

'AMC and GM to Part PERS — Amendment 1'

Annex XIII to ED Decision 2017/001/R is amended as follows:

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

- (a) deleted text is marked with ~~strikethrough~~;
- (b) new or amended text is highlighted in blue;
- (c) an ellipsis (...) indicates that the remaining text is unchanged.

SUBPART A — AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL**Section 1 — General****GM1 ATSEP.OR.100 Scope****GENERAL**

~~Whilst it~~ is acknowledged that ‘power supply’ and ‘air conditioning’ systems and equipment ~~that~~ can be critical elements of the aviation safety chain and that personnel ~~should, therefore, be appropriately trained~~ should be competent in those areas, ~~it is not considered that this training should fall within the scope of the ATSEP training provisions.~~ Personnel that maintain these systems should not be considered as ATSEP. In general, ATSEP do not work on these systems, but rather control and manage the release of power supply and air conditioning systems, to and from operational service. ~~In this situation, the person does not have, and is not expected to have, extensive knowledge of the aviation environment to provide the required service. Consequently, the vast majority of the Initial Training objectives would not be applicable to a power engineer.~~

AMC1 ATSEP.OR.105 Training and competence assessment programme**GENERAL — METEOROLOGICAL SERVICE PROVIDERS, AERONAUTICAL INFORMATION SERVICE PROVIDERS, DATA SERVICE PROVIDERS, FLIGHT PROCEDURE DESIGN SERVICE PROVIDERS**

- (a) Service providers should identify authorised personnel who are competent to operate, maintain, release from, and return into operations equipment of the functional system.
- (b) Service providers could demonstrate compliance with the relevant requirements of Subpart A — AIR TRAFFIC SAFETY ELECTRONICS PERSONNEL of Annex XIII (Part-PERS) to Regulation (EU) 2017/373 by performing a gap analysis (e.g. a specific compliance matrix) that describes and compares the requirements for the training of the persons identified as air traffic safety electronics personnel (ATSEP), as well as for their qualification, experience, and recent experience, and by maintaining specific equipment or types of equipment to ensure an equivalent level of safety thereof.
- (c) The gap analysis (e.g. specific compliance matrix) that is referred to in point (b) should also detail the competence assessment(s) to be conducted by the service providers for ATSEP that meet the applicable requirements, and include copies or references of all the documents that are required for demonstrating compliance.

GM1 to AMC1 ATSEP.OR.105(b) Training and competence assessment programme

GENERAL — METEOROLOGICAL SERVICE PROVIDERS, AERONAUTICAL INFORMATION SERVICE PROVIDERS, DATA SERVICE PROVIDERS, FLIGHT PROCEDURE DESIGN SERVICE PROVIDERS

The gap analysis (e.g. specific compliance matrix) should:

- (a) describe the qualification, experience, and recent experience of the ATSEP;
- (b) indicate for which requirements of Subpart A of Part-PERS exemptions should be granted;
- (c) indicate the training, including the required examinations and assessments, to be provided to the ATSEP; and
- (d) include an assessment that confirms that the compliance of the ATSEP with the training, examination, and assessment requirements that are described in the analysis can be considered as equivalent to the successful completion of the training that is required by Regulation (EU) 2017/373 for the purpose of demonstrating compliance.

GM2 to AMC1 ATSEP.OR.105 (b) Training and competence assessment programme

GENERAL — METEOROLOGICAL SERVICE PROVIDERS, AERONAUTICAL INFORMATION SERVICE PROVIDERS, DATA SERVICE PROVIDERS, FLIGHT PROCEDURE DESIGN SERVICE PROVIDERS

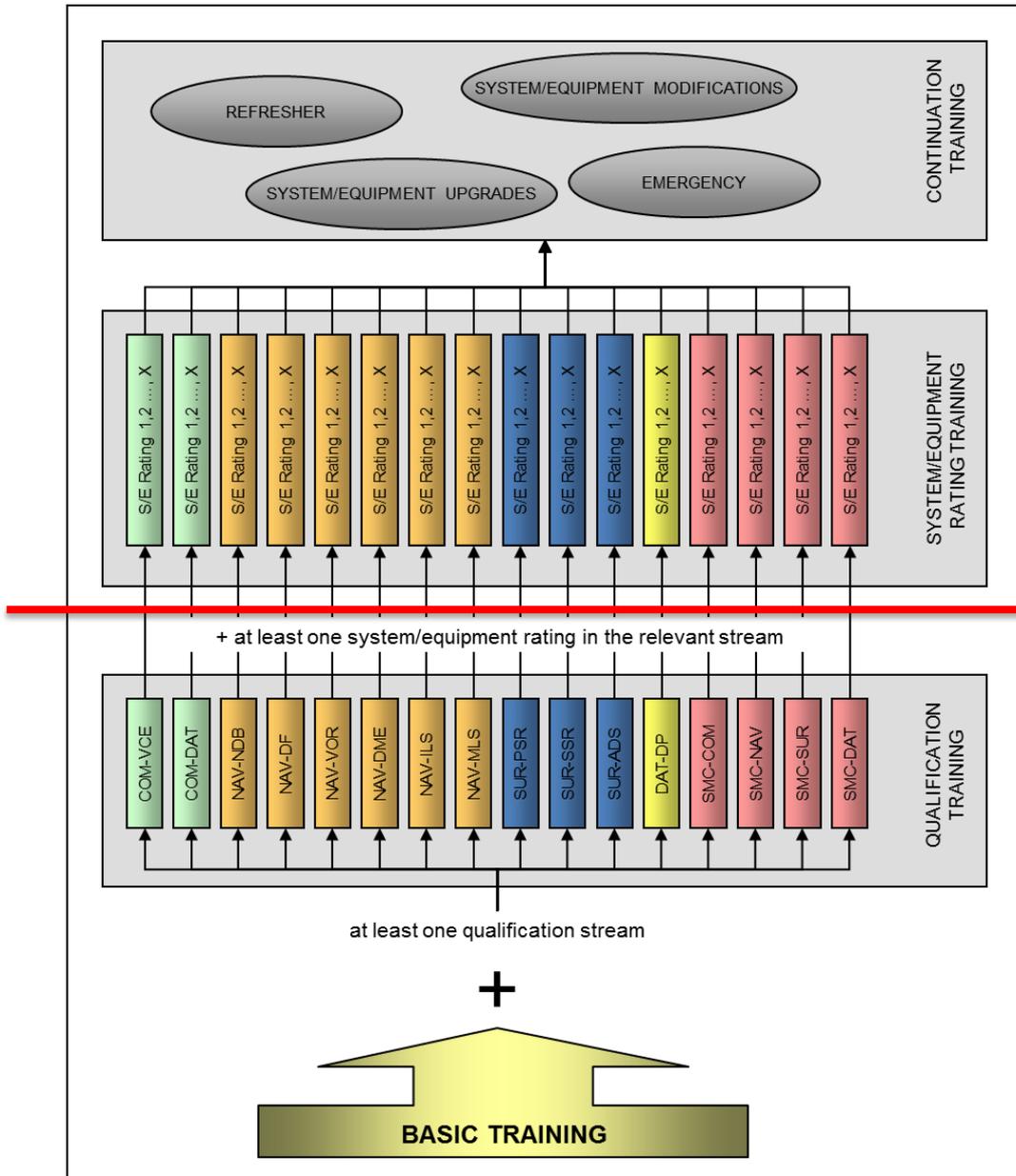
The authorised persons who are competent to operate, maintain, release from, and return into operations equipment of the functional system may be information technology (IT) personnel or technicians with maintenance tasks at a service provider.

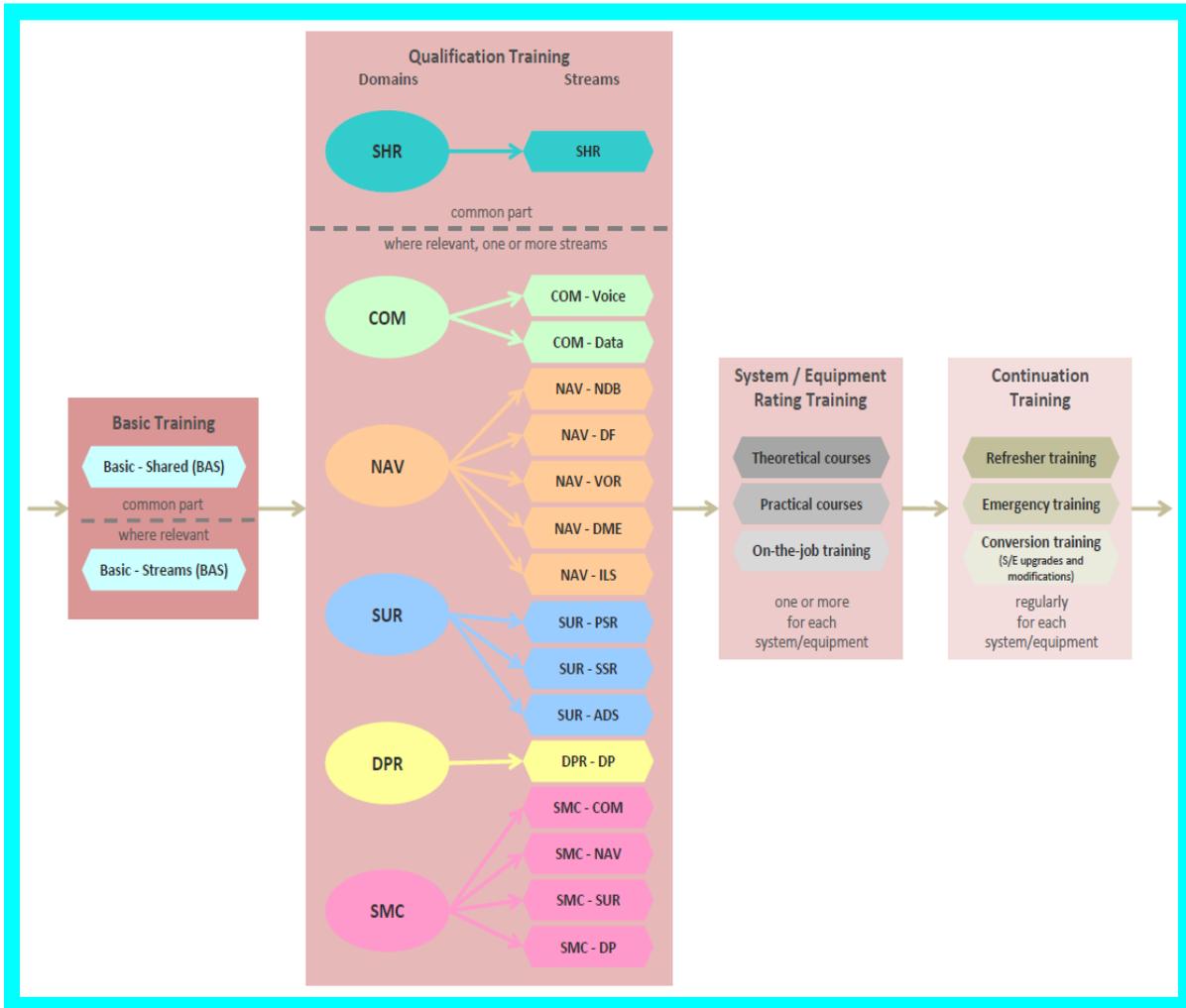
Section 2 — Training requirements

GM1 ATSEP.OR.200 Training requirements — General

ATSEP TRAINING PHASES

The following diagram illustrates the phases of ATSEP training:





AMC1 ATSEP.OR.205(a) Basic training

GENERAL

The selection of the subjects, topics, and sub-topics should be tailored to:

- (a) the responsibility duties of the ATSEP regarding the service provider's activities; and
- (b) prior experience and education of the candidate ATSEP.

GM1 ATSEP.OR.205(b) Basic training

ENTRY LEVEL

In some instances, only a limited number of training objectives will need to be taught to ATSEP learners—ATSEP. This is usually the case when the entry level of learners includes some form of previous qualification (e.g. engineering degree or diploma). (...)

AMC1 ATSEP.OR.210 Qualification training

GENERAL

The selection of the subjects, topics, and sub-topics should be tailored to:

- (a) the responsibility duties of the ATSEP regarding the service provider's activities; and
- (b) prior experience and education of the candidate ATSEP.

~~GM2 ATSEP.OR.210 Qualification training~~

~~FLEXIBILITY~~

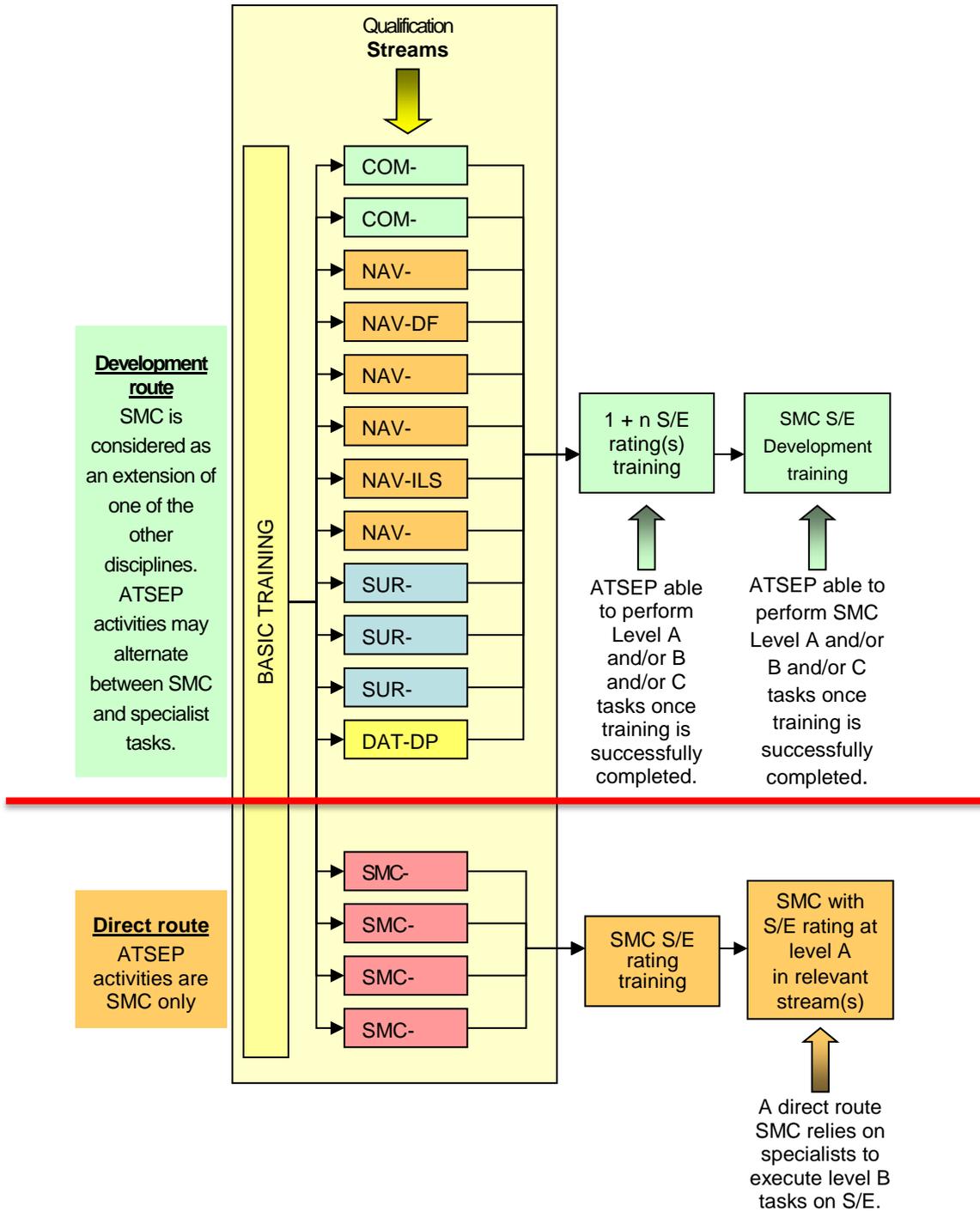
~~Service providers may choose to add content to a qualification stream to tailor the training to meet the needs of the individual organisation.~~

~~GM2 ATSEP.OR.210(b) Qualification training~~

~~SYSTEM MONITORING AND CONTROL (SMC)~~

- ~~(a) There are two recognised routes to achieve SMC competence. Organisations may choose which route is most appropriate for their environment.~~
- ~~(b) Both SMC competence routes may be used by individuals and/or service providers at different times during their careers.~~
- ~~(c) In some organisations, SMC of operational system and equipment tasks are performed after the initial competence in a stream or collection of streams that make up a domain (e.g. the Communication domain comprises the COMMUNICATION VOICE and COMMUNICATION DATA streams) has been achieved and appropriate SMC development training has been completed. This route is considered to be the development route to SMC competence. The objectives contained within the four qualification training SMC stream(s) may be completed as part of this development training.~~

- ~~(d) The alternative option, used by some organisations, is to provide training for SMC duties directly after basic training. This is based on an arrangement where SMC operators perform level A tasks. If level B tasks are required, these are performed under supervision or are delegated to appropriately qualified personnel. This route is considered to be the direct route to SMC competence, and the four qualification training streams relating to SMC apply, such as, for instance, SMC Communication, SMC Navigation, SMC Surveillance and/or SMC Data. To start S/E rating training on level A tasks for the monitored and/or controlled S/E, no additional qualification training stream (e.g. QUAL NAV-VOR) is required because the relevant information is contained in the related SMC qualification training stream(s) already.~~
- ~~(e) Level tasks represent the categorisation by complexity, knowledge, skills and operational impact. Three categories will usually suffice, but could be further subdivided for highly complex or diverse systems:~~
- ~~(1) Level A tasks: Level A maintenance tasks are primarily associated with immediate service restoration or reconfiguration ('front-panel level'). They are appropriate for personnel that have been trained to understand the elements of an equipment or system(s), their interrelationships and functional purpose, but do not require in-depth knowledge of these elements.~~
 - ~~(2) Level B tasks: Level B maintenance tasks involve in-depth fault analysis at the system/equipment level ('functional level'). They are usually carried out by personnel that have been trained for the more complicated maintenance tasks on the equipment/system.~~
 - ~~(3) Level C tasks: Level C maintenance tasks involve the detailed diagnosis of a software problem, of a faulty Line Replacement Unit (LRU), Printed Circuit Board (PCB) or module ('component level'). They usually require the use of automated test equipment at a suitable location and are usually carried out by personnel that have been trained in detailed fault diagnosis and repair techniques. If a Level C task is carried out in an offline environment (e.g. a workshop), it is not mandatory that the personnel carrying out this task is trained as ATSEP. However, an organisation may choose to train that personnel as ATSEP.~~
- ~~(f) The diagram below illustrates the SMC competence routes.~~



Section 4 — Instructors and assessors**AMC1 ATSEP.OR.405 ~~9~~ Technical ~~skills~~ assessors ~~ATSEP training~~
~~instructors~~****EXPERIENCE**

(...)

GM2 ATSEP.OR.405 Technical ~~skills~~ assessors**ASSESSMENT RESPONSIBILITIES**

- (a) Where a technical ~~skills~~ assessor works regularly with an ATSEP, ~~and~~ he or she is required to assess the ATSEP, ~~then~~ ~~€~~ continuous assessment may be appropriate, i.e. assessment may be achieved by the technical assessor observing the standard of an ATSEP's work on a continuous basis ~~as he or she works with the ATSEP~~ during normal operational duties. ~~In that case, the technical-skill assessor should inform the ATSEP of when they will be assessed.~~
- (b) (...)

Appendix 1a — Basic training — Shared

[See Attachment A to ED Decision 2020/020/R]

Appendix 2a — Basic training — Streams

[See Attachment A to ED Decision 2020/020/R]

Appendix 3a — Qualification training — Shared

[See Attachment A to ED Decision 2020/020/R]

Appendix 4a — Qualification training — Streams

[See Attachment A to ED Decision 2020/020/R]

Appendix 5a — General guidelines**SYLLABI STRUCTURE**

This guidance material provides explanatory material on how to read the tables in the appendices contained in ~~this~~ Subpart A of the AMC & GM to Part-PERS ~~ANNEX XIII~~.

~~(a) — Structure of the syllabi~~

~~Each table represents a syllabus which has been structured according to the following:~~

- ~~(1) — for ease of reading, each table repeats the titles of all subjects that are listed in the Implementing Rule; and~~

(2) — these subjects are further divided into the topics that are listed in the Implementing Rule; then

(3) — topics are divided into one or more sub-topics; and

(4) — sub-topics contain one or more training objectives.

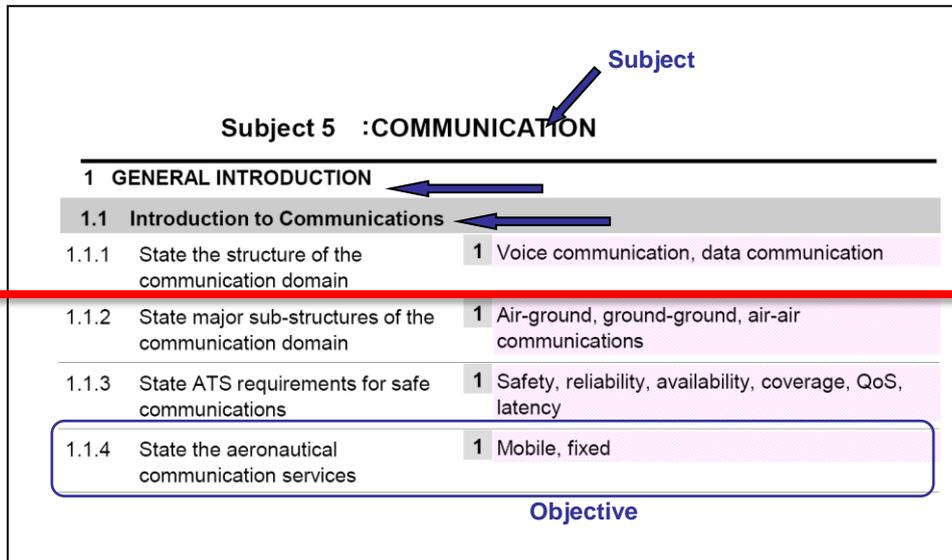


Figure 1: Structure of tables

Four tables are provided:

- (a) Basic training — Shared (Appendix 1a);
- (b) Basic training — Streams (Appendix 2a);
- (c) Qualification training — Shared (Appendix 3a); and
- (d) Qualification training — Streams (Appendix 4a).

The tables have the following structure:

Granularity Table (a)													Objective Identifiers (b)		Training Objectives (c)			
ATSEP QUALIFICATION - Streams													ATSEP UOID (Unique Objective Identifier)	CORPUS	Tax	CONTENT		
COM-Verse	COM-Data	NAV-NDP	NAV-DF	NAV-VOR	NAV-DME	NAV-ILS	SUR-PSR	SUR-SSR	SUR-ADS	DPR-DP	SMC-COM	SMC-NAV					SMC-BUR	SMC-DP
							X	X				X	X	X	ATSEP.QLF.SUR	ATSEP QUALIFICATION DOMAIN - SURVEILLANCE		
							X	X				X	X	X	ATSEP.QLF.SUR.PSR	PRIMARY SURVEILLANCE RADAR (PSR)		
							X	X				X	X	X	ATSEP.QLF.SUR.PSR_1	PSR		
							X	X				X	X	X	ATSEP.QLF.SUR.PSR_1.1	Use of PSR for Air Traffic Services		
							X	X				X	X	X	ATSEP.QLF.SUR.PSR_1.1.1	Describe the operational requirements of an en-route or an approach PSR	2	Range, resolution, coverage, availability
							X								ATSEP.QLF.SUR.PSR_1.1.2	Relate key parameters of PSR to system performance	4	Key parameters: PRF, signal energy, frequency diversity, antenna gain, update rate, polarisation, receiver MDS, beamwidth Performance: range, accuracy, resolution, extractor minimum target threshold, weather influence, PD, blind speed, ambiguities, capacity e.g. weather channel
							X								ATSEP.QLF.SUR.PSR_1.2	Antenna (PSR)		
							X								ATSEP.QLF.SUR.PSR_1.2.1	Describe antenna types, accuracy and problems	2	Antenna beam(s), side lobes, reflector antenna, active (phased array) antenna, rotating joints, waveguide interface, pressurisation, dehumidification, polarisation, azimuth encoding, drive systems

Figure 1: Structure of tables

(a) Granularity table (Appendix 4a only)

The granularity table indicates the stream(s) with which the objectives are associated. Where objectives are common to multiple streams, it is necessary to only include the objective once in the ATSEP training syllabus.

(b) ATSEP unique objective identifier (UOID)

This is a unique identifier for each objective. Where objectives are repeated across multiple streams, the UOID is linked to the parent domain.

The structure of the UOID is the following:

AREA.DOMAIN.SUBJECT_topic#.subtopic#.objective#

An example of a UOID decoding for ATSEP.QLF.SUR.PSR_1.2.1:

- ATSEP: fixed field that indicates the training area;
- QLF.SUR.: phase of training (qualification) and domain (surveillance);
(Note: basic training uses only 'BAS' without a second field);
- PSR: subject (primary surveillance radar);
- _1: topic number (PSR);
- .2: subtopic number (antenna (PSR)); and
- .1: objective number (1).

(bc) Training objectives

Each training objective ~~should be understood to contain~~ three mandatory elements:

(1) Corpus, ~~which is a~~

A description of the required performance. It always contains an action verb at the beginning of the sentence to ensure that the outcome is observable. The action verb is always associated with a defined taxonomy.

The tables at the end of this section list action verbs and their associated taxonomy levels. Those verbs and levels are used or may be used for training objectives.

(2) Taxonomy ~~L~~level, ~~which is the~~

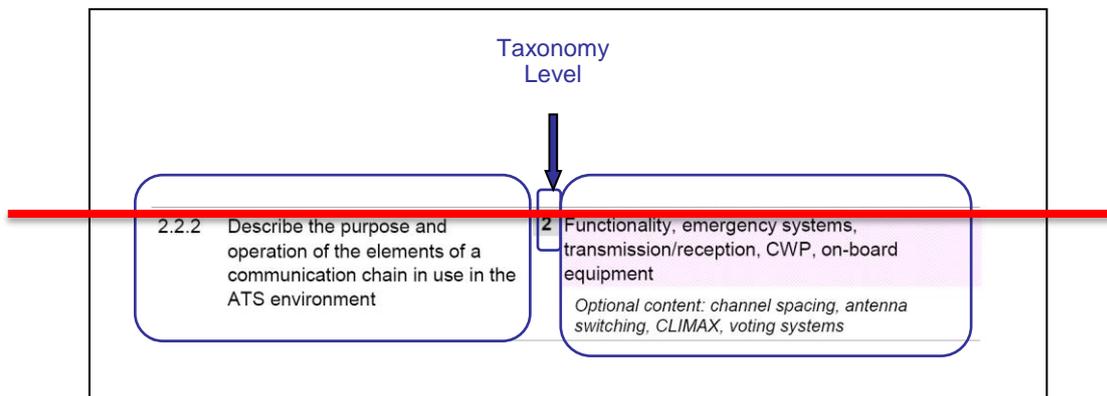
A numerical representation of the classification of the action verb.

(i) Level 1: basic knowledge of the subject. It is the ability to remember essential points, memorise data, and retrieve it.

(ii) Level 2: the ability to understand and discuss the subject matter intelligently in order to describe and act on certain objects and events.

(iii) Level 3: thorough knowledge of the subject and the ability to apply it with accuracy. The ability to make use of the repertoire of knowledge to develop plans and activate them.

- (iv) Level 4: the ability to establish a line of action within a unit of known applications by following the correct chronology and the adequate method to resolve a problem situation. This involves integrating known applications into a familiar situation.
- (v) Level 5: the ability to analyse new situations in order to elaborate and apply one or another relevant strategy to solve a complex problem. The defining feature is that the situation is qualitatively different to those previously met, requiring judgement and evaluation of options.



~~(3) — Content.~~

~~Figure 2: A training objective consists of corpus, taxonomy level and content.~~

~~(c) — Corpus~~

~~Objectives relate to single activities, where possible.~~

~~A number of the objectives refer to ‘generic equipment’ within the corpus. In this context, generic equipment is considered a piece of equipment and/or didactic device which can be used to meet objectives. The equipment/device is not necessarily identical or similar to the operational equipment.~~

~~Note: Generic equipment gives flexibility to the course designer. In some instances, operating organisations may, as an alternative to the above, choose to conduct the training on equipment that is similar or identical to the operational equipment that will be used during system/equipment rating training.~~

1.1.2 Adjust a generic radio transmitter	4 Noise, intermodulation, harmonics, power, bandwidth
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~~Figure 3: Example of an objective with generic equipment~~

~~The objective above may be achieved through the use of any type of radio transmitter.~~

~~(d) — Taxonomy levels~~

The five taxonomy levels should be understood to have the following levels of complexity:

- ~~(1) — Level 1 — Basic knowledge of the subject. It is the ability to remember essential points, to memorise data, and retrieve it.~~
- ~~(2) — Level 2 — The ability to understand and to discuss the subject matter intelligently in order to represent and act upon certain objects and events.~~
- ~~(3) — Level 3 — Thorough knowledge of the subject and the ability to apply it with accuracy. The ability to make use of the repertoire of knowledge to develop plans and activate them.~~
- ~~(4) — Level 4 — The ability to establish a line of action within a unit of known applications following the correct chronology and the adequate method to resolve a problem situation. This involves the integration of known applications in a familiar situation.~~
- ~~(5) — Level 5 — The ability to analyse new situations in order to elaborate and apply one or another relevant strategy to solve a complex problem. The defining feature is that the situation is qualitatively different to those previous met, requiring judgement and evaluation of options.~~

~~(e) — Content~~

The content illustrates and details performance.

~~It may be composed of two parts: implicit and explicit. The explicit content is what is written in the content field proper to the objective, while the implicit content is not written in the content field of each objective, but rather implied in the corpus of the objective and other elements (stream, subject, etc.).~~

When the items are in a list, each of them is to be addressed as a minimum.

~~Optional content items are italicised and clearly preceded with the words ‘Optional content’. They help to illustrate the type of content that may be used to achieve given objectives.~~

~~Even when all of the items are optional, the objective has to be performed according to the action verb included.~~

‘e.g.’ is used to indicate optional content. All content following ‘e.g.’ is provided to illustrate the type of content that could be used to meet the objective.

When there is no mandatory content, the objective has to be performed according to the action verb.

Where content refers to other documents (e.g. ICAO **SARPs** ~~Standards and Recommended Practices~~, **EU regulations**, etc.), users should take care to use the most recent version **(s)** of the referenced document(s) or its **/their** parts.

~~(f) — Additional note in content~~

- ~~(1) — Contained within the content of some objectives that have been assigned, the action verb ‘Appreciate’ is an additional note that elaborates on the ultimate intentions of the objective. The additional note states: ‘For achievement of competence, this objective shall be applied practically, at the latest, by the end of the S/E rating training.’~~

1.2.1	Identify the causes of a fault, based on test tool measurements	3	Additional: for achievement of competence, this objective should be applied practically, at the latest, by the end of the S/E rating training <i>e.g. data analyser, line analyser</i>
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Figure 4: Example of an objective with ‘Appreciate + additional note’

~~(2) — When the verb ‘appreciate’ is used with the additional note, the objective may, as a minimum, be taught as a theoretical objective during qualification training. This is permitted when using ‘appreciate’, i.e. learners should be able to understand a situation and know what is involved in a problem-solving situation, to state a plan without applying it. However, it is acknowledged that these objectives, without any practical application, are of extremely limited operational competence value. Therefore, these objectives should, at the latest, be achieved practically during system/equipment rating training.~~

~~(g) — Common training objectives~~

~~An objective should be considered common to two or more qualification streams if the objective recurs verbatim and the context within which the objective is applied does not change.~~

~~Common objectives should be taught at least once when:~~

~~(1) training for two or more qualification streams are combined to form one course; or~~

~~(h) — a course is provided for the purpose of an ATSEP acquiring an additional qualification stream.~~

~~[...]~~

(d) Domain

The domain is indicated through white text on blue background.

The following domains are defined:

QLF.SHR SHARED (common part for all qualification domains);

QLF.COM COMMUNICATION;

QLF.NAV NAVIGATION;

QLF.SUR SURVEILLANCE;

QLF.DPR DATA PROCESSING; and

QLF.SMC SYSTEM MONITORING AND CONTROL.

In addition, basic training is also considered to be a domain in the tables:

BAS BASIC.

(e) Subject

The subject is indicated through black text on dark grey background.

A subject structures the domain into smaller elements.

(f) Topic

The topic is indicated through black text on mid grey background.

A topic structures the subject into smaller elements.

(g) Subtopic

The subtopic is indicated through black text on light grey background.

A subtopic structures the topic into smaller elements.

(h) Acronyms

The following abbreviations are ~~applied~~ used ~~with~~ in the tables:

(...)

~~DME/N~~ ————— ~~DME/Normal~~

~~DME/P~~ ————— ~~DME/Precision~~

(...)

~~PTT~~ ————— ~~Post, Telephone and Telegraph (generic term to identify the provider)~~

(...)

SBAS ~~Space~~/Satellite-Based Augmentation System

(...)

WGS84 World ~~Geodetic~~ ~~Global~~ System 84

~~X25~~ ————— ~~Packet Switched Data Network Protocol~~