



## Notice of Proposed Amendment 2016-03(A)

### Technical review of the theoretical knowledge syllabi, learning objectives, and examination procedures for air transport pilot licence, multi-crew pilot licence, commercial pilot licence, and instrument ratings

*Executive summary — Procedural information — Explanatory note — Proposed amendments to Part-FCL, Part-ARA and Part-ORA of the Aircrew Regulation (Regulation (EU) No 1178/2011) — References*

RMT.0595 — 9.6.2016

#### EXECUTIVE SUMMARY

This Notice of Proposed Amendment (NPA) addresses a safety and regulatory coordination issue related to flight crew licensing. It has been developed in response to the European Aviation Safety Plan (EASP) safety actions.

This NPA updates the Learning Objectives (LOs) for the theoretical knowledge (TK) syllabi and ground school examinations, and introduces the threat and error management (TEM) concept and its application. The amendments proposed in this NPA aim to ensure that the LOs correspond to today's operational environment and that commercial pilots are equipped with the knowledge and understanding relevant to modern flight deck and current industry needs. The proposed updated pilot training will contribute to the overall enhancement of the pilots' core competencies and their ability to make informed decisions.

The NPA also introduces new LOs under Area 100 'knowledge, skills and attitudes' (KSA), whose aim is to enhance the pilots' KSA contained in the core competencies. New requirements are proposed for approved training organisations (ATOs) to assess student pilots' KSA. These skills focus on the pilots' ability to apply their knowledge and understanding across subjects and to demonstrate technical and non-technical skills. These LOs will, therefore, not be the subject of examinations organised by the competent authority or its agents, but will be assessed by the ATOs to ensure that trainee pilots have an adequate level of competency before they are allowed to sit their final TK examinations.

The NPA also recommends that EASA develop a process to regularly review and update the LOs so that they are up to date with emerging safety threats as well as with developments in technology and operational practice.

Applicability		Process map	
Affected regulations and decisions:	ED Decisions 2011/016/R; 2012/006/R; 2012/007/R; 2014/020/R; 2014/022/R; 2016/008/R	Concept paper:	No
Affected stakeholders:	Competent authorities; ATOs; student pilots; providers of textbooks and training materials; ECQB	Terms of reference:	11.3.2015
Driver/origin:	Safety	Rulemaking group:	Yes
Reference:	EASA 4-year Rulemaking Programme; EASA ECQB Project	RIA type:	Light
		Technical consultation during NPA drafting:	Yes
		Duration of NPA consultation:	3 months
		Review group:	Yes
		Focused consultation:	No
		Publication date of the Opinion:	N/A
		Publication date of the Decision:	2016/Q4



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## 1. Procedural information

### 1.1. The rule development procedure

The European Aviation Safety Agency (hereinafter referred to as the 'Agency') developed this NPA in line with Regulation (EC) No 216/2008<sup>1</sup> (hereinafter referred to as the 'Basic Regulation') and the Rulemaking Procedure<sup>2</sup>.

This rulemaking activity is included in the Agency's Revised 2014-2017 Rulemaking Programme<sup>3</sup> under RMT.0595.

The text of this NPA has been developed by the RMT.0595 Rulemaking Group (RMG), which was led by industry representatives and comprised Agency staff acting as group members and also providing the secretariat. The NPA is hereby submitted for consultation of all interested parties<sup>4</sup>.

The process map on the title page contains the major milestones of this rulemaking activity to date, and provides an outlook of the timescales of the next steps.

### 1.2. The structure of this NPA and related documents

Chapter 1 of this NPA contains the procedural information related to this task. Chapter 2 (Explanatory Note) explains the core technical content. Chapter 3 contains the proposed text for the new requirements. Chapter 4 contains the regulatory impact assessment (RIA) showing which options were considered and what impacts were identified, thereby providing the detailed justification for this NPA.

Due to the large volume of the new proposed text in Chapter 3, this NPA is published in six volumes (sub-NPAs) as shown below.

*Note: Due to the large volume of some individual Subjects, it hasn't been technically possible to respect their numbering order when compiling the sub-NPAs. Therefore, for example, Subject 020 'Aircraft general knowledge' precedes Subject 010 'Air law'.*

#### 1. NPA 2016-03(A)

- **Executive Summary**
- **Procedural information**
- **Explanatory note**
- **Proposed amendments to Part-FCL, Part-ARA and Part-ORA of the Aircrew Regulation (Regulation (EU) No 1178/2011)**
- **References**

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<sup>1</sup> Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1).

<sup>2</sup> The Agency is bound to follow a structured rulemaking process as required by Article 52(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as the 'Rulemaking Procedure'. See Management Board Decision No 01-2012 of 13 March 2012 concerning the procedure to be applied by the Agency for the issuing of Opinions, Certification Specifications and Guidance Material.

<sup>3</sup> <https://www.easa.europa.eu/document-library/rulemaking-programmes/revised-2014-2017-rulemaking-programme>

<sup>4</sup> In accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.



**2. NPA 2016-03(B)**

*Subject 020 — Aircraft general knowledge:*

- *Subject 021 — Airframe and systems, electrics, power plant and emergency equipment*
- *Subject 022 — Instrumentation*

**3. NPA 2016-03(C)**

*Subject 010 — Air law*

*Subject 031 — Mass and balance*

*Subject 032 — Performance (aeroplane)*

*Subject 033 — Flight planning and monitoring*

*Subject 034 — Performance (helicopter)*

**4. NPA 2016-03(D)**

*Subject 050 — Meteorology*

*Subject 061 — General navigation*

*Subject 062 — Radio navigation*

**5. NPA 2016-03(E)**

*Subject 070 — Operational procedures*

*Subject 081 — Principles of flight (aeroplane)*

*Subject 082 — Principles of flight (helicopter)*

*Subject 090 — VFR and IFR communications*

**6. NPA 2016-03(F)**

*Subject 040 — Human performance and limitations*

*Area 100 KSA — Knowledge, skills and attitudes*

**1.3. How to comment on this NPA**

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/><sup>5</sup>.

**The deadline for submission of comments on all six sub-NPAs is 12 September 2016.**

**1.4. The next steps in the procedure**

This NPA will be open to public consultation for a period of 3 months.

A review group will be set up in order to address the comments received and to prepare the final version of the proposed acceptable means of compliance (AMC) and guidance material (GM).

This NPA does not propose amendments at implementing rule level, therefore no opinion will be issued.

The Agency will publish the Executive Director (ED) Decision containing the final AMC and GM.

A comment-response document (CRD) will also be published together with the ED Decision and the related AMC and GM.

<sup>5</sup> In case of technical problems, please contact the CRT webmaster ([crt@easa.europa.eu](mailto:crt@easa.europa.eu)).

## 2. Explanatory Note

Rulemaking Task RMT.0595 concerns flight crew licensing requirements, and its objective is to update the LOs for the air transport pilot licence (ATPL), multi-crew pilot licence (MPL), commercial pilot licence (CPL), and instrument ratings (IRs) for aeroplanes and helicopters. With the updated LOs, the Agency aims to further develop and enhance the pilots' KSA.

### 2.1. Overview of the issues to be addressed

#### 2.1.1. Background

Syllabi and LOs are considered current when they reflect applicable rules, required competencies, state-of-the-art practices and scientific and technical progress in the field of pilot training. Furthermore, they are considered relevant when they specify essential TK requirements taking into account the privileges of the licence or IR for which a student pilot applies.

It is widely acknowledged that current pilot TK training and testing requirements need to be reviewed and updated. The International Civil Aviation Organization (ICAO), in its 'Global and Regional 20-year Forecasts for Pilots, Maintenance Personnel, Air Traffic Controllers', 2011 (Doc 9956), states that '[...] if one analyses the performance expectations of an MPL holder without the benefit of supplemental training, it is probable that the majority of current airline transport pilot knowledge exams fail to validate the necessary knowledge competencies to proceed with indoctrination to an international air operator.' Whilst this refers to MPL, the same exams are used for MPL and ATPL. Therefore, it has to be recognised that the common syllabi from the EASA Member States and LOs for the ATPL, MPL, CPL and IR TK courses for the aeroplane and helicopter categories must be updated regularly in order to reflect the current regulations and technological advances.

No such technical update has been conducted for almost a decade. Although new questions have been developed and added to the European Central Question Bank (ECQB), the present syllabi and LOs cannot be considered wholly current and relevant. For example, developments in performance-based navigation (PBN), advances in upset prevention and recovery training (UPRT), new or recently amended regulations, and relevant emergent technologies are not fully reflected in the present LOs. Consequently, the TK training for ATPL, MPL, CPL and IRs may not provide all the necessary core competencies to fully prepare pilots for conducting state-of-the-art flight operations.

In addition, since the questions within the ECQB are written to test student pilots' understanding of the LOs, the currency and relevance of the syllabi and LOs are preconditions for ensuring that the ECQB can adequately serve its purpose and meet its safety objectives. Outdated LOs and training syllabi will render the ECQB outdated and irrelevant, thus not fully meeting its safety objective.

Furthermore, current teaching and learning tools are not sufficiently developed to encourage future pilots to use analytic and synthetic thinking or to challenge student pilots to enhance their decision-making skills, their problem-solving ability, and their level of understanding of assimilated knowledge. This may result in a lack of assimilation of various pieces of information that student pilots receive during the TK course and encourages rote learning (learning by heart). It is essential to bridge different subject disciplines, link theory with practice, and ensure a close connection between ground and flying training for all courses.



Therefore, the syllabi and LOs must be urgently reviewed and updated. It must also be assessed how they could be enhanced in order to improve comprehension, reduce rote learning and increase the future pilots' ability to apply their KSA in a holistic manner. Consequently, amendments to the assessment and examination procedures, where required, should be considered.

Moreover, the Agency requested the experts of the RMT.0595 stakeholder-led RMG to take into account previous relevant RMTs and NPAs as described in 2.3 'Activities'.

### 2.1.2. The new 'Area 100 KSA' (knowledge, skills and attitudes)

An analysis of fatal aircraft accidents worldwide for the period 2010–2011 shows that in more than 50 % of these accidents the actions of the flight crew were the primary causal factor (UK CAA, 2013<sup>6</sup>). This analysis shows that flight crew handling skills were a factor in 14 % of the accidents, whereas flight crew non-technical skills were a factor in more than twice as many (32 %). It is generally accepted that further improvements in flight safety require a comprehensive review of pilot training (International Air Transport Association (IATA), 2013<sup>7</sup>), and accident statistics show that the emphasis of this training should be placed on developing the non-technical as well as technical pilot skills.

Operators and industry bodies have recognised that the traditional training processes do not guarantee that the trained pilots are competent, or they do not adequately address 'human factors' issues (IATA, 2013).

For that reason, at European Union (EU) level, the Agency stated in the European Aviation Safety Plan (EASp) for 2014–2017<sup>8</sup> that aviation personnel should have the right competencies and that this can be achieved by adapting the training methods. The current European Plan for Aviation Safety (EPAS) for 2016–2020<sup>9</sup> also identified as one of the two most significant systemic issues the need to make sure that aviation personnel have the right competencies and receive the appropriate training methods to cope with new challenges.

The new Area 100 KSA is proposed to be introduced only for the ATPL, MPL, and CPL courses. The aim of Area 100 KSA, proposed by the RMT.0595 RMG, is to clearly develop and elicit a higher level of thinking in future pilots already during their ground training, and to challenge student pilots to enhance their decision-making skills, their problem-solving ability, their level of understanding of assimilated knowledge, and generally to facilitate the development of their core competencies. Area 100 KSA addresses the lack of integration of various pieces of information that student pilots receive throughout their TK courses while also extending their core competencies during the TK course. Therefore, it should be regarded as a concept underlying the whole TK training system, in other words, as a training philosophy and not as a new subject. This is an area which will be holistically integrated into and throughout the entire training syllabus, and is expected to prepare future pilots not only for the moment of examination, but also for their future career.

<sup>6</sup> UK CAA, 2013. CAP 1036, *Global Fatal Accident Review 2002 to 2011*. Crawley: United Kingdom Civil Aviation Authority.

<sup>7</sup> International Air Transport Association: *IATA Safety Report 2013*. 50<sup>th</sup> edition. Issued April 2014. ISBN 978-92-9252-349-7.

<sup>8</sup> EASA — European Aviation Safety Plan (EASp) 2014–2017 (<http://www.easa.europa.eu/system/files/dfu/European-Aviation-Safety%20Plan-%28EASp%29-2014-2017.pdf>).

<sup>9</sup> EASA — European Plan for Aviation Safety (EPAS) 2016–2020 (<http://www.easa.europa.eu/system/files/dfu/EPAS%202016-2020%20FINAL.PDF>).



This proposal, which was initiated by the RMT.0595 RMG, is intended to address the issue identified during the training needs analysis (TNA) mentioned in 2.4.3 'How could the issue/problem evolve'. According to the TNA, only 8 % of the student pilots showed an adequate understanding of the knowledge acquired during their TK courses. Area 100 KSA provides the tool which will enhance student pilots' ability to relate and apply theory to practice as students 'learn by doing'. It promotes practical training and testing — in addition to the assessment method of multiple-choice questions currently in place in the other subjects of the ECQB.

This new set of LOs is grouped by the ICAO/IATA/IFALPA<sup>10</sup> core competencies, with the extra addition of 'knowledge' (this is included by Airbus in its core competencies). The inclusion of these LOs does not affect the examination system based on the ECQB, because they are not proposed to be included in the final TK examinations conducted by the competent authority. However, ATOs should assess student pilots' achievement of these LOs before they sit their final TK exam. It is proposed that ATOs incorporate these LOs into their course design, and that these are covered and assessed during the ground instruction phase through practical training and assessment. This could include planning, scenario-based and simulated exercises, or assessed discussions, interviews, projects, essays, and presentations.

The new Area 100 KSA is presented in AMC1 FCL.310; FCL.515(b); FCL.615(b) 'Theoretical knowledge examinations' as Area 100 KSA.

### 2.1.3. New assessment method for Area 100 KSA

The RMT.0595 RMG proposes new GM (GM1 and GM2 to ORA.ATO.230(a) 'Training manual and operations manual') for the assessment of student pilots in the Area 100 KSA. Word pictures are used to explain the method by which the new Area 100 KSA should be properly evaluated by ATOs. This assessment step should be included in each ATO's course design (see amendments to AMC1, and the new AMC2 and AMC3 to ORA.ATO.230(a)).

The RMT.0595 RMG suggests the use of word pictures, as introduced in evidence-based training (EBT), as a tool to standardise the assessment of student pilots' core competencies for the Area 100 KSA. The new GM2 and GM3 to ORA.ATO.230(a) provide examples of how this can be achieved.

A word picture is a method of converting indicators, observed during an exercise or assessment, into a competency grade level. Word pictures typically describe five numerical grade levels, which then enable standardisation of the assessment.

A word picture is normally constructed with elements containing:

- HOW WELL the core competency was demonstrated in the exercise; together with
- HOW MUCH assistance was required from the trainer or assessor (e.g. tell or show, prompt, hint) in the exercise (when the exercise is used for development as well as checking or assessing); and
- HOW OFTEN (e.g. rarely, occasionally, normally, always) and HOW MANY of the indicators occurred, to enable the OUTCOME (how successfully the exercise was achieved).

<sup>10</sup> IATA/IFALPA: *Guidance Material and Best Practices for MPL Implementation*. Effective July 2015. 2<sup>nd</sup> edition. IATA, ISBN 978-92-9252-736-5.





The advantage of word pictures is that they provide a meaningful and standard grading framework based on the core competencies, which can then be used across a student pilot's training to enable continuous relative assessment as their core competencies develop. They also provide data to enable individual, crew, class, instructor and ATO trends to be identified and analysed to provide feedback for further improvement or development. Developing the student pilot in line with the KSA indicators, which are a subset of the indicators often used in type and recurrent training, will also raise core competency standards at entry to later phases of training and will enable a more effective and efficient training pathway.

## 2.2. Objectives

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in this chapter.

The primary objective of this RMT is to enhance the TK training, assessment and subsequent examinations for ATPL, MPL, CPL and IRs for aeroplanes and helicopters.

The specific objectives of this RMT are:

- to update the EASA Member States' syllabi and LOs while improving teaching methodologies to accommodate evolving learning needs; and
- to facilitate updating the ECQB, thus ensuring that it is current and relevant to evolving training needs.

## 2.3. Activities

This RMT has been carried out as a stakeholder-led project in accordance with the agreed terms of reference (ToR)<sup>11</sup>.

During the development of the proposals, the following activities have been undertaken:

- The current categorisation of subject areas has been assessed to ensure that it remains meaningful. Amendments have been proposed, where considered necessary, taking into account the direct impact of such changes on the examination procedures. In addition, some topics have been moved or deleted from subject areas to minimise and, where possible, eliminate duplication.
- Each subject area has been reviewed to check that the syllabi structure and LOs are drafted in compliance with the newly developed guidelines, and amendments have been proposed, where considered necessary.
- The LOs of each subject area have been reviewed to ensure they are current — amendments have been proposed, where considered necessary.
- The subject areas common to both aeroplanes and helicopters have been reviewed and new aeroplane- or helicopter-specific LOs have been proposed, where considered necessary.

<sup>11</sup> ToR RMT.0595 Issue 1 (<https://www.easa.europa.eu/system/files/dfu/ToR%20RMT.0595%20Issue%201.pdf>).



- Each subject area has been reviewed to consider whether the LOs are relevant and proportionate for the specific examinations (ATPL, MPL, CPL, IR). Amendments have been proposed, where considered appropriate and practicable.
- The LOs that were considered outdated and no longer relevant to the modern operating environment have been identified. The subsequent action was for the Agency staff managing the ECQB to amend their planning to ensure that subject matter experts would not be tasked to develop new questions on these LOs. However, existing questions on these specific LOs will remain in the ECQB until the full transition to the new proposed system is completed. These LOs have been marked in the revised LO tables, in the new column headed 'BK' (basic knowledge).
- The syllabi structure of the amended AMCs has been checked for consistency across all subject areas.
- In considering subject areas and LOs, and where necessary, the depth of knowledge required in relation to ICAO Annexes, Documents, and Standards and Recommended Practices (SARPs) and the differences between these and the applicable EU rules have been taken into account. Recent rulemaking deliverables and EU regulations were also considered. The appropriate rule references specified in the syllabi and LOs have been reviewed and amended where necessary.
- The proposed amendments to the syllabi structure and LOs have been considered with regard to any potential impact on the content of skill tests and proficiency checks. There were no recommendations made to the Agency for amendments or further actions in this respect.
- Guidelines on structuring and drafting syllabi items and LOs will be prepared in a separate document, and are not included in this NPA. These guidelines are to be used by groups of experts who will identify the need to propose new LOs in future Agency RMTs (e.g. as an internal Agency document: 'Work instructions on and best practices for drafting theoretical knowledge syllabi items and Learning Objectives').
- In addition, the subset of LOs required for the recently developed 'En-route instrument rating (EIR) and competency-based IR (CBIR)' has been reviewed. To ensure consistency between the syllabi, the EIR and the CBIR, LOs have been merged into the same tables with those for the ATPL, MPL, CPL, and IR.
- The transition from the existing to the proposed new syllabi and LOs has been considered, taking into account current rules on TK examinations. The proposed transition measures are further detailed in 2.8 'Implementation timelines'.

For the development of this NPA, the work of the following Agency RMTs and published NPAs has been taken into account:

- RMT.0256 on Performance-Based Navigation (PBN) and, in particular, the proposed amendments to syllabi and LOs related to PBN operations (ED Decision 2016/008/R<sup>12</sup>);
- RMT.0188 & RMT.0189 (former FCL.002) updating Part-FCL (Annex I to Commission Regulation (EU) No 1178/2011), which includes a draft set of AMCs incorporating LOs to the syllabus of TK for ATPL, MPL, CPL and IR (ED Decision 2016/008/R);

<sup>12</sup> <https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2016008r>



- the comments received on NPA 2014-29 (D)(1) and (D)(2); and
- RMT.0581 & RMT.0582 'Loss of control prevention and recovery training' (NPA 2015-13<sup>13</sup>).

#### 2.4. The need for impact assessment

As this RMT was designed to affect only the AMC and GM to Regulation (EU) No 1178/2011 on aircrew but not the implementing rules, it had initially been considered that no RIA would be required. However, as the RMT.0595 RMG progressed with the work, it became obvious that a light RIA would provide the necessary clarification to support the option chosen by the RMT.0595 RMG. It is considered that the RMT is neither complex nor controversial, and that it has relatively limited impact on different stakeholders. It is, therefore, suggested that the light RIA accommodate the need for an impact assessment.

This light RIA helps stakeholders understand the reasoning behind the development of the AMC and GM as presented in this NPA. It focuses on the updated Subjects 010 to 090 and on the introduction of the new Area 100 KSA.

The data presented in this RIA has been collected with the support of the International Association of Aviation Personnel Schools (IAAPS), the UK CAA and AESA Spain.

The light RIA will not consider the impact on the management of the ECQB.

The ECQB process will be impacted by the proposed changes. Consequently, the following activities will have to be performed:

- updating the question cataloguing system to reflect the revised syllabi;
- recataloguing the existing ECQB questions in line with the revised syllabi;
- drafting new and reviewing existing questions for the new and revised LOs in sufficient numbers to ensure a robust examination system;
- removing questions that are outside the scope of the revised syllabi.

These activities are estimated to take up to 2 years to complete. The final result will be a fully revised ECQB aligned with the new syllabus.

The costs associated with this activity and impacting on ECQB will be borne by the Agency, as management of the ECQB is included in the Agency's budget.

##### 2.4.1. Safety risk assessment

This RMT does not address any safety recommendations. However, there is a clear correlation between the level of training and the safety risk assessment. According to ICAO, '[...] if one analyses the performance expectations of an MPL holder without the benefit of supplemental training, it is probable that the majority of current airline transport pilot knowledge exams fail to validate the necessary knowledge competencies to proceed with indoctrination to an international air operator.'<sup>14</sup> Hence, keeping the existing rules as they are now might result in lowering safety standards to an

<sup>13</sup> <https://www.easa.europa.eu/system/files/dfu/NPA%202015-13.pdf>

<sup>14</sup> *Global and Regional 20-year Forecasts for Pilots, Maintenance Personnel, Air Traffic Controllers*, 2011 (Doc 9956).



unacceptable level since the LOs would not be up to date with advances in technology and operations, and with regulatory developments in other aviation domains.

#### **2.4.2. Who is affected?**

The amendments proposed in this NPA affect ATOs, student pilots, competent authorities, providers of textbooks and training materials, as well as the Agency and the ECQB in particular.

#### **2.4.3. How could the issue/problem evolve?**

If syllabi and LOs are not updated, and teaching and learning philosophy not improved, the global training challenges will continue to remain unaddressed. There will be no improvement in the student pilots' understanding of the materials and data that they learn, nor the need for them to demonstrate the capacity to apply the knowledge acquired and to develop the adequate attitudes and skills during ground training.

- Neither the current training needs identified by industry nor the rapid growth of industry are fully reflected in the current TK training courses. Meanwhile, ATOs' expertise and capacity is being lost through instructor retirement and the situation is compounded by the difficulty in recruiting new and experienced instructors.
- Over the past three decades, theory training for the ATPL, MPL and CPL licences has developed inconsistently in terms of content, training methods and philosophy, thus lagging behind with educational, technological and industry advances. During this period, ICAO has not reviewed ground training for professional pilot licences. In addition, the transition from the JAA to the EASA system did not include an update of the LOs. Consequently, there is now a wide variation in the quality of teaching and graduate output standard.
- If LOs are not updated, the related examination questions will become outdated, irrelevant and technically incorrect. Consequently, competent authorities will be faced with an increasing number of complaints and appeals regarding exam results.
- New and emerging technologies as well as increased flight deck automation require continuous modernisation of training.
- Growing threats: IATA has predicted the number of accidents rising with the growth of traffic volumes if accident rates are not reduced. Improved training standards is one area, among others, which can help reduce the accident rate and thus prevent accidents increasing as air traffic grows.
- Outdated training: some existing ab initio training practices are out of step with the requirements of modern aircraft operations and technology. Some training courses may well comply with the current requirements but do not meet the learning and training needs of student pilots in preparing them for their professional pilot career.
- In September 2013, a TNA was conducted at a European regional airline that recruits pilots from a range of ATOs delivering MPL, integrated and modular training courses. The TNA concluded that whilst 80 % of students entering type training had adequate factual knowledge, only 8 % possessed adequate understanding. There was no evidence of trends between ATOs or training routes, which led to the conclusion that the training system was the common factor.



These challenges cannot be addressed if the regulatory framework is not changed. Apart from the safety risks (explained in previous sections), there is another threat that cannot be addressed by the current rules: the shortage of skilled aviation professionals and degradation of the quality of training they receive. ICAO, when establishing the Next Generation of Aviation Professionals (NGAP) Task Force, stated that one of the contributing factors to the shortage of skilled aviation professionals was that current learning methodologies do not respond to new evolving learning styles.

It is, therefore, evident that if the rules are not changed, there might be problems in the near future due to a lack of suitably qualified personnel.

## 2.5. Options

Three options have been assessed for this NPA. Option 0 is to take no action and to propose no changes. The consequences of Option 0 are detailed in Chapter 2.4.3 'How could the issue/problem evolve'. Option 1 is to update the LOs of Subjects 010 to 090 only. The subject areas are listed in Chapter 2.7 'Overview of the proposed amendments'. Option 2 is to update Subjects 010 to 090 and to introduce a new area (Area 100 KSA) of LOs on KSA.

**Table 1: Selected policy options**

Option No	Description	Issues addressed with each option
0	Baseline option: No change	This option will not provide the required assurance that the LOs are relevant, current and capable of delivering the standard of knowledge and understanding necessary for today's operating environment.
1	Update Subjects 010 to 090 only	With this option, the information contained in the LOs will be current and relevant.  This option does not include any improvement in the teaching/learning system. It does not address the issue of rote learning (learning by heart) and does not help increasing the level of understanding, the practical application of the learned elements, or the development of adequate skills and attitudes.
2	Update Subjects 010 to 090 (Option 1) and introduce a new LO area (Area 100 KSA) on knowledge, skills and attitudes	With this option, the information contained in the LOs will be current and relevant.  Additionally, this option proposes a change to the teaching and learning model to focus more on the future pilots' understanding of the learned elements, on improving their abilities in problem-solving and decision-making, and on their capability to assess critical situations. The introduction of Area 100 KSA will help enhance comprehension, eliminate rote learning and increase the future pilots' ability to apply KSA in a holistic manner.



## 2.6. Analysis of impacts

### 2.6.1. Safety impacts

**Option 0:** With no change, the LOs will remain out of step with current technological advances and the outdated LOs will not reflect the currently applicable regulations. Rote learning will still help some student pilots pass their examinations without actually improving their learning process or understanding. Theory and practice will continue to be disconnected and this might affect the problem-solving ability of future pilots during a flight. They may encounter difficulties in taking the right decision during critical moments in a flight because their understanding of the causes and consequences of unexpected situations would be reduced.

This option would result in lowering the safety standards to an unacceptable level since the LOs would continue to fail to keep pace with advances in technology and operations, and with regulatory developments in other aviation domains. For these reasons, Option 0 is not considered appropriate as it will contribute to the degradation of safety standards.

**Option 1 (Update Subjects 010 to 090 only):** Updating the LOs to meet the current standards will prevent risks generated when learning outdated information. However, the ICAO core competencies are not sufficiently developed, and training effectiveness and retention is restricted as ‘learning by doing’ during ground training is not required.

This option would ensure that the LOs are updated, reflect current technology and operations, and are consistent with other current aviation regulations. However, it would not provide the necessary regulatory framework which would ensure that students, during their ground school, gain not only knowledge of each subject area, but also understanding of that knowledge and the ability to apply it appropriately in different operational conditions. Therefore, whilst it would contribute to an increase in safety standards, it would not deliver the greatest safety benefit that is required. In view of the need to ensure that human performance is improved and that it will contribute to the decrease of the accident rate, Option 1 is not optimal.

**Option 2 (Update Subjects 010 to 090 and introduce a new Area 100 KSA):** With the additional Area 100 KSA LOs, students will be better prepared for flight training, as they will have to demonstrate their ability in the class environment already instead of only in the flight deck environment. Practical exercises, where they should apply the theory already learned, will challenge them to face difficult situations against a deadline, in the classroom or other suitable environments, stimulating them to find timely solutions. The effect of this will be stronger confidence in the tools at their disposal. These exercises will help them develop their understanding of what could happen in the cockpit. By having the ATOs’ focus on developing the right attitude in a student from a very early stage, under continuous monitoring and guidance, and teaching them how to look at the given information in an exercise, all these will help future pilots understand that there are implications in every action they take. This will help them learn from the first minute how to approach a problem, how to take the right decision, and how to cope with difficult situations. ATOs will focus on putting together knowledge and using it in combined practical exercises, thus bridging the gap between theory and practice. The result will be a better training process, and schools will prepare future pilots to be able to cope with problems efficiently. Through better training, the level of safety in flight will increase.



This option would ensure that the LOs are updated, reflect current technology and operations, and are consistent with other current aviation regulations. It would also provide the framework which would enable training schools to establish and maintain teaching standards for their ground training that would in turn ensure that student pilots not only learn their subjects, but are also able to demonstrate a level of understanding of those subjects and to apply their learning and understanding appropriately. Therefore, in terms of benefits to safety, this is considered to be the preferred option.

### **2.6.2. Social impacts**

#### ***Option 0 (No change)***

A major European low-cost air carrier stated recently that up to 50 % of newly licensed pilots applying for a job fail to meet the standards required by the airline. It is, therefore, obvious that the current training regime and associated LOs do not qualify pilots to meet the needs of modern aviation industry. The vast majority of student pilots finance their own training, and are spending money on (ground training) courses that do not equip them with the knowledge and competencies professional pilots are required to have. Aspiring pilots are, therefore, becoming increasingly reluctant to pursue a flying career, and this situation, when combined with other factors, is leading to a shortage of suitably qualified pilots. It would be untenable to pursue Option 0 when it is clear that the current training regime is not providing pilots with the attributes they require to secure employment.

#### ***Option 1 (Update Subjects 010 to 090 only)***

This option would be an improvement compared to the negative impact that would result from implementing Option 0. Pilots' training will improve as the LOs and the general level of TK training will be current and relevant. However, in the absence of any measures to ensure that student pilots develop the ability to correctly apply their newly acquired knowledge during ground training, their employment prospects will not be enhanced to the same degree as they would do with Option 2.

There are in fact no significant differences in the social impact between Option 1 and Option 0.

#### ***Option 2 (Update Subjects 010 to 090 and introduce a new Area 100 KSA)***

ICAO, when establishing the NGAP Task Force, stated that one of the contributing factors to the shortage of skilled aviation professionals was that current learning methodologies do not respond to new evolving learning styles. Student pilots would benefit considerably from the improvements in the training system, which will be generated by the new Area 100 KSA and which will focus on improving future pilots' ability to apply knowledge and develop their core competencies. Higher training standards will make it easier for newly licensed pilots to find employment. Improved TK training will also save airlines and other commercial operators time and money, which is too often spent on repeating training for pilots who have not attained the required level of knowledge or skills by the time they look for employment.



### 2.6.3. Economic impacts

**Option 0: No change.**

**Options 1 and 2:**

ATOs: Approximate costs associated with the implementation of Options 1 and 2

All ATOs delivering ATPL, MPL and CPL training courses would be impacted by the additional subject (Area 100 KSA) on KSA proposed to be taught and assessed by these ATOs. ATOs delivering only IR, EIR or CBIR(A) training are not required to introduce Area 100 KSA, and are therefore not affected.

It is recognised that ATOs can provide both integrated and modular courses, and that these are delivered in different ways: e.g. integrated courses are residential, whereas modular courses may be either residential or have distance-learning elements. Nevertheless, all ATOs, irrespective of the type of course offered, will have to amend their training manuals and training course materials to address the updated LOs. The impact on ATOs offering ATPL and MPL training will be slightly greater due to the larger number of LOs affected by the changes.

There will also be differences in the scope of the impact between those ATOs delivering only integrated or MPL courses and those delivering exclusively modular training and, more specifically, those delivering modular courses with a distance-learning element. It is this latter subgroup of ATOs that may be impacted the most by the additional KSA module due to the lower number of actual classroom instruction hours required on-site at the ATO, which will have to be extended in order to carry out the Area 100 KSA assessment exercises.

The implementation of the revised LOs will result in the below approximate costs (calculated per one person's working time on the task) borne by the following stakeholders: ATOs, producers and publishers of courseware, and competent authorities.

*Note:* Some ATOs produce and publish their own courseware in-house. This means that in cases where the ATO produces its own courseware, this will be also a cost which has to be borne by them.

All costs shown in the following two tables are one-off costs, generated by the implementation of the revised LOs and the new Area 100 KSA as proposed by this RMT.

ATO costs are split between Subjects 010 to 090 and Area 100 KSA, and for both medium and large ATOs (10 TK instructors (TKIs)) and a smaller ATO (3 TKIs).

The costs related to the implementation of the Area 100 KSA are shown in two columns, to differentiate between the implementation costs when adopting only Option 1 (excluding Area 100 KSA) compared to Option 2 (including Area 100 KSA).





Table 1: Overview of one-off costs for ATOs for Options 1 and 2 (versus Option 0)

Proposed options Sector and task	Option 1	Option 2
	Update LOs of Subjects 010 to 090 only	Update the 010 to 090 LOs and the Area 100 KSA LOs
<b>Producers/Publishers of courseware</b>		
Amend the textbooks and materials to reflect both new and revised LOs	4 months equiv. 1 author: EUR 34 000	n/a
1.5 months graphics	EUR 6 000	n/a
Production & proofreading	EUR 20 000	n/a
<b>Total per publisher</b>	<b>EUR 60 000</b>	<b>n/a</b>
<b>Larger ATOs</b>		
Presentations	1 month EUR 5 000	1 month EUR 5 000
Lesson exercises	1 month EUR 5 000	1 month EUR 10 000
Progress tests/exams	1 month EUR 5 000	1 month EUR 5 000
Assessment development	n/a	4 weeks EUR 5 000
TKI professional development/training	each TKI 5 days (EUR 1 000/TKI) e.g. EUR 10 000	— each TKI 5 days (EUR 1 000/TKI), e.g. EUR 10 000; — each TKI 2 days (EUR 500/TKI), e.g. EUR 5 000; — each assessor (4 assessors) 2 days, e.g. EUR 2 000
Training, operations and management system manuals: course outline, lesson plans, course processes and procedures	3 months EUR 15 000	3 months EUR 15 000 + 1 week EUR 1 250
<b>Total per larger ATO</b>	<b>EUR 40 000</b>	<b>EUR 58 250</b>
<b>Small ATOs</b>		
Presentations	2 weeks EUR 2 500	2 weeks EUR 2 500
Lesson exercises	2 weeks EUR 2 500	4 weeks EUR 5 000
Progress tests/exams	2 weeks EUR 2 500	2 weeks EUR 2 500
Assessment development	n/a	2 weeks EUR 2 500
TKI professional development/training	each TKI 5 days (EUR 1 000/TKI), e.g. EUR 3 000	— each TKI 5 days (EUR 1 000/TKI), e.g. EUR 3 000; — each TKI 2 days (EUR 500/TKI), e.g. EUR 1 500; — each assessor (2 assessors) 2 days, e.g. EUR 1 000
Training, operations and management system manuals: course outline, lessons plans, processes and procedures	2 months EUR 10 000	2 months EUR 10 000 + 1 week EUR 1 250
<b>Total per small ATO*</b>	<b>EUR 20 500</b>	<b>EUR 29 250</b>

Source: IAAPS

\* The smallest impact will be on ATOs providing IR, EIR and/or CBIR(A) courses only. This is due to the smaller number of affected LOs and no Area 100 KSA requirement.



Competent authorities: Costs associated with the implementation of Option 1

The impact on the competent authorities will mainly relate to the requirement to allocate resources to approve the revised ATO manuals (training, operations, and management system) and the preparations required to update the examination system in order to incorporate the revised examination procedures. Time and costs necessary for the translation (if applicable) and the integration of the newly developed questions, for both new and revised LOs, into the competent authorities' databases are also considered.

The cost of implementation of the changes to the LOs, the restructuring of the blueprints (question cataloguing system) and syllabi, and the amendments to the AMC and GM for the delivery of ATPL, CPL, IR and CBIR/EIR examinations for aeroplanes and helicopters (as appropriate) is listed below.

*Note:* These estimated costs are based on very high volumes of exam delivery (> 12 000 individual exams per year) using an electronic examination delivery platform deployed across multiple, geographically diverse examination venues with an external IT service provider.

The costs for changing the national databases of questions will vary depending on the modification of numerical parameters in the software used in running the examinations. The costs may vary around EUR 50 000, depending on the program and system used by each competent authority. The modification in the software is required by the new numbering of LOs, paragraphs, topics and subtopics, changes made to titles, and the variations in the number of questions that have to be formulated for each LO.

The costs below are based on the UK CAA approximations only and on its current scheme of charges (approximate equivalent in euros (EUR)).



**Table 2: Overview of one-off costs for competent authorities for Option 1 (versus Option 0)**

TASK	ESTIMATED COST
User acceptance testing	GBP 8 200 (EUR 10 600)
Blueprint review	GBP 3 000 (EUR 3 875)
Training manual (TM) approval*	(GBP 197 (EUR 255) hourly rate; UPRT higher rate F/O inspector GBP 212 (EUR 275) hourly rate) GBP 5 500 (EUR 7 100) per TM
FCL exam manager costs	(GBP 197 (EUR 255) hourly rate) GBP 15 000 (EUR 19 375)
Administration staff costs	GBP1 500 (EUR 1 950)
Subject matter expert (SME) training	(1 × Day × 5 SME) GBP 1 500 (EUR 1 950)
IT service provider	GBP 22 500 (EUR 29 000)
Provision for unforeseen IT spend	GBP 15 000 (EUR 19 375)
Program management and communications	GBP 120 000 (EUR 155 000)
<b>Total</b>	<b>GBP 192 000 (EUR 241 200)</b>

Source: UK CAA

\* Initial TM approval is charged by the hour; however, any subsequent update to a course is covered by the ATO annual fee as per the scheme of charges. As the introduction of the requirement of RMT.0595 is considered an update to an existing approved training manual, the UK CAA will have to cover the reapproval cost.

The approval of ATO training manuals would take additional man-hours if the guidance table of the minimum hours for each subject (currently available in AMC1 to Appendix 3 to Part-FCL) is recommended for deletion by RMT.0595. If this table is deleted, an inspector would have to assess, without any guidance, whether the teaching hours proposed by the ATO for each subject are adequate, proportional, and acceptable. It is likely to take more than 3 months for an ATO to be granted approval for its training manuals — on a first come, first served basis —, considering the usual workload within the competent authority.

The approval of UPRT-applicable sections of the ATO manuals may have to be reviewed by a flight operations inspector at a higher cost.

Any additional costs that may be incurred for the training of an inspector to assess the Area 100 KSA have not been included and are considered to be marginal.



**Questions to stakeholders**

**To enable a more detailed assessment of the economic impacts of Options 1 and 2, compared with Option 0, the Agency invites the stakeholders to provide answers to the following questions:**

- 1. To ATOs:** What is the average number of students trained per year?
- 2. To ATOs:** Does the review of the training manuals and course design, envisaged with Option 2, create an additional administrative burden for you? If yes, please provide information on the additional workload (number of working hours per year) for you.
- 3. To ATOs:** What will be the impact of the costs incurred by updating the courseware and teaching materials for Subjects 010 to 090 and introducing Area 100 KSA as a relative share of your turnover:
  - a. < 0.1 %?
  - b. 0.1 – 0.4 %?
  - c. 0.5 %?
  - d. 0.6 – 0.9 %?
  - e. > 1 %?
- 4. To ATOs:** Please comment whether the minimum percentage of classroom training of distance-learning courses should be increased.
- 5. To competent authorities:** How many ATOs of each type are in your country? Please specify figures and type of the ATOs: integrated residential courses; modular residential courses; modular distance-learning courses.
- 6. To ATOs and competent authorities:** Please comment on the cost calculations presented in the tables above for producers and publishers of courseware, large ATOs, small ATOs, and competent authorities. If you do not agree with these estimations, please provide corrected cost impacts with justifications.

*Note: Answers and feedback to be processed internally. In order to ensure respondent confidentiality, any information which may be used will be de-identified.*

**2.6.4. Conclusions**

Developing training at ATOs which is closely aligned to the future needs of industry will improve the employment prospects for graduate student pilots.

After analysing the three options, the RMT.0595 RMG concluded the following:

Option 0 ('No change') is discarded since within the current set of LOs there are topics that are outdated and are no longer considered relevant for pilot training today. In addition, it has been demonstrated that airlines/operators are too often finding that recently qualified pilots do not entirely meet their expectations with regard to the requirements of present-day operations. With the forecast growth in future air traffic, safety performance must improve so that accident rates do not increase with the increase in the number of flights. It is, therefore, necessary to ensure that action is taken to enhance pilot training standards, thereby improving safety. Since Option 0 would likely result in a future degradation of safety, the RMT.0595 RMG does not recommend its adoption.

Option 1 ('Update Subjects 010 to 090 only') is less than optimal in that the updated LOs could not, on their own, assure that student pilots have acquired the necessary skills to appropriately apply the level of knowledge they have attained. Whilst the LOs would be current and relevant, and would likely



prevent any future decline in safety performance, they would not deliver the level of safety benefit offered by Option 2. In addition, it does little to improve overall pilot performance and to better facilitate the transition from initial training to an operator. Taking this into consideration, the RMT.0595 RMG does not recommend Option 1.

Option 2 ('Update Subjects 010 to 090 and introduce a new area, i.e. 100 KSA) is the preferred one as it does not only ensure that the LOs are current and relevant, but it introduces a means to improve the standards of teaching and to ensure that student pilots are assessed not only on their knowledge of facts and principles, but also on their understanding of these facts and principles and their ability to apply this knowledge effectively. This option also enables the development and assessment of student pilots' technical and non-technical skills. It makes a positive contribution to safety performance and facilitates the smooth transition from initial training to an operator.

Option 2 is, therefore, the preferred one and is recommended by the RMT.0595 RMG.

#### 2.6.5. Monitoring and evaluation

Monitoring is a continuous and systematic process of data collection and analysis about the implementation or application of a rule or activity. It generates factual information for possible future evaluation and impact assessments, and helps identifying the actual implementation problems.

The Agency will continuously monitor a set of core indicators that will be used to measure how accurately this RMT proposal has achieved its objectives. The monitoring will be performed in terms of collecting and analysing data from different available sources by using several tools, e.g. conducting surveys as specified below. The responsible actors for collecting and providing the data are the ATOs and the competent authorities.

Indicator	Sources of data
Number of ATOs updating the syllabi and the LOs of Subjects 010 to 090 and introducing the new Area 100 KSA	<ul style="list-style-type: none"> <li>— EASA continuous monitoring reports</li> <li>— Competent authority data</li> <li>— Surveys covering ATOs</li> </ul>
Cost of training, according to the updated LOs of Subjects 010 to 090 and introducing the new Area 100 KSA	<ul style="list-style-type: none"> <li>— ATO data</li> </ul>
Number of newly updated questions in the ECQB, according to the revised syllabus	<ul style="list-style-type: none"> <li>— ECQB process</li> </ul>
Rate of student pilots who pass the final TK examination (in the updated training system)	<ul style="list-style-type: none"> <li>— ATO data</li> <li>— Competent authority data</li> </ul>

The proposed amendments to the AMC and GM might be subject to either interim, ongoing or ex post implementation evaluations, which will monitor how well the adopted proposals have achieved their objectives, taking into account the earlier predictions made in this impact assessment. The decision whether an evaluation will be necessary will be taken in the implementation phase, based on the monitoring results.



## 2.7. Overview of the proposed amendments

Reference	Subject
<b>010</b>	<b>Air law and ATC procedures</b>
<b>020</b>	<b>Aircraft general knowledge</b>
021	Airframe and systems, electrics, power plant and emergency equipment
022	Instrumentation
<b>030</b>	<b>Flight performance and planning</b>
031	Mass and balance
032	Performance (aeroplane)
033	Flight planning and monitoring
034	Performance (helicopter)
<b>040</b>	<b>Human performance and limitations</b>
<b>050</b>	<b>Meteorology</b>
<b>060</b>	<b>Navigation</b>
061	General navigation
062	Radio navigation
<b>070</b>	<b>Operational procedures</b>
<b>080</b>	<b>Principles of flight</b>
081	Principles of flight (aeroplane)
082	Principles of flight (helicopter)
<b>090</b>	<b>VFR and IFR communications</b>
<b>100</b>	<b>Knowledge, skills and attitudes (KSA)</b>

The RMT.0595 RMG proposed that syllabi and LOs for the ATPL (MPL) and CPL pilot licences and IRs should be amended as described in Chapter 3 of this NPA, which, due to its volume, is published in six sub-NPAs (i.e. NPA 2016-03(A), (B), (C), (D), (E) & (F)).

In summary, the amendments can be categorised as follows:

### *Amendments to Annex I, Subpart FCL:*

- A new AMC1 FCL.025(a)(2) has been proposed. It introduces the requirement that student pilots should be first assessed for Area 100 KSA before being recommended for the final TK examination paper.

### *Amendments to Subpart D — Commercial pilot licence (CPL):*

- AMC1 FCL.310; FCL.515(b); FCL.615(b) 'Theoretical knowledge examination' has been substantially revised as follows:
  - Several LOs have been categorised as comprising 'Basic Knowledge (BK)' in a newly added column in the LO tables. These LOs will no longer be the subject of dedicated examination questions. However, student pilots are expected to attain this level of knowledge in order to fulfil higher level LOs and answer examination questions successfully. The reason for doing this is to ensure that the level of competence examined is appropriate to the licence level and privileges.
  - The LOs required for the recently developed EIR and CBIR have been reviewed. To ensure consistency between the syllabi, the EIR and CBIR LOs currently in AMC2 FCL.615(b) to



AMC8 FCL.615(b) 'IR – Theoretical knowledge and flight instruction', they have been merged into the same tables with those for the ATPL, MPL, CPL and IR in the revised AMC1 FCL.310; FCL.515(b); FCL.615(b).

- The LOs that are considered to be outdated or otherwise irrelevant to today's operating environment and practices have been deleted.
- The LOs that are duplicated in different subject areas have been identified and kept in only one subject area, unless there are certain reasons to maintain the duplication.
- New LOs have been added within existing subject-matter areas, including those based upon the outcomes of the work done in other RMTs (e.g. LOs on UPRT). The new LOs (which are not included in the AMC and GM published with ED Decision 2016/008/R) can be easily identified by the word 'new' added in the left-hand column next to the number of that LO.
- A new column with 'Comments' has been added to the new LO tables. This column provides explanations on the amendments proposed by the RMT.0595 RMG — why certain LOs have been deleted, changed, or how the proposed amendments are expected to improve the quality of the LOs.
- The deletion or addition of some LOs, paragraphs, topics or subtopics, together with moving some LOs from one topic or subject to another have caused the renumbering of the LOs, paragraphs, topics or subtopics (of both existing and newly added ones). To facilitate easy reference to a particular LO during the public consultation period, all the LOs have been numbered, including the deleted ones (the set of digits in brackets indicates their position within a certain paragraph or subtopic). However, the final numbering will be properly adjusted in the ED Decision containing the AMC and GM.
- The LOs which have been moved from one subject area to another are grey-shaded in this NPA. The amendments made to text in this case will only show the deletions of the old text. However, the explanations provided in the 'Comments' column will indicate that those are LOs that have been moved and that some of them have also been amended.
- The LOs that have been moved within the same subject area are not grey-shaded. However, their move is indicated in the 'Comments' column.
- Subject areas 091 and 092 (VFR communications and IFR communications for the IR, CPL and ATPL training courses) are proposed to be merged. It is considered that by merging the VFR and IFR TK subject 'Communications', any student pilot passing the 'Communications' examination would be fully cognisant of the terminology and phraseology applicable to both VFR and IFR flight operations. Given that VFR and IFR operations take place frequently in the same airspace, or VFR and IFR departures or arrivals at the same airport, it is considered important that all pilots should be familiar with the terminology that is used in communications for both types of traffic. A pilot who has assimilated satisfactorily the information associated with the LOs for the merged 'Communications' examination will have the capability to develop a high level of situational awareness regarding proximate traffic in the airspace or at the airport where they are operating. Through a thorough and complete understanding of the role of



communications and good situational awareness, the pilot will have a greater capacity to consider other important competencies, including aircraft flight path management, leadership and teamwork, problem-solving and decision-making, and workload management, which are highly relevant also in the context of preventing upset conditions.

- A new LO area (Area 100 KSA) has been added. This covers cross-subject application and the development of the pilots' core competencies, and is applicable only to courses for the ATPL, MPL and CPL. These LOs will not be the subject of examination questions but are to be assessed by the ATOs. The head of training at each ATO will have to be satisfied that the candidate has achieved the required level of competence in this new LO area before they sit the final TK examination paper.
  - Some LOs have been amended to increase the skill level required and to ensure understanding. For example, in the text of some LOs the verb 'state' has been changed to 'explain', requiring student pilots to demonstrate that they are able to understand and apply the required knowledge.
- A new GM1 FCL.310; FCL.515(b); FCL.615(b) 'Theoretical knowledge examination' has been developed to explain the Benjamin Bloom Taxonomy and the verbs used throughout the LO tables.

**The Agency invites stakeholders to provide suggestions on how to further define the level of depth and scope of knowledge of the particular LOs in addition to the use of the taxonomy verbs as described in GM1 FCL.310, FCL.515(b) and FCL.615(b).**

#### *Amendments to Subpart G — Instrument rating (IR), Section 1*

- The tables in AMC2 to AMC8 FCL.615(b) 'IR — Theoretical knowledge and flight instruction' have been deleted as their content has been incorporated in the revised AMC1 FCL.310; FCL.515(b); FCL.615(b), which now includes the CBIR(A) and EIR columns, as appropriate. However, the AMCs to FCL.615(b) will continue to apply until the end of the transition period as proposed by this NPA, as reconsidered after the consultation period, and as published in the subsequent ED Decision.
- The reference to the old Jeppesen Student Pilot Route Manual in GM1 FCL.615(b) has been updated with the new reference to the guidelines for a General Student Pilot Route Manual (GSPRM) provided at the beginning of the LO tables of Subject 033 'Flight planning and monitoring'.

#### *Amendments to Subpart H — Class and type ratings*

- AMC1 FCL.720.A(b)(2)(i) 'Experience requirements and prerequisites for the issue of class or type ratings — aeroplanes' has been amended with the updated tables containing the course syllabi for VFR and IFR operations to reflect the revised syllabi and LOs.

#### *Amendments to Subpart I — Additional ratings*

- AMC2 FCL.825(d) and GM1 FCL.825(d) 'En-route instrument rating (EIR)' have been amended to reflect the amendments proposed with this NPA.





*Amendments to Appendix 3 ‘Training courses for the issue of a CPL and an ATPL’ (AMC1), to Appendix 5 ‘Integrated MPL training courses’ (GM1), and to Appendix 6 ‘Modular training courses for the IR’ (AMC1 and AMC3) respectively:*

- AMC1 to Appendix 3 (‘Training courses for the issue of a CPL and an ATPL’) and GM1 to Appendix 5 (‘Integrated MPL training course’) have been amended in the TK paragraphs to include ‘Area 100 KSA’.
- AMC1 and AMC3 to Appendix 6 (‘Modular training courses for the IR’) have been amended to detail various ways of completing classroom training.
- The lists with the minimum numbers of hours of instruction allocated in various types of TK training courses to each subject are proposed to be deleted.

*Amendments to Annex VI, Part-ARA, Subpart FCL:*

- AMC1 ARA.FCL.300(b) ‘Examination procedures — Theoretical knowledge examinations for professional licences and instrument ratings’ has been updated with the numbers of questions and timing for the final TK examination per subject in accordance with the amended LO tables.
- AMC2 ARA.FCL.300(b) ‘Examination procedures — Theoretical knowledge examinations for the en-route instrument rating (EIR) and the instrument rating (IR) obtained through the competency-based modular training course’ has been deleted. Its updated content has been incorporated into the revised AMC1 ARA.FCL.300(b).

*Amendments to Annex VII, Part-ORA, Subpart ATO:*

- AMC1 ORA.ATO.230(a) ‘Training manual and operations manual’ has been amended to include the assessment for ‘Area 100 KSA’.
- New AMC2 and AMC3 to ORA.ATO.230(a) have been introduced to cover the TK course design requirements and the training and assessment for ‘Area 100 KSA’.

**Stakeholders are invited to comment on the potential development of the core competency grading system (at higher levels) to align with type and recurrent training.**

**A common grading system would enable more efficient individual pilot development and data analysis critical for course design at ATOs and airlines.**

- New GM1 ORA.ATO.230 has been introduced to provide guidance on how student pilots should be assessed on Area 100 KSA.
- New GM2 ORA.ATO.230 has been introduced to explain the concept of ‘word pictures’ used for the assessment of the LOs in Area 100 KSA, and to provide assessment indicators.
- New GM3 ORA.ATO.230 has been introduced to provide guidelines on practical exercises to be used for the achievement of Area 100 KSA.

Some editorial errors are also proposed to be corrected with this NPA.



## 2.8. Implementation timelines

The Agency recognises that before the new proposed system (Option 2 presented above) can be fully implemented, there are several actions that need to be completed first. These include but are not limited to the following:

- The Agency to update the ECQB to reflect the amendments made to the LOs. This work will need to include drafting and reviewing questions for the new and revised LOs in sufficient numbers to ensure a robust examination system and recataloguing the questions in response to the amendments (deletions, movements, additions) made to the new LOs.
- The competent authorities to train their inspectors for the approval of Area 100 KSA; approve the revised ATO training manuals; prepare their exam delivery system to accommodate the revised ECQB; migrate the revised ECQB into their examination delivery platform; and translate, where necessary, the questions into the language(s) of the examination.
- The ATOs to update their training course design; amend their training manuals to introduce the new LOs and the new Area 100 KSA; and train the Area 100 KSA assessors.

It is also recognised that commercial organisations providing textbooks and other training material will likely need to update their products to reflect the amendments proposed with this NPA.

All these activities will take time to manage effectively and the Agency proposes a transition plan spanning over 4 years, starting from the publication of the future ED Decision related to this RMT. Of these 4 years, the first 2 will be necessary to update the ECQB with questions based on the new and revised syllabi and LOs, while the last 2 years are envisaged for the competent authorities to implement the updated ECQB and the amendments mentioned above.

In parallel with the Agency preparing the update of the ECQB, ATOs should start preparing their new courses and competent authorities should prepare the implementation measures. It would be up to the individual competent authorities to set an expiry date for the old syllabus examinations — this would provide flexibility for each competent authority to choose the date of transition. Complex transitional arrangements for student pilots caught between the old and the new syllabus should, wherever possible, be kept to a minimum. However, special consideration should be given to the examinations where entire topics or subtopics have been moved between various subject areas.

The last 2 years of the proposed 4 years would allow for an additional 24-month window for the competent authorities to complete the transition in their own State. A more detailed planning from the ECQB team will be published at a later stage on the EASA website<sup>15</sup> to help ATOs with their own planning.

The implementation plan will also have to cover the various dates of applicability of various LOs, such as the LOs on UPRT or the LOs on PBN.

The Agency will provide additional guidelines in the transition plan to consider the credits that may be applicable for licence issue in cases where a student pilot has to switch from the current syllabus to the new one during their course of training. Training and examinations completed or credited in

<sup>15</sup> <https://www.easa.europa.eu/easa-and-you/aircrew-and-medical/european-central-question-bank-ecqb>

accordance with the Aircrew Regulation, before or during the applicable transition period, will be fully credited for licence issue.

**Stakeholders are invited to comment and provide feedback on the proposed 4-year transition period and plan.**

## **2.9. Recommendations for future actions or future RMTs**

### **2.9.1. The proportionality issue**

As per ToR for RMT.0595, the RMT.0595 RMG was also tasked to ‘review on each subject area if the syllabi and LOs are relevant and proportionate for the specific examinations (ATPL (MPL), CPL, IR), and propose amendments, where necessary’.

After evaluating the potential options to identify the differences between, for example, the ATPL and the CPL, by amending the existing LOs (e.g. content, number of LOs and questions) and examination procedures, the majority of the RMG concluded that a systematic approach to establish criteria for proportionality is not practicable within the existing testing system.

In addition, it was identified that this fundamental issue of proportionality is further complicated by the qualification requirements for a flight instructor (FI). For example, according to the Aircrew Regulation, an FI must hold, as a minimum requirement, CPL (theory) credits in order to instruct for the PPL course. It could be considered that, especially with regard to those FIs who instruct solely for the PPL, the CPL (theory) qualification is disproportionate with regard to the instruction necessary for the PPL. However, if CPL LOs were to be revised to address this single aspect for FIs, there could be an adverse impact on the CPL itself. Such issues are outside the scope of the related ToR.

The RMT.0595 RMG, therefore, recommends that this be considered as a matter of priority under a separate, new RMT. This could be split into three distinct tasks:

- to address the issue of proportionality identified above;
- to identify and scope the extent, impact and importance of possible solutions with regard to both flight safety and regulatory burden; and
- to develop and propose appropriate amendments.

### **2.9.2. An Agency process for the systematic review and update of the LOs**

This RMT proposes that the Agency should develop a process to ensure the regular (every 2 years) review and update of the LOs, and as required by emerging needs, in order to ensure that they are up to date and aligned with developments in industry. A proposal would be that this process should be similar to the one applied for the regular update of CS-25. The concept of ‘systematic task’, already implemented by the Agency, can be used for the regular update of the LOs.

### **2.9.3. Revisiting the number of sittings and attempts for examinations**

During its meetings for the review of the current LOs, the RMT.0595 RMG group also discussed the matter of reviewing the number of sittings and attempts for examinations that candidates are to be allowed. As this would imply, however, a change at implementing rule level — which could not be performed with this RMT —, the RMG proposed that this issue should be taken over and dealt with by one of the future Agency RMTs.



### 3. Proposed amendments

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

- (a) deleted text is marked with ~~strike through~~;
- (b) new or amended text is highlighted in grey;
- (c) an ellipsis (...) indicates that the remaining text is unchanged in front of or following the reflected amendment.

#### 3.1. Draft Acceptable Means of Compliance and Guidance Material (Draft EASA Decision)

### Annex I: PART-FCL

#### SUBPART A: GENERAL REQUIREMENTS

A new AMC to FCL.025 is proposed as follows:

##### **‘AMC1 FCL.025(a)(2) Theoretical knowledge examinations for the issue of licences and ratings**

##### **COMPLETION OF AREA 100 KSA ASSESSMENT BEFORE FINAL EXAMINATION**

Before being recommended by an ATO to sit the final examination paper at the first attempt, an applicant for a licence should have successfully completed the applicable Area 100 KSA assessment at the ATO.’

The content of AMC1 FCL310; FCL.515(b); FCL.615(b) of Subpart D ‘Commercial pilot licence (CPL)’ has been amended and now includes all the tables previously published in AMC2 FCL.615(b) to AMC8 FCL.615(b) with additional columns for CBIR(A) and EIR, as appropriate. It has to be reminded that this AMC, as published with ED Decision 2016/008/R, will remain valid and applicable throughout the 4-year transition period and plan proposed in this NPA.

#### SUBPART D — COMMERCIAL PILOT LICENCE — CPL

##### **‘AMC1 FCL.310; FCL.515(b); FCL.615(b) Theoretical knowledge examinations**

##### **DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LOs LEARNING OBJECTIVES FOR ATPL, CPL AND, IR, CBIR(A), and EIR**

- (a) Aeroplanes and helicopters

##### GENERAL

The detailed theoretical knowledge syllabus outlines the topics that should be taught and examined in order to meet the theoretical knowledge requirements appropriate to ATPL, MPL, CPL and IR.

For each topic in the detailed theoretical knowledge syllabus, one or more Learning Objectives are set out in the chapters as shown below.

<b>Reference</b>	<b>Subject</b>	<b>Chapter</b>
<b>010</b>	<b><del>Air law and ATC procedures</del></b>	<b>A.</b>
<b>020</b>	<b><del>Aircraft general knowledge</del></b>	
<b>021</b>	<b><del>Airframe and systems, electrics, power plant and emergency equipment</del></b>	<b>B.</b>
<b>022</b>	<b><del>Instrumentation</del></b>	<b>C.</b>



<b>030</b>	<b><i>Flight performance and planning</i></b>	
031	<i>Mass and balance</i>	D.
032	<i>Performance (Aeroplane)</i>	E.
033	<i>Flight planning &amp; monitoring</i>	F.
034	<i>Performance (Helicopter)</i>	G.
<b>040</b>	<b><i>Human performance &amp; limitations</i></b>	H.
<b>050</b>	<b><i>Meteorology</i></b>	I.
<b>060</b>	<b><i>Navigation</i></b>	
061	<i>General navigation</i>	J.
062	<i>Radio navigation</i>	K.
<b>070</b>	<b><i>Operational procedures</i></b>	L.
<b>080</b>	<b><i>Principles of flight</i></b>	
081	<i>Principles of flight (Aeroplane)</i>	M.
082	<i>Principles of flight (Helicopter)</i>	N.
<b>090</b>	<b><i>Communications</i></b>	
091	<i>VFR communications</i>	O.
092	<i>IFR communications</i>	P.

In the tables of this AMC, the applicable LOs for each licence or the instrument rating are marked with an 'x'.

The LOs define the theoretical subject knowledge and core competencies that a student pilot should have assimilated during the theoretical knowledge course, upon successful completion of an approved theoretical knowledge course prior to undertaking the theoretical knowledge examinations. They refer to measurable statements of the skills and knowledge that a student should be able to demonstrate following a defined element of training.

The LOs are intended to be used by an approved training organisation (ATO) when developing the Part-FCL theoretical knowledge elements of the appropriate course. It should be noted, however, that the LOs do not provide a ready-made ground-training syllabus for individual ATOs, and should not be seen by organisations as a substitute for thorough course design. Adherence to the LOs should become part of the ATO's compliance monitoring scheme as required by ORA.GEN.200(a)(6). Any consequential changes to the organisation's documentation should not result in an approval process in accordance with ORA.GEN.130(a). In any case, the ATO should remain responsible for ensuring that the respective theoretical knowledge training courses are carried out while taking into account the LOs provided in this AMC.

ATOs are required to produce a training plan for each of their courses based on instructional systems design methodology as specified in AMC2 ORA.ATO.230.

Additional guidance on the meaning and taxonomy of the verbs used in the LOs can be found in GM1 FCL.310; FCL.515(b); FCL.615(b).

### Training aims

After completion of the training, a student pilot should: be able to apply the acquired knowledge and skills to:

- be able to understand and apply the subject knowledge capabilities and limitations of the equipment used;



- have core competencies to meet at least the Area 100 KSA standard; and
- identify sources of information and analyse information relevant to the operation;
- be able to identify and manage threats and errors hazards, assess risks effectively, and manage threats;
- apply solutions to common problems including errors.

Specific examples of the application of knowledge and skills will be provided in the respective appendix to a subject, if needed.

## Interpretation

(...)

The Jeppesen General Student Pilots' Training Route Manual (GSPRM) (SPTRM), otherwise known as the Training Route Manual (TRM), contains planning data plus aerodrome and approach charts that may be used in theoretical knowledge training courses. The guidelines on its content can be found in this AMC, in front of the LO table for Subject 033 'Flight planning and monitoring'.

Specimen data Excerpts from any aircraft manuals, including but not limited to CAP 696, 697, and 698 for Aeroplanes and CAP 758 for Helicopters, may be used in training courses and for reference during theoretical knowledge examinations. Where the competent authority does not permit the use of these manuals during examinations, alternative data manuals shall be provided to support the relevant questions. Definitions that are included in these data manuals are explained in the relevant manual. Where questions refer to excerpts from aircraft manuals, the associated aircraft data will be provided in the examinations.

Some numerical data, e.g. speeds, altitudes/levels and masses, used in questions for theoretical knowledge examinations may not be representative for helicopter operations but the data is satisfactory for the calculations required.

*Note: In all subject areas, the term 'mass' is used to describe a quantity of matter, and 'weight' when describing the force. However, the term 'weight' is normally used in aviation to colloquially describe mass. The professional pilot should always note the units to determine if the term 'weight' is being used to describe a force (e.g. unit newton) or quantity of matter (e.g. unit kilogram).'*

**For the Subjects 010 to 090, including the new 'Area 100 KSA', please refer to the respective sub-NPAs as indicated in Section 1.2. The structure of this NPA and related documents of this document.**

A new GM is proposed to explain the Benjamin Bloom taxonomy used throughout the LO tables:

### **'GM1 FCL.310; FCL.515(b); FCL.615(b) Theoretical knowledge examinations**

#### **EXPLANATION OF THE VERBS USED IN THE BENJAMIN BLOOM TAXONOMY**

The depth or level of learning to be achieved during the training and the corresponding level of attainment to be examined or assessed is based on the following taxonomy. In each case, the level of knowledge or skill is signified by the learning objective (LO) verb.

The majority of the LOs relate to the cognitive domain. The taxonomy described by B. Bloom (1956) and Anderson and Krathwohl (2001) have been used as the standard.



The six sequential increasing levels of required cognitive learning are identified by the LO verb. Hence the lowest level 'remember' is signified by verbs such as 'state', 'list', 'define' and 'recall' whilst the next higher level of 'understand' is signified by verbs such as 'describe' and 'explain'. The third level of 'apply' is signified by the verbs 'calculate', 'interpret', 'relate' and 'solve'. However, the higher levels of 'analyse', which would be signified by the verbs 'plan' or 'discuss' and 'evaluate' and 'create' are less common due at least partially to questions presently possible in the ECQB examination.

The LOs used in Area 100 KSA differ in that they require a combination of knowledge and skills. However, the 'skill' level does not relate to Bloom's psychomotor taxonomy but is more closely aligned to the higher taxonomy levels required in medicine, where knowledge and skills must be combined by the student pilot in a strategy.

- The verbs 'demonstrate' and 'show', with their meanings defined below, have therefore been used to supplement the cognitive LO verbs for the Area 100 KSA LOs.
  - 'Demonstrate' means the selection and use of the appropriate knowledge, skills and attitudes within a strategy to achieve an effective outcome. It signifies a high taxonomy level and would normally be assessed using multiple indicators from more than one core competency.
  - 'Show' means the attainment of knowledge, skill or attitude. It signifies a lower taxonomy level than 'demonstrate' and would normally be assessed by a single indicator.'

## SUBPART G — INSTRUMENT RATING — IR

### Section 1

The tables in **AMC2 FCL.615(b)** to **AMC8 FCL.615(b)** 'IR — Theoretical knowledge and flight instruction' are proposed to be deleted as their content is incorporated in the new AMC1 FCL.310; FCL.515(b); FCL.615(b). The new tables include the CBIR(A) and EIR columns, as appropriate.

*Note:* It has to be kept in mind that the tables in AMC2 FCL.615(b) to AMC8 FCL.615(b) should be applicable until the new system, which is proposed with this NPA, is implemented in accordance with the transition measures.

### 'AMC1 FCL.615(b) IR — Theoretical knowledge and flight instruction

SYLLABUS OF THEORETICAL KNOWLEDGE FOR THE IR FOLLOWING THE COMPETENCY-BASED MODULAR COURSE AND EIR

- (a) ~~The following tables contain the detailed theoretical knowledge syllabus for the IR following the competency-based modular route (IR(A)) and the EIR. The syllabi for the theoretical knowledge instruction and examination for the ATPL, MPL, CPL and IR in AMC1 FCL.310; FCL.515(b); FCL.615(b) should be used for the EIR and the CBIR(A) respectively.~~
- (b) Aspects related to threat and error management ~~non-technical skills~~ should be included in an integrated manner, taking into account the particular risks associated to the licence and the activity.
- (c) An applicant who has completed a modular IR(A) course according to Appendix 6 **Section A** and passed the IR(A) theoretical knowledge examination should be fully credited towards the requirements of theoretical knowledge instruction and examination for a competency-based IR(A) or EIR within the validity period of the examination. An applicant wishing to transfer to a competency-based IR(A) or EIR course during a modular IR(A) course should be credited towards the requirements of theoretical



knowledge instruction and examination for a competency-based IR(A) or EIR for those subjects or theory items already completed.

- (d) An applicant for an IR(A), who has completed an EIR theoretical knowledge course and passed the EIR theoretical knowledge examination according to FCL.825, should be fully credited towards the requirements of theoretical knowledge instruction and examination for a competency-based IR(A) according to Annex 6 Section Aa.

<b>010-00-00-00</b>	<b>AIR LAW</b>
010-04-00-00	PERSONNEL LICENSING
010-05-00-00	RULES OF THE AIR
010-06-00-00	PROCEDURES FOR AIR NAVIGATION SERVICES — AIRCRAFT OPERATIONS (PANS OPS)
010-07-00-00	AIR TRAFFIC SERVICES AND AIR TRAFFIC MANAGEMENT
010-08-00-00	AERONAUTICAL INFORMATION SERVICE
010-09-00-00	AERODROMES (ICAO Annex 14, Volume I, Aerodrome Design and Operations)
<b>022-00-00-00</b>	<b>AIRCRAFT GENERAL KNOWLEDGE — INSTRUMENTATION</b>
022-02-00-00	MEASUREMENT OF AIR DATA PARAMETERS
022-04-00-00	GYROSCOPIC INSTRUMENTS
022-13-00-00	INTEGRATED INSTRUMENTS — ELECTRONIC DISPLAYS
<b>033-00-00-00</b>	<b>FLIGHT PLANNING AND MONITORING</b>
033-02-00-00	FLIGHT PLANNING FOR IFR FLIGHTS
033-03-00-00	FUEL PLANNING
033-04-00-00	PRE-FLIGHT PREPARATION
033-05-00-00	ICAO FLIGHT PLAN (ATS FLIGHT PLAN)
<b>040-00-00-00</b>	<b>HUMAN PERFORMANCE</b>
040-01-00-00	HUMAN FACTORS: BASIC CONCEPTS
040-02-00-00	BASIC AVIATION PHYSIOLOGY AND HEALTH MAINTENANCE
040-03-00-00	BASIC AVIATION PSYCHOLOGY
<b>050-00-00-00</b>	<b>METEOROLOGY</b>
050-01-00-00	THE ATMOSPHERE
050-02-00-00	WIND
050-03-00-00	THERMODYNAMICS
050-04-00-00	CLOUDS AND FOG
050-05-00-00	PRECIPITATION
050-06-00-00	AIR MASSES AND FRONTS
050-07-00-00	PRESSURE SYSTEMS
050-08-00-00	CLIMATOLOGY
050-09-00-00	FLIGHT HAZARDS
050-10-00-00	METEOROLOGICAL INFORMATION
<b>062-00-00-00</b>	<b>RADIO NAVIGATION</b>
062-02-00-00	RADIO AIDS
062-03-00-00	RADAR





062-05-00-00	AREA NAVIGATION SYSTEMS, RNAV/FMS
<b>092-00-00-00</b>	<b>IFR COMMUNICATIONS</b>
092-01-00-00	DEFINITIONS
092-02-00-00	GENERAL OPERATING PROCEDURES
092-03-00-00	ACTION REQUIRED TO BE TAKEN IN CASE OF COMMUNICATION FAILURE
092-04-00-00	DISTRESS AND URGENCY PROCEDURES
092-05-00-00	RELEVANT WEATHER INFORMATION TERM
092-06-00-00	GENERAL PRINCIPLES OF VHF PROPAGATION AND ALLOCATION OF FREQUENCIES
092-07-00-00	MORSE CODE'

(...)



The tables in **AMC2 FCL.615(b)** to **AMC8 FCL.615(b)** 'IR — Theoretical knowledge and flight instruction' are proposed to be deleted as their content has been incorporated in the new AMC1 FCL.310; FCL.515(b); FCL.615(b).

The proposed new tables include the CBIR(A) and EIR column, as appropriate.

**~~'AMC2 FCL.615(b) IR — Theoretical knowledge and flight instruction~~**

~~DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES~~

~~Subject Air Law (Competency-based modular training course (CBIR(A)) for instrument rating according to Appendix 6 Aa and en route instrument rating (EIR) course according to FCL.825)~~

(...)

**~~'AMC3 FCL.615(b) IR — Theoretical knowledge and flight instruction~~**

~~DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES~~

~~Subject Aircraft General Knowledge — Instrumentation (Competency-based modular training course (CBIR(A)) for instrument rating according to Appendix 6 Aa and en route instrument rating (EIR) course according to FCL.825)~~

(...)

**~~'AMC4 FCL.615(b) IR — Theoretical knowledge and flight instruction~~**

~~DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES~~

~~Subject Flight Planning and Flight Monitoring (Competency-based modular training course (CBIR(A)) for instrument rating according to Appendix 6 Aa and en route instrument (EIR) rating course according to FCL.825)~~

(...)

**~~'AMC5 FCL.615(b) IR — Theoretical knowledge and flight instruction~~**

~~DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES~~

~~Subject Human Performance (Competency-based modular training course (CBIR(A)) for instrument rating according to Appendix 6 Aa and en route instrument rating (EIR) course according to FCL.825)~~

(...)

**~~'AMC6 FCL.615(b) IR — Theoretical knowledge and flight instruction~~**

~~DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES~~

~~Subject Meteorology (Competency-based modular training course (CBIR(A)) for instrument rating according to Appendix 6 Aa and en route instrument rating (EIR) course according to FCL.825)~~

(...)

**~~'AMC7 FCL.615(b) IR — Theoretical knowledge and flight instruction~~**

~~DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES~~

~~Subject Radio Navigation (Competency-based modular training course (CBIR(A)) for instrument rating according to Appendix 6 Aa and en route instrument rating (EIR) course according to FCL.825)~~

(...)

**~~'AMC8 FCL.615(b) IR — Theoretical knowledge and flight instruction~~**

~~DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES~~



~~Subject IFR Communications (Competency based modular training course (CBIR(A)) for instrument rating according to Appendix 6 Aa and en route instrument rating (EIR) course according to FCL.825)~~

(...)

GM1 FCL.615(b) is amended as follows:

**'GM1 FCL.615(b) IR — Theoretical knowledge and flight instruction**

DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES FOR THE EIR AND CBIR(A)

The detailed theoretical knowledge syllabus is combined with the Learning Objectives (LOs).

(...)

(b) Subject 'Flight planning and flight monitoring'

(...)

(3) The ~~Jeppesen General Student Pilots' Training Route Manual (SPTRM)~~~~GSPRM~~, otherwise known as the ~~Training Route Manual (TRM)~~, contains planning data plus a ~~Aerodrome and a~~ Approach charts that may be used in theoretical knowledge training courses.'

**SUBPART H — CLASS AND TYPE RATINGS**

(...)

AMC1 FCL.720.A(b)(2)(i) 'Experience requirements and prerequisites for the issue of class or type ratings — aeroplanes' has been amended with the updated tables containing the course syllabi for VFR and IFR operations to reflect the revised syllabi and LOs:

**'AMC1 FCL.720.A(b)(2)(i) Experience requirements and prerequisites for the issue of class or type ratings — aeroplanes**

ADDITIONAL THEORETICAL KNOWLEDGE FOR A CLASS OR TYPE RATING FOR HIGH-PERFORMANCE SINGLE-PILOT (SP) AEROPLANES

(...)

**COURSE SYLLABUS**

(c) The course will be divided in a VFR and an IFR part, and should cover at least the following items of the aeroplane syllabus to the ATPL(A) level:

FOR VFR OPERATIONS:

Subject rRef.:	Syllabus cContent:
021 00 00 00	AIRCRAFT GENERAL KNOWLEGDE: AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT PLANT AND EMERGENCY EQUIPMENT
021-02-02-01 to 021-02-02-03	Alternating current: general Generators AC power distribution
021 09 01 03	Aternating current
021 09 03 00	Generation
021 09 03 02	AC generation
021 09 03 03	Constant speed drive (CSD) and integrated drive generator (IDG) systems



021 09 04 00 021 09 04 01 021 09 04 03  021 09 04 04	Distribution General AC distribution Electrical load management and monitoring systems: automatic generators and bus switching during normal and failure operation, indications and warnings
021-01-08-03 021 06 01 01	Pressurisation (Air driven systems – piston engines) Piston-engine air supply
021-01-09-04 021 06 01 02	Pressurisation (Air driven systems – turbojet and turbo-propeller) Gas turbine engine: bleed-air supply
021-03-01-06 021 10 10 01 021-03-01-07 021 11 03 01 021-03-01-08 021 10 04 01  021 03 01 09	Engine performance – piston engines Performance Power augmentation (turbo or supercharging) Engine fuel system Fuel Carburettor: design, operation, degraded modes of operation, indications and warnings Mixture
021-03-02-00 to 021-03-04-09 021 11 00 00 to 021 11 01 04	Turbine engines
021-04-05-00 021 13 00 00	Aircraft oxygen equipment Oxygen systems
<b>032 03 00 00</b>	<b>Performance class B: ME aeroplanes</b>
032-03-01-00 to 032-03-04-01 032 03 03 01 032 03 03 02 032 03 03 04 032 01 03 00 032 01 04 00 032 01 05 00 032 02 04 00	Performance of ME aeroplanes not certificated under CS and FAR 25: entire subject Take-off Climb Landing Level flight, range and endurance Climbing Descending Climb, cruise and descent
<b>040 00 00 00</b>	<b>HUMAN PERFORMANCE</b>
040 02 01 00 to 040 02 01 03	Basic human physiology and High-altitude environment
<b>050 00 00 00</b>	<b>METEOROLOGY</b>
050 02 07 00 to 050-02-08-01 050 02 05 00	Jet streams CAT  Standing waves
050 09 01 00 to 050 09 04 05	Flight hazards Icing and turbulence Thunderstorms
<b>062-02-00-00</b> <b>062 03 00 00</b>	<b>Basic radar principles</b>
062-02-01-00 to 062-02-05-00	Basic radar principles Airborne radar



062 03 00 01 to 062 03 04 00	SSR
<b>081 00 00 00</b>	<b>PRINCIPLES OF FLIGHT: AEROPLANES</b>
081 02 01 00 to 081 02 03 02	Transonic aerodynamics: entire subject Mach number or shock waves buffet margin or aerodynamic ceiling
081 02 01 00	Speeds
081 02 02 00	Shock waves
081 02 03 00	Effects of exceeding $M_{CRIT}$

## FOR IFR OPERATIONS

<b>Subject Ref.:</b>	<b>Syllabus Content:</b>
<b>010 00 00 00</b>	<b>AIR LAW</b>
010 06 07 00	Simultaneous operation on parallel or near-parallel instrument runways
010 06 08 00	Secondary surveillance radar (transponder) operating procedures
010 09 08 02	Radio altimeter operating areas
<b>022 00 00 00</b>	<b>AIRCRAFT GENERAL KNOWLEDGE — INSTRUMENTATION</b>
022 02 02 02	Temperature measurement — Design and operation
022 01 02 00	Temperature sensing
022 03 04 00	Flux valve
<b>022 12 00 00</b>	<b>ALERTING SYSTEMS, PROXIMITY SYSTEMS</b>
022 12 07 00	Altitude alert system
022 12 08 00	Radio-altimeter
022 12 10 00	ACAS/TCAS principles and operation
022 13 03 01	Electronic flight instrument system (EFIS) — Design, operation
<b>050 00 00 00</b>	<b>METEOROLOGY</b>
050 02 06 03	Clear-air turbulence (CAT) — Description, cause and location
050 10 02 03	Upper-air charts
<b>062 00 00 00</b>	<b>RADIO NAVIGATION</b>
062 02 05 04	ILS — Errors and accuracy
<b>062 02 06 00</b>	<b>MLS</b>
062 02 06 01 to 062 02 06 04	Principles Presentation and Interpretation, Coverage and range Error and accuracy

**SUBPART I — ADDITIONAL RATINGS**

AMC2 and GM1 to FCL.825(d) 'En-route instrument rating (EIR)' have been amended to reflect the changes proposed with this NPA:

**'AMC2 FCL.825(d) En-route instrument rating (EIR)****THEORETICAL KNOWLEDGE INSTRUCTION AND EXAMINATION****(a) GENERAL**

The theoretical knowledge instruction and examination is the same as for the instrument rating following the competency-based modular course according to Appendix 6 Section Aa.



## (b) THEORETICAL KNOWLEDGE

~~An~~The applicant should complete an approved competency-based IR(A) or EIR theoretical knowledge (TK) course. ~~The approved CBIR(A) or EIR TK course may contain computer-based training, e-learning elements, interactive video, slide/tape presentation, learning carrels and other media as approved by the authority, in suitable proportions. Approved distance learning (correspondence) courses may also be offered as part of the course. The minimum amount of classroom teaching, as required by ORA.ATO.305, has to be provided.~~ The approved CBIR(A) or EIR TK course hours should be divided between the subjects, as based on the ATO's systems course design, and agreed upon between the competent authority and the ATO.

The classroom training should include classroom work to address the subject. Depending on the available time, this may include but not be limited to: lessons, tutorials and demonstrations; planning, communications, group presentation and project exercises; computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

## (c) THEORETICAL KNOWLEDGE EXAMINATION

The number of questions per subject, the distribution of questions and the time allocated to each subject is detailed in ~~AMC2 ARA.FCL.300(b)~~ the revised AMC1 ARA.FCL.300(b).'

## 'GM1 FCL.825(d) En-route instrument rating (EIR)

## DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES FOR EIR

For the detailed theoretical knowledge syllabus and learning objectives, refer to ~~GM1 FCL.615(b)~~ AMC1 FCL.310;FCL.515(b);FCL.615(b);AMC1 FCL.615(b).'

**Appendix 3: TRAINING COURSES FOR THE ISSUE OF A CPL AND AN ATPL**

The text in AMC1 to Appendix 3 is proposed to be amended as follows:

**'AMC1 to Appendix 3 Training courses for the issue of a CPL and an ATPL**

(...)

**A. ATP integrated course: aeroplanes**

(...)

## THEORETICAL KNOWLEDGE

- (c) The minimum of 750 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.



The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, flat panel trainers (FPTs), part-task trainers (PTTs), flight navigation and procedures trainers (FNPTs), flight training devices (FTDs) and/or full flight simulators (FFSs). The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.

~~The 750 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer based training, and other media as approved by the competent authority, in suitable proportions.~~

~~The 750 hours of instruction should be divided in such a way that in each subject the minimum hours are:~~

<del>(1) Air law</del>	<del>40 hours</del>
<del>(2) Aircraft general knowledge</del>	<del>80 hours</del>
<del>(3) Flight performance and planning</del>	<del>90 hours</del>
<del>(4) Human performance and limitations</del>	<del>50 hours</del>
<del>(5) Meteorology</del>	<del>60 hours</del>
<del>(6) Navigation</del>	<del>150 hours</del>
<del>(7) Operational procedures</del>	<del>20 hours</del>
<del>(8) Principles of flight</del>	<del>30 hours</del>
<del>(9) Communications</del>	<del>30 hours</del>

~~Other subdivision of hours may be agreed upon between the competent authority and the ATO.'~~

(...)

#### **'B. ATP modular theoretical knowledge course: aeroplanes**

- (a) The aim of this course is to train pilots, who have not received the theoretical knowledge instruction during an integrated course, to the level of theoretical knowledge required for the ATPL.
- (b) ~~An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer based training and other media distance learning (correspondence) courses as approved by the competent authority.~~

An approved course, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.

Approved distance-learning courses may also be offered as part of the course with the classroom training meeting, as a minimum, the requirements of ORA.ATO.305.

The amount of time spent in actual classroom instruction should not be less than 10 % of the total duration of the course.



~~Approved distance learning (correspondence) courses may also be offered as part of the course.~~

- (c) The ATP modular course should be completed within 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.'

#### 'C. CPL/IR integrated course: aeroplanes

(...)

##### THEORETICAL KNOWLEDGE

- (c) ~~The 500 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the competent authority, in suitable proportions.~~

~~The 500 hours of instruction should be divided in such a way that in each subject the minimum hours are:~~

<del>(1) Air law</del>	<del>30 hours</del>
<del>(2) Aircraft general knowledge</del>	<del>50 hours</del>
<del>(3) Flight performance and planning</del>	<del>60 hours</del>
<del>(4) Human performance and limitations</del>	<del>15 hours</del>
<del>(5) Meteorology</del>	<del>40 hours</del>
<del>(6) Navigation</del>	<del>100 hours</del>
<del>(7) Operational procedures</del>	<del>10 hours</del>
<del>(8) Principles of flight</del>	<del>25 hours</del>
<del>(9) Communications</del>	<del>30 hours</del>

~~Other subdivisions of hours may be agreed upon between the competent authority and the ATO.~~

The minimum of 500 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices which may be used for practical work may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.'

(...)

#### 'D. CPL integrated course: aeroplanes

(...)

##### THEORETICAL KNOWLEDGE

- (c) ~~The 350 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the competent authority, in suitable proportions.~~





The minimum of 350 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.'

(...)

**'E. CPL modular course: aeroplanes**

- (a) The CPL modular course should be completed within 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.
- ~~(b) An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer-based training and other media distance learning (correspondence) courses as approved by the competent authority. Approved distance learning (correspondence) courses may also be offered as part of the course.~~

**THEORETICAL KNOWLEDGE**

- ~~(c) The 250 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer based training, and other media as approved by the competent authority, in suitable proportions.~~
- (b) The minimum of 250 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.

Approved distance-learning courses may also be offered as part of the course with the classroom training meeting, as a minimum, the requirements of ORA.ATO.305.

The amount of time spent in actual classroom instruction should not be less than 10 % of the total duration of the course.'



(...)

**'F. ATP/IR integrated course: helicopters**

(...)

**THEORETICAL KNOWLEDGE**

- (c) ~~The 750 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the competent authority, in suitable proportions.~~

~~The 750 hours of instruction should be divided in such a way that in each subject the minimum hours are:~~

<del>(1) Air law</del>	<del>40 hours</del>
<del>(2) Aircraft general knowledge</del>	<del>80 hours</del>
<del>(3) Flight performance and planning</del>	<del>90 hours</del>
<del>(4) Human performance and limitations</del>	<del>50 hours</del>
<del>(5) Meteorology</del>	<del>60 hours</del>
<del>(6) Navigation</del>	<del>150 hours</del>
<del>(7) Operational procedures</del>	<del>20 hours</del>
<del>(8) Principles of flight</del>	<del>30 hours</del>
<del>(9) Communications</del>	<del>30 hours</del>

~~Other subdivision of hours may be agreed upon between the competent authority and the ATO.~~

The minimum of 750 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.'

(...)

**'G. ATP integrated course: helicopters**

(...)

**THEORETICAL KNOWLEDGE**

- (c) ~~The 650 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the competent authority, in suitable proportions.~~

~~The 650 hours of instruction should be divided in such a way that in each subject the minimum hours are:~~



---

(1) Air law	30 hours
(2) Aircraft general knowledge	70 hours
(3) Flight performance and planning	65 hours
(4) Human performance and limitations	40 hours
(5) Meteorology	40 hours
(6) Navigation	120 hours
(7) Operational procedures	20 hours
(8) Principles of flight	30 hours
(9) Communications	25 hours

Other subdivision of hours may be agreed upon between the competent authority and the ATO.

The minimum of 650 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.'

(...)

#### 'H. ATP modular theoretical knowledge course: helicopters

(...)

- (b) ~~An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer based training and other media distance learning (correspondence) courses as approved by the competent authority. Approved distance learning (correspondence) courses may also be offered as part of the course.~~

An approved course, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.

Approved distance-learning courses may also be offered as part of the course with the classroom training meeting, as a minimum, the requirements of ORA.ATO.305.



The amount of time spent in actual classroom instruction should not be less than 10 % of the total duration of the course.

- (c) The ATP modular course should be completed within 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.'

#### 'I. CPL/IR integrated course: helicopters

(...)

##### THEORETICAL KNOWLEDGE

- (c) ~~The 500 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer based training, and other media as approved by the competent authority, in suitable proportions.~~

~~The 500 hours of instruction should be divided in such a way that in each subject the minimum hours are:~~

<del>(1) Air law</del>	<del>30 hours</del>
<del>(2) Aircraft general knowledge</del>	<del>50 hours</del>
<del>(3) Flight performance and planning</del>	<del>60 hours</del>
<del>(4) Human performance and limitations</del>	<del>15 hours</del>
<del>(5) Meteorology</del>	<del>40 hours</del>
<del>(6) Navigation</del>	<del>100 hours</del>
<del>(7) Operational procedures</del>	<del>10 hours</del>
<del>(8) Principles of flight</del>	<del>25 hours</del>
<del>(9) Communications</del>	<del>30 hours</del>

~~Other subdivision of hours may be agreed upon between the competent authority and the ATO.~~

The minimum of 500 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.'

(...)

#### 'J. CPL integrated course: helicopters

(...)

##### THEORETICAL KNOWLEDGE



- (c) ~~The 350 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer based training, and other media as approved by the competent authority, in suitable proportions.~~

~~The 350 hours of instruction should be divided in such a way that in each subject the minimum hours are:~~

<del>(1) Air law</del>	<del>25 hours</del>
<del>(2) Aircraft general knowledge</del>	<del>30 hours</del>
<del>(3) Flight performance and planning</del>	<del>25 hours</del>
<del>(4) Human performance and limitations</del>	<del>10 hours</del>
<del>(5) Meteorology</del>	<del>30 hours</del>
<del>(6) Navigation</del>	<del>55 hours</del>
<del>(7) Operational procedures</del>	<del>8 hours</del>
<del>(8) Principles of flight</del>	<del>20 hours</del>
<del>(9) Communications</del>	<del>10 hours</del>

~~Other subdivision of hours may be agreed upon between the competent authority and the ATO.~~

The minimum of 350 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.'

(...)

#### 'K. CPL modular course: helicopters

- (a) The CPL modular course should be completed within 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.
- ~~(b) An approved course should include formal classroom work and may include the use of facilities such as interactive video, slide or tape presentation, learning carrels and computer based training and other media distance learning (correspondence) courses as approved by the competent authority. Approved distance learning (correspondence) courses may also be offered as part of the course.~~

#### THEORETICAL KNOWLEDGE

- ~~(cb) The 250 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer based training, and other media as approved by the competent authority, in suitable proportions.~~

An approved course of a minimum of 250 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of



Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.

Approved distance-learning courses may also be offered as part of the course with the classroom training meeting, as a minimum, the requirements of ORA.ATO.305.

The amount of time spent in actual classroom instruction should not be less than 10 % of the total duration of the course.'

(...)

## Appendix 5: INTEGRATED MPL TRAINING COURSE

### 'GM1 to APPENDIX 5 Integrated MPL training course

(...)

#### THEORETICAL KNOWLEDGE INSTRUCTION

- (e) ~~The 750 hours of theoretical knowledge instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer based training, and other media as approved by the competent authority, in suitable proportions.~~

The minimum of 750 hours of training, which includes the development and assessment of the Area 100 KSA LOs, should be divided between the subjects, the interwoven LOs of Area 100 KSA, and the assessments, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom and practical work to address the subject and the Area 100 KSA LOs, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation, scenario and project exercises; practical work using training devices, computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

The training devices, which may be used for practical work, may be a tablet or laptop/desktop with applications or adaptive learning programmes, systems trainers, FPTs, PTTs, FNPTs, FTDs and/or FFSs. The instructors facilitating these practical exercises should have received the necessary ATO training to address the content of the exercise(s) and use or operate the training device(s) safely.'

(...)



**Appendix 6: MODULAR TRAINING COURSES FOR THE IR****'AMC1 to Appendix 6 Modular training courses for the IR**

ALL MODULAR FLYING TRAINING COURSES FOR THE IR, EXCEPT COMPETENCY-BASED MODULAR FLYING TRAINING COURSE

- (a) The theoretical knowledge instruction may be given at an ATO conducting theoretical knowledge instruction only, in which case the head of training (HT) of that organisation should supervise that part of the course.
- (b) ~~The 150 hours of theoretical knowledge instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer based training, and other media as approved by the competent authority, in suitable proportions. Approved distance learning (correspondence) courses may also be offered as part of the course.~~

The minimum of 150 hours of training should be divided between the subjects, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom work to address the subject, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation and project exercises; computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

Approved distance-learning courses may also be offered as part of the course with the classroom training meeting, as a minimum, the requirements of ORA.ATO.305.'

(...)

**'AMC3 to Appendix 6 Modular training courses for the IR****SECTION Aa IR(A) — COMPETENCY-BASED MODULAR FLYING TRAINING COURSE****(a) THEORETICAL KNOWLEDGE INSTRUCTION**

- (1) The theoretical knowledge instruction may be given at an ~~ATO approved training organisation~~ conducting theoretical knowledge instruction only, in which case the head of training of that ~~ATO organisation~~ should supervise that part of the course.
- (2) ~~The required theoretical knowledge instruction for the IR following the competency-based route may contain computer based training, e learning elements, interactive video, slide/tape presentation, learning carrels and other media as approved by the authority, in suitable proportions. Approved distance learning (correspondence) courses may also be offered as part of the course. The minimum amount of classroom teaching has to be provided as required by ORA.ATO.305.~~ The hours required for the theoretical knowledge instruction for the IR following the competency-based training route should be divided between the subjects, as based on the ATO's systems course design and agreed upon between the competent authority and the ATO.

The classroom training should include classroom work to address the subject, such as but not limited to: lessons, tutorials and demonstrations; planning, communications, group presentation and project exercises; computer-based training, workbook exercises, assignments, airport and/or aviation industry field trips and other media training, as approved by the competent authority.

Approved distance-learning courses may also be offered as part of the course with the classroom training meeting, as a minimum, the requirements of ORA.ATO.305.



The amount of time spent in actual classroom instruction should not be less than 10 % of the total duration of the course.

(b) THEORETICAL KNOWLEDGE EXAMINATION

The applicant for the IR following the competency-based training route should pass an examination to demonstrate a level of theoretical knowledge appropriate to the privileges granted in the subjects further detailed in FCL.615(b). The number of questions per subject, the distribution of questions and the time allocated to each subject is detailed in AMC3 ARA.FCL.300(b).'

## Annex VI: Part-ARA

### Subpart GEN

AMC1 ARA.GEN.220(a)(5) has been amended to include the assessment for Area 100 KSA:

#### 'AMC1 ARA.GEN.220(a)(5) Record-keeping

##### PERSONS

Records related to personnel licences, certificates, ratings, authorisations or attestations issued by the competent authority should include, as a minimum:

- (a) the application for a licence, certificate, rating, authorisation or attestation or change to a licence, certificate, rating, authorisation or attestation;
- (b) documentation in support of the application for a licence, certificate, rating, authorisation or attestation or change to a licence, certificate, rating, authorisation or attestation, covering as applicable:

- (1) the course Area 100 KSA assessment;
- (2) theoretical examination(s);
- (3) skill test(s);
- (4) proficiency check(s); and
- (5) certificates attesting the required experience;

(...)

### Subpart FCL

The tables in AMC1 ARA.FCL.300(b) have been amended to reflect the amendments to the LOs proposed with this NPA, as described below. They include the revised tables of the currently applicable AMC2 ARA.FCL.300(b) 'Examination procedures — Theoretical knowledge examinations for the en-route instrument rating (EIR) and the instrument rating (IR) obtained through the competency-based modular training course'.

The revised AMC1 ARA.FCL.300(b) should become applicable only after the end of the transition period proposed with this NPA. Until that date, the existing AMC1 and AMC2 to ARA.FCL.300(b) would continue to apply.

#### 'AMC1 ARA.FCL.300(b) Examination procedures

##### THEORETICAL KNOWLEDGE EXAMINATIONS FOR PROFESSIONAL LICENCES AND INSTRUMENT RATINGS





With regard to the IR(A), CBIR(A) and EIR, this table applies these tables apply to theoretical knowledge examinations for applicants who have completed the appropriate elements of theoretical knowledge instruction of a modular training course for the IR(A) according to Appendix 6 Section A, for the CBIR(A) according to Appendix 6 Section Aa, and for the EIR according to FCL.825.

Subject 010 — AIR LAW							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	1:00	0:45	1:00	0:45	0:45	0:45	0:30
Distribution of questions with regard to the topics of the syllabus							
010 01	03 02	02	03 02	03 02	02	XX	XX
010 02	02 01	02 01	02 01	02 01	02 01	XX	XX
010 03	01 XX	01 XX	01 XX	01 XX	01 XX	XX	XX
010 04	02 01	02 01	02 01	02 01	02 01	01	01
010 05	08 09	08 09	08 09	08 09	08 09	08	05
010 06	07 10	04 05	07 10	03 05	04 05	07	06
010 07	05	03	05	03	03	05	03
010 08	02 01	02 01	02 01	02 01	02 01	02	01
010 09	06 10	04 06	06 10	04 06	04 06	06	02
010 10	02 01	01	02 01	01	01	XX	XX
010 11	02 01	02 01	02 01	02 01	02 01	XX	XX
010 12	02	01 02	02	01 02	01 02	XX	XX
010 13	02 01	01	02 01	01	01	XX	XX
Total number of questions	44	33	44	33	33	29	18



Subject 021 — AIRCRAFT GENERAL KNOWLEDGE — AIRFRAME/SYSTEMS/POWER PLANT							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	2:00	1:30	2:00	2:00	1:30	XX	XX
Distribution of questions with regard to the topics of the syllabus							
021 01	04 02	02 01	04 02	04 02	02 01	XX	XX
021 02	04 02	04 02	04 02	04 02	02 01	XX	XX
021 03	05 04	02 03	04 03	04 03	03	XX	XX
021 04	05	06 04	04 03	04 03	02	XX	XX
021 05	07 10	04 06	06 08	06 08	03 05	XX	XX
021 06	05 04	04 02	04 02	04 02	02	XX	XX
021 07	04 02	04 02	02	02	02	XX	XX
021 08	06 04	04 03	04	04	04 02	XX	XX
021 09	06 20	06 12	06 16	06 16	04 10	XX	XX
021 10	06 04	14 12	06 05	06 05	08 10	XX	XX
021 11	20 19	06 11	20 18	20 18	13 12	XX	XX
021 12	04 02	02 01	02	02	02 01	XX	XX
021 13	04 02	02 01	XX	XX	XX	XX	XX
021 14	XX	XX	01	01	01	XX	XX
021 15	XX	XX	04 03	04 03	03 02	XX	XX
021 16	XX	XX	06	06	05 04	XX	XX
021 17	XX	XX	03	03	04 02	XX	XX
Total number of questions	80	60	80	80	60	XX	XX



Subject 022 — AIRCRAFT GENERAL KNOWLEDGE — INSTRUMENTATION							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	1:30	1:00	1:30	1:30	1:00	0:30	0:20
Distribution of questions with regard to the topics of the syllabus							
022 01	08 06	08 06	08 07	08 07	08 06	XX	XX
022 02	08	06 08	08	08	06 08	06 04	05
022 03	04 02	04 02	04 03	04 03	04 02	04 02	01
022 04	04	05 04	06 04	06 04	05 04	04 02	04 02
022 05	05 XX	XX	03 XX	03 XX	XX	XX	XX
022 06	08 12	06 08	XX	XX	XX	XX 02	XX
022 07	XX	XX	14	14	08 10	XX	XX
022 08	03 04	02	XX	XX	XX	XX	XX
022 09	02 04	XX	XX	XX	XX	XX	XX
022 10	02	XX	XX	XX	XX	XX	XX
022 11	04 06	XX	04 06	04 06	XX	XX 02	XX
022 12	06	04 05	06 07	06 07	04 06	03 05	XX
022 13	04	04	05 06	05 06	04	03	03
022 14	01	XX 01	01 04	01 04	XX	XX	XX
022 15	01	XX	01	01	XX	XX	01
Total number of questions	60	39 40	60	60	39 40	20	12



Subject 031 — FLIGHT PERFORMANCE AND PLANNING — MASS AND BALANCE							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	1:00	1:00	1:00	1:00	1:00	XX	XX
Distribution of questions with regard to the topics of the syllabus							
031 01	03	03	03	03	03	XX	XX
031 02	<del>05</del> 08	<del>05</del> 08	<del>05</del> 08	<del>05</del> 08	<del>05</del> 08	XX	XX
031 03	<del>05</del> XX	<del>05</del> XX	<del>05</del> XX	<del>05</del> XX	<del>05</del> XX	XX	XX
031 04	<del>05</del> 03	<del>05</del> 03	<del>05</del> 03	<del>05</del> 03	<del>05</del> 03	XX	XX
031 05	<del>05</del> 09	<del>05</del> 09	<del>05</del> 09	<del>05</del> 09	<del>05</del> 09	XX	XX
031 06	02	02	02	02	02	XX	XX
Total number of questions	25	25	25	25	25	XX	XX

Subject 032 — FLIGHT PERFORMANCE AND PLANNING — PERFORMANCE (AEROPLANES)							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	<del>1:30</del> 1:00	<del>1:00</del> 0:45	XX	XX	XX	XX	XX
Distribution of questions with regard to the topics of the syllabus							
032 01	<del>05</del> 12	<del>05</del> 12	XX	XX	XX	XX	XX
032 02	<del>10</del> 06	10	XX	XX	XX	XX	XX
032 03	<del>10</del> 03	<del>10</del> 06	XX	XX	XX	XX	XX
032 04	<del>10</del> 18	XX	XX	XX	XX	XX	XX
032 05	06	XX	XX	XX	XX	XX	XX
Total number of questions	<del>35</del> 45	<del>25</del> 28	XX	XX	XX	XX	XX



Subject 033 — FLIGHT PERFORMANCE AND PLANNING — FLIGHT PLANNING AND MONITORING							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	2:00	1:30	2:00	1:30	1:30	1:30	0:40 1:10
Distribution of questions with regard to the topics of the syllabus							
033 01	05 06	05 10	05 07	05 10	05 10	XX	XX
033 02	10	XX 02	10	XX 02	XX 02	10 13	10 12
033 03	10 11	10	10 11	10	10	05 07	04 05
033 04	08 07	08 02	08 06	08 02	08 02	08 02	07 02
033 05	05 01	05 01	05 01	05 01	05 01	05 01	05 01
033 06	05 08	05 08	05 08	05 08	05 08	05 10	06
Total number of questions	43	33	43	33	33	33	26

Subject 034 — FLIGHT PERFORMANCE AND PLANNING — PERFORMANCE (HELICOPTERS)							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	XX	XX	1:00	1:00	0:45	XX	XX
Distribution of questions with regard to the topics of the syllabus							
034 01	XX	XX	15	15	15	XX	XX
034 02	XX	XX	05	05	05	XX	XX
034 03	XX	XX	05	05	XX	XX	XX
034 04	XX	XX	10	10	XX	XX	XX
Total number of questions	XX	XX	35	35	20	XX	XX



Subject 040 — HUMAN PERFORMANCE							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	1:00	0:45	1:00	1:00	0:45	0:45	0:20
Distribution of questions with regard to the topics of the syllabus							
040 01	<del>02</del> 04	<del>01</del> 03	<del>02</del> 04	<del>02</del> 04	<del>01</del> 03	<del>01</del> 03	01
040 02	<del>33</del> 24	<del>26</del> 18	<del>33</del> 24	<del>33</del> 24	<del>26</del> 18	<del>26</del> 18	07
040 03	<del>13</del> 20	<del>09</del> 15	<del>13</del> 20	<del>13</del> 20	<del>09</del> 15	<del>09</del> 15	04
Total number of questions	48	36	48	48	36	36	12



Subject 050 — METEOROLOGY							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	2:00	1:30	2:00	2:00	1:30	1:30	0:40 0:50
Distribution of questions with regard to the topics of the syllabus							
050 01	11 07	09 06	11 07	11 07	09 06	09 06	05
050 02	11 10	06	11 10	11 10	06	06	03
050 03	04 03	04 03	04 03	04 03	04 03	04 03	01
050 04	07 09	06 08	07 09	07 09	06 08	06 08	05
050 05	03 02	03 01	03 02	03 02	03 01	03 01	03
050 06	07	07	07	07	07	07	05
050 07	06 07	02	06 07	06 07	02	02	XX
050 08	08	03	08	08	03	03	01
050 09	11 13	09 13	11 13	11 13	09 13	09 13	07
050 10	16 18	14	16 18	16 18	14	14	05
Total number of questions	84	63	84	84	63	63	35



Subject 061 — GENERAL NAVIGATION							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	<del>2:00</del> 1:30	1:30	<del>2:00</del> 1:30	<del>2:00</del> 1:30	1:30	XX	XX
Distribution of questions with regard to the topics of the syllabus							
061 01	<del>12</del> 30	<del>07</del> 22	<del>12</del> 30	<del>12</del> 30	<del>07</del> 22	XX	XX
061 02	<del>04</del> 04	<del>04</del> 05	<del>04</del> 05	<del>04</del> 05	<del>04</del> 05	XX	XX
061 03	<del>14</del> 05	<del>12</del> 05	<del>14</del> 05	<del>14</del> 05	<del>12</del> 05	XX	XX
061 04	<del>16</del> 10	<del>11</del> 08	<del>16</del> 10	<del>16</del> 10	<del>11</del> 08	XX	XX
061 05	<del>14</del> 05	<del>11</del> 05	<del>14</del> 05	<del>14</del> 05	<del>11</del> 05	XX	XX
061 06	06	XX	XX	XX	XX	XX	XX
Total number of questions	60	45	60	60	45	XX	XX

Subject 062 — RADIO NAVIGATION							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	1:30	0:30	1:30	1:00	0:30	1:00	0:40
Distribution of questions with regard to the topics of the syllabus							
062 01	<del>07</del> 05	04	<del>07</del> 05	05	04	<del>02</del> 03	XX
062 02	<del>21</del> 22	<del>12</del> 11	<del>21</del> 22	<del>15</del> 20	<del>12</del> 11	<del>23</del> 22	<del>15</del> 13
062 03	<del>12</del> 11	02	<del>12</del> 11	08	02	05	03
062 04	XX	XX	XX	XX	XX	XX	XX
062 05	<del>10</del> XX	XX	<del>10</del> XX	XX	XX	<del>05</del> XX	<del>05</del> XX
062 06	<del>11</del> 15	<del>04</del> 05	<del>11</del> 15	<del>06</del> 11	<del>04</del> 05	<del>04</del> 08	<del>01</del> 04
062 07	<del>05</del> 13	XX	<del>05</del> 13	XX	XX	<del>05</del> 06	04
Total number of questions	66	22	66	<del>34</del> 44	22	44	24





Subject 070 — OPERATIONAL PROCEDURES							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	1:15	0:45	1:00	1:00	0:45	XX	XX
Distribution of questions with regard to the topics of the syllabus							
071 01	25 <del>20</del>	<del>18</del> 13	<del>18</del> 15	<del>18</del> 15	<del>14</del> 12	XX	XX
071 02	<del>20</del> 22	<del>12</del> 15	14	14	12	XX	XX
071 03	XX	XX	06	06	04	XX	XX
071 04	03	02	03	03	02	XX	XX
Total number of questions	45	30	38	38	30	XX	XX



Subject 081 — PRINCIPLES OF FLIGHT (AEROPLANES)							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	1:00	0:45	XX	XX	XX	XX	XX
Distribution of questions with regard to the topics of the syllabus							
081 01	<del>17</del> 13	<del>14</del> 12	XX	XX	XX	XX	XX
081 02	<del>06</del> 04	XX	XX	XX	XX	XX	XX
081 03	XX 08	XX 05	XX	XX	XX	XX	XX
081 04	<del>05</del> 04	<del>05</del> 03	XX	XX	XX	XX	XX
081 05	<del>04</del> 03	03	XX	XX	XX	XX	XX
081 06	03	03	XX	XX	XX	XX	XX
081 07	04	03	XX	XX	XX	XX	XX
081 08	05	<del>05</del> 04	XX	XX	XX	XX	XX
Total number of questions	44	33	XX	XX	XX	XX	XX



Subject 082 — PRINCIPLES OF FLIGHT (HELICOPTERS)							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)	CBIR(A) & EIR
Time allowed (hours)	XX	XX	1:00	1:00	1:00	XX	XX
Distribution of questions with regard to the topics of the syllabus							
082 01	XX	XX	05	05	05	XX	XX
082 02	XX	XX	03	03	03	XX	XX
082 03	XX	XX	01	01	01	XX	XX
082 04	XX	XX	12	12	12	XX	XX
082 05	XX	XX	10	10	10	XX	XX
082 06	XX	XX	05	05	05	XX	XX
082 07	XX	XX	05	05	05	XX	XX
082 08	XX	XX	03	03	03	XX	XX
Total number of questions	XX	XX	44	44	44	XX	XX



Subject 091 090 — VFR AND IFR COMMUNICATION							
Theoretical knowledge examination							
Exam length, total number of questions, and distribution of questions							
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & H)	CBIR(A) & EIR
Time allowed (hours)	00:30 00:45	00:30 00:45	00:30 00:45	00:30 00:45	00:30 00:45	00:30 00:45	00:30 00:45
Distribution of questions with regard to the topics of the syllabus							
090 01	05	05	05	05	05	XX 05	XX 05
090 02	11 16	11 16	11 16	11 16	11 16	XX 16	XX 16
090 03	02	02	02	02	02	XX 02	XX 02
090 04	02 04	02 04	02 04	02 04	02 04	XX 04	XX 04
090 05	02	02	02	02	02	XX 02	XX 02
090 06	02 04	02 04	02 04	02 04	02 04	XX 04	XX 04
090 07	02	02	02	02	02	XX 02	XX 02
090 08	01	01	01	01	01	XX 01	XX 01
Total number of questions	24 36	24 36	24 36	24 36	24 36	XX 36	XX 36

Subject: 092 – IFR COMMUNICATION						
Theoretical knowledge examination						
Exam length, total questions and distribution of questions						
	ATPL(A)	CPL(A)	ATPL(H)/IR	ATPL(H)	CPL(H)	IR(A) & (H)
Time allowed (hours)	00:30	XX	00:30	XX	XX	00:30
Distribution of questions with regard to the topics of the syllabus						
092-01	05	XX	05	XX	XX	05
092-02	11	XX	11	XX	XX	11
092-03	02	XX	02	XX	XX	02
092-04	02	XX	02	XX	XX	02
092-05	02	XX	02	XX	XX	02
092-06	02	XX	02	XX	XX	02
092-07	XX	XX	XX	XX	XX	XX
Total questions	24	XX	24	XX	XX	24



AMC2 ARA.FCL.300(b) 'Examination procedures — Theoretical knowledge examinations for the en-route instrument rating (EIR) and the instrument rating (IR) obtained through the competency-based modular training course' is proposed to be deleted, as its updated content has been incorporated into the tables in AMC1 ARA.FCL.300(b) above.

#### **~~AMC2 ARA.FCL.300(b) — Examination procedures~~**

~~THEORETICAL KNOWLEDGE EXAMINATIONS FOR THE EN-ROUTE INSTRUMENT RATING (EIR) AND THE INSTRUMENT RATING (IR) OBTAINED THROUGH THE COMPETENCY-BASED MODULAR TRAINING COURSE~~

~~The following tables contain the number of questions, the distribution of questions related to the different syllabus topics and the time allowed for the theoretical knowledge examination.~~

<b>Subject: 010 — AIR LAW</b>	
Theoretical knowledge examination	
Exam length and total questions	
	EIR FCL.825 & IR(A) Appendix 6 Aa
Time allowed	0:30
Distribution of questions with regard to the topics of the syllabus	
010-04	01
010-05	05
010-06	06
010-07	03
010-08	01
010-09	02
Total questions	18

<b>Subject: 022 — AIRCRAFT GENERAL KNOWLEDGE — INSTRUMENTATION</b>	
Theoretical knowledge examination	
Exam length and total questions	
	EIR FCL.825 & IR(A) Appendix 6 Aa
Time allowed	0:20
Distribution of questions with regard to the topics of the syllabus	
022-02	05
022-04	04
022-13	03
Total questions	12

<b>Subject: 033 — FLIGHT PERFORMANCE AND PLANNING — FLIGHT PLANNING AND MONITORING</b>	
Theoretical knowledge examination	
Exam length and total questions	
	EIR FCL.825 & IR(A) Appendix 6 Aa
Time allowed	0:40



Distribution of questions with regard to the topics of the syllabus	
033-02	10
033-03	4
033-04	7
033-05	5
Total questions	26

Subject: 040 — HUMAN PERFORMANCE	
Theoretical knowledge examination	
Exam length and total questions	
	EIR FCL 825 & IR(A) Appendix 6 Aa
Time allowed	0:20
Distribution of questions with regard to the topics of the syllabus	
040-01	01
040-02	07
040-03	04
Total questions	12

Subject: 050 — METEOROLOGY	
Theoretical knowledge examination	
Exam length and total questions	
	EIR FCL 825 & IR(A) Appendix 6 Aa
Time allowed	0:50
Distribution of questions with regard to the topics of the syllabus	
050-01	05
050-02	03
050-03	01
050-04	05
050-05	03
050-06	05
050-08	01
050-09	07
050-10	05
Total questions	35



Subject: 062 — RADIO NAVIGATION	
Theoretical knowledge examination	
Exam length and total questions	
	EIR FCL.825 & IR(A) Appendix 6 Aa
Time allowed	0:40
Distribution of questions with regard to the topics of the syllabus	
062-02	15
062-03	03
062-05	05
062-06	01
Total questions	24

Subject: 092 — IFR COMMUNICATION	
Theoretical knowledge examination	
Exam length and total questions	
	EIR FCL.825 & IR(A) Appendix 6 Aa
Time allowed	0:30
Distribution of questions with regard to the topics of the syllabus	
092-01	05
092-02	10
092-03	02
092-04	02
092-05	02
092-06	02
Total questions	23



## Annex VII: Part-ORA

### Subpart ATO

AMC1 ORA.ATO.230(a) is proposed to be amended as follows:

#### **'AMC1 ORA.ATO.230(a) Training manual and operations manual**

##### TRAINING MANUAL

Training manuals for use at an ATO conducting integrated or modular flight training courses should include the following:

(...)

(d) Theoretical knowledge instruction

(...)

(6) Review procedure	(...)
(7) Appendices	<p>(i) The assessment form for each exercise showing at least the average core competency levels achieved;</p> <p>(ii) The Area 100 KSA course assessment form should include the mental maths assessment score and the overall seven core competency grades determined from the ATO's Area 100 KSA assessments. This form should be completed and a certified copy sent to the student pilot's competent authority before the student pilots sit their last subject exam(s) at their first attempt; and</p> <p>(iii) An example of the KSA mental maths assessment (written or oral). The assessment format, which should include at least 35 questions, may be written or oral, and the method of delivery should be stated.'</p>

A new AMC2 to ORA.ATO.230(a), which provides course design requirements, is proposed as follows:

#### **'AMC2 ORA.ATO.230(a) Training manual and operations manual**

##### THEORETICAL KNOWLEDGE COURSE DESIGN REQUIREMENTS

(a) An ATO delivering theoretical knowledge training for professional pilot licences should ensure that:

- (1) courses are designed and developed using a systems design methodology, which is supported by a robust and effective management system;
- (2) courses include a standardised and dynamic assessment and testing system; the Area 100 KSA assessments and mental maths test(s) should cover the Area 100 KSA LOs and be based on ATO norms that should be equal to or exceed the minimum Area 100 KSA standard specified in GM2 ORA.ATO.230;
- (3) each instructor should receive training and be assessed to comply as a minimum with AMC1 FCL.920; prepare resources, create a climate conducive to learning, and present knowledge; integrate threat and error management (TEM) and/or crew resource management (CRM) into courses and facilitate learning, with additional training in the content of the subject(s) that they teach and the core competencies;





- (4) each instructor using training devices, or facilitating students who are trained in using training devices, should receive training to ensure that they understand the content and aims of the exercise(s), how to facilitate the exercise(s), and how to use or operate the training devices safely and appropriately;
- (5) the instructor training specified in (3) and (4), if required, above should form part of the initial instructor training at that ATO, and recurrent training should be conducted thereafter at least annually;
- (6) assessors of the Area 100 KSA assessments should receive initial training, standardisation training, and be monitored to ensure that the grades they award are consistent with those of the other assessors at the ATO. In addition to the elements of paragraph (3) above, the training and assessment of the assessor should include familiarisation with the KSA indicators and the ATO's word pictures for grading and the accurate use of the relevant KSA indicators and grading system in either at least two live assessments of each exercise to be supervised by another assessor, or at least three live co-assessments of each exercise to be conducted by two or more assessors undergoing training;
- (7) recurrent assessor training and assessment should be conducted in each KSA exercise relevant to that assessor at least annually to ensure continued inter-rater reliability.'

A new AMC3 to ORA.ATO.230(a), which provides the Area 100 KSA training and assessment requirements, is proposed as follows:

**'AMC3 ORA.ATO.230(a) Training manual and operations manual**

**AREA 100 KSA TRAINING AND ASSESSMENT**

The training manual should include the following elements regarding the theoretical knowledge training and assessment of the Area 100 KSA LOs:

- (a) The positions, or range of positions, of the training exercises or exercise assessments, including the oral or written scenario KSA maths assessment in the training programme;
- (b) A description of the training exercises and/or assessments, including a matrix which shows which Area 100 KSA LOs are covered in each assessment;
- (c) The position of the mental maths KSA assessment: the minimum score for the KSA mental maths assessment should be 75 % — however, a higher pass mark may be defined as the norm;
- (d) The grading system of the Area 100 KSA assessments and the ATO norm(s), which should be equal to or exceed the minimum standard provided in GM2 ORA.ATO.230(a), together with higher core competency level grades to promote and encourage the development of those students exceeding the ATO norm; and
- (e) The method to further develop a student, who performs below the standard or ATO norm(s), in an assessment and the point of reassessment.

The ATO should provide a minimum of five Area 100 KSA assessments. These assessments should be designed so that overall they cover all Area 100 KSA LOs.

*Note:* An example of a numerical grading system based on indicators and word pictures, which describes unacceptable and minimum standard, is provided in GM2 ORA.ATO.230(a).'



The new GM1 to ORA.ATO.230(a) proposes guidance on the assessment of the Area 100 KSA LOs:

**'GM1 ORA.ATO.230(a) Training manual and operations manual**

**ASSESSMENT OF STUDENT PILOTS IN AREA 100 KSA**

- (a) The assessment of student pilots in Area 100 KSA is expected to be conducted in single-event exercises. Where possible, the assessments are expected to be scenario-based and include individual, pair and group situations.
- (b) The assessments may include but not be limited to: written planning exercises combining multiple subjects, practical exercises using training devices, scenario-based oral board (viva), oral communications exercises, written assignments or project work, and preparation and delivery of group or individual presentations.
- (c) The assessments of the student pilots in Area 100 KSA should be conducted by a KSA assessor.
- (d) The assessment of student pilots in mental maths should cover all the Area 100 KSA LOs, and it may be written or oral. If the assessment is written, it should be invigilated; if it is oral, it should be conducted by a KSA mental maths assessor. An example of KSA maths assessment should be submitted with the training manual. The assessment(s) used by the ATO should be similar in structure and difficulty to the assessment submitted, should be dynamic, and driven by the ATO processes to ensure that the questions are reviewed/analysed for suitability and to ensure that compromised questions are removed or refreshed.
- (e) The assessments may be supplemented by an additional continuous KSA assessment conducted by ATO assessors (or assessor), who record (records) the core competencies displayed by the student over a specified period of time, module or stage of the theoretical knowledge course.'

The new GM2 to ORA.ATO.230(a) provides examples of word pictures to facilitate the assessment of student pilots for the examination for the new Area 100 KSA LOs and enable inter-rater reliability:

**'GM2 ORA.ATO.230(a) Training manual and operations manual**

**AREA 100 KSA WORD PICTURES**

'Word pictures', as introduced in evidence-based training, are a proven assessment tool that standardises student pilot core competencies. Word pictures may be used by an ATO for the assessment of the student pilot's core competencies for the Area 100 KSA LOs. This GM provides examples of how this can be achieved.

A word picture is a method of converting indicators, observed during an exercise or assessment, into a competency grade level. Word pictures typically describe five numerical grade levels which then enable standardisation of the assessment.

A word picture is normally constructed with elements containing:

- (a) HOW WELL the core competency was demonstrated in the exercise; together with
- (b) HOW MUCH assistance was required from the trainer assessor, which enables the assessment exercise to be used for further development as well as assessment;
- (c) HOW OFTEN and HOW MANY of the indicators were observed to enable
- (d) the OUTCOME (how successfully the exercise was achieved).

The advantage of word pictures is that they provide a meaningful and standard grading framework based on the core competencies, which could then be used across a student pilot's training to enable continuous relative assessment as their core competencies develop. They also provide data to enable identification of



individual, crew, class, instructor and ATO trends, which can be analysed in order to provide feedback for further improvement or development.

KSA indicators may be used for word pictures. KSA indicators are based on many of the indicators that will be assessed throughout the pilot's career, although in some cases they have been amended to apply to the ground training environment.

#### A. AREA 100 KSA ASSESSMENT INDICATORS

*Note:* In the table below, the 'KSA indicators' that are required to be observed in order to achieve the minimum EASA standard are written in roman. The indicators in italics and highlighted in yellow are examples of 'additional indicators' that may be observed during assessment.

Competence	Competence description	KSA indicators
Communication	Demonstrates effective oral, non-verbal and written communication skills in classroom exercise and assessment situations.	<ul style="list-style-type: none"> <li>— Communicates clearly, accurately and concisely in lessons and KSA exercises.</li> <li>— Listens actively and demonstrates understanding when receiving information.</li> <li>— Asks relevant and effective questions.</li> <li>— Communicates relevant concerns and intentions.</li> <li>— Correctly interprets non-verbal communication.</li> <li>— Uses appropriate eye contact, body movement and gestures that are consistent with and support verbal messages.</li> <li>— Adheres to behaviour and communication related to the 'adult' mode (i.e. is objective and not reactive or emotional).</li> <li>— Displays appropriate confidence in class, group and assessment situations.</li> <li>— Adheres to standard RT phraseology and procedures in communications exercises.</li> </ul>
Aircraft flight path management, automation	Demonstrates correct knowledge of systems and flight path automation.	<ul style="list-style-type: none"> <li>— Effectively initialises the flight management system (FMS) from a given flight plan.</li> <li>— Accurately describes the potential threats and errors related to inputting information from a flight plan into the control display unit (CDU) of an FMS.</li> <li>— Cross-checks, identifies and corrects any error when inputting data into the FMS.</li> <li>— <i>Controls the systems training device using automation in vertical and horizontal simulated flight as appropriate to the scenario.</i></li> <li>— Accurately describes and/or effectively demonstrates mode awareness including</li> </ul>



		<p>engagement, automatic mode transitions and mode reversion, using a systems training device or other effective method.</p> <ul style="list-style-type: none"> <li>— Uses the appropriate displays, range and information on a navigation display of a systems training device.</li> </ul>
Leadership and teamwork	Displays effective leadership and teamwork.	<ul style="list-style-type: none"> <li>— Creates or supports an atmosphere of open communication, and encourages effective team and class participation.</li> <li>— Takes initiative and gives directions when required.</li> <li>— <i>Admits mistakes and takes responsibility.</i></li> <li>— Anticipates and responds appropriately to other's needs.</li> <li>— <i>Communicates relevant concerns and intentions.</i></li> <li>— Gives and receives feedback constructively.</li> <li>— Demonstrates empathy and shows respect and tolerance for others.</li> <li>— <i>Engages others in exercises and, when appropriate, allocates activities fairly and appropriately according to abilities.</i></li> <li>— Addresses and resolves conflicts and disagreements in a constructive manner.</li> <li>— Displays self-control in all situations.</li> </ul>
Problem-solving and decision-making	<p>Accurately identifies risks and resolves problems.</p> <p>Uses the appropriate decision-making processes.</p>	<ul style="list-style-type: none"> <li>— Employs proper problem-solving strategies.</li> <li>— Identifies threats and potential errors.</li> <li>— Seeks accurate relevant information from appropriate sources.</li> <li>— Perseveres in working through problems during class and in exercise effectively, without negatively affecting others.</li> <li>— <i>Sets priorities appropriately.</i></li> <li>— Identifies and considers options effectively.</li> <li>— <i>Monitors, reviews, and adapts decisions as required.</i></li> <li>— Avoids, reduces or manages threats and errors in theoretical and/or practical situations. Identifies and manages risks effectively.</li> <li>— Identifies factors affecting the availability of time and uses this time appropriately for decision-making.</li> <li>— <i>Improvises when faced with unforeseeable</i></li> </ul>



		<i>circumstances to achieve an effective outcome.</i>
Situation awareness	Perceives and comprehends all the relevant information available, anticipates what could happen to affect the exercise or situations discussed in the classroom, and gives effective solutions to resolve the situation.	<ul style="list-style-type: none"> <li>Identifies threats, errors, and undesirable aircraft states in theoretical or practical exercises.</li> <li>Manages the situation for best safety or commercial outcomes in practical or scenario exercises.</li> <li><i>Identifies and assesses accurately the vertical and lateral position, and the anticipated flight path, of the systems training device during Area 100 KSA systems-based exercises (from instrumentation and charts).</i></li> <li>Identifies and assesses accurately the effects of stress, fatigue, and aviation lifestyle on situation awareness in case studies.</li> <li>Considers time and fuel.</li> <li><i>Maintains awareness of the people involved in the exercise and their capacity to perform as expected.</i></li> <li><i>Anticipates accurately what could happen, plans and stays ahead of the situation.</i></li> <li><i>Develops effective contingency plans based upon potential threats identified in the given scenarios.</i></li> <li>Recognises and suggests effective response to indications of reduced situation awareness in exercises and/or or during lesson discussions.</li> <li>Displays resilience during scenario or other exercises.</li> </ul>
Workload management (including resilience)	Manages available resources and/or time to efficiently prioritise and complete or perform tasks in a timely manner.	<ul style="list-style-type: none"> <li>Maintains self-control in all situations.</li> <li>Plans, prioritises and schedules tasks effectively.</li> <li>Manages time efficiently.</li> <li>Offers and accepts assistance, delegates when necessary, and asks for help early.</li> <li>Manages and recovers from interruptions, distractions, variations, and unexpected inputs effectively.</li> </ul>
Knowledge (includes UPRT)	Demonstrates correct and deep subject understanding, and is able to effectively relate this knowledge between subjects and apply the knowledge for effective threat and error	<ul style="list-style-type: none"> <li>Answers questions and makes appropriate comments in class and during exercises that show correct factual knowledge and understanding.</li> <li>Correctly and effectively relates knowledge between subjects.</li> <li>Correctly and effectively applies knowledge to lessons, exercises and assessments.</li> </ul>



	management.	<ul style="list-style-type: none"> <li>— Correctly and effectively applies knowledge to identify and manage threats and errors that could lead to a potential upset in lessons and in exercise and assessment scenarios.</li> <li>— Identifies a 'developing upset' and describes the required actions to recover in scenario situations.</li> <li>— Identifies the causes of and contributing factors to upsets in aircraft accident and incident reviews and in reported recovered situations or scenarios.'</li> </ul>
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## B. AREA 100 KSA WORD PICTURES GRADE LEVELS (USING KSA INDICATORS)

Competence	Level 1	Level 2 Minimum acceptable level	Level 3	Level 4	Level 5
<p>General description of the level of competence in relation to the KSA indicators.</p> <p>Can be applied to each core competency in the Area 100 KSA LOs (100 01 to 07).</p>	<p>The student occasionally shows the relevant KSA indicators.</p> <p>In an exercise the student cannot effectively complete the task without being told or shown how to complete an element or more of the exercise, or has a neutral or negative effect on the outcome.</p>	<p>The student regularly shows some of the relevant KSA indicators, taking an overall positive role in the exercise outcome or completion.</p> <p>In the exercise the student may require occasional prompting.</p>	<p>The student regularly shows most or all of the relevant KSA indicators, ensuring and achieving a positive outcome.</p> <p>The student rarely or occasionally requires hints.</p>	<p>The student consistently shows most or all of the relevant KSA indicators, which significantly enhances the successful outcome of the exercise.</p> <p>The student does not require any hints or prompts.</p>	<p>Not used in professional licence technical knowledge phase due to the KSA indicators being only a subset of the behavioural indicators.</p>
Example of numerical descriptors					
<p><b>How many</b> applicable indicators were observed:</p> <p>Few &lt; 35 %</p> <p>Some 35 % to &lt; 70 %</p> <p>Most 70 % to &lt; 100 %</p> <p>All All 100 %</p>					



## C. SUPPLEMENTARY AREA 100 KSA WORD PICTURES (EXAMPLES)

To supplement the above word pictures and based on the observed KSA indicators, an ATO may use a word picture that describes examples of each competence level. Below are two examples (for communication and knowledge). An ATO may decide to use supplementary word pictures to assist inter-rater reliability between assessors.

Communication	<p>The student's communication has a negative effect on the exercise or class.</p> <p>The student's communication is unclear or insufficient. The student may occasionally interrupt others, not listen or shows frustration or inappropriate non-objective communication. In class or exercises the student may occasionally ask unrelated or unclear questions, or in exercises may occasionally give unclear directions or make unclear comments. The student may write without structure or unclearly.</p>	<p>The student's communication is sufficient to complete the exercise satisfactorily.</p> <p>The student's communication is normally clear. The student listens to instructions but may occasionally be reticent to ask questions or make comments.</p> <p>Questions and comments are related but on occasions only tangentially.</p> <p>The student may rarely show under-confidence.</p>	<p>The student's communication has a positive effect on the exercise outcome.</p> <p>Explanations, discussions, directions and comments are normally structured and clear.</p> <p>The student listens actively. The student normally understands instructions given, and when unsure asks appropriate questions to seek clarity for deeper understanding or application.</p>	<p>The student's communication is consistently clear, concise and well-structured, which ensures an excellent and effective positive outcome.</p> <p>Verbal communication and body language is calm, confident, open and supportive.</p>	Not used.
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Knowledge	<p>The student has insufficient or incorrect knowledge to complete an exercise without occasional or regular assistance.</p> <p>The student displays limited ability to relate knowledge between subjects and/or to apply knowledge to scenarios, exercises or in answers to questions.</p>	<p>The student has the minimum acceptable level of knowledge to complete the exercise to a satisfactory standard.</p> <p>The student occasionally demonstrates the ability to relate between subjects and to identify threats and/or errors and then suggest a possible effective solution.</p>	<p>The student demonstrates a good level of knowledge with the ability to relate this knowledge effectively between subjects and in scenario exercises or situations.</p> <p>The student identifies threats and/or errors and manages them without assistance or with only minor assistance.</p>	<p>The student demonstrates an excellent level of knowledge, and immediately and correctly relates this understanding across subjects and in scenario situations.</p> <p>The student identifies threats and errors without hints and is able to manage them effectively.'</p>	Not used.
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The new GM3 to ORA.ATO.230(a) proposes guidance on the practical exercises for the Area 100 KSA:

**'GM3 ORA.ATO.230(a) Training manual and operations manual**

**AREA 100 KSA PRACTICAL EXERCISES**

- (a) Practical exercises that address the Area 100 KSA LOs should be interwoven within the course, integrate a range of subjects and, where relevant, require the application of threat and error management. The exercises should be scenario-based and should include individual, pair and group situation(s).
- (b) The practical exercises may include but not be limited to planning exercises combining multiple subjects; practical exercises using training devices; oral communication; written assignments and/or project work; and the preparation and delivery of group and/or individual presentations.
- (c) The practical exercise may also be the assessment.'

A new AMC1 to ORA.ATO.305 is proposed as follows:

**'AMC1 ORA.ATO.305 Classroom instruction**

**AREA 100 KSA ASSESSMENT**

- (a) At least two of the ATO assessments for the Area 100 KSA LOs in sections 100 01 to 100 07 inclusive should be conducted in the classroom instruction phase of the training.
- (b) Where an assessment (e.g. a planning, written, scenario or practical exercise) is conducted outside the classroom via distance learning, the ATO should demonstrate that the student themselves have completed the assessment and that the assessment method(s) for that particular exercise is (are) effective.'



## 4. References

### 4.1. Affected regulations

Not applicable

### 4.2. Affected AMC and GM

- Annex to ED Decision 2011/016/R of 15 December 2011 on Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council 'Acceptable Means of Compliance and Guidance Material to Part-FCL'
- Annex to ED Decision 2012/006/R of 19 April 2012 on Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1178/2011 of 3 November 2011<sup>16</sup> laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council 'Acceptable Means of Compliance and Guidance Material to Part-ARA'
- Annex to ED Decision 2012/007/R of 19 April 2012 on Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council 'Acceptable Means of Compliance and Guidance Material to Part-ORA'
- Annex to ED Decision 2014/020/R of 1 April 2014 amending Acceptable Means of Compliance and Guidance Material to Part-ARA of Commission Regulation (EU) No 1178/2011 'AMC and GM to Part-ARA — Amendment 2'
- Annex to ED Decision 2014/022/R of 1 April 2014 amending Acceptable Means of Compliance and Guidance Material to Part-FCL of Commission Regulation (EU) No 1178/2011 'AMC and GM to Part-FCL — Amendment 1'
- Annexes I and II to ED Decision 2016/008/R of 2 May 2016 amending the Acceptable Means of Compliance and Guidance Material to Part-FCL and Part-ARA of Commission Regulation (EU) No 1178/2011, as amended, and the AMC and GM to Part-ORO and Part-ARO of Commission Regulation (EU) No 965/2012, as amended 'Part-FCL (PBN) — Amendment 2; Part-ARA (PBN, ARA.MED) — Amendment 3; Part-FCL (Learning Objectives (LOs)) — Amendment 2'

### 4.3. Reference documents

- Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1),

<sup>16</sup> Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 (OJ L 311, 25.11.2011).



as amended by:

- Commission Regulation (EU) No 290/2012<sup>17</sup>;
  - Commission Regulation (EU) No 70/2014<sup>18</sup>; and
  - Commission Regulation (EU) No 245/2014<sup>19</sup>
- ECQB — Methodology (internal Agency document)
  - ECQB — Actions to improve and maintain the quality of the Question Bank (internal Agency document)
  - IATA Evidence-Based Training Implementation Guide, 1st Edition, July 2013
  - Jeppesen Airway Manual: Student Pilot Route Manual
  - NPA 2014-29 (D)(1) and (D)(2) (RMT.0189 (FCL.002)) and related stakeholders' comments

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<sup>17</sup> Commission Regulation (EU) No 290/2012 of 30 March 2012 amending Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 100, 5.4.2012, p. 1).

<sup>18</sup> Commission Regulation (EU) No 70/2014 of 27 January 2014 amending Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 23, 28.1.2014, p. 25).

<sup>19</sup> Commission Regulation (EU) No 245/2014 of 13 March 2014 amending Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew (OJ L 74, 14.3.2014, p. 33).

