

Partial Load Test

ASEP IWG #7

March 2018

Changchun

JASIC

■ Partial Load Test (R51-03 Supplement 4) has been agreed in GRB.

3	Partial load driving ****	1	Acceleration is limited by a mechanical device	<p>Acceleration** shall be between a_{urban} and $a_{wot.ref}$, not exceeding 2.0 m/s².</p> <p>For ASEP**, the anchor point parameter are calculated by:</p> $L_{anchor} = (L_{test} - k_p * L_{crs}) / (1 - k_p)$ <p>with $k_p = 1 - a_{test} / a_{wot.ref}$ and $a_{wot.ref}$ according to 3.1.2.1.2.4. but not higher than 2.0 m/s²</p> $n_{anchor} = n_{bb.test} * 3.6 / v_{bb.test} * (a_{test} * (20 + 2 * l_{veh}) + 192,9)^{0.5}$
		2	External Programming for partial load acceleration (***)	

**** Applicable only to Pure Electric Vehicle (PEV) as defined in UN R83.07 Revision 5, paragraph 2.30.

■ Proposal for extending the other vehicle than EV

3	Partial load driving ****	1	Acceleration is limited by a mechanical device	<p>Acceleration** shall be between a_{urban} and $a_{wot.ref}$, not exceeding 2.0 m/s².</p> <p>For ASEP**, the anchor point parameter are calculated by:</p> $L_{anchor} = (L_{test} - k_p * L_{crs}) / (1 - k_p)$ <p>with $k_p = 1 - a_{test} / a_{wot.ref}$ and $a_{wot.ref}$ according to 3.1.2.1.2.4. but not higher than 2.0 m/s²</p> $n_{anchor} = n_{bb.test} * 3.6 / v_{bb.test} * (a_{test} * (20 + 2 * l_{veh}) + 192,9)^{0.5}$
		2	External Programming for partial load acceleration (***)	

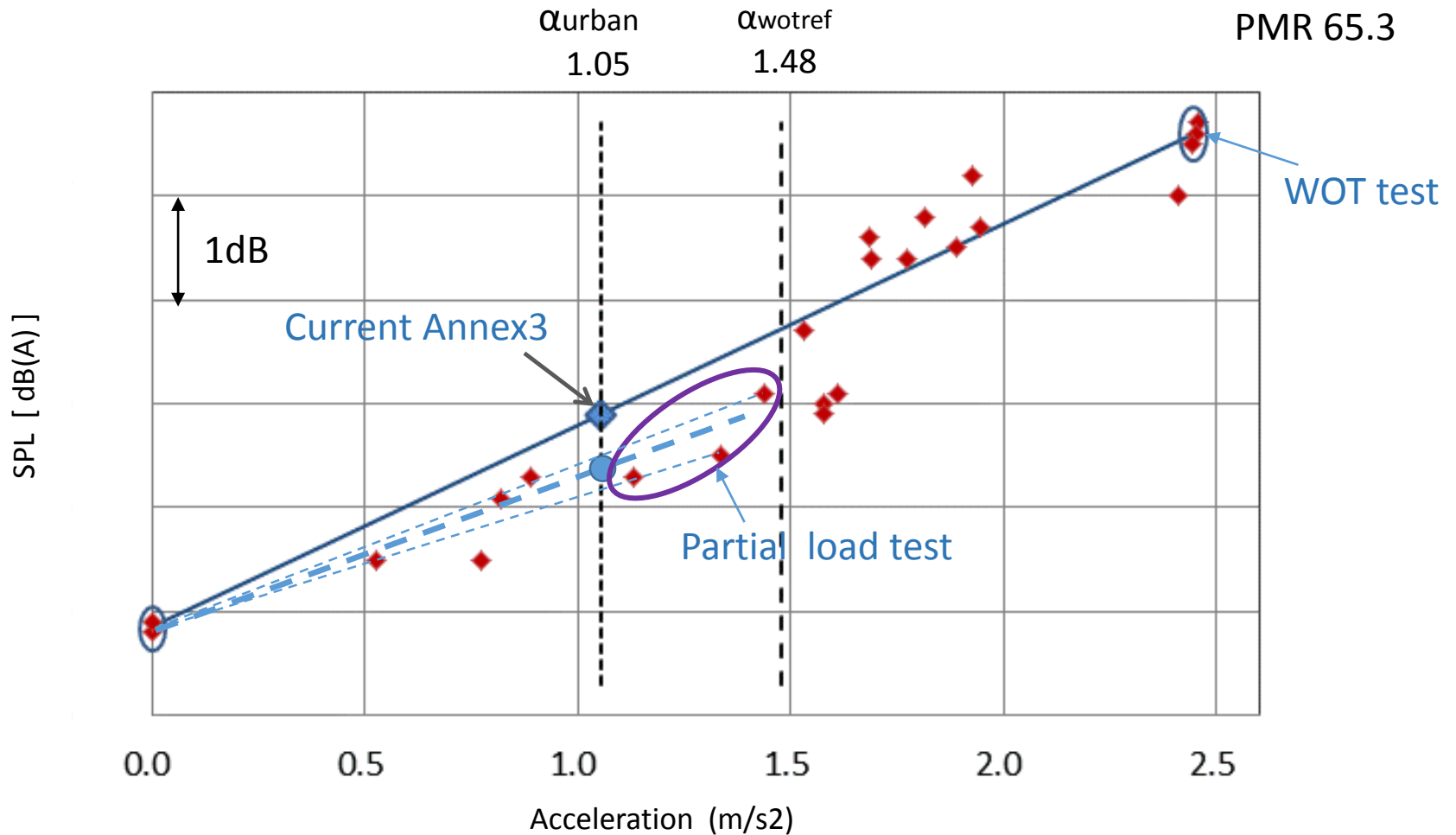
$a_{wot.ref}$

**** Applicable to vehicles except for vehicles with manual transmission, automatic transmissions, adaptive transmissions or CVTs tested with locked gear ratios.

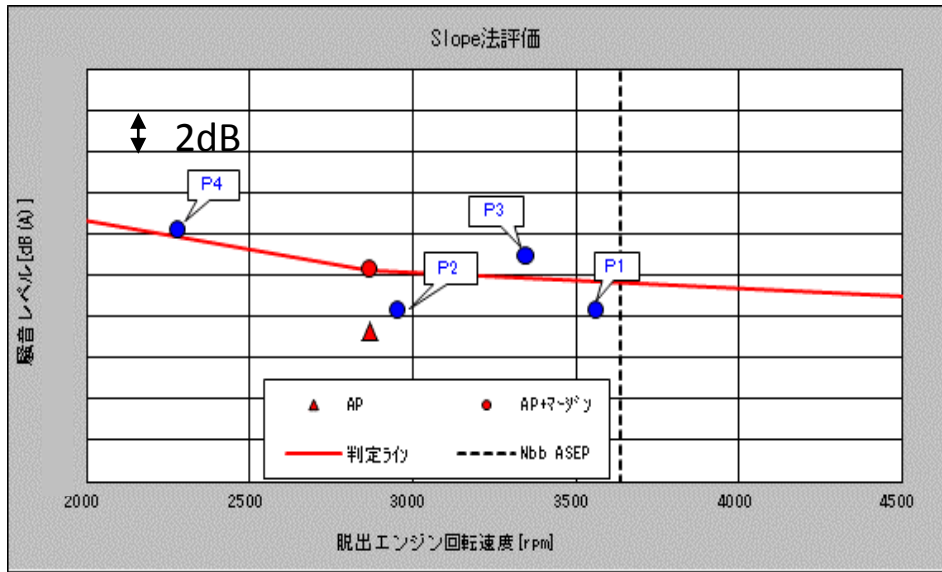
Example car No.1 (P-HEV)

There is no possibility to control to avoid more than 2.0m/s²,
Because the car has only one gear ratio.

Lurban by partial load test is similar result to Lurban by current Annex3 test.



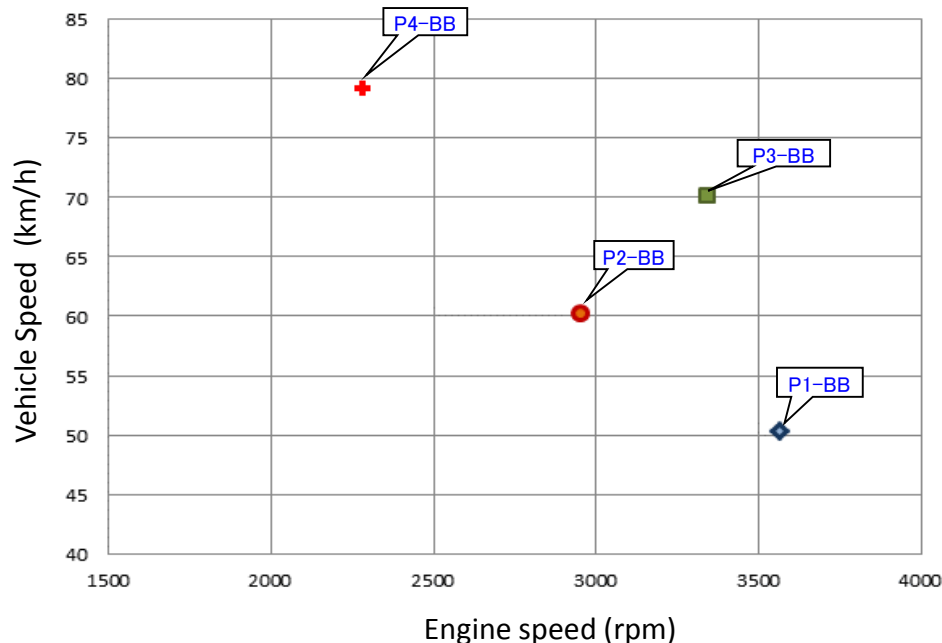
Confirmation of Current ASEP



Negative slope for slope assessment.
So L_{urban} assessment should be used.
L_{urban} assessment is complied.

Question; Locked or Non-locked gear for this car?

In case of non-locked conditions, if $Slope_k < 0$, the selected transmission setup is not valid.
But the other case...?



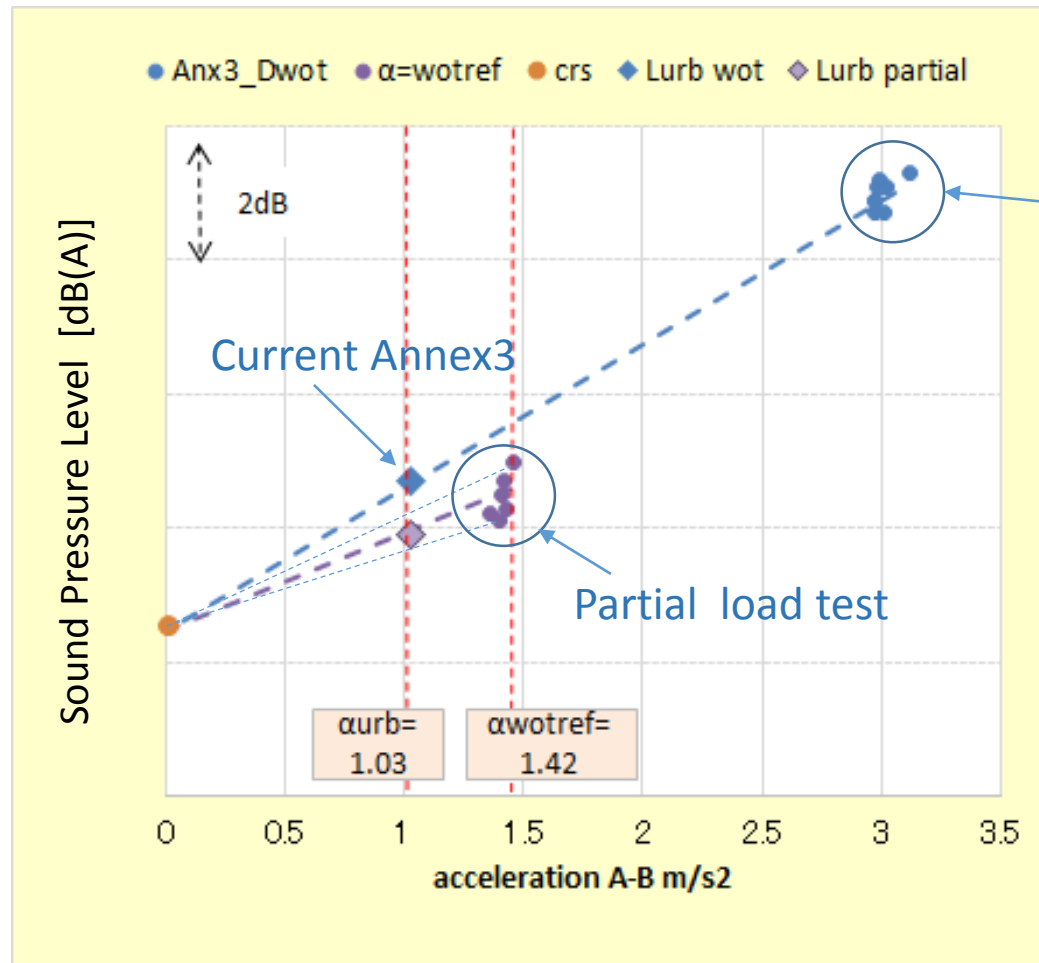
- All the cases of negative slope as well as non-locked gear case should not be valid.
- In this case L_{urban} Assessment should be used.

Example car No.2 (Series HEV)

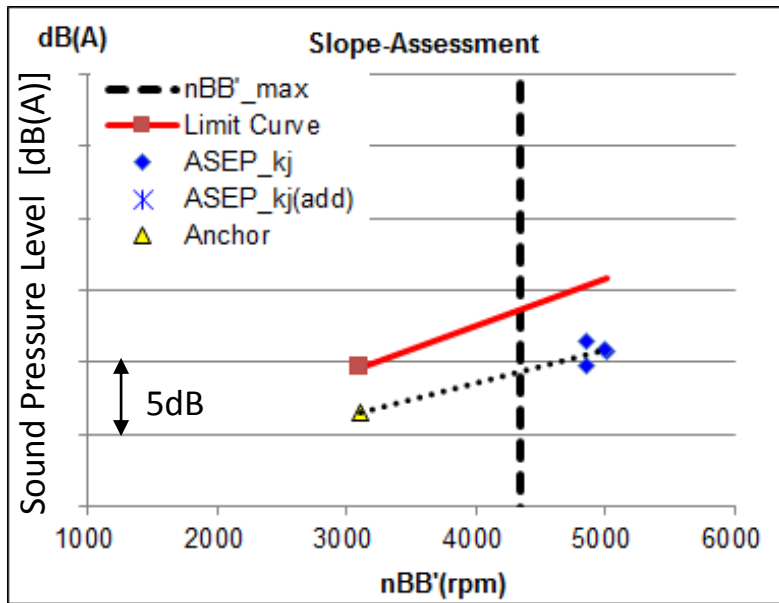
There is no possibility to control to avoid more than 2.0m/s²,
Because the car has only one gear ratio.

Lurban by partial load test is similar result to Lurban by current Annex3 test.

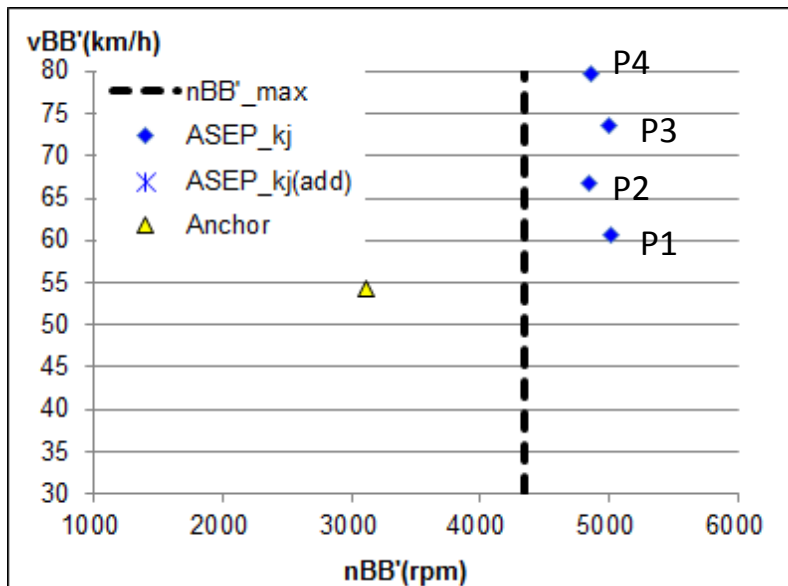
PMR 60.4



Confirmation of Current ASEP



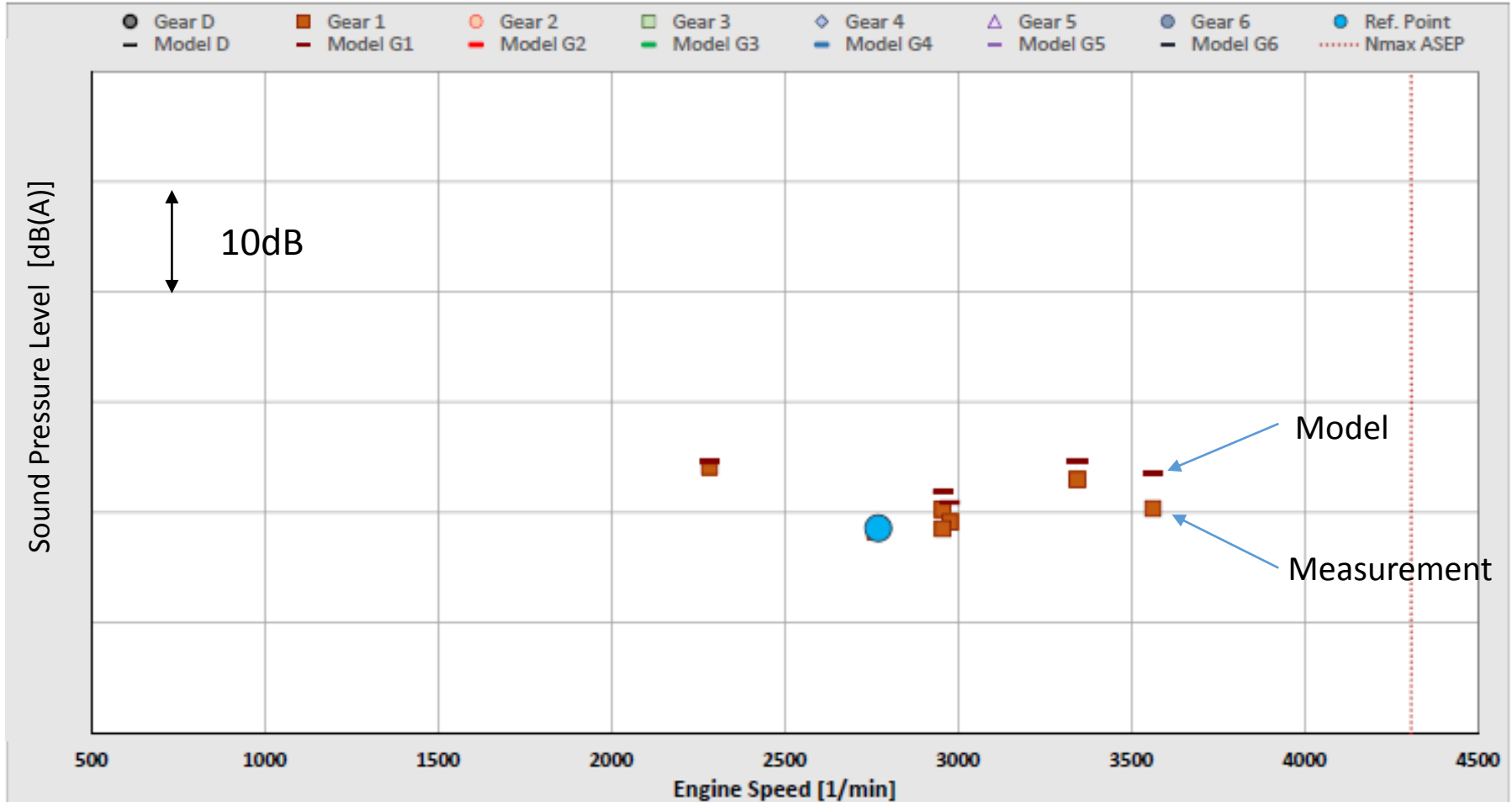
In this case, no valid set of data due to engine speed exceeds $n_{BB,ASEP}$. It is similar to typical CVT characteristics that is narrow range of engine speed for n_{BB} at P1~P4



Demonstration of Sound model for new ASEP

ASEP Sound model for example car No.1

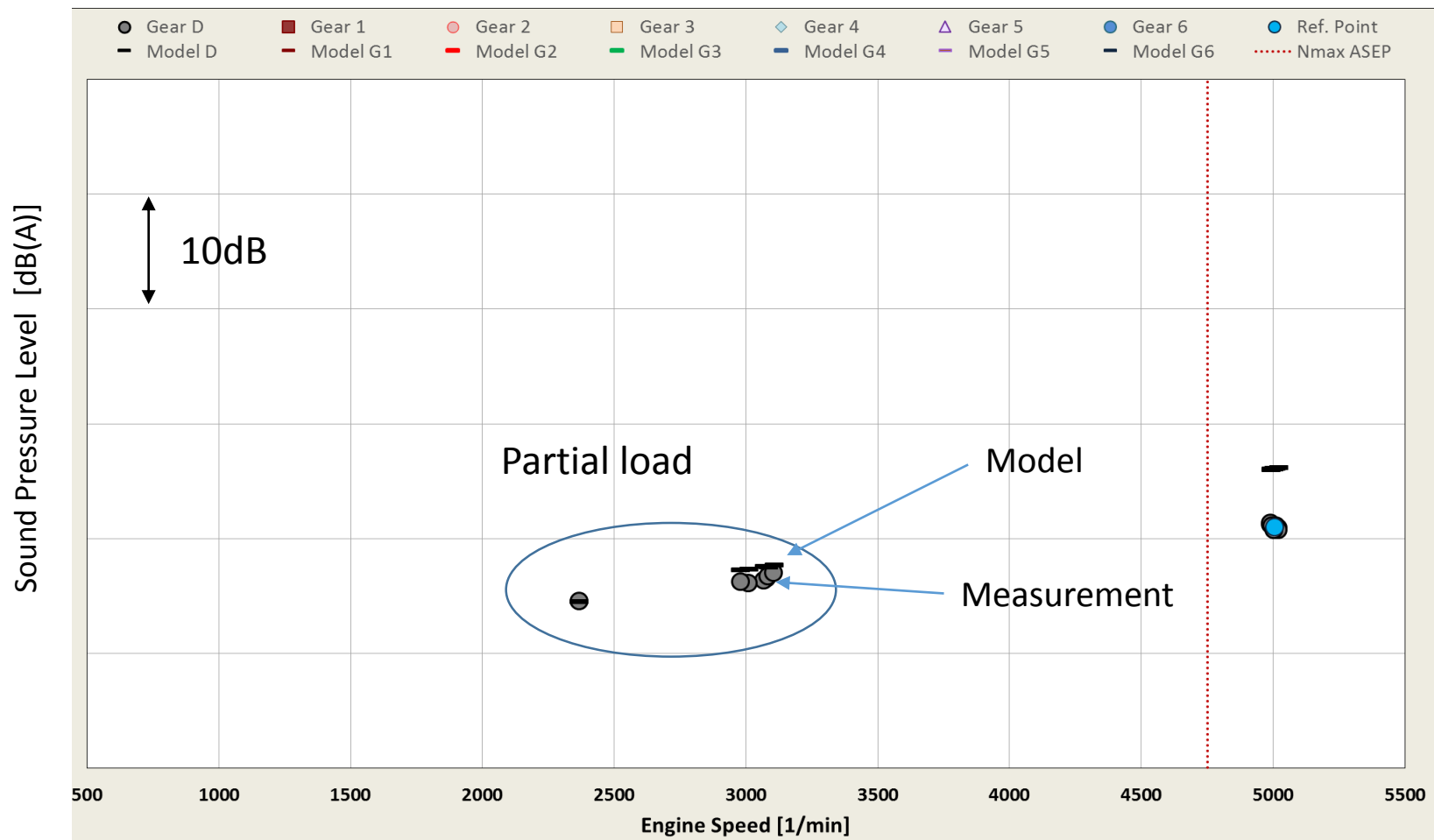
The sound model made by ASEP IWG works well.



Demonstration of Sound model for new ASEP

ASEP Sound model for example car No.2

The sound model made by ASEP IWG works well.



Summary

■ Proposal for partial load test

Should extend the other vehicle than EV

3	Partial load driving ****	1	Acceleration is limited by a mechanical device	Acceleration** shall be between a_{urban} and $a_{wot,ref}$, not exceeding 2.0 m/s ² . For ASEP**, the anchor point parameter are calculated by:
		2	External Programming for partial load acceleration (***)	$L_{anchor} = (L_{test} - k_p * L_{crs}) / (1 - k_p)$ with $k_p = 1 - a_{test} / a_{wot,ref}$ and $a_{wot,ref}$ according to 3.1.2.1.2.4. but not higher than 2.0 m/s ² $n_{anchor} = n_{bb,test} * 3.6 / v_{bb,test} * (a_{test} * (20 + 2 * l_{veh}) + 192,9)^{0.5}$

**** Applicable to vehicles except for vehicles with manual transmission, automatic transmissions, adaptive transmissions or CVTs tested with locked gear ratios.

■ Information of ASEP sound model

The sound model which is discussing in ASEP IWG works for HEV.