World Calibration Centre
for Aerosol Physics

Leibniz-Institut für Troposphärenforschung Permoserstraße 15 04318 Leipzig

Leibniz Institute for
Tropospheric Research

CPC Model: TSI CPC Ref2 3010 SN 2124

CPC Serial Number: 2124

Customer: WCCAP Reference CPC

Description: **Calibration of a Condensation Particle Counter (CPC, Model TSI CPC Ref2 3010 SN 2124)**

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:	TSI CPC Ref2 3010 SN 2124
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:	*1.010 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)	927	1275	1675	429	240
Counting efficiency η	*0.95*	*0.95*	*0.94*	*0.41*	*0.14*
Particle size (nm)	***06***				
Number concentration (cm-3)	3.2				
Counting efficiency η	*0*				

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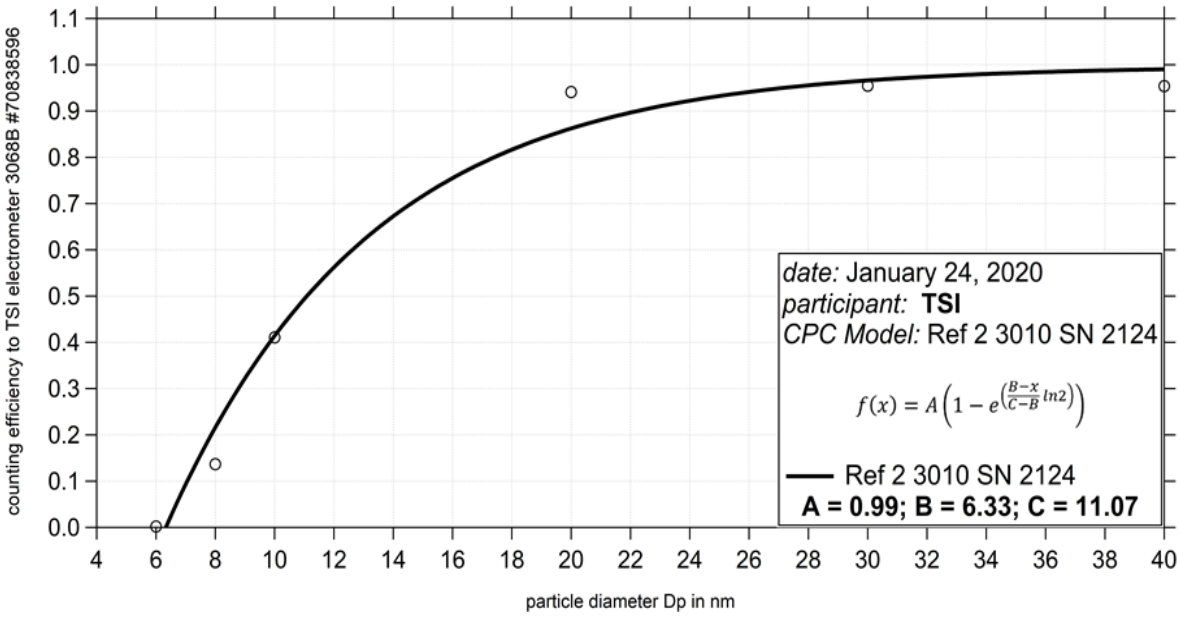

Fig. 1: Counting efficiency for TSI CPC Ref2 3010 SN 2124 CPC *against aerosol electrometer 3068 S/N 70838596; silver particles between 6 and 40 nm were used for calibration; the calculated Dp50 is 11.07 nm.*

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					1.010	

Date of issue: *January 24, 2020*

Reference: TSI electrometer, model 3068, SN *70838596*

Reviewed: TROPOS / Kay Weinhold

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