



## Documentation Considerations for Sporting Badge Leg Flights

The following are suggestions for various methods to provide primary and backup documentation of flight performances associated with participation in the FAI/CIA Sporting Badge Program. Methods for documenting flight are continuously changing and improving so it is not possible to provide an exhaustive listing of methods. Since these types of flights are completed at a level between the BFA PAAP and National/World records the level of documentation is likewise greater than the former and slightly less than the latter types require.

While the launch and landing certificates (properly completed and signed) are required for distance and duration flights a second means of verification should also be planned for and supplied. Similarly, any altitude flight will need at least one corroborating data source. Depending on the circumstances when a goal flight is made, different types of document may be used. Below are various means that can be employed to meet the level of documentation required to have a sporting badge performance leg flight validated for a pilot. The other rules pertaining to how the actual badge is applied for are covered in a separate document found on the BFA website.

### 1. DURATION

- A. Synchronized time/timers/stop watch functions on independent digital units. Examples: digital wrist watch, cell phone, GPS, APRS, etc.) One placed on aerostat and started by observer, the other kept with observer, a third with recovery crew chief.
- B. 3 or more synchronized cell phones. 3 photographs- first; altogether showing synch time, second showing stop watch function initialize of all 3, last showing stop watch end of all 3. One should be on aerostat, one with observer, the last with the crew chief or individual in the lead recovery vehicle.
- C. Time from aerostat instrument pack (if so equipped) must be checked against synch time of flight crew by observer prior to flight and documented.
- D. Electronic barograph, calibrated and sealed.

### 2. DISTANCE

- A. GPS coordinates of aerostat launch site.
- B. Track plot of flight documented from tracking application (ex. HotAir, APRS)
- C. Launch certificate completed by observer, preferably signed by landowner or non-crew witness. A crew witness can be utilized but may not be the observer or pilot.

- D. Photo of launch site and reference landmarks (street, intersection, buildings, trees, rivers, etc.)
- E. Topographical map plot of launch site, needs to include plot reference (printing date, last feature update/basis if software based)
- F. Shoot photographs from aerostat along the way to mark path of flight from start to finish. Include any landmarks verifiable from topographical maps to verify path.(ex. rivers, railroads, towers, geologic features, transmission level power lines, etc)
- G. Landing certificate completed by observer, preferably signed by landowner or non-crew witness. Crew witness can be utilized but may not be the observer or pilot.
- H. GPS Coordinates of aerostat landing site (first point of ground contact after launch)
- I. Topographical map plot of landing site, needs to include plot reference (printing date, last feature update/basis if software based).
- J. Street Level map with launch/landing map marked by pilot, signed, date and time stamp. Witness verification mark on map with signature, date, time stamp.
- K. Use flyWithCE Recorder, previously accepted for FAI soaring records and badge distance (location) flight attempts. [www.flywithce.com](http://www.flywithce.com) (Model FR300)

### 3. ALTITUDE

- A. Barograph – Smoke. Maybe smoked, baselines and sealed by pilot, observer, or qualified technician. Must be installed and sealed into the aerostat by the observer. Must be removed by the observer at the end of the flight to verify both seals.
- B. Barograph – ink/chart. Maybe baselined and sealed by the pilot, observer, or qualified technician. Must be installed and sealed into the aerostat by the observer. Must be removed by the observer at the end of the flight to verify both seals.
- C. Flytec – 3040 – [www.flytec.com/3040.html](http://www.flytec.com/3040.html) , only valid up to 8,100 M (26,000ft)
- D. Flytec – 6040 – [www.flytec.com/6040.html](http://www.flytec.com/6040.html) Valid up to 11,000 M (36,000 ft)
- E. flyWithCE – [www.flywithce.com](http://www.flywithce.com) , may only be used as secondary verification due to known limit on altitude function (must fly 100 m higher than required to qualify for a given altitude, FAI ruling) See manufacturers web page for certifications and limitations.
- F. Observation from another aircraft (plane, helicopter) whose flight performance and limitations combined with distance and observation angle can be used to verify an altitude claim. A photo of the aerostat with time/date, plane location & elevation noted and name of photographers can be submitted for secondary verification. The photograph is then used by the pilot to show angle from lens to aerostat in conjunction with altitude to provide an aerostat altitude.
- G. Mode C transponder - By agreement with ARTCC(s) along the planned flight route a document showing altitude plot during the flight based on signal, and signed by the responsible tower official (supervisor on duty, controller, etc.)
- H. Recording altimeter in aerostat instruments, calibrated prior to flight, for the altitude range expected, can be downloaded and plotted. The plot signed by the pilot and observer can be provided as verification (ex. Ball M655)
- I. Altimeter reading from aerostat instruments, photographed and observed at launch, photographed at max.(claimed) altitude, photographed and observed at landing. This

should be accompanied by a copy of the maintenance records showing the last calibration date and last battery change date, and offsets or exceptions noted at that time.

- J. Barograph – electronic, such as EW micro recorder (EW Avionics, [www.ewavionics.com](http://www.ewavionics.com) ), calibrated within the last year\*\* for the altitude intended, sealed. Download performed by a qualified technician post flight after observer verifies the seal was not broken.

\*\* - There are some modern electronics devices that may be calibrated and that calibration lasts for more than one year under certain conditions ( seals, etc). These may be used as long as the calibration certificate and the conditions for valid calibration are provided with the claim.

#### **4. GOAL**

- A. BFA Sanctioned event, score on a qualifying task, documented by scoring officials, a printout of the valid distance from target, signed by chief scoring officer or competition director. There should be no penalty related to minimum distance from launch point to target.
- B. Same as "A" but in a FAI/CIA sanctioned event.
- C. Using observer(s), launch certificate, distance documentation, and a predeclared target under positive observer and scorer control, complete the goal requirement flight.

#### **5. GENERAL COMMENTS AND INTERPRETATIONS**

Since sporting badge leg performance is a step up toward flight performances at the national or world level the strict adherence to FAI/CIA Records Committee approved means of validation is not an absolute requirement. However, compared to BFA Longjump or BFA Pilot Achievement flights there is a significant increase in the level, quality, and quantity of documentation. In today's world of rapidly evolving electronics and functionality many new opportunities are available to pilots as a means of documentation and verification of claims.

In general, flight recorder systems that have existing FAI approval (<https://www.fai.org/page/igc-approved-flight-recorders> ) would be valid second source. As with all flights made for records, Long Jumps, personal best, PAAP, a pilot should plan on the active presence of Murphy during the flight and especially when it comes to instrumentation and data recording. There are no end of stories of how one piece of crucial verification data was lost/damaged/destroyed by the strangest of means during these types of flight attempts. The good news is, that since this is the oldest form of flight, there is a long history of creative means of obtaining this data. While some will not pass muster, there are quite a few that can and do work, limited only the creativity of the pilot and observer minds. If you take a premise that the Records Jury of the FAI/CIA is going to review your claim before granting it , that does permit one to eliminate those means just totally not acceptable and does provide the inspiration for how to use and how to demonstrate validity of alternate means. This is especially true in distance, duration, and altitude.

In addition to the committee members, current and past record holders, those listed on the US and FAI Sporting Badge Register, and other pilots are good sources for information and guidance on how to plan to document your flight performance in order to gain the maximum value/credit for it. The big difference is the documentation planning, in addition to the flight planning that is needed to succeed in the Sporting Badge Program.

Also remember that a single flight, documented for a sporting badge may also be used for a Long Jump application (if those conditions are met), a PAAP task completion, also a CAAP task completion for your crew. So remember to maximize the benefit of your flight and planning in terms of recognition of your skills and that of your crew.