

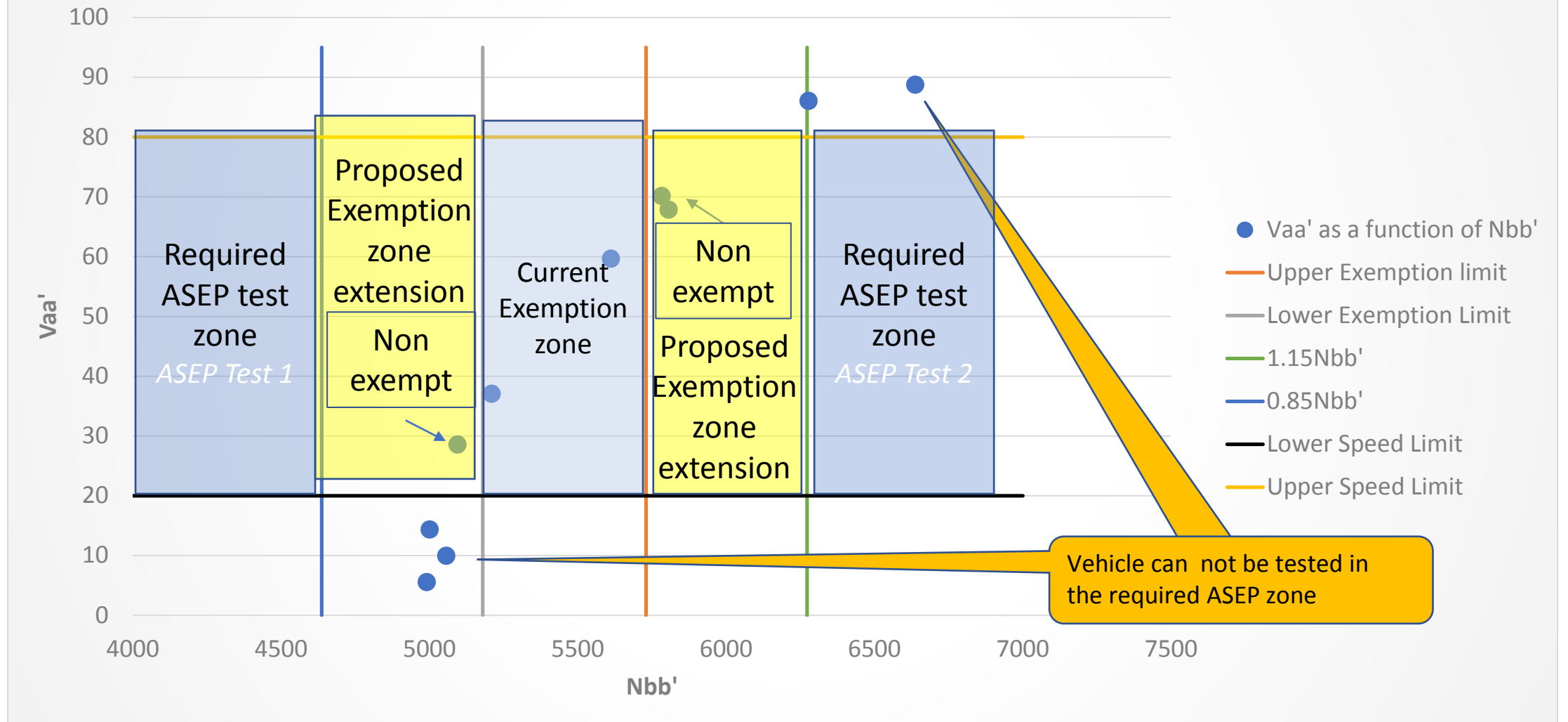
ASEP for L5 vehicles with CVT/AT

Issue with the proposed Supplement the 08 series of amendments to UN R9,
as in *GRB-68-22 (= WP29-2019-006)*

Background of IMMA proposal for revised exemption window, as in GRB-69-14



CVT Exemption criteria vs R9 ASEP Criteria, as in adopted GRB-68-22



To align the parameters for exemption of vehicles “with variable gear ratios or automatic transmission with non-lockable gear ratios” in Annex 6, §1.2 with the test conditions for “ASEP Test 1” (Annex 6, 3.3.2) and “ASEP Test 2” (Annex 6, 3.3.3), in order to close potential gaps between the applicable engine rpm range for the ASEP tests and the engine rpm range for exemption from ASEP testing.

Not closing these gaps would result in a situation where some vehicles “with variable gear ratios or automatic transmission with non-lockable gear ratios” would not be excluded from ASEP testing, but would also not be able to remain within the conditions for ASEP Test 1 and ASEP Test 2.

Test result Vehicle

L5 with CVT

PMR = 83,1 W/kg

L5 with CVT and PMR = 83,1 W/kg

Verification of ASEP exemption

With originally proposal exemption window (as in GRB-68-22)

1 Vehicle data

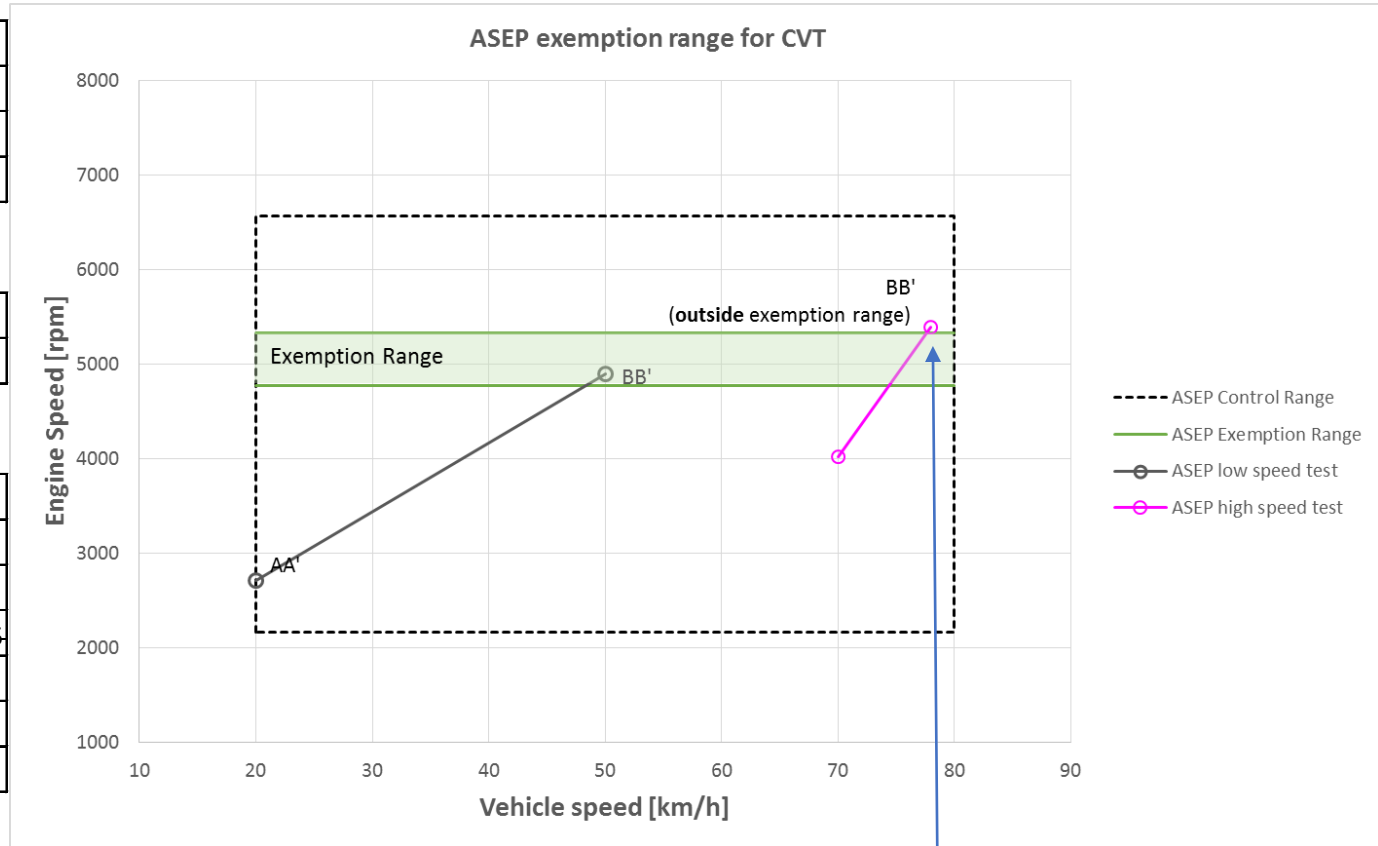
n_idle	rpm	1600
n Rated	rpm	7250
PMR	W/kg	83,1
n_BB'_ref	rpm	5052

2 Calculation of ASEP exemption range

n_BB'_min	rpm	4770
n_BB'_max	rpm	5335

3 Calculation of ASEP control range

v_AA'_ACR	km/h	20
v_BB'_ACR	km/h	80
n_AA'_ACR	rpm	2165
n_BB'_ACR	rpm	6402,5
	rpm	6067,5
	rpm	6567,6
	rpm	7250



BB' outside exemption range:
**Vehicle not exempted from
ASEP testing**

IMMA proposal for revised exemption window (= GRB-69-14)

UN R9, *Annex 6, paragraph 1.2.*, amend to read

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 **$1.15 * n_{BB'}_{ref}$** (~~$n_{BB'} + 0.05 * (n_{rated} - n_{idle})$~~) nor fall below **$0.85 * n_{BB'}_{ref}$** (~~$n_{BB'} - 0.05 * (n_{rated} - n_{idle})$~~) for any test condition inside the ASEP control range defined in paragraph 2.5. below, where **$n_{BB'}_{ref}$** is **calculated in accordance to paragraph 3.3.1. of this Annex.** (~~$n_{BB'}$ is the average engine speed at BB' from the two valid acceleration tests according to paragraphs 2. and 3. of Annex 3.~~)

L5 with CVT and PMR = 83,1 W/kg

Verification of ASEP exemption

With IMMA proposal for revised exemption window (as in GRB-69-14)

1 Vehicle data

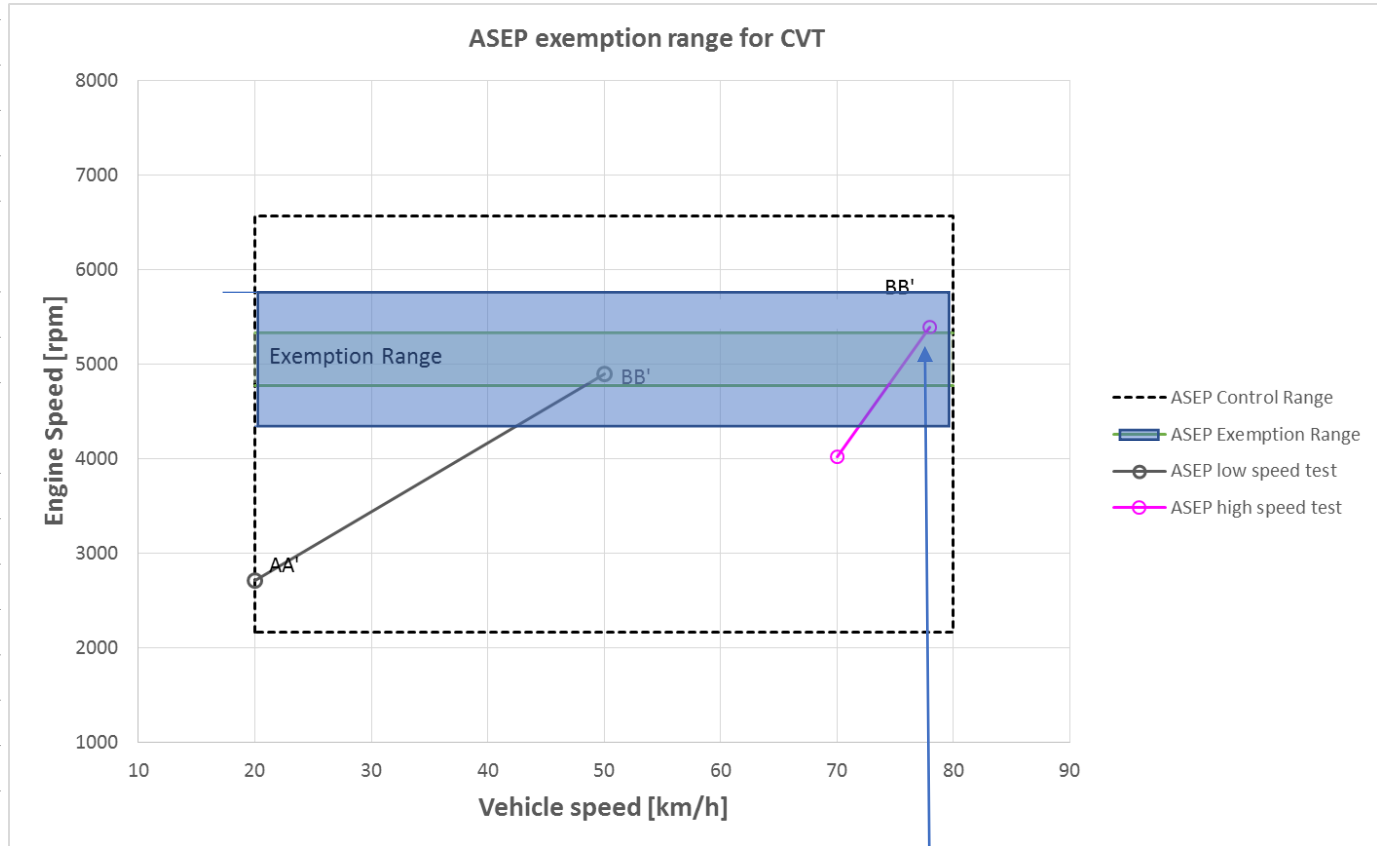
n_idle	rpm	1600
n Rated	rpm	7250
PMR	W/kg	83,1
n_BB'_ref	rpm	5052

2 Calculation of ASEP exemption range

n_BB'_min	rpm	4294
n_BB'_max	rpm	5810

3 Calculation of ASEP control range

v_AA'_ACR	km/h	20
v_BB'_ACR	km/h	80
n_AA'_ACR	rpm	2165
n_BB'_ACR	rpm	6402,5
	rpm	6067,5
	rpm	6567,6
	rpm	7250



BB' inside exemption range:
Vehicle exempted from ASEP testing