

GUIDANCE MATERIAL FOR BCAR ATCO-PEL

First Edition - 2021

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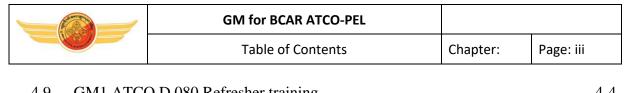
Record of Revisions

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Foreword

This guidance material is issued by Bhutan Civil Aviation Authority (BCAA) to provide guidance to the Air Traffic Services (ATS) provider in understanding the licensing requirements contained in Bhutan Civil Aviation Requirements for Air traffic controllers – Personnel licensing (BCAR ATCO-PEL).

While this manual is published for use by the ANS and PEL section of BCAA, and ATS providers, the personnel of relevant divisions within the BCAA and other relevant ANSPs, will be notified of its publication. This document will be updated regularly to incorporate further amendments.

Kinley Wangchuk Director Bhutan Civil Aviation Authority (BCAA) Date: 01/09/2021

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Chapter. 1 General Requirements

1.1 GM1 ATCO.A.015(b) Exercise of the privileges of licences and provisional inability

GROUNDS FOR PROVISIONAL INABILITY

Examples of grounds for doubting the ability to safely exercise the privileges of the licence may be that the licence holder is:

- (a) under the influence of psychoactive substances;
- (b) unfit to perform the duties due to injury, fatigue, sickness, stress, including critical incident stress or other similar causes;
- (c) not meeting all the competence-related requirements set out in the unit competence scheme.

1.2 GM1 ATCO.A.015(c) Exercise of the privileges of licences and provisional inability

PROCEDURES

The procedures developed and implemented to enable licence holders declaring provisional inability to exercise the privileges of their licence, to manage the operational impact of provisional inability cases and to inform the BCAA should include but are not limited to:

- (a) the processes to declare and terminate provisional inability;
- (b) an indicative list of cases when the competent authority shall be informed of the declaration or termination of the provisional inability;
- (c) the processes to inform the competent authority; and
- (d) the mitigating measures to be implemented to ensure sufficient capacity and the continuity of the service.

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Chapter. 2 Licences, Rating and Endorsemets

2.1 GM1 ATCO.B.001(b) Student air traffic controller licence

MATURITY OF AIR TRAFFIC CONTROLLERS

Persons who wish to undertake air traffic controller training at a training organisation should be educationally, physically and mentally sufficiently mature. In order to assess their ability to complete air traffic controller training, training organisations may conduct aptitude assessments and/or set out educational or similar requirements which could serve as a prerequisite for commencing air traffic controller training.

2.2 GM1 ATCO.B.025(a)(3) Unit competence scheme

MINIMUM NUMBER OF HOURS

The minimum number of hours should be defined for each unit endorsement and it should be identical for each unit endorsement holder within the same unit.

For licence holders holding more than one unit endorsement in the same ATC unit, the minimum number of hours may be defined as a combined value based on the assessment provided by the air navigation service provider.

Nevertheless, maintaining competence should be appropriately ensured for all valid unit endorsements.

2.3 GM1 ATCO.B.025(a)(5) Unit competence scheme

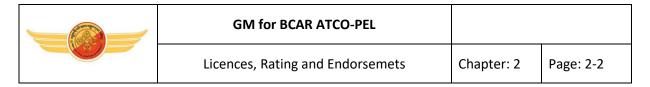
ASSESSMENTS

- (a) Assessments may have one or more components.
- (b) One component should be the assessment of practical skills; other components may be oral and/or written examinations.
- (c) Practical skills assessments should be conducted as continuous assessment or dedicated practical assessment(s).
- (d) Continuous assessment

Continuous assessment should be achieved by the assessor assessing, during normal operational duties, the operational performance compared to the standard of the air traffic control service expected.

Where the assessor has not been able to adequately assess the air traffic controller by continuous assessment, he/she should not certify the air traffic controller's competence until a dedicated practical assessment has been conducted.

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(e) Dedicated practical assessment

A dedicated practical assessment may consist of a single assessment or a series of assessments.

To conduct a dedicated practical assessment, the assessor(s) should sit with the air traffic controller with the purpose of assessing, under normal operational conditions, the operational performance compared to the standard of the air traffic control service expected.

The air traffic controller concerned should be advised that a dedicated practical assessment is to be conducted and be briefed on the conduct of the assessment.

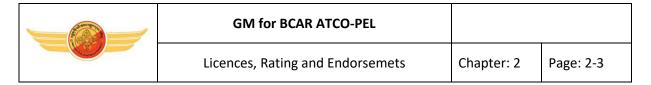
For those situations where an applicant's performance cannot be observed at the time of the assessment (e.g. low visibility operations, snow clearing, military activity, etc.), the assessment may be supplemented by synthetic training device sessions and/or an oral examination.

- (f) The performance objectives' topics to be assessed should be determined in detail by the air navigation service provider. Examples of performance objectives' topics are as follows:
 - application of unit regulations and procedures (e.g. minimum separation standards, letters of agreement, Aeronautical Information Publications);
 - traffic analysis and planning;
 - task priority setting;
 - communication, including phraseology;
 - capacity and expedition;
 - accuracy;
 - initiative, adaptability and decision-making;
 - air traffic control techniques;
 - teamwork and other human factors skills;
 - the level of risk associated with the tasks performed (e.g. attitudes to risk).
- (g) Procedures when failing

Notwithstanding ATCO.B.025(a)(10), when an air traffic controller fails in one or more of the components of the assessment, he/she should not be allowed to exercise the privilege of this unit endorsement, and provisional inability in accordance with ATCO.A.015(b) may be declared until a successful competence assessment has been performed. Resitting the full competence assessment or the failed part only may be required.

(h) Record keeping

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The results of all assessments, including those of the continuous assessment, and examinations should be documented and stored confidentially, accessible to the assessor and the person being assessed.

2.4 GM2 ATCO.B.025(a)(5) Unit competence scheme

ASSESSMENTS

Assessments should be adapted to the validity time of the unit endorsement of the ATC unit.

The assessment of air traffic controllers at ATC units with seasonal variations should reflect the higher volume and complexity situations.

2.5 GM3 ATCO.B.025(a)(5) Unit competence scheme

ASSESSMENTS OF REFRESHER TRAINING SUBJECTS

Assessments should be conducted primarily on a synthetic training device or offline environments.

Assessments should be conducted by appropriately qualified personnel having detailed knowledge of:

- (1) the training objectives; and
- (2) the subjects, topics and subtopics being examined or assessed.

2.6 GM1 ATCO.B.025(a)(6) Unit competence scheme

ORAL EXAMINATIONS

Oral examinations should be used to test understanding of applicable techniques and the rules governing them, particularly of unit and national air traffic control procedures. Scenario-type questioning allows the assessor to gather additional evidence of how an air traffic controller would react in circumstances that are not observable but are nevertheless considered important to the overall operation at that ATC unit.

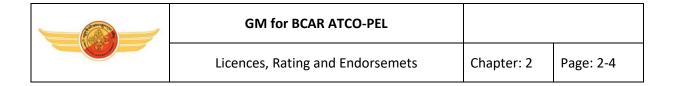
The oral examination should give a clear indication that the air traffic controller knows not only what he/she should be doing, but why he/she should be doing it. The oral examination requires considerable skills and it should be undertaken in a way to ensure consistency among individual assessors.

2.7 GM1 ATCO.B.025(a)(9) Unit competence scheme

EXAMINATIONS AND ASSESSMENTS DURING CONVERSION TRAINING

(a) Assessments should be conducted primarily on a synthetic training device or offline environments.

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- (b) Examinations and assessments should be conducted by appropriately qualified personnel having detailed knowledge of:
 - (1) the training objectives; and
 - (2) the subjects, topics and subtopics being examined or assessed.

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Chapter. 3 Requirements for Instructors and Assessors

3.1 GM1 ATCO.C.001(b)(1) Theoretical instructors

QUALIFICATION OF THEORETICAL INSTRUCTORS

Professional qualification appropriate to the subject should ensure sufficient level of current knowledge, which is relevant to the subject and its application in air traffic control.

3.2 GM1 ATCO.C.010(c) On-the-job training instructor (OJTI) privileges

SHORTENING OF THE RATING EXPERIENCE REQUIREMENT FOR OJTI

When assessing the units' request for the shortening of the rating experience requirement for OJTIs, the competent authority should take into account the complexity of the traffic in the unit where the on-the-job instruction is provided, as well as the impact on the continuity and safety aspects of the service.

3.3 GM1 ATCO.C.015(b) Application for on-the-job training instructor endorsement

SHORTENING OF THE LICENCE EXPERIENCE REQUIREMENT FOR OJTI

When assessing the units' request for the shortening of the licence experience requirement for OJTIs, the competent authorities should take into account the complexity of the traffic in the unit where the on-the-job instruction is provided, as well as the impact on the continuity and safety aspects of the service.

3.4 GM1 ATCO.C.020(b) Validity of on-the-job training instructor endorsement

REVALIDATION

- (a) Successful completion of the refresher training in practical instructional skills may be verified by several means, for example by:
 - (1) dedicated or continuous assessment;
 - (2) peer assessment; or
 - (3) demonstration of the practical instructional skills.
- (b) The verification should be undertaken following the completion of the refresher training.

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3.5 GM1 ATCO.C.025(a) Temporary OJTI authorisation

EXCEPTIONAL SITUATIONS

Exceptional situations for which it may be considered not to be possible to comply with ATCO.C.010(b)(2) for the purpose of the valid unit endorsement experience, and, therefore, a temporary OJTI authorisation may be granted, are the following:

- (a) establishment of a new ATC unit or new sector for the air navigation service provider;
- (b) the continuity of the existing service is endangered due to the non-availability of personnel as a consequence of a change in the air navigation service provider at the ATC unit;
- (c) new rating or rating endorsement put into operation at an ATC unit;
- (d) reopening of a temporary ATC unit.

3.6 GM1 ATCO.C.060(b) Validity of assessor endorsement

REVALIDATION

- (a) Successful completion of the refresher training in assessment skills and current operational practices may be verified by several means, for example by:
 - (1) dedicated or continuous assessment;
 - (2) peer assessment; or
 - (3) demonstration of the practical instructional skills.
- (b) Current operational practices may be refreshed by transitional and pre-on-thejob training.
- (c) The verification should be undertaken following the completion of the refresher training.

3.7 GM1 ATCO.C.065(b) Temporary assessor authorisation

EXCEPTIONAL SITUATIONS

Exceptional situations for which it may be considered not to be possible to comply with ATCO.C.045(d)(1) for the purpose of the unit endorsement experience, and, therefore, a temporary assessor authorisation may be granted, are the following:

(a) establishment of a new ATC unit or new sector for the air navigation service provider;

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- (b) the continuity of the existing service is endangered due to the non-availability of personnel as a consequence of a change in the air navigation service provider at the ATC unit;
- (c) new rating or rating endorsement put into operation at an ATC unit;
- (d) reopening of a temporary ATC unit.

3.8 GM1 ATCO.C.065(c) Temporary assessor authorisation

INDEPENDENCE OF THE ASSESSMENT

In the case of units not having sufficient number of assessors or if the independence and objectivity of the assessment from the training process is otherwise endangered, a temporary assessor authorisation may be granted.

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Chapter. 4 Air Traffic Controller Training

4.1 GM1 ATCO.D.005(a)(2)(ii) Types of air traffic controller training

ON-THE-JOB TRAINING

On-the-job training may be supplemented for pedagogical reasons by theoretical instructions and computer-based training, part-task trainers or any type of simulators aiming at increasing knowledge, understanding and application of local procedures.

Hours accumulated using these training tools and methods during this phase cannot be counted towards the minimum duration of on-the-job training established in accordance with AMC1 ATCO.D.055(b)(6), with the exception of training for procedures unlikely to be encountered in the operational environment during the training.

4.2 GM1 ATCO.D.010 Composition of initial training

GENERAL

- (a) Initial training consists of basic training which is common to all applicants and rating training of which there are six different rating syllabi.
- (b) Rating training may be commenced before the completion of the basic training.
- (c) If an applicant already holds a student air traffic controller licence or an air traffic controller licence, and there is a requirement for training to achieve an additional rating (and, if relevant, rating endorsement), the applicant should not repeat the basic training objectives; however, there is a requirement to achieve the objectives contained within the relevant rating training plus any additional objectives specific to the local or national environment.

4.3 GM1 ATCO.D.045(a) Composition of unit training

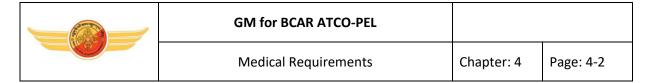
If an applicant undertakes unit endorsement training, and there is a requirement for training to achieve an additional unit endorsement, the applicant should not repeat the training objectives covered in the first unit endorsement training; however, the objectives of the additional unit endorsement course(s) should be achieved.

4.4 GM1 ATCO.D.055 Unit training plan

GENERAL

Guidance for the development of unit training plans can be found in the Manual on Air Traffic Controller Competency-based Training and Assessment (Doc 10056) and EUROCONTROL's documents 'Guidelines for the Development of Unit Training

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Plans', Edition number 1.0, dated 31.08.2005 and 'Annex to the Guidelines for the Development of Unit Training Plans: Examples of UTP', Edition 2.0, dated 10.06.2010.

4.5 GM1 ATCO.D.055(b)(5) Unit training plan

TRAINING METHODS

ATS units should consider a variety of methods when conducting training leading to a unit endorsement. Although this list is not exhaustive, such methods could be:

- on-the-job;
- lecture;
- lesson/demonstration;
- case study;
- computer-based practical exercise;
- exercise;
- facilitation;
- group work;
- hands-on;
- interactive training;
- supervised practices;
- part-task practice;
- individual simulation;
- team simulation;
- group simulation;
- briefing/debriefing;
- structured briefing;
- structured debriefing;
- virtual classroom;
- role play;
- skill acquisition;
- self-study;
- self-test;
- resilience training.

4.6 GM1 ATCO.D.060(c) Unit endorsement course

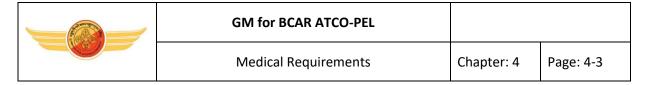
PERFORMANCE OBJECTIVES FOR AIR TRAFFIC CONTROLLERS PROVIDING SERVICES TO AIRCRAFT CARRYING OUT FLIGHT TESTS

The performance objectives for air traffic controllers providing air traffic control services to aircraft carrying out flight tests should ensure that applicants manage the workload and provide air traffic services and apply specific ATC procedures to aircraft carrying out flight tests within a defined aerodrome, approach control and/or area control area of responsibility.

4.7 GM1 ATCO.D.065 Demonstration of theoretical knowledge and understanding

METHODS OF EXAMINATION

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- (a) Oral examinations and/or written/computer-based examinations should be used to demonstrate the controller's knowledge and understanding.
 - (1) Oral examinations

The oral examination is used to test the understanding of applicable techniques and the rules governing them, particularly of unit and national air traffic control procedures. Scenario-type questioning allows examiners to gather additional evidence of how an applicant would react in circumstances that are not observable, but are nevertheless considered important to the overall operation at that ATC unit.

Oral examinations will give a clear indication that the persons undertaking training know not only what they should be doing, but why they should be doing it. The oral examination requires considerable skills and it should be undertaken in a way to ensure consistency among individual examiners.

(2) Written examinations

The written examination is used to test theoretical knowledge and to a lesser degree the understanding of applicable techniques and the rules governing them, particularly of unit and national air traffic control procedures. It is easier to administer and to ensure the consistency of written examinations particularly when using multiple-choice questioning. Although multiple-choice questioning can test knowledge, it is not appropriate for determining what a controller would do in a particular operational situation.

Written examinations can also be computer-based.

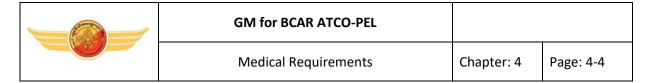
(b) The most comprehensive method of testing the understanding of the person undertaking training, contrary to their possession of pure knowledge, would be a combination of written examinations that assess the knowledge of unit and national procedures, together with a separate oral examination which tests the understanding and reactions to operational situations.

4.8 GM1 ATCO.D.070 Assessments during unit endorsement courses

(a) DEDICATED ASSESSMENTS

- (1) A dedicated assessment should be carried out for the issue or renewal of a unit endorsement.
- (2) A dedicated assessment may consist of a single assessment or a series of assessments, as detailed in the unit training plan.

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- (3) To conduct a dedicated assessment, the assessor(s) should sit with the applicant with the purpose of observing the quality and assessing the standard of work being carried out and, if also acting as OJTI at the same time, to maintain a safe, orderly and expeditious flow of air traffic.
- (4) The applicant concerned should be briefed on the conduct of the assessment.
- (5) For those situations where an applicant's performance cannot be observed at the time of the assessment (e.g. low visibility operations, snow clearing, military activity, etc.), the assessment may be supplemented by synthetic training device sessions and oral examination.
- (6) Dedicated assessments may also be conducted at any stage of training as detailed in the unit training plan, where a more definitive measure of the progress is required, for example after 50 hours of practical training.

(b) CONTINUOUS ASSESSMENT

- (1) Continuous assessment may be performed by the assessor observing the standard of the air traffic control service provided by those whose competence he/she will certify as he/she works with them during unit training or normal operational duties.
- (2) In cases where the assessors have not had sufficient contact with the applicant to adequately assess his/her performance, they will not certify the applicant's competence until they have conducted a dedicated practical assessment. The applicant concerned must be advised that a dedicated practical assessment is to be conducted.

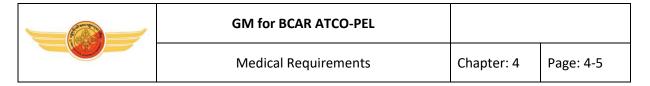
(c) ORAL EXAMINATION

- (1) The oral examination is used to test the understanding of applicable techniques and the rules governing them, particularly of unit and national air traffic control procedures. Scenario-type questioning allows the examiners to gather additional evidence of how an applicant would react in circumstances that are not observable, but are nevertheless considered important to the overall operation at that ATC unit.
- (2) The oral examination will give a clear indication that the applicant knows not only what he/she should be doing, but why he/she should be doing it. It requires considerable skills and it should be undertaken in a way to ensure consistency among individual examiners.

4.9 GM1 ATCO.D.080 Refresher training

REFRESHER TRAINING SUBJECTS

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Topics for refresher training subjects may include rarely used procedures and practices, such as seasonally dependent procedures, trends and observations from occurrence reports and results of normal operations safety surveys.

4.10 GM2 ATCO.D.080 Refresher training

REFRESHER TRAINING STRUCTURE

Refresher training may be developed and structured in accordance with the established duration of the unit endorsement it refreshes. This may mean structuring the refresher training in modular fashion. For instance, training in standard practices and procedures, abnormal and emergency situations and human factors may be given separately or integrated into any other modules.

4.11 GM3 ATCO.D.080 Refresher training

GENERAL

Guidance for the development of refresher training courses can be found in the Manual on Air Traffic Controller Competency-based Training and Assessment (Doc 10056) and the EUROCONTROL's document 'ATC Refresher Training Manual', Edition 1.0., dated 06.03.2015.

4.12 GM1 ATCO.D.080(b)(1);(2) Refresher training

EFFECTIVE COMMUNICATION

Communication misunderstanding is present in many air traffic occurrences and the consistent use of approved phraseology is designed to mitigate such occurrences.

For the purpose of refresher training, emphasis is, therefore, put on effective communication, including the use of approved phraseology, both for the use of standard practices and procedures and for abnormal and emergency situations training.

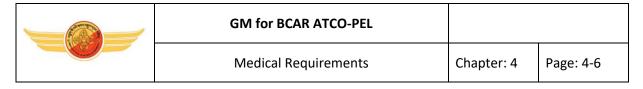
Effective communication should make use of a variety of communication modes, including the use of appropriate phraseology and radio communication.

4.13 GM1 ATCO.D.085 Conversion training

General

Guidance for the development of conversion training courses can be found in the Manual on Air Traffic Controller Competency-based Training and Assessment (Doc 10056).

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4.14 GM1 ATCO.D.090 Training of practical instructors

PRACTICAL INSTRUCTIONAL TECHNIQUES COURSE FOR OJTIS

Guidance for the training of practical instructors can be found in the Manual on Air Traffic Controller Competency-based Training and Assessment (Doc 100 56) and the EUROCONTROL's document 'Guidelines for ATCO Development Training — OJTI Course Syllabus', Edition 2.0, dated 27.08.2009.

4.15 GM1 ATCO.D.095(a)(3) Training of assessors

ASSESSMENT OF ASSESSOR COMPETENCE

The level of harmonisation on competence assessment is low as a result of the variety of methods. Any assessment of assessor competence should be realistic and it could take place during live traffic situations or during training.

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