



A Member of the European Union

DEPARTMENT OF CIVIL AVIATION

A2 Remote Pilot Certificate of Competency

A2 Examination Process

The 'A2 Remote Pilot Certificate of Competency' examination must be conducted under formal examination conditions at a facility provided by an entity designated by the Competent Authority.

The examination comprises of a minimum of 30 multiple-choice questions which are aimed at assessing the remote pilot's knowledge of the technical and operational mitigations for ground risk and will specifically cover the following subjects:

- Meteorology;
- UAS flight performance;
- Technical and operational mitigations for ground risk.

The specific syllabus topics are listed below.

The examination may be electronic or paper-based but must be of a closed book format (except when questions require reference to charts, or other sources of specific aeronautical information). The minimum pass mark must be no less than 75%.

The examination is to be 75 minutes in duration (approximately 2½ minutes per question). Any candidate with a recognised disability or additional needs (e.g. dyslexia or dyspraxia) should be granted an extra 15 minutes to complete the examination.

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.

A2 Examination Syllabus

The 'A2 Remote Pilot Certificate of Competency' theoretical examination, as well as any associated theoretical knowledge training courses that are provided, must cover all subject areas in the table below.

Each area must be examined in enough depth to establish that students hold a suitable level of understanding of the topic so that they can determine the intent, the methods of compliance, and how this relates to their own intended operation. Specific attention should be given to how problem/emergency scenarios are addressed.

Subject	Fields to be covered
METEOROLOGY	<p>Introduction to obtaining and interpreting weather information</p> <ul style="list-style-type: none"> • Weather reporting resources • Reports, forecasts and meteorological conventions appropriate for typical UAS flight operations • Local weather assessments <p>Effects of weather on the unmanned aircraft</p> <ul style="list-style-type: none"> • Wind - urban effects, gradients, masking, turbulence • Temperature - precipitation, icing, turbulence • Visibility factors • The Density of the Air • Clouds – Cumulonimbus (CB) hazards (including lightning) • IP43 (International Protection) IEC/EN 60529 standards with regard to water ingress
UAS FLIGHT PERFORMANCE	<p>Typical operational envelope of a rotorcraft, fixed wing and hybrid configurations</p> <ul style="list-style-type: none"> • Basic principles of flight <p>Operating guides</p> <ul style="list-style-type: none"> • Flight procedures/basic drills • Emergencies <p>Maintenance of system</p> <ul style="list-style-type: none"> • Scheduled and repairs • Manufacturer's recommendations • Assessment 'safe to be flown?' • <p>Mass and balance and centre of gravity (CG)</p> <ul style="list-style-type: none"> • Consideration of the overall balance when attaching gimbals, payloads • Understand meaning of MTOM • Security of the payload

	<ul style="list-style-type: none"> • Payload characteristics – how differences can affect the stability of a flight • CG – differences between different types of UA <p>Batteries</p> <ul style="list-style-type: none"> • 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
<p>TECHNICAL AND OPERATIONAL MITIGATIONS FOR GROUND RISK</p>	<p>Technical and operational mitigations for ground risk</p> <ul style="list-style-type: none"> • Low speed mode function • Evaluating distance from people • The 1:1 rule <p>UAS operations</p> <ul style="list-style-type: none"> • Visual Line of Sight (VLOS) • Avoiding collisions – ‘See and Avoid’ • Decision process • Stress/pressure from ‘customers’ • Occurrence reporting and investigation <p>Congested area operations</p> <ul style="list-style-type: none"> • Planning and preparation • Hazard identification • Overflight of people • Public/third parties – crowds and gatherings <p>Medical fitness</p> <ul style="list-style-type: none"> • Crew health precautions • Alcohol, drugs, medication, medical restrictions <p>Fatigue</p> <ul style="list-style-type: none"> • Flight duration/flight workload • Outdoors and alone working

A2 Certificate Validity

The 'A2 Remote Pilot Certificate of Competency' has a validity of 5 years.

A2 Certificate Revalidation

Within its validity period, the revalidation of the 'A2 Remote Pilot Certificate of Competency' is subject to:

- A re-take of the A2 examination; or
- The completion of a refresher training addressing the theoretical knowledge subjects indicated above

Upon expiration, the revalidation of the 'A2 Remote Pilot Certificate of Competency' is subject to:

- A re-take of the A2 examination, provided that the remote pilot already holds the 'A1-A3 Proof of Completion of the Online Training Certificate'.

STS Remote Pilot Theoretical Knowledge Certificate

STS Examination Process

The STS theoretical examination is to be conducted under formal examination conditions provided by an entity designated by the Competent Authority.

The examination must comprise a minimum of 40 multiple-choice questions that cover the full range of subjects listed below.

This composition must be accepted by the DCAC. There must be a minimum of 5 questions in each of the following subject areas:

- a) Aviation Regulations;
- b) Human Performance Limitations;
- c) Operational Procedures;
- d) Technical and Operational Mitigations for Air Risk;
- e) UAS General Knowledge;
- f) Meteorology
- g) The Flight performance of the UAS; and
- h) Technical and Operational Mitigations for Ground Risks.

The examination may be electronic or paper-based but must be of a closed book format (except when questions require reference to charts, or other sources of specific aeronautical information).

The minimum overall pass mark must be no less than 75%.

The examination is to be 105 minutes in duration (approximately 2½ minutes per question). Any candidate with a recognised disability or additional needs (e.g. dyslexia or dyspraxia) should be granted an extra 20 minutes to complete the examination.

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

Credits

If the remote pilot candidate already holds the 'A2 Remote Pilot Certificate of Competency', the examination shall comprise at least 30 multiple-choice questions distributed appropriately across the following subjects only:

- a) Aviation Regulations;
- b) Human Performance Limitations;
- c) Operational Procedures;
- d) Technical and Operational Mitigations for Air Risk;
- e) UAS General Knowledge.

The holder of the 'A2 Remote Pilot Certificate of Competency Certificate' will be given credit for the following subjects:

- a) Meteorology
- b) The Flight performance of the UAS; and
- c) Technical and Operational Mitigations for Ground Risks.

The examination is to be 75 minutes in duration (approximately 2½ minutes per question). Any candidate with a recognised disability or additional needs (e.g. dyslexia or dyspraxia) should be granted an extra 15 minutes to complete the examination.

STS Examination Syllabus

The following subject areas below must be covered within the examination. Each area must be examined in enough depth to establish that students hold a sufficient level of understanding of the topic so that they can determine the intent, the methods of compliance, and how this relates to their own intended operation. Specific attention should be given to how problem/emergency scenarios are addressed.

Subject	Fields to be covered
AVIATION REGULATIONS	<p>The EU UAS Regulation Framework</p> <ul style="list-style-type: none"> • Overall principles • CE Marking and UAS Classes • UAS operating categories (A1,A2,A3) • Specific requirements <p>Aviation Regulations</p> <ul style="list-style-type: none"> • introduction to the 'specific' category; • risk assessment, introduction to SORA; and • overview of STSs and PDRA; <p>General overview</p> <ul style="list-style-type: none"> • Responsibilities • UAS operator and remote pilot • Avoidance of collisions ('See and Avoid', i.e. Visual Line of Sight principles)

<p>HUMAN PERFORMANCE LIMITATIONS</p>	<p>Human Performance Limitations</p> <ul style="list-style-type: none"> • perception (situational awareness in BVLOS operations); and • fatigue: <ul style="list-style-type: none"> ○ flight durations within work hours; ○ circadian rhythms; ○ work stress; and ○ commercial pressures; ○ Time of flight ○ Working hours ○ Effects of weather ○ Outdoor, remote and alone working ○ Crew/colleague management ○ Depth perception ○ Blind spot ○ Scan technique ○ Decision process • attentiveness <ul style="list-style-type: none"> ○ eliminating distractions; and ○ scan techniques; • medical fitness (health precautions, alcohol, drugs, medication etc.) <ul style="list-style-type: none"> ○ Crew health precautions ○ Alcohol, drugs, medication ○ Medical restrictions • environmental factors such as vision changes from orientation to the sun;
<p>OPERATIONAL PROCEDURES</p>	<p>Operational Procedures</p> <ul style="list-style-type: none"> • airspace classifications; <ul style="list-style-type: none"> ○ Differing considerations, controlled airspace • procedures for airspace reservation; <ul style="list-style-type: none"> ○ Danger Areas, Prohibited Areas, Restricted Areas ○ Temporary Airspace Reservations • aeronautical information publications; • Aeronautical Information Circulars (AICs) • NOTAMs; and • mission planning, airspace considerations and site risk-assessment:

	<ul style="list-style-type: none"> ○ measures to comply with the limitations and conditions applicable to the operational volume and the ground risk buffer for the intended operation; and ○ BVLOS operations. Use of UA VOs; ● navigation/charts ● Basic map reading (OS) – 1:50,000 and 1: 25,000 ● Aviation charts – 1:500,000 and 1: 250,000 <ul style="list-style-type: none"> ○ Interpretation ○ Specialised charts (e.g. nicosia helicopter routes) ○ Understanding of basic terms: <ul style="list-style-type: none"> ▪ Aeronautical units of measurement (Ft, km, Nm) ▪ Elevation ▪ Altitude ● GPS principles
--	---

<p>TECHNICAL AND OPERATIONAL MITIGATIONS FOR AIR RISK</p>	<p>Technical and Operational Mitigations for Air Risk</p> <ul style="list-style-type: none"> ● Air safety ● good airmanship principles; ● aeronautical decision-making; ● aviation safety; ● air proximity reporting; and ● advanced airmanship: <ul style="list-style-type: none"> ○ manoeuvres and emergency procedures; and ○ general information on unusual conditions (e.g. stalls, spins, vertical lift limitations, autorotation, vortex ring states); ● In-flight monitoring ● Fuel/battery status ● Visual Line of Sight ● Emergency actions: (Emergency Response Plan) ● loss of control/flyaway,malfunctions ● Deconfliction/separation ●
<p>UAS GENERAL KNOWLEDGE</p>	<p>UAS General Knowledge</p> <ul style="list-style-type: none"> ● loss of signal and system failure protocols - understanding the condition and planning for

	<p>programmed responses such as returning to home, loiter, landing immediately;</p> <ul style="list-style-type: none"> • flight termination systems; and • flight control modes; • Basic principles of flight <ul style="list-style-type: none"> ○ Fixed-wing, rotary wing and multi-rotor • Command and Control <ul style="list-style-type: none"> ○ Datalink frequencies/spectrum ○ Manual intervention/override ○ Flight control modes • Limitations • Operational envelope <ul style="list-style-type: none"> ○ Stability ○ Mass and MTOM ○ Centre of gravity ○ Effect of payload on flight • Operating guides <ul style="list-style-type: none"> ○ Flight procedures/basic drills ○ Emergencies • Maintenance of system <ul style="list-style-type: none"> ○ Scheduled maintenance and repairs ○ Security of aircraft/attached items ○ Manufacturer’s recommendations ○ Assessment - ‘safe to be flown?’
<p>METEOROLOGY</p>	<p>Introduction to obtaining and interpreting weather information</p> <ul style="list-style-type: none"> • Weather reporting resources • Reports, forecasts and meteorological conventions appropriate for typical UAS flight operations • Local weather assessments • obtaining and interpreting advanced weather information: <ul style="list-style-type: none"> ○ weather reporting resources; ○ reports; ○ forecasts and meteorological conventions appropriate for typical UAS flight operations; ○ local weather assessments; ○ low-level charts; and ○ METAR, SPECI, TAF; <p>Effects of weather on the unmanned aircraft</p>

	<ul style="list-style-type: none"> • Wind - urban effects, gradients, masking, turbulence • Temperature - precipitation, icing, turbulence • Visibility factors • The Density of the Air • Clouds – Cumulonimbus (CB) hazards (including lightning) • IP43 (International Protection) IEC/EN 60529 standards with regard to water ingress
<p>UAS FLIGHT PERFORMANCE</p>	<p>Typical operational envelope of a rotorcraft, fixed wing and hybrid configurations</p> <ul style="list-style-type: none"> • Basic principles of flight <p>Operating guides</p> <ul style="list-style-type: none"> • Flight procedures/basic drills • Emergencies <p>Maintenance of system</p> <ul style="list-style-type: none"> • Scheduled and repairs • Manufacturer’s recommendations • Assessment ‘safe to be flown?’ • <p>Mass and balance and centre of gravity (CG)</p> <ul style="list-style-type: none"> • 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 <p>Batteries</p> <ul style="list-style-type: none"> • Understand the terminology used for batteries (e.g. memory effect, capacity, c-rate)

	<ul style="list-style-type: none"> • Differences in battery types • Understand how a battery functions (e.g. charging, usage, danger, storage) • Battery safety - how to help prevent potential unsafe conditions
<p style="text-align: center;">TECHNICAL AND OPERATIONAL MITIGATIONS FOR GROUND RISK</p>	<p>Technical and operational mitigations for ground risk</p> <ul style="list-style-type: none"> • Low speed mode function • Evaluating distance from people • The 1:1 rule <p>UAS operations</p> <ul style="list-style-type: none"> • Visual Line of Sight (VLOS) • Avoiding collisions – ‘See and Avoid’ • Decision process • Stress/pressure from ‘customers’ • Occurrence reporting and investigation <p>Congested area operations</p> <ul style="list-style-type: none"> • Planning and preparation • Hazard identification • Overflight of people • Public/third parties – crowds and gatherings <p>Medical fitness</p> <ul style="list-style-type: none"> • Crew health precautions • Alcohol, drugs, medication, medical restrictions <p>Fatigue</p> <ul style="list-style-type: none"> • Flight duration/flight workload • Outdoors and alone working

STS Certificate Validity

The ‘STS Remote Pilot Theoretical Knowledge Certificate’ has a validity of 5 years.

STS Certificate Revalidation

Within its validity period, the revalidation of the 'STS Remote Pilot Theoretical Knowledge Certificate' is subject to:

- A re-take of the STS examination; or
- The completion of a refresher training addressing the theoretical knowledge subjects as laid down in paragraph 6.2

Upon expiration, the revalidation of the 'STS Remote Pilot Theoretical Knowledge Certificate' is subject to:

- A re-take of the STS examination, provided the remote pilot already holds the A1/A3 'Proof of Completion of the Online Training' certificate.