

INTELLECTUAL OUTPUT 02

Legal Frame on UAS use in the participating countries and the EU

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Preface

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4 Intellectual Output Description

Some years ago, it was possible to perform what it is called "aerial works", without any permission from the local competent authorities and without any insurance for the UAV and the operator. The last years at European and national level almost all Member States have set a legal frame for the use of UAS in several professional activities such as: Agriculture, Construction, Surveillance, Photography etc. In these legal acts different UAS categories are specified according to the weight of the UAS and the training requirements for each category.

According to UAS operators and experts a large portion of citizens are not aware of this legislation and some of them are using UAS without taking protection measures or have an insurance cover for their UAS. With this Intellectual Output, which is addressed to any citizen or potential operator who wishes to understand the requirements and be prepared for the national exams, it will be very useful and popular expected as it is part of the requirements of the exams of the national aviation authorities.

This Output will not be a compendium of legal acts, but the consortium will transfer the experience of operators who faced certain difficulties by trying to operate within the legal frame and the state of the art in the European area. Thus, it will not be a "consolidated" text but a practical view of law implementation. This is the innovative element in this output as we will exceed the requirements of national exams and in fact transfer as much as possible the experience of professionals. The partnership will propose a unified frame based on the knowledge and experience derived from this output.

Languages: English, Greek, Spanish, Turkish

Output type: Course / curriculum - Pilot course / module

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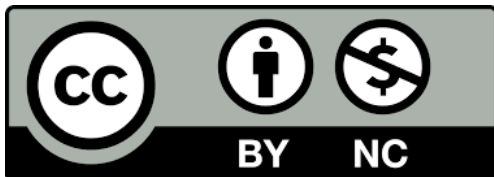
Version: 1.1

Colophon

The content in this course is based on several resources:

- Learning materials as developed by the experts of the European Institute for Evolution and Integration
- Materials available in the relevant links of the European Aviation Safety Authority (EASA)
- Training material developed from scratch for the scope of this project
- Research material produced from past and current research of the European Institute for Evolution and Integration in the field of precision farming
- References described in the "Further Studying" section of this course

We have done everything possible to credit the illustrations and texts used. Please contact us (info@evolution4.eu) if your name has been inadvertently be omitted.



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Methodology

The Output type is Course / curriculum - Pilot course / module. Data will be collected for each participating country from official sources and recent cases will be presented. Copartners will contribute equally to the output.

Official links to competent authorities and European Aviation Safety Agency (EASA) presenting data, which are updated regularly are useful to include them. Output will be “self-updated” and official data only should be used, from official resources. A lot of official information could be found also in EU Publications. In case written permission required for data acquisition, please consider to obtain it. Do not use data without permission and do not obtain data unofficially. Always make an appropriate reference to the source of your information, even if it is not official.

For administrative and technical purposes try to collect the information referring to the contents previously described. In case there are additional information, inform the Beneficiary and the Leading Organisation for this Output before preparing the material. It is important all partners to have the same format.

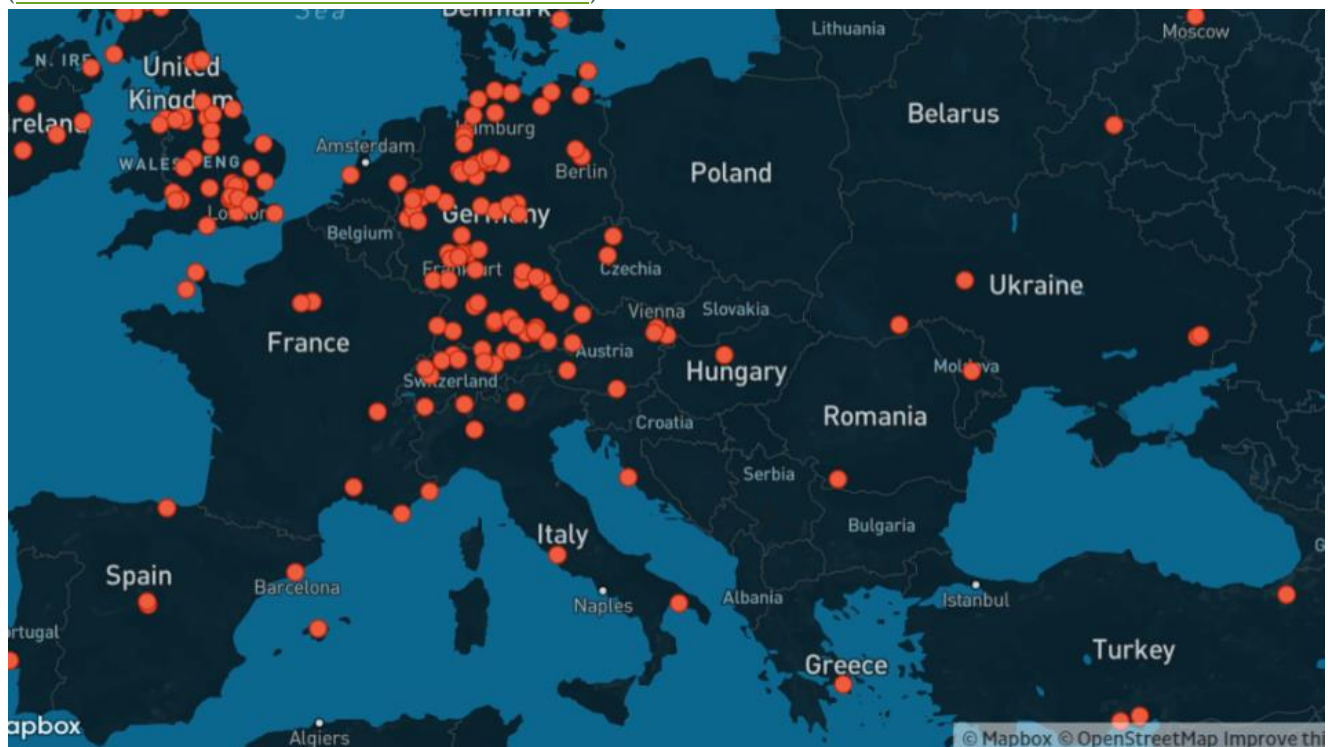
Introduction

In the last years, the development of Unmanned Air Vehicles (UAV) or Unmanned Air Systems (UAS) small UAV (UA) with an MTOM of less than 25 kg was extremely fast and has challenged traditional aviation in many ways. During the last years many EU Member States developed and adopted their own legal frame. However, there was a great demand by drone manufactures and drone operators for a harmonisation of such rules to create a European legal frame and a market for UAS. As a result, the new legal frame contains requirements regulating all UAS, except those used for 'state' operations (e.g., military, customs, police, firefighting, etc.). There are also special provisions for the essential requirements to ensure the safety of UAV operations.

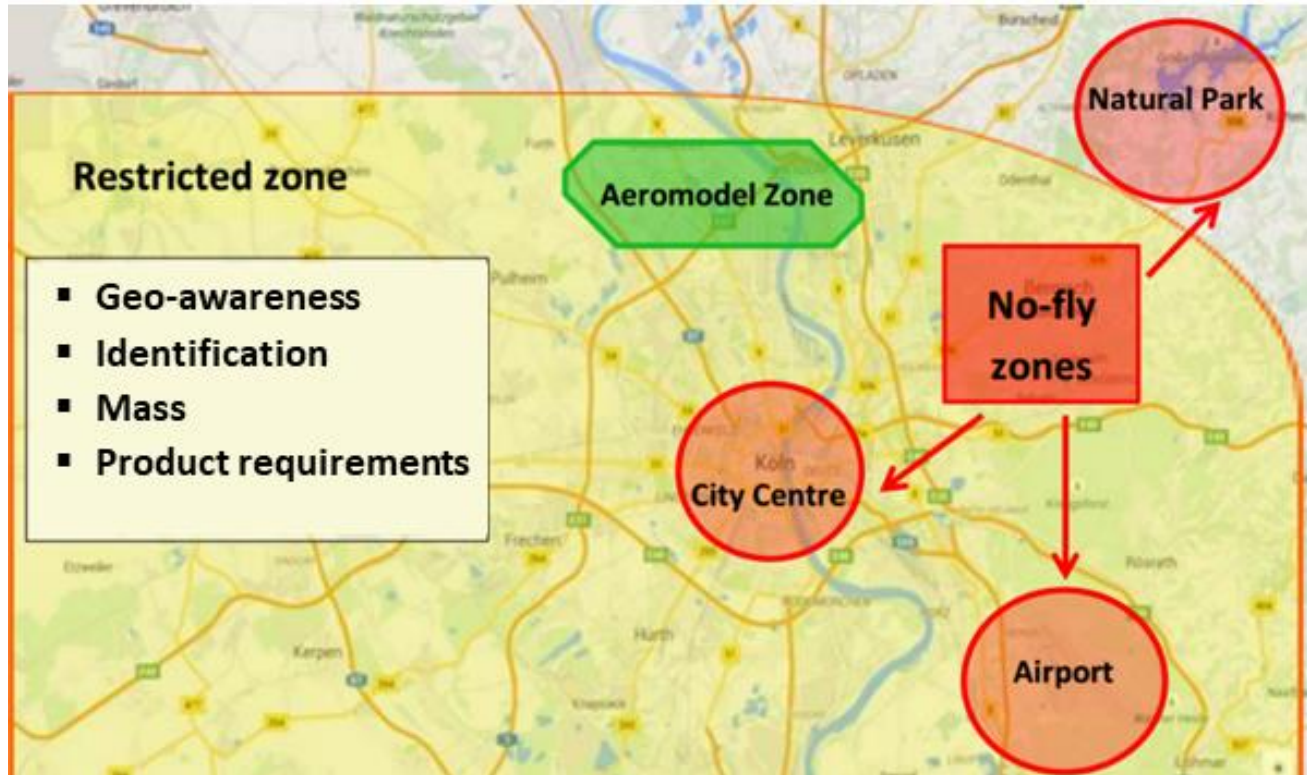
Safety issues are referring to two main risks that are addressed:

1. Air risk (collision with a manned aircraft or another UA); and
2. Ground risk (collision with persons or critical infrastructure).

The following map presents incidents related to drones in the European Area (www.dedrone.com/resources/incidents/all).



Thus, drones cannot fly anywhere. Each Member State has certain geographical zones, which are areas where drones are not allowed to fly (e.g. near airports) or may fly only under certain conditions, and they may need a flight authorisation. Therefore, it is always important to consult the National Aviation Authority if a place is suitable for UAV operator (allowed or not allowed). (www.easa.europa.eu/faq/116463)



This course refers to the provisions of the EASA UAS Regulation thus, the term ‘operation of UAV systems’ does not include indoor UAS operations. Indoor operations are operations that occur in or into a house or a building (dictionary definition) or, more generally, in or into a closed space such as a fuel tank, a silo, a cave or a mine where the likelihood of a UA escaping into the outside airspace is very low.

More specifically this course will focus on A1/A3 open category, where aerial works refer to precision farming is taking place. It does not include case where a UAS is flying above assemblies of people. By the term ‘assemblies of people’ we refer to, according to EASA Regulation to the possibility for an individual to move around in order to limit the consequences of an out-of-control UA. EASA did propose a number of people above which this group of people would turn into an assembly of people. Qualitative examples of assemblies of people proposed such as:

- a) sport, cultural, religious or political events;
- b) beaches or parks on a sunny day;
- c) commercial streets during the opening hours of the shops; and
- d) ski resorts/tracks/lanes.

However, uninvolved persons may interfere during the process of an aerial work. By the term “uninvolved persons” we refer to a person that does not take part in the UAS operation, either directly or indirectly. For example, an operator with his drone is in the field and a group of farmers not related with the field are appearing suddenly. More specifically, a person according to EASA Regulation is an uninvolved person when he/she has:

- 6 a) given explicit consent to the UAS operator or to the remote pilot to be part of the UAS operation (even indirectly as a spectator or just accepting to be over flown by the UAS); and
b) received from the UAS operator or from the remote pilot clear instructions and safety precautions to follow in case the UAS exhibits any unplanned behavior.
- In principle, in order to be considered a ‘person involved’, one:
- (a) is able to decide whether or not to participate in the UAS operation;
 - (b) broadly understands the risks involved;
 - (c) has reasonable safeguards during the UAS operations, introduced by the site manager and the aircraft operator; and
 - (d) is not restricted from taking part in the event or activity if they decide not to participate in the UAS operation.

10 Terms

For the purposes of this Intellectual Output, the definitions in Regulation (EU) 2018/1139 apply:

1. 'UAV system' ('UAS') means an UAV and the equipment to control it remotely;
2. 'UAV system operator' ('UAS operator') means any legal or natural person operating or intending to operate one or more UAS;
3. 'Assemblies of people' means gatherings where persons are unable to move away due to the density of the people present;
4. 'UAS geographical zone' means a portion of airspace established by the competent authority that facilitates, restricts or excludes UAS operations in order to address risks pertaining to safety, privacy, protection of personal data, security or the environment, arising from UAS operations
5. 'Robustness' means the property of mitigation measures resulting from combining the safety gain provided by the mitigation measures and the level of assurance and integrity that the safety gain has been achieved;
6. 'Standard scenario' means a type of UAS operation in the 'specific' category, as defined in Appendix 1 of the Annex, for which a precise list of mitigating measures has been identified in such a way that the competent authority can be satisfied with declarations in which operators declare that they will apply the mitigating measures when executing this type of operation;
7. 'Visual line of sight operation' ('VLOS') means a type of UAS operation in which, the remote pilot is able to maintain continuous unaided visual contact with the UAV, allowing the remote pilot to control the flight path of the UAV in relation to other aircraft, people and obstacles for the purpose of avoiding collisions;
8. 'Beyond visual line of sight operation' ('BVLOS') means a type of UAS operation which is not conducted in VLOS;
9. 'Light UAS operator certificate' ('LUC') means a certificate issued to a UAS operator by a competent authority as set out in part C of the Annex;
10. 'Model aircraft club or association' means an organisation legally established in a Member State for the purpose of conducting leisure flights, air displays, sporting activities or competition activities using UAS;
11. 'Dangerous goods' means articles or substances, which are capable of posing a hazard to health, safety, property or the environment in the case of an incident or accident, that the UAV is carrying as its payload, including in particular:
 - explosives (mass explosion hazard, blast projection hazard, minor blast hazard, major fire hazard, blasting agents, extremely insensitive explosives);
 - gases (flammable gas, non-flammable gas, poisonous gas, oxygen, inhalation hazard);



- flammable liquids (flammable liquids; combustible, fuel oil, gasoline);
 - flammable solids (flammable solids, spontaneously combustible solids, dangerous when wet);
 - oxidising agents and organic peroxides;
 - toxic and infectious substances (poison, biohazard);
 - radioactive substances;
 - corrosive substances;
12. 'Payload' means instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is installed in or attached to the aircraft and is not used or intended to be used in operating or controlling an aircraft in flight, and is not part of an airframe, engine, or propeller;
 13. 'Direct remote identification' means a system that ensures the local broadcast of information about an UAV in operation, including the marking of the UAV, so that this information can be obtained without physical access to the UAV;
 14. 'Follow-me mode' means a mode of operation of a UAS where the UAV constantly follows the remote pilot within a predetermined radius;
 15. 'Geo-awareness' means a function that, based on the data provided by Member States, detects a potential breach of airspace limitations and alerts the remote pilots so that they can take immediate and effective action to prevent that breach;
 16. 'Privately built UAS' means a UAS assembled or manufactured for the builder's own use, not including UAS assembled from sets of parts placed on the market as a single ready-to-assemble kit;
 17. 'Autonomous operation' means an operation during which an UAV operates without the remote pilot being able to intervene;
 18. 'Uninvolved persons' means persons who are not participating in the UAS operation or who are not aware of the instructions and safety precautions given by the UAS operator;
 19. 'Making available on the market' means any supply of a product for distribution, consumption or use on the Union market in the course of a commercial activity, whether in exchange of payment or free of charge;
 20. 'Placing on the market' means the first making available of a product on the Union market;
 21. 'Controlled ground area' means the ground area where the UAS is operated and within which the UAS operator can ensure that only involved persons are present;
 22. 'Maximum take-off mass' ('MTOM') means the maximum UAV mass, including payload and fuel, as defined by the manufacturer or the builder, at which the UAV can be operated;
 23. 'Unmanned sailplane' means an UAV that is supported in flight by the dynamic reaction of the air against its fixed lifting surfaces, the free flight of which does not depend on an engine. It may be equipped with an engine to be used in case of emergency.
 24. 'UAV observer' means a person, positioned alongside the remote pilot, who, by unaided visual observation of the UAV, assists the remote pilot in keeping the UAV in VLOS and safely conducting the flight;
 25. 'Airspace observer' means a person who assists the remote pilot by performing unaided visual scanning of the airspace in which the UAV is operating for any potential hazard in the air;

26. 'Command unit' ('CU') means the equipment or system of equipment to control UAV remotely as defined in point 32 of Article 3 of Regulation (EU) 2018/1139 which supports the control or the monitoring of the UAV during any phase of flight, with the exception of any infrastructure supporting the command and control (C2) link service;
27. 'C2 link service' means a communication service supplied by a third party, providing command and control between the UAV and the CU;
28. 'Flight geography' means the volume(s) of airspace defined spatially and temporally in which the UAS operator plans to conduct the operation under normal procedures described in point (6)(c) of Appendix 5 to the Annex;
29. 'Flight geography area' means the projection of the flight geography on the surface of the earth;
30. 'Contingency volume' means the volume of airspace outside the flight geography where contingency procedures described in point (6)(d) of Appendix 5 to the Annex are applied;
31. 'Contingency area' means the projection of the contingency volume on the surface of the earth;
32. 'Operational volume' is the combination of the flight geography and the contingency volume;
33. 'Ground risk buffer' is an area over the surface of the earth, which surrounds the operational volume and that is specified in order to minimise the risk to third parties on the surface in the event of the UAV leaving the operational volume.
34. 'Night' means the hours between the end of evening civil twilight and the beginning of morning civil twilight as defined in Implementing Regulation (EU) No 923/2012.

Legal Frame on UAS use in the participating countries and the EU

In 2019 the European Commission published a legal act on the rules and procedures for the operation of Unmanned Air Vehicles (UAV) and Unmanned Air Systems (UAS), which can operate within the European Sky airspace, alongside manned aircraft, whether airplanes or helicopters. Consequently, the main reason for this initiative was that they (UAVs, UASs) should be as safe as those in manned aviation.

The rules and procedures applied to UAS operations are related to the nature and risk of the operation or activity and the operation environment and its characteristics, such as the population density, surface characteristics, and the presence of buildings. For this purpose, three categories of operations defined: the 'open', the 'specific' and 'certified' category. The lowest risk category is the open category.

In this legal frame there is an obligation for operators of UAVs to be registered and it refers to those UAVs, which in case of impact, can transfer, to a human, a kinetic energy above 80 Joules or the operation of which presents risks to privacy, protection of personal data, security or the environment.

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The rules are based on scientific elements, where it was found that UAV with a take-off mass of 250 g or more would present risks to security. Therefore, operators of such UAV should be registered when operating such aircraft in the 'open' category.

Additionally, other issues such as personal data protection, considering the risks to privacy. Operators of UAV should be registered if they operate an UAV which is equipped with a sensor able to capture personal data. In most cases of aerial works these kinds of sensors are in place thus, a potential risk is always in place.

Categories of UAS operations

This definition of UAV / UAS includes all types of aircraft without a pilot on board, including radio-controlled flying models (powered fixed wing, helicopters, gliders) whether they have an on-board camera or not. The term refers to a UAV, its system and all the other equipment used to control and operate it, such as the command unit, the possible catapult to launch it and others. RPAS (Remotely Piloted Aircraft Systems) is a subcategory of UAS, which includes both RPAS and fully autonomous UAS. Fully autonomous UAS fly completely by themselves without the need for any pilot intervention (Regulation (EU) 1139/2018 article 3(30), EU Regulation 2019/947 article 2(1) and EU regulation 2019/945 article 3(3)).

There are two types according to the criterion of pilot intervention during the flight:

The autonomous UAV which is able to conduct a safe flight without the intervention of a pilot, by the use of artificial intelligence and the automatic, where UAV flies pre-scheduled routes defined by the drone operator before starting the flight.

There is a clear distinction between 'open' and 'specific' category.

A UAV operation falls to the 'certified' category when, based on the risk assessment, the competent authority considers that the risk cannot be mitigated adequately without the:

- Certification of the airworthiness of the UAS;
- Certification of the UAS operator; and
- Licensing of the remote pilot, unless the UAS is fully autonomous.

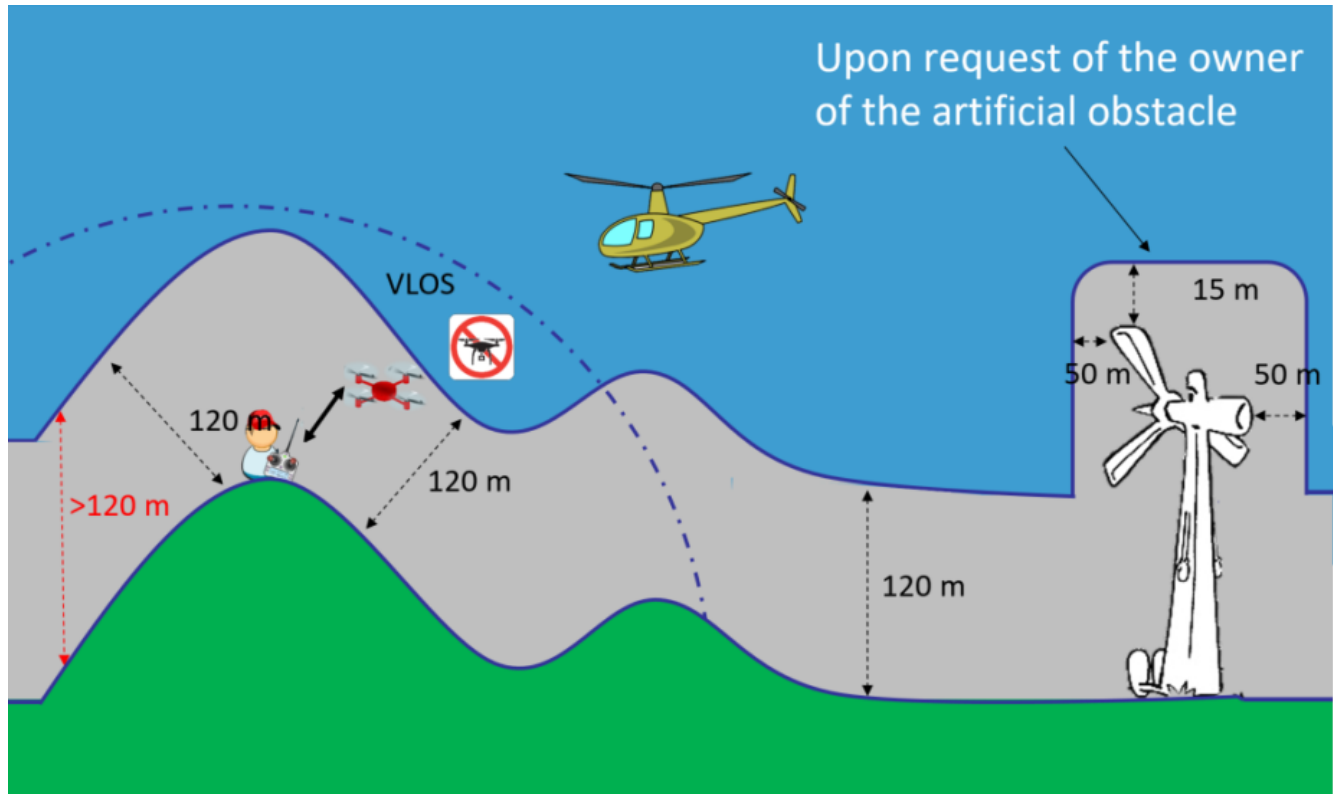
UAV operations are considered to be in the 'certified' category when they:

- 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 contrary the Open category includes uses of drones where aerial work is of low risk. They do not require approvals and special certifications and are based on the principle "Buy and Fly". In any

case there are certain limitations in this category in order to be differentiating by from the other categories. These limitations refer to:

The maximum flight altitude is 120m above the ground or sea level. The following graph as presented in the official web page of EASA describes what is meant by “maximum height 120m” (www.easa.europa.eu/the-agency/faqs/drones-uas#category-understanding-the-%E2%80%98open%E2%80%99-category).



The open category is divided in three sub-categories - A1, A2, A3 -- which may be summarised as follows:

1. A1: fly over people but not over assemblies of people
2. A2: fly close to people
3. A3: fly far from people

The category and its subcategories are explained and summarized in the following table: (www.easa.europa.eu/domains/civil-drones-rpas/open-category-civil-drones)

'Open' - Subcategory	class identification label type of drone
A1 Urban areas but not over crowds or outside of urban areas	class identification label 0, 1
	Privately built drone with MTOM < 250 g and Speed < 19 m/s
	Drone without class identification label with MTOM < 250 g incl. fuel and payload. As of 1 January 2023
A2 Urban areas keeping at least 5 m (or 30 m depending on the features of your drone) from people, or outside of urban areas	2
A3 Outside of urban areas	class identification label 2, 3, 4
	Privately built drone with MTOM < 25 kg Speed < 19 m/s
	Drone without class identification label with MTOM < 25 kg incl. fuel and payload. As of 1 January 2023

In this output we will refer mainly to A1 and A3 category as the certificate for these categories is used for precision farming. A2 is referring to urban areas, which is not applicable to rural operations.

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Open category Requirements

Two parameters should be taken into account: the weight of the UAS and the class identification. If CE class is 0 or 1 mark or those are privately built and weigh up to 250 g can fly almost everywhere, except over assemblies of people. Thus, they can fly in subcategory A1. There is only a differentiation in label 1, where flying above people should be minimized.

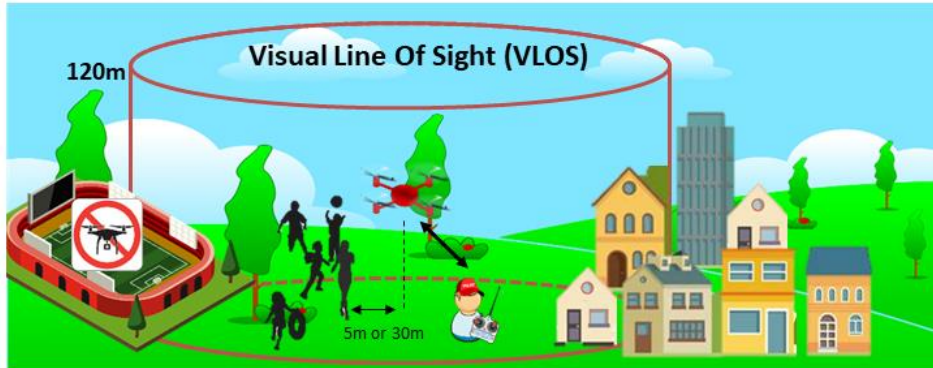
If class identification is defined as 2 the UAS can be operated in subcategory A2, which corresponds in urban flying areas, however, it is required to keep a safe distance from any uninvolved people. By safe distance it is meant that if the height is 50m then minimum distance from people should be 50m again. In any case, the distance cannot be less than 5m.

Schematically the requirements per subcategory can be seen from the table above and the graphs below:

Open category - Subcategory A1



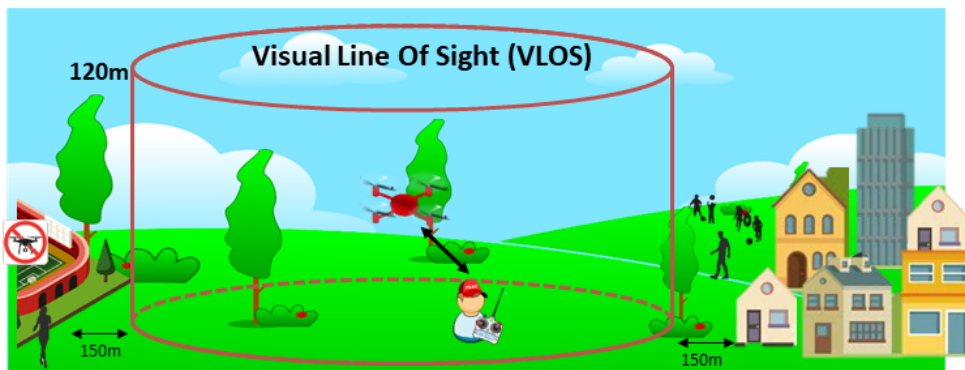
Open category - Subcategory A2



MTOM<4kg

- No fly over uninvolved people
- UAS at a horizontal distance of at least 30 metres from uninvolved persons, or up to a of 5 metres when low speed mode function is activated

Open category - Subcategory A3



MTOM<25kg

Privately built
with MTOM<25kg



Privately built
with MTOM<250g

- No fly over uninvolved people
- conducted in an area where the remote pilot reasonably expects that no uninvolved person will be endangered within the range where the unmanned aircraft is flown during the entire time of the UAS operation

Fly a UAV safely

There are a number of procedures to be followed by the pilot before flying a UAV. Safety is the fundamental principle of the EASA Regulation and philosophy. The pilot should secure the safety for people and public and private property. In all the involved countries, in all applied Regulations safety is the main concern.

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But what do we mean by safety as this described in the Regulation? Generally, “Safety” in Aviation which means manned and unmanned air vehicles refers to the pilot and the air vehicle, drone and the pilot as well in our case. The pilot should take all the essential actions to minimize the risks that may occur during an aerial operation. An important point is that according to the Regulation responsible for this are both the owner and the pilot of the UAV. However, in safety issues other persons and bodies are involved as well such as: the airport control tower personnel, aviation agencies etc.

The pilot or operator should consider the following rules before flight:

- Consider any factor that may affect the flight such as the weather conditions or obstacles in the flight area.
- Drugs, alcohol or any other substance that may affect the performance of the pilot is not allowed.
- There are limitations related to the UAV and the pilot himself. The pilot should know both limits and not make decisions that are beyond these limits.
- The flight should take place in the limits in place for the flight area, which means that the pilot should know of any possible restrictions (e.g., airports) and cooperate with relevant authorities.
- The pilot should always have visual contact with the UAV (VLOS, Visual Line of Sight) and the distance should be in a limit that the pilot can see the UAV clearly and the same time to be able to estimate its distance from any obstacles. The worst thing that may take place is to cause a collision with a manned aircraft. The UAV’s pilot is primarily responsible for avoiding a collision. The manned aircraft pilots may not be able to see the UAV due to the small size. The pilot should immediately hold the UAV 10m above the ground and 500m away from the aircraft and consider the conditions of the flight area before attempting to fly again.
- The height of the drone cannot be more than 120 meters.

The pilot cannot operate above gathering of people in the open category. As mentioned earlier the A1 and the A3 category do not refer to flight above people. Gathering of people is an event for example such a sport event or a political event. There are two categories of people during an operation: a) The “involved people” and the b) “non-involved”. Persons can be considered “involved” when, they are present after given explicit consent to the pilot or owner of the UAV, to indirectly as a spectator or simply to accept the flight from the UAV or they have previously received from the pilot / owner of the UAV, instructions and safety guidelines regarding the case the UAV presents con complied with the Regulation behavior. However, non-involved people can always appear in an area.

When the flight operation area includes obstacles such as trees or buildings, etc., the optimum action for assessing the presence of a non-involved person is to inspect the area of operation of the flight. For example, a family stops just below the UAV, the pilot should move the UAV as soon as possible to avoid an over flight situation.

A pilot before flight should consider the existence of roads and paths for pedestrians. It is a secure sign for possible existence of non-involved people. Thus, generally is open category UAVs are not allowed over non-involved persons, only in case of having a license of subcategory A1 and a UAV with marking C0 or a UAV with weight below 250g with operating speed below 19m/s, but it is better to avoid such a case.

Factors affecting human performance

There are a number of factors affecting human performance during preflight inspection and during flight. For example, stress is a major factor affecting flight performance. The only way to control stress is to fly with limits not aggressively and avoid flying if the pilot is under pressure already before flight.

Stress, is a complex phenomenon and is a difficult situation when it takes place. Operator under stress can be led to a significant reduction in performance. A pilot in many cases can feel a low-level stress, which is not necessarily negative for his/her performance, considering that he/she can react better in a non-desired situation and remain concentration. However, it is not clear what the limit is of low or high stress for a pilot. Thus, it is important to be trained on how to deal with stress while flying a UAV. In any case flying not aggressively is an initial step to avoid stress. Knowing also the weather conditions and the geography of the flying area is always very useful. Before fly drugs, medication or alcohol are not allowed.

Requirements before flying

This part refers to A1 and A3 category as mentioned. We will not refer to A2 category as it is not applicable to precision farming cases.

The pilot must have obtained a certificate for the applied category e.g. A1, if we refer to open category. The certificate is valid for five (5) years. The certificate is valid either in electronic or printed form. The certificate should correspond to the planned aerial work, the UAV and the relevant certificates should be specific to the subcategory to which his flight falls.

Unless they are certified, UAV do not need to be registered, but the pilot, must be registered with the National Aviation Authority of the EU country he/she residence in (<https://www.easa.europa.eu/domains/civil-drones/naa>). The registration takes place once, independently of how many UAVs he/she is operating in the 'open' or the 'specific' category. It is not always necessary to registered. For example, no need to register if the UAV:

Weights less than 250g and has no camera or other sensor able to detect personal data; or even with a camera or other sensor, weighs less than 250g, but is a toy (this means that its documentation shows that it complies with 'toy' Directive 2009/48/EC);

Certification is never needed for drones operated in the 'open' category (EU regulation 2019/947 article 21). Once registered, the operator receives a 'drone operator registration number' that needs to be displayed with a sticker on all the drones he/she owns, including UAVs privately built. It must be uploaded into the 'Drone's remote identification system'. (EU regulation 2019/947 article 14). The registration number is a unique registration number and is valid in all other EASA member States. (EU regulation 2019/947 article 14).

Before flight the pilot should know the geographical area of the workplace, if we refer to aerial works, e.g., precision farming, in detail. By "in detail" it is meant topography, geographical barriers, applied airspace restrictions and prohibitions, possible existence of facilities which are regarded as sensitive, presence of non-involved persons and lease but not last weather conditions.

The pilot before flight should inspect any additional equipment loaded on the UAV e.g., cameras, batteries, etc., for any malfunction before performing any aerial work. Additionally, the pilot should provide with the appropriate data the relevant "geosystems" systems of the UAV.

Except from technical check as of 31 December 2020, registration of UAV operators and certified UAVs is mandatory, according to EU Regulation 2019/947. Until 1st January 2023, UAV operators, operating UAVs without class identification label can continue to operate in the limited category (Article 22 of EU Regulation 2019/947). The pilot has to consider as well that as from the beginning of 2022, national authorisations, certificates, and declarations must be fully converted to the new EU System and EASA Member States must make available information on geographical zones for geo-awareness in a digital format harmonised between the EU countries (EASA (2020), Drones (UAS) Provisions applicable to both 'open' and 'specific' category).

Additionally, a UAS pilot especially for the open category should consider:

- To display on the UAV the operator's registration number
- Develop written procedures in case of the UAV pilot employs more than one remote pilot
- Before flight always ensure that there is no radio interference between the control and the UAV
- Designate a responsible pilot for each separate operation
- Familiar with the geographical zones as defined by the Member States
- Maps in the geo-awareness system are up to date
- A declaration in conformity to the CE class mark and its class label (0 to 4) is attached to the UAV
- All persons involved is aware of the risks involved in the operation either for subcategories A2 and A3.
- In any case the pilot has to complete the training and examination required for the respective operation supposed to be involved

The above check list refers to responsibilities and duties before flight. However, there are specific requirements during the flight:

- The pilot as mentioned earlier should not operate the UAV when feels not physically stable or has consumed substances or medication which may lead him/her to a situation or a behavior which is not compatible with the operation he/she has to complete.
- The UAV should be in a distance that is visible from the pilot. The pilot can use an observer if the visibility is low or the aerial work is a of heavy duty and assistance is needed.
- Follow the geographical limitations according to the information derived before flight and know the operating environment.
- Limitations of the UAV are described in the user manual. User manual is important to be taken into account.
- In case of an accident nearby consider to keep safe distance or even land.

Use of a checklist

For both requirements the pilot in order to flight legally and safe needs to have a checklist for various issues.

The optimum performance of an aerial work depending on the information regarding the stages of the flight, the tasks to be performed by each member of the work and the special equipment to be used.

The check list itself could be:

- Equipment related to the UAV (batteries, propellers for damages, dust or dirt etc.,)
- Restrictions (e.g., flight restrictions due to airport). Restrictions can be identified before flight and require the use of tools such as maps, Competent Authorities Notifications (e.g., NOTAM)
- Weather restrictions
- Landing area according to the UAV type (multi rotor vs fixed wing)
- Procedures and tasks after flight such equipment inspection for failures etc.
- More specifically in the open category and mainly A1 and A3 which are the categories related to this course the pilot should consider before flight the following points as presented in the following chapters.

Requirements during the flight

Apart from the medical condition of the pilot as mentioned earlier, and the non-use of alcohol or drugs, the pilot should maintain eye contact with the UAV during the flight in order to avoid any accident or unpleasant situation.

During the flight, remote pilots and UAS operators shall not fly close to or inside areas where an emergency response effort is ongoing unless they have permission to do so from the responsible emergency response services.

Remote pilots may be assisted by an unmanned aircraft observer. Clear and effective communication shall be established between the remote pilot and the UAV observer.

Observer

The remote pilot may be assisted by an observer helping him to avoid obstacles. The observer must be situated alongside the remote pilot in order to provide warnings to the remote pilot by supporting him in maintaining the UAV away from any obstacle, including air traffic.

Observers may also be used when the remote pilot conducts UAS operations in first-person view (FPV), when attempting to control the UAV with the aid of a visual system connected to the camera of the UAV. In any case, including during FPV operations, the safety responsibility belongs to the remote pilot.

The observer is situated alongside the remote pilot and their purpose is not to extend the range of the UAV beyond the VLOS distance from the remote pilot. Exceptions are emergency situations, for instance, if the pilot must perform an emergency landing far from the pilot's position, and binoculars can assist the pilot in safely performing such a landing.

Consequently the observer's role to reduce the working burden of the pilot mainly and not to extend the capabilities of the UAV beyond the legal provisions as defined in the category the UAV operates.

Requirements for non-EU pilots

As non-EU countries involved in this project, this section will inform them what the requirements are for UAV operators taking place in an EU member state. Basically, any operation taking place in an EASA Member State must comply with the UAV Regulations. Thus, a non-EU pilot required to be registered with the National Aviation Authority of the EU member state where he/she is going to operate.

A drone operator registration number is issued, which is required to be displayed on a UAV belong to the operator. The number should also be uploaded into the 'remote identification system' of the UAVs. The registration in one country is valid across Europe.

In case the operation takes place in the 'specific' category a declaration needed for a "standard scenario" or the operator should apply for an operational authorisation to the respective National

Aviation Authority where he/she is registered. In case of conducting an operation in another Member State of the EU, the same obligations are applied to any other operator in this country (Member State).

The non-EU operator should have in mind that since that there is no mutual recognition between EASA Member States and third countries, possibly the UAV pilot certification obtained in the third country will not be accepted in the EU. Thus, first the operator has to check if the certifications he/she possesses is acceptable and in case it is not he/she will have to undergo the required training and certification before flying a UAV.

Aerial Works

When performing aerial work, the pilot must maintain complete control of the drone. There should be a continuous communication of the ground station or the controller to a position that will ensure the best communication with the UAV. It performs orbits with the drone in visual contact and maintains its height below 120m from the surface of the land or the sea.

It is ready for any emergency such as loss of support, loss of propeller, freezing on the surface of the fuselage or wings, loss of control, poor reception of GPS signal, etc. See last paragraph for interruption.

Proper handling of almost all of the above is part of the drone safety automation settings. For example, the loss of control should automatically trigger the Return to Home and Land process from a height that the operator must have set correctly so that the UAV does not collide with an obstacle during automatic return. There are also emergencies that will fatally lead to a fall sometimes controlled and sometimes free. For example, the loss of an engine on a four-rotor drone results in a free fall. The loss of an engine in a drone with 6 rotors results in a controlled fall. Loss of engine in a fixed wing system

What happens if there is an interruption of Aerial Works?

The pilot should discontinue the flight in the event that the aerial work may cause various dangers to other aircraft regardless if it is manned or unmanned. The aerial work is not one process. The pilot should scan the airspace for potential risk of collision with other UAVs, or manned air vehicles or obstacles. In such a case should follow a safe orbit or land. That does not mean that the pilot has always to land. If a manned air vehicle is flying in 500 meters, this is out of the range of 120 meters of the UAV. On the other hand if the same object is in low altitude then the pilot should bring the UAV in less than 10 meters altitude for safety reasons and stay at least 500 meters away.

In case the pilot is involved in an accident according to the aviation standards she/he is obliged to report it to the locally competent authority.

Geo-awareness

Geo-awareness means a function that, based on the data provided by Member States, detects a potential breach of airspace limitations and alerts the remote pilots so that they can take immediate and effective action to prevent that breach. It is a very important function of the UAV. In all categories this function should be available and the information in this should be always updated. In practice it is an interface for loading and uploading data containing information on airspace restrictions, such as the position and altitude of the unmanned aircraft imposed by the geographical areas defined by each Member State.

The role of this system is to warn the pilot when a possible airspace violation is detected during the flight. Additionally provides information on the status of the unmanned aircraft, and a warning system when positioning or navigation systems cannot ensure the proper operation of the UAV.

Operating environment

1. The remote pilot should study the operating environment and environmental conditions and evaluate any elements that might affect the UAV operation, such people assembly, property, vehicles, public roads, obstacles, aerodromes, critical infrastructure, and any other elements that have a potential risk to the safety of the operation.
2. Before flying the pilot should be familiarized with the environment and possible obstacles if possible, by walking around the area where the operation is intended to be performed.
3. Weather conditions at the time when the operation starts and ends and those that are expected for the entire period of the operation are within the limits of those defined in the manufacturer's manual.
4. Light conditions and potential sources of electromagnetic fields, which may cause effects, such as electromagnetic interference (EMI) or physical damage to the operational equipment of the UAV should be taken into account.

Environmental conditions

The pilot should be aware that extreme weather conditions will affect both the UAV's performance and his performance. It is therefore advisable to avoid aerial work / flights in bad weather conditions. The specifications of the UAV should be taken into account regarding weather conditions, e.g. operation under rainfall should be avoided due to possible damages to electronic parts.

The winds can divert the UAV from its course and ground wind is often very different from altitude wind. Fog causes poor visibility in general reducing the distance of flight with visual contact (VLOS). The same issues apply with very hot weather conditions.

Open category video

EASA Open category - Explanation Video

Κάντε κλικ στον σύνδεσμο <https://www.youtube.com/watch?v=xK2cEvKbcl4> για να ανοίξετε τον πόρο.

Certification

The minimum age in order to become a pilot operating a UAV in the ‘open’ and ‘specific’ category is 16 years.

For UAS operations in subcategory A1 and A3 which is applicable to this project the pilot should be certified according to the following requirements:

He should be familiar with manufacturer’s instructions provided by the manufacturer of the UAV. Additionally the candidate pilot has to complete an online training course followed by an online theoretical knowledge examination provided by the competent authority or by an entity designated by the competent authority of a Member State. The minimum score is 75% of the overall marks. The examination consists of 40 multiple-choice questions related to the following subjects:

1. air safety;
2. airspace restrictions;
3. aviation regulation;
4. human performance limitations;
5. operational procedures;
6. UAS general knowledge;
7. privacy and data protection;
8. insurance;
9. security.

The above subjects are the same for A3 category as well.

26 Specific Category

What to know

A small chapter is dedicated to the specific category. A UAV is falling under the specific category if it does not fall to the open category, it is so simple!!!

Before flying in the specific category, the pilot should take the appropriate training depending on the operation supposed to take place. If we refer to the standard scenario things are simple. The remote pilot must have a certificate of remote pilot and the relevant theoretical knowledge for operation under standard scenarios. Additionally, should have an accreditation of completion of the STS-01 practical skill training. The course is provided online. A standard scenario is an operation defined in the Appendix to the drone regulation (EU Regulation 2019/947).

For the standard scenarios, the National Aviation Authority issuing the certificate, which is valid for 5 years. A revalidation is required after this 5-year period and if the pilot decided to revalidate it before the end of the period there is a certain process to be followed in the form of a seminar. Otherwise, the pilot should be examined for his/her competences again.

However, if the operation does not fall to the standard scenario a risk assessment, initially takes place, a proposal to the National Aviation Authority regarding the training should be submitted. The authority evaluates the adequacy of the training material and course, and after approval will be accepted as “required training”. Respectively, for operations that are not fall in standard scenario, the National Aviation Authority decides about the training and authorization.

The competency certificate for the 'specific' category is recognized to all EASA Member States. If the operations are taking place in the frame of a standard scenario and using the relevant UAV for this scope, the pilot should submit a declaration to the National Aviation Authority and expect a confirmation of receipt and completeness. Otherwise, an operational authorisation issued by the National Aviation Authority should be obtained.

There is a specific process in order to obtain an authorization. If the operation can be conducted in a standard scenario the pilot does not need an authorisation, but need to submit a declaration to the National Aviation Authority. The UAV marking should be as class identification label 5 or label 6. The confirmation from the National Aviation Authority is needed to be received and after this step the operation has to follow the limitations of the standard scenario. If this is not the case, certain steps have to be made depending on the risk assessment.

A risk assessment can take place by using for example the SORA (specific operation risk assessment). The point is to identify the level of risk, the mitigations safety objectives etc. The next step is to send the information to the National Aviation Authority and apply for authorization. The Authority examines the application and provides the relevant approval for the operation.

Another option is to conduct an operation authorisation through a predefined risk assessment' (PDRA) instead of the pilot/operator to conduct a risk assessment as described earlier. The Aviation Authority conducts the risk assessment and then publishes the list of the actions that the UAV operator needs to follow so as to secure the safety of the operation. Thus, the PDRA is a standard. In both cases authorisation from the National Aviation Authority is needed.

In the specific category before flying a UAV the operator needs to submit a declaration to the National Aviation Authority and wait for the confirmation of receipt and completeness, if he/she operates within the limitation of a standard scenario and using an appropriate UAV. In any other case an operational authorisation issued by the National Aviation Authority is applicable.

Legal frame in Greece and Spain

General Information

The EU Regulation 2019/947 is in force from 31 December 2020. It refers to all drone operators. By drone operator we mean A drone operator is any person, whether natural or an organisation, who owns the drone(s) or rents the drone. A person can be both drone operator and a remote pilot, but it is no necessary to be owner, the person could be only pilot.

By drone term we refer to 'Unmanned Aircraft Vehicles' (UAV), which is any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board. More information on different types of UAVs is available on future-farmer.eu.

According to paragraph 30 of Article 3 of Regulation (EU) 1139/2018 and Article 2(1) of EU regulation 2019/947 and article 3(3) of EU regulation 2019/945 a UAS, is an unmanned aircraft system, refer to a drone with its system included and all the other equipment essential for controlling and operating it, e.g., the command unit, the cameras etc. The Remotely Piloted Aircraft Systems (RPAS) is a subcategory of UAS.

A UAV is a toy when it is addressed for use by children under 14 years of age. Essentially must comply with the Directive 2009/48/EC on the safety of toys.

Autonomous UAV vs Automatic

Autonomous UAV is a product able to conduct a safe flight without the intervention of a pilot. It is for use in the open category.

On the other hand automatic UAV flies pre-determined routes defined by the pilot before the flight. The pilot has to take control of it in case of unforeseen events taking place out of schedule. Autonomous UAVs cannot fly in the open category.

Risk assessment

Risk assessment has to take into account:

1. The characteristics of the UAS operation
2. Operational safety objectives
3. Risks of the operation on the ground and in the air
4. Range of possible risk mitigating measures
5. Necessary level of robustness of the selected mitigating measures

Risks of the operation

When identifying the risks of the operation on the ground and in the air the pilot should consider the following issues:

1. The possibility of third parties or property on the ground to be endangered by the activity
2. The complexity, performance and operational characteristics of the UAV
3. The purpose of the flight
4. The type of UAV
5. The probability of collision with other aircraft
6. The class of airspace used
7. The type, scale, and complexity of the UAV operation or activity
8. The extent to which the persons affected by the risks involved in the UAS operation are able to assess and exercise control over those risks

Description of the operation

The description of the UAV operation has some minimum elements:

1. Nature of the activities
2. Operational environment and geographical area
3. Complexity of the operation in relation to planning and execution, personnel competencies, experience and composition
4. Technical features of the UAV
5. Competence of the personnel

UAV in Agriculture

1. If you are a UAV operator and wish to be involved in the agricultural sector, you will need an A1/A3 certificate. The certificate refers to open category and there are certain conditions to be consider regarding our UAV:
2. The UAV is falling under one of the class identification labels 0, 1, 2, 3 or 4 or is privately built and its weight is less than 25 kg
3. It is purchased before 1 January 2023, with no class identification label as above
4. It will not be operated over people, unless it bears class identification. However, it is usual under fields to face such a case
5. It will be maintained in visual line of sight (VLOS) or the remote pilot will be assisted by a UA observer;
6. It is flown at a height of no more than 120 meters;
7. It will not carry any dangerous goods and will not drop any material.

Aviation Authorities

Κάντε κλικ στον σύνδεσμο <https://www.easa.europa.eu/domains/civil-drones/naa> για να ανοίξετε τον πόρο.

UAV Classification

From Class 0 to Class 6

Κάντε κλικ στον σύνδεσμο <https://www.easa.europa.eu/document-library/general-publications/drones-information-notice> για να ανοίξετε τον πόρο.

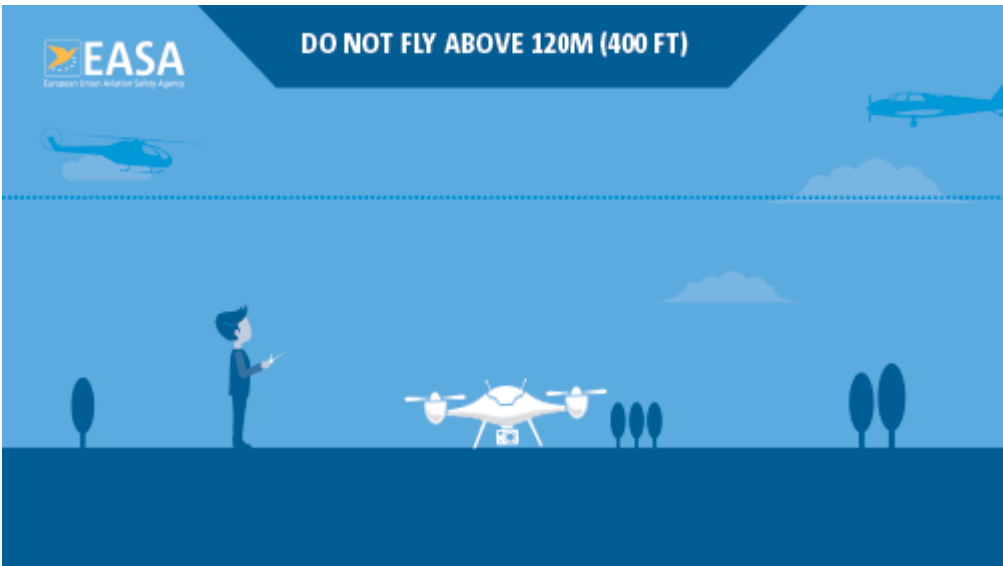
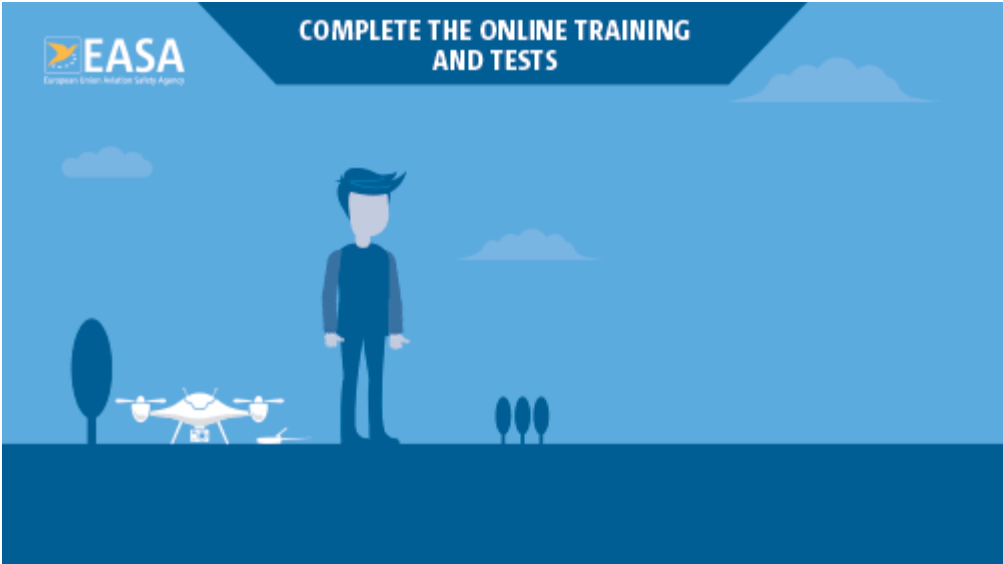
EASA Infographics

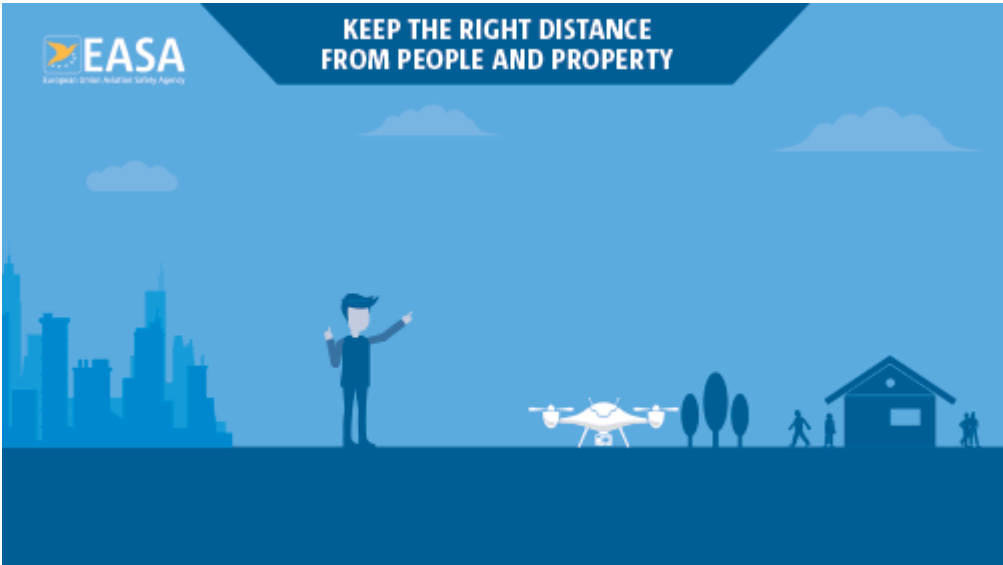
These infographics prepared by the EU Aviation Safety Authority (EASA) cover the main aspects as a pilot to be aware of and operate the UAV with safety and in line with the rules:

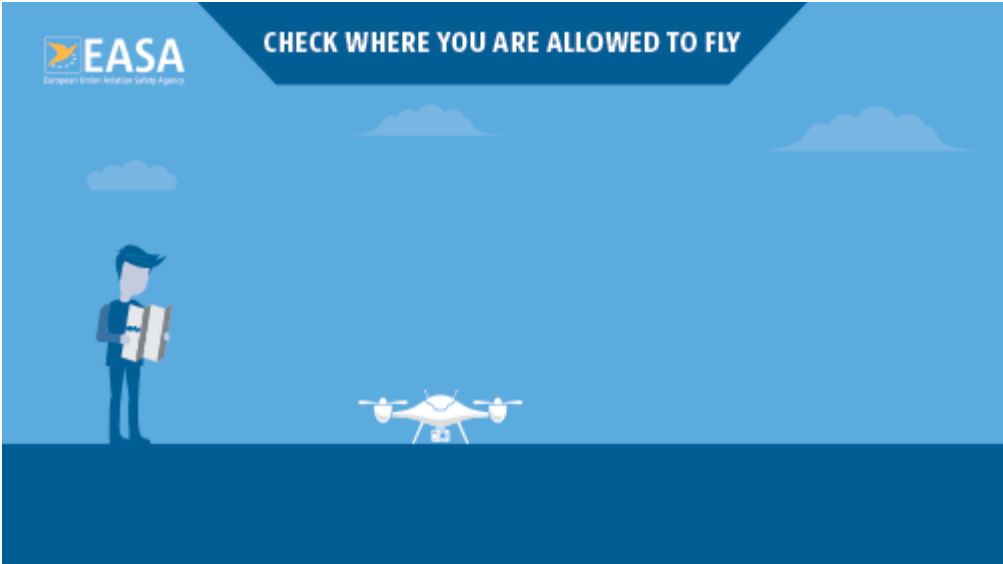
- The pilot is responsible for every flight
- He/She obliged to follow the rules and the UAV's instructions manual
- Pilot should be registered
- Complete the online training and tests
- Always keep the UAV in sight
- Do not fly above 120 meters (400 feet)

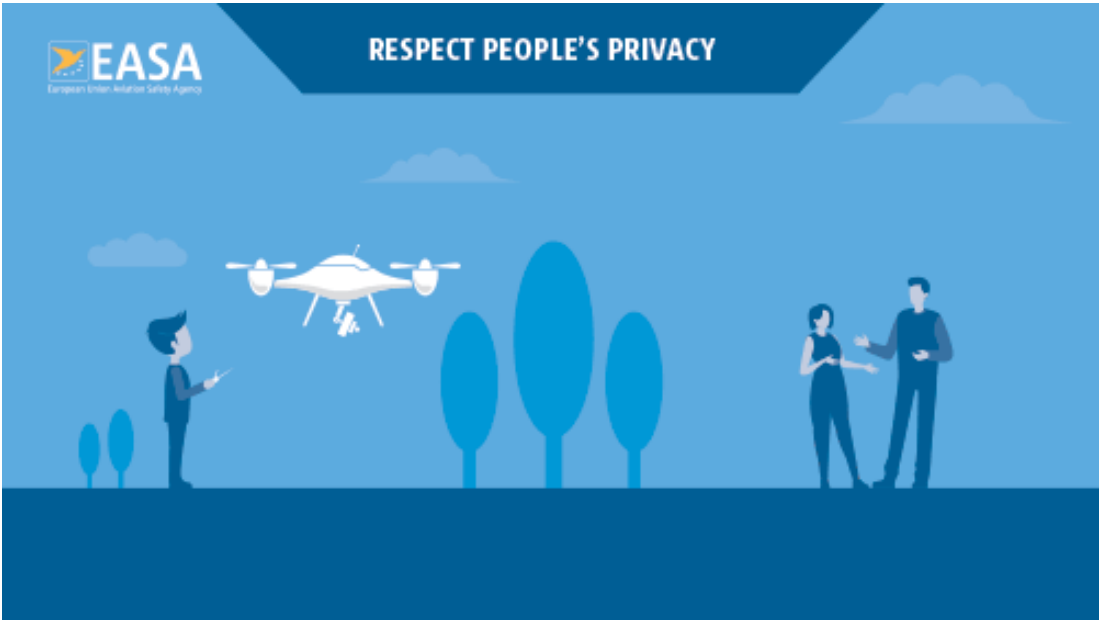
- Keep the right distance from people and property
- Stay away from airfields, airports and aircraft
- Check where you are allowed to fly
- Know how to fly the UAV
- Prepare the UAV before for every flight
- The pilot should respect people's privacy
- The pilot always fly the UAV safely and responsibly











EASA
European Union Aviation Safety Agency

YOU ARE RESPONSIBLE FOR EVERY FLIGHT



Follow the drone rules and the manufacturers' instructions to stay safe
Get familiar with and follow the European Rules to ensure you fly your drone safely.
Everything you do with your drone is your responsibility

EASA
European Union Aviation Safety Agency

YOU MUST REGISTER AS A DRONE OPERATOR



Register on the relevant national website, display the registration number on the drone and upload it on the remote identification system

EASA
European Union Aviation Safety Agency

COMPLETE THE ONLINE TRAINING AND TESTS



DRONE PILOT TRAINING

- STEP 1
- STEP 2
- STEP 3
- STEP 4
- STEP 5

DRONE PILOT TRAINING

PASS

Check which training and tests are relevant for your type of drone*

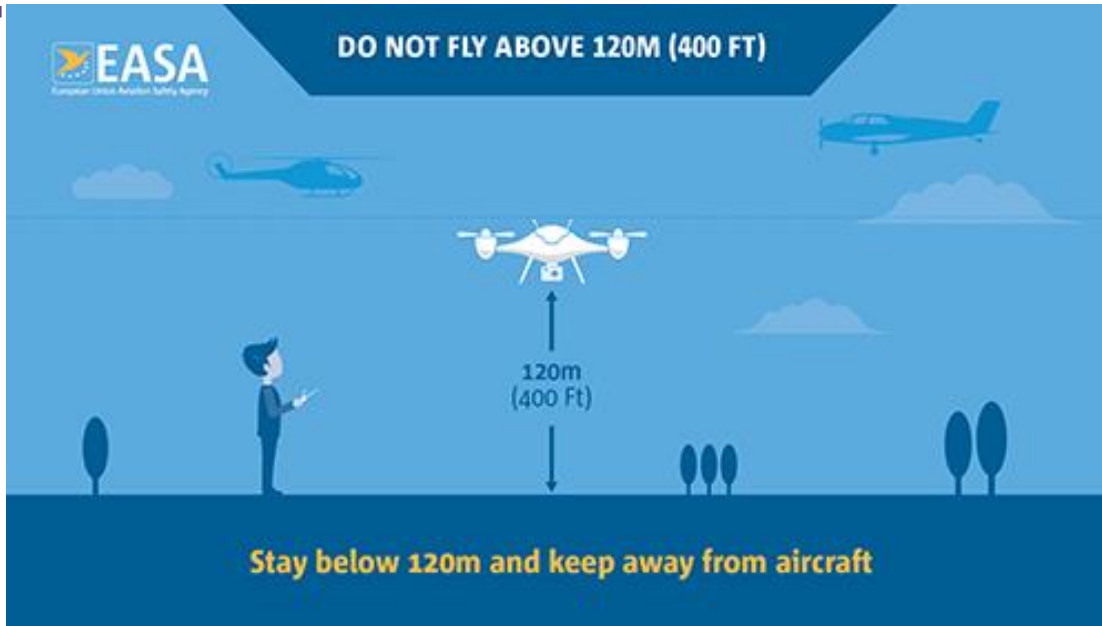
*If you have a C2 drone you also need to complete an additional theoretical training and test

EASA
European Union Aviation Safety Agency

ALWAYS KEEP YOUR DRONE IN SIGHT



Ensure that you can see your drone and avoid obstacles and people









Legal Frame in Turkey

General requirements

Persons who will fly with an unmanned aerial vehicle (drone) within the scope of the General Directorate of Civil Aviation SHT-UAV Instruction must first open an individual or commercial registration in the DGCA (General Directorate of Civil Aviation) UAV Registration System.

The owner or pilot of the UAV registers the UAV with a Maximum Takeoff Weight over 500 g in his account, assigns a defined pilot and sends it to DGCA for approval.

After the approval, the system automatically generates a QR code, which is printed out and pasted on the drone.

Flight permission requirements

Before flight there is a number of requirements should be taken into account:

- The application for the flight is made on the website of the General Directorate of Civil Aviation.
- After all information is filled in completely and correctly, it is sent to DGCA for approval.
- The applicant, who will fly for sporting/amateur purposes, can only fly in green areas without the need for a permit.
- In the red regions, only the FR19 form can be applied to the DGCA.
- In other regions, a compulsory commercial flight application is made to DGCA from the commercial account. Enter the UAV insurance information.
- The Civil Administration may approve the flight permit requests below 400 feet (120 meters) flight altitude.
- For flight permit requests over 400 feet, if the General Staff and DHMI approve, the application is approved.
- The applicant is informed about the result of the flight permit application via e-mail.

Area requirements

Regarding the air space used by the UAV there five (5) conditions to be met:

- Only in cases where visual meteorological conditions are met, flights can be carried out between the hours of sunrise and sunset and at least 2 km in clear weather.
- The UAV must be in the pilot's field of view, not exceeding 500 meters horizontally,
- It should not be exceeded 120 meters above the ground,
- Flight must be carried out at a distance of at least 50 meters from people and structures.
- Security forces [Tower {ATC}, Military Units, 155 (News Centre), Heliport-Heliped] must be notified before take-off.

No flight areas

With any UAV in any class without risk analysis and permission from DGCA in the regions listed below it is not permitted to fly:

- Regardless of altitude, in the field closer than 5 NM (9 Km) from the edge of the nearest runway at Airports,
 - Regardless of altitude, navigation aids, heliports, helipads, air parks, sea/landing and take-off areas etc. published on the official website of the General Directorate. in the field with a radius of 5 NM (9 Km), including the center,
 - On very crowded areas and crowded areas, regardless of altitude,
 - In the "Forbidden, Restricted and Dangerous Areas" in the ENR 5.1 section of the Turkish AIP,
 - Around critical structures, facilities and assets such as military and police buildings and facilities, prisons, fuel depots and stations, weapon/cartridge factories and warehouses
- Specific sanctions are applied.

Sanctions

Even if the device is registered and has a flight permit; The person who does not fulfill his responsibilities before, during and after the flight will be treated according to the relevant article of the Misdemeanor Law (Art. 32-Contrary to Order). For the flight that requires permission from the DGCA, in case of a UAV flight without obtaining permission and flying outside the airspace determined by the authorizations given, to the relevant persons and businesses; Penal provisions in Part 5 of Law No. 2920 are applied by DGCA.

IN UNAUTHORIZED (ILLEGAL) FLIGHTS MADE BY UAV (DRONE), NECESSARY INTERVENTION IS MADE BY SAFETY UNITS, LANDING THE DRONE AND LEGAL PROCESSES ARE STARTED.

43 Legal Frame in Serbia

Terms

1. Allocated airspace means a portion of airspace temporarily segregated or reserved by an airspace management unit in accordance with the user`s requirements;
2. UAV means an aircraft whose crew is not onboard, controlled remotely or whose flight is autonomous;
3. Occurrence means any safety-related event that threatens or which, if not remedied or if neglected, could endanger aircraft, its occupants or any other person, particularly including an accident or a serious accident;
4. Airspace management unit means a unit responsible for the day-to-day management of airspace under the responsibility of one or more States;
5. UAV operator means an operator on the ground, or a natural person directly controlling the UAV system, its flight, programming the control system and responsible for the same flight;
6. UAV flight region is a certain area of an airspace in which the UAV is flying, which is located above:
 - a) Undeveloped and uninhabited area where there are no other persons other than the person operating the UAV (Region I)
 - b) Constructed, or uninhabited area where there are buildings not intended for human habitation, with a possibility of retaining people for a short period of time (Region II);
 - c) Residential area, where there are buildings designed for permanent and longer residing of people (Region III);
 - d) Densely populated area, urban or a city center, as well as any area where a large number of populations may gather (Region IV);
7. Aerodrome reference point means a particular geographical position of the aerodrome, expressed in degrees, minutes and seconds of latitude and longitude, having as a reference geodetic system the World Geodetic System - 1984 (WGS-84);
8. UAV system means a group of elements enabling the flight of an UAV, comprising the UAV, the elements necessary for the control or programming of the flight and the elements necessary to operate the UAV;



9. Foreign UAV means UAV registered onto the register or any other appropriate records of a foreign state;
10. UAV whose owner or UAV operator is a national of a foreign state while the aircraft is not entered onto the aircraft records;
11. Restricted area means a portion of airspace where flight is restricted for a defined period of time and is operated under the previously specified conditions.

Where, how and when to fly?

UAV may only be flown if the airspace that has been previously allocated, in the following cases:

1. For flying at altitudes more than 100m above the ground;
2. For flying in the vicinity of aerodromes, regardless of the altitude at which the flight takes place.

The owner or operator of the UAV shall submit an application for the allocation of airspace to the airspace management unit within the Serbia and Montenegro Air Traffic Services Agency (SMATSA) LLC, Belgrade. The application for airspace allocation shall be made not later than two business days prior to the intended UAV flight, by fax, e-mail or by using the appropriate application or internet platform, if available. The application form is available in ANNEX of this course.

Maximum horizontal distance of the UAV from the UAV operator shall be 500 m, unless the agency has previously approved the flight to be operated at a longer horizontal distance and if the appropriate risk assessment has been provided by the applicant. Flying above persons is prohibited. The Agency may authorize flying above persons in the event of category 1 unmanned aircraft with maximum speed of 19m/s, and less, i.e., that cannot gain kinetic energy greater than 80J. Regarding the horizontal distance from persons, this should be not less than 30m. However, there is an option for derogation in case of a distance of less than 30m but not less than 5 m, in case of category 1 unmanned aircraft or in case of category 2 unmanned aircraft possessing and using the technical capabilities to fly at speeds less than 3m/s (e.g. "low speed mode" function).

In case of infrastructure and other important facilities the use of UAV is prohibited at a horizontal distance of less than 500m from buildings such as: National Assembly, the Government, the General Secretariat of the President of the Republic, republic and provincial state administrations and local self-government bodies, Armed Forces of Serbia, courts, public prosecutor's offices, foreign diplomatic missions and important diplomatic missions, infrastructure facilities in the fields of energy, transport, telecommunications and water supply infrastructure, unless the owner or operator of the unmanned aircraft has obtained the permission from the facility owner or its user.

UAV can be flown only during day and at night time in such visibility conditions that allow the aircraft to be operated by the UAV operator within his/her visual line of sight. Night flying is possible if there is an approval by the national agency for aviation.

It is not permitted to:

- Transport persons, dangerous goods and animals
- Operate with or from any moving objects, or to operate multiple UAVs simultaneously
- Release or dropping of liquids and objects from an unmanned aircraft, as well as the carriage of external cargo
- Fly above persons. However, Directorate may authorize flying above persons in the event of category 1 UAV with maximum speed of 19m/s, and less, i.e., that cannot gain kinetic energy greater than 80J. The operator must ensure that the UAV's horizontal distance from other persons is not less than 30m. Depending on the UAV category the Directorate may authorize the flight of an UAV in the vicinity of persons.
- Flying close to aerodromes and helidromes. There are specific provisions regarding the flying distance from an airport. However, it is possible to fly above an airport, regardless of the altitude at which the flight takes place, if the owner or operator of an UAV submits an application for the allocation of airspace to the airspace management unit within the Serbia and Montenegro Air Traffic Services Agency (SMATSA) LLC, Belgrade.
- Fly in restricted areas without permission.
- The UAV can fly only during day and at night time in such visibility conditions that allow the aircraft to be operated by the UAV operator within his/her visual line of sight (VLOS). Night flying shall be subject to prior approval by the Directorate.

Obligations of the operator

Before flight the operator should ensure that the UAV is functioning properly, as well as ensure that sufficient fuel is present, or battery status. The described procedure is including objects and external cargo, which should be properly fastened. Respectively during the flight, the operator should ensure that the UAV's flying is not putting into danger lives, well-being and property of persons, not disturb the public order and generally comply with the regulation for UAVs. The flight should take place within the allocated airspace.

Additionally, to obligations before flight collect all necessary information regarding obstacles and the meteorological and other conditions in the flight area.

Comparative Analysis

Country view

Click [comparative analysis.pdf](#) link to view the file.
Download the file from the platform for translation.

TEST

The maximum flight altitude in the Open category ism above the ground or sea level

1. 120
2. 50
3. 400
4. 750

Regarding operating environment, what are the factors to be considered?

1. Possible obstacles
2. Weather conditions
3. All answers are right
4. Environmental conditions
5. All the above

When a manned air vehicle appears very close, what the pilot should do?

1. Continue to fly below 120m
2. Estimate its distance from the manned aircraft and keep a minimum distance of 300m
3. Nothing continue to fly
4. The pilot should immediately hold the UAV 10m above the ground and 500m away from the aircraft and consider the conditions of the flight area before attempting to fly again

Which of the following is permitted in Serbian Law?

1. Transport persons, dangerous goods and animals
2. Flying close to aerodromes and helidromes
3. Release or dropping of liquids and objects from an unmanned aircraft, as well as the carriage of external cargo
4. To fly a UAV with a camera

A UAV with a take-off mass of g or more would present risks to security

1. 2500
2. 750
3. 250
4. 500

In Turkey the height should not be exceeded 120 meters above the ground

Select one:

- True
False

In the "Open" category, which are the parameters to consider in order to decide in which subcategory a UAS can fly?

1. Weight of the UAS only
2. Weight of the UAS and the involvement of people
3. Weight of the UAS and the class identification

4. None of the above

What do we mean by safety as this described in the drone Regulation?

1. Refers to the good condition of the UAV
2. Refers to the capability of the pilot to fly with safety
3. It is a general term and it does not include the UAVs
4. It refers to the pilot and the air vehicle, drone and the pilot as well in our case. The pilot should take all the essential actions to minimize the risks that may occur during an aerial operation.

If CE class is 0 or 1 mark or that are privately built and weigh up to 250 g. In which subcategory can fly?

1. Can fly in subcategory A1 and A2
2. Can fly in subcategory A1
3. Can fly in subcategory A2
4. Can fly in subcategory A3

What happens if there is an interruption of Aerial Works?

1. The pilot should discontinue the flight in the event that the aerial work may cause various dangers to other aircraft regardless if it is manned or unmanned.
2. All answers are right
3. The pilot should scan the airspace for potential risk of collision with other UAVs, or manned air vehicles or obstacles.
4. He should follow a safe orbit or land.

UAV operations are NOT considered to be in the 'certified' category when they:

1. Are conducted over assemblies of people with a UA that has characteristic dimensions of 3m or more
2. Involve the transport of people
3. Are conducted over assemblies of people with a UA that has characteristic dimensions of 50m or more
4. Involve the carriage of dangerous goods that may result in a high risk for third parties in the event of an accident

Things to consider before flight:

1. Drugs and alcohol
2. All the above
3. Weather conditions or obstacles in the flight area
4. Visual contact with the UAV

What is the fundamental principle of the EASA Regulation and philosophy?

1. Avoid generally accidents
2. Safety
3. Better flights with UAVs
4. Provide the essential training to pilots

In Turkey which of the following is not a general requirement?

1. The owner or pilot of the UAV registers the UAV with a Maximum Takeoff Weight over 1500 g in his account, assigns a defined pilot and sends it to DGCA for approval.
2. The owner or pilot of the UAV registers the UAV with a Maximum Takeoff Weight over 500 g in his account, assigns a defined pilot and sends it to DGCA for approval.
3. After the approval, the system automatically generates a QR code, which is printed out and pasted on the drone.
4. Persons who will fly with an unmanned aerial vehicle (drone) within the scope of the General Directorate of Civil Aviation SHT-UAV Instruction must first open an individual or commercial registration in the DGCA (General Directorate of Civil Aviation) UAV Registration System.

Stress is a major factor affecting flight performance during preflight inspection and during flight

Select one:

- True
- False

A1 and the A3 category do not refer to flight above people

Select one:

- True
- False

In Serbian law UAV may only be flown if the airspace that has been previously allocated, in the cases for flying at altitudes more than 120m above the ground;

Select one:

- True
- False

What is the definition of a UAV?

1. A manned air vehicle
2. All unmanned air vehicles without a camera
3. All types of aircraft without a pilot on board, including radio-controlled flying models (powered fixed wing, helicopters, gliders) whether they have an on-board camera or not
4. Quadcopters generally and in some cases fixed wings

Which of the following is not a requirement during the flight?

1. Maintain eye contact with the UAV during the flight
2. Operators shall not fly close to or inside areas where an emergency response effort is ongoing unless they have permission to do so
3. If an observer is assisting clear and effective communication shall be established between him and the pilot
4. Clear and effective communication shall be established between the pilot and the assembly of people

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Which of the following IS NOT a defined category of operation?

1. Certified
2. Standard
3. Open
4. Specific