

New Flying Competition



Rules and Regulations Summary for the Period 2015 - 2016

created and organized by:
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Version: 20151027

*Now supported by
Airbus Deutschland
with special privileges
for participating
students*

Change Log



Version:

20151013 – First publication

20151027 – see pages 6 and 7, changes marked in red.

20151106 – Support by Airbus announced

The Competition



- Developed by the registered student association "Neues Fliegen e.V." (New Flying) at Hamburg University of Applied Sciences.
- A unique scientific model flying competition.
- Business sponsors are:
 - Lufthansa Technik – LHT.
 - Center of Applied Aeronautical Research – ZAL
 - Hamburg Aviation e.V.
- Task definition by advisory council with representatives from the sponsors.
- Jury formed from members of the advisory council.

Now with Airbus support



Fabian von Gleich, Head of Strategy and Development Site Hamburg, Airbus Germany:

*“We believe that this competition is an excellent opportunity for future aircraft engineers to gain valuable experience in the field of applied aircraft development. **Students participating in this competition will have the privilege to exchange directly with some of Airbus’ leading engineering experts.** We explicitly encourage all competing teams to explore unconventional aircraft concepts or new ways of working related to aircraft development and testing. We are looking forward to see what Airbus can learn from the competing teams as well. Finally, we also excited to meet talented students and support them in their personal and professional development.”*

The Task



- Develop an airworthy and efficient model plane of any configuration that fulfills some essential real-world civil aircraft requirements and demonstrate its airworthiness and efficiency by a test flight.
 - Flight with deactivated critical engine.
 - Flights with different center of gravity locations
 - Fly a looping to prove structural strength
 - Performance: energy consumption

Components of the Competition



- Design Reports
 - Preliminary Design Report
 - Critical Design Report
 - Final Design Report
- Science Slam Video
- Model Flights, 2 days flight tests.
- Pre-check days
- Social activities

Team requirements



- Student team with max. 10 members representing the university.
 - Bachelor-/Master students at time of registration.
 - One team captain to be identified from the group of students.
 - One pilot, does not have to be a student.
 - One supervising **faculty member**.
- More than one team per university allowed.
- Co-operation of universities accepted.
- Co-operation with model flying clubs is recommended.

The Model Aircraft - I



- Max. Take-off weight: < 23 kg.
- Type of aircraft not specified, ie conventional, box wing, blended wing body and other configurations are accepted.
- Wing span, fuselage length not specified.
- Multi-engine electric aircraft, ie at least 2 engines.
- All electric and electronic equipment must be over-the-counter components
- Safety and security measures apply: see full version for more details

The Model Aircraft - II

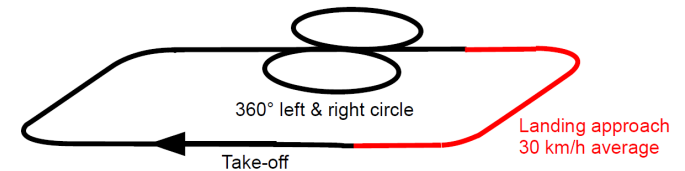


- Payload bloc of three alternative shapes to represent different civil aircraft types to choose from.
- Mass of the payload bloc: 1,8 kg.
- Mass of trim weight: 0,2 kg.
- Battery type (over-the-counter): Li-Po 37V 5000 mAh (10S)
- Detachable, components shall fit into a box no longer than 2,5m.

Task Details - I



Phase¶	Task¶	Monitoring¶
Charging¶	Charge battery with charger¶	By jury¶
Flight 1¶	Critical engine deactivated¶ (It is permitted to deactivate another engine as well)¶	By jury¶ Speed logged via GPS-Logger¶ Type of GPS-Logger to be specified.¶
	Trim weight in forward position¶	
	Take-off against wind¶	
	Flight pattern:¶	
	• → 360° left and 360° right turn circle on downwind leg¶	
	• → Decelerate to demonstrate low-speed of 30km/h after circles¶	
	• → Landing approach¶	
	• → Land against wind direction¶	
	Confirm critical engine was deactivated¶	
	If it is difficult for the jury to identify the critical engine (e.g. aircraft with one stronger engine on centre-line and 4 weaker engines on wing) then flight 1 needs to be performed twice with each of the potentially critical engines deactivates in one flight (in above example the most outboard and the strongest).¶ In this case a recharge before the second flight is permitted ¶	
Stop over¶	No recharge (see comment above)¶ Small repairs permitted¶	By jury member¶

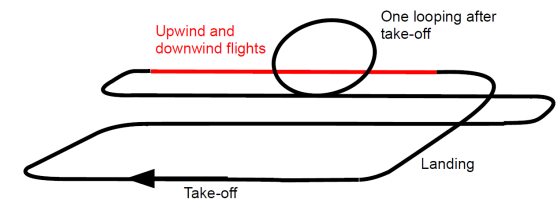


No external take-off device allowed

Task Details - II



Flight 2¶	Trim weight aft position¶	By jury member¶ Speed and distance logged by GPS-logger¶
	All engines can be used¶	
	Take-off against wind direction¶	
	Flight pattern:¶	
	<ul style="list-style-type: none"> • → Straight, parallel phases headwind & downwind ¶ 	
	<ul style="list-style-type: none"> • → One full looping (preferably against wind direction)¶ 	
Post-flight¶	Recharge battery with same charger, measure recharge energy¶	By jury member¶
	Average speed during flight 2 and during approach of flight 2 estimated from GPS-data¶	By jury¶
	Distance flown during flight 2 estimated from GPS-data.¶	
	Specific energy consumption calculated (total recharged energy) / (distance flown in flight 2)¶	



No external take-off device allowed

More Information



- A full version of the Rules and Regulations can be found here:
 - www.newflyingcompetition.com/download
- Register for the competition here:
 - www.newflyingcompetition.com/apply

IMPORTANT NOTICE:

- This presentation is a summary of the Rules and Regulations, only. The details of the competition given in the full version of the Rules and Regulations document are the basis for participating in the competition.