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Federal Department of the
Environment, Transport, Energy and Communications (DETEC)

Federal Office of Civil Aviation (FOCA)
Innovation and Digitalisation

Simplified standard procedure for the operation of unmanned aircraft over controlled areas in EVLOS

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By way of derogation from the SORA approval procedure and based on Art. 18 para. 1 lit. b of the Ordinance on Special Category Aircraft (OSCA), the following simplified standard procedure is applicable for the operation of unmanned aircraft over sparsely populated areas (less than 10 inhabited buildings within a perimeter of 100 m) in controlled areas for flights in EVLOS (extended visual line of sight) up to a height of 120 m above ground level.

Log of Revision (LoR)

Date	Issue	Revision	Highlight of Revision
25.11.2020	2	1	Location, log of revision, independent function, formulation

The following conditions apply:

1. Applicant

The applicant should enter his contact details here to facilitate communication in the event of any questions. The applicant is the organiser of the drone operation.

2. Details of planned operation

This information should provide as accurate a picture as possible of the planned operation.

1) **Period of operation**
   From when until when do you wish to conduct the operation? Please state not only the days but the exact time frame in which the operation is to take place.

2) **Purpose of operation**
   Please state the aim / end product of the drone operation.

3) **Planned duration, number of flights**
   Please state the duration of the operation and how many operations of this type are to be performed on the specified date

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3. Details of model

1) **Manufacturer / Model**
Please enter the manufacturer and model of the drone.

2) **Name of operator**
Please enter the name of the operator of the drone.

3) **Address of operator**
Please enter the address of the operator of the drone.

4) **Take-off weight**
Please enter the maximum take-off weight of the drone during operation planned for this permit application. The maximum permitted take-off weight is 25 kg.

5) **Dimension**
Please enter the measurement of the greatest dimension of the aircraft in a single direction (in the case of a multi-copter it is the diagonal measurement including the propellers). In this standard procedure, only drones with a dimension of less than 3 m will be approved.

4. Specific details of planned operation

1) **Drone operation will take place outside the 5 km perimeter of a civil or military aerodrome/heliport**
If the operation takes place in a zone with restrictions or a prohibited zone according to the drone map of Switzerland, a separate permit must be obtained from the competent authority before submission of this application for a permit. The competent authority may impose further conditions.

2) **I am aware that manned aircraft have priority at all times and that I am responsible for ensuring safe separation**
The “see and avoid” principle also applies to unmanned aircraft. Since an aircraft pilot stands little chance of recognizing a small drone early enough, it is your responsibility to take timely evasive action and always to maintain appropriate distance from other aircraft.

3) **I am aware that operation in the vicinity of deployed emergency services is not permitted**
Flying a drone over the scene of an accident to take aerial pictures may impede a rescue helicopter from approaching the site. In addition, emergency services feel that their work is disturbed by drones.
Operation in the vicinity of deployed emergency services is not permitted.

4) **The drone is operated and maintained according to the manufacturer's specifications**
Before and during operation, the drone must be operated and maintained as defined and described by the drone manufacturer in the relevant manuals.
This includes a pre-flight check, which should include checking the command and control links, the battery voltage and the propellers.

5) **Maintenance operations will be recorded in a logbook.**
All UAS maintenance operations must be recorded in a logbook, giving the date and scope of the maintenance work.

6) **I understand the weather and operating conditions defined by the manufacturer as well as the corresponding limits and will comply with them throughout the operation**
The limits defined by the manufacturer (weather and operating conditions, etc.) must be observed at all times and must not be exceeded at any point during the operation.

7) **I understand the cantonal and municipal regulations and will comply with them throughout the operation**
Each canton has the right to issue its own regulations for drones. These can be stricter than those of the federal government and must be observed.

8) **I understand the requirements of data protection and protection of personality and will comply with them throughout the operation**
The operation of drones is governed by the Data Protection Act and the right to privacy, which is enshrined in Swiss civil law. You should therefore never fly your drone low over private property or public sites where people gather.

5. General operating conditions

1) **The operation will take place over a controlled area**
A permit can only be issued if both the persons overflown and the ground area overflown (including any buffers) are under the control of the pilot and his crew.
In terms of persons, this means:

   a) The overflown group of people must be under the control of the operator
   b) Spectators, participants or other persons at mass public events are not considered to be “under the control of the operator”.
   c) Persons under the control of the operator must:
      i. voluntarily decide to take part in the operation and agree to be overflown by a drone.
      ii. understand the risk they face from the operation of the drone.

2) **The operation will take place over sparsely populated areas**
The operation must take place in a sparsely populated area. This means that there are less than 10 inhabited buildings within a 100 m radius.

3) **Take-offs and landings will always be performed in VLOS and persons near the take-off and landing locations are under the control of the pilot**
Take-offs and landings must be performed in direct visual contact. Any persons in the immediate vicinity of the take-off and landing location must also be under the control of the pilot. For an exact description of persons under the control of the pilot, see Item 1 of the general operating conditions.

4) **The specified height for flights is a maximum of 120 m above ground level**
The drone must not exceed a height of 120 metres above ground level during operation.

5) **The aircraft will fly at a maximum distance of 1 km from the pilot or 2 km from the pilot if the distance of the aircraft from an observer never exceeds 1 km at any time**
The aircraft must at no time be further than 1 km from the pilot or an observer.

6) **The maximum ground speed of the drone is 50 m/s**
The ground speed of the drone must be limited to a maximum of 50 m/s. Exceeding this speed is not permitted.

7) **The observer will be a maximum of 1 km away from the pilot**
The maximum distance between an observer and the pilot must not exceed 1 km.

8) **Robust, effective means of communication will be used for communication between pilots and observers**
Communication between the observers and the pilot must use a means of communication which ensures communication at all times. The means of communication must therefore be able to withstand the weather and environmental conditions.

9) **The observer has been informed of the exact flight plan and flight schedule of the aircraft**
In order for the observer to be able to monitor the airspace efficiently and correctly, he must be informed of the exact flight plan and flight schedule before the flight. This allows the observer to monitor the airspace and the flight properly when the time comes.

10) **The communication latency between the observers and the pilot is a maximum of 15 seconds**
The delay time of the communication channels must not exceed 15 seconds. This is to ensure that communication does not take too long in an emergency.

11) **The crew has communication terms for all situations and the pilots and observers are familiar with this phraseology**
Communication must be standardized in order to avoid misunderstandings in communication and to make communication as efficient as possible. This should be achieved using common communication terms. These terms should exist for all situations and regulate the exact wording of communication between pilot and observers.

12) **Tools used by the observer to detect the aircraft are in good order and effective**
If (technical) aids are used to monitor the airspace and detect aircraft, they must be tested in advance to ensure that they function correctly and properly. This also serves to ensure that usage is clear before the operation and that it is not necessary to learn how to use the aids during operation, which weakens the observer's ability to concentrate on his job.

6. Aircraft requirements

1) **A geo-cage is programmed before every flight.**
Geo-caging is designed to prevent the drone from leaving the intended volume of operations. As this increases safety, it must be used correctly for every flight.

2) **The C3 link is monitored by the pilot at all times** The C3 link must be displayed on the remote control or operating display and must be monitored by the pilot. The purpose of this is to ensure that any loss of connection can be detected in advance and measures taken to counteract it.

3) **The pilot can take manual control of the aircraft at any time**
In case of unforeseeable situations (e.g. incoming air traffic or technical malfunctions) the pilot must be able to take manual control of the drone at any time in order to make it possible to steer the drone out of any dangerous situation.

4) **The aircraft has a function independent from the flight controller and the primary command and control link that allows the pilot to land the UAS in case of loss of control.**

An independent function (e.g. kill-switch or an architecture with a companion computer) allows the pilot to land the aircraft in case of control link and/or flight controller software malfunction.

7. Requirements for pilots and crew

1) **How are the pilots trained for the operations and which previous experience do they have (flight hours)?** There are various ways in which a pilot can demonstrate his flying skills. This can take the form of a drone pilot course or a number of flying hours deemed sufficient for the operation to be flown. The flying skills required of the pilot always relate to the operation to be flown and can vary from operation to operation.

2) **The pilot has training/knowledge in the following areas:**
The areas listed in the form in which either training must have been completed or in which knowledge must exist constitute the minimum training/knowledge for such EVLOS operations.

3) **A logbook (data recording) shall be kept. It shall record, including take-off and landing times, take-off and landing locations (if applicable), the pilot in command, the visual observers, and any unusual technical or operational incidents.** Such a logbook ensures traceability for the applicant. This must either be in electronic form or, if the drone does not have this facility, in manual form (e.g. on a sheet of paper). A logbook must be kept in one of these two forms.

4) **The pilot is sufficiently prepared for the operation**
The pilot must declare that he is well prepared for each operation and that he will only fly on the day of the operation if he is sufficiently fit and feels able to do so. This requires taking measures such as ensuring sufficient sleep and avoiding any performance-inhibiting medication or other substances.

8. Emergency procedures

Please provide a description of the emergency procedures. Please describe these in detail and in complete sentences.

1) **What are the emergency procedures if persons are injured?**
What is the reaction? Who is to be informed? How is the information to be communicated? Who is to fill out the occurrence report by means of aviation reporting?

2) **What are the emergency procedures in the event of a “fly-away”?**
What is the reaction? Who is to be informed? How is the information to be communicated? Who is to fill out the occurrence report by means of aviation reporting?

3) **What are the emergency procedures in the event of loss of the control link?**
What is the reaction? Most drones have a return to home function. Please describe this function. If there is no such function, an adequate replacement must be described.

4) **What are the emergency procedures for incoming air traffic?**
What is the reaction? Who fills out the occurrence report by means of aviation reporting in the event of a collision or near-collision?

5) **What are the emergency procedures in the event of loss of communication channels between observer and pilot?**

How is loss of communication recognised? What happens to the operation if loss of communication is identified?

6) **Coordination with the air force and HEMS operators shall take place at least 24 hours before the operation**
Coordination with the air force and HEMS operators must take place to inform them of the operation in advance. This means that the authorities can plan flights differently and inform their pilots of the danger that may arise in advance.
The necessary telephone numbers / contact details will be included in the permit.

9. Detailed description of emergency recovery system

The explanation can be found on the application form.

10. Information on limits

The limits specified in this section must be observed.

- **Flying in icing conditions is not permitted (outside air temperature < 5°C in visible humidity).**
Low temperatures can strongly influence the flight characteristics of the drone. A combination of low temperatures and rapidly rotating propellers can cause ice to form above 0°C. Ice can render a drone uncontrollable.

- **Maximum wind: 20 km/h; max. gusts: 30 km/h.**
Always consult the current weather conditions before the flight.

- **Flying in rain is not permitted**
Since the flight characteristics change greatly in the rain, operations in the rain are prohibited.

- **Minimum visibility must be 5 km in every direction**
In order to ensure advance detection of incoming air traffic and ensure that reaction to such traffic is still possible, a minimum visibility of 5 km in all directions is required.

11. Third party liability insurance

Flights may only be operated if the liability claims of third parties on the ground are secured by the operator with a minimum guaranteed cover of CHF 1 million by taking out a third-party liability insurance policy in accordance with Art. 20 of the Ordinance on Special Category Aircraft (OSCA, SR 748.941).