



London Air Quality Network

Summary Report 2012

December 2013

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Environmental Research Group

King's College London

Title	London Air Quality Network – Summary Report 2012
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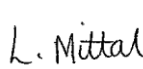
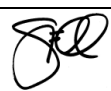
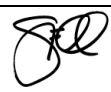
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1 Introduction

This report details the results of air pollution measurements made on the London Air Quality Network during 2012. Measurements have been presented with specific reference to the UK Air Quality Strategy (AQS) Objectives and the EU Limit Values.

The London Air Quality Network (LAQN) is a unique resource, providing robust air pollution measurements that are essential to underpin air quality management and health studies. The public face of the network, the LondonAir web site (www.londonair.org.uk), is visited by thousands of Londoners seeking hourly updated air pollution information.

The LAQN was formed in 1993 to coordinate and improve air pollution monitoring in London. The majority of London's 33 boroughs supply measurements to the network and in addition these data are increasingly being supplemented by measurements from local authorities surrounding London, thereby providing an overall perspective of air pollution in London and the Home Counties.

The LAQN is operated and managed by the Environmental Research Group (ERG) at King's College London. QA/QC audits are carried out by the National Physical Laboratory (NPL). Each borough funds air quality monitoring in its own area. The Department of Environment, Food and Rural Affairs (Defra) funds King's to operate the Marylebone Road site and to maintain several of the LAQN sites as affiliate sites to the UK Automatic Urban and Rural Network (AURN). This Defra support assists the operation of the overall LAQN. Analysis of LAQN measurements has been augmented by measurements from directly-funded Defra sites in London. Measurements from Defra sites were provided by AEA from the National Air Quality Archive and were included within the LAQN database. Transport for London has also funded monitoring to help assess the air pollution impacts of the Congestion Charging Scheme and Low Emission Zone.

2 Air quality Strategy Objectives and EU Limit Values

There is ample evidence of the adverse health effects caused by air pollution (WHO, 2006). In response to these health impacts, the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland (Defra, 2008) sets out the UK's way forward on air quality issues, details objectives to be achieved, and proposes measures to help reach them. These UK objectives largely reflect EU Limit Values (EC, 2008). The GLA and the London boroughs and district councils outside the capital have responsibilities for the management of air quality and must work towards the attainment of AQS objectives. The AQS Objectives and EU Limit Values are detailed in Table 1. Monitoring progress towards the attainment of these Objectives and Limit Values forms a core activity for the LAQN.

Pollutant	Air Quality Objective Concentration	Measured as	To be achieved by
Carbon Monoxide (CO)	10.0 mg m ⁻³	Maximum daily running 8-hour mean	31 December 2003
Nitrogen Dioxide (NO ₂)	200 µg m ⁻³ not to be exceeded more than 18 times a year	1-hour mean	31 December 2005
	40 µg m ⁻³	Annual mean	31 December 2005
Sulphur dioxide (SO ₂)	350 µg m ⁻³ , not to be exceeded more than 24 times a year	1-hour mean	31 December 2004
	125 µg m ⁻³ , not to be exceeded more than 3 times a year	24-hour mean	31 December 2004
	266 µg m ⁻³ , not to be exceeded more than 35 times a year	15-minute mean	31 December 2005
Ozone (O ₃)	100 µg m ⁻³ not to be exceeded more than 10 times a year	8 hourly running or hourly mean	31 December 2005
Particles (PM ₁₀) (gravimetric)	50 µg m ⁻³ , not to be exceeded more than 35 times a year	Daily mean	31 December 2004
	40 µg m ⁻³	Annual mean	31 December 2004
Particles (PM _{2.5}) (gravimetric)	25 µg m ⁻³ (target)	Annual mean	2020
	20% cut in urban background exposure	Annual mean	2010 - 2020

Table 1: AQS Objectives and EU Limit Values.

3 Results

The AQS Objective results measured at LAQN sites during 2012 are detailed in Tables 2 to 8.

Key to site types:

RU	=	Rural
S	=	Suburban
U	=	Urban background
R	=	Roadside
K	=	Kerbside
I	=	Industrial

3.1 Carbon Monoxide

Site Name	Type	Capture Rate (%)	No occurrences of rolling 8hr mean $\geq 10\text{mgm}^{-3}$ (8.6ppb)	Achieved?
Bexley - Slade Green	S	97	0	yes
Camden - Bloomsbury	U	53	0	n/a
Islington - Holloway Road	R	77	0	n/a
Kensington and Chelsea - Cromwell Road	R	97	0	yes
Kensington and Chelsea - North Ken	U	99	0	yes
Newham - Cam Road	R	97	0	yes
Newham - Wren Close	U	96	0	yes
Richmond Upon Thames - Craneford Way	I	19	0	n/a
Sevenoaks - Greatness Park	U	21	0	n/a
Tower Hamlets - Mile End Road	R	99	0	yes
Wandsworth - Putney	U	69	0	n/a
Wandsworth - Wandsworth Town Hall	U	99	0	yes
Westminster - Horseferry Road	U	49	0	n/a
Westminster - Marylebone Road	K	95	0	yes

Table 2: AQS Objective results for CO

3.2 Nitrogen Dioxide

Site Name	Type	Capture Rate (%)	Annual Mean < 40 ug ^m - ³	Annual Mean Achieved?	No more than 18 occurrences of hourly mean > 200ug ^m - ³ (104.7ppb)	Hourly Mean Achieved?
Barking and Dagenham - Rush Green	S	74	27	n/a	0	n/a
Barking and Dagenham - Scrattons Farm	S	49	39	n/a	0	n/a
Barnet - Finchley	U	30	37	n/a	0	n/a
Barnet - Tally Ho Corner	K	24	67	n/a	1	n/a
Bexley - Belvedere	S	99	27	yes	0	yes
Bexley - Belvedere West	U	96	25	yes	0	yes
Bexley - Erith	I	70	25	n/a	0	n/a
Bexley - Slade Green	S	96	29	yes	0	yes
Brent - Ikea	R	93	76	no	32	no
Brent - John Keble Primary School	R	82	41	n/a	0	n/a
Brent - Neasden Lane	I	91	44	no	0	yes
Brentwood - Brentwood Town Hall	U	95	27	yes	0	yes
Camden - Bloomsbury	U	94	55	no	1	yes
Camden - Euston Road	R	99	106	no	293	no
Camden - Shaftesbury Avenue	R	94	71	no	12	yes
Camden - Swiss Cottage	K	96	71	no	41	no
Castle Point - Hadleigh	R	98	29	yes	0	yes
City of London - Senator House	U	72	50	n/a	2	n/a
City of London - Sir John Cass School	U	99	47	no	0	yes
City of London - Walbrook Wharf	R	96	114	no	443	no
Croydon - George Street	R	96	45	no	1	yes
Croydon - Norbury	K	98	66	no	13	yes
Croydon - Purley Way A23	R	90	36	yes	0	yes
Dacorum - High Street Northchurch	R	14	38	n/a	0	n/a
Ealing - Hanger Lane Gyratory	R	98	95	no	173	no
Ealing - Horn Lane	I	90	53	no	2	yes
Ealing - Southall	U	91	35	yes	0	yes
Ealing - Southall Railway	R	93	35	yes	0	yes
Ealing - Western Avenue	R	54	73	n/a	10	n/a
Enfield - Bowes Primary School	R	79	49	n/a	24	no
Enfield - Bush Hill Park	S	60	38	n/a	0	n/a
Enfield - Derby Road	R	99	43	no	0	yes
Enfield - Prince of Wales School	U	34	31	n/a	0	n/a
Greenwich - A206 Burrage Grove	R	97	45	no	1	yes
Greenwich - Blackheath	R	100	48	no	0	yes
Greenwich - Eltham	S	95	22	yes	0	yes
Greenwich - Fiveways Sidcup Rd A20	R	88	52	n/a	1	n/a
Greenwich - Millennium Village	I	93	37	yes	2	yes
Greenwich - Plumstead High Street	R	98	39	yes	0	yes
Greenwich - Trafalgar Road	R	94	44	no	0	yes
Greenwich - Westthorne Avenue	R	100	44	no	0	yes
Greenwich - Woolwich Flyover	R	92	71	no	27	no
Greenwich and Bexley - Falconwood	R	100	47	no	21	no
Hackney - Old Street	R	100	63	no	0	yes

Site Name	Type	Capture Rate (%)	Annual Mean < 40 ug ^m ⁻³	Annual Mean Achieved?	No more than 18 occurrences of hourly mean > 200ug ^m ⁻³ (104.7ppb)	Hourly Mean Achieved?
Hammersmith and Fulham - Shepherds Bush	R	93	92	no	74	no
Haringey - Priory Park South	U	9	38	n/a	0	n/a
Haringey - Haringey Town Hall	R	81	42	n/a	0	n/a
Haringey - Priory Park	U	63	28	n/a	0	n/a
Harrow - Pinner Road	R	97	47	no	3	yes
Harrow - Stanmore	U	98	25	yes	0	yes
Havering - Romford	R	97	36	yes	0	yes
Hillingdon - Harlington	U	98	34	yes	0	yes
Hillingdon - Sipson Road	S	97	57	no	0	yes
Hounslow - Brentford	R	20	55	n/a	0	n/a
Hounslow - Chiswick High Road	R	25	61	n/a	0	n/a
Hounslow - Cranford	S	25	41	n/a	0	n/a
Hounslow - Feltham	R	25	56	n/a	0	n/a
Hounslow - Hatton Cross	U	23	45	n/a	0	n/a
Hounslow - Heston Road	R	23	54	n/a	0	n/a
Hounslow and Ealing - Gunnersbury Avenue	R	67	56	n/a	9	n/a
Islington - Arsenal	U	91	36	yes	1	yes
Islington - Holloway Road	R	99	55	no	0	yes
Kensington and Chelsea - Cromwell Road	R	91	69	no	2	yes
Kensington and Chelsea - Earls Court Rd	K	98	101	no	323	no
Kensington and Chelsea - Kings Road	R	98	93	no	74	no
Kensington and Chelsea - Knightsbridge	R	96	92	no	500	no
Kensington and Chelsea - North Ken	U	99	37	yes	1	yes
Lambeth - Bondway Interchange	I	25	82	n/a	5	n/a
Lambeth - Brixton Road	K	9	185	n/a	327	no
Lambeth - Streatham Green	U	24	53	n/a	0	n/a
Lewisham - Catford	U	98	51	no	2	yes
Lewisham - Loampit Vale	R	45	63	n/a	16	n/a
Lewisham - New Cross	R	97	50	no	0	yes
Merton - Morden Civic Centre	R	39	48	n/a	0	n/a
Mole Valley - Dorking	U	99	23	yes	0	yes
Newham - Cam Road	R	94	43	no	0	yes
Newham - Wren Close	U	98	39	yes	0	yes
Reading - Caversham Road	R	96	47	no	0	yes
Reading - Kings Road	R	96	54	no	0	yes
Reading - New Town	U	95	25	yes	0	yes
Reading - Oxford Road	R	93	38	yes	0	yes
Redbridge - Fullwell Cross	K	24	62	n/a	1	n/a
Redbridge - Gardner Close	R	92	48	no	8	yes
Redbridge - Perth Terrace	U	95	37	yes	0	yes
Redbridge - South Woodford	R	24	55	n/a	1	n/a
Reigate and Banstead - Horley	S	99	23	yes	0	yes
Reigate and Banstead - Horley South	S	85	31	n/a	0	n/a
Reigate and Banstead - Poles Lane	RU	99	23	yes	0	yes
Reigate and Banstead - Reigate High St	K	80	61	n/a	7	n/a
Richmond Upon Thames - Barnes Wetlands	S	99	25	yes	0	yes

Site Name	Type	Capture Rate (%)	Annual Mean < 40 $\mu\text{g m}^{-3}$	Annual Mean Achieved?	No more than 18 occurrences of hourly mean > 200 $\mu\text{g m}^{-3}$ (104.7ppb)	Hourly Mean Achieved?
Richmond Upon Thames - Castlenau	R	80	37	n/a	0	n/a
Richmond Upon Thames - Craneford Way	I	19	38	n/a	1	n/a
Richmond Upon Thames - Hanworth Road	K	72	42	n/a	0	n/a
Richmond Upon Thames - Ntl Physical Lab	S	93	36	yes	0	yes
Sevenoaks - Bat and Ball	R	49	31	n/a	0	n/a
Sevenoaks - Greatness Park	U	98	20	yes	0	yes
Southwark - A2 Old Kent Road	R	80	53	n/a	6	n/a
Sutton - Beddington Lane	I	43	33	n/a	0	n/a
Sutton - Beddington Lane north	I	17	45	n/a	2	n/a
Sutton - Carshalton	S	87	29	n/a	0	n/a
Sutton - Therapia Lane	I	10	40	n/a	0	n/a
Sutton - Wallington	K	95	72	no	132	no
Sutton - Worcester Park	K	97	54	no	13	yes
Thurrock - Calcutta Road Tilbury	R	99	39	yes	0	yes
Thurrock - London Road (Grays)	U	98	28	yes	0	yes
Thurrock - London Road (Purfleet)	R	90	63	no	7	yes
Thurrock - Stanford-le-Hope	R	93	33	yes	0	yes
Tower Hamlets - Blackwall	R	94	61	no	0	yes
Tower Hamlets - Mile End Road	R	99	60	no	2	yes
Tower Hamlets - Poplar	U	99	33	yes	0	yes
Tower Hamlets - Victoria Park	U	41	33	n/a	0	n/a
Wandsworth - Battersea	R	45	40	n/a	0	n/a
Wandsworth - Putney	U	85	40	n/a	0	n/a
Wandsworth - Putney High Street	K	96	155	no	2740	No
Wandsworth - Putney High Street Facade	R	99	129	no	1726	no
Wandsworth - Wandsworth Town Hall	U	96	48	no	0	yes
Westminster - Horseferry Road	U	97	39	yes	0	yes
Westminster - Marylebone Road	K	94	94	no	122	no
Windsor and Maidenhead - Clarence Road	R	99	39	yes	1	yes
Windsor and Maidenhead - Frascati Way	R	100	48	no	0	yes

Table 3: AQS Objective results for NO₂

3.3 Nitrogen Oxides

Site Name	Type	Capture Rate (%)	Annual Mean NO _x as NO ₂ ugm ⁻³
Barking and Dagenham - Rush Green	S	74	43
Barking and Dagenham - Scrattons Farm	S	49	67
Barnet - Finchley	U	30	62
Barnet - Tally Ho Corner	K	24	155
Bexley - Belvedere	S	99	41
Bexley - Belvedere West	U	96	39
Bexley - Erith	I	70	46
Bexley - Slade Green	S	96	50
Brent - Ikea	R	93	257
Brent - John Keble Primary School	R	82	87
Brent - Neasden Lane	I	91	105
Brentwood - Brentwood Town Hall	U	95	37
Camden - Bloomsbury	U	94	93
Camden - Euston Road	R	99	350
Camden - Shaftesbury Avenue	R	94	163
Camden - Swiss Cottage	K	96	181
Castle Point - Hadleigh	R	98	47
City of London - Senator House	U	72	78
City of London - Sir John Cass School	U	99	81
City of London - Walbrook Wharf	R	96	325
Croydon - George Street	R	96	92
Croydon - Norbury	K	98	172
Croydon - Purley Way A23	R	90	84
Dacorum - High Street Northchurch	R	14	112
Ealing - Hanger Lane Gyratory	R	98	325
Ealing - Horn Lane	I	90	135
Ealing - Southall	U	91	54
Ealing - Southall Railway	R	93	88
Ealing - Western Avenue	R	54	185
Enfield - Bowes Primary School	R	79	113
Enfield - Bush Hill Park	S	60	62
Enfield - Derby Road	R	99	94
Enfield - Prince of Wales School	U	34	62
Greenwich - A206 Burrage Grove	R	97	87
Greenwich - Blackheath	R	100	111
Greenwich - Eltham	S	95	34
Greenwich - Fiveways Sidcup Rd A20	R	88	135
Greenwich - Millennium Village	I	93	74
Greenwich - Plumstead High Street	R	98	79
Greenwich - Trafalgar Road	R	94	87
Greenwich - Westthorne Avenue	R	100	97
Greenwich - Woolwich Flyover	R	92	211
Greenwich and Bexley - Falconwood	R	100	102
Hackney - Old Street	R	100	152
Hammersmith and Fulham - Shepherds Bush	R	93	257
Haringey - Priory Park South	U	9	76

Site Name	Type	Capture Rate (%)	Annual Mean NO _x as NO ₂ ugm ⁻³
Haringey - Haringey Town Hall	R	81	91
Haringey - Priory Park	U	63	42
Harrow - Pinner Road	R	97	110
Harrow - Stanmore	U	98	37
Havering - Romford	R	97	81
Hillingdon - Harlington	U	98	61
Hillingdon - Sipson Road	S	97	118
Hounslow - Brentford	R	20	154
Hounslow - Chiswick High Road	R	25	158
Hounslow - Cranford	S	25	78
Hounslow - Feltham	R	25	137
Hounslow - Hatton Cross	U	23	95
Hounslow - Heston Road	R	23	132
Hounslow and Ealing - Gunnersbury Avenue	R	67	156
Islington - Arsenal	U	91	57
Islington - Holloway Road	R	99	146
Kensington and Chelsea - Cromwell Road	R	91	156
Kensington and Chelsea - Earls Court Rd	K	98	271
Kensington and Chelsea - Kings Road	R	98	224
Kensington and Chelsea - Knightsbridge	R	96	229
Kensington and Chelsea - North Ken	U	99	57
Lambeth - Bondway Interchange	I	25	203
Lambeth - Brixton Road	K	9	559
Lambeth - Streatham Green	U	24	105
Lewisham - Catford	U	98	99
Lewisham - Loampit Vale	R	45	148
Lewisham - New Cross	R	97	123
Merton - Morden Civic Centre	R	39	133
Mole Valley - Dorking	U	99	37
Newham - Cam Road	R	94	79
Newham - Wren Close	U	98	59
Reading - Caversham Road	R	96	99
Reading - Kings Road	R	96	139
Reading - New Town	U	95	42
Reading - Oxford Road	R	93	88
Redbridge - Fullwell Cross	K	24	137
Redbridge - Gardner Close	R	92	90
Redbridge - Perth Terrace	U	95	58
Redbridge - South Woodford	R	24	117
Reigate and Banstead - Horley	S	99	38
Reigate and Banstead - Horley South	S	85	53
Reigate and Banstead - Poles Lane	RU	99	41
Reigate and Banstead - Reigate High St	K	80	148
Richmond Upon Thames - Barnes Wetlands	S	99	37
Richmond Upon Thames - Castlenau	R	80	70
Richmond Upon Thames - Craneford Way	I	19	79

Site Name	Type	Capture Rate (%)	Annual Mean NO _x as NO ₂ ugm ⁻³
Richmond Upon Thames - Hanworth Road	K	72	100
Richmond Upon Thames - Ntl Physical Lab	S	93	48
Sevenoaks - Bat and Ball	R	49	71
Sevenoaks - Greatness Park	U	98	30
Southwark - A2 Old Kent Road	R	80	127
Sutton - Beddington Lane	I	43	64
Sutton - Beddington Lane north	I	17	99
Sutton - Carshalton	S	87	46
Sutton - Therapia Lane	I	10	78
Sutton - Wallington	K	95	163
Sutton - Worcester Park	K	97	136
Thurrock - Calcutta Road Tilbury	R	99	76
Thurrock - London Road (Grays)	U	98	49
Thurrock - London Road (Purfleet)	R	90	189
Thurrock - Stanford-le-Hope	R	93	64
Tower Hamlets - Blackwall	R	94	151
Tower Hamlets - Mile End Road	R	99	134
Tower Hamlets - Poplar	U	99	50
Tower Hamlets - Victoria Park	U	41	53
Wandsworth - Battersea	R	45	94
Wandsworth - Putney	U	85	70
Wandsworth - Putney High Street	K	96	378
Wandsworth - Putney High Street Facade	R	99	305
Wandsworth - Wandsworth Town Hall	U	96	96
Westminster - Horseferry Road	U	97	69
Westminster - Marylebone Road	K	94	313
Windsor and Maidenhead - Clarence Road	R	99	88
Windsor and Maidenhead - Frascati Way	R	100	116

Table 4: Annual Mean values for NO_x

3.4 Ozone

Site Name	Type	Capture Rate (%)	No more than 10 days where maximum rolling 8hr mean $\geq 100 \mu\text{g m}^{-3}$ (50ppb)	Achieved?
Bexley - Belvedere West	U	94	11	no
Bexley - Slade Green	S	99	8	yes
Brent - Ikea	R	87	0	n/a
Camden - Bloomsbury	U	99	7	yes
City of London - Senator House	U	48	8	n/a
City of London - Walbrook Wharf	R	93	0	yes
Croydon - Thornton Heath	S	85	5	n/a
Ealing - Southall	U	94	8	yes
Greenwich - Eltham	S	99	10	yes
Greenwich - Plumstead High Street	R	98	1	yes
Greenwich - Westthorne Avenue	R	100	5	yes
Greenwich - Woolwich Flyover	R	98	4	yes
Greenwich and Bexley - Falconwood	R	100	6	yes
Hackney - Old Street	R	99	3	yes
Haringey - Priory Park South	U	10	0	n/a
Haringey - Priory Park	U	77	13	no
Hillingdon - Harlington	U	92	5	yes
Hillingdon - Sipson Road	S	97	8	yes
Hounslow - Cranford	S	24	0	n/a
Kensington and Chelsea - North Ken	U	98	14	no
Lewisham - Catford	U	98	3	yes
Newham - Cam Road	R	97	11	no
Newham - Wren Close	U	98	13	no
Reading - New Town	U	99	13	no
Redbridge - Perth Terrace	U	96	8	yes
Reigate and Banstead - Poles Lane	RU	99	18	no
Richmond Upon Thames - Barnes Wetlands	S	96	15	no
Richmond Upon Thames - Craneford Way	I	19	0	n/a
Richmond Upon Thames - Hanworth Road	K	75	2	n/a
Richmond Upon Thames - Ntl Physical Lab	S	92	6	yes
Sevenoaks - Greatness Park	U	97	22	no
Sutton - Carshalton	S	97	9	yes
Thurrock - London Road (Grays)	U	98	7	yes
Tower Hamlets - Blackwall	R	92	4	yes
Tower Hamlets - Poplar	U	99	12	no
Tower Hamlets - Victoria Park	U	16	4	n/a
Wandsworth - Wandsworth Town Hall	U	93	6	yes
Westminster - Horseferry Road	U	93	7	yes
Westminster - Marylebone Road	K	96	0	yes

Table 5: AQS Objective results for O₃

3.5 Sulphur Dioxide

Site Name	Type	Capture Rate (%)	No more than 35 occurrences of 15min mean $\geq 350\mu\text{g m}^{-3}$ (100ppb)	Achieved?
Barking and Dagenham - Rush Green	S	94	0	yes
Bexley - Slade Green	S	73	0	n/a
Brent - John Keble Primary School	R	33	0	n/a
Camden - Bloomsbury	U	99	0	yes
Castle Point - Hadleigh	R	99	0	yes
City of London - Senator House	U	68	0	n/a
Enfield - Derby Road	R	95	0	yes
Greenwich - Eltham	S	90	0	yes
Hounslow - Cranford	S	25	0	n/a
Kensington and Chelsea - Cromwell Road	R	69	0	n/a
Kensington and Chelsea - North Ken	U	98	0	yes
Lambeth - Bondway Interchange	I	25	0	n/a
Lewisham - Catford	U	81	0	n/a
Lewisham - New Cross	R	86	0	n/a
Newham - Cam Road	R	92	0	yes
Newham - Wren Close	U	98	0	yes
Redbridge - Gardner Close	R	23	0	n/a
Sevenoaks - Greatness Park	U	23	0	n/a
Thurrock - London Road (Grays)	U	98	0	yes
Thurrock - Stanford-le-Hope	R	99	0	yes
Tower Hamlets - Poplar	U	99	0	yes
Tower Hamlets - Victoria Park	U	42	0	n/a
Wandsworth - Wandsworth Town Hall	U	98	0	yes
Westminster - Horseferry Road	U	49	0	n/a
Westminster - Marylebone Road	K	98	0	yes

Table 6: AQS Objective results for SO₂

3.6 Particulate Matter PM₁₀

Site Name	Type	Capture Rate (%)	Annual Mean < 40 ug m ⁻³	Annual Mean Achieved?	No more than 35 occurrences of daily mean >= 50 ug m ⁻³	Daily Mean Achieved?
BT Tower - FDMS	U	38	20	n/a	9	n/a
Barking and Dagenham - Scrattons Farm	S	54	24	n/a	10	n/a
Barnet - Finchley	U	30	26	n/a	7	n/a
Barnet - Tally Ho Corner	K	24	33	n/a	12	n/a
Bexley - Belvedere	S	98	20	yes	12	yes
Bexley - Belvedere FDMS	S	98	19	yes	12	yes
Bexley - Belvedere West	U	97	19	yes	8	yes
Bexley - Belvedere West FDMS	U	90	16	yes	7	yes
Bexley - Erith	I	93	27	yes	38	no
Bexley - Manor Road East Gravimetric	I	28	22	n/a	3	n/a
Bexley - Manor Road West Gravimetric	I	92	27	yes	39	no
Bexley - Slade Green	S	92	19	yes	5	yes
Brent - Ikea	R	91	33	yes	35	yes
Brent - John Keble Primary School	R	98	24	yes	11	yes
Brent - Neasden Lane	I	97	39	yes	82	no
Camden - Bloomsbury	U	97	19	yes	10	yes
Camden - Shaftesbury Avenue	R	90	30	yes	23	yes
Camden - Swiss Cottage	K	92	23	yes	20	yes
City of London - Beech Street	R	99	28	yes	42	no
City of London - Sir John Cass School	U	95	26	yes	13	yes
City of London - Upper Thames Street	R	93	34	yes	43	no
Croydon - George Street	R	97	25	yes	21	yes
Croydon - Thornton Heath	S	98	21	yes	14	yes
Ealing - Hanger Lane Gyratory	R	99	29	yes	18	yes
Ealing - Horn Lane	I	96	35	yes	63	no
Ealing - Southall	U	97	21	yes	10	yes
Ealing - Southall FDMS	U	80	18	n/a	8	n/a
Ealing - Southall Railway	R	96	23	yes	14	yes
Ealing - Western Avenue	R	39	30	n/a	10	n/a
Enfield - Bowes Primary School	R	55	24	n/a	16	n/a
Enfield - Derby Road	R	91	27	yes	15	yes
Greenwich - A206 Burrage Grove	R	90	27	yes	28	yes
Greenwich - Blackheath	R	99	28	yes	26	yes
Greenwich - Eltham	S	90	20	yes	9	yes
Greenwich - Fiveways Sidcup Rd A20	R	66	30	n/a	24	n/a
Greenwich - Millennium Village	I	94	23	yes	20	yes
Greenwich - Plumstead High Street	R	54	21	n/a	8	n/a
Greenwich - Trafalgar Road	R	98	23	yes	16	yes
Greenwich - Westthorne Avenue	R	97	20	yes	16	yes
Greenwich - Woolwich Flyover	R	95	33	yes	33	yes
Greenwich and Bexley - Falconwood FDMS	R	96	26	yes	27	yes
Hackney - Old Street	R	93	29	yes	21	yes
Hammersmith and Fulham - Shepherds Bush	R	92	38	yes	67	no
Haringey - Haringey Town Hall	R	93	23	yes	11	yes
Haringey - Priory Park	U	31	20	n/a	3	n/a
Harrow - Pinner Road	R	94	27	yes	16	yes

Site Name	Type	Capture Rate (%)	Annual Mean < 40 $\mu\text{g m}^{-3}$	Annual Mean Achieved?	No more than 35 occurrences of daily mean $\geq 50\mu\text{g m}^{-3}$	Daily Mean Achieved?
Harrow - Stanmore	U	99	18	yes	7	yes
Harwell Rural PARTISOL	RU	92	12	yes	2	yes
Havering - Romford	R	95	23	yes	11	yes
Hillingdon - Harlington	U	84	18	n/a	12	n/a
Hounslow - Brentford	R	18	41	n/a	20	n/a
Hounslow - Chiswick High Road	R	14	35	n/a	10	n/a
Hounslow - Cranford	S	25	29	n/a	14	n/a
Hounslow - Feltham	R	25	31	n/a	11	n/a
Hounslow - Hatton Cross	U	23	28	n/a	9	n/a
Hounslow - Heston Road	R	25	37	n/a	20	n/a
Hounslow and Ealing - Gunnersbury Avenue	R	88	31	n/a	26	n/a
Islington - Arsenal	U	93	24	yes	20	yes
Islington - Holloway Road	R	99	27	yes	19	yes
Kens and Chelsea 6 - N Ken Par PM10	U	98	18	yes	11	yes
Kensington and Chelsea - Cromwell Road	R	65	27	n/a	13	n/a
Kensington and Chelsea - Earls Court Rd	K	96	34	yes	42	no
Kensington and Chelsea - North Ken	U	97	20	yes	7	yes
Kensington and Chelsea - North Ken FDMS	U	81	20	n/a	12	n/a
Lambeth - Bondway Interchange	I	24	33	n/a	7	n/a
Lambeth - Brixton Road	K	23	43	n/a	26	n/a
Lambeth - Streatham Green	U	21	28	n/a	4	n/a
Lewisham - Loampit Vale	R	46	24	n/a	3	n/a
Lewisham - Mercury Way	I	94	22	yes	20	yes
Lewisham - New Cross	R	56	26	n/a	15	n/a
Marylebone Rd - Partisol PM10 and Magee	K	96	31	yes	27	yes
Merton - Merton Road	R	91	29	yes	26	yes
Mole Valley - Dorking	U	95	20	yes	10	yes
Newham - Cam Road	R	73	27	n/a	12	n/a
Newham - Wren Close	U	46	21	n/a	5	n/a
Reading - Caversham Road	R	92	32	yes	32	yes
Reading - Kings Road	R	91	29	yes	18	yes
Reading - New Town	U	87	18	n/a	8	n/a
Reading - Oxford Road	R	90	24	yes	12	yes
Redbridge - Fullwell Cross	K	23	24	n/a	1	n/a
Redbridge - Gardner Close	R	97	20	yes	7	yes
Redbridge - Perth Terrace	U	88	15	n/a	2	n/a
Redbridge - South Woodford	R	23	35	n/a	13	n/a
Reigate and Banstead - Horley	S	98	20	yes	7	yes
Richmond Upon Thames - Barnes Wetlands	S	99	18	yes	13	yes
Richmond Upon Thames - Castlenau	R	99	21	yes	14	yes
Richmond Upon Thames - Craneford Way	I	18	33	n/a	10	n/a
Richmond Upon Thames - Hanworth Road	K	74	24	n/a	10	n/a
Sevenoaks - Bat and Ball	R	72	24	n/a	14	n/a
Sevenoaks - Greatness Park	U	97	20	yes	12	yes
Southwark - A2 Old Kent Road	R	82	25	n/a	19	n/a
Sutton - Beddington Lane	I	55	26	n/a	10	n/a
Sutton - Beddington Lane North	I	25	34	n/a	15	n/a

Site Name	Type	Capture Rate (%)	Annual Mean < 40 $\mu\text{g m}^{-3}$	Annual Mean Achieved?	No more than 35 occurrences of daily mean $\geq 50\mu\text{g m}^{-3}$	Daily Mean Achieved?
Sutton - Therapia Lane	I	10	27	n/a	3	n/a
Sutton - Wallington	K	99	27	yes	22	yes
Sutton - Worcester Park	K	97	28	yes	20	yes
Thurrock - London Road (Grays)	U	98	18	yes	10	yes
Thurrock - London Road (Purfleet)	R	97	24	yes	14	yes
Thurrock - Stanford-le-Hope	R	81	23	n/a	15	n/a
Tower Hamlets - Blackwall	R	95	26	yes	24	yes
Tower Hamlets - Poplar	U	99	22	yes	14	yes
Tower Hamlets - Victoria Park	U	43	18	n/a	2	n/a
Wandsworth - Battersea	R	46	23	n/a	4	n/a
Wandsworth - Putney	U	75	24	n/a	11	n/a
Wandsworth - Putney High Street	K	50	29	n/a	10	n/a
Westminster - Horseferry Road	U	89	18	n/a	10	n/a
Westminster - Marylebone Road	K	93	38	yes	48	no
Westminster - Marylebone Road FDMS	K	85	31	n/a	23	n/a
Westminster - Oxford Street	K	77	31	n/a	18	n/a

Table 7: AQS Objective results for PM_{10} .

All PM_{10} measurements have been converted to reference equivalent by the methods recommended in Defra's Local Air Quality Management Technical Guidance (Defra, 2009), i.e. TEOM measurements have been corrected using the Volatile Correction Model (VCM) and BAM measurements have been multiplied by 0.83.

3.7 Particulate Matter PM_{2.5}

Site Name	Type	Instrument	Capture Rate (%)	Annual Mean $\mu\text{g m}^{-3}$ uncorrected
BT Tower - FDMS	U	FDMS	38	15
Bexley - Belvedere	S	TEOM	99	9
Bexley - Belvedere West	U	TEOM	97	9
Bexley - Erith	I	FDMS	81	16
Bexley - Slade Green FDMS	S	FDMS	91	12
Bexley - Thamesmead	S	TEOM	99	9
Brent - Ikea	R	TEOM	89	13
Camden - Bloomsbury	U	FDMS	98	16
Camden - Swiss Cottage	K	FDMS	96	13
Ealing - Southall	U	TEOM	63	10
Greenwich - A206 Burrage Grove	R	FDMS	88	18
Greenwich - Eltham	S	FDMS	92	13
Greenwich - Millennium Village	I	FDMS	94	15
Greenwich - Plumstead High Street	R	FDMS	43	19
Greenwich - Westthorne Avenue	R	FDMS	92	16
Greenwich - Woolwich Flyover	R	TEOM	98	15
Greenwich and Bexley - Falconwood FDMS	R	FDMS	83	19
Hackney - Old Street	R	TEOM	95	14
Haringey - Haringey Town Hall	R	FDMS	88	18
Harrow - Stanmore	U	FDMS	88	12
Harwell Rural PARTISOL	RU	GRAV	90	8
Hillingdon - Harlington	U	FDMS	91	13
Kens and Chelsea 6 - N Ken Par PM10	U	GRAV	95	11
Kensington and Chelsea - Cromwell Road	R	FDMS	77	15
Kensington and Chelsea - North Ken	U	FDMS	88	15
Lewisham - New Cross	R	FDMS	34	12
Marylebone Rd - Partisol PM10 and Magee	K	GRAV	79	18
Reading - New Town	U	FDMS	98	12
Redbridge - Fullwell Cross	K	BAM	21	14
Redbridge - Gardner Close	R	BAM	84	15
Richmond Upon Thames - Ntl Physical Lab	S	FDMS	97	14
Thurrock - Stanford-le-Hope	R	FDMS	81	15
Tower Hamlets - Blackwall	R	FDMS	96	15
Westminster - Marylebone Road FDMS	K	FDMS	92	21

Table 8: AQS Objective results for PM_{2.5}

4 References

European Commission (EC) 2008. Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe. Commission of the European Community, Brussels.

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World Health Organisation (WHO), 2006. WHO air quality guidelines for nitrogen dioxide, ozone, sulphur dioxide and particulate matter. Global update 2005. Summary of risk assessment. WHO, Geneva.