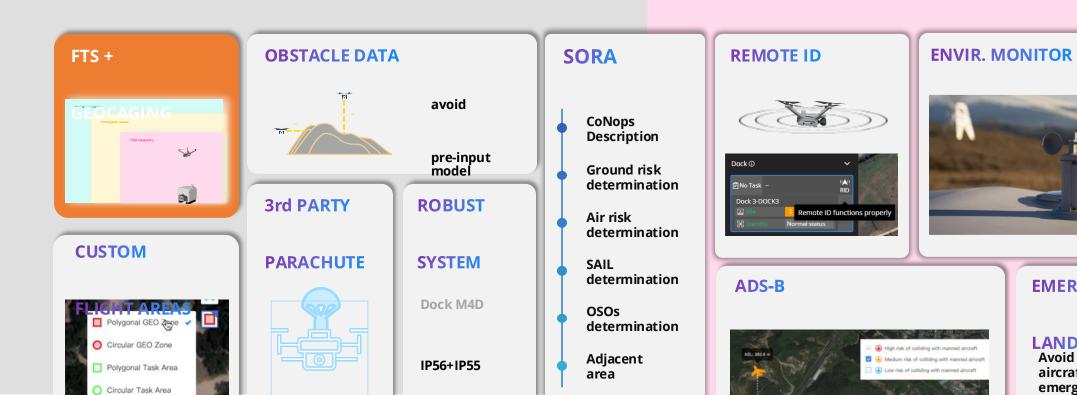


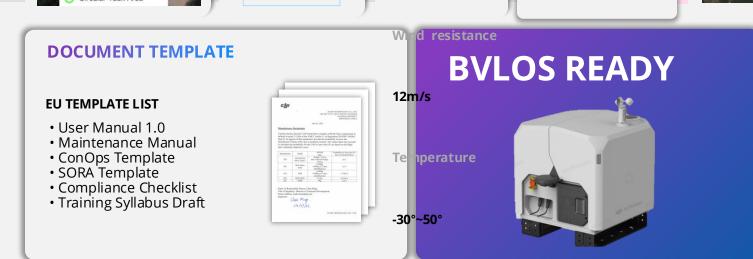
# UNLOCKING THE FULL POTENTIAL OF DJI DOCK 3

# REGULATORY COMPLIANCE & OPERATIONAL SUCCESS



### **GROUND RISK** AIR RISK







**EMERGENCY** 

**LANDING** 

emergency

Avoid manned

aircraft when



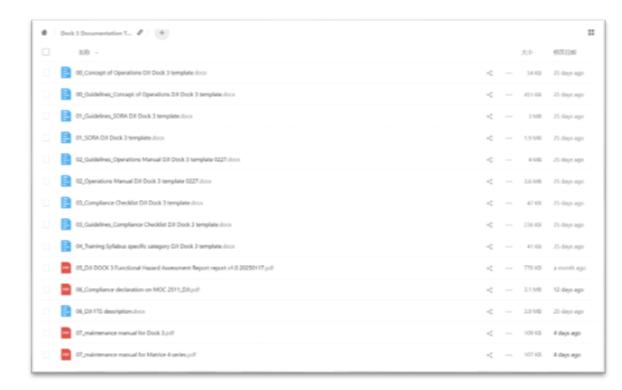
## **COOPERATION WITH AIRHUB**

# **AirHub: Professional Regulatory Consultancy Partner**

A leading Legislation consultancy in drone operations and compliance. AirHub's consultancy department has **10+ years of experience** working with aviation authorities to obtain operational authorizations, they has assisted clients in successfully completing **200+ SORA risk assessments** and led the first compliance authorization cases for DJI Dock 1 and Dock 2.

# **Documentation Template**

- Based on EASA structure
- Step by step guideline
- Pre-filled Dock 3 spec.



#### Download here:

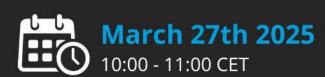
https://pan-sec.djicorp.com/s/kM2wdXLSKBPrm7M





Webinar **()** 

# Unlocking the Full Potential of DJI Dock 3: Regulatory Compliance & Operational Success







Stephan van Vuren

AirHub Co-Founder & Regulatory Expert



**Irving Zhang** 

**DJI Enterprise**Solution Engineer



Unlocking the **Full Potential** of DJI Dock 3: Regulatory Compliance & Operational Success





# Introduction

### Stephan van Vuren:

- Founded AirHub Consultancy in 2015
- Co-founded AirHub Software in 2016
- Former airline pilot with operational aviation experience (2500+ flight hours on Airbus A320)
- UAS regulatory expert with a background in aviation law



stephan@airhub.nl



# **About Us**

### AirHub Software & Consultancy:

- Experts in UAS regulatory authorisations
   & compliance software
- Established by four experts in aviation, law, entrepreneurship, software development, and UX design
- Mission: Integrating drone workflows with a focus on safety, efficiency, and compliance.
- 30 employees and growing





# Regulatory Consulting

### **AirHub Consultancy**

- Team of 8 consultants with >10 years UAS regulatory and operational experience
- Strong track record of working with authorities - 200+ authorizations obtained
- Deep knowledge of ConOps, SORA, Light UAS Operator Certificate, etc.
- First consultancy to obtain DJI Dock 1 & 2 & 3 authorizations in the EU



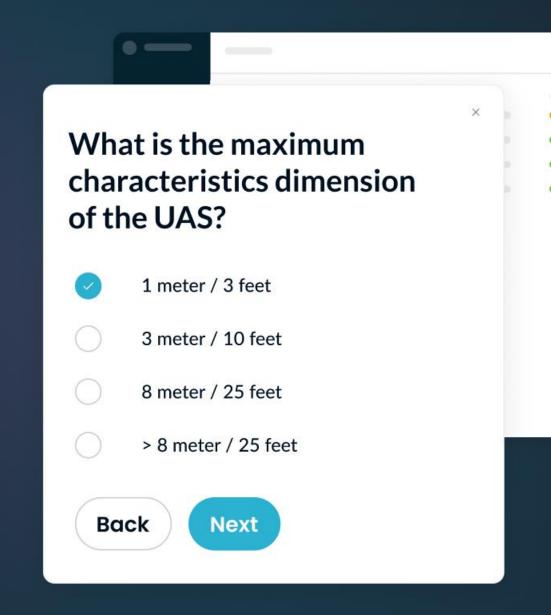


# **End User Challenges**

End users struggle with obtaining operational authorizations due to:

- Unfamiliarity with complex regulatory requirements (e.g. SORA) for BVLOS
- Need for extensive and detailed documentation (lack of experience and time)
- Inexperience in application processes and working with Aviation Authorities

DJI and AirHub bridge this gap with standardized, regulator-ready documentation and application support

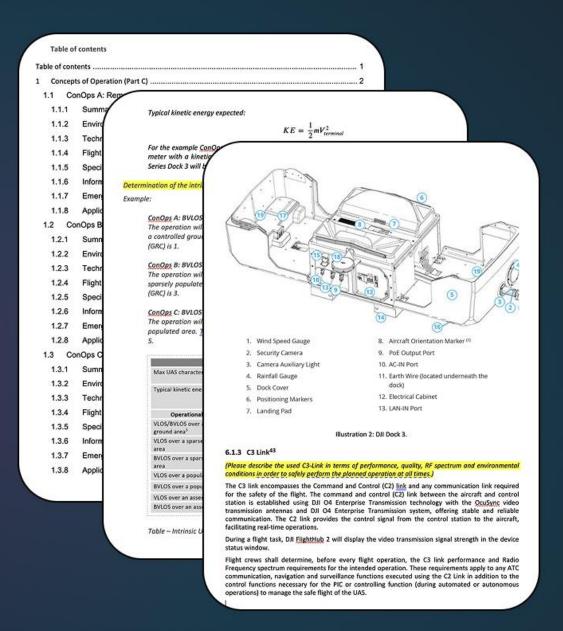




# Template Overview

### The templates we created:

- Concepts of Operations (ConOps)
   Templates
- 2. Specific Operations Risk
  Assessment (SORA) Template
- 3. Operations Manual (OM) Template
- 4. Compliance Checklist
- 5. DJI Dock 3 Training Syllabus
- 6. Supporting Technical Documentation



**Ensuring Safety & Compliance** 



# ConOps Template

### **Concept of Operations:**

- Covers various operational scenarios: controlled, sparsely populated, and populated areas
- Provides relevant definitions and guidance materials
- Includes examples to assist in completing required content
- Details specifications of DJI Dock 3 and DJI M4D/M4TD
- Features example procedures and emergency response plan

Table of	contents
Table of cont	tents
1 Concept	ts of Operation (Part C)
1.1 Co	nOps A: Remote BVLOS operations over controlled ground areas2
1.1.1	Summary of the operation
1.1.2	Environmental conditions
1.1.3	Technical operational limitations
1.1.4	Flight areas3
1.1.5	Specific procedures to reduce the ground and air risk in the flight area4
1.1.6	Information to third parties4
1.1.7	Emergency response plan (ERP) — Local information 5
1.1.8	Applicable Specific Procedures5
1.2 Co	nOps B: Remote BVLOS operations over sparsely populated areas 5
1.2.1	Summary of the operation 5
1.2.2	Environmental conditions 6
1.2.3	Technical operational limitations
1.2.4	Flight areas6
1.2.5	Specific procedures to reduce the ground and air risk in the flight area7
1.2.6	Information to third parties7
1.2.7	Emergency response plan (ERP) — Local information 8
1.2.8	Applicable Specific Procedures
1.3 Co	nOps C: Remote BVLOS operations over populated areas8
1.3.1	Summary of the operation
1.3.2	Environmental conditions
1.3.3	Technical operational limitations
1.3.4	Flight areas9
1.3.5	Specific procedures to reduce the ground and air risk in the flight area 10
1.3.6	Information to third parties10
1.3.7	Emergency response plan (ERP) — Local information
1.3.8	Applicable Specific Procedures11



# **SORA Templates**

### **Specific Operations Risk Assessment:**

- Explains the SORA methodology and steps in detail
- Provides guidance for completing SORA based on the three ConOps scenarios (e.g., M1/M2/M3)
- Includes input based on DJI Dock 3 and M4D/M4TD specifications (e.g., FTS capabilities)
- Based on SORA 2.0, with an update planned for SORA 2.5 upon EASA publication

Typical kinetic energy expected:

$$KE = \frac{1}{2}mV_{termin}^2$$

For the example <u>ConOps</u> of this SORA, the maximum UAS characteristics dimension is less than 1 meter with a kinetic energy expected of less than 700J. For this example, the DJI M4D / M4TD Series Dock 3 will be used with a MTOW = 2090 q.

#### Determination of the intrinsic GRC.

Example:

#### ConOps A: BVLOS over a controlled ground area (blue)

The operation will be performed Beyond Visual Line Of Sight (BVLOS) and will be conducted over a controlled ground area. Taking into account these considerations, the Initial Ground Risk Class (GRC) is 1.

#### ConOps B: BVLOS in a sparsely populated environment (orange)

The operation will be performed Beyond Visual Line Of Sight (BVLOS) and will be conducted in a sparsely populated area. Taking into account these considerations, the Initial Ground Risk Class (GRC) is 3.

#### ConOps C: BVLOS in a populated environment (green)

The operation will be performed Beyond Visual Line Of Sight (BVLOS) and will be conducted in a populated area. Taking into account these considerations, the Initial Ground Risk Class (GRC) is 5.

	Intrinsic UAS g	round risk class			
Max UAS characteristics dimension	1 m / approx. 3 ft	3 m / approx. 10 ft	8 m / approx. 25 ft	>8 m / approx 25 ft	
Typical kinetic energy expected	< 700 J (approx. 529 ft lb)	< 34 kJ (approx. 25 000 ft lb)	< 1 084 kJ (approx. 800 000 ft lb)	> 1 084 kJ (approx. 800 000 ft lb)	
Operational scenarios					
VLOS/BVLOS over a controlled ground area <sup>3</sup>	1	2	3	4	
VLOS over a sparsely populated area	2	3	4	5	
BVLOS over a sparsely populated area	3	4	5	6	
VLOS over a populated area	4	5	6	8	
BVLOS over a populated area	5	6	8	10	
VLOS over an assembly of people	7			200	
BVLOS over an assembly of people	8				

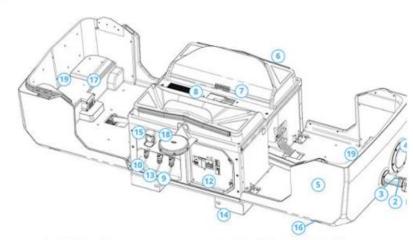
Table - Intrinsic UAS Ground Risk Class



# **OM Template**

### **Operations Manual:**

- Based on the EASA-endorsed template
- Outlines the organization, procedures, and technical specifications of the UAS used
- Pre-filled to align with the different ConOps scenarios
- Includes references to SORA OSO's and regulatory requirements
- Covers DJI Dock 3 and M4D/M4TD specifications



- 1. Wind Speed Gauge
- 2. Security Camera
- Camera Auxiliary Light
- Rainfall Gauge
- Dock Cover
- 6. Positioning Markers
- 7. Landing Pad

- 8. Aircraft Orientation Marker [1]
- PoE Output Port
- 10. AC-IN Port
- Earth Wire (located underneath the dock)
- 12. Electrical Cabinet
- 13. LAN-IN Port

Illustration 2: DJI Dock 3.

#### 6.1.3 C3 Link<sup>43</sup>

(Please describe the used C3-Link in terms of performance, quality, RF spectrum and environmental conditions in order to safely perform the planned operation at all times.)

The C3 link encompasses the Command and Control (C2) link and any communication link required for the safety of the flight. The command and control (C2) link between the aircraft and control station is established using DJI O4 Enterprise Transmission technology with the OcuSync video transmission antennas and DJI O4 Enterprise Transmission system, offering stable and reliable communication. The C2 link provides the control signal from the control station to the aircraft, facilitating real-time operations.

During a flight task, DJI FlightHub 2 will display the video transmission signal strength in the device status window.

Flight crews shall determine, before every flight operation, the C3 link performance and Radio Frequency spectrum requirements for the intended operation. These requirements apply to any ATC communication, navigation and surveillance functions executed using the C2 Link in addition to the control functions necessary for the PIC or controlling function (during automated or autonomous operations) to manage the safe flight of the UAS.



# Compliance Checklist

### **Compliance Checklist:**

- Ensures complete applications with clear references to the Operations Manual and other required documents
- Lists Operational Safety Objectives
   (OSOs) and key requirements (e.g., M1/M2/M3) based on the SORA template
- Provides guidelines for both SAIL I and SAIL II operations
- Facilitates faster and easier reviews by aviation authorities for approval

OSO#13	External services supporting UAS operations are adequate for the operation	L	L	M	Н	н	H
	Human error						
050#14	Operational procedures are defined, validated and adhered to	L	М	н	Н	н	Н
OSO#15	Remote crew trained and current and able to control the abnormal situation	L	L	М	М	н	Н
OSO#16	Multi-crew coordination	L	L	M	M	Н	Н
050#17	Remote crew is fit to operate	L	L	M	M	Н	H
050#18	Automatic protection of the flight envelope from human error	0	0	L	М	н	н
OSO#19	Safe recovery from human error	0	0	L	M	M	Н
OSO#20	A human factors evaluation has been performed and the human machine interface (HMI) found appropriate for the mission	0	L	L	М	M	Н
	Adverse operating conditions						
OSO#21	Operational procedures are defined, validated and adhered to	L	М	н	Н	н	Н
OSO#22	The remote crew is trained to identify critical environmental conditions and to avoid them	L	L	м	м	М	Н
050#23	Environmental conditions for safe operations are defined, measurable and adhered to	L	L	М	м	н	Н
OSO#24	UAS is designed and qualified for adverse environmental conditions	0	0	M	Н	н	н

Table - Recommended OSOs

#### 1.2 Comprehensive Safety Portfolio

The SORA process provides the applicant, the competent authority and the ANSP with a methodology which includes a series of mitigations and safety objectives to be considered to ensure an adequate level of confidence that the operation can be safely conducted. These are:

- (1) mitigations used to modify the intrinsic GRC;
- (2) strategic mitigations for the initial ARC;
- (3) tactical mitigations for the residual ARC;(4) adjacent area/airspace considerations; and
- 4) adjacent area/airsp

The satisfactory substantiation of the mitigations and objectives required by the SORA process provides this sufficient level of confidence.

The UAS operator should be sure to address any additional requirements that were not identified by the SORA process (e.g. for security, environmental protection, etc.) and identify the relevant stakeholders (e.g. environmental protection agencies, national security bodies, etc.). The activities performed within the SORA process will likely address those additional needs, but they may not be considered to be sufficient at all times.

The UAS operator should ensure the consistency between the SORA safety case and the actual operational conditions (i.e. at the time of the flight).

4

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# Training Syllabus

### Training Syllabus

- Covers theoretical and practical knowledge for DJI Dock 3 operations
- Includes EASA A1/A3, A2, and Specific Category requirements
- Provides guidelines for operator-specific training, including both theoretical and practical components
- Includes recommendations for recurrent training to maintain compliance

#### 6. Operator-specific theoretical training DJI Dock 3

Apart from the general EASA training requirements, including the knowledge subjects for A1/A3 and A2 and the operation-specific requirements above, the UAS operator should create a training syllabus adapted to the characteristics of the intended UAS operation. An example training syllabus is provided in the following (to be adapted to operator's needs):

- (a) Overview of regulatory framework
  - 1) EASA Regulations (EU) 2019/947 and 2019/945
  - 2) SORA framework
  - 3) Types of UAS operations
- (b) UAS Operator
  - 1) Operator organization
  - 2) Personnel requirements and qualifications
  - 3) Training concept
  - 4) Maintenance of the qualification
- (c) Technical part of UAS
  - 1) Introduction to DJI Dock 3
    - i. Overview main elements
    - ii. Specifications
    - iii. Environmental limits
    - iv. Flight modes
    - v. Geo-awareness
  - 2) Operational features
  - 3) Cameras
  - 4) Safety features
  - 5) Command unit, data link
  - 6) Flight workflow
  - 7) Maintenance
  - 8) UAS User Manual
- (d) Concept of Operations
  - Operational concept
  - 2) Areas
  - 3) Operational limitations
- (e) BVLOS procedures
  - 1) Normal procedures



# **Supporting Documents**

### **Supporting Documents:**

- Provided by DJI to substantiate the airworthiness of DJI Dock 3 and M4D/ M4TD
- Maintenance Manual for DJI Dock 3 and M4D/M4TD
- Functional Hazard Assessment (Design and Installation Appraisal)
- Flight Termination System description and compliance declaration in accordance with MOC-2511



Means of Compliance with Light-UAS.2511 "Enhanced Containment"

Compliance Checklist for declaration

#### **DECLARATION OF COMPLIANCE IN ACCORDANCE WITH MOC**

2511

(DJI Dock 3

Hereby, I, \_Chen Ming \_\_\_\_\_, accountable manager of the DJI declare under my sole responsibility that:

1) the UAS Dock3\_\_\_\_\_, manufactured by the \_\_DJI\_\_\_\_\_with hardware and software configuration as defined by documents (insert documents numbers and version): \_\_Matrice 4D Series (DJI Dock 3) User Manual EN v1.0.pdf is compliant with the EASA MOC Light-UAS.2511-01, issue 1 of 05.05.2022;

Or

2) the FTS kit \_FTS-01 \_\_, manufactured by the \_\_DII \_\_with hardware and software configuration as defined by documents (insert documents numbers and version): \_DII Dock 3 Matrice \_\_4D Series Flight Manual for C6 v1.01.pdf \_\_ is compliant with the EASA MOC Light-UAS.2511-01, issue 1 of 05.05.2022<sup>|11|</sup> when operated with the following UAS models (\*):

UAS Manufacturer	UAS Model	
DJI	Dock3	

(\*) The UAS model should uniquely identify the UAS HW and SW configuration.

I moreover declare that the design requirements of the MoC have been reviewed and that the prescribed tests have been executed, and as a result the system has been found fully compliant with:

- the dispositions of chapter 2.1 of the MoC, with particular reference to FTS segregation and availability of means for the remote pilot to detect if the FTS is not available;
- Segregation of the air segment of the FTS as per chapter 2.1.1 of the MoC;
- segregation of the ground segment of the FTS as per chapter 2.1.2 of the MoC (where applicable);
- bench tests, ground integration tests, flight tests and end-to-end activation tests as prescribed by chapters 2.2.1, 2.2.2, 2.2.3, 2.2.4.
- the development of a flight manual and maintenance instructions for the kit in accordance with chapters 2.3<sup>[1]</sup>, 2.4 and 2.5 of the MoC, that they are made available to UAS operators according to the applicable contractual agreement and that they include all what required in the applicable chapters of the MoC;

<sup>[1]</sup> Referred below as "the MoC"

[2] Please note that some frequencies may require prior authorisation in order to be used



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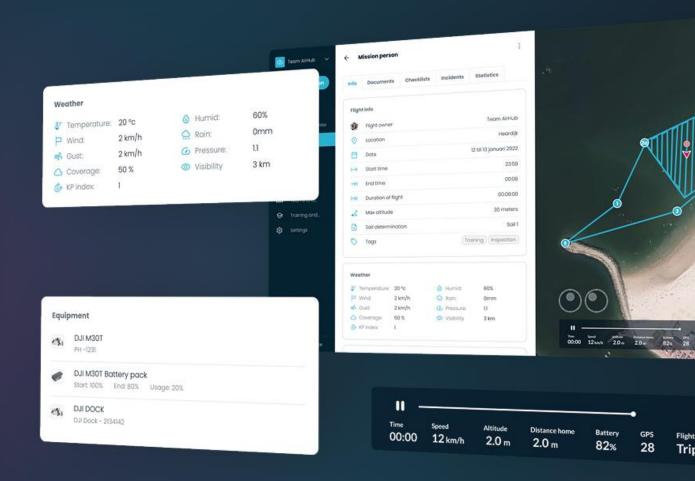
Page 1 of 3



# Staying Compliant

### **AirHub Software**

- EASA Compliant Flight Planning
- Flight & Incident Logging
- Team & Fleet Management
- Documents, Checklists & Media
- Training & Maintenance
- Live Streaming







# **Support Options**

### 1. - Do It Yourself

- Get templates for ConOps, SORA, OM, Compliance Checklist, etc.
- Fill out the documents yourself with AirHub on standby
- Includes 12h of application-guidance and optional yearly compliance checks

### 2. - Do It Together

- Fill out templates for ConOps, OM and training syllabus with AirHub guidance
- AirHub performs SORA analysis and compliance checklist
- Includes 12h of application-guidance and optional yearly compliance checks

### 3. - Done By Us

- AirHub develops ConOps, OM, etc. with your input
- Includes hands-on support for the application process
- Includes yearly regulatory compliance checks

**Ensuring Safety & Compliance** 



# **Getting Started**

### How you can can get started:

- Access template documentation
   Available with Dock 3 launch via DJI and AirHub
- Get support for your authorization
   Contact us via www.airhub.app/
   consultancy for dedicated support
- Get a trial AirHub software license
   Ensure ongoing compliance and fleet management for your operations



**Download Documents** 



# Questions & Answers



Scan to:

- Purchase DJI Dock 3
- Become DJI Dock 3 Dealer
- Become DJI Ecosystem Partner



Schedule a meeting with us via:

consultancy@airhub.nl