the AMHS. Training requirements have to be adapted regularly.

2. Discussion

2.1 The AMHS implementation is a regional Air Navigation Priority as established in the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP). This implementation is currently supported by the NAM/CAR Air Navigation Implementation Working Group (ANI/WG) AMHS Task Force and the GREPECAS D Project (ATN infrastructure in the CAR Region and its ground-ground and ground-air applications), as well as different workshops conducted for this purpose.

2.2 From the III Workshop/Meeting on the Follow-up to the Implementation of the ATS Message Handling System (AMHS) in the NAM/CAR Regions (III AMHS-IMP) held in Boca Chica, Dominican Republic, from 24 to 26 September 2013, supported by the GREPECAS CAR Project D - ATN infrastructure in the CAR Region and its ground-ground and ground-air applications Meeting on 27 September 2013, the AMHS training needs were commented following ICAO guidance for this type of technical training.

ICAO Training Manual for the Air Traffic Safety Electronics Personnel (ATSEP) (Doc 7192)

2.3 The Technical training for the personnel involved in the maintenance and installation of CNS/ATM systems should be aligned with the ICAO Doc 7192 - *Training Manual for the Air Traffic Safety Electronics Personnel (ATSEP)*. Doc 7192 should be used in conjunction with Annex 10 — *Aeronautical Telecommunications*, and associated manuals, as well as with the training required for these systems. All personnel directly involved in operation, maintenance and installation activities of CNS/ATM systems should be qualified for their job functions. ATSEP is the ICAO-recognized terminology for personnel involved in the operation, maintenance and installation of a CNS/ATM system.

2.4 In order to cover the various backgrounds of trainees and to ensure training standardization worldwide, it is recommended that training be divided into multiple levels as follows:

- *Basic training*: Fundamental knowledge and skills appropriate to the discipline to be pursued in the CNS/ATM environment.
- *Qualification training*: Job-category-related knowledge and skills appropriate to the discipline to be pursued in the CNS/ATM environment. Various applications have been identified that apply to the five corresponding discipline qualifications of communication, navigation, surveillance, data processing and power supply. A General AMHS concept is considered under the communication discipline.
- *System and equipment rating training (also referred to as “Specific training”)*: System and equipment knowledge and skills leading to recognized competency, for example specific AMHS System courses. It also includes on-the-job training (OJT), which is the practical integration of previously acquired knowledge and skills, under the supervision of a qualified on-the-job-training instructor (OJTI), in an operational environment.

- *Continuation training:* Training given to personnel, designed to augment existing knowledge and skills and/or to prepare for new technologies. It includes refresher, emergency and conversion training. Refresher and emergency training are sometimes called “recurrent training”.
- *Conversion training:* Designed to provide knowledge and skills appropriate to a change in either job category (new discipline or new type rating), environment (new procedures) or system (system upgrade or change).
- *Developmental training:* Training designed to provide additional knowledge and skills demanded by a change in the job profile, e.g., system monitoring and control, training instructor, installation or engineering technologist, or any other career development.

EUR AMHS COM Centre Training Guidelines Manual

2.5 The AMHS training needs may be accomplished following existing guidelines like the AMHS COM Centre Training Guidelines Manual. In April 2012, version 1.0 of the EUR AMHS COM Centre Training Guidelines Manual was published with the purpose to provide information and guidance on the training and expertise required for personnel involved in the operation and maintenance of a COM Centre, defining training process and specifying training guidelines in order to have a common level of training for staff that operates and maintains COM Centres with AMHS capabilities.

2.6 The EUR AMHS COM Centre Training Guidelines Manual is applicable to all AMHS involved personnel, e.g. System Supervisors, Operators, Maintenance personnel, Engineers, End Users, etc. (the actual structure, naming and responsibilities of the personnel, varies among Air Navigation Service Providers (ANSPs)).

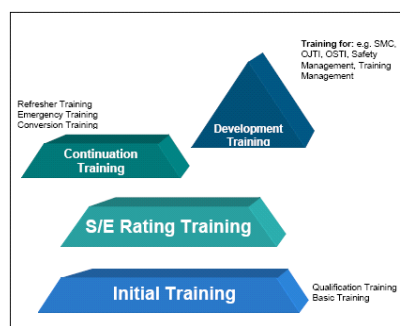
2.7 These guidelines consider the following concepts:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. AMHS training could be distinguished as covering three major activities of AMHS deployment: 2. AMHS operational management is structured in the following macro areas (competences) 3. In practical terms, the staff involved in the above tasks is performing the following functions: | <ul style="list-style-type: none"> • AMHS Specification and Testing • AMHS Installation and Technical Support • AMHS Operation and Supervision • Fault management • Configuration management • Accounting management • Preventive maintenance • Performance management • Security management • <i>AMHS System Administration/Supervision (ASS)</i> • <i>AMHS System Operation (ASO)</i> • <i>AMHS System Technical Support (Maintenance) (ASM)</i> • <i>AMHS End System Operation (AEO)</i> |
|--|--|

Depending on the organizational structure of each ANSP, the same personnel may be performing one or a combination of the above functions.

Competences\Functions	ASS	ASO (24hrs)	ASM	AEO
Fault management	X	X	X	
Preventive Maintenance			X	
Configuration management	X	X	X	
Accounting management	X			
Performance management	X	X	X	
Security management	X		X	
Operation	X	X		X
Basic UA Configuration and/or H/W Monitoring	X		X	X

2.8 Similarly, these guidelines provide the qualifications and expected knowledge needed for each profile/function and responsibilities to be achieved by each profile. Finally the guidelines propose, based on the ICAO Training Manual ATSEP, 6 training types/levels with its objectives and proposed syllabus.



2.9 A baseline training list is proposed for AMHS staff to reach operational level:

- Common Basic Communications Training (C.1)
- Common AMHS general training (C.2)
- COM Centre Operation (O.1)
- AMHS COM Centre Operation (O.2)
- Use of UAs (O.3)
- System Maintenance – H/W (M.1)
- System Maintenance – S/W (M.2)
- COM Centre Supervision (S.1)
- System Monitoring and Control (S.2):

Module Name	Type	ASS	ASO	ASM	AEO
C.1	Basic training	X	X	X	
C.2	Qualification training	X	X	X	X
O.1	Qualification training	X	X		X
O.2	System/equipment competence training	X	X		
O.3	System/equipment competence training		X		X
M.1	System/equipment competence training			X	
M.2	System/equipment competence training			X	
S.1	System/equipment competence training	X	X		
S.2	System/equipment competence training	X			

Table – AMHS training modules

2.10 The following considerations are to be taken into account by each ANSP when planning the AMHS training:

- a) ANSPs should establish their AMHS Training Plan based on an analysis of their particular training needs and operating practices;
- b) similar to any ANS system, an AMHS System is subject to maintenance in line with the strategy and processes set out by the ANSP, so that the performance, reliability, availability and maintainability requirements are met;
- c) maintenance responsibilities should be clearly defined and assigned, personnel should be trained accordingly and the cooperation procedures between the operation and the maintenance entities, should be in place, when different; and
- d) when some levels of maintenance are assigned to third parties, the responsibilities on each side including training/qualification profiles for the third party personnel, should be specified in the appropriate agreements.

3. Suggested Actions

3.1 The Meeting is invited to:

- a) review training needs for AMHS personnel as described in document EUR COM AMHS Training Guidelines Manual, Version 1.0, and ICAO Doc 7192;
- b) plan as possible, the necessary courses on AMHS; and
- c) take any other action as deemed necessary.