Operations Manual Title

[COMPANY LOGO]



[Insert Company Logo or illustration here]

Template source: openai.com (DALL E 2)

|  |  |
| --- | --- |
| Operational Scope | …. |
| Applies to | …. |
| Valid from | Date (DD Month YYYY, e.g. 01 January 2021) |
| Version / Revision | ISS 01 / REV 00 |

|  |  |
| --- | --- |
| Operator Name | …. |
| e-ID | …. |
| Address | …. |
| Distribution | Internal / External / Confidential |

**FOCA Disclaimer (to be removed before application)**

This document is a template to guide applicants in providing the necessary information related to applications for an operational authorization and get started with the application process. The proposed structure is not prescriptive, as there is not a “one size fits all” approach, therefore:

**1. This Operations Manual is a template only and should be tailored to the desired operation.**

**2. This Operations Manual is a template only and cannot be used as such for UAS operations!**

Please refer to FOCA-UAS-GM-OM for detailed guidance, instructions and examples.

*Note:Text in blue is sample text, to be replaced with actual applicant’s adapted content.*

# Document Control

## Log of Revision (LoR)

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date** | **Issue** | **Revision** | **Highlight of Revision / Description of the change** | **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)

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# List of Abbreviations

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

|  |  |  |  |
| --- | --- | --- | --- |
| 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 off-the-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 |  |  |
| … |  |  |  |

# References

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# General Part (Part A)

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## Introduction into the Operations Manual (OM)

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...

## Safety Statement

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...

## Security and Privacy Statement

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

...

## Organisation and responsibilities

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

...

### Structure / Organisation Chart

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

The duties of the individual responsible employees are described below.

|  |  |  |
| --- | --- | --- |
| **Role** | *Individual responsible* | **Duties and Responsibilities** |
| *Role 1* |  | *Precise description of the duties and responsibilities* |
| *Role 2* |  | *Precise description of the duties and responsibilities* |
| *Role 3* |  | *Precise description of the duties and responsibilities* |
| *Role 4* |  | *Precise description of the duties and responsibilities* |
| *Role 5* |  | *Precise description of the duties and responsibilities* |
| *…* |  | *Precise description of the duties and responsibilities* |

### Training Responsibilities

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

...

### Maintenance Responsibilities

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...

### Design Organisation *(if applicable)*

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...

## Change Management

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...

## Documents Retention Periods

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...

|  |  |  |  |
| --- | --- | --- | --- |
| Document | Place of Storage | Minimum Storage Time | Responsibility |
| Operations Manual, all revisions | Top shelf of the main cabinet. Digital storage? | X years | Operations Manager |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Document Distribution

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## Crew composition and qualifications requirements

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...

### Pilot / Flight Crew

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|  |  |  |
| --- | --- | --- |
| Role | Training and Qualitification | Tasks, Duties and Responsibilities |
| Remote pilot, PIC (Pilot in Command): |  |  |
| … |  |  |

### Maintenance Personnel

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

|  |  |  |
| --- | --- | --- |
| Role | Training and Qualitification | Tasks, Duties and Responsibilities |
| Maintenance Manager |  |  |
| Remote Pilot |  |  |
| … |  |  |

### Ground Staff

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

|  |  |  |
| --- | --- | --- |
| Role | Training and Qualitification | Tasks, Duties and Responsibilities |
| Assistant |  |  |
| Payload Operator |  |  |
| … |  |  |

### Training, Examination, and Supervision Personnel

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

|  |  |  |
| --- | --- | --- |
| Role | Training and Qualitification | Tasks, Duties and Responsibilities |
| Training Manager |  |  |
| Instructor |  |  |
| … |  |  |

## Crew Health

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

...

### Preventive Health Care / Fit to Fly Policy

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

...

### Flight Time Limitations

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

**Definition of Terms**

|  |  |
| --- | --- |
| **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 great 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. |
| **…** | … |

**The following restrictions shall not be exceeded (> SAIL II):**

|  |  |
| --- | --- |
| **Flight time** | 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. |
| **Duty period/Flying duty Hours** | 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 |
| **Rest Period** | 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. |
| **Flight zone** | There are no limitations restricting the number of flight zones for each operation. |
| **…** | … |

...

# Operational Procedures (Part B)

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

...

## Normal Operating Strategy

Ch. 2.1 ISS 1 / REV 0 / dd.mm.20XX

|  |  |
| --- | --- |
| Normal Operating Strategy / General Operations Characteristics | |
| UAS Fleet | ... |
| Type of Operation | ... |
| Overflown Areas | ... |
| Level of human intervention | ... |
| UAs Range Limit | ... |
| UAs Limitations | ... |
| Flight Height Limit | ... |
| Airspace | ... |
| Visibility | ... |
| Safety Measures | ... |
| Other General Limitations | ... |

## Standard Operating Procedures

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...

### Mission Planning

Ch. 2.2.1 ISS 1 / REV 0 / dd.mm.20XX

...

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

| Part | Assessment Remark | Responsible | Tool |
| --- | --- | --- | --- |
| **Operational environment** | * Geographical area * Limitations and conditions * Scenario * Altitude |  |  |
| **Required Personnel** | * Composition of the crew * Qualification required * Training needed * Crew fitness |  |  |
| **UAS Fleet** | * UAS required |  |  |
| **External System** | * GNSS coverage * Cellular Network |  |  |

### General Briefing

Ch. 2.2.2 ISS 1 / REV 0 / dd.mm.20XX

...

### Flight Preparation

Ch. 2.2.3 ISS 1 / REV 0 / dd.mm.20XX

...

#### Flight Planning

...

#### Site assessment

Use following template for each site assessment:

|  |  |
| --- | --- |
| **Operating Site Planning Assessment** | |
| **Area** | |
| Overflown terrain | ... |
| Distance to uninvolved persons | ... |
| Landing Zone | ... |
| Overflown infrastructure | ... |
| Obstacles/Obstructions | ... |
| Public Access | ... |
| Alternates | ... |
| **Airspace** | | ... |
| Class of airspace | ... |
| proximity to other aerial activities | ... |
| airspace restrictions | ... |
| Airspace environment | ... |
| **Environment** | | ... |
| Weather | ... |
| Hazards | ... |
| **Authorisations** | | ... |
| Geozones | ... |
| Relevant local Regulations | ... |
| Landowner permission | … |

#### Communications

...

#### Notification / Coordination procedures

...

#### Cordon Procedures

...

### Ground Procedures

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#### Multi-Crew Coordination

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Pilot in Command** | **Visual Observer** | **Role 3** |
| Task 1 |  |  |  |
| Task 2 |  |  |  |
| Task 3 |  |  |  |
| Etc.. |  |  |  |

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

#### Communication Means

...

#### Environmental Assessment

...

| Weather Checklist | | |
| --- | --- | --- |
| Parameter | Method/Means | Tool/Ressources |
| **Wind and Gusts** | * Check if within the UA limitations defined for the operation type in the OM and by the manufacturer * The maximum gust must be recorded during at least one minute * Enter data or measurement into the Flight Report | * Portable weather station * MeteoSwiss * METAR/TAF * Portable weather station |
| **Temperature** | * Check if within the UA limitations defined for the operation type in the OM and by the manufacturer |
| **Precipitations** | * Check if within the UA limitations defined for the operation type in the OM and by the manufacturer * anticipate the possibility of precipitations |
| **Humidity** | * Check if within the UA limitations defined for the operation type in the OM and by the manufacturer |
| **Pressure** | * Enter measurement into the Flight Report |
| **Icing** | * Check if within the UA limitations defined for the operation type in the OM and by the manufacturer |
| **Visibility** | * Check visually for rain, hail, thunderstorm, fog/mist/haze and clouds within the operational area or approaching * Assess and note down the local cloud coverage * Check according max. flight altitude of OM or UA | * Visual check * METAR/TAF |
| **KP Index** | * Enter Planetary K index into Flight Report | * 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>
* …

#### Refueling

...

#### Loading of Equipment/Payload

...

#### Record keeping instructions

...

### Flight Procedures

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...

Definitions of normal, contingency, and emergency procedure:

|  |  |
| --- | --- |
| Normal Procedures | 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. |
| **Abnormal Procedures** | |
| Contingency Procedure | 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. |
| Emergency Procedure | 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. |

#### Normal Procedures

#### Contingency Procedures

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Abnormal Situation** | **Criteria** | **Procedure** |
| **#C1** | Incursion of people on the ground in the operating volume |  | * CALL OUT * KEEP DISTANCE * 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 | **Traffic De-confliction**   * CALL OUT * LAND SAFE |
| **#C3** | Degradation of navigation function | e.g. GNSS loss | * LAND SAFE * 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 |  | * HOVER * Time Limit * RTH |
| **#C8** | Degradation of UA performance | * Loss of a motor * Loss of a flight control function |  |
| **#C9** | Deviation from the pre-programmed flight path in automatic mode |  | * CALL OUT: WARNING * MANUAL CONTROL * LAND SAFE |
| **#C10** | Breaching the limit between the flight geography and the contingency volume | The UAS leave the flight geography laterally  If the UAS cannot be returned to the flight geography or if it is foreseeable that it will leave the contingency volume | **Lateral Breach**   * RTH * EMER LAND * 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 | * EMER LAND   …   * TERMINATE |
| **#Cn** | **….** |  |  |

Procedures #Ci must be listed in subsequent sections.

#### Emergency Procedures

|  |  |  |  |
| --- | --- | --- | --- |
| **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 | * CALL OUT: FlyAway * TERMINATE * Trigger ERP |
| **#E2** | Complete loss of flight control |  | * CALL OUT: Loss of control * EMER LAND * TERMINATE |
| **#E3** | Complete loss of propulsion |  | * CALL OUT: Fall * Trigger ERP |
| **#E4** | Extreme abnormal environmental conditions |  | * EMER LAND * Trigger ERP |
| **#E5** | Conflict with an incoming aircraft | emergency procedures should be available to avoid a collision | * EMER LAND   or   * TERMINATE * Trigger ERP |
| **#En** | **….** |  |  |

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

### Use of external Services and Systems

Ch. 2.2.6 ISS 1 / REV 0 / dd.mm.20XX

…

### Debriefing

Ch. 2.2.7 ISS 1 / REV 0 / dd.mm.20XX

…

## Aircraft (UAS XYZ) type-specific procedures

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

…

### UAS XYZ General

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

...

### UAS XYZ Limitations

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

...

### UAS XYZ Normal Procedures

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...

#### Pre-flight Inspection

...

#### Start

...

#### Take Off

...

#### In-flight

...

#### Takeover of Manual Control

...

#### Landing

...

#### Post-flight Inspection

...

### UAS XYZ Abnormal Procedures

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...

#### Return-to-Home (RTH)

...

#### Hover in position (HOVER)

…

#### Safety Descent (DESCENT)

…

#### Safety Landing (LAND SAFE)

…

### UAS XYZ Emergency Procedures

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…

#### Emergency Landing (EMER LAND)

…

#### Flight Termination (TERMINATE)

…

## Emergency Response Plan

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

Refer to section 5 Emergency Response Manual (Part E)

## Occurence reporting Procedures

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

| **Mandatory Occurrence Reporting** | REFER TO  2.5.1 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  2.5.2 Voluntary Occurencce 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; * Aircraft structural failure (e.g., a loss of any part of the aircraft structure or installation in flight); * Errors in the configuration of the command unit; * Display failures; * Flight programming errors; * Navigation failures; * Failures or malfunctions of fail-safe mechanisms or safety features (e.g., FTS) * Loss of payload. | |
| Interaction with air navigation services, air traffic management or other airspace users   * 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; * Airspace infringement; * A near collision in the air, a conflict with another aircraft requiring an emergency avoidance manoeuvre to avoid a collision; * Infringement of restricted/reserved airspace (Inc. Flight restriction zones [FRZ] around aerodromes). | |
| **Crew Resource Management, Multi-Crew Coordination & other human factors**   * Unsafe acts of operators: skill-based, decision, perceptual errors, routine violations; * Communication, coordination, planning, and teamwork issues (e.g., substandard briefing);   ▪ Unsafe supervision. | |
| External environment and meteorology   * A collision on the ground or in the air, with terrain or obstacle (or vehicle); * 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; * Inadvertent flight within proximity of uninvolved persons (i.e., within the prescribed separation distances); * Wildlife strike including bird strike which resulted in damage to the aircraft or loss or malfunction of any essential service; * 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; * A lightning strike resulting in damage to or loss of functions of the aircraft; * Icing which has or could have endangered the UA. | |
| Emergencies and other critical situations   * Any occurrence leading to an emergency call; * 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; * Fire, explosion, smoke, toxic gases or toxic fumes involving the UAS;   Incapacitation of the remote pilot or supervisor leading to inability to perform any duty. | |

### Mandatory Reporting Procedure

|  |  |  |  |
| --- | --- | --- | --- |
| Responsibility | Notification to | Dispatch time | Means/Address |
| **Remote Pilot (PIC)**  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: **1414** (REGA Alarm Center)  (from abroad: +41 333 333 333) |
| Head of Operations | Initial notification:  by best practicable means   * *Phone:xxx*   Written report:   * Reporting/Analysis Form   E-Mail: |
| **Head of Operations** | FOCA | Within 72 Hours of becoming aware of the occurrence, unless exceptional circumstances prevent this | **Aviation Safety Reporting**  <http://www.aviationreporting.eu> |
| * To assigned Projet Authorizazion Manager (PAM) by the best practicable means; * Or [rpas@bazl.admin.ch](mailto:rpas@bazl.admin.ch) |
| Safety Manager | As soon as practicable | Reporting/Analysis Form |
| **Safety Manager** | FOCA | Min. Month +1  Max Month +3 | Follow-up Report / Final Report on  ECCAIRS |

### Voluntary Occurencce Reporting

|  |  |  |  |
| --- | --- | --- | --- |
| Responsibility | Notification to: | Dispatch time: | Means/Address |
| **Remote Pilot** | If an aviation authority is affected:   * Aerodrome Operator * Airport Authority * Skyguide ATS | Immediately | * Frequency * Aerodrome Manager * …   Phone. |
| Head of Operations | As soon as practicable | Initial notification:   * by best practicable means * *Phone:*   Written report:   * Reporting/Analysis Form * *E-Mail:* |
| **Head of Operations** | FOCA | Within 72 Hours of becoming aware of the occurrence, unless exceptional circumstances prevent this | * **Aviation Safety Reporting**   [On-line] Available (20.05.2016)  <http://www.aviationreporting.eu> |
| * To assigned Project Authorization Manager (PAM) by the best practicable means * Or [rpas@bazl.admin.ch](mailto:rpas@bazl.admin.ch) |
| Safety Manager | As soon as practicable | Reporting/Analysis Form |

### Internal Reporting

|  |  |  |
| --- | --- | --- |
| Responsibility | Notification to: | Address: |
| Any employee/freelance of the organisation, instructors and students | Safety Manager /  Head of Operations | * Written report: * Reporting/Analysis Form   E-Mail: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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

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

…

## General operational conditions and limitations

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

…

### General Environmental Conditions

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

…

### General Technical Operational Limitations

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

…

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

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

…

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

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

…

# Training (Part D)

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

…

## General

Ch. 4.1 ISS 1 / REV 0 / dd.mm.20XX¨

…

## Training Program(s)

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

…

### Initial Training and Qualification

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

…

### Recurrent and Refresher Training

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

…

## Training with flight simulation training devices (FSTDs)

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

…

# Emergency Response Manual (Part E)

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

…

## Purpose of ERP

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

…

## Scope of ERP

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

…

## ERP Definitions

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

…

## ERP Procedures

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

…

### Emergency Situations

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

…

### Emergency Response Team

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

…

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Order*** | ***Role*** | ***First Name / Family name*** | ***Phone No 1*** | ***Phone No 2*** |
| *1* | ERP Manager (ERM) | Muster Emergy | … | … |
| *2* | Resp. Flight Operations | Muster Opery | … | … |
| *#* | … | … | … | … |

### Emergency Response Means

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

…

|  |  |
| --- | --- |
| Equipment | Check if available |
| Fire Extinguisher | 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. |
| First Aid Kit | Check that correctly fitted and secured;  Check the seal. |
| Torches | Check that correctly fitted and secured;  Check functionality. |
| ... | ... |

### Initial Emergency Response Guidelines and Procedures

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

…

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***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 |
| *#* | … | … | … | ... |
| *…* | … | … | … | … |

### Initial Notification of an Emergency

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

…

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***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 |
| *#* | … | … | … | … |
| *#* | … | … | … | … |

### Occurrence Reporting

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

…

## Declaration and Signature

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The undersigned declares, that all personnel concerned understand the content and meaning of the ERP and will perform all duties in full accordance with it.

Accountable Manager:

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

# Maintenance (Part M)

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

## General

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

## Software Updates

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

## Maintenance UAS 1

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

## Maintenance UAS i

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

# Technical Part UAS (Part T)

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

## UAS Type ‘XYZ’ / Model’ABC’

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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:
  + list all references to applicable manufacturer’s documentation below:

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Title** | **Description** | **Issue / Revision Number** |
| [1] |  |  |  |
| [2] |  |  |  |
|  |  |  |  |

* + remove any unnecessary sub-section of Part T below.
* If the UASs is/are developed and manufactured by the operating company itself, please describe all necessary details based on proposed structure below and guidance from FOCA-UAS-GM-OM.

### Airframe

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Mass** | Empty Mass |  | |
| Maximum Take-Off Mass (MTOM) |  | |
| Payload Mass |  | |
| **Dimensions**  **for Fixed-wing** | Wingspan |  | |
| Fuselage Length |  | |
| Fuselage Diameter |  | |
| **Dimensions**  **for Rotorcraft / Multirotor** | Length of aircraft body |  | |
| Width of aircraft body |  | |
| Height of aircraft body |  | |
| Propeller Dimensions |  | |
| Propeller Configuration |  | |
| **Centre of Gravity (CG)** |  | |

### Performance

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

|  |  |
| --- | --- |
| **Flight duration/endurance** |  |
| **Maximum range** |  |
| **Maximum operating height (service ceiling)** |  |
| **Maximum airspeed** |  |
| **Maximum cruising speed** |  |
| **Minimum airspeed (manoeuvring/stall speed)** |  |
| **Maximum flight load** |  |
| **Maximum payload** |  |
| **Effects of differing payloads on the flight envelope** |  |
| **Available glide distances** |  |
| **Kinetic Energy (if required for GRC assessment)** |  |
| **Environmental/weather limitations** |  |
| **Any other relevant information** |  |

### Avionics

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

#### Navigation

|  |  |  |
| --- | --- | --- |
| **Sensors** | Type |  |
| Quantity |  |
| **Telemetry links** | |  |
| **Backup means of navigation** | |  |
| **Automatic navigation functions** | |  |
| **Geo-awareness functions** | |  |
| **Any other relevant information** | |  |

#### Auto flight functions

#### Flight Control System

#### Flight Control Surfaces

### Propulsion System

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

|  |  |  |
| --- | --- | --- |
| **Engines** | Type |  |
| Quantity |  |
| Power output |  |
| Propeller type |  |
| **Any other relevant information** | |  |

### Fuel System (if applicable)

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|  |  |
| --- | --- |
| **Fuel Type** |  |
| **Status indicators/alert messages** |  |
| **Hazardous substances** |  |
| **Any other relevant information** |  |

### Electrical Power System

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

|  |  |  |
| --- | --- | --- |
| **Batteries** | Quantity |  |
| Type |  |
| Arrangement |  |
| **Generator** | Type |  |
| Specification |  |
| **Electrical loads (if applicable)** | |  |
| **Electrical load shedding**  **arrangements (if applicable)** | |  |
| **Alternate electrical power**  **supplies** | |  |
| **Any other relevant information** | |  |

### Safety Systems

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

#### Terrain and obstacle avoidance

#### Adverse weather avoidance

#### Traffic deconfliction and collision avoidance

#### Parachute Rescue System (PRS)

#### Anti-collision Lights

#### Flight Termination System (FTS)

### Command Unit / Ground Control Station

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

### Ground Support Equipment

Ch. 7.1.9 ISS 1 / REV 0 / dd.mm.20XX

# Annexes

## Simple Checklist Template A:

|  |  |
| --- | --- |
| ***[Checklist Category]***  **‘Name’ Checklist** | |
|  | Item 1 ACTION 1 |
|  | Item 2 ACTION 2 |
|  | Item 3 ACTION 3 |
|  | 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 – ROLE A | ACTION | Response - ROLE B |
| Item 1 | * ACTION 1.1 - Role A |  |
|  |  |  |
|  |  |  |
|  |  |  |

## 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 | * Item A * Item B * … |
| Weather | * Item A * Item B   … |
| Flight Plan | * Item A * Item B   … |
| **Execution** | | |
| ROLE A  (e.g. Mission Responsible) | Mission definition | * Item A * Item B   … |
| ROLE B  (e.g. Remote Pilot) | Safety instructions | * Item A * 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 |
| **1** | **KEEP CALM**  ***but do not waste time*** | **GET AN OVERVIEW**   * **Put on** high visibility jackets * **Assess** the situation   + **What has happened? [if FLY-AWAY: Go to 4 – Alert ATS]**   + **Who is involved ?**   + **Who is affected ?** * **Ensure** own protection |
| **2** | **THINK** | **CONSIDER POTENTIAL HAZARDS**  fuels, batteries, toxic substances, dangerous goods containers  vegetation, wind, parachute ballistics, ,…   * Danger for rescuers ? * Fire hazard? * Explosion hazard? |
| **3** | **PROTECT** | **SECURE THE PERIMETER/ SAVE LIVES**   * **Get to the scene** of the accident ASAP * **Secure** the scene of the accident * **Ensure** own protection * **Clear** people from the danger zone * **Keep** a safe distance from the accident site |
| **4** | **ALERT** | **MAKE AN EMERGENCY CALL (if necessary)**   |  |  |  |  | | --- | --- | --- | --- | | **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 | |  * Where did it happen? * Who is reporting? * What has happened? * When did it happen? * How many people are injured? * Any other hazards, dangerous goods? * Potential hazards to rescue helicopter? (cables, obstacles, weather) * My callback number: * Wait for any questions! |
| **5** | **HELP** | **If necessary: EXTINGUISH FIRE**   * Do not put yourself in danger * Fight fire (w/ fire extinguisher or fire blanket) * Take particular care with rechargeable batteries! Explosion hazard! * Brief the arriving fire service |
| **If necessary: PROVIDE FIRST AID**   * Check injured people for signs of life * Stop any bleeding * If person unconscious 🡺**RECOVERY POSITION** * If person unconscious AND not breathing normally 🡺 **REANIMATE**   C:CIRCULATION (perform CPR)  A: AIRWAYS (clear for breathing)  B: BREATHING  D: DEFIBRILLATION   * Brief the rescue service |
| THEN | | ACTION ITEMS |
| **1** | **SECURE**  **THE ACCIDENT SITE** | **KEEP EVIDENCE**   * **Block** access to the site until the rescue team / investigators arrives * **Do not alter** the state of the site * **Do not move wreckage, objects or bodies** until STSB investigators arrive, except to save lives |
| **2** | **REPORT**  **THE ACCIDENT** | **IMMEDIATELY REPORT ACCIDENTS AND SERIOUS INCIDENTS**  In case of:   * severe or fatal injury to persons * collision with manned aircraft   🡺 report immediately to the aviation department of the Swiss Transportation Safety Board (STSB) via the REGA alarm centre :   * **Tel. 1414** * from outside Switzerland: +41 333 333 333 |
| **3** | **INFORM**  **THE COMPANY** | * **Contact** company CEO / Safety Officer / Head of Operations / … * **No contact** with media * **Follow** Occurrence Reporting process   **File** 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 [www.aviationreporting.eu](http://www.aviationreporting.eu) |

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| **EMERGENCY EQUIPMENT** |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Item** | **Number required** | **Location** | |  | **High-visibility jackets** | 1/ppl, total: |  | |  | **First-aid kit #N** |  |  | |  | **Fire extinguisher #N** |  |  | |  | **…** |  |  | |  |  |  |  | |

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| **EMERGENCY Contacts** |
| |  |  |  |  | | --- | --- | --- | --- | |  | **Person** | **Phone Number** | **E-mail** | |  | **ERM – John Doe** | +41 xx xxx xx xx | johndoe@mail.com | |  | **RPIC – Jane Doe** | +41 xx xxx xx xx | xxx@mail.com | |  | **LSXX TWR** | +41 xx xxx xx xx | yyy@mail.com | |  | **Local Police** | **…** | **…** | |  |  |  |  | |