



**World Calibration Centre
for Aerosol Physics**

Leibniz-Institut für Troposphärenforschung Permoserstraße 15 04318 Leipzig



**Leibniz Institute for
Tropospheric Research**

CPC Model: TSI CPC 3772

CPC Serial Number: 3772164005

Customer: Umweltbundesamt - Schauinsland

Description: Calibration of a Condensation Particle Counter (CPC, Model 3772)

Date of Calibration: June 15, 2020

Summary of Intercomparison:

The candidate passed the quality standards of ACTRIS and GAW. The candidate reached 98% efficiency at 40 nm. The Dp50 is at 9.67 nm. The CPC efficiency curve corresponds to the standard of ACTRIS and GAW.

Certificate / Reference: WCCAP

Date of issue: June 15, 2020 Signature:

Reviewed by: **TROPOS**

Name: **Kay Weinhold**

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Date of arrival of instrument in calibration lab:

February 11, 2020

Instrument:

Condensation Particle Counter

Model and serial number of instrument:

CPC 3772 S/N 3772164005

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:

June 15, 2020

Lab temperature and pressure:

23.0°C, 993.0 mbar

Measured aerosol flow rate of CPC:

0.991 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): After calibrating

Particle size (nm)	40	30	20	15	10
Number concentration (cm-3)	1151	1538	1367	1042	1133
Counting efficiency η	0.99	0.98	0.95	0.84	0.53
Particle size (nm)	09	08	07	40	
Number concentration (cm-3)	751	374	59	1223	
Counting efficiency η	0.41	0.25	0.03	0.98	



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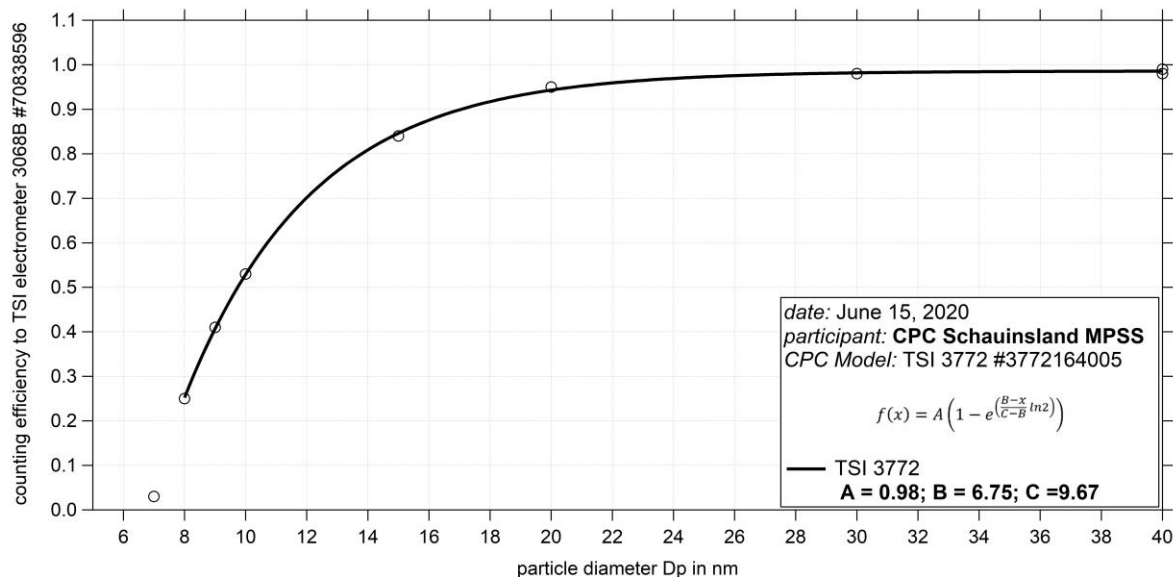


Fig. 1: Counting efficiency for CPC 3772 S/N 3772164005 against aerosol electrometer 3068 S/N 70838596; silver particles between 7 and 40 nm were used for calibration; the Dp50 is 9.67nm

Status information:

Status	T SAT	T CON	T OPT	T CAB	P AMB	P VAC
from display	39.0	24	40	32.1	99.4	-
Status	P OR	P NO	Laser	LV	flow	P INLET
from display	85.1	0.5	49	full	0.991	-

Date of issue: June 15, 2020

Reference: TSI electrometer, model 3068, SN 70838596

Reviewed: TROPOS / Kay Weinhold