

## UAS Demo Aviation Events – FAA Safety Analysis

The FSDO issuing a Certificate of Waiver, FAA Form 7711-1 (CoW) for an Aviation Event that includes manned aircraft and a UAS demo (other than a Part 101 AMA sanctioned demonstrations) will conduct a safety analysis. The review will be conducted in coordination with the event organizer, AFS-840 AES, UAS FSDO POC, AUS POC, AFS-830, ATO and ACO (as applicable). A Safety Analysis should be provided for each type of operation conducted during the aviation event (manned/un-manned). The Safety Analysis should include the following:

### Appendix XX Attachment #XX Safety Analysis Package

**Name of Operator:**

**Aviation Event:**

**Date of Event:**

**Location:**

**Event Organizer:**

**Air Boss:**

➤ **Type of Operation**

- Aerial Demonstration (aerobatic/non-aerobatic)
  - Multiple sUAS (14 CFR Part 107)
  - Formation
- Photography
- Security
- Aerial Data Collection
- Other

➤ **Types of UAS**

- Civil UAS (Part 107) – Small unmanned UAS
- Civil UAS – Special Airworthiness Certificate and ATCoA or Section 333 exemption and CoA
- Public UAS – CoA

➤ **Type of UAS and authority to operate** (attach applicable CoAs, 333 Exemption, Certificate of Airworthiness and associated special provisions, limitations and conditions or operating limitations)

- Describe how this demo can be done under the authority granted.

➤ **Lost Link Procedures** (Failsafe Return To Home (RTH))

- Describe System and Procedures

➤ **Fly-away procedures**

- Describe Procedures
- **Frequency/spectrum analysis**
  - Include Frequencies in daily Participant Safety Briefing documents
  - Describe how operator will conduct a test for frequency reliability / interference on rehearsal day at location of event, and confirm results with IIC and Event Organizer.
- **Communications plan** (for operation within TFR and waived airspace)
  - Flight Crew (e.g. Pilot, Visual Observer(if used)))
  - ATC
  - Air Boss
  - IIC
  - Security Plan (briefing Law Enforcement that this UAS operation is authorized)
  - Emergency Response planning (ERP briefing to Incident Commander)
  - Participants Safety Briefing (Added Briefing materials)
- **Crew Qualification**
  - Pilot
  - Visual Observer (if used)
- **Operational Safety/Crew Actions**
  - Describe how the aircraft will remain in aviation event demonstration area, aerobatic box/flying display area.
  - Describe how compliance with flight over spectator areas (primary/secondary), congested areas, and non-participating persons, vessels vehicles and structures will be maintained to include:
    - Remain within Visual Line-of-Sight
    - RTH Altitude
    - Airspeed
    - Night operations
    - Weather minimums (wind visibility)
    - Flight Termination Points
    - Flight Parameters - Takeoff and landing, ingress/egress routes, and operations area(s)
- **Operations in Aviation Event Demonstration Area** (e.g. Waivered Airspace)
  - Flight is non-aerobatic unless the pilot is qualified (SAC FAA Form 8710-7)
    - Or other qualification as approved by AFS-800 (NAES)
  - Formation flight and multiple aircraft demonstrations are not authorized unless the pilot(s) is qualified (Formation Credential or SAC FAA Form 8710-7)
    - Or other qualification as approved by AFS-800 (NAES)
  - All flights will be in accordance with the (Part /107, 333 Exemption, UAS CoA, Special Airworthiness Operating limitations)
  - Compliance with safety distances—equivalent to aircraft with similar performance.
    - Aerial Demonstration (aerobatic/non-aerobatic)
      1. Multiple sUAS (14 CFR Part 107)

## 2. Formation

- Photography
  - Security
  - Aerial Data Collection
  - Other
- Aerial diagram for aviation event – Google map and A current 7.5-minute series Topographic Quadrangle Maps, published by the USGS (scale 1:24,000) or equivalent. Aerial diagram required information for the aviation event, add the following:
- Depict the location of the UAS GCS as well as the UAS launch and recovery locations
  - Depict flight termination and lost link points on aerial diagram.
  - Depict ingress/egress routes and operations area(s)
  - Flight Termination points
  - Show line/Crowd line
  - Barrier Type/Locations if different than required manned operations
  - Other pertinent information

## **UAS Operations- Special Provisions (Standard)**

Unmanned Aerial Systems (UAS) Demonstration(s) are authorized only in accordance with the (add as required: Public aircraft CoA, UAS 333 Exemption conditions and limitations, or the operating limitations for a UAS Special Airworthiness Certificate) issued for the UAS aircraft and the Safety Analysis (add name of UAS Operator) included as attachment #XX of this CoW. Special provisions issued for the UAS CoA, UAS 333 Exemption conditions and limitations, or the operating limitations for a UAS Special Airworthiness Certificate are controlling and non-waiverable. The UAS demonstration is authorized in accordance with all required special provisions and policy for the aviation event.

- a. UAS flight is only authorized in coordination with and as directed by the Air Boss. The UAS pilot or safety observer must be in direct communication with the Air Boss at all times during the UAS demonstration or operation.
- b. The UAS demonstration/operation, aerial diagram with launch point, flight termination/lost link points, and frequencies must be covered in the required daily performer safety briefing. The UAS pilot(s) and safety observer(s) must attend.
- c. The UAS must be on the ground and non-operational any time airshow aircraft are cleared into or operating within the flying display area.
- d. The UAS may not be operated any closer than 500' from any fireworks or pyrotechnic staging areas.
- e. Coordination of authorized UAS activities with law enforcement responsible person and integration into Emergency Response and Security Plan is required.

Note: If law enforcement is copied on the Certificate of Waiver, since they may not be used to CoW format, **suggest** a standardized introductory paragraph from the FAA to law enforcement referencing UAS-specific portions of the waiver. (Example below in Appendix XX)

### **Appendix XX Information Communicated to LMPD in regard to UAS Integration of the XYZ Airshow**

Attached is the FAA Certificate of Waiver (CoW) for the XYZ Airshow. Special Provision #XX addresses UAS Operations at XYZ Airshow and is found on page XX of XX of the attachment.

The Safety Analysis package articulates specific UAS operational and communication requirements and it is found on pages XX-XX of 30 of the attachment.

Nice talking with you today. Thank you for all that you and LMPD do!