United Kingdom

Civil Aviation Authority

Official Record Series 9

CAA Decision to adopt Acceptable Means of Compliance and Guidance Material for UK Regs (EU) 2019/945 and 2019/947 pursuant to Article 76(3) UK Reg (EU) 2018/1139

DECISION No. 57

Publication date: 18 December 2025

Decision amending and adopting Acceptable Means of Compliance (AMC) and Guidance Material (GM) for UK Regulation (EU) 2019/945 and 2019/947

Background

1. The CAA has undertaken a regulation review project sponsored by the Department of Transport (DfT) to look at ways to simplify regulations, deliver greater education for UAS users, improve safety and security, and support the UAS sector transition to new regulations. This has resulted in a series of statutory instruments:
    - Unmanned Aircraft (Amendment) Regulations 2025 - SI No. 2025 No. 1106 laid on 21 October 2025;
    - Unmanned Aircraft (Offences and Consequential Amendments) Regulations 2025 laid on 21 October 2025;
    - Unmanned Aircraft (Market Surveillance Authority) Regulations 2025 submitted to the Minister of Aviation on 11 December 2025.

2. These amend the following regulations:
    - UK Regulation (EU) 2019/945, and designate the Civil Aviation Authority ("the CAA") as the Market Surveillance Authority (MSA) under this regulation;
    - UK Regulation (EU) 2019/947;
    - Air Traffic Management and Unmanned Aircraft Act 2021.

3. The CAA has also developed policy on Remote Pilot Competency and Dangerous Goods that requires an update to the AMC and GM.

4. By this decision the Civil Aviation Authority ("the CAA") is firstly adopting AMC and GM for UK Regulation (EU) 2019/945, specifically addressing the Market Surveillance Authority (MSA) framework. This AMC and GM relate to the roles and obligations of economic operators (manufacturers, authorised representatives, importers, and distributors) and compliance requirements for unmanned aircraft systems (UAS) and related products.

5. The CAA is secondly adopting AMC and GM for UK Regulation (EU) 2019/947 relating to the regulation review project. These include AMC and GM to support operational requirements in the Open category; changes of Open category sub-category names; the introduction of a requirement that UAS must be remotely identifiable during flight by

requiring active and up to date Direct Remote ID functionality; use of EU class-marked UAS in the UK; and completion of Open category training.

6. The CAA is also amending AMC 1 for Article 8(2) of UK Regulation (EU) 2019/947 on Remote Pilot Competency (RPC). These amendments include policy improvements such as adding BVLOS Visual Mitigation (BVLOS VM) to the syllabus for RPC Level 1, simplifying UAS category training for RPC Level 2 and Level 3, removing RPC Level 4 from the framework, and withdrawing the General VLOS Certificate (GVC). In addition, minor updates have been made to improve clarity.

7. Finally, the CAA is adopting and amending AMC and GM for UK Regulation (EU) 2019/947 in relation to the transport of Dangerous Goods by UAS. These updates are intended to clarify regulatory expectations, align policy with established safety objectives, and provide operators with appropriate means to demonstrate compliance when transporting dangerous goods.

Decision

8. The CAA, under Article 76(3) of UK Regulation (EU) 2018/1139, has decided to adopt the AMC and GM listed at Schedule 1.

9. The wording of this is provided in Schedule 2.

10. This Decision will remain in force unless revoked or amended by the CAA.

Definitions

11. All references to Regulations are to assimilated law pursuant to the Retained European Union Law (Revocation and Reform) Act 2023.

Rob Bishton
For the Civil Aviation Authority and the United Kingdom

Date of Decision: 18 December 2025

Date of Decision Coming into force: 1 January 2026

Schedule 1
Acceptable Means of Compliance (AMC) and Guidance Material (GM) Updates

Topic	AMC and GM
Market Surveillance Authority (MSA) – terminology & roles (2019/945)	• Articles 4-10 • 12 • 13 • 18 • 36 • 38 • 39
Acceptance of EU class-marked UAS – (2019/947)	• AMC1 Article 20(A)
A1 – Overflight of uninvolved people – (2019/947)	• AMC1 UAS.OPEN.020(1) and (2)
A2 – Minimum horizontal distance – (2019/947)	• AMC1 UAS.OPEN.030(1)
A3 – Distances from people and areas – (2019/947)	• GM1 UAS.OPEN.040(2)
Remote Pilot Competence – (2019/947)	• AMC1 UAS.OPEN.030(2)(b) and (c) • GM1 UAS.OPEN.030(2)(a) • GM1 UAS.OPEN.040(3)
Open category training – (2019/947)	• AMC1 UAS.OPEN.020(4)(b) and UAS.OPEN.030(2)(a) and UAS.OPEN.040(3) • AMC2 UAS.OPEN.020(4)(b) and UAS.OPEN.030(2)(a) and UAS.OPEN.040(3) • AMC2 UAS.OPEN.030(2)(b) • AMC1 UAS.OPEN.030(2)(c) • AMC2 UAS.OPEN.030(2)(c) • GM1 UAS.OPEN.030(2)(c)
Modification of a UAS with a class mark – (2019/947)	• AMC1 UAS.OPEN.020(5)(c) and (d) UAS.OPEN.030(3) and UAS.OPEN.040(4)(c), (d) and (e) • GM1 UAS.OPEN.030(3) • GM1 UAS.OPEN.040(4)(c), (d) and (e)
Endangerment of uninvolved people – (2019/947)	• AMC1 UAS.OPEN.040(1)
Safe distance from uninvolved people – (2019/947)	• GM1 UAS.OPEN.040(1)
Procedures – (2019/947)	• AMC1 UAS.OPEN.050(1)
Remote ID – general requirement – (2019/947)	• AMC1 UAS.OPEN.060(1)(d) • GM1 UAS.SPEC.050(1)(L)(ii)
Green Flashing Light – general requirement - (2019/947)	• GM1 UAS.OPEN.060(2)(g) • GM1 UAS.SPEC.050(1)(L)(i)
General requirement updates - (2019/947)	• GM1 Article 3 • AMC1 Article 4(1)(f) • GM3 Article 16 • AMC1 Article 19(2) • GM1 Article 19(2)

Dangerous Goods – scope, procedures, training – (2019/947)	• GM1 Article 2(11) • AMC1 Article 5(2) • AMC1 Article 6(1)(b)(iii) • AMC1 Article 11(1)(c) • GM1 Article 11(1)(c) • AMC2 Article 11(2)(d) • AMC3 Article 11(6) • AMC1 UAS.SPEC.050(1)(a)(i) • GM2 UAS.SPEC.050(1)(a)(i) • AMC1 UAS.SPEC.050(1)(d)(e) and (f) • GM1 UAS.SPEC.050(1)(d) and (e)
RPC framework – phase out GVC – (2019/947)	• AMC1 to Article 8 (Appendix – Remote Pilot Competence)

Schedule 2

Text must be presented in the order in which it appears in the regulation

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

(a) ~~Text to be deleted is shown struck through~~;

(b) New text is highlighted in grey;

(c) ~~Text to be deleted is shown struck through~~ followed by the replacement text which is highlighted in grey.

Amendments to UK Reg (EU) 2019/945 AMC and GM

GM1 to Article 4(1)

APPLICABILITY OF CLASS MARKING REQUIREMENTS

All products intended for use in the Open category must bear the correct class marking label and meet the requirements set out in the corresponding part of the Annex to the Regulation. The correct class is determined by the UA's maximum take-off mass, as summarised in the table below.

Weight	Class	Annex
Less than 100g	Voluntarily UK0	Part 1
Less than 250g	UK0 (mandatory)	Part 1
Less than 900g	UK1	Part 2
Less than 4 kg	UK2	Part 3
Less than 25 kg	UK3	Part 4
	UK4	Part 5
	UK5 (+UK3)	Part 16 (+Part 4)
	UK6 (+UK3)	Part 17 (+Part 4)

Please note that UAS of class UK5 or UK6 have to comply with the requirements of class UK3 as in addition to UK5 or UK6 requirements.

AMC1 to Article 4(2)

COMPLIANCE WITH OTHER REGULATIONS

According to Article 4, UAS shall comply with the Supply of Machinery (Safety) Regulation 2008 (SMR 2008) for design aspects not related to the safety of the flight.

These non-flight functions may include, but are not limited to, mechanical hazards, electrical safety during charging, or safe handling on the ground. Provisions of SMR 2008 that would interfere with flight safety, such as emergency stop functions that would disrupt the flight, need not be applied. The applicable standards depend on the designer’s system’s configuration and on the use of off-

the-shelf components (COTS). However, the following essential health and safety requirements of SMR 2008 shown in the table below might be taken into account to achieve compliance with the relevant regulations and comply with UK class marking and class identification requirements, which may lead to further regulations being applicable and triggered by the SMR, such as the Electrical Equipment (Safety) Regulations 2016. Sections of Schedule 2 Annex I of SMR 2008 not listed below are considered not to be applicable for UAS.

SMR 2008 Annex I section	Subject
1.1.2 (a), paragraph 2	Principles of safety integration
1.1.2 (e)	
1.1.3	Materials and products
1.1.5	Design of machinery to facilitate its handling
1.2.2	Control devices
1.3.1	Risk of loss of stability
1.5.1	Electricity supply
1.5.2	Static electricity
1.5.4	Errors of fitting
1.5.6	Fire
1.5.7	Explosion
1.5.10	Radiation
1.5.11	External radiation
1.5.12	Laser radiation
1.5.13	Emissions of hazardous materials and substances
1.7.3	Marking of machinery
1.7.4.3	Sales literature

GM1 to Article 5

OTHER REQUIREMENTS FOR HEALTH AND SAFETY

Only products that do not endanger the health or safety of people, animals or property may be made available in the UK. This includes not only safety of the product during flight, but also its broader safety as a manufactured item.

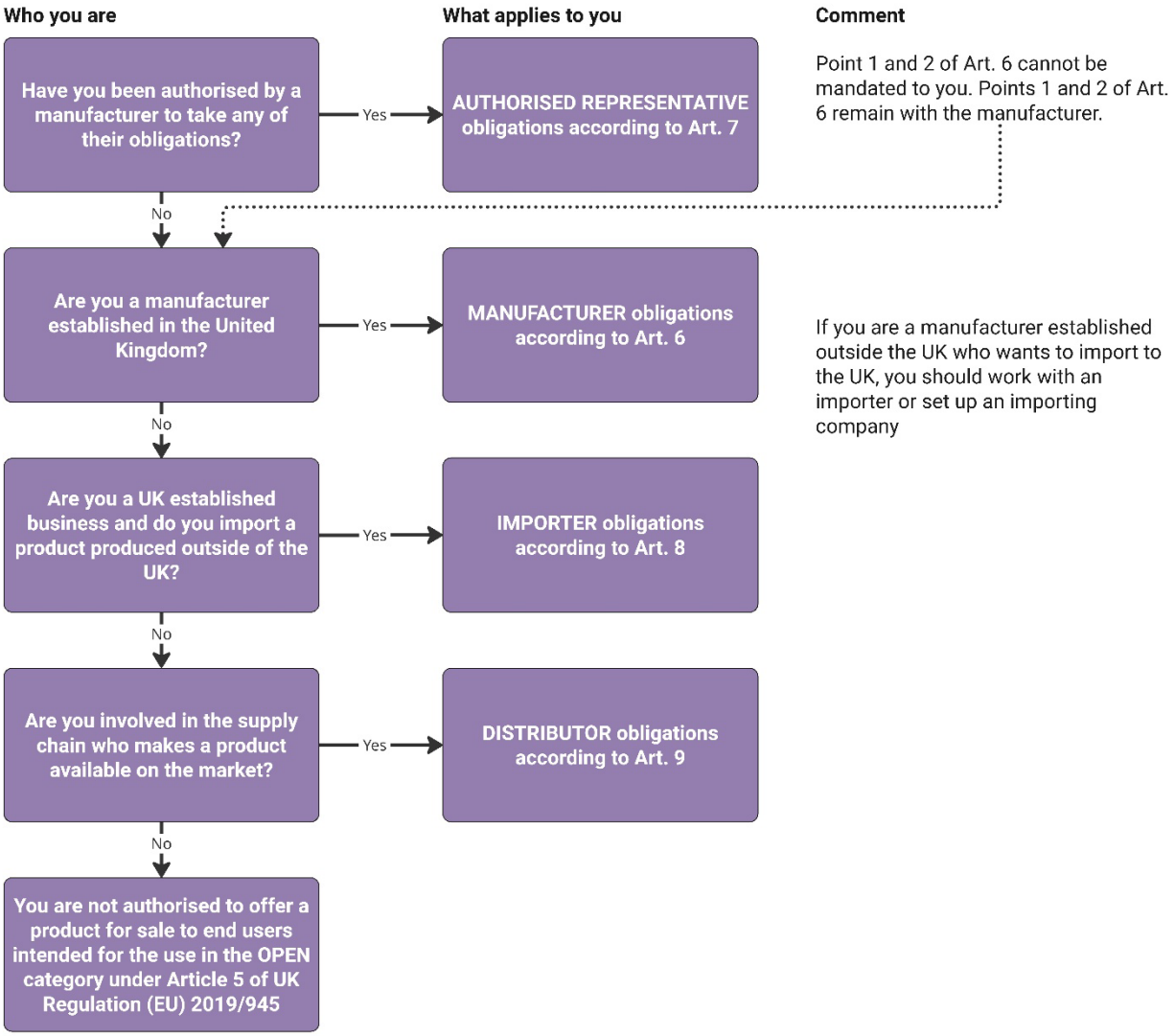
In addition to demonstrating compliance with the applicable provisions of Article 4, economic operators, with a special focus on manufacturers, may consider general product safety principles to ensure the design and manufacturing of the product does not introduce hazards due to unstable structures, unsafe energy sources or hazardous substances. This may include the assessment of chemical and material risks in accordance with Regulation (EC) No. 1907/2006 (REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals)) and The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (RoHS (Restriction of Hazardous Substances) Regulations).

In addition, the Radio Equipment Regulations 2017 and Electromagnetic Compatibility Regulations 2016 may apply, depending on the specific product's design, but particularly where the product includes wireless communication modules or emits electromagnetic signals.

GM1 to Article 6

ECONOMIC OPERATORS AND ROLES

Determining the individual economic operator's role in the supply chain is essential to identifying applicable obligations. The decision logic illustrated below may help to identify the correct role and set of obligations.



It is the responsibility of the relevant economic operator to ensure that the UAS intended for the use in the Open category, class C5 accessories kits and remote identification add-ons comply with the requirements of Part 1 to 6, 16, and 17 of the Annex to this Regulation.

GM2 to Article 6

REQUIREMENTS FOR ECONOMIC OPERATORS

The following table provides an overview of the obligations applicable to the relevant economic operators. Everywhere, the table shows an "X" where an obligation applies to the economic operator outlined in the specific column.

If an importer or distributor places a product on the market solely under their name, the obligations of manufacturers apply to them in full.

Requirement	Economic Operator			
	Manufacturer	Auth. Rep.	Importer	Distributor
Product design complies requirements for UK1 – UK6, UK5 accessories kits or remote ID add-on modules	X			
Draw up technical documentation	X			
Ensure technical documentation is drawn up	X		X	
Carry out conformity assessment procedure	X			
Ensure conformity assessment is carried out	X		X	
Draw up declaration of conformity	X			
Technical documentation storage for MSA disposal for 10 years	X	X	X	
Declaration of conformity storage for MSA disposal for 10 years	X	X	X	
Procedures for conformity assurance in series production	X			
Sample testing of marketed products	X		X	
Register of complaints	X		X	
Register of product recalls	X		X	
Register of non-conforming products	X		X	
Ensure UA bears type	X		X	
Ensure UA bears serial number	X		X	
Name/registered trade name/ registered trademark, website address and postal address on product or packaging or additional document	X		X*	X**
Ensure product bears UK marking and UA class identification and indication of the sound power level (when required)	X		X	X
Ensure product is accompanied by manufacturers' instructions	X		X	X
Ensure product is accompanied by information notice	X		X	X

Ensure product is accompanied by a copy of the declaration of conformity	X		X	X
Take corrective measures in case of product non-conformity	X		X	X
Withdraw or recall product (if appropriate) in case of product non-conformity	X		X	X
Inform MSA where a product presents a risk	X		X	X
Provide all information and documentation necessary to demonstrate conformity to MSA upon reasoned request	X	X	X	X
Provide all information and documentation to border control upon request		X		
Cooperation with MSA upon request on products posing a risk	X		X	X
Cooperation with MSA and border control authorities upon request on products posing a safety risk		X		
Informing MSA when placing UK5/UK6 or UK5 add-on on the market	X		X	
Informing manufacturer of health and safety risks			X	
Informing manufacturer and importer of risks				X
Not placing non-conforming products on the market	X		X	X
Storage and transport conditions do not lead to non-compliance or non-conformity			X	X
X must ensure both their own and the manufacturer's name, registered trade name or registered trademark, website and postal addresses are included* *X** must ensure both the manufacturer's and importer's name, registered trade name or registered trademark, website and postal addresses are included. These details are not necessary for the distributor.* *Notes:* *Manufacturer's obligations are provided in Article 6.* *Authorised representative's obligations are provided in Article 7.* *Importer's obligations are provided in Article 8.* *Distributor's obligations are provided in Article 9.*				

AMC1 to Article 6(4)

PRODUCTION CONFORMITY AND MONITORING (FOR MANUFACTURERS)

To ensure that series production continues to conform with the requirements, manufacturers shall implement a documented and proportionate procedure to monitor the consistency and compliance of their products, taking into account changes in design, software, or applicable standards and

technical specifications. The procedures should include a system for monitoring post-market performance and addressing non-conformities. Manufacturers may want to establish and maintain a system to receive, log, and investigate complaints received from end users and other stakeholders. This may include a clustering and trend analysis of recurring complaints and allow the tracking of corrective actions and investigations undertaken. This register may consist of specific information on the affected model, hardware and software version identifiers, class label, and distribution routes. The registry may also be maintained by using sample testing results and information.

Sample testing may include, but is not limited to:

- A review of the documentation provided with the product
- The labelling affixed to the product or packaging
- Inspection of the information notice supplied with the product
- Power-up and functional verification
- Tests of essential features, including the remote identification function
- Visual inspections for material integrity or wear
- Verification of serial numbers and manufacturer details

Sample tests and complaint analysis may not be performed by the same personnel who are involved in the development of the technical documentation, packaging, or development, but may be fulfilled by an independent quality management function and personnel qualified for quality management and independent check performance. They should ensure proportionality to the complexity of the system and the number of products put on the market.

Manufacturers may want to maintain a record or registry of all sample tests performed, including the date, methodology, product identification and any conclusions, actions taken, or improvement activities triggered and where applicable, inform the relevant design and manufacturing processes to be updated by incorporating corrective actions or improvement actions.

Distributors shall be informed of any safety-related product monitoring, identified non-conformities, recalls, or corrective actions. This may include the provision of technical bulletins or safety communications where appropriate.

AMC1 to Article 6(9)

MANAGEMENT OF NON-CONFORMING PRODUCTS (MANUFACTURERS)

Where a manufacturer identifies or has reason to believe that a product placed on the market does not conform with the applicable requirements of this Chapter, they shall take immediate and appropriate corrective measures to bring the product into conformity or recall it, as necessary. This includes situations where the product, although in compliance, presents a risk.

Non-conformities that appear as part of the conformity assessment must be managed by the manufacturer and be resolved with the CAB assessing the product or organisation as per the applicable Conformity Assessment Scheme procedures.

If a manufacturer considers or has reason to believe that a product they have placed on the market poses a risk, even in the absence of a confirmed non-compliance, they shall inform the MSA within 72 hours, via email to MSAenquiries@caa.co.uk. The notification should include a description of

the issue, affected product identifiers, the scope of distribution, corrective measures taken or proposed actions, and potential results of internal investigations or information on planned investigations. Where the product poses a risk to health and safety in the absence of a confirmed non-compliance, manufacturers may also inform and collaborate with the CAB involved in the chosen conformity assessment procedure.

If a manufacturer has reason to believe that a product they have placed on the market is not in conformity with this Regulation or any other relevant enactment, the manufacturer is encouraged to notify any relevant economic operators and inform the MSA without undue delay. The MSA may be contacted via the UK CAA website or directly by email at MSAenquiries@caa.co.uk.

Corrective measures may include software patches, physical updates, retrofit kits, product advisories, or full product recalls or replacements. These actions should be defined, initiated and communicated in coordination with the MSA to end users and other relevant stakeholders. Communications should include detailed product identifications to ensure accuracy and traceability. Relevant identifiers may consist of model name, serial number, marketing product name, hardware and software version identifiers, production dates, the date the product was first made on the market, or relevant batch numbers. Communications to end users may include formal notifications, market outreach via distributors, video messages, e-mail, social media or contacting media outlets.

Where a product is recalled from the market, manufacturers shall collect evidence of the recall effort, which may include copies of public or customer-facing notifications, records of serial numbers of returned or replaced products, photo or video documentation, user confirmations and acknowledgements, and internal audit trails of the recall process. Such evidence may be retained as part of the manufacturer's complaint and post-market monitoring systems to support traceability for future reference.

AMC1 to Article 6(3), (10) and (12)

DOCUMENTATION AND COOPERATION WITH THE MARKET SURVEILLANCE AUTHORITY (MSA)

In line with paragraph 3, manufacturers shall retain the technical documentation and the declaration of conformity for a period of 10 years following the date the product has been placed on the market. The requirement applies to deviating product versions requiring new technical documentation or a new or updated declaration of conformity. The following example illustrates this case:

> *A product is placed on the market for the first time on 20 January 2026, leading to a minimum documentation storage deadline of 19 January 2036. The product undergoes significant changes, finally leading to another version requiring an update or new issue of the declaration of conformity on 1 July 2027, leading to a minimum documentation storage deadline of 30 June 2037 for the updated version.*

Technical documentation and the declaration of conformity should be stored securely and in a manner that ensures accessibility throughout the retention period. Where documents are maintained in digital format, systems should include redundancy and data integrity measures to protect against hardware failures, fire, cyber threats or data corruption. Manufacturers are

encouraged to implement IT security practices that support long-term data availability and traceability.

In line with paragraph 10, furthermore, upon receiving a reasoned request from the MSA the manufacturer should supply all necessary documentation to demonstrate product conformity. Such documentation may include, but is not limited to: technical documentation, declarations of conformity, design specifications or technical drawings, test reports and compliance statements, product photographs and labelling evidence, user manuals and instructions or certificates of conformity issued by a CAB, where applicable.

The manufacturers should cooperate with any investigation undertaken by the MSA to ensure risks posed by the product are eliminated. This includes responding to queries, providing supplementary information upon request, and supporting the authority in identifying the cause of non-compliance or risk.

To comply with the manufacturer's obligation, especially at paragraph 12, of informing the MSA when placing UK0 - UK6 UAS, remote ID add-ons or UK5 add-ons on the market, the manufacturer may contact the MSA via MSAenquiries@caa.co.uk.

Manufacturer's personnel who want to provide reports to the MSA as part of a whistleblowing activity are encouraged to contact the MSA by filing the whistleblowing report at https://www.caa.co.uk/our-work/make-a-report-or-complaint/report-something/make-a-whistleblowing-report/.

AMC1 to Article 7

DELEGATED AUTHORISED REPRESENTATIVE TASKS AND COMMUNICATION WITH THE MSA

Authorised representatives shall retain the technical documentation and the declaration of conformity for a period of 10 years following the date the product has been placed on the market. The requirement applies to deviating product versions requiring new technical documentation or a new or updated declaration of conformity. The following example illustrates this case:

> *A product is placed on the market for the first time on 20 January 2026, leading to a minimum documentation storage deadline of 19 January 2036. The product undergoes significant changes, finally leading to another version requiring an update or new issue of the declaration of conformity on 1 July 2027, leading to a minimum documentation storage deadline of 30 June 2037 for the updated version.*

Technical documentation and the declaration of conformity should be stored securely and in a manner that ensures accessibility throughout the retention period. Where documents are maintained in digital format, systems should include redundancy and data integrity measures to protect against hardware failures, fire, cyber threats or data corruption. Authorised representatives are encouraged to implement IT security practices that support long-term data availability and traceability.

If the authorised representative is responsible for monitoring a product after it has been placed on the market, it may be appropriate to establish a system for managing complaints and incidents that can log, cluster and investigate received reports. This register could include identifiers such as the product's model and class labels, as well as the versions of its hardware and software, and its

batch or serial numbers. Clusters may include differentiation between reports relating to product safety, non-conformity or non-compliance (which would be subject to MSA reporting and corrective measures) and reports relating to product quality and features.

Where the authorised representative is mandated to undertake sample testing after the product has been placed on the market, the scope of such checks may include but is not limited to:

- Verification of labelling, UK class marking, and affixed serial numbers;
- Inspection of physical condition and material integrity;
- Review of instructions, packaging and information notices;
- Functional checks such as power-on tests, or remote identification behaviour;
- Document and software version confirmation.

Sample testing may be supported by internal quality assurance personnel.

Where the authorised representative is delegated to liaise with the MSA, they may act as the initial contact points. They should cooperate fully with requests for technical files, declarations, test documentation, or other evidence required to demonstrate product conformity. The MSA may be contacted directly at MSAenquiries@caa.co.uk.

In cases where the authorised representative identifies a non-conformity or potential risk – through an investigation, sample testing, or otherwise – they should notify the manufacturer and engage with the MSA where such communication forms part of their mandate. This includes situations where a compliant product presents a safety concern.

Investigations into non-conforming products may follow a structured methodology such as PRISM (Product Safety Risk Assessment Methodology) published by the Office for Product Safety and Standards. The PRISM framework supports consistent, evidence-based decision-making and is used by the market surveillance authority. Using PRISM for investigations performed by the authorised representative will support effective and efficient collaboration and communication between the manufacturer and the MSA. PRISM includes the following elements:

- Identification of the non-compliant product or product version;
- Risk assessment and determination of the risk level;
- Risk evaluation and assessment of whether the risk might be acceptable due to being too minor and remote; and
- Risk management and definition of corrective measures.

Where the authorised representative is delegated to take corrective measures, such measures initiated or communicated by the authorised representative may include software patches, physical updates, retrofit kits, product advisories, or full product recalls or replacements. These actions should be defined, initiated and communicated in coordination with the MSA to end users and other relevant stakeholders. Communications may include detailed product identifications to ensure accuracy and traceability. Relevant identifiers may consist of model name, serial number, marketing product name, hardware and software version identifiers, production dates, the date the product was first made on the market, or relevant batch numbers. Communications to end users may include formal notifications, market outreach via distributors, video messages, e-mail, social media or contacting media outlets.

Where a product is recalled from the market, authorised representatives mandated to do so should collect evidence of the recall effort, which may include copies of public or customer-facing notifications, records of serial numbers of returned or replaced products, photo or video

documentation, user confirmations and acknowledgements, and internal audit trails of the recall process. Such evidence may be retained as part of the representative's complaint and post-market monitoring systems to support traceability for future reference.

Furthermore, upon receiving a reasoned request from the MSA or a competent border control authority, the authorised representative should supply all necessary documentation to demonstrate product conformity. Such documentation may include, but is not limited to: Technical documentation, Declarations of Conformity, design specifications or technical drawings, test reports and compliance statements, product photographs and labelling evidence, user manuals and instructions or certificates of conformity issued by a CAB, where applicable.

The authorised representative is encouraged to fully cooperate with any investigation undertaken by the MSA. This includes but is not limited to responding to queries, providing supplementary information upon request, and supporting the authority in identifying the cause of non-compliance or risk.

AMC1 to Article 8(2)

IMPORTER VERIFICATION BEFORE MARKET PLACEMENT

Before placing a product on the UK market, importers are expected to verify that the manufacturer has undertaken all necessary conformity actions and that the product satisfies the conditions of this Regulation. This includes confirming that an appropriate conformity assessment procedure has been carried out. The following assessment routes can be considered acceptable:

- Internal production control for class UK0, UK4, UK5, and UK6 marked UAS or remote ID add-ons;
- Internal production control for UK1, UK2, and UK3 marked UAS bearing an equivalent EU class marking (C1, C2, C3) until 31 December 2027;
- Type examination followed by production conformity to type for UK0-UK5 UAS and remote ID add-ons; This includes UK1, UK2, and UK3 marked UAS bearing an equivalent EU class marking (C1, C2, C3) from 01 January 2028 onwards.
- Full quality assurance using an approved quality management system for UK0-UK6 classed products

Where one class is referred to in more than one option above, the manufacturer may choose one conformity assessment pathway and does not have to comply with all options.

Importers must verify that the technical documentation has been compiled by the manufacturer and includes, at minimum, a complete product description with supporting illustrations, software or firmware versions, installation instructions, conceptual and manufacturing drawings, supporting explanatory material, and a list of fully or partially applied designated standards. Documentation should also include the declaration of conformity, test reports, type examination certificates (if applicable), supporting evidence of design solutions, address of places for manufacture and storage and any documentation submitted to the CAB.

Importers shall also confirm that the product bears:

- The UKCA marking
- The UA class identification label

- The sound power level indication for class UK1, UK2, and UK3 UAS, with levels for UK1 and UK2 complying with the thresholds defined in Part 15 of the Annex.

Each product is expected to be accompanied by the manufacturer's instructions, an information notice, and a copy of the declaration of conformity. Importers should also verify that the importer and manufacturer are identified by name, registered trade name or trademark, website and postal address. If this information cannot be reasonably affixed to the product due to size or design limitations, it may be included on the packaging or supporting documentation.

Where one or more of these conditions are not met, importers shall not place the product on the market. Instead, the issue should be communicated to the manufacturer, with clear reasoning provided.

If a product is found to present a potential risk to the health or safety of consumers or third parties, importers shall not proceed with market placement and shall notify the manufacturer and the MSA without delay.

AMC1 to Article 8(7)

MANAGEMENT OF NON-CONFORMING PRODUCTS (IMPORTERS)

Where an importer identifies or has reason to believe that a product placed on the market is not in conformity or presents a potential risk, appropriate corrective measures are expected to be taken without undue delay. This may apply even where the product formally complies with applicable requirements. Non-conformities that appear as part of the conformity assessment must be managed by the manufacturer and be resolved with the CAB assessing the product or organisation as per the applicable Conformity Assessment Scheme procedures.

Depending on the nature and severity of the issue, corrective measures could include software updates, add-on kits, hardware replacements, user advisories, or full product recalls. To ensure an informed and evidence-based approach to corrective measures, importers may adopt structured methods such as the PRISM (Product Safety Risk Assessment Methodology) framework. PRISM supports consistent investigations, and its key steps include:

- Identification of the non-compliant product or product version;
- Risk assessment and determination of the risk level;
- Risk evaluation and assessment of whether the risk might be acceptable due to being too minor and remote; and
- Risk management and definition of corrective measures.

Relevant identifiers may consist of model name, serial number, marketing product name, hardware and software version identifiers, production dates, the date the product was first made on the market, or relevant batch numbers. Communications to end users may include formal notifications, market outreach via distributors, video messages, e-mail, social media or contacting media outlets.

Evidence of such corrective activities may be gathered and retained by the importer, including:

- Records of end-user notifications;
- Details of products returned, replaced, or modified;

- Supporting visuals or acknowledgements from users;
- Internal audit trails of the recall or correction process.

This information may support future audits, MSA inquiries, or manufacturer coordination. In all cases, importers are expected to act in a timely and proportionate manner, especially where a product may pose a serious risk to health and safety.

AMC1 to Article 8(2), (7), (8), (9) and (10)

IMPORTER ENGAGEMENT WITH THE MARKET SURVEILLANCE AUTHORITY (MSA)

In line with paragraph 8, importers shall retain the technical documentation and the declaration of conformity for a period of 10 years following the date the product has been placed on the market. The requirement applies to deviating product versions requiring new technical documentation or a new or updated declaration of conformity. The following example illustrates this case:

> *A product is placed on the market for the first time on 20 January 2026, leading to a minimum documentation storage deadline of 19 January 2036. The product undergoes significant changes, finally leading to another version requiring an update or new issue of the declaration of conformity on 1 July 2027, leading to a minimum documentation storage deadline of 30 June 2037 for the updated version.*

Technical documentation and the declaration of conformity should be stored securely and in a manner that ensures accessibility throughout the retention period. Where documents are maintained in digital format, systems should include redundancy and data integrity measures to protect against hardware failures, fire, cyber threats or data corruption. Importers are encouraged to implement IT security practices that support long-term data availability and traceability.

If an importer considers or has reason to believe that a product they have placed on the market poses a risk, even in the absence of a confirmed non-compliance, they shall inform the MSA and manufacturer within 72 hours, via email to MSAenquiries@caa.co.uk and relevant contact details for the manufacturer. The notification should include a description of the issue, affected product identifiers, the scope of distribution, corrective measures taken or proposed actions, and potential results of internal investigations or information on planned investigations. Where the product poses a risk in the absence of a confirmed non-compliance, importers may also inform and collaborate with the CAB involved in the chosen conformity assessment procedure.

If an importer has reason to believe that a product they have placed on the market is not in conformity with this Regulation or any other relevant enactment, the importer is encouraged to notify any relevant economic operators and inform the MSA without undue delay. The MSA may be contacted via the UK CAA website or directly by email at MSAenquiries@caa.co.uk.

Upon receipt of a reasoned request from the MSA, importers must provide all information and documentation necessary to demonstrate product conformity. This may include, but is not limited to: technical documentation, Declarations of Conformity, design specifications or technical drawings, test reports and compliance statements, product photographs and labelling evidence, user manuals and instructions or certificates of conformity issued by a CAB, where applicable.

Importers are encouraged to fully support investigations initiated by the MSA. This may involve responding to queries, supplying additional evidence upon request, and assisting in clarifying any concerns related to product conformity, risks, or non-compliance. Where appropriate, importers are encouraged to work jointly with the manufacturer and the MSA to identify the source of the risk and define appropriate corrective measures. These actions may include repair, update, withdrawal, or recall of the affected product group.

Importer's personnel who want to provide reports to the MSA as part of a whistleblowing activity are encouraged to contact the MSA by filing the whistleblowing report at https://www.caa.co.uk/our-work/make-a-report-or-complaint/report-something/make-a-whistleblowing-report/.

AMC1 to Article 9(2)

DISTRIBUTOR VERIFICATION BEFORE MARKET AVAILABILITY

Before making a product available on the UK market, distributors are expected to verify that key compliance elements have been satisfied by the manufacturer and importer. This verification process shall include confirming that the product is appropriately marked with the UK marking and the relevant class identification label. For products in class UK1, UK2, and UK3, the distributor may also check that the sound power level is indicated, and that the declared values for UK1 and UK2 products fall within the limits defined in Part 15 of the Annex.

In addition, distributors shall ensure that each unit is accompanied by the manufacturer's instructions, an information notice, and a copy of the declaration of conformity. These documents and any attached labelling should be clear, legible, and presented in English. Information such as the name, registered trade name or trademark, website and postal address of the manufacturer and importer is expected to be affixed to the product. Where the size or design does not allow for visible placement of this information, the details may be presented on the product packaging, or in a document accompanying it.

Distributors shall also confirm that the manufacturer has prepared a complete set of technical documentation, including details on the design, means of compliance, and supporting test results. While distributors are not expected to conduct a technical assessment, a basic confirmation that the declaration of conformity is valid and references appropriate standards may support confidence in product compliance.

Where any expected conditions are not met, distributors shall refrain from making the product available on the market.

If a distributor considers or has reason to believe that a product they have placed on the market poses a risk, even in the absence of a confirmed non-compliance, they shall inform the MSA, manufacturer and importer within 72 hours, via email to MSAenquiries@caa.co.uk and relevant contact details for the manufacturer and importer. The notification should include a description of the issue, affected product identifiers, the scope of distribution, corrective measures taken or proposed actions, and potential results of internal investigations or information on planned investigations. Where the product poses a risk in the absence of a confirmed non-compliance, distributors may also inform and collaborate with the CAB involved in the chosen conformity assessment procedure.

If a manufacturer has reason to believe that a product they have placed on the market is not in conformity with this Regulation or any other relevant enactment, the manufacturer is encouraged to notify any relevant economic operators and inform the MSA without undue delay. The MSA may be contacted via the UK CAA website or directly by email at MSAenquiries@caa.co.uk.

AMC1 to Article 9(4) and (5)

DISTRIBUTOR ENGAGEMENT WITH THE MARKET SURVEILLANCE AUTHORITY (MSA)

If a distributor considers or has reason to believe that a product they have placed on the market poses a risk to, even in the absence of a confirmed non-compliance, they shall inform the MSA, manufacturer and importer within 72 hours, via email to MSAenquiries@caa.co.uk and relevant contact details for the manufacturer and importer. The notification should include a description of the issue, affected product identifiers, the scope of distribution, corrective measures taken or proposed actions, and potential results of internal investigations or information on planned investigations. Where the product poses a risk in the absence of a confirmed non-compliance, distributors may also inform and collaborate with the CAB involved in the chosen conformity assessment procedure.

Distributors shall take corrective measures and bring the product back into conformity if they become aware of a non-conformity. Corrective measures may include updates to product software, provision of modification kits, safety notices, or, where warranted, full product recalls. Distributors may coordinate with manufacturers, importers and the MSA to define, initiate, and communicate such actions. Communications may reference product identifiers such as model name, serial number, version of hardware or software, and relevant production or batch dates to ensure traceability.

Upon receipt of a reasoned request from the MSA, distributors must provide all information and documentation necessary to demonstrate product conformity. This may include, but is not limited to: technical documentation, Declarations of Conformity, design specifications or technical drawings, test reports and compliance statements, product photographs and labelling evidence, user manuals and instructions or certificates of conformity issued by a Conformity Assessment Body (CAB), where applicable.

Distributors are expected to fully support investigations initiated by the MSA. This may involve responding to queries, supplying additional evidence upon request, and assisting in clarifying any concerns related to product conformity, risks, or non-compliance. Where appropriate, importers are encouraged to work jointly with the manufacturer, importer and the MSA to identify the source of the risk and define appropriate corrective measures. These actions may include repair, update, withdrawal, or recall of the affected product group.

Distributor's personnel who want to provide reports to the MSA as part of a whistleblowing activity are encouraged to contact the MSA by filing the whistleblowing report at https://www.caa.co.uk/our-work/make-a-report-or-complaint/report-something/make-a-whistleblowing-report/.

AMC1 to Article 13(2) and (3)

When using internal production control procedures under point 2, designated standards must be applied if they exist. The absence of designated standards does not preclude the use of internal production control procedures. Economic operators must establish procedures to ensure that their

products comply with the requirements of this regulation. Products bearing an EU class label may comply by following existing EU standards, which can be used to ensure product compliance under internal production control procedures in the absence of a designated standard, where they cover the requirements of this regulation.

In line with point 3, the internal production control procedures can also be used for products bearing an EU class label and an EU type examination certificate based on a conformity assessment performed by an accredited and approved CAB for UK1, UK2 and UK3 UAS, provided that the procedure is applied before January 2028.

The following table provides an overview of the conformity assessment requirements for the different product groups:

UAS Class	**Conformity assessment requirement from 01/01/2026**	**Conformity assessment requirement from 01/01/2028**
UK0 (Part 1) UK4 (Part 5) UK5 (Part 16) UK6 (Part 17) Remote ID add-on (Part 6)	Internal production control providing the UAS has an EU label (irrespective of whether the product has a type examination certificate from an EU-approved CAB)	Internal production control
UK1 (Part 2) UK2 (Part 3) UK3 (Part 4)	Internal production control providing the product has a type-examination certificate from an EU-approved CAB	Type examination certificate from a UK-approved CAB

AMC1 to Article 18(1) and (2) and Article 22

APPROVAL OF CONFORMITY ASSESSMENT BODIES (CABS)

Organisations seeking approval to conduct third-party conformity assessment activities under this Regulation may apply directly to the MSA. Applications are submitted via the UKMCAB portal and are reviewed in accordance with Article 22 of this Regulation.

To be considered for approval, an applicant is generally expected to:

- Be established as a legal entity within the United Kingdom or a member country of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which includes Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam.
- Hold a current certificate of accreditation issued by the United Kingdom Accreditation Service (UKAS) for the relevant conformity assessment activities.

As part of the application, bodies are invited to provide:

- A clear description of their conformity assessment scope, identifying the modules and product types for which competence is claimed;
- A record of past conformity assessment activities, where applicable;

- Declarations and supporting evidence of impartiality and independence, including relevant internal procedures, organisational charts, shareholder listings, staff CVs and lists of existing and intended clients.

Applicants are advised to demonstrate independence from any organisation or product they assess. This includes not engaging in the design, manufacture, construction, supply, marketing, installation, maintenance, or ownership of the relevant products. Similarly, applicants typically refrain from offering consultancy services that could affect impartiality for any organisation they are assessing.

Personnel involved in assessments are expected to operate with professional integrity, without external influence, commercial pressure, or incentives that may compromise objectivity. Assessment staff may not be rewarded based on the number of inspections or certifications performed. The assessment process also considers the availability of qualified personnel to support the applied scope.

Applicants are encouraged to maintain robust procedures distinguishing work performed under UK CAB approval from other business operations. In addition, CABs may be expected to demonstrate participate actively in standardisation and regulatory activities relevant to the product categories they assess and must demonstrate they carry appropriate liability insurance.

All applications and relevant documentation are processed using the UKMCAB system. Approved CABs are listed publicly in the UKMCAB register, including the approved body number, approval scope, and applicable limitations.

The MSA may request additional information or clarification during the application or reapproval process. CABs are expected to cooperate with such requests. Additionally, CABs are advised to notify the MSA of any forthcoming accreditation renewals and submit proof of reaccreditation once obtained to maintain approval status. Where applicable, the MSA may require verification through tools such as the CertCheck service.

Following a successful review, the MSA issues formal notification of approval or reapproval. Continued approval is conditional on ongoing compliance with applicable requirements and the retention of accreditation by UKAS.

Applicants may want to send enquiries to or seek clarification from the MSA prior to or during the approval process. Requests can be sent to the MSA via MSAenquiries@caa.co.uk.

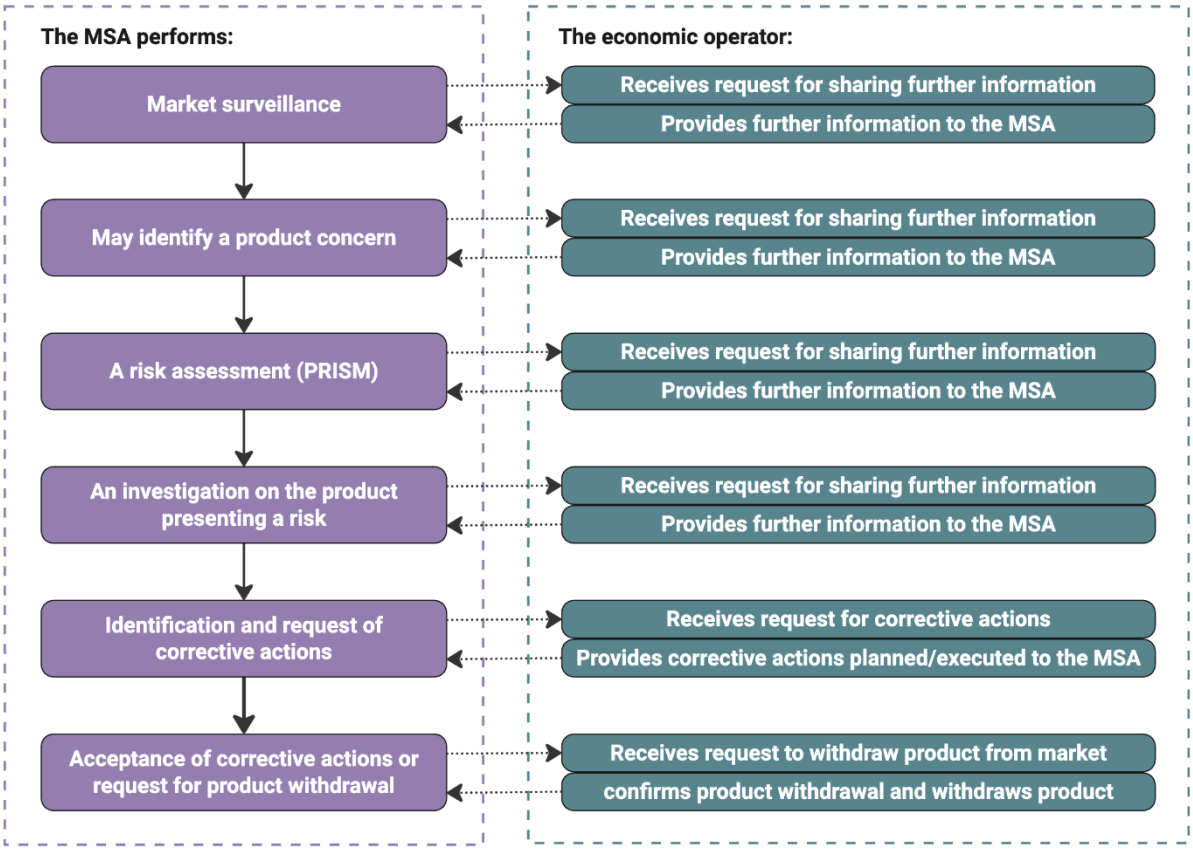
AMC1 to Article 36(1)

RISK EVALUATION AND COOPERATION WITH MARKET SURVEILLANCE AUTHORITY (MSA)

When the MSA identifies a potential risk associated with a product placed on the market, an evaluation may be initiated to determine compliance with the applicable requirements of this Chapter. This evaluation typically follows a structured engagement sequence, beginning with a request for information and progressing, where necessary, through stages of risk assessment, investigation, and the proposal or implementation of corrective actions.

A high-level flow chart illustrates the typical progression from identification of concern through to case resolution or potential withdrawal, as shown below. Throughout the process, the economic

operator may be asked to provide additional documentation, clarification, or follow MSA instructions. These inputs may relate to technical documentation, conformity procedures, test records, or post-market surveillance results. Cooperation with such requests is considered essential in ensuring accurate and timely evaluation.



The MSA will use risk relevant methodologies such as the PRISM framework (Product Safety Risk Assessment Methodology) for its evaluations and risk assessments. PRISM offers a structured framework, including identifying and characterising the non-conforming product or version, assessing and classifying the risk level, evaluating whether the risk may be considered negligible or acceptable, and formulating and proposing proportionate corrective actions.

When a product is found to be non-conforming or posing a risk, corrective actions are expected within a timeframe proportionate to the severity of the issue. In such cases, details of product withdrawals or recalls will be reflected in the UK Product Safety Database and inform annual OPSS product safety reports.

The MSA will notify the Secretary of State of the outcome of product withdrawals and recalls.

AMC1 to Article 36(3)

IMPLEMENTATION OF CORRECTIVE ACTIONS BY ECONOMIC OPERATORS

When a corrective action is required, whether as a result of a direct request from the MSA or identified through the economic operator's own investigation, the action is expected to be both proportionate and effective in mitigating the identified risk and restoring product conformity.

Corrective measures may include but are not limited to software updates, retrofit kits, component replacements, or information campaigns. Before implementation, if the MSA initially requested that the economic operator define the corrective action, the economic operator shall submit the final selection of a corrective action to the MSA for acceptance. Economic operators should demonstrate how the proposed action addresses the specific non-conformity or risk, supported by relevant data, test evidence, or conformity assessment outcomes. Once implemented, economic operators should notify the MSA and provide proof of completion, such as updated conformity declarations, revised technical documentation, or verification test reports and shall seek final acceptance of the corrective actions from the MSA.

Where the MSA provides a specific timeframe for action, the economic operator should confirm that the timeline can be met or provide a reasoned proposed timeframe back to the MSA. If constraints such as supply chain delays or technical limitations arise, the MSA should be informed immediately, and a revised plan with justification and mitigation measures should be submitted. Economic operators may confirm the timeline for implementation and describe when and how actions will be carried out.

In executing the corrective action, operators should

- Identify all affected product types and versions;
- Review and update the relevant technical documentation and conformity assessment results;
- Plan and manage communications with end users, distributors, and other supply chain entities;
- Provide practical support, such as update instructions, physical modification kits, or return procedures;
- Consider legal and commercial implications where end users do not implement the required actions.

The economic operator should also keep the MSA informed throughout the implementation phase. Updates might include the overall strategy, the implementation timeline, outreach plans, and progress status.

Should corrective actions fail during rollout or the MSA determine that they are insufficient, the operator may be asked to reconsider or initiate a full product recall. In such cases, documentation of the efforts undertaken and reassessing the remaining risks may support subsequent regulatory decisions.

Corrective actions are typically considered complete only when the MSA has received confirmation of completion and reviewed supporting evidence demonstrating that the product no longer poses a risk and complies fully with applicable requirements.

AMC1 to Article 36(4)

RECALL OF PRODUCTS

Where an economic operator does not undertake appropriate or timely corrective action following a risk evaluation under Article 36(1), the MSA may consider further steps to prevent the product from remaining on the market. In such cases, the MSA may formally notify the operator advising that the product should no longer be made available on the UK market and may require its withdrawal or recall.

The decision to mandate product withdrawal or recall is generally regarded as a measure of last resort. The MSA typically explores all available avenues to enable the continued presence of compliant and safe products on the market. However, the protection of health and safety remains the MSA's primary consideration, and this takes precedence in all cases of confirmed or potential product risk.

If the economic operator fails to act in accordance with a withdrawal or recall request, the MSA may engage with relevant enforcement bodies and pursue legal options to ensure compliance with regulatory obligations.

Operators are encouraged to maintain an open dialogue with the MSA throughout the corrective process and to cooperate with honest intent. Timely communication of implementation progress, challenges, or inability to comply with MSA instructions may help mitigate enforcement outcomes and support proportionate regulatory responses.

AMC1 to Article 38(1) and (2)

MANAGEMENT OF COMPLIANT PRODUCTS PRESENTING A RISK

Where a product is found to present a risk to health or safety, despite complying with all applicable requirements, the MSA may initiate appropriate risk mitigation measures. This scenario may arise, for example, due to unforeseen technological developments, changes in operating environments, or newly identified vulnerabilities.

The economic operator is typically expected to cooperate fully with the MSA in such cases. This may include the following requests for corrective actions, conducting internal investigations into the identified risk, and engaging with the CAB originally involved in the assessment. Economic operators should also support MSA-led investigations by providing technical documentation, data on product usage, and expert input.

Economic operators should identify and assess potential corrective actions, such as software updates, retrofit kits, or usage restrictions, and prepare a risk mitigation and corrective action implementation strategy. This strategy might include:

- Identification of all affected products and versions;
- An assessment of the severity and likelihood of the risk;
- A proposed corrective action plan with expected outcomes.
- A communication strategy targeting end users, distributors, and partners across the supply chain.

The strategy should also include an implementation timeline and contingency planning for cases where the corrective actions are not feasible or fail to resolve the issue. In such instances, a product recall or withdrawal from the market may be reconsidered in consultation with the MSA.

Throughout this process, the economic operator should keep the MSA informed. Updates may include that the risk is being addressed, that mitigation steps have been initiated, and that communication with the affected parties is underway. Regular status reports help ensure alignment with regulatory expectations and demonstrate proactive post-market product stewardship.

Corrective actions are generally considered complete once they are implemented across all impacted products placed on the market, and evidence has been provided that the residual risk has been sufficiently reduced.

AMC1 to Article 39(1)

ADDRESSING FORMAL NON-COMPLIANCES

Where a formal non-compliance has been identified, the economic operator should undertake a systematic evaluation of the affected processes, product variations, and associated documentation. Effective communication with other relevant economic operators involved in the supply chain may support timely resolution and ensure consistency across the impacted units.

For non-compliance related to markings, including the UK marking, class identification label, approved body number, sound power level indication or serial number, corrective measures may begin with a process-level investigation. Economic operators may examine which procedural step resulted in omission or error, determine which models or production batches are affected, and assess whether the preconditions for affixing such markings were fully met.

Where an approved body number has not been affixed or affixed incorrectly, the economic operator may check whether the identification number was issued and confirm whether the conformity assessment procedure was correctly followed and documented.

If sound power level markings are missing, a review may be conducted to confirm whether the required tests were completed, the measured value complies with the applicable limits of Part 15 of the Annex, and the value has been correctly recorded and incorporated into the product labelling process and documentation.

For missing or improperly formatted serial numbers, economic operators should verify whether serial number data exists, assess whether unique identifiers can be retrospectively assigned, and confirm alignment with any required formatting standard.

When the user manual or information notice is missing or incomplete, economic operators may review whether all relevant user-facing documentation has been prepared, whether it reflects current product specifications and includes necessary safety instructions, and whether processes are in place to distribute this information in English to end users.

For incomplete technical documentation, economic operators may verify that documentation is prepared in accordance with Article 17 and Part 10 of the Annex. This includes, but is not limited to:

- A comprehensive product description, including illustrations;

- Software or firmware version identifiers;
- Installation instructions;
- Design and manufacturing drawings with supporting explanations;
- A list of designated standards applied in part or full;
- Test reports and, if applicable, the type examination certificate;
- Evidence submitted to the CAB;
- A copy of the declaration of conformity.

Where the declaration of conformity is absent, incomplete or incorrect, economic operators may review the applicable conformity assessment route, the required content of the declaration, and ensure alignment with the product's class marking and design features. This includes confirming the correct identification of the product, applicable standards, and the conformity assessment module applied.

Economic operators may seek to close non-compliance cases by submitting proof to the Secretary of State or the Department for Transport that the corrective measures have been fully implemented. Where necessary, further engagement with relevant CABs, review of conformity assessment processes, or resubmitting updated technical documentation may support resolution.

Amendments to UK Reg (EU) 2019/947 AMC and GM

GM1 Article 2(11) Definitions

DEFINITION OF 'DANGEROUS GOODS'

For the purpose of assessing the risk of the transport of dangerous goods by an unmanned aircraft operators should also consider articles and substances that fall within the definition of dangerous goods contained in the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, Doc 9284 (Technical Instructions).

GM1 Article 3 Categories of UAS Operations

BOUNDARIES BETWEEN THE CATEGORIES OF UAS OPERATIONS

a) Boundary between Open and Specific

A UAS operation is not in the Open category when at least one of the general criteria listed in Article 4 of the UAS Regulation is not met (e.g., when operating beyond visual line of sight (BVLOS)) or when the detailed criteria for a subcategory are not met (e.g. operating a 10 kg UA close to people when subcategory ~~A2~~ Near People (A2) is limited to 4 kg UA).

During the course of a Specific category flight, the UA may be flown in such a manner that it enters the Open category. The RP may not actively decide which category they are flying in, this is purely a function of the operation~~al~~, and technical characteristics of the operation.

For example, mid-flight the RP transitions the UA from a built-up environment to open farm land. The operational intent and authorisation do not change.

The UAS Operator and RP must comply with the relevant responsibilities throughout the flight at all times. The RP and UAS Operator should comply with the Specific Category requirements, as detailed within the Operational Authorisation, for their operation, throughout the operation.

For example, the requirement to maintain a flying log-book is a requirement of an OA when operating within the Specific category. If a portion of the flight takes place within the Open category, the Remote Pilot is not expected to only log the portion of the flight in the Specific category, they should log the entire flight.

b) Boundary between Specific and Certified

Article 6 of the UK Regulation (EU) 2019/947 and Article 40 of UK Regulation (EU) 2019/945 define the boundary between the Specific and the Certified category. The first article defines the boundary from an operational perspective, while the second one defines the technical characteristics of the UA; they should be read together.

UAS operations must be carried out within the Certified category when they:

- are conducted over assemblies of people with a UA that has characteristic dimensions of 3m or more; or
- involve the transport of people; or

- involve the carriage of dangerous goods that may result in a high risk for third parties in the event of an accident.

In addition, a UAS operation is deemed within the Certified category when, based on the safety risk assessment as detailed in Article 11, the competent authority considers that the safety risk cannot be mitigated adequately without it being operated within the Certified category.

AMC1 Article 4(1)(f) Open Category Operations

DROPPING OF MATERIAL

For the purpose of this article, the term 'dropping of material' shall be taken to also include 'projecting' and 'lowering' of articles, including solid, liquid or gas whilst in flight.

AMC1 Article 5(2) Specific Category of UAS Operations

CARRIAGE OF DANGEROUS GOODS

Mitigating measures in relation to the carriage of dangerous goods within the Specific category will be considered adequate when conducted in accordance with the Technical Instructions including its supplement and any other addenda or corrigenda.

This relates only to the aspects of the carriage of dangerous goods and do not replace the need for a specific safety risk assessment in accordance with Article 11.

AMC1 Article 6(1)(b)(iii) Certified Category of Operations

CARRIAGE OF DANGEROUS GOODS

The carriage of dangerous goods must be carried out within the Certified category if there is a high safety risk to third parties following an accident.

Note:

~~The operation may be carried out within the Specific category if this safety risk is mitigated sufficiently. This may be achieved with the use of a crash protected container or by adjusting the scope/location/nature of the operation, or by a combination of both.~~

There may be hazards unique to UAS operations that are not addressed in the Technical Instructions, for example: when an UAS operating in the Specific Category is carrying dangerous goods and where there is a high risk to third parties in the event of an accident, a crash-protected container must be used. A Crash Protected Container (CPC) is a containment device that is designed and tested to be capable of falling from an operational height and preventing the leakage / dispersion of its contents dangerous goods after impacting terrain in case of an accident.

Generally, dangerous goods carried in excepted quantities and those in Division 6.2, Category B as defined by the Technical Instructions, will not be required to be carried in a crash-protected container.

AMC1 Article 11(1)(c) Rules for Conducting an Operational Risk Assessment

SPECIFIC RISK ASSESSMENT AND EMERGENCY RESPONSE PLAN FOR THE CARRIAGE OF DANGEROUS GOODS

(1) The specific risk assessment for the carriage of dangerous goods, should at a minimum, include the following aspects:

i. the extent to which third parties, property or the environment, could be endangered by dangerous goods being carried, in case of an incident or accident;

ii. identification of the hazards associated with the dangerous goods to persons directly involved in the handling of such articles and substances;

iii. type of operation and geographical area where the operation will be carried out;

iv. containment characteristics of the UAS and the crash-protected container, when required;

v. the effects of the intrinsic hazard of the dangerous goods, considering the capabilities of the UAS to respond to the hazards, should an incident occur during flight;

vi. the packing and packaging being used for the transport of dangerous goods;

vii. the quantity and type of dangerous goods to be carried;

viii. the level of competence of those handling the dangerous goods;

ix. the level of confidence in the supply chain.

(2) Operators should document and implement an Emergency Response Plan (ERP), which include procedures and actions to be taken in the event of an incident or an accident when dangerous goods are being carried.

(3) When establishing emergency response procedures, a contingency checklist should be developed, which details the response to an incident or accident involving dangerous goods carried on board the UAS, with the objective of providing adequate information to all of the operator's staff involved in the response. As a minimum the following aspects should be included in the ERP:

i. identification of emergency scenarios that may result from the Classes of dangerous goods being carried on board;

ii. contingency procedures for dealing with an emergency involving dangerous goods for UAS cargo compartments which do not have fire detection or suppression systems;

iii. identification of entities which are trained and competent to adequately respond to the incident or accident on the ground and their contacts;

iv. when dangerous goods are being carried, operators should identify entities which may, at short notice, search for and secure an accident site before the arrival of the operator's emergency responders;

v. procedures for communicating the ERP to local entities which may be involved in the emergency response to incidents and accidents involving dangerous goods;

vi. where emergency response kits are used, the operator should ensure that these are deployable and available to their emergency response staff, at the location where the incident or accident has occurred;

vii. the ERP should include a contact list for all entities that may be involved in any action related to the operator's ERP to ensure expeditious and effective communications during any accident or incident involving DG or any emergency that may occur when an aircraft is carrying DG.

Operators should periodically review the risk assessment and the ERP to ensure that they remain relevant, up to date and that no further hazards to the operation, introduced either internally or by external factors and entities have arisen, which may need to be further assessed and mitigated.

GM1 Article 11(1)(c) Rules for Conducting an Operational Risk Assessment

OPERATIONAL RISK ASSESSMENT FOR THE CARRIAGE OF DANGEROUS GOODS

To the extent possible, the full scope of Technical Instructions should be complied with. However, considering the differences in the type of operations carried out by UAS and the type/s of aircraft involved, there may be circumstances when the full provisions of the Technical Instructions are not appropriate or necessary. Where the operator identifies such circumstances, justification to support why the operator believes that the provisions should not apply must be included in the risk assessment and must demonstrate that appropriate alternative mitigating measures will achieve an equivalent level of safety to those provided by the Technical Instructions.

There may be hazards unique to UAS operations that are not addressed in the Technical Instructions. The Operator should also consider such hazards in the risk assessment and include appropriate mitigating measures.

Dangerous goods may have two or more associated hazards (primary and subsidiary hazards). Correct identification and classification of DG is the first step towards safely transporting DG by air. Whilst the safety risks posed may be reduced through appropriate training, proper packaging, communication, handling, and stowage, the scope of DG carried onboard a UAS in the Specific category may be limited to specific items and classes depending on the hazard posed by the article or substance to health, safety, property or the environment. Information on classification criteria and hazards and may be found in Parts 2; and 3; of the Technical Instructions.

The table below provides general guidance on intrinsic hazards related to the various Classes or Divisions of DG which may be transported in the Specific Category, which the operator should take into consideration when conducting the specific risk assessment. It is not intended to cover all associated hazardous properties and additional hazards may apply.

	Class / Division including Sub-hazards							
HAZARDOUS PROPERTIES	**2.1**	**2.2**	**3**	**4.1**	**5.1**	**6.1**	**8**	**9**
Flammability	√		√	√				√
Chemical Explosion	√		√	√				
Physical explosion	√	√						
Physical and Chemical Explosion	√			√	√			√
Explosive atmosphere	√		√					
Toxic by inhalation						√		
Toxic by skin or eye contact						√	√	
Toxic by ingestion						√		
Asphyxiation risk		√						√
Corrosivity							√	
High Reactivity				√	√			
Cryogenic burns		√						
Chemical instability *					√			
Hazardous decomposition *					√	√	√	
Environmental Pollutant	√		√	√	√	√	√	√

AMC2 Article 11(2)(d) Rules for Conducting an Operational Risk Assessment

THE CARRIAGE OF DANGEROUS GOODS – EXCEPTED ITEMS

Articles and substances which are classified as dangerous goods, but are required to be on board the unmanned aircraft for the purpose of supplying energy to its propulsion system or for the operation of its equipment in accordance with operating regulations, (e.g. fuel, batteries and other items required to be used during flight), are excepted from the provisions of the Technical Instructions and not required to be transported in accordance with the provisions of the Technical Instructions.

The safety of these articles and substances should be assessed during the design and manufacturing of the UAS.

AMC3 Article 11(6) Rules for Conducting an Operational Risk Assessment

THE CARRIAGE OF DANGEROUS GOODS

Any risk to third parties must be sufficiently mitigated. This may be achieved with the use of a crash protected container and following the provisions of the Technical Instructions, or by adjusting the scope/location/nature of the operation, or by a combination of all such mitigations.

GM3 Article 16 UAS Operations in the Framework of Model Aircraft Clubs and Associations

OPTIONS TO OPERATE A MODEL AIRCRAFT

Model flyers have the following options to conduct their operations:

- They may operate as members of a model club or association that has received an authorisation from the CAA, as defined in Article 16. In this case, they must comply with the procedures of the model club or association in accordance with the authorisation.
- In accordance with Article 15(2) the UK may define zones where UAS are exempted from certain technical requirements, and/or where the operational limitations are extended, including mass or height limitations.
- The UAS may be operated in Subcategory ~~A3~~ Far from People (A3), in which the following categories of UAS are allowed to fly according to the limitations and conditions defined in UAS.OPEN.040:
    - UAS that meet the requirements defined in Article 20(b); and
    - privately built UAS with MTOM of less than 25 kg.
- An Article 16 authorisation will set out conditions and limitations of any agreement between the association and the CAA, including any Operator registration data transfer, and the issuing of Open category pilot competence certificates on behalf of the CAA, where appropriate.
- Where necessary, a permission or exemption to the ANO necessary for the purpose of an Article 16 authorisation will be included as an annex to the Authorisation.

AMC1 Article 19(2) Safety Information

OCCURENCE REPORTING - CAA

Occurrence reports must be submitted through the Mandatory Occurrence Reporting (MOR) process, using the ECCAIRS 2 portal, which can be found here ~~(https://aviationreporting.eu).~~ (https://eccairs.icao.int/reporting). When making a report, UAS Operators should also include their registration number (Operator ID), and state whether an OA is held. Further guidance can be found in CAP1496.

(…)

GM1 Article 19(2) Safety Information

USE OF THE ECCAIRS 2 PORTAL

Reporting to the CAA should take place via the ECCAIRS 2 portal (AMC1 Article 19(2), above).

It should be noted that when selecting the UK, within this system, it explains that the user is reporting as an ICAO state, and not under Regulation (EU) 376/2014. This is because the UK has left the EU, and so reports are made under ~~Regulation (EU) 376/2014 as retained (and amended in UK domestic law) under the European Union (Withdrawal) Act 2018, hereafter referred to as UK Regulation (EU) 376/2014, rather than the European version of that regulation~~ assimilated law, hereafter referred to as UK Regulation (EU) 376/2014, rather than the European version of that regulation.

(…)

AMC1 Article 20(A) Particular provisions concerning the use of EU class-marked UAS in the UK

USE OF EU CLASS-MARKED UAS IN THE UK

To allow products class-marked in the European Union but not class-marked in the UK to be continuously operated in the UK, European Union class labels are accepted for UAS operating in the Open category for a limited time period until 1 January 2028. UAS that are class-marked according to the European Union and that comply with the requirements of EU Regulation 2019/945, Annex Part 1-5 and bearing a class label C0, C1, C2, C3, or C4 can be used in the UK under the following conditions before 1 January 2028:

- In the Open category, subcategory ‘Over People (A1)’, following the requirements of UK Regulation 2019/947 Part A, point UAS.OPEN.020, if the UAS is marked with a C0 or C1 class label.
- In the Open category, subcategory ‘Near People (A2)’, following the requirements of UK Regulation 2019/947 Part A, point UAS.OPEN.030, if the UAS is marked with a C2 class label.

- In the Open category, subcategory ‘Far from People (A3)’, following the requirements of UK Regulation 2019/947 Part A, point UAS.OPEN.040, if the UAS is marked with a C2, C3 or C4 class label.

On and after 1 January 2028, these UAS will be treated as “legacy” UAS if not retrofitted with a UK class label. This means that UAS Operators and RP carrying out operations with such UAS should comply with the requirements of Article 20(A).

Annex to UK Regulation (EU) 2019/947

UAS OPERATIONS IN THE 'OPEN' AND 'SPECIFIC' CATEGORIES

Part A UAS OPERATIONS IN THE 'OPEN' CATEGORY

AMC1 UAS.OPEN.020(1) and (2) UAS Operations in Subcategory ~~A1~~ Over People A1

OPERATIONAL LIMITATIONS IN SUBCATEGORY ~~A1~~ OVER PEOPLE A1

As a principle, the rules prohibit overflying assemblies of people. ~~There is a distinction between class C1/C0 UAS and privately built UAS with MTOM of less than 250g~~

> ~~a) For UAS flying under the 'A1 Transitional' provisions of Article 22(a): Before starting the UAS operation, the RP must assess the area and must reasonably expect that no uninvolved person will be overflown. This evaluation must be made taking into account the configuration of the site of operation (e.g., the existence of roads, streets, pedestrian or bicycle paths), the ability to secure the site, and the time of the day. In case of an unexpected overflight, the RP must reduce as much as possible the duration of the overflight, for example, by flying the UAS in such a way that the distance between the UA and the uninvolved people increases, or by positioning the UAS over a place where there are no uninvolved people.~~

~~b)~~ Non-class marked UAS with MTOM less than 250g, or privately built UAS with MTOM less than 250g: These UAS may fly over uninvolved people (but not over assemblies of people) however, flight over uninvolved people should be avoided whenever possible, and extreme caution should still be used.

Uninvolved people should only be overflown when absolutely necessary, to achieve the aim of the flight and should be minimised as much as possible.

When flying in an area with uninvolved people, the RP should allow for a ground safety buffer to prevent accidental overflight in the event of loss of propulsion, by using the 1:1 rule. The RP must be aware of their responsibilities as set out in UAS.OPEN.060(2)(d), and in GM1 UAS.OPEN.060(2)(d), with regard to maintaining control of the UA.

The operational limitations above, in relation to the overflying of uninvolved people, do not apply to uninvolved people inside buildings. The RP is ultimately responsible for maintaining safe horizontal distances including from uninvolved people entering and exiting buildings. This includes consideration for open areas such balconies and roofs.

AMC1 UAS.OPEN.020(4)(b) and UAS.OPEN.030(2)(a) and UAS.OPEN.040(3) UAS Operations in Subcategories ~~A1,~~ Over People A1 ~~A2~~ Near People A2 and ~~A3~~ Far from People A3

COMPLETION OF OPEN CATEGORY ONLINE TRAINING

The 'Flyer ID' online training course and test must be completed by RPs of UA with a mass of 100~~250~~g or more, i.e. operating in the Open category.

~~- A2 subcategory- all UA (note- in the A2 subcategory, an additional qualification must also be held- see AMC1 UAS.OPEN.030(2)(c).~~

~~- A3 subcategory- all UA.~~

The RP must complete the training course and test provided by the CAA Drone and Model Aircraft Registration System (DMARES) (https://register-drones.caa.co.uk/).

In certain circumstances, where provision is included within a model aircraft association Article 16 Authorisation, RPs may complete a model aircraft association training course and test instead of the CAA DMARES test. Following completion of this test, the CAA will issue the RP with a 'Flyer ID' number, which is equivalent to the completion of the CAA DMARES Flyer ID test. In this instance the RP does not need to undertake the CAA DMARES Flyer ID test, a RP may only hold one Flyer ID.

AMC2 UAS.OPEN.020(4)(b) and UAS.OPEN.030(2)(a) and UAS.OPEN.040(3) UAS Operations in Subcategories ~~A1,~~ Over People A1 ~~A2~~ Near People A2 and ~~A3~~ Far from People A3

(…)

AMC1 UAS.OPEN.020(5)(c) and (d), UAS.OPEN.030(3) and UAS.OPEN.040(4)(c), (d) and (e) UAS Operations in Subcategories ~~A1,~~ Over People A1 ~~A2~~ Near People A2 and ~~A3~~ Far from People A3

(…)

AMC1 UAS.OPEN.030(1) UAS Operations in Subcategory ~~A2~~ Near People A2

SAFE HORIZONTAL DISTANCE FROM UNINVOLVED PERSONS

(a) The horizontal distance of the UA from uninvolved persons is defined as the distance between the points where the UA would hit the ground in the event of a vertical fall and the position of the uninvolved persons.

(b) The safe horizontal distance of the UA from uninvolved persons is variable and is dependent on the performance and characteristics of the UAS involved, the weather conditions and the segregation of the overflown area. The RP is ultimately responsible for the determination of this distance however, the distance from uninvolved persons must always be greater than 30m.

(c) The horizontal distances described above do not apply to uninvolved people inside buildings. The RP is ultimately responsible for maintaining safe horizontal distances including from uninvolved people entering and exiting buildings. This includes consideration for open areas such balconies and roofs.

Legacy UA weighing between 250g and 2kg can only be used Near People (A2) or Far from people (A3) while maintaining a minimum horizontal distance from uninvolved people of 50m.

~~Article 22 gives provision for some non-class marked UA to be operated within the subcategory but limits the minimum horizontal distance from uninvolved people to 50m.~~

AMC1 UAS.OPEN.030(2)(b) and (c) UAS Operations in Subcategory ~~A2~~ Near People A2

(…)

AMC2 UAS.OPEN.030(2)(b) UAS Operations in Subcategory ~~A2~~ Near People A2

PRACTICAL SELF-TRAINING

(a) The aim of the practical self-training is to ensure that the RP can demonstrate at all times the ability to:

(1) operate the UAS within its limitations;

(2) complete all manoeuvres with smoothness and accuracy;

(3) exercise good judgment and airmanship;

(4) apply their theoretical knowledge; and

(5) maintain control of the UA at all times in such a manner that the successful outcome of a procedure or manoeuvre is assured.

(b) The RP must complete the practical self-training with a UAS that features the same flight characteristics (e.g. fixed wing, rotorcraft), control scheme (manual or automated, human machine interface) and a similar weight as the UAS intended for use in the UAS operation. This implies the use of a UA with an MTOM of less than 4 kg and ~~bearing the Class 2 marking after the transition period defined in Article 22 has ended~~a UK2 class-marking.

(c) If a UAS with both manual and automated control functions is used, the practical self-training must be performed with both control functions. If this UAS has multiple

automated features, the RP must demonstrate proficiency with each automated feature.

(d) The practical self-training must contain at least flying exercises covering take-off or launch and landing or recovery, precision flight manoeuvres remaining in a given airspace volume, hovering in all orientations, or loitering around positions when applicable. In addition, the RP must exercise procedures for abnormal situations (e.g., a return-to-home function, if available), as stipulated in the user's manual provided by the manufacturer.

(e) This must be completed prior to taking the test described in AMC1 UAS.OPEN.030(2)(c). This practical training must be completed within the confines of the ~~A1~~ Over People (A1) or ~~A3~~ Far from People (A3) subcategory, and may be completed at either a RAE, or by the individual.

PRACTICAL COMPETENCIES FOR PRACTICAL SELF-TRAINING

When executing the practical self-training, RPs should perform as many flights as they deem necessary to gain a reasonable level of knowledge and the skills to operate the UAS safely.

The following list of practical competencies must be considered:

(a) Preparation of the UAS operation:

(1) make sure that the:

(i) chosen payload is compatible with the UAS used for the flight;

(ii) operating area is suitable for the intended operation; and

(iii) UAS meets the technical requirements of any geographical zone that is being flown within;

(2) define the area of operation in which the intended operation takes place in accordancewith UAS.OPEN.040;

(3) define the area of operation considering the characteristics of the UAS;

(4) identify the limitations published for any relevant geographical zone (e.g., FRZs around aerodromes, Prohibited, Restricted or Danger areas, etc), and if needed, seek authorisation by the entity responsible for such zones;

(5) identify any obstacles and the potential presence of uninvolved persons in the area of operation that could hinder the intended UAS operation; and

(6) check the current meteorological conditions and the forecast for the time planned for theoperation.

(b) Preparation for the flight:

(1) assess the general condition of the UAS and ensure that the configuration of the UAS complies with the instructions provided by the manufacturer in the user's manual;

(2) ensure that all removable components of the UA are properly secured;

(3) make sure that the software installed on the UAS and in the command unit (CU) is the latest version published by the UAS manufacturer;

(4) calibrate the instruments on board the UA, if required by the manufacturer's procedure or prompted by the CU;

(5) identify possible conditions that may jeopardise the safety of the intended UAS operation;

(6) check the status of the battery and make sure it is sufficient for the intended UAS operation;

(7) update the geo-awareness system; and

(8) set the height limitation system, if required.

(…)

AMC1 UAS.OPEN.030(2)(c) Additional ~~A2~~ Near People A2 Online Test

(…)

AMC2 UAS.OPEN.030(2)(c) Additional ~~A2~~ Near People A2 Online Test

PASS AN ADDITIONAL THEORY TEST

The additional theory test should be completed at an RAE.

The examination may be electronic, or paper based, but must be 'closed book' – i.e. without reference to other material, other than that specifically referred to within a question (i.e. charts/maps).

The examination shall comprise a minimum of 30 multiple choice questions and is to be 75 minutes in duration. The pass mark shall be at least 75%.

A candidate with a recognised disability or additional needs will be granted an additional 15 minutes to complete the examination upon request.

If, following a failure of a previous attempt, an examination is being repeated, the student must sit a different set of questions to that used previously.

A Flyer ID must be held prior to commencing the additional theory test (see AMC1 UAS.OPEN.020(4)(b) and UAS.OPEN.030(2)(a) and UAS.OPEN.040(3).

Following completion of the self-practical training, declaration to the RAE and completion of the additional theory test, the RAE shall issue the applicant with a certificate- the '~~A2~~ Near People A2 Certificate of Competence'.

Note:

The CAA will issue RAEs with copies of templates to be used.

QUESTIONS TO BE DISTRIBUTED ACROSS THE FOLLOWING SUBJECTS

The questions shall be comprised from the following topics:

Subject	Areas to be covered
Meteorology	- Introduction to obtaining and interpreting weather information - Weather reporting resources - Reports, forecasts and meteorological conventions appropriate for typical UAS flight operations - Local weather assessments - Effects of weather on the UA - Wind – urban effects, gradients, masking, turbulence - Temperature – precipitation, icing, turbulence - Visibility factors - Clouds – Cumulonimbus (CB) hazards (including lightning) - IP43 (International Protection) IEC/EN 60529 standards with regard to water ingress
UAS Flight Performance	**Typical operational envelope of a rotorcraft, fixed wing and hybrid configurations** - Basic principles of flight **Operating guides** - Flight procedures/basic drills - Emergencies[1] **Maintenance of system** - Scheduled and repairs - Manufacturer's recommendations - Assessment 'safe to be flown?' **Mass and balance and centre of gravity (CG)** - Consideration of the overall balance when attaching gimbals, payloads - Understand meaning of MTOM - Security of the payload - Payload characteristics – how differences can affect the stability of a flight - CG – differences between different types of UA **Batteries** - Understand the terminology used for batteries (e.g. memory effect, capacity, c-rate) - Differences in battery types - Understand how a battery functions (e.g. charging, usage, danger, storage) - Battery safety - how to help prevent potential unsafe conditions
UAS Operating Principles	**UAS operations** - Visual Line of Sight (VLOS) - Avoiding collisions – 'See and Avoid' - Decision process - Stress/pressure from 'customers' - Occurrence reporting and investigation **Congested area operations** - Planning and preparation - Hazard identification

[1]See GM1 UAS.OPEN.060(2)(b) Responsibilities of the Remote Pilot.

Subject	Areas to be covered
	- Overflight of people - Public/third parties – crowds and gatherings **Medical fitness** - Crew health precautions - Alcohol, drugs, medication, medical restrictions - Fatigue o Flight duration/flight workload o Outdoors and lone working **Technical and operational mitigations for ground risk** **Low speed mode function** **Evaluating distance from people** **1:1 rule**

GM1 UAS.OPEN.030(1) UAS Operations in Subcategory ~~A2~~ Near People A2

OPERATIONS IN SUBCATGORY ~~A2~~ NEAR PEOPLE A2

Subcategory ~~A2~~ Near People A2 addresses operations during which flying close to people is intended for a significant portion of the flight. The minimum horizontal distance from uninvolved people is 30m. The RP is also required to have successfully passed an additional examination (known as the ~~A2~~ Near People A2 CofC) in order to fly in sub-category ~~A2~~ Near People A2.

GM1 UAS.OPEN.030(2)(a) UAS Operations in Subcategory ~~A2~~ Near People A2

COMPLETION OF ~~A1~~ OVER PEOPLE(A1)/~~A3~~ FAR FROM PEOPLE (A3) REMOTE PILOT COMPETENCE

See AMC1 UAS.OPEN.020(4)(b) and UAS.OPEN.030(2)(a) and UAS.OPEN.040(3) UAS operations in subcategories ~~A1~~ Over People (A1), ~~A2~~ Near People (A2) and ~~A3~~ Far from People (A3).

(…)

GM1 UAS.OPEN.030(2)(c) Additional ~~A2~~ Near People A2 Online Test

(…)

GM1 UAS.OPEN.030(3) UAS Operations in Subcategory ~~A2~~ Near people A2

(…)

AMC1 UAS.OPEN.040(1) Operations in Subcategory ~~A3~~ Far from People A3

ENDANGERMENT OF UNINVOLVED PEOPLE

If an uninvolved person enters the area of the UAS operation, the RP must, where necessary, adjust the operation to ensure the safety of the uninvolved person and discontinue the operation if the safety of the UAS operation cannot be ensured.

Always maintain a minimum horizontal distance from uninvolved people of 50 m. This minimum distance may need to be increased based on other factors, such as kinetic energy, controllability, height and other such factors.

GM1 UAS.OPEN.040(1) Operations in Subcategory ~~A3~~ Far from People A3

SAFE DISTANCE FROM UNINVOLVED PEOPLE

The safe distance of the UA from uninvolved persons is variable and is heavily dependent on the performance and characteristics of the UAS involved, the weather conditions and the segregation of the overflown area. The RP is ultimately responsible for the determination of this distance.

~~It is advised that, as a general rule, a 50m horizontal separation distance from uninvolved people is used as a method to comply with the requirement to ensure the safety of uninvolved people. This minimum distance may need to be increased based on other factors, such as kinetic energy, controllability, height and other such factors.~~

~~Uninvolved people should only be overflown when absolutely necessary, to achieve the aim of the flight and must be minimised as much as possible.~~

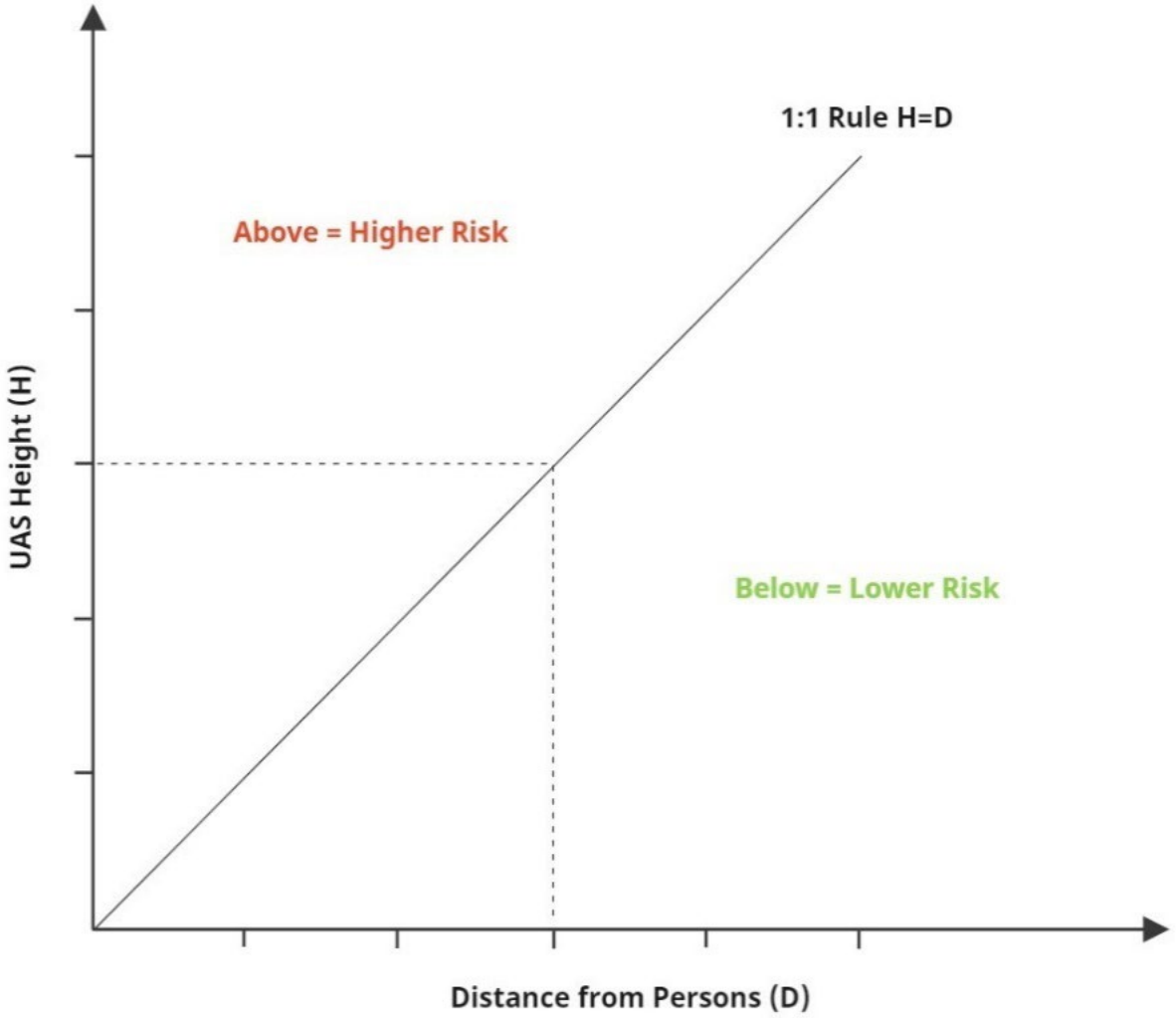
~~When flying above uninvolved people, some horizontal separation should be maintained. The necessary horizontal separation depends on factors, such as wind direction, trajectory of the UA and height of the UA.~~

The RP must be aware of their responsibilities as set out in UAS.OPEN.060(2)(d), ~~Responsibilities of the remote pilot" on page 120 (2)(d)~~ and in GM1 UAS.OPEN.060(2)(d) ~~Responsibilities of the Remote Pilot" on page 127~~, with regard to maintaining control of the UA.

<u>The 1:1 rule:</u>

The ‘1:1 rule’ is a principle which can be used to identify when the minimum separation distance from uninvolved people may need to be increased, and by how much. It is based on the relationship between the UA’s height and its distance from the uninvolved person (the 1:1 line).

The horizontal separation between the UA and uninvolved people should not be less than the height of the aircraft. The higher the aircraft, the further it will travel should it suffer a catastrophic failure, and therefore the higher the likelihood of it colliding with uninvolved people, and so the separation distance must be increased (or the height reduced). This is so that, in the event of a propulsion failure, the UA is not likely to fall in an area with uninvolved people present.



GM1 UAS.OPEN.040(2) UAS Operations in Subcategory ~~A3~~ Far from People A3

RESIDENTIAL, COMMERCIAL, INDUSTRIAL AND RECREATIONAL AREAS

The definition of residential, commercial, and recreational areas includes ~~individual~~ buildings in remote locations.

The minimum horizontal distance to residential, commercial, industrial, and recreational areas should be 150 m. Individual buildings separated by at least 50 m from other buildings are not considered to be an area. The minimum horizontal distance to individual buildings shall be at least 50 m.

GM1 UAS.OPEN.040(3) UAS Operations in Subcategory ~~A3~~ Far from People A3

COMPLETION OF ~~A1~~OVER PEOPLE (A1) / ~~A3~~FAR FROM PEOPLE (A3) REMOTE PILOT COMPETENCE

See AMC1 UAS.OPEN.020(4)(b) and UAS.OPEN.030(2)(a) and UAS.OPEN.040(3) UAS operations in subcategories ~~A1~~ Over People (A1), ~~A2~~ Near People (A2) and ~~A3~~ Far from People (A3) on page 95 and "UAS.OPEN.030 UAS operations in subcategory A2" on page 97 (2)(a) and "UAS.OPEN.040 UAS operations in subcategory A3" on page 108 (3) UAS operations in subcategories A1, A2 and A3.

GM1 UAS.OPEN.040(4)(c), (d) and (e) UAS Operations in Subcategory ~~A3~~ Far from People A3

(…)

AMC1 UAS.OPEN.050(1) Operations in Subcategory ~~A3~~ Far from People A3

OPERATIONAL PROCEDURES

The UAS Operator is responsible for developing procedures that are adapted to the type of operations and to the risks involved, and for ensuring that those procedures are complied with. The extent of the detail that needs to be provided within those procedures will vary depending on the relative complexity of the operation and/or the organisation involved.

Written procedures may not always be necessary, especially if the UAS Operator is also the only RP. The limitations of the Open category and the operating instructions provided by the UAS manufacturer may be considered sufficient.

If the UAS Operator employs more than one RP, the UAS Operator must:

(a) develop procedures for UAS operations in order to coordinate the activities between its employees; and

(b) establish and maintain a list of their personnel and their assigned duties.

For UAS Operators who wish to develop procedures, guidance can be found in the AMC and GM to Article 11.

AMC1 UAS.OPEN.060(1)(d) Responsibilities of the Remote Pilot

UAS IN A SAFE CONDITION TO COMPLETE THE INTENDED FLIGHT

The RP must:

- Update the UAS with data for the geo-awareness function if it is available on the UA, including relevant airspace restrictions;

- Ensure that the UAS is safe to be flown and complies with the instructions and limitations provided by the manufacturer, or the best practice in the case of a privately built UAS;

- Ensure that any payload carried is properly secured and installed and that it complies with the limits of the mass and Centre of Gravity (CG) of the UA;

- Ensure that the charge of the battery of the UA (and quantify of fuel, if applicable) is enough for the intended operation based on:

    o the planned operation; and

    o the need for extra energy in case of unpredictable events; and

    o For UAS equipped with a loss-of-data-link recovery function, ensure that the recovery function allows a safe recovery of the UAS for the envisaged operation; for programmable loss-of-data- link recovery functions, the RP may have to set up the parameters of this function to adapt it to the envisaged operation prior to flight.

- Ensure any lighting or remote identification systems (if applicable) are functioning correctly.

UAS Operators and RPs should use direct remote identification systems to broadcast relevant information as set out in the Remote ID requirements.

Operators should ensure their drone or model aircraft is equipped with Remote ID by the relevant deadlines, either 1 January 2026 or 1 January 2028 depending on its class and category of use. From 1 January 2028, Remote ID will be mandatory for all operations unless an exemption is granted.

We recommend switching on Remote ID even if it does not become mandatory for your operations until 1 January 2028.

Summary of Remote ID Open Category Requirements

Class or type of aircraft	Open category
UK0 weighing 100g or more with a camera	1 January 2028
UK1, UK2 and UK3	1 January 2026
UK4 (e.g. model aircraft)	1 January 2028
UK5 and UK6	Not applicable
Legacy UAS (i.e. not UK class-marked) weighing 100g or more with a camera	1 January 2028
Privately built weighing 100g or more with a camera	1 January 2028

GM1 UAS.OPEN.060(2)(g) Green Flashing Light

UAS Operated in the Open category must be equipped with a green flashing light when operated at night. UK Class marked UAS will comply with this requirement as part of the class mark design requirements. Non class marked UAS will need to be retrofitted with a green flashing light. If adding an add-on light to a UA, the UAS Operator must ensure it does not cause the UA to exceed the maximum mass, if one is defined. When working out which category to operate within, the total mass of the UA (including an add-on light) must be taken into account. For example, a 249 g UA with a 5 g light added, would not be able to operate in the <250 g part of the Open category.

Part B UAS OPERATIONS IN THE 'SPECIFIC' CATEGORY

GM1 UAS.SPEC.050(1)(L) Responsibilities of the UAS Operator

~~**GREEN FLASHING LIGHT**~~

~~Although this text remains in the regulation; the requirement to install, and use, a green flashing light on UAS within the Specific category has not been retained within the UK version of this regulation, because the applicability date of this requirement (set out in Article 23) was after the UK EU exit date, and as such was not retained.~~)

UAS.SPEC.050(1)(L)(i) GREEN FLASHING LIGHT

A green flashing light is required under UAS.SPEC.050(1)(l) for all Specific category operations, however the CAA has the ability to exempt from this requirement via the Operational Authorisation process, where suitable.

If a UAS Operator has an operational need to not carry a green flashing light, then they should request this exemption as part of the OA application process. Such circumstances may include

operations where the UA is equipped with standard aircraft lighting in accordance with the rules of the air.

Unless exempted via this mechanism, UAS operated in the Specific category not already equipped with a green flashing light, will need to be fitted with one.

~~**REMOTE ID**~~

UAS.SPEC.050(1)(L)(ii) REMOTE ID

~~Although this text remains in the regulation; the requirement to install an active remote identification system within the Specific category has not been retained within the UK version of this regulation, because the applicability date of this requirement (set out in article 23) was after the UK EU exit date, and as such was not retained.~~

According to Article 40 of UK Regulation (EU) 2019/945 and UAS.SPEC.050 of UK Regulation (EU) 2019/947, operations in the Specific category shall take place only with a function, active and up-to-date direct remote identification system from 1st January 2026 onwards. However, the CAA can issue an exemption via an Operational Authorisation enabling flights without direct remote identification in the Specific category. To ensure harmonisation across the Open and Specific categories and across different operations, the CAA intends to provide automatic exemption from direct remote identification in the Specific category until 1st January 2028, unless using a UK Class Maked UAS, in which case Remote ID requirements will not be routinely exempted from. During this transition phase a UAS Operator may have an operational need to not use Remote ID when using a class marked UAS. The UAS Operator should outline this requirement as part of their application, with suitable rationale.

After the transition period ends in 2028, Remote ID will be required for any Specific Category Operation. Any operational requirement to be exempted from this, will need to be made during the application process.

AMC1 UAS.SPEC.050(1)(a)(i) Responsibilities of the UAS Operator

DANGEROUS GOODS PROCEDURES MANUAL

Operators intending to carry dangerous goods must develop, implement and maintain operational procedures specific to the carriage of dangerous goods. These procedures should be documented in a Dangerous Goods Procedures Manual, which includes the following information:

(a) a policy statement for the safe carriage of dangerous goods;

(b) identify the person responsible for the dangerous goods approval and for continued compliance with the applicable regulations;

(c) detailed assignments to personnel, of responsibilities associated with the carriage of dangerous goods;

(d) instructions defined by the operator in accordance with the operator’s responsibilities detailed in Part 7; of the Technical Instructions;

(e) instructions for communicating to relevant persons, information related to the dangerous goods being transported, in case of an accident or incident;

(f) instructions for the collection and reporting of safety data related to dangerous goods accidents, dangerous goods incidents or the finding of undeclared or misdeclared dangerous goods in cargo in accordance with UK Regulation (EU) 376/2014;

(g) identification of training needs for the operator's staff and/or staff of other entities carrying out responsibilities of the operator, which are involved with activities related to the transport of dangerous goods;

(h) training policy for all relevant staff, commensurate with their responsibilities and in accordance with Part 1;4 of the Technical Instructions and the ICAO Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment (Doc-10147). This policy should include the level of competency achieved once training is complete;

(i) retention policy for Operational documentation related to the transport of dangerous goods.

GM2 UAS.SPEC.050(1)(a)(i) Responsibilities of the UAS Operator

DANGEROUS GOODS PROCEDURES MANUAL

When developing a Dangerous Goods Procedures Manual, the templates published on the CAA website may be used. These templates provide a recommended structure and content that the Manual should incorporate and are structured in a manner that enables the operator to describe its specific operation.

Operators without an approval to carry dangerous goods but intending to carry general cargo, should develop documented procedures to ensure that undeclared or mis declared dangerous goods are not carried and should provide training to staff handling and loading general cargo to be transported by the UAS, so as to enable them to identify hidden dangerous goods. Additionally, they should establish procedures for reporting instances where undeclared dangerous goods are found to have been loaded or have been offered to the operator for transport.

AMC1 UAS.SPEC.050(1)(d), (e) and (f) Responsibilities of the UAS Operator

TRAINING AND COMPETENCY OF PERSONNEL PERFORMING FUNCTIONS FOR AND ON BEHALF OF AN OPERATOR AUTHORISED TO TRANSPORT DANGEROUS GOODS

(a) Operators transporting dangerous goods shall establish and maintain a dangerous goods training programme aimed at ensuring that personnel who perform functions related to the transport of dangerous goods, are trained and competent to perform such functions, in accordance with Part 1;4 of the Technical Instructions.

(b) The training programme shall include the following functions:

(i) a person responsible for the dangerous goods authorisation and for continued compliance with the applicable regulations.

(ii) remote pilot(s)

(iii) staff involved in, or with responsibilities in the operation of the flight.

(iv) ground staff of the operator (i.e., those conducting acceptance checks, handling of dangerous goods and the loading/unloading of aircraft).

(v) ground staff of external entities contracted by an operator to carry out any responsibilities of the operator detailed in Part 7 of the Technical Instructions.

(vi) operations staff responsible for communications with the Remote Pilot(s) during the flight or with any entity involved in the Emergency Response to an incident or accident.

(c) As a minimum, training shall include:

(i) general awareness/familiarisation training — Personnel must be trained to be familiar with the general provisions;

(ii) function-specific training — Personnel must be trained to perform competently any function for which they are responsible;

(iii) safety training — Personnel must be trained on how to recognise the hazards presented by dangerous goods, on the safe handling of dangerous goods, and on emergency response procedures.

(d) The competency of personnel to perform any function which is assigned to them, shall be assessed prior to performing such a function and it shall be achieved through training and assessment commensurate with the assigned functions. Training courses may be developed and delivered by, or for the operator.

(e) Personnel shall receive recurrent training and assessment within 24 months of previous training and assessment to ensure that competency has been maintained.

(f) Training and assessment records shall be maintained by the operator in alignment with Part 1;4 of the Technical Instructions.

(g) The Operator's dangerous goods training programme shall be approved by the CAA.

Instructors shall demonstrate or be assessed as competent, in the training that they will instruct prior to the delivery of such training.

GM1 UAS.SPEC.050(1)(d) and (e) Responsibilities of the UAS Operator

TRAINING AND COMPETENCY OF PERSONNEL PERFORMING FUNCTIONS FOR AND ON BEHALF OF AN OPERATOR AUTHORISED TO TRANSPORT DANGEROUS GOODS

(1) Personnel must be trained commensurate with the functions for which they are responsible. These responsibilities are determined by the specific functions performed by personnel and not by their job titles. This will ensure that a person is competent to perform the function in accordance with the Technical Instructions. The depth of training each person receives should be a propriate to the functions performed.

(2) When building the competency-based dangerous goods training programme, five main workflows should be considered:

(i) analysis of the training needs for functions and responsibilities;

(ii) designing of the competency-based training;

(iii) development of the training and assessment materials;

(iv) conduct the course;

(v) evaluate the course.

(3) To identify the dangerous training and assessment that personnel will require, the operator should consider the training syllabi for each function involved in the carriage of dangerous goods, which should include:

(i) an assessment plan;

(ii) a training plan;

(iii) a competency framework for personnel;

(iv) a dangerous goods task list;

(v) a task/knowledge matrix tool.

As a minimum, the operator should include the functions associated to personnel identified in paragraph a) of AMC2 UAS.SPEC.050 1(d) and (e).

Before developing the training and assessment plans, the operator should consider principles such as:

• The use of clear performance criteria,

• The demonstration of all competencies including interactions with one another,

• The use of multiple observations to determine if the trainee has achieved the interim or final competency standard required.

• The assessment of all the components of the competency framework.

• The assessment should be reliable to ensure that the same assessment conclusion be reached irrespective of who is conducting the assessment (if different assessors are being used).

• Practical assessments should formative whereby instructors provide feedback to trainees on their progress toward an interim or final competency standard, or summative, whereby trainees demonstrate competence at defined points during the training which may include or be the end of training.

(4) Assessment Plan

The assessment plan will detail:

(i) the final standard to which the trainee will need demonstrate competency;

(ii) when the assessment should take place;

(iii) how the trainee will be assessed and;

(iv) what tools will be used in the assessment, such as observation of job performance, exams, tests, practical exercises, oral assessments, projects, or task simulation.

Additional guidance for what should be considered in the competency framework, the dangerous goods task list and a task/knowledge matrix tool mentioned in paragraph 3 of this GM, can be found

in Chapters 4 and 5 of ICAO Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment (Doc 10147).

Appendices

Annex A to Article 8

Remote Pilot Competence

Due to the size of the AMC and GM for Article 8, it has been included as an Appendix to this document.

AMC1 Article 8(2) Remote Pilot Competence

INTRODUCTION

The following AMC and GM have been developed to support remote pilot training and progression for increasingly complex UAS operations.

Remote pilots should comply with the competency requirements by obtaining a Remote Pilot Certificate (RPC) at the appropriate level for the intended operation.

This AMC, in so far as it relates to an RAE(PC), forms part of the RAE(PC) scheme, which also includes the CAA policy for approving an RAE(PC) to carry out the training and assessment of remote pilots, as set out in Unmanned Aircraft System Operations in UK Airspace – Recognised Assessment Entity for Remote Pilot Competence RAE(PC), Fifth Edition (CAP 722B).

The training has been designed to deliver the relevant remote pilot competencies based on the required task performance, knowledge, skills, and attitudes for future remote pilots.

The training is not designed to cover all operational scenarios on all types of UAS as this would create significant complexity.

UAS operators continue to be responsible for UA specific training and remote pilot standardisation, proportional to the complexity of their individual organisation. Operators should carefully consider what UA or operation specific training is required for remote pilots prior to making an application for an Operational Authorisation.

DEFINITIONS

For the purposes of this AMC, the following definitions apply:

[Editorial note – definitions are reordered alphabetically. Definition update to “UA Category” or “Category of UA”]

- ~~“Trainee” means a remote pilot undergoing training at an RAE(PC)~~
- ~~“OA Applicant” means applicant for an Operational Authorisation.~~
- ~~"Assessment of competence" means the demonstration of skills, knowledge, and attitudes for the initial issue, revalidation, or renewal of a remote pilot certificate.~~
- ~~"Competency" means a combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.~~

- ~~“UA Category” or “Category of UA” means a categorisation of unmanned aircraft according to its basic characteristics. For this AMC that could mean an unmanned aeroplane or unmanned rotorcraft.~~
- ~~“Type” or “UA Type” means a categorisation of unmanned aircraft according to the specific manufacturer and model.~~
- ~~“Credit” means the recognition of prior experience or qualifications.~~
- ~~“Flight instruction” means imparting of aeronautical knowledge through a combination of ground schooling, simulated, and practical flight instruction.~~
- ~~“Live flight hours” means practical flight undertaken in real world conditions and cannot be simulated.~~
- ~~“Simulated flight hours” means flight undertaken in a CAA approved simulator.~~
- ~~“Practical Flight Instructor” (PFI) means an individual who is authorised by an RAE(PC) to conduct flight instruction of remote pilots.~~
- ~~“Theoretical Knowledge Instructor” (TKI) means an individual who is authorised by an RAE(PC) to conduct theoretical training of remote pilots.~~
- ~~“Practical Flight Assessor” (PFA) means an individual who is authorised by an RAE(PC) to conduct flight assessments and evaluations of remote pilots.~~
- ~~“Air Risk Class” (ARC) is a classification of the risk of the air environment as defined in UK SORA.~~
- ~~“Certificate Currency” means the minimum currency to maintain the privileges of the remote pilot competence certificate for the relevant UA category. Certificate currency must be live flight hours only.~~
- ~~“Operator Currency” means the minimum currency determined by the operator for the relevant UA type.~~
- ~~“RAE(PC)” means Recognised Assessment Entity (Pilot Competence).~~
- ~~“RPC” means Remote Pilot Certificate.~~
- ~~"Must" indicates:~~

- “Air Risk Class” (ARC) is a classification of the risk of the air environment as defined in UK SORA.
- "Assessment of competence" means the demonstration of skills, knowledge, and attitudes for the initial issue, revalidation, or renewal of a remote pilot certificate.
- “Certificate Currency” means the minimum currency to maintain the privileges of the remote pilot competence certificate for the relevant UA category. Certificate currency must be live flight hours only.
- “Credit” means the recognition of prior experience or qualifications.
- "Competency" means a combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.
- “Flight instruction” means imparting of aeronautical knowledge through a combination of ground schooling, simulated, and practical flight instruction.

- “Live flight hours” means practical flight undertaken in real world conditions and cannot be simulated.
- **"Must"** indicates:
    - a condition a trainee is required to comply with to be assessed as competent to the relevant standard in accordance with this AMC or
    - a condition an RAE(PC) is required to comply with to maintain approval under the RAE(PC) scheme.
- “OA Applicant” means applicant for an Operational Authorisation.
- “Operator Currency” means the minimum currency determined by the operator for the relevant UA type.
- “Practical Flight Assessor” (PFA) means an individual who is authorised by an RAE(PC) to conduct flight assessments and evaluations of remote pilots.
- “Practical Flight Instructor” (PFI) means an individual who is authorised by an RAE(PC) to conduct flight instruction of remote pilots.
- “RAE(PC)” means Recognised Assessment Entity (Pilot Competence).
- “RPC” means Remote Pilot Certificate.
- “Simulated flight hours” means flight undertaken in a CAA approved simulator.
- “Theoretical Knowledge Instructor” (TKI) means an individual who is authorised by an RAE(PC) to conduct theoretical training of remote pilots.
- “Trainee” means a remote pilot undergoing training at an RAE(PC)
- “Type” or “UA Type” means a categorisation of unmanned aircraft according to the specific manufacturer and model.
- “UA Category” or “Category of UA” means a categorisation of unmanned aircraft according to its basic characteristics. For this AMC that could mean and unmanned ~~aeroplane~~ aircraft fixed wing or unmanned rotorcraft.

(…)

REMOTE PILOT COMPETENCE STRUCTURE

To demonstrate RP competence a RP may hold one of the following certificates of competence in each UA category:

General VLOS Certificate (GVC) Multirotor and/or Fixed Wing

Level 1 Remote Pilot Certificate (RPC-L1) Rotorcraft ~~(R)~~ and/or ~~Aeroplane (A)~~ Fixed Wing

Level 2 Remote Pilot Certificate (RPC-L2) ~~Rotorcraft (R) and/or Aeroplane (A)~~

Level 3 Remote Pilot Certificate (RPC-L3) ~~Rotorcraft (R) and/or Aeroplane (A)~~

~~Level 4 Remote Pilot Certificate (RPC-L4) Rotorcraft (R) and/or Aeroplane (A)~~

The issuance of the GVC will be discontinued on 31 December 2027. From this date, all remote pilot training and assessment will be conducted under the RPC framework, including RPC-L1, RPC-L2 and RPC-L3.

Existing GVC certificates will continue to be accepted as an AMC to Article 8(2) until the individual certificate's expiry date, where the OA states expressly that the GVC is an acceptable evidence of remote pilot competence. An RP who holds a valid GVC may undertake a bridging course at an RAE to obtain an RPC-L1.

CHANGE OF RAE(PC)

In cases where the applicant completes the training course (theoretical knowledge instruction or flight instruction) at a different RAE(PC) from the one where they have started the training course, the applicant should request from the RAE(PC) where they started a copy of the training records.

Level 1 Remote Pilot Certificate (RPC-L1)

COMMON REQUIREMENTS

Below are the common requirements for the issue of an RPC-L1.

MINIMUM AGE

None

CONDITIONS

An RPC-L1 trainee **must** have passed the theoretical assessment and practical flight assessment at a CAA approved RAE(PC).

TRAINING COURSE

(a) An RPC-L1 trainee **must** complete a training course at a CAA approved RAE(PC).

(b) Theoretical instruction may be delivered through remote learning or distance learning materials.

(c) The course **must** include theoretical knowledge and flight instruction appropriate to the privileges of the RPC-L1.

(d) A trainee may complete their theoretical knowledge instruction and practical flight instruction at an RAE(PC) different from the one where they commenced their training course. This applies at any point in the training course. Where a trainee relies on this flexibility, the new RAE(PC) should assess the trainee's levels of theoretical and practical competence to determine how much further training the trainee requires.

(…)

RPC-L1~~(A) Aeroplane~~ Fixed Wing Instruction

GROUND INSTRUCTION

Ground instruction considering take-off and landing area selection, aircraft preparation, ground hazard analysis, route planning, avoidance of uninvolved people, and airspace.

FLIGHT INSTRUCTION

The RPC-L1~~(A)~~ Fixed Wing flight instruction syllabus considers the principles of safe UA operations ~~including~~ and must include the following competency-based training:

(a) Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections).
(b) Ability to manage aeronautical communication.
(c) Manage the unmanned aircraft flight path and automation.
(d) Leadership, teamwork, and self-management.
(e) Problem solving and decision-making.
(f) Situational awareness.
(g) Workload management.
(h) Coordination or handover, as applicable.

THEORETICAL KNOWLEDGE TOPICS

In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an ‘X’.

An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course.

Note: ~~But t~~The LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.

THEORETICAL KNOWLEDGE ASSESSMENT

An RPC-L1~~(A)~~ Fixed Wing trainee **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:

(a) Air law.
(b) Aircraft general knowledge.
(c) Human performance.
(d) Meteorology.
(e) Operational procedures.
(f) BVLOS VM operational procedures.

THEORETICAL KNOWLEDGE ASSESSMENT STANDARD

To demonstrate a level of knowledge to the required standard, a trainee must achieve a pass mark of at least 75% in all theoretical knowledge assessments.

PRACTICAL FLIGHT ASSESSMENT GENERAL

(a) A trainee for a practical flight assessment for the RPC-L1~~(A)~~ Fixed Wing **must** have received instruction on the same category and type of UAS to be used in the assessment.

(b) An applicant **must** pass all the relevant sections of the practical flight assessment, in accordance with the following:

(1) If a trainee fails any item in a section, they have failed that section.

(2) If a trainee fails only one section, they must retake only that section.

(3) If a trainee more than one section, they must retake the entire practical flight assessment.

(4) If a trainee fails any section of the retaken practical flight assessment, including any section that was passed on a previous attempt, they must retake the entire practical flight assessment.

(c) All relevant sections of the practical flight assessment must be completed within 6 months of the date on which the trainee attempted the first section of the practical flight assessment.

(d) If a trainee fails any individual section of the practical flight assessment, the RAE(PC) may require them to undertake further training. If a trainee fails to achieve a pass in all sections of the practical flight assessment in two attempts, they must undertake further training

(e) There is no limit to the number of practical flight assessments that a trainee may attempt.

(…)

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L1~~(A)~~ FIXED WING

~~(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication~~.
Where the CAA has imposed conditions relating to the UAS to be used for practical flight assessments, for example in an operational authorisation issued to the RAE(PC), the UAS used in such assessments must comply with the relevant conditions.

The practical flight assessment must include an assessment of VLOS skills (Part A).

If the training included BVLOS VM operational procedures, the practical flight assessment must also include an assessment of those skills (Part B).

Every section of Parts A and B of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.

Part A VLOS:

~~(b)~~ The practical flight assessment **must** ~~comprise of~~ include a general handling assessment ~~in a range of flight modes including non-positioning mode~~ lasting a minimum of 30 minutes of which 15 minutes must be flown in a non-positioning made. The assessment may be shorter if the trainee has demonstrated they are competent in accordance with the assessment standard.

Part B BVLOS VM (Optional):

The practical flight assessment must include a minimum of 30 minutes of BVLOS VM. This may be conducted in conjunction with time spent in any positioning mode, provided the candidate demonstrates appropriate situational awareness and control of the UA.

~~(c) Every section of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.~~

RPC-L1~~(A)~~ FIXED WING PRACTICAL FLIGHT ASSESSMENT

RPC-L1~~(A)~~ FIXED WING PRACTICAL FLIGHT ASSESSMENT	
Section 1 - Pre-Flight	
1.1	Conducts a pre-flight including flight planning, documentation, mass and balance consideration, flight briefing, NOTAMS
1.2	UA inspection and technical logbook
1.3	Take-off
1.4	Performance considerations
Section 2 - General Handling	
2.1	Control of the ~~aeroplane~~ fixed wing by use of the transmitter / CU in both positioning and non-positioning flight modes including: 1) level flight, control of heading, altitude, and airspeed 2) climbing and descending turns 3) recoveries from unusual attitudes
Section 3 - Approach and Landing	
3.1	Approach procedures
3.2	Go-around landing area blocked
3.3	Normal Landing
3.4	Post flight actions
Section 4 - Abnormal and Emergency Procedures	
4.1	Simulated engine/motor failure
4.2	Equipment malfunctions
4.3	Forced landing
~~4.4~~	~~Oral questions~~
Section 5 - Oral Questions	
5.1	Asking oral questions at any point during the assessment to test the candidate's competence. These may cover any aspect of UAS operations (e.g., emergency procedures, weather and environmental factors, flight planning).

RPC-L1~~(A)~~ FIXED WING PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holder of an RPC-L1~~(A)~~ Fixed Wing are to act as remote pilot in command or flight crew of a UA where all the following apply:

(1) The flight is being undertaken in the Specific category.

(2) The primary means of lift of the UA is fixed wing(s).

(3) The flight is being conducted VLOS and the remote pilot has passed the Part A assessment.

(4) The flight is being conducted BVLOS VM and the remote pilot has passed the Part B assessment

(5) The operational authorisation under which the flight is being conducted states the RPC-L1~~(A)~~ Fixed Wing is the minimum remote pilot competence.

(b) **Conditions.**

(1) The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.

(2) The remote pilot holds a valid flyer ID.

(3) BVLOS without VM prohibited.

RPC-L1~~(A)~~ FIXED WING EXPERIENCE REQUIREMENTS AND CREDITING

(a) An RPC-L1~~(A)~~ Fixed Wing trainee **must** have completed at least 2 hours of flight instruction at a CAA approved RAE(PC).

(b) An RPC-L1~~(A)~~ Fixed Wing trainee that holds a valid GVC are exempt from the theoretical assessment, **except** for the theoretical assessment covering BVLOS VM operational procedures.

RPC-L1~~(A)~~ FIXED WING VALIDITY, REVALIDATION, AND RENEWAL

(a) Validity. An RPC-L1~~(A)~~ Fixed Wing is valid for 5 years from the date notified on the certificate.

(b) Revalidation. An RPC-L1~~(A)~~ Fixed Wing may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).

(c) The RAE(PC) must determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors RAE(PC).

(d) An RAE(PC) should exempt a remote pilot from a live revalidation check where:

(1) the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and

(2) the remote pilot demonstrates that certificate currency has been maintained through a personal flight log.

(e) An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard in particular to:

(1) the remote pilot's experience; and

(2) the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L1~~(A)~~ Fixed Wing.

(f) The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.

(g) If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 5-year validity period will be set by reference to the date of the successful revalidation proficiency check.

(h) A remote pilot who fails to revalidate their RPC-L1~~(A)~~ Fixed Wing before it expires **must not** exercise any RPC-L1~~(A)~~ Fixed Wing privileges unless they renew their RPC-L1~~(A)~~ Fixed Wing in accordance with the provisions below.

(i) **Renewal**. If an RPC-L1~~(A)~~ Fixed Wing has expired, a remote pilot may renew their privileges, by complying with all the following requirements:

(1) The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L1~~(A)~~ Fixed Wing proficiency check.

(2) The remote pilot **must** pass an RPC-L1~~(A)~~ Fixed Wing proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.

RPC-L1~~(A)~~ FIXED WING PROOF OF COMPETENCE

Upon satisfactory completion of the training, the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum, the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level and category satisfactorily demonstrated.

The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.

RPC-L1~~(R)~~ Rotorcraft Instruction

(…)

FLIGHT INSTRUCTION

The RPC-L1~~(R)~~ Rotorcraft flight instruction syllabus considers the principles of safe UA operations ~~including~~ and must include the following competency-based training:

(a) Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections).

(b) Ability to manage aeronautical communication.

(c) Manage the unmanned aircraft flight path and automation.

(d) Leadership, teamwork, and self-management.

(e) Problem solving and decision-making.

(f) Situational awareness.

(g) Workload management.

(h) Coordination or handover, as applicable.

THEORETICAL KNOWLEDGE TOPICS

In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an 'X'.

An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course.

Note: ~~but t~~The LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.

RPC-L1~~(R)~~ Rotorcraft Assessment

THEORETICAL KNOWLEDGE ASSESSMENT

An RPC-L1~~(R)~~ Rotorcraft trainee **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:

(a) Air law.
(b) Aircraft general knowledge.
(c) Human performance.
(d) Meteorology.
(e) Operational procedures.
(f) BVLOS VM operational procedures.

THEORETICAL KNOWLEDGE ASSESSMENT STANDARD

To demonstrate a level of knowledge to the required standard, a trainee **must** achieve a pass mark of at least 75% in all theoretical knowledge assessments.

PRACTICAL FLIGHT ASSESSMENT GENERAL

(a) A trainee for a practical flight assessment for the RPC-L1~~(R)~~ Rotorcraft **must** have received instruction on the same category and type of UAS to be used in the assessment.
(b) A trainee **must** pass all the relevant sections of the practical flight assessment, in accordance with the following:
    (1) If a trainee fails any item in a section, they have failed that section.
    (2) If a trainee fails only one section, they must retake only that section.
    (3) If a trainee fails more than one section, they must retake the entire practical flight assessment.
    (4) If a trainee fails any section of the retaken practical flight assessment, including any section that was passed on a previous attempt, they must retake the entire practical flight assessment.
(c) All relevant sections of the practical flight assessment **must** be completed within 6 months of the date on which the trainee attempted the first section of the practical flight assessment.
(d) If a trainee fails any individual section of the practical flight assessment, the RAE(PC) may require them to undertake further training. If a trainee fails to achieve a pass in all sections of the practical flight assessment in two attempts, they **must** undertake further training.

(e) There is no limit to the number of practical flight assessments that a trainee may attempt.

(…)

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L1~~(R)~~ ROTORCRAFT

~~(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication~~.

Where the CAA has imposed conditions relating to the UAS to be used for practical flight assessments, for example in an operational authorisation issued to the RAE(PC), the UAS used in such assessments must comply with the relevant conditions. The practical flight assessment must include an assessment of VLOS skills (Part A).

If the training included BVLOS VM operational procedures, the practical flight assessment must also include an assessment of those skills (Part B).

Every section of Parts A and B of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.

Part A VLOS:

~~(b)~~ The practical flight assessment **must** ~~comprise of~~ include a general handling assessment ~~in a range of flight modes including non-positioning mode~~ lasting a minimum of 30 minutes of which 15 minutes must be flown in a non-positioning made. The assessment may be shorter if the trainee has demonstrated they are competent in accordance with the assessment standard.

Part B BVLOS VM (Optional):

~~(c) Every section of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.~~

The practical flight assessment must include a minimum of 30 minutes of BVLOS VM. This may be conducted in conjunction with time spent in any positioning mode, provided the candidate demonstrates appropriate situational awareness and control of the UA.

RPC-L1~~(R)~~ ROTORCRAFT PRACTICAL FLIGHT ASSESSMENT

RPC-L1~~(R)~~ ROTORCRAFT PRACTICAL FLIGHT ASSESSMENT	
Section 1 - Pre-Flight	
1.1	Conducts a pre-flight including flight planning, documentation, mass and balance consideration, flight briefing, NOTAMS
1.2	Rotorcraft inspection and technical logbook
1.3	Take-off
1.4	Performance considerations
Section 2 - General Handling	
2.1	Control of the ~~aeroplane~~ rotorcraft by use of the transmitter / CU in both positioning and non-positioning flight modes including: 1) level flight, control of heading, altitude, and airspeed 2) climbing and descending turns 3) recoveries from unusual attitudes
2.5	Hover manoeuvres
2.6	Autorotation (if equipped)
Section 3 - Approach and Landing	
3.1	Approach procedures
3.2	Go-around TOLA blocked
3.3	Normal Landing
3.4	Post flight actions
Section 4 - Abnormal and Emergency Procedures	
4.1	Simulated engine/motor failure
4.2	Equipment malfunctions
4.3	Forced landing
~~4.4~~	~~Oral questions~~
Section 5 - Oral Questions	
5.1	Asking oral questions at any point during the assessment to test the candidate's competence. These may cover any aspect of UAS operations (e.g., emergency procedures, weather and environmental factors, flight planning).

RPC-L1~~(R)~~ ROTORCRAFT PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holder of an RPC-L1~~(R)~~ Rotorcraft are to act as remote pilot in command or flight crew of a UA where all the following apply:

(1) The flight is being undertaken in the Specific Category.

(2) The primary means of lift of the UA is rotating wing(s).

(3) The flight is being conducted VLOS and the remote pilot has passed the Part A assessment.

(4) The flight is being conducted BVLOS VM and the remote pilot has passed the Part B assessment.

(5) The operational authorisation under which the flight is being conducted states the RPC-L1~~(R)~~ Rotorcraft is the minimum remote pilot competence.

(b) **Conditions.**

(1) The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.

(2) The remote pilot holds a valid flyer ID.
(3) BVLOS without VM flight is prohibited.

RPC-L1~~(R)~~ ROTORCRAFT EXPERIENCE REQUIREMENTS AND CREDITING

(a) An RPC-L1~~(R)~~ Rotorcraft trainee **must** have completed a minimum of 2 hours of instruction at a CAA approved RAE(PC).
(b) An RPC-L1~~(R)~~ Rotorcraft trainee that holds a valid GVC are exempt from the theoretical assessment, **except** for the theoretical assessment covering BVLOS VM operational procedures.

RPC-L1~~(R)~~ ROTORCRAFT VALIDITY, REVALIDATION, AND RENEWAL

(a) **Validity.** An RPC-L1~~(R)~~ Rotorcraft is valid for 5 years from the date notified on the certificate.
(b) **Revalidation.** An RPC-L1~~(R)~~ Rotorcraft may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).
(c) The RAE(PC) **must** determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors RAE(PC).
(d) An RAE(PC) should exempt a remote pilot from a live revalidation check where:
    (1) the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and
    (2) the remote pilot demonstrates that certificate currency has been maintained through a personal flight log.
(e) An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard in particular to:
    (1) the remote pilot's experience; and
    (2) the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L1~~(R)~~ Rotorcraft.
(f) The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.
(g) If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 5-year validity period will be set by reference to the date of the successful revalidation proficiency check.
(h) A remote pilot who fails to revalidate their RPC-L1~~(R)~~ Rotorcraft before it expires **must not** exercise any RPC-L1~~(R)~~ Rotorcraft privileges unless they renew their RPC-L1~~(R)~~ Rotorcraft in accordance with the provisions below.
(i) **Renewal**. If an RPC-L1~~(R)~~ Rotorcraft has expired, a remote pilot may renew their privileges, by complying with all the following requirements:

(1) The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L1~~(R)~~ Rotorcraft proficiency check.

(2) The remote pilot **must** pass an RPC-L1~~(R)~~ Rotorcraft proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.

(j) The RAE(PC) **must** determine on a case-by-case basis what amount of refresher training and what theoretical and practical skills checks are necessary to assess a remote pilot's RPC-L1~~(R)~~ Rotorcraft proficiency, having regard in particular to:

(1) the experience of the remote pilot; and

(2) the amount of time elapsed since the remote pilot last used the privileges of the RPC-L1~~(R)~~ Rotorcraft; and

(3) the complexity of the remote pilot's experience.

RPC-L1~~(R)~~ ROTORCRAFT PROOF OF COMPETENCE

Upon satisfactory completion of the training, the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum, the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level and category satisfactorily demonstrated.

The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.

Level 2 Remote Pilot Certificate (RPC-L2)

COMMON REQUIREMENTS

Below are the common requirements for the issue of an RPC-L2.

MINIMUM AGE

The minimum age for trainees for the RPC-L2 is 18.

CONDITIONS

An RPC-L2 trainee **must** have passed the theoretical assessment and practical flight assessment at a CAA approved RAE(PC).

TRAINING COURSE

(a) An RPC-L2 trainee **must** complete a training course at a CAA approved RAE(PC).

(b) Theoretical instruction may be delivered through remote learning or distance learning materials.

(c) The course **must** include theoretical knowledge and flight instruction appropriate to the privileges of the RPC-L2.

(d) A trainee may complete their theoretical knowledge instruction and practical flight instruction at an RAE(PC) different from the one where they commenced their

training course. This applies at any point in the training course. Where a trainee relies on this flexibility, the new RAE(PC) should assess the trainee's levels of theoretical and practical competence to determine how much further training the trainee requires.

ENTRY TO TRAINING

The RP **must** have completed the following initial training prior to being accepted for further training:

(a) Hold a valid RPC-L1 certificate ~~for the same UA category.~~
(b) Have at least 50 logged flight hours ~~on a UA of the same category conducted~~ in the Specific category.

RPC-L2~~(A) Aeroplane~~ Instruction

(…)

FLIGHT INSTRUCTION

The RPC-L2~~(A)~~ flight instruction syllabus considers the principle of safe UA operations and must include the following competency-based training:

(a) Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections).
(b) Ability to manage aeronautical communication.
(c) Manage the unmanned aircraft flight path and automation.
(d) Leadership, teamwork, and self-management.
(e) Problem solving and decision-making.
(f) Situational awareness.
(g) Workload management.
(h) Coordination or handover, as applicable.

SYLLABUS OF FLIGHT INSTRUCTION

Details of the flight instruction syllabus can be found in Appendix A. The syllabus details are intended to be used by an RAE(PC) when developing the RPC-L2~~(A)~~ flight training elements of the appropriate course. It should be noted, however, that they do not provide a ready-made flight training syllabus for individual RAE(PC)s and should not be seen by organisations as a substitute for thorough course design.

The RPC-L2~~(A)~~ flight instruction syllabus should consider the principles of threat and error management and **must** be competency-based training throughout.

THEORETICAL KNOWLEDGE TOPICS

In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an 'X'.

An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course. **Note**: ~~but~~ the LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.

RPC-L2~~(A) Aeroplane~~ Assessment

THEORETICAL KNOWLEDGE ASSESSMENT

An RPC-L2~~(A)~~ trainee **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:

(a) BVLOS operational procedures.
(b) UK SORA air risk class ARC-a
(c) Aeronautical communication procedures

THEORETICAL KNOWLEDGE ASSESSMENT STANDARD

To demonstrate a level of knowledge to the required standard, a trainee must achieve a pass mark of at least 75% in all theoretical knowledge assessments.

Practical flight assessment general

(a) A trainee for a practical flight assessment for the RPC-L2~~(A)~~ **must** have received instruction on the same category and type of UAS to be used in the assessment.
(b) A trainee **must** pass all the relevant sections of the practical flight assessment, in accordance with the following:
    (1) If a trainee fails any item in a section, they have failed that section.
    (2) If a trainee fails only one section, they must retake only that section.
    (3) If a trainee fails more than one section, they must retake the entire practical flight assessment.
    (4) If a trainee fails any section of the retaken practical flight assessment, including any section that was passed on a previous attempt, they must retake the entire practical flight assessment.
(c) All relevant sections of the practical flight assessment **must** be completed within 6 months of the date on which the trainee attempted the first section of the practical flight assessment.
(d) If a trainee fails any individual section of the practical flight assessment, the RAE(PC) may require them to undertake further training. If a trainee fails to achieve a pass in all sections of the practical flight assessment in two attempts, they **must** undertake further training.
(e) There is no limit to the number of practical flight assessments that a trainee may attempt.

(…)

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L2~~(A)~~

~~(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication.~~

(a) Where the CAA has imposed conditions relating to the UAS to be used for practical flight assessments, for example in an operational authorisation issued to the RAE(PC), the UAS used in such assessments must comply with the relevant conditions.

(b) The practical flight assessment **must** comprise of at least two BVLOS flights conducted under ARC-a conditions lasting at least 30mins flight time in total.

(c) Every section of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.

RPC-L2~~(A)~~ PRACTICAL FLIGHT ASSESSMENT	
Section 1 - Pre-Flight	
1.1	Conducts a pre-flight, including flight planning, documentation, mass and balance consideration, flight brief, NOTAMS
1.2	CU configuration
1.3	UA inspection and technical logbook
1.4	Take-off
1.5	Performance considerations
Section 2 - General Handling	
2.1	Control of the UA by the CU, flight path management, and range/endurance considerations
2.2	Monitoring of flight progress, fuel/energy usage, airspace, and ground risks
2.3	Altitude, speed, heading control
2.4	Monitoring navigation and communication system performance
2.5	CU management
Section 3 - Approach and Landing	
3.1	Approach procedures
3.2	Go-around TOLA blocked
3.3	Normal Landing
3.4	Post flight actions
Section 4 - Abnormal and Emergency Procedures	
4.1	Engine/motor failure
4.2	Equipment malfunctions
4.3	Forced landing
~~4.4~~	~~Oral questions~~
Section 5 - Oral Questions	
5.1	Asking oral questions at any point during the assessment to test the candidate's competence. These may cover any aspect of UAS operations (e.g., emergency procedures, weather and environmental factors, flight planning).

RPC-L2~~(A)~~ PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holder of an RPC-L2~~(A)~~ are to act as remote pilot in command or flight crew of a UA where all the following apply:

(1) The flight is being undertaken in the Specific category.

(2) ~~The primary means of lift of the UA is fixed wing(s).~~

(2) The maximum air risk class (ARC) of the flight is ARC-a.
(3) The operational authorisation under which the flight is being conducted states the RPC-L2~~(A)~~ is the minimum remote pilot competence.

(b) **Conditions**.
(1) The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.
(2) The remote pilot holds a valid flyer ID.
(3) No intentional traffic deconfliction permitted.

RPC-L2~~(A)~~ EXPERIENCE REQUIREMENTS AND CREDITING

(a) An RPC-L2~~(A)~~ trainee **must** have completed at least 5 hours of flight instruction of which up to 2 hours may be completed using a CAA approved flight simulator device to facilitate emergency procedures training.
~~(b) An RPC-L2(A) trainee that holds a valid RPC-L2 in another category may be credited towards the requirements in (a).~~
~~(c) The amount of credit **must** be decided by the RAE(PC) where the pilot undergoes the training course but **must** in any case not exceed 50% (2.5 hours) of the hours required in (a).~~

RPC-L2~~(A)~~ VALIDITY, REVALIDATION AND RENEWAL

(a) **Validity. An RPC-L2~~(A)~~is valid for 3 years from the date notified on the certificate.**
(b) **Revalidation.** An RPC-L2~~(A)~~may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).
(c) The RAE(PC) **must** determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors.
(d) An RAE(PC) should exempt a remote pilot from a live revalidation check where:
(1) the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and
(2) the remote pilot demonstrates that certificate currency has been maintained through a personal flight log.
(e) An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard to:
(1) the remote pilot's experience; and
(2) the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L2~~(A)~~.
(f) The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.

(g) If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 3-year validity period will be set by reference to the date of the successful revalidation proficiency check.

(h) A remote pilot who fails to revalidate their RPC-L2~~(A)~~ before it expires **must not** exercise any RPC-L2~~(A)~~ privileges unless they renew their RPC-L2~~(A)~~ in accordance with the provisions below.

(i) **Renewal**. If an RPC-L2~~(A)~~ has expired, a remote pilot may renew their privileges, by complying with all the following requirements:

(1) The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L2(~~A)~~ proficiency check.

(2) The remote pilot **must** pass an RPC-L2~~(A)~~ proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.

(j) The RAE(PC) must determine on a case-by-case basis what amount of refresher training and what theoretical and practical skills checks are necessary to assess a remote pilot's RPC-L2~~(A)~~ proficiency, having regard in particular to:

(1) the experience of the remote pilot;

(2) the amount of time elapsed since the remote pilot last used the privileges of the RPC-L2~~(A)~~; and

(3) the complexity of the remote pilot's experience.

RPC-L2~~(A)~~ PROOF OF COMPETENCE

Upon satisfactory completion of the training, the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum, the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level, and category satisfactorily demonstrated.

The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.

~~RPC-L2(R) Rotorcraft~~

~~GROUND INSTRUCTION~~

~~Ground instruction considering take-off and landing area selection, aircraft preparation, ground hazard analysis, route planning, avoidance of uninvolved people, and airspace.~~

~~FLIGHT INSTRUCTION~~

~~The RPC-L2(R) flight instruction syllabus considers the principle of safe UA operations including:~~

(a) ~~Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections),~~

(b) ~~Ability to manage aeronautical communication,~~

(c) ~~Manage the unmanned aircraft flight path and automation,~~
(d) ~~Leadership, teamwork, and self-management,~~
(e) ~~Problem solving and decision-making,~~
(f) ~~Situational awareness,~~
(g) ~~Workload management,~~
(h) ~~Coordination or handover, as applicable.~~

~~SYLLABUS OF FLIGHT INSTRUCTION~~

~~Details of the flight instruction syllabus can be found in Appendix A. The syllabus details are intended to be used by an RAE(PC) when developing the RPC-L2(R) flight training elements of the appropriate course. It should be noted, however, that they do not provide a ready-made flight training syllabus for individual RAE(PC)s and should not be seen by organisations as a substitute for thorough course design.~~

~~THEORETICAL KNOWLEDGE TOPICS~~

~~In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an 'X'.~~

~~An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course. But the LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.~~

~~THEORETICAL KNOWLEDGE ASSESSMENT~~

~~An RPC-L2(R) trainee **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:~~

(a) ~~BVLOS operational procedures~~

~~PRACTICAL FLIGHT ASSESSMENT GENERAL~~

(a) ~~A trainee for a practical flight assessment for the RPC-L2(R) **must** have received instruction on the same category and type of UAS to be used in the assessment.~~
(b) ~~A trainee **must** pass all the relevant sections of the practical flight assessment, in accordance with the following:~~
    (1) ~~If a trainee fails any item in a section, they have failed that section.~~
    (2) ~~If a trainee fails only one section, they must retake only that section.~~
    (3) ~~If a trainee fails more than one section, they must retake the entire practical flight assessment.~~
    (4) ~~If a trainee fails any section of the retaken practical flight assessment, including any section that was passed on a previous attempt, they must retake the entire practical flight assessment.~~
(c) ~~All relevant sections of the practical flight assessment **must** be completed within 6 months of the date on which the trainee attempted the first section of the practical flight assessment.~~
(d) ~~If a trainee fails any individual section of the practical flight assessment, the RAE(PC) may require them to undertake further training. If a trainee fails to~~

achieve a pass in all sections of the practical flight assessment in two attempts, they **must** undertake further training.

(e) There is no limit to the number of practical flight assessments that a trainee may attempt.

CONDUCT OF THE ASSESSMENT

(a) Should the trainee choose to terminate a practical flight assessment for reasons considered inadequate by the PFA, the trainee **must** retake the entire practical flight assessment. If the assessment is terminated for reasons considered adequate by the PFA, only those sections not completed **must** be tested in a further flight. Adequate reasons include, but are not limited to, illness, poor weather conditions, equipment failure, and other risks to persons or property.

(b) At the discretion of the PFA, any manoeuvre or procedure of the assessment may be repeated once by the trainee. The PFA may stop the assessment at any stage if they consider that the trainee's demonstration of flying skills requires a complete retest.

(c) A trainee **must** indicate to the PFA the checks and duties carried out. Checks **must** be completed in accordance with the checklist for the UA on which the assessment is being taken. During pre-flight preparation for the assessment, the trainee **must** configure the command unit (CU).

(d) The PFA **must** take no part in the operation of the UA except where intervention is necessary in the interest of safety.

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L2(R)

(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication.

(b) The practical flight assessment **must** comprise of at least two BVLOS flights conducted under ARC-a conditions lasting at least 30mins flight time in total.

(c) Every section of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.

RPC-L2(R) PRACTICAL FLIGHT ASSESSMENT	
Section 1 - Pre-Flight	
1.1	Conducts a pre-flight, including flight planning, documentation, mass and balance consideration, flight brief, NOTAMS
1.2	CU configuration
1.3	UA inspection and technical logbook
1.4	Take-off
1.5	Performance considerations
Section 2 - General Handling	
2.1	Control of the UA by the CU, flight path management, and range/endurance considerations
2.2	Monitoring of flight progress, fuel/energy usage, airspace, and ground risks

2.3	Altitude, speed, heading control
2.4	Monitoring navigation and communication system performance
2.5	CU management
Section 3 - Approach and Landing	
3.1	Approach procedures
3.2	Go-around TOLA blocked
3.3	Normal Landing
3.4	Post flight actions
Section 4 - Abnormal and Emergency Procedures	
4.1	Engine/motor failure
4.2	Equipment malfunctions
4.3	Tactical deconfliction procedures
4.4	Forced landing
4.5	Oral questions

RPC-L2(R) PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holder of an RPC-L2(R) are to act as remote pilot in command or flight crew of a UA where all of the following apply:

(1) the flight is being undertaken in the Specific Category.

(2) the primary means of lift of the UA is rotating wing(s).

(3) the maximum air risk class (ARC) of the flight is ARC-a.

(4) the operational authorisation under which the flight is being conducted states the RPC-L2(R) is the minimum remote pilot competence.

(b) **Conditions.**

(1) The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.

(2) The remote pilot holds a valid flyer ID.

(3) No intentional traffic deconfliction.

RPC-L2(R) EXPERIENCE REQUIREMENTS AND CREDITING

(a) An RPC-L2(R) trainee **must** have completed at least 5 hours of flight instruction of which up to 2 hours may be completed using a CAA approved flight simulator device to facilitate emergency procedures training.

(b) An RPC-L2(R) trainee that holds a valid RPC-L2 in another category may be credited towards the requirements in (a).

(c) The amount of credit **must** be decided by the RAE(PC) where the pilot undergoes the training course, but **must** in any case not exceed 50% (2.5 hours) of the hours required in (a).

RPC-L2(R) VALIDITY, REVALIDATION AND RENEWAL

(a) **Validity.** An RPC-L2(R) is valid for 3 years from the date notified on the certificate.

(b) **Revalidation.** An RPC-L2(R) may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).

(c) The RAE(PC) **must** determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors.

(d) An RAE(PC) should exempt a remote pilot from a live revalidation check where:

(1) the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and

(2) the remote pilot demonstrates that certificate currency has been maintained through a personal flight log.

(e) An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard in particular to:

(1) the remote pilot's experience; and

(2) the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L2(R).

(f) The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.

(g) If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 3-year validity period will be set by reference to the date of the successful revalidation proficiency check.

(h) A remote pilot who fails to revalidate their RPC-L2(R) before it expires **must not** exercise any RPC-L2(R) privileges unless they renew their RPC-L2(R) in accordance with the provisions below.

(i) **Renewal**. If an RPC-L2(R) has expired, a remote pilot may renew their privileges, by complying with all the following requirements:

(1) The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L2(R) proficiency check.

(2) The remote pilot **must** pass an RPC-L2(R) proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.

RPC-L2(R) PROOF OF COMPETENCE

Upon satisfactory completion of the training, the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level, and category satisfactorily demonstrated.

The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.

Level 3 Remote Pilot Certificate (RPC-L3)

(…)

TRAINING COURSE

(a) An RPC-L3 trainee **must** complete a training course at a CAA approved RAE(PC).
(b) Theoretical instruction may be delivered through remote learning or distance learning materials.
(c) The course **must** include theoretical knowledge and flight instruction appropriate to the privileges of the RPC-L3.
(d) A trainee may complete their theoretical knowledge instruction and practical flight instruction at an RAE(PC) different from the one where they commenced their training course. This applies at any point in the training course. Where a trainee relies on this flexibility, the new RAE(PC) should assess the trainee's levels of theoretical and practical competence to determine how much further training the trainee requires.

ENTRY TO TRAINING

An RPC-L3 trainee **must** have completed the following initial training prior to being accepted for further training:

(a) Hold a valid RPC-L2 certificate.
(b) Have logged at least 50 hours of BVLOS flight as an L2 RP ~~in command~~ in the Specific category ~~on the same UA category.~~
(c) Hold at least a valid LAPL medical certificate.

RPC-L3~~(A) Aeroplane~~ Instruction

(…)

FLIGHT INSTRUCTION

The RPC-L3~~(A)~~ flight instruction syllabus considers the principles of safe UA operations and must include the following competency-based training:

Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections).

(a) Ability to manage aeronautical communication.
(b) Manage the unmanned aircraft flight path and automation.
(c) Leadership, teamwork, and self-management.
(d) Problem solving and decision-making.
(e) Situational awareness.
(f) Workload management.
(g) Coordination or handover, as applicable.

SYLLABUS OF FLIGHT INSTRUCTION

Details of the flight instruction syllabus can be found in Appendix A. The syllabus details are intended to be used by an RAE(PC) when developing the RPC-L3~~(A)~~ flight training elements of the appropriate course. It should be noted, however, that they do not provide a ready-made flight training syllabus for individual RAE(PC)s and should not be seen by organisations as a substitute for thorough course design.

The RPC-L3~~(A)~~ flight instruction syllabus should consider the principles of threat and error management and **must** be competency-based training throughout.

THEORETICAL KNOWLEDGE TOPICS

In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an 'X'. The LOs define the subject knowledge and applied knowledge, skills, and attitudes that a student remote pilot should have assimilated during the theoretical knowledge course.

An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course. **Note:** ~~but~~ the LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.

RPC-L3~~(A) Aeroplane~~ Assessment

THEORETICAL KNOWLEDGE ASSESSMENT

An RPC-L3~~(A)~~ trainee **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:

(a) Air law.
(b) Aircraft general knowledge.
(c) Human performance and limitations.
(d) Meteorology.
(e) Operational procedures.

THEORETICAL KNOWLEDGE ASSESSMENT STANDARD

To demonstrate a level of knowledge to the required standard, a trainee must achieve a pass mark of at least 75% in all theoretical knowledge assessments.

PRACTICAL FLIGHT ASSESSMENT GENERAL

(a) A trainee for a practical flight assessment for the RPC-L3~~(A)~~ **must** have received instruction on the same category and type of UAS to be used in the assessment.

(…)

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L3~~(A)~~

~~(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication.~~

(a) Where the CAA has imposed conditions relating to the UAS to be used for practical flight assessments, for example in an operational authorisation issued to

the RAE(PC), the UAS used in such assessments must comply with the relevant conditions

(...)

RPC-L3~~(A)~~ PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holder of an RPC-L3~~(A)~~ are to act as remote pilot in command or flight crew of a UA where all of the following apply:
  (1) The flight is being undertaken in the Specific category.
  (2) ~~The primary means of lift of the UA is fixed wing(s).~~
  (2) The maximum air risk class (ARC) of the flight is ARC-c.
  (3) The operational authorisation under which the flight is being conducted states the RPC-L3~~(A)~~ is the minimum remote pilot competence.

(b) **Conditions.**
  (1) The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.
  (2) The remote pilot holds a valid flyer ID.
  (3) Airspace classified as ARC-d prohibited.

RPC-L3~~(A)~~ EXPERIENCE REQUIREMENTS AND CREDITING

Experience Requirements. An RPC-L3~~(A)~~ trainee, **must** be able to demonstrate that they meet both flight experience requirements below prior to the issue of an RPC-L3~~(A)~~ certificate:

(a) at least 55 hours of instruction completed, which **must** include:
  (1) 35 hours of beyond visual line of sight (BVLOS) dual flight simulator instruction, and
  (2) 15 hours of BVLOS dual practical flight instruction, and
  (3) 5 hours of supervised practical flight as RP in command; and

(b) at least 75 hours of logged live BVLOS flight in total as RP in command, which may include live practical flight instruction undertaken during this training course, or a previous RPC training course.

Crediting. An RPC-L3~~(A)~~ trainee with equivalent prior experience as a remote pilot, or experience as a manned aeroplane pilot may be credited towards the requirements in (1)(a). The amount of credit **must** be decided by the RAE(PC) where the pilot undergoes the training course, based on a pre-entry flight assessment, but **must** in any case:

(a) Not exceed 20% of the hours required in (1)(a).
(b) Not include the requirements in (1)(b), (1)(c), or (2).

~~**Crediting**. An RPC-L3(A) trainee that holds a valid RPC-L3 in another category may be credited towards the requirements in (a) subject to completion of a suitable bridging course at a CAA approved RAE(PC).~~

Crediting. An RPC-L3~~(A)~~ trainee who holds a valid ATPL or CPL theory certificate in the appropriate category may be credited towards the requirements in Appendix A subject to completion of a suitable theoretical bridging course and assessment at a CAA approved RAE(PC).

RPC-L3~~(A)~~ VALIDITY, REVALIDATION AND RENEWAL

(a) **Validity. An RPC-L3~~(A)~~ is valid for 3 years from the date notified on the certificate.**

(b) **Revalidation.** An RPC-L3~~(A)~~ may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).

(c) The RAE(PC) **must** determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors.

(d) An RAE(PC) should exempt a remote pilot from a live revalidation check where:
  (1) the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and
  (2) the remote pilot demonstrates that certificate currency has been maintained through a personal flight log.

(e) An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard in particular to:
  (1) the remote pilot's experience; and
  (2) the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L3~~(A)~~.

(f) The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.

(g) If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 3-year validity period will be set by reference to the date of the successful revalidation proficiency check.

(h) A remote pilot who fails to revalidate their RPC-L3~~(A)~~ before it expires **must not** exercise any RPC-L3~~(A)~~ privileges unless they renew their RPC-L3~~(A)~~ in accordance with the provisions below.

(i) **Renewal**. If an RPC-L3~~(A)~~ has expired, a remote pilot may renew their privileges, by complying with all the following requirements:
  (1) The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L3~~(A)~~ proficiency check.
  (2) The remote pilot **must** pass an RPC-L3~~(A)~~ proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.

(j) The RAE(PC) must determine on a case-by-case basis what amount of refresher training and what theoretical and practical skills checks are necessary to assess a remote pilot's RPC-L3~~(A)~~ proficiency, having regard in particular to:
  (1) the experience of the remote pilot; and

(2) the amount of time elapsed since the remote pilot last used the privileges of the RPC-L3~~(A)~~; and

(3) the complexity of the remote pilot's experience.

RPC-L3~~(A)~~ PROOF OF COMPETENCE

Upon satisfactory completion of the training the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level, and category satisfactorily demonstrated.

The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.

~~RPC-L3(R) Rotorcraft~~

~~GROUND INSTRUCTION~~

~~Ground instruction considering take-off and landing area selection, aircraft preparation, ground hazard analysis, route planning, avoidance of uninvolved people, and airspace.~~

~~FLIGHT INSTRUCTION~~

~~The RPC-L3(R) flight instruction syllabus considers the principles of safe UA operations including:~~

(a) ~~Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections).~~

(b) ~~Ability to manage aeronautical communication.~~

(c) ~~Manage the unmanned aircraft flight path and automation.~~

(d) ~~Leadership, teamwork, and self-management.~~

(e) ~~Problem solving and decision-making.~~

(f) ~~Situational awareness.~~

(g) ~~Workload management.~~

(h) ~~Coordination or handover, as applicable.~~

~~SYLLABUS OF FLIGHT INSTRUCTION~~

~~Details of the flight instruction syllabus can be found in Appendix A. The syllabus details are intended to be used by an RAE(PC) when developing the RPC-L3(R) flight training elements of the appropriate course. It should be noted, however, that they do not provide a ready-made flight training syllabus for individual RAE(PC)s and should not be seen by organisations as a substitute for thorough course design.~~

~~The RPC-L3(R) flight instruction syllabus should consider the principles of threat and error management and **must** be competency-based training throughout.~~

~~THEORETICAL KNOWLEDGE TOPICS~~

~~In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an 'X'.~~

An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course. But the LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.

THEORETICAL KNOWLEDGE ASSESSMENT

An RPC-L3(R) trainee(s) **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:

(a) Air law.
(b) Aircraft general knowledge.
(c) Human performance and limitations.
(d) Meteorology.
(e) Operational procedures.

PRACTICAL FLIGHT ASSESSMENT GENERAL

(a) A trainee for a practical flight assessment for the RPC-L3(R) **must** have received instruction on the same category and type of UAS to be used in the assessment.
(b) A trainee **must** pass all the relevant sections of the practical flight assessment, in accordance with the following:
    (1) If trainee fails any item in a section, they have failed that section.
    (2) If a trainee fails only one section, they must retake only that section.
    (3) If a trainee fails more than one section, they must retake the entire practical flight assessment.
    (4) If a trainee fails any section of the retaken practical flight assessment, including any section that was passed on a previous attempt, they must retake the entire practical flight assessment.
(c) All relevant sections of the practical flight assessment **must** be completed within 6 months of the date on which the trainee attempted the first section of the practical flight assessment.
(d) If a trainee fails any individual section of the practical flight assessment, the RAE(PC) may require them to undertake further training. If a trainee fails to achieve a pass in all sections of the practical flight assessment in two attempts, they **must** undertake further training.
(e) There is no limit to the number of practical flight assessments that a trainee may attempt.

CONDUCT OF THE ASSESSMENT

(a) Should the trainee choose to terminate a practical flight assessment for reasons considered inadequate by the PFA, the trainee **must** retake the entire practical flight assessment. If the assessment is terminated for reasons considered adequate by the PFA, only those sections not completed **must** be tested in a further flight. Adequate reasons include, but are not limited to, illness, poor weather conditions, equipment failure, and other risks to persons or property.

(b) At the discretion of the PFA, any manoeuvre or procedure of the assessment may be repeated once by the trainee. The PFA may stop the assessment at any stage if they consider that the trainee's demonstration of flying skills requires a complete retest.

(c) A trainee **must** indicate to the PFA the checks and duties carried out. Checks **must** be completed in accordance with the checklist for the UA on which the assessment is being taken. During pre-flight preparation for the assessment, the trainee **must** configure the command unit (CU).

(d) The PFA **must** take no part in the operation of the UA except where intervention is necessary in the interest of safety.

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L3(R)

(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication.

(b) The practical flight assessment **must** comprise of 3 elements to be completed at the end of each phase of training:

(1) General handling BVLOS flight conducted in at least ARC-b lasting at least 45 minutes returning to the departure location.

(2) Cross country flight conducted in at least ARC-b including landing at a location different to the departure location where:

(i) The outbound leg is at least 10 nautical miles.

(ii) The return leg is at least 10 nautical miles.

(iii) The remote pilot will be responsible for all aspects of the operation including the remote recovery and repositioning of the aircraft at the destination location.

(3) Emergency procedures assessment lasting at least 45 minutes conducted in a simulator.

(c) Every section of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.

RPC-L3(R) PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holder of an RPC-L3(R) are to act as remote pilot in command or flight crew of a UA where all of the following apply:

(1) The flight is being undertaken in the Specific Category.

(2) The primary means of lift of the UA is rotating wings(s).

(3) The maximum air risk class (ARC) of the flight is ARC-c.

(4) The operational authorisation under which the flight is being conducted states the RPC-L3(R) is the minimum remote pilot competence.

(b) **Conditions**.

(1) The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.

(2) The remote pilot holds a valid Flyer ID.

(3) Airspace classified as ARC-d prohibited.

RPC-L3(R) EXPERIENCE REQUIREMENTS AND CREDITING

Experience Requirements. An RPC-L3(R) trainee **must** be able to demonstrate that they meet both flight experience requirements below:

(a) at least 55 hours of instruction completed, which **must** include:
  (1) 35 hours of beyond visual line of sight (BVLOS) dual flight simulator instruction, and
  (2) 15 hours of BVLOS dual practical flight instruction, and
  (3) 5 hours of supervised practical flight as RP in command; and

(b) at least 75 hours of logged live BVLOS flight in total as RP in command, which may include live practical flight instruction undertaken during this training course, or a previous RPC training course.

Crediting. An RPC-L3(R) trainee with equivalent prior experience as a remote pilot, or experience as a manned aeroplane pilot may be credited towards the requirements in (1)(a). The amount of credit **must** be decided by the RAE(PC) where the pilot undergoes the training course, based on a pre-entry flight assessment, but **must** in any case:

(a) Not exceed 20% of the hours required in (1)(a).
(b) Not include the requirements in (1)(b), (1)(c), or (2).

Crediting. An RPC-L3(R) trainee that holds a valid RPC-L3 in another category may be credited towards the requirements in (a) subject to completion of a suitable bridging course at a CAA approved RAE(PC).

Crediting. An RPC-L3(R) trainee who hold a valid ATPL or CPL theory certificate in the appropriate category may be credited towards the requirements in Appendix A subject to completion of a suitable bridging course and assessment at a CAA approved RAE(PC).

RPC-L3(R) VALIDITY, REVALIDATION AND RENEWAL

(a) **Validity.** An RPC-L3(R) is valid for 3 years from the date notified on the certificate.
(b) **Revalidation.** An RPC-L3(R) may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).
(c) The RAE(PC) **must** determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors.
(d) An RAE(PC) should exempt a remote pilot from a live revalidation check where:
  (1) the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and
  (2) the remote pilot demonstrate certificate currency has been maintained through a personal flight log.

(e) An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard in particular to:
  (1) the remote pilot's experience; and
  (2) the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L3(R).

(f) The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.

(g) If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 3-year validity period will be set by reference to the date of the successful revalidation proficiency check.

(h) A remote pilot who fails to revalidate their RPC-L3(R) before it expires **must not** exercise any RPC-L3(R) privileges unless they renew their RPC-L3(R) in accordance with the provisions below.

(i) **Renewal**. If an RPC-L3(R) has expired, a remote pilot may renew their privileges, by complying with all the following requirements:
  (1) The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L3(A) proficiency check.
  (2) The remote pilot **must** pass an RPC-L3(R) proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.

(j) The RAE(PC) **must** determine on a case-by-case basis what amount of refresher training and what theoretical and practical skills checks are necessary to assess a remote pilot's RPC-L3(R) proficiency, having regard in particular to:
  (1) the experience of the remote pilot; and
  (2) the amount of time elapsed since the remote pilot last used the privileges of the RPC-L3(R); and
  (3) the complexity of the remote pilot's experience.

RPC-L3(R) PROOF OF COMPETENCE

Upon satisfactory completion of the training the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level, and category satisfactorily demonstrated.

The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.

Level 4 Remote Pilot Certificate (RPC-L4)

The level 4 RPC considers the **future possibility** of full integration between UAS and manned aircraft in the Specific category. The UAS technical assurance, operator procedures, and flight crew training requirements to perform these types of operations could be very high. Several other

national and international policies need to be adopted prior to the commencement of these types of operations. Therefore, the following should be considered a **framework for further development**.

COMMON REQUIREMENTS

Below are the common requirements for the issue of an RPC-L4.

MINIMUM AGE

The minimum age for trainees for the RPC-L4 is 18.

CONDITIONS

An RPC-L4 trainee **must** have fulfilled the requirements of the relevant training course at a CAA approved RAE(PC).

TRAINING COURSE

(a) An RPC-L4 trainee **must** complete a training course at a CAA approved RAE(PC).

The course **must** include theoretical knowledge and flight instruction appropriate to the privileges of the RPC-4 applied for.

A trainee may complete their theoretical knowledge instruction and practical flight instruction at an RAE(PC) different from the one where they commenced their training course. This applies at any point in the training course. Where a trainee relies on this flexibility, the new RAE(PC) should assess the trainee's levels of theoretical and practical competence to determine how much further training the trainee requires.

ENTRY TO TRAINING

An RPC-L4 trainee **must** have completed the following initial training prior to being accepted for further training:

(a) Hold a valid RPC-L3 certificate.
(b) Have logged at least 75 hours of BVLOS flight as RP in command in the Specific category on the application UA category.
(c) Hold at least a valid LAPL medical certificate.

RPC-L4(A) Aeroplane

GROUND INSTRUCTION

Ground instruction considering take-off and landing area selection, aircraft preparation, ground hazard analysis, route planning, avoidance of uninvolved people, and airspace.

FLIGHT INSTRUCTION

The RPC-L4(A) flight instruction syllabus considers the principles of safe UA operations including:

(a) Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections).
(b) Ability to manage aeronautical communication.
(c) Manage the unmanned aircraft flight path and automation.

(d) ~~Leadership, teamwork, and self-management.~~
(e) ~~Problem solving and decision-making.~~
(f) ~~Situational awareness.~~
(g) ~~Workload management.~~
(h) ~~Coordination or handover, as applicable.~~

~~SYLLABUS OF FLIGHT INSTRUCTION~~

~~Details of the flight instruction syllabus can be found in Appendix A. The syllabus details are intended to be used by an RAE(PC) when developing the RPC-L4 flight training elements of the appropriate course. It should be noted, however, that they do not provide a ready-made flight training syllabus for individual RAE(PC)s and should not be seen by organisations as a substitute for thorough course design.~~

~~The RPC-L4(A) flight instruction syllabus should consider the principles of threat and error management and **must** be competency-based training throughout.~~

~~THEORETICAL KNOWLEDGE TOPICS~~

~~In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an 'X'.~~

~~An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course. But the LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.~~

~~THEORETICAL KNOWLEDGE ASSESSMENT~~

~~An RPC-L4(A) trainee **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:~~

(a) ~~International Air Law.~~
(b) ~~IFR Navigation.~~
(c) ~~IFR Operational procedures.~~

~~Practical flight assessment general~~

(a) ~~A trainee for a practical flight assessment for the RPC-L4(A) **must** have received instruction on the same category and type of UAS to be used in the assessment.~~
(b) ~~An RPC-L4(A) trainee **must** pass all the relevant sections of the practical flight assessment, in accordance with the following:~~
    (1) ~~If a trainee fails any item in a section, they have failed that section.~~
    (2) ~~If a trainee fails only one section, they must retake only that section.~~
    (3) ~~If a trainee fails more than one section, they must retake the entire practical flight assessment.~~
    (4) ~~If a trainee fails any section of the retaken practical flight assessment, including any section that was passed on a previous attempt, they must retake the entire practical flight assessment.~~

(c) All relevant sections of the practical flight assessment **must** be completed within 6 months of the date on which the trainee attempted the first section of the practical flight assessment.

(d) If a trainee fails any individual section of the practical flight assessment, the RAE(PC) may require them to undertake further training. If a trainee fails to achieve a pass in all sections of the practical flight assessment in two attempts, they **must** undertake further training.

(e) There is no limit to the number of practical flight assessments that a trainee may attempt.

CONDUCT OF THE ASSESSMENT

(a) Should the trainee choose to terminate a practical flight assessment for reasons considered inadequate by the PFA, the trainee **must** retake the entire practical flight assessment. If the assessment is terminated for reasons considered adequate by the PFA, only those sections not completed **must** be tested in a further flight. Adequate reasons include, but are not limited to, illness, poor weather conditions, equipment failure, and other risks to persons or property.

(b) At the discretion of the PFA, any manoeuvre or procedure of the assessment may be repeated once by the trainee. The PFA may stop the assessment at any stage if they consider that the trainee's demonstration of flying skills requires a complete retest.

(c) A trainee **must** indicate to the PFA the checks and duties carried out. Checks **must** be completed in accordance with the checklist for the UA on which the assessment is being taken. During pre-flight preparation for the assessment, the trainee **must** configure the command unit (CU).

(d) The PFA **must** take no part in the operation of the UA except where intervention is necessary in the interest of safety.

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L4(A)

(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication.

(b) The practical flight assessment **must** comprise of a practical flight assessment conducted in ARC-d airspace.

(c) Every section of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.

RPC-L4(A) PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holders of an RPC-L4(A) are to act as remote pilot in command or flight crew of a UA where all of the following apply:

(1) The flight is being undertaken in the Specific category.

(2) The primary means of lift of the UA is fixed wing(s).

(3) The maximum air risk class (ARC) of the flight is ARC-d.

(4) The operational authorisation under which the flight is being conducted states the RPC-L4(A) is the minimum remote pilot competence.

(b) **Conditions.**

(1) The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.

(2) The remote pilot holds a valid flyer ID.

RPC-L4(A) EXPERIENCE REQUIREMENTS AND CREDITING

Experience Requirements. An RPC-L4(A) trainee **must** be able to demonstrate that they meet both flight experience requirements below:

(a) at least 28 hours of instruction completed, which **must** include:

(1) 14 hours of beyond visual line of sight dual flight simulator instruction, and

(2) 14 hours of beyond visual line of sight dual practical flight instruction; and

(b) at least 100 hours of logged live BVLOS flight in total as RP in command, which may include live practical flight instruction undertaken during this training course, or a previous RPC training course.

Crediting. Trainees for the RPC-L4(A) that hold valid RPC-L4 in another category may be credited towards the requirements in (1)(a) subject to completion of a suitable bridging course at a CAA approved RAE(PC).

RPC-L4(A) VALIDITY, REVALIDATION AND RENEWAL

(a) **Validity.** An RPC-L4(A) is valid for 1 year from the date notified on the certificate.

(b) **Revalidation.** An RPC-L4(A) may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).

(c) The RAE(PC) **must** determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors.

(d) An RAE(PC) should exempt a remote pilot from a live revalidation check where:

(1) the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and

(2) the remote pilot demonstrate certificate currency has been maintained through a personal flight log.

(e) An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard in particular to:

(1) the remote pilot's experience; and

(2) the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L4(A).

(f) The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.

(g) If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 1-year validity period will be set by reference to the date of the successful revalidation proficiency check.

(h) A remote pilot who fails to revalidate their RPC-L4(A) before it expires **must not** exercise any RPC-L4(A) privileges unless they renew their RPC-L4(A)in accordance with the provisions below.

(i) **Renewal**. If an RPC-L4(A) has expired, a remote pilot may renew their privileges, by complying with all the following requirements:

(1) The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L4(A) proficiency check.

(2) The remote pilot **must** pass an RPC-L4(A) proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.

(j) The RAE(PC) must determine on a case-by-case basis what amount of refresher training and what theoretical and practical skills checks are necessary to assess a remote pilot's RPC-L4(A) proficiency, having regard in particular to:

(1) the experience of the remote pilot; and

(2) the amount of time elapsed since the remote pilot last used the privileges of the RPC-L4(A); and

(3) the complexity of the remote pilot's experience.

RPC-L4(A) PROOF OF COMPETENCE

Upon satisfactory completion of the training the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level, and category satisfactorily demonstrated.

The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.

RPC-L4(R) Rotorcraft

GROUND INSTRUCTION

Ground instruction considering take-off and landing area selection, aircraft preparation, ground hazard analysis, route planning, avoidance of uninvolved people, and airspace.

FLIGHT INSTRUCTION

The RPC-L4(R) flight instruction syllabus considers the principles safe UA operations including:

(a) Ability to apply operational procedures (normal, contingency, and emergency procedures, flight planning, pre-flight and post-flight inspections).

(b) Ability to manage aeronautical communication.

(c) Manage the unmanned aircraft flight path and automation.

(d) Leadership, teamwork, and self-management.

(e) ~~Problem solving and decision-making.~~
(f) ~~Situational awareness.~~
(g) ~~Workload management.~~
(h) ~~Coordination or handover, as applicable.~~

~~SYLLABUS OF FLIGHT INSTRUCTION~~

~~Details of the flight instruction syllabus can be found in Appendix A. The syllabus details are intended to be used by an RAE(PC) when developing the RPC-L4 flight training elements of the appropriate course. It should be noted, however, that they do not provide a ready-made flight training syllabus for individual RAE(PC)s and should not be seen by organisations as a substitute for thorough course design.~~

~~The RPC-L4(R) flight instruction syllabus should consider the principles of threat and error management and **must** be competency-based training throughout.~~

~~THEORETICAL KNOWLEDGE TOPICS~~

~~In the tables of Appendix B, the applicable learning objectives (LOs) for each certificate are marked with an 'X'.~~

~~An RAE(PC) should use the LOs when developing the theoretical knowledge elements of the appropriate course. But the LOs do not provide a ready-made ground training syllabus for individual RAE(PC)s and an RAE(PC) should not rely on the LOs as a substitute for thorough course design.~~

~~THEORETICAL KNOWLEDGE ASSESSMENT~~

~~An RPC-L4(R) trainee **must** demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:~~

(a) ~~International Air Law.~~
(b) ~~IFR Navigation.~~
(c) ~~IFR Operational procedures.~~

~~PRACTICAL FLIGHT ASSESSMENT GENERAL~~

(a) ~~A trainee for a practical flight assessment for the RPC-L4(R) **must** have received instruction on the same category and type of UAS to be used in the assessment.~~
(b) ~~A trainee **must** pass all the relevant sections of the practical flight assessment, in accordance with the following:~~
    (1) ~~If a trainee fails any item in a section, they have failed that section.~~
    (2) ~~If a trainee fails only one section, they must retake only that section.~~
    (3) ~~If a trainee fails more than one section, they must retake the entire practical flight assessment.~~
    (4) ~~If a trainee fails any section of the retaken practical flight assessment, including any section that was passed on a previous attempt, they must retake the entire practical flight assessment.~~

(c) All relevant sections of the practical flight assessment **must** be completed within 6 months of the date on which the trainee attempted the first section of the practical flight assessment.

(d) If a trainee fails any individual section of the practical flight assessment, the RAE(PC) may require them to undertake further training. If a trainee fails to achieve a pass in all sections of the practical flight assessment in two attempts, they **must** undertake further training.

(e) There is no limit to the number of practical flight assessments that a trainee may attempt.

CONDUCT OF THE ASSESSMENT

(a) Should the trainee choose to terminate a practical flight assessment for reasons considered inadequate by the PFA, the trainee **must** retake the entire practical flight assessment. If the assessment is terminated for reasons considered adequate by the PFA, only those sections not completed **must** be tested in a further flight. Adequate reasons include, but are not limited to, illness, poor weather conditions, equipment failure, and other risks to persons or property.

(b) At the discretion of the PFA, any manoeuvre or procedure of the assessment may be repeated once by the trainee. The PFA may stop the assessment at any stage if they consider that the trainee's demonstration of flying skills requires a complete retest.

(c) A trainee **must** indicate to the PFA the checks and duties carried out. Checks **must** be completed in accordance with the checklist for the UA on which the assessment is being taken. During pre-flight preparation for the assessment, the trainee **must** configure the command unit (CU).

(d) The PFA **must** take no part in the operation of the UA except where intervention is necessary in the interest of safety.

CONTENT OF THE PRACTICAL FLIGHT ASSESSMENT FOR THE ISSUE OF AN RPC-L4(R)

(a) The UAS used for the practical flight assessment **must** meet the requirements for training UAS as set out in the relevant CAA publication.

(b) The practical flight assessment **must** comprise of a practical flight assessment lasting at least 1 hour conducted in ARC-d conditions departing from and returning to a licenced aerodrome.

(c) Every section of the practical flight assessment must assess the use of checklists, situational awareness, control of the UA either manually or by use of the CU, and principles of risk management.

RPC-L4(R) PRIVILEGES AND CONDITIONS

(a) **Privileges.** The privileges of the holders of an RPC-L4(R) are to act as remote pilot in command or flight crew of a UA where all of the following apply:

(1) The flight is being undertaken in the Specific Category.

(2) The primary means of lift of the UA is rotating wing(s).

(3) ~~The maximum air risk class (ARC) of the flight is ARC-d.~~

(4) ~~The operational authorisation under which the flight is being conducted states the RPC-L4(R) is the minimum remote pilot competence.~~

(b) ~~**Conditions.**~~

(1) ~~The remote pilot maintains a minimum certificate currency of 2 hours of live flight within the last 90 days.~~

(2) ~~The remote pilot holds a valid flyer ID.~~

~~RPC-L4(R) EXPERIENCE REQUIREMENTS AND CREDITING~~

~~**Experience Requirements**. An RPC-L4(R) trainee **must** be able to demonstrate that they meet both flight experience requirements below:~~

(a) ~~at least 28 hours of instruction completed, which **must** include:~~

(1) ~~14 hours of beyond visual line of sight dual flight simulator instruction, and~~

(2) ~~14 hours of beyond visual line of sight dual practical flight instruction; and~~

(b) ~~at least 100 hours of logged live BVLOS flight in total as RP in command, which may include live practical flight instruction undertaken during this training course, or a previous RPC training course.~~

~~**Crediting.** An RPC-L4(R) trainee that holds a valid RPC-L4 in another category may be credited towards the requirements in (1)(a) subject to completion of a suitable bridging course at a CAA approved RAE(PC).~~

~~RPC-L4(R) VALIDITY, REVALIDATION AND RENEWAL~~

(e)a ~~**Validity.** An RPC-L4(R) is valid for 1 year from the date notified on the certificate~~

(e)b ~~**Revalidation.** An RPC-L4(R) may be revalidated within the 3 months immediately preceding its expiry date if the remote pilot undertakes a revalidation proficiency check at an RAE(PC).~~

(e)c ~~The RAE(PC) **must** determine on a case-by-case basis what steps the revalidation proficiency check requires, having regard to the remote pilot's certificate currency, experience, flight logs, last use of RPC privileges and any other relevant factors.~~

(e)d ~~An RAE(PC) should exempt a remote pilot from a live revalidation check where:~~

(1) ~~the remote pilot has maintained at least minimum certificate currency for the complete duration of the certificate validity period; and~~

(2) ~~the remote pilot demonstrate certificate currency has been maintained through a personal flight log.~~

(e)e ~~An RAE(PC) may exempt a remote pilot from a live revalidation check where certificate currency has not been maintained in accordance with (d) if the RAE(PC) is satisfied that an exemption is appropriate, having regard in particular to:~~

(1) ~~the remote pilot's experience; and~~

(2) ~~the amount of time elapsed since the date on which the remote pilot last used privileges of the RPC-L4(R).~~

(e)f ~~The remote pilot **must** undertake a revalidation proficiency check consisting of at least 1 hour of supervised flying covering general handling and emergency procedures where the RAE(PC) considers this to be necessary.~~

(e)g ~~If a remote pilot chooses to fulfil the revalidation requirements earlier than prescribed in point (b), the new 1-year validity period will be set by reference to the date of the successful revalidation proficiency check.~~

(e)h ~~A remote pilot who fails to revalidate their RPC-L4(R) before it expires **must not** exercise any RPC-L4(R)privileges unless they renew their RPC-L4(R) in accordance with the provisions below.~~

(e)i ~~**Renewal**. If an RPC-L4(R) has expired, a remote pilot may renew their privileges, by complying with all the following requirements:~~

(1) ~~The remote pilot **must** complete a refresher training at an RAE(PC), if the RAE(PC) considers that refresher training is necessary for the remote pilot to reach the level of proficiency needed to pass an RPC-L4(R) proficiency check.~~

(2) ~~The remote pilot **must** pass an RPC-L4(R) proficiency check at an RAE(PC), including any theoretical knowledge or practical skills checks the RAE(PC) considers necessary.~~

(e)j ~~The RAE(PC) must determine on a case-by-case basis what amount of refresher training and what theoretical and practical skills checks are necessary to assess a remote pilot's RPC-L4(R) proficiency, having regard in particular to:~~

(1) ~~the experience of the remote pilot; and~~

(2) ~~the amount of time elapsed since the remote pilot last used the privileges of the RPC-L4(R); and~~

(3) ~~the complexity of the remote pilot's experience.~~

~~RPC-L4(R) PROOF OF COMPETENCE~~

~~Upon satisfactory completion of the training the RAE(PC) will advise the CAA as to the competencies demonstrated by remote pilots which must include as a minimum the trainee's name, CAA flyer ID, the RAE(PC) approval number, the competence level, and category satisfactorily demonstrated.~~

~~The RAE(PC) must issue a proof of competence to the RP in a form and manner determined by the CAA.~~

APPENDIX A – FLIGHT INSTRUCTION

(…)

~~FLIGHT INSTRUCTION – RPC-L4~~

~~Ref~~	~~ARC~~	~~Learning Objectives (LO)~~	~~Sim~~	~~Live~~
~~IFR-S1~~	~~D~~	~~Introduce IFR Departure and Transit~~		
		~~Introduce IFR workflow~~	~~X~~	
		~~Introduce ANSP coordination~~	~~X~~	
~~IFR-S2~~	~~D~~	~~Standard Instrument Departures and Arrivals~~		
		~~Consolidate IFR workflow~~	~~X~~	
		~~Introduce SIDs and STARs~~	~~X~~	
~~IFR-S3~~	~~D~~	~~Enroute IFR Procedures~~		
		~~Introduce en-route holding~~	~~X~~	
		~~Consolidate SIDs and STARs~~	~~X~~	
~~IFR-S4~~	~~D~~	~~Holding Procedures~~		
		~~Introduce terminal aera holds~~	~~X~~	
~~IFR-S5~~	~~D~~	~~Instrument Approaches to Specified Minima~~		
		~~Consolidate IFR-S2, IFR-S3, and IFR-S4~~	~~X~~	
~~IFR-S6~~	~~D~~	~~Missed Approach Procedures~~		
		~~Go around procedures~~		
~~IFR-L1~~	~~D~~	~~IFR Departure~~		
		~~IFR Departure – Dual~~		~~X~~
		~~IFR Exercises~~		~~X~~
~~IFR-L2~~	~~D~~	~~IFR Instrument Departure~~		
		~~SID exercises~~		~~X~~
~~IFR-L3~~	~~D~~	~~IFR Holds~~		
		~~Holds and IFR exercises~~		~~X~~
~~IFR-L4~~	~~D~~	~~IFR Exercises~~		
		~~Holds into approaches~~		~~X~~
~~IFR-L5~~	~~D~~	~~IFR Exercises Dual~~		
		~~Dual departure, hold and recovery~~		~~X~~
~~IFR-L6~~	~~D~~	~~IFR Exercises Solo~~		
		~~Solo departure, hold, and recovery~~		~~X~~
~~IFR-ST~~	~~D~~	~~IFR Practical Flight Assessment~~		

APPENDIX B – THEORICAL KNOWLEDGE TOPICS

AIR LAW

Syllabus Reference	Syllabus Details and Associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
LAW.SPEC.00.00	**Air Law**					
LAW.SPEC.01.00	**UK UAS Regulations**					
LAW.SPEC.01.01	Demonstrate an understanding of the UK Regulation (EU) 2019/947.	X	X	X		
LAW.SPEC.01.02	Demonstrate an understanding of the Acceptable Means of Compliance to UK Regulation (EU) 2019/947.	X	X	X		
LAW.SPEC.01.03	Demonstrate an understanding of other relevant CAA supporting documents and polices.	X	X	X		
LAW.SPEC.01.04	Describe the requirements of article 8 in relation to remote pilot competence. **Source: UK Regulation (EU) 2019/947 Art 8.**					X
LAW.SPEC.01.05	State the privileges of each of the remote pilot competence certificates in the Specific category. **Source: UK Regulation (EU) 2019/947 Art 8.**					X
LAW.SPEC.01.06	Describe the responsibilities of a ~~remote pilot~~ UAS operator in accordance with UAS.SPEC.050. **Source: UAS.SPEC.050**					X
LAW.SPEC.01.07	Describe the responsibilities of a ~~UAS operator~~ remote pilot in accordance with UAS.SPEC.060. **Source: UAS.SPEC.060**					X
LAW.SPEC.01.08	Explain key differences between these responsibilities.					X
LAW.SPEC.02.00	**UK National UAS Regulations - The Air Navigation Order**					
LAW.SPEC.02.01	Demonstrate awareness of the UK Air Navigation Order including residual articles relevant to UAS operations.	X	X	X		
LAW.SPEC.02.02	Describe the relationship between the ANO and UK Regulation (EU) 2019/947.					X
LAW.SPEC.02.03	Describe how article 23 of the ANO limits the scope of the order in relation to UAS operations.					X
LAW.SPEC.02.04	Describe the residual articles of the ANO that remain in scope of the order.					X
LAW.SPEC.03.00	**The issue of an Operational Authorisation**					

Syllabus Reference	Syllabus Details and Associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
LAW.SPEC.03.01	Demonstrate an understanding of an Operational Authorisation (OA) and how it describes the privileges and conditions it sets out.	X	X	X		
LAW.SPEC.04.00	**The Convention on International Civil Aviation (Chicago) — ICAO Doc 7300/9**					
LAW.SPEC.04.01	Explain the circumstances that led to the establishment of the Convention on International Civil Aviation, Chicago, 7 December 1944. **Source: ICAO Doc 7300/9 Preamble**					X
LAW.SPEC.05.00	**The Standard European Rules of the Air (SERA)**					
LAW.SPEC.05.01	Reserved - Rights of Way.					
LAW.SPEC.06.00	**Flightworthiness of UAS**					
LAW.SPEC.06.01	For use after the implementation of the UK SAIL mark for flightworthiness.					X

OPERATIONAL PROCEDURES

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
OPS.SPEC.00.00	**Operational Procedures**					
OPS.SPEC.01.00	**Visual Line of Sight Procedures**					
OPS.SPEC.01.01	Describe specific airspace classifications and types.	X	X	X		
OPS.SPEC.01.02	Describe the UK airspace reservations such as: (a) Danger Areas (b) Restricted Areas (c) Prohibited areas	X	X	X		
OPS.SPEC.01.03	Demonstrate an understanding of official sources of information that support UAS operations.	X	X	X		
OPS.SPEC.01.04	Extract information from relevant aeronautical information sources.	X	X	X		
OPS.SPEC.01.05	Interpret information from aeronautical information sources for their applicability to UAS operations.	X	X	X		
OPS.SPEC.02.00	**Beyond Visual Line of Sight Procedures**					
OPS.SPEC.02.01	Demonstrate an understanding of coordination procedures with air traffic control (ATC) for BVLOS flights.				X	
OPS.SPEC.03.00	**BVLOS Flight Planning**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
OPS.SPEC.03.01	Describe the regulatory boundaries of BVLOS flight operations in terms of UK SORA (GRC, ARC, and Total SAIL).				X	
OPS.SPEC.04.00	**BVLOS Route Selection**					
OPS.SPEC.04.01	Describe the process of route optimisation considering factors such as terrain, obstacles, and populated areas.				X	
OPS.SPEC.05.00	**Waypoint Planning**					
OPS.SPEC.05.01	Describe the process to determine the position of waypoints along the chosen route.				X	
OPS.SPEC.05.02	Explain the need for precision navigation, obstacle avoidance, and compliance with airspace restrictions.				X	

UA GENERAL KNOWLEDGE

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.00.00	**UA General Knowledge**					
AGK.SPEC.01.00	**SAIL Certification**					
AGK.SPEC.01.01	Reserved for future.					
AGK.SPEC.02.00	**Stress, Strain and Loads**					
AGK.SPEC.02.01	Explain how stress and strain are always present in a UA structure both when parked and during manoeuvring.					X
AGK.SPEC.02.02	Describe the following types of loads that an unmanned aircraft may be subjected to, when they occur, and how a remote pilot may affect their magnitude: (a) static loads (b) dynamic loads (c) cyclic loads					X
AGK.SPEC.02.03	Describe the areas typically prone to stress that should be given particular attention during a pre-flight inspection and highlight the limited visual cues of any deformation that may be evident.					X
AGK.SPEC.03.00	**Fatigue and Corrosion**					
AGK.SPEC.03.01	Describe the effects of corrosion and how it can be visually identified by a remote pilot during the pre-flight inspection.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.03.02	Describe the operating environments where the risk of corrosion is increased and how to minimise the effects of the environmental factors.					X
AGK.SPEC.03.03	Explain fatigue, how it affects the useful life of an unmanned aircraft, and the effect of the following factors on the development of fatigue: (a) corrosion (b) number of cycles (c) type of flight manoeuvres (d) stress level					X
AGK.SPEC.04.00	**UA Maintenance**					
AGK.SPEC.04.01	Reserved for future.					
AGK.SPEC.05.00	**Airframe**					
AGK.SPEC.05.01	Describe the following attachment methods used for unmanned aircraft parts and components: (a) riveting (b) welding (c) bolting (d) pinning (e) adhesives (bonding (f) screwing					X
AGK.SPEC.05.02	Explain how the development of a faulty attachment between unmanned aircraft parts or components can be detected by a remote pilot during the pre-flight inspection.					X
AGK.SPEC.06.00	**Composite and Other Materials**					
AGK.SPEC.06.01	Explain the principle of a composite material, and give examples of typical non-metallic materials used on unmanned aircraft: (a) carbon (b) glass fibre (c) Kevlar aramid					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.06.02	State the advantages and disadvantages of composite materials compared with metal alloys by considering the following: (a) strength-to-weight ratio (b) capability to tailor the strength to the direction of the load (c) stiffness (d) electrical conductivity (lightning) (e) resistance to fatigue and corrosion (f) resistance to cost (g) discovering damage during a pre-flight inspection.					X
AGK.SPEC.06.03	State that several types of materials are used on unmanned aircraft and that they are chosen based on type of structure or component and the required/desired material properties.					X
AGK.SPEC.07.00	**Aeroplane: Wings, Tail Surfaces, and Control Surfaces**					
AGK.SPEC.07.01	Describe the different types of UA design and explain their advantages and disadvantages.					X
AGK.SPEC.08.00	**Structural Components**					
AGK.SPEC.08.01	Describe the function of a wing spar and other critical structural components.					X
AGK.SPEC.09.00	**Loads, Stresses and Aeroelastic Vibrations (flutter)**					
AGK.SPEC.09.01	Describe the vertical and horizontal loads on the ground and during normal flight.					X
AGK.SPEC.10.00	**Rotorcraft Structural Aspects of Fight Controls**					
AGK.SPEC.10.01	List the functions of flight controls.					X
AGK.SPEC.10.02	Explain why vertical and horizontal stabilisers may have different shapes and alignments.					X
AGK.SPEC.11.00	**Structural Components, and Materials**					
AGK.SPEC.11.01	Describe the fatigue life and methods of checking for serviceability of the components and materials of flight and control surfaces.					X
AGK.SPEC.12.00	**Loads, Stresses, and Aeroelastic Vibrations**					
AGK.SPEC.12.01	Describe the dangers and stresses regarding safety and serviceability in flight when the manufacturer’s design envelope is exceeded.					X
AGK.SPEC.12.02	Explain that blade tracking is important both to minimise vibration and to help ensure uniformity of flow through the disc.					X
AGK.SPEC.12.03	Describe the early indications and vibrations which are likely to be experienced when the main-rotor blades and tail rotor are out of balance or tracking,					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
	including the possible early indications due to possible fatigue and overload.					
AGK.SPEC.12.04	Explain how a vibration harmonic can be set up in other components which can lead to their early failure.					X
AGK.SPEC.12.05	State the three planes of vibration measurement, i.e. vertical, lateral, fore and aft.					X
AGK.SPEC.13.00	**Brakes**					
AGK.SPEC.13.01	Describe the basic operating principle of a disc brake.					X
AGK.SPEC.13.02	Explain the limitation of brake energy and describe the operational. consequences.					X
AGK.SPEC.13.03	Explain how brakes are actuated: hydraulically, electrically, or mechanically					X
AGK.SPEC.13.04	Describe the function of a parking brake.					X
AGK.SPEC.14.00	**Flight Controls**					
AGK.SPEC.14.01	Define a 'primary flight control' in the context of a UA.	X	X	X		
AGK.SPEC.14.02	List the following primary flight control surfaces elevator, aileron, roll spoilers, flaperon and rudder.	X	X	X		
AGK.SPEC.14.03	List the various means of control surface actuation.	X	X	X		
AGK.SPEC.15.00	**Rotorcraft Flight Controls**					
AGK.SPEC.15.01	Describe the following four axes of control operation, their operating principle, and their associated cockpit controls: (a) collective control (b) cyclic fore and aft (pitch axis) (c) cyclic lateral (roll axis) (d) yaw	X	X	X		
AGK.SPEC.15.02	Describe the swash plate or azimuth star control system including the following: (a) swash plate inputs (b) the function of the non-rotating swash plate (c) the function of the rotating swash plate (d) how swash plate tilt is achieved (e) swash plate pitch axis (f) swash plate roll axis (g) balancing of pitch/roll/collective inputs to the swash plate to equalise torsional loads on the blades					X
AGK.SPEC.15.03	Describe how flight control is achieved in multirotor UA.	X	X	X		

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.15.04	Describe how transition between vertical and horizontal flight is achieved in VTOL UA.	X	X	X		
AGK.SPEC.16.00	**Piston Engines**					
AGK.SPEC.16.01	State the types of fuel used by a piston engine and their associated limitations: (a) diesel (b) JET-A1 (for high-compression engines) (c) AVGAS					X
AGK.SPEC.16.02	State the main characteristics of these fuels and give typical values regarding their flash points, freezing points and density.					X
AGK.SPEC.17.00	**Design, Operation, System Components, Indications**					
AGK.SPEC.17.01	State the tasks of the fuel system.					X
AGK.SPEC.17.02	Name the following main components of a fuel system, and state their location and their function: (a) lines (b) pumps (c) pressure valves (d) filter/strainer (e) tanks (f) vent system (g) fuel-quantity sensor; fuel-temperature sensor					X
AGK.SPEC.17.03	Describe a gravity fuel feed system and a pressure feed fuel system.					X
AGK.SPEC.17.04	Describe the construction of the different types of fuel tanks and state their advantages and disadvantages: (a) drum tank (b) bladder tank (c) integral tank					X
AGK.SPEC.17.05	Define the term ‘unusable fuel’.					X
AGK.SPEC.17.06	List the following parameters that maybe monitored for the fuel system: (a) fuel quantity (low-level warning) (b) fuel temperature					X
AGK.SPEC.18.00	**Turbine Engines**					
AGK.SPEC.18.01	State the types of fuel used by a gas turbine engine: (a) JET-A (b) JET-A1					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
	(c) JET-B					
AGK.SPEC.18.02	State the main characteristics of these fuels and give typical values regarding their flash points, freezing points and density.					X
AGK.SPEC.18.03	State the existence of additives for freezing.					X
AGK.SPEC.19.00	**Design, operation, system components, indications**					
AGK.SPEC.19.01	Explain the function of the fuel system: (a) lines (b) pumps (c) pressure valves (d) filter/strainer (e) tanks (f) vent system (g) fuel-quantity sensor; fuel-temperature sensor					X
AGK.SPEC.20.00	**Electrics**					
AGK.SPEC.20.01	Explain static electricity and describe the flying conditions where unmanned aircraft are most susceptible to build-up of static electricity.					X
AGK.SPEC.20.02	Describe a static discharger and explain the following: (a) its purpose (b) typical locations (c) remote pilot's role of observing it during pre-flight inspection					X
AGK.SPEC.20.03	Explain why an unmanned aircraft must first be grounded before refuelling/defueling.					X
AGK.SPEC.20.04	Explain the reason for electrical bonding.					X
AGK.SPEC.21.00	**Direct Current (DC)**					
AGK.SPEC.21.01	Explain the term direct current (DC), and state that current can only flow in a closed circuit.	X	X	X		
AGK.SPEC.21.02	Explain the basic principles of conductivity and give examples of conductors, semiconductors, and insulators.	X	X	X		
AGK.SPEC.21.03	Describe the difference in use of the following mechanical switches and explain the difference in observing their state (e.g. ON/OFF), and why some switches are guarded: (a) toggle switch (b) rocker switch (c) pushbutton switch					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
	(d) rotary switch					
AGK.SPEC.21.04	Define voltage and current and state their unit of measurement.	X	X	X		
AGK.SPEC.21.05	Explain Ohm's law in qualitative terms.	X	X	X		
AGK.SPEC.21.06	Explain the effect on total resistance when resistors are connected in series or in parallel.					X
AGK.SPEC.21.07	State that resistances can have a positive or a negative temperature coefficient (PTC/NTC) and state their use.					X
AGK.SPEC.21.08	Define electrical power and state the unit of measurement.	X	X	X		
AGK.SPEC.22.00	**Alternating Current (AC)**					
AGK.SPEC.22.01	Explain the term 'alternating current' (AC) and compare its use to DC regarding complexity.					X
AGK.SPEC.22.02	Define the term 'phase', and explain the basic principle of single- phase and three-phase AC.					X
AGK.SPEC.22.03	State that unmanned aircraft can use single-phase or three-phase AC.					X
AGK.SPEC.22.04	Define frequency and state the unit of measurement.					X
AGK.SPEC.22.05	Define 'phase shift' in qualitative terms.					X
AGK.SPEC.23.00	**Electromagnetism**					
AGK.SPEC.23.01	State that an electrical current produces a magnetic field.					X
AGK.SPEC.23.02	Describe how the strength of the magnetic field changes with the magnitude of the current.					X
AGK.SPEC.23.03	Explain the purpose and the working principle of a solenoid.					X
AGK.SPEC.23.04	Explain the purpose and the working principle of a relay.					X
AGK.SPEC.23.05	Explain the principle of electromagnetic induction and how two electrical components or systems may affect each other through this principle.					X
AGK.SPEC.24.00	**Circuit Protection**					
AGK.SPEC.24.01	Explain the working principle of a fuse and a circuit breaker.	X	X	X		
AGK.SPEC.24.02	Explain how a fuse is rated.	X	X	X		X
AGK.SPEC.24.03	Describe how circuit breakers may be used to reset unmanned aircraft systems/computers in the event of system failure.					X
AGK.SPEC.24.04	Explain a short circuit in practical terms using Ohm's Law, power and energy expressions highlighting the risk of fire due to power transfer and extreme energy dissipation.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.24.05	Explain the risk of fire resulting from excessive heat in a circuit subjected to overcurrent.	X	X	X		
AGK.SPEC.24.06	Explain that overcurrent situations may be transient.					
AGK.SPEC.24.07	Explain the hazards of the use of incorrect fuse rating when replacing blown fuses.	X	X	X		
AGK.SPEC.25.00	**Semiconductors and Logic Circuits (Reserved)**					
AGK.SPEC.26.00	**Batteries**					
AGK.SPEC.26.01	State the functions of an unmanned aircraft battery.	X	X	X		
AGK.SPEC.26.02	Name the types of rechargeable batteries used in unmanned aircraft: (a) lithium-ion (b) lithium-polymer	X	X	X		
AGK.SPEC.26.03	Compare the different battery types with respect to: (a) load behaviour (b) charging characteristics (c) risk of thermal runaway	X	X	X		
AGK.SPEC.26.04	Explain the term ‘cell voltage’ and describe how a battery may consist of several cells that combined provide the desirable voltage and capacity.	X	X	X		
AGK.SPEC.26.05	Explain the difference between battery voltage and charging voltage.	X	X	X		
AGK.SPEC.26.06	Define the term ‘capacity of batteries’ and state the unit of measurement used.	X	X	X		
AGK.SPEC.26.07	State the effect of temperature on battery capacity and performance.	X	X	X		
AGK.SPEC.26.08	State that in the case of loss of all generated power (battery power only) the remaining electrical power is time limited.	X	X	X		
AGK.SPEC.26.09	Describe how to contain a battery thermal runaway highlighting how one cell can affect the neighbouring cells.	X	X	X		
AGK.SPEC.27.00	**DC Generation**					
AGK.SPEC.27.01	Describe the basic working principle of a simple DC generator or DC alternator.					X
AGK.SPEC.27.02	Explain the principle of voltage control and why it is required.					X
AGK.SPEC.27.03	Describe the basic operating principle of a starter generator and state its purpose.					X
AGK.SPEC.28.00	**DC Distribution**					
AGK.SPEC.28.01	Describe a simple DC electrical system of an unmanned aircraft.	X	X	X		
AGK.SPEC.28.02	Give examples of DC consumers.	X	X	X		
AGK.SPEC.29.00	**Electrical Motors**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.29.01	State that the purpose of an electrical motor is to convert electrical energy into mechanical energy.	X	X	X		
AGK.SPEC.29.02	Describe how electrical motors are rated for use in unmanned aircraft.	X	X	X		
AGK.SPEC.29.03	State that because of the similarity in design, a generator and an electrical motor may be combined into a starter generator.					X
AGK.SPEC.30.00	**Operating Principle**					
AGK.SPEC.30.01	Describe how the torque of an electrical motor is determined by the supplied voltage and current, and the resulting magnetic fields within the motor.					X
AGK.SPEC.31.00	**Components**					
AGK.SPEC.31.01	Name the following components of an electrical motor: rotor (rotating part of an electrical motor); stator (stationary part of an electrical motor).	X	X	X		
AGK.SPEC.32.00	**Piston Engines**					
AGK.SPEC.32.01	Define the following terms and expressions: (a) rpm (b) torque (c) manifold absolute pressure (MAP) (d) power output (e) specific fuel consumption (f) compression ratio, clearance volume, swept (displaced) volume, total volume					X
AGK.SPEC.33.00	**Piston Engine: Design, Operation, Components**					
AGK.SPEC.33.01	Describe the basic operating principle of a piston engine: (a) crankcase (b) crankshaft (c) connecting rod (d) piston (e) piston pin (f) piston rings (g) cylinder (h) cylinder head (i) valves (j) valve springs (k) push rod (l) camshaft					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
	(m) rocker arm (n) camshaft gear (o) bearings					
AGK.SPEC.33.02	Name and identify the various types of engine design with regard to cylinder arrangement and their advantages/disadvantages'					X
AGK.SPEC.33.03	Describe the differences between petrol and diesel engines with respect to: (a) means of ignition (b) maximum compression ratio (c) regulating air or mixture supply to the cylinder (d) pollution from the exhaust					X
AGK.SPEC.34.00	**Fuel**					
AGK.SPEC.34.01	Name the type of fuel used for petrol engines including its colour (AVGAS); (a) 100 (green) (b) 100LL (blue)					X
AGK.SPEC.34.02	Name the type of fuel normally used for aviation diesel engines (JET-A1).					X
AGK.SPEC.34.03	Define the term 'octane rating'.					X
AGK.SPEC.34.04	Define the term 'detonation' and describe the causes and effects of detonation for both petrol and diesel engines.					X
AGK.SPEC.34.05	Define the term 'pre-ignition' and describe the causes and effects of pre-ignition for both petrol and diesel engines.					X
AGK.SPEC.34.06	Identify the conditions and power settings that promote detonation for petrol engines.					X
AGK.SPEC.34.07	Describe how detonation in petrol engines is recognised.					X
AGK.SPEC.34.08	Describe the method and occasions for checking the fuel for water content.					X
AGK.SPEC.34.09	State the typical value of fuel density for aviation gasoline and diesel fuel.					X
AGK.SPEC.34.10	Explain volatility, viscosity and vapour locking in petrol and diesel fuels.					X
AGK.SPEC.35.00	**Engine Fuel Pumps**					
AGK.SPEC.35.01	Describe common fuel pumps used in unmanned aircraft.					X
AGK.SPEC.36.00	**Carburettor/Injection System**					
AGK.SPEC.36.01	State the purpose of a carburettor.					X
AGK.SPEC.36.02	Explain the advantages and difference in operation of an injection system compared with a carburettor system.					X
AGK.SPEC.37.00	**Icing**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.37.01	Describe the causes and effects of carburettor icing.					X
AGK.SPEC.37.02	Name the meteorological conditions under which carburettor icing may occur.					X
AGK.SPEC.37.03	Describe the indications of the presence of carburettor icing for a rotorcraft.					X
AGK.SPEC.37.04	Describe the indications that will occur upon selection of carburettor heat depending on whether ice is present or not.					X
AGK.SPEC.37.05	Explain the reason for the use of alternate air on fuel injection systems and describe its operating principle.					X
AGK.SPEC.37.06	State the meteorological conditions under which induction system icing may occur.					X
AGK.SPEC.38.00	**Cooling Systems**					
AGK.SPEC.38.01	Specify the reasons for cooling a piston engine.					X
AGK.SPEC.38.02	Describe the design features to enhance cylinder air cooling for aeroplanes.					X
AGK.SPEC.38.03	Describe the design features to enhance cylinder air cooling for rotorcraft.					X
AGK.SPEC.38.04	Compare the differences between liquid- and air-cooling systems.					X
AGK.SPEC.39.00	**Lubrication Systems**					
AGK.SPEC.39.01	Describe the term ‘viscosity’ including the effect of temperature.					X
AGK.SPEC.39.02	Describe the viscosity grade numbering system used in aviation.					X
AGK.SPEC.39.03	Design, operation, indications, and warnings.					X
AGK.SPEC.39.04	State the functions of a piston-engine lubrication system.					X
AGK.SPEC.39.05	Describe the working principle of a dry-sump lubrication system and describe the functions of the following components: (a) oil tank (b) check valve (non-return valve). (c) pressure pump and pressure-relief valve. (d) scavenge pump (e) filters (f) oil cooler (g) oil cooler bypass valve (h) pressure and temperature sensors (i) lines					X
AGK.SPEC.39.06	Describe a wet-sump lubrication system.					X
AGK.SPEC.39.07	State the differences between a wet- and a dry-sump lubrication system and their advantages and disadvantages.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.39.08	List the following factors that influence oil consumption: (a) oil grade (b) cylinder and piston wear; condition of piston rings					X
AGK.SPEC.39.09	Describe the interaction between oil pressure, oil temperature and oil quantity.					X
AGK.SPEC.40.00	**Ignition Circuits**					
AGK.SPEC.40.01	Describe the working principle of a magneto-ignition system and the functions of the following components: (a) magneto (b) contact-breaker points (c) capacitor (condenser) (d) coils or windings (e) ignition switches (f) distributor (g) spark plug (h) high-tension (HT) cable					X
AGK.SPEC.40.02	State why piston engines maybe equipped with two electrically independent ignition systems.					X
AGK.SPEC.40.03	Explain how combustion is initiated in diesel engines.					X
AGK.SPEC.41.00	**Fuel and Air Mixture**					
AGK.SPEC.41.01	Define the term mixture.					X
AGK.SPEC.41.02	State the typical fuel-to-air ratio values or range of values for the above mixtures.					X
AGK.SPEC.41.03	Describe the advantages and disadvantages of weak and rich mixtures.					X
AGK.SPEC.41.04	Describe the relation between engine-specific fuel consumption and mixture ratio.					X
AGK.SPEC.42.00	**Aeroplane: Propellers**					
AGK.SPEC.42.01	Describe the operating principle of a fixed pitch propeller system	X	X			
AGK.SPEC.43.00	**Performance and Engine Handling**					
AGK.SPEC.43.01	Describe the effect on power output of a petrol and diesel engine taking into consideration the following parameters: (a) ambient pressure, exhaust back pressure (b) temperature (c) density altitude (d) humidity					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.44.00	**Engine Handling**					
AGK.SPEC.44.01	Define the following terms: (a) take-off power (b) maximum continuous power					X
AGK.SPEC.44.02	Describe the start problems associated with extreme cold weather.					X
AGK.SPEC.45.00	**Turbine Engines**					
AGK.SPEC.45.01	Describe how thrust is produced by a basic gas turbine engine.					X
AGK.SPEC.45.02	Describe how thrust is produced by a basic electric ducted fan (EDF) engine.					X
AGK.SPEC.45.03	Describe the simple form of the thrust formula for a basic, straight jet engine and perform simple calculations (including pressure thrust).					X
AGK.SPEC.46.00	**Design, Types and Components of Turbine Engines**					
AGK.SPEC.46.01	List the main components of a basic gas turbine engine: (a) inlet (b) compressor (c) combustion chamber (d) turbine (e) outlet					X
AGK.SPEC.46.02	List the different types of gas turbine engines: (a) straight jet (b) turboprop					X
AGK.SPEC.46.03	State that a gas turbine engine can have one or more spools.					X
AGK.SPEC.46.04	Describe how thrust is produced by turbojet engines.					X
AGK.SPEC.46.05	Describe how power is produced by turboprop engines.					X
AGK.SPEC.47.00	**Aeroplane: Air Intake**					
AGK.SPEC.47.01	State the functions of the engine air inlet/air intake.					X
AGK.SPEC.47.02	Describe the reasons for, and the dangers of, the following operational problems concerning the engine air inlet: (a) airflow separation (b) inlet icing (c) inlet damage (d) foreign object damage (FOD) (e) heavy in-flight turbulence					X
AGK.SPEC.48.00	**Compressor and Diffuser**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.48.01	State the purpose of the compressor.					X
AGK.SPEC.48.02	Describe the working principle of a centrifugal and an axial flow compressor.					X
AGK.SPEC.48.03	Name the following main components of a single stage and describe their function for a centrifugal compressor: (a) impeller (b) diffuser					X
AGK.SPEC.48.04	Name the following main components of a single stage and describe their function for an axial compressor: (a) rotor vanes (b) stator vanes					X
AGK.SPEC.48.05	Describe the gas-parameter changes in a compressor stage.					X
AGK.SPEC.48.06	Define the term ‘pressure ratio’ and state a typical value for one stage of a centrifugal and an axial flow compressor and for the complete compressor.					X
AGK.SPEC.48.07	State the advantages and disadvantages of increasing the number of stages in a centrifugal compressor.					X
AGK.SPEC.48.08	Explain the difference in sensitivity for FOD of a centrifugal compressor compared with an axial flow type.					X
AGK.SPEC.48.09	Explain the convergent air annulus through an axial flow compressor.					X
AGK.SPEC.48.10	Describe the reason for twisting the compressor blades.					X
AGK.SPEC.48.11	State the tasks of inlet guide vanes (IGVs).					X
AGK.SPEC.48.12	State the advantages of increasing the number of spools.					X
AGK.SPEC.48.13	Explain the implications of tip losses and describe the design features to minimise the problem.					X
AGK.SPEC.48.14	Explain the problems of blade bending and flapping and describe the design features to minimise the problem.					X
AGK.SPEC.48.15	Explain the following terms: (a) compressor stall (b) engine surge					X
AGK.SPEC.48.16	State the conditions that are possible causes of stall and surge.					X
AGK.SPEC.48.17	Describe the indications of stall and surge.					X
AGK.SPEC.48.18	Describe the design features used to minimise the occurrence of stall and surge.					X
AGK.SPEC.48.19	Describe a compressor map (surge envelope) with rpm lines, stall limit, steady state line and acceleration line.					X
AGK.SPEC.48.20	Describe the function of the diffuser.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.49.00	**Combustion Chamber**					
AGK.SPEC.49.01	Define the purpose of the combustion chamber.					X
AGK.SPEC.49.02	List the requirements for combustion.					X
AGK.SPEC.49.03	Describe the working principle of a combustion chamber.					X
AGK.SPEC.49.04	Explain the reason for reducing the airflow axial velocity at the combustion chamber inlet (snout).					X
AGK.SPEC.49.05	State the function of the swirl vanes (swirler).					X
AGK.SPEC.49.06	State the function of the drain valves.					X
AGK.SPEC.49.07	Define the terms ‘primary airflow’ and ‘secondary airflow’ and explain their purpose.					X
AGK.SPEC.49.08	Explain the following two mixture ratios: (a) primary airflow to fuel (b) total airflow (within the combustion chamber) to fuel					X
AGK.SPEC.49.09	Describe the gas-parameter changes in the combustion chamber.					X
AGK.SPEC.49.10	State a typical maximum value of the outlet temperature of the combustion chamber.					X
AGK.SPEC.49.11	Describe the following types of combustion chambers and state the differences between them: (a) can type (b) can-annular, cannular or turbo-annular (c) annular (d) reverse-flow annular					X
AGK.SPEC.50.00	**Turbine**					
AGK.SPEC.50.01	Explain the purpose of a turbine in different types of gas turbine engines.					X
AGK.SPEC.50.02	Describe the principles of operation of impulse, reaction, and impulse-reaction axial flow turbines.					X
AGK.SPEC.50.03	Name the main components of a turbine stage and their function.					X
AGK.SPEC.50.04	Describe the working principle of a turbine.					X
AGK.SPEC.50.05	Describe the gas-parameter changes in a turbine stage.					X
AGK.SPEC.50.06	Describe the function and the working principle of active clearance control.					X
AGK.SPEC.50.07	Describe the implications of tip losses and the means to minimise them.					X
AGK.SPEC.50.08	Explain why the available engine thrust is limited by the turbine inlet temperature.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.50.09	Explain the divergent gas-flow annulus through an axial-flow turbine.					X
AGK.SPEC.50.10	Explain the high mechanical thermal stress in the turbine blades and wheels/discs.					X
AGK.SPEC.51.00	**Aeroplane: Exhaust**					
AGK.SPEC.51.01	Name the following main components of the exhaust unit and their function: (a) jet pipe (b) propelling nozzle (c) exhaust cone					X
AGK.SPEC.51.02	Describe the working principle of the exhaust unit.					X
AGK.SPEC.51.03	Describe the gas-parameter changes in the exhaust unit.					X
AGK.SPEC.51.04	Define the term 'choked exhaust nozzle' (not applicable to turboprops).					X
AGK.SPEC.51.05	Explain how jet exhaust noise can be reduced.					X
AGK.SPEC.52.00	**Rotorcraft: Air Intake**					
AGK.SPEC.52.01	Name and explain the main task of the engine air intake.					X
AGK.SPEC.52.02	Describe the use of a convergent air-intake ducting on rotorcrafts.					X
AGK.SPEC.52.03	Describe the reasons for and the dangers of the following operational problems concerning engine air intake: (a) airflow separations (b) intake icing (c) intake damage (d) FOD					X
AGK.SPEC.52.04	Describe the conditions and circumstances during ground operations when FOD is most likely to occur.					X
AGK.SPEC.52.05	Describe and explain the principles of air intake filter systems that can be fitted to some rotorcrafts for operations in icing and sand conditions.					X
AGK.SPEC.52.06	Describe the function of the heated pads on some rotorcraft air intakes.					X
AGK.SPEC.53.00	**Rotorcraft: Exhaust**					
AGK.SPEC.53.01	Describe the working principle of the exhaust unit.					X
AGK.SPEC.53.02	Describe the gas-parameter changes in the exhaust unit.					X
AGK.SPEC.54.00	**Additional Components and Systems**					
AGK.SPEC.54.01	Name the main components of the engine fuel system and state their function: (a) filters (b) pump					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
	(c) fuel manifold (d) fuel nozzles (e) fuel control system					
AGK.SPEC.54.02	State the tasks of the fuel control unit.					X
AGK.SPEC.54.03	List the possible input parameters to a fuel control unit to achieve a given thrust/power setting.					X
AGK.SPEC.55.00	**Engine control system**					
AGK.SPEC.55.01	State the tasks of the engine control system.					X
AGK.SPEC.56.00	**Engine lubrication**					
AGK.SPEC.56.01	State the tasks of an engine lubrication system.					X
AGK.SPEC.56.02	Name the following main components of a lubrication system and state their function: (a) oil tank (b) oil pump (c) oil filters (d) oil sumps (e) chip detectors (f) coolers					X
AGK.SPEC.57.00	**Engine Ignition**					
AGK.SPEC.57.01	State the task of the ignition system.					X
AGK.SPEC.57.02	Name the following main components of the ignition system and state their function.					X
AGK.SPEC.58.00	**Engine Starter**					
AGK.SPEC.58.01	Name the main components of the starting system and state their function.					X
AGK.SPEC.58.02	Explain the principle of a turbine engine start.					X
AGK.SPEC.58.03	Define ‘self-sustaining rpm’.					X
AGK.SPEC.59.00	**Rotorcraft specifics on design, operation and components for additional components and systems such as lubrication system, ignition circuit, starter, accessory gearbox**					
AGK.SPEC.59.01	State the task of the lubrication system.					X
AGK.SPEC.59.02	List and describe the common rotorcraft lubrication systems.					X
AGK.SPEC.59.03	Name the following main components of a rotorcraft lubrication system.					X
AGK.SPEC.60.00	**Engine Operation and Monitoring**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.60.01	Explain spool-up time.					X
AGK.SPEC.60.02	State the parameters that can be used for setting and monitoring the thrust/power.					X
AGK.SPEC.60.03	Explain how the exhaust gas temperature is used to monitor turbine stress.					X
AGK.SPEC.60.04	Describe the possible effects on engine components when EGT limits are exceeded.					X
AGK.SPEC.60.05	Explain why engine-limit exceedances must be reported.					X
AGK.SPEC.60.06	Explain the term 'engine seizure'.					X
AGK.SPEC.60.07	State the possible causes of engine seizure and explain their preventative measures.					X
AGK.SPEC.60.08	Explain oil-filter clogging (blockage) and the implications for the lubrication system.					X
AGK.SPEC.60.09	Give examples of monitoring instruments of an engine.					X
AGK.SPEC.60.10	Describe how to identify and assess engine damage based on instrument indications.					X
AGK.SPEC.61.00	**Relight Envelope**					
AGK.SPEC.61.01	Explain the relight envelope.					X
AGK.SPEC.62.00	**Rotorcraft: Rotor-Heads**					
AGK.SPEC.62.01	Describe the following rotor-head system.					X
AGK.SPEC.62.02	Describe in basic terms the following configuration of rotor systems and their advantages and disadvantages.					X
AGK.SPEC.62.03	Explain how flapping, dragging and feathering is achieved in each rotor-head system.					X
AGK.SPEC.63.00	**Structural Components and Materials, Stresses, Structural Limitations**					
AGK.SPEC.63.01	Identify from a diagram the main structural components of the main types of rotor-head systems.					X
AGK.SPEC.64.00	**Design and Construction**					
AGK.SPEC.64.01	Describe the material technology used in rotor-head design, including construction, using the following materials or mixture of materials: (a) composites (b) fibreglass (c) alloys (d) elastomer					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.65.00	**Adjustment**					
AGK.SPEC.65.01	Describe and explain the methods of adjustment which are possible on various rotorcraft rotor-head assemblies.					X
AGK.SPEC.66.00	**Tail Rotor Types**					
AGK.SPEC.66.01	Describe common tail-rotor systems used on UA.					X
AGK.SPEC.66.02	Identify from a diagram the main structural components of common tail-rotor systems used on UA.					X
AGK.SPEC.66.03	Explain pitch-input mechanisms.					
AGK.SPEC.66.04	Explain the relationship between tail-rotor thrust and engine power.					X
AGK.SPEC.66.05	Describe how the vertical fin on some types reduces the power demand of the tail rotor.					X
AGK.SPEC.67.00	**Design and Construction**					
AGK.SPEC.67.01	List and describe the various tail-rotor designs and construction methods used on rotorcrafts currently in service.					X
AGK.SPEC.68.00	**Rotorcraft: Transmission**					
AGK.SPEC.68.01	Describe the following main principles of rotorcraft transmission systems used in UA.					X
AGK.SPEC.69.00	**Rotor Brake**					
AGK.SPEC.69.01	Describe the main function of the disc type of rotor brake.					X
AGK.SPEC.69.02	Describe the different options for the location of the rotor brake.					X
AGK.SPEC.70.00	**Driveshaft and Associated Installation**					
AGK.SPEC.70.01	Describe how power is transmitted from the engine to the main- rotor gearbox.					X
AGK.SPEC.70.02	Describe the material and construction of the driveshaft.					X
AGK.SPEC.70.03	Explain the need for alignment between the engine and the main- rotor gearbox.					X
AGK.SPEC.70.04	Identify how temporary misalignment occurs between driving and driven components.					X
AGK.SPEC.70.05	Explain the relationship between driveshaft speed and torque.					X
AGK.SPEC.70.06	Describe the methods with which power is delivered to the tail rotor.					X
AGK.SPEC.71.00	**Intermediate and Tail Gearbox**					
AGK.SPEC.71.01	Explain and describe the various arrangements when the drive changes direction and the need for an intermediate or tail gearbox.					X
AGK.SPEC.72.00	**Clutches**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.72.01	Explain the purpose of a clutch.					X
AGK.SPEC.72.02	Describe and explain the operation of a: (a) centrifugal clutch (b) actuated clutch					X
AGK.SPEC.72.03	List the typical components of the various clutches.					X
AGK.SPEC.73.00	**Rotorcraft: Blades**					
AGK.SPEC.73.01	Describe the different types of blade construction and the need for torsional stiffness.					X
AGK.SPEC.73.02	Describe the fully articulated rotor with hinges and feathering hinges.					X
AGK.SPEC.74.00	**Structural Components and Materials**					
AGK.SPEC.74.01	List the materials used in the construction of main-rotor blades.					X
AGK.SPEC.74.02	List the main structural components of a main-rotor blade and their function.					X
AGK.SPEC.74.03	Describe the drag hinge of the fully articulated rotor and the lag flexure in the hinge-less rotor.					X
AGK.SPEC.75.00	**Forces and Stresses**					
AGK.SPEC.75.01	Describe main-rotor blade-loading on the ground and in flight.					X
AGK.SPEC.75.02	Describe where the most common stress areas are on rotor blades.					X
AGK.SPEC.76.00	**Structural Limitations**					
AGK.SPEC.76.01	Explain the structural limitations in terms of bending and rotor rpm.					X
AGK.SPEC.77.00	**Adjustment**					
AGK.SPEC.77.01	Explain the use of trim tabs.					X
AGK.SPEC.78.00	**Tip Shape**					
AGK.SPEC.78.01	Describe the various blade-tip shapes used by different manufacturers and compare their advantages and disadvantages.					X
AGK.SPEC.79.00	**Lateral Vibrations**					
AGK.SPEC.79.01	Explain blade imbalances, causes, and effects.					X
AGK.SPEC.80.00	**Tail-Rotor Design and Blade Design**					
AGK.SPEC.80.01	Describe the most common design of tail-rotor blade construction.					X
AGK.SPEC.80.02	Describe the dangers to ground personnel and to the rotor blades, and how to minimise these dangers.					X
AGK.SPEC.81.00	**Stresses, Vibrations and Balancing**					
AGK.SPEC.81.01	Describe the tail-rotor blade-loading on the ground and in flight.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
AGK.SPEC.81.02	Explain the sources of vibration of the tail rotor and the resulting high frequencies.					X
AGK.SPEC.81.03	Explain balancing and tracking of the tail rotor.					X
AGK.SPEC.82.00	**Structural Limitations**					
AGK.SPEC.82.01	Describe the structural limitations of the tail-rotor blades.					X
AGK.SPEC.82.02	Describe the method of checking the strike indicators placed on the tip of some tail-rotor blades.					X
AGK.SPEC.83.00	**Adjustment**					
AGK.SPEC.83.01	Describe the adjustment of yaw pedals in the cockpit to obtain full-control authority of the tail rotor.					X

HUMAN PERFORMANCE AND LIMITATIONS

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.00.00	**Human Performance and Limitations**					
HPL.SPEC.01.00	**Human Factors: Basic Concepts**					
HPL.SPEC.01.01	State that competence is based on knowledge, skills and attitudes of the individual remote pilot.	X	X	X		
HPL.SPEC.02.00	**Flight Safety Concepts**					
HPL.SPEC.02.01	Explain the three components of the TEM model.					X
HPL.SPEC.02.02	Explain and give examples of latent threats.					X
HPL.SPEC.02.03	Explain and give examples of environmental threats.					X
HPL.SPEC.02.04	Explain and give examples of organisational threats.					X
HPL.SPEC.02.05	Explain and give a definition of ‘error’ according to the TEM model of ICAO Doc 9683 (Part II, Chapter 2).					X
HPL.SPEC.02.06	Give examples of different countermeasures which may be used to manage threats, errors, and undesired unmanned aircraft states.					X
HPL.SPEC.02.07	Explain and give examples of procedural error, communication errors, and unmanned aircraft handling errors.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.02.08	Explain and give examples of ‘undesired unmanned aircraft states’.					X
HPL.SPEC.02.09	State the components of the SHELL model.					X
HPL.SPEC.02.10	State the relevance of the SHELL model to the work in the flightdeck					X
HPL.SPEC.03.00	**Safety Culture and Safety Management**					
HPL.SPEC.03.01	Distinguish between ‘open cultures’ and ‘closed cultures’.					X
HPL.SPEC.03.02	Illustrate how safety culture is reflected in national culture.					X
HPL.SPEC.03.03	Discuss the established expression ‘safety first’ in a commercial entity.					X
HPL.SPEC.03.04	Explain James Reason’s ‘Swiss Cheese Model’.					X
HPL.SPEC.03.05	State the important factors that promote a good safety culture.					X
HPL.SPEC.03.06	Distinguish between ‘just culture’ and ‘non-punitive culture’.					X
HPL.SPEC.03.07	Name the five components which form safety culture (according to James Reason: informed culture, reporting culture, learning culture, just culture, flexible culture).					X
HPL.SPEC.03.08	Name the basic concepts of safety management system (SMS) (including hazard identification and risk management) and its relationship with safety culture.					X
HPL.SPEC.04.00	**The Sensory System**					
HPL.SPEC.04.01	List the different senses	X	X	X		
HPL.SPEC.05.00	**Central, Peripheral and Autonomic Nervous System**					
HPL.SPEC.05.01	Define the term ‘sensory threshold’.					X
HPL.SPEC.05.02	Define the term ‘sensitivity’, especially in the context of vision.					X
HPL.SPEC.05.03	Give examples of sensory adaptation.					X
HPL.SPEC.05.04	Define the term ‘habituation’ and state its implication for flight safety.					X
HPL.SPEC.06.00	**Vision - Function**					
HPL.SPEC.06.01	Name the most important parts of the eye and the pathway to the visual cortex.					X
HPL.SPEC.06.02	State the basic functions of the parts of the eye.	X	X	X		
HPL.SPEC.06.03	Define ‘accommodation’.					X
HPL.SPEC.06.04	Distinguish between the functions of the rod and cone cells.					X
HPL.SPEC.06.05	Describe the distribution of rod and cone cells in the retina and explain their relevance to vision.					X
HPL.SPEC.06.06	Explain the terms ‘visual acuity’, ‘visual field’, ‘central vision’, ‘peripheral vision’ and ‘the fovea’, and explain their function in the process of vision.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.06.07	List the factors that may degrade visual acuity and the importance of 'lookout'.					X
HPL.SPEC.06.08	State the limitations of night vision and the different scanning techniques at both night and day	X	X	X		
HPL.SPEC.06.09	State the time necessary for the eye to adapt both to bright light and the dark.					X
HPL.SPEC.06.10	Reserved.					
HPL.SPEC.06.11	Explain the nature of colour blindness.					X
HPL.SPEC.06.12	Distinguish between monocular and binocular vision.	X	X	X		
HPL.SPEC.06.13	Explain the basis of depth perception.	X	X	X		
HPL.SPEC.06.14	List the possible monocular cues for depth perception.					X
HPL.SPEC.06.15	Explain long-sightedness, short-sightedness, and astigmatism.					X
HPL.SPEC.06.16	List the causes of and the precautions that may be taken to reduce the probability of vision loss due to: (a) presbyopia (b) cataract (c) glaucoma					X
HPL.SPEC.06.17	State the possible problems associated with contact lenses.					X
HPL.SPEC.06.18	Explain the significance of the 'blind spot' on the retina in detecting other traffic in flight.	X	X	X		
HPL.SPEC.07.00	**Hearing**					
HPL.SPEC.07.01	Descriptive and functional anatomy.	X	X	X		
HPL.SPEC.07.02	State the basic parts and functions of the outer, the middle and the inner ear.	X	X	X		
HPL.SPEC.07.03	Differentiate between the functions of the vestibular apparatus and the cochlea in the inner ear.					X
HPL.SPEC.07.04	Define the main causes of the following hearing defects/loss: — conductive deafness — noise-induced hearing loss — presbycusis					X
HPL.SPEC.07.05	Summarise the effects of environmental noise on hearing.					X
HPL.SPEC.07.06	State the decibel level of received noise that will cause NIHL.					X
HPL.SPEC.07.07	Identify the potential occupational risks that may cause hearing loss.					X
HPL.SPEC.07.08	List the main sources of hearing loss in the unmanned flying environment.					X
HPL.SPEC.07.09	List the precautions that may be taken to reduce the probability of onset of hearing loss.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.08.00	**Integration of Sensory Inputs**					
HPL.SPEC.08.01	Define the term ‘illusion’.	X	X	X		
HPL.SPEC.08.02	Give examples of visual illusions based on shape constancy, size constancy, aerial perspective, atmospheric perspective, the absence of focal or ambient cues, autokinesis, vectional false horizons, field myopia, and surface planes.	X	X	X		
HPL.SPEC.09.00	**Body Rhythm and Sleep**					
HPL.SPEC.09.01	Name some internal body rhythms and their relevance to sleep. Explain that the most important of which is body temperature.					X
HPL.SPEC.09.02	Explain the term ‘circadian rhythm’.					X
HPL.SPEC.09.03	State the approximate duration of a ‘free-running’ rhythm.					X
HPL.SPEC.09.04	Explain the significance of the ‘internal clock’ in regulating the normal circadian rhythm.					X
HPL.SPEC.09.05	State the effect of the circadian rhythm of body temperature on an individual’s performance standard and on an individual’s sleep patterns.					X
HPL.SPEC.09.06	List and describe the stages of a sleep cycle.					X
HPL.SPEC.09.07	Differentiate between rapid eye movement (REM) and non-REM sleep.					X
HPL.SPEC.09.08	Explain the function of sleep and describe the effects of insufficient sleep on performance.					X
HPL.SPEC.09.09	Explain the simple calculations for the sleep/wake credit/debit situation.					X
HPL.SPEC.09.10	Explain how sleep debit can become cumulative.					X
HPL.SPEC.09.11	Describe the main effects of lack of sleep on an individual’s performance.	X	X	X		R
HPL.SPEC.10.00	**Intoxication**					
HPL.SPEC.10.01	State the harmful effects of tobacco on: — the respiratory system — the cardiovascular system					X
HPL.SPEC.10.02	Indicate the level of caffeine dosage at which performance is degraded.					X
HPL.SPEC.10.03	Besides coffee, indicate other beverages containing caffeine.					X
HPL.SPEC.10.04	State the maximum acceptable limit of alcohol for flight crew according to the applicable regulations.	X	X	X		R
HPL.SPEC.10.05	State the effects of alcohol consumption on: — the ability to reason — inhibitions and self-control — vision	X	X	X		R

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
	— the sense of balance and sensory illusions — sleep patterns					
HPL.SPEC.10.06	State the effects alcohol may have if consumed together with other drugs.	X	X	X		
HPL.SPEC.10.07	List the signs and symptoms of alcoholism.					X
HPL.SPEC.10.08	List the factors that may be associated with the development of alcoholism.					X
HPL.SPEC.10.09	Define the 'unit' of alcohol and state the approximate elimination rate from the blood.					X
HPL.SPEC.10.10	State the maximum daily and weekly intake of units of alcohol which may be consumed without causing damage to the organs and systems of the human body.					X
HPL.SPEC.10.11	Discuss the actions that might be taken if a crew member is suspected of being an alcoholic.					X
HPL.SPEC.10.12	State the dangers associated with the use of non-prescription drugs.	X	X	X		R
HPL.SPEC.10.13	State the side effects of common non-prescription drugs used to treat colds, flu, hay fever and other allergies, especially medicines containing antihistamine preparations.	X	X	X		R
HPL.SPEC.10.14	Interpret the rules relevant to using (prescription or non-prescription) drugs that the remote pilot has not used before.	X	X	X		
HPL.SPEC.10.15	Interpret the general rule that 'if a remote pilot is so unwell that they require any medication, then they should consider themselves unfit to fly'.	X	X	X		
HPL.SPEC.10.16	List those materials present in an unmanned aircraft which may, when uncontained, cause severe health problems.					X
HPL.SPEC.10.17	List those unmanned aircraft component parts which if burnt may give off toxic fumes.					X
HPL.SPEC.11.00	**Incapacitation**					
HPL.SPEC.11.01	State that incapacitation is most dangerous when its onset is insidious.	X	X	X		R
HPL.SPEC.11.02	List the major causes of remote pilot incapacitation.	X	X	X		R
HPL.SPEC.11.03	State the importance of crew to be able to recognise and promptly react upon incapacitation of other crew members, should it occur in flight.					X
HPL.SPEC.11.04	Explain methods and procedures to cope with incapacitation in flight.	X	X	X		R
HPL.SPEC.12.00	**Human Information Processing (HIP)**					
HPL.SPEC.12.01	Differentiate between 'attention' and 'vigilance'.	X	X	X		R
HPL.SPEC.12.02	Differentiate between 'selective' and 'divided' attention.					X
HPL.SPEC.12.03	Define 'hypovigilance'.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.12.04	Identify the factors that may affect the state of vigilance.					X
HPL.SPEC.12.05	List the factors that may forestall hypovigilance during flight.					X
HPL.SPEC.12.06	Indicate the signs of reduced vigilance.					X
HPL.SPEC.12.07	List the factors that affect a person's level of attention.	X	X	X		
HPL.SPEC.13.00	**Perception**					
HPL.SPEC.13.01	Name the basis of the perceptual process.	X	X	X		
HPL.SPEC.13.02	Describe the mechanism of perception ('bottom-up'/'top-down' process).					X
HPL.SPEC.13.03	Illustrate why perception is subjective and state the relevant factors that influence interpretation of perceived information					X
HPL.SPEC.13.04	Describe some basic perceptual illusions.					X
HPL.SPEC.13.05	Illustrate some basic perceptual concepts.					X
HPL.SPEC.13.06	Give examples where perception plays a decisive role in flight safety.					X
HPL.SPEC.13.07	Stress how persuasive and believable mistaken perception can manifest itself both for an individual and a group.					X
HPL.SPEC.14.00	**Memory**					
HPL.SPEC.14.01	Explain the link between the types of memory (to include sensory, working/short-term and long-term memory).					X
HPL.SPEC.14.02	Describe the differences between the types of memory in terms of capacity and retention time.					X
HPL.SPEC.14.03	Justify the importance of sensory-store memories in processing information.					X
HPL.SPEC.14.04	State the average maximum number of separate items that may be held in working memory (5 ± 2).					X
HPL.SPEC.14.05	Stress how interruption can affect short-term/working memory.					X
HPL.SPEC.14.06	Give examples of items that are important for pilots to hold in working memory during flight.					X
HPL.SPEC.14.07	Describe how the capacity of the working-memory store may be increased.					X
HPL.SPEC.14.08	State the subdivisions of long-term memory and give examples of their content.					X
HPL.SPEC.14.09	Explain that skills are kept primarily in the long-term memory.					X
HPL.SPEC.14.10	Describe amnesia and how it affects memory.					X
HPL.SPEC.14.11	Name the common problems with both the long- and short-term memories and the best methods to try to counteract them.					X
HPL.SPEC.15.00	**Learning Principles and Techniques**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.15.01	Explain and distinguish between the following basic forms of learning: — classic and operant conditioning (behaviouristic approach) learning by insight (cognitive approach) — learning by imitating (modelling)					X
HPL.SPEC.15.02	Recognise pilot-related examples as behaviouristic, cognitive or modelling forms of learning.					X
HPL.SPEC.15.03	State the factors that are necessary for and promote the quality of learning: — intrinsic motivation — good mental health — rehearsals for improvement of memory — consciousness — vigilance — application in practical exercises					X
HPL.SPEC.15.04	Explain ways to facilitate the memorisation of information with the following learning techniques: — mnemonics — mental training					X
HPL.SPEC.15.05	Describe the advantage of planning and anticipation of future actions: — define the term ‘skills’ — state the three phases of learning a skill (Anderson cognitive, associative and autonomous phase)					X
HPL.SPEC.15.06	Explain the term ‘motor programme’ or ‘mental schema’.					X
HPL.SPEC.15.07	Describe the advantages and disadvantages of mental schemas.					X
HPL.SPEC.15.08	Explain the Rasmussen model which describes the guidance of a pilot’s behaviour in different situations.					X
HPL.SPEC.15.09	State the possible problems or risks associated with skill, rule and knowledge-based behaviour.					X
HPL.SPEC.15.10	Define ‘motivation’.					X
HPL.SPEC.15.11	Explain the relationship between motivation and learning.					X
HPL.SPEC.15.12	Explain the problems of over-motivation, especially in the context of the extreme need to achieve.					X
HPL.SPEC.16.00	**Human Error and Reliability**					
HPL.SPEC.16.01	Name and explain the factors that influence human reliability.	X	X	X		
HPL.SPEC.16.02	Define the term ‘situation awareness’.	X	X	X	R	

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.16.03	List the cues that indicate loss of situation awareness and name the steps to regain it.					X
HPL.SPEC.16.04	List the factors that influence one's situation awareness both positively and negatively and stress the importance of situation awareness in the context of flight safety.					X
HPL.SPEC.16.05	Define the term 'mental model' in relation to a surrounding complex situation.					X
HPL.SPEC.16.06	Describe the advantages/disadvantages of mental models.					X
HPL.SPEC.16.07	Explain the relationship between personal 'mental models' and the creation of cognitive illusions.					X
HPL.SPEC.16.08	Explain the concept of the 'error chain'.					X
HPL.SPEC.16.09	Differentiate between an isolated error and an error chain.					X
HPL.SPEC.16.10	Distinguish between the main forms/types of errors (i.e. slips, faults, omissions and violations).					X
HPL.SPEC.16.11	Discuss the above errors and their relevance in flight.					X
HPL.SPEC.16.12	Distinguish between an active and a latent error and give examples.					X
HPL.SPEC.16.13	Distinguish between internal and external factors in error generation.					X
HPL.SPEC.16.14	Identify possible sources of internal error generation.					X
HPL.SPEC.16.15	Define and discuss the two errors associated with motor programmes (action slip and environmental capture).					X
HPL.SPEC.16.16	List the three main sources of external error generation in the flight crew compartment.					X
HPL.SPEC.16.17	Give examples to illustrate the following factors in external error generation in the flight crew compartment: — ergonomics — economics — social environment					X
HPL.SPEC.16.18	Name the major goals in the design of human-centred human– machine interfaces.					X
HPL.SPEC.16.19	Define the term 'error tolerance'.					X
HPL.SPEC.16.20	List and describe the strategies that are used to reduce human error.					X
HPL.SPEC.16.21	Describe the advantage of planning and the anticipation of future actions.					X
HPL.SPEC.17.00	**Decision Making**					
HPL.SPEC.17.01	Define the terms 'deciding' and 'decision-making'.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.17.02	Describe the major factors on which decision-making should be based during the course of a flight.					X
HPL.SPEC.17.03	Describe the main human attributes with regard to decision making.					X
HPL.SPEC.17.04	Discuss the nature of bias and its influence on the decision making process.					X
HPL.SPEC.17.05	Describe the main error sources and limits in an individual's decision-making mechanism.					X
HPL.SPEC.17.06	State the factors upon which an individual's risk assessment is based.	X	X	X		
HPL.SPEC.17.07	Explain the relationship between risk assessment, commitment, and pressure of time in decision-making strategies.	X	X	X		
HPL.SPEC.17.08	Explain the risks associated with dispersion or channelised attention during the application of procedures requiring a high workload within a short time frame (e.g. a go-around).					X
HPL.SPEC.17.09	Describe the positive and negative influences exerted by other group members on an individual's decision-making process (risk shift).	X	X	X		
HPL.SPEC.17.10	Explain the general idea behind the creation of a model for decision-making based upon: — definition of the aim — collection of information — risk assessment — development of options — evaluation of options — decision — implementation — consequences — review and feedback					X
HPL.SPEC.18.00	**Avoiding and Managing Errors: Cockpit Management**					
	Safety Awareness					
HPL.SPEC.18.01	Justify the need for being aware of not only one's own performance but that of others before and during a flight and the possible consequences or risks.					X
HPL.SPEC.19.00	**Coordination (Multi-Crew Concepts)**					
HPL.SPEC.19.01	Name the objectives of the multi-crew concept.					X
HPL.SPEC.19.02	State and explain the elements of multi-crew concepts.					X
HPL.SPEC.19.03	Describe the concepts of 'standard operating procedures' (SOPs), checklists and crew briefings.	X	X	X	R	R

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.19.04	Describe the purpose of and procedure for crew briefings.	X	X	X		
HPL.SPEC.19.05	Describe the purpose of and procedure for checklists.	X	X	X		
HPL.SPEC.19.06	Describe the function of communication in a coordinated team.	X	X	X		
HPL.SPEC.19.07	Explain the advantages of SOPs.	X	X	X		
HPL.SPEC.19.08	Explain how SOPs contribute to avoiding, reducing and managing threats and errors.					X
HPL.SPEC.19.09	Explain potential threats of SOPs.					X
HPL.SPEC.20.00	**Cooperation**					
HPL.SPEC.20.01	Distinguish between cooperation and coaction.					X
HPL.SPEC.20.02	Define the term ‘group’.					X
HPL.SPEC.20.03	Illustrate the influence of interdependence in a group.					X
HPL.SPEC.20.04	List the advantages and disadvantages of teamwork.					X
HPL.SPEC.20.05	Explain the term ‘synergy’.					X
HPL.SPEC.20.06	Define the term ‘cohesion’.					X
HPL.SPEC.20.07	Define the term ‘groupthink’.					X
HPL.SPEC.20.08	State the essential conditions for good teamwork.					X
HPL.SPEC.20.09	Explain the function of role and norm in a group.					X
HPL.SPEC.20.10	Name the different role patterns which occur in a group situation.					X
HPL.SPEC.20.11	Explain how behaviour can be affected by the following factors: — persuasion — conformity — compliance — obedience					X
HPL.SPEC.20.12	Distinguish between status and role.					X
HPL.SPEC.20.13	Stress the inherent dangers of a situation where there is a mix of role and status within the flight crew compartment.					X
HPL.SPEC.20.14	Explain the terms ‘leadership’ and ‘followership’.					X
HPL.SPEC.20.15	Describe the trans-flightdeck authority gradient and its affiliated leadership styles (i.e. autocratic, laissez-faire and synergistic).					X
HPL.SPEC.20.16	Name the most important attributes of a positive leadership style.					X
HPL.SPEC.21.00	**Communication**					
HPL.SPEC.21.01	Define the term ‘communication’.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.21.02	List the most basic components of interpersonal communication.					X
HPL.SPEC.21.03	Explain the advantages of in-person two-way communication as opposed to one-way communication.					X
HPL.SPEC.21.04	Name the importance of non-verbal communication.					X
HPL.SPEC.21.05	Describe the general aspects of non-verbal communication.					X
HPL.SPEC.21.06	Describe the advantages/disadvantages of implicit and explicit communication.					X
HPL.SPEC.21.07	Describe the advantages and possible problems of using 'social' and 'professional' language in high- and low-workload situations.					X
HPL.SPEC.21.08	Name and explain the major obstacles to effective communication.					X
HPL.SPEC.21.09	Explain the difference between intrapersonal and interpersonal conflict.					X
HPL.SPEC.21.10	Describe the escalation process in human conflict.					X
HPL.SPEC.21.11	List the typical consequences of conflicts between crew members.					X
HPL.SPEC.21.12	Explain the following terms as part of the communication practice with regard to preventing or resolving conflicts: — inquiry — active listening — advocacy — feedback — metacommunication — negotiation					X
HPL.SPEC.21.13	Describe the limitations of communication in situations of high workload in the flight crew compartment in view of listening, verbal, non-verbal and visual effects.					X
HPL.SPEC.22.00	**Human Behaviour**					
HPL.SPEC.22.01	Personality, attitude, and behaviour.					
HPL.SPEC.22.02	Describe the factors that determine an individual's behaviour.					X
HPL.SPEC.22.03	Define and distinguish between personality, attitude, and behaviour.					X
HPL.SPEC.22.04	State the origin of personality and attitude.					X
HPL.SPEC.22.05	State that with behaviour good and bad habits can be formed.					X
HPL.SPEC.22.06	Explain how behaviour is generally a product of personality, attitude and the environment to which one was exposed at significant moments (childhood, schooling and training).					X
HPL.SPEC.22.07	State that personality differences and selfish attitude may have effects on flight crew performance.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.23.00	**Individual Differences in Personality and Motivation**					
HPL.SPEC.23.01	Describe the individual differences in personality by means of a common trait model (e.g. Eysenck's personality factors).					X
HPL.SPEC.24.00	**Self-Concept**					
HPL.SPEC.24.01	Define the term 'self-concept' and the role it plays in any change of personality.					X
HPL.SPEC.24.02	Explain how a self-concept of under confidence may lead to an outward show of aggression and self- assertiveness.					X
HPL.SPEC.25.00	**Self-Discipline**					
HPL.SPEC.25.01	Define 'self-discipline' and justify its importance for flight safety.					X
HPL.SPEC.26.00	**Identification of Hazardous Attitudes (error proneness)**					
HPL.SPEC.26.01	Explain dangerous attitudes in aviation: — Anti-authority — macho — impulsivity — invulnerability — complacency — resignation					X
HPL.SPEC.26.02	Describe the personality, attitude, and behaviour patterns of an ideal crew member.					X
HPL.SPEC.26.03	Summarise how a person's attitude influences their work in an unmanned flightdeck					X
HPL.SPEC.27.00	**Human Overload and Underload**					
	Arousal					
HPL.SPEC.27.01	Explain the term 'arousal'.					X
HPL.SPEC.27.02	Describe the relationship between arousal and performance.					X
HPL.SPEC.27.03	Explain the circumstances under which underload may occur and its possible dangers.					X
HPL.SPEC.28.00	**Stress**					
HPL.SPEC.28.01	Explain the term 'stress' and why stress is a natural human reaction.	X	X	X		
HPL.SPEC.28.02	State that the physiological response to stress is generated by the 'fight or flight' response.					X
HPL.SPEC.28.03	Describe the function of the autonomic nervous system (ANS) in stress response.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.28.04	Explain the relationship between arousal and stress.					X
HPL.SPEC.28.05	State the relationship between stress and performance.					X
HPL.SPEC.28.06	State the basic categories of stressors.	X	X	X		
HPL.SPEC.28.07	List and discuss the major environmental sources of stress in the flight crew compartment.					X
HPL.SPEC.28.08	Discuss the concept of 'break point' with regard to stress, overload and performance.					X
HPL.SPEC.28.09	Name the principal causes of domestic stress.					X
HPL.SPEC.28.10	State that the stress experienced as a result of particular demands varies among individuals.					X
HPL.SPEC.28.11	Explain the factors that lead to differences in the levels of stress experienced by individuals.					X
HPL.SPEC.28.12	List the factors that influence the tolerance of stressors.					X
HPL.SPEC.28.13	State that stress is a result of perceived demands and perceived ability.					X
HPL.SPEC.28.14	Explain the relationship between stress and anxiety.					X
HPL.SPEC.28.15	Describe the effects of anxiety on human performance.					X
HPL.SPEC.28.16	State the general effect of acute stress on people.					X
HPL.SPEC.28.17	Describe the relationship between stress, arousal and vigilance.					X
HPL.SPEC.28.18	State the general effect of chronic stress and the biological reaction by means of the three stages of the general adaptation syndrome (Selye): alarm, resistance, and exhaustion.					X
HPL.SPEC.28.19	Explain the differences between psychological, psychosomatic, and somatic stress reactions.					X
HPL.SPEC.28.20	Name the typical common physiological and psychological symptoms of human overload.					X
HPL.SPEC.28.21	Describe the effects of stress on human behaviour.					X
HPL.SPEC.28.22	Explain how stress is cumulative and how stress from one situation can be transferred to a different situation.					X
HPL.SPEC.28.23	Explain how successful completion of a stressful task will reduce the amount of stress experienced when a similar situation arises in the future.					X
HPL.SPEC.28.24	Describe the effect of human underload/overload on effectiveness in the flight crew compartment.					X
HPL.SPEC.28.25	List sources and symptoms of human underload.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.29.00	**Fatigue and Stress Management**					
HPL.SPEC.29.01	Explain the term 'fatigue' and differentiate between the two types of fatigue (short-term and chronic fatigue).	X	X	X		R
HPL.SPEC.29.02	Name the causes of short-term and chronic fatigue.	X	X	X		R
HPL.SPEC.29.03	Identify the symptoms and describe the effects of fatigue.	X	X	X		R
HPL.SPEC.29.04	List the strategies that prevent or delay the onset of fatigue and hypovigilance.					X
HPL.SPEC.29.05	List and describe strategies for coping with stress factors and stress reactions.					X
HPL.SPEC.29.06	Distinguish between short-term and long-term methods of stress management.	X	X	X		R
HPL.SPEC.29.07	Give examples of short-term methods of stress management.	X	X	X		X
HPL.SPEC.29.08	Give examples of long-term methods of coping with stress.					X
HPL.SPEC.29.09	Describe the fatigue risk management system (FRMS) as follows: a data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.					X
HPL.SPEC.30.00	**Automation**					
	Advantages and Disadvantages					
HPL.SPEC.30.01	Explain the fundamental restrictions of automated flight systems to be lack of creativity in unknown situations, and lack of personal motivation with regard to safety.					X
HPL.SPEC.30.02	List the principal strengths and weaknesses of pilot versus automated flight systems to be creativity, decision-making, prioritisation of tasks, safety attitude versus precision, reliability.					X
HPL.SPEC.31.00	**Automation Complacency**					
HPL.SPEC.31.01	State the main weaknesses in the monitoring of automatic systems to be hypovigilance.					X
HPL.SPEC.31.02	Explain some basic flight crew errors and terms that arise with the introduction of automation: - passive monitoring - blinkered concentration - confusion - flight mode awareness.					X
HPL.SPEC.31.03	Explain how the method of call-outs counteracts ineffective monitoring of automatic systems.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2~~A~~	L3~~A~~
HPL.SPEC.31.04	Define ‘complacency’.					X
HPL.SPEC.32.00	**Working Concepts**					
HPL.SPEC.32.01	Explain that the potential disadvantages of automation on crew communication are loss of awareness of input errors, flight modes, failure detection, failure comprehension, status of the unmanned aircraft and unmanned aircraft position.					X

METEOROLOGY

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.00.00	**Meteorology**					
MET.SPEC.01.00	**The Atmosphere**					
	Structure of the Atmosphere					
MET.SPEC.01.01	Describe the vertical division of the atmosphere up to flight level (FL) 650, based on the temperature variation with height	X	X	X		R
MET.SPEC.01.02	List the different layers and their main qualitative characteristics up to FL650					X
MET.SPEC.02.00	**Air Temperature**					
MET.SPEC.02.01	Define ‘air temperature’.	X	X	X		
MET.SPEC.02.02	List the units of measurement of air temperature used in aviation meteorology (Celsius, Fahrenheit, Kelvin). *(Refer to Subject 050 10 01 01)*	X	X	X		
MET.SPEC.03.00	**Vertical Distribution of Temperature**					
MET.SPEC.03.01	Describe the mean vertical distribution of temperature up to FL 650.					X
MET.SPEC.03.02	Mention the general causes of the cooling of the air in the troposphere with increasing altitude.					X
MET.SPEC.03.03	Calculate the temperature and temperature deviations (in relation to International Standard Atmosphere (ISA)) at specified levels.					X
MET.SPEC.04.00	**Transfer of Heat**					
MET.SPEC.04.01	Explain how local cooling or warming processes result in transfer of heat.					X
MET.SPEC.04.02	Describe radiation.					X
MET.SPEC.04.03	Describe solar radiation reaching the Earth.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.04.04	Describe the filtering effect of the atmosphere on solar radiation.					X
MET.SPEC.04.05	Describe terrestrial radiation.					X
MET.SPEC.04.06	Explain how terrestrial radiation is absorbed by some components of the atmosphere.					X
MET.SPEC.04.07	Explain the effect of absorption and radiation in connection with clouds.					X
MET.SPEC.04.08	Explain the process of conduction.					X
MET.SPEC.04.09	Explain the role of conduction in the cooling and warming of the atmosphere.					X
MET.SPEC.04.10	Explain the process of convection.					X
MET.SPEC.04.11	Name the situations in which convection occurs.					X
MET.SPEC.04.12	Explain the process of advection.					X
MET.SPEC.04.13	Name the situations in which advection occurs.					X
MET.SPEC.04.14	Describe the transfer of heat by turbulence.					X
MET.SPEC.04.15	Describe the transfer of latent heat.					X
MET.SPEC.05.00	**Temperature near the Earth's Surface, Insolation, Surface Effects, Effect of Clouds, Effect of Wind**					
MET.SPEC.05.01	Explain the cooling/warming of the surface of the Earth by radiation.					X
MET.SPEC.05.02	Explain the cooling/warming of the air by molecular or turbulent heat transfer to/from the earth or sea surfaces.					X
MET.SPEC.05.03	Describe qualitatively the influence of the clouds on the cooling and warming of the surface and the air near the surface.					X
MET.SPEC.05.04	Explain the influence of the wind on the cooling and warming of the air near the surfaces.					X
MET.SPEC.06.00	**Atmospheric Pressure**					
	Barometric Pressure, Isobars					
MET.SPEC.06.01	Define 'atmospheric pressure'.					X
MET.SPEC.06.02	List the units of measurement of the atmospheric pressure used in aviation (hPa, inches of mercury). *(Refer to Subject 050 10 01 01)*					X
MET.SPEC.06.03	Describe the principle of the barometers (mercury barometer, aneroid barometer).					X
MET.SPEC.06.04	Define isobars and identify them on surface weather charts.					X
MET.SPEC.06.05	Define 'high', 'low', 'trough', 'ridge', 'col'.					X
MET.SPEC.07.00	**Pressure Variation with Height, Contours (Isotypes)**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.07.01	Explain the pressure variation with height.					X
MET.SPEC.07.02	Describe quantitatively the variation of the barometric lapse rate. *Remark: An approximation of the average value for the barometric lapse rate near mean sea level (MSL) is 30 ft (9 m) per 1 hPa.*					X
	Reduction of Pressure to QFF (MSL)					
MET.SPEC.07.03	Define 'QFF'.					X
MET.SPEC.07.04	Explain the reduction of measured pressure (QFE) to QFF (MSL).					X
MET.SPEC.07.05	Mention the use of QFF for surface weather charts.					X
	Relationship between surface pressure centres & pressure centres aloft					
MET.SPEC.07.06	Illustrate with a vertical cross section of isobaric surfaces the relationship between surface pressure systems and upper-air pressure systems.					X
MET.SPEC.08.00	**Air Density**					
	Relationship between pressure, temperature and density					
MET.SPEC.08.01	Describe the relationship between pressure, temperature and density.					X
MET.SPEC.08.0	Describe the vertical variation of the air density in the atmosphere.					X
MET.SPEC.09.00	**International Standard Atmosphere (ISA)**					
MET.SPEC.09.01	Explain the use of standardised values for the atmosphere.					X
MET.SPEC.09.02	List the main values of the ISA MSL pressure, MSL temperature, the vertical temperature lapse rate up to FL 650, height and temperature of the tropopause.					X
MET.SPEC.10.00	**Altimetry**					
	Terminology and Definitions					
MET.SPEC.10.01	Define the following terms and explain how they are related to each other: height, altitude, pressure altitude, FL, pressure level, true altitude, true height, elevation, QNH, QFE, and standard altimeter setting.					X
MET.SPEC.10.02	Describe the terms 'transition altitude', 'transition level','transition layer', 'terrain clearance', 'lowest usable flight level'.					X
	Altimeter settings					
MET.SPEC.10.03	Name the altimeter settings associated to height, altitude, pressure altitude and FL.					X
MET.SPEC.10.04	Describe the altimeter-setting procedures.					X
	Calculations					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.10.05	Calculate the different readings on the altimeter when a remote pilot uses different settings (QNH, 1013.25, QFE).					X
MET.SPEC.10.06	Illustrate with a numbered example the changes of altimeter setting and the associated changes in reading when the pilot climbs through the transition altitude or descends through the transition level.					X
MET.SPEC.10.07	Derive the reading of the altimeter of an unmanned aircraft on the ground when the pilot uses the different settings.					X
MET.SPEC.10.08	Explain the influence of the air temperature on the distance between the ground and the level read on the altimeter and between two FLs.					X
MET.SPEC.10.09	Explain the influence of pressure areas on true altitude.					X
MET.SPEC.10.10	Determine the true altitude/height for a given altitude/height and a given ISA temperature deviation.					X
MET.SPEC.10.11	Calculate the terrain clearance and the lowest usable FL for given atmospheric temperature and pressure conditions.					X
MET.SPEC.10.12	State that the 4 %-rule can be used to calculate true altitude from indicated altitude, and also indicated altitude from true altitude (not precise but sufficient due to the approximation of the 4%-rule.) *Remark: The following rules should be considered for altimetry calculations:* *a) All calculations are based on rounded pressure values to the nearest lower hPa.* *b) The value for the barometric lapse rate between MSL and 700 hPa to be used is 30 ft/hPa as an acceptable approximation of the barometric lapse rate.* *c) To determine the true altitude/height, the following rule of thumb, called the '4 %-rule', **must** be used: the altitude/height changes by 4 % for each 10 °C temperature deviation from ISA.* *d) If no further information is given, the deviation of the outside-air temperature from ISA is considered to be constantly the same given value in the whole layer.* *e) The elevation of the aerodrome has to be taken into account. The temperature correction has to be considered for the layer between the ground and the position of the unmanned aircraft.*					X
	Effect of Accelerated Airflow Due to Topography					
MET.SPEC.10.13	Describe qualitatively how the effect of accelerated airflow due to topography (the Bernoulli effect) affects altimetry.					X
MET.SPEC.11.00	**Wind**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
	Definition and Measurement of Wind					
	Definition and measurement					
MET.SPEC.11.01	Define ‘wind’ and ‘surface wind’.	X	X	X		
MET.SPEC.11.02	State the units of wind directions	X	X	X		
MET.SPEC.11.03	Describe that the reported wind is an average wind derived from measurements with an anemometer at a height of 10 m over 2 min for local routine and special reports and ATS units, and over 10 min for aerodrome routine meteorological reports (METARs) and aerodrome special meteorological reports (SPECIs).					X
MET.SPEC.12.00	**Primary Cause of Wind, Pressure Gradient, Coriolis Force, Gradient Wind**					
MET.SPEC.12.01	Define the term ‘horizontal pressure gradient’.					X
MET.SPEC.12.02	Reserved for future					
MET.SPEC.13.00	**General Global Circulation**					
	General Circulation Around the Globe					
MET.SPEC.13.01	Describe the general global circulation.					X
MET.SPEC.14.00	**Local Winds**					
MET.SPEC.14.01	Describe and explain anabatic and katabatic winds.	X	X	X		
MET.SEPC.14.02	Describe mountain and valley winds.	X	X	X		
MET.SPEC.14.03	Describe the Venturi effect, convergence in valleys and mountain areas.	X	X	X		
MET.SPEC.14.04	Describe land and sea breezes, and sea-breeze front.	X	X	X		
MET.SPEC.14.05	Describe that local, low-level jet streams can develop in the evening.					X
MET.SPEC.15.00	**Mountain Waves (standing waves, lee waves)**					
	Origin and Characteristics					
MET.SPEC.15.01	Explain the origin and formation of mountain waves.					X
MET.SPEC.15.02	State the conditions necessary for the formation of mountain waves.					X
MET.SPEC.15.03	Describe the structure and properties of mountain waves.					X
MET.SPEC.15.04	Explain how mountain waves may be identified by their associated meteorological phenomena.					X
MET.SPEC.15.05	Describe that mountain wave effects can exceed the performance or structural capability of unmanned aircraft.					X
MET.SPEC.15.06	Describe that mountain wave effects can propagate from low to high level, e.g. over Greenland and elsewhere.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.16.00	**Turbulence**					
	Description and Types of Turbulence					
MET.SPEC.16.01	Describe turbulence and gustiness.	X	X	X		
MET.SPEC.16.02	List the common types of turbulence (convective, mechanical, orographic, frontal, clear-air turbulence).	X	X	X		
MET.SPEC.17.00	**Formation and Location of Turbulence**					
MET.SPEC.17.01	Explain the formation of convective turbulence, mechanical and orographic turbulence, and frontal turbulence.					X
MET.SPEC.17.02	State where turbulence will normally be found (rough-ground surfaces, relief, inversion layers, cumulonimbus (CB), thunderstorm (TS) zones, unstable layers).					X
MET.SPEC.17.03	Describe and indicate the areas of worst wind shear and CAT.					X
MET.SPEC.18.00	**Clouds and Fog**					
MET.SPEC.18.01	Explain cloud formation by adiabatic cooling, conduction, advection and radiation.					X
MET.SPEC.18.02	Describe cloud formation based on the following lifting processes: unorganised lifting in thin layers and turbulent mixing; forced lifting at fronts or over mountains; free convection.					X
MET.SPEC.18.03	List cloud types typical for stable and unstable air conditions.					X
MET.SPEC.18.04	Summarise the conditions for the dissipation of clouds.					X
MET.SPEC.19.00	**Cloud Types and Cloud Classification**					
MET.SPEC.19.01	Describe the different cloud types and their classification.	X	X	X		
MET.SPEC.20.00	**Flying Conditions in each Cloud Type**					
MET.SPEC.20.01	Assess the 10 cloud types for icing and turbulence.					X
MET.SPEC.21.00	**Fog, Mist, Faze**					
MET.SPEC.21.01	Define ‘fog’, ‘mist’ and ‘haze’ with reference to the WMO standards of visibility range.					X
MET.SPEC.21.02	Explain briefly the formation of fog, mist and haze.					X
MET.SPEC.21.03	Name the factors that generally contribute to the formation of fog and mist.					X
MET.SPEC.21.04	Name the factors that contribute to the formation of haze.					X
MET.SPEC.21.05	Describe freezing fog and ice fog.					X
MET.SPEC.22.00	**Radiation Fog**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.22.01	Explain the formation of radiation fog.					X
MET.SPEC.22.02	Describe the significant characteristics of radiation fog, and its vertical extent.					X
MET.SPEC.22.03	Summarise the conditions for the dissipation of radiation fog.					X
MET.SPEC.23.00	**Advection Fog**					
MET.SPEC.23.01	Explain the formation of advection fog.					X
MET.SPEC.23.02	Describe the different possibilities of advection-fog formation (over land, sea and coastal regions).					X
MET.SPEC.23.03	Describe the significant characteristics of advection fog.					X
MET.SPEC.23.04	Summarise the conditions for the dissipation of advection fog.					X
MET.SPEC.24.00	**Sea Smoke**					
MET.SPEC.24.01	Explain the formation of sea smoke.					X
MET.SPEC.24.02	Explain the conditions for the development of sea smoke.					X
MET.SPEC.24.03	Summarise the conditions for the dissipation of sea smoke.					X
MET.SPEC.24.04	Explain the formation of frontal fog.					X
MET.SPEC.24.05	Describe the significant characteristics of frontal fog.					X
MET.SPEC.24.06	Summarise the conditions for the dissipation of frontal fog.					X
MET.SPEC.24.07	Summarise the features of orographic fog.					X
MET.SPEC.24.08	Describe the significant characteristics of orographic fog.					X
MET.SPEC.24.09	Summarise the conditions for the dissipation of orographic fog.					X
MET.SPEC.25.00	**Precipitation**					
	Process of Development of Precipitation					
MET.SPEC.25.01	Describe the two basic processes of forming precipitation (The Wegener–Bergeron–Findeisen process, Coalescence).					X
MET.SPEC.25.02	Summarise the outlines of the ice-crystal process (The Wegener– Bergeron–Findeisen process).					X
MET.SPEC.25.03	Summarise the outlines of the coalescence process.					X
MET.SPEC.25.04	Explain the development of snow, rain, drizzle and hail.					X
MET.SPEC.26.00	**Types of Precipitation**					
MET.SPEC.26.01	List and describe the types of precipitation given in the aerodrome forecast (TAF) and METAR codes (drizzle, rain, snow, snow grains, ice pellets, hail, small hail, snow pellets, ice crystals, freezing drizzle, freezing rain).					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.26.02	State the ICAO/WMO approximate diameters for cloud, drizzle and rain drops.					X
MET.SPEC.26.03	State that, because of their size, hail stones can cause significant damage to unmanned aircraft.					X
MET.SPEC.26.04	Explain the mechanism for the formation of freezing precipitation.					X
MET.SPEC.26.05	Describe the weather conditions that give rise to freezing precipitation.					X
MET.SPEC.26.06	Distinguish between the types of precipitation generated in convective and stratiform clouds.					X
MET.SPEC.26.07	Assign typical precipitation types and intensities to different cloud types.					X
MET.SPEC.26.08	Explain the relationship between moisture content and visibility during different types of winter precipitation (e.g. large vs small snowflakes).					X
MET.SPEC.27.00	**Air Masses and Fronts**					
	Air Masses					
MET.SPEC.27.01	Define the term ‘air mass’.					X
MET.SPEC.27.02	Describe the properties of the source regions.					X
MET.SPEC.27.03	Summarise the classification of air masses by source regions.					X
MET.SPEC.27.04	State the classifications of air masses by temperature and humidity at source.					X
MET.SPEC.27.05	State the characteristic weather in each of the air masses.					X
MET.SPEC.27.06	Name the three main air masses that affect Europe.					X
MET.SPEC.27.07	Classify air masses on a surface weather chart.					X
MET.SPEC.27.08	*Remark: Names and abbreviations of air masses used in assessments:* — *first letter: humidity* — *continental (c)* — *maritime (m)* — *second letter: type of air mass* — *arctic (A)* — *polar (P)* — *tropical (T)* — *equatorial (E)* — *third letter: temperature* — *cold (c)* — *warm (w)*					X
MET.SPEC.28.00	**Modifications of Air Masses**					
MET.SPEC.28.01	List the environmental factors that affect the final properties of an air mass.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.28.02	Explain how maritime and continental tracks modify air masses.					X
MET.SPEC.28.03	Explain the effect of passage over cold or warm surfaces.					X
MET.SPEC.28.04	Explain how air-mass weather is affected by the season, the air- mass track and by orographic and thermal effects over land.					X
MET.SPEC.28.05	Assess the tendencies of the stability of an air mass and describe the typical resulting air-mass weather including the hazards for aviation.					X
MET.SPEC.29.00	**Fronts**					
MET.SPEC.29.01	Describe the boundaries between air masses (fronts).					X
MET.SPEC.29.02	Define ‘front’ and ‘frontal zone’.					X
MET.SPEC.29.03	Name the global frontal systems (polar front, arctic front).					X
MET.SPEC.29.04	State the approximate seasonal latitudes and geographic positions of the polar front and the arctic front.					X
MET.SPEC.30.00	**Warm Front, Associated Clouds and Weather**					
MET.SPEC.30.01	Define a ‘warm front’.					X
MET.SPEC.30.02	Describe the cloud, weather, ground visibility and aviation hazards at a warm front depending on the stability of the warm air.					X
MET.SPEC.30.03	Explain the seasonal differences in the weather at warm fronts.					X
MET.SPEC.30.04	Describe the structure, slope and dimensions of a warm front.					X
MET.SPEC.30.05	Sketch a cross section of a warm front showing weather, cloud and aviation hazards.					X
MET.SPEC.31.00	**Cold Front, Associated Clouds and Weather**					
MET.SPEC.31.01	Define a ‘cold front’.					X
MET.SPEC.31.02	Describe the cloud, weather, ground visibility and aviation hazards at a cold front depending on the stability of the warm air.					X
MET.SPEC.31.03	Explain the seasonal differences in the weather at cold fronts.					X
MET.SPEC.31.04	Describe the structure, slope and dimensions of a cold front.					X
MET.SPEC.31.05	Sketch a cross section of a cold front showing weather, cloud and aviation hazards.					X
MET.SPEC.32.00	**Warm Sector, Associated Clouds and Weather**					
MET.SPEC.32.01	Describe fronts and air masses associated with the warm sector.					X
MET.SPEC.32.02	Describe the cloud, weather, ground visibility and aviation hazards in a warm sector.					X
MET.SPEC.32.03	Explain the seasonal differences in the weather in the warm sector.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.32.04	Sketch a cross section of a warm sector showing weather, cloud and aviation hazards.					X
MET.SPEC.33.00	**Weather behind the Cold Front**					
MET.SPEC.33.01	Describe the cloud, weather, ground visibility and aviation hazards behind the cold front.					X
MET.SPEC.33.02	Explain the seasonal differences in the weather behind the cold front.					X
MET.SPEC.34.00	**Occlusions, Associated Clouds and Weather**					
MET.SPEC.34.01	Define the term ‘occlusion’ and ‘occluded front’.					X
MET.SPEC.34.02	Describe the cloud, weather, ground visibility and aviation hazards in a cold occlusion.					X
MET.SPEC.34.03	Describe the cloud, weather, ground visibility and aviation hazards in a warm occlusion.					X
MET.SPEC.34.04	Explain the seasonal differences in the weather at occlusions.					X
MET.SPEC.34.05	Sketch a cross section of occlusions showing weather, cloud and aviation hazards.					X
MET.SPEC.34.06	On a sketch illustrate the development of an occlusion and the movement of the occlusion point.					X
MET.SPEC.35.00	**Stationary Front, Associated Clouds and Weather**					
MET.SPEC.35.01	Define a ‘stationary front’.					X
MET.SPEC.35.02	Describe the cloud, weather, ground visibility and aviation hazards in a stationary front.					X
MET.SPEC.36.00	**Movement of Fronts and Pressure Systems, Life Cycle**					
MET.SPEC.36.01	Describe the movements of fronts and pressure systems and the life cycle of a mid-latitude depression.					X
MET.SPEC.36.02	State the rules for predicting the direction and the speed of movement of fronts.					X
MET.SPEC.36.03	State the difference in the speed of movement between cold and warm fronts.					X
MET.SPEC.36.04	State the rules for predicting the direction and the speed of movement of frontal depressions.					X
MET.SPEC.36.05	Describe, with a sketch if required, the genesis, development and life cycle of a frontal depression with associated cloud and rain belts.					X
MET.SPEC.37.00	**Changes of Meteorological Elements at a Frontal Wave**					
MET.SPEC.37.01	Sketch a plan and a cross section of a frontal wave (warm front, warm sector, and cold front) and illustrate the changes of pressure, temperature, surface, wind and wind in the vertical axis.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.38.00	**Pressure Systems**					
	Location of the Principal Pressure Areas					
MET.SPEC.38.01	Identify or indicate on a map the principal global high-pressure and low-pressure areas in January and July.					X
MET.SPEC.38.02	Explain how these pressure areas are formed.					X
MET.SPEC.38.03	Explain how the pressure areas move with the seasons.					X
MET.SPEC.39.00	**Flight Hazards**					
	Icing					
MET.SPEC.39.01	Summarise the general conditions under which ice accretion occurs on unmanned aircraft (temperatures of outside air; temperature of the airframe; presence of supercooled water in clouds, fog, rain and drizzle; possibility of sublimation).					X
MET.SPEC.39.02	Explain the general weather conditions under which ice accretion occurs in a venturi carburettor.					X
MET.SPEC.39.03	Explain the general weather conditions under which ice accretion occurs on airframe.					X
MET.SPEC.39.04	Explain the formation of supercooled water in clouds, rain and drizzle.					X
MET.SPEC.39.05	Explain qualitatively the relationship between the air temperature and the amount of supercooled water.					X
MET.SPEC.39.06	Explain qualitatively the relationship between the type of cloud and the size and number of the droplets in cumuliform and stratiform clouds.					X
MET.SPEC.39.07	Indicate in which circumstances ice can form on an unmanned aircraft on the ground: air temperature, humidity, precipitation.					X
MET.SPEC.39.08	Explain in which circumstances ice can form on an unmanned aircraft in flight: inside clouds, in precipitation, and outside clouds and precipitation.					X
MET.SPEC.39.09	Explain the influence of fuel temperature, radiative cooling of the unmanned aircraft surface and temperature of the unmanned aircraft surface (e.g. from previous flight) on ice formation.					X
MET.SPEC.39.10	Describe the different factors that influence the intensity of icing: air temperature, amount of supercooled water in a cloud or in precipitation, amount of ice crystals in the air, speed of the unmanned aircraft, shape (thickness) of the airframe parts (wings, antennas, etc.).					X
MET.SPEC.39.11	Explain the effects of topography on icing.					X
MET.SPEC.39.12	Explain the higher concentration of water drops in stratiform orographic clouds.					X
MET.SPEC.40.00	**Types of Ice Accretion**					

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.40.01	Define ‘clear ice’.					X
MET.SPEC.40.02	Describe the conditions for the formation of clear ice.					X
MET.SPEC.40.03	Explain the formation of the structure of clear ice with the release of latent heat during the freezing process.					X
MET.SPEC.40.04	Describe the aspects of clear ice: appearance, weight, solidity.					X
MET.SPEC.40.05	Define ‘rime ice’.					X
MET.SPEC.40.06	Describe the conditions for the formation of rime ice.					X
MET.SPEC.40.07	Describe the aspects of rime ice: appearance, weight, solidity.					X
MET.SPEC.40.08	Define ‘mixed ice’.					X
MET.SPEC.40.09	Describe the conditions for the formation of mixed ice.					X
MET.SPEC.40.10	Describe the aspects of mixed ice: appearance, weight, solidity.					X
MET.SPEC.40.11	Describe the possible process of ice formation in snow conditions.					X
MET.SPEC.40.12	Define ‘hoar frost’.					X
MET.SPEC.40.13	Describe the conditions for the formation of hoar frost.					X
MET.SPEC.40.14	Describe the aspects of hoar frost: appearance, solidity.					X
MET.SPEC.41.00	**Hazards of Ice Accretion, Avoidance**					
MET.SPEC.41.01	State the ICAO qualifying terms for the intensity of icing.					X
MET.SPEC.41.02	Describe, in general, the hazards of icing.					X
MET.SPEC.41.03	Assess the dangers of the different types of ice accretion.					X
MET.SPEC.41.04	Describe the position of the dangerous zones of icing in fronts, in stratiform and cumuliform clouds, and in the different precipitation types.					X
MET.SPEC.41.05	Indicate the possibilities of avoiding dangerous zones of icing: — in the flight planning: weather briefing, selection of track and altitude; — during flight: recognition of the dangerous zones, selection of appropriate track and altitude.					X
MET.SPEC.42.00	**Ice Crystal Icing**					
MET.SPEC.42.01	Describe ice crystal icing.					X
MET.SPEC.42.02	Describe the atmospheric processes leading to high ice crystal concentration. Define the variable ice water content (IWC).					X
MET.SPEC.42.03	Identify weather situations and their relevant areas where high concentrations of ice crystals are likely to occur.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.42.04	Name, in general, the flight hazards associated with high concentrations of ice crystals.					X
MET.SPEC.42.05	Explain how a pilot may possibly avoid areas with a high concentration of ice crystals.					X
MET.SPEC.43.00	**Turbulence**					
MET.SPEC.43.01	Describe the effects of turbulence on an unmanned aircraft in flight.					X
MET.SPEC.43.02	Indicate the possibilities of avoiding turbulence: — in the flight planning: weather briefing, selection of track and altitude; during flight: selection of appropriate track and altitude.					X
MET.SPEC.43.03	Describe atmospheric turbulence and distinguish between turbulence, gustiness and wind shear.					X
MET.SPEC.43.04	Describe that forecasts of turbulence are not very reliable and state that pilot reports of turbulence are very valuable as they help others to prepare for or avoid turbulence.					X
MET.SPEC.44.00	**Wind Shear**					
MET.SPEC.44.01	Define ‘wind shear’ (vertical and horizontal).					X
MET.SPEC.44.02	Define ‘low-level wind shear’.					X
MET.SPEC.45.00	**Weather Conditions for Wind Shear**					
MET.SPEC.45.01	Describe the conditions, where and how wind shear can form (e.g. thunderstorms, squall lines, fronts, inversions, land and sea breeze, friction layer, relief).					X
MET.SPEC.46.00	**Effects on Flight, Avoidance**					
MET.SPEC.46.01	Describe the effects of wind shear on flight.					
MET.SPEC.46.02	Indicate the possibilities of avoiding wind shear in flight: — in the flight planning; — during flight.					
MET.SPEC.47.00	**Thunderstorms**					
MET.SPEC.47.01	Conditions for and process of development, forecast, location, type specification.					X
MET.SPEC.47.02	Name the cloud types which indicate the development of thunderstorms.	X	X	X		
MET.SPEC.47.03	Describe the different types of thunderstorms, their location, the conditions for and the process of development, and list their properties (air-mass thunderstorms, frontal thunderstorms, squall lines, supercell storms, orographic thunderstorms).					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.48.00	**Structure of Thunderstorms, Life Cycle**					
MET.SPEC.48.01	Assess the average duration of thunderstorms and their different stages.					X
MET.SPEC.48.02	Describe a supercell storm: initial, supercell, tornado and dissipating stage.					X
MET.SPEC.48.03	Summarise the flight hazards associated with a fully developed thunderstorm.					X
MET.SPEC.48.04	Indicate on a sketch the most dangerous zones in and around a single-cell and a multi-cell thunderstorm.					X
MET.SPEC.49.00	**Electrical Discharges**					
MET.SPEC.49.01	Describe the basic outline of the electric field in the atmosphere.					X
MET.SPEC.49.02	Describe types of lightning, i.e. ground stroke, intra-cloud lightning, cloud-to-cloud lightning, upward lightning.					
MET.SPEC.49.03	Reserved					
MET.SPEC.49.04	Describe the development of lightning discharges.					X
MET.SPEC.49.05	Describe the effect of lightning strike on unmanned aircraft and flight execution.					X
MET.SPEC.50.00	**Development and Effects of Downbursts**					
MET.SPEC.50.01	Define the term ‘downburst’.					X
MET.SPEC.50.02	Distinguish between macroburst and microburst.					X
MET.SPEC.50.03	State the weather situations leading to the formation of downbursts.					X
MET.SPEC.50.04	Describe the process of development of a downburst.					X
MET.SPEC.50.05	Give the typical duration of a downburst.					X
MET.SPEC.50.06	Describe the effects of downbursts.					X
MET.SPEC.51.00	**Thunderstorm Avoidance**					
MET.SPEC.51.01	Explain how the pilot can anticipate each type of thunderstorm: through pre-flight weather briefing, observation in flight, use of specific meteorological information, use of information given by ground weather radar and by airborne weather radar.					X
MET.SPEC.51.02	Describe practical examples of flight techniques used to avoid the hazards of thunderstorms.					X
MET.SPEC.52.00	**Tornadoes**					
MET.SPEC.52.01	Define ‘tornado’.					X
MET.SPEC.52.02	Describe the formation of a tornado.					X
MET.SPEC.52.03	Describe the typical features of a tornado such as appearance, season, time of day, stage of development, speed of movement, and wind speed.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.52.04	Compare the dimensions and properties of tornadoes and dust devils.					X
MET.SPEC.53.00	**Inversions**					
MET.SPEC.53.01	Compare the flight hazards during take-off and approach associated with a strong inversion alone and with a strong inversion combined with marked wind shear.					X
MET.SPEC.54.00	**Hazards in Mountainous Areas**					
MET.SPEC.54.01	Describe the influence of mountainous area on a frontal passage.					X
MET.SPEC.54.02	Describe the vertical movements, wind shear and turbulence that are typical of mountain areas.					X
MET.SPEC.54.03	Indicate on a sketch of a chain of mountains the turbulent zones (mountain waves, rotors).					X
MET.SPEC.54.04	Explain the influence of relief on ice accretion.					X
MET.SPEC.55.00	**Development and Effect of Valley Inversions**					
MET.SPEC.55.01	Describe the formation of a valley inversion due to katabatic winds.					X
MET.SPEC.55.02	Describe the valley inversion formed by warm winds aloft.					X
MET.SPEC.55.03	Describe the effects of a valley inversion for an unmanned aircraft in flight.					X
MET.SPEC.56.00	**Meteorological Information**					
MET.SPEC.56.01	Demonstrate ability to obtain, interpret and apply meteorological reports and forecasts for operations.	X	X	X		
MET.SPEC.56.02	Define ‘gusts’ as given in METARs.					X
MET.SPEC.56.03	Distinguish wind given in METARs and wind given by the control tower for take-off and landing.					X
MET.SPEC.56.04	Define ‘visibility’.					X
MET.SPEC.56.05	Describe the meteorological measurement of visibility.					X
MET.SPEC.56.06	Define ‘prevailing visibility’.					X
MET.SPEC.56.07	Define ‘ground visibility’.					X
MET.SPEC.56.08	List the units used for visibility (m, km, statute mile).					X
MET.SPEC.56.09	Define ‘runway visual range’.					X
MET.SPEC.56.11	Describe the meteorological measurement of runway visual range.					X
MET.SPEC.56.12	Indicate where the transmissometers/forward-scatter meters are placed on the aerodrome.					X
MET.SPEC.56.13	List the units used for runway visual range (m, ft).					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.56.14	List the different possibilities to transmit information to pilots about runway visual range.					X
MET.SPEC.56.15	Compare ground visibility, prevailing visibility, and runway visual range.					X
MET.SPEC.56.16	Indicate the means of observation of present weather.					X
MET.SPEC.56.17	Indicate the means of observing clouds for the purpose of recording: type, amount, height of base (ceilometers), and top.					X
MET.SPEC.56.18	State the clouds which are indicated in METAR, TAF and SIGMET.					X
MET.SPEC.56.19	Define 'oktas'.					X
MET.SPEC.56.20	Define 'cloud base'.					X
MET.SPEC.56.21	Define 'ceiling'.					X
MET.SPEC.56.22	Name the unit and the reference level used for information about cloud base (ft).					X
MET.SPEC.56.23	Define 'vertical visibility'.					X
MET.SPEC.56.24	Explain briefly how and when vertical visibility is measured.					X
MET.SPEC.56.25	Name the units used for vertical visibility (ft, m).					X
MET.SPEC.56.26	Indicate the means of observation of air temperature (thermometer).					X
MET.SPEC.56.27	Name the units of relative humidity (%) and dew-point temperature (Celsius, Fahrenheit).					X
MET.SPEC.57.00	**Satellite Observations**					
MET.SPEC.57.01	Describe the basic outlines of satellite observations.					X
MET.SPEC.57.02	Name the main uses of satellite pictures in aviation meteorology.					X
MET.SPEC.57.03	Describe the different types of satellite imagery.					X
MET.SPEC.57.04	Interpret qualitatively the satellite pictures to get useful information for flights: — location of clouds (distinguish between stratiform and cumuliform clouds).					X
MET.SPEC.57.06	Interpret qualitatively the satellite pictures in order to get useful information for flights: — location of fronts.					X
MET.SPEC.58.00	**Weather Radar Observations**					
MET.SPEC.58.01	Describe the basic principle and the type of information given by a ground weather radar.					X
MET.SPEC.58.01	Interpret ground weather radar images.					X
MET.SPEC.58.01	Describe the basic principle and the type of information given by airborne weather radar.					X

Syllabus Reference	Syllabus details and associated Learning Objectives	GVC	L1~~(A)~~ Fixed Wing	L1~~(R)~~ Rotorcraft	L2 ~~A~~	L3 ~~A~~
MET.SPEC.58.01	Describe the limits and the errors of airborne weather radar information.					X
MET.SPEC.58.01	Interpret typical airborne weather radar images.					X
MET.SPEC.59.00	**Unmanned Aircraft Observations and Reporting**					
MET.SPEC.59.01	Describe routine air-report and special air-report (ARS).					X
MET.SPEC.59.02	State the obligation of a pilot to prepare air-reports.					X
MET.SPEC.59.03	Name the weather phenomena to be stated in an ARS.					X
MET.SPEC.60.00	**Weather Charts**					
MET.SPEC.60.01	Decode and interpret significant weather charts (low, medium and high level).					X
MET.SPEC.60.02	Describe from a significant weather chart the flight conditions at designated locations or along a defined flight route at a given FL.					X
MET.SPEC.61.00	**Surface Charts**					
MET.SPEC.61.01	Recognise the following weather systems on a surface weather chart (analysed and forecast): ridges, cols and troughs; fronts; frontal side, warm sector and rear side of mid-latitude frontal lows; high- and low-pressure areas.					X
MET.SPEC.61.02	Determine from surface weather charts the wind direction and speed.					X
MET.SPEC.62.00	**Information for Flight Planning**					
MET.SPEC.62.01	Describe, decode and interpret the following aviation weather messages (given in written or graphical format): METAR, aerodrome special meteorological report (SPECI), trend forecast (TREND), TAF, information concerning en-route weather phenomena which may affect the safety of unmanned aircraft operations (SIGMET), information concerning en-route weather phenomena which may affect the safety of low-level unmanned aircraft operations (AIRMET), area forecast for low-level flights (GAMET), ARS, volcanic ash advisory information.					X
MET.SPEC.62.02	Describe the general meaning of MET REPORT and SPECIAL REPORT.					X

APPENDIX C – REMOTE PILOT COMPETENCE

(…)

APPLICATION OF PROCEDURES & COMPLIANCE WITH REGULATIONS

Application of Procedures & Compliance with Regulations (PCR)	
Description: Identifies and applies procedures in accordance with published operating instructions and applicable regulations, using the appropriate knowledge.	
Observable Behaviours	
1	Identifies the source of operating instructions
2	Follows standard operating procedures (SOPs) unless a higher degree of safety dictates an appropriate deviation
3	Identifies and follows all operating instructions in a timely manner
4	Correctly operates the UAS and associated equipment
5	Monitors UAS systems status
6	Complies with applicable regulations
7	Applies relevant procedural knowledge

MANAGE AERONAUTICAL COMMUNICATION

Communication (COM)	
Description: Demonstrates effective verbal, written and nonverbal communications, in normal and abnormal situations.	
Observable Behaviours	
1	Ensures the recipient is ready and able to receive the information
2	Selects appropriately what, when how and with whom to communicate
3	Conveys messages clearly, accurately, and concisely
4	Confirms that the recipient correctly understands important information
5	Listens actively and demonstrates understanding when receiving information
6	Asks relevant and effective questions – Adheres to standard radiotelephony phraseology and procedures
7	Accurately reads and interprets required documentation for the operation of UAS
8	Accurately reads, interprets, constructs and responds to datalink messages
9	Completes accurate reports as required by operating procedures
10	Correctly interprets non-verbal communication
11	Where applicable, uses eye contact, body movement and gestures that are consistent with and support verbal messages

~~RPA~~ MANAGE UA FLIGHT PATH MANAGEMENT AND AUTOMATION

UA Flight Path Management, Automation (FPM)
Description: Controls the ~~RPA~~ UA flight path through automation, including appropriate use of flight management system(s) and guidance.

Observable Behaviours	
1	Controls the UA through automation with accuracy and smoothness as appropriate to the situation
2	Contains the UA within the normal flight envelope
3	Maintains the desired flight path during flight using automation
4	Takes appropriate action in case of deviations from the desired UA trajectory
5	Selects appropriate level and mode of automation in a timely manner considering phase of flight and workload
6	Effectively monitors automation, including engagement and automatic mode transitions
7	Controls the UA safely in degraded automation using only the relationship between UA attitude, speed and thrust if applicable

(…)

SITUATIONAL AWARENESS

Situational Awareness (SIT)	
Description: Perceives and comprehends the operational situation of the moment and all of the relevant information available and anticipates what could happen that may affect the operation.	
Observable Behaviours	
1	Identifies and assesses accurately the state of the UAS
2	Identifies and assesses accurately the UAS vertical and lateral position, and its anticipated flight path
3	Identifies and assesses accurately the general environment as it may affect the flight, including the air traffic neighbouring the UAS operation and the meteorological conditions that could impact the operation
4	Conducts the operation in accordance with the airspace configuration where the UAS operation is taking place
5	Keeps track of time and energy
6	Validates the accuracy of information and checks for gross errors
7	Maintains awareness of the people involved in or affected by the operation and their capacity to perform as expected
8	Anticipates accurately what could happen, plans, and stays ahead of the situation
9	Develops effective contingency plans based upon potential threats
10	Recognizes and effectively responds to indications of reduced situational awareness

(…)