Informal document **VIAQ-19-08**

Proposals for 3rd and 4th stages of UN ECE Vehicle Interior Air Quality Informal Working Group activity

Paris, March 9-10th 2020

Third Stage

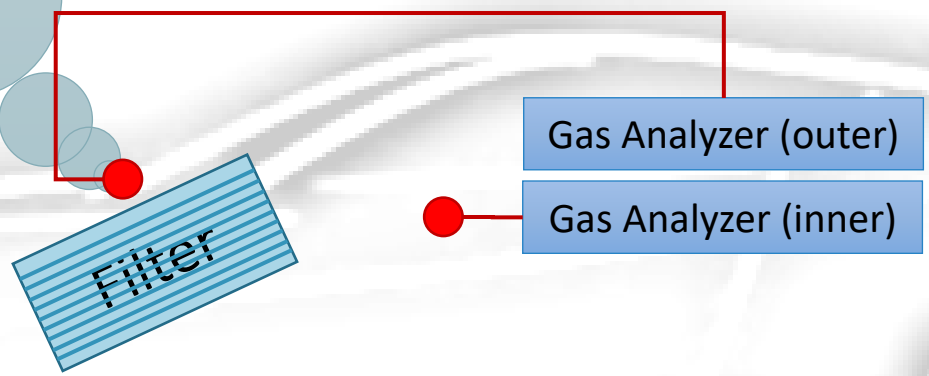
CO
NO, NO_2
CH_2O
O_3
$PM_{2.5}$, PM_{10}
Fine particles

Test type 1: Air cleaning efficiency of particles

Test type 2: Air cleaning efficiency of gaseous components

Test type 3: Air Quality Index (AQI)

$$\eta = \left[1 - \frac{\int_0^\tau C_{in} dt}{\int_0^\tau C_{out} dt}\right] \cdot 100\%$$



Fourth Stage

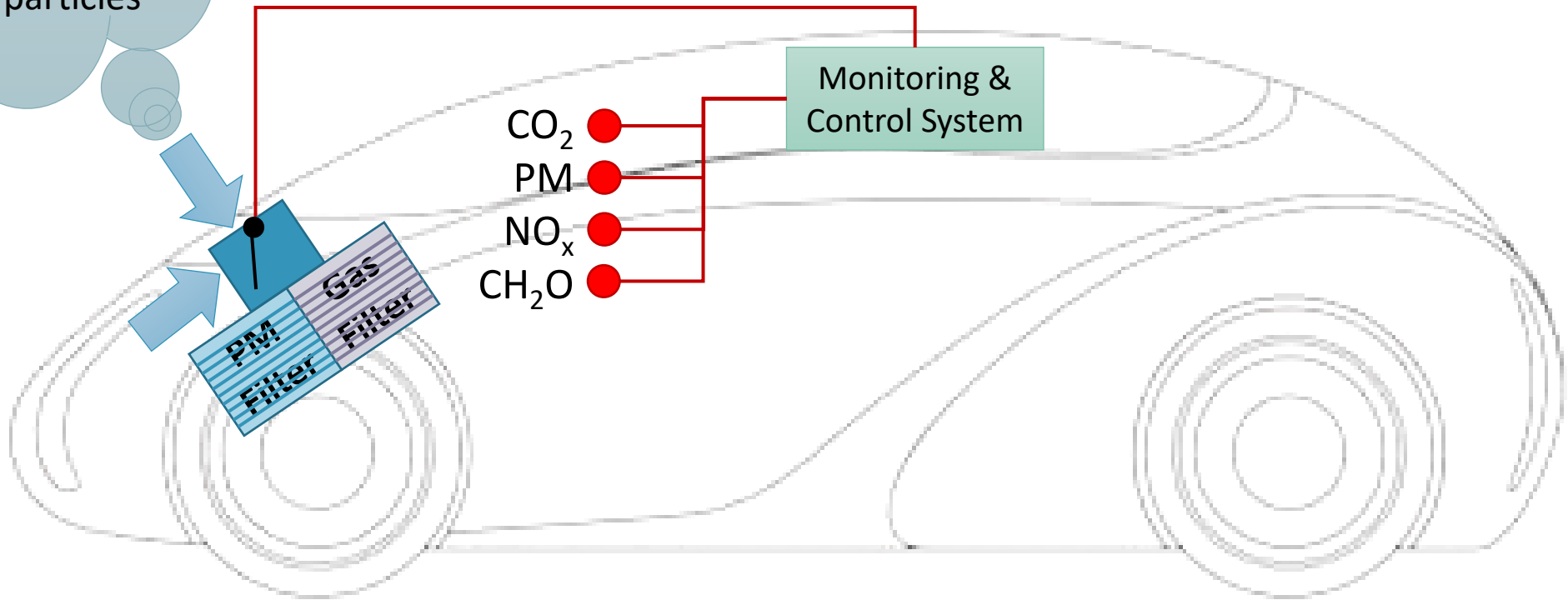
CO
NO, NO_2
CH_2O
O_3
$PM_{2.5}$, PM_{10}
Fine particles

Test type 1: CO_2 concentration control efficiency

Test type 2: PM concentration control efficiency

Test type 3: Gaseous pollutants concentration control efficiency

Control efficiency = System response time

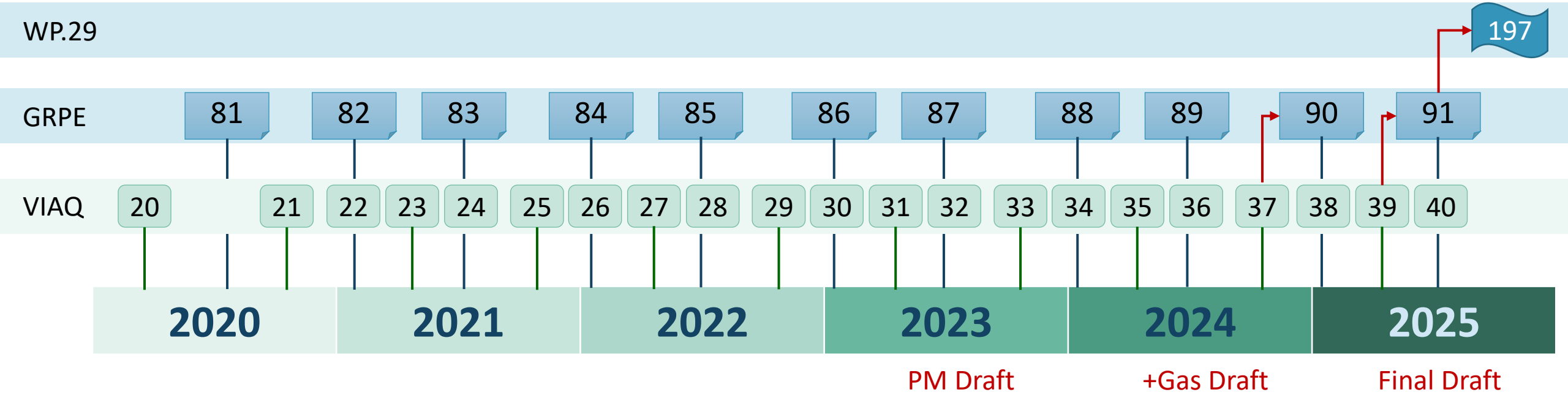


Action plan

Objective: Developing of harmonized methodology for assessing of interior air cleaning efficiency in a complete vehicle

1. Data collection and analysis
   - Concentration of harmful substances in ambient air (in cities, in suburban areas, on highways)
   - Concentration of harmful substances in vehicle interior air depending on driving conditions, external pollution level, HVAC mode etc.)
   - Influence of type of HVAC system and cabin air filter type to interior air quality
2. Analysis of existing test procedures
   - Existing approaches and methodologies
   - Comparison and analysis of results from different test approaches
3. Collection and analysis of test results obtained by VIAQ IWG members
   - For different countries
   - For different driving conditions
   - For different types of HVAC, cabin filters, air cleaning devices
4. Developing of harmonized test procedure for assessing of interior air filtering efficiency in a complete vehicle

Timeline



Data collection → Analysis of existing test procedures → Tests by VIAQ IWG members → **Developing of harmonized test procedure**

Stage 3. Phase 1 | Stage 3. Phase 2