Intercomparison of Condensation Particle Counter

Project No.: CPC-2016-4-27

Basic information:

Principal Investigator:	Alfred Wiedensohler
Home Institution:	Leibniz-Institut für Troposphärenfoschung Permoserstraße 15 04318 Leipzig
Participant:	
Instrument No.1:	DE-TROPOS Wolken CPC Model 3772, SN: 3772114401
Location of the quality assurance:	TROPOS Leipzig, lab 130
Comparison period:	July 14, 2016
Last Intercomparison (with Project No.):	
TROPOS Reference Instrument:	Electrometer: TSI model 3068B #70838596, Last calibration in April 2016
Additional Equipment:	Bubble flow meter 'Gilibrator', Gilian (Sensidyne)

Summary of Intercomparison:

Final status:
The TSI CPC Model 3772 passed the quality standards of ACTRIS and GAW.

pre-status: 06.07.2016

Pre CPC-Workshop: The TSI CPC Model 3772 reached 98% efficiency at 40 nm. The Dp50 is at 8.5nm. The CPC efficiency curve corresponds to the standard.

Dp in nm	counting efficiency
40.00	0.98
30.00	0.96
20.00	0.93
15.00	0.86
13.00	0.80
11.00	0.70
10.00	0.63
9.00	0.57
8.00	0.43
7.00	0.25
6.00	0.05

CPC Variable	Status
Saturator Temp	39.0
Condenser Temp	22.0
Optics Temp	40.0
Cabinet Temp	35.1
Ambient Press.	100.2
Orifice Press.	94.8
Nozzle Press.	3.6
Laser	41
Liquid level	full
Aerosol flow (l/min)	0.085

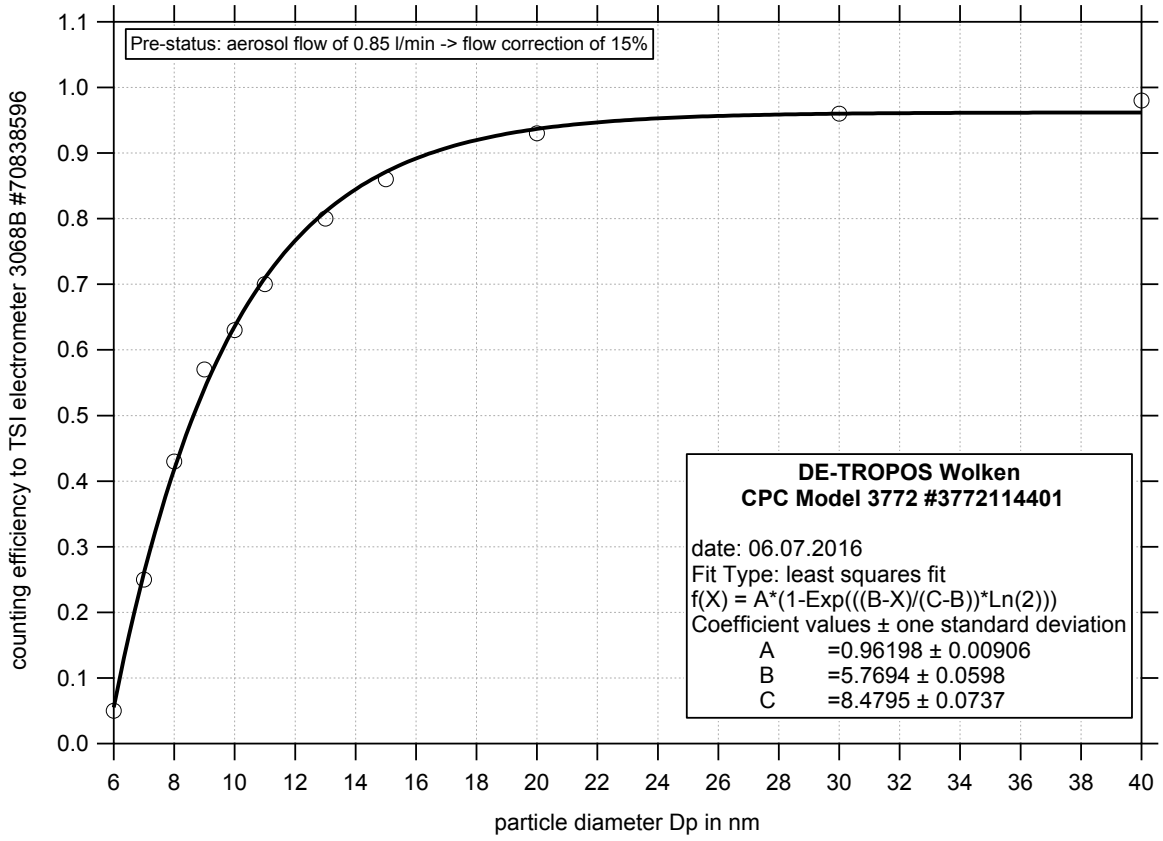

Figure 01: CPC efficiency curve. Based on Electrometer TSI 3068B. Serial number: 70838596

final-status: 14.07.2016

1. Status of the wick: It was necessary to change the wick.
2. Status of the optics: Laser current was fine. It was necessary to clean the optics.
3. General status of the CPC: The CPC was working properly.
4. Final CPC-Workshop: The TSI CPC Model 3772 reached 100% efficiency at 40 nm. The Dp50 is at 7.8 nm. The CPC efficiency curve corresponds to the standard.

Dp in nm	counting efficiency
40.00	1.04
20.00	0.99
15.00	0.93
11.00	0.75
10.00	0.67
8.00	0.41
6.00	0.05

CPC Variable	Status
Saturator Temp	39.0
Condenser Temp	22.0
Optics Temp	40.0
Cabinet Temp	35.1
Ambient Press.	100.2
Orifice Press.	84.8
Nozzle Press.	2.6
Laser	41
Liquid level	full
Aerosol flow (l/min)	1.047

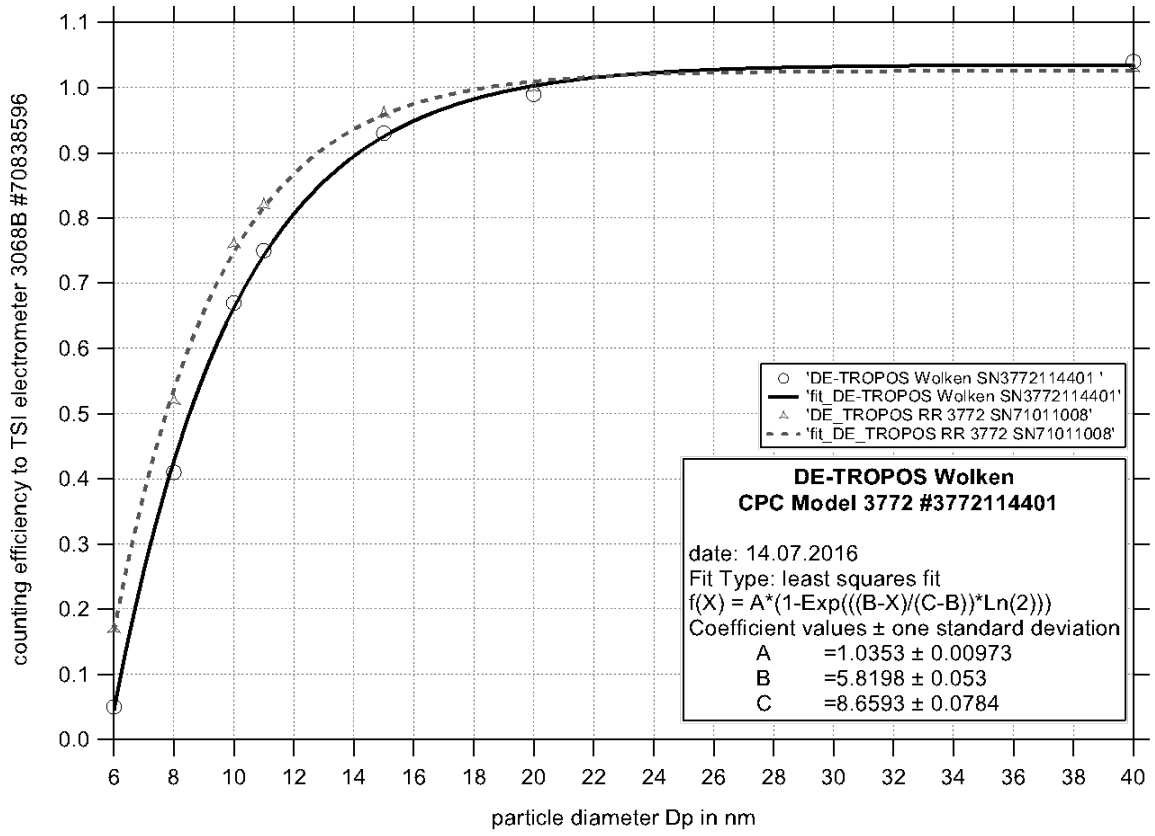

Figure 01: CPC efficiency curve. Based on Electrometer TSI 3068B. Serial number: 70838596

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

Kalibrierschein
Calibration Certificate

Gegenstand: *Object:*	Aerosol Elektrometer ID-Nummer: TSI_3068B_70838596
Hersteller: *Manufacturer:*	TSI Incorporated
Typ: *Type:*	3068B
Kennnummer: *Serial No.:*	70838596
Auftraggeber: *Applicant:*	AG 3.23 - Herr Nowak, Tel.: 3228
Anzahl der Seiten: *Number of pages:*	4
Geschäftszeichen: *Reference No.:*	PTB AG 2.11-1461323527-0327
Kalibrierzeichen: *Calibration mark:*	20790 PTB 16
Datum der Kalibrierung: *Date of calibration:*	22.04.2016

Im Auftrag:
On behalf of PTB:

Dr. B. Schumacher

Braunschweig, 04. Mai. 2016

Siegel
Seal

Im Auftrag:
On behalf of PTB:

C. Rohrig

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