



DMT Technical Support Inquiry

DMT Serial #: 100158
 Agency/Site: Northfield PD
 Date: 08/01/2020
 DMT Supervisor: Michael Gero

Problem:

DMT supervisor reported a calibration check error during a DUI processing. VFL staff responded and obtained a passing result during the diagnostic test. The DMT cal check results had been intermittently failing and the detector voltage was running high so the DMT was removed for cleaning and maintenance.

Work Performed:

On 8/18/20, the exterior of the DMT was cleaned with compressed air and disinfected. The interior of the DMT was dusted with compressed air. The detector block was removed, disassembled and cleaned. Upon reassembly, the filter wheel and quartz wheel were spinning inconsistently. The quartz disc was replaced due to worn gears causing some slippage. The chopper wheel was also noisy so it was replaced. Multiple filter wheel cycles were attempted with no errors. However, it was observed that the locking pin would sometimes get stuck and not lock into place. This caused some variability in the alignment of the filter wheel, possibly resulting in detector voltage fluctuations and the intermittent cal check errors. The locking pin was removed, cleaned with isopropanol, and put back in. Upon reassembly, 57 filter wheel cycles were completed without error. On 8/19/20 the detector voltages were optimized, but did not seem to stabilize. The detector was replaced, but the voltages would still not stabilize. The sample chamber was removed and cleaned with compressed air. The detector voltages continued to fluctuate so the controller board was replaced. The voltages still had small fluctuations, but appeared more stable. The chopper wheel was still noisy so the entire chopper wheel assembly, including the motor, was replaced. Upon reassembly, an additional 50 filter wheel cycles were completed with no errors and the instrument was allowed to stabilize over night. On 8/20/2020, the lamp was replaced due to the fluctuating voltages. The detector voltages were subsequently optimized and allowed to stabilize over night. On 8/21/20 the voltages were checked and had stabilized, but were slightly high. The voltages were further optimized and the instrument was allowed to stabilize over the weekend. On 8/25/20, a successful calibration adjustment and certification were performed. The instrument is now ready for installation at the agency.

Performed On Site
 Performed In house

Performed By: Jeffery Dukette *JSD*

Date: 8/25/2020

Technical Reviewer: *SJS*

Date: 8/26/2020

Administrative Reviewer: *[Signature]*

Date: 8/26/2020

Director Reviewer: *[Signature]*

Date: 8/26/2020

CALIBRATION REPORT

DataMaster DMT: 100158
Calibration Date: 08/25/2020
Calibrated by: JEFFERY DUKETTE
Lot: 20-07-100



Ca = 0.101
CAL = 0.966410 0.800 <= CAL < 1.200
b1 = 0.001 0.000 <= b1 < 0.004
b2 = 0.006 0.002 <= b2 < 0.010
b3 = 0.001 0.000 <= b3 < 0.004
Xq = 0.094 0.050 <= Xq < 0.200
a21 = 1.157670 1.050 <= a21 < 1.300
a31 = 0.482726 0.300 <= a31 < 0.800

PI Water

BL-DMT01072020 34.01°C

JSD 8/25/2020

Performed by 

Date 08/25/2020



ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMaster DMT: 100158

Date: 08/25/2020

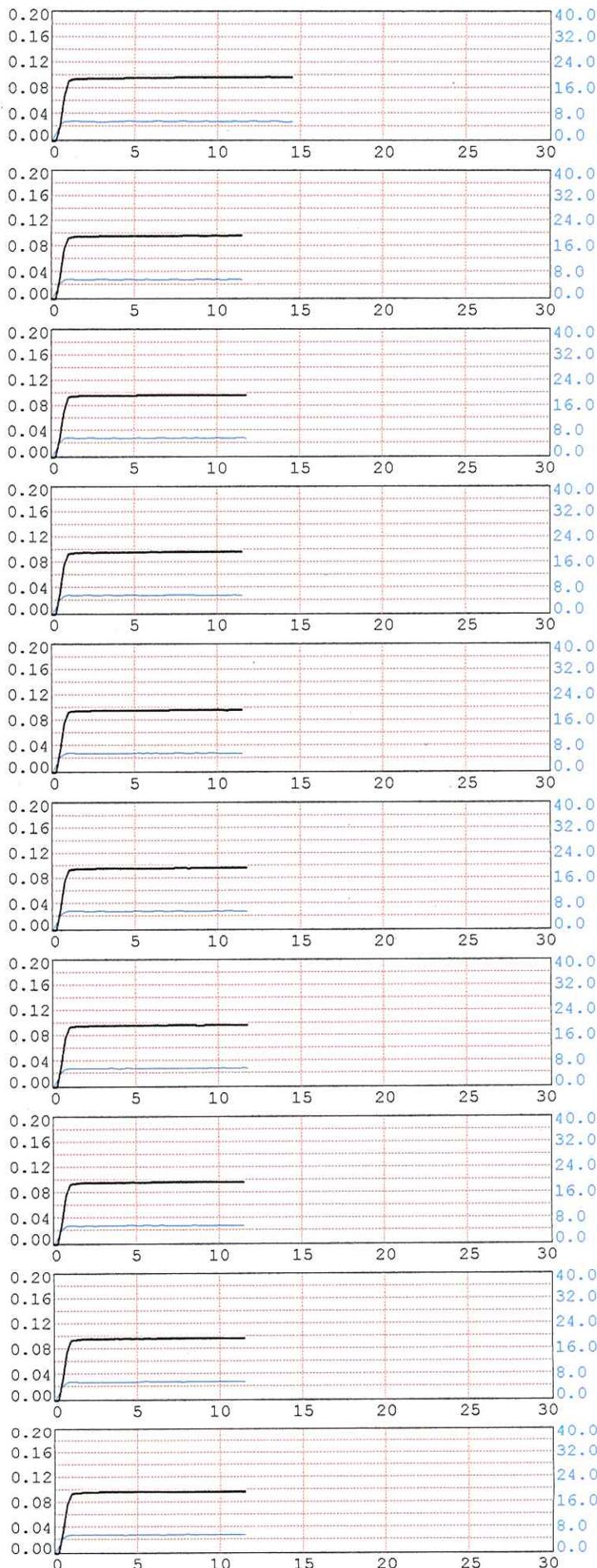
Time: 13:29:55

SUPERVISOR NAME:
JSD CAL CHECK

SOLUTION LOT #: ACS 201912C
SOLUTION CONCENTRATION: 0.100

BLANK TEST	0.000	13:30
CALIBRATION CHECK	PASSED	13:31
SIMULATOR VAPOR 34.0°C	0.098	13:31
SIMULATOR VAPOR 34.0°C	0.098	13:32
SIMULATOR VAPOR 34.0°C	0.098	13:33
SIMULATOR VAPOR 34.0°C	0.098	13:34
SIMULATOR VAPOR 34.0°C	0.098	13:35
SIMULATOR VAPOR 34.0°C	0.098	13:36
SIMULATOR VAPOR 34.0°C	0.098	13:38
SIMULATOR VAPOR 34.0°C	0.098	13:39
SIMULATOR VAPOR 34.0°C	0.098	13:40
SIMULATOR VAPOR 34.0°C	0.098	13:41
BLANK TEST	0.000	13:42

Average = 0.098
Std Dev = 0.0000



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JSD

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CERTIFICATION REPORT

DataMaster DMT: 100158
Calibration Date: 08/25/2020
Certification Date: 08/25/2020
Certified by: JEFFERY DUKETTE



Diagnostic Results

VERSIONS

DMT: 2.06
PIC: 3.07
Modem: 2.6
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.7°C
Breath Tube = 43.0°C
Digital Sim = 34.0°C

SETTINGS

Lamp Voltage = 1.57 V
Cooler Voltage = 1.58 V
Bias Voltage = 80 V
Chopper Freq = 550 Hz

PUMP INFO

Flow Rate = 6.393 L/M

DETECTOR INFO

PUMP	ON	OFF
MAX (V)	0.0754	0.0795
MIN (V)	0.0740	0.0776

FILTER INFO

Filter	Value	Zero = true
Filter 1	0.077	Zero = true
Filter 2	0.419	Zero = true
Filter 3	1.372	Zero = true

CALIBRATION CHECK

Xq = 0.095 0.56%

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

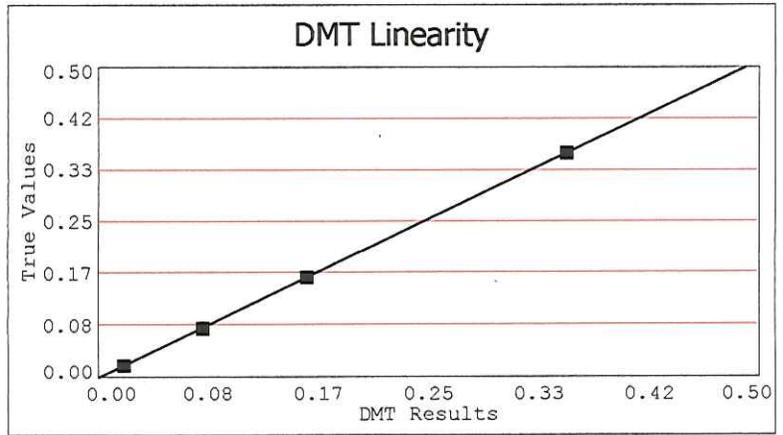
Software Configuration

Data Collection..... yes

Linearity Check Results

True Value	Reported Average	Std Dev
0.020 g/210L	0.019 g/210L	0.0000
Lot # 20-08-020		
0.080 g/210L	0.079 g/210L	0.0000
Lot # 19-18-080		
0.162 g/210L	0.158 g/210L	0.0004
Lot # 19-14-160		
0.362 g/210L	0.354 g/210L	0.0003
Lot # 20-02-360		

R² = 1



Acetone Interference Test

Lot # 20-01-08A2

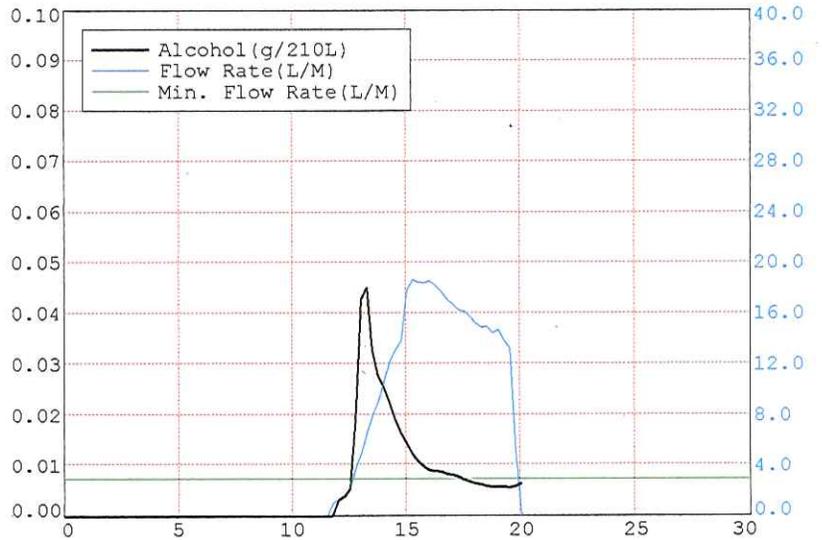
Interference Detected

Mouth Alcohol Test

Mouth Alcohol Detected

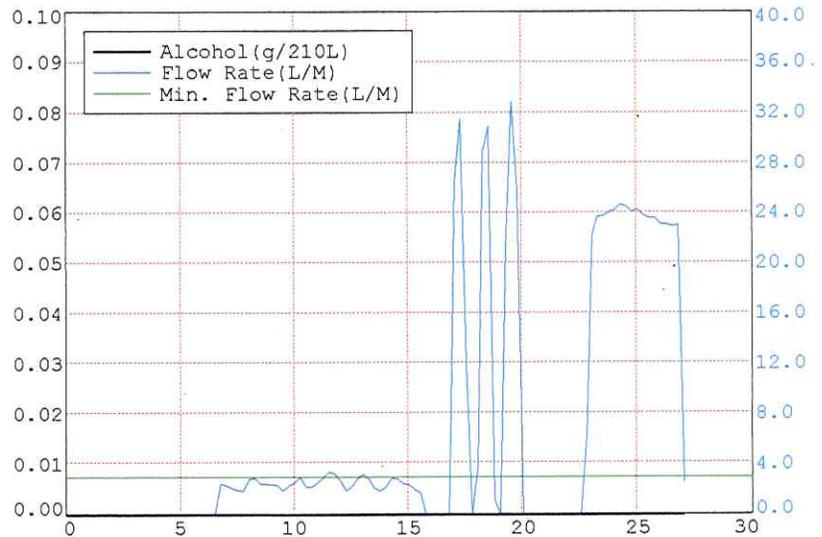
RF Detection Test

Passed



Sample Acceptance Test

Passed



CERTIFICATION PASSED

Performed by

[Signature] *JD*

Date

08/25/2020

Reviewed by

828

Date

08/26/2020

DMT Serial Number #100158

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08/25/2020 2:59 PM

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JD

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DIAGNOSTIC RESULT

DataMaster DMT: 100158
Location: NORTHFIELD PD
Calibration Date: 03/15/2017
Certification Date: 03/15/2017
Installation Date: 03/16/2017
Test Date: 08/18/2020
Test Time: 08:23:33



VERSIONS

DMT: 2.06
PIC: 2.08
Modem: 2.6
Questions: 2.1

TEMPERATURES

Sample Chamber = 49.1°C
Breath Tube = 48.1°C
Digital Sim = 34.0°C

SETTINGS

Lamp Voltage = 1.78 V
Cooler Voltage = 1.81 V
Bias Voltage = 80 V
Chopper Freq = 554 Hz

PUMP INFO

Flow Rate = 4.883 L/M

DETECTOR INFO

PUMP	ON	OFF
MAX(V)	0.5026	0.5057
MIN(V)	0.4990	0.5028

FILTER INFO

Filter 1	0.504	Zero = true
Filter 2	0.779	Zero = true
Filter 3	1.694	Zero = true

CALIBRATION CHECK

Xq = 0.092 2.31%

Run at agency before removal. Result passed but instrument removed for maintenance due to previous failing results. JPD 8/18/2020



ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMaster DMT: 100158
Location: NORTHFIELD PD

Date: 08/24/2020
Time: 14:15:39

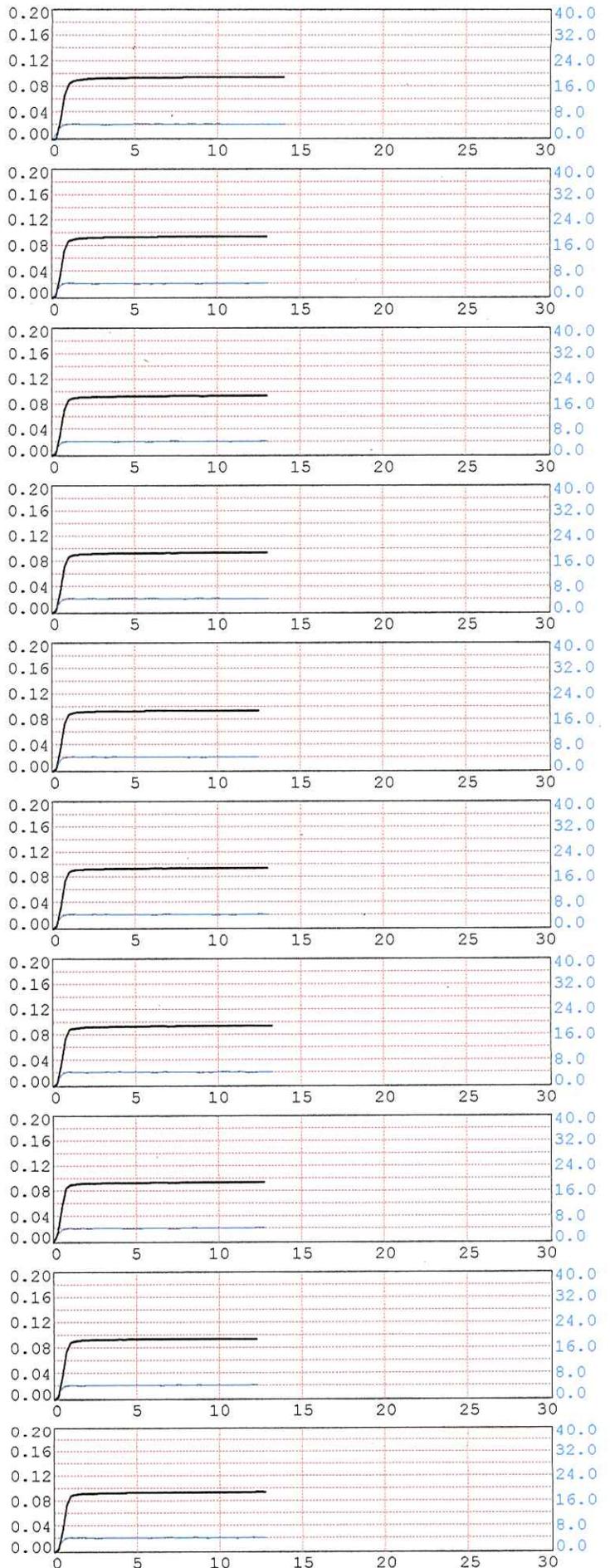
SUPERVISOR NAME:
JSD TEST

SOLUTION LOT #: TEST
SOLUTION CONCENTRATION: 0.100

BLANK TEST	0.000	14:16
CALIBRATION CHECK	PASSED	14:16
SIMULATOR VAPOR 34.0°C	0.097	14:17
SIMULATOR VAPOR 34.0°C	0.096	14:18
SIMULATOR VAPOR 34.0°C	0.096	14:19
SIMULATOR VAPOR 34.0°C	0.096	14:20
SIMULATOR VAPOR 34.0°C	0.096	14:21
SIMULATOR VAPOR 34.0°C	0.096	14:22
SIMULATOR VAPOR 34.0°C	0.096	14:23
SIMULATOR VAPOR 34.0°C	0.096	14:25
SIMULATOR VAPOR 34.0°C	0.096	14:26
SIMULATOR VAPOR 34.0°C	0.096	14:27
BLANK TEST	0.000	14:28

Average = 0.096
Std Dev = 0.0003

*A&P run as a test solution following reassembly of the DMT
JSD 8/24/2020*



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JSD

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ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMaster DMT: 100158
Location: NORTHFIELD PD

Date: 08/24/2020
Time: 14:38:35

SUPERVISOR NAME:
JSD TEST

SOLUTION LOT #: 20-02-360
SOLUTION CONCENTRATION: 0.362

BLANK TEST 0.000 14:39
CALIBRATION CHECK ERROR 14:39

CALIBRATION CHECK ERROR

*DMT not calibrated. Ran 0.36
solution as a test*

*JSD 8/25/2020
CAL check fails slightly >4%
A&P rerun and cal check passes*

JSD 8/26/2020



ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMaster DMT: 100158
Location: NORTHFIELD PD

Date: 08/24/2020
Time: 14:40:21

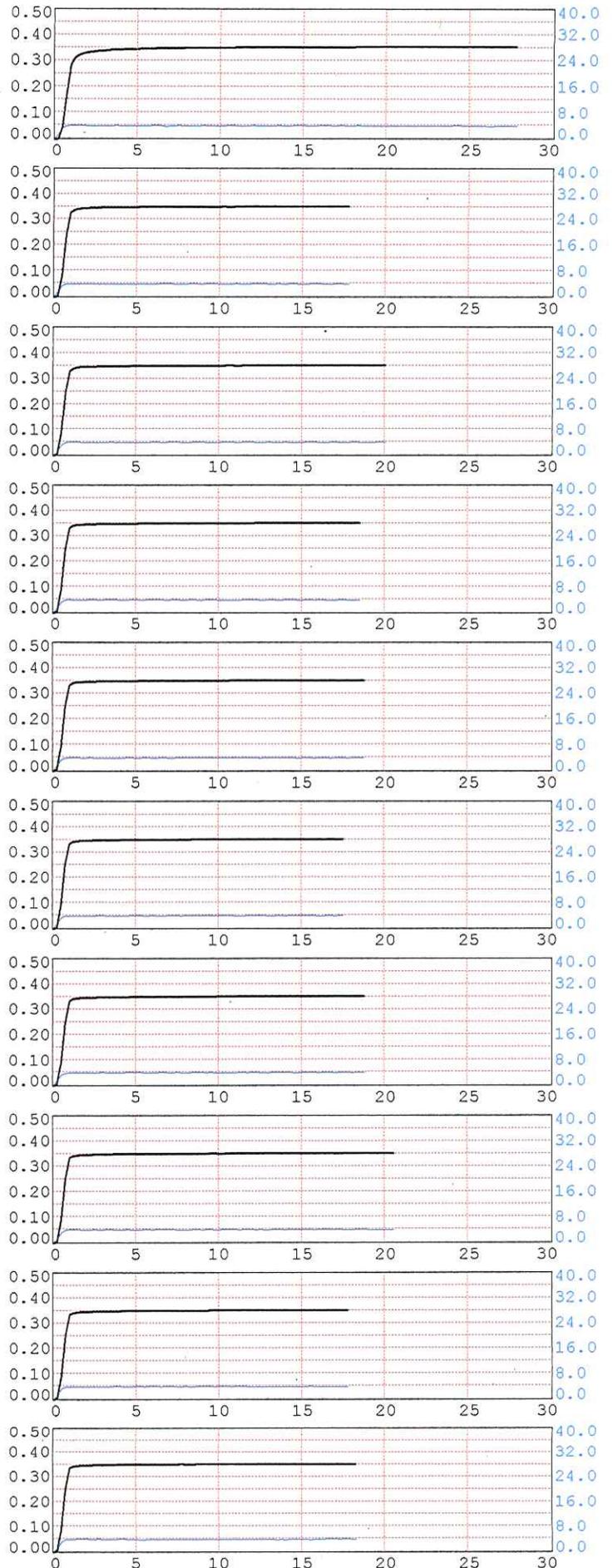
SUPERVISOR NAME:
JSD TEST

SOLUTION LOT #: 20-02-360
SOLUTION CONCENTRATION: 0.362

BLANK TEST	0.000	14:41
CALIBRATION CHECK	PASSED	14:41
SIMULATOR VAPOR 34.0°C	0.353	14:42
SIMULATOR VAPOR 34.0°C	0.351	14:43
SIMULATOR VAPOR 34.0°C	0.351	14:44
SIMULATOR VAPOR 34.0°C	0.351	14:45
SIMULATOR VAPOR 34.0°C	0.351	14:47
SIMULATOR VAPOR 34.0°C	0.351	14:48
SIMULATOR VAPOR 34.0°C	0.351	14:49
SIMULATOR VAPOR 34.0°C	0.352	14:50
SIMULATOR VAPOR 34.0°C	0.351	14:52
SIMULATOR VAPOR 34.0°C	0.351	14:53
BLANK TEST	0.000	14:54

Average = 0.351
Std Dev = 0.0006

DMT not calibrated, Run as a test. JSD 8/25/2020



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JSD

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RE: DMT unknown issue

Gero, Michael <Michael.Gero@vermont.gov>

Fri 8/14/2020 8:42 PM

To: Dukette, Jeffery <Jeffery.Dukette@vermont.gov>

Cc: Helfant, John <John.Helfant@vermont.gov>

Great, thanks!

VR Gero

From: Dukette, Jeffery <Jeffery.Dukette@vermont.gov>

Sent: Friday, August 14, 2020 8:40 PM

To: Gero, Michael <Michael.Gero@vermont.gov>

Subject: Re: DMT unknown issue

That means it is still out of range. The passing number is 4%. I will swing by and grab your DMT early next week. Sorry for the delay. Sometimes that cal check result will go out on a fluke then come back in and the DMT is fine to use so I wanted to verify the problem first.

Thanks and I hope you enjoyed the vacation!

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From: Gero, Michael <Michael.Gero@vermont.gov>

Sent: Friday, August 14, 2020 8:37:29 PM

To: Dukette, Jeffery <Jeffery.Dukette@vermont.gov>

Subject: RE: DMT unknown issue

Xq= 0.094 4.14%

What's your number?

From: Dukette, Jeffery <Jeffery.Dukette@vermont.gov>

Sent: Friday, August 14, 2020 8:23 PM

To: Gero, Michael <Michael.Gero@vermont.gov>

Subject: Re: DMT unknown issue

I haven't checked. I was waiting. What was the cal check result? It's towards the bottom of the page on the left. It should be a percentage? If you have questions feel free to give me a call before 9pm.

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From: Gero, Michael <Michael.Gero@vermont.gov>

Sent: Friday, August 14, 2020 7:04:53 PM

To: Dukette, Jeffery <Jeffery.Dukette@vermont.gov>

Subject: RE: DMT unknown issue

Ran the diagnostic upon returning from vacation,, 8/14.

From: Dukette, Jeffery <Jeffery.Dukette@vermont.gov>

Sent: Thursday, August 06, 2020 8:00 AM

To: Gero, Michael <Michael.Gero@vermont.gov>

Subject: Re: DMT unknown issue

Good morning,

In reviewing the records for your DMT, it looks like the cal check problem you emailed about is an intermittent issue. Before I come grab your DMT, I was wondering if you could run a diagnostic for me? Once you wake up the DMT by touching the screen, press F4, then enter your password. The DMT should then begin running a diagnostic. You can also initiate one using the drop down menu. Once I see those results, I will be in touch about either coming to grab your DMT or discuss another approach to reduce the frequency of this error. Let me know if/when you are able to do this.

Thanks,

Jeff

From: Gero, Michael <Michael.Gero@vermont.gov>

Sent: Saturday, August 1, 2020 12:48 AM

To: Dukette, Jeffery <Jeffery.Dukette@vermont.gov>

Subject: DMT unknown issue

Sir,

I attached a picture of an unknown error.

Tonight at about 1800 hrs Officer Tucker got an error processing a DUI subject. The error shows it's in range so I do not know what the issue was as I was in a meeting with the Chief and Sergeant about the new use of force law and impact on current policy. Attached is a picture.

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JKD

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