



EASA

European Aviation Safety Agency

Unmanned Aircraft: The preparation of the EU Regulatory Framework

EASA team

Helitech Safety Workshop
13 October 2016
Updated 03 November 2016

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TE.GEN.00409-001



General objective: meet the political agenda

- Draft Basic regulation (12/2015): EU competence for all unmanned aircraft
 - Proposes a tool-box.
- EASA technical opinion (12/2015): operation centric concept:
 - 3 categories (open, specific and certified)
 - Performance based, risk based and proportionate
- Roadmap developed in cooperation with the Commission and Member States (June 2015):
 - In addition to regulation, covers e.g. research and safety promotion
- Cooperation with ICAO (International Civil Aviation Organisation); JARUS (Joint Authorities for the Regulation of Unmanned Systems); SESAR joint undertaking (SJU) and European Defence Agency (EDA)



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 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.



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Delivering Effective Regulation



OPEN



SPECIFIC



**CERTIFIED: not
addressed by
prototype regulation**



“Prototype” Regulation: Objectives

CATEGORIES



- Provide clarity on how the “open” and “specific” categories of the operation-centric risk-based concept could be implemented
- Integrates both Aviation legislation and Product legislation
- Clarify the role of and the flexibility for Member States
- Will be followed by a formal rulemaking procedure:
 - See next slide



Formal rulemaking process (I)

- Includes 8 subtasks to develop amendments to all affected regulations:
 - Initial Airworthiness (EU) No 748/2012;
 - Continuing Airworthiness (EU) No 1321/2014;
 - Aircrew (EU) No 1178/2011;
 - Air Operation (EU) No 965/2012;
 - ATM/ANS oversight (EU) No 1377/2016;
 - ATCO licensing (EU) No 2015/340;
 - Airspace Usage Requirements (EU) No 1332/2011;
 - SERA (EU) No 923/2012;
 - Third Country Operator (EU) No 452/2014;
 - Aerodromes (EU) No 139/2014
- EASA drones Steering Committee on October 10:
 - asked to explore the possibility of issuing one NPA for “certified” instead of the 16 NPA envisaged in TOR
 - agreed to the set-up of an “Expert Group”.
- Subsequent to the meeting, EASA ED and DG Move DG agreed to postpone publication of NPA “open and specific” to end March 2017



Formal rulemaking process (II)

- Establish an “expert group” of around 15/16 people with the following characteristics:
 - According to Art 4.3 of Management Board Decision N° 18-2015
 - Chaired by EASA ; DG Move and DG Grow join
 - Balance between Authorities and the Stakeholder Communities
 - Representation from UAS community; Model Aircraft community and Manned Aircraft community.
- Purpose:
 - Review and provide inputs on drafts prepared by EASA
- Timeline:
 - Kick-off 2n Half of November (e.g. 21), then meetings in December?, January and February
- NPA for open and specific categories
 - Publication end March 2017



“Prototype” Regulation: Selected features

CATEGORIES



- Commercial and non commercial activities are included:
 - Transition period based on current national system without risk assessment for model aircraft in associations/clubs
- Security, privacy, data protection, insurance indirectly addressed
- Operators’ requirement for registration; geo-fencing and electronic identification:
 - Interoperable registers set up by Member States.
 - EASA ready to consider EU register
- Member States may define special areas or zones for Unmanned Aircraft
- Designation and role of Competent Authority



Open Category (1/2)

OPEN



	A0	A1	A2	A3
Security & Data Protection				
Registration of operator	-	X	X	X
Geofencing	-	-	X	X
E-Identification	-	-	X	X
Pilot competence				
Minimum age	-	14 years old	14 years old	14 years old
Self training	-	-	X	X
Training service providers	-	-	-	X
Operational Limitations				
Max. horizontal distance	VLOS 100m	VLOS	VLOS	VLOS
Max. altitude	50m (150 ft)	50m (150 ft)	50m (150 ft)	150m (500 ft)
Min. distance from people	safe	safe	50m	50m; 20m (r/c)
...				
...



Open Category (2/2)

OPEN



...				
...
Technical requirements				
Class of drone	CE Class 0 (toys) /homebuilt	CE Class 1	CE Class 2	CE Class 3
Max mass	250 g	25 Kg	25 Kg	25 Kg
Injury Criteria		AIS ≤ 2	AIS ≤ 4	
Max speed	54 Km/h (15 m/s)			
Altitude Limitation	50 m	50 m	50 m	150 m
Horizontal distance limit	100 m	-	-	-
Lost link method	-	-	X	X
Minimum noise	-	-	X	X
Auto return home	-	-	X	X
No single failures	-	-		X
Occurrence reporting				
Serious injuries, fatalities, manned A/C involved	X	X	X	X
	A0	A1	A2	A3



Specific Category (1/2)

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-authorized 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



Specific Category (2/2)

SPECIFIC



Operator

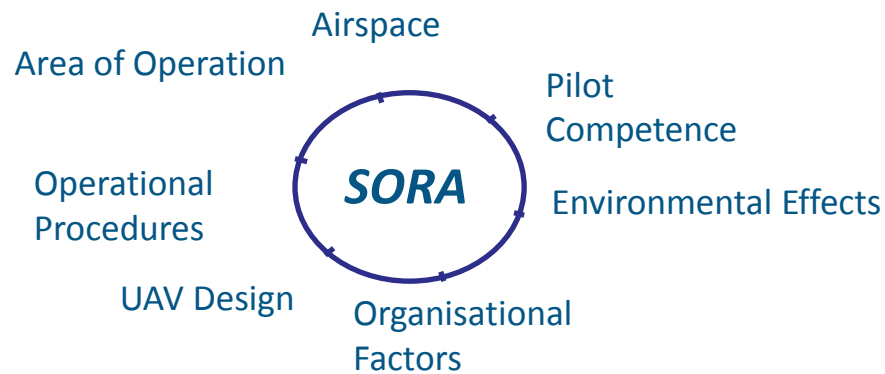


Competent
authority



OPERATIONS

Specific Operation Safety Risk Assessment (SORA)



Operation
Authorisation (OA)



Certified Category

CERTIFIED



Implementing Rules to be incorporated in existing manned a/c rules

Drones/Components

- Type Certificates (Full / Restricted)
- Certificates of Airworthiness
- European Technical Standard Order Approvals (ETSO) (option)

Organisations

- Design Organisation Approval
- Production Organisation Approval
- Maintenance Organisation Approval
- Training Organisation Approval

Personnel

- Licensed pilot
- Remote Operator Certificate (ROC)

Certification Specs.

- Safety Objectives
- Technical Standards
- Standards for Operational aspects
- Standards for Licensing aspects



Summary: Categories of Operation



OPEN:

Low risk

Competent Authority notified by Member States; no-pre approval envisaged

Limitations (25 kg; Visual line of sight (VLOS), Maximum Altitude, no drone zones, limited drone zones)

Rules: no flight over crowds, pilot competence

Use of technology: 4 Sub-categories

Addressed by prototype regulation

SPECIFIC

Increased risk

Approved by NAA possibly supported by accredited QE based on Specific Operation Risk assessment (SORA)

Standard scenarios-with possibly declaration

Approved operator with privileges

Addressed by prototype regulation

CERTIFIED

Regulatory regime similar to manned aviation

Certified operations to be defined by implementing rules

Pending criteria definition, EASA accepts application in its present remit

Some systems (Datalink, Detect and Avoid, ...) may receive an independent approval

Not addressed by prototype regulation



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Task Force 1

To assess the risk of collision between drones and aircraft

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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

Status

- 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



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Task Force 2

Study and recommendations regarding drone geo-limitations

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Task Force Geo-limitations

TF composed of several MS and EASA experts

- Review existing geo-limitations practices and technologies,
- Gather the views of worldwide key stakeholders and
- provide recommendations aimed to decide whether unintended entry into sensitive areas should be strictly regulated, through geographical and/or performance limitations.
- Focus on protection of commercial air transport at major airports.

Status

- Analysis of available information consulting a wide range of (global) stakeholders involved in UAS manufacturing, operation and regulation:
 - a survey questionnaire addressing a wide variety of stakeholders(# 120 stakeholders addressed, 90 answers received) , and
 - meetings with small UAS Industry representatives (Drone Manufacturers Alliance Europe - incl. Air map, DJI, Parrot , Unify and others)
- Report published



Main elements

- Member States should use the **concept of Prohibited and Restricted zones** to define their sensitive zones and associated geo-limitations.
- Keep **regulations technology-neutral** (performance based), allowing industry to generate solutions and propose any necessary technology standards. Regarding **industry standards**, the Task Force identified a number of “geo-limitation” related aspects deemed as candidate for standardization.
- Product requirements and standards must be **applicable to UAS operating in Europe**, and not just those produced by European manufacturers.
- **Accurate and easily understandable information** to drone operators for them to comply with restrictions or requirements.
- **Requirements for drone manufacturers** (e.g. incorporate geo-fencing, features that warn the remote pilot, etc.).
- **Retrofitting should not be mandated**



UAS – Future Roadmap



Formal rulemaking process to start soon; development of associated standards programme



International Harmonization: JARUS, ICAO



Cooperation with Civil Aviation Authorities on State Aircraft



Coordination of Research & Development



Task forces: Geo-limitation, Risk of Collision Drones-Aircraft



Safety Promotion and Communication Plan



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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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