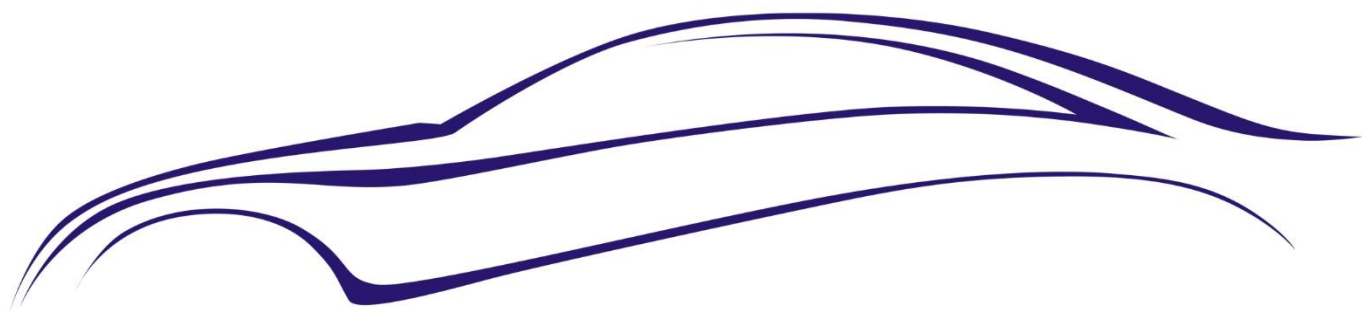




## **EMMA Tuning Judgebook**

**2022 / 2023**



<b>Welcome to the European Mobile Media Association</b> .....	2
7.0 Preface .....	2
7.1 Installation .....	3
7.1.1 Presentation to the public. (0-5 points) .....	3
7.1.2 Cleanliness: (0-3 Points) .....	3
7.1.3 Main fuse present (0 or 5 points) .....	3
7.1.4 All components fused: (0 – 5 points) .....	4
7.1.4 Fuse Value appropriate to cable size: (0 – 5 points) (Custom Only) .....	4
Default Scoring Criteria .....	6
7.2 Interior .....	7
7.2.1 Craftsmanship & Design (0-10 points) .....	7
7.2.2 Dashboard door skins (0-5 points) (Custom Only) .....	7
7.2.3 Seats (0-5 points) .....	7
7.2.4 Foot Room (0-5 points) (Custom Only) .....	7
7.2.5 Roof (0-5 points) .....	7
7.2.6 Interior Lighting (0-5 points) .....	8
7.3 Trunk compartment .....	8
7.3.1 Craftsmanship & Design (0-10 points) .....	8
7.3.2 Surfaces Changes (0-5 points) .....	8
7.3.3 Light (0-5 points) .....	8
7.3.4 Features (0-5 points) (Custom Only) .....	8
7.4 Tuning Technical .....	8
7.5 Exterior .....	10
7.6 Body Work Finish .....	11
7.7 Sound Quality .....	11
7.8 SPL Measurement .....	17
The Results and the Prize Ceremony .....	18

## Welcome to the European Mobile Media Association

### 7.0 Preface

EMMA Tuning is a competition in which all aspects of car modification are judged as follows.

- 1 Modifications to the performance or appearance of a vehicle (Tuning).
- 2 Sound Quality (SQ).
- 3 Sound Pressure Level (SPL).

The competitor that does well in EMMA Tuning will have a vehicle that scores equally well in all three key judgement areas.

Like any other motor sport event, it is run 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.

## **7.1 Installation**

### **7.1.1 Presentation to the public. (0-5 points)**

The competitor should:

- 'Show off' their vehicle & installation to the public during the event time/s.
- Allow spectators to listen to the system.
- Please note: This will be checked several times a day
- If it is an outdoor event and the weather is poor, the car can be closed but system details should still be visible. (E.g. displayed on the dashboard etc.)
- Exception: at the event active judges / back office staff's cars can remain closed due to safety reasons.

**Points will be deducted as appropriate, i.e. commensurate to the time the car is not being shown to the public.**

### **7.1.2 Cleanliness: (0-3 Points)**

Cars should be clean and presentable, the Car exterior should be "car-wash-clean" and interior should be vacuumed (not perfect but reasonably clean). The criteria you should check against are as follows:

- Car Wash clean y/n
- Passenger compartment clean y/n
- Dedicated components (e.g. Batteries or fuse holders etc) of the system installed in the engine component and trunk clean y/n
- No items i.e.: clothing, tools, and food wrappers on display?

**Deduct 1 points per not cleaned area, Minimum 0 Points**

### **7.1.3 Main fuse present (0 or 5 points)**

Check if a 'Main Fuse' has been installed onto the (or each) main power wire within 40cm from any positive battery post and/or before passing any metal panel. This should include all wires from the battery post.

Any permanent wires installed into the car for battery charging even if they are not in use shall also be judged for fusing.

**NOTE:** If more than one battery is installed, each battery needs a main fuse from its battery post. If batteries are joined to each other within 40cm of each battery post, it will be considered as one big battery.  
At this point the fuse rating is not checked.

**If any main fuse is not present, 0 points will be awarded**

#### 7.1.4 All components fused: (0 – 5 points)

Check, if a fuse is installed on the positive power wire for every component belonging to the audio/multi-media system.

All fuses connected to the components must be visible within three minutes (for all fuses in total, not three minutes for every fuse!!!). The judge should check to ensure the following components are fused:

- Head Unit
- Other devices
- Amplifiers

**Deduct 1 points per component that is NOT fused or whose fuse is not visible within the 3 minutes. Minimum 0 Points**

**NOTE:** The fuse rating is not checked at this point.

#### 7.1.4 Fuse Value appropriate to cable size: (0 – 5 points) (Custom Only)

Check every fuse that belongs to the audio system is of an appropriate size for the wire it is protecting (according to the VW75212 - Dimensionierung von Leitungen und Sicherungen im Kraftfahrzeug):

When checking the fuse rating this should be appropriate for the smallest size cable in the circuit used to power the component, Positive or Negative, according to the table below:

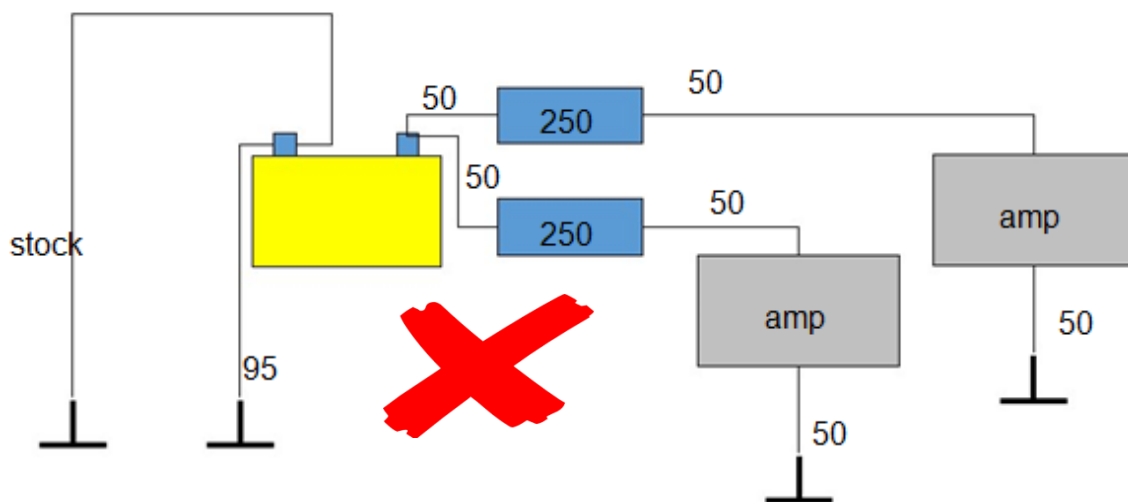
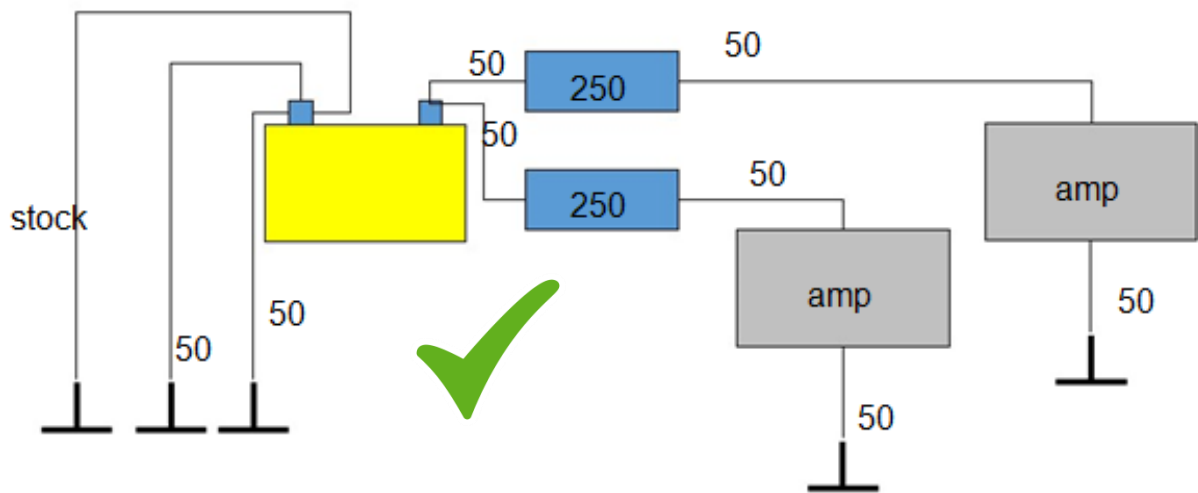
**NOTE:** Fuse rating is based on mm<sup>2</sup> the AWG sizes are just for reference.

Fuse Size Matrix			
	Cable size	AWG	Fuse Rating
	0,5mm <sup>2</sup>	20	10 Ampere
	1,0mm <sup>2</sup>	17	15 Ampere
	1,5mm <sup>2</sup>	15	20 Ampere
	2,5mm <sup>2</sup>	13	20 Ampere
	4,0mm <sup>2</sup>	11	30 Ampere
	6,0mm <sup>2</sup>	9	50 Ampere
	10mm <sup>2</sup>	7	60 Ampere
	16mm <sup>2</sup>	5	100 Ampere
	25mm <sup>2</sup>	4	125 Ampere
	35mm <sup>2</sup>	2	175 Ampere
	50mm <sup>2</sup>	0	250 Ampere
	70mm <sup>2</sup>	2/0	300 Ampere

Alternatively, wire sizes and fuse ratings can be calculated with the formulas in the “**How to calculate wire sizes**” section below. If the competitor chooses to use a fuse rating for a cable not shown in the standard table above, the calculations must be documented and provided to the judges for checking.

**NOTE:** All of these fuses should be visible within three minutes, not three minutes per fuse.

**Deduce 1 points per incorrectly or NOT fused component, minimum 0 Points**



**NOTE FOR COMPETITORS:  
How to calculate wire sizes**

How to check, if the wire size is appropriate (e.g. IF the OEM ground cable is not upgraded):

Calculate wire size:

$$A = (I \times 0,0175 \times L \times 2) / (fk \times U)$$

A= wire size in sqmm

I = max amperage

0,0175 specific resistance of OFC copper in Ohm x mm<sup>2</sup> / m (for CCAW the factor must be 0,0283)

L = cable length (of entire circuit including positive & ground wire) in m

fk = factor of loss, E.g.: 2%, is 0,02

U = voltage

Factor of loss should be no higher than 2%

If the calculated wire size is not available, step up to next available wire size

Important info:

In case CCAW-cable is used, there must be 1,6x more sqmm or it can handle 0,625x the current of OFC-cable. It is assumed that the OEM-ground wire is OFC.

Competitor/installer needs to calculate the appropriate wire sizes for his installation and document it to the judges.

If the calculation is not available for the judges, the published table for wire sizes and fuse values will be used for judging

Formula changed to I do determine capability of a given ofc cable:

$$I = (A \times f_k \times U) / (0,0175 \times L \times 2)$$

### **Guidance for cars equipped with Intelligent Battery Sensor (IBS) / Smart Charge Alternator / Stop Start Technology.**

When a vehicle has a sensor on the OEM Chassis ground wire to the battery, all current must pass through the sensor to maintain a fully functioning Intelligent Battery System. E.g. "Stop/start" technology.

It is up to the competitor to design and install the audio system to the current rulebook.

EMMA is aware of two ways to maintain the function of the (IBS) sensor and comply with the rulebook, (there may be more):

1. Fuse the main power cable for the audio system to the maximum value the OEM Ground wire would allow (using the calculations above).
2. Add an extra (appropriate size) ground wire from the IBS sensor to the chassis or audio system.

If in doubt, please consult your vehicle manufacturer for further advice.

### **Default Scoring Criteria**

Each section is broken down starting with Craftsmanship & Design, 0 – 10 points. This is the first impression of the installation, does it follow the theme of the entire car, and does it make sense? If you like it or not isn't judged, consistency of theme, design, craftsmanship & finish is. Highlight the positives

Each sub-section is then checked to see what has been done irrespective of the quality of the work completed (Quality has already been judged in the overall craftsmanship). I would suggest judging the sub sections first as this gives a closer look then scoring the craftsmanship and design (something could look fantastic at first glance)

Points are awarded according to the effort of the work completed by the competitor.

- 0 – no effort
- 1 – little effort
- 2 –
- 3 – Medium effort
- 4 -
- 5 – High Effort

(\*\*Remember the quality of the effort, level, creativity of modification, made) & multiple little efforts do not make a High effort

## **7.2 Interior**

### **7.2.1 Craftsmanship & Design (0-10 points)**

The craftsmanship and the quality of the overall design are initially judged.  
The consistency of the theme for the entire car is important.

If the theme is not consistent with the rest of the interior then -1 per item/group of items not in the theme.

If modifications are not to a good standard -1 up to -3 points per modification will be deducted

### **7.2.2 Dashboard door skins (0-5 points) (Custom Only)**

Check for surface changes, speaker installations, front end / other devices special / hidden features.

This will follow the default scoring criteria.

### **7.2.3 Seats (0-5 points)**

Check for material changes, colour changes, custom stitching, seats from another car, custom framework, what effort was made what level was reached

This will follow the default scoring criteria.

### **7.2.4 Foot Room (0-5 points) (Custom Only)**

Look for any modifications in the foot room location. A front subwoofer / speaker pods, other devices, other devices, retrimmed floor carpet, custom mats, embroidery and pedals

This will follow the default scoring criteria.

### **7.2.5 Roof (0-5 points)**

Look for changes to sun visors or grab handles, a complete re-trim, integrated screens, volt metres or other devices

This will follow the default scoring criteria.

### **7.2.6 Interior Lighting (0-5 points)**

Look for lights under the dash, under the seats, bulbs modified to LED or assorted colour in OEM locations, main clock lighting, Perspex inlays, speaker halos.  
This will follow the default scoring criteria.

## **7.3 Trunk compartment**

### **7.3.1 Craftsmanship & Design (0-10 points)**

The craftsmanship and the quality of the overall design are initially judged.  
The consistency of the theme for the entire car is important.

If the theme is not consistent with the rest of the interior then -1 per item/group of items not in the theme.

If modifications are not to a good standard -1 up to -3 points per modification will be deducted

### **7.3.2 Surfaces Changes (0-5 points)**

What effort has been made to ensure all surfaces in the trunk area are modified or are consistent with the theme  
This will follow the default scoring criteria.

### **7.3.3 Light (0-5 points)**

What efforts were made to install additional lighting. Inlays, remote control, motion sensor  
This will follow the default scoring criteria.

### **7.3.4 Features (0-5 points) (Custom Only)**

Any additional efforts made not already judged. Integrated tool kit car/system, motorization, smoke machine, amp cooling  
This will follow the default scoring criteria.

## **7.4 Tuning Technical**

Modifications to increase the performance of the car and is judged based on level of effort or increase in performance.

### **7.4.1 Power of engine (0-5 points)**

Low effort (Up to 25% power increase) – E.g. remap

Medium effort (Up to 50% power increase) – E.g. replacement camshafts with remap, changes to cylinder heads etc.



High effort (more than 50% power increase through modifications to the engine) or A complete engine swap can score full points if not available from factory.

To be awarded points, all modifications must be documented with photos before and after, receipts or dyno otherwise points cannot be awarded.

#### **7.4.2 Brakes (0-5 points)**

0-1 Modification of brake hoses, Painting

0-2 Change of brake pads and brake discs to fast road / racing spec / grooved / drilled

2-4 Change of discs size / change of calliper

5 Full brake change (not factory) (larger callipers, discs and pads) is full points.

#### **7.4.3 Drive Train (0-5 points) (Custom Only)**

Clutch & Gearbox Modifications

Modification of Flywheel (lightening or change from dual mass flywheel to solid)

Modified or full clutch change (larger clutch plate and different clutch pressure cover, ceramic)

Automatic box conversion, 6 speed box conversion

All judged by level of effort or increase in performance.

#### **7.4.4 Oil and Water Cooling (0-5 points) (Custom Only)**

Modifications of cooling to water or oil and associated piping

E.g. Larger radiators, bigger intercoolers, oil coolers or connecting pipework, 1 point per item. (e.g. 3x water hoses = 1 point).

All judged by level of effort or increase in performance.

#### **7.4.5 Air intake System (0-5 points)**

0-2 Performance Air filter change

2-3 Performance Air filter change and custom pipework

5 - Full points would be full forced induction through modifications of the bodywork to improve airflow into the air intake.

#### **7.4.6 Exhaust system (0-5 points)**

Material of exhaust is not judged (no additional points for stainless vs mild steel).

Consider:

Exhaust manifold change (decat/equal length/tubular) Modifications to downpipes, heat wrap, centre boxes and back box.

0-2 Back box or decat

3- Modifications to system or catalytic converter (decat, sports cat, larger cat, back box, mid box)

4 Change of every part of the OEM exhaust system with an off the shelf system aftermarket part

5 Full custom/ modified system, e.g. additional back boxes / relocated pipework etc.

All judged by level of effort (low, medium, high) or increase in performance.

#### **7.4.7 Chassis suspension (0-5 points)**

0-2 Lowering/custom made springs Shorter/harder/adjustable shock absorbers

3 Coilovers

4 Adjustable coil overs

4 (Additional points for the above with modified suspension arms, bushes, alignment modifications etc)

5 (automatic height adjustable suspension airbag/hydraulic) scores full points.

### **7.5 Exterior**

#### **7.5.1 Craftsmanship & Design (0-10 points)**

The craftsmanship and the quality of the overall design (the flow) of the exterior of the car are judged. The consistency of the theme for the car is important.

The craftsmanship and the quality of the overall design are initially judged.  
The consistency of the theme for the entire car is important.

If the theme is not line with the rest of the interior then -1 point deduction will be applied.  
If modifications are not to a good standard -1 up to -3 points per modification.

#### **7.5.2 Rims & Tires (0-5 points)**

0-2 Change of Size

0-2 Change of Colour

0-2 Overall Design with the rest of the car  
off set & spacers

#### **7.5.3 Spoilers & Body Work (0-10 points) (Custom Only)**

body kits, smoothing, de locked / handled, lambo doors all exterior modifications & fabrications

This will follow the default scoring criteria.

#### **7.5.4 Windows & Glass (0-5 points)**

check for window tints, etching, stickers, strengthened, lightened.

This will follow the default scoring criteria.

#### **7.5.6 Lights (0-5 points)**

Any lighting added or modified to the exterior of the car, transplants, LED conversion, tinted Undercar lighting.

This will follow the default scoring criteria.

## **7.6 Body Work Finish**

### **7.6.1 EOM Paint - Show and Shine (Stock + only)**

This is looking at the exterior paint finish.

1 Points will be deducted per panel per item for paint blemished and defects as follows

- Stone chips
- Panel fades
- Scratches / Dents

Additional points can be deducted for cars that are not correctly prepared to show and shine standards.

### **7.6.2 Craftsmanship & Design (0-10 points) (Custom Only)**

The quality of the paint is judged.

It is too tough to state a standard paint job regardless of how good it is, cannot score full points!

Unless it's immaculate and 20 years old for example as that's impressive, a newish car in good paint condition is not impressive, a complete colour change to follow the theme will score highly

### **7.6.3 Special features (0-10 points) (Custom Only)**

Extras to the paint finish can be scored here. Check for stickers, pin striping, water transfer, carbon fibre parts. Flip / candy's etc

## **7.7 Sound Quality**

This whole section is a miniature version of the Sound Quality judgement and will follow the same numbering. The same procedure is followed, but scoring is slightly different as explained below. A good car can score full points for Sound quality in this section:

## **4.3 Sound Stage**

### **4.3.1 Distance to soundstage (0-5 points)**

Using the SQ judge book procedure, convert the score as follows:

- 13-15 points = 5 points
- 11-12 points = 4 points
- 9-10 points = 3 points
- 7-8 points = 2 points
- 0-6 points = 1 point

### 4.3.2 Stage width (0-5 points)

Using the SQ judge book procedure, convert the score as follows:

13-15 points = 5 points

11-12 points = 4 points

9-10 points = 3 points

7-8 points = 2 points

0-6 points = 1 point

### 4.3.3 Stage height (2-5 points)

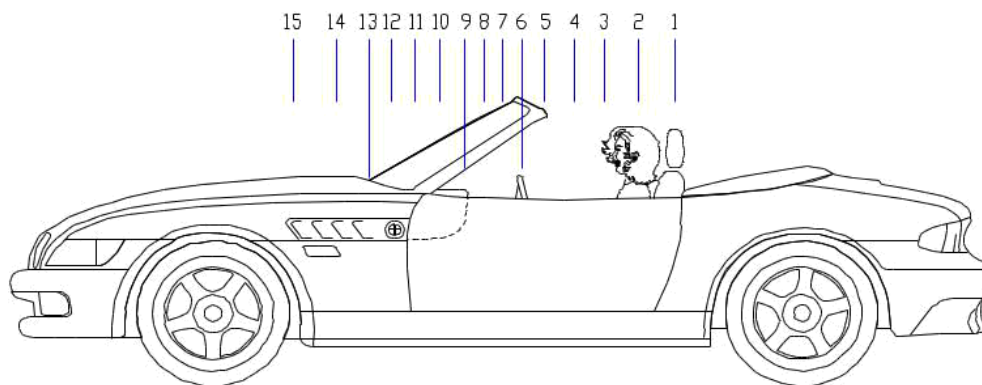
Using the SQ judge book procedure, convert the score as follows:

13-15 points = 5 points

11-12 points = 4 points

9-10 points = 3 points

7-8 points = 2 points



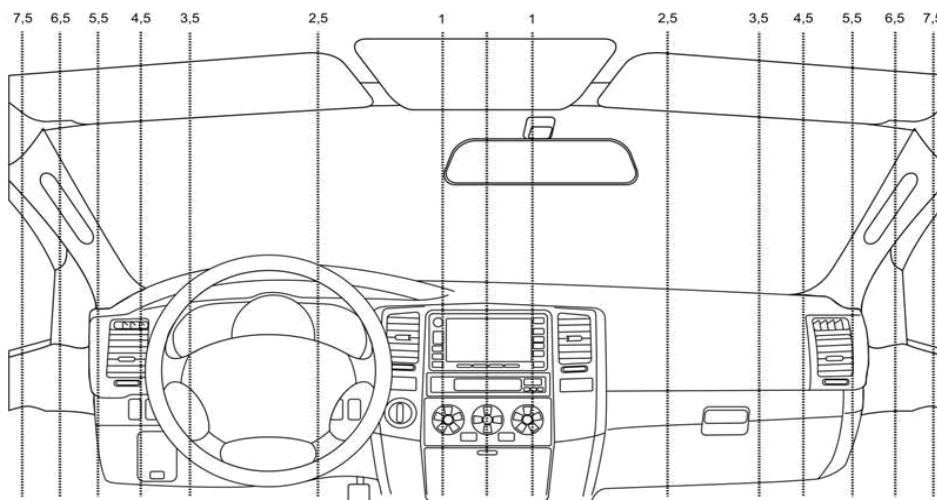
## 4.4 Tonal Accuracy

Sub bass (0-5 points)

Mid-bass (0-5 points)

Midrange (0-5 points)

High frequency (0-5 points)



Tonal accuracy is scored using the SQ judge procedure below, converting the scores as follows:

24-26 points

Everything is there in very good proportion, but just not good enough

= 5 points

21-23 points

Almost everything is there in good proportion, but something is obviously missing.

= 4 points

18-20 points

Sounds correct, but there are missing things or does not give much music feeling

= 3 points

15-17 points

Sounds nice but some tracks sound nicer than others

= 2 points

0-14 points

Sounds acceptable, nothing annoying but not so clear

= 1 point

### **Standard SQ Judge Procedure**

#### **Judge Tonal Accuracy by using tracks 8, 9, 10 and 11**

Every instrument & voice should sound very natural & distinct, without affecting the sound of another.

#### **GENERAL THINGS ABOUT RECORDINGS**

The Bass Drum, the Bass and the Lead Vocals of all tracks are mostly at center position. The Bass Drum is always behind the Bass.

Bass Drum has a quite big focus; Double Bass has bigger focus in lower tones, but smaller size & more precise focus on higher tones.

Electric Bass is about the same size with bass drum on low tones, & has more focus on higher tones.

When Bass Drum sounds, Bass sounds at the same time. You should be able to distinguish these 2 different sounds very clearly & easily.

Train your ears: Focus on the Bass Drum alone. Focus on the Double Bass alone.

Now focus on both of them.

The Lead Vocals are in front

#### **Track 8: Igor's Cello**

This is good for scoring Midbass and Midrange.

Celli with various playing techniques, stacked upon each other, sometimes looped, accompanied by Grand Piano, 5 Celli playing, 4 of them positioned from left to right, the Cello playing the effect sound is positioned in the center.

#### **Track 9: Garcon**

This is good for scoring Sub-Bass, Mid-Bass, Midrange and Highs.

In the beginning you hear a crowd in a Jazz Club environment as sound effect. Instruments used: Vocals, Electric Guitars, Electric Piano, Fender Jazz Bass, Drums, Piano, Fingersnaps, pop Brass Section synthesized, String Section.

**Track 10: Rainfall**

This is good for scoring Sub-Bass, Mid-Bass, Midrange, Highs and Overall Spectral Balance.

Bassdrum is completely undamped! Instruments used: Vocals, various Electric Guitars, Electric Bases, Drums played with Mallets, Organ, Tenor Alto Saxes, Synthesizer, Trumpet, Tambourine, Grand Piano processed backward at the end.

**Track 11: Alone**

This is good for scoring Sub-Bass, Mid-Bass, Midrange and Highs.

Lead Vocals doubled for a "natural" chorus effect. Instruments used: Vocals, Electric Bases, Acoustic Guitar, Electric Guitar, Piano, Marimba, Cello, String Section, Egg Shaker, Tambourine.

**Tonal accuracy (0 - 120 points)**

**Tracks 8, 9, 10 and 11**

**Sub-bass - 10 to 60 Hz (0 - 30 points)**

Instruments: Double Brass, Tuba, Trombone, French Horn, Woodwinds, Electric Bass, Bass Clarinet, Contrabass, , Bass Violin, Cello, Harp, Big Drums, Piano, Organ, Viola, Harp

**Mid bass - 60 to 200 Hz (0 - 30 points)**

Instruments: Voices, Bass, Brass, Tuba, Trombone, French Horn, Trumpet, Woodwinds, Clarinet, Oboe, English Horn, Alto Sax, Bass, Bass Clarinet, Contrabass, Tympani, Bass Violin, Cello, Guitar, Viola, Violin, Harp, Piano, Organ, tambourine, Drums, Floor Tom, Harp

**Midrange - 200 to 3000 Hz (0 - 30 points)**

Instruments : Voices, Bass, Brass, Tuba, Trombone, French Horn, Trumpet, Woodwinds, Flute, Clarinet, Oboe, English Horn, Alto Saxophone, Bass, Strings, Cello, Guitar, Viola, Violin, Harp, Piano, Organ, Piccolo, Bells, Drums, Tambourine, Cymbals, High Hat, Ride, Shaker, Rattle Snake, Tom Tom, Floor Tom, Harp

**High Frequencies - 3000 Hz to inaudibility (0 - 30 points)**

Instruments: Voices, Woodwinds, Piccolo, Flute, Clarinet, Strings, Violin, Triangle, Brushes, Harp, Piano, Organ, Bells, Tom Tom, Cymbals, High Hat, Ride, Shaker, Rattle Snake, Harp

**Use the following scoring guide to score Sub-Bass, Mid-Bass, Midrange, Highs, & Overall Spectral Balance.**

- A 29 to 30 points. 98% to 99%** Joyful, amazing, wonderful, shuddering, unbelievable tuneful, substantial, sexy, full of emotion  
Life Like - Completely Natural & Clear, Generate full feelings, emotions, shuddering, warm, inviting, relaxing sound, Voices/instruments breath, with space around them,99%  
Harmonically & Musical,  
All details are there, All Instrument tones are 100% Distinct & Separate, The s,x,f,c sound perfect,  
The hardware disappears; nothing comes between you & the music, completely effortless sound  
Full of endless Energy & Dynamics, All tones start & stop with great precision & energy.  
Perfect Instrument Size, Real Vocals in full body with flesh and blood
- B 27 to 28 points. 95% to 97%** it feels extremely close to, but just a little bit less than the above

Very Close to Completely Natural & Clear, Generate almost full feeling, shuddering,  
Extremely close to the above, Almost 99% Harmony & Musicality  
Almost all details are there, All Instrument tones are almost 100% Distinct & Separate, The  
s,x,f,c sound almost perfect  
The hardware almost disappears, Almost Effortless,  
Almost full of Energy & Dynamics, Almost all tones start & stop with great precision &  
energy. Very close to Perfect Instrument size, Real vocals with almost full body

- C 24 to 26 points. 90% to 94%** Everything is there in very good proportion, but just not good enough  
A great deal of Naturalness & Clarity, generate a lot of feelings, no shuddering, a lot of space & atmosphere, but not enough, a great deal of Harmony & Musicality.  
Most of the details are there, Most tones are very Distinct & Separate, The s,x,f,c sounds a little bit thicker or thinner than normal,  
Wide open window to the sound, the hardware adds tiny coloration, little effort in a few tones,  
A great deal of Energy & Dynamics, Most tones starts & stop with great precision & energy,  
A little smaller or bigger Instrument size, Close to real vocals with close to full body
- D 21 to 23 points. 85% to 89%.** Almost everything is there in good proportion, but something is obviously missing, or is too much.  
Fair Naturalness & Clarity, Generate fair feelings, Space is medium or little larger than normal, Fair Harmony & / or Musicality  
A few details are missing, Most tones are almost very Distinct & Separate, The s,x,f,c sound thicker or thinner than normal  
Almost open window to the sound, the hardware adds little color, Little Effort in a lot of tones.  
Fair Energy & Dynamics, Some tones start & stop with great precision & energy  
Fairly smaller or bigger instrument size, Close to real vocals with little less body.
- E 18 to 20 points. 80% to 84%** Sounds correct, but there are missing things or does not give much music feeling  
Little Naturalness & Clarity, Generate little feelings, little space & atmosphere, little Harmony & / or Musicality,  
A few details are there, a lot of tones are very Distinct & Separate, the s, x,f,c sound a lot thicker or thinner than normal.  
A couple of tones behind a curtain, colorations more obvious, Fair Effort in a few tones, Little Energy & / or Dynamics, only a couple of tones start & stop with great precision & energy.  
A few Instruments smaller or bigger size, Good vocals with half size body.
- F 15 to 17 points. 75% to 79%** Sounds nice but some tracks sound nicer than others.  
Only some tones Natural & / or Clear, Generate feeling only in a few tones, Space & atmosphere only in some notes & / or instruments, Harmony & / or M in a few tones  
Details only in few tones, a lot of tones are almost very Distinct & Separate, the s,x,f,c sound a little blur or whistling.  
Some tones behind a curtain, colorations quite obvious, Fair Effort in a lot of tones  
Energy & / or Dynamics in only a few tones, Acceptable transients.  
A lot of Instruments smaller or bigger size, good vocals with very small or very big body.
- G 12 to 14 points. 70% to 74%** Sounds acceptable, nothing annoying but not so clear.

Not Natural but clean, generate feeling only in little tones, too much space, Harmony & / or M musicality in little tones,  
 Very little details, A few tones are Distinct & / or Separate, the s,x,f,c sound blur or whistling.  
 A lot of tones behind a curtain, many colorations, a lot of effort in a few tones  
 Energy & / or Dynamics only in a couple of tones, acceptable transients only in a specific range.  
 Quite smaller or bigger Instrument size, Acceptable vocals with no body.

**H 9 to 11 points. 50% to 69%** Sounds acceptable, almost nothing annoying  
 Not Natural but almost clean, no Feelings, no Space, or enormous Space, Almost No Harmony & / or Musicality  
 Almost no details, Little tones are Distinct & / or Separate, The s,x,f,c sound blur or whistling a lot.  
 The curtain is quite obvious, A lot of effort in a lot of tones,  
 Almost no Energy & / or Dynamics, Poor transients.  
 Half or Double size Instruments, almost acceptable vocals with no body.

**I 5 to 8 points. 30% to 49%** Sounds annoying in only some tones or tunes  
 Not Natural, some tones clean, some opposite feelings, Space & Atmosphere not easy to detect, No Harmony & / or Musicality  
 Hard to detect details, Almost no Distinction & / or Separation, the s,x,f,c sound harsh,  
 The curtain is heavy, Big effort in a few tones,  
 No Energy or Dynamics, Very poor transients,  
 Very big differences in instrument size, poor vocals with no or enormous body

**K 1 to 4 points. 1% to 29%** Sounds annoying in almost all tunes and tracks  
 Not Natural, bad feelings, Space not detectable, No Harmony & / or Musicality  
 No details, No distinction & separation, Hard to listen to,  
 The curtain is very thick & heavy, Big effort in a lot of tones,  
 No Energy & Dynamics, No transients,  
 Cannot detect instrument size, Cannot detect vocal size.

**L 0 points. No Sound 0%**

#### Additional hints:

Mistakes or miss-adjustments in the crossover area should result to lower score on both e.g. Midrange and High Frequency sections  
 Never score 0 if there is a sound, and avoid going lower than (5 to 8) unless it is absolutely necessary.

## 4.6 Listening pleasure

It's the pleasure and joy that music can generate to the listeners.

Considering all musical tracks, score the following:

Naturalness	0 or 1 point
Harmony & Musicality	0 or 1 point
Atmosphere & Emotions	0 or 1 point
Clarity	0 or 1 point
Effortless sound	0 or 1 point



Dynamics & Energy	0 or 1 point
Distinction & Separation	0 or 1 point
Body of Voice & Instruments	0 or 1 point
Transparency	0 or 1 point
Details	0 or 1 point

**How to score:**

- 0 points for no No or little Naturalness
- 1 points for Fair or perfect Naturalness

## 7.8 SPL Measurement

The SPL measurement will be done with both front doors completely open. An average of 30 seconds of music will be played used to gain the score. This will be scored depending upon the class you are competing in.

### 7.8.1 Stock+ 0-35 Points

135 dB MAX with 1 point for every dB over 100db

### 7.8.2 Custom Trunk 0-40 Points

140 dB MAX with 1 point for every dB over 100db

### 7.8.3 Custom Unlimited 0-45 Points

145 dB MAX with 1 point for every dB over 100db

## 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.

Notes:

This image shows a full page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice or general writing. There are no margins, text, or other markings on the page.

Official international EMMA Partners



AI·SONIC

audison



ALPHARD<sup>®</sup>  
SOUND TECHNOLOGY

GERMAN CAR AUDIO  
BRAX<sup>®</sup>



ESB  
AUDIO



CAR MEDIA SYSTEMS

ETON<sup>®</sup>  
QUALITÄT MADE IN GERMANY

FOCAL<sup>®</sup>  
THE SPIRIT OF SOUND

FOUR4<sup>®</sup>  
CONNECT

FOR-X

GAS<sup>®</sup>  
CAR AUDIO

GLADEN<sup>®</sup>  
MOSCONI

GROUND ZERO<sup>®</sup>  
GERMAN ENGINEERING

HERTZ

HELIX<sup>®</sup>  
GERMAN CAR HIFI



HIFONICS  
POWER FROM THE GODS



JAWS

JL AUDIO<sup>®</sup>  
Ahead of the Curve<sup>®</sup>

GERMAN  
MAESTRO

MATCH<sup>®</sup>  
BY AUDIOTEC FISCHER



MUSWAY  
MUSIC IS THE WAY

Nakamichi<sup>®</sup>

PHOENIX GOLD

Pioneer

rainbow  
GERMAN CAR AUDIO

Rebec<sup>®</sup>  
CAR AUDIO

RESOLUT  
TECHNOLOGY

SILENT  
OAT

SounDigital

StP STANDARTPLAST

Stinger

TCHERNOV  
CABLE

VENOM<sup>®</sup>

Vfibrofiltr

WISDOM HOLY

ZAPCO

