



**World Calibration Centre
for Aerosol Physics**

Leibniz-Institut für Troposphärenforschung Permoserstraße 15 04318 Leipzig



**Leibniz Institute for
Tropospheric Research**

CPC Model: TSI CPC 3750

CPC Serial Number: 3750192201

Customer: TSI Instruments Ltd.

Description: **Calibration of a Condensation Particle Counter (CPC, Model 3750)**

Date of Calibration: September 02, 2019

Certificate / Reference: WCCAP

Date of issue: September 02, 2019

Signature:

Reviewed by: **TROPOS**

Name:

Kay Weinhold

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Date of arrival of instrument in calibration lab: *August 26, 2019*
Instrument: *Condensation Particle Counter*
Model and serial number of instrument: *CPC 3750 S/N 3750192201*

Result of physical inspection: *no damages*
Result of functional test: *functional test successful, no problems*

Internal parameters of instrument *nominal flow rate 1.0 l/min*

Model and identification number of aerosol electrometer: *TSI Electrometer Model 3068, S/N 70838596*

Electrometer calibration certificate: *September 05, 2018, calibrated at PTB Braunschweig*

Corrections of electrometer, for instance, differing flow rate: *Within tolerance range (+/-2%); reference: 4.0 l/min, measured: 4.000 l/min*

Software for recording: *LabView 2010; National Instruments; Program „LabCount.vi“*

Date of calibration: *September 02, 2019*
Lab temperature and pressure: *23°C, 999.5 mbar*
Measured aerosol flow rate of CPC: *1.004 l/min*
Uncertainty in measured flow rate: *3%*
Flowmeter used: *Gilian Gilibrator V; S/N 1711008-S, January, 2018*

Particles and gases used for calibration: *silver particles and nitrogen*
Method of particle generation: *tube furnace generator*
Zero measurement of instrument: *0 particles/cm³ in 5 minutes*

Results (using pulse output):

Particle size (nm)	40	30	20	15	10
Number concentration (cm-3)	1186	1170	1686	1650	1254
Counting efficiency η	0.98	0.98	0.99	0.97	0.86
Particle size (nm)	09	08	07	06	05
Number concentration (cm-3)	1494	1198	1029	694	49
Counting efficiency η	0.79	0.69	0.54	0.33	0.05
Particle size (nm)	40				
Number concentration (cm-3)	1128				
Counting efficiency η	0.99				



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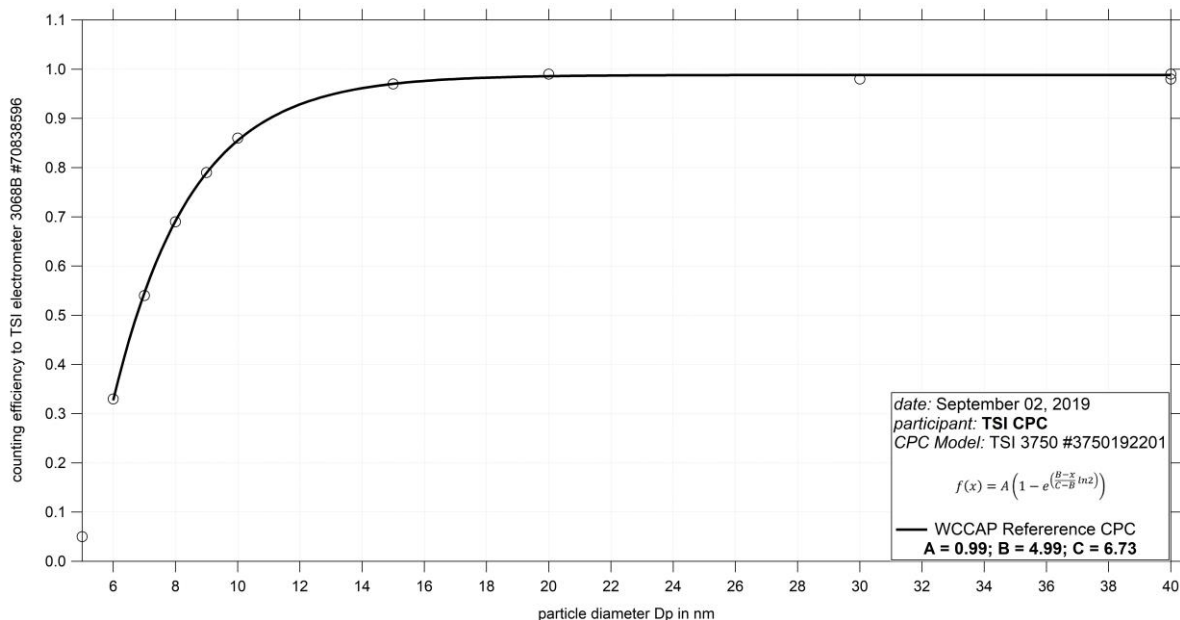


Fig. 1: Counting efficiency for CPC 3750 S/N 3750192201 against aerosol electrometer 3068 S/N 70838596; silver particles between 5 and 40 nm were used for calibration; the calculated D_{p50} is 6.73 nm.

Status information:

Status	<i>T SAT</i>	<i>T CON</i>	<i>T OPT</i>	<i>T CAB</i>	<i>P AMB</i>
from display	39.0	18.0	40.0	24.3	100.8
Status	<i>P OR</i>	<i>P NO</i>	<i>Laser</i>	<i>LV</i>	<i>flow</i>
from display	74.86	2.4	42	full	0.987

Date of issue: September 02, 2019

Reference: TSI electrometer, model 3068, SN 70838596

Reviewed: TROPOS / Kay Weinhold