

# ELECTRIC TRACK RACING AND TECHNICAL RULES 1/12<sup>TH</sup> & 1/10<sup>TH</sup> ISTC

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(needs to be adapted)

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# SECTION ONE – ORGANISATION & FORMAT

## 1 RACE FORMAT

### 1.0 “CLASSES:

IFMAR World Championships may be held for the following classes;

- - ISTC open modified class-
- - ISTC Spec as from 2020 **SPEC to be defined**
- - Formula One SPEC as from 2018 **SPEC to be defined**
- - 1/12 open modified class
- - 1/12 class SPEC 13.5T from the IFMAR approval list (ex EFRA and ROAR approval lists)
  
- Till 2019 ISTC drivers may enter ISTC modified and Formula One
- 1/12 Drivers may only enter one class at a particular event, Mod or Spec.
- Entries for the 1/12 open modified class will be given priority over those for the 1/12 Spec class.
  
- The 1/12 SPEC class and F1 must have a minimum of 20 entries in order to be run.
- Drivers that finished in the top-20 at the IFMAR 1/12 open modified World Championship in the last 4 years are not allowed to participate in the 1/12 SPEC nor Formula One class at the next IFMAR World Championship.

- 1.0.1** The IFMAR Electric On-road World Championships will be consecutive and a 3 or 4 day event for the 1/12th classes MOD SPEC (depending on entry numbers). 1/12 will be run first And a 3 or 4 day event for the ISTC class and Formula One

**1.0.1.1** As from 2020 onwards separate events at different venues on different dates may be implemented. If so then 1/12<sup>th</sup> Mod and Spec will be on Carpet and as a standalone event ISTC Mod , Spec and Formula one either on Asphalt or Carpet

1.0.2 An Opening Ceremony will be held at the start of both 1/12 & 1/10 on the end of the first day of practice of the concerned event. A country by country introduction procession must be organized, the country teams are requested to wear similar team shirts. A sign bearing the name of each country present will be provided by the organizer. For 1/12th the official prize ceremony will be held on track site or nearby half an hour after the last final, if possible accompanied by a reception (drinks & snacks). The trophies must be distributed during this ceremony/reception.

1.0.3 The track surface for the ISTC class can be either asphalt or needle carpet.

1.0.4 **Until 2020** The track surface for 1/12<sup>th</sup> is recommended to be indoors on standardized needle carpet.

### 1.1 RACE PACKAGE

1.1.1 Upon arrival and registration each driver will be given a race package which contains:

- a. A set of numbers for his radio controlled car PLUS three additional sets.
- b. Two sets of participant identification numbers for wing or spoiler.
- c. One identification badge for driver.
- d. A complete time schedule for all practice, heats and finals for the whole event.
- e. The IFMAR commemorate souvenir our medal (*May be handed out with the race package*)

### 1.2 IDENTIFICATION NUMBERS

1.2.1 Each competitor will display his identification number in a prominent position on the car body shell. This number will remain the same through the entire event.

1.2.2 Race Numbers must be at least 25mm with a minimum stroke of 3mm and must be black numerals on a white background of at least 20 x 40mm or as supplied by race control. These must be displayed in three positions: left, right and front side of the car.

### 1.3 BADGES

- 1.3.1 One badge will be given to each competitor, Yellow badges for mechanics will be available at a fee of 5,00 USD or local equivalent (= Inclusive reception on track).
- 1.3.2 Access to the pits and track will be restricted and badges must be worn at all times.  
Badges will be issued as follows:  
Blue Drivers, Drivers stand, pit, staging area, track  
Yellow Mechanics, Pits, staging area, track  
Green Press, Pits, staging area, viewing area  
White Team Manager, Pits, staging area, viewing area  
Red Race Official, All areas  
Grey IFMAR Official, All areas

#### **1.4 OFFICIAL ANNOUNCEMENTS**

- 1.4.1 All official announcements must be made in English.
- 1.4.2 Referees must be provided with a monitor to show race progress and a microphone linked direct to a speaker mounted on the driver's stand. This is to enable drivers to hear any warnings or penalties issued.

## 1.5 HEATS

### 1.5.0 Timetables *(suitable for traditional events, to be adjusted )*

Endorsed timetable for World Championship 1/10 Electric On Road.

Day one: **D1**: Marking and registering (chassis, motors, batteries, bodies etc.) + "Open" Practice:  
T time or Heat format. No controlled practice allowed on **D1**.

D1	Open Practice:	Up to organizer: T time or Heat format, not controlled/timed														Heat interval: 08:00	
	Heats:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Est 01:52 H

D2	Free Morning Practice	08:00	08:05	08:10	08:15	08:20	08:25	08:30	08:35	08:40	08:45	08:50	08:55	09:00	09:05	09:10	Practice interval 00:05
	1 C/P Controlled Tires = (CT)	09:30	09:38	09:46	09:54	10:02	10:10	10:18	10:26	10:34	10:42	10:50	10:58	11:06	11:14	11:22	
	2 C/P CT	11:40	11:48	11:56	12:04	12:12	12:20	12:28	12:36	12:44	12:52	13:00	13:08	13:16	13:24	13:32	Re-seed here
	3 C/P (Re-seeded) CT	14:35	14:43	14:51	14:59	15:07	15:15	15:23	15:31	15:39	15:47	15:55	16:03	16:11	16:19	16:27	use 3C for start order Q1
	Q1 CT	16:45	16:53	17:01	17:09	17:17	17:25	17:33	17:41	17:49	17:57	18:05	18:13	18:21	18:29	18:37	

D3	Free Morning Practice	08:00	08:05	08:10	08:15	08:20	08:25	08:30	08:35	08:40	08:45	08:50	08:55	09:00	09:05	09:10	Practice interval 00:05
	Q2 CT	09:30	09:38	09:46	09:54	10:02	10:10	10:18	10:26	10:34	10:42	10:50	10:58	11:06	11:14	11:22	
	Q3 CT	11:40	11:48	11:56	12:04	12:12	12:20	12:28	12:36	12:44	12:52	13:00	13:08	13:16	13:24	13:32	
	Q4 CT	13:50	13:58	14:06	14:14	14:22	14:30	14:38	14:46	14:54	15:02	15:10	15:18	15:26	15:34	15:42	
	Q5 CT	16:00	16:08	16:16	16:24	16:32	16:40	16:48	16:56	17:04	17:12	17:20	17:28	17:36	17:44	17:52	

D4	Free Morning Practice	08:00	08:05	08:10	08:15	08:20	08:25	08:30	08:35	08:40	08:45	08:50	08:55	09:00	09:05	09:10	Practice interval 00:05		
	Q6 CT	09:30	09:38	09:46	09:54	10:02	10:10	10:18	10:26	10:34	10:42	10:50	10:58	11:06	11:14	11:22	Re-order for finals		
	Finals	P	O	N	M	L	K	Pr/A	J	I	H	G	F	E	D	C	B	A	
	1 CT	13:00	13:08	13:16	13:24	13:32	13:40	13:48	13:56	14:04	14:12	14:20	14:28	14:36	14:44	14:52	15:00	15:20	
	2 CT	15:35	15:43	15:51	15:59	16:07	16:15	16:23	16:40	16:48	16:56	17:04	17:12	17:20	17:28	17:36	17:44	17:52	
	= A practice + Final 3	=	preceded by 10' media time followed by 10' "victory time"																

Endorsed timetable for World Championship 1/12 Electric On Road. (single class 3 day event)

Day one: **D1**: Marking and registering (chassis, motors, batteries, bodies etc.) + "Open" Practice:  
T time or Heat format. No controlled practice allowed on **D1**.

D1	Practice:	Up to organiser: T time or Heat format Heat interval: 11:00									
	Heats:	1	2	3	4	5	6	7	8	9	10

D2	Morning Practice	08:00	08:08	08:16	08:24	08:32	08:40	08:48	08:56	09:04	09:12	Practice interval 00:08
	1 C	09:30	09:41	09:52	10:03	10:14	10:25	10:36	10:47	10:58	11:09	
	2 C	11:25	11:36	11:47	11:58	12:09	12:20	12:31	12:42	12:53	13:04	
	3 C	13:20	13:31	13:42	13:53	14:04	14:15	14:26	14:37	14:48	14:59	Re-seed here
	4 C (Re-seeded)	16:00	16:11	16:22	16:33	16:44	16:55	17:06	17:17	17:28	17:39	

D3	Morning Practice	08:00	08:08	08:16	08:24	08:32	08:40	08:48	08:56	09:04	09:12	Practice interval 00:08	
	5 C	09:25	09:36	09:47	09:58	10:09	10:20	10:31	10:42	10:53	11:04		
	6 C	11:20	11:31	11:42	11:53	12:04	12:15	12:26	12:37	12:48	12:59	Re-order here	
	Finals	PR/A	J	I	H	G	A	F	E	D	C	B	
	1	13:55	14:06	14:17	14:28	14:39	15:00	15:11	15:22	15:33	15:41	15:49	
	2		16:05	16:16	16:27	16:38	16:49	17:10	17:21	17:32	17:43	17:54	
	3						18:05						
	= A practice + 3 Finals	=	preceded by 10minutes media time followed by 10 "victory time"										

- 1.5.1 There will be fifteen heats of ten drivers each. They may be divided into two groups: Group A - Heats 1 to 7, Group B - Heats 8 to 15.  
For 1/12<sup>th</sup>: (single class): 10 heats of 10 drivers maximum.
- 1.5.2 There will be six (6) rounds of controlled qualifying unless weather or unforeseen circumstances dictate otherwise. Any reduction in the number of rounds will be decided by the International jury.  
Rain and rain showers are a natural occurrence for outdoor sport just as temperature changes during a day and shall by then not be a reason to stop nor interrupt a race. Only severe or extreme conditions endangering safety (thunderstorms share winds, flooding etc.) will be a reason to stop racing.(ISTC, see also Rain rules under 5.5).
- 1.5.3 Starting positions: During the first round of qualifying, heat starting positions will be determined by the time achieved in the last controlled practice round.(maybe 2 or 3 best consecutive laps) During further qualifying rounds, heat starting positions will be by the overall fastest time of drivers in their heat from any previous qualifying rounds.
- 1.5.4 A driver's point score will place the driver in a final according to the following system. In each round, drivers will score points based on the laps and times achieved in relation to all other drivers. and so on:

Fastest driver in each round will score 0 points  
2<sup>nd</sup> Fastest will score 2 points  
3<sup>rd</sup> Fastest will score 3 points  
4<sup>th</sup> Fastest will score 4 points, and so on till the last one.  
(So the number of points reflects the ranking)

A driver that does not score a time in any Qualifying Round or a driver that has a time disqualified (fails Tech. etc.) does not score zero points (for that Round) as this is the same as TQ: Drivers in this case will be awarded 500 points.

A driver will discard his worst scores based on the qualifying rounds completed to the following rules:

- Out of six (6) completed rounds, the best three (3) scores will be added to decide the driver's qualifying position
- Out of five (5) completed rounds, the best three (3) scores will be added to decide the driver's qualifying position
- Out of four (4) completed rounds, the best two (2) scores will be added to decide a driver's qualifying position
- Out of three (3) completed rounds, the best two (2) scores will be added to decide a driver's qualifying position
- Out of two (2) completed rounds, the best one (1) score will decide a driver's qualifying position
- If only one (1) round is completed, that round counts.

In the case of a tie in the final qualifying positions when the driver's best scores are added together, only the scores (and the laps and times used to determine those scores) will be used to break the tie.

The discarded scores, laps and times will not be used to separate a tie. The driver with the lowest single points score from the scores added will be awarded the tied position. In the case of a continuing tie, the next best scores will be considered. All best scores will be considered until the tie is broken. If a comparison of points fails to break the tie, the laps and times from the highest points will be compared.

The driver with the fastest time from their lowest score will be awarded the tied position.

Example: With three (3) from five (5) counting :-

Driver	Points Score				Total	Best Round Lap Time
A	5	9	25	10	24	8 laps 5:10.00 (Rnd. 1)
B	7	8	19	9	24	8 laps 5:14.00 (Rnd. 1)
C	11	10	24	8	29	8 laps <b>5:12.00</b> (Rnd. 4)
D	10	24	8	11	29	8 laps 5:16.00 (Rnd. 3)

Note: Driver A qualifies ahead of Driver B due to a higher single point score  
Driver C qualifies ahead of Driver D due to a better fastest lap time.

## 1.6 PRACTICE

- 1.6.1 There will be one day of practice (T-time, controlled practice) for each class. The track will not be available prior to commencement of each event.
- 1.6.2 Track layout must be at least 60% new in layout/design at the start of the event. If track construction does not allow a change of at least 60% then the warm-up, any event or any test sessions including exclusive, team or private use of track MUST be driven in the opposite direction of the actual championship, even if only part(s) of the track are used and this as from 100 days before the concerned WC. The actual WC track lay-out to be known only by the organizer and IFMAR may only be published to the general public as from 15 days before the event. Failure to comply may lead to loss of performance bond for the organizer and disqualification for the whole team or individual drivers in breach of this rule.
- 1.6.3 Practice will be organized using the “T-Time” format **or** in Heat format. Under these arrangements the following parameters will be used:
- Each segment will be restricted to 10 minutes (1/12) and 7 minutes (ISTC)
  - Drivers only to be allowed to sign up for “T-Time” practice
  - A maximum of 15 cars to be allowed on the track during any one segment
  - Drivers will only be allowed one frequency per segment
  - The first “T-Time” practice will be allocated by the organizers.
- 1.6.4 All the IFMAR Technical Rules apply during Controlled Practice, including the use of batteries and motors from the IFMAR Approved List which have been checked (and marked where necessary) by Technical Inspection.

## 1.7 FINALS

- 1.7.1 The World Championship final will be composed of three (3) separate races composed of the top ten (10) qualifiers after completion of qualifying. At the organizer’s discretion, the lower finals need only be run two (2) times.
- 1.7.2 All finals will be of ten (10) drivers.
- 1.7.3 The Final positions will be decided by a point system based on one (1) point for the winner of each final on down to ten (10) points for the tenth placed finisher in each separate final. The best two (2) of three (3) finishes will count (the best out of two (2) if lower finals are run only two (2) times).

In the event of a tied position, the driver with the single best finishing position in either of the best two (2) finals that counted will be awarded the tie, in the event of a continuing tie, then the laps and times from the best finishing position will be compared and the one with the fastest laps and time total will be awarded the tie. If still continuing, then times from the second best position will be compared.

### 1.7.4 A-Main Finals:

A-Main Finals will have priority and may be moved in an attempt to have them completed. E.g. If heavy thunderstorm or a severe menace jeopardizing continuation is imminent. (see also 1.5.2 )

- If three (3) finals are completed, the best two (2) will count as per Rule 1.7.3
- If two (2) finals are completed, the best one (1) final will count
- If one (1) final is completed, that one (1) final counts
- If no A-Main Finals are completed, the finishing order of qualifying will be used to determine the final results of the event.

Time must be allowed to charge batteries.

## 1.8 RACE DURATION

- 1.8.1 1/12 track: All heats and finals will be eight (8) minutes, plus maximum of thirty (30) seconds to finish the last lap. There will be a three (3) minute break between heats.
- 1.8.2 ISTC 1/10: All heats and finals will be five (5) minutes, plus maximum of thirty (30) seconds to finish the last lap. There will be a three (3) minute break between heats.

## 1.9 STARTS

- 1.9.1 All starting announcements and warnings will be in English.  
Count down for the starts will be as follows:

During Qualifying	During Finals
<ul style="list-style-type: none"><li>· 2 minutes</li><li>· 1 minute</li><li>· 30 seconds</li><li>· 10 seconds</li><li>· Attention</li><li>· One</li><li>· Two</li><li>· Three (etc.)</li></ul>	<ul style="list-style-type: none"><li>· 2 minutes</li><li>· 1 minute</li><li>· 30 seconds</li><li>· 10 seconds</li><li>· Attention</li><li>· START</li></ul>

- 1.9.3 During Qualifications the „staggered start“ system will be used. Each car will start separately, immediately after its number is called. If for any reason a car did not start, the time counting for this car will begin automatically the moment one of the other cars has completed its first lap.
- 1.9.4 **4** All main finals will use a staggered grid start of ten (10) rows with two (2) meter minimum spacing , start grid will alternate left and right side without being directly in line with the car just on the previous line. **2.5 meter spacing for 1/12th and 3.5 meter spacing for ISTC are recommended. 4 meter maximum spacing is recommended.** Car positions to be determined by qualifying results.
- 1.9.5 There will be no restarts due to jump starts.
- 1.9.6 During the finals a video record will be made of all starts for review by the Referees if necessary.
- 1.9.7 There will be a one meter penalty mark for jump starts. Any car crossing that line before actual start will receive a one lap penalty. Any car jump starting but not crossing the one meter line will receive a ten second penalty.
- 1.9.8 At the 30 second warning all cars must be placed on the starting line. After the 30 second warning no cars will be allowed entrance to the racing surface until after the start of the race, at which time the mechanic may place the car on the starting grid after all the cars have left.
- 1.9.9 The start will be by an audible signal.
- 1.9.10 Any race stopped due to race equipment malfunction or official's error will be re-run after a suitable delay.
- 1.9.11 **As long as there is agreement drivers do not have to stand in the correct car number order as marked on the rostrum. For finals drivers enter the drivers stand in their respective qualifying order and choose positions based on that.**

## 1.10 MARSHALLING

- 1.10.1 Marshalling shall be by the racers. The Race Organizers will provide 2 designated fill-in marshals to cover unforeseen eventualities. After each heat the participants in that heat will place their cars into impound and assume assigned marshalling positions for the following heat. No other person is allowed on the track (except officials) while the race is in progress.
- 1.10.2 When there is a break, staggering of heats or a change in the running order of heats, any driver that is responsible for marshalling will be properly notified either in person or through his Team Manager.
- 1.10.3 Only competitors in the event may marshal except for the back-ups provided by the organiser. Any person not marshalling (or providing a qualified marshal if disabled) shall lose their best round score. A driver who repeatedly fails to marshal will be excluded from further participation due unsporting behavior. The concerned block and country will be informed in order to take proper corrective actions and these must revert to IFMAR on their action.



## 1.11 RESULTS

- 1.11.1 Results of each heat will be posted upon completion of the final and review by the officials.
- 1.11.2 The results sheet will include time, laps and finishing positions.
- 1.11.3 Results of each of the sub main World Championship finals will be posted following completion of each final and review by IFMAR officials.
- 1.11.4 As soon as the IFMAR officials have reviewed the results of the three World Championship Finals and verified such results, the official finishing positions and points will be announced and the World Champion will be presented on the podium.
- 1.11.5 Complete introduction of A Finalist will be held before the A finals
- 1.11.6 An award ceremony including a reception for every participant and their mechanic will be organized as soon as possible after the end of both events (sponsored by the banquet and the extra non driver badge funds)

## 1.12 TRANSMITTER IMPOUND

- 1.12.1 When Mhz system transmitters are in use all transmitters must be placed in impound upon arrival at track. Transmitters will be furnished to each competitor after completion of technical inspection and prior to their heat. When this is the case then transmitters in the pit areas or areas other than the drivers stand and impound, during official competition hours will cause disqualification.

## 1.14 LAP COUNTING AND TIMING

- 1.14.1 Two Automatic and independent (power source) lap counting systems, (not on same antenna loop) with cumulative and split lap times, will be in place . AMB lap counting systems or IFMAR approved equivalents must be used. One to be the main and the second as support (back-up)

Competitors are required to install a transponder into their cars in order to be recorded by the usual time registration systems. Competitor are allowed to use their own IFMAR compatible personal transponder as long as lap counting officials accept its reference.

The driver has to ensure that his personal compatible private transponder belongs to the marked chassis. Significant stops (tyre changes, crashes, etc.) will be noted with times of stop and restart. This record might not include every incident; however, its intent is to verify incidents, whenever possible.

Suitable working computers with proper race proven programs must be used to sort lap times, print results from heats and sort final positions from each round of heats within 15 minutes of the completion of the round of heats and up to IFMAR procedures. Time to 1/100th of a second can be used, in all cases, the hundreds will be utilized.

If both the primary and support lap counting systems fail during a qualifying heat or final, the heat or final will be re-run as soon as is practicable. Under no circumstances will any lap score or time, other than those from the official time keeping equipment, be accepted for any purpose to do with the running of an IFMAR race.

## 1.15 PROTESTS

- 1.15.1 Lap count checking need not be written and does not need a deposit. The Team Manager will, within fifteen (15) minutes of the display of the results, show to the race direction officials the time lap sheet involved (the one displayed by the officials) and will indicate where he thinks an error has been made. This must be shown to the Race Director or scoring official. If the request is justified, correction will be made immediately. The race official will advise in writing the result of their finding and the time will be noted. After the checking, if the Team Manager persists, he may then submit a written protest along with a US\$50 protest fee. The request will then be processed as a formal protest.
- 1.15.2 Formal protest must be done within fifteen (15) minutes after the display of the results or the occasion it concerns, in writing and with a US\$50 protest fee. Protest must be in English. The



time of the display will be written on the result sheets and protests must be made within fifteen (15) minutes of that time. The protest fee is forfeited if the protest is not upheld, and returned if justified. The protest may be given to the Race Director or to an IFMAR official. Protests are processed by the Race Director and if necessary the IFMAR International Jury. Appeals against the Race Director's decision may be made to IFMAR. IFMAR is obliged to handle such an appeal.

## 1.16 DISPLAY OF RESULTS

1.16.1 At the end of each heat and final, and after official review, the results will be displayed for the competitors for checking and information. The result sheet will include lap times and finishing positions. The display sheet will also display the official time of posting.

## 1.17 LAP COUNTING TRANSPONDERS

- 1.17.1 Each competitor is responsible for attaching the lap counting transponder to his car.
- 1.17.2 During qualifying any car without a transponder or with a personal transponder that has not been plugged in will not be counted.
- 1.17.3 During the final(s) all cars must have transponder firmly attached at the start of the race. In the event of the loss and/or failure of transponder the car will, if possible, be manually counted.
- 1.17.4 Under no circumstances will a heat or final be re-run due to a car not having a transponder or failing to plug in a transponder or failure of such. This also applies to a car having an incorrect number or transponder reference.

## 1.19 PENALTIES AND SANCTIONS

- 1.19.1
- Any behavior, which could injure the integrity of the sport or the event, unsportsmanlike conduct and behavior of drivers, their companions and mechanics involved in the event may be object of official and national or international sanctions.
  - Black flag (removal of car from track) may be issued for the following reasons:
    - a. Drivers who impede the progress of other drivers
    - b. Un-sportsmanlike driving
    - c. Driving in a manner deemed to be dangerous
    - d. Vehicles judged to be in a un-drive able or dangerous condition by the Race Director or referee. These vehicles, after being repaired, may be allowed to re-enter the track after permission by Race Officials
    - e. Vehicles losing their body must immediately leave the track and carry out necessary repairs before re-entering track
    - f. Any illegal modifications or changes made to the vehicles which are found during technical inspection at the end of a final will automatically cause disqualification
    - g. Any vehicle which, by the fault of another driver, is damaged or obstructed during a heat or final will not, under any circumstances, be allowed to re-run in another heat
    - h. All participants must strictly observe the instructions and warnings by the Race Director and Referees

## 1.20 PIT SPACES

- 1.20 Pit spaces are to be allocated by the organizer for the duration of the World Championships. A minimum of 12.5 square feet of table space with a minimum depth of two feet must be provided for each competitor.
- 1.21 All participants must pit in the official designated and enclosed pitting area with access control. Separated or confined areas may not be installed within this area.

## SECTION TWO - OFFICIALS

### 2.1 RACE DIRECTOR

- 2.1.1 The race Director is under the direct authority of IFMAR and must be approved by FEMCA/ROAR/EFRA/FAMAR) as appropriate.
- 2.1.2 The Race Director within the schedule of the event is responsible for insuring that the various tasks under his responsibility are correctly done. These include the following:
- |               |                       |                 |                    |
|---------------|-----------------------|-----------------|--------------------|
| Time keeping  | Starts                | Marshalling     | Display of Results |
| Announcements | Technical Inspections | Race management |                    |
- 2.1.3 Receive any protests and call the International Jury, if necessary.
- 2.1.4 Make urgent decisions for safety or unforeseen situations.
- 2.1.5 The starter will ensure that no race is started without all marshals in position

### 2.2 TIME KEEPING SUPERVISOR

- 2.2.1 The Time Keeping Supervisor is responsible for recording all laps, times, and results of all drivers in all heats and finals. He is responsible for classifying the results, publishing and setting up the mains. The Race Director must verify this classification and selection.
- 2.2.2 After the end of all heats and sub-finals one will timestamp and check the results before displaying.
- 2.2.3 In the case of a request for checking results, the Time Keeping Supervisor, along with the Race Director, will check the questioned result and make a decision.

### 2.3 INTERNATIONAL TEAM MANAGERS MEETING: .

- 2.3.1 The race director, at his discretion, is entitled to constitute an international team managers list and to have team manager meetings. The purpose is to facilitate general communication concerning eventual updates, specific race issues or proceedings. Team managers are responsible for ensuring swift dispatching of the relevant information to their drivers and by doing so cooperate to develop smooth race proceedings. Such meetings are informative only.

### 2.4 INTERNATIONAL REFEREES: As per general IFMAR rules

## SECTION THREE - TECHNICAL RULES GENERAL

(For motor and Batteries see specific section: IFMAR WC Electric – Batteries & Motors).

### 3.1 TECHNICAL INSPECTION

- 3.1.1 Only one car per driver per class is allowed. All cars must be presented to Technical Inspection for an Initial Inspection before the start of Controlled Practice. The purpose of this Initial Inspection is to determine that the car meets the IFMAR Technical Rules for this event.
- 3.1.2 When the car passes this Initial Inspection, the Technical Inspector will mark the chassis of the car.
- Marks that are made by engraving, and/or removal of chassis material, are to be avoided. A driver may refuse to have his chassis marked by methods that remove chassis material. Once the chassis is marked, the chassis may not be changed without the approval of the Race Director. The chassis may only be changed by an identical one and in the same lay-out (bolt-ons) in case of damage that cannot reasonably be repaired.
- 3.1.3 Drivers must race the car he or she passed technical inspection with during qualifying and finals in accordance with the rules above.

- 3.1.4 All cars must be presented for initial inspection, registration and marking on Day One (D1) and furthermore prior to the start of each heat or final. No car will be allowed on the track surface without undergoing technical inspection first, which may be at random for some or all cars. Voltage checks will be performed on all cars, every race. Penalties for overcharging are indicated at rule 3.13 (Batteries race procedures).

Technical inspection may consist of complete verification or only partly and/or at random to the discretion of the scrutineers at any moment. Drivers may not be informed in advance regarding which, when and what will be subject to verification nor may there be a regular pattern in the spot-checks. Cars failing a check may be re-checked completely at any time but are not allowed on the track before they are conform.

- 3.1.5 All motors and batteries to be inspected as necessary during qualifying and mandatory during the finals. All cars in the World Championship finals will be impounded at the end of the finals for further technical inspection, such as motors, etc.

## 3.2 DRIVERS' AIDS

- 3.2.1 It is the objective of this rule to ensure that World Championships be a test of driver skill. IFMAR seeks to limit the type of driver aids to a minimum to achieve this objective. Traction control, active suspension and steering control by gyroscopes are not allowed. Sensors fitted to the car for the purpose of measuring suspension movement, wheel speed or tyre slips whilst the car is in motion are not allowed.
- 3.2.2 Unless an electronic or mechanical driver aid is listed below in rule 3.2.3 it is not allowed for use in IFMAR Electric On-road World Championships.
- 3.2.3 The fixed single ratio transmission may not include a mechanical device/ s between the drive motor output and the gearbox input for the purpose of controlling torque (e.g. 'slipper' clutch/fluid clutch). A differential may include a mechanism for apportioning torque over the axle/s (e.g. limited slip differential).  
This mechanism must only be capable of setting or adjustment manually whilst the car is stationary. A mechanical or electronic speed controller may include a mechanical or electronic device to limit the current/voltage passed from the batteries to the drive motor (e.g. timed delay, current limiter, keyboard programs). Setting or programming of such a device must only be possible whilst the car is stationary. Changes to the setting or program during a race are not allowed
- 3.2.4 Radio control receivers carried in the car may only have two devices (normally the steering servo and speed controller) connected, plus an optional separate battery supply for powering of the radio control equipment/devices as per rule 3.15 (Batteries & Motors). The use of any further channels to receive electrical signals from sensors carried in the car is prohibited.
- 3.2.5 Mechanical or Electronic Speed Controllers are allowed. Reverse facility in speed controllers is not allowed. Speed controllers may only have timed delay, current limiters and keyboard programs. These programs must only be capable of adjustment whilst the car is stationary.
- 3.2.6 Any competitor found in contravention of the spirit or fact of rule 3.2 will be disqualified from the World Championship Meeting.
- 3.2.7 **BLINKY MODE (For eventual SPEC and F1 classes)**  
- Electronic speed controllers must be run in zero timing ("Blinky") mode  
- Zero timing mode is defined as a speed controller program where the commutation sequence is limited to a "6-step" type commutation, and the speed control must follow the motors hall sensor signals 1:1.  
No changing of timing is allowed at any RPM. This mode is identified by blinking LED(s) on the ESC whilst in armed and in a neutral position.  
This may be checked at any time, and is the competitor's responsibility to supply the required equipment (e.g. Program box, laptop) to prove compliance
- 3.2.8 Cars will carry 3 numbers;  
1/12<sup>th</sup> & SPEC – One number on both sides of the body shell, and one on the bonnet/hood  
ISTC – One number on both sides of the body shell, and one in the front window  
Numbers must be at least 35 mm high, with a minimum stroke of 5 mm. Number decals may not be trimmed to eliminate the background. (quid F1?)

## SECTION FOUR - TECHNICAL RULES 1/12

### 4 TECHNICAL RULES 1/12

4.0.1 Bumpers are not required. If fitted, bumpers must be constructed so as to minimize injury that may result from being hit by the car. Wire bumpers shall be made of wire not less than 2.5mm or more than 4mm in diameter. Bumpers made from sheet type material shall be not less than 2.5mm thick or more than 6.5mm thick, with all exposed edges smooth and well-rounded.

Rigid blade-like bumpers made of hard, non-resilient material such as metal, brittle plastic, plywood, Masonite, etc., will not be allowed. All cars may run a rear bumper, which must be behind the rear tyres. Bumpers may extend 6.5mm beyond the sides of the body, or to 172mm whichever is less.

4.0.2. A controlled tyre and rim decided by the IFMAR Electric Executive must be used. The type of tyres and rims are decided by the IFMAR Electric Executive together with the race organizer. The race organizer has to forward the recommendations based on local experiences to the IFMAR Electric Section chairman eight (8) months before the event. The final decision will be made six (6) months before the event by a majority vote of the IFMAR Electric Executive. Tyre handling is the duty of the organizer and his supplier.

4.0.4. Only sponge or closed cell foam tyres are allowed. Tyres must be black, excepting sidewall detailing, and be of a composition that will not damage the racing surface.

4.0.5 Tyre and rim dimensions are as follows;  
Front width - Max 26.00mm  
Rear width - Max 38.00mm  
Wheel rim diameter - min 29.00mm, max 38.00mm

4.4.5 The use of tyres sets during the event is restricted as follows

4.4.5.1 Allocation and marking: A maximum of twelve (12) marked control sets may be used for controlled practice, qualifying and finals. Only official controlled sets obtained at the event may be marked. There are no restrictions on sets for open or free morning practice.

4.4.5.2 Truing

Each set will be supplied untrued. Marked control sets must be trued in the specified area at the event. Any tyre sets not found to have been trued in the correct location will be ineligible to use, but still count towards the 12 set maximum.

4.4.5.3 Impound

Controlled tyres will be marked differently for each day and must be packed as such.

Each morning only sets marked for that day will be released.

Only tyres marked for that day must be used and may not leave the venue's racing area.

4.4.5.4 - Additives

Only a single controlled brand of additive, provided by the organizer may be used. The additive may only be applied in the controlled area none such products may be found in the pitting / race area.

4.0.5 Wheel nuts and/or axles must not protrude more than 1,5mm of wheel outside diameter (not covered with rubber) on the outer side of wheels.

4.0.6 All cars must comply with the dimensional requirements. Maximum overall width of car (EXCLUDING shell): 172,00mm

4.0.7 Cars are not permitted to race with a reverse facility.

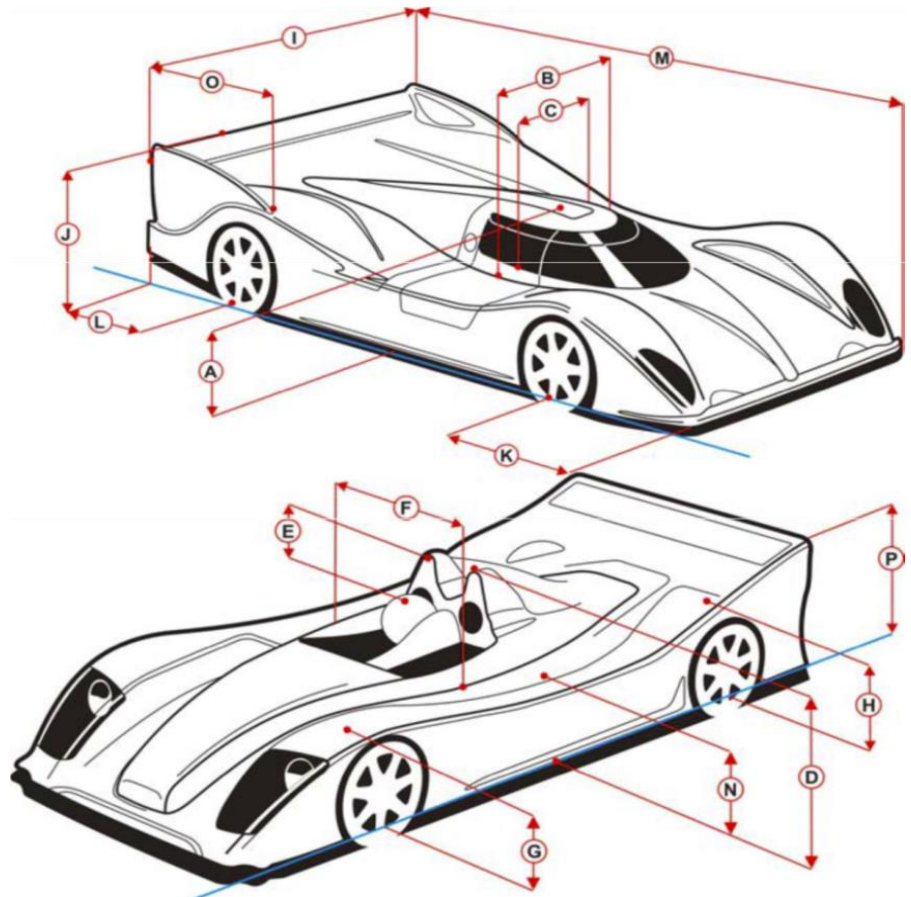
4.0.8 The minimum weight limit, ready to run, is 730,00 gr including transponder. The weight of the car must not be below the weight limit at any time during the race. Race distortion or damage must be disregarded.

4.0.9 When racing on a track surface which can be damaged (e.g. carpet) a minimum ground clearance of 3,00mm must be maintained at Start of any race

## 4.1 BODIES 1/12, SPECIFICATIONS

- 4.1.1 For the purpose of the IFMAR World Championships, LMES /ALMS /LMP WSC prototype bodies only are allowed.
- 4.1.2 Only body shells which are fully complying with rule 4.1.4 and registered either by IFMAR or one of the blocs may be used. Body shell manufacturers may register with IFMAR at any time, but not less than four months prior to that years' IFMAR World Championship to be eligible for that event
- 4.1.3 One (1) sample of a body shell, together with photographs of the full-size car on which the body shell is inspired,, must be submitted to the IFMAR Electric Section Chairman together with an approval fee of \$US200 into the IFMAR account to be settled at submission. When approved by IFMAR, the body shell will be added to the register of body shells allowed for use at IFMAR World Championship events for that class. Once Approved there must be no changes to the design, trim lines, detail lines or any feature of the body. All changes will require resubmission for approval and an additional revision letter added to the part number- Example 15001A - Original - 15001B for a 2nd Rev. Etc. The manufacturer's part number must be clearly marked on the shell alongside the windscreen area.
- 4.1.4 The following is the specification for approval of 1/12<sup>th</sup> prototype Sports car body shells.

- A = Min.55mm  
B = Min 70mm  
C = Min 55mm  
D = Min 55mm  
E = Min 11mm  
F = Min 65mm  
G = Min 46mm  
H = Min 50mm  
I = 168 to 176mm  
J = Max 65mm  
K = Max 70mm  
L = Max 70mm  
M = Max 340mm  
N = Min 30mm  
O = Max 110mm  
P = Max 72mm



1. The body side forward of the side dam must have a radiused edge, no lips or upward extensions are acceptable
2. Bodies must be a representation of a full size LMES / ALMS / LMP / WSC prototype.
3. Open cockpit cars to have twin roll bars as current LMES / ALMS
4. Open cockpit cars must have a representative drivers helmet and cockpit opening
5. The name of the prototype must be used for the homologation process.
6. The name of the prototype does not have to be used for general sales and marketing.
7. Only fins or strakes that are present on the full size prototype will be allowed.
8. The body must not be cut above the lower cut line
9. Cut-outs in the shell will be allowed only if clearly defined on the full size prototype

4.1.5 Approval is for 6 years. The decision of IFMAR to or not to approve a submitted body shell is final.

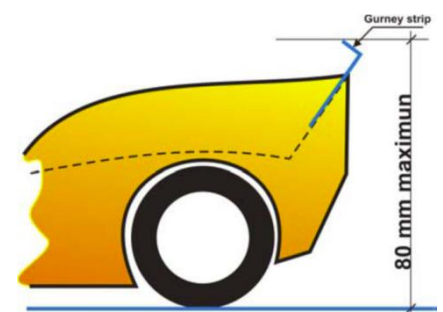


## 4.2 APPEARANCE

- 4.2.1 No additional items may be fastened to the body exterior other than the rear trim tab /Gurney strip.
- 4.2.2: Bodies shall be neatly finished. Details of all front and rear lights and windows must be translucent. Air intakes, front grills, cooling grills and eventual drivers must be clearly contrasted from the surrounding paintwork.
- 4.2.3 The body and chassis must be securely joined at all times when the car is on the track. If the body comes loose or falls off during a race, the car must be removed from the track until the body shell is securely re-attached.
- 4.2.4 Wheel arches must be cut-out if the original full-size car ran that way. This will be determined by reference to the photographs submitted by the manufacturer when registering the body shell with IFMAR.
- 4.2.5 The body shell may not be trimmed higher than the lower body trim lines. When a body shell is registered with IFMAR a lower trim line must be moulded in to the body shell, or a minimum distance from the highest point on the body shell to the lower trim line must be specified by the body shell manufacturer.
- 4.2.6 No part of the chassis, wheels, tyres, suspension or mechanical/electrical equipment may be visible outside the body shell when viewed in any plane.
- 4.2.7 Openings in the body shell (e.g. scoops, vents) must be appropriate to the full-size car on which the body shell is based. This will be determined by reference to the photographs submitted by the manufacturer when registering the body shell.
- 4.2.8 Additional openings in the body shell are allowed only for the original cockpit (in open cockpit cars) wing mounts, antenna, roll-over mast (if allowed) and lap recording equipment. No other openings in the body shell are allowed.

## 4.3 WINGS

- 4.3.1 Wings may only be fitted where they are shown on the photographs submitted by the body shell manufacturer for registration with IFMAR. Wings may be moulded in to the body shell as part of the continuous material used for the body shell, or may be attached separately
- 4.3.2 One (1) separate front wing may be attached directly, and only, to the body shell. The front wing must be supplied by the original body shell manufacturer with the body shell as registered with IFMAR and be fitted as supplied without modification.
- 4.3.3 One (1) rear wing only may be used with the body shell. The rear wing may be:  
**EITHER** moulded in to the original body shell as part of the continuous material used for the body shell This is defined as the part of the body shell, from the centre of the rear axle line extended rearwards, which sweeps upward from the horizontal.  
**OR** Attached directly to the body shell or chassis by separate supports. In this case the part of body shell from the center of the rear axle line extending rearwards must be horizontal, or swept downward from the horizontal.  
Separate wings must conform to the sizes shown in 5.1.14. Side dams to the sizes shown in 5.1.14 must be attached directly to the separate wing only. No part of the wing may be closer than 6.5 mm to any part of the body other than the tail fins or side dams.
- 4.3.4 Side dams moulded in to the original body shell, or supplied with the original body shell, registered with IFMAR, must not exceed a maximum dam length of 102 mm and maximum height of 25 mm. These dimensions include moulded-in portions of body.



4.3.5 No additional items may be fastened to the body exterior other than the rear trim tab / Gurney strip

## SECTION FIVE - TECHNICAL RULES 1/10th ISTC

### 5 CHASSIS AND DRIVE TRAIN

- 5.0.1 Two (2) wheel drive to front or rear wheels or four (4) wheel drive is allowed.
- 5.0.2 Chassis must have independent suspension to all four wheels. Each driven wheel must have a flexible joint (e.g. dog-bone/s or universal joint/ s) in its driveshaft. Drive train and suspension design is free from restriction. 'Flat pan' (1/12th and 1/10th Track style) chassis are not allowed.
- 5.0.3 No part of the chassis, including wheels/tyres/axles, may protrude outside the body shell when viewed from above. No part of the motor, batteries or electronic equipment may protrude outside the body shell when viewed in any plane. Rollover masts may not be fitted.
- 5.0.4 Materials used in the chassis and drive train are not restricted, although the use of special metal alloys (titanium/magnesium/etc.) in parts is discouraged, to reduce costs.
- 5.0.5 The chassis must not be shaped to gain an aerodynamic advantage. In principle, the underside of the chassis must be flat and parallel to the ground along the entire length of the body shell. Aerodynamic shaped parts (splitters/diffusers/tunnels/etc.) may not be fitted to the chassis.
- 5.0.6 Wheel nuts/axles must not extend more than 2mm beyond the wheels when viewed from above.
- 5.0.7 Only one Car per driver per class is allowed.
- 5.0.8 The use of one-way bearings in the rear axle is not allowed. The cars must be able to have a braking effect on the rear wheels from the electronic speed controller.

### 5.1 DIMENSIONS

The official measurements in these Technical Rules are the metric measurements	MIN mm	MAX mm	
Wheelbase	250,00	270,00	
Width (without body shell)	170,00	190,00	
Width (with body shell)	175,00	195,00	
Length (overall, with body shell fitted)	410,00	460,00	
Height (to top of roof – ready to race)	125,00	175,00	Chassis on 15,00mm block
* Ground clearance (ready to race)	5,00		
Wing width (including endplates and supports)	125,00	190,00	
Wing chord (including any flaps or extensions)	20,00	40,00	
Wing endplate (when separate) -		40 x 20	
Flap or gurney tab extension above plane of wing		3,00	
Rear bumper "cut-line" from track surface		45,00	Chassis on 15,00mm block
Wheel diameter (excluding tyre bead)	47,00	50,00	
Wheel width (including tyre bead)	24,00	26,00	
Tyre width (across sidewalls when fitted to wheel)	24,00	28,00	
Tyre diameter (when mounted on wheels)	63,00	67,00	

\* Ground clearance – for use on carpet and other surfaces which could be damaged.



## 5.2 WEIGHT

- 5.2.1 Weight, ready to race including timing equipment, at all times during the race:  
 4WD - 1350 grams minimum  
 2WD - 1350 grams minimum

## 5.3 BODIES 1/10th ISTC, SPECIFICATIONS:

- 5.3.1 For the purpose of the IFMAR World Championships, only scale representations of full size FIA Class Two Touring Cars in International Touring Car Series' (e.g. ITC, BTCC, NATC, Japan Touring Cars, etc.) but restricted to (4) four door bodies will be approved. Bodies must be reproduced with all features in proper proportion to each other. Lines indicating the shut-lines on the full-size car for bonnet (hood), boot (trunk) all doors and windows are to be moulded in to the body shell. Particular attention must be paid to realistic scale proportions. A lower trim line must be moulded into the body shell.
- 5.3.2 Only body shells which are fully complying with rule 5.3.4 and registered either by IFMAR or one of the blocs may be used. Body shell manufacturers may register with IFMAR at any time, but not less than four months prior to that years' IFMAR World Championship to be eligible for that event. **IFMAR approvals are valid for 6 years**
- 5.3.3 One (1) sample of a body shell, eventually together with photographs of the full-size car (showing at least three (3) views: front, side and rear) on which the body shell is inspired, must be submitted to the IFMAR Electric Section Chairman together with an approval fee of \$US200 to be settled at submission.

5.3.4 All submitted body shells must comply with the "global body specifications" (GBS) :A = Max 10mm

B = Min 105mm

C = Max 85mm

D = Min 90mm

E = Min 65mm

F = Max 65mm

G = Max 25mm (Max 3 posts)

H = Min 410mm

I = Min 170mm

J = Min 35mm

K = Min 140mm Max 155mm

L = Min 110mm Max 125mm

M = Min 115mm

N = Max 195mm

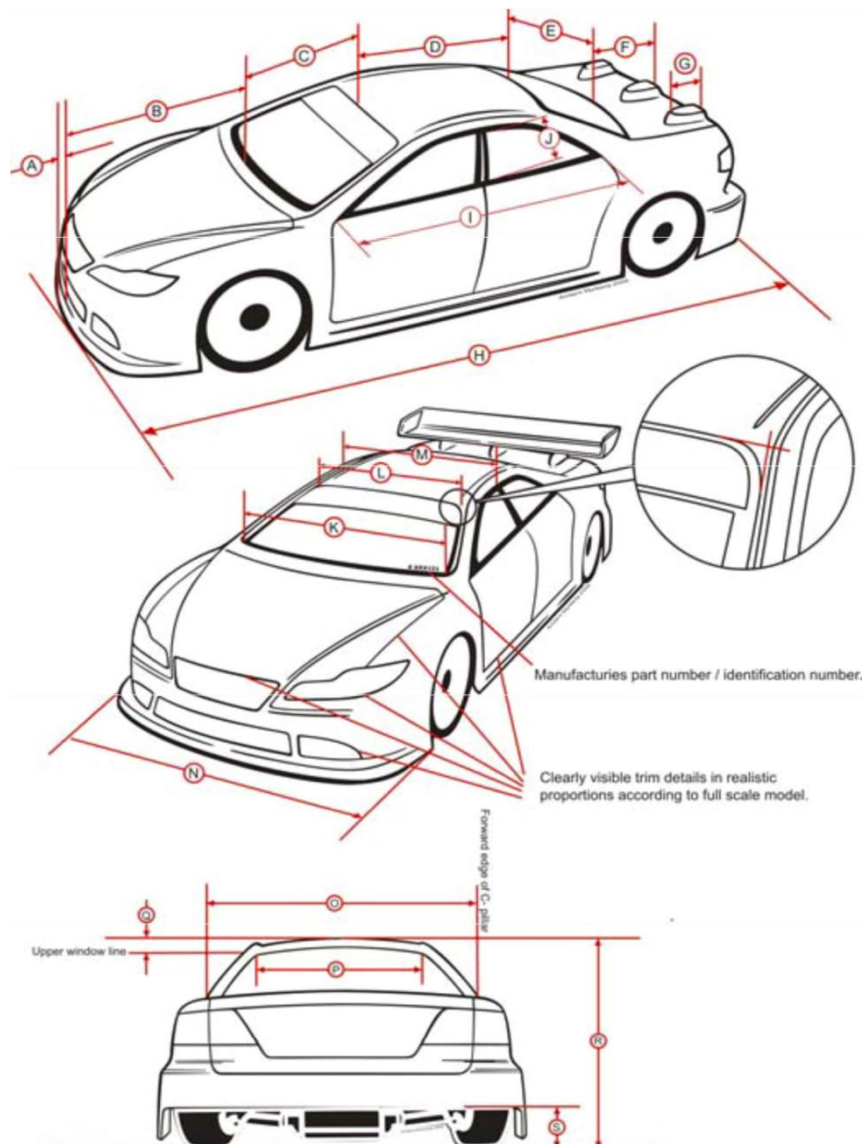
O = Min 150mm

P = Min 95mm

Q = Max 10mm

R = Min 115mm

S = Max 35mm



5.3.5: Bodies shall be neatly finished. Details of all front and rear lights and windows must be translucent. Air intakes, front grills, cooling grills and eventual drivers must be clearly contrasted from the surrounding paintwork

5.3.6 **Only One (1) single level rear wing may be used with the body shell.**

## 5.4 TYRES and WHEELS

5.4.1 A controlled dry and a controlled wet tyre (a tyre together with a selection of one (1) of two (2) different densities of inserts or a pre-assembled combination of tyre, insert and rim decided by the IFMAR Electric Executive must be used.

The manufacturer who was selected to supply the tyre and/or the two (2) inserts for the previous IFMAR ISTC World Championship event is not eligible to supply tyres and/or the two (2) inserts for the next IFMAR ISTC World Championship event.

5.4.2 The type of tyres and two (2) inserts or the pre-assembled combination of tyres, insert and rim are decided by the IFMAR Electric Executive together with the race organizer (race organizer recommends three (3) types of dry weather tyres and two (2) types wet tyres and respectively six (6) types and four (4) types of inserts or the equivalent number of tyre combinations in order of preference). The race organizer has to forward the recommendations to the IFMAR Electric Section Chairman eight (8) months before the event. The final decision will be made six (6) months before the event by a majority vote of the IFMAR Electric Executive.

The recommended types of tyres, and types of inserts and/or the pre-assembled tyres must be commercially available in the four (4) Blocs at the time of the organizer's recommendations, (eight (8) months prior to the events) and remain available up until the final decision six (6) months prior to the events. The selected controlled tyre and controlled inserts must continue to be commercially available in the four (4) Blocs from six (6) months prior to the event up until the commencement of the events.

5.4.3 Moulded rubber tyres only allowed, no sponge or closed-cell foam tyres allowed. No modifications or additions can be made to the controlled inserts, e.g. gluing the insert into the tyre.

Tyre material must not damage the racing surface.

Tyres must be black except for sidewall detail. They have an IFMAR reference on both sides.

Foam inserts may be fitted inside the tyre.

Pneumatic tyres are NOT allowed.

Any driver using any other type of tyre will immediately be disqualified from the event and from all future IFMAR World Championship events.

5.4.4.

<p><b>-One package of max.12 (twelve) race wheels/tyres per driver are to be bought on indiscriminately basis before the start of the event. The driver selects 7 sets to be "race marked" for use from Controlled Practice, round one. (CP1) These will be marked and impounded per set. The 5 remaining sets may be used for uncontrolled segments.</b></p> <p><b>- No race marked tyres will be provided after the start of CP1 (except for "A mains")</b></p> <p><b>-5 (five) sets to be used for all rounds of controlled practice and qualifications.</b></p> <p><b>-2 sets to be dedicated to finals but the use of new tyres is not compulsory here.</b></p> <p><b>"A mains" is entitled to one extra set for the 3th run. They may buy 4 new sets and select 1 to be used the 3th run ; but doing so is not compulsory</b></p> <p><b>- All used tyres must be returned and remain in the impound zone. If not they will be banned for further use.</b></p> <p><b>- Tyre warmers are not allowed.</b></p>	Round	New used	Tyre set	Used tyre allowed from set :
	Cp1	New	A	none
	Cp2	New	B	none
	Cp3	Used		A or B
	Q1	Used		A or B
	Q2	New	C	none
	Q3	Used		A, B or C
	Q4	New	D	none
	Q5	Used		A, B, C or D
	Q6	New	E	none
	Fin1	New	F1	A,B,C,D or E
	Fin2	New	F2	A,B,C;D, E or F1
	Fin A	New	F3	A,B,C,D,E, F1 or F2

## 5.5 Rain Tyres for 1/10 ISTC

- 5.5.1 When outdoor. Rain tyres must be on sale at the track at a preferential rate and these are the only rain tyres that can be used. Drivers are allowed to purchase a maximum of 3 sets and they will only be available for purchase between 0800 and 0915H each morning.  
The rain set(s) shall be marked with the drivers ID and considered as controlled tyres thus to be impounded.
- 5.5.2 Rain tyres may only be used during controlled practice, qualifications or finals when the race director before the start of every heat announces it as a "Wet heat".  
The race director has the right to declare that the actual started racing heat is now running under wet conditions up to, after the end of the concerned heat if the average lap times became more than 20% slower.
- 5.5.3 If every qualification round had at least one dry race cycle then all rounds will count.  
If not all qualification rounds had at least one dry cycle then only the wet rounds will count.
- 5.5.4 This procedure will be announced to the team managers when applicable.
- 5.6.2 Only the numbers supplied by the organizer will be used on the car. Cutting may be restricted.

## 5.7 BUMPERS

- 5.7.1 Foam bumpers may be fitted. No part of the bumper may extend outside the body shell when viewed from any direction, nor be lower than the chassis.
-

# SECTION SIX **Provisional** TECHNICAL RULES NEW FORMULA ONE CLASS

**(DRAFT & Provisional only: to be fine-tuned in 2017 for implementation 2018: expect input from all blocs )**

*Min-max measurements in mm*

## Car:

Maximum width: 190mm

Minimum weight = 1050 grams including personal transponder

Minimum ride height = 4mm

– Front independent king pin, coil spring suspension is allowed. Suspension pick up points must be mounted inside the body. Independent front shocks are not allowed.

– The main chassis plate must not protrude from the body when viewed from above

## Tyres:

Front: Only rubber Spec tyres supplied at the event & modus **TBA**

Rear: Only rubber Spec tyres supplied at the event & modus **TBA**

Additive:

Only **ONE** special additive is allowed which will be supplied at the event and can only be applied in the designated tire saucing area. (*suggestion: short list of allowed products?*)

TYRE RULES for Formula One to be defined

## Bodies:

Only post 2009 Formula 1 body styles are allowed. Body must be painted in a race inspired theme.

Single color themes are allowed but you must use the included sticker sheet to detail the car.

All cars must have a **realistic** drivers figure installed in the cockpit.

## F1 Wings:

Only non-Lexan front and rear wings of injection molded plastic front and rear wings can be used  
No front wing shall overhang 190mm and rear wings must not be wider than inside of the rear wheels.

Rear wings not to be higher than the top of the air intake above the driver figure.

Further details TBA

## Batteries:

Any IFMAR approved 2S LIPO charged in a special LIPO bag may be used

Maximum battery voltage: 8.4 volts **TODO:** Size: same as existing 1S?

## Motor:

SPEC 21.5 (25.5?) fixed timing motors. No modifications allowed.

## Speed Control for Formula:

Specified Blinky ISC only. No modifications allowed apart from wires , an ISC list will provided 6months before the event.

## Notes: Suggestions to add amend :

- Front independent king pin, coil spring suspension is allowed. The displacement of the inner pick up points of the front suspension is limited to max. 40mm . Either the upper or the lower front arm has to be rigid and not part of the moving suspension (sliding king pin).

## FINISH

### MEMO:

Changes approved at the meeting in Las Vegas,  
October 2<sup>nd</sup> & 3<sup>rd</sup> 2016:

ROAR, Jeff Parker FEMCA, Trevor Reid, ( Oct 3th)  
EFRA, Willy Wuyts FAMAR Edgard Ochiai

(Drafted: Frank Mostrey 2017 01 20)