

Minutes of 5/R41WG meeting, Geneva, 06/02/20-21

Attendance:

Italy : Messrs Erario (Chairman), Alburno
Germany : Mr Steven, Ms Schroeder
USA : Mr Feith
JASIC,NTSEL: Messrs Tanaka, Inomata, Yonesawa
IMMA : Messrs Rogers, Tsujimura, Chesnel
ISO : Messrs Segers, Moore
ETRTO : Mr Dimitri
FEMA : Mr Tomlins
MRF : Mr Willard
India : Mr Raju
UK : Mr Greening
EU : Mr Schneider

1. Minutes of 4/R41WG session

Agreed : The Minutes of 4/R41WG session (23-R41WG-05 of 05/09/01)

2. Revision of Reg41 – On Cycle Emissions

Documents: The three presentations from IMMA as follows:

: 02-R41WG-06: “Justification of ISO362-Part2 in terms of exhaust emissions” Presentation

: 02-R41WG-06: “a-WOT remodelled curve” Presentation

: 02-R41WG-06: “the total distance covered in each region during data collection” Presentation

Noted : The revision of the acceleration rate curves had been done by ISO after 4/R41WG.

: These revised acceleration requirements had forced certain higher engine speeds.

: The revised curves had been confirmed with TUV.

: The 2nd ballot of a revised draft ISO362-2 standard amendment including the comments received in an editorial rewrite would be circulated in near future.

: WG16 Chairman had confirmed to EPA that for the type of engine speed mapping covered, there was a direct link between exhaust result and noise emission test because of the rpm levels in both tests.

: EPA asked if the worst noise cases and the emission noise test result correlated.

: TUV did not think so for modern vehicles, since the emission test was on a bench and this methodology was limited in simulating real riding.

: The crucial difference between the current R41 test procedure, which only required the throttle to be opened, and the new proposal which defined a performance requirement (i.e. a certain acceleration).

: The reminder that the proposal would cover all noise sources in a more representative manner

: EPA wanted to know to what extent the new test protocol would be able to alter the real noise frequency signature at the road side.

: IMMA answered that the graph showed that the new protocol would be able to reflect the frequencies on the road better (i.e. the real partial throttle signature).

: The new proposal would make the use of defeat devices significantly more complicated.

: 02-R41WG-06-rev1 had been circulated by the Secretariat to show a revised graph where mistakes in the test track data added to the given curves had been removed.

: WG16 Chairman stated that the test track data points had not been used for constructing the given curves.

: The noise database had been updated and had been circulated in an Excel format to the group.

- : TUV confirmed that the rpm and gear choice in the latest proposal were now good enough
- : The noise source distribution depended on vehicle type and operating conditions (such as load, engine speed, vehicle speed)
- : The higher “kp” factor, the more of the constant speed portion would be included in the Lurban calculation.
- : However, this did not mean that the noise produced under constant speed would be a significant or dominant component of the noise in Lurban.
- : The existing L-urban curve meant that the “kp” factor was over 50% for some motorcycles.
- : TUV explained that, for Germany, a “kp” factor of over 50% was too high, eg for motorcycles above 200 kW/t.
- : Italy replied that a rough calculation gave a maximum value of 30% for the cruise contribution to Lurban when the “kp” factor was of 50%, in the case of a large difference of 10dB between cruise/WOT values.
- : TUV agreed that from the technical point of view this “kp” value was not a concern.
- : IMMA stated that “kp” was not the same as energy contribution to the Lurban calculation.
- : WG16 Chairman explained that in the new protocol, average cruise-by levels for motorcycles were at the same level as WOT for many cars and that WOT was not capped for PTWs, as it was for cars.
- : Japan stated that since this test procedure was the basis for the TA assessment, cars and PTWs should be treated in the same way. The need for a fixed on-cycle method was a prerequisite of any further work. Japan insisted on separating clearly the on-cycle emission procedure from any discussion on ASEP.
- : 4 of the 14 very powerful N2/N3 vehicles from the German sample would require another “reading” than the L urban method (averaging had to much lowered the final overall results for them)
- : Germany reminder that the WOT noise contribution was at the end of more concern than a mix of cruise/WOT noise contributions
- : The tyre contribution to noise for PTWs was not as high as it was for cars where it played a key role both under cruise and under acceleration.
- : USA considered that a 60% contribution of cruise noise to L-urban would be unacceptable to them, because the complaints were mainly from the urban areas and acceleration/deceleration “events”.
- : USA wanted a proposal which could give a real environmental benefit to the General Public.
- : ISO was ready to discuss the administrations’ concern that manufacturers would compensate for a higher WOT value with a lower cruise value
- : FEMA asked Germany and USA if the new data produced by ISO would allow them to accept the new method
- : The confirmation that the main German concerns had been solved.
- : The Kp factor seemed to be a new issue which was not approached at 4/R41WG
- : The Chairman’s reminder that this group was setting the new procedure as step 1 and would then correlate the “standstill” values before discussing the need for lower limits.
- : The reminder that the introduction of the new procedure had some benefit by removing some inconsistencies of the current procedure.
- : Germany reassured R41WG that they still wanted to accept the ISO362-2 procedure as the basis for on-cycle emissions.
- : FEMA’s opinion that representing the actual real in use behaviour of a motorcycle was different from discussing the stringency levels the politicians might want.
The review of the method was the first step
- : The general agreement that there were fundamental difference in the definition of urban and rural environments, depending on the region of the World
- : EPA did not argue against the ISO test procedure itself, but wanted to know if reductions could only come from cruise performance, when limits would go down
- : The reminder that 3 wheelers were not be included in the R41 revision.

- Agreed
- : The group reaffirmed the new proposal as a good basis for the revision of Reg41.
 - : The group agreed that the new proposal covered urban operating conditions appropriately.
 - : The final basic test procedure would need resolution on the “kp” factor issue (i.e. the effect of “kp” on the contribution to the L-urban result).
 - : The TUV and IMMA databases should be consolidated.
 - : Germany would provide the group with a precise formulation of the “kp” problem by mid March.
 - : The verification exercise should be part of the validation test programme for technical consistency and coherence (i.e. combining TA and OCE/ASEP test programmes)
 - : The group would agree a definitive list of vehicles and what to do on each motorcycle as a single package.

3. Off Cycle Emissions (OCE)

- Noted
- : The summary made by the WG42 Chairman as a reply to the Indian request for information on progress with R51:
 - o GRB had authorized the formation of an Informal WG for M1 and N1 vehicles.
 - o 3 proposals were being discussed by this group.
 - o the R51 ASEP group should provide GRB with a performance-based assessment, technology neutral, globally applicable and practical.
 - o The result should be available by September 2006.
 - o A separate issue would be the political
 - o Once the technical assessment of the different ASEP procedures had been made,, there would a political decision on how to use the final agreed method in Reg51.
 - : Germany’s presentation of a revised version of 01-R41WG-06, as the work made for a rural test as basis for an off cycle emission test *(Annex1.ppt)*
 - : The German work had proposed defining a measurement method that represented rural riding behaviour in order to check that PTWs were behaving consistently at higher engine speeds in conditions other than urban.
 - : The German work was initially based on the European part of the WMTC/ISO database.
 - : The transformation into a measurement prescription scheme was based on the 14 TUEV vehicles.
 - : Different types of regression curves had been produced by TUV for average top engine speeds during acceleration phases at the boundaries of urban areas starting at speeds below 50 km/h and ending at speeds between 70 km/h and 100 km/h.
 - : Only motorcycles from EU&US data which had recorded 8 occurrences had been selected.
 - : Japan datapoints were removed since they did not meet the “rural” criteria (made at 60km/h) and the number of datapoints (3) was too low to be statistically representative.
 - : The 2nd gear had been chosen in order to keep a vehicle speed below 100km/h for the test track
 - : Further validation work would be required to confirm the proposed equations
 - : Further work had to be done on CVT vehicles such as scooters (i.e. were the engine speeds in the range made for the manual transmissions vehicles?) because TUV did not have data on this
 - : TUV said that from the technical standpoint this additional test would be not necessary for low-powered vehicles.
 - : For low powered vehicles, relatively speaking, the engine would contribute more to the noise result than the type of exhaust system.
 - : Germany was considering including this new test as a mandatory part of the TA process.
 - : EPA said that if the ISO362-2 was adequate, there should be no need for a 2nd test.
 - : EPA reminder that they were looking for a test that would help detect the more aggressive situations.
 - : EPA’s question of any potential for extrapolation between urban noise results at 50km/h

and results at 100km/h.

- : The reply was there was no possible reliable extrapolation.
- : EPA wanted to gain more than an interesting technical assessment.
- : The current SAE test used by EPA was design-based instead of being performance-based.
- : FEMA asked the USA to assess the extent to which US people were exposed to noise.
- : The EU representative confirmed the interest of EU for covering the question of rural areas.
- : The enforcement question of having test results being used as a legal proof in court could not be approached equally between the different regions of the world.
- : The definition of a rural environment was too region-dependent meaning that any off-cycle test should be viewed as a provision for checking the motorcycle's overall performance instead of a rural test.
- : The IMMA SG reminded the group that the industry did not think it was necessary to have a rural test as such. An ASEP (or any provision dealing with test cycle detection) might help cure the German problem in rural areas but this would be a bonus
- : The industry belief that a well constructed motorcycle with "linear" performance would not require an ASEP test.
- : USA and Germany stated that their final agreement to a revision of the on-cycle emission TA test would be conditional on seeing an ASEP test being part of the amendment package

Agreed

- : To separate the discussion item about on-cycle emission TA test from the OCE/ASEP discussion.
- : Germany would provide the group with a refined version of their proposal, to cover CVTs as well, by mid March.
- : The recognition that more results were needed on OCE/ASEP

4. The roadside enforcement testing

Noted

- : Germany and BAST had done some extensive study.
- : This study had shown that some TA approved RESS were illegal.
- : Germany stated that some RESS without load on the engine had managed to be within the tolerance of the current stationary testing.
- : Germany was looking for a simplified "pass by" test to be performed on an ordinary road. by the police.
- : The Chairman asked Germany to make that study available in English for the group
- : The reminder that there was no direct relation between the drive-by test and the roadside procedure.
- : The on-going difficulty of generating data that court would accept.
The bottom line was to establish an enforcement procedure that could stand up in the court.
- : EPA stated that treating illegal exhaust systems would reduce noise impact.
- : IMMA's reminder that the technical aspect of enforcement was not the real problem but the administrative applicability of the law. Type approval of replacement exhaust systems would help cure most of the problems mentioned by Germany.
- : FEMA would support a fair and effective road side test.
- : FEMA stated that the rider's perception about the way he would be treated by the process would be important and required a clear set of rules.
- : FEMA added that the rider should understand what the requirements were.
- : FEMA mentioned that some riders had been arrested before any testing in the USA.
- : FEMA said that in an international context, the legal operability of any solution would end up as a national question anyway.
- : Italy added that actual police enforcement activity was at least as crucial as any technical test procedure.
Creating new regulations would not work if they were not properly enforced.

- : Italy asked EPA to express how many vehicles had been stopped for noise checking.
- : USA replied that any information on enforcement activity would be difficult to obtain
- : EPA considered a visual label inspection as a possibility for improving enforcement at a low cost.
- : USA had been able to capture the illegal truck vehicles on the road by a measure of “not-to-exceed” noise as they went past on the road
- : 50’000 truck vehicles had been measured that way and 5% had been in violation.
- : EPA confirmed that the real core problem was illegal exhaust systems and straight pipes.
- : The IMMA presentation on different methods of enforcement and engine speed detection methods
- : Japan’s interest in a standardized coupler for measuring engine speed and the sweeping rpm test method.
- : Japan was currently carrying out a study on enforcement methods.
- : Japan confirmed that ISO5130 was adopted in their country but wanted to improve it.
- : The reminder that the ISO5130 was a single point measurement method.
- : EPA asked if there was any information on using a magnetic vibration device on the exhaust system to measure pulses.
- : The answer that a special preparation would be required for the accelerometer in order to protect it from the exhaust’s temperature. Any magnetic method should be attached to the vehicle itself and not to the pipe.
- : EPA statement that only one method for measuring engine speed would be accepted in Federal law.
- : EPA asked if vehicle speed could be used as a surrogate for rpm.
- : IMMA reminded the group that UK had had a “noise trap” philosophy in the past which had not been practicable on the road side for small and fast vehicles such as PTWs.
- : EPA would make careful consideration of the proposals made by IMMA
- : EPA said that the research by the State of California into a stationary test turned out to be a research item for what was permitted into natural parks for off-road motorcycles.
- Agreed : The administration of the enforcement was a very important element to consider
- : Engine speed detection should be the number one focus item.
- : Germany would provide the group with an outline of the BASt study.
- : UK would provide the group with the study on in-use testing made by TRL in the 90s.
- : Japan would communicate the outcome of their study on stationary noise methods to the group.
- : The group would consider stationary, drive-by at roadside and “noise trap” methods and visual inspections as open options for the time being.

6. Graph presented by India

- Noted : The test results presented by India (Annex2.xls)
- : Their results stated that there was an average 3dB difference amongst vehicles in the low PMR range.
- : India’s question on how to convince authorities that the new method was better with that sort of average difference.
- Agreed : India would provide the group with the data used behind the presented graph (Annex3.xls)
- : The database would be consolidated with ISO/German data if possible.

7. Next steps

- Agreed : A combined test programme from late spring onwards for the validation of the on-cycle method and the verification of the proposed OCE/ASEP test (practicability).
- : Germany would send details of the draft test programme to the Secretariat for circulation.
- : TUV’s proposal to share any internal results based on their latest ASEP proposal they

might be able to generate.

: Group members would make their inputs by 06/04/01 on:

- The overall draft test programme
- The test protocol including the standardized format of what could be measured
- The vehicle fleet selection/access to the vehicles

: The group would agree on these 3 items at the next meeting.

: The outcome of a final test programme would answer what the group would be able to test and what could be avoided.

: Road side enforcement would be discussed at the next meeting

8. Future meeting

Agreed : The provisional date of 06/04/24 would be confirmed once the documents had been received

: The reminder that comments in writing should be received one month in advance.

9. Thanks to the host

Agreed: The Chairman's thanks to ISO for their hospitality and for hosting the first half day meeting.

Philippe C. Chesnel