DRONES: LAW IN THE UK

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An overview of the nature and scope of UK law in relation to civilian use of drones or small unmanned aircraft (SUA).

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CONTENTS

- Scope of this note
- Terminology
- Air regulations
  - International
  - Regional (for example, Europe)
  - National
- Small drone operations in the UK
- Definitions
- General rules and restrictions
- Registration and competency
- Permission to conduct commercial operations
- Drones in congested areas
- Liability
- Insurance obligations
- Data protection and privacy
- Customs restrictions
- Spectrum
- Trespass and nuisance
- Enforcement, penalties and sanctions
- European regulatory developments
  - Riga Declaration
  - EASA regulatory framework
  - Implementing Regulation
  - Scope of the Delegated Regulation
  - Timescales for the Regulations to come into force
- UK regulatory developments

SCOPE OF THIS NOTE

Some of the most innovative organisations in the world use drones to augment their business processes. All predictions are that the commercial and civil drone market will boom over the next decade. This growth will be due in part to a large variety of uses for the technology, which include inspection services (of infrastructure, oil and gas rigs, solar farms, power plants, pylons, power lines and monuments), media, journalism, internet and telecommunication platforms, fire and rescue, policing, marketing, precision farming, crop dusting, fire detection, flood monitoring, pipeline security surveillance, geo-physical surveys and others.

This note explains the regulatory framework for flying drones in the UK in the context of EU and international regulations, including what permissions are needed, potential liabilities, data protection and privacy issues, among others.

TERMINOLOGY

Drone is used to describe unmanned flying aircraft often carrying data collection instruments such as cameras. Unmanned flying machines are variously known as Remotely Piloted Air Systems (RPAS), Unmanned Aerial

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Vehicles (UAV), Unmanned Aerial Systems (UAS) or drones. However, increasingly the term "drone" is used more widely by industry, the public and regulators.

MTOM stands for Maximum Take Off Mass. This is an important measurement because many of the current regulations governing the use of drones distinguish between categories of drones according to weight. MTOM includes the weight of the drone's batteries.

AIR REGULATIONS

Aviation safety regulation is broadly split into two categories:

- Airworthiness regulation (the certification of aircraft systems to ensure that the aircraft is safe to use).
- Operational regulation (the rules regarding pilot training, licensing and the use of air traffic management services).

Airspace is separated into classes (A to G) by international agreement (*Convention on International Civil Aviation, 7 December 1944*). Airspace class corresponds with the level of air traffic management service, types of aircraft operations and the minimum equipment and pilot competence required to fly in that class. For example, class A airspace is reserved for professional pilots flying sophisticated commercial aircraft with a full air traffic management service. Many small drone operations are restricted to class G airspace and to operating below 500ft above ground; this airspace is not formally segregated but is largely free of normal aircraft traffic.

There is a broad hierarchy of aviation regulators, as set out below.

International

The International Civil Aviation Organization (ICAO) has 191 member states that aim to standardise the use of airspace for safety, efficiency and regularity of air transport. The ICAO was created in 1944 as a UN agency under the Convention on International Civil Aviation (commonly referred to as the Chicago Convention).

Regional (for example, Europe)

The EU Aviation Safety Agency (EASA) is responsible for the airworthiness and operations of all aircraft within the EU. EASA is an agency of the EU and its headquarters are in Cologne in Germany. Originally, it was set up by a Council and Parliament regulation (*Regulation (EC) 1592/2002* repealed by *Regulation (EC) No 216/2008*, amended by R*egulation (EC) 1108/2009*); since, 11 September 2018, its powers and functions have been prescribed by the new *Basic Regulation ((EU) 2018/1139)*. EASA is governed by European public law, is distinct from the Community Institutions (for example, Council, Parliament, Commission, and so on) and has its own legal personality. EASA develops common safety and environmental rules at the European level and its mission is "to promote the highest common standards of safety and environmental protection in civil aviation". The main tasks of EASA include:

- Rulemaking (that is, drafting aviation safety legislation and providing technical advice to the European Commission and to the member states).
- Inspections, training and standardisation programmes to ensure uniform implementation of European aviation safety legislation in all member states.
- Safety and environmental type-certification of aircraft, engines and parts.
- Approval of aircraft design organisations world-wide and of production and maintenance organisations outside the EU.
- Authorization of third-country (non EU) operators of aircraft.

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- Co-ordination of the European Community programme SAFA (Safety Assessment of Foreign Aircraft) regarding the safety of foreign aircraft using Community airports.

- Data collection, analysis and research to improve aviation safety.

Under the Basic Regulation, EASA is now responsible for all civil drones of any MTOM. Prior to 11 September 2018, drones with a MTOM of less than 150kg were the responsibility of each member state's national aviation authority (NAA). Those used for military or state purposes always were, and remain, the responsibility of each member state.

EASA is supported by two other agencies:

- EUROCONTROL, responsible for the coordination of air traffic management services across Europe.

- The European Organisation for Civil Aviation Equipment (EUROCAE), responsible for drafting of airworthiness and operational standards for aircraft. EUROCAE and EASA have recently established a joint working group on certification of vertical take-off and landing aircraft for unmanned air mobility applications.

Another important organisation for the drone industry is the Joint Authorities for Rulemaking on Unmanned Systems (JARUS). It is a voluntary membership body comprising national civil aviation authorities from EU and non-EU countries and regional organisations. Its purpose is to develop technical, safety and operational requirements for the certification and safe integration of large and small drones into the airspace and at aerodromes. A Communication from the Commission to the European Parliament and the Council, *A new era for aviation: Opening the aviation market for the civil use of remotely piloted aircraft systems in a safe and sustainable manner (COM (2014)*) recommended that EASA takes a leading role in JARUS and helps it to produce "implementing rules or guidance" for safe commercial drone operations. EASA and the US Federal Aviation Administration have been the joint chairs of JARUS for a number of years.

National

Most nations in the world have a NAA. In the UK, this is the Civil Aviation Authority (CAA), which is responsible for many aspects of administration of the EASA regulations.

SMALL DRONE OPERATIONS IN THE UK

The UK is considered to be one of the most sophisticated and advanced countries in relation to drone regulations and use. Many other countries have developed drone regulations that are closely based on the UK regime. Many credit the UK's approach as being influential in the EASA approach enshrined in the new Basic Regulation and the Implementing and Delegated Regulations discussed further below.

The CAA has had a dedicated drone regulation team for several years. Its website states that safety is the CAA's first priority, but they also seek to match the drone sector's desire to continue to develop and expand.

The *Air Navigation Order 2016 (SI 2016/765)* (ANO) is the principal piece of legislation governing aircraft, including drones, in the UK. The ANO came into force on 25 August 2016. It replaced its predecessor, the *Air Navigation Order 2009 (SI 2009/3015)*. It was amended by the Aire Navigation (Amendment) Order 2018/623. Key ANO articles for drone operations include:

- *Article 241*, which sets out an overriding principle that applies to all aviation activity at all times, namely: "[a] person must not recklessly or negligently cause or permit an aircraft to endanger any person or property".

- *Articles 94*, 94A, 94B, 94C, 94D (in force, 30 November 2019), 94E, 94F (in force, 30 November 2019), 94G and *95*, which cover flight and operational restrictions for "small unmanned aircraft" (SUA).

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The application of the ANO to drone operations is explained in a CAA guidance document: *CAP722, Unmanned Aircraft System Operations in UK Airspace*. CAP 722 describes the airworthiness and operational standards for drone operations in the UK; it is widely referred to by other states when developing their own drone regulations. In July 2019, CAP722 was updated to take account of the changes made by the 2018 and 2019 Amendment Orders, and in the meantime the CAA has published additional guidance to take account of other recent developments:

- *CAP1763* provides guidance on the cumulative effects of the 2018 and 2019 amendments, how the SUA regime applies with effect from 13 March 2019, and how the changes will be interpreted by the CAA. CAP1763 usefully contains a consolidation of the SUA articles in the ANO, which is the only publicly available consolidation of which the authors are aware.

- *CAP1788* provides guidance to protected aerodrome operators to assist their decision-making when granting drone operators permission to operate with an aerodrome Flight Restriction Zone.

- *CAP1789* provides guidance on the new EASA Implementing and Delegated Regulations with an explanation of the intent of key parts of the regulations and how the CAA will implement them within the UK by July 2020.

Aviators, including commercial drone operators, need to comply with the Standardised European Rules of the Air (SERA) *Regulation (EU) 923/2012* amended in 2016 (*Commission Implementing Regulation (EU) 2016/1185 of 20 July 2016 amending Implementing Regulation (EU) No 923/2012 as regards the update and completion of the common rules of the air and operational provisions regarding services and procedures in air navigation (SERA Part C) and repealing Regulation (EC) No 730/2006*).

The House of Commons Science and Technology Committee is currently conducting an *inquiry* into commercial and recreational drone use in the UK, which is looking at the ethical and safety implications of the growing use of civilian drones of all sizes.

DEFINITIONS

Under the ANO, a "small unmanned aircraft" (SUA) is 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 (Article 2 and Schedule 1).

A "remote pilot" operates the flight operates the flight controls of an SUA manually or, when the SUA is flying automatically, monitors its course and is able to intervene and change its course by operating its flight controls. An "SUA operator" is the person who has the management of the SUA. (*Article 94G*). The SUA operator may be a natural or a legal person.

GENERAL RULES AND RESTRICTIONS

The following are the main rules and restrictions that apply when flying an SUA:

- The remote pilot is responsible for ensuring that the aircraft is flown safely (*Article 94(2)*).

- The remote pilot must not fly the aircraft out of their sight, in order to ensure that collisions can be avoided (*Article 94(3)*).

- SUA must not be flown higher than 400 feet from the earth's surface (regardless of their weight) unless the CAA permits flight at a greater height, which it may do if it is satisfied that this can be achieved safely (*Article 94A*).

- All SUA must not, without permission, be flown within the flight restriction zone of a "protected aerodrome", that is, a government aerodrome, one certified by EASA, one licensed by the CAA or prescribed for that purpose. This "flight restriction zone" is generally 1 km from the boundary, with 5 x 1 km runway protection

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zones at the end of the runways and will include the whole of an aerodrome traffic zone if one exists (*Article 94A and 94B.*) the difference in treatment between SUAs over 7kg and those lighter than that has been dropped in relation to aerodromes.

- Nothing must be dropped from the SUA (*Article 94(1)*).

Subject to those points, however, the general scheme of Articles 94 to 95 of the ANO is that other requirements of the ANO do not apply to SUA. Thus, for instance, the offence of reckless endangerment of an aircraft under Article 240, does not apply to a SUA. It does remain in force with respect to a drone weighing over 20kg.

REGISTRATION AND COMPETENCY

In the UK, a person wishing to operate a drone for non-commercial or hobby purposes within the restriction of *articles 94* and *95* does not require an specific licence or authorisation.

From 30 November 2019, a regime of compulsory registration and competency will come into force under articles 94D and 94F. This will apply to operators and remote pilots of SUAs over 250 grams without fuel, which effectively excludes toy drones.

PERMISSION TO CONDUCT COMMERCIAL OPERATIONS

Permission from the CAA must be obtained in order to fly a SUA for commercial operations. The definition of "commercial operations" should be construed widely. The ANO defines commercial operations as a flight or operation of an aircraft other than for public transport which:

- is available to the public; or

- when not made available to the public, is performed under a contract between an operator and a customer, where the customer has no control over the operator or remote pilot,

in return for remuneration or other valuable consideration (*article 7, ANO*). "Valuable consideration" is defined as "any right, interest, profit or benefit, forbearance, detriment, loss or responsibility accruing, given, suffered or undertaken under an agreement, which is of more than a nominal nature" (*article 2* and *Schedule 1, ANO*). The CAA's *Summary of the Meaning of Commercial Air Transport, Public Transport and Commercial operations* states that valuable consideration "has a very wide meaning, including the provision of goods and services". There are some limited exemptions for "in house" research or development flights but these should be construed narrowly.

According to *CAP1687: Air Navigation (Amendment) Order 2018 -Guidance for small unmanned aircraft users*, the term "available to the public" within article 7 should be interpreted as being a service or commodity that any member of the public can make use of, or actively choose to use (for example, because it has been advertised or offered to someone).

DRONES IN CONGESTED AREAS

Operators of drones must not recklessly or negligently cause or permit their aircraft to endanger any person or property (*article 241, ANO*). This requirement applies in all areas, not merely congested areas, but given the absence of product integrity standards for many SUA, an operator should consider carefully whether it can discharge this duty in a congested area. A "congested area" is defined as any area in relation to a city, town or settlement that is substantially used for residential, industrial, commercial or recreational purposes (*article 2, Schedule 1, ANO*).

Small drones do not currently have any recognised design, certification or other airworthiness standards and therefore operational restrictions have been established that limit the circumstances in and locations at which the

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aircraft can be operated. Each specific limitation can only be varied or exempted in accordance with a permission or exemption granted by the CAA. Article 95 contains specific separation requirements for operation of small unmanned surveillance aircraft, i.e. SUAs equipped "to undertake any form of surveillance or data acquisition" (which includes many proprietary SUA on the market). An operator therefore needs to apply to the CAA for permission to fly a camera-equipped drone:

- Over or within 150m of any congested area.
- Over or within 150m of an organised open-air assembly of more than 1,000 people.
- When not engaged in take-off or landing, within 50m of any person, vessel, vehicle or structure which is not under the control of the person in charge of the aircraft (during take-off or landing this may be reduced to 30m or less if attendant people are under the control of the person in charge of the aircraft).

(*Article 95*)

Flights directly over people and vehicles will not be allowed at any height in a congested area, or otherwise, unless these vehicles and people are under the control of the person in charge of the drone. People under the control of the person in charge of the aircraft can generally be defined as one of the following:

- People solely present for the purpose of participating in the drone's flight operation.
- People 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 drones. This 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.

LIABILITY

Section 76 of the Civil Aviation Act 1982 provides for strict owner or operator liability for surface damage (such as injury to an individual or damage to property) caused by aircraft. This means that in the event of a drone accident causing loss or injury on the ground, liability is channelled through the owner or operator of the drone and, unless the victim's own negligence contributed to the loss or injury, the victim must be compensated by the operator (assuming the operator can be identified and it has sufficient insurance or assets).

Despite this principle, the injured party still has the ability to bring an action against any other parties who may be responsible under, for instance, ordinary principles of tort law or product liability. Equally the owner or operator of the drone may seek recourse against any other party responsible for the incident.

The EU Product Liability Directive (***85/374/EEC***) applies to manufacturers and importers of drones. This Directive establishes the principle of liability without fault applicable to European producers. Where a defective product causes damage to a consumer, the manufacturer or importer may be liable.

In the event of an air-to-air incident the established principle in aviation law is not to apportion blame on a strict liability basis but to deal with such incidents on the basis of fault.

These principles can be confidently extrapolated from the law applicable to manned aviation. Looking ahead to an era where air transport uses unmanned aircraft, commercial aviation has long been used to presumed liability towards passengers. Neither that regime, nor the regime governing liability for surface damage, makes any presumption as to whether there is a pilot on board. Fault of the operating crew is rarely in issue when evaluating the operator's liability to passengers or interests on the surface. Likewise, product liability principles rely on an objective test of safety of the system, regardless of whether a pilot is on board. Liability in some areas, such as leisure or recreational aviation may require greater assessment of fault and in that respect traditional legal methods of apportioning blame becomes more complex as drones become more automated; that is when

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machines are capable of operating in flight without human intervention, having the ability to make "decisions" without the need for a remote pilot to be ready to assume control of the aircraft. The same is true of recourse actions where one party, such as an operator, faces a strict liability but claims contribution from another, such as a supplier. This is an area of law and practice that will need to develop as robotics and automated vehicles become more sophisticated, and where customers and the supply chain may need to re-evaluate their risk allocation practice.

INSURANCE OBLIGATIONS

In Europe, *Regulation (EC) No 785/2004 on insurance requirements for air carriers and aircraft operators* sets out the insurance obligations for all aircraft operators (including drones). It requires that all commercial drone operations purchase third party liability insurance.

Regulation (EC) 785/2004 defines limits for the minimum amount of third party liability insurance required by an operator based on the mass of the aircraft on take-off. For drones weighing less than 500kg the minimum cover required is SDR 750,000 third party liability insurance (SDR means "Special Drawing Rights", which are supplementary foreign exchange reserve assets defined and maintained by the International Monetary Fund). In the event of an accident this level of cover is likely to be too low to cover significant losses and therefore typically commercial drone insurance policies provide cover of £5 million to £10 million. Such insurance is available through several specialist brokers.

Under Regulation (EC) 785/2004, persons operating model aircraft weighing less than 20kg are not required to have third party liability insurance. This is generally regarded as excluding leisure drone activity from the obligation to hold insurance. Despite this, the British Model Flying Association (BMFA) provides insurance for its members, although many small drone owners are not members of the BMFA. It is unlikely that most household insurance policies would provide cover for drone use and many hobbyist drone users may therefore lack suitable insurance cover in the event of an accident.

DATA PROTECTION AND PRIVACY

The use of drones fitted with cameras or other sensors which can collect personal data (for example, images of people or vehicle plate numbers, geolocation data or electromagnetic signals relating to an individual's device (for example, mobile phones, tablets, Wi-Fi routers, and so on) can have privacy implications.

At EU level, there is no data protection legislation specific to the use of drones; the applicable legal framework is contained in the *General Data Protection Regulation (EU) 2016/679* (GDPR).

Also, the right to privacy and data protection is recognised as a fundamental right in the Charter of Fundamental Rights of the EU and in the European Convention on Human Rights (ECHR) which has been incorporated in UK legislation through the *Human Rights Act 1998*.

In the UK, the processing of personal data via drones is subject to the *Data Protection Act 2018* (DPA) and the legal provisions applicable to CCTV systems. For more information on data protection in general, see *Practice note, Overview of GDPR: UK perspective.*

The GDPR and the DPA set out the conditions under which personal data can be processed and provide for certain exemptions and derogations, the most relevant being:

- Household exemption: This applies to the processing of personal data in the course of a purely personal or household activity. This exemption could potentially apply to individuals using drones for their own purposes. However, the ECJ has narrowly interpreted this exemption in the context of the use of CCTV camera. As a result, its application will depend on the specific circumstances of each case. Indeed, in its decision *František Ryneš v Úřad pro ochranu osobních údajů, Case C-212/13*, the ECJ considered that an individual who had

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installed under the eaves of his home a camera that recorded the entrance to his home, the public footpath and the entrance to the house opposite was not covered by the household exemption and his activity was subject to the data protection legislation. According to the judgement:

- "the operation of a CCTV system, as a result of which a video recording of people is stored on a continuous recording device such as hard disk drive, installed by an individual on his family home for the purposes of protecting the property, health and life of the home owners, but which also monitors a public space does not amount to the processing of data in the course of a purely personal or household activity".

The Information Commissioner's Office (ICO), the UK data protection regulator in charge of enforcing GDPR and DPA requirements, has issued guidance in relation to the use of drones. ICO makes a distinction between the use of drones by "hobbyists" and their use for professional or commercial purposes. Although "hobbyists" would be likely to be exempted from the GDPR and the DPA on the basis of the household exemption, the ICO has provided tips for the responsible use of drones, inviting people to think of privacy considerations and to apply a common sense approach when recording and sharing images captured by a drone. See also *ICO: Drones.*

- **Journalistic exemption:** In cases where personal data is collected through drones with a view to the publication of some journalistic, academic, artistic or literary material. In this case, processing would, under certain conditions, be exempt from many data protection obligations to the extent that such obligations would be incompatible with the purposes of journalism, academic, literary or artistic purposes which are sought by the processing. The ECJ examined the household and the journalistic exemption in its decision in *Buivids v Datu Valsts Inspekcija (C-345/17) EU:C:2019:122 (14 February 2019)* in the context of an individual posting on YouTube a video recorded by him showing police officers in the context of proceedings brought against him. According to the ECJ, sharing a video with an indefinite number of Internet users would not fall under the household exemption while the application of the journalistic exemption is to be assessed by national courts. The ECJ stated however that this exemption requires to balance fundamental rights to privacy on the one hand and freedom of expression on the other (for example, contribution to a debate of public interest, the degree of notoriety of the person affected, the subject of the news report, the prior conduct of the person concerned, the content, form and consequences of the publication, and the manner and circumstances in which the information was obtained and its veracity).

The ICO also issued drone-related guidelines in its guide entitled, *In the picture: A data protection code of practice for surveillance cameras and personal information.*

The ICO recognises that the use of drones can be highly privacy intrusive and puts the emphasis on performing a robust Data Protection Impact Assessment (DPIA). A DPIA is a process to assess the impact of a data processing activity to the rights and freedoms of the individuals whose data undergo processing and is mandatory for high risk activities. This assessment should as a minimum describe the data processing activity and its purposes, assess whether it is necessary and proportionate to process personal data, assess the risks to the rights and freedoms of individuals and set out the mitigation measures to address these risks. For a sample DPIA, see *Standard document, Data protection impact assessment (DPIA) (GDPR and DPA 2018).*

The Article 29 Working Party, the predecessor of EDPB, an EU body composed of representatives of national data protection authorities, the European Data Protection Supervisor and the European Commission, has also provided relevant guidance where it sets out the privacy risks arising out of the use of drones (for example, lack of transparency around the collection of personal data and the purposes for which such data may be used and the ability to achieve unique vantage points and collect wide range of information). The guidance recommends adopting privacy by design and by default measures to ensure compliance with data protection principles such as the proportionality, data quality, data minimisation, security, transparency and storage limitation principles. Also, it provides recommendations to policy makers, drone operators and manufacturers and also recommendations for the use of drones for law enforcement purposes. For more information, see *Opinion 1/2015 on Privacy and Data Protection Issues relating to the Utilisation of Drones.*

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CUSTOMS RESTRICTIONS

The growing use of drones for military purposes worldwide led to the development of a number of national treaties governing their export and trade. The *Missile Technology Control Regime* (MTCR) governs the export of any drone with a range of 300km or more and a payload of at least 500kg (referred to as a Category 1 system). The UK, along with the 34 other states party to the MTCR, has agreed not to export Category 1 drones, reflecting the aim of the agreement to prevent the export of or trade in systems which could be potentially used for the delivery of Weapons of Mass Destruction. For "dual use items", the export of drones with a range of less than 300km is permitted between EU member states without an export licence. It is therefore unlikely that the use of small drones would be captured by export control regulations.

Drones are typically powered by lithium batteries, which are prone to catching fire if overheated. Due to increasing safety concerns raised by the aviation industry, the International Air Transport Association (IATA) regulations governing the shipping of lithium batteries have been tightened and airlines consequently have to enforce these regulations more rigorously. This is an administrative and safety matter to consider and address when travelling with a drone that is powered by lithium batteries.

SPECTRUM

The radio frequency spectrum is the range of frequency bands that are used to transmit voice, video and data. Spectrum is a scarce natural resource which is subject to strict management, at the international level (by the International Telecommunication Union (ITU)) and at the national level (by regulators). In the UK, for instance, the use or installation of wireless telegraphy equipment or apparatus (that is, devices requiring the use of spectrum) requires a licence from the spectrum regulator, Ofcom, unless Ofcom has designated the particular bands or devices exempt from the licence requirement.

In relation to drones, radio frequency spectrum is used for communication between a drone's ground control station and the drone platform and also to transmit data between the instruments on the drone, such as cameras, and the data receiver on the ground.

Most civilian drone operators currently use the already congested industrial, scientific and medical (ISM) radio bands 2.4GHz and 5.8GHz frequencies designated for amateur radio.

Unencrypted data links are particularly vulnerable to jamming, interception and manipulation. There are clear cyber security risks that may arise because a drone could be hacked, its data link or live feed intercepted, or the aircraft could be "spoofed" (its GPS signal manipulated) during flight. Pilots must also take account of the possible reduction in operating range in an urban environment due to the heavy use of communications (mobile telephone, Wi-Fi and so on) equipment and other sources of electromagnetic spectrum/radio frequency interference. Pilots also need to consider mitigation for the consequences of weak or lost GPS signal due to masking by buildings should be considered along with the general radio frequency saturation level.

The CAA recommends the use of a spectrum analyser to assist in assessing the level of local electromagnetic and radio frequency congestion.

TRESPASS AND NUISANCE

It is easy for a drone to fly and hover over someone's property. The question of whether this might amount to trespass or nuisance is complex.

Pickering v Rudd (1815) 4 Camp 219 gave an early insight into what may or may not constitute trespass of airspace. Lord Ellenborough expressed the opinion that it would not be a trespass to pass over a man's land in a balloon and that it was not a trespass to fire a bullet across a field but if that bullet were to fall on the ground in the field then

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it would be trespass; also that "Whether the action may be maintained cannot depend upon the length of time for which the superincumbent air is invaded".

Bernstein of Leigh v Skyviews & General Ltd [1978] 1 QB 479 is perhaps the most relevant case that could be cited to allow drone operators to fly over another's property. A photography company used manned aircraft to take pictures of peoples' houses and then sell them those photos. The judgement overturned the ancient 13th century Latin maxim Cujus est solum ejus est usque ad coelum et ad inferos (for whoever owns the soil, it is theirs up to heaven and down to hell) in relation to airspace. It established that the rights of a property owner are restricted in relation to the airspace above his land to such a height as is necessary for the ordinary use and enjoyment of his land and therefore the actions of the photography company did not constitute a trespass. It also held that the actions of the photography company did not constitute a nuisance as only a single photo was taken; however, the court warned that if a claimant was subjected to the harassment of constant surveillance from the air, accompanied by the photographing of his every activity then this would amount to a "monstrous invasion of privacy" and an actionable nuisance for which relief would be given.

Anchor Brewhouse Developments Ltd v Berkley House (Docklands Developments) Ltd (1987) 284 EG 625 can be contrasted to Skyviews, as in this instance the court held that the booms of cranes that swung over the claimant's property did in fact constitute a trespass for which the claimant was entitled to injunctive relief. Scott J did not wish to dissent from Skyviews but instead differentiated the case, as in his opinion certainty is or ought to be one of the common law characteristics of trespass and while it can be achieved for invasion of airspace by tower cranes and other structures this is not the case for overflying objects. Arguably, in 1987, the widespread use of drones was not in serious contemplation but as they are regarded as "aircraft" for the purpose of aviation law the same principle applies.

Some clarity is provided by *section 76* of the Civil Aviation Act 1982 which provides that there is no trespass "by reason only of the flight of an aircraft over any property at a height above the ground which, having regard to wind, weather and all the circumstances of the case is reasonable, or the ordinary incidents of such flight ...". The drone operator must comply with ANO requirements in order to benefit from this protection. Furthermore, there is little indication in the caselaw of what is meant by a "reasonable" height. The draft Guidance Material published in February 2018 by EASA with respect to the anticipated Implementing and Delegated Regulations suggested that the owner's consent should be sought before flying at less than 20 metres over private property to respect rights to privacy.

On that basis, flying a drone above another's property at a height that does not interfere with that party's ordinary use of the land is unlikely to constitute a trespass. In addition to this, photographing of that person's property on occasion is unlikely to constitute nuisance. However, section 76(1) only applies to the overflight itself: it does not prevent a landowner from proving some greater damage which for instance amounts to an actionable nuisance and the position is less clear where a drone is flown over another's property on multiple occasions or even hovering in one place and taking multiple pictures. The courts have not drawn a line as to what exactly will constitute trespass or nuisance by drones in these instances and therefore best practice is to ensure that the landowner's permission is obtained.

The position in relation to take off and landing is clearer: *CAP 722* states that it is important for drone operators to have permission from the owner of the land where a drone takes off and lands.

Causing deliberate damage to a third party's drone or interfering with its communications system may constitute criminal damage. For the person who is the subject of the drone intrusion, it might be possible to rely on his rights under the civil laws of nuisance, trespass or privacy to sue the drone pilot, especially if the drone has a camera and is filming. If the drone pilot is breaking the rules of the air, by flying recklessly or too close to a person or their property then they could be committing a criminal offence (for example, under the ANO) and could then be prosecuted. There could be circumstances when the armed forces or the police could legitimately intercept, destroy or capture a drone to protect industrial secrets or national security, provided force is not applied excessively and is proportionate to the immediacy and gravity of the threat posed. Various countries have recently issued tenders and competitions to develop systems for detection and "neutralisation" of drones.

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ENFORCEMENT, PENALTIES AND SANCTIONS

Breach of the ANO is a criminal offence in the UK. Until recently the majority of prosecutions against errant drone operators in the UK had been conducted by the CAA. The first successful prosecution by the CAA for the dangerous and illegal flying of an unmanned aircraft was *Civil Aviation Authority v Robert Knowles (2014)* (see *CAA press release, First conviction for illegal use of an unmanned aircraft, 2 April 2014*). Knowles was found to have flown a drone in restricted airspace over a nuclear submarine facility, as well as allowing the device to fly too close to a vehicle bridge. Both offences breached the ANO. Knowles was found guilty and fined £800. The CAA was awarded costs of £3,500.

The police have now taken more of an active role in prosecutions and there have been a handful of prosecutions for illegal drone use. Mr Nigel Wilson pleaded guilty to nine drone offences under the ANO relating to flying a small drone over a number of Premier League football grounds, the Houses of Parliament, the Queen Victoria Memorial at Buckingham Palace and along the North Bank of the River Thames in London. He was sentenced to pay a fine of £1,800 and to pay £600 in costs. A Criminal Behaviour Order was also issued, with conditions that he may not purchase, own or fly any drones nor assist any other person in using drones for the next two years. Wilson's specific charges were five breaches of article 166(3) and four breaches of article 167(1) and (2)(a) of the ANO.

Where a drone operator contravenes the GDPR or the DPA, the ICO has various enforcement powers include the power to impose fines which, depending on the nature of the breach, can go up to 20,000,000 EUR or, for legal entities, 4% of the total worldwide annual turnover. Individuals can also bring civil actions against drone operators.

EUROPEAN REGULATORY DEVELOPMENTS

Riga Declaration

On 6 March 2015 the European UAS community met in Riga, Latvia and issued the *Riga Declaration on Remotely Piloted Aircraft (Drones) "Framing the Future of Aviation"*, which described drones as a "truly transformational technology". They found broad agreement on five main principles to guide a regulatory framework to allow civil drone operations throughout Europe from 2016 onwards.

Key findings from the Riga Declaration

- **Drones need to be treated as new types of aircraft with proportionate rules based on the risk of each operation.** The provision of drone services must not be less safe than is accepted from civil aviation in general. Rules should be simple and performance based, to allow a small start-up company or individuals to start low-risk, low-altitude operations under minimal rules and to develop, with light-touch risk-based regulation, similar to the modern product safety regulations applied in other sectors. Higher risk operations would be gradually subject to more stringent regulations or operational limitations. At the other end of the spectrum, where the operational risk is highest, such as with large drones operating alongside manned aircraft, the regulation will need to be quite similar to that applying to manned aviation, with strict standards on the design, manufacturing, maintenance and operation of drones, as well as on the training of drone pilots and maintenance personnel.

- **EU rules for the safe provision of drone services need to be developed now.** Safety rules, including on remote pilot and operator qualifications, should be developed at the European level by the European Aviation Safety Agency (EASA), building on the experience developed in the EU member states. The essential requirements should be harmonised at the global level to the maximum extent possible, and full use should be made of the established cooperation in the Joint Authorities for Rulemaking on Unmanned Systems (JARUS) and at ICAO, and should be completed by international industry standard setting bodies.

- **Technologies and standards need to be developed for the full integration of drones in the European airspace.** The success of drone activities and safety regulations also depends on the financial effort to develop and validate key missing technologies and the ensuing required standards. Both industry and public

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authorities stressed the need for adequate investment in the technologies that are required to integrate drones into the aviation system.

- **Public acceptance is key to the growth of drone services.** The respect of citizens' fundamental rights, such as the right to privacy and the protection of personal data, must be guaranteed. Many drone services involve data-gathering such as filming, and so on. The responsible authorities, such as the national and European Data Protection Authorities, should develop the necessary guidelines and monitoring mechanisms to ensure the full respect of existing protection rules, including in relation to drones. Rules need to clarify what is acceptable and what is not, and they must be properly enforced. Drones may cause nuisances and negative externalities, such as noise. These nuisances need to be addressed, possibly at the local level, to maintain public acceptance. Drones also pose potential security risks. The design of drones can and should take into account those risks by using methods such as cyber-defence or geo-fencing. However, the malicious use of drones cannot be entirely prevented by design or operational restrictions. It is the task of the national police and justice systems to address those risks.

- **The operator of a drone is responsible for its use.** When a drone service is delivered in prohibited airspace, in an unsafe manner, or for illegal purposes, the authorities should be able to act and hold the operator accountable. Where lacking, this will need to be clarified in national law. To enforce responsibility, it will be necessary for drones to have at all times an identifiable owner or operator. The regulator should seek the least bureaucratic way to achieve this.

Member states should clarify the applicable insurance and third-party liability regime and monitor the compensation mechanisms for potential victims. The establishment of compensation funds to cover victims of accidents caused by uninsured drone users, as used in the motor insurance sector, could be envisaged. Reporting on drone incidents should be integrated into the overall incident reporting requirements. Systematic and coherent incident reporting will improve safety and will be instrumental for insurance companies in their risk analysis on which third party liability insurance premiums are based.

EASA regulatory framework

Following the Riga Declaration, EASA was been tasked by the European Commission to develop the regulatory framework for drone operations. As part of this process, on 31 July 2015, EASA published a consultation document entitled *ANPA 2015-10 Introduction of a regulatory framework for the operation of drones*. In December 2015, the Commission included a proposal to amend the Basic Regulation (COM (2015) 613 final) as part of its Aviation Strategy for Europe and EASA submitted Technical Opinion RMT.0230 to the European Commission. These were followed by the "Prototype" Commission Regulation on Unmanned Aircraft Operations in August 2016, the November 2016 Warsaw Declaration and formal Notice of Proposed Amendment 2017-05 on 4 May 2017 which entailed a substantial redraft of the Prototype Regulation. NPA 2017-05 was subject to consultation until late September 2017 and in December 2017 political agreement was reached on amendments to the Basic Regulation to give EASA the authority over drones below 150kg.

On 6 February 2018, EASA published Opinion No 01/2018 including draft Commission Regulations and Acceptable Means of Compliance/Guidance Material. Further drafts of the Commission Implementing Regulation, the Annex on UAS operations in the "open" and "specific" categories and the Commission Delegated Regulation were issued in June 2018.

All these documents reflect the principles laid down in the Riga Declaration. They follow the risk and performance-based model outlined in the March 2015 "Concept of Operations for Drones", using three categories of operations:

- **"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 is to be ensured by the police.

- **"Specific operation" category (medium risk).** Operations are authorised by NAAs, possibly assisted by a "qualified entity" (QE) following a risk assessment performed by the operator. An operations manual lists the risk mitigation measures.

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- **"Certified" category (higher risk).** Requirements are comparable to manned aviation requirements. Oversight is carried out by NAAs (through issue of licences and approval of maintenance, operations, training, air traffic management and air navigation services (ANS) and aerodrome organisations) and by EASA (design and approval of foreign organisations).

On 11 September 2018, the new Basic Regulation (EU) 2018/1139 of 4 July 2018 came into force. The amendments to *Regulation (EC) 216/2008* reflected the categorisation set out above.

Chapter 3, Section VII and Annex IX of the revised Basic Regulations set out the "essential requirements" for all drones. The Basic Regulation also confers powers on the Commission to adopt implementing and delegated acts to provide for detailed rules governing the manufacture and operation of all kinds of drone, including the other elements of the system (UAS) which are essential to its operation.

Implementing Regulation

Implementing Regulation (EU) 2019/947 prescribes rules for the operation of UA in the three categories (open, specific and certified) referred to above. Certain parameters are strictly prescribed, such as the requirement that UA used for the carriage of passengers or certain dangerous goods must go through a certification process, which is expected to follow existing certification processes and standards for manned aviation. The detail of the Implementing Regulation is largely contained in an Annex addressing the open and specific categories.

The Implementing Regulation imposes specific limitations on drones used in the open category, such as:

- maximum platform weight of 25kg;
- maximum operation 120 metres above the surface; and
- all operations are to be within line of sight.

While there are certain registration and competency requirements, the benefit, in contrast to the existing regimes in a number of EU member states, of the "open" category is that no other formal operational authorisation is required from a civil aviation regulator. No distinction is drawn between commercial and leisure or recreational operations, on the basis that the risk to third parties is the same.

Although the overall structure will be familiar to those used to the existing UK regime, key differences include the increase in the weight limit for open category operations to 25 kg from the 20 kg threshold applicable to the comparable present standard in the UK. As mentioned above, commercial drone operators in the UK have been used for some years to a system whereby the Civil Aviation Authority grants a permission for commercial operations. Those who currently operate within the UK small unmanned aircraft regime (below 20 kg, within line of sight and at low level) will be able to take advantage of the new open category as long as they stay within its limitations: although they will be subject to registration and competency requirements, they will no longer have to obtain formal regulatory permission.

The "specific" category enables the regulator to grant an authorisation for a given operation by reference, to the specific characteristics and risk of that operation. This can be carried out through one of three processes:

- Operation within published "standard scenarios".
- Application for a light UAS operator certificate (LUC) which grants the right to self-authorise certain operations.
- Specific authorisation of a particular operation based on a unique operational risk assessment.

The Implementing Regulation sets out the responsibilities of the operator, that is, the organisation responsible for the activity, and the remote pilot, age requirements and the framework for competency assessment and registration of drones. In principle, all drones over 250 grams must be registered.

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There is limited detail on cross-border operations. "Specific" operators are registered with and authorisation by their home state, and those authorisations should meet the same standards throughout the EU. Nevertheless, a UAS operator who wishes to operate in another member state must notify the competent authorities in that other state and await confirmation from the authorities in the state of intended operation that they regard the mitigation measures as satisfactory before starting operations. Commercial operators who are able to operate within the open category do not need additional cross-border certification.

Scope of the Delegated Regulation

The Delegated Regulation (EU) 2019/945 establishes the product criteria for drones to be operated in the open category and a regime for conformity assessment. It also addresses third country operators wishing to conduct UA operations within the EU.

The Delegated Regulation:

- Sets out the product requirements for open category drones and prohibits marketing such drones unless they meet the criteria set out in detail in the Annex.
- Sets out the conformity assessment process for drones marketed for use in the open category and for remote identification equipment, sometimes referred to as "e-ident". Drones must be marked to indicate compliance and the class in which they fall.
- Obliges manufacturers of drones for use in the open category to comply with the conformity assessment process contained in the Annex which deal with such matters as internal production and quality control, technical documentation and declarations of conformity.
- Sets out procedures for notification of community assessment bodies and market surveillance mechanisms. The structure is similar to those in place for existing EU product conformity requirements and the CE marking system.
- Contains requirements for certification, in a form closer to traditional aviation certification processes.

For non-EU based manufacturers, this regime has some similarities to the existing EU product liability directive, namely that the first importer into the EU carries the primary responsibility for ensuring that the products are indeed compliant. (Such an importer will continue to carry the product liability exposure for UA manufactured by a non-EU producer, since the product liability regime still applies: the Delegated Regulation is concerned with responsibilities for ensuring product compliance.) Conversely, as one of the more detailed sets of product standards for light UA yet to be published worldwide, manufacturers which achieve this standard may have some level of assurance that those products would be acceptable in other jurisdictions.

Timescales for the Regulations to come into force

Both the Implementing Regulation and the Delegated Regulation were published in the *Official Journal* on 11 June 2019 and came into force 20 days later. The Implementing Regulation does not, however, apply until one year thereafter, that is, 1 July 2020. The Delegated Regulation does not have a separate application date and therefore has direct effect in the UK from 1 July 2019 and continue to have direct effect after Brexit, since it will be part of the body of EU law that it is in force *and applies* on exit day. However, if the UK leaves the EU at the end of October 2019, the Implementing Regulation will not apply until after exit day and the UK would face the anomaly that the Delegated Regulation would apply in the UK but not the Implementing Regulation, despite the fact that they are a package.

Otherwise, both Regulations will be directly applicable in all member states. The Implementing Regulation contains a two year transition period for open category operations.

It is thought likely that the risk-based approach enshrined in the "concept of operations" approach is likely to influence the way NAAs in countries outside Europe will consider integrating drones into their national airspace.

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UK REGULATORY DEVELOPMENTS

Following a *consultation* between July and December 2018, the government has set out its *proposed* next steps on policies for drone use and enforcement:

- The government proposes to publish a further Drones Bill during 2019. This is expected to introduce additional police powers to enable enforcement of existing and future drones regulation. The consultation response issued in early 2019 indicated that this will comprise powers to request information and evidence from drone users where there is reasonable suspicion of an offence being committed, to require a pilot to land a drone, and the option to issue fixed penalty notices for minor drone offences.

- Although suggested as a possible subject for a Drones Bill, current government policy is to give further consideration to proposals for Flight Information Notification Systems, a form of mandatory flight plans, perhaps as part of an unmanned traffic management system.

- The Drones Bill is also likely to establish a process to implement counter-drone measures: either the capability to identify errant drones or "effector" technology to take control of them. It seems clear that the UK government intends to introduce prescriptive regulation of this technology. The Home Office will expedite policy work to develop appropriate means of allowing the expanded use of counter-drone technology, in the light of concerns by respondents to the consultation about the impact of such technology on legitimate drone use. The Implementing Regulation and the Delegated Regulation do not address counter-drone technology.

From 13 March 2019, the Air Navigation (Amendment) Order 2019 introduced additional 5 x 1 km flight restriction zones at the end of runways and increase the size of the existing circular aerodrome traffic zone around protected airports. The latter is designed to protect aircraft approaching from any direction. Drone pilots wishing to fly within those zones must have the permission of Air Traffic Control (a commercial organisation might need to fly a drone, for example, to examine property), the CAA or the aerodrome operator.

The UK has published secondary legislation paving the way for competency and registration requirements. These are designed to be consistent with the Implementing Regulation. The CAA must be in a position to accept applications by 1 October 2019 in order to have the required registration certificates and acknowledgements of competency in place by 30 November 2019.

There are also two private members' bills going through the legislative process. The Drone (Regulation) Bill 2017-19 is described on the parliamentary bills site as "a Bill to regulate the purchase and use of drones weighing 5 kilograms or more; and for connected purposes". The Drone (Regulation) (No. 2) Bill 2017-19 is described on the parliamentary bills site as "a Bill to require drones to be marked and registered and to broadcast certain information electronically; to place restrictions on drone flight near aerodromes; and for connected purposes".

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