

Synektik Pharma	FORMULARZ	Dokument nr: KLC F.163.U. Wersja 1 Ważna od: 17.01.2022 Zatwierdził: KSO
	Zatwierdzenie protokołu/ raportu z kwalifikacji urządzenia/systemu przed i po wykonaniu działań kwalifikacyjnych	Strona : 1 Strony : 1 Zastępuje: Wersję - Ważną od: dd.mm.rrr Ważną do: dd.mm.rrr

Nazwa urządzenia/ systemu	Pulsacyjny chronobegạt geray GC8890
Nr inwentaryzacyjny	KLC0139-1, KLC0139-2A, KLC0139-2B.
Nr protokołu/ raportu	KLC 0139.2.0139.005

ZATWIERDZENIE PROTOKOŁU PRZED WYKONANIEM KWALIFIKACJI

Przed rozpoczęciem działań kwalifikacyjnych testy zaproponowane przez wykonawcę kwalifikacji zostały zaakceptowane. Dokumentacja kwalifikacyjna sporządzona na wzorach wykonawcy prac kwalifikacyjnych.	
Uwagi:	z
Data zatwierdzenia protokołu:	13.06.2024
Podpis osoby zatwierdzającej protokół:	Maria Ba

ZATWIERDZENIE PROTOKOŁU/RAPORTU PO WYKONANIU KWALIFIKACJI

Po wykonaniu działań kwalifikacyjnych wyniki z przeprowadzonych testów zostały zaakceptowane. Urządzenie/ system został dopuszczony do stosowania zgodnie z jego przeznaczeniem.	
Uwagi:	z
Data zatwierdzenia protokołu/raportu:	14.06.2024
Podpis osoby zatwierdzającej protokół/raport:	Maria Ba

Opracował:





Agilent CrossLab Compliance

Qualification Type:	GC-OQ
System ID:	KLC0139-1
EQP Name:	AgilentRecommended
EQP Revision:	GC.02.54
EQP Publish Date:	July 2023
Date:	June 14, 2024 9:42:21 AM
Report Type:	Report with Certificate
Org. Name:	Synektik Pharma Sp. z o.o.
Org. Location:	ul. Artwinskiego 3, 25-734 Kielce

Table of Contents

Section	Page
Cover	1
Table of Contents	2
Test Summary	4
Service Details	5
Instrument Details	6
Calculation Formulas	9
Protocol Details	11
Tests	12
CDS Logon Verification - GC - 8890	12
System Inspection and Basic Safety and Operation - 8890	14
Inlet Pressure Decay - Front SSL	15
Inlet Pressure Accuracy - Front SSL	16
Inlet Pressure Decay - Back SSL	17
Inlet Pressure Accuracy - Back SSL	18
Detector Flow Accuracy - Front FID	19
Detector Flow Accuracy - Back FID	21
GC Oven Temperature Accuracy - 8890	23
GC Oven Temperature Stability - 8890	25
GC Scouting Run - Injection Tower, Front SSL, Front FID	26
Noise and Drift - Front FID	29

Table of Contents

Section	Page
Injection Precision - Injection Tower, Front SSL, Front FID	31
Signal to Noise - Injection Tower, Front SSL, Front FID	37
GC Scouting Run - Injection Tower, Back SSL, Back FID	41
Noise and Drift - Back FID	44
Injection Precision - Injection Tower, Back SSL, Back FID	46
Signal to Noise - Injection Tower, Back SSL, Back FID	52
Declaration of Change Control	56
Attachments	57
Agilent Technologies Materials: GC/GCMS	68
Electronic Signature	69
Certificate of System Qualification	70
Transaction Logs	78

Test Summary

Purpose

This section includes the Overall Qualification Status and details for each test that meets at least one of the following criteria: (1) was not scheduled; (2) was scheduled but not run; (3) was processed more than once; (4) passed recommended limits only when dual limits were selected; (5) required deviation(s) or comment(s); (6) required integration event change(s). Tests that pass and do not meet any criteria above are not included.

For a complete list of scheduled tests, see the table of contents. For supporting documentation, refer to the Attachments section.

NOTE: A Pass for the Overall Qualification Status indicates that all scheduled tests were run and passed; R, I, D, and C are blank if not applicable for that specific test.

R: runs

I: integration event changes

D: number of deviations submitted

C: number of comments submitted

Status: NS (not scheduled); NR (scheduled but not run); NC (unlocked but not completed)

Details

Test	Status			
	R	I	D	C

There were no repeated or re-integrated tests. All test resulted in a pass status.

Overall Qualification Status

Pass

Service Details

Purpose

This section includes local contact and delivery details for this service.

General Details

Service Order No./Request:	2411287
EQP Name:	AgilentRecommended
EQP Revision:	GC.02.54
Report Type:	Report with Certificate

Organization Details

Name:	Synektik Pharma Sp. z o.o.
Location:	ul. Artwinskiego 3, 25-734 Kielce

Local Contact Details

Name:	Monika Baran
Job Title:	Z-ca Kierownika Kontroli Jakosci
Qualification Location:	Laboratorium KJ

Operator Details

Name:	Artur Krol
Job Title:	Inzynier Serwisu

Data Acquisition Details

Acquisition Software Name:	OpenLAB CDS
Acquisition Software Revision:	2.4
Customer Data System (CDS):	Gc: OpenLAB CDS

Instrument Details

Purpose

This section describes the as found system configuration.

Details

System

System ID	KLC0139-1
Manufacturer	Agilent Technologies
Name	8890
Flow Data Input	Manual Data
Temperature Data Input	Manual Data or Other Data Logging

Tested Combination1

Injection Technique	Injection Tower
Sampler Identifier	Sampler 1
Inlet	Front
Detector	Front
LTM Included?	No

Tested Combination2

Injection Technique	Injection Tower
Sampler Identifier	Sampler 2
Inlet	Back
Detector	Back
LTM Included?	No

Sampler 1

Manufacturer	Agilent Technologies
Type	Injection Tower
Name	7693A
Model Number	G4513A
Serial Number	CN18520146
Firmware Revision	A.11.02
Usage	Sample Injection
Location	Front
Syringe Volume (µL)	10

Sampler 2

Manufacturer	Agilent Technologies
Type	Injection Tower
Name	7693A
Model Number	G4513A
Serial Number	CN18520149
Firmware Revision	A.11.02
Usage	Sample Injection
Location	Back
Syringe Volume (µL)	10

Mainframe 1

Manufacturer	Agilent Technologies
Name	8890
Model Number	G3540A
Serial Number	CN1911A012
Firmware Revision	2.6.0.306
Oven Type	Standard

Inlet 1

Manufacturer	Agilent Technologies
Name	8890
Type	SSL
Location	Front
Carrier Gas	Helium
Control Type	Electronic Pressure Control (EPC)
Purged Inlet	Yes

Inlet 2

Manufacturer	Agilent Technologies
Name	8890
Type	SSL
Location	Back
Carrier Gas	Helium
Control Type	Electronic Pressure Control (EPC)
Purged Inlet	Yes

Detector 1

Manufacturer	Agilent Technologies
Name	8890
Type	FID
Adapter	Capillary
Control Type	Electronic Pressure Control (EPC)
Location	Front
Makeup Gas	Nitrogen

Detector 2

Manufacturer	Agilent Technologies
Name	8890
Type	FID
Adapter	Capillary
Control Type	Electronic Pressure Control (EPC)
Location	Back
Makeup Gas	Nitrogen

Calculation Formulas

Purpose

This section includes calculation formulas for all available tests. Depending upon which tests are scheduled, all or some apply to your qualification.

Absolute Accuracy

$$|(X_{av} - X_{set})|$$

X_{av} = Mean value

X_{set} = Setpoint

Accuracy

$$(X_{av} - X_{set})$$

X_{av} = Mean value

X_{set} = Setpoint

Average (mean of n observations)

$$\frac{1}{n} \sum_{i=1}^n X_i$$

X_i = Value, i^{th} observation

n = Total number of observations

% Carry Over

$$\frac{X_b}{X_s} \times 100$$

X_b = Response of blank injection

X_s = Response of final standard injection

Coefficient of Determination

$$r^2$$

r = Correlation

Correlation (r)

$$\frac{1}{\sqrt{\Delta_X \Delta_Y}} \times \left(n \sum_{i=1}^n X_i Y_i - \sum_{i=1}^n X_i \sum_{i=1}^n Y_i \right)$$

n = Number of data points

X_i = X value i^{th} point

Y_i = Y value of i^{th} point

$$\Delta_X = n \sum_{i=1}^n X_i^2 - \left(\sum_{i=1}^n X_i \right)^2$$

$$\Delta_Y = n \sum_{i=1}^n Y_i^2 - \left(\sum_{i=1}^n Y_i \right)^2$$

Drift (slope of the regression)

$$\frac{1}{\Delta_X} \left(n \sum_{i=1}^n X_i Y_i - \sum_{i=1}^n X_i \sum_{i=1}^n Y_i \right)$$

n = Number of data points

X_i = Time, i^{th} observation

Y_i = Response, i^{th} observation

$$\Delta_X = n \sum_{i=1}^n X_i^2 - \left(\sum_{i=1}^n X_i \right)^2$$

Noise (ASTM) $\frac{\sum_{m=1}^n X_{PtoPm}}{n}$	X_{PtoPm} = Peak to peak noise in segment m n = Number of segments
Noise (rms) $\sqrt{\frac{\sum_{i=1}^n (E_i - E)^2}{(n - 1)}}$	E_i = Individual voltage readings E = Average of n measurements n = Number of segments
Noise (Six Sigma) $6 \times SD$	SD = Standard deviation
Relative Standard Deviation (%RSD) $\frac{SD}{X_{av}} \times 100$	SD = Standard deviation X_{av} = Mean value of n observations
Response Factor $\frac{Y}{X}$	X = Amount Y = Response
Stability $ (Y_{max} - Y_{min}) $	Y_{max} = Maximum value Y_{min} = Minimum value
Standard Deviation (SD) $\sqrt{\frac{1}{(n - 1)} \sum_{i=1}^n (X_i - X_{av})^2}$	X_i = Value, i^{th} observation X_{av} = Mean value of n observations n = Total number of observations

NOTE: For many tests performed by the Automated Compliance Engine multi-step calculations are employed to reduce the raw data to a report ready form. These calculations retain the full precision of each intermediate result as the algorithm progresses through the required reduction. Where intermediated or metadata is displayed, these results must be rounded or truncated to provide the proper display values. Attempting to calculate the final value based on these display modified intermediates can result in a small difference in the final result. These intermediates, where presented, are simply used to show algorithmic progress through the calculation and not intended to act as a means of algorithmic validation. Beginning with GC.01.88, results are rounded to use the same number of decimal places as defined in the limit, which must be less than or equal to the resolution provided by the measuring equipment.

Protocol Details

Purpose

This section lists the revisions for all test units used in this report. For complete test-specific and high-level change details, refer to the Revision History document.

Test Revision	Test
GC.02.53	CDS Logon Verification - GC
GC.02.51	Detector Flow Accuracy
GC.02.51	GC Oven Temperature Accuracy
GC.02.51	GC Oven Temperature Stability
GC.02.54	GC Scouting Run
GC.02.53	Injection Precision
GC.02.50	Inlet Pressure Accuracy
GC.02.50	Inlet Pressure Decay
GC.02.50	Noise and Drift
GC.02.53	Signal to Noise
GC.02.50	System Inspection and Basic Safety and Operation

CDS Logon Verification - GC

Purpose

This test provides evidence of the logon used to collect qualification data.

Logon:

Serwis_Altium

Results

Criteria	Observed Result	Expected Result	Status
Was the capture done?	Yes	Yes	Pass

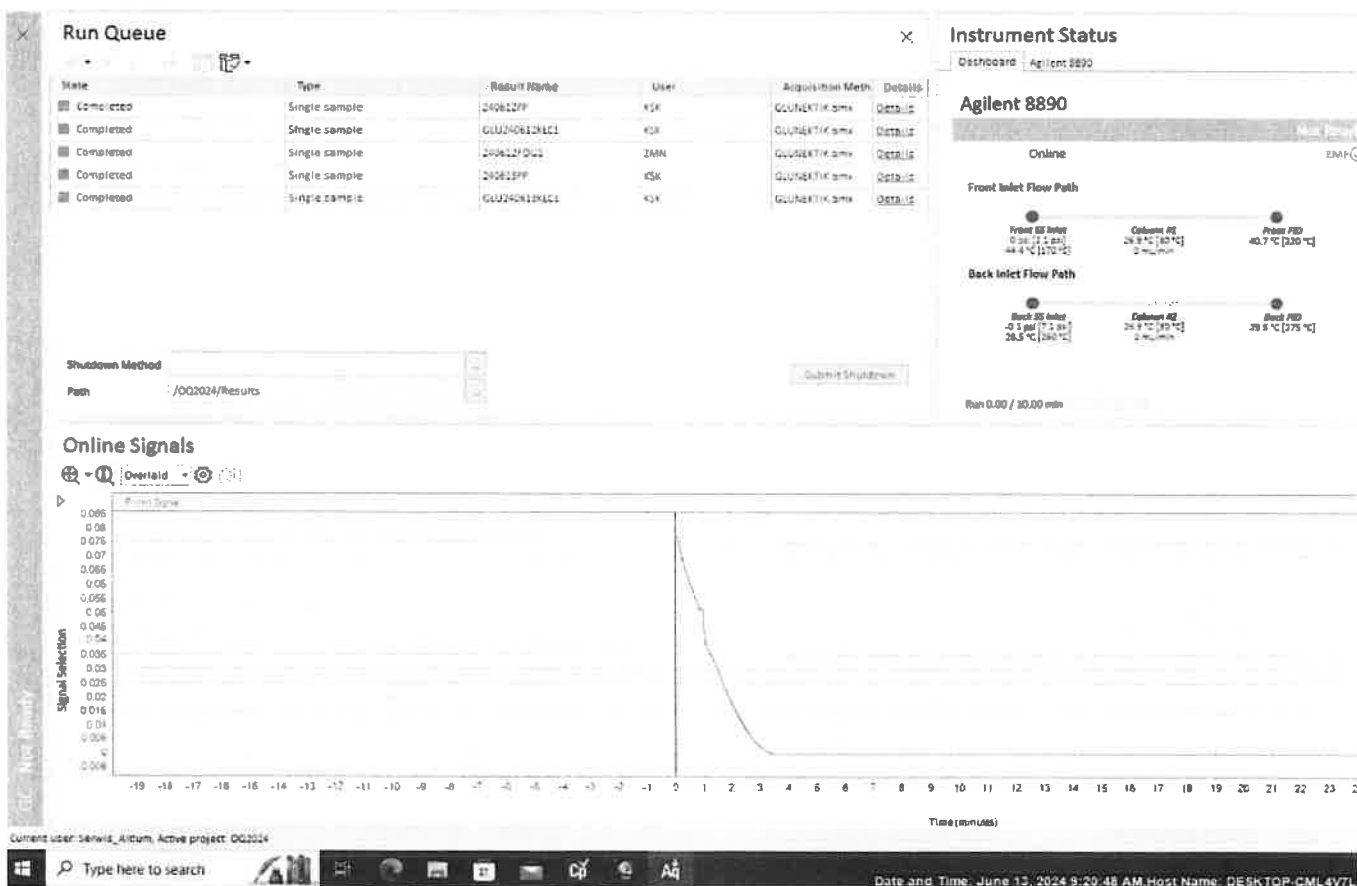
Status:

Pass

Runs: 1

Test Evidence

Image Details: CDS Logon
Date and Time: June 13, 2024 9:20:48 AM
Host Name: DESKTOP-CML4V7L



Date: June 14, 2024 9:42:21 AM
System ID: KLC0139-1

Overall CDS Logon Verification - GC Test Status

Pass

System Inspection and Basic Safety and Operation

Purpose

This test verifies that the GC is correctly installed and connected.

Configuration Details

Name:

8890

Setpoint

Results

Criteria	Observed Result	Expected Result	Status
Is the system in good operating condition (no physical damage)?	Yes	Yes	Pass
Are there apparent instrumental or environmental safety concerns?	No	No	Pass
Are required gases present and of appropriate pressure?	Yes	Yes	Pass
Is there continuity between the GC chassis and the ground pin?	Yes	Yes	Pass
Does the power-cycled GC complete the self test without errors (a "not ready" status is considered to be without errors)?	Yes	Yes	Pass
Does the system reject operator entry of oven setpoint of 600°C?	Yes	Yes	Pass
Does a (hydrogen) safety shutdown start in approximately 4 - 10 minutes?	Yes	Yes	Pass

Setpoint Status:

Pass

Runs: 1

Overall System Inspection and Basic Safety and Operation Test Status

Pass

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

Inlet Pressure Decay

Purpose

This test demonstrates the pressure integrity of the GC inlet (with a valve controlled injection system, if applicable) and all flows controlled by the GC inlet pneumatics.

Configuration Details

Name: 8890
Front SSL

Setpoint Pressure: 25.0 psi

Measurements

Initial Pressure: 25.08 psi

Final Pressure: 25.06 psi

Results

Pressure Change: 0.0 psi /5 minutes

Agilent Recommended: ≥ -2.0 and ≤ 0.5

Setpoint Status: Pass

Runs: 1

Overall Inlet Pressure Decay Test Status

Pass

Inlet Pressure Accuracy

Purpose

This test uses a digital calibrated manometer to demonstrate the ability of the system to provide accurate pressure to the head of the column. Accuracy is calculated as the absolute difference between the measured pressure and setpoint.

Configuration Details

Name: 8890
Front SSL

Setpoint Inlet Pressure: 25.0 psi

Measurements

Reading: 25.08 psi

Results

Accuracy: 0.1 psi

Agilent Recommended: ≤ 1.2

Setpoint Status: Pass Runs: 1

Overall Inlet Pressure Accuracy Test Status

Pass

Inlet Pressure Decay

Purpose

This test demonstrates the pressure integrity of the GC inlet (with a valve controlled injection system, if applicable) and all flows controlled by the GC inlet pneumatics.

Configuration Details

Name:

8890

Back

SSL

Setpoint

Pressure:

25.0

psi

Measurements

Initial Pressure:

24.98

psi

Final Pressure:

24.95

psi

Results

Pressure Change:

0.0

psi

/5 minutes

Agilent Recommended:

>=

-2.0

and

<=

0.5

Setpoint Status:

Pass

Runs: 1

Overall Inlet Pressure Decay Test Status

Pass

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

Inlet Pressure Accuracy

Purpose

This test uses a digital calibrated manometer to demonstrate the ability of the system to provide accurate pressure to the head of the column. Accuracy is calculated as the absolute difference between the measured pressure and setpoint.

Configuration Details

Name: 8890
Back SSL

Setpoint Inlet Pressure: 25.0 psi

Measurements

Reading: 24.98 psi

Results

Accuracy: 0.0 psi

Agilent Recommended: ≤ 1.2

Setpoint Status: Pass Runs: 1

Overall Inlet Pressure Accuracy Test Status

Pass

Detector Flow Accuracy

Purpose

Detector flow accuracy is determined by measuring the flows with a calibrated mass flowmeter and comparing them to the test setpoints and the values displayed by the GC (if applicable).

Configuration Details

Name:

8890

Front

FID

Setpoint

Flow Type:

Fuel

30.0

mL/min

Measurements and Results

Time

Flow

10:33

32

mL/min

Accuracy:

2.0

mL/min

Agilent Recommended:

<=

10.0

% setpoint

(

3.0

mL/min

)

Limit is percentage of setpoint or 0.5 mL/minute, whichever is largest.

Setpoint Status:

Pass

Runs: 1

Setpoint

Flow Type:

Oxidizer

400.0

mL/min

Measurements and Results

Time

Flow

10:35

402

mL/min

Accuracy:

2.0

mL/min

Agilent Recommended:

<=

10.0

% setpoint

(

40.0

mL/min

)

Limit is percentage of setpoint or 0.5 mL/minute, whichever is largest.

Setpoint Status:

Pass

Runs: 1

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

Setpoint Flow Type: Makeup 25.0 mL/min

Measurements and Results

Time Flow
10:36 25.4 mL/min

Accuracy: 0.4 mL/min

Agilent Recommended: <= 10.0 % setpoint (2.5 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status: Pass Runs: 1

Overall Detector Flow Accuracy Test Status

Pass

Detector Flow Accuracy

Purpose

Detector flow accuracy is determined by measuring the flows with a calibrated mass flowmeter and comparing them to the test setpoints and the values displayed by the GC (if applicable).

Configuration Details

Name:

8890

Back

FID

Setpoint

Flow Type:

Fuel

30.0

mL/min

Measurements and Results

Time

Flow

10:38

31.5

mL/min

Accuracy:

1.5

mL/min

Agilent Recommended:

<=

10.0

% setpoint

(

3.0

ml/min

)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status:

Pass

Runs: 1

Setpoint

Flow Type:

Oxidizer

400.0

mL/min

Measurements and Results

Time

Flow

10:39

401.3

mL/min

Accuracy:

1.3

mL/min

Agilent Recommended:

<=

10.0

% setpoint

(

40.0

ml/min

)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status:

Pass

Runs: 1

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

Setpoint Flow Type: mL/min

Measurements and Results

Time Flow
 mL/min

Accuracy: mL/min

Agilent Recommended: % setpoint (mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status: Runs:

Overall Detector Flow Accuracy Test Status

GC Oven Temperature Accuracy

Purpose

This test uses a calibrated digital thermometer to determine the accuracy of the GC oven. Accuracy is calculated as the absolute difference between the measured temperature and setpoint.

Configuration Details

Name: 8890

Setpoint Temperature: 230.0 °C
Zone: Oven

Measurements and Results

Probe: Probe 1

Time	Temperature
10:49	229.2 °C

Accuracy:	-0.8	°C
Agilent Recommended:	>= -1.0	% setpoint in K (-5.0 °C)
	<= 1.0	% setpoint in K (5.0 °C)

Setpoint Status: Pass Runs: 1

Setpoint Temperature: 100.0 °C
Zone: Oven

Measurements and Results

Probe: Probe 1

Time	Temperature
10:55	99.7 °C

Accuracy:	-0.3	°C
Agilent Recommended:	>= -1.0	% setpoint in K (-3.7 °C)
	<= 1.0	% setpoint in K (3.7 °C)

Setpoint Status: Pass Runs: 1

Overall GC Oven Temperature Accuracy Test Status

Pass

GC Oven Temperature Stability

Purpose

This test uses a calibrated digital thermometer to determine the stability of the oven temperature. Stability is expressed as the delta between the highest and lowest measured temperatures.

Configuration Details

Name: 8890

Setpoint Temperature: 100.0 °C
Zone: Oven

Measurements

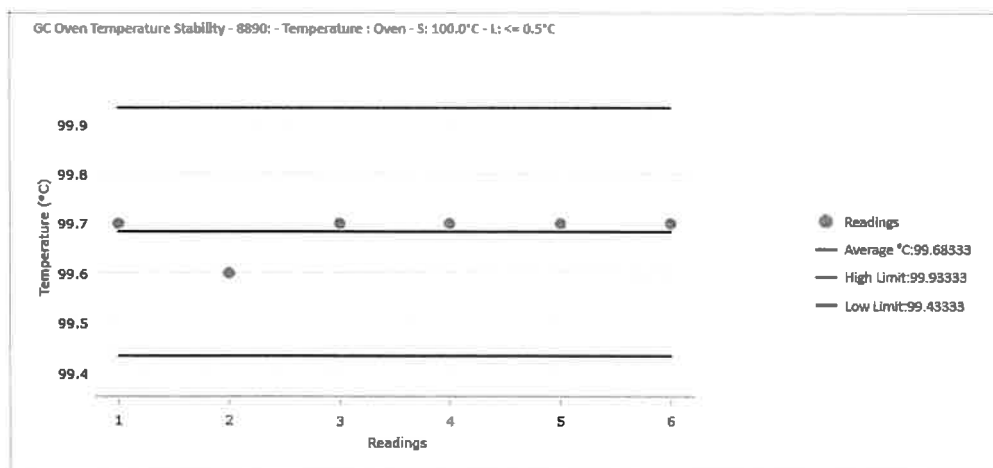
Results

Probe: Probe 1

	Time	Temperature	Average:	
1.	10:55	99.7 °C	99.68333	°C
2.	10:59	99.6	High:	99.7 °C
3.	11:03	99.7	Low:	99.6 °C
4.	11:07	99.7	Stability:	0.1 °C
5.	11:11	99.7	Agilent Recommended:	<= 0.5
6.	11:15	99.7		

Setpoint Status: Pass

Runs: 1



Overall GC Oven Temperature Stability Test Status

Pass

Scouting Run

Purpose

This test is used to determine the chromatogram for presence of expected peaks, sufficient run time, and proper integration events prior to the start of the qualification runs.

Sequence

The sequence has one line to perform a single injection of the evaluation standard.

Evaluation standard, 1 injection

Configuration Details

Tested Combination1 Front SSL / Front FID

Injection Tower

Name: 7693A

Setpoint Injection Volume on Column: 1.0 uL

Conditions

Y-Axis Unit: pA

Configuration

Sample: FID MDL Std Kit, 5188-5372

Evaluated Compound: Sample Peak

Evaluation Standard Concentration: 100 % (from Certificate of Analysis)

Measurements

Does the run include sufficient flat baseline for the SN test? Yes

Noise start time for Signal to Noise (minutes): 2

Run time for Signal to Noise (minutes): 5.5

Run time for tests not requiring extra noise interval (minutes): 0.5

Setpoint Status: Completed

Runs: 1

Data Audit Log

Host name: DESKTOP-CML4V7L

Original Data Path: E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rslt

Analyzed Data Path: SDS://SessionData/OQ/Tests/GcScout_0_0/GcScout_0_0_1/PreviousRun/Run1

Date: June 14, 2024 9:42:21 AM

System ID: KLC0139-1

Integration Parameters :

Type of Integration : Injection

Reintegration Count 0

Optional Values :

Baseline Correction Mode: Advanced

Initial Slope Sensitivity: 10

Initial Peak Width: 0.01

Initial Area Reject: 0

Initial Height Reject: 100

Timed Event Table :

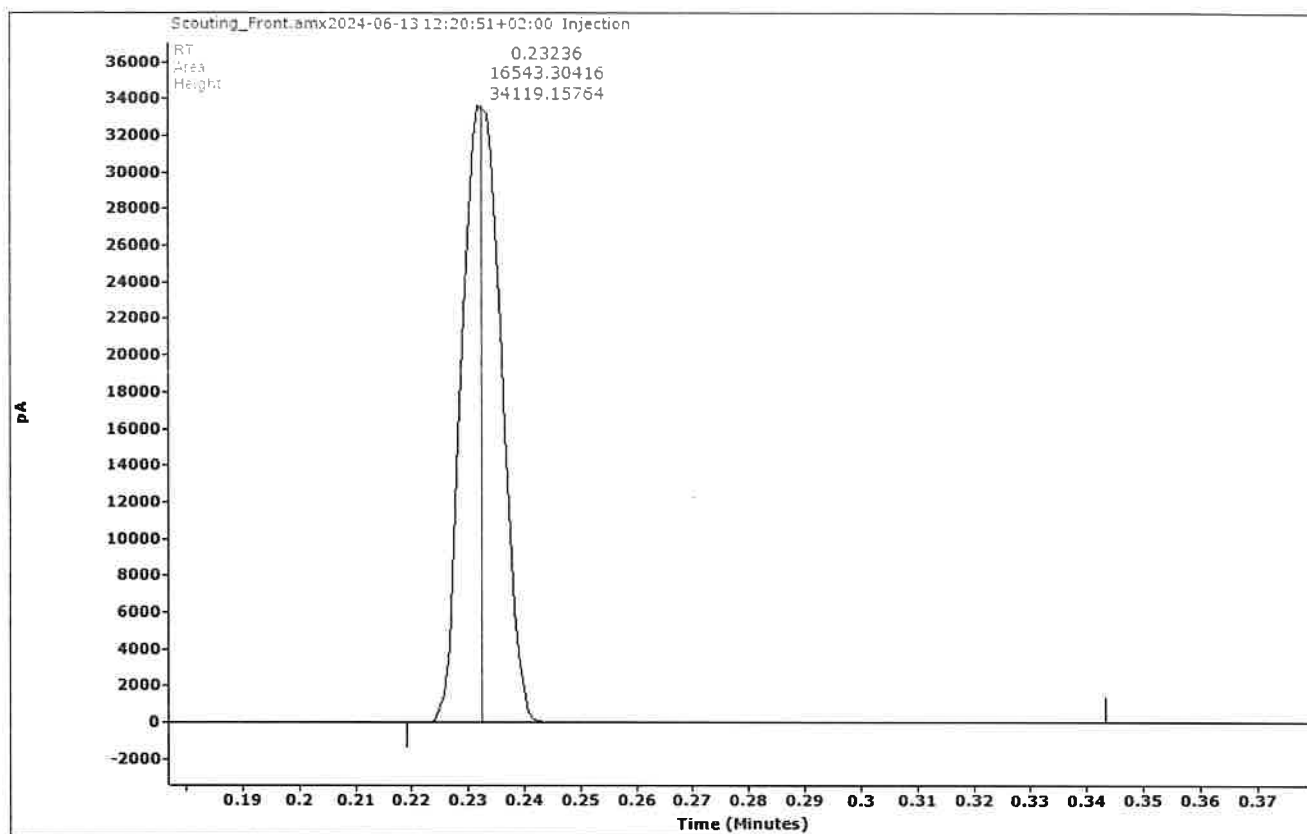
Integration Type	Value	Time
Integration	OFF	0
Integration	ON	0.15
Integration	OFF	0.5

Acquisition operator: Serwis_Altium

Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/Scouting_Front.amx

Data file analyzed for this test: Scouting_Front.amx2024-06-13 12-20-51+02-00.dx

Acquisition Date: Thursday, June 13, 2024 12:24:02 PM



Scouting Run area and height values are not used in any ACE calculations or to determine any test result. Therefore, for Scouting Run chromatograms only, area and height values are not converted to units used by the CDS.

Overall Scouting Run Status

Completed

(Completed is expressed as Pass in the Test Summary section.)

Noise and Drift

Purpose

This test determines the noise and drift of the detector signal. The base signal is recorded at the beginning of the test, noise is calculated as the average peak-to-peak noise in a number of signal segments, and drift is calculated as the slope of the linear regression for the signal.

Sequence

Line 1: Blank run, 1 injection

Configuration Details

Tested Combination1

Front

SSL

/ Front

FID

Name:

8890

Setpoint

Base Signal:

3

pA

Base signal is not evaluated and for recording purposes only.

Conditions

Noise Evaluation Start Time:

3.0

min

Noise Evaluation Duration:

20.0

min

Sample:

Blank run

Oven Temperature:

200.0

°C

Configuration

Y-Axis Unit:

pA

Results

ASTM Noise

Drift

pA

pA/Hr

0.02

0.10

Agilent Recommended:

<=

0.10

<=

2.50

Status:

Pass

Pass

After data is processed, test-specification limits on this form are rescaled for the CDS used to collect data.

Setpoint Status:

Pass

Runs: 1

Data Audit Log

Host name:

DESKTOP-CML4V7L

Original Data Path:

E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rslit

Analyzed Data Path:

SDS://SessionData/OQ/Tests/GcNd_0_0/GcNd_0_0_1/PreviousRun/Run1

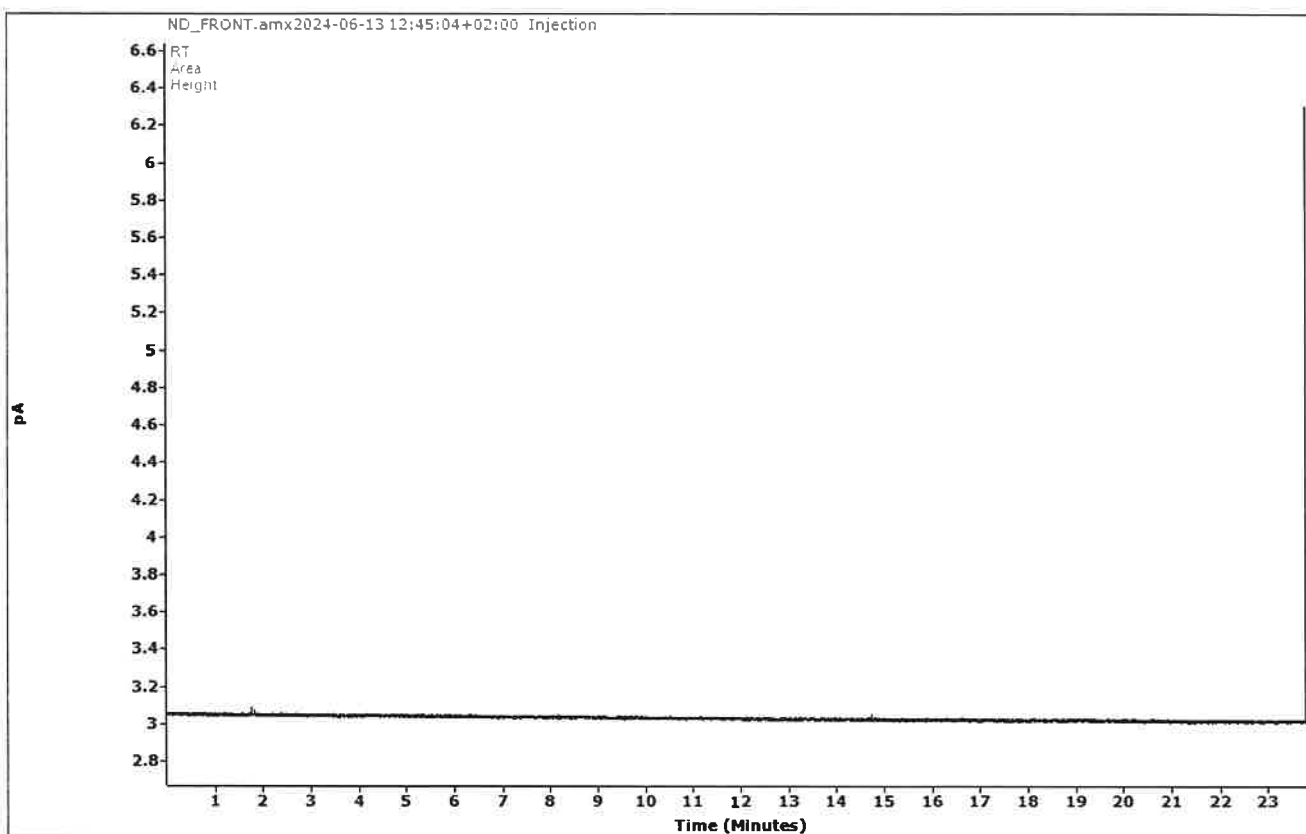
Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rslt/ND_FRONT.amx
Data file analyzed for this test: ND_FRONT.amx2024-06-13 12-45-04+02-00.dx
Acquisition Date: Thursday, June 13, 2024 12:45:19 PM
Noise Type: ASTM
Noise Value: 0.02097
Noise start time: 3.0
Noise duration: 20.0
Drift Value: 0.09522

**Overall Noise and Drift Test Status**

Pass

Injection Precision

Purpose

This test uses a traceable standard to determine injection precision. The mean, standard deviation, and % RSD of six standard injections are calculated.

Sequence

The sequence has two or eight lines depending upon whether you inject 7 times from the same vial or use 7 separate vials.

Evaluation standard, 1 injection (system equilibration)

Evaluation standard, 1 injection (6 of these)

Sample blank, 1 injection (applies only if carry over is run immediately after precision)

Configuration Details

Tested Combination1 Front SSL / Front FID

Injection Tower

Name:

7693A

Setpoint

Injection Volume on Column:

1.0

uL

Conditions

Y-Axis Unit:

pA

Configuration

Sample:

FID MDL Std Kit, 5188-5372

Evaluated Compound:

Sample Peak

Evaluation Standard Concentration:

100

%

(from Certificate of Analysis)

Measurements

Area

Retention Time

16505.49

pA*s

0.23237

minutes

16493.66

0.23239

16488.51

0.23235

16277.86

0.23230

16272.96

0.23232

16335.14

0.23228

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

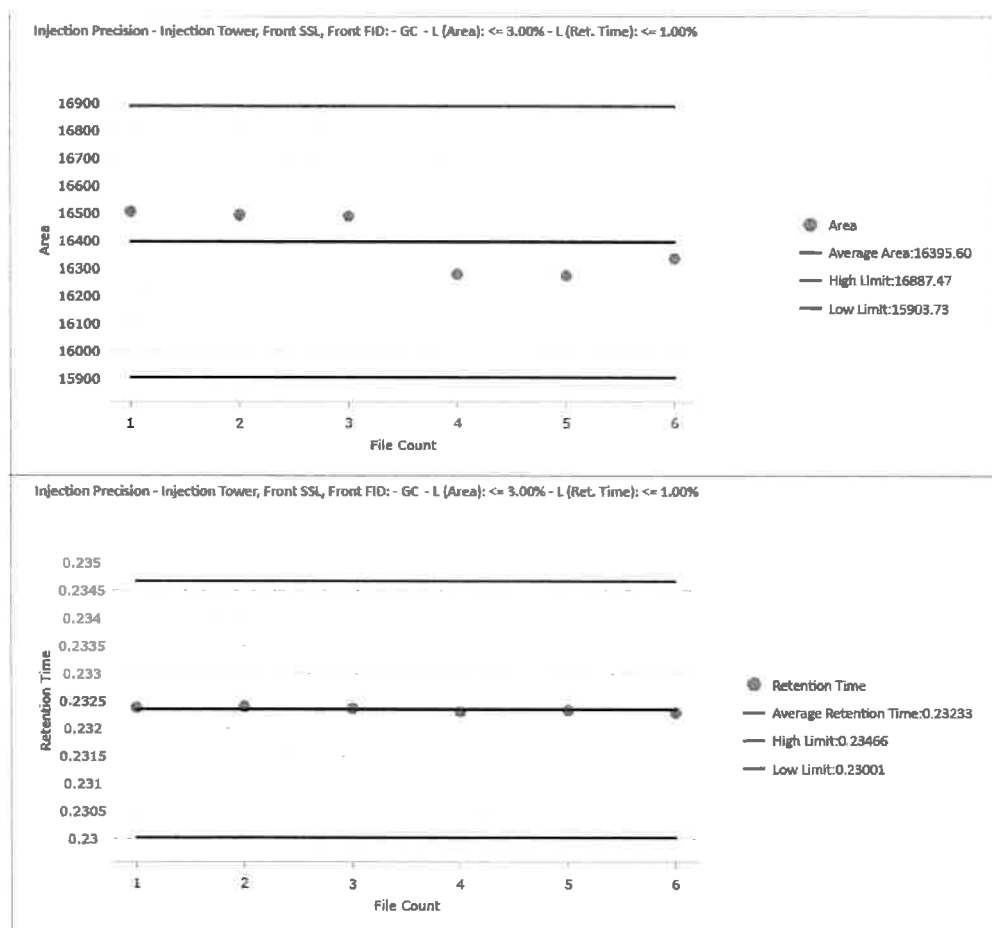
Results

	Area		Retention Time	
Average:	16395.60	pA*s	0.23233	minutes
STD Deviation:	112.1440	pA*s	0.00004	minutes
RSD:	0.68	%	0.02	%
Agilent Recommended:	<= 3.00		<= 1.00	
Status:	Pass		Pass	

Setpoint Status:

Pass

Runs: 1

**Data Audit Log**

Host name: DESKTOP-CML4V7L

Original Data Path: E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rslt

Analyzed Data Path: SDS://SessionData/OQ/Tests/Gclp_0_0/Gclp_0_0_1/PreviousRun/Run1

Integration Parameters :

Type of Integration : Injection
Reintegration Count 0

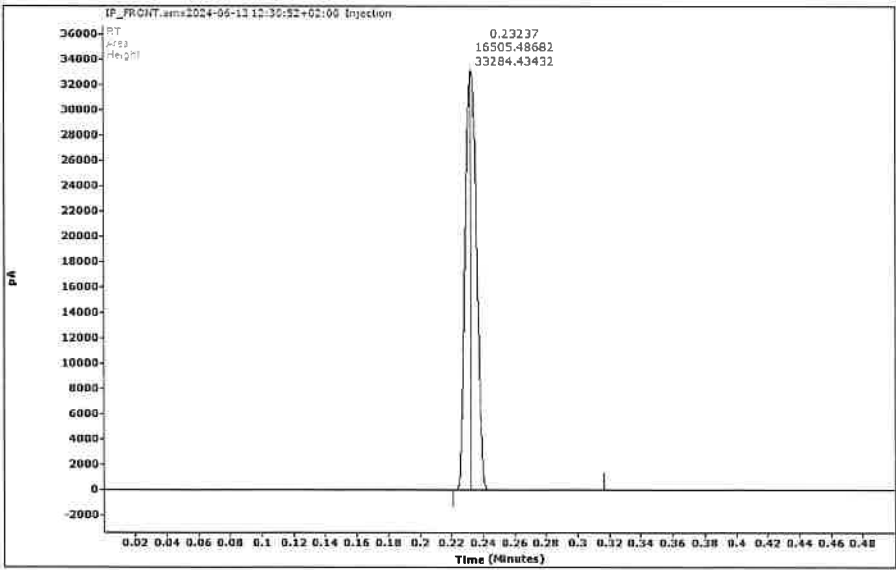
Optional Values :

Baseline Correction Mode: Advanced
Initial Slope Sensitivity: 10
Initial Peak Width: 0.01
Initial Area Reject: 0
Initial Height Reject: 100

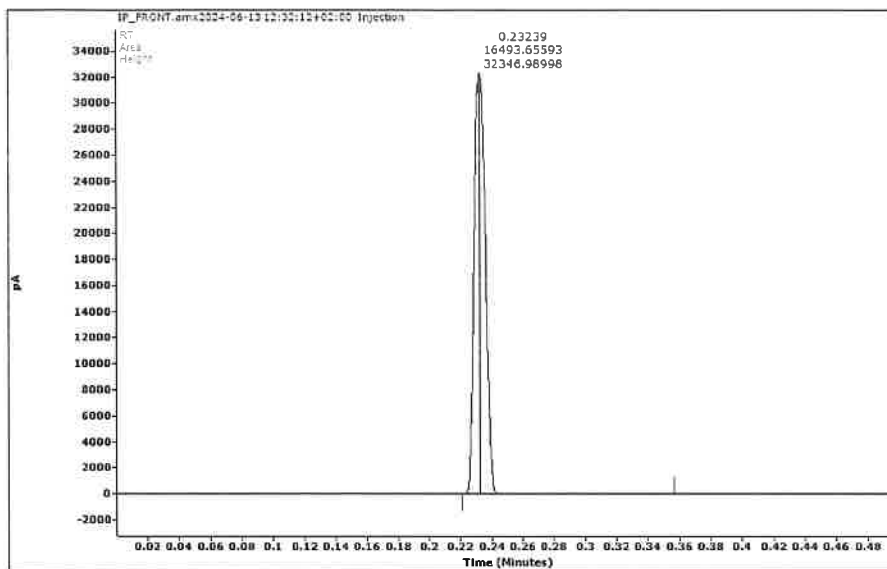
Timed Event Table :

Integration Type	Value	Time
Integration	OFF	0
Integration	ON	0.15
Integration	OFF	0.5

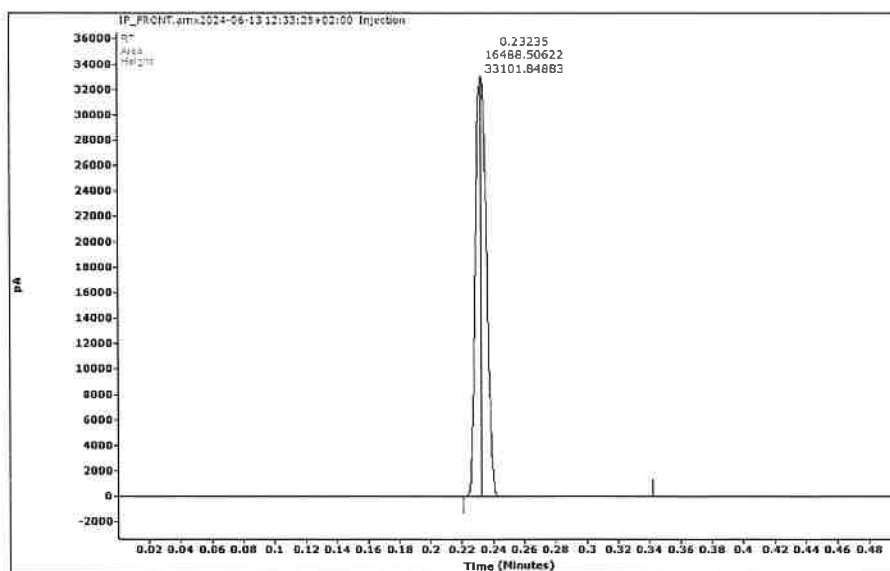
Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/IP_FRONT.amx
Data file analyzed for this test: IP_FRONT.amx2024-06-13 12-30-52+02-00-r002.dx
Acquisition Date: Thursday, June 13, 2024 12:31:38 PM



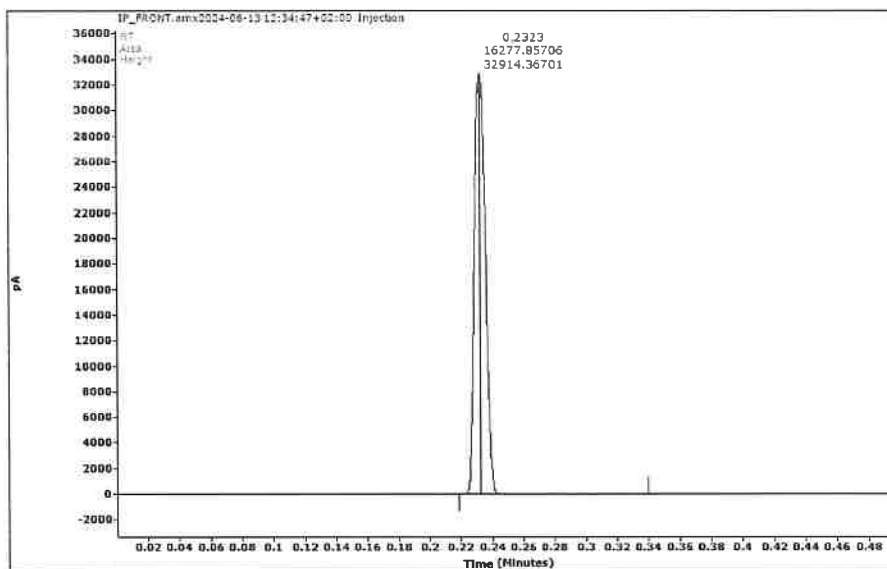
Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/IP_FRONT.amx
Data file analyzed for this test: IP_FRONT.amx2024-06-13 12-32-12+02-00-r003.dx
Acquisition Date: Thursday, June 13, 2024 12:32:57 PM



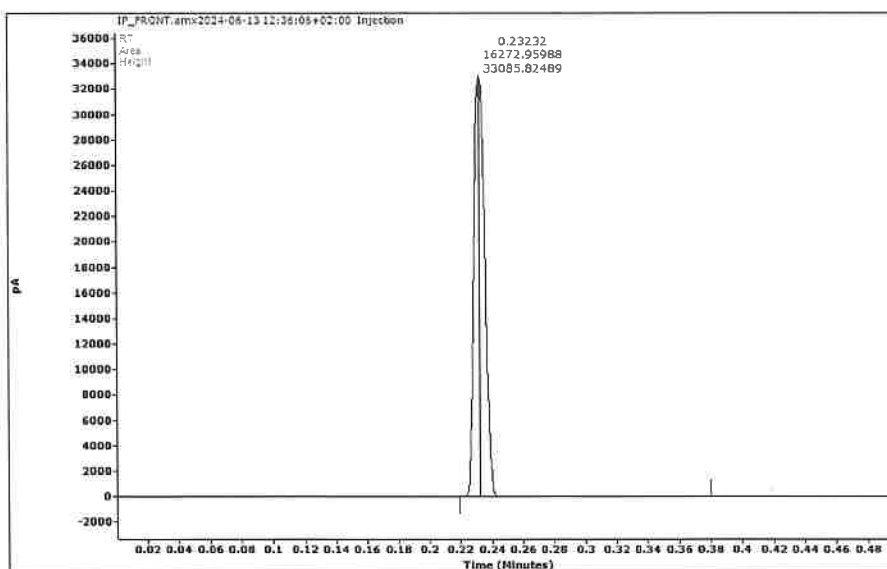
Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/IP_FRONT.amx
Data file analyzed for this test: IP_FRONT.amx2024-06-13 12-33-28+02-00-r004.dx
Acquisition Date: Thursday, June 13, 2024 12:34:14 PM



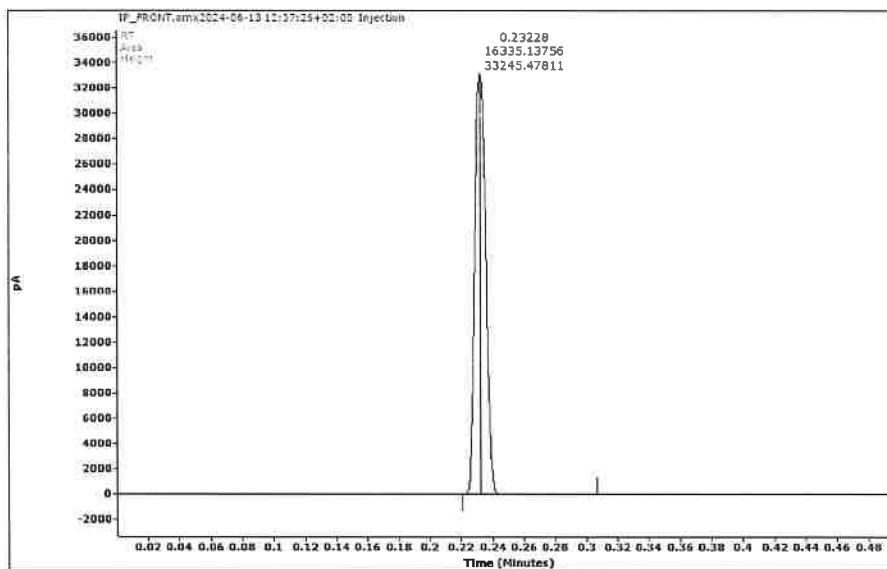
Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/IP_FRONT.amx
Data file analyzed for this test: IP_FRONT.amx2024-06-13 12:34:47+02-00-r005.dx
Acquisition Date: Thursday, June 13, 2024 12:35:33 PM



Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/IP_FRONT.amx
Data file analyzed for this test: IP_FRONT.amx2024-06-13 12:36:06+02-00-r006.dx
Acquisition Date: Thursday, June 13, 2024 12:36:53 PM



Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/IP_FRONT.amx
Data file analyzed for this test: IP_FRONT.amx2024-06-13 12:37:26+02:00-r007.dx
Acquisition Date: Thursday, June 13, 2024 12:38:12 PM

**Overall Injection Precision Test Status**

Pass

Signal to Noise

Purpose

This test uses a traceable standard to determine signal to noise.

Sequence:

Line 1: Evaluation standard, 1 injection

Configuration Details

Tested Combination1	Front	SSL	/ Front	FID
	Injection Tower			
Name:	8890			

Setpoint

Conditions

Injection Volume on Column:	1.0	uL
Noise Evaluation Start Time/Duration:	3	min. / 1.0 min.

Configuration

Y-Axis Unit:	pA
Sample:	FID MDL Std Kit, 5188-5372
Evaluated Compound:	Sample Peak
Evaluation Standard Concentration:	
Nominal:	100 % (For corrected peak height)
Actual:	100 % (Certificate of Analysis)

Measurements

Noise (Type/Value):	ASTM / 0.01315	pA
Retention Time of Evaluated Peak:	0.23223	minutes
Peak Height (Uncorrected/Corrected):	33445.38	pA / 33445.38 pA

(Corrected for attenuation and differences between nominal and actual concentration; analog data is corrected for the applied signal reduction [range/attenuation].)

Results

Signal to Noise:	2543590
Agilent Recommended:	>= 300000

ACE uses unrounded values in its calculations; only the final result is rounded. Therefore, for high signal-to-noise ratios (high peaks/low noise), ACE calculations may appear to differ slightly from your manual calculations using the reported height and noise.

Setpoint Status:	Pass	Runs: 1
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Data Audit Log

Host name: DESKTOP-CML4V7L
Original Data Path: E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rslt
Analyzed Data Path: SDS://SessionData/OQ/Tests/GcSn_0_0/GcSn_0_0_1/PreviousRun/Run1

Integration Parameters :

Type of Integration : Injection

Reintegration Count 0

Optional Values :

Baseline Correction Mode: Advanced

Initial Slope Sensitivity: 10

Initial Peak Width: 0.01

Initial Area Reject: 0

Initial Height Reject: 100

Timed Event Table :

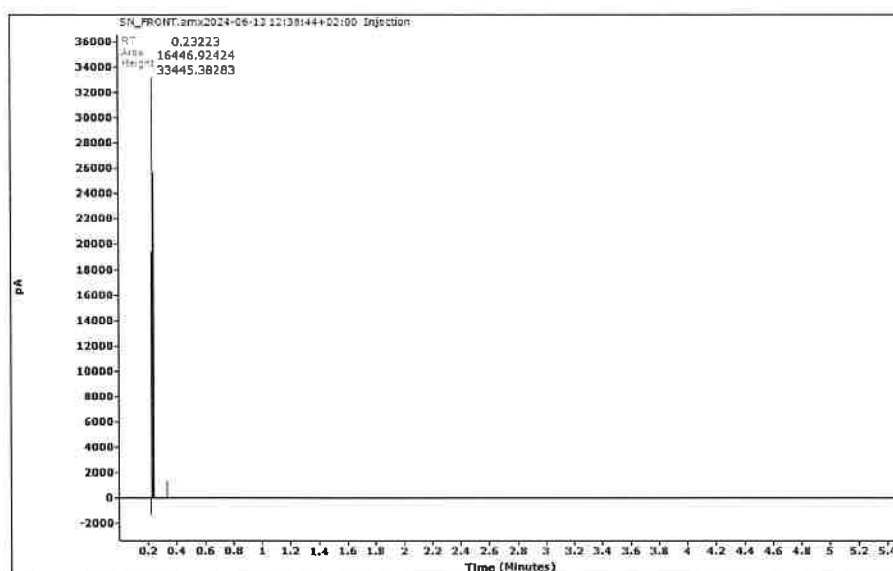
Integration Type	Value	Time
Integration	OFF	0
Integration	ON	0.15
Integration	OFF	0.5

Acquisition operator: Serwis_Altium

Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/SN_FRONT.amx

Data file analyzed for this test: SN_FRONT.amx2024-06-13 12:38-44+02-00.dx

Acquisition Date: Thursday, June 13, 2024 12:39:30 PM

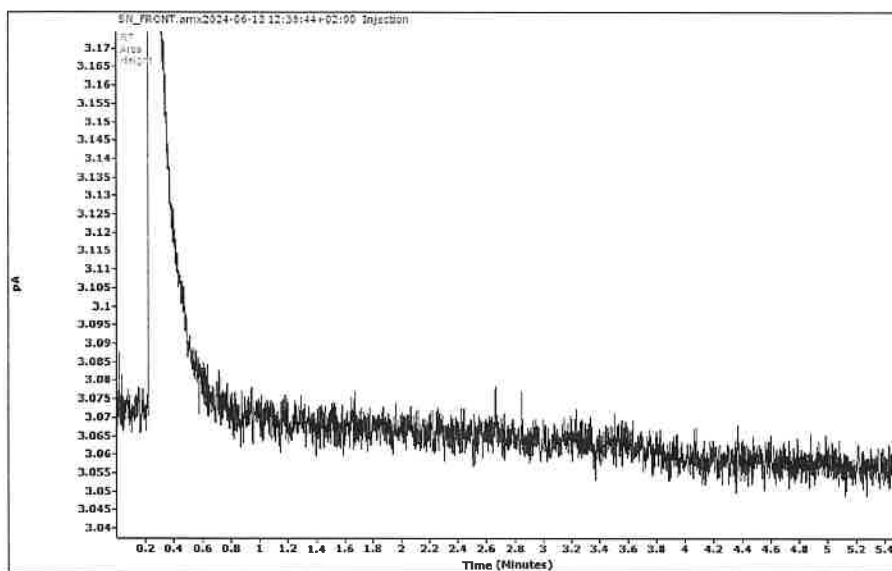


Acquisition operator: Serwis_Altium

Acquisition method: /OQ2024/Results/OQ_2024_FRONT.rsl/SN_FRONT.amx

Data file analyzed for this test: SN_FRONT.amx2024-06-13 12:38:44+02:00.dx

Acquisition Date: Thursday, June 13, 2024 12:39:30 PM



Overall Signal to Noise Test Status

Pass

Scouting Run

Purpose

This test is used to determine the chromatogram for presence of expected peaks, sufficient run time, and proper integration events prior to the start of the qualification runs.

Sequence

The sequence has one line to perform a single injection of the evaluation standard.

Evaluation standard, 1 injection

Configuration Details

Tested Combination2	Back	SSL	/ Back	FID
	Injection Tower			
Name:	7693A			

Setpoint	Injection Volume on Column:	1.0	uL
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Conditions

Y-Axis Unit:	pA
--------------	----

Configuration

Sample:	FID MDL Std Kit, 5188-5372		
Evaluated Compound:	Sample Peak		
Evaluation Standard Concentration:	100	%	(from Certificate of Analysis)

Measurements

Does the run include sufficient flat baseline for the SN test?	Yes
Noise start time for Signal to Noise (minutes):	2
Run time for Signal to Noise (minutes):	5.5
Run time for tests not requiring extra noise interval (minutes):	0.5

Setpoint Status:	Completed	Runs: 1
------------------	-----------	---------

Data Audit Log

Host name:	DESKTOP-CML4V7L
Original Data Path:	E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rslt\OQ_2024_BACK.rslt
Analyzed Data Path:	SDS://SessionData/OQ/Tests/GcScout_1_0/GcScout_1_0_1/PreviousRun/Run1

Integration Parameters :

Type of Integration : Injection

Reintegration Count 0

Optional Values :

Baseline Correction Mode: Advanced

Initial Slope Sensitivity: 10

Initial Peak Width: 0.01

Initial Area Reject: 0

Initial Height Reject: 100

Timed Event Table :

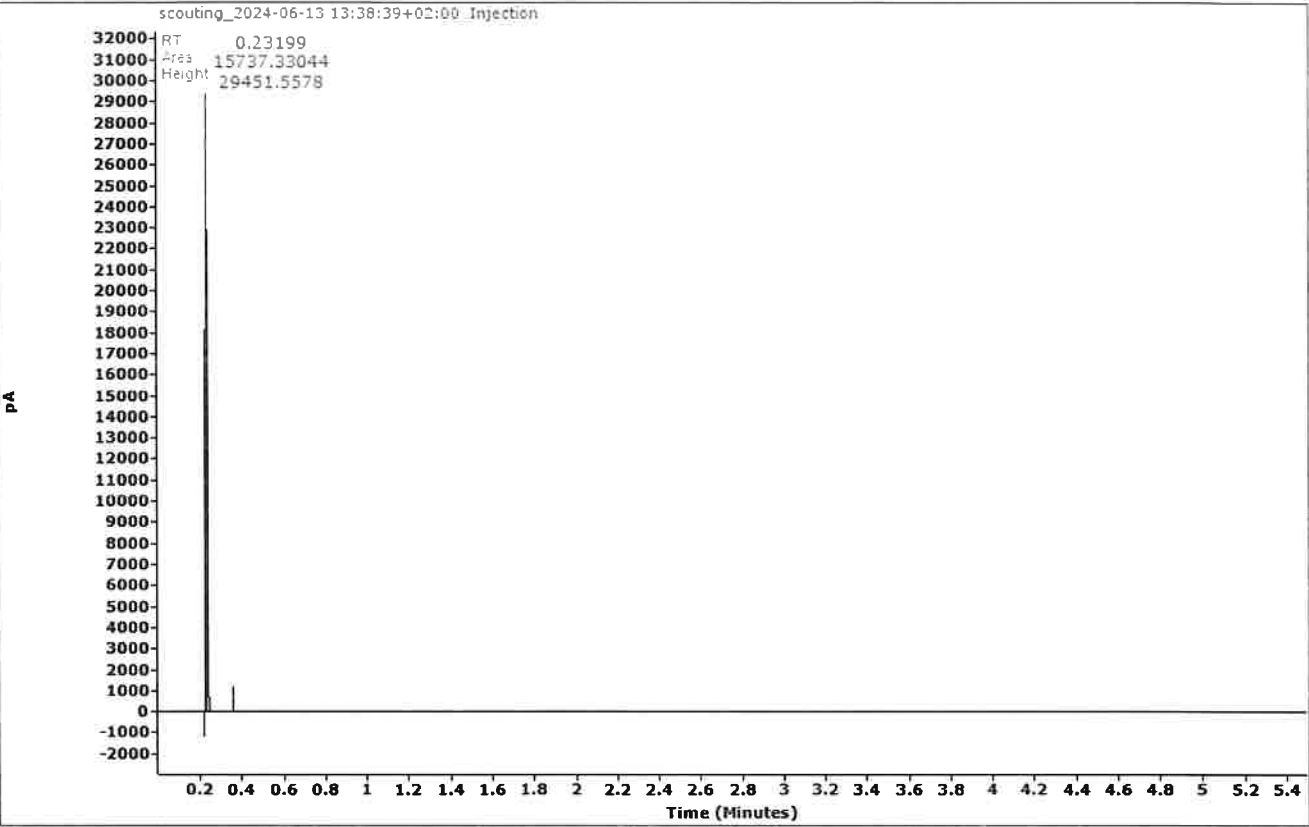
Integration Type	Value	Time
Integration	OFF	0
Integration	ON	0.15
Integration	OFF	0.5

Acquisition operator: Serwis_Altium

Acquisition method: /OQ2024/Results/OQ_2024_BACK.rsl/Scouting_BACK.amx

Data file analyzed for this test: scouting_2024-06-13 13-38-39+02-00.dx

Acquisition Date: Thursday, June 13, 2024 1:42:52 PM



Scouting Run area and height values are not used in any ACE calculations or to determine any test result. Therefore, for Scouting Run chromatograms only, area and height values are not converted to units used by the CDS.

Overall Scouting Run Status

Completed

(Completed is expressed as Pass in the Test Summary section.)

Noise and Drift

Purpose

This test determines the noise and drift of the detector signal. The base signal is recorded at the beginning of the test, noise is calculated as the average peak-to-peak noise in a number of signal segments, and drift is calculated as the slope of the linear regression for the signal.

Sequence

Line 1: Blank run, 1 injection

Configuration Details

Tested Combination2	Back	SSL	/ Back	FID
Name:	8890			

Setpoint	Base Signal:	2.1	pA
Base signal is not evaluated and for recording purposes only.			

Conditions

Noise Evaluation Start Time:	3.0	min
Noise Evaluation Duration:	20.0	min
Sample:	Blank run	
Oven Temperature:	200.0	°C

Configuration

Y-Axis Unit:	pA
--------------	----

Results

	ASTM Noise	Drift
	pA	pA/Hr
	0.04	0.07
Agilent Recommended:	<= 0.10	<= 2.50
Status:	Pass	Pass

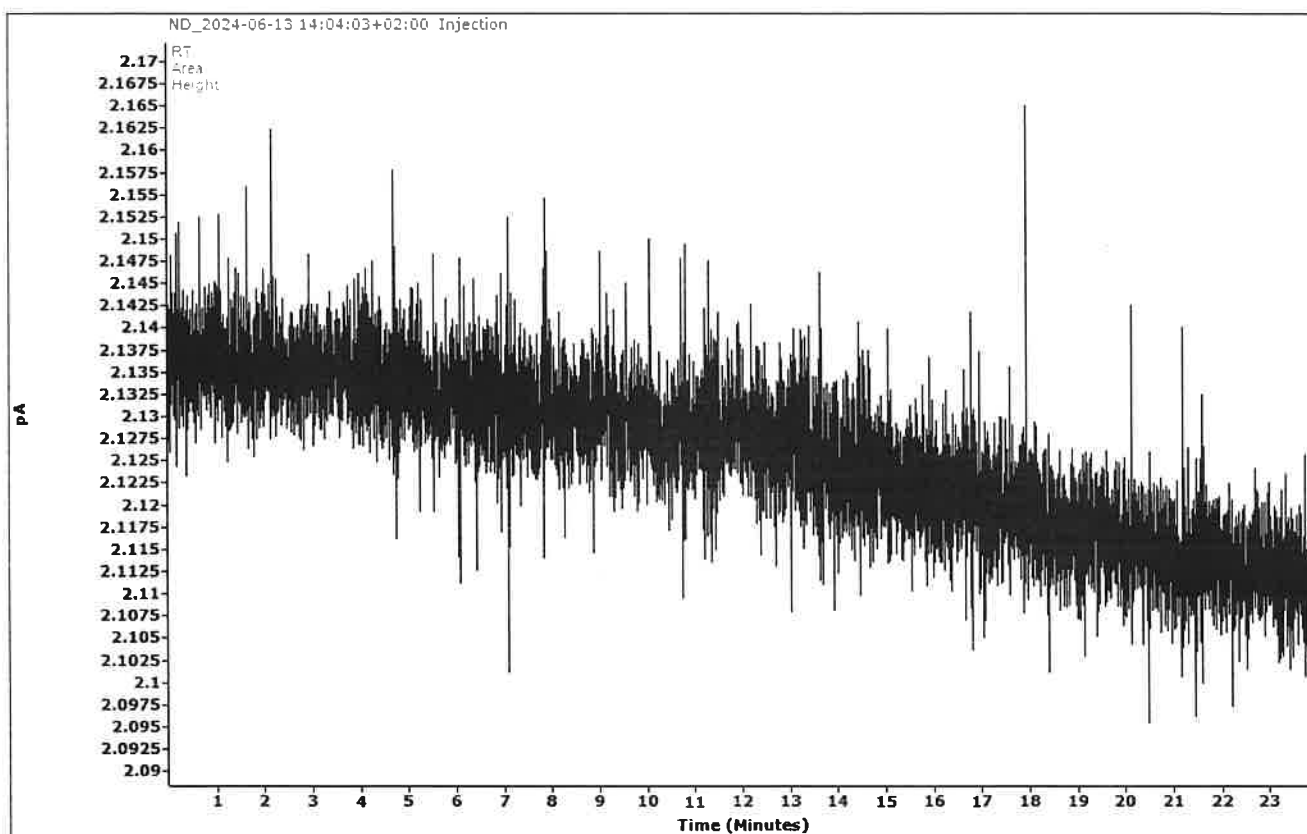
After data is processed, test-specification limits on this form are rescaled for the CDS used to collect data.

Setpoint Status:	Pass	Runs: 1
------------------	------	---------

Data Audit Log

Host name:	DESKTOP-CML4V7L
Original Data Path:	E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rslt\OQ_2024_BACK.rslt
Analyzed Data Path:	SDS://SessionData/OQ/Tests/GcNd_1_0/GcNd_1_0_1/PreviousRun/Run1

Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rsl/ND_BACK.amx
Data file analyzed for this test: ND_2024-06-13 14-04-03+02-00.dx
Acquisition Date: Thursday, June 13, 2024 2:04:19 PM
Noise Type: ASTM
Noise Value: 0.04016
Noise start time: 3.0
Noise duration: 20.0
Drift Value: 0.07179

**Overall Noise and Drift Test Status**

Pass

Injection Precision

Purpose

This test uses a traceable standard to determine injection precision. The mean, standard deviation, and % RSD of six standard injections are calculated.

Sequence

The sequence has two or eight lines depending upon whether you inject 7 times from the same vial or use 7 separate vials.

Evaluation standard, 1 injection (system equilibration)

Evaluation standard, 1 injection (6 of these)

Sample blank, 1 injection (applies only if carry over is run immediately after precision)

Configuration Details

Tested Combination2	Back	SSL	/ Back	FID
	Injection Tower			
Name:	7693A			

Setpoint	Injection Volume on Column:	1.0	uL
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Conditions

Y-Axis Unit:	pA
--------------	----

Configuration

Sample:	FID MDL Std Kit, 5188-5372		
Evaluated Compound:	Sample Peak		
Evaluation Standard Concentration:	100	%	(from Certificate of Analysis)

Measurements

Area		Retention Time	
	pA*s		minutes
15760.47		0.23167	
15863.94		0.23215	
15709.23		0.23226	
15914.21		0.23154	
15783.78		0.23173	
15838.69		0.23228	

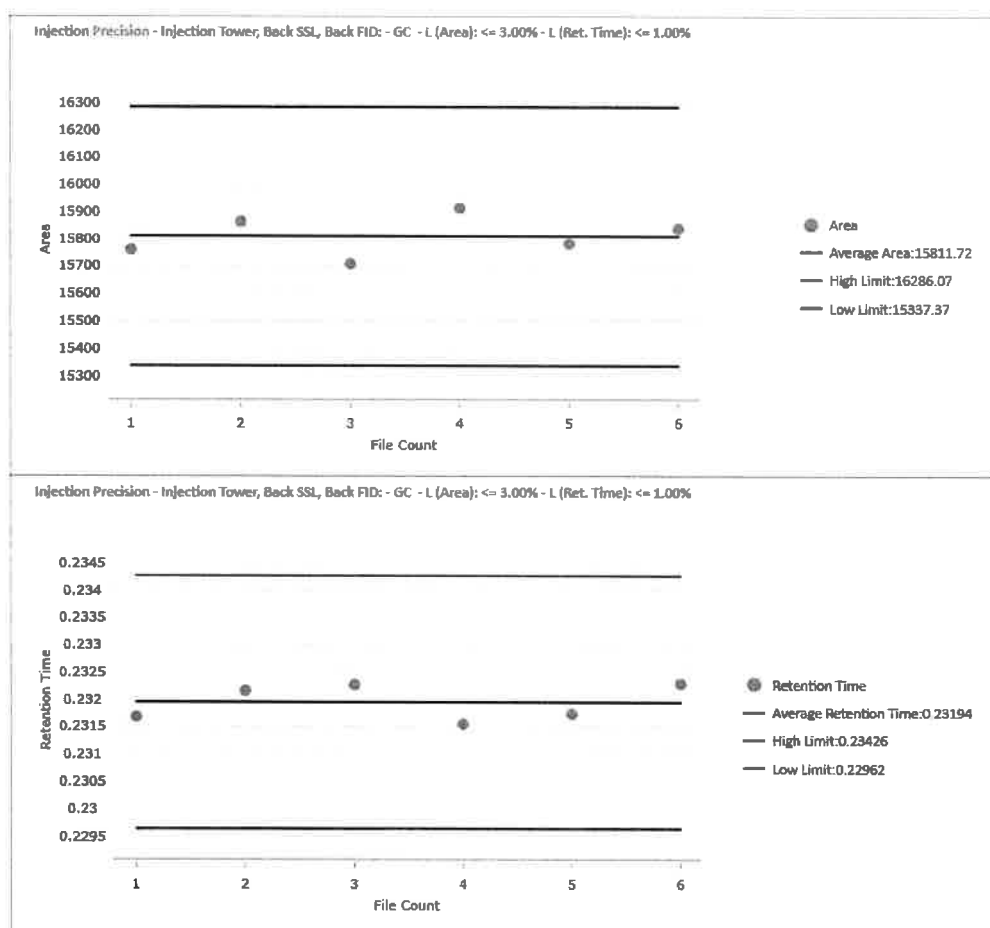
Results

	Area		Retention Time	
Average:	15811.72	pA*s	0.23194	minutes
STD Deviation:	74.65736	pA*s	0.00033	minutes
RSD:	0.47	%	0.14	%
Agilent Recommended:	<= 3.00		<= 1.00	
Status:	Pass		Pass	

Setpoint Status:

Pass

Runs: 1

**Data Audit Log**

Host name: DESKTOP-CML4V7L

Original Data Path: E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rslt\OQ_2024_BACK.rslt

Analyzed Data Path: SDS://SessionData/OQ/Tests/Gclp_1_0/Gclp_1_0_1/PreviousRun/Run1

Date: June 14, 2024 9:42:21 AM

System ID: KLC0139-1

Integration Parameters :

Type of Integration : Injection

Reintegration Count 0

Optional Values :

Baseline Correction Mode: Advanced

Initial Slope Sensitivity: 10

Initial Peak Width: 0.01

Initial Area Reject: 0

Initial Height Reject: 100

Timed Event Table :

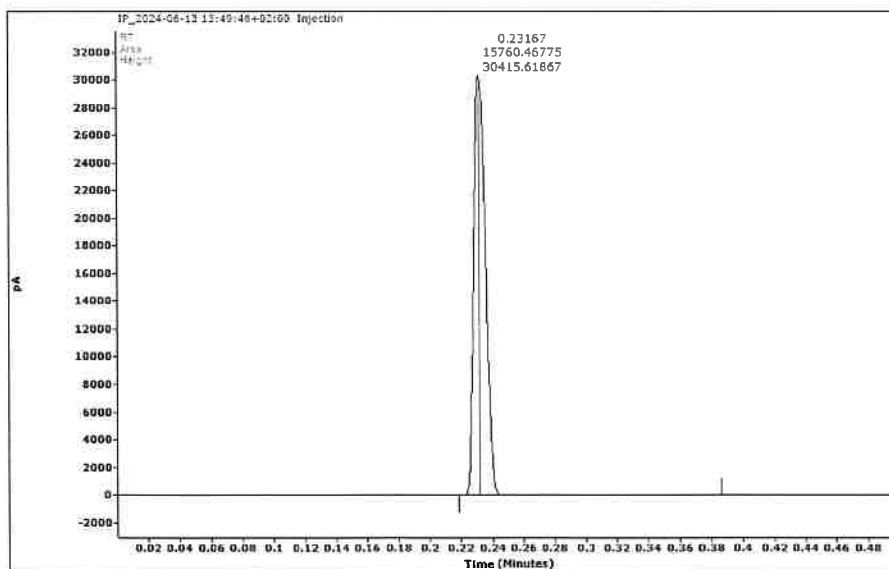
Integration Type	Value	Time
Integration	OFF	0
Integration	ON	0.15
Integration	OFF	0.5

Acquisition operator: Serwis_Altium

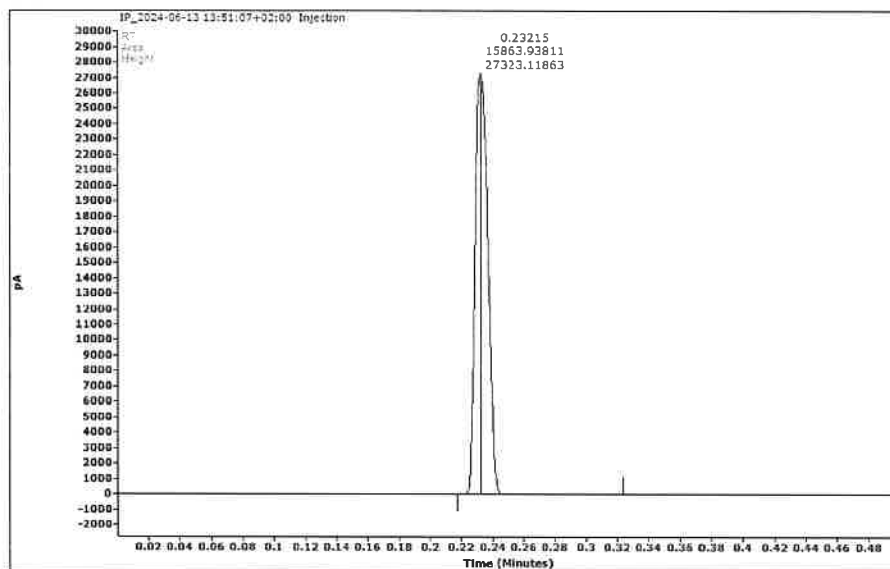
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rslt/IP_BACK.amx

Data file analyzed for this test: IP_2024-06-13 13-49-48+02-00-r002.dx

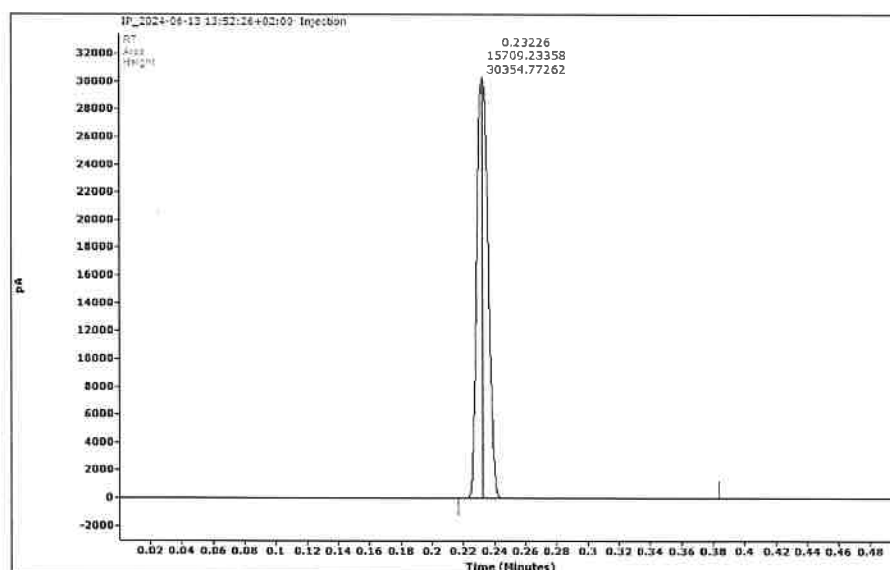
Acquisition Date: Thursday, June 13, 2024 1:50:34 PM



Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rslt/IP_BACK.amx
Data file analyzed for this test: IP_2024-06-13 13-51-07+02-00-r003.dx
Acquisition Date: Thursday, June 13, 2024 1:51:52 PM

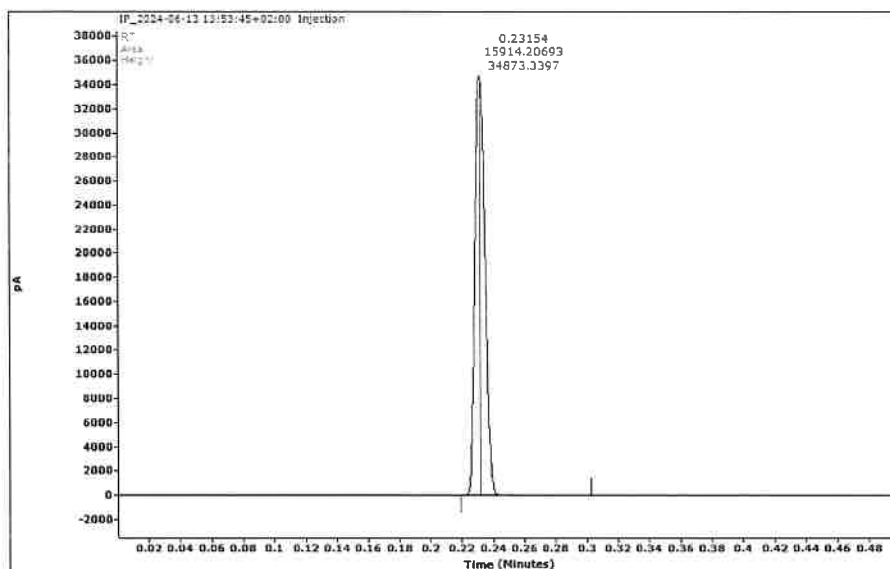


Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rslt/IP_BACK.amx
Data file analyzed for this test: IP_2024-06-13 13-52-26+02-00-r004.dx
Acquisition Date: Thursday, June 13, 2024 1:53:11 PM

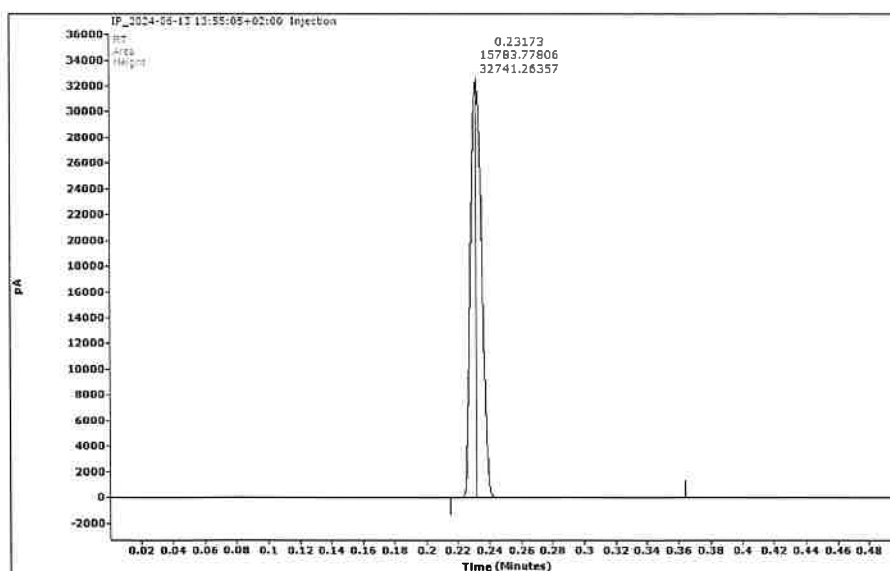


Date: June 14, 2024 9:42:21 AM
System ID: KLC0139-1

Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rsl/IP_BACK.amx
Data file analyzed for this test: IP_2024-06-13 13-53-45+02-00-r005.dx
Acquisition Date: Thursday, June 13, 2024 1:54:31 PM



Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rsl/IP_BACK.amx
Data file analyzed for this test: IP_2024-06-13 13-55-05+02-00-r006.dx
Acquisition Date: Thursday, June 13, 2024 1:55:50 PM

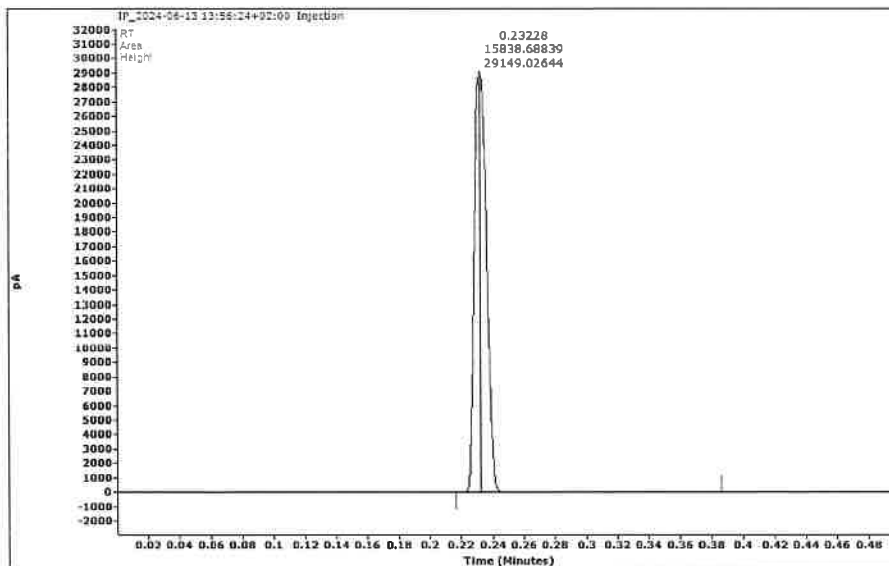


Acquisition operator: Serwis_Altium

Acquisition method: /OQ2024/Results/OQ_2024_BACK.rsl/IP_BACK.amx

Data file analyzed for this test: IP_2024-06-13 13-56-24+02-00-r007.dx

Acquisition Date: Thursday, June 13, 2024 1:57:10 PM



Overall Injection Precision Test Status

Pass

Signal to Noise

Purpose

This test uses a traceable standard to determine signal to noise.

Sequence:

Line 1: Evaluation standard, 1 injection

Configuration Details

Tested Combination2 Back SSL / Back FID

Injection Tower

Name: 8890

Setpoint

Conditions

Injection Volume on Column: 1.0 uL

Noise Evaluation Start Time/Duration: 3 min. / 1.0 min.

Configuration

Y-Axis Unit: pA

Sample: FID MDL Std Kit, 5188-5372

Evaluated Compound: Sample Peak

Evaluation Standard Concentration:

Nominal: 100 % (For corrected peak height)

Actual: 100 % (Certificate of Analysis)

Measurements

Noise (Type/Value): ASTM / 0.01667 pA

Retention Time of Evaluated Peak: 0.23230 minutes

Peak Height (Uncorrected/Corrected): 28618.37 pA / 28618.37 pA

(Corrected for attenuation and differences between nominal and actual concentration; analog data is corrected for the applied signal reduction [range/attenuation].)

Results

Signal to Noise: 1717271

Agilent Recommended: >= 300000

ACE uses unrounded values in its calculations; only the final result is rounded. Therefore, for high signal-to-noise ratios (high peaks/low noise), ACE calculations may appear to differ slightly from your manual calculations using the reported height and noise.

Setpoint Status: Pass

Runs: 1

Date: June 14, 2024 9:42:21 AM
System ID: KLC0139-1

Data Audit Log

Host name: DESKTOP-CML4V7L
Original Data Path: E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rslt\OQ_2024_BACK.rslt
Analyzed Data Path: SDS://SessionData/OQ/Tests/GcSn_1_0/GcSn_1_0_1/PreviousRun/Run1

Integration Parameters :

Type of Integration : Injection
Reintegration Count 0

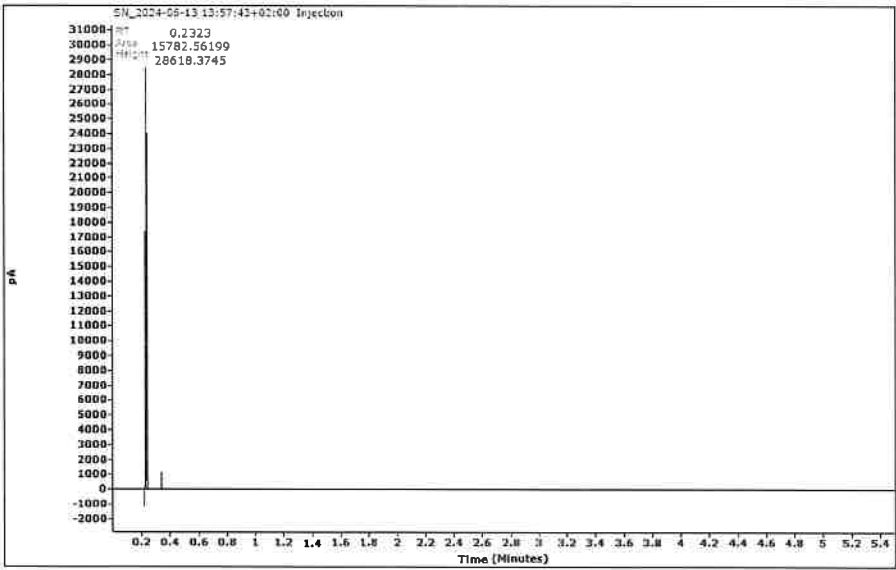
Optional Values :

Baseline Correction Mode: Advanced
Initial Slope Sensitivity: 10
Initial Peak Width: 0.01
Initial Area Reject: 0
Initial Height Reject: 100

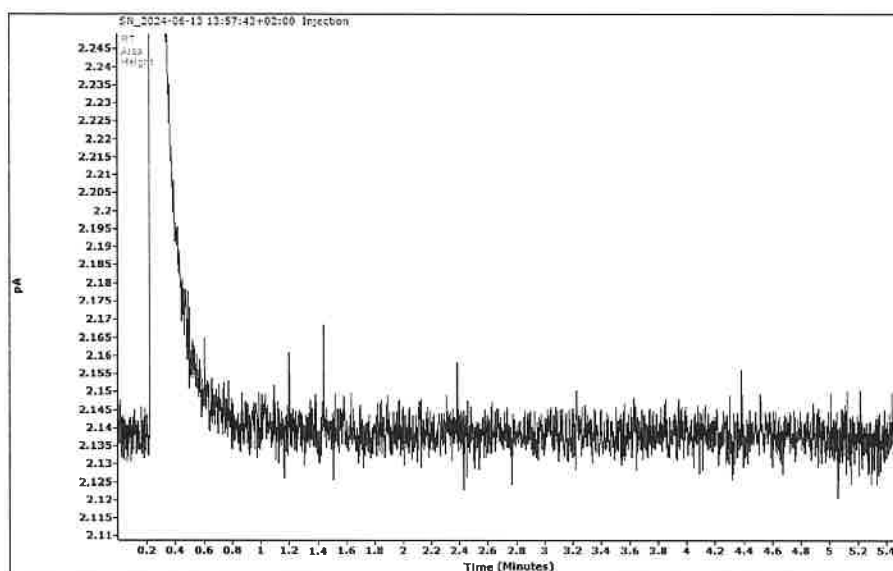
Timed Event Table :

Integration Type	Value	Time
Integration	OFF	0
Integration	ON	0.15
Integration	OFF	0.5

Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rsl/SN_back.amx
Data file analyzed for this test: SN_2024-06-13 13-57-43+02-00.dx
Acquisition Date: Thursday, June 13, 2024 1:58:29 PM



Acquisition operator: Serwis_Altium
Acquisition method: /OQ2024/Results/OQ_2024_BACK.rsl/SN_back.amx
Data file analyzed for this test: SN_2024-06-13 13-57-43+02-00.dx
Acquisition Date: Thursday, June 13, 2024 1:58:29 PM

**Overall Signal to Noise Test Status**

Pass

Declaration of Change Control

This document is under change control. Revision history is maintained and printed on each document. Access to the master documents is limited to process owners. Documents receive periodic review and cannot be assigned an evergreen status. The qualification performed according to this document refers only to the hardware/software configuration in place at the time of the qualification. Agilent Technologies recommends that instrument configuration change management procedures be in place in order to maintain the validation process. Any changes to the analytical or computer hardware or software must be clearly specified. A change management system provides a means for determining the degree of requalification required according to the extent of the changes made. All details of the changes must be thoroughly recorded and documented, together with details of completed tests and their results. Note: Hardware/software configuration management is the customer's responsibility.

Attachments

Training requirements note: The delivery engineer attaches an ACE technique-specific training certificate to the Equipment Qualification Report (EQR). Obtaining ACE technique-specific certification includes pre-requisite trainings for Data Integrity, General Compliance topics (GMP, GLP, ALCOA, etc.), instrument hardware and software components, and the ACE technique itself. The one certificate encompasses all pre-requisite trainings as documented in the Agilent Learning Management System called Success Factors.

Location	Category	Document Name	Page
EQR	General	ACE Self Qualification Certificate	58
EQR	General	Operator's training certificate and qualifications	59
EQR	General	Operator's training certificate and qualifications	60
EQR	Tool	Certificate of Calibration Manometer	61
EQR	Tool	Certificate of Calibration Gas Flowmeter	63
EQR	Tool	Certificate of Calibration Thermometer and Probe	65
EQR	Material	Certificate of Analysis FID MDL std kit, 5188-5372	67

General

Document Name:

ACE Self Qualification Certificate



Agilent Compliance Engine Self Qualification

Date:June 14, 2024 9:08:24 AM

Drive Serial #:EE37177BPlatform Revision:ACE 3.12.113

Individual self-qualification reports for each specific technique installed are also available upon request. They provide additional details on the general report from the concise summary and are structured by the actual algorithms challenged during the process. There is not a one-to-one relationship between algorithms and OQ program tests because some algorithms are used by several tests and across multiple similar hardware components of the qualified systems.

Technique Type	Tests Completed	Result
Gas Chromatography	29	Conforms
Software	6	Conforms

Overall Qualification Status

Conforms

General

Document Name: Operator's training certificate and qualifications



Certificate of Completion

Learner Name: Artur Krol

Title Of Course: AN-CE-GC-2-026-C: ACE GC Specific Training

Completion Date: December 22, 2021

Certified By Company: Learning at Agilent

All Service and Support training certificates have the following specific limitations.

A certificate for Service and Support training is only valid while employed by Agilent Technologies or while working as an Agilent-authorized service provider, through which the service employee has ongoing access to Agilent's: Safety Alerts, Service Notes, internal technical updates, update training, current documentation, technical support, current parts, and parts updates. Completion of training alone, without being employed by Agilent Technologies, does not qualify an individual to safely install, service or maintain Agilent products.

General

Document Name:	Operator's training certificate and qualifications
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Certificate of Completion

Learner Name:	Artur Krol
Title Of Course:	AN-FSE-NDS-1-303-A: OpenLab CDS 2.5 Workstation and Workstation Plus
Completion Date:	January 22, 2021
Certified By Company:	Learning at Agilent

All Service and Support training certificates have the following specific limitations.

A certificate for Service and Support training is only valid while employed by Agilent Technologies or while working as an Agilent-authorized service provider, through which the service employee has ongoing access to Agilent's: Safety Alerts, Service Notes, internal technical updates, update training, current documentation, technical support, current parts, and parts updates. Completion of training alone, without being employed by Agilent Technologies, does not qualify an individual to safely install, service or maintain Agilent products.

Tools

Document Name: Certificate of Calibration Manometer

	Instytut Energetyki Laboratorium Aparatury Pomiarowej 02-981 Warszawa, ul. Augustówka 36 tel. (22) 34 51 438 lap@ien.com.pl www.ien.com.pl	 AP 013
Laboratorium wzorcowane akredytowane przez Polskie Centrum Akredytacji, sygnatariusza porozumień EA MLA i ILAC MRA dotyczących wzajemnego uznawania świadectw wzorcowania. Nr akredytacji AP 013		
ŚWIADECTWO WZORCOWANIA		
Data wydania: 16 stycznia 2024 r.	Nr świadectwa: 59/2024	Strona 1/2
OBIEKT WZORCOWANIA	Ciśnieniomierz elektroniczny model HHP-201, oznaczony numerem seryjnym 110170-P3, wytwórca OMEGA, zakres wskazań: (0 + 100) psi, rozdzielczość 0,01 psi.	
ZGŁASZAJĄCY	Altium International Sp. z o.o. 02 – 785 Warszawa, ul. Puławska 303 Zlecenie: MAP.4032.35.2024	
METODA WZORCOWANIA	Wzorcowanie wykonano powietrzem w siedzibie LAP IEN-PIB zgodnie z instrukcją pomiarową C/1 2/MAP „Wzorcowanie ciśnieniomierzy elektronicznych”, wydanie III z dnia 26.04.2021 r.	
WARUNKI ŚRODOWISKOWE	Temperatura otoczenia (20,8 + 21,2) °C Wilgotność względna (23,0 + 27,0) %	
DATA WYKONANIA WZORCOWANIA	16 stycznia 2024 r.	
SPÓJNOŚĆ POMIAROWA	Świadectwo jest wydane w ramach porozumienia EA MLA w zakresie wzorcowania i potwierdza spójność wyników pomiarów z wzorcami utrzymywanymi w GUM.	
WYNIKI WZORCOWANIA	Podano na stronie 2/2 niniejszego świadectwa wraz z wartościami niepewności pomiaru. Wyniki dotyczą wyłącznie obiektu wzorcowanego.	
NIEPEWNOŚĆ POMIARU	Niepewność pomiaru została określona zgodnie z dokumentem EA-4/02 M:2022. Podane wartości niepewności stanowią niepewności rozszerzone przy prawdopodobieństwie rozszerzenia ok. 95 % i współczynnika rozszerzenia $k = 2$.	
		 mgr inż. Grzegorz Wiatkowski
Niniejsze świadectwo może być okazywane lub kopiowane tylko w całości.		

Date:
System ID:June 14, 2024 9:42:21 AM
KLC0139-1

Document Name:

Certificate of Calibration Manometer

ŚWIADECTWO WZORCOWANIA wydane przez LABORATORIUM AKREDYTOWANE Nr AP 013.
Data wydania: 16 stycznia 2024 r. Nr świadectwa: 59/2024 Strona 2/2

WYNIKI
WZORCOWANIA

Wyniki przeprowadzonego wzorcowania przedstawiono poniżej:

WARTOŚĆ CIŚNIENIA ODNIESIENIA		ŚREDNIA WARTOŚĆ CIŚNIENIA ZMIERZONA	BŁĄD POMIARU		NIEPEWNOŚĆ POMIARU	
W_p			$W_w - W_p$		U	
bar	psi	psi	bar	psi	bar	psi
0,000	0,00	0,00	0,000	0,00	0,002	0,03
0,689	10,00	10,00	0,000	0,00	0,002	0,03
1,379	20,00	20,00	0,000	0,00	0,002	0,03
2,068	30,00	30,00	0,000	0,00	0,002	0,03
2,758	40,00	39,99	-0,001	-0,01	0,002	0,03
3,447	50,00	49,99	-0,001	-0,01	0,002	0,03
4,137	60,00	59,99	-0,001	-0,01	0,002	0,03
4,826	70,00	70,00	0,000	0,00	0,002	0,03
5,516	80,00	80,01	0,001	0,01	0,002	0,03
6,205	90,00	90,02	0,001	0,02	0,002	0,03
6,895	100,00	100,02	0,001	0,02	0,002	0,03

Autoryzował:

Metrolog

mgr inż. Łukasz Adamiak

Tools

Document Name: Certificate of Calibration Gas Flowmeter

Lab Unlimited CARL STUART GROUP		Carl Stuart Limited t/a Lab Unlimited 1a Lough Business Park, Whitestown, Dublin 24 D24 RPKD Ireland Ph 353 (0) 1 452 3432 Email info@carlstuart.com www.labunlimited.com Registered in Dublin No 55105 VAT No IE4737156X	
Gas Flowmeter Calibration Certificate			
Certificate Number: 237079 Engineer: Shane McGuinness		Calibration Date: 01/02/2024 Certificate Type: Original	
Contact and Company Details			
Contact: Michal Gonetka Company: Altium International Sp. z o.o		Address: Pulawska 303 02-785 Warsaw	
Equipment Under Test Details			
Manufacturer	Agilent Technologies	Customer ID	N/A
Model	5067-0223	Serial Number	00010432
		Max Range	500 SCCM
Test Instruments			
Flow 1			
Manufacturer	Alicat Mass Flow Controller	Serial Number	83803
CS INV No	50432	Certificate No	416873
Uncertainty	±0.4% of reading & 0.2% of full scale.		
Flow 2			
Manufacturer	Alicat Mass Flow Meter	Serial Number	83804
CS INV No	50433	Certificate No	416875
Uncertainty	±0.4% of reading & 0.2% of full scale.		
Barometer			
Manufacturer	Digital Barometer	Serial Number	4105
CS INV No	4105	Certificate No	62004IE
Uncertainty	± 0.18 HPa of full scale.		
Environmental Conditions			
Environmental Pressure (mBar)		1020.1	
Calibration Gas Used		Air	
Notes/ Comments			
The unit under test AS FOUND results were found to be within tolerance, adjustments were made to reduce deviations. Unit received in working condition and As Found results were found to be within manufacturer's specifications at all of set points. Unit adjusted and calibrated at the following values: 0, 25, 50, 75 and 100% of the full scale of the meter equating to 0, 125, 250, 375 and 500 SCCM respectively with no issues found.			
This is to certify that the above named instrument has been calibrated, using Standards and Test Equipment which are traceable to National Standards. This certificate supersedes all previous certificates and should not be reproduced except in full and with the permission of Carl Stuart Ltd. *The reported data records the accuracy of this electronic Flowmeter at the tested flow rates when compared with NIST traceable standards.			
Rec 6.349C Issue 14, May 2022		Page 1 of 2	

Date: June 14, 2024 9:42:21 AM
System ID: KLC0139-1

Document Name:

Certificate of Calibration Gas Flowmeter

Lab Unlimited

CARL STUART GROUP

Carl Stuart Limited & Lab Unlimited
To: Agilent Europe Park, Whitehouse, Dublin 24
D24 RPK3 Ireland
Ph: 353 (0)1 452 3432
Email: info@carl-stuart.com
www.labunlimited.com
Registered in Dublin No 63105 VAT No: IE473715011

Gas Flowmeter Calibration Certificate

Certificate Number: 237070

Calibration Date: 01/02/2024

Unit Under Test (UUT) Specification

Manufacturer's Specification			
Parameter	Specification		
Flow SCCM	± of Reading		± of Full Scale
	0.8%		0.2%

Customer's Specification (if Applicable)			
Parameter	Specification		
Flow SCCM	± of Reading		± of Full Scale
	N/A		N/A

Test Results As Found

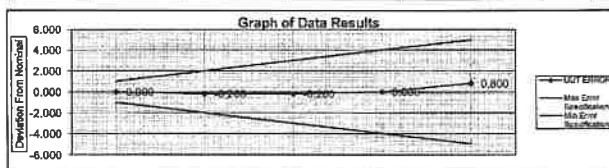
UUT Meter Units and all units in results table unless otherwise stated are: SCCM

% of Full Range	Nominal Set Point	Reference Flow Reading	Unit Under Test Result	Deviation from Reference	Specification Tolerance ±	Result
0%	0	0.0	0.0	0.0	1.00	PASS
25%	125	125.0	125.0	0.0	2.00	PASS
50%	250	250.0	250.3	0.3	3.00	PASS
75%	375	375.0	376.5	1.5	4.00	PASS
100%	500	500.0	502.5	2.5	5.00	PASS

Test Results As Set

UUT Meter Units and all units in results table unless otherwise stated are: SCCM

% of Full Range	Nominal Set Point	Reference Flow Reading	Unit Under Test Result	Deviation from Reference	Result	Specification Tolerance ±	Output1 (V9C)	Output2 (V9C)
0%	0	0.0	0.0	0.0	PASS	1.00	0.00	5.12
25%	125	125.0	124.8	-0.2	PASS	2.00	1.25	5.12
50%	250	250.0	248.8	-0.2	PASS	3.00	2.50	5.12
75%	375	375.0	375.0	0.0	PASS	4.00	3.75	5.12
100%	500	500.0	500.8	0.8	PASS	5.00	5.01	5.12



Uncertainty of Measurement

Expanded Uncertainty for Test Results: 1.2%

Signatures

Engineers' Signature:

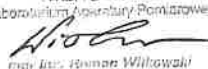
Date:

01/02/24

Tools

Document Name:

Certificate of Calibration Thermometer and Probe

	Instytut Energetyki Instytut Energetyki – Państwowy Instytut Badawczy Laboratorium Aparatury Pomiarowej 02-981 Warszawa, ul. Augustówka 36 tel. (22) 34 51 438 lap@ien.com.pl www.ien.com.pl	 PCA POLSKIE CENTRUM AKREDYTACJI WZORCOWANIE AP 013
Laboratorium wzorcujące akredytowane przez Polskie Centrum Akredytacji, sygnatariusza porozumień EA MLA i ILAC MRA dotyczących wzajemnego uznawania świadectw wzorcowania. Nr akredytacji AP 013		
ŚWIADECTWO WZORCOWANIA		
Data wydania: 26 stycznia 2024 r. Nr świadectwa: 206/2024		Strona 1/2
OBIEKT WZORCOWANIA	Termometr elektryczny składający się z zestawu: wskaźnik temperatury model Almemo 2390-5, wytwórca AHLBORN, oznaczony numerem seryjnym H05040314 oraz numerem identyfikacyjnym THERMO 4 wraz z dwoma czujnikami zewnętrznymi typu K, oznaczonymi numerami identyfikacyjnymi: GC 1/1 i GC 1/2.	
ZGŁASZAJĄCY	Altium International Sp. z o.o. 02 – 785 Warszawa, ul. Puławska 303 Zlecenie: MAP.4032.34.2024	
METODA WZORCOWANIA	Wzorcowanie wykonano w siedzibie LAP IEN-PIB zgodnie z Instrukcją Pomiarową T/I 9/MAP „Wzorcowanie termometrów”, wydanie VII z dnia 30.05.2023 r.	
WARUNKI ŚRODOWISKOWE	Temperatura otoczenia (20,0 ± 22,0) °C Wilgotność względna (27,0 ± 35,0) %	
DATA WYKONANIA WZORCOWANIA	23 stycznia ± 26 stycznia 2024 r.	
SPÓJNOŚĆ POMIAROWA	Świadectwo jest wydane w ramach porozumienia EA MLA w zakresie wzorcowania i potwierdza spójność wyników pomiarów z jednostkami miar Międzynarodowego Układu Jednostek Miar (SI).	
WYNIKI WZORCOWANIA	Podano na stronie 2/2 niniejszego świadectwa wraz z wartościami niepewności pomiaru. Wyniki dotyczą wyłącznie obiektu wzorcowanego.	
NIEPEWNOŚĆ POMIARU	Niepewność pomiaru została określona zgodnie z dokumentem EA-4/02 M:2022. Podane wartości niepewności stanowią niepewności rozszerzone przy prawdopodobieństwie rozszerzenia ok. 95 % i współczynniku rozszerzenia $k = 2$.	
 KIEROWNIK Laboratorium Aparatury Pomiarowej  mgr inż. Roman Wilkowiak		
Niniejsze świadectwo może być okazywane lub kopiowane tylko w całości.		

Date:
System ID:June 14, 2024 9:42:21 AM
KLC0139-1

Document Name:

Certificate of Calibration Thermometer and Probe

ŚWIADECTWO WZORCOWANIA wydane przez LABORATORIUM AKREDYTOWANE Nr AP 013.

Data wydania: 26 stycznia 2024 r.

Nr świadectwa: 206/2024

Strona 2/2

**WYNIKI
WZORCOWANIA**

Wyniki przeprowadzonego wzorcowania przedstawiono poniżej:

WARTOŚĆ TEMPERATURY ODNIESIENIA W_p °C	WARTOŚĆ TEMPERATURY ZMIERZONA W_w °C		BŁĄD POMIARU $W_w - W_p$ °C		NIEPEWNOŚĆ POMIARU U °C	
nr kanału →	M0	M1	M0	M1	M0	M1
nr czujnika →	GC 1/1	GC 1/2	GC 1/1	GC 1/2	GC 1/1	GC 1/2
0,0	0,9	0,9	0,9	0,9	0,3	0,3
100,0	100,0	100,1	0,0	0,1	0,3	0,3
190,0	191,0	191,3	1,0	1,3	0,4	0,4
300,0	300,3	300,6	0,3	0,6	0,7	1,0

Głębokość zanurzenia czujników wzorcowanych: 200 mm.

Podane wartości temperatury odnoszą się do Międzynarodowej Skali Temperatury z 1990 roku (MST-90).

Autoryzował:

KIEROWNIK
Laboratorium Pomiarowe

mgr inż. Roman Witkowski

Materials

Document Name: Certificate of Analysis FID MDL std kit, 5188-5372

 Agilent Technologies

Certificate of Analysis
FID MDL Sample

Agilent Part Number: 5188-5372 Sample Lot Number: 0006736792

This analyzed reference material was manufactured and verified in accordance with an ISO 9001 registered quality system, and the analyte concentrations were verified by an ISO 17025 accredited laboratory. The certified value for each analyte was determined gravimetrically.

Concentrations:

n-tridecane	2.36 mg/L ($\pm 0.5\%$)
n-tetradecane	2.36 mg/L ($\pm 0.5\%$)
n-pentadecane	23.6 mg/L ($\pm 0.5\%$)
n-hexadecane	23.7 mg/L ($\pm 0.5\%$)

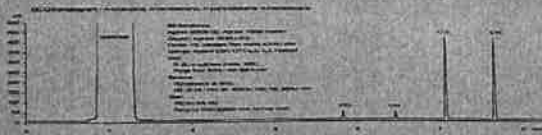
Solvent: isooctane

Calibrated Class A glassware and clean bottles were used in the manufacture of this standard. Balances used in the manufacture of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCCL Z-540-1 and ISO 9001.

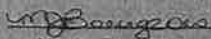
Purities:

n-tridecane	99.6%
n-tetradecane	99.6%
n-pentadecane	99%
n-hexadecane	99.5%
isooctane	99.9%

Typical Analytical Spectrum or Chromatography
GC Chromatography – n-tridecane, n-tetradecane, n-pentadecane and n-hexadecane in isooctane



Date of release: 05 April 2023
Date of expiration: 30 April 2026


Monica Bourgeois
QMS Representative

Agilent Technologies Materials: GC/GCMS

This section lists details for a set of Agilent materials required for all qualifications. If several part numbers are listed for an item, only the one(s) that apply to the tested configuration are used.

Retention Gap

For SS/TCID, HS/SS/FID, HS/VI/FID tests; for SS/FID tests except Response Linearity.

Part No. 19091-60620(E) or equivalent
G3909-63001 (Intuvo 9000 GC)

Capillary Column

HP-5 30 m x 0.32 mm x 0.25 µm; for FID Response Linearity, all other inlet/detector combinations.

Part No. 19091J-413(E) or equivalent
19091J-413-INT or equivalent (Intuvo 9000 GC)

Capillary Column (SCD)

DB-1 30 m x 0.32 mm x 1.0 µm; for SCD.

Part No. 123-1033 or equivalent

Capillary Column (SQ, TQ, Q-TOF)

HP-5MS 30 m x 0.25 mm x 0.25 µm; for SQ, TQ, and Q-TOF tests.

Part No. 19091S-433(E) or equivalent (5975 and below)
19091S-433UI or equivalent (5973 and up, TQ, and Q-TOF)

HP-5MSUI 20 m x 0.18 mm x 0.18 µm; for 5977C SQ, 7000E TQ using H2 carrier tests.

Part No. 19091S-577UI or equivalent

Capillary Column (Ion Trap)

HP-4MS 30 m x 0.25 mm x 0.25 µm; for Ion Trap tests.

Part No. CP8944 or equivalent

Electronic Signature

Purpose

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Details

Full Name of Signer:	Artur Krol
Logged On User Name:	akrol@perlan.com.pl
Signature Creation Date:	June 14, 2024
Reason for Signature:	Executed protocol and published this original version of document

Regulatory Disclaimer

This document provides a protocol to verify and record instrument configuration and evidence of proper operation. It has been prepared from our interpretation of applicable regulations as well as industry best practices. The document is designed to provide an important component of a complete compliance package. Validation depends upon many factors and use of this protocol alone does not assure compliance. Agilent Technologies makes no promises or representations as to its sufficiency for any specific regulatory program.

Warranty

Agilent Technologies makes no warranty of any kind to this material, including but not limited to, the implied warranties or merchantability and fitness for a particular purpose. Agilent Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Certificate of System Qualification

GC-OQ

System ID: KLC0139-1
Organization Name: Synektik Pharma Sp. z o.o.
Organization Location: ul. Artwinskiego 3, 25-734 Kielce

Date: June 14, 2024 9:42:21 AM
EQP Name: AgilentRecommended
EQP Revision: GC.02.54
Overall Qualification Status: Pass

CDS Logon Verification - GC

Logon: Serwis_Altium

Overall CDS Logon Verification - GC Test Status

Pass

System Inspection and Basic Safety and Operation

Name: 8890

Setpoint Status: Pass

Overall System Inspection and Basic Safety and Operation Test Status

Pass

Inlet Pressure Decay

Name: 8890

Front SSL

Setpoint Status: Pass

Pressure: 25.0 psi

Pressure Change: 0.0 psi /5 minutes

Agilent Recommended: >= -2.0 and <= 0.5

Overall Inlet Pressure Decay Test Status

Pass

Inlet Pressure Accuracy

Name: 8890
Front SSL

Setpoint Status: Pass

	Setpoint		Actual	
Inlet Pressure:	25.0	psi	25.08	psi
Accuracy:			0.1	psi
Agilent Recommended:			<= 1.2	

Overall Inlet Pressure Accuracy Test Status

Pass

Inlet Pressure Decay

Name: 8890
Back SSL

Setpoint Status: Pass

Pressure:	25.0	psi		
Pressure Change:		0.0	psi	/5 minutes
Agilent Recommended:		>= -2.0	and	<= 0.5

Overall Inlet Pressure Decay Test Status

Pass

Inlet Pressure Accuracy

Name: 8890
Back SSL

Setpoint Status:

Pass

	Setpoint		Actual	
Inlet Pressure:	25.0	psi	24.98	psi
Accuracy:			0.0	psi
Agilent Recommended:		<=	1.2	

Overall Inlet Pressure Accuracy Test Status

Pass

Detector Flow Accuracy

Name:

8890

Front

FID

Setpoint Status:

Pass

Flow Type:

Fuel

Setpoint:

30.0

mL/min

Measured Flow:

32

mL/min

Accuracy:

2.0

mL/min

Agilent Recommended:

<=

10.0

% setpoint

(

3.0

mL/min

)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status:

Pass

Flow Type:

Oxidizer

Setpoint:

400.0

mL/min

Measured Flow:

402

mL/min

Accuracy:

2.0

mL/min

Agilent Recommended:

<=

10.0

% setpoint

(

40.0

mL/min

)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status:

Pass

Flow Type:

Makeup

Setpoint:

25.0

mL/min

Measured Flow:

25.4

mL/min

Accuracy:

0.4

mL/min

Agilent Recommended:

<=

10.0

% setpoint

(

2.5

mL/min

)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

Overall Detector Flow Accuracy Test Status

Pass

Detector Flow Accuracy

Name: 8890

Back FID

Setpoint Status: Pass

Flow Type: Fuel

Setpoint: 30.0 mL/min Measured Flow: 31.5 mL/min

Accuracy: 1.5 mL/min

Agilent Recommended: ≤ 10.0 % setpoint (3.0 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status: Pass

Flow Type: Oxidizer

Setpoint: 400.0 mL/min Measured Flow: 401.3 mL/min

Accuracy: 1.3 mL/min

Agilent Recommended: ≤ 10.0 % setpoint (40.0 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Setpoint Status: Pass

Flow Type: Makeup

Setpoint: 25.0 mL/min Measured Flow: 25.9 mL/min

Accuracy: 0.9 mL/min

Agilent Recommended: ≤ 10.0 % setpoint (2.5 mL/min)

Limit is percentage of setpoint or 0.5 ml/minute, whichever is largest.

Overall Detector Flow Accuracy Test Status

Pass

GC Oven Temperature Accuracy

Name: 8890

Date: June 14, 2024 9:42:21 AM

System ID: KLC0139-1

Setpoint Status:	Pass			
Zone:	Oven			
	Setpoint/Actual			
Temperature:	230.0	229.2	°C	
Accuracy:		-0.8	°C	
Agilent Recommended:	>=	-1.0	% setpoint in K	(-5.0 °C)
	<=	1.0	% setpoint in K	(5.0 °C)

Setpoint Status:	Pass			
Zone:	Oven			
	Setpoint/Actual			
Temperature:	100.0	99.7	°C	
Accuracy:		-0.3	°C	
Agilent Recommended:	>=	-1.0	% setpoint in K	(-3.7 °C)
	<=	1.0	% setpoint in K	(3.7 °C)

Overall GC Oven Temperature Accuracy Test Status

Pass

GC Oven Temperature Stability

Name:	8890			
Setpoint Status:	Pass			
	Setpoint/Average			
Temperature:	100.0	99.68333	°C	
Stability:		0.1	°C	
Agilent Recommended:	<=	0.5		

Overall GC Oven Temperature Stability Test Status

Pass

Scouting Run

Tested Combination1	Front	SSL	/ Front	FID
	Injection Tower			
Name:	7693A			

Date: June 14, 2024 9:42:21 AM
System ID: KLC0139-1

Setpoint Status:

Completed

Injection Volume on Column:

1.0 uL

Overall Scouting Run Status

Completed

Noise and Drift

Tested Combination1

Front

SSL

/ Front

FID

Name:

8890

Setpoint Status:

Pass

Base Signal:

3 pA

ASTM Noise

pA

0.02

Drift

pA/Hr

0.10

Agilent Recommended:

<= 0.10

<= 2.50

Status:

Pass

Pass

Overall Noise and Drift Test Status

Pass

Injection Precision

Tested Combination1

Front

SSL

/ Front

FID

Name:

7693A

Setpoint Status:

Pass

Injection Volume on Column:

1.0 uL

Area RSD:

0.68

%

Retention Time RSD:

0.02

%

Agilent Recommended:

<= 3.00

<= 1.00

Overall Injection Precision Test Status

Pass

Signal to Noise

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

Tested Combination1 Front SSL / Front FID

Injection Tower

Name: 8890

Setpoint Status: Pass

Signal to Noise: 2543590

Agilent Recommended: $\geq$ 300000

Overall Signal to Noise Test Status

Pass

Scouting Run

Tested Combination2 Back SSL / Back FID

Injection Tower

Name: 7693A

Setpoint Status: Completed

Injection Volume on Column: 1.0 uL

Overall Scouting Run Status

Completed

Noise and Drift

Tested Combination2 Back SSL / Back FID

Name: 8890

Setpoint Status: Pass

Base Signal: 2.1 pA

ASTM Noise

pA

0.04

Agilent Recommended: $\leq$ 0.10

Status: Pass

Drift

pA/Hr

0.07

$\leq$ 2.50

Pass

Overall Noise and Drift Test Status

Pass

Injection Precision

Tested Combination2

Back

SSL

/ Back

FID

Name:

7693A

Setpoint Status:

Pass

Injection Volume on Column:

1.0

uL

Area RSD:

0.47

%

Retention Time RSD:

0.14

%

Agilent Recommended:

<=

3.00

<=

1.00

Overall Injection Precision Test Status

Pass

Signal to Noise

Tested Combination2

Back

SSL

/ Back

FID

Injection Tower

Name:

8890

Setpoint Status:

Pass

Signal to Noise:

1717271

Agilent Recommended:

>=

300000

Overall Signal to Noise Test Status

Pass

Leticia Hono Cynthia 14.06.2024
char Bon

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 9:09:50 AM	Audit	SessionCreated	Session	None
June 13, 2024 9:09:50 AM	Start	Configuration	Session	None
June 13, 2024 9:09:50 AM	Audit	Entitlement	Licensing	Session identifier generated: 7PRK-JX6J-0W00-1FJM-087 0
June 13, 2024 9:10:59 AM	Audit	Entitlement	Licensing	Successfully unlocked session identified by 7PRK-JX6J-0W00-1FJM-087 0 with unlock code S2YE-QJXQ-N7Y2-9680-QR 50
June 13, 2024 9:15:21 AM	Audit	EqpLoaded	Session	EQP details for primary technique [Gc] - File path: [ProtocolPacks/Gc/Configurat ions/02.54/Gc.02.54.eqp], EQP File Name: [Gc.02.54.eqp], EQP Name: [AgilentRecommended], Proto col Revision :[Gc.02.54]
June 13, 2024 9:15:50 AM	End	Configuration	Session	None
June 13, 2024 9:15:55 AM	Start	Qualification	Session	OQ
June 13, 2024 9:15:55 AM	Start	Execution	CDS Logon Verification - GC - 8890: - Qualitative test	None
June 13, 2024 9:20:58 AM	End	Execution	CDS Logon Verification - GC - 8890: - Qualitative test	Run Count : 1
June 13, 2024 9:21:01 AM	Start	Execution	System Inspection and Basic Safety and Operation - 8890: - Qualitative Test - No setpoints associated	None

Date:

June 14, 2024 9:42:21 AM

System ID:

KLC0139-1

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 9:21:24 AM	End	Execution	System Inspection and Basic Safety and Operation - 8890: - Qualitative Test - No setpoints associated	Run Count : 1
June 13, 2024 9:21:44 AM	Start	Execution	Inlet Pressure Decay - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and <= 0.5 psi	None
June 13, 2024 10:17:34 AM	End	Execution	Inlet Pressure Decay - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and <= 0.5 psi	Run Count : 1
June 13, 2024 10:17:35 AM	Start	Execution	Inlet Pressure Accuracy - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: <= 1.2 psi	None
June 13, 2024 10:18:11 AM	End	Execution	Inlet Pressure Accuracy - Front SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: <= 1.2 psi	Run Count : 1
June 13, 2024 10:18:13 AM	Start	Execution	Inlet Pressure Decay - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and <= 0.5 psi	None
June 13, 2024 10:24:09 AM	End	Execution	Inlet Pressure Decay - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: >= -2.0 psi and <= 0.5 psi	Run Count : 1
June 13, 2024 10:24:11 AM	Start	Execution	Inlet Pressure Accuracy - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: <= 1.2 psi	None
June 13, 2024 10:25:42 AM	End	Execution	Inlet Pressure Accuracy - Back SSL: - Pressure Controlled Inlet - S: 25.0 psi - L: <= 1.2 psi	Run Count : 1

Page 2 / 11

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 10:25:45 AM	Start	Execution	Detector Flow Accuracy - Front FID: - Type : Fuel - S: 30.0 mL/min - L: <= 10.0% setpoint	None
June 13, 2024 10:34:44 AM	Audit	Data	Detector Flow Accuracy - Front FID: - Type : Fuel - S: 30.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry
June 13, 2024 10:34:46 AM	End	Execution	Detector Flow Accuracy - Front FID: - Type : Fuel - S: 30.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
June 13, 2024 10:34:48 AM	Start	Execution	Detector Flow Accuracy - Front FID: - Type : Oxidizer - S: 400.0 mL/min - L: <= 10.0% setpoint	None
June 13, 2024 10:35:27 AM	Audit	Data	Detector Flow Accuracy - Front FID: - Type : Oxidizer - S: 400.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry
June 13, 2024 10:35:32 AM	End	Execution	Detector Flow Accuracy - Front FID: - Type : Oxidizer - S: 400.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
June 13, 2024 10:35:33 AM	Start	Execution	Detector Flow Accuracy - Front FID: - Type : Makeup - S: 25.0 mL/min - L: <= 10.0% setpoint	None
June 13, 2024 10:36:24 AM	Audit	Data	Detector Flow Accuracy - Front FID: - Type : Makeup - S: 25.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry
June 13, 2024 10:36:27 AM	End	Execution	Detector Flow Accuracy - Front FID: - Type : Makeup - S: 25.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
June 13, 2024 10:36:29 AM	Start	Execution	Detector Flow Accuracy - Back FID: - Type : Fuel - S: 30.0 mL/min - L: <= 10.0% setpoint	None
June 13, 2024 10:38:08 AM	Audit	Data	Detector Flow Accuracy - Back FID: - Type : Fuel - S: 30.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry

Page 3 / 11

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 10:38:11 AM	End	Execution	Detector Flow Accuracy - Back FID: - Type : Fuel - S: 30.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
June 13, 2024 10:38:12 AM	Start	Execution	Detector Flow Accuracy - Back FID: - Type : Oxidizer - S: 400.0 mL/min - L: <= 10.0% setpoint	None
June 13, 2024 10:39:14 AM	Audit	Data	Detector Flow Accuracy - Back FID: - Type : Oxidizer - S: 400.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry
June 13, 2024 10:39:15 AM	End	Execution	Detector Flow Accuracy - Back FID: - Type : Oxidizer - S: 400.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
June 13, 2024 10:39:51 AM	Start	Execution	Detector Flow Accuracy - Back FID: - Type : Makeup - S: 25.0 mL/min - L: <= 10.0% setpoint	None
June 13, 2024 10:41:30 AM	Audit	Data	Detector Flow Accuracy - Back FID: - Type : Makeup - S: 25.0 mL/min - L: <= 10.0% setpoint	Manual Data Entry
June 13, 2024 10:41:31 AM	End	Execution	Detector Flow Accuracy - Back FID: - Type : Makeup - S: 25.0 mL/min - L: <= 10.0% setpoint	Run Count : 1
June 13, 2024 10:41:33 AM	Start	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	None
June 13, 2024 10:49:16 AM	Audit	Data	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Manual Data Entry
June 13, 2024 10:49:18 AM	End	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 230.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Run Count : 1

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 10:49:19 AM	Start	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	None
June 13, 2024 10:55:05 AM	Audit	Data	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Manual Data Entry
June 13, 2024 10:55:06 AM	End	Execution	GC Oven Temperature Accuracy - 8890: - Temperature : Oven - S: 100.0°C - L: >= -1.0 AND <= 1.0 % setpoint in K	Run Count : 1
June 13, 2024 10:55:07 AM	Start	Execution	GC Oven Temperature Stability - 8890: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	None
June 13, 2024 11:15:51 AM	Audit	Data	GC Oven Temperature Stability - 8890: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	Manual Data Entry
June 13, 2024 11:15:53 AM	End	Execution	GC Oven Temperature Stability - 8890: - Temperature : Oven - S: 100.0°C - L: <= 0.5°C	Run Count : 1
June 13, 2024 11:15:56 AM	Start	Execution	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	None
June 13, 2024 12:20:23 PM	Start	Execution	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	None
June 13, 2024 1:11:34 PM	Start	Execution	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	None

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 1:12:30 PM	Audit	Data	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	Data files Path : E:\OQ2024\OQ2024_Data\O Q_2024_FRONT.rsl\Scoutin g_Front.amx2024-06-13 12-20-51+02-00.dx
June 13, 2024 1:13:04 PM	Audit	Data	DataManager	DataManager was in a data verification state but the user chose to start over
June 13, 2024 1:14:02 PM	Audit	Data	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	Data files Path : E:\OQ2024\OQ2024_Data\O Q_2024_FRONT.rsl\Scoutin g_Front.amx2024-06-13 12-20-51+02-00.dx
June 13, 2024 1:14:48 PM	End	Execution	GC Scouting Run - Injection Tower, Front SSL, Front FID: - Part of System Preparation - No limits associated	Run Count : 1
June 13, 2024 1:14:51 PM	Start	Execution	Noise and Drift - Front FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	None
June 13, 2024 1:15:12 PM	Audit	Data	Noise and Drift - Front FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	Data files Path : E:\OQ2024\OQ2024_Data\O Q_2024_FRONT.rsl\ND_FR ONT.amx2024-06-13 12-45-04+02-00.dx
June 13, 2024 1:15:43 PM	End	Execution	Noise and Drift - Front FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	Run Count : 1
June 13, 2024 1:15:50 PM	Start	Execution	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	None

Page 6 / 11

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 1:16:19 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rsl\IP_FRO NT.amx2024-06-13 12-30-52+02-00-r002.dx
June 13, 2024 1:16:19 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rsl\IP_FRO NT.amx2024-06-13 12-32-12+02-00-r003.dx
June 13, 2024 1:16:19 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rsl\IP_FRO NT.amx2024-06-13 12-33-28+02-00-r004.dx
June 13, 2024 1:16:19 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rsl\IP_FRO NT.amx2024-06-13 12-34-47+02-00-r005.dx
June 13, 2024 1:16:19 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rsl\IP_FRO NT.amx2024-06-13 12-36-06+02-00-r006.dx
June 13, 2024 1:16:19 PM	Audit	Data	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_FRONT.rsl\IP_FRO NT.amx2024-06-13 12-37-26+02-00-r007.dx
June 13, 2024 1:19:03 PM	End	Execution	Injection Precision - Injection Tower, Front SSL, Front FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Run Count : 1

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 1:19:12 PM	Start	Execution	Signal to Noise - Injection Tower, Front SSL, Front FID: - Detector FID - L: >= 300000	None
June 13, 2024 1:19:28 PM	Audit	Data	Signal to Noise - Injection Tower, Front SSL, Front FID: - Detector FID - L: >= 300000	Data files Path : E:\OQ2024\OQ2024_Data\O Q_2024_FRONT.rsl\SN_FR ONT.amx2024-06-13 12-38-44+02-00.dx
June 13, 2024 1:19:43 PM	End	Execution	Signal to Noise - Injection Tower, Front SSL, Front FID: - Detector FID - L: >= 300000	Run Count : 1
June 13, 2024 1:19:49 PM	Start	Execution	GC Scouting Run - Injection Tower, Back SSL, Back FID: - Part of System Preparation - No limits associated	None
June 13, 2024 1:21:01 PM	Start	Execution	GC Scouting Run - Injection Tower, Back SSL, Back FID: - Part of System Preparation - No limits associated	None
June 13, 2024 2:30:06 PM	Start	Execution	GC Scouting Run - Injection Tower, Back SSL, Back FID: - Part of System Preparation - No limits associated	None
June 13, 2024 2:40:48 PM	Audit	Data	GC Scouting Run - Injection Tower, Back SSL, Back FID: - Part of System Preparation - No limits associated	Data files Path : E:\OQ2024\OQ2024_Data\O Q_2024_BACK.rsl\OQ_2024 _BACK.rsl\scouting_2024-06 -13 13-38-39+02-00.dx
June 13, 2024 2:41:33 PM	End	Execution	GC Scouting Run - Injection Tower, Back SSL, Back FID: - Part of System Preparation - No limits associated	Run Count : 1

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 2:41:35 PM	Start	Execution	Noise and Drift - Back FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	None
June 13, 2024 2:41:51 PM	Audit	Data	Noise and Drift - Back FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rsl\OQ_2024_BACK.rsl\ND_2024-06-13-14-04-03+02-00.dx
June 13, 2024 2:41:58 PM	End	Execution	Noise and Drift - Back FID: - Detector FID - L (Noise): <= 0.10 pA - L (Drift): <= 2.50 pA/hour	Run Count : 1
June 13, 2024 2:42:02 PM	Start	Execution	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	None
June 13, 2024 2:42:15 PM	Audit	Data	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rsl\OQ_2024_BACK.rsl\IP_2024-06-13-13-49-48+02-00-r002.dx
June 13, 2024 2:42:15 PM	Audit	Data	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rsl\OQ_2024_BACK.rsl\IP_2024-06-13-13-51-07+02-00-r003.dx
June 13, 2024 2:42:15 PM	Audit	Data	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rsl\OQ_2024_BACK.rsl\IP_2024-06-13-13-52-26+02-00-r004.dx

User Name: akrol

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 13, 2024 2:42:15 PM	Audit	Data	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rs\IP_OQ_2024_BACK.rs\IP_2024-06-13 13-53-45+02-00-r005.dx
June 13, 2024 2:42:15 PM	Audit	Data	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rs\IP_OQ_2024_BACK.rs\IP_2024-06-13 13-55-05+02-00-r006.dx
June 13, 2024 2:42:15 PM	Audit	Data	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rs\IP_OQ_2024_BACK.rs\IP_2024-06-13 13-56-24+02-00-r007.dx
June 13, 2024 2:42:26 PM	End	Execution	Injection Precision - Injection Tower, Back SSL, Back FID: - GC - L (Area): <= 3.00% - L (Ret. Time): <= 1.00%	Run Count : 1
June 13, 2024 2:46:43 PM	Start	Execution	Signal to Noise - Injection Tower, Back SSL, Back FID: - Detector FID - L: >= 300000	None
June 13, 2024 2:46:58 PM	Audit	Data	Signal to Noise - Injection Tower, Back SSL, Back FID: - Detector FID - L: >= 300000	Data files Path : E:\OQ2024\OQ2024_Data\OQ_2024_BACK.rs\SN_OQ_2024_BACK.rs\SN_2024-06-13 13-57-43+02-00.dx
June 13, 2024 2:47:12 PM	End	Execution	Signal to Noise - Injection Tower, Back SSL, Back FID: - Detector FID - L: >= 300000	Run Count : 1
June 13, 2024 2:52:27 PM	End	Qualification	Session	OQ
June 13, 2024 2:52:27 PM	Start	Reporting	Session	None
June 13, 2024 2:52:30 PM	Audit	AceClosed	Session	None

Page 10 / 11

User Name: akroi

System Id: KLC0139-1

Report Generated by Hostname: DESKTOP-CML4V7L

Print Date: June 14, 2024 9:42:30 AM

OQ_2024_KLC0139-1 Transaction log :

Time	Transaction State	Activity Performed	Type of Transaction	Optional Information
June 14, 2024 8:56:42 AM	Audit	AceRestarted	Session	None
June 14, 2024 8:56:45 AM	Audit	SessionReloaded	Session	None
June 14, 2024 8:57:02 AM	Start	Qualification	Session	OQ
June 14, 2024 9:41:03 AM	Audit	Reporting	Session	Report Generated : Report with Certificate