



P R E S E N T A T I O N O F



INTERNATIONAL ORGANIZATION OF MOTOR VEHICLE MANUFACTURERS

Informal document No. GRB-51-20
(51th GRB, 15-17 February, agenda item 4)



Noise Emission of Moving Vehicles in Urban Areas

**Remarks to New Noise Legislation
ECE R51.02 Method B
Category M2 > 3500 kg, M3, N2 and N3**

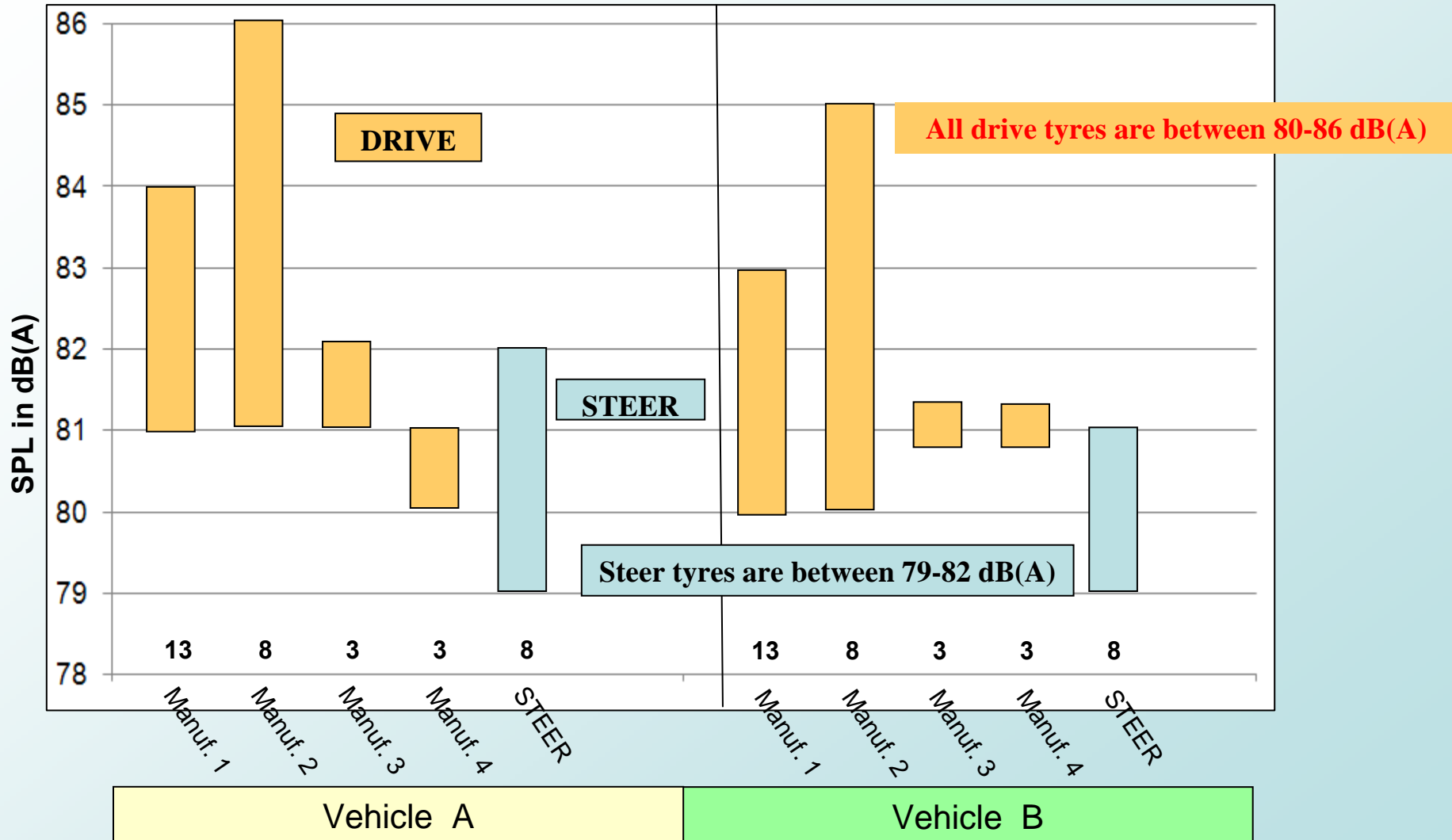
**51st GRB
Geneva, 15-17 February 2010**

Horst-Peter Fingerhut
Manfred Klopotek von Glowczewski

Pass-By R51.03

Overall Noise Level $L_{PassBy R51.03}$

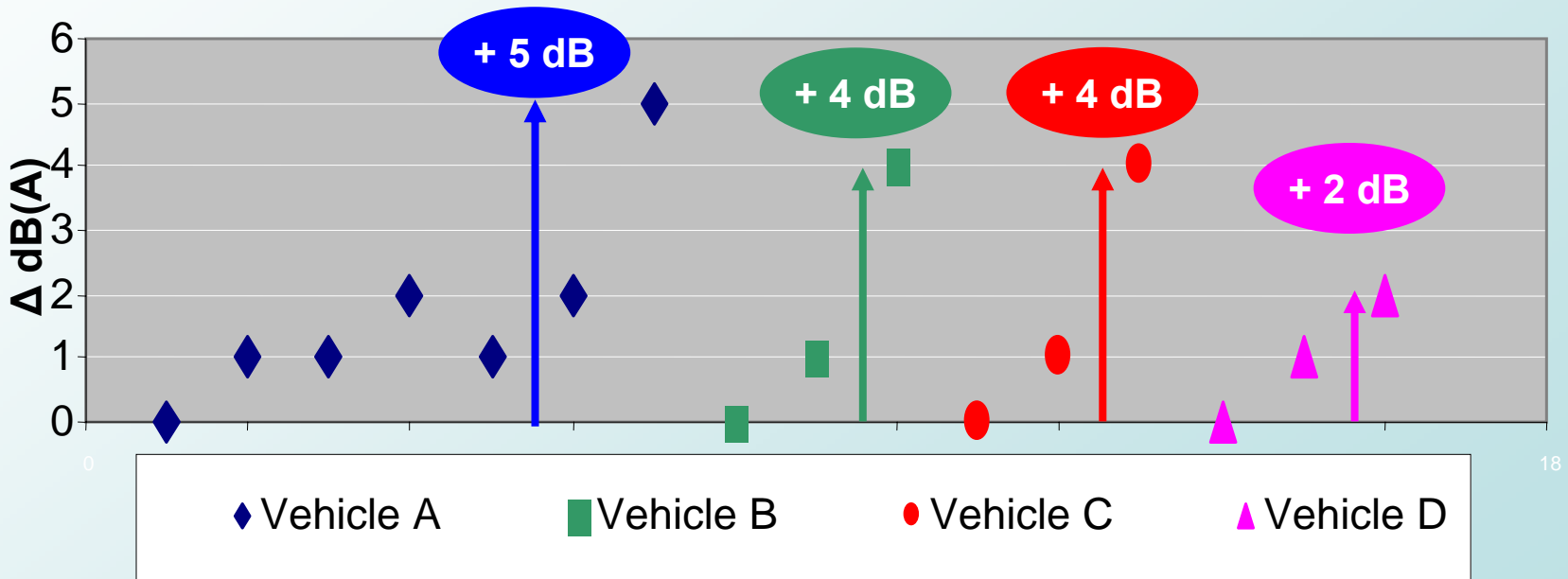
R51.03 value mathematical rounded



Tyre Influence During WOT Test

Tyre noise contribution of **four** different vehicles
 (Final values are rounded according to ECE R51.02 Method B)

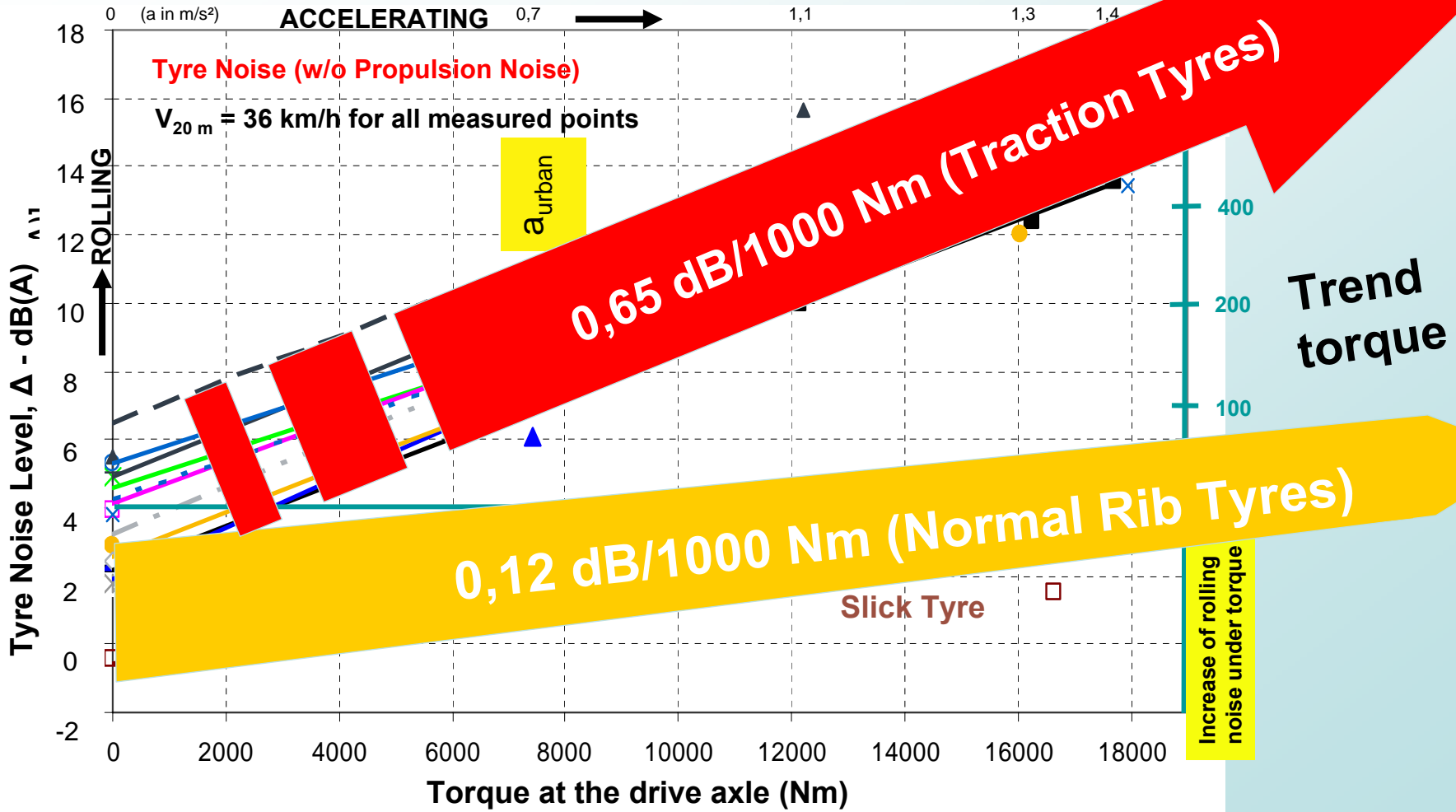
Tyre Noise Contribution (Rib tyre = 0 dB(A))



Source: CRP-085, 2005

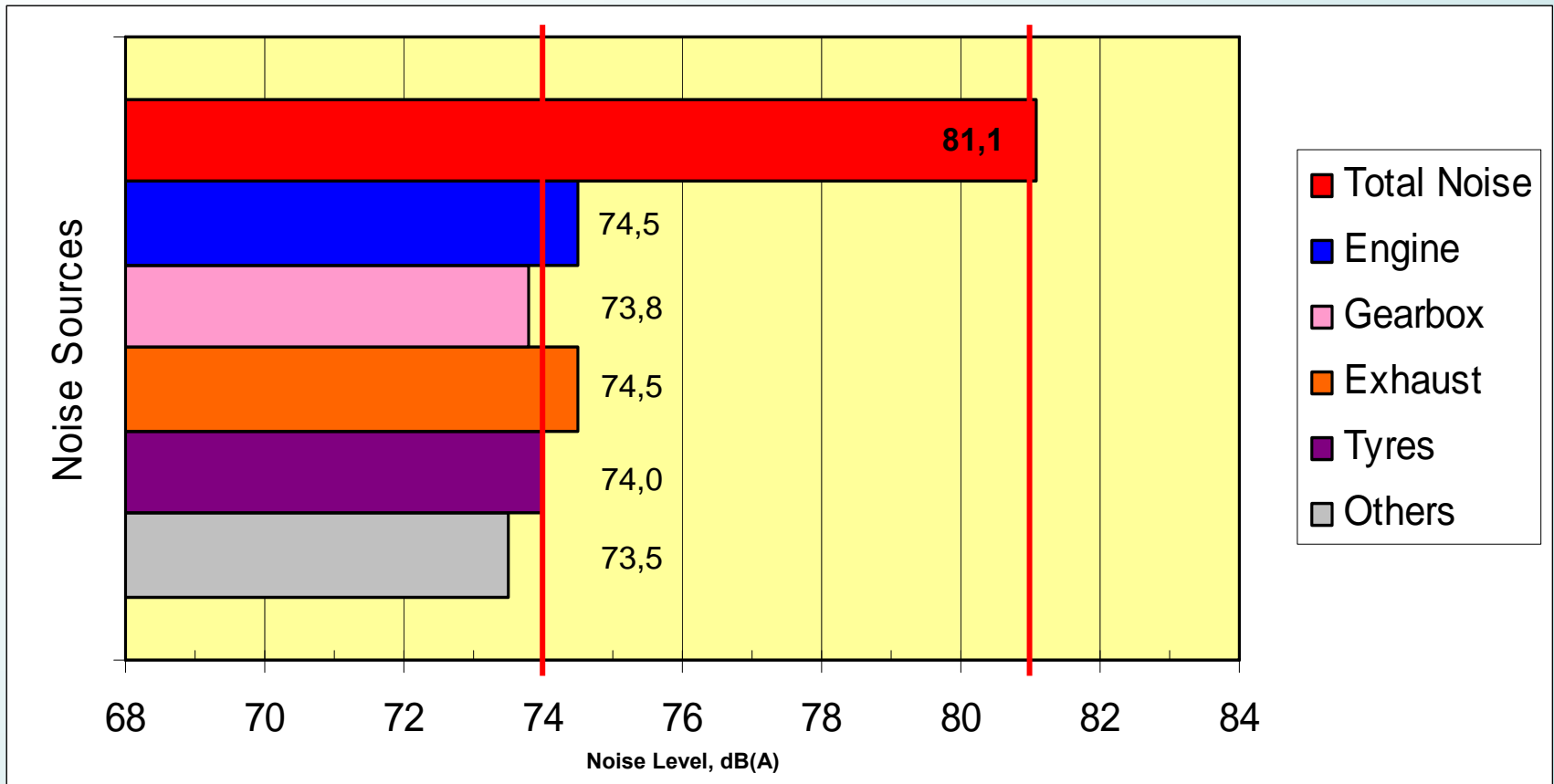
Influence of torque at 20 m

Source: MAN (2008)



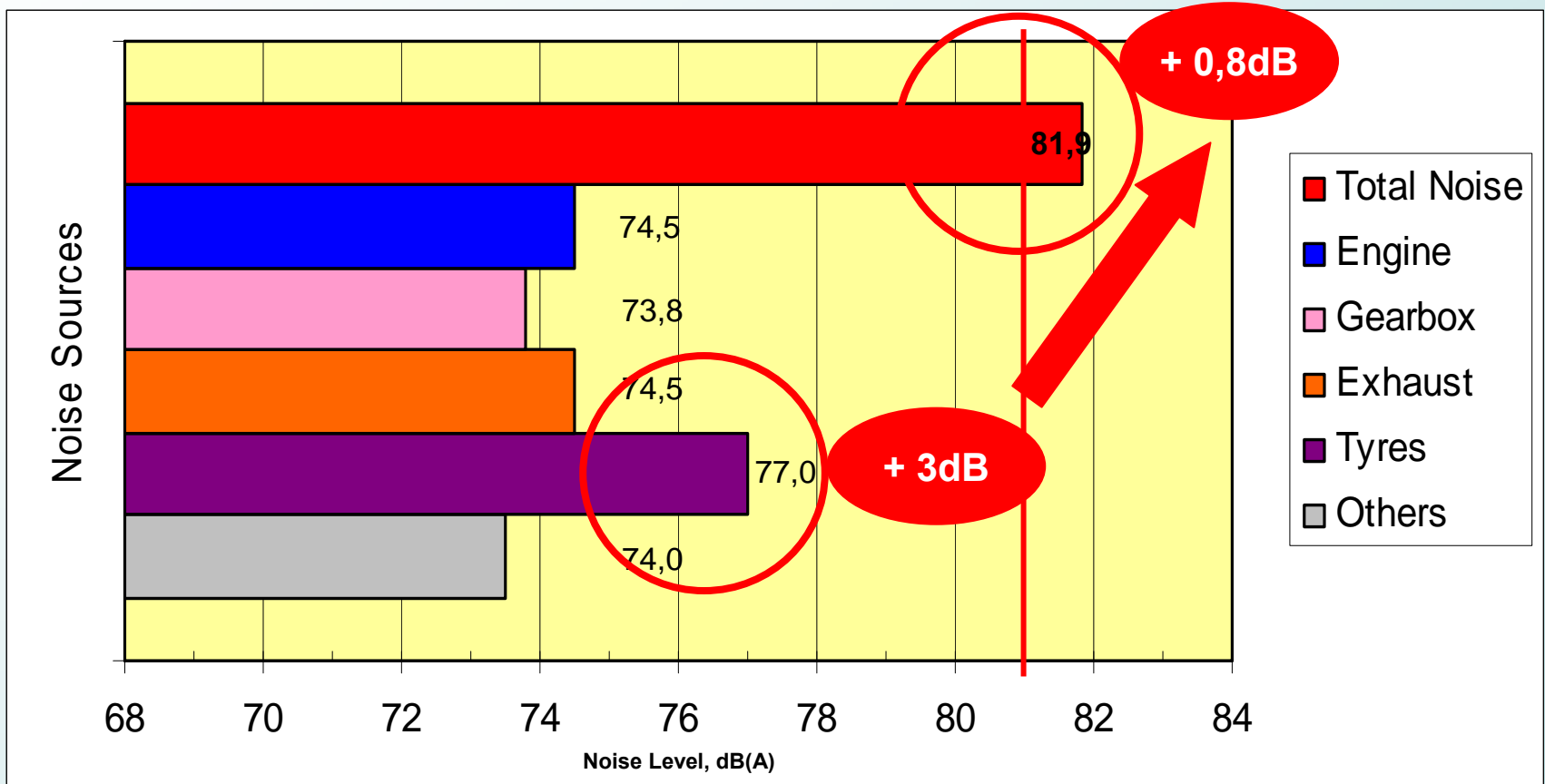
ECE R51.02 Method B: HCV Noise Sources

Example: Balanced system for 81 dB(A)

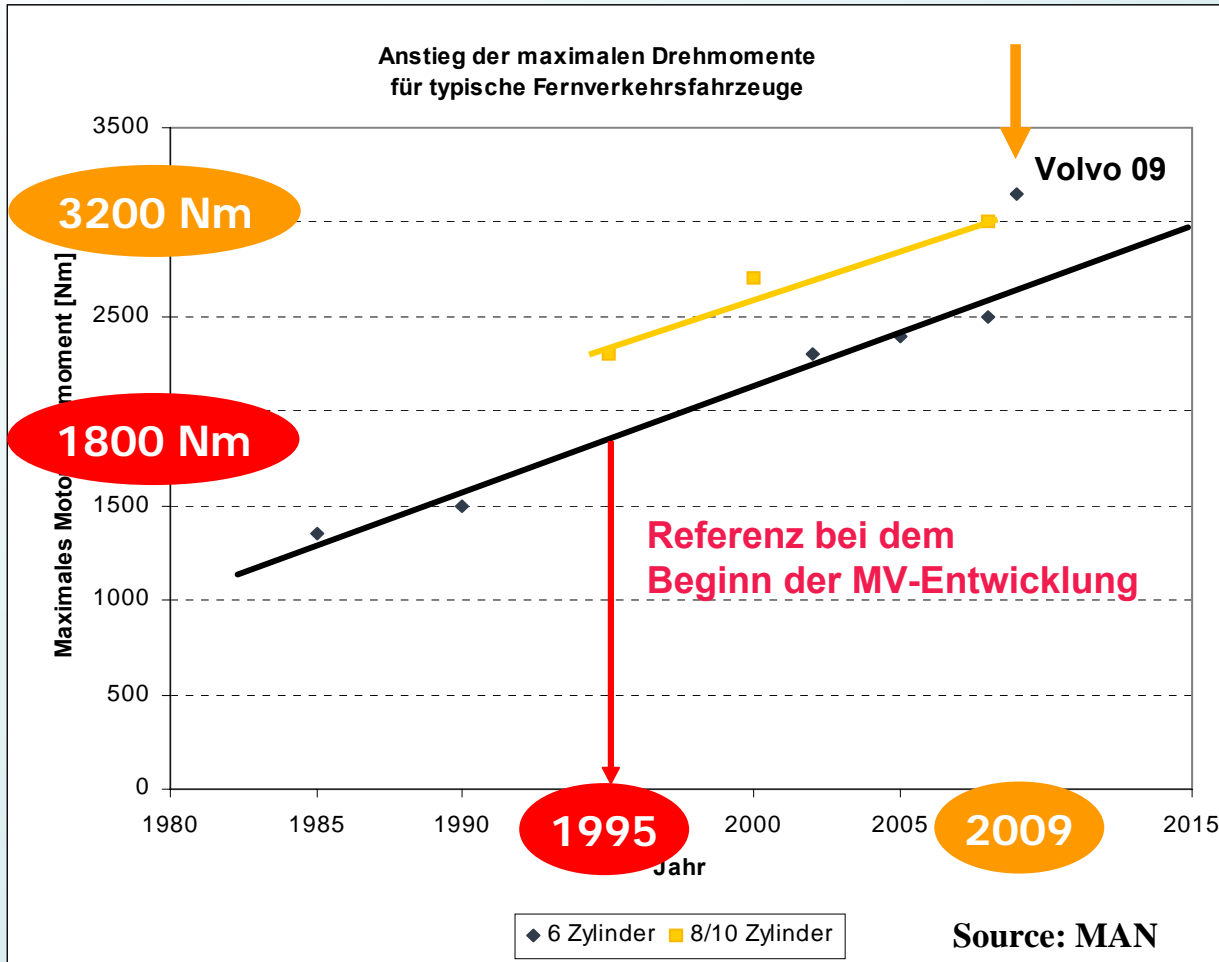


ECE R51.02 Method B: HCV Noise Sources

Example: Unbalanced system for 81 dB(A)

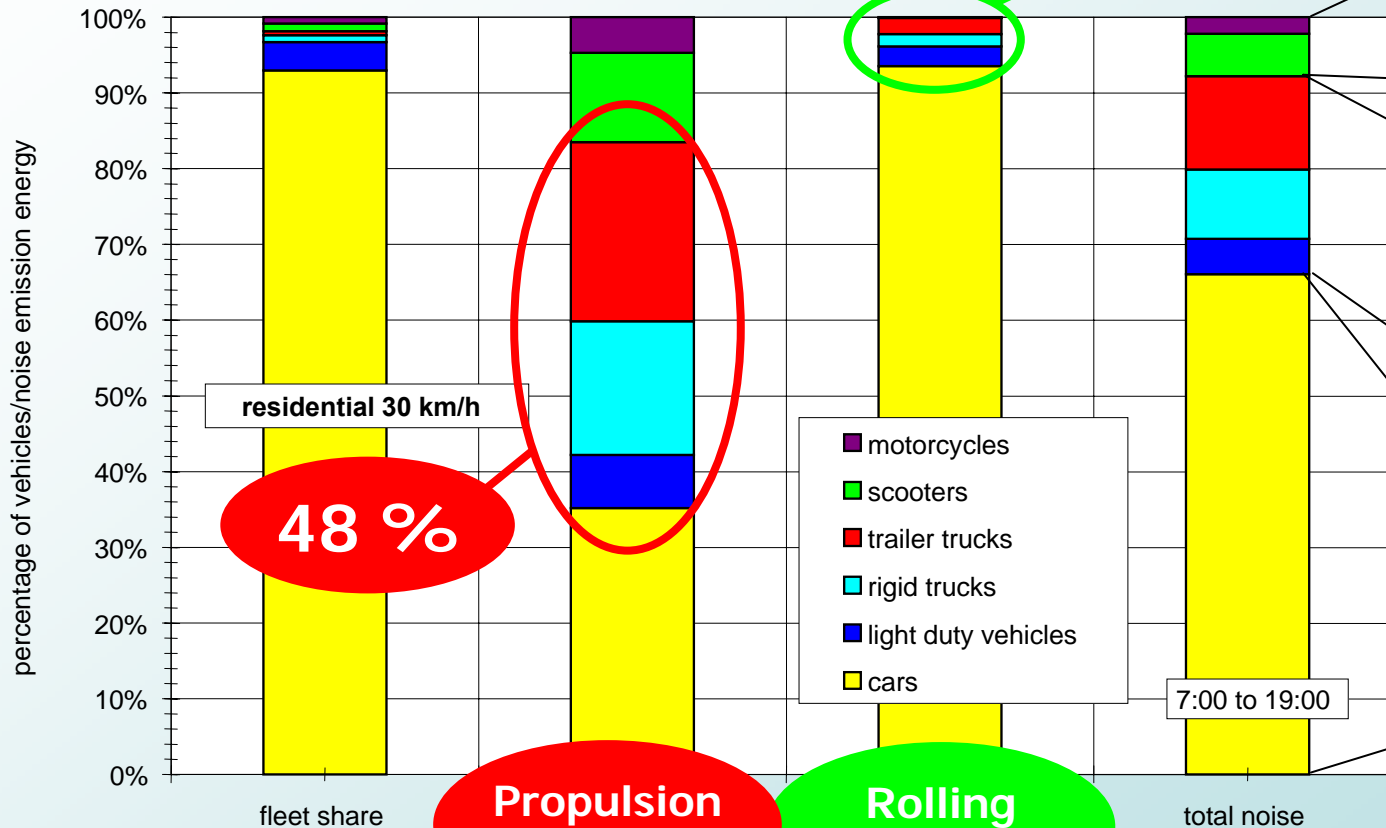


Change of Engine output (power, torque) for typical long haulage trucks (1980 – 2009)



Noise Emission in Real Traffic (residential areas)

EU-Projekt WG8 Traffic Noise Calculation Study (TRL & RWTÜV 2004)



48 %

Propulsion noise

Rolling noise

6 %



Conclusion

➤ **The new noise test method for HCV according to ISO 362-1:2007 is designed under the circumstance that tyre road noise can be neglected**

Because:

➤ **The tyre road noise contribution for HCV during driving in urban areas is of no importance according to all studies made**

➤ **The new noise test procedure for HCV according to ISO 362-1:2007 is rather sensitive to the choice of the tyres**

➤ **The new noise test method for HCV according to ISO 362-1:2007 addresses the most important noise sources during driving in urban areas by the WOT test**

REFERENCES

- **Investigations on Improving the Method of Noise Measurement for Powered Vehicles (Report Number 10506067 by order of the Germany Federal Environmental Agency, August 1999, Steven, H.)**

- **EU-Project WG8 Traffic Noise Calculation Study (TRL & RWTÜV 2004)**

- **Investigation on Noise Emission of Vehicles in Road Traffic (TÜV Nord 2005)**