

MONITORING THE POLLUTION CONCENTRATION GRADIENT AT LONDON KERBSIDE MONITORING STATION

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Recent predictions of annual mean NO₂ and PM₁₀ in London (and elsewhere in the UK) show that by 2005 or 2010 exceedences of the EU Limit Value will be restricted to the near-road environment. It is therefore becoming increasingly important to describe how concentrations decrease as a function of the distance from a road. Almost all monitoring carried out in the UK is conducted at monitoring sites separated by several kilometres, giving no direct indication of the near-road concentration profile. The complexity of the near-road environment also means that is very difficult for dispersion models to produce reliable estimates of the profile. Simultaneous measurements of NO_x, NO₂, O₃, PM₁₀ and PM_{2.5} were undertaken at distances representative of kerbside and roadside monitoring locations in a single monitoring cabin on the Marylebone Road in London. Measurements made at the two monitoring locations, and the differences between the two, were examined to derive a concentration fall off between the kerbside and roadside. A separate co-location study was carried out where duplicate instruments were installed equidistant from the kerb. Limits of agreement were calculated from the measurements made during this study. These revealed the extent to which individual instruments differed when monitoring at exactly the same location. This study therefore provides information useful for interpreting kerbside measurements from many monitoring sites in the UK and may allow building façade (or back of pavement) concentrations to be estimated, allowing a better assessment of population exposure.