Air Nav Race

1. Basic idea

- ✓ **Fun** for pilots / copilots and friends
- ✓ **Real race atmosphere** including GPS transmission on large screen.
- ✓ **Qualifications** – 1/8 finals - ¼ finals - ½ finals - final.
- ✓ **The best competing against the best!**
- ✓ **Media attention means sponsoring possibilities**
- ✓ **Simple regulations**. Easy entrance for young pilots.
- ✓ **No solo flights**. Pilot plus navigator obligatory (for safety reasons). No airplane sharing.
- ✓ **Up to 160 participants possible !**
- ✓ **Low costs allowing extra financial resources for local entertainments**

2. Aerotechnical

2.1 Airplanes must reach a TAS of 80 kts with 75% power setting
2.2 GS = TAS (no wind correction)
2.3 Maximum competition wind = 25 kts on 1500 ft/AGL at starting airfield.
2.4 Starting numbers to be drawn by the pilots.
2.5 Groups should consist of pilots of the same nationality resulting in only 1 pilot per nation in the finals and to promote inter group competitivness.
2.6 Flight preparation time is 10 min. with a further 15 min. to reach the airplane.
2.7 Starting times will be designated. Time window 2 min. Starting sequence: Nr 1, 2, 3, 4
2.8 Designated mandatory routes to the starting gate.
2.9 Crossing the starting gate outside the allocated time limits (+/- 1 sec.) will result in 3 penalties per second.
2.10 Entering restricted areas will result in the following penalties each time:

0 – 1 sec.	0 points
1 – 2 sec.	30 points
2 – 3 sec.	60 points
3 – 4 sec.	90 points
4 – 5 sec.	120 points

2.11 Entering a restricted area for longer than 5 seconds will result in 300 penalty points each time.
2.12 Crossing the finishing gate outside the allocated time limits (+/- 1 sec.) will result in 3 penalties per second.
2.13 Return flight via prescribed route is mandatory.

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2.14 It is prohibited to carrying any electronic devices such as mobile phones, transportable radios, PDA, GPS, laptops, scanners etc.
2.15 In the airplane all electronic instruments, GPS and autopilot systems are to be sealed and will be inspected by the competition organizers. It is the crew's responsibility to arrange the sealing of said devices.
2.16 The organizers will conduct inspections. Failure to comply with points 2.14 and 2.15 will result in immediate disqualification.

2.20 Starting and finishing gates are 0,6 NM wide.
2.21 The mid point of each gate is marked on a map with an approximate scale of 1:50`000.
2.22 Corridors on the flight route are 0,4 NM or wider.
2.23 Flight altitude is maximum 1500 ft AGL, minimum 1000 ft AGL.
2.24 There will be a minimum of 2 versions of ANRs ready for use. A different version will be used in each heat.

2.30 Planned are 4 starting gates with a minimum length of 5 km for the starting and finishing lines.
2.31 The overall length of the competition field will be at least 15 NM.
2.32 All 4 optimal flight paths should be equally long. This will result in flight paths of approximately 16 NM and 12 min flying time.
Total approximate flight time including 15 min. to the start gate and 15 min. return flight will be 42 min.
2.33 The difference in the length of the 4 race tracks will not be more than +/- 2%
2.34 There is a NB line (no back track line) 2 NM (+1/-0.5 NM) before the finishing line. After crossing the NB line, no change of course exceeding 90° may be executed before crossing the finishing line. The finishing line must be approached at an angle of 90°.

2.40 The flights will be transmitted with a time delay of 10-30 seconds on a large screen for the benefit of the spectators and pilots (planned for future competitions).
2.41 The rankings will also be displayed on the screen after evaluation of the respective data loggers (scoring system).

3. Expiration Air Nav Race

3.1 A maximum of 160 teams can participate. This depends on the availability of 2 runways.
3.2 Allowing for 4 starting gates and starting intervals of 5 min, the course can be completed by 48 teams in 1 hour.
160 teams will require approximately 3.5 hours.
Following this, the top 80 teams will compete in the 1/8 finals.
Approximate time 2 hours.
3.3 On day two, the 80 teams with the higher penalty points will compete in the lower ranking 1/8 finals. Approximate time 2 hours.
Following this, the top 20 teams from day one will compete in the 1/4 finals.
Three times 0,5 hr flying time = 1,5 hr.
The top 10 teams will then compete in the ½ finals.
The finals will be contested by the remaining top 3-4 teams.

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4. Landing competition

4.1 A landing competition will take place after the Air Nav Race involving 2 landings:
1 x power landing
1 x power off landing

4.2 For the landing competition to take place the maximum wind speed must not exceed 20 kts.

4.3 There are no tailwind restrictions.
The tailwind component should not exceed 5 kts.

4.4 All participating airplanes must exhibit a crosswind component of minimum 12 kts.

5. Accommodation, food supply, transportation

5.1 Participants organise their own accomodation. The organizers will be happy to give recommendations on request.

5.2 There will only be basic refreshments/food on the airfield (to be paid for).

5.3 Participants are responsible for their own transport.

5.4 Communication and information about the competition will take place via internet (email/website). All reports will be displayed on the info-board at the airfield.

6. Champion

6.1 There will be a champion in the categories
"Air Nav Race"
"Landing"
"Air Nav Race and Landing"

6.2 Gold, silver and bronze medals will be awarded to the top 3 placings in each categorie

6.3 Both pilots and navigators will receive medals.

6.4 All participants will receive a certificate and/or a commemorative medal

7. Necessary personnel

7.1

Competition director	1
Route planner	1
Flight planning	2
Scoring	2
IT	2
Secretary	2
Electronic check	2
T o t a l	12 persons (exkl. Landing competition)

7.2 **FAI – GAC Officials**

International chief judge	1
International jury	3

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8. Costs

8.1 Compared to PF and RF competitions the costs can be kept relatively low.

8.2 The navigation flights can be prepared with computers.
By pulling and rotation on the CAD prepared 5 – 10 system-known Nav-flights, these can be transferred within shortest time to the competition map.
By the use of scanning techniques and the necessary software, the GPS coordinates can be calculated with computers.
This results in very little complex preparatory work. The personnel requirements at the airfield are low.
The championship can be decided in 4 days (including one reserve day).

8.3 The entry fee including the FAI contribution and medals will be approximately 200 - 300 Euro.

9. Contacts

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10. Schedule

✓	29. December 2006	Technical preparation completed.
✓	Sa February 3rd, 2007	IT preparation with Spain
	July 2007 NEW May 2008	First test flight with computer scoring
	August 2007	End of test phase 1
	August 2007	First test competition with 4 airplanes and computer scoring
	September 2007	Conception GAC office at Birrfeld.