GRBIG-ASEP-06-006
Submitted by the Netherlands
Feb 2007

Additional options for ASEP data processing methods

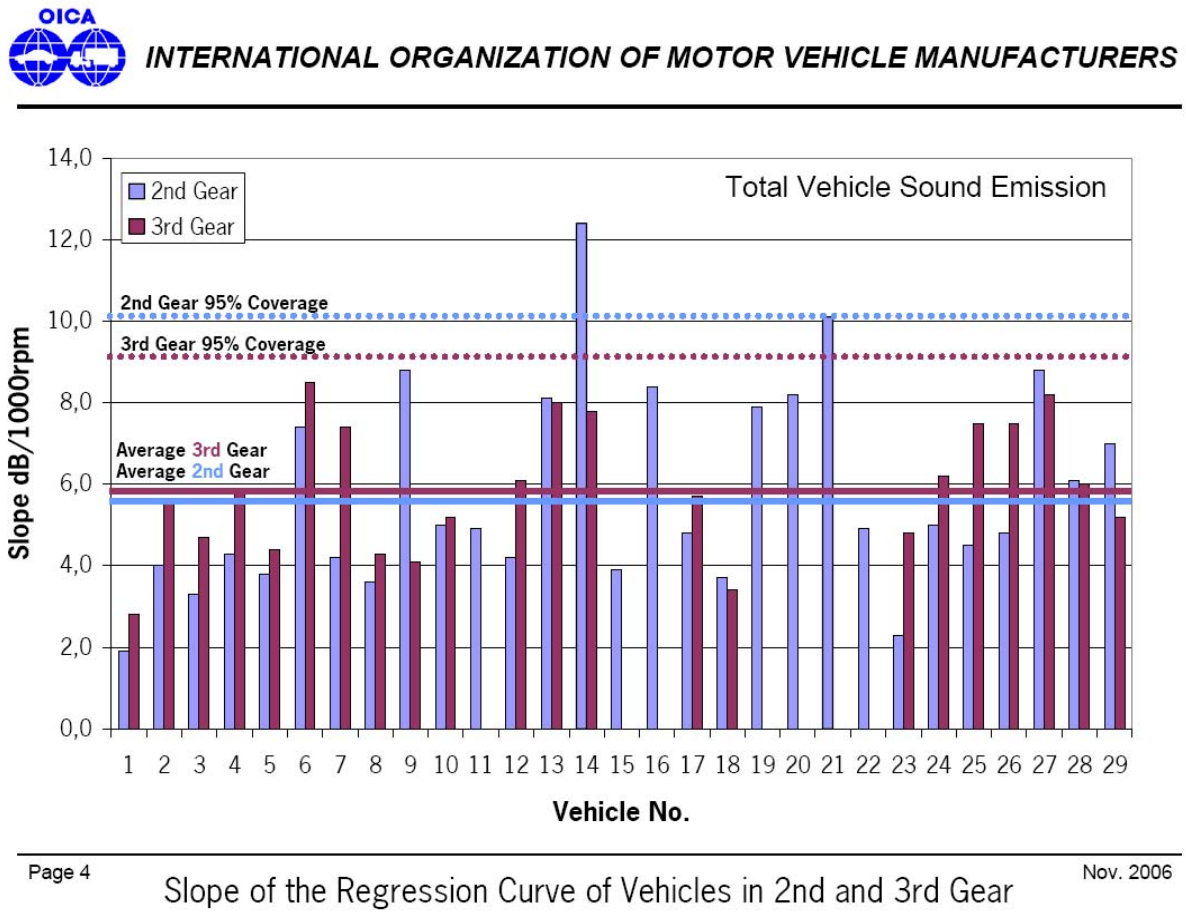
If a system based on

x dB/1000rpm

will not work

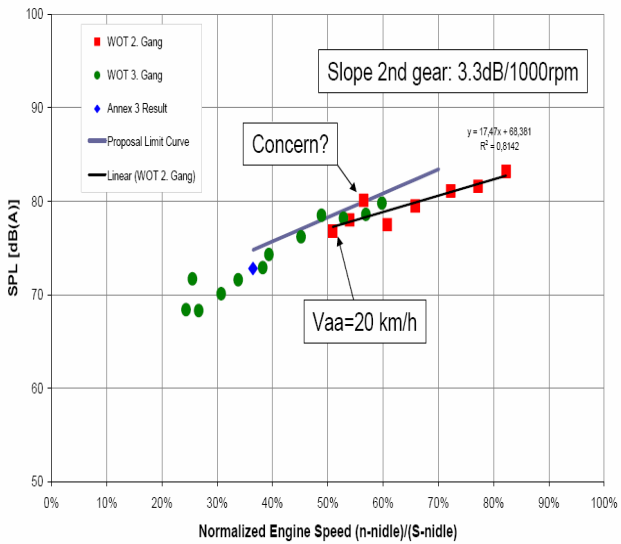
Back ground: paper by OICA: GRBIG-ASEP-05-003

Significant spread in slope of regression curve

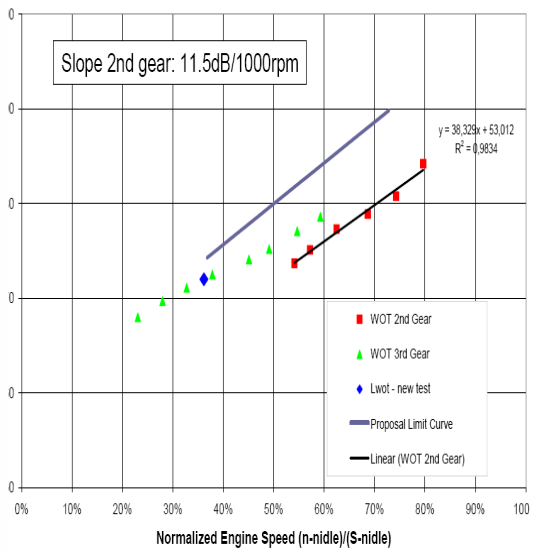


Discussion: what is the target of ASEP

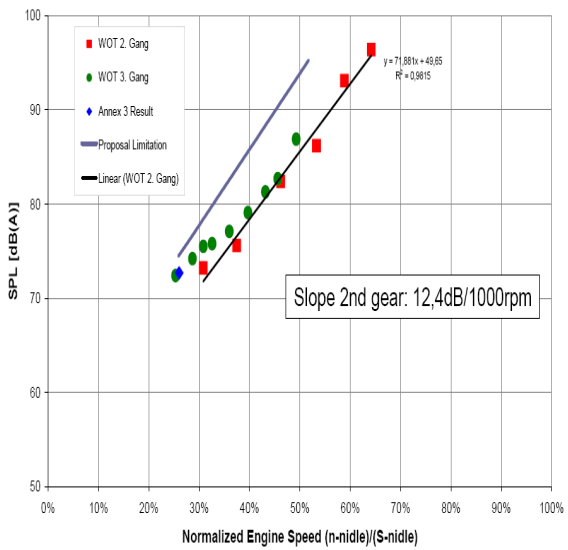
Vehicle 98kW/t - S=6000rpm



Vehicle 85kW/t - S=4000rpm



Vehicle 246kW/t - S=6500rpm



Vehicle 1

Slope< 6 dB/1000 rpm
Extrapolation to Lp,max = 90 dB(A)

Vehicle 2

Slope> 6 dB/1000 rpm
Extrapolation to Lp,max = 90 dB(A)

Vehicle 3

Slope> 6 dB/1000 rpm
Extrapolation to Lp,max = 120 dB(A)

Observations

- Vehicle 1 seems to be fairly comparable to vehicle 2; both in PMR and in presented noise data; yet their slopes in dB/1000 rpm are wide apart (3.3 and 11.5) and on either side of the expected limit (6 dB/1000 rpm)

- Vehicle 2 and 3 have a similar slope (11.5 and 12.4); yet they seem to differ considerably, both in PMR and in extrapolated noise at rated engine speed

Question

- Could their be another descriptor for acceptable noise in the ASEP region?

Concepts discussed in the Netherlands

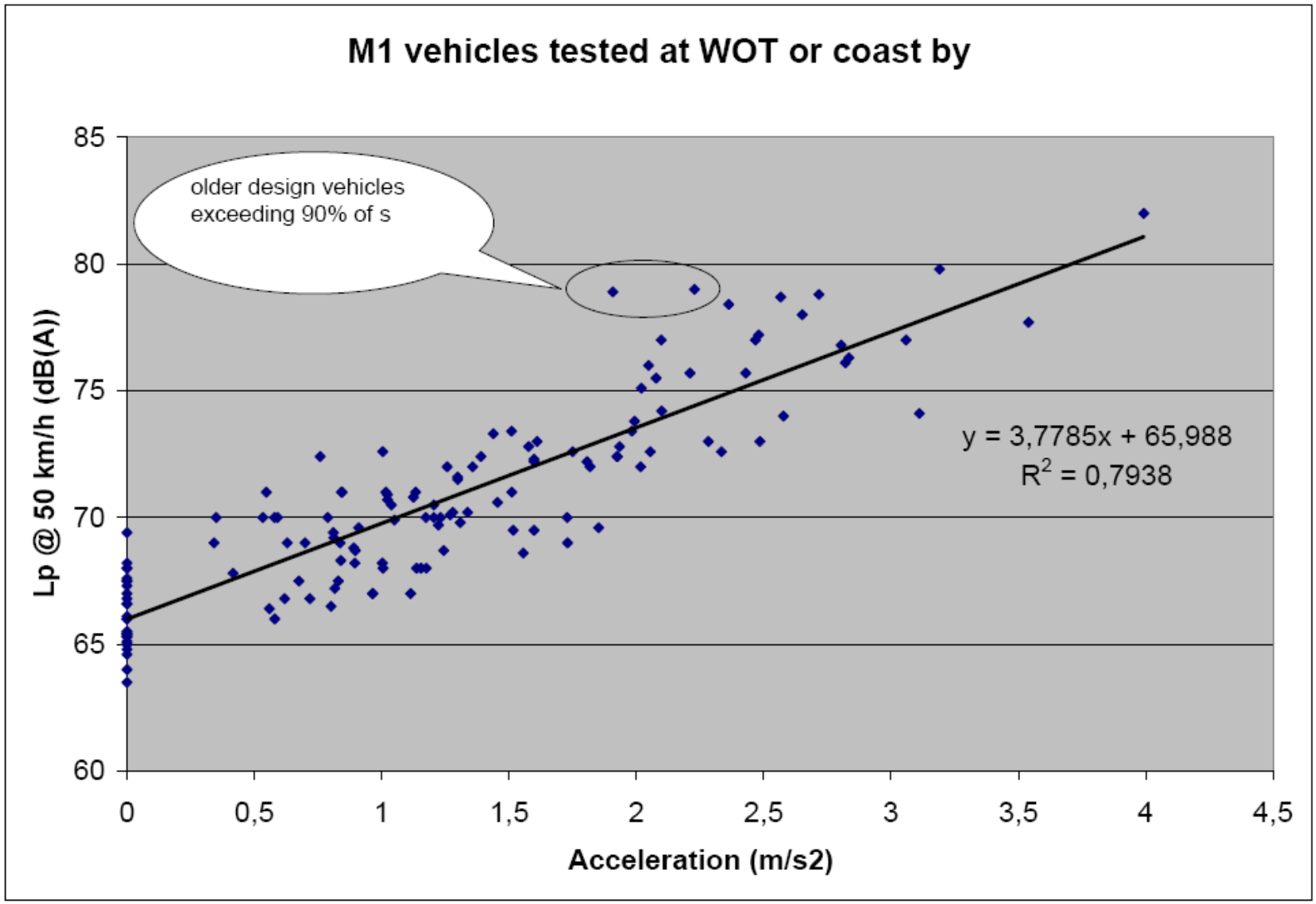
1. Replace limited slope by a not to exceed level, eg
   a) 90 dB(A) within ASEP boundary condition
   b) Lwot,i + 20 dB(A) within ASEP boundary conditions

2. Evaluate noise as function of % rated engine speed instead of absolute engine speed eg.
   a) 0.3 dB/%

3. Evaluate noise as function of vehicle speed and acceleration instead of engine speed. eg
   a) $L_{pmax} = C_1 + C_2*a + C_3*v$
   b) $L_{pmax} = C_1 + C_2*(a-a_{ref}) + C_3*(v-v_{ref})/v_{ref}$ v_{ref}= 50 km/h $a_{ref} = a_{wot,i}$
   c) $L_{pmax} = C_1 + C_2*a + C_3*Log(v/v_{ref})$

Example of analysis of existing data

29 vehicles; 50 km/h; All gears



Question to all ASEP members

- Could you analyse your existing data if such models fit better than the current model (x dB/1000 rpm)