



DCAA requirements for Dubai Experimental Zone BVLOS Drone Delivery Program

Guidance to operators





Content

This files will include points that DCAA would like the operators to focus on while delivering the application's documents.

- General Inquiries
- SORA document preparation
- ConOps document preparation
- OM document preparation
- Validation Test Campaign



- General Inquiries

1. Insurance coverage (drones,etc...)
2. Pilots must be certified
3. Operator/company must provide a Master Data List → a single document that contains names of the documents that are provided by the operator to DCAA and their revision number; for example, if the operator provided the Emergency Response Plan in a separate file, it should be mentioned that besides the three main documents and their revision number (SORA, ConOps, OM) an ERP document is provided with the application as well.

- SORA (BVFR-001-SORA_TEMPLATE_0100)
 1. STEP 1: ConOps part of the SORA **must include Flight Geography, Contingency Volume, Risk Margins.**
 2. STEP 2: Initial GRC should be based on an operational scenario of **BVLOS in populated environment.**
 3. STEP 3: Final GRC Determination, robustness of M2 and M3 mitigations should be at least of **Medium level.**
 4. For M2 → Operator can implement different types of mitigations to reduce ground impact but **must include a parachute system** amongst them at least.
 5. For M3 → A valid ERP must be prepared by either the operator or a third-party validation.
 6. STEP 4: Initial ARC determination, must be of level -c- (OPS in Controlled Airspace) ∴ **Initial ARC=ARC-c.**
 7. STEP 5: Implement Strategic Mitigations to reduce the Initial ARC.
 8. STEP 6: Implement Tactical Mitigations to reduce risk of mid-air collision.
 9. STEP 7: SAIL Determination is preferred to be of level II, level III might take more time to process due to more tasks to be presented in the Experimental Zone during the Validation Test Campaign.

- SORA (BVFR-001-SORA_TEMPLATE_0100)

10. STEP 8: Identifications of OSOs. The **SAIL level will determine the tasks to be done from the OSOs.**

11. STEP 9: **Address the risk** posed by a **loss of control** of the operation resulting in an infringement of the **adjacent areas on the ground and/or adjacent airspace.**

12. STEP 10: This part should include **all mitigations and risks addressed** throughout the process. Describe the satisfactory substantiation of the mitigations and objectives required by the SORA process provides a sufficient level of confidence that the proposed operation can be safely conducted. Those could be listed as:

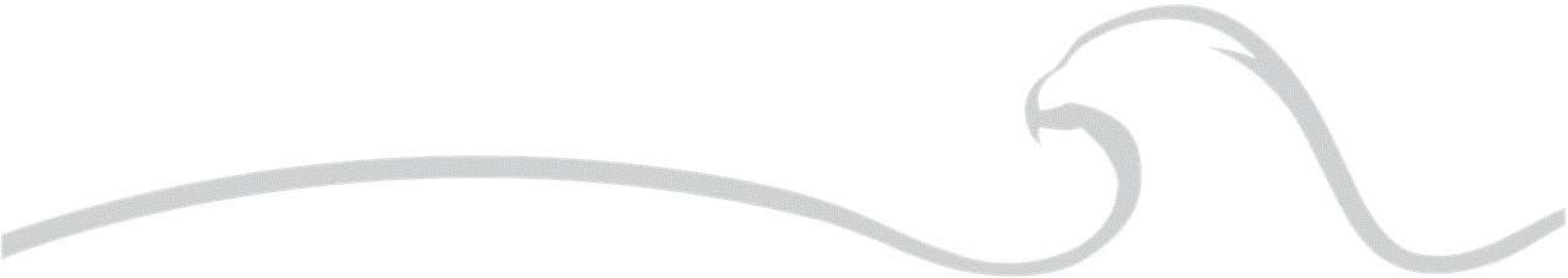
- Mitigations used to modify the intrinsic GRC.
- Strategic mitigations for the initial ARC.
- Tactical mitigations for the final ARC.
- Adjacent Area/airspace Considerations.
- Operational safety objectives (OSO) and associated mitigations.

The operator should make sure to address any additional requirements not identified by the SORA process (security, environmental protection, etc.)

- SORA (BVFR-001-SORA_TEMPLATE_0100)

The SORA package from JARUS will help with understanding the context of each step:

<http://jarus-rpas.org/content/jar-doc-06-sora-package>



- ConOps (BVFR-001-UASCONOPS_TEMPLATE_0100)

The operator **must emulate an actual case of his operation in the Experimental Zone B** (the entire Dubai Silicon Oasis area and not only Experimental Zone A). Meaning, the delivered ConOps must include all details of how the operator is planning to perform the delivery flight before, during, and after it is completed.

Details such as the crew members roles, points of take-off and landing, plan of delivery and how is it performed (who will hand the product to customer? where will the drone stop?) and how will the operator coordinate with concerned entities in case of an incident/emergency. This is an example of what to be included in a ConOps description and it is not limited to the things mentioned previously in this paragraph.

It is important to deliver a detailed ConOps that consists of an actual example of an operation in DSO area. Using the provided geomap of DSO will help in defining the mission profile and selection of routes and areas. (Operators must show a flight route in DSO for their ConOps)

- OM (BVFR-001-OM_TEMPLATE_0100)

In addition to all required sections in the Operations Manual document, please make sure to include:

1. The drone's manual → usually, drone manufacturers include all details in a drone manual. This will be useful to have because there are some required tests in the Validation Test Campaign that ask for evidence on certain information. In this case, the operator does not have to physically demonstrate the task to pass the test, only refer to the section that describes it in the drone manual.
2. Drone's specifications must include details on how the payload is going to be carried. → some drone operators modify the design of a drone to implement a payload box without changing the drone's specifications. As an operator, please make sure that the specifications provided are applicable to the drone that is performing the delivery process. If the drone is customized, update specifications accordingly.
3. The precautions related to the **health and hygiene of the crew** and their **flight time limitations** will be considered, according to the rest times established by the company.

- OM (BVFR-001-OM_TEMPLATE_0100)
4. The main objective of this Manual is the exhaustive description of the operational process applied during the business activity with UAS. This Operations Manual is for the use and guidance of all personnel involved in the UAS operations. All flight possibilities and conditions have been foreseen in this document and **will be executed in accordance with its policies and requirements**. Any situation or emergency not contemplated in this Manual will be faced and solved by the remote pilot, acting under his best judgment, based on the flight experience and training.
5. The instructions for the **preparation of the operation**, the **criteria to determine the take-off and landing zones**, as well as the **operational minimums**, the **interpretation of meteorological information**, the **elaboration of an operational flight plan and the maximum distances between the pilot and the aircraft** shall be defined. Likewise, the organizational structure of the operating company and the **responsibilities of each position**, the **type of operations** to be performed and their supervision, an **accident prevention and flight safety program**, and the training required for the staff will be established.

- Validation Test Campaign (ValidationTestPlan_Example and template)
 1. The Validation Test Plan (VTP) document includes tests and tasks that the operators will be asked to demonstrate during the Validation Test Campaign, VTC.
 2. The operators must come up with their own VTP **as long as it covers the required OSOs according to the SAIL level** (Steps 7 & 8 of SORA document) **they have ended with.** Indicating each test in the VTP refers to which test in the OSOs.
 3. After the Validation Test Campaign is completed successfully, the operator will be issued a BVLOS certification for drone delivery in Dubai.



End

