

# **ASEP**

**-- AT & CVT --**

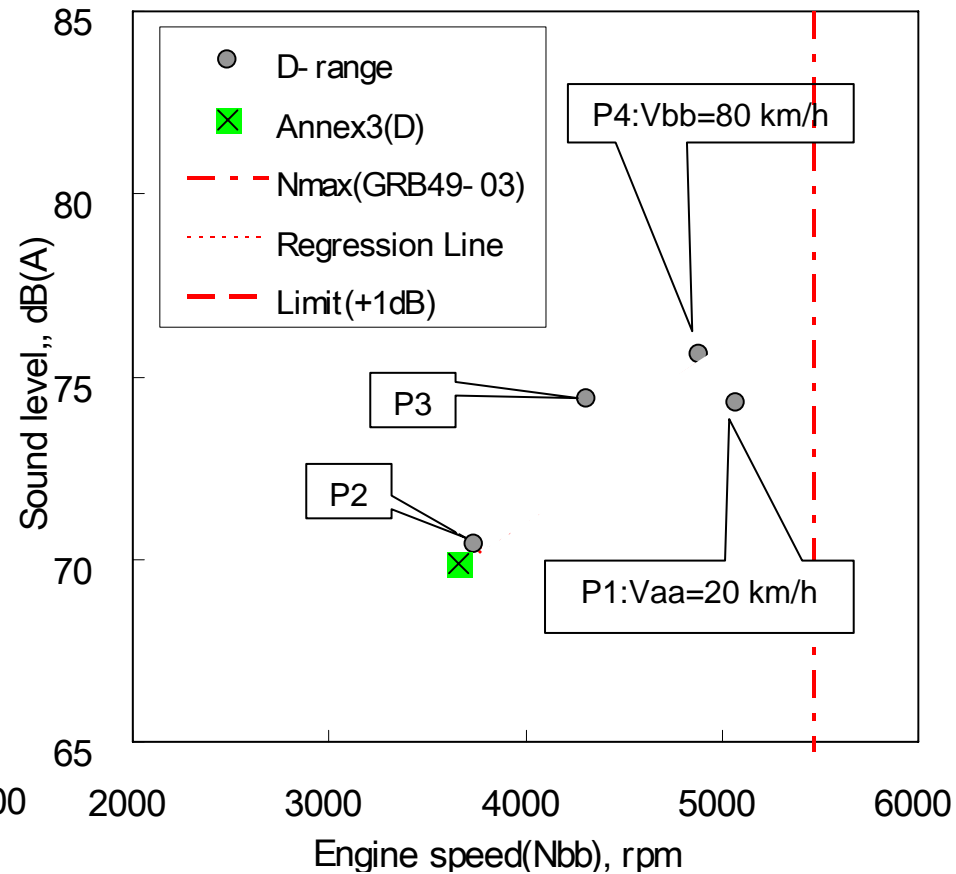
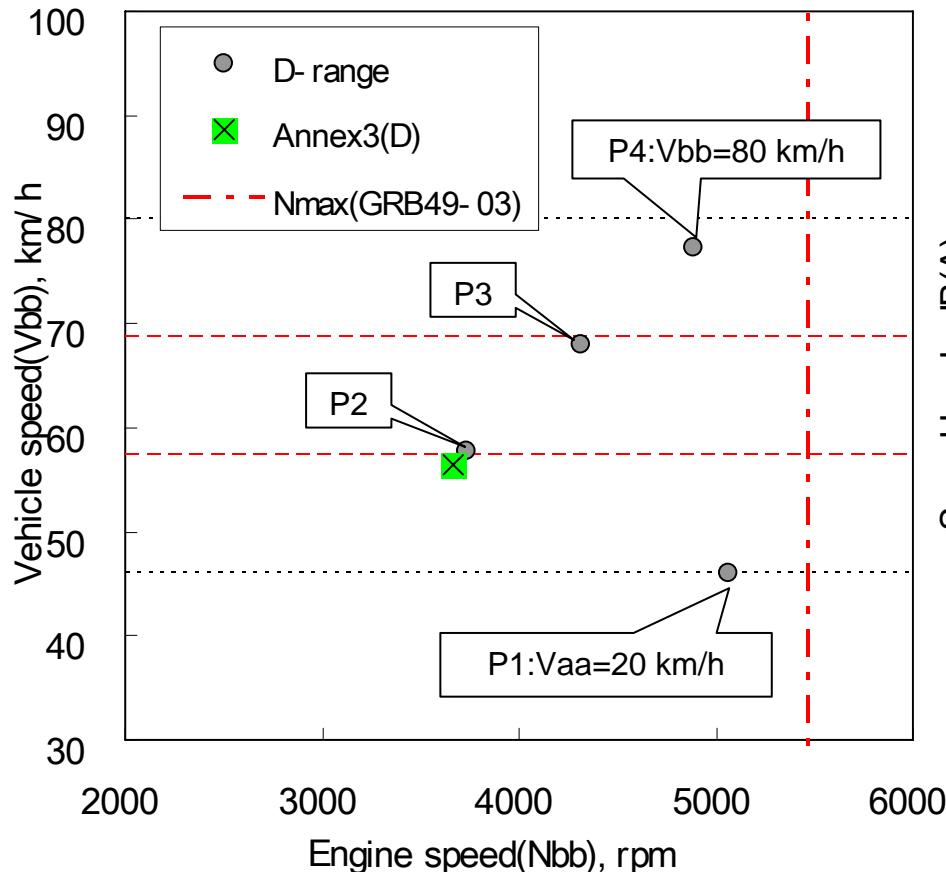
**GRB informal meeting #15**  
**14-15 May 2009**  
**JASIC**

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# 1

## Applying GRB49-03 to non locked AT without tyre noise compensation

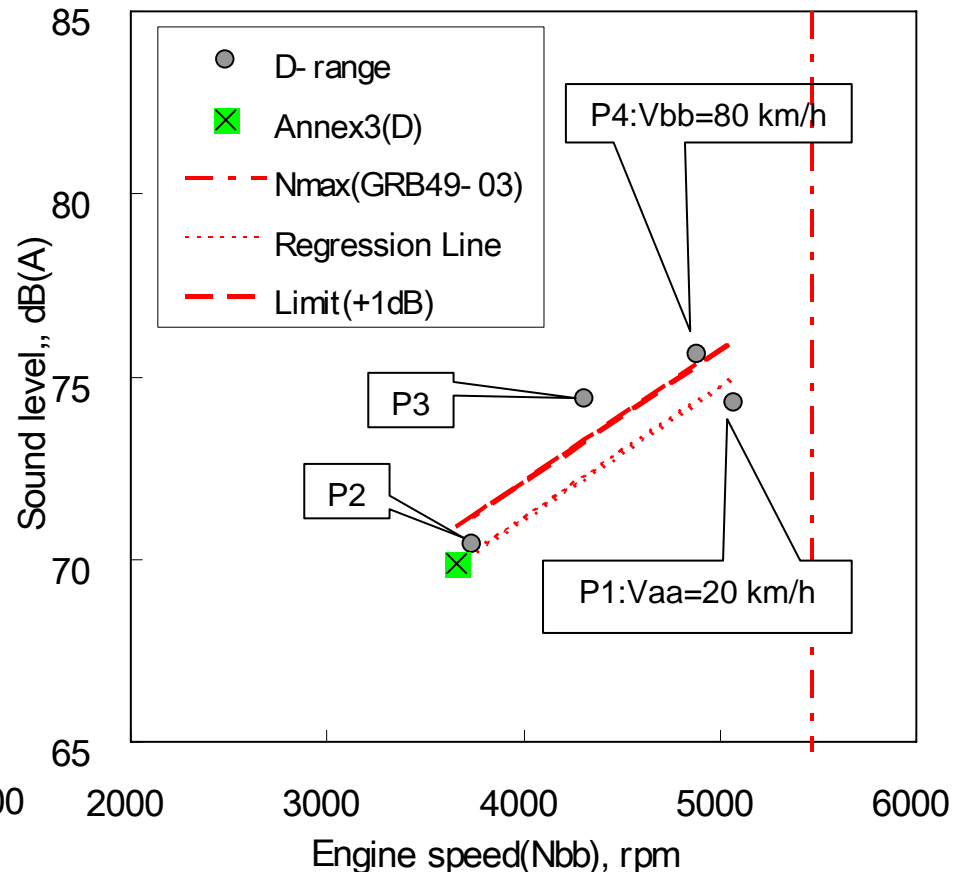
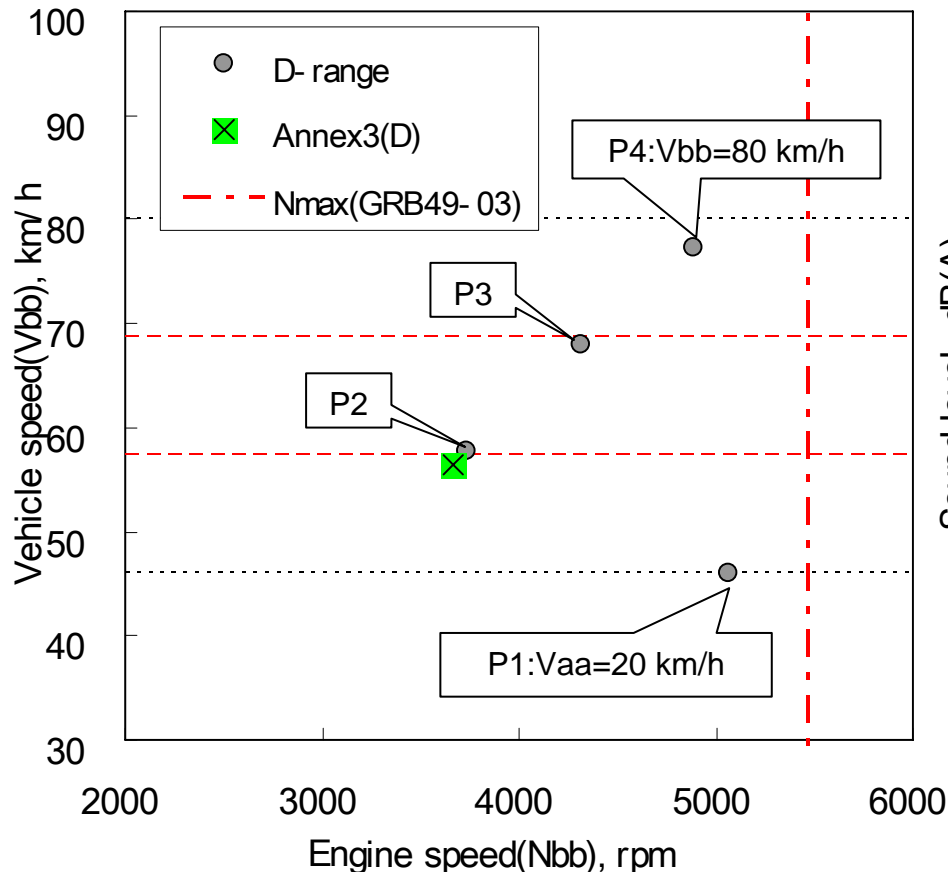


Cannot draw the accurate line (sound slope) because of mixture of gear ratios.  
What happens if without tyre noise compensation?

Vehicle : ASEP-1-08(AT)

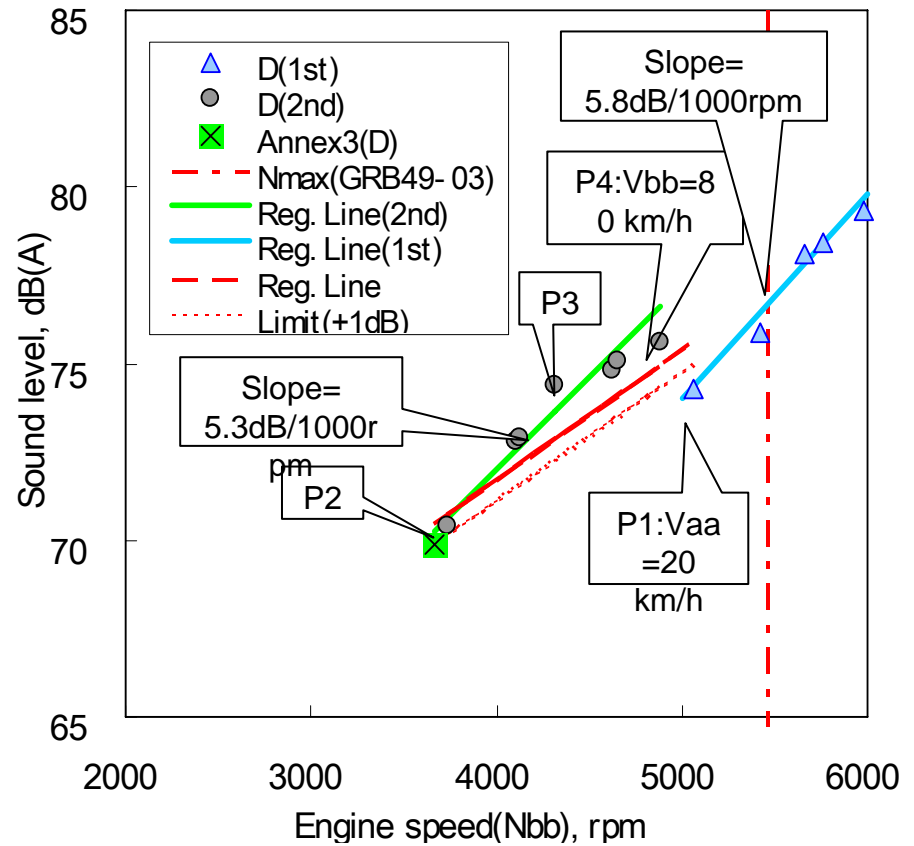
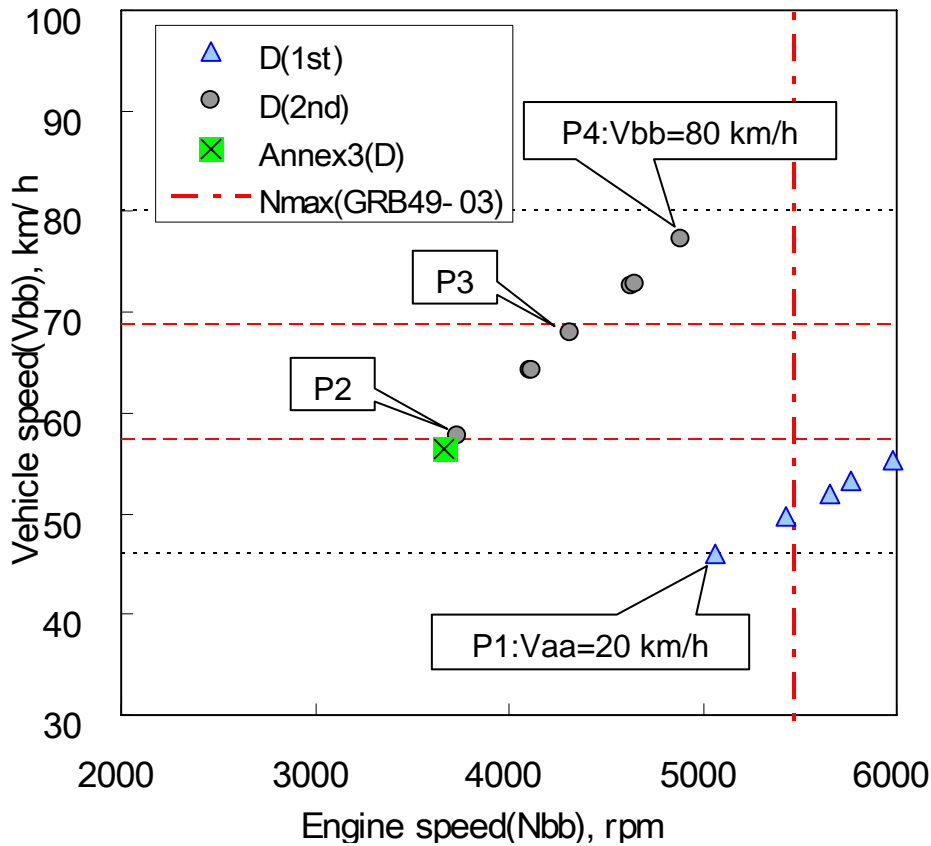
# 1

## Applying GRB49-03 to non locked AT without tyre noise compensation



What happens if without tyre noise compensation?  
Failed ASEP

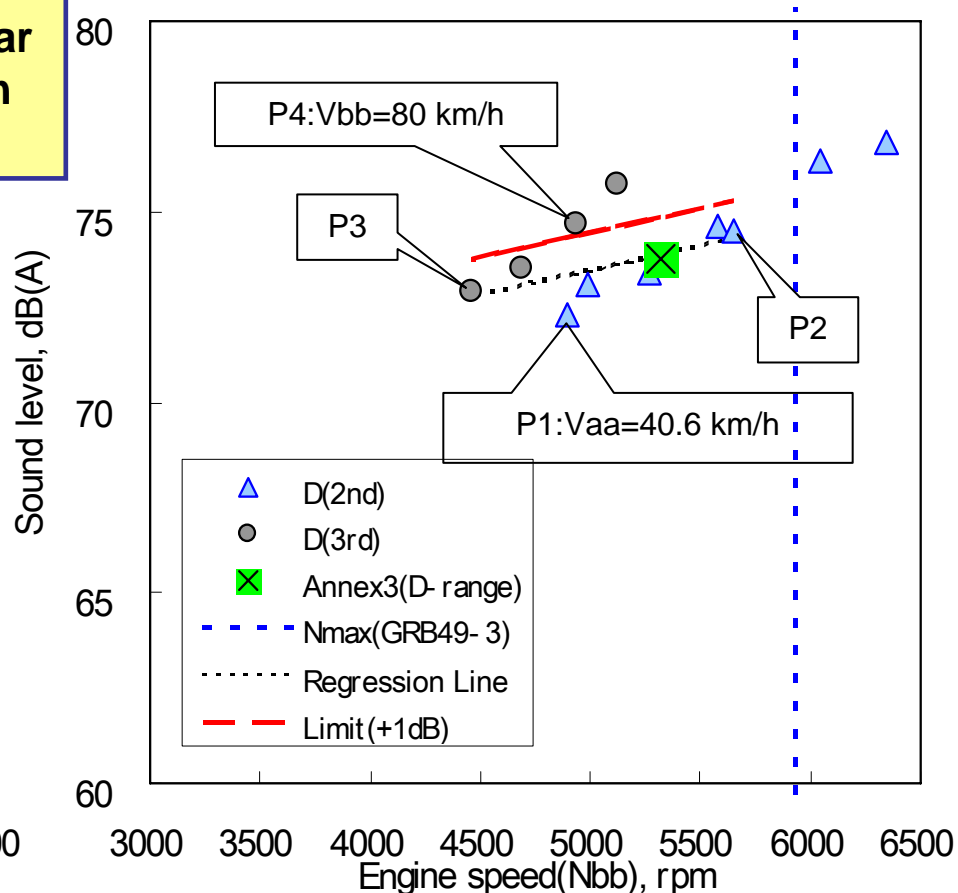
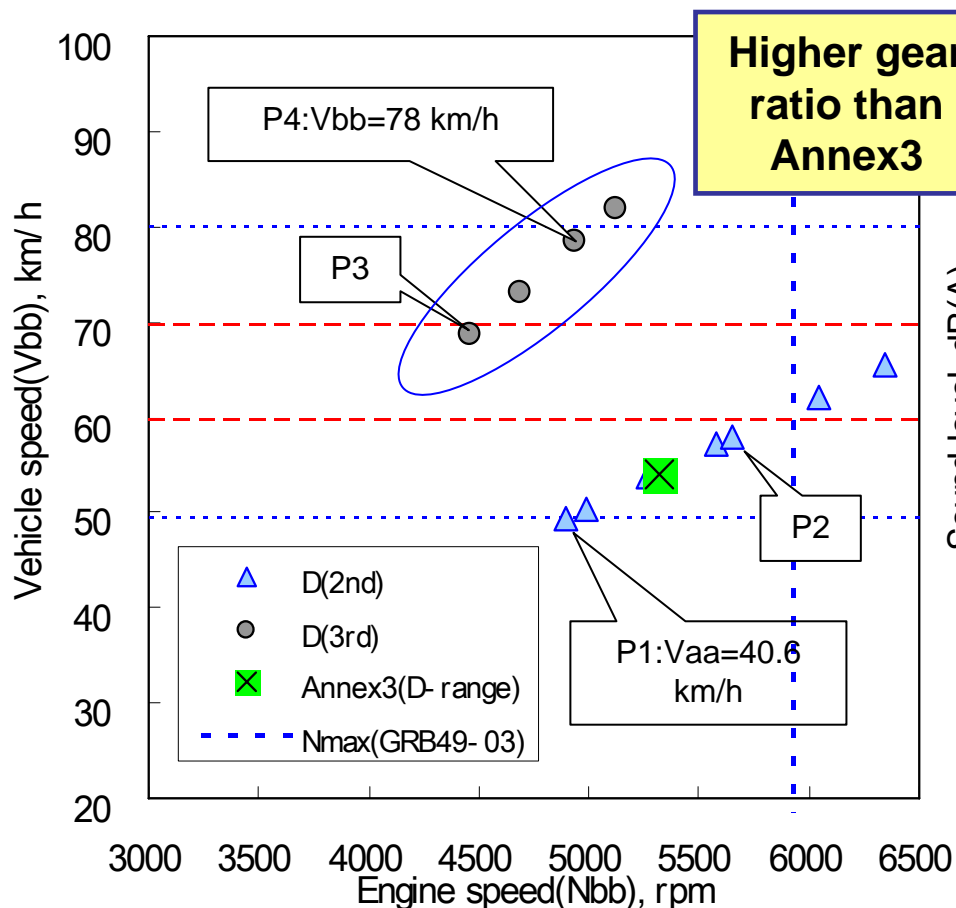
Vehicle : ASEP-1-08(AT)



Failed ASEP  
due to an error of regression calculation.

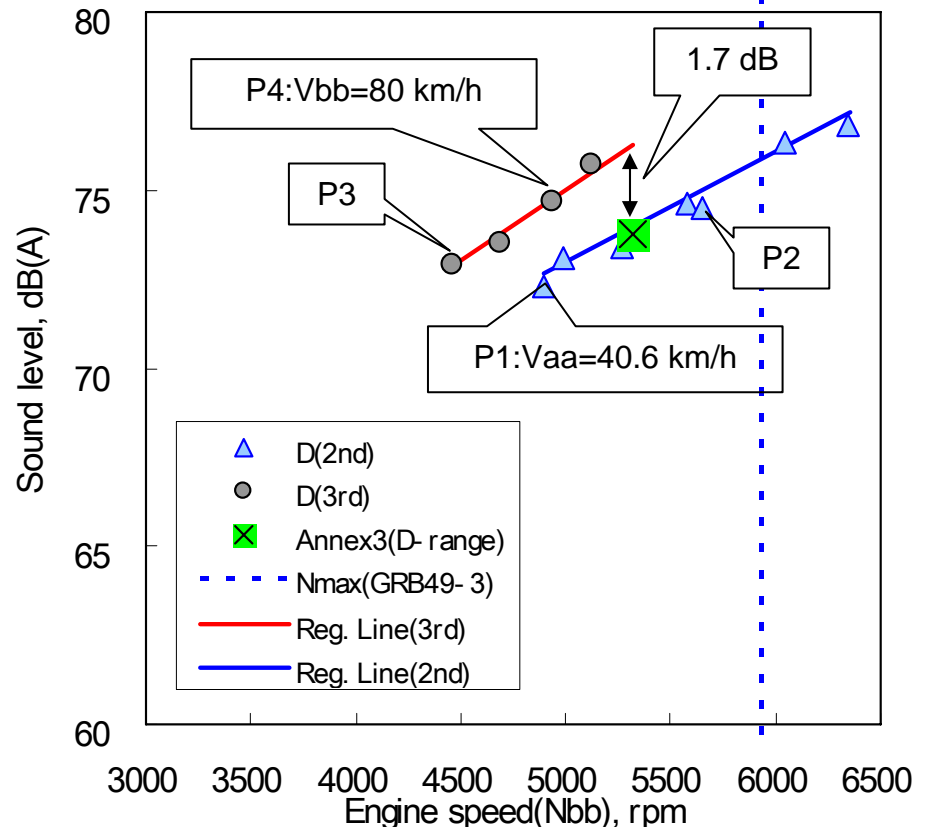
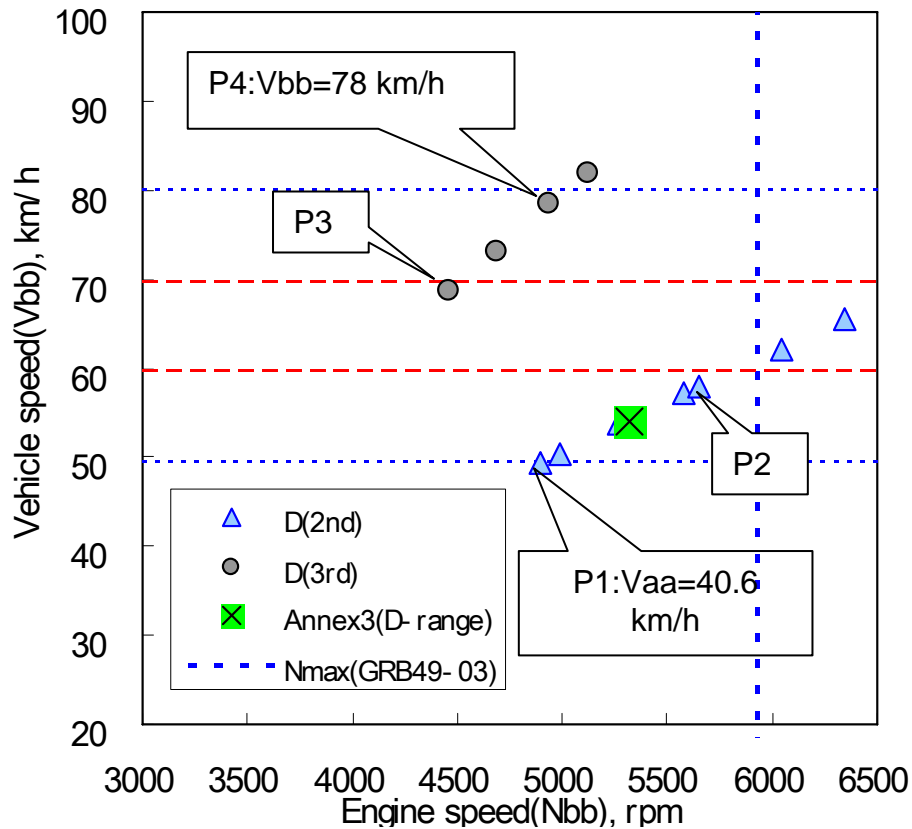
Vehicle : ASEP-1-08(AT)

# Typical example for AT and difference from MT (1)



Failed ASEP  
due to without tyre noise compensation.

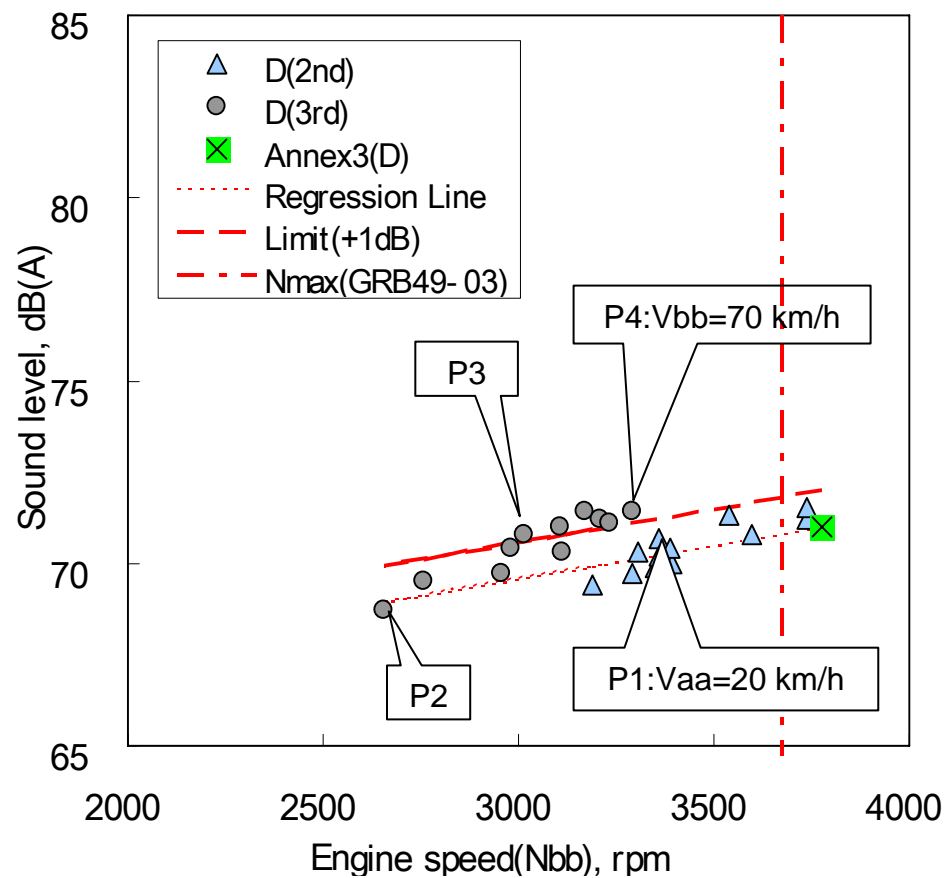
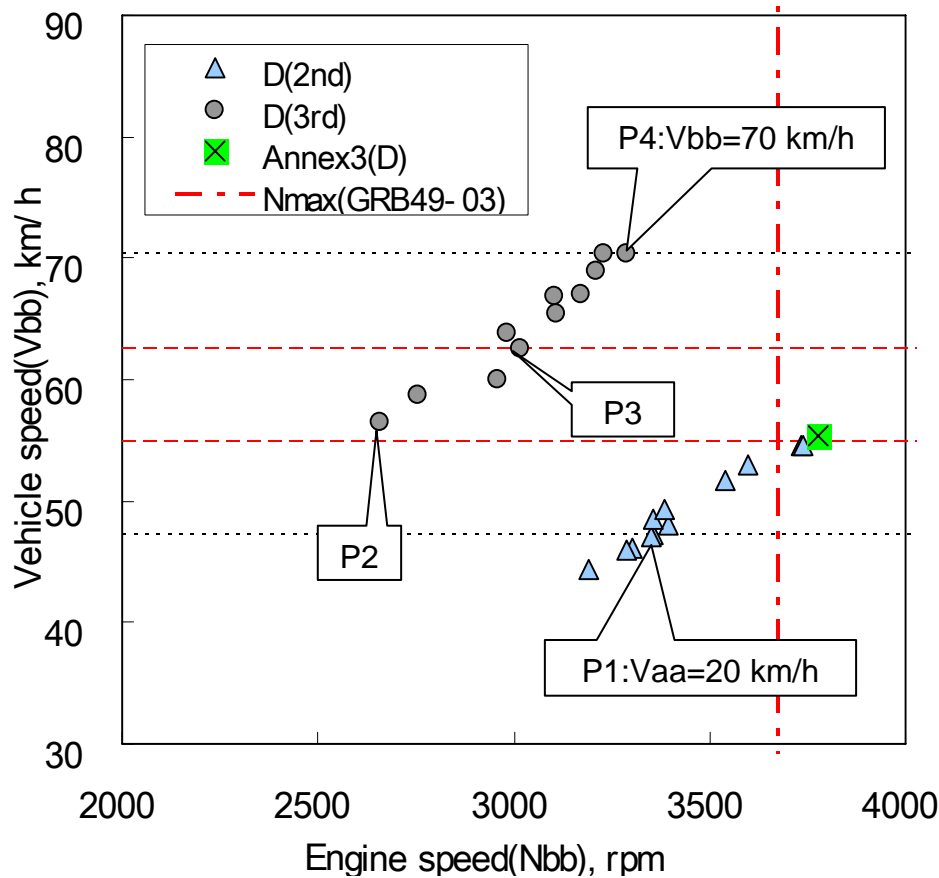
Vehicle : ASEP-J-01(AT)



Should we consider tyre noise compensation?

Vehicle : ASEP-J-01(AT)

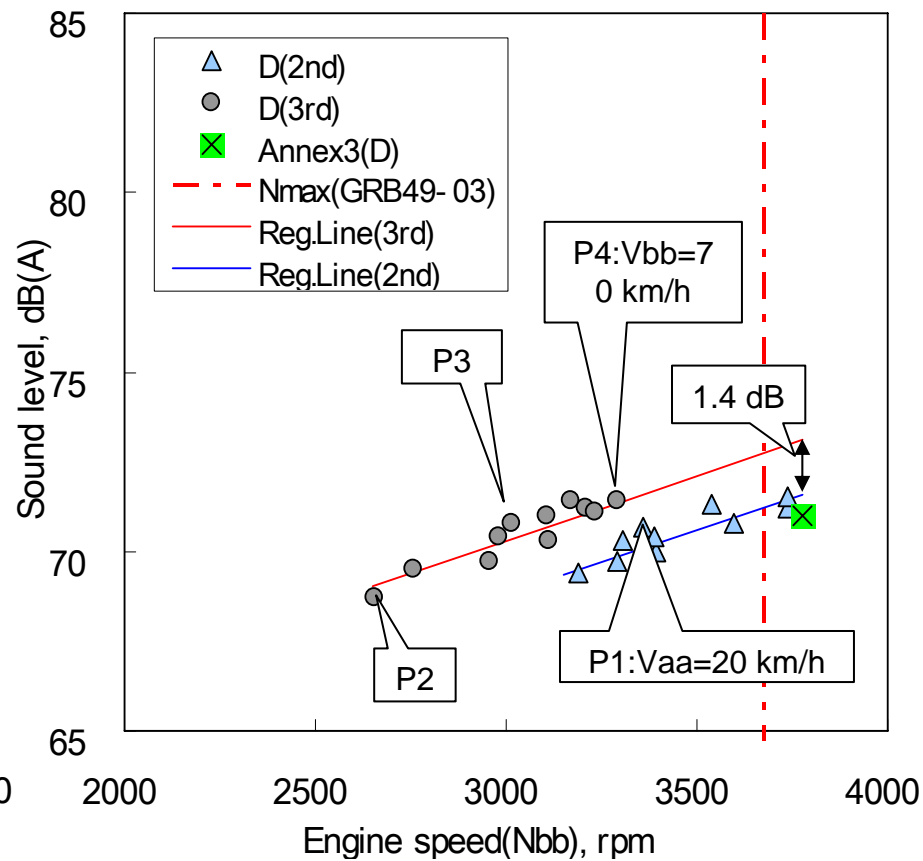
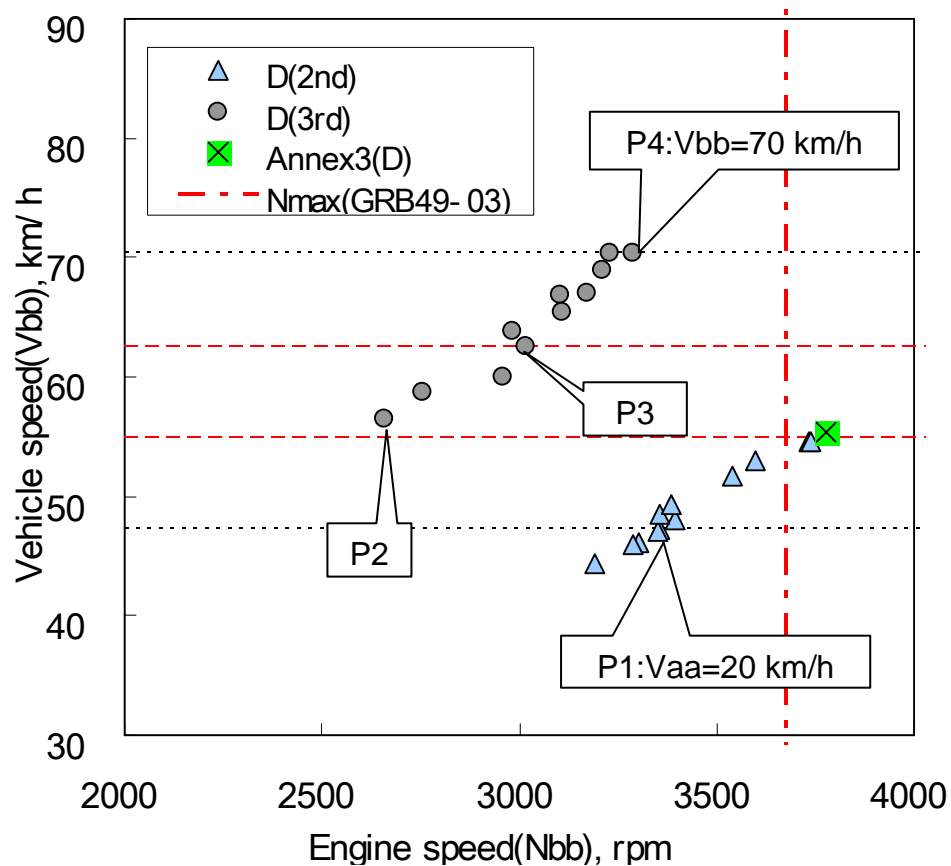
# Typical example for AT and difference from MT (2)



Failed ASEP  
due to without tyre noise compensation.

Vehicle : ASEP-J-02(AT)

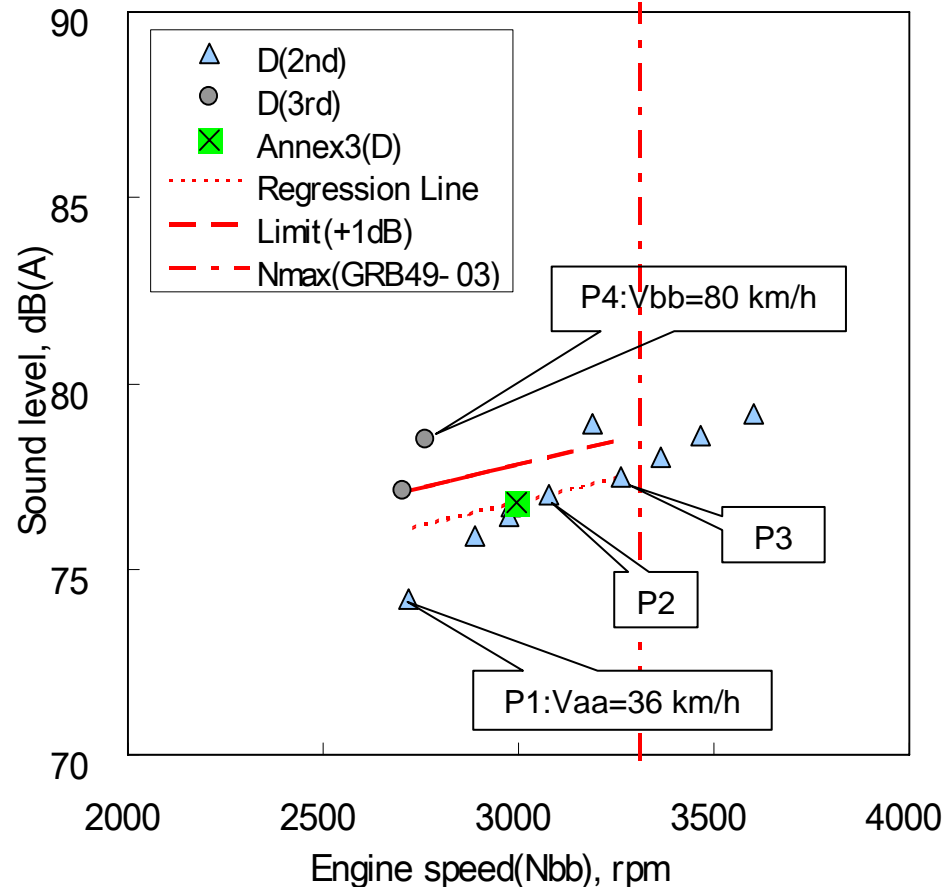
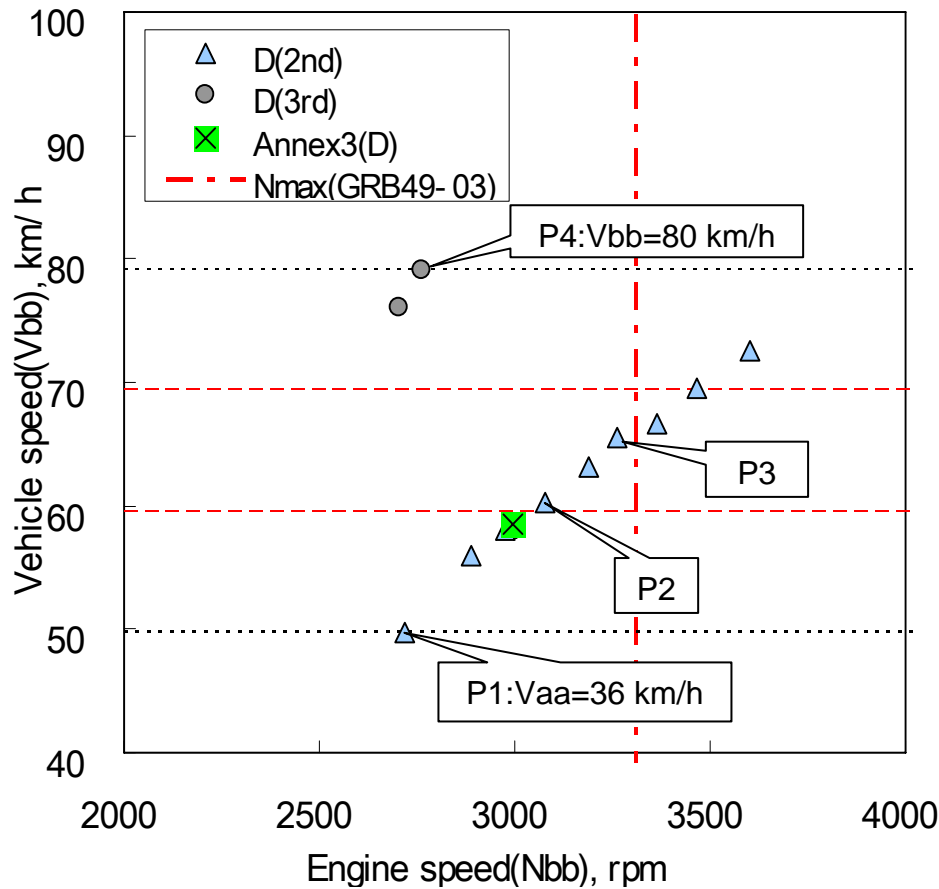




Should we consider tyre noise compensation?

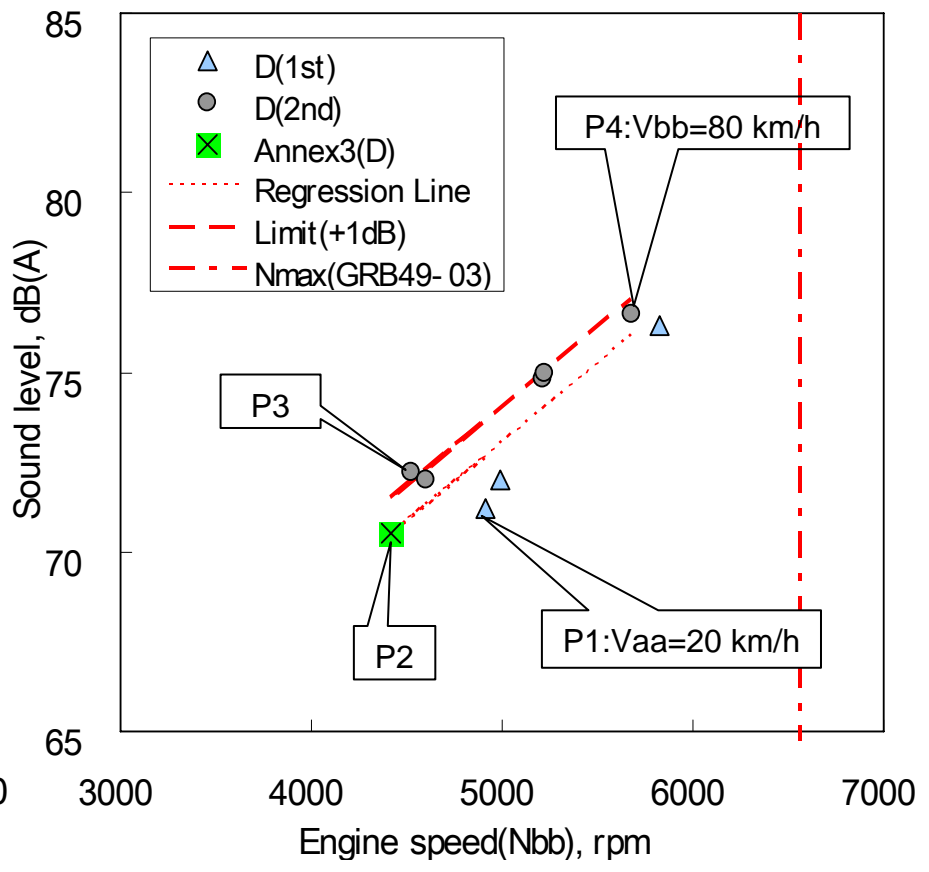
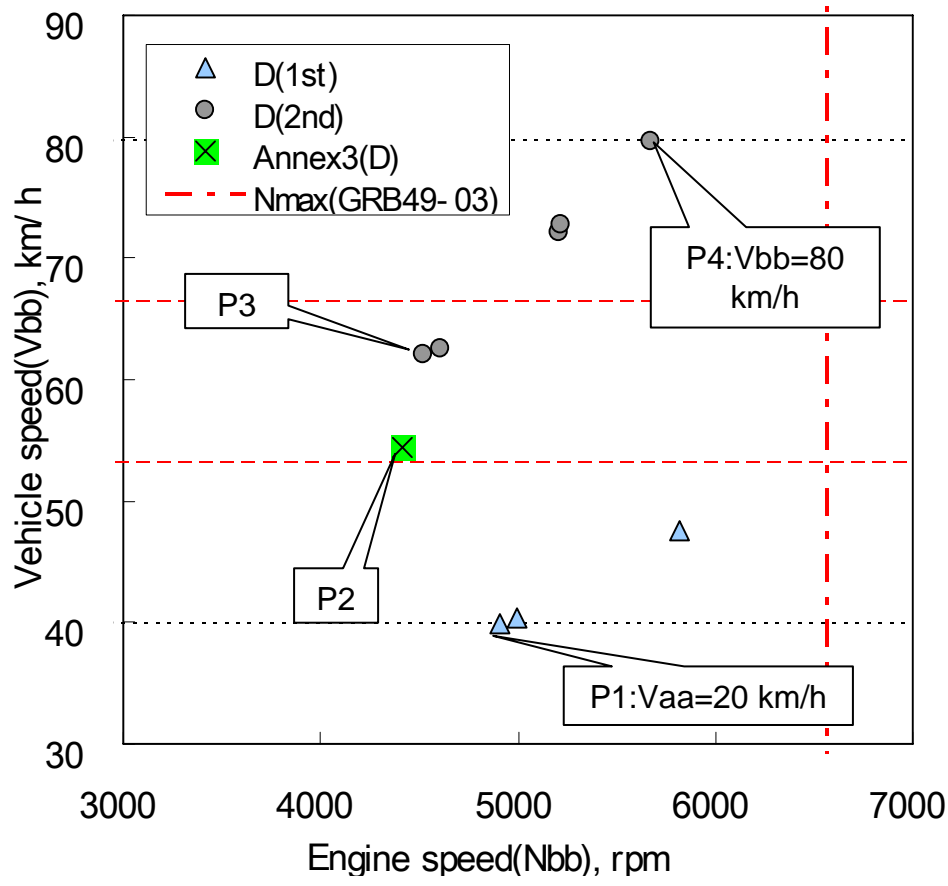
Vehicle : ASEP-J-02(AT)

# Typical example for AT and difference from MT (3)

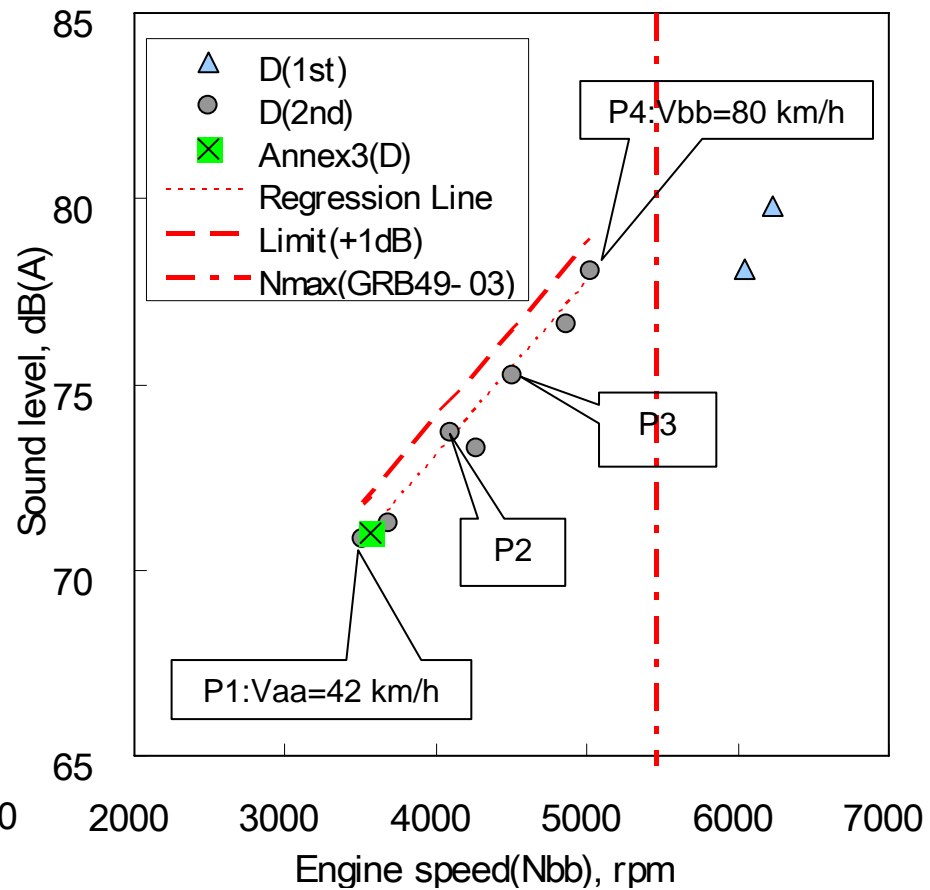
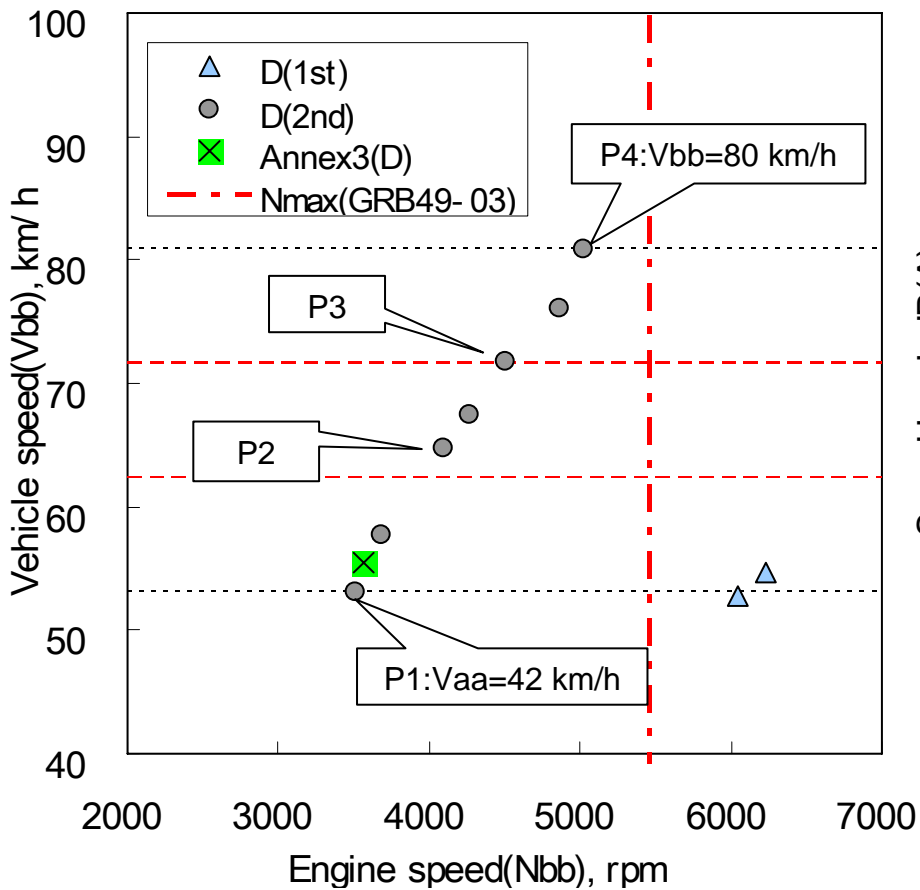


Failed ASEP  
due to without tyre noise compensation.

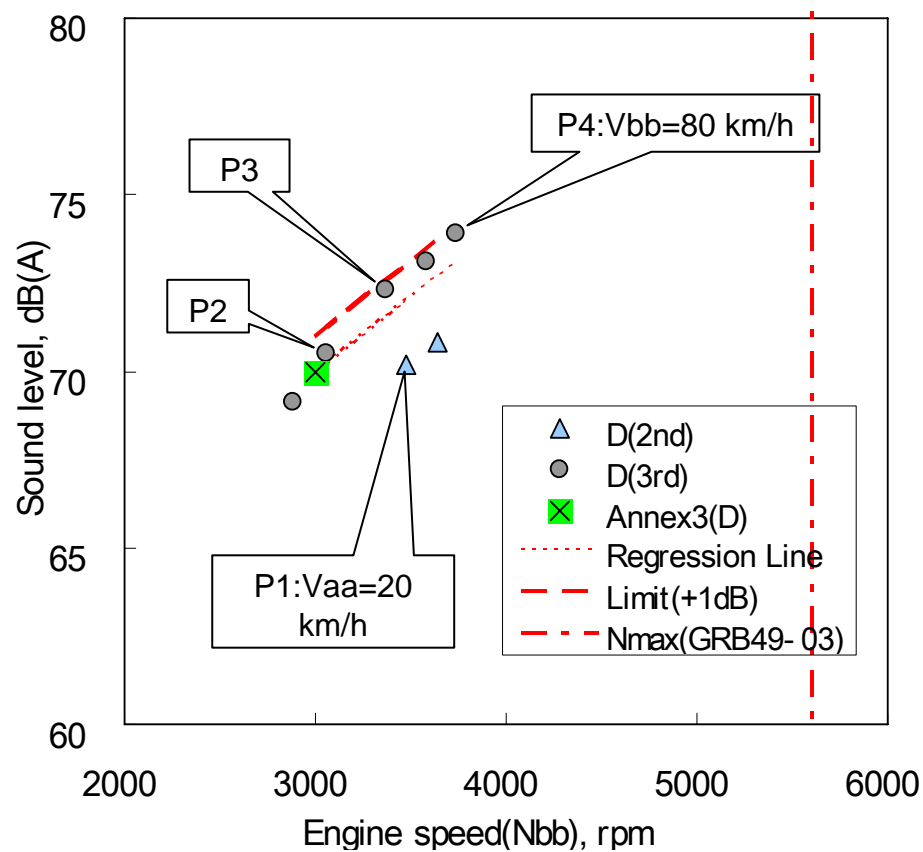
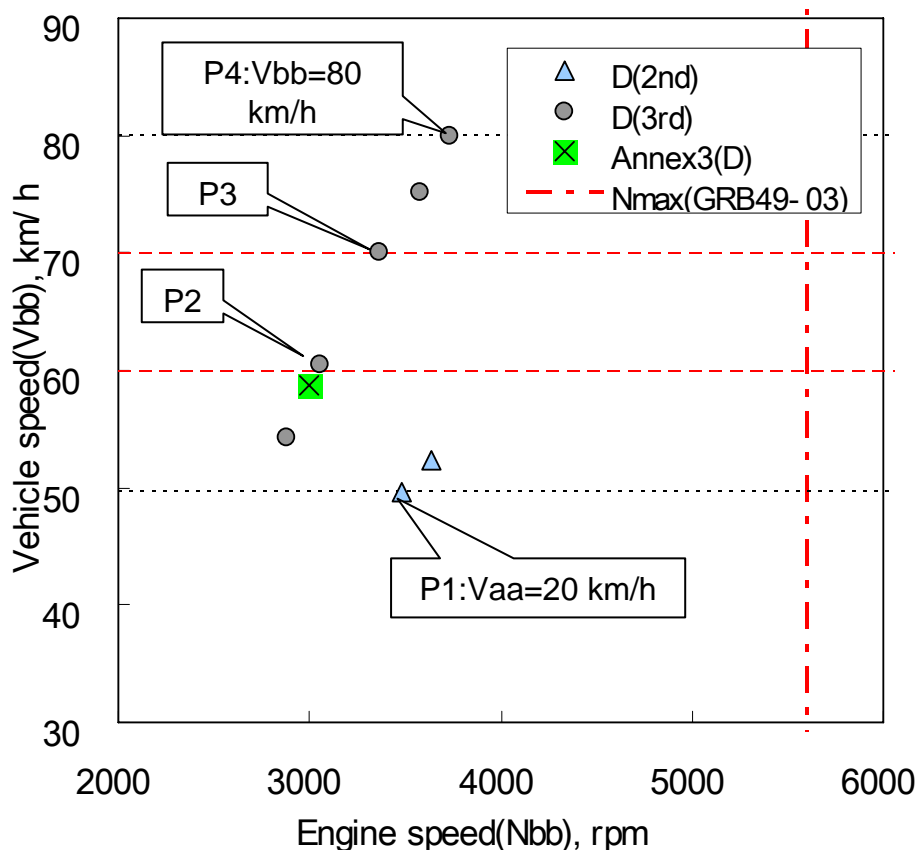
Vehicle : ASEP-J-03(AT)



Vehicle : ASEP-J-04(AT)



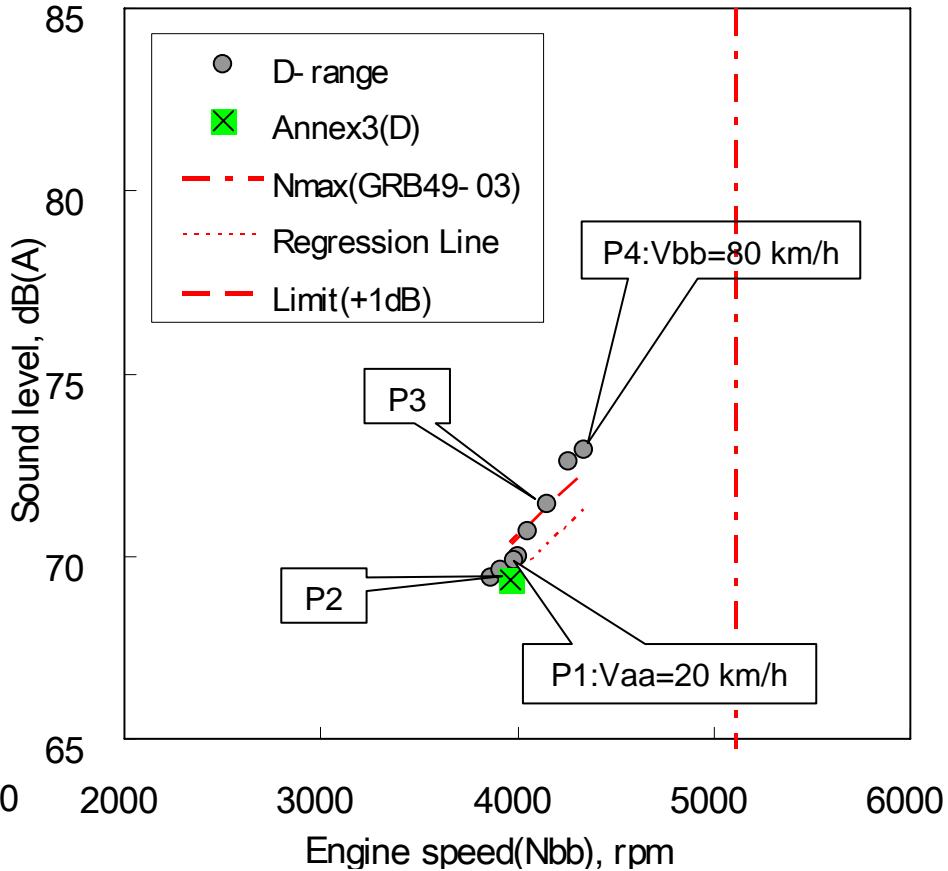
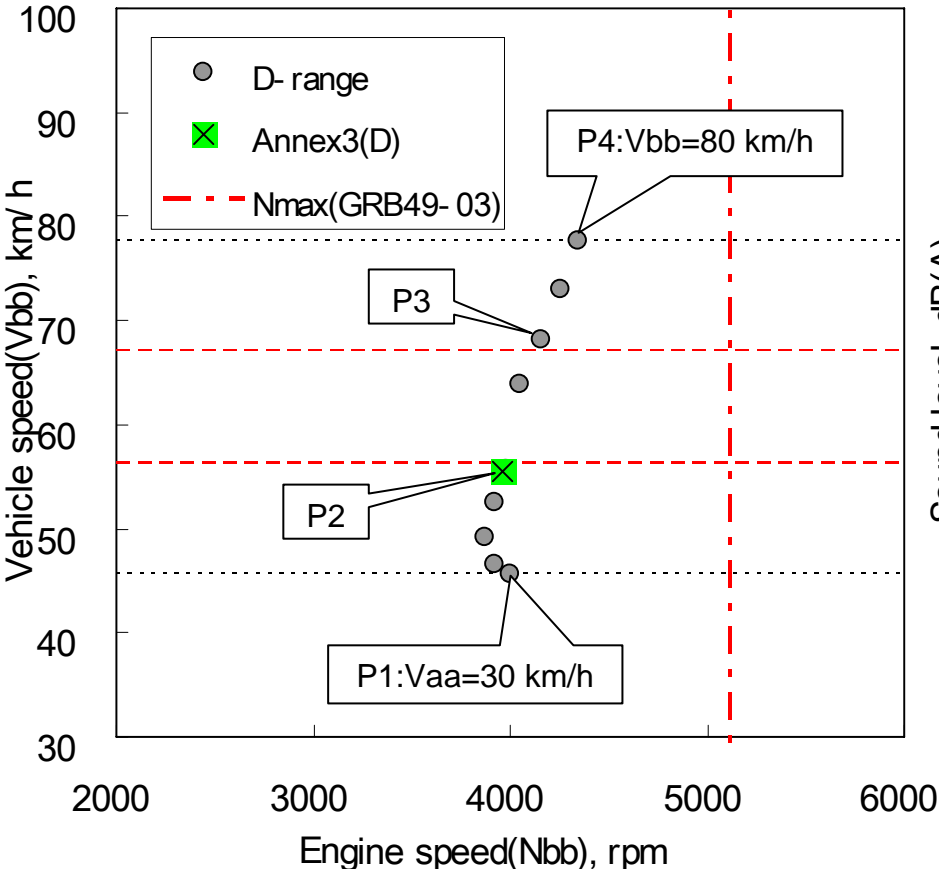
Vehicle : ASEP-J-05(AT)



Vehicle : ASEP-J-06(AT)

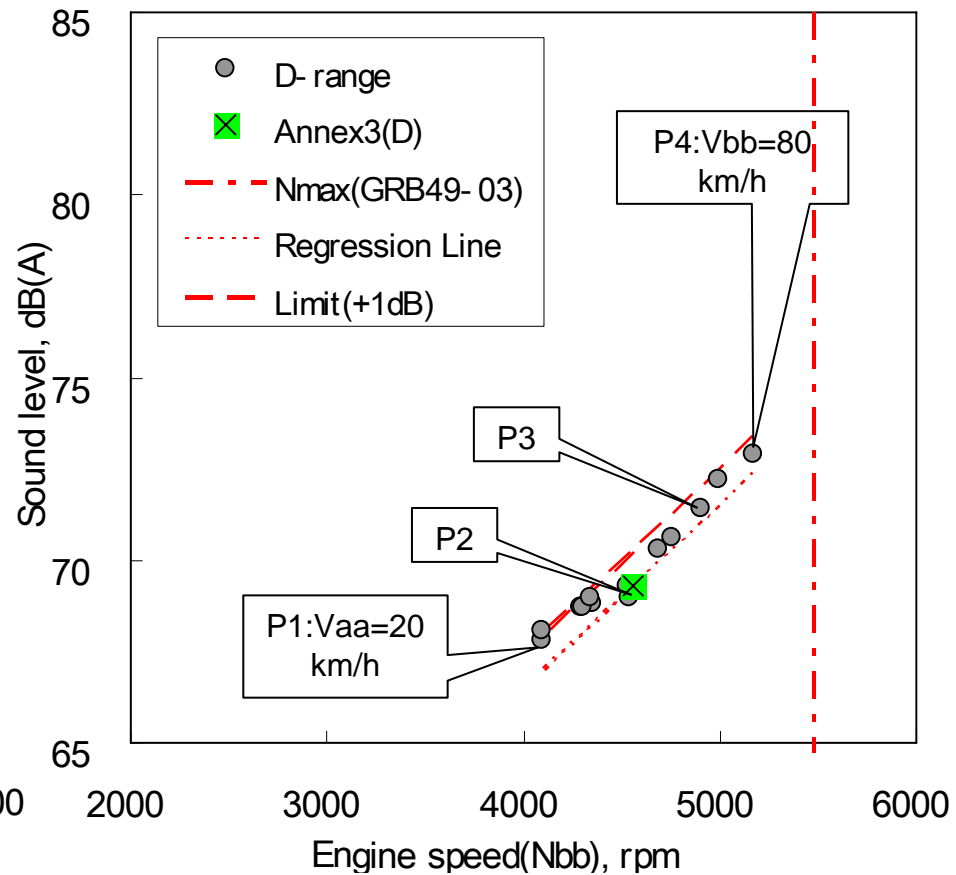
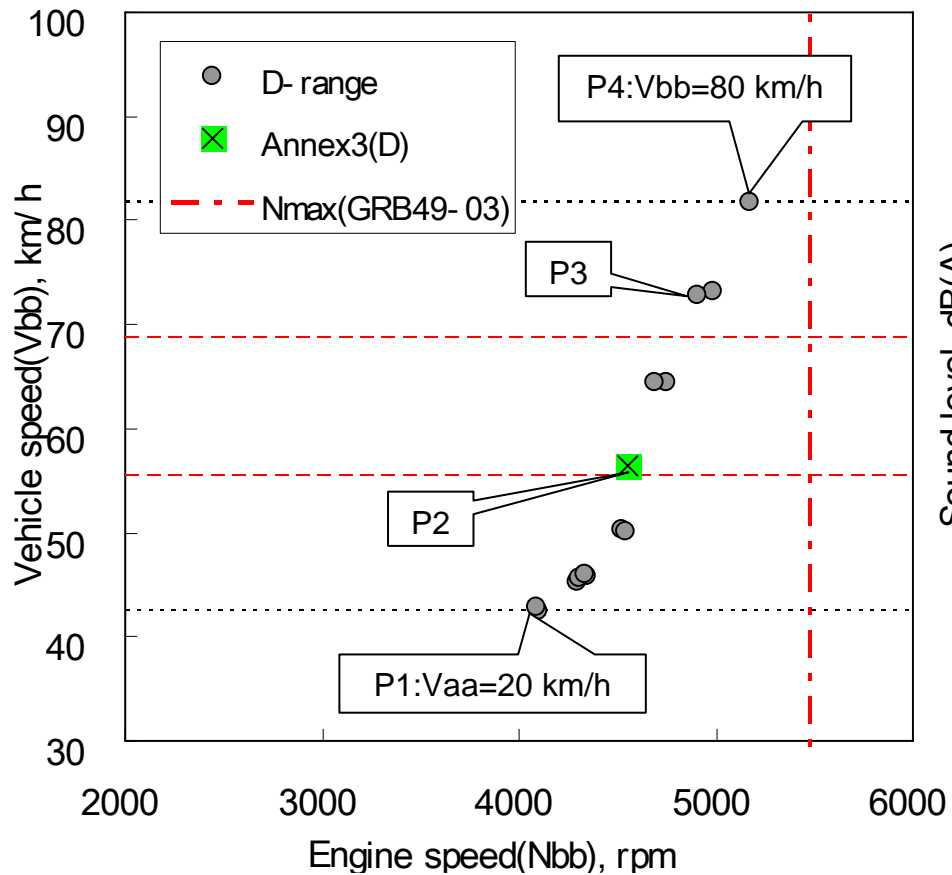
# 2

## Confirmation of non locked CVT without tyre noise compensation

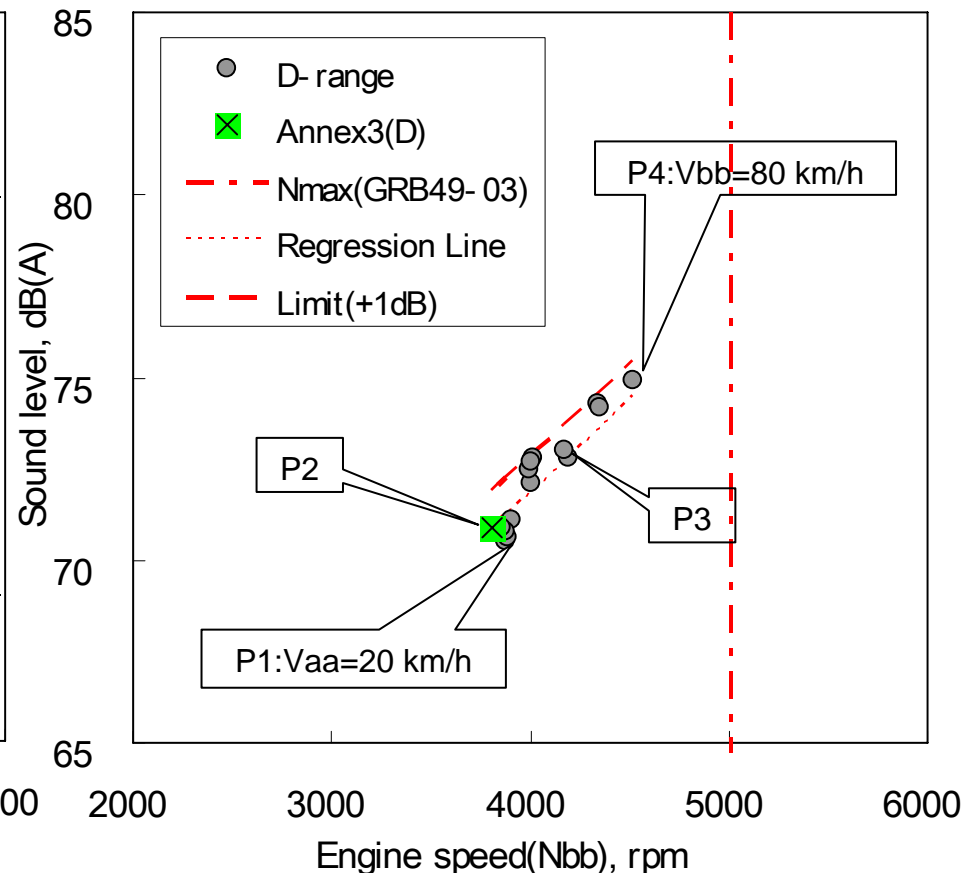
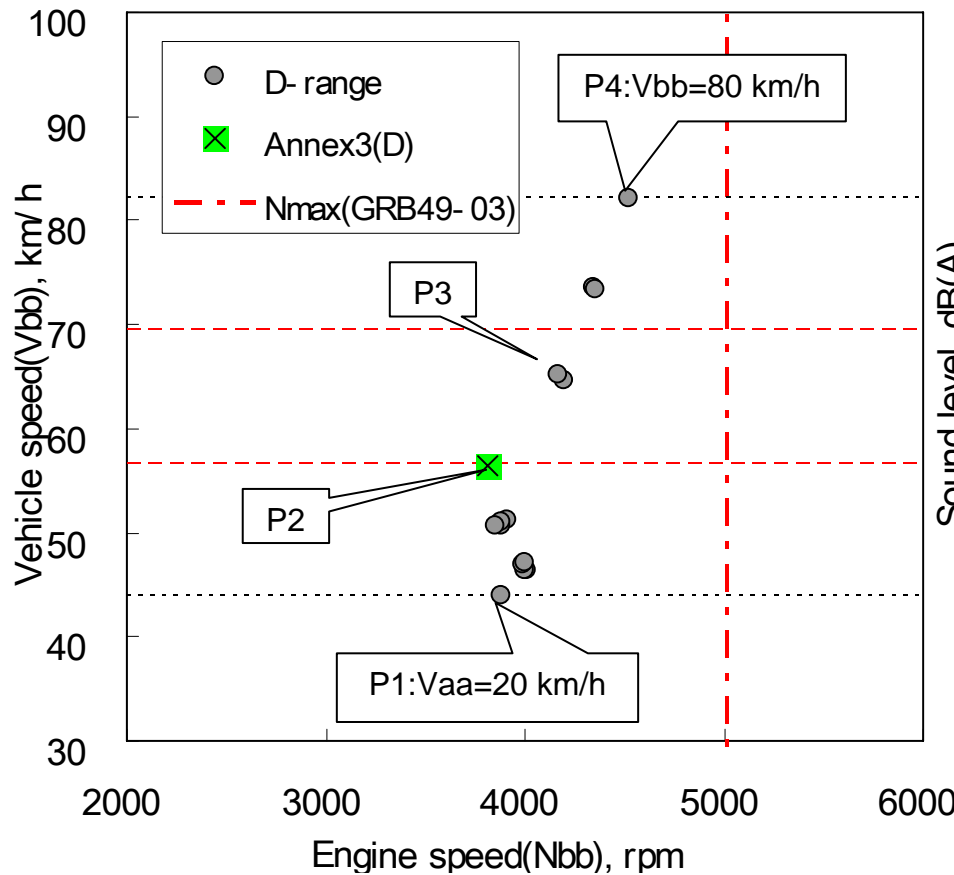


Failed ASEP  
due to without tyre noise compensation.

Vehicle : ASEP-1-10(CVT)

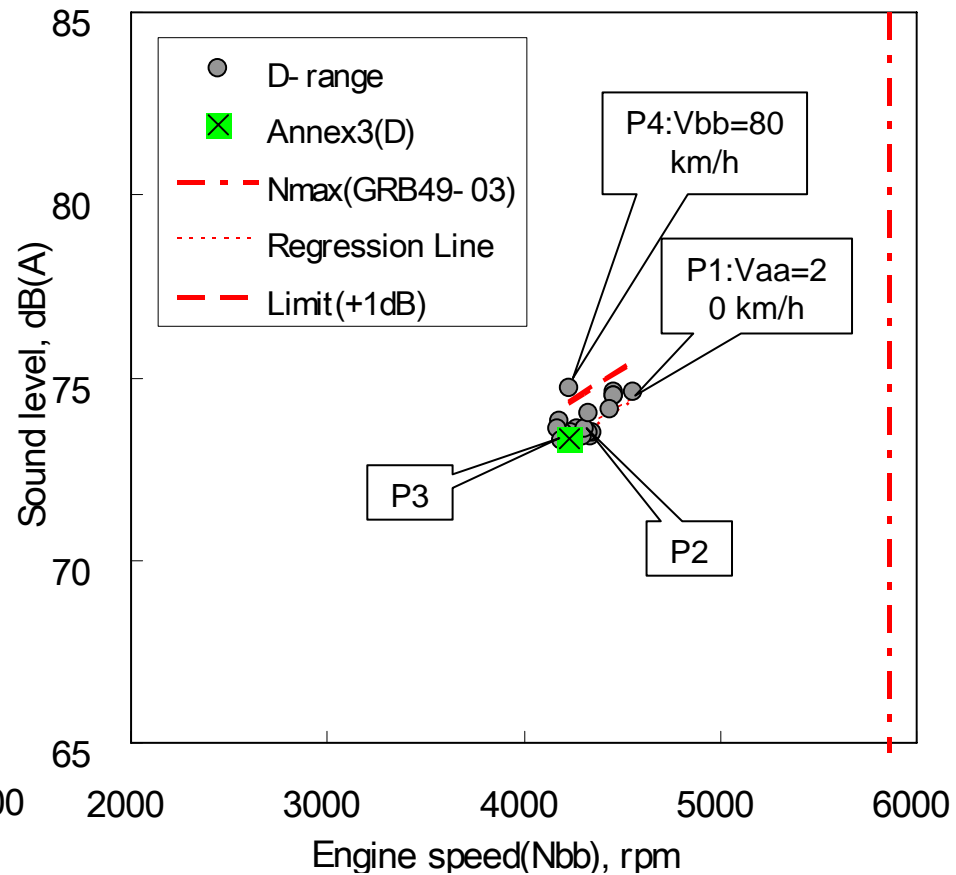
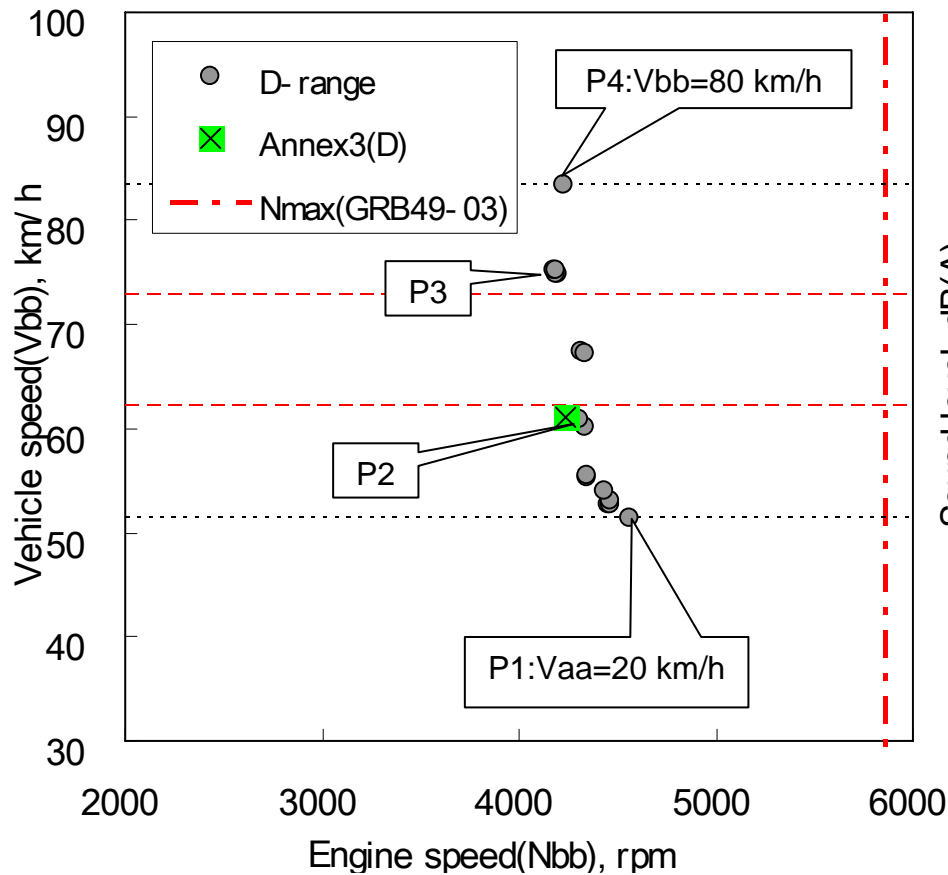


Vehicle : ASEP-1-12(CVT)



Vehicle : ASEP-1-14(CVT)





Failed ASEP  
due to without tyre noise compensation.

Vehicle : ASEP-1-16(Hybrid CVT)

# Summary of **1** and **2**

Due to an error of regression calculation

	Vehicle No	Power [kW]	S [rpm]	PMR [kW t]	Transmission	Max( $\Delta$ L)	Tyre noise compensation
AT	ASEP- 1- 08	114	6000	78.9	5AT	2.1	-
	ASEP- J- 01	38	6,500	38.6	4AT	1.3	1.7
	ASEP- J- 02	110	4000	62.7	6AT	1.2	1.4
	ASEP- J- 03	120	3600	61.5	4AT	2.3	2.5
	ASEP- J- 04	43	7200	52.1	3AT	1.2	-
	ASEP- J- 05	80	6000	57.6	4AT	0.1	-
	ASEP- J- 06	170	6200	100.3	6AT	0.5	-
CVT	ASEP- 1- 10	72	5600	62.9	CVT	1.6	1.0
	ASEP- 1- 12	47	6000	52.5	CVT	0.8	1.2
	ASEP- 1- 14	118	5500	68.8	CVT	0.4	1.1
	ASEP- 1- 16	218	6400	110.9	CVT	1.4	1.1

Due to using higher gear ratio than Annex3

( $\Delta$ L=measured level - regression line)

### **3 Proposal for AT and CVT if without tyre noise compensation**

If without tyre noise compensation, we should consider appropriate tolerance.

The tolerance should be considered by 2 or 3dB.

When we consider the tolerance, we should take care of tyre noise compensation and errors of regression calculation.

# 4

## Definition of so-called classical CVT

Motorcycle with CVT

10%

Vehicle No	PMR (kW/t)	s: (rpm)	n_idle (rpm)	10% (s-n_idle)
ASEP-J3	108.7	7500	1200	630
ASEP-J4	86.2	7300	1450	585
ASEP-J10	65.0	7500	1400	610
ASEP-ACEM5	60.9	9000	1650	735
ASEP-G14	70.2	8500	840	766

Passenger car with CVT

15%

Vehicle No	PMR (kW/t)	s: (rpm)	n_idle (rpm)	15% (s-n_idle)
ASEP-1-10	62.9	5600	700	735
ASEP-1-12	52.5	6000	800	780
ASEP-1-14	68.8	5500	650	728
ASEP-1-16	110.9	6400	1000	810
ASEP-2-06	50.1	4000	650	503

7300 – 9000rpm

4000 – 6400rpm

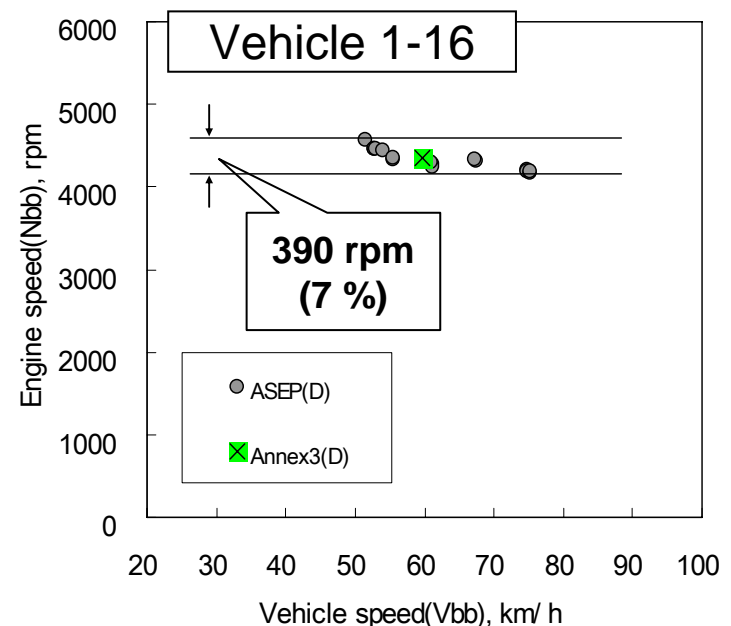
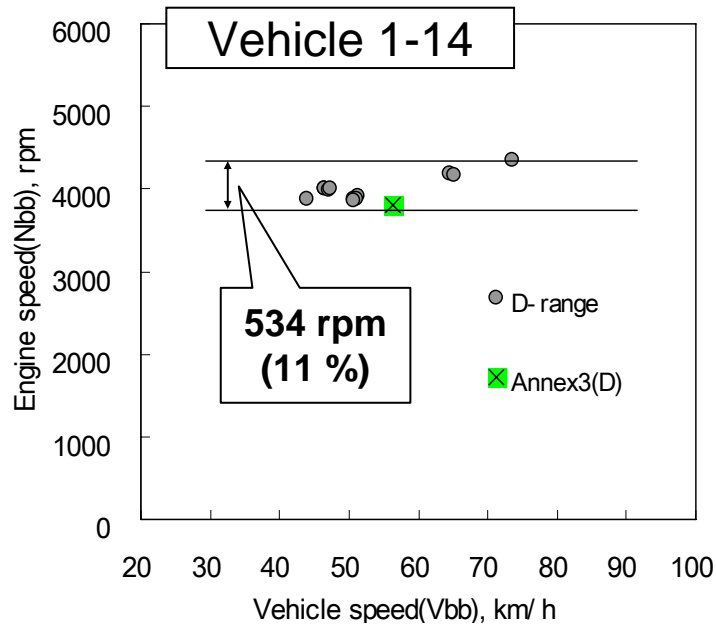
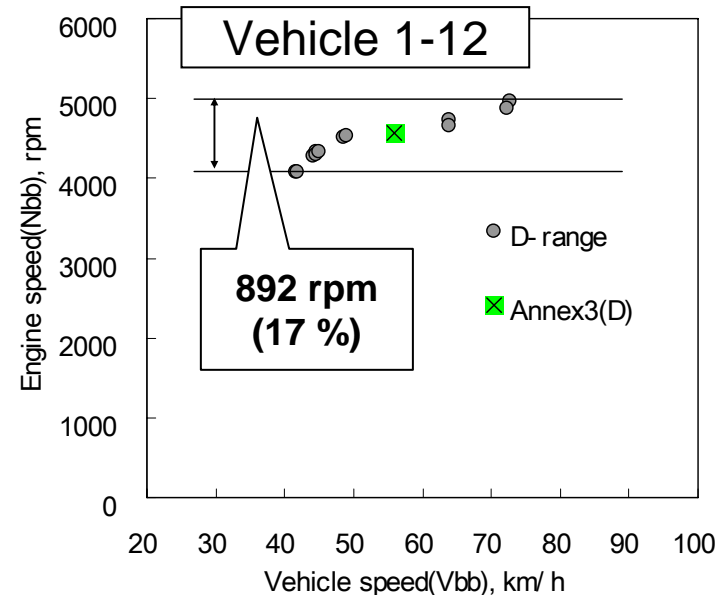
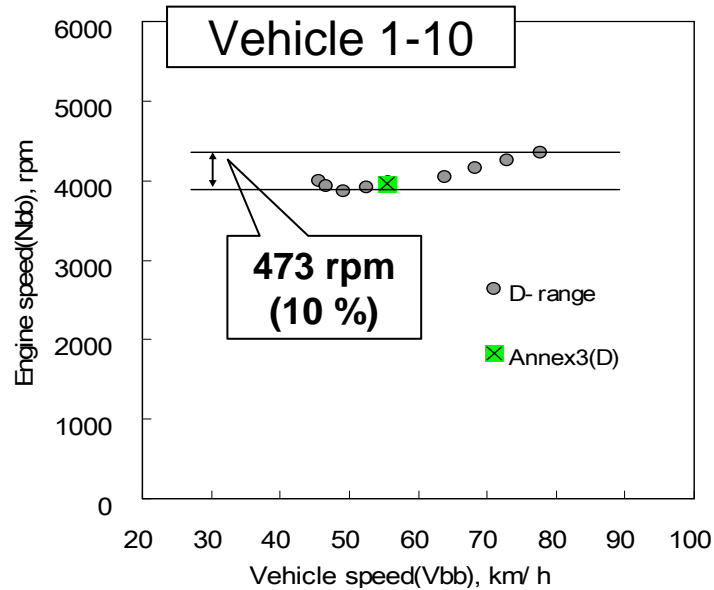
Range: 10% X (S-n\_idle)

Same rpm

Range: 15% X (S-n\_idle)



# Range of engine speed for CVT



## Proposal for exemption of classical CVT

Vehicles with variable gear ratios or automatic transmission with non-lockable gear ratios are exempted from the requirements of this annex, if the vehicle manufacturer provides technical documents to the type approval authority showing, that the difference between maximum and minimum of the vehicle's engine speed at BB' for any test condition inside the ASEP control range defined in 3.3. below does not exceed  $0.15x (S - \text{idle})$ .

To add above words in the main body

“6.2.3. Additional sound emission provisions”

## Proposal for exemption of classical CVT

Vehicles with variable gear ratios or automatic transmission with non-lockable gear ratios are exempted from the requirements of this annex, if the vehicle manufacturer provides technical documents to the type approval authority showing, that the difference between maximum and minimum of the vehicle's engine speed at BB' for any test condition inside the ASEP control range defined in 3.3. below does not exceed  $0.15x (S - \text{nidle})$ .

## R41 Scope of ASEP

Vehicles with variable gear ratios or automatic transmission with non-lockable gear ratios are exempted from the requirements of this annex, if the vehicle manufacturer provides technical documents to the type approval authority showing, that the vehicle's engine speed at BB' does neither exceed  $nBB' + 0.05 \cdot (S - \text{nidle})$  nor fall below  $nBB' - 0.05 \cdot (S - \text{nidle})$  for any test condition inside the ASEP control range defined in 2.5. below, where  $nBB'$  is the average engine speed at BB' from the three valid acceleration tests according to section 1 of annex 3.