



OICA Position Paper on new 02 Series of Amendments to UN Regulation No. 138

GRBP/2024/02 and GRBP-79-34



Original Idea of TF QRTV

shown in GRBP-79-06 Revised List of GRBP Priorities

STEP 1 at 79th GRBP (Feb. 2024):

- Review of UN-R138 for AVAS (technical, language, consistency, interpretation, operation range)
- To be considered:
 - US FMVSS 141 & UN-R138 AVAS.
 - Review sound specifications & test conditions.
 - ISO 16254 Technical results expected

STEP 2 at 83rd GRBP (Feb. 2026):

- Ensure compatibility/ consistency between UN R138 and Draft UN R51.03 RD-ASEP
- Ramp-up max. sound level curve under any driving condition to establish a handshake between UN R138 maximum sound and RD-ASEP of UN R51.
- 2nd step linked to RD-ASEP from UN R51.

GRBP							
N°	Title	Tasks / Deliverables	References	Allocations / IWGs	Timeline	Chair/Initiator	Comments
Priority	Revision of UN-R138 -AVAS	<p>Review of UN-R138 for AVAS (technical, language, consistency, interpretation, operation range)</p> <p>Ensure compatibility/ consistency between UN R138 and Draft UN R51.03 RD-ASEP</p> <p>Ramp-up max. sound level curve under any driving condition to establish a handshake between UN R138 maximum sound and RD-ASEP of UN R51.</p>	<p>UN-R138</p> <p>Draft UN-R51-03 (including RD-ASEP)</p>	TF QRTV	<p><u>1st step:</u></p> <ul style="list-style-type: none"> ▪ GRBP-78 (Sept.2023): Informal doc. ▪ GRBP-79 (Jan./Feb.2024): Working doc. <p><u>2nd step:</u></p> <ul style="list-style-type: none"> ▪ GRBP-82 (Sept.2025): Informal doc. ▪ GRBP-83 (Jan./Feb.2026): Working doc. 	<p>Chair: Germany</p> <p>Secretariat OICA</p>	<p>To be considered:</p> <ul style="list-style-type: none"> - US FMVSS 141 & UN R138 AVAS. - Review sound specifications & test conditions. - ISO 16254 Technical results expected <p>2nd step linked to RD-ASEP from UN R51.</p>



Work of TF Quiet Road Transport Vehicle

Scope changed from Safety to Environmental

- OICA is concerned that the initial concept for a 2-stage approach as agreed among all stake holders in TF-QRTV has been given up for going immediately to a new series of amendments.
 - We deem this step pre-mature, as the draft UN R138.02 raises more questions and open grey zones, rather than it helps to solve issues.
 - Considerations of safety have mainly been suppressed – changes are not sufficiently validated in that direction.
 - Other topics, such as uncertainty have been addressed, but it is still unclear, what could be the real improvement.
- The biggest concern of OICA is about non-validated new definitions regarding the maximum sound level.
- We see no need for such stringent cutting of AVAS sound
 - What is the environmental benefit? For societies' health? For “single vehicle annoyance”?



Output of TF Quiet Road Transport Vehicle

Documents presented in 79th GRBP

GRBP/2024/2

- OICA understanding of **agreed direction** as of TF-QRTV #10:
 - Requirements when **AVAS Sound shall** be respectively, **may** be emitted.
 - Agreed **AVAS Sound Limitations** including additional microphone locations for demonstrating maximum sound level compliance.
 - **Handshake to UN R51 defined**
- ISO proposals to **improve that measurement results** reflect pedestrian perception and **reduces measurement variations.** (supp. by **GRBP-79-30**)

Supporting Documents:

- **GRBP-79-yy (OICA)**
OICA-review of the working document for **inconsistencies and conflicts** (not finished)
 - **Technical clarifications** to facilitate measurement of maximum sound.
 - review of document to ensure consistent use of **fonts, text size, and symbols.**
- **GRBP-78-10 & GRBP 79-43 (OICA)**
OICA agreed to bring **proposals for including EV under UN R51.03 Annex 7** (Working Document expected for 80th GRBP)



Output of TF Quiet Road Transport Vehicle

Documents presented in 79th GRBP

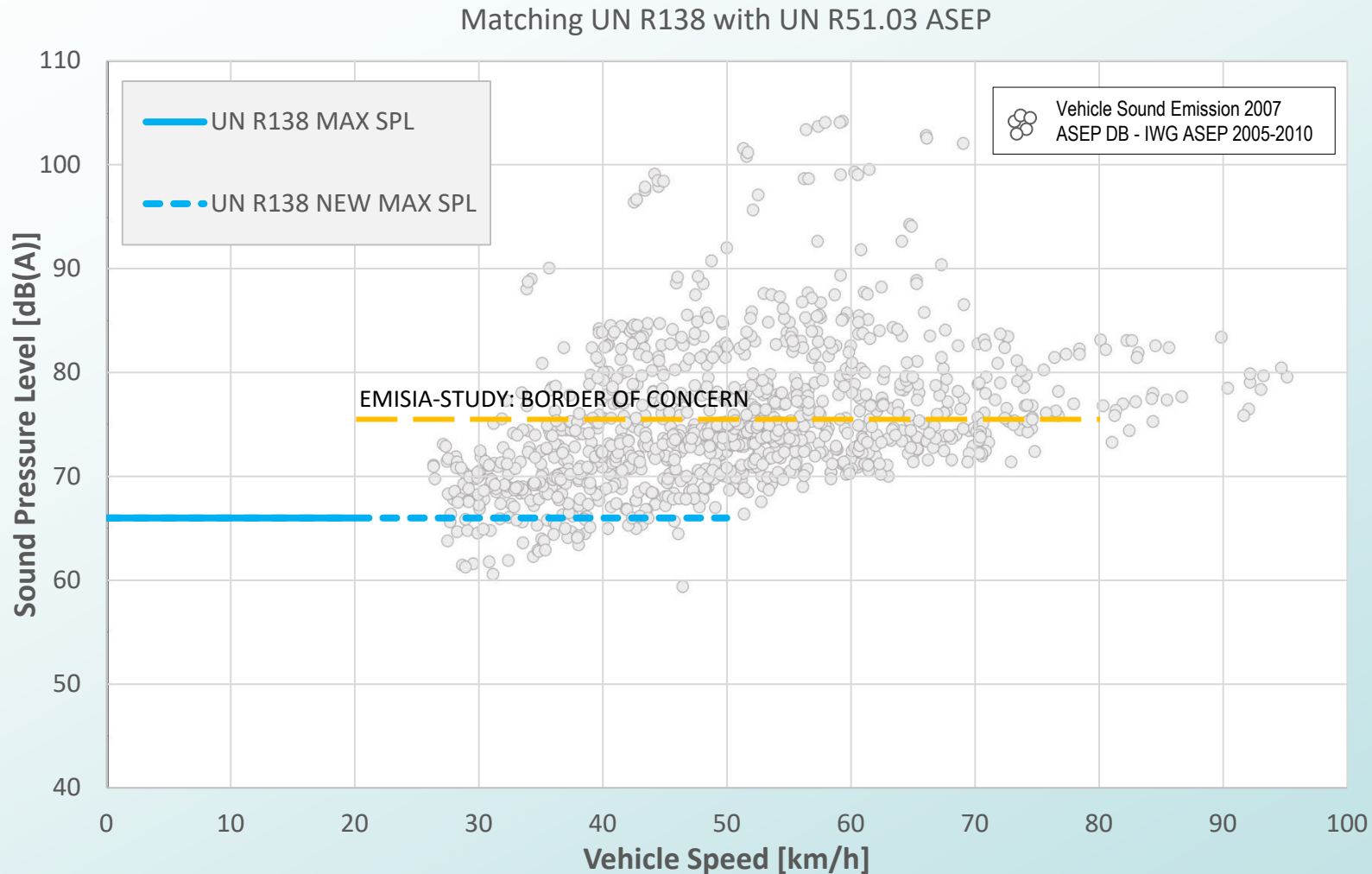
New Document GRBP-79-34

- ISO proposals (GRBP-79-30) have been incorporated.
- **Agreed direction** as of TF-QRTV #10 has been **modified by some Contracting Parties only**:
 - **Handshake to UN R51 has been deleted.**
 - **New Requirements** to limit and forbid any “non-natural” sound.
- **Document GRBP-79-34 - (TF QRTV) Proposal to amend ECE/TRANS/WP.29/GRBP/2024/2**
 - was created by some Contracting Parties only without any input/attendance of NGOs.
 - brings back the concerns already expressed by OICA (TF-QRTV-10-03 OICA concerns on draft UNR138-02)
 - **is therefore not an output of TF QRTV!**



Classification of EV's Sound Emission

ASEP Database compared with EMISIA and TF QRTV Limits



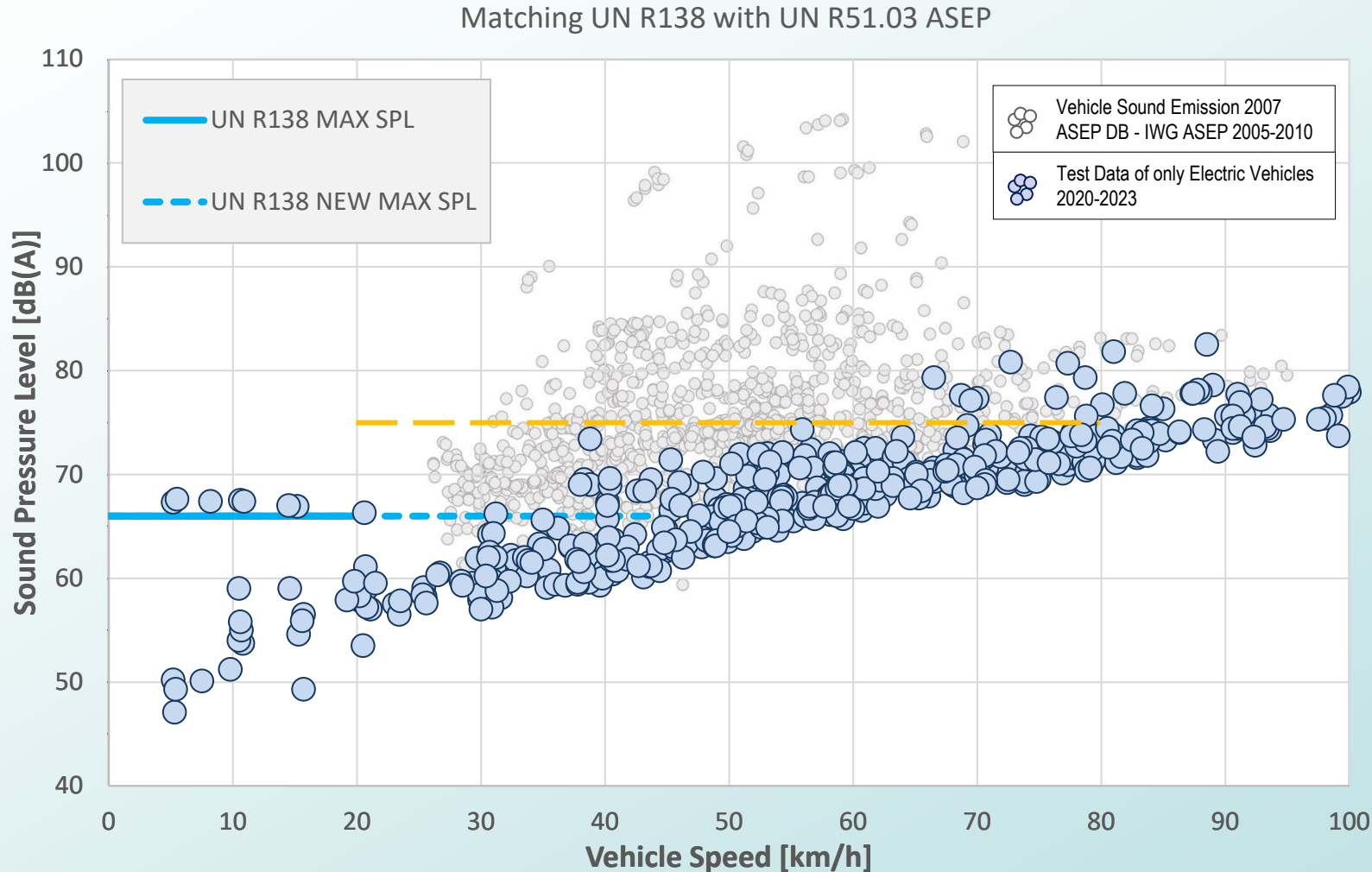
- ASEP Database shows a wide spread of vehicle sound emission during all driving conditions.
- EMISIA-Study by EC confirmed:
Sound pressure levels lower than or equal to 75 dB(A)* are no subject of concern!

* Regarding UN R51.03 Annex 7 at 7.5m distance in the control range of Annex 7



Classification of EV's Sound Emission

Electric vehicles have no need for stricter limits!

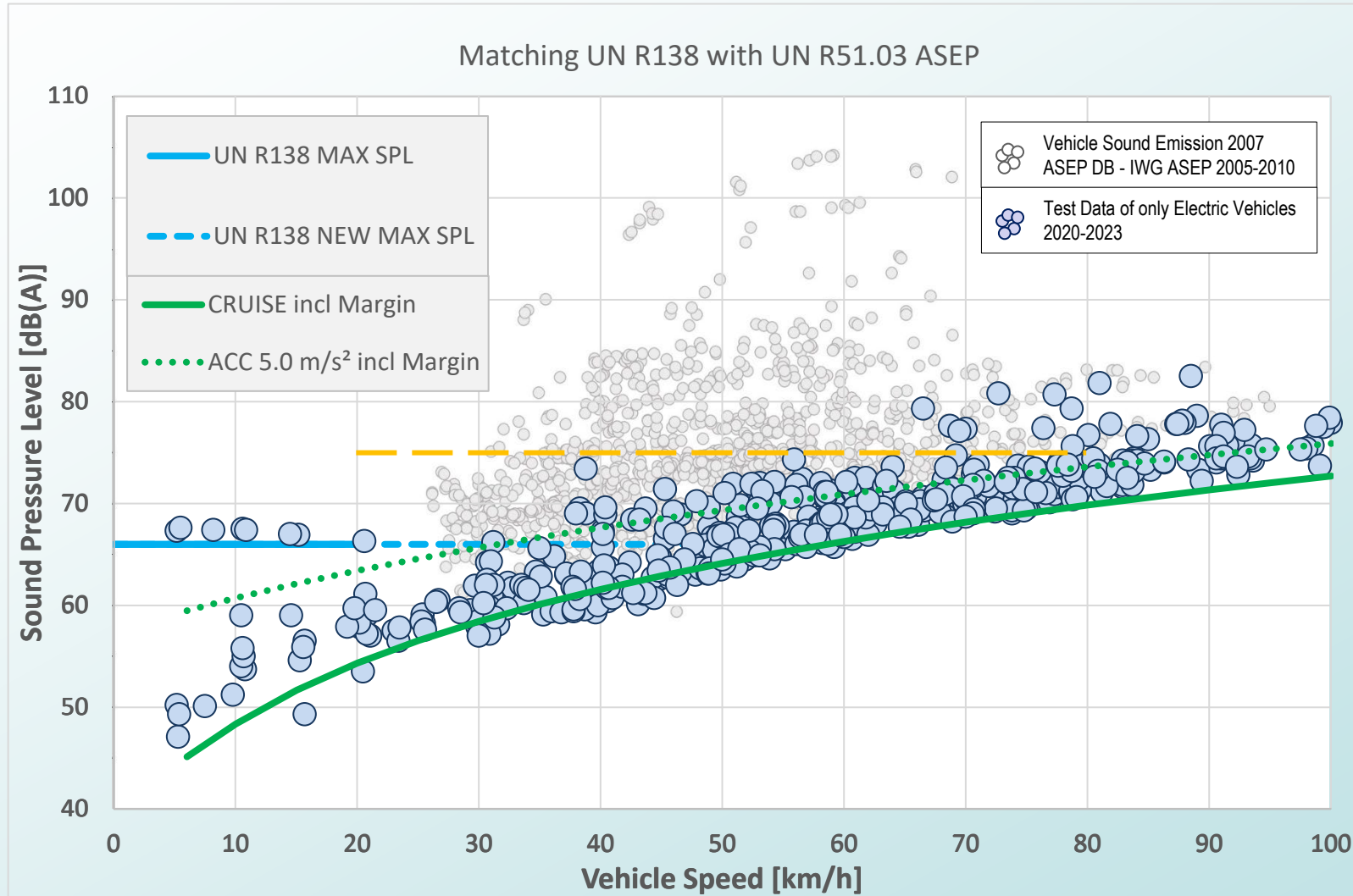


- EVs are **substantially below the quietest vehicle** that have been used during the ASEP development work of the years 2005-2010.
- Even when equipped **with sound enhancement systems** operating beyond the scope of UN R138.01
- OICA sees **no need for such stringent cutting of AVAS sound!**



Classification of the Sound Emission

Maximum sound limits shall not jeopardize safe minimum sound!



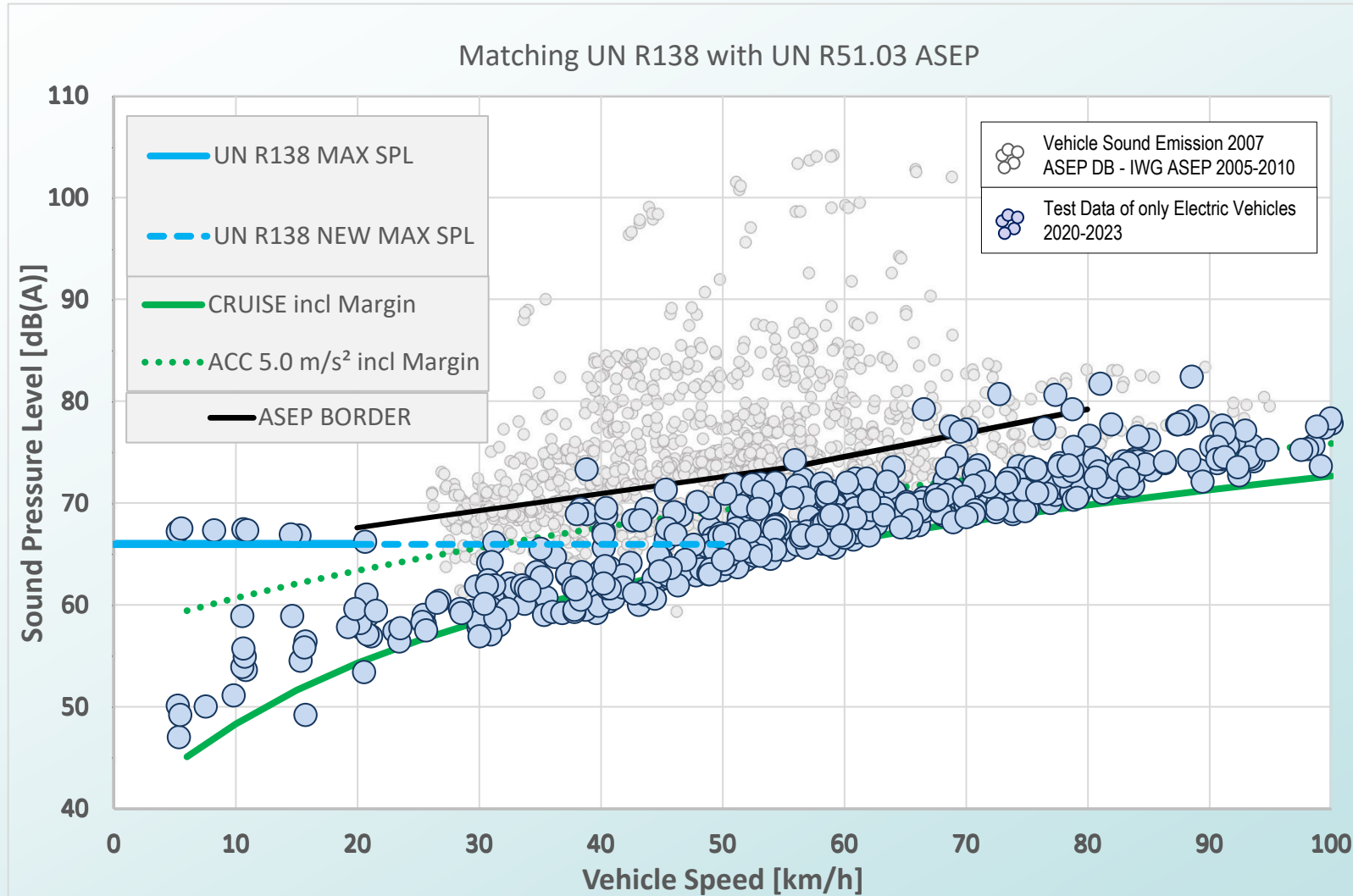
- **“Safe Minimum Sound”** (NHTSA scientific approach*) with a safety margin of 6 dB is just reached by cruising EVs.
- Higher **“Safe Minimum Sound”** for accelerating EVs needed (see study [Perception of electric vehicles with AVAS \(udv.de\)](#))
- From 32 km/h proposed **cutting of AVAS sound will jeopardize a “Safe Minimum Sound”**

* described in and published with the New Proposal for Rule Making (NPRM) Docket No. NHTSA-2011-0148, RIN 2127-AK93, presented by OICA in TF-QRTV-08-03



Alternative Concept for Electric Vehicles

UN R51.03 Annex 7 ASEP provisions

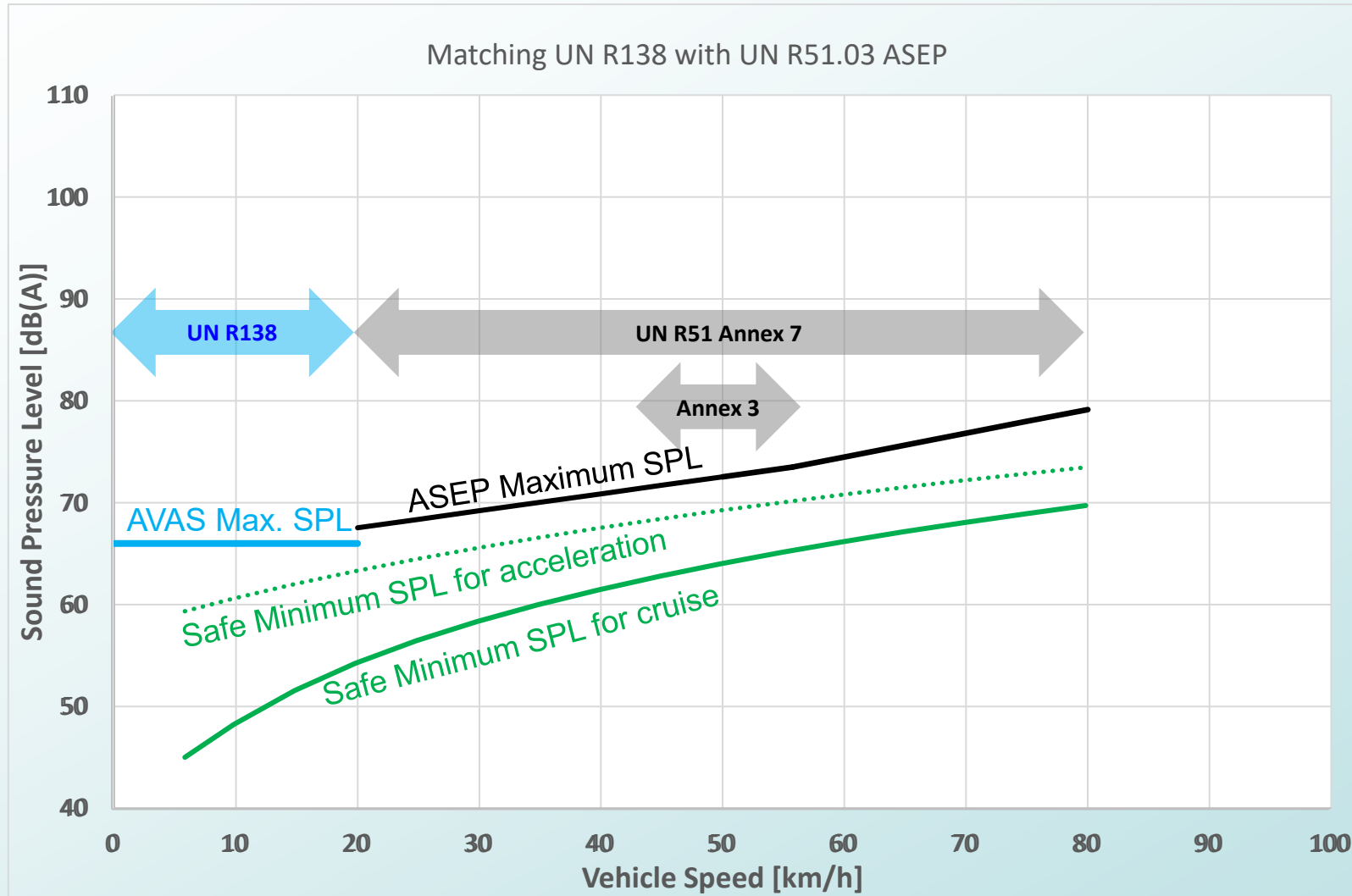


➤ OICA suggests to mandate for EVs fitted with sound enhancement systems **compliance with UN R51.03 Annex 7 ASEP provisions** (up to 80 km/h).
GRBP-79-43



Alternative Concept for Electric Vehicles

UN R51.03 Annex 7 ASEP provisions



This provision will

- **connect and close any open area** between UN R138 and UN R51.
- **avoid overlapping regulations for Hybrids.**
- sufficiently **ensure**, that EVs are designed to ensure a significant **benefit**.
- welcome **your comments for improvement** and be presented as a **working document to 80th GRBP** in Sept. 2024.



What could be achieved with a bit more time for finding a solution acceptable to all stakeholders?

- Moving to a new series 02 of UN R138 will have limited effect in Europe, if it is not introduced into EU Regulation 540/2014, since there is no delegated act for the EU Commission any more since 2019.
- OICA proposal can be applied sooner by splitting safety and environment requirements with Supplement in each Regulation (UN R51 & UN R138).
 - Avoid regulatory conflict between safety and environmental aspects – sufficient margin between sound levels for UN R138 and UN R51.
 - Use in each discipline the required individual scientific approaches:
 - **Safety sound levels** are derived from considerations on audibility and recognition described by frequency bands and masking effects. This is addressed by UN R138 Annex 3, UN R28, UN R165, ...
 - **Environmental aspects** are addressed by UN R51.03 Annex 3 (L_{eq} & health effects) and Annex 7 (annoyance).
- Quality of documents will be improved:
 - Avoid overlapping of max sound level requirements for Hybrids from UN R138 and UN R51 Annex 7.
 - Exclude ambiguous definition “natural sound”. Replace them with performance-based requirements.
 - Consistently address whole vehicle sound, avoid requirements that cannot be proven in real life.
 - Check requirements regarding the support of upcoming/needed developments, e.g. AD vehicles, quieter tyres/roads, low budget EVs.



OICA's Position Summary

- Classification of EV's sound emission
 - Sound pressure levels lower than or equal to 75 dB(A)* are no subject of concern (EMISIA Study, 2021).
 - EVs are **substantially below the quietest vehicles** (ASEP Database 2005-2010), even when equipped **with sound enhancement systems** beyond the scope of UN R138.01.
 - **“Safe Minimum Sound”**** with a margin of 6 dB is just reached by cruising EVs, while even higher level of “Safe Minimum Sound” for accelerating EVs is needed.
- Proposals of GRBP-79-34 need more development:
 - Proposed **cutting of AVAS sound** above 32 km/h **will preclude an improved “Safe Minimum Sound”****.
 - Proposed definition of “natural sound” prevents performance-based requirements, preferred by OICA.
 - Proposed requirements above 32 km/h
 - create **overlapping regulations** for Hybrids with potential conflicts.
 - need **test-modes** or indoor testing. OICA recommends compliance can be proven in real life.
 - **ignore/hinder upcoming/needed developments**, e.g. ADV, low-cost-EVs, etc.

* Regarding UN R51.03 Annex 7 at 7.5m distance
** based on NHTSA Scientific Approach



OICA's Alternative Concept Summary

- **First step: Introduce Supplements** that
 - address BEVs with extended* Sound Enhancement Systems by UN R51.03, Annex 7 (ASEP).
 - refrain from changes to requirements – limit values, speed range and new definitions of sound types.
 - clarify min./max. sound requirements as function of vehicle speed and operating conditions to UN R138.01 suggested by ISO, OICA, TF-QRTV, ...
- **Second step: Mature the new series of amendments** that
 - address **environmental aspects through Annex 9** (RD-ASEP) of UN R51 (await analysis of the monitoring data).
 - secure/improve safety aspects through UN R138.
- **What's the catch?**
 - Industry would commit to accept the required Supplement to UN R51.03 with shorter transitional provisions.
 - Freeze **improved technical requirements** of UN R138.01 in the first step.
 - Develop a **viable and feasible solution for EVs** in cooperation with industry.

* "extended" means sound exceeding the mandatory operation range (RD-ASEP draft definition to be refined)