FLYABILITY

SAFE DRONES
FOR INACCESSIBLE PLACES

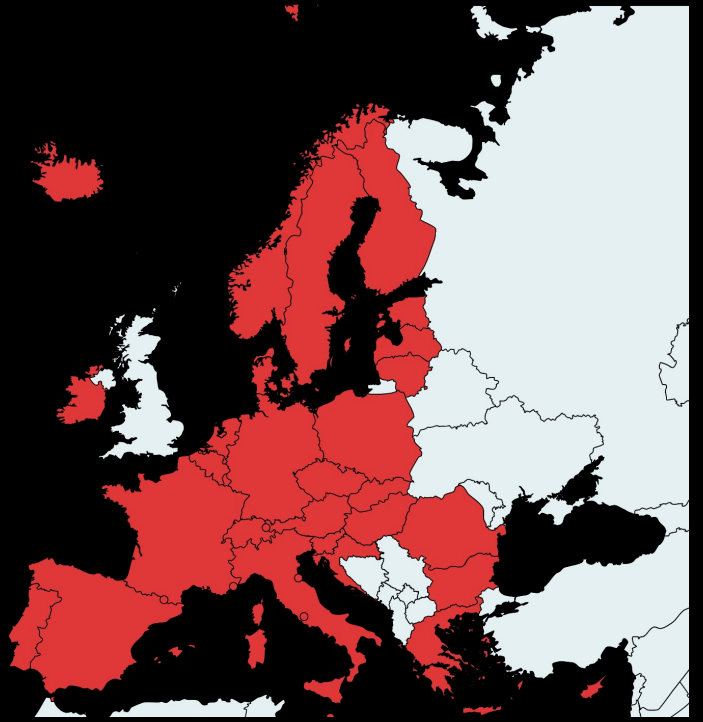
European Drone Regulations

18th September 2024

Where are the EU Drone Regulations applicable?

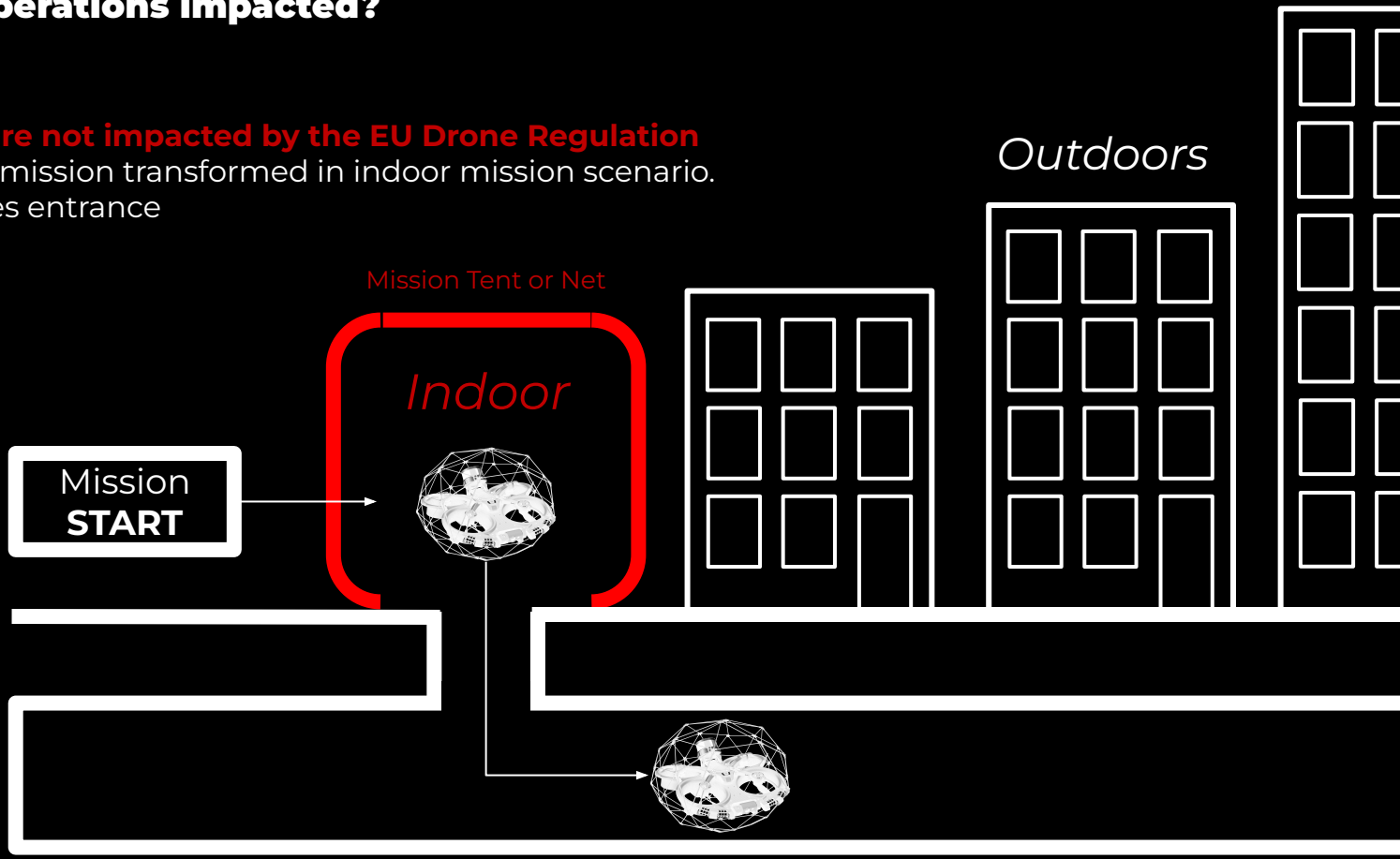
- 27 EU Member States
- Iceland
- Liechtenstein
- Norway
- Overseas Countries and Territories
- Switzerland

Not applicable in UK



Are indoor operations impacted?

Indoor operations are not impacted by the EU Drone Regulation
Example of outdoor mission transformed in indoor mission scenario.
Use cases : Manholes entrance



Indoor definition

Indoor Operations are **not** impacted by the EU Drone Regulation

Definition provided by the EASA:

"*For the purposes of the UAS Regulation, the term "operation of unmanned aircraft systems" does not include indoor UAS operations. Indoor operations are operations that occur in or into a house or a building (dictionary definition) or, more generally, in or into a closed space such as a fuel tank, a silo, a cave or a mine where the likelihood of a UA escaping into the outside airspace is very low.*"

Who are the stakeholders?

- European Commission (EC)

- European Union Aviation Safety Agency (EASA)

- National Aviation Agency (NAA) or Civil Aviation Agency (CAA)
  (e.g. FOCA in Switzerland, DGAC in France, ...)

- National UAS Associations or European association (JEDA)
  (e.g. DIAS in Switzerland, FPDC in France, ...)

European drone regulations

Operation risk

Certified Category

Delivery of dangerous goods and transport of people

Operational authorization from the National Aviation Authority required

Specific Category

BVLOS - Beyond Visual Line of Sight

OOP - Operations Over People

Operational authorization from the National Aviation Authority required

*except for STS

Open Category

Low-risk operations

Operational limitations

< 120m
Altitude

< 25kg
Weight

VLOS
Flight

Subcategory	Drone	Class marking	MTOM	Horizontal distance	Fly over people
A3		C4	< 25 kg	**150 m** from urban areas	No flight near people
A3		C3	< 25 kg	**150 m** from urban areas	No flight near people
A2		C2	< 4 kg	**30 m** from uninvolved people	No flight over uninvolved people
A1		C1	< 900 g	No flight over assemblies of people	No flight over uninvolved people, if it happens, overflight should be minimised
A1		C0	< 250 g	No flight over assemblies of people	May fly over uninvolved people, should be avoided when possible

Open Category

A1 C0 < 250 g

A1 C1 < 900 g

A2 C2 < 4 kg

Drone can be flown at a horizontal distance of 30m from uninvolved people or 5m with low-speed mode activated.

A3 C3 < 25 kg

Elios 3

The drone must be at least 150m away from residental, commercial, recreational and industrial areas.

A3 C4 < 25 kg

Specific category

Specific Category

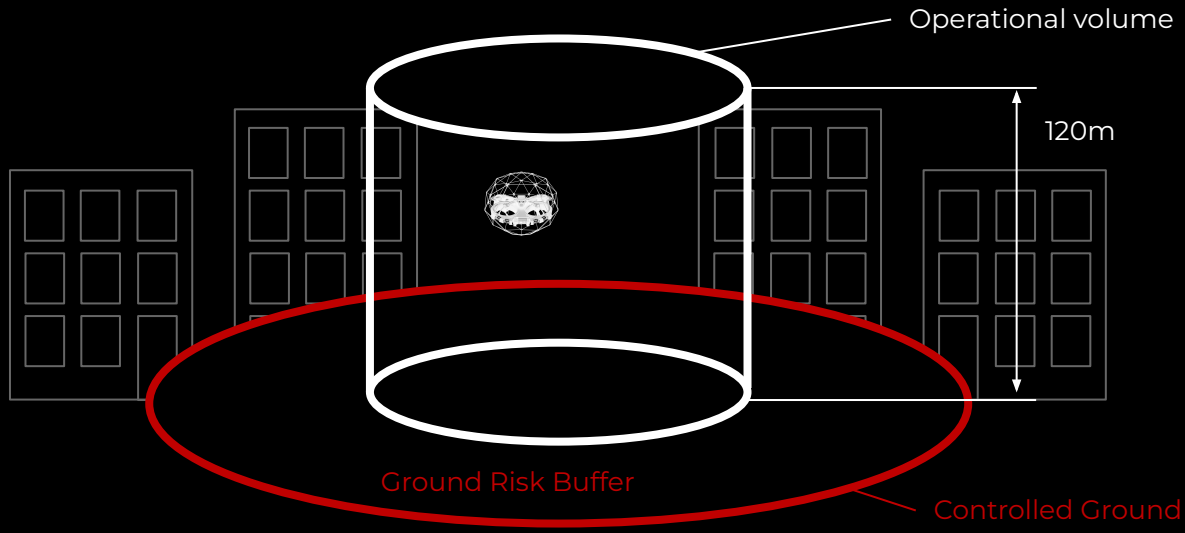
STS	PDRA	SORA	LUC
Standard scenario	Pre-defined risk assessment	Specific operations risk assessment	Light UAS operator certificate

• **Limited risk assessment**
• **Extra technical features like FTS or parachute**
• **Existing ones:**
  • C5 (VLOS/Urban)
  • C6 (Short-BVLOS/Rural)
	• **Simple risk assessment**
	• **Simple approval from the CAA/NAA**
	• **Existing ones:**
	  • PDRA-G03 for flying close obstacles in low-populated areas
		• **Mandatory Approval from the National Aviation Authority based the SORA methodology**	• **Capacity of self-approving operations**

Complexity/Possibilities for the operator

STS-01 (C5 marking)

- VLOS (Visual Line of Sight)
- Urban environment
- Max altitude 120m
- No uninvolved person is in the controlled ground area
- STS-01 training required for the pilot
- FTS and parachute (for now) or tether
- Declaration only



C5

PDRA G-03

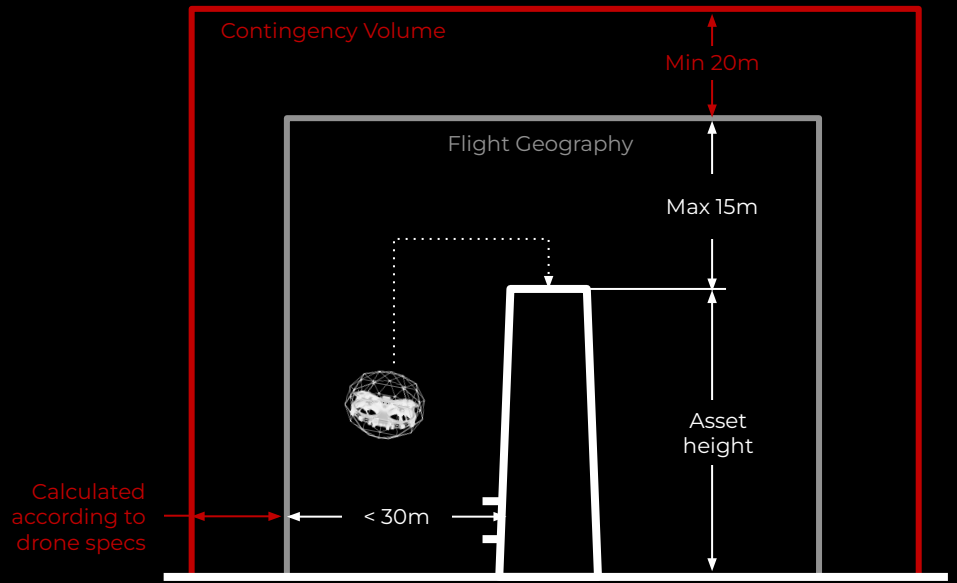
Operational Authorisation
NAA Authorised

Operational limitations:

- BVLOS (in radio line of sight)
- Controlled or uncontrolled airspace
- Below 30m or close to obstacle
- Over sparsely populated area
- With an UAS meeting the technical requirements defined in the PDRA

Documents required:

- Operation Manual (OM)
- Emergency Response Plan (ERP)
- PDRA table completed
- Flight plan



Example of Operational Volume for obstacle higher than 20m

EASA SORA 2.0 (Specific Operations Risk Assessment)

1

Intrinsic UAS Ground Risk Class

Max UAS Characteristic dimension	1m / approx. 3ft	3m / approx. 10ft	8m / approx. 25ft	> 8m / approx. 25ft
Typical kinetic energy expected	< 700J / approx. 529 Ft Lb)	< 34KJ / approx. 25000 Ft Lb	< 1084KJ / approx. 800000 Ft Lb	> 1084KJ / approx. 800000 Ft Lb
Operational Scenarios				
VLOS/BVLOS over controlled ground area	1	2	3	4
VLOS in sparsely populated environment	2	3	4	5
BVLOS in sparsely populated environment	3	4	5	6
VLOS in populated environment	4	5	6	8
BVLOS in populated environment	5	6	8	10
VLOS over gathering of people	7			
BVLOS over gathering of people	8			

2

ARC – a

Restricted or closed airspace for operation

ARC – b

Rural

ARC – c

Urban

ARC – d

Airport or airspace with manned aviation

3

SAIL Determination

Final GRC	Residual ARC			
	a	b	c	d
≤2	I	II	IV	VI
3	II	II	IV	VI
4	III	III	IV	VI
5	IV	IV	IV	VI
6	V	V	V	VI
7	VI	VI	VI	VI
≥7	Category C operation			

easy medium difficult

4

OSO

OSO Number	Technical issue with the UAS	SAIL I	II	III	IV	V	VI
OSO 1	Ensure the UAS operator is competent and/or proven	O	L	M	H	H	H
OSO 2	UAS manufactured by competent and/or proven entity	O	O	L	M	H	H
OSO 3	UAS maintained by competent and/or proven entity	L	L	M	M	H	H
OSO 4	UAS developed to authotity recognised design standards	O	O	L	L	M	H
OSO 5	UAS is designed considering system safety and reliability	O	O	L	M	H	H
OSO 6	C3 link performance is appropriate for the operation	O	L	L	M	H	H
OSO 7	Inspection of the UAS (product inspection) to ensure consistency with the ConOps	L	L	M	M	H	H

Justification level

- O Optional
- L Low
- M Medium
- H High

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EASA SORA 2.0 (Specific Operations Risk Assessment)

Information

- You can ask for one operation, or one site, or a national authorization
- The SAIL level of the operation should be I or II to ease the process.
- Each NAA has its own lead time for the approval so we recommend anticipation.
- SORA v2.5 should soon replace the current version. It will have a positive impact for E3 operations.

Operational limitations:

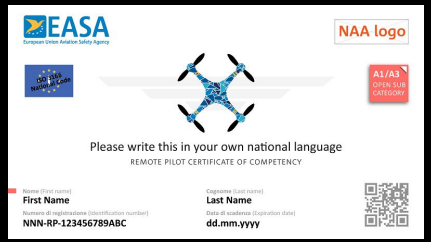
- According to what is approved by the National Aviation Authority

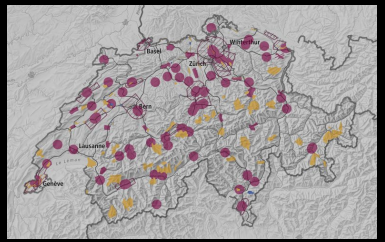
Main documents required:

- Operation Manual (OM)
- Flight plan
- Emergency Response Plan (ERP)
- Comprehensive portfolio

Operator’s minimum requirements

- Register on their National Aviation Authority (NAA) website
- Contract a civil liability insurance
- Do a training:
  - A3 sub-cat → Pass the A1-A3 online examination with the NAA
  - STS/PDRA/SORA → A2 or dedicated STS training (recommendation)
- Display registration number on the drone (ex: *FIN87astrdge12k8*)
- Check for flight conditions and no-fly zones before any flights



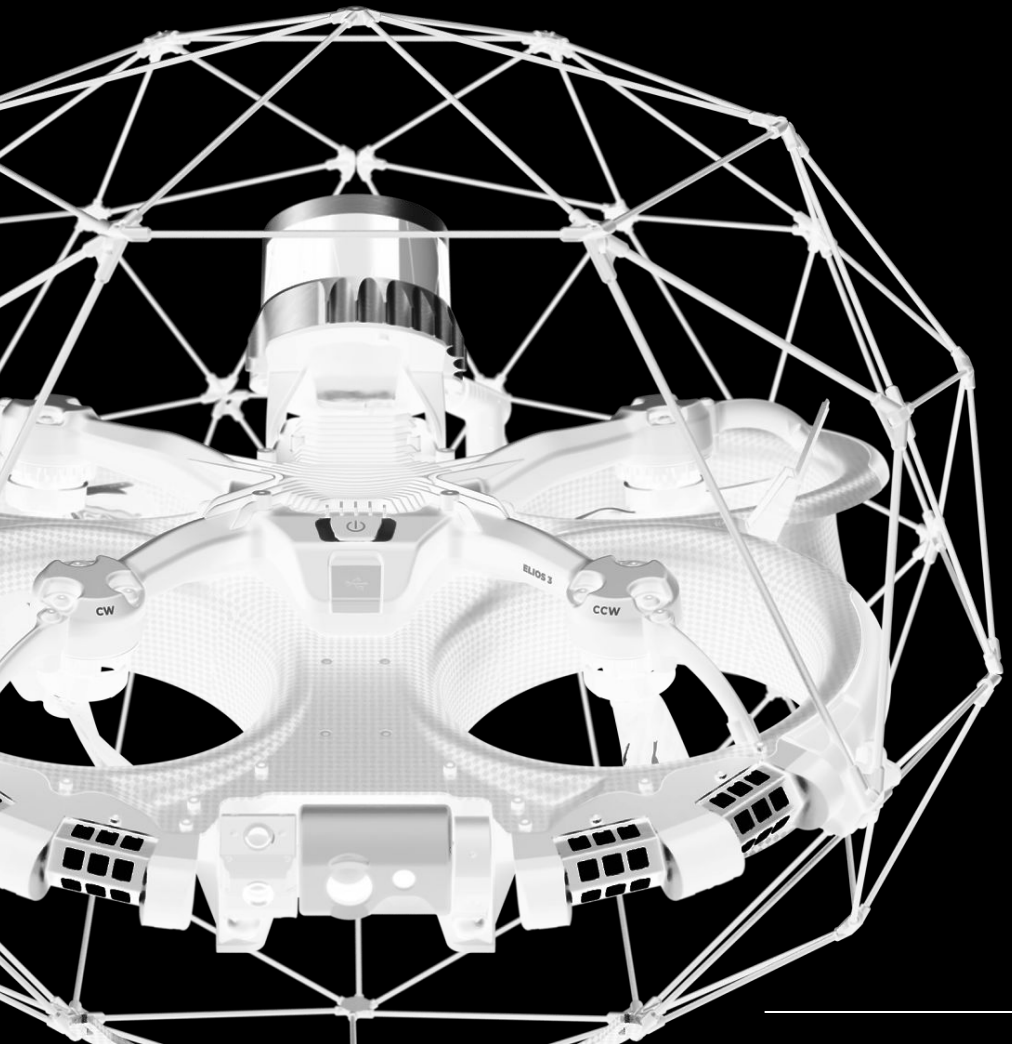


Remote ID

- RID is not mandatory in the Open Category for legacy products (E2 and E3).
- RID is mandatory in the Specific Category

Embedded RID solution

Solution for legacy drones



EU REG Support Package

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EU REG Support Package

Why?

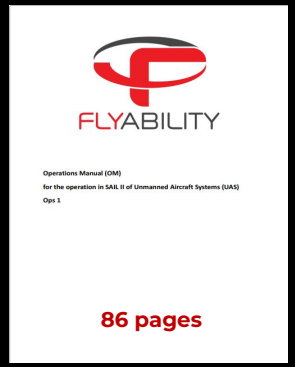
- The EU drone regulation imposes new constraints on outdoor missions (e.g. 150m rule).
- Understanding and mastering the regulation takes time.
- Creating the required documents for authorisation from scratch requires time too.
- Contracting external consultants can be expensive.
- This process applies to all drones, not only the ELIOS 3.

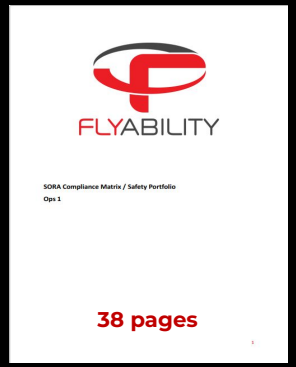
What?

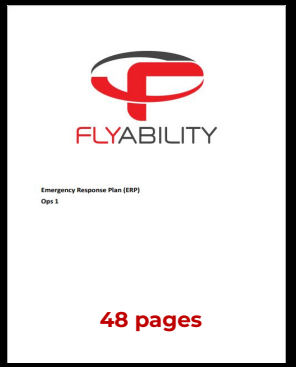
- Flyability wants to support European operators on the drone regulation with a dedicated support package for ELIOS 3.

Content

General guidelines for outdoor operations





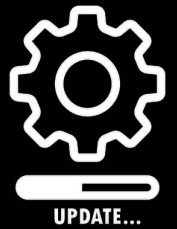


SORA/PDRA Flyability documents

Call with an expert

Document review

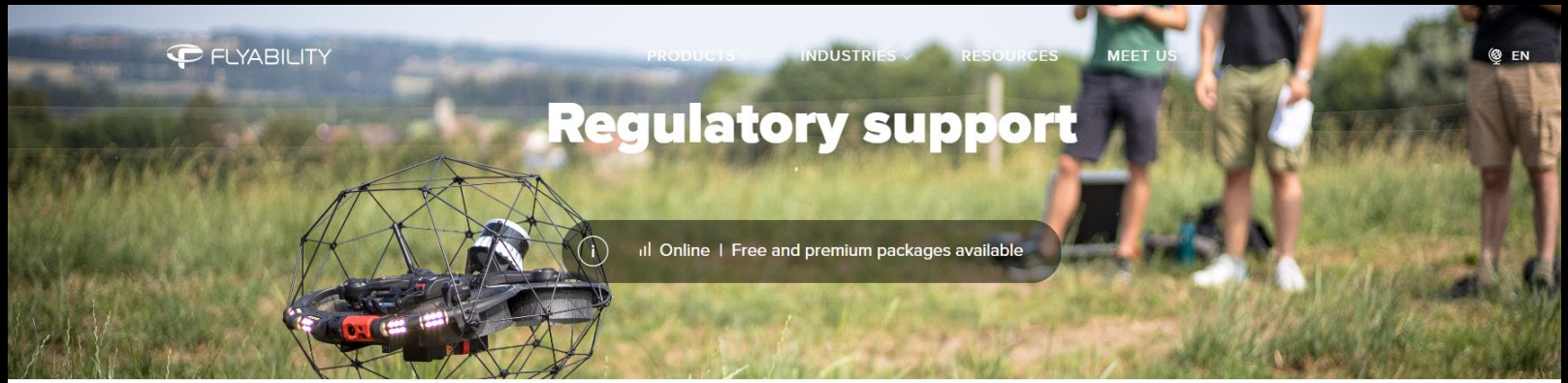
Support with authorities



Documents update

Package availability

AVAILABLE NOW



Complying with EU outdoor regulations for Elios users

The European Union has introduced new drone directives that regulate outdoor flights. Although indoor flights are not affected, Elios 3 users are required to comply with the regulations to fly outdoors, even if partially. The EU outdoor regulations support package was created to help you obtain the necessary authorizations for flying your Elios outdoors or to help you find an adept alternative solution.

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Thank you & happy flying!

— Your Flyability team —