



## **Official Competition Manual 2014/2015**

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Sound Quality Multi Media ESQ L ESPL EMMA Racing



Official international EMMA Partners 2014/2015



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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](http://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 Championship 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.

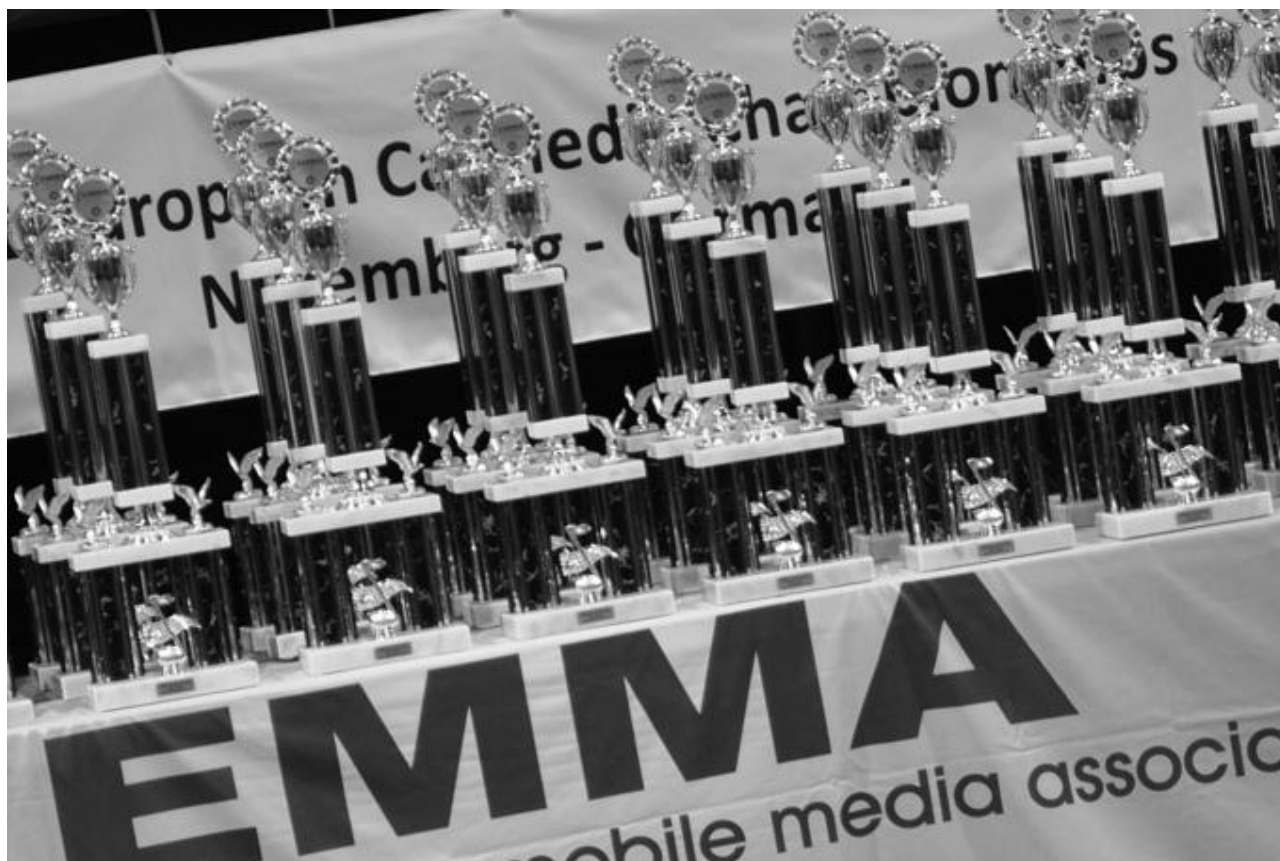
Furthermore EMMA urges the competitors and the public in general to protect their hearing.

## 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](http://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](http://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](http://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/ESQ-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 Judges/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](http://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.

### **3.1.2 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 are 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.

### **3.1.3 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 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) to the A-pillars, mirror triangle and/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.

**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.

**3.1.4 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.

### **3.1.5 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 active 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.

### **3.1.6 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 then 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.

### **3.1.7 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.
- In Limited and Unlimited class it is allowed to use modified or self-built active 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.
- 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.

## **3.2 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, EMMA SQ Experienced EMMA SQ Advanced. If previously started in the above mentioned categories, all qualifications reached before expire from this moment on.

### 3.3 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.

### 3.4 Pre Judging Check

#### 3.4.1 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.

**3.4.2 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.

**3.4.3 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.

**3.4.4 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.

**3.4.5 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 4.3.4 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 synthesisers 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](http://www.emmanet.com). The following chapters describe what EMMA is looking for as an general overview

**3.5 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.

### **3.5.1 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.

### **3.5.2 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.

### **3.5.3 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.

### **3.5.4 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.

## **3.6 Imaging Characteristics**

### **3.6.1 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.

### **3.6.2 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.

## **3.7 Tonal Accuracy**

### **3.7.1 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.

### **3.8 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).

### 3.9 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.

### 3.10 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.
10. The competitor can request that the system be shut down before starting the car.
11. 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.
12. 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.
13. 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.
14. 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.



### 3.11 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.



## 4 EMMA rules – Installation Quality

The installation quality judging criteria are formulated to promote system durability and longevity, as well as logical integration and visual impression.

The installation quality judging will be performed according to this official rulebook by one or two installation judges (depending on category). These judges are specially qualified and trained to work with the rulebook to determine the installation quality of a sound quality, ESQ, ESPL or Multimedia system

After the installation quality judging, the competitor will receive a qualified and objective feedback about the quality of installation of the vehicle in regards to the aspects mentioned within this rulebook.

EMMA installation has been broken down into sections that can be judged and evaluated within a understandable level of classification. The judges will not tell you “your vehicle has a good or a bad installation or what points you have earned”. Together with their qualified judgement and the help of the score sheet they will explain exactly the quality of the installation in all relevant details.

The awarded score will be easy to follow for the competitor, if necessary with support from the EMMA Rulebook. Furthermore, the competitor can learn the potential of their own system installation. The judges are allowed to give the contestants tips and hints on how to improve the installation of his/her audio system (without using brand names). This will allow the competitor, a qualified dealer or experienced colleagues in a competition team to help improve the installation and potential use of equipment.

### The following procedures and rules must be adhered to during the Installation Quality Judging:

1. Active judges are not allowed to adjust or prepare any competition car (except their own if they are competing) during the event.
2. Maintaining a detailed photo log will assist in the inspection process, as well as the system presentation portion of installation judging and in answering many of the installation judge's questions.
3. The process of the installation quality judging starts with the system presentation. It is the registered owner's/main user's responsibility to explain the sound system installation to the judges. If for some reason the owner/main user of the vehicle is not capable of guiding their vehicle through the judgements, a designated presenter may present the vehicle. In a National or European Championship the registered owner/main user must explain his/her car in person; otherwise the judges will award 0 points for system presentation
4. The competitor will be given 7 minutes to explain his system, his installation, and his ideas and point out any special elements of the vehicle's mobile electronic installation. If a translator is required, the time will be extended to 14 minutes. In this case, the competitor is only allowed to speak in his native language. The only exception is Expert unlimited, where the time will be 15 minutes max. for the presentation (there is no additional time for translation)
5. The judges will politely inform the competitor when the presentation time starts. They will never interrupt the competitor during the presentation time. The judges will politely inform the competitor when the time has expired. Judges are allowed to stop the presentation immediately after the time explained above are up.
6. The competitor will be politely asked if the installation is of the same status like for SQ (no changes allowed). A check-box on the installation sheet will document if so yes or no. Disregard of this may lead to 0 points in the relevant installation section after reviewing this issue with the Head Judge.
7. The competitor should stay close to the vehicle until the judging process is complete. The competitor should not interrupt or disturb the judges unless asked by them to answer a question or to explain a system element.
8. The judges will show the score sheet to the competitor and explain their scoring to the competitor after finishing the judging. This should not take more than 5 minutes. When the time is over and in case of further questions they can refuse the explanation.
9. After the competitor has seen the score sheet and accepted the result, he/she should sign it. Protest has to be made immediately after the explanation of the judges. No protest regarding their scoring is allowed once the score sheet has been signed.

### 4.1 Presentation and Documentation

Points are given for the quality of the presentation within the limited time and the documentation. All parts of the installation should be documented by photo log. Highest points will be awarded when the documentation is self-explaining so the judges do not have questions about the development of the system. Lower points will be awarded for just showing some pictures without verbal comments by the competitor. The media used for

the presentation does not influence the score only the quality of the presentation and documentation counts. Please remember that the presentation is very important. This is what the judges will base their judgement upon. The details of the installation should be made clear during presentation. The judges should not have to look for the details themselves. What cannot be seen cannot be judged!!

#### 4.1.1 Basic Presentation & documentation (0 – 5)

Requested are:

- A wiring-diagram containing the sizes of the cables and fuses.
- (Photo-)Documentation of the main power circuit and the fuses.
- A presentation held by the competitor

**How to score:**

5 points	Fluent presentation: photo log with requested information wiring diagram with the requested information
1 – 4 points	deduct 1 point each if: Poor wiring diagram poor documentation/photo-log of main power circuit & fuses, presentation barely fluent
Deduct 2 points if:	No wiring diagram No documentation / photo log
0 points	No presentation and no documentation.

#### 4.1.2 Documentation of hidden/components not accessible (0 – 5)

All components not accessible or hidden from view must be explained in the documentation.

**What to look for:**

- Black boxes
- Crossovers (passive and/or active)
- Speakers behind door panels or dashboard grills
- Additional battery
- Etc.

The judges will deduct 1 point for each component that is not documented.

#### 4.1.3 Documentation of hidden/not accessible cabling (0 – 5)

All cables to components not accessible or hidden from view should be explained in the documentation.

**What to look for:**

- Behind source unit
- Black boxes
- Crossovers (active and/or passive)
- Behind/under covers, racks, carpets etc.
- Power/Ground cables
- Speaker cables
- Signal-cables (including cables to multi-media-screens, remote controls, etc.)
- Control-cables (bus-cable to processors etc.)
- Connections to additional battery
- Etc.

The judges will deduct 1 point for the cabling of each component that is not documented.

**Hint**

If only the wiring of one speaker is shown in the documentation and the competitor states that the other side has been installed in the exact same way, no points will be deducted.

**4.1.4 Progressed presentation & documentation (0 – 5)**

Based on the documentation requested in paragraphs 4.1.1 to 4.1.3, additionally requested is:

- A well organized documentation
- Relevant details explained by quality photos
- Not only describing the finished “product” but also the development – not missing any relevant steps
- Not to forget any components of the installation
- A fluent and logical presentation within the allocated time

**How to score:**

1 point	Fluent, logical and detailed presentation within the time limit
1 point	Detailed documentation including quality photo log explaining relevant details
1 point	documentation not only showing the finished product, but also describing the development of the system, not missing any relevant step
1 point	Having all parts of the installation available on detailed photo documentation for checking
1 point	Well and logical organized documentation including photo log (without gaps and deficiencies in organization, of the documents
0 points	No presentation and no documentation/no performance better then requested under 4.1.1.

**4.1.5 Presentation to the public (0 or 10)**

A car audio competition is a relatively quiet but a very interesting event. To allow spectators to see what equipment is installed in the cars and to get some idea about the details of the installation, the cars should be displayed to the members of the public throughout the event.

Points will be awarded, when the following is made available for visitors during the whole competition day/event:

- Showing off of the car – at least the trunk (or if nothing is installed there the front doors) should be open.
- The competitor (or friend) is available for explanations and allows people to listen to the car by request or having the door open and the system playing in a low volume.
- Additionally, it would be nice, if the material/equipment used as a documentation to the installation judges (laptop, DVD, photo logs, samples etc.) is also available for visitors.

**How to score:**

The installation judges will award the points during their judging process.

During the entire competition, the Head judge or a designated judge will, in irregular intervals, have a walkabout and keep a record of the status of the competition cars. At the end of the competition day and/or before prize-giving ceremony, these records will be analysed and if the above requested points were not fulfilled more than 50% of the time, the score will be adjusted to 0 points.

**Exceptions:**

- Active judges or EMMA-staff (on this event) will not be judged for presentation to the public.
- Bad weather or other circumstances during an event may influence the display of equipment, showing off and availability of the competitor for offering people to listen to his system. In this case, it is up to the discretion of the Event Director to decide how to proceed for all competitors.

**4.1.6 Cleanliness (0 – 5)**

A sound off is a car show, so the vehicle has to be clean.

2 points are deducted for each of the category listed below not cleaned (down to 0 points, no negative scoring).

The following four categories are to be judged:

- Exterior of the car
- Engine compartment
- Interior/passengers compartment
- Trunk compartment

**Note:**

- The car is considered clean when the exterior of the car is washed and the interior is vacuumed. Judges will refrain from extremes like checking with their fingers the interior of the wheels, searching dirt under the carpets, under the dashboard, or any other hidden places.
- During check of the engine compartment, the judges should not get dirty fingers when checking the relevant parts connected to the audio system (battery posts, fuses, cabling etc.). The engine itself and other not audio related components do not necessarily need to be clean.
- Damages to the car due to accidents or age are not to be considered. For example: Damages due to an accident that happened recently.
- The engine compartment of a 20 year old car can not be compared to a new car.

**Weather**

- If the weather conditions during a car audio event are very bad (snow, rain etc.), the judges should take into consideration that the car could be dirty due to the weather.

**Engine compartment and/or trunk**

- If there is nothing related to the audio system installed to the engine compartment and/or trunk compartment or bed, no points are deducted when dirty.

**Interior/passenger compartment**

- If sound judging was performed prior to installation judging, the judges should take into consideration that the Interior can be dirty due to this. The install-judges will look if the SQ-sheet is already filled in and judge cleanliness accordingly.
- If something not belonging to the system is lying inside the car (i.e. luggage, boxes, clothing, CD/DVD-cases etc.), points can be deducted. Otherwise inspection of the installation could be obstructed and the overall impression will be poorer. Exceptions can be made if there are problems to store personal belongings outside the car (bad weather etc.)

## 4.2 Cabling

### 4.2.1 Fused System

**(0 or 10 points)**

All power cables related to the car audio system must be fused except the cables that are used to connect the starter motor and/or alternator to the battery, which is used to operate the vehicles electric system.

1. The judges will follow the route of the power cables in the system. Every power cable must be fused.
2. If the remote cable is a control cable, no fuse is necessary. If it is connected to a relay, the power cable to this relay should be fused.

### 4.2.2 Any power cable fused properly

**(SQ 0 or 10, ESPL max 15 points)**

Further more, any fuse related to the car audio system must be of proper size. If the fuse is too big, the risk is that the cable will burn before the fuse blows and so may cause severe damage or fire. The fuse size is directly depending to the wire gauge of the power/ground cables installed.

1. Every power cable related to the audio system must be fused properly according to the fuse table. Exception: If the OEM-wiring-harness together with a DIN/ISO-adapter to the source unit is used, the fuse must not be bigger than original (has not to be according to fuse table!) or can be smaller. All fuses should be physically available for inspection, the size of the cables should be visible or described in the documentation.
2. Ground cable will be taken into consideration! If the ground cable is smaller than the positive cable, the ground cable will determine the fuse size! (Example: positive cable 50mm<sup>2</sup>, Ground cable 20mm<sup>2</sup> => max. fuse size refers to the 20mm<sup>2</sup> Ground cable)

3. Do not forget to consider the ground cable from the battery to the vehicles chassis. Ideally additional ground cable should be installed that is equal to the mm<sup>2</sup> of positive cable feeding the car-audio-system. The sum of the fuse rate of all cables from the battery feeding the audio system (except OEM-wiring-harness) can not be higher than the maximum fuse rate according to fuse table allowed for the size of the ground cable. To make judging easier in the case that the vehicles ground cable is without modification/addition, the OEM-ground cable will be calculated with a spare of 6 mm<sup>2</sup> for the car audio system = 40 Amps. When car's electronics system prohibits adding ground cable, no point deduction will be made (must be proofed by the competitor).
4. Anytime the gauge (mm<sup>2</sup>) size of a power circuit changes, the fuse size has to be appropriate to the smallest gauge size in that circuit. Otherwise it has to be fused within 40 cm from the point of the diameter reduction and before it passes through a metal panel before the fuse. Please note that the circuit includes both positive & negative cable!
5. 5 points to be deducted per failure

#### 4.2.3 Fused within 40 cm

(0 or 5 points)

1. Any power cable of the system connected to a positive battery post (including possible extra batteries) must be fused within 40 cm from the battery post (from terminal to terminal). If the cable passes through any metal panel before the fuse, it must be properly protected with a grommet (not only tubing/sleeve!). There must be no risk for the cable to connect to metal before the fuse and this rule applies only to an additional battery in a sealed metal box. This includes cabling for external charging systems/service connections etc. that are permanently installed.
2. For any additional battery used, the cable length/length of metal bars between the positive posts must be shorter than 40 cm; otherwise they should be properly fused. For a cable length less than 40 cm between battery connection and distribution point/and or another battery the following fuses are allowed to use:  
"normal fuse size according to rulebook table x 2 "

#### Note:

- Factory dual battery systems may not have any fuse (or protection) between the batteries. It is up to the competitor to prove the original installation of his vehicle. If the OEM-installation was not changed, an additional fuse or protection is not required
- Raw metal material such as metal bars, etc. instead of cable with an equivalent surface can be used

#### Note for SQ and Multimedia

(0 or 10 points)

In SQ and Multimedia all 3 criteria must be fulfilled to get full points. The maximum in these categories are 10 points. The judges will check the installation, if all of the above points are fulfilled, only one (1) deviation of the above described will result in 0 points.





## Fuse table

The table shows what maximum fuse is allowed for the size of the cable.

Cable size (mm²)	Cable size (AWG)	Max fuse size (A)
0,5	20	5
0,75	18	7,5
1	17	10
1,5	15	15
2,5	13	25
4	11	30
6	9	40
8	8	50
10	7	60
16	5	80
20	4	100
25	3	125
30	2	150
50	0	200
70	000	250
95	0000	300
240	-	400
300	-	500

Please note that the above fuse rates are what the maximum fuse size is allowed to be! Not what the fuse should be. Smaller fuse sizes are always acceptable.

Examples:

- A 50 mm²/AWG 0 cable must not have a fuse larger than 200 ampere.
- 80 A fuse on a 50 mm² cable is below tolerance, but there could be a risk the fuse will blow when the system is cranked up (depending on the power draw).

### Hint for the competitor!

Resistance is futile

It's a good thing to support the judging process if the competitor provides the judges with a diagram showing how the system is connected, what fuse and cable sizes are used etc.

#### 4.2.4 Cables properly terminated

(0 or 5 points)

All cables must be properly terminated at the connecting point, for example at the battery post (including the battery post itself!), the amplifier-terminal, distribution blocks, power capacitors, speaker-terminals etc. Each termination should be solid and free of any fraying wire strands.

**What to look for:**

- Power/Ground cables
- Speaker cables
- Signal cables
- Control cables

The judges will check by physical inspection and/or the documentation.

Only one loose or poorly executed cable connection, or a missing connection in the documentation (not requested in Rookie) will result in 0 points.

**4.2.5 Any cable termination properly protected (0 or 5 points)**

All connections of cables to terminals related to the car-audio-/mobile-media-system must be protected from short circuit. All positive connections (and surfaces) and all speaker connections must be covered with a non-conductive material.

Furthermore all connections of cables to terminals related to the car-audio-/mobile-media-system must be protected against corrosion if located in a potentially corrosive environment, for e.g. speaker-connections in the doors, power connections in the engine compartment. Means to prevent corrosion can be using precious metal (e.g. gold or titanium plated connectors, etc.) or other means (e.g. anti corrosive lubricant, soldering, heat shrink-tube, etc.).

**What to look for:**

- Power/Ground cables
- Speaker cables
- Signal cables
- Control cables

The judges will check by physical inspection and the documentation. All relevant spots should be accessible or shown in the documentation. If the positive battery post and any other termination of the cabling can be touched (watch out: fingers are flexible!) or only one unprotected cable termination is detected physically or in the photo documentation or missing in the documentation, the score will be 0 points.

**Common sense should be used when evaluating and scoring this category!**

**Note:**

- If a detachable panel must be removed to reach the connection (e.g. a plastic or wooden cover over a battery), it will be considered as proper protection from a short circuit (but don't forget the risk for corrosion). The engine hood itself is not sufficient protection!
- If the cable to the alternator is changed, the connection to the alternator must be protected from a short circuit.
- Some terminals at speakers may not require extra protection (e.g. spring loaded type, types where the cable will fixed by a screw).
- Cables related to the audio/mobile media system should be terminated using precious metal (e.g. gold or titanium plated connectors, etc.) or other means (e.g. anti corrosive lubricant, soldering, heat shrink tubing, etc.) to prevent corrosion.

**4.2.6 Cables protected from damage (0 or 5 points)**

The system cabling must be properly protected from hazardous elements like sharp metal edges, heat radiation, moisture, moving parts, critical mechanisms and wear by vibrations, etc.

EMMA recommends routing the cables away or properly protecting them from potential noise-producing components like critical existing vehicle cabling, engine management computers etc. to avoid eventual radiated noise problems.

All cables passing through a metal panel must be protected by a grommet and/or protective sleeve/tubing. This includes also speaker cables routed into doors etc.

**What to look for:**

- Power/Ground cables
- Speaker cables
- Signal-cables
- Control-cables

The judges will check either by physical inspection or by the documentation. All relevant spots should be accessible or shown in the documentation. 0 points will be scored if only one cable is neither accessible nor documented, not protected for heat radiation (e.g. mounted too close to the exhaust manifold), exposed to mechanical hazards (critical mechanisms, fans etc.), without proper protection, etc.

**4.2.7 Interior cables hidden from view (0 – 5 points)**

All system cabling in the interior of the vehicle should be hidden from view.

**What to look for:**

- Power/Ground cables
- Speaker cables
- Signal cables (including cables to multi-media-screens, remote controls, etc.)
- Control cables

The judges will check by visual inspection, sitting in an upright position on the driver's or the passenger's seat with the front doors open. The judges will verify that no cables under the dashboard or passing into doors are visible. The judges deduct 1 point for each cable or bundle of cables visible.

**Note:**

- Only cabling that is part of the Audio/Multimedia System are to be considered.
- Portable Navigation System and Mobile Phone Chargers are not part of an Audio/Multimedia system.
- Visible cables behind the B-pillar will not be considered (e.g. amplifier installation in a station wagon).
- Cables or bundles of cables in snakeskin or plastic tubing etc. are considered "not hidden from view" and will lead to point deduction!
- If for design purposes matching the rest of the installation theme cables are covered by transparent material within the view of the judges, they will be considered as "hidden from view"
- USB or iPod cables or connectors for these devices will not be taken into consideration when judging installation.

**Note:**

For Multimedia categories this is judged from the sound judging position (not always the front seat!).

**4.3 Installation****4.3.1 Components and mounting panels securely mounted (0 – 20 points)**

All components belonging to the stereo or multi media system should be solidly fixed to their mounting panels or to the vehicle. This includes equipment that is able to generate a signal but maybe not in use to reproduce the EMMA-recordings, e.g. game console, DVD-players, etc. If this equipment is only temporarily in the vehicle and not installed, it should be taken out of the vehicle before the installation judging starts.

The judges will check by physical inspection and photo log. For any component or panel that is not fixed or not documented (there are only two possibilities: fixed or not fixed), 3 points will be deducted.

**What components to check:****Front end**

- Operator panel
- Source unit
- Black boxes
- Screens
- CD/DVD-player/changer
- External D/A converters
- Pre-Amplifiers
- Remote controls

**Amplifiers****Speakers****Other Devices**

- Line drivers
- Crossovers (passive or active)
- Signal-processors
- Batteries (original as well as additional)

- Multiple battery charge regulators
- Fuses, fuse blocks and power distribution blocks
- Capacitors
- All other devices not mentioned above through which the audio signal will pass once it leaves the source unit until it reaches the speaker

**Note: Definition of “speakers”:**

Speakers include all sound reproducing devices driven by the source unit or any amplifier. The judges score all speakers even when they are not in use (except factory speaker systems which are not removed, separate speakers for navigation systems and cellular phones). A Bass shaker (or similar) that not by itself produces any sound (but vibrations) connected to the sound system is judged as a speaker.

**Notes:**

1. Judges should not use force when judging securely mounted components. It depends on what component is being checked according to the weight of it (e.g. a tweeter in the a-pillar doesn't have to be fixed as tightly as a subwoofer to its box in the trunk).
2. The method for fixing doesn't matter as long as the component is properly secured (e.g. could be screwed to a wooden plate or glued as well as welded to a steel plate).
3. Grills or any other protective elements will not be checked for proper fixing.
4. If a front end with detachable faceplate is installed, it might be that the faceplate/detachable part has some play. If so, the judges will take away this part and check the installation of the remaining unit.
5. External devices: as long as external devices which are able to play the EMMA recordings are turned off or disconnected during the judging process these devices will not be judged. This has to be proven by the competitor. The same rule applies for rear seat entertainment systems.
6. If a component is attached to a factory (original) panel and this panel is not properly fixed, points will be deducted (e.g. tweeter mounted to panel fixed with clips could be a bit loose)
7. Grills or any other protective elements and covers without mounted components will not be checked for proper fixing.
8. If the panel to which the components are mounted is movable, the judges will verify that this panel is fixed in the closed end position. Motorised installation elements (with the exception of motorised source unit displays) must be incapable of operating when the vehicle is started and shifted into "Drive" and the parking brake is released. Failure to meet this requirement will result in a 6 points deduction in this category.

#### 4.3.2 Cooling

**(0 – 5 points)**

Some components may require circulation of air to reduce the chance of overheating. If necessary, an additional cooling device (like fans, water-cooling, air conditioning etc.) should be present.

**Components that may require cooling are:**

**Front end**

- Source unit
- Black boxes
- External power supply
- External D/A converters
- Pre-Amplifiers

**Amplifiers**

**Other Devices**

- Signal-processors
- Multiple battery charge regulators
- Voltage converters (e.g. 12V to 14V, or 12V to 220V. Check specially in Multimedia category)

The judges will look whether circulation of air is possible. If not and the competitor has taken sufficient steps for optimising ventilation (holes, fans, water cooling etc.) or the components are in an open area/space, the points will be awarded.

If there is no circulation of air possible or no cooling device is installed, 2 points will be deducted per component (no negative scoring).

**Example:** Two amplifiers in a sealed rack => 4 points deduction

**Notes:**

- The judges should verify if cooling of the component is required or not – modern switch mode power supplies as used in actual processors or head units may work with efficiency around 90% and may not produce heat.
- If no cooling is necessary, full points will be awarded.

#### 4.3.3 Protection of speakers

**(0 – 5 points)**

The judges will check whether all speakers (including subwoofers in the trunk) are protected from physical damage. One should not be able to touch the membrane with a cylindrical object with a diameter of 3 cm. There should be at least one protective element per speaker.

**Note:**

- Protective bars with less than 3 cm gaps will get no deduction.
- Grill clothes with high tension but no support underneath is not considered as sufficient protection and will get points deducted.
- Speakers, which are installed inside enclosures (and are not touchable) or with the baskets on the outside of the enclosure, do not need separate protection.

The judges will verify the protection of the speakers as described above. 2 points deduction for each speaker not protected. (No negative scoring)

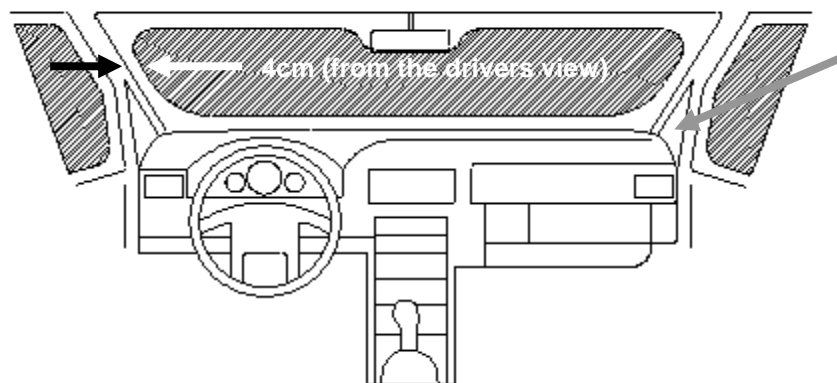
#### 4.3.4 Normal use of vehicle

**(0 – 20 points)**

All components of the stereo/Multimedia system should be mounted in such a manner, that the physical location does allow normal use of the vehicle and the two front seats.

The normal use of the two front seats is defined as following:

##### Hiding drivers view:



**Note to triangular windows:**  
If the vehicle has a triangular window as part of the A-pillar and this is not higher and/or longer then half the height of the side window, it will be considered as a design element. If it is higher and/or longer then half of the height of the side window, the 4cm-rule will be applied!

Nothing should be installed covering the darker zones.

The 4 cm will be measured perpendicular to the line of sight, not on the window itself. If the installation of the SQ Multimedia system hides the view to the road or is a safety risk, 3 points of deduction for each SQ/Multimedia equipment will be given by the judges. If the equipment just hides the view to the bonnet or fenders (e.g. speaker on the dashboard hides the bottom of the windscreen but has no effect on the view to the road) it will be considered as acceptable.

**Note:**

Some vehicles may be equipped from factory with a monitor that is installed fix/moving up/swivelling up so that it is maybe partly in the darker zone. This will not cause a point deduction. In all other cases, a monitor that is partly in the dark zone is judged as hiding drivers view and will result in a point deduction. It is up to the competitor on judge's request to prove that the monitor will not hiding drives view while driving. The Head Judge can also request the physically proof.

**The following will be considered as normal use:**

Drivers side	Passengers side
<ul style="list-style-type: none"> <li>• Pedals should not be obstructed</li> <li>• Leg room should allow the person (between 1,60m to 1,90m) to operate the pedals and rest the left foot</li> <li>• Arm room should be enough for the persons (between 1,60m to 1,90m) to turn the steering wheel</li> <li>• The view to the instruments should not be blocked</li> <li>• No part of the installation should block the view to the vehicles original side mirrors in original position. If the passenger side mirror is not factory-installed, the rear-view-mirror must allow a full view to the back</li> </ul>	<ul style="list-style-type: none"> <li>• The passenger should sit comfortable (look for sub/speakers up front or to high raised floor). This means the passenger side foot room shall not be smaller than the distance between closest pedal and driver seat. This is measured with the both front seats aligned.</li> </ul>

The judges will verify the normal use of the vehicle as described above. 3 points deduction for each component that is interfering with the normal use of the two front seats hiding the drivers view. If components are only installed into the OEM-original locations, the competitor will receive full points.

#### 4.3.5 First optic impression of installation

**(0 – 10 points)**

To score full points, the installation should be completed and not “under construction”. All parts should be installed decently and properly, but it doesn't have to be extreme. A basic or simple installation, e.g. in original locations is enough for a full score. Custom panels, boxes, racks etc. should be finished, e.g. be painted or covered with cloth or fabric.

##### What to look for:

- Front end (0 or 2 points)
- Speakers (0 or 3 points)
- Amplifiers (0 or 3 points)
- Other devices (as described above – 0 to 2 points)

The judges will check by visual impression according to the above description.

## 4.4 Design

#### 4.4.1 Design of vehicle – Passenger Compartment

**(0 – 10 points)**

To score full points, the installation of the components belonging to the sound system and the related mounting panels, etc. should follow the same design theme. The competitor should point out during his/her presentation or within the documentation the ideas behind the design he/she has chosen for the passenger compartment of the vehicle, otherwise the judges will ask the competitor about his/her ideas.

##### Examples:

- One idea could be to keep the interior “stock” – the competitor is trying to accomplish the impression as if the car audio installation is a factory option. Therefore, all visible components together with the related mounting panels, etc. should not stand out and blend perfectly with the OEM vehicle surrounding. Some pictures of “before” and “after” may help the judges to understand better (note: a silver source unit replacing an OEM-black one will lead to point deduction)
- Another idea could be to implement own styling ideas for the components together with the related mounting panels, etc. installed – like a styling element around all speakers, the head unit, the remote

control, etc. in the passenger compartment. The important thing is that the theme is consequently followed through all visible components together with the related mounting panels, etc.

- Another idea could be to promote components of a certain manufacturer while other ones are not highlighted as much but also follow the basic ideas of the installation; there can be a very futuristic, rebuilt interior, a “car-theme”, etc.

#### **What to look for:**

##### **Front end** (only the components that are used to reproduce the EMMA-recordings)

- Operator panel
- Source unit
- Black boxes
- Screens
- CD/DVD-player/changer
- External D/A converters
- Pre-Amplifiers
- Remote controls

##### **Amplifiers**

##### **Speakers**

##### **Other Devices**

- Line drivers
- Crossovers
- Signal-processors
- Additional batteries
- Multiple battery charge regulators
- Capacitors

#### **How to score:**

- There will be a 2 point-deduction for each component or mounting panel not following the design-theme.
- The judges will evaluate, whether all the installed components of the sound system and the related mounting panels, etc. which are visible in the passenger compartment, consequently follow the idea of the competitor in a consistent way.
- The judges will look for the matching of materials, surface finishes, lights (except knobs/display of components), colours etc. Significant deviations here can lead to a point deduction of up to two 2 points per component together with mounting panel.
- Hidden components will not be evaluated.

#### **4.4.2 Design of vehicle – Trunk compartment**

**(0 – 10 points)**

To score full points, the installation of the components belonging to the sound system together with the related mounting panels, etc. should follow the same design theme. The competitor should point out during their presentation or in their documentation the ideas behind the design they have chosen for the trunk compartment. When there's any uncertainty about the design, the judges will ask the competitor about their ideas.

#### **Examples:**

- One idea could be to keep the trunk-compartment “stock” – the competitor is trying to accomplish the impression as if their car audio installation is a factory option. Therefore, all visible components together with the related mounting panels, etc. should not stand out and blend perfectly with the OEM vehicle surrounding or should be covered as OEM's. Having some pictures of “before” and “after” may help the judges to understand. (Note: visible amplifiers in a previous all black trunk will lead to points deductions)
- Another idea could be to implement one's own styling ideas for the components together with the related mounting panels, etc. installed – like a design feature around all amplifiers, speakers, etc. in the trunk compartment. The important thing is that the theme is consequently followed through all visible components.
- Another idea could be to promote components of a certain manufacturer while other ones are not highlighted as much but also follow the basic ideas of the installation; there can be a very futuristic, rebuilt trunk compartment, a “car theme”, etc.

**What to look for:****Front end** (only the components that are used to reproduce the EMMA-recordings)

- Black boxes
- Screens
- CD/DVD-player/changer
- External D/A converters
- Pre-Amplifiers
- Remote controls

**Amplifiers****Speakers****Other Devices**

- Line drivers
- Crossovers
- Signal-processors
- Additional batteries
- Multiple battery charge regulators
- Capacitors
- Fuses, fuse blocks and power distribution blocks
- Etc.

**How to score:**

- There will be a 2 point deduction for each component and or mounting panel not following the design-theme.
- The judges will evaluate, whether or not all installed components of the sound system and the related mounting panels in the trunk, etc. which are visible, consequently follow the idea of the competitor in a consistent way.
- The judges will look for matching materials, surface finishes, lights (except knobs/display of components), colours etc. Significant deviations here can lead to a point deduction of up to 2 points per component together with mounting panel.
- Hidden components will not be evaluated.
- If nothing belonging to the sound system is installed in the trunk, no deductions will be made (full points will be scored).

**4.5 Craftsmanship and Bonus Points****4.5.1 Craftsmanship – cabling****(0 – 10 points)**

The execution and visual impression of the system cabling is judged in this section. Cabling that is not visible and is not clearly visible in the documentation cannot be considered. The judges will give their score based only on the visible/documented part of the cabling.

**The judges will consider the following points to evaluate craftsmanship:**

- Execution of connections (crimping, soldering)
- Routing of power, ground, speaker, signal / control cables (nice, logical and orderly, no “knots”, ...)
- Execution of fixing of cables (usage of cable ties and fixation in regular intervals of not more than approx. 30cm)
- Quality of cable protection (not depending on the material used, but lower points for “somehow under the carpet”, and higher points for usage of protective tubing/materials)
- Usage of shrink hose (yes/no)
- Colour-coding or labelling of cables (yes/no)
- How is the cabling made behind panels/covers
- Etc.

**How to score:**

4 – 10 points	Higher efforts (suggestion: following the list above)
1 – 3 points	Low effort
0 points	No effort



**Note:**

The value/price of the materials used is of no particular interest (e.g. no extra points for massive gold compared to bare metal). It's the looks and the quality of the work behind that is of interest.

**4.5.2 Craftsmanship – Front end****(0 – 10 points)**

The execution and visual impression of the installation of the front end is judged in this section. Components that are hidden or not shown in the documentation cannot be evaluated. The judges will give their score based only on the clearly visible/documented part of the front end.

The front end is defined by those components of the installation that are necessary to generate a signal out of the EMMA recordings, do the digital/analogue conversion, track/volume control and provide the signal to RCA- or symmetrical outputs (all components before the Pre-amplification stage of an external amplifier):

- Operator panel
- Source unit
- Black boxes
- Screens
- CD/DVD-player/changer
- External D/A converters
- Pre-Amplifiers
- Remote controls

**The judges will consider the following points to evaluate craftsmanship:**

- Quality of mounting (lower points for only metal slot with bend-flaps, higher points for additional struts, bolts, screws, etc. or woodscrews versus metric bolts for black boxes/CD/DVD-changers, etc. Pay special attention to mounting of black boxes)
- Does the operator panel, source unit, screen and trim ring protrude (yes = lower points/no = higher points)
- Quality of installation of the remote control
- Using an original source unit trim ring (lower) or custom made trim ring (higher)
- Gaps around trim ring to vehicle and operator panel/source unit/screen (same size all around – higher/gap size varies – lower)
- Finish of front end installation (considering all above mentioned components)
- Etc.

**How to score:**

4 – 10 points	Higher efforts (suggestion: following the list above)
1 – 3 points	Low effort
0 points	No effort

**Note:**

The value/price of the materials used is of no particular interest (e.g. no extra points for titan screws compared to steel screws, or carbon fibre compared to glass fibre). It's the looks and the quality of the work behind that is of interest.

**4.5.3 Craftsmanship – Amplifiers****(0 – 10 points)**

The quality and visual impression of the amplifier installation, and the related mounting panels/covers is being judged in this section. Components that are not clearly visible or shown in the documentation cannot be evaluated. The judges will give their score based only on the visible/documented part of the amplifier-installation.

**The judges will consider the following points to evaluate craftsmanship:**

- Execution of mounting of amplifiers (lower points for wood screws, higher points for metric bolts)
- Execution of mounting of mounting panels
- Fitting of and gaps around trim rings/covers (same size all around means higher points, the gap size varies means lower points)
- Finish of amplifier-installation
- Etc.

**How to score:**

4 – 10 points	Higher efforts (suggestion: following the list above)
1 – 3 points	Low effort
0 points	No effort

**Note:**

- The value/price of the materials used is of no particular interest (e.g. no extra points for titan screws compared to steel screws, or carbon fibre compared to glass fibre). It's the looks and the quality of the work behind that is of interest.
- If the internal amplifiers of the source unit are used within the system, the source unit will be judged twice, one time under "front end" and one time under "amplifiers".

**4.5.4 Craftsmanship – Speakers****(0 – 10 points)**

The quality and visual impression of the installation of the speakers and the related mounting panels and grilles are judged in this section. Components that are hidden and not shown in the documentation cannot be evaluated. The judges will give their score based only on the visible/documented part of the speaker-installation.

**The judges will consider the following points to evaluate craftsmanship:**

- Execution of fixation of speakers (lower points for woodscrews, higher points for metric bolts)
- Execution of mounting of mounting panels and grilles
- Fitting of and gaps around trim rings, grilles (same size all around means higher points, the gap size varies means lower points)
- Finish of speaker-installation
- Etc.

**How to score:**

4 – 10 points	Higher efforts (suggestion: following the list above)
1 – 3 points	Low effort
0 points	No effort

**Note:**

The value/price of the materials used is of no particular interest (e.g. no extra points for titan screws compared to steel screws, or carbon fibre compared to glass fibre). It's the looks and the quality of the work behind that is of interest.

**4.5.5 Craftsmanship – Other devices****(0 – 10 points)**

The quality and visual impression of the installation of the other devices are judged in this section. Components that are hidden and not shown in the documentation cannot be evaluated. The judges will give their score based only on the visible/documented part of the other devices installation.

**What to look for:****Other devices**

- Line drivers
- Crossovers (active or passive)
- Signal-processors
- Additional batteries
- Multiple battery charge regulators
- Capacitors
- All other devices not mentioned above through which the audio signal will pass once it leaves the source unit until it reaches the speaker

**The judges will consider the following points to evaluate craftsmanship:**

- Execution of mounting (lower = only metal slot with bend-flaps, higher = additional bolts, screws, etc. or wood screws versa metric bolts for black boxes, CD-changers, etc. Pay special attention to fixation of black boxes and hide away units).
- Does the operator panel trim ring protrude (yes = lower/no = higher)
- Usage of trim ring that comes with other device (lower) or custom made trim ring (higher)

- Execution of fixation of mounting panels and covers
- Fitting of and gaps around trim rings and covers (same size all around = higher/gap size varies = lower)
- Finish of installation of other devices (considering all above mentioned components)
- Etc.

**How to score:**

4 – 10 points	Higher efforts (suggestion: following the list above)
1 – 3 points	Low effort
0 points	No effort

**Notes:**

- The value/price of the materials used is of no particular interest (e.g. no extra points for titan screws compared to steel screws, or carbon fibre compared to glass fibre). It's the looks and the quality of the work behind that is of interest.
- If no other device is installed, the unit where the filter or sound processor is integrated will be judged a second time (e.g. the source unit or amplifier).

**4.5.6 Overall craftsmanship**

**(0 – 10 points)**

The overall quality and visual impression of the complete installation is judged in this section. Components that are hidden and not shown in the documentation cannot be evaluated. The judges will give their score based only on the visible/documented part of the installation.

**What to look for:**

All parts that belong to or are directly depending on the mobile electronic systems installation but that are not covered under the above paragraphs for craftsmanship like:

- Quality of work behind or under covers, panels and racks
- Finish of surfaces and covers (leatherwork, paintjob etc.)
- Cracks on plastic panels
- Damages and scratches on components
- Quality of covers, panels, racks etc.
- Etc.

**How to score:**

0 – 2 points	Gaps
0 – 2 points	Scratches, damages
0 – 2 points	Leatherwork, paintjob
0 – 2 points	Quality of work behind or under covers/panels
0 – 2 points	Cracks

**Note:**

The value/price of the materials used is of no particular interest (e.g. no extra points for real leather compared to vinyl, or titan compared to steel). It's the looks and the quality of the work behind that that is of interest.

**Advice for category Advanced and Master**

In the category Master "Overall craftsmanship" will summarise the evaluation of all above-mentioned aspects within the available 10 points.

**How to score:**

As described in 4.5.1 to 4.5.5 with the only deviation of using a point range of 0 to 2 points per element:

0 – 2 points	Craftsmanship Cabling
0 – 2 points	Craftsmanship Front end
0 – 2 points	Craftsmanship Amplifiers
0 – 2 points	Craftsmanship Speakers
0 – 2 points	Craftsmanship Other devices

**4.5.7 Bonus points****(0 – 15/100 points)**

With the bonus points, the competitor has a chance to earn extra points beyond the standard installation for extra efforts taken for sound quality, Multimedia-experience and installation quality.

**Depending on the category, bonus points will be awarded as following:**

Category	Points
Rookie, Experienced, Advanced and Master	No bonus points
SQ Expert OEM, 6000, limited, MM Expert	Max 15 bonus points
SQ Expert Unlimited	Max 100 bonus points

Bonus points will only be awarded for items that are connected to the car audio installation and relevant for install judging.

The following procedure will be used for bonus points:

- From the EMMA website the competitor has to download a form.
- On this form the competitor can fill in a maximum of 50 subjects to be scored upon to gain bonus points.
- Each subject will have from 0 to 3 points.
- Only the mentioned maximum of bonus points will be given.

**How to score:**

- There is no "average" bonus, so each point has to be earned by the installation.
- All vehicles begin at "0" points.
- Maximum 3 bonus points can be earned for each element (the score can be from 1 to 3 points)
- The judges have to document the exact item for which point(s) is awarded.
- The competitor should specify the special details for bonus points during the presentation. The judges should not have to search by themselves for unique details.
- Each detail-earning bonus must be visible or shown in the documentation.

**What to look for:**

- Presentation besides judging (limited to maximum 6 points total)
- Spectacular things that highlight components to visitors (1 to 3 points)
- Special show around the car available all day (1 to 3 points)
- Ergonomics (limited to maximum 3 points total)
- Solutions for improving the systems ergonomics and the safety of using the system when driving will get extra points. 1 point for each detail, maximum 3 points total.

**Notes:**

- The judges will verify the function of the remote control. The remote control should have minimum the following functions: volume, track selection and on/off (or pause/stop or mute).
- Source unit/display moved from OEM-installation place for better visibility.
- Custom installed steering wheel remote, not OEM/Change of OEM-remote control to operate system (not using an available interface) => to be proven by photo log.
- Illuminated remote buttons
- Additional remote controls for passengers
- Additional displays for passengers
- etc.

**Sound:**

- Special tasks to improve SQ experience – but remember: the vehicle will be judged in the condition “as driving”, curtains, window-covers, etc. are not allowed and have to be removed before judging (exception: Multimedia category) (1 to 3 points)
- Bonus points can be awarded for building co-axials out of a component set, modifying of amplifiers, rebuilding the transfer of digital signals from optical to coaxial, etc...
- etc.

**Installation:**

- Extraordinary craftsmanship (1 to 3 points)
- Additional battery if located in the passenger compartment and connected to the system installed to sealed box (1 point)
- Sealed box of additional battery located in the passenger compartment and connected to the system vented to outside (1 point)
- Special efforts for serviceability of components (1 to 3 points)
- Special efforts for safety of vehicle operation (1 to 2 points)
- Special efforts for serviceability of vehicle, e.g. access to inside of back lights for changing light bulbs, bolts for muffler, fuel pump, etc. (1 to 3 points)
- Manual for service shop how to disassemble parts of the installation (e.g. doors) for vehicle service (1 to 3 points)
- Lighting of source unit matches original gauges or lighting used in other places (1 point)
- Usability of trunk area (1 to 3 point for full trunk space)
- Promote component longevity (1 to 3 points)
- Special materials and technologies (1 to 3 points)
- Special performance of installation for theft resistance (1 to 3 points) Note: an installation of an alarm system will receive no bonus points.
- Inventive ideas
- etc.

**Note for installation:**

The value/price of the materials used is of no particular interest (e.g. no extra points for titan screws compared to steel screws, or carbon fibre compared to glass fibre). It's the looks and the quality of the work behind that is of interest.



## 5 EMMA rules - Multimedia Sound & Picture Quality

### 5.1 Multimedia Categories and Classes

Multimedia is the stage for those competitors who not only love great sound in their car but also the synthesis of visual and acoustic impression in the actual multi-channel formats.

This form of competition was created to meet the increasing interest for mobile Multimedia. The goal for the Multimedia category is to entertain! Multimedia judging is divided in two categories; sound and picture and installation. Depending on the event permission can be granted to the competitor to accompany parts of the judging process. The competitor is not allowed to disturb the judging. The judges are advised to give hints and tips to the competitors but without using brand names.

In EMMA Multimedia, there are three categories with no separation into classes.

#### 5.1.1 EMMA Multimedia Experienced

EMMA Multimedia Experienced is the first available category and at the same times the entrance to international in-car Multimedia competitions. The judging on sound and installation consists of criteria only concerning safety (installation) and limited sound and picture judging.

In this category a competitor with decent sound, picture and installation will feel at home. As only a couple of things will be judged in Installation, no extensive installation is expected in the car. Sound will be judged with a couple of tracks of the official EMMA-Multimedia DVD. Of course if, through the qualified advice from the judges and other competitors, the installation, picture quality and sound improve, it will be time to make the next step up, the advanced category.

As there will be national and international finals 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, where being there is more important than winning.

**A competitor is eligible to compete in this category if they meet all of the following criteria:**

- This category is open to anyone who wants to compete in an EMMA-competition
- 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, DVD, player, display, sound or video amplifiers, line driver active crossover etc.).
- In EMMA Multimedia Experienced, there will be a national and international Championship.
- It is not allowed to use either a center channel and/or an surround channel in this category.

**Classifications:**

- EMMA Multimedia Experienced (One Class)

**Judging procedure:**

- One EMMA Multimedia judge will perform the sound and picture judging but without 360° degree movement/Dolby Surround- judging according to the matrix on the last page (allowing stereo-systems with screen and DVD-player to compete with a fair chance).
- One EMMA Install judge will perform the judging according to the matrix on the last page.

#### 5.1.2 EMMA Multimedia Master

EMMA Multimedia Master is the next step following EMMA Multimedia Experienced – taking the Multimedia experience to the next level, where a little bit more is judged on installation and the full spectrum for the sound and picture performance will be judged. If you cannot or do not want to go to further with your installation, this is the category to be in. The competitors will receive qualified feedback about the sound and picture and installation of their Multimedia systems to improve these in the future.

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

**Furthermore:**

- In this category it is allowed to use any modified or self built equipment.
- In EMMA Multimedia Master, there will be a national and an international Championship.

**Classifications:**

- EMMA Multimedia Master

**Judging procedure:**

- One EMMA Multimedia judge will perform the complete sound and picture judging according to the matrix on the last page.
- One EMMA install judge will perform the judging according to the matrix on the last page.

### **5.1.3 EMMA Multimedia Expert**

EMMA Multimedia Expert is the final step following EMMA Multimedia Advanced. The top vehicles of this category represent everything achievable in the vehicle environment in both sound and picture as well as installation performance. The competitors will receive qualified feedback about the sound & picture and installation of their Multimedia systems with potential for improvements in the future.

**Furthermore:**

- In this category it is allowed to use any modified or self built equipment.
- In MM Expert a max of 15 Bonus points will be given.
- In EMMA Multimedia Expert, there will be a national and an international Championship.

**Classifications:**

- EMMA Multimedia Expert (One Class)

**Judging procedure:**

- One EMMA Multimedia judge will perform the complete sound and picture judging according to the matrix on the last page.
- One EMMA install judge will perform the judging according to the matrix on the last page.

## **5.2 General Rules for Multimedia Judging**

The Multimedia sound and picture judging rules were created to separate the Multimedia judging from the regular sound quality judging as this cannot be judged under the same criteria. Careful consideration has been taken into account as not to handicap competitors without a full multi channel system.

It's up to the competitor to choose the desired position for judging. It must be from a seat that is approved by the national vehicle inspection and normally used to transport people in the car. E.g. a cinema chair in the back of a van, an extra seat without safety belt etc. are not allowed in competition.

The competitor is allowed to cover all windows reducing the level of light in the vehicle, which will enhance the judging of the picture quality. This is permitted for both indoor and outdoor events.

The official DVD software used for Multimedia judging will be announced by EMMA. An official guideline on how to use the actual DVD together with these rules will be available for download. EMMA reserves the right to change the software during the competition season. Should this be the case refer to [www.emmanet.com](http://www.emmanet.com) for updated information.

**The Multimedia sound judging is divided into 5 categories:**

5.3 Sound Stage and Room Quality	Max. 105 points
5.4 Tonal Accuracy and Spectral Balance	Max. 135 points
5.5 Picture Quality & Multimedia Experience	Max. 70 points
5.6 System Handling	Max. 6 points
5.7 Adjustments	

**Max. Total** **316 points**

**5.2.1 Dolby Digital 5.1 on Stereo systems (2.1)**

The official DVD software is encoded in Dolby Digital 5.1. In classes where the judging is done based on a stereo system (no centre, no surround speakers), the competitor must ensure, that the DD 5.1 Signal is down sampled to 2.0. Just switching of the rear system may not be enough because information in the surround channel might be missing. The usage of a centre speaker is forbidden in such category.

**5.2.2 Checking charger connected y/n**

See SQ chapter “3.4.1 Checking charger connected y/n” for how to check charger.

**5.3 Sound Stage and Room Quality****5.3.1 360° Level (0 – 25 points)**

360° level refers to how well the system performs regarding the sound level around the listener. When sound sweeps around the listener, the level should not vary as the sound moves. (E.g. when a car is passing by from left to right, or when a train comes from the rear to the front, the level should not change)

**5.3.2 360° Movement (0 – 25 points)**

360° movement refers to how well the system reproduces the sound positions all around the listener. When sound sweeps around the listener, the movement/panning should be smooth and seamless as the sound moves. (E.g. when an UFO is passing by from left to right, or when a train comes from the rear to the front, the movement of the sound should be smooth and realistic.)

**5.3.3 Room quality – Sub bass (0 – 10 points)**

Consider the sub-bass ability to “fill up” the room. The sub should be audible and felt in the whole listening room, but not easily localised. It’s quite different to SQ, where the sub idealistic should be positioned only in front of the listening position.

The LFE (Low Frequency Enhancement) integration should also be considered. LFE is a very important part of a Multimedia system. Consider the crossover points from the sub/LFE with regard to the rest of the system (usually around 50 - 100 Hz); there should be no peak or distinct change in level.

High points when sub is clearly audible and felt, but cannot be localised.

**5.3.4 Room quality – Front stage (0 – 10 points)**

The soundstage relative to the screen and picture is judged here. High points can be earned for a system that has the front stage is aligned with the picture showed on the screen, both horizontal, vertical and in depth.

You should get a feeling of “where you see is where you hear”. Look for the systems quality to reproduce a feeling of reality and being part of the action. Also consider the distance to the front stage, which idealistic should be the same distance as to the screen.

**Points are deducted if e.g.**

- The screen is located low in centre console and the sound is above dashboard.
- If the centre sound and the screen is not aligned vertically. (The centre is reproduced to the side from the screen)
- If the sound and screen doesn’t align in depth (e.g. sitting in backseat with screen in headrest and sound at the dashboard)
- If the front stage height is not stable.



- Narrow front stage (distance from left to right position, compare to width for SQ)
- Bad lip-sync (sound and picture not in phase)

**Note:**

- The width of the front stage does not apply to the size of the screen. A small screen is no excuse for a narrow front stage.
- The quality of the picture is not judged under this paragraph.

**5.3.5 Room quality – Surround****(0 – 10 points)**

The system's ability to reproduce the surround information is important for good room quality. High points can be earned for a system that reproduces a feeling of a big "room" behind the listener. Also consider the distance to the "surround soundstage" (should not be separated from the front stage).

**5.3.6 System separation****(0 – 25 points)**

This could roughly be compared to the imaging characteristics for SQ judging. The information showed on the screen should be clearly defined by the sound system. Look for correct focus and separation between the sound positions. Also consider the left and right separation in the surround.

**Note:**

It's most important that the front stage separation is clearly defined; a slight lack of separation in the surround sound is acceptable and will not result in a high point deduction.

**5.4 Tonal Accuracy and Spectral Balance**

A Multimedia system should reproduce a recording as realistic and authentic 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 to the intentions of the producer as possible. Therefore, EMMA teaches the Multimedia judges to fully understand exactly how the EMMA Multimedia DVD was 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
- Midbass
- Midrange
- High frequencies

and the overall spectral balance of the entire audible frequency range.

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

Under overall spectral balance, they will evaluate how well the four above sections add together to create a full picture approximating as much as possible the original on the EMMA Multimedia DVD.

<b>5.4.1</b>	<b>0 – 15</b>	<b>Sub-bass</b>
<b>5.4.1</b>	<b>0 – 15</b>	<b>Midbass</b>
<b>5.4.1</b>	<b>0 – 15</b>	<b>Midrange</b>
<b>5.4.1</b>	<b>0 – 15</b>	<b>High frequency</b>

Listen to the systems tonal accuracy from all positions as one (including Surround) and the ability to reproduce the sound in a realistic way. Please remember the material reproduced from a music- or movie-DVD could be excessive depending on the sound mix. Tonal accuracy for a Multimedia system should not necessarily be compared to a SQ system.

For more detailed information about tonal accuracy (for music), please refer to the SQ chapter.

**5.4.1 Spectral balance****5.4.2 Overall spectral balance – normal volume (0 – 15 points)****5.4.3 Overall spectral balance – high volume (0 – 15 points)**

Listen for the overall spectral balance and tonal accuracy on normal respectively high listening volume. Spectral balance at low volume will not be judged.

If a Multimedia system cannot play loud (e.g. normal volume = loud volume), 10 points will be deducted

For more detailed information about overall spectral balance, please refer to the SQ chapter.

**5.4.4 Voice/timbre matching (0 – 25 points)**

The voice/timbre matching should not vary depending on the location in the sound system. All the systems sound locations should match; front, centre and surround. E.g. a dark male voice at the left moving to the centre position should not then sound like a boy.

**Note:**

It's most important that the front stage matching is good; a slight difference in the surround sound is acceptable and will not result in a high point deduction.

**5.5 Picture Quality & Multimedia Experience**

The screen used for judging should be pointed out by the competitor before the judging starts (if multiple screens are installed). During judging only one screen is allowed to be turned on!

**5.5.1 Details and resolution (0 – 15 points)**

Look for the screens ability to reproduce details and that the resolution makes the picture look realistic. E.g., look especially for small details (a person's hair, snow/rain drops, microbes, details on a wall, etc.) and that you don't see the pixels.

**Note:**

- A big screen is not always better. The bigger screen demands a higher resolution not to see the pixels.
- No deduction will be made for the wrong aspect ratio (stretched/shrunk picture, e.g. 4:3 on a 16:9 screen). If this is the case, it could be considered under "Multimedia experience".

**5.5.2 Contrast and brightness (0 – 15 points)**

Look for the screens ability to reproduce details and information in dark and bright areas. E.g. clouds in the sky, movements in shadows, a car on a dark street etc.

**5.5.3 Colour (0 – 15 points)**

Look for the screens ability to reproduce colours. The colours should not be dull or lustreless or excessive. Look especially for "bleeding" colours, often seen where the contrast is high.

**5.5.4 Multimedia experience (0 – 25 points)**

The overall Multimedia experience is judged here; both sound and picture will be considered. This point could be slightly compared to listening pleasure in SQ.

Focus only on the picture and sound presented by the Multimedia system. Don't take installation issues and gadgets, which will enhance the Multimedia feeling (popcorn machine, moving curtains in front of the screen, etc.) into consideration with this point because the installation judges will judge these.

A good Multimedia system should be able to reproduce the Multimedia experience in such a realistic manner and it should make you feel part of the action, just like a good movie theatre does. Keep in to consideration that a lot of movies offer a "larger than life" experience (loud noises, big explosions and bullets flying around your head.)

**Points will be awarded for everything that enhances the Multimedia experience. For example:**

- Real listening and viewing pleasure
- Good dynamics in the sound
- Real life picture quality
- Convincing LFE sound effects (think of the roar of a dinosaur, the rumbling of an active volcano, a big helicopter flying overhead etc.)

**Points will be deducted for anything that makes the experience less enjoyable. For example:**

- Bad tonal accuracy and/or spectral balance
- Unrealistic/bad picture quality
- Unrealistic, artificial sounding sound.
- Rattling noises from the car
- Screens which are too small to see enough detail of the movie
- A lack of surround information

## 5.6 System Handling

### 5.6.1 System handling

**(0 – 6 points)**

A Multimedia system could be very complex with lots of units, but the system should be easy to use and control. Full points will be awarded, if the complete system can be controlled by one control unit. 2 points are deducted for each additional control unit or separate button if required. A control unit could be the source unit itself, but also remote control, power button, keyboard, game pad etc. It should be easy for the judge to operate the system during the judging process and leave no doubt or confusion on how to navigate menus, change volume etc. The handling should be made in a relaxed way from the judging position.

**Only the controls needed for judging should be considered:**

- Volume +/-
- DVD-menu navigation
- Power on/off (including all units used during judging; source unit, amps, screen etc.)

#### Note:

- If all controls are available on the source unit itself but are located at different places, this will be judged as one (1) control unit. For example a source unit with flip-out touch screen with volume and menu navigation but the power button is a separate button under the screen.
- The remote control unit doesn't necessarily have to be mounted fixed.

## 5.7 Adjustments

Please refer to the **sound quality chapter** for detailed information about the noise test in regards of sound Engine-off testing - switching noise (-6 to 0 points)

### 5.7.1 Engine-off testing - System noise

**(-6 to 0 points)**

### 5.7.2 Engine-on testing

**(-6 to 0 points)**

### 5.7.3 Picture noise

**(-6 to 0 points)**

Look at the screen for noise, flickering, jamming etc. especially while the engine is running. Look also for Moire-patterns in the static test picture

#### Note:

No deduction will be made for the wrong aspect ratio (stretched or shrunken picture e.g. 4:3 on a 16:9 screen)

## 6 EMMA Sound Pressure League (ESPL)

The EMMA Sound Pressure League is made for those kinds of competitors who are interested in the maximum level of volume in their cars – not forgetting about a safe installation and a neat looking appearance.

To guarantee similar conditions and fairness to all competitors, the amount of subwoofers will be regulated in the following terms in all categories:

- All the installed and connected woofers will be calculated as shown in the table below.
- It is defined, that one 25cm=10" woofer will be counted as one woofer. Since not all people have 10" woofers installed, the following calculation key will be used.

Number of woofers	Size of woofer		Classification	Circumference (No longer than)
1x	<b>25cm = 10"</b>	Equals	1 woofer	<b>78,5cm</b>
1x	<b>30cm = 12"</b>	Equals	2 woofer	<b>94,2cm</b>
3x	<b>20cm = 8"/6"x9"</b>	Equals	2 woofer	<b>62,8cm (per 8")</b>
1x	<b>38cm = 15"</b>	Equals	3 woofers	<b>119,3cm</b>
1x	<b>46cm = 18"</b>	Equals	4 woofers	<b>144,4cm</b>

- In the case that a subwoofer size is not clear defined by the manufacturer or a different shape is installed, the circumference will be measured (as per drawing) and the woofer will be classified according to the table.



### ESPL Categories

#### 6.1.1 ESPL Experienced

ESPL Experienced is the serious entry to international ESPL competition. Competitors with a descent installation and SPL- performance will have a fair chance within this category. Only the elementary things are part of the judging. There is a good possibility to learn and improve the installation and the SPL performance step by step by competing in this category – and it is not simply depending on spending more money on the equipment. The most successful competitors within this category will be ready to take the next step towards an even higher level of competition. And with the chance of participating in national and international finals it is a good way to become part of the international EMMA-community and learn what makes EMMA so special – the Great Spirit under the crowd of international competitors and the international EMMA team.

**To compete in Experienced, one must meet all of the following criteria:**

- The competitor is not a professional, or employed by, in the car audio business in any way. That includes dealers, installers, distributors, manufacturers, publishers, representatives, auto sound organising, or sanctioning body, etc.

**Furthermore:**

- In ESPL Experienced, there will be optionally only National Championships.
- The Experienced National Champions (1<sup>st</sup> place of each class only) can compete at International Championships at their corresponding Class, In Advanced category and will be judged as Advanced on the installation section. (E.g. Experienced 4 to Advanced 4)
- National Organisations are free to expand or shrink rules & classes, according to National needs.

**Rules for all Experienced classes:**

1. The audio system can be installed by anyone.
2. The vehicle must be registered with a license number. (Licence plates can be removed during the competition).
3. The car must have driver and passenger side seats installed in original condition or similar (sport seats, etc.).
4. The maximum voltage is 14,6 Volts with the engine running, or not, measured on the amplifier's power input.

5. No modified or self built active (=power supplied) equipment is allowed (e.g. head unit, line driver, amplifier, active crossover etc.).
6. A maximum of two channels of amplification are allowed per physical installed woofer (two channels bridged to one is counted as one)
7. All components of the audio-system have to be installed into the vehicle – trailers etc. are not allowed.

**Possible – Optional Classifications:**

- ESPL Experienced Trunk 1 - 1 Woofer
- ESPL Experienced Trunk 2 - 2 Woofers
- ESPL Experienced Trunk 3 - 3 Woofers
- ESPL Experienced Trunk 4 - 4 Woofers
- ESPL Experienced Trunk Unlimited

**Additional rules for the Experienced Trunk classes:**

9. The subwoofers (including enclosures, ports, etc.) must be installed in the trunk area, with a maximum height not higher than the top of the original rear seat (not headrests!).
10. The rear seats must be locked and fixed in upright position (90 degrees or more). The sub box can be fixed up to this position.
11. The car must be approximate to the “original” from C-pillar to the front and should look original.
12. Panels (door, kick, dash, etc.) are allowed from C-pillar to front.
13. The vehicles can be moderately damped (approx. 5mm thick). If polyurethane-foam, concrete, etc. is used, the car has to compete in the appropriate higher class that allows the extra damping.
14. The source unit must be installed and fixed properly into the car.

**Additional rules for the Experiences B classes:**

15. The subwoofers (including enclosures, ports, etc.) can be installed from the trunk to the B-pillar. Maximum height is the top end of the original rear seat (not headrests!).
16. The car must be approximate to the “original” from B-pillar to the front and should look original.
17. Panels (door, kick, dash, etc.) are allowed from B-pillar to front.
18. The vehicles can be moderately damped (approx. 5mm thick). If polyurethane-foam, concrete, etc. is used, the car has to compete in the appropriate higher class that allows the extra damping.
19. The source unit must be installed and fixed properly into the car.

**Additional rules for the Experiences Compact classes:**

20. Special classes for originally made, small, 2 seat cars, like Smarts, Pick-Ups, Cabs, Sport, Roadsters, etc.
21. The subwoofers (including enclosures, ports, etc.) can be installed from the trunk to the B pillar, from floor to ceiling.
22. The car must be approximate to the “original” from B-pillar to the front and should look original.
23. Panels (door, kick, dash, etc.) are allowed from B-pillar to front.
24. The vehicles can be moderately damped (approx. 5mm thick). If polyurethane-foam, concrete, etc. is used, the car has to compete in the appropriate higher class that allows the extra damping.
25. The source unit must be installed and fixed properly into the car.

**Additional rules for the Experiences Wall classes:**

26. The subwoofers (including enclosures, ports, etc.) can be installed from the trunk to the B pillar, from floor to ceiling.
27. The car must be approximate to the “original” from B-pillar to the front and should look original.
28. Panels (door, kick, dash, etc.) are allowed from B-pillar to front.
29. The vehicles can be moderately damped from B pillar to front (approx. 5mm per thick)
30. It can be heavily damped from B pillar to the back like polyurethane-foam, concrete, etc.
31. The source unit can be installed properly into the car or out of the car.

### 6.1.2 ESPL Advanced

ESPL Advanced is the step following ESPL Experienced – taking ESPL competition to the next level considering not only the elementary things on the installation site and allowing more changes to the Interior of the vehicle. The competitors will receive qualified feedback about the SPL-measures and installation of their systems with potential for improvements in the future.

**To compete in Advanced, one must meet all of the following criteria:**

- This category is open to anyone.

**Furthermore:**

- In ESPL Advanced, there will be National and International Championships.

**Rules for all Advanced classes:**

1. The audio system can be installed by anyone.
2. The vehicle must be registered with a license number (licence plates can be removed during the competition).
3. The car must have driver and passenger side seats installed in original condition or similar (sport seats, etc.).
4. The maximum voltage is 14,6 Volts with the engine running or not, measured on the amplifier's power input.
5. No modified or self built active (=power supplied) equipment is allowed (e.g. head unit, line driver, amplifier, active crossover etc.).
6. A maximum of two channels of amplification are allowed per physical installed woofer (two channels bridged to one is counted as one)
7. All components of the audio-system have to be installed into the vehicle – trailers etc. are not allowed.

**Classifications:**

- ESPL Advanced Trunk 2 - 2 Woofers
- ESPL Advanced Trunk 4 - 4 Woofers
- ESPL Advanced Trunk Unlimited

**Additional rules for Advanced Trunk 2, 4, Unlimited, classes:**

8. The subwoofers (including enclosures, ports, etc.) must be installed in the trunk area (retractable rear seat must be locked in upright position) with a maximum height not higher than the top of the original rear seat (not headrests!).
9. The rear seats must be locked and fixed in upright position (90 degrees or more).
10. The car must be approximate to the "original" from C-pillar to the front and should look original.
11. Panels (door, kick, dash, etc.) are allowed from C-pillar to front.
12. The vehicles can be moderately damped (approx. 5mm thick). If polyurethane-foam, concrete, etc. is used, the car has to compete in the appropriate higher class that allows the extra damping.
13. The source unit must be installed and fixed properly into the car.

**6.1.3 ESPL Master**

ESPL Master is taking the ESPL competition to a sophisticated level. The top vehicles of this category represent nearly everything achievable in the vehicle environment. The top competitors will be highly respected and set an example to the international crowd of EMMA competitors. The competitors will receive qualified feedback about the SPL and installation of their mobile electronics-systems with potential for improvements in the future.

**This category is open to anyone!**

**Furthermore:**

- In ESPL Master, there will be National and International Championships.

**Rules for all Master classes:**

- The audio system can be installed by anyone
- The car can be registered or **not registered**, with or **without** licence plates.
- The car must be able to be driven by its own engine
- The car can be heavily modified, damped, etc.
- At least a driver's seat must be installed (a car-seat, not a bench or a piece of wood to sit on)
- Modified or self built equipment is allowed
- There is no limit on the voltage (it can be higher than 14,6V)
- All components of the audio-system have to be installed into the vehicle – trailers etc. are not allowed.
- The source unit can be **installed properly** into the car or **OUT of the car**.
- A maximum of 16 Subwoofers (or equivalent) are allowed to be used in ESPL Master

**Additional Rules for Master R-unlimited class**

- The subwoofers (including enclosures, ports, etc.) must be installed in the trunk area (retractable rear seat must be locked in upright position). The enclosure can reach up to the roof of the vehicle.

#### **Additional rules for Master B class**

- The subwoofers (including enclosures, ports, etc.) can be installed from the trunk to the B-pillar, with a maximum height not higher than the top of the original rear seat (not headrests!).

#### **Additional rules for Master Wall class**

- The subwoofers (including enclosures, ports, etc.) can be installed from the trunk to the B-pillar, from floor to ceiling.

#### **Classification:**

- ESPL Master R unlimited
- ESPL Master B unlimited
- ESPL Master W unlimited

#### **6.1.4 ESPL Expert**

ESPL Expert is similar to ESPL Master, but not only is the quality of the installation and of course the volume level important, but also the design and styling of the competition car will be judged.

The competitors will receive qualified feedback about the SPL-measures and installation of their systems with potential for improvements in the future.

**This category is open to anyone!**

#### **Furthermore:**

- In ESPL Expert, there will be National and International Championships.

#### **Rules for all Expert classes:**

1. The audio system can be installed by anyone
2. The car can be registered or not registered, with or without licence plates.
3. The car must be able to be driven by its own engine
4. The car can be heavily modified, damped, etc.
5. At least a driver's seat must be installed (a car-seat, not a bench or a piece of wood to sit on)
6. Modified or self built equipment is allowed
7. There is no limit on the voltage (so it can be higher than 14,6V)
8. All components of the audio-system have to be installed into the vehicle – trailers etc. are not allowed.
9. The source unit can be installed properly into the car or out of the car.

#### **Classification:**

- ESPL Expert Unlimited

#### **Judging procedure:**

- Installation check according to the matrix
- Measurement with closed doors
- Measurement with open doors

### **6.2 ESPL-Judging**

When judging Sound Pressure Level, it is important to have a clear notion what kind of competition this is about. Not only the absolute SPL-number should be the criteria, but also "how" the vehicle is built.

The following procedures and rules must be observed during the ESPL judging:

1. Any installed but not connected speakers will not be taken in consideration. The competitor has to prove that the speakers are not connected to the audio system.
2. Installed Passive membranes do not count as woofers. The competitor has to prove that they are passive.
3. Any number & size of midranges/tweeters are allowed to be installed & connected to the system, but they should NOT sound below 100Hz. Otherwise they will be counted as woofers. The competitor has to prove that they do not produce sounds below 100Hz.
4. The vehicle must be shown to the public after the measurement is finished. The organisers will point out an area for presentation. In that case the cars must be presented to the public for a minimum time of 15 Minutes. If the car is not presented the judge or Event Director will deduct 10 Points.
5. If additional batteries are installed, they have to be properly mounted and fused.

6. The competitor is responsible for their equipment and EMMA takes over no responsibility or guarantees in case of any damage to the sound system, or the car.

#### **Installation-Judging:**

Installation judging can be done before or after the measurement process. The competitor guides the judge through the installation of his vehicle. The scoring will be explained immediately to the competitor.

#### **Measurements:**

The Event Director or Head Judge decides on the track to be used for measurement from the official ESPL CD on the day of the event or by lottery, etc.

Only for the National Final and international Finals, the tracks that will be used will be announced in advance and published at [www.emmanet.com](http://www.emmanet.com),. The measuring procedure is as follows:

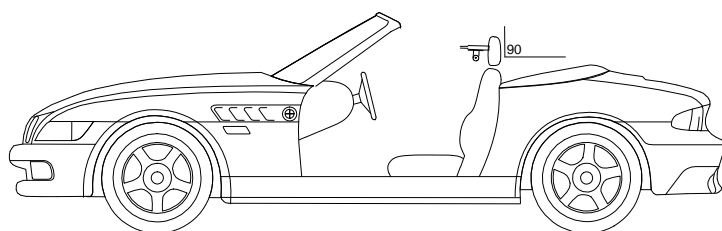
1. The volume is only controlled by the owner or presenter of the competition vehicle
2. The judges will not adjust any volume control, track selection control and head unit power switch.
3. Only the official EMMA ESPL judging CD is to be used for the judging process and the announced track will be played.
4. No additional power supplies are allowed to be connected to the mains during the measurement process or any external power supply.
5. A front system must be installed and play audible music during measurement, if the front system is not audible there will be a 10 point deduction.
6. It is the competitor's decision if they sit inside the car during the judging process. EMMA is not responsible for damages to the health of the competitor but strongly recommends being careful!!!
7. If during measurement the head unit stops/blocks/jumps, the system or a component of the system fails/breaks/fuse blow, etc. the competitor has a second chance to start within 5 minutes for every measurement (open/closed). The same if accidentally another track is used. There is no third chance for any reason.
8. All official ESPL Measurements have to be done with the Measurement Systems licensed by EMMA
9. The EMMA ESPL-CD has to be reproduced by the (car-) audio equipment.
10. In outdoors competition, it is allowed to have the engine running during the measurements.
11. In indoors competitions, no vehicle will be allowed to run the engine during measurements.

#### **Measurement closed:**

The first measurement will be with the doors closed – a minimum 30 seconds of music will be played. Within the next 2 minutes a second measurement will follow:

#### **Measurement open:**

The second measurement will be done with both front doors completely open – a minimum 30 seconds of music will be played with the same track as in the first measurement.



The microphone/sensor will be placed by an authorised judge and the competitors are not allowed to touch it in anyway, during and between both measurements. The judges must ensure that the microphone height and orientation are absolutely consistent from vehicle to vehicle.



### The following guidelines apply for using a microphone

1. The driver's seat must be positioned to a reasonable driving position of the competitor (driver must be able to operate the pedals, steering wheel, gearbox and see the gauges on request of the judge). The backrests of the front seats should be at least in vertical position (90 degrees or more towards the back).
2. The Omni-directional Microphone/Sensor will be mounted at the surface where the head rests, the opening facing backwards. A headrest must be installed, otherwise measurement is not possible.

The sensor will be equipped with a 10cm x 10cm wooden plate underneath the opening to be prepared for frame –headrests.

The cable of the microphone/sensor must be routed through the original door opening by the judge. No special devices are allowed. No other equipment than the official measuring equipment, cables etc. are allowed to be used.

### 6.3 Optional for ESPL

The Event Director can decide, before the competition starts, to have a qualification round and a final round. If the decision is made to have a qualification and a final, two tracks will be elected. The track for the final will not be announced before the final starts.

#### The Qualification

Installation, measurement open and closed as described above. The results will be added together. The best, four to eight competitors of each class are qualified for the final round.

#### The Final

The measurement modus is the same but with the 2nd track from the official ESPL CD. The installation points will be carried over from the qualification round.

The number one of the first round will compete against the competitor who finished last in that same round, the second against the seventh, the third against the sixth, and the fourth against the fifth place qualifiers. In the semi-finals the first will compete against the fourth, and the second against the third.

The final follows with the two winners of the semi-final against each other.

If something is not covered in these rules, the general guidelines of the official EMMA rulebook are to be used. In each event the Head Judge or the Event Director is the highest court of appeal, and their decision is final.

## 7 EMMA rules - Racing

The EMMA Racing concept is based around a competition in which all aspects of car modification (styling, tuning and audio) are judged. It is run as a motor sport event, in accordance with the rules and regulations approved by the national authorities in the organising country, and the international rules approved by EMMA.

Each event is run under the EMMA Banner, and the organiser of the competitions will be a licensed EMMA Partner. The judging will be performed by judges that have been approved by either the national or international EMMA organisations.

The slalom course will be held in a secure area designated by the event Organisers. In order to restrict entry by any unauthorised persons the area must be **clearly** marked by a security ribbon or any other form of security – (Stacks of tires etc, etc). All incidents within this secured area are under the strict jurisdiction of the organiser. All incidents outside the secured area will be the responsibility of the people involved in the particular incident, and the event organiser can not be held responsible.

### 7.1 The Event Schedule

The registration of the competitors will be done in accordance to the EMMA rules.

The different sections within the competition are as follows:

1. Tuning Passenger Compartment
2. Tuning Engine Compartment
3. Tuning Trunk Compartment
4. Tuning Car Outside
5. Sound Quality
6. Security
7. Slalom or Drag racing
8. SPL Measurement (open doors)

**7.1.1 EMMA Racing will be judged in following categories:**

- Advanced
- Master

On local events the categories can be settled like needed by the organizer.

## **7.2 Passenger Compartment**

### **7.2.1 Surfaces (0 – 10 points)**

Any modification on surfaces inside the passenger compartment.

### **7.2.2 Windows (Master only) (0 – 5 points)**

Any modification on the windows like sun protection etc. will be judged.

### **7.2.3 Lights (Master only) (0 – 5 points)**

Any modification on any lights in the passenger compartment will be judged. This includes room lights and all instrumental lights.

### **7.2.4 Dashboard (Master only) (0 – 10 points)**

Any modification on the dashboard will award points. This includes the whole dashboard section including the steering wheel.

### **7.2.5 Seats (Master only) (0 – 5 points)**

Any modification will award points. This includes change of complete seats and also change of surface to leather etc.

### **7.2.6 Craftsmanship of changes (0 – 10 points)**

Any change done within the passenger compartment will be proofed on the way they have been done in terms of craftsmanship.

### **7.2.7 Style and Design (0 – 10 points)**

This is the part where the complete picture of the passenger compartment will be evaluated. Is there a theme, does it show an optical impressive car interior.

## **7.3 Engine Compartment**

### **7.3.1 Changes to Engine/Power (0 – 10 points)**

Any change to increase the power will receive points. The more effort - the more points.

### **7.3.2 Changes on Design (0 – 10 points)**

Any change from the OEM will receive points, also modifications regarding the sound system.

**7.4 Trunk Compartment****7.4.1 Trunk design****(0 – 10 points)**

Any change of the trunk design will be judged. If there are hidden installations/ modifications it is up to the competitor to proof this.

**7.4.2 Installation of Multi Media/Sound System****(0 – 10 points)**

The craftsmanship and fixing of the Sound System's Installation

**7.5 Car Outside****7.5.1 Quality of surface/painting****(0 – 10 points)**

The quality of the surface and painting, if no changes are done the competitor will receive 3 points. For Stickers, Airbrush etc higher points will be awarded.

**7.5.2 Changes of car body****(0 – 10 points)**

Any change done to the car or the suspension will receive points. If no changes are done the competitor will receive 0 points.

**7.5.3 Light Design (Front/Rear)****(0 – 5 points)**

Any change to the lights will be judged in this category. If there are no changes the competitor will receive 0 points.

**7.5.4 Wheels****(0 – 10 points)**

Any modification on the wheels will be judged in this section. The more modified parts are installed the higher points will be awarded. Also the wheelhouse will be included this part.

**7.5.5 Changes of Brakes****(0 – 5 points)**

If brakes are changed the competitor will receive 5 points.

**7.5.6 Changes of Exhaust System****(0 – 5 points)**

If the exhaust system is changed the competitor will receive 5 points.

**7.5.7 Style and Design****(0 – 20 points)**

In this section the whole impression of the car is to be judged. A very moderate design is able to receive the same points like a very offensive modification.

**7.6 Sound****7.6.1 Staging****(0 – 15 points)**

The judge will evaluate the sound of the car

Distance 0 – 5

Stage Height 0 – 5

Stage Width 0 – 5

**7.6.2 Tonal Accuracy****(0 – 20 points)**

The judge will evaluate the total impression of the sound.

**7.7 Slalom/Drag Racing****(0 – 40 points)**

Optionally, the event organizer may offer a slalom race in addition to the previous judging process. The official rules of safety and security will be followed according to the national law of the country. Other race elements may also be included such as drag racing, skill tests etc. If this section is not offered by the organising body, then the judging process will be complete after the ESPL judging.

Each competitor is allowed one attempt to drive the course in order to familiarise themselves with it, before the judging begins. The judging will then begin, and the competitor will re-start the course, and attempt to drive it in the shortest possible time. It is also up to the national organisation to do i.e. 3 runs with the best

time counted. The competitor will start the course with the engine running, and will finish the course with one axle on either side of the "Stop" line. It is also recommended to use a computer checked time measurement system with photo finish.

The final time in the slalom is the addition of the time taken to complete the course, combined with the total time penalties. The penalties are listed in the table below.

Violations	Penalties	Notes
Deviation from the start		Disqualification
False start or missing the track	+20 sec	
The touching of any restriction device	+3 sec	
Incorrect stop at the finish line (not in-between the axles)	+5 sec	

Points are awarded as following:

Best time: 40 points  
 2nd best: 37 points  
 3rd best: 35 points  
 4th best: 33 points  
 5th best: 32 points  
 etc., counted down by ONE point down to zero

## 7.8 SPL Measurement

(0 – 35 points)

This section is only to be judged by a certified EMMA judge. The judging is done by one judge. The Sound Pressure Level is evaluated on the basis of the official EMMA ESPL Rules, but only one measurement will be performed, with open doors. Under given circumstances it might be necessary to measure with only one open door (to much wind) or both doors closed.

### Notes:

When giving marks for ESPL they are given according to the following principle:  
 100 dB - 0 marks. For each subsequent dB: 1 point will be awarded. For example, 132,7 DB = 33 points.  
 (.4 and below rounded down and from .5 up over rounded up)  
 The competitor will be given the opportunity to change the setting of the audio system between the SQ and SPL judging. However the midrange and high frequencies of the track must be clearly audible during SPL judging. The highest possible score is 35 points, which is equal to 134.5 dB or above.

## 7.9 The Results and the Prize Ceremony

For the final result to be determined, the sum of points accumulated by each competitor in all categories is combined. The competitor with the largest number of points is the winner. If there is a tie, with more than one competitor holding the largest number of points, then the winner will be the competitor with the highest score in the design category.

It is up to the national organisation to add extra trophies for each section judged. In addition, it is possible to split the competition into separate categories, but only the official announced categories are valid at the international finals.

# 8 ESQ (EMMA Sound Quality League)

ESQ competition was formed by EMMA Philippines and EMMA Thailand to open a competition arena for those who enjoy listening to good sound quality outside their cars.

## 8.1 Categories

1. Advanced Trunk 2w, 4w, unlimited
2. Master B unlimited
3. Master R unlimited
4. Master Unlimited

The classification is according to the description in the chapter ESPL, Categories and Classes.

The competition consists out of

- Measuring SPL with open doors according to the rules for ESPL
- checking the installation
- And – of course – judging the sound quality judging outside of the car.

On international events only one Advanced and one Master category will be offered except the organizing body publishes any other classification modus.

## 8.2 SPL Measurement

SPL competition part is for those who enjoy listening to loud music but not forgetting the safety of both equipments and owner of the car.

The Event director or Head judge will announce which track will be used for the measurement on the competition day. The according tracks can also be announced prior to the event and will then be published at [www.emmanet.com](http://www.emmanet.com). Both front doors of the vehicle must be fully open. The measurement procedure is according to the description in the chapter ESPL measurement. On outdoor events it might be allowed to run the engine during the measurement procedure but the engine is not allowed to exceed 2000 RPM.

The voltage will be checked at the amplifiers connections and cannot exceed more than 14.6V. During the measurement only one person is allowed inside the car to operate the system. No others are allowed to physically block the two front doors during the measurement procedure. There is no limitation for SPL measurement in all classes. The scoring will be according to the scoring for ESPL.

## 8.3 Installation

The competitor will present his/her installation to the Installation Judge. The judge will score according to the Installation as described in the judging matrix and explain the competitor the given scores right away but at a maximum of 5 Minutes.

## 8.4 Sound Quality

The Sound Quality Judge(s) will be standing 5 to 15 meters distance from the car on the competitor's decision. If the competitor does not advise the judges to keep a defined distance the distance will automatically be 5 meters. The position of the car is decided by the competitor and must not be necessarily behind the vehicle.

Before starting the judging procedure the competitor has a 5 minutes preparation time to set up the system. During the judging no changes on setups are allowed. The tracks to be used for the SQ judging procedure are the designated tracks for Tonal Accuracy and Spectral Balance on the official EMMA competition disc. After the judges discovered the Tonal Accuracy and Spectral Balance according to the scoring table in the end of this rulebook, the competitor is free to choose a track of his own for the judging of Listening Pleasure and public entertainment.

Also here the competitor has a preparation time of max. 2 minutes to setup the system. The length of the additional track is limited to 5 minutes unless otherwise announced in advance.

The SQ judges will also score points for public entertainment.

Public entertainment will receive a max. of 6 points, where the competitor can earn a max of:

- 2 points for originality
- 2 points for effects and coordination
- 2 points for overall effort.

### Important note:

In case of too loud reproduction of the SQ tracks the judges are allowed to reduce the volume level.

In the event of a tie the following rules are valid:

1. The higher score of Tonal Accuracy and Spectral Balance.
2. The higher score of open Door measurement.
3. The higher score of all SQ scores
4. The higher score of listening pleasure
5. The higher score of public entertainment

## 9 Judging Matrix

### 9.1 Categories and classes in EMMA competitions

EMMA provides a total of 5 categories with 39 classes, whereof 27 classes are available on international finals:

	Experienced	Advanced	Master	Expert
Sound Quality	€2000/€4000	€4000/unl	OEM/€4000 6ch/unl	OEM/€6000 ltd/unl
Multi Media	stereo	-	surround	surround
Racing	-	One	One	-
ESPL	T1W/T2W/T3W/T4W/Tunl B8W/Bunl C4W/Cunl W8W/Wunl	T2W/T4W/Tunl	Runl Bunl Wunl	Unl
ESQL	-	T2W/T4W/Tunl	Unl	-

The category matrix gives a rough overview of does and don'ts in the respective categories:

	Experienced	Advanced	Master OEM	Master	Expert OEM	Expert
Next year promotion	1 <sup>st</sup>	1 <sup>st</sup>	No	No	No	No
Allowed for Judges	Not in SQ Yes for MM	No	Yes	Yes	Yes	Yes
Sponsorship allowed	No	No	Yes	Yes	Yes	Yes
Self made or modified equip.	No	No	Yes	Not in 4000	Yes	Not in 6000
Dashboard modification	No	No	not visible	Yes	only as described	Yes
European Championship	Only in SQ, not in MM & ESPL	Yes	Yes	Yes	Yes	Yes

### 9.2 Judging Matrix

Matrix Sound Quality							
			Rookie	Experienced	Advanced	Master	Expert
		Max Points	195	280	315	315	321
3.4.1	Distance to Sound Stage	15 points	x	x	x	x	x
3.4.2	Width of Sound Stage	15 points	x	x	x	x	x
3.4.3	Height of Sound Stage	15 points	x	x	x	x	x
3.4.4	Ambience and Depth	10 points			x	x	x
3.5.1	Position	25 points		x	x	x	x
3.5.2	Focus	25 points			x	x	x
3.6.2	Sub-Bass	30 points	x	x	x	x	x
	Mid-Bass	30 points	x	x	x	x	x
	Midrange	30 points	x	x	x	x	x
	High Freq.	30 points	x	x	x	x	x
3.7.1	Overall spectral balance	30 points	x	x	x	x	x
3.7.2	Overall at high Volume	30 points		x	x	x	x
3.8.1	Listening pleasure	30 points		x	x	x	x
3.9.2	Switching noise	-6 points		x	x	x	x
3.9.3	System Noise	-6 points		x	x	x	x
3.9.4	Engine on test	-6 points		x	x	x	x
3.10.1	System Handling	6 points					x

Matrix MultiMedia					
		Max Points	Experienced 236	Master 296	Expert 296
	<b>Sound stage and room quality</b>				
5.3.1	360° Level	25 points		X	X
5.3.2	360° Movement	25 points		X	X
5.3.3	Room quality – sub	10 points	X	X	X
5.3.4	Room quality – front stage	10 points	X	X	X
5.3.5	Room quality – surround	10 points		X	X
5.3.6	System separation	25 points	X	X	X
	<b>Tonal accuracy and spectral balance</b>				
3.6.2	Sub-bass	15 points	X	X	X
	Midbass	15 points	X	X	X
	Midrange	15 points	X	X	X
	High frequency	15 points	X	X	X
	<b>Spectral Balance</b>				
5.4.2	Normal volume	15 points	X	X	X
5.4.3	High volume	15 points	X	X	X
5.4.4	Voice/timbre matching	25 points	X	X	X
	<b>Picture Quality</b>				
5.5.1	Details and resolution	15 points	X	X	X
5.5.2	Contrast and brightness	15 points	X	X	X
5.5.3	Colour	15 points	X	X	X
5.5.4	Multimedia experience	25 points	X	X	X
	<b>System Handling</b>				
5.6.1	System handling	6 points	X	X	X
	<b>Adjustments</b>				
5.7.1	Switching noise	- 6 points	X	X	X
5.7.2	System noise	- 6 points	X	X	X
5.7.3	Engine on test	- 6 points	X	X	X
5.7.4	Picture noise	- 6 points	X	X	X

Matrix Installation (ESPL)						
			Experienced 40	Advanced 60	Master 80	Expert 120
4.1.1	Basic Presentation & Documentation					5
4.1.2	Documentation of hidden / components not accessible					5
4.1.3	Documentation of hidden / not accessible wiring					5
4.1.4	Progressed presentation & documentation					5
4.1.6	Cleanliness		5	5	5	5
4.2.1	Fused System (4.2.1, 4.2.2, 4.2.3)		10	15	15	15
4.2.1	Any power cable fused properly		5	15	15	15
4.2.2	Cables properly terminated			5	5	5
4.2.3	Any cable termination properly protected				5	5
4.2.4	Cables protected from damage				5	5
4.2.5	Interior cables hidden from view			5	5	5
4.3.1	Components & mounting panels securely mounted		20	20	20	20
4.3.2	Cooling					
4.3.3	Protection of speakers					
4.3.4	Normal use of vehicle					
4.3.5	First optic impression of installation		10	10	10	
4.4.1	Design of vehicle – passenger compartment					10
4.4.2	Design of vehicle – trunk compartment					10
4.4.3	Overall design of vehicle					10
4.5	Craftsmanship – Overall Craftsmanship				10	10

<b>Matrix Installation (SQ and MM)</b>						
		Rookie	Experienced	Advanced	Master	Expert
		<b>40</b>	<b>80</b>	<b>115</b>	<b>115</b>	<b>210</b>
4.1.1	Basic Presentation & Documentation			5	5	5
4.1.2	Documentation of hidden / components not accessible					5
4.1.3	Documentation of hidden / not accessible wiring					5
4.1.4	Progressed presentation & documentation					5
4.1.5	Presentation to the public		10	10	10	10
4.1.6	Cleanliness		5	5	5	5
4.2.1	Fusing (combined 10 points)	10	10	10	10	10
4.2.4	Cables properly terminated		5	5	5	5
4.2.5	Any cable termination properly protected			5	5	5
4.2.6	Cables protected from damage			5	5	5
4.2.7	Interior cables hidden from view			5	5	5
4.3.1	Components & mounting panels securely mounted	20	20	20	20	20
4.3.2	Cooling					5
4.3.3	Protection of speakers			5	5	5
4.3.4	Normal use of vehicle		20	20	20	20
4.3.5	First optic impression of installation	10	10	10	10	
4.4.1	Design of vehicle – Passenger Compartment					10
4.4.2	Design of vehicle – Trunk Compartment					10
4.5.1	Craftsmanship – wiring			2	2	10
4.5.2	Craftsmanship – front end			2	2	10
4.5.3	Craftsmanship – amplifier			2	2	10
4.5.4	Craftsmanship – speakers			2	2	10
4.5.5	Craftsmanship – other devices			2	2	10
4.5.6	Overall craftsmanship				10	10
4.5.7	Bonus Points					15

<b>Matrix EMMA Racing</b>				
		Advanced	Master	
7.2.1	Surfaces	10	10	
7.2.2	Windows		5	
7.2.3	Lights inside		5	
7.2.4	Dashboard		10	
7.2.5	Seats		5	
7.2.6	Craftsmanship	10	10	
7.2.7	Style and Design	10	10	
7.3.1	Engine Tuning	10	10	
7.3.2	Design Engine compartment	10	10	
7.4.1	Design Trunk	10	10	
7.4.2	Installation Sound/MM	10	10	
7.5.1	Paint job	10	10	
7.5.2	Exterieur modifications	10	10	
7.5.3	Light Design	5	5	
7.5.4	Wheels	10	10	
7.5.5	Brakes	5	5	
7.5.6	Exhaust System	5	5	
7.5.7	Style and Design	20	20	
7.6.1	Soundstage	15	15	
7.6.2	Tonal Accuracy	20	20	
7.7	Slalom (optional)	40	40	
7.8	SPL Measurement	35	35	



Matrix Installation (ESQL)		Freestyle	Experienced	Advanced	Master	Expert
				<b>246+</b>	<b>256+</b>	
	Measurement with open doors			?	?	
3.6.2	Sub-Bass			30	30	
	Mid-Bass			30	30	
	Midrange			30	30	
	High Freq.			30	30	
3.7.1	Overall spectral balance			30	30	
3.8.1	Listening pleasure			30	30	
	Bonus for enjoyment to public			6	6	
4.1.6	Cleanliness			5	5	
4.2.1	Any power cable fused properly			5	15	
4.2.2.	Cables properly terminated			5	5	
4.2.3	Any cable termination properly protected			5	5	
4.2.4	Cables protected from damage			5	5	
4.2.5	Interior cables hidden from view			5	5	
4.3.1	Components & mounting panels securely mounted			20	20	
4.3.5	First optic impression of installation			10	10	
4.5	Craftsmanship – Overall Craftsmanship				10	

All relevant modifications of this rulebook will always be available for download at [www.emmanet.com](http://www.emmanet.com).





## EMMA – The Venue for Mobile Media Enthusiasts

Founded in 2000, the European Mobile Media Association – EMMA - has successfully developed to a huge community of world leading mobile infotainment entrepreneurs, top-class mobile media specialists and committed enthusiasts. Within the last years EMMA became a fast growing organization which is now established in more than 40 countries worldwide.

EMMA has consistently focused on providing a neutral, trend-setting platform to promote and carry the fascinating world of mobile infotainment products plus the advantage of custom made mobile media installations to consumers.

## EMMA – Education and Global Network

As a training institution and innovative think tank EMMA is providing a highly professional education program for retailers, installers, manufacturers and ambitious mobile media hobbyists. A successful participation at the EMMA Academy admits retailers to the network of certified EMMA Dealers. This network offers access to a wide range of service advantages

## EMMA – Awards for the Sound-Geniuses

An international judge team consisting of 1000 judges from more than 40 nations is judging competition cars based on the internationally standardized EMMA rulebook in the EMMA categories Sound Quality, Multi Media, ESPL and EMMA Racing.

International EMMA divisions are together running almost 300 highly professional, exciting events per year with more than 20 000 cars competing.

## EMMA – The Meeting Point for Professionals

With its long experience in carrying out sound competitions EMMA is offering a professional communication panel to all mobile media aficionados keen on finding out how good their system is.

Manufacturers and specialists find an international platform here to promote themselves and their products and to gain brand awareness among the community of real insiders.

## EMMA Competition Formats

### Sound Quality and Multi Media

For SOUND QUALITY and MULTI MEDIA competitors, the challenge is to build a car audio or multimedia system that will overcome the challenge of vehicle acoustics, music reproduction without noise distortion, to make music sound and video look like the "original" - also the installation quality will be evaluated.

### ESPL

For ESPL (European Sound Pressure League), the challenge is to reproduce high sound pressure levels by playing music, in cars with quality installations.

### ESQL

Is the show for the audience. The competitors car will be judged in Sound Quality with open doors and trunk. An exciting experience for any visitor.

### EMMA Racing

At EMMA RACING competitions the jury is looking for the "Overall Artwork on Wheels". EMMA RACING is a platform to promote and award the perfect marriage between tuning, mobile media and driving skills. Craftsmanship, mobile entertainment performance and driving style characterize the winners.



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