



Official Competition Manual 2014/2015

Sound Quality Multi Media ESQI ESPL EMMA Racing



Official international EMMA Partners 2014/2015



The Car Audio Forge.



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1 Welcome to the European Mobile Media Association!

1.1 History & preface

Car Audio Competition has its roots in the United States, where the first organisations designed competition manuals for Sound Quality events.

EMMA was founded to create a level playing field for sound quality competitions in Europe and to unify the different rulebooks that were used all over the continent.

EMMA International is the leading organisation for the EMMA national car audio associations all over the world and is responsible for the yearly organised international Head Judge training, the standardised rulebook and the media used for competition.

Its website www.emmanet.com gives access to important information about the sound quality competitions. The EMMA Sound Pressure League (ESPL) and EMMA Racing are also part of the EMMA competition series. With EMMA Racing, a platform is created for tuned cars with mobile media systems to compete on a national and international level with common rules, to find the European Champion not only in sound but also on overall car performance. Furthermore ESPL is introduced as a new format.

In this actual version of the EMMA rulebook, all our experiences gathered over the last years from all National Organisations and the international Competitions have been used to create a rulebook that is fairer and easier for the competitor to understand and follow.

It is also EMMA's sincerest hope that these rules will be viewed as an example of the organisations continuing efforts to promote the CarMedia industry.

1.2 EMMA Mission Statement

The mission of the European Mobile Media Association is to provide guidelines for an independent group of national car audio organisations all over the world. It sets rules and regulations by which the Sound Quality, ESPL, ESPL and EMMA Racing competitions are held. EMMA's goal is to encourage fair competitions on an equal level throughout all member countries and to promote the growth of these events. The intention is to have an international Championships in the available formats every year.

Furthermore EMMA encourages both, competitors and installers, to extend their knowledge of the equipment they are using. This then results in a higher standard of quality for the installations and ensures the equipment will perform to its optimum. Ultimately this will result in satisfied competitors and/or customers.

1.3 The Competition Challenge

For EMMA's competitors, the challenge is to build an Audio or Multimedia system that will overcome the problems of vehicle acoustics, reproducing music without noise or distortion and to make the music sound like the "original" and / or a high Sound Pressure Level. Installation quality is also evaluated.

1.4 The Competitive Spirit

EMMA was established to satisfy the need of competitors to find out "Who is on top in Europe, Asia, Africa, Australia, America or the world".

Today's high performance car audio equipment is capable of delivering sound reproduction so accurately and loud, that it does not sound like reproduction at all. EMMA is concerned that some people may forget that the most important instruments in this listening experience, their ears, have limits. The last thing we want to see is for enthusiasts abusing their ears by listening at extreme volume levels that could render them incapable of hearing the music they love so much!

Good Luck!!

This rulebook was discussed and written by the EMMA international Head Judges & Supervisors and finalised with the support of Costas Christopoulos (Greece), Ronald van Looij, Reinier Wolf (Netherlands), Werner Rothschof (Austria), Prapasakorn Bhucksasri (Philippines), Per Söder (Sweden), Chris Körbel, Norbert Tyka, Jan Schleicher and Alex Klett (Germany).

DISCLAIMER

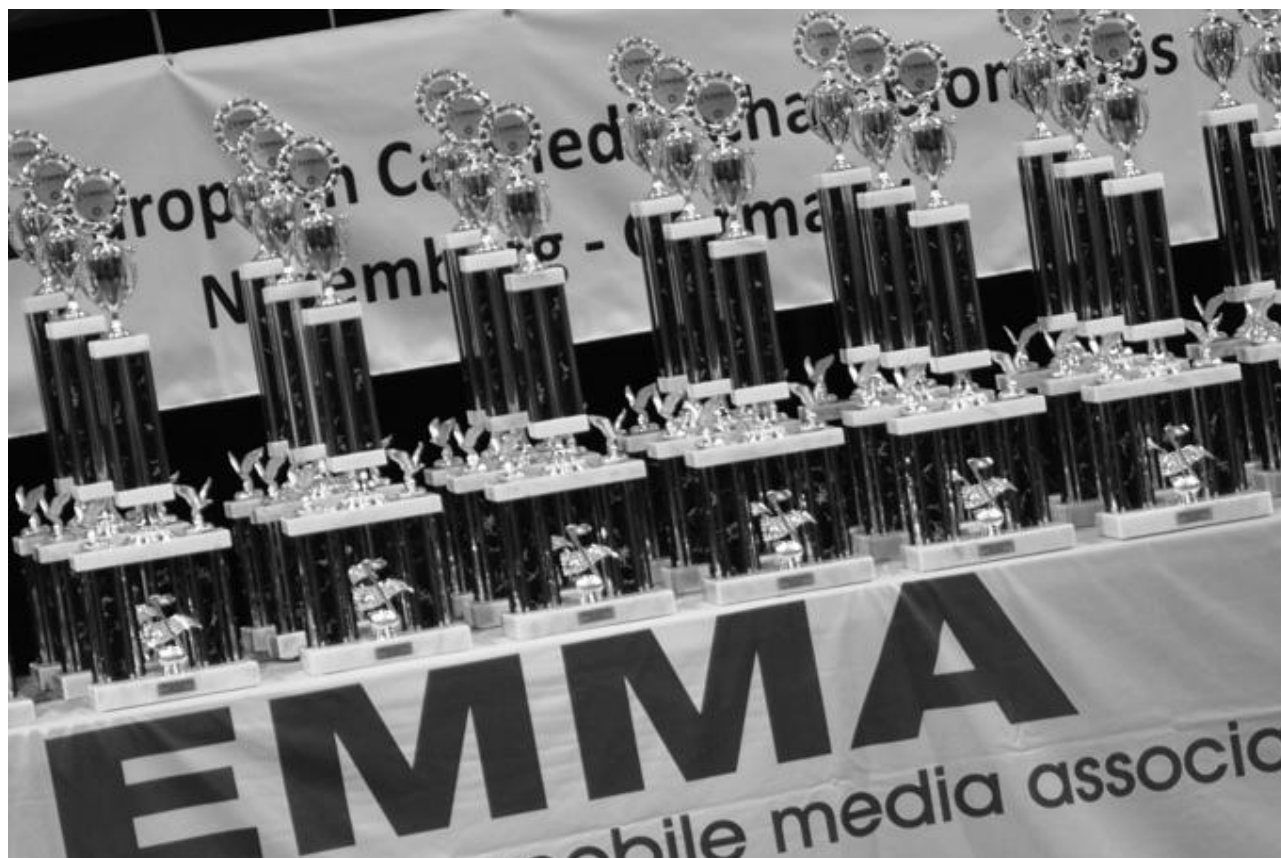
In any EMMA-sanctioned event, EMMA will not be held responsible, directly or indirectly, for any damage to or loss of competition cars, equipment and other goods.
Furthermore EMMA urges the competitors and the public in general to protect their hearing.

EMMA is a registered trademark

All copies of the official rules, score sheets and other related material, media such as CDs, DVDs, provided audio files like MP3 and AAC, and the use of brand name and logo are to be authorised by the owners of the European Mobile Media Association, Alexander Klett and/or Peter Fuhrmann.

All relevant Updates, judging details to the Rulebook are published at www.emmanet.com

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2 General competition rules and procedures

2.1 General

For all EMMA authorised events, only this rulebook and the affiliated media to be used.

As a general rule with regard to specific items, when not written and/or addressed specifically in this rulebook and the affiliated judge books, it will be judged illegal until otherwise specified by the EMMA Rules and/or Head Judge Council.

Amendments will be made to these rules, policies, and procedures in accordance with the changing times of our industry. Any Addendum to the Rulebook will be published on the EMMA Homepage – www.emmanet.com - and accompany the actual version of the rulebook replacing or clarifying paragraphs if necessary. In this case, the updated paragraphs written in the latest addendum will be classified as the updated actual version of the rulebook and will be valid from the day of publishing.

The following policies, procedures and rules have been formulated to benefit all competitors, officials and judges at EMMA sanctioned events. Many manufacturers, retailers and fellow competitors established these rules and guidelines through many hours of research for the purpose of fair, unbiased judging standards. Because it is impossible to foresee every circumstance, or combination of circumstances that may arise during an event, it will be up to the discretion of the Head Judge, Event Director and/or the Head Judge Council to address any of these circumstances or concerns when they arise.

The Head Judge or the Event Director at the event will outline the circumstances or concerns (regarding the rulebook) and forward them to the EMMA office for administration and forwarding them to the Head Judge Council for review and measures.

The Head Judge(s) and/or Event Director has to clarify judging discrepancies on the day of the event, while the information is still fresh in everyone's mind and the system can be checked to determine the proper course of action. Discrepancies resolved by the Head judge will be forwarded to the EMMA office.

All communication during an international event will be in the English language. Whether it is in presenting ones car, give/receive feedback, file a written protest, announcements or otherwise.

When necessary, a competitor is allowed to use an interpreter. Using and providing of an interpreter is the sole responsibility of the competitor!

The international Head Judge Council is a (flexible) group of Head Judges & Supervisors that work on the most actual version of the rulebook / judge books take measures if concerns or circumstances are reported and support active judges in international competitions.

It is the highest possible institution for decisions within the EMMA competitions.

These General Rules apply to ALL competitions organised under EMMA rules.



2.2 Registration

1. Any legal person is allowed to participate in EMMA events. This can be a “natural living male or female” person, a group of persons or a legal entity that can act as one. This includes associations, foundations, establishments, companies etc. In no way is only one “natural person” meant. In the rest of the rulebook he, she or they will be called competitor.
2. The vehicle entered in the competition must be (temporarily) registered () and allowed to drive.
3. The vehicle entered in the competition must be able to drive into the competition area by its own engine.
4. Regardless of any state or national law requirement, a valid vehicle registration or certificate of title, or a facsimile thereof, must be available on request to verify vehicle ownership.
5. Vehicles must be registered in the competitor’s name or business name or it must be proven that the competitor is the main user of the vehicle on request.
6. The vehicle that is registered to compete must be present at the location of the competition and available to the judging process within the announced times. Otherwise the registration is not valid.
7. Any falsification or misrepresentation of entry registration information regarding participant, vehicle and/or mobile media system, can be cause for immediate disqualification. The individual could be banned from competition for the balance of the competition season by the national organisation or EMMA.
8. The competitor registration form must be filled in completely via the internet in advance or by hand on the competition day with the requested information (certain national organisations might only accept registration over the Internet), such as but not limited to:
 - Complete name
 - Complete address
 - (Mobile)Phone- and if possible E-mail address
 - Vehicle information (manufacturer, type, colour, registration number)
 - Category and class in which the vehicle will compete
 - Manufacturers of all installed components
 - Date and location of the event (a registration form must be filled in for each event separately)
9. The registration fee has to be paid in cash to the organising association on the morning of the event before it begins. The fee will depend on the national organisation’s rules. In some cases the competitors will be asked to wire-transfer the money to the account of the organisation in advance of an event to confirm attendance.
10. One competitor can participate and qualify in a maximum of five different formats during one event with the same vehicle:
 - One class in Sound Quality
 - One class in Multimedia
 - One class in ESPL
 - One class in ESQ
 - One class in EMMA Racing
11. A competitor may enter more than one vehicle in one event. Qualification points will be only awarded to the competing vehicle in the category/class it is competing in.

2.3 Conditions of Entry

- Please follow the description under the chapter “Categories and Classes”.
- A competitor must register in the appropriate class according to all active components installed. (Note: If a discrepancy between the value of the car audio system or number of woofers reported during registration is determined after judging has been completed, the competitor may be disqualified. It is up to EMMA to accept or refuse the price for components given by the competitor by a comparison with the EMMA value database at: www.emmanet.com/value. In the case of not accepting the given value it is up to the Head Judge/Event Director to dismiss the competitor or to upgrade the car to other categories/classes
- The audio system can be installed by a professional installer (valid for all classes!).
- The use and installation of equipment produced for mains electric power (e.g. 220 - 240V) is only allowed for other devices (see installation rules)
- Active judges at an event are allowed to participate with their vehicle but they cannot judge the same category/class.

- A Head Judge/Event Director is allowed to compete in the event he is in charge of. If this is the case, the legal power for the class he/she competes in is transferred to another qualified (Head) judge.
-

2.4 On the Competition Day

1. The competitors must be at the registration before the announced time. (e.g. 9.00, the times mentioned are an example and may vary). If he/she has not registered within the next 30 minutes (e.g. until 9:30 h) there will be a deduction of 10 Points written on his/her score sheet (signed by the Head Judge/Event Director). After 60 minutes (e.g. 10.00 h) the competitor will only be allowed to compete if the event director decides so due to a reasonable explanation.
2. All vehicles must drive into the judging area by using their own engine. In case of engine trouble on the way to the event, the organisation has to be informed as soon as possible. The Head Judge or the Event Director can decide in this case whether to deduct points or not (in SQ for engine on testing, in other cases 30 points). The judging area is defined as the designated location for SQ-cars on the event (e.g. hall #5) and for ESPL- & ESQ-cars the locations for installation judging and measurement (might require driving with own engine between installation point and measuring point).
3. After registration, the competition vehicles must be located in the designated areas, instructions from the organisation/staffs have to be followed.
4. The vehicle entering the judging area must be accompanied by the person showing the vehicle and no more than one co-pilot. When a competitor and his/her co-pilot are in the judging area, they must follow all instructions pointed out by the judges, Head Judges and officials of the organisation.
5. Before the beginning of the judging process, the Head Judge will invite judges and competitors to attend to a briefing. If an EMMA event is held over a two day period, the organisers/national organisation decides which classes start on which day.
6. When the judges want to start their work, they will inform the first competitor of the day and the vehicle has to be prepared for judging within five minutes. In case of a time schedule being used – the vehicle has to be ready for judging one hour before the determined time.
7. Before the SQ/MM/ESPL/ESQL-judging starts, the judges will give the judging media to the competitor and allow him max. two minutes to check the settings of the system. It's the competitor's responsibility to assure the proper DSP setting, that all speakers work properly, etc. The system will then be judged under those conditions.
8. If a competitor feels that an equipment malfunction or operator error resulted in a score to be questioned, they have the right to bring this to the attention of the judge (team). It is up to the Head Judges/Event Director if a rejudging will be permitted or not.
9. During all events it is always possible to send out 2 judges per category/class, even if it is stated otherwise in the rulebook. This decision must be announced before the start of the event.
10. The installation is not allowed to be changed between the installation and sound judging (i.e. remove covers, apply damping, remove grilles, etc.). Disregard of this may lead to 0 points in the relevant installation section after reviewing this issue with the Head Judge.
11. On some events, a prestaging can be required.
12. During prestaging, an assigned event official will verify the registration and/or the competitor information section on the score sheet. This includes verifying the registered category and class. If the competitor category and class is questioned, it is the responsibility of the Head judge to determine the appropriate category and/or class for this event only.
13. An official inspection person or the appointed installation judges have the option to inspect each competitor's vehicle to verify the information supplied under vehicle information and the system description any time of the competition.
14. During an inspection procedure, the official performing the inspection reserves the right to require a competitor to disassemble their audio system installation or elements of their vehicle, within reason, in order to verify the competitor's submitted equipment list and/or value of car audio system. Failure to comply with inspection will result in the forfeiture of any and all prizes awarded and disqualification. In all cases, the decision of the Head Judge, the EMMA Supervisors, the Head Judge Council or the EMMA Directors are final.

15. If any damage should occur to the sound system or vehicle during disassembly, it should be immediately reported to the Head Judge.
16. EMMA is not liable for damage or system failure occurring at or during an event.
17. In the case of ties / equal points of competitors in the same class, the following rule is applied for ESPL / ESQ:
 - a. the competitor with the higher value for measurement closed finishes in front of the other
 - b. If even the measurements closed are equal, the competitor with the higher value for measurement open finishes in front of the other

The following rule is applied for SQ:

 - a. Higher points in SQ rules over installation
 - b. if even SQ points are equal: the car with the higher points in tonality wins.

2.5 Event Types

2.5.1 Regional event

A regional event can be organised by a retailer, a manufacturer or another accepted association. During this event there must be a minimum of one official Head Judge and one SQ and installation judge team each. Regional events are to qualify for the yearly national Final.

Competitors are more than welcome to pick up the idea of the international community and start in competitions in other EMMA-member countries! With their attendance, an account to earn qualification points is opened in the country they started in.

2.5.2 National events

A national event (e.g. the final) can only be organised by a national member organisation of EMMA, or by EMMA itself. National finals can only be organised with the official permission of the EMMA office. Participants of the national final must have qualified at regional events/international events. It is suggested that the 10 competitors with the highest qualification points gathered over the season will be qualified for the final. The national organisation is allowed to adjust the number of qualifiers for the finals. If international competitors are qualified for the national finals and participate, they can win. But they cannot become national Champion in any other than their home country. In case of winning a national final not in the home country, it is up to the national organisation to allow their qualification for the European Finals and to start for that nation. During a national event there must be, besides sufficient judges, a complete authorised Head Judge team and an official EMMA Event Director.

2.5.3 International event

International events can only be held with the permission of the EMMA International office. EMMA will work strongly together with the organising National Association and is responsible for delegating the Event Director, Head Judges and the entire judge team.

Participants for an international Championship (e.g. Euro finals) must qualify before and must start in the same category/class they qualified in.

The qualification can be accomplished either by being in 1st place on the Finals of a national organisation or – if the finals are held too close to or after the international Championship – the first competitor of the national points table will qualify. The maximum amount of competitors per Nation will be announced at latest three months before the international final.

In every case the national organisation must nominate the participants with their data for the international championship 2 weeks before these finals at the latest to allow EMMA the organisation of the event. It is the responsibility of the national organisation to assure sending only competitors that qualified themselves for the international championship and that they are in the correct class as well as – where required - that the value of the equipment is within the limits according to the EMMA-value-database!

Note for categories in Sound Quality and Multimedia on national or international events:

If there are more than 14 competitors in a class, the national organisation (or on an international event like the Euro finals EMMA - International) can decide to separate this class by splitting the class in 2 groups and have the best 3 of each group judged by a new judge team to determine the places 1-6. As an alternative all cars can be judged by the same team within two days and the best six of this will meet again in a final the following day judged by another team. Places 7, 8, 9 ... will be determined according to the points achieved on the first evaluation.

2.5.4 Qualification points

For the qualification to the national finals, the following points will be awarded to an account for the competitor in conjunction with his competition vehicle and the category/class he was competing in with it.

1st place	10 points
2nd place	8 points
3rd place	6 points
4th place	5 points
5th place	4 points
6th place	3 points
7th place	2 points
8th place	1 point

Qualification points are awarded to a Person-Car-Class combination. If anything in this combination changes, the points are void.

Whenever a competition is labelled as an EMMA International Event, the qualification points earned there will be added only to the competitor's national (home) account as qualification points for the national final. If no account is opened, the national organisation must then open it.

The points awarded in the events will be accumulated and maybe published on the official national EMMA website.

2.6 Etiquette

1. No other than an EMMA Head Judge/Event Director or authorised official may look at any scores on any score sheet or judge's safety sheet during the competition.
2. Competitors are permitted to see their install score sheets and to receive an explanation of the judges, which will take a maximum time of 5 minutes. The scoring is not to be discussed. The competitor will sign the score sheet after explanation of installation judging.
3. On non-final events, competitors are permitted to see their SQ score sheets and to receive an explanation of the judges, which will take a maximum time of 5 minutes. The scoring is not to be discussed. The competitor will - in this case - sign the score sheet after explanation of SQ judging. On any finals, SQ-scoring will not be explained and competitor is not requested to sign the score sheet.
4. By signing the score sheet, the competitor accepts the scoring and waives all rights to file a protest.
5. Furthermore, the signed score sheet is a contract between EMMA and the competitor that can (in case of a failure) only be changed between the Head Judge and the competitor by signatures with the knowledge and approval (signature) of the Event Director.
6. If a competitor is required to sign a score sheet and refuses to sign it on national or international events, the car will then be locked and the Head Judge will be informed. A small protest form will be available to be handed out by the Head Judge if requested.
7. In general, the competitor has three choices: sign the score sheet (when so required), file a protest or withdraw from the competition. If necessary, the Head Judge will be called and clarify the situation.
8. No competitor or Judge may discuss actual scores of any other vehicle or system with any competitor at any time prior to the trophy presentation.
9. After judging of the vehicle, the competitor must immediately exit the judging area if so required.
10. Any competitor caught cheating during an event will be dismissed from the event. The EMMA office and Head Judge Council may review the incident of cheating (even when the event is over)
11. Repeat offences or cheating can be cause for loss of all, or part of accumulated points that can be earned at EMMA sanctioned events and for a possible disqualification from participation in all future EMMA sanctioned events. In extreme cases the EMMA office will make the name of the cheating competitor public.
12. Abusive language or misconduct on the part of competitors or Judges will not be tolerated and may result in dismissal from the event, as well as forfeiture of event registration fees for compensation.
13. It is the responsibility of the Judges and the competitor to make sure that nobody takes a look at the score sheet other than the competitor himself during explanation. Competitors who try to take a look at another score sheet (or have somebody do that for them) can be punished with 5 points deduction.
14. Anyone interfering with the judging process will get a 5 point deduction, or may be removed from the event at the discretion of the Head Judge/Event Director (this also includes team leaders etc.).

15. Indecent or inappropriate behaviour can lead to the exclusion of the competitor from the competition by the Head Judge/Event Director, in severe cases from all competitions of that year or forever by the national EMMA organisation. In worst cases a competitor can be banned by EMMA headquarters from competing in ANY EMMA competition.
16. During the event all alarm system must be turned off. If the alarm system is triggered and the competitor does not immediately turn the alarm system off, five points will be deducted by the Head Judge.
17. The use of interior horns is absolutely prohibited during EMMA competitions and leads to immediate disqualification of the competitor.
18. The competitors can expect the Judges to:
 - Be polite to the competitors
 - Wear EMMA sanctioned clothing
 - Give a fair and unbiased evaluation to all competitors
 - Have undergone proper education to be a Judge
 - Give the competitor tips on how to improve the system (exception on final events)
19. EMMA Head Judges are not allowed to be part of organizations competing with EMMA.

2.7 Protests and Tear downs

1. Scores are defined as any points that are placed on a score sheet. This includes objective measurements as well as subjective observations. If a competitor feels that a Judge has intentionally or unintentionally given a score that is incorrect or not consistent with intended interpretation of the current rulebook, the competitor can protest the score. In order to prevent trivial protests, the protesting competitor must accompany their protest with a risk of losing 30 points, which will be deducted from the actual score sheet. In the event that the score is deemed incorrect, the deducted points will be returned to the protesting competitor. If the score is deemed to be correct, the protesting competitor will lose the 30 points on their score.
2. A competitor should understand that if a protest is filed that questions a particular Judge's subjective judgement, it could only be resolved by that specific Judge. It has to be verified that he/she is comfortable with the score issued and has a complete understanding of the rules as they are written and interpreted. A subjective judging section score cannot be re-judged nor be re-scored by any other Judge or the Head Judge. If the Head Judge found an incorrect score he will take proper action. In case of re-judging, obvious items in the install-section like loose equipment, wrong fuses, etc. or in the sound/picture section like noise, etc. will not be changed because these may be changed by some competitors prior to the re-judging leading to another picture other than in the original process.
3. A competitor can also doubt the fair play of another competitor. This may include the incorrect value of car audio system woofers and/or competitor category classification, suspected cheating or falsifying competitor information. This protest can result in a tear down or objective/subjective re-test of the protested competitor's vehicle. This challenge can only take place on the day of the event and at the event site. Should a competitor challenge another competitor's vehicle and should the Head Judge/Event Director determine that the tear down or objective/subjective re-test is necessary for verification, the contesting individual must accompany his/her challenge request with 30 points of his/her actual score. Should a violation be discovered in the contested vehicle the 30 points will be returned to the challenger; and appropriate measures will be taken regarding the violation. However, should no violation be discovered, the protesting competitor will lose the 30 points on his/her actual score.
4. Only a competitor in the same class, registered in that event, may request a tear down. Any non-competitor or team leader who protests or attempts to protest on behalf of a registered competitor may, at the Head Judge's or Event Director's discretion, have him/herself and the competitor (team) he/she represents removed from the contest.

2.8 Request Procedure for Protests/Tear downs

1. The competitor should point out any score that he/she feels is incorrect immediately after the judging process (!!!) to the Judges. The Judges will contact the Head Judge or a designated Control Judge. If the Head (Control) Judge is comfortable with reasoning behind the protest (logical analysis of the score) the Head Judge can permit the competitor to file a protest. Without this permission, NO protest can be filed!
2. An official protest must be in writing and will include the appropriate point's deduction by the Head Judge. The competitor should specify what is being protested and include his opinion of what the score should be on the basis of this rulebook. Filing a protest 'because the scoring is too low (e.g. lower as in the last competition attended, etc.) will not be accepted. In case of multiple problems with the scoring, multiple protests need to be filed, each with 30 points deduction. The official protest is lodged with the Head Judge. Only the official protest form has to be used and must be handed to the Head Judge or Event Director within 30 Minutes of the judging being finished.
3. The Head Judge will discuss the protest with the concerned judge team and the second Head Judge. In case of no solution being found by the two Head Judges, the Event Director will decide about the protest. Event Directors must be actual Judges. If not, an experienced Judge out of the present Judge Team will be asked for his/her decision and the proceedings will be forwarded to the Head Judge Council.
4. The Head Judges/Event Director will make the decision on the protest at the contest. The decision of the Head Judges/Event Director is final; prize giving ceremony will take place.
5. It is the competitor's right to send his/her protest to the EMMA office. The EMMA office will forward the protest to the Head Judge Council. The Council may review the Head Judge's/Event directors' decision but there can be no change of the result in any way.
6. Requests for a tear down must be submitted on the day the class is being judged and a minimum of 4 hours before the prize giving ceremony begins.

3 EMMA rules – Sound Quality

3.1 Sound Quality Categories and Classes

Sound Quality competitions are held to determine who has the best sounding car according to the rules in this rulebook. To make sure that the right people compete against each other, categories with an ascending level of difficulty have been created. The starting level is called EMMA Rookie and is meant for anybody who wants an evaluation of their in-car sound system without knowledge of rules and regulations. The highest level is called Expert Unlimited and is for the most experienced competitors with unbelievable high quality of installation and sound.

The difference between the categories is the amount of judging that will take place. In the EMMA Rookie category only a few elements of the total Installation and Sound-score available will be judged. As the competitor progresses through the categories, more and more elements of the Installation and Sound will be judged. It is up to you, the competitor, to decide in which category to start (it's possible to change categories up or down, except back to EMMA Rookie or EMMA Experienced). With this system the competitor is able to increase his/her knowledge about the mobile media system in the car.

How does the judging work? Both sound and installation are judged by set criteria. There is only one list of judgement criteria, and the higher your experience (and your category), the more criteria will be judged. Following these rules, when a competitor who was competing in a higher category decides to compete in a lower category, he/she will NOT have any advantages against others, because one or more criteria will not be judged in this lower category. In simple words: An expert unlimited car must not necessarily win in Advanced Unlimited!!!

The categories themselves are divided into classes, depending on the value of the car audio system or the number of channels of amplification. If a competitor is competing in two categories (e.g. SQ and Multimedia), it is possible that a different number of components (amplifier, speakers) are used (e.g. 8 channels in Multimedia and 5 channels for SQ). In this case, only the numbers of channels used for SQ are counted to determine the correct class/price limited category. This may be checked by the judges, e.g. by disconnecting speaker cables at the amplifier-connections.

Portable Media-Players such as I-pod, USB-devices or portable memory media such as SD Card, Memory Stick, Hard Drive, etc. are valid sources of media. They can be used in the judging process when they are physically connected to the head unit. For a competition these devices have to be provided by EMMA. The media sources provided by EMMA are – for all categories SQ/ESPL/ESQL:

- Audio CD
- MP3
- AAC
- WAVE

The media sources as well as the audio source (e.g. iPod) have to be provided by EMMA.

Streaming of media is allowed for the judging process if requested by the competitor. The media as well as the streaming device will be provided by EMMA. The competitor is responsible that the system source unit will connect to the provided streaming device (Smartphone, tablet, etc.).

If a local (in car) copy of the media is necessary for the judging process, the competitor has to make it possible that the EMMA SQ-Judge can copy the files to the competitors unit. After finishing the judging procedure, the files will be deleted by the EMMA SQ-Judge.

It is up to the competitor to ensure that one of the provided formats can be reproduced in their car media system.

Note: The EMMA tracks are under the copyright of EMMA GmbH and any copy without authorisation is illegal.

Money limited classes

In some categories money limited classes are available. The respective national organization is responsible to verify that the competitor starts in the correct category with the help of the EMMA-value-database. The total system price is the sum of all non-binding retail price recommendations of the manufacturers (even if they are used or “old”) and includes all electronic material (the source unit, processors, active crossovers, amplifiers, all speakers etc.). All mounting materials (cables, mounting boards, passive crossovers, fuse blocks, batteries, capacitors etc.) are not included into the total sum. It does not matter if a contestant bought the products on a lower price level or second hand. To provide an equal basis, EMMA is using a database available to all national organisations defining the value of any component..

For the calculation of the correct component value on national and international events, EMMA Europe provides access to the official EMMA Value Database at www.emmanet.com.

If the competitor uses products not within the database, the competitor has to contact his/her national organisation, provide the necessary data and the national organisation will contact EMMA Europe to get the EMMA Value Database updated. If products will be used that are not available on the European Market, the competitor has to prove the retail price. If this is not available an equivalent value of a similar product available in the European Union will be taken as reference.

Equipment used at an international Final has to be written down in detail and sent to EMMA for authentication and verification prior to the event.

If a competitor decides to use the factory installed components following values will be added to the total system value:

- OEM CD-Tuner € 200
- OEM Audio Video unit € 500
- OEM front speakers, € 250
- OEM rear speakers, €250
- OEM centerspeakers, € 250
- OEM subwoofer(s), € 250
- OEM amplifier, € 500
- OEM processing units, € 300

If a remote control is installed, that is, one not included with the source unit and the retail price is unknown, it will be calculated at € 50 and adds up together with the rest of the components to the total system value.

SQ is split into following categories:

3.1.1 EMMA Rookie

EMMA Rookie is the way to get acquainted with car audio competition and is meant for anybody interested in getting a qualified opinion about his/her in-car mobile media system. The EMMA-Judges will give the competitor feedback about the performance and installation of the mobile media system in a clear and simple way. The competitor will get the chance to listen to other cars and talk to other people interested in car audio. He/she can get inspired by other cars, installations or sound and will be able to buy an official EMMA Rulebook and CD to get an even better result next time around. Perhaps even more important, he/she will be able to meet people of all sorts and nationalities, make friends, get support from other competitors and in general have as much fun as possible.

A competitor is allowed to compete in this category if he/she meets all of the following criteria:

- The vehicle and/or competitor have never competed in any EMMA Sound Quality competition in any category other than EMMA Rookie.
- The vehicle and/or competitor have never won first place in the category EMMA Rookie.
- The competitor is not an active or retired Judge in any car audio organisation.
- The competitor is not related to, employed by, or otherwise affiliated with, and/or has not received financial support or other compensation from any manufacturer of mobile audio equipment, or publisher of auto sound related material, retail dealer or other representative of the mobile electronics industry and magazines (also auto sound organising or sanctioning body).
- He/she has neither received, nor expects to receive, financial support or other compensation for promotional consideration from any industry-related person or company for participation in any EMMA event or promotion.
- The mobile electronics system that he/she is entering to the competition should have been purchased through retail channels or used. If requested by an event official, proof of purchase (i.e. numbered sales receipt) should be available for verification.

Furthermore:

- No modified or self built active (=power supplied) equipment is allowed (e.g. head unit, line driver, amplifier, active crossover etc.).
- In EMMA Rookie, there will be no national and no international Championship.

Typically, certificates will be awarded to all competitors in this category (no trophies). The winner of the category will receive an official EMMA rulebook together with an EMMA Sound Quality CD and will be invited for a free participation in an upcoming EMMA-event in the category EMMA Experienced. Furthermore, he/she will be asked to compete in the EMMA Experienced category for the rest of the season.

Classifications:

- Unlimited

Judging procedure:

One EMMA Judge will first introduce and explain EMMA and then Judge both Sound Quality and installation with the designated track and Installation, according to the judging-matrix on the last page.

- **Sound Quality:** Overall spectral balance
Distance to sound stage
Listening Pleasure
- **Installation:** The mounting of the components
The usage of the correct fuse size for the cables installed
The status of the installation

The competitor will be invited to accompany the judging process. He/she is not allowed to disturb the judging. The Judges are advised to explain what they judge and give hints and tips to the competitors but without using brand names.

3.2 EMMA SQ Experienced

EMMA Experienced is the next step, and the first category with competitions on a national and international level. The judging on Sound and Installation consists of criteria only concerning safety (installation) and simple sound judging.

As only a couple of things will be judged in installation, no extensive installation is expected in the car. Sound will be judged with the designated, official EMMA-Sound-Quality-recordings. Of course if, through the qualified advice from the judges and other competitors, the Installation and Sound improve, it will be time to make the next step up, the Advanced category.

As there will be finals (the national and international) in this category, it will be the first step to learn why EMMA is special – it's the feeling of belonging to a community of people who have the same hobby on an international scale, where being there is more important than winning.

A competitor is entitled to compete in this category if he/she meets all of the following criteria:

- The vehicle and/or competitor have never competed in any EMMA Sound Quality competition in any other category than EMMA Rookie or EMMA SQ Experienced.
- The vehicle and/or competitor has never won first, second or third place in the category EMMA Experienced on a national or international championship.
- The competitor is no active or retired Judge in any car audio organisation.
- The competitor is not related to, employed by, or otherwise affiliated with, and/or has not received financial support or other compensation from any manufacturer of mobile audio equipment, or publisher of auto sound related material, retail dealer or other representative of the mobile electronics industry and magazines (also auto sound organising or sanctioning body).
- He/she has neither received, nor expects to receive, financial support or other compensation for promotional consideration from any industry-related person or company for participation in any EMMA event or promotion.
- The mobile electronics system that he/she is entering to the competition should have been purchased through retail channels or second-hand. If requested by an event official, proof of purchase (i.e. numbered sales receipt) must be available for verification.

Furthermore:

- No modified or self built active (=power supplied) equipment is allowed.
- It is allowed to install one pair of speakers (not bigger than 10cm according to the manufacturers description) either to the A-pillars or mirror triangle (one on each side) or to the original places for speakers in the dashboard. Note: Co-Axial speakers will be considered as two separate speakers ending up in two pairs of speakers in above mentioned places. This is not allowed in Experienced.
- If speakers are mounted in the dash they must be mounted to OEM locations - The surface of the dashboard has to follow the OEM design. Speaker adapter rings can be used and grills may be changed, but must not protrude from the OEM surface.
- Modifications to the original position of the steering wheel and pedals is not allowed
- In EMMA Experienced, there will be a national and an international Championship.
- The winners of first place at a national or international final will be promoted to EMMA Advanced (or higher) in the following competition season.

Classifications:

- Up to €2.000
- Up to €4.000

Judging procedure:

- One EMMA Sound Quality Judge will perform a basic judging according to the matrix on the last page.
- One EMMA Install Judge will perform a basic judging according to the matrix on the last page.

Depending on the event permission can be granted to the competitor to accompany parts of the judging process. He/she is not allowed to disturb the judging. The Judges are advised to give hints and tips to the competitors but without using brand names.

3.2.1 EMMA SQ Advanced

EMMA SQ Advanced is the next step following SQ experienced. No fancy or sophisticated installations are expected here and no points will be awarded for this. A good sounding vehicle with a simple but correct installation should compete in this category. Almost the full sound-judging will be done by EMMA Judges and the installation will be judged on more criteria than safety alone.

A competitor is entitled to compete in this category if he/she meets all of the following criteria:

- The vehicle and/or competitor has never won first or second place in the category EMMA SQ Advanced (or higher) on a national or international championship.
- The competitor is not related to, employed by, or otherwise affiliated with, and/or has not received financial support or other compensation from any manufacturer of mobile audio equipment, or publisher of auto sound related material, retail dealer or other representative of the mobile electronics industry and magazines (also auto sound organising or sanctioning body).
- He/she has neither received, nor expects to receive, financial support or other compensation for promotional consideration from any industry-related person or company for participation in any EMMA event or promotion.
- The mobile electronics system that he/she is entering to the competition must have been purchased through retail channels or second-hand. If requested by an event official, proof of purchase (i.e. numbered sales receipt) must be available for verification.

Furthermore:

- No modified or self built active (=power supplied) equipment is allowed. Cosmetic change of display-color is not considered as modification of active equipment and therefore allowed also in money limited class.
- It is allowed to install speakers (not bigger than 10cm according to the manufacturer's description) either to the A-pillars, mirror triangle or to the original places for speakers in the dashboard.
- If speakers are mounted in the dash they must be mounted to OEM locations that can be modified for improved speaker installation - The surface of the dashboard should approximate the OEM design. Speaker adapter rings can be used and grills may be changed, but must not protrude from the OEM surface.
- Modifications to the original position of the steering wheel and pedals are not allowed.
- In EMMA Advanced, there will be a national and an international Championship.
- The first place winners at a national or international final will be promoted to EMMA SQ Master (or higher) in the following competition season.

Classifications:

- Up to € 4.000
- Unlimited

Judging procedure:

- EMMA Sound Quality judges will perform the judging according to the matrix on the last page.
- EMMA Install judges will perform the judging according to the matrix on the last page.

3.2.2 EMMA SQ Master OEM

The intention of this category is to provide a possibility to compete for those competitors who are not willing to modify the optical appearance of the interior of their vehicle, e.g. leasing-vehicles, etc. The installation in the car has to appear stock/OEM (OEM is the abbreviation for "Original Equipment Manufacturer) and commercially available from the manufacturer. It is allowed to modify or change the OEM-head unit as a signal source, install external processors and amplifiers and change speakers. Almost the full sound-judging will be done by EMMA Judges and the installation will be judged in the criteria according to the matrix.

This category is open to anyone who wants to compete in an EMMA-competition

- The only visible change allowed in the passenger compartment is the change of the head unit at the OEM place.
- If an additional device (like a volume/gain control or display) is needed to control the volume of an external processor, it is allowed to install this device also visible in the passenger compartment.
- No further optical modifications to the passenger compartment then the two listed above are allowed.
- Anything behind OEM surface can be modified.

- Components behind panels/grills may be changed (e.g. speaker).
- The car may be damped invisible.
- The trunk can be modified and must not approximate the OEM-look & shape.
- Visible changes in trunk compartment are allowed.

Furthermore:

- It is allowed to modify equipment (based on mass-market equipment, no prototypes or modified prototypes allowed)
- In EMMA SQ Master OEM, there will be a national and an international Championship.

Classifications:

- EMMA SQ Master OEM (one class)

Judging procedure:

- EMMA Sound Quality judges will perform the judging according to the matrix on the last page.
- EMMA Install Judges will perform the judging according to the matrix on the last page.

3.2.3 EMMA SQ Master

Almost the full sound-judging will be done by the judges and the Installation will be judged according to the Matrix. Of course, the sound should be very good but here the target is to look for a more sophisticated but not fancy Installation. Typical daily driven vehicles should compete in this category.

This category is open to anyone who wants to compete in an EMMA-competition

Furthermore:

- In EMMA SQ Master there are no restrictions on installation.
- In 6 channel and unlimited class it is allowed to use modified or self-built equipment. This is not allowed in the money limited class. Cosmetic change of display-color is not considered as modification of active equipment and therefore allowed also in money limited class.
- In EMMA SQ Master there will be a national and an international championship.

Classifications:

- Up to € 4.000
- 6 Channel
- Unlimited

Judging procedure:

- EMMA Sound Quality judges will perform the judging according to the matrix on the last page
- EMMA Install judges will perform the judging according to the matrix on the last page.

3.2.4 EMMA SQ Expert OEM

The intention of this category is to provide a possibility to compete for those competitors who are not willing to modify the optical appearance of the interior of their vehicle, e.g. leasing-vehicles, etc. The installation in the car has to appear stock/OEM (OEM is the abbreviation for "Original Equipment Manufacturer"). It is allowed to modify or change the OEM-head unit as a signal source, install external processors and amplifiers and change speakers. Almost full sound-judging will be done by EMMA judges and the installation will be judged in the criteria according to the matrix.

This category is open to anyone who wants to compete in an EMMA-competition

- It is allowed to change the head unit at the OEM place.
- If an additional device (like a volume/gain control or display) is needed to control the volume of an external processor, it is allowed to install this device also visible in the passenger compartment.
- It is allowed to integrate additional displays to the passenger compartment.
- It is allowed to modify the OEM speaker grills but size and shape must approximate original.
- No further optical modification to the passenger compartment than the four listed above are allowed.
- Components behind panels/grills may be changed (e.g. speaker). Anything behind OEM surface can be modified.
- The car may be damped invisible.

- Visible changes in trunk compartment are allowed.

Furthermore:

- It is allowed to use modified or self-built equipment.
- Bonus points will be awarded in this category
- In EMMA SQ Expert OEM, there will be a national and an international Championship.

Classifications:

- EMMA SQ Expert OEM (one class)

Judging procedure:

- EMMA Sound Quality judges will perform the judging according to the matrix on the last page.
- EMMA Install judges will perform the judging according to the matrix on the last page.

3.2.5 EMMA SQ Expert

The competitors in this category are supposed to set an example for the other competitors how to be an exemplary EMMA-competitor – as well in a competition as in the community. The vehicle should sound decent, of course - but this is the category where fancy installations will receive the points they deserve and where bonus points will be awarded to creative ideas. The full sound-judging will be done by EMMA judges and the installation will be judged on all criteria.

This category is open to anyone who wants to compete in an EMMA-competition

Furthermore:

- In EMMA SQ Expert, there are no restrictions on installation.
- It is allowed to use modified or self-built equipment.
- Bonus points will be awarded in this category.
- In EMMA Expert, there will be a National and an International Championship.

As improvement is always possible, the competitors will get a qualified feedback from the judges regarding their sound-system and installation.

Classifications:

- Up to € 6.000 (15 bonus points max.)
- Limited (15 bonus points max.)
- Unlimited (100 bonus points max.)

Judging procedure:

- EMMA Sound Quality judges will perform a full judging according to the matrix.
- EMMA Install judges will perform a full judging according to the matrix.

3.3 Changing Categories/Classes

A competitor who elects to change class and/or category during the competition season must compete at least once in the new class and/or category within the same season to qualify for invitations to the national final. All qualifications reached before expire with this change. A change of category and or class after the national final disqualifies the competitor from the European Final. It is the duty of the national organisation to ensure the correctness of the participation of their competitors.

If a competitor joins the judge team or begins to work for the car audio industry during the season, he/she is no longer allowed to compete in EMMA Rookie or EMMA SQ Experienced. If previously started in the above mentioned categories. All qualifications reached before expire from this moment on.

3.4 EMMA Rules – Sound Quality

The sound quality judging will be performed with the actual, official EMMA-Sound-Quality-recordings by one or two sound judges. These judges are specially trained and qualified to use the EMMA-Sound-Quality-recordings together with the EMMA sound quality rules and the score sheet as a tool to determine the sound-performance of a stereo- or a Multimedia system.

The source to be used for the judging process has to be provided by EMMA. It is not allowed to use own copies in any format for the judging process. Note: The EMMA Tracks are under the copyright of EMMA GmbH and any copy without authorisation is illegal.

After the sound quality judging, the competitor will receive a qualified and detailed, objective feedback about the acoustical performance of the sound system installed in the competitor's vehicle. EMMA has divided the sound quality part into easy to follow sections that will be judged and evaluated accordingly.

The judges will not tell you "your vehicle sounds good or bad or what points you have earned", with their evaluation and with the help of the score sheet they will explain exactly how the car sounds with all relevant details.

The awarded score will be easy to follow for the competitor, when necessary with support of the EMMA-judge book. Furthermore, the competitor can learn about the potentials of their sound system. This will allow the competitor, a qualified dealer or an experienced friend to improve the sound system.

Single seat judging

Typically all categories will be judged by "single seat judging". This means one SQ- judge is sitting on the driver seat position. The competitor is free to choose the "driver position" (e.g. right hand cars on left hand finals)

On national and international competitions, every car will be judged minimum two times, with at least 30 minutes time given to the competitor to change the car in between judgings.

It can happen that two judges will sit in the car during judging procedure. The scoring for staging & imaging will be performed from the judge sitting on the drivers seat, the rest will be average.

Since on national and international finals, e.g. Eurofinals, the competitor already qualified during previous events with receiving feedback about his system, no explanation about the sound judging result will be given to the competitor! Only technical malfunctions (e.g. noises) according to chapter 5.7 Adjustments will be explained. At the ceremony the competitor will receive a copy of all score sheets or an averaged score sheet.

The following procedures and rules must be adhered during the Sound Quality Judging:

1. For sound quality judging, the car has to be in a "ready for driving status" as used on public roads, Windscreen/window covers, curtains, etc. are not allowed to be used.
2. The competitor will suggest the volume to be listened at by the sound judges. But to protect the judges from too high levels the unweighted slow measurement on pink noise cannot be higher than 80dB.
3. Participants may advise the judges about the specific operational features of the system before SQ- judging begins. Depending on format and categories, participants will proceed to a designated area and remain there until judging has been completed or remain with the judge during the evaluation of the vehicle.
4. During testing and scoring, judges must sit in the front seats of the vehicle facing forward. This applies to all vehicles, including limousines. All competing vehicles must have at least two front seats with the exception of the Multimedia classes. If there are cars with more than two front seats (vans or special vehicles) it is up to the competitor to decide on the seating position for the passenger side judge if applied. If the vehicle is judged by only one Sound Judge (not Multimedia), he has to sit on the drivers seat. Windows and sunroof need to be closed during judging. Only convertibles can be judged with the roof folded down, when the competitor requests for it and the weather conditions are appropriate.
5. If two judges are applied and the judges disagree on a sound quality score, they may switch seats to establish whether the vehicle presents a different sound from each seat. If the judges agree that the system presents a different sound from each seat, they should arrive at a consensus score for each seat, and then average this.
6. The judge will verify that the competitor is able to operate the gear-stick, the steering wheel and the pedals. (Note: If there is a very big difference between the height of the competitor (small) and the judge (tall), the judge is not required to judge the sound in the competitor's reasonable driving position. The other way around, a pillow or similar can be used to adjust the height difference. The reasonable driving position will be certified in a check box on score-sheet.
7. If it is not possible for the competitor to operate steering wheel, gear-stick and pedals while seated, the judge will request the competitor to move his seat into a reasonable driving position before starting judging.

8. The competitor is allowed to ask the judge to sit in his/her reasonable (driving) position. The competitor may also point out that the judges must not influence the sound coming from the speaker's placement in the vehicle (kick panels, mounted under the seats, etc) by either covering them with the score sheets or by blocking them with their feet.
9. The judge is not allowed to re-adjust the seat without asking the competitor.
10. The judge is not allowed to change his seating position during the judging process.
11. It is the Head Judges decision whether to allow running engines so that the air conditioning or heating systems can be used during sound quality judging. In the event that the running of engines is allowed, judges should adjust the vehicle's ventilation fan to a quiet setting during the listening procedure.
12. Prior to judging, the Head Judge will inform the judges and competitors whether vehicles will be judged for sound quality with the engine running or the engine off. This announcement should be made at the competitor's and judges meetings. All vehicles must be judged consistently. It is within the Head Judges discretion to make exceptions based on extenuating circumstances (extremely loud engines etc.). In some climates this may impose unreasonable fatigue and/or discomfort on judges (very cold or hot weather).
13. On events inside trade fair facilities it can be the case that the start of engine is prohibited. In this case all scores for noises will be zero.
14. The judge should avoid any actions that could affect the sound performance. (E.g. not to wear hats/ball-caps, avoid chewing gum, turn off cellular phones, pay attention how the scoring board is held, etc.).
15. Active judges (on the competition day) are not allowed to prepare any adjustments on a competition car (except their own if they are competing) during the event.
16. The Judges are allowed to use the "additional tracks" on the official EMMA-Sound-Quality-recording to verify their impressions - judging will be done with the foreseen tracks.
17. The Judges will not let any visual cue (apparent speaker locations) influence their judgement. Sound quality judges should be "blind" to any equipment in the vehicle.
18. If possible/necessary, the sound quality judges are invited to explain their scoring with additional notes/explanations written on the score sheet.
19. In case of an equipment breakdown or vehicle malfunction during SQ-judging, the competitor will be allowed 5 minutes to correct or repair any malfunction. Only one attempt (one period of five minutes) to repair is allowed. If the problem occurs again, the scoring will continue under the given circumstances. Furthermore, the Head Judge has to be informed by the Judge about the malfunction/breakdown. To do so, the judge will mark on the score sheet "repair time taken"
20. Depending on the judging mode, the Judges will show the score sheets together with an explanation about the scoring to the competitor, this will not take more than five minutes. Judges can refuse any further comment after this five minute time period.
21. Depending on the judging mode, after the competitor has seen the score sheet and accepted the result, he/she should sign it.
22. Should the competitor refuse for any reason the scoring or explanation presented to him/her by the Judges it must be done within this five minute time period. A protest has to be made immediately after the explanation of the Judges (see the corresponding chapter under General Rules). No protest regarding his/her scoring is allowed after signing the score sheet.

3.5 Pre Judging Check

3.5.1 Checking charger connected y/n

- Before the sound quality judging starts, the judges will check if any charger/external power supply is connected and request the competitor to disconnect it.
- It is forbidden to use any power supply except the vehicles battery together with possible installed additional batteries connected to the system during the sound quality judging.
- Besides the battery system no additional sources of energy like solar panels, generators, fuel cells, etc. are allowed during sound judging. They have to be disconnected or put out of operation not charging the battery.
- The judges will document that no charger is connected in the relevant check box on the score sheet.

3.5.2 Verification of reasonable driving position y/n

- Before the sound quality judging starts, the judges will check that the competitor is able to operate the gear-stick, the steering wheel and the pedals with the adjustment of the seat as for the SQ-judging to verify the reasonable driving position. Exceptions are only allowed for people smaller than 1,70m.

- The judges will document the reasonable driving position in the relevant check box on the score sheet.

3.5.3 Channel verification

- The channel identification track on the official EMMA Sound Quality source will be used. If the system has correct left and right channel integrity, the judges will mark it on the score sheet. If the judges find that channels are reversed they will notify the competitor. The competitor then has the opportunity to correct the “problem” within five minutes repair time. If the problem could not be corrected, the competitor will decide if he/she wants the system to be judged.

3.5.4 Calibration of volume

- The volume adjustment for the following sections will be done according to the instructions on the track for volume calibration on the official EMMA Sound Quality recording. The competitor will suggest the volume to be listened at by the sound judges. But to protect the judges from too high levels the unweighted slow measurement on pink noise cannot be higher than 80dB
- The digital readout on the display or the angle of the volume control will be noted in the designated box on the score-sheet.
- Furthermore the equipment used for reproducing the EMMA Sound Quality source will be noted on the score sheet.

3.5.5 Visibility potentially restricted

- Sound judges check this box, if they have the feeling that the installation of some equipment is hiding the drivers view according **Fehler! Verweisquelle konnte nicht gefunden werden**. Normal use of vehicle.
- If this box is checked, installation judging has to confirm. Note: if installation judging is already done, the Installation Head judge will inspect this criterion and correct the scoring if necessary on the installation score sheet.

A quick note on sound quality

A good audio system will faithfully reproduce the original recording by offering accurate frequency response and staging. Good frequency response reproduces high tones such as cymbals, the human voices and most instruments, and down to the very low tones from synthesizers and drums. Frequency response includes timbre (the accurate replication of an instrument), linearity (the tonal quality is the same regardless of volume level), and clarity (lack of distortion of the original signal). Good staging offers the illusion of a stage upon which players are located and it has a sense of height, width, and depth. Imaging is a sound system's ability to correctly place the instruments on the imaginary stage.

Please note:

EMMA-Sound-Quality-recordings have been produced to best replicate real true sounding music, not digitized to perfection losing the pure essence but to give the most realistic interpretation.

The criteria of the following sections can be judged in Sound Quality – depending on the category. A detailed description of what criteria will be judged can be found in the matrix on the last pages of this rulebook.

Together with the actual EMMA-Sound-Quality-recordings a judge book is developed. The judge book explains exactly what is being judged and how to score. It can be downloaded at www.emmanet.com. The following chapters describe what EMMA is looking for as an general overview

3.6 Sound Stage and Imaging Characteristics

The sound stage produced by an audio system can be defined as the perceived space from which the sound originates. Much like the stage in a concert hall is the space from which the sound originates.

The term "Imaging" describes a sound system's ability to reproduce the sound of instruments in their correct locations and proportions on the sound stage.

The object of the judging is to define the boundaries of the sound stage created by the vehicles audio system. These boundaries must be identified in order to judge imaging correctly.

3.6.1 Sound Stage – Distance to sound stage

This is to find out the distance to the point of origin of the sound in regards to the listener's position. Good staging offers the illusion of a stage upon which players are located and it has a sense of height, width, and depth (even apparently exceeding the front boundary of the vehicle). This is considered to be ideal as it approximates the experience of listening to a concert or a fine home audio system.

3.6.2 Sound Stage – width of the sound stage

The width of the sound stage defines the distance from the ultimate "left" position to the ultimate "right" position relative to the vehicle. The objective is to create a wide sound stage for both listeners. Exceptional sound systems will have sound stages that seem to exceed the physical boundaries of the vehicle Interior. At this point, it is only of interest where the placements of "left" and "right" positions are on the virtual sound stage.

3.6.3 Sound stage – height of the sound stage

The height of the sound stage defines the apparent height (points of origin of the sound in between the entire width of the sound stage) in relation to horizon level and how consistent this height appears to be during the entire range of frequencies.

The object is to achieve a "stable" sound at horizon level with a natural sense of vehicle space above that point. Instruments and voices should be originated entirely at that height with no portion of them coming from below the sound stage. Pay particular attention to make sure that the stage height remains stable, from left to right. Some vehicles may exhibit good height in the centre with left and right boundaries dropping lower. This should be taken into account in the scoring. Vocals and instruments should all appear at the same basic height.

3.6.4 Sound Stage – Ambience and Depth

Ambience is a psycho-acoustic phenomenon that can be defined as the perceived space around a sound source. The judges use the dedicated tracks on the official EMMA Sound-Quality-recordings to evaluate the ambience of the reproduction.

In simple words: If the recording was performed in a big church, the sound system should give you the impression of listening in a church. If the recording was performed in a small room with no reflections, there will be no feeling of ambience.

3.7 Imaging Characteristics

3.7.1 Imaging – Position

The sound stage is defined by the left and right boundaries established during the sound stage judging.

The technical track for staging and imaging will be used to define the five positions. The centre position should be exactly in between the ultimate left and ultimate right, found in judging Staging. Left centre should be exactly in between ultimate left and centre. Right-centre should be exactly in between centre and ultimate right. This means that all positions should be evenly spaced. When the sound is not coming from the position where it should come from, less points will be given for that position.

3.7.2 Imaging – Focus

The focus will be judged for each of the above 5 positions separately using the designated EMMA-Sound-Quality-recording.

The 5 positions have already been determined under the staging section. Now it is determined whether the size of the instruments and voices are correct according to the size of the sound stage.

3.8 Tonal Accuracy

3.8.1 Tonal Accuracy and overall spectral balance

A sound system should reproduce a recording as realistically and authentically as possible. If it is a live recording, it should sound just like that, if it is a studio recording, it should sound as close as possible to the intentions of the producer. Therefore, EMMA trains the Sound Quality judges to fully understand exactly how the EMMA Sound Quality recordings have been recorded and what it should sound like. It is a valuable tool that allows the scoring of the tonal accuracy of the four sections that separate the audible frequency range into:

- Sub-bass
- Mid-bass
- Midrange
- High frequencies

And the overall Spectral Balance of the entire audible frequency range.

Under Tonal Accuracy, the judges will concentrate on each range specifically, ignoring the spectral balance of the whole spectrum.

Under overall spectral balance, the judges will evaluate how well the four sections combine together to create a full picture approximating the originality of the EMMA Sound Quality recordings as much as possible.

Sub-Bass (10 Hz – 60 Hz)

The judges will concentrate on the lowest notes of large string instruments (bass guitar and stand up bass, in particular, piano), large drums (big bass drums, kettledrums, timpani) low synthesiser sounds, low pipe organ notes, etc.

The sounds reproduced by the system in this range should be immediately recognisable, realistically weighted, articulate, and free of distortion and overhang. It is vital to recognise the difference between good extension and overhang. Overhang refers to a blurring or exaggeration of the decay time of a sound. Accurate low frequency extension is a desirable trait. Many systems will exhibit some localisation of the low bass towards the rear. The judges should not regard these vehicles as being "behind the listening position" point range. Instead, the judges should deduct 2 points for obvious rear-bass.

Mid-bass (60 Hz – 200 Hz)

The judges will concentrate on the sound produced by the mid-sized drums (kick bass drums, tom-toms, large congas, etc.), the middle range of the bass guitar and stand-up bass, lower notes of the piano and synthesiser, lower male-voice, low tones of horns, trombones, tubas, etc.

These should be reproduced smoothly with good articulation and detail. Particular attention should be paid to the attack and the decay of drums and the bass guitar. Because of the small size of the vehicle as a listening environment, problems with resonance, sound peaks and standing waves are common in this range. The best systems control these problems so that they do not interfere with fidelity.

Midrange (200 Hz – 3 KHz)

This range contains the vast majority of musical information in most recordings. The judges will concentrate on: the human voice, brass instruments, woodwinds, strings, the upper range of bass guitar, electric and acoustic guitar, synthesisers, piano, smaller drums and other percussion instruments. Voices should sound realistic without uncharacteristic ringing, thin sound, dullness or distortion.

High-Frequencies (3 KHz-inaudibility)

The judges will concentrate on cymbals, triangles, bells, the upper frequencies of the snare drum, rim shots, hand clapping, synthesisers, the upper range of string and woodwind instruments, and the sibilance (tendency to exaggerate "s" or "f", or "t" sounds) in the voice recordings. These should sound accurate, smooth, neither too dull nor too bright and should not exhibit any harshness, thin sound, excessive sibilance or distortion.

This means that the judges listen to the quality of each frequency, not the relative volume. Relative volume is one of the parts that is judged in Spectral Balance.

3.9 Spectral Balance

While in the chapter before the four sections sub-bass, mid-bass, midrange and high frequencies were evaluated each individually resulting in separate points – here it is evaluated how they combine together to create a full picture.

Depending on how well they are balanced and play together, they will receive results accordingly.

Superior systems will sound effortless and natural with any of the judging tracks. Weaker systems will exhibit distortion, unnatural coloration, dynamic compression, and frequency response errors, which lead to listening fatigue and lend an unnatural sound to the music.

Does the system create the illusion of realistic instruments and voices as you listen to the judging tracks? Is the distribution of energy between the frequency ranges appropriate and natural sounding? Particular attention should be paid to how smoothly the system integrates the different frequency ranges.

The same track of the official EMMA Sound Quality recordings will be played again after a manual adjustment of the volume by the judges of approx. +6dB allowing the sound quality judges to evaluate the ability of the sound system to reproduce the overall spectral balance as described before at a higher volume level. This may also indicate the dynamic abilities of the sound system.

At high levels, the judges will listen to the same items described before but also for solid, realistic dynamics. Instruments should have a realistic attack and impact that does not get compressed by distortion (amplifiers clipping or speaker system limitations).

3.10 Listening Pleasure

Now since the sound quality judges have been listened to the competitors sound system for quite a while, they must determine the enjoyment the music generated to the listener and the acoustic impression of the music. There is no special track; listening pleasure reflects the judge's experiences over the entire sound quality judging process.

3.11 Adjustments

While the SQ judges are actually listening to and operating the audio system, they will judge adjustments for noise and system handling. The judges should briefly note what caused any adjustment to the score in the comments section of the score sheet.

A well executed installation should be free from any noise at all listening levels. Noise is defined as any sound not present on the original EMMA Sound Quality recordings and that has been added by either the vehicle electronics/charging system or by the audio system.

Some hint how a system should be set up. The head unit should be able to use most of its range before the amplifier is driven into clipping. Again, if the gains are set too low, the head unit won't be able to drive the amplifier to its maximum output level. If the gains are set too high, the amplifier will be driven into clipping at a very low volume level (on the head unit).

An amplifier amplifies what it is given. Your RCA-cables carry the audio signal, and they also carry "noise" in the system due to grounds, internal components, etc. The noise stays the same, but the signal increases with the volume. So, the higher the volume, the higher the audio signal is above the noise level; hence a better signal-to-noise ratio. Now, the amp is still amplifying the noise, but the level of the audio signal is high enough you don't notice the noise floor.

A system with an improperly set gain structure will exhibit a hiss or "static" sound at full volume playing the noise track.

Keep in mind that this adjustment does not affect the power output of the amplifier — you're simply setting the amount of input signal needed for optimum sound quality from your system.

There will be the following items checked:

Engine on test

With the Engine running to test vehicle noise (noise induced by the vehicle's charging system or electronics). Noise that is generated by the mechanical/electrical system of the vehicle that is reproduced through the speakers with the audio system turned on and/or off.

Possible noises are:

Alternator whine, ignition noise, PWM-noise created by control boxes, etc.

Engine off test

With the Engine off with the key in the accessory or off position (ignition off) to test for system noises

A noise that is somehow emulated from or by the audio system, the vehicle or the vehicle environment and that is not recorded on the EMMA Sound Quality

Potential noises can be:

Rush, hum, hiss, cracks, floor noise, rattling panels, loud fans, mechanical noise etc.

Test for switching noises

This test is performed using the designated noise testing track with no change to the volume. Only the source unit's (or designated) power switch is to be used to turn the system on or off. The ignition switch is not to be used. The mechanical „click“ of relay will not be cause deductions.

Potential noises can be:

Turn-on/turn-off noise, switching pops - a popping, thumping or clicking noise that is heard through the system's speakers when the system is powered up by the source unit's on/off switch or switching pops - a clicking or popping noise that comes through the speakers when adjustments are made to the audio system's volume or track selection controls. Digital search or stepper noises, which are inherent in some digital volume control designs, are beyond the scope of being corrected by proper installation techniques, but are not considered acceptable and will result in point deduction.

The following rules apply to judging noise:

1. Each system is listened to using the “ Zero Bit Track” on the current official EMMA Media for the absence of noise, if noises are heard during the regular judging, points can also be deducted.
2. The judges must listen for every specific type of noise for which a deduction of points occurs on the score sheet.
3. The judges will determine the audibility of noise from a normal seated listening position.
4. The judges should briefly note what caused any adjustment to the score in the comments section of the score sheet.
5. The charging system must be in proper working order with the alternator producing an increase in DC voltage output while the engine is running. Other than a voltage regulator, the use or existence of any circuit, switch or device designed to affect the operation of the alternator while the engine is running or physically disconnected alternators will result in immediate disqualification and possible suspension, forfeiture of entry fees and possible suspension upon review by the Head Judge Council.
6. If a vehicle test is clean of alternator whine, the judges may request that the charging system be tested. This test will be done at the amplifier's 12 Volt input connections. These must be made accessible within 60 seconds, upon request by the judges.
7. Alternator failures (non-existent or unusually weak charging voltage) will result in an automatic maximum deduction for alternator whine (6 points deduction).
8. The source unit's power switch must control the turning on and turning off of all audio system components (this does include video systems, video games, cellular communications equipment, navigation systems etc.). In the event that a source unit lacks a conventional power switch, a single external switch can be designated to power up and powers down the entire audio system.
9. Electrical powered vehicles may compete in EMMA competitions and are exempt from rules 8 – 10. Deductions can be made for extraneous hums and other noises produced by an EPV's power plant according to the same guidelines used for alternator whine testing. EPV's must be self-powered during the judging process.
 - The competitor can request that the system be shut down before starting the car.
 - If the engine won't start (due to drained battery), the competitor will be offered the chance to jump-start his vehicle within 3 minutes. 3 points will be deducted. If the car cannot be jump-started within those 3 minutes, the maximum deduction of 6 points will be made.
 - The judges must carefully determine whether the noise is actually coming from the system itself. Many engines produce whining sounds from various different mechanical actions (turbochargers, alternators spinning etc.). To do this the judges can move their heads closer to the speaker in the vehicle (not to judge the audibility of the noise, but only to establish its origin). If the judges are not sure about the audibility of alternator whine, they should not deduct any points.
 - Whenever a vehicle's running engine is so loud that noise can't be checked, the maximum amount of points for 'noise with running engine' will be deducted.
10. If a system is completely quiet during turn on/off test, the judges have the authority to test the system to determine whether all equipment is truly turning on and off. If any of the audio system's electronics do not power down with the source unit's power switch/designated switch for turn on/off, an automatic 3-point deduction is given. The burden of proof is on the competitor. If a competitor cannot convincingly show that their equipment is turning on and off, the 3-point deduction will be enforced by the Head Judge.

3.12 Ergonomics

The audio system must demonstrate a good balance of comfort and vehicle safety during operation. The judges must be able to immediately operate the audio system from the driver's seat without any confusion. General visibility and accessibility of the above mentioned, relevant user adjustable component's from the driver's seat during theoretical vehicle operation, is desired.

CD changer units that have been installed in the passenger compartment for convenience are not to be considered and will not be a negative factor in the judge's scoring.

The judges will look for ease of system handling and a minimum of distraction from the road, as if the vehicle were being driven. The system with the closest approximation to these conditions will receive points.

The system handling will be judged by turning the audio system power on/off, controlling the volume, track selection or fast forward/rewind controls and visibility/readability of the display only.

Shrouds or covers, hiding the controls (e.g. for theft protection) will be removed and will not affect the scoring of system handling.

The judge seated in the driver's seat will operate the audio system and determine the level of difficulty or distraction in reaching the above defined user adjustable components and controls.

The following items will be evaluated:

- System handling
- Visibility
- Control

Note:

If a steering wheel remote control is fitted, it does not need to function in all positions but for sure in the driving straight position.

If a remote control is installed, it must have in minimum the following functions: volume, track selection, pause/mute or on/off. Furthermore the buttons should be either labelled or a written instruction how to operate should be provided to the judges.

