

Additional ASEP data

GRB IG ASEP sept 2007

By the Netherlands

vehicles

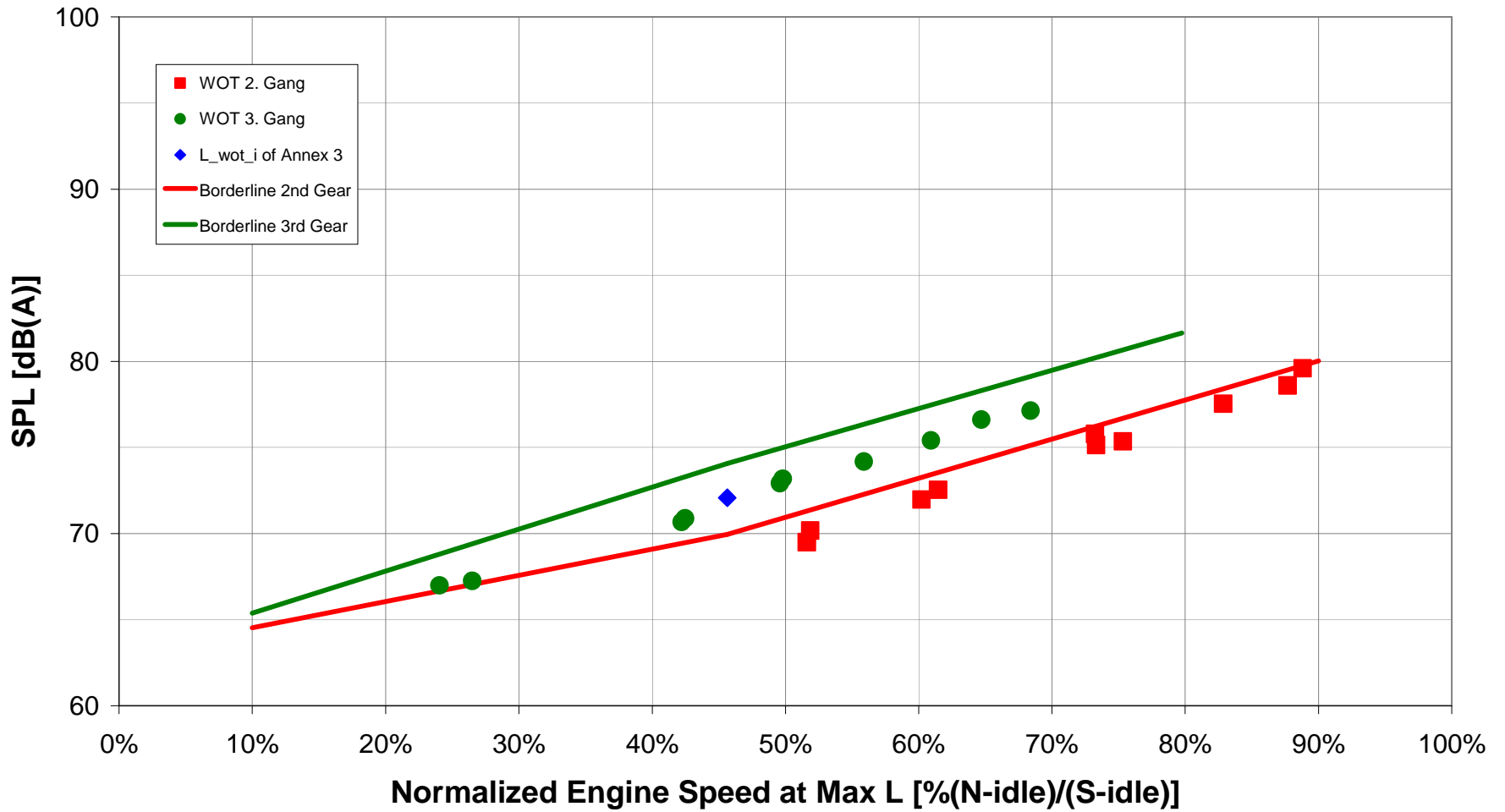
- 2 delivery vans
- 2 hybrid passenger cars

Delivery van 1

- Derived from passenger car
- GVW = 1760 kg
- PMR = 36,6 kW/t
- 5 speed manual gear box
- Indirect Diesel; no turbo
- S= 4600 1/min
- R51.02 = 75,4 dB(A)

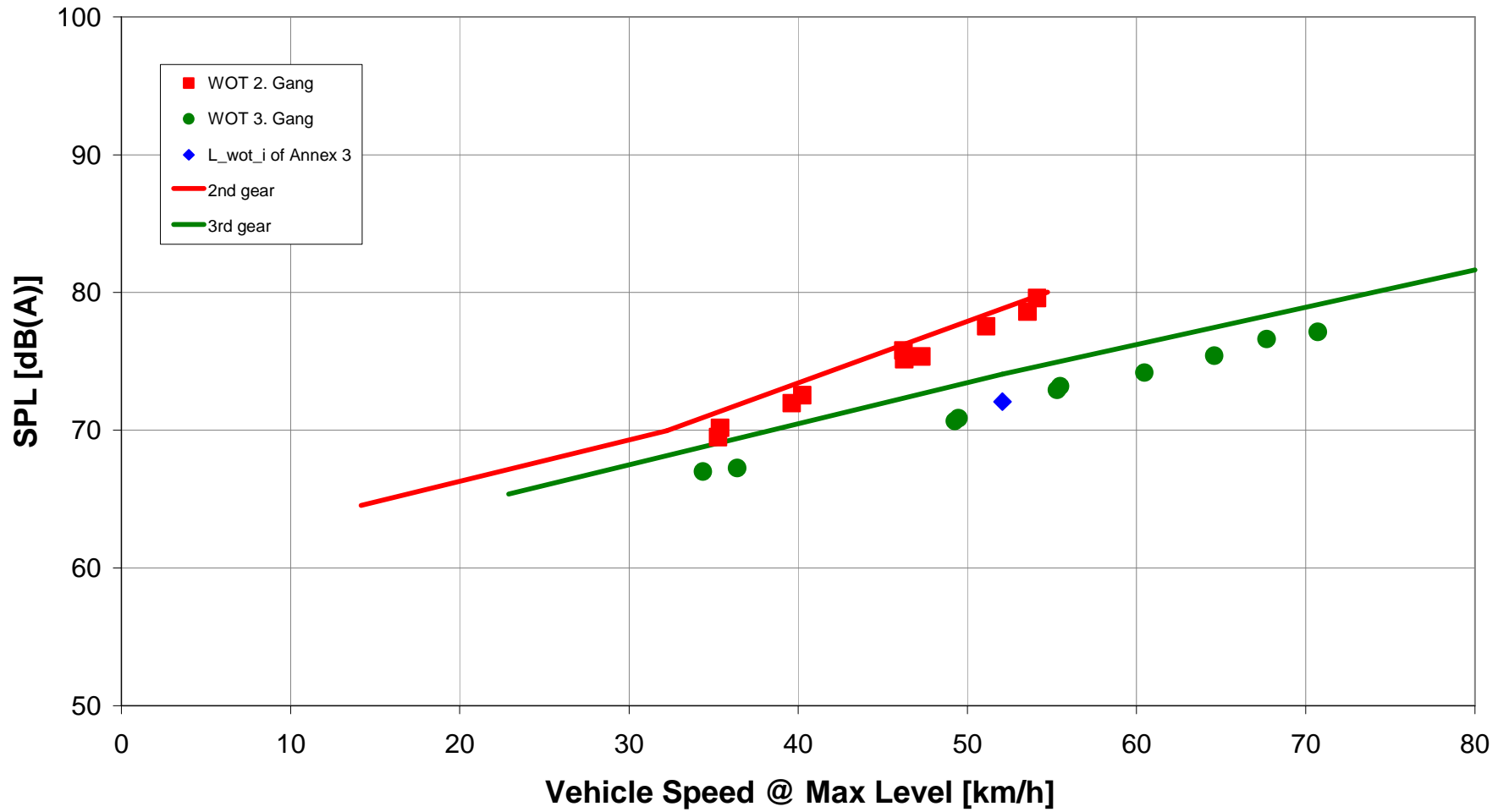
Delivery Van 1

French-German-Japanese Proposal (Reference to N@Lmax)



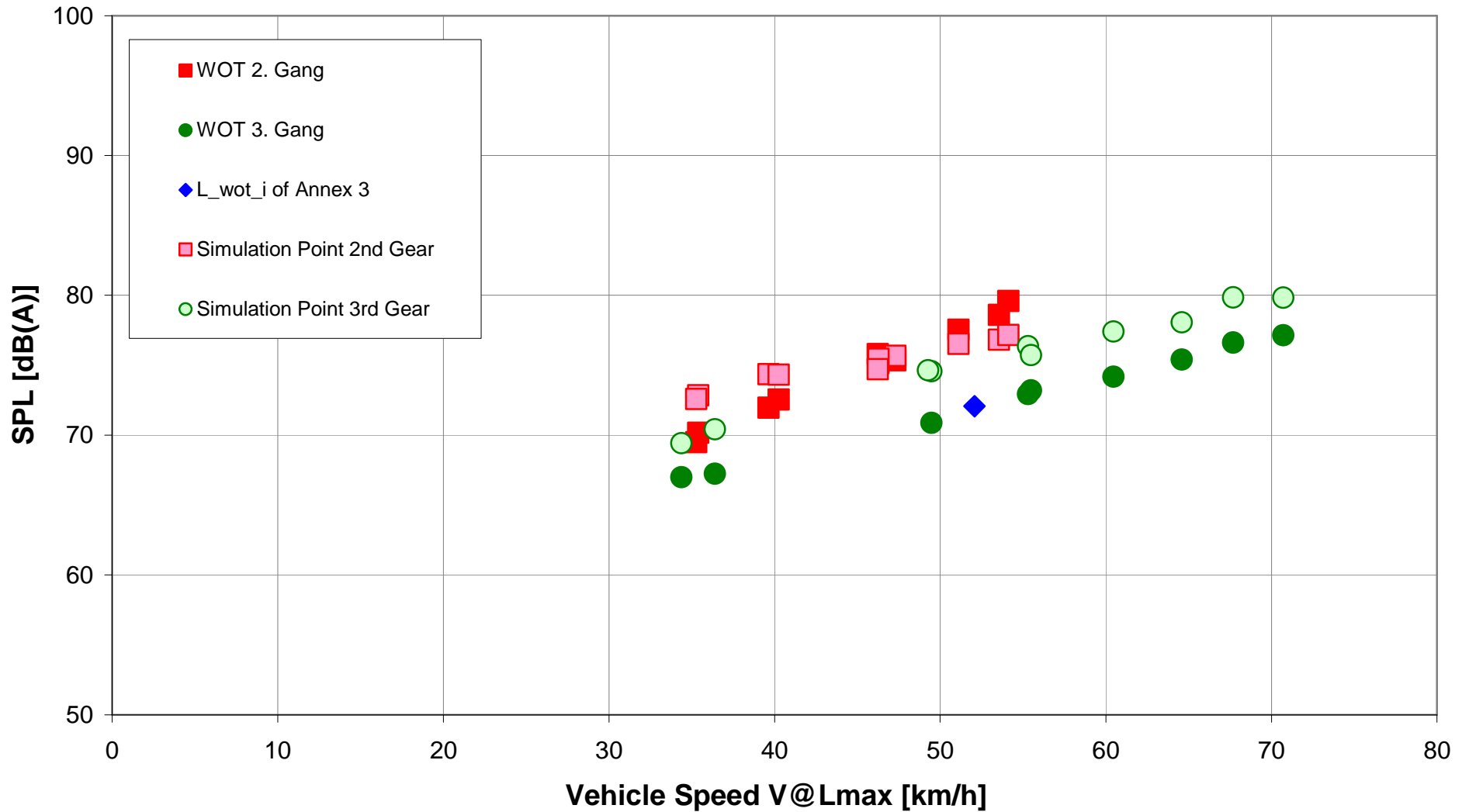
Delivery Van 1

French-German-Japanese Proposal (Reference to N@Lmax)



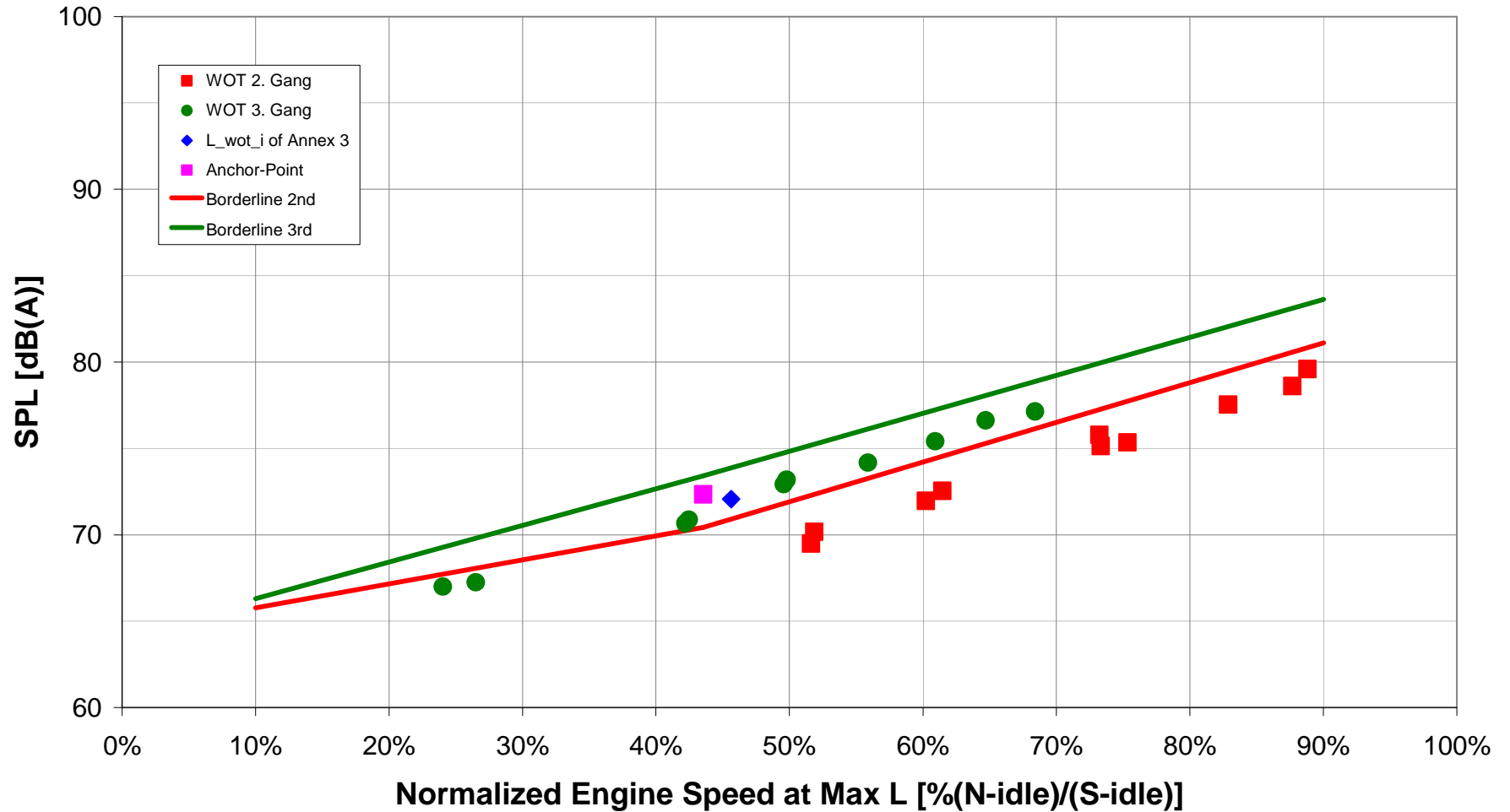
Delivery Van 1

NL Approach



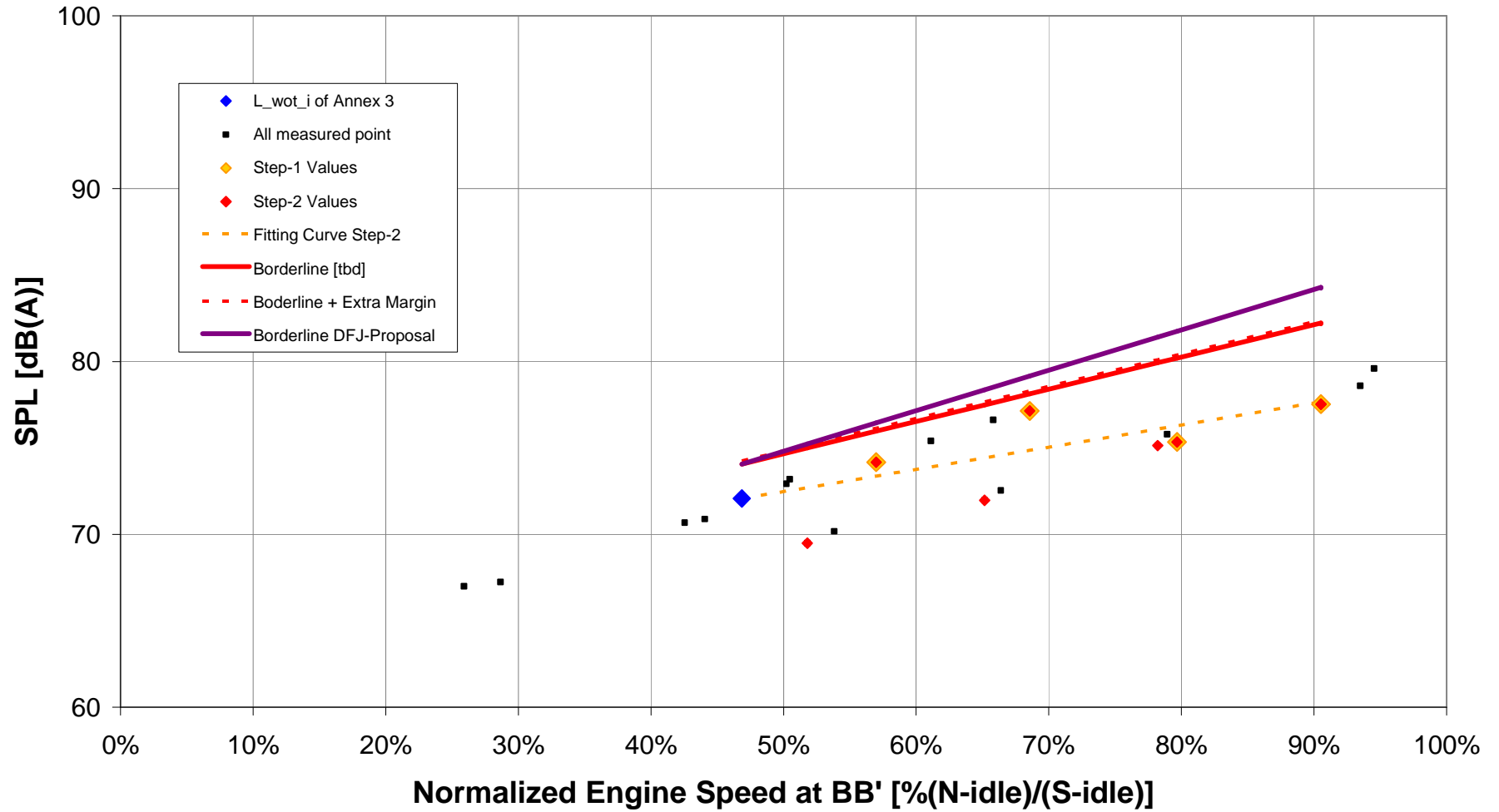
Delivery Van 1

UBA Proposal (Reference N@Lmax)



Delivery Van 1

OICA Outline (Engine Speed Based Test)



Delivery Van 1

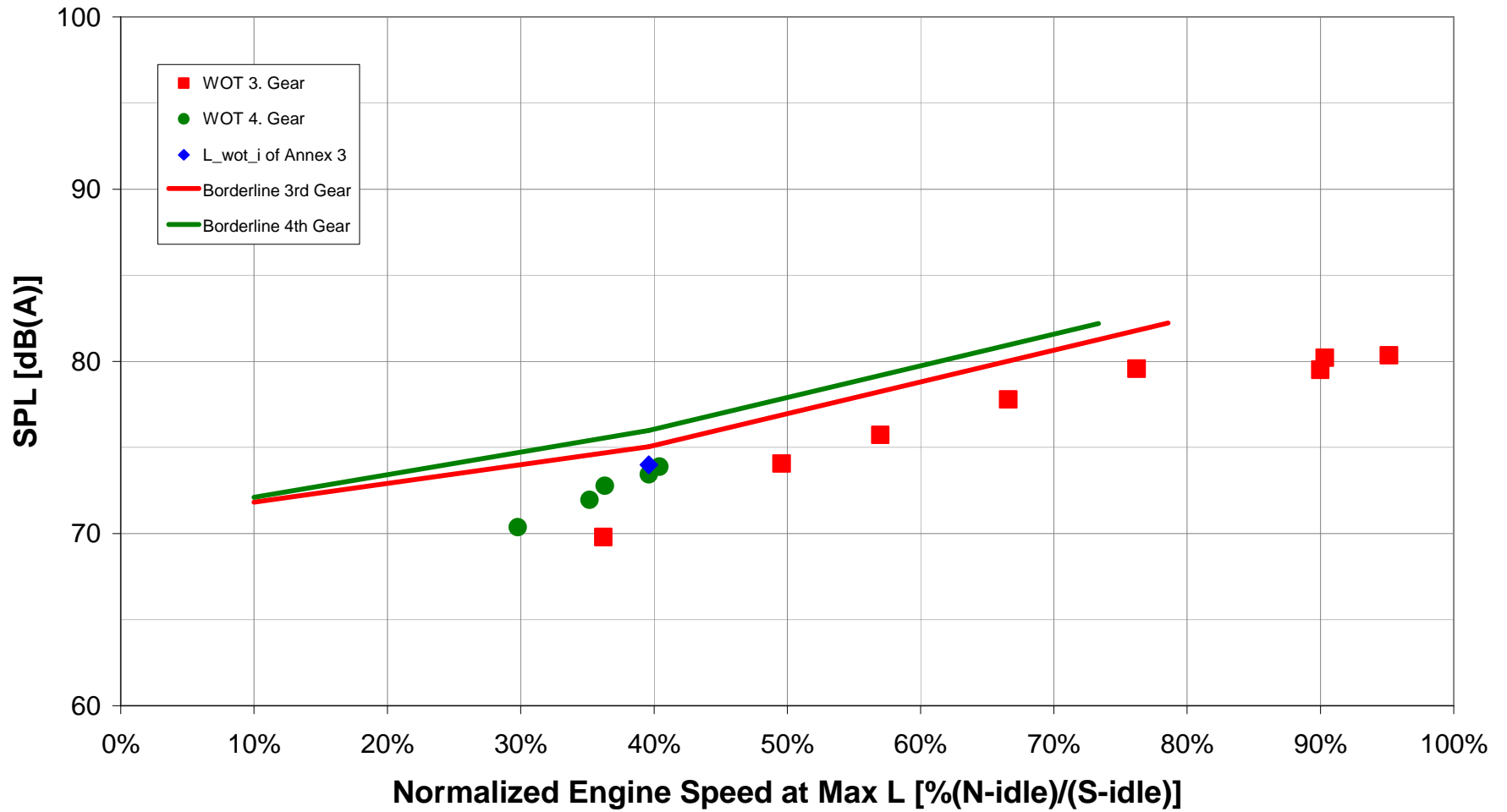
- D/F/J, UBA, OICA: approved
- NL disapproved in 2nd gear > 50 km/h
 - due to decreasing acceleration above 75% of S

Delivery van 2

- Designed as delivery van; also available is MPV/minibus
- GVW = 2770 kg
- PMR = 52,3 kW/t
- 6 speed manual gear box
- Common rail Diesel
- S= 3800 1/min
- R51.02 = 78,9 dB(A)

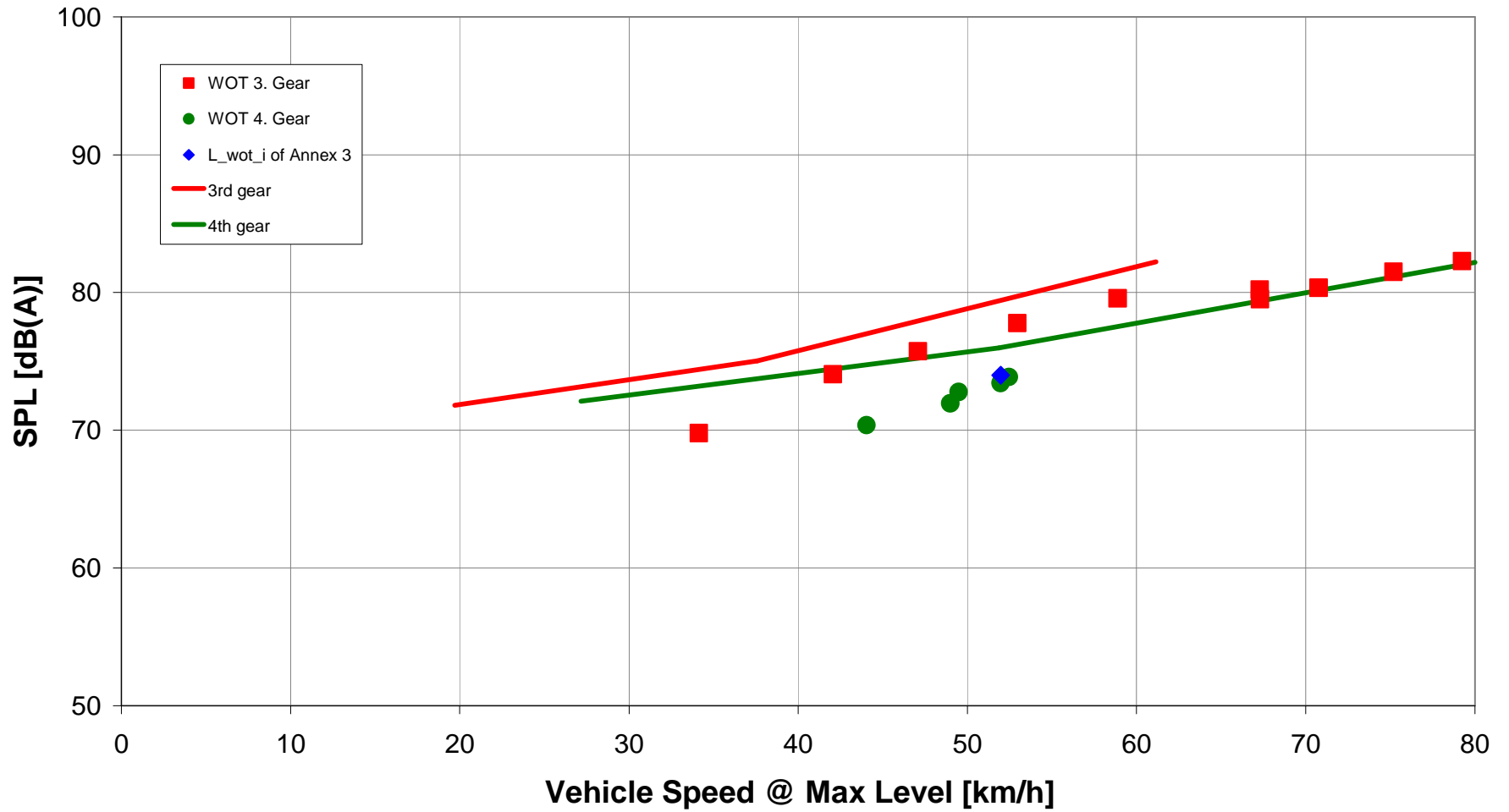
Delivery Van 2

French-German-Japanese Proposal (Reference to N@Lmax)



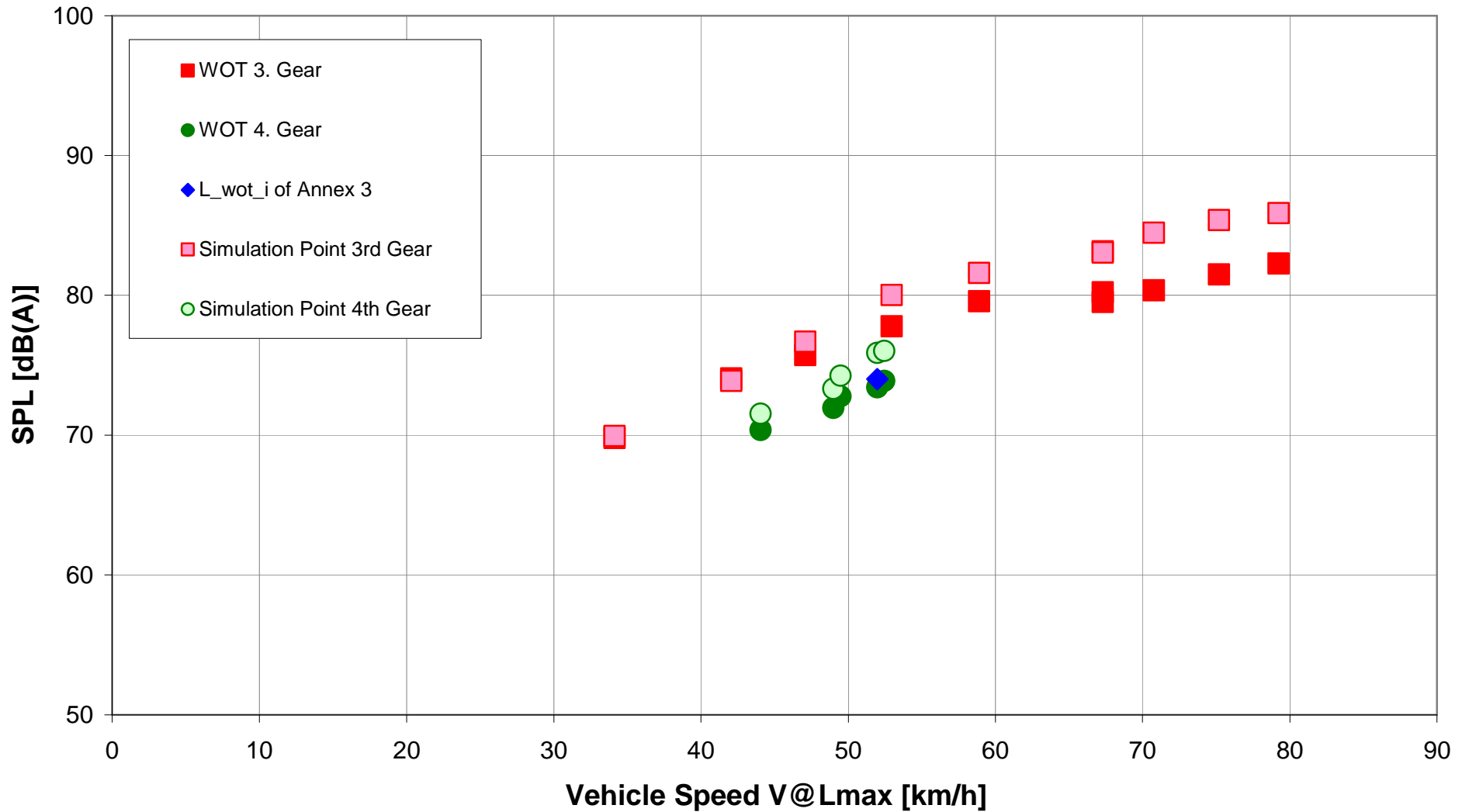
Delivery Van 2

French-German-Japanese Proposal (Reference to N@Lmax)



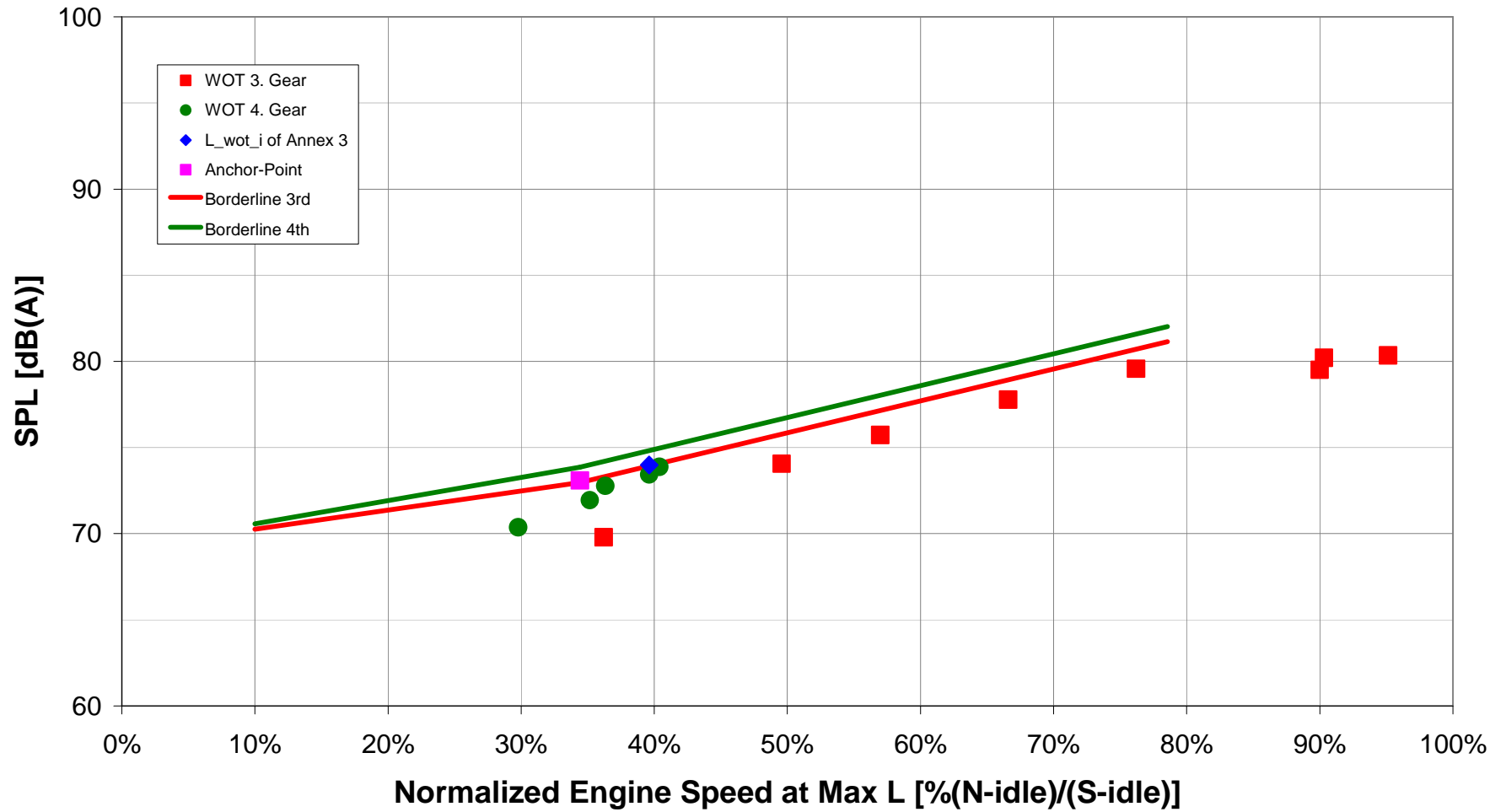
Delivery Van 2

NL Approach



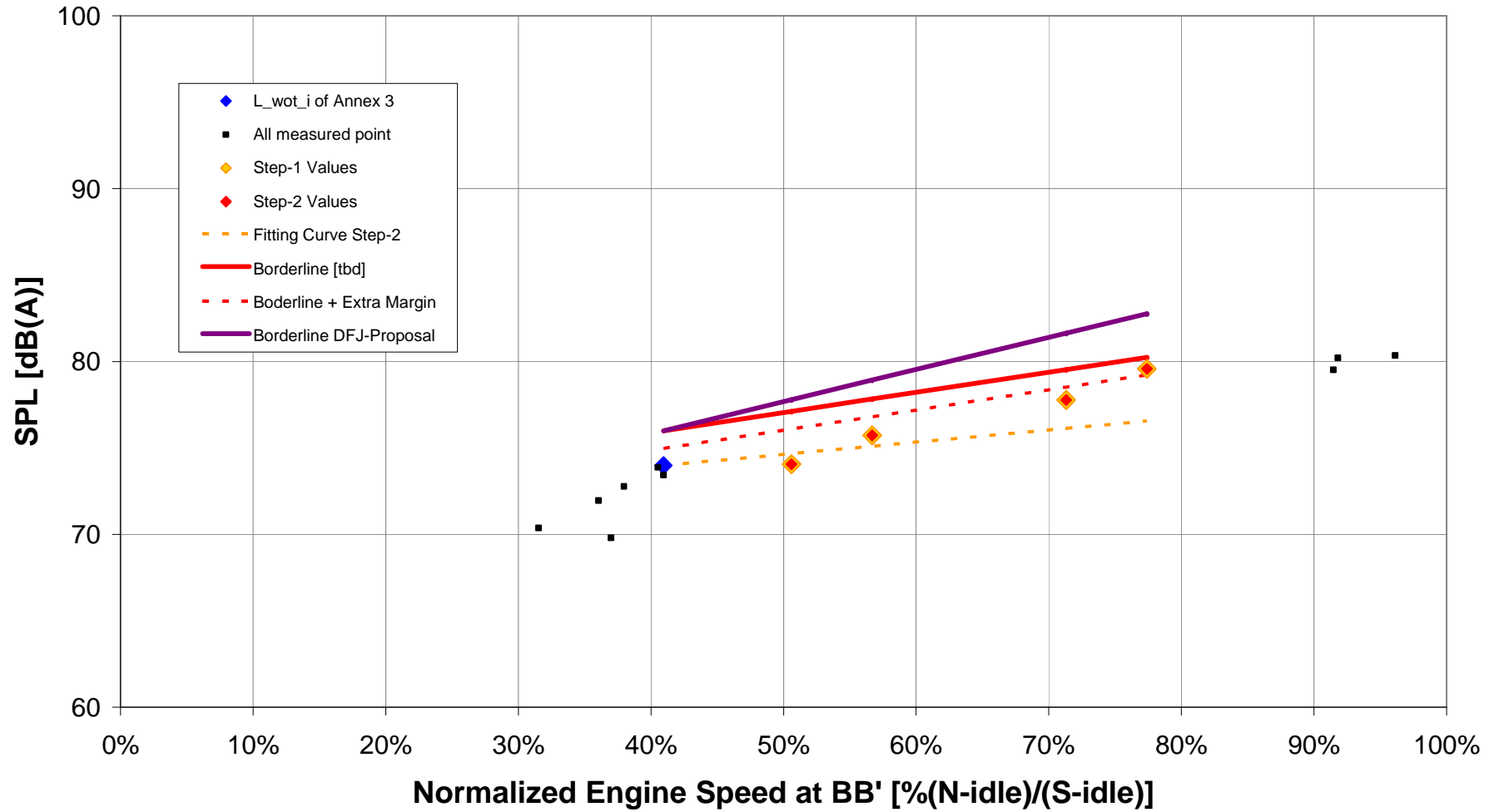
Delivery Van 2

UBA Proposal (Reference N@Lmax)



Delivery Van 2

OICA Outline (Engine Speed Based Test)



Delivery Van 2

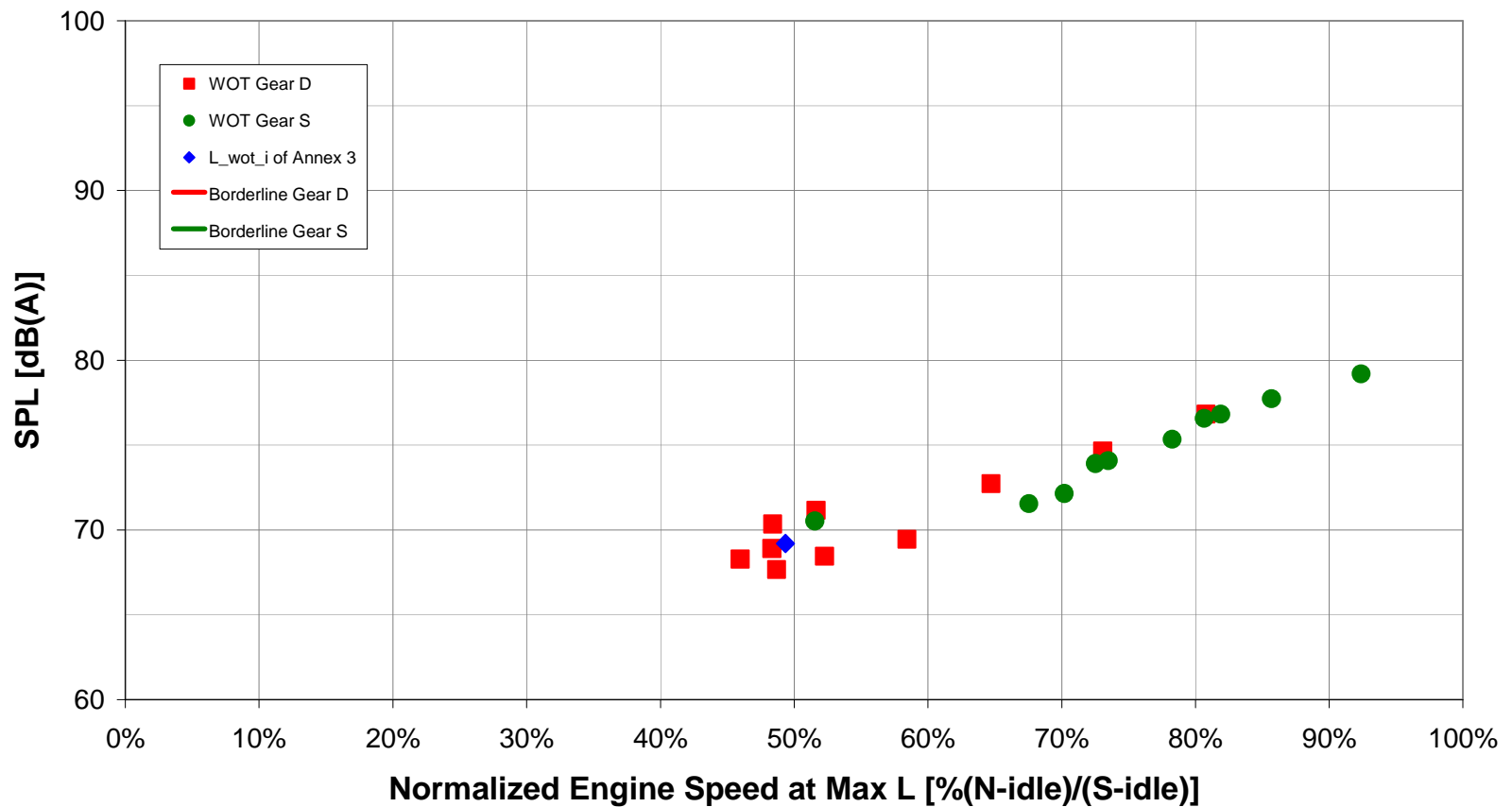
- All methods: vehicle approved

Hybrid passenger car 1

- Mild hybrid:
 - Petrol engine (70 kW; $S= 6000$ 1/min)
 - Electric engine/generator (15 kW) + Battery package
 - Combustion engine always in operation during driving
 - Automatic start stop system of engine during stand still
 - At (WOT) acceleration both engines cooperate
- PMR = 52,3 kW/t (combustion engine only)
- CVT gear box (Drive and Sporty)
- R51.02 = 69,1 dB(A)

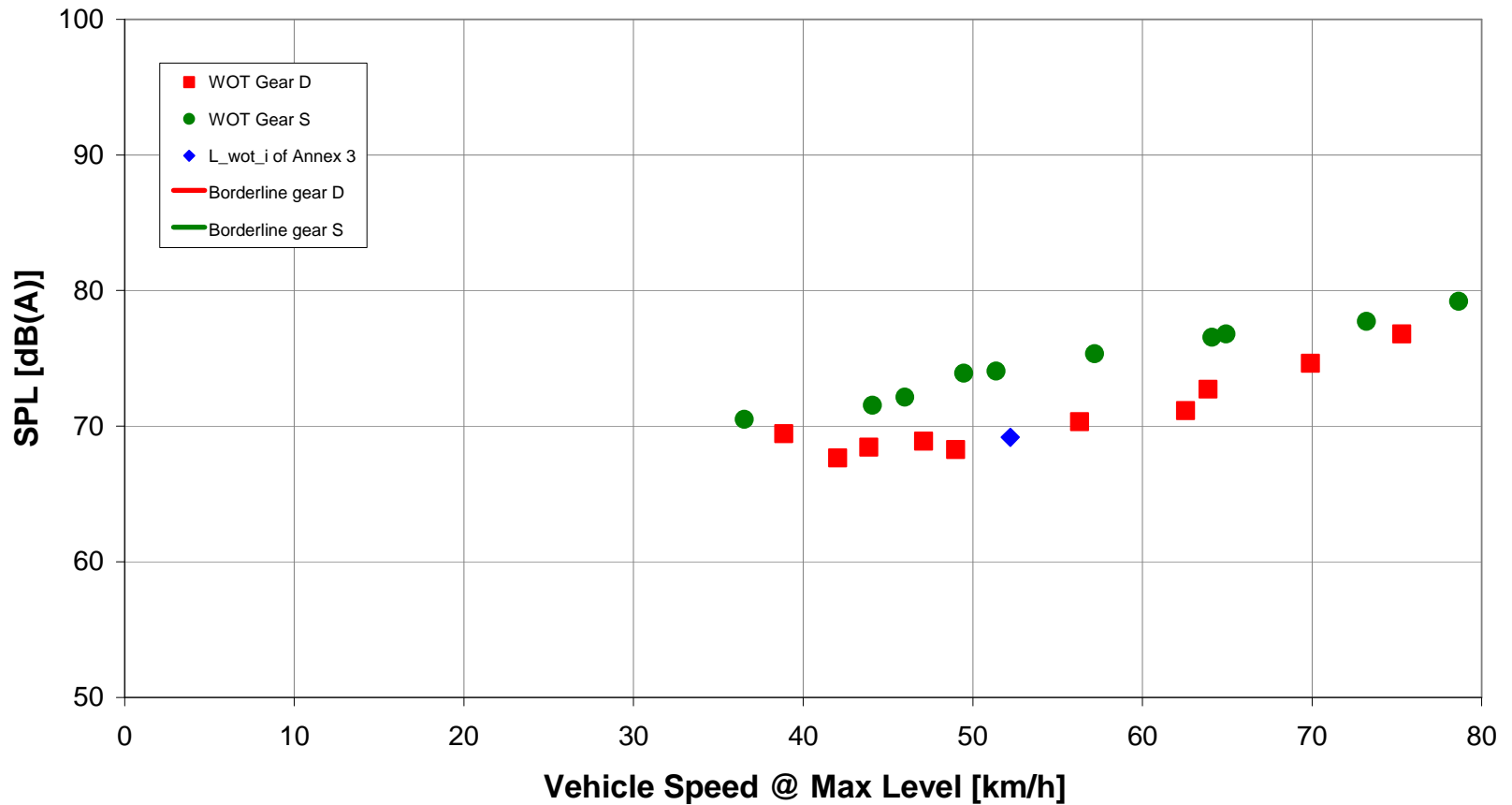
Hybrid passenger car 1

French-German-Japanese Proposal (Reference to N@Lmax)



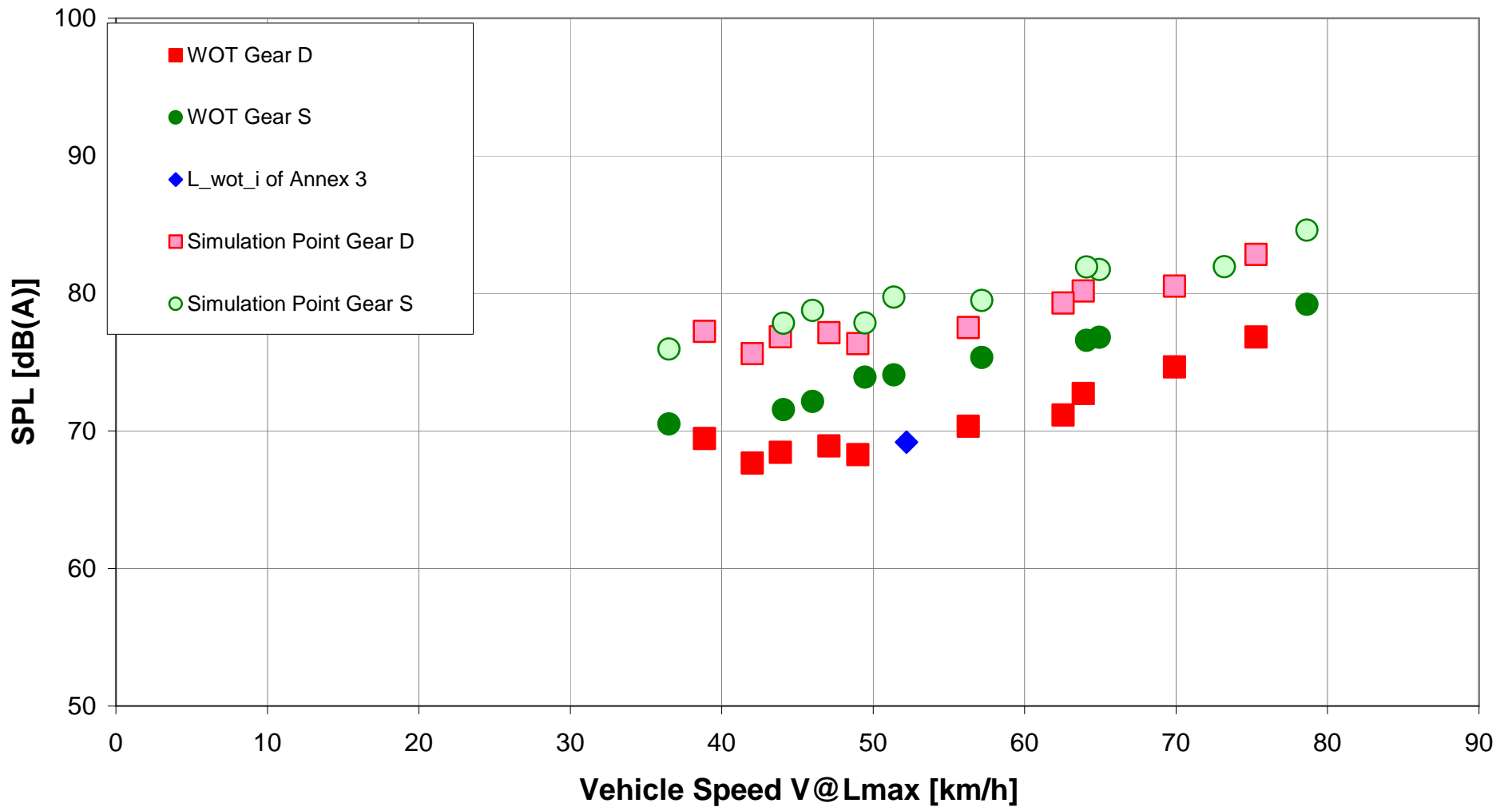
Hybrid passenger car 1

French-German-Japanese Proposal (Reference to N@Lmax)



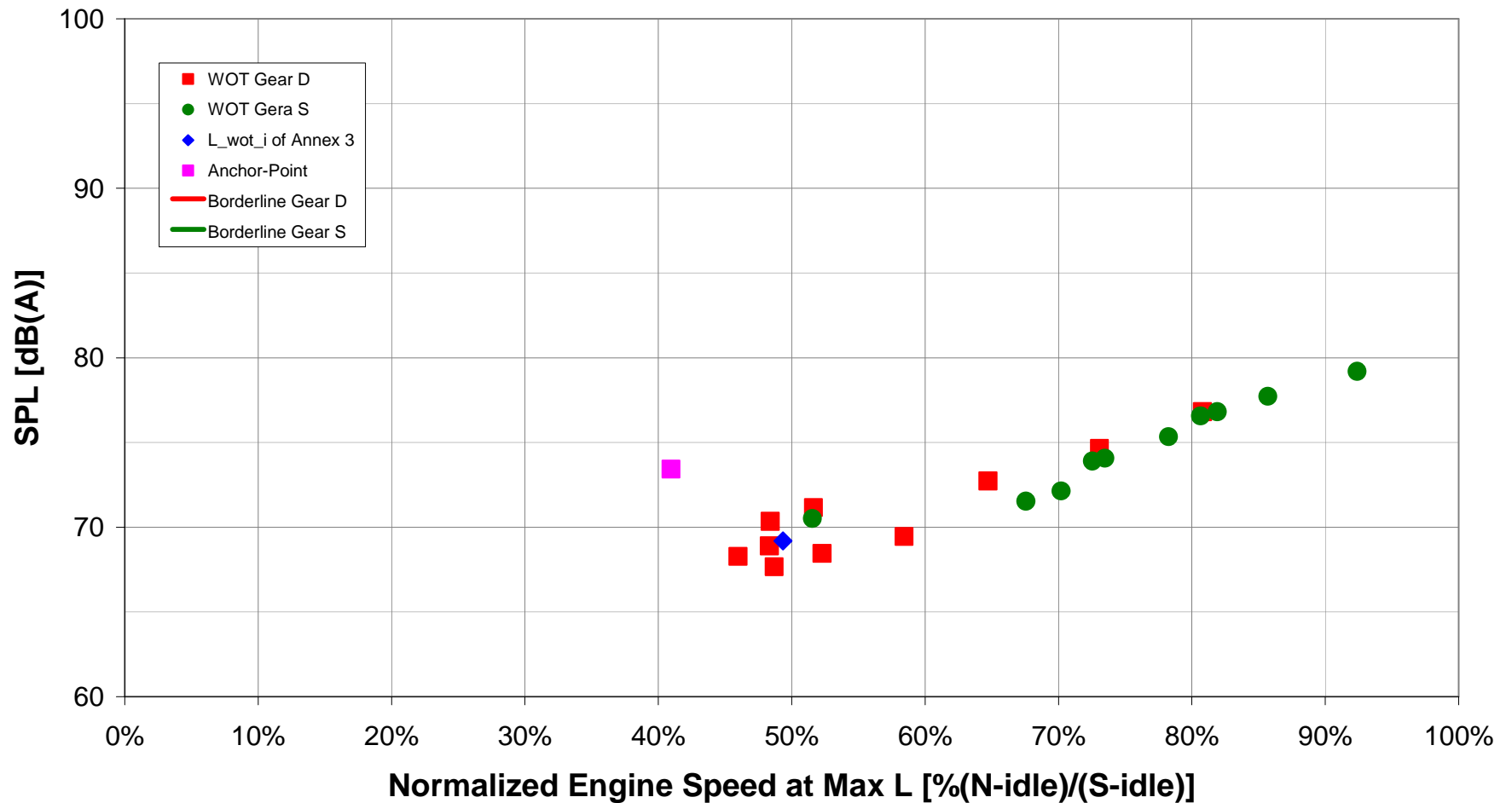
Hybrid passenger car 1

NL Approach



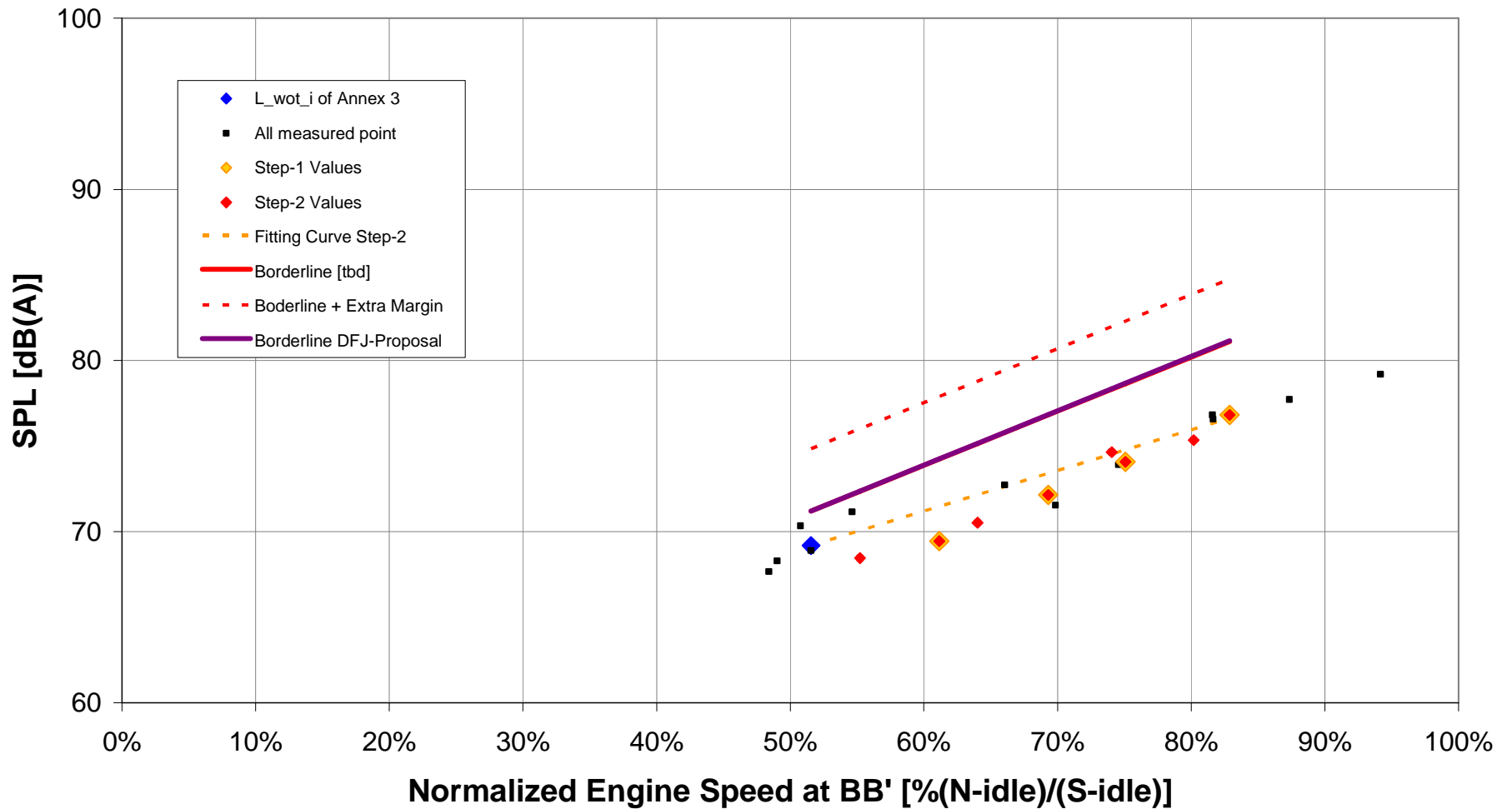
Hybrid passenger car 1

UBA Proposal (Reference N@Lmax)



Hybrid passenger car 1

OICA Outline (Engine Speed Based Test)



Hybrid passenger car 1

- NL and OICA: approved
- DF/J and UBA no limit lines available due to CVT; judge every point separately?
- Relatively broad engine speed range compared to other CVT vehicles
- What is the power of a hybrid vehicle?
 - What is the influence of the available capacity of the battery?
- Instable acceleration between AA' and PP'
 - Use PP'-BB' for calculation of acceleration
- Acceleration dependent on history before AA'
- How to deal with pre-acceleration
- How to deal with upper engine speed boarder (82%); this boarder line is passed during WOT acceleration

Hybrid passenger car 2

- Full hybrid:
 - Petrol engine (57 kW; $S= 5000$ 1/min)
 - Electric engine/generator (50 kW) + Battery package
 - At slow acceleration and cruising pure electric driving possible (depending on battery status)
 - At (WOT) acceleration both engines cooperate
 - Automatic start stop system of engine during stand still
- PMR = 38,8 kW/t (combustion engine only)
- CVT gear box (Drive and Hill)

Hybrid passenger car 2

- Sound level measurements yet to come
- Driving experiences:
 - During acceleration phase no difference between Drive and Hill program (only during deceleration phase)
 - Subjectively much more narrow engine speed at acceleration than Hybrid 1
 - WOT acceleration: always cooperation of two engines
 - What is the PMR? Available power dependent on battery status.
 - ASEP measurements; subjectively significant delay at depressing the accelerator
 - For example at slow speed: approach in electric mode; at depressing the accelerator, the combustion engine has to be switched on and the CVT has to change gear ratio;
 - How to deal with these delays?
 - Practical detail: harder to get an engine speed signal (need to drive to get the combustion engine running)