



DECISION OF THE ENDURANCE COMMITTEE



To: Teams Manufacturers
Category: LM P1 LM P2 LM GTE Pro LM GTE Am
Decision N°: **18-D0001-LMP1 - AMENDED**
Date: **30/04/2018**
Re: EOT

Mission concerned

Article: **Appendix B**

- 2018 Technical Regulations for LMP1 Prototype Hybrid
 2018 Technical Regulations for Non Hybrid LMP1 Prototype

Decision

1/ APPENDIX B

2018 Appendix B presented during 6th October 2017 TWG, confirmed by email dated 14th October 2017 and updated below with the 2018 fuel characteristics will be valid for the 2 first races of 2018 (Spa and Le Mans) with the precautions listed below.

LE MANS

length= 13.626 km

		No ERS		ERS
		NA	TC	
Released Energy	MJ/Lap	0		<8
Released Power	kW	0		<300
Min Car Mass (*)	kg	833		878
Max Petrol Energy	MJ/Lap	210.9	210.9	124.9
Max Petrol Flow (**)	kg/h	110.0	110.0	80.0
Max Petrol per Stint	kg	54.0	54.0	35.1

(*) Car Mass including the camera or dummy camera weight.

(**) Absolute Maximum Petrol Flow. Actual Petrol Flow limit is function of rpm according to registered engine datasheet.

2/ HOMOLOGATION

Each engine will have to be homologated by its precise technical description and its performances declared by data sheet.

The performance conditions will be part of the homologation.

The performance Evolutions (chassis and /or engine) can be accepted only after Le Mans 2018.

The EoT (above) has been calculated with the data provided before Friday the 13th October 2017, any engine displaying an improvement of performance (in regards with reference taken into account) will not be homologated.

3/ PROLOGUE 2018

During the Prologue, the performances will be analysed and checked in comparison with the homologated data sheet.

The onboard homologated sensors permitting these analyses will absolutely need to convince FIA/ACO of their proper behaviour (mainly but not limited to Fuel Flow Meters, torque meter, lambda sensors...)

The competitors will be asked to precise the achievement of its performance in respect with its expectation and future races expectations.

These targets will be compared to the performance of the LMP1H and their expected ones for futures races.

If the analysis is not possible due to lack of confidence of the onboard data, FIA/ACO will keep the possibility to take some precautions on the fuel allocation of LMP1NH.

If some adjustments are necessary, before Spa 2018, it could be done for any engine type (NA or TC) of LMP1NH by:

- Addition of a maximum of +20kg ballast associated with minimum weight increase of +20kg;
- Reduction of the maximum fuel flow (with associated fuel/lap and fuel/stint) without changing engine hardware homologation;
- Any other adjustments required if necessary

4/ SPA 2018 - LE MANS 2018

During the two first race events, the performances will be analysed and checked in comparison with the homologated data sheet during each session.

If the analysis will not be possible due to lack of confidence of the onboard data or lack of proper dry running conditions, FIA/ACO will keep the possibility to take some precaution on the fuel allocation of LMP1NH for the race.

If some adjustments are necessary, before Le Mans 2018, it could be done for any engine type (NA or TC) of LMP1NH by:

- Addition of a maximum of +20kg ballast associated with minimum weight increase of +20kg;
- Reduction of the maximum fuel flow (with associated fuel/lap and fuel/stint) without changing engine hardware homologation;
- Any other adjustments required if necessary.

In terms of stint length, in any case, the maximum number of 'green' laps (without safety car, **full course yellow or slow zone(s) while the car is not in the pits - this is** not depending on track conditions) should not exceed 11 laps for LMP1H and 10 laps for LMP1NH in Le Mans 2018 race and 19 laps for LMP1H and 17 laps for LMP1NH in Spa 2018 race.

5/ DURING ALL 2018-19 RACES

If a LMP1NH car is faster than its expected performance relative to the best LMP1H or is not capable to provide proper data from the homologated sensors it will be subject to a penalty applicable during the race at steward's discretion.

This penalty may consist in the reduction of fuel allocation for the remainder of the race.

The performance of each LMP1H and LMP1NH will be calculated by doing the average⁽¹⁾ of best 20% theoretical lap times on a number of laps corresponding to 20% of the race distance.

The performance achievements will be analysed after 1 hour of race and should also consider race facts (accident, weather changing conditions, LMP1H performance dropping...)

The gap will be defined between the best LMP1H and the best LMP1NH cars and should not be less than 0.25%.

To deserve the concept of reference, the performance of the LMP1H will need to keep coherence with the general performance of the field (calculated as a ratio between the rolling average⁽²⁾ of the LMP1H and the rolling average⁽²⁾ of the current 3 fastest LMP2).

average⁽¹⁾ of best 20% theoretical lap times

The average of best 20% theoretical lap times will be calculated by adding the best 20% of each sector (with Sector_1 from out-lap and Sector_3 from in-lap removed).

If the 20% of the occurrences is not an integer, then an interpolation will be done to be at exactly 20%.

rolling average⁽²⁾

For a dedicated car, the rolling average is the average lap time of the best 3 lap times in the last 20 minutes for LE MANS event and an average of the best 6 lap times in the last 20 minutes for any other WEC event.

6/ POST LE MANS 2018

After Le Mans race, a new Appendix B will be calculated for the LMP1NH on the basis of the performances of the best cars of each engine technology of non-Hybrid cars (NA and TC) and the analysis of Brake Specific Fuel Consumption of engines.

For the circuits other than Le Mans, Appendix B will take into account the average particularity of WEC tracks in regards with ERS factor 1.55.

No adjustment circuit by circuit (for the circuits other than Le Mans, due to ERS sensibility) will be applied on the fuel figures.

No further adjustment of EOT should be applied when the gap between the reference Hybrid and non-Hybrid is reaching 0.5%.

In any case, it is stipulated that no adjustment will be requested to the Hybrid of reference.

7/ POST LE MANS 2018 PERFORMANCE EVOLUTIONS

If some performance EVOs are presented by LMP1NH manufacturers, they will be treated as follow (with actualization of homologation forms and data sheets):

- **Aerodynamic:** if the expectable gain of performance is capable to modify the lap time gap of the best LMP1NH in regards with the Hybrid reference car, Appendix B will be adapted to all Non-Hybrid cars.
- **Engine:** if the expectable gain of performance is capable to modify the lap time gap of the best LMP1NH of this engine technology in regards with the Hybrid reference car, Appendix B will be adapted to all Non-hybrid cars of its technology.

8/ POST LE MANS 2018 ADJUSTMENTS

If some adjustments are necessary, it could be done for any engine type (NA or TC) of LMP1NH by:

- Addition of a maximum of +20kg ballast associated with minimum weight increase of +20kg;
- Increase or reduction of the maximum fuel flow (with associated fuel/lap and fuel/stint);
- Any other adjustments required if necessary.

In any case, it is stipulated that the instantaneous flow will not exceed 115kg/h.

9/ REFUELLING RESTRICTOR DIAMETERS

Max Fuel Rig Restrictor Diameter 'D'		No ERS		ERS
		NA	TC	
for LE MANS	mm	21.50 (*)	21.50 (*)	19.00
for other events	mm	23.50 (*)	23.50 (*)	20.40

(*) Subject to adjustment function of Max Petrol Energy per Lap

Period of validity/application of the decision

This decision comes into effect:

- with immediate application
- from:
- from the following event:

And is applicable:

- until further notice
- for the above-mentioned event(s) only

Committee Members



Gilles SIMON



Thierry BOUVET

Any decision taken by the Endurance Committee is not subject to appeal, in accordance with Article 4.10.2 b/ of the WEC Sporting Regulations.

This decision is available on the following websites:

- <http://www.fia.com/fia-endurance-committee>
- <http://sport.lemans.org/login.php>