



**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: 3750200804

Customer: HLNUG

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

Date of Calibration: May 26, 2020

Summary of Intercomparison:

The candidate passed the quality standards of ACTRIS and GAW. The candidate reached 100% efficiency at 40 nm. The Dp50 is at 5.73 nm. The CPC efficiency curve corresponds to the standard of ACTRIS and GAW.

Certificate / Reference: WCCAP

Date of issue: May 27, 2020 Signature:

Reviewed by: **TROPOS**

Name: **Kay Weinhold**

Page 1 / 3



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Date of arrival of instrument in calibration lab:

May 25, 2020

Instrument:

Condensation Particle Counter

Model and serial number of instrument:

CPC 3750 S/N 3750200804

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 5, 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:

May 26, 2020

Lab temperature and pressure:

23.0°C, 995.0 mbar

Measured aerosol flow rate of CPC:

0.990 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)	1425	1379	1211	1025	1782
Counting efficiency η	1.00	1.00	1.01	1.02	0.96
Particle size (nm)	09	08	07	06	05
Number concentration (cm-3)	1345	1244	1292	842	326
Counting efficiency η	0.92	0.85	0.74	0.56	0.28
Particle size (nm)	40				
Number concentration (cm-3)	1352				
Counting efficiency η	1.00				



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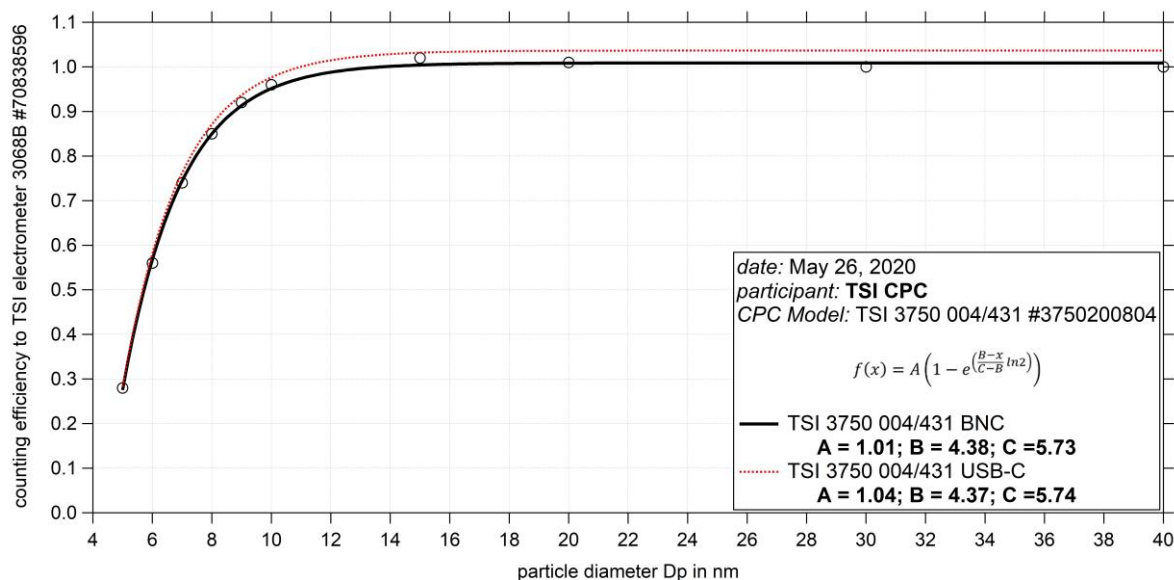


Fig. 1: Counting efficiency for CPC 3750 004/431 S/N 3750200804 against aerosol electrometer 3068 S/N 70838596; silver particles between 5 and 40 nm were used for calibration; the calculated Dp50 is 5.73 nm.

Status information:

Status	T SAT	T CON	T OPT	T CAB	P AMB	P VAC
from display	39	18	39.9	23.7	102.5	82.4
Status	P OR	P NO	Laser	LV	flow	P INLET
from display	80.0	2.47	41	full	0.990	0.1

Date of issue: May 27, 2020

Reference: TSI electrometer, model 3068, SN 70838596

Reviewed: TROPOS / Kay Weinhold

Page3 / 3