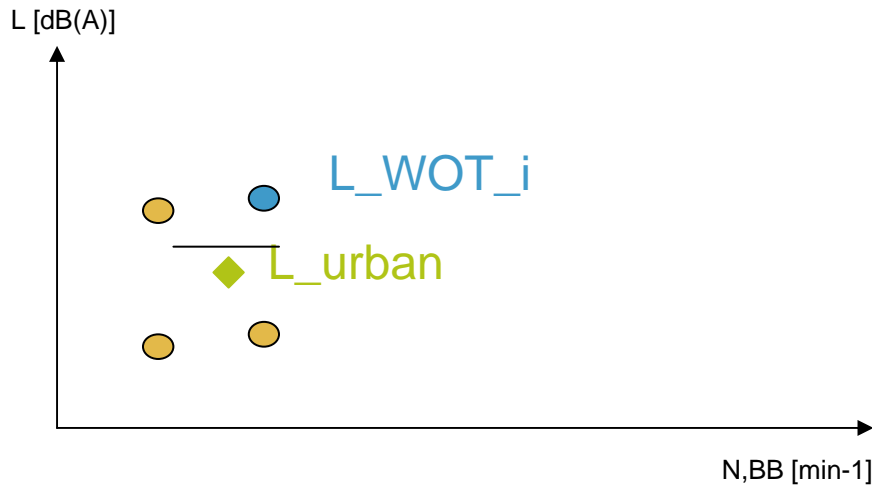

OICA Method – short overview

IG ASEP, Japan – 06.2008

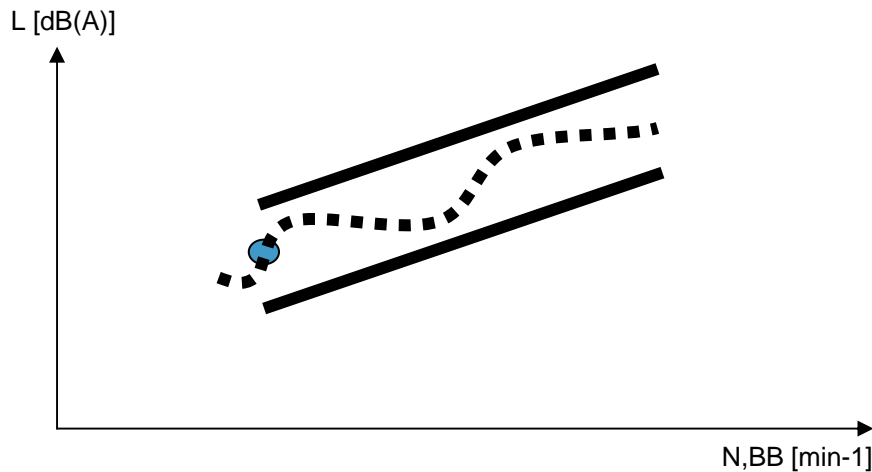
FG.

Our understanding of ASEP



If L_{urban} is lower than the limit, it means that L_{WOT_i} is legal.

This point is then a reference for ASEP, as it is a real point and it is legal for ANNEX III

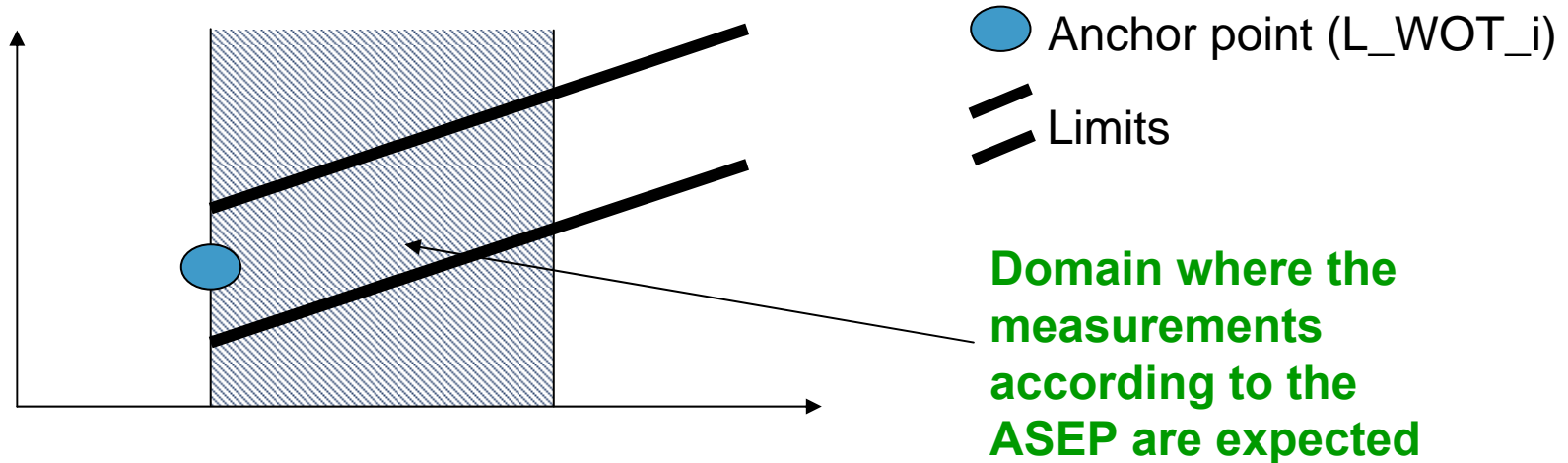


ASEP, according to the terms of reference, shall:

- check the validity of other points measured in an other domain not check by Annex III and therefor
- show weather these points are in an expected noise range

Main Idea:

- Define a domain of validity for measurements done for ASEP for each individual vehicles

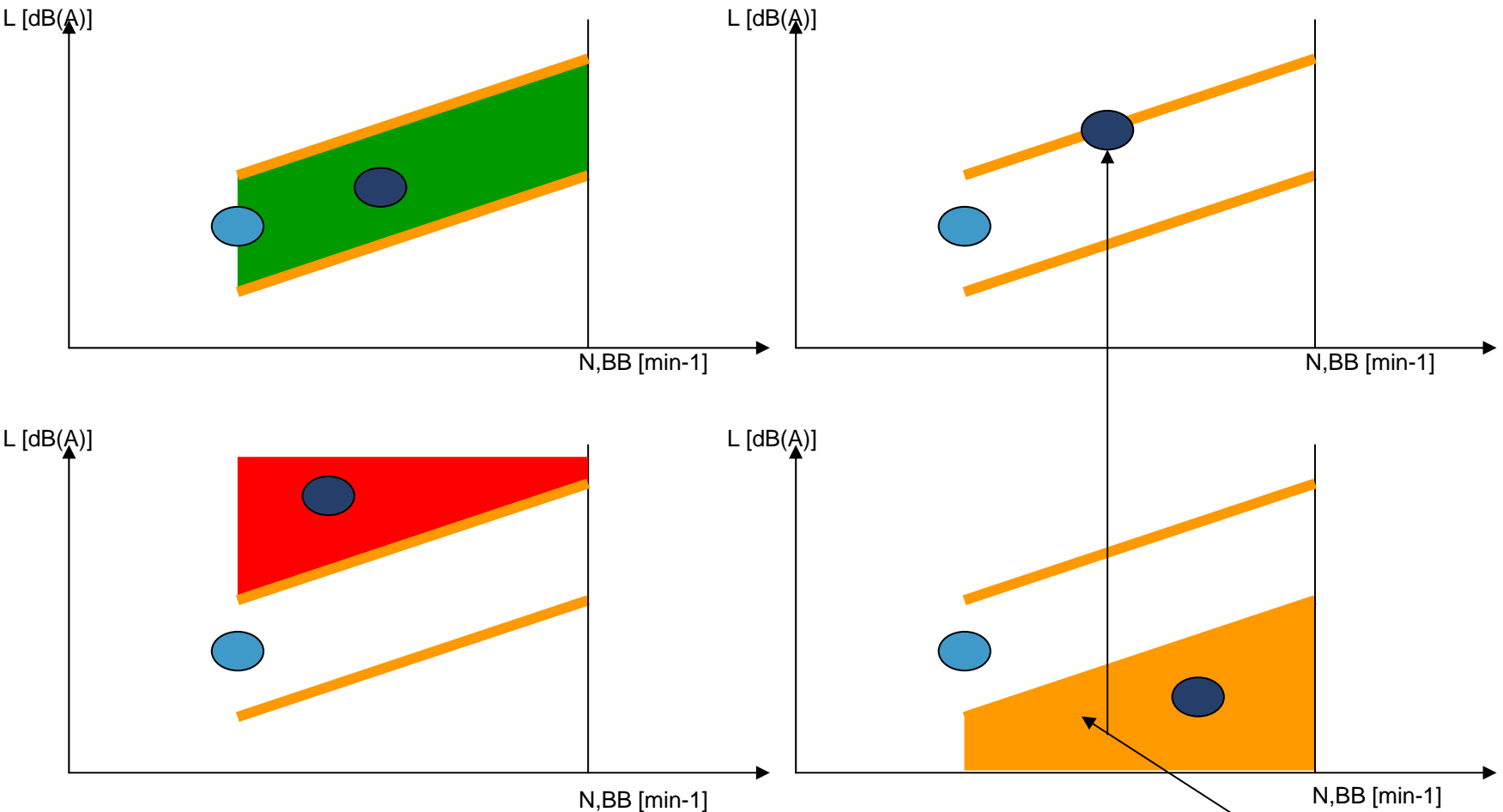


- We learned the following: there is no typical slope. Valid vehicles can have big slope, not valid vehicles could have little slopes.

→ Therefore OICA proposes to **take into account the natural slope** of the vehicle but also to **limit it in reasonable boundaries**.

- OICA propose to **link both Annex III and Annex X** by overtaking the homologation point as anchor point for the Annex X

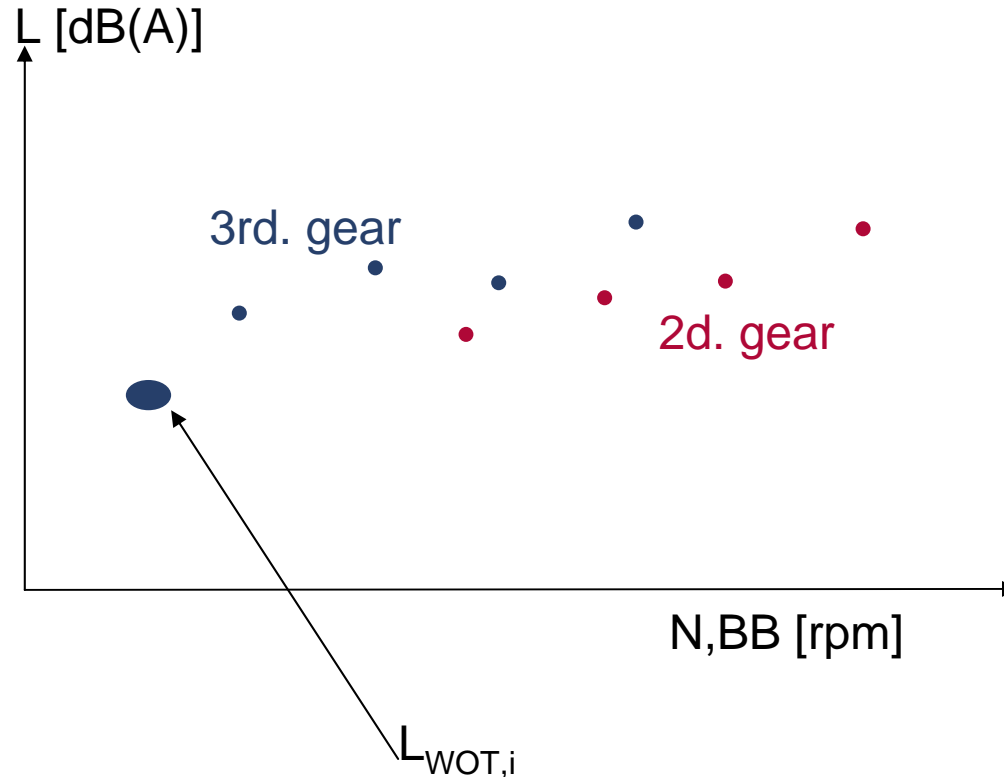
How does it works ?



- Anchor point (L_{WOT_i})
 - ▬ Domain of validity
 - One measurement
- to be discussed

What do we need to measure ?

- 4 measurements equally distributed between $N_{WOT,i}$ and N_{max_ASEP} in gear 2
- 4 measurements equally distributed between $N_{WOT,i}$ and N_{max_ASEP} in gear 3



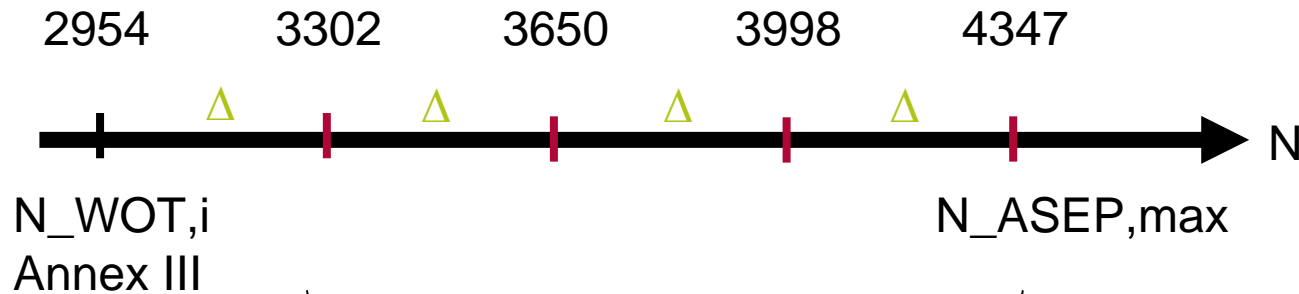
RPM targets for the 4 measurements

One Example:

$$N_{WOT,i} = 2954 \text{ min}^{-1}$$

$$N_{ASEP,max} = 2,6 \times PMR^{-0,29} (S - N_{idle}) + N_{idle} = 4347 \text{ min}^{-1}$$

$$\Delta = (4347 - 2954) / 4 = 348 \text{ min}^{-1}$$



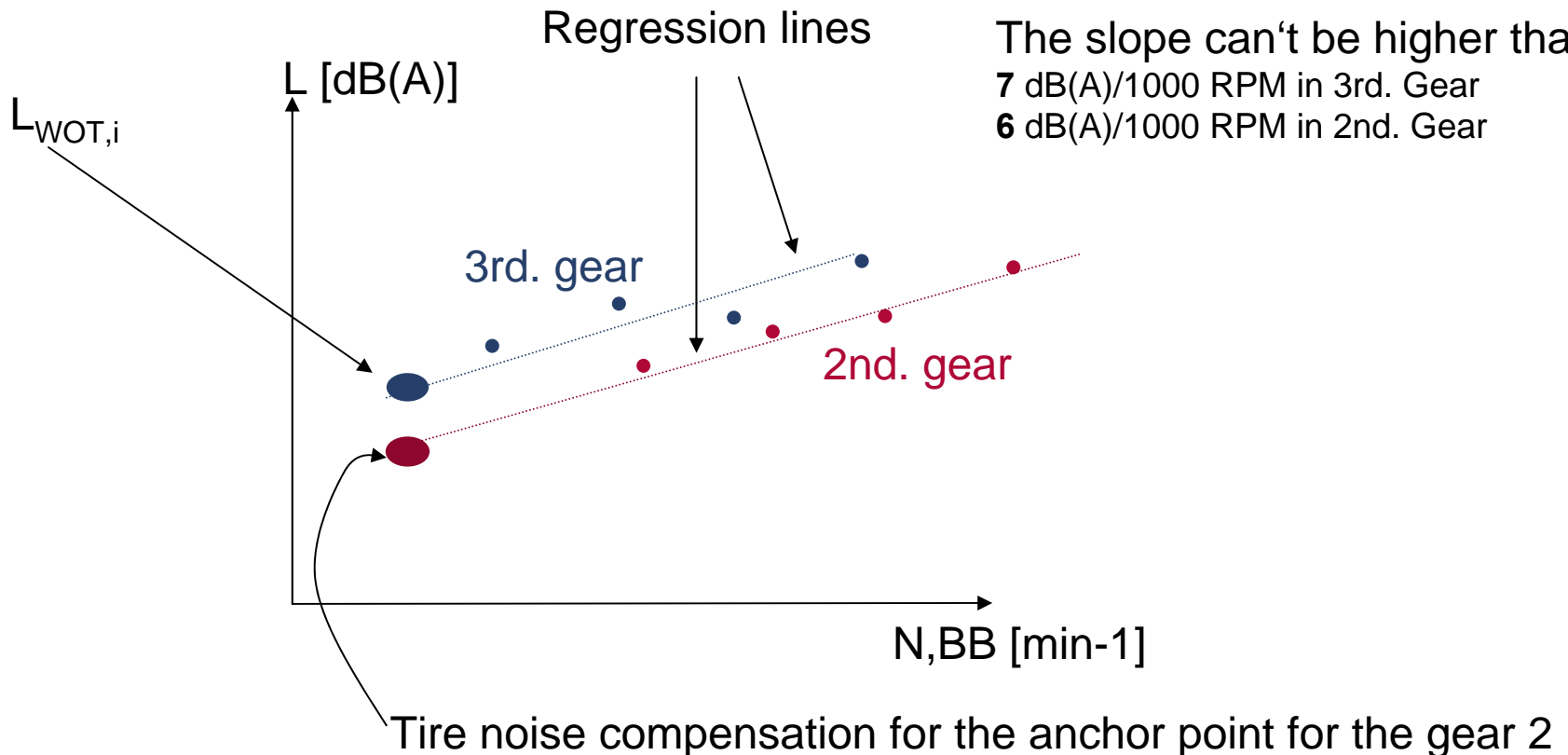
→ OICA proposes 4 additional noise measurements (Tolerance of [150] RPM)

Calculation of the natural sound increase of the vehicle (slope)

Note:

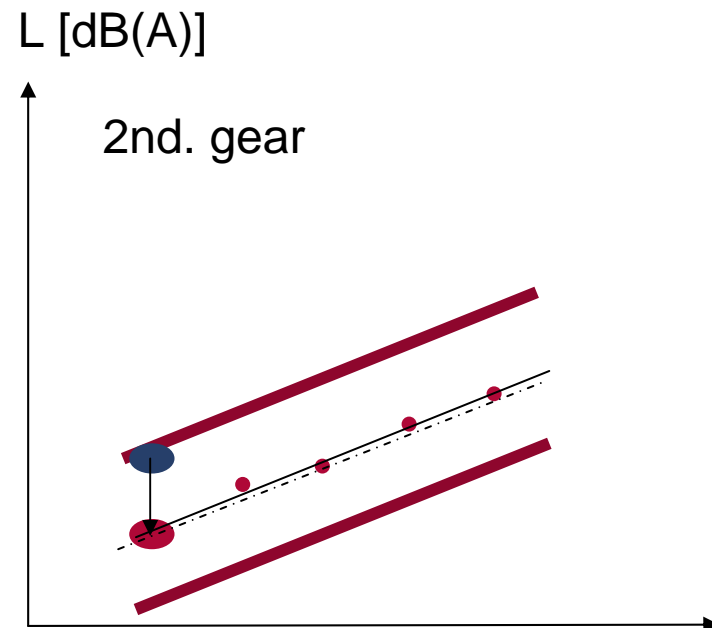
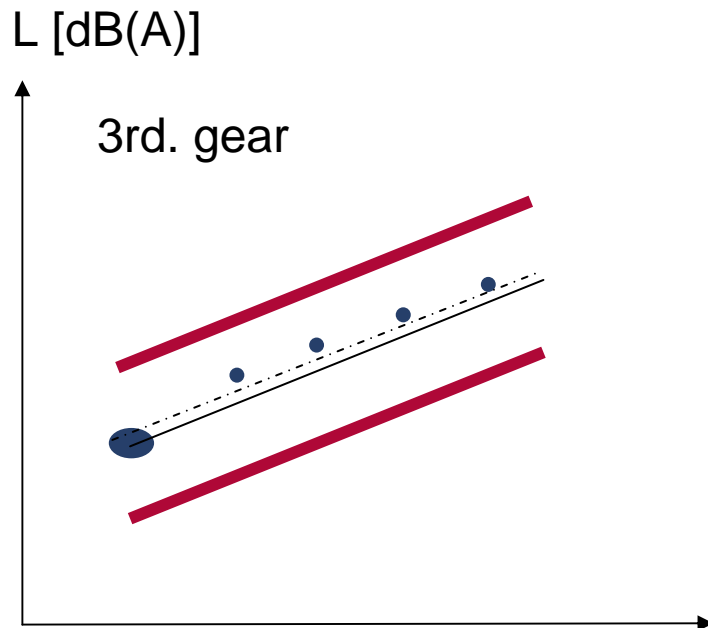
The slope can't be lower than 3 dB(A)/1000 RPM

The slope can't be higher than 7 dB(A)/1000 RPM in 3rd. Gear
6 dB(A)/1000 RPM in 2nd. Gear



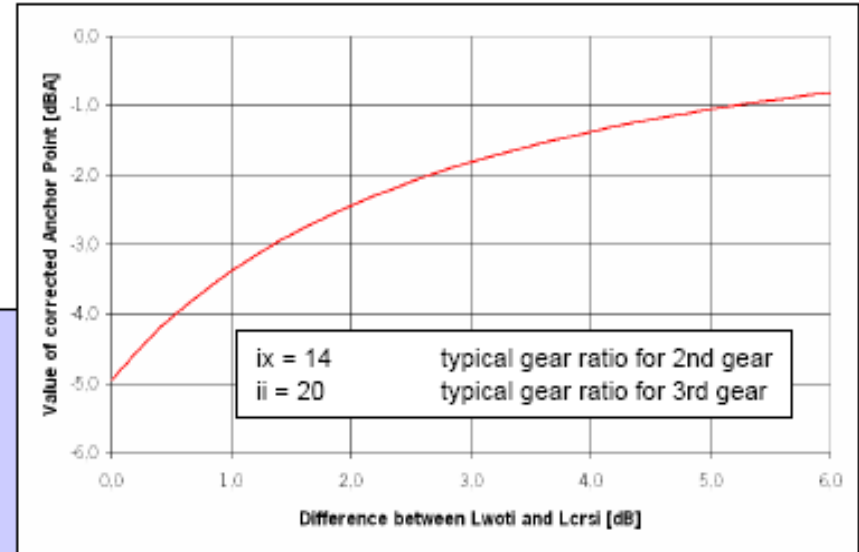
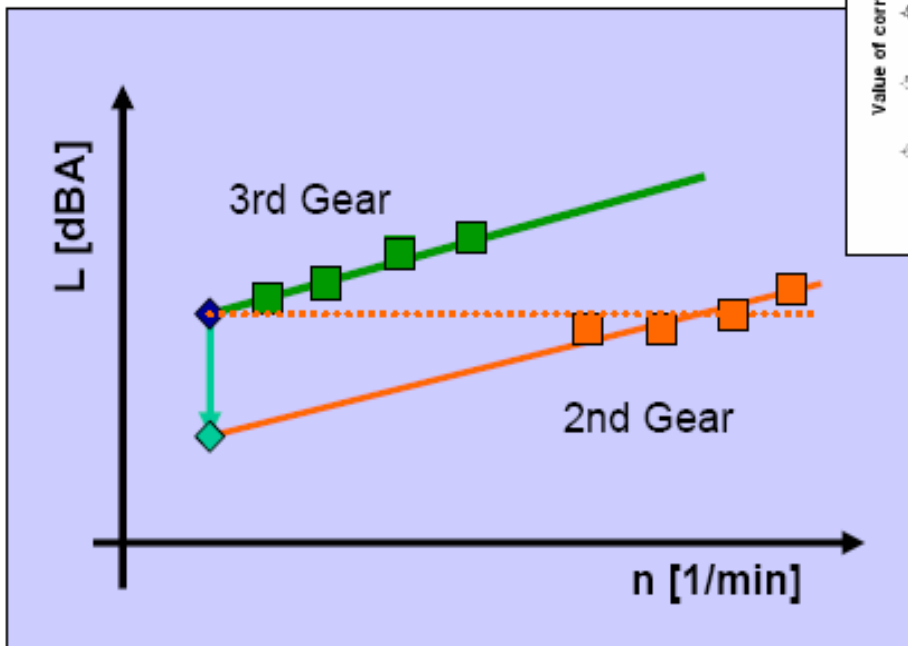
Domain of validity - definition

- Creation of the theoretical line (black line): the line goes through the anchor point, its slope depends on the measurements and is limited between
 - [3-6] dB(A)/1000 RPM for the 2. gear
 - [3-7] dB(A)/1000 RPM for the 3. gear
- Domain of validity: +/- [4] dB(A) around the theoretical line



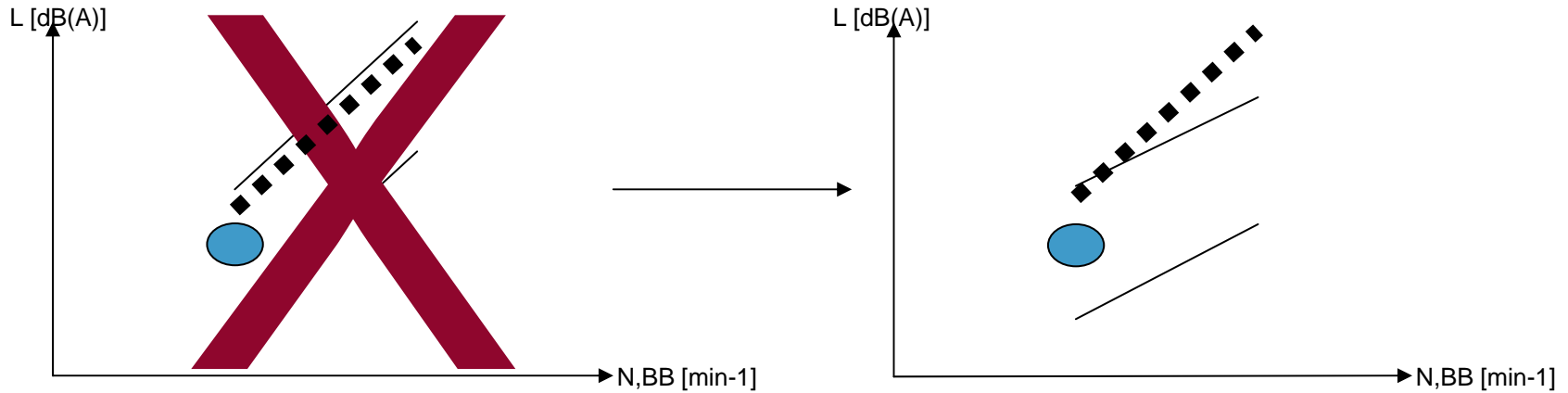
Reminder about the tyre correction

Correction for the Anchor Point

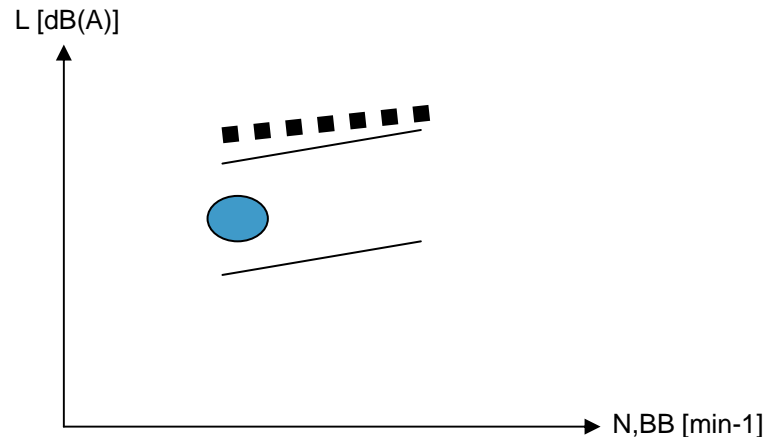


Some precisions about our intentions:

No self-adjustment system



Does not allow extrem behavior (concern)



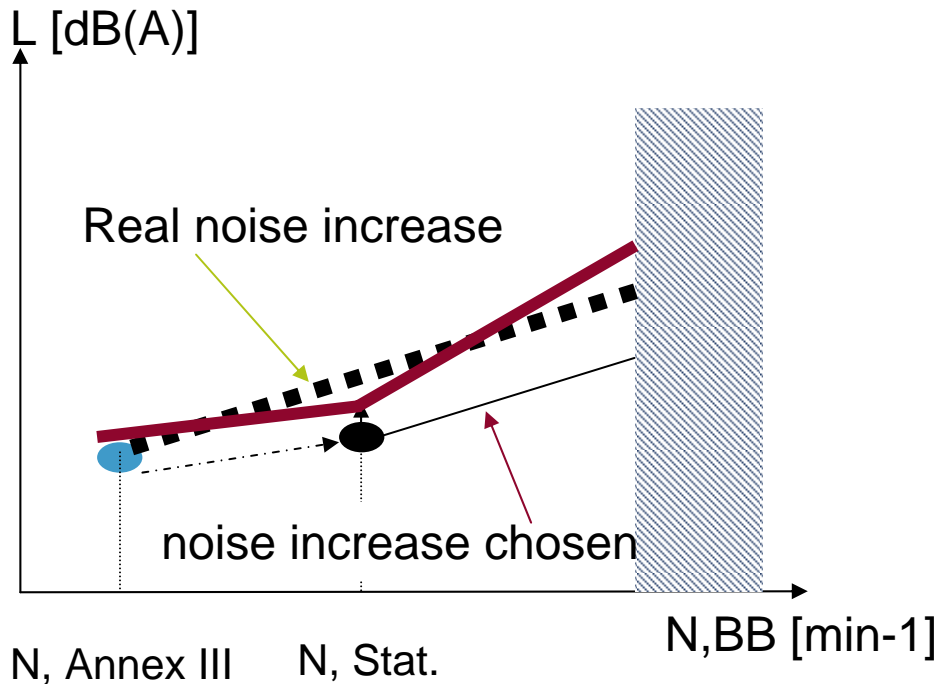
● Anchor point (L_{WOT_i}) ■■■■■ Noise measurements  limits

French-German-Proposal –

Backup

Concerns

What is OICA concern with the Ger-Fr-Proposal?



By shifting the anchor point, the method makes a wrong assumption. The Type-approval point is real. The noise line goes through this point **but not** through the anchor point chosen by the method issued from statistics.

This regulation would impose design dependant requirements and would therefore reduce improvements designs concerning fuel economy by forcing manufacturers to bring a define performance by a fix RPM depending on the PMR.

- What is the goal ? Why shifting the point and correct later with a tolerance?
- Why to correct a wrong model with the margin? Why 2 dB(A) ?
- Why not choosing a valid model directly ?

Analysis of the current database ASEP

