EU Drone Management

Expectations of the Austrian Drone Community

DGON – Luftfahrtkommission 02/2022 – Wien, FREQUENTIS (18.10.2022)

Mag. Raoul Fortner, Vorsitzender/Chairman AAD
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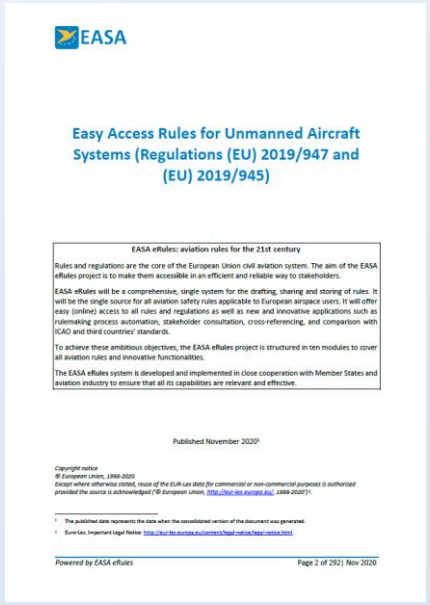
(1) – EU Drone Regulatory Framework since 2018

ALL applicable EU/EASA drone regulations in one single document

„*Easy Access Rules for Unmanned Aircraft Systems*“
(DR, IR + AMC incl. SORA + GM) – 440 Pages
Regularly Updated

Stand: September 2022

ED 2022/002/R vom Februar 2022 sowie EU 2022/425 nun drin!


EASA

Easy Access Rules for Unmanned Aircraft Systems (Regulations (EU) 2019/947 and (EU) 2019/945)

EASA eRules: aviation rules for the 21st century

Rules and regulations are the core of the European Union civil aviation system. The aim of the EASA eRules project is to make them accessible in an efficient and reliable way to stakeholders.

EASA eRules will be a comprehensive, single system for the drafting, sharing and storing of rules. It will be the single source for all aviation safety rules applicable to European airspace users. It will offer easy (online) access to all rules and regulations as well as new and innovative applications such as rulemaking process automation, stakeholder consultation, cross-referencing, and comparison with ICAO and third countries' standards.

To achieve these ambitious objectives, the EASA eRules project is structured in ten modules to cover all aviation rules and innovative functionalities.

The EASA eRules system is developed and implemented in close cooperation with Member States and aviation industry to ensure that all its capabilities are relevant and effective.

Published November 2020[3]

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EASA — Easy Access Rules for Unmanned Aircraft Systems (Regulations (EU) 2019/947 and (EU) 2019/945) — Note from the editor

NOTE FROM THE EDITOR

The content of this document is arranged as follows: the cover regulation (recitals and articles) with the implementing rule (IR) points appear first, followed by the related acceptable means of compliance (AMC) and guidance material (GM) paragraph(s). As last comes the delegated rule (DR).

All elements (i.e. cover regulation, IRs, DRs, AMC, and GM) are colour-coded and can be identified according to the illustration below. The Commission regulation or EASA Executive Director (ED) decision through which the point or paragraph was introduced or last amended is indicated below the point or paragraph title(s) in italics.

Cover regulation article
Commission regulation
Implementing or delegated rule
Commission regulation
Acceptable means of compliance
ED decision
Guidance material
ED decision

This document will be updated regularly to incorporate further amendments.

The format of this document has been adjusted to make it user-friendly and for reference purposes. Any comments should be sent to erules@easa.europa.eu.

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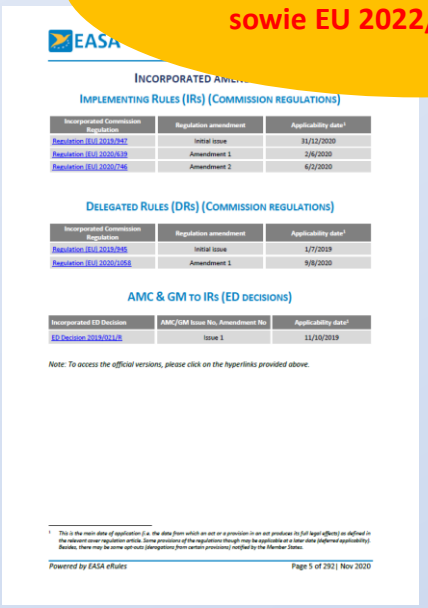
EASA

INCORPORATED AMEND...

IMPLEMENTING RULES (IRS) (COMMISSION REGULATIONS)

Incorporated Commission Regulation	Regulation amendment	Applicability date[1]
Regulation (EU) 2019/947	Initial issue	31/12/2020
Regulation (EU) 2020/639	Amendment 1	2/6/2020
Regulation (EU) 2020/746	Amendment 2	6/2/2020

DELEGATED RULES (DRS) (COMMISSION REGULATIONS)

Incorporated Commission Regulation	Regulation amendment	Applicability date[1]
Regulation (EU) 2019/945	Initial issue	1/7/2019
Regulation (EU) 2020/1058	Amendment 1	9/8/2020

AMC & GM TO IRS (ED DECISIONS)

Incorporated ED Decision	AMC/GM Issue No, Amendment No	Applicability date[1]
ED Decision 2019/021/R	Issue 1	11/10/2019

Note: To access the official versions, please click on the hyperlinks provided above.

[1] This is the main date of application (i.e. the date from which an act or a provision in an act produces its full legal effects) as defined in the relevant cover regulation article. Some provisions of the regulations though may be applicable at a later date (deferred applicability). Besides, there may be some opt-outs (derogations from certain provisions) notified by the Member States.

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www.easa.europa.eu/document-library/general-publications/easy-access-rules-unmanned-aircraft-systems-regulation-eu

Fortner‘s Guide to the EU Drone Regulatory Jungle („Framework“)

(New) EASA-Basic Regulation – (EU) 2018/1139

§ 4th July 2018 / OJEU 22nd August 2018 / * 11th September 2018 (EC – Council – EP)

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2018:212:FULL

IR – (EU) 2019/947

Implementing Regulation („Operation“)

§ 24.05.2019 / OJEU 11.06.2020 / Appl. 31.12.2020

- *3 Categories: OPEN, SPECIFIC, CERTIFIED*
- *Pilots Competency & Age*
- *Risk Assessment (art. 11)*
- *Cross-border / EU-wide Ops (art. 13)*
- *UAS Registration (art. 14)*
- *Geographical Zones (art. 15)*
- *Transition (art. 22)*
- *Annex: Subcategories A1, A2, A3 & LUC*
- *Appendix: STS (Standard Scenarios)*

+ amdt.

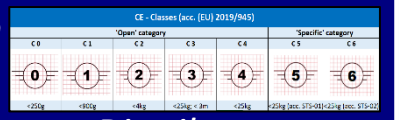
AMC (Acceptable Means of Compliance) incl. SORA | **Guidance Material GM**

DR – (EU) 2019/945

Delegated Regulation („Product & Market“)

§ 12.03.2019 / OJEU 11.06.2020

- *Design, Production, Maintenance*
- *Free movement of products (within EU)*
- *Remote Identification*
- *Obligations of:*
  Manufacturers, Importers, Distributors
- *Product Conformity & CE marking*
- *Market surveillance & EU Imports*
- *Safeguards & Products representing risk(s)*
- *Annex: Class CO, C1, C2, C3, C4, C5, C6*



+ amdt.

Design Objectives Drafts: CS (Certification Specifications – JARUS), Industry Standards

3 U-Space-IRs

§ 22.04.2021 / OJEU 23.04.2021

START ? 26.01.2023

IR – (EU) 2021/664
U-Space-Framework (UTM)
(Dyn. Airspace, CIS, USSPs, Services 4+2, Authorities)

IR – (EU) 2021/665
ATM (EU 2017/373)

IR – (EU) 2021/666
SERA (EU 923/2021)

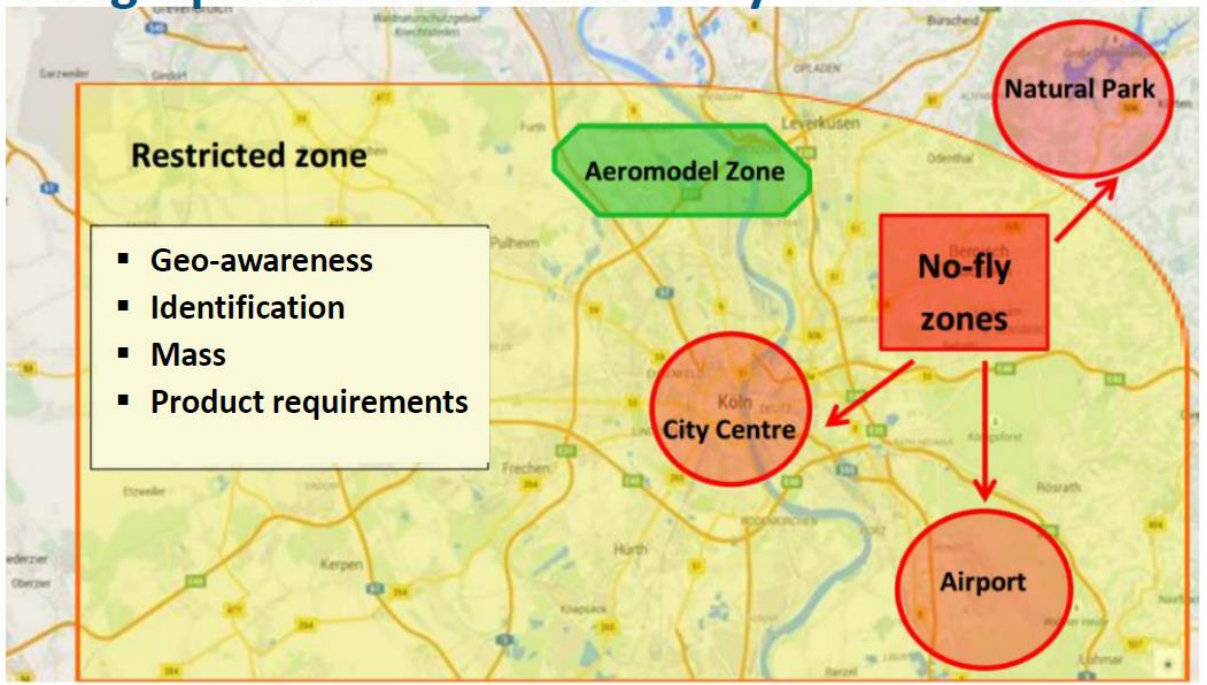
AMC (Acceptable Means of Compliance) | **Guidance Material GM**

NPA 2021-14

2022: Geographical Zones („No-Drone-Zones“) in EU 2019/947

Flexibility for Member States

Geographical zones defined by Member States



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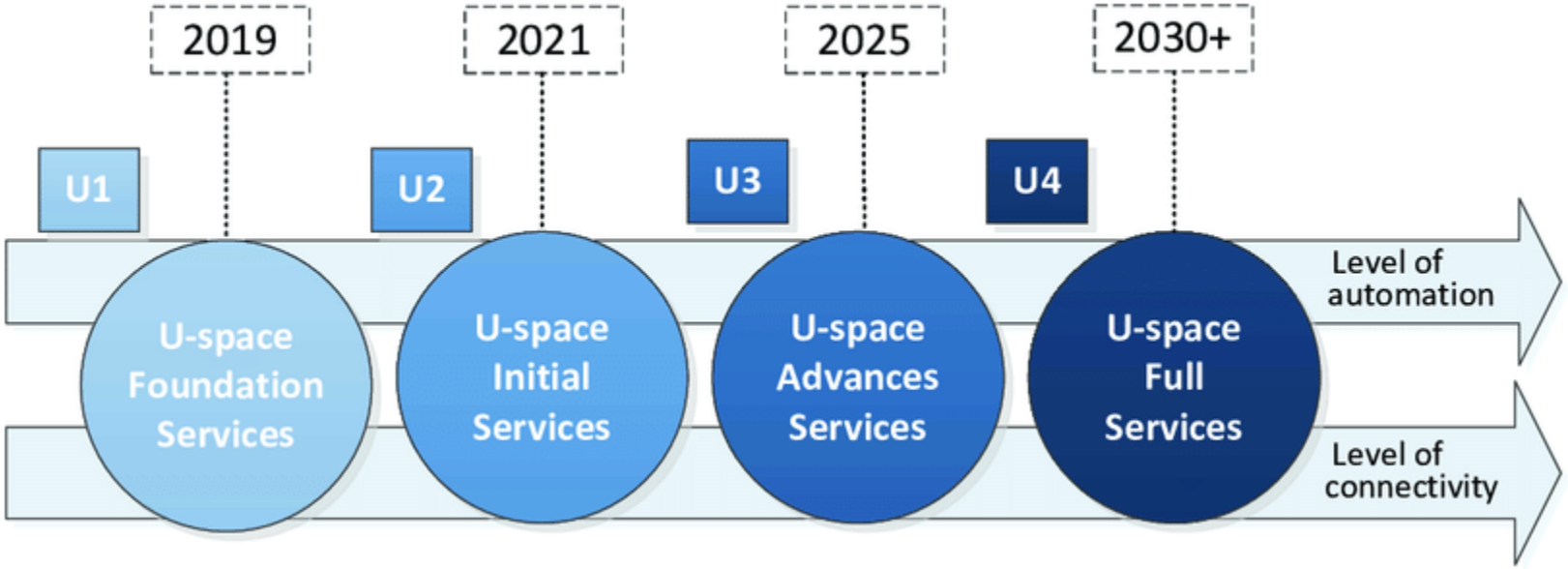
Geo-awareness on drones to support remote pilots

12

(2) – UTM & U-Space

AAD – AUSTRIAN ASSOCIATION FOR DRONES
Der österreichische Drohnenverband



U1 **U-space foundation services** provide e-registration, e-identification and geofencing.

U2 **U-space initial services** support the management of drone operations and may include flight planning, flight approval, tracking, airspace dynamic information, and procedural interfaces with air traffic control.

U3 **U-space advanced services** support more complex operations in dense areas and may include capacity management and assistance for conflict detection. Indeed, the availability of automated 'detect and avoid' (DAA) functionalities, in addition to more reliable means of communication, will lead to a significant increase of operations in all environments.

U4 **U-space full services**, particularly services offering integrated interfaces with manned aviation, support the full operational capability of U-space and will rely on very high level of automation, connectivity and digitalisation for both the drone and the U-space system.

→ 2017: „Blueprint“ (European Commission, SESAR)

→ 2019: Erster EASA-WS zu U-Space (05/2019)

→ 2020: EASA-Opinion 01/2020, intensive Verhandlungen

→ 2021: U-Space-Regulation(s) nach **„fast track“ process**

→ 2022: Aktuelle Diskussion AMC/GM → Herbst Ergebnis zu NPA 2021-14?

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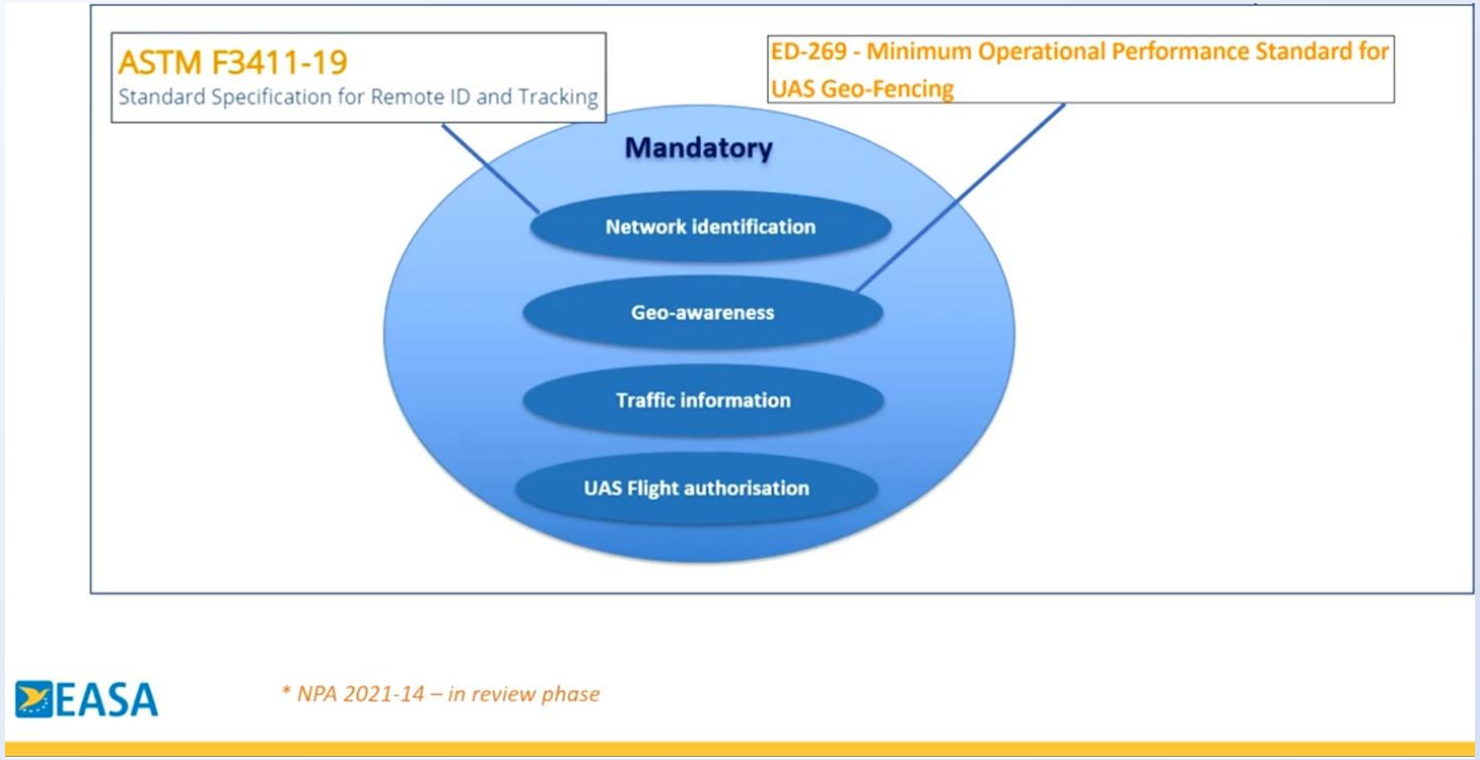
Der österreichische Drohnenverband

→ EASA @ Amsterdam Drone Week (03/2022): Lfd. Diskussion techn. Umsetzung U1/U2

→ z.B. Standards für Remote-ID, Geozones usw. … → EUROCAE-Aktivitäten (WG-105, SGs)

→ Aktuell vier „mandatory“ services ab 01/2023 geplant (optional: Wetter, Conformance)



Feasibility Study 2021

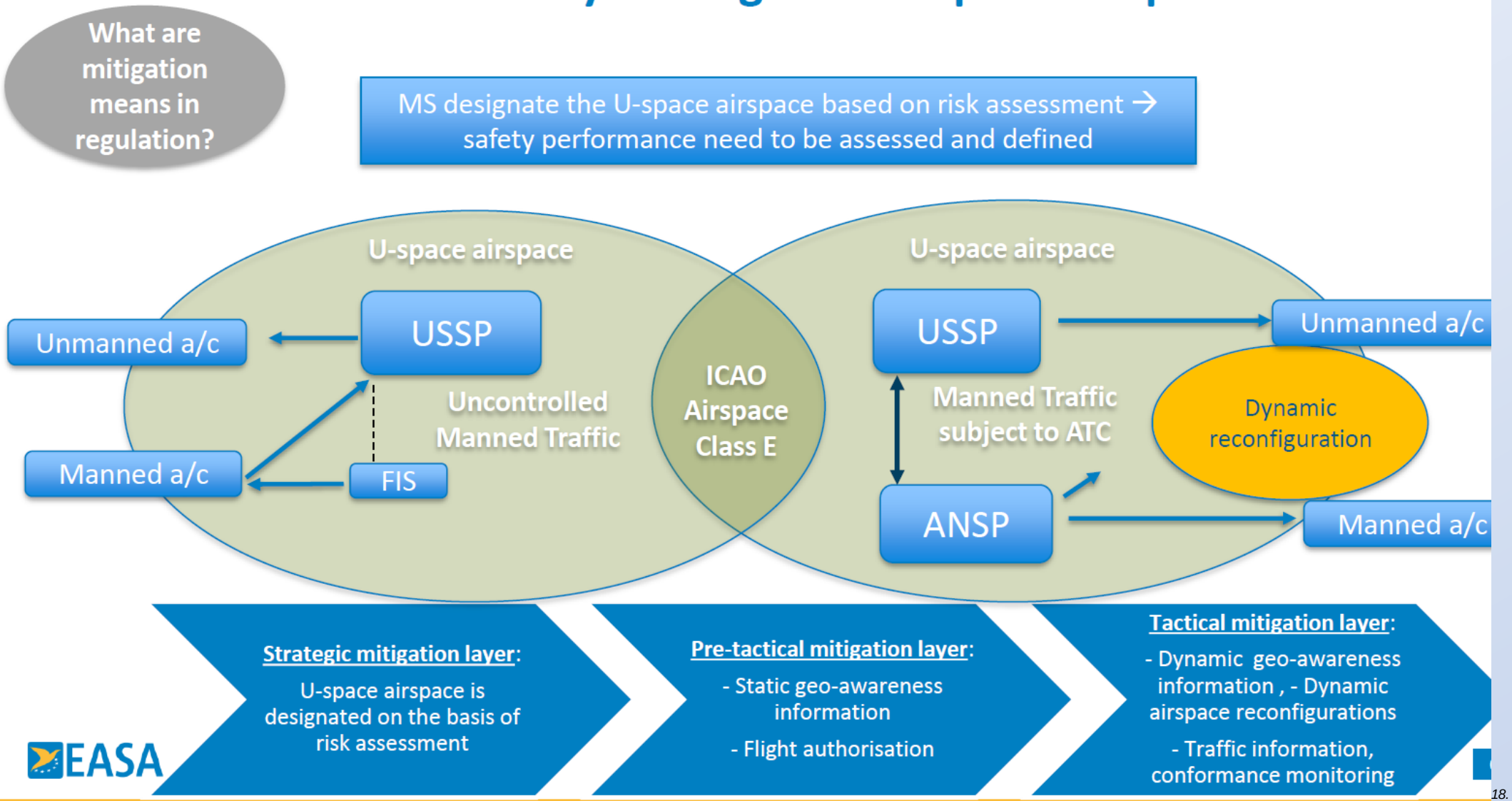
”Feasibility Study about the possibility of using mobile telecommunication technologies for making manned aircraft electronically conspicuous in U-space”

EASA
European Union Aviation Safety Agency

Koen Meuleman
Co-Founder-Regulatory Affairs
Unifly

- Most U-space requirements are *mature* from the *technical* point of view
- The challenge lays with the implementation
- Many of the current referenced standards are not fit for purpose. e.g ED-269, ASTM F3411,….
  - Lack of guidance on how to technically use and implement the standards.

How is safety managed in U-space airspace?



Constraints & Boundaries

Development of AMC/GM to SERA.6005(c) by Q4 2021

Aircraft (manned)

- **Affordability** (to end users)
- Technology **available now** (aviation & other)
- **Single device policy**
- Simple installations
- Enable airborne collision risk mitigation for manned aircraft

USSP

- Minimum necessary position information (incl. from 3rd parties)
- **Affordable infrastructure** (ideally compatible with UAS needs)
- Minimum performance meeting U-space objectives

Resources

- Existing international standards (aviation & other)
- **Pan-European applicability**
- ITU regulated spectrum
- **Machine readable**
- Open standards (non-proprietary or free of royalties)

EASA

Suitable for urban and low level environments

Means of Transmission

ADS-B Out (1090 MHz)

For certified aircraft, using the **existing certified technology** already installed on board

ADS-L (SRD-860)

Non-certified devices transmitting at low power on the licence-free band SRD-860, in compliance with ADS-L specifications

ADS-L (Mobile telephony)

Mobile telephony application transmitting in compliance with ADS-L specifications

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Der österreichische Drohnenverband

European Union Aviation Safety Agency

Notice of Proposed Amendment 2021-14

in accordance with
Articles 6(3), 7 and 8 ('Standard procedure': public consultation) of MB Decision No 18-2015

Development of acceptable means of compliance and guidance material to support the U-space regulation

RMT.0230 – SUBTASK B

EXECUTIVE SUMMARY

The objective of this Notice of Proposed Amendment (NPA) is to maintain a high level of safety for unmanned and manned aircraft operations in the U-space airspace.

This NPA proposes acceptable means of compliance (AMC) and guidance material (GM) to the U-space regulatory package (Regulations (EU) 2021/664, (EU) 2021/665 and (EU) 2021/666).

Due to the novelty of the subject, it is important to provide the necessary means for the implementation of the above-mentioned Regulations as regards:

- the concept of a U-space airspace and its management by the Member States (MSs) in terms of risk assessment and responsibilities;
- the dynamic reconfiguration of the U-space airspace, when applied;
- the operational functioning of the common information service and the certification process for both the providers of this service and the U-space service providers (USSPs);
- the technical specifications and related performance requirements for the different U-space services;
- the exchange of all data and available information between the participants of the U-space airspace;
- the definition of relevant standard(s) for the connection to the common information service provider(s) to ensure interoperability and uniform implementation across the EU;
- detailed procedures and performance requirements for the flight authorisation services;
- the acceptable means for manned aircraft to be conspicuous when entering the U-space airspace in uncontrolled airspace;
- the expected coordination with local authorities, the security aspects to be covered in a specific U-space airspace, and the authorities' oversight programme as well as any other task related to the management of the U-space airspace under their responsibility.

This proposal is expected to help in maintaining safety as regards operations of unmanned and manned aircraft in the U-space airspace and improve harmonisation among MSs as regards the provision of U-space services.

Domain:	Unmanned aircraft systems (UAS)		
Related rules:	AMC & Regulation (EU) 2021/664, Regulation (EU) 2021/665 and Regulation (EU) 2021/666		
Affected stakeholders:	MSs, UAS operators (individuals and organisations), UAS manufacturers, manned aviation community, model aircraft community, air traffic management (ATM)/air navigation services (ANS) service providers, USSPs, aerodrome (ADR) operators, all airspace users		
Driver:	Safety	**Rulemaking group:**	No
Impact assessment:	No	**Rulemaking Procedure:**	Standard

EASA rulemaking procedure milestones

Start Terms of Reference	Public consultation NPA	Decision Acceptable Means of Compliance, Guidance Material
22.4.2021 (ToR Issue 3)	16.12.2021	

WATMC 2022: "We are in a marathon": the tasks facing EASA in certifying USSPs by 2023

June 22, 2022 Emerging regulations, UAS traffic management news

"The more we work on the guidance material the more we realise the gaps we have in issues such as matching performance requirements for a mature U-space airspace with services or defining the latency requirement of network ID," said Maria Algar Ruiz, Program Manager Drones at the European Union Aviation Safety Agency (EASA), speaking at the World ATM Congress in Madrid.

The agency is working its way through the 2,600 plus comments it received from the publication of its December 2021 Acceptable Means Compliance and Guidance Material (AMC & GM) (https://www.unmannedairspace.info/emerging-regulations/easa-publishes-u-space-acceptable-means-compliance-and-guidance-material-proposals/) and Maria Algar Ruiz could not guarantee all the granular requirements of certified U-space operations would be available in the next AMC & GM edition, due for publication in September.

AAD – AUSTRIAN ASSOCIATION FOR DRONES
Der österreichische Drohnenverband

Sicher fliegen mit Drohnen: Austro Control und Frequentis starten Verkehrsmanagement-System für Drohnen

Austro Control und Frequentis setzen einen weiteren Meilenstein in ihrer Zusammenarbeit und starten mit dem Aufbau einer Verkehrsmanagement-Lösung zur sicheren Integration von Drohnen in den österreichischen Luftraum. Das System soll Anfang 2023 in Betrieb gehen.

Die wichtigsten Features und Services, die stufenweise über die nächsten Jahre implementiert werden sind:

- Die intuitive Applikation für Fluglotsinnen und Fluglotsen sowie die mobile Applikation für Drohnen-Pilotinnen und -Piloten ermöglichen in Echtzeit
  - Luftraumregeln und -beschränkungen festzulegen,
  - Flugpläne zu überprüfen und
  - Freigaben für Drohnen-Flüge zu erteilen.
- Warnungen vor – auch kurzfristig – gesperrten Lufträumen.
- Digitalisierung der bisher manuellen Freigaben von Flügen und damit eine massive Verbesserung der Services für Drohnenpiloten.
- Das Verkehrsmanagement-System für Drohnen unterstützt auch die österreichische Wirtschaft, die neue Dienste am Markt durch den Einsatz von Drohnen etablieren will.

www.austrocontrol.at/unternehmen/medien/presse__news/detail/sicher_fliegen_mit_drohnen_austro_control_und_frequentis_starten_verkehrsmanagement-system_fuer_drohnen

(3) – Conclusions

STATUS & CHALLENGES

- **Status: Entire EUropean Drone Community awaits AMC/GM by EASA and Standards by EUROCAE (or others like ASD-STAN or even US-bodies)**
- **Escpecially needed: Clarity about manifold technical and safety details**
- **e.g.: Remote-ID, Deconflicting, Manned ←→ Unmanned, CIS & USSP-cert.**
- **In the meanwhile more and more member states start own UTM systems**
- **Foreseeable:**
  - **National UTM Systems will be faster implemented**
  - **Many „lessions learnt“ still ahead (e.g. Position Data)**
  - **U-Space-Framework needed for harmonised standards**
  - **Future co-existance: EU U-Space ←→ MS UTM Systems**

Thanks for you attention!

Questions?

Please contact us …

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