

Approval document for an IGC Position Recorder (Compatible FLARM Units)

Issuing Authority: Soaring Association of Canada
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Date of effect: June 1, 2023

References:

- A. FAI Sporting Code Section 3 (Gliders and Motor Gliders) (SC3 2015 Edition)
Particularly: Chapter 4, Section 2.6 on Position Recorders
- B. Annex B to the Code (SC3B), Glossary items on Position Recorder and Validation, and paras 1.7, 2.1.1.2, 2.2.2.
- C. Annex C to the Code (SC3C 2015 Edition), particularly Sections 6.1 and 6.2, also Sections 1.2, 1.3 & 3.4.
- D. Specification for the IGC file format, Appendix 1 to the Technical Specification for IGC-approved Flight Recorders

1. Introduction

- 1.1. General. This document authorises the use of the GPS recording device described later in para 2 for use as an IGC Position Recorder (PR) for flights under the jurisdiction of the above NAC under the rules and procedures for PRs in the FAI Sporting Code Section 3 (Gliding) and other IGC documents, in particular under References A-D above.
- 1.2. Flights to be Validated. The FAI Sporting Code for gliders (Reference A above) allows IGC Position Recorders to be used for flights for Silver and Gold IGC Badges only. For other badge, diploma and record flights, an IGC-approved Flight Recorder (FR) must be used, and an FR can also be used for Silver and Gold badge flights.
- 1.3. Scope. This document covers only the PR recording function and the data in the IGC-format file that is downloaded from it (Reference D and 3.3 below). Other functions in the PR and other modules that can be connected, are not the responsibility of the NAC or IGC.

2. Type of IGC Position Recorder

- 2.1. Name of IGC Position Recorder:
Compatible FLARM units not covered by an IGC Flight Recorder approval but capable of downloading data after flight in the IGC format. Compatible FLARM units are devices built by FLARM technology or by other manufacturers having a license for the core FLARM hardware and software.
- 2.2. Manufacturer:
FLARM Technology AG
Industriestrasse 49
CH-6300 Zug
Switzerland
Contact Details:
info@flarm.com
<http://www.flarm.com>

2.3. Details of the PR.

Manufacturer	Description	URL
"Classic" FLARM	Original FLARM units built or updated after 1st of January 2005.	www.flarm.com
"Power" FLARM		www.flarm.com
LXNAV	PowerMouse	www.lxnav.com
LX Navigation	LX Flarm Red Box, LX Flarm Min Bbox	www.lxnavigation.com
Triadis	Floice	www.triadis.ch
Ediatec	ECW 100	www.ediatec.ch

The above list is not necessarily exclusive - this approval document applies to any derivative of the non-IGC Flarm device.

3. Compliance with the IGC Sporting Code. This type of IGC Position Recorder complies with the IGC requirements for Position Recorders (References A-D above) as follows.

- 3.1. The WGS84 ellipsoid Earth Model is used for all fixes in the IGC file (SC3C Section 1.5 & 1.6 refers). Reason: the recorder is fixed on WGS84.
- 3.2. All fixes in IGC files downloaded from this Recorder are all obtained from real-time GPS data, and no predicted fixes are recorded (SC3 Chapter 2 para 2.6.2 requirement).
- 3.3. The downloaded IGC file can be electronically validated at any time to ensure that the file is identical to when it was initially downloaded (SC3 Chapter 2 para 2.6.3 requirement).
 - 3.3.1. Downloading of flight data is either through the micro-SD card inserted into the slot in the casing, through the IGC Shell system (available from the IGC GNSS web site), or through the latest version of the Manufacturer's Flarm-Tool Software (the latter two methods are for early PRs without the micro-SD card receptacle).
 - 3.3.2. The file validation program to be used with such downloaded IGC files is vali-flarm-nonigc.exe which is to be found within the "IGC-Tools" ZIP file from the Flarm website under: <http://flarm.com/support/tools-software/igc-tools>. Alternatively the IGC shell program for validating IGC files together with the appropriate DLL file can be used.
- 3.4. Recording of Altitude. References: SC3 Chapter 2 para 2.4.3b, Annex C to SC3 para 3.4, Annex C to SC3 Appendix 5 para 1.6c, Reference D.
 - 3.4.1. Altitude data from this IGC PR - for accurate measurement is from figures in the IGC file for GPS altitude above the WGS84 Ellipsoid, applying the margin over Pressure Altitude requirements as specified in the Sporting Code (Reference A), currently 100 metres.
 - 3.4.2. Internal Pressure Altitude Sensor: Any internal pressure altitude sensor included in this Position Recorder is not relevant for the purposes of this Approval Document. GPS altitude is the sole evidence for altitude in accordance with SC3C para 3.4.
 - 3.4.3. The IGC file – Field for Pressure Altitude: In IGC files from this type of Position Recorder, the field for Pressure Altitude may contain data, which will be ignored for the purposes of this Approval Document. GPS altitude is the sole evidence for altitude in accordance with SC3C para 3.4.

4. Engine Recording

Where this PR is not able to detect the operation of a Means of Propulsion (MoP), SC3C 7.1b applies. For gliders with a functioning MoP, one of the following must be carried out:

- 4.1. Carry a separate device that records MoP use and is acceptable to the NAC, or:
- 4.2. Seal the MoP in such a way that the Official Observer can detect if it has been operated, or:
- 4.3. Disable the MoP prior to flight to the satisfaction of the Official Observer and NAC.

5. Mounting in the Glider.

- 5.1. This equipment may be mounted anywhere in the glider, however the Official Observer must be able to guarantee that the device was present in the glider throughout the flight for which the performance is claimed and that the downloaded IGC flight file used to evaluate the flight came directly from that device.

6. **Authority.** This approval document has been issued by The Soaring Association of Canada to permit evidence from this Position Recorder to be used for the validation of claims for flights as defined in Reference A.

7. Authentication

Name: Christopher Gough
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Any queries or comments about this document should be sent to the above, with a copy to the IGC GFA Committee (gfac@fai.org)