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Alternative alert signal concepts and their perceptual implications

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It is expected that electric motors will continuously replace combustion engines within the next decades due to political measures caused by the European White Paper 2011 which claims that use of ”conventionally-fuelled” cars in urban transport by 2030 should be halved and phased out by 2050. With an increasing spread of electric vehicles the concern goes along that a higher incidence rate of pedestrian and bicyclist crashes could occur. In order to avoid any potential drawback regarding pedestrian safety due to reduced exterior noise of electric vehicles, the introduction of alert signals is discussed on different political levels. An alert signal as a continuous sound should inform pedestrians about an approaching vehicle. On the other side this could be a conflict with respect to the annoyance of environmental noise. Although this target could be achieved by different signals, it seems that merely solutions based on tones and pitch-shifting respectively are discussed. The paper will illustrate different alert signal concepts and will discuss their perceptual implications. In general, the greatest challenge is to develop concepts enhancing pedestrian safety without neglecting ecological consequences, since in the future numerous electric vehicles might radiate their alert signals at the same time.

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Special session: Product Sound quality: Perception of Electric and Hybrid Vehicles: From Alert Sound Design to Interior Noise
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