



DMT Technical Support Inquiry

DMT Serial #: 100160
 Agency/Site: St Albans PD
 Date: 12/13/2019
 DMT Supervisor: Michael Malinowski

Problem:

While waiting for installation, a diagnostic was run on the DMT while at the lab and the cal check results were outside of acceptance criteria. The instrument was retained at the VFL for further maintenance. See included TSI dated 11/05/2019 for previous work performed.

Work Performed:

The sample chamber and detector block were removed, disassembled, and cleaned with compressed air and foam swabs and then reassembled. Upon reassembly, 60 filter wheel cycles were completed with no errors. The detector was subsequently replaced and the DMT was allowed to stabilize for ~3 days prior to calibration. A successful calibration and certification were then performed. The instrument is now ready for installation at the agency.

Performed On Site
 Performed In house

Performed By:	<u>Jeffery Dukette</u>	Date:	<u>12/30/2019</u>
Technical Reviewer:	<u>[Signature]</u>	Date:	<u>12/30/19</u>
Administrative Reviewer:	<u>[Signature]</u>	Date:	<u>12/30/19</u>
Director Reviewer:	<u>[Signature]</u>	Date:	<u>12/30/2019</u>

CALIBRATION REPORT

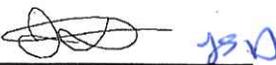
DataMaster DMT: 100160
Calibration Date: 12/24/2019
Calibrated by: JEFFERY DUKETTE
Lot: 19-11-100



Ca	=	0.101		
CAL	=	0.953503	0.800	<= CAL < 1.200
b1	=	0.000	0.000	<= b1 < 0.004
b2	=	0.005	0.002	<= b2 < 0.010
b3	=	0.000	0.000	<= b3 < 0.004
Xq	=	0.113	0.050	<= Xq < 0.200
a21	=	1.168277	1.050	<= a21 < 1.300
a31	=	0.404689	0.300	<= a31 < 0.800

BL-DMT11152016 34.00°C

JSD 12/24/19

Performed by  Date 12/24/2019



ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMaster DMT: 100160

Date: 12/24/2019

Time: 13:04:17

SUPERVISOR NAME:

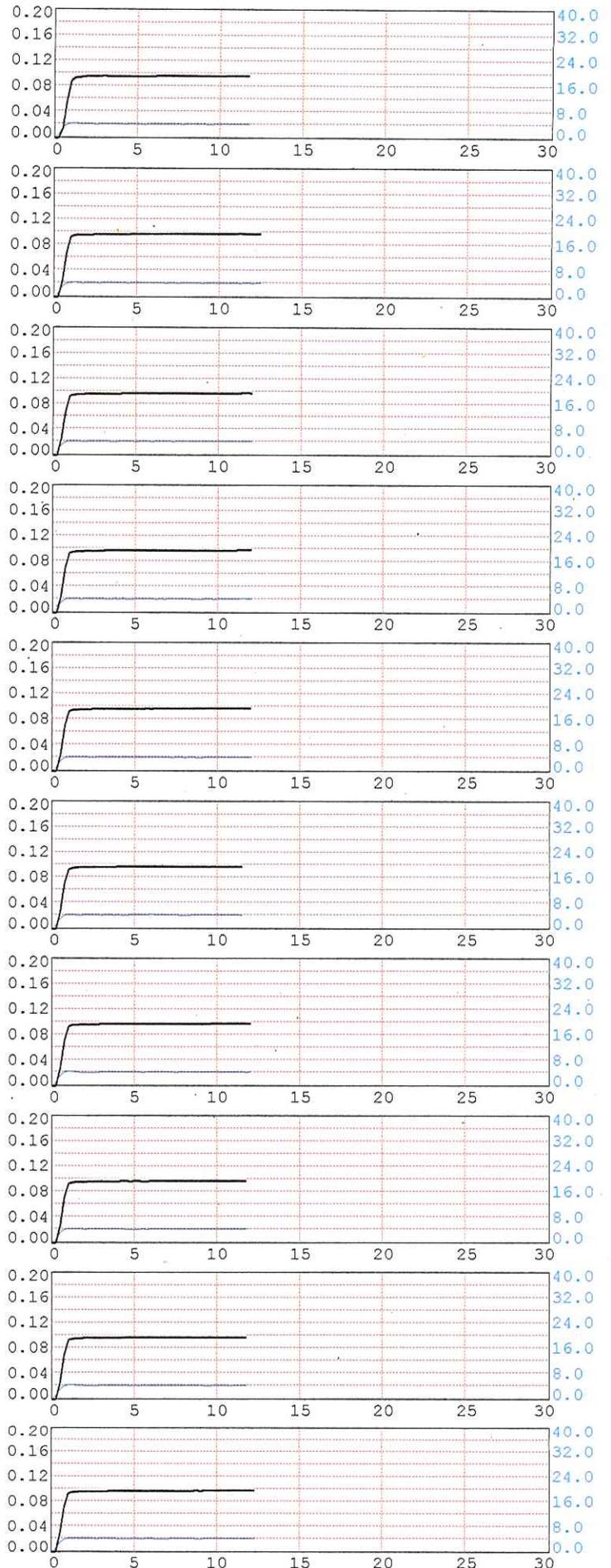
JSD CAL CHECK

SOLUTION LOT #: ACS 201806B

SOLUTION CONCENTRATION: 0.100

BLANK TEST	0.000	13:05
CALIBRATION CHECK	PASSED	13:05
SIMULATOR VAPOR 34.0°C	0.097	13:05
SIMULATOR VAPOR 34.0°C	0.098	13:06
SIMULATOR VAPOR 34.0°C	0.098	13:07
SIMULATOR VAPOR 34.0°C	0.098	13:08
SIMULATOR VAPOR 34.0°C	0.097	13:09
SIMULATOR VAPOR 34.0°C	0.098	13:10
SIMULATOR VAPOR 34.0°C	0.098	13:11
SIMULATOR VAPOR 34.0°C	0.098	13:12
SIMULATOR VAPOR 34.0°C	0.098	13:13
SIMULATOR VAPOR 34.0°C	0.098	13:14
BLANK TEST	0.000	13:15

Average = 0.097
Std Dev = 0.0004



100160

JSD

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CERTIFICATION REPORT

DataMaster DMT: 100160
Calibration Date: 12/24/2019
Certification Date: 12/24/2019
Certified by: JEFFERY DUKETTE



Diagnostic Results

VERSIONS

DMT: 2.05
PIC: 2.08
Modem: 2.6
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.8°C
Breath Tube = 48.1°C
Digital Sim = 34.0°C

SETTINGS

Lamp Voltage = 1.61 V
Cooler Voltage = 1.61 V
Bias Voltage = 80 V
Chopper Freq = 545 Hz

PUMP INFO

Flow Rate = 4.871 L/M

DETECTOR INFO

PUMP	ON	OFF
MAX (V)	-0.0541	-0.0506
MIN (V)	-0.0555	-0.0518

FILTER INFO

Filter 1	-0.051	Zero = true
Filter 2	0.268	Zero = true
Filter 3	1.499	Zero = true

CALIBRATION CHECK

Xq = 0.113 0.08%

Options

OPTIONS

Units

Alcohol..... g/210L

Simulator

Tolerance Check..... yes
Standard Type..... wet
Nominal..... 0.100
Digital Simulator..... Guth

Subject

Ask Questions..... yes
Number of Tests..... 2
Alcohol Display..... yes
Volume Display..... yes
Query Refusal..... yes
Copies..... 3
Simulator Before..... yes
Simulator Between..... yes
Simulator After..... no
Observation Time..... 0

Supervisor

Number of Tests..... 10

Calibration

Standard Type..... wet
Nominal..... 0.100
Nominal (Dry Gas)..... 0.100
Number of Tests..... 1

Printer

Printer On..... yes

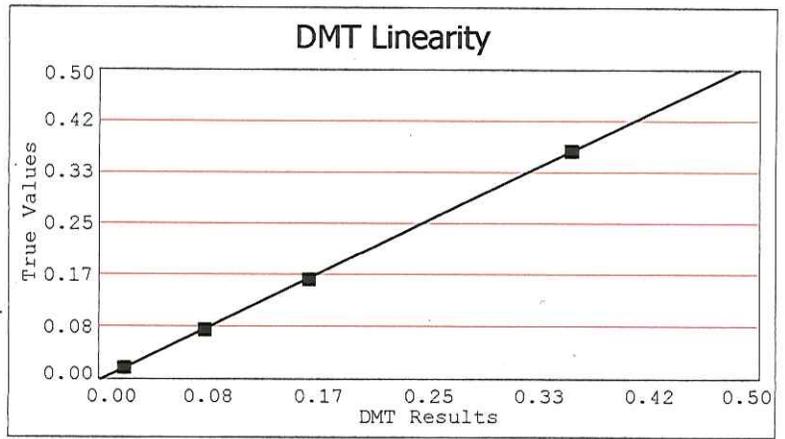
Software Configuration

Data Collection..... yes

Linearity Check Results

True Value	Reported Average	Std Dev
0.020 g/210L	0.019 g/210L	0.0004
Lot # 19-02-020		
0.081 g/210L	0.080 g/210L	0.0005
Lot # 19-03-080		
0.162 g/210L	0.159 g/210L	0.0005
Lot # 19-14-160		
0.369 g/210L	0.357 g/210L	0.0005
Lot # 19-09-360		

R² = 0.9999



Acetone Interference Test

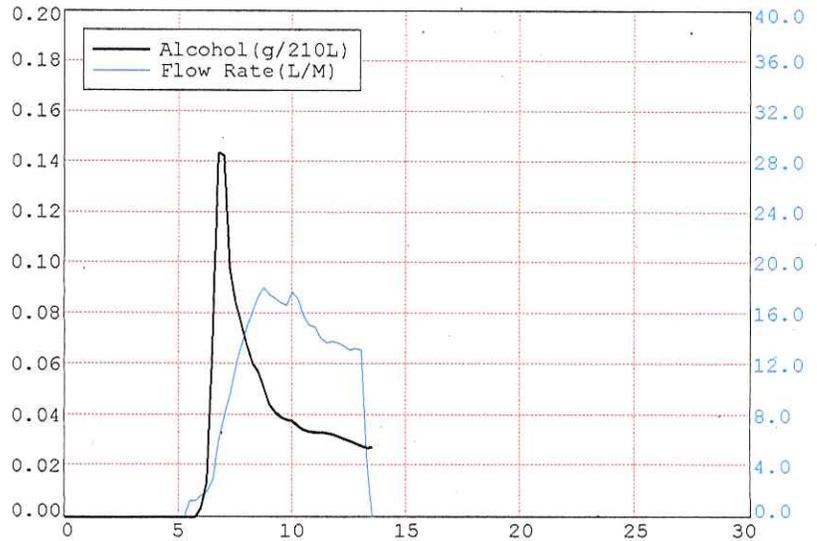
Lot # 19-05-08A2
Interference Detected

Mouth Alcohol Test

Mouth Alcohol Detected

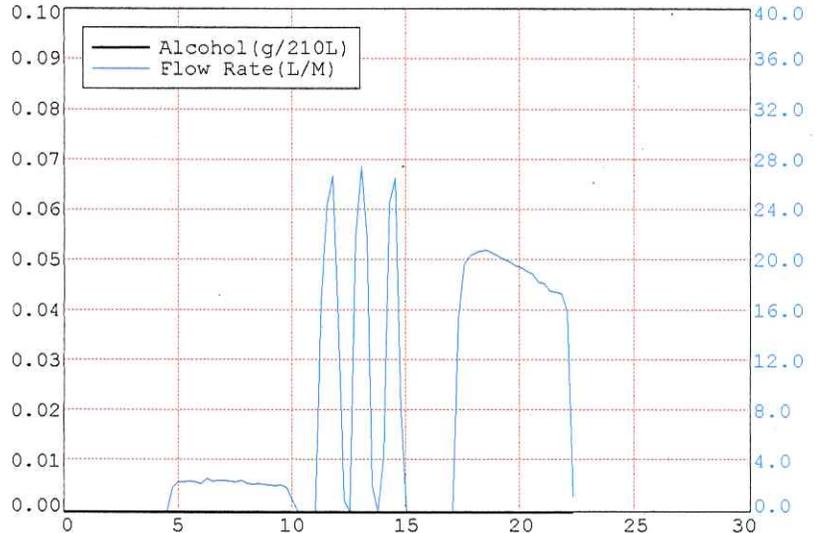
RF Detection Test

Passed



Sample Acceptance Test

Passed



CERTIFICATION PASSED

Performed by  JSD

Date 12/24/2019

Reviewed by 

Date 12/30/19

DMT Serial Number #100160

100160

JSD

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DIAGNOSTIC RESULT



DataMaster DMT: 100160
Location:
Calibration Date: 11/21/2019
Certification Date: 11/21/2019
Installation Date:
Test Date: 12/13/2019
Test Time: 10:37:54

VERSIONS

DMT: 2.05
PIC: 2.08
Modem: 2.6
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.7°C
Breath Tube = 48.1°C
Digital Sim = 0.0°C

SETTINGS

Lamp Voltage = 1.77 V
Cooler Voltage = 1.81 V
Bias Voltage = 80 V
Chopper Freq = 543 Hz

PUMP INFO

Flow Rate = 5.030 L/M

DETECTOR INFO

PUMP	ON	OFF
MAX(V)	-0.0295	-0.0258
MIN(V)	-0.0311	-0.0272

FILTER INFO

Filter 1	-0.028	Zero = true
Filter 2	0.194	Zero = true
Filter 3	1.514	Zero = true

CALIBRATION CHECK

Xq = 0.088 6.78%

*Cal check > 4%.
Further maintenance performed
JSD 12/30/19*



Certification of Calibration

DMT Serial # 100160

Date of Calibration: 11/21/19

Date of Certification: 11/21/19

Instrument Location: St Albans PD

Calibration Results:

Instrument was calibrated and certified in accordance with Vermont Forensic Laboratory procedure TOX_P200_DMT Manual. Calibration results are reported as $X \pm Y$, where X is measured value, Y is measurement uncertainty.

Measured Value	Uncertainty
0.098	± 0.005 g/210 L
0.019	± 0.001 g/210 L
0.078	± 0.004 g/210 L
0.161	± 0.008 g/210 L
0.361	± 0.017 g/210 L

The measurement uncertainty for determining the ethanol concentration of aqueous solutions using the DMT evidential breath testing instrument within the lab is: **4.7%**

Uncertainty is expressed as an expanded uncertainty at the 95.45% level of confidence and a coverage factor $k=2$, in accordance with ISO 17025 and the ANAB ISO/IEC 17025:2017 Forensic Science Testing and Calibration Laboratories Accreditation Requirements. The uncertainty associated with this analytical method has been calculated to incorporate uncertainty from the NIST traceable certified reference materials used to adjust and calibrate the instrument, simulator temperature calibration, simulator performance, and analytical performance of the instrument. The uncertainty estimate was evaluated using the VFL fleet of DMT instruments deployed in the field, including the DMT certified in this report.

Traceability to SI through NIST

This calibration is traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) via an unbroken chain of comparisons. The DMT instrument was calibrated using certified reference materials (CRMs). The performance of the calibration was evaluated using NIST traceable control material from an ISO 17034 or Guide 34 accredited vendor.

Analyzed CRM materials were prepared using pipettes calibrated semi-annually by an ISO 17025 accredited calibration vendor. The instrument used to analyze the CRMs was calibrated using NIST traceable certified reference materials from an ISO 17025 accredited vendor. The performance of the method was evaluated using NIST traceable control materials from an ISO 17025 accredited vendor.

Instrument never put into service with this cal. JSD 12/30/19

JSD 12/30/19

Calibration Certified by: Jeffery Dukette

Title: Forensic Chemist

Date: November 21, 2019

This document pertains only to the instrument being calibrated and shall not be reproduced, except in full, without written permission of the Vermont Forensic Laboratory.

TOX_F200_2_v2 11052018

Approved by Lab Director

100160

JSD

JSD 12/30/19

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DMT Technical Support Inquiry

DMT Serial #: 100160

Agency/Site: St Albans PD

Date: 11/05/2019

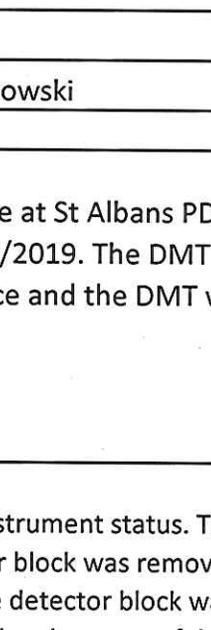
DMT Supervisor: Michael Malinowski

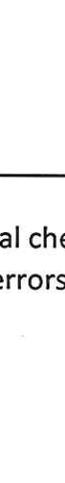
Problem:
 A new DMT was placed into service at St Albans PD due to the previous instrument having cal check errors. This instrument was installed on 10/07/2019. The DMT subsequently began to report cal check errors and the instrument was taken out of service and the DMT was returned to the VFL.

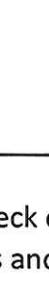
Work Performed:
 A diagnostic was run on site to see instrument status. The DMT was returned to the VFL. A diagnostic was run at the VFL to check instrument status. The detector block was removed and the quartz wheel was inspected and cleaned with compressed air and a foam swab. The detector block was reassembled and 25 filter wheel cycles were run with no errors. The detector voltages were optimized and a successful calibration and certification were performed. St Albans PD was contacted in regards to the power supply at their facility. Based on the repeated cal check errors on multiple instruments, which are not reproducible at the VFL, and through discussion with the instrument manufacturer, it was determined that there may be an issue with the power source at the agency. An electrician was brought in and a separate line was run and designated for the DMT to ensure the instrument is receiving clean power. The instrument is now ready for installation at the agency.

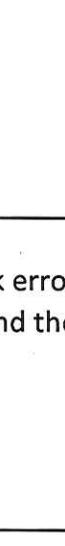
Performed On Site

Performed In house

Performed By: Jeffery Dukette  **Date:** 11/21/2019

Technical Reviewer:  **Date:** 11/25/19

Administrative Reviewer:  **Date:** 11/25/19

Director Reviewer:  **Date:** 11/25/2019

CALIBRATION REPORT

DataMaster DMT: 100160
Calibration Date: 11/21/2019
Calibrated by: JEFFERY DUKETTE
Lot: 19-11-100



Ca	=	0.101		
CAL	=	0.974691	0.800	<= CAL < 1.200
b1	=	0.001	0.000	<= b1 < 0.004
b2	=	0.006	0.002	<= b2 < 0.010
b3	=	0.000	0.000	<= b3 < 0.004
Xq	=	0.082	0.050	<= Xq < 0.200
a21	=	1.165715	1.050	<= a21 < 1.300
a31	=	0.400661	0.300	<= a31 < 0.800

BL-DMT 11152016 34.00°C
JD 11/21/19

Performed by  Date 11/21/2019

JD

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2



ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMaster DMT: 100160

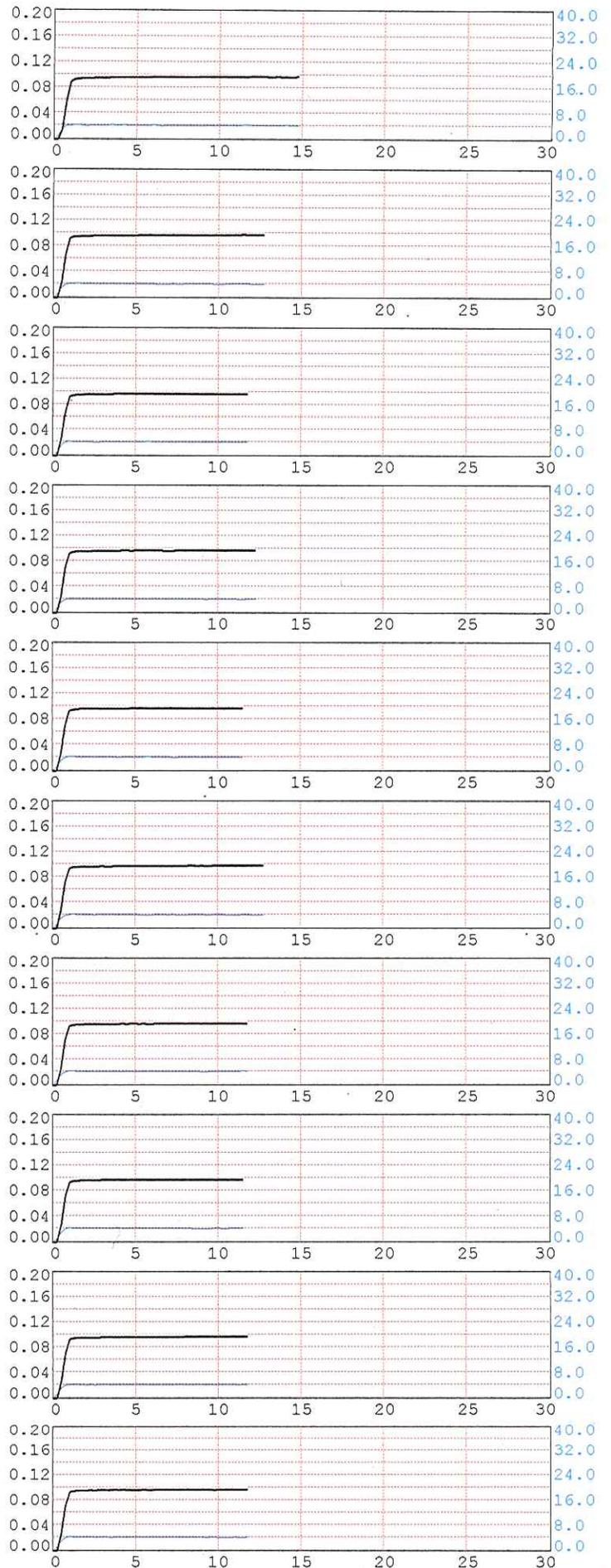
Date: 11/21/2019
Time: 10:33:21

SUPERVISOR NAME:
JSD CAL CHECK

SOLUTION LOT #: ACS 201806B
SOLUTION CONCENTRATION: 0.100

BLANK TEST	0.000	10:34
CALIBRATION CHECK	PASSED	10:34
SIMULATOR VAPOR 34.0°C	0.098	10:34
SIMULATOR VAPOR 34.0°C	0.098	10:35
SIMULATOR VAPOR 34.0°C	0.098	10:36
SIMULATOR VAPOR 34.0°C	0.098	10:37
SIMULATOR VAPOR 34.0°C	0.098	10:38
SIMULATOR VAPOR 34.0°C	0.099	10:39
SIMULATOR VAPOR 34.0°C	0.098	10:40
SIMULATOR VAPOR 34.0°C	0.098	10:42
SIMULATOR VAPOR 34.0°C	0.097	10:43
SIMULATOR VAPOR 34.0°C	0.098	10:44
BLANK TEST	0.000	10:44

Average = 0.098
Std Dev = 0.0004



CERTIFICATION REPORT

DataMaster DMT: 100160
Calibration Date: 11/21/2019
Certification Date: 11/21/2019
Certified by: JEFFERY DUKETTE



Diagnostic Results

VERSIONS

DMT: 2.05
PIC: 2.08
Modem: 2.6
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.8°C
Breath Tube = 48.1°C
Digital Sim = 34.0°C

SETTINGS

Lamp Voltage = 1.77 V
Cooler Voltage = 1.81 V
Bias Voltage = 80 V
Chopper Freq = 540 Hz

PUMP INFO

Flow Rate = 4.975 L/M

DETECTOR INEO

PUMP	ON	OFF
MAX(V)	0.0102	0.0132
MIN(V)	0.0083	0.0114

FILTER INFO

Filter	Value	Zero = true
Filter 1	0.012	Zero = true
Filter 2	0.232	Zero = true
Filter 3	1.547	Zero = true

CALIBRATION CHECK

Xq = 0.083 0.42%

Options

OPTIONS

Units

Alcohol..... g/210L

Simulator

Tolerance Check..... yes
Standard Type..... wet
Nominal..... 0.100
Digital Simulator..... Guth

Subject

Ask Questions..... yes
Number of Tests..... 2
Alcohol Display..... yes
Volume Display..... yes
Query Refusal..... yes
Copies..... 3
Simulator Before..... yes
Simulator Between..... yes
Simulator After..... no
Observation Time..... 0

Supervisor

Number of Tests..... 10

Calibration

Standard Type..... wet
Nominal..... 0.100
Nominal (Dry Gas)..... 0.100
Number of Tests..... 1

Printer

Printer On..... yes

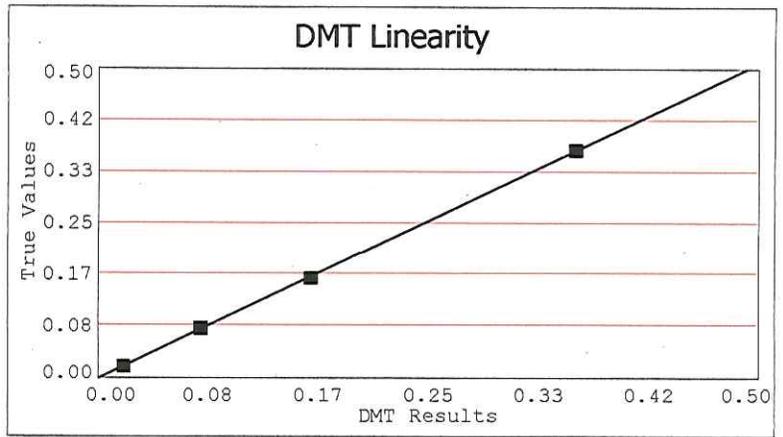
Software Configuration

Data Collection..... yes

Linearity Check Results

True Value	Reported Average	Std Dev
0.020 g/210L	0.019 g/210L	0.0004
Lot # 19-02-020		
0.081 g/210L	0.078 g/210L	0.0004
Lot # 19-03-080		
0.162 g/210L	0.161 g/210L	0.0004
Lot # 19-14-160		
0.369 g/210L	0.361 g/210L	0.0006
Lot # 19-09-360		

R² = 0.9999



Acetone Interference Test

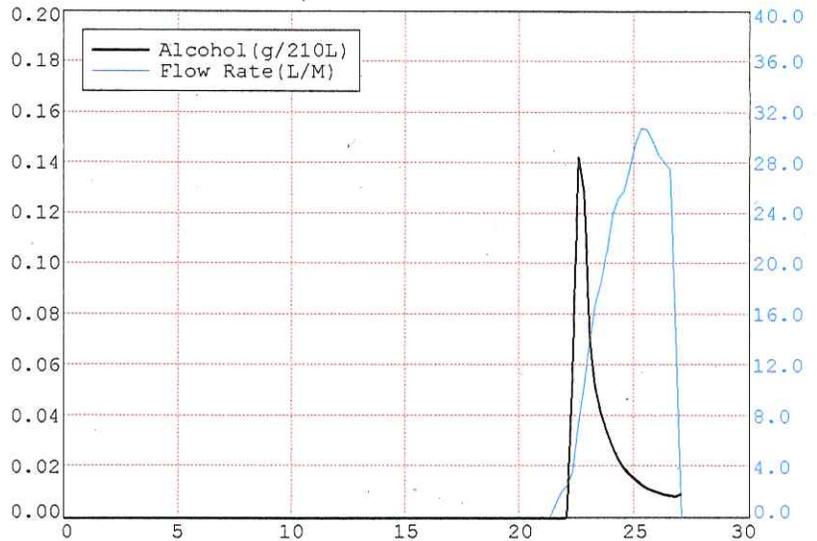
Lot # 19-05-08A2
Interference Detected

Mouth Alcohol Test

Mouth Alcohol Detected

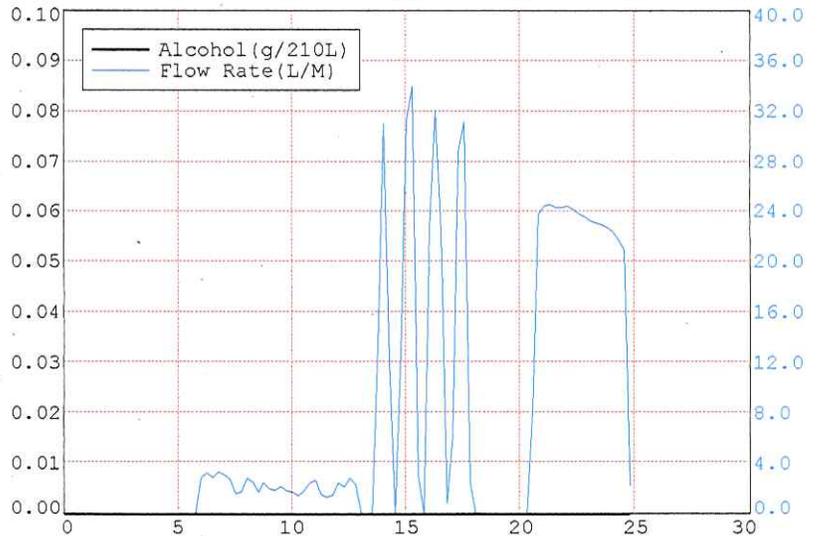
RF Detection Test

Passed

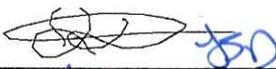


Sample Acceptance Test

Passed



CERTIFICATION PASSED

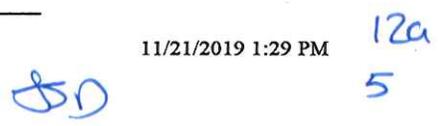
Performed by 

Date 11/21/2019

Reviewed by 

Date 11/25/19

DMT Serial Number #100160



DIAGNOSTIC RESULT



DataMaster DMT: 100160
Location: st albans pd
Calibration Date: 10/03/2019
Certification Date: 10/03/2019
Installation Date: 10/07/2019
Test Date: 11/05/2019
Test Time: 11:17:18

VERSIONS

DMT: 2.05
PIC: 2.08
Modem: 2.6
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.7°C
Breath Tube = 48.1°C
Digital Sim = 34.0°C

SETTINGS

Lamp Voltage = 1.77 V
Cooler Voltage = 1.86 V
Bias Voltage = 82 V
Chopper Freq = 530 Hz

PUMP INFO

Flow Rate = 4.780 L/M

DETECTOR INFO

PUMP	ON	OFF
MAX(V)	-0.2691	-0.2622
MIN(V)	-0.2705	-0.2638

FILTER INFO

Filter 1	-0.264	Zero = true
Filter 2	-0.035	Zero = true
Filter 3	1.282	Zero = true

CALIBRATION CHECK

Xq = 0.103 17.71%

JD

13a
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DIAGNOSTIC RESULT

DataMaster DMT: 100160
Location: st albans pd
Calibration Date: 10/03/2019
Certification Date: 10/03/2019
Installation Date: 10/07/2019
Test Date: 11/20/2019
Test Time: 08:17:13



VERSIONS

DMT: 2.05
PIC: 2.08
Modem: 2.6
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.8°C
Breath Tube = 48.1°C
Digital Sim = 34.0°C

SETTINGS

Lamp Voltage = 1.77 V
Cooler Voltage = 1.78 V
Bias Voltage = 80 V
Chopper Freq = 534 Hz

PUMP INFO

Flow Rate = 4.813 L/M

DETECTOR INFO

PUMP	ON	OFF
MAX(V)	-0.0043	-0.0010
MIN(V)	-0.0079	-0.0037

FILTER INFO

Filter 1	-0.001	Zero = true
Filter 2	0.214	Zero = true
Filter 3	1.501	Zero = true

CALIBRATION CHECK

Xq = 0.103 17.11%