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IWG R51_R59 Proposal for Additional Amendments to ECE-TRANS-WP.29-GRB-2014-5

Nr	Chapter	Paragraph	Original Text	Proposed Amendment	Justification
1	Main Body	2.2.1.1	The shape or materials of the bodywork (particularly the engine compartment and its soundproofing)	The shape or materials of the engine compartment and its soundproofing	Following the discussion during GRB58
2	Main Body	2.4	"Mass of a vehicle in running order" (mro) means (a) in the case of a motor vehicle : the mass of the vehicle, with its fuel tank(s) filled to at least 90% of its or their capacity/ies, including the mass of the driver, of the fuel and liquids, fitted with the standard equipment in accordance with the manufacturer's specifications and, when they are fitted, the mass of the bodywork, the cabin, the coupling and the spare wheel(s) as well as the tools; (b) in the case of a trailer: the mass of the vehicle including the fuel and liquids, fitted with the standard equipment in accordance with the manufacturer's specifications, and, when they are fitted, the mass of the bodywork, additional coupling(s), the spare wheel(s) and the tools;	"Mass of a vehicle in running order" means the mass of an unladen vehicle with bodywork, and with coupling device in the case of a towing vehicle, or the mass of the chassis with cab if the manufacturer does not fit the bodywork and/or coupling device, including coolant, oils, 90 per cent of fuel, 100 per cent of other liquids except used waters, tools, spare wheel, driver (75 kg) and, for buses and coaches, the mass of the crew member (75 kg) if there is a crew seat in the vehicle, according to 2.2.5.4 of the Consolidated Resolution R.E.3.	This definition exists in R.E.3 and should be used
3	Main Body	2.10.1	In the case of vehicles of categories M1, N1:	in the case of vehicles of categories M1, N1 and M2 ≤ 3,500 kg technically permissible maximum laden mass	clarification about the weight
4	Main Body	2.10.2	In the case of vehicles of categories M2, M3, N2, N3:	In the case of vehicles of categories M2 > 3.500kg technically permissible maximum laden mass, M3, N2, N3:	clarification about the weight
5	Main Body	2.19	"Silencing system" means a complete set of components necessary for limiting the noise produced by an engine and its exhaust;	"Silencing system" means a complete set of components necessary for the purpose of this Regulation to limit the noise produced by an engine and its intake and exhaust (the intake air cleaner and intake manifold, the exhaust manifolds and catalysts are not considered part of the noise reduction system);	Clarification on "Silencing Systems"
6	Main Body	2.20	"Design family of silencing system or silencing system components" means a group of silencing systems or components thereof in which all of the following characteristics are the same: (a) the presence of net gas flow of the exhaust gases through the absorbing fibrous material when in contact with that material; (b) the type of the fibres; (c) where applicable, binder material specifications; (d) average fibre dimensions; (e) minimum bulk material packing density in kg/m³; (f) maximum contact surface between the gas flow and the absorbing material;	"Design family of exhaust silencing system or exhaust silencing system components" means a group of silencing systems or components thereof in which all of the following characteristics are the same: (a) the presence of net gas flow of the exhaust gases through the absorbing fibrous material when in contact with that material; (b) the type of the fibres; (c) where applicable, binder material specifications; (d) average fibre dimensions; (e) minimum bulk material packing density in kg/m³; (f) maximum contact surface between the gas flow and the absorbing material;	Clarification, that this paragraph applies to exhaust systems

7	Main Body	2.21	"Silencing system of different types" means silencing systems which significantly differ in respect of at least one of the following: (a) trade names or trademarks of their components; (b) the characteristics of the materials constituting their components, except for the coating of those components; (c) the shape or size of their components; (d) the operating principles of at least one of their components; (e) the assembly of their components; (f) the number of exhaust silencing systems or components;	"Exhaust silencing system of different types" means exhaust silencing systems which significantly differ in respect of at least one of the following: (a) trade names or trademarks of their components; (b) the characteristics of the materials constituting their components, except for the coating of those components; (c) the shape or size of their components; (d) the operating principles of at least one of their components; (e) the assembly of their components; (f) the number of exhaust silencing systems or components;	Clarification, that this paragraph applies to exhaust systems
8	Main Body	new paragraph 6.2.2.6		6.2.2.6. For vehicle types of category M1 and N1 having a technically permissible maximum laden mass of less than or equal to 2.5 tons, an R-point height greater than 800mm from the ground and a mid engine and with rear axle drive, the limits of the vehicle types of category N1 having a technically permissible maximum laden mass above 2.5 tons apply.	Proposal by China for small multipurpose vehicles
9	Main Body	6.2.3 3rd sentence	Vehicles of category N1 are exempted from ASEP if one of the following conditions is fulfilled: (a) The engine capacity does not exceed 660 cc and the power-to-mass ratio PMR calculated by using the technically permissible maximum laden mass does not exceed 35. (b) The payload is at least 850 kg and the power-to-mass ratio calculated by using the technically permissible maximum laden mass does not exceed 40.	Vehicles of category N1 are exempted from ASEP if the engine capacity does not exceed 660 cc and the power-to-mass ratio PMR calculated by using the technically permissible maximum laden mass does not exceed 35. Vehicles of category M1 or N1 are exempted from ASEP if the technically permissible maximum laden mass is greater than 2.5 tons and the R-point height is greater than 850 mm from the ground.	ASEP specifications contains an outdated definition for "big N1 derived vehicles"; laterly developed definition for the limits seems more robust.
10	Main Body	8.1	Vehicles approved according to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements of paragraph 6. above.	Vehicles approved according to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraph 6. above. The limit values set forth in paragraph 6. and referenced appendices apply with an additional margin of 1 dB(A).	COP wording as adopted by GRB in 2011 (see ECE-TRANS-WP29-2011-64e)
11	Annex 3	2.2.4	If the vehicle is fitted with more than two-wheel drive, it shall be tested in the drive which is intended for normal road use.	~~If the vehicle is fitted with more than two-wheel drive, it shall be tested in the drive which is intended for normal road use.~~	
12	Annex 3	3.1.2.1	Vehicles of category M1, M2 ≤ 3,500 kg, N1	Vehicles of category M1, M2 ≤ 3,500 kg technically permissible maximum laden mass, N1	clarification on the weight
13	Annex 3	3.1.2.2	Vehicles of categories M2 > 3,500 kg, M3, N2, N3	Vehicles of categories M2 > 3,500 kg technically permissible maximum laden mass, M3, N2, N3	clarification on the weight
14	Annex 3	3.1.2.2	… Target conditions of category M2 > 3,500 kg, N2:	… Target conditions of category M2 > 3,500 kg technically permissible maximum laden mass, N2:	clarification on the weight
15	Annex 3	3.1.3.1	Vehicles of category M1, M2 ≤ 3,500 kg, N1	Vehicles of category M1, M2 ≤ 3,500 kg technically permissible maximum laden mass, N1	clarification on the weight
16	Annex 3	3.1.3.2	Vehicles of categories M2 > 3,500 kg, M3, N2, N3	Vehicles of categories M2 > 3,500 kg technically permissible maximum laden mass, M3, N2, N3	clarification on the weight
17	Annex 6	3.	One vehicle has to be chosen and subjected to the tests set out in point 2. If the sound level of the vehicle tested does not exceed by more than 1 dB(A) the limit value prescribed in Annex 3, and, where appropriate, paragraph 3 of Annex 5, the vehicle type shall be considered to conform to the requirements of this Regulation.	One vehicle has to be chosen and subjected to the tests of paragraph 2 above. If the test results fulfill the COP requirements of paragraph 8 of the main body of this Regulation, the vehicle is considered to be in compliance with the COP provisions.	COP wording as adopted by GRB in 2011 (see ECE-TRANS-WP29-2011-64e)

18	Annex 6	3.	If one of the test results does not fulfill the COP requirements of this Annex and of paragraph 8 of the main body of this Regulation two more vehicles of the same type shall be tested pursuant to paragraph 2 above. If the test results for the second and the third vehicle fulfill the COP requirements of this Annex and of paragraph 8 of the main body of this Regulation, the vehicle is considered in compliance with regard to the COP. If one of the test results of the second or third vehicle does not fulfill the COP requirements of this Annex and of paragraph 8 of the main body of this Regulation the vehicle type shall be considered not to conform to the requirements of this Regulation and the manufacturer shall take the necessary measures to reestablish the conformity.	If one of the test results does not fulfill the COP requirements ~~of this Annex and~~ of paragraph 8 of the main body of this Regulation two more vehicles of the same type shall be tested pursuant to paragraph 2 above. If the test results for the second and the third vehicle fulfill the COP requirements ~~of this Annex and~~ of paragraph 8 of the main body of this Regulation, the vehicle is considered in compliance with regard to the COP. If one of the test results of the second or third vehicle does not fulfill the COP requirements ~~of this Annex and~~ of paragraph 8 of the main body of this Regulation the vehicle type shall be considered not to conform to the requirements of this Regulation and the manufacturer shall take the necessary measures to reestablish the conformity.	COP wording as adopted by GRB in 2011 (see ECE-TRANS-WP29-2011-64e)
19	Annex 7	3.1	Determination of the anchor point for each gear ratio For measurements in gear i and lower, the anchor point consists of the maximum sound level Lwoti, the reported engine speed nwoti and vehicle speed vwoti at BB' of gear ratio i of the acceleration test in Annex 3. Lanchor,i = Lwoti,Annex 3 nanchor,i = nBB,woti,Annex 3 vanchor,i = vBB,woti,Annex 3 For measurements in gear i+1 the anchor point consists of the maximum sound level Lwoti+1, the reported engine speed nwoti+1 and vehicle speed vwoti+1 at BB' of gear ratio i+1 of the acceleration test in Annex 3. Lanchor,i+1 = Lwoti+1,Annex 3 nanchor,i+1 = nBB,woti+1,Annex 3 vanchor,i+1 = vBB,woti+1,Annex 3	Determination of the anchor point for each gear ratio For measurements in gear i and lower, the anchor point consists of the maximum sound level Lwoti, the reported engine speed nwoti and vehicle speed vwoti at BB' of gear ratio i of the acceleration test in Annex 3. Lanchor,i = Lwoti,Annex 3 nanchor,i = nBB,woti,Annex 3 vanchor,i = vBB,woti,Annex 3 ~~For measurements in gear i+1 the anchor point consists of the maximum sound level Lwoti+1, the reported engine speed nwoti+1 and vehicle speed vwoti+1 at BB' of gear ratio i+1 of the acceleration test in Annex 3.~~ ~~Lanchor,i+1 = Lwoti+1,Annex 3~~ ~~nanchor,i+1 = nBB,woti+1,Annex 3~~ ~~vanchor,i+1 = vBB,woti+1,Annex 3~~	According to paragraph 2.3 of Annex 7, the highest tested gear is gear i. Therefore a definition for gear i+1 as anchor point is not needed.
20	Annex 3	3.1.2.2.2	When the reference point of the vehicle reaches the line AA' the accelerator control shall be fully depressed (without operating the automatic downshift to a lower range than normally used in urban driving) and held fully depressed until the rear of the vehicle passes BB', but the reference point shall be at least 5 m behind BB'. The accelerator control shall then be released.	When the reference point of the vehicle reaches the line AA' the accelerator control shall be fully depressed (without operating the automatic downshift to a lower range than normally used in urban driving) and held fully depressed until the rear of the vehicle passes BB' **or the reference point is at least 5 m behind BB' (whichever comes first)**. The accelerator control shall then be released.	This point has been discussed in GRB and in the IWG in junction with 6.2.2.4. The actual text is not very clear when to stop a measurement for long trucks or busses. The actual wording could lead to a testing until the vehicle reaches or even exceeds rated engine speed at the end of the test track.
21	Main Body	2.22		Add new table with all symbols	In the text sybols are used, that have no definition. Following the scheme of ECE R41, the secretary suggests to add in addition under the definitions a table of symbols. I have attached a sheet with a proposal for symbols taken from ISO 362-1 enhenced by the secretary for the Annex 3 paragraphs 4 and for ASEP.

Symbol	Unit	Annex	Paragraph	Explanation
AA'	—	Annex 3	3.1.1	line perpendicular to vehicle travel which indicates beginning of zone in which to record sound pressure level during test
$a_{\text{wot\_ASEP}}$	m/s2	Annex 7	2.3	maximum required acceleration at wide-open-throttle
$a_{\text{wot } i}$	m/s2	Annex 3	3.1.2.1.4.1.	acceleration at wide-open-throttle in gear ratio i
$a_{\text{wot } (i+1)}$	m/s2	Annex 3	3.1.2.1.4.1.	acceleration at wide-open-throttle in gear ratio $(i+1)$
$a_{\text{wot test}}$	m/s2	Annex 3	3.1.2.1.2.1.	acceleration at wide-open throttle from AA' to BB'
$a_{\text{wot test, PP-BB}}$	m/s2	Annex 3	3.1.2.1.2.2.	acceleration at wide-open throttle from PP' to BB'
$a_{\text{wot test,i}}$	m/s2	Annex 3	3.1.2.1.2.1.	acceleration at wide-open throttle accieved in a particular gear i
$a_{\text{wot,test,kj}}$	m/s2	Annex 7	2.6	acceleration at wide-open throttle accieved in gear k and at test point j
$a_{\text{wot ref}}$	m/s2	Annex 3	3.1.2.1.2.4.	reference acceleration for the wide-open-throttle test
a_{urban}	m/s2	Annex 3	3.1.2.1.2.3.	target acceleration representing urban traffic acceleration
BB'	—	Annex 3	3.1.1	line perpendicular to vehicle travel which indicates end of zone in which to record sound pressure level during test
CC'	—	Annex 3	3.1.1	line of vehicle travel through test surface defined in ISO 10844
gear ratio i	—	Annex 3	3.1.2.1.4.1.	first of two gear ratios for use in the vehicle test
gear ratio $i+1$	—	Annex 3	3.1.2.1.4.1.	second of two gear ratios, with an engine speed lower than gear ratio i
k_{P}	—	Annex 3	3.1.2.1.3.	partial power factor
$k_{\text{P\_ASEP}}$	—	Annex 7	6.2	partial power factor determined for the L_Urban principle of ASEP
k	—	Annex 3	3.1.2.1.4.1.	gear ratio weighting factor
k	—	Annex 7	2.3	gears to be tested under "Additional Sound Emission Provisions" (ASEP)
l_{pa}	m	Annex 3	3.1.2.1.2.1.	point of depressing the accelerator before line AA'
l	m	Annex 3	3.1.2.1.2.	reference length
l_{veh}	m	Annex 3	3.1.2.1.2.	length of vehicle
$L_{\text{anchor,i}}$	dB	Annex 7	3.1	reported vehicle sound pressure level for gear ratio i from Annex 3
$L_{\text{anchor,i+1}}$	dB	Annex 7	3.1	reported vehicle sound pressure level for gear ratio i+1 from Annex 3
$L_{\text{crs i}}$	dB	Annex 3	3.1.3.1.	vehicle sound pressure level at constant speed test for gear i
$L_{\text{crs } (i+1)}$	dB	Annex 3	3.1.3.1.	vehicle sound pressure level at constant speed test for gear $(i+1)$
$L_{\text{crs rep}}$	dB	Annex 3	3.1.3.1.	reported vehicle sound pressure level at constant speed test
L_{kj}	dB	Annex 7	4.	sound pressure level measured for a gear k and at a test point j
L_{ref}	dB	Annex 7	5.3	reference sound pressure level for reference sound assessment
$L_{\text{wot ASEP}}$	dB	Annex 7	6.2	vehicle sound pressure level measured for the L_Urban principle of ASEP
$L_{\text{wot } i}$	dB	Annex 3	3.1.3.1.	vehicle sound pressure level at wide-open-throttle test for gear i
$L_{\text{wot } (i+1)}$	dB	Annex 3	3.1.3.1.	vehicle sound pressure level at wide-open-throttle test for gear $(i+1)$
$L_{\text{wot,kj}}$	dB	Annex 7	2.6	sound pressure level measured for a gear k and at a test point j
$L_{\text{wot rep}}$	dB	Annex 3	3.1.3.1.	reported vehicle sound pressure level at wide-open-throttle
L_{urban}	dB	Annex 3	3.1.3.1.	reported vehicle sound pressure level representing urban operation
$L_{\text{urban ASEP}}$	dB	Annex 7	6.2	Estimated urban sound pressure level determined for the L_Urban principle of ASEP
$L_{\text{urban\_Measured\_ASEP}}$	dB	Annex 7	6.2	interim result for calculation of L_Urban_ASEP
$L_{\text{urban\_Normalized}}$	dB	Annex 7	6.2	interim result for calculation of L_Urban_ASEP
m_{ro}	kg	Annex 3	2.2.1	mass in running order
m_{t}	kg	Annex 3	2.2.1	test mass of the vehicle
$n_{\text{anchor,i}}$	1/min	Annex 7	3.1	reported vehicle engine speed for gear ratio i from Annex 3
$n_{\text{anchor,i+1}}$	1/min	Annex 7	3.1	reported vehicle engine speed for gear ratio i+1 from Annex 3
$n_{\text{BB'}}$	1/min	Annex 3	3.1.2.2.	engine rotational speed of the vehicle, when the reference point passes BB'

n_{BB_ASEP}	1/min	Annex 7	2.3	maximum test engine speed
$n_{BB,kj}$	1/min	Annex 7	2.6	vehicle test engine speed at BB' for a gear k and at test point j
n_{ref_k}	1/min	Annex 7	5.3	reference engine speed for reference sound assessment
PMR	—	Annex 3	3.1.2.1.1	power-to-mass ratio index to be used for calculations
P_j	—	Annex 7	2.5	test point under ASEP
P_n	kW	Annex 3	3.1.2.1.1.	rated total engine net power
PP'	—	Annex 3	3.1.1	line perpendicular to vehicle travel which indicates location of microphones
S	1/min	Annex 3	3.1.2.2.	rated engine rotational speed in revs per minute, synonymous with the engine rotational speed at maximum power
$v_{AA'}$	km/h	Annex 3	3.1.2.1.2.	vehicle velocity when reference point passes line AA' (see 5.1 for definition of reference point)
v_{AA_ASEP}	km/h	Annex 7	2.3	minimum vehicle speed at line AA'
$v_{AA,kj}$	km/h	Annex 7	2.6	vehicle test speed at AA' for a gear k and at test point j
$v_{anchor,i}$	km/h	Annex 7	3.1	reported vehicle test speed for gear ratio i from Annex 3
$v_{anchor,i+1}$	km/h	Annex 7	3.1	reported vehicle test speed for gear ratio i+1 from Annex 3
$v_{BB'}$	km/h	Annex 3	3.1.2.1.2.	vehicle velocity when reference point or rear of vehicle passes line BB' (see 5.1 for definition of reference point)
v_{BB_j}	km/h	Annex 7	2.5	vehicle test speed at BB' for a particular ASEP test point
v_{BB_ASEP}	km/h	Annex 7	2.3	maximum vehicle speed at line AA'
$v_{BB,kj}$	km/h	Annex 7	2.6	vehicle test speed at BB' for a gear k and at test point j
$v_{PP'}$	km/h	Annex 3	3.1.2.1.2.	vehicle velocity when reference point passes line PP' (see 5.1 for definition of reference point)
v_{ref}	km/h	Annex 7	5.3	reference vehicle test speed for reference sound assessment
v_{test}	km/h	Annex 3	3.1.2.1.	vehicle test speed