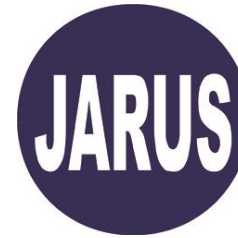


Regelverk för UAS (15 minuter)

Victor Krusell

Transportstyrelsen

Aktörer



EU & EASA

- **(EU) 2019/945** om obemannade luftfartygssystem och om tredjelandsoperatörer av obemannade luftfartygssystem
- **(EU) 2019/947** om regler och förfaranden för drift med obemannade luftfartyg.
- **EU 2021/664** om ett regelverk för U-space.



Transportstyrelsen

- **TSFS 2017:110**

- Transportstyrelsens föreskrifter om obemannade luftfartyg.
- Ny föreskrift som reglerar undantagen verksamhet och tilläggsbestämmelser har varit på remiss.
- Den nya föreskriften kommer att ställa liknande krav som (EU) 2019/947



TRANSPORT
STYRELSEN

Undantagen verksamhet

- (EU) 2018/1139 Art 2.3 (a)

[...]Denna förordning ska inte tillämpas på följande:

Lufffartyg och deras motorer, propellrar, delar, utrustning som inte är fast installerad och utrustning för kontroll av lufffartyg på

distans, när dessa används för **militär verksamhet, tullverksamhet, polisiär verksamhet, flygräddning, brandbekämpning, gränskontroll, kustbevakning eller liknande**

verksamheter eller tjänster under överinseende och ansvar av en medlemsstat, vilka utförs i allmänhetens intresse av eller på uppdrag av ett organ som har myndighetsbefogenheter, samt personal och organisationer som medverkar i de verksamheter och tjänster som utförs av dessa lufffartyg. [...]

(EU) 2019/947

- Funktionsbaserat regelverk
- Etablerar EU gemensamma driftskategorier
 - Öppen / Specifik / Certifierad
- SORA
- Innehåller många AMC och GM

Drift som inte kan utföras i öppen kategori

SORA
PDRA

Operationell auktorisation

Deklaration vid STS





Light Uas operator Certificate

A1/A2/A3
Högsta vikt i någon kategori
25kg
VLOS

Operatörsregistrering
Drönarkort

Högriskoperationer
Personbärande UAS
Drift över folksamlingar

WHAT TYPE OF DRONE CAN I FLY?

Operation			Drone Operator / pilot			
C-Class	Max Take off mass	Subcategory	Operational restrictions	Drone Operator registration?	Remote pilot qualifications	Remote pilot minimum age
Privately build	<250g 	A1 Not over assemblies of people (can also fly in subcategory A3)	Operational restrictions on the drone's use apply (follow the QR code below)	Yes No if toy or not fitted with camera/sensor 	Read user's manual	No minimum age (certain conditions apply)
legacy < 250g						
C0						
C1	<900g 	A2 Fly close to people (can also fly in subcategory A3)		Yes	Check out the QR code below for the necessary qualifications to fly these drones	16
C2						
C3	<25kg 	A3 Fly far from people				
C4						
Privately build						
Legacy drones (art 20)						



(d) is marked as class C1 and complies with the requirements of that class, as defined in Part 2 of the Annex to Delegated Regulation (EU) 2019/945 and is operated with active and updated direct remote identification system and geo-awareness function. C1 väger <900g

Category A1

UAS operations in subcategory A1 shall comply with all of the following conditions:

- (1) for unmanned aircraft ~~referred to in point (5)(d)~~, be conducted in such a way that a remote pilot of the unmanned aircraft does not overfly assemblies of people and reasonably expects that no uninvolved person will be overflown. In the event of unexpected overflight of uninvolved persons, the remote pilot shall reduce as much as possible the time during which the unmanned aircraft overflies those persons;
- (2) in the case of an unmanned aircraft referred to in points (5)(a), (5)(b) and (5)(c), be conducted in such a way that the remote pilot of the unmanned aircraft may overfly uninvolved persons, but shall never overfly assemblies of people;

(a) has an MTOM, including payload, of less than 250 g and a maximum operating speed of less than 19 m/s, in the case of a privately built UAS; or

(b) meets the requirements defined in point (a) of Article 20;

(c) is marked as class C0 and complies with the requirements of that class, as defined in Part 1 of the Annex to Delegated Regulation (EU) 2019/945;

AMC1 UAS.OPEN.030(1)

[...] The remote pilot should keep the UA at a lateral distance from any uninvolved person that is not shorter than the height ('1:1 rule', i.e. if the UA is flying at a height of 30 m, the distance from any uninvolved person should be at least 30 m)."

UAS.OPEN.030 UAS operations in subcategory A2

Regulation (EU) 2020/639

UAS operations in subcategory A2 shall comply with all of the following conditions:

- (1) be conducted in such a way that the unmanned aircraft does not overfly uninvolved persons and the UAS operations take place at a safe horizontal distance of at least 30 metres from them; the remote pilot may reduce the horizontal safety distance down to a minimum of 5 metres from an uninvolved person when operating an unmanned aircraft with an active low speed mode function and after evaluation of the situation regarding:
 - (a) weather conditions,
 - (b) performance of the unmanned aircraft,
 - (c) segregation of the overflow area.

Specifik kategori är en bred kategori



DJI Mavic

Ca 700g
Öppen/Specifik



DJI Air

Ca 400g
Öppen/Specifik



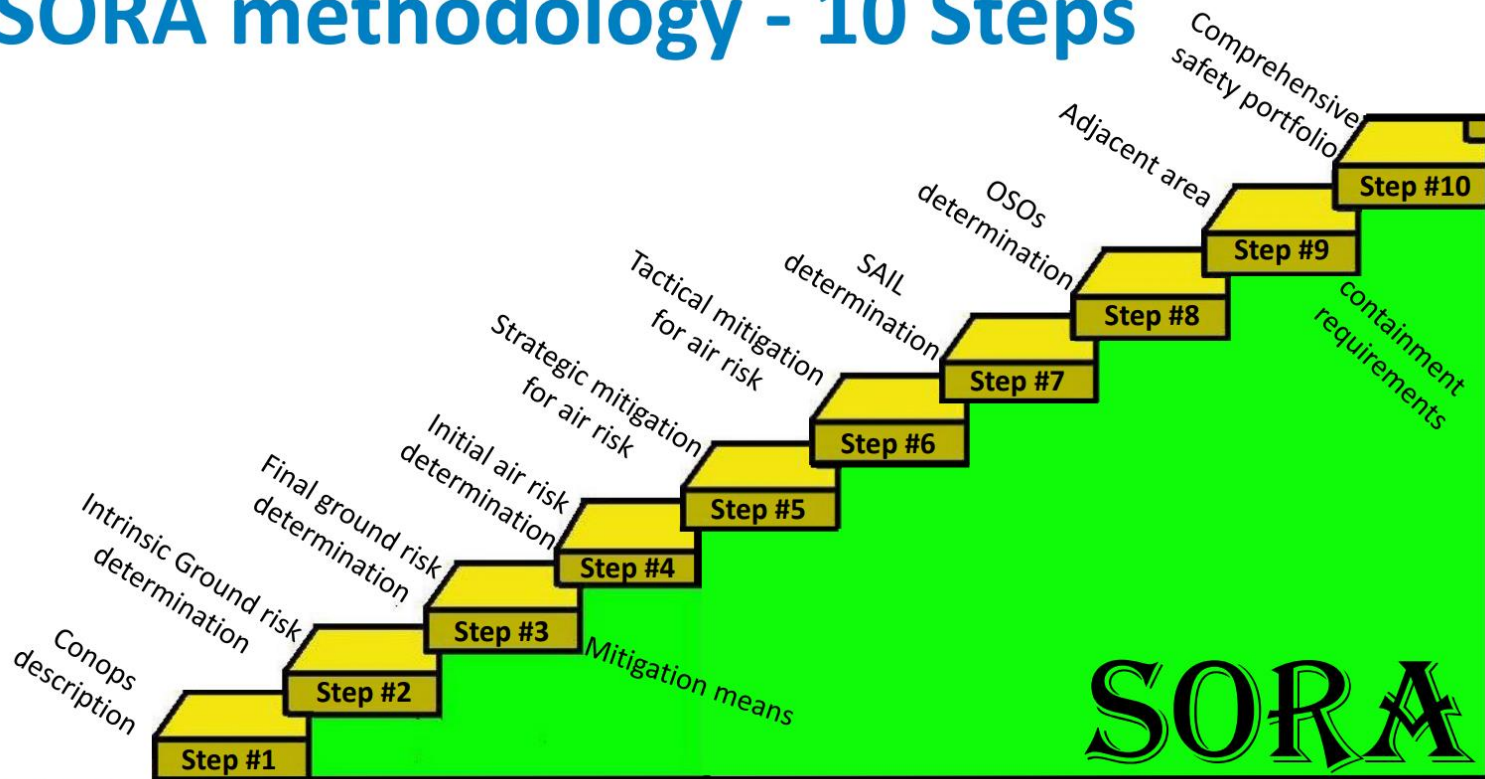
DJI Mini

249g
Öppen/Specifik



DJI matriice
Ca 15kg
Öppen/Specifik

SORA methodology - 10 Steps



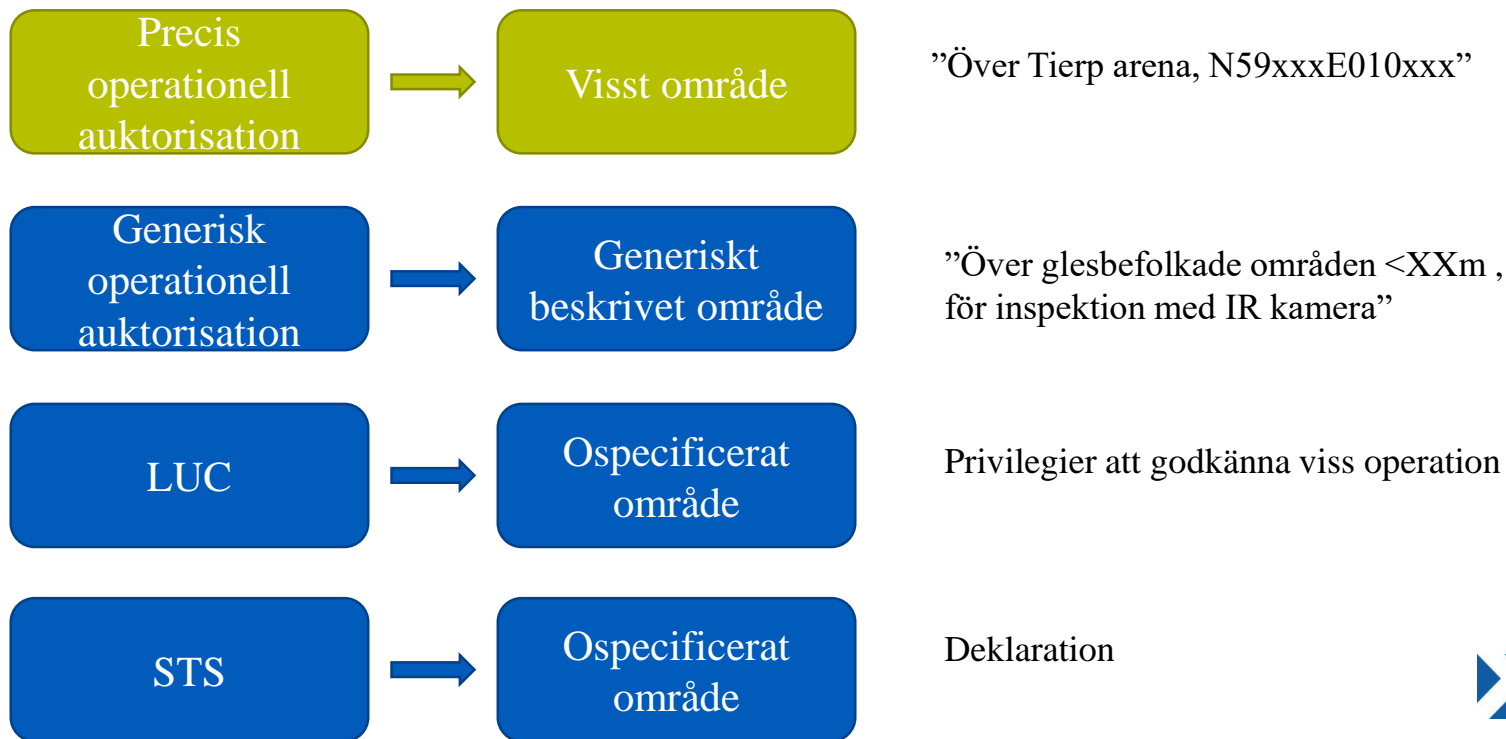
PDRA methodology?

Typical example of a PDRA

This table shows a model example of what is a PDRA and what it could contain:

PDRA characterisation and conditions				
Topic	Method of proof	Condition	Integrity ¹⁶	Proof ¹⁶
1. Operational characterisation (scope and limitations)				
Level of human intervention	Self-declaration	1.1 No autonomous operations: the remote pilot should have the ability to maintain control of the UA, except in case of a loss of the command-and-control (C2) link.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.2 The remote pilot should operate only one UA at a time.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.3 The remote pilot should not operate the UA from a moving vehicle.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.4 The remote pilot should not hand the control of the UA over to another command unit.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
UA range limit	Self-declaration	1.5 UAS operations should be conducted:		
		1.5.1 keeping the UA in sight of the remote pilot during the launch and recovery of the UA, unless the recovery of the UA is the result of an emergency flight termination;	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.5.2 if no airspace observer (AO) is employed in the operation, with the UA no further than 1 km from the remote pilot; and	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
		1.5.3 if one or more AOs are employed in the operation, with the UA no further than 2 km from the remote pilot.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'
Areas Overflowed areas	Self-declaration	1.6 UAS operations should be conducted over a controlled ground area.	<i>Please include a reference to the relevant chapter/section of the OM.</i>	'I declare compliance.'

Precis vs Generell auktorisation



Se gällande tillstånd.

TRANSPORT STYRELSEN

Vägrafik Sjöfart **Luftfart** Järnväg

Vad letar du efter?

Luftfart »

- Certifikat och utbildning »
- E-tjänster och blanketter »**
- Blanketter för luftfart »
- E-tjänster för luftfart**
- Flygbolag »
- Flygplatser, flygtrafikfjänt och luftrum »
- Information till luftfartsbranschen »
- Luftfartsskydd – security »
- Luftfartyg och luftvärdighet »
- Miljö och hälsa »
- Olyckor och tillbud »
- Privat- och allmänflyg »
- Publikationer och rapporter »
- Regler för luftfart »
- Resenärsinformation »
- Statistik »

[Luftfart](#) / [E-tjänster och blanketter](#) / E-tjänster för luftfart

E-tjänster för luftfart

Transportstyrelsen ger dig möjlighet att själv utföra dina ärenden vid den tidpunkt som passar dig bäst. Vilka e-tjänster vi erbjuder inom luftfart kan du se via denna sida.

Upplever du problem med någon av e-tjänsterna inom luftfart kan du rapportera det via [kontaktformuläret för luftfart](#). Där väljer du kategorin "Övriga frågor".

E-tjänster inom luftfart

- Ansök om tillstånd svävande lyktor
- Ansök om upprättande av D-område
- Ansök om upprättande av R-område
- Sök flygläkare
- Sök flygprovskontrollant
- Sök luftfartyg
- Sök språkkontrollant
- Sök tillståndshavare med gällande tillstånd**

Tillstånd



[Svenska]

English

Sök gällande tillstånd

Ange ett eller flera val för att filtrera din sökning

Tillståndshavare

Certifikat

Rating

Sök

Tillståndshavare uppdaterade 2024-04-08 16:00:01



EASA webbplats

The screenshot shows the EASA website interface. The browser address bar displays <https://www.easa.europa.eu/en/domains/civil-drones>. The main navigation bar includes links for Home, The Agency, Newsroom & Events, Domains, Regulations, Document Library, and Can We Help You?. A search bar is located on the right. The left sidebar contains the 'Drones & Air Mobility' section with a sub-menu including: Drones & Air Mobility home, Drones & Air Mobility Landscape, Drones & eVTOL Designs, Operating a drone, Rules & Standards, FAQ, News, Events, Event Proceedings, Regulations, and Easy Access Rules. A dropdown menu is open under 'Domains', listing: Aerodromes, Air Operations, Air Traffic Management, Aircraft & products, Aircrew & Medical, Drones & Air Mobility (highlighted with a red box), and Cybersecurity. The main content area shows a list of links under 'Drones & Air Mobility' (highlighted with a red box): Drones & eVTOL designs, Drones design database, and Air Transport by VTOL-capable aircraft. Below this is the 'Operations & Authorisations' section, with a sub-menu (highlighted with a red box) containing: Operating a drone (with sub-items: Open Category - Low Risk, Specific Category - Medium Risk, and Authorisations), Certified Category - High Risk, and Flying in your country - National Aviation Authorities. A red arrow points from the text 'Easy access rules' to the 'Regulations' link in the top navigation bar.

Home The Agency Newsroom & Events Domains Regulations Document Library Can We Help You?

Drones & Air Mobility

Drones & Air Mobility home

- ▼ Drones & Air Mobility Landscape
- ▼ Drones & eVTOL Designs
- ▼ Operating a drone
- Rules & Standards
- FAQ
- News
- Events
- Event Proceedings
- Regulations
- Easy Access Rules

Ab

More

to login →

- Aerodromes
- Air Operations
- Air Traffic Management
- Aircraft & products
- Aircrew & Medical
- Drones & Air Mobility
- Cybersecurity
- Environment
- General Aviation
- International Cooperation
- Safety Management & Promotion
- Research & Innovation
- Rotorcraft & VTOL

Easy access rules

- Drones & eVTOL designs
- Drones design database
- Air Transport by VTOL-capable aircraft

Operations & Authorisations

- Operating a drone
 - Open Category - Low Risk
 - Specific Category - Medium Risk
 - Authorisations
- Certified Category - High Risk
- Flying in your country - National Aviation Authorities