

Competition Rules

Endurance Class

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Definition of Models

Models in Endurance categories are controlled by means of radio control
These are model boat of free design which conform to the race requirements,
however should in form and design look like a race boat.

Class Endurance

Free build racing models for endurance races (1 to 2 hour race) with
electric or internal combustion motor .

Every 15 minutes the race will be stopped for a refuelling Pit stop at 2
minutes long .

During that stop the time race clock will be stopped.

Propulsion models are permitted to be surface and sub surface .

Surface and sub surface drive have to be 2 separate classes.

The results will be completed in a two run overall ranking .

Are allowed internal combustion engine from 2,11- 7,5 cc.

The electric motor have no restrictions

At least 3 max 8 competitors make up a Team running one boat .

The max number of teams allowed to compete in one race is 12 t .

The minimum team allowed to have a race is 3

General rules regarding construction for Category Endurance

General rules .

The length of the boat allowed to race is 80-112 cm

The hull that start the race must finish the race .

The race must be started and finished with the same hull – repairing of the hull is permitted but it can be not replaced.

The hull must have a country registration number and one racing number .

The dimension of the racing plates can be complete the requirement of class M or FSR/V/O

The pit stop for refuelling or battery change will have a minimum time of 2 min.

During the refuelling IC engine will be stopped.

Are allowed the following spare parts to use:

One complete engine, two spare sets of ball bearings, servo, receiver , receiver battery , esc , shafts props, etc , Teams are allowed a spare motor (both for IC or electric, two sets of ball bearings for ic motors. Everything else can be replaced when needed, no limit on receivers, servos esc, shaft or props. The spare engine or spare electric motor has to be presented at registration and marked.

At the registration the hull will be marked, also the spare parts engine will be presented and registered.

Also for electric propulsion boats the Limiter value of 240 Wh will be controlled and seal .

The use of not registered spare parts or replace of the hull will lead to teams disqualification.

Rules for electric boats ;

The boat can have flood chamber.

All boats must have a kill switch (isolated electrically from the hull, no direct contact between the 2 parts of the kill switch and the hull) an XT90 type plug or so would be best

The battery placement and fixation must meet safety precautions.

Rules for boats with internal combustion engine.

The maximum capacity of the fuel tank is 1600 ml .
The boat can use unlimited nr of servo .

Principal and general rules

Competition where the rules apply

World Championships

Continental Championships

International Competitions

International Friendly Competitions

For the countries members of Naviga it is recommended that they use this rules in their national events

Entry Fee, Protest and payment

Conform to the Naviga rules of competition

Personal Rules

The teams are formed by min 3- max 6 drivers . Each driver will run 1 stint, meaning change driver at every battery change/ fuel stop. All drivers in a team must run at least 1 stint.

The teams are formed by seniors, however we are encouraging the use of at least one junior in each team .

The mix teams (formed by drivers from different country) are allowed.

Technical rules

Propulsion of models and fuel

Electric or internal engine (conform to the rules) are allowed

All electric boat will use mandatory the Limiter set as the value of 240 Wh .

Battery

The batteries used in one stint is defined like 1 pack. Max 42,3V and up to make up 1 pack, E.G 10S1P 7200mAh or 5S2P 7200mAh, as long as the total Wh does not exceed 240Wh and 42,3 V any combination is allowed.

Each team are allowed to use 6 packs

The following type of battery are allowed:

Li-PO polymer, ,Li-FePO₄ ,

Max power 240 Wh

Max voltage is 42,3 volts per pack .

Min cell voltage when changing the batteries is 3,3 volts per cell – subject of control ,

The control will be made by the judge after the change of the pack .

Voltage detected under this value per cell will lead at losing of the laps make it with this pack , but the team will have the permission to continue the race .

Fuel

The max quantity allowed to be use is 8,6 liters .

The quantity of the fuel used by each team will be presented at the registration, verified and sealed in the container.

At each refueling the quantity permitted to be placed in the tank shall be 1 liter. It is permitted to be check aleatory by the judge (the quantity).

The fuel use must respect the E.U regulation concerning the use of nitro methane.

Noise reduction ,noise level measurement and rules

Internal combustion engine must be equipped with a device to reduce noise level .

The max level of noise will be max . 75 db.

The equipment use to assess the noise level shall not exceed approx 0,3 db and must be in accordance with EEC and analogue rules . Noise level indicator issued by a recognised authority , must be readily available.

The noise meter should be set on Slow

The competitor must be advised immediately if their boat exceeds 75 db/A . If the second measurement also exceed the noise level they will receive a warning and if the third measurement exceeds the noise level they will be disqualified immediately.

Buoys (dimensions, construction, materials)

The racecourse has to be marked by buoys. Each buoy must be consist of two colours and have a good visible coloured stripes. The buoys have to anchored so that they sit vertically to the water surface. The buoys must be cylindrical and minimum 250 cm and 40 cm above the water surface. The buoys must be 30-40 cm diameter.

Race course

The race course is of free design but must have both left and right hand turns.

The run will be clockwise for surface class and anti clockwise for sub – surface class.

The race course must however respect the following guidance line :
The bottom straight line should be at least 80 and no more than 100 meters .
It must have one technical section – with one chicane and one short turn (much closer to one so called Hairpin) before the transponder line in order to bring a reduction in speed .

The total length of the track must be minimal 280 meters – max 370 meters .

The maximum wide point will be approx. 30-35 meters

In the total length is understood, the deployed length of the track

As a recommendation the straight line will be in the front of the pontoon .

. By designing the course attention should be paid that the course is spread out in such a way no boat can end up in the “wrong” lane causing a head on collision!

Starting Pontoon ,Construction and Materials

Starting pontoons have to provide adequate space for the competitors, their models ,assistants and judges. Any obstruction which could endanger the safety of the competitor and models should be avoided.

Access to the starting pontoon should be clear. The surface of the pontoon must be non slip even when wet.

Lap counting

World Championship- Continental Championships- International events can be only counted by Transponder counting.

Starting Area , preparation area and access permission

The competition site especially the racing water and the surrounding area should be selected by the organizers to give competitors the best possible conditions to achieve good results.

The maximum nr of members form one team allowed in the race time and pit stop is two members – driver and pilot , except the moment when the drivers are making the change.

The transmitter that each team use is obligatory to remain all the time of the race on ponton. In case of mal function the change is permitted only with the approval of the judge.

The organizers must ensure that adequate safety measures are in place to protect competitors, officials and spectators from possible dangers.

The competition site, the racing water and surrounding area must be checked prior to the race by the race officials. In the event of complaints the organizers must attempt to correct this immediately.

The competition site and the water must not be contaminated by mineral oils, grease and other poisonous substances. (5) Failure to comply with this rule will result in disqualification of the competitor, who will not able to lodge a protest.

The starting area is the enclosed area directly adjacent to the racing water, in which the starting pontoon is located from which the competitors launch their model.

The preparation area is an enclosed area, where all competitors prepare the models and equipment for the start and serves as a waiting area during the event.

The preparation area should be located as close as possible to the starting area, subject to local facilities. It should provide accommodation and protection from weather conditions for the models. Only officials, competitors and assistants engaged in the event are allowed in the preparation area.

Tables and chairs for the judges possibly protected from the weather.

1 Noise meter.

3 Yellow cards one with the number

1, one with the number 2, one with S (safety) on it.

1 Red card.

1 Signal device to indicate the Start/Finish of the heat.

1 Computer – clock to indicate the racing time.

1 Public address system. 2 Sets of number plates with the numbers 1 to 12.

1 Board with the drawing of the respective Endurance course.

The organizer has to provide 2 rescue boats, 1 powered rescue boat and spare rescue boat. The powered rescue boat must be stationed on the left hand side

The crew for the rescue boat have to be provided by the organizer. Inflatable boats, and other boats which could be damaged on impact and endanger the life of the crew, are not allowed to be used as rescue boat.

The crew of the rescue boat must wear life jackets and must be in the rescue boat throughout the duration of the race, ready to go out when summoned by the Pontoon leader. If the protective suits are not life belts, the rescue boats must be equipped with safety boards, which should be mounted on the outside to prevent damage.

The rescue service Endurance is controlled by the Pontoon leader. The model must be rescued in the shortest possible time, causing minimum disturbance to the models still racing ensuring that all the competitors are treated fairly.

Powered rescue boats must be used slowly, so that the bow waves have no adverse influence on the race.

The continuous circling of rescue boat within the course should be avoided. The powered rescue boat should preferably be used to rescue those models which are farthest from the start jetty.

The starting pontoon has to be divided into approximately 1.5 meter sections for each competitor. The starting positions must be numbered and allocated prior to the race. Endurance – starting pontoons must have a board in front to prevent boats landing on the pontoon.

At World and Continental Championships of the Endurance class, the organizer must provide a 1 meter high platform as part of the starting pontoon for the competitors to drive from. The raised platform must also be numbered with starting positions.

The competitor is left the choice from which level they wish to drive. The competitor and assistant can only use the allocated starting position.

Safety nets or other safety devices must be positioned around the competition site to avoid endangering spectators. This should take into consideration models that might collide or come of course.

During the race nobody is allowed in the water. Competitors not obeying this rule will be disqualified.

At all NAVIGA events all models must have fixed registration numbers. All Team members National registration numbers must be on the Team boat. The registration numbers are given out by the respective country.

Preparation times (at the Starting Point)

The finish of the preparation time must be announced verbally and possibly also optical.

Interruption – suspensions of the competition

An interruption of the complete event can only be announced by the Chief Judge.

An interruption of the competition at starting pontoon is decided by the start position official.

If a competition is suspended only the heats, they are suspended have the right the rerun.

The assigned Chief Judge to any official event is by default the Section leader. However in the case of that person participating him/herself, that power is handed over to Naviga Judge with the highest Judging level available on the spot for the duration of the Section Leaders unavailability.

Pontoon leader(s) will be assigned by the Organizers, in accordance with the Section leader's approval. In the event of conflict of interest (Section leader himself being a participant) the highest ranking Naviga official, not being a participant him/herself , shall have the final voice.

The rules are valid from 1.01.2022

Section Leader E class

Razvan Olaianos