

Annex I to ED Decision 2019/017/R

'Acceptable Means of Compliance and Guidance Material to Part-FCL¹ Amendment 8'

The Annex to Decision 2011/016/R of 15 December 2011 is hereby amended as follows:

- (a) deleted text is ~~struck through~~;
- (b) new or amended text is highlighted in grey;
- (c) an ellipsis '[...]' indicates that the rest of the text is unchanged.

1. AMC1 FCL.310; FCL.515(b); FCL.615(b) is amended as follows:

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

LEARNING OBJECTIVES FOR ATPL, CPL, IR, CB-IR(A) and EIR

[...]

Below is a table showing the short references to applicable legislation and standards:

Reference	Legislation/Standard
The Basic Regulation	Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 (as amended) (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018

[...]

DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LOs FOR ATPL, CPL, IR, CB-IR(A) and EIR

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, IR, CB-IR(A) and EIR.

For each topic in the detailed theoretical knowledge syllabus, one or more LOs are set out in the appendices as shown below:

[...]

— Appendix 090 ~~RADIO COMMUNICATIONS (RESERVED)~~

[...]

SUBJECT 010 — AIR LAW

[...]

010 01 04 01 European Union Aviation Safety Agency (EASA) Regulation (EU) ~~No 216/2008~~ 2018/1139

¹ Decision 2011/016/R of 14 December 2011.

010 01 04 01 (03)

State that the structure of the regulatory material related to EASA involves:

- hard law (regulations, delegated acts, implementing acts, and implementing rules);
- soft law (certification specifications, acceptable means of compliance, and guidance material).

010 01 04 01 (04)

State the meaning of the terminology associated with the structure of the regulatory material related to EASA regulations' structure, specifically: regulations, delegated acts, implementing acts, and implementing rules, as applicable until 11 September 2023; and certification specifications, acceptable means of compliance, and guidance material.

[...]

010 04 02 01 (02)

[...]

Source: Aircrew Regulation, point FCL.010 Definitions; Note: 'rating' is defined in Article 3 of Regulation (EC) No 216/2008 point 1.1 Definitions of ICAO Annex 1

[...]

010 04 02 02 (02)

[...]

Source: Regulation (ECU) No 216/2008/2018/1139, Article 721 and point 2 of Annex IV 'Essential requirements for aircrew' to this Regulation;

Aircrew Regulation, point FCL.015 Application and issue, revalidation and renewal of licences, ratings and certificates

[...]

010 05 06 01 (01)

List the possible reasons for intercepting circumstances in which interception of a civil aircraft may occur.

Source: SERA.11015 Interception; ICAO Doc 9433, 1.2 Circumstances in which interception may occur

[...]

010 06 02 01 Definitions and abbreviations — ICAO Doc 8168, Volume 1 Volume I

[...]

010 06 03 01 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part I-II, Section 2 1, Chapter 1, 1.1 General

010 06 03 01 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part I II, Section 3 2, Chapter 1, ~~1.3~~ Instrument departure procedure: ~~1.3.1;~~ ~~1.3.2;~~ ~~1.3.3~~ 3, Omnidirectional departures, 3.1.1; 3.1.2; 3.1.3

[...]

010 06 03 02 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part I II, Section 3 2, Chapter 2, 2.1 General; ~~2.2~~ 2.3 Straight Departures; ~~2.3~~ 2.4 Turning Departures (excluding maximum speeds)

[...]

010 06 03 03 (01)

Explain when what is the meaning of an 'omnidirectional method' is used for departure.

Source: ICAO Doc 8168, Volume I, Attachment B, paragraph 2.5

[...]

010 06 04 01 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part I II, Section 4 5, Chapter 1

010 06 04 01 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part I II, Section 4 5, Chapter 1, ~~1.2.2~~ 1.2.3 Segments of the approach procedure

010 06 04 01 (03)

[...]

Source: ICAO Doc 8168, Volume I, Part I II, Section 4 5, Chapter 1, ~~1.3~~ 1.4 Categories of aircraft

010 06 04 01 (04)

[...]

Source: ICAO Doc 8168, Volume I, Part I II, Section 4 5, Chapter 1, ~~1.2.3~~ 1.2.4 Types of approach

010 06 04 01 (05)

[...]

Source: ICAO Doc 8168, Volume I, Part I II, Section 4, Chapter 2 1, ~~1.2.3~~ 1.3 Minimum sector altitudes (MSA)/terminal arrival altitudes (TAA)

[...]

010 06 04 01 (07)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4, 2, Chapter 1, 1.2.1 External factors influencing the approach procedure

010 06 04 01 (08)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4 5, Chapter 1, 1.5 1.6 Obstacle clearance altitude/height (OCA/H)

010 06 04 01 (09)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4 5, Chapter 1, 1.6 1.7 Factors affecting operational minima

010 06 04 01 (10)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4 1, Chapters 1 and 2

010 06 04 01 (11)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4 5, Chapter 1 General requirements

[...]

010 06 04 02 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4 5, Chapter 1 General requirements

010 06 04 02 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4 1, Chapter 2 1, 1.3 Areas, 1.3.1

010 06 04 02 (04)

[...]

Source: ICAO Doc 8168, Volume I, Part I Attachment A, Section 2, Chapter 2, Table 1-2-2-1 A-2-1. System use accuracy (2 SD) of facility providing track guidance and facility not providing track guidance

010 06 04 02 (05)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 4 5, Chapter 1, 1.9 1.10 Descent gradient

[...]

010 06 04 03 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 1, 1.2 Instrument approach procedure

010 06 04 03 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 4 Arrival procedures, Chapter-2 1 Arrival segment General requirements

010 06 04 03 (03)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 3 Initial approach segment

010 06 04 03 (04)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 3 Initial approach segment

010 06 04 03 (05)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 4 Intermediate approach segment

010 06 04 03 (06)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 5 Final approach segment

010 06 04 03 (07)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 1 General requirements and Chapter 5 Final approach segment

010 06 04 03 (08)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 5 Final approach segment

010 06 04 03 (09)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter 5 Final approach segment

[...]

010 06 04 04 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-6 7 Missed approach segment

010 06 04 04 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-6 7 Missed approach segment

[...]

010 06 04 04 (04)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-6 7 Missed approach segment

010 06 04 04 (05) [...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-6 7 Missed approach segment

010 06 04 04 (06)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-6 7 Missed approach segment

010 06 04 04 (07)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-6 7 Missed approach segment

[...]

010 06 04 05 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 05 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 05 (03)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 05 (04)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 05 (05)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 05 (06)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 05 (07)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 05 (08)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section-4 5, Chapter-7 6 Visual manoeuvring (circling) area

010 06 04 06 RNAV approach procedures based on VOR/distance measuring equipment (DME) Intentionally left blank

Note: VOR and VOR/DME are covered under 062 02 03 00 and 062 02 04 00.

~~010 06 04 06 (01)~~

~~Describe the provisions that must be fulfilled before carrying out VOR/DME RNAV approaches.~~

~~**Source: ICAO Doc 8168, Volume I, Part II, Section 3, Chapter 3 010 06 04 06 (01)**~~

010 06 04 06 (02)

~~Explain the disadvantages of the VOR/DME RNAV system compared to a DME/DME RNAV approach.~~

~~**Source: ICAO Doc 8168, Volume I, Part II, Section 3, Chapter 3**~~

010 06 04 06 (03)

~~List the factors the navigational accuracy of the VOR/DME RNAV system depends on.~~

~~**Source: ICAO Doc 8168, Volume I, Part II, Section 3, Chapter 3**~~

010 06 04 06 (04)

~~State whether the VOR/DME RNAV approach is a precision or a non-precision procedure.~~

~~**Source: ICAO Doc 8168, Volume I, Part II, Section 3, Chapter 3**~~

The crosses will be deleted from the applicable columns of this table.

[...]

010 06 05 01 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6

010 06 05 01 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (03)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (04)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (05)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (06)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (07)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (08)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (09)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (10)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (11)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

010 06 05 01 (12)

[...]

Source: ICAO Doc 8168, Volume I, Part-I II, Section 6, Chapter 1

[...]

010 06 05 02 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 6, Chapter 2

010 06 05 02 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part I, Section 6, Chapter 2

[...]

010 06 06 00 Altimeter setting procedures — ICAO Doc 8168, Volume I

[...]

010 06 06 01 (01)

[...]

Source: ICAO Doc 8168, Volume I, Part III, Section 1, 2, Chapter 1

010 06 06 01 (02)

[...]

Source: ICAO Doc 8168, Volume I, Part III, Section 1, Chapter 2; ICAO Doc 8168, Volume III, Section 2, Chapter 1

010 06 06 01 (03)

[...]

Source: ICAO Doc 8168, Volume I, Part III, Section 1, 2, Chapter 2 1

[...]

010 06 06 01 (05)

[...]

Source: ICAO Doc 8168, Volume I, Part III, Section 1, 2, Chapter 2

010 06 06 01 (06)

[...]

Source: ICAO Doc 8168, Volume I, Part III, Section 1, 2, Chapter 2

010 06 06 01 (07)

[...]

Source: ICAO Doc 8168, Volume I, Part III, Section 1, 2, Chapter 2

[...]

010 06 06 01 (09)

[...]

Source: ICAO Doc 8168, Volume I, Part III, Section 1, 2, Chapter 2

010 06 06 01 (10)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

010 06 06 01 (11)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

[...]

010 06 06 01 (13)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

010 06 06 01 (14)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

[...]

010 06 06 01 (16)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

010 06 06 01 (17)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

010 06 06 01 (18)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 3

010 06 06 01 (19)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 3

010 06 06 01 (20)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

010 06 06 01 (21)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

010 06 06 01 (22)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 2

[...]

010 06 06 02 (01)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 3

010 06 06 02 (02)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 3

010 06 06 02 (03)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 3

010 06 06 02 (04)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 3

010 06 06 02 (05)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 1, 2, Chapter 3

[...]

010 06 07 01 (01)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 3, Chapter 1

010 06 07 01 (02)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 3, Chapter 1

010 06 07 01 (03)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 1, Chapter 1; ICAO Doc 4444, Chapter 6 (Note: For the dimensions of the NTZ)

010 06 07 01 (04)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 3, Chapter 1

010 06 07 01 (05)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 3, Chapter 1

010 06 07 01 (06)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 3, Chapter 1; ICAO Doc 4444, Chapter 6

010 06 07 01 (07)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 3, Chapter 1

010 06 07 01 (08)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 2, 3, Chapter 1

[...]

010 06 08 00 Secondary surveillance radar (transponder) operating procedures — ICAO Doc 8168, Volume I

[...]

010 06 08 01 (01)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

010 06 08 01 (02)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

010 06 08 01 (03)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

010 06 08 01 (04)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

010 06 08 01 (05)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

010 06 08 01 (06)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

010 06 08 01 (07)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

010 06 08 01 (08)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 1

[...]

010 06 08 02 (01)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.1 ACAS overview

010 06 08 02 (02)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

010 06 08 02 (03)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

010 06 08 02 (04)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

010 06 08 02 (05)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

010 06 08 02 (06)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

010 06 08 02 (07)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

010 06 08 02 (08)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

010 06 08 02 (09)

[...]

Source: ICAO Doc 8168, Volume I, III, Part III, Section 3, 4, Chapter 3, 3.2 Use of ACAS indications

[...]

010 07 01 03 (09)

[...]

**Source: ICAO Annex 11, Chapter 2, ~~2.11.4 Flight information regions or control areas in the upper airspace~~
2.11 Specifications for flight information regions, control areas and control zones**

[...]

010 08 02 01 (01)

Recall the following definitions: aeronautical information circular (AIC), aeronautical information publication (AIP), AIP amendment, AIP supplement, aeronautical information regulation and control (AIRAC), danger area, ~~integrated aeronautical information package~~ aeronautical information management, international airport, international NOTAM office (NOF), manoeuvring area, movement area, NOTAM, pre-flight information bulletin (PIB), prohibited area, restricted area, SNOWTAM, ASHTAM.

Source: ICAO Annex 15, Chapter 1, 1.1 Definitions

[...]

010 08 04 00 ~~Integrated aeronautical information package~~ Aeronautical information products and services

[...]

010 08 04 01 (01)

[...]

Source: ICAO Annex 15, ~~Chapter 4~~ Chapter 5, 5.2.2, Notes 1 and 2

010 08 04 01 (02)

[...]

Source: ICAO Annex 15, Chapter ~~4, 4.1 Contents~~ 5, 5.2.1, Note 1; PANS-AIM (ICAO Doc 10066), Chapter 5, 5.2.1.2.5

010 08 04 01 (03)

[...]

Source: ICAO Annex 15, ~~Appendix 1~~ Chapter 5, 5.2.1, Note 1; PANS-AIM (ICAO Doc 10066), Appendix 2

010 08 04 01 (04)

[...]

Source: ICAO Annex 15, ~~Chapter 4, 4.3 Specifications for AIP Amendments; ICAO Annex 15, Chapter 4, 4.5 Distribution~~ Chapter 5, 5.4 Distribution services and Chapter 6, 6.3.1 AIP updates, 6.3.1.2; PANS-AIM (ICAO Doc 10066), Chapter 5, 5.2.1 Aeronautical Information Publication (AIP), 5.2.1.3, 5.4 Distribution services, Chapter 6, 6.1.2 Specifications for AIP amendments

010 08 04 01 (05)

[...]

Source: ICAO Annex 15, Chapter 4, 4.4-6, 6.3.1 AIP updates, 6.3.1.3; PANS-AIM (ICAO Doc 10066), Chapter 5, 5.2.1.4 Specifications for AIP Supplements

[...]

010 08 04 02 (01)

[...]

Source: ICAO Annex 15, Chapter 5, 5.1.1 and Notes 1 and 2 6, 6.3.1.3, 6.3.2.1 and 6.3.2.2

010 08 04 02 (02)

[...]

Source: ICAO Annex 15, Chapter 5, 5.1.1.1 6, 6.3.2.3

010 08 04 02 (03) State to whom how NOTAMs shall be distributed.

Source: ICAO Annex 15, Chapter 5, 5.3.1 5.4.2

010 08 04 02 (04)

[...]

Source: ICAO Annex 15, Appendix 2 Chapter 5, 5.2.6 Note; PANS-AIM (ICAO Doc 10066), Appendix 4 Instructions for the completion of the SNOWTAM format

010 08 04 02 (05)

[...]

Source: ICAO Annex 15, Chapter 5, 5.2 General specifications; ICAO Annex 15, 5.3 5.4 Distribution services; ICAO Annex 15, Appendix 5 PANS-AIM (ICAO Doc 10066), 5.2.5 NOTAM, 5.2.5.1.3, and Appendix 7

010 08 04 02 (06)

[...]

Source: ICAO Annex 15, Appendix 3 Chapter 5, 5.2.6 Note; PANS-AIM (ICAO Doc 10066), Appendix 5 ASHTAM format

010 08 04 03 (01)

[...]

Source: ICAO Annex 15, Chapter 6, 6.2; ICAO Annex 15, Appendix 4 Information to be notified by AIRAC

[...]

010 08 04 04 (01)

[...]

Source: ICAO Annex 15, Chapter 7, 7.1 Origination 5, 5.2.4 Aeronautical Information Circulars; PANS-AIM (ICAO Doc 10066), Chapter 5, 5.2.2 Aeronautical Information Circulars (AIC)

010 08 04 04 (02)

[...]

Source: ICAO Annex 15, Chapter 7, 7.2 General specifications 5, 5.2.4, Note; PANS-AIM (ICAO Doc 10066), Chapter 5, 5.2.2 Aeronautical Information Circulars (AIC), 5.2.2.3 to 5.2.2.9

[...]

010 08 04 05 (01)

[...]

Source: ICAO Annex 15, Chapter 8, 8.1 Pre-flight information 5, 5.5 Pre-flight information service; PANS-AIM (ICAO Doc 10066), Chapter 5, 5.5 Pre-flight information services

010 08 04 05 (02)

[...]

Source: ICAO Annex 15, Chapter 8, 8.1 Pre-flight information 5, 5.5 Pre-flight information service, Note 2

010 08 04 05 (03)

[...]

Source: ICAO Annex 15, Chapter 8, 8.3 Post-flight information 5, 5.6 Post-flight information service

[...]

010 12 07 02 (01)

[...]

Source: ICAO Annex 6, Part I — International Commercial Air Transport — Aeroplanes, Chapter 13, 13.2 Security of the flight crew compartment

010 12 07 02 (01) does not apply to ATPL(H)/IR, ATPL(H), and CPL(H). The crosses will be deleted from the applicable columns of this table.

[...]

SUBJECT 021 — AIRCRAFT GENERAL KNOWLEDGE — AIRFRAME, SYSTEMS AND POWER PLANT

[...]

021 05 04 01 (02)

State the advantages and disadvantages of an FBW system in comparison with a conventional flight control system including:

- weight;
- pilot workload;
- flight-envelope protection.

[...]

021 05 04 01 (06)

Describe the implications for pilot workload during flight in normal operation (normal law/normal mode) during the following scenarios:

- an undetected system error activates the envelope protection;
- aircraft departs from intended flight path;
- aircraft does not respond as expected to control inputs. Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

021 05 04 01 (08)

~~Describe solutions or actions to regain control.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

The following new learning objectives are added in Subject 021:

021 05 04 01 (09)

Explain why several types of computers are needed and why they should be dissimilar.

This LO applies to ATPL(A) and CPL(A) and crosses will be inserted in the applicable column in the table.

021 05 04 01 (10)

Explain why several control surfaces on every axis are needed on FBW aircraft.

This LO applies to ATPL(A) and CPL(A) and crosses will be inserted in the applicable column in the table.

021 05 04 01 (11)

Explain why several sensors are needed on critical parameters.

This LO applies to ATPL(A) and CPL(A) and crosses will be inserted in the applicable column in the table.

[...]

021 09 05 02 (01)

Describe how the torque of an electrical motor is determined by the supplied voltage and current, and the resulting magnetic fields within the ~~engine~~ motor.

[...]

021 10 10 01 (10)

Explain the purpose of a supercharger and the basic differences from a turbocharger.

This LO applies to ATPL(A), CPL(A), ATHP(H)/IR, ATPL(H)/VFR, and CPL(H) and crosses will be inserted in the applicable column in the table.

[...]

SUBJECT 022 — AIRCRAFT GENERAL KNOWLEDGE — INSTRUMENTATION

[...]

022 06 03 01 (04)

Explain why the flight director must be followed when engaged/shown, and describe the appropriate use of the flight director:

- flight director only;
- autopilot only;
- flight director and autopilot;

- typical job-share between pilots (pilot flying (PF)/pilot monitoring (PM)) for selecting the parameters when autopilot is engaged versus disengaged;
- highlight when the flight director should not be followed or should be disengaged.

[...]

SUBJECT 031 — FLIGHT PERFORMANCE AND PLANNING: MASS AND BALANCE — AEROPLANES/HELICOPTERS

[...]

031 04 01 07 (02)

Explain and calculate aircraft CG movement as flight progresses given location of fuel tank (inner wing, outer wing, central, additional aft central, horizontal stabiliser) and mass of fuel consumed from that tank and aeroplane's previous CG.

[...]

031 05 02 04 (08)

Explain the relationship between pitch control and CG position and the operational significance.

[...]

031 05 02 06 (01)

Describe and extract information from other methods of presenting load and balance information, e.g. aircraft communications addressing and reporting system (ACARS), electronic flight bags (EFBs), and the 'less paper in the cockpit' (LPC) software.

[...]

SUBJECT 032 — AIRCRAFT PERFORMANCE

[...]

032 04 06 04 (01) Describe how break brake temperature limits the turnaround times.

[...]

SUBJECT 033 — FLIGHT PLANNING AND MONITORING

[...]

033 04 02 02 (01)

For this LO, the 'X' are deleted from the columns ATPL(H)/IR, ATPL(H)/VFR and CPL(H) and from the column for IR(A/H).

SUBJECT 040 — HUMAN PERFORMANCE

[...]

040 03 01 01 (02) Differentiate between 'selected', 'selective' and 'divided' attention.

[...]

040 03 04 04 (04)

Explain the four elements of a great speech:

~~— a great person;~~

~~— a noteworthy event;~~

~~— a compelling message;~~

~~— a masterful delivery.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

SUBJECT 061 — GENERAL NAVIGATION

The text and table below are inserted into the preamble, before the section on MDR triangle of velocities (TOV):

Alternately, for XWC and TWC/HWC MDR calculations, the values in the following table can be used, assuming $XWC = \text{wind velocity} \times \text{sine WA}$ and $TWC/HWC = \text{wind velocity} \times \text{cosine WA}$:

Wind angle	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
Sine	0	0.2	0.3	0.5	0.6	0.8	0.9	0.9	1	1
Aid	0	1	1	2	2	3	3	2	2	1

[...]

~~061 01 01 03 Earth rotation~~

[...]

SUBJECT 062 — RADIO NAVIGATION

[...]

062 02 02 02 (06)

Describe how to fly the following in-flight ADF procedures according to ICAO Doc 8168 Volume 1:

- homing and tracking, and explain the influence of wind;
- interceptions of inbound QDM and outbound QDR;
- changing from one QDM/QDR to another;
- determining station passage and the abeam point.
- procedural turns;
- holding patterns.

[...]

062 02 03 02 (05)

Describe the following in-flight VOR procedures according to ICAO Doc 8168 Volume 1:

- tracking, and explain the influence of wind when tracking;
- interceptions of a radial inbound and outbound to/from a VOR;
- changing from one radial inbound/outbound to another;
- determining station passage and the abeam point.
- procedural turns;
- holding patterns.

[...]

062 06 01 03 (01)

List the most significant factors that affect accuracy:

- ionospheric propagation delay;
- dilution of ~~position~~ precision;
- satellite clock error;
- satellite orbital variations;
- multipath.

[...]

062 06 01 03 (05)

State that dilution of ~~position~~ precision arises from the geometry and number of satellites in view. It is called geometric dilution of precision (GDOP).

[...]

SUBJECT 070 — OPERATIONAL PROCEDURES

[...]

071 01 02 01 (02) State the nature of CAT operations and exceptions.

Source: Regulation (EU) No 965/2012: Articles 1 and 5, points ORO.GEN.005 ‘Scope’ and CAT.GEN.100 ‘Competent authority’;

Regulation ~~(EC) No 216/2008: Article 1~~ (EU) 2018/1139: Article 2

[...]

071 01 03 03 (03) State the NAT HLA operations.

Source: NAT 007, 1.1.2; 1.1.3; 1.1.5; 1.1.6; 1.1.7; 1.2.1; 1.2.2; 1.3.1; 1.3.2; 1.3.6; 1.3.7; 1.3.8; ~~1.3.9; 1.3.10; 1.3.11; 1.3.12~~

[...]

SUBJECT 081 — PRINCIPLES OF FLIGHT

[...]

081 01 02 03 (02)

~~Describe where the minimum local static pressure is typically situated on an aerofoil.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 01 03 03 (01)

~~Describe the two-dimensional drag formula and perform simple calculations.~~

[...]

081 01 04 03 (16)

~~State the normal values of C_L – C_D .~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 02 01 03 (02)

Explain the relationship between Mach number, TAS and IAS during climb and descent at constant Mach number and or IAS, and explain variation of lift coefficient, α , pitch and flight-path angle.

[...]

081 02 01 04 (01)

State that compressibility means that density can change along a streamline, and that this occurs in the high subsonic (from Mach 0.4), transonic, and supersonic flow.

[...]

081 02 01 05 (01)

List the subdivision of aerodynamic flow:

- subsonic flow below compressibility;
- subsonic flow above compressibility;
- transonic flow;
- supersonic flow.

[...]

081 02 01 05 (03)

Explain why some transport aeroplanes normally cruise at Mach numbers above the critical Mach number (M_{CRIT}), but below the divergence Mach number ($M_{DRAG DIVERGENCE}$).

[...]

081 02 02 02 (03)

Explain the influence of increasing Mach number on a normal shock wave, at positive lift, with respect to:

- strength;
- length;
- position relative to the wing;
- second shock wave at the lower surface.

[...]

081 02 03 02 (05)

Explain the advantages of slightly exceeding M_{CRIT} in aeroplanes with supercritical aerofoils with respect to:

- speed versus drag ratio;
- specific range;
- optimum altitude.

[...]

081 02 03 04 (02)

Describe the overall change in pitching moment ~~above from M_{CRIT} to $M_{DRAG-DIVERGENCE}$~~ **MDRAG-DIVERGENCE** and explain the 'tuck under' or 'Mach tuck' effect.

[...]

081 02 03 05 (01)

Discuss the effects on the ~~effectiveness functioning~~ of control surfaces.

[...]

081 02 05 02 03

~~Identify the shape characteristics of a supercritical aerofoil shape.~~ **Intentionally left blank**

The crosses will be deleted from the applicable columns in the table.

[...]

081 03 00 00 Stall, Mach tuck, shock stall, and upset prevention and recovery

[...]

081 03 01 01 (10)

Describe in straight and level flight the influence of increasing the α ~~and the phenomenon that may occur regarding on:~~

- the forward stagnation point;
- the pressure distribution;
- the CP location (straight and swept-back wing);
- C_L ;
- C_D and D (drag);
- the pitching moment (straight and swept-back wing);
- **buffet onset;**
- **deterrent buffet for a clean wing at high Mach number;**
- **lack of pitch authority;**
- **uncommanded pitch down;**
- **uncommanded roll.**

[...]

081 03 01 01 (11)

Explain what causes the possible natural buffet on the ~~controls and on the~~ aeroplane in a pre-stall condition.

[...]

The following new learning objectives are added in subject paragraph 081 03 01 01:

081 03 01 01 (15)

Describe the deterrent buffet.

This LO applies to ATPL(A) and CPL(A) and crosses will be inserted in the applicable column in the table.

081 03 01 01 (16)

Explain the occurrence of the deterrent buffet and why this phenomenon is considered to be a stall limit.

This LO applies to ATPL(A) and CPL(A) and crosses will be inserted in the applicable column in the table.

[...]

081 03 01 03 (02)

Explain the purpose of aerodynamic and geometric twist (washout).

081 03 01 03 (03)

~~Explain the effect of aileron deflection.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 03 01 05 (01)

~~Describe the basic stall requirements for commercial air transport (CAT) aeroplanes.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 03 01 05 (04)

Describe the effect on stall and recovery characteristics of:

— wing sweep (backward sweep);

— T-tailed aeroplane.

Describe the pitch-up effect on a swept wing aeroplane and also an aeroplane with a T-tail.

[...]

081 03 01 05 (11)

~~Describe how to recover from a stall after a configuration change caused by in-flight icing.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 03 01 05 (13)

Explain the hazards associated with airframe contamination and the aerodynamic effects when parked and during ground operations in winter conditions, and the aerodynamic effects when attempting a take-off.

[...]

081 03 01 06 (03)

Describe an 'incipient', 'developing' and 'developed' spin, recognition and recovery.

[...]

081 03 02 00 Shock stall Buffet onset boundary

081 03 02 01 Definition and relationship with Mach buffet Mach buffet

081 03 02 01 (01)

Explain shock-induced separation, shock stall, and describe its relationship with Mach buffet (high speed buffet) and Mach tuck.

081 03 02 01 (02)

Define 'shock stall'. Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 03 02 02 (03)

Describe the consequences effect of exceeding the speed M_{MO} : light buffet, or buffet onset.

[...]

081 04 01 01 (01)

Define 'static stability':

- describe/identify a statically stable, neutral, and unstable condition (positive, neutral, and negative static stability), and
- explain why aeroplanes are statically stable.

[...]

081 04 01 01 (03)

Explain why the relationship between static stability is the opposite of and manoeuvrability, and why CAT aeroplanes are designed to be statically stable.

[...]

081 04 01 01 (05)

Explain what combinations of static and dynamic stability will return an aeroplane to the equilibrium state after a disturbance. Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 04 01 02 (01)

Explain an equilibrium of forces and moments as the initial condition for the concept of static stability.

[...]

081 04 03 01 (05)

Explain the elevator deflection required to balance thrust change as a function of engine position.

[...]

081 04 03 07 (01)

Explain:

- the effect on the C_m - α graph of a shift of CG in the forward and aft direction;
- the effect on the C_m - α graph when the elevator is moved up or down;
- the effect on the C_m - α graph when the trim is moved;
- the effect of the wing contribution and how it is affected by the CG location;
- the effect of the fuselage contribution and how it is affected by the CG location;
- the tail contribution;
- the effect of aerofoil camber change.

[...]

081 04 03 10 (01)

Explain how a pilot perceives stable static longitudinal stick force stability regarding changes in:

- speed;
- altitude;
- mass distribution (CG location).

[...]

081 04 03 12 (02)

Explain why:

- the stick force per g has a prescribed minimum and maximum value;
- the stick force per g decreases with pressure altitude at the same indicated airspeed.

[...]

081 04 04 05 (02)

Explain why both the fuselage and the fin contribution reduction in static directional stability when the CG moves aft.

[...]

081 04 06 03 (02)

Explain:

- why increases Dutch roll occurs when the static lateral stability is large compared to higher than static directional stability;
- the conditions for a stable, neutral or unstable Dutch roll motion;
- the function of the yaw damper;
- the actions to be taken when the yaw damper is not available.

[...]

081 04 06 03 (03)

~~State the effect of Mach number on Dutch roll.~~ Describe how the asymmetric nature of shock waves on both wings, at high Mach numbers, can lead to Dutch roll.

[...]

081 05 02 02 (02)

~~Explain in this context the use of a T-tail or stabiliser trim.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 05 07 00 Intentionally left blank Fly-by-wire (FBW)

The following new learning objectives are added in Subject 081 05 07 00:

081 05 07 01 Control laws

081 05 07 01 (01)

Explain which parameters may be controlled in level flight with the pitch control law.

This LO applies only to ATPL(A) and a cross will be inserted in the applicable column in the table.

081 05 07 01 (02)

Explain the advantages of using the CG position in the FBW system.

This LO applies only to ATPL(A) and a cross will be inserted in the applicable column in the table.

081 05 07 01 (03)

Explain what type of flight-degraded control laws may be available in case of failure.

This LO applies only to ATPL(A) and a cross will be inserted in the applicable column in the table.

081 05 07 01 (04)

Explain what are hard and soft protections.

This LO applies only to ATPL(A) and a cross will be inserted in the applicable column in the table.

[...]

081 05 08 03 (01)

~~Describe the working principle of~~ Explain the advantages and disadvantages of a stabiliser trim including the flight deck indications ~~compared to a trim tab.~~

081 05 08 03 (02)

Explain the advantages and disadvantages of a stabiliser trim compared to a trim tab. Explain elevator deflection when the aeroplane is trimmed in the case of fully powered and power-assisted pitch controls.

[...]

081 06 01 01 (03)

Explain what is the flight envelope free of flutter. State how to avoid flutter, and possible actions if flutter occurred.

[...]

081 06 01 02 ~~Aileron Reversal~~ Intentionally left blank

081 06 01 02 (01)

~~Describe the phenomenon of aileron reversal: at low speeds; at high speeds. Describe the aileron reversal speed in relationship to VNE and VNO.~~ Intentionally left blank

The crosses will be deleted from the applicable columns in the table.

[...]

081 06 01 04 (02)

~~Describe~~ Explain the significance of V_{MO} , V_{NO} and V_{NE} , the relevance of the airspeed on which they are based, and the differences between these airspeeds.

081 06 01 04 (03)

Explain the hazards of flying at speeds close above to V_{NE} and V_{MO} .

[...]

081 06 02 01 (03)

Define 'V_A', 'V_B', 'V_C', and 'V_D'.

[...]

081 06 02 01 (04)

Identify and explain the varying features on the V_N diagram:

- load factor 'n';
- speed scale, equivalent airspeed;
- equivalent airspeed envelope;
- ~~C_{LMAX} boundary;~~
- 1g stall speed;
- ~~accelerated~~ stall boundary (refer to 081 03 01 02).

[...]

081 06 02 02 (01) State the relationship of mass to:

- load-factor limits; and accelerated stall speed boundary limit;
- ~~V_A and explain why if a single value for V_A is given, it will be at the aeroplane's maximum structural take-off mass and at low altitude.~~

[...]

081 06 02 02 (03)

Explain why V_A loses significance at higher altitude where compressibility effects occur.

[...]

081 06 02 02 (04)

Define 'M_c' and 'M_D' and their relation with 'V_c' and 'V_D'.

[...]

081 06 03 02 (01)

Describe and explain the relationship between the gust-load factor and the following: lift-curve slope, aspect ratio, angle of sweep, altitude, wing loading, weight, wing area, equivalent airspeed (EAS), and speed of vertical gust. (Note: For examination purposes, the ECQB questions will not be calculation based.)

[...]

081 07 04 05 ~~Hazards and management~~ Consideration of propeller effects

[...]

081 07 04 05 (03)

Explain how the hazards associated with propeller effects during go-around can be affected aggravated by: high engine performance conditions and their effect on the V_{MC} speeds; loss of the critical engine; crosswind; high flap setting; engine failure at the moment of the go-around.

[...]

081 08 01 04 (04)

Define V_{MD} (speed for minimum drag) and e Explain the relationship between α , V_{MD} and the best lift-drag ratio.

[...]

081 08 01 04 (09)

Define V_{MP} (speed for minimum power) and d Describe that the minimum rate of descent in the glide will be at V_{MP}, and explain the relationship of this speed to the optimum speed for minimum glide angle.

[...]

081 08 01 05 (13)

Describe the hazards of excessive use of rudder to tighten a increase the rate of turn in a swept-wing aeroplane.

[...]

081 08 02 01 (02)

Explain critical engine, including the effect of crosswind when on the ground, and explain, for a propeller-driven aeroplane, the effect of the direction of propeller rotation.

[...]

081 08 02 01 (04)

Explain the effect of a crosswind on asymmetric flight.

This LO applies to ATPL(A) and CPL(A) and crosses will be inserted in the applicable column in the table.

[...]

081 08 02 03 (02)

Explain why the required small bank angle is limited by:

— increased overall lift required, and increase in drag in banked attitude;

— fin stalling angle. the flight hazards at V_{MC} :

— α ;

— side slip;

— loads on the fin;

— α on the fin.

[...]

081 08 02 11 (01)

Describe the influence of density on thrust during asymmetric flight.

081 08 02 11 (02)

Explain why V_{MC} , V_{MCL} and V_{MCG} reduce with an reduction in thrust increase in altitude and temperature.

[...]

SUBJECT 090 — COMMUNICATIONS

The tables for Subjects 091 ‘VFR Communications’ and 092 ‘IFR Communications’ are replaced by the following:

SUBJECT 090 — COMMUNICATIONS

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
090 00 00 00		COMMUNICATIONS								
090 01 00 00		CONCEPTS								
090 01 01 00		Associated terms								
090 01 01 01		<i>Meanings and significance</i>								
(01)		Define commonly used air traffic services (ATS) terms for stations.	X	X	X	X	X	X	X	
(02)		Define commonly used ATS terms for communication methods.	X	X	X	X	X	X	X	
(03)		Recognise the terms used in conjunction with the approach and holding procedures.	X	X	X	X	X	X	X	
090 01 01 02		<i>Air traffic services (ATS) abbreviations</i>								

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(01)		Define commonly used ATS abbreviations: — flight conditions; — airspace; — services; — time; — VFR-related terms; — IFR-related terms; — miscellaneous.	X	X	X	X	X	X	X	
090 01 01 03		Q-code groups commonly used in radiotelephony (RT) air-ground communications								
(01)		Define Q-code groups commonly used in RT air-ground communications: — pressure settings; — directions and bearings.	X	X	X	X	X	X	X	
(02)		State the procedure for obtaining bearing information in flight.	X	X	X	X	X	X	X	
090 01 01 04		Categories of messages								
(01)		Identify to which category of messages a type of message belongs and identify the associated priority indicator.	X	X	X	X	X	X	X	
090 02 00 00		GENERAL OPERATING PROCEDURES								

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
090 02 01 00		Transmission standards								
090 02 01 01		Transmission of letters								
(01)		Know the phonetic alphabet used in RT.	X	X	X	X	X	X	X	
(02)		Identify the circumstances when words should be spelt out.	X	X	X	X	X	X	X	
090 02 01 02		Transmission of numbers								
(01)		Describe the method of transmission of numbers: — pronunciation; — single digits, whole hundreds and whole thousands; — state how numbers are transmitted in different circumstances.	X	X	X	X	X	X	X	
090 02 01 03		Transmission of time								
(01)		Describe the ways of transmitting time: — the standard time reference is the Coordinated Universal Time (UTC); — using only minutes, or minutes and hours, when required.	X	X	X	X	X	X	X	
(02)		Describe the different ways in which time is to be transmitted.	X	X	X	X	X	X	X	
090 02 01 04		Transmission techniques								

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(01)	X	Explain the techniques used for making good RT transmissions.	X	X	X	X	X	X		
090 02 01 05		Standard words and phrases								
(01)		Define the meaning of standard words and phrases.	X	X	X	X	X	X		
(02)		Recognise, describe and use the correct standard phraseology for each phase of a VFR flight (consider communication with each type of aeronautical station): — before taxi; — taxi; — departure; — en route; — circuit; — final; — landing; — after landing.	X	X	X	X	X	X		

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(03)		Recognise, describe and use the correct standard phraseology for each phase of an IFR flight, including PBN operations (consider communication with each type of aeronautical station): — before pushback or taxi; — pushback; — taxi; — departure; — en route; — approach; — final approach; — landing; — after landing.	X	X	X	X	X	X	X	
(04)		Explain phraseology for the selective calling system (SELCAL) and aircraft communications addressing and reporting system (ACARS).	X	X	X	X	X	X	X	
(05)		Explain traffic alert and collision avoidance system (TCAS) phraseology.	X	X	X	X	X	X	X	
090 02 01 06		<i>RT call signs for aeronautical stations including use of abbreviated call signs</i>								
(01)		Name the two parts of the call sign of an aeronautical station.	X	X	X	X	X	X	X	

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(02)		Identify the call-sign suffixes for aeronautical stations.	X	X	X	X	X	X		
(03)		Explain when the call sign may be omitted or abbreviated to the use of suffix only.	X	X	X	X	X	X		
090 02 01 07		RT call signs for aircraft including use of abbreviated call signs								
(01)		Describe the three different ways to compose an aircraft call sign.	X	X	X	X	X	X		
(02)		Describe the abbreviated forms for aircraft call signs.	X	X	X	X	X	X		
(03)		Explain when aircraft call signs may be abbreviated.	X	X	X	X	X	X		
(04)		Explain when the suffix 'HEAVY' or 'SUPER' is used with an aircraft call sign.	X	X	X	X	X	X		
(05)		Explain the use of the phrase 'Change your call sign to...'	X	X	X	X	X	X		
(06)		Explain the use of the phrase 'Revert to flight plan call sign'.	X	X	X	X	X	X		
090 02 01 08		Transfer of communication								
(01)		Describe the procedure for transfer of communication: — by ground station; — by aircraft.	X	X	X	X	X	X		
090 02 01 09		Test procedures including readability scale								
(01)		Explain how to test radio transmission and reception.	X	X	X	X	X	X		

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(02)		State the readability scale and explain its meaning.	X	X	X	X	X	X	X	
090 02 01 10		Read-back and acknowledgement requirements								
(01)		Describe the requirement to read back ATC route clearances.	X	X	X	X	X	X	X	
(02)		Describe the requirement to read back clearances related to the runway in use.	X	X	X	X	X	X	X	
(03)		Describe the requirement to read back other clearances including conditional clearances.	X	X	X	X	X	X	X	
(04)		Describe the requirement to read back other data such as runway, secondary surveillance radar (SSR) codes, etc.	X	X	X	X	X	X	X	
090 02 01 11		Radar procedural phraseology								
(01)		Use the correct phraseology for an aircraft receiving a radar service: — radar identification; — radar vectoring; — traffic information and avoidance; — SSR procedures.	X	X	X	X	X	X	X	
090 02 01 12		Level changes and reports								

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(01)		Use the correct term to describe vertical position in relation to: — flight level (standard pressure setting); — altitude (metres/feet on QNH); — height (metres/feet on QFE).	X	X	X	X	X	X	X	
090 02 01 13		Data link messages								
(01)		List the different types of messages of the controller–pilot data link communications (CPDLC) function and give examples of data link messages.	X	X	X	X	X	X	X	
(02)		Describe a notification phase (LOG ON) and state its purpose.	X	X	X	X	X	X	X	
(03)		Explain the phrases to be used: — when voice communication is used to correct a CPDLC message; — in case of single CPDLC message failure; — when CPDLC has failed; — when reverting from CPDLC to voice communication.	X	X	X	X	X	X	X	
090 03 00 00		RELEVANT WEATHER INFORMATION								
090 03 01 00		Aerodrome weather								
090 03 01 01		Aerodrome weather terms								

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(01)		List the contents of aerodrome weather reports and state units of measurement used for each item: — wind direction and speed; — variation of wind direction and speed; — visibility; — present weather; — cloud amount and type (including the definition of cloud and visibility OK (CAVOK)); — air temperature and dew point; — pressure values (QNH, QFE); — supplementary information (aerodrome warnings, landing runway, runway conditions, restrictions, obstructions, wind-shear warnings, etc.).	X	X	X	X	X	X	X	
090 03 01 02		Weather broadcast								
(01)		List the sources (VOLMET and ATIS units) of weather information available for aircraft in flight, and describe situation(s) in which a pilot would normally obtain each.	X	X	X	X	X	X	X	
(02)	X	Explain the meaning of the acronyms ‘D-ATIS’, ‘ATIS’, and ‘VOLMET’.	X	X	X	X	X	X	X	
(03)		Explain and demonstrate how to decode ATIS messages.	X	X	X	X	X	X	X	

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(04)		Explain and demonstrate how to decode D-ATIS messages.	X	X	X	X	X	X		
090 04 00 00		VOICE COMMUNICATION FAILURE								
090 04 01 00		Required action								
090 04 01 01		Action required to be taken in case of communication failure								
(01)		State the action to be taken in case of communication failure on a controlled VFR flight.	X	X	X	X	X	X		
(02)		Identify the frequencies to be used in an attempt to establish communication.	X	X	X	X	X	X		
(03)		State the additional information that should be transmitted in the event of receiver failure.	X	X	X	X	X	X		
(04)		Identify the SSR code that may be used to indicate communication failure.	X	X	X	X	X	X		
(05)		Explain the action to be taken by a pilot that experiences a communication failure in the aerodrome traffic pattern at controlled aerodromes.	X	X	X	X	X	X		
(06)		Describe the action to be taken in case of communication failure on an IFR flight.	X	X	X	X	X	X		

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(07)		Describe the action to be taken in case of communication failure on an IFR flight when flying in visual meteorological conditions (VMC) and the flight will be terminated in VMC.	X	X	X	X	X	X	X	
(08)		Describe the action to be taken in case of communication failure on an IFR flight when flying in instrument meteorological conditions (IMC).	X	X	X	X	X	X	X	
(09)		Explain the causes and possible safety impacts of a blocked frequency.	X	X	X	X	X	X	X	
090 05 00 00		DISTRESS AND URGENCY PROCEDURES								
090 05 01 00		Signals and procedures								
090 05 01 01		Distress								
(01)		State the DISTRESS signal(s) and DISTRESS procedure(s).	X	X	X	X	X	X	X	
(02)		Define 'DISTRESS'.	X	X	X	X	X	X	X	
(03)		Identify the frequencies that should be used by aircraft in DISTRESS.	X	X	X	X	X	X	X	
(04)		Specify the emergency SSR codes that may be used by aircraft, and the meaning of the codes.	X	X	X	X	X	X	X	
(05)		Describe the action to be taken by the station which receives a DISTRESS message.	X	X	X	X	X	X	X	

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(06)		Describe the action to be taken by all other stations when a DISTRESS procedure is in progress.	X	X	X	X	X	X	X	
(07)		List the correctly sequenced elements of a DISTRESS signal/message and describe the message content.	X	X	X	X	X	X	X	
(08)		Describe the use of discrete frequencies (DEF) in case of distress or urgency.	X	X	X	X	X	X	X	
(09)		State that DISTRESS messages take priority over all other messages.	X	X	X	X	X	X	X	
090 05 01 02		Urgency								
(01)		State the URGENCY signal(s) and URGENCY procedure(s).	X	X	X	X	X	X	X	
(02)		Define 'URGENCY'.	X	X	X	X	X	X	X	
(03)		Identify the frequencies that should be used by aircraft in URGENCY.	X	X	X	X	X	X	X	
(04)		Describe the action to be taken by the station which receives an URGENCY message.	X	X	X	X	X	X	X	
(05)		Describe the action to be taken by all other stations when an URGENCY procedure is in progress.	X	X	X	X	X	X	X	
(06)		List the correctly sequenced elements of an URGENCY signal/message and describe the message content.	X	X	X	X	X	X	X	

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(07)		State that URGENCY messages take priority over all other messages except DISTRESS.	X	X	X	X	X	X		
090 06 00 00		VHF PROPAGATION AND ALLOCATION OF FREQUENCIES								
090 06 01 00		General principles								
090 06 01 01		<i>Spectrum, bands, range</i>								
(01)		Describe the radio-frequency spectrum with particular reference to VHF.	X	X	X	X	X	X		
(02)		Describe the radio-frequency spectrum of the bands into which the radio-frequency spectrum is divided.	X	X	X	X	X	X		
(03)		Identify the frequency range of the VHF band.	X	X	X	X	X	X		
(04)		State the band normally used for aeronautical mobile service (AMS) voice communication.	X	X	X	X	X	X		
(05)		State the frequency separation allocated between consecutive VHF frequencies.	X	X	X	X	X	X		
(06)		List the factors which reduce the effective range and quality of VHF radio transmissions.	X	X	X	X	X	X		
090 07 00 00		Other communications								
090 07 01 00		Weather observations, Morse code								
090 07 01 01		<i>Meteorological observations</i>								

Syllabus reference	BK	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR	CBIR(A) & EIR	Remarks
			ATPL	CPL	ATPL/ IR	ATPL	CPL			
(01)		Explain when aircraft routine meteorological observations should be made.	X	X	X	X	X	X	X	
(02)		Explain when aircraft special meteorological observations should be made.	X	X	X	X	X	X	X	
090 07 01 02		Use of Morse code								
(01)	X	Describe and list Morse code.	X	X	X	X	X	X	X	
(02)		Find the Morse code identifiers of radio navigation aids (VHF omnidirectional radio range (VOR), distance-measuring equipment (DME), non-directional radio beacon (NDB), instrument landing system (ILS)) using aeronautical charts.	X	X	X	X	X	X	X	

2. AMC1 to Appendix 6 is amended as follows:

AMC1 to Appendix 6 'Modular training courses for the IR'

[...]

(b) The 150 hours of instruction, which include the application of threat and error management (TEM), may include in suitable proportions:

- (1) classroom work;
- (2) lessons;
- (3) tutorials;
- (4) demonstrations, including those supported by demonstration equipment;
- (5) exercises carried out as groups or individuals and based on pre-flight and en-route planning, communications, presentations and projects;
- (6) exercises that use demonstration equipment or training devices;
- (7) directed study including workbook exercises or assignments;
- (8) aerodrome or aviation industry field trips;
- (9) computer-based training and e-learning elements;
- (10) progress tests, ~~Area 100 KSA assessments and mental maths test(s)~~; and
- (11) other training methods, media and tools approved by the competent authority.

3. AMC3 to Appendix 6 is amended as follows:

AMC3 to Appendix 6 'Modular training courses for the IR'

[...]

(a) THEORETICAL KNOWLEDGE INSTRUCTION

[...]

(2) [...]

An approved course, ~~which also covers the Area 100 KSA,~~ which includes the application of threat and error management, may contain in suitable proportions:

- (i) classroom work;
- (ii) lessons;
- (iii) tutorials;
- (iv) demonstrations, including those supported by demonstration equipment;
- (v) exercises carried out as groups or individuals and based on pre-flight and en-route planning, communications, presentations and projects;
- (vi) exercises that use demonstration equipment or training devices;
- (vii) directed study including workbook exercises or assignments;
- (viii) aerodrome or aviation industry field trips;
- (ix) computer-based training and e-learning elements;
- (x) progress tests, ~~Area 100 KSA assessments and mental maths test(s);~~ and
- (xi) other training methods, media and tools approved by the competent authority.

(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 ~~AMC2 ARA.FCL.300(b)~~ AMC1 ARA.FCL.300(b).