



**World Calibration Centre
for Aerosol Physics**

Leibniz-Institut für Troposphärenforschung Permoserstraße 15 04318 Leipzig



**Leibniz Institute for
Tropospheric Research**

CPC Model: TCPC Ref2 3010 SN 70419354

CPC Serial Number: 70419354

Customer: WCCAP Reference CPC

Description: Calibration of a Condensation Particle Counter (CPC, Model TCPC Ref2 3010 SN 70419354)

Date of Calibration: January 24, 2020

Certificate / Reference: WCCAP

Date of issue: January 24, 2020

Signature:

Reviewed by: **TROPOS**

Name: **Kay Weinhold**

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Date of arrival of instrument in calibration lab:

January 24, 2020

Instrument:

Condensation Particle Counter

Model and serial number of instrument:

TCPC Ref2 3010 SN 70419354

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:

January 24, 2020

Lab temperature and pressure:

23.45°C, 1001 mbar

Measured aerosol flow rate of CPC:

0.97 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	10	08
Number concentration (cm-3)	934	1276	1689	521	421
Counting efficiency η	0.96	0.96	0.95	0.50	0.24
Particle size (nm)	06				
Number concentration (cm-3)	10				
Counting efficiency η	0.01				

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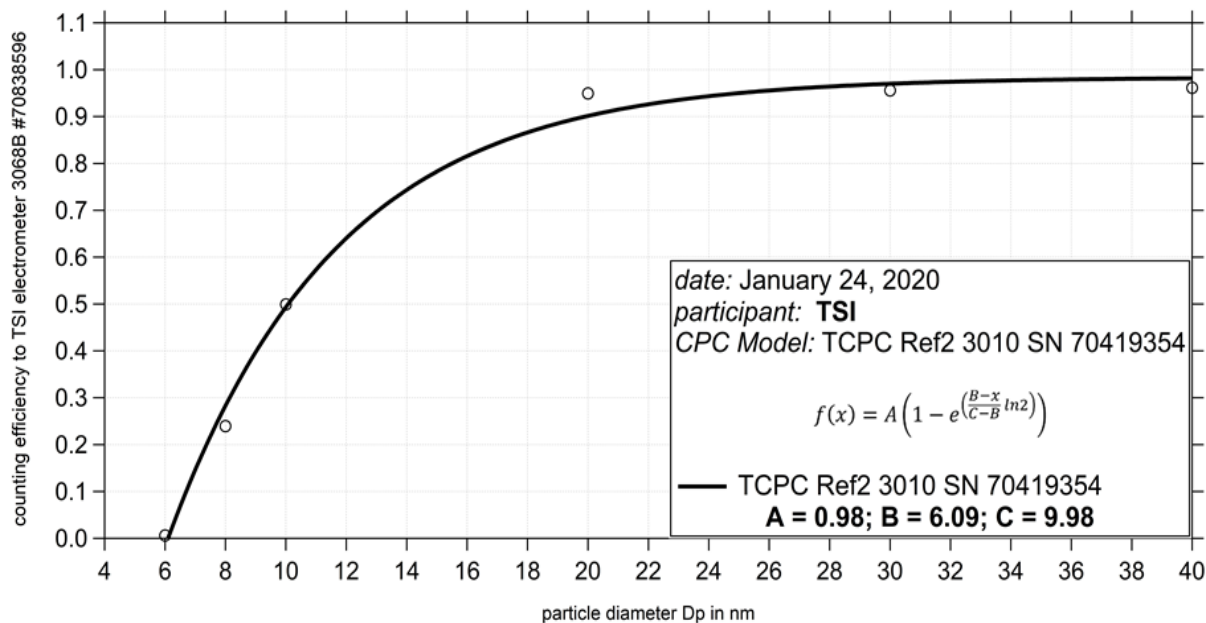


Fig. 1: Counting efficiency for TCPC Ref2 3010 SN 70419354 CPC against aerosol electrometer 3068 S/N 70838596; silver particles between 6 and 40 nm were used for calibration; the calculated D_{p50} is 9.98 nm.

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					0.97	

Date of issue: January 24, 2020

Reference: TSI electrometer, model 3068, SN 70838596

Reviewed: TROPOS / Kay Weinhold