

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

GENEVA, January 9th 2019

Chair: Andrey KOZLOV, Russian Federation

Co-Chair: Jongsoon LIM, The Republic of Korea

Secretary: Mark POLSTER, Ford

During 173<sup>rd</sup> WP.29 session in Geneva (14-17 November 2017) Proposal for a new Mutual Resolution (M.R.3) for of the 1958 and the 1998 Agreements concerning Vehicle Interior Air Quality (VIAQ) was adopted (ECE/TRANS/WP.29/2017/136). Final text of Mutual Resolution M.R.3 was published at UNECE site on 1 of November 2018 as the document **ECE/TRANS/WP.29/1143**

United Nations



**Economic and Social Council**

ECE/TRANS/WP.29/1143

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**Economic Commission for Europe**

**Inland Transport Committee**

**World Forum for Harmonization of Vehicle Regulations**

**Mutual Resolution No. 3 (M.R.3) of the 1958 and the 1998 Agreements**

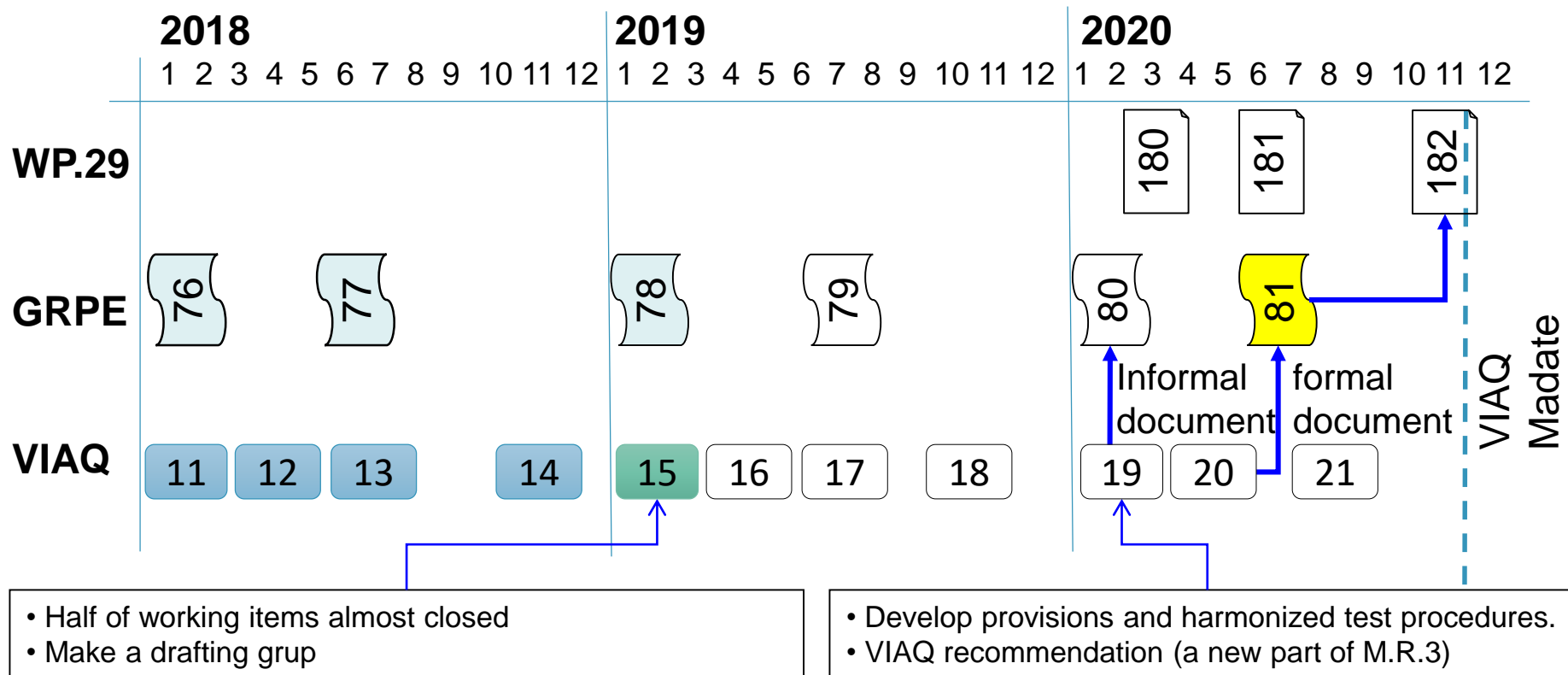
**Concerning Vehicle Interior Air Quality (VIAQ)**

The text reproduced below was adopted on 14 November 2017 by the World Forum for Harmonization of Vehicle Regulations (WP.29) regarding the Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions (1958 Agreement) and on 15 November 2017 by the Executive Committee AC.3 of the Agreement Concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles (1998 Agreement) (ECE/TRANS/WP.29/1118, paras. 99-100 and 101). It is based on document ECE/TRANS/WP.29/2017/136.

## ● Terms of reference

- ✓ Identify and collect the information and research data on interior air quality and its relevance for vehicles, taking into account the activities being carried out by various governments, and non-governmental organizations.
- ✓ Identify and understand the current regulatory requirements with respect to vehicle interior air quality in different markets.
- ✓ Identify, review and assess existing test procedures suitable for the measurement of harmful substance into the vehicle cabin (including test modes, sample collection methods and analysis methods, etc.)
- ✓ Develop provisions and test procedures in a recommendation by including Part 3 in the Mutual Resolution No. 3.

## ● Timeline



- **January 2020:** Submit the draft document to GRPE
- **June 2020:** Adoption of the draft document by GRPE
- **November 2020:** Adoption of the draft document by WP.29

## ➤ **14th VIAQ IWG Meeting**

- Moscow, Russian Federation, November 7-8<sup>th</sup> 2018
- Two days

## ➤ **15th VIAQ IWG Meeting**

- Geneva, Switzerland, January 9<sup>th</sup> 2019
- Half a day

**1.Vehicle Category**

**2.Test Vehicle age/millage**

**3.Substances to be Measured**

**4.Meteorological Conditions**

**5.General Test Conditions**

**6.Test Modes**

**7.HVAC Modes**

**8.Test Procedure**

**9.Measurement Methods**

**10.Sampling Points**

**11.Sampling Method**

**12.Test Protocol**

## 1. Vehicle Category

Agreed Item



# Category 1-1



## 2. Test Vehicle age/millage

Agreed Item

New cars from series production  
Millage  
3 000 -15 000 km





## 3. Substances to be Measured

### Russian Standard

Formaldehyde CH<sub>2</sub>O  
Nitrogen dioxide NO<sub>2</sub>  
Nitrogen oxide NO  
Carbon monoxide CO  
Saturated hydrocarbons (C<sub>2</sub>H<sub>6</sub>...C<sub>7</sub>H<sub>16</sub>)  
Methane CH<sub>4</sub>

### Agreed substances

Carbon monoxide CO  
Nitrogen oxide NO  
Nitrogen dioxide NO<sub>2</sub>  
Formaldehyde CH<sub>2</sub>O



### Korea

Carbon monoxide CO  
Nitrogen oxide NO  
Nitrogen dioxide NO<sub>2</sub>

For discussion  
(see VIAQ-13-04 and VIAQ-14-04)


Particulate matter (PM)

## 4. Meteorological Conditions

- ✓ ambient air temperature:  
from  $-7^{\circ}\text{C}$  to  $+30^{\circ}\text{C}$
- ✓ relative humidity:  
from 30% to 90%
- ✓ atmospheric pressure  
from 84.0 to 108.7 kPa

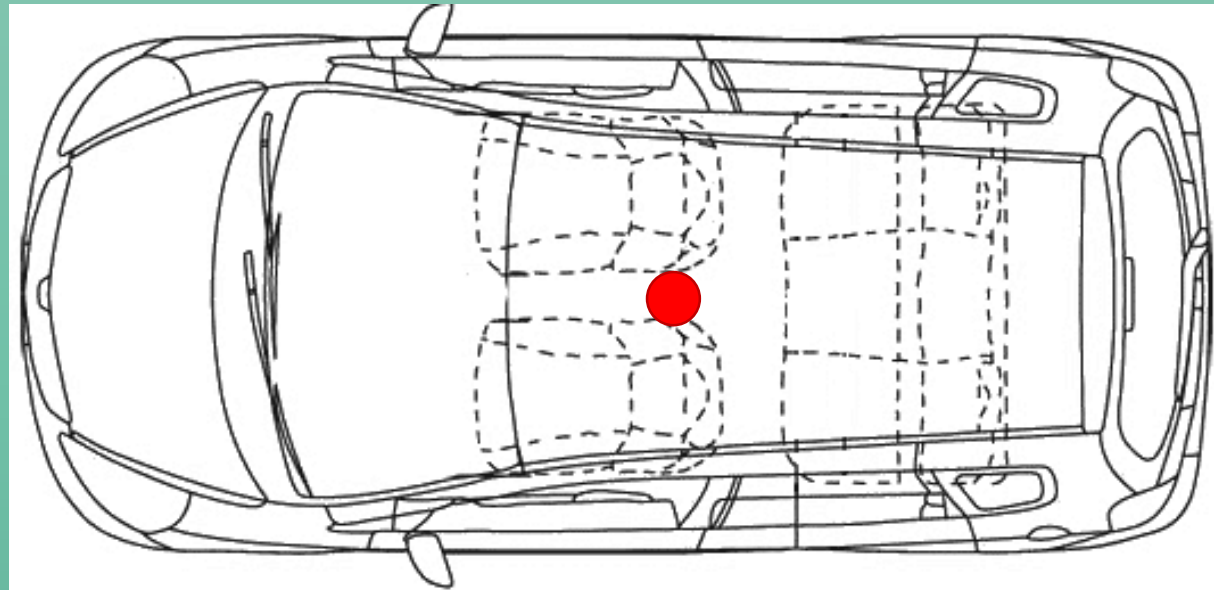


## 5. General Test Conditions

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1. Test road: straight road with the slope up to 6.0%.
  2. No other vehicles with engine running or other sources of air pollution are permitted in the testing zone.
  3. General inspection should be checked before testing.
  4. Windows, doors and ventilation hatches should be closed.
  5. HVAC outside flaps have to be closed.
  6. A/C should be turned off.

## 10. Sampling Points

Agreed Item



The point between headrests of front seats

## Discussion of Idle Test Conditions and Facility

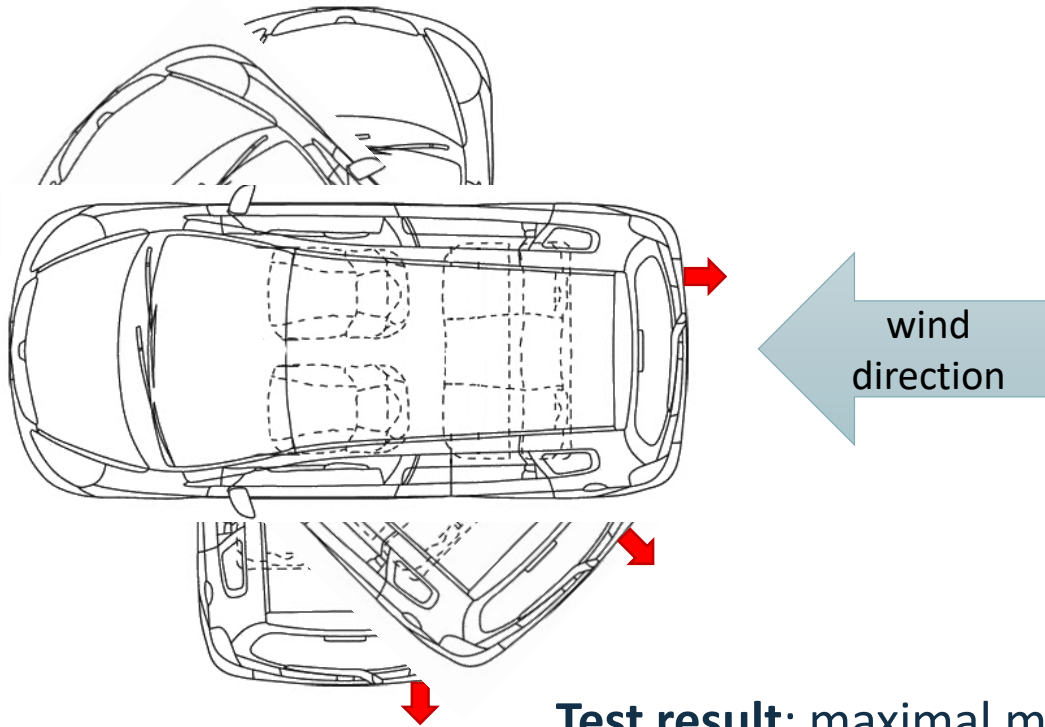
### Test on an open area



- real world conditions
- small test cost



- less accuracy and repeatability



Wind direction	0 deg.	45 deg.	90 deg.
Wind speed, m/s	1-2	3-4	3-4
Ventilation speed	MAX	MAX	MAX
Recirculation	OFF	ON	ON

**Test result:** maximal measured concentration from all measured conditions/HVAC mode

- **16<sup>th</sup> VIAQ IWG Meeting (TBD)**
  - Geneva, 22 May 2019
  - One day
- **17<sup>th</sup> VIAQ IWG Meeting (TBD)**
  - November 2019
  - Two days