



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:** 3772154301

**Customer:** -

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

**Date of Calibration:** March 04, 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 8.83 nm. The CPC efficiency curve corresponds to the standard of ACTRIS and GAW.

Certificate / Reference: WCCAP

Date of issue: March 09, 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 3772154301*

**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:**

*March 04, 2020*

**Lab temperature and pressure:**

*23.0°C, 995.0 mbar*

**Measured aerosol flow rate of CPC:**

*1.030 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/cm<sup>3</sup> in 5 minutes*

**Results (using pulse output):**

Particle size (nm)	40	30	20	15	10
Number concentration (cm-3)	1365	1305	1496	1236	1057
Counting efficiency $\eta$	1.00	1.01	0.99	0.93	0.66
Particle size (nm)	09	08	07	06	05
Number concentration (cm-3)	958	504	116	1	0
Counting efficiency $\eta$	0.53	0.35	0.08	0.00	0.00



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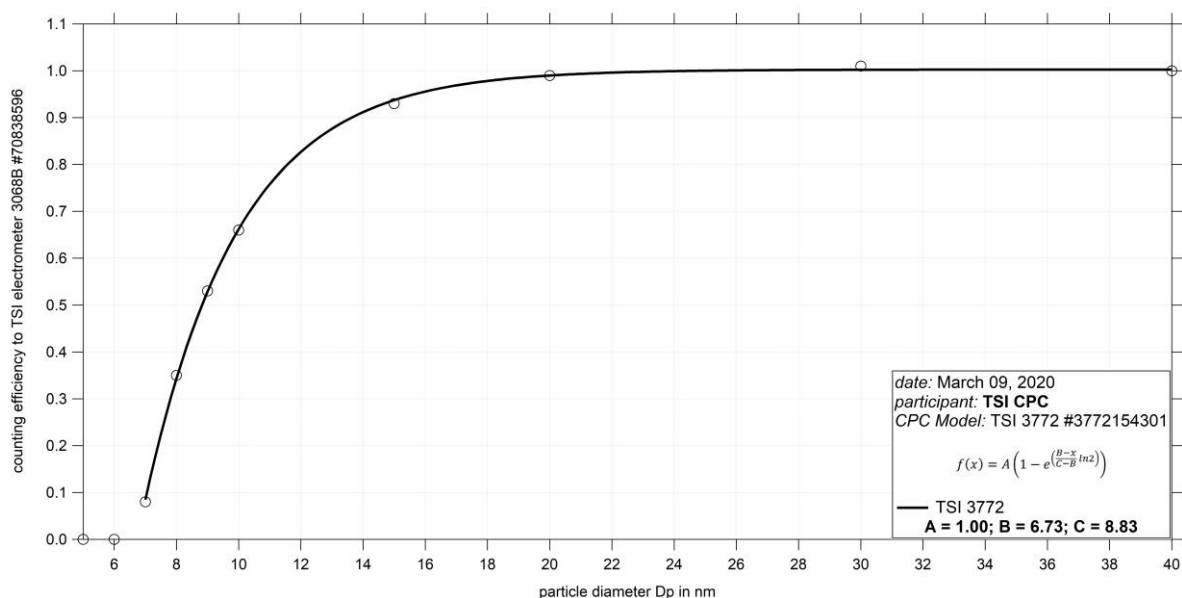


Fig. 1: Counting efficiency for CPC 3772 S/N 3772154301 against aerosol electrometer 3068 S/N 70838596; silver particles between 5 and 40 nm were used for calibration; the calculated  $D_{p50}$  is 8.83 nm.

#### Status information:

Status	T SAT	T CON	T OPT	T CAB	P AMB	P VAC
from display	39.0	23.6	40.0	35.6	99.1	-
Status	P OR	P NO	Laser	LV	flow	P INLET
from display	76.7	2.3	52	full	1.030	-

Date of issue: March 09, 2020

Reference: TSI electrometer, model 3068, SN 70838596

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