ภาคผนวก จ

เอกสารสอบเทียบเครื่องมือ

List of Instruments Certification for Air & Noise Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration	Remark
Ambient									
1	Orifice Transfer Standard Calibrator	Total Suspended Particulate (TSP) Particulate Matter < 10 µm (PM_{10})	Andersen Instruments, Inc.	G25A 11MX	Jiranatee Associates Co., Ltd.	COF-023-68	26 Jun 25	25 Jun 26	-
2	U-Tube Manometer	Total Suspended Particulate (TSP) Particulate Matter < 10 µm (PM_{10})	Dwyer	1221-36-W/M -	Technology Promotion Association (Thailand-Japan)	25P3508	9 Sep 25	8 Sep 26	-
3	Aneroid Barometer	Total Suspended Particulate (TSP) Particulate Matter < 10 µm (PM_{10}) Particular Matter ($PM_{2.5}$)	Barigo, Germany	-	Technology Promotion Association (Thailand-Japan)	25P1379	17 Apr 25	16 Apr 26	-
4	Dial Thermo-Hygrometer	Total Suspended Particulate (TSP) Particulate Matter < 10 µm (PM_{10}) Particular Matter ($PM_{2.5}$)	Barigo, Germany	-	Technology Promotion Association (Thailand-Japan)	25H808	10 Apr 25	9 Apr 26	-
1	High Volume Air Sampler	Total Suspended Particulate (TSP)	Thremo Scientific	GS2312-10105-1 2010-06	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
2	High Volume Air Sampler	Total Suspended Particulate (TSP)	Thremo Scientific	GS2312-10105-1 2010-07	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
3	High Volume Air Sampler	Total Suspended Particulate (TSP)	Thremo Scientific	GS2312-10105-1 2010-08	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
4	High Volume Air Sampler	Total Suspended Particulate (TSP)	Thremo Scientific	GS2312-10105-1 2010-09	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
5	High Volume Air Sampler	Total Suspended Particulate (TSP)	Thremo Scientific	GS2312-10105-1 2010-10	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-

List of Instruments Certification for Air & Noise Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration	Remark
Ambient									
1	High Volume Air Sample	Particulate Matter < 10 µm (PM_{10})	Thremo Scientific	IP10-1 2010-01	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
2	High Volume Air Sample	Particulate Matter < 10 µm (PM_{10})	Thremo Scientific	IP10-1 2010-02	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
3	High Volume Air Sample	Particulate Matter < 10 µm (PM_{10})	Thremo Scientific	IP10-1 2010-03	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
4	High Volume Air Sample	Particulate Matter < 10 µm (PM_{10})	Thremo Scientific	IP10-1 2010-04	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
5	High Volume Air Sample	Particulate Matter < 10 µm (PM_{10})	Thremo Scientific	IP10-1 2010-05	Jiranatee Associates Co., Ltd.	Ref. No.11MX	26 Jun 25	25 Jun 26	-
1	Nitrogen Dioxide Analyzer	Nitrogen Dioxide	Thermo Scientific	42i CM22387039	UAE Consultant Co.,Ltd.	12052025	12 May 25	11 May 26	-

List of Instruments Certification for Air & Noise Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration	Remark
Ambient									
3	Nitrogen Dioxide Analyzer	Nitrogen Dioxide	Thermo Environmental Instrument	42C 42C-78933-390	UAE Consultant Co.,Ltd.	07052025	7 May 25	6 May 26	-
4	Nitrogen Dioxide Analyzer	Nitrogen Dioxide	Thermo Scientific	42i 1180540063	UAE Consultant Co.,Ltd.	02052025	2 May 25	1 May 26	-
5	Nitrogen Dioxide Analyzer	Nitrogen Dioxide	Thermo Scientific	42i 1182920005	UAE Consultant Co.,Ltd.	07052025	7 May 25	6 May 26	-
6	Standard Gases (Mixture)	Nitrogen Dioxide	Airgas	EB0162121 2016PSIG	Airgas an Air Liquide company	E05NI91E15A0014	6 Jun 23	6 Jun 31	-
1	Sulphur Dioxide Analyzer	Sulphur Dioxide	Thermo Scientific	43i 1200906875	UAE Consultant Co.,Ltd.	12052025	12 May 25	11 May 26	-
2	Sulphur Dioxide Analyzer	Sulphur Dioxide	Thermo Scientific	43i 1201778111	UAE Consultant Co.,Ltd.	14052025	15 May 25	14 May 26	-
3	Sulphur Dioxide Analyzer	Sulphur Dioxide	Thermo Scientific	43i 1201778112	UAE Consultant Co.,Ltd.	06052025	6 May 25	5 May 26	-
4	Sulphur Dioxide Analyzer	Sulphur Dioxide	Thermo Scientific	43i 1201778113	UAE Consultant Co.,Ltd.	06052025	6 May 25	5 May 26	-
5	Sulphur Dioxide Analyzer	Sulphur Dioxide	Thermo Scientific	43i 1201778115	UAE Consultant Co.,Ltd.	06052025	6 May 25	5 May 26	-
6	Standard Gases (Mixture)	Sulphur Dioxide	Airgas	EB0162121 2016PSIG	Airgas an Air Liquide company	E05NI91E15A0014	6 Jun 23	6 Jun 31	-
1	Wind Speed/Wind Direction	WS/WD	LSI Lastem	E-LOG 305 / DNA 827 20020298 / 20010094	Thai Meteorological Department	306/25	28 Apr 25	27 Apr 26	-
2	Wind Speed/Wind Direction	WS/WD	LSI Lastem	E-LOG 305 / DNA 821 20020305 / 20040161	Thai Meteorological Department	318/25	7 May 25	6 May 26	-
3	Wind Speed/Wind Direction	WS/WD	LSI Lastem	E-LOG 305 / DNA 821 20040002 / 20040162	Thai Meteorological Department	319/25	7 May 25	6 May 26	-
4	Wind Speed/Wind Direction	WS/WD	Scarlet Tech Ltd.	E-LOG 305 / DNA 827 20020300 / 20010094	Thai Meteorological Department	305/25	28 Apr 25	27 Apr 26	-

List of Instruments Certification for Air & Noise Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration	Remark
Ambient									
5	Wind Speed/Wind Direction	WS/WD	Scarlet Tech Ltd.	034B / 500 Y11373 / X23723	Thai Meteorological Department	160/25	17 Mar 25	16 Mar 26	-
1	Vibration Meter	Vibration Level Acceleration Level	Instantel Inc.	Micromate UM11229	Calibration Laboratory Co.Ltd	Q25084761	19 Jul 25	18 Jul 26	-
2	Vibration Meter	Vibration Level Acceleration Level	Instantel Inc.	Micromate UM11356	Calibration Laboratory Co.Ltd	Q25084762	19 Jul 25	18 Jul 26	-
3	Vibration Meter	Vibration Level Acceleration Level	Instantel Inc.	Micromate UM12393	Calibration Laboratory Co.Ltd	Q25084758	19 Jul 25	18 Jul 26	-
4	Vibration Meter	Vibration Level Acceleration Level	Instantel Inc.	Micromate UM12394	Calibration Laboratory Co.Ltd	Q25070066	18 Jun 25	17 Jun 26	-
5	Vibration Meter	Vibration Level Acceleration Level	Instantel Inc.	Micromate UM12395	Calibration Laboratory Co.Ltd	Q25084756	19 Jul 25	18 Jul 26	-

List of Instruments Certification for Air & Noise Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration	Remark
Ambient									
1	Sound Level Calibrator (Acoustic Calibrator)	Calibrate Sound Level Meter	Larson Davis	CAL150 6695	Innovative Instrument Co.,Ltd.	25-ACT-135	9 Sep 25	8 Sep 26	-
2	Sound Level Meter	$L_{Aeq\ 24\ hours}$, L_{Amax}, L_{A90}, L_{Adn}	Larson Davis	LxT2 0005286	Innovative Instrument Co.,Ltd.	25-SLM-272	11 Aug 25	10 Aug 27	-
3	Sound Level Meter	$L_{Aeq\ 24\ hours}$, L_{Amax}, L_{A90}, L_{Adn}	Larson Davis	LxT2 0005287	Innovative Instrument Co.,Ltd.	25-SLM-241	29 Jul 25	28 Jul 27	-
4	Sound Level Meter	$L_{Aeq\ 24\ hours}$, L_{Amax}, L_{A90}, L_{Adn}	Larson Davis	LxT2 0005288	Innovative Instrument Co.,Ltd.	25-SLM-242	29 Jul 25	28 Jul 27	-
5	Sound Level Meter	$L_{Aeq\ 24\ hours}$, L_{Amax}, L_{A90}, L_{Adn}	Larson Davis	LxT2 0005298	Electrical And Electronics Institute Foundation For Industrial Development	CP20240341EA	23 Sep 24	22 Sep 26	-
6	Sound Level Meter	$L_{Aeq\ 24\ hours}$, L_{Amax}, L_{A90}, L_{Adn}	Larson Davis	LxT2 0005299	Innovative Instrument Co.,Ltd.	25-SLM-273	11 Aug 25	10 Aug 27	-
7	Sound Level Meter	$L_{Aeq\ 24\ hours}$, L_{Amax}, L_{A90}, L_{Adn}	Larson Davis	LxT2 0005328	Electrical And Electronics Institute Foundation For Industrial Development	CP20250040EA	3 Feb 25	2 Feb 27	-

List of Instrument Certificates for Environmental Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration*
1	Atomic Absorption Spectrometer	IRON	Agilent Technologies	AA240FS / MY13160001	Agilent Technologies (Thailand) Co.,Ltd.	Preventive Maintenance Checklist	30/1/2025	29/1/2026
2	Analytical Balance	TOTAL DISSOLVED SOLIDS	Mettler Toledo	XSR205DU / C210685394	National Food Institute,Ministry of Industry, Thailand	2502226-002-01	20/3/2025	19/3/2026
3	Analytical Balance	TOTAL SUSPENDED SOLIDS	Mettler Toledo	XSR205DU / C009071872	National Food Institute,Ministry of Industry, Thailand	2502226-001-01	20/3/2025	19/3/2026
4	UV-VIS Spectrophotometer	SULPHATE	Hitachi	U-2900 / 21E22-009	DQE Services Co.,Ltd.	SP25-001	3/1/2025	2/1/2026
5	Turbidity Meter (Portable)	TURBIDITY (NTU)	Oakton Instruments(China)	T100IR / 1120501017	Technology Promotion Association (Thailand-Japan)	24CH1115	6/9/2024	5/9/2025

Due Date of Calibration* : Based on the annual calibration plan. At least 1 time per year.

List of Instrument Certificates for Environmental Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration*
1	Atomic Absorption Spectrometer	IRON	Agilent Technologies	AA240FS / MY13160001	Agilent Technologies (Thailand) Co.,Ltd.	Preventive Maintenance Checklist	30/1/2025	29/1/2026
2	Analytical Balance	TOTAL DISSOLVED SOLIDS	Mettler Toledo	XSR205DU / C210685394	National Food Institute,Ministry of Industry, Thailand	2502226-002-01	20/3/2025	19/3/2026
3	Analytical Balance	TOTAL SUSPENDED SOLIDS	Mettler Toledo	XSR205DU / C009071872	National Food Institute,Ministry of Industry, Thailand	2502226-001-01	20/3/2025	19/3/2026
4	pH Meter	pH	Horiba	LAQUA-PH210 / HA0A0005	technology promotion association (thailand-japan	24CH1597	26/12/2024	24/12/2025
5	UV-VIS Spectrophotometer	SULPHATE	Hitachi	U-2900 / 21E22-009	DQE Services Co.,Ltd.	SP25-021	26/5/2025	25/5/2026
6	Turbidity Meter (Portable)	TURBIDITY (NTU)	Oakton Instruments(China)	T100IR / 1120501017	Technology Promotion Association (Thailand-Japan)	25CH1053	9/9/2025	7/9/2026

Due Date of Calibration* : Based on the annual calibration plan. At least 1 time per year.

List of Instrument Certificates for Environmental Quality Analysis

No.	Instrument/Equipment	Parameter	Manufacturer	Model/Serial No.	Calibrator	Certification No.	Date of Calibration	Due date of Calibration*
1	Atomic Absorption Spectrometer	CADMIUM IRON LEAD	Agilent Technologies	AA240FS / MY13160001	Agilent Technologies (Thailand) Co.,Ltd.	Preventive Maintenance Checklist	30/1/2025	29/1/2026
2	Atomic Absorption Spectrometer	ARSENIC	Perkin Elmer	PinAAcle 900F / PFB20031902	Perkin Elmer Co.,Ltd.	Preventive Maintenance Report	27/10/2025	26/10/2026
3	Analytical Balance	TOTAL DISSOLVED SOLIDS	Mettler Toledo	XSR205DU / C210685394	National Food Institute,Ministry of Industry, Thailand	2502226-002-01	20/3/2025	19/3/2026
4	Analytical Balance	TOTAL SUSPENDED SOLIDS	Mettler Toledo	XSR205DU / C009071872	National Food Institute,Ministry of Industry, Thailand	2502226-001-01	20/3/2025	19/3/2026
5	Mercury Analyzer	MERCURY	NIC. Japan	RA-4500 / 17780278	Coax Group Corporation Ltd.	Preventive Maintenance Report	2/7/2025	1/7/2026
6	pH Meter	pH	Horiba	LAQUA-PH210 / HA9M0047	technology promotion association (thailand-japan	25CH354	20/3/2025	18/3/2026
7	UV-VIS Spectrophotometer	SULPHATE	Hitachi	U-2900 / 21E22-009	DQE Services Co.,Ltd.	SP25-021	26/5/2025	25/5/2026
8	Turbidity Meter (Portable)	TURBIDITY (NTU)	Oakton Instruments(China)	T100IR / 1120501017	Technology Promotion Association (Thailand-Japan)	25CH1053	9/9/2025	7/9/2026

Due Date of Calibration* : Based on the annual calibration plan. At least 1 time per year.

NAC

CERTIFICATE OF CALIBRATION

Jiranatee Associates Co.,Ltd.

เอกสารไม่ควบคุม

NAC

Jiranatee Associates Co.,Ltd.

เอกสารไม่ควบคุม

Certificate of Calibration

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Certificate of Calibration

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Certificate of Calibration

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เอกสารไม่ควบคุม

MULTI-POINT GAS TEST REPORT

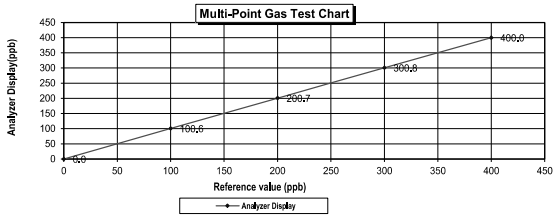
Test Date : May 12,2025

Equipment :	Gas Analyzer (NO_2)	**Model :**	42i
Manufacturer :	Thermo Scientific	**Serial Number :**	CM22387039

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89	PPM	Manufacturer :	Thermo Scientific
Nitric Oxide (NO)	46.77	PPM	Model :	146i
Methane (CH_4)	-	PPM	Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB0159156			
Expiration Date :	Nov 6,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.6	0.60	0.60	0.60
Level 3	40.00%	200.0	200.7	0.70	0.35	0.35
Level 4	60.00%	300.0	300.8	0.80	0.27	0.27
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range		500.0 ppb		Average Difference (%)		0.24
:Acceptable Limit ± 5%						



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7 May / 2025

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MULTI-POINT GAS TEST REPORT

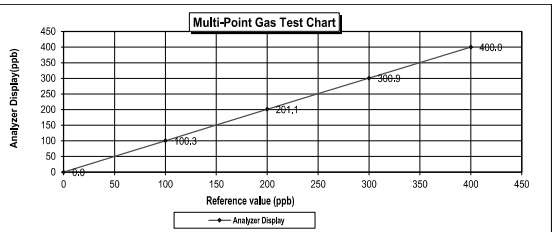
Test Date : May 7,2025

Equipment :	Gas Analyzer (NO_2)	**Model :**	42C
Manufacturer :	Thermo Environmental Instruments	**Serial Number :**	42C-78933-390

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89	PPM	Manufacturer :	Thermo Scientific
Nitric Oxide (NO)	46.77	PPM	Model :	146i
Methane (CH_4)	-	PPM	Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB0159156			
Expiration Date :	Nov 6,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.3	0.30	0.30	0.30
Level 3	40.00%	200.0	201.1	1.10	0.55	0.55
Level 4	60.00%	300.0	300.9	0.90	0.30	0.30
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range		500.0 ppb		Average Difference (%)		0.23
:Acceptable Limit ± 5%						



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MULTI-POINT GAS TEST REPORT

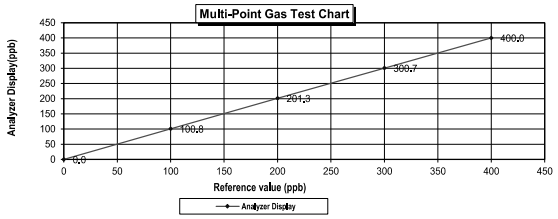
Test Date : May 2,2025

Equipment :	Gas Analyzer (NO_2)	**Model :**	42i
Manufacturer :	Thermo Scientific	**Serial Number :**	1180540063

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89	PPM	Manufacturer :	Thermo Scientific
Nitric Oxide (NO)	46.77	PPM	Model :	146i
Methane (CH_4)	-	PPM	Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB0159156			
Expiration Date :	Nov 6,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.8	0.80	0.79	0.79
Level 3	40.00%	200.0	201.3	1.30	0.65	0.65
Level 4	60.00%	300.0	300.7	0.70	0.23	0.23
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range		500.0 ppb		Average Difference (%)		0.33
:Acceptable Limit ± 5%						



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MULTI-POINT GAS TEST REPORT

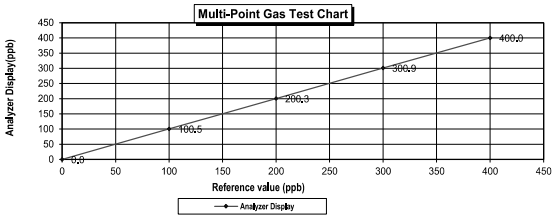
Test Date : May 7,2025

Equipment :	Gas Analyzer (NO_2)	**Model :**	42i
Manufacturer :	Thermo Scientific	**Serial Number :**	1182920005

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89	PPM	Manufacturer :	Thermo Scientific
Nitric Oxide (NO)	46.77	PPM	Model :	146i
Methane (CH_4)	-	PPM	Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB0159156			
Expiration Date :	Nov 6,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.5	0.50	0.50	0.50
Level 3	40.00%	200.0	200.3	0.30	0.15	0.15
Level 4	60.00%	300.0	300.9	0.90	0.30	0.30
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range		500.0 ppb		Average Difference (%)		0.19
:Acceptable Limit ± 5%						



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7 May / 2025

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Airgas

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

เอกสารไม่ควบคุม

United Analysis and Engineering Consultant Co., Ltd.

MULTI-POINT GAS TEST REPORT

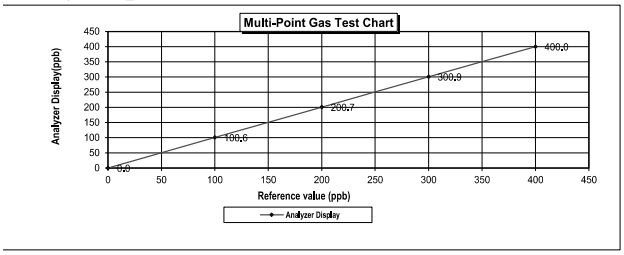
Test Date : May 12,2025

Equipment :	Gas Analyzer (SO_2)	**Model :**	43i
Manufacturer :	Thermo SCIENTIFIC	**Serial Number :**	1200906875

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89 PPM		Manufacturer :	Thermo SCIENTIFIC
Nitric Oxide (NO)	46.77 PPM		Model :	146i
Methane (CH_4)	- PPM		Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB01159156			
Expiration Date :	Nov 06,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.6	0.60	0.60	0.60
Level 3	40.00%	200.0	200.7	0.70	0.35	0.35
Level 4	60.00%	300.0	300.9	0.90	0.30	0.30
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range :Acceptable Limit ± 5%		500.0 ppb		Average Difference (%)		0.25



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เอกสารไม่ควบคุม

United Analysis and Engineering Consultant Co., Ltd.

MULTI-POINT GAS TEST REPORT

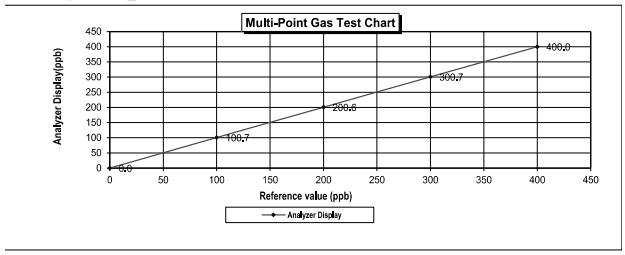
Test Date : May 15,2025

Equipment :	Gas Analyzer (SO_2)	**Model :**	43i
Manufacturer :	Thermo SCIENTIFIC	**Serial Number :**	1201778111

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89 PPM		Manufacturer :	Thermo SCIENTIFIC
Nitric Oxide (NO)	46.77 PPM		Model :	146i
Methane (CH_4)	- PPM		Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB01159156			
Expiration Date :	Nov 06,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.7	0.70	0.70	0.70
Level 3	40.00%	200.0	200.6	0.60	0.30	0.30
Level 4	60.00%	300.0	300.7	0.70	0.23	0.23
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range :Acceptable Limit ± 5%		500.0 ppb		Average Difference (%)		0.25



Approved by

15...../...05..../...2025

15 May ../...2025

เอกสารไม่ควบคุม

United Analysis and Engineering Consultant Co., Ltd.

MULTI-POINT GAS TEST REPORT

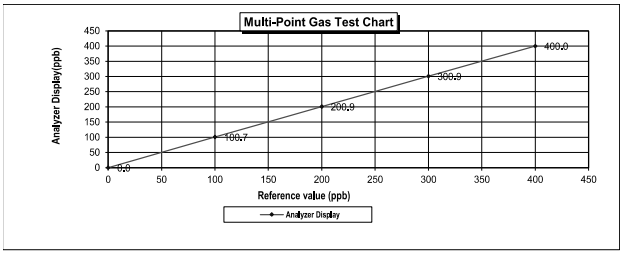
Test Date : May 6,2025

Equipment :	Gas Analyzer (SO_2)	**Model :**	43i
Manufacturer :	Thermo SCIENTIFIC	**Serial Number :**	1201778112

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89 PPM		Manufacturer :	Thermo SCIENTIFIC
Nitric Oxide (NO)	46.77 PPM		Model :	146i
Methane (CH_4)	- PPM		Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB0159156			
Expiration Date :	Nov 06,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.7	0.70	0.70	0.70
Level 3	40.00%	200.0	200.9	0.90	0.45	0.45
Level 4	60.00%	300.0	300.9	0.90	0.30	0.30
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range :Acceptable Limit ± 5%		500.0 ppb		Average Difference (%)		0.29



Approved by

6...../...05..../...2025

6 May ../...2025

เอกสารไม่ควบคุม

MULTI-POINT GAS TEST REPORT

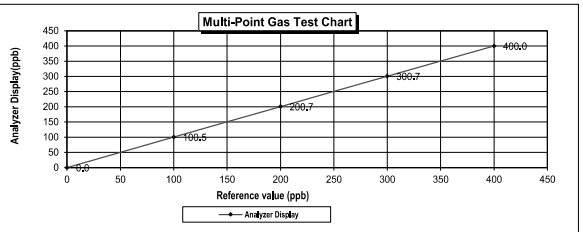
Test Date : May 6,2025

Equipment :	Gas Analyzer (SO_2)	**Model :**	43i
Manufacturer :	Thermo SCIENTIFIC	**Serial Number :**	1201778113

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89	PPM	Manufacturer :	Thermo SCIENTIFIC
Nitric Oxide (NO)	46.77	PPM	Model :	146i
Methane (CH_4)	-	PPM	Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB0159156			
Expiration Date :	Nov 06,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.5	0.50	0.50	0.50
Level 3	40.00%	200.0	200.7	0.70	0.35	0.35
Level 4	60.00%	300.0	300.7	0.70	0.23	0.23
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range :Acceptable Limit ± 5%		500.0 ppb		Average Difference (%)		0.22



Tested by .....

6 /05/ 2025

Approve by .....

6 May /2025

เอกสารไม่ควบคุม

United Analysis and Engineering Consultant Co., Ltd.

MULTI-POINT GAS TEST REPORT

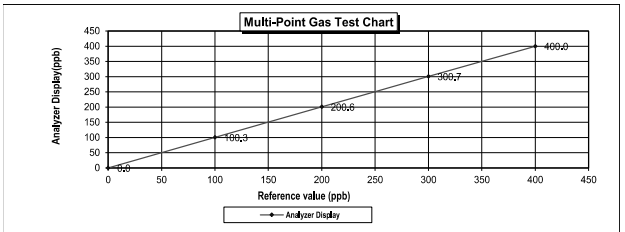
Test Date : May 6,2025

Equipment :	Gas Analyzer (SO_2)	**Model :**	43i
Manufacturer :	Thermo SCIENTIFIC	**Serial Number :**	1201778115

Standard Gas Concentration			**Dilutor Detail**	
Sulphur Dioxide (SO_2)	42.89	PPM	Manufacturer :	Thermo SCIENTIFIC
Nitric Oxide (NO)	46.77	PPM	Model :	146i
Methane (CH_4)	-	PPM	Serial Number :	1180540071
Carbon Monoxide (CO)	965.9			
Cylinder No. :	EB0159156			
Expiration Date :	Nov 06,2026			

Multi-point gas test data

Reference Value (ppb)			Analyzer Display (ppb)	Difference Error	Percent Error	[% Error]
Level 1	Zero	0.0	0.0	0.00	0.00	0.00
Level 2	20.00%	100.0	100.3	0.30	0.30	0.30
Level 3	40.00%	200.0	200.6	0.60	0.30	0.30
Level 4	60.00%	300.0	300.7	0.70	0.23	0.23
Level 5	80.00%	400.0	400.0	0.00	0.00	0.00
Remark : Measuring Range :Acceptable Limit ± 5%		500.0 ppb		Average Difference (%)		0.17



Tested by .....

6 /05/ 2025

Approve by .....

6 May /2025

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

THAI METEOROLOGICAL DEPARTMENT

The Result of Calibration

เอกสารไม่ควบคุม

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The Result of Calibration

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เอกสารไม่ควบคุม

Subject

เอกสารไม่ควบคุม

THAI METEOROLOGICAL DEPARTMENT

Calibration Certificate

เอกสารไม่ควบคุม

THAI METEOROLOGICAL DEPARTMENT

The Result of Calibration

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Calibration Certificate

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The Result of Calibration

เอกสารไม่ควบคุม

CERTIFICATE OF CALIBRATION

FOR

เอกสารไม่ควบคุม

REPORT OF CALIBRATION

FOR

เอกสารไม่ควบคุม

CALIBRATION LABORATORY CO.,LTD.

เอกสารไม่ควบคุม

CALIBRATION LABORATORY CO.,LTD.

เอกสารไม่ควบคุม

CALIBRATION LABORATORY CO.,LTD.

CERTIFICATE OF CALIBRATION

FOR

Calibrated by :

Approved by :

เอกสารไม่ควบคุม

CALIBRATION LABORATORY CO.,LTD.

REPORT OF CALIBRATION

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CALIBRATION LABORATORY CO., LTD.

REPORT OF CALIBRATION

FOR

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

Certificate of Calibration

CO.,LTD. Request No : Req-2025-1826

Bangkok 10260

Class : 2

Note

confidence approximately 95 %.

Calibrated By : Approved By :

เอกสารไม่ควบคุม

Note :

End of Calibration

เอกสารไม่ควบคุม

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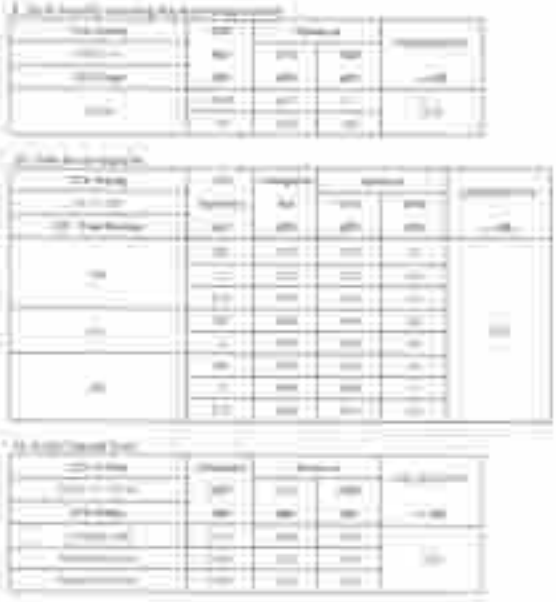
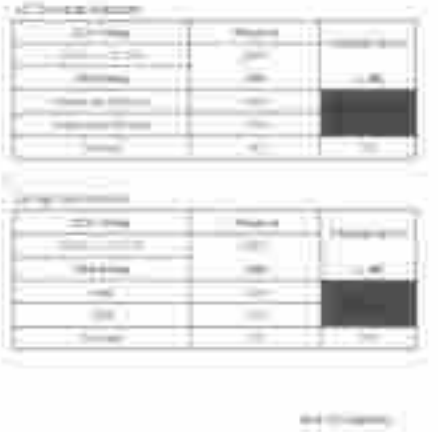
เอกสารไม่ควบคุม

innovative
ANAB



เอกสารไม่ควบคุม

innovative
ANAB



เอกสารไม่ควบคุม

innovative
ANAB

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innovative
ANAB

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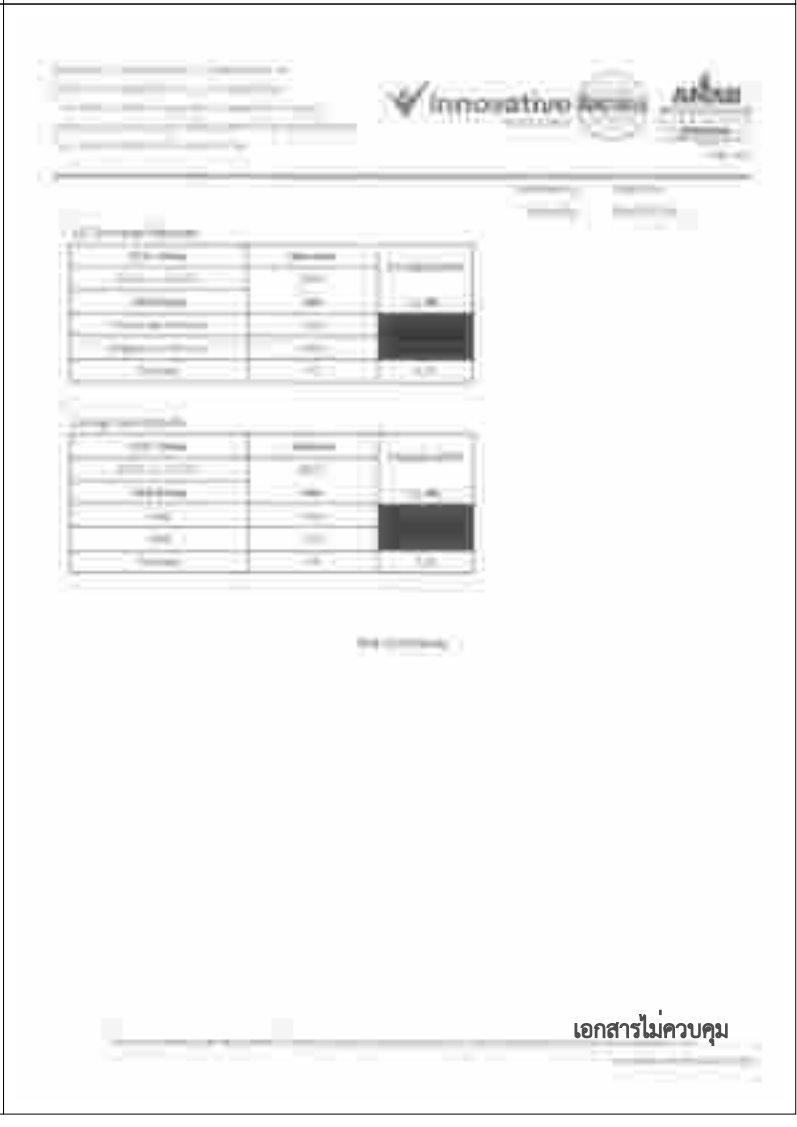

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Certificate of Calibration

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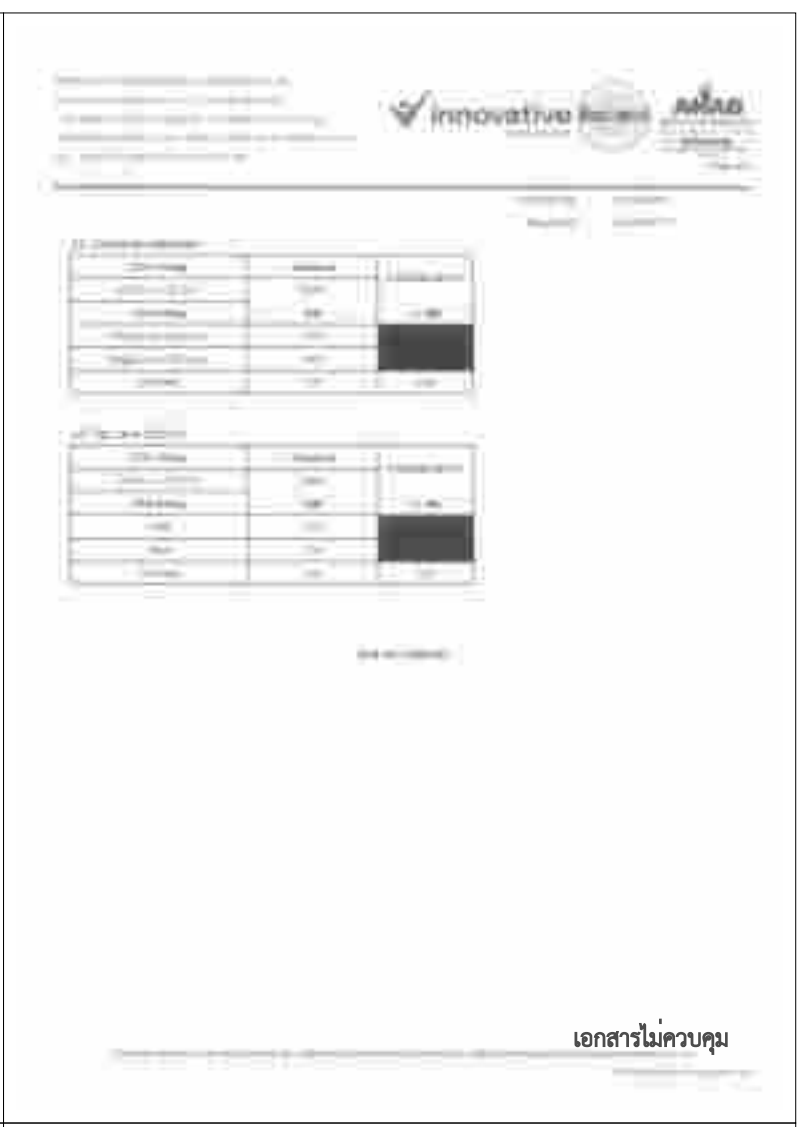

เอกสารไม่ควบคุม

Certificate of Calibration

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เอกสารไม่ควบคุม

CERTIFICATE OF CALIBRATION

Jiranatee Associates Co.,Ltd.

เอกสารไม่ควบคุม

Jiranatee Associates Co.,Ltd.

เอกสารไม่ควบคุม

Preventive Maintenance Checklist

Customer Information

Agilent

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Important Customer Web Links

Senior Engineer's Responsibilities

Agilent

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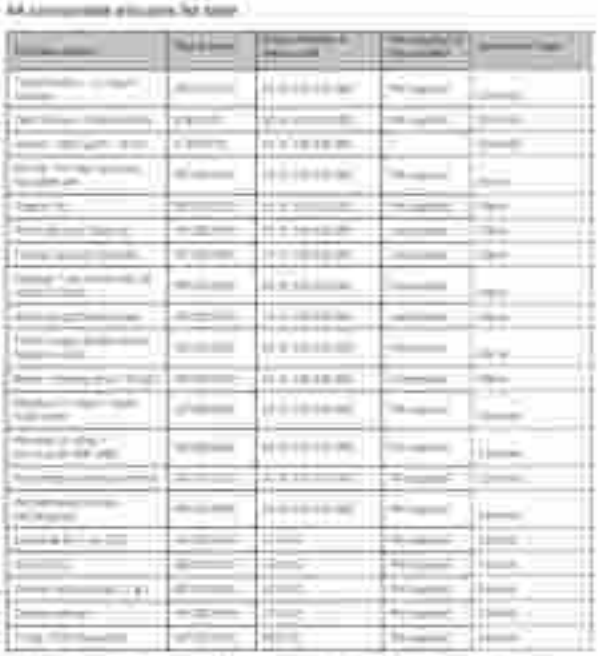

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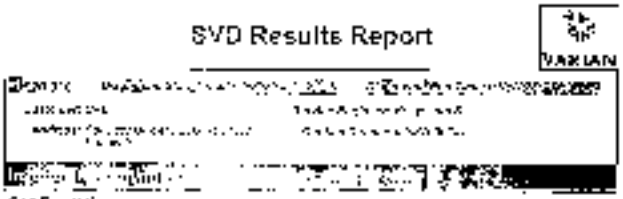
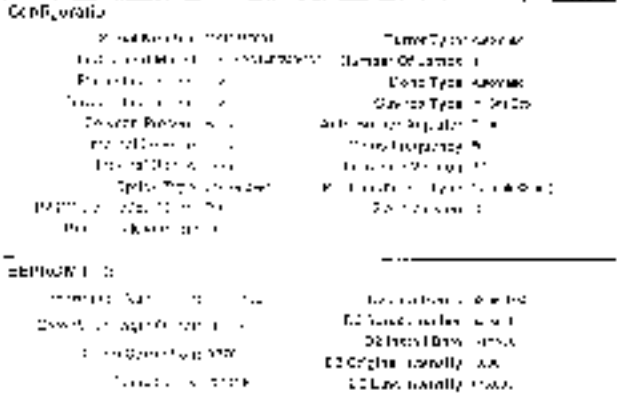
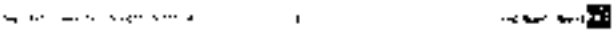
เอกสารไม่ควบคุม







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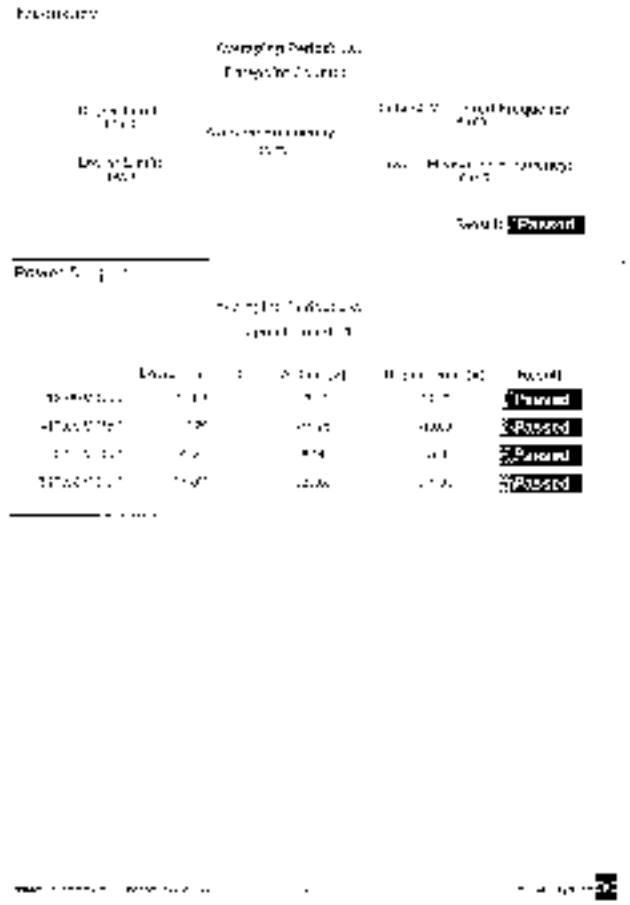

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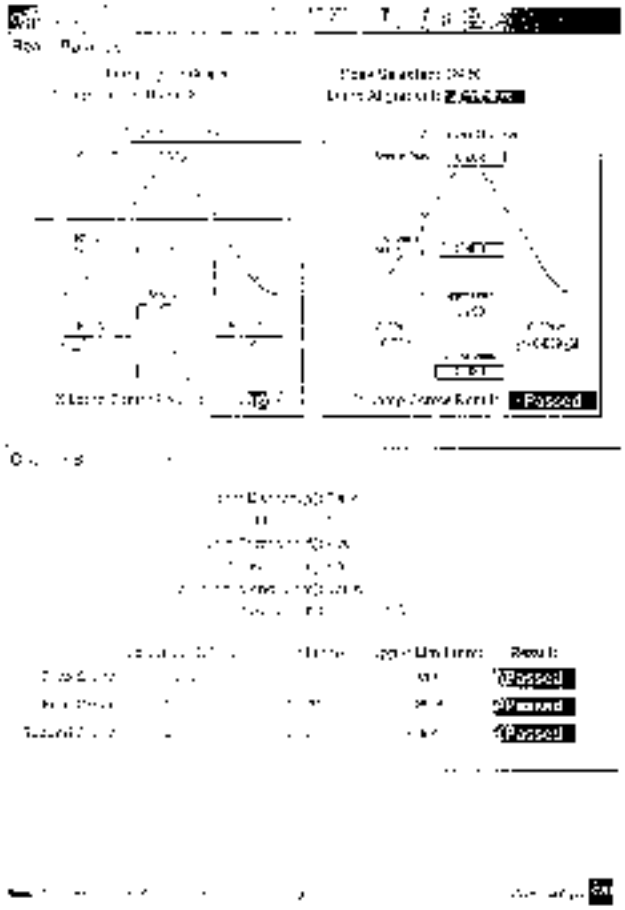

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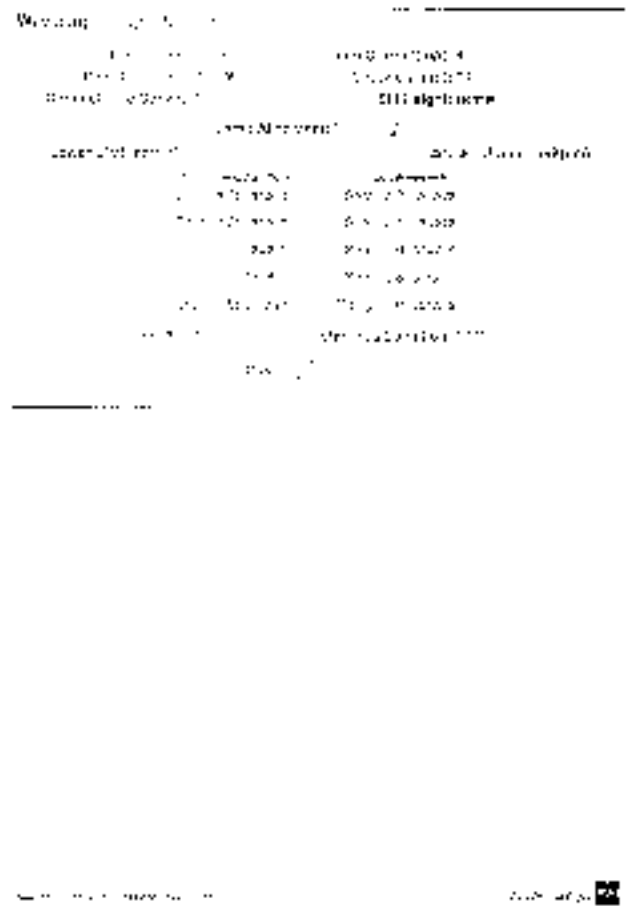
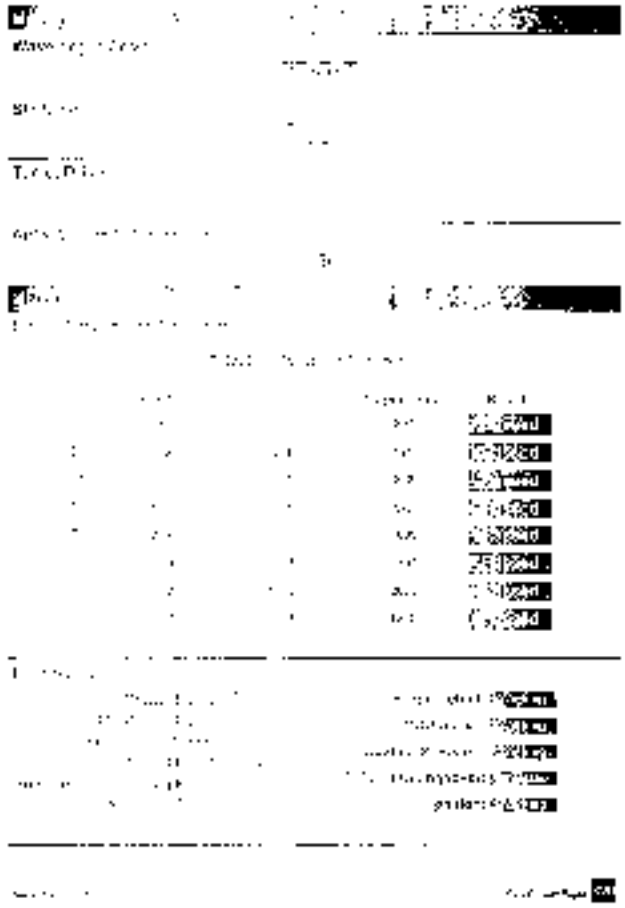
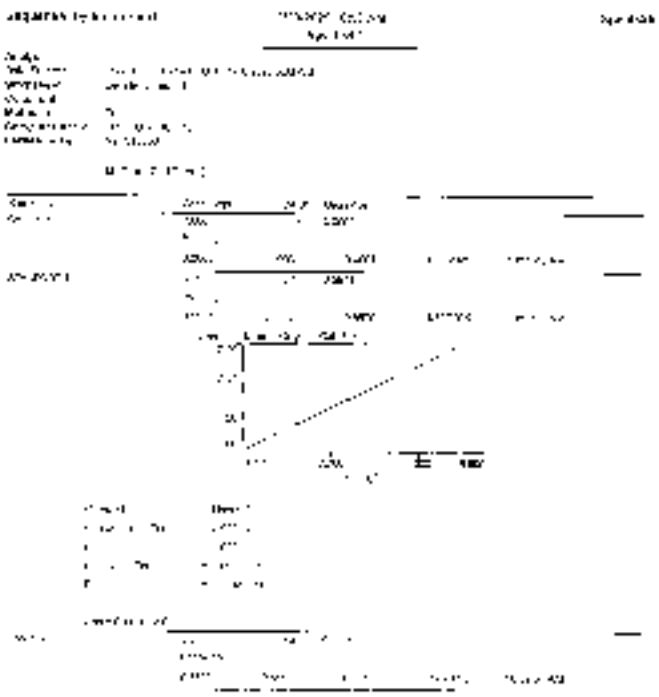


เอกสารไม่ควบคุม

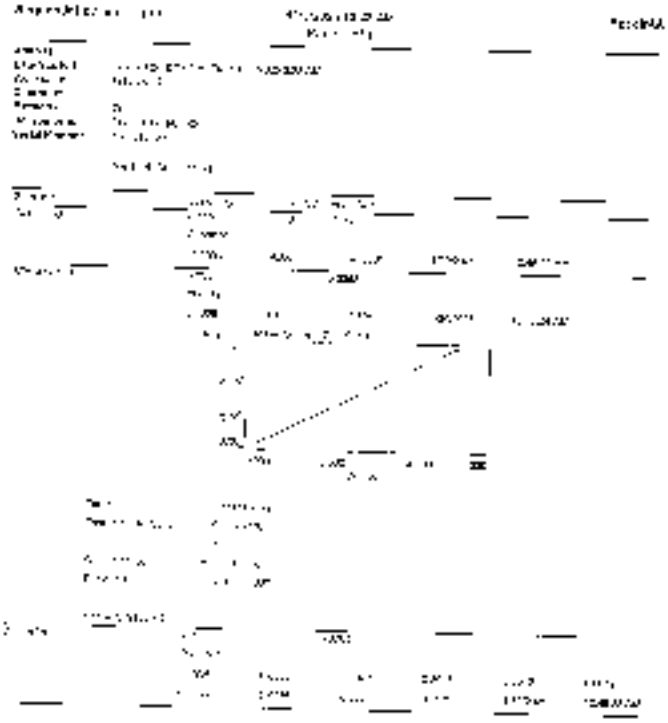


เอกสารไม่ควบคุม

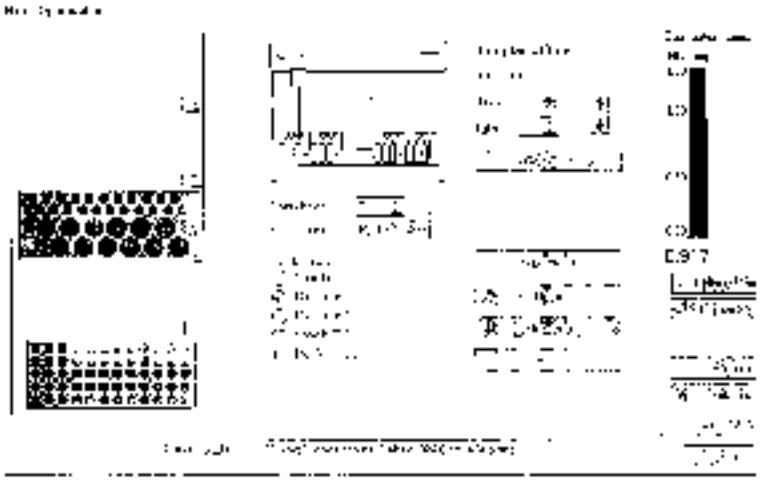
เอกสารไม่ควบคุม



เอกสารไม่ควบคุม



เอกสารไม่ควบคุม



เอกสารไม่ควบคุม

CERTIFICATE OF CALIBRATION

Certificate No. : [illegible]

Company : [illegible]

Address : [illegible]

Location of calibration : [illegible]

Equipment : [illegible]

Manufacturer : [illegible]

Model : [illegible]

Serial No. : [illegible]

ID No. : [illegible]

Received Date : [illegible]

Calibration Date : [illegible]

Issue Date : [illegible]

Condition Assessment : [illegible]

Calibrated by : [illegible]

Approved by : [illegible]

เอกสารไม่ควบคุม

REPORT OF CALIBRATION

Certificate No. : [illegible]

Customer : [illegible]

Calibration method : [illegible]

Certified Reference Materials :

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Remarks : [illegible]

Apparent Axial Width @ [illegible] : [illegible]

Gain Speed @ [illegible] : [illegible]

Gain Interval @ [illegible] : [illegible]

Resolution @ [illegible] : [illegible]

เอกสารไม่ควบคุม

REPORT OF CALIBRATION

Certificate No. : [illegible]

Calibration Results : [illegible]

Photometric Accuracy :

Wavelength (nm)	CRM's Value	UUT Reading	Correction	Uncertainty	Coverage Factor k
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

เอกสารไม่ควบคุม

REPORT OF CALIBRATION

Certificate No. : [illegible]

Photometric Accuracy :

Wavelength (nm)	CRM's Value	UUT Reading	Correction	Uncertainty	Coverage Factor k
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

เอกสารไม่ควบคุม

REPORT OF CALIBRATION

CDTA Value	YSI Reading	Correction	Uncertainty	Coverage Factor
(NTU)	(NTU)	(NTU)	(NTU)	k

เอกสารไม่ควบคุม

Certificate of Calibration

เอกสารไม่ควบคุม

Number of this calibration result				
1. Reference Standard used in calibration				
Instrument	Serial No.	ID No.	Certificate No.	Due date
2. Standard Material : The Turbidity suspension test was prepared with				
Material	Manufacturer	Lot No.	Expiry	

Nominal Turbidity Suspensions (NTU)	YSI* Reading (NTU)	Uncertainty of Measurement (±NTU)	Coverage Factor k

Remark : (*YSI = YSI Incorporated)
NTU = Nephelometric Turbidity Unit

เอกสารไม่ควบคุม

Calibration Certificate

Certificate No. :	
Client name :	
Address :	
Equipment :	
Manufacturer :	
Model :	
Serial No. :	
ID No. :	
Station No. :	
Operation No. :	
Date of Receipt :	
Date of Calibration :	

Calibrated by : Approved by :

เอกสารไม่ควบคุม

Calibration Report

เอกสารไม่ควบคุม

Calibration Report

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Calibration Report

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Calibration Certificate

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Calibration Report

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Preventive Maintenance Checklist

Customer Information

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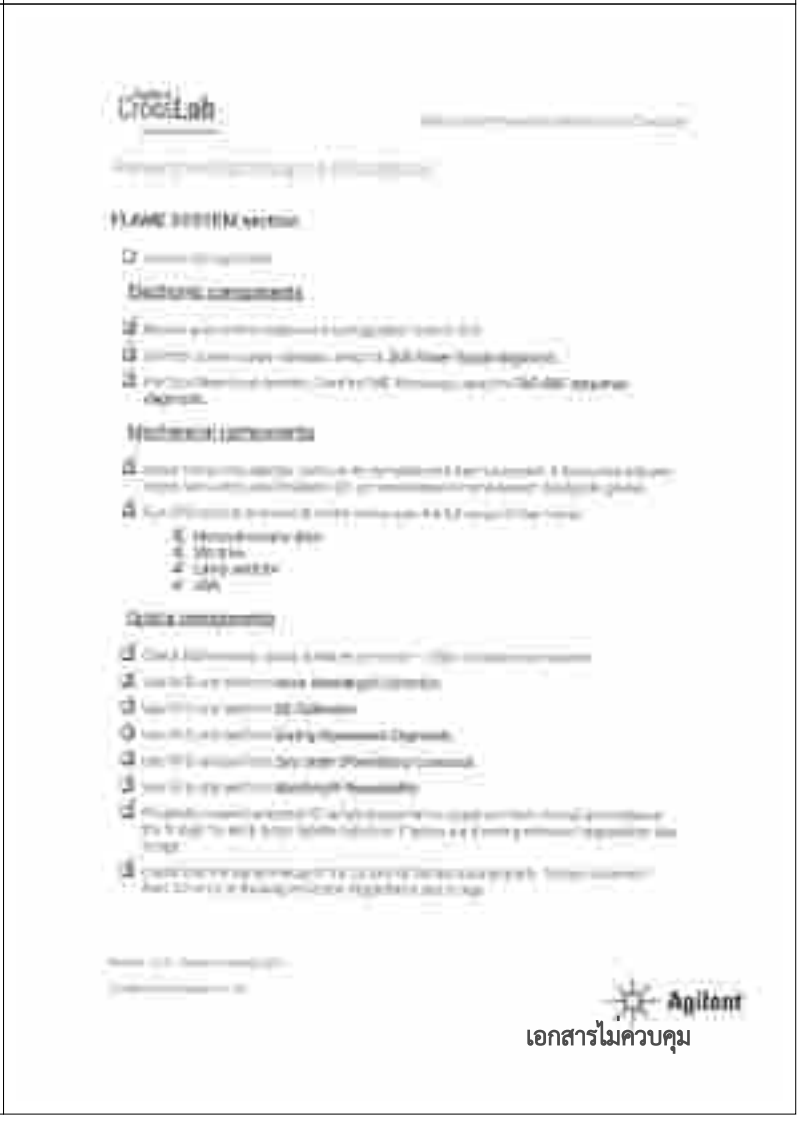

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เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

SVD Results Report

VARIAN

Confidential

Overall Result: Passed

Power Supply

			Passed
			Passed
			Passed
			Passed

เอกสารไม่ควบคุม

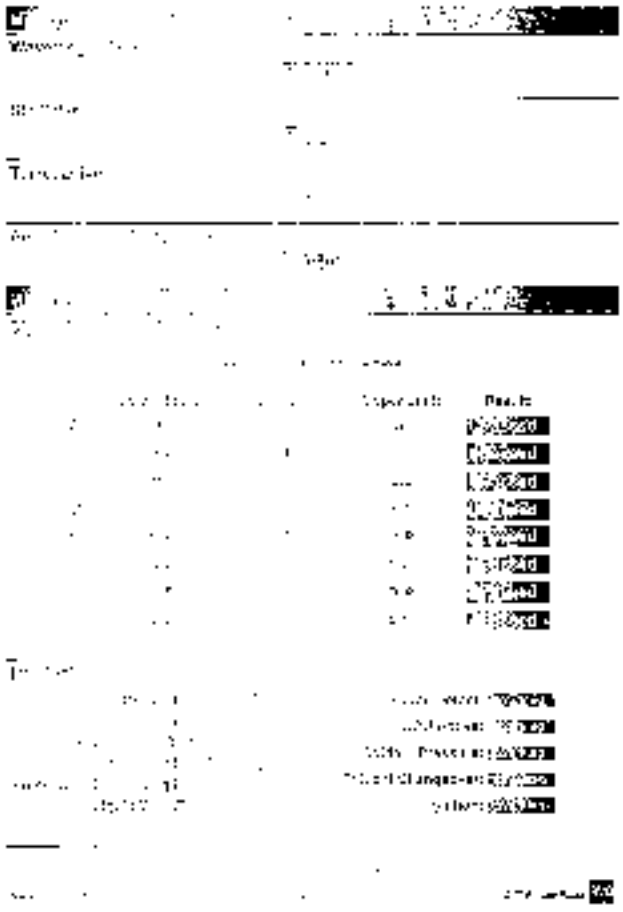
เอกสารไม่ควบคุม

Overall Result: Passed

			Passed
			Passed
			Passed

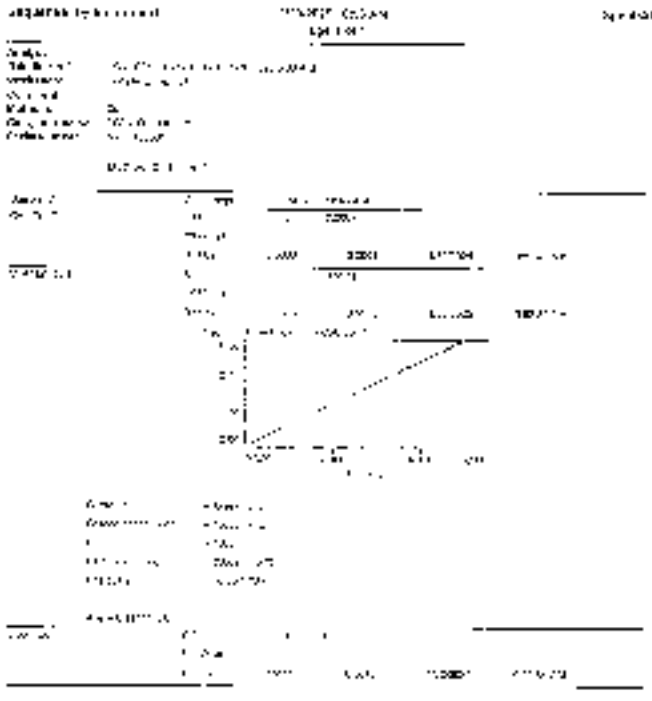
เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

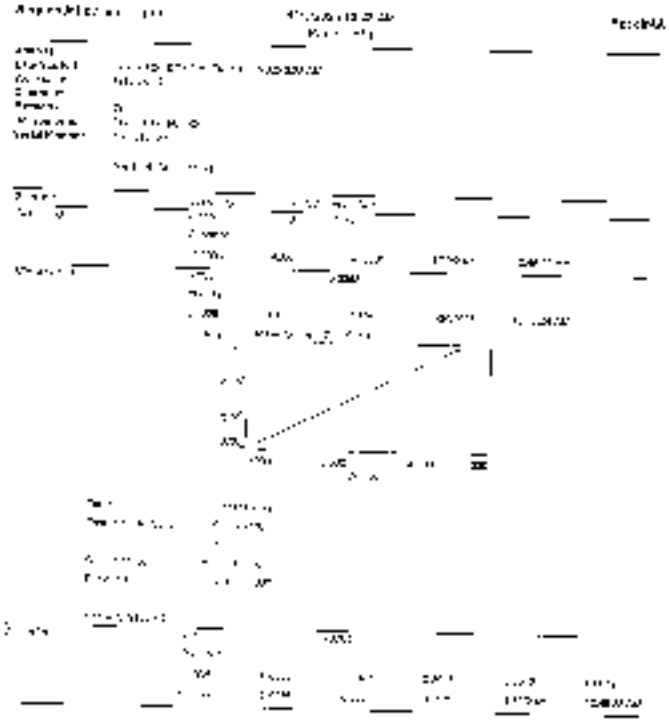


เอกสารไม่ควบคุม

เอกสารไม่ควบคุม



เอกสารไม่ควบคุม



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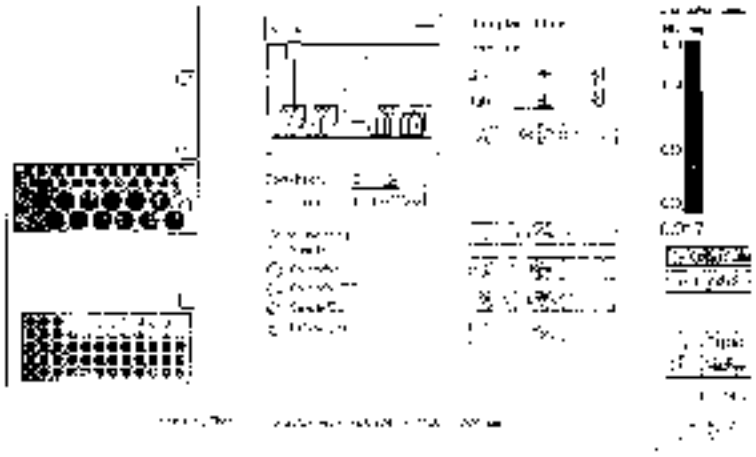


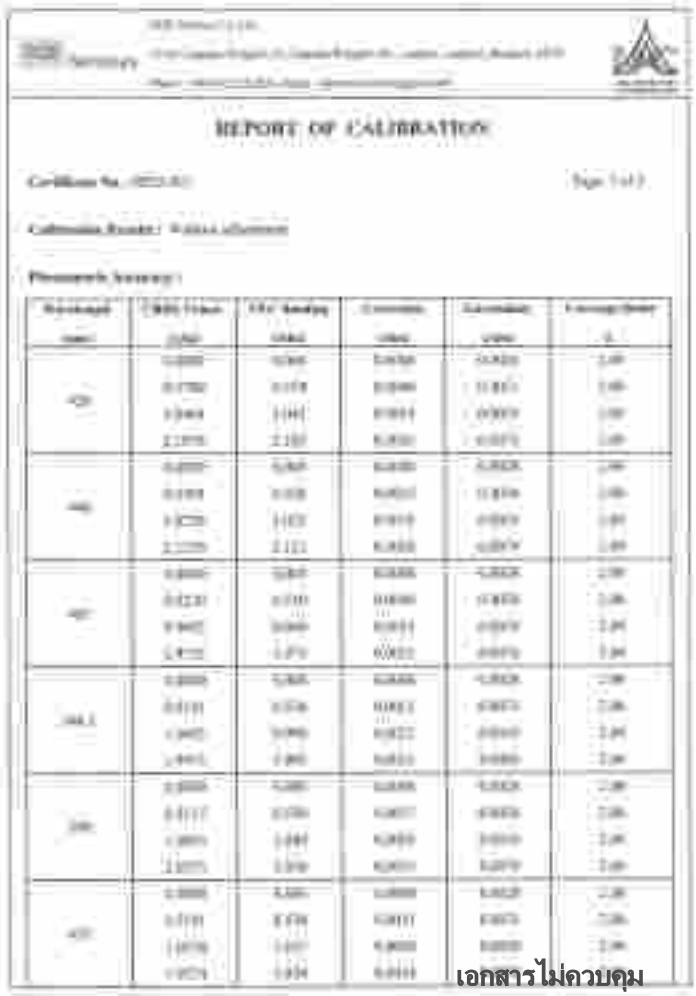
เอกสารไม่ควบคุม

CERTIFICATE OF CALIBRATION

เอกสารไม่ควบคุม

REPORT OF CALIBRATION

เอกสารไม่ควบคุม

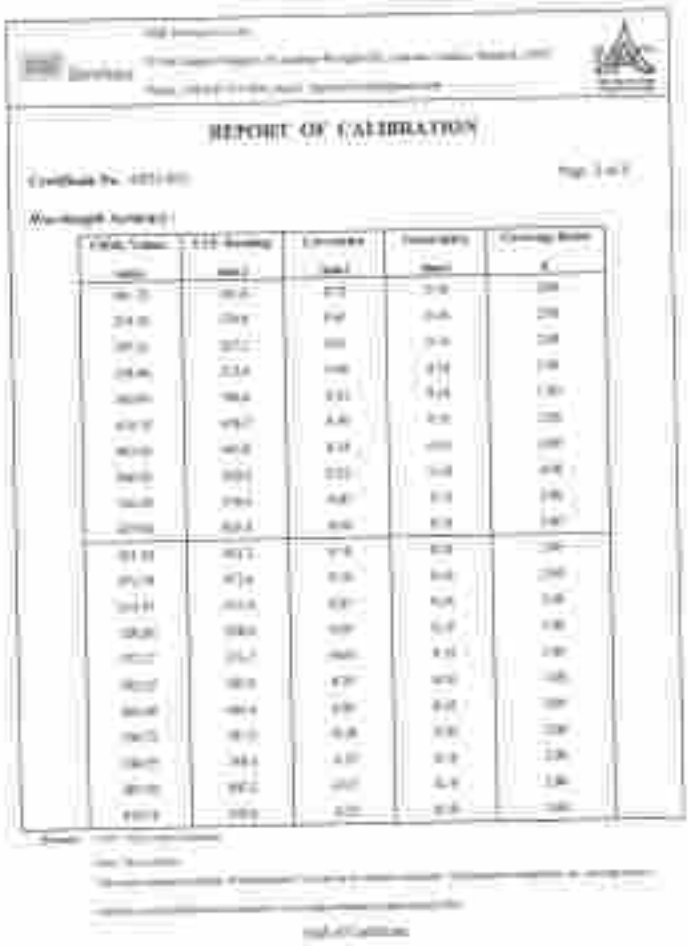


REPORT OF CALIBRATION

เอกสารไม่ควบคุม

REPORT OF CALIBRATION

เอกสารไม่ควบคุม



REPORT OF CALIBRATION

เอกสารไม่ควบคุม

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)

Certificate of Calibration

Cert.No. 24CH1597
Page. 1 of 2

Equipment:	pH Meter
Manufacturer:	Horiba
Model:	F-51B-PH51M
Serial No.:	03040025
ID No.:	[illegible]
Condition on Received:	In Use
Received Date:	27 December 2024
Calibration Date:	27 December 2024
Performed by:	[illegible]
Instituted By:	Unaid Kraiyan ese Engineering Consultant Co., Ltd. [illegible] Bangkok Thailand Phone: [illegible]
Ambient Temperature:	[illegible] °C
Relative Humidity:	[illegible] %RH
Calibration Procedure:	In accordance with ASTM E70-19 "Standard Test Method for pH of Aqueous Solutions with the Glass Electrode" Certified reference material (CRM). Calibration by comparison with a reference standard.
Calibrated by:	Mr.Kasidit Jampongsai
Approved by:	[illegible]
	Approved Signatory
[ ] Performance Tolerance [ ] Physical Damage [x] Calibration Required	
Issue Date:	27 December 2024

The Uncertainties and Performance provided by Unaid Kraiyan ese Engineering Co., Ltd.

เอกสารไม่ควบคุม

Cert.No.: 24CH1597
Page.: 2 of 3

Reference Standard	Manufacturer	Lot No.	Exp. Date
pH 4.00	[illegible]	[illegible]	[illegible]
pH 7.00	[illegible]	[illegible]	[illegible]
pH 10.01	[illegible]	[illegible]	[illegible]

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration Results

Condition: [illegible]

Performance tolerance curve by [illegible]

Calibration Point	Standard Value	Standard Change (±pH)	Actual Reading		Uncertainty of Measurement (±pH)	Coverage Factor k
	pH	mV	mV	pH		
pH 4.00	4.00	177.4	[illegible]	[illegible]	0.050	2.00
pH 7.00	7.00	0.0	[illegible]	[illegible]	0.050	2.00
	7.00	0.0	[illegible]	[illegible]	0.050	2.00
pH 10.01	10.01	-177.4	[illegible]	[illegible]	0.050	2.00

เอกสารไม่ควบคุม

Cert.No.: 24CH1597
Page.: 3 of 3

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Adjust mV Reading (mV)	Acceptable pH Measurement (+/-)	Coverage Factor k
pH Electrode	4.00	4.01	177.2	0.020	2.00
S/N.: -	7.00	7.00	0.0	0.040	2.00
	10.00	10.00	-177.5	0.060	2.00

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Acceptable Measurement (+/-°C)	Coverage Factor k
0.0	0.00	0.0	0.00	0.10	2.00
25.0	25.00	25.0	0.00	0.10	2.00
40.0	40.00	40.0	0.00	0.10	2.00

Remark - UUC* = Unit Under Calibration

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เอกสารไม่ควบคุม

Certificate of Calibration

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

Calibration Certificate

เอกสารไม่ควบคุม

Calibration Report

เอกสารไม่ควบคุม

Calibration Report

เอกสารไม่ควบคุม

Calibration Report

เอกสารไม่ควบคุม

Calibration Certificate

เอกสารไม่ควบคุม

Calibration Report

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Calibration Report

เอกสารไม่ควบคุม

Calibration Report

เอกสารไม่ควบคุม

Preventive Maintenance Checklist

Customer Information

เอกสารไม่ควบคุม

Agilent

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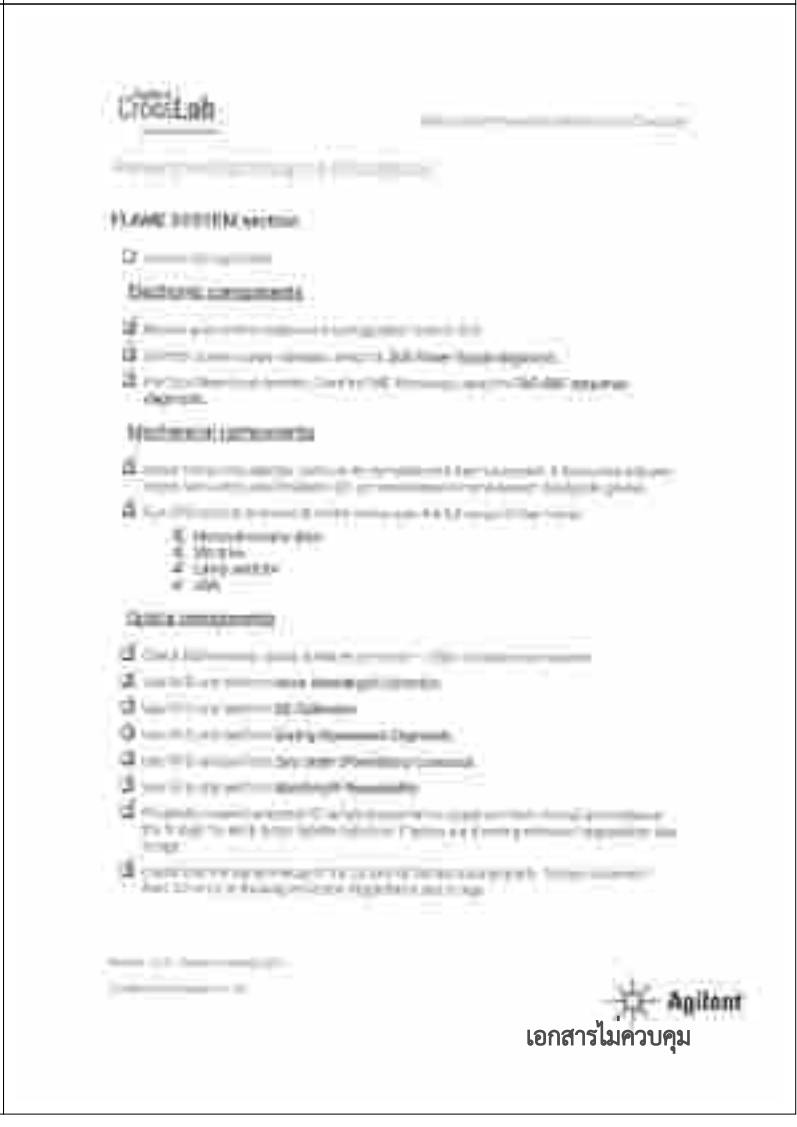
เอกสารไม่ควบคุม



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เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

SVD Results Report

VARIAN

Confidential

Overall Result: Passed

Power Supply

			Passed
			Passed
			Passed
			Passed

เอกสารไม่ควบคุม

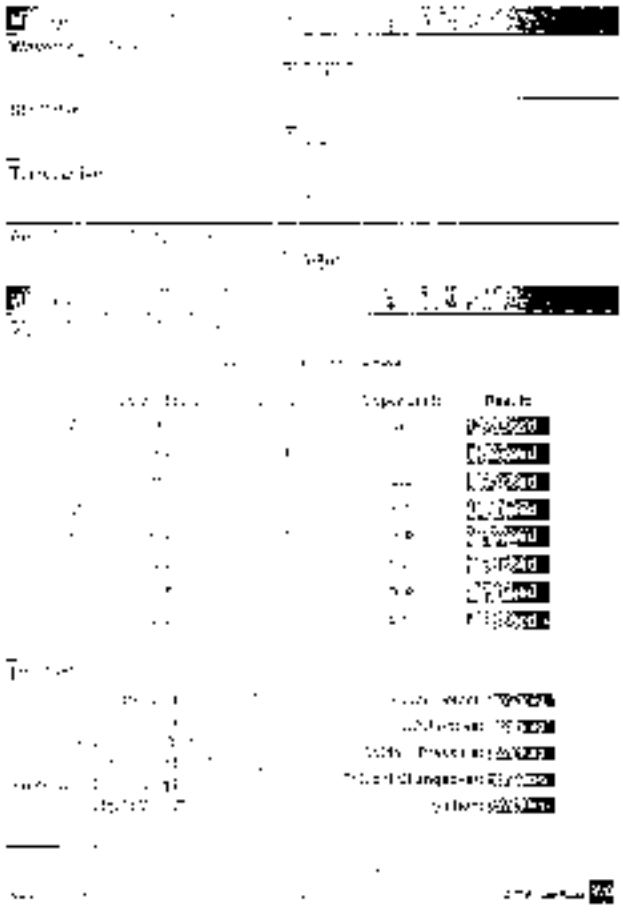
เอกสารไม่ควบคุม

Overall Result: Passed

			Passed
			Passed
			Passed

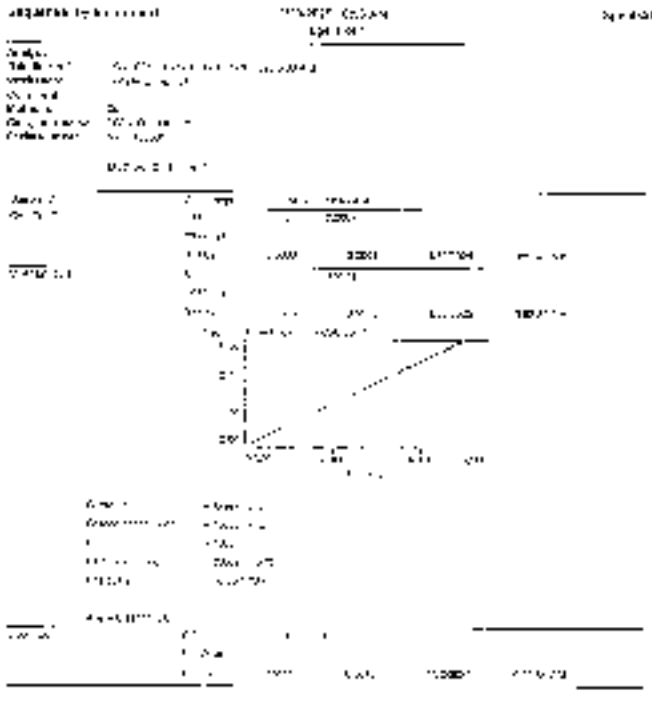
เอกสารไม่ควบคุม

เอกสารไม่ควบคุม



เอกสารไม่ควบคุม

เอกสารไม่ควบคุม



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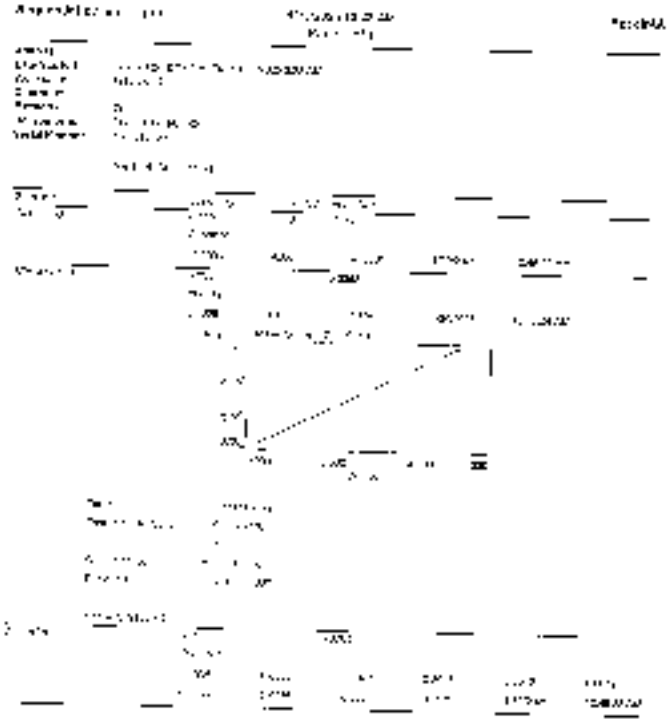

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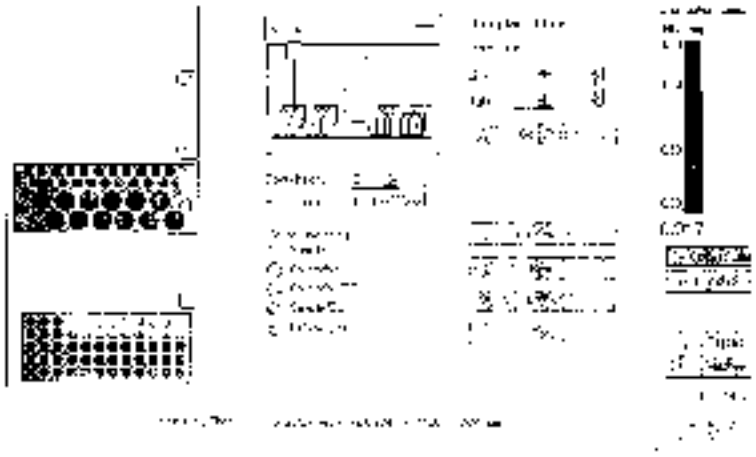


เอกสารไม่ควบคุม

PerkinElmer

PinAAcle 900F
Preventive Maintenance Report

Company Name: JAE Corporation Co. LTD

Instrument Location: [illegible]

Instrument Serial No: [illegible]

Date: 27 Oct 2025

เอกสารไม่ควบคุม

PinAAcle 900F Preventive Maintenance (PM)

Instrument Name	[illegible]		
Address (Instrument Location)	[illegible]		
Serial Number:	[illegible]	PM Number:	[illegible]
Customer Name (Engineer):	[illegible]	Telephone number:	[illegible]
Company Engineer Customer Name:	[illegible]	Service Order Number:	[illegible]
Last PM Performed (date/time):	[illegible]	Next PM is due (date/time):	27 Jan 2026
Service Labor Duration Completed (T):		Status:	

PM Version	Revision	Publication Date	
[illegible]	A	January 2006	PerkinElmer

[illegible]

เอกสารไม่ควบคุม

Component List

Component Specific Note	Note	Configuration Value
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	

Parts Used

[illegible]

Part Number (if applicable)	Description	Quantity
[illegible]	[illegible]	1
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1
[illegible]	[illegible]	1
[illegible]	[illegible]	1

[illegible]

Part Number (if applicable)	Description	Qty Rec	Lot/Batch	Expiration Date
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Part Number (if applicable)	Description	Quantity	Lot/Batch	Expiration Date
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Page 1

เอกสารไม่ควบคุม

Part Number (if applicable)	Description	Quantity	Serial #
[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]	1	[illegible]

[illegible] [illegible]

เอกสารไม่ควบคุม

Procedure Checklist

[illegible]

1. Setup
   - [illegible]
   - [illegible]
   - [illegible]
2. [illegible]
   - [illegible]
3. Work
   - [illegible]
   - [illegible]
   - [illegible]
   - [illegible]
   - [illegible]
   - [illegible]
   - [illegible]
   - [illegible]
4. Closeout
   - [illegible]
   - [illegible]
   - [illegible]
   - [illegible]
5. Upload
   - [illegible]
   - [illegible]
6. Other
   - [illegible]
   - [illegible]

[illegible] [illegible]

เอกสารไม่ควบคุม

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible] [illegible]

เอกสารไม่ควบคุม

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]

[illegible] [illegible]

เอกสารไม่ควบคุม

Additional Comments

Review

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

Component List

Component/ Specific Model	Serial #	Firmware Version	Configuration Note
[illegible]	[illegible]	[illegible]	[illegible]

Parts Lists

Parts Included with this PM

Part Number (if applicable)	Description	Quantity	Needed by	Installed Date
[illegible]	Test Kit	1	N/A	N/A

Additional Tools Required for PM

Part Number (if applicable)	Description	Quantity	Safe #	Calibration Due Date
N/A	[illegible]	[illegible]	N/A	N/A

Additional Equipment Purchase Required for PM

Part Number (if applicable)	Description	Quantity	Date Listed	Expiration Date
N/A	N/A	N/A	N/A	N/A

เอกสารไม่ควบคุม

Procedure Checklist

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

Additional Comments

Additional Comments Regarding the PM

Review

The preventive maintenance checks and applicable performance tests for EMS 105 400 have been completed. EMS EMS 105400 Passed ☐ Failed ☐ the preventive maintenance.
Review of Preventive Maintenance
Authorized Customer Engineer (CE): Date:
Authorized Customer Engineer (CE): Date:

เอกสารไม่ควบคุม

เอกสารไม่ควบคุม

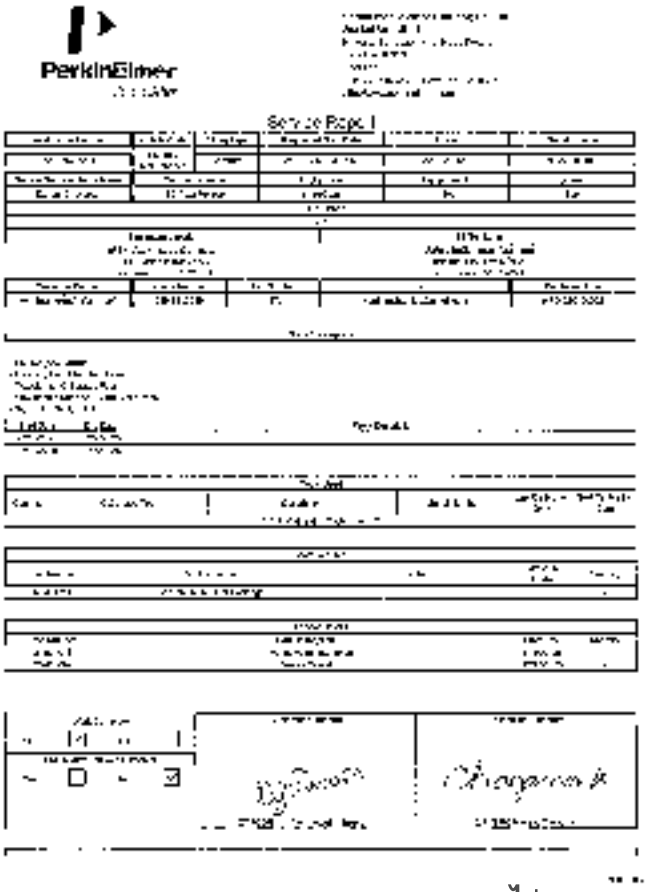
Document History

Revision	Description of Change	Page(s)	Date
6	[illegible]		[illegible]
8	Added [illegible]	[illegible]	[illegible]
7	Updated [illegible]	[illegible]	[illegible]

เอกสารไม่ควบคุม

Perkin

เอกสารไม่ควบคุม



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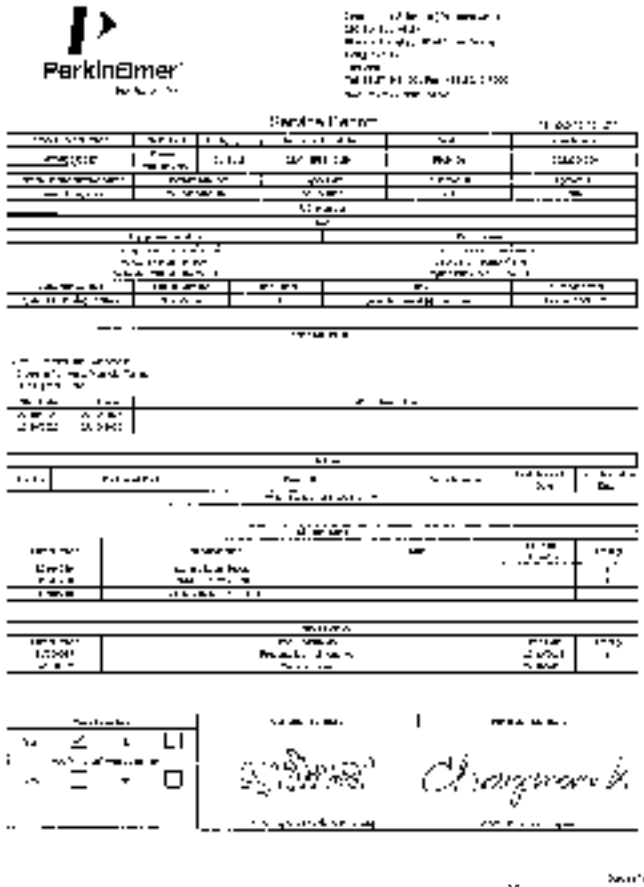


เอกสารไม่ควบคุม

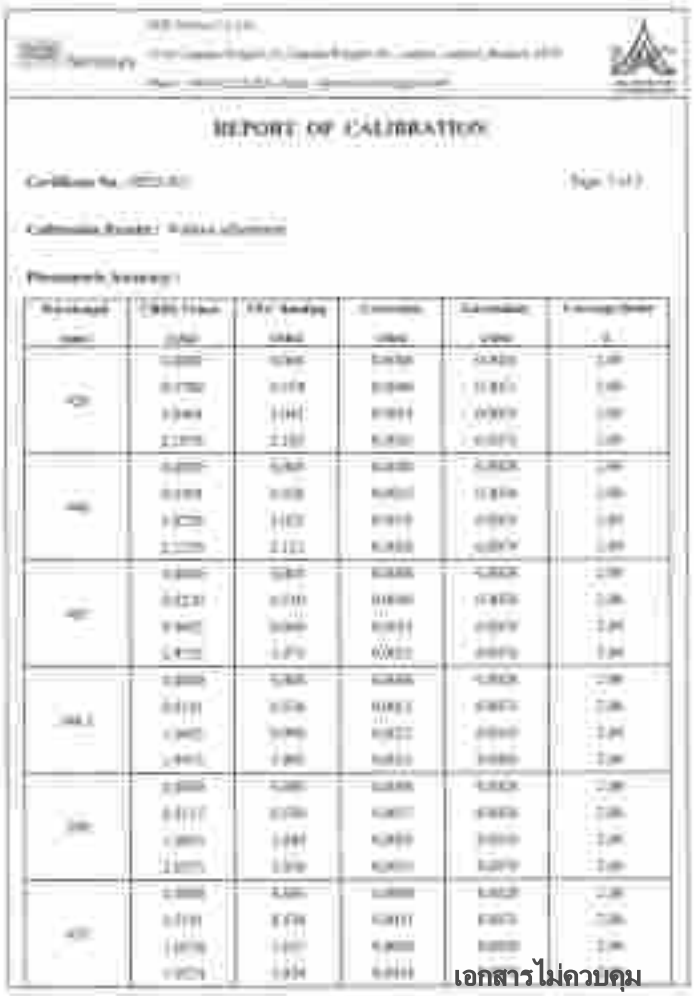
เอกสารไม่ควบคุม

CERTIFICATE OF CALIBRATION

เอกสารไม่ควบคุม

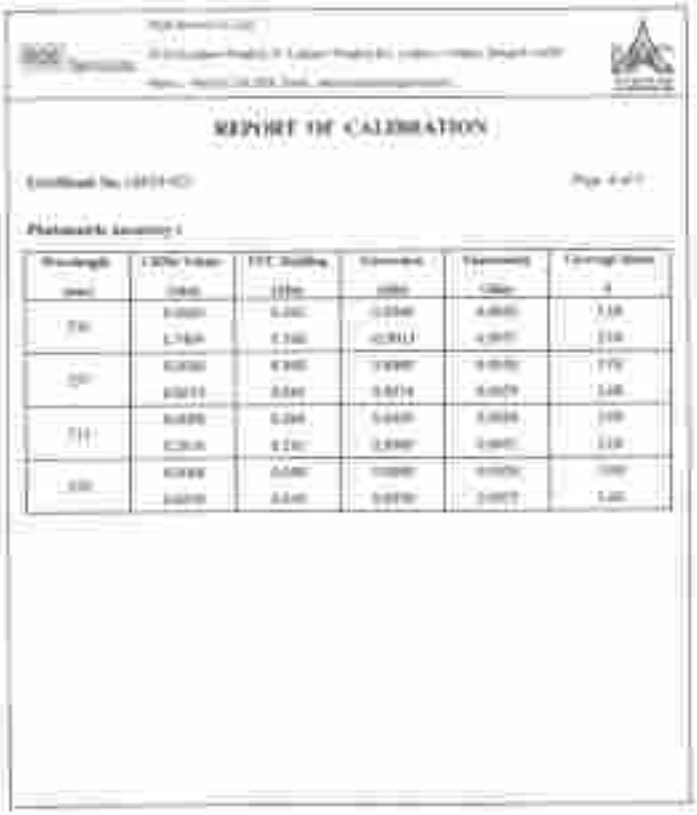
REPORT OF CALIBRATION

เอกสารไม่ควบคุม



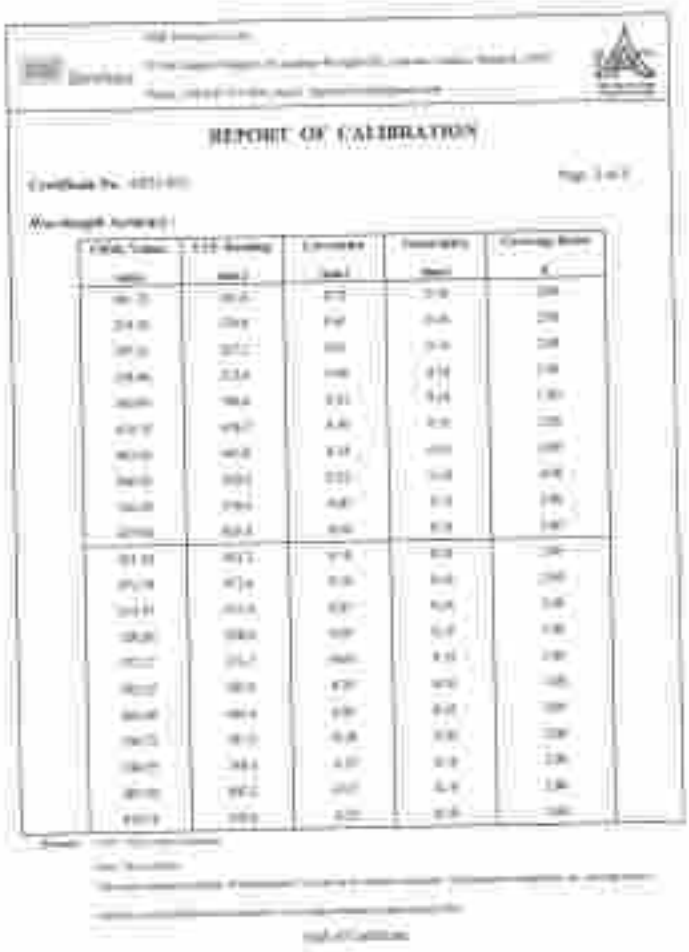
REPORT OF CALIBRATION

เอกสารไม่ควบคุม



REPORT OF CALIBRATION

เอกสารไม่ควบคุม



REPORT OF CALIBRATION

เอกสารไม่ควบคุม

Certificate of Calibration

Cert.No.: 25CH354
Page.: 1 of 3

Equipment :	pH Meter
Manufacturer :	Horiba
Model :	LAQUA-PH210
Serial No. :	HA9M0047
ID No. :	UAE.EFM.005/2563 (EFM.pH.05/63)
Condition As-Received:	Used Item
Received Date :	18 March 2025
Calibration Date :	20 March 2025
Reference :	2503-0612WSC-2
Submitted by :	United Analyst and Engineering Consultant Co.,Ltd. 3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Ambient Temperature :	(25 ± 2.5) °C
Relative Humidity :	(50 ± 15) %
Calibration Procedure :	In-house method : - CP-CH5 by direct measurement with DC voltage standard and direct measurement with certified reference material (CRM) - CP-CH8 by comparison with temperature standard
Calibrated by :	Uthen Kankawi
Approved by :	Approved Signatory

( ) Chakrit Waewwanjua
( ) Ponpan Paipim
(✓) Saithip Meangmai

Issue Date : 20 March 2025

เอกสารไม่ควบคุม

Condition of this calibration result

1. Reference Standard Instrument

Instrument	Serial No.	ID No.	Cert. No.	Due Date
1) Document Process Calibrator	43160066	130RC092	24E1320	22 Apr 2025
2) Ref. Standard Thermometer	4982054	110RC044	24I757	14 Jul 2025

- This Certification is traceable to SI Throught Technology Promotion Association (Thailand - Japan)

2. Certified Reference Materials :The measurement results are traceable to SI through Hach Lenge GmbH Ltd., Deutsche Akkreditierungsstelle, Accredited No.D-RM-15184-01-00
: The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

Buffer Solution	Manufacturer	Lot No.	Exp. date
pH 4.007	CPA chem	1066665	18 Jan 2027
pH 6.999	Hach Lenge GmbH	C03220	29 Oct 2026
pH 10.010	CPA chem	1066669	18 Jan 2026

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration Results

Function : mV Measurement

Performing standard curve by Document Process Calibrator at pH (4,7)(7,10)

Unit Under Calibration	Nominal Value	Standard Voltage Input	Actual Reading		Uncertainty of Measurement	Coverage factor
	pH	mV	mV	pH	(±mV)	*k*
pH Meter	4.00	177.48	177.7	4.01	0.058	2.00
S/N.: HA9M0047	7.00	0.00	0.3	7.01	0.058	2.00
	7.00	0.00	0.3	7.01	0.058	2.00
	10.00	-177.48	-176.8	10.01	0.058	2.00

เอกสารไม่ควบคุม

Calibration Results

Function : pH Measurement

Performing three buffers standard curve by using buffer nominal pH (4,7)(7,10)

Unit Under Calibration	Standard pH Buffer Solution	Actual pH Reading	Actual mV Reading (mV)	Uncertainty of pH Measurement (±)	Coverage factor *k*
pH Electrode	4.007	4.01	168.5	0.011	2.13
S/N.: -	6.999	7.00	-5.9	0.012	2.09
	6.999	7.00	-6.1	0.011	2.07
	10.010	10.02	-176.7	0.010	2.00

Function : Temperature Measurement

(*) Without adjustment

This equipment was connected with Temperature Probe;

- Model : -
- Serial No. : -

Dimension of probe

- Length : 103 mm.
- Diameter : 16 mm.
- Immersion Depth : 90 mm.

Calibration Point (°C)	Standard Temperature (°C)	UUC* Reading (°C)	Error (°C)	Uncertainty of measurement (± °C)	Coverage factor *k*
15.0	15.005	15.0	-0.005	0.13	2.00
30.0	30.007	30.0	-0.007	0.13	2.00
45.0	44.995	44.9	-0.095	0.13	2.00

Remark - UUC* = Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES

Certificate of Calibration

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Calibration Certificate

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Calibration Report

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