



**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:** 3772141701

**Customer:** TROPOS

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

**Date of Calibration:** 08 05, 2020

**Summary of Intercomparison:**

The candidate passed the quality standards of ACTRIS and GAW. The candidate reached 99% efficiency at 40 nm. The Dp50 is at 8.05 nm. The CPC efficiency curve corresponds to the standard of ACTRIS and GAW.

Certificate / Reference: WCCAP

Date of issue: May 17, 2020 Signature:

Reviewed by: **TROPOS**

Name: **Kay Weinhold**

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**Date of arrival of instrument in calibration lab:**

**Instrument:**

**Model and serial number of instrument:**

-

*Condensation Particle Counter*

*CPC 3772 S/N 3772141701*

**Result of physical inspection:**

**Result of functional test:**

*no damages*

*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:**

**Lab temperature and pressure:**

**Measured aerosol flow rate of CPC:**

**Uncertainty in measured flow rate:**

**Flowmeter used:**

*May 08, 2020*

*23.0°C, 999 mbar*

*0.997 l/min*

*3%*

*Gilian Gilibrator V; S/N 1711008-S,  
January, 2018*

**Particles and gases used for calibration:**

**Method of particle generation:**

**Zero measurement of instrument:**

*silver particles and nitrogen*

*tube furnace generator*

*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)	994	1370	1154	1352	1292
Counting efficiency $\eta$	0.99	0.99	0.99	0.94	0.73
Particle size (nm)	09	08	07	06	05
Number concentration (cm-3)	1111	574	328	51	0
Counting efficiency $\eta$	0.63	0.49	0.29	0.04	0.00



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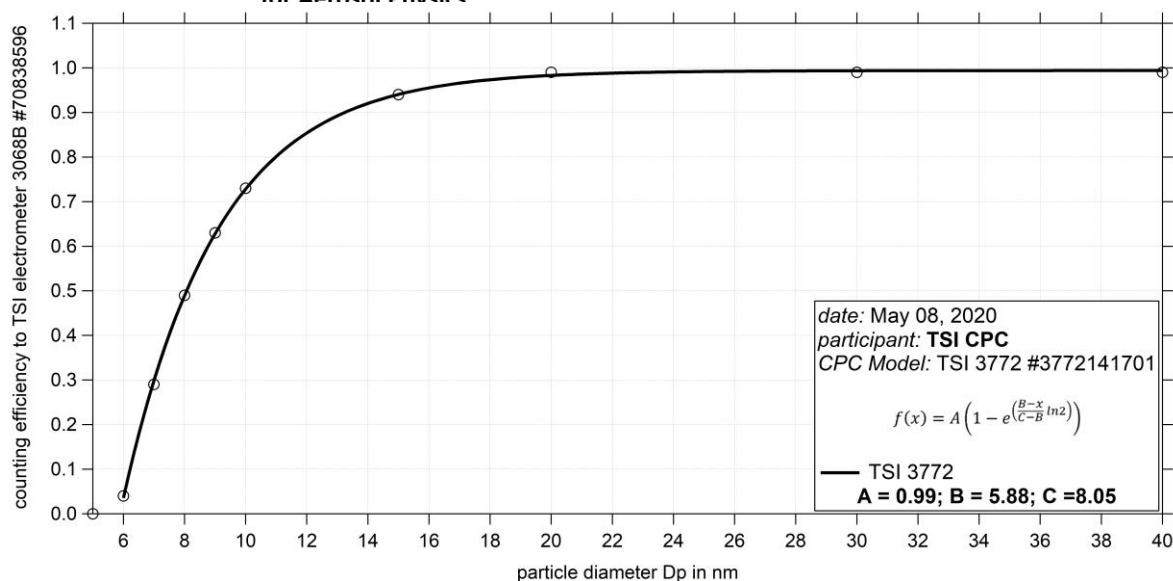


Fig. 1: Counting efficiency for CPC 3772S/N 3772141701 against aerosol electrometer 3068 S/N 70838596; silver particles between 5 and 40 nm were used for calibration; the calculated  $D_{p50}$  is 8.05 nm.

#### Status information:

Status	<i>T SAT</i>	<i>T CON</i>	<i>T OPT</i>	<i>T CAB</i>	<i>P AMB</i>	<i>P VAC</i>
from display	39.0	22	40.1	22.6	99.8	-
Status	<i>P OR</i>	<i>P NO</i>	<i>Laser</i>	<i>LV</i>	<i>flow</i>	<i>P INLET</i>
from display	82.3	2.7	50	full	0.997	-

Date of issue: May 18, 2020

Reference: TSI electrometer, model 3068, SN 70838596

Reviewed: TROPOS / Kay Weinhold

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