GHANA CIVIL AVIATION (AIR NAVIGATION SERVICE) DIRECTIVES

PART 23:- SUBPART 7

AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL (ATSEP) LICENSING

Introduction

In Subpart 7 of Part 23, the requirements for the licensing and rating of Air Traffic Safety Electronics Personnel (ATSEP) are defined. To enhance safety of flights and to ensure personnel involved in the maintenance and installation of Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) systems acted professionally at all times in the performance of their duties, it has been approved by the ICAO Council that ATSEPs shall be licensed like other professionals in the aviation industry but on National basis.

This Subpart contains information on the requirements for an ATSEP license and rating.

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23.7 AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL (ATSEP) LICENCES, CATEGORIES AND RATINGS

23.7.1 APPLICABILITY

(a) This Subpart prescribes the requirements of the Republic of Ghana for:

(1) issuing ATSEP licenses and ratings; and authorizations to those licenses, as applicable;

(2) Conditions under which those licenses, ratings, and authorizations are necessary; and

(3) Privileges and limitations of holders of those licenses, ratings, and authorizations.

(b) This Part is applicable to all persons seeking ATSEP licenses under the aviation regulations of Ghana and the persons and organizations that provide and supervise the required training, experience and authorizations.

(c) This Part shall be used in conjunction with the following Ghana Civil Aviation Directives:

1) Part 2 – Personnel Licensing; and

2) Part 3 – Approved Training Organizations (ATO).

23.7.2 DEFINITIONS

For the purpose of this Subpart, the following definitions shall apply—

Air traffic management. The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground based functions.

Air navigation facility. Any facility used in, available for use in, or designed for use in aid of air navigation, including airports, landing areas, lights, any apparatus or equipment for disseminating weather information, for signalling, for radio directional finding, or for radio or other electromagnetic communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and take-off of aircraft.

Approved training. Training conducted within an approved training organization under special curricula approved by the Authority.

Approved training organization. An organization approved by a Contracting State in accordance with the requirements of Personnel Licensing regulations to perform training and operating under the supervision of that State.

ATM services personnel. Persons assigned to perform duties directly in connection with the provision of Air Traffic Management Services.

Attitude. Attitude is understood as behaviours that are acceptable or not in a given context. Attitudes are a component part of the trainees' required performance that is described in the intermediate objectives. Attitudes are taught to reflect the values and beliefs that students should hold to behave in an acceptable way.

ATSEP: Air Traffic Safety Electronic Personnel (ATSEP) are the technical personnel directly involved in operations and maintenance of CNS equipment/systems that are in operation at different civil aviation offices.

ATSEP License: A document issued by GCAA authorizing the holder to exercise specified privileges.

Authority. The civil aviation authority responsible for the oversight of civil aviation in Ghana. For the purpose of this procedures, the Authority shall mean the Safety Regulations Department of Ghana Civil Aviation Authority.

Basic training. Fundamental knowledge and skills appropriate to the discipline to be pursued in the CNS/ATM environment.

Certification. The process of determining competence, qualification or quality on which an aviation document is based.

Citizen of Ghana. This term refers to one of the following:

(i) An individual who is a citizen of Ghana;

ii) A partnership of which each member is a citizen of Ghana; or

(iii) A corporation or association created or organised and authorised under the laws of Ghana

Competency. The combination of knowledge, skills and attitude to perform a task to the required standards in accordance with the State regulatory requirements.

Computer system. Any electronic or automated system capable of receiving, storing, and processing external data, and transmitting and presenting such data in a usable form for the accomplishment of a specific function.

Domain. A set of elements of a discipline that are studied in the

qualification training.

Equipment. Portion of a system that performs a function that contributes to a systems output(s).

Examiner. Any person authorised by the Authority to conduct a pilot proficiency test, a practical test for an ATSEP licence or rating, or a knowledge test under these regulations.

Facility. A physical plant, including land, buildings, and equipment, which provide the means for the performance of maintenance, preventive maintenance, or modifications of any article.

General duty. The duty in the normal office working hours assigned to the personnel for the maintenance of aeronautical telecommunication equipment and systems.

GCAA. Ghana Civil Aviation Authority. For the purpose of this procedures, the GCAA shall mean the Safety Regulations Department of Ghana Civil Aviation Authority.

Intermediate objectives. What a trainee is expected to accomplish in terms of skills, knowledge and attitude, at specified points in a training course. For example, be able to use a piece of test equipment, or solder a joint. Sometimes also referred to as enabling objectives, as they lead up to, or enable, a specific terminal objective.

Job performance objectives. The desired level of job performance in terms of tasks to be performed and standards to be achieved.

Knowledge. A person's range of information; familiarity gained by experience or repetition; understanding. Knowledge is understood as information stored in the student's mind that can be retrieved when necessary, and the understanding of concepts and performances. Knowledge is a component part of the trainees' expected performance described in the intermediate objectives.

Knowledge test. A test on the aeronautical knowledge areas required for an ATSEP licence or rating that can be administered in written form or by a computer based testing.

Level of complexity. Refers to the taxonomy of verbs used to describe the trainees' expected performance in a training objective.

Licensing authority. The Director-General of Ghana Civil Aviation Authority is the licensing authority responsible for licensing/ rating of ATSEP .

Licensing office: The Safety Regulation Department, Personnel licensing Office (PEL Office) is the licensing office established for performing the administrative and technical function of licensing and rating task of ATSEP including keeping records of ATSEP license.

License Rating. A rating on ATSEP license identifies the particular

type of equipment/system which may be certified by the license holder within the scope of his/her rating.

On-the-Job-Training Instructor (OJTI). An ATSEP, with an OJTI endorsement on ATSEP license authorized to supervise and conduct on the job training of ATSEPs.

Operation duty. The duty assigned to work in shift for the operation of air traffic movement.

Out Station. Those CNS station outside the ANSP main base of operation.

Person. Any individual, firm, partnership, corporation, company, association, joint-stock association, or body politic, and includes any trustee, receiver, assignee, or other similar representative of these entities.

Practical/Skill test. A competency test on the areas of operations for a licence, certificate, rating, or authorisation that is conducted by having the applicant respond to questions and demonstrate manoeuvres in flight, in an approved flight simulator, or in an approved flight training device, or in a combination of these.

Psychoactive substances. Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

Qualification training. Job-category-related knowledge, attitude and skills appropriate to the discipline to be pursued in the CNS/ATM environment.

Rating: An authorization entered on or associated with a license and forming part thereof, stating special conditions, privileges or limitations pertaining to such license.

Rated ATSEP. A person holding ATSEP license with endorsement of any rating and authorized to certify particular type of CNS/ATM equipment/system.

Re-issue of a licence, rating, authorization or certificate. The administrative action taken after a licence, rating, authorization or certificate has lapsed that re-issues the privileges of the licence, rating, authorization or certificate for a further specified period consequent upon the fulfilment of specified requirements.

Renewal of licence, rating, authorization or certificate. The administrative action taken within the period of validity of a licence, rating, authorization or certificate that allows the holder to continue to exercise the privileges of a licence, rating, authorization or certificate for a further specified period consequent upon the fulfilment of specified requirements.

Service. A function and/or data critical to the system or user, provided directly or indirectly, either individually, or as part of an overall function or output.

Signature: An individual's unique identification used as a means of authenticating a maintenance record entry or maintenance record. A signature may be hand-written, electronic, or any other form acceptable to the Authority.

Skill. Practical or intellectual ability; ease in doing something; dexterity. Skills are classified as either intellectual or physical. Intellectual skills are those related to the use of intellect, like the abilities of classifying, rule-using, discriminating, problem-solving or cognitive strategy (the most complex of all). Physical skills are those that enable a person to make coordinated movements, perform manual tasks, and carry out physical activities. The skills are a component part of the expected trainees' performance that is described in the intermediate objective.

System. In this context, one or more types of electronic equipment and ancillary devices functioning to provide a service.

System and equipment rating training. System and equipment knowledge, attitude and skills leading to recognized competency.

Training program: Program that consists of courses, courseware, facilities, flight training equipment, and personnel necessary to accomplish a specific training objective. It may include a core curriculum and a specialty curriculum.

Terminal objectives. What a trainee is expected to accomplish upon completion of training. For example, "when the trainee completes training, he will be able to troubleshoot and repair a piece of XYZ equipment in twenty minutes, using standard tools and test equipment." Objectives are best stated in terms of accomplishments. Also called end-of-course performance objectives or behavioural objectives.

Work Station. Station where the CNS/ATM or security equipment is installed.

23.7.3 ACRONYMS

The following acronyms and abbreviations are used in this Part—

ADS (B)– Automatic Dependent Surveillance (Broadcast)

ADS (C)– Automatic Dependent Surveillance (Contract)

AFTN – Aeronautical Fixed Telecommunications Network

AMHS –Aeronautical Message Handling Switch

ATIS –Automatic Terminal Information System

ATM – Air Traffic Management

ATN – Aeronautical Telecommunications Network

ATO – Approved Training Organization

ATSEP- Air Traffic Safety Electronics Personnel

AWOS – Automatic Weather Observation System

CNS – Communications, Navigation and Surveillance

CPDLC – Controller Pilot Data Link Communications

DME –Distance Measuring Equipment

GNSS –Global Navigation Satellite System

GPS – Global Positioning Satellite

HF - High Frequency

ICAO – International Civil Aviation Organization (Civil Aviation Law)

ILS – Instrument Landing System

NDB –Non Directional Beacon

PABX – Private Automatic Branch Exchange

PSR – Primary Surveillance Radar

SSR –Secondary Surveillance Radar

UPS – Uninterruptible Power Supply Unit

VHF – Very High Frequency

VCCS- Voice Communications Control Switch

VSAT – Very Small Aperture Terminal Satellite system

WAMLAT- Wide Area Multilateration surveillance system

23.7.4 ATSEP LICEENCES, RATINGS & AUTHORISATIONS

23.7.4.1 **APPLICABILITY**

23.7.4.1.1 This section prescribes the requirements for the issue, renewal and re-issue of an ATSEP Licence and ratings in Ghana.

23.7.4.2 **GENERAL**

23.7.4.2.1 ATSEP Licensing shall be carried out as specified in IS: 23.7.4 in this Subpart.

23.7.4.2.2 An applicant shall, before being issued with an Air Traffic Safety Electronics Personnel Licence, meet such requirements in 23.7.4.3 and the requirements of at least one of the ratings set out paragraph 23.7.4.4 in this Subpart.

23.7.4.3 AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL LICENCE

a) Age

The applicant for an air traffic safety electronics personnel licence shall be not less than ~~20~~ 18 years of age.

b) Knowledge

The applicant for an Air Traffic Safety Electronic Personnel licence shall receive knowledge instruction through an approved training course (ATSEP Basic and Qualification) and demonstrated a level of knowledge relevant to the privileges to be granted and appropriate to the responsibilities of an ATSEP licence holder, in the following subjects:

International/National organizations and standards

(i) Role of international and national organizations such as ICAO, ECAC, AFCAC, EUROCONTROL, JAA, IFATSEA, IEEE, IFATCA, IFALPA, IATA, IEA, IAOPA, IACA and their functions;

(ii) Importance of applicable international and national regulations;

(iii) International Standards and Recommended Practices such as ICAO SARPS, PANS FANS, ICAO Annexes1, 2 and 10, IEEE, JAA: CCITT,

Familiarization with Air Traffic Services, Airspace Standards, Meteorology and Altimetry

(i) Role of the national ATM services, clients and customers;

(ii) Air traffic and airspace management including principles of coordination and transfer

(iii) Importance of separation standards and collision avoidance; and
(iv) Principles of meteorology and altimetry, and how can effect operations
(v) Meteorology tools and equipment including meteorological sensors
(vi) Meteorological phenomena including atmospheric processes, and codification

Familiarization with CNS/ATM systems – Communication systems

(i) Principles of Voice Communications including radio communication and ATIS/VOLMET services
(ii) Effects of varying temperature and weather conditions such as clouds, precipitation, visibility, wind etc. on CNS/ATM systems.

(iii) Principles of secure air-ground voice communication including radio data link equipment, emergency system, signal path equipment, aircraft on-board equipment, perturbations and the CLIMAX Frequency system
(iv) Principles of ground-ground voice communications and AFTN, basic operation of ground-ground communications systems including HMI, interface and emergency systems
(v) Principles of data link communication and its requirements, ACARS architecture and technology including VDL and ATN

Familiarization with CNS/ATM systems – Navigation & Radio Navigation Aids

(i) Principles and methods of navigation, principles of the coordinate and grid system and the effects of the earth's properties
(ii) Principles of composition of radio navigation and visual aids including NDB, VOR, DME, MLS, ILS
(iii) Principles of Satellite based system including GPS, GLONASS, and GNSS
(iv) Principles of on-board equipment including FMS, Navigational computer, ILS, RNAV and Warning Systems such as ACARS, GPWS
(v) Legislative requirements and procedures for Flight and Navigational Aids inspection

Familiarization with CNS/ATM systems – Surveillance and

Radars

(i) Terminology and units of measurement
(ii) Basic principles and operation of surveillance and primary radar systems
(iii) Principles of secondary surveillance radar systems and coding,
(iv) Principles of architecture and Automatic Dependent System
(v) Principles and architecture of surface movement radar including ATC requirements
(vi) Radar message Formatting and Transmission including mode S principles

Network Management and Monitoring

(i) Terminology, Units of Measurement and Signal Processing
(ii) Principles and theory of network including data communication systems
(iii) Principles and concept of network management and monitoring
(iv) Network sharing of data and systems interconnectivity
(v) Multiplexing and de-multiplexing
(vi) ATM Specific networks, applications and future techniques

Data Processing (DP) & Radar Data Processing

(i) Terminology and units of measurement
(ii) Principles of Data Processing Systems including RDPS, FDPS & ENP
(iii) Data Processing software applications and system interface
(iv) Principles of alert and warning systems including TCAS

Facilities

(i) Units of measurement, Phraseology and Terminology
(ii) Principles and functions of specific facilities, logistic and support equipment
(iii) Power supply and distribution systems including UPS
(iv) Function and performance of air conditioning system

and electromagnetic protection

System safety training

(i) Principles of Safety Management, Safety Policy Statements and Principles;
(ii) Concept of Risk and Principles of Risk Assessment, Safety Assessment Process;
(iii) Air Navigation System Risk Classification Scheme;
(iv) Functional Hazard Assessment Process Description; and
(v) Safety Regulation.

c) Experience

The applicant shall have completed an approved training course and not less than three months of satisfactory service engaged in the actual performance of maintenance, calibration, installation, management, monitoring, control and modification on CNS/ATM systems under the supervision of an appropriately rated ATSEP. The –experience requirements specified for ATSEP ratings in paragraph 2.0 may be credited as part of the experience specified in this paragraph.

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23.7.4.4 AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL (ATSEP) RATINGS

23.7.4.4.1 Categories of Air Traffic Safety Personnel Ratings

Air Traffic Safety Electronic Personnel ratings shall comprise the following categories:

a) Communication ~~equipment~~ systems rating;

b) Radio navigation aids ~~equipment~~ system rating; or

c) Surveillance ~~equipment~~ systems rating;

23.7.4.4.1.1 The following systems shall be endorsed with rating in a license:

1) **Communication Systems:** Voice Comms (VHF/HF Radios, VCCS, Voice Recorders), Data Comms (AMHS, AFTN, CPDLC data links), Comm links (Satellite systems incl. VSAT, Microwave, Fibre optics and PABX), Meteorology System (AWOS)

2) **Navigational Aids Systems:** (VOR, DME, NDB, ILS and GNSS Augmentation Systems) Flight and Ground Radio Navigational Aids calibration (Calibration Console,

Radio Telemetry/Theodolite, Differential GPS and Avionics)

3) **Surveillance Systems:** PSR, SSR, Mode S, ADS- B, ADS-C, MLAT and WAMLAT, FDPS, SDPS and GPS.

23.7.4.4.2 REQUIREMENTS FOR THE ISSUE OF THE ATSEP RATING

a) *Knowledge*

The applicant shall have met the knowledge requirements for the issue of an ATSEP licence as appropriate to the category of SYSTEM/EQUIPMENT included in the licence. In addition, the applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an ATSEP rating, in at least the following areas:

(i) *Communication system rating*

(1) Introduction to preventive and corrective maintenance of communication system/equipment,
(2) Introduction to calibration and certification of system/equipment,
(3) Communication system /equipment components identification and location;
(4) Communication system/equipment interactions with environment
(5) Logistic environment of system/equipment such as power supply, air conditioning, interference, security, spares handling, etc.
(6) Functions and the performance of the communication system/equipment;
(7) Significance of the parameters and error messages;
(8) communication system/equipment maintenance procedures including hardware and software
(9) Measurement and checking of communication system/equipment modules and parameters; unit replacement and calibration; functionality and operation of HMI and SMC.
(10) Data processing system/equipment components identification and location;
(11) Data processing system/equipment interaction with environment;
(12) Functions and the performance of the Data processing equipment;
(13) Significance of the parameters and error messages;
(14) Data processing equipment maintenance procedures including hardware and software;
(15) Measurement and checking of Data processing

system/equipment modules and parameters;
(16) Unit replacement and calibration;

(ii) ***Radio Navigation Aid~~s equipment~~ systems rating***

(1) Introduction to preventive and corrective maintenance of Radio Nav-Aids system/equipment,
(2) Introduction to calibration and certification of system/equipment,
(3) Radio Nav-Aids system /equipment components identification and location;
(4) Radio Nav-Aids system/equipment interactions with environment
(5) Logistic environment of system/equipment such as power supply, air conditioning, interference, security, spares handling, etc.
(6) Functions and the performance of the Radio Nav-Aids system/equipment;
(7) Significance of the parameters and error messages;
(8) Radio Nav-Aids system/equipment maintenance procedures including hardware and software
(9) Measurement and checking of Radio Nav-Aids system/equipment modules and parameters; unit replacement and calibration;
(10) functionality and operation of GPS, GNSS, NBD, VOR and ACARS
(11) Data processing system/equipment components identification and location;
(12) Data processing system/equipment interaction with environment;
(13) Functions and the performance of the Data processing equipment;
(14) Significance of the parameters and error messages;
(15) Data processing equipment maintenance procedures including hardware and software;
(16) Measurement and checking of Data processing system/equipment modules and parameters;
(17) Unit replacement and calibration;

(iii) ***Surveillance ~~equipment~~ systems rating***

(1) Introduction to preventive and corrective maintenance of Surveillance system/equipment,
(2) Introduction to calibration and certification of Surveillance system/equipment,
(3) Surveillance system/equipment components identification and location;

(4) Surveillance system/equipment interactions with environment;
(5) Logistic environment of system/equipment such as power supply, air conditioning, interference, security, spares handling etc;
(6) Functions and the performance of the surveillance system/equipment;
(7) Significance of the parameters and error messages;

(8) Surveillance system/equipment maintenance procedures including hardware and software;
(9) Measurement and checking of Surveillance system/equipment modules and parameters; unit replacement and calibration; functionality and operation of ADS and SSR
(10) Data processing system/equipment components identification and location;
(11) Data processing system/equipment interaction with environment;
(12) Functions and the performance of the Data processing equipment;
(13) Significance of the parameters and error messages;
(14) Data processing equipment maintenance procedures including hardware and software;
(15) Measurement and checking of Data processing system/equipment modules and parameters;
(16) Unit replacement and calibration;
(17) Functionality and operation of RDPS, FDPS

b) Experience

(i) The applicant shall have satisfactorily completed an approved training course;

(ii) The applicant shall have proved, satisfactorily, under the supervision of an appropriately rated ATSEP OJT instructor, ~~;~~ performing maintenance, calibration, installation, management, monitoring, control and modification for a period of not less than 3 months at the unit and on the systems/equipment for which the rating is sought;

(iii) The experience specified in 23.7.4.4.2 b) (ii) shall have been completed within the 6-month period immediately preceding the application.

(iv) When the applicant already holds an air traffic safety electronics personnel rating in another category, or the same rating for another system/equipment, the GCAA shall

determine whether the experience requirement of 23.7.4.4.2 b) (ii) can be reduced, and if so, to what extent.

c) Training

The applicant shall have completed a course of training appropriate to the privileges to be granted.

Note.— The Manual on Air Traffic Safety Electronics Personnel Competency-based Training and Assessment (ICAO DOC 10057) and the Training Manual (Doc 7192), Part E-2, contains guidance material on the training course for applicants for an ATSEP licence.

d) Skill

The applicant shall have demonstrated the ability to perform those functions applicable to the privileges to be granted, the skill, judgement and performance required to provide technical support for ground-based communication, navigation and surveillance system/equipment to ensure maximum accuracy, and safety of flight. It also includes the 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 for the rating being sought:

~~*Note: - An ATSEP Technical logbook shall be completed to show as evidence that an applicant has satisfactorily completed all the job tasks performed during the OJT.*~~

i) In the case of a communications system/equipment rating, the applicant shall have demonstrated the ability to perform the requirements of IS 23.7.4.4.2 (a) with a degree of competency appropriate to the privileges granted to the holder of an air traffic safety electronics personnel licence;

ii) In the case of the surveillance system/equipment rating, the applicant shall have demonstrated the ability to perform the requirements of IS: 23.7.4.4.2 (c) with a degree of competency appropriate to the privileges granted to the holder of an air traffic safety electronics personnel licence;

iii) In the case of a radio navigation aids system/equipment rating, the applicant have a demonstrated the ability to

perform the requirements of IS 23.7.4.4.2 (b) with a degree of competency appropriate to the privileges granted to the holder of an air traffic safety electronics personnel licence;

e) ATSEP Technical Logbook

i) An ATSEP Technical logbook shall be completed to show as evidence that an applicant has satisfactorily completed all the job tasks performed during the OJT.

ii) For renewal of ATSEP License application, an applicant shall submit as an attachment the ATSEP Technical Logbook as evidence of practical work undertaken.

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23.7.5 Privileges of the holder of an ATSEP licence (or rating) and the conditions to be observed in exercising such privileges.

23.7.5.1 Subject to compliance with the requirements specified in 23.7.3.4 and 23.7.4.4, the privileges of the holder of an ATSEP license (or rating) shall be to certify the equipment or system as functional after an authorized calibration, repair, modification or installation of such equipment, accessory, instrument, and/or item of equipment, or following inspection, maintenance operations (preventive or corrective maintenance) and/or routine servicing.

23.7.5.2 The privileges of the holder of an ATSEP license (or rating) shall be exercised only in respect of such:

1) Communication systems or equipment as are entered on the license in their entirety either specifically or under broad categories; or

2) Surveillance equipment and systems or components as are entered on the license either specifically or under broad categories; and/or

3) Navigation aids systems or equipment as are entered on the license either specifically or under broad categories

23.7.6 Duration of Licenses, Ratings and Authorizations

(a) No person may continue to exercise the privileges of an Air Traffic Safety Electronics Personnel rating after a period of 12 concurrent months unless they have satisfactorily completed a competency check of their performance.

(b) No person, having ceased to exercise the privileges of an Air Traffic Safety Electronics Personnel rating for a period of 180 days, may exercise the privileges of that rating until their ability to exercise the privileges of the rating has been re-established.

(c) No person may exercise the privileges of an Air Traffic Safety Electronics Personnel rating unless that person has familiarized himself with all pertinent and current information.

(d) No person may carry out instruction for an Air Traffic Safety Electronics Personnel rating in an operational environment unless such person meets the requirements in paragraph 14 of IS: 23.7.4 of this Subpart and has received proper authorisation from the Authority.

23.7.7 Validation of Foreign Licenses and Ratings.

Any foreign license issued by an ICAO contracting State after completing the required ATSEP training from an Approved Training Organization shall generally be validated.

23.7.7.1 Conversion of Licenses and Ratings

Any foreign license shall be converted upon GCAA having inspected the license, requisite certificates and transcripts and having satisfied itself that they are genuine and are coming from a recognized ATO and issued by an ICAO Contracting State. Where doubts exist, the applicant may be asked to undergo some examinations again to satisfy whichever requirement may have been identified before the conversion is done.

23.7.8 AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL INSTRUCTOR ENDORSEMENT

23.7.8.1 Requirements for the issue of the ATSEP Instructor Endorsement

a) *Knowledge*

The applicant shall have met the knowledge requirements for the issue of an ATSEP licence as appropriate to the category of rating included in the licence. In addition, the applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an ATSEP instructor~~e~~ endorsement, in at least the following areas:

(i) On-the-Job instruction techniques

(ii) techniques of applied to Class room instruction;

(iii) assessment of student performance in those subjects in which CNS/ATM instruction is given;

(iv) the learning process;

(v) elements of effective teaching;

(vi) student evaluation and testing, training philosophies;

(vii) training programme development;

(viii) lesson planning;

(ix) classroom instructional techniques;

(x) use of training aids, including standby or real equipment or special equipment for development and training purposes as appropriate;

(xi) analysis and correction of student errors;

(xii) human performance relevant to CNS/ATM instruction

(xiii) including principles of threat and error management;

(xiv) hazards involved in simulating system failures and malfunctions in the equipment.

b) *Skill*

The applicant shall have demonstrated, in the category and rating of systems or equipment for which ATSEP instructor privileges are sought, the ability to instruct in those areas in which CNS/ATM instruction is to be given, including on-the- job instruction as appropriate.

c) *Experience*

The applicant shall have met the experience requirements for the issue of an ATSEP licence as specified in IS: 23.7.4.4.2, for each rating category, as appropriate.

d) CNS/ATM system/equipment instruction

The applicant shall be accepted by the Licensing Authority for that purpose, and shall:

(i) have received instruction in CNS/ATM instructional techniques including demonstration, student practices, recognition and correction of common student errors; and

(ii) have practiced instructional techniques in those CNS/ATM system/equipment maintenance procedures and standards in which it is intended to provide CNS/ATM instruction.

e) Training

The applicant for an ATSEP Instructor endorsement shall have completed a course of training appropriate to the privileges to be granted.

Note: - IS: 23.7.8.1gives details of the training requirements for the issue of an ATSEP Instructor Endorsement.

23.7.8.2 Privileges of the holder of the ATSEP Instructor Endorsement and the conditions to be observed in exercising such privileges

23.7.8.2.1 Subject to compliance with the requirements specified in 23.7.3.4, and 23.7.4.4 and 23.7.8, the privileges of the holder of an ATSEP instructor Endorsement shall be:

a) To conduct OJT for ATSEP Licence applicants and

b) To carry out CNS/ATM instruction for the issue of

(i) an ATSEP licence,

(ii) a CNS/ATM system/equipment category rating and

(iii) an ATSEP instructor rating provided that the CNS/ATM instructor:

c) holds at least the licence and rating for which instruction is being given, in the appropriate system/equipment category;

d) holds the licence and rating necessary to act as the OJTI of the system/equipment on which the instruction is given; and

e) has the CNS/ATM instructor privileges granted entered on the licence.

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PART 23.7 – IMPLEMENTING STANDARDS

For ease of reference, the number assigned to each implementing standard corresponds to its associated regulation. For example, IS: 23.7.2.1 would reflect a standard required in subsection 23.7.2.1

PART 23.7– IMPLEMENTING STANDARDS

IS: 23.7.4 ATSEP LICENCES, RATINGS AND AUTHORIZATIONS

INTRODUCTION

Air Traffic Safety Electronic Personnel (ATSEP) work on a wide range of Communication, Navigation, Surveillance and Air Traffic Management (CNS/ATM) systems and equipment, which are ground based Aeronautical Telecommunication facilities and system used to provide Air Navigation Service.

The work on these essential CNS/ATM systems requires training to achieve specific skills that will eventually lead to operational competence. ~~The training requirements are prescribed in the Training Manual for ATSEP, ICAO Doc 7192 AN/857 Part E 2.~~

ATSEP must achieve a minimum required level of operational competence that allows them to perform safety related tasks with the specific CNS/ATM equipment or systems they will be working with. These competencies apply to all ATSEPs, irrespective of the organisation they work for, their location or the composition of their functions. This competence is achieved at the end of System and Rating (S/E) Training. The Initial Training is the phase prior to S/E Rating Training; therefore the minimum training received during Initial Training will not be sufficient to permit operational competence. It will however, be sufficient to prepare an ATSEP-Trainee to start the S/E Rating Training.

For the purposes of this requirements, the term ATSEP is used to describe "engineering and technical personnel who ~~has~~ have been found competent to undertake operational safety related tasks on CNS/ATM systems and facilities".

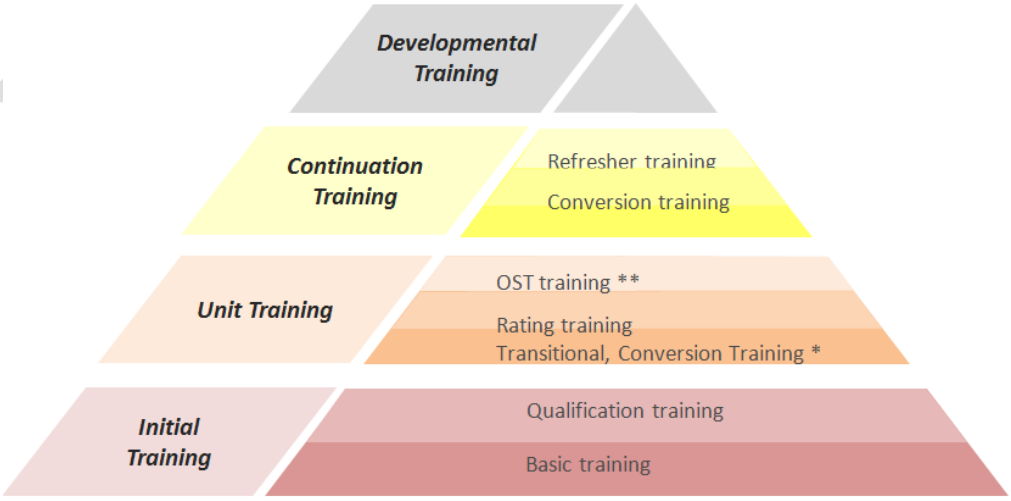

Figure 1: ATSEP Licensing and Training Phases

*OST: On Site Training (or On-the-Job-Training)

PART 1 REQUIREMENT FOR THE ISSUANCE OF LICENSE/ RATINGS

1 Introduction

The Air Traffic Safety Electronics Personnel (ATSEP) ~~of Ghana~~ are to be trained appropriately and licensed in accordance with Clause 3, subsection 1.b of the Ghana Civil Aviation Act (Act 678) and the Subpart 7 of part 23 of the Ghana Civil Aviation (ANS) Directives.

2 Purpose of a License

The purpose of issuing an ATSEP License is to enable the Authority to regulate Air Traffic Safety Electronics Personnel within the State of Ghana. This regulation will include the issuance, maintenance, suspension and the revocation of ATSEP Licenses. The licensing standards have been developed to, as far as possible ensure that the maintenance and operations of CNS/ATM facilities provided by licensed ATSEPs are safe.

The ATSEP License identifies the holder as a person who is qualified to provide installation, servicing, repairs, maintenance and/or certification of CNS/ATM systems and facilities. It contains details of the types of air traffic engineering services that the License holder may provide and the CNS/ATM unit where the holder may provide these services.

3 Owner of a License

The ATSEP License is the property of the Authority but the holder is responsible for ensuring use of the License in accordance with the privileges accorded by the License. The holder may only perform the operational safety related engineering functions for which valid ratings are held in accordance with the endorsements to the rating or ratings entered on the certificate of competence. Where any restrictions are placed on the License, for example the wearing of correcting spectacles, the License holder is responsible for ensuring compliance with the restriction.

4 Requirements for the issue of the license

(a) Age

The applicant for an Air Traffic Safety Electronics Personnel License shall be not less than 18 years of age.

(b) Knowledge

The applicant for an Air Traffic Safety Electronic Personnel licence shall receive knowledge instruction through an approved training course (ATSEP Basic and Qualification) and demonstrated a level of knowledge relevant to the privileges to be granted and appropriate to the responsibilities of an ATSEP licence holder, in the following subjects:

1) ***International/National organizations and standards***

(i) Role of international and national organizations such as ICAO, ECAC, AFCAC, EUROCONTROL, JAA, IFATSEA, IEEE, IFATCA, IFALPA, IATA, IEA, IAOPA, IACA and their functions;

(ii) Importance of applicable international and national regulations;

(iii) International Standards and Recommended Practices such as ICAO SARPS, PANS FANS, ICAO Annexes1, 2 and 10, IEEE, JAA: CCITT,

2) ***Familiarization with Air Traffic Services, Airspace Standards, Meteorology and Altimetry***

(i) Role of the national ATM services, clients and customers;

(ii) Air traffic and airspace management including principles of coordination and transfer

(iii) Importance of separation standards and collision avoidance; and

(iv) Principles of meteorology and altimetry, and how can effect operations

(v) Meteorology tools and equipment including meteorological sensors

(vi) Meteorological phenomena including atmospheric processes, and codification

3) ***Familiarization with CNS/ATM systems – Communication systems***

(i) Principles of Voice Communications including radio communication and ATIS/VOLMET services

(ii) Effects of varying temperature and weather conditions such as clouds, precipitation, visibility, wind etc. on CNS/ATM systems.

(iii) Principles of secure air-ground voice communication including radio data link equipment, emergency system, signal path equipment, aircraft on-board equipment, perturbations and the CLIMAX Frequency system

(iv) Principles of ground-ground voice communications and AFTN, basic operation of ground-ground communications systems including HMI, interface and emergency systems

(v) Principles of data link communication and its requirements, ACARS architecture and technology including VDL and ATN

4) ***Familiarization with CNS/ATM systems -Navigation & Radio Navigation Aids***

(i) Principles and methods of navigation, principles of the coordinate and grid system and the effects of the earth's properties

(ii) Principles of composition of radio navigation and visual aids including NDB, VOR, DME, MLS, ILS

(iii) Principles of Satellite based system including GPS, GLONASS, and GNSS

(iv) Principles of on-board equipment including FMS, Navigational computer, ILS, RNAV and Warning Systems such as ACARS, GPWS

(v) Legislative requirements and procedures for Flight and Navigational Aids inspection

5) ***Familiarization with CNS/ATM systems Surveillance and Radars***

(i) Terminology and units of measurement
(ii) Basic principles and operation of surveillance and primary radar systems
(iii) Principles of secondary surveillance radar systems and coding,
(iv) Principles of architecture and Automatic Dependent System
(v) Principles and architecture of surface movement radar including ATC requirements
(vi) Radar message Formatting and Transmission including mode S principles

6) Network Management and Monitoring

(i) Terminology, Units of Measurement and Signal Processing
(ii) Principles and theory of network including data communication systems
(iii) Principles and concept of network management and monitoring
(iv) Network sharing of data and systems interconnectivity
(v) Multiplexing and de-multiplexing
(vi) ATM Specific networks, applications and future techniques

7) Data Processing (DP) & Radar Data Processing

(i) Terminology and units of measurement
(ii) Principles of Data Processing Systems including RDPS, FDPS & ENP
(iii) Data Processing software applications and system interface
(iv) Principles of alert and warning systems including TCAS

8) Facilities

(i) Units of measurement, Phraseology and Terminology
(ii) Principles and functions of specific facilities, logistic and support equipment
(iii) Power supply and distribution systems including UPS
(iv) Function and performance of air conditioning system and electromagnetic protection

10) System safety training

(i) Principles of Safety Management, Safety Policy Statements and Principles;
(ii) Concept of Risk and Principles of Risk Assessment, Safety Assessment Process;
(iii) Air Navigation System Risk Classification Scheme;
(iv) Functional Hazard Assessment Process Description; and
(v) Safety Regulation.

The applicant shall pass a Knowledge Test conducted by the GCAA for a grant of ATSEP License

Additional information on the knowledge Test Requirements can be found in AC-CNS-002-ATSEP KNOWLEDGE TEST GUIDE (KTG)

(c) Experience

1) The applicant shall have satisfactorily completed an approved training course;
2) The applicant shall have proven satisfactorily, under the supervision of an appropriately rated Air Traffic Safety Electronics Personnel OJT Instructor; in performing maintenance, calibration, installation, management, monitoring, control and modification for a period of not less than **three (3) months** at the unit and on the systems/equipment for which the rating is sought;
3) The experience specified in 4 (c) 2) shall have been completed within the 6 months period immediately preceding the application.
4) When the applicant already holds an Air Traffic Safety Electronics Personnel rating in another category, or the same rating for another system/equipment, the GCAA shall determine whether the experience requirement of 4 (c) 2) can be reduced, and if so, to what extent.

(d) Training

The applicant shall have completed a course of training appropriate to the privileges to be granted.

Note.— The Training Manual (ICAO Doc 10057), contains guidance material on the training requirement for applicants for an ATSEP licence.

(e) Skill Test~~Requirement~~

Each applicant for an ATSEP licence or rating ~~must~~ shall pass a skill test on the ~~license or~~ rating that ~~he/she~~the applicant seeks. For rating(s) in the different categories, the applicant must undergo OJT for a minimum of 3 Months ~~a 5 weeks~~ OJT ~~field job tasks experience~~ under supervision of a qualified on-the-job-training instructor (OJTI), in an operational environment for the rating being sought.

f) ATSEP Technical Logbook

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i) An ATSEP Technical logbook shall be completed to show as evidence that an applicant has satisfactorily completed all the job tasks performed during the OJT.

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ii) For renewal of ATSEP License application, an applicant shall submit as an attachment the ATSEP Technical Logbook as evidence of practical work undertaken.

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~~The applicant must show in an ATSEP Technical log book evidence that he/she has satisfactorily completed all the job tasks performed during the OJT as approved in the Authority for the rating(s) being sought. The tests cover the applicant's basic skill in performing practical projects on the subjects covered by the written test for the license or rating sought.~~

~~**5 ATSEP Trainee License**~~

~~ATSEP Trainee licenses are issued to individuals who have completed an approved initial course (ATSEP Basic and Qualification Course) of ATSEP training, and who will be undertaking unit training towards the grant of an ATSEP license. An ATSEP- Trainee license permits the holder to train in the operational environment under the supervision of an On-the-Job Training Instructor (OJTI).~~

~~***NOTE:*** The holder of an Air Traffic Safety Electronic Personnel (ATSEP) license who is training to obtain additional ratings and/or unit endorsements will not be required to hold an ATSEP Trainee license. His/her ATSEP license will act as an "ATSEP- Trainee license" and permit him/her to perform under supervision, an engineering function relating to a CNS/ATM system for which he/she does not hold the appropriate rating/endorsement, but for which he has successfully completed initial training.~~

~~**6 Unit Endorsements**~~

~~A unit endorsement indicates the CNS/ATM facility where the license holder performs his/her functions and the individual units, subsystems or operational systems on which he/she is competent to perform the appropriate engineering functions.~~

~~A unit endorsement is issued for 12 months and is renewable by an assessment of the ATSEP's competence to continue to perform the CNS/ATM related engineering activities which it details. An ATSEP who fails an assessment of his competence, or fails to renew the unit endorsement, must not perform CNS/ATM engineering functions associated with it.~~

~~7~~5 Valid Rating

A valid rating is a rating, including any associated rating endorsement and/or unit endorsement(s), in which the ATSEP is currently competent to perform a CNS/ATM engineering activity.

~~8~~6 Issue of an ATSEP License and Associated Endorsements

The ATSEP license identifies the holder as a person who is qualified and competent to perform an operational safety related engineering functions on a CNS/ATM system(s) or facility. It will be issued to ~~ATSEP Trainee license holders~~ personnel who have successfully:

(a) ~~successfully~~ passed knowledge and skills test; and

(b) ~~have successfully~~ completed ~~approved unit training and gained a unit endorsement(s)~~OJT for not less than 3 months by demonstrating that they are

competent to perform on the individual units, subsystems or operational systems on which they have been training.

The license when issued will contain a rating, rating endorsement, if any, and unit endorsements.

~~9 Issue of Additional Unit Endorsements~~

~~An ATSEP license holder who already holds a valid rating at a unit may be issued with unit endorsements for additional CNS/ATM units or operational systems associated with that rating, on successful completion of:~~

~~a) the appropriate unit training; and~~

~~b) demonstration that he is competent to perform engineering activities associated with the additional units or operational systems.~~

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10 Issue of Additional Rating(s) ~~and Rating Endorsement(s)~~

Additional rating(s) ~~and rating endorsement(s) will~~ shall be issued to ATSEP license holders who have:

a) successfully completed an approved course of ATSEP training in those rating(s)~~) and rating endorsement(s)~~;

~~b) successfully completed approved unit training;~~

~~c)~~b) successfully passed knowledge and skills tests; and

c) proven satisfactorily, under the supervision of an appropriately rated Air Traffic Safety Electronics Personnel OJT Instructor, in performing maintenance, calibration, installation, management, monitoring, control and modification for a period of not less than three (3) months at the unit and on the systems/equipment for which the rating is sought;

d) ~~gained a unit endorsement by demonstrating their competence to perform engineering activities on the associated units or operational systems~~.

~~11 Move to a New Unit/Domain~~

~~When an ATSEP license holder moves to a new unit, his previously held valid ratings will remain valid unless he will still be undertaking safety related engineering functions at his previous unit which is in the same domain. Otherwise the previous valid rating becomes invalid.~~

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~~Provided the ATSEP already holds the ratings and rating endorsement(s) needed in respect of the engineering functions at his new unit and has exercised their privileges within the previous four years, to make his ratings valid for the new unit he will be required to:~~

~~a) successfully complete the unit training plan; and~~

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~~b) gain a unit endorsement by demonstrating competence to perform engineering functions on a unit or operational system at that unit.~~

12 Record of Ratings and Endorsements Held

The ratings that an ATSEP obtains will be entered in the ATSEP license and will remain for the entire period the license remains valid unless revoked by the GCAA. The license will include the date ratings were first issued.

13 Maintenance of the ATSEP License

Although the ATSEP license is issued for the lifetime of an ATSEP he/she may not exercise its privileges unless it contains a valid rating, and its associated unit endorsements;

Following the initial issue of a valid rating, an ATSEP will be required to demonstrate continued competence to exercise the privileges of that rating by renewal of the unit endorsement(s).

The assessment of competence for renewal of a unit endorsement may be carried out within a 45-day period preceding the date of expiry of the current unit endorsement. Provided the ATSEP is assessed as competent, the unit endorsement may be renewed for 24 months from the date of expiry of the current endorsement. Where the CNS unit wishes to align the expiry dates of all unit endorsements held by an ATSEP, a unit endorsement may be renewed for a shorter period.

If necessary, the assessment of competence for renewal of a unit endorsement may be carried out more than 45 days before the date of the expiry of the current unit endorsement. In such cases, provided the ATSEP is assessed as competent, the unit endorsement will be renewed for 24 months from the date on which the assessment is conducted.

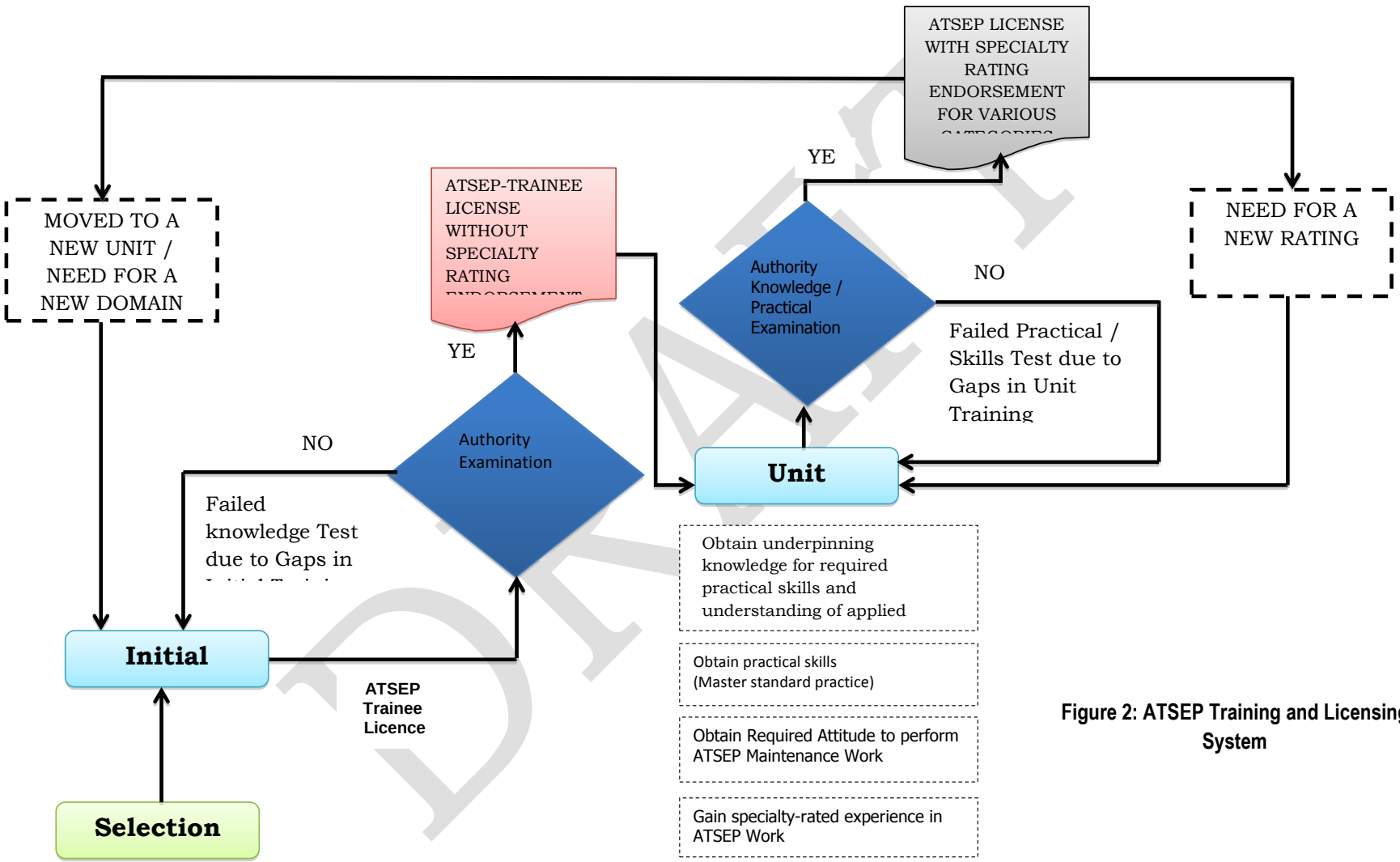

Figure 2: ATSEP Training and Licensing System

14 ATSEP License Procedures and Privileges

(a) Requirement to Hold a License

A person who wishes to practice as an Air Traffic Safety Electronic Personnel must hold a valid Air Traffic Safety Electronic Personnel (ATSEP) license issued or recognised by the GCAA , which contains valid ratings and endorsements appropriate to the control tasks to which the ATSEP is assigned. A person not holding an ATSEP license, who performs a CNS/ATM safety related engineering activity under supervision, towards the grant of an ATSEP license, must hold a ATSEP-Trainee license issued by the GCAA .

(b) Licensing Stages

The stages to be completed in order to meet the licensing requirements for becoming an ATSEP are described below:

1) Training of Air Traffic Safety Electronic Personnel: Phases of Training

For the purpose of the ATSEP licensing procedures, the training of Air Traffic Safety Electronic Personnel is considered to consist of a number of phases:

(i) Initial Training

Initial training is designed to provide underpinning knowledge and skills and is delivered in two parts through basic training applicable to all ATSEP and qualification training modules specific to the ATSEP profile.

An applicant shall successfully pass the knowledge test administered by the GCAA before the commencement of a Unit training.

(ii) Unit Training

After completing initial training phase, the ATSEP must undergo training that is specially oriented to the ATSEP profile and environment. This training is performed as site-specific environmental, theoretical / practical and/or on-the-job training specifically oriented to systems, equipment and their operating environment. The unit training shall be conducted in accordance with a Unit Training Plan (UTP) approved by the GCAA.

The unit training can be implemented at a specialized training centre, at the factory and/or at the site; however, at least the On the Job Training portion shall be performed at the site in the operational environment. The level of training must be appropriate to the ATSEP job profile.

(iii) Assessment of Training Progress

During OJT, the ATSEP - Trainee shall be assessed at intervals to ensure satisfactory progress is being made, in order to organise additional training and to set targets including performing maintenance, calibration, installation, monitoring, control and modification. It is the responsibility of the

OJTI, or authorised assessor, to determine and agree when the trainee has reached the level of knowledge and skill required of a competent ATSEP within a period of not less than 3 months at the unit and on the systems/equipment for which the rating is sought.

(iv) Competence Assessment

1. **System and Equipment Ratings and Endorsements**
   The rating in an ATSEP license indicates the CNS/ATM systems that an ATSEP may perform safety related engineering activities on. Associated with the ratings are rating endorsements which further define the CNS/ATM facility that may be provided. For example, the Surveillance rating endorsement indicates that an ATSEP is capable of working on PSR/SSR/ADS facilities used to provide the Air Traffic Control Surveillance services.

   Details on the training requirements on System /Equipment rating can be found in Appendix 1

2. **Unit Endorsement**
   To carry out safety related engineering activity on the CNS/ATM facility indicated by a rating and any associated rating endorsement an ATSEP must also hold a unit endorsement. The unit endorsement indicates that an ATSEP is competent to perform engineering task on CNS/ATM facilities providing specified functions. A valid rating consists of a rating, any associated rating endorsement and a unit endorsement.

2) Rating(s) of Notified Categories

An ATSEP license must contain one or more of the ratings of the categories notified below:

- **(i)** Communication system rating;
- **(ii)** Radio navigation aid~~s equipment~~ systems rating;
- **(iii)** Surveillance ~~equipment~~ system rating;
- **(iv)** ATSEP Instructor rating

(c) Privileges Of An ATSEP License (Or Rating) And The Conditions To Be Observed In Exercising Such Privileges.

Subject to compliance with the requirements specified in this Subpart, the privileges of the holder of an ATSEP license (or rating) shall be to certify the equipment or system as functional after an authorized calibration, repair, modification or installation of such

equipment, accessory, instrument, and/or item of equipment, or following inspection, maintenance operations (preventive or corrective maintenance) and/or routine servicing.

The privileges of the holder of an ATSEP license (or rating) shall be exercised only in respect of such:

1) Communication system or equipment as are entered on the license in their entirety either specifically or under broad categories; or

2) Surveillance equipment and systems or components as are entered on the license either specifically or under broad categories; and/or

3) Navigation aids systems or equipment as are entered on the license either specifically or under broad categories

The following systems shall be endorsed with a license:

1) Communications: Voice Comms (VHF/HF Radios, VCCS, Voice Recorders), Data Comms (AMHS, AFTN, CPDLC data links), Comm links (Satellite systems incl. VSAT, Microwave, Fibre optics and PABX).

2) Navigational Aids: (VOR, DME, NDB, ILS and GNSS Augmentation Systems)

3) Surveillance and ATM system: PSR, SSR, Mode S, ADS-B, ADS-C, MLAT and WAMLAT, FDPS, SDPS and GPS.

4) Flight and Ground Radio Navigational Aids calibration: Calibration Console, Radio Telemetry/Theodolite, Differential GPS and Avionics.

5) Meteorology: AWOS

6) Any other facilities/equipment/systems/technologies as may be introduced in future for CNS/ATM

(d) Recurrent Training

No person may serve nor may any person or organisation use a person performing Air Traffic Safety Electronics Personnel functions unless within the preceding 24-36 calendar months that person has completed the recurrent curriculum approved by the Authority.

There shall be periodic emergency training for all ATSEP to avoid incorrect actions being taken (e.g. bad settings, bad calibration, wrong network or systems configuration, etc.), and ensure a timely response to a major failure or emergency situation that could jeopardize air traffic safety.

(e) Conversion Training

Conversion training shall be provided each time an ATSEP changes jobs, needs a new rating in a different ATSEP Profile, has to deal with new equipment or is involved in new project.

1) The conversion training shall be designed to provide new or updated knowledge and skills appropriate to:

(i) a change in either the job category (new discipline or new type rating),

(ii) environment (new maintenance or other procedures) or

(iii) systems / equipment (system upgrade or change of system, new project).

2) The conversion training shall comprise knowledge, practical training and competency assessment but in only the areas necessary to fill the gap between the actual knowledge and skills of the ATSEP, and the new requirements.

15 Duration of Licenses, Ratings and Authorizations

(a) No person, having ceased to exercise the privileges of an Air Traffic Safety Electronics Personnel rating for a period of 180 days, may exercise the privileges of that rating until their ability to exercise the privileges of the rating has been re-established.

(b) No person may continue to exercise the privileges of an Air Traffic Safety Electronics Personnel rating after a period of 12 concurrent months unless they have satisfactorily completed a competency check of their performance.

(c) No person may exercise the privileges of an Air Traffic Safety Electronics Personnel rating unless that person has familiarized himself with all pertinent and current information.

(d) No person may carry out instruction for an Air Traffic Safety Electronics Personnel rating in an operational environment unless such person meets the requirements in paragraph 14 of Part 1 of this Procedures Manual and has received proper authorisation from the Authority.

16 Validation of Foreign Licenses and Ratings.

Any foreign license issued by an ICAO contracting State after completing the required ATSEP training from an Approved Training Organization shall generally be validated.

17 Conversion of Licenses and Ratings

Any foreign license shall be converted upon GCAA having inspected the license, requisite certificates and transcripts and having satisfied itself that they are genuine and are coming from a recognized ATO and issued by an ICAO Contracting State. Where doubts exist, the applicant may be asked to undergo some examinations again to satisfy whichever requirement may have been identified before the conversion is done.

18 Documentation

The training course, assessment and competency shall be documented and logged for each ATSEP.

PART 2 ATSEP LICENSE– REQUIREMENTS AND ASSOCIATED GUIDANCE

1 Air Traffic Safety Electronics Personnel (ATSEP) License

(a) Requirement to Hold an (ATSEP) License

A person shall not practice as an Air Traffic Safety Electronic Personnel (ATSEP) unless he/she holds an ATSEP license with a valid rating, including any associated rating and/or unit endorsement relating to the Aeronautical Telecommunication services (CNS/ATM systems) to be provided.

The rating shall be of a type notified in paragraph 14 (c) and the rating endorsements shall be of a type notified in paragraph 14 (f) of this document.

(b) Application for an ATSEP License

An application ~~n~~t for the grant of an ATSEP License shall:

1) complete the **GCAA-CNS-001** form in Appendix 3 titled "Air Traffic Safety Electronics Personnel or ATSEP Instructor Licence, Rating, Authorization, Conversion, or Validation Certificate Application".

2) and submit it to the Authority with:

- **(i)** A nomination letter from the Air Navigation Service Provider
- **(ii)** the appropriate attachments; and
- **(iii)** a payment of the prescribed application fee.

(c) Grant of an ATSEP License

The GCAA will grant an applicant an ATSEP license provided he/she:

~~1) holds a valid ATSEP-Trainee license;~~

1) is at least 18 years of age;

2) has successfully passed the knowledge tests ~~completed a Unit Training Plan (UTP)~~;

3) has passed a skills test for the rating being sought ~~examination~~; and

4) ~~is at least 20 years of age~~;

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(d) Privileges of an ATSEP License

1) Privileges of an ATSEP License shall be in compliance to paragraph 14 (d) in Part 1 of this document.

2) An ATSEP must not perform any safety related engineering function which they do not hold a valid rating except where they are acting as ATSEP-Trainees under supervision.

(e) Roles and Responsibilities

1) **Holders of ATSEP Licenses**

An ATSEP license holder who performs a safety related engineering function on a CNS/ATM system used to provides air navigation service shall be responsible for ensuring that he/she:

(i) holds a valid rating(s) appropriate to the CNS/ATM systems that an ATSEP may perform safety related engineering activities on including:

1. any associated rating endorsement; and
2. a current unit endorsement for the unit(s) or operational system(s) on which he/she performs his/her functions;
3. is competent to perform the safety related engineering functions for which he/she holds valid rating(s);
4. complies with requirements for maintaining currency;
5. is not fatigued to an extent that his/her performances may endanger the safety of aircraft to which air navigation services is provided;

2) Providers of Air Navigation Services

Providers of Air Navigation Services must ensure that units, sections or departments responsible for the provision of CNS/ATM systems and associated facilities have processes, procedures and competent personnel to ensure that ATSEPs:

(i) are appropriately licensed;

(ii) are competent to perform safety related engineering functions on the equipment and systems for which they hold valid ratings;

(iii) speak and understand the English language;

(iv) comply with requirements for maintaining currency;

(v) are not under the influence of drink, drugs or medication or suffering from any illness or injury to an extent that may endanger the safety of aircraft to which Air Navigation Service is being provided.

(vi) signs his/her license in ink with his/her normal signature.

~~**2 ATSEP Trainee License**~~

~~**(a) Requirement to Hold an ATSEP Trainee License**~~

~~A person who does not hold an ATSEP license shall not perform any safety related engineering function on a CNS/ATM system under the supervision of an OJTI, unless he holds an ATSEP Trainee license.~~

~~**(b) Application for an ATSEP License**~~

~~An applicant for the grant of an ATSEP License shall:~~

~~1) complete the **GCAA-CNS-002** form in Appendix 4 titled "Air Traffic Safety Electronics Personnel (ATSEP) Trainee Application".~~

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2) and submit it to the Authority with:

(i) A nomination letter from the Air Navigation Service Provider;

(ii) the appropriate attachments; and

(iii) a payment of the prescribed application fee.

(c) Grant of an ATSEP Trainee License

The GCAA will grant an ATSEP Trainee license to an applicant provided he:

1) has successfully completed an approved course of initial training;

2) has successfully passed the knowledge test administered by the GCAA Personnel Licensing Office;

3) is at least 18 years of age; and

(d) Privileges of an ATSEP Trainee License

The holder of an ATSEP Trainee license is authorised to carry out safety related engineering activities on CNS/ATM systems under the supervision of an OJTI who holds a valid rating appropriate to the CNS/ATM system.

The CNS/ATM systems and facilities on which engineering activities are performed by the holder of an ATSEP Trainee license under supervision must be in a rating discipline for which he/she has successfully completed an approved course of initial training.

NOTE: ATSEP Trainees must commence the unit training plan of the unit where they will be training towards the grant of an ATSEP license and associated rating and endorsement(s) within 6 months of completion of the initial course of training in that rating;

The ATSEP Trainee license is valid for a period of 24 Calendar Months.

(e) Roles and Responsibilities

1) Holders of ATSEP Trainee Licenses

An ATSEP Trainee license holder who undertakes operational safety related tasks under supervision shall be responsible for ensuring that he/she:

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~~(i) holds a current ATSEP Trainee license;~~

~~(ii) does not carry out engineering activities in a rating discipline for which he has not successfully completed an approved course of initial training;~~

~~(iii) signs his license in ink with his normal signature;~~

~~(iv) is not fatigued to an extent that may endanger the safety of aircraft to which air navigation services service is being provided.~~

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~~**2) Air Navigation Service Providers**~~

~~Providers of Air Navigation Service must ensure that the units, sections or departments responsible for the provision of CNS/ATM systems and associated facilities must have processes, procedures and competent personnel to ensure that:~~

~~(i) ATSEP Trainees:~~

~~1. hold a current ATSEP Trainee license;~~

~~2. have successfully completed an approved course of initial training in the rating discipline in which they will be performing safety related engineering functions on CNS/ATM systems under supervision;~~

~~3. have successfully passed the knowledge test administered by the GCAA Personnel Licensing Office; and~~

~~4. commence the unit training plan within 6 months of their having completed the initial course of training in the rating discipline in which they will be performing safety related engineering functions on CNS/ATM systems under supervision; and~~

~~(ii) the OJTI supervising the ATSEP Trainee holds a valid rating appropriate to the CNS/ATM system or facility.~~

3 ATSEP License Holders requiring additional rating (s)

(a) Requirement

The holder of an ATSEP license shall not perform safety related engineering activities on CNS/ATM system and facilities for which he/she does not hold a valid rating, except under the supervision of an OJTI.

The ATSEP license holder carrying out functions on CNS/ATM systems under supervision must:

1) have successfully completed an approved course of initial training in the rating discipline which relates to the ATSEP profile or CNS/ATM system(s); or

2) hold, or have held within the previous four years, the rating and rating endorsement (if any) which relates to the ATSEP Profile or CNS/ATM system(s); and
3) in relation to (1) above, commence the unit training plan within 6 months of having completed the initial course of training in the rating discipline in which he/she will be undertaking operational safety related tasks under supervision;

The supervising ATSEP must be a qualified OJTI and hold a valid rating appropriate to the CNS/ATM system or facility.

(b) Privileges of the Holders of an ATSEP License but requiring additional rating(s)

An ATSEP license entitles the holder to undertake operational safety related engineering functions on CNS/ATM systems, for which he/she does not hold a valid rating but under the supervision of an OJTI, who holds a valid rating appropriate the CNS/ATM system.

This provision applies to ATSEP license holders who are undergoing on-the-job training (OJT):

1) towards the grant of a rating and rating endorsement (if any) in which they have not previously held a valid rating, but in which they have successfully completed an approved course of initial training;
2) on additional CNS/ATM systems in the same unit (or extension of validation) at which they already hold valid ratings and rating endorsement (if any) appropriate to the ATSEP profile or CNS/ATM system;
3) at a unit where they do not yet hold a valid rating and rating endorsement (if any) appropriate to the CNS/ATM system but in which they hold, or have held within the previous four years, a valid rating in the same rating discipline at another unit.

NOTE: An ATSEP who has not exercised the privileges of a particular rating and/or rating endorsement within the previous four years must not commence on-the-job training until he has been assessed for previous competence and successfully completed any training and assessments required.

(c) Roles and Responsibilities

1) **ATSEP License Holders requiring additional rating(s)**
An ATSEP license holder who undertakes operational safety related engineering functions on CNS/ATM system(s) under supervision shall be responsible for ensuring that he/she:
   (i) holds an ATSEP license;
   (ii) holds the appropriate rating and rating endorsement (if any) and has exercised the privileges of that rating and rating endorsement (if any) within the previous 4 years;
   (iii) carry out operational safety related engineering function on CNS/ATM systems under supervision of an OJTI in a rating and rating endorsement for which he/she does not hold;

(iv) has successfully completed an approved course of initial training in the appropriate discipline(s);

(v) in relation to (iv) above, commences the unit training plan within 6 months of having completed the initial course of training in the rating discipline in which he/she will performing operational safety related engineering functions under supervision;

(vi) is not fatigued to an extent that may endanger the safety of aircraft to which air navigation service is provided.

2) **Providers of Air Navigation Services**

Providers of Air Navigation Services must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that ATSEP license holders requiring additional rating:

(i) hold an ATSEP license which includes rating(s) and rating endorsement(s) appropriate to the carry out operational safety related tasks on CNS/ATM system(s)under supervision of an OJTI and have exercised the privileges of those rating(s) and rating endorsement(s) within the preceding 4 years;

(ii) do not carry out operational safety related tasks on CNS/ATM system(s)under supervision in a rating discipline for which they do not hold a valid rating unless they have successfully completed an approved course of initial training in the appropriate discipline(s);

(iii) in relation to (ii) above commence the unit training plan within 6 months of completion of the initial course of training in the rating discipline in respect of CNS/ATM system(s) under supervision;

NOTE: ATSEP license holders must commence the unit training plan within 6 months of completing the initial course of training in the rating discipline in which they will be carrying out operational safety related tasks on CNS/ATM system(s)under supervision;

Having commenced the Unit Training Plan, ATSEP must continue through the plan without interruption, except for normal periods of leave, sickness or to maintain existing unit endorsement(s). Any requirement for extended periods of absence during unit training other than those cited above is subject to approval by the Training Manager or OJTI, who may set requirements for additional training.

4 On-the-Job Training Instructor (OJTI) License Endorsement

An on-the-Job Training Instructor (OJTI) license endorsement may be used in association with any of the license holder's valid ratings.

(a) Requirements for the Issue of an OJTI License Endorsement

To be issued with an OJTI license endorsement the applicant must:

1) hold an ATSEP license;
2) have successfully completed an approved OJTI training course;
3) have held a valid rating in the rating discipline in which he will instruct for a period of at least two years;
4) hold, and have held for a period of at least six months, a rating valid on the CNS/ATM system(s) on which he will instruct.

An OJTI shall remain responsible for the safety of the CNS/ATM system(s) and related service being provided and shall supervise:

1) An ATSEP-Trainee; or
2) An ATSEP License holder requiring additional rating; or
3) An ATSEP whose rating, rating endorsement or unit endorsement has been provisionally suspended or suspended;
Note: Suspension of ATSEP licenses is addressed in Part 3, paragraph 13, of this Procedures Manual.

(b) Privileges of an OJTI License Endorsement

An OJTI license endorsement shall entitle the holder to supervise ATSEP-Trainee and ATSEP License holders (requiring additional rating) while they undertake operational safety related engineering functions on CNS/ATM system(s) for which they do not hold a valid rating.

An OJTI shall only supervise ATSEP-Trainee while they undertake operational safety related engineering functions on CNS/ATM system(s) for which he holds a valid rating.

(c) Roles and Responsibilities

1) On-the-job Training Instructors (OJTIs)
The OJTI shall be responsible for:

(i) the safety of the CNS/ATM system(s) and its associated service that the ATSEP-Trainee and/or ATSEP License holder requiring additional rating, undertake operational safety related engineering functions under his supervision;

(ii) ensuring that ATSEP-Trainee:
1. hold a current ATSEP-Trainee license; and
2. have successfully completed an approved course of initial training in the rating discipline in the required ATSEP profile or on CNS/ATM system under supervision;

(iii) ensuring that ATSEP license holder(requiring additional rating):
1. hold an ATSEP license which includes the rating(s) and rating endorsement(s) appropriate to required ATSEP profile or on CNS/ATM system under supervision and have exercised their privileges within the preceding four years; or

2. have successfully completed an approved course of initial training, in the rating and rating endorsement (if any) appropriate to the required ATSEP profile or on CNS/ATM system under supervision; and

3. have successfully passed the knowledge test administered by the GCAA Personnel Licensing Office for issuance of ATSEP Trainee License.

(iv) determining and reporting on the training progress;

(v) identifying any deficiencies in knowledge or skill and recommending remedial training;

(vi) recommending ATSEP-Trainee or ATSEP License holder (requiring additional rating) as being at an appropriate level of competence where they shall be successful at a rating or unit endorsement examination;

(vii) supervising ATSEPs who have had their rating(s) and/or rating endorsement(s) and/or unit endorsement(s) suspended;

(viii) reviewing and monitoring the unit training plan and proposing changes to the training.

2) Providers of Air Navigation Services (ANSP)

Providers of Air Navigation Services must ensure that units, sections or departments responsible for responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that OJTIs:

(i) hold an OJTI license endorsement and valid ratings entitling them to undertake operational safety related tasks on CNS/ATM systems on which they are supervising ATSEP-Trainee and ATSEP license holders requiring additional rating;

(ii) have received specific training on the conduct of the UTP;

(iii) are competent to supervise ATSEP-Trainees and ATSEP License holders requiring additional rating ;

(iv) are assessed at least every two years for their ongoing competence to train and supervise ATSEPs.

Providers of Air Navigation Services shall ensure that an OJTI is permitted to undertake operational safety related tasks without any training responsibilities, for sufficient time to remain competent on the specific CNS/ATM system or facility for which he provides on-the-job training.

3) An OJTI who is assessed as no longer competent to train and supervise ATSEP-Trainee and/or ATSEP licensing holders requiring additional rating shall not undertake duties as an OJTI until he /she has been assessed as competent to do so. If an ATSEP be unable to demonstrate competence as an OJTI, the ANSP must inform Licensing Authority who will arrange for the removal of the OJTI license endorsement.

PART 3 ATSEP LICENSING – SAFETY REGULATION PROCEDURES

Safety Regulation procedures assist in ensuring that the operational safety related engineering functions carried out by licensed ATSEPs on CNS/ATM systems and facilities at CNS units or sections are safe and satisfy the requirements of Air Navigation Service Provision and aircraft operations.

1 Training

(a) Requirement

The training of Air Traffic Safety Electronic Personnel must adequately prepare ATSEP-Trainee for the grant of an ATSEP license and/or associated rating(s). Such training must provide the necessary skills and knowledge to an appropriate level of competence to ATSEP-Trainee to perform safety related engineering activities on CNS/ATM systems and facilities used to provide an air navigation service while operating under the supervision of an OJTI.

For the purposes of Safety Regulation procedures, ATSEP training is divided into two phases:

1) Initial training;

2) Unit training comprising OJT for System and Equipment (S/E) rating training.

In order to provide either form of training to ATSEPs, GCAA shall have oversight on the training providers.

(b) Initial Training Requirement

Initial training courses (Basic and Qualification) must provide ATSEP-Trainee with the necessary skills and knowledge to a level of competence that will prepare them for training at operational CNS/ATM units. Notwithstanding this requirement, the training courses must at least satisfy the guidelines in the Training Manual for **ATSEP, ICAO Doc 7192-AN/857 Part E-2**.

An ATSEP-Trainee who fails an approved course of initial training may re-take the course.

An ATSEP-Trainee shall commence unit training, in a rating discipline in which he/she has successfully completed initial training, within six months of completing the initial training course. If he does not commence unit training within this period, he must undertake an Assessment for Previous Competence (APC) in that rating discipline and successfully complete any further training identified before being allowed to commence unit training.

2 Assessments for Previous Competence (APCs)

(a) Requirement

An ATSEP shall undertake an Assessment for Previous Competence (APC):

1) when he/she has not held a valid rating and rating endorsement (if any) included in his ATSEP license, for a period of more than 4 years; or

2) when specifically required by the GCAA .

An ATSEP-Trainee shall undertake an APC when he/she has not commenced unit training within six months of completing an approved course of initial training.

(b) Assessment for Previous Competence – the Four-year Rule Requirement

An ATSEP who has not held a valid rating and rating endorsement (if any) included in his ATSEP license, for a period of more than four years, shall undertake an APC before commencing unit training in that rating. The ATSEP shall obtain written confirmation from the GCAA of his eligibility to undertake an APC.

(c) Responsibilities

1) ATSEP License Holders

An ATSEP who have not exercised the privileges of a particular rating or rating endorsement for more than four years shall not commence unit training in that rating or rating endorsement:

(i) unless they successfully complete an APC in that rating and rating endorsement (if any);

(ii) if more than 6 months have elapsed since they successfully completed the APC referred to in (i) above.

NOTE: Where b) above applies, an ATSEP will be required to successfully complete a further APC before commencing unit training.

2) Providers of Air Traffic Services

Air Navigation Service Providers must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that ATSEPs who have not exercised the privileges of a particular rating or rating endorsement for a period of more than four years do not commence unit training in that rating or rating endorsement:

(i) unless they have undertaken and successfully completed an APC in that rating and rating endorsement (if any);

(ii) if more than 6 months have elapsed since the successful completion of the APC referred to in a) above.

3 Assessment for Previous Competence - GCAA Requirement when Competence in Doubt

The GCAA may require an ATSEP to undertake an assessment for previous competence when his ability to perform operational safety related engineering functions on CNS/ATM system(s) is in doubt. The level of competence, against which the ATSEP is assessed, is that required for successful completion of an approved course of initial training.

4 Assessment for Previous Competence – the 6-month Rule

(a) Requirement

An ATSEP-Trainee who does not commence unit training within 6 months of having completed the initial course of training in the rating discipline in which they will be undertaking operational safety related task on CNS/ATM system(s) under supervision, shall undertake an Assessment for Previous Competence.

(b) Responsibilities

1) ATSEP License Holders

ATSEP-Trainees and ATSEP License holders requiring additional rating who have not commenced unit training within 6 months of having completed the initial course of training in the rating discipline in which they will be undertaking operational safety related task on CNS/ATM system(s) under supervision, shall not commence unit training in that rating:

(i) unless they successfully complete an APC in that rating;

(ii) if more than 12 months have elapsed since they successfully completed the APC referred to in a) above.

NOTE: Where b) above applies, ATSEPs will be required to successfully complete a further APC before commencing unit training.

2) Air Navigation Services Providers

Air Navigation Service Providers must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that ATSEPs who have not commenced unit training within 6 months of having completed the initial course of training in the rating discipline in which they will be undertaking operational safety related task on CNS/ATM system(s) under supervision, do not commence unit training in that rating:

(i) unless they have undertaken and successfully completed an APC in that rating;

(ii) if more than 12 months have elapsed since the successful completion of the APC referred to in a) above.

5 Arrangements for Assessments for Previous Competence

Assessments for previous competence may be conducted at a certified training provider or at a unit approved to conduct assessments for previous competence.

(a) Assessment for Previous Competence at Certified Training Providers

Certified training providers offering approved courses of initial training and wishing to conduct APCs shall submit their proposals to the unit, section or department responsible for CNS/ATM service for approval.

Where so approved, certified training providers may conduct APCs for:

1) ATSEPs who have not exercised the privileges of a particular rating or rating endorsement for more than four years;
2) ATSEPs who are specifically required by the GCAA to undertake an assessment for previous competence;
3) ATSEP-Trainee who have not commenced unit training within six (6) months of completing an approved course of initial training.

Proposals for assessing for previous competence shall include:

1) details of the assessments to be used; and
2) nominations of the verifiers who will conduct the assessments.

Certified training organisations shall inform a CNS Safety Inspector prior to each assessment taking place. The CNS Safety Inspector may wish to attend at any assessment.

(b) Unit Training

Every CNS unit or section must have a unit training plan, approved by the GCAA , which details the processes by which ATSEP-Trainees and ATSEP license holders requiring additional rating are trained.

6 Competence

(a) Rating Competence

Rating competence is the ability of an ATSEP to apply his appropriate knowledge, skills and experience to undertake operational safety related engineering functions as notified in his/her ATSEP license.

(b) Requirement

1) Before a rating is issued to an ATSEP, he/she must demonstrate competence in that rating.

2) CNS Units shall require ATSEPs to complete a minimum amount of time performing operational safety related engineering functions in each of their valid ratings sufficient to enable them to maintain their competence in those ratings.

3) CNS Units must have training procedures, which include training to handle unusual circumstances and emergencies.

4) Before an ATSEP-Trainee is granted a valid ATSEP license and associated rating he must be assessed as competent by an authorised person.

5) ATSEP already holding an ATSEP license, shall demonstrate their competence if they wish to make their rating(s) valid on additional CNS/ATM system(s) in the same unit or at another unit.

6) The license of an ATSEP who does not continue to meet the competence requirements for a particular rating shall be varied by suspending that rating in accordance with the procedures set out in paragraph 13 of this part of the document.

(c) Rating Examinations

A rating examination is an examination for the issue of an:

1) ATSEP license and associated rating, rating endorsement (if any) and unit endorsement; or

2) additional rating, rating endorsement (if any) and unit endorsement to an existing license.

3) All rating examinations will be chaired by a CNS Safety Inspector or an authorized persons of the GCAA.

The board for a rating examination will comprise of authorized persons from the GCAA Safety Regulation Department including the Aviation Safety Inspector (CNS) of the GCAA and designated CNS unit / ANSP authorized persons.

At CNS units, an Aviation Safety Inspector (CNS) shall conduct the examinations.

(d) Roles and Responsibilities

1) Aviation Safety Inspectors (CNS)

Aviation Safety Inspectors (CNS) of the GCAA are responsible for determining whether the ATSEP-Trainee they are examining are competent to exercise the privileges of their ATEP licenses in respect of particular rating(s), rating endorsement(s) (if any) and unit endorsement(s).

CNS Safety Inspectors of the GCAA are responsible for determining if:

(i) an ATSEP-Trainee license holders are competent to undertake the operational safety related engineering functions on CNS/ATM system(s) for which they are being examined towards the grant of an ATSEP license, associated rating(s), rating endorsement(s) (if any) and unit endorsement(s); and

(ii) ATSEP license holders are competent to undertake the operational safety related engineering functions on CNS/ATM system(s) for which they are being examined towards the issue of additional rating(s), rating endorsement(s) (if any) and unit endorsement(s).

CNS Inspectors are responsible for ensuring that ATSEP-Trainee who are candidates for rating examinations towards the issue of an ATSEP license, rating(s), rating endorsement(s) (if any) and unit endorsement(s):

(i) hold a current ATSEP –Trainee license;
(ii) have successfully completed an approved course of initial training in the rating discipline in which they are to be examined;
(iii) have successfully completed the unit training plan and have been recommended by an OJTI or assessor as being at an appropriate competence standard to be successful at a unit endorsement examination;

CNS safety Inspectors are responsible for ensuring that ATSEP-Trainee who are candidates for rating examinations towards the issue of additional rating(s), rating endorsement(s) (if any), and unit endorsement(s):

(i) hold a current ATSEP license;
(ii) have successfully completed an approved course of initial training in the rating and rating endorsement (if any) in which they are to be examined;
(iii) have successfully completed the UTP and been recommended by an OJTI or assessor as being at an appropriate competence standard to be successful at a unit endorsement examination; and

2) Providers of Air Navigation Services

Providers of Air Navigation Services must ensure that units, sections and departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that:

(i) a candidate for a rating examination:
1. holds a current ATSEP-Trainee license;
2. has successfully completed an approved course of initial training in the rating and rating endorsement (if any) in which he/she is to be examined;
3. has successfully completed the unit training plan and been recommended by an OJTI or assessor as being at an appropriate competence standard to be successful at a unit endorsement examination;
4. training records are complete and available for scrutiny by the examiner(s);
5. is supervised by an appropriately qualified OJTI and is available to take responsibility for the safety of the CNS/ATM system(s) during the examination;
6. the GCAA is advised of the requirement for a rating or unit endorsement examination, giving a minimum of 30 days notice and

stating the planned number of hours for the candidate to complete the UTP.

7 Failing a Knowledge test or Rating Examination

(a) A candidate failing a Knowledge test shall not be permitted to retake the examination until a period of 7 days has elapsed.

(b) A Candidate failing a rating examination shall not be permitted to retake the examination until a period of at least 30 days has elapsed and will be required to undertake both the practical and the oral examination at further attempts.

The appropriate CNS Head of Department shall agree the minimum additional training required in consultation with the Air Navigation Service Provider and the GCAA.

8 Unit Endorsement Examinations

(a) Requirement

A unit endorsement examination is an examination for the issue of:

1) additional unit endorsement(s) on CNS/ATM system(s) or facilities(s) at the same unit at which an ATSEP already hold valid ratings in the rating and rating endorsement (if any) appropriate to carry out operational safety related engineering functions (extension validation);

2) unit endorsement(s) at a unit where the ATSEP does not yet hold a valid rating in the rating and rating endorsement (if any) appropriate to the CNS/ATM system(s) but on which he/she holds, or has held within the previous four years, a valid rating at another unit.

3) The GCAA Aviation Inspector (CNS) or authorized persons shall be responsible for the conduct of all unit endorsement examination.

(b) Roles and Responsibilities

(a) ATSEP Candidate

Before a candidate undertakes a rating examination, the candidate shall ensure that he/she:

(i) holds a valid ATSEP license;

(ii) has successfully completed a UTP;

(iii) has been recommended by the OJTI or assessor as being at an appropriate level of competence to be successful at the examination;

(b) Air Navigation Service Providers

Air Navigation Service Providers must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that:

(i) a candidate for a unit endorsement examination:

1. has exercised, within the last four years, the privileges of the rating and rating endorsement (if any) appropriate to the CNS/ATM system(s);
2. holds a valid ATSEP license;
3. has successfully completed the UTP and been recommended by an OJTI or assessor as being at an appropriate level of competence to be successful at the examination;
4. training records are complete and available for scrutiny by the examiner;

(ii) There is a suitably qualified OJTI available to supervise the candidate and take responsibility for the safety of the CNS/ATM system or facility during the examination;

9 Failing a Unit Endorsement Examination

A candidate failing a unit endorsement shall not be permitted to retake the examination until a period of at least 30 days has elapsed.

The CNS Manager in charge of the unit shall agree the minimum period of additional training required, in consultation with the Air Navigation Service Provider and the GCAA.

A candidate who fails a unit endorsement may, at the discretion of the examiners, be required to:

(a) take both the practical and the oral element at further attempts at the examination; or
(b) only that element of the examination failed at the previous attempt.

10 Maintaining a License - Routine Maintenance

(a) Requirements

1) A licensed ATSEP must not undertake operational safety related engineering functions of any CNS/ATM system(s) or facilities a valid rating unless he/she remains competent to carry out that function.

2) CNS units, sections or departments of Air Navigation Service Providers shall advise the GCAA when an ATSEP is no longer considered competent to carry out safety related engineering functions with a valid rating.

3) CNS units/departments must have procedures to ensure that ATSEPs returning from extended periods of planned or unexpected absence, but who still satisfy the unit procedures for maintaining competence, are competent to carry out operational safety related engineering functions for which they hold valid ratings.

4) CNS units must have procedures to ensure that ATSEPs satisfy the unit requirements relating to the maintenance of operational competence.

5) These procedures shall include requirements for ATSEPs to at least:

(i) complete a minimum specified number of hours continuously man an operational CNS/ATM system or air navigation facility for which they hold valid ratings; and

(ii) be subject to an assessment of their continuing competence by continuous assessment, by a dedicated competence check, or by a combination of both.

6) Subject to approval by the GCAA , all or part of the requirements detailed above for the maintenance or renewal of competence must be satisfied.

(b) Maintenance of Competence

ATSEPs must maintain their competence as one of the requirements for holding a valid rating or ratings associated with the ATSEP license.

(c) Duration and Renewal of Unit Endorsement

A unit endorsement is issued for 12 months. It is renewable by an assessment of the ATSEP's competence to continue to undertake operational safety related engineering functions on CNS/ATM system(s) detailed in the unit endorsement.

The assessment of competence for renewal of a unit endorsement may be carried out within a 45-day period preceding the date of expiry of the current unit endorsement. Provided the ATSEP is assessed as competent, the unit endorsement will be renewed for 24 months from the date of expiry of the current endorsement (date to date). CNS units/sections/departments of ANSP shall maintain records of the renewal of Unit Endorsements.

Air Navigation Service Providers must ensure that the GCAA is informed in the event that a unit endorsement is not renewed or is withdrawn.

(d) Failure of a Competence Assessment or Failure to Renew a Unit Endorsement

An ATSEP who fails a competence assessment, or fails to renew his/her unit endorsement, must not perform any operational safety related engineering functions on CNS/ATM system(s) or facilities with the unit endorsement.

(e) Duration and Renewal of OJT Instructor License Endorsement

The OJT Instructor License Endorsement is issued for a 3-year period. It is renewable by an assessment of the ATSEP's competence to continue to train and supervise ATSEP-Trainee.

Air Navigation Service Providers must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that holders of an OJT Instructor license endorsement are assessed for competence at least every three years.

The renewal of an OJT Instructor license endorsement may be carried out within the 90-day period preceding the date of expiry of the current OJT Instructor license endorsement.
Provided the ATSEP is assessed as competent, the OJT Instructor license endorsement will be renewed for a further 3 years from the date of expiry of the current endorsement. The GCAA must be informed of the outcome of the assessment in all cases accordingly.

(f) Conduct of Competence Examinations by CNS Inspectors of GCAA

The competence check conducted by a CNS Inspector of the GCAA will consist of:

1) a practical check in all operational CNS/ATM system indicated on the ATSEP's current unit endorsement;

2) an oral assessment, which may be conducted as part of the practical debrief or as a separate assessment.

The duration of the practical check will depend on the complexity of the CNS/ATM system and the associated services it renders. The Inspector may also require seeing the candidate ability to handle a simulated emergency or degraded system and a troubleshooting exercise on the CNS/ATM system.

If the requirements are not met, the Inspector will not certify the ATSEP as competent and a further practical check will have to be conducted at a later date. In this situation the GCAA may consider issuing an exemption from the ATSEP Licensing requirements allow the ATSEP to continue to exercise the privileges of his ratings at that unit while not holding a current unit endorsement.

The oral assessment will consist of:

1) questions from:

(i) the Manual of Air Navigation Service Operations – CNS (MANSOP-CNS);
(ii) Manufacturer's instructions and manuals of CNS/ATM equipment;
(iii) temporary operating instructions and other relevant operational documents;
(iv) relevant GCAA Publications including AICs, NOTAMS, etc. ;
(v) Ghana Civil Aviation (ANS) Directives, where appropriate;
(vi) questions relating to the practical check;
(vii) scenario type questions relating to:
(viii) the use of operational procedures not seen during the practical check; and
(ix) handling of unusual circumstances and emergency.

2) Provided the competence check is satisfactory, the CNS Inspector will approve the issuance of unit endorsement in the page of the license of the ATSEP.

3) In the event that an ATSEP is considered not competent at either the practical or oral assessment, the CNS Inspector will immediately inform the ATSEP concerned.

4) Notwithstanding that the previous unit endorsement(s) has not expired, the ATSEP must not exercise the privileges of his ATSEP license in respect of that unit endorsement(s) unless under the supervision of a suitably qualified OJTI.

5) Where the competence assessment covers more than one CNS/ATM system or facility this requirement shall only apply to the unit endorsement(s) for which the ATSEP has been assessed as not competent.

6) An ATSEP must demonstrate competence before the unit endorsement(s) is renewed. If competence is not demonstrated before the unit endorsement(s) expires, the ATSEP must undergo a unit endorsement examination in order to regain the unit endorsement(s).

7) If during the period between annual competence checks the ANSP becomes aware that a ATSEP's competence is in doubt, he must remove the ATSEP from duty and advise the GCAA – CNS inspectorate of his/her actions.

11 Retraining and Assessment of ATSEPs Found Not Competent

(a) Requirement

An ATSEP who has been assessed as not competent at competence assessment will not have his/her unit endorsement renewed. He/she will be required to undergo a period of training under the supervision of an OJTI and be declared as competent following a successful unit endorsement examination.

(b) Retraining

In cases where an ATSEP's ability to safely exercise the privileges of a particular rating and rating endorsement (if any) is in doubt, the GCAA may require the ATSEP to be assessed for previous competence.

12 ATSEPs' Current Experience

(a) Requirement

To maintain competence, an ATSEP shall be required to carry out operational safety related engineering functions on CNS/ATM systems for a specified (minimum) amount of time for which their ratings are valid.

(b) Maintaining Currency

CNS Units shall have procedures to ensure that ATSEPs exercise the privileges of their ATSEP licenses on each CNS/ATM system(s) for which their ratings are valid for a minimum period of time during each operational duty period. These procedures shall be approved by the Head of CNS Department of the ANSP.

CNS Units shall maintain records of the hours worked on each CNS/ATM system for every license holder. These records shall be made available to the GCAA on request.
CNS Units shall ensure that duty rosters enable ATSEPs to meet the currency requirements.

An ATSEP who does not satisfy the minimum currency requirement for a particular CNS/ATM system will be required to complete unit procedures for regaining his currency.

CNS Units shall have procedures to enable ATSEPs to regain their currency. These shall include requirements and guidance:

1) to ensure that ATSEPs who do not satisfy the minimum currency requirement do not undertake operationally safety related engineering functions on CNS/ATM system(s) concerned, unless they are monitored by an OJTI who holds a valid rating appropriate to the CNS/ATM system(s);
2) detailing the operational responsibilities of the monitoring OJTI and the ATSEP he/she is monitoring;
3) to enable an OJTI to determine when the monitored ATSEP no longer requires operational support.

If the OJTI and the ATSEP being monitored cannot agree that operational support is no longer required the monitored ATSEP shall be subject to a dedicated practical check of his competence by a by a CNS Inspector of the GCAA.

(c) Roles and Responsibilities

1) Air Traffic Safety Electronic Personnel (ATSEP)
ATSEPS on operational duty shall:
(i) comply with the CNS unit procedures for maintaining currency;
(ii) advise the appropriate authorities of CNS unit or Department, if they have failed to meet the currency requirements.

2) The ATSEP being monitored
The ATSEP who has not met the minimum currency requirements and is being monitored by an OJTI shall be responsible for:
(i) Carrying out operational safety related engineering functions that is allocated to the monitored ATSEP as detailed in the CNS unit procedures;
(ii) advising the OJTI when he/she considers he/she no longer requires operational support.

3) The OJTI
An OJTI who is monitoring an ATSEP who has not met the minimum currency requirements shall be responsible for:
(i) Carrying out operational safety related engineering functions that is allocated to the OJTI as detailed in unit procedures;
(ii) determining when the ATSEP he/she is monitoring no longer requires operational support;

(iii) advising the CNS unit, section or Department of the ANSP when he/she cannot agree with the monitored ATSEP that operational support is no longer required.

4) Air Navigation Service Providers

Air Navigation Service Providers must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that:

(i) the appropriate CNS Inspector of the GCAA is advised of the minimum number of hours within a notified period, for each CNS/ATM system on, that an ATSEP must spend undertaken operational safety related engineering functions to remain current;

(ii) CNS units have procedures to enable ATSEPs who do not satisfy the minimum currency requirement to regain their currency;

(iii) Duty rosters enable ATSEPs to maintain their currency;

(iv) refresher training is provided where required; and

(v) the appropriate CNS Inspector of the GCAA is advised when the OJTI and ATSEP being monitored cannot agree that operational support is no longer required and that a dedicated practical check of competence is required.

(d) Failure to Satisfy Ongoing Experience Requirements

Where an ATSEP fails to satisfy a unit's procedures for ongoing experience, the unit shall deal internally with the matter and, unless the ATSEP is subsequently found to be not competent, no licensing action will be taken.

13 Suspension and Revocation of ATSEP Licenses

(a) Authority to Suspend or Revoke a License

Only the GCAA may issue, provisionally suspend, suspend or revoke an ATSEP license or any of its associated ratings or endorsements.

(b) Requirement

An ATSEP whose competence is in doubt must be withdrawn from duty by the CNS unit and must not be permitted to continue to undertake operational safety related engineering functions on CNS/ATM system(s) used for Air Navigation Services.

(c) Withdrawal from Operational Duty

The withdrawal of an ATSEP from duty shall be without prejudice to the ATSEP. An ATSEP shall be withdrawn from operational duty by the unit if he/she:

1) has been involved in an incident or accident where there the safety of aircraft was compromised;

2) is determined by the unit's competence scheme not to be competent;

3) fails to satisfy minimum currency requirements.

NOTE: In 1) above '**been involved in'** includes ATSEPs whose actions led to failure of CNS/ATM systems thus disrupting the service and/or providing wrong information to the Air Traffic control and/or directly to the aircraft involved and has been determined by the ANSP/GCAA to have contributed to the incident or aircraft accident.

4) An ATSEP implicated as having contributed to an accident or incident must remain withdrawn from duty by the unit even if this will hamper the operation of a particular CNS/ATM system providing ANS service.

5) Exceptionally, where the immediate withdrawal of an ATSEP would adversely affect the safety of aircraft, the ATSEP may continue to perform the assigned engineering functions to support an Air Navigation Service but must be withdrawn from duty by the CNS unit as soon as it is safe to do so. CNS units, sections and Departments where this has occurred must keep a written record of the incident which includes the reason for not immediately withdrawing the ATSEP from duty.

(d) Provisional Suspension

Provisional suspension is a temporary measure which places a license, or its associated rating(s) and endorsement(s), in abeyance pending inquiry or investigation into the case.

(e) Provisional Suspension of the ATSEP license

The GCAA will provisionally suspend the license of an ATSEP:

1) whose competence to perform operational safety related engineering functions on CNS/ATM systems used in support of ANS services is in doubt;

2) whose fitness to hold an ATSEP license is considered by the GCAA to be in doubt.

An ATSEP whose license is provisionally suspended shall not perform operational safety related engineering functions on CNS/ATM systems. The provisionally suspended license will not act as a ATSEP-Trainee license.

(f) Provisional Suspension of Rating(s)

The GCAA will provisionally suspend the rating(s) of an ATSEP whose competence to perform operational safety related engineering functions on CNS/ATM systems associated with those rating(s) is in doubt.

An ATSEP shall not exercise the privileges of a provisionally suspended rating, or of any rating or unit endorsement(s) associated with that rating, except under the supervision of an OJTI who holds a valid rating appropriate to the CNS/ATM system.

An ATSEP may continue to exercise the privileges of ratings which are not subject to provisional suspension.

(g) Provisional Suspension of Rating Endorsements

The GCAA will provisionally suspend the rating endorsement(s) of an ATSEP whose competence to perform operational safety related engineering functions on CNS/ATM systems associated with those rating endorsements is in doubt.

An ATSEP shall not exercise the privileges of a provisionally suspended rating endorsement, or of any unit endorsements associated with that rating endorsement, except under the supervision of an OJTI who holds a valid rating appropriate to the CNS/ATM system.
An ATSEP may continue to exercise the privileges of rating endorsements which are not subject to provisional suspension.

(h) Provisional Suspension of Unit Endorsements

The GCAA will provisionally suspend the unit endorsement(s) of an ATSEP whose competence to perform operational safety related engineering functions on CNS/ATM systems associated with the unit endorsement(s) is in doubt.

An ATSEP shall not exercise the privileges of a provisionally suspended unit endorsement except under the supervision of an OJTI who holds a valid rating appropriate to the CNS/ATM system.

An ATSEP may continue to exercise the privileges of unit endorsements which are not subject to provisional suspension.

(i) Conditions and Removal of Provisional Suspension

The GCAA may set conditions for the removal of the provisional suspension of rating(s), rating endorsement(s) and unit endorsement(s). These conditions will normally be a period of unit training followed by an assessment of the ATSEP's competence for the renewal of a unit endorsement or by a unit endorsement examination.

Provided the ATSEP satisfies these conditions, the provisional suspension will be removed.

14 Suspension

Suspension is the act of placing an ATSEP license, or its associated rating(s), rating endorsement(s) or unit endorsement(s), in abeyance. Normally, conditions would be set whereby the ATSEP may seek withdrawal of the suspension of rating(s) and/or endorsement(s).

(a) Proposal to Suspend

The GCAA will issue a proposal to suspend the rating(s), rating endorsement(s) or unit endorsement(s) of an ATSEP:

1) who is unable or unwilling to meet the conditions for the removal of a provisional suspension;

2) where a more extensive investigation of an incident or accident indicates that the ATSEP is deficient in basic knowledge and skills required by ATSEPs that unit training cannot correct.

3) During the period of the proposal to suspend, the provisional suspension will remain in force and ATSEPs must continue to comply with the requirements associated with the provisional suspension.

4) An ATSEP who successfully fulfils the conditions associated with the removal of a suspension will have the suspension removed.

(b) Removal of a Suspension

Conditions for removal of a suspension will normally involve:

1) an assessment for previous competence conducted at a certified training provider, or at the CNS unit where the ATSEP is employed, provided it is approved to conduct APCs;

2) successful completion of any training and further assessments identified by the verifier as being required;

3) successful completion of unit training and passing of a unit endorsement examination in the rating and/or rating endorsement that was suspended.

An ATSEP whose rating(s), rating endorsement(s) or unit endorsement(s) have been suspended must not perform operational safety related engineering functions on CNS/ATM systems associated with those rating(s), rating endorsement(s) or unit endorsement(s) except to comply with the conditions for the removal of the suspension and under the supervision of an OJTI who holds a valid rating appropriate to the CNS/ATM system.

15 Revocation

Revocation is the act of withdrawing a license or its associated rating(s), rating endorsement(s) or unit endorsement(s).

(a) Proposal to Revoke

The GCAA will propose to revoke the ATSEP license of a ATSEP who it considers as not a fit person to hold an ATSEP license. In such a case the license will either have already been provisionally suspended or will be provisionally suspended at the same time as the proposal to revoke is notified. An ATSEP whose ATSEP license is provisionally suspended shall not perform operational safety related engineering functions on CNS/ATM systems even under supervision.

The GCAA will propose to revoke the ATSEP license or associated rating(s), rating endorsement(s) or unit endorsement(s) of an ATSEP who is unable to regain his competence to perform operational safety related engineering functions on CNS/ATM systems associated with his license, rating(s), rating endorsement(s) or unit endorsement(s).

(b) Roles and Responsibilities

1) ATSEP License Holders

An ATSEP whose license has been provisionally suspended must not perform operational safety related engineering functions on CNS/ATM systems used to provide ANS services.

An ATSEP whose rating(s), rating endorsement(s) or unit endorsement(s) has been provisionally suspended or suspended must not perform operational safety related engineering functions on CNS/ATM systems associated with those rating(s), rating endorsement(s) or unit endorsement(s), except to comply with the conditions for removal of the suspension and under the supervision of an OJTI who holds a valid rating appropriate to the CNS/ATM systems.

2) Air Navigation Service Providers

Air Navigation Service Providers must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that:

- **(i)** An ATSEP whose ATSEP license have been suspended do not perform operational safety related engineering functions on CNS/ATM systems;
- **(ii)** An ATSEP whose rating(s), rating endorsement(s) or unit endorsement(s) have been provisionally suspended do not perform operational safety related engineering functions on CNS/ATM systems associated with those rating(s), rating endorsement(s) or unit endorsement(s), except to comply with the conditions for removal of the suspension and under the supervision of an OJTI who holds a valid rating appropriate to the CNS/ATM systems;
- **(iii)** the CNS unit has written procedures detailing the action to be taken following the withdrawal of an ATSEP from duty in the event of his involvement in an incident or accident;
- **(iv)** the CNS Head of Department is advised that there has been an incident and of the action taken by the unit;
- **(v)** the ATSEP complies with any conditions relating to the provisional suspension or suspension;

The CNS Head of Department or the authority as appropriate is advised of the outcome of any training and assessment of the ATSEP required, for the removal of a provisional suspension or a suspension.

16 Cancellation of Unit Endorsements

Unit endorsements may be cancelled where an ATSEP is no longer required perform operational safety related engineering functions on CNS/ATM systems.

The license holder shall inform the GCAA Personnel Licensing Administration (PEL office) in the event that a unit endorsement is withdrawn, cancelled or not renewed unless the unit has procedures to inform the Safety Regulation on the license holder's behalf.

17 Psychoactive Substances (Alcoholic Drink and Problematical Drugs and Medicines)

An ATSEP who is performing operational safety related engineering functions on CNS/ATM systems while under the influence of psychoactive substances may not be aware that his or her judgement and skill have been degraded to the extent that the operations being carried out is unsafe. This may be the case where psychoactive substances are being abused, or where medicines have been prescribed by a doctor, or non-prescription medicines obtained for a minor illness.

The appropriate Medical institutions authorised by the GCAA ensures that license holders are able to obtain the necessary advice and/or information to enable them to decide if they shall, or shall not, perform operational safety related engineering functions on CNS/ATM systems while taking specific medicines.

(a)Requirement

The holder of an ATSEP-Trainee or ATSEP license shall not perform operational safety related engineering functions on CNS/ATM systems while under the influence of psychoactive substances, including any medicine, that might have a negative influence on his capacity to perform a safe engineering functions on CNS/ATM systems.

ATSEP-Trainee and ATSEP license holders shall ensure they do not take medicine before or while perform operational safety related engineering functions that would have a detrimental effect on their operational performance.

CNS Unit management shall have a process for monitoring ATSEPs for psychoactive substance abuse. An ATSEP who is suspected of being under the influence of psychoactive substances shall be immediately withdrawn from operational duty by the CNS unit and the GCAA advised of the circumstances.

(b) Roles and Responsibilities

1) Holders of ATSEP-Trainee and ATSEP Licenses

(i) ATSEP-Trainee and ATSEP license holders shall ensure that:

1. they do not perform operational safety related engineering functions on CNS/ATM systems if they are under the influence of psychoactive substances that might have a negative influence on their capacity to perform safe operational engineering functions;

2. they consult with their doctor on the likely effect on their operational efficiency of any medicine they have been prescribed;

3. NOTE: Any ATSEP-Trainee and ATSEP who is uncertain as to the likely effect of any medicine or psychoactive substances on his/her ability to perform operational engineering functions on CNS/ATM systems safely shall contact the Medical Institutions authorized by the GCAA for advice.

2) Air Navigation Service Providers

Air Navigation Service Providers must ensure that units, sections or departments responsible for the installation operation and maintenance of CNS/ATM systems and facilities have processes, procedures and competent personnel to ensure that ATSEP-Trainee and ATSEP license holders:

(i) are monitored for psychoactive substance abuse;

(ii) are withdrawn from operational duty if they are considered to be under the influence of psychoactive substances that might have a negative affect on their capacity to perform operational safety related engineering functions on CNS/ATM systems;

The ANSP must inform the GCAA as soon as possible after withdrawing an ATSEP-Trainee or an ATSEP from duty in accordance with b) above.

NOTE: ICAO Annex 1 and Doc 9654-AN/945 'Manual on Prevention of Problematic Use of Substances in the Aviation Workplace' provide advice on developing procedures for monitoring Operational personnel (ATSEPs and Air Traffic ATSEPs) for alcohol or drug abuse.

APPENDICES

APPENDIX 1 SYSTEM OR EQUIPMENT RATING

INTRODUCTION

After completing phase one basic training and phase two qualification training or having the equivalent knowledge and skills, all ATSEP must undergo training that is specially oriented to the equipment and its environment. The system and equipment rating training is system- and equipment-specific training. This system and equipment rating training will provide training on systems and equipment used in the operational environment, allowing the ATSEP to gain valuable knowledge and skills. Each ATSEP who is rated on a specific piece of equipment or system must receive the associated system and equipment rating training.

The training program shall be split into three parts:

a) environmental knowledge for the equipment or system;

b) theoretical section of the equipment or system; and

c) practical section enhanced by OJT on the equipment or system.

The system and equipment rating training can be taught at a specialized training centre, at the factory or at the site; however, at least the OJT portion dealing with the environment and logistic support must be done at the operational site.

The level of training will be done up to the Lowest Replaceable Module (LRM) or electronic boards of the system and equipment. The repair of these modules or boards is not taken into account, and if necessary shall be done through a specific training session.

For new systems and equipment, the ANSP is responsible for foreseeing, planning and providing the training for the ATSEP. This training must be completed prior to the system becoming fully operational. ATSEP who participate in the Factory Acceptance Test (FAT) and the site acceptance test (SAT) must receive the theoretical section of the training.

Condition: In a laboratory/real operational environment, given exposure to a specific system or equipment along with the appropriate and pertinent training material, reference documentation, test equipment and tools.

Performance: The trainee will be able to perform:

a) preventive maintenance;
b) corrective maintenance;
c) calibration; and
d) certification.

Standard of accomplishment: All maintenance, calibration and certification shall be performed as per the approved standards and procedures.

ENVIRONMENTAL KNOWLEDGE

This part of the training provides a detailed view of the technical and operational environment of the system and equipment. It gives information on the logistic aspects which can directly influence the system such as power supply, air conditioning, interference, security and handling of spares.

Objectives

At the end of this training stage, the trainee must be able to:

a) explain the logistic environment of the system and equipment (access to the station, power supply, air-conditioning, safety rules, etc.);

b) identify and describe the different constituting parts of the system and equipment;

c) identify the main interactions between the system or equipment, and its environment;

d) explain the proper vocabulary relative to the system and equipment; and

e) explain the maintenance procedures.

For trainees who might have some previous experience working with that system or equipment, the course could be adapted to teach only the missing information (after having defined the gap).

THEORETICAL SECTION OF THE EQUIPMENT OR SYSTEM

The purpose of this section is to familiarize the trainee with the system or equipment, in particular with the principles of its design, the different constitutive elements and their interactions and functionality, and the hardware and software elements.

This section of the course will provide in-depth knowledge of the system or equipment by explaining its principles, descriptions, characteristics, performance standards and functionality. This training complements the knowledge received during the phase two qualification training but is specific to the equipment hardware and software components.

The different parts of the system or equipment will be explained in detail. All the information needed to control, calibrate and maintain the equipment, and if necessary provide training on particular new technology which could be used in this equipment, will be provided.

The HMI and SMC (system monitoring and control) parts of the equipment shall also be described in

detail.

Objectives

At the end of this module, the trainee will be able to meet the following objectives:

a) identify and explain the details of the different components of the system;

b) describe the protocols used and the data flow;

c) explain the different functionality and the performance of the system;

d) explain the significance of the parameters and error messages;

e) explain how to measure and check the different modules and parameters;

f) explain how to perform unit replacement and calibration; and

g) explain the functionality of the HMI and SMC and their operation.

PRACTICAL SECTION ENHANCED BY ON-THE-JOB TRAINING

The purpose of this section is to give the trainee the practical skills required to apply the knowledge gained in the environment and theoretical courses. These skills will enable the trainee to operate and maintain the equipment.

Within this section, the trainee will perform basic operations, troubleshooting exercises, replacement and testing of faulty modules and alignment and calibration (if needed). The trainee will also apply the procedures particular to the measurement, testing and restarting of the system or equipment in order to certify that it meets the standards.

This section includes practical exercises and OJT training where the trainee works on live equipment under the supervision of an experienced ATSEP or instructor.

Objectives

At the end of this session, the trainee will be able to meet the following objectives:

a) follow the logistic processes and apply the safety procedures (access to the station, power supply, air-conditioning, safety rules, etc.);

b) operate the system or equipment, perform the necessary control and monitoring functions (start or restart, configuration, etc.), including the HMI and SMC;

c) perform checks and determine the cause of any faults by analysing the warnings, errors, alarms or failure messages or indications;

d) measure and verify the parameters;

e) run all available built-in tests, diagnostics and checks on the system or equipment;

f) identify the problem area and faulty module or LRM;

g) perform replacement of units or LRM and calibrate, if required;

h) load the software and configure the system or equipment including the VSP; and

i) restore the system or equipment to an operational mode.

RATING OF THE ATSEP

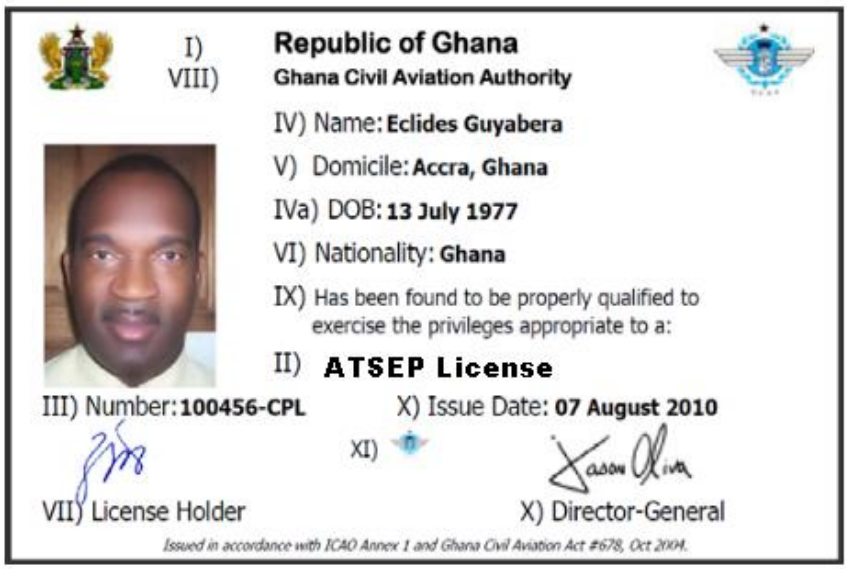
After the ATSEP successfully complete the system and equipment rating training and competency assessment, they will obtain their rating.

The assessment shall be designed using criteria based on consistency and reliability as stated in the performance objectives listed in the training plans. The procedures shall also include a performance assessment of each ATSEP during a typical set of exercises or simulation.

The duration of the assessment will depend on the complexity of the system and equipment.

The following are the Implementing Standards to be accomplished for ATSEP Ratings in accordance with the Ghana Civil Aviation Regulations (GCARs).

APPENDIX 2 ATSEP LICENSE SAMPLE



FORMAT OF THE ATSEP LICENCE

The following details shall appear on the licence:

I) Name of State (in bold type);

II) Title of licence (in very bold type);

III) Serial number of the licence, in Arabic numerals, given by the Authority issuing the licence;

IV) Name of holder in full (in Roman alphabet also if script of national language is other than Roman and date of birth;

V) Address of holder;

VI) Nationality of holder;

VII) Signature of holder;

VIII) Authority and, where appropriate, all conditions under which the licence is issued;

IX) Certification concerning validity and authorization;

X) Signature of officer issuing the licence and the date of such issue;

XI) Seal or stamp of Authority issuing licence;

XÏI) Ratings, e.g. category, class, type of system/equipment etc.;

XIII) Remarks, i.e. special endorsements relating to limitations and endorsements for privileges;

XIV) Any other details desired by the Authority in issuing the licence.

APPENDIX 3 ATSEP LICENSING APPLICATION FORM

Form GCAA-CNS-001

GCAA	**Application for Air Traffic Safety Electronics Personnel (ATSEP) Licence and Ratings** ***INSTRUCTIONS:*** ➢ Write in block letters in English. ➢ Do not write in shaded areas, (official use only) ➢ For multiple-choice questions, you must check **[X]** all that apply ➢ If additional space is required, use an attachment. ➢ Submit original only to the Safety Regulation Dept or a GCAA Authorized Person.	Please affix two (2) passport size pictures

I. Application for:

A. ☐ Original issuance ☐ Renewal ☐ Reissue ☐ Additional rating ☐ Validation ☐ Conversion

B. Ratings

☐ Communication Systems ☐ Navigation aid Systems ☐ Surveillance Systems ☐ ATSEP Training Instructor

Formatted Table

II. Applicant Information

1. Legal name (last, first, middle)		2. Identification number (e.g., Ghana Card, driver's licence, passport)		3. Date of birth (dd/mm/yyyy)
4a. Permanent mailing address (Ghana Post GPS and street)		4b. City, Region and Country		
5. Place of birth (city, state, and country)	6. Telephone number	7. Email address		8. Nationality
9. Height (cm)	10. Weight (kg)	11. Gender ☐Male ☐Female	12. Hair	13. Eyes

III. Licence Information

Licence number:	Country of issue:	Date of issue (dd/mm/yyyy):

IV. Attachments *(tick as appropriate)*

☐ Copy of ID *(eg. Ghana Card, Passport, etc)* ☐ Copy of Licence ☐ ATSEP Technical Logbook ☐ ATSEP Initial Training Certificate

V. Applicant's Certification:

I certify that the statements made by me on this application are true.

An Applicant will bear any consequences for false representation or information provide, for the purpose of procuring a licence.	Applicant's Signature:	Date (dd/mm/yyyy):

VI. GCAA Official Use Only

1. CNS INSPECTOR ACTION ☐ Recommended ☐ Not Recommended	Name and ASI Number:
Comments *(If not recommended):*	**Signature and Date**:

2. PEL ACTION

DATE (dd/mm/yyyy):	TITLE OR DESIGNATION NUMBER	SIGATURE	CASORT ENTRY

I. Application for:
Applicant completes the appropriate block(s)

Block A. Check the appropriate box:
Original issuance. First (direct) issuance of a type of licence (i.e.. ATSEP).
Renewal. Renewal of the licence within the validity period of the licence.
Reissue. Reissue of the licence after the licence validity period has expired.
Additonal rating. Adding a rating to an existing licence.
Validation. Request for a validation certificate to be issued on the basis of a foreign licence. Check the box and proceed to Section II, Applicant Information.
Conversion. Request to convert a licence based on a foreign licence. Check the box and proceed to Section II, Applicant Information.
Block B. Ratings. For the direct issuance of a rating, must check the appropriate box for the rating, type rating (e.g. Communication Systems, Navigation Aid Systems, Surveillance Systems and ATSEP Instructor) being sought.

II. Applicant Information
Applicant completes the appropriate items

1. Legal name. Enter your legal name. Do not change the name on subsequent applications unless it is officially indicated to the Authority that the name is changed accompanied by a copy of the marriage licence, court order, or other document verifying the name change.
2. Identification number. Enter the identification number from your driver's licence, passport, or other government-issued identification (as specified by the CAA).
3. Date of birth. Enter your date of birth as eight digits (dd/mm/yyyy). Use numeric characters, for example, 20/10/1983 instead of 20 October 1983.
4a. Permanent mailing address. Enter the residence number, Ghana Post GPS and street name of your permanent address. *CAA policy requires that you use your permanent mailing address.*
4b. City, Region and Country. Enter the city of your permanent address, the region and country as applicable.
5. Place of birth. Enter your city of birth and the state or province as applicable. Enter the country where you were born.
6. Telephone number. Enter your telephone number.
7. Email address. Enter your email address. If you do not have an email address, enter "None" or "N/A."
8. Nationality. Indicate your nationality from your passport. If you have more than one nationality, indicate so.
9. Height. Enter your height in centimetres. Do not enter fractions. Use whole centimetres only.
10. Weight. Enter your weight in kilograms. Do not enter fractions. Use whole kilograms only.
11. Gender. Check Male or Female.
12. Hair. Enter the colour of your hair. If bald, enter "bald." The colour should be listed as black, red, brown, blonde, or grey.
13. Eyes. Enter the colour of your eyes. The colour should be listed as blue, brown, black, hazel, green, or grey.

III. Licence Information

Licence number. Enter the licence number as it appears on your licence.
Country of Issue. Provide the name of Country that issued the License you hold.
Date of issue. Enter the date your licence was issued.

IV. Attachments
Applicants are required to tick the appropriate boxes and attach copies of the following (where applicable:
ID Card (eg. Ghana Card, Passport, Drivers License); ATSEP Licence; ATSEP Technical Logbook; and ATSEP Initial Training Certificates (ATSEP Basic and Qualification Certificates)

V. Applicant's Certification
Applicant completes this block

1. Signature. Print and sign your name.
2. Date. Enter the date you sign the application as eight digits (dd/mm/yyyy). Use numeric characters, for example, 20/10/2013 instead of 20 October 2013.

IS: 23.7.4.4.2 (a) COMMUNICATION SYSTEMS EXPERIENCE REQUIREMENTS

The knowledge instruction, skill test and experience for communications equipment/systems rating shall include the applicant's knowledge and performance of the following tasks:

1. Analyze and trouble shoot a generic radio transmitter (noise, intermodulation) including the performance of typical measurements (frequency, modulation, channel spacing, output power);
2. Analyze and trouble shoot a generic radio receiver; including the interpretation of remote monitoring and control systems information and performing typical measurements of the receiver;
3. Design and interpret the block diagrams of a transmitter and a receiverincluding the analysis of the coverage of the radio antenna system (Impedance, polar diagram, polarization, types of antennas(HF, VHF, UHF)
4. Calculate propagation of antenna parameters and values of the elements according to various conditions –(Output power, geographic, day and night, ionosphere influences)
5. Identify and measure cross modulation using measuring tools and acceptable methods,
6. Detect and analyze disturbances using Spectrum analyzer, scanner, noise, figure, and BITE, including conformity check of communication system with national regulations; interpret switching functionalities with a block diagram
7. Operate standard protocol Analyzers; Decode and analyze signals coded according to the standard protocols and national protocols (MFC R2 (EUROCONTROL), ATS QSIG (Re-routing), impulse dialling and DTMF dialling, ISDN);
8. Analyze conversion analog-digital, digital-analog and operate interface measuring equipment (Db meters, sniffer, level meters etc.)
9. Design and analyze the features of a LAN network including the
   Integration of components into a LAN
10. Analyze the features of a WAN network; Integrate adequately components into a WAN
11. Operate network measuring or monitoring tools to find the values of the main parameters and analyse the traffic (Data analyzer (sniffer), net scout),
12. Troubleshoot a LAN/WAN network including hands-on traffic data analysis of national and international networks using appropriate tools; hands-on traffic data analysis of global networks (AFTN, MOTNE, SITA, ARINC) and troubleshooting for problems at national level on segments of these networks
13. Analyze and interpret the general and specific data protocols (TCP/IP, X25, ACARS, ATN, SADIS) including the calculation of

parameters for digital transmission lines (copper wires, optic fibres, coaxial)

14. Measure the typical parameters of transmission lines (Impedance, insulation, signal level); analyze and troubleshoot a line installation,
15. Analyze and troubleshoot the analogue and digital recording and reproducing
16. Health and Safety procedures including demonstration of resuscitation techniques and rescue procedures
17. Perform Operating system commands (Linux, Unix, Windows)
18. Identify key points to be considered during equipment upgrade or replacement (maintenance & operational issues, spares, training, compatibility, power requirements etc.);
19. Identify issues that will affect the maintainability of hardware for planned life of a system; encode and decode a typical ATC data item using defining documents (e.g. Eurocontrol defining documents for ATC data item in ASTERIX);
20. Apply appropriate model to analyse a relevant aviation system (V model, waterfall);
21. Demonstrate the application of coding practices on a target language (C, C++, Pascal, ADA etc) including tuning the screen of operational HMI and identification of alert and error messages;
22. Demonstrate how a system can be protected against potential hostile intent via data processing systems; impact of security and integrity failure to the operational services; error detection in data, hardware and process handling
23. Demonstrate the SAFETY procedures and techniques to be followed changing wave guide, replacing fuses or boards, start-up/ shut down a station
24. Demonstrate resuscitation techniques and rescue procedures
25. Design the block diagram of the power distribution system at a typical site and discuss the precautions to be taken when working on power equipment; design a block diagram of a UPS;
26. Analyze and interpret the components and performances of a UPS
27. Design a block diagram of a battery station, Explain and analyze the main components and performances of batteries and battery station (Batteries, connections (parallel, serial), chargers, types, characteristics);
28. Check and troubleshoot an existing battery station;
29. Design a block diagram of a power supply network for a CNS/ATM system.
30. Check and troubleshoot a power supply network;
31. Identify potential hazards to health and safety generated by power supply equipment; State safety procedure for the persons working on or near a power supply equipment (safety interlocks, isolating switches, security of the site, climbing procedures)

IS 23.7.4.2.2(b) RADIO NAVIGATION AIDS EXPERIENCE REQUIREMENTS

The knowledge instruction, skill test and experience for radio navigation equipment/systems rating shall include:

1) Principles of Ground based navigation system-NDB/Locator including the applicant's knowledge and performance of the following tasks:

(i) Design an NDB station according to operational requirements
(ii) Calculate the interface between power stage and the antenna (tuning coil) e.g. 3 Standing Waves Ratio (SWR), radiate power
(iii) Perform typical measurements (Spectrum analysis, modulation, output power, ID code) to ensure compliance with standards
(iv) Calibrate and troubleshoot NDB/Locator systems

2) Principles of Ground Based Systems - VDF/DDF/IDF including the applicant's knowledge and performance of the following tasks:

(i) Design a VDF/DDF equipment according to operational requirements
(ii) Designate main signal parameter such as the Frequency band (UHF, VHF) and perform typical measurements on the receiver sub system (Frequency, channel spacing)
(iii) Design protection areas for Antenna Sub System
(iv) Check the operational status of the monitor system (BITE, system status e.g. watchdog), Troubleshoot wrong bearing instructions and demonstrate how to re-adjust antenna systems
(v) Calibrate the VDF/DDF/IDF system to comply with standards

3) Principles of Ground Based Systems **–** VOR including the applicant's knowledge and performance of the following tasks:

(i) Design a CVOR station according to operational requirements,
(ii) Analyze main signal parameters for a CVOR or DVOR Transmitter Sub System (carrier frequency stability, output power, signal generated)
(iii) Perform the typical measurements on the signal by using standard equipment (Power measurements, spectrum measurements, modulation measurements)
(iv) Analyze the interface between power stage and the antenna in the Antenna Sub system
(v) Analyze the most typical signal errors due to the antenna and check the operational status of the monitor system using the BOTE, Troubleshoot wrong bearing indications
(vi) Perform typical measurements (Spectrum analysis, modulation, output power, ID code) troubleshoot and calibrate to ensure compliance with standards

4) Principles of Ground Based Systems – DME including the applicant's knowledge and performance of the following tasks:

(i) Design a DME station according to operational requirements
(ii) Identify main signal parameters for a DDDME and perform typical measurements on the signal by using standard equipment (Power measurements, spectrum measurements, modulation measurements)
(iii) Analyze the interface between power stage and the antenna in the Antenna Sub system
(iv) Analyze the most typical errors due to the antenna and check the operational status of the monitor system using BITE, troubleshoot error indications and re-adjust antenna systems, or replace faulty LRU
(v) Perform typical measurements (Spectrum analysis, modulation, output power, ID code); troubleshoot (for frequency deviation, lack of power, harmonics ration etc) and calibrate to ensure compliance with standards

5) Principles of Ground Based Systems – ILS including the applicant's knowledge and performance of the following tasks:

(i) Analyze main signal parameters for LLZ, GS, OM and MM of the transmitter subsystem
(ii) Analyze and describe antenna parameters in the antenna subsystem (Types, position, polarisation, coverage, distribution circuits, radiated power,)
(iii) Perform the typical measurements (Output power, spectrum analysis, modulation, ID code);
(iv) Perform appropriate calibration tasks and assess flight inspection results for compliance to standards and troubleshoot

6) Principles of Ground Based Systems – MLS including the applicant's knowledge and performance of the following tasks:

(i) Design main signal parameters for transmitter subsystem azimuth, elevation and back azimuth station (Carrier frequency, output power, signals generated)
(ii) Perform typical measurements (Spectrum analysis, data link modulation, output power, ID code) troubleshoot (for carrier frequency deviation, lack of power, harmonics ration etc)and calibrate to ensure compliance with standards

7) Principles of Satellite-Based Navigation Systems - GNSS1, GBAS, SBAS and ABAS including the applicant's knowledge and performance of the following tasks:

(i) Calculate the main performance criteria for the GPS system in accordance with civil aviation requirements;
(ii) Demonstrate the limited use of GPS using software package to show availability of the constellation
(iii) Compute the main performance criteria for the GLONASS system and compare with civil aviation requirements;
(iv) Demonstrate the limited use of GLONASS, demonstrate the limited use of GBAS for approach and landing and compare performance criteria to civil aviation requirements;
(v) Demonstrate how the principles of ABAS impact on the navigation performance criteria
(vi) Theorize the principles of Health and Safety including demonstration of resuscitation techniques and rescue procedures

8) Power Supply for Nav-Aids including the applicant's knowledge and performance of the following tasks:

(i) Design the block diagram of the power distribution system at a typical site and discuss the precautions to be taken when working on power equipment; design a block diagram of a UPS;
(ii) Analyze and interpret the components and performances of a UPS
(iii) Design a block diagram of a battery station, Explain and analyze the main components and performances of batteries and battery station (Batteries, connections (parallel, serial), chargers, types, characteristics);
(iv) Check and troubleshoot an existing battery station;
(v) Design a block diagram of a power supply network for a CNS/ATM system.
(vi) Check and troubleshoot a power supply network;
(vii) Identify potential hazards to health and safety generated by power supply equipment; State safety procedure for the persons working on or near a power supply equipment (safety interlocks, isolating switches, security of the site, climbing procedures)

IS: 23.7.4.4.2 (C) SURVEILLANCE SYSTEM EXPERIENCE REQUIREMENTS

The knowledge instruction, skill test and experience for surveillance equipment/systems rating shall include the applicant's knowledge and performance of the following tasks:

1. Calculate the key parameters necessary to achieve PSR performance in En Route, Terminal and Approach Services(availability, coverage, range, resolution, frequency WRT range, MBTF, update rate, ASR, SMR etc)
2. Decode all the details from an ASTERIX message(Type range, azimuth and time, etc.); Decode data from a locally used message format
3. Interpret fault report based on various test tool measures (Data analyzer, line analyzer, BITE, spectrum analyzer etc.)
4. Design a radar network comprised of four radar sites feeding two control units, with full redundancy
5. Detect faults in transmitters using special equipment (Crystal detectors, spectrum Analyzer, calorimeter, power meters, BITE)
6. Calculate the key parameters necessary to achieve Radar performance in Aerodrome services;
7. Decode all the details of an ASTERIX message from SSR data transmission (Call sign, range, azimuth, altitude, time, SPI) Decode a transponder message with SPI set;
8. Use the ICAO documentation to explain the principles relating toaccess technology and signals in space for VDL Mode 4;
9. Decode and Analyze a signal coded according to the Asterix relevant standard (VDL Mode 4)
10. Decode and Analyze a mode S extended squitter signal; Decode the ADS C messages coming from the ATN router;
11. Identify and locate data transmission problems;
12. Demonstrate the SAFETY procedures and techniques to be followed Changing wave guide, replacing fuses or boards, start-up/ shut down a station;
13. Demonstrate resuscitation techniques and rescue procedures;
14. Perform Operating system commands (Linux, Unix, Windows);
15. Identify key points to be considered during equipment upgrade or replacement (maintenance & operational issues, spares, training, compatibility, power requirements etc.);
16. Identify issues that will affect the maintainability of hardware for planned life of a system; encode and decode a typical ATC data item using defining documents (e.g. Eurocontrol defining documents for ATC data item in ASTERIX); apply appropriate model to analyse a relevant aviation system (V model, waterfall);
17. Demonstrate the application of coding practices on a target language (C, C++, Pascal, ADA etc.) including tuning the screen of operational HMI and identification of alert and error messages;

18. Demonstrate how a system can be protected against potential hostile intent via data processing systems; impact of security and integrity failure to the operational services; error detection in data, hardware and process handling
19. Demonstrate the SAFETY procedures and techniques to be followed changing wave guide, replacing fuses or boards, start- up/ shut down a station
20. Demonstrate resuscitation techniques and rescue procedures
21. Design the block diagram of the power distribution system at a typical site and discuss the precautions to be taken when working on power equipment;
22. design a block diagram of a UPS;
23. Analyze and interpret the components and performances of a UPS
24. Design a block diagram of a battery station, Explain and analyze the main components and performances of batteries and battery station (Batteries, connections (parallel, serial), chargers, types, characteristics);
25. Check and troubleshoot an existing battery station;
26. Design a block diagram of a power supply network for a CNS/ATM system.
27. Check and troubleshoot a power supply network;
28. Identify potential hazards to health and safety generated by power supply equipment; State safety procedure for the persons working on or near a power supply equipment (safety interlocks, isolating switches, security of the site, climbing procedures)

IS: 23.7.8 TRAINING REQUIREMENTS FOR ATSEP INSTRUCTOR RATING

1. Classroom Techniques
   Classroom instructional techniques which shall include:

   a) quality of a good instructor;
   b) principle of adult learning; the learning process
   c) use and structure of a lecture;
   d) how to design and structure a lesson, lesson plan; including design of instructional events, selection of training techniques and selection of media options
   e) questioning techniques;
   f) elements and formulation of training objectives;
   g) use of teaching aids; including standby or real equipment or special equipment for development and training purposes
   h) as appropriate;
   i) principle of student motivation; analysis and correction of student errors
   j) student evaluation and testing ;qualities and types of written tests;
   k) how to administrate practical exercises (written, small group discussion, group discussion,
   l) lab, role play, simulator); and
   m) practical exercises presenting one lecture and one lesson.
   n) human performance relevant to CNS/ATM instruction
   o) including principles of threat and error management;
   p) hazards involved in simulating system failures and
   q) malfunctions in the equipment.

2. On-the-job Instructions and coaching Techniques

   Teaching techniques and coaching practices on equipment program shall include:

   a) safety precautions to take before teaching practical training on equipment;
   b) learning processes, cognitive aspects and motivation theories;
   c) effective verbal communication, non-verbal communication and effective listening skills;
   d) personal interactions, personal styles and attitudes, building positive relationships, the influence of recognition, interpersonal conflict;
   e) training practices such as briefing a student, monitoring the student's progress, intervention methods, feedback and debriefing;
   f) task training, how to built practical exercises and sessions dealing directly with equipment, measurement technique, etc.;
   g) progressive application of coaching theory with feedback; and
   h) stress recognition and stress management.

3. Assessment training

Assessment training programme for evaluating the initial and continued operational competency of air traffic safety electronic personnel shall include at least the following:

a) role and task of assessor;
b) international safety regulatory requirement;
c) concept of assessment;
d) Human Factors affecting assessment;
e) the oral part of the assessment and the scenario of interview;
f) the practical part of the assessment process and work on equipment;
g) assessment for competency;
h) maintenance of competency;
i) competency assessment debriefing; and
j) exercises in practical and oral assessment.