



Department
for Environment
Food & Rural Affairs

UK Air Quality Zones Assessment Threshold Status

Five-year review (2016-2020)

Date: September 2023

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Introduction

A review of the UK's air quality zones and agglomerations against defined Assessment Thresholds has been undertaken in accordance with the Air Quality Standards Regulations (2010). The Air Quality Standards Regulations (2010) (AQSR) directly reference criteria and business rules from the European Air Quality Directive (AQD¹) and Fourth Daughter Directive (4DD)² to be used in this assessment. As a result, the method applied references the AQD where needed. Article 5 of the AQSR provides the requirement to assess defined air quality zones^{3,4} (see 1) against assessment thresholds determined by Section A of Annex II of the AQD. Paragraph 2 of Article 5 requires this assessment to be reviewed at least once every five years. These requirements are also specified under Article 4, para.6 of the 4DD for metals (arsenic, cadmium and nickel) and PAHs, using benzo[a]pyrene (B[a]P) as the marker.

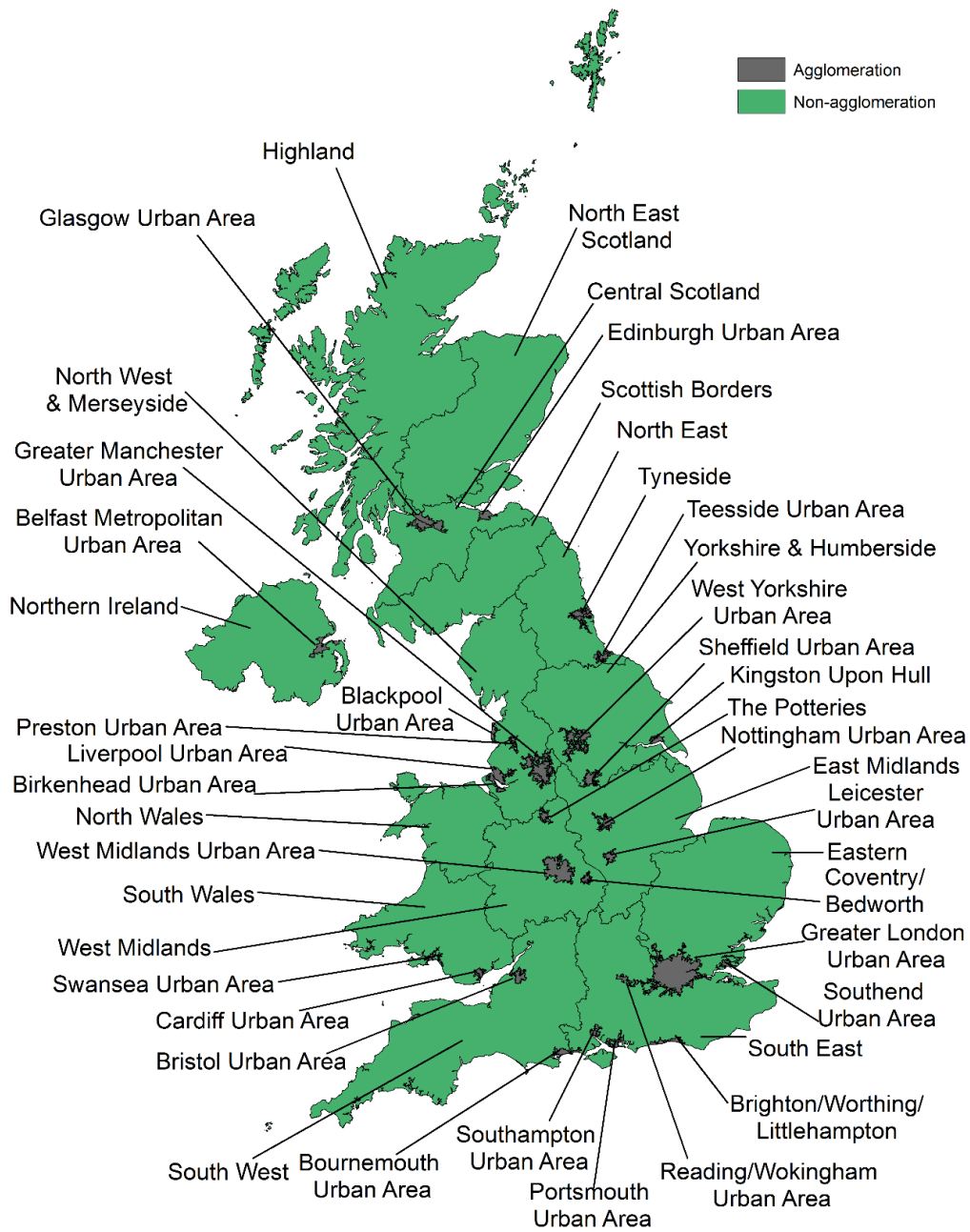
¹ Directive 2008/50/EC (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:EN:PDF>)

² Directive 2004/107/EC (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0107:EN:NOT>)

³ Zones and Agglomerations, UK-Air Glossary (https://uk-air.defra.gov.uk/air-pollution/glossary.php?glossary_id=54#54)

⁴ Article 5 Assessment of nitrogen dioxide, PM10, sulphur dioxide and lead in the UK, Bush, T. Chapter 3 [https://uk-air.defra.gov.uk/assets/documents/reports/cat09/0502100920_Art5_v9commission2\(final_draft\).pdf](https://uk-air.defra.gov.uk/assets/documents/reports/cat09/0502100920_Art5_v9commission2(final_draft).pdf)

Figure 1 Map of UK air quality zones and agglomerations



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This document represents the five-year review of UK zones against those assessment thresholds covering the period 2016-2020. This is the first stage in a process to determine the number of monitoring sites required in the national network as defined in the AQSR. The assessment is based upon a combination of measured data from the UK's national networks⁵ and national air quality models⁶ - the same data that underpins the UK annual compliance reporting under the AQSR, published on the UK-Air⁷ website. This data determines which category each zone falls into relative to the assessment thresholds – below the Lower Assessment Threshold ('<LAT'), between the Lower Assessment Threshold and Upper Assessment Threshold ('LAT-UAT') or above the Upper Assessment Threshold ('>UAT'). The Assessment Thresholds are specified for each pollutant metric in Annex II of the AQD and 4DD, and are summarised in Table 1 and Table 2, respectively. Ozone has no specified Assessment Threshold but, for the purposes of determining a requirement to make measurements, uses exceedances of the Long Term Objective (LTO) over the course of five years, as shown in Table 3.

⁵ UK-AIR website: <http://uk-air.defra.gov.uk/networks/>

⁶ Brookes et al (2015) https://uk-air.defra.gov.uk/assets/documents/reports/cat09/1511251423_AQ0650_2013_MAAQ_technical_report.pdf

⁷ UK-Air Compliance Data Page <https://uk-air.defra.gov.uk/compliance-data> and Report section (<https://uk-air.defra.gov.uk/library/>)

Table 1 Assessment Thresholds prescribed in Annex II of the Air Quality Directive

Pollutant	Metric	LAT	UAT
Sulphur Dioxide (SO₂)	24-hr mean	50 µg m ⁻³ (3 allowed)	75 µg m ⁻³ (3 allowed)
	Winter mean*	8 µg m ⁻³	12 µg m ⁻³
Oxides of Nitrogen (NO_x)	Annual mean*	19.5 µg m ⁻³	24 µg m ⁻³
Nitrogen Dioxide (NO₂)	1-hr mean	100 µg m ⁻³ (18 allowed)	140 µg m ⁻³ (18 allowed)
	Annual mean	26 µg m ⁻³	32 µg m ⁻³
Particulate matter (PM₁₀)	24-hr mean	25 µg m ⁻³ (35 allowed)	35 µg m ⁻³ (35 allowed)
	Annual mean	20 µg m ⁻³	28 µg m ⁻³
Particulate matter (PM_{2.5})	Annual mean	10 µg m ⁻³	14 µg m ⁻³
Lead (Pb)	Annual mean	0.25 µg m ⁻³	0.35 µg m ⁻³
Benzene (C₆H₆)	Annual mean	2 µg m ⁻³	3.5 µg m ⁻³
Carbon Monoxide (CO)	8-hr mean	5 mg m ⁻³	7 mg m ⁻³

* applicable in ecosystem areas only

Table 2 Assessment Thresholds prescribed in Annex II of the Fourth Daughter Directive

Pollutant	Metric	LAT	UAT
Arsenic (As)	Annual mean	3.6 ng m ⁻³	2.4 ng m ⁻³
Cadmium (Cd)	Annual mean	2 ng m ⁻³	3 ng m ⁻³
Nickel (Ni)	Annual mean	10 ng m ⁻³	14 ng m ⁻³
Benzo[a]pyrene (B[a]P)	Annual mean	0.4 ng m ⁻³	0.6 ng m ⁻³

Table 3 Ozone Long Term Objectives (LTO) prescribed in Annex VII Section C of the Air Quality Directive

Pollutant	Metric	LTO
Ozone (O₃)	8-hr mean	120 µg m ⁻³ (for health)
	AOT40	6000 µg m ⁻³ .h (for vegetation)

Assessment Threshold status by zone (2016-2020)

Table 4 shows the status of each UK zone and agglomeration according to the assessment thresholds set out for the period 2016-2020 for:

- SO₂
- NO_x and NO₂
- PM₁₀ and PM_{2.5}
- Lead
- Benzene
- CO
- Ozone

Table 5 shows the same information by zone for:

- Arsenic
- Nickel
- Cadmium
- B(a)P

Table 4 Summary of Assessment Threshold status by pollutant/metric for each UK zone (2016-2020) (AQD pollutants)

Zone code	Zone name	SO ₂ 24-hr	SO ₂ ecosystem areas	NO _x ecosystem areas	NO ₂ 1-hr	NO ₂ annual	PM ₁₀ 24-hr	PM ₁₀ annual	PM _{2.5} annual	Pb annual	Benzene annual	CO max 8-hr	O ₃ Health LTO	O ₃ Vegetation LTO
UK0001	Greater London Urban Area	<LAT			>UAT	>UAT	>UAT	LAT-UAT	>UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0002	West Midlands Urban Area	<LAT			LAT-UAT	>UAT	>UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0003	Greater Manchester Urban Area	<LAT			LAT-UAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0004	West Yorkshire Urban Area	<LAT			LAT-UAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0005	Tyneside	<LAT			LAT-UAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0006	Liverpool Urban Area	<LAT			LAT-UAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0007	Sheffield Urban Area	<LAT			LAT-UAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0008	Nottingham Urban Area	<LAT			LAT-UAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0009	Bristol Urban Area	<LAT			LAT-UAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0010	Brighton/Worthing/Littlehampton	<LAT			<LAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0011	Leicester Urban Area	<LAT			LAT-UAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO

Zone code	Zone name	SO ₂ 24-hr	SO ₂ ecosystem areas	NO _x ecosystem areas	NO ₂ 1-hr	NO ₂ annual	PM ₁₀ 24-hr	PM ₁₀ annual	PM _{2.5} annual	Pb annual	Benzene annual	CO max 8-hr	O ₃ Health LTO	O ₃ Vegetation LTO
UK0012	Portsmouth Urban Area	<LAT			<LAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0013	Teesside Urban Area	<LAT			<LAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0014	The Potteries	<LAT			>UAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0015	Bournemouth Urban Area	<LAT			<LAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0016	Reading/Wokingham Urban Area	<LAT			<LAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0017	Coventry/Bedworth	<LAT			<LAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0018	Kingston upon Hull	<LAT			<LAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0019	Southampton Urban Area	<LAT			LAT-UAT	>UAT	>UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0020	Birkenhead Urban Area	<LAT			<LAT	>UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0021	Southend Urban Area	<LAT			<LAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	>LTO
UK0022	Blackpool Urban Area	<LAT			<LAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0023	Preston Urban Area	<LAT			<LAT	>UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO

Zone code	Zone name	SO ₂ 24-hr	SO ₂ ecosystem areas	NO _x ecosystem areas	NO ₂ 1-hr	NO ₂ annual	PM ₁₀ 24-hr	PM ₁₀ annual	PM _{2.5} annual	Pb annual	Benzene annual	CO max 8-hr	O ₃ Health LTO	O ₃ Vegetation LTO
UK0024	Glasgow Urban Area	<LAT			>UAT	>UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0025	Edinburgh Urban Area	<LAT			-	>UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	<LTO	<LTO
UK0026	Cardiff Urban Area	<LAT			<LAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0027	Swansea Urban Area	<LAT			LAT-UAT	>UAT	>UAT	LAT-UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	>LTO	<LTO
UK0028	Belfast Urban Area	<LAT			>UAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0029	Eastern	<LAT	<LAT	<LAT	>UAT	>UAT	>UAT	LAT-UAT	>UAT	<LAT	<LAT	<LAT	>LTO	>LTO
UK0030	South West	<LAT	<LAT	<LAT	LAT-UAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	>LTO
UK0031	South East	<LAT	<LAT	<LAT	LAT-UAT	>UAT	>UAT	LAT-UAT	>UAT	<LAT	<LAT	<LAT	>LTO	>LTO
UK0032	East Midlands	<LAT	<LAT	<LAT	LAT-UAT	>UAT	>UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0033	North West & Merseyside	<LAT	<LAT	<LAT	LAT-UAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0034	Yorkshire & Humberside	<LAT	<LAT	<LAT	<LAT	>UAT	LAT-UAT	LAT-UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	>LTO	>LTO
UK0035	West Midlands	<LAT	<LAT	<LAT	<LAT	>UAT	>UAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	>LTO

Zone code	Zone name	SO ₂ 24-hr	SO ₂ ecosystem areas	NO _x ecosystem areas	NO ₂ 1-hr	NO ₂ annual	PM ₁₀ 24-hr	PM ₁₀ annual	PM _{2.5} annual	Pb annual	Benzene annual	CO max 8-hr	O ₃ Health LTO	O ₃ Vegetation LTO
UK0036	North East	<LAT	<LAT	<LAT	<LAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	>LTO
UK0037	Central Scotland	<LAT	<LAT	<LAT	<LAT	>UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0038	North East Scotland	<LAT	<LAT	<LAT	>UAT	>UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0039	Highland	<LAT	<LAT	<LAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0040	Scottish Borders	<LAT	<LAT	<LAT	LAT-UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0041	South Wales	<LAT	<LAT	<LAT	>UAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	>LTO
UK0042	North Wales	<LAT	<LAT	<LAT	<LAT	>UAT	LAT-UAT	<LAT	LAT-UAT	<LAT	<LAT	<LAT	>LTO	<LTO
UK0043	Northern Ireland	<LAT	<LAT	<LAT	LAT-UAT	>UAT	LAT-UAT	<LAT	<LAT	<LAT	<LAT	<LAT	>LTO	<LTO

Table 5 Summary of Assessment Threshold status by pollutant/metric for each UK zone (2016-2020) (4DD pollutants)

Zone code	Zone name	Arsenic (As)	Cadmium (Cd)	Nickel (Ni)	B(a)P
UK0001	Greater London Urban Area	<LAT	<LAT	<LAT	<LAT
UK0002	West Midlands Urban Area	<LAT	LAT-UAT	<LAT	<LAT
UK0003	Greater Manchester Urban Area	<LAT	<LAT	<LAT	<LAT
UK0004	West Yorkshire Urban Area	<LAT	<LAT	<LAT	LAT-UAT
UK0005	Tyneside	<LAT	<LAT	<LAT	<LAT
UK0006	Liverpool Urban Area	<LAT	<LAT	<LAT	LAT-UAT
UK0007	Sheffield Urban Area	<LAT	<LAT	>UAT	<LAT
UK0008	Nottingham Urban Area	<LAT	<LAT	<LAT	<LAT
UK0009	Bristol Urban Area	<LAT	<LAT	<LAT	<LAT
UK0010	Brighton/Worthing/Littlehampton	<LAT	<LAT	<LAT	<LAT
UK0011	Leicester Urban Area	<LAT	<LAT	<LAT	<LAT

Zone code	Zone name	Arsenic (As)	Cadmium (Cd)	Nickel (Ni)	B(a)P
UK0012	Portsmouth Urban Area	<LAT	<LAT	<LAT	>UAT
UK0013	Teesside Urban Area	<LAT	<LAT	<LAT	<LAT
UK0014	The Potteries	<LAT	<LAT	<LAT	<LAT
UK0015	Bournemouth Urban Area	<LAT	<LAT	<LAT	<LAT
UK0016	Reading/Wokingham Urban Area	<LAT	<LAT	<LAT	<LAT
UK0017	Coventry/Bedworth	<LAT	<LAT	<LAT	<LAT
UK0018	Kingston upon Hull	<LAT	<LAT	<LAT	<LAT
UK0019	Southampton Urban Area	<LAT	<LAT	<LAT	<LAT
UK0020	Birkenhead Urban Area	<LAT	<LAT	<LAT	<LAT
UK0021	Southend Urban Area	<LAT	<LAT	<LAT	<LAT
UK0022	Blackpool Urban Area	<LAT	<LAT	<LAT	<LAT
UK0023	Preston Urban Area	<LAT	<LAT	<LAT	<LAT

Zone code	Zone name	Arsenic (As)	Cadmium (Cd)	Nickel (Ni)	B(a)P
UK0024	Glasgow Urban Area	<LAT	<LAT	<LAT	<LAT
UK0025	Edinburgh Urban Area	<LAT	<LAT	<LAT	<LAT
UK0026	Cardiff Urban Area	<LAT	<LAT	<LAT	<LAT
UK0027	Swansea Urban Area	<LAT	<LAT	>UAT	>UAT
UK0028	Belfast Urban Area	<LAT	<LAT	<LAT	>UAT
UK0029	Eastern	<LAT	<LAT	LAT-UAT	<LAT
UK0030	South West	LAT-UAT	<LAT	<LAT	<LAT
UK0031	South East	LAT-UAT	<LAT	<LAT	LAT-UAT
UK0032	East Midlands	>UAT	<LAT	<LAT	<LAT
UK0033	North West & Merseyside	LAT-UAT	<LAT	<LAT	LAT-UAT
UK0034	Yorkshire & Humberside	>UAT	<LAT	>UAT	>UAT
UK0035	West Midlands	LAT-UAT	<LAT	<LAT	<LAT

Zone code	Zone name	Arsenic (As)	Cadmium (Cd)	Nickel (Ni)	B(a)P
UK0036	North East	<LAT	<LAT	<LAT	<LAT
UK0037	Central Scotland	<LAT	<LAT	<LAT	<LAT
UK0038	North East Scotland	<LAT	<LAT	<LAT	<LAT
UK0039	Highland	<LAT	<LAT	<LAT	<LAT
UK0040	Scottish Borders	LAT-UAT	<LAT	<LAT	<LAT
UK0041	South Wales	<LAT	<LAT	>UAT	>UAT
UK0042	North Wales	<LAT	<LAT	<LAT	<LAT
UK0043	Northern Ireland	<LAT	<LAT	<LAT	>UAT