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2017

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PANEL DISCUSSION

Real Driving Emissions (RDE) via Portable Emissions Measurement Systems (PEMS)

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Panel Discussion

WHY SUCH a PANEL at UNIVERSITY of PITESTI?

Groupe Renault & University of Pitesti Cooperation on RDE

Real Driving Emissions (RDE) via Portable Emissions Measurement Systems (PEMS)

Panel Discussion

COMPOSITION of the PANEL

Bruno Tissier – Head of Testing Department, Groupe Renault
Hubert Friedl – Product Manager Gasoline Engines at AVL List, Austria
Marcus Boek – Product Manager PEMS Horiba, Austria
Christoph Menne – Director Vehicle Application, Diesel Powertrain – Europe, FEV Group, Germany
Adrian Clenci – Director of Department Automobiles and Transport, University of Pitesti, Romania
(The host)

Real Driving Emissions (RDE) via Portable Emissions Measurement Systems (PEMS)

Panel Discussion

The Guidelines/Rules

- The host will address questions
- First, the technical experts provide their opinions
- Then, the members of the audience are called to express their views, as well
- Other questions are welcome (from the audience)

Real Driving Emissions (RDE) via Portable Emissions Measurement Systems (PEMS)

Panel Discussion

Questions

Do you think that implementing RDE was a good/useful decision of the regulators?

*I mean do you think that complementing the **usual chassis dyno type approval testing** with **RDE testing** was a good and necessary decision?*

Don't you think that this complicates the industry's life, which already wasn't a simple one being submitted to many regulations…?

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Questions

Another general question: what are the main challenges that come with RDE implementation?

*Or to be more precise, what about the **"repeatability"** of the RDE testing? Could you please develop this particular point?*
I think we can all agree this is one of the most frequent question/remark when discussing about RDE testing…

*Do you think that car manufacturers should perform tests for capturing the **non-repeatability** feature of RDE?*
I mean for instance, with the same driver, the same vehicle, on the same RDE testing track, performing multiple tests in different weather conditions in order to see the extent of the results' cloud…

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Of course, we understand that RDE testing isn't really about ensuring repeatability in the way this is understood on chassis dyno; it's about results obtained in real life, respecting the imposed ***boundary conditions*** *and then, as car manufacturer, I suppose it's about doing everything that's necessary in order* ***not to exceed*** *(**NTE**) the* ***conformity factors*** *(**CF**) imposed by the law. In this context:*

*- would you say that the actual values of CF are too low (i.e. now: **2.1** for NO_x & **1.5** for PN; in 2020: **1.0+0.5** for both, NO_x & PN)?*
- isn't it possible to ***"cheat"*** *the RDE testing by approaching a very smooth driving style (however, still respecting the validation criteria of a RDE testing) or by "validating" a test track in an* ***"easy" city*** *(not really featuring real urban driving conditions) ?*

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It is well known that the type approval process by using WLTC and RDE is about addressing in a detailed way far more operating points of the engine. Thus, the engine which will comply with this far more severe type approval process must be adapted due to the extension of their operating range. For instance, ***mixture enrichment*** *usually performed in high loads and speeds in order to protect the exhaust components against temperature overload will be at issue. Having this in mind:*

- *what is the alternative? if not enrichment, then what?*
- *could you give some examples (if it's not confidential, of course)?*

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I suppose we all agree that the main challenge in controlling the pollutants formation is the control of ***transient emissions****.*

Therefore, are the current usual gas analyzers and PN counter used for RDE purposes able to rapidly capture the emissions peaks in order to be really able to analyze their causes?

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*Is it possible to simulate the RDE testing on **fast engine test beds**, thus, taking advantage of a real repeatable powertrain test environment?*

If yes, did you already do it and what exactly are the benefits?

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I suppose each car manufacturer has learnt many lessons after more than one year of RDE testing.

If it is not confidential for any of you, could you provide us some of the lessons learnt so far.

Moreover, are you able to predict the key areas where problems may occur?
If yes, could you please mention some areas where problems usually occur and how can these problems be avoided?
***NB.** Examples from both gasoline and diesel engines are welcome*

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In the light of RDE testing:

Do you think small diesels for passenger cars can still be an option for passenger car manufacturers? I mean for light duty vehicles…

Do you think ***electrification/hybridization*** *of the classical thermal powered vehicle is the fast answer to comply with the current and future regulations also involving RDE testing?*

What about the internal combustion engine? Are there still ways to improve its energetic and ecologic performance in order to comply with the far more severe regulations of the future?

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*Last but not least (**because CAR2017 is happening in a university**):*

*Taking into account your experiences, how can be improved the transfer of new information (for instance those related to RDE via PEMS) from the **Industry to Academia**?*

Do you think that inviting technical experts from the industry in front of the students and the teaching staff on regular basis, could help bridging the existing gap between industry needs for multi-skilled engineers and the current supply of fresh graduate engineers?