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82nd GRPE, 12-15 January 2021
Agenda item 12

**Status Report of the
VIAQ (Vehicle Interior Air Quality)
Informal Working Group**

Geneva, January 12-15th 2021

Chair: Andrey KOZLOV, Russian Federation

Co-Chair: Jongsoon LIM, The Republic of Korea

Secretary: Andreas WEHRMEIER, BMW

Proposal for Amendment 1 to Mutual Resolution No. 3.

[ECE/TRANS/WP.29/2020/124](https://www.ece.org/trans/wp29/2020/124)

was adopted by 182nd session WP.29 which was held 10-12 November 2020 (agenda item 4.17.1)

United Nations

ECE/TRANS/WP.29/2020/124



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World Forum for Harmonization of Vehicle Regulations

182nd session

Geneva, 10-12 November 2020

Item 4.17.1. of the provisional agenda

1958 Agreement:

Proposals for amendments to Mutual Resolution

Proposal for Amendment 1 to Mutual Resolution No. 3 Concerning Vehicle Interior Air Quality (VIAQ)

Submitted by the Working Party on Pollution and Energy*

The text reproduced below was adopted by the Working Party on Pollution and Energy (GRPE) at its eighty-first session (ECE/TRANS/WP.29/GRPE/81) and is based on ECE/TRANS/WP.29/GRPE/2020/16. It is a proposal for an amendment to Mutual Resolution (M.R.3) of the 1958 and the 1998 Agreements concerning Vehicle Interior Air Quality (VIAQ). It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Executive Committee (AC.3) of the 1998 Agreement for consideration at its November 2020 sessions.

➤ **20th VIAQ IWG Meeting**

- Webex, 10th November 2020
- Half a day

➤ **21st VIAQ IWG Meeting**

- Webex, 11th January 2021
- Half a day

Terms of reference and rules of procedure for the IWG on Vehicle Interior Air Quality

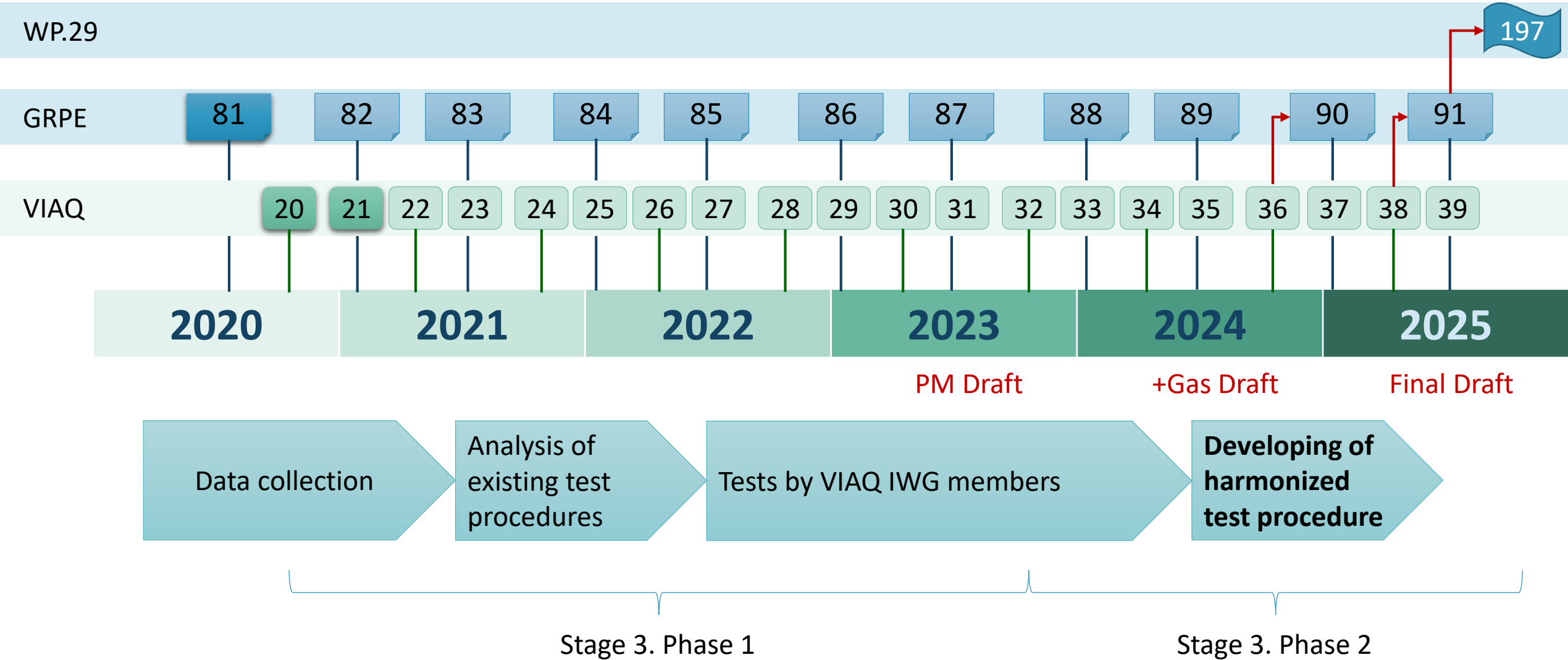
Background. The group considered the inclusion in the scope of interior air pollutants from outside sources as a possible extension of the mandate at third stage. As an extension of the existing Mutual Resolution on VIAQ, this will take into account not only interior air emissions generated from interior materials and exhaust gases from the vehicle entering into the cabin but also outside air pollution sources. The list of outside air pollutions could include CO, NO, NO₂, SO₂, O₃ volatile organic compounds (VOC), aldehydes, aromatic and aliphatic hydrocarbons, particulate number (PN) and mass (PM) and microbiological substances, e.g. allergens, fungi, bacteria and viruses. As an extension of the existing Mutual Resolution on VIAQ, this will take into account not only interior air quality but also the air cleaning efficiency of the vehicle air handling & treatment system.

Objective. This proposal expands on the issues of the vehicle interior air quality, addressing outside air pollutants entering into the vehicle cabin and the interior air cleaning efficiency, to develop a test procedure in a recommendation by including Part 4 in the Mutual Resolution No. 3.

Scope and work items. Outside air pollutants entering into the vehicle cabin and their cleaning efficiencies

- (a) Collect the information and research data on relevant air pollutants and similar issues, and understand the current regulatory requirements with respect to vehicle interior air quality in different markets.
- (b) Review, assess and develop new test procedures suitable for the measurement methods of air pollutants entering into the vehicle cabin and their cleaning efficiencies (including test modes, sample collection methods and analysis methods, etc.)
- (c) Discuss the potential of air pollutants in the vehicle interior air with toxicologists.
- (d) Develop a draft for test procedures in a recommendation.

Timeline



Objective:

globally: development of a harmonized (at the UN level) methodology for assessing the effectiveness of air cleaning in the cabin of a complete vehicle

1 phase of work: development of a methodology for the concentration of particles measuring in the passenger compartment of a car in real driving conditions and assessment of the effectiveness of the cabin air cleaning systems regarding particles

Tasks:

1. Development of the draft of the test procedure
2. Carrying out field experiments on various vehicles in various driving conditions with various settings / configurations of the interior ventilation system
3. Analysis of the obtained data (with the development of the method of post-processing of the data), their submission for consideration in the VIAQ group
4. Development of a methodology for measuring the concentration of particles in the passenger compartment under real driving conditions
5. Analysis of the data obtained with an assessment of the effectiveness of the cabin air cleaning system
6. Development of a methodology for assessing the effectiveness of a cabin air cleaning system for a car regarding to particles in real driving conditions
7. Presentation of the methodology and results of experimental studies on the VIAQ group

1. Repeatability of the results obtained when driving the same vehicle along the same route with the same ventilation system settings
2. Investigation of the influence of atmospheric humidity on the measurement results
3. Study of the influence of traffic conditions on measurement results (city, suburb, highway) - following the RDE test methodology (Document: ECE/TRANS/WP.29/GRPE/2020/15)
4. Tests when driving with / without a cabin filter, driving with opened window (s)
5. Study of the influence of the settings of the interior ventilation system:
 - Recirculation ON / OFF
 - Fan speed
 - Air conditioner ON / OFF
 - Interior temperature settings
6. Studies of the influence of a sampling point / line on measurement results
7. Study with cabin filters of various quality/manufacturers

I. Common items

1. Vehicle Category (1-1) ✓

2. Test Vehicle age/millage

3. Meteorological Conditions

4. Test Conditions

5. Sampling Points

6. Background air pollution level

7. Cabin air filter age

II. PM items

1. PM sizes to be Measured

2. Test Modes

3. HVAC Modes

4. Test Procedure

5. Measurement Methods

6. Test equipment requirements

7. Test Protocol Form

III. Gaseous components items

1.Substances to be Measured

2.Test Modes

3.HVAC Modes

4.Test Procedure

5.Measurement Methods

6.Test equipment requirements

7.Gas analyzers calibration

8.Test Protocol Form

➤ **22nd VIAQ IWG Meeting (TBD)**

- Brussels, Belgium, April, 2021
- or Webex, April, 2021
- Two days

➤ **23rd VIAQ IWG Meeting (TBD)**

- Geneva, Switzerland, June, 2021
- Half a day