DAIMLERCHRYSLER

Engine noise

EP/SNA, 2006-10-30
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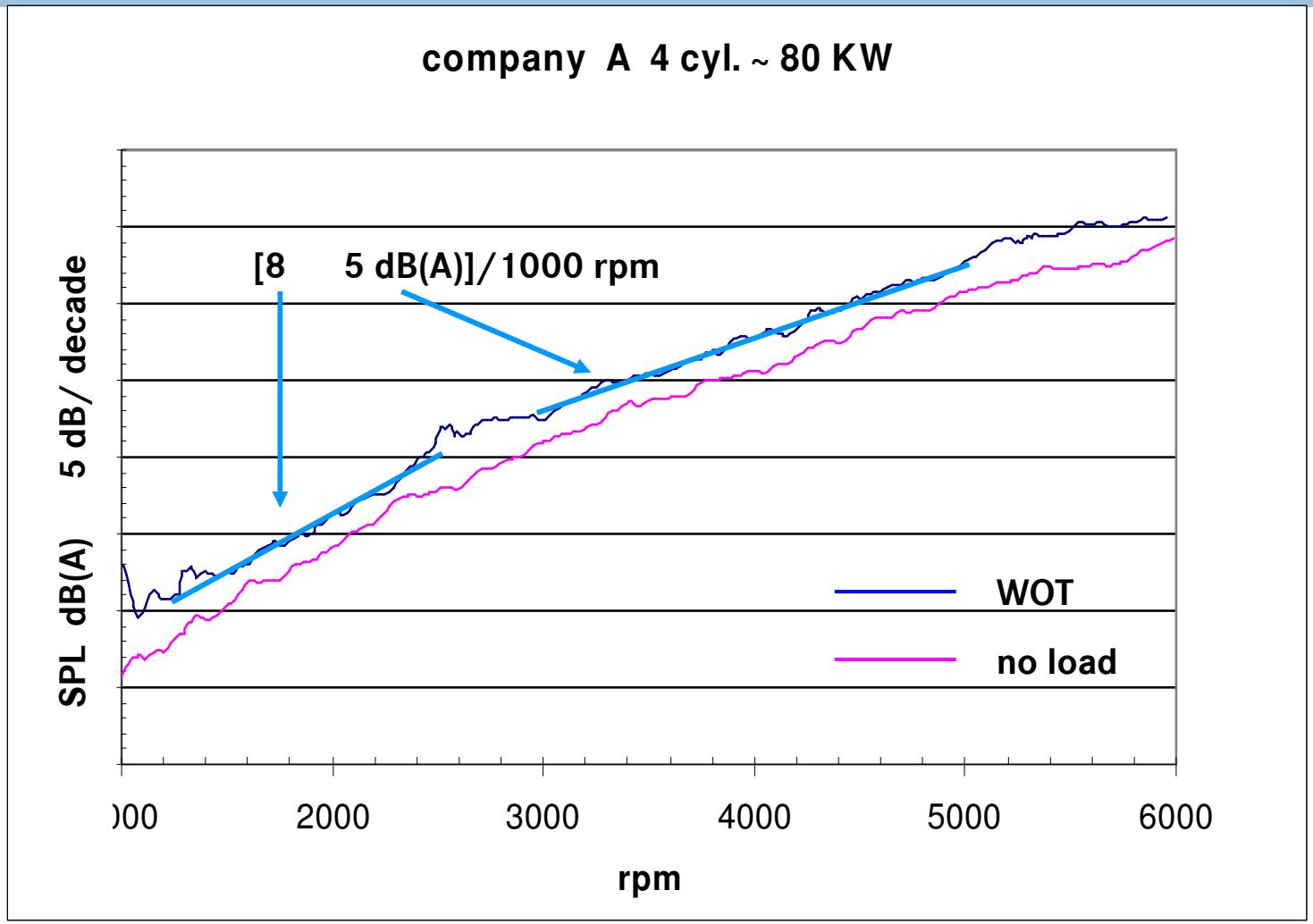
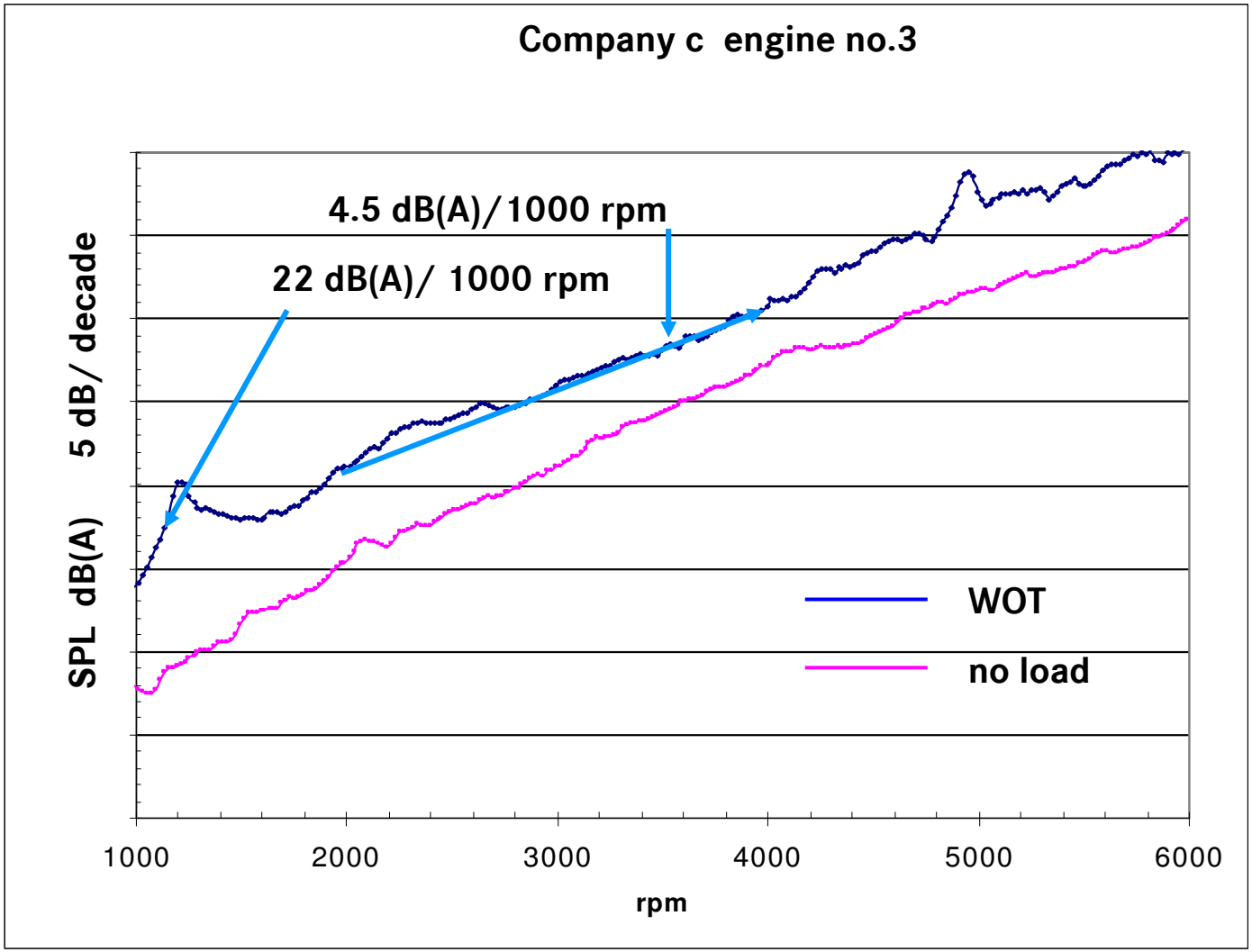
Introduction

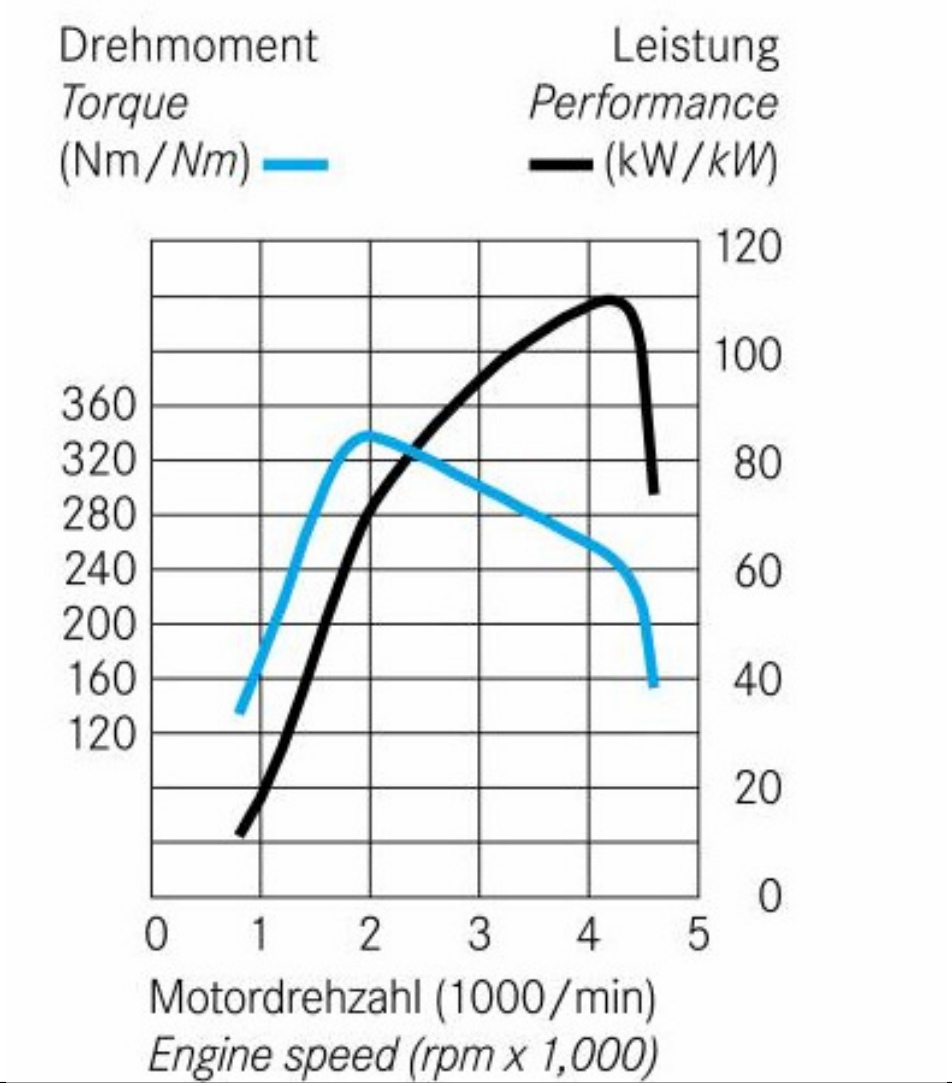
- Measurements are made in an non reflecting acoustic chamber [lowest frequency 100 Hz]
- Diagramms show different enginetypes made by different manufactures
- Diagramms show the SPL in 1 m distance averaged over five directions (left, right, up, down, front)
- The intake- and exhaustpipe noise is damped

4 cyl. gasoline

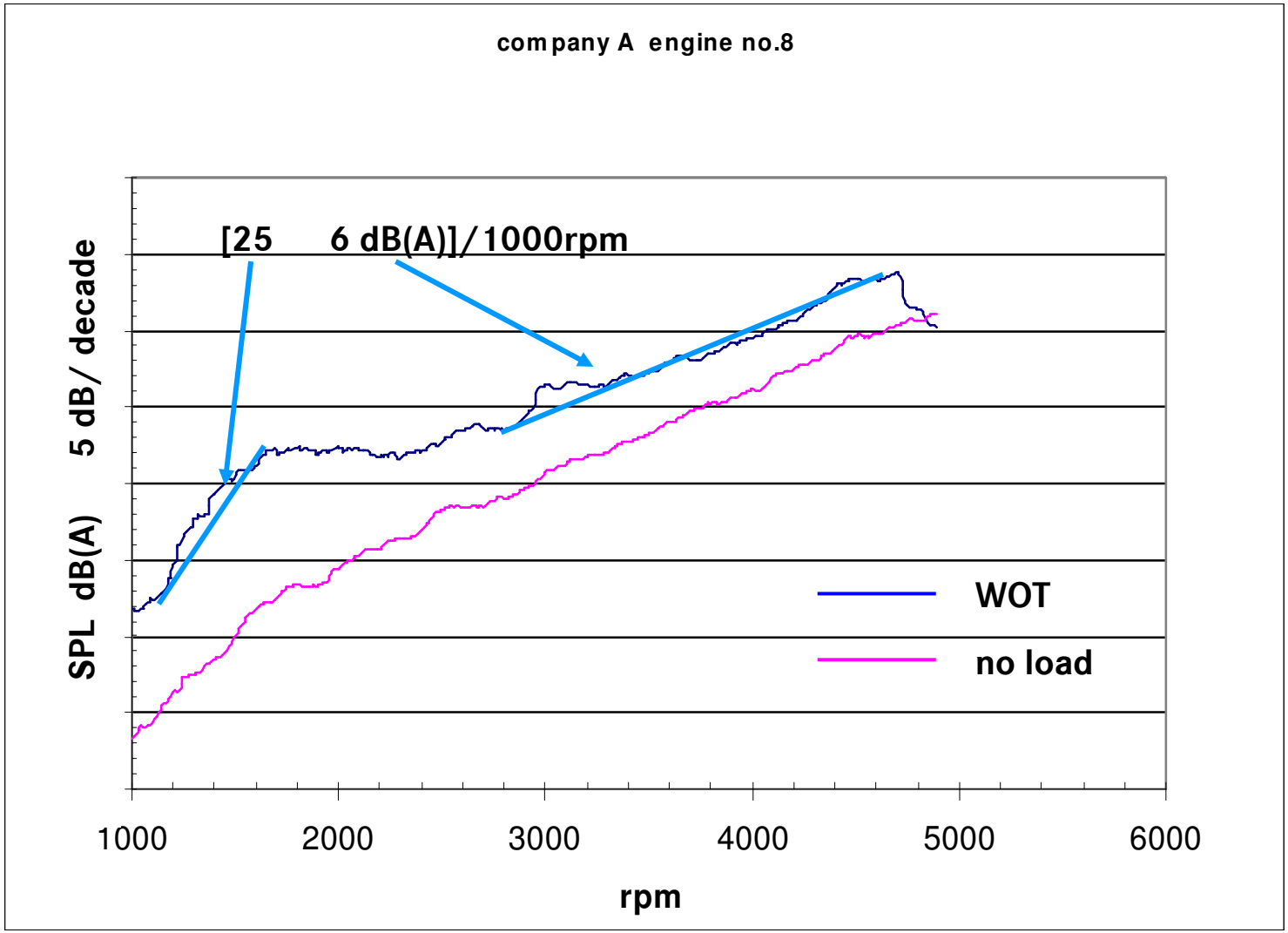


+/- 130 KW engine

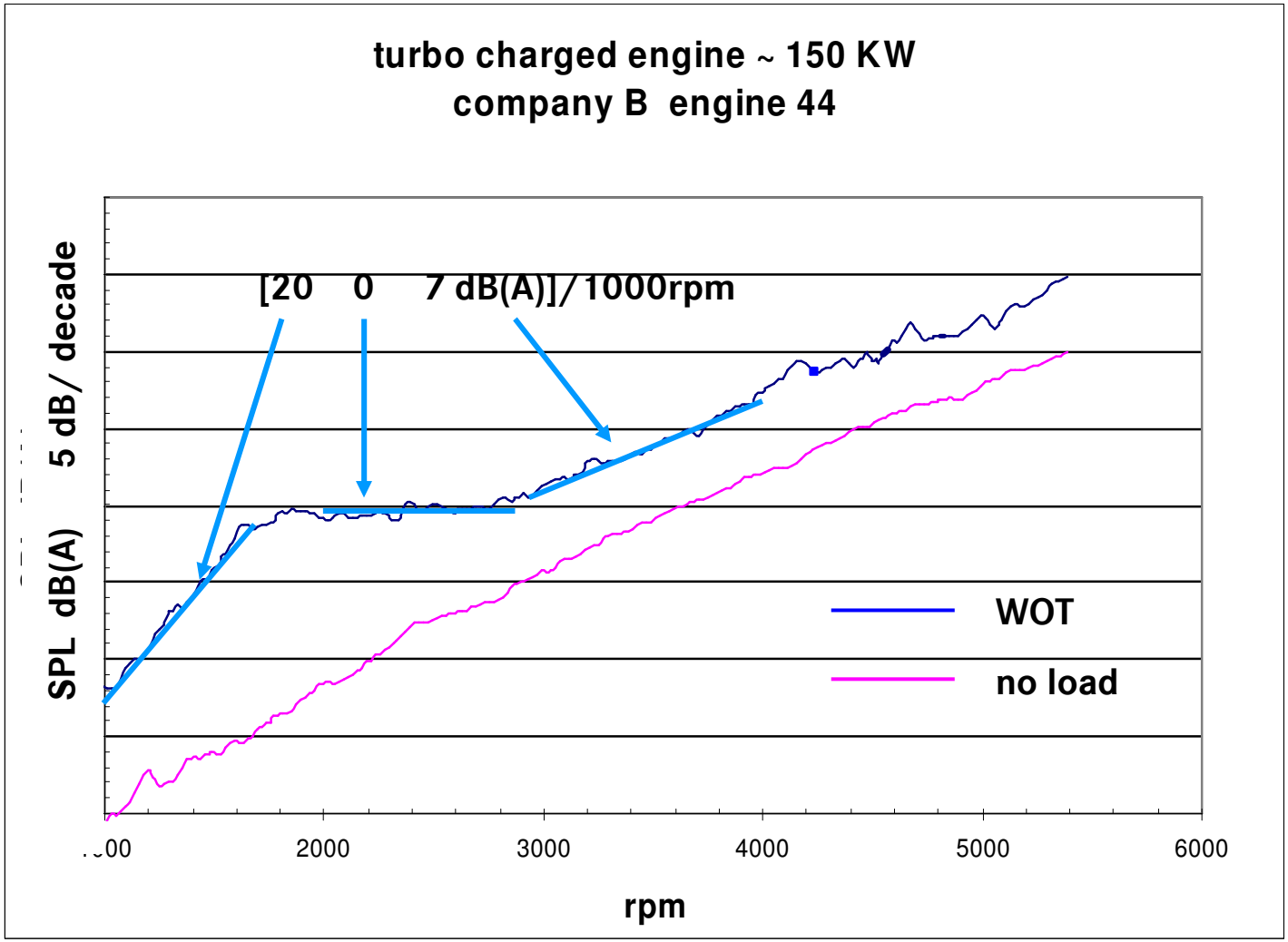



Drehmoment
Torque
(Nm/Nm)
Leistung
Performance
(kW/kW)
360
320
280
240
200
160
120
120
100
80
60
40
20
0
0
1
2
3
4
5
Motordrehzahl (1000/min)
Engine speed (rpm x 1,000)

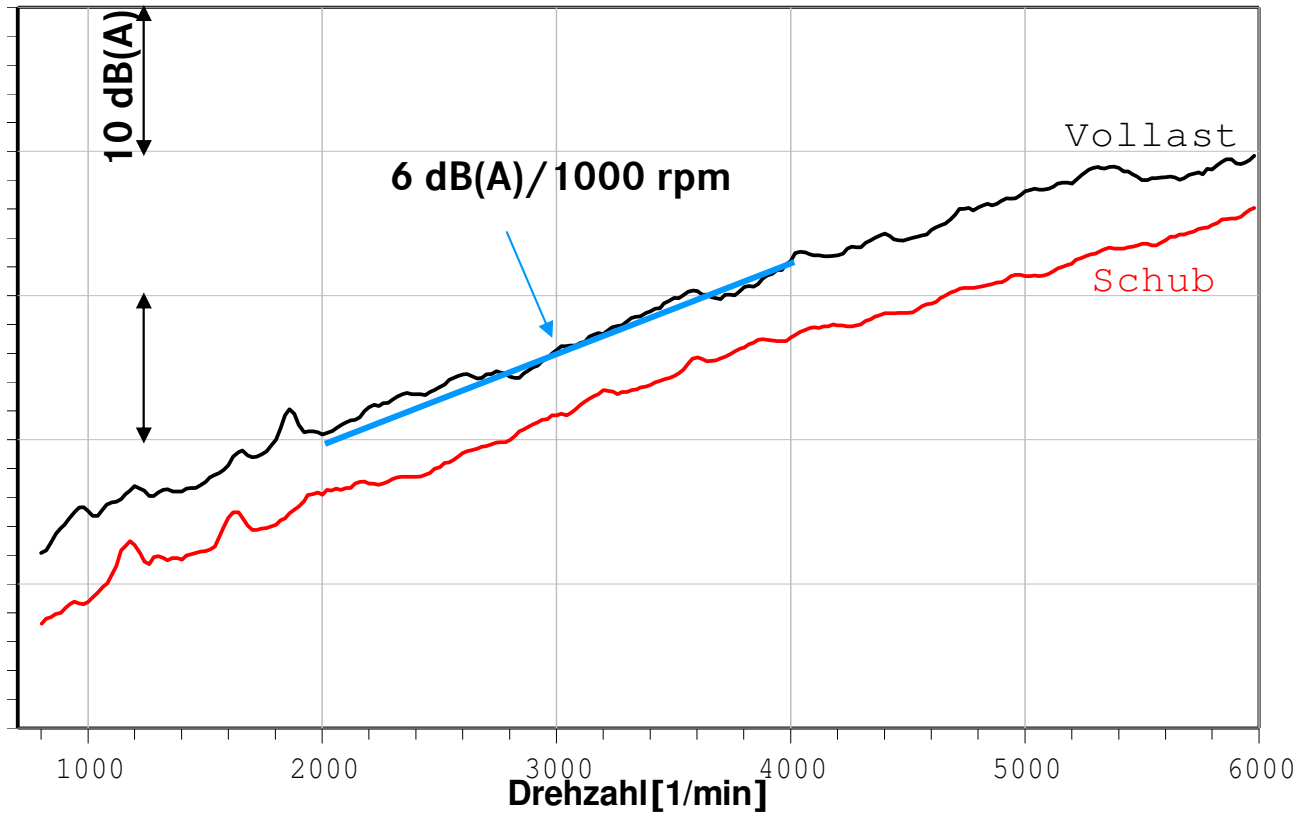
high powered diesel



Turbo charged gasoline



8 cylinder engine



conclusion

- for the whole rpm range an averaged slope of 5-6 dB(A) / 1000 rpm can be observed
- for smaller rpm areas the slope can be very different and can have a variety between 0 to 25 dB(A) / 1000 rpm

outlook for the whole vehicle

- depending on the source distribution of a vehicle [f(enginespeed, vehicle speed, load)] the increase of dB/rpm is different and is individuell for each vehicle