Remarks by the author after the presentation in GRB

- **During the public discussion of this presentation, ETRTO and OICA have put forward their concern whether realistic noise values where used in this model (-3 dB tyre is a slick or not; GTI powertrain or not).**
- **Bilateral discussion after the meeting with several specialists has clarified the misunderstanding.**
- **Conclusion: the model, used noise values and mathematical conclusions are correct.**
- **Whether the mathematical conclusion will be translated in acoustical practice, is not agreed upon between OICA and NL.**

On the ACEA method, limit values and the demands on noise sources

Will the ACEA method lead to “total allowance” in powertrain noise?

GRB 36; feb 2002
Erik de Graaff
M+P Raadgevende ingenieurs bv

NL concerns on powertrain noise

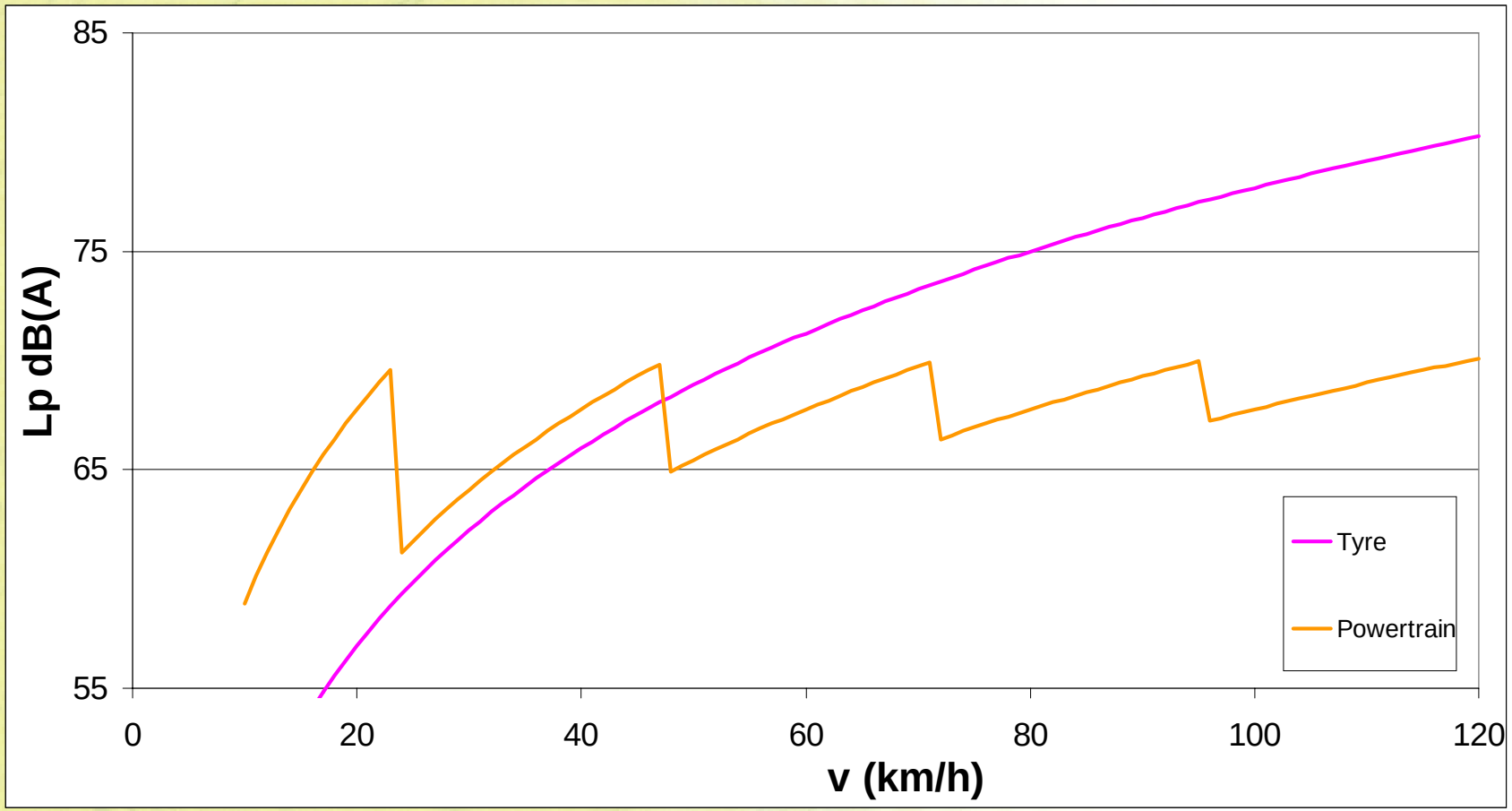
vehicles	covered by
luxury cars	customer demands
GTI's	?
delivery vans	?
trucks	type approval

Questions:

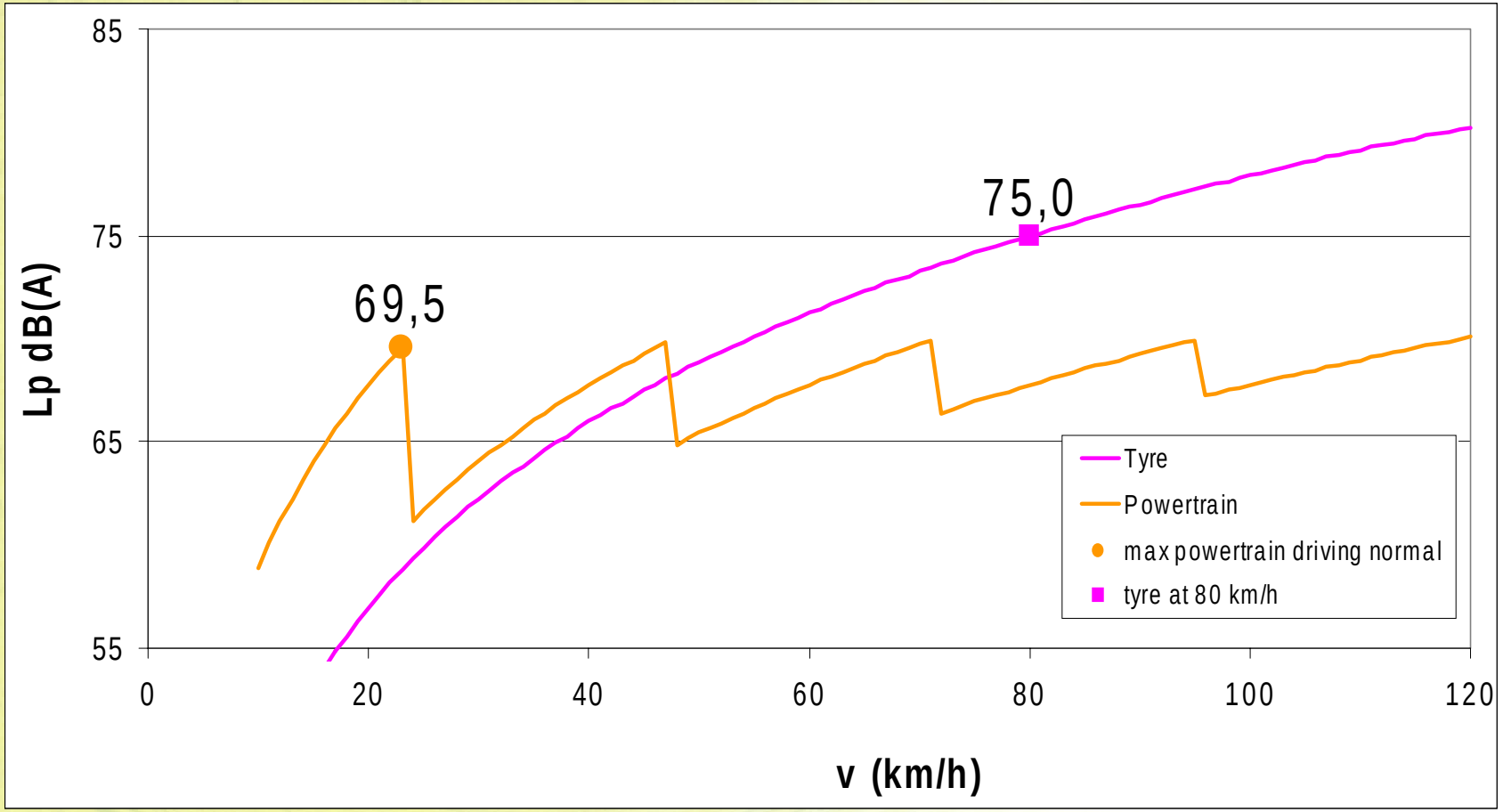
- What is the relation between the noise values in
  - Current ISO 362
  - ACEA proposal (=ISO part 1 proposal)

- Given a set of limits,
  what is the resulting demand and/or allowance for
  - Tyre/road noise
  - Powertrain noise

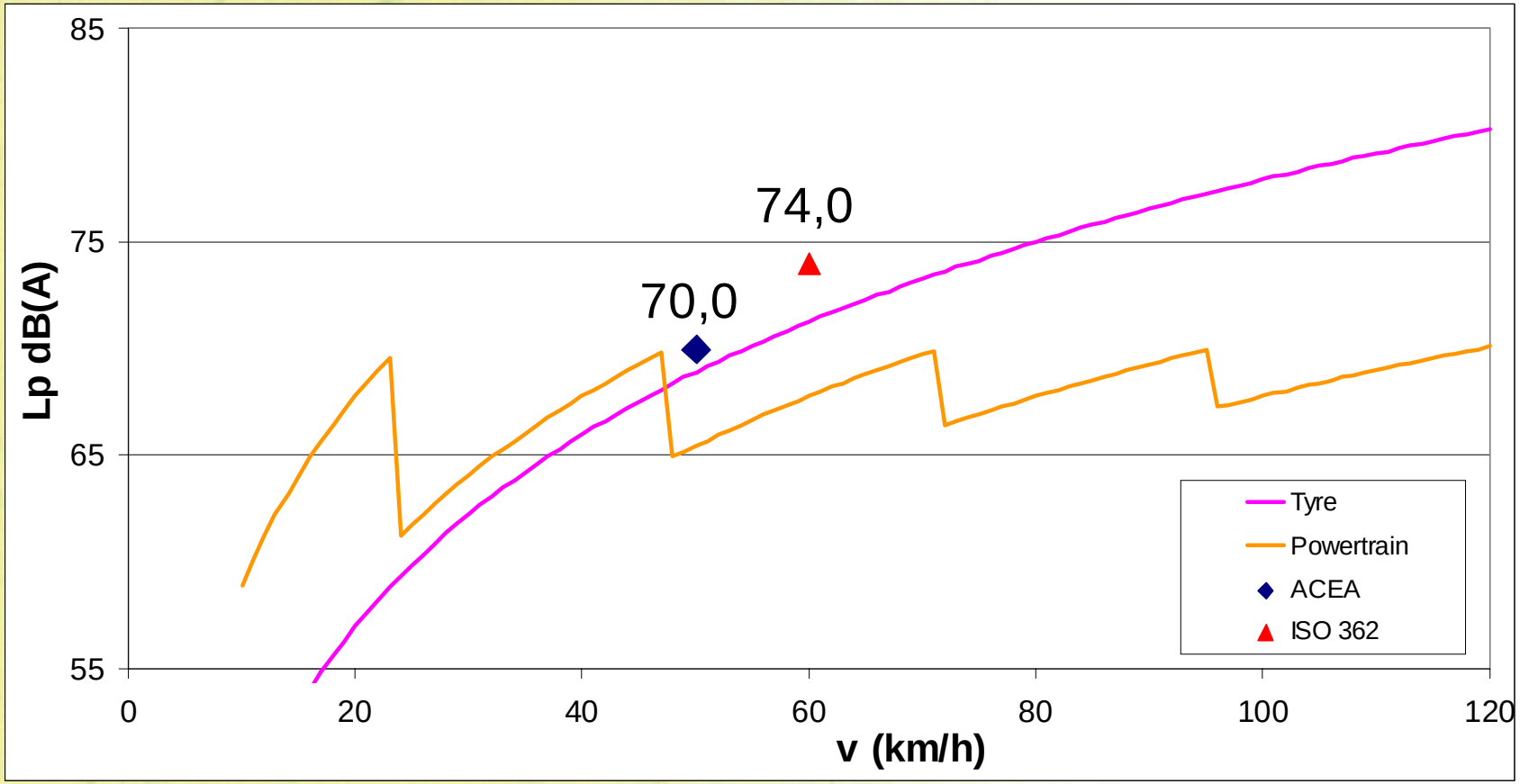
Step 1: Noise sources of a typical GTI vehicle



Step 2: calculate noise source levels



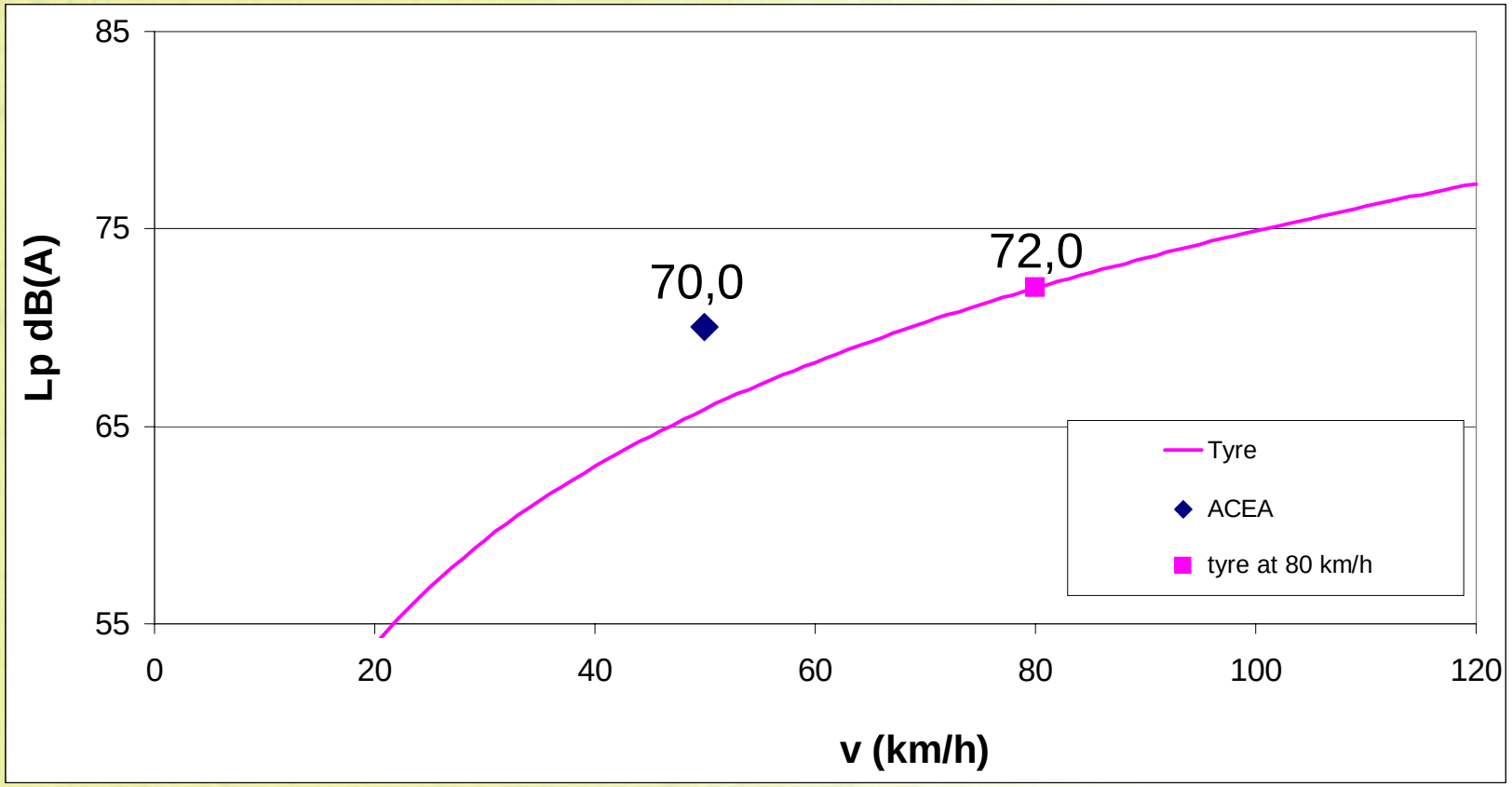
Step 3: calculate "type approval" values



Step 4: scenario study example 1

Input:

- ACEA: 70 dB(A)
- Tyre: –3 dB(A)



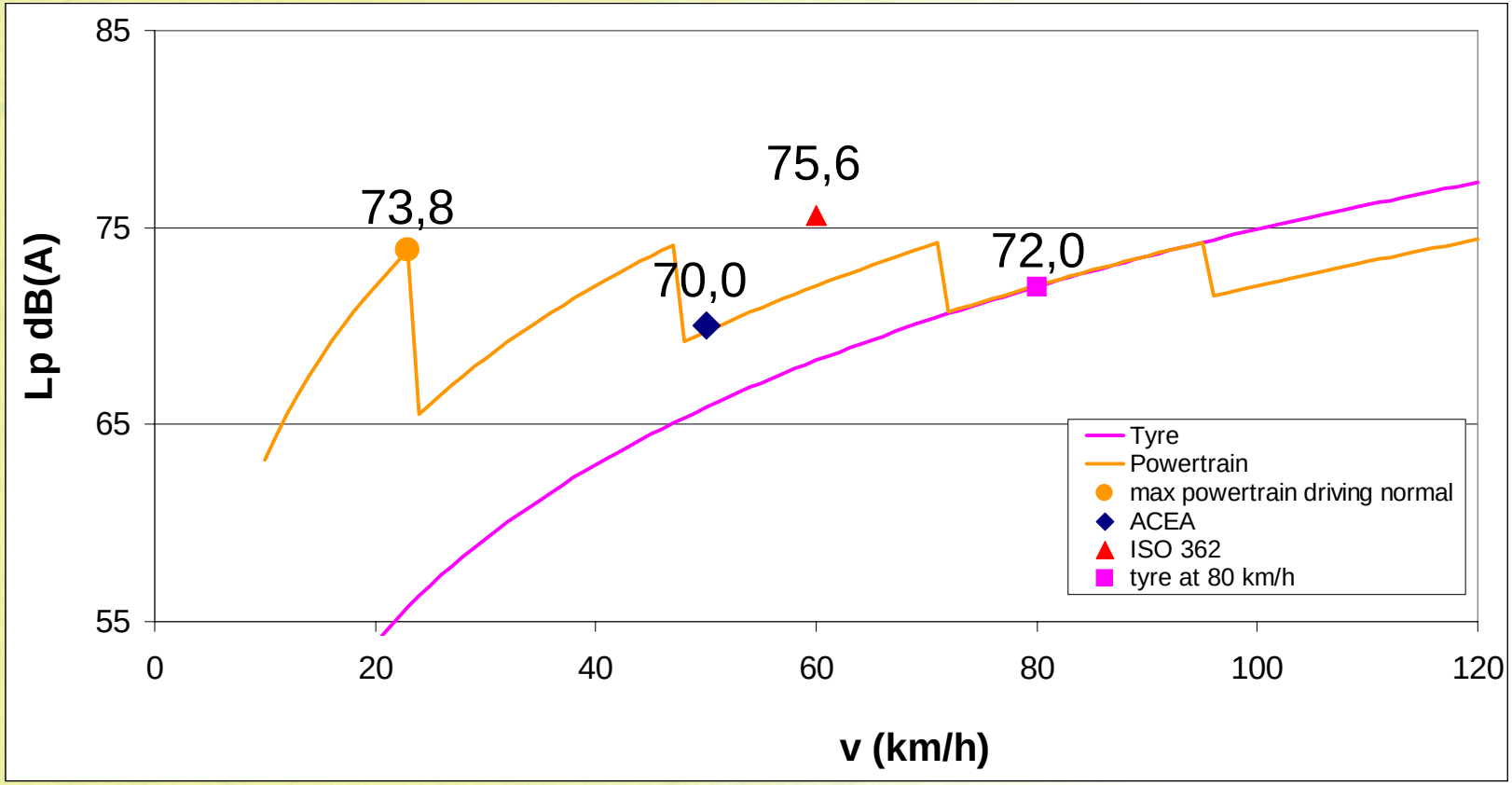
Step 4: scenario study example 1

Input:

- ACEA: 70 dB(A)
- Tyre: –3 dB(A)

Output:

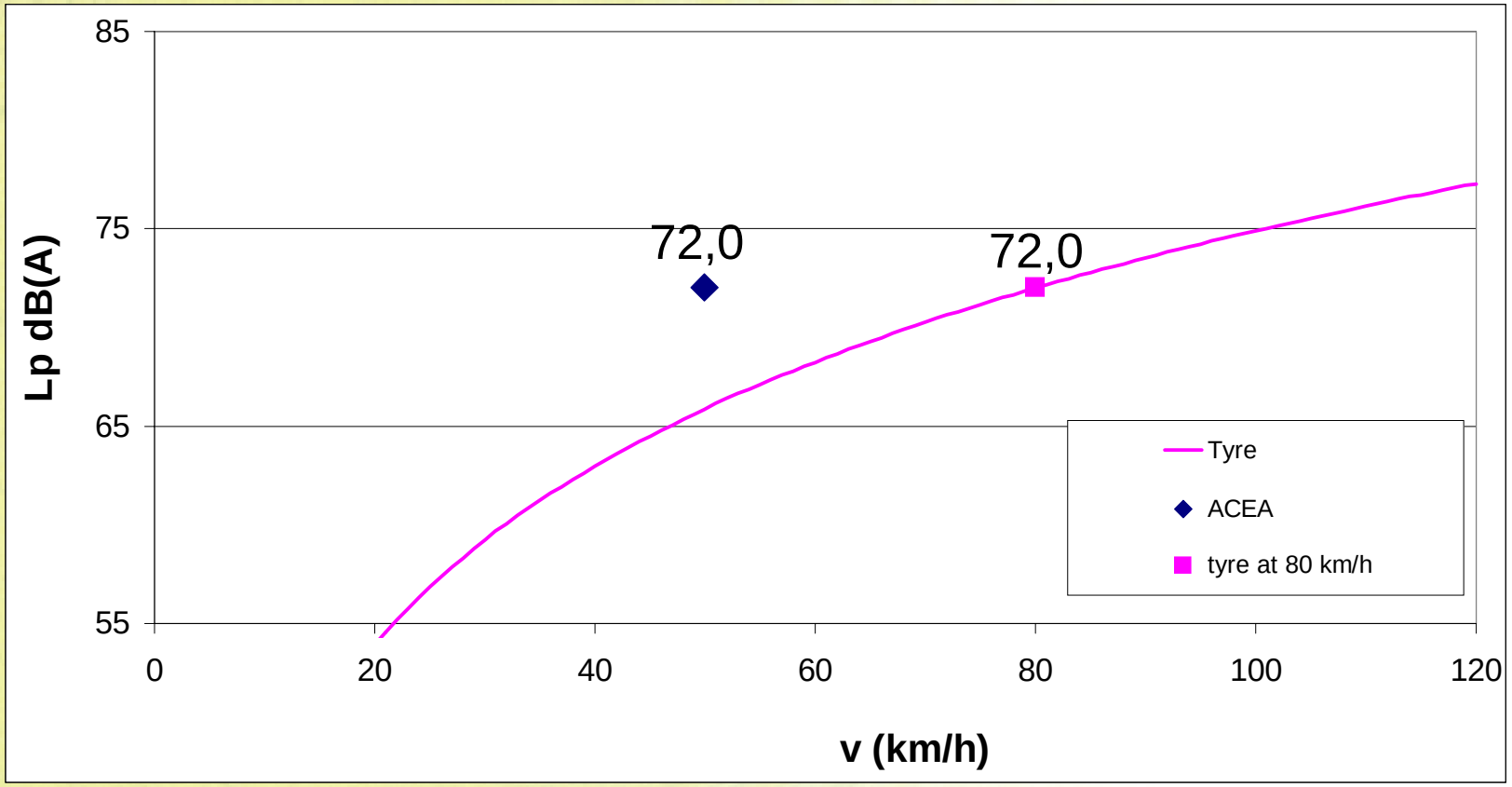
- ISO 362: +1,6 dB(A)
- Powertrain: +4.3 dB(A)



Step 4: scenario study example 2

Input:

- ACEA: 72 dB(A)
- Tyre: –3 dB(A)



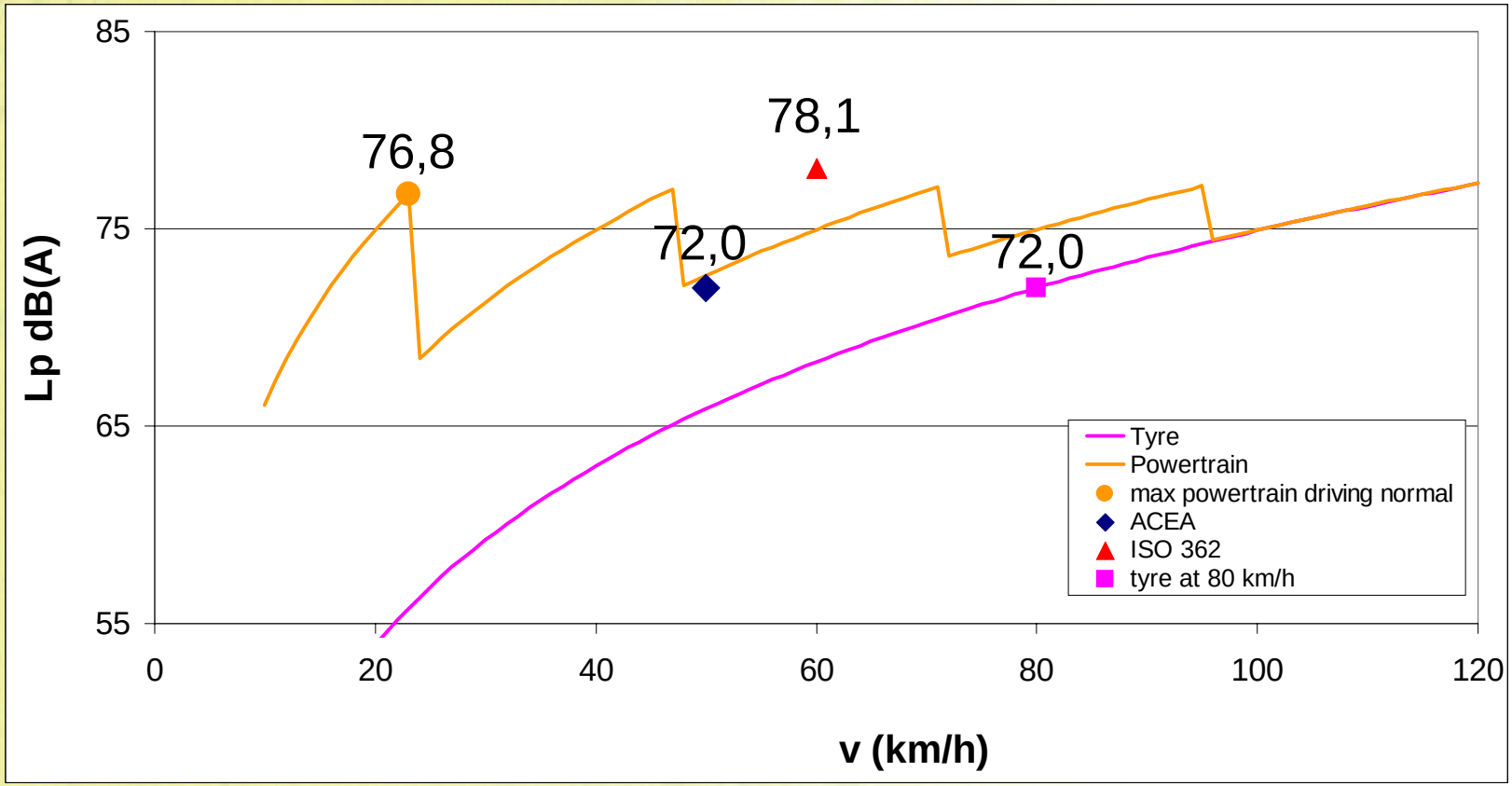
Step 4: scenario study example 2

Input:

- ACEA: 72 dB(A)
- Tyre: –3 dB(A)

Output:

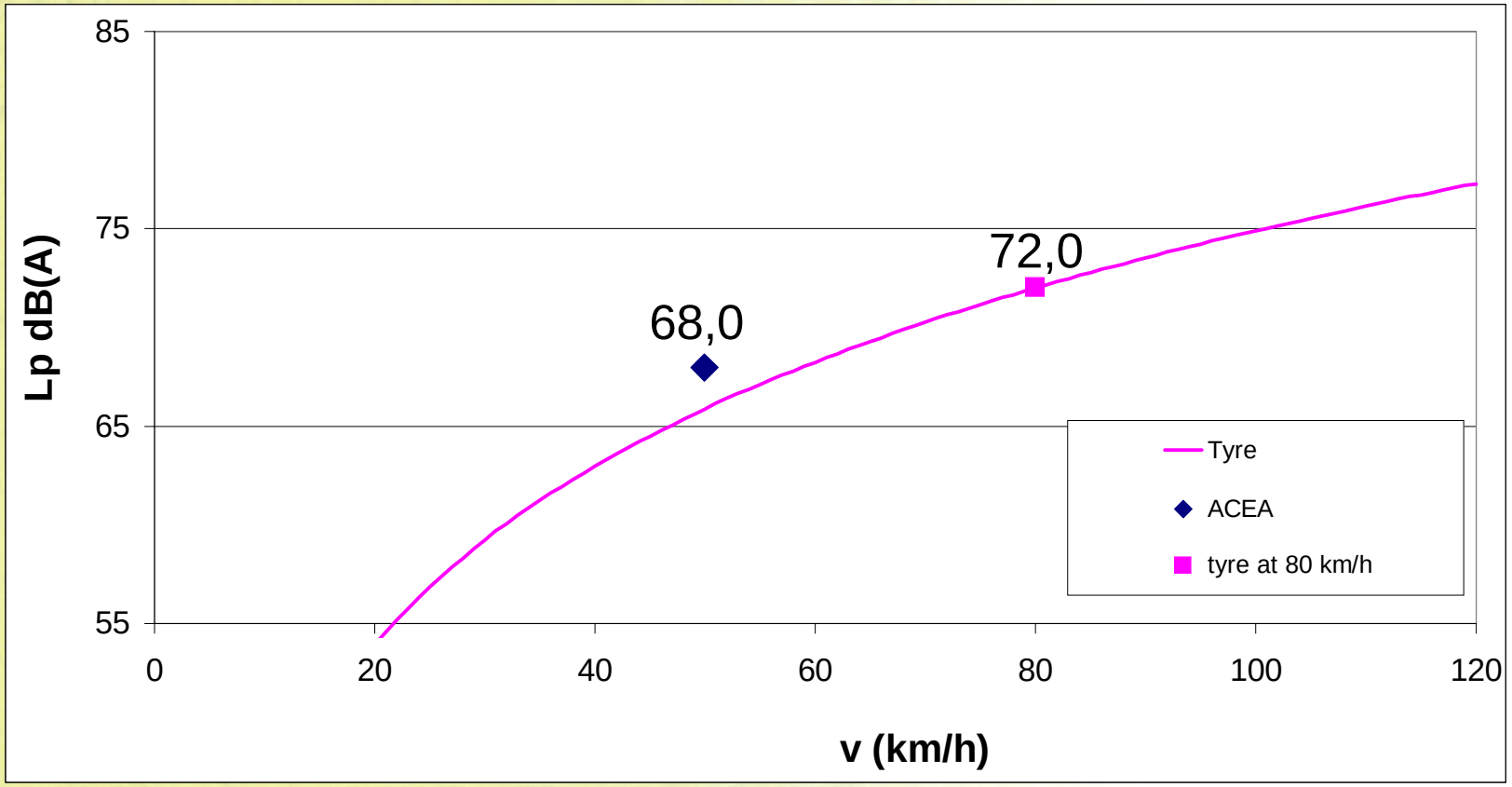
- ISO 362: +4.1 dB(A)
- Powertrain: +7.2 dB(A)



Step 4: scenario study example 3

Input:

- ACEA: 68 dB(A)
- Tyre: –3 dB(A)



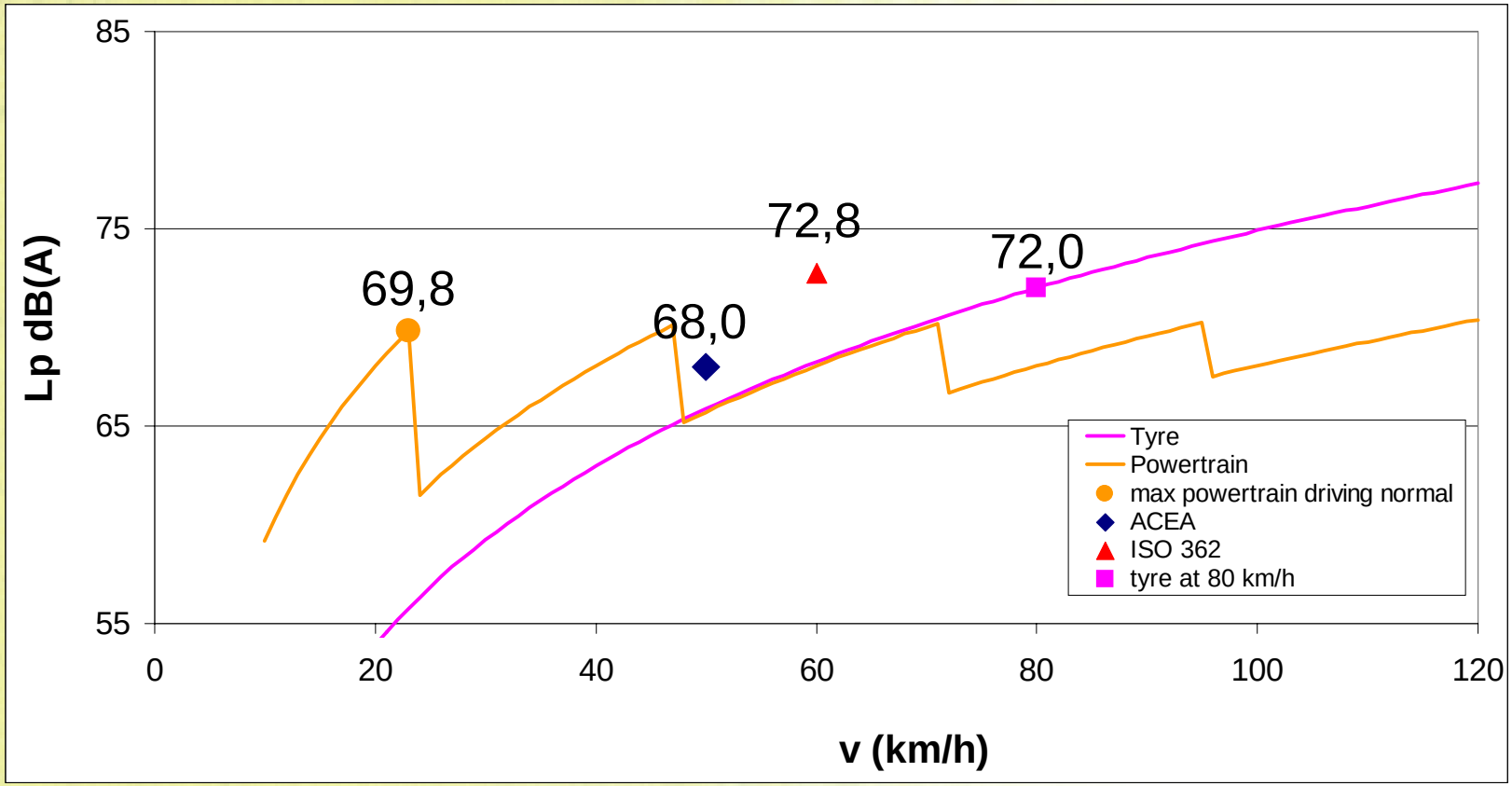
Step 4: scenario study example 3

Input:

- ACEA: 68 dB(A)
- Tyre: –3 dB(A)

Output:

- ISO 362: -1.6 dB(A)
- Powertrain: +0.3 dB(A)



Conclusions

- **A type approval measurement method, which contains both powertrain noise and tyre/road noise, exhibits the possibility to balance both sources in order to obtain a desired level.**
- **This example illustrates for the ACEA proposal, how a large change in one source (powertrain) can be compensated by a small change in the other source (tyre/road).**
- **The feasibility to control powertrain noise with this proposal is estimated to be limited compared to the current ISO 362 measurement method**
- **Adequate limit values might compensate this effect**