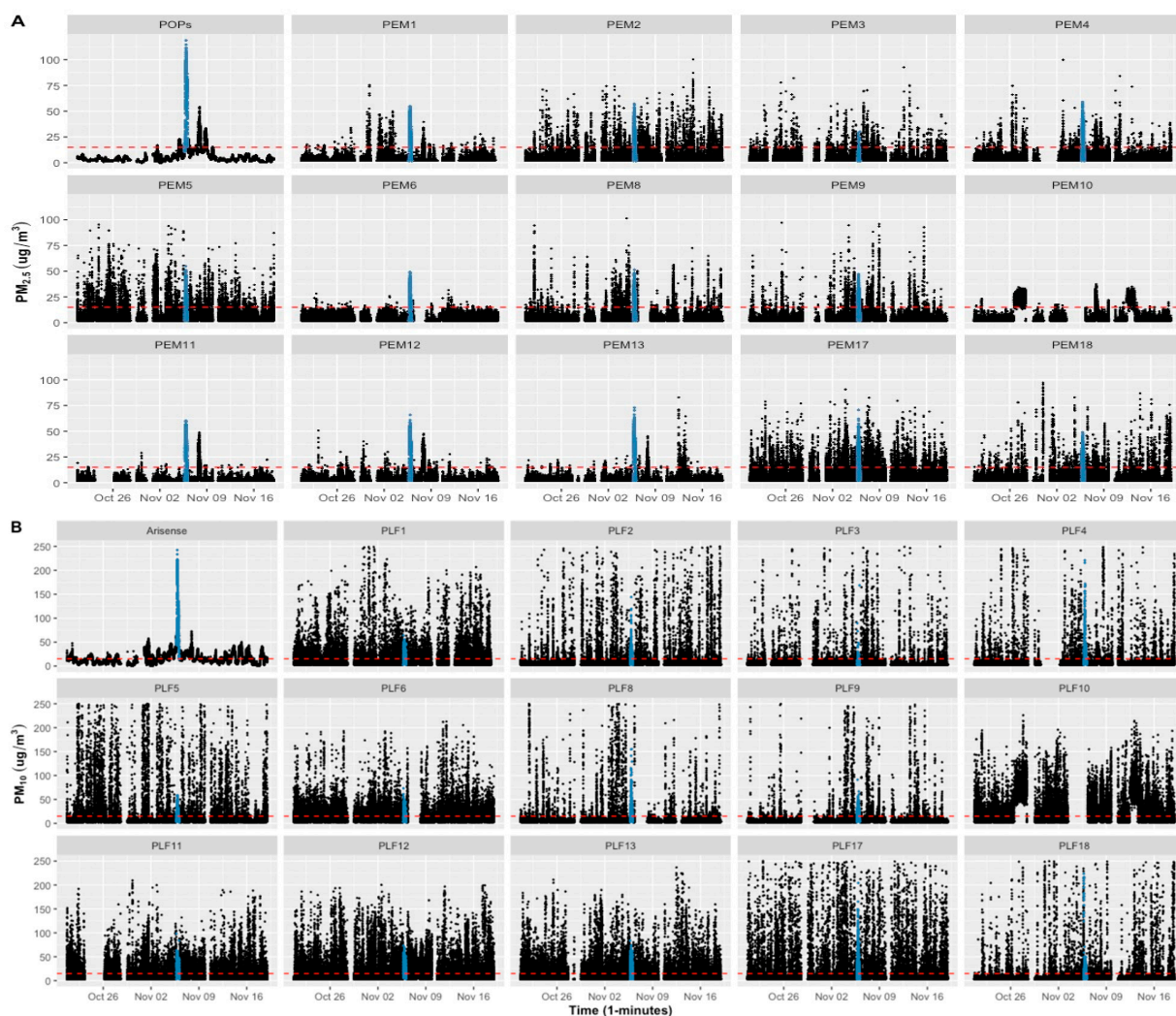
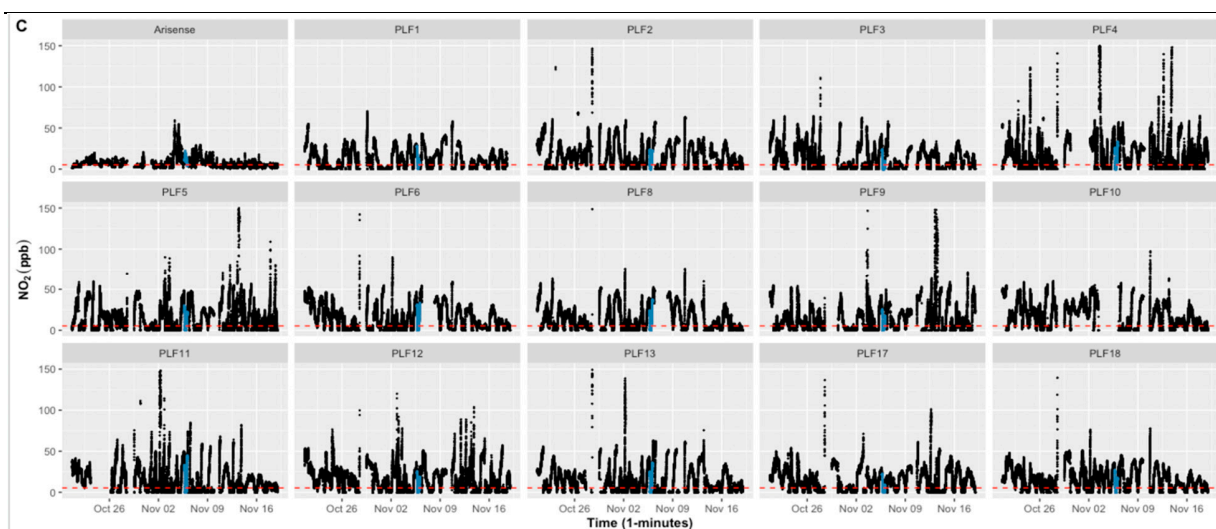


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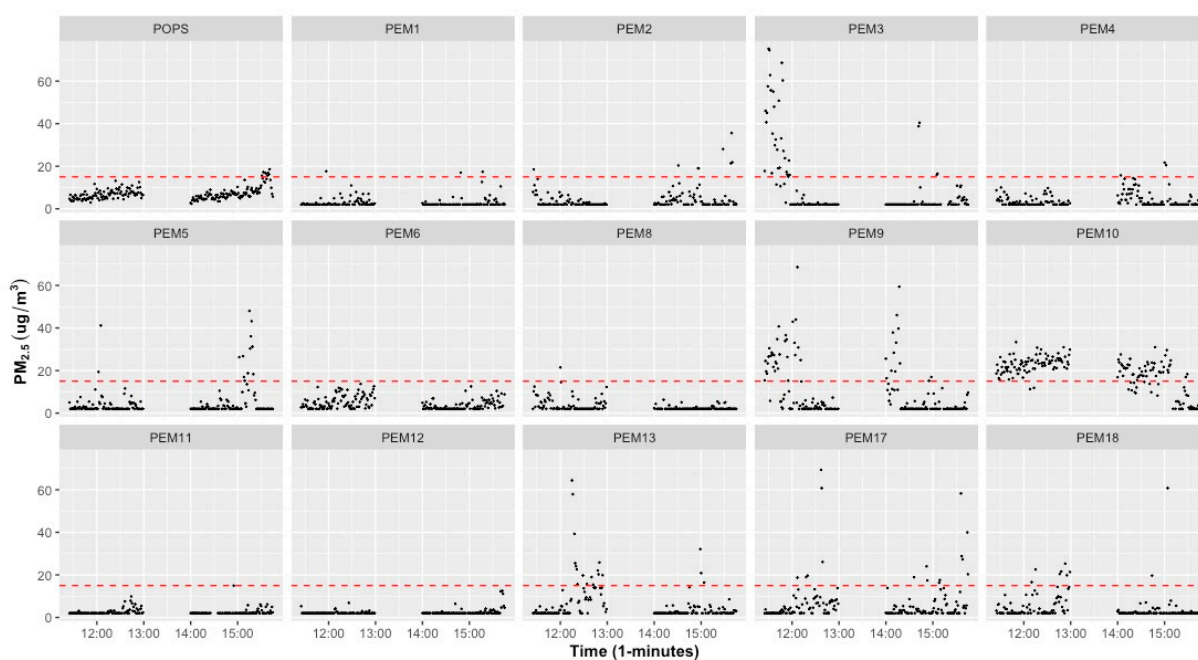
Halah E. Aljofi ^{1,*}, Thomas J. Bannan ^{2,*}, Michael Flynn ², James Evans ², David Topping ², Emily Matthews ², Sebastian Diez ^{3,4}, Pete Edwards ⁴, Hugh Coe ^{2,5}, Daniel R. Brison ^{6,7}, Martie van Tongeren ⁸, Edward D. Johnstone ⁷ and Andrew Povey ⁸





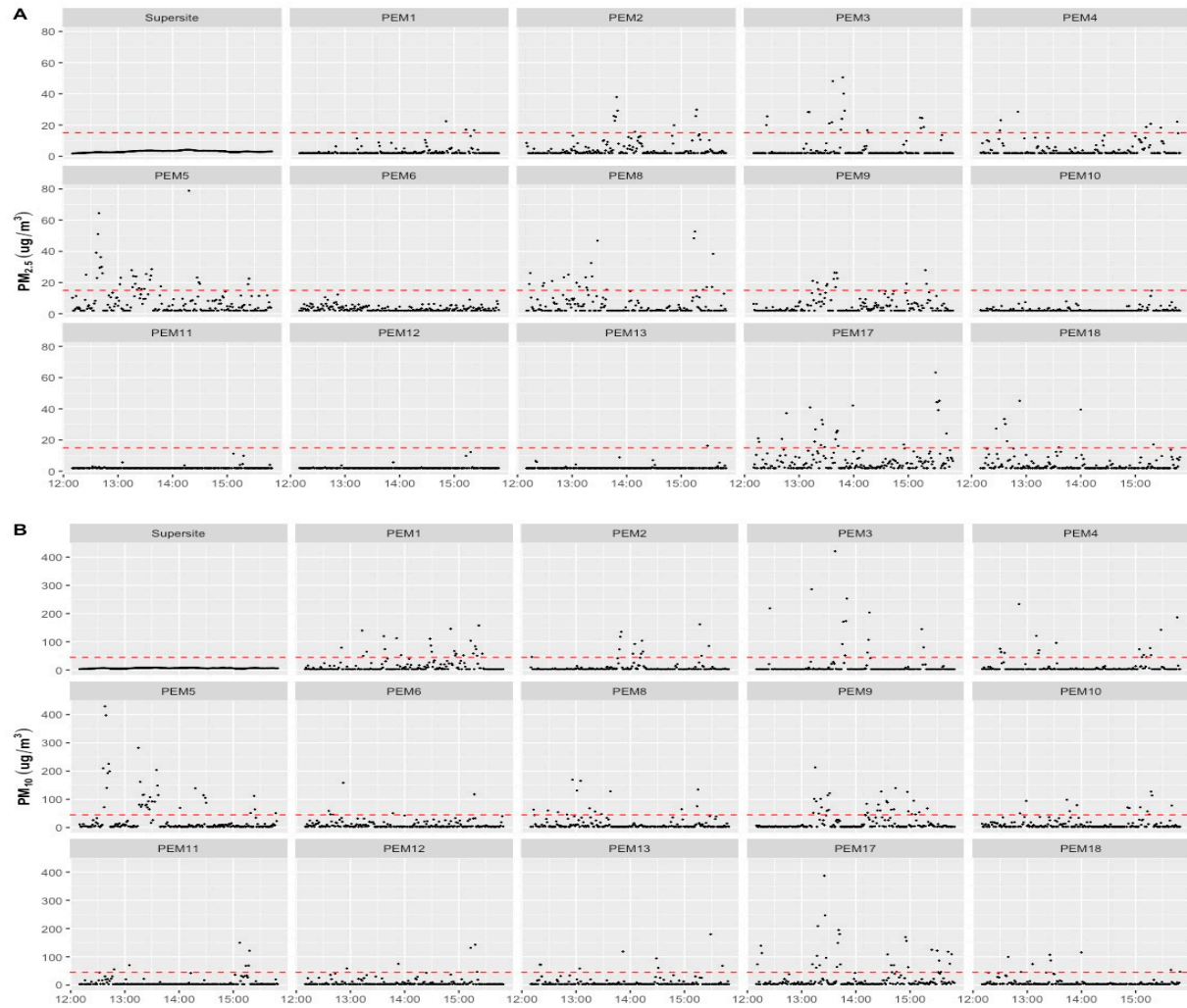
--- : the red dash line represents the WHO limited value ($45 \mu\text{g}/\text{m}^3$ for 24-hr mean PM_{10}), ($15 \mu\text{g}/\text{m}^3$ for 24-hr mean $\text{PM}_{2.5}$), ($25 \mu\text{g}/\text{m}^3$ (13.3 ppb) for 24-hr mean NO_2). The bonfire event colored with a blue line.

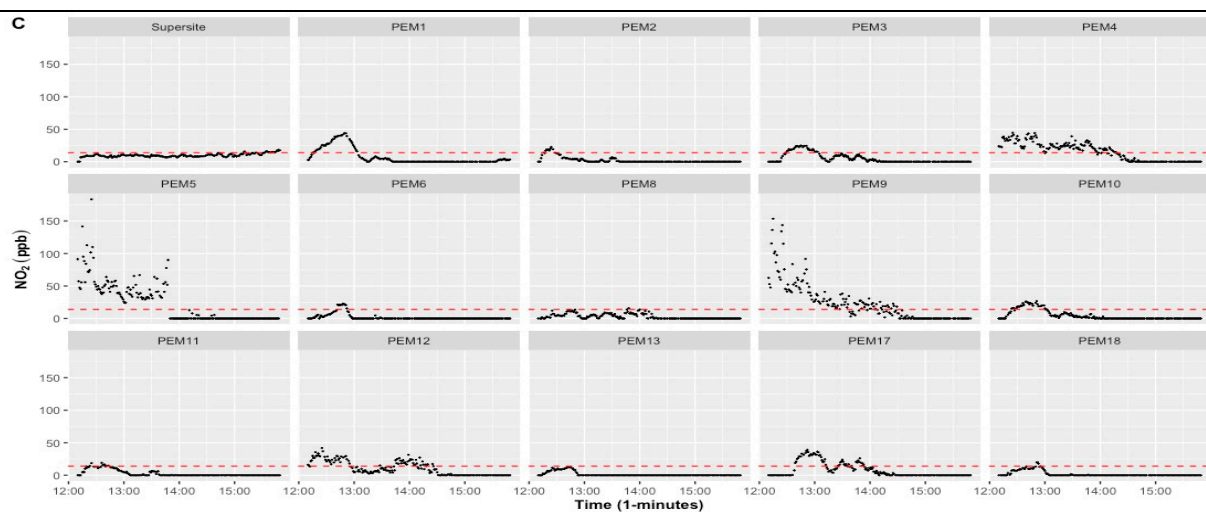
Figure S1. Time series of POPS and ARISense devices (references) and PLF tools for (a) $\text{PM}_{2.5}$ (b) PM_{10} , and (c) NO_2 concentrations carried out over three weeks periods at the indoor monitoring site.



--- :the red dash line represents the WHO limited value ($15 \mu\text{g}/\text{m}^3$ for 24-hr mean $\text{PM}_{2.5}$)

Figure S2. Time series of POPS device (reference) and PLF tools for $\text{PM}_{2.5}$ concentrations carried out about three hours on road site.





---- : the red dash line represents the WHO limited value ($45 \mu\text{g}/\text{m}^3$ for 24-hr mean PM₁₀), ($15 \mu\text{g}/\text{m}^3$ for 24-hr mean PM_{2.5}), ($25 \mu\text{g}/\text{m}^3$ (13.3 ppb) for 24-hr mean NO₂).

Figure S3. Time series of Supersite monitor (reference) and PLF tools for (a) PM_{2.5}, (b) PM₁₀, and (c) NO₂ concentrations carried out about three hours at the the Manchester Air Quality Supersite.

Table S1. Descriptive summary of PM_{2.5}, PM₁₀, NO₂ concentrations measured by the PLFs and the references: POPs and Arisense at the indoor monitoring.

PM _{2.5} (µg/m ₃)	PO PS	PL F 1	PL F 2	PL F 3	PLF 4	PL F 5	PL F 6	PL F 8	PL F 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
Minimum	0.1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25th percentile	2.23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2.59	2	2
Median	3.78	2	2.09	2	2	3.2	3.02	2	2	2.11	2	2	2	4.32	2	5.17	2	2.01
Mean	6.21	3.5	5.79	3.96	4.64	7.0	4.31	4.59	4.61	5.82	3.39	3.78	3.46	8.06	5.28	6.97	5.1	6.32
75th percentile	6.5	2.7	5.37	3.22	4.28	8.0	5.54	3.83	3.94	4.66	2.23	2.86	2.33	9.72	4.66	8.79	4.96	6.06
Maximum	118.7	75.38	100.4	92.64	99.81	95.3	49.17	101.3	97.13	37.42	60.18	65.76	82.82	90.48	97.04	68.14	102.33	92.81
Total num. of data points	36034	31725	33665	31474	31404	33572	31968	30898	32596	29973	30255	33775	32780	33692	33415	32702	27349	33338
Missing records	0	4309	2369	4560	4630	2462	4066	5136	3438	6061	5779	2259	3254	2342	2619	3332	8685	2696
PM ₁₀ (µg/m ³)	Ari-sens e	PL F 1	PL F 2	PL F 3	PLF 4	PL F 5	PL F 6	PL F 8	PL F 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
Minimum	0.34	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
25th percentile	7.8	3	3	3	3	3	3	3	3	3	3	3	3	3	3	14.3	3	3
Median	13.2	3.1	3.08	3	3	4.2	7.44	3	3	10.9	4.98	7.68	3.35	5.7	3	28.4	3	3.23
Mean	16.7	14.13	13.01	8.47	10.01	18.99	15.34	9.73	8.39	25.96	14.95	19.93	15.08	22.63	12.89	34.85	15.95	15.82
75th percentile	21.2	14.22	6.6	4.27	5.67	9.82	19.8	4.94	4.92	37.83	19.34	27.52	16.85	15.4	5.92	47.41	7.24	8.09
Maximum	242.5	489.4	691.8	840.7	808.9	712.7	212.7	644.4	816.5	225.8	209.4	200.13	658.22	790.56	782.17	210.04	668.85	666.92
Total num. of data points	13284	31725	33665	31474	31404	33572	31968	30898	32596	29973	30255	33775	32780	33692	33415	32702	27349	33338
Missing records	3099	4513	2498	4826	6229	2629	4316	5398	3659	6404	6068	2398	3466	2492	2787	3524	9185	2886

<i>NO₂ (ppb)</i>	Ari- sens e	PL F 1	PL F 2	PL F 3	PLF 4	PL F 5	PL F 6	PL F 8	PL F 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
<i>Minimum</i>	0.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>25th percentile</i>	3.16	1.4	2.62	0.22	3.31	1.9	2.72	1.74	1.36	5.7	1.98	4.3	1.29	3.9	6.19	3.02	2.02	3.63
<i>Median</i>	5.83	10.	13.6	8.91	14.2	11.	11	9.36	9.72	18.8	9.78	14.5	9.93	13.5	14.6	12.8	10.3	13.8
<i>Mean</i>		32	2		3	18				7		6		3	9	8	7	5
<i>75th percentile</i>	6.91	13.	16.2	13.1	21.0	16.	15.5	14.6	14.3	19.5	15.1	16.6	14.7	15.5	16.7	15.6	14.2	18.0
<i>Maximum</i>		12	5		8	01	1	4	7	7		6	7	2	4	1	5	2
	8.31	20.	26.8	22.1	30.7	24.	25.3	24.5	22.0	30.8	23.5	25.2	23.4	25.1	25.1	24.2	23.3	29.5
		84	6	3	9	94	2	9	2	2	6	4	4	7	5	3	5	2
	59.1	256	463.	311.	517.	500	514.	257.	177.	556.	573.	151.	206.	250.	181.	654.	218.	222.
<i>Total num. of data points</i>	3	.7	0	2	9	.5	2	3	9	69	64	84	63	52	71	85	33	83
	353	311	330	309	308	32957	315	305	320	2962	2964	3317	3217	3307	3279	3216	2697	3267
	39	91	47	11	04		20	12	03	4	0	2	8	7	9	2	8	2
<i>Missing records</i>	315	442	249	474	619	259	406	509	360	6097	6051	2356	3426	2461	2758	3418	8858	2856
	3	3	0	1	1	7	2	3	5									

Table S2. Descriptive summary of PM_{2.5} levels measured by the PLFs and POPS at the road site.

PM _{2.5} (µg/m ₃)	POP S	PL F 1	PL F 2	PLF 3	PLF 4	PLF 5	PLF 6	PLF 8	PLF 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
<i>Minimum</i>	2.38	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>25th percentile</i>	5.08	2	2	2	2	2	2	2	2	15.7	2	2	2	2	2	2.32	2	2
<i>Median</i>	6.59	2	2	2	2.0	2	3.2	2	2.6	20.9	2	2	2	2.95	2	3.99	2	2
<i>Mean</i>					7		3		5	1								
	7.12	2.8	4.1	9.0	3.9	4.7	4.4	3.1	9.5	18.5	2.56	2.4	5.8	6.34	4.27	4.7	5.77	5.19
		7	2	4	6		1	2	5	4								
<i>75th percentile</i>	8.02	2.3	4.0	5	4.3	3.6	5.9	2.8	11.	23.9	2	2	5.28	6.69	3.39	6.4	5.48	3.98
<i>Maximum</i>		6	1		9	8	9	6	64	5								
	18.6	17.	35.	75.	21.	48.	13.	21.	68.	33.3	14.9	12.5	64.3	69.3	60.8	14.1	57.3	47.8
		62	52	18	71	02	75	45	62	6	3	4	9	6		3	3	2

<i>Total num. of data points</i>	202	188	182	179	186	200	198	189	186	183	179	186	186	187	186	196	195	196
<i>Missing values</i>	0	14	20	23	16	2	4	13	16	19	23	16	16	15	16	6	7	6

Table S3. Descriptive summary of PM_{2.5}, PM₁₀, NO₂ concentrations measured by the PLFs and supersite monitors at the Manchester Air Quality Supersite.

PM _{2.5} (µg/m ₃)	Sup ersite	PL F 1	PL F 2	PL F 3	PL F 4	PL F 5	PL F 6	PL F 8	PL F 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
<i>Minimum</i>	1.80	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>25th percentile</i>	2.64	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>Median</i>	3.03	2	2	2	2	3.3 5	2.5	2.0 1	2.3 9	2	2	2	2	3.92	2	2.26	2	2.58
<i>Mean</i>	3.05	2.8 1	4.4 4	4.4 8	3.9 2	7.7 2	3.2	5.9 2	5.0 9	2.54	2.15	2.12	2.23	7.44	4.38	3.76	4.5	5.23
<i>75th percentile</i>	3.46	2.2	3.7 6	2	3.6 2	9.5 2	3.8 4	6.2 8	6.2 3	2.25	2	2	2	8.22	3.72	4.79	4.24	5.49
<i>Maximum</i>	4.13	22. 39	37. 96	50. 5	28. 5	78. 91	12. 28	52. 7	27. 91	14.8 1	11.2 5	12.2 3	16.3	63.2 6	45.0 8	15.1 3	54.9 5	52.1 3
<i>Total num. of data points</i>	220	205	207	207	206	211	211	196	205	205	206	204	207	206	207	212	212	210
<i>Missing values</i>	0	15	13	13	14	9	9	10	15	15	14	16	13	14	13	8	8	10
PM ₁₀ (µg/m ³)	Sup ersite	PL F 1	PL F 2	PL F 3	PL F 4	PL F 5	PL F 6	PL F 8	PL F 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
<i>Minimum</i>	3.47	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
<i>25th percentile</i>	5.82	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4.58	3	3
<i>Median</i>	6.66	3	3	3	3	4.6 1	3.8 4	3.1 8	3.6 9	3	3	3	3	5.84	3	17.0 8	3	3.58
<i>Mean</i>	6.48	15. 44	9.9 1	15. 11	11. 17	27. 59	10. 12	12. 8	18. 16	11.8 8	8.14	8.19	8.83	24.2 7	8.64	21.5 8	21.5 1	9.42
<i>75th percentile</i>	7.31	12. 74	4.8 9	3	4.6 7	12. 4	10. 74	9.4 1	13. 67	11.4 6	3	3.95	4.09	14.6 5	5.26	31	7.83	6.49
<i>Maximum</i>	8.8	157 .4	162 .0	420 .8	233 .7	429 .0	158 .3	169 .4	212 .5	127. 14	149. 78	142. 64	179. 46	387. 07	115. 41	141. 23	572. 93	302. 96

PLF 4	0.12	0.02	0.04	0.02															
	1	3	2	4	—														
PLF 5	0.06	-	0.00	0.01	0.09														
	0	0.00	8	7	5	—													
PLF 6	-	0.08	-	-	-	-													
	0.24	2	0.01	0.02	0.05	0.02	—												
PLF 8	0.03	0.03	-	-	-	0.04	0.01												
	0	6	0.01	0.01	0.00	3	9	—											
PLF 9	0.18	-	0.02	0.08	0.00	-	-	-											
	5	0.03	8	6	4	0.03	0.09	0.00	—										
PLF 10	-	-	0.02	0.04	-	0.05	0.00	-	0.04										
	0.03	0.01	0	1	0.03	1	6	0.02	0	—									
PLF 11	0.25	0.04	0.01	0.08	0.03	0.02	-	-	0.02	-									
	4	0	0	0	5	0	0.03	0.01	0	0.00	—								
PLF 12	0.37	0.03	-	0.09	0.03	0.05	-	0.04	0.05	0.01	0.23								
	2	3	0.01	4	0	0	0.03	7	8	4	2	—							
PLF 13	-	-	0.02	-	0.01	0.01	0.02	-	-	0.45	0.00	-							
	0.06	0.01	7	0.02	4	2	5	0.01	0.02	1	9	0.00	—						
PLF 17	0.16	0.04	-	0.00	0.09	0.01	-	0.09	0.03	0.03	0.07	0.08	0.01						
	3	3	0.00	6	0	1	0.02	7	0	2	9	1	2	—					
PLF 18	0.08	0.02	-	0.01	-	-	-	-	0.01	0.03	-	0.00	0.00	0.02					
	3	2	0.03	2	0.01	0.02	0.05	0.03	2	0	0.00	1	3	4	—				
PLF 19	0.58	-	-	0.09	0.12	0.05	-	0.02	0.10	-	0.21	0.30	-	0.13	0.02				
	3	0.01	0.03	1	0	2	0.11	0	4	0.00	0	3	0.04	1	6	—			
PLF 20	0.00	-	-	-	-	0.00	-	-	0.05	0.06	-	-	0.01	0.07	0.04	0.01			
	9	0.00	0.00	0.03	0.00	3	0.05	0.03	6	3	0.04	0.01	0	1	6	2	—		
PLF 21	0.03	-	-	0.03	0.03	-	-	0.11	0.00	0.00	-	0.05	-	0.00	0.00	0.02	-		
	8	0.02	0.05	9	6	0.06	0.01	6	1	6	0.01	7	0.03	9	3	6	0.08	—	
		2	2			5	1				1	6	6	9	3	6	5		

Note: POPS and PLF; the measurements carried out over 3 weeks period.

Table S5. Correlation coefficient of PM₁₀ concentrations for all PLF tools versus Arisense device measurements at the indoor monitoring location.

	Arisense	PLF 1	PLF 2	PLF 3	PLF 4	PLF 5	PLF 6	PLF 8	PLF 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
Arisense	—																	
PLF 1	0.130	—																
PLF 2	-0.054	0.024	—															
PLF 3	-0.008	0.002	0.021	—														
PLF 4	-0.035	0.009	0.063	0.012	—													
PLF 5	-0.061	0.029	0.022	0.020	0.033	—												
PLF 6	0.118	0.078	0.008	0.028	0.006	0.004	—											
PLF 8	0.084	0.049	0.007	0.021	0.016	0.009	0.050	—										
PLF 9	0.032	0.006	0.016	0.091	0.009	0.023	0.034	0.007	—									
PLF 10	0.132	0.022	0.028	0.002	0.009	0.018	0.008	0.000	0.046	—								
PLF 11	0.168	0.025	0.014	0.022	0.005	0.037	0.044	0.000	0.001	0.050	—							
PLF 12	0.142	0.010	0.033	0.034	0.004	0.031	0.054	0.018	0.016	0.081	0.042	—						
PLF 13	0.123	0.011	0.010	0.035	0.007	0.009	0.035	0.023	0.006	0.099	0.054	0.013	—					

PLF			-	-		-	0.01	0.04	-	0.02	0.00	-	-				
17		0.02	0.00	0.03	0.02	0.02	0	3	0.02	0.02	3	0.01	0.01	-			
	0.009	6	7	8	5	5			6	5		2	7				
PLF			-	-	-	-	-	-	0.03	0.02	-	0.01	0.00	0.02			
18		0.04	0.02	0.00	0.03	0.01	0.03	0.02	8	7	0.03	0	4	7	-		
	0.039	6	5	6	0	9	4	5			6						
PLF			-	-		-	0.06	0.04	0.01	0.09	0.06	0.11	0.03	-	-		
19		0.00	0.02	0.01	0.06	0.01			3	7	9	1	3	0.02	0.02	-	
	0.294	1	4	0	3	4	1	6						3	2		
PLF				-	-	0.00	-	-	0.01	0.07	-	0.00	0.01	0.03	0.03	0.01	
20		0.01	0.01	0.02	0.01	8	0.00	0.01	5	4	0.00	8	2	8	8	4	-
	0.115	1	6	3	7		6	4			5						
PLF		-	-	-		-	-	0.02	0.01	0.01	-	0.04	-	0.02	-	-	-
21		0.04	0.01	0.01	0.02	0.04	0.00		2	3	5	0.03	5	0.02	8	0.02	0.00
	0.005	9	7	5	2	8	8				8		7		0	6	3

Note: Arisense and PLF; the measurements carried out over 3 weeks period.

Table S6. Correlation coefficient of NO₂ for all PLF tools versus Arisense device measurements at the indoor monitoring location.

	Arisens	PLF 1	PLF 2	PLF 3	PLF 4	PLF 5	PLF 6	PLF 8	PLF 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
Arisense	–																	
PLF 1	-0.104	–																
PLF 2	0.040	0.607	–															
PLF 3	-0.060	0.401	0.435	–														
PLF 4	0.027	0.260	0.241	0.051	–													
PLF 5	0.047	-0.113	-0.027	-0.005	0.316	–												
PLF 6	0.130	0.327	0.537	0.420	0.071	0.166	–											
PLF 8	0.115	0.413	0.628	0.483	0.050	0.026	0.648	–										
PLF 9	-0.196	0.047	0.119	0.313	0.150	0.334	0.183	0.262	–									
PLF 10	0.035	0.350	0.335	0.529	0.080	0.097	0.454	0.407	0.264	–								
PLF 11	-0.025	0.261	0.375	0.438	0.134	0.035	0.272	0.203	0.141	0.453	–							
PLF 12	-0.133	0.202	0.245	0.386	0.260	0.223	0.307	0.313	0.599	0.420	0.380	–						
PLF 13	0.085	0.203	0.464	0.411	0.056	0.093	0.527	0.436	0.162	0.617	0.596	0.255	–					
PLF 17	0.037	0.203	0.289	0.344	0.327	0.105	0.330	0.281	0.182	0.373	0.420	0.358	0.407	–				
PLF 18	0.222	0.348	0.597	0.333	0.107	0.073	0.679	0.654	0.046	0.486	0.336	0.278	0.594	0.451	–			
PLF 19	-0.008	0.305	0.296	0.476	0.130	0.076	0.409	0.283	0.188	0.581	0.632	0.296	0.573	0.577	0.401	–		
PLF 20	0.019	0.406	0.414	0.528	0.145	0.072	0.579	0.451	0.175	0.722	0.522	0.471	0.573	0.491	0.627	0.619	–	
PLF 21	0.088	0.485	0.548	0.446	0.085	0.068	0.685	0.666	0.193	0.612	0.399	0.430	0.516	0.458	0.731	0.527	0.777	–

Note: Supersite monitor and PLF; the measurements carried out over 3 weeks period.

Table S7. Correlation coefficient of PM_{2.5} concentrations between PLF tools and POPS device at the road site.

	POP S	PLF 1	PLF 2	PLF 3	PLF 4	PLF 5	PLF 6	PLF 8	PLF 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PL F 21
POPS	—																	
PLF 1	0.16 6	—																
PLF 2	0.43 2	0.02 8	—															
PLF 3	- 0.29 9	- 0.12 6	0.00 7	—														
PLF 4	- 0.27 1	- 0.11 8	- 0.08 1	0.10 1	—													
PLF 5	- 0.08 1	- 0.05 0	- 0.11 4	- 0.04 1	- 0.11 2	—												
PLF 6	0.15 7	- 0.04 1	0.02 4	- 0.15 4	- 0.32 4	0.02 1	—											
PLF 8	- 0.03 4	0.01 2	- 0.04 7	0.14 0	- 0.11 6	- 0.05 6	0.13 0	—										
PLF 9	- 0.47 8	- 0.16 5	- 0.08 4	0.43 6	0.30 1	0.40 6	- 0.24 9	- 0.03 3	—									
PLF 10	- 0.43 8	- 0.02 4	- 0.34 6	0.14 2	0.10 8	0.14 0	- 0.09 6	- 0.21 7	- 0.28 6	—								
PLF 11	0.16 7	- 0.07 4	0.11 6	- 0.11 9	- 0.17 6	- 0.05 3	0.33 6	- 0.03 5	- 0.04 8	- 0.02 1	—							
PLF 12	0.31 1	0.21 0	0.17 0	- 0.11 5	- 0.02 5	- 0.06 9	- 0.03 8	- 0.12 0	- 0.17 0	- 0.33 6	- 0.06 6	—						
PLF 13	- 0.01 2	0.23 6	- 0.08 4	- 0.14 5	- 0.15 6	- 0.04 3	0.35 9	0.17 7	- 0.21 4	0.23 5	0.02 0	- 0.10 7	—					

PLF 17	0.56 2	0.03 4	0.11 2	- 1	- 6	0.04 9	0.20 1	- 1	- 8	- 9	0.08 5	0.03 3	- 0.02 8	-				
PLF 18	- 0.08 4	0.00 0	- 0.11 4	- 0.04 3	- 0.09 3	- 0.06 0	0.17 7	0.13 0	- 0.12 3	0.17 7	- 0.04 3	- 0.09 5	0.37 1	- 0.06 6	-			
PLF 19	0.14 4	- 0.02 1	0.10 5	0.07 1	- 0.13 1	- 0.03 3	0.08 6	0.01 3	0.13 8	0.16 9	0.18 1	0.21 9	0.25 5	0.07 9	0.21 4	-		
PLF 20	0.01 1	- 0.04 0	- 0.02 8	- 0.14 3	- 0.18 2	- 0.02 6	- 0.00 4	0.29 3	- 0.18 4	0.16 8	0.07 2	- 0.10 1	0.07 5	- 0.05 8	0.12 0	- 0.09 5	-	
PLF 21	- 0.28 2	- 0.11 3	0.01 4	0.73 2	0.10 7	- 0.01 0	- 0.25 2	0.22 2	0.51 1	0.22 8	- 0.07 5	- 0.13 8	- 0.09 1	- 0.15 8	- 0.01 4	- 0.01 2	0.02 7	-

Note: POPS and PLF; the measurements were taken from 11:26 AM to 3:41 PM on the 19th of November 2020

Table S8. Correlation coefficient of PM_{2.5} and PM₁₀ concentrations for all PLF tools versus Supersite monitor measurements at the Manchester Air Quality Supersite (*correlation coefficient for PM_{2.5}, lower-left; correlation coefficient for PM₁₀, upper-right*)

	Supersite	PLF 1	PLF 2	PLF 3	PLF 4	PLF 5	PLF 6	PLF 8	PLF 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20	PLF 21
Supersite	-	0.09 2	0.16 5	0.25 2	- 0.11 8	0.23 6	- 0.15 9	- 0.14 1	0.33 4	- 0.18 1	- 0.16 8	0.08 2	- 0.28 8	0.09 3	0.06 1	- 0.14 1	0.01 3	0.04 7
PLF 1	0.143	-	0.00 0	0.32 4	0.00 9	- 0.04 0	- 0.06 8	- 0.11 8	0.14 6	- 0.02 7	- 0.02 7	0.16 2	0.03 6	- 0.02 3	- 0.10 3	0.02 3	- 0.00 1	0.12 6
PLF 2	0.119	0.02 2	-	0.15 1	- 0.06 4	- 0.12 7	- 0.05 2	- 0.03 4	0.01 7	0.05 9	- 0.07 3	0.23 7	- 0.07 6	- 0.15 5	- 0.08 7	- 0.01 4	0.08 7	0.01 4
PLF 3	0.166	0.14 7	0.47 5	-	- 0.02 6	0.09 8	0.06 3	- 0.03 8	- 0.04 1	0.00 6	- 0.05 5	0.10 0	- 0.04 9	- 0.09 4	- 0.05 5	0.04 9	0.01 8	- 0.01 9
PLF 4	-0.197	- 0.07 9	- 0.08 0	- 0.01 5	-	- 0.09 2	0.02 0	0.00 9	- 0.09 6	- 0.07 4	- 0.03 0	0.03 7	- 0.07 5	0.05 4	- 0.04 5	0.09 0	0.05 1	- 0.02 8

PLF 5	-	-	0.11	-														
	0.094	0.00	0.07	0.10	-	0.02	0.09	0.01	-	0.07	0.09	0.05	0.01	0.42	0.20	-	-	
		6	7	4	8	8	5	4	0.10	0	1	0	0	0	9	0.03	0.03	
PLF 6	-	-	-	0.17	0.12													
	-0.243	0.09	0.06	0.00	4	8	-	0.04	0.07	0.28	0.02	0.06	0.06	0.07	0.16	0.02	0.05	0.01
		7	8	5	4	8		0	8	5	0	9	0	5	8	1	9	5
PLF 8	-	-	-	0.06	0.10	0.05												
	-0.131	0.07	0.05	0.04	3	1	2	-	0.00	0.10	0.59	0.06	0.14	-	0.02	0.04	-	-
		4	5	7	3	1	2		3	5	1	8	0	0.07	6	3	0.01	0.03
PLF 9	-	-	-	-	0.00	-												
	0.187	0.02	0.02	0.10	0.16	0.11	0.08	-	0.06	0.03	0.05	0.01	0.05	-	-	-	-	-
		5	2	5	0	9	4		3	0	8	1	1	7	0	3	5	
PLF 10	-	0.09	0.07	-	-	0.15	-	-	-	-	-	-	-	-	-	-	-	-
	-0.204	0.04	4	3	0.02	0.02	4	0.12	0.11	-	0.10	0.13	0.06	0.19	0.03	0.19	0.12	0.11
		4			2	3	8	6		7	4	7	8	9	6	7	7	
PLF 11	-	-	-	0.17	-	0.09	0.22	-	-	-	-	-	-	-	-	-	-	-
	-0.140	0.07	0.06	0.02	5	0.00	5	9	0.13	0.06	-	0.07	0.10	0.09	0.08	0.07	0.04	0.04
		3	8	8	5	2	5	9	0	6		2	8	9	8	8	1	6
PLF 12	-	0.26	-	-	-	-	-	0.07	0.27	-	-	-	-	-	-	-	-	-
	-0.023	0.12	0.03	0.04	0.06	0.07	0.07	2	9	0.03	0.02	-	0.08	0.16	0.13	0.00	0.03	0.05
		7	0	4	5	2	8			8	0		0	3	2	6	2	2
PLF 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-0.210	0.00	0.07	0.04	0.06	0.07	0.10	0.07	0.07	0.18	0.02	0.01	-	0.10	0.01	0.08	0.05	0.04
		6	1	7	0	5	0	1	3	5	7	6		4	9	8	0	1
PLF 17	-	-	-	0.10	-	0.17	0.05	0.07	-	-	-	-	-	-	-	-	-	-
	-0.085	0.12	0.08	0.07	0.02	0.17	0.05	0.07	0.09	0.03	0.06	0.02	-	0.09	0.11	0.41	0.38	
		3	6	1	4	3	3	7	6	6	1	4		5	5	6	7	
PLF 18	-	-	-	-	0.14	0.13	-	-	0.03	0.00	0.27	-	0.03	-	0.23	-	-	-
	-0.082	0.05	0.06	0.05	0.02	8	1	0.03	0.07	2	1	7	0.01	1	-	0	0.09	0.02
		2	1	0	9	8	1	0		2			3	1		3	9	
PLF 19	-	0.04	0.03	0.32	0.10	0.27	0.06	-	0.17	0.24	0.05	-	0.18	0.18	-	0.10	0.07	
	-0.355	0.09	3	9	2	0	9	9	0.28	0	4	9	0.02	7	4	-	9	0
		6							1				4					
PLF 20	-	-	0.02	0.10	-	0.09	-	0.02	-	-	-	-	0.70	-	0.12	-	-	-
	-0.140	0.06	0.10	1	4	0.06	0.04	0.02	0.06	0.00	0.04	0.05	9	0.06	9	-	0.00	
		6	2		3	2	4	6	2	7	8	1	9	3			9	
PLF 21	-	0.18	0.27	-	0.02	-	-	0.23	0.03	-	-	-	0.17	0.05	0.00	0.16	-	
	0.153	0.08	3	7	0.02	0.05	0.02	0	1	0.01	0.04	0.06	8	8	9	4	-	
		2		6	6	5	6			4	5	2						

Note: Supersite monitor and PLF; the measurements were taken from 12:10 to 3:49 PM on November 19,2020

Table S9. Correlation coefficient of NO₂ concentrations for all PLF tools versus Supersite Monitor at the Manchester Air Quality Supersite.

	Supersite	PLF 1	PLF 2	PLF 3	PLF 4	PLF 5	PLF 6	PLF 8	PLF 9	PLF 10	PLF 11	PLF 12	PLF 13	PLF 17	PLF 18	PLF 19	PLF 20
Supersite	–																
PLF 1	-0.157	–															
PLF 2	-0.105	0.554	–														
PLF 3	-0.244	0.826	0.265	–													
PLF 4	-0.577	0.563	0.538	0.642	–												
PLF 5	-0.455	0.515	0.616	0.476	0.797	–											
PLF 6	-0.189	0.843	0.359	0.716	0.477	0.377	–										
PLF 8	-0.364	0.242	0.053	0.524	0.632	0.304	0.351	–									
PLF 9	-0.496	0.627	0.725	0.421	0.738	0.750	0.484	0.200	–								
PLF 10	-0.176	0.939	0.410	0.918	0.598	0.487	0.797	0.346	0.508	–							
PLF 11	-0.148	0.884	0.768	0.707	0.596	0.576	0.745	0.212	0.657	0.813	–						
PLF 12	-0.549	0.516	0.595	0.433	0.762	0.527	0.491	0.489	0.746	0.424	0.611	–					
PLF 13	-0.117	0.777	0.659	0.589	0.525	0.458	0.765	0.239	0.521	0.721	0.869	0.557	–				
PLF 17	-0.286	0.576	0.034	0.820	0.554	0.426	0.466	0.481	0.335	0.682	0.427	0.347	0.179	–			
PLF 18	-0.145	0.909	0.329	0.793	0.416	0.345	0.872	0.277	0.449	0.879	0.748	0.441	0.651	0.582	–		
PLF 19	-0.181	0.763	0.742	0.619	0.696	0.637	0.713	0.402	0.614	0.721	0.849	0.638	0.895	0.261	0.656	–	
PLF 20	-0.269	0.870	0.687	0.766	0.720	0.648	0.809	0.432	0.673	0.836	0.866	0.608	0.792	0.462	0.788	0.862	–

Note: Supersite monitor and PLF; the measurements were taken from 12:10 to 3:49 PM on November 19,2020