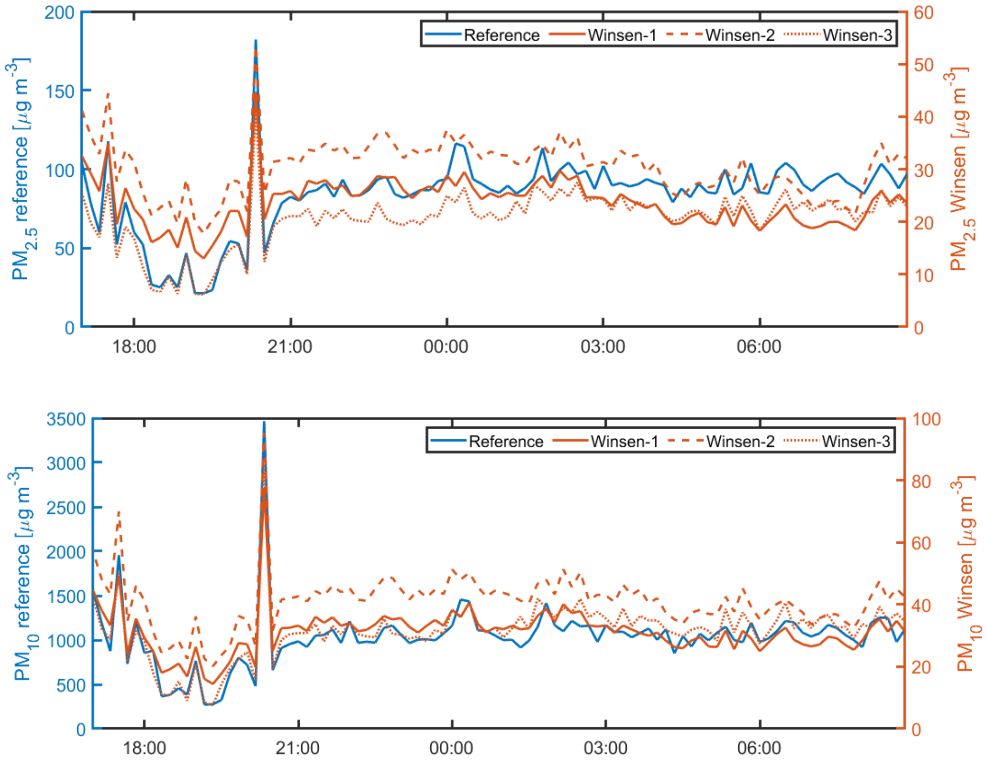
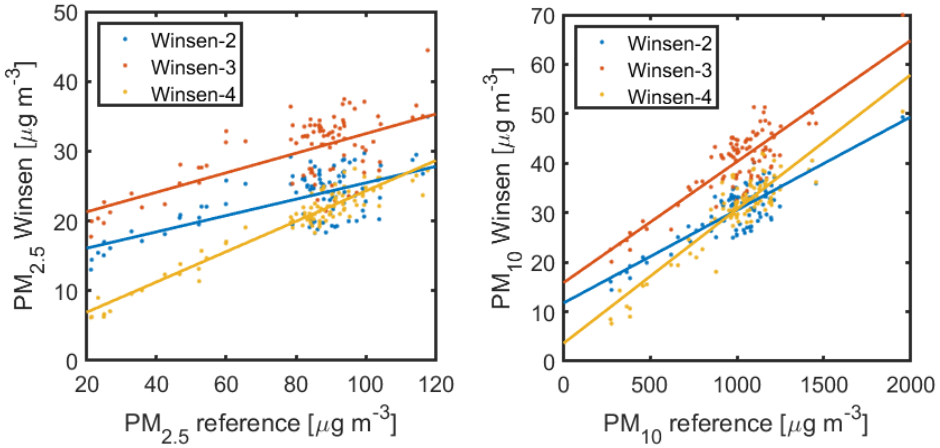
Winsen PM – ZH03B

Uncalibrated sensor vs reference



Linearity before calibration



$R^2 \geq 0.40$
slopes are around
- 0.15 for $PM_{2.5}$
- 0.02 for PM_{10}

Accuracy (uncalibrated)

Reference mean (µg/m³)		Accuracy (%)	
$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}
19	206	25	3
32	401	24	3
84	846	22	3
126	1267	19	3
163	1649	20	3

Data recovery
95% for all units

Influence of T and RH
Changes in T and RH **do not affect** the sensor.

For setup and definitions see: test protocol and test report

Alphasense PM – OPC-N2

None of the three sensors worked properly during the PM lab testing.

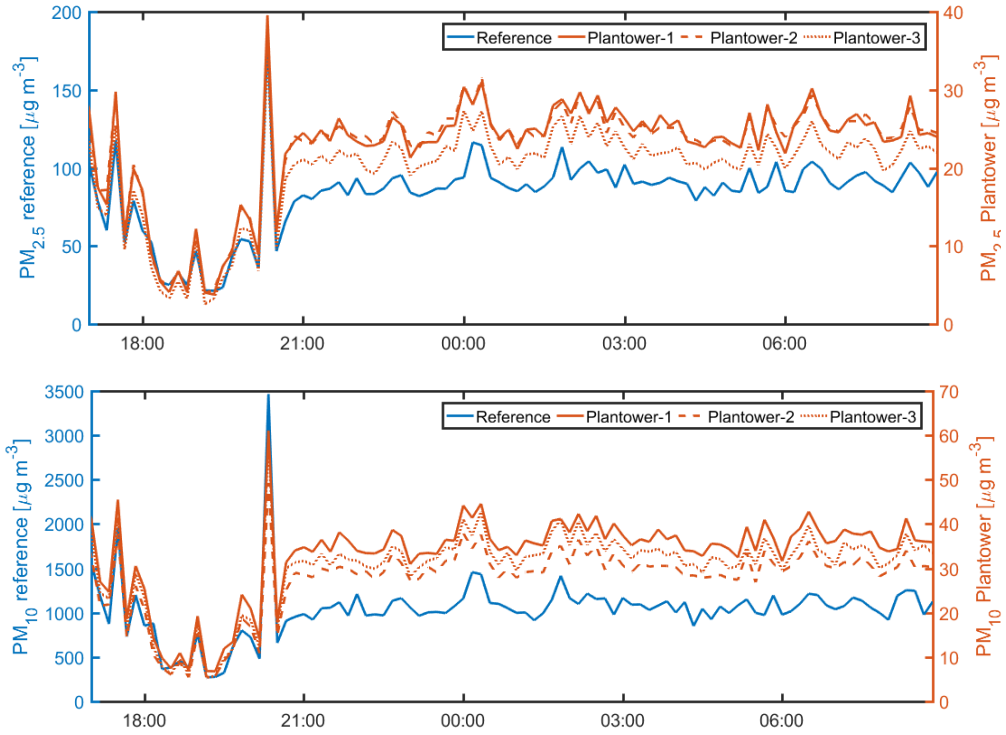
Only **one** of the three sensors gave a signal, and the signal **did not** correlate with the reference measurements (R^2<0.01).

The units were returned to the manufacturer for servicing.

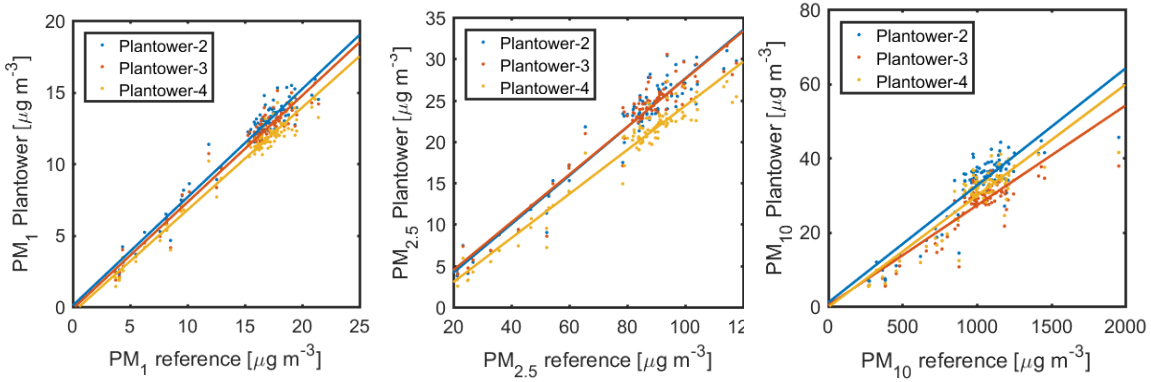
For setup and definitions see: test protocol and test report

Plantower PM – PMS 7003

Uncalibrated sensor vs reference



Linearity before calibration



$R^2 \geq 0.76$

slopes are around

- 0.95 for PM_1
- 0.93 for $PM_{2.5}$
- 0.03 for PM_{10}

Accuracy (uncalibrated)

Reference mean (µg/m³)			Accuracy (%)		
PM_1	$PM_{2.5}$	PM_{10}	PM_1	$PM_{2.5}$	PM_{10}
3	19	206	51	16	2
5	32	401	65	23	3
16	84	846	69	25	3
24	126	1267	68	25	3
30	163	1649	62	23	3

Data recovery

95% for all units

Influence of T and RH

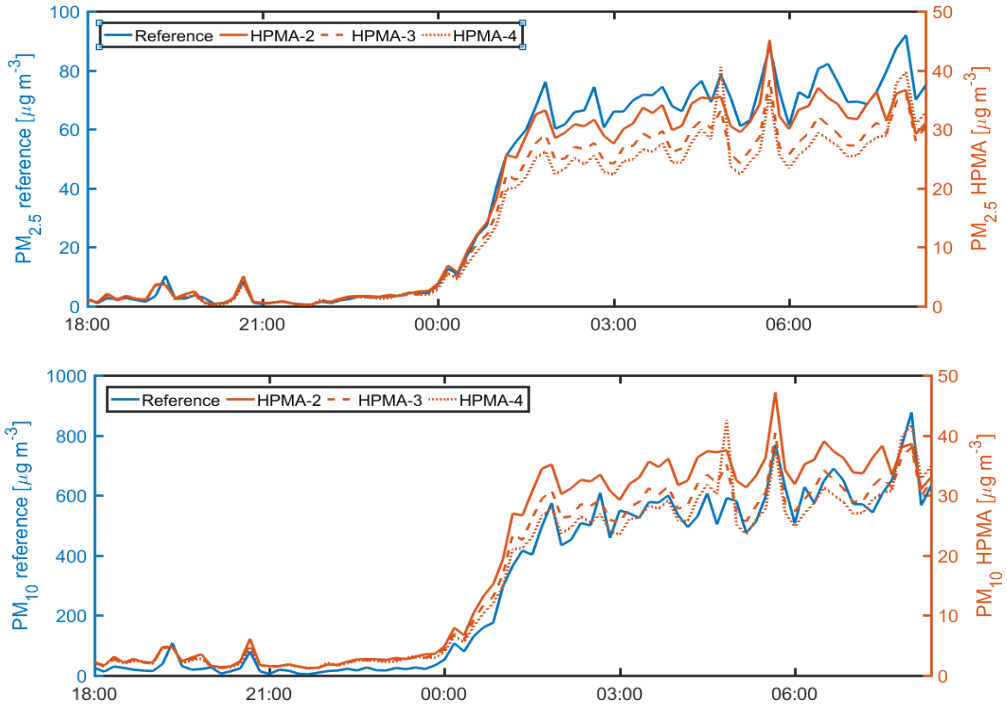
Changes in RH somewhat **affect** the sensor.

One unit sensitive to changes in T

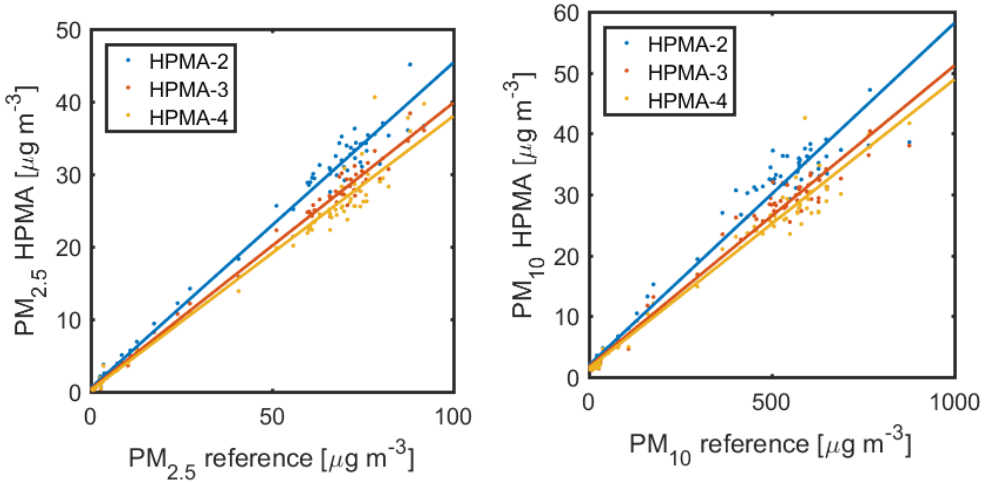
For setup and definitions see: test protocol and test report

Honeywell PM – HPMA115S

Uncalibrated sensor vs reference



Linearity before calibration



$R^2 \geq 0.97$

slopes are around

- 0.41 for $PM_{2.5}$
- 0.048 for PM_{10}

Accuracy (uncalibrated)

Reference mean (µg/m³)		Accuracy (%)	
$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}
38	398	48	5
46	510	47	5
77	632	45	6
88	726	45	6
136	1016	42	5

Data recovery

100% for all units

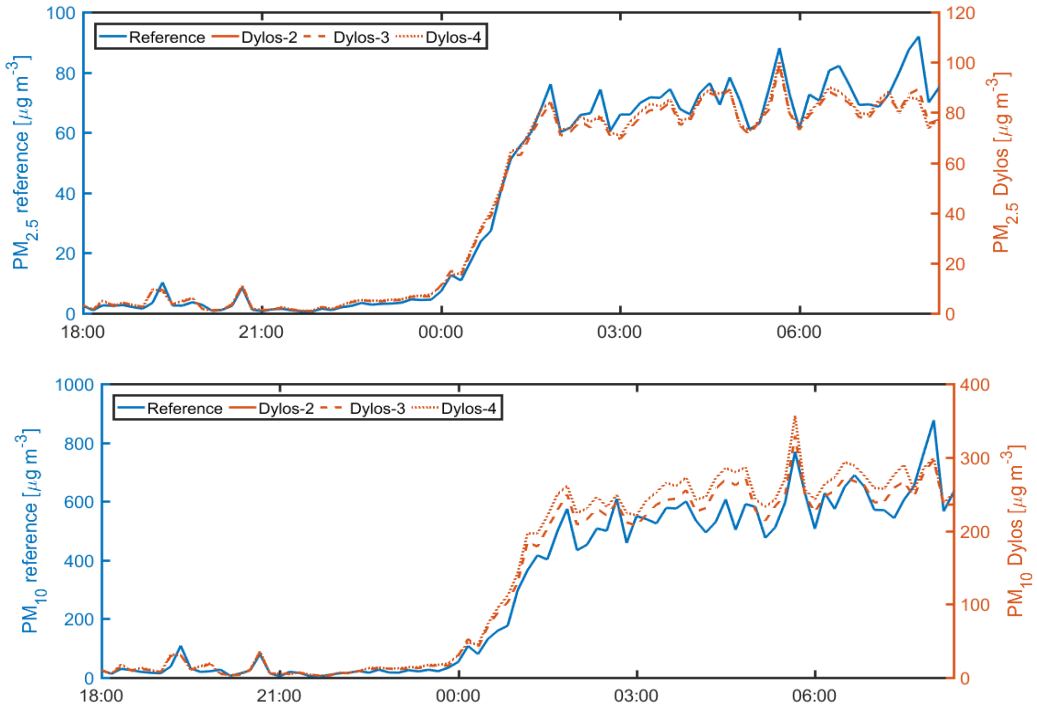
Influence of T and RH

Changes in RH **affect** the sensor

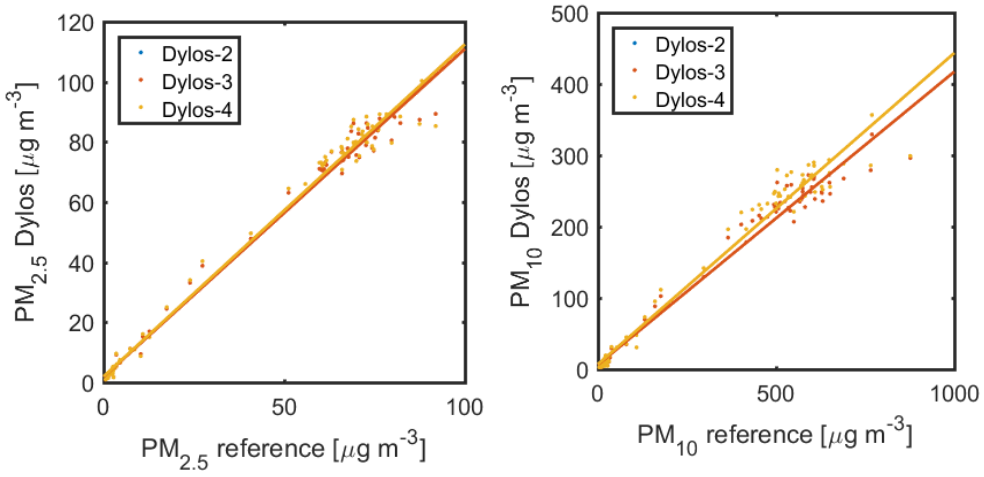
For setup and definitions see: test protocol and test report

Dylos PM – DC1700

Uncalibrated sensor vs reference



Linearity before calibration



$R^2 \geq 0.97$
slopes are around
- 1.1 for $PM_{2.5}$
- 0.42 for PM_{10}

Accuracy (uncalibrated)

Reference mean (µg/m³)		Accuracy (%)	
$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}
38	398	46	62
46	510	44	54
77	632	45	65
88	726	50	58
136	1016	52	58

Data recovery

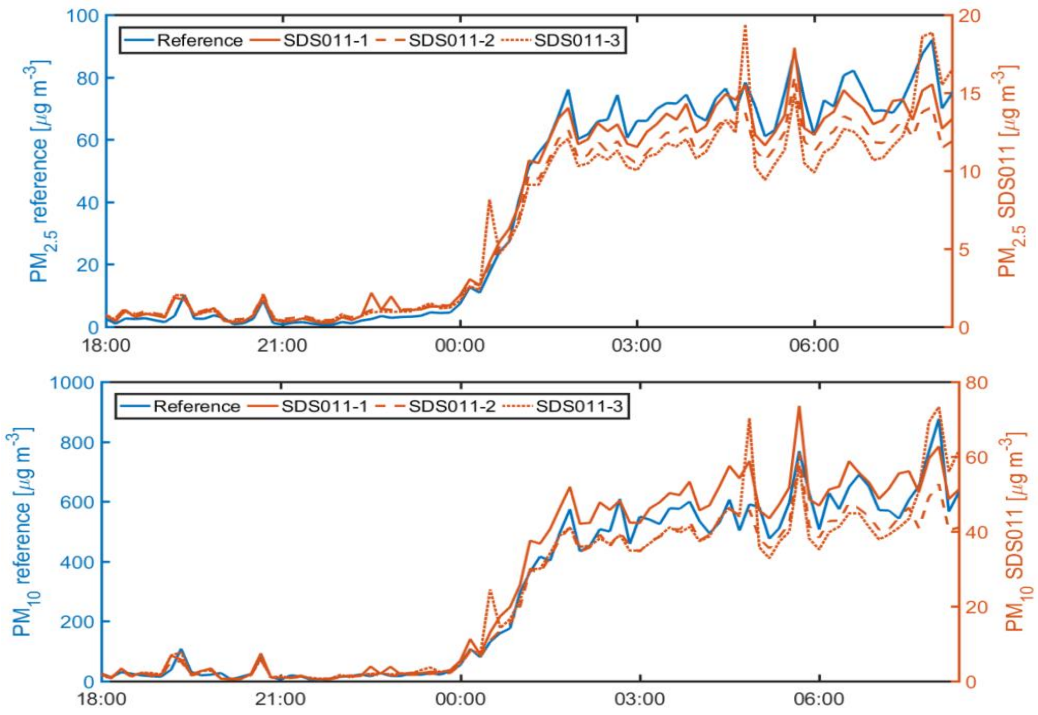
99% for two units
One unit could not be tested due to power issues

Influence of T and RH

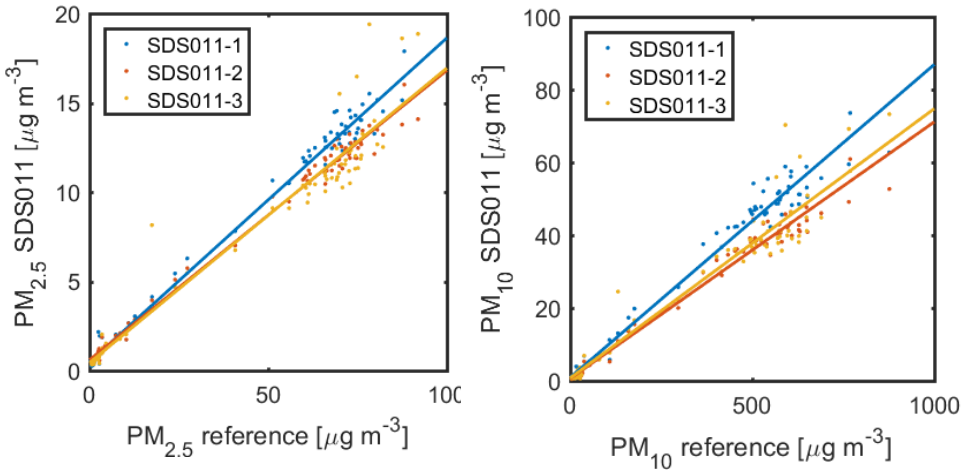
Changes in T and RH **somewhat affect** the sensor

Nova fitness PM – SDS011

Uncalibrated sensor vs reference



Linearity before calibration



$R^2 \geq 0.94$

slopes are around

- 0.17 for $PM_{2.5}$
- 0.079 for PM_{10}

Accuracy (uncalibrated)

Reference mean (µg/m³)		Accuracy (%)	
$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}
38	398	19	8
46	510	19	7
77	632	17	8
88	726	19	8
136	1016	20	9

Data recovery

100% for two units

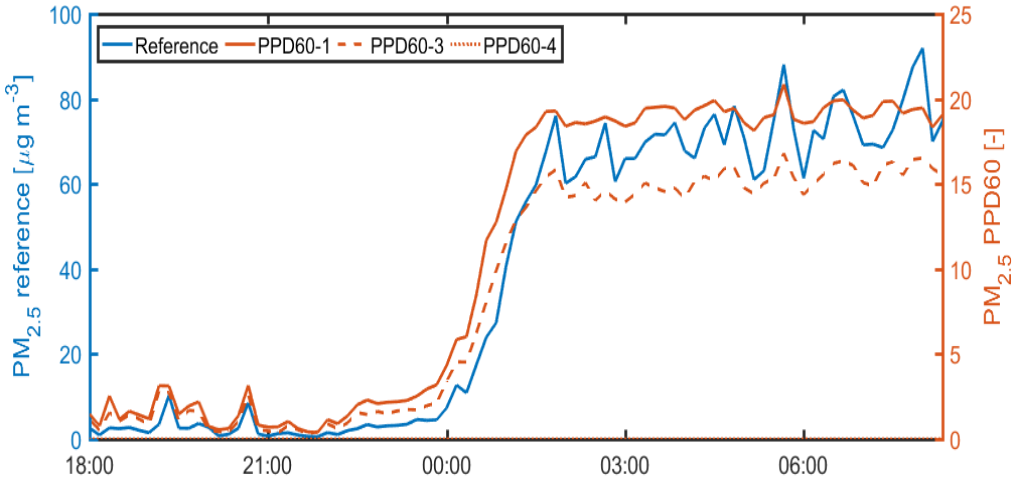
46% for one unit

Influence of T and RH

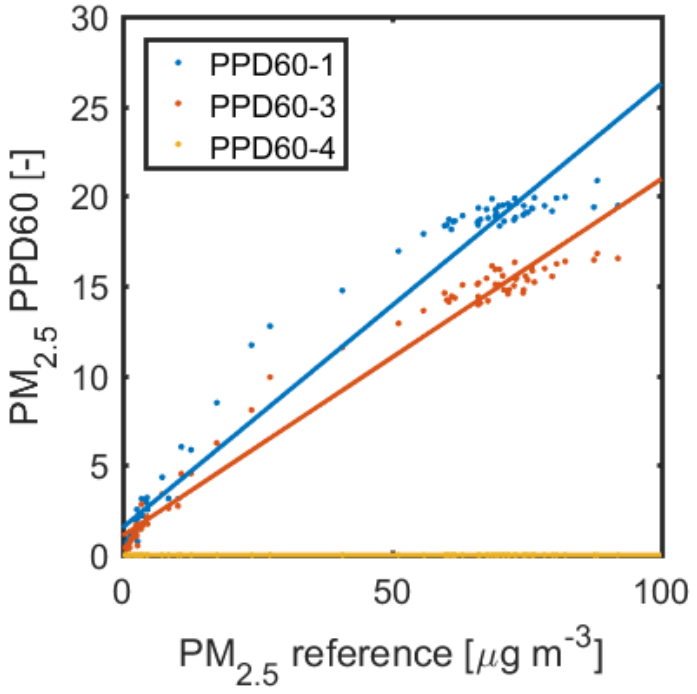
One unit was **susceptibel** to changes in RH

Shinyei PM – PPD60

Uncalibrated sensor vs reference



Linearity before calibration



$R^2 \geq 0.96$

- slopes are around 0.71 for $PM_{2.5}$

Accuracy (uncalibrated)

Reference mean (µg/m³)	Accuracy (%)
$PM_{2.5}$	$PM_{2.5}$
38	28
46	2
77	22
88	20
136	15

Data recovery

- 97% unit 1
- 81% unit 3
- 0% unit 4

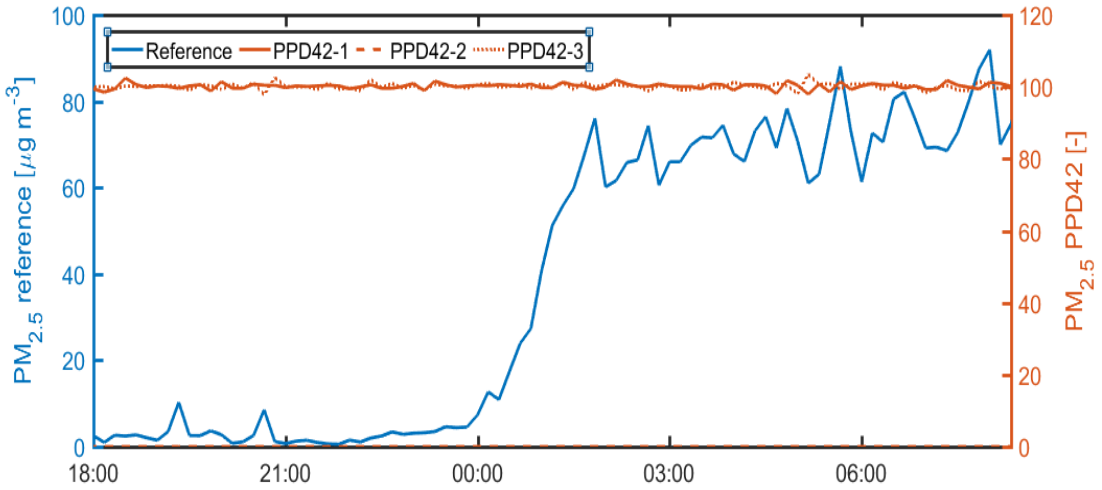
Influence of T and RH

Changes in RH **slightly affect** the sensor.
Changes in T do **not affect** the sensor.

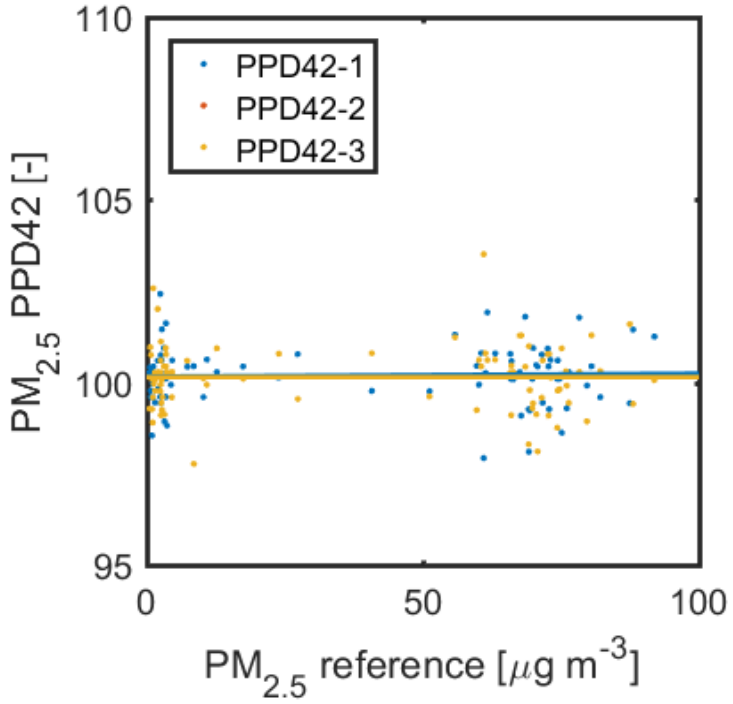
For setup and definitions see: test protocol and test report

Shinyei PM – PPD42

Uncalibrated sensor vs reference



Linearity before calibration



R^2 <0.01

- slopes due to lack of linearity not determinable

Accuracy (uncalibrated)

Reference mean (µg/m³)	Accuracy (%)
$PM_{2.5}$	$PM_{2.5}$
38	-58
46	-18
77	70
88	86
136	74

Data recovery

- 97% unit 1
- 0% unit 2
- 100% unit 3

Influence of T and RH

Changes in RH **slightly affect** the sensor.
Changes in T do **not affect** the sensor.

For setup and definitions see: test protocol and test report