

Appendix 8.3 Model Verification Calculations

NO₂

Model verification has been undertaken following the methodology specified in Annex 3 of the Technical Guidance LAQM.TG(09). The NO_x:NO₂ calculator available from the UKAQA was used to calculate the roadside NO_x component of the annual mean NO₂ concentrations measured at the diffusion tube sites summarised in the table below. The roadside NO_x value for the continuous monitor was calculated by subtracting the background NO_x from the monitored annual mean NO_x value.

For the receptors outside of the City Centre, a factor of **11.01** was obtained during the verification process, whilst a factor of **6.16** was calculated for the receptors inside of the City Centre. These factors have been applied to the modelled NO_x roads component before addition of the relevant background NO_x concentrations and conversion to annual mean NO₂ concentrations.

Monitoring Site	2008 Monitored Annual Mean NO ₂ Conc. (µg/m ³)	Background		Monitored Road-NO _x (µg/m ³)	Modelled Road NO _x (µg/m ³)	Ratio
		NO _x	NO ₂			
<u>Receptors inside City Centre</u>						
Diffusion Tube Site 12	47.2	52	27	61.67	12.63	4.88
Diffusion Tube Site 13	57.9	52	27	111.72	10.77	10.37
St Georges Continuous Monitor	48	52	27	60	18.67	3.21
<u>Receptors outside of City Centre</u>						
Diffusion Tube Site 25	35.4	18.75	15.16	53.53	4.86	11.01

PM₁₀

A verification factor of 6.35 was obtained during the verification process and has been applied to the roadside PM₁₀ contribution before addition of the appropriate background concentration to determine total PM₁₀ concentrations at each receptor location.

Monitoring Site	2008 Monitored Annual Mean PM ₁₀ Conc. (µg/m ³)	Background PM ₁₀ Concentration (µg/m ³)	Monitored Road-PM ₁₀ (µg/m ³)	Modelled Road PM ₁₀ (µg/m ³)	Ratio
St Georges Continuous Monitor	22.0	18.0	4.0	0.63	6.35