

Terms of Reference for the CASI Mathematics Working Group

Objective

The objective is to give CASI the tools and information necessary to develop a more modern, clearly worded and mathematically rigorous Chapter 7 of the General Section.

Members

All of the members are experienced in mathematical methods, flight evaluation, and scoring.

Hans Åkerstedt, 1st VP, CIA
José Luis Esteban, 2nd VP, CIMA
Joerg Ewald, Chairman of Software Working Group, CIVL
Rick Sheppe, Chairman of Annex A Committee, IGC

Report

At the completion of their work, the WG will deliver to CASI a report that will contain

- Summary
- History and Problem Description
- Scope of work
- Overview of changes needed
- Proposed new wording of General Section Chapter 7
- Proposal to adopt changes

Schedule for delivery of report

About two months from the date of approval of the WG.

Attachment

On May 3, 2013, at the ASC Presidents Meeting, the FAI Executive Board received the attached proposal from CIA.

Proposal submitted by CIA to the ASC Presidents Meeting
May 3, 2013

Proposal

It is proposed that the FAI Executive Board appoint an advisory group to make recommendations to raise the level of mathematical sophistication in the Sporting Code.

Discussion

In 1994 FAI was among the first aeronautical organizations to recognise the need for rationalisation of navigational solutions, waypoints, flight logging, and airspace definitions. FAI led the world in the now-universal adoption of the WGS84 Geodetic Datum as the basis for geographic reference.

Since then, however, FAI has not done an admirable job of staying current with the challenges of combining the new technology with appropriate mathematical methods in the regulation of Air Sports. Chapter 7 of the General Section is founded on what appears to be a weak understanding of analytic geometry.

Specifically, the General Section

- a) blurs the distinction between *measurements* (the subject of Chapter 7) and *calculations* (the responsibility of the Air Sport Commissions);
- b) uses vague language and undefined mathematical terms; and
- c) includes erroneous definitions of mathematical concepts in the Glossary

This situation has existed for several years.

The process that CASI uses to stay current in computational methods is not working. The latest changes to Chapter 7 and the Glossary (AL16) have created nothing but confusion among computer programmers. Strictly interpreted, AL16 has rendered the scoring programs in current use by six Commissions unapproved. Mathematically, FAI is headed backwards.

Clearly this was not the intent of AL16. CASI deserves better advice.

Summary

After leading the world in the adoption of satellite navigation technology, FAI has failed to follow through with any quantitative rigor in its rule-writing. The Air Sport Commissions strongly urge the Executive Board to appoint a Working Group or an Expert Group to perform a survey of mathematical methods used by the Commissions and to make recommendations to bring the General Section to a level of mathematical sophistication worthy of an international federation.