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The New Drone Regulation in the European Union

In 2019, the European Union implemented the new legal regime governing the design, manufacture and use of unmanned aircraft systems. The two regulations are a breakthrough in the context of the EU single aviation market. Drone operations are distinguished on the basis of their risks and characteristics.

1. Introduction

On 11 July 2019, two regulations on unmanned aircraft systems (UAS) were published in the Official Journal of the European Union (EU) following years of consultations and works by the European Commission, the European Union Aviation Safety Agency (EASA) and stakeholders. The two long-awaited regulations form the novel EU legal regime governing the design, production and use of UAS within the Union.

The legal regime pertaining manned aviation, at least in terms of safety and operation, divides air operations in several broad categories. These include *inter alia* commercial air transport, general aviation, special operations such as aerial works. Such categorisation has proven, however, not to be ideal and accurate in the case of UAS, commonly known as drones.[2] In fact, drones show unique features, which include their small size, simplicity, inherently low risks, the availability on the market, as well as the ability to operate in an urban environment and for various applications.[3] Furthermore, at least for now, in the operation of drones, the risk is not for people on board, but primarily for other operators in the airspace and people on the ground. As a result, the new EU legal framework makes a division, which is founded

[1] he research support of my research associate Andrea Trimachi, LL.M. (Leiden is gratefully acknowledged.

[2] TWhile internationally, in the area of drones, terminology is variegated and, at times, inconsistent with terms such as Remotely Piloted Aircraft Systems (RPAS), Unmanned Aircraft Vehicles (UAV), among others, this paper makes exclusive reference to the concept of Unmanned Aircraft Systems (UAS) and Unmanned Aircraft (UA), as the terms officially employed in the EU legislation. For more discussion on the evolution of such terminology, *see,* M. Huttunen, "Unmanned, Remotely Piloted, or Something Else? Analysing the Terminological Dogfight", 43(2) *Air & Space Law* (2017), 349 ff.

[3] A. Masutti and F. Tomasello, *International Regulation of Non-Military Drones* (Edward Elgar Publishing, 2018) 15-17.

proportionately upon the risks of the operation, the characteristics of the system and the operational environment, rather than on the purpose of the operation.[4]

2. Legal Basis

In the last decade, the EU has laid a strong emphasis on drones as it considered the development, use and regulation of such aircraft as a priority for the safe and sustainable growth of aviation in the Union.[5] Already, in 2014, the Commission identified certain regulatory and policy priorities in order to allow the opening up of the single EU aviation markets to unmanned aviation.[6] This was shortly followed, in 2015, by the delineation of an aviation strategy for Europe aiming at enhancing the competitiveness of the EU aviation sector.[7] Among the objectives of the strategy are that of fostering the development of new technologies and that of amending the regulation governing the roles and functions of EASA.[8] This new regulation, in fact, now includes the essential requirements for UAS and provides the EU with the legal basis for the adoption of implementing and delegated acts in the area of UAS regulation. The regulation also mandates EASA to take a leading role in the drafting and development of such rules.

3. The New European Legal Framework Concerning UAS

The new EU legal regime on drones is formed by two distinct pieces of legislation, which are of general application, fully binding and have direct applicability in all EU Member States. As such, these regulations do not need to be transposed into national laws and supersede all – if any – incompatible national laws.[9]

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[4] M. Krumm, "Der Neue europäische Rechtsrahmen für ubemannte Luftfahrzeuge – Anpassungsbedarf im deutschen Luftverkerhrsrecht?, 30(3) *Europäische Zeitschrift für Wirtschaftsrecht* (2014), 114.

[5] V. Correia and N. Rouissi, *The European Union and Civil Drones: The Riga Declaration and the Future of the European RPAS Industry,* in B. I. Scott (ed.), *The Law of Unmanned Aircraft Systems: An Introduction to the Current and Future Regulation under National, Regional and International Law* (Kluwer Law International, 2016), 134.

[6] Communication from the Commission to the European Parliament and the Council, *A new era for aviation: opening the aviation market to the civil use of remotely piloted aircraft systems in a safe and sustainable manner,* COM(2014) 207 Final.

[7] Communication from the Commission to the European Parliament and the Council, *An Aviation Strategy for Europe,* COM(2015), 598 Final.

[8] Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 *on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency,* OJ L 212, 22.08.2018, 1-122.

[9] *See,* Article 288 of the Treaty on the Functioning of the European Union.

The first act is Commission Delegated Regulation 2019/945, which lays out the requirements for the design and manufacture of UAS intended to be operated within the Union.[10] The Regulation also establishes rules for small-size drones and for third-country UAS operators that conduct operations within the single European sky airspace. In other words, the requirements apply not only to manufacturers of small drones established in the EU, but also to manufacturers established in a third-country if they wish to sell their products in the EU internal market. Small UAS are those whose Maximum Take-Off Mass (MTOM), comprising payload (*e.g.* camera) and batteries is no more than 25 kilograms. Regulation 945 entered into force on 1 July 2019, with no transitional measures.

The second is Commission Implementing Regulation 2019/947, which details the rules and procedures for the operation of UAS.[11] The application of this Regulation, which should have originally entered into force on 1 July 2019, has been postponed due to the COVID-19 pandemic.[12] Regulation 947 entered into force on 1 December 2020.

4. A Risk-based Approach: the UAS Categorisation

The two regulations have the primary objective of achieving a high and acceptable level of safety for UAS operation. In order to do so, the rules and procedures applicable to UAS operations should be proportionate to the nature and risk of the operation or activity and adapted to the operational characteristics of the UAS concerned and the characteristics of the area of operations, such as the population density, surface characteristics and the presence of buildings.[13] This spirit is translated into a tripartite categorisation of UAS, which is based on the risk – or presumed risk – of the operation. The three categories, namely 'Open' (low risk), 'Specific' (medium risk) and 'Certified' (higher risk), have been the "*central architecture of the whole EASA rulemaking process for UAS*".[14]

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[10] Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 *on Unmanned Aircraft Systems and on Third-Country Operators of Unmanned Aircraft Systems,* OJ L 152, 11.06.2019, 1-40.

[11] Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 *on the rules and procedures for the operation of unmanned aircraft,* OJ L 152, 11.6.2019, 45-71.

[12] Commission Implementing Regulation (EU) 2020/746 of 4 June 2020 *amending Implementing Regulation (EU) 2019/947 as regards postponing dates of application of certain measures in the context of the COVID-19 pandemic,* OJ L 176, 5.6.2020, 13-14.

[13] Recital 5 of Regulation (EU) 2019/947.

[14] B. I. Scott, "Open Skies for Unmanned Aircraft in Europe: An Outlier or a New Approach?", 46(1) *Air & Space Law* (2021), 60.

4.1. Open Category

UAS operations in the Open category shall not be subject to any prior operational authorisation. This includes operations in the lowest risk level, where safety is ensured through a combination of limitations, operational rules, technical requirements for UAS. This means that once the operator has established that the operation falls into the Open category, he/she can operate the UAS without gaining any prior approval from the competent authority, provided the operation will be carried out within the operational limitations under Article 3 of Regulation 2019/947. The operator is also not obliged to make a declaration before the operation takes place.

The Open category is divided into three sub-categories, which are determined on the basis of how distant the UAS is flown from people.[15] Generally, this category includes drones intended for leisure purposes or for commercial use and does not cover indoor operations. These operations shall be conducted at a safe horizontal distance of at least 150 meters from residential, commercial, industrial or recreational areas, thus severely limiting the operational capability to more remote areas.

4.2. Specific Category

The Specific category caters for all those operations that are not covered under the Open category. The operator shall obtain an operational authorisation from the competent authority (national aviation authority) whereby the operator performs a risk assessment, and includes adequate mitigating measures. These operations include *inter alia* operations beyond the visual line of sight (BVLOS), higher than 120 meters, with the purpose of dropping material, and employing UAS with a MTOM of more than 25 kilograms.[16]

In the context of the Specific category, EASA develops Standard Scenarios (StS), which contain a precise list of mitigating measures that the operator must follow. These measures are identified by the national aviation authority and it is sufficient for the operator to make a self-declaration to comply with such rules. StS shall cover the most common operations.[17] In other words, a STS is a set of operational parameters that have undergone the risk assessment process under the responsibility of the competent authority (national aviation authority), resulting in pre-determined conditions that provided an acceptable level of mitigation.[18] To date, two StS have

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[15] This includes: A1 for UAS to be flown over people, but not over assemblies of people; A2 for UAS to be flown close to people; A3 to be flown far from people. *See*, *https://www.easa.europa.eu/domains/civil-drones-rpas/open-category-civil-drones* (last access 30 March 2021).

[16] *See*, *https://www.easa.europa.eu/domains/civil-drones-rpas/specific-category-civil-drones* (last access 30 March 2021).

[17] Scott, note 13, 63.

[18] M. Huttunen, "Drone Operations in the Specific Category: A Unique Approach to Aviation Safety", 18(2) *The Aviation & Space Journal* (2019), 7.

been published, namely StS1 and StS2.[19] If the operator wrongly classifies the operation as falling into a certain StS, then he/she is obliged to obtain a prior operational authorization pursuant to Article 12 of Regulation 2019/947. This authorization will contain information on the characteristics of the operation and on where it will take place.

A legal person operating a UAS in the Specific category may apply for a Light UAS Operator Certificate (LUC), which is a certificate issued to a UAS operator by a competent authority as set out in part C of the annex of Regulation 2019/947.[20] This instrument offers, in other words, the possibility for operators to show that their entity/organisation is in compliance with the rules. These operators are granted the privilege to operate without gaining approval for each and every operation.[21]

4.3. Certified Category

The Certified category includes those operations, which, for their high level of risk, can be assimilated to the operation of manned aircraft. More specifically, these include operations that are conducted in one of the following conditions: (i) over assemblies of people; (ii) involve the transport of people; *and* (iii) involve the carriage of dangerous goods, that may result in high risk for third parties in case of accident.[22] Operations of so-called 'air-taxies'[23] fall into the Certified category.

In light of their high level of risk, the operations conducted in the Certified category require that the UAS is certified. This includes both a type certificate and a certificate of airworthiness, as for manned aircraft. Moreover, the operator will need an operator licence as well as a prior operational authorisation. Also the remote pilot shall hold a pilot licence. EASA is currently developing rules for this category on the basis of a distinction into three different types of operations: (i) international flight of certified cargo drones; (ii) drone operations in urban or rural areas using pre-defined routes in airspaces where U-space services are provided; *and* (iii) operations as under (ii), but with a pilot on board (*e.g.* air-taxi operations).[24]

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[19] Commission Implementing Regulation (EU) 2020/639 of 12 May 2020 *amending Implementing Regulation (EU) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight,* OJ L 150, 13.5.2020, 1-31.

[20] Article 2(9) of Regulation 2019/947.

[21] Part C, Annex to Regulation 2019/947.

[22] Article 6 of Regulation 2019/947.

[23] Several companies in Europe are manufacturing and testing prototypes of air-taxies, which will be capable to transport people on unmanned UAS flying into urban and densely populated areas. These companies include, for example, Lilium, Air-taxi Europe, Fly Aelous.

[24] *See,* https://www.easa.europa.eu/domains/civil-drones-rpas/certified-category-civil-drones (last access 30 March 2021).

5. U-Space: Future Perspectives of European Air Traffic Management

The use and capillary diffusion of drones call for a redefinition of the traditional concepts of airspace, air navigation and air traffic control (ATC), as Europe will progressively witnessing to ever more congested airspace, where different types of aircraft (manned and unmanned) will fly simultaneously. In this context, for instance, it is relevant to mention that in order to accommodate UAS operations, it is not sufficient to refer to the so-called 'controlled' airspace, where ATC services are provided, usually including airspace surrounding aerodromes and high altitude corridors, where most of the commercial aircraft fly.[25]

Since drones usually do not operate in high altitude corridors, fly in urban and densely populated areas, are not easily detectable and are largely available to the public, often, for small price, controlled airspace does not represent a viable alternative for UAS. For these reasons, in the last years, there have been discussions towards the identification of a new class of airspace. This is known as 'U-Space', which is meant to provide new services and procedures that would be suitable for unmanned traffic management (UTM). The 'U' stands for a number of elements, which include 'urban', 'unmanned' and 'uncontrolled'.[26]

The U-Space concept is not a top-down regulatory project, but finds its roots in a collaboration between public and private sector, with a synergy between EASA, Eurocontrol, SESAR, national aviation authorities, private software and hardware producers and drone manufacturers.[27] As the U-Space is part of the development of EU law on drones, in 2020, EASA issued an Opinion (*Opinion 1/20*),[28] which paves the way for the future implementation of a U-Space EU Regulation.

Notably, indeed, the Opinion contains a draft Implementing Regulation for the establishment of rules and procedures concerning the U-Space.[29] The objective of this Opinion is to create and harmonise the necessary conditions for manned and unmanned aircraft to operate safely in the U-space airspace, to prevent collisions between aircraft and to mitigate the air and ground risks. Therefore, the U-space regulatory framework, supported by clear and simple rules, should permit safe aircraft operations in all areas and for all types of unmanned operations. As such, the opinion

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[25] M. Huttunen, "The U-Space Concept", 44(1) *Air & Space Law* (2019), 74.

[26] *Id.*

[27] *See*, SESAR, *U-space Blueprint* (2017); SESAR, *European ATM Master Plan: Roadmap for the integration of drones into all classes of airspace* (2018).

[28] EASA, Opinion No. 01/20, *High-Level regulatory framework for the U-space* (2020). Link available at: https://www.easa.europa.eu/sites/default/files/dfu/Opinion%20No%2001-2020.pdf (last access 30 March 2021).

[29] *See*, *https://www.easa.europa.eu/sites/default/files/dfu/Draft%20COMMISSION%20IMPLEMENTING%20REGULATION%20on%20a%20high-level%20regulatory%20fram....pdf* (last access 30 March 2021).

constitutes a first regulatory step to allow immediate implementation of the U-space after the entry into force of the Regulation and to let the unmanned aircraft systems and U-space technologies evolve.

6. Concluding Remarks

The new EU legal framework governing UAS represents a revolution in the context of aviation law. It is the first regional example of systematic drone regulation in the world and it is likely to influence other countries to enact similar national legislation so as to define rules and procedures for the functioning of an international UAS market.

The two regulations, as discussed above, adopt a significantly different approach from that, which has traditionally shaped manned aviation. However, while setting up the scene and laying down the main requirements for the design, certification and use of drones, much is yet to be delineated through the continuous development by EASA of guiding material, such as Acceptable Means of Compliance (AMC) and Guidance Material (GM), which will define more precisely how operators shall act if they want to operate drones in one of the three categories within the territory of the Union.