

GENERAL: Q1 - Q5.

COMMERCIAL USE OF DRONES (AERIAL WORK): Q6 – Q18.

MISCELLANEOUS QUESTIONS CONCERNING UK DRONE OPERATIONS: Q19 – Q22

GENERAL

1. I am worried about a drone that I have seen flying over my house / in a busy urban area / at an open air gathering. I believe it may be unsafe; who should I report it to?

As a general rule, unless the drone pilot has permission from the CAA, he or she should not be flying within 150m of a 'congested area' (e.g. town or city) or at a public event. The definition of a congested area is:

'Congested area' in relation to a city, town or settlement, means any area which is substantially used for residential, industrial, commercial or recreational purposes'

When the pilot does have permission from the CAA, such flights are usually restricted to flight distances no closer than 50m from persons, vehicles and structures that are not 'under the control' of the pilot. Direct over-flight at any height is not usually permitted.

These restrictions mean that the use of a drone in public places is limited and often not suitable or legal unless the operator has received the appropriate permission from the CAA. To this end, our enforcement strategy has recently changed to better reflect the balance of capabilities between the CAA and local Police services. The Police often have greater resources, response times and powers of investigation than the CAA. To support this, the CAA has now agreed with the Police that they will take the lead in dealing with drone misuse incidents, particularly at public events, that may contravene aviation safety legislation or other relevant criminal legislation.

We recommend that any such incidents are reported directly to the Police.

Certain types of drone flights, i.e. those that may be endangering an aircraft or are made in the vicinity of an airport or airfield, in addition to being reported to the Police, should also be specifically reported to the CAA using form FCS 1520:

<http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=5787>

The CAA's remit is limited to safety and does not include concerns over privacy or broadcast rights.

2. What is the difference between a drone and model aircraft?

Before describing the differences, it is important to note that both can be classified as 'small unmanned aircraft' and that there are civil aviation regulations covering how and where they can be used. In terms of these regulations (the Air Navigation Order), a 'small unmanned aircraft' means any unmanned aircraft, other than a balloon or a kite, having a mass of not more than 20kg without its fuel, but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight. When an unmanned aircraft weights more than 20kg, additional regulations come into play and recreational aircraft in this category are usually classified as 'large model aircraft'.

Recent technological advances mean that a much greater variety of small unmanned aircraft are now available. These vary from the ready-to-fly multi-rotor types that represent the popular conception of a 'drone', through to the traditional kit or plans-built model aeroplane or helicopter. A typical multi-rotor drone is heavily gyro-stabilised and can use GPS for guidance in addition to acting on Radio Frequency (RF) commands from the pilot. The traditional model aircraft usually uses only an RF signal, requires much greater pilot training and skill, and is flown only at specific recreational sites away from persons and property.

In regulatory terms, the only real distinctions made are that small unmanned aircraft used for

commercial purposes, or that are fitted with a camera (i.e. equipped to undertake any form of surveillance or data acquisition), have additional requirements or limitations that restrict their use in certain circumstances.

In practice, the vast majority of small unmanned aircraft used for commercial work are of the camera-equipped multi-rotor drone type. These vary in size and capability and, unlike traditional model aircraft, are increasingly being used for specific purposes including photographic flights in urban areas. This type of use can be unsafe and present a conflict with other activities; the drone pilot must understand that flight close to other aircraft, people or habitation and at outdoor events can pose a real risk to public safety.

3. How safe are drones?

Small civil drones are not yet subject to the same level of design, build and continued-airworthiness certification that apply to most full-sized manned aircraft. This means that there are no specific aviation standards to be met in regards to structural integrity, reliability, stability and control, capability and performance, or any other measurable characteristics of the aircraft. For example, the popular electric multi-rotor type of drone relies solely on its motors for lift and flight-control, unlike full-size certified aircraft, and most traditional model aircraft, multi-rotor drones have no glide or autorotative (helicopter) capability if they suffer a major power failure.

Although some of these aircraft may well be built to general retail/consumer standards, these standards do not directly read-across into quantifiable levels of aviation safety assurance. To mitigate for this shortfall and to protect the uninvolved general public, restrictions have been placed on where commercial camera-drones can be used (minimum distances from people, not within urban areas, not flown beyond the visual line of sight of the pilot etc).

If a drone operator has demonstrated a sufficient level of pilot competency, through training and assessment on an approved commercial course, certain of these restrictions can be lifted in order to undertake a greater variety of commercial work. Details of this process, and when the lesser restrictions can be applied, are set out in Q6 and Q7 below.

4. Are there any specific regulations for drones (small unmanned aircraft)?

Yes. The safety regulations are mainly contained in articles 166 and 167 of the Air Navigation Order (ANO) www.caa.co.uk/cap393. These are safety regulations and do not encompass matters relating to privacy and security. The ANO articles set limits on where drones may fly and whether they can be used for commercial purposes ("aerial work"). Articles 166 and 167 are set out below:

Air Navigation Order 2009

Article 166 - Small unmanned aircraft

- (1) A person must not cause or permit any article or animal (whether or not attached to a parachute) to be dropped from a small unmanned aircraft so as to endanger persons or property.
- (2) The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.
- (3) The person in charge of a small unmanned aircraft must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.
- (4) The person in charge of a small unmanned aircraft which has a mass of more than 7kg excluding its fuel but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight, must not fly the aircraft:
 - (a) in Class A, C, D or E airspace unless the permission of the appropriate air traffic control unit has been obtained;

(b) within an aerodrome traffic zone during the notified hours of watch of the air traffic control unit (if any) at that aerodrome unless the permission of any such air traffic control unit has been obtained; or

(c) at a height of more than 400 feet above the surface unless it is flying in airspace described in sub-paragraph (a) or (b) and in accordance with the requirements for that airspace.

(5) The person in charge of a small unmanned aircraft must not fly the aircraft for the purposes of aerial work except in accordance with a permission granted by the CAA.

Article 167 - Small unmanned surveillance aircraft

(1) The person in charge of a small unmanned surveillance aircraft must not fly the aircraft in any of the circumstances described in paragraph (2) except in accordance with a permission issued by the CAA.

(2) The circumstances referred to in paragraph (1) are:

(a) over or within 150 metres of any congested area;

(b) over or within 150 metres of an organised open-air assembly of more than 1,000 persons;

(c) within 50 metres of any vessel, vehicle or structure which is not under the control of the person in charge of the aircraft; or

(d) subject to paragraphs (3) and (4), within 50 metres of any person.

(3) Subject to paragraph (4), during take-off or landing, a small unmanned surveillance aircraft must not be flown within 30 metres of any person.

(4) Paragraphs (2)(d) and (3) do not apply to the person in charge of the small unmanned surveillance aircraft or a person under the control of the person in charge of the aircraft.

(5) In this article 'a small unmanned surveillance aircraft' means a small unmanned aircraft which is equipped to undertake any form of surveillance or data acquisition.

N.B. the term 'over' is taken to mean directly overhead at any height.

5. Where can I find detailed guidance on the whole subject of flying drones/unmanned aircraft in the UK?

The CAA primary policy guidance for all types of unmanned aircraft is contained in Civil Aviation Publication (CAP) 722 – 'Unmanned Aircraft System Operations in UK Airspace – Guidance' available as a free download at: www.caa.co.uk/cap722 or via the CAA website path: 'Publications' → 'Search for a publication' → enter: CAP722.

The CAA also publishes information on certain specific subject areas in Information Notices (IN) and our Official Record Series (ORS) which are also available via the 'Search for a publication' website function. Some of the most frequently searched-for specific guidance includes:

- IN-2014/190 'Small Unmanned Aircraft Operations within London and other Towns and Cities' www.caa.co.uk/in2014190
- IN-2015/008 'SUA: UK National Qualified Entity Approvals and Pilot Competency Requirements' www.caa.co.uk/in2015008
- ORS4 No.1108 'Small Unmanned Aircraft – First Person View (FPV) Flying' www.caa.co.uk/ors5 no. 301

- ORS5 No.301 'CAA Scheme of Charges (General Aviation) www.caa.co.uk/ors5301
- COMMERCIAL USE OF DRONES (AERIAL WORK)

6. Do I need a 'licence' to fly a drone for commercial work?

At the present time there is no such thing as an official UK drone pilot licence. A drone pilot however, does require the permission of the CAA to undertake commercial work (known as 'aerial work'). This is also the case for any flight operation with a camera-equipped drone that is intended to fly closer to congested areas, open-air assemblies of people and to people, vessels, vehicles or structures than the distances set out in ANO article 167(2).

The detailed requirements for getting the CAA's permission are set out elsewhere on the CAA website, but in general the pilot needs to:

- Demonstrate a general understanding of aviation theory (airmanship, airspace, aviation law and good flying practice).
- Pass a practical flight assessment (flight test).
- Develop basic procedures for conducting the type of flight they want to do (including procedures for assessing the safety of launch and flying-sites) and to set these out in a document (Operations Manual).
- Apply to the CAA for an annual 'Permission' www.caa.co.uk/srg1304

The standard permission is granted in the form of a signed CAA document (.PDF sent to applicant) and is valid throughout the UK for 12 months and subject to an annual renewal. The permission allows flights throughout the UK subject to the conditions and limitations written into the permission.

Dependant on the weight of the aircraft, the annual permission currently costs between £112 – 224 but does not stipulate a maximum number of aircraft. The renewal cost is reduced for subsequent years.

7. What are the benefits of gaining the standard CAA Permission?

There are three main benefits to gaining the standard CAA permission:

- Receive payment for your services. First of all, in practical terms you will be able to advertise a legal commercial service and receive payment for performing your services, usually in the provision of aerial filming and photography. This is known as 'aerial work' which is defined as:

Any purpose, other than commercial air transport or public transport, for which an aircraft is flown if valuable consideration is given or promised for the flight or the purpose of the flight.

This type of flying doesn't involve flying paying passengers or transporting mail or other cargo.

- Reduced limitations on where you can fly. ANO Articles 166 and 167 (listed at Question 4) set strict limits on where camera-equipped drones can fly. Probably the most limiting of these in terms of earning potential and the type of jobs you can do, is the requirement for the drone not to be flown "over or within 150 metres of any congested area":

A congested area, in relation to a city, town or settlement, means any area which is substantially used for residential, industrial, commercial or recreational purposes.

It is clear that you would then be limited almost exclusively to rural areas.

The standard CAA Permission recognises this difficulty and gives an automatic concession to dispense with this rule if the drone does not have a Maximum Take-Off Mass (MTOM) of more than 7kg (excluding fuel – but including batteries). In this case, although the drone may be flown within congested areas, the pilot must still comply with the following conditions:

- (a) No flight directly overhead or within 50 metres of any person, vessel, vehicle or structure that is not 'under the control of the person in charge of the aircraft', except that during take-off and landing this distance may be reduced to 30 metres;
- (b) No flight directly overhead or within 150 metres of an organised open-air assembly of more than 1,000 persons;
- Availability of minimum aircraft insurance cover in respect of third parties. Insurance specifically for aircraft operators is a requirement of Regulation (EC) 785/2004 'Insurance for air carriers and aircraft operators'. Whilst this regulation states that insurance is not required for "model aircraft with an MTOM of less than 20 kg", the CAA does not regard drones being used for aerial work as 'model aircraft' i.e. they are not scale-models or other unmanned aircraft being used purely for recreation. Having this insurance cover is an important part of covering any liability in the event of injury or damage to a third-party (along with your normal Public Liability insurance). Many insurance providers require evidence of your competency as a pilot, i.e. you are qualified for a CAA permission or have already had a CAA permission granted, before they will extend insurance cover at a nominal rate.

It should be borne in mind that insurance to cover any liability in respect of third parties is likely to be invalid if the drone was flown at a location or for a purpose that was not deemed to be legally compliant with the Air Navigation Order (ANO).

8. Where can I get the training and assessment needed to apply for CAA Permission?

The CAA does not organise or run training and assessment courses itself, but instead approves commercial organisations (National Qualified Entities – NQEs) to do this in our place. These NQE organisations run either full or restricted modular courses and their final output is to make recommendation to the CAA as to the pilot's competence. This recommendation provides the basis for the CAA granting a permission for aerial work. Most NQEs provide the full course and this is suitable for those with no previous aviation training or qualifications.

A typical NQE full-course would comprise pre-entry/online study, 1-3 days of classroom lessons and exercises before taking a written theory test. After successfully completing the theory element, the pilot would then develop his/her own operations manual and practice aircraft operation/flying skills in preparation for the practical flight assessment. This is usually arranged separately but may be available on the last day of the course. It is important to note that there is no structured syllabus or sequence of numbered exercises for flight training; this aspect is left to the student to complete at their own pace, although they need to have logged at least a total of 2 hours drone flight time within the last 3 months prior to taking the practical flight assessment.

More information on the way these schemes work is provided at our website menu for unmanned aircraft. The subject areas and syllabus, including the practical flight assessment, are listed in more detail here: www.caa.co.uk/in2015008.

A current list of approved course-providers is available here:

<http://www.caa.co.uk/default.aspx?catid=1995&pagetype=90&pageid=11190>

9. I already have a pilots' license or other aviation pilot qualification (including model flying certificates). Are there any CAA Permission training-concessions available for existing qualifications and experience?

For pilots that already have aviation experience, and in particular a licence or certificate that allows them to fly in un-segregated airspace (PPL, glider rating, etc), there are concessions against the theory training element of the NQE course. With such qualifications it is often only necessary to meet the experience requirement, undertake the practical flight assessment and develop your operations manual.

Concessions are also made for traditional model flyers. The long-established model aircraft scene in the UK has been at the forefront of developing expertise and safe flying practises for small unmanned aircraft and these attributes remain applicable as new electric technology comes into use. At the present time suitable British Model Flying Association (BMFA) certificates are accepted and although not listed, equivalents from the Scottish Model Association and Large Model Association will also be considered. Some work remains to be done on correlating model flyer certificates to the equivalent for commercial drone operations and there are likely to be some changes in the near future.

The full range of available concessions (acceptable alternative evidence of pilot competency) are set out in more detail at Annex 3 to www.caa.co.uk/in2015008

10. I qualified to fly unmanned aircraft (RPAS) in the UK Armed Services, are there any concessions available to allow me to fly commercial civil unmanned aircraft?

Some concessions are already available (see Q.9 above). The general rule for these concessions is that the pilot already has qualifications or experience in flying an aircraft in un-segregated UK airspace (i.e. not limited to flying only within military ranges, training areas or on active military service overseas). The CAA is considering various options to accept a wider range of existing military qualifications for pilots of <20kg fixed-wing military RPAS. It is likely that concessions will eventually be made for suitable military small RPAS pilots who have had:

- Direct, hands-on flying training, logged flight experience and have been granted a military small RPAS qualification and;
- Have completed appropriate 'bridging' elements of the current civil RPAS theory syllabus, plus a flight assessment on a civil drone where necessary.

11. How is 'aerial work' defined and what sort of activity is allowed?

The Air Navigation Order defines 'aerial work' as:

Any purpose, other than commercial air transport or public transport, for which an aircraft is flown if valuable consideration is given or promised for the flight or the purpose of the flight.

At the present time, any activities involving the remunerated carriage of persons, cargo or mail are prohibited to drones although occasionally permission may be given to 'drop articles'.

The term 'aerial work' allows a broad variety of flight applications, predominantly centring on aerial photography or the operation of other sensors and data-gathering devices. The essential question that needs to be asked is "*what is the purpose of the (specific) flight?*" i.e. "*If I were not receiving payment/valuable consideration for making the flight, would it still take place?*"

Example 1: A drone operator holding a CAA permission for aerial work is engaged to film or survey a building development site or infrastructure facility. This is clearly within the remit of the permission and the operation can proceed within the limitations and conditions stated on the operator's permission.

Example 2: An estate agent or builder's firm wants to use a drone for aerial imagery/survey as part of their service. This also would be considered aerial work even if it only comprised a small part of the service to the customer, e.g. advertising a customer's house or checking the property for the extent of works required. The operator of the drone would need to have a CAA permission for aerial work. The estate agent or builder's firm should gain a permission or use the services of an existing permission holder (a list of such permission holders is provided on the CAA website (last link at the bottom of the page at: www.caa.co.uk/default.aspx?catid=1995&pagetype=90).

Whilst every case should be judged on its own merits, some types of arrangements are *not* generally considered by the CAA to be aerial work:

- Advertising revenue received as a result of persons visiting a website or social media page where video or photographic stills shot from a drone are displayed/posted. This is because these types of web-pages may be legitimately used to post recreational video material that was not commissioned by another party, but was conceived and wholly funded by the poster. This would not apply if the photographic material had been directly commissioned by another party for the purposes of display or marketing on their website.
- Generation of self-marketing material to display an object, event or other activity. An individual or business would not usually be considered to be doing aerial work if the flight is provided only for their own use. Imagery generated in this way should not be sold to another party.

Example: A charity, educational establishment, local authority or business acquires a drone which is used to provide aerial imagery for incorporation into their own promotional material. As long as this imagery is not sold on, this is unlikely to be deemed aerial work.

- Any other imagery or data collection task where the video, photographic stills or other data collected, are used exclusively for the drone operator's own use.

Example: A university research team wants to use a drone to gather survey data or imagery to help with their research project. This is legitimate as long as the research project was not directly funded by a business that intends to use the results of the data for its own business purposes (including any material or research into its products or services). Clearly university research is funded through a variety of means (grants, charitable and alumni donations, etc) and for varying purposes. The exact arrangements would need to be considered in each case. Where an academic organisation is openly advertising their capabilities to external organisations and a business relationship is entered into with an external organisation, the use of a drone for that purpose is likely to be construed as aerial work. In order to alleviate difficulties with varied funding models, universities and other similar organisations should consider applying for permission from the CAA so that their services can be offered without constraint.

12. I am looking to hire a drone operator to do some marketing filming and photography; what should I look for?

The drone operator should have the permission of the CAA to do aerial work. At the current time, each commercial drone operator who has been granted CAA permission will have a document from us granting the permission and setting out conditions for its use. You should ask the operator to show you his or her permission document and discuss how the work might be achieved within the conditions of the permission?

The CAA publishes a list of current holders of the CAA permission on our website at: <http://www.caa.co.uk/default.aspx?catid=1995&pagetype=90> (last hyperlink at the bottom of the page). This list is only updated periodically. The primary means of identifying an individual

permission-holder is to see their permission document and not to solely rely on their website offering this service.

13. I am a drone operator and the rules say that some of the limitations do not apply if I am flying near to persons that are ‘under the control of the person in charge of the aircraft’. Is there any guidance on how these persons are defined?

Due to the large number of possible circumstances, the CAA can only give general guidelines, however persons under the control of the person in charge of the aircraft can generally be defined as:

- Persons solely present for the purpose of participating in the drone flight operation.
- Persons under the control of the event or site manager who can reasonably be expected to follow directions and safety precautions to avoid unplanned interactions with the drone. Such persons could include building-site or other industrial workers, film and TV production staff and any other pre-briefed, nominated individuals with an essential task to perform in relation to the event.

Spectators or other persons gathered for sports or other mass public events that have not been specifically established for the purpose of the drone operation are generally not regarded as being ‘under the control of the person in charge of the aircraft’. In principle, persons under the control of the person in charge of the aircraft at a **mass public event** must be able to:

- Elect to participate or not to participate with the drone flight operations;
- Broadly understand the risk posed to them inherent in the drone flight operations;
- Have reasonable safeguards instituted for them by the site manager and drone operator during the period of drone flight operations; and
- Not have restrictions placed on their engagement with the purpose of the event or activity for which they are present if they do not elect to participate with the drone operation.

Example: A drone is filming at a large music festival or public event. In this case it is not sufficient for persons at a public event to have been informed of the operations of the drone via such means as public address systems, website publishing, e-mail, text and electronic or other means of ticketing, etc. without being also able to satisfy the points above. Permissions have, however, occasionally been granted for drone flights at public events and these have been made by special arrangement. These permissions have been extremely limited and usually involve a segregated take-off site with the drone operating only vertically within strict lateral limits. There is no allowance for direct over-flight of persons.

14. I am a film-maker and want to use a drone to complement or replace my usual camera equipment. I am particularly interested in location shoots in one or more of the UK’s major cities.

The first thing to note is that in most cases this will not be possible without having at least a ‘standard’ permission from the CAA to allow some types of flights within congested areas. On its own, the standard permission does not give the right to fly unhindered and you will still require permission from the owner, manager or authority for the land from which the SUA will be taking off and landing. Invariably the conditions of the permission will also require that you ‘have control’ over the area you intend to use the camera-drone and this includes any persons or vehicles in the

area over which you intend to operate the aircraft. The minimum distances are stated on the permission.

In summary in advance of filming you need to ensure that you have:

- Permission from the Civil Aviation Authority
- Permission from the owner, manager or authority for the land from which the SUA will be taking off and landing
- Control over the area you intend to use the SUA, including any persons, vessels or vehicles in the area over which you intend to operate the aircraft.

The CAA permission for camera-drone flights only address the flight safety aspects of the flight and does not constitute permission to disregard the legitimate interests of other statutory bodies such as the Police and Emergency Services, the Highway Agency, local authorities (and their agents) or any other statutory body.

In order to exercise the necessary 'control' over a nearby public environment, it will often be necessary to contact the local authority to make suitable arrangements such as road-closures or other restrictions of access. This is a normal part of ground-based filming in urban areas and the same procedures should be followed in the case of camera-drones. Due to the lead-times advisable for making such arrangements, Location Managers and production staff should start this process as early as possible.

The following links may prove useful:

The British Film Commission (BFC)

<http://www.britishfilmcommission.org.uk/crew-facilities/locations/filming-in-public-spaces/> and <http://www.britishfilmcommission.org.uk/crew-facilities/locations/uk-agencies/>

Filming in:

- **Northern Ireland:** www.northernirelandscreen.co.uk
- **Wales:** [walescreen.com](http://www.walescreen.com)
- **Scotland:** www.creativescotland.com
- **England (outside London):** www.creativeengland.co.uk
- **London:** www.filmlondon.org.uk

London drone-filming information and list of Borough film offices:

www.filmlondon.org.uk/get-permission-film#Aerial and www.filmlondon.org.uk/working-boroughs-film

Detailed guidance on drone flying in London and other towns and cities can be found here: www.caa.co.uk/in2014190

15. Whether commercial or recreational, are there any specific places (restricted airspace) I am not allowed to fly?

In this context, 'specific places' is taken as meaning places or blocks of airspace where permanent or temporary restrictions are also placed on other types of manned aviation activity. Airspace provided for sequencing and separation of traffic, e.g. Controlled Airspace and Aerodrome Traffic Zones are not considered to be in this category.

In line with long-standing international agreements, the UK has a well-established system for notifying these places and the airspace surrounding them. Such areas are typically either: Prohibited Areas, Restricted Areas or Danger Areas (military ranges etc). Some other types of general or controlled airspace may have temporary restrictions placed on them. Further details can be found in the UK Aeronautical Information Package (UK AIP ENR 1.1 - General Rules and Procedures, and ENR 5 - Navigation Warnings) at the NATS Aeronautical Information Service website at: www.ais.org.uk.

Permanent Prohibited, Restricted or Danger areas are marked on Visual Flight Rules (VFR) flight charts which are readily available for purchase online or at local flight schools/clubs. In addition, proprietary VFR flight-planning and navigation software and apps contain such information in their mapping databases. A free, limited, version of such software is available here: www.skydemonlight.com.

It is occasionally necessary to institute temporary restrictions of airspace ('Restricted Area – Temporary'). These are usually disseminated via Aeronautical Information Circular ('Mauve') or if at very short notice, via the Notice to Airmen (NOTAM) system. These temporary restrictions are also listed on the AIS website. It is important to note that these restricted areas apply to all aircraft including drones.

16. What about Controlled Airspace and Aerodrome Traffic Zones (ATZ)?

The Air Navigation Order (ANO) Article 166(4) states that the person in charge of a small unmanned aircraft (drone, RPAS etc) which has a mass of more than 7kg excluding its fuel but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight, must not fly the aircraft:

- (a) in Class A, C, D or E airspace unless the permission of the appropriate air traffic control unit has been obtained;
- (b) within an aerodrome traffic zone during the notified hours of watch of the air traffic control unit (if any) at that aerodrome unless the permission of any such air traffic control unit has been obtained; or
- (c) at a height of more than 400 feet above the surface unless it is flying in airspace described in sub-paragraph (a) or (b) and in accordance with the requirements for that airspace.

In airspace control terms, operations of small drones weighing more than 7 kg are considered Unusual Aerial Activities. If the flight is to take place within controlled airspace, the person in charge of the small drone is required to seek prior approval from the relevant Air Traffic Control (ATC) unit.

Such flights will be processed for National Air Traffic Services (NATS)-administered controlled airspace under either Non-Standard Flight (NSF) or Enhanced Non-Standard Flight (ENSF) approval procedures. These procedures are set out on the NATS website at: www.nats.aero/nsf/rpas.aspx. Further details of the NSF/ENSF procedures are published at AIP ENR 1.1, section 4, paragraph 4.1.8 www.ais.org.uk

If approval is granted, the person in charge of the small drone is to fly it entirely within the limits of the stated lateral and vertical operating area. No safety assurance against other Unusual Air Activities taking place in the same area is given or implied. NATS approval to fly within controlled airspace or an Aerodrome Traffic Zone (ATZ) does not absolve the operator from the responsibility for avoiding all other aircraft.

It should be borne in mind that although operators of drones weighing 7 kg or less are not required to have the permission of ATC, the Air Navigation Order requires that any person in charge of a small drone:

- may only fly the aircraft if reasonably satisfied that the flight can safely be made and;
- that they must maintain direct, unaided visual contact with the aircraft ...for the purpose of avoiding collisions.

In practical terms, drones of any weight could present a particular hazard when operating near an aerodrome or other landing site due to the presence of manned aircraft.

Operators of small drones are therefore strongly advised to remain clear of chartered aerodromes by at least a distance of 5 km, whether or not the aerodrome is in controlled airspace or has an associated Aerodrome Traffic Zone (ATZ).

17. I now have a permission from the CAA, but are there other considerations to take into account before I can operate lawfully? What role do separate Statutory Bodies play?

The CAA permission for aerial work drone flights only address the flight safety aspects of the flight and does not constitute permission to disregard the legitimate interests of other statutory bodies such as the Police and Emergency Services, the Highway Agency, local authorities or any other statutory body. As the range and scale of drone operations continues to grow, statutory bodies are increasingly cognisant of how drone operations will affect their areas of responsibility and are developing specific policy and guidelines.

In addition to aviation-specific legislation, it is already apparent that drone use, or the effects of drone use, may be construed to be encompassed within the remit of existing national and local legislation (e.g. public-order offences, ensuring pedestrian and vehicle rights-of-way, security and safety in public places and at schools, limits on recreational activities in public parks etc).

It should be remembered that any drone operator whom does not have a CAA permission, is restricted to remaining 150 metres from congested areas or any organised, open-air assembly of more than 1,000 persons. Even with the standard CAA permission, drone operators must not fly directly overhead (at any height) or within a lateral distance of 50 metres of any person, vessel, vehicle or structure that is not under the control of the person in charge of the said aircraft (during take-off and landing this distance may be reduced to 30 metres). In effect this means that each flight will carry a ground 'footprint' below the aircraft, within which there should be no uninvolved members of the public. This is difficult to achieve in a busy urban environment and will likely involve the drone operator making formal arrangements with the relevant authority to temporarily restrict pedestrian and vehicular access or to restrict access to shops, dwellings and other property.

Drone operators should also be mindful of the requirements of Section 76(1) of the Civil Aviation Act 1982 <http://www.legislation.gov.uk/ukpga/1982/16/contents> in relation to trespass and nuisance, noting that they must comply, at all times, with the requirements of the Air Navigation Order and that the height of each relevant flight will be subject to a reasonableness test.

18. I am an overseas drone operator and want to work in the UK; what do I have to do to be able to temporarily complete an assignment in the UK?

The CAA is on occasion able to grant a temporary permission for aerial work. This will depend on the evidence of 'pilot competency' that the applicant is able to provide and the location(s) where the filming is to take place. Each application is considered on its own merits.

Applications should be made on the standard form SRG 1320: www.caa.co.uk/srg1320 and information should also be supplied about the scope of the operation and where and when it will

take place? In the majority of cases, only the 'standard' CAA permission is granted and this favours aircraft weighing no more than 7kg (15 lbs). Any aircraft weighing more than 20kg (44 lbs) are subject to a more involved process and are more difficult to approve. All applications should be made as far in advance as possible.

MISCELLANEOUS QUESTIONS CONCERNING UK DRONE OPERATIONS

19. Experimental research drones, drones under development for commercial use and drone flight demonstrations

The CAA recognises that drone engineering and flight operations comprise a fast-moving, diverse and innovative field suitable for imaginative new concepts with considerable commercial potential. To enable this development, we do not wish to place undue restrictions on the development of new drone applications and concepts, other than those that are deemed necessary in the interests of public safety.

In most cases, self-funded or research drones developed by institutions such as Universities or private businesses can be regarded as non-commercial as long as they are not employed in providing a paid service to a third party. Despite this and depending on the application being considered, operators of such drones will still need to get the permission of the CAA if they cannot meet the limitations contained in ANO Articles 166 and 167. This is particularly true for heavier, longer-range drones that are intended to fly beyond visual line of sight (BVLOS).

If you believe your drone may come into this category, you should consider using the Operational Safety Case (OSC) system described in CAP 722 www.caa.co.uk/cap722 (page 36 onwards and including Appendix A-D). The OSC is an involved process and not yet fully mature. It currently comprises a desk-top assessment by CAA technical staff and may involve further flight demonstrations to support the application. Work is ongoing on the final assessment process however it is likely to include the desk-top assessment and an advanced pilot competency flight assessment. It is envisaged that during the flight assessment the applicant will have to demonstrate that the aircraft is fit to undertake the scope of the operation proposed, that they have the requisite aircraft systems knowledge and procedures for safe operation, and that the pilot and aircraft are successfully able to complete various complex manoeuvres and utilise all flight modes of the aircraft. The final form of this assessment process (including fee structure) is intended to be in place by end 2015 and until then the OSC process will be available on an ad-hoc basis when staff resources allow.

Applicants should note that the OSC will not be suitable for all current permission holders; it is intended as an advanced assessment and test which may require custom-built aircraft or specific aircraft capabilities. The justification of choice of aircraft versus the particular risks of the type of operation proposed, and the ability of the applicant to meet stringent pilot skill requirements will be key factors in making the assessment. It is down to each applicant to make a coherent case and advance arguments supported by data whenever possible. For applications that pose particular risks to uninvolved third-parties, there should be no supposition that the OSC application will ultimately be approved and each applicant's business models should allow for this possibility.

20. Police use of drones

At the present time the Police use of drones comes under civil aviation legislation and their operators work under the same safety criteria applied to commercial permission holders. Under ANO Article 167(1), the CAA may grant permission to be exempt from, or to change, the normally applicable limitations. Exemptions may on occasion be granted in exceptional circumstances in the public interest and when there is no major departure from the normally-accepted level of risk. Due to their existing statutory powers, the Police already have the means to limit and control access at certain sites and events (accidents, cordons etc).

21. Indoor use

The Air Navigation Order makes no distinction between flights made indoors or in the open; the drone safety criteria continue to apply. Notwithstanding this, certain hazard factors are heavily mitigated in that the aircraft is flying in an enclosed environment and access to the venue can be controlled. Persons within the building, and who may be exposed to a hazard by the flight, should meet the criteria for 'persons under the control of the person in charge of the aircraft' or else have safety precautions taken on their account (e.g. safety netting, tethered drone, etc). Minor indoor recreational use of a very small and light 'toy' drone is not generally regarded as having the same safety implications as for larger drones used outdoors or in commercial service.

22. What about flying drones in other European countries; is the EU going to introduce pan-European rules for civil drone operations?

At the time of writing (August 2015) there are no internationally-agreed rules for small drone operations. The EU has no regulatory remit for aircraft weighing less than 150kg (see Regulation (EC) No 216/2008 "The Basic Regulation") and these aircraft are currently overseen by individual Member States. In recent moves, the European Commission has proposed to set new standards to regulate the operations of Drones. The new standards will cover safety, security, privacy, data protection, insurance and liability. To that end the European Aviation Safety Agency (EASA – 'the Agency') was directed by the European Commission to outline a new regulatory risk-based approach for safely operating drones. This was first put forward in late 2014 in a '[Concept of Operations](#)' and in August 2015 as an Advance-Notice of Proposed Amendment (A-NPA) consultation document: <http://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2015-10>

This document indicates that the term 'drone' is likely to be adopted in preference to RPAS or unmanned aircraft.

Following this consultation, which is due to end by 25 September 2015, EASA will submit a technical opinion to the European Commission.

This A-NPA reflects the principles laid down in the Riga Declaration of 2014. It follows a risk-and performance-based approach and it introduces three categories of operations as outlined in the previous EASA Concept of Operations for Drones:

- 'Open' category (low risk): safety is ensured through operational limitations, compliance with industry standards, requirements on certain functionalities, and a minimum set of operational rules. Enforcement shall be ensured by the police.
- 'Specific operation' category (medium risk): authorisation by National Aviation Authorities (NAAs), possibly assisted by a Qualified Entity (QE) following a risk assessment performed by the operator. A manual of operations shall list the risk mitigation measures.
- 'Certified' category (higher risk): requirements comparable to manned aviation requirements. Oversight by NAAs (issue of licences and approval of maintenance, operations, training, Air Traffic Management (ATM)/Air Navigation Services (ANS) and aerodrome organisations) and by EASA (design and approval of foreign organisations).

This regulatory framework is expected to encompass European rules for all drones in all weight classes. It is proposed to amend Regulation (EC) No 216/2008 ("The Basic Regulation") to this affect. This change will be part of the 'aviation package' legislative proposal to be issued in November 2015 by the European Commission.