

**Supplementary Regulations**  
**“Phaethon 2004”**

**Solar and Solar-Electric Vehicles Race**

**An Event of Cultural Olympiad 2001-2004**

**Athens 22<sup>nd</sup> – 29<sup>th</sup> of May 2004**

**FIA ALTERNATIVE ENERGIES CUP 2004**

**Organizers**

**Hellenic Institute of Electric Vehicles – HEL.I.E.V.  
Automobile Club of Greece – ELPA  
“Technical Press S.A.” – “4 Wheels” Magazine**

**Promoter**

**Hellenic Ministry of Culture  
“Hellenic Culture Organization S.A.”**

**Supporters**

**Hellenic Ministry of Development  
“Center for Renewable Energy Sources”**

FIA visa No .....

**May, 2003**

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**SOLAR AND SOLAR-ELECTRIC VEHICLES RACE “PHAETHON 2004”**  
SUPPLEMENTARY REGULATIONS

**1. Aim and Symbolism**

- 1.1 Aim of motorsport activity with solar and solar-electric vehicles, is the encouragement of scientific research and engineering creativity in the sector of exploitation of solar energy as the propellant for a future, clean mobility. This ambitious target of clean and silent personal mobility systems is a challenge for scientists, engineers, designers and students looking in a future world in which the solar energy will serve the needs of humanity
- 1.2 **“Phaethon 2004”** is an event inspired by the symbolism of “Olympic Flame” lit by sun’s rays. This symbolism portrays the ancient human believing of the power of Sun as the unique source of energy for all activities on the planet. Participating Solar cars will visit the place where firstly the “Olympic Flame” was lighted, using as propellant the same solar radiation that burns the “Olympic Torch”
- 1.3 Solar-Electric cars, eligible to participate, are also propelled by solar energy on a direct or indirect mode. Owners/users of these vehicles may be producers of “green” electric energy by solar arrays or other clean power systems installed in their homes or premises. The quantity of electric energy used by their cars to travel around, as taken from the grid, is counterbalanced by the quantity of “green” energy produced by them and fed back to grid.
- 1.4 Hellenic Ministry of Culture, through the “Hellenic Culture Organization S.A.” is the Main Sponsor of the Event. Co-sponsor is the Hellenic Ministry of Development, through the “Center for Renewable Energy Sources”. The message emitted from the event is the one expressed by the Hellenic philosophic thoughts according to which all human actions should be exercised in perfect harmony with the mechanisms of Nature.

**2. Correct Title**

- 2.1 The name: **“Phaethon 2004”** is the *“Correct Title”* of the event of the year 2004, the Olympic Game’s year for Greece (City of Athens). The name **“Phaethon”** is the official and permanent title of all similar events of the same organizers and/or promoters in the future. The **number**, which follows, is indicative of the year during which the event will be organized.
- 2.2 Entrants and other interested parties shall use the *“Correct Title”* in all correspondence and references to the Event.

**3. Program**

- 3.1 Wednesday, 30 April 2003  
Publication of Supplementary Regulations – Entries Registration opens
- 3.2 Thursday, 30 October 2003  
Reduced entry fees registration closes at 18.00
- 3.3 Friday, 30 January 2004  
Deadline for closing of entry registration at 18.00 – (Full entry fees)
- 3.4 Thursday, 18 March 2004  
First distribution of printed material to the competitors
- 3.5 Thursday, 15 April 2004  
Final distribution of printed material to the competitors
- 3.6 Saturday, 22 May 2004  
Administrative and Technical scrutineering, roadworthiness tests in Athens
- 3.7 Sunday, 23 May 2004  
‘Circuit Race’ in Athens
- 3.8 Monday, 24 May 2004  
1<sup>st</sup> Day of Rally – From Athens to Patras (220 km)
- 3.9 Tuesday, 25 May 2004  
2<sup>nd</sup> Day of Rally – From Patras to Olympia (125 km)
- 3.10 Wednesday, 26 May 2004  
3<sup>rd</sup> Day of Rally – From Olympia to Patras (130 km)

- 3.11 Thursday, 27 May 2004  
4<sup>th</sup> Day of Rally – From Antirio to Itea (Delphi) (125 km)
- 3.12 Friday, 28 May 2004  
5<sup>th</sup> Day of Rally – From Itea to Athens (195 km)  
Prize Giving Ceremony and Gala Dinner
- 3.13 Saturday, 29 May 2004  
Guided tour to “Acropolis” Museum – Departure of the Participants

#### **4. Official Notice Board**

- 4.1 From Thursday, 15 April 2004 until Friday 21 May 2004 in the office of event, 43 Sygrou Avenue, first floor, 117 43 Athens, Greece
- 4.2 On Saturday, 22 May 2004 in the Secretariat of Administrative and Technical scrutineering (exact location will be announced in due time)
- 4.3 On Sunday, 23 May 2004 in the “Circuit Race” Secretariat during the race. After the race in the office of event, 43 Sygrou Avenue, first floor, 117 43 Athens, Greece
- 4.4 On Monday, 24 May 2004 in the Secretariat office in Patras University Campus (Rio)
- 4.5 On Tuesday 25 May 2004 in the Secretariat office in Olympia (exact location will be announced in due time)
- 4.6 On Wednesday, 26 May 2004 in the Secretariat office in Patras (Rio) – Patras University Campus
- 4.7 On Thursday, 27 May 2004 in the Secretariat office in Itea (exact location will be announced in due time)
- 4.8 On Friday, 28 May 2004 in the Secretariat office in Rally Finish place. After the finish in the office of event, 43 Sygrou Avenue, first floor, 117 43 Athens, Greece

#### **5. Press Accreditation**

- 5.1 Press accreditation commences as from the date of entries registration opening
- 5.2 Accreditation Center will open on Thursday, 15 April 2004 and will stay in operation until Saturday, 22 May 2004 afternoon. Working hours from 10.00 until 15.00 daily (weekends excluded). On Saturday, 22 May 2004 from 10.00 until 18.00

#### **6. Organization**

- 6.1 The Event will be run in compliance with the present Supplementary Regulations and the Appendices (2003-Technical Regulations for Electro-Solar and Alternative Energies Vehicles, FIA Alternative Energies Cup Sporting Regulations, Sporting Regulations for Category IIIA, International Sporting Code and FIA Prescriptions – Appendix L). In case of differences between the Appendices and the present Supplementary Regulations the latter will take precedence. The European Federation for Electric and Hybrid Vehicles – AVERE, which is a member of the World Electric Vehicles Association – WEVA, recognizes the event as promoting the clean mobility and the use of renewable energy sources
- 6.2 Name of the Event  
**“Phaethon 2004”**
- 6.3 Names of the Organizers  
Hellenic Institute of Electric Vehicles - HEL.I.E.V  
Automobile Club of Greece – ELPA  
“Technical Press S.A.” (Publishers of “4 Wheels” Magazine)
- 6.4 Coordinator is:

**“Hellenic Institute of Electric Vehicles – HEL.I.E.V.”**  
**43, Sygrou Avenue**  
**117 43, Athens, Greece**  
**Telephone + 30 210 92 20 053 (Event’s Office)**  
**Telephone + 30 210 92 10 288**  
**Fax + 30 210 92 20 054**  
**e-mail: [heliev@heliev.gr](mailto:heliev@heliev.gr)**  
**Web site: <http://www.heliev.gr>**

- 6.5 The official Web site of the event is:  
<http://www.phaethon2004.org>

## 6.6 Organizing Committee

Honorary President:	Evgenios <b>Giannakopoulos</b> President of the Cultural Olympiad 2001-2004
President	Professor Athanassios <b>Safacas</b> (Deputy Pres., Prof. Costantinos <b>Spentzas</b> )
Members	Vassilios <b>Despotopoulos</b> , Kostas <b>Kavathas</b> , Dionissios <b>Negkas</b> Christos <b>Nicolaou</b>

## 6.7 Stewards

Steward's President to be nominated by FIA

George **Drakakis**, GR

Moris **Gormezano**, GR

## 6.8 FIA Technical delegate

Prof. Georg **Brasseur**

## 6.9 Event's Director

Dionissios **Negkas**

## 6.10 Assistant to Director

Andreas **Papageorgiou**

## 6.11 Clerk of the Course

John **Kepetzis**

## 6.13 Assistant Clerk of the Course (Circuit Race)

Antonis **Hadjimichalis**

## 6.14 Assistant Clerk of the Course (Rally)

John **Anagnostopoulos**

## 6.15 Chief Scrutineer

Sokratis **Killias**

## 6.16 Experts to support Scrutineering

Hans **Gochermann**

Urs **Muntwyler**

## 6.17 Chief Safety Officer

To be announced

## 6.18 Chief Medical Officer

To be announced

## 6.19 Chief Timekeeper and Results Officer

To be announced

## 6.20 Press Officer

Katerina **Sevastou**

Arno **Paulus** (Germany)

## 6.21 Relations with Competitors and Secretaries

Ismini **Ermogenis**

Irini **Kepetzis**

## 7. Wireless communication

### 7.1 In order to ensure communication between vehicles competing in the event and their service vehicles, the following categories of wireless equipment are permitted

7.1.1 Category "CB Radio Telephone", amplitude modulation, emission type A3. permitted frequencies 27,325 MHZ (channel 32) and 27,335 MHZ (channel 33)

7.1.2 Category "VHF Radio Telephone", frequency modulation. Emission type F3, permitted frequencies 150,670 MHZ and 150,690 MHZ (Simplex channels)

## **8. Advertising, Promotion and Publicity**

- 8.1 The event is sponsored by the “Hellenic Culture Organization S.A.” and it is included in the series of events of “Cultural Olympiad 2001 – 2004”. Consequently must follow the rules of publicity that are in effect for the Olympic Games. For any participant supported by commercial companies, the signs of which will be displayed on the vehicle or on his overall suite, crash helmet etc, a special authorization is requested to be issued by Olympic Authorities prior the acceptance of his entry form. For this purpose the declaration of participant’s sponsor at the time of submission of his entry application is obligatorily. This restriction does not exist in the cases of sponsors that do not act as commercial or industrial firms (educational institutions, research centers etc).
- 8.2 The Organizers of the Event, to whom all Entry Applications (Entry Forms) must be addressed, maintain the full rights for its advertising and publicity. Media agents must be accredited to the Organizers
- 8.3 All participants, by entering the Event, agree to abide by these Regulations. All participants, by entering the event, agree to the use of their names and names of their team members and of their vehicles by the Organizers in reports and press releases. Also declares their likenesses in any publicity material that may be issued by the Event’s organizers and/or promoters

## **9. Entries**

- 9.1 Each person or legal entity wishing to participate in the Event must submit an Entry Form properly supplemented and signed together with all other requested documents, photos, drawings etc according to the Category/Class of vehicle and must pay to the organizers the 25% of the corresponding entry fees.  
The entry fees schedule is as follows:  
Solar cars (6 members team) - 2000 Euros for entries submitted before Thursday 30 October 2003 and 2400 Euros after this date.  
Solar-Electric cars (2 members team) - 800 Euros and 960 Euros correspondingly.
- 9.2 Organizers will inform the applicants on the acceptance or not of their entries by e-mail or fax at the latest 10 days after receipt of the complete and financially settled application.
- 9.3 Organizers reserve the right to accept or reject any entry application at their discretion without to state the reasons. No further correspondence will take place on this matter
- 9.4 The field for participation is limited to a total of 40 entries. Entry Forms received after the 40 vehicles acceptance may be put on a reserve list
- 9.5 The payment of the remaining 75% of the Entry Fees must be settled within 60 days from the acceptance of the entry otherwise the participation considered as cancelled and the position may be occupied from the reserve list. Refund of the 25% provided only in the case of Entry Form rejection
- 9.6 Refund of the 75% of Entry Fees is possible only if the cancellation of participation is notified to the organizers at the latest up to 1 April 2004.
- 9.7 Insurance premium is included in to Entry Fees but only for third parties liability and only for the time period from scrutineering up to arrival in to finishing time control of the Rally or up to the moment which the vehicle is removed from the competition, for any reason. Insurance coverage for damages of the competing vehicles, for materials and parts and for the team members not provided. Insurance coverage for third parties liability is obligatory for the whole time period that the vehicle will circulate in the country. Information on the premium offered for any additional insurance coverage is provided on demand
- 9.8 Entry fees includes all the material and services to participants and the hotel accommodation (bed and breakfast) for the time period from 22 to 29 of May 2004 (three double rooms for solar vehicles and one double room for solar-electric vehicles). Includes also the participation tickets for the same number of persons for all social events offered during the event and for the Prize Giving Ceremony and Gala Dinner.
- 9.9 The Automobile Club of Greece – ELPA is responsible for additional hotel reservations on request and for additional crewmember registration and accompanying person’s tickets for the social events. Is also responsible for the settlement of any financial matter, issuing the necessary invoices. Taxes are included in to the Entry Fees. All requests must addressed directly to the coordinator of the event

## 10. Administrative scrutineering

- 10.1 During the administrative scrutineering the participants must have available all documents required by the present regulations and or by the State Traffic Code as competition licenses, identification documents of the team members, registration of vehicles etc. Detailed information for the documents required, for each participant, will be provided in due time
- 10.2 Only after a successful pass from the administrative scrutineering each entry will be authorized to proceed to the technical scrutineering.

## 11. Technical scrutineering and roadworthiness tests

- 11.1 During the technical scrutineering all the technical points of each entry will be checked and verified in full satisfaction of the scrutineers. Technical passport of vehicle, technical documentation for structural elements, safety devices, battery packs compliance, weighting of vehicles, electrical systems compliance, crew uniforms and helmets, dimensions of vehicle, various seals, driver weight ballast etc. Any other necessary check according to the scrutineer's opinion related with the driving safety, mechanical integrity, compliance with rules and regulations and the correct classification of the entry will be carried out during this technical scrutineering
- 11.2 After the technical scrutineering, the roadworthiness tests, for solar cars only, will take place in the same venue. Detailed information for the roadworthiness tests will be published in due time by a bulletin.

## 12. The Event

- 12.1 The Event "Phaethon 2004" is composed by two separate races. One speed Race in a Closed Circuit and one Rally in Public Roads. Both these races are sanctioned by FIA and the winners are entitled to collect points for the FIA Alternative Energies Cup as well of all other FIA Category Trophies, Manufacturers award etc. associated with this Cup.
- 12.2 Participation to both races is not obligatory. Participants may decide to participate only in to Rally. Eligible Vehicles are of the same Categories and Classes for both races with exception of Category IIIA Solar-Electric cars eligible to participate only in to Rally. The classification of Category IIIA Solar-Electric cars will be based on regularity special stages.
- 12.3 Eligible Vehicles for the race "Phaethon 2004", according to the FIA Alternative Energies Commission Technical Rules are: 1) Category I Solar Cars of Class 1 and Class 2. 2) Category II Solar and/or electrically powered prototype vehicles of Classes 5 up to 7 (included). 3) Category II Solar and/or electrically powered prototype vehicles of Classes 2 up to 4 (included). 4) Category III Solar and/or electrically powered series production vehicles of Classes 5 to 7 (included). 5) Category III Solar and/or electrically powered series production vehicles of Classes 2 to 4 (included). 6) Category IIIA vehicles for daily use of Classes 5 to 7 (included). 7) Category IIIA vehicles for daily use of Classes 2 to 4 (included).
- 12.4 Solar Cars of Category I must be equipped with a solar generator of maximum area of 8 square meters. The output power is free but the solar array should be consisted from any type of Solar Cells available as a standard manufactured in series commercial product to any interested buyer. A manufacturer or supplier certificate must explicitly confirm this availability, referring the type of the cell, its manufacturing code and its retail price. In case which the solar cells utilized are not of a commercial type the vehicle can enter to a "demonstration" class not classified in the General Classification. These vehicles will participate for the Demonstration Class Trophy only.
- 12.5 At the end of the event the following classifications will be published:

### For the Circuit Race

- 12.5.1 **Classification of first 1-hour Circuit Race for Category I (Classes 1 and 2 mixed) \***
- 12.5.2 **Classification of second 1-hour Circuit Race for Category I (Classes 1 and 2 mixed) \***
- 12.5.3 General Classification of Circuit Race for Category I (Classes 1 and 2 mixed)
- 12.5.4 General Classification of Circuit Race for Category I "Demonstration" Class
- 12.5.5 **Classification of Circuit Race for Category II (Classes 5, 6 and 7 mixed)**
- 12.5.6 **Classification of Circuit Race for Category II (Classes 2, 3 and 4 mixed)**
- 12.5.7 **Classification of Circuit Race for Category III (Classes 5, 6 and 7 mixed)**
- 12.5.8 **Classification of Circuit Race for Category III (Classes 2, 3 and 4 mixed)**

### For the Rally

- 12.5.9 **General Classification of Rally for Category I (Classes 1 and 2 mixed)**
- 12.5.10 Classification of Rally for Category I “Demonstration” Class
- 12.5.11 **Classification of Rally for Category II (Classes 5, 6 and 7 mixed)**
- 12.5.12 **Classification of Rally for Category II (Classes 2, 3 and 4 mixed)**
- 12.5.13 **Classification of Rally for Category III (Classes 5, 6 and 7 mixed)**
- 12.5.14 **Classification of Rally for Category III (Classes 2, 3 and 4 mixed)**
- 12.5.15 **Classification of Rally for Category IIIA (Classes 5, 6 and 7 mixed)**
- 12.5.16 **Classification of Rally for Category IIIA (Classes 2, 3 and 4 mixed)**
- 12.6 Classifications in bold will be submitted also to FIA for FIA Alternative Energies Cup points allocation
- 12.7 Classes and/or Categories with less than 3 participants at the starting line will not be considered for a separate classification and merged with the immediately higher class or Category
- 12.8 For each of the above-referred General Classification or Classification (with exception of those two marked with an asterisk), a Cup will be awarded to the first placed competitor on the condition that at least three starters were present. In case which at least five starters were present a medal will be awarded to the second placed competitor. In case which at least seven starters were present a medal will be awarded to the third placed competitor. Additional cash prize of 1000 Euros will be awarded to the first placed competitor of each General Classification or Classification published.
- 12.9 Commemorative medals will be distributed to all registered team members of participants who took the start signal in one or both races.

### **13. Running the Circuit Race**

#### 13.1 Category I Circuit Race Program:

- Free Practice	23 May 2004	08.30 to 08.50
- Qualifying Practice	23 May 2004	09.40 to 10.10
- Briefing	23 May 2004	10.20 to 10.40
- First Race	23 May 2004	11.00 to 12.00
- Second Race	23 May 2004	18.30 to 19.30

#### 13.2 Category II and III (Classes 2-4) Circuit Race Program:

- Free Practice	23 May 2004	12.30 to 12.50
- Qualifying Practice	23 May 2004	13.00 to 13.30
- Briefing	23 May 2004	14.00 to 14.30
- Race	23 May 2004	15.30 to 16.30

#### 13.3 Category II and III (Classes 5-7) Circuit Race Program:

- Free Practice	23 May 2004	14.00 to 14.20
- Qualifying Practice	23 May 2004	14.30 to 15.00
- Briefing	23 May 2004	15.30 to 16.00
- Race	23 May 2004	17.00 to 18.00

13.4 The circuit race for Category I vehicles is a 2-hours endurance race divided in two races of 60 minutes each. Between these two races a minimum time of 5 hours charging period will be provided. The races for Categories II and III vehicles are of a “fixed number of laps” type. Number of laps will be announced in due time calculated on the basis of the length of the track to be used. A total distance of 36 km must be covered.

### **14. Start, Finish, Timekeeping**

- 14.1 The Circuit races shall start by a standing start procedure. The grid formation and pole position will be announced in due time. Grid positions for the first hour race of Category I and for the races of Categories II and III will be allocated on the basis of the best practice time obtained during the qualified practice sessions. If several drivers have obtained the same time, the driver who attained this time first shall have priority. Grid positions for the second hour race of Category I will be allocated on the basis of the results of the first hour race. Vehicles not participated or not classified in the first hour race will start from the last positions of the grid.
- 14.2 Drivers are responsible to be informed about their grid position and must follow carefully the instructions of the starting marshals as they approach and put the vehicle on the starting position.

- 14.3 The start shall take the form of a mass start from a standing position and the starting signal will be given with a light signal. The following procedure shall be used:
- 5 Minutes Board. It is prohibited to approach the grid. Any vehicle that can not take the grid position must start from the pits, according to the officials instructions
  - 3 Minutes Board. Every one except for the drivers and the officials must vacate the grid.
  - 1 Minute Board to the start. All drivers must take their starting positions
- 14.4 The driver of a vehicle that can not start on the grid for any reason must signal to the officials and the following vehicles by means of the right or left turn signal light on. The officials must then remove the vehicle from the grid.
- 14.5 The lights shown above the starting line will give the starting signal. Showing a green light at any time between 3-5 seconds after the red light becomes visible will start the race.
- 14.6 Should there be any vehicle with the turn signal light on when the red light is shown, the starter will show the yellow light flashing, leaving the red light on, and a "START DELAYED" signal Board will be shown at the starting line. In case of start being delayed as such, the starting procedure will be resumed, starting again at the 5 Minutes Board
- 14.7 False Start. The Clerk of the Course will penalize any false start officially reported imposing the time penalty of "1 minute"
- 14.8 To signal the end of the time of 60 minutes for each race of the Category I vehicles, the end of race signal – the checkered flag – will be waived in front of the finishing line at the exact moment, regardless of the position of the leading vehicle. All vehicles must cross the finishing line after this showing of the checkered flag, taking the end of the race signal.
- 14.9 The Classification of each of the two 60 minutes races of Category I vehicles is drawn up by the number of laps completed from each vehicle crossing the finish line after the checkered flag was waived. If there multiple vehicles with the same number of laps, their order must be ranked based on which vehicle passes the finishing line taking the flag first, second etc. Differences between them are determined by the time elapsed from the first car crossing of line. The General Classification of the complete 2-hours race is drawn up by the sum of the number of laps of each vehicle in the two 60 minutes races. If there multiple vehicles with the same number of laps, their order must be ranked based on the sum of the time elapsed from the first car crossing of line.
- 14.10 To signal the completion of the fixed number of laps race of the Category II and III vehicles, the end of race signal – the checkered flag – will be waived in front of the leading vehicle at the moment which cross the finishing line completing the fixed number of laps. All vehicles behind will receive the checkered flag, taking the end of the race signal.
- 14.11 The Classification of the races of Categories II and III vehicles is drawn up on the time elapsed from the start of the race up to crossing of the finishing line by each vehicle, taking the end of race signal, and the number of laps completed. Practically is based on the average speed recorded.

## 15. Qualifying Practice

- 15.1 One of the officially registered drivers must participate in the qualifying practice, which is held in accordance with the officially published timetable. The vehicle and the driver must be in racing condition during the practice and all safety precautions have to be taken exactly as in the real race.
- 15.2 The minimum obligatory timed laps in the qualifying practice is **one** per vehicle.
- 15.3 The Classification of the qualifying practice is drawn up in the order of the fastest lap time achieved by each vehicle. In case which two or more vehicles have set equal times, priority will be given to the one set it first
- 15.4 During the practice, penalties related to the safety in the pits or in the track will be the same as in the race.

## 16. Pit-in, pit-out and permitted repairs

- 16.1 Any change in the vehicle's chassis or the monocoque structure is prohibited. Failure to comply with this rule will result in to exclusion of vehicle
- 16.2 If a driver overpass his pit position trying to enter, the vehicle may only be pushed back to his pit by mechanics taken all the necessary safety precaution. It is strictly prohibited for any vehicle to reverse in the pit lane. Penalty may announce by Stewards decision expressed in time.
- 16.3 Any pit-out must be done following the instructions of the officials

- 16.4 When approaching to the pits, vehicles must proceed on the deceleration lane until they shift their line to the stopping area in front of allocated garage space stopping as closed as possible to their pits
- 16.5 Vehicles that have entered the pit lane must stop at their pits. Stopping on the deceleration lane is strictly prohibited. Penalty may be extended up to exclusion
- 16.6 When leaving the pit lane to join the course, drivers must proceed along the right side of the course until the track is free from other coming vehicles. Leaving the pit with the assistance of pit crew is not permitted
- 16.7 A vehicle in the stopping area and its driver and mechanics shall not constitute an obstacle for the free use of pits from the other vehicles
- 16.8 Only one driver change per 1-hour race of Category I vehicles is permitted and it is limited only to officially entered drivers. Change may only take place in the designated pit area and the officials will check the correct replacement of the driver's ballast, if any. The driver's weight must not be less than 80 kg. If necessary a ballast must be used to complete this weight

## **17. Stopping and restarting the race**

- 17.1 In case where normal safe conditions in the track cannot be guaranteed, the race will be stopped at the sign of a red flag in the starting/finishing line. In extreme cases the Clerk of the Course may order red flags to be shown at all marshal posts
- 17.2 When this signal is given all vehicles shall immediately reduce speed, being prepared to stop if necessary and proceed slowly to the starting line under the control of the marshals.
- 17.3 Procedure to stop will be done in the knowledge that:
- The race classification will be that at the end of the penultimate lap before the lap during which the stop of the race signal was given
  - Race and service vehicles may be on the track
  - The circuit may be totally blocked by an accident
  - Other reasons may have made the circuit unsafe on racing speeds
  - The pit lane may be blocked
  - The duration of stoppage will be deducted from the time of the race and the actual running time will be reduced. The finish time of the race will remain unchanged
- 17.4 Between the time the race is stopped and 5 minutes before the restart, any type of work in any vehicle is permitted, except of the exchange of battery or the charge of battery from external source.
- 17.5 The procedure to be followed for the race restart is related with the number of laps achieved before the race was stopped.
- If less than two laps were completed the race will start again considered the first start as null and void.
  - If two or more laps were completed. The race shall be deemed to be in two parts. The grid for the second part will be arranged in the order of classification of the first part
  - If the stop signal was given nearly at the end of the race it may be considered the race as finished when the stop signal was given. The race classification will be that at the end of the penultimate lap before the lap during which the stop of the race signal was given

## **18. Park Ferme**

- 18.1 After receiving the checkered flag all vehicles must go immediately and directly to the designated vehicle storage area known as "Park Ferme", under the supervision of the officials. No vehicle may be touched or moved out of this area without the permission of the Stewards

## **19. Safety equipment**

- 19.1 During the practice and the race the next driver's safety equipment must be used
- Safety Belts as per art. 5.6 of Appendix 1 (2003-Technical Regulations for Electro-Solar and Alternative Energy Vehicles)
  - Crash helmets as per Chapter III, Article 1 of Appendix 5 (FIA Prescriptions – Appendix L)
  - Closed overalls made from acid resistant material (at least cotton), balaclava, gloves, shoes, socks, under-wears etc. (Using the FIA registered equipment is strongly recommended)

## 19.2 Vehicle's safety equipment

- Safety Equipment as per 2003-Technical Regulations for Electro-Solar and Alternative Energies Vehicles (Appendix 1), applicable to the Category of each participating vehicle

## 20. Specific Conditions

- The submission of the entry form will prove that the entrant and the driver have agreed to obey all the regulations applied to the event
- Any amendment or any addition to these regulations, any clarification or information essential to the participants that resulted after the publication of regulations will be communicated by official numbered and dated Bulletins or Informative Announcements distributed to all participants and posted on to official Notice Board.
- Some instructions may be announced at the briefing which will be held prior to the circuit race
- In case of emergency, necessary instructions may be announced by means of a loudspeaker

20.1 Any item not prescribed in these regulations are subject to the decisions of the Stewards of the Meeting

20.2 Participation Numbers. Vehicles will be allocated participation numbers upon acceptance of their entry application. Special requests for the use of particular competition numbers may be submitted but its allocation is not guaranteed as being a matter at the sole discretion of the Organizers. Competition numbers must shown in an area of 200mm x 200mm and be clearly displayed on each side of the solar car. Competition numbers shall be in contrasting colors to their background and should be placed on the vehicle during the technical scrutineering.

20.3 The organizers shall supply signs bearing the competition number, the name of the Event and the logos of sponsors. A space 200mm in height and 500 mm in length must be left free on the right and left sides of the competing vehicle for the display of these signs. These signs must be displayed on the vehicles at all times and in such a way that they are clearly visible.

20.4 Competing vehicles must carry the national flag of the country of entry, fixed adjacent to the windscreen or the drivers canopy. Minimum size 70mm x 40mm.

## 21. Running the Rally

21.1 Official time. Throughout the rally the official time will be that given by the telephone number "141"

21.2A "park ferme" will be organized before the starting area. Vehicles and drivers must enter to this "park ferme" 10 minutes before their starting time as indicated in to officially published starting schedule. Vehicles will start the first day at one-minute interval on Monday 24 May 2004 in vicinity of the Acropolis rock in Athens, at 09.00. Alternative starting point can be chosen for the solar-electric vehicles for reasons related with their actual operating range. One officially entered service car per solar vehicle can follow the vehicle at a distance not closer than 200 meters, starting from a place located after the official starting area of the competing vehicles. A motorcycle will be act as a primary support vehicle driven by an official specifically trained to maintain secure traffic situation for the following solar vehicle and to facilitate its movement in the open to traffic road sections. This official will be also empowered to report any noted infringement of rules by the participant.

21.3 Time Controls. Along the Rally itinerary, "time control" points will be located as indicated in to Road Book. The drivers of vehicles must present themselves on board of the vehicle in front of the time control officials asking them to write and stamp the exact time on their "Carnet de Route"

21.4 Special Stages. Along the route of the Rally, some 'special stages' will be organized. These are selected road sections, closed to the normal traffic, on which "speed test" will take place with exception of Category IIIA vehicles for which "regularity test" will take place. Before the start point of each "Special Stage" a "time control" will be arranged as well a space controlled by the officials where the vehicles will be stopped waiting for the starting signal. During the special stages the drivers must use the same safety equipment as during the Circuit Race. Safety equipment are not obligatory for the regularity tests.

21.5 Traffic Code. During the course of the Rally the traffic code must be obeyed. Vehicles must respect the maximum speed limits as indicated on to road signs and generally to observe all the

traffic regulations in force. Violation of traffic code rules officially reported will be penalized (article 23.7)

- 21.6 Starting Order. The starting order of the first day of Rally will be drawn up based on the results of the Circuit Race event. Vehicles not participated or having not classified in the Circuit Event will take start at the end of the starting list of the Category to which belongs and in a sequence decided by the Stewards. Category IIIA vehicles will start following the order of their competition numbers. For the next days of the Rally the starting order will be determined by the results of the previous days. Road penalties taken in to consideration in the results of the day.
- 21.7 "Service Areas". Along the Rally Route of each day, one or more "Service Areas" will be organized. Charging facilities will be available for solar-electric vehicles, press interviews can be arranged with media, refreshments will be available and charging by onboard solar arrays of Category I vehicles will take place. Obligatory stay in "Service Areas" will be 10 minutes. The maximum duration of stay will be free in order to match specific needs and strategy followed by each vehicle. "Time controls" will be placed in the entrance and exit of these "Service Areas". Operating time schedule for these "Time controls" will announced in due time.
- 21.8 "Surfing" (Drafting). Making use of "surfing" by a solar car is prohibited. A solar car will be considered as surfing if continuously follows another car or lorry at a distance less than 20 meters. This is allowed only during the overtaking attempts and during the slow congested traffic with speeds less than 30 km/h. (article 23.8)
- 21.9 Passing other competing Vehicles (Category I). The overtaking vehicle can signal its intention to pass by flashing the headlights of its service car or possibly by CB communication with the service crew of the vehicle ahead. Overtaking must attempt at the first available safe opportunity.
- 21.10 Pushing. Except for emergency, vehicles may not be pushed or pulled during the race. Any case reported to the Stewards may penalized as in the case which a vehicle is not passing from a "Time control" of the Day (see 21.13)
- 21.11 Accidents. All accidents involving competition vehicles and service vehicles must be reported immediately to the Clerk of the Course. Medical services and public safety official's movements shall take priority. In case of any slight damage to the competing vehicle, prior to resume the race, the team engineers or the organization scrutineers must carry out a roadworthiness inspection.
- 21.12 End of the day "Time Control". As soon as the vehicles arrive in the end of the day "Time Control" will be placed under the official's control entering the "park ferme" area. Specific arrangement will be provided and instructions will be given for solar charging for Category I and for grid charging for other Categories.
- 21.13 Vehicles not passed from one "Time control" or not succeeded to reach the end of the day "Time Control" during its officially announced operating hours will be classified in the results of the day after the worst placed vehicle of the Category (same day results) and with its sum of time increased by 100%. This will apply on the term that the vehicle will be present in time and in proper condition to start the race again next day. If the Vehicle was of the Category I, the responsible official must submit a written report according to which no other kind of battery charging occurred than the permitted by onboard solar array (natural solar radiation and not artificial light).
- 21.14 Batteries of the Category I Vehicles must be impounded by 21.00 each evening and will be released at 06.00 next morning.

## **22. Classification**

- 22.1 As referred in 12.5 paragraph of present regulations various Classifications will be published at the end of the Rally for Categories and Classes. Results will be published at the end of each day and will be posted on the official Notice Board. After the expiration of 30 minutes period for protest submission these results becomes final and consequently the Classifications up to the end of the day "Time control" becomes final too.
- 22.2 The vehicles will be classified on the basis of the sum of the time recorded in the special stages. The fastest vehicle of each Category/Classes group is the best positioned. For Category IIIA vehicles the classification is based on the time difference recorded in the regularity tests in comparison with the ideal time corresponding to the predetermined steady speed for each stage. The vehicle with the smallest sum of time differences is the best positioned.
- 22.3 For the every day results and for the intermediate and final classifications, additional road penalties, expressed in time (seconds), should be added to the above referred time results. At any "Time Control" the delayed arrival is penalized by ten seconds (10) for every minute of delay

22.4 For the final classification only at the end of the Rally additional penalties expressed in time (seconds) for any breach of the rules according to the Stewards Decision, will be added to the above referred time results

### **23 Penalties**

- 23.1 Any competitor failing to comply with these regulations during scrutineering, Circuit Race and Rally will be penalized. Penalty range starts from official warnings and goes up to disqualification from the event. It is the responsibility of the officials of the event to determine whether an infraction occurred, the severity of the incident and the appropriate penalty. In cases which the infraction is explicitly referred in the regulations and/or appendices, bulletins and other officially published documents distributed to the competitors and a specifically mentioned penalty is provided, this penalty will be announced by the Clerk of the Course and posted on the Official Board. In all other cases the incident will be reported by the Clerk of the Course to the Stewards and the penalty will be implied by Steward's decision
- 23.2 Posting of Penalties. Except for the last day, all compiled time penalties will be posted officially on the official Board together with the results of the day, and will be officially communicated to the competitors involved. These time penalties are not considered in the results of the day but simply mentioned as a note.
- 23.3 Improper Driving. Penalties, up to disqualification from the event, may be imposed for improper driving or the use of alcohol or illegal substances. Improper driving may include, but not limited to, improper language, unsporting driving, unsafe behavior or cheating
- 23.4 Non-Solar Charging of Batteries (Category I). After the start of the Circuit Race and/or the Rally until the official finish, competitors will be disqualified from the event for charging their solar car's battery from any other source of energy than the solar car's array, without requesting permission from the Officials. Such charging of a solar car battery with official permission constitutes a complete replacement of battery pack (article 23.5)
- 23.5 Replacement of Batteries. Decision to exchange (or externally recharge) all or part of a battery must be communicated formally to the officials. The penalty will be calculated as follows: For rally- Time penalty (seconds) =  $500 * (n/N)$  where, n = number of modules replaced, N = number of battery modules. For Circuit Race a number of laps is deducted from the laps achieved. This is calculated by the formula  $(L/2) * (n/N)$  where L = Number of laps achieved. Results to be rounded to the closer whole number.
- 23.6 Disturbing Official Battery Seals. Same as above penalty as all of the battery modules had been replaced
- 23.7 Traffic code violation. One minute and ten minutes respectively time penalties for the first and second violation. Disqualification of the event for the third violation
- 23.8 Drafting. One second time penalty for each minute of drafting reported
- 23.9 Pushing – Pulling. See article 21.10
- 23.10 Improper Ballast. A penalty of 10 minutes is imposed when the car is operated with a ballast not matched with the driver's weight
- 23.11 Unauthorized Driver. Disqualification from the event

### **24 Protests - Appeals**

- 24.1 Amount of the protest fee is 200 Euro
- 24.2 If the protest requires the dismantling and the re-assembly of some parts of the vehicle, the claimant must pay the cost if the protest is unfounded otherwise the competitor against whom the protest was lodged has to cover this cost if it is upheld.
- 24.3 Protests against the results of the day must be lodged within 30 minutes from posting on to official notice Board. On the expiration the results becomes final. For Category I Circuit Race protests for the first 1-hour race must be lodged within 30 minutes from posting of the results immediately after this race.
- 24.4 Appeals against Steward's decisions must be lodged to the National Court of Appeals in accordance with ASN rules

#### **Appendices:**

- 1. 2003-Technical Regulations for Electro-Solar and Alternative Energies Vehicle**
- 2. FIA Alternative Energies Cup Sporting regulations**
- 3. Sporting Regulations for Category IIIA**
- 4. International Sporting Code**
- 5. FIA Prescriptions – Appendix L**

TECHNICAL SUPPLEMENTARY REGULATIONS FOR SOLAR VEHICLES  
(CATEGORY I)

**1. Dimensions**

- 1.1 Maximum Length 5 m.
- 1.2 Maximum Breadth 2 m.
- 1.3 Maximum Height 1.6 m

**2. Solar Array (solar generator)**

- 2.1 The output power of the Solar array is free providing that the cells used are commercially available
- 2.2 The maximum permitted area of the Solar Array is 8 square meters. The cockpit hatch area can be deducted, as well as any other regular and substantial area not occupied by solar array cells.

**3. Batteries**

- 3.1 The same traction battery pack must be used for Circuit Race and Rally
- 3.2 Maximum weight of traction battery pack is related with the chemistry chosen as in the table below:

CHEMISTRY	MAX. WEIGHT OF PACK	REMARKS
Lead – Acid (Pb/Acid)	100 kg	Sealed type
Nickel - metal Hydride (NiMH)	58 kg	
Nickel – Zinc (Ni/Zn)	60 kg	
Nickel – Cadmium (Ni/Cd)	82 kg	
Nickel – Iron (Ni/Fe)	82 kg	
Lithium – Ion (Li-Ion)	32 kg	
Li-Metal-Polymer	30 kg	

TECHNICAL SUPPLEMENTARY REGULATIONS FOR SOLAR-ELECTRIC VEHICLES  
(CATEGORIES II, III AND IIIA)

The Vehicles of Category II, Category III and Category IIIA can only participate in the event “Phaethon 2004” if are propelled by “green” electric energy on direct or indirect mode. This must be proved by one of the two methods as follows:

- 1. A solar array, of at least 80 Wp to be mounted entirely on the competing vehicle for traction battery charging.
- 2. Documentation to be presented, proving that the competitor is in possession of a private “green” power generation plant of a minimum power of 600 Wp. This can be solar array power plant or a wind-power plant or a miniature hydropower plant. Electric Energy can either fed into the public grid, via a power inverter or used to an autonomous supply system.  
Documentation must include photograph of the system and electrical diagram on A4 size paper