



**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: 71011008

Customer: TROPOS

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

Date of Calibration: September 16, 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 10.07 nm. The candidate was calibrated to Dp50 of 10nm. The CPC efficiency curve corresponds to the standard of ACTRIS and GAW.

Certificate / Reference: WCCAP

Date of issue: September 16, 2020 Signature:

Reviewed by: **TROPOS**

Name: **Kay Weinhold**

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Date of arrival of instrument in calibration lab: *September 15, 2020*
Instrument: *Condensation Particle Counter*
Model and serial number of instrument: *CPC 3772 S/N 71011008*

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: *September 16, 2020*
Lab temperature and pressure: *23.0°C, 100.1 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):

Particle size (nm)	40	30	20	15	14
Number concentration (cm-3)	1276	1330	1666	904	1187
Counting efficiency η	0.98	0.98	0.93	0.81	0.78
Particle size (nm)	11	10	09	08	07
Number concentration (cm-3)	542	848	663	233	67
Counting efficiency η	0.59	0.49	0.37	0.19	0.03
Particle size (nm)	06	05	40		
Number concentration (cm-3)	0	0	1338		
Counting efficiency η	0.00	0.00	0.99		



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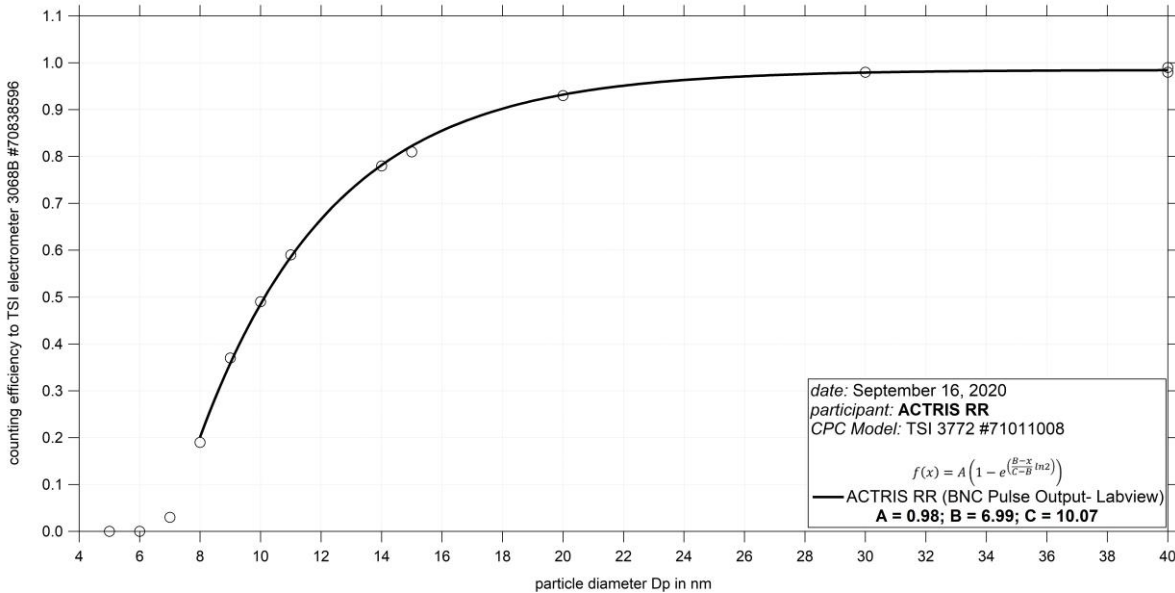


Fig. 1: Counting efficiency for CPC 3772 S/N 71011008 against aerosol electrometer 3068 S/N 70838596; silver particles between 5 and 40 nm were used for calibration.

Status information:

Status	T SAT	T CON	T OPT	T CAB	P AMB	P VAC
from display	39.0	22.5	40	30.5	100.8	-
Status	P OR	P NO	Laser	LV	flow	P INLET
from display	71.7	2.6	49	full	0.991	-

Date of issue: September 16, 2020

Reference: TSI electrometer, model 3068, SN 70838596
 Reviewed: TROPOS / Kay Weinhold