World Calibration Centre
for Aerosol Physics

Leibniz-Institut für Troposphärenforschung Permoserstraße 15 04318 Leipzig

TROPOS
Leibniz Institute for
Tropospheric Research

CPC Model: TSI CPC 3750

CPC Serial Number: 3750184002

Customer: TSI Instruments Ltd.

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

Date of Calibration: November 09, 2018

Certificate / Reference: WCCAP

Date of issue: November 12, 2018 Signature:

Reviewed by: **TROPOS** Name: **Kay Weinhold**

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Date of arrival of instrument in calibration lab:	*November 07, 2018*
Instrument:	*Condensation Particle Counter*
Model and serial number of instrument:	*CPC 3750 S/N 3750184002*
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:	*November 09, 2018*
Lab temperature and pressure:	*23°C, 998.3 mbar*
Measured aerosol flow rate of CPC:	*1.007 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***	***12***
Number concentration (cm-3)	1130	1131	1597	1315	1360
Counting efficiency η	*1.02*	*1.01*	*1.00*	*0.98*	*0.94*
Particle size (nm)	***10***	***09***	***08***	***07***	***06***
Number concentration (cm-3)	1027	1071	1135	1294	885
Counting efficiency η	*0.87*	*0.81*	*0.72*	*0.60*	*0.43*
Particle size (nm)	***05***	***40***			
Number concentration (cm-3)	204	1172			
Counting efficiency η	*0.17*	*1.01*			

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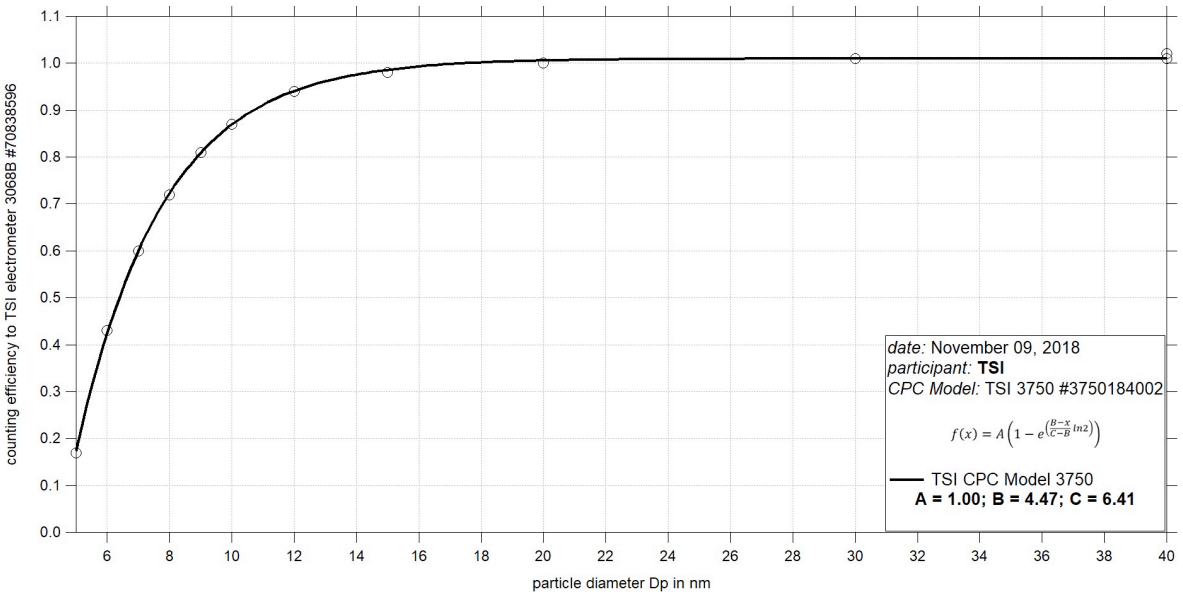

Fig. 1: Counting efficiency for CPC 3750 SN 3750184002 against aerosol electrometer 3068 SN 70838596; silver particles between 5 and 40 nm were used for calibration; the calculated Dp50 is 6.41 nm.

Status information:

Status	***T SAT***	***T CON***	***T OPT***	***T CAB***	***P AMB***
from display	39.0	18.0	40.0	23.2	100.2
Status	***P OR***	***P NO***	***Laser***	***LV***	***flow***
from display	81.0	2.58	40	full	1.007

Date of issue: *November 12, 2018*

Reference: TSI electrometer, model 3068, SN *70838596*

Reviewed: TROPOS / Kay Weinhold

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