



Evidential Breath Testing

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- » To certify Vermont law enforcement officers in the proper operation of the DMT evidential breath testing instrument and enable them to obtain a valid evidential breath sample.

Objectives >

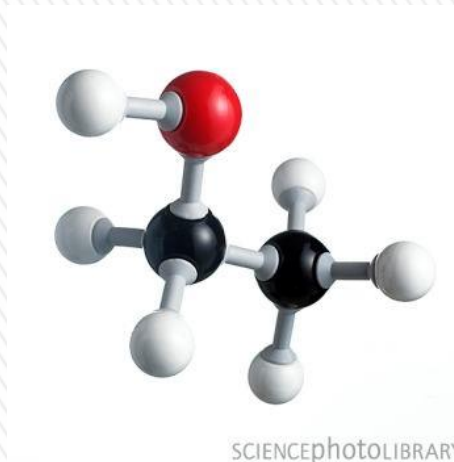
- » Brief overview of the science behind infrared breath testing and instrument functioning
- » Proper administration of the observation period
- » Operating the DMT and ensuring testing validity
- » Common error conditions and proper responses
- » Practice scenarios
- » Hands-on practice tests

Topics >

Why It Works— The Background Science

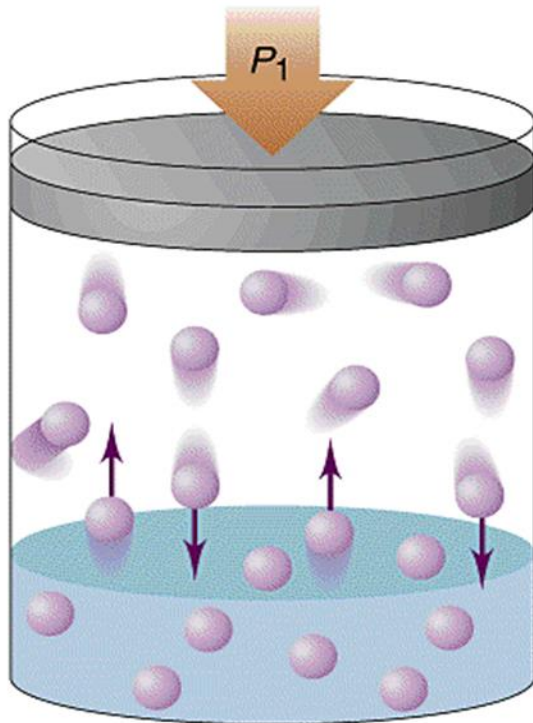


- Ethanol (ethyl alcohol)
 - Ethanol is volatile
 - Readily moves from liquid to air
 - Readily moves from blood to breath
 - The DMT measures the concentration of ethanol in **breath**
 - Less invasive than drawing blood



Henry's Law:

In a closed, fixed system kept at a constant temperature, a volatile substance will come to a constant ratio of amounts between a liquid and in the air space above that liquid.



Although humans are not closed systems, the basic process of a volatile being distributed between a liquid and a gas occurs between the blood and air in the lungs when ethanol is present in the body.

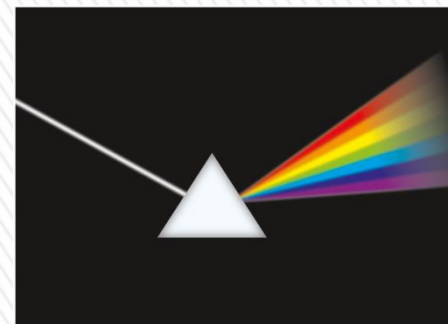
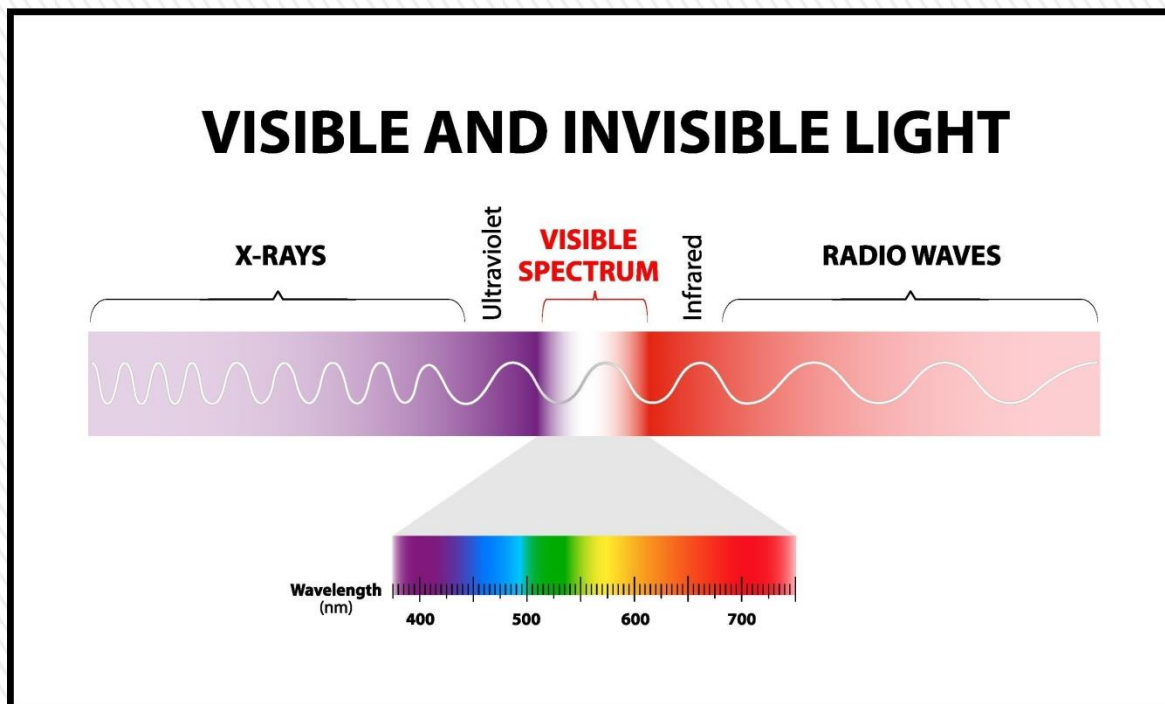
A

June 2020



Infrared Spectroscopy

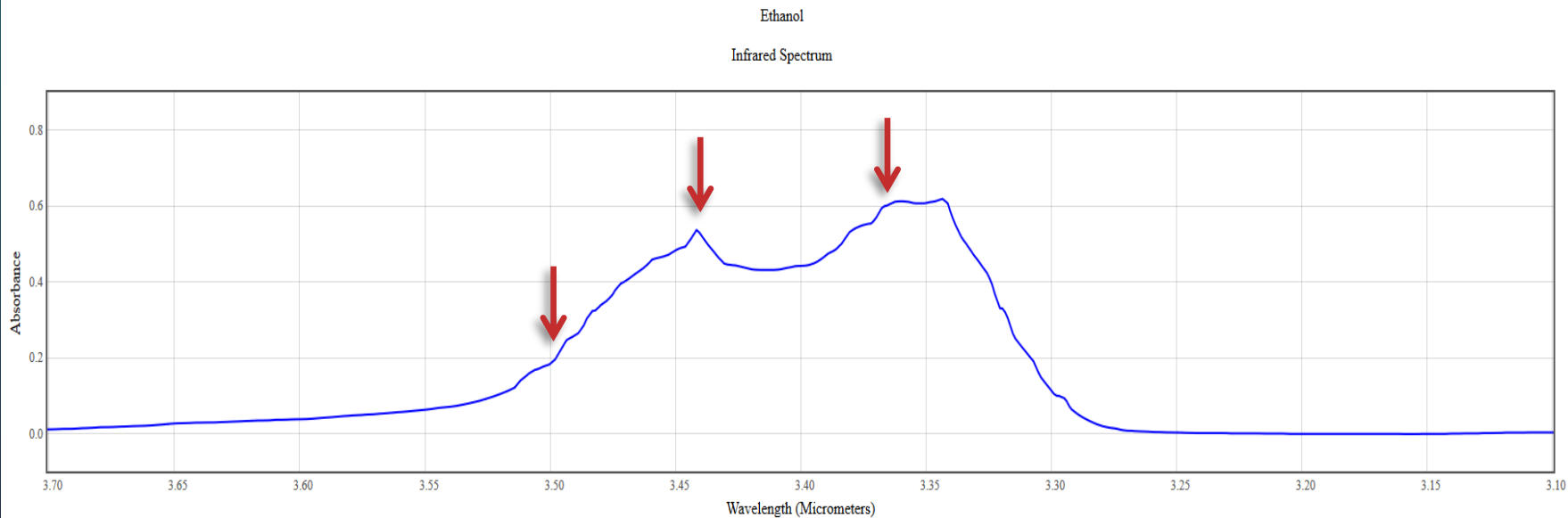
- IR energy is one small portion of the electromagnetic spectrum typically felt as heat.
- In a molecule, atoms are held together by bonds.
- When subjected to IR energy, these bonds will absorb energy based on their structure.





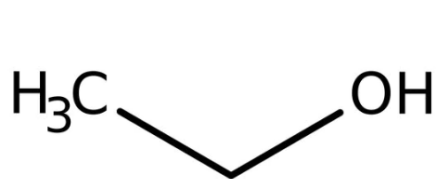
Infrared Spectroscopy

- Each molecule absorbs this energy in a unique way
- The absorbance spectrum of a compound is also called a “fingerprint”
- These “fingerprints” allow the DMT to be specific for ethanol
- The DataMaster DMT targets three specific wavelengths for ethanol
 - 3.37 microns, 3.44 microns and 3.50 microns

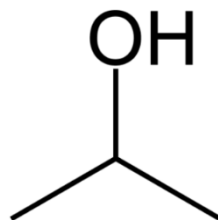


Infrared Spectroscopy

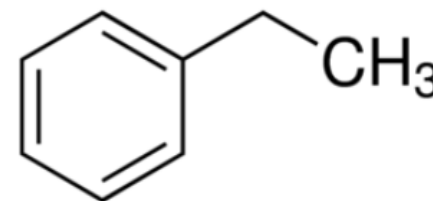
- Different molecules absorb IR energy differently, which is what allows us to distinguish ethanol from other volatiles that absorb IR energy.



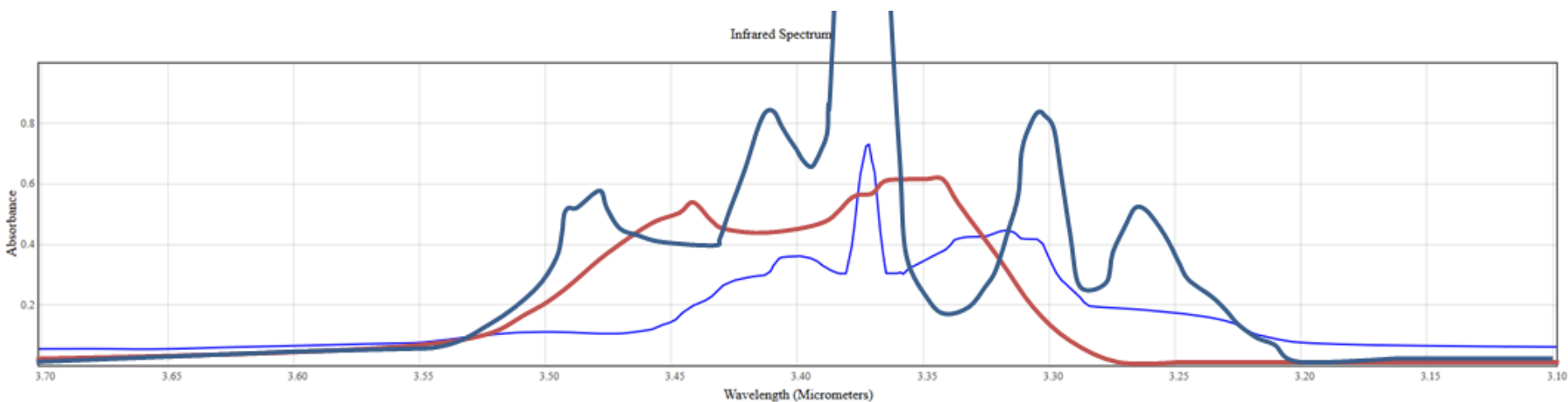
Ethanol



Acetone



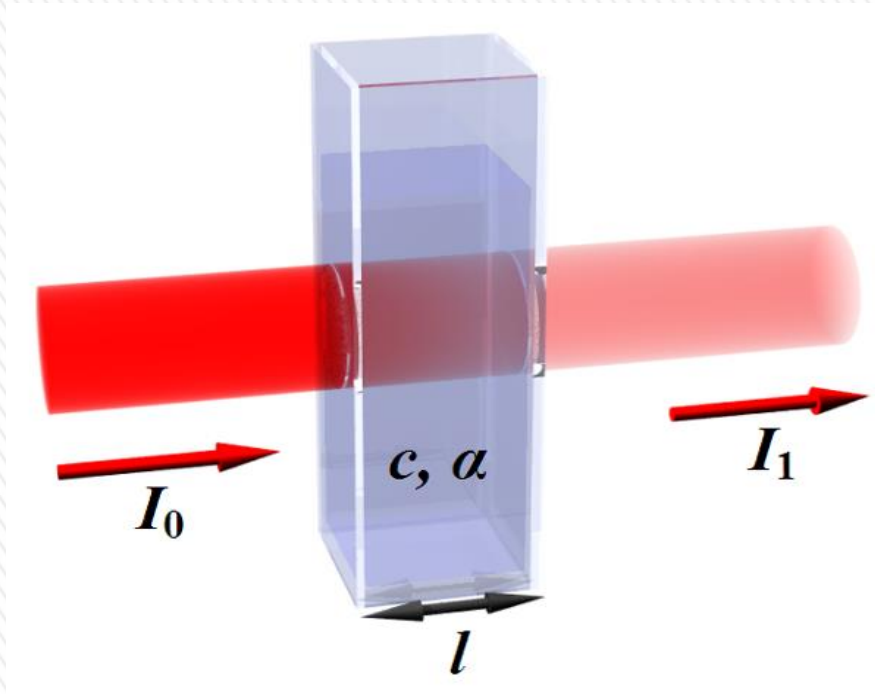
Ethyl Benzene





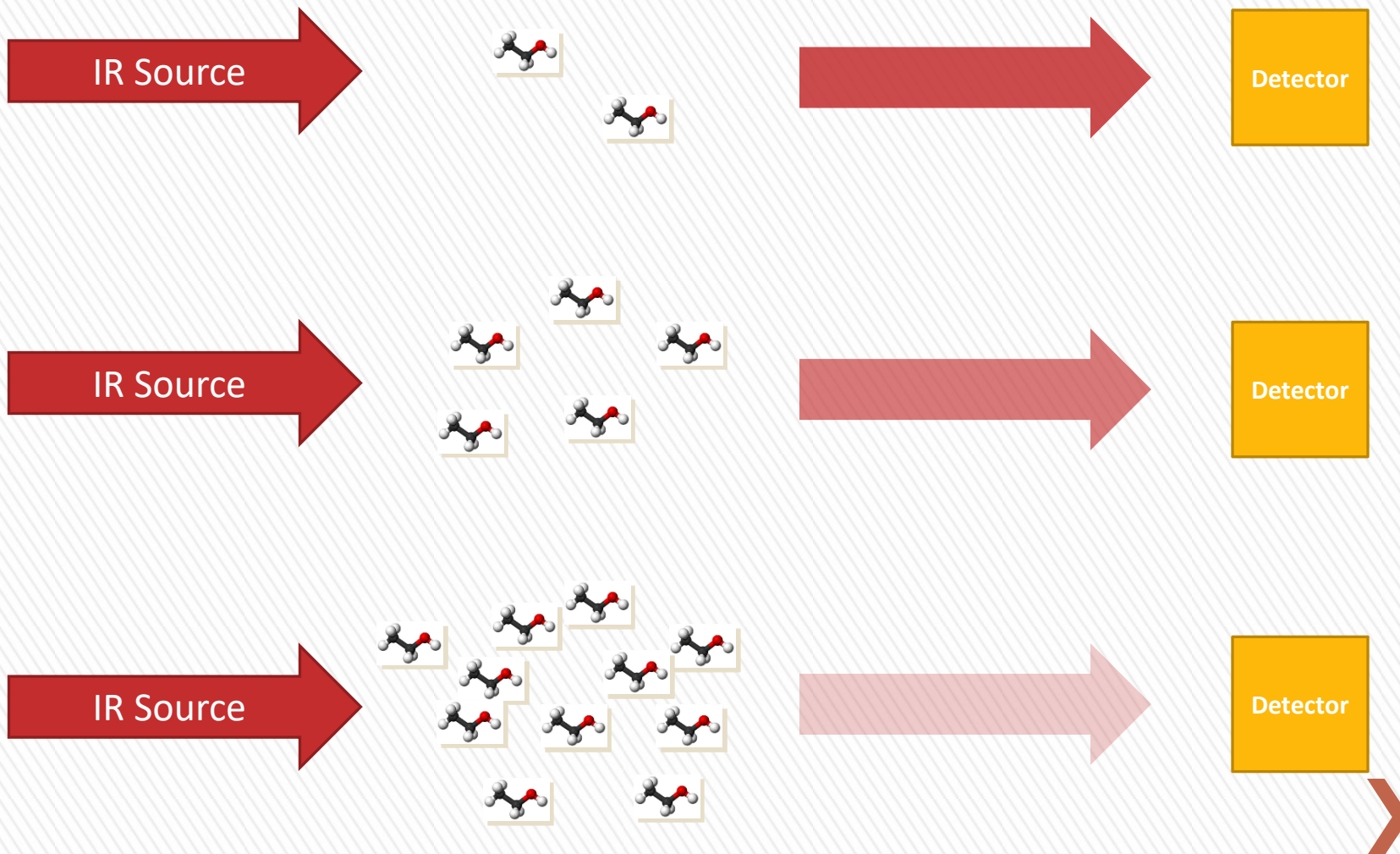
The Beer-Lambert law:

There is a direct relationship between the concentration of a substance and the amount of infrared energy it absorbs.



The DMT can measure the amount of ethanol in a breath sample by detecting how much IR energy reaches the detector.

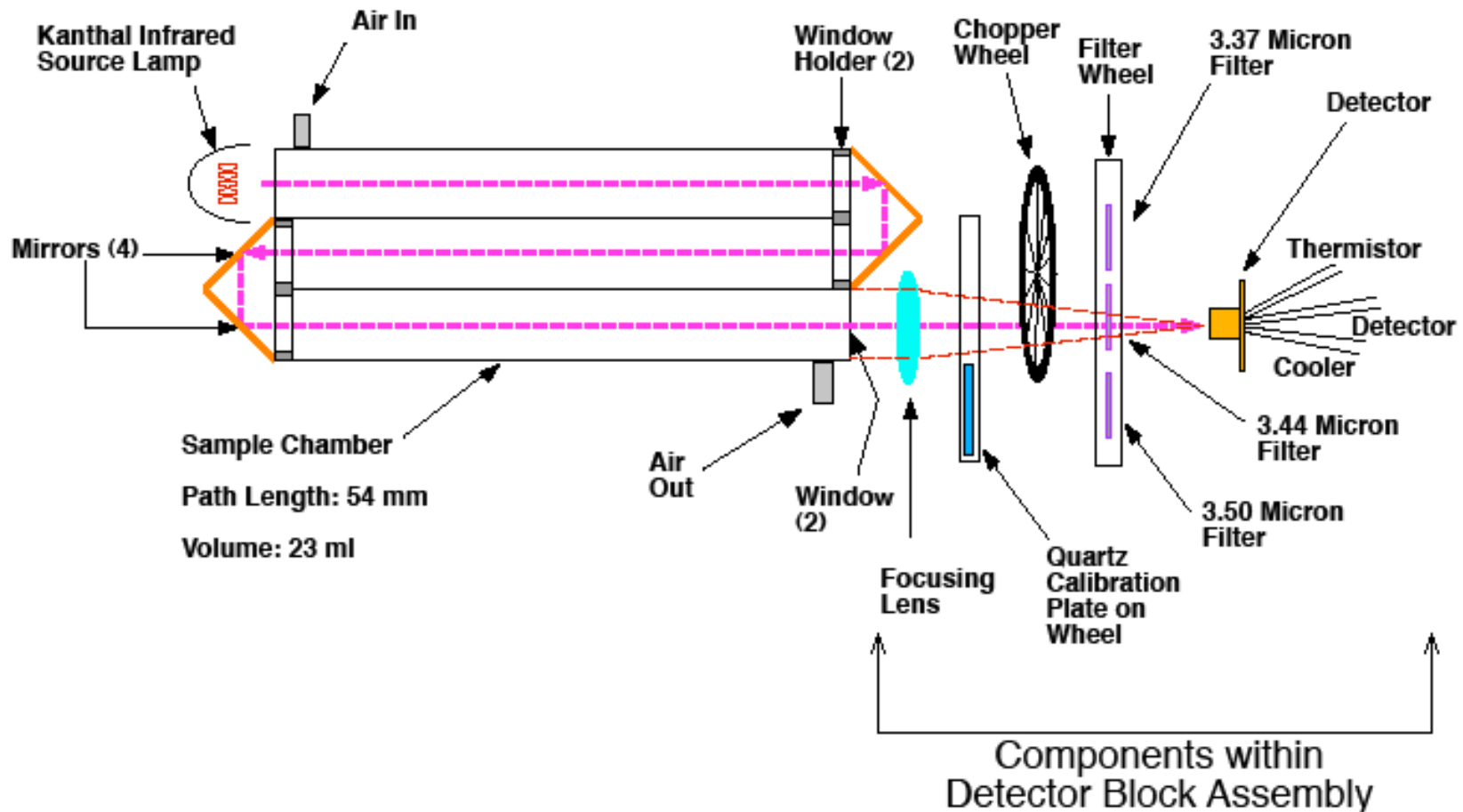
The more ethanol present in the breath, the more infrared energy is absorbed, the less IR energy that reaches the detector.



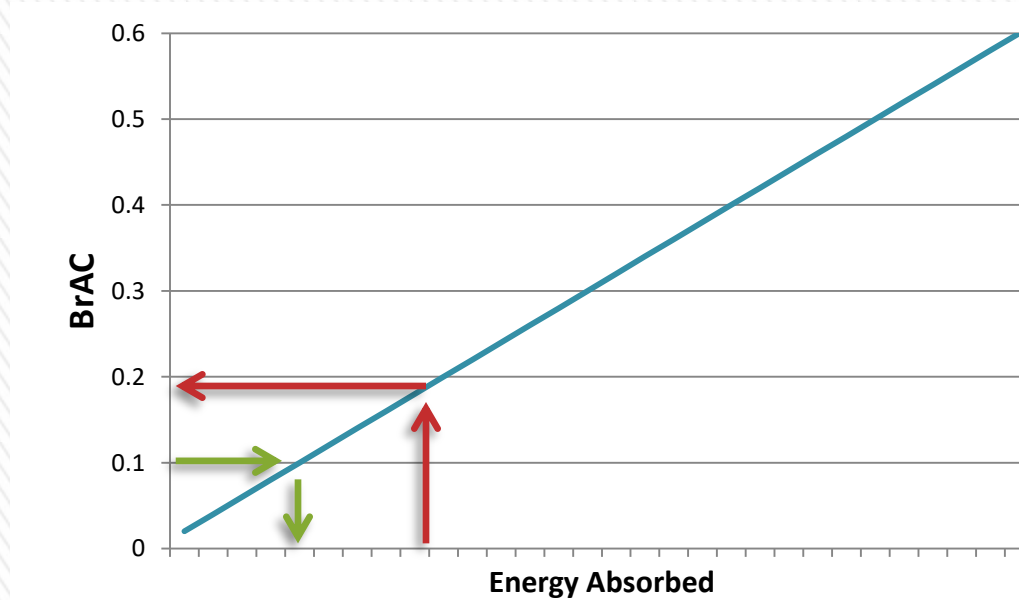
How It Works— The Science of the DMT



DATAMASTER DMT OPTICAL BENCH



- The DMT is calibrated with a sample of known ethanol concentration.
- Known concentration \rightarrow known absorption.
- IR energy absorbed by the KNOWN sample is compared to IR energy of UNKNOWN sample.
- From this comparison the ethanol concentration of the unknown can be determined.



Instrument Analysis, Proper Breath Samples

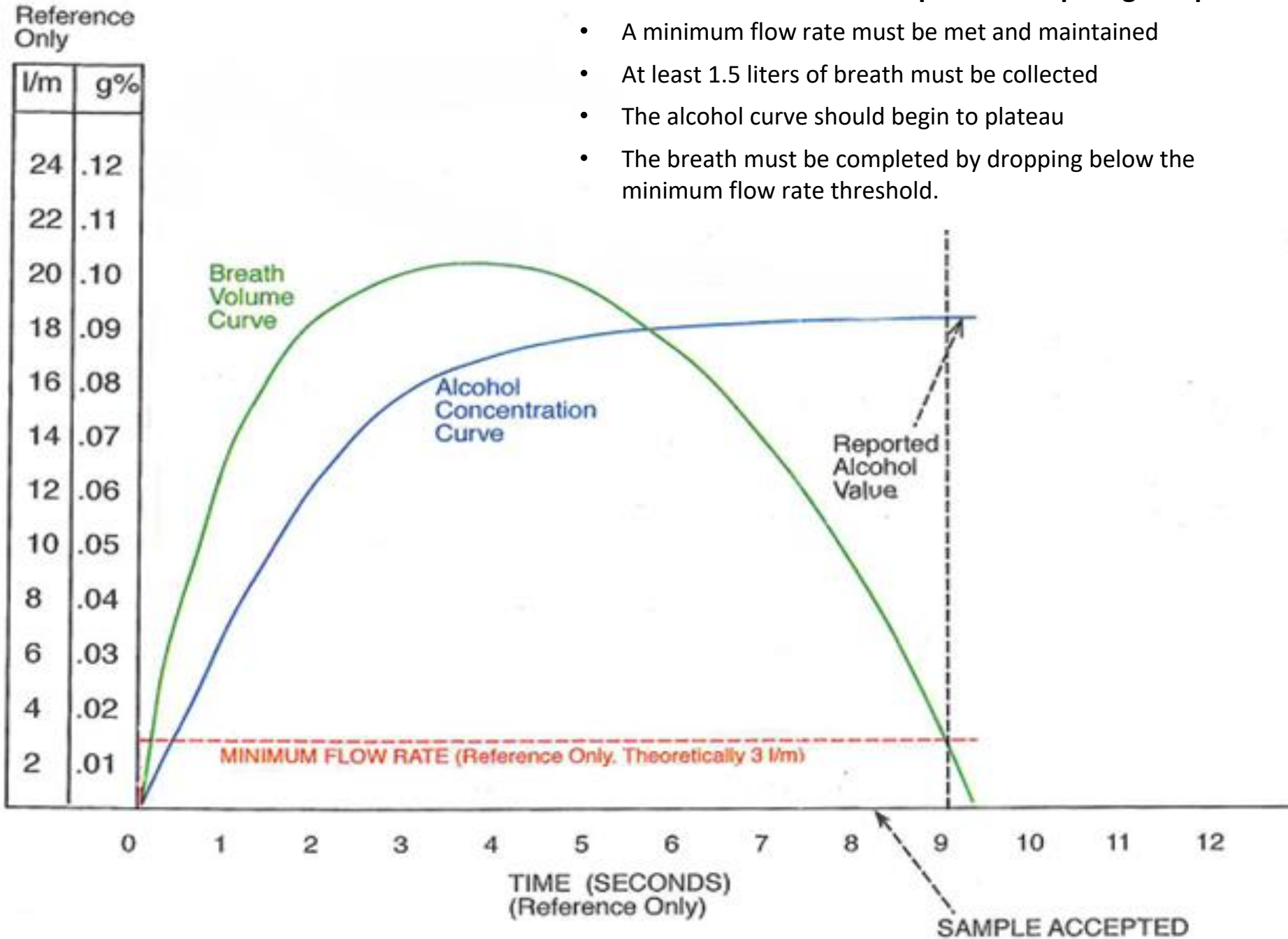


- The DMT is designed to sample deep lung air.
- The human body is not a closed system.
- As we breath, the air in the upper portion of the lungs is constantly being diluted by room air.
- The air in the deeper portion of the lungs will be closest in concentration to that found in the blood.
- We want to sample the air closest to the blood which represents the body burden of alcohol.



How does the DMT ensure we capture a deep lung sample?

- A minimum flow rate must be met and maintained
- At least 1.5 liters of breath must be collected
- The alcohol curve should begin to plateau
- The breath must be completed by dropping below the minimum flow rate threshold.



Instrument Analysis, Proper Breath Samples



- Mouth Alcohol – Ethanol that is not a reflection of the alcohol in your blood
 - Why is it a concern?
 - Legal limit = 0.08 % ABV of standard beer: 5%
 - How does it happen?
 - Drinking or rinsing with alcohol—some remains in the mouth.
 - Vomiting—if there is ethanol in the stomach, vomiting may leave mouth alcohol.

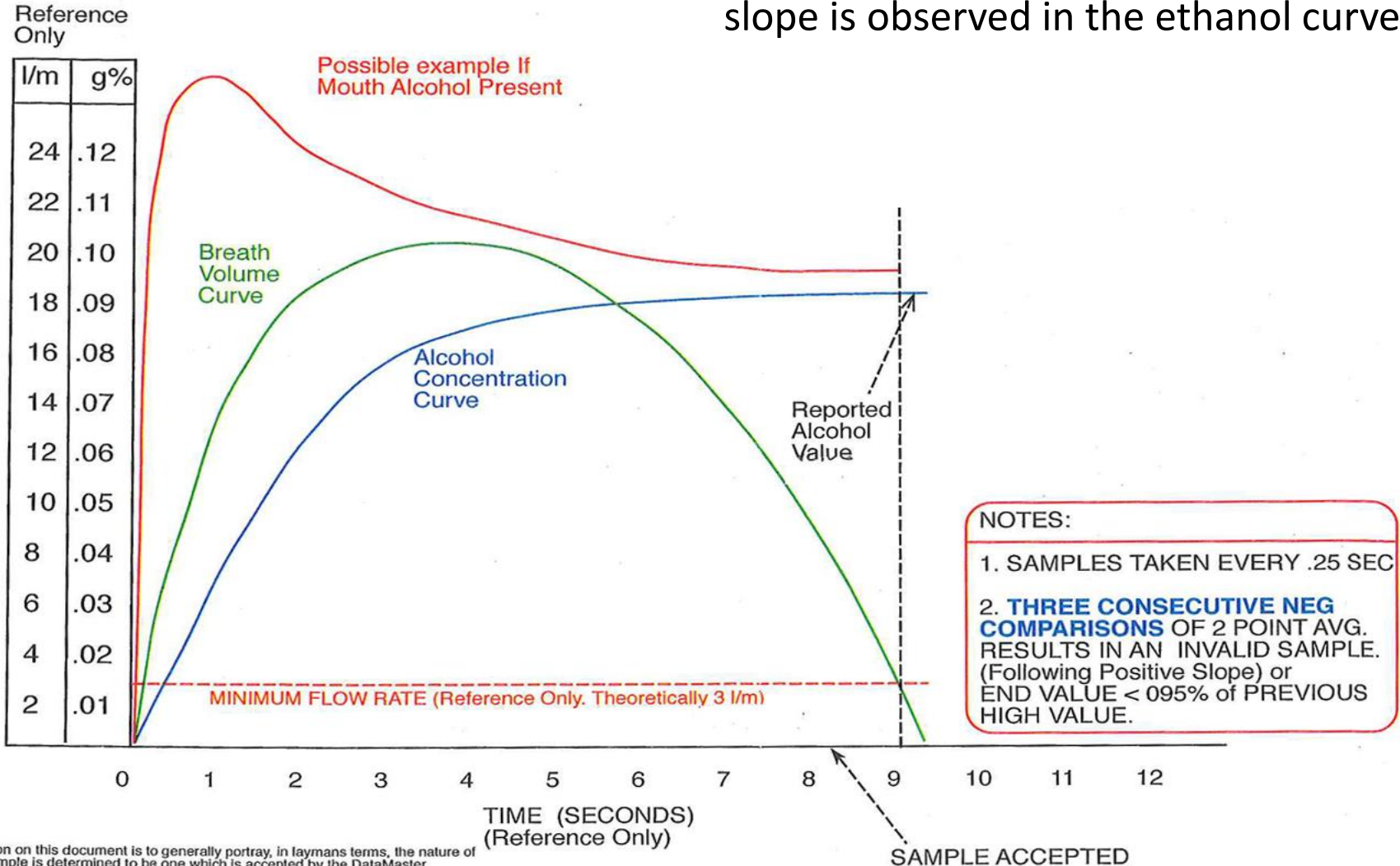
Preventing Mouth Alcohol:

- 15 Minute Observation Period
(nothing into the mouth, nothing out)
 - Most studies show that mouth alcohol dissipates within 10-12 minutes.



Detecting Mouth Alcohol:

- The DMT will indicate if a negative slope is observed in the ethanol curve.



Information on this document is to generally portray, in laymans terms, the nature of how a sample is determined to be one which is accepted by the DataMaster. As values depicted herein are subject to change in any particular version of software, these values may or may not be exactly what is used in any particular instrument.

Instrument Analysis, Ethanol vs. Interferences



How would other substances be present?

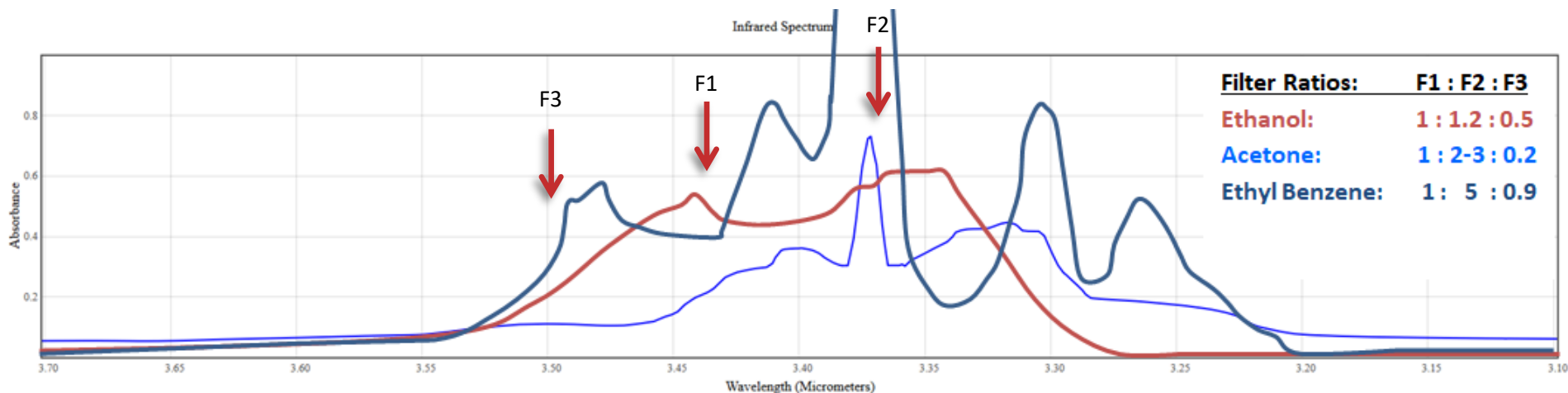
- Diabetics and fasting people may produce acetone in their bodies in small amounts. (ketosis)
- Alcoholics have been known to ingest other alcohols besides ethanol.
 - Rubbing alcohol (Isopropanol)
 - Wood alcohol (Methanol)
 - Both are very toxic to humans.
- Industrial solvent exposure
 - Toluene
- Inhaling volatile substances which may remain on the breath and absorb IR energy.



Instrument Analysis, Ethanol vs. Interferences

Different substances have different IR “fingerprints”.

- The DMT uses three filters at three different wavelengths to look for ethanol.
- Ethanol generates characteristic peaks at these wavelengths which differentiate it from other substances.
- If the DMT detects a ratio inconsistent with ethanol it will report “Interference” rather than a numerical result.
- You will have to get a blood sample.





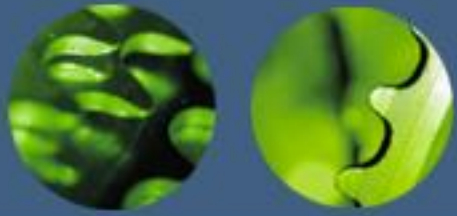
External Components





External Components





Back Panel





Simulator



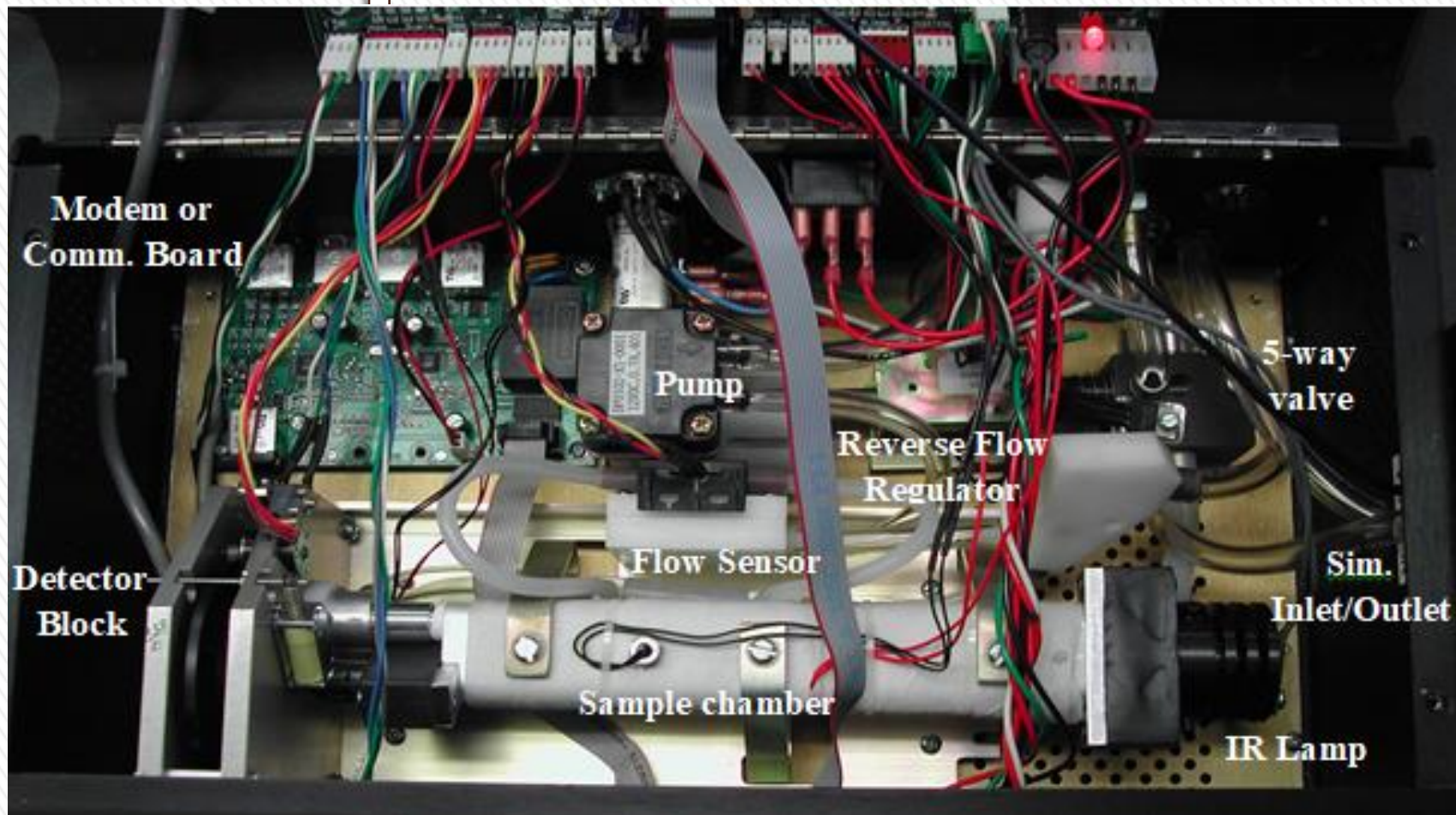
June 2020

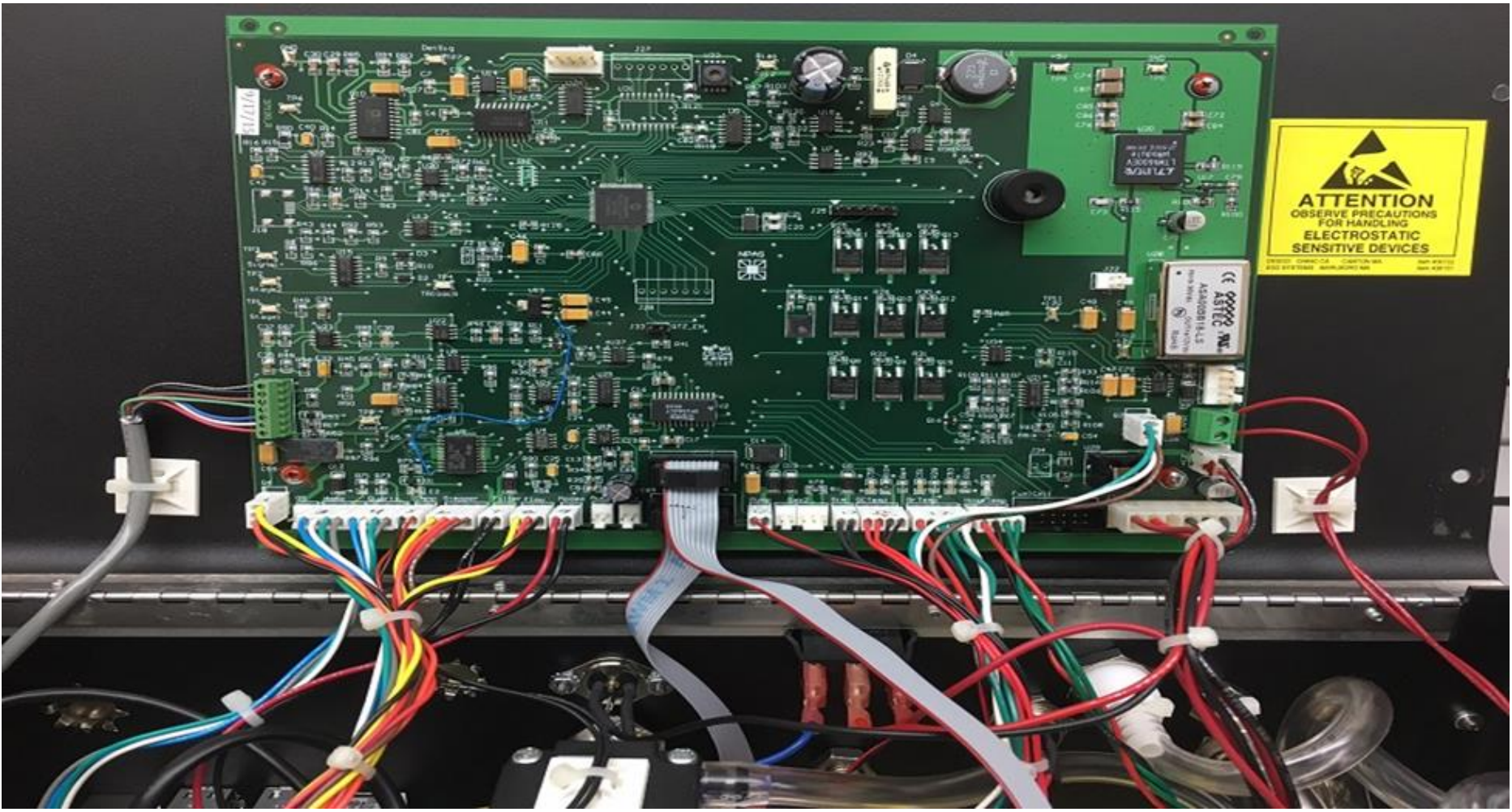


Internal Components



Internal Components





ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

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Operation of the DMT

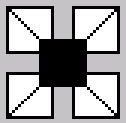


First Steps to Obtaining a Subject Sample



- Clear the screen saver, if applicable.
- Ensure no error messages are present.
- The bottom left of the screen should state “Ready” and flash “Push Run”.
- If the DMT does not indicate it is ready for use, go to another agency.

- For all suspected DUI subjects, you will select **DUI**
- If a subject fails a PBT during a Check-In and needs a confirmation test, select **CHECK-IN**
- Each selection will lead to a subject information entry screen.



DataMaster
DMT®
NPAS -- Mansfield, OH

Serial Number

121706

04/13/2020

17:35:05

Start Timer

Run

Copy

Ready <Push Run>

34.0



121706

Start Timer

Type of Test ✕

Check In DUI

Copy

| | | |
|--|--|--|
| | | |
|--|--|--|

Subject Information

| | | | | | |
|---------------|---|--------------------------|----------------------|----------|----------------------|
| Name (F/M /L) | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> | | |
| Date of Birth | <input type="text" value="MM/dd/yyyy"/> | Age | <input type="text"/> | Gender | <input type="text"/> |
| License # | <input type="text"/> | State | <input type="text"/> | Guardian | <input type="text"/> |

Incident Information

| | | | |
|---------------|----------------------|---------------|------------------------------------|
| Case | <input type="text"/> | Incident Time | <input type="text" value="HH:mm"/> |
| Test Reason | <input type="text"/> | | |
| Stop Location | <input type="text"/> | | |
| Town | <input type="text"/> | County | <input type="text"/> |

Officer Information

| | | | |
|---------------|----------------------|--------------------------|----------------------|
| Name (F/M /L) | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Agency | <input type="text"/> | VTC # | <input type="text"/> |

Cancel

OK

Subject Information

Name (F/M /L)

Date of Birth Age Gender

License # State Guardian

- M
- F
- X

Incident Information

Case Incident Time

Test Reason

Stop Location

Town County

Officer Information

Name (F/M /L)

Agency VTC #

Cancel

OK

Subject Information

Name (F/M /L)

Date of Birth Age Gender

License # State Guardian

Incident Information

Case Incident Time

Test Reason

Stop Location

Town

County

Officer Information

Name (F/M /L)

Agency VTC #

Cancel

OK

Subject Information

Name (F/M /L)

FIRST

LAST

Date of Birth

- PITTSFIELD
- PITTSFORD**
- PLAINFIELD
- PLYMOUTH
- POMFRET
- POULTNEY(TOWN)
- POWNAI
- PROCTOR
- PUTNEY
- RANDOLPH
- READING

Age

17

Gender

X

License #

State

Guardian

Y

Incident Information

Case

Incident Time

09:00

Test Reason

Stop Location

Town

PITTSFORD

County

RUTLAND

Officer Information

Name (F/M /L)

OFFICER FIRST

OFFICER LAST

Agency

VFL

VTC #

VTC ID

Cancel

OK

Subject Information

Name (F/M /L)

Date of Birth Age Gender X

License # State Guardian Y

Incident Information

Case

Test Reason

Stop Location

Town

County

Incident Time

Officer Information

Name (F/M /L)

Agency VTC #

Cancel

OK

Subject Information

| | | | | | |
|---------------|---|--------------------------|-----------------------------------|----------|--|
| Name (F/M /L) | <input type="text" value="FIRST"/> | <input type="checkbox"/> | <input type="text" value="LAST"/> | | |
| Date of Birth | <input type="text" value="01/01/2003"/> | Age | <input type="text" value="17"/> | Gender | <input checked="" type="checkbox"/> X <input type="checkbox"/> |
| License # | <input type="text"/> | State | <input type="text"/> | Guardian | <input type="checkbox"/> Y <input type="checkbox"/> |

Incident Information

| | | | |
|---------------|---|---------------|--------------------------------------|
| Case | <input type="text" value="XXYY123456"/> | Incident Time | <input type="text" value="09:00"/> |
| Test Reason | <input type="text" value="OTHER"/> | | |
| Stop Location | <input type="text"/> | | |
| Town | <input type="text" value="PITTSFORD"/> | County | <input type="text" value="RUTLAND"/> |

Officer Information

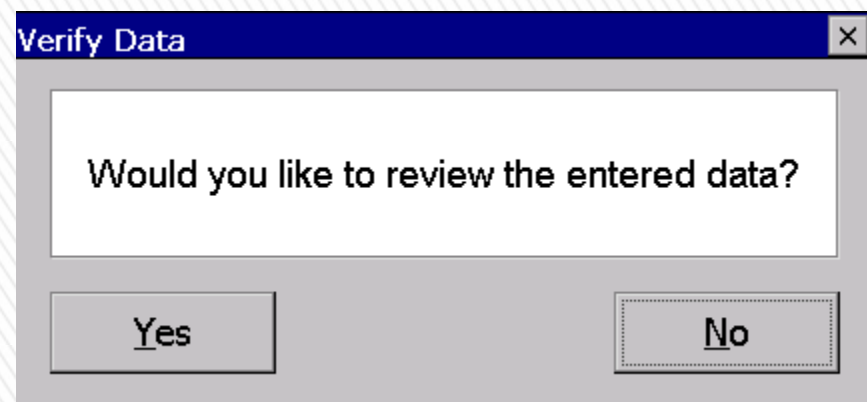
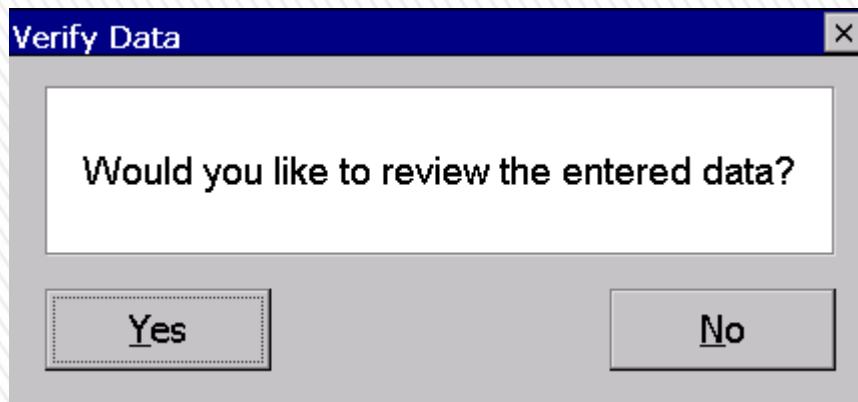
| | | | |
|---------------|--|--------------------------|---|
| Name (F/M /L) | <input type="text" value="OFFICER FIRST"/> | <input type="checkbox"/> | <input type="text" value="OFFICER LAST"/> |
| Agency | <input type="text" value="VFL"/> | VTC # | <input type="text" value="VTC ID"/> |

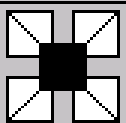
Cancel

OK

Instrument Operation

- Once all the subject information is entered, press OK to continue.
- A box will pop up which says “Review Data? Yes or No”.
- Select Yes, this will bring you back to the data entry screen. Ensure that all of the information is correct.
- Press OK to continue. The “Review Data?” box will pop up again, this time select No.





121706

Start Timer

Attention [X]

Ensure subject's mouth is free from foreign objects

OK

Copy



15 Minute Observation



- Visually observe the subject for any evidence of food, gum, tobacco, or any other foreign objects in the subject's mouth.
 - Do not stick your finger in the subject's mouth.
- **ASK** the subject if they have anything in their mouth.
- Have the individual remove any foreign objects from their mouth.
 - Tongue piercings and dentures may remain.

15 Minute Observation



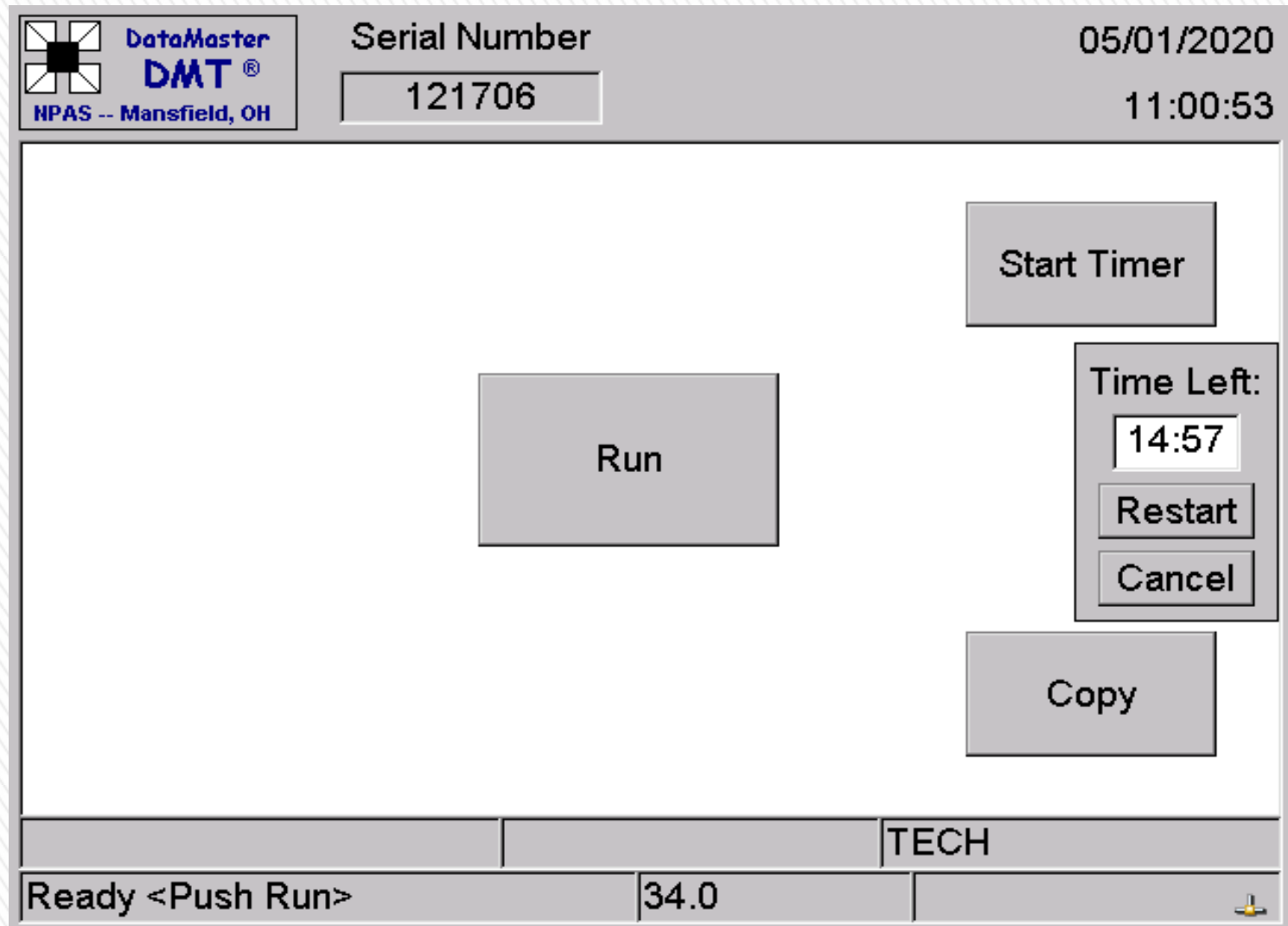
- Once you have checked their mouth, select “OK”.
- The DMT is programmed with a mandatory 15 minute observation timer which must be satisfied before a DUI test can be administered.
- The DMT will prompt, “Start Timer?”.
- Select “OK” to start the timer.

15 Minute Observation



- Observe the subject for 15 uninterrupted minutes. The subject must remain within visual and audio proximity for the entire 15 minutes preceding the test.
- During the observation period nothing may go in to, or come out of the mouth.
- The subject may not **BURP**, **BELCH** or **VOMIT**.

- If at any point, the observation needs to be restarted, select “Restart”.
- The timer may be restarted as many times as necessary.



- Each time the timer is restarted, a reason must be given.
- Each restart and the reason for the restart will be printed on the report.

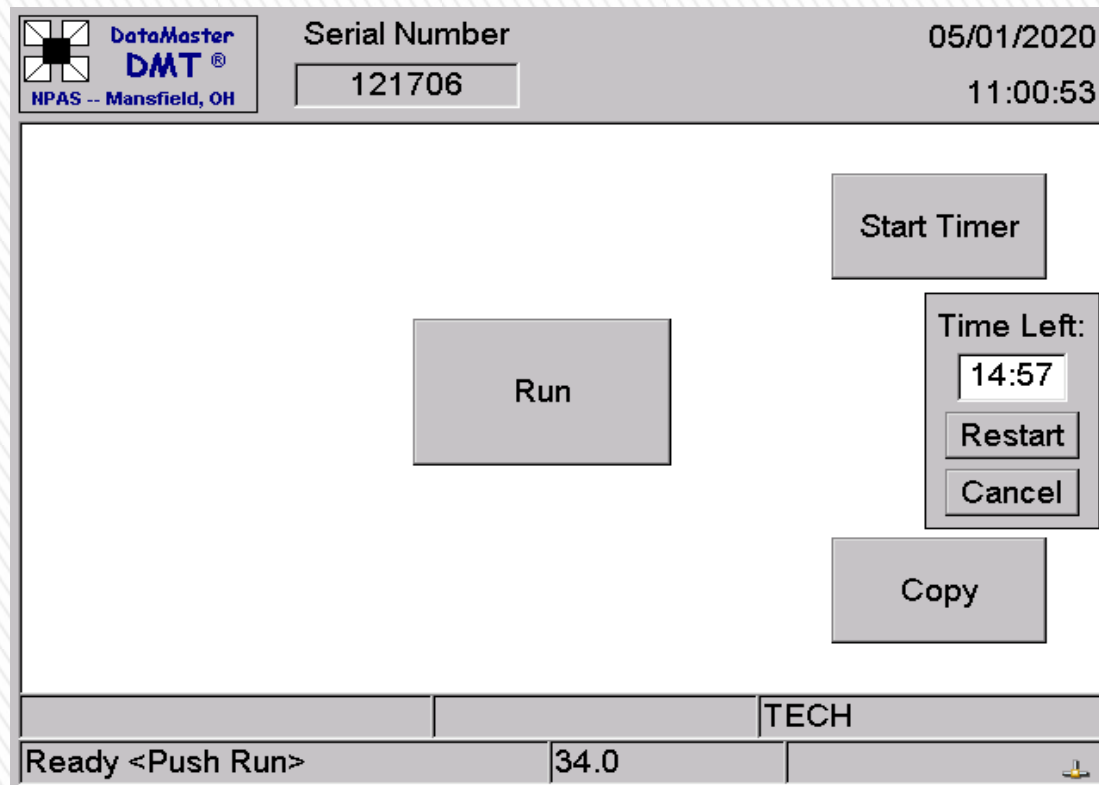
The screenshot displays the DataMaster DMT software interface. At the top left, the logo for DataMaster DMT is shown, with the text 'NPAS -- Mansfield, OH' below it. To the right of the logo, the 'Serial Number' is displayed as '121706'. Further right, the date '04/13/2020' and time '18:43:48' are shown. The main area of the interface contains several buttons: 'Start Timer', 'Copy', and 'Restart'. A 'Reason For Restart' dialog box is open, featuring a blue header and a text input field containing 'Subject burped'. Below the input field is an 'OK' button. To the right of the dialog box is a 'Time Left' section with an empty input field, 'Restart', and 'Cancel' buttons. At the bottom of the interface, a status bar shows 'Ready', '34.0', and a printer icon.



How closely must the subject be observed?

- That is up to your discretion. You, the officer, must be comfortable saying that you observed them for 15 minutes and are confident that the subject did not ingest or regurgitate alcohol.
- Observing does not necessarily mean keeping eye contact for 15 minutes but neither does it mean that you ignore them for 15 minutes while you go somewhere else.
- Many agencies videotape their processing.
- Remember that others will watch your observation period. Will it seem valid to them?
- You must be able to defend it!

- You may also begin the 15 minute timer before you press the RUN button.
- Press the “Start Timer” radio button located on the DMT home screen.
- After checking the subject’s mouth, a small pop-up box will appear with a 15 minute timer counting down.
- The DMT will remain idle until the 15 minute timer is satisfied.





As the timer nears completion:

Officer: *“Have you burped, belched or vomited in the last 15 minutes?”*

Subject: *“No”*

Proceed with the test.

Officer: *“Have you burped, belched or vomited in the last 15 minutes?”*

Subject: *“Yes”*

Restart the observation period.

If this keeps happening it may be considered a refusal. A person can refuse through their actions as well as through their words.

- Once the timer has been satisfied, the instrument will automatically begin its quality control checks.
- Before analysis begins, the DMT:
 - Checks its components for function
 - Checks the detector response
 - Checks its heated zones
- A purge cycle is completed to clean the sample chamber and breath tube prior to testing.
- Ambient zeroing is performed to adjust the baseline to room air.

Quality Control Checks

- **Blank** tests are run at the beginning of the test sequence and after vapors are introduced.
- Blank tests are run to ensure the sample chamber is free of alcohol.
- Acceptable results will read **0.000**.

- The DMT analyzes a quartz plate for its **Calibration Check**.
- The calibration check is run to confirm the stability of the calibration.
- An acceptable result for the calibration check will display **PASSED**.

Quality Control Checks

- An artificial breath sample is provided by the simulator and is analyzed as a control sample.
- This will be reported as the **simulator vapor** with a result indicated on all reports.
- A simulator solution at an approximate ethanol concentration of 0.100 is used.

- The simulator vapor result has an acceptance range of **$\pm 5\%$** of the certified value.
- The simulator temperature must also read **$34.0^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$** .

Quality Control Checks



Purge

Ambient Zeroing

Blank Test ← 0.000

Calibration Check ← PASSED

Simulator Vapor ← $\sim 0.100 \pm 5\%$

Simulator Temperature ← $34.0^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$

Purge

Ambient Zeroing

Blank Test ← 0.000

If any of the checks do not meet the acceptance criteria, the test will be aborted and the reason printed on the ticket.



DUI Subject Test

TEST OFFICER NAME:

OFFICER NAME

AGENCY: VFL

Obs. Period Start: 11:20

BLANK TEST 0.000 11:36

CALIBRATION CHECK PASSED 11:36

SIMULATOR VAPOR 34.0°C 0.104 11:37

BLANK TEST 0.000 11:37

All alcohol values reported in g/210L

Sim. Vapor Concentration 0.100

Sim. Vapor Range 0.095 - 0.105

Lot #: TEST

- The instrument will prompt “Subject take test? Yes or No”.
 - If you press No, a box will pop up with two options, **Refusal** or **Incapable**.
 - If the subject refuses to take the test, select **Refusal**.
 - If the subject is physically incapable of providing a sufficient sample of air, select **Incapable**. In this instance, you may request an evidentiary blood test.
 - Once you select **Refusal** or **Incapable**, another box will pop up asking for the reason. Type in a reason why the subject did not take the test.

All Refusals should be documented this way

TEST OFFICER NAME:
JEFFERY DUKETTE
AGENCY: VFL

Obs. Peri
BLANK TES
CALIBRATI
SIMULATOR
BLANK TES
All alcoh
Sim. Vapor concentration
Sim. Vapor Range
Lot #: TEST

Attention [X]

Will subject take test?

0.100
0.095 - 0.105

DUI Subject Test

TEST OFFICER NAME:

OFFICER NAME

AGENCY: VFL

Obs. Period

BLANK TEST
CALIBRATION
SIMULATOR VA
BLANK TEST

All alcohol

Sim. Vapor Concentration 0.100

Sim. Vapor Range 0.095 - 0.105

Lot #: TEST

Reason for Refusal [X]

DUI Subject Test

TEST OFFICER NAME:

OFFICER NAME

AGENCY: VFL

Obs. Period Start

Reason for Refusal

BLANK TEST

CALIBRATION CHECK

SIMULATOR VAPOR

BLANK TEST

Reason

Subject will not take test

OK

All alcohol val

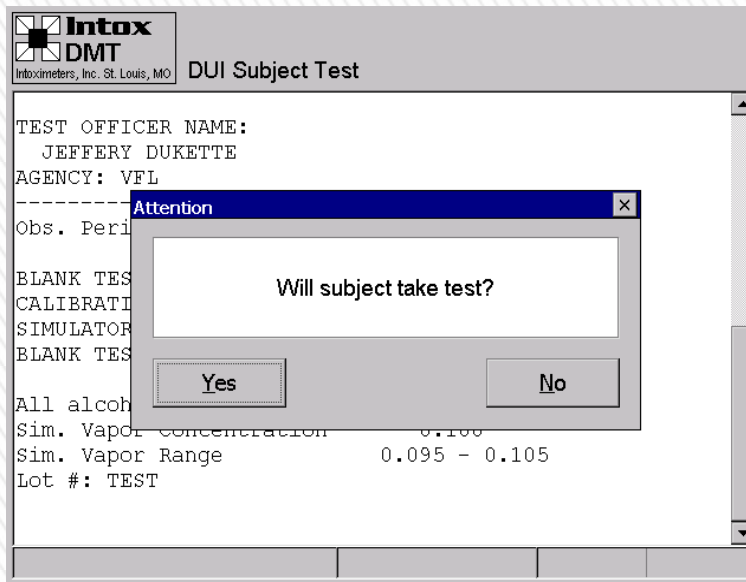
Sim. Vapor Concentration 0.100

Sim. Vapor Range 0.095 - 0.105

Lot #: TEST

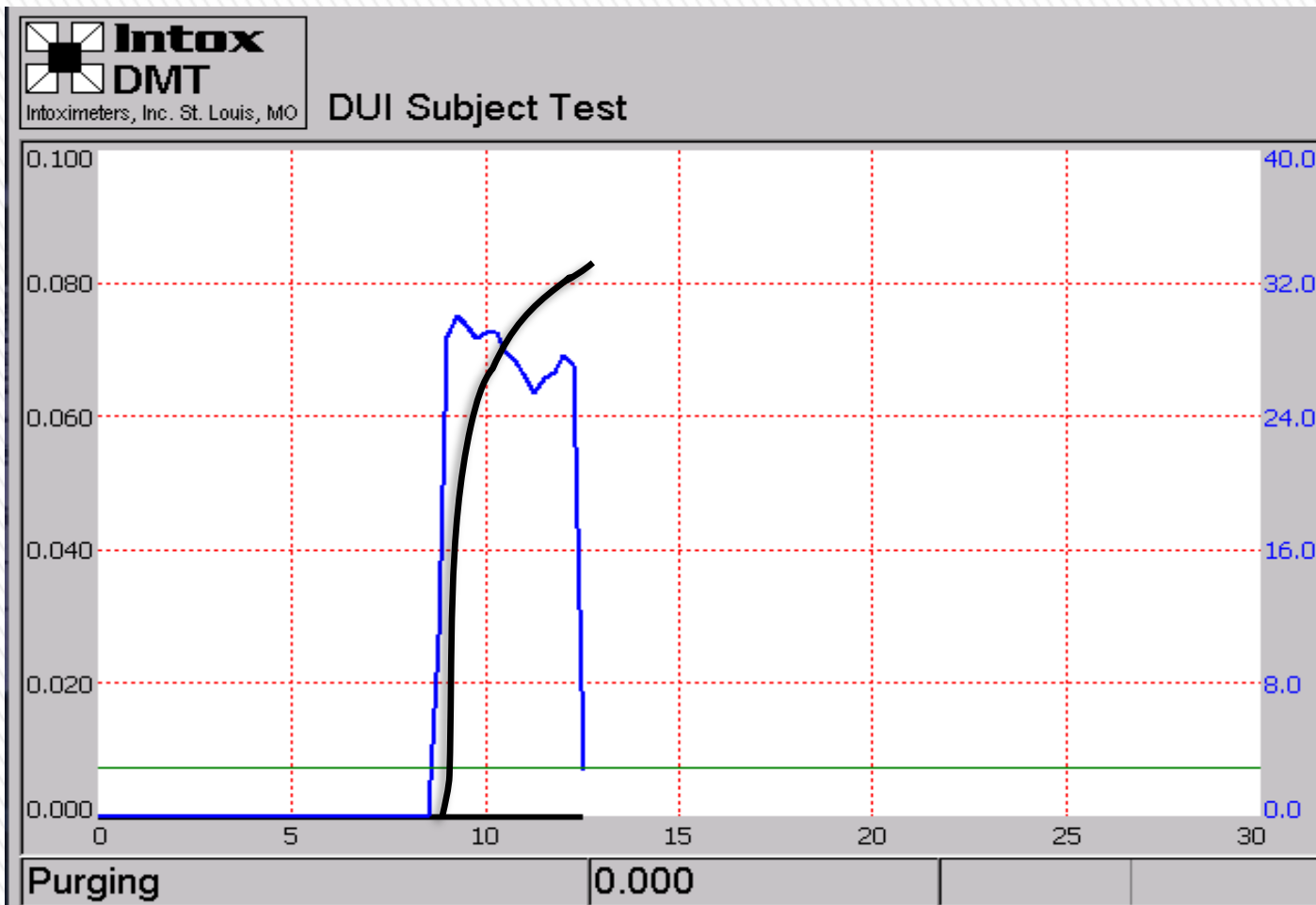
Instrument Operation

- When the instrument prompts “Will subject take test? Yes or No”.
 - Select Yes, the instrument will then flash “Please Blow” and an intermittent tone will be heard.
 - Insert a new mouth piece into the breath tube.
 - Instruct the subject to blow a steady, continuous breath.
 - You should hold the breath tube, NOT the subject



- As the subject meets the minimum flow rate, the tone will become constant.
- An individual should be allowed to deliver a sample for as long as they are able.
- The sample acceptance criteria are programmed into the instrument to determine if an adequate sample has been obtained
- The subject must provide a minimum of **1.5L** of air. DO NOT tell the subject to stop blowing.

- While the subject is blowing, you will be able to see the breath (black) and ethanol (blue) curves in real time.
- There is also a green line across the bottom indicating the minimum flow rate that must be achieved
 - This line may be useful in documenting an incapable or refusal



Instrument Operation

- Once an adequate sample is accepted, **immediately** remove the mouth piece from the breath tube and discard it.
- The DMT will then go through some additional checks
- Once the sample is analyzed, the DMT will display the subject's breath ethanol concentration on the screen.
- **Inform the subject of their results and ask if they want a second test.**
- The instrument will prompt "Will subject provide another sample? Yes or No".

Will subject provide another sample?

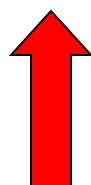
Yes

No

Obs. period start.

13:21

| | | |
|---------------------------|--------|-------|
| BLANK TEST | 0.000 | 13:37 |
| CALIBRATION CHECK | PASSED | 13:37 |
| SIMULATOR VAPOR | 0.098 | 13:37 |
| BLANK TEST | 0.000 | 13:38 |
| SUBJECT SAMPLE (Vol=1.6L) | 0.082 | 13:39 |



0.000



- If **No** is selected, the test sequence ends.
- If **Yes** is selected, the instrument will again perform its quality control checks.

Purge

Ambient Zeroing

Blank Test

Calibration Check

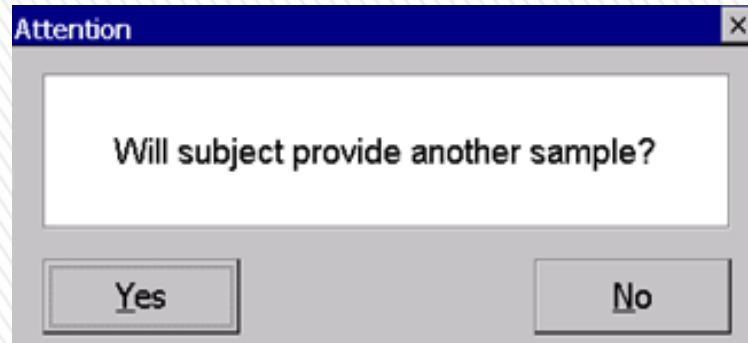
Simulator Vapor

Purge

Ambient Zeroing

Blank Test

- After the checks are complete the DMT will **again** prompt



- If No is selected, the test sequence ends and report prints.
- If Yes is selected, a second breath test may be given.
 - Insert a new mouth piece into the breath tube.
 - Instruct the subject to provide a second sample just as before.
 - Remember to remove the mouthpiece after sample delivery and discard it

» Place of Last Drink (POLD)

- Upon completion of the testing sequence, the DMT will prompt “Did your investigation determine that the place of last drink for this arrest was a licensed liquor establishment or permitted event? Yes or No”.
- If, during the course of your investigation, you learned that the subject’s place of last drink took place at one of these locations, select “Yes”.
- If you learned the subject’s place of last drink did not occur at one of these locations or you do not know where the subject’s place of last drink took place, select “No”.

THIS IS A QUESTION FOR THE YOU, THE OFFICER.

DO NOT ASK THE SUBJECT AT THIS POINT IN YOUR INVESTIGATION.

DUI Subject Test

JEFFERY DUKETTE

AGENCY: VFL

Obs. Period Starts

17:40

BLANK TEST

CALIBRATION

SIMULATOR

BLANK TEST

SUBJECT S

All alcohol

Sim. Vapor

Sim. Vapor Range

0.095 - 0.105

Lot #: TEST

Attention [X]

Did your investigation determine that the place of last drink for this arrest was a licensed liquor establishment or permitted event?

Yes No



DUI SUBJECT TEST

STATE OF VERMONT

DataMaster DMT: 121706
 Location: VFL
 Certification Date: 08/30/2019
 Installation Date: 11/06/2019

Date: 11/12/2019
 Time: 15:37:22

SUBJECT NAME:
 TEST TEST
 DOB: 01/01/1990 AGE: 29
 GENDER: X

CASE #: 1234567
 TIME OF OPERATION: 09:00
 TOWN: WATERBURY
 COUNTY: WASHINGTON

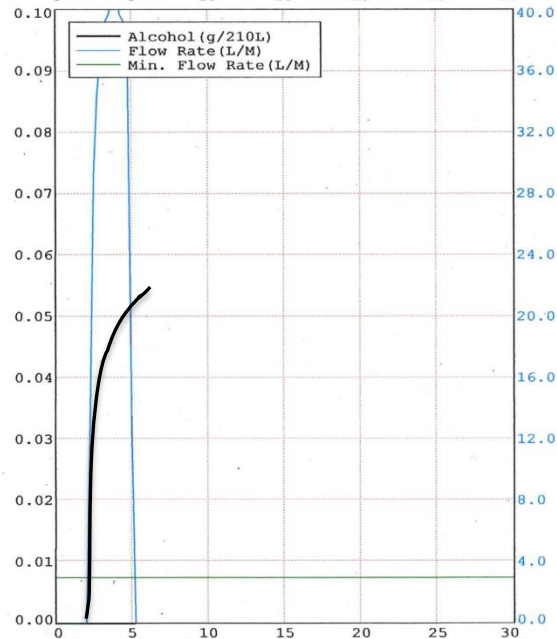
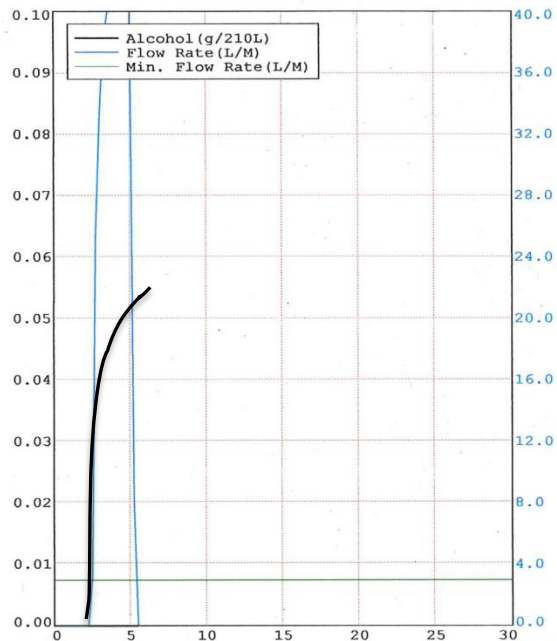
TEST OPERATOR NAME:
 JEFFERY DUKETTE
 AGENCY: VFL

Obs. Period Start: 15:22

| | | |
|---------------------------|--------|-------|
| BLANK TEST | 0.000 | 15:38 |
| CALIBRATION CHECK | PASSED | 15:38 |
| SIMULATOR VAPOR 34.0°C | 0.096 | 15:38 |
| BLANK TEST | 0.000 | 15:39 |
| SUBJECT SAMPLE (Vol=1.7L) | 0.000 | 15:40 |

| | | |
|---------------------------|--------|-------|
| BLANK TEST | 0.000 | 15:41 |
| CALIBRATION CHECK | PASSED | 15:41 |
| SIMULATOR VAPOR 34.0°C | 0.096 | 15:41 |
| BLANK TEST | 0.000 | 15:42 |
| SUBJECT SAMPLE (Vol=1.7L) | 0.000 | 15:42 |

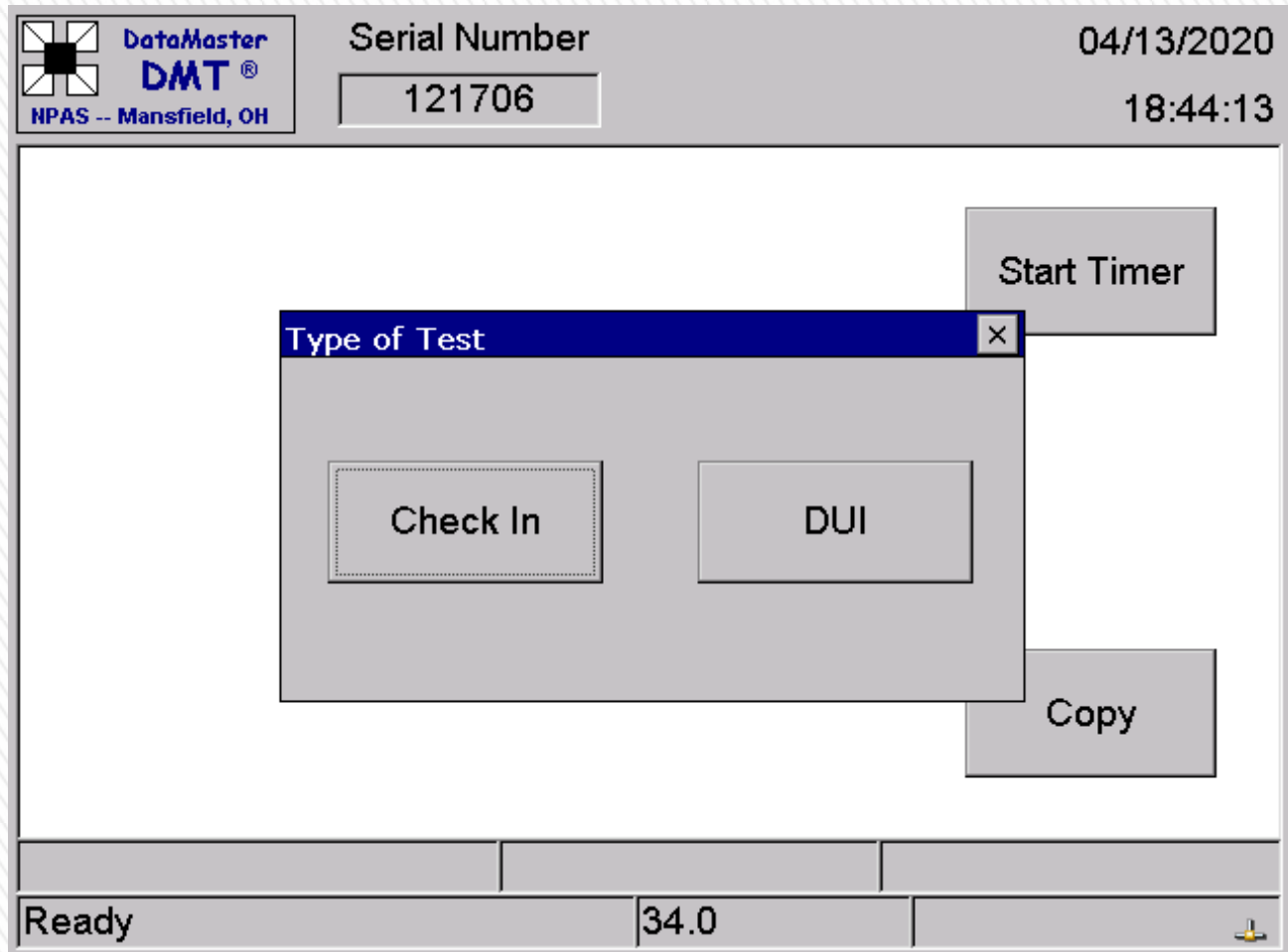
All alcohol values reported in g/210L
 Sim. Vapor Concentration 0.101
 Sim. Vapor Range 0.096 - 0.106
 Lot #: TEST



- The evidence report is printed in triplicate at completion of the test sequence.
 - Retained with the rest of the case paperwork for submission to the State's Attorney.
 - Retained by the arresting officer.
 - Given to the subject.
- **Any error records obtained during the DMT processing should be included in the case record and passed along to appropriate parties.**



- Select the **CHECK-IN** box from the “Type of Test” window.





- Visually observe the subject for any evidence of food, gum, tobacco, or any other foreign objects in the subject's mouth
 - Do not stick your finger in the subject's mouth
- **ASK** the subject if they have anything in their mouth
- Have the individual remove any foreign objects from their mouth
 - Tongue piercings and dentures may remain

Subject Information

| | | | |
|----------------------|---|--------------------------|----------------------|
| Name (F/M /L) | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Date of Birth | <input type="text" value="MM/dd/yyyy"/> | Age | <input type="text"/> |
| License # | <input type="text"/> | State | <input type="text"/> |
| | | Gender | <input type="text"/> |
| | | Guardian | <input type="text"/> |

Officer Information

| | | | |
|----------------------|----------------------|--------------------------|----------------------|
| Name (F/M /L) | <input type="text"/> | <input type="checkbox"/> | <input type="text"/> |
| Agency | <input type="text"/> | | VTC # |
| | | | <input type="text"/> |

Cancel

OK

Subject Information

| | | | | | | |
|----------------------|--|--------------------------|---|-----------------|-------------------------------------|----------------------------------|
| Name (F/M /L) | <input type="text" value="SUBJECT FIRST"/> | <input type="checkbox"/> | <input type="text" value="SUBJECT LAST"/> | | | |
| Date of Birth | <input type="text" value="01/01/2003"/> | Age | <input type="text" value="17"/> | Gender | <input checked="" type="checkbox"/> | <input type="button" value="▼"/> |
| License # | <input type="text"/> | State | <input type="text"/> | Guardian | <input type="checkbox"/> | <input type="button" value="▼"/> |

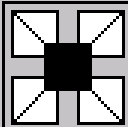
Officer Information

| | | | | |
|----------------------|--|----------------------------------|---|-------------------------------------|
| Name (F/M /L) | <input type="text" value="OFFICER FIRST"/> | <input type="checkbox"/> | <input type="text" value="OFFICER LAST"/> | |
| Agency | <input type="text" value="VFL"/> | <input type="button" value="▼"/> | VTC # | <input type="text" value="VTC ID"/> |

Cancel

OK

- Review the information entered for accuracy
- The DMT will perform a series of self checks.
- Once all the checks have passed, the DMT will prompt “Please Blow”.
- Insert a new mouth piece into the breath tube.
- Instruct the subject to provide a steady, continuous breath.
- An intermittent tone will be heard. As the subject meets the minimum flow rate, the tone will become constant.



DataMaster

DMT®

NPAS -- Mansfield, OH

Check-In Confirmation Test

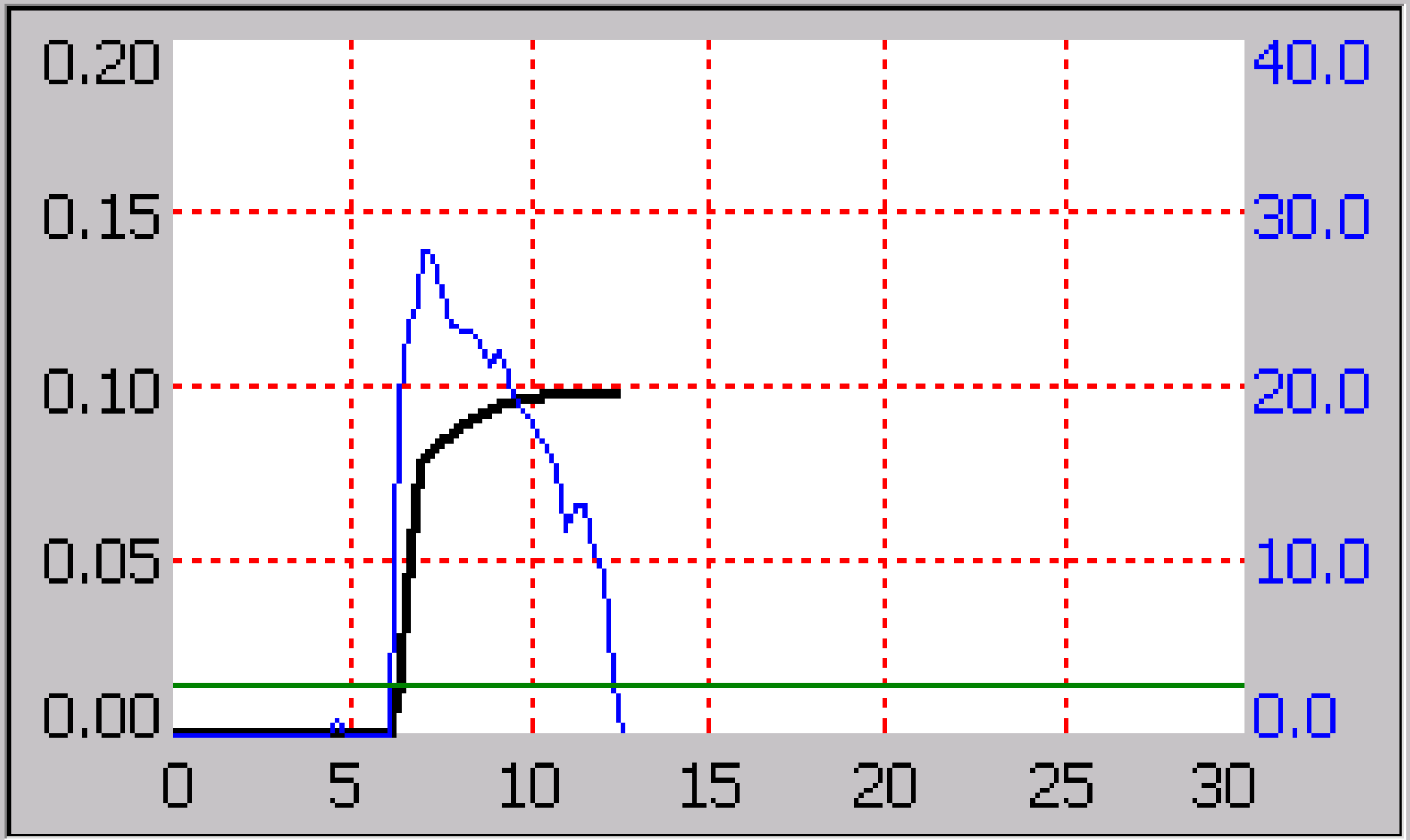
Subject Name: FIRST M LAST
Date of Birth: 09/09/1979 Age: 30
Gender: M
License #:

Test Operator Name: YOUR NAME
Agency: ADDISON COUNTY SO

| | | |
|-------------------|--------|-------|
| BLANK TEST | 0.000 | 15:59 |
| CALIBRATION CHECK | PASSED | 15:59 |
| SIMULATOR VAPOR | 0.103 | 16:00 |
| BLANK TEST | 0.000 | 16:00 |

Blank Test 0.000

Check-In Confirmation Test



Analyzing

0.072

1.5L

- Once an adequate sample is accepted, **immediately** remove the mouth piece from the breath tube and discard it.
- The DMT will then go through some additional checks
- Once the sample is analyzed, the DMT will display the subject's breath ethanol concentration on the screen.

- The evidence report is printed in triplicate at completion of the test sequence.
 - Retained with the rest of the case paperwork for submission to the State's Attorney.
 - Retained by the arresting officer.
 - Given to the subject.
- **Any error records obtained during the DMT processing should be included in the case record and passed along to appropriate parties.**





CHECK-IN CONFIRMATION TEST

STATE OF VERMONT

DataMaster DMT: 121706
Location: VFL
Certification Date: 08/30/2019
Installation Date: 11/06/2019

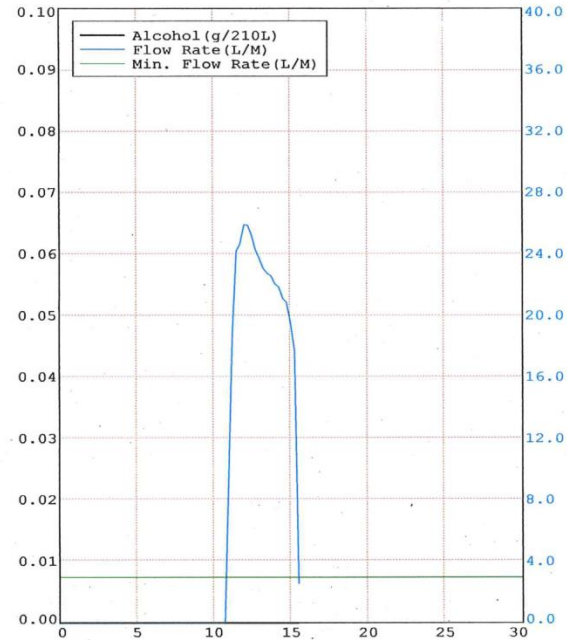
Date: 01/02/2020
Time: 15:40:18

SUBJECT NAME:
TEST TEST
DOB: 01/01/1990 AGE: 30
GENDER: X

TEST OFFICER NAME:
SARAH STRATTON
AGENCY: VFL

| | | |
|---------------------------|--------|-------|
| BLANK TEST | 0.000 | 15:41 |
| CALIBRATION CHECK | PASSED | 15:41 |
| SIMULATOR VAPOR 34.0°C | 0.095 | 15:41 |
| SUBJECT SAMPLE (Vol=1.6L) | 0.000 | 15:42 |
| BLANK TEST | 0.000 | 15:43 |

All alcohol values reported in g/210L
Sim. Vapor Concentration 0.100
Sim. Vapor Range 0.095 - 0.105
Lot #: TEST



- Differences between a Check-In and DUI?
 - No incident information on the data entry screen
 - No 15 minute observation period for a Check-In
 - Although you should still check the subject's mouth for foreign material
 - No option for refusal
 - No opportunity for a second test



Time Limits



- Once the 15 minute observation timer is satisfied, the DMT will allow an additional **ten (10) minutes to press the “Run” button and begin data entry.**
 - If the “Run” button is not pressed in this timeframe, the 15 minute observation timer will need to be restarted.
- When prompted to enter data, **five (5) minutes is allotted.** If data entry is not finished within the five (5) minutes the instrument will return to “Ready, Push Run”.
- When prompted to make a decision such as “Will Subject Take Test? Yes or No” or “Use Previous Data”, **one (1) minute** is allotted.
- When prompted “PLEASE BLOW” the subject will have **two (2) minutes** to provide a breath sample.

Atypical Results, Common Error Conditions, and Appropriate Responses



DMT Quick Troubleshooting Guide


Blank Error or Ambient Fail

The DMT is detecting apparent alcohol in the room air

- Remove mouthpiece from DMT and move the subject away from the DMT and draw fresh air into the room by opening a door or turning on a fan
- Ensure there are no external sources of alcohol in the processing room (e.g. hand sanitizer, cleaning reagents, alcohol prep pads, etc)

BUSY - Please Wait

DMT froze while attempting to upload records to the server

- Allow ~1 minute for this message to go away. Do not push any buttons or attempt to run tests on the DMT when this message is displayed.
- If the error persists for longer than 1 minute, power off the DMT using the switch on the back and wait ~30 seconds. Turn the DMT back on. Wait the required ~5 minutes for the DMT to boot up without pushing any buttons or initiating a test
- Verify connection is restored by observing a  symbol in the lower right hand corner of screen

Incomplete

The subject did not provide an adequate sample in the allotted time

- Instruct the subject in the proper technique (deep breath, create tight seal with their lips, and continue to blow a long, continuous breath)
- Allow subject to try the test again. There are three 2-minute windows to provide a sample followed by QC checks and then three additional 2-minute windows
- INCAPABLE - Subject physically *cannot* provide an adequate sample. You may request a blood sample
- REFUSAL - Subject *will not* provide an adequate sample. Based on *your* experience, you may deem this a refusal and proceed as such

Interference

There may be something other than ethanol in the sample

- You **DO NOT** need to observe another 15 minute observation period
- Allow subject to provide another sample.
- If you get INTERFERENCE again, you may request a blood sample

Invalid

Subject breath profile did not meet sample acceptance criteria

- Restart the 15 minute observation period. Ensure the mouth is free from foreign objects.
- Instruct the subject in the proper technique for providing a sample (deep breath, create tight seal with their lips, and continue to blow a steady, continuous breath)
- Allow subject to provide another sample
- NOTE: Huffing and puffing may cause invalid sample results. Ensure subject provides proper breath sample

Printer Error

The connection between the DMT and printer has been broken

- **IN THIS ORDER:**
- Ensure the printer is plugged in to the wall and the cord connections between the DMT and printer are secure
- Verify the printer is ready (i.e. paper and ink supply are good and there are no error lights present)
- Power off the DMT using the switch on the back and wait ~30 seconds. Turn the DMT back on
- A message will pop up looking for a USB driver. Click the "x" in the top right corner or ignore this message. **DO NOT** enter anything into this box
- Once the DMT is back online, press copy to verify printer function. This will print a copy of the most recent DMT test ticket

Pump Error

Air flow through the DMT is restricted

- Most commonly occurs when a mouth piece is put on too early or left on after a breath test
- Verify there is not a mouthpiece in the breath tube and visually check the end of the breath tube to ensure there are no obstructions

RF Detected

Radiofrequency was detected during the testing sequence

- Ensure any radio transmitters in and around the processing area are turned off and try test again

Simulator Out of Range

The simulator vapor concentration is not within 5% of the target

- Move the subject away from the DMT and try the test again
- If the simulator vapor is still out of range, move on to another agency

Simulator Temp Unknown

Simulator temperature is not being read by the DMT correctly

- Ensure the cord connecting the DMT and the simulator is connected and secure
- Power off the simulator using the switch on top of the simulator and turn it back on
- Power off the DMT using the switch on the back and wait ~30 seconds. Turn the DMT back on. If connection is not restored, go to another agency.

Incomplete Sample >>>

- Incomplete: The subject did not provide an adequate sample in the allotted time.

| | | |
|------------------------|------------|-------|
| BLANK TEST | 0.000 | 14:29 |
| CALIBRATION CHECK | PASSED | 14:29 |
| SIMULATOR VAPOR 34.0°C | 0.099 | 14:29 |
| BLANK TEST | 0.000 | 14:30 |
| SUBJECT SAMPLE | INCOMPLETE | 14:32 |
| BLANK TEST | 0.000 | 14:33 |

- Instruct the subject in the proper technique (deep breath, create tight seal with their lips, and continue to blow a steady, continuous breath).
- **Allow subject to try the test again.** There are three 2-minute windows to provide a sample followed by quality control checks and then three additional 2-minute windows.
- INCAPABLE - Subject physically cannot provide an adequate sample. You may proceed as a DUI – Blood case and request a blood sample.
- REFUSAL - Subject will not provide an adequate sample. Based on your experience, you may deem this a refusal and proceed as such.

Incomplete Sample

- After three failed attempts the instrument will rerun its quality control checks.
- The subject will then have three more chances to provide an adequate breath sample.
- Each failed two minute attempt will be documented on the report as INCOMPLETE.
- The subject has a total of 6, 2-minute opportunities to provide an adequate sample.



DUI SUBJECT TEST

STATE OF VERMONT

DataMaster DMT: 121706
Location: VFL
Certification Date: 08/30/2019
Installation Date: 01/03/2020

Date: 01/14/2020
Time: 14:28:30

SUBJECT NAME:
TEST TEST
DOB: 01/01/1990 AGE: 30
GENDER: X

CASE #: 1234567
TIME OF INCIDENT: 09:00
TOWN: WATERBURY
COUNTY: WASHINGTON

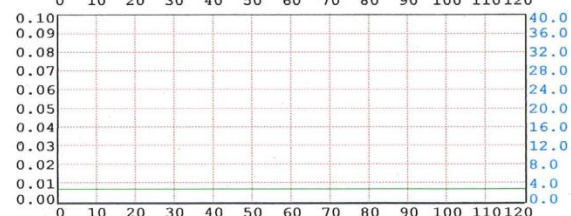
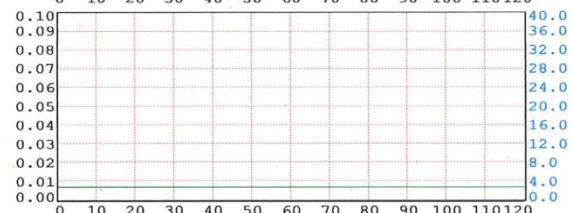
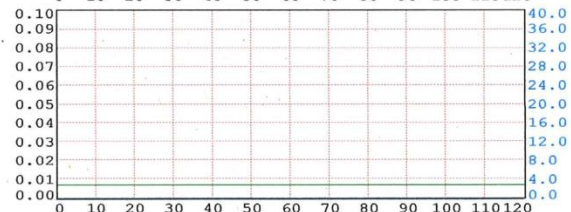
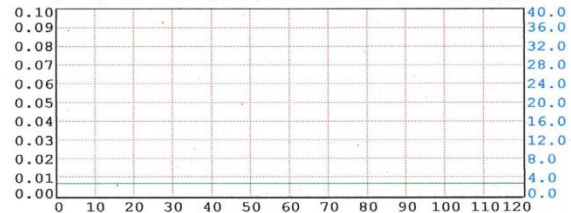
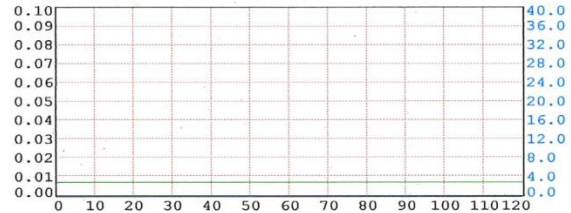
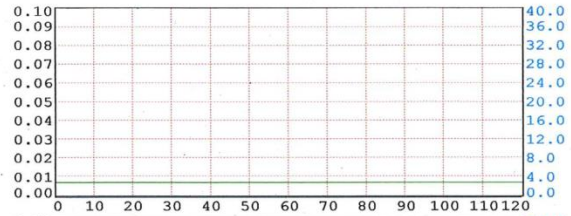
TEST OFFICER NAME:
SARAH STRATTON
AGENCY: VFL

Obs. Period Start: 14:13

| | | |
|------------------------|------------|-------|
| BLANK TEST | 0.000 | 14:29 |
| CALIBRATION CHECK | PASSED | 14:29 |
| SIMULATOR VAPOR 34.0°C | 0.099 | 14:29 |
| BLANK TEST | 0.000 | 14:30 |
| SUBJECT SAMPLE | INCOMPLETE | 14:32 |
| BLANK TEST | 0.000 | 14:33 |
| SUBJECT SAMPLE | INCOMPLETE | 14:35 |
| BLANK TEST | 0.000 | 14:36 |
| SUBJECT SAMPLE | INCOMPLETE | 14:38 |

| | | |
|------------------------|------------|-------|
| BLANK TEST | 0.000 | 14:39 |
| CALIBRATION CHECK | PASSED | 14:39 |
| SIMULATOR VAPOR 34.0°C | 0.100 | 14:39 |
| BLANK TEST | 0.000 | 14:40 |
| SUBJECT SAMPLE | INCOMPLETE | 14:42 |
| BLANK TEST | 0.000 | 14:43 |
| SUBJECT SAMPLE | INCOMPLETE | 14:45 |
| BLANK TEST | 0.000 | 14:46 |
| SUBJECT SAMPLE | INCOMPLETE | 14:48 |

All alcohol values reported in g/210L
Sim. Vapor Concentration 0.100
Sim. Vapor Range 0.095 - 0.105
Lot #: TEST



Interference >>>

- Interference (subject sample): This message indicates there may be a chemical present in the sample other than ethanol.

```
BLANK TEST          0.000  13:53
CALIBRATION CHECK  PASSED  13:53
SIMULATOR VAPOR 34.0°C  0.098  13:53
BLANK TEST          0.000  13:54
SUBJECT SAMPLE      INTERFERENCE  13:55
```

- Allow the subject provide a second sample.
- It is NOT necessary to restart the fifteen (15) minute observation period.
- If the second sample also reports INTERFERENCE, you may proceed as a DUI – Blood case and request a blood sample.

Will subject provide another sample?

Yes

No

| | | |
|-------------------|--------------|-------|
| BLANK TEST | 0.000 | 15:36 |
| SUBJECT SAMPLE | INTERFERENCE | 15:52 |
| | | 15:52 |
| | | 15:52 |
| | | 15:53 |
| | | 15:54 |
| BLANK TEST | 0.000 | 15:55 |
| CALIBRATION CHECK | PASSED | 15:55 |
| SIMULATOR VAPOR | 0.102 | 15:55 |
| BLANK TEST | 0.000 | 15:56 |

Invalid Sample

- Invalid: Subject breath profile did not meet the sample acceptance criteria.

| | | |
|------------------------|---------|-------|
| BLANK TEST | 0.000 | 14:56 |
| CALIBRATION CHECK | PASSED | 14:57 |
| SIMULATOR VAPOR 34.0°C | 0.099 | 14:57 |
| BLANK TEST | 0.000 | 14:58 |
| SUBJECT SAMPLE | INVALID | 14:58 |

- **The testing sequence will automatically abort.**
- Ensure there are no possible contamination sources in the processing area (e.g. hand sanitizer, alcohol based cleaning reagents, alcohol prep pads, etc.).
- Ensure their mouth is free from foreign objects.
- **Restart the 15 minute observation period.**
- Instruct the subject again in the proper technique for providing a sample (deep breath, create a tight seal with their lips, and continue to blow a steady, continuous breath).

Note: Huffing and puffing may cause an invalid sample.

- Allow the subject to provide another sample.

Radio Frequency Detected

- RF Detected: Radiofrequency was detected during the testing sequence.
 - **The DMT is not immune to radio frequencies.**
 - There is an antenna in the breath tube of the DMT.
 - If a transmission is detected, the testing sequence will be aborted.
 - Ensure any radio transmitters in and around the processing area are turned off and try test again.
 - Try the test again.

Ambient Fail / Blank Error

- Blank Error or Ambient Fail: The instrument is detecting apparent alcohol in the air.
 - Move the subject away from the DMT and draw fresh air into the room by opening a door or window or turning on a fan.
 - Remove the mouthpiece from the breath tube, if attached.
 - Remove possible contamination sources from the processing area (e.g. hand sanitizer, cleaning reagents, alcohol prep pads, etc.).
 - Try the test again.

Simulator Errors

- **Simulator Out of Range:** The simulator vapor concentration is not within 5% of the target.
- **Simulator Time Out:** The simulator took too long to reach plateau while running a simulator vapor test.
 - Move the subject away from the DMT and try the test again.
 - If the simulator vapor is still out of range, move on to another agency.

Other Common Errors

- Pump Error: Air flow through the DMT is restricted.
 - Most commonly occurs when a mouth piece is put on too early or left on after a breath test.
 - Verify there is not a mouthpiece in the breath tube and visually check the end of the breath tube to ensure there are no obstructions.
- Suck Back Error: Air flow is in the reverse direction during a subject sample delivery.
 - Restart the testing sequence. When prompted to use previous timer and use previous data, select “YES”.
 - Instruct the subject again on proper sample delivery.

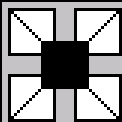


- **Incorrect Date**
- **Incorrect Time**
- For both of these:
 - When the reports print, place a single line through the incorrect information and write in the correction on all three copies.
 - Mark with your initials and date.
 - Document the discrepancy on your processing form.

Notify your DMT Supervisor if these conditions exist

Printing Problems

- Printer Error: The instrument is unable to communicate with the printer.
 - Follow these steps in this **EXACT ORDER**.
 - Ensure the printer is plugged in to the wall and the cord connections between the DMT and printer are secure.
 - Verify the printer is in proper working order (i.e. paper and ink supply are good and there are no error lights present).
 - Power off the DMT using the switch on the back and wait approximately 30 seconds. Turn the DMT back on.
 - A message will pop up looking for a USB driver. Click the "x" in the top right corner or ignore this message. DO NOT enter anything into this box.
 - Once the DMT is back online, press copy to verify printer function. This will print a copy of the most recent DMT test ticket.
- If, after several attempts, you are unable to get a readable report contact your DMT Supervisor. They have access to reprinting prior reports.



DataMaster

DMT®

NPAS -- Mansfield, OH

Serial Number

102506

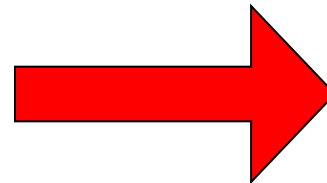
April 02, 2008

12:34:12

Start Timer

RUN

Copy

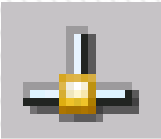


Ready

SIM: 33.7 C

BUSY – Please Wait >>>

- BUSY – Please Wait: The DMT froze while attempting to upload records to the intranet.
 - Allow at least one minute for this message to go away. Do not push any buttons or attempt to run tests on the DMT while this message is displayed.
 - If the message persists for longer than one (1) minute, power off the DMT and wait approximately 30 seconds then turn DMT back on.
 - Wait for the DMT to warm back up (approximately five (5) minutes) without pressing any additional buttons or initiating a test.
 - Verify connection is restored by observing a symbol in the lower right hand corner of screen.



Error Conditions

- **When receiving an error message it is permissible to retry the test.**
- If the second attempt results in a passing test, the subject results are acceptable.
- If the error reoccurs, it is recommended that the subject be taken to another agency, if another agency is reasonably available.
- DMT Supervisors should be made aware of any errors, even if the issue is resolved.

Error Conditions

- Any and all reports generated during a testing sequence including those displaying errors should be retained with the case file.
- Some error messages may require a DMT Supervisor or VFL staff to inspect and/or service an instrument.
- When encountering error messages that cannot be remedied, post “OUT OF SERVICE” on the DMT and leave a **detailed** message for your DMT Supervisor.

Error Conditions >>>

- 23 VSA 1202. d(5) A person who is requested by a law enforcement officer to submit to an evidentiary test administered with an infrared breath-testing instrument may elect to have a second infrared test administered immediately after receiving the results of the first test.
- **If a subject requests a second breath test, get them a second test!**
- **If you have to go to another DMT, get TWO new tests!**

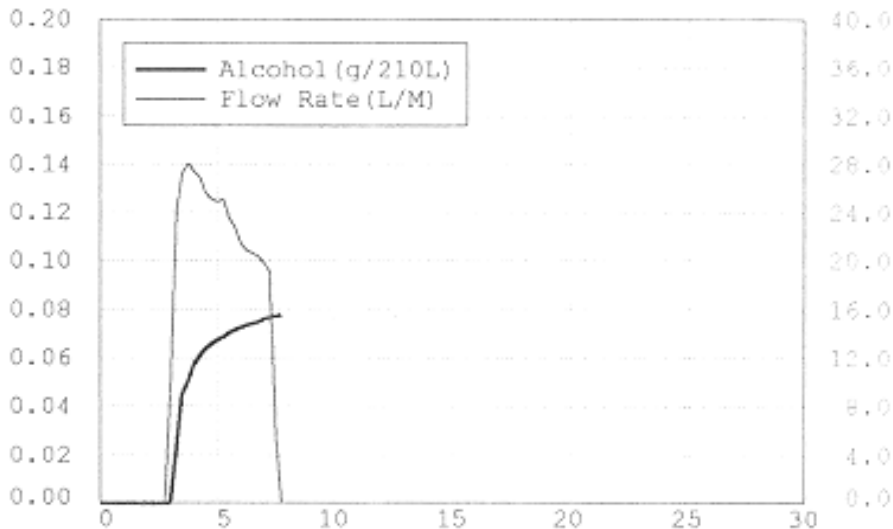
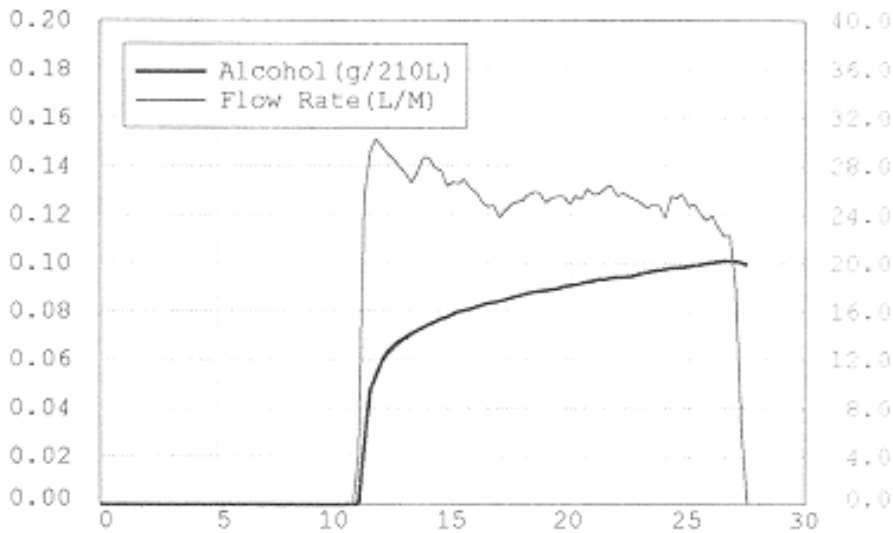
Practice Scenarios >

June 2020

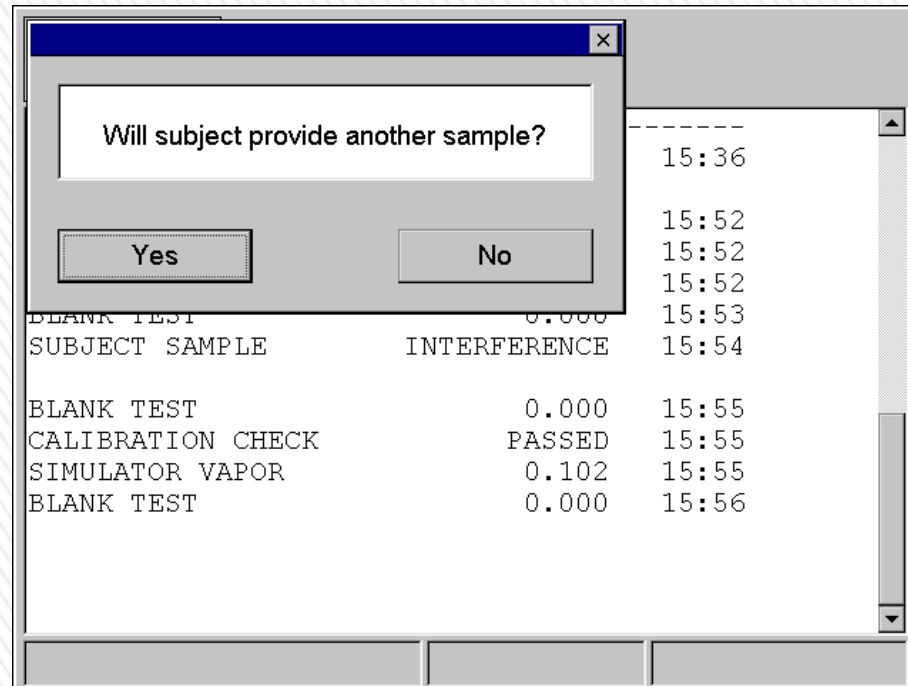
- 2 Successful Tests with Results Like This:
 - Test 1: 0.119
 - Test 2: 0.138
- Vermont requires one (1) test. There are no requirements that the two tests be within any amount.
- There is human variability in giving a breath sample.
- **Meeting** minimum sample acceptance requirements vs. **exceeding** sample acceptance requirements.

Practice Scenarios

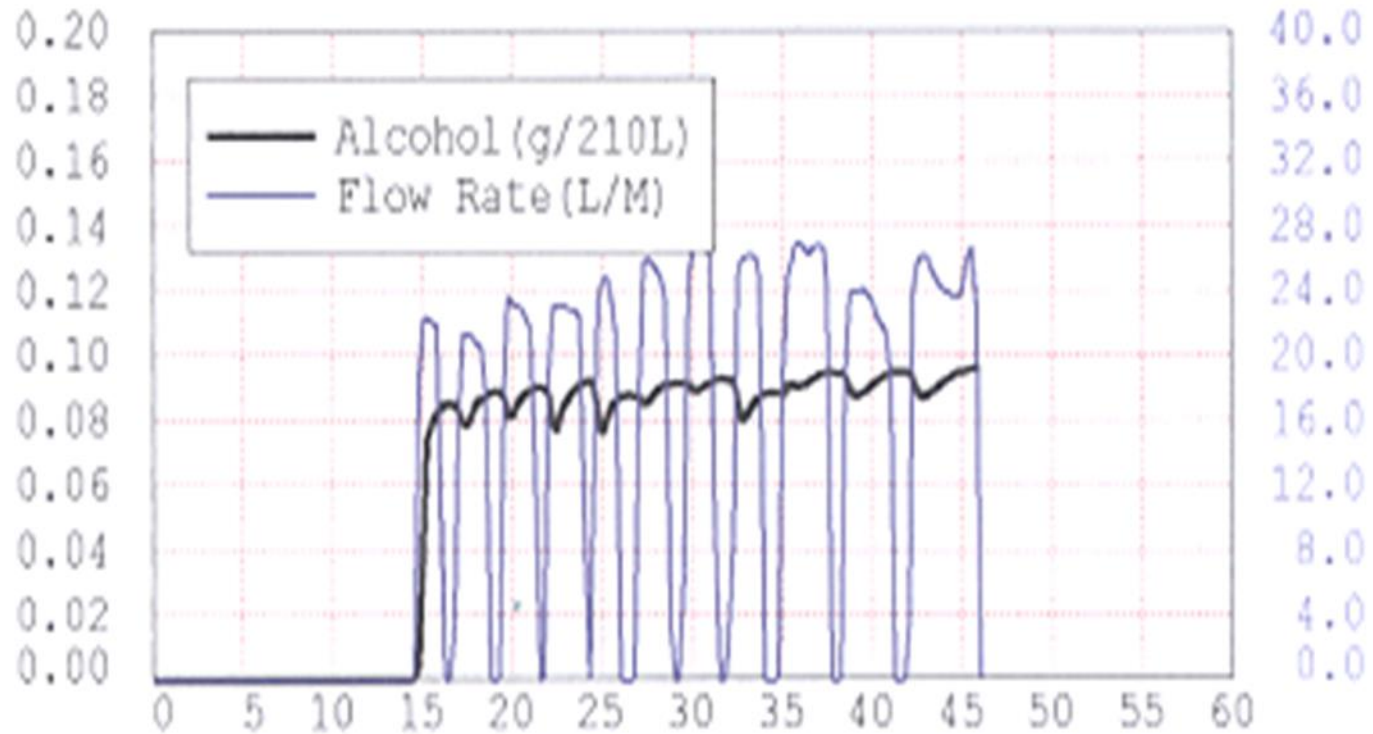
- **One subject**
- **Consecutive breaths**
- **Graph 1: A full breath sample**
 - Approximately 6.8L air
 - Ethanol result **0.099**g/210L
- **Graph 2: A partial breath sample**
 - Approximately 1.7L air
 - Ethanol result **0.077**g/210L



- Successful Test(s) with Result(s) <0.08 g/210L
- Continue with your processing.
- Submit a relation back request to the VFL (DPS.DMT@vermont.gov)
- Remember: There are two types of DUI.
 - Per se >0.08
 - “Impaired to the slightest degree”



- Try the test again.
- If you get INTERFERENCE again, obtaining a blood sample is appropriate.



Incomplete sample with huffing and puffing

- Instruct subject on proper breath delivery
- Improper breathing pattern can lead to Invalid Sample message.

- One Successful Test and an Error Message on the Second Test.
- If a subject requests a second breath test, get them a second breath test.
- If you have to go to another agency, get TWO new tests.

23 VSA 1202. d(5) A person who is requested by a law enforcement officer to submit to an evidentiary test administered with an infrared breath-testing instrument may elect to have a second infrared test administered immediately after receiving the results of the first test.

Testimony Preparation

You should be prepared to testify to how you knew that the instrument was operating properly when the test was given. The best testimony here would be to state that the DMT went through its normal procedures of checking itself and that, based on your training and experience, you observed the instrument to be operating properly.

An officer may be asked to explain how the DMT functions. As this class is focused on instructing officers on the proper operation of the instrument and not in the technology behind it, officers should respond to those questions beyond the scope of this training in the following manner:

“I am not qualified to explain that but I do know based on my training and experience that the DMT was operating properly at the time of the test.”



TYPICAL TESTIMONY QUESTIONS:

What instrument did you use to obtain a breath test from the defendant?

Have you received training in the operation of the DMT?

Are you certified to operate the DMT?

Prior to administering the test, did you observe the defendant?

For how long did you observe the defendant?

During this observation, what were you looking for?

After observing the defendant, were you prepared to run a test?

Was the DMT ready to perform a test? How did you know?

After ensuring that the DMT was ready, what did you do?

Describe how you operated the DMT

Did the instrument encounter any problems in completing the test?

Did the DMT print an evidence ticket?

How do you recognize the printed evidence ticket?

Things to Remember



- Complete and document the 15 minute observation period.
- Document, document, document.
- Keep all DMT printed reports (including those with error messages) together.
 - 3 copies will print—one for you, one for the subject, and one for the State’s Attorney.
- If you get an error message, try the test again.
 - If the next test is successful, that is an acceptable test.
- If you are not sure what to do, ask someone.
 - On-Call State’s Attorney, a supervisor, another experienced officer.

Complete the following tests using the data below:

- Two 1-test DUI sequences
- Two 2-test DUI sequences
- One Check-In

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|----------------|-------------|----------|
| Subject Name: | (F) TEST | (L) TEST |
| Date of Birth: | 01/01/1991 | |
| Gender: | M or F or X | |
| Guardian | Y or N | |
| Case: | YYXX0000 | |
| Incident Time: | 0900 | |
| Test Reason: | OTHER | |
| Town: | PITTSFORD | |
| Officer Info: | YOUR NAME | |
| Agency: | YOUR AGENCY | |
| VTC #: | YOUR NUMBER | |

Practice >