Intercomparison of Condensation Particle Counter

Project No.:	*CPC-2017-2-6*
Principal Investigator:	Angela Marinoni
Home Institution:	*ISAC-CNR*
Participant:	-
Candidate: *Counter (SN):*	**IT-CNR Lecce** TSI CPC Model 3776; SN: 3776143802
Location of the quality assurance:	TROPOS Leipzig, lab 130
Comparison period:	April 04, 2017
Last Intercomparison (with Project No.):	
TROPOS Reference Instrument:	Electrometer: TSI model 3068B #70838596, Last calibration in April 2016
Additional Equipment:	Bubble flow meter 'Gilibrator', Gilian (Sensidyne)

Summary of Intercomparison

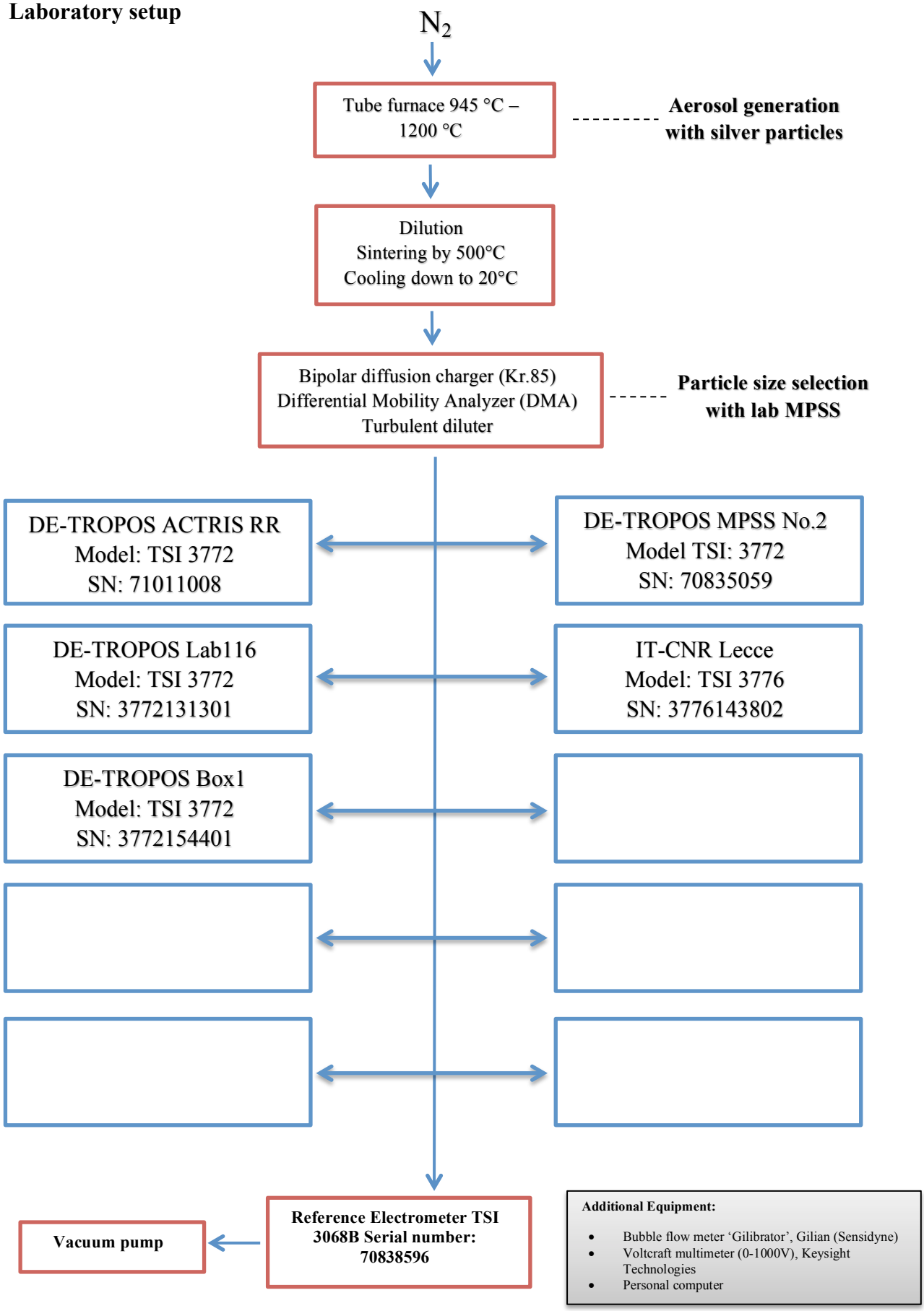
Status:
The candidate passed the quality standards of ACTRIS and GAW. The CPC efficiency curve corresponds to the standard. The candidate reached 100% efficiency at 40 nm. The Dp50 is at 1.4 nm. The CPC 3776 did not pass the ACTRIS workshop in January 2017. Therefor we send it back to TSI for maintenance.

Leibniz-Institut für Troposphärenforschung e.V.
Telefon: +49 341 2717-7060
Telefax: +49 341 2717-99-7060
info@tropos.de
http://www.tropos.de

Commerzbank Leipzig
KTO 102 14 50
BLZ 860 400 00
IBAN: DE77 8604 0000 0102 1450 00
SWIFT CODE: COBADEFF 860

Mitglied der Leibniz-Gemeinschaft

Laboratory setup



Leibniz-Institut für Troposphärenforschung e.V.
Telefon: +49 341 2717-7060
Telefax: +49 341 2717-99-7060
info@tropos.de
http://www.tropos.de
Commerzbank Leipzig
KTO 102 14 50
BLZ 860 400 00
IBAN: DE77 8604 0000 0102 1450 00
SWIFT CODE: COBADEFF 860

Status of the candidate:

CPC status	Pre-Status	
power/status	*LED green*	-
saturator temp	*39*	°C
condenser temp	*10*	°C
optics temp	*40*	°C
cabinet temp	*30.9*	°C
ambient pressure	*100.2*	kPa
orifice pressure	*61.8*	kPa
nozzle pressure	*3.06*	kPa
laser current		mA
liquid level	*Full*	-
Aerosol flow (l/min)	*1.508 (55)*	l/min

Special Information regarding to the Candidate:

Was it necessary to:	yes/no	information
do a second run	no	
clean the optics	no	
clean the nozzle	no	
clean the saturator	no	
change the wick	no	
change the laser	no	
change internal settings	no	

Leibniz-Institut für Troposphärenforschung e.V.
Telefon: +49 341 2717-7060
Telefax: +49 341 2717-99-7060
info@tropos.de
http://www.tropos.de

Commerzbank Leipzig
KTO 102 14 50
BLZ 860 400 00
IBAN: DE77 8604 0000 0102 1450 00
SWIFT CODE: COBADEFF 860

CPC efficiency curve of the candidate: Status

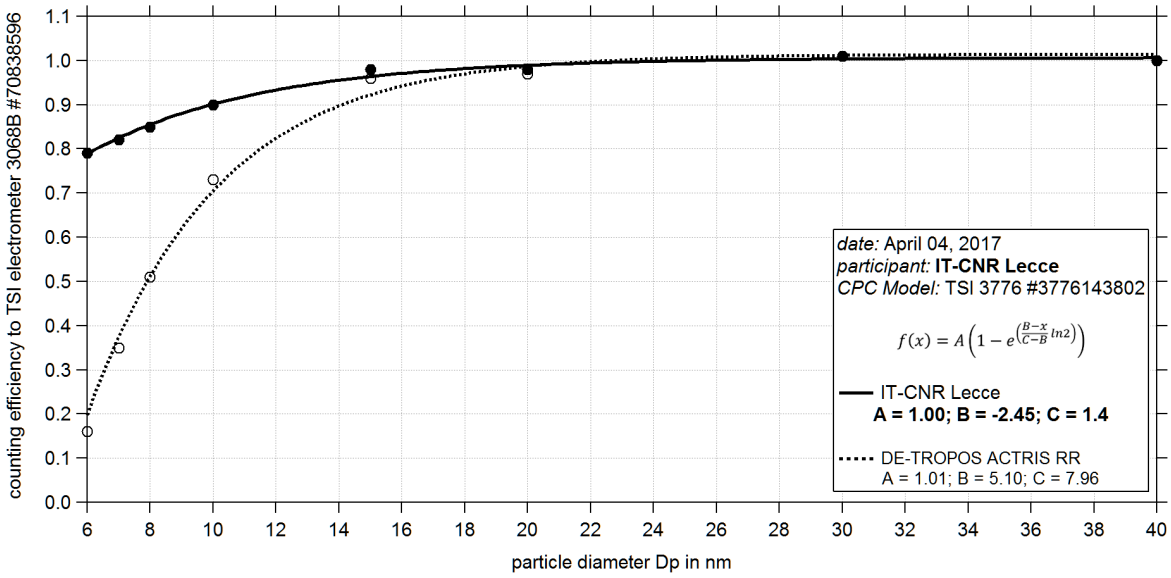


Figure 01: CPC efficiency curve. Based on Electrometer TSI 3068B. Serial number: 70838596

Measured data of the candidate: Status

Dp in nm	counting efficiency
40 nm	*1.00*
30 nm	*1.01*
20 nm	*0.98*
15 nm	*0.98*
10 nm	*0.90*
8 nm	*0.85*
7 nm	*0.82*
6 nm	*0.79*
5 nm	*0.75*

Leibniz-Institut für Troposphärenforschung e.V.
Telefon: +49 341 2717-7060
Telefax: +49 341 2717-99-7060
info@tropos.de
http://www.tropos.de

Commerzbank Leipzig
KTO 102 14 50
BLZ 860 400 00
IBAN: DE77 8604 0000 0102 1450 00
SWIFT CODE: COBADEFF 860

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

Kalibrierschein
Calibration Certificate

Gegenstand: *Object:*	Aerosol Elektrometer ID-Nummer: TSI_3068B_70838596
Hersteller: *Manufacturer:*	TSI Incorporated
Typ: *Type:*	3068B
Kennnummer: *Serial No.:*	70838596
Auftraggeber: *Applicant:*	AG 3.23 - Herr Nowak, Tel.: 3228
Anzahl der Seiten: *Number of pages:*	4
Geschäftszeichen: *Reference No.:*	PTB AG 2.11-1461323527-0327
Kalibrierzeichen: *Calibration mark:*	20790 PTB 16
Datum der Kalibrierung: *Date of calibration:*	22.04.2016

Im Auftrag:
On behalf of PTB:

Dr. B. Schumacher

Braunschweig, 04. Mai. 2016

Siegel
Seal

Im Auftrag:
On behalf of PTB:

C. Rohrig

391 00B n

Kalibrierscheine ohne Unterschrift und Siegel haben keine Gültigkeit. Dieser Kalibrierschein darf nur unverändert weiterverbreitet werden. Auszüge bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.
Calibration certificates without signature and seal are not valid. This calibration certificate may not be reproduced other than in full. Extracts may be taken only with permission of the Physikalisch-Technische Bundesanstalt.

Leibniz-Institut für Troposphärenforschung e.V.
Telefon: +49 341 2717-7060
Telefax: +49 341 2717-99-7060
info@tropos.de
http://www.tropos.de

Commerzbank Leipzig
KTO 102 14 50
BLZ 860 400 00
IBAN: DE77 8604 0000 0102 1450 00
SWIFT CODE: COBADEFF 860