



**World Calibration Centre
for Aerosol Physics**

Leibniz-Institut für Troposphärenforschung Permoserstraße 15 04318 Leipzig



**Leibniz Institute for
Tropospheric Research**

CPC Model: TSI CPC 3010

CPC Serial Number: 2117

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 10.98 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**

Page 1 / 3



World Calibration Centre
for Aerosol Physics



Leibniz Institute for
Tropospheric Research

Date of arrival of instrument in calibration lab: -
Instrument: *Condensation Particle Counter*
Model and serial number of instrument: *CPC 3010 S/N 2117*

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 08, 2020*
Lab temperature and pressure: *23.0°C, 999 mbar*
Measured aerosol flow rate of CPC: *1.012 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)	979	1332	1099	1164	629
Counting efficiency η	0.98	0.97	0.94	0.81	0.35
Particle size (nm)	09	08	07	06	05
Number concentration (cm-3)	363	92	14	2	0
Counting efficiency η	0.21	0.08	0.01	0.00	0.00



World Calibration Centre
for Aerosol Physics



Leibniz Institute for
Tropospheric Research

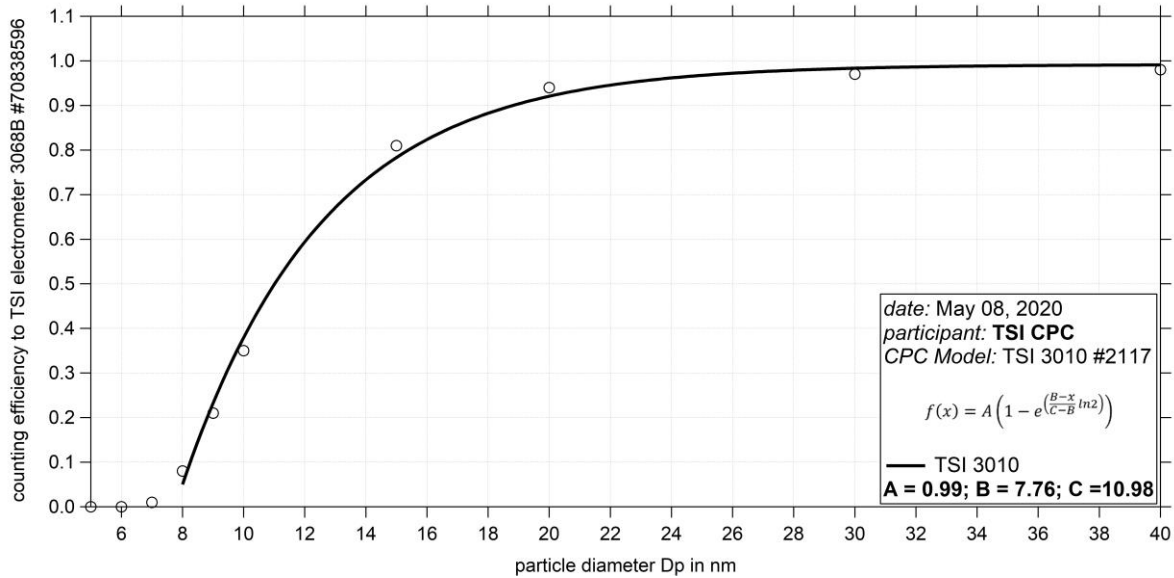


Fig. 1: Counting efficiency for CPC 3010 S/N 2117 against aerosol electrometer 3068 S/N 70838596; silver particles between 5 and 40 nm were used for calibration; the calculated Dp50 is 10.98 nm.

Status information:

Status	T SAT	T CON	T OPT	T CAB	P AMB	P VAC
from display						-
Status	P OR	P NO	Laser	LV	flow	P INLET
from display				full	1.012	-

Date of issue: May 18, 2020

Reference: TSI electrometer, model 3068, SN 70838596

Reviewed: TROPOS / Kay Weinhold