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Update on the PMP Inter-laboratory Exercise

Overview:

The PMP Interlab golden measurement system and car were defined and the delivery of fuel, lube and filters arranged. The first phase of the PMP Interlaboratory Exercise has started successfully in the VELA laboratories in the Joint Research Center in Ispra, Italy with testing from the 9th to the 17th of November 2004. The golden car and system were then delivered to AVL-MTC in Sweden where tests took place in the week from 29th November to 3rd of December 2004.

Lab Participation:

An approximate lab schedule is attached for information below. Please keep in mind that the actual dates for testing will be fixed only shortly before each test, in order to accommodate for delays in the equipment delivery or other unforeseen delays. The JRC will act as bookend for both parts of the PMP Interlab (A and B).

Part	No	Lab:	PMP testing period:
A	1	VELA, JRC, Italy	9 to 17 November
A	2	AVL MTC Sweden	29 November-3 Dec 04
A	3	Ricardo Consulting Engineers UK	Mid January 05
A	4	Lab of Applied Thermodynamics (LAT) Greece	Early February 05
A	5	RWTÜV Germany	Late February 05
A/B	6	VELA, JRC, Italy	March 05
			<i>April- Transfer to Japan</i>
B	7	NTSEL Japan	Early May 05
B	8	National Motor Vehicle Emission Research Lab, Korea	Early June 05
		Interim Report	<i>June 05 –Transfer to Europe</i>
B	9	Shell UK	July 05
B	10	UTAC France	Late July 05
B	11	VELA, JRC, Italy	August-September 05
		Final Report	<i>October-November 05</i>

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PMP Golden Car:

The “golden car” was kindly offered for the programme by the AECC. The car is a Peugeot 407 Saloon 2.0 HDi with FAP particle trap. The particulate emissions measured according to the PMP protocol were significantly less than 0.0025 g/km and the particle numbers measured by the PMP Particle Number protocol were less than 10^{11} per km for the NEDC cycle.

PMP Measurement System:

The “golden measurement system” comprises of the following:

- a modified NanoMET-C (MD19 (rotating disc diluter) and ThCmod (evaporation tube with simple diluter at the outlet)) from Matter Engineering
- two modified 3010 CPCs from TSI (one used as reference, one as “golden”) with their pumps

Apart from these instruments, a modified GRIMM CPC 5.403, which also meets the majority of the required criteria for the particle number counter, is being transported to the labs in order to be tested as part of the alternative measurement systems (depending on lab arrangements). The modified DEKATI fine particle sampler, and other custom built systems will also be tested in some of the labs.

Two URG PM 10 cyclones ($2.5\mu\text{m}$ at 90 l/min) are also being sent around to the labs for use before the number and mass (optionally) systems.

Golden Engineer, Lab Visits:

The DfT has kindly funded the “Golden Engineer” for the PMP. For the European part of the exercise this is Jon Andersson from Ricardo. He will be visiting each European lab twice. His first visit is to support during the set-up phase, while the second is to support and monitor when the actual PMP testing begins. During the start of the testing the PMP interlab manager (Penny Dilara) and a JRC Technician will also visit the labs.

Other :

The CONCAWE kindly gave support to the European part of the programme by providing the lube (25 litres of a fully synthetic, low sulphur (<0.2%), SAE 0W-40 lubricant for each lab) and fuel (200 kg of standard reference low-S, RF06-03 diesel fuel per test) needed for the golden car. For particulate mass measurements, the JRC provided sufficient Pallflex TX40 filters to each lab.

Following Update:

At the GRPE Informal meeting of the PMP Expert Group in the morning of the 11th January 2005 in Geneva