



ANNEX D1

CALIBRATION CERTIFICATES (ONSITE
SENSORS)

ONSITE EQUIPMENT VALIDATION RECORD

Product Information:

Report No.:	ZR/T CS.004-2025-09-Z05		
Product Model:	MAS Dust	Serial No.:	dev9204Z250700005
Issue Date:	2025-10-13		
Version	V1.2_20251013		

Traceability of Calibration Instrument:

Test Item	Calibration Instrument
PM _{2.5} (FSP) PM ₁₀ (RSP)	Transfer Standard: dev9524C230400003 Location: M09 Wing Ping Tsuen Collocation Data Period: 2025-09-17 16:20 to 2025-09-17 19:20

Calibration Result:

RSP:

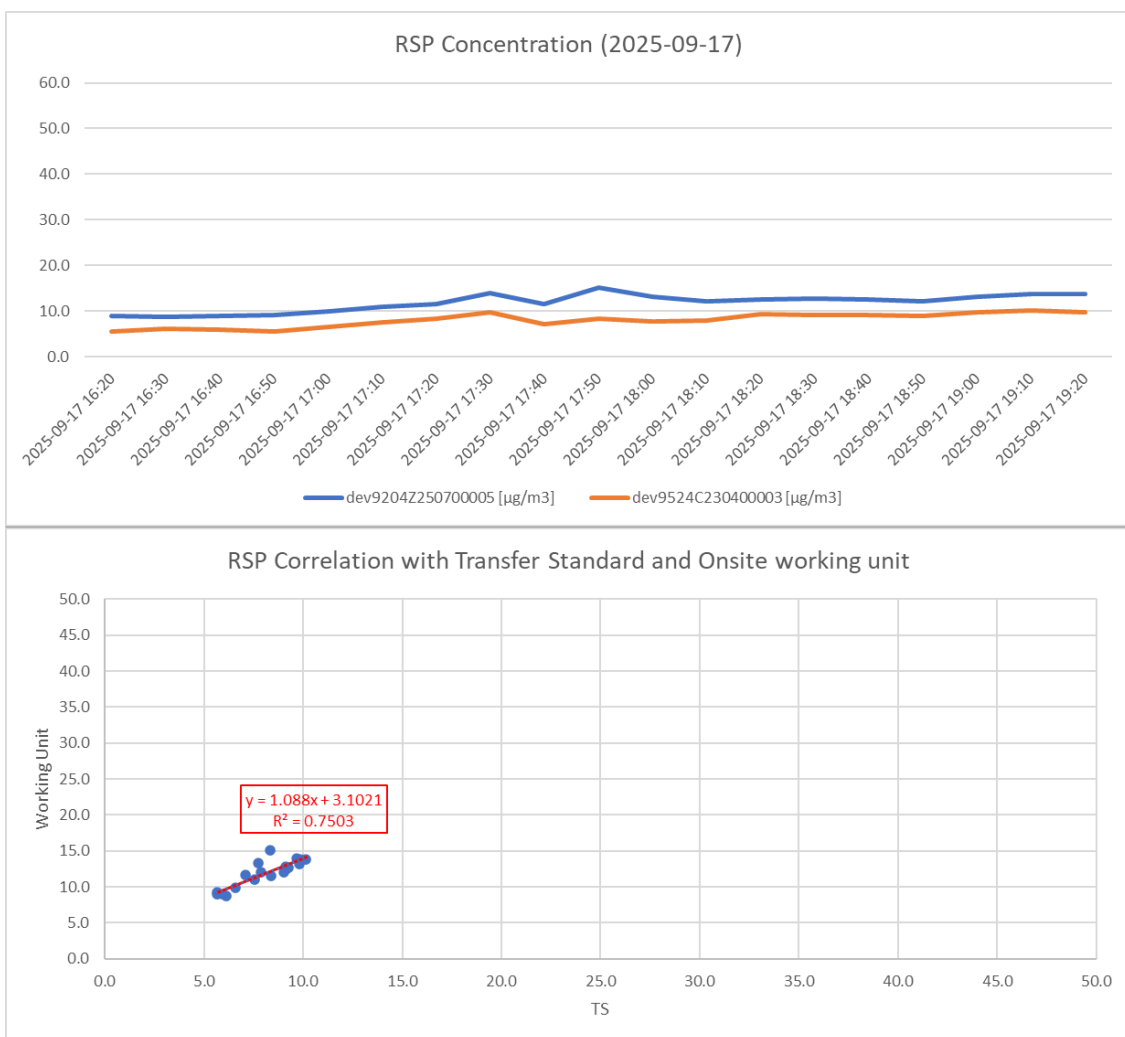
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	1.09	☑ PASS
Linearity (R ²)	> 0.70	0.75	☑ PASS
If Tier 1 fails, Conc. Range will be checked	RSP ≤ 30 µg/m ³ is low conc. range	5.0 µg/m ³	Not applicable
<u>Tier 2</u>			
Error (RMSE)	< 8 µg/m ³ for RSP	4.8 µg/m ³	☑ PASS

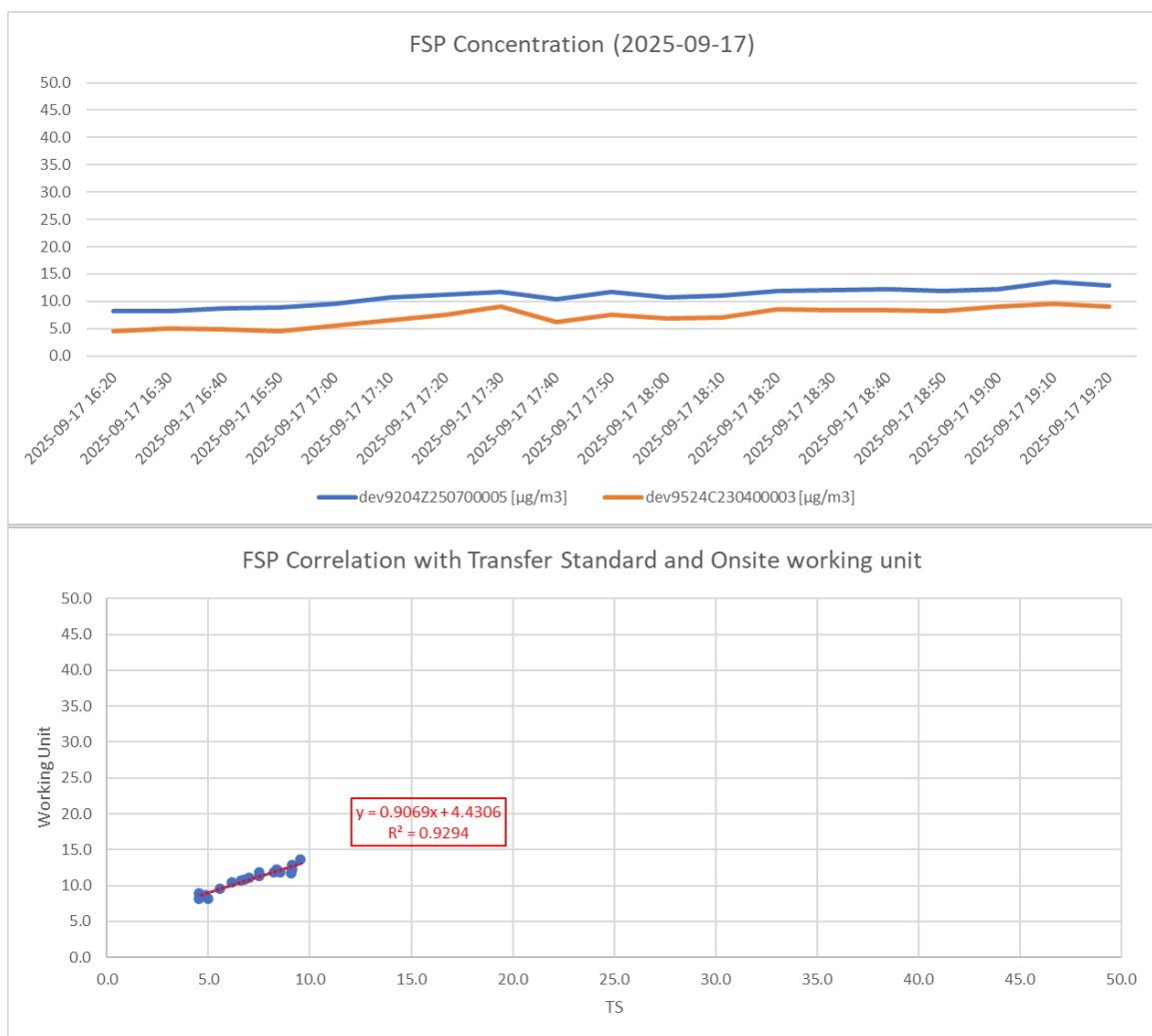
Remark: Follow QAQC Protocol Path 1 which both Criteria Tier 1 and Tier 2 passed.

FSP:

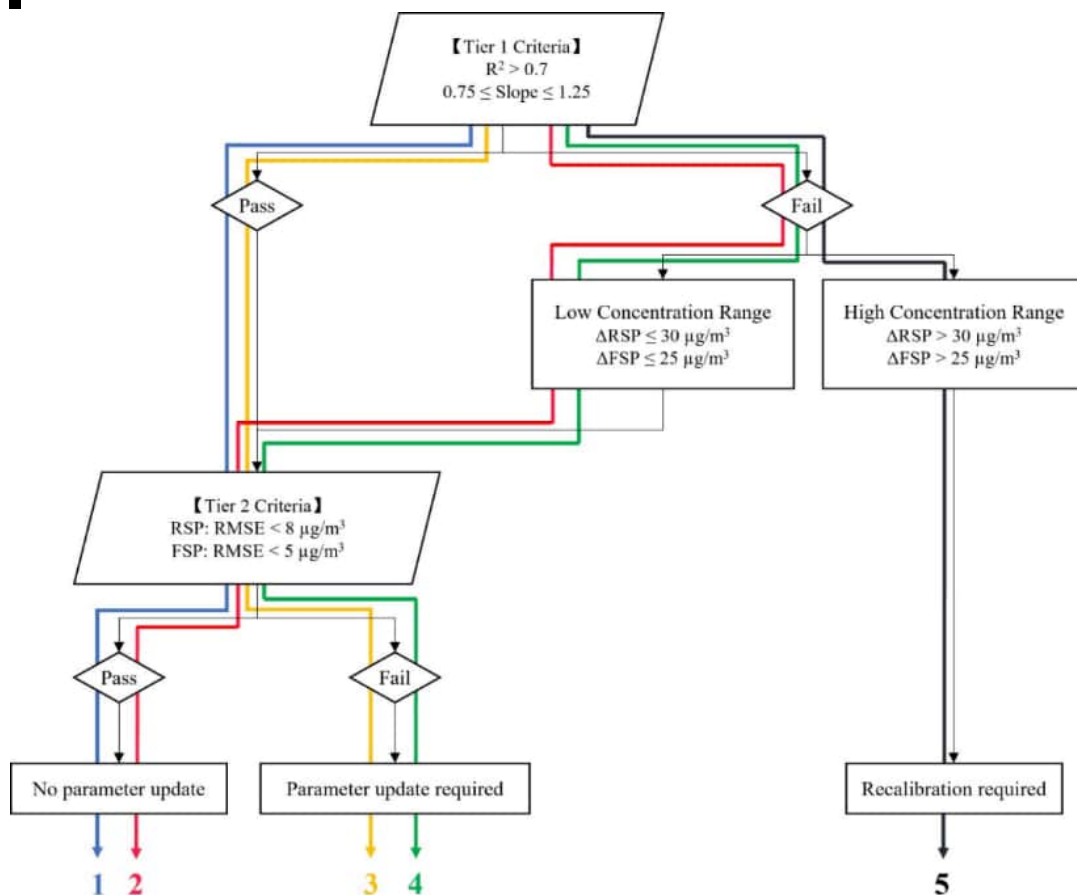
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	0.91	☑ PASS
Linearity (R ²)	> 0.70	0.93	☑ PASS
If Tier 1 fails, Conc. Range will be checked	FSP ≤ 25 µg/m ³ is low conc. range	4.5 µg/m ³	Not applicable
<u>Tier 2</u>			
Error (RMSE)	< 5 µg/m ³ for FSP	2.9 µg/m ³	☑ PASS

Remark: Follow QAQC Protocol Path 1 which both Criteria Tier 1 and Tier 2 passed.





QAQC Protocol chart flow



Conclusion:

The report approves that each calibrated item of the product meets its technical specifications. No calibration action is needed during this time.

Prepared by:	Yannis Qiu	Reviewed by:	George Zhang
--------------	------------	--------------	--------------

ONSITE EQUIPMENT VALIDATION RECORD

Product Information:

Report No.:	ZR/T CS.004-2025-09-Z06		
Product Model:	MAS Dust	Serial No.:	dev9204Z250700006
Issue Date:	2025-10-13		
Version	V1.1_20251013		

Traceability of Calibration Instrument:

Test Item	Calibration Instrument
PM _{2.5} (FSP) PM ₁₀ (RSP)	Transfer Standard: dev9524C230400001 Location: M04 Chau Tau Tsuen Collocation Data Period: 2025-09-17 16:20 to 2025-09-17 19:20

Calibration Result:

RSP:

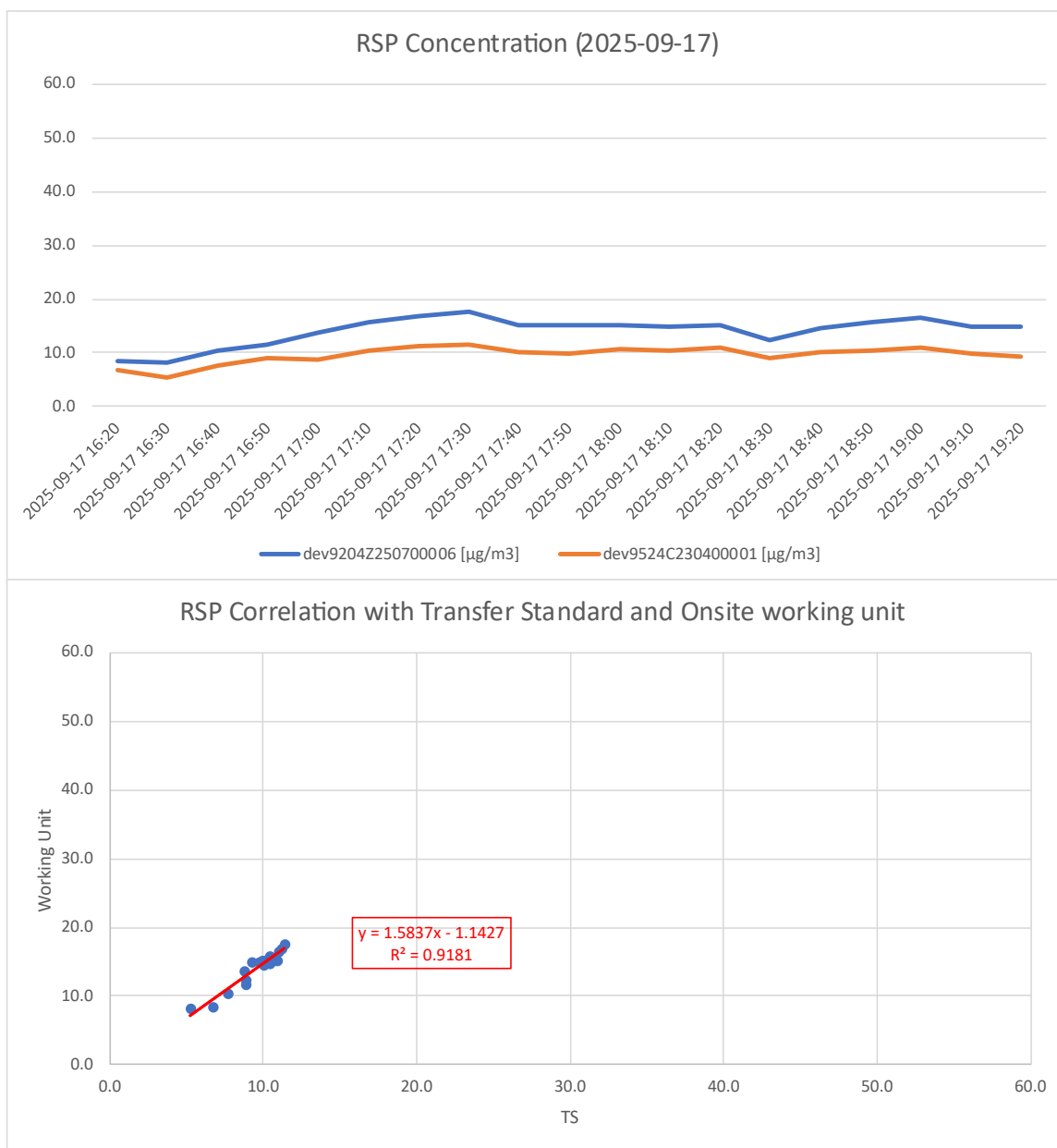
Performance Metric	Target Value	Actual Value	Result
Tier 1			
Bias (Slope)	1.00±0.25	1.58	☒ FAIL
Linearity (R ²)	> 0.70	0.92	☒ PASS
If Tier 1 fails, Conc. Range will be checked	RSP ≤ 30 µg/m ³ is low conc. range	6.1 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
Tier 2			
Error (RMSE)	< 8 µg/m ³ for RSP	4.6 µg/m ³	☒ PASS

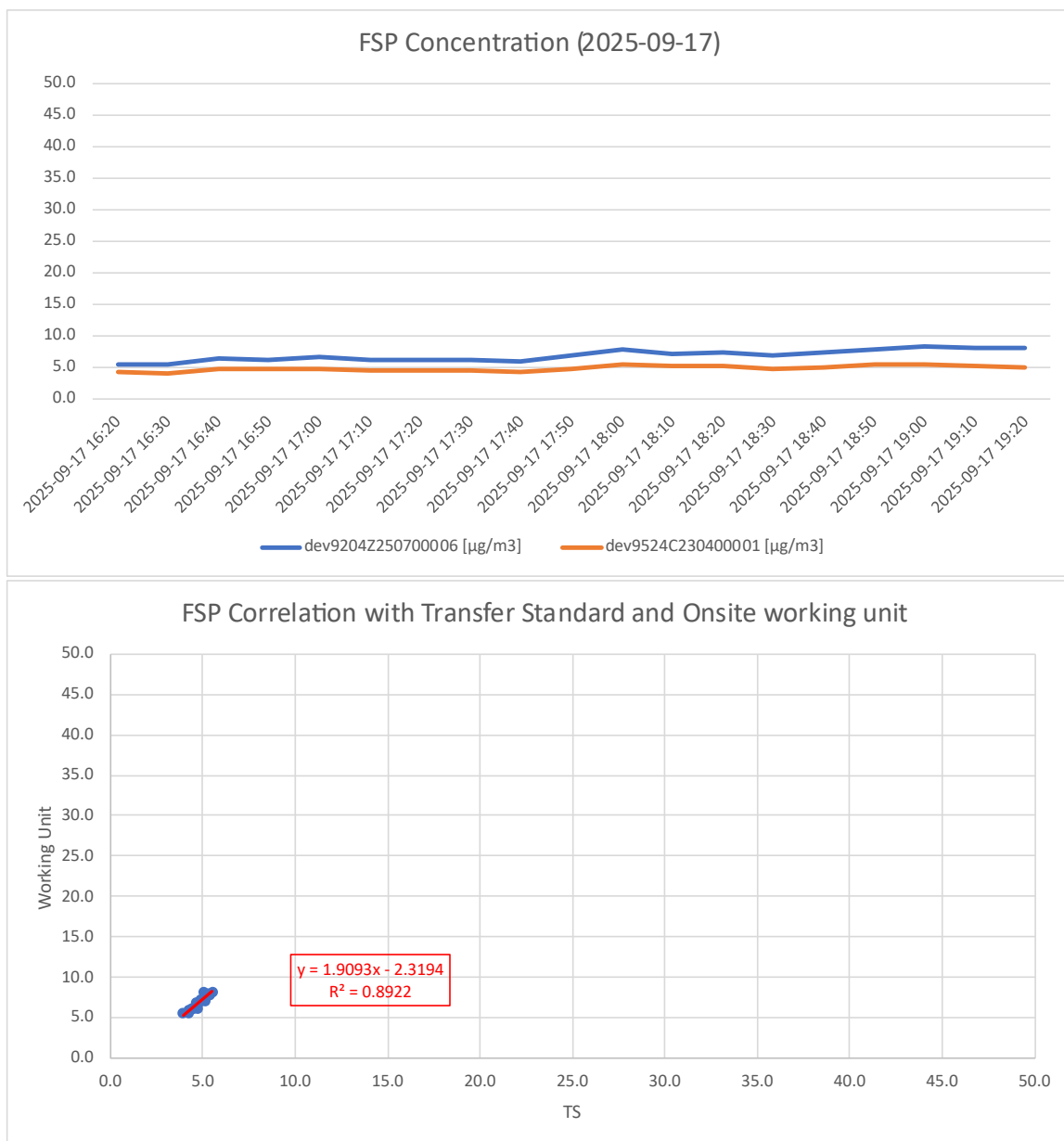
Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.

FSP:

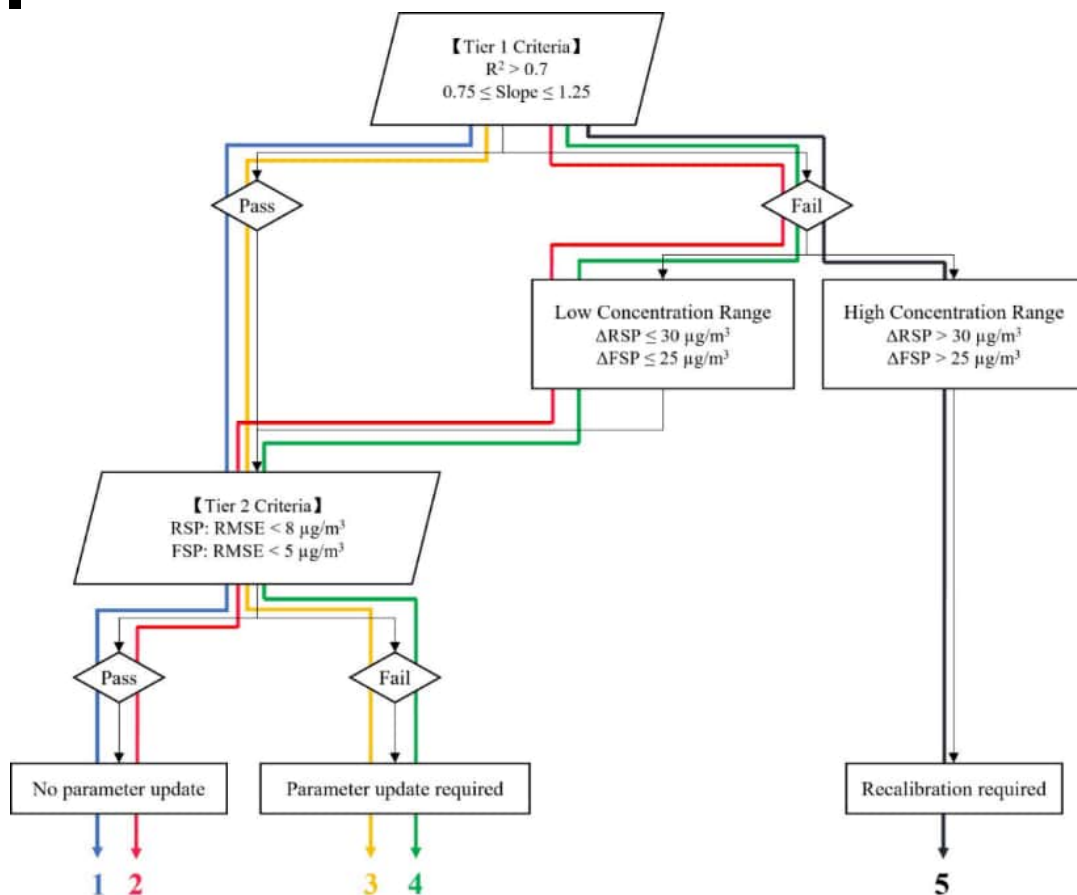
Performance Metric	Target Value	Actual Value	Result
Tier 1			
Bias (Slope)	1.00±0.25	1.91	☒ FAIL
Linearity (R ²)	> 0.70	0.89	☒ PASS
If Tier 1 fails, Conc. Range will be checked	FSP ≤ 25 µg/m ³ is low conc. range	1.5 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
Tier 2			
Error (RMSE)	< 5 µg/m ³ for FSP	2.1 µg/m ³	☒ PASS

Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.





QAQC Protocol chart flow



Conclusion:

The report approves that each calibrated item of the product meets its technical specifications. No calibration action is needed during this time.

Prepared by:	Yannis Qiu	Reviewed by:	George Zhang
--------------	------------	--------------	--------------

ONSITE EQUIPMENT VALIDATION RECORD

Product Information:

Report No.:	ZR/T CS.004-2025-09-Z07		
Product Model:	MAS Dust	Serial No.:	dev9204Z250700007
Issue Date:	2025-10-13		
Version	V1.1_20251013		

Traceability of Calibration Instrument:

Test Item	Calibration Instrument
PM _{2.5} (FSP) PM ₁₀ (RSP)	Transfer Standard: dev9524C230400002 Location: M03 Pun Uk Tsuen Collocation Data Period: 2025-09-17 16:20 to 2025-09-17 19:20

Calibration Result:

RSP:

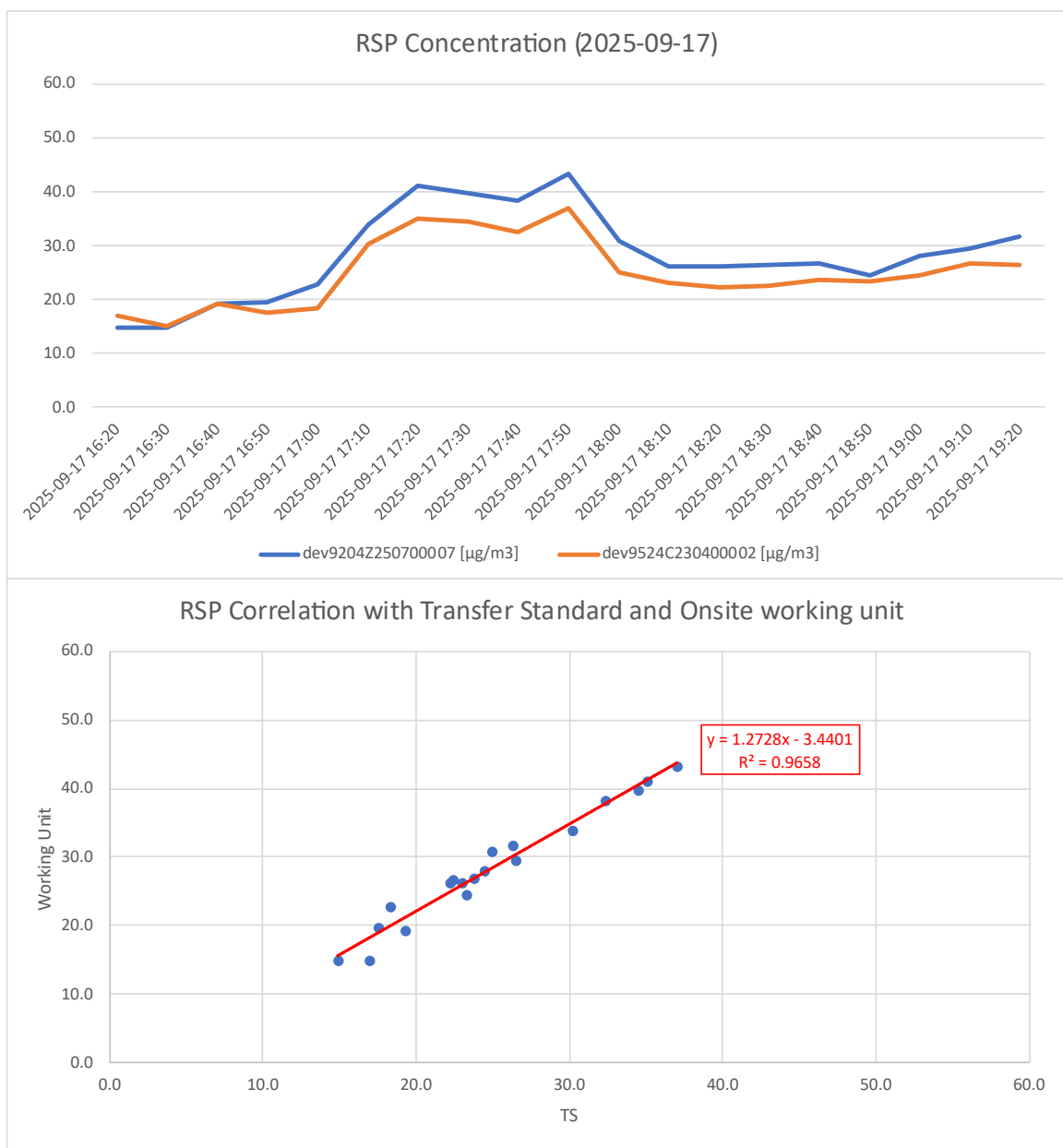
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	1.27	☒ FAIL
Linearity (R ²)	> 0.70	0.97	☒ PASS
If Tier 1 fails, Conc. Range will be checked	RSP ≤ 30 µg/m ³ is low conc. range	22.1 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
<u>Tier 2</u>			
Error (RMSE)	< 8 µg/m ³ for RSP	4.1 µg/m ³	☒ PASS

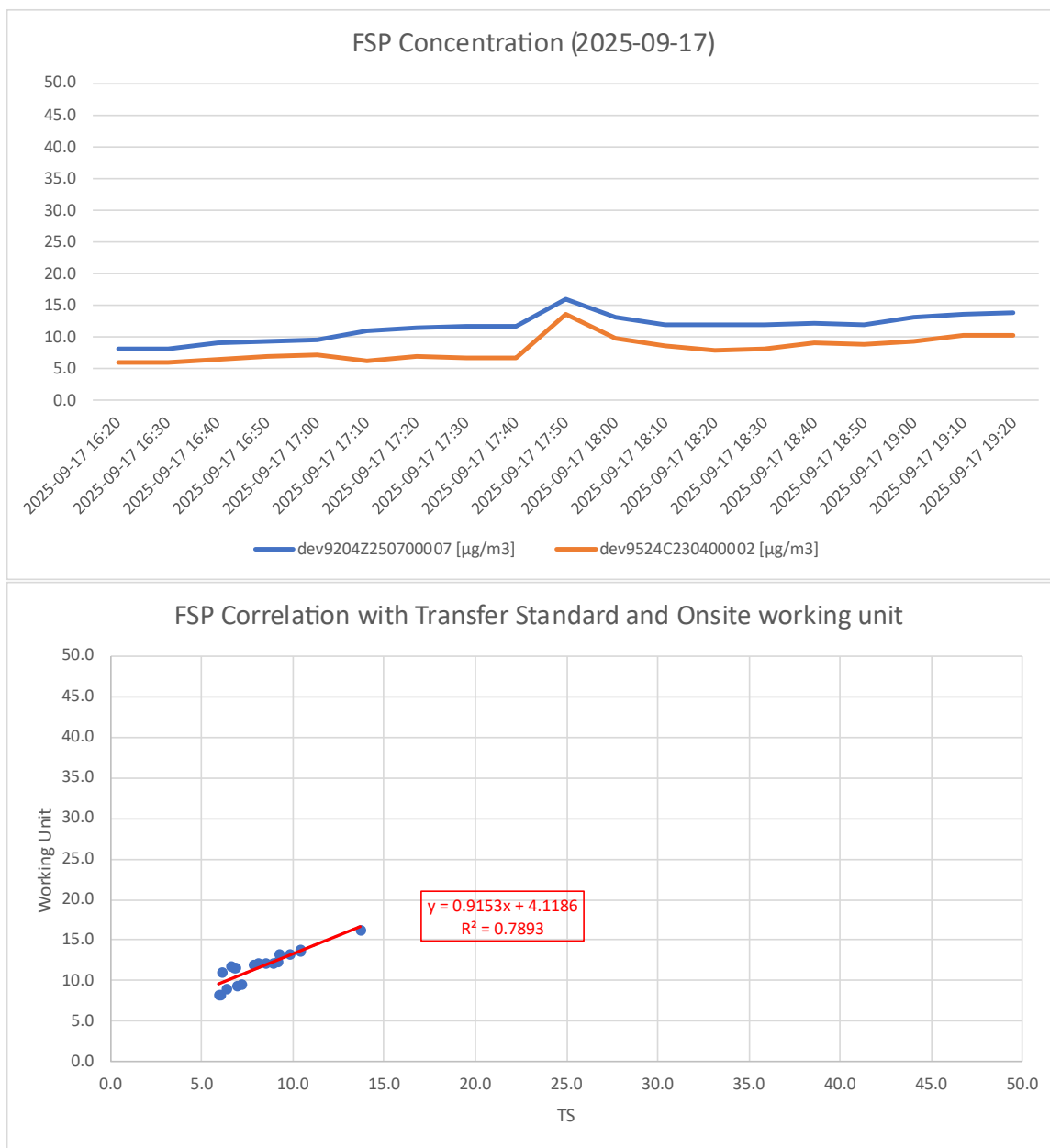
Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.

FSP:

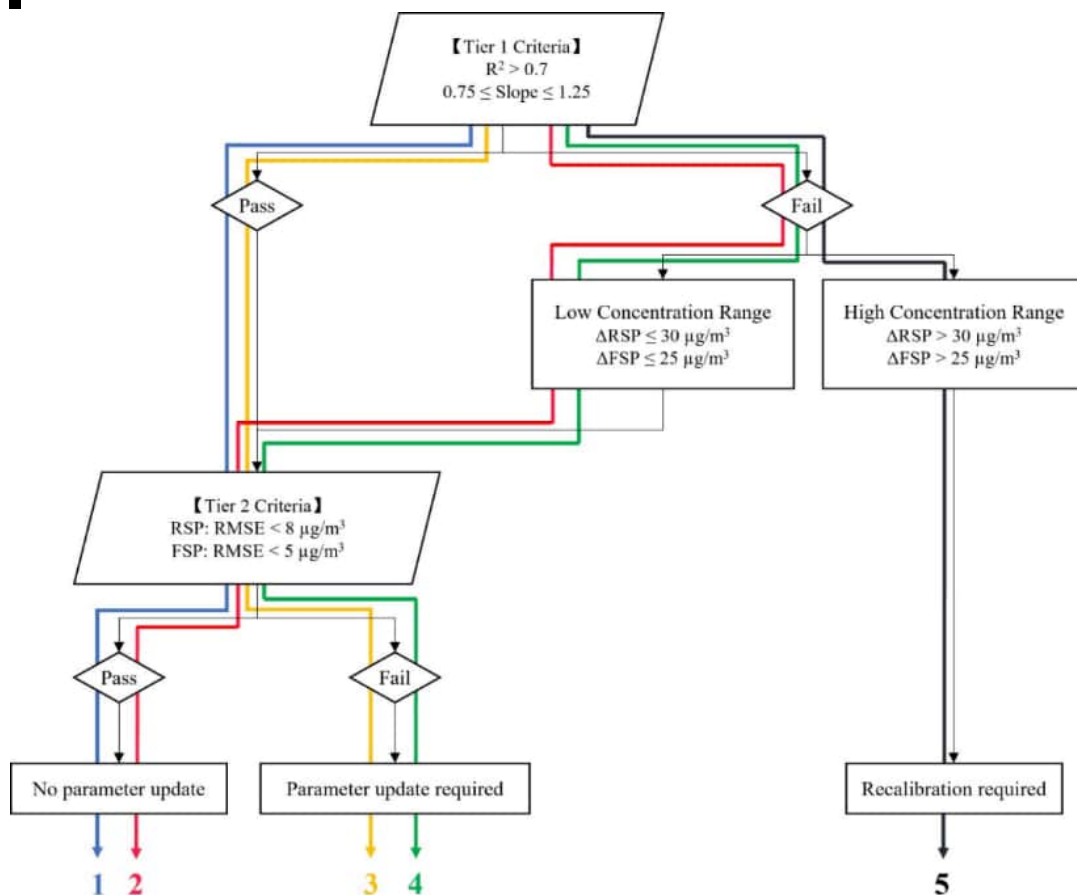
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	0.92	☒ PASS
Linearity (R ²)	> 0.70	0.79	☒ PASS
If Tier 1 fails, Conc. Range will be checked	FSP ≤ 25 µg/m ³ is low conc. range	7.8 µg/m ³	Not applicable
<u>Tier 2</u>			
Error (RMSE)	< 5 µg/m ³ for FSP	3.6 µg/m ³	☒ PASS

Remark: Follow QAQC Protocol Path 1 which both Criteria Tier 1 and Tier 2 passed.





QAQC Protocol chart flow



Conclusion:

The report approves that each calibrated item of the product meets its technical specifications. No calibration action is needed during this time.

Prepared by:	Yannis Qiu	Reviewed by:	George Zhang
--------------	------------	--------------	--------------

ONSITE EQUIPMENT VALIDATION RECORD

Product Information:

Report No.:	ZR/T CS.004-2025-09-Z13		
Product Model:	MAS Dust	Serial No.:	dev9204Z250800013
Issue Date:	2025-10-13		
Version	V1.1_20251013		

Traceability of Calibration Instrument:

Test Item	Calibration Instrument
PM _{2.5} (FSP) PM ₁₀ (RSP)	Transfer Standard: dev9204Z250800011 Location: M11 Shek Wu Wai Collocation Data Period: 2025-09-26 12:30 to 2025-09-26 15:40

Calibration Result:

RSP:

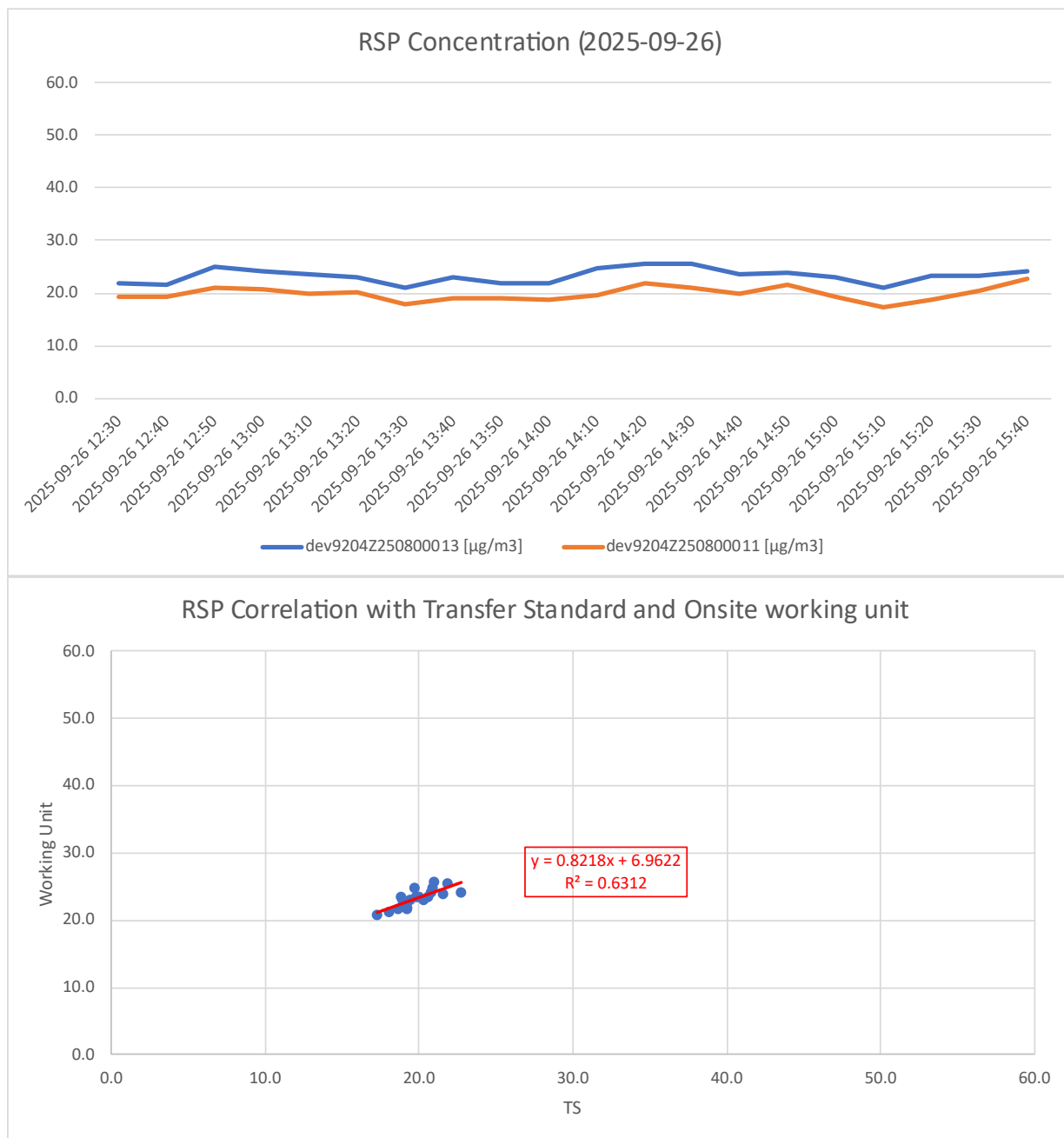
Performance Metric	Target Value	Actual Value	Result
Tier 1			
Bias (Slope)	1.00±0.25	0.82	☒ PASS
Linearity (R ²)	> 0.70	0.63	☒ FAIL
If Tier 1 fails, Conc. Range will be checked	RSP ≤ 30 µg/m ³ is low conc. range	5.5 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
Tier 2			
Error (RMSE)	< 8 µg/m ³ for RSP	3.5 µg/m ³	☒ PASS

Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.

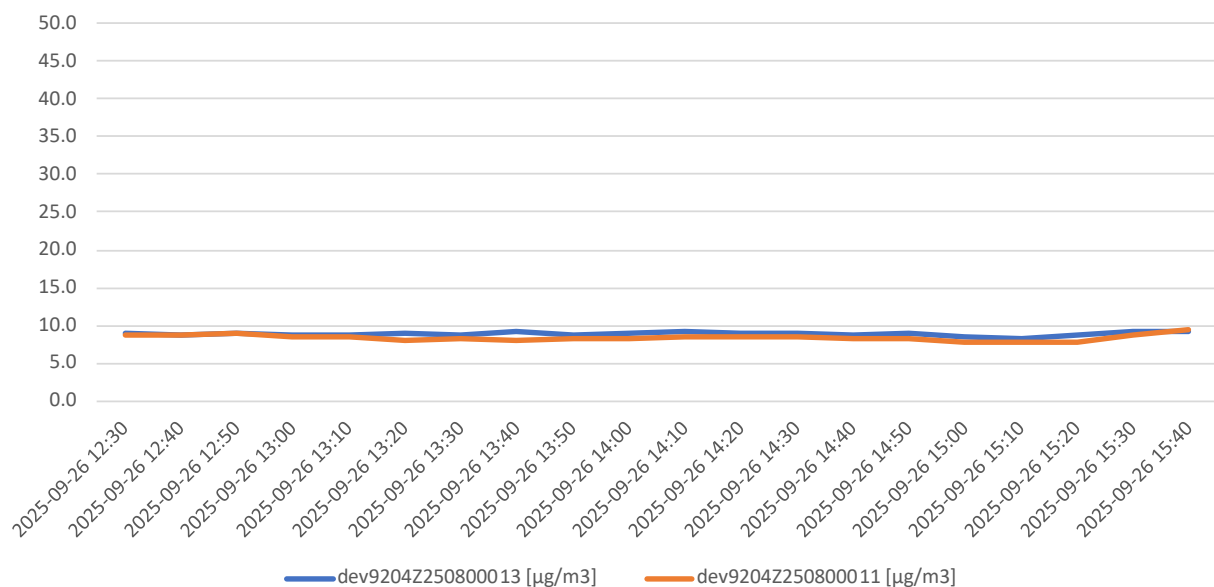
FSP:

Performance Metric	Target Value	Actual Value	Result
Tier 1			
Bias (Slope)	1.00±0.25	0.35	☒ FAIL
Linearity (R ²)	> 0.70	0.46	☒ FAIL
If Tier 1 fails, Conc. Range will be checked	FSP ≤ 25 µg/m ³ is low conc. range	1.8 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
Tier 2			
Error (RMSE)	< 5 µg/m ³ for FSP	0.6 µg/m ³	☒ PASS

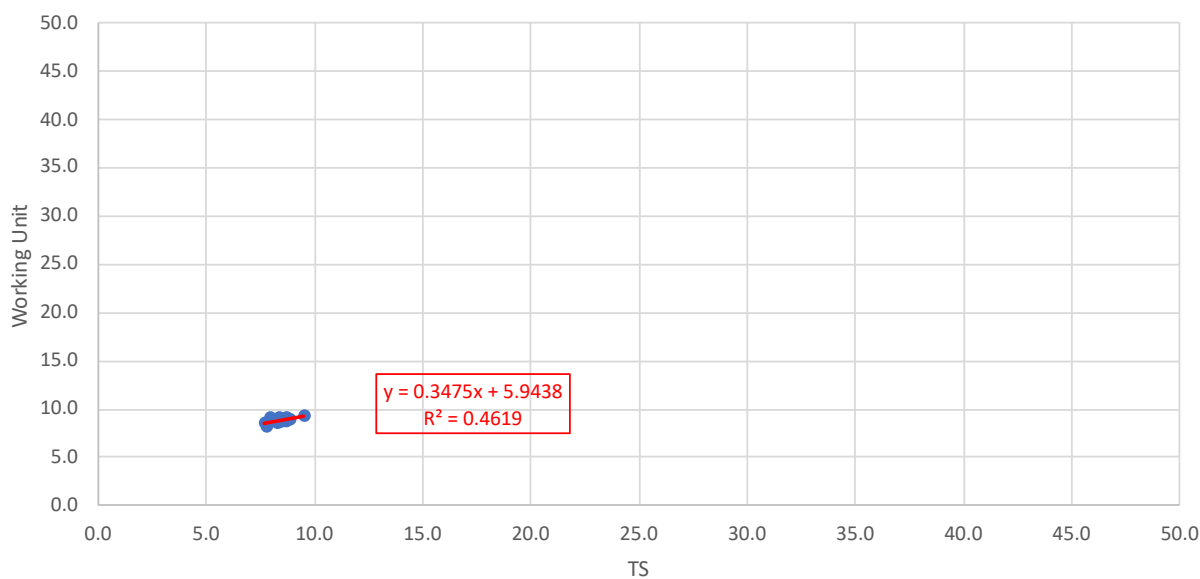
Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.



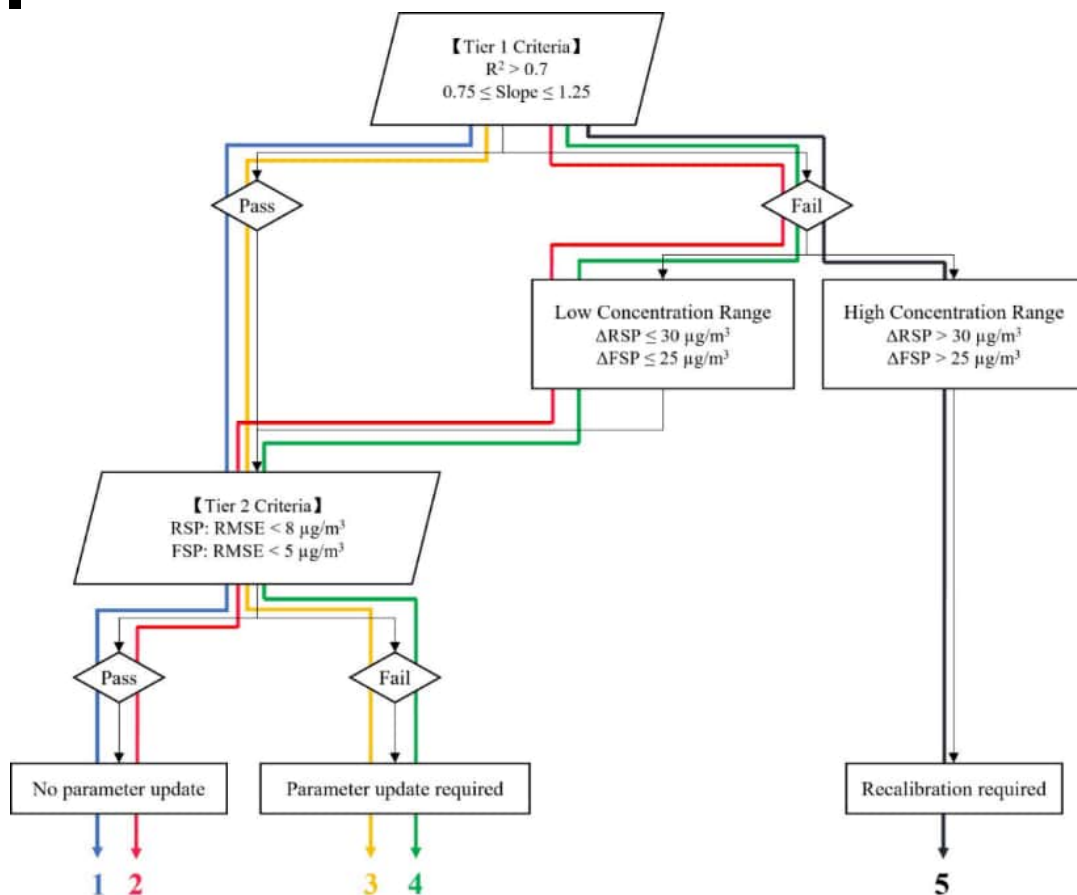
FSP Concentration (2025-09-26)



FSP Correlation with Transfer Standard and Onsite working unit



QAQC Protocol chart flow



Conclusion:

The report approves that each calibrated item of the product meets its technical specifications. No calibration action is needed during this time.

Prepared by:	Yannis Qiu	Reviewed by:	George Zhang
--------------	------------	--------------	--------------

ONSITE EQUIPMENT VALIDATION RECORD

Product Information:

Report No.:	ZR/T CS.004-2025-09-Z14		
Product Model:	MAS Dust	Serial No.:	dev9204Z250800014
Issue Date:	2025-10-13		
Version	V1.1_20251013		

Traceability of Calibration Instrument:

Test Item	Calibration Instrument
PM _{2.5} (FSP) PM ₁₀ (RSP)	Transfer Standard: dev9204Z250800010 Location: M06 Mai Po San Tsuen Collocation Data Period: 2025-09-26 13:10 to 2025-09-26 16:20

Calibration Result:

RSP:

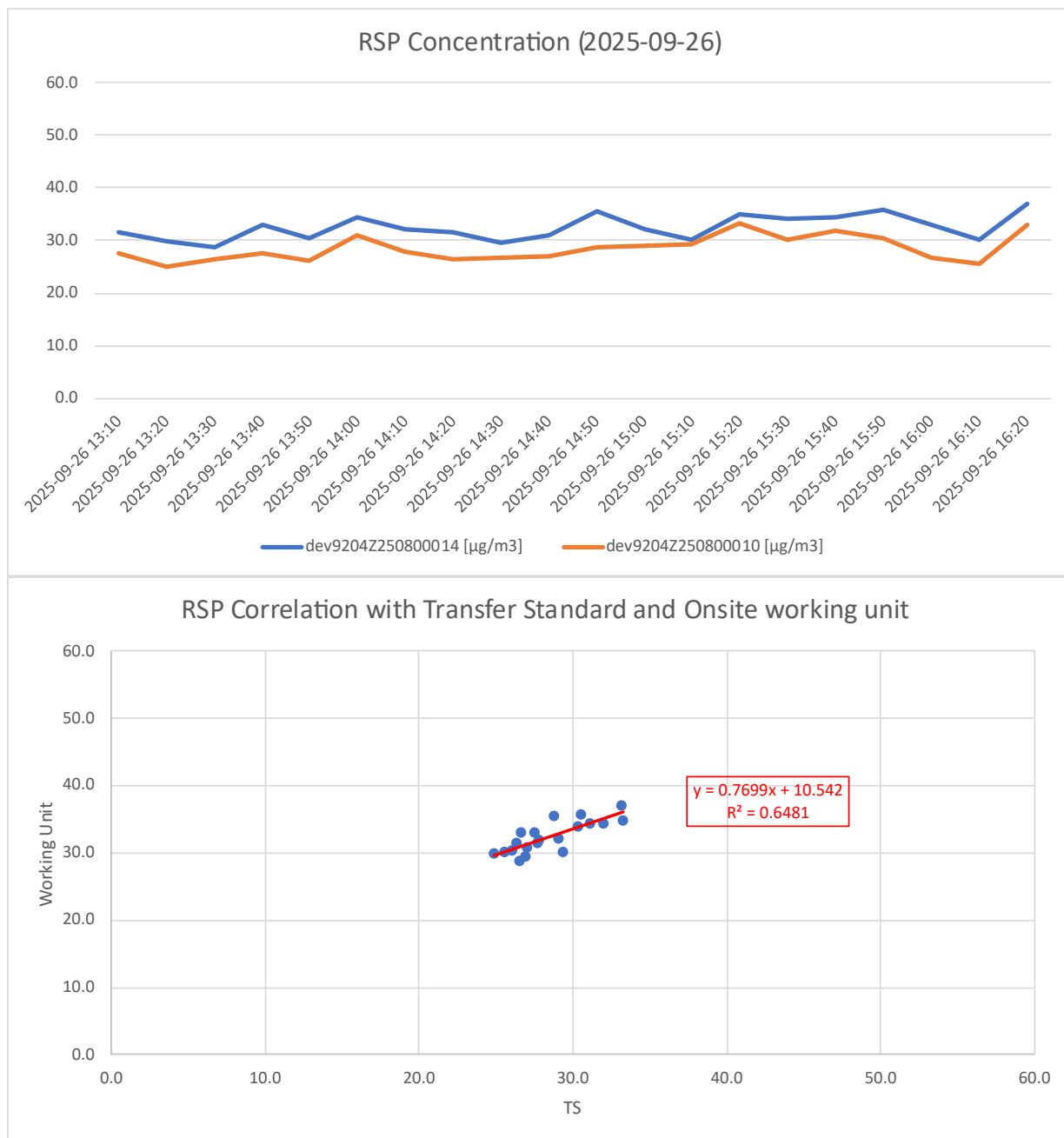
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	0.77	☒ PASS
Linearity (R ²)	> 0.70	0.65	☒ FAIL
If Tier 1 fails, Conc. Range will be checked	RSP ≤ 30 µg/m ³ is low conc. range	8.4 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
<u>Tier 2</u>			
Error (RMSE)	< 8 µg/m ³ for RSP	4.3 µg/m ³	☒ PASS

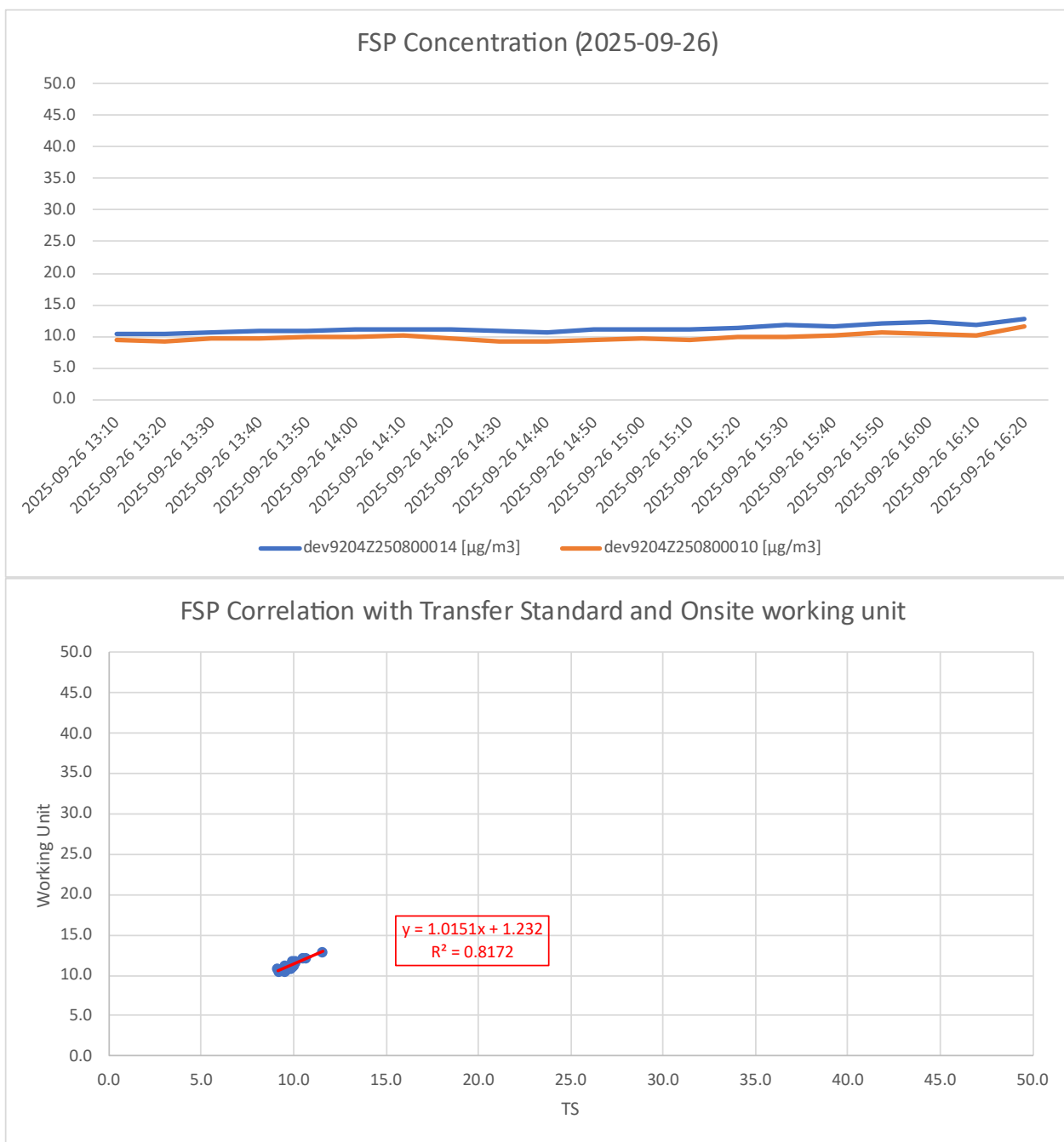
Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.

FSP:

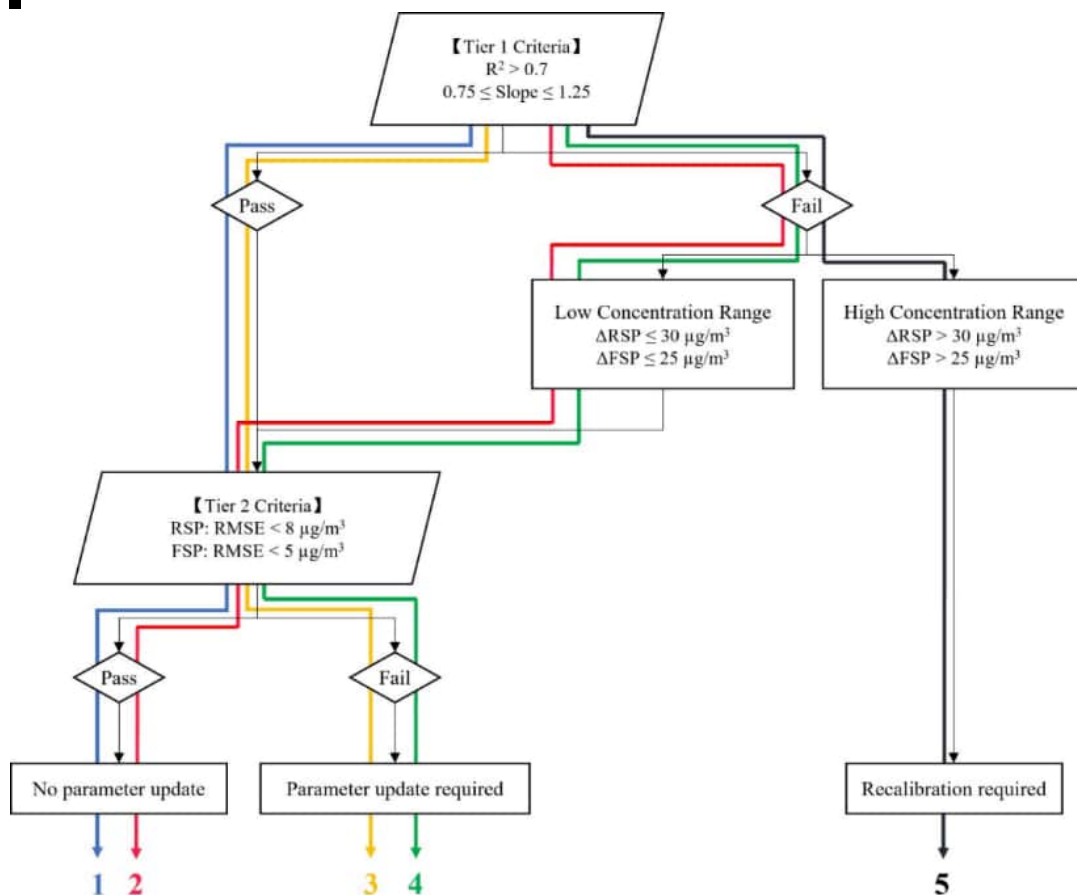
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	1.02	☒ PASS
Linearity (R ²)	> 0.70	0.82	☒ PASS
If Tier 1 fails, Conc. Range will be checked	FSP ≤ 25 µg/m ³ is low conc. range	2.4 µg/m ³	Not applicable
<u>Tier 2</u>			
Error (RMSE)	< 5 µg/m ³ for FSP	1.4 µg/m ³	☒ PASS

Remark: Follow QAQC Protocol Path 1 which is Criteria Tier 1 and Tier 2 passed.





QAQC Protocol chart flow



Conclusion:

The report approves that each calibrated item of the product meets its technical specifications. No calibration action is needed during this time.

Prepared by:	Yannis Qiu	Reviewed by:	George Zhang
--------------	------------	--------------	--------------

ONSITE EQUIPMENT VALIDATION RECORD

Product Information:

Report No.:	ZR/T CS.004-2025-09-Z15		
Product Model:	MAS Dust	Serial No.:	dev9204Z250800015
Issue Date:	2025-10-13		
Version	V1.1_20251013		

Traceability of Calibration Instrument:

Test Item	Calibration Instrument
PM _{2.5} (FSP) PM ₁₀ (RSP)	Transfer Standard: dev9204Z250800010 Location: M14 Rolling Hill – Outside of Rolling Hill Collocation Data Period: 2025-09-26 18:50 to 2025-09-26 22:00

Calibration Result:

RSP:

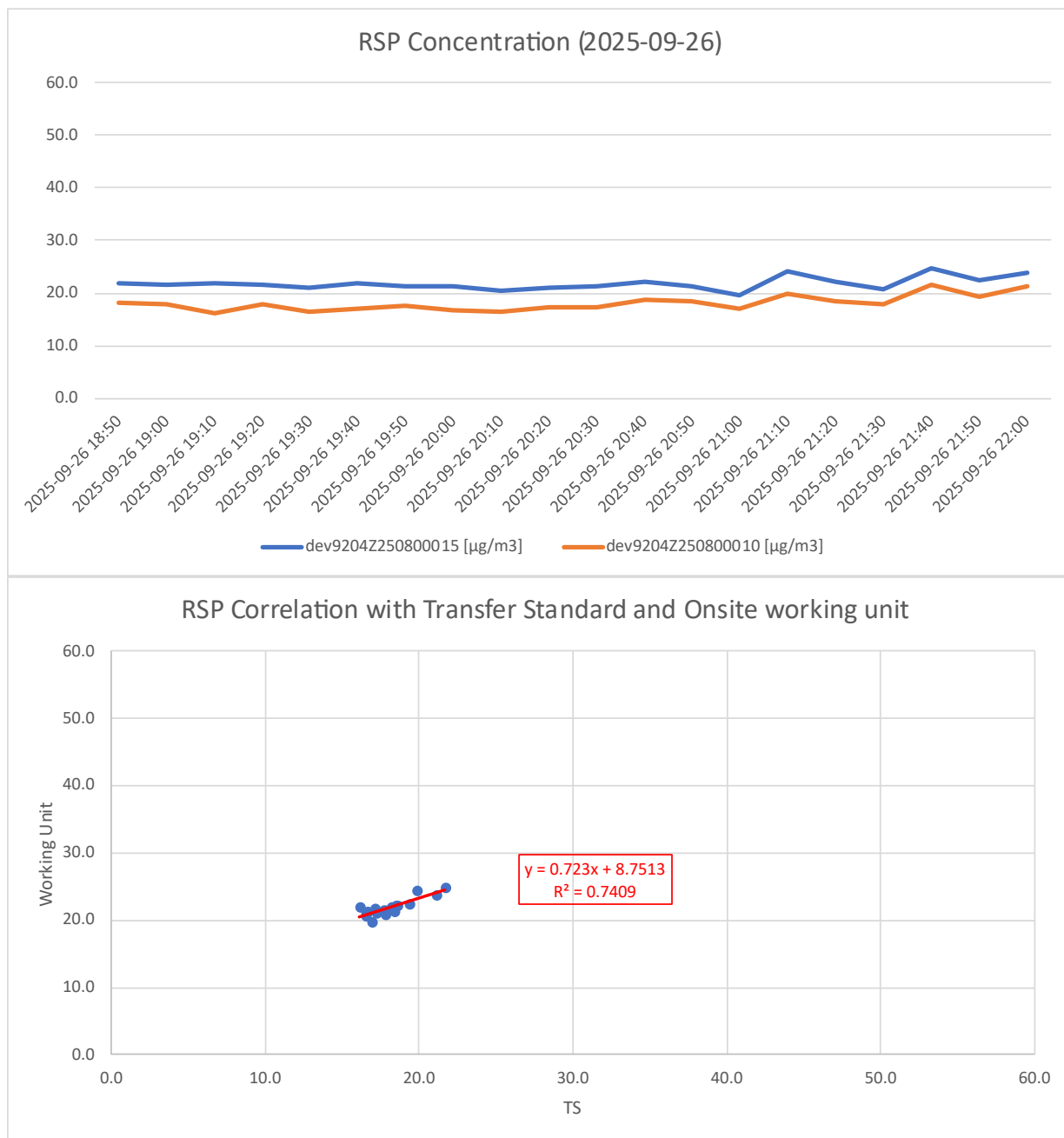
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	0.72	☒ FAIL
Linearity (R ²)	> 0.70	0.74	☒ PASS
If Tier 1 fails, Conc. Range will be checked	RSP ≤ 30 µg/m ³ is low conc. range	5.6 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
<u>Tier 2</u>			
Error (RMSE)	< 8 µg/m ³ for RSP	3.8 µg/m ³	☒ PASS

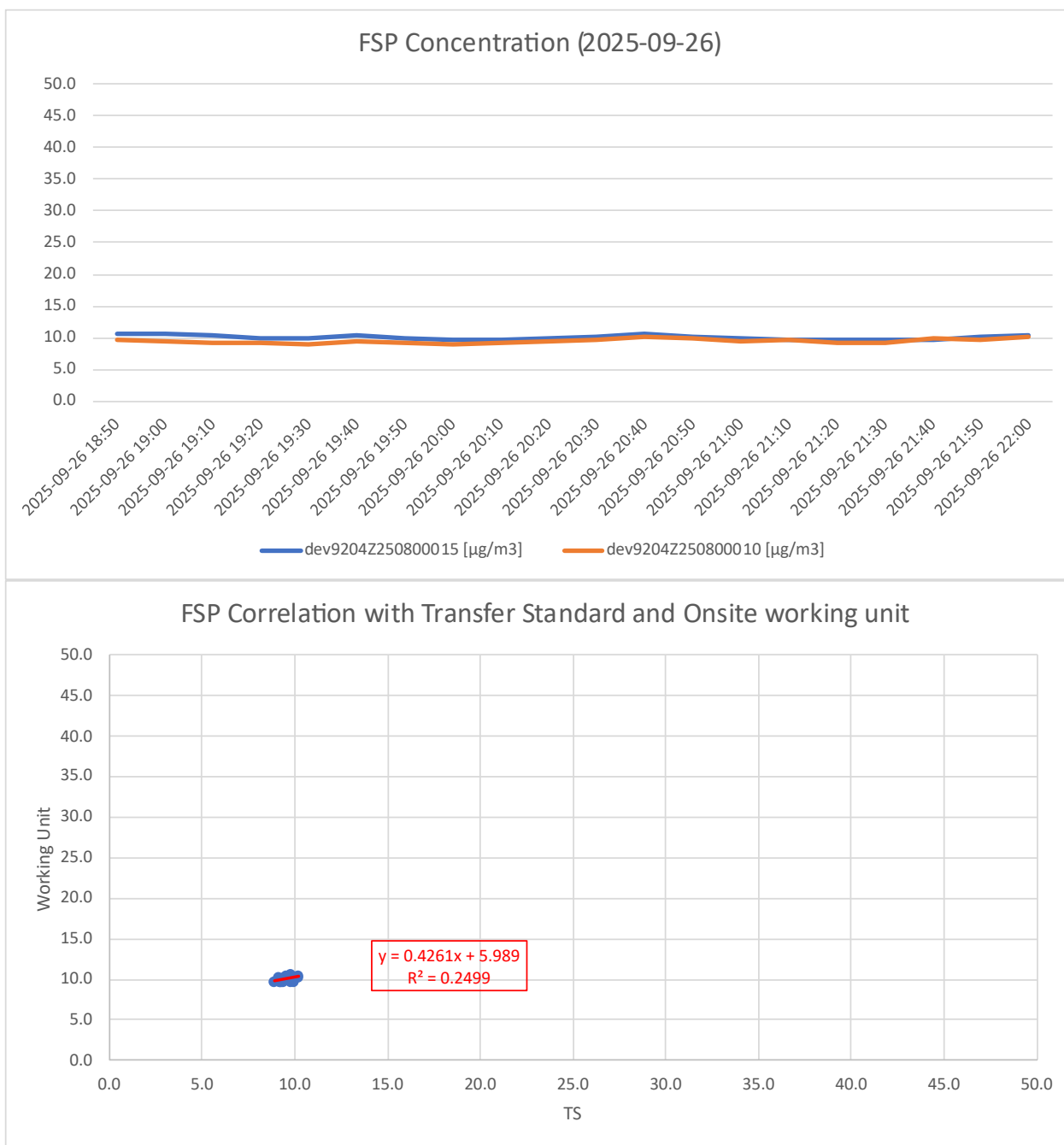
Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.

FSP:

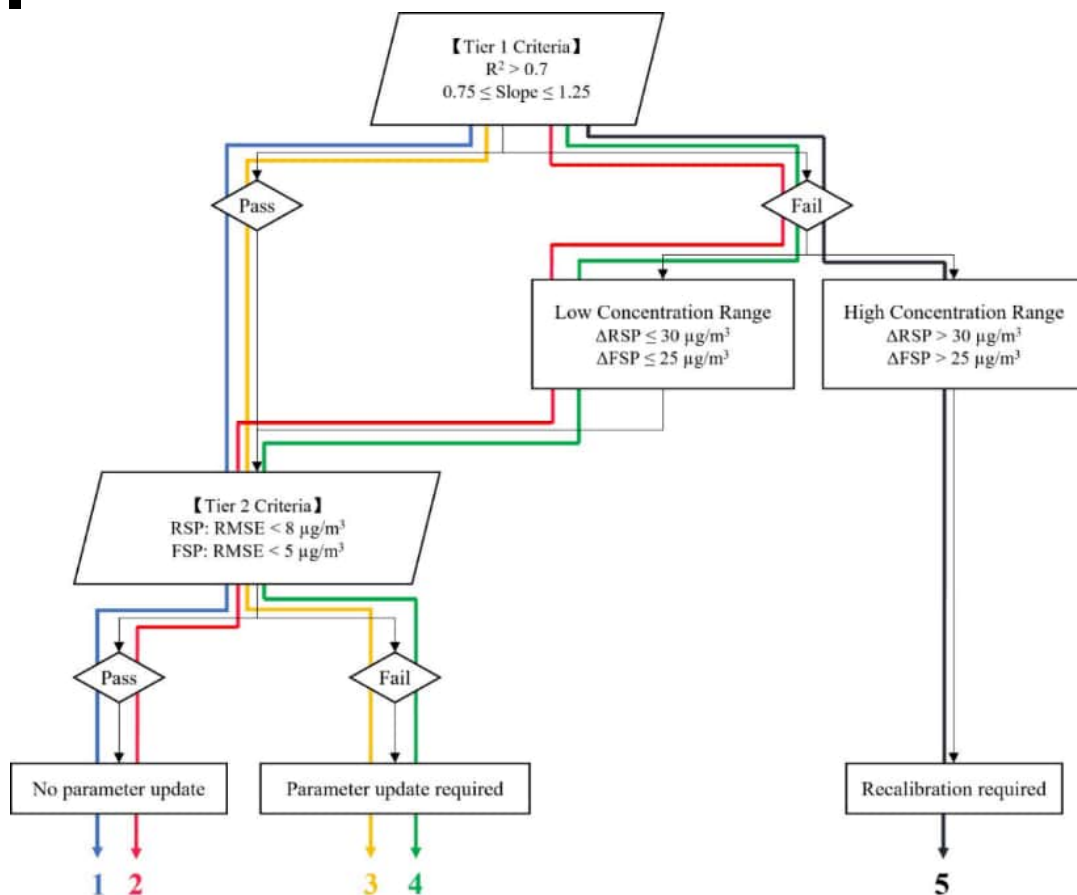
Performance Metric	Target Value	Actual Value	Result
<u>Tier 1</u>			
Bias (Slope)	1.00±0.25	0.43	☒ FAIL
Linearity (R ²)	> 0.70	0.25	☒ FAIL
If Tier 1 fails, Conc. Range will be checked	FSP ≤ 25 µg/m ³ is low conc. range	1.3 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
<u>Tier 2</u>			
Error (RMSE)	< 5 µg/m ³ for FSP	0.6 µg/m ³	☒ PASS

Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.





QAQC Protocol chart flow



Conclusion:

The report approves that each calibrated item of the product meets its technical specifications. No calibration action is needed during this time.

Prepared by:	Yannis Qiu	Reviewed by:	George Zhang
--------------	------------	--------------	--------------

ONSITE EQUIPMENT VALIDATION RECORD

Product Information:

Report No.:	ZR/T CS.004-2025-09-Z16		
Product Model:	MAS Dust	Serial No.:	dev9204Z250800016
Issue Date:	2025-10-13		
Version	V1.1_20251013		

Traceability of Calibration Instrument:

Test Item	Calibration Instrument
PM _{2.5} (FSP) PM ₁₀ (RSP)	Transfer Standard: dev9204Z250800011 Location: M13 Rolling Hill – Rooftop Area Collocation Data Period: 2025-09-26 18:50 to 2025-09-26 22:00

Calibration Result:

RSP:

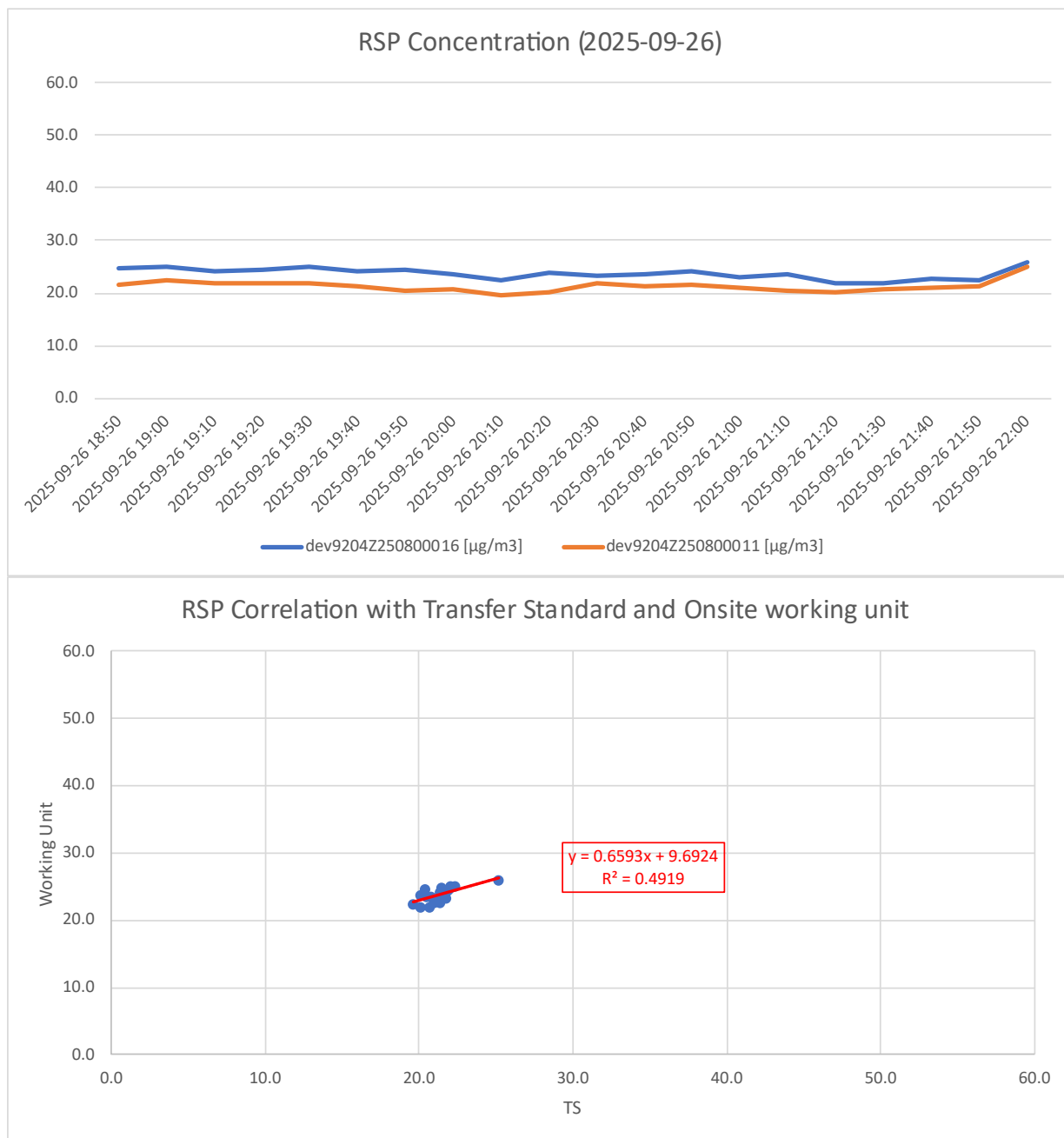
Performance Metric	Target Value	Actual Value	Result
Tier 1			
Bias (Slope)	1.00±0.25	0.66	☒ FAIL
Linearity (R ²)	> 0.70	0.49	☒ FAIL
If Tier 1 fails, Conc. Range will be checked	RSP ≤ 30 µg/m ³ is low conc. range	5.5 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
Tier 2			
Error (RMSE)	< 8 µg/m ³ for RSP	2.6 µg/m ³	☒ PASS

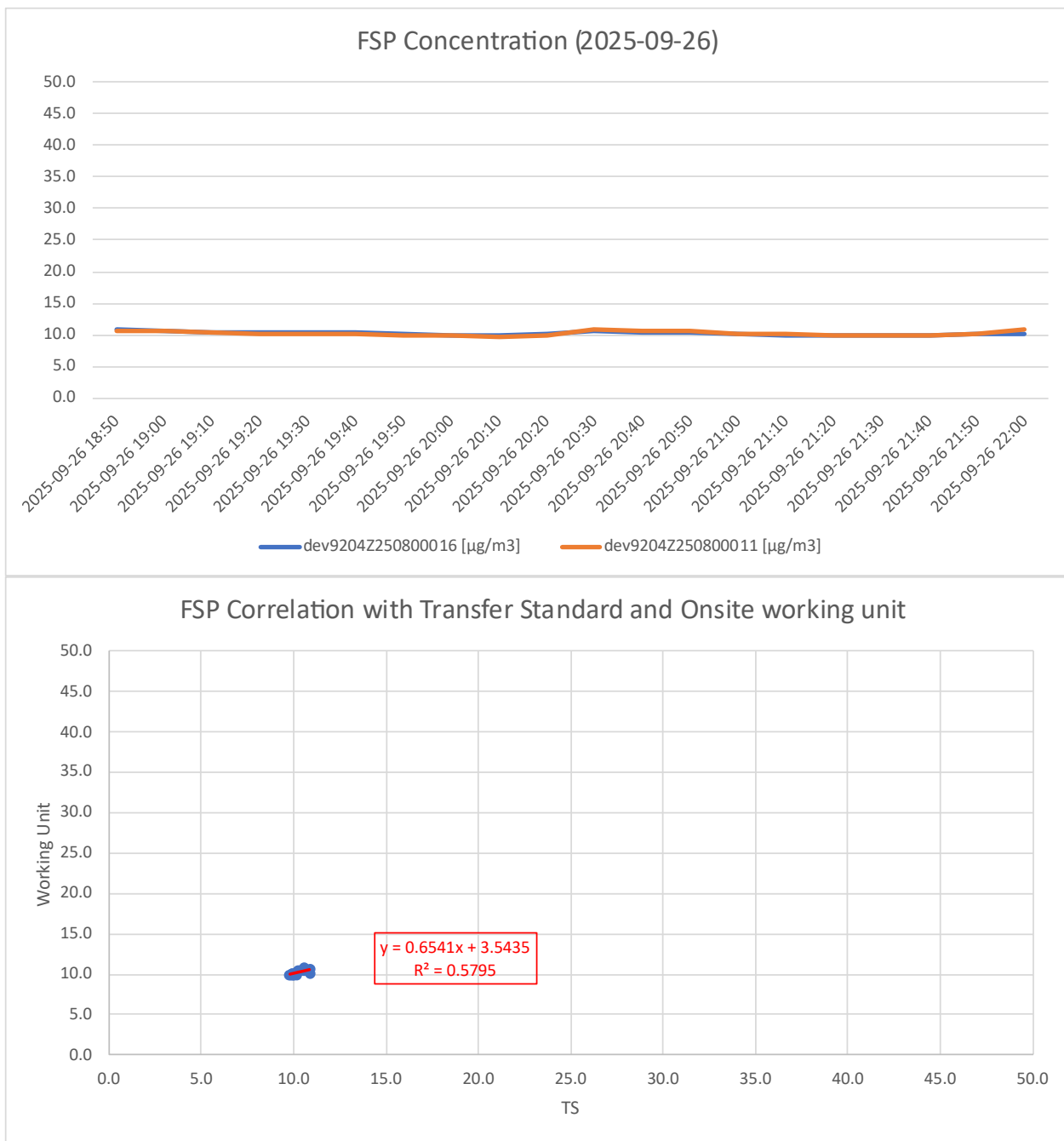
Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.

FSP:

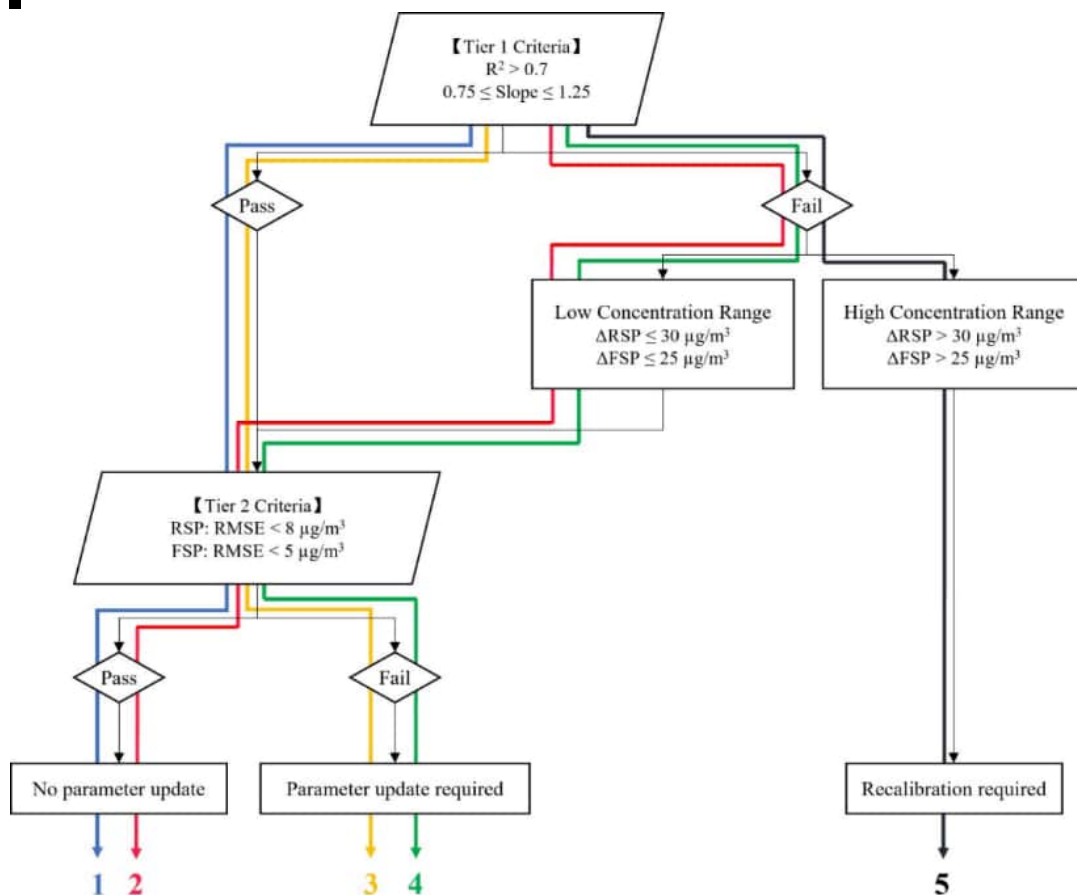
Performance Metric	Target Value	Actual Value	Result
Tier 1			
Bias (Slope)	1.00±0.25	0.65	☒ FAIL
Linearity (R ²)	> 0.70	0.58	☒ FAIL
If Tier 1 fails, Conc. Range will be checked	FSP ≤ 25 µg/m ³ is low conc. range	1.1 µg/m ³	If Tier 1 criteria are not met due to narrow range of PM concentration, during the collocation period, Tier 2 will apply.
Tier 2			
Error (RMSE)	< 5 µg/m ³ for FSP	0.2 µg/m ³	☒ PASS

Remark: Follow QAQC Protocol Path 2 which is Criteria Tier 1 failed while Tier 2 passed.





QAQC Protocol chart flow



Conclusion:

The report approves that each calibrated item of the product meets its technical specifications. No calibration action is needed during this time.

Prepared by:	Yannis Qiu	Reviewed by:	George Zhang
--------------	------------	--------------	--------------