



## FAI Microlight Commission (CIMA) Flight Recorder approval document

### 1 IDENTIFICATION

1.1 **Approval document ref.:** OBS001

1.2 **CIMA approval date:** 23 September 2005

1.3 **Flight recorder name:** Air Observer Mini logger

1.4 **Manufacturer:** Tilt-Tech CC, 54-3 Baard avenue, Raslouw, Centurion, Johannesburg, South Africa.

Tel +27-12-6667342 Fax +27-12-6667343

Email: [sales@tilt-tech.co.za](mailto:sales@tilt-tech.co.za) Website: <http://www.tilt-tech.co.za>

1.5 **Applicable serial numbers:** 05 754 onwards

1.6 **Hardware version:** RAPTOR-Air

Check this by opening a CIMA spec. .IGC file generated by the FR and transfer software in a text editor and inspecting the line beginning: HFRHWHARDWAREVERSION:

1.7 **Firmware version:** Air Observer 7.10

Check this by opening a CIMA spec. .IGC file generated by the FR and transfer software in a text editor and inspecting the line beginning: HFRFWFIRMWAREVERSION:

1.8 **Transfer software name:** Air Observer

Check this from the transfer software: *menu --> help --> about.*

1.9 **Transfer software version:** 1.3A or better.

Check this from the transfer software: *menu --> help --> about.*

### 2 DESCRIPTION

#### 2.1 Hardware.

A plastic box approx 165mm x 100mm x 45mm. Supplied from new with data transfer cable(s), mains battery charger and software CD. Very simple device with internal antenna and re-chargeable batteries. No display. The front panel has a charging socket, on/off switch, three LED function lights and a USB socket. The rear panel has a remote PEV button socket and a serial socket. The FR is connected to a PC with a standard serial cable or a USB cable.

#### 2.2 Firmware.

Will record up to 43,000 fix points at user definable intervals. Once the memory is full it will wrap (start at the beginning), overwriting any previously recorder data. No data is lost when the FR is powered down or the batteries run out. No controls on the FR apart from the on/off switch. All other configuration is achieved via the PC transfer software. With the FR connected to the PC via a serial cable:

From *menu --> logger --> configure*

- Logging interval: Can be set at values of  $\geq 1$  sec.
- GMT Offset: Can be set at positive minutes of  $\geq 0$
- Logger name: Is not editable.

From *menu --> logger --> clear*

- *Sure you want to delete the logger data?* If Yes is selected the FR's memory is cleared.

## 2.3 Transfer software.

Switch logger on, connect with serial or USB cable to PC. The serial COM port may be selected from a choice of 5 options.

From *menu* --> *logger* --> *download* data is transferred and saved to the PC into a proprietary format .g00 file on the PC.

If the transfer software detects a gap of more than 35 seconds in the downloaded track, then each segment is saved to a different .g00 file appended with \_1, \_2 Etc. Thus if the file is saved as 'mytrack.g00' and there is more than one segment they will each be saved as 'mytrack\_1.g00', 'mytrack\_2.g00' Etc.

The appropriate track should be opened in the transfer software from *menu* --> *File* --> *Flight Log* or by clicking on the appropriate toolbar icon, the track is displayed on screen. Data is exported from this opened track into CIMA format from *menu* --> *file* --> *export* --> *CIMA*. User is given the option to fill: Pilot Name, Competition ID, Time zone offset, Task No. and whether the Pressure altitude field of the .IGC file should be filled with GPS altitude.

The resulting file is saved with a file name conforming to the CIMA Spec. to the same sub-directory as where the original .g00 file is located. A message box confirms the name of the saved file.

Updates to the transfer software are available at no charge from the manufacturer's website.

## 2.4 Not tested in this approval.

PEV button.

## 2.5 Items known to NOT conform to the CIMA FR specification.

When data is exported to CIMA format the Time zone offset field does not correctly offset the times in the resulting .IGC file. For the time being this option should always be set to ZERO.

# 3 APPROVAL STATEMENT

3.1 This flight recorder is approved to FAI/CIMA Type 1 standard in the hardware / firmware / transfer software configuration above when it is used for the validation of championship or record flights under the FAI Sporting Code Section 10 in accordance with the conditions below.

3.2 This document must not be interpreted as implying any other form of approval.

3.3 FAI reserves the right to alter the terms of this approval at any time.

# 4 CONDITIONS FOR USE IN MICROLIGHT CHAMPIONSHIPS

4.1 The FR, together with a copy of this document must be presented to the organization before the start of the championship for compliance inspection and recording of the serial number.

4.2 The pilot must make a data transfer cable and a copy of the transfer software available to the organization if required.

4.3 Before the championship starts the physical serial number, electronic serial number, hardware and firmware versions must be checked by the organization.

4.4 The FR must be clearly labelled with pilot's name and competition number.

4.5 No cable or plug capable of connecting to the serial or USB sockets of the FR or any other device capable of flight data communication with the FR may be carried in the aircraft during a championship flight. Infringement could mean zero task score or even disqualification under the 'Electronic apparatus' rules.

4.6 The firmware's logging interval must be set at a value of between 1 sec and 5 sec.

4.7 The firmware's GMT offset must be set to ZERO.

4.8 Task elements where the PEV function is used in scoring always score zero.

- 4.9 When data is exported to CIMA format the *Time zone offset* field should be always set to ZERO. The option to *Fill the Pressure altitude field with GNNS altitude* should be set to YES. All other fields should be filled with the pilot's correct details.

## 5 CONDITIONS FOR USE IN MICROLIGHT RECORD CLAIMS

Evidence from this FR may be used to corroborate certain record claims but the OO (Official Observer) and the claimant must be aware that being a CIMA Type 1 FR (see S10 Annex 6, 2.1) it is not capable of recording atmospheric altitude or MOP (means of propulsion) or of secure data generation. Care must therefore be taken by both parties to ensure that in addition to the FR evidence there is sufficient alternative evidence to support the claim (OO observations, turn point photos, landing witness statements Etc.). So long as all the conditions below are complied with then evidence from this FR may be used as the sole proof of no intermediate landing and, so long as there is supporting evidence, it may also be used as an aid to the accurate determination of takeoff and/or landing times and/or gate crossing times and/or leg distances and/or that turnpoints were rounded correctly.

- 5.1 Evidence from this FR may be used to corroborate claims for any of the following records:

- Distance in a straight line without landing
- Distance in a straight line with limited fuel
- Distance in a closed circuit without landing
- Distance in a closed circuit with limited fuel
- Speed over a straight course
- Speed over a closed circuit

- 5.2 Before takeoff, the OO shall observe:

- The physical serial number, electronic serial number, hardware and firmware versions of the FR.
- The firmware's logging interval is set at a value of between 1 sec and 30 sec.
- The firmware's GMT offset is set to Zero.
- That the FR's memory has been cleared.
- The serial and USB ports of the FR are sealed with an OO countersigned sticky label (or similar).
- That the aircraft has the FR on board at takeoff.

- 5.3 Immediately after landing, or as soon as reasonably possible thereafter, the OO shall observe:

- The FR's serial number is the same as was observed before takeoff.
- The serial and USB ports are still correctly sealed.
- The entire data transfer process from FR to computer, and subsequent file export to CIMA format .IGC file. The *Time zone offset*, *Competition ID* and *Task No.* fields should be set to ZERO, the option to *Fill the Pressure altitude field with GNNS altitude* should be set to NO. All other fields should be filled with the pilot's correct details.
- A printout of the CIMA format .IGC file, countersigned by the OO verifying that it is a perfect representation of all the data obtained from the FR after the flight.

- 5.4 The record claim must include:

- The reference number of this approval document.
- Verification by the OO that that the FR completely matches the identification in this approval document and all the conditions above were complied with.
- The signed printout of the .IGC file and the .IGC and .g00 files on floppy disk or CD.