

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

Webex, May 24th 2022

Chair: Andrey KOZLOV, Russian Federation

Co-Chair: Inji PARK, The Republic of Korea

Secretary: Andreas WEHRMEIER, BMW

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.

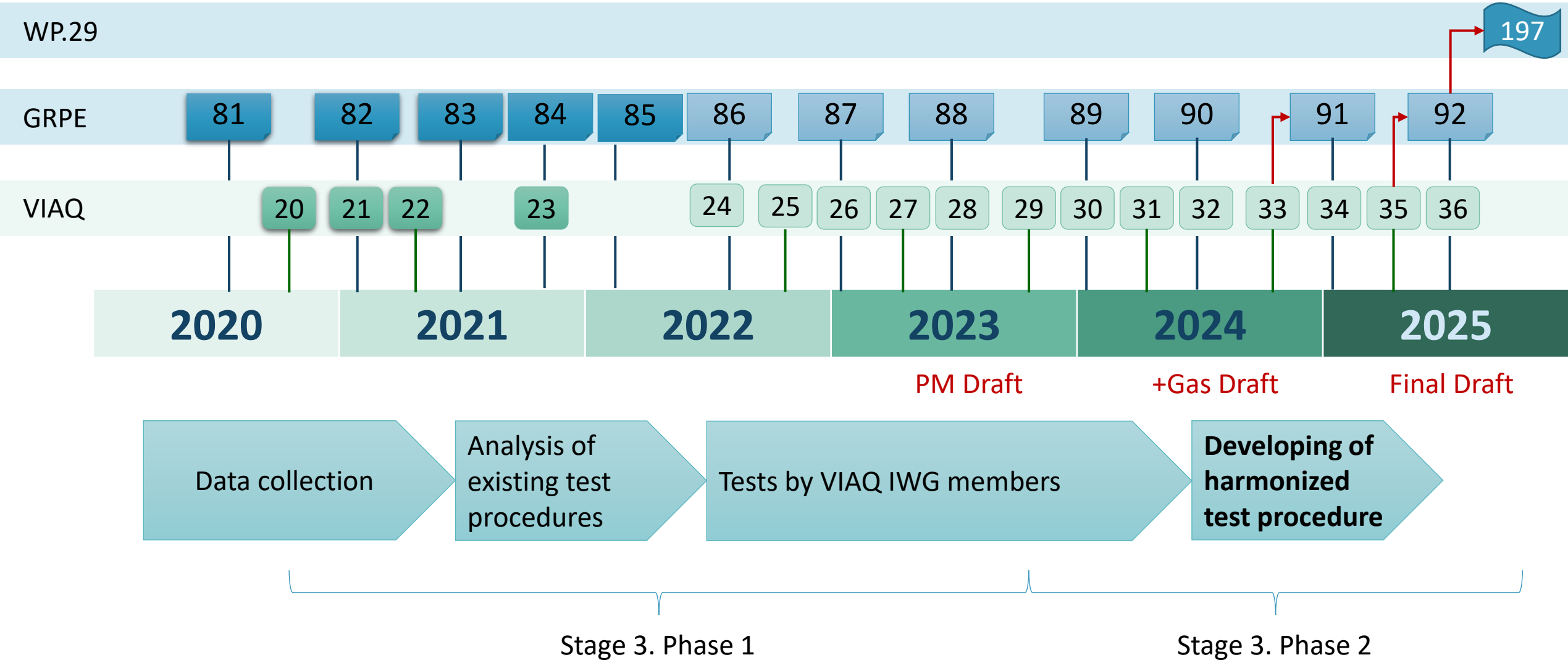
Scope and work items. Outside air pollutants entering into the vehicle cabin and their cleaning efficiencies

- (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.

➤ **23rd VIAQ IWG Meeting**

- Webex, 25th November 2021
- Half a day

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

Information discussed last meeting

Company	Presenter Name	Document Title	Document No.
KATRI	Inji Park	Effect of cabin ventilation mode on VIAQ during high PM episode in Korea	VIAQ-23-04
Fraunhofer IBP	Matthias Brunnermeier	Controllable lab test environment for assessing cabin air quality regarding PM2.5 and CO2	VIAQ-23-05
AIR	Nick Molden	CEN Workshop 103: Validation of proposed cabin air quality assessment method – results of repeatability and reproducibility testing	VIAQ-23-06
NAMI	Andrey Kozlov	Measurement of inside and outside PM concentration with one DRX Aerosol Monitor	VIAQ-23-07
NAMI	Andrey Kozlov	The group feedback analysis regarding to test methodology, conditions, equipment	VIAQ-23-08 VIAQ-23-09
CERTAM	David Preterre	Reproduction of traffic pollution in a test bench to expose a whole car to reproducible scenario of urban pollution: IAQ devices and/or strategies assessment	VIAQ-23-10
UTAC	Nadir Hafs	Definition of protocol for vehicle in cabin air quality measurements	VIAQ-23-11

The purpose of this analysis is to compare different vehicle interior air test approaches to develop PM measurement test method.

The items

1. **Vehicle Category**
2. Criteria for excluding a vehicle from tests
3. Test Vehicle age/millage
4. Meteorological Conditions
5. Test Conditions
6. Sampling Points/Sampling Lines
7. Background air pollution level
8. Cabin air filter age
9. PM and gas components to be Measured
10. Measurement Methods
11. Test equipment requirements
12. Gas Analysers Calibration
13. Test Modes
14. HVAC Modes
15. Test Procedure
16. Test Protocol

Feedback form

Name	
Organization	
Items	Comments, suggestions
Criteria for excluding a vehicle from tests	
Test Vehicle age/millage	
Meteorological Conditions	
Test Conditions	
Sampling Points/Sampling Lines	
Background air pollution level	
Cabin air filter age	
PM and gas components to be Measured	
Measurement Methods	
Test equipment requirements	
Gas Analysers Calibration	
Test Modes	
HVAC Modes	
Test Procedure	
Test Protocol	

Feedback from:

VIAQ IWG
Vehicle Interior Air Quality
Informal Working Group

CEN/WS 103*

CEN

**OICA
Members**

OICA

CLEPA
(EU Association of
Supplier)

CLEPA

UTAC/ESTACA
(Paris saclay)

UTAC

**Korea Automobile
Testing & Research
Institute**

Korea

**CabinAir
Sweden AB**

CabinAir

The full text feedback tables are in the document VIAQ-23-09

*CEN/WS 103 items from the document "Real drive test method for collecting vehicle interior air quality data" // Doc. CEN/WS 103 N. 34, 2022

➤ **25th VIAQ IWG Meeting (TBD)**

- Brussels, Belgium, October, 2022
- or Paris, France, October, 2022
- Two days

➤ **26th VIAQ IWG Meeting (TBD)**

- Geneva, Switzerland, January, 2023
- Half a day