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### ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Construction of Vehicles

Working Party on Noise (GRB)

#### REPORT OF THE WORKING PARTY ON NOISE (GRB) ON ITS THIRTIETH SESSION

(22-25 February 1999)

1. GRB held its thirtieth session from 22 (afternoon) to 24 (morning only) February 1999 under the chairmanship of Mr. H. Löffelholz (Germany). Experts from the following countries participated in the work: Czech Republic; France; Germany; Hungary; Italy; Netherlands; Poland; Russian Federation; Slovakia; Spain; Sweden; Switzerland; United Kingdom; United States of America. Representatives of the European Commission (EC) participated. Representatives of Japan took part in the session under paragraph 11 of the Commission's Terms of Reference. Experts from the following non-governmental organizations took part in the session: International Organization for Standardization (ISO); International Organization of Motor Vehicle Manufacturers (OICA); International Motorcycle Manufacturers Association (IMMA); European Tyre and Rim Technical Organization (ETRTO).

2. The documents without a symbol distributed during the session are listed in annex 1 to this report.

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TYRE-ROAD NOISE LIMITATION

(a) Regulation No. 30 (Pneumatic tyres)

Documentation: TRANS/WP.29/GRB/R.140/Rev.1; TRANS/WP.29/GRB/R.144 and Add.1; TRANS/WP.29/GRB/1998/3; TRANS/WP.29/GRB/1998/8; informal documents Nos. 1, 5,

6 and 9 of annex 1 to this report.

3. See para. 4 below

(b) Regulation No. 54 (Pneumatic tyres for commercial vehicles)

Documentation: TRANS/WP.29/GRB/R.141/Rev.1; TRANS/WP.29/GRB/R.144 and Add.1; TRANS/WP.29/GRB/1998/3; TRANS/WP.29/GRB/1998/9; TRANS/WP.29/GRB/1999/2; informal documents Nos. 1, 3, 5, 7 and 9 of annex 1 to this report.

4. The expert from ETRTO recalled the opinion of his organization that the tyre/road noise would best be addressed by a separate new Regulation instead of amending the existing Regulations Nos. 30 and 54 (TRANS/WP.29/GRB/1998/3). In particular, he said that without a separate Regulation it would be difficult to clearly show whether a prescription referred to safety or noise matters and to distinguish definitions relating to noise from those relating to safety. On the contrary, with a separate Regulation it would be possible to clearly define a type, size and range of tyres with respect to noise and to clarify the administrative procedures concerning granting of type approval.

5. The clear majority of delegations agreed to have a separate Regulation based on the proposal made by ETRTO (TRANS/WP.29/GRB/R.144 and Add.1). The experts from Germany, Sweden and the United Kingdom said that they would have preferred to amend Regulations Nos. 30 and 54, but accepted to follow the majority. The expert from OICA expressed the preference of his organization for having simplified administrative procedures and achieving harmonized prescriptions between the EC and the ECE. GRB finally endorsed the majority decision to have a draft separate Regulation based on the ETRTO proposal.

6. The expert from the ETRTO introduced his informal document No. 1, which consolidated the prescriptions of documents TRANS/WP.29/GRB/R.144 and Add.1. He explained that additional amendments had been added in order to make the test method for tyre/road sound levels (Annex 9 - Appendix 1 of document TRANS/WP.29/GRB/R.141/Rev.1), applicable to tyres approved according to Regulations Nos. 30 and 54. He also said that the contents of his proposal had been aligned to those of the corresponding draft EC Directive.

7. In this respect, the expert from the European Community informed GRB that the European Parliament had completed its first reading of the "Proposal for a European Parliament and Council Directive amending Council Directive 92/23/EEC relating to tyres for motor vehicles and their trailers and to their fittings", which contained in Annex 5 prescriptions concerning Tyre/Road noise emissions, and that progress was expected to be made in the forthcoming discussions in the EU Council.

8. Additional information was given by the Chairman, who said that the German presidency of the EU (first semester of 1999) intended to reach an agreement on the technical prescriptions (e.g., test method and test surface) and on noise limits as the second step. He also expressed his view that GRB was the appropriate forum to achieve wider technical harmonization and that he wished to transmit the results of the work made in GRB to the EU Council.

9. In the discussion which followed, GRB considered in detail and agreed, with some amendments, the text of technical annexes concerning the test method and the test site (see annex 3 to this report). However, for certain prescriptions (e.g. temperature corrections and test report) no final decision was taken. GRB noted the intention of the Chairman to transmit the results achieved concerning the test method and the test site to the EU Council.

10. The expert from France recalled that, in the future, new types of commercial vehicle tyres having a much wider cross-section would be put on the

market in order to replace those intended for dual mounting (twinning). He presented a proposal to modify the test method for measuring the tyre/road noise level in order to allow a different form of mounting these tyres on a test vehicle (TRANS/WP.29/GRB/1999/2). He said that such amendment would avoid the risk of exceeding the permissible maximum mass on the front axle as well as difficulties of mounting very wide tyres on the front axle, resulting in a large increase in the turning radius and a poor manoeuvrability of the vehicle.

11. Referring to the proposal made by the expert from France for wide section tyres (see para. 10.), the expert from Japan suggested to delete the reference to the load capacity index (LI) and to consider a deduction, estimated to 3 dB(A), from the measured noise level in order to eliminate the influence of tyres mounted on the front axle (informal document No. 3). He said that research on this matter was under way and that the relevant results would be presented to GRB as soon as available. In the absence of sufficient experience on wide section tyres, GRB agreed not to include the proposed specifications in the first stage of the draft Regulation and to defer consideration of this subject to the next sessions. The secretariat was requested to produce an official document, based on the Japanese proposal.

12. The expert from the Netherlands introduced informal document No. 9, relating to tyre/road noise limits, which had been proposed in the draft EC Directive. He said that only a small percentage of the tyres currently available on the market would not comply with the proposed limit values. With particular regard to the proposal to take account of instrument inaccuracies by reducing by 1 dB(A) the measurement result and rounding it to the lowest integer, he said that such measure would only mean a "de facto" raising of limit values. Therefore, he suggested that tightening of the system of limit values and evaluation procedure would be needed, and suggested that GRB should not follow what had been proposed in the EC.

13. The expert from the United States of America supported the suggestion made by the expert from the Netherlands and proposed not to allow the rounding of measurement results. The expert from ETRTO pointed out that Regulation No. 51 allowed both reduction and rounding of noise measurement, and said that also tyre/road noise measurement should utilize the same procedure.

14. The Chairman reminded GRB that noise limits represent a political question that would be discussed and agreed in the European Parliament. Therefore, he suggested not to take any decision regarding prescriptions on noise limits and test results corrections and to await the decision of the EU.

15. With regard to the test surface characteristics, the expert from ISO gave a presentation concerning an investigation made on 14 different sites. He said that different values of the absorption coefficient had been found and that the surface maintenance was important to keep unaltered its sound performances.

16. The expert from the Netherlands requested ISO to revise the specifications of the test surface ISO:10844:1994 in order to reduce the spread among the test tracks, and to study the possibility to define a new surface with an improved representativeness.

17. GRB had also a first reading of the ETRTO proposal (informal document No. 1) concerning the scope, the definitions, the specifications and the administrative provisions of the new draft Regulation on tyre/road noise. In this respect, some amendments concerning type definition and approval principles were suggested by the expert from the United Kingdom (informal

document No. 5). The amendments agreed are incorporated in annex 3 to this report.

18. Informal documents Nos. 6 and 7, prepared by the expert from Germany were withdrawn from discussion since they had been drafted with reference to Regulations Nos. 30 and 54, in case GRB would have decided to amend them, instead of having a separate Regulation.

19. GRB agreed to resume the subject of tyre/road noise at its next session and requested the secretariat to prepare a consolidated working document incorporating the texts of Annexes 3 and 4 of informal document No. 1, as amended during the session.

#### AMENDMENTS TO REGULATION No. 51 (Noise of M and N categories of vehicles)

Documentation: Informal documents Nos. 4, 11 and 13 of annex 1 to this report.

20. Informal document No. 11 concerning the development of an urban driving cycle to be used for noise measurement was presented by the expert from ISO. He recalled that, within the framework of SC1/TC 41, a Working Group (WG 42) had been established in order to revise the ISO 362 test procedure. He reported that ISO would look to both European and Japanese information, that work was in progress, and that the target was to have a testing cycle representative of actual driving and of all vehicles, independent of the vehicle design. He foresaw that a draft proposal should be ready for the period 2001-2003.

21. During the presentation, the expert from ISO pointed out that the current testing procedure, based on the ISO 362 standard, reproduced more aggressive driving conditions than those observed in reality, and that actual urban driving had a range of accelerations which varied with traffic flow and driver's behaviour. He also said that very similar acceleration rates had been found worldwide. In concluding his presentation, he invited all the delegations to provide possible comments to WG 42.

22. The expert from Italy reviewed the progress made during the last 10 years in noise limitation. He noted that, while type approval limits had been reduced by 8 dB(A), the traffic flow noise level had achieved an average reduction by 1 dB(A) only. Therefore, he suggested that an urban driving test should better reproduce the real driving conditions.

23. The expert from the United States of America said that the new testing cycle should better assess the impact of noise traffic flow on communities and that GRB should look at improving the quality of life of people. He added that the results of surveys made on animals, human beings and even plants had showed the negative effects on health caused by the increasing level of noise expressed in terms of Leq(24) (Noise equivalent level averaged on 24 hours). He also pointed out that, although strict noise limits were established by Regulation No. 51, the reduction of average noise level produced by traffic flow was not satisfactory. He concluded by saying that any new testing procedure should also take into account "aggressive driving" and be based on the "worst case" conditions.

24. The expert from Sweden recommended not to abandon the "worst test criteria" and to develop a test cycle which should as close as possible be parallel to the real driving conditions and be safe against cycle by-passing and beating.

25. The expert from the Netherlands said that the contribution by tyre/road noise was increased during the coast-by test. The expert from the United Kingdom recalled good results achieved by noise Regulations in reducing noise impacts in certain areas. He hoped that a new test procedure could also correctly evaluate the disturbance on communities.

26. The expert from OICA reminded GRB that the testing procedure based on the ISO 362 standard had been working very well for many years and had contributed to reducing the noise emission of passenger cars as well as of commercial vehicles. He added that, with the present procedure, it would be difficult to achieve further limit reductions and that new noise limits should be agreed only after establishing the new testing procedure. He finally announced that the European Vehicle Manufacturer Association (ACEA) was also studying a new testing procedure, and that first results would be presented at the next meeting of ISO WG 42 scheduled for September 1999.

27. The expert from Japan recalled the study of pass-by noise testing methods incorporating urban driving conditions, which had been introduced at the previous GRB sessions, and presented updated results (informal document No. 4). He said that studies had been focused on the actual driving of continuous variable transmission (CVT) vehicles and on measurement employing the ISO 362, TÜV and Japanese urban mode procedures, and that the following results had been obtained:

- (i) the Japanese urban mode test procedure is also applicable to CVT vehicles;
- (ii) ISO 362 procedures deviate considerably from the actual urban driving since the relevant engine speed and sound pressure level exceed those recorded in the Japanese traffic and reproduced in the urban mode procedure;
- (iii) compared to ISO 362, the TÜV procedure does not satisfactorily represent the actual urban driving conditions;
- (iv) noise measurements carried out according to an improved TÜV procedure proposed by Japan and based on less aggressive acceleration rates, gave engine speeds and sound pressure levels close to the Japanese urban mode procedure.

GRB thanked the expert from Japan for his presentation. It was agreed that the results of noise testing procedure were affected by the vehicle acceleration rate and, consequently, by the different exit speed, which could vary in a range of about 50 per cent.

28. The expert from Germany presented additional results of an ongoing investigation on improving the method of noise measurement for motor vehicles (informal document No. 13). He said that a comparison between modes of operation in the present measuring method and in the reality had been made, with the aim to develop two separate testing procedures for passenger cars, and commercial vehicles. He said that the study had shown the influence of the power-to-weight ratio on the acceleration values and on the final speed and that the speed range was representative of the real conditions, at least for the entry speed, while for final speed a good correlation had been achieved only for vehicles tested in third gear. With regard to the acceleration rates, he said that in some cases the values attained had exceeded those recorded in the real operation with an aggressive driving style. He added that the standardized final engine speed was well below the peak values for real traffic. He concluded his presentation by showing the

difference between noise level measured in realistic driving conditions and during the testing procedure.

29. GRB agreed to continue the consideration of this matter at its next session and requested the expert from Germany to present the final version of his report.

AMENDMENTS TO REGULATION No. 59 (Replacement silencing systems)

Documentation: TRANS/WP.29/GRB/1998/10.

30. The expert from Poland recalled his proposal for incorporating into paragraph 1 of the Regulation a reference to Regulation No. 103 (TRANS/WP.29/1998/10). He said that the above proposal would ensure that, if the replacement silencing systems comprised also a catalytic converter, the latter would be approved according to Regulation No. 103.

31. In order to better clarify his proposal, the expert from Poland suggested the following wording of footnote 1/ to paragraph 1 of the Regulation:

"1/ If such replacement silencing system comprises catalytic converter(s), the latter shall be type-approved according to Regulation No. 103 only."

32. Since an agreement of the experts concerning the above proposal had not been reached, GRB agreed to continue the consideration of this matter at the next session.

#### AMENDMENTS TO REGULATION No. 63 (Noise of mopeds)

Documentation: TRANS/WP.29/GRB/1998/11.

33. The secretariat informed the participants that a section of the proposal from Belarus (TRANS/WP.29/1998/11) had been adopted by GRB (TRANS/WP.29/GRB/27, paras. 30 and 31 ) while it had been requested to ask the experts from Belarus to provide GRB with more detailed explanations concerning the remaining part of the proposal. In this respect, the secretariat informed GRB that no further information had been provided by Belarus so far.

34. GRB agreed to defer the final decision on this subject to its next session, and reiterated its request to the secretariat to ask again the experts from Belarus to provide GRB with more detailed explanations of the sections of the proposal which were not clear.

#### AMENDMENTS TO REGULATION NO. 41 (Noise of motor cycles)

Documentation: TRANS/WP.29/GRB/1998/14; informal document No. 10 of annex 1 to this report.

35. The expert from IMMA gave a detailed presentation of document TRANS/WP.29/GRB/1998/14 proposing to align Regulation No. 41 with corresponding EC Directive 97/24/EC. He pointed out the comments received from the expert from the United Kingdom suggesting some amendments to the original proposal.

36. He also proposed a revised text of transitional provisions (see informal document No. 10) taking account of the date of entry into force of the proposed amendment to Regulation No. 41, foreseen after the originally proposed date of 17 June 1999, corresponding to EC Directive 97/24/EC.

37. With regard to transitional provisions, the expert from IMMA noted that the relevant prescriptions contained in the last amendments to Regulation No. 9 (TRANS/WP.29/611) and to Regulation No. 63 (TRANS/WP.29/629) also needed to be corrected since, in both cases, the date of 17 June 1999 should read 17 June 2003.

38. GRB adopted the proposal by IMMA with some amendments (see annex 2 of this report), mainly concerning the transitional provisions. It requested the secretariat to transmit the adopted proposal to the Working Party and to the Administrative Committee AC.1 for consideration at its twelfth session (June 1999). The secretariat was also requested to submit a proposal for a corrigendum to Regulations Nos. 9 and 63, in order to correct the transitional provisions (see para. 37 above).

EXCHANGE OF INFORMATION ON NATIONAL AND INTERNATIONAL  
REQUIREMENTS ON NOISE LEVELS

Documentation: Informal document No. 8 of annex 1 to this report.

39. The expert from the Russian Federation informed GRB about noise standards applied in his country (informal document No. 8). He said that a procedure for measuring internal noise had been set up (GOST 27435 "Internal Noise of Vehicles") on the basis of the prescriptions of ISO Standard No. 5128 and Annex 8 of the Consolidated Resolution on the Construction of Vehicles (R.E.3.), and that noise limits had been established for each vehicle category. He also mentioned standard GOST 50574, concerning the noise emitted by special sound alarm devices, and a draft standard on acoustic inspection during the vehicle operation, based on noise level measurement method at 0.5 m distance from the exhaust pipe outlet.

40. The expert from the United States of America considered the internal noise limit values presented by the expert from the Russian Federation excessively high and wished for their reduction.

OTHER BUSINESS

(a) Traffic noise modelling

Documentation: Informal document No. 12 of annex 1 to this report.

41. The expert from ISO informed GRB that the Federal Highway Administration (FHWA) was developing a Traffic Noise Model (FHWA TNM). He said that TNM, in comparison to the previous versions, would have increased capabilities and scientifically-founded acoustic algorithms which would allow to model constant- and interrupted-flow traffic, attenuation over/through building rows and vegetation, multiple diffractions, parallel barrier analysis, and contour analysis. He also gave information on the accuracy of the above model and on distribution, training and phase-in of TNM.

(b) Noise generated by airbag deployment

Documentation: Informal document No. 2 of annex 1 to this report.

42. The expert from Switzerland informed GRB about the results of some investigations concerning hearing damage caused by airbag deployment (informal document No. 2). He said that measures needed to be taken to reduce the risk of such damage and to develop new airbag systems that would be less harmful to people's hearing.

43. The expert from ISO said that the above matter was being studied in a proper group (ISO TC 22 SC10/WG3), and that more information would be available as soon as a technical report was issued. He added that, among the different areas of investigation, the experts should consider the additional noise pressure caused by the deployment of more airbags at the same time.

44. The Chairman committed himself to inform AC.2 and WP.29 on this matter, in order to know whether GRB or GRSP should become responsible for this subject.

AGENDA FOR THE NEXT SESSION



45. The following agenda was agreed for the thirty-first session, scheduled to be held in Geneva on 16 (9.30 h) and 17 (17.30 h) September 1999 1/:
1. Tyre-road noise
  2. Amendments to Regulation No. 51 (Noise of M and N categories of vehicles)
  3. Amendment to Regulation No. 59 (Replacement silencing systems)
  4. Amendments to Regulation No. 63 (Noise of mopeds)
  5. Exchange of information on national and international requirements on noise levels 2/
  6. Other business
    - 6.1. Traffic noise modelling

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- 1/ As part of the secretariat's efforts to reduce expenditure, all the official documents distributed prior to the session by mail will not be available in the conference room for distribution to session participants. Delegates are kindly requested to bring their copies of documents to the meeting.
- 2/ Delegations are invited to submit brief statements on the latest status in national requirements (if applicable) and, if necessary, to supplement this information orally.

Annex 1

LIST OF INFORMAL DOCUMENTS DISTRIBUTED WITHOUT A SYMBOL DURING THE SESSION

No.	Transmitted by	Agenda item	Language	Title
1.	ETRTO	1.1. 1.2.	E	Proposal for a Draft Regulation: Uniform Provisions Concerning the Approval of Tyres With Regard to Rolling Sound Emissions
2.	Switzerland	2.	E	Hearing Damage Caused by Airbags
3.	Japan	1.2.	E	Proposal for Additional Draft Amendment to Regulation No. 54 in Relation to Provisions Limiting the Noise Generated by Rolling Tyres - (Document TRANS/WP.29/GRB/1999/2)
4.	Japan	2.	E	Study on Pass-by Noise Testing Methods Incorporating Urban Driving Conditions

5.	United Kingdom	1.1. 1.2.	E	UK Proposals for an Alternative Approach to "Type" and Approval Principles
6.	Germany	1.1.	E	Proposal for Draft Amendments to Regulation No. 30 (Addendum 1 to document TRANS/WP.29/GRB/R.140/Rev.1)
7.	Germany	1.2.	E	Proposal for Draft Amendments to Regulation No. 54 (Addendum 1 to Document TRANS/WP.29/GRB/R.141/Rev.1)
8.	Russian Federation	6.	E	Information on the Standards on Noise Applied in the Russian Federation
9.	Netherlands	1.1. 1.2.	E	Advice Concerning the Dutch Position with Respect to the "Danish Comments on the Amendment of Directive 92/23/EEC"
10.	IMMA	5.	E	Proposal for Draft 03 Series of Amendments to Regulation No. 41
11.	ISO	2.	E	Urban Driving Cycle
12.	ISO	7.1.	E	Federal Highway Administration Traffic Noise Model Update
13.	Germany	2.	E	Proposal for a Concept for an Improved Noise Measurement Method for Powered Vehicles

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Annex 2

AMENDMENTS TO THE PROPOSAL FOR DRAFT 03 SERIES OF AMENDMENTS  
TO REGULATION No. 41, ADOPTED BY GRB  
(Document TRANS/WP.29/GRB/1998/14)

Paragraph 2.4., amend to read:

"2.4. "exhaust or silencing systems of different types" means systems....."

The wording "Insert new paragraphs 4.1.4 and 4.1.5, to read" should be replaced by:

"Paragraphs 4.1.4. and 4.1.5., amend to read":

Paragraph 5.4.1., amend to read:

"2/ 1 for Germany, ....., 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30 (vacant), 31 for Bosnia and Herzegovina, 32-36 (vacant), 37 for Turkey, 38-39 (vacant) 40 for The former Yugoslav Republic of Macedonia, 41 (vacant), 42 for the European Community (Approvals are granted by its Member States using their respective ECE symbol) and 43 for Japan. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify the Agreement Concerning the Adoption for 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 Approval Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

Paragraph 12., amend to read :

"12. TRANSITIONAL PROVISIONS

- 12.1. As from the official date of entry into force of the 03 series of amendments, no Contracting Parties applying this Regulation shall refuse to grant ECE approval under this Regulation as amended by the 03 series of amendments.
- 12.2. As from the date of entry into force of the 03 series of amendments, Contracting Parties applying this Regulation shall grant ECE approvals only if the motorcycle-type to be approved meets the requirements of this Regulation as amended by the 03 series of amendments.
- 12.3. Contracting Parties applying this Regulation shall not refuse to grant extensions of approval in accordance with the preceding series of amendments to this Regulation.

- 12.4. Contracting Parties applying this Regulation shall continue to grant approvals to those types of motorcycles which conform to the requirements of this Regulation as amended by the preceding series of amendments until the entry into force of the 03 series of amendments.
- 12.5. ECE approvals granted under this Regulation before the entry into force of the 03 series of amendments and all extensions of such approvals, including those granted subsequently under a preceding series of amendments to this Regulation, shall remain valid indefinitely. When the motorcycle type approved under the preceding series of amendments meets the requirements of this Regulation as amended by the 03 series of amendments, the Contracting Party which granted the approval shall so notify the other Contracting Parties applying this Regulation.
- 12.6. No Contracting Party applying this Regulation shall refuse national type approval of a motorcycle type approved under the 03 series of amendments to this Regulation or meeting the requirements thereof.
- 12.7. As from 17 June 2003 Contracting Parties applying this Regulation may refuse first national registration (first entry into service) of a motorcycle which does not meet the requirements of the 03 series of amendments to this Regulation."

Annex 3 - Appendix,

In figure 2 relating to measurements to be taken for each exhaust outlets, the relevant distance should read "> 0.3 m" instead of "≤ 0.3"

Annex 4,

Paragraph 4.2., amend to read:

".....ISO 10534:1994 "Acoustics ....."

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Annex 3

PROPOSAL FOR A NEW DRAFT REGULATION: UNIFORM PROVISIONS CONCERNING THE  
APPROVAL OF TYRES WITH REGARD TO ROLLING SOUND EMISSIONS,  
AGREED BY GRB

(Amendments to the text of informal document No. 1 which had consolidated  
documents TRANS/WP.29/GRB/R.144 and Add.1)

Paragraph 1.1.1. , mark in square brackets, for later reconsideration.

Paragraph 1.1.6., amend to read:

"1.1.6. Tyres with additional devices to improve traction  
properties (e.g. studded tyres)."

Paragraph 2., amend to read:

"2. Definitions "

Paragraph 2.1. , amend to read:

"..... - the category of use  
- [the tyre/road noise emission characteristics]"

Add a new paragraph 2.6., to read:

"2.6. For the purpose of this Regulation, in addition to the definitions  
contained in ECE Regulations Nos. 30 and 54, the following  
definitions apply, with the exception of the definitions mentioned  
above."

Annex 3. , insert the text of Annex 9 - Appendix 1 of document  
TRANS/WP.29/GRB/R.141/Rev.1 and amend to read:

Paragraph 0., add at the end the following text:

"..... during acceleration under power or deceleration during braking."  
and delete the "Note by the secretariat".

Paragraph 1.1.1. , amend to read:

"..... according to IEC 60942:1988....."

Paragraph 1.1.2. , amend to read:

"... the instrumentation system with the requirements of IEC  
60651:1979/A1:1993, second edition ....."

Paragraph 1.3.2., amend to read:

"... where the temperature measured is representative of the  
temperature..."

Paragraph 1.3.2. (French only), correct to read:

"... d'un diamètre  $\geq 0.1$  m."

Paragraph 2.1., amend to read:

"..... and clean for all measurements. The test surface shall not be artificially cooled during or prior the testing.  
The test track must be such ....."

Paragraph 2.2., remove the square brackets to read:

"... or above 50 °C."

Paragraph 2.4.3., amend to read:

".....tyres shall for Class C1 be less than 3.50 m and for Class C2 and Class C3 tyres ..."

Paragraph 2.4.4., amend to read :

".....  
(e) Suspension shall be in such a condition that it does not result...."  
.....  
(a) ..... Any removals or modifications....."

Paragraph 2.5.2., amend to read:

"....."

For all tyres the reference load  $Q_r$  corresponds to the maximum mass associated with the load capacity index marked on the tyre. In the case where the load capacity index is constituted by two numbers divided by slash (/), reference shall be made to the first number."

Paragraph 2.5.3., add at the end:

"For Class C1 the reference pressure is  $P_r = 250$  kPa for standard tyres and 290 kPa for "reinforced" tyres.  
The minimum test pressure shall be  $P_t = 150$  kPa."

Paragraph 2.5.4., correct the words " compound modules" to read "compound nodules".

Paragraph 3.3., amend to read:

".....  
(i)..... for Class C1 and Class C2 tyres;  
....."

Paragraph 4.1., amend to read:

".....  
(i) ... for Class C1 and Class C2 tyres;  
....."

Paragraph 4.2., amend to read:

"..... according to:

$$L_R = \bar{L} - a \cdot \bar{z}$$

where:

$\bar{L}$  is the mean.....  
.....  
n is the measurement.....  
} is the mean.....  
.....

Paragraph 4.3., amend to read:

"4.3. Temperature correction

The final result shall.....  
... 20 °C,

For Class C1 tyres, the coefficient K is -0.03 dB(A)/ °C when  
**h** > **h<sub>ref</sub>** and -0.06 dB(A)/ °C when **h** < **h<sub>ref</sub>**.  
For Class C2 tyres, the coefficient K is -0.02 dB(A)/ °C  
If the measured test surface ....."

Paragraph 5., should be deleted.

Add a new Appendix to Annex 3, to read:

"Annex 3 - Appendix

Test report

The test report shall include the following information:

- (a) meteorological conditions inclusive air and test surface temperature,
- (b) date and method of check of compliance of the test surface with ISO 10844:1994,
- (c) test rim width,
- (d) tyre data: manufacturer, brand name, trade name, size, load index, reference pressure,
- (e) test vehicle description and wheelbase,
- (f) tyre test load  $Q_t$  in N and in per cent of the reference load  $Q_r$  for each test tyre,  
average test load  $Q_{t,avr}$  in N and in per cent of the reference load  $Q_r$ ,
- (g) cold inflation pressure in kPa for each test tyre,
- (h) test speeds when the vehicle passed line PP',
- (i) maximum A-weighted sound levels for each coast-by and each microphone,
- (j) the test result  $L_R$ : A-weighted sound level in decibel at reference speed, corrected for temperature (if applicable), expressed to one decimal place.
- (k) regression line slope."

Annex 4 , insert the text of Annex 9 - Appendix 2 of document TRANS/WP.29/GRB/R.141/Rev.1 and amend paragraph 1, footnote 1/, to read:

" 1/ ISO 10844:1994. If a different test surface is defined, in the future, the reference standard will be amended accordingly."

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