

## SCHEDULE 8

## Data quality objectives

**PART 1**Group A pollutants and PM<sub>2.5</sub>**Group A pollutants (other than benzene and carbon monoxide) and PM<sub>2.5</sub>**

1. Data-quality objectives are set out in the table and paragraphs below for the required accuracy of assessment methods, of minimum time coverage and of data capture of measurement are laid down to guide quality assurance programmes—

	<i>Sulphur dioxide, nitrogen dioxide and oxides of nitrogen</i>	<i>Lead, PM<sub>2.5</sub> and PM<sub>10</sub></i>
<i>Continuous measurement</i>		
Accuracy	15%	25%
Minimum data capture	90%	90%
<i>Indicative measurement</i>		
Accuracy	25%	50%
Minimum data capture	90%	90%
Minimum time coverage	14% (one measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year)	14% (one measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year)
<i>Modelling</i>		
Accuracy		
Hourly averages	50%-60%	
Daily averages	50%	
Annual averages	30%	50%
<i>Objective estimation</i>		
Accuracy	75%	100%

2. The accuracy of the measurement is defined as laid down in the “Guide to the Expression of Uncertainty of Measurements” (ISO 1993)(1) or in ISO 5725-1 “Accuracy (trueness and precision) of measurement methods and results” (ISO 1994). The percentages in the table are given for individual measurements averaged, over the period considered, by the limit value, for a

(1) Copies of International Standards Organisation publications may be purchased from the British Standards Institution ('BSI') Sales Department either by telephone (0208 996 9001) or by post from the BSI, Standards House, 389 Chiswick High Road, London W4 4AL, <http://www.bsi-global.com>

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95% confidence interval (bias + two times the standard deviation). The accuracy for continuous measurements should be interpreted as being applicable in the region of the appropriate limit value.

3. The accuracy for modelling and objective estimation is defined as the maximum deviation of the measured and calculated concentration levels, over the period considered by the limit value, without taking account the timing of the events

4. The requirements for minimum data capture and time coverage do not include losses of data due to the regular calibration or the normal maintenance of the instrumentation.

5. The National Assembly may allow for random measurements to be made instead of continuous measurements for lead, PM<sub>2.5</sub> and PM<sub>10</sub> by methods for which accuracy within the 95% confidence interval with respect to continuous monitoring has been demonstrated to be within 10%. Random sampling must be spread evenly over the year.

**Benzene and carbon monoxide**

6. The data quality objectives in the following table, for allowed uncertainty of assessment methods, of minimum time coverage and of data capture of measurement are provided to guide quality assurance programmes—

	<i>Benzene</i>	<i>Carbon monoxide</i>
<i>Fixed measurements</i>		
Uncertainty	25%	15%
Minimum data capture	90%	90%
Minimum time coverage	35% at urban background and traffic sites (distributed over the year to be representative of various conditions for climate and traffic); 90% at industrial sites	
<i>Indicative measurements</i>		
Uncertainty	30%	25%
Minimum data capture	90%	90%
Minimum time coverage	14% (one day’s measurement a week at random, evenly distributed over the year, or 8 weeks evenly distributed over the year)	14% (one measurement a week at random, evenly distributed over the year, or 8 weeks evenly distributed over the year)
<i>Modelling</i>		
Uncertainty:		
Eight-hour averages		50%
Annual averages	50%	
<i>Objective estimation</i>		
Uncertainty	100%	75%

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7. The uncertainty (on a 95% confidence interval) of the assessment methods must be evaluated in accordance with the “Guide to the Expression of Uncertainty of Measurements” (ISO 1993) or the methodology of ISO 5725:1994. The percentages for uncertainty in the above table are given for individual measurements averaged over the period considered by the limit value, for a 95% confidence interval. The uncertainty for the fixed measurements should be interpreted as being applicable in the region of the appropriate limit value.

8. The uncertainty for modelling and objective estimation is defined as the maximum deviation of the measured and calculated concentration levels, over the period considered by the limit value, without taking into account the timing of the events.

9. The requirements for minimum data capture and time coverage do not include losses of data due to the regular calibration or the normal maintenance of the instrumentation.

10. The National Assembly may allow for random measurements to be made instead of continuous measurements for benzene if the uncertainty, including the uncertainty due to random sampling, meets the quality objective of 25%. Random sampling must be spread evenly over the year.