



# FOCA GM

## Guidance to elaborate an Operations Manual

Instructions and examples to FOCA-UAS-APP-OM (FOCA UAS Operations Manual Template)



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Scope	AMC and GM to Implementing Regulation (EU) 2019/947 Article 11 Rules for conducting an operational risk assessment (SORA 2.0)
Applies to	UAS Operations in the "Specific" category, for which an operational authorisation is required
Valid from	01 April 2023
Version	ISS 01 / REV 01

Document Reference	FOCA-UAS-GM-OM
Document Owner	FOCA / UAS Authorisation and Oversight (UAS)
Distribution	External

## Log of Revision (LoR)

Date	Issue	Revision	Highlight of Revision	Amended by	Signed by
13.03.2023	1	0	First Issue: Guidance Material to the the document entitled "FOCA UAS Operations Manual Template" (FOCA-UAS-APP-OM)  First Issue to consultation within the frame of EASA TeB	UAS/Ops	UAS/Lead
01.04.2023	1	1	Release version: revised introduction and scope	UAS/Ops	UAS/Lead

## Introduction/Foreword to Guidance Material

The present Guidance Material (GM) is intended to assist an organisation/operator in the administrative matters of applying and obtaining an operational authorisation and facilitate liason with the Federal Office of Civil Aviation (FOCA). It does not represent a comprehensive and complete set of requirements and it should not be used as a substitute for the individual assessment of the applicable regulatory requirements.

### Purpose:

The **purpose** of this document is to guide applicants in providing the necessary information related to applications for an operational authorization in accordance with Implementing Regulation (EU) 2019/947 which requires to develop an Operations Manual (OM) related the level of risk and complexity of the operation(s).

### Intended use:

The structure of this GM follows the structure of the document entitled "FOCA Operations Manual Template" (Document Reference: FOCO-UAS-APP-OM).

The numbering of chapters and sections matches the numbered fields of FOCO-UAS-APP-OM.

### Important Note:

The following Guidance Material is designed to be used in combination with the empty "Operations Manual Template" (FOCO-UAS-APP-OM). Its purpose is to guide applicants to provide the necessary information in the view to submit an Operations Manual as part of an application for an operational authorization, i.e. together with Specific Operations Risk Assessment (SORA) form or a Pre-defined Risk Assessment (PDRA) form.

The OM should not only describe the operation, but also provide insight into the operator's operational safety culture. It should also include how and when to interact with additional parties/organizations (e.g., Airport Authorities, ANSP). Therefore, when developing an OM the operator should consider all steps, mitigations and operational safety objectives intended or required in the AMCs to Article 11 of the Implementing Regulation (EU) 2019/947 (i.e. SORA or PDRAs), as well as UAS.SPEC.030, UAS.SPEC.050 and UAS.SPEC.060.

### Disclaimer:

This document does not replace requirements of (EU) 2019/947 and its AMC but provides recommendations and guidance as to how UAS operators can comply with those regulations in relation to the risk assessment requirements for operations in the specific category.

The scope and the extent of an OM highly depends on the complexity and the nature of UAS operations, derived by the SAIL (Specific Assurance and Integrity Levels) of the SORA methodology.

Even though the high-level sections of this GM should cover any type of operations within the Specific category, the guidance and examples are directed to complex SAIL II up to SAIL IV operations, in VLOS conditions. Therefore, the proposed structure is not prescriptive, as there is not a "one size fits all" approach. The amount of information and robustness of the safety procedures (operational and organizational) are expected to be proportional to the risk of the operation, and any section does not apply to the operation, it can be directly removed.

As any specificities of intended operations will lead to significant variations in the content of the OM:

This GM to Operations Manual template **cannot be used as such for UAS operations !**  
nor be applied directly for an Operational Authorization.

The OM serves as the basis for any Operational Authorisation in the Specific category. To authorise an operation, FOCA will accept the content of OM. An OM is approved only if it demonstrates that all identified risks are tolerable and as low as reasonably practicable (ALARP) as the result of a risk assessment performed with SORA or PDRA.

Hence, as for the SORA process, developing the OM can be an iterative process in which the applicants must ensure they complete all sections that are relevant and required for the proposed operation(s) and that all key safety aspects of these operations are described.

## Terms and Conditions

The use of the male **gender** should be understood to include male and female persons.

The most frequent **abbreviations** used by the **EASA** are listed here: [easa.europa.eu/abbreviations](https://easa.europa.eu/abbreviations).

When used throughout the GM the following terms shall have the meaning as defined below:

Term	Meaning	Reference
<i>shall, must, will</i>	These terms express an obligation, a positive command.	<a href="#">EC English Style Guide</a>
<i>may</i>	This term expresses a positive permission.	<a href="#">EC English Style Guide</a>
<i>shall not, will not</i>	These terms express an obligation, a negative command.	<a href="#">EC English Style Guide</a>
<i>may not, must not</i>	These terms express a prohibition.	<a href="#">EC English Style Guide</a>
<i>need not</i>	This term expresses a negative permission.	<a href="#">EC English Style Guide</a>
<i>should</i>	This term expresses an obligation when an acceptable means of compliance should be applied.	EASA Acceptable Means of Compliance publications FOCA policies and requirements
<i>could</i>	This term expresses a possibility.	<a href="http://oxforddictionaries.com/definition/english/could">http://oxforddictionaries.com/definition/english/could</a>
<i>ideally</i>	This term expresses a best possible means of compliance and/or best experienced industry practice.	FOCA recommendation

The term 'ConOps' as defined by Annex A to AMC1 to Article 11, is changed with Operations Manual (OM).

The terms Operating Manual, Operations Manual, Operation Manual, and ConOps are used interchangeable.

The guidance, instructions or recommendations from FOCA are highlighted with the following "box" format:

FOCA GM	<p>Reference to application regulations in <a href="#">purple</a></p> <p>Guidance, instructions, or recommendations from FOCA in <a href="#">black</a></p>
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The examples, samples, or templates from FOCA, intended help the applicant to provide the information in the guidance, are highlighted with the following "box" format:

EXAMPLE	<p>Example or sample text in <a href="#">blue</a></p> <p>Template / Expected headlines in black</p>
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## Legal References

- [1] Verordnung des UVEK über Luftfahrzeuge besonderer Kategorien (VLK) vom 24. November 2022 (SR 748.941) [\[link\]](#)  
Implementing Regulation (EU) 2019/947 [\[link\]](#) and related AMC and GM  
In particular:
- Annex A to AMC1 to Article 11
  - UAS.SPEC.030(e) and its AMC and GM:
- [2]
- AMC1 UAS.SPEC.030(3)(e),
  - AMC2 UAS.SPEC.030(3)(e),
  - AMC3 UAS.SPEC.030(3)(e),
  - GM1 UAS.SPEC.030(3)(e),
  - UAS.SPEC.050(a)(ii) and (iii)

## Other references and sources of information

- [3] Luftfahrt-Bundesamt (LBA), Formulation template for the creation of an operations manual, 20.10.2022 [\[link\]](#)
- [4] Direction Générale de l'Aviation Civile (DGAC), Canevas de manuel d'exploitation "Manex", V1 du 28/01/2021 [\[link\]](#)
- [5] Joint Authorities for Rulemaking of Unmanned Systems (JARUS) Working Group 6, Annex A: Guidelines on collecting and presenting system and operation information for a specific UAS operation, Edition Number 2.0, External Consultation Status, 2021
- [6] Civil Aviation Authority (CAA UK), Safety and Airspace Regulation Group, CAP 722A Second Edition, 2022 [\[link\]](#)

# Operations Manual Title

[COMPANY LOGO]



FOCA GM

Make a cover identifying the UAS operator with the title 'Operations Manual,' the company logo, contact information and OM revision number

EXAMPLE	Operational Scope	My Drone Company Special Missions
	Applies to	My Drone Company Operations
	Valid from	01 January 2023
	Version / Revision	ISS 01 / REV 00
	Operator Name	My Drone Company
	e-ID	CHE-xxxxxxxxxxx
	Address	Street 1, 9999 City
	Distribution	Internal

## Document Control

### Log of Revision (LoR)

LoR ISS 1 / REV 0 / dd.mm.20XX

FOCA GM	<b>Detail</b> the record of revisions with effectivity dates.
	<b>Detail</b> the person(s) responsible for the revisions and their publication.

EXAMPLE	Date	Issue	Revision	Highlight of Revision	Amended by	Signed by
	dd.mm.yyyy	1	0	First Issue	Name of the person carrying out the amendment/ revision/ issue number	Signature of person carrying out the amendment/ revision/ issue number

### List of Effective Chapters (LoEC)

LoEC ISS 1 / REV 0 / dd.mm.20XX

FOCA GM	<b>List</b> effective pages unless the entire manual is re-issued and the manual has an effective date on it.
	<i>Use the embedded word function within the FOCA-UAS-APP-OM Template for recording effective pages and effectivity dates. The proposed system is to update the effectiveness data in each section, and update the hyperlinked table of content below.</i>

LoR	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 3	ISS 1 / REV 0 / dd.mm.20XX
LoEC	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3	ISS 1 / REV 0 / dd.mm.20XX	Ch. 3.1	ISS 1 / REV 0 / dd.mm.20XX
LoA	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3.1	ISS 1 / REV 0 / dd.mm.20XX	Ch. 3.1.1	ISS 1 / REV 0 / dd.mm.20XX
LoR	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 3.1.2	ISS 1 / REV 0 / dd.mm.20XX
ToC	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3.3	ISS 1 / REV 0 / dd.mm.20XX	Ch. 3.2	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3.4	ISS 1 / REV 0 / dd.mm.20XX	Ch. 3.3	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.1	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3.5	ISS 1 / REV 0 / dd.mm.20XX	Ch. 4	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3.6	ISS 1 / REV 0 / dd.mm.20XX	Ch. 4.1	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.3	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.3.7	ISS 1 / REV 0 / dd.mm.20XX	Ch. 4.2	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.4	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.4	ISS 1 / REV 0 / dd.mm.20XX	Ch. 4.2.1	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.4.1	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.4.1	ISS 1 / REV 0 / dd.mm.20XX	Ch. 4.2.2	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.4.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.4.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 4.3	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.4.3	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.4.3	ISS 1 / REV 0 / dd.mm.20XX	Ch. 5	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.4.4	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.1	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.5	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.2	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.6	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.3	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.7	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.4.4	ISS 1 / REV 0 / dd.mm.20XX	Ch. 5.4	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.8	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.4.1	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.8.1	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.4.2	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.8.2	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.4.3	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.8.3	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.4.4	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.8.4	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.4.5	ISS 1 / REV 0 / dd.mm.20XX	Ch. 5.4.5	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.9	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.4.6	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.9.1	ISS 1 / REV 0 / dd.mm.20XX	ISS 1 / REV 0 / dd.mm.20XX		Ch. 5.5	ISS 1 / REV 0 / dd.mm.20XX
Ch. 1.9.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.5	ISS 1 / REV 0 / dd.mm.20XX	Ch. 6	ISS 1 / REV 0 / dd.mm.20XX
Ch. 2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 2.6	ISS 1 / REV 0 / dd.mm.20XX	Ch. 6.1	ISS 1 / REV 0 / dd.mm.20XX

Ch. 6.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 7.1.2	ISS 1 / REV 0 / dd.mm.20XX	Ch. 7.1.8	ISS 1 / REV 0 / dd.mm.20XX
Ch. 6.3	ISS 1 / REV 0 / dd.mm.20XX	Ch. 7.1.3	ISS 1 / REV 0 / dd.mm.20XX	Ch. Annexes	ISS 1 / REV 0 / dd.mm.20XX
Ch. 6.4	ISS 1 / REV 0 / dd.mm.20XX	Ch. 7.1.4	ISS 1 / REV 0 / dd.mm.20XX		
Ch. 7	ISS 1 / REV 0 / dd.mm.20XX	Ch. 7.1.5	ISS 1 / REV 0 / dd.mm.20XX		
Ch. 7.1	ISS 1 / REV 0 / dd.mm.20XX	Ch. 7.1.6	ISS 1 / REV 0 / dd.mm.20XX		
Ch. 7.1.1	ISS 1 / REV 0 / dd.mm.20XX	Ch. 7.1.7	ISS 1 / REV 0 / dd.mm.20XX		

## List of Abbreviations

LoA ISS 1 / REV 0 / dd.mm.20XX

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List all definitions, acronyms and abbreviations used throughout the OM.

Refer to Article 1 of (EU) 2019/947 and JARUS SORA Annex I for further definitions.

Acronym	Term	Definition	Source
AGL	Above Ground Level		
AMSL	Above Mean Sea Level		
AO	Airspace Observer		
ARC	Air Risk Class		
ATC	Air Traffic Control		
BVLOS	Beyond Visual Line of Sight		
COTS	Commercial offthe-shelf		
DABS	Daily Airspace Bulletin Switzerland		
ESC	Electronic Speed Controller		
FTS	Flight Termination System		
GCS	Ground Control Station	Provides control inputs and display outputs to the pilot.	
HMI	Human Machine Interface	Interface between Human and Machine, in our case it includes displays and control inputs in the GCS	
HW	Hardware		
IMU	Inertial Measurement Unit		
LOS	Line-Of-Sight		
MTOM	Maximum Take-off Mass		
OM	Operation(s) Manual		
RC	Remote Control		
RP	Remote Pilot		
SMS	Safety Management System		
SOP	Standard Operating Procedures	Contain normal, contingency, and emergency procedures	
UAS	Unmanned Aircraft System	Complete system including UA and its Ground Control Station	
VLOS	Visual Line of Sight		
VO	Visual Observer		
...			

EXAMPLE

## References

LoR ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

List all references (documents, URL, manuals, appendices) mentioned in the Operations Manual.

EXAMPLE

#	Title	Description	Issue / Revision Number
[1]	CAP722A	Unmanned Aircraft System Operations in UK Airspace – Operating Safety Cases	Second Edition

## Table of Contents (ToC)

ToC ISS 1 / REV 0 / dd.mm.20XX

<b>Operations Manual Title .....</b>	<b>1</b>
<b>Document Control.....</b>	<b>1</b>
Log of Revision (LoR).....	1
List of Effective Chapters (LoEC) .....	1
<b>List of Abbreviations .....</b>	<b>2</b>
<b>References .....</b>	<b>1</b>
<b>Table of Contents (ToC) .....</b>	<b>2</b>
<b>1      General Part (Part A) .....</b>	<b>1</b>
1.1 Introduction into the Operations Manual (OM).....	1
1.2 Safety Statement.....	2
1.3 Security and Privacy Statement.....	2
1.4 Organisation and responsibilities.....	2
1.4.1 Organisational Structure.....	3
1.4.2 Training Responsibilities .....	3
1.4.3 Maintenance Responsibilities .....	4
1.4.4 Design Organisation ( <i>if applicable</i> ).....	4
1.5 Change Management.....	4
1.6 Documents Retention Periods.....	5
1.7 Document Distribution .....	6
1.8 Crew composition and qualifications requirements .....	6
1.8.1 Pilot / Flight Crew .....	7
1.8.2 Maintenance Personnel.....	7
1.8.3 Ground Staff.....	7
1.8.4 Training, Examination, and Supervision Personnel.....	7
1.9 Crew Health .....	8
1.9.1 Preventive Health Care .....	8
1.9.2 <i>Flight Time Limitations</i> .....	10
<b>2      Operational Procedures (Part B) .....</b>	<b>12</b>
2.1 Normal Operating Strategy.....	12
2.2 Standard Operating Procedures.....	13
2.2.1 Mission Planning .....	14
2.2.2 General Briefing .....	14
2.2.3 Flight Preparation .....	15
2.2.4 Ground Procedures.....	18

2.2.5	Flight Procedures .....	22
2.2.6	Use of external Services and Systems .....	25
2.2.7	Debriefing.....	26
2.3	Aircraft (UAS XYZ) type-specific procedures .....	26
2.3.1	UAS XYZ General .....	26
2.3.2	UAS XYZ Limitations.....	26
2.3.3	UAS XYZ Normal Procedures .....	26
2.3.4	UAS XYZ Abnormal Procedures.....	29
2.3.5	UAS XYZ Emergency Procedures.....	30
2.4	Emergency Response Plan .....	31
2.5	Occurrence Reporting .....	31
2.5.1	Mandatory Reporting Procedure.....	33
2.5.2	Voluntary Occurrence Reporting.....	34
2.5.3	Internal Reporting.....	34
<b>3</b>	<b>Flight areas, Route Planning &amp; Operating Limitations (Part C) .....</b>	<b>35</b>
3.1	General Operational Limitations .....	35
3.1.1	General Environmental Conditions .....	35
3.1.2	General Technical Operational Limitations .....	35
3.2	ConOps 1 / Flight Areas (Name of region) - Reference to application form part 1 .....	35
3.3	ConOps 2 / Flight Areas (Name of region) - Reference to application form part 1 .....	35
<b>4</b>	<b>Training (Part D) .....</b>	<b>36</b>
4.1	General .....	36
4.2	Training Program(s) .....	36
4.2.1	Initial Training and Qualification.....	36
4.2.2	Recurrent and Refresher Training .....	36
4.3	Training with flight simulation training devices (FSTDs).....	36
<b>5</b>	<b>Emergency Response Manual (Part E) .....</b>	<b>37</b>
5.1	Purpose of ERP .....	37
5.2	Scope of ERP.....	37
5.3	ERP Definitions .....	37
5.4	ERP Procedures .....	37
5.4.1	Emergency Situations .....	38
5.4.2	Emergency Response Team .....	38
5.4.3	Emergency Response Means .....	38
5.4.4	Initial Emergency Response Guidelines and Procedures .....	39
5.4.5	Initial Notification of an Emergency .....	39
5.4.6	Occurrence Reporting .....	39

5.5	Declaration and Signature .....	41
<b>6</b>	<b>Maintenance (Part M) .....</b>	<b>42</b>
6.1	General .....	42
6.2	Software Updates.....	42
6.3	Maintenance instructions UAS 1.....	42
6.4	Maintenance instructions UAS i.....	42
<b>7</b>	<b>Technical Part UAS (Part T).....</b>	<b>43</b>
7.1	UAS Type 'XYZ' / Model'ABC' .....	43
7.1.1	Airframe .....	44
7.1.2	Performance.....	44
7.1.3	Avionics.....	45
7.1.4	Propulsion System .....	46
7.1.5	Fuel System (if applicable) .....	46
7.1.6	Electrical Power System.....	46
7.1.7	Safety Systems .....	47
7.1.8	Command Unit / Ground Control Station .....	47
7.1.9	Ground Support Equipment.....	47
<b>Annexes.....</b>		<b>48</b>
	Simple Checklist Template A:.....	48
	Simple Checklist Template B:.....	48
	Challenge-Response Checklist Template A:.....	48
	Challenge-Response Checklist Template B:.....	48
	Mission Briefing Sheet – Template 1 .....	49
	Mission Briefing Sheet - Template 2.....	49
	Emergency Response Plan – Quick Reaction Sheet Template .....	50

# 1 General Part (Part A)

Ch. 1 ISS 1 / REV 0 / dd.mm.20XX

## 1.1 Introduction into the Operations Manual (OM)

Ch. 1.1 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

1. **Explain** the scope of the document, its intent, and the overarching operating strategy of the company/applicant.
2. **Explain** the purpose and scope of the OM with a brief description of its structure, i.e. distinct parts of the document or the different documents (see note below).
3. **Explain** the purpose and scope of the operation(s), with a brief description of the proposal.
4. **Refer** to the regulation in accordance which this OM has been prepared.

**Note:** Some parts of the operator's documentation may be included in a separate manual or in (one of) the manual(s), as required by the applicable subpart(s). A cross-reference should be included. It is not required to duplicate information in several manuals.

The proposed structure in this GM is inspired by Regulation (EC) No 216/2008 and Part ORO.MLR. However this structure can be adapted according to the needs and the size of the organisation.

Option 1)

OM	Operations Manual	<p><b>Part A</b> - describes the essential basics of the UAS organisation, including general requirements, policies, procedures, instructions, and guidelines for safe and effective UAS Operations.</p> <p><b>Part B</b> - describes the operational part, such as handling and operation of the UAS (procedures, use of communication equipment and services) and the appropriate documents (checklists, MEL), defines operational limits and describes emergency procedures.</p> <p><b>Part C</b> - describes the flight operation, with specific type of operations and/or areas. Special emphasis is laid on specific flight planning procedures and local limitations</p> <p><b>Part D</b> - regulates the different responsibilities for training, refresher, and proficiency checks.</p> <p><b>Part E</b> – Emergency Response Manual.</p> <p><b>Part T</b> – UAS Technical relevant Information.</p>
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Option 2)

OM-A	General Part	describes the essential basics of the UAS organisation, including general requirements, policies, procedures, instructions, and guidelines for safe and effective UAS Operations.
OM-B	Procedures	describes the operational part, such as handling and operation of the UAS (procedures, use of communication equipment and services) and the appropriate documents (checklists, MEL), defines operational limits and describes emergency procedures.
OM-C	Flight areas, Route planning & operating limitations	describes the flight operation, with specific type of operations and/or areas. Special emphasis is laid on specific flight planning procedures and local limitations.
OM-D	Training	regulates the different responsibilities for training, refresher, and proficiency checks.
OM-E	ERM	
OM-T	Manual	

EXAMPLE

## 1.2 Safety Statement

Ch. 1.2 ISS 1 / REV 0 / dd.mm.20XX

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**Declare** in a statement that the OM complies with the relevant requirements of Regulation (EU) 2019/947 and with the authorisation or the terms of approval of the light UAS operator certificate (LUC), in the case of a LUC holder, and contains instructions that are to be complied with by the personnel involved in flight operations.

**Declare** in a clear statement that safety risks are managed by the applicant to be tolerable and will remain as low as reasonably practicable while being owned by accountable individuals within the applicant's organisation. (see example below)

**Sign** the statement (the accountable manager must sign this statement to approve OM content)

EXAMPLE

The safety statement should be written in accordance with the recommendations listed below:

1. The statement should include, as a minimum, the following information:
  - a. a declaration that the company/applicant is safe to operate in the proposed environment;
  - b. a declaration that the system(s) to be employed can be operated safely;
  - c. a commitment to comply with all applicable legislation, operate within the bounds of this OM authorisation granted, meet all applicable standards and consider best practices;
  - d. a commitment to provide appropriate resources for the implementation of the safety policy;
  - e. a commitment to enforce safety as one primary responsibility to the management;
  - f. safety and occurrence reporting principles;
  - g. a commitment not to blame someone for reporting something which would not have been otherwise detected.

The person accountable for the safe conduct of the organisation should endorse the safety policy and provide their full name and sign and date the statement.

*I, [name of the accountable manager], hereby declare that the OM complies with the relevant requirements of Regulation (EU) 2019/947 and contains instructions that are to be complied with by the personnel involved in flight operations.*

*Date, signature \_\_\_\_\_*

## 1.3 Security and Privacy Statement

Ch. 1.3 ISS 1 / REV 0 / dd.mm.20XX

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**Describe** the physical security of system elements and assets, for example ensuring adequate physical protection is afforded to system assets.

**Describe** the security governance to ensure the secure and safe operation of the system, for example security operating procedures are drafted, applied, reviewed, and maintained. This should include cyber security considerations.

**Detail** the security procedures in reference to in UAS.SPEC.050(a)(ii) and (iii): instructions, guidance, procedures, and responsibilities on how to implement security requirements and protect the UAS from unauthorised modification, interference, etc.

## 1.4 Organisation and responsibilities

Ch. 1.4 ISS 1 / REV 0 / dd.mm.20XX

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**Describe** the organisation overview.

This section should provide comprehensive information about the organisation making the application.

The following information should be included:

1. A brief description of the organisation and its activities;
2. Details of any relevant accreditations or approvals held by the organisation.

This section should be scaled to suit the size and complexity of the organisation.

### 1.4.1 Organisational Structure

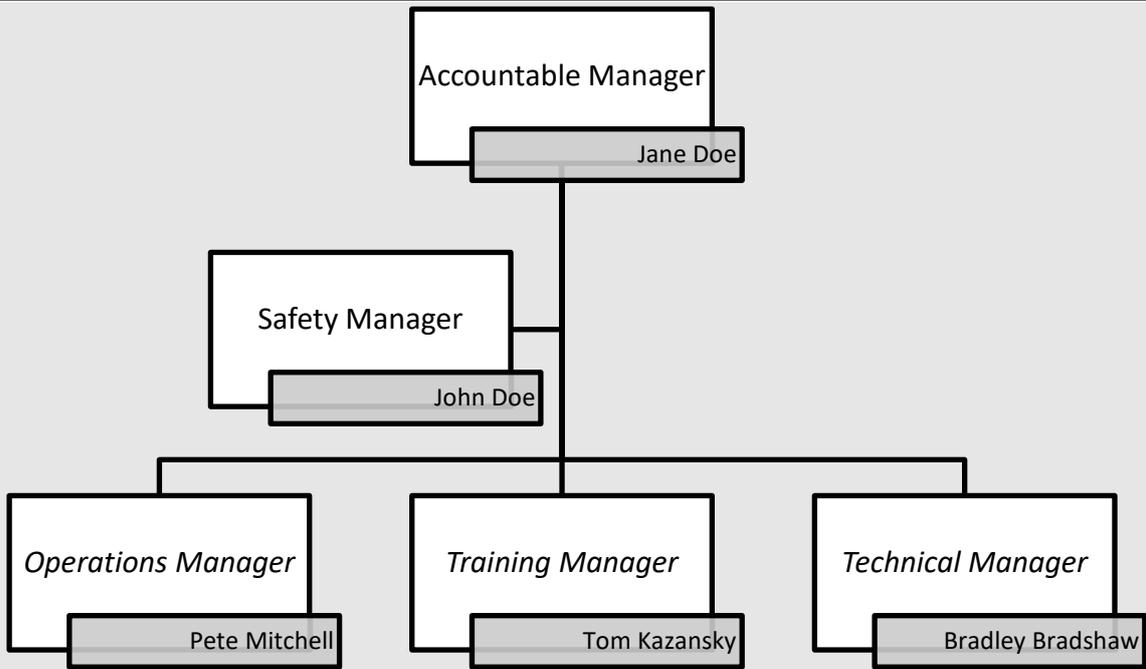
Ch. 1.4.1 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** the organisational structure using an organigram or organisational chart showing the different departments, if any (e.g. flight/ground operations, operational safety, maintenance, training, etc.) and the head of each department.

**Describe** the roles and responsibilities of the management personnel (designated individuals) based on the operator's organisational structure. Each role should be covered with a brief description. Multiple roles may be filled by the same person. However, in complex organisations and/or complex operations, internal audit / quality roles should be carried out by a person uninvolved in operation delivery.

EXAMPLE



The duties of the individual responsible employees are described below.

Role	Individual responsible	Duties and Responsibilities
Accountable Manager		<i>Precise description of the duties and responsibilities</i>
Safety Manager		<i>Precise description of the duties and responsibilities</i>
Operations Manager		<i>Precise description of the duties and responsibilities</i>
Technical Manager		<i>Precise description of the duties and responsibilities</i>
Training Manager		<i>Precise description of the duties and responsibilities</i>
Chief Remote Pilot		<i>Precise description of the duties and responsibilities</i>

### 1.4.2 Training Responsibilities

Ch. 1.4.2 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** in this section or make reference to:

1. The person responsible for the training syllabus;
2. The person responsible for the implementation of the training course;
3. The qualification process of the pilots.

### 1.4.3 Maintenance Responsibilities

Ch. 1.4.3 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

- Describe** the maintenance organisation, if required, to include any third-party organisations as required.
- Describe** the general maintenance philosophy of the UAS.
- Detail** the competence of the maintenance staff and any authorisations required, to include a system to record staff authorised to carry out maintenance.
- Describe** the maintenance logging system.

### 1.4.4 Design Organisation (if applicable)

Ch. 1.4.4 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

- Only if the operating organization is also a manufacturer, responsible for the design and/or production of the UAS:*
- Describe** the structure of the organisation's department/section, designing, manufacturing and/or producing the UAS, including the related production process, and its relationship with the rest of the organization.

## 1.5 Change Management

Ch. 1.5 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

- Describe** the change management and system modification process.
- Explain** the different processes in place to address any change or modification to:
- the OM: amendment and revision of the OM (list the changes that require prior approval and the changes to be notified to the competent authority);
  - UAS configuration;
  - Organisation structure;
  - Operational aspects;
  - UAS technical aspects.
- Describe** and **explain** how changes to the organisation are made and recorded and communicated to the Competent Authority. Any changes that require reporting to the Competent Authority should be clearly marked as changes with any document submissions to the Competent Authority for approval. Refer to (EU) 2019/947 AMC2 UAS.SPEC.030(2) for the baseline definitions of significant changes to the operational authorisation.

EXAMPLE

*All changes to the organisational structure or processes related to the operation of the UAS must be discussed internally prior to implementation. In doing so, an assessment of the impact of these changes on the safety of the operation must be made.*

*If risk factors can be identified during this assessment, they must be taken into account before the change is implemented. For this purpose, a concept that reduces the critical impacts on operations must be developed.*

*Changes in the organisational structure must be communicated with sufficient advance notice to all persons involved in the operation and, if necessary, be updated in the documentation (for example, OM). Changes to the Operating Manual are subject to approval.*

## 1.6 Documents Retention Periods

Ch. 1.6 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** the organisation's requirements for the retention of documents, records and any other data related to UAS Operations.

All important documents of the UAS operation and records should be stored for a minimum of 3 years and available for inspection by the competent authority or any statutory body whenever required. Records should be stored in a safe and secure manner and can be electronic or hard copy. The Applicant should refer to (EU) 2019/947, UAS.SPEC.090.

These include, but are not limited to, the following:

- All permits issued by the authorities, including all permits to fly in geographical zones;
- Any written permission to fly into a control zone;
- Records of flights carried out;
- Maintenance records / protocols;
- Records and updates of all relevant qualifications, experience and / or training completed by maintenance personnel;
- Records and updates of all relevant qualifications, experience and / or training completed by pilots;
- Minutes of all meetings with regard to safety-relevant topics (flight safety, security, occurrence reports, investigations), as well as;
- all documents considered important that enable the operator's actions to be traced.

EXAMPLE	Document	Place of Storage	Minimum Storage Time	Responsibility
	Operations Manual, all revisions	Top shelf of the main cabinet.	5 years	Operations Manager

## 1.7 Document Distribution

Ch. 1.7 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** which documents are distributed within the organisation, to whom, how and when (frequency).

EXAMPLE

*Each new employee is sent an up-to-date set of valid documents by e-mail to his or her work e-mail address or is given a set as a hard copy when he or she is inducted.*

*Afterwards, individual documents whose revision has changed are sent to each employee by e-mail.*

*It is the employee's responsibility to always work with the current valid version. A list of the current revision numbers of all documents can be viewed in the company office at any time or can be sent by e-mail from the office during business hours.*

*In addition, documentation lists are kept and updated. The current lists are available in the company office at all times and can be viewed there or can be sent by e-mail during business hours:*

- A list of personnel authorised to carry out maintenance work is kept and regularly updated;*
- A list of all relevant personnel qualifications, experience and / or training is maintained and regularly updated;*
- A list of personnel authorised to carry out pre-flight and post-flight inspections is maintained and regularly updated;*
- A list documenting the pre-flight and post-flight inspections carried out;*
- A list of all emergency response plan (ERP) training conducted is maintained and updated regularly.*

## 1.8 Crew composition and qualifications requirements

Ch. 1.8 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** in this section and sub-sections:

- the responsibilities and duties of personnel, including all the positions and people involved, for functions such as:
  - the remote crew including remote pilots and other members of the organisation involved in the operations (e.g. payload operator, ground assistant, maintenance technician, etc.). The composition of the crew depends on the nature of the operation, its complexity, the type of flights;
  - support personnel (e.g., visual observers (VOs), launch crew, and recovery crew).
- the competency, qualifications, duties, and responsibilities of the personnel:
  - Theoretical, practical (and medical) requirements for operating UAS in compliance with the applicable regulation;
  - Training and check programme for the personnel in charge of the preparation and/or performance of the UAS operations, as well as for the VOs, when applicable;
  - Training and refresher training records.
- the details of any limitations to the types of UAS that a remote pilot may operate, if appropriate when operations include diverse types of UAS used.

EXAMPLE

See examples and template tables in the sections below.

### 1.8.1 Pilot / Flight Crew

Ch. 1.8.1 ISS 1 / REV 0 / dd.mm.20XX

Role	Training and Qualification	Tasks, Duties and Responsibilities
<b>Remote pilot, PIC in Command):</b>	<p>At least remote pilot certificate A2 or STS (Standard Scenario) licence.</p> <p>Successfully completed training in accordance with the training manual (Part D).</p> <p>Instruction in the ERP not older than XX months.</p> <p>Active flight as a remote pilot with a UAS XYZ of the configuration ABC within the last XX days.</p>	<p>Planning each flight in advance and ensuring the right resources are available when required.</p> <p>Obtain all authorisations required.</p> <p>If required, inform a third party of the operation.</p> <p>Supervise each operation of the UAS.</p> <p>Perform pre-flight checks, in-flight checks, and post-flight checks.</p> <p>Ensure that the UAS used is airworthy.</p> <p>Operate the UAS within the stated limitations for that particular UAS and the given operational authorization.</p> <p>...</p>
<b>Remote pilot, safety pilot</b>	...	...
<b>Trainee pilot</b>	...	...
<b>Ground Station Operator</b>	...	...
<b>Visual Observer</b>	...	...

### 1.8.2 Maintenance Personnel

Ch. 1.8.2 ISS 1 / REV 0 / dd.mm.20XX

Role	Training and Qualification	Tasks, Duties and Responsibilities
<b>Maintenance Manager</b>	...	...
<b>Mechanic</b>	<p>Several years technical experience, including at least XX year of experience with UAS.</p> <p>Successfully completed training in accordance with the training manual (Part D).</p> <p>Instruction to the ERP not older than XX month.</p>	...
<b>Remote Pilot</b>	Several years technical experience, including at least XX year of experience with UAS.	...

### 1.8.3 Ground Staff

Ch. 1.8.3 ISS 1 / REV 0 / dd.mm.20XX

Role	Training and Qualification	Tasks, Duties and Responsibilities
<b>Assistant</b>	<p>Successfully completed training in accordance with the training manual (Part D).</p> <p>Instruction in the ERP not older than twelve months.</p>	...
<b>Payload Operator</b>	...	...

### 1.8.4 Training, Examination, and Supervision Personnel

Ch. 1.8.4 ISS 1 / REV 0 / dd.mm.20XX

Role	Training and Qualification	Tasks, Duties and Responsibilities
<b>Training Manager</b>		...
<b>Instructor</b>	...	...

## 1.9 Crew Health

Ch. 1.9 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** how physical and mental health is ensured to enable flight crew to conduct the planned operations.

**Describe** the precautions and guidelines involving the health of the personnel, including:

- Policy on consumption of alcohol, narcotics and drugs, sleep aids and anti-depressants;
- Policy on medication and vaccination;
- Policy on handling of fatigue, remote crew flight duty and resting time cycles and how this is logged (SAIL > II).

*Describe the level of medical fitness required (SAIL > IV).*

*Describe the fatigue risk management system (SAIL > IV).*

EXAMPLE

**Medical declaration:**

*Each crew member declares to the operator prior to commencement of the operation that there are no conflicts with 1.9.1 (Preventive Health Care) or 1.9.2 (Flight Duty and Rest Periods) and that he / she can perform his / her duties and tasks during the UAS operation without restrictions (the crew member declares himself / herself "fit for duty").*

*If a conflict exists regarding either of the two points, the crew member should report "unfit for duty" to the Head of Flight Operations. This may be done in writing or by telephone.*

*The performance of his or her duties, including the limited or only partial assumption of further duties in the company, is no longer permitted thereafter.*

### 1.9.1 Preventive Health Care

Ch. 1.9.1 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** what requirements are imposed internally on the flight crew, and why these are appropriate for the operation. A policy on alcohol and psychoactive substances should be in place.

**Important Note:** The amount of information and requirements imposed for preventive health care are expected to be proportional to the nature and the risk of the operation. The example shown below considers a SAIL III operation.

If the UAS operator is a one-person entity, please refer only to UAS.SPEC.060 Responsibilities of the remote pilot (Annex to (EU)2019/947).

From: Reference [3]

*The points listed in this chapter are based on the requirements of Regulation (EU) 965/2012. It must be adapted to the nature of operations (complexity and human involvement).*

*Preventive health care is an important part of ensuring safe operations.*

*Everyone should try to keep as healthy and fit as possible. This applies in particular, but not exclusively, to the following:*

- **Alcohol and other intoxicating liquids**

*It is the company policy of the operating company to prohibit any work under the influence of alcohol or other intoxicating liquids. Any consumption of alcohol eight hours before the start of operations is prohibited. The blood alcohol level must be 0.0 at the latest at the time when the operation preparation is started.*

- **Narcotics**

*Psychoactive substances such as narcotics can cause mood swings or perceptual disturbances in people. The same applies to sedatives and hypnotics.*

*Any and all violations of this prohibition shall result in immediate suspension from all duties related to the operation described herein. The position or task within the company of the person concerned is irrelevant.*

- **Drugs**

*Psychoactive substances such as drugs can cause mood swings or perceptual disturbances in people. Examples include cannabis, cocaine, heroin, LSD, etc.*

*Any and all violations of this prohibition shall result in immediate suspension from all duties related to the operation described herein. The position or task within the company of the person concerned is irrelevant*

- **Sleeping tablets**

*It is not permitted to perform the tasks or activities described in this Operating Manual while under the influence of sleeping tablets.*

- **Antidepressants**

*It is not permitted to perform the tasks or activities described in this Operating Manual while under the influence of antidepressants.*

- **Medical treatments**

*Whenever a crew member is receiving medical treatment from a doctor, he / she should inform the doctor that he / she is carrying out safety-related activities in connection with the operation described here to ensure that he / she is not subject to any restrictions in this regard. Whenever there is any doubt about unrestricted fitness, the crew member should report "unfit for duty" to his / her employer.*

- **Immunization**

*Each crew member is responsible for ensuring that they have the required vaccinations.*

*Vaccinations should take place at least 24 hours before the time when operational preparations begin. Consumption of food or drinks containing alcohol should be avoided during this period. In the event of a severe reaction to the vaccine, it is imperative that a doctor is consulted.*

- **Sleep and rest**

*Individual rest periods, holidays, or days off (for example, weekends) should be used for relaxation. Activities that conflict with this should be avoided.*

- **Surgical operations**

*After surgery, it is the responsibility of the crew member to check with his / her doctor whether he / she is fit enough to discharge his / her responsibilities. Whenever there is any doubt about full fitness, the crew member should report "unfit for duty" to his / her employer.*

- **Smoking**

*Smoking is forbidden during flight operations.*

- **Vision aids**

*Whenever a crew member is required to wear vision aids, he / she shall, if possible, carry a spare pair of spectacles / contact lenses with him / her during flight operations.*

EXAMPLE

## 1.9.2 Flight Time Limitations

Ch. 1.9.2 ISS 1 / REV 0 / dd.mm.20XX

**Describe** what requirements are imposed internally on the flight crew, and why these are appropriate for the operation.

**Important Note:** The amount of information and requirements imposed for flight time limitations are expected to be proportional to the SAIL. The example shown below considers a SAIL III operation. If the UAS operator is a one-person entity, please refer only to UAS.SPEC.060 Responsibilities of the remote pilot (Annex to (EU)2019/947).

### Definition of Terms (can be included in Operator's OM)

Break	«Break» means a period of time within a flight duty period, shorter than a rest period, counting as duty, and during which a crew member is free of all tasks.
Duty	«Duty» means any task that a crew member performs for the operator, including flight duty, administrative work, giving or receiving training, and checking, positioning, and some elements of standby.
Duty Period	«Duty Period» means a period, which starts when a crew member is required by an operator to report for or to commence duty and, which ends when that person is free of all duties, including post-flight duty.
Flight Duty Period	«Flight Duty Period (FDP)» means a period that commences when a crew member is required to report for duty, which includes a sector or a series of sectors, and finishes when the UAS finally comes to rest at the end of the last sector on which the crew member acts as an operating crew member.
Flight Time (Block Time)	«Flight Time» for UAS means the time between the moment the UAS is able to move under its own propulsion until the moment the UAS is deprived of the ability to move by itself.
Flight Zone	In terms of flight duty hours and rest periods, each flight zone is considered to be another flight zone if the UAS cannot be moved without assistance. The same applies to the ground station, should its relocation involve significant effort
Rest Period	«Rest Period» means a continuous, uninterrupted, and defined period of time, following duty or prior to duty, during which a crew member is free of all duties, standby and reserve.
Working Time	«Working Time» means any period during which employees are working at the employer's discretion and they are carrying out their activities or duties in accordance with national laws and/or practice.

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### Overview relation: Duty/Duty Period/Flight Time and Flight Duty Period

Duty					
Any activity on behalf of the training organisation	Theoretical Knowledge Instruction	Synthetic Flight Instruction	Session Briefing and/or Pre-Flight Duty	Flight instruction or Any commercial flight duty	
			Flight Time (Block Time)		Post-Flight Duty and/ or Session Debriefing
*			Flight Duty Period		
Duty Period – Working Time					

\*) All of the time spent for activities on behalf of the training organisation, theoretical knowledge and synthetic flight instruction is to be cumulatively counted in full towards the flight duty period of any subsequent commercial air operation

The flight duty hours and rest periods listed in this section are maximum values. These apply to all crew members involved in the operation of a UAS within the scope of this operating concept. They may be further limited, but not extended, by company agreements or collective agreements.

**The following restrictions shall not be exceeded:**

Flight time	<i>X flight hours on any day; XX flight hours of flight time in any 28 consecutive days; XXX flight hours of flight time in any calendar year; and XXXX flight hours of flight time in any 12 consecutive calendar months.</i>
Duty period/Flying duty Hours	<i>XX duty hours on any day;  The maximum duty time / day is reduced by one hour with each new flight zone. Example for three different flight zones: The maximum flight duty time / day = 13h - 3x1h = 10h</i>
Rest Period	<i>The minimum rest period between two duty periods is always as long as the duty period before it, but not less than X hours.  In addition, each crew member shall have at least one full day off from duty or standby duty at least every X days.</i>
Flight zone	<i>There are no limitations restricting the number of flight zones for each operation.</i>

EXAMPLE

## 2 Operational Procedures (Part B)

Ch. 2 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** the overarching operation principles

**Describe** the resources and the considerations made to establish procedures.

**Provide** any checklists used to support procedures items and explain which (if any) items are memory items. Examples of checklist are available in

Checklists and SOP templates may be provided by a third-party.

Note: The operational procedures should take into account environmental, physical, and human factors with an effect on crew performance and well-being, including (non-exhaustive list):

- Temperature;
- Fatigue;
- Vibration;
- Noise;
- Time of the day;
- Stressful/tedious working environments.

### 2.1 Normal Operating Strategy

Ch. 2.2 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

*The intent of this section is to provide a clear understanding of how the operation takes place within the approved technical, environmental, and procedural limitations.*

**Describe** the normal operating strategy, including but not limited to:

- Phases of flight;
- General safety measures;
- Specific safety measures;
- Containment measures;
- Required mode-changes;
- The level of automation or autonomous systems utilised by the crew during each phase of the flight ;
- Use of air traffic control services;
- Mandatory supporting crew members, e.g., visual observers;
- Location of the crew;
- The technical means required for the support of multi-crew operations;
- Any other information that is required to understand the operation.

**Describe** the safety measures, that are put in place to ensure that the UAS can fulfil the operation within the approved limitations, and so that the operation remains in control. For example:

- Technical and/or procedural measures;
- Crew training, to include multi-crew coordination, if applicable;
- Coordination with ANSP.

<b>EXAMPLE</b>	<p>Night operating procedures could include information such as:</p> <ul style="list-style-type: none"> <li>• Details of how the daylight site survey identifies all hazards associated with night operations in that area;</li> <li>• Completing a hazard log and risk assessment, based on the site survey;</li> <li>• Illumination of take-off, landing and/or nominated recovery areas. Consider the effect of illumination on a pilot's night vision capabilities;</li> <li>• Unmanned aircraft illumination/lighting requirements, consider the directionality of any lighting fitted to a UAS;</li> <li>• Weather limitations for the operation(s).</li> </ul>
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Normal Operating Strategy / General Operations Characteristics	
<b>UAS Fleet</b>	List of the type of UAS used for operations.
<b>Type of Operation</b>	List of potential missions and the type of operation being conducted, for example, filming, infrastructure inspections, agriculture, aerial spraying, swarming, surveillance, test and development etc.
<b>Overflowed Areas</b>	<ul style="list-style-type: none"> <li>• Whether the flights are planned to be conducted in congested areas (Urban- high density population).</li> <li>• If the flights involve operation in close proximity to uninvolved persons, vehicles, or structures.</li> <li>• Whether the flights generally involve flying over assemblies of people.</li> </ul>
<b>Level of human intervention</b>	<p>e.g.</p> <ul style="list-style-type: none"> <li>▪ <i>Operations are conducted in automatic mode.</i></li> <li>▪ <i>The remote pilot shall have the ability to control the UA, except in case of a loss of link.</i></li> <li>▪ <i>The remote pilot will only operate one UA at a time.</i></li> <li>▪ <i>The remote pilot will not operate from a moving vehicle.</i></li> </ul> <p>..</p>
<b>UAs Range Limit</b>	
<b>UAs Limitations</b>	
<b>Flight Height Limit</b>	<ul style="list-style-type: none"> <li>• The height above the surface for which the flights are planned.</li> </ul>
<b>Airspace</b>	<ul style="list-style-type: none"> <li>• The classification of the airspace the flight will be conducted in (Class C, D, E, or G), or within another airspace restriction (Danger or Restricted Area).</li> <li>•</li> </ul>
<b>Visibility</b>	<ul style="list-style-type: none"> <li>• Whether the flights will be performed during day or night. <ul style="list-style-type: none"> <li>○ Daylight conditions: Minimum flight visibility is more than XX km.</li> <li>○ Night conditions: N/A or specific conditions, e.g.</li> </ul> </li> </ul>
<b>Safety Measures</b>	<ul style="list-style-type: none"> <li>• What are the containment measures that keep the UA in the Operational Volume?</li> <li>• If required, what additional containment measures are in place to prevent the operation from exiting the Ground Risk Buffer?</li> </ul>
<b>Other General Limitations</b>	<ul style="list-style-type: none"> <li>• Whether goods will be carried, including Dangerous Goods, or items/substances will be dropped/dispensed.</li> </ul>

## 2.2 Standard Operating Procedures

Ch. 2.3 ISS 1 / REV 0 / dd.mm.20XX

<b>FOCA GM</b>	<p><b>Describe</b> the standard operating procedures (SOP) applicable to all operations for which an approval is re-requested.</p> <p><b>Definition of SOP:</b> <i>set of instructions covering policies, procedures, and responsibilities set out by the applicant that supports operational personnel in ground and flight operations of the UA safely and consistently.</i></p>
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## 2.2.1 Mission Planning

Ch. 2.3.1 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

- **Describe** the process to determine the feasibility of each intended task or mission. For example, explain how the relevant aspects associated with the operation are assessed and prioritised. This process should answer: Is the mission within the scope of an existing operational authorization?
- **Explain** how task feasibility is evaluated, who carries out the evaluation, what tools (apps/maps) are used and how it is determined if a task is feasible.
- **Explain** how task feasibility documents are retained and retrieved when necessary.

*Describe here your own means for planning and monitoring daily operations and create mission plans.*

EXAMPLE

Part	Assessment Remark	Responsible	Tool
Operational environment	<ul style="list-style-type: none"> <li>• Geographical area</li> <li>• Limitations and conditions</li> <li>• Scenario</li> <li>• Altitude</li> </ul>		
Required Personnel	<ul style="list-style-type: none"> <li>• Composition of the crew</li> <li>• Qualification required</li> <li>• Training needed</li> <li>• Crew fitness</li> </ul>		
UAS Fleet	<ul style="list-style-type: none"> <li>• UAS required</li> </ul>		
External System	<ul style="list-style-type: none"> <li>• GNSS coverage</li> <li>• Cellular Network</li> </ul>		

## 2.2.2 General Briefing

Ch. 2.3.2 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

- Crew briefing: Procedures for briefing the flight crew for the task, their responsibilities, duties, emergency actions, etc.
- Safety Briefing for externals.

In case of external personnel involved in an operation a safety briefing has to be conducted before the operation. In certain cases in which it is important to collect proof and document that the safety briefing has been addressed, a disclaimer form is presented to each participant.

#### Safety briefing checklist.

- Introduction of the crew and roles;
- Introduction into the performance, functions, and payload of the drone;
- Explanation of the drone operation, including take-off/landing area and planned flight path;
- Ground Safety precautions:
  - Do not approach the drone without the permission by the flight crew;
  - Show shelter/safe location in case of emergency.
- Instructions during flight:
  - keep the drone in sight as much as possible to anticipate potential control problems;
  - keep safe distance from the drone avoiding its flight path and identify a shelter if possible;
  - avoid engaging in conversation with the flight crew during operations except for safety concerns.
- Questions and doubts? Ask now for clarifications.

EXAMPLE

## 2.2.3 Flight Preparation

Ch. 2.3.3 ISS 1 / REV 0 / dd.mm.20XX

### 2.2.3.1 Flight Planning

- Determine the flight route and especially the point of departure, the landing point, the cruising speeds, the cruising levels and the flight mode for each segment of the flight path.
- Ensure that the most current data available is always used. For all data that is only updated at long intervals, such as ICAO charts or satellite images, updates (for example NOTAMs (Notice to Airmen)) or on-site inspections (see 2.3.3.1) are also taken into account.
- Consider Geographical Zones (GZ) covering the entire flight area when planning operation. In order to operate in a geographical zone, the local requirements and legislation should be followed

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### 2.2.3.2 Site assessment

**Describe** the process to carry out a site assessment or an on-site inspection. By means of an on-site inspection the operator verifies that the assumptions made in the task feasibility assessment are valid and prepares the operational area accordingly.

**Explain** how the site planning assessment is carried out, who carries it out, and what tools (apps/maps) are used.

**Explain** how site planning assessment documents are retained and retrieved when necessary. Include templates of the documents used to record operating site planning assessments (or reference to these documents).

**Explain** the procedures for operating from the defined sites.

**Mention** which actions are required prior to each operation, and which are required during the planning of the operation

See [FOCA-UAS-GM-STEP4](#) for further guidance on airspace assessment.

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EXAMPLE

See site assessment template below.

**Note:** For localised/precise operations, items like the analysis of the overflow terrain, overflow infrastructure, class of airspace, etc. can be performed once as part of the Risk Assessment (SORA) and does not necessarily need to be repeated in the OM.

Operating Site Planning Assessment - TEMPLATE	
<b>Area</b>	
<b>Overflown terrain</b>	<ul style="list-style-type: none"> <li>Verify maximal population density of Ground Risk footprint on the population density map; <u>For Switzerland:</u> Use the <a href="#">Population Statistics: Inhabitants (Federal Statistical Office FSO)</a> and <a href="#">Built-up areas as defined in Swiss civil aviation legislation</a> layers from map.geo.admin.ch</li> <li>Verify that the assumptions in the mission plan regarding population density are correct (traffic on roads, people in public spaces like parks, other assemblies of people);</li> <li>Size, shape, surroundings, surface, slope of terrain;</li> <li>If relevant, spectrum analysis of the site.</li> </ul>
<b>Distance to uninvolved persons</b>	Check that there is no sign of an unusual high number of people in the operational area, e.g. due to an event like a concert or sports game.
<b>Landing Zone</b>	Suitability of the landing zone, including considerations for automatic return to home (RTH), where applicable.
<b>Overflown infrastructure</b>	Risk assessment of the critical infrastructure in cooperation with the responsible organisation for the infrastructure.
<b>Obstacles/Obstructions</b>	<ul style="list-style-type: none"> <li>Verify the <a href="#">obstacle database</a></li> <li>Assess presence of any physical obstructions such as wires, masts, buildings, etc.;</li> <li>Verify that there are no other obstacles, e.g.: wind turbines or power lines than those mentioned in the mission plan.</li> </ul>
<b>Public Access</b>	<ul style="list-style-type: none"> <li>Verify the possibility of uninvolved persons to access the overflown area (e.g. roads, paths, public spaces);</li> <li>Ensure that no third parties are about to enter the area being used for take-off, and that any minimum distances set out in the authorisation are met.</li> </ul>
<b>Alternates</b>	Select alternate operating sites.
<b>Airspace</b>	
<b>Class of airspace</b>	<p>To find the airspace class of a specific location, different aeronautical charts can be used. The most useful being the official ICAO chart which can be found here: <a href="#">Aeronautical Chart ICAO</a></p> <p>The symbol definitions of the ICAO chart can be found here: <a href="#">Symbology</a></p>
<b>Proximity to other aerial activities</b>	<ol style="list-style-type: none"> <li>Verify that there are no heliports, airfields or paraglider starting places within the operational area other than those mentioned in the mission plan.</li> <li>Verify probability of other aircraft operations on local aerodromes or operating sites, restrictions, permissions and potential activities by other airspace users. For the purpose of this assessment, the <a href="#">ICAO map</a>, the <a href="#">sailplanes map</a> and the <a href="#">hospital heliports and mountain landing sites location</a> map can be used, among other tools.</li> </ol>
<b>Airspace restrictions</b>	<ul style="list-style-type: none"> <li>Confirm there are no airspace restrictions in place, which may impact the flight volume;</li> <li>Checking Airspace reservations and NOTAMs on <a href="#">DABS</a>.</li> <li>Assess flight procedures in the vicinity based on <a href="#">AIP and VFR Manual</a></li> </ul>
<b>Airspace environment</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Potential HEMS activities</li> <li><input type="checkbox"/> Potential SAR activities</li> <li><input type="checkbox"/> Potential MILITARY / SWISS AIR FORCE activities</li> <li><input type="checkbox"/> Potential Helicopter Special Operations / Aerial Work operations</li> <li><input type="checkbox"/> Potential AIR SPORTS activities (Gliders, paragliders)</li> </ul>
<b>Environment</b>	

<b>Weather</b>	...
<b>Hazards</b>	...
<b>Authorisations</b>	
<b>Geozones</b>	...
<b>Relevant local Regulations</b>	...
<b>Landowner permission</b>	...

### 2.2.3.3 Communications

FOCA GM	<ul style="list-style-type: none"> <li>• <b>Detail</b> any communication requirements for a given site or mission.</li> <li>• <b>Explain</b> any communication procedures required on-site.</li> <li>• <b>Describe</b> communication test procedures, if required.</li> </ul>
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EXAMPLE	<ul style="list-style-type: none"> <li><input type="checkbox"/> Check that crew communication equipment is working properly (radio check).</li> <li><input type="checkbox"/> Check cellular phone signal coverage in the operational area: For example, a site with no mobile network coverage is clearly not suitable for an operation where a mobile telephone has been provided as a mitigation or is a communication requirement. Similarly, if two-way radio communication is a requirement, then this should be range tested in the operational environment at any proposed location.</li> <li><input type="checkbox"/> Make a range test. Note: This test must be representative of the operational environment. For example, a test early on a Sunday morning may result in a different outcome to a test on a weekday, where a nearby source of interference may be present only at certain times.</li> </ul> <p>Use any checklist as proposed in the templates in Annexes</p>
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### 2.2.3.4 Notification / Coordination procedures

FOCA GM	<p><b>Describe</b> which third parties need to be notified of the operation.</p> <p><b>Explain</b> how these third parties will be notified of the operation.</p>
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EXAMPLE	<p>Provision of information to and/or coordination with all third parties involved, for example:</p> <ul style="list-style-type: none"> <li>• Air Navigation Service Provider – skyguide;</li> <li>• Aerodrome/Airfield Manager (s);</li> <li>• HEMS Operators;</li> <li>• Military authorities / Swiss Air Force.</li> </ul> <p>Notification of a flight to other airspace users may be necessary by NOTAM (Notice to Airmen), mainly in cases where it can be expected that the other airspace users will be able to see the UAV. Reference should be made to NOTAM policy.</p> <p>In some cases, promulgation of airspace changes necessary for the operation may be required. This will be arranged as part of any necessary airspace change, and may include changes to the AIP (Aeronautical Information Publication), AICs, and NOTAMs.</p> <p>It may be necessary to inform local police of the planed flight to avoid interruption or concerns from the public.</p> <p>All efforts should be made to inform third parties within the flight volume, which may be in close proximity to the UA, and obtain any necessary agreement.</p>
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### 2.2.3.5 Cordon Procedures

FOCA GM

**Describe** the procedures used to separate the UAS operation from uninvolved persons, such as establishing buffer zones, use and positioning of barriers, marshals etc. Response if uninvolved persons enter a cordon area.

EXAMPLE

Mark the operational area with warning signs and taping as prescribed in the area plan (e.g.: controlled area).

Use any checklist as proposed in the templates in Annexes

### 2.2.4 Ground Procedures

Ch. 2.3.4 ISS 1 / REV 0 / dd.mm.20XX

#### 2.2.4.1 Multi-Crew Coordination

FOCA GM

**Describe** the procedure for multi-crew coordination if more than one person is directly involved in the flight operations. These procedures should ensure that

- The roles are clearly assigned in a "briefing".
- Everyone has understood their role (Remote Pilot, ground control station operator, Observer, etc.) and the associated tasks.
- The communication channels to be used (oral, radio, etc.) have been clearly identified, and
- Nothing stands in the way of clear and effective communication (no language barrier, use of the same terms and call outs, etc.).

**Detail** any specific phraseology, terms and call-outs used for crew communication. The crew must be trained to avoid misunderstandings when communicating. Terminology and phraseology are clearly defined for the purpose of the operations.

EXAMPLE

The distribution of the tasks can be documented based on a Responsibility Assignment Matrix (RAM) or RACI matrix model, as follows:

Task	Pilot in Command	Visual Observer	Role 3
Task 1	R	A	I
Task 2	R	A	
Task 3	I	A	R
Etc.			

A: Accountable; R: Responsible; I: for Information, (C: Consulted)

### 2.2.4.2 Communication Means

FOCA GM	<p><b>Explain</b> the communication methods between the following personnel, agencies and/or organisations as applicable:</p> <ul style="list-style-type: none"> <li>▪ Air traffic service providers;</li> <li>▪ Emergency services;</li> <li>▪ The UAS flight crew;</li> <li>▪ Any other personnel, agencies and/or organisations relevant to the operations.</li> </ul> <p><b>Explain</b> how communication is carried out. For example, two-way radio, telephone, flight notification apps or other methods.</p> <p><b>Explain</b> the back-up communication methods to be used in the event of failure of the primary communication method(s).</p> <p><b>Detail</b> any licences that may be needed for use of any communication equipment.</p>
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### 2.2.4.3 Environmental Assessment

FOCA GM	<p><b>Describe</b> the procedures to evaluate environmental conditions before and during the mission (i.e. real-time evaluation).</p> <p><b>Explain</b> how weather forecasts are obtained prior to an operation and how the weather will be monitored during an operation.</p> <p>Check of weather conditions should include as a minimum:</p> <ul style="list-style-type: none"> <li>• Temperature;</li> <li>• Wind and Gusts;</li> <li>• Precipitations;</li> <li>• Icing;</li> <li>• Visibility.</li> </ul> <p>METAR (METeoroological Aerodrome Report) and TAF (Terminal Aerodrome Forecast) of nearest aerodrome/station shall used for the weather evaluation. However, local weather assessment is decisive for the operation and additional weather services (e.g.: MeteoSwiss) shall be used.</p> <p>For the weather in particular, the meteorological data, used as the basis for planning, must be documented and the planning is updated in the event of changes to the planning basis that need to be taken into account.</p>
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Weather Checklist		
Parameter	Method/Mean	Tool/Ressources
<b>Wind and Gusts</b>	<input type="checkbox"/> Check if within the UA limitations defined for the operation type in the OM and by the manufacturer. <input type="checkbox"/> The maximum gust must be recorded during at least one minute. <input type="checkbox"/> Enter data or measurement into the Flight Report.	<input type="checkbox"/> Portable weather station <input type="checkbox"/> MeteoSwiss <input type="checkbox"/> METAR/TAF <input type="checkbox"/> Portable weather station <input type="checkbox"/> ...
<b>Temperature</b>	<input type="checkbox"/> Check if within the UA limitations defined for the operation type in the OM and by the manufacturer.	
<b>Precipitations</b>	<input type="checkbox"/> Check if within the UA limitations defined for the operation type in the OM and by the manufacturer. <input type="checkbox"/> anticipate the possibility of precipitations.	
<b>Humidity</b>	<input type="checkbox"/> Check if within the UA limitations defined for the operation type in the OM and by the manufacturer.	
<b>Pressure</b>	<input type="checkbox"/> Enter measurement into the Flight Report.	
<b>Icing</b>	<input type="checkbox"/> Check if within the UA limitations defined for the operation type in the OM and by the manufacturer.	
<b>Visibility</b>	<input type="checkbox"/> Check visually for rain, hail, thunderstorm, fog/mist/haze and clouds within the operational area or approaching. <input type="checkbox"/> Assess and note down the local cloud coverage. <input type="checkbox"/> Check according to max. flight altitude of OM or UA.	<input type="checkbox"/> Visual check <input type="checkbox"/> METAR/TAF
<b>KP Index</b>	<input type="checkbox"/> Enter Planetary K index into Flight Report.	<input type="checkbox"/> KP NOAA

**Resources Links:**

- Meteoswiss: <https://www.meteoswiss.admin.ch/home/services-and-publications/beratung-und-service/flugwetter.html>
- METAR/TAF: <https://www.skybriefing.com/fr/services/weather-briefing>
- KP NOAA: <https://www.swpc.noaa.gov/products/planetary-k-index>

EXAMPLE

#### 2.2.4.4 Refueling

FOCA GM

**Detail** the procedures and precautions for changing and/or charging batteries, replenishment of liquid fluids etc.

### 2.2.4.5 Loading of Equipment/Payload

FOCA GM

**Detail** the precautions to be taken to ensure the loading of equipment and a secure attachment of loaded equipment.

### 2.2.4.6 Record-keeping instructions

FOCA GM

**Describe** the logging instruction and requirements before/after each flight.

Logging requirements should include any actions necessary to track logs and records of pilots considered useful for the monitoring of the activity.

EXAMPLE

At least the following details must be recorded in a log book before each flight:

- a. Date of the flight(s);
- b. Location and time of take-off;
- c. Environmental conditions (including temperature, wind and gusts, precipitations, visibility);
- d. Name of the pilot(s), observer(s) and the additional ground crew.

At least the following details must be recorded in a log book after each flight:

- a. Location and time of landing;
- b. Any unusual technical or operational occurrences, e.g. opening of parachute, premature decoupling.

## 2.2.5 Flight Procedures

Ch. 2.3.5 ISS 1 / REV 0 / dd.mm.20XX

### Definitions of normal, contingency, and emergency procedures:

<b>Normal Procedures</b>	Set of instructions covering policies, procedures, and responsibilities set out by the applicant that supports operational personnel in flight operations of the UA safely and consistently.
<b>Abnormal Procedures</b>	
<b>Contingency Procedure</b>	Procedures designed to potentially prevent a significant future event (e.g. loss of control of the operation) that has an increased likelihood to occur due to the current abnormal state of the operation. These procedures should return the operation to a normal state and allow the return to using standard operating procedures, or allow the safe cessation of the flight.
<b>Emergency Procedure</b>	Procedures executed by the remote crew and may be supported by automated features of the UAS and are intended to mitigate the effect of failures that cause or lead to an emergency condition. They deal with affecting the UA to either return to a state where the operation is "in control" or to minimise hazards until the flight has ended.

### 2.2.5.1 Normal Procedures

FOCA GM	<p><b>Describe</b> the normal procedures to be performed by the crew associated with UAS starting, take-off, in-flight, landing and shutdown.</p> <p>Normal in-flight procedures should include the assessment of the compatibility between visibility and potential range, the terrain obstruction, and the gaps between the zones covered by the pilot and/or the AOs (Airspace Observers) during flight.</p> <p><b>Reference</b> all procedures and checklists published in other manual (e.g. Flight Manual) or other sections of the OM (e.g. 2.3 Aircraft type-specific procedures) to be followed.</p> <p>This section of the OM should describe additional procedures in order to comply with specific operating limitations or how to handle procedures that are not specified in other manual (e.g. Flight Manual).</p>
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EXAMPLE	<p>Examples of in-flight procedures are : (Ref. [6])</p> <ul style="list-style-type: none"> <li>• Regular in-flight checks, such as fuel / power, C2 link status, temperatures, on board systems status, satellite coverage / GNSS functionality, and position.</li> <li>• Pre-landing checks, such as airspace lookout, ground lookout for uninvolved people, check the landing area is clear, ensure the aircraft configuration is set up for landing.</li> <li>• Procedure to determine the required fuel quantity / battery level for the intended operation including for contingency.</li> <li>• Procedures for safe handling by any person who may come into contact with the hazardous substances (e.g. payload handlers/loaders, ground staff, remote pilot).</li> <li>• Procedures to ensure relevant Rules of the Air requirements (e.g. SERA.3210 - Right of way)</li> </ul> <p><u>Examples of operational limitations:</u></p> <ul style="list-style-type: none"> <li>• Operating heights, lateral distances, conditions and limitations for operating within the applicable class(es) of airspace etc. This Information can also be portrayed graphically, detailing any applicable boundaries intended for safety, based on the operational volume and safety buffers</li> <li>• Maximum cruising speed (maximum speed typically used during operation; this may be the maximum airspeed).</li> <li>• Environmental conditions, such as minimum visibility conditions.</li> </ul>
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## 2.2.5.2 Contingency Procedures

**Detail** the required contingency procedures and describe how these procedures return the operation to a normal state or allow safe cessation of the flight.

Contingency procedures are the planned course of action designed to help respond effectively to a significant future abnormal event or situation that may or may not happen.

Contingency procedures should specify the transitions between nominal and degraded mode (e.g. from 'automatic' to 'degraded'/'manual' mode) in the event of the UAS behaving abnormally. Transition to recovery/abnormal flight modes can be manually launched by the crew or automatically by the UAS under specific programmed conditions.

UAS is considered still responding to remote crew control or automation inputs and remains within the pre-defined contingency volume.

(EU)2019/947 : GM1 UAS.SPEC.030(3)(e) 5.2

- (a) Procedures to cope with the UA leaving the desired 'flight geography';
- (c) Procedures to cope with uninvolved persons entering the controlled ground area, if applicable;
- (d) Procedures to cope with adverse operating conditions (e.g. in case icing is encountered during the operation, if the operation is not approved for icing conditions);
- (e) Procedures to cope with the deterioration of external systems supporting the operation. In order to help properly identify the procedures related to the deterioration of external systems supporting the UAS operation, it is recommended to:
  - (1) identify the external systems supporting the operation;
  - (2) describe the deterioration modes of these external systems which would prevent the operator maintaining a safe operation of the UAS (e.g. complete loss of GNSS, drift of the GNSS, latency issues, etc.)
  - (3) describe the means put in place to detect the deterioration modes of the external systems; and
  - (4) describe the procedure(s) in place once a deterioration mode of one of the external systems is detected (e.g. activation of the emergency recovery capability, switch to manual control, etc.).
- (f) De-confliction scheme (i.e. the criteria that will be applied for the decision to avoid incoming traffic. In cases where the detection is performed by UA VOs, the phraseology to be used

FOCA GM

EXAMPLE

See template table below

ID	Abnormal Situation	Criteria	Procedure
#C1	Incursion of people on the ground in the operating volume		<input type="checkbox"/> CALL OUT: «PEOPLE» <input type="checkbox"/> KEEP DISTANCE <input type="checkbox"/> LAND SAFE
#C2	Incursion of aircraft in the operating volume	Another aircraft (of any type) is detected that is threatening to fly into the operational volume or has already flown into it.	<b>Traffic De-confliction</b> <input type="checkbox"/> CALL OUT: «TRAFFIC» <input type="checkbox"/> LAND SAFE
#C3	Degradation of navigation function	e.g. GNSS loss.	<input type="checkbox"/> LAND SAFE <input type="checkbox"/> MANUAL CONTROL
#C4	Degradation of communication function		
#C5	Degradation of surveillance function	Loss of electronic conspicuity.	
#C6	Degradation of C2 link		

#C7	Loss of C2 link		<input type="checkbox"/> HOVER <input type="checkbox"/> Time Limit <input type="checkbox"/> RTH
#C8	Degradation of UA performance	<ul style="list-style-type: none"> <li>▪ Loss of a motor.</li> <li>▪ Loss of a flight control function.</li> </ul>	
#C9	Deviation from the pre-programmed flight path in automatic mode:		<input type="checkbox"/> CALL OUT: «WARNING» <input type="checkbox"/> MANUAL CONTROL <input type="checkbox"/> LAND SAFE
#C10	Breaching the limit between the flight geography and the contingency volume:	<p>The UAS leave the flight geography laterally.</p> <p>If the UAS cannot be returned to the flight geography or if it is foreseeable that it will leave the contingency volume.</p>	<p><b>Lateral Breach</b></p> <input type="checkbox"/> RTH <input type="checkbox"/> EMER LAND <input type="checkbox"/> TERMINATE
#C11	Unexpected Behaviour	UAS not responding in yaw, pitch and roll.	
#C12	Unexpected Adverse Weather Conditions	e.g. ice is encountered during an operation not approved for icing conditions.	<input type="checkbox"/> EMER LAND ... <input type="checkbox"/> TERMINATE
#Cn	....		

Procedures #Ci must be listed and detailed in subsequent sections.

See 2.3.4 UAS XYZ Abnormal Procedures for the related UAS contingency procedures.

### 2.2.5.3 Emergency Procedures

FOCA GM	<p><b>Detail</b> the emergency procedures to be carried out after an event that leads to a loss of control of the operation. This should include appropriate checklists as required.</p> <p><b>Explain</b> under what conditions the ERP is activated.</p> <p><i>Note: Emergency procedures are carried out when a loss of control of the operation has occurred and deal primarily with the handling of the UA to avoid or at least minimise, harm to uninvolved persons in the air or on the ground. The ERP is a separate set of procedures that deals with the potential hazardous secondary or escalating effects after a loss of control of the operation and is decoupled from the Emergency Procedures, as it does not deal with the control of the UA. The ERP may include procedures that are triggered in parallel with the Emergency Procedures, while other procedures may only be triggered after the UA ends its flight.</i></p> <p>(EU)2019/947 : GM1 UAS.SPEC.030(3)(e) 5.2  (b) Procedures to cope with the UA entering the 'containment' volume;</p> <p>(EU)2019/947 : GM1 UAS.SPEC.030(3)(e) '6 Emergency procedures'</p> <ul style="list-style-type: none"> <li>▪ (a) Procedures to avoid or, at least minimise, harm to third parties in the air or on the ground. With regard to the air risk, an avoidance strategy to minimise the collision risk with another airspace user (in particular, an aircraft with people on board); and</li> <li>▪ (b) Procedures for the emergency recovery of the UA (e.g. landing immediately, termination of the flight with FTS or a controlled crash/splash, etc.).</li> </ul>
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EXAMPLE	See template table below.
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ID	Emergency Situation	Criteria	Procedure
#E1	Loss of containment	Fly-away :Aircraft exiting the operational volume, breaching the limit between the contingency volume and the ground risk buffer, emergency procedures are triggered	<input type="checkbox"/> CALL OUT: «FLY AWAY» <input type="checkbox"/> TERMINATE <input type="checkbox"/> Trigger ERP
#E2	Complete loss of flight control		<input type="checkbox"/> CALL OUT: "CONTROL LOSS" <input type="checkbox"/> EMER LAND <input type="checkbox"/> TERMINATE
#E3	Complete loss of propulsion		<input type="checkbox"/> CALL OUT: "ENGINE OUT" <input type="checkbox"/> Trigger ERP
#E4	Extreme abnormal environmental conditions		<input type="checkbox"/> EMER LAND <input type="checkbox"/> Trigger ERP
#E5	Conflict with an incoming aircraft	Emergency procedures should be available to avoid a collision.	<input type="checkbox"/> EMER LAND or <input type="checkbox"/> TERMINATE <input type="checkbox"/> Trigger ERP
#En	....		

Procedures #Ei must be listed and detailed in subsequent sub-sections.

See 2.3.5 UAS XYZ Emergency Procedures for the related UAS emergency procedures.

## 2.2.6 Use of external Services and Systems

Ch. 2.3.6 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM	<p>An external system which supports the operation is usually a system providing a function, such as a device used during flight (e.g. anemometer, thermometer used for pre-flight checks), a traffic detection and avoidance system (e.g. FLARM, ADS-B in) or any other system supporting the operation.</p> <p>For each system, performance limitations should be documented, e.g. the temperature range for thermometer or the velocity range for an anemometer.</p> <p>It is ensured that the level of performance for all external services is adequate for the planned operation and its safe execution. Should an external service require communication between the UAS operator and service provider, effective communication is ensured to support the delivery of the service. The roles and responsibilities of both parties are clearly defined.</p> <p>External systems activated/used after the loss of control of the operation are excluded from this definition.</p>
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EXAMPLE	<p>Consider inclusion of information on necessary third-party service providers if utilised in support of the operation. For example:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> UTM service provider;</li> <li><input type="checkbox"/> C2 link service provider;</li> <li><input type="checkbox"/> Navigation services (e.g. GNSS Global Navigation Satellite System);</li> <li><input type="checkbox"/> Communication services;</li> <li><input type="checkbox"/> Surveillance services.</li> </ul>
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## 2.2.7 Debriefing

Ch. 2.3.7 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** procedures in place to debrief the flight crew on the safety standards of the operations and take note if procedures can be improved for future operations with a background of collaboration and Crew Resource Management principles.

## 2.3 Aircraft (UAS XYZ) type-specific procedures

Ch. 2.4 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

An operator that has several UA types will publish a separate OM-B for each type. A reference to the applicable operations manual (OM-B) for type-specific procedures is acceptable.

### 2.3.1 UAS XYZ General

Ch. 2.4.1 ISS 1 / REV 0 / dd.mm.20XX

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### 2.3.2 UAS XYZ Limitations

Ch. 2.4.2 ISS 1 / REV 0 / dd.mm.20XX

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### 2.3.3 UAS XYZ Normal Procedures

Ch. 2.4.3 ISS 1 / REV 0 / dd.mm.20XX

...

#### 2.3.3.1 Pre-flight Inspection

FOCA GM

Describe the pre-flight checks that should be conducted immediately prior to flight.

Describe the checks to be conducted after the system has been assemble (Assembly and functional check).

<b>EXAMPLE</b>	<p><u>The pre-flight inspections should contain as a minimum a check of the following:</u></p> <ol style="list-style-type: none"> <li>1. UAS check:             <ol style="list-style-type: none"> <li>a. Rotors and propellers: no visible damage and propellers tight and mounted according to manufacturer's instructions;</li> <li>b. UAS structure: no visible damage;</li> <li>c. Batteries: charged and number of cycles in line with maintenance, emergency battery operational if applicable;</li> <li>d. Compass and position sensors calibrated and accurate;</li> <li>e. GPS signal integrity and availability checked;</li> <li>f. Remote Control Check: Control and command link signal and UAS response to control inputs: roll, pitch and yaw;</li> <li>g. Emergency Response System check if available, Parachute triggering system check.</li> </ol> </li> <li>2. Radio communication check, if applicable.</li> </ol> <p><u>Examples of pre-flight checks that should be carried out:</u></p> <ul style="list-style-type: none"> <li>▪ Check the reported and actual battery/fuel capacity is sufficient for the flight;</li> <li>▪ Check the C2 link and any functions associated with the loss of the link operate correctly;</li> <li>▪ Check the GNSS is receiving sufficient satellites to begin the flight;</li> <li>▪ Check the navigation system or command unit is programmed with the correct route information;</li> <li>▪ Check the flight controls and engines/motors function correctly;</li> <li>▪ Check the weather conditions will be suitable for the flight;</li> <li>▪ Check the flight termination system functions correctly;</li> <li>▪ Check availability and integrity of tactical mitigation (detect function) systems, if applicable and according to SORA Step 6 TMRP (e.g. Flight Radar, Involi, ADS-B, Flarm etc.);</li> <li>▪ ...</li> </ul> <p><u>Examples of assembly and functional checks that should be conducted:</u></p> <ul style="list-style-type: none"> <li>▪ Visual inspection of the aircraft and its structure to ensure the security of objects such as access panels, engines/motors, propellers/rotors, landing gear and external loads;</li> <li>▪ Check batteries are correctly installed;</li> <li>▪ Check the C2 link is functioning;</li> <li>▪ Check any flight termination devices are functioning correctly;</li> <li>▪ Check all electrical and avionics equipment is serviceable and functioning;</li> <li>▪ Check the flight controls and engines/motors function correctly;</li> <li>▪ Check the payload release mechanism(s) function correctly;</li> <li>▪ Complete items detailed by the UAS manufacturer;</li> <li>▪ ...</li> </ul>
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### 2.3.3.2 Start

<b>EXAMPLE</b>	<p><u>Examples of pre-take-off checks and procedures:</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Confirm there are no structures in the air above launch area (pylons, cables etc);</li> <li><input type="checkbox"/> Pre-take off 'look-out' to confirm no other aircraft are nearby;</li> <li><input type="checkbox"/> Control checks- full and free movement of controls, and correct 'sense';</li> <li><input type="checkbox"/> Check instruments are all reading correctly and are legible;</li> <li><input type="checkbox"/> Check lights are turned on as necessary;</li> <li><input type="checkbox"/> ...</li> </ul>
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### 2.3.3.3 Take Off

EXAMPLE

Examples of take-off procedures:

- Departure clearance
- Confirm that flight & departure sector is clear, Airspace above UAV is clear
- Launch/trigger take-off function
- Check status display
- Check UAV parameters and that all instruments are working correctly. No abnormal
- Start Mission (automatic flightpath) or Manual operation
- ...

**2.3.3.4 In-flight**

FOCA GM

**Describe** the in-flight procedures and checks related to UA.

EXAMPLE

Examples of in-flight checks and procedures that may be necessary:

- Check that airspace is clear
  - Monitor flight path and clearance to terrain
  - Monitor Mission parameters (e.g. waypoints sequence)
  - Check UA flight parameters – green, no abnormal
  - Check UA endurance
- Pre-landing checks, such as
- airspace lookout,
  - ground lookout for uninvolved persons,
  - check the landing area is clear,
  - ensure the aircraft configuration is set up for landing.

**2.3.3.5 Takeover of Manual Control**

ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE

Examples of Manual Mode revert procedure

- Activate Manual Mode
- Control UA with secondary controls
- ...

**2.3.3.6 Landing**

ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE

Examples of landing checks and procedures:

- Landing clearance
- Check that the approach and landing sector is clear. Airspace around landing area is clear
- Check UA heading
- Check UA flight path and maneuvers
- Check display status (hover, landing, ...)
- Confirm no drift, UA above suitable landing spot, no vibrations, no abnormal
- Call out "LANDING"

Examples of after-landing checks and procedures:

- System checks,
- avionics shut down,
- motor/engine shut down checks,
- battery/fuel isolation.

**2.3.3.7 Post-flight Inspection**

ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** the post-flight checks.**Describe** the process for reporting defects and maintenance actions.

EXAMPLE

The post-flight inspections should contain as a minimum a check of the following:

1. Disarm Motors;
2. UAS Check:
  - a. Rotors and propellers;
  - b. UAS structure;
  - c. ERS check if applicable.

**2.3.4 UAS XYZ Abnormal Procedures**

Ch. 2.4.4 ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE

See subsequent sections:

- RTH;
- Hover in Position;
- Safety Descent;
- Safety Landing (in Mode xyz);
- ...

**2.3.4.1 Return-to-Home (RTH)**

ISS 1 / REV 0 / dd.mm.20XX

...

**2.3.4.2 Hover in position (HOVER)**

ISS 1 / REV 0 / dd.mm.20XX

...

**2.3.4.3 Safety Descent (DESCENT)**

ISS 1 / REV 0 / dd.mm.20XX

...

**2.3.4.4 Safety Landing (LAND SAFE)**

ISS 1 / REV 0 / dd.mm.20XX

...

**2.3.5 UAS XYZ Emergency Procedures**

Ch. 2.4.5 ISS 1 / REV 0 / dd.mm.20XX

<b>EXAMPLE</b>	See subsequence sections: <input type="checkbox"/> Emergency Landing; <input type="checkbox"/> Flight Termination; <input type="checkbox"/> ...
----------------	--

**2.3.5.1 Emergency Landing (EMER LAND)**

ISS 1 / REV 0 / dd.mm.20XX

**2.3.5.2 Flight Termination (TERMINATE)**

ISS 1 / REV 0 / dd.mm.20XX

	<i>[EMERGENCY PROCEDURES]</i>
	<b>TERMINATE Checklist REMOTE PILOT</b>
1	KILL      KILL SWITCH BUTTON ..... ACTIVATE
2	CALL OUT      CRASH! CRASH! CRASH! ..... CALL OUT LOUD
3	INSTRUCT      "DISARM MOTOR" ..... CALL OUT TO GROUND STATION
	<i>[EMERGENCY PROCEDURES]</i>
<b>EXAMPLE</b>	<b>TERMINATE Checklist GROUND STATION</b>
	DISARM      Motors ..... DISARM
	TAKE NOTE      Last position and Direction ..... NOTE
	<i>[EMERGENCY PROCEDURES]</i>
	<b>TERMINATE Checklist OBSERVER</b>
	TAKE COVER      Find shelter ..... TAKE COVER
	WARN      "Look out, take cover! - Look out, take cover!" ..... CALL OUT

## 2.4 Emergency Response Plan

Ch. 2.5 ISS 1 / REV 0 / dd.mm.20XX

Refer to 375 Emergency Response Manual (Part E)

## 2.5 Occurrence Reporting

Ch. 2.6 ISS 1 / REV 0 / dd.mm.20XX

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**Explain** the internal and external occurrence reporting procedures to include documentation and data logging procedures.

**Detail** the external occurrence reporting procedures established according to Regulation (EU) No 376/2014.

**Describe** how records and information are stored and made available, if required to the Swiss Transportation Safety Board (STSB), FOCA, or other entities when applicable.

*Note: Occurrence reporting systems are not established to attribute blame or liability. Occurrence reporting systems are established to learn from occurrences, improve aviation safety and prevent reoccurrence. When you are considering whether an occurrence is reportable, you should also consider other situations where the same thing could have happened. For example, the actual occurrence may have been 'benign' as it happened in a remote area. However, if the full scope of how the aircraft could be operated is considered, for example over people, could the same occurrence in a different situation result in a more serious outcome?*

### Mandatory Occurrence Reporting

REFER TO

2.6.1 Mandatory Reporting Procedure

#### UAS Mandatory Reporting for UAS in Switzerland

UAS operators / pilots are obliged to report accidents and serious incidents via the REGA alarm center (tel. 1414, from abroad +41 333 333 333) to the aviation department of the Swiss Transportation Safety investigation Board (STSB).

In addition, all UAS operators / pilots must generally report all safety-related incidents with serious or fatal injuries to persons or if manned aircraft are affected to the Federal Office of Civil Aviation (FOCA) or via the reporting system of the company concerned ([www.aviationreporting.eu](http://www.aviationreporting.eu)) within 72 hours.

### Reportable occurrences

REFER TO

2.6.2 Voluntary Occurrence Reporting

#### Air operations

- Unintentional loss of control;
- Loss of control authority over the aircraft;
- Aircraft landed outside the designated area;
- Aircraft operated beyond the limitations established in the relevant operating category or Operational Authorisation;
- Aircraft operated without required licencing, registration, or Operational Authorisation;
- Aircraft operated in an unairworthy or unflightworthy condition;
- Unintended flight into BVLOS conditions, when the operation is not qualified for BVLOS, which has or could have endangered the aircraft, its occupants or any other person.

#### Technical occurrences

- Abnormal severe vibration;
- Any flight control not functioning correctly or disconnected;
- Loss of command-and-control link (C2 link);
- Battery failure/malfunction;
- Powerplant failure;
- A failure or substantial deterioration of the aircraft structure;

<b>Reportable occurrences</b>	REFER TO 2.6.2 Voluntary Occurrence Reporting
<ul style="list-style-type: none"> <li>• Aircraft structural failure (e.g., a loss of any part of the aircraft structure or installation in flight);</li> <li>• Errors in the configuration of the command unit;</li> <li>• Display failures;</li> <li>• Flight programming errors;</li> <li>• Navigation failures.</li> <li>• Failures or malfunctions of fail-safe mechanisms or safety features (e.g., FTS)</li> <li>• Loss of payload.</li> </ul>	
<p><b>Interaction with air navigation services, air traffic management or other airspace users</b></p> <ul style="list-style-type: none"> <li>• Interaction with air navigation services (for example: incorrect services provided, conflicting communications or deviation from clearance) which has or could have endangered the aircraft, its occupants or any other person;</li> <li>• Airspace infringement;</li> <li>• A near collision in the air, a conflict with another aircraft requiring an emergency avoidance manoeuvre to avoid a collision;</li> <li>• Infringement of restricted/reserved airspace (Inc. Flight restriction zones [FRZ] around aerodromes).</li> </ul>	
<p><b>Crew Resource Management, Multi-Crew Coordination &amp; other human factors</b></p> <ul style="list-style-type: none"> <li>• Unsafe acts of operators: skill-based, decision, perceptual errors, routine violations;</li> <li>• Communication, coordination, planning, and teamwork issues (e.g., substandard briefing);</li> <li>• Unsafe supervision.</li> </ul>	
<p><b>External environment and meteorology</b></p> <ul style="list-style-type: none"> <li>• A collision on the ground or in the air, with terrain or obstacle (or vehicle);</li> <li>• A near collision, on the ground or in the air, with another aircraft, terrain or obstacle (or vehicle) requiring an emergency avoidance manoeuvre to avoid a collision;</li> <li>• Inadvertent flight within proximity of uninvolved persons (i.e., within the prescribed separation distances);</li> <li>• Wildlife strike including bird strike which resulted in damage to the aircraft or loss or malfunction of any essential service;</li> <li>• Interference with the UAS by firearms, fireworks, flying kites, laser illumination, high powered lights lasers, other UAS or Remotely Piloted Aircraft Systems, model aircraft or by similar means;</li> <li>• A lightning strike resulting in damage to or loss of functions of the aircraft;</li> <li>• Icing which has or could have endangered the UA.</li> </ul>	
<p><b>Emergencies and other critical situations</b></p> <ul style="list-style-type: none"> <li>• Any occurrence leading to an emergency call;</li> <li>• Any occurrence where the safety of the aircraft, operator, other airspace users or members of the public is compromised or reduced to a level whereby potential for harm or damage is likely to occur;</li> <li>• Fire, explosion, smoke, toxic gases or toxic fumes involving the UAS;</li> </ul> <p>Incapacitation of the remote pilot or supervisor leading to inability to perform any duty.</p>	

## 2.5.1 Mandatory Reporting Procedure

Responsibility	Notification to	Dispatch time	Means/Address
<b>Remote Pilot (PIC)</b> or any person directly involved in, or becoming aware of an accident or serious incident	Air Traffic Services (if relevant)	Immediately	Current frequency: Phone: xxxx
	Swiss Air Rescue Service (REGA)		Phone: <b>1414</b> (REGA Alarm Center) (from abroad: +41 333 333 333)
	Head of Operations		Initial notification: by best practicable means <ul style="list-style-type: none"> <li>• Phone:xxx</li> </ul> Written report: <ul style="list-style-type: none"> <li>• Reporting/Analysis Form</li> </ul> E-Mail:
<b>Head of Operations</b>	FOCA	Within 72 Hours of becoming aware of the occurrence, unless exceptional circumstances prevent this	<b>Aviation Safety Reporting</b> <a href="http://www.aviationreporting.eu">http://www.aviationreporting.eu</a> <ul style="list-style-type: none"> <li>• To assigned Projet Authorizazion Manager (PAM) by the best practicable means;</li> <li>• Or <a href="mailto:rpas@bazl.admin.ch">rpas@bazl.admin.ch</a></li> </ul>
	Safety Manager	As soon as practicable	Reporting/Analysis Form
<b>Safety Manager</b>	FOCA	Min. Month +1 Max Month +3	Follow-up Report / Final Report on ECCAIRS

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## 2.5.2 Voluntary Occurrence Reporting

Responsibility	Notification to:	Dispatch time:	Means/Address
Remote Pilot	If an aviation authority is affected: <ul style="list-style-type: none"> <li>• Aerodrome Operator</li> <li>• Airport Authority</li> <li>• Skyguide ATS</li> </ul>	Immediately	<ul style="list-style-type: none"> <li>• Frequency</li> <li>• Aerodrome Manager</li> <li>• ...</li> </ul> Phone.
	Head of Operations	As soon as practicable	Initial notification: <ul style="list-style-type: none"> <li>• by best practicable means</li> </ul> <ul style="list-style-type: none"> <li>• <b>Phone:</b></li> </ul> Written report: <ul style="list-style-type: none"> <li>• Reporting/Analysis Form</li> <li>• <b>E-Mail:</b></li> </ul>
Head of Operations	FOCA	Within 72 Hours of becoming aware of the occurrence, unless exceptional circumstances prevent this	<ul style="list-style-type: none"> <li>• <b>Aviation Safety Reporting</b>  <small>[On-line] Available (20.05.2016)</small>  <a href="http://www.aviationreporting.eu">http://www.aviationreporting.eu</a></li> <li>• To assigned Project Authorization Manager (PAM) by the best practicable means;</li> <li>• Or <a href="mailto:rpas@bazl.admin.ch">rpas@bazl.admin.ch</a></li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Safety Manager</b></li> </ul>	<ul style="list-style-type: none"> <li>• As soon as practicable</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Reporting/Analysis Form</b></li> </ul>

## 2.5.3 Internal Reporting

Responsibility	Notification to:	Address:
Any employee/freelance of the organisation, instructors and students	<b>Safety Manager /</b> <b>Head of Operations</b>	<ul style="list-style-type: none"> <li>• Written report:               <ul style="list-style-type: none"> <li>• Reporting/Analysis Form</li> </ul> </li> <li><b>E-Mail:</b></li> </ul>

### 3 Flight areas, Route Planning & Operating Limitations (Part C)

Ch. 3 ISS 1 / REV 0 / dd.mm.20XX

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This section should provide a concise description of the operation and the concepts behind it, used to do a quick review of whether the operation is possible and what level of requirements would be needed based on a SORA risk assessment.

Application form Part 1 should be used to describe the intended flight(s) and this document is not expected to be used by the remote pilots, but as a planning and operating document by the organisation.

The OM can simply refer to the sent application forms as the individual *Part C* or copy the relevant parts into the OM when it is necessary for the remote pilots.

#### 3.1 General Operational Limitations

Ch. 3.1 ISS 1 / REV 0 / dd.mm.20XX

##### 3.1.1 General Environmental Conditions

Ch. 3.1.1 ISS 1 / REV 0 / dd.mm.20XX

##### 3.1.2 General Technical Operational Limitations

Ch. 3.1.2 ISS 1 / REV 0 / dd.mm.20XX

#### 3.2 ConOps 1 / Flight Areas (Name of region) - Reference to application form part 1

Ch. 3.2 ISS 1 / REV 0 / dd.mm.20XX

##### Summary description

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Define the ConOps with the following headlines:

- List of Flight Areas;
- Calculation of Contingency Volume and Ground Risk Buffer;
- Specific Procedures of the Flight Zone;
- Emergency Response Plan (ERP) - Local Information;
- Specific Operational limitations;
- Specific Environmental conditions;
- Specific Technical operational limitations.

#### 3.3 ConOps 2 / Flight Areas (Name of region) - Reference to application form part 1

Ch. 3.3 ISS 1 / REV 0 / dd.mm.20XX

## 4 Training (Part D)

Ch. 4 ISS 1 / REV 0 / dd.mm.20XX

### 4.1 General

Ch. 4.1 ISS 1 / REV 0 / dd.mm.20XX

### 4.2 Training Program(s)

Ch. 4.2 ISS 1 / REV 0 / dd.mm.20XX

#### 4.2.1 Initial Training and Qualification

Ch. 4.2.1 ISS 1 / REV 0 / dd.mm.20XX

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Can be split into ground and flight training.

EXAMPLE

Includes, but not limited to the following topics:

- Applicable laws and regulations for UAS operation in the EU and national specific requirements (Implementing Regulation (EU) 2019/947, SERA, OSCA, etc.);
- Airspace structures;
- Airmanship and aviation safety;
- Human performance capacity;
- Weather;
- Navigation and maps;
- UAS used;
- Procedures.

And if necessary further topics by means of OSOs:

- ERP (M3);
- Product inspection (OSO#7);
- MCC (Multi-crew Cooperation) (OSO#16);
- CRM (Crew Resource Management) Training (OSO#16);
- Weather measurement (OSO#23).

#### 4.2.2 Recurrent and Refresher Training

Ch. 4.2.2 ISS 1 / REV 0 / dd.mm.20XX

Key Element	Reference	Frequency
Applicable laws and regulations for UAS operation in the EU and national specific requirements.	Implementing Regulation (EU) 2019/947, SERA, OSCA, etc.	Yearly

### 4.3 Training with flight simulation training devices (FSTDs)

Ch. 4.3 ISS 1 / REV 0 / dd.mm.20XX

*(if applicable)*

## 5 Emergency Response Manual (Part E)

Ch. 5 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

Refer to:

- FOCA-UAS-GM-ERP [online [link](#), Available (12.03.2023)];
- (EU) 2019/947, AMC3 UAS.SPEC.030(3)(e) (EMERGENCY RESPONSE PLAN (ERP) WITH 'MEDIUM' AND 'HIGH' LEVEL OF ROBUSTNESS);

for detailed guidance for drawing up an Emergency Response Plan.

See also **Emergency Response Plan – Quick Reaction Sheet Template** in Annexes for a template of a field ERP sheet.

### 5.1 Purpose of ERP

Ch. 5.1 ISS 1 / REV 0 / dd.mm.20XX

...

### 5.2 Scope of ERP

Ch. 5.2 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

Detail the:

- Countries and authorities;
- Type of operations;
- Operator and entities;

covered by the ERP.

### 5.3 ERP Definitions

Ch. 5.3 ISS 1 / REV 0 / dd.mm.20XX

...

### 5.4 ERP Procedures

Ch. 5.4 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

To be complete and meaningful, the processes and procedures defined in the ERP must provide information that answers the following questions as a minimum:

- What is the situation?
- What must be done?
- Who does it?
- How, when and where must it be done? / Which tools / forms have to be used?
- In which order?

Refer to

- FOCA-UAS-GM-ERP [online [link](#), Available (12.03.2023)];
- (EU) 2019/947, AMC3 UAS.SPEC.030(3)(e) (EMERGENCY RESPONSE PLAN (ERP) WITH 'MEDIUM' AND 'HIGH' LEVEL OF ROBUSTNESS)

for further guidance.

### 5.4.1 Emergency Situations

Ch. 5.4.1 ISS 1 / REV 0 / dd.mm.20XX

#### (EU) 2019/947, AMC3 UAS.SPEC.030(3)(e) section 4

The ERP should define the criteria for identifying emergency situations, and for identifying the main emergency situations that are likely to increase the level of harm (escalating effect) if no action is taken.

4.2. The identified emergency situations should at least include those where one or more UA are operated by the UAS operator and have the potential to:

- (a) harm one or more persons;
- (b) hit a ground vehicle, building, or facility where there are one or more persons who might be injured as a consequence of the UA impact;
- (c) harm critical infrastructure;
- (d) start a fire that might propagate;
- (e) release dangerous substances;
- (f) hit an aircraft that carries people and/or whose crash might lead to one or more of the situations listed in (a) to (e); and
- (g) cause the UA to leave the operational volume and fly beyond the limits of:
  - (1) the ground risk buffer; and/or
  - (2) the air risk buffer (if existing), or enter adjacent airspace where there is a risk of collision with manned aircraft.

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### 5.4.2 Emergency Response Team

Ch. 5.4.2 ISS 1 / REV 0 / dd.mm.20XX

Refer to FOCA-UAS-GM-ERP and (EU) 2019/947, AMC3 UAS.SPEC.030(3)(e) section 4.

FOCA GM

#### Example for Composition, Role and Contact Details of the Emergency Response Team

EXAMPLE

Order	Role	First Name / Family name	Phone No 1	Phone No 2
1	ERP Manager	Muster Emery	...	...
2	Resp. Flight Operations	Muster Opery	...	...
#	...	...	...	...

### 5.4.3 Emergency Response Means

Ch. 5.4.3 ISS 1 / REV 0 / dd.mm.20XX

In accordance with the pre-flight procedure, the emergency equipment is to be checked for availability and serviceability.

*The standard emergency equipment consists of:*

EXAMPLE

Equipment	Check if available
<i>Fire Extinguisher</i>	<i>Check that located in the designated place; Check easy accessibility; Check pressure gauge reading or indicator in the operable range or position; Check expiry date/last inspection.</i>
<i>First Aid Kit</i>	<i>Check that correctly fitted and secured; Check the seal.</i>
<i>Torches</i>	<i>Check that correctly fitted and secured; Check functionality.</i>
...	...

## 5.4.4 Initial Emergency Response Guidelines and Procedures

Ch. 5.4.4 ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE	Step	Task	Responsibility	Verify/Check	Tool / Source
	#	Identify the level of emergency and gravity	ERP Manager	UAS/Crew Location. Get additional first-hand information	Communication Means
	#	...	...	...	...
	...	...	...	...	...

## 5.4.5 Initial Notification of an Emergency

Ch. 5.4.5 ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE	Step	Who / Responsibility	Means Of Notification / Forms	Notification to / Address	Time Limit
	1	ERP Manager	Phone	Rega; -Phone (within CH): 1414 -Phone (abroad.): +41 333 333 333	ASAP
	#	...	...	...	...
	#	...	...	...	...

...

## 5.4.6 Occurrence Reporting

Ch. 5.4.6 ISS 1 / REV 0 / dd.mm.20XX

### Mandatory Occurrence Reporting for UAS in Switzerland

For unmanned aircraft, there are two different procedures in the reporting system (please adhere to those in order to avoid duplication and redundant reporting).

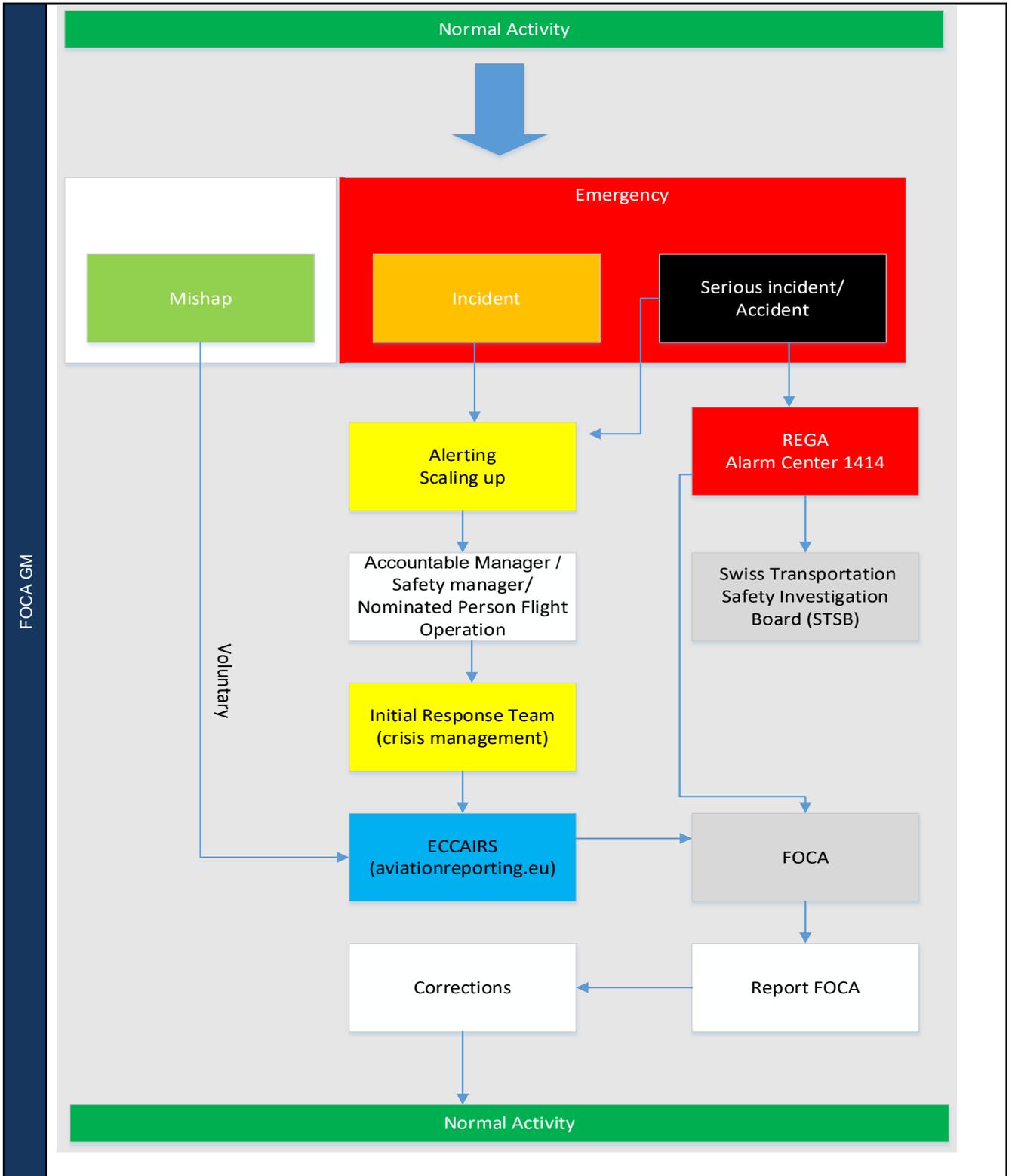
- Firstly, all drone operators/remote pilots are **obliged to report accidents and serious incidents immediately** to the Aviation Division of the Swiss Transportation Safety Investigation Board (STSB) **via the REGA alarm center** (tel. 1414; from abroad +41 333 333 333).
- Secondly, all drone operators/remote pilots **must report all incidents related to safety** (such as incidents in connection with failure or malfunction of the emergency systems, navigation systems or propulsion systems without damage) **to the Federal Office of Civil Aviation (FOCA)** or the reporting system of the organization concerned **within 72 hours** ([www.aviationreporting.eu](http://www.aviationreporting.eu)).

Incidents, serious incidents and accidents involving unmanned aircraft are **exempted** from this obligation to report, **provided that no serious or fatal injury to persons is recorded and no manned aircraft are involved**.

In other words, UAS operators/pilots must report accidents and serious incidents via the REGA alarm centre (Tel. 1414 from outside Switzerland +41 333 333 333) immediately to the aviation department of the Swiss Transportation Safety Board (STSB) **and** report all safety-related incidents with serious or fatal injuries to persons or involving manned aircrafts within 72 hours to the FOCA through [www.aviationreporting.eu](http://www.aviationreporting.eu).

In addition, **voluntary reports are possible and encouraged**, which are not covered by the mandatory reporting obligation.

Further information on what is considered an accident, serious incident or an incident can be found on the [SRM \(Safety and Risk Management\) section](#) of the FOCA website. The figure below illustrates in a visual and simple manner the occurrence reporting requirements.



### 5.5 Declaration and Signature

Ch. 5.5 ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE

The undersigned declares, that

- Example 1: All personnel concerned understand the content and meaning of the ERP and will perform all duties in full accordance with it;
- Example 2: All personnel concerned understand in full the content relevant to them and we undertake to ensure that personnel comply with the instructions given in the ERP;

Accountable Manager:

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

## 6 Maintenance (Part M)

Ch. 6 ISS 1 / REV 0 / dd.mm.20XX

### 6.1 General

Ch. 6.1 ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE

*All maintenance work is carried out only by competent persons trained for the specific work. A list of currently qualified and authorised persons for everyone to see can be found in the company office.*

*All maintenance work may only be carried out in accordance with the maintenance instructions described herein.*

### 6.2 Software Updates

Ch. 6.2 ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE

*After each software update of the UAS, test flights must first be carried out in the open operating category and all essential functions must be checked.*

*The flights and the functionality of all results are documented.*

### 6.3 Maintenance instructions UAS 1

Ch. 6.3 ISS 1 / REV 0 / dd.mm.20XX

EXAMPLE

*(For example, in accordance with the manufacturer's specifications - these must be described here!)*

- what is to be maintained;
- how often is maintenance to be carried out;
- how is maintenance to be carried out.

*All maintenance work carried out on the UAS is recorded in the maintenance book. It is recorded who carried out the maintenance and what work was done. Each entry is confirmed with a signature.*

### 6.4 Maintenance instructions UAS i

Ch. 6.4 ISS 1 / REV 0 / dd.mm.20XX

## 7 Technical Part UAS (Part T)

Ch. 7 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Detail** the system(s) being used.

**Identify** the name and type of the unmanned aircraft to be used and provide technical descriptions and details of the systems used by the unmanned aircraft in connection with the flights that are covered by the application.

If the used UAS has a (restricted) Type Certificate, has a form of pre-approval by the competent authority (e.g. a design review report up to a specified SAIL) or is otherwise known to the authority, the content of this section should be limited only to the technical information that is necessary to supplement the operational and training requirements of SORA. As a minimum, the competent authority needs to be able to assess the appropriateness of the operational safety objectives regarding organisation and training which may require technical detail of the used UAS.

EXAMPLE

The template below provides section headings detailing the subject areas that should be addressed when producing the Operations Manual, for the purposes of demonstrating that a UAS operation can be conducted safely. The template layouts as presented are not prescriptive, but the subject areas detailed should be included in the Operations Manual documentation as required for the particular operation(s), in order to provide the minimum required information and evidence to perform the SORA.

For operators utilising COTS UAS, access to technical data from the manufacturer may be limited. Operators should endeavour to provide as much information as possible. Where necessary operators should request the necessary data from the manufacturer to complete the relevant sections of this chapter where possible.

### 7.1 UAS Type 'XYZ' / Model'ABC'

Ch. 7.1 ISS 1 / REV 0 / dd.mm.20XX

In this section, all technical relevant information of each specific UAS used are either referenced or described in detail.

- If the UASs is/are not manufactured by the operating company itself, please list all references to applicable manufacturer's documentation below:

#	Title	Description	Issue / Revision Number
[1]			
[2]			

- If The UASs is/are developed and manufactured by the operating company itself, please describe all necessary details based on proposed structure and guidance below:

FOCA GM

The headings below and given in FOCA-UAS-APP-OM is a suggested guidance for items which may be relevant, but the items may differ, depending on the specific UAS used.

Several examples are issued from the references [5] and [6]

### 7.1.1 Airframe

Ch. 7.1.1 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** in detail the physical characteristics of the aircraft (mass, centre of gravity (CG), dimensions, etc.). Include photos, diagrams, and schematics, whatever deemed necessary to support the description of the UA.

**Explain** which dimension is considered to be the characteristic dimension for the purpose of the GRC score.

EXAMPLE

See proposed table in FOCA-UAS-APP-OM Template.

### 7.1.2 Performance

Ch. 7.1.2 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Explain** in detail the performance characteristics (design flight envelope) of the unmanned aircraft, including the environmental and weather limitations.

For environmental and weather limitations the following should be considered:

- Wind speed limitations such as headwind, crosswind, and gusts;
- Turbulence restrictions;
- Rain, hail, snow, ash resistance or sensitivity;
- Minimum visibility conditions, if applicable;
- Outside air temperature (OAT) limits;
- In-flight icing:
  - Does the proposed operating environment include operations in icing conditions?
  - Does the system have an icing detection capability? If so, what indications, if any, does the system provide to the operator (if an operator is in the loop), and/or how does the system respond?
  - Does the system have any icing protection capability of the aircraft? Include any test data that demonstrates the performance of the icing protection system.

Note: Applicants should determine from their SAIL score the level of assessment and information needed to qualify the UAS from an environmental conditions' perspective.

EXAMPLE

See proposed table in FOCA-UAS-APP-OM Template.

### 7.1.3 Avionics

Ch. 7.1.3 ISS 1 / REV 0 / dd.mm.20XX

#### 7.1.3.1 Navigation

FOCA GM

**Describe** in detail the system(s) and method(s) used for navigation.

**Explain** how the system identifies and responds to the following:

- Loss of the primary means of navigation;
- Loss of the secondary means of navigation, if available.

**Explain** how relevant data is presented to the remote pilot on the following:

- The normal functioning of the navigation system;
- Geo-awareness for the purpose of supporting avoidance of specific areas or confinement to a given area;
- Any failures of the navigation system.

How does the UAS determine its current position (i.e., longitude, latitude, altitude, heading)?

How does it navigate to its intended destination (i.e., waypoints, vectoring, flight track)?

Example of telemetry links: data transmitted to CU from the UA.

Examples of systems and methods include use of a certified GNSS source, inertial measurement devices, altitude correction software etc.

EXAMPLE

See proposed table in FOCA-UAS-APP-OM Template.

#### 7.1.3.2 Auto flight functions

FOCA GM

**Describe** and detail the auto flight functions.

Examples of auto flight functions: autopilot, automatic take-off and landing, and stabilisation.

Are any of the auto flight functions commercial off-the-shelf (COTS) equipment? If so, name the type/manufacturer and provide the criteria that was used in selecting the COTS equipment.

#### 7.1.3.3 Flight Control System

FOCA GM

The following information should be included:

- A description of all major flight control components;
- Details of any automatic functions;
- Flight modes available to the unmanned aircraft;
- Any forms of redundancy within the flight control system;
- Any other relevant information;

Use of schematic diagrams may help describe the system layout and how this is constructed.

Include any manufacturer supplied data relating to equipment or components included in the system i.e., data sheets, specification sheets, performance data etc.

#### 7.1.3.4 Flight Control Surfaces

FOCA GM

**Describe** the design and operation of the flight control surfaces and servos/actuators etc.

EXAMPLE

Operators should include a diagram showing the location of the control surfaces and servos/actuators. Examples of major flight control components: Control units, actuators, and control linkages, etc.

### 7.1.4 Propulsion System

Ch. 7.1.4 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** the propulsion system and its ability to provide reliable and sufficient power to take-off, climb, and maintain flight at the expected mission altitudes.

EXAMPLE

See proposed table in FOCA-UAS-APP-OM Template.

### 7.1.5 Fuel System (if applicable)

Ch. 7.1.5 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** in detail the unmanned aircraft fuel system and its installation.

**Describe** safety considerations in relation to hazards created by the fuel system. Highlight any hazardous substances that are associated with this fuel system such as flammability, corrosiveness, irritant, etc.

EXAMPLE

See proposed table in FOCA-UAS-APP-OM Template.

### 7.1.6 Electrical Power System

Ch. 7.1.6 ISS 1 / REV 0 / dd.mm.20XX

FOCA GM

**Describe** in detail the electrical power system and the electrical load distribution.

EXAMPLE

See proposed table in FOCA-UAS-APP-OM Template.

## 7.1.7 Safety Systems

Ch. 7.1.7 ISS 1 / REV 0 / dd.mm.20XX

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**Describe** any interface from the conflict avoidance to the flight control computer.

**Describe** the known limitations of the detect and avoid system.

### 7.1.7.1 Terrain and obstacle avoidance

EXAMPLE

Examples of technical solutions for terrain and obstacle avoidance could include:

- TAWS (Terrain Awareness and Warning Systems);
- LIDAR (Light Detection and Ranging);
- Optical sensors;
- Laser ranging equipment;
- RADALT (Radar Altimeter).

### 7.1.7.2 Adverse weather avoidance

...

### 7.1.7.3 Traffic deconfliction and collision avoidance

EXAMPLE

Examples of technical solutions for aircraft conflict avoidance could include the use of Electronic Conspicuity (EC) devices such as:

- ADS-B Out/In transponder;
- Mode-S ES (Extended Squitter) transponder;
- FLARM (Flight Alarm);
- Power FLARM;
- Pilot Aware Rosetta;
- Sky Echo 2;
- Remote ID (both Network and Direct).

### 7.1.7.4 Parachute Rescue System (PRS)

...

### 7.1.7.5 Anti-collision Lights

...

### 7.1.7.6 Flight Termination System (FTS)

...

## 7.1.8 Command Unit / Ground Control Station

Ch. 7.1.8 ISS 1 / REV 0 / dd.mm.20XX

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**Explain** what elements make up the command unit and describe in detail the operating system and any relevant technical specifications.

## 7.1.9 Ground Support Equipment

## Annexes

Ch. Annexes ISS 1 / REV 0 / dd.mm.20XX

### Simple Checklist Template A:

		<i>[Checklist Category]</i>
‘Name’ Checklist		
3	Item 1 .....	ACTION 1
4	Item 2 .....	ACTION 2
5	Item 3 .....	ACTION 3
6	Item 4 .....	ACTION 4

### Simple Checklist Template B:

The internal check to ensure the staff are adequately performing assigned tasks is as follows:

Items	Person in Charge	Action required	Verification
Checklist Item 1			✓
Checklist Item 2			✓
Checklist Item 3			...
...	...	...	...
Date and Signature:			

### Challenge-Response Checklist Template A:

Challenge – <b>ROLE A</b>	ACTION	Response - <b>ROLE B</b>
Item 1	<input type="checkbox"/> ACTION 1.1 - <b>Role A</b>	

### Challenge-Response Checklist Template B:

ROLE A	TO/FROM	ROLE B
Challenge Item 1 (e.g. Check airspace)	>>	Response Item 1 (e.g. Airspace clear)
Challenge Item 2	>>	Response Item 2
Response Item 3	<<	Challenge Item 3

## Mission Briefing Sheet – Template 1

Briefing : Overview		
ROLE A (e.g. Mission Responsible)	Mission	<input type="checkbox"/> Item A <input type="checkbox"/> Item B <input type="checkbox"/> ...
	Weather	<input type="checkbox"/> Item A <input type="checkbox"/> Item B ...
	Flight Plan	<input type="checkbox"/> Item A <input type="checkbox"/> Item B ...
Execution		
ROLE A (e.g. Mission Responsible)	Mission definition	<input type="checkbox"/> Item A <input type="checkbox"/> Item B ...
ROLE B (e.g. Remote Pilot)	Safety instructions	<input type="checkbox"/> Item A <input type="checkbox"/> Item B ...
...	...	...

## Mission Briefing Sheet - Template 2

#	Item	Briefing Content	Responsible
1	CREW	Roles definition and fit to operate	
2	UAS	Type, S/N, Limitations,...	
3	UAS CONDITION	Serviceable, Maintenance Actions, MEL	
4	EQUIPMENT	Payload, add-ons, ...	
5	MISSION	Normal procedures, Flight plan, ...	
6	CONTINGENCIES	Safe areas, Alternates, ...	
7	FLIGHT SAFETY	Intended operation the updated mitigation measures specific to the local airspace, terrain and population characteristics, expected weather conditions	
8	MISC	...	

## Emergency Response Plan – Quick Reaction Sheet Template (On-site VLOS Operations)

PRIORITY		ACTION ITEMS																
<b>1</b>	 <b>KEEP CALM</b> <i>but do not waste time</i>	<b><u>GET AN OVERVIEW</u></b> <input type="checkbox"/> Put on high visibility jackets <input type="checkbox"/> Assess the situation <ul style="list-style-type: none"> <li>○ What has happened? [if FLY-AWAY: Go to 4 – Alert ATS]</li> <li>○ Who is involved ?</li> <li>○ Who is affected ?</li> </ul> <input type="checkbox"/> Ensure own protection																
<b>2</b>	 <b>THINK</b>	<b><u>CONSIDER POTENTIAL HAZARDS</u></b> fuels, batteries, toxic substances, dangerous goods containers vegetation, wind, parachute ballistics, ... <ul style="list-style-type: none"> <li><input type="checkbox"/> Danger for rescuers ?</li> <li><input type="checkbox"/> Fire hazard?</li> <li><input type="checkbox"/> Explosion hazard?</li> </ul>																
<b>3</b>	 <b>PROTECT</b>	<b><u>SECURE THE PERIMETER/ SAVE LIVES</u></b> <input type="checkbox"/> Get to the scene of the accident ASAP <input type="checkbox"/> Secure the scene of the accident <input type="checkbox"/> Ensure own protection <input type="checkbox"/> Clear people from the danger zone <input type="checkbox"/> Keep a safe distance from the accident site																
<b>4</b>	 <b>ALERT</b> 	<b><u>MAKE AN EMERGENCY CALL (if necessary)</u></b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">EMERGENCY</th> <th style="text-align: left;">Tel. 144</th> <th style="text-align: left;">REGA</th> <th style="text-align: left;">Tel. 1414</th> </tr> </thead> <tbody> <tr> <td>Police</td> <td>Tel. 117</td> <td>Fire Dept.</td> <td>Tel. 118</td> </tr> <tr> <td>European</td> <td>Tel. 112</td> <td>Poisoning</td> <td>Tel. 145</td> </tr> <tr> <td colspan="2">Closest ATS / Aerodrome</td> <td colspan="2">+41 xx xxx xx xx</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li><input type="checkbox"/> Where did it happen?</li> <li><input type="checkbox"/> Who is reporting?</li> <li><input type="checkbox"/> What has happened?</li> <li><input type="checkbox"/> When did it happen?</li> <li><input type="checkbox"/> How many people are injured?</li> <li><input type="checkbox"/> Any other hazards, dangerous goods?</li> <li><input type="checkbox"/> Potential hazards to rescue helicopter? (cables, obstacles, weather)</li> <li><input type="checkbox"/> My callback number:</li> <li><input type="checkbox"/> Wait for any questions!</li> </ul>	EMERGENCY	Tel. 144	REGA	Tel. 1414	Police	Tel. 117	Fire Dept.	Tel. 118	European	Tel. 112	Poisoning	Tel. 145	Closest ATS / Aerodrome		+41 xx xxx xx xx	
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Closest ATS / Aerodrome		+41 xx xxx xx xx																
<b>5</b>	 <b>HELP</b> 	<b>If necessary: EXTINGUISH FIRE</b> <input type="checkbox"/> Do not put yourself in danger <input type="checkbox"/> Fight fire (w/ fire extinguisher or fire blanket) <input type="checkbox"/> Take particular care with rechargeable batteries! Explosion hazard! <input type="checkbox"/> Brief the arriving fire service  <b>If necessary: PROVIDE FIRST AID</b> <input type="checkbox"/> Check injured people for signs of life <input type="checkbox"/> Stop any bleeding <input type="checkbox"/> If person unconscious → <b>RECOVERY POSITION</b> <input type="checkbox"/> If person unconscious AND not breathing normally → <b>REANIMATE</b> C: CIRCULATION (perform CPR) A: AIRWAYS (clear for breathing) B: BREATHING D: DEFIBRILLATION <input type="checkbox"/> Brief the rescue service																

THEN		ACTION ITEMS
<b>1</b>	<b>SECURE THE ACCIDENT SITE</b>	<p><b><u>KEEP EVIDENCE</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Block</b> access to the site until the rescue team / investigators arrives</li> <li><input type="checkbox"/> <b>Do not alter</b> the state of the site</li> <li><input type="checkbox"/> <b>Do not move wreckage, objects or bodies</b> until STSB investigators arrive, except to save lives</li> </ul>
<b>2</b>	<b>REPORT THE ACCIDENT</b>	<p><b><u>IMMEDIATELY REPORT ACCIDENTS AND SERIOUS INCIDENTS</u></b></p> <p>In case of:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> severe or fatal injury to persons</li> <li><input type="checkbox"/> collision with manned aircraft</li> </ul> <p>→ report immediately to the aviation department of the Swiss Transportation Safety Board (STSB) via the REGA alarm centre :</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Tel. 1414</b></li> <li><input type="checkbox"/> from outside Switzerland: +41 333 333 333</li> </ul>
<b>3</b>	<b>INFORM THE COMPANY</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Contact</b> company CEO / Safety Officer / Head of Operations / ...</li> <li><input type="checkbox"/> <b>No contact</b> with media</li> <li><input type="checkbox"/> <b>Follow</b> Occurrence Reporting process</li> </ul> <p><b>File</b> an OCR: report all safety-related incidents with serious or fatal injuries to persons or involving manned aircrafts within 72 hours to the FOCA through <a href="http://www.aviationreporting.eu">www.aviationreporting.eu</a></p>

EMERGENCY EQUIPMENT		
	Item	Number required
<input type="checkbox"/>	High-visibility jackets	1/ppl, total:
<input type="checkbox"/>	First-aid kit #N	
<input type="checkbox"/>	Fire extinguisher #N	
<input type="checkbox"/>	...	
<input type="checkbox"/>		

EMERGENCY Contacts			
	Person	Phone Number	E-mail
<input type="checkbox"/>	ERM – John Doe	+41 xx xxx xx xx	johndoe@mail.com
<input type="checkbox"/>	RPIC – Jane Doe	+41 xx xxx xx xx	xxx@mail.com
<input type="checkbox"/>	LSXX TWR	+41 xx xxx xx xx	yyy@mail.com
<input type="checkbox"/>	Local Police	...	...
<input type="checkbox"/>			