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# 1. Introduction

EMMA Malaysia successfully organized 5 events in 2023, the most in its history: three regional competitions, the Asia Finals, and the Malaysia Finals. The total number of participating cars reached nearly 500, with over 50 sponsoring brands for the season. After a long wait, we finally are back to Kota Kinabalu, Sabah, East Malaysia, to hold EMMA Malaysia Heat 3. We would like to once again thank all participants and sponsors for their tremendous support. Well done and good job to everyone for your hard work in 2023! In April 2024, we had 5 candidates from Malaysia travel to Salzburg, Austria, to attend the EMMA International Judges Training. They brought back knowledge of the new rules and competition tracks to share with everyone at the Royal Selangor Club, Kuala Lumpur, on May 18 and 19, 2024.

On August 10 & 11, 2024, we will have the 2024 EMMA Malaysia Heat 1 according to the all-new rules.

# 2. EMMA Malaysia 2024 Event Calendar

Date	Event	Venue	Remarks
16 & 17 April	EMMA International Head Judge Training	Salzburg,	
		Austria	
18 & 19 May	EMMA Malaysia International Judge Training	Royal Selangor	Cardroom
		Club, Kuala	
		Lumpur	
30 June	EMMA Malaysia Competitor Briefing & Training	Royal Selangor	Cardroom
	(West Malaysia)	Club, Kuala	
		Lumpur	
1 – 3 August	EMMA Malaysia Show case	Kuala Lumpur	Exhibition Hall 5
		Convention	
		Centre	
10 & 11 August	EMMA Malaysia Heat One	IOI Puchong	New Rules, EMMA
			ASIA Qualify
September	EMMA Malaysia Competitor Briefing & Training	SIBU	SIBU, Sarawak
	(East Malaysia)		
12 & 13 October 2024	EMMA Malaysia Heat Two	IOI Kulai	New Rules, EMMA
			ASIA Qualify
8 November	EMMA Asia Final (Malaysia Stage)	West Malaysia	New Rules
December 2024	EMMA Malaysia Heat Three	East Malaysia	New Rules
Feb/March 2025	EMMA Malaysia Final Stage	Genting	New Rules
		Highland	

**Note:** EMMA Malaysia reserves the right to make final modifications, changes, interpretations, and cancellations of this event. Any relevant changes will be announced on the website without prior notice.





## 3. EMMA Competition stage

Competition stage in 2024, EMMA Malaysia will host five stage of events:

- 1. EMMA Malaysia National Stages (3 events)
- 2. EMMA Asia Finals Malaysia Stage (1 event)
- 3. EMMA Malaysia Grand Finals (1 event)

The regular national competitions (HEAT) of EMMA Malaysia will follow the same grouping as the Asia Grand Finals. We will use the regular national competitions (HEAT) of EMMA Malaysia as qualifications for the EMMA Asia Finals.

The qualification for the Asia Finals will be based on the total points earned by vehicles in each competition, with rankings in each category converted into corresponding points. The Malaysia Grand Finals will award double points to further incentivize participation. Scoring System for Each Malaysia Ranking:

1. 1st place: 10 points
 2. 2nd place: 8 points
 3. 3rd place: 6 points
 4th place: 5 points
 5th place: 4 points
 6th place: 3 points

6. 6th place: 3 points7. 7th place: 2 points8. 8th place: 1 point

#### Assuming the following scenario:

- 1. There are five slots available for all category, three slots for X-category and ten slots available for King of sound participants in the Asia Finals. The top five in total points can participate in the Asia Finals.
- 2. If any of the top five do not participate, the sixth highest scorer will qualify, and so on.

\*Note: To qualify for the Asia Finals, a participant must have at least 1 point from qualification round.

Asia Finals Schedule and Locations: The 2024 EMMA Asia Finals will have participation from 8 countries across 9 locations, as follows:

- 11/8: Malaysia
- 11/10: Vietnam
- 11/13: Thailand
- 11/15: China
- 11/17: Hong Kong, China
- 11/20: Taiwan
- 11/22: Philippines
- 11/24: Singapore
- 11/27-28: Indonesia (Final Awards Ceremony)





## 4. Event Types

## EMMA Malaysia Competition:

- National Event [EMMA official categories]
- Regional Event [In-house brand competition]
- National Event [International Friendly Cup]

#### **EMMA Malaysia Finals:**

- National Events [EMMA official categories]
- Regional [In-house brand competition]

#### **EMMA International event:**

• EMMA ASIA FINAL [EMMA official categories]

## 4.1 New Categories:

Added: SUPER-ENTRY, MASTER OEM 4000 EURO, MASTER 8000, MASTER LIMITED, ANDROID 3000 EURO, ANDROID UNLIMITED.

Friendly Cup Categories: BEST OF SOUND 3000 EURO, 8000 EURO AND UNLIMITED.

## EMMA Malaysia 2024 Competitor Reset

We would also like to announce there will be a reset for all EMMA Malaysia competitors for 2024. This means competitors can select any class they want to compete in. However, those who have won Champion on its class will need to move to the next level. For example, if a competitor has won Entry, they will need to move to Skilled for the next competition.

## 4.2 The official competition groups are as follows:

- 1. Super-entry (SQ) [new player only and limit to one-time participation only. No judge/previous judge/champion from EMMA Malaysia Final]
- 2. Entry 1500 (IQ & SQ)
- 3. Entry 3000 (IQ & SQ)
- 4. Entry Unlimited (IQ & SQ)
- 5. Skilled OEM (IQ & SQ)
- 6. Skilled 4000 (IQ & SQ)
- 7. Skilled Unlimited (IQ & SQ)
- 8. Master OEM (IQ & SQ)
- 9. Master OEM 4000 (IQ & SQ)
- 10. Master 8000 (IQ & SQ)
- 11. Master Limited (IQ & SQ) (no judge/previous judge)
- 12. Master Unlimited (IQ & SQ)
- 13. X Limited (IQ & SQ)
- 14. X Unlimited (IQ & SQ)





- 15. Multimedia (IQ & SQ)
- 16. Best of Sound 8000 (SQ)
- 17. Best of Sound Unlimited (SQ)
- 18. King of Sound (SQ) (Only Champion will receive a trophy)
- 19. Best of Sound 3000 (friendly cup) (SQ)
- 20. Best of Sound 8000 (friendly cup) (SQ)
- 21. Android Unlimited You are required to use an Android Head Unit to enter the

Android Cup competition. (SQ)

- 22. ESQL 135DB Limited (IQ & SQ)
- 23. ESQL Trunk 4W (IQ & SQ)
- 24. ESQL B/R Unlimited (IQ & SQ)
- 25. ESQL Wall Unlimited (IQ & SQ)
- 26. King of ESQL (IQ & SQ)
- 27. ESPL Trunk 4W (IQ & SQ)
- 28. ESPL B/R Unlimited (IQ & SQ)
- 29. ESPL Wall Unlimited (IQ & SQ)
- 30. ESPL Fun 130DB (SQ)
- 31. Tuning Stock
- 32. Tuning Custom Unlimited
- 33. EMMA Racing
- a. Interior show off
- b. Trunk show off
- c. Lighting show off
- d. Styling show off Stock, Custom, Unlimited
- e. Paint
- f. Vinyl
- g. Water Transfer
- h. Air Brush
- i. Handling & Performance
- j. Power & Performance
- k. Sound Quality Racing Concept 3000
- I. Sound Pressure Racing 4W, Unlimited
- m. Best of Show

#### **Active Judges, Professionals, and Shop Owners**

- Present certified judges and professionals (brand representatives) are only allowed to join the Master class and above, except for Master Limited.
- Shop owners with their own vehicles are also only allowed to join the Master class and above, except for Master Limited.





## Participation Requirements for Best of Sound and King of Sound Competitions:

- In addition, you are required to sign up for any of the 1-15 SQ (Sound Quality) categories before you can participate in the Best of Sound or King of Sound competitions.
- Competitors are allowed to participate in Best of Sound 8000, Best of Sound Unlimited, and King of Sound. For example, any competitor in the 1-15 Sound Quality categories can also participate in Best of Sound 8000, Best of Sound Unlimited, and King of Sound categories.

#### Additional info for Best of Sound and King of Sound Listening Pleasure:

- Best of Sound: Competitors are allowed to select their preferred tracks for judging.
- King of Sound: Judging will be conducted using official EMMA tracks.

#### Installation Quality (IQ) Implementation and 4 cm Rule:

- Full IQ will be implemented in all EMMA official categories. Although the 4 cm rule will not be added to the total score on the scoresheet, judges will perform the measurement for reference. This will aid in future upgrades or when competing in the EMMA Asia Final.

#### **LIMITED & OEM SEGMENT**

- For budget categories, competitors need to go to the EMMA official website (www.emmanet.com/value/), create an equipment budget form, print it out, and keep it in the car for reference. Failure to have the budget form during registration will result in disqualification.
- If the device is not in the database, email emma.malaysia@outlook.com with the necessary documents, VAT invoice, and a link to the manufacturer selling the device.
- During the competition, if the equipment value exceeds the limit or is incorrect, the vehicle will be transferred to the equivalent Unlimited segment or disqualified. The organizers will not refund the competition fee.
- Vehicles competing in the OEM segment must meet OEM conditions.

#### **EMMA RACING**

- 1.Best of Show (Heat) Compete in any three categories of EMMA Racing to be eligible to win the Best of Show (Heat) trophy.
- 2. The Best of Show trophy is automatically presented to the competitor in EMMA Racing with the highest combined score from all three score sheets.
- 3. King of Show (Final) Compete in any three categories of EMMA Racing to be eligible to win the King of Show (Final) trophy.
- 4. Both trophies are automatically presented to the competitor in EMMA Racing with the highest combined score from all three score sheets.





P.S. If any competitors wish to participate in other official competition categories in the Asia Finals, such as Tuning, ESQL, ESPL, MM, etc., please inform EMMA Malaysia. We can add these official competition groups to facilitate the acquisition of qualification points.

## 4.3 International Friendly Cup

The International Friendship Cup was introduced in 2023, allowing top stores from various countries to compete together. Additionally, to facilitate better international exchange, EMMA Malaysia will also provide foreign event visitation packages. The International Friendship Cup, if multiple countries have competitions around the same time, will jointly establish some categories different from regular competitions. Vehicles from the same category in different countries will be judged by a third-party referee from another country to determine the ranking of the participating vehicles in that category. Meanwhile, EMMA representatives from each participating country will collectively contribute prizes for the winners of these categories as rewards and memorabilia. This year, plans are being made to hold the International Friendship Cup with more countries.

- The International Friendship Match is a pure sound quality competition and does not evaluate installations.
- Prizes will be awarded in the International Friendship Match.

## 4.4 In-house brand competition

The participation rules for the In-house brand competition will be established by the sponsoring manufacturers.

The In-house brand competition consists of a race involving three vehicles. Whether additional prizes will be awarded for exceeding three vehicles will be determined by the sponsoring manufacturers.

The In-house brand competition will be evaluated based on the EMMA Master Class sound quality scoring sheet, focusing solely on sound quality and not evaluating installations.

Whether the 4cm driving visibility rule is enforced and whether detailed rules such as measuring on/off noise are required will be determined by the sponsoring manufacturers.





# 5. Registration Fee

Registration fees for each competition category are as follows:

Malaysia (Heat)	Malaysia Grand Finals	<b>EMMA Asia Finals</b>
RM550	RM750	RM750
RM650	RM850	RM850
RM550	RM750	-
RM650	RM850	-
TBD	-	TBC
RM450	RM450	-
	RM550 RM650 RM550 RM650 TBD	RM550 RM750 RM650 RM850 RM550 RM750 RM650 RM850 TBD -

Registration fees vary depending on the level of the competition and the category.

If a participating vehicle uses products from the EMMA 2024 Official partner brands, 10% discounts will be applied to official category only.

## 5.1 Registration Fee Discounts for Using Sponsoring Products:

Registration Fee Discounts:

- 1. A 10% discount will be applied to the official category entries fee if you're using an official partner product.
- Please note that discounts will not stack, even if you use multiple sponsor brands (maximum 10% off)
- EMMA Tuning & Racing: 1st segment RM450, 2nd segment RM350, 3rd segment RM250 onwards (fixed price)

# 6. Competition Day Procedure

For detailed scoring rules, please refer to the EMMA 2024 Rulebook. This activity description covers the event process and highlights some common mistakes.

# 7. Pre-competition preparation

- For budget categories, competitors need to go to the EMMA official website
  (www.emmanet.com/value/), create an equipment budget form, print it out, and keep it in the
  car for reference. Failure to have the budget form during registration will result in
  disqualification.
- Prepare a system diagram and circuit diagram. The circuit diagram should indicate the power and ground wire gauges for all installed equipment and the corresponding fuse specifications.
   Starter circuits generally do not require a fuse, but if a relay is used for additional power supply, a fuse is required.
- 3. Clean the vehicle and remove as much clutter as possible from the interior.



<sup>\*</sup>Please note that to receive a registration fee discount for the Asia Finals, you must use products from the Asia Finals sponsoring brands.



- 4. Bring proof of purchase for the 2024 EMMA official music tracks. Each registered store needs one proof of purchase, and each proof corresponds to a store name. The same store name can register multiple vehicles.
- 5. One competitor can participate and qualify in maximum of five different formats during one event with the same car:
  - One Class in Sound Quality
  - One Class in Multimedia
  - One Class in ESPL
  - One Class in ESQL
  - One Class in EMMA Racing
- 6. A competitor may enter more than one car in one event. Qualification points will be only awarded to the competing car in the category/class it is competing in.

## Official music purchase options:

- a. EMMA Malaysia: Each set costs RM180 and includes a USB flash drive without box. Each event will offer a limited-edition commemorative USB (first come, first served); otherwise, a standard EMMA USB without box can be purchase during event.
- EMMA Official Website Web shop: Each set costs 29 Euros for a downloadable electronic version. Keep the purchase number and register the store name with EMMA Malaysia.
   (https://emmanetshop.com/downloads/emma-music-files-2024.html)

## 7.1 Registration

- 1. Complete the registration procedures within the designated time.
- 2. Have the following information ready for registration:
  - Vehicle Registration number
  - Proof of purchase for the official music
  - System Diagram
  - EMMA VALUE SHEET (BUDGET CLASS)

## 7.2 Preparation Before Scoring

- 1. Ensure the vehicle has sufficient battery power.
- 2. Control the interior temperature to a comfortable level.
- 3. Adjust the seats to competition mode.
- 4. Make sure the audio system is functioning normally.
- 5. Clear the vehicle interior, storage compartments, trunk, and any area that could affect sound quality.

#### 7.3 Driving into the Judging Lane

- 1. Ensure the vehicle is parked on a flat surface.
- 2. If it is raining, ensure the vehicle does not get wet.
- 3. Ensure the audio system is functioning normally.
- 4. Perform a test listen to confirm the competition volume.





- 5. When the judge enters the vehicle, you may request specific seating adjustments, including seat height, headrest position, and whether the judge should face straight ahead or slightly towards the center.
- 6. If necessary, explain to the judge how to operate the audio system.
- 7. Once everything is ready, signal the judge to begin scoring.
- 8. During the scoring process, do not make noise near the vehicle to avoid affecting the scoring.
- 9. Do not stray too far from the vehicle during scoring, so that if any issues arise, the judge can easily locate you.

## 7.4 Post-Scoring Explanation

- 1. For the Malaysia Finals and Asia Finals, judges are not required to provide explanations. Participants should directly sign the score sheet.
- 2. For the Malaysia competition, judges must provide explanations. If there are disputes regarding the scores, participants can request a re-evaluation by the head judge.

## 7.5 Leaving the Track

- 1. After scoring is completed, please drive off the track.
- 2. For Competitive Group and higher in the official competition, another judge must assess the installation score. Please follow the on-site staff's instructions to move to another track or wait temporarily until the installation scoring period.

### 7.6 Public Display

- 1. For the Malaysia Competition, Malaysia Finals, and EMMA Asia Finals, all vehicles must remain at the venue after scoring. Open the trunk to display to the public and allow listening, primarily using EMMA competition songs and the sound settings used during the competition.
- 2. During the Malaysia Competition and Malaysia Finals, if participants in the same group have questions about the sound, they can lodge an official protest with the head judge by pledging 30 points. The sound quality judge for that group will re-listen in the protested vehicle. If the sound settings were adjusted, 10 points will be deducted from the public display score.

## 7.7 Right to Protest

- If you believe there is an issue with the judge's scoring, whether it concerns your own vehicle or another vehicle in the same group, you have the right to protest.
- Protesting requires a pledge of 30 points. If the protest is successful, the pledged points will be returned. If the protest fails, the pledged 30 points will be forfeited.
- For detailed information on protesting, please refer to Chapter 8.7 of the Participant Handbook.

# 8. EMMA Music Tracks (Media):

EMMA Music Tracks Copyrights: The production cost of EMMA competition music is high. To support genuine content and ensure EMMA has sufficient revenue to continue producing high-quality competition music, all EMMA Malaysia events will comply with EMMA headquarters requirements to inspect all participating vehicles for genuine music. Please refer to Chapter 10.1 for obtaining genuine music.



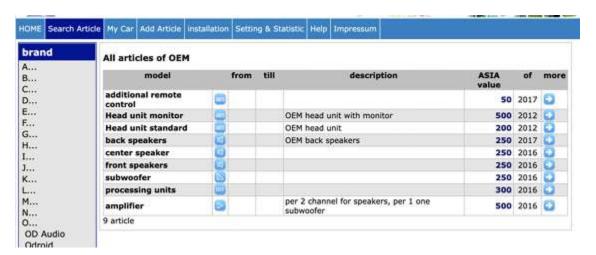


## 9. EMMA VALUE SHEET:

All vehicles participating in the budget category must provide a list of equipment. Please refer to the instructions on the EMMA Malaysia official website for budget sheet preparation guidelines and use the link provided in the instructional document to create the budget sheet in the EMMA ASIA database. Budget sheets printed and used for participation in this year's events will remain valid for the 2024 EMMA Asia Finals, even if prices change later. (Please keep your budget sheet safe.)

Price List for registration Items:

- Head Unit
- Speakers
- Power amplifier
- DAC (Digital to Analogue Converter)
- DSP (Digital Signal Processors)
- Amplifier



- a) Head Unit (OEM): If using the original head unit:
- Head unit with a screen are priced at 500 euros.
- Head unit without a screen are priced at 200 euros.

#### 1) Example:

Use USB-stick with content in Head Unit Storage device is USB-stick => not taken into consideration at all

Head Unit must be calculated according to value data base

#### 2) Example:

Storage device (1), controlled by an app on iPhone (2). An "apple CarPlay" OEM head unit (3) receives content and controlling the iPhone/the volume. Signal goes from storage device to amplifier.

(1) Storage device = not taken into consideration at all





- (2) iPhone (=portable device) = is "" part of the operator panel (app) for track selection, ff/rew => must be considered. A portable device will be calculated with a value of 300 euros, no matter what the retail price is.
- (3) OEM-Head unit, using CarPlay, controlling the volume = this is in that case part of the operator panel and display (Vol.) => must be calculated with the appropriate value.

## b) Sound system (OEM)

In principle, the system pricing method only calculates the equipment that is listened to by the sound quality judges during the competition.

#### For example:

- If a player is used to directly connect signals to the processor for playback, although the original main unit is still in the car, the price of the original main unit is not calculated.
- If the rear door speakers do not produce sound during the competition, the price of the rear door speakers is not calculated.

However, in some systems, only the front speakers may be replaced while retaining the original car amplifier and original subwoofer, and if the original subwoofer is producing sound during the competition, then the prices of the original subwoofer and the original car amplifier must be calculated.

For original sound system equipment, you can find the brand name on the OEM price registration page.

- c) Equipment not listed in EMMA Database
- If the car uses equipment that is not listed in the EMMA database, and its price cannot be determined, the vehicle can only participate in the unlimited budget category.
- Alternatively, you may contact the brand's distributor. The distributor can provide relevant documents with the original manufacturer's suggested retail price (MSRP) to the EMMA headquarters in Germany for registration.

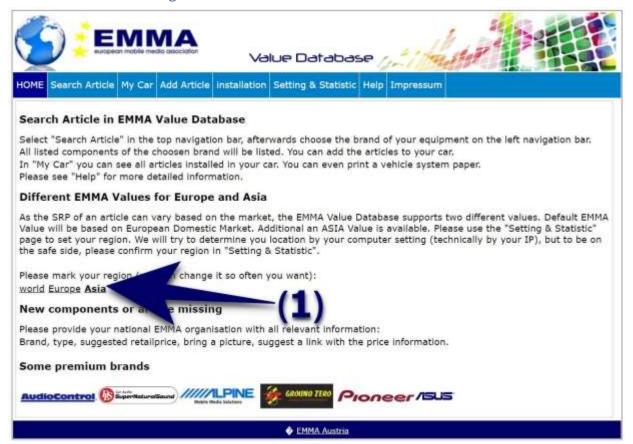
#### DISCLAIMER:

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.

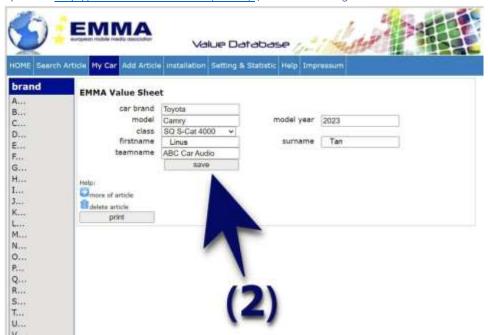




## 9.1 EMMA value sheet guide:



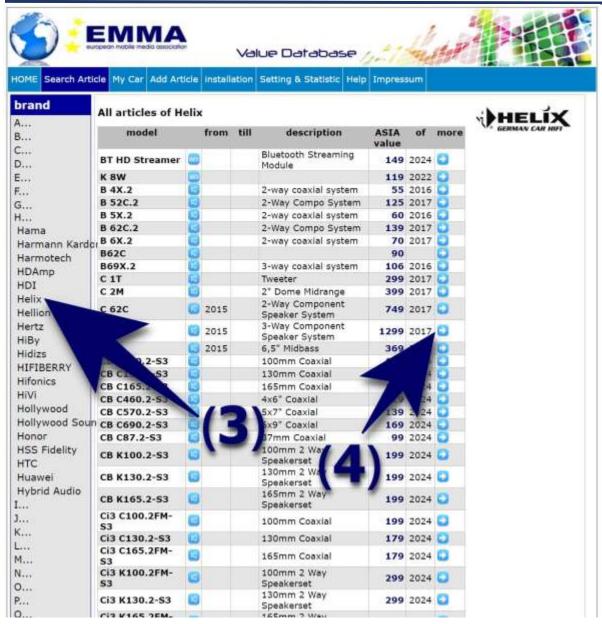
1) Go to http://www.emmanet.com/value/, select Asia region



2) Select My Car, fill up (Car brand, model, year, category, personal info and team name)







- 3) Go to search article, select brand that product installed at your vehicles
- 4) Select the product, model that installed at your vehicles



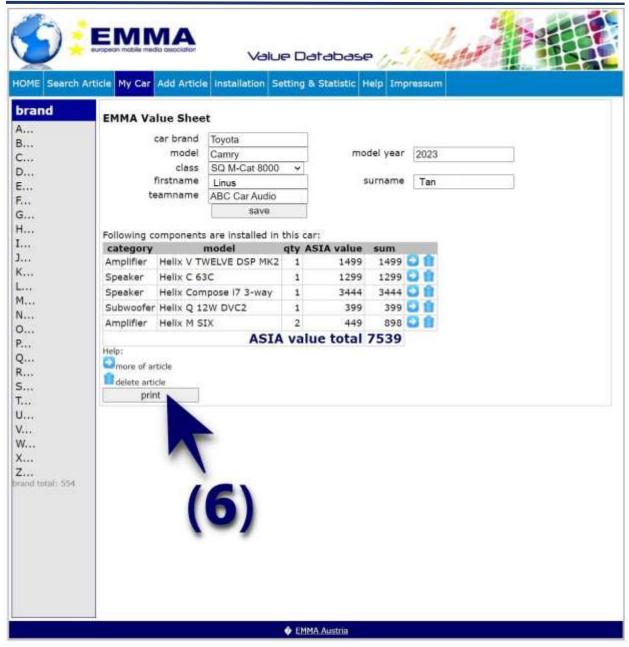




5) Add the product to your car



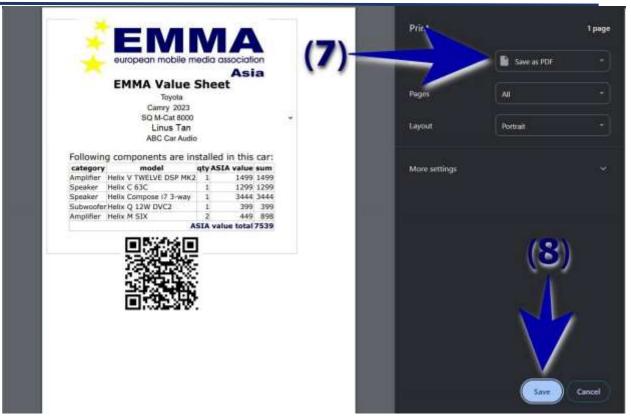




6) After done adding all products, go to my car and select "print"



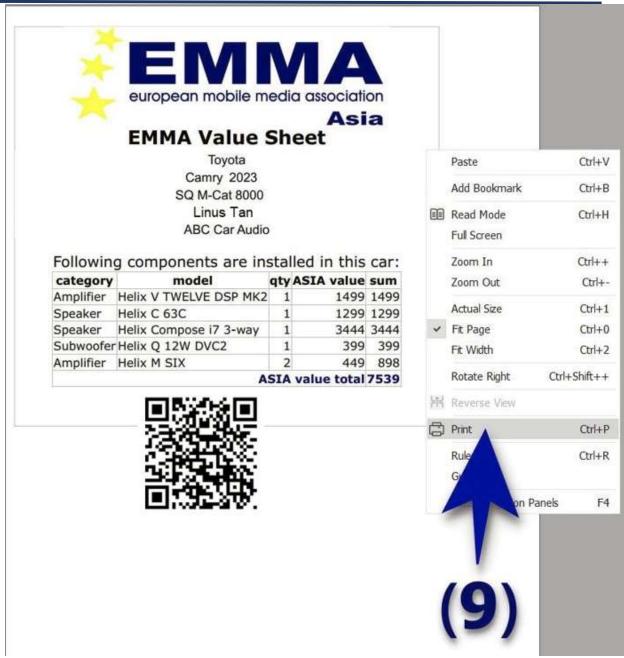




- 7) Select save as pdf
- 8) Save







9) Print out the EMMA Value Sheet





## 10. EMMA EURO STAR

#### What is Euro Star?

Euro Star is a car audio workshop ranking system provided by EMMA Malaysia based on concepts, themes, details, and car audio installation techniques that follow the standard EMMA international rules.

Euro Star is given by EMMA Malaysia to every workshop that has completed the competition in a year and can meet a minimum score standard of 155 points, which means that the Workshop must compete in the **Masters and Expert classes**. The EMMA EURO STAR rating system aims to provide consumers with a reference standard for identifying shops with the highest level of installation craftsmanship.

With the existence of the Euro Star rating system, it is hoped that it will make it easier for prospective customers to determine which workshops are suitable for their needs and which have met installation standards in international competitions.

EMMA EURO STAR certification can only be obtained through the installation scores from participating in official sound quality competitions:

- 1. Master Category installation score over 155 points
- 2. Expert Restricted Category (without bonus points) installation score over 210 points
- 3. Expert Unrestricted Category (without bonus points) installation score over 219 points

**EMMA Euro Star (One-Star Shop)**: Achieve the required score in any of the above categories with at least one participating vehicle in the **national final competition**.

**EMMA Euro Star (Two-Star Shop)**: Achieve the required score in any of the above categories with at least two participating vehicles in the **national final** and **international level competition**.

**EMMA Euro Star (Three-Star Shop)**: Meets the standard and for **3 consecutive years** has been awarded the **Euro Star – Two Star award** with a **minimum of 6 different cars**.

EMMA Euro Star-certified workshops offers consumers a trusted guide to finding workshops with proven excellence in car audio installations. This transparency can significantly enhance customer confidence and promote higher standards across the industry.





## 10.1 Overseas Event Participation Guidelines

For any overseas trips related to EMMA Malaysia, you can inquire about joining us. These include:

- Head Judge Training & European Finals
- Final Stop of the Asia Finals
- Final Stop of the International Friendship Match
- Invitations for Malaysian judges to officiate in other countries

If you are interested in the above trips, you can contact EMMA Malaysia for details about tickets, accommodation, local transportation, event times, and locations, and make your own arrangements to participate.

If you wish to join the activities with EMMA Malaysia, we can also book for you, and you can follow our schedule. However, please note that since judges have scoring duties, ensuring the smooth conduct of the host country's event is the top priority. Please cooperate with the group's actions.

# 11. Installation quality

This section is excerpted from the EMMA Participant Handbook and applies to the sound quality and installation scoring for the EMMA SQ and Sound Cup categories. Since the Participant Handbook is continuously updated, the final reference standard for all rules is the Participant Handbook on the EMMA official website. Different groups are subject to different installation rules, which can be referenced in the table in the Appendix of Chapter 13. Additionally:

- The 4cm driving visibility rules are not applicable to all categories on EMMA Malaysia; however, during the competition, judges will score the installation to assist competitors with future improvements.
- The individual scores will not be summed up to calculate the final score.
- The 4cm driving visibility rules will be applied at the EMMA Asia Finals for all categories.

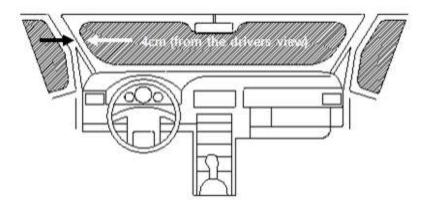
\*Details and information for ESQL & ESPL please refer to EMMA rulebook, edition 2024





#### Limited view

The Sound Quality judge check for restricted view due to installations on dash / pillars / doors the judge will sit in the designated listening position and check if anything of the audio systems Installation is interfering the view. If necessary, a measure perpendicular to the line of sight will be done by the sound judge, from the drivers/judging position. If the installation is restricting the view to the road/sides (not to the car itself) it will be a not Ok-situation. This rule applies to the wind shield and the two front side windows. Triangular windows within the A-Pillar/ front doors will not be considered as long as the view through these windows is not higher and/or longer than half the height and length of the side window.



If the view/use is restricted, the Judges deduct 3 Points per situation. Maximum deduction 6 Points.

The views to the side mirrors should not be blocked (if no passenger side mirror installed, the rearview mirror must allow a full view back).

#### 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 in front 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.





## **Imaging Characteristics**

## Imaging - Position

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

The technical tracks 2-6 for positioning and focus will be used to define the five positions. The centre position should be exactly in the middle between the ultimate left and ultimate right. Left centre should be exactly in the middle between ultimate left and centre. Right-centre should be exactly in the middle 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 appear, less points will be given for that position. For each correct position of each instrument the judges will score 1 Point.

#### The 5 different sounds appear at each position in the following order:

Instruments	Frequency		
Electronic Bass	40Hz-100Hz		
<b>Electronic Guitar</b>	100Hz-250Hz		
Flute	1kHz-250Hz		
Celesta	1kHz-2kHz		
Triangle	2kHz-4kHz plays >20Khz		

## Imaging - Focus

The focus will be judged for each of the above 5 positions using the tracks 2-6 for positioning and focus. There are 5 different instruments played on every track and each instrument will be scored separately. The instruments should appear exactly on their designated position. If they are out of focus the judge will note 0 points.

Focus means correct size of each instrument, size of each tone should be considered relatively to one another. The size of focus will differ from the Frequency. Please take care not to confuse size with volume. Louder does not mean bigger. Each different sound in each position should be distinct with the correct focus-size. For each correct focus of each instrument the judges will score 1 Point.





#### Sound Stage

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 cars audio system. These boundaries must be identified in order to judge imaging correctly. We use Track 7 (moving track) to check the sound stage.

#### Sound Stage - Distance to sound stage

The designated moving track is used to find out the distance of where the soundstage begins in relation to the listener's position. The instruments playing in the centre of the soundstage and the instrument that is closest to you is the beginning of the soundstage.

Instruments in center position are:

Bass Drum, Fretless Bass, Soprano Saxophone, Fender Jazz Bass, Snare

#### Sound Stage - Width

The designated moving track is used to judge stage width. 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.

#### Sound stage - Height

The height of the sound stage defines the perceived height (points of origin of the sound in betweer 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 of the competition is to achieve a "stable" sound at horizon level with a natural sense of the cars' space above that point. Instruments and voices should be originated entirely at that height with no portion of them coming from below or above the sound stage.

Pay particular attention to make sure that the stage height remains stable, from left to right. Some vehicles may exhibit a good height in the center with left and right boundaries dropping lower. This should be taken into account in the scoring. All instruments should appear at the same height.

#### Sound Stage - Room Information

Track 7 (moving track) is used to judge Room Information. Room information or Ambience is a psycho-acoustic phenomenon that can be defined as the perceived space around a sound source.

#### Room information is scored:

- Left / right,
- Front / rear and
- Floor / ceiling.

1 point No Room - Flat stage

2 points Just a little bit of Room - Definitely smaller than the size of the car

3 points Some Room - About the size of the car

4 points Good Room size - A little bigger than the size of the car

5 points Extraordinary Room size - A lot bigger than the size of the car





#### **Tonal Accuracy**

#### Tonal Accuracy and Overall Spectral Balance

Using tracks 8, 9, 10 and 11 the 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 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.

#### Mid-bass (60 Hz - 200 Hz)

The judges will concentrate on the sound produced by the 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.

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 car 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: 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. Voices should sound realistic without uncharacteristic ringing, thin sound, dullness or distortion.

#### High-Frequencies (3 KHz-inaudibility)

The judges will concentrate on Voices, Woodwinds, Piccolo, Flute, Clarinet, Strings, Violin, Triangle, Brushes, Harp, Piano, Organ, Bells, Tom Tom, Cymbals, High Hat, Ride, Shaker, Rattle Snake, Harp, 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.

Judges listen to the quality of each frequency under tonal accuracy and not the relative volume.

Relative volume is one of the parts that will be judged under Spectral Balance.





### **Overall Spectral Balance**

Relative Volume of each frequency is judged under spectral balance. Track 11 is used to judge Overall 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).

In case the system cannot play 6dB louder than initial level, the judge will consult the competitor if the system is operating properly and a repair time can be chosen. Tonal accuracy needs to be redone. The lack of the 6dB difference will be validated by a measurement between normal and high volume. This can be done by smartphone/handheld SPL-meter.

If 6dB still not possible, 12p will be deducted (3p for each of the above sub sections). In case the system shuts down and no sound is available when raising the volume, 0p.

#### Listening Pleasure

Now since the sound quality judges have been listened to the competitor's 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.





## **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.

#### System Noise

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 cars electronic 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 signal 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 with Track 12:

#### System Noise check

Listen for noise that is somehow emulated from or by the audio system and that is not recorded on the current official EMMA Media

#### Potential noises can be:

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

If noises are audible in some listening tracks but not in the dedicated noise track, these tracks can be considered for judging.

#### The following rules apply to judging noise:

- 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.
- 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.
- The judges should briefly note what caused any adjustment to the score in the comments section of the score sheet.
- Electrically powered cars may compete in EMMA competitions. EPV's must be self-powered during the judging process.
- The judges must carefully determine whether the noise is actually coming from the system itself.





### System Handling

The audio system must demonstrate a good balance of comfort and safety during operation of the car. The judges must be able to operate the audio system with ease from the driver's seat without any confusion. General visibility and accessibility of the above mentioned, relevant user adjustable components (operator panel(s)) from the driver's seat during theoretical operation, is desired. CD changer units, Hard Drives, USB Devices tec. 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 car was being driven. The system with the closest approximation to these conditions will receive points.

The system handling will be judged by pausing/muting the track, 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:

- 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. Furthermore, the buttons should be either labelled or a written instruction how to operate should be provided to the judges.
- The volume control used during judging is evaluated at this point.
- In case a mobile device is used to operate the system, the competitor is requested to avoid
  the screen to lock. If it occurs during judging on national events, the judge will ask the
  competitor to adjust this will be considered as a part of the 5 min repair time tolerated. On
  national finals / Euro finals and in case of an announcement on the event during competitorbriefing, 3p will be deducted under listening pleasure if screen locks out during judging
  process.





# 12. IQ Scoring List

安裝評分項目列表	初級組	競技組	大師組	專家組	專家無限
	(Entry)	(Skilled)	(Master)	(Expert)	(X Unl)
Max Points	69	115	161	231	325
總分					
Presentation to the public	10	10	10	10	10
開放觀眾參觀					
Bonus Presentation to the public			5	5	5
開放觀眾參觀加分項目					ľ
Cleanliness	6	6	6	6	6
車輛清潔度	Ĭ				
System/Wiring Diagram					7
系統圖/電路圖	4	4			
System documentation			10	10	10
系統配置圖/系統文件					
Explanation of system to the judges			5	10	10
向裁判講解系統					
Main Fuse(s) present	10	10	10	10	10
主保險絲 (Y/N)					
Are all wires to the components fused?		15	15	15	15
全部器材上線材的保險絲	ĺ				
Is the fuse value appropriate to the wire size?		20	20	20	20
電源線徑與保險絲規格的正確性					
Any interior wires invisible?		5	5	5	5
線材的隱藏性				ľ	
Wires properly terminated?			5	5	5
線材末端正確接駁					
Wires terminations protected			10	10	10
線材末端的保護 (Y/N)					
Wires protected from damage			5	5	5
避免線材損傷 (Y/N)					
Are all components securely mounted?	24	24	24	24	24
全部器材被安全的固定			İ		
Protection of speakers	5	5	5	5	
喇叭的保護		İ		İ	İ
Does the vehicle allow a normal use?		6	6	6	-
車輛可以被正常使用					1
First Optic impression	10	10	10	10	10
視覺上的安裝完整性	- 10	1.0	1	10	10
Craftsmanship		1	10	50	50
工藝		-	10	50	50
		-	-	_	4.0
Design of interior		-		5	10
乘客廂設計		-		-	40
Design of trunk		-		5	10
行李箱設計				V	18 (E)
Overall Design of vehicle					10
汽車內外整體設計					
Bonus points				15	100
獎勵加分	1	1			





# 13. SQ Scoring List

音質項目評分列表						
	新人王 (SEntry)	初級組 (Entry)	競技組 (Skilled)	大師組 (Master)	專家 有限制組	專家 無限制組
Max Points	175	280	310	310	316	316
總分						
Position	25	25	25	25	25	25
定位						
Focus			25	25	25	25
聚焦						
Distance of Sound Stage	15	15	15	15	15	15
音場距離						
Width of Sound Stage	15	15	15	15	15	15
音場寬度						
Height of Sound Stage	15	15	15	15	15	15
音場高度						
Ropm Information			5	5	5	5
房間資訊						
Sub-Bass Section	15	30	30	30	30	30
超低頻部分						
Mid-Bass	15	30	30	30	30	30
中低頻						
Midrange	15	30	30	30	30	30
中頻						
High Frequency	15	30	30	30	30	30
高頻						
Overall spectral balance	15	30	30	30	30	30
全頻段平衡性						
Overall at high Volume	15	30	30	30	30	30
較大音量平衡性						
Listening pleasure	15	30	30	30	30	30
<b>聆聽愉悅性</b>						
System Noise	-6	-6	-6	-6	-6	-6
系統底噪						
Limited view	-6	-6	-6	-6	-6	-6
駕駛視線						
System Handling					6	6
系統操作便利性						

