



CIVIL AVIATION AUTHORITY OF FIJI

# GUIDANCE MATERIAL

## Training – AMO CNS

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## **PREFACE**

This Guidance Material (GM) is published by the Civil Aviation Authority of Fiji for purposes of promulgating supplementary material to that published in the Authority's Standards Documents.

This GM provides guidance to the Approved Maintenance Organization (AMO) CNS, to comply to the training requirements under SD-ATELCOM for CNS personnel who install, maintain, calibrate, manage, certify the operational use of CNS/ATM facilities and equipment.

This GM explains certain regulatory requirements by providing interpretive and explanatory material.



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Chief Executive  
**Civil Aviation Authority of Fiji**

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## **INTRODUCTION**

The Approved Maintenance Organization (CNS) shall meet the staffing and training requirements to ensure that CNS personnel meet the competency levels required to provide technical support on licensed CNS/ATM facilities. (Refer SD-ATELCOM 2.3).

The Approved Maintenance Organization (CNS) shall develop a training programme for CNS personnel (Refer SD-ATELCOM 3.1b), establish training procedures and records on personnel qualification, experience, training, competency assessments, and current authorizations (SD- TELCOM 3.13)

This guidance material is to assist the Approved Maintenance Organization (CNS) to comply with the training requirements under the SD-ATELCOM.

## **MINIMUM QUALIFICATION REQUIREMENT**

It is expected that maintenance CNS personnel will have at least a basic qualification, such as the National Diploma in Electrotechnology or equivalent, with additional qualification on networking, for the installation, maintenance and management of all aeronautical telecommunication equipment that pertain to CNS and ATM systems.

## **TRAINING PROGRAMME**

The organization training programme should include the training phases given below and cover the procedures to be followed for the operation and maintenance of aeronautical telecommunication (CNS/ATM) facilities.

The training programme should be based on the ICAO Doc 10057 and PANS Training Doc 9868. The term ATSEP (Air Traffic Safety Electronics Personnel) is used by ICAO to refer to CNS personnel.

### **Training Phases**

There are four training phases. The details are given below.

#### **Phase 1 Initial Training**

This phase is designed to provide underpinning knowledge and skills and is delivered in two parts:

Basic training applicable to all ATSEP and qualification training specific to ATSEP profiles. 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.

#### **Phase 2 Unit Training**

This phase is oriented to the tasks an ATSEP will perform in a specific environment. Unit training addresses theoretical and practical issues from equipment-specific and/or site-specific perspectives. It includes on-the-job training (OJT). It is in this phase that ATSEP competencies are developed and assessed.

### **Phase 3 Continuation Training**

The continuation training phase is designed to maintain competencies and prepare for system upgrades and/or modifications. It includes refresher, emergency and conversion training, where applicable.

### **Phase 4: Development training**

This phase focuses on the development of additional competencies required by a change to or an evolution of an ATSEP's profile.

Refer to ICAO Doc 10056 Manual on Air Traffic Safety Electronics Personnel Competency- based Training and Assessment

Refer Appendix 1 for the Training Programme Overview.

### **TRAINING PLAN**

The AMO CNS organization will have a training plan to implement the training program for its CNS personnel. The training plan is to be complemented by the AFTL Rating Assessment Plan for licensed facilities.

The periodic training plan will provide the details of the training, and prioritizing the type of training to be provided and the timelines for implementation.

Refer Appendix 2 for the Training Plan Template.

## **COMPETENCY ASSESSMENT OF CNS PERSONNEL**

The procedures for assessing the competence of CNS personnel who are authorized to place CNS facilities into operational service should specify the levels of training, qualification, and experience that are necessary to ensure the safe operation of the organization's facilities.

Maintenance CNS personnel intended to be authorized to return listed facilities to operational service should under-go specialized Competency-Based Assessment Training (CBTA) on the facility type. This will be followed by an on-the-job evaluation of their competence for the particular facility and its location before the Aeronautical Facility Technician Licence facility rating assessment to obtain the rating endorsement from the Civil Aviation Authority of Fiji.

This CBTA training should include an examination to assess the person's knowledge of the facility type. The on-the-job evaluation and AFTL rating assessment must establish that the person complies with the procedures for the operation and maintenance of the facility and fully understands:

- \* the role of the facility within the air navigation system.
- \* the functions use and limitations of any built-in executive monitor or self-check system.
- \* the use of special test equipment for checking critical parameters.
- \* the types of maintenance activity that require detailed safety, specification and parameter checks to be made before the facility is placed into operational service.
- \* the requirement for, and the extent of, any site protection areas.
- \* any peculiarities of the particular facility.

The competence check must establish that the person can satisfactorily carry out the necessary checks for the facility and complete the documentation for placing the facility into operational service. It is essential that supervisors and authorized CNS personnel have an adequate knowledge of the procedures relevant to their role in the organization.

On-the-job competence checks should be carried out at regular intervals of the CBTA with appropriate continuation training as necessary, to maintain the competence level of those persons authorized to place facilities into operational service.

Continuation training should include instruction on changes in regulatory requirements and standards, changes to the organization's procedures and exposition and changes to the operating requirements of applicable facilities.

The job descriptions for all personnel who carry out, verify and manage any work that can affect the safe performance of a facility should define their responsibilities, their authority and their inter-relationships. This is particularly important for personnel who need the organizational freedom and authority to:

- \* initiate action to prevent unsafe situations developing
- \* identify and record problems that may affect safety
- \* initiate, recommend or provide solutions
- \* verify the implementation of solutions, and
- \* control further activities following the detection of unsafe situations until deficiencies have been corrected. The documentation provided to those authorized to place facilities into operational

service should clearly identify the types of facilities and the locations that the authorization covers.

The ATSEP competency framework can be found in the ICAO PANS Training Doc 9868 Part IV Chapter 4 Competency Based Training Assessment for ATSEP.

The guidelines for the implementation of Competency-Based Training and Assessment (CBTA) for Air Traffic Safety Electronics Personnel (ATSEP) is contained in the ICAO PANS-Training Doc 9868, Appendix 1 to Chapter 4.

The *ICAO COMPETENCY FRAMEWORK FOR ATSEP* is contained in the ICAO PANS- Training Doc 9868, Appendix 2 to Chapter 4.

## **RECORDS OF TRAINING**

Records are required for CNS personnel who are authorized by the organization to place CNS/ATM facilities into operational service.

The records must include the following information:

- \* name
- \* date of birth
- \* position held within the organization
- \* relevant qualifications
- \* experience
- \* special equipment training report and copy of certificate attained
- \* facilities covered by the Authorization, if any and
- \* details of competency checks.

Records may be kept in any format but are to be controlled by a responsible senior person.

Access to the record system is to be controlled to ensure that the integrity of the records is maintained.

The CAAF may require access to any of the records for certification or safety audit purposes, and may be required for the investigation of an aircraft accident or incident.



**APPENDIX 1: Training Programme Overview**

PHASE	TRAINING TITLE	TRAINING Content	TIMELINE	DURATION	Training Provider
<b>Basic &amp; Qualification Training</b>	<b>International and National Organizational Standards</b>	International and National Organizational Standards	Y1	1 month	Fiji Airports/CAAF
		Methods of ICAO notification and implementation of legislations, ICAO technical recommendations			
		Introduction to Air Law Overview of CAAF Basic introduction on Safety Management Systems Human Factors for ATSEP			
		Working Positions and environment - Regulations on workplace, fire and safety; safety policy and quality control related to systems.			
		Identify the equipment in the working position and the environment surrounding the building			

	<b>Familiarization with Air Traffic Services, Airspace Standards, Meteorology and Altimetry</b>	Airspace users and customer relations			
	<b>Familiarization with CNS/ATM concepts</b>	Air Traffic Management - ATC, FIS, ATLSR, ATFM, ASM, Coordination, Air Traffic Control			
		Separation standards and collision avoidance			
		MET atmosphere			
		Atmospheric pressure, humidity, density			
		Clouds & precipitation, Tropical Thunderstorm			
		Altimetry			
		Aviation Hazards			
		Met Phenomenal and Codification			
		Met Tools and Instruments			
		Voice Communications - Ground - Ground and Air-Ground			
		Transmitters, Receivers, Radio Communications			
		Navigation			
		Recording			

		<p>Data Link Comms &amp; IP Networking</p> <p>Ground Based NavAids - VOR, DME, ILS, NDB</p> <p>Satellite Based Navigation - GNSS, GPS, GLONASS</p> <p>Surveillance and RADAR - primary, secondary, ADS-B, ADS-C, Multilateration</p> <p>Aircraft Systems - onboard equipment and warning systems</p> <p>Flight Inspections</p> <p>ATM networks -AMHS system architecture</p> <p>Data processing - Flight plan processing, online and environmental data processing for Air Traffic Management System</p> <p>Display</p> <p>Air conditioning</p> <p>Monitoring and Control System</p> <p>Power Supply</p> <p>AMO Certification and ANSP department operations</p>			
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Unit Training	Unit Training on CNS Facilities	Using the block diagram, overview of signal flow and interconnectivity using route schematic, to understand the principle of operation, the functions of transmitter subsystem, antenna subsystem, onboard equipment:	Y1	3 months	Fiji Airports
	On-The-Job Training on CNS Facilities	1) ILS 2) VOR 3) DME 4) NDB 5) ADS-B 6) VHF/HF RT A-G Comms 7) G-G Comms VCS, PABX 8) ATM systems 9) AMHS system * include site visit OJT on the CNS facilities with ANSP	Y1	6 months	External - Fiji Airports
System Training	Specialized equipment training	Operation and Maintenance of CNS equipment -  Communication A-G, G-G Voice and Data	Y2/Y3	TBD	External - with system supplier or pursue with ROK KCATC

		Navigation -ILS, VOR, DME, NDB and GNSS Surveillance- ADS-B, ADS-C AIS-AIM SWIM			
<b>Continuation</b>  (every 3 years)	Refresher Training	Operation and Maintenance of CNS/ATM systems OHS First Aid course AIS-AIM SWIM	Y4	TBD	External
<b>Development Training</b>	Development Training	Accident and incident investigation Lead Auditor and auditing training including root cause analysis Safety Management Quality Management System Report writing Supervision training First Aid course Working at Heights OHS Human Factors	TBD	TBD	External

## APPENDIX 2: Training Plan Template

Course	Priorities P1, P2, P3	Training Provider	Duration	Cost	YYYY CNS TRAINING PLAN												YYYY CNS TRAINING PLAN												YYYY CNS TRAINING PLAN															
					Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec				
Basic Training	P1	TBD	5 days	TBD																																								
Unit Training	P1	TBD	TBD	TBD																																								
Specialised Training (per facility)	P1	TBD	TBD	TBD																																								
OJT (per facility)	P1	TBD	6 weeks	TBD																																								
Refresher Training (optional)	P1	TBD	TBD	TBD																																								
Train the Trainer TOT Module 1	P2	TBD	6months	TBD																																								
Audit training including root cause analysis	P3	SAA	TBD	TBD																																								
Lead Auditor Training /*Safety Auditor Course	P3	SAA	5 days	US \$2500																																								
Basics of human factors	P2	SAA	TBD	TBD																																								
Technical report writing	P2	TBD	TBD	TBD																																								
Safety Management	P1	TBD	TBD	TBD																																								
First Aid	P2	TBD	TBD	TBD																																								
OHS modules I and II.	P2																																											
Employment Relations Promulgation	P2	TBD	5 days	TBD																																								
Accidents/ Incident Investigation	P3	SAA	5 days	US \$2550																																								
Safety Risk Assessment Course	P2	TBD	5 days	TBD																																								
Safety Management System Implementation	P3	SAA	5 days	US \$1800																																								
Quality Management System	P3	SAA	5 days	TBD																																								
* Safety Auditors course	P1	SAA	5 days	US \$2500																																								
Resolution of Safety Issues	P3	SAA	5 days	US \$1,700																																								
Maintenance of CNS/ATM systems	P1	TBD	TBD	TBD																																								

### NOTES:

- Name(s) of CNS personnel are slotted in the Month of Year YYYY.
- P1 Training that is necessary to ensure CNS personnel is qualified to conduct installation, maintenance and management of Aeronautical Telecommunication (CNS/ATM) facilities.
- P2 Training that is desirable to provide redundant capability to perform necessary tasks or necessary to maintain qualification levels on par with the existing aviation industry.
- P3 Training that will enhance the level of qualification or management abilities.