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Analysis and evaluation of traffic sounds

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This work focuses on a residential area in Friedrichshain, a district close to the centre of Berlin. A Soundscape analysis was made in this area, where the neighbours spent most of their free time, especially their leisure time. Basically, our measurements pointed out that immissions into the flats are mainly due to the low-frequency range under 200Hz, in particular in the case of closed windows. In addition, this low-frequency range initiates standing waves and vibrations within the flats, causing annoying secondary sounds. Furthermore, effects arose, caused by an impulsive signal structure and a discontinuity in the time structure of the source signals, depending on the street pavement and on the traffic situation. With regard to that point, different physical and perceptive measurement and analysis methods were compared and interviews within the neighbourhood were conducted. Moreover, we tried to correlate the results of the survey with those of our measurements in order to see advantages and disadvantages of the applied methods. The scope of A-weighted measurements was then critically considered. Different ways will be discussed about how the complex evaluation of traffic sounds in the future could be based more on neighbours' perception and needs.