

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000039317

Certified AMS: APDA-371 with PM₁₀-pre-separator for particulate matter PM₁₀

Manufacturer: HORIBA Europe GmbH
Hans-Mess-Str. 6
61440 Oberursel/Ts.
Germany

Test Institute: TÜV Rheinland Energie und Umwelt GmbH

**This is to certify that the AMS has been tested
and found to comply with:**

**VDI 4202-1: 2010; VDI 4203-3: 2010, EN 12341: 1998;
Guide to the Demonstration of Equivalence of Ambient Air Monitoring Methods: 2010
EN 15267-1: 2009 and EN 15267-2: 2009**

Certification is awarded in respect of the conditions stated in this certificate
(see also the following pages).



Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance


www.tuv.com
ID 0000039317

Publication in the German Federal Gazette
(BAnz.) of 23 July 2013

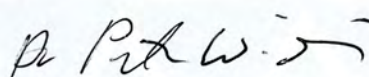
This certificate will expire on:
22 July 2018

German Federal Environment Agency
Dessau, 20 August 2013

TÜV Rheinland Energie und Umwelt GmbH
Cologne, 19 August 2013



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TÜV Rheinland Energie und Umwelt GmbH
Am Grauen Stein
51105 Cologne

Accreditation according to EN ISO/IEC 17025 and certified according to ISO 9001:2008.

Certificate:
0000039317 / 20 August 2013

Test report: 936/21221789/A of 19 March 2013
Initial certification: 23 July 2013
Date of expiry: 22 July 2018
Publication: BAnz AT 23 July 2013 B4, chapter III, No. 3.1

Approved application

The certified AMS is suitable for permanent monitoring of suspended particulate matter PM₁₀ in ambient air (stationary operation).

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a Field test (type approval) with three different test sites respectively periods, equivalence testing with seven different test sites respectively periods.

The AMS is approved for a temperature range of +5 °C to +40 °C.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for ambient air applications at which it will be installed.

Basis of the certification

This certification is based on:

- test report 936/21221789/A of 19 March 2013 of TÜV Rheinland Energie und Umwelt GmbH
- suitability announced by the German Federal Environment Agency (UBA) as the relevant body
- the on-going surveillance of the product and the manufacturing process
- publication in the German Federal Gazette (BAnz AT 23 July 2013 B4, chapter III, No. 3.1)

AMS designation:

APDA-371 with PM₁₀-pre-separator for particulate matter PM₁₀

Manufacturer:

HORIBA Europe GmbH, Oberursel

Field of application:

For continuous ambient air monitoring (stationary operation)

Measuring ranges during the performance test:

Component	Certification range	Unit
PM ₁₀	0 - 1.000	µg/m ³

Software version:

Version 3236-07 5.1.1

Restrictions:

None

Notes:

1. For recording PM₁₀ values, the system has to be equipped with the following options: Sample heater (BX-830), sampling inlet (BX-802) and ambient temperature sensor (BX-592) or combined pressure and temperature sensor (BX-596).
2. The heater must only be used in the operational mode used during the type approval test.
3. The flow rate control has to be in actual volume related to ambient conditions (Operating mode: ACTUAL)
4. During the type approval test, the cycle time was set to 1 h, i.e. the AMS performed one automatic filter change per hour. Each filter spot was used only once.
5. The measuring system has to be operated in a lockable measuring cabinet.
6. The measuring system is to be calibrated on site at regular intervals by applying the gravimetric PM₁₀ reference method specified in EN 12341.
7. As an option, the measuring system can be operated with the pump BX-125.
8. Since January 2012 the measuring system is distributed with a new designed back plate in order to make room for extended interfaces (e.g. the optional BX-965 reporting unit).
9. The measuring system fulfills the requirements of EN 12341 as well as those of the January 2010 version of the Guide "Demonstration of Equivalence of Ambient Air Monitoring Methods". Furthermore, the manufacture and the quality management of the measuring system APDA-371 with PM₁₀ pre-separator fulfills the requirements of EN 15267.
10. First notification issued by publication of the German Federal Environment Agency (UBA) on 25 January 2010 (BAnz. p. 552, chapter IV, 11th notification). Last notification issued by publication of the German Federal Environment Agency (UBA) on 6 July 2012 (BAnz AT 20 July 2012 B11, chapter IV, 3rd notification).
11. The type approval test report with report number 936/21221789/A is available online under www.qal1.de.

Test institute: TÜV Rheinland Energie und Umwelt GmbH, Cologne

Report No.: 936/21221789/A of 19 March 2013

Certified product

This certificate applies to automated measurement systems conforming to the following description:

The measuring system APDA-371 with PM₁₀-pre-separator is identical to the measuring system BAM-1020 except for a different front design. It was developed by the company Met One Instruments, Inc. and is completely manufactured at Met One's production sites.

The measuring system APDA-371 with PM₁₀-pre-separator consists of the PM₁₀-sampling inlet BX-802, the sampling tube, the sample heater BX-830, the ambient temperature sensor BX-592 (incl. radiation protection shield) or alternatively the combined pressure and temperature sensor BX-596, the vacuum pump BX-127 and the optional BX-125, the measuring instrument APDA-371 (incl. glass fiber filter tape), the respective connecting tubes and lines as well as adapters, the roof flange and manual in English / German.

The ambient air measuring system APDA-371 is based on the measuring principle of beta-attenuation.

The particle sample passes the PM₁₀-sampling inlet with a flow rate of 1 m³/h and arrives via the sampling tube at the measuring instrument APDA-371.

During the test, the measuring system was operated with the sample heater BX-830.

The particles arrive at the measuring instrument and will be separated at the glass fiber filter tape for the radiometric measurement.

During the test, the cycle duration was set to 60 min, from which 4 min were used for the radiometric measurement.

Therefore, the cycle time consists of 2 x 4 min for the radiometric measurement (I_0 & I_3) as well as approximately 1-2 min for filter tape movements. Thus the effective sampling time is approx. 50 min.

Furthermore, the measuring system allows an extension of the measuring time to either 6 or 8 min in order to increase the precision of the radiometric measurement. The effective sampling time is then decreased to 46 or 42 min respectively.

The radiometric mass determination is calibrated in the factory and is checked within the scope of internal quality assurance hourly at the zero point (clean filter spot) and at the reference point (built-in reference foil) during operation. With the help of the generated data, measured values can be easily derived to zero and reference points. They can be compared with any stability requirements (drift effects) or with the nominal value for the reference foil (factory setting).

General notes

This certificate is based upon the equipment tested. The manufacturer is responsible for ensuring that on-going production complies with the requirements of the EN 15267. The manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management systems shall be subject to regular surveillance.

If a product of the current production does not conform to the certified product, TÜV Rheinland Energie und Umwelt GmbH must be notified at the address given on page 1.

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate. This can be applied to the product or used in publicity material for the certified product is presented on page 1 of this certificate.

This document as well as the certification mark remains property of TÜV Rheinland Energie und Umwelt GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the certificate and on requests of the TÜV Rheinland Energie und Umwelt GmbH this document shall be returned and the certificate mark must not be employed anymore.

The relevant version of this certificate and the validity is also accessible on the internet: **qal1.de**.

Certification of APDA-371 with PM₁₀-pre-separator for particulate matter PM₁₀ is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

Initial certification according to EN 15267:

Certificate No. 0000039317: 20 August 2013

Expiration date of the certificate: 22 July 2018

Test report: 936/21221789/A of 19 March 2013
TÜV Rheinland Energie und Umwelt GmbH, Cologne

Publication: BAnz AT 23 July 2013 B4, chapter III, No. 3.1
Announcement by UBA from 03 July 2013

Calculation of overall uncertainty

PM ₁₀ APDA-371*	35.3% > 28 µg m ⁻³	Orthogonal Regression			Between Instrument Uncertainties		
	W _{CM} / %	n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	Reference	Candidate
All Paired Data	16.0	320	0.982	1.034 +/- 0.008	0.843 +/- 0.290	0.67	1.22
< 30 µg m ⁻³	24.7	215	0.826	1.119 +/- 0.032	-0.446 +/- 0.557	0.53	1.09
> 30 µg m ⁻³	17.7	105	0.971	1.042 +/- 0.017	0.141 +/- 1.031	0.91	1.49
4294	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Cologne, Parking Lot	29	0.960	0.948 +/- 0.036	2.202 +/- 0.950	10.13	34.5
	Titz - Rödigen	37	0.962	1.058 +/- 0.035	0.376 +/- 0.782	14.75	18.9
	Cologne, Frankfurter Str.	28	0.963	1.025 +/- 0.039	-1.293 +/- 1.083	8.07	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.814	1.040 +/- 0.055	0.162 +/- 0.981	12.58	4.4
	> 30 µg m ⁻³	26	0.897	0.964 +/- 0.063	1.810 +/- 2.438	9.75	100.0
	All Data	94	0.953	0.987 +/- 0.022	1.048 +/- 0.563	9.16	35.3
4295	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Cologne, Parking Lot	29	0.970	0.990 +/- 0.033	2.681 +/- 0.862	12.53	34.5
	Titz - Rödigen	37	0.961	1.056 +/- 0.035	1.260 +/- 0.785	17.52	18.9
	Cologne, Frankfurter Str.	28	0.969	1.021 +/- 0.035	-0.154 +/- 0.994	8.10	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.830	1.056 +/- 0.053	0.935 +/- 0.952	17.24	4.4
	> 30 µg m ⁻³	26	0.929	1.025 +/- 0.056	0.713 +/- 2.151	11.49	100.0
	All Data	94	0.960	1.004 +/- 0.021	1.735 +/- 0.528	11.41	30.9
Austria1	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Graz	45	0.969	1.025 +/- 0.027	-0.202 +/- 1.848	20.89	82.2
	Steyregg	45	0.824	1.049 +/- 0.067	-1.750 +/- 1.392	9.31	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.644	1.339 +/- 0.109	-6.789 +/- 2.135	42.75	2.0
	> 30 µg m ⁻³	40	0.960	1.057 +/- 0.034	-2.826 +/- 2.431	19.58	100.0
	All Data	90	0.983	1.039 +/- 0.015	-1.294 +/- 0.729	15.95	45.6
Austria2	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Graz	45	0.966	1.033 +/- 0.029	1.948 +/- 1.962	26.05	82.2
	Steyregg	45	0.793	1.035 +/- 0.072	-1.668 +/- 1.489	9.56	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.557	1.492 +/- 0.130	-9.462 +/- 2.545	62.86	2.0
	> 30 µg m ⁻³	40	0.956	1.084 +/- 0.037	-2.296 +/- 2.635	22.65	100.0
	All Data	90	0.980	1.079 +/- 0.016	-1.702 +/- 0.818	19.84	45.6
J7860	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	59	0.906	1.172 +/- 0.047	1.204 +/- 0.839	40.46	6.8
	> 30 µg m ⁻³	38	0.974	1.002 +/- 0.027	3.154 +/- 1.548	17.67	100.0
	All Data (Tusimice)	97	0.984	0.999 +/- 0.013	3.739 +/- 0.492	18.45	43.3
J7863	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	58	0.913	1.158 +/- 0.045	0.159 +/- 0.812	33.73	6.9
	> 30 µg m ⁻³	38	0.978	1.032 +/- 0.025	1.948 +/- 1.450	17.98	100.0
	All Data (Tusimice)	96	0.987	1.035 +/- 0.012	2.035 +/- 0.461	18.18	43.8
17011	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	39	0.960	1.039 +/- 0.034	0.632 +/- 0.458	11.13	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.949	1.162 +/- 0.042	-0.766 +/- 0.602	29.99	2.5
17022	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{C-S}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	39	0.958	1.051 +/- 0.035	0.603 +/- 0.477	13.45	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.963	1.110 +/- 0.034	-0.050 +/- 0.488	22.28	2.5

* The equivalence testing has been performed in the basis test with the identical measuring devices BAM-1020 of the company Met One Instruments, Inc.

PM ₁₀ APDA-371* Intercept Corrected	35.3% > 28 µg m ⁻³	Orthogonal Regression				Between Instrument Uncertainties	
		W _{CM} / %	n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	Reference
All Paired Data	14.2	320	0.982	1.034 +/- 0.008	0.000 +/- 0.290	0.67	1.22
< 30 µg m ⁻³	21.7	215	0.826	1.119 +/- 0.032	-1.288 +/- 0.557	0.53	1.09
> 30 µg m ⁻³	16.3	105	0.971	1.042 +/- 0.017	-0.701 +/- 1.031	0.91	1.49
4294	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Cologne, Parking Lot	29	0.960	0.948 +/- 0.036	1.359 +/- 0.950	11.22	34.5
	Titz - Rödingen	37	0.962	1.058 +/- 0.035	-0.466 +/- 0.782	11.91	18.9
	Cologne, Frankfurter Str.	28	0.963	1.025 +/- 0.039	-2.136 +/- 1.083	8.92	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.814	1.040 +/- 0.055	-0.680 +/- 0.981	10.58	4.4
	> 30 µg m ⁻³	26	0.897	0.964 +/- 0.063	0.967 +/- 2.438	10.38	100.0
	All Data	94	0.953	0.987 +/- 0.022	0.206 +/- 0.563	9.30	35.3
4295	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Cologne, Parking Lot	29	0.970	0.990 +/- 0.033	1.839 +/- 0.862	10.54	34.5
	Titz - Rödingen	37	0.961	1.056 +/- 0.035	0.417 +/- 0.785	14.52	18.9
	Cologne, Frankfurter Str.	28	0.969	1.021 +/- 0.035	-0.996 +/- 0.994	7.32	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.830	1.056 +/- 0.053	0.092 +/- 0.952	14.49	4.4
	> 30 µg m ⁻³	26	0.929	1.025 +/- 0.056	-0.129 +/- 2.151	9.57	100.0
	All Data	94	0.960	1.004 +/- 0.021	0.892 +/- 0.528	9.53	30.9
Austria1	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Graz	45	0.969	1.025 +/- 0.027	-1.045 +/- 1.848	20.50	82.2
	Steyregg	45	0.824	1.049 +/- 0.067	-2.593 +/- 1.392	8.95	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.644	1.339 +/- 0.109	-7.631 +/- 2.135	39.58	2.0
	> 30 µg m ⁻³	40	0.960	1.057 +/- 0.034	-3.668 +/- 2.431	19.88	100.0
	All Data	90	0.983	1.039 +/- 0.015	-2.137 +/- 0.729	15.78	45.6
Austria2	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Graz	45	0.966	1.033 +/- 0.029	1.106 +/- 1.962	24.39	82.2
	Steyregg	45	0.793	1.035 +/- 0.072	-2.511 +/- 1.489	10.09	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.557	1.492 +/- 0.130	-10.304 +/- 2.545	59.63	2.0
	> 30 µg m ⁻³	40	0.956	1.084 +/- 0.037	-3.138 +/- 2.635	21.77	100.0
	All Data	90	0.980	1.079 +/- 0.016	-2.544 +/- 0.818	18.61	45.6
J7860	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	59	0.906	1.172 +/- 0.047	0.361 +/- 0.839	37.23	6.8
	> 30 µg m ⁻³	38	0.974	1.002 +/- 0.027	2.311 +/- 1.548	15.38	100.0
	All Data (Tusimice)	97	0.984	0.999 +/- 0.013	2.896 +/- 0.492	15.92	43.3
J7863	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	58	0.913	1.158 +/- 0.045	-0.684 +/- 0.812	30.54	6.9
	> 30 µg m ⁻³	38	0.978	1.032 +/- 0.025	1.105 +/- 1.450	15.50	100.0
	All Data (Tusimice)	96	0.987	1.035 +/- 0.012	1.193 +/- 0.461	15.54	43.8
17011	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	39	0.960	1.039 +/- 0.034	-0.210 +/- 0.458	8.21	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.949	1.162 +/- 0.042	-1.608 +/- 0.602	26.73	2.5
17022	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	39	0.958	1.051 +/- 0.035	-0.240 +/- 0.477	10.40	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.963	1.110 +/- 0.034	-0.893 +/- 0.488	19.05	2.5

* The equivalence testing has been performed in the basis test with the identical measuring devices BAM-1020 of the company Met One Instruments, Inc.

PM ₁₀ APDA-371* Slope Corrected	35.3% > 28 µg m ⁻³	Orthogonal Regression				Betw een Instrument Uncertainties	
	W _{CM} / %	n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	Reference	Candidate
All Paired Data	12.5	320	0.982	1.000 +/- 0.008	0.824 +/- 0.280	0.67	1.18
< 30 µg m ⁻³	17.9	215	0.826	1.079 +/- 0.031	-0.372 +/- 0.538	0.53	1.06
> 30 µg m ⁻³	14.9	105	0.971	1.007 +/- 0.017	0.164 +/- 0.997	0.91	1.44

4294	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Cologne, Parking Lot	29	0.960	0.917 +/- 0.035	2.144 +/- 0.919	12.72	34.5
	Titz - Rödigen	37	0.962	1.023 +/- 0.034	0.378 +/- 0.756	9.03	18.9
	Cologne, Frankfurter Str.	28	0.963	0.990 +/- 0.037	-1.235 +/- 1.048	10.44	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.814	1.003 +/- 0.053	0.219 +/- 0.949	8.97	4.4
	> 30 µg m ⁻³	26	0.897	0.931 +/- 0.061	1.815 +/- 2.358	11.57	100.0
	All Data	94	0.953	0.954 +/- 0.022	1.032 +/- 0.545	10.23	35.3

4295	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Cologne, Parking Lot	29	0.970	0.957 +/- 0.032	2.605 +/- 0.834	9.04	34.5
	Titz - Rödigen	37	0.961	1.021 +/- 0.034	1.233 +/- 0.760	11.24	18.9
	Cologne, Frankfurter Str.	28	0.969	0.988 +/- 0.034	-0.135 +/- 0.962	7.70	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.830	1.018 +/- 0.052	0.961 +/- 0.921	11.33	4.4
	> 30 µg m ⁻³	26	0.929	0.990 +/- 0.054	0.737 +/- 2.080	8.24	100.0
	All Data	94	0.960	0.971 +/- 0.020	1.693 +/- 0.510	8.28	30.9

Austria1	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Graz	45	0.969	0.991 +/- 0.027	-0.164 +/- 1.787	19.96	82.2
	Steyregg	45	0.824	1.012 +/- 0.065	-1.624 +/- 1.347	9.63	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.644	1.285 +/- 0.105	-6.378 +/- 2.065	34.09	2.0
	> 30 µg m ⁻³	40	0.960	1.022 +/- 0.033	-2.687 +/- 2.351	20.01	100.0
	All Data	90	0.983	1.005 +/- 0.014	-1.240 +/- 0.705	15.78	45.6

Austria2	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Individual Datasets	Graz	45	0.966	0.998 +/- 0.028	1.920 +/- 1.898	22.33	82.2
	Steyregg	45	0.793	0.997 +/- 0.069	-1.531 +/- 1.441	11.48	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.557	1.429 +/- 0.126	-8.879 +/- 2.462	52.84	2.0
	> 30 µg m ⁻³	40	0.956	1.048 +/- 0.036	-2.167 +/- 2.549	20.66	100.0
	All Data	90	0.980	1.043 +/- 0.016	-1.631 +/- 0.791	17.32	45.6

J7860	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	59	0.906	1.131 +/- 0.046	1.195 +/- 0.812	32.66	6.8
	> 30 µg m ⁻³	38	0.974	0.969 +/- 0.026	3.074 +/- 1.498	13.09	100.0
	All Data (Tusimice)	97	0.984	0.966 +/- 0.012	3.625 +/- 0.476	13.28	43.3

J7863	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	58	0.913	1.119 +/- 0.044	0.182 +/- 0.786	26.26	6.9
	> 30 µg m ⁻³	38	0.978	0.998 +/- 0.025	1.904 +/- 1.403	12.97	100.0
	All Data (Tusimice)	96	0.987	1.001 +/- 0.012	1.975 +/- 0.446	12.77	43.8

17011	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	39	0.960	1.004 +/- 0.033	0.620 +/- 0.443	5.53	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.949	1.123 +/- 0.041	-0.728 +/- 0.583	22.58	2.5

17022	Dataset	Orthogonal Regression				Limit Value of 50 µg m ⁻³	
		n _{c-s}	r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³
Combined Datasets	< 30 µg m ⁻³	39	0.958	1.016 +/- 0.034	0.592 +/- 0.461	7.27	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.963	1.073 +/- 0.033	-0.040 +/- 0.473	15.26	2.5

* The equivalence testing has been performed in the basis test with the identical measuring devices BAM-1020 of the company Met One Instruments, Inc.

PM ₁₀ APDA-371* Slope and Intercept Corrected	35.3% > 28 µg m ⁻³	Orthogonal Regression			Between Instrument Uncertainties		
		W _{CM} / %	n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	Reference	Candidate
All Paired Data	12.1	320	0.982	1.000 +/- 0.008	0.009 +/- 0.280	0.67	1.18
< 30 µg m ⁻³	15.5	215	0.826	1.079 +/- 0.031	-1.187 +/- 0.538	0.53	1.06
> 30 µg m ⁻³	14.9	105	0.971	1.007 +/- 0.017	-0.651 +/- 0.997	0.91	1.44
4294	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Individual Datasets	Cologne, Parking Lot	29	0.960	0.917 +/- 0.035	1.329 +/- 0.919	15.05	34.5
	Titz - Rödigen	37	0.962	1.023 +/- 0.034	-0.437 +/- 0.756	7.33	18.9
	Cologne, Frankfurter Str.	28	0.963	0.990 +/- 0.037	-2.050 +/- 1.048	12.87	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.814	1.003 +/- 0.053	-0.596 +/- 0.949	9.11	4.4
	> 30 µg m ⁻³	26	0.897	0.931 +/- 0.061	1.000 +/- 2.358	13.74	100.0
	All Data	94	0.953	0.954 +/- 0.022	0.217 +/- 0.545	12.26	35.3
4295	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Individual Datasets	Cologne, Parking Lot	29	0.970	0.957 +/- 0.032	1.790 +/- 0.834	9.04	34.5
	Titz - Rödigen	37	0.961	1.021 +/- 0.034	0.418 +/- 0.760	8.91	18.9
	Cologne, Frankfurter Str.	28	0.969	0.988 +/- 0.034	-0.950 +/- 0.962	9.54	42.9
Combined Datasets	< 30 µg m ⁻³	68	0.830	1.018 +/- 0.052	0.146 +/- 0.921	9.59	4.4
	> 30 µg m ⁻³	26	0.929	0.990 +/- 0.054	-0.078 +/- 2.080	8.55	100.0
	All Data	94	0.960	0.971 +/- 0.020	0.878 +/- 0.510	8.65	30.9
Austria1	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Individual Datasets	Graz	45	0.969	0.991 +/- 0.027	-0.979 +/- 1.787	20.64	82.2
	Steyregg	45	0.824	1.012 +/- 0.065	-2.439 +/- 1.347	11.48	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.644	1.285 +/- 0.105	-7.193 +/- 2.065	31.13	2.0
	> 30 µg m ⁻³	40	0.960	1.022 +/- 0.033	-3.502 +/- 2.351	21.30	100.0
	All Data	90	0.983	1.005 +/- 0.014	-2.055 +/- 0.705	16.94	45.6
Austria2	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Individual Datasets	Graz	45	0.966	0.998 +/- 0.028	1.105 +/- 1.898	21.51	82.2
	Steyregg	45	0.793	0.997 +/- 0.069	-2.346 +/- 1.441	13.69	8.9
Combined Datasets	< 30 µg m ⁻³	50	0.557	1.429 +/- 0.126	-9.694 +/- 2.462	49.76	2.0
	> 30 µg m ⁻³	40	0.956	1.048 +/- 0.036	-2.982 +/- 2.549	20.80	100.0
	All Data	90	0.980	1.043 +/- 0.016	-2.446 +/- 0.791	17.28	45.6
J7860	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Combined Datasets	< 30 µg m ⁻³	59	0.906	1.131 +/- 0.046	0.380 +/- 0.812	29.59	6.8
	> 30 µg m ⁻³	38	0.974	0.969 +/- 0.026	2.259 +/- 1.498	11.97	100.0
	All Data (Tusimice)	97	0.984	0.966 +/- 0.012	2.810 +/- 0.476	11.73	43.3
J7863	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Combined Datasets	< 30 µg m ⁻³	58	0.913	1.119 +/- 0.044	-0.633 +/- 0.786	23.28	6.9
	> 30 µg m ⁻³	38	0.978	0.998 +/- 0.025	1.089 +/- 1.403	11.54	100.0
	All Data (Tusimice)	96	0.987	1.001 +/- 0.012	1.160 +/- 0.446	11.08	43.8
17011	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Combined Datasets	< 30 µg m ⁻³	39	0.960	1.004 +/- 0.033	-0.195 +/- 0.443	4.58	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.949	1.123 +/- 0.041	-1.543 +/- 0.583	19.51	2.5
17022	Dataset	Orthogonal Regression			Limit Value of 50 µg m ⁻³		
		n _{c-s} r ²	Slope (b) +/- u _b	Intercept (a) +/- u _a	W _{CM} / %	% > 28 µg m ⁻³	
Combined Datasets	< 30 µg m ⁻³	39	0.958	1.016 +/- 0.034	-0.223 +/- 0.461	5.30	0.0
	> 30 µg m ⁻³	1		+/-	+/-		100.0
	All Data (Teddington)	40	0.963	1.073 +/- 0.033	-0.855 +/- 0.473	12.29	2.5

* The equivalence testing has been performed in the basis test with the identical measuring devices BAM-1020 of the company Met One Instruments, Inc.