

Clarification paper for Positioning of ASEP procedures

The ASEP procedure has the objective to control the vehicles noise emission in the operating area outside the point defined in the Annex 3 proposal. In order to structurize the discussion in the ASEP group and to facilitate the formulation of procedures and requirements the following areas and scopes have been identified*:

1. AREA 1: connected to the 90-percentile of operating modes of the vehicle as encountered in urban traffic
2. AREA 2: between 90% and 99% of urban operating modes;
3. AREA 3: between 99% and 100% operating modes (actually defined by the technical capabilities of the vehicle).

Figure 1 illustrates these areas:

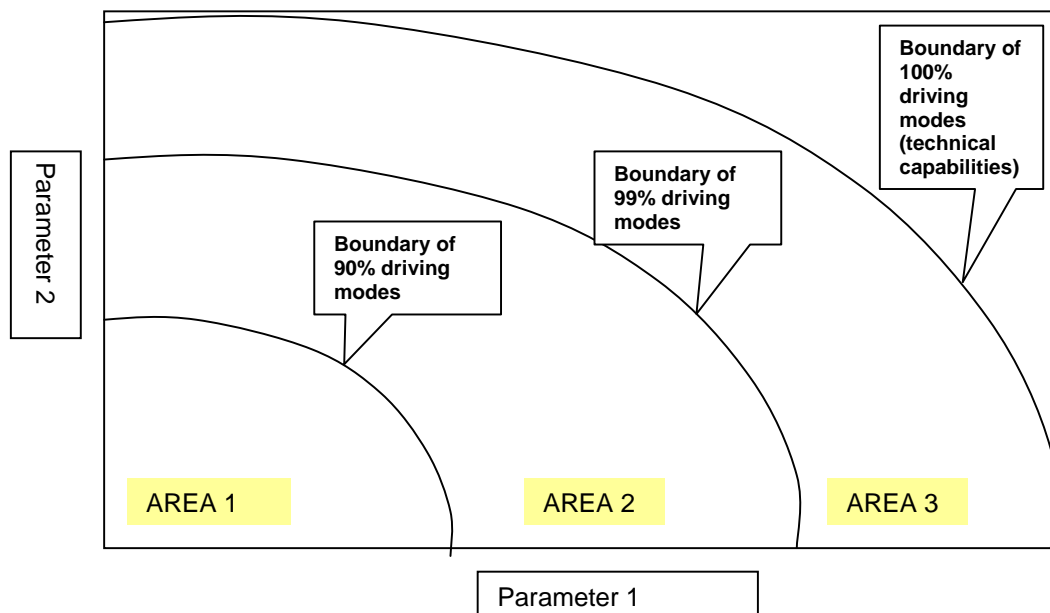


Fig 1: scheme of driving states in which vehicles are used in urban traffic. Parameter 1 and 2 can be vehicle speed and acceleration, or engine speed and engine torque, or another set that describes the vehicle driving condition with independent parameters.

** percentages and boundaries are based on urban driving statistics. The GRBIG on motorcycle noise emissions (R41) has discussed the influence of rural driving on driving states. Especially on the transition between urban and rural areas, driving states appear to be significantly higher compared to urban driving itself.*

In the three areas there is a different need of controlling the noise emission, both in (measurement)method and in precision:

Area 1: The main focus of the technical regulation lies in the control of the noise emission of road vehicles in the area of these driving states, since most of the urban driving takes place in these conditions. Within this area a single point is defined which represents driving in this area (Annex 3). The method is very accurate and the amount of control is high (± 1 dB(A))

Area 2: It is the objective of the Annex 10 to control the noise emission of the vehicle in the area of 99% driving. The control in this area is based on the requirement that the vehicles noise emission shall meet the expectations based on the outcome of the annex 3 procedure. This control will of course be less strict then based on the annex 3 itself; first since the requirements are derived from annex 3 results, second since the area to be covered is larger and multiple positions have to be covered by a practical and simple procedure. The amount of control is in the order of ± 2 dB(A).

Area 3: this area is presented by driving states that are possible within the vehicle technologies but that are not frequently encountered. Therefore a less detailed controlling scheme can be applied. This area is controlled efficient by the regulation for special devices such as valves, electronics, etc.. (also referred to as "open-pipe devices"). The required amount of control is in the order of ± 5 dB(A)

Figure 2 and 3 illustrate these areas and amount of control

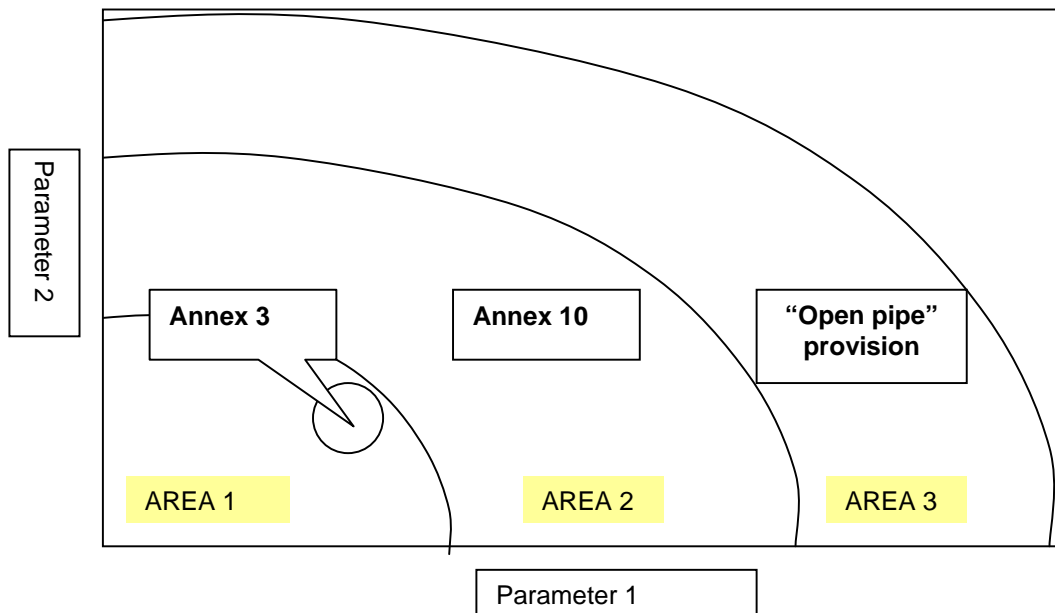


Fig 2: Scheme of control provisions connected to the areas of vehicle driving states.

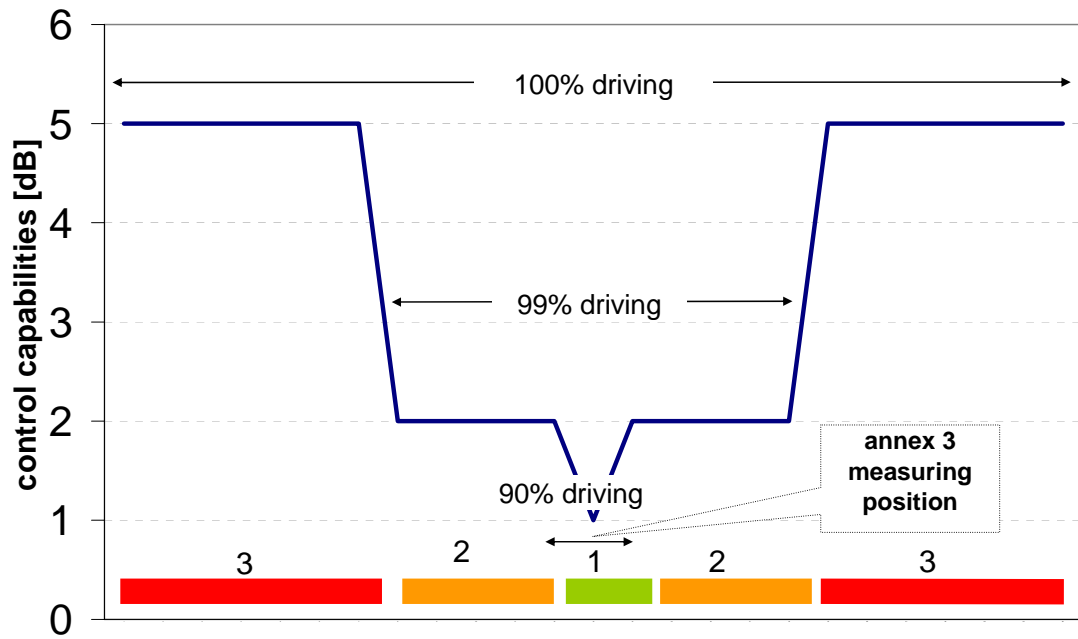


Fig 3: cross section of the driving states and the amount of control (estimated in terms of dB) of the vehicles emission. The bars below and the figures indicate the areas 1, 2 and 3 (see text above).