

2. TECHNICAL REGULATIONS

Amendments to the Technical Regulations may be made at any time in order to ensure safer or fairer competitions.

During practices: If a Sidecar is found not to be in conformity with the Technical Regulations during or after the practices, its rider will be given a penalty for the event such as a Ride-Through, a drop of any number of grid positions for the next race, suspension and/or withdrawal of Championship points.

After a race: If a Sidecar is found not to be in conformity with the Technical Regulations after a race, its rider will be given a penalty such as a time penalty, or disqualification.

2.1 INTRODUCTION

The FIM Sidecar World Championship is for vehicles with three wheels that make two or three tracks propelled by an internal combustion engine, controlled exclusively by one driver and one passenger.

Providing that the following regulations are complied with, the constructors are free to be innovative with regard to design, materials and overall construction of the Sidecar vehicle.

2.2 TECHNICAL SPECIFICATIONS OF CHASSIS, ELIGIBILITY REQUIREMENTS

2.2.1 Materials

The use of titanium in the construction of the frame, the suspensions, the steering system, the handlebars, the wheel spindles and swinging arm spindle is forbidden. For wheel spindles, the use of light alloys is also forbidden. The use of titanium alloy nuts and bolts is allowed.

In case of doubt, the sample/part in question shall be taken and analysed at a Materials Testing Laboratory.

2.2.3 Designation of Make

When two manufacturers are involved in the construction of a Sidecar the name of both shall appear on the Sidecar as follows:

- (a) The name of the chassis manufacturer
- (b) The name of the engine manufacturer

2.2.4 Minimum weight

Minimum weight fully equipped including oil, water and fuel and fully equipped driver and passenger:

Short chassis with engine below the driver: 350 kg

Long chassis with engine behind the driver: 370 kg

- (a) At any time during the event, the weight of the whole Sidecar (including the tank and its contents) must not be less than the minimum weight.
- (b) There is no tolerance on the minimum weight of the Sidecar.
- (c) During the practice and qualifying sessions, riders may be asked to submit their Sidecar to a weight control. In all cases, the rider must comply with this request.
- (d) The use of ballast is allowed to stay over the minimum weight limit. The use of ballast must be declared to the FIM **SCWC** Technical Director/Chief Technical Steward at the preliminary Technical Checks. Nevertheless, the verified weight may never fall below the required minimum weight.

All ballast must be made from solid metallic piece/s, firmly, securely connected, either through an adapter or directly to the main frame, either with minimum 3 steel bolts (min. 8 mm diameter, 8.8 grade or over) or with minimum 2 steel bolts (min. 8 mm diameter, 8.8 grade or over) in case of the ballast is glued with permanent glue directly to the surface of the frame. Other equivalent technical solutions must be submitted to the FIM **SCWC** Technical Director for his approval.

- (e) The minimum weight includes all Championship contracted devices whether fitted or not, such as transponder and on-board TV system.

2.2.5 Dimension of the Sidecar

Maximum dimensions are (see diagram A):

Maximum width: 1700 mm (including the exhaust system)

Maximum height: 800 mm (without the top air-intake, otherwise, max. height: 950 mm)

Maximum length: 3300 mm

Maximum wheel base: 2300 mm

2.2.6 Distance between tracks

- (a) The distance between the tracks left by the centrelines of the rear wheel and the sidecar wheel must be at least 800 mm and not more than 1150 mm.
- (b) If three tracks are made, the distance between the tracks of the rear wheel and the front wheel must not be more than 75 mm apart (see diagram A).

2.2.7 Riders position, protection

- (a) The rider's position shall be such that the rider's feet are positioned behind the knees when looking in the riding direction. He must not be covered from above, nor be attached to the vehicle in anyway.
- (b) Vehicles must have a solid and effective protection between the rider and the engine. This protection must prevent direct contact between the rider's body (or his clothes) and escaping flames or leaking fuel and oil.

2.2.8 Passengers position, protection

- (a) The minimum dimensions of the passenger's space on the platform are (see Diagram A):

800 mm x 300 mm (may be arranged in any order)

Both measured 150 mm above the platform

- (b) Passengers shall be completely visible from above and be able to lean out to either side of the Sidecar. For this purpose, the vehicle shall be equipped with a suitable handle (grip) for the passenger to hold onto when leaning out.

Open handles for the passenger shall be ball-ended (minimum diameter 40 mm). These balls may be flattened, but in these cases any radius shall not be smaller than 8 mm.

Open handles must never reach beyond the fairing more than half the radius of the ball.

- (c) Height of the protection in front of the passenger: min. 300 mm.

2.2.9 Fairing/bodywork

- (a) The fairing/bodywork must not extend past a vertical line drawn 400 mm from the front edge of the front tyre (see diagram A).

- (b) The fairing/bodywork must not extend past a vertical line drawn 400 mm from the rear edge of the rear tyre (see diagram A).
- (c) The passenger shall not be covered from above, nor be attached to the vehicle in anyway.

2.2.10 Aerodynamic devices

- (a) Spoilers and other aerodynamic devices are authorised on condition that they do not extend beyond the overall dimensions of the bodywork and are an integral part of the fairing and/or body. These shall not exceed neither the width of the fairing nor the height of the handlebar.
- (b) Mirrors installed externally on the streamlining are prohibited. If installed within the cockpit opening, it must be shatterproof. No glass is permitted.

2.2.11 Windscreens

The windscreen edge and the edges of all other exposed parts of the streamlining must be rounded.

2.2.13 Ground clearance

- (a) The ground clearance measured over the entire length and width of the frame and other mechanical parts (engine, oil bay, exhaust and platforms) excluding the fairing, race ready, fully loaded with rider and passenger in a static racing position, shall not be less than 65 mm with the handlebars in straight position.
- (b) No devices are permitted to reduce the ground clearance during the course of the race.
- (c) After the race a tolerance of -5 mm is authorised. After a 'wet race' this check is not performed.

2.2.14 Fixing of the Sidecar

The chassis of the Sidecar must be an integrated part of the main chassis of the vehicle. No articulation or movement between the two is allowed.

2.2.15 Steering

- (a) The Sidecar must be steered by the front wheel only and a handlebar.

- (b) The handlebar extremities must not be lower than the front wheel spindle nor more than 500 mm behind the front wheel spindle in the straight-ahead position.
- (c) The steering axis must not be offset more than 75 mm from the front wheel centre line.
- (d) The minimum width of handlebars is: 450 mm.
- (e) The grips must be attached in such a way that at least the minimum width for handlebars is reached when measured between the outside ends of the grips.
- (f) Exposed handlebar ends must be plugged with a solid material or rubber covered.
- (g) The minimum angle of rotation of the handlebar and the front wheel on each side of the centre line or mid position must be 20°.
- (h) Whatever the position of the handlebars, the front wheel must never touch the streamlining.
- (i) Solid stops (other than steering dampers) must be fitted to ensure a minimum clearance of 20 mm between the handlebar with levers and the chassis and the streamlining, when on full lock, to prevent trapping the rider's fingers.

2.2.16 Control levers

All handlebar levers (clutch, brake, etc.) shall be in principle ball ended (diameter of this ball to be at least 16 mm). This ball may also be flattened, but in any case, the edges must be rounded. These ends must be permanently fixed and form an integral part of the lever.

2.2.17 Throttle controls

- (a) Throttle controls must be self-closing when not held by the hand.
- (b) Two throttle cables must be fitted (opening and closing).
- (c) Electronic control of the throttle valves, known as '**drive-by-wire**', may be used. The system must have a safety system to identify failures within the sensors and prevent operation if any of these are in error.
- (d) An ignition cut-out must be fitted to operate when the driver leaves the Sidecar. This ignition cut-out system shall interrupt the primary circuit.

- (e) The ignition cut-out shall be operated by a non-elastic string of adequate length and thickness and strapped to the driver's body. A spiral cable (similar to that of a telephone wire) with a maximum length of 1 m (extended) is permitted.

2.2.18 Suspension

- (a) The vertical travel of the front and rear wheel spindles under suspension action shall be at least 20 mm.
- (b) The use of active suspensions is forbidden.

2.2.19 Drive

- (a) The drive shall be transmitted to the ground only through the rear wheel of the Sidecar.
- (b) Protection shields must be fitted for open transmission parts.

2.2.20 Wheels

Maximum width of the rim, measured inside the flange walls:

Front wheel: 9" / 228.6 mm

Rear and sidecar wheel: 11" / 279.4 mm

2.2.21 Tyres

All teams must use the tyres exclusively provided by the Single Supplier contracted for the FIM Sidecar World Championship.

All 'external' tyres not directly supplied by the official representatives of the Single Supplier on the spot of an event of the FIM Sidecar World Championship are forbidden.

All teams shall respect all the instructions given below and the ones from the Single Supplier in how to prepare and use their products (see appendix).

- (a) The surface of the tyre may be smooth (i.e. without tread grooves), or treaded.
- (b) The tread pattern is unrestricted.
- (c) The surface of a slick tyre shall contain three or more hollows at 120° intervals or less, indicating the limit of wear on the centre and shoulder areas of the tyre. When at least 2 of these indicator hollows

become worn on different parts of the periphery, the tyre shall no longer be used.

- (d) The maximum width of the tyre tread measured from the point where the wall of the tyre finishes and the tread pattern starts, to the point where the tread pattern stops and the wall of the tyres other side starts (only the section of the tread pattern normally in contact with the ground is measured) shall not exceed:

- 215 mm for front tyre
- 254 mm for rear **and sidecar** tyre

All tyres will be measured mounted on the rim at a pressure of 1 kg/cm² (14 lb./sq.in.).

- (e) Tyre warmers are not allowed.

2.2.22 Mudguards and wheel protection

Mudguards must comply with the following requirements:

- (a) The front mudguard shall be a solid and effective protection between the rider and the front wheel.
- (b) The Sidecar wheel must be enclosed down to the level of the Sidecar platform on the rear and on the inside, down to the height of its axle centreline at the outside.
- (c) The rear wheel must be enclosed down to the level of the Sidecar platform on the inside.
- (d) When the springs are compressed to their maximum, there shall still remain a minimum wheel clearance of 15 mm to every fixed part.

2.2.23 Brakes

- (a) Only steel or cast-iron brake discs are allowed. Carbon fibre brake pads are prohibited.
- (b) The footbrake shall operate on all 3 wheels together.
- (c) This brake-system must have two separate operational circuits. One of the circuits shall work upon two of the three wheels.
- (d) If one of the brake circuits fails, the other brake circuit shall work efficiently.
- (e) The brake system may be operated by a hand-lever.

2.2.24 Fuel tank

- (a) The fuel tank must be protected against contact with the ground by a protection of rigid material.
- (b) Fuel must be contained in a tank securely fixed to the Sidecar. Seat tanks and exposed auxiliary tanks are forbidden. The fuel tank shall only have one fuel filler cap.
- (c) **The fuel tank must be completely filled with fuel cell foam (preferably with “Explosafe®”).**
- (d) Non-return valves must be fitted to fuel tank breather pipes.

2.2.25 Fuel and oil filler caps

- (a) Fuel and oil filler caps, when closed, shall be leak proof. Additionally, they shall be securely locked to prevent accidental opening at any time.
- (b) The fuel filler cap shall be fitted in such a way that it does not protrude in relation to the fairing or the tank profile and cannot be torn off in a crash.

2.2.26 Fuel pumps

- (a) Fuel pump(s), fuel pressure-regulator, fuel filters and fuel lines are free.
- (b) Electric fuel pumps must be wired through a circuit which will operate together with the ignition cut-out.

2.2.27 Battery

The battery must be covered in such a way that neither the rider nor the passenger may come directly into contact with the battery or its contents.

2.2.28 Rain light

- (a) Sidecars shall be equipped with a functional rear facing red **rain light**.
- (b) The light shall be installed at least 100 mm off the ground, located in the area between the rear wheel and the sidecar platform.

The light shall be mounted on suspended body part (i.e., platform, rear of the bodywork) and ensure no obstruction from the fairing and/or the passenger, facing to the rear (with a maximum tolerance of 5° from the longitudinal axis) of the Sidecar.

- (c) If the race is declared '**wet**' by the Clerk of the Course, it will be mandatory to switch on this **rain light**.

During the practice, if wet or intermediate **tyres** are used by the team, it will be mandatory to switch on this **rain light**.

- (d) **Only FIA approved rain lights are permitted.**

2.2.29 Number plates and backgrounds

- (a) 3 Number plates: 1 x on the centre of the front fairing, 1 x affixed on each side of the Sidecar fairing.
- (b) The background colours and figures (numbers) are free, but must be in a sharp contrast to each other. Numbers must be easily legible, of one single colour and in a clear simple font. Numbers cannot overlap.
- (c) The sizes for all the numbers are:
- Minimum height: 160 mm
- Minimum width: 80 mm
- Minimum stroke: 25 mm
- (d) In case of dispute concerning the legibility of the numbers, the decision of the FIM SCWC Technical Director will be final.

2.3 TECHNICAL SPECIFICATIONS OF ENGINE, ENGINE INSTALLATION AND ELIGIBILITY REQUIREMENTS

2.3.1 Engine position

The engine must be positioned in such a way that the centre-line of the engine (by definition a position midway between centre-lines of outermost cylinders for transversal engines, or the crankshaft for in-line engines) must not exceed 160 mm beyond the centre-line of the rear wheel of the Sidecar. The engine must be positioned in front of the rear wheel (see diagram A).

2.3.2 Supercharging

- (a) Any kind of forced induction (turbo, compressor, etc.) is forbidden.
- (b) The direct injection of fuel is not considered to be supercharging.

2.3.3 Displacement capacities

FIM homologated engines (Supersport/Superstock 600) with max. 600 cc.

2.3.4 Engine and transmission

General: If a change to a part or system is not specifically allowed in any of the following articles, then it is forbidden.

Only 4-cylinder 4-stroke engines of a mass production with a FIM homologation for Supersport/Superstock 600 with max. 600 cc are accepted.

Eligible models are listed on the FIM website (www.fim-moto.com).

Only eligible engines homologated since 01.01.2009 will be accepted.

All components must comply with the homologated engine, subject to any statements to the contrary specified in the below regulations.

The use of ceramics, metal- and polymer-based composites and alloys containing beryllium is not allowed (not applicable for coatings).

The machining of components is only authorised if expressly permitted in the following **regulations:**

- (a) The crankcases must remain as homologated. Lateral (side) covers may be altered, modified or replaced.
- (b) Crankshaft and flywheel must remain as homologated. Balancing of the crankshaft is allowed but only through the boreholes necessary for this purpose. No modifications to the flywheel are permitted.
- (c) Connecting rods must remain as homologated.
- (d) Pistons, piston rings and piston pins must remain as homologated.
- (e) The original cylinder head must remain as homologated and as produced by the manufacturer (no machining or polishing). The cylinder head gasket may be replaced.
- (f) Valves, valve guides, valve seats and lower valve spring retainers must remain as homologated. Valve springs, valve keys and upper valve spring retainers may be modified or replaced.
- (g) The complete injection system (throttle body included) must remain as homologated.

Sensors and fuel injectors must be standard parts of the homologated model, with the exception of electronic and mechanical enrichment devices which may be removed.

Intake bell mouths may be removed or altered. Inlet track devices may be removed.

- (h) Camshafts must remain as homologated (no kit camshafts, valve lift/cam lobe lift remains as homologated). The cam timing is free.
- (i) Chain, chain-tension and chain-guides may be modified or replaced. Belt tensioning devices for belt drive systems are free.
- (j) Cam sprockets may be modified or replaced.
- (k) The ECU (Engine Control Unit) may be changed. Wiring harness, spark plugs, plus wires and sockets may be replaced.

(l) **Primary transmission/gearbox:**

No modifications are permitted with the exception of shifting components to invert gear selection.

Chain sprockets, chain pitch and size may be modified. The use of an ignition breaker and a shift indicator is permitted.

- (m) The clutch system shall remain as originally produced by the manufacturer of the engine. Clutch springs, friction and drive discs may be altered or replaced.

Mechanical back torque limiting capabilities are permitted. No electronic or electrical support is allowed.

- (n) The generator must supply the battery whilst the engine is running.
- (o) The electric starter shall be in place and work. The engine shall start on the grid with the on-board electric starter for the warm-up lap before the start of the race.
- (p) Oil lubrication system is free. The oil sump and oil pump may be altered or replaced. Installation of baffle plates is allowed.
- (q) The original water pump may be replaced.

2.3.5 **Airbox**

- (a) An **airbox** shall be used. The original **airbox** may be replaced by an individual design.

- (b) The **airbox** shall completely close around the induction. Bell mouths, carburettors or throttle bodies may be entirely within the **airbox**.
- (c) The **airbox** shall be constructed in such a way as to prevent any oil discharged in the **airbox** from spilling on the track. This oil containment shall hold a minimum of 1000 cc of oil. The **airbox** shall be sealed to prevent any spillage of oil or fuel.
- (d) The **airbox** intake size is not restricted.
- (e) The air inlet into the **airbox** shall be above the lowest point of the air intake into the engine at the bell mouth.

2.3.6 Oil breather systems

All Sidecars shall have a closed breather system. The oil breather line shall be connected and discharge in the **airbox** for oil containment (see Art. 2.3.5.c)

2.3.7 Oil cooler, oil tank

- (a) Oil cooler shall not be mounted on or above the body of the Sidecar.
- (b) The location of the oil tank and oil cooler must be placed in a location where it is least likely to be damaged in an accident.

2.3.8 Oil drain plugs and supply pipes

- (a) All oil drain plugs shall be tight and shall be drilled and wired in position. Oil supply lines shall be correctly and securely wired in position. External oil filters and screws or bolts that enter an oil cavity shall be safety wired.
- (b) Oil lines containing positive pressure, if replaced, shall be of metal reinforced construction with swaged or treaded connectors. Manufactured solid construction oil lines, where practical, shall be replaced also.
- (c) It is recommended that Sidecars be equipped with a red light on the instrument panel. This light must flash in the event of oil pressure drop.

2.3.9 Oil and coolant containment

- (a) In the area directly below the engine, the oil containment tray shall be constructed to hold, in case of an engine breakdown, the total oil and engine coolant capacity used in the engine (min. 5 litres). It must be securely affixed to the chassis.

- (b) The surrounding edges of the tray shall be at least 170 mm above the bottom of the tray. Any passages for chain, chain tension device, gearshift linkage etc. must be sufficiently closed with rubber sealing bellows or sealing lips to avoid any leakage of oil spray. Holes for engine mounts (hangers) shall be sealed.
- (c) The bottom of this tray must be closed at any time.
- (d) The frontal edge of the oil bay reservoir wall shall be extended upwards to arrive just below (within 20 mm) the exhaust ports of the engine.
- (e) From a vertical view, the engine block shall be located completely inside the oil bay platform.
- (f) The rear wheel shall be protected from any possible oil-spray. To make this protection, the engine and the rear wheel compartment shall be separated.

This separation shall be created by installing a solid divider (wall). This wall reaches from the top of the inside of the fairing and shall overlap the rear edge of the oil tray to the rear section by at least 100 mm.

- (g) All Sidecars shall attach oil absorbent materials of no less a quality than 3M Product number 05656 or CEP Sorbents/product number CEP-EP100.
- (h) This material shall be securely fixed to the following areas of the Sidecar:

The entire tray, both the bottom and inside walls of the same.

The volume of material used in this area, according to manufacturer's specifications, shall absorb not less than 3 litres of oil.

The material shall be attached in such a way that it should be easily replaced, yet shall not become dislodged whilst on the track, and its effectiveness is not inhibited, i.e., if an adhesive is used it shall not clog the material, causing it to lose its absorbent properties.

In the event that oil is absorbed by the material, it shall be replaced before the next track session.

- (i) All absorbent material used shall be non-flammable by design.

2.3.10 Exhaust pipe

- (a) The exhaust pipe shall not extend beyond the width of the Sidecar, and the furthest extremity of the exhaust pipe shall not exceed the vertical line drawn at a tangent to the rear edge of the Sidecar body.
- (b) Exhaust pipes fitted to the side of the Sidecar shall be covered so that it is impossible for the passenger to be burnt. The ends of the exhaust pipes fitted to the Sidecar shall be so positioned or protected that it is impossible for them to become entangled with another Sidecar.
- (c) The exhaust shall discharge horizontally, either to the side or to the rear of the Sidecar. The end of the silencer shall be of constant diameter over a distance of 30 mm.

2.3.11 Timekeeping transponder

All Sidecars must have a correctly positioned timekeeping transponder. The transponder must be supplied or approved by the official Timekeeper and fixed in front of the sidecar wheel as low as possible, and avoid being shielded by carbon bodywork.

Correct attachment of the transponder bracket consists of a minimum of tie-wraps, but preferably by screw or rivet. Any transponder retaining clip must also be secured by a tie-wrap.

Velcro or adhesive alone will not be accepted.

2.3.13 Additional electronic hardware

Additional electronic hardware equipment not on the original homologated motorcycle may be added (this permission refers to: data acquisition and sensors, computers, recording equipment).

The addition of a device for infrared (IR) transmission of a signal between the racing rider and his team used exclusively for lap timing is allowed.

The addition of a GPS unit for positioning, lap timing and/or lap scoring purposes or legible messages via an on-board screen is allowed.

Telemetry is not allowed.

On-board cameras may only be used upon request and after the team has obtained written permission from the FIM.

On-board cameras, maximum two per Sidecar, will be fixed on the chassis by a TV manager assisted by a member of the team.

All Sidecars equipped with one or two on-board cameras will be checked by a Technical Steward before the qualification rounds.

Riders in the top ten positions may be required by the FIM to carry up to two "on-bike board" cameras on their Sidecar.

The cameras and associated equipment shall be carried during all practice sessions and the race.

Cameras and other equipment will be supplied to the designated teams by, at the latest, two hours before the first practice at an event.

Teams shall give reasonable access and assistance to the company designated for the supply of the camera equipment to facilitate the mounting of the equipment.

On-board cameras (other than the FIM Championship promotor's cameras or those allowed by the FIM Administration) are not permitted.

If a team wishes to install its own on-board camera, it has to make an official request to the TV Department of the FIM Administration.

The installation of the on-board cameras on Sidecars has to be carried out in conformity with the FIM On-Board Camera Installation Guidelines (available upon request at the FIM Administration).

2.10 GASOLINE, LUBRICANT AND COOLANTS

All vehicles must be fuelled with:

- unleaded gasoline (from public pump station or race type) OR
- a mixture of unleaded gasolines OR
- a mixture of unleaded gasoline(s) and lubricant in the case of 2-stroke engines

The unleaded gasoline or the mixture of unleaded gasolines used must comply with the FIM specifications as set out in Art. 2.10.1.

The mixture of unleaded gasoline(s) and lubricant must comply with the FIM specifications as set out in Art. 2.10.2.

Riders/teams must declare to the FIM Technical Director (or the FMNR Chief Technical Steward when there is no FIM Technical Director appointed) the make and type of gasoline to be used during practices and race(s) upon presentation of the rider/team's motorcycle(s) at the

initial Technical Verifications. They are also recommended to provide a certificate issued by the gasoline company which certify that the gasoline has been tested and is in conformity with FIM specifications.

Gasoline companies which supply 'race' gasolines (gasolines other than those obtained at public pump stations) to participating teams/riders must test their gasoline at Intertek Schlieren (Switzerland) against FIM specifications set out in Art.2.10.1 and 2.10.2.

Providing the gasoline is within the FIM specifications, a certificate containing a test report and batch number will be issued to the fuel company.

The gasoline company shall be able to provide a copy of such certificate to their client rider/teams before they take part in a race.

Contact for gasoline analysis: fimfuels@intertek.com

A list of gasolines which are in conformity with FIM specifications will be published by FIM on the FIM website.

Furthermore, in the cases in which only gasoline from the appointed supplier is permitted (for a specific event or the entire World Championship, Prize or Cup), the aforementioned gasoline shall have been previously tested in a FIM appointed laboratory in order to test its conformity with the FIM specifications as set out in Art. 2.10.1 and 2.10.2:

- in case of conformity, a certificate of conformity (including test report and tested batch number) shall be available and Art. 2.10 apply in case of controls for the riders/teams;
- in case the conformity is not achieved, the FMN of the organizing country, the Organizer/Promoter shall ask the FIM for a waiver in order to enable the use of gasoline not corresponding to FIM specifications. If the waiver is granted, the riders/teams will be responsible for using the gasoline provided without changing its composition. Controls may be carried out by FIM.

2.10.1 FIM specifications for unleaded gasolines or mixtures of unleaded gasolines

The following specifications are set for unleaded gasoline or the mixture of unleaded gasolines:

(a) The following properties shall be within the following thresholds (for each property, the relative test methods to be used for the measurement are indicated):

Property	Units	Min.*	Max.*	Test Method
RON		95.0	102.0	EN ISO 5164 or ASTM D2699
MON		85.0	90.0	EN ISO 5163 or ASTM D2700
Oxygen (includes 10% ethanol allowance)	% (m/m)		3.7	EN ISO 22854 ¹ or EN 13132 or elemental analysis
Nitrogen	% (m/m)		0.2	ASTM D 4629 ² or ASTM 5762
Benzene	% (V/V)		1.0	EN ISO 22854 or ASTM D6839 or ASTM D5580
Vapour pressure (DVPE)	kPa		100.0	EN 13016-1 or ASTM D5191
Lead	mg/L		5.0	ICP-OES or AAS
Manganese	mg/L		2.0	ICP-OES or AAS
Density at 15° C	kg/m ³	720.0	785.0	EN ISO 12185 or ASTM D4052
Oxidation stability	minutes	360		EN ISO 7536 or ASTM D525
Sulphur	mg/kg		10.0	EN ISO 20846 or ASTM D5453
<u>Distillation:</u>				EN ISO 3405 or ASTM D86
E at 70° C	% (V/V)	20.0	52.0	
E at 100° C	% (V/V)	46.0	72.0	
E at 150° C	% (V/V)	75.0		
Final Boiling Point	°C		210	
Residue	% (V/V)		2.0	
Appearance	Clear, bright and visually free from solid matter and undissolved water			Visual inspection
Olefins	% (V/V)		18.0	EN ISO 22854 or ASTM D6839
Aromatics	% (V/V)		35.0	EN ISO 22854 or ASTM D6839
Total diolefins	% (m/m)		1.0	GC-MS or HPLC
Oxygenates:				EN ISO 22854 ¹

				or EN 13132
Methanol	% (V/V)		3.0	The only oxygenates permitted are paraffinic mono-alcohols and paraffinic mono-ethers (of 5 or more carbon atoms per molecule) with a final boiling point below 210°C.
Ethanol	% (V/V)		10.0	
Isopropanol	% (V/V)		12.0	
Isobutanol	% (V/V)		15.0	
tert-Butanol	% (V/V)		15.0	
Ethers (C5 or higher)	% (V/V)		22.0	
Others	% (V/V)		15.0	

(1) In cases of dispute EN ISO 22854 will be the reference method.

(2) In cases of dispute ASTM D 4629 will be the reference method.

* All reported min. and max. thresholds do not include the tolerance which needs to be calculated in accordance with ISO 4259 and taken into account to correct the min. and max. thresholds.

(b) The total of individual hydrocarbon components, present at concentrations of less than 5% (m/m), must constitute at least 30% (m/m) of the gasoline. The test method will be GC-FID (gas chromatography-flame ionisation detector) and/or GC/MS (gas chromatography-mass spectrometry).

(c) The total concentration of naphthene, olefins and aromatics classified by carbon number must not exceed the values given in the following table:

% (m/m)	C4	C5	C6	C7	C8	C9+
Naphthene	0	5	10	10	10	10
Olefins	5	20	20	15	10	10
Aromatics	-	-	1.2	35	35	30

Bicyclic and polycyclic olefins are not permitted. The fuel must contain no substances which are capable of exothermic reaction in absence of external oxygen.

2.10.2 FIM specifications for mixtures of unleaded gasoline(s) and lubricant

The lubricant:

- must not change the composition of the gasoline fraction when added to the gasoline;

- must not contain any nitro-compounds, peroxides or any other engine power boosting additives;
- must in no way contribute to an improvement in overall performance;
- during the distillation up to 250° C, must not show a reduction in mass by evaporation of more than 10 % (m/m) (test method: simulated distillation GC);
- must contain a max. content of anti-knock agents (lead, manganese, iron) of 10 mg/kg (test method: ICP-OES).

Moreover, the following specifications are set for the mixture of unleaded gasoline(s) and lubricant:

- (a) The following properties shall be within the following thresholds (for each property, the relative test methods to be used for the measurement are indicated):

Property	Unit	Min.	Max.	Test Method
RON			102.0*	EN ISO 5164 or ASTM D2699
MON			90.0*	EN ISO 5163 or ASTM D2700
Density at 15° C	kg/m ³	690**	815**	EN ISO 12185 or ASTM D4052

* Reported min. and max. thresholds do not include the tolerance, which needs to be calculated in accordance with ISO 4259 and taken into account to correct the min. and max. thresholds.

** Min. and max. thresholds do include the tolerance.

2.10.3 Air

Only ambient air may be mixed with the gasoline as an oxidant.

2.10.4 Sampling and testing

The FIM may require gasoline controls, i.e., controls of the unleaded gasoline, mixture of unleaded gasolines or mixture of unleaded gasoline and lubricant, used by riders/teams at events. These controls involve an initial sampling at the event and further testing in the FIM appointed laboratory.

2.10.4.1 Sampling

- (1) The FIM Technical Director (or the FMNR Chief Technical Steward when there is no FIM Technical Director appointed) is the sole official responsible for the sampling management and supervision.
- (2) Riders/teams selected for gasoline controls are directed to proceed with their vehicles to the area that has been designated for this purpose.
- (3) The FIM Technical Director/FMNR Chief Technical Steward collects the gasoline from the motorcycle by using only new sample containers and pipettes/hand pumps. The gasoline is transferred through the use of the pipette/hand pump directly from the gasoline tank into three containers, denominated A, B and C. The containers are closed and sealed by the FIM Technical Director/FMNR Chief Technical Steward.
- (4) The FIM Technical Director/FMNR Chief Technical Steward fills in (in all its parts) and signs the Gasoline Sample Declaration Form (see 2.10.4.3). The rider or a team representative also signs this Form, after verifying that all the information is correct.

The FIM Technical Director/FMNR Chief Technical Steward prepares an appropriate shipping box containing the collected A, B and C samples and a copy of the respective, signed, Gasoline Sample Declaration Form. The box is then shipped to the FIM appointed laboratory by registered courier.

2.10.4.2 Testing

- (1) One or more properties to be checked (following the relevant testing method as per Art. 2.10.1 and 2.10.2) are set by the FIM for each selected rider/team.
- (2) Sample A is the first sample to be tested by the FIM appointed laboratory.
- (3) Sample B can be used for a second analysis if required by the FIM. The test result of the A or B sample more favourable to the rider/team is taken into account. Costs for the shipping and testing of sample A and B are paid by FIM.
- (4) As soon as possible after completing the testing, the FIM appointed laboratory reports the test results directly to the responsible CTI Coordinator.

- (5) For negative cases (i.e., conformity of the tested property(ies) with the specification), the riders/teams concerned will be individually informed by the FIM in due course, copying the rider/team's FMN, the FIM Technical Director/FMNR Chief Technical Steward, the competent authority (e.g., Race Direction, International Jury), the CTI Director, the Director and Coordinator(s) of the Sporting Commission concerned.
- (6) Only for positive cases following testing of sample A or B or A and B (i.e., non-conformity of one or more properties*), the responsible CTI Coordinator notifies by electronic mail* the rider/team concerned (including the testing results) and, 24 hours after, forwards the relevant information to the rider/team's FMN, the FIM Technical Director/FMNR Chief Technical Steward, the competent authority (e.g., Race Direction, International Jury), the CTI Director, the Director and Coordinator(s) of the Sporting Commission concerned.

*Note: The non-conformity of one property (except the Appearance) is sufficient for declaring non-conformity of the gasoline or the mixture.

- (7) If the rider/team wishes to request a counter-expertise, he must notify the responsible CTI Coordinator by electronic mail* accordingly, within 72 hours of receipt by the FIM of the delivery status notification pertaining to the notification of the test results to the rider/team.
- If a counter-expertise is requested, the sample dedicated to the counter-expertise is sample C and the test shall aim at checking the same property(ies) previously checked on sample A/B. The rider/team can request that sample C be tested at one of the available FIM appointed laboratories. Costs for shipping and testing of sample C are paid by the rider/team concerned.
 - Upon notification of the sample C results, the responsible CTI Coordinator notifies by electronic mail* the rider/team concerned (including the testing results) and forwards the relevant information to the rider/team's FMN, the FIM Technical Director/FMNR Chief Technical Steward, the competent authority (e.g., Race Direction, International Jury), the CTI Director, the Director and Coordinator(s) of the Sporting Commission concerned.
 - If no counter-expertise is requested within the time limit, the responsible CTI Coordinator forwards the relevant information by electronic mail* the rider/team's FMN, the FIM Technical Director/FMNR Chief Technical Steward, the competent authority (e.g., Race Direction, International Jury), the CTI Director, Director and Coordinator(s) of the Sporting Commission concerned.

- The competent authority of the event concerned (e.g., Race Direction, International Jury) takes a decision based on the information received. The Coordinator of the Sporting Commission concerned notifies the rider/team concerned regarding the decision by electronic mail*.

The non-conformity of:

- A sample (in the cases B sample was not used) or
- B sample (in the cases A sample result was not conclusive) or
- A and B samples or
- A and B and C samples (in the cases B sample was used and a counter-expertise was requested) or
- A and C samples (in the cases B sample was not used and a counter-expertise was requested) automatically results in the disqualification of the rider/team from the entire event.
- No disqualification will be applied in case of conformity of sample C.

Furthermore, in any case, other penalties may be applied.

- (8) The rider/team has the right to appeal against the decision of competent authority of the event concerned (e.g., Race Direction, International Jury) in accordance with FIM Disciplinary and Arbitration Code applicable to the relevant discipline.

*The receipt of a delivery status notification will be deemed as proof of delivery.

The serial numbers of the vial seals and the accuracy of the listed information have been verified.

Riders' / Teams' responsible name	
Riders' / Teams' responsible signature	
FIM Technical Directors' / FMNR Chief Technical Stewards' name	
FIM Technical Directors' / FMNR Chief Technical Stewards' signature	
Date and time (dd/mm/yy, hh/mm)	

2.10.6 Fuel storage

Where the fuel is supplied by the Organiser, there shall be officially designated and controlled fuel storage areas. Outside these areas, fuel may only be stored in metal containers.

A maximum of 60 litres of fuel, stored in a sealable container, is allowed in the competitor's pit.

The officially designated storage and supply area shall be in conformity with the building criteria. Firefighting equipment, protective devices and staff shall conform to the requirements imposed by the local authorities and by-laws.

The organiser shall have fire extinguishers of a size and type approved by the local by-laws, available to each competitor in the pit area.

2.10.7 Coolants

The only liquid engine coolant permitted other than lubricating oil shall be water.

2.11 PROTECTIVE CLOTHING AND HELMETS

2.11.1

Riders must wear a complete leather suit with additional leather padding or other protection on the principal contact points, knees, elbows, shoulders, hips, etc.

2.11.2

Linings or undergarments must not be made of a synthetic material which might melt and cause damage to the riders' skin.

2.11.3

Riders must also wear leather gloves and boots, which with the suit provide complete coverage from the neck down.

2.11.4

Leather substitute materials may be used, providing they have been checked by the Chief Technical Steward.

2.11.5

The use of a back protector is compulsory; the use of a chest protector is highly recommended.

Protectors must be clearly marked with the following norms:

- (a) The back protector must comply with EN1621-2, CB ("central back") or FB ("full back") Level 1 or 2.
- (b) The chest protector must comply with EN1621-3.

2.11.6

Riders must wear a helmet which is in good condition, provides a good fit and is properly fastened.

2.11.7

Helmets must comply with the FIM helmet standard.

A list of FIM homologated helmets is available on www.frhp.org.

See example of label below:



2.11.9

Disposable "tear-offs" are permitted.

2.11.10

Any question concerning the suitability or condition of the riders clothing and/or helmet shall be decided by the FIM Technical Director/Chief Technical Steward, who may, if he so wishes, consult with the manufacturers of the product before making a final decision.

2.12 PROCEDURE FOR TECHNICAL CONTROL

2.12.1

The rider is at all times responsible for his Sidecar.

2.12.2

The Chief Technical Steward must be in attendance for an event at least 1 hour before the Technical Verifications are due to beginning. He must inform the Clerk of the Course, the Jury President and the FIM Technical Director of his arrival.

2.12.3

He must ensure that all Technical Stewards, appointed for the event, carry out their duties in a proper manner.

2.12.4

He shall appoint the Technical Stewards to individual posts for the race, practices and final control.

2.12.5

The rider and the passenger, with their helmets and their riding/safety gears must be present with their Sidecar for Technical Control within the time limits stated in the Supplementary Regulations. The maximum number of persons present at the Technical Verification will be the rider and the passenger, plus two others. In addition, the Team Manager will also be allowed.

2.12.6

The FIM Technical Director/Chief Technical Steward must inform the International Jury of the results of the Technical Control. The FIM Technical Director/Chief Technical Steward will then draw up a list of accepted Sidecars and submit this list to the Clerk of the Course.

2.12.7

The FIM Technical Director/Chief Technical Steward have the right to inspect any part of the Sidecar at any time of the event.

2.12.8

Any rider failing to report as required below may be disqualified from the event. The International Jury may forbid any team who does not comply with the **FIM Regulations**, or any rider who may be a danger to

other participants or to spectators, to take part in the practice sessions or in the races.

2.12.9

The Technical Control must be carried out in accordance with the procedure and times fixed in the Supplementary Regulations of the event.

2.12.10

The FIM Technical Director/Chief Technical Steward will refuse any Sidecar that does not have a correctly-positioned positive transponder attachment. The transponder must be fixed to the Sidecar in the position and orientation as shown in the Timekeeping Information given to the teams pre-season and available at each event. Positive attachment of the transponder bracket consists of a minimum of tie-wraps, but preferably by screw or rivet. Velcro or adhesive alone will not be accepted. The transponder retaining clip shall also be secured by a tie-wrap.

2.12.11

The rider or the mechanic shall present a clean Sidecar and in conformity to the **FIM Regulations**. He shall also present a duly filled in and confirmed Technical Card.

2.12.12

An overall inspection of the Sidecar must be carried out in conformity with the **FIM Regulations**. Accepted Sidecars will be marked with paint or a sticker.

2.12.13

The FIM Technical Director/Chief Technical Steward has the final authority in case of a dispute on the conformity of the parts in question and for acceptance thereof.

2.12.14

Before each practice the Chief Technical Steward must confirm that the Sidecar has passed the Technical Control by checking the Technical Control sticker before the Sidecars go on the track.

2.12.15

Only accepted Sidecars may be used in practices and races.

2.12.16

Approximately 30 minutes after the Technical Control have been completed, the FIM Technical Director/Chief Technical Steward must submit to the International Jury a list of accepted Sidecars and riders.

2.12.17

If a Sidecar is involved in an accident, the FIM Technical Director/Chief Technical Steward must check the Sidecar, together with the helmet and clothing of the rider involved, to ensure that no defect of a serious nature has occurred.

If a Sidecar was stopped with a Black Flag with Orange Disc, the FIM Technical Director/Chief Technical Steward must check the Sidecar.

In both cases, it is the responsibility of the team to present the Sidecar (together with helmet and clothing of the fallen rider) for his re-examination in case they wish to continue.

If the helmet is clearly defective, the Chief Technical Steward must retain this helmet.

The helmets of all riders taken to the medical centre for assessment following a crash must be retained by the medical personnel or the CMO for control by the FIM Technical Director or Technical Stewards before being returned to the rider or the team manager.

In cases of head injury including concussion or loss of consciousness, unless a specific provision of a national law advises otherwise, the helmet must be forwarded to the FIM Laboratory at the University of Zaragoza for expert examination and non-destructive analysis.

After inspection, the helmet can be returned to the rider, team or manufacturer.

2.13 VERIFICATION GUIDELINES FOR TECHNICAL STEWARDS

- Make sure all necessary measures and administrative equipment are in place at least 1 hour before the Technical Control (see separate list) is due to open (time in Supplementary Regulations).
- Decide who is doing what and note decisions. “Efficiency” must be the watchword. Always keep cheerful and remember the reasons for Technical Controls: SAFETY AND FAIRNESS.

- Be well informed. Make sure your FMN has supplied you with all technical “updates” that may have been issued subsequent to the printing of the Technical **Regulation** Books. Copies of all homologation documents shall be in your possession.
- Inspection must take place under cover with a large enough area (min. surface 100 sq. metres) to handle the Technical Verifications in two lines.
- Weighing apparatus must be accurate and practical. Certified master weights and their certificate must be available for the Technical Checks.
- **Regulations** regarding sound level and measurement must be respected.

1) Preparations, procedures:

- At each circuit, an area must be designated as the Technical Control Area. In this area, under the control of the FIM Technical Director/Chief Technical Steward, suitable equipment will be available to conduct proper inspections.
- The Technical Control will be carried out in accordance with the schedule set out in the Supplementary Regulations.
- Technical Stewards must be available throughout the entire event to check Sidecars and equipment as required by the FIM Technical Director/Chief Technical Steward.
- Presentation of a Sidecar will be deemed as an implicit statement of conformity with the Technical Regulations.
- The Technical Stewards must inspect the Sidecars for obvious safety omissions.
- The Technical Stewards must inspect that the Sidecar conforms to all Technical **Regulations** laid out in the **FIM Sidecar World Championship** Regulations.
- All Sidecars will be required for weight and/or sound check at the pre-race Technical Inspection.
- The scales and sound meter will be available to the teams or riders for pre-race checking in the Technical Control Area.

- Noise test should take place in a clear area adjacent to the Technical Control at least 10 meters from any possible sound reflecting obstruction.
- The riders must be aware that the weight and sound may be controlled at random during practice in the pit-lane and at the end of the race.
- Claiming that the sound and weight were not officially controlled before the race will not be grounds for appeal. Conformity of the **regulations** is the responsibility of the rider.
- The FIM Technical Director/Chief Technical Steward reserves the right to spot check the weight and sound of any Sidecars on pit row during free practice and official practice. This may occur at any time during the free practice and in the first forty minutes of any official (timed) practice. This will be carried out with the least possible inconvenience to the rider.
- Sidecars arriving later than the first free practice must be controlled in the Technical Control Area.
- At the conclusion of the inspections, a small sticker or coloured mark will be placed on the frame indicating that the Sidecar had passed inspection.
- The Technical Stewards must re-inspect any Sidecar that has been involved in an accident.
- The Technical Stewards must be available, based on instructions from the FIM Technical Director/Chief Technical Steward, to re-inspect any Sidecar for technical compliance during the event.
- During the Technical Inspection in the closed park the mechanics must assist with the inspections. A maximum of two (2) team members per rider is allowed in the closed park during the post-race Technical Inspection. Downloading of data is allowed in the closed park.
- Representatives of the tyre manufacturers are allowed in the closed park.

(2) Practice:

- Dry Practice: Every Sidecar used in free or official practice may be checked. The minimum checks are weight and sound.

- The FIM Technical Director/Chief Technical Steward may request other checks.
- Wet Practice: The FIM Technical Director/Chief Technical Steward may perform certain checks during/after a **Wet Practice**.

(3) Final Inspection at the end of the race:

Sidecars may be checked at least for the following compliance points:

- **Weight**: The weight will be checked in the condition that the Sidecar has finished the race. No elements may be added to the Sidecar, neither any type of ballast, fuel, oil, water, nor tyres.
- **Sound**: compliance with max noise limit.
- **Throttle bodies and injectors**: Measurement and inspection of both inlet- and outlet tracts and points on the homologated fuel injection system.
- **Engine**: Engine(s), chosen at random, may be checked internally for capacity and compliance with Art. 2.3.

The FIM Technical Director/Chief Technical Steward may require a team to provide parts or samples, as he may deem necessary to confirm compliance with the **regulations**.

(4) Appointment and attendance:

The Technical Stewards shall be present and available during the opening hours of the Technical Control Area. The FIM Technical Director/Chief Technical Steward will instruct the Technical Stewards to verify Sidecars for compliance with technical and safety **regulations**.

(5) Administration day/Technical Control:

For all teams:

Tasks: Inspection of Sidecar safety, clothing and helmets	3 persons
Sound control (if carried out)	2 persons
Weight control (if carried out)	1 person
Administration tasks	1 person

(a) Saturday:

Technical Control free practice and official qualifying sessions:

Tasks:

Inspection of Sidecar safety, sound and weight:	3 persons
Inspection of crashed Sidecars and Technical Controls:	2 persons
Administration tasks:	1 person

(b) Sunday:

Technical Control during race day:

Before race: Safety checks on start grid as required

(c) After race:

Technical Control noise, weight and carburation instruments	3 persons
Displacement checks	2 persons
Administration tasks	1 person

NOTE: This is the required minimum of Technical Stewards. The number may of course be higher.

All final verification points to be decided in cooperation with the International Jury President and the FIM Technical Director/Chief Technical Steward. Post-race checks are under extreme pressure. It is important to be very well organized.

The Chief Technical Steward must report to the Jury after the final verifications.

(6) Minimum equipment list:

- Revolution meter
- Sound meter and calibrator
- Slide calliper
- Depth gauge
- Steel measuring tape
- Seals
- Weighing apparatus (scales) with calibration weights

- Tools for measuring engine capacity
- Tools for measuring valve lift
- Weighing apparatus for investigation of valve weights
- Colour for marking parts
- Magnet for materials testing
- Computer to read homologation lists on CD-ROM or memory stick

(7) Documents list:

- FIM Sidecar World Championship Regulations of the current year
- Supplementary Regulations
- Homologation documents
- Technical Control forms
- Writing materials

2.14 SOUND CONTROL

(a) Maximum sound level: 107 dB/A (see also Art. 2.14.5)
(with a 3 dB/A tolerance after the race)

(b) Sound will be controlled as below:

2.14.1

With the microphone placed at 50 cm from the exhaust pipe at an angle of 45° upwards, measured from the centre-line of the exhaust end.

2.14.2

During a sound test, Sidecars not equipped with a gear box neutral shall be placed on a stand.

2.14.3

The silencers will be marked when they are checked and it is not allowed to change them after the verification, except for any spare silencer which has also been checked and marked.

2.14.4

The driver shall keep his engine running out of gear and shall increase the engine speed until it reaches the specified revolutions per minute (RPM). Measurements shall be taken when the specified RPM is reached.

2.14.5

The RPM depends upon the mean piston speed corresponding to the stroke of the engine.

The RPM will be given by the relationship:

$$N = \frac{30,000 \times cm}{l}$$

in which

$$\begin{aligned} N &= \text{prescribed RPM of engine} \\ cm &= \text{fixed mean piston speed in m/s} \\ l &= \text{stroke in mm} \end{aligned}$$

2.14.6

Due to the similarity of the piston stroke in different engine configurations within the capacity classes, the sound test will be conducted at a fixed RPM:

600 cc 4-cylinder 4-stroke 7.000 RPM

(For reference only, the mean piston speed at which the sound test is conducted is calculated at 11 m/sec)

2.14.7

The sound level for engines with more than one silencer will be measured on each exhaust end.

2.14.8

A Sidecar which does not comply with the sound limits may be presented several times at pre-race control.

2.14.9

After the race, the sound limit shall not exceed: 107 dB/A (with a tolerance of 3 dB/A).

2.14.10

All sound meters must have a frequency response according to IEC61672 Section 11 within a limit of plus or minus 2 dBA from 125 to 8000 Hz at 94, 104 and 114 dBA.

2.14.11

The sound level meter shall be equipped with a calibrator for control and adjustment of the meter during periods of use.

2.14.12

The '**slow response**' setting shall always be used.

2.14.13

There is no influence of temperature on sound tests.

2.14.14

Sound control after the competition:

In a competition which requires a final examination of Sidecars before the results are announced, this examination shall include a sound control measurement of at least the first three Sidecars listed in the final classification.

At this final test, there will be a 3 dB/A tolerance.

2.15 GUIDELINES FOR USE OF SOUND LEVEL METERS

2.15.1

The Sound Control Officer (SCO) must arrive in sufficient time for discussions with the FIM Technical Director and other Technical Stewards in order that a suitable test site and testing policy may be agreed.

2.15.2

Sound level measuring equipment must include a compatible calibrator, which shall be used immediately before testing begins and always just prior to a re-test if a disciplinary sanction may be imposed.

Two sets of equipment must be available in case of failure of tachometer, sound level meter or calibrator during Technical Control.

2.15.3

Before testing, the SCO must calibrate the sound test equipment with a calibrator, in order to check the accuracy of the official sound meter.

2.15.4

Tests can take place in rain or damp conditions. Sidecars considered excessively noisy must be individually tested if conditions allow.

2.15.5

In other than moderate wind, Sidecars should face forward in the wind direction. (Mechanical sound will blow forward, away from microphone).

2.15.6

“Slow” meter response shall be used.

2.15.7

“A” weighted setting on sound level meter.

2.15.8

There is no rounding down of the meter reading:

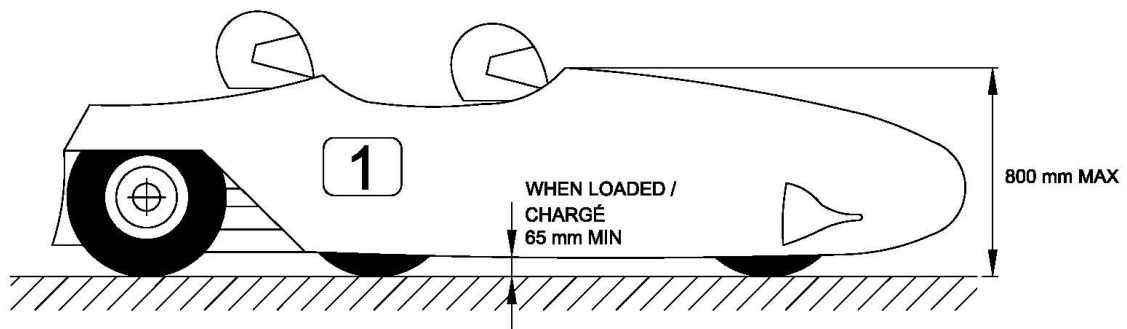
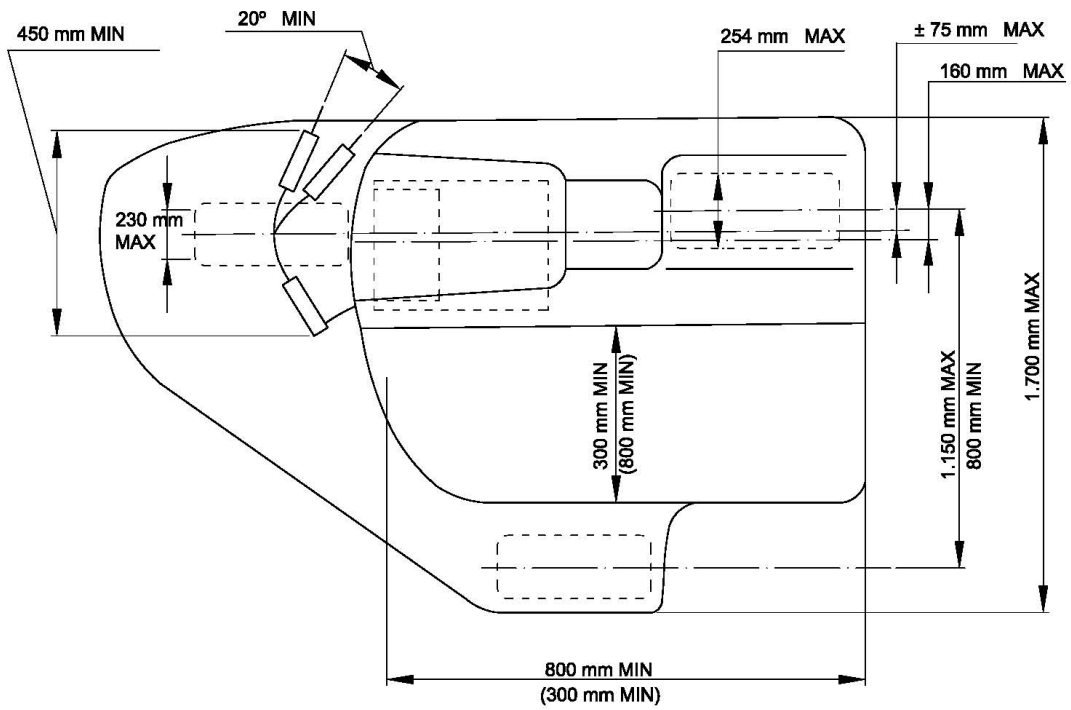
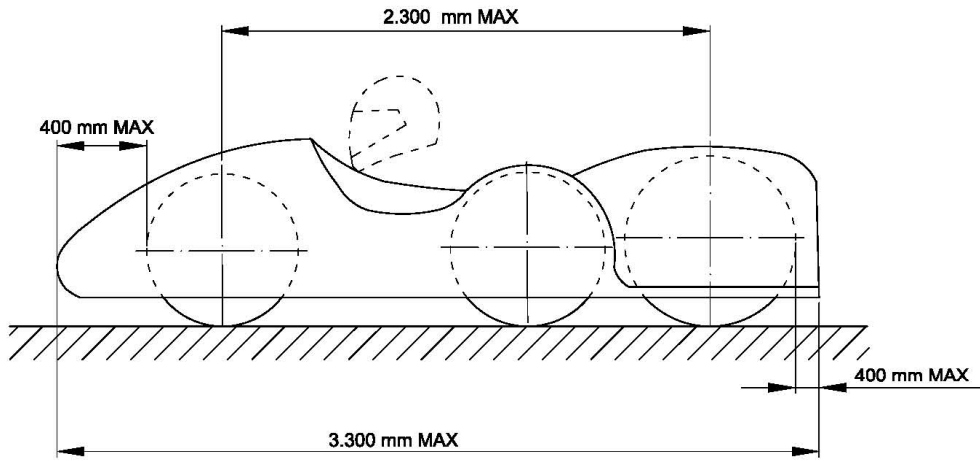
$$107.9 \text{ dB/A} = 107.9 \text{ dB/A}$$

2.15.9

Correction type 1 meter: deduct 1 dB/A

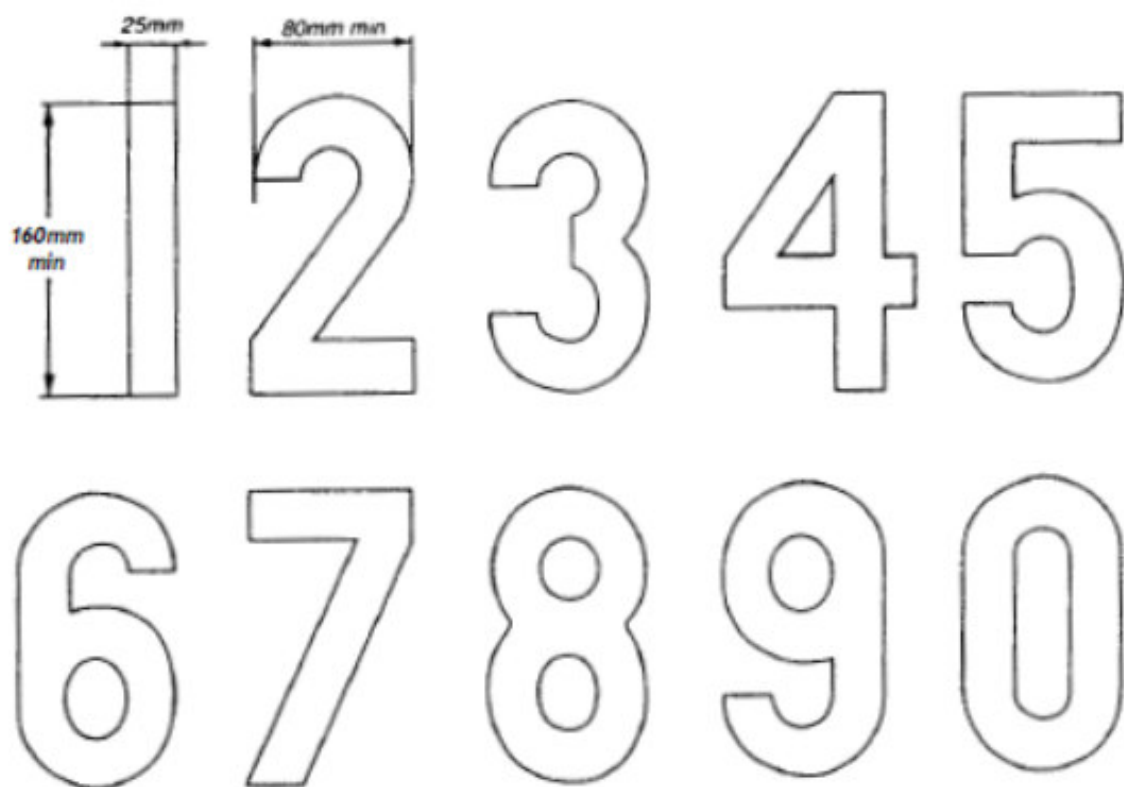
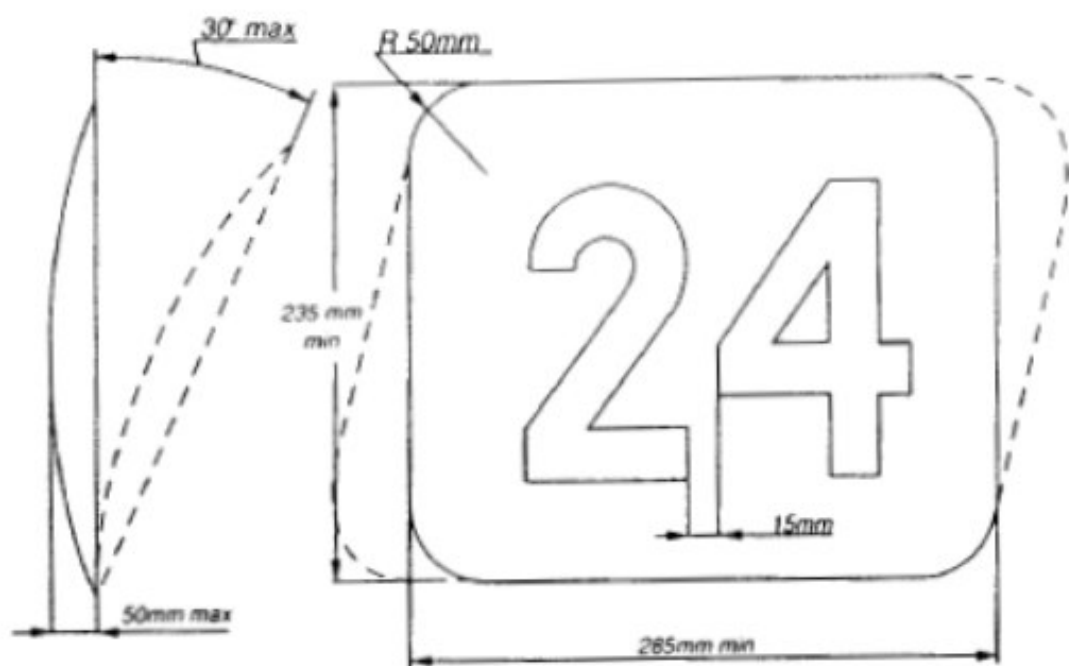
Correction type 2 meter: deduct 2 dB/A

DIAGRAM A



NUMBERS/NUMEROS

0



Futura Heavy

0 1 2 3 4 5 6 7 8 9

Futura Heavy Italic

0 1 2 3 4 5 6 7 8 9

Univers Bold

0 1 2 3 4 5 6 7 8 9

Univers Bold Italic

0 1 2 3 4 5 6 7 8 9

Oliver Med.

0 1 2 3 4 5 6 7 8 9

Oliver Med. Italic

0 1 2 3 4 5 6 7 8 9

Franklin Gothic

0 1 2 3 4 5 6 7 8 9

Franklin Gothic Italic

0 1 2 3 4 5 6 7 8 9

TEN FITTING TESTS FOR HELMETS
DIX TESTS D'ADAPTATION POUR LES CASQUES

1. *Obtain correct size by measuring the crown of the head*
Avoir la bonne grandeur en mesurant le sommet de la tête
2. *Check there is no side to side movement*
Vérifier qu'il n'y ait pas de déplacement d'un côté à l'autre
3. *Tighten strap securely*
Serrer solidement la jugulaire
4. *With head forward, attempt to pull up back of helmet to ensure helmet cannot be removed this way*
Tête en avant, essayer de soulever le casque pour s'assurer qu'il ne peut pas être enlevé de cette façon



5. *Check ability to see clearly over shoulder*
Vérifier si vous pouvez voir clairement par-dessus l'épaule
6. *Make sure nothing impedes your breathing in the helmet and never cover your nose or mouth*
S'assurer que rien ne gêne votre respiration dans le casque et ne jamais couvrir le nez ou la bouche
7. *Never wind scarf around neck so that air is stopped from entering the helmet. Never wear scarf under the retention strap*
Ne jamais enrouler une écharpe autour du cou, car cela empêche l'air d'entrer dans le casque. Ne jamais porter d'écharpe sous la jugulaire
8. *Ensure that visor can be opened with one gloved hand*
S'assurer que la visière peut être ouverte avec une main gantée
9. *Satisfy yourself that the back of your helmet is designed to protect your neck*
S'assurer que l'arrière de votre casque a une forme telle qu'il vous protège la nuque
10. *Always buy the best you can afford*
Toujours acheter le meilleur que vous pouvez vous offrir