EASA
European Aviation Safety Agency

Drones – Regulator Views

Development of the Future European Rules on Unmanned Aircraft (UA)

Presentation to Rotorcraft Workshop

EASA Team

07 December 2016, Cologne

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An agency of the European Union

Overview(I)

- Draft Basic regulation (12/2015): EU competence to regulate all unmanned aircraft
- EASA technical opinion (12/2015): operation centric concept:
  - 3 categories (open, specific and certified)
  - Performance based, risk based and proportionate
- Support to the discussions on draft Basic Regulation
  - Development of a **road map** (01-06/2016)
  - **Prototype Regulation** (08/2016)
  - **Communications through workshops:** 4 with Member States (MS); 2 with Stakeholders; 1 high level meeting

Overview(II)

- 2 tasks forces set-up: reports published:
  - Geo limitation (e.g. Geo fencing)
  - Collision with manned aircraft
- Close cooperation with EC DG-MOVE and DG-GROW:
  - workshops and prototype regulation
- Further cooperation with EDA (Air Traffic Integration) and SESAR joint undertaking (Air Traffic Integration and Research)
- Continuation of international cooperation:
  - Active participation in ICAO (e.g. Small UAS group; CONOPS)
  - Active participation in JARUS (Joint Authorities for the Regulation of Unmanned Systems) noting good progress made
  - Close contacts maintained with FAA

EASA "Prototype" Regulation

European Aviation Safety Agency

'Prototype' Commission Regulation on Unmanned Aircraft Operations

22 August 2016

Legal notice: This document presents a 'prototype' regulation for to the operation of unmanned aircraft in the 'open' and 'specific' categories. Its sole purpose is to inform and consult stakeholders in view of the ongoing negotiations with the Parliament and the Council on the review of Regulation (EC) No 216/2008 and in view of giving indications on the possible direction that EASA will take on its implementation, after appropriate consultation, in a notice of proposed amendment (NPA) planned for the end of 2016. It represents the current views of EASA; however, it does not constitute any formal commitment on behalf of EASA nor of the European Commission.

Delivering Effective Regulation

OPEN

SPECIFIC

CERTIFIED: not addressed by prototype regulation

"Prototype" Regulation: Objectives

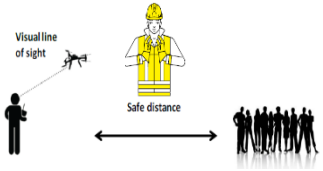
CATEGORIES

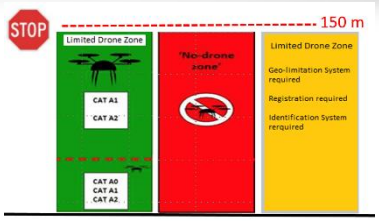
- Provides clarity on how the "open" and "specific" categories could be implemented
- Integrates in a single IR both Aviation legislation and Product legislation
- Clarifies the role of and the flexibility for Member States
- Next steps: a formal rulemaking procedure supported by expert group (NPA planned for March 2017)

Safety in the open category

Operational limitations and rules:

- maximum height and distance, VLOS,
- areas, etc.





Pilot competence:

- age, familiarization,
- training

Compliance with **product requirements**

- limiting performance, injury risk (height, AIS, mass)
- imposing airworthiness features
- imposing functionalities (geofencing, identification)

CE

A0	< 250 g
A1	AIS <=2
A2	AIS < 4
A3	< 25 Kg

Safety Promotion

- Awareness raising

Efficient **enforcement**

- mandatory operator registration

Identification

Technology I: Geofencing

‘Geofencing class 2’ shall mean a **permanent** automatic function to limit the access of the UA to airspace areas or volumes

‘Geofencing class 3’ shall mean a **selectable** function to limit the access of the UA to airspace areas or volumes

- performance according to standards acceptable to the agency
- technology neutral
- harmonization through adopted standards
- Proposed functions not suitable for unmanned aircraft without integrated flight controller

Technology II: Electronic Identification

‘Electronic identification’ shall mean a **function to identify a UA in flight without direct physical access to that aircraft**. The system shall transmit the following data as applicable according to standards acceptable to EASA:

(a) the registration of the operator,
(b) the class of the UAS,
(c) the type of UA operation,
(d) the status of its geofencing, and
(e) its position and height.

- Technology neutral
- Harmonization through adopted standards

EASA "Prototype" Regulation for "open" and "specific" category: flexibility for MS

EASA

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Article 1 and 2: Scope and definition

Article 3: Categories of Operations

Article 4: Principles

Article 5: Open Category

Article 6: Specific Category

Article 7: Safety Critical Services

Article 8, 9: Competent Authority

Article 10: Exchange of Safety Information

Article 11: Means of Compliance

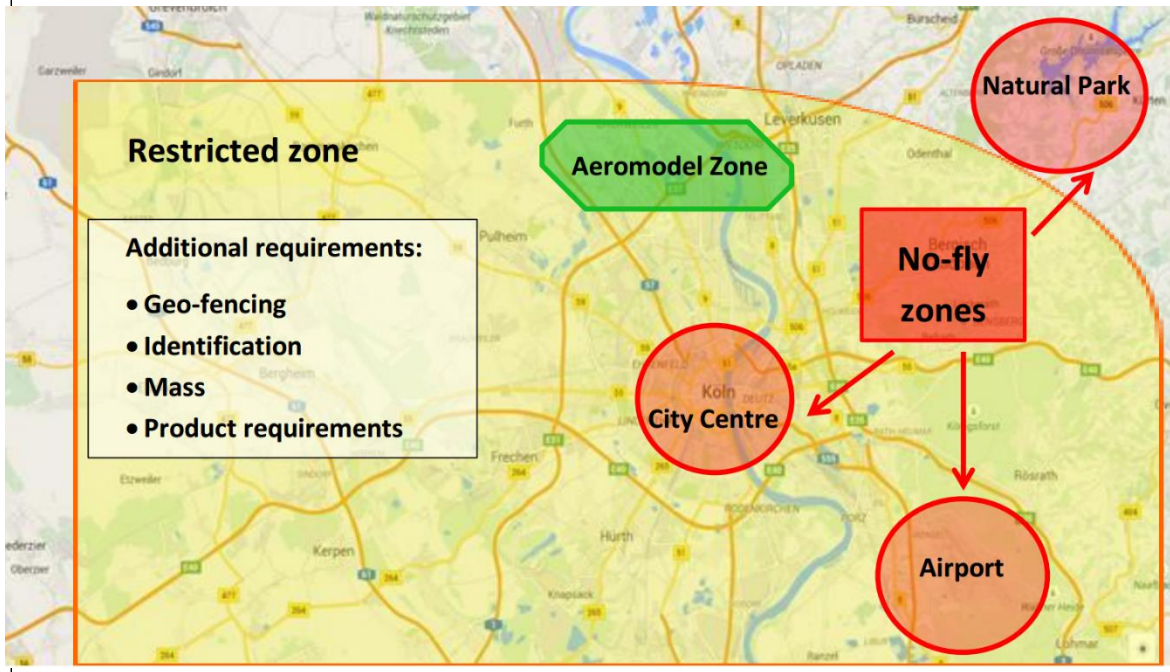
Article 12: Airspace Areas and Special Zones for UA Operations

Article 13: Immediate Reaction to a Safety problem

Article 14: Applicability

Article 15: Transitional Provisions

Article 16: Entry into Force



Defined by Member States

Specific Category (1/2)

SPECIFIC

Operator

Competent authority

OPERATIONS

Specific Operation Safety Risk Assessment (SORA)

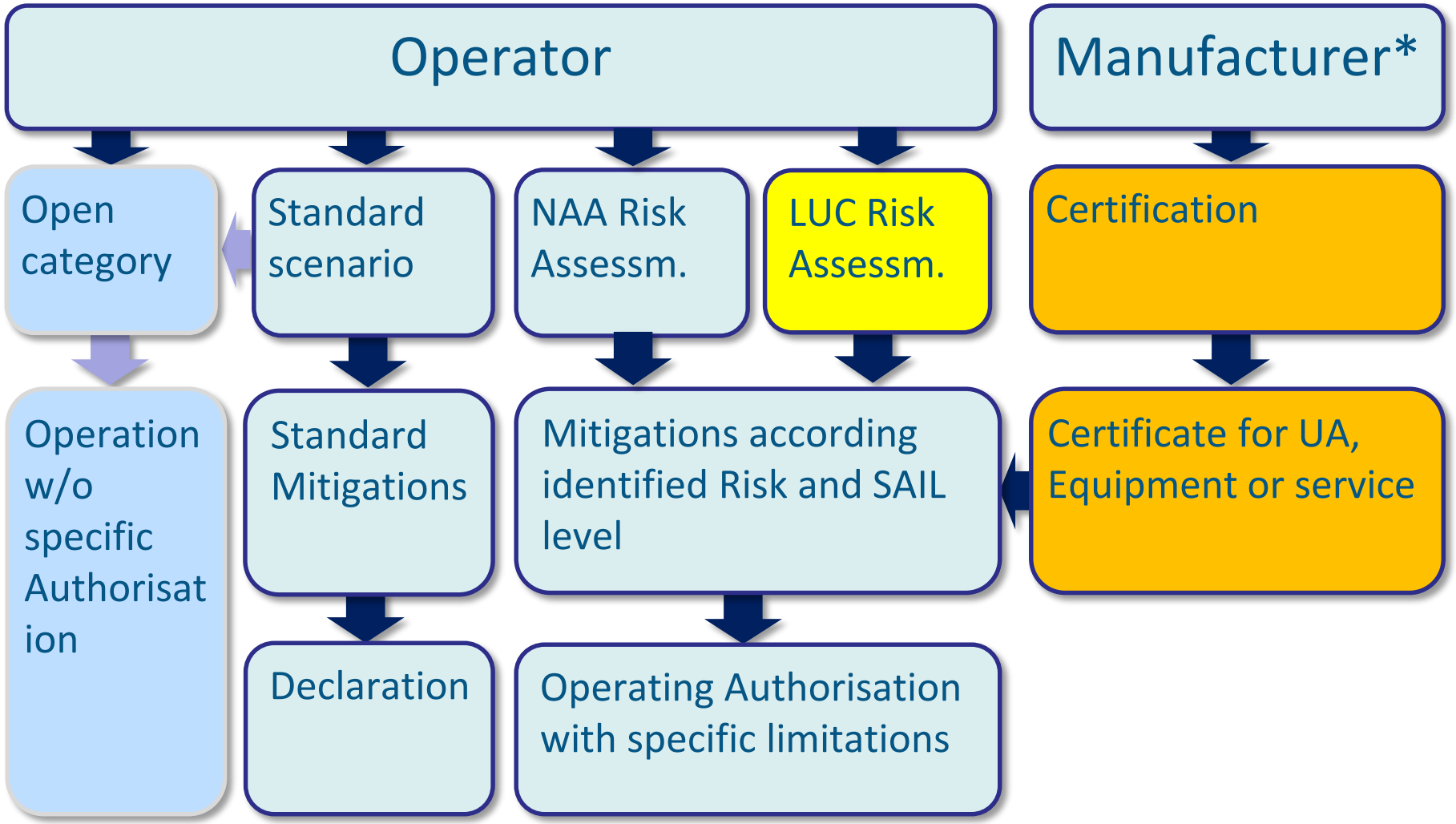
Operation Authorisation (OA)

Specific Category (2/2)

SPECIFIC

- Introduces the concept of Declarations, Authorisations and Light Unmanned Aircraft Operator Certificate (LUC)
- Introducing the concept of standard scenarios covering certain types of operations or flights
  - Low risk ones may be self-authorised by operator through a declaration
  - High risk one authorised by the competent authority based on a risk assessment
- An operator may choose to apply for a LUC:
  - More flexibility to operators with privileges to authorise operations

Operating Authorisation



Workshop on October 24 and Expert group priorities

- Participation of the European Commission, Member States, unmanned aircraft and aviation community and model associations
- Main results of discussion:
  - An Expert Group, made of representatives of Member States, unmanned aircraft community and the aviation community and model associations, has been set-up to support EASA to develop changes to the final UAS regulation. The initial topics the group will focus with priority are:
    - review of open sub-categorisation and scope of specific categories;
    - minimum age and pilot competency assessment, exploring the need for a certificate;
    - model Aircraft and homebuilt
  - Major input for the group: comments (about 550) received during the prototype rules consultation phase.
  - The first expert group meeting addressed in particular model aircraft and open category requirements and subcategorization

Sub-categories: main points of discussion arising from comments

1. Evaluate the possibility to define sub-categories in a simpler way and/or apply some merging
2. Consider introducing definitions of standard zones of operations such as “urban environment” or “remote area” and link operational limitations to them
3. Introduce a category to capture homebuilt above 250 g. When no geo-fencing is required this would imply reinforced training
4. AIS might be difficult to apply: consider simpler criteria (e.g. mass) or adopt both and leave the alternative
5. Re-evaluate upper limit (A3 definition) of open category, reviewing consequences for Authorities and Industry alike
6. 50 m seems quite a strict limitation, consider whether it is possible to always adopt 150 m
7. Re-assess need to mandate geo-fencing / mandate only for UA after a certain date / introduce it as MoC
8. Reinforce training to mitigate risk (including risk of collisions with manned aircrafts at low altitude)

    Extend online training to all subcategories ? include practical training ? Including formal test ? Raise minimum ages ?

Model Aircraft

- The prototype rules address model aircraft with Article 15
- The good safety records and the safety culture of model clubs are recognised by EASA
  - The article was meant to allow each member State, within 3 years, to provide to model clubs a special authorisation identifying deviations from the rule. In this way the model club and associations would continue to operate as today
- The article received numerous comments during the consultation phase
- It has been agreed that the article will be reworked and improved. A revised text has been proposed

Actions of the Warsaw declaration

- EASA should further study the interaction between drones and manned aircraft
- Follow-up on EASA's initiative to develop detailed drones rules on the basis of this emerging framework.
- Development of the concept of the "U-Space" on access to low level airspace especially in urban areas: European authorities to outline, within six months, this concept. This outline should address issues relating to business models and governance and include the concept of operations.
- Creation of an effective coordination mechanism between the European Commission, the relevant European Agencies, including the European Defence Agency, and all stakeholders reflecting the drone services market, to monitor, advise and assist with:
  - the establishment of the regulatory framework, including the timely delivery of industry standards;
  - the efficacy and funding of drone integration projects; and
  - the development of the U-Space.

Task Force Risk of collision drones-a/c

TF setup with EASA and EU aircraft industry experts

- Review relevant occurrences
- Study the behaviour of aircraft and their associated design and operational requirements
- Focus on the current situation in terms of consequence of impact on aircraft and existing mitigation means

<u>Status</u>

- Questionnaire sent to more than 130 organizations (Industry & NAA's)
- Conclusions for each product type are still being finalised
- Recommendations for Study and Research have been made
  - drone model specification for assessment of consequences of impact: behaviour drone and its components during impact
  - Specific assessment of consequences of impact from lithium batteries
  - Modelling and validation of hazard severity thresholds a/c components
- Report published

Next steps

UAS “open” and “specific” category:

- 21 November 16: first meeting of Expert Group (more planned)
- March: EASA publishes NPA
- 3nd Quarter 17: EASA issues Opinion for new IR
- Further planning depends of the date of adoption of the BR

UAS “Certified” category: “start” 2017; Estimate completion by Q4 2018

Support the implementation the conclusions of the Warsaw High Level Conference and in addition:

- Education/ Awareness

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Questions and comments are welcome

Prototype regulations and task-force reports available at

http://www.easa.europa.eu/easa-and-you/civil-drones-rpas

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