

Rules of the “Phebus 2004 European Solar Rally”

Introduction

The present rules apply to the rally itself, as well as all the related events: administrative and legal aspects, pre-registrations, registrations, technical considerations, track events, bonus points, security, etc.

All participants and associations having registered to participate to the “Phebus 2004 European Solar Rally” are considered knowing the present rules and accepting to follow them. The present rules and no other apply to the “Phebus 2004 European Solar Rally”.

Rationale

the “Phebus 2004 European Solar Rally” is dedicated to:

- offer the public a new vision and understanding of technological, scientific and economical aspects of renewable energy , for instance in the transportation domain.
- do this through a festive, real size and real life demonstration, involving two European countries.
- help create new vocations, initiating a technological challenge in the wide and wild research fields of solar energy and vehicle technology.

In this rally, the competition is not on speed, but on reliability, economy, and on fitness to perform various tasks which are, or will be, representative of what one could expect in different situations from a road vehicle.

The reason why speed is not an issue here is twofold. First, for evident reasons, competitions based on speed with motor vehicles are forbidden on open roads. Having this rally on a closed circuit would not make it a demonstration for the real life.

Second, pure speed is easy to measure but on the road it has had its time. What we need now is adequate speed. The real limit is the speed of light. Earth bound transportation is by no means suited to that! Solar transportation is no science fiction. It's real.

Administrative terms

Mentions of participation to this rally should quote the official name and/or logo. The logo is available on our web site: www.phebus-ariege.org. The participating vehicles and those directly related should reserve two symmetrically located 200x200 mm² areas, in order to place a rally logo sticker, which will be provided by the organizing comity. These stickers will have to remain on the vehicles during all the rally.

Supervision

The competition will take place under the supervision of an official jury. The jury is in charge of interpreting and applying the present rally rules. The jury will be helped in its task by a technical commission and official observers from the rally staff.

The jury is composed of:

5 to 7 members chosen for their experience.

Two co-presidents, one from the “Midi Pyrenees” region and one from Catalugna.

other members:

- one from the city council of departure and one from the city council of arrival, if they wish.
- one from each of the organizing associations:
 - Chemins Buissonniers,
 - Cité de l’Espace,
 - CNRS,
 - ENSEEIHIT,
 - Locomotion Solaire,
 - Phébus Ariège,
 - Volt-Tour
- three members from the technical commission.

Missions of the Jury

- decisions concerning the conformity of vehicles to the rally rules
- conflicts resolution, handling of complaints,
- prize awarding

Technical commission

composition: 7 to 10 people chosen for their experience and competence.

Mission of the technical commission:

They are present on the rally sites and events. If necessary they take immediate action, in all cases they report to the Jury. They act in the following domains:

- Study of the registration files
- Technical control of the vehicles
- Control of events (departures, stages, arrivals)
- Teams follow-up: distances achieved, amounts of electrical recharges
- Attribution of bonus points or penalty points
- Results synthesis

Rally staff

composition: 30 to 40 people in charge of all other issued (including security) related to the rally. Jury members and Technical commission members also belong to the rally staff.

Remarks:

Each team will have to reserve a seat in the following vehicle or in the rally vehicle itself (at the team’s choice) for an observer designed by the technical commission. The observer will not be the same during all the competition. He may take security decisions if necessary, he

keeps a record of of the rally actions which bring points or cost points.

Registration

The registration to the “Phebus 2004 European Solar Rally” is free. It is in two steps:

- pre registration by Email, not binding,
- registration: it requires filling a form (Team Data) handled by the technical commission.

The Team Data comprises :

-vehicle information. This technical vehicle data is subject to publication on the web site of the rally.

-the names and addresses of the persons who will drive this vehicle.

-the names addresses and role of the persons who participate to the team but do not drive the vehicle

-the declaration of having subscribed an insurance (third party) of their choice for the vehicle involved in the rally, of having subscribed a personal insurance covering the team members in case of accident during the rally, and finally of an insurance for the goods and properties of the team members during the rally. These insurances are at the competitors’ charge. All these elements will be required prior to departure of the rally.

In order to determine the complete acceptance of a vehicle for the competition, it will be checked by technical staff before departure to establish its conformity to the specifications herein.

Technical considerations

The “Phebus 2004 European Solar Rally” is an open road competition. It involves professional or amateur vehicles driven by solar energy:

-either direct, from embarked solar panels

-or “off line”, from batteries or other embarked energy storage means, recharged by solar electricity.

Other “clean” power sources such as hydrogen fuel cells may be proposed for participation. Their fitness to the rally scope will be a decision of the technical commission. If the vehicle does not fit for the competition, it may still be accepted for participation as a demonstration vehicle.

Vehicle classes

1. Sunracers

One seat sunracers

Photovoltaic (PV) array of maximum area 8 m² projected on a horizontal plane.

Energy storage capacity 5 kWh maximum.

Size of the vehicle equal or less than 6m x 2m

Two seat sunracers

PV array of maximum area 12 m² projected on a horizontal plane.
Energy storage capacity 5 kWh maximum.
Size of the vehicle equal or less than 6m x 2m

2. Compact hybrid (i.e. taking electricity from embarked and non embarked sources)
Size of the vehicle equal or less than 4.5m x 1.6m
Photovoltaic (PV) array of area 4 m² or less, projected on a horizontal plane.
One pilot and one passenger, both facing the road, and a payload. The total amounting to a minimum mass of 140 kg.
Energy storage not specified, but its capacity will determine the “recharge penalties” in points per kWh.
3. Series electric vehicles and all other accepted vehicles not belonging to classes 1, 2 & 4.
They will be recharged by solar electricity provided at the stages. This vehicle class comprises transformed electric vehicles, and powerful two-wheels vehicles of the scooter or motorbike style.
4. Muscular assisted electric vehicles. electric power limited to 400 W. These vehicles may include some solar panels.
5. Demonstration vehicles, not participating to the competition: “clean” fuel vehicles, or other types of vehicles not allowing a precise measure of their electrical consumption during the competition.

Competition

The route will be divided into competition stages, link stages, special stages (e.g. night, parade, etc.). All stages except link stages give opportunities to collect points as stated below. more detail will be in the road book distributed at departure.

Points awarded :

10 points per km completed in the plain stages, night stage and city stage.

15 points per km completed in the mountain stages or the hill section of the plain stages.

Power distribution and recharge:

Direct solar power can be collected freely by the embarked equipment while traveling, or while parked. It can be stored on board for future use. The solar collector can be on a trailer, but in that case it will always stay hooked to the vehicle while on the road, and fit in the area limits stated in the rules.

Solar power from grid tied PV arrays is also provided at 220 V 50 Hz with a power limit of 3 kW per vehicle but it costs points:

Category 1 (sunracers) : 300 points / kWh

Category 2 (Compact hybrid) : 150 points / kWh

Category 3 (Series electric vehicles) : 150 points / kWh

Category 4 (MAV) : 50 points / kWh

Other penalty points:

Late departure : 10 points per minutes late

stop on the road for technical problems : 10 points per minute

non completion of the previously chosen and announced route: 10 points per km short.

Security

The solar vehicles of categories 1 and 2, and vehicles of category 3 that are not standard will be preceded and followed at 50 m by standard vehicles equipped with rotating roof lights.

The rally organization will provide those lights if necessary.

One standard vehicle will stay behind the last vehicle of class 4 on the road, and take it on board in case of problem.

No vehicle should stay on the road if stalled for any reason. It should be properly parked in an adapted area. Loading and unloading of vehicles should be done only in places authorized by the technical commission members.