Vermont Department of Health Laboratory
Procedure Approval History

Procedure Title: **DataMaster DMT Installation Procedure**

Document Number: **P-ALC-119**

Supercedes Doc. No. _____

Revision No.	No. of pages	Date Effective	Document Authored or Prepared By	Program Chief / Supervisor		Director / Administrator	
				Date	Signature	Date	Signature
0	6	6/24/09	Amanda Bolduc	7.8.09	[signature]	7/8/09	[signature]
1	7	8/4/11	Kirk Kimball	8-4-11	[signature]	8/4/11	[signature]

1.0 Purpose and Scope

1.1. The purpose of this procedure is to describe the process used by Vermont Department of Health Laboratory (VDHL) staff for the installation of the DataMaster DMT infrared breath alcohol analysis instruments designated for use as evidentiary breath testing devices.

1.2. The scope of this procedure includes site inspection, installation and testing of evidentiary breath testing instruments at police agencies.

2.0 Responsibility

2.1. All instruments shall only be installed by trained laboratory staff.

2.2. It is the responsibility of staff performing this task to follow the procedure as written, to note any omissions, errors or unclear instructions in the procedure and bring them to the attention of the Organic Chemistry Program Chief.

2.3. This procedure will be reviewed periodically by organic program staff. Revisions of the procedure will be made when a need is identified.

3.0 Precautions

3.1. Appropriate caution must be taken to avoid electrical shock when working with or using any electrically charged equipment.

3.2. All instruments shall undergo a power-up procedure, calibration and certification before installation may occur. See P-Alc-116, P-Alc-117 and P-Alc-118.

3.3. All reports generated during this procedure must be retained; this includes those displaying error messages or failures. One copy of the report will be retained by the agency in which the instrument is installed. One copy of the report will be returned to VDHL, reviewed in triplicate and filed in the appropriate instrument's file in the DataMaster DMT filing cabinet in room 124 and an electronic copy placed into the instrument electronic folder on the VDHL server.

4.0 Procedure Steps

4.1. Materials and Supplies

4.1.1. DataMaster DMT Instrument with keyboard and simulator lock.

4.1.2. HP 5650 or equivalent (HP PLC3e, PLC4 or PLC5) printer and USB cable.

4.1.3. Uninterruptible Power Supply (UPS) or Line Power Conditioner.

4.1.4. Guth 34C-NP Wet Bath Simulator or equivalent.

4.1.5. DataMaster DMT Simulator Solution ~0.100 EtOH.

4.1.6. DataMaster DMT Mouthpieces.

4.1.7. Radio Frequency Transmitter.

4.1.8. Field Service Tool Kit.

4.2. Transport

4.2.1. Contact the agency representative at the site of the pending installation to schedule date and time for instrument installation.

4.2.2. Use a protective cover when transporting instruments through precipitation and prevent simulator solution from freezing during cold weather.

4.2.3. The simulator should be transported 'dry' –i.e. simulator solution should be removed before transport.

4.3. Site Inspection and DataMaster DMT Placement for New Sites

4.3.1. All agencies shall agree and sign a DataMaster DMT Site Maintenance Agreement as part of a DataMaster DMT Site Evaluation Checklist (Alc 904) prior to an instrument being deployed to an agency.

4.3.2. With an agency representative present, complete a DataMaster DMT Site Evaluation Checklist (Alc 904).

4.3.3. The area of instrument placement must meet specifications outlined in the site inspection standards as listed in P-Alc-210.

4.3.4. Review the area for limited access, instrument security, cleanliness, adequate ventilation, stable temperature, and lack of potentially interfering volatile substances. Ensure availability of appropriate power and telephone outlets. If any deficiencies are noted, document them on the Site Evaluation Checklist; submit this to the Organic Chemistry Program Chief for disposition.

4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into an electrical outlet. Plug the DataMaster DMT and printer into the UPS or line conditioner.

4.4.2. Turn the DMT on. Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run".

4.4.3. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

4.4.4. Plug the simulator in to the UPS or line conditioner. Ensure the simulator is powered on correctly and the paddle is rotating.

4.4.5. Attach the BNC connector to the head of the simulator. Ensure the DMT registers a temperature for the simulator. Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock

4.4.6. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary).

4.4.7. Connect the keyboard to a USB slot in the back of the DMT.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

4.4.9. Ensure the date and times are correct. Adjust as necessary.

4.5. Installation Protocol

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required and review before continuing.

4.5.2. The instrument will now perform a mandatory thirty minute wait period which gives the simulator solution time to warm up and equilibrate.

4.5.3. Once the wait period is complete, the instrument will automatically begin the Installation Protocol. Follow all instructions on the screen. The instrument will only continue on to the next step once each check passes.

4.5.3.1. The first step is a Diagnostic Check which also resets the options to default. The instrument will run a self check to ensure all temperatures, settings and components are functioning properly.

4.5.3.2. The second step is an Accuracy and Precision Check. The instrument will run five replicates of the simulator solution and calculate and average and standard deviation. The average must be within ±5% of the certified simulator solution concentration and the standard deviation must be <0.002.

4.5.3.3. The third step is the Radio Frequency Detection check.

4.5.3.3.1. When prompted to perform the RF check, if the agency has a console radio located in their building, have dispatch key all commonly used frequencies. The instrument should not react to dispatch frequencies. If a dispatch frequency causes an RF error, post a sign alerting operators to be aware of the potential RF detection warnings.

4.5.3.3.2. Key a handheld radio within two feet of the instrument. An RF should be reported. If the instrument does not report RF detected then refer to the power-up procedure (P-Alc-116) to reset the RF sensitivity and begin the test again.

4.5.3.4. The final step is a sample acceptance check.

4.5.3.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

4.5.3.4.2. When prompted "Please Blow" and an intermittent tone are heard, insert a new mouthpiece into the breath tube.

4.5.3.4.3. Provide breath samples. The bottom left corner of the screen will display the type of breath to deliver.

4.5.3.4.4. **Shallow Breath**: Very lightly blow a small amount of air into the mouth piece, allowing some air to escape out the sides of your mouth. The air flow should be very slight, but strong enough to just register air flow (blue line) on the screen. Blow for a few seconds then stop. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.5. **Intermittent Breath**: Strongly blow into the mouth piece for 1-2 seconds and stop a couple of times. Be careful not to suck back on the mouth piece between puffs of air. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.6. **Suck Back Test**: **VERY GENTLY** suck back on the mouth piece just enough so you feel a one-way valve stop the air flow (less than one second of pressure). If you suck too hard, you may damage the one-way valve. Once you feel this one way valve hit, you are finished. **Do not continue to suck back on the breath tube. Once is enough.** The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.7. **1.5L Alcohol Free Sample:** While watching the total volume box in the bottom right corner of the screen, provide a sample of ~1.5L of air to the instrument. The instrument should accept a sample of 1.5L of air. The instrument should **not** report an alcohol response (black line).

4.5.3.4.8. Once the Sample Acceptance test is complete, the instrument will prompt "Did Instrument Pass All Sample Acceptance Checks? Yes/No" If all checks passed, select "Yes". If any of the checks failed, select "No". When prompted, type in which check failed and why.

4.5.3.5. Once the protocol is complete, the instrument will prompt for technician signature. Sign in the box and press "finished". Two copies of the report will now print.

4.6. Record Keeping

4.6.1. When the Installation reports print, file one copy with the onsite maintenance records. One copy of the report and the site evaluation checklist (Alc 904) will be returned to the laboratory and reviewed in triplicate, then filed in the DataMaster DMT filing cabinet in room 124. An electronic copy will be placed into the instrument folder on the VDHL server.

4.6.2. In the DataMaster DMT Maintenance Logbook (Alc 803) affix one copy of the simulator solution label, document your name, date of installation and note any corrective actions that may have been performed.

4.6.3. In the DataMaster DMT Operators Logbook (Alc 603) document your name, under the "subject" column write "test/Install" and enter the result of the simulator vapor average.

5.0 Emergency or High Priority Situations

5.1. The Laboratory Director or Organic Chemistry Program Chief may designate any DataMaster DMT Installation to be a high priority and request service as soon as possible.

6.0 Quality Criteria and Corrective Action

6.1. The standard approach to correct a problem would be to first repeat the test to confirm the problem. Consult the service manual or ask for technical support from another program staff member. Try to correct the problem and then document the event. Write the problem and corrective actions taken on the failing installation reports and in the instrument's maintenance log.

6.2. After three failed installation attempts, the installation is considered failed and the instrument shall be returned to VDHL for further evaluation.

6.3. If the problem is not correctable in the field or technical evaluation is needed, a DataMaster DMT Technical Support Inquiry worksheet (Alc 626) must be started. The instrument shall be returned to the laboratory for further evaluation. Once the repair is complete, the TSI is finished and placed in the instrument's file. This procedure may be redone again when the problem is resolved.

7.0 Preventative Maintenance and Backup Procedures

7.1. If a problem is encountered that cannot be resolved by program staff, the instrument manufacturer, National Patent Analytical Systems, Inc. (NPAS) will be contacted for technical support.

7.1.1. Contact NPAS at 1-800-800-8143 or service@npas.com.

7.2. If an agency's instrument requires repair and cannot be returned to service within two weeks, a replacement instrument may be installed at that site.

8.0 References

8.1. DataMaster DMT In-house Service Manual.

8.2. VDHL DataMaster DMT Power-Up Procedure (P-Alc-116).

8.3. VDHL Laboratory Calibration of DataMaster DMT (P-Alc-117).

8.4. VDHL Laboratory Certification of DataMaster DMT (P-Alc-118).

8.5. VDHL BAC DataMaster Field Installation (P-Alc-210).

8.6. DataMaster Site Evaluation Checklist (Alc 904).

8.7. DataMaster Maintenance Logbook (Alc 803).

8.8. DataMaster Operators Logbook (Alc 603).

8.9. DataMaster Technical Support Inquiry worksheet (Alc 626).

Appendix A
Acceptable Installation Report

INSTALLATION REPORT

DataMaster DMT: 122206
Location: WILLISTON VSP
Calibration Date: 06/10/2009
Certification Date: 06/11/2009
Installation Date: 06/11/2009
Installed by: STEVEN E HARNOIS

VERMONT
DEPARTMENT OF HEALTH

Site meets specification in doc P-ALC-210

Diagnostic Results

VERSIONS
DMT 1.00
PIC 2.05
Modem 1.04
Questions 1.00
Reports 1.00

TEMPERATURES
Sample Chamber = 48.74°C
Breath Tube = 48.10°C
Digital Sim = 33.9°C

SETTINGS
Lamp Voltage = 1.51 V
Cooler Voltage = 1.63 V
Heat Voltage = 30.1 V
Chopper Freq = 543.3 Hz

PUMP INFO
Flow Rate = 4.536 L/M

DETECTOR INFO
PUMP <ON OFF
MAX(V) 0.0159 0.0191
MIN(V) 0.0128 0.0175

FILTER INFO
Filter 1 0.017 Zero = true
Filter 2 0.712 Zero = true
Filter 3 1.485 Zero = true

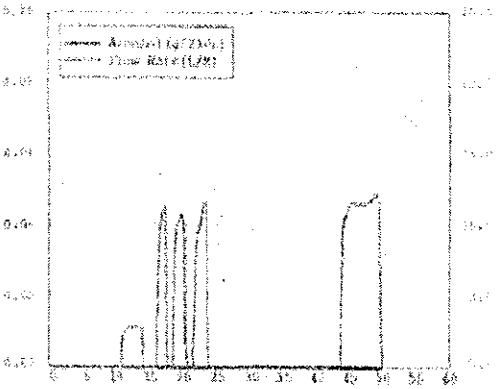
CALIBRATION CHECK
Sq = 0.0798 0.76%

INSTALLATION PASSED

Accuracy and Precision Check
Concentration = 0.100 g/210L
Lot # = 100-0-100
Average = 0.102 g/210L
Std Dev = 0.000

RFI Interference Test
RFI Instituted

Sample Acceptance Test
Passed



Performed by [signature] Date 06/11/2009
Reviewed by [signature] Date 6/15/09

DMT Serial Number 122206 Page 1 of 1 06/11/2009 13:09

Vermont Department of Health Laboratory
Procedure and Document Review Coversheet

Document Title: DataMaster DMT Installation Procedure	
Document #: P-ALC-119	Revision #: 1
File Name: DataMaster DMT Installation Procedure	
Author or Editor: Kirk Kimball	Owner: Organic Chemistry Program Chief
Start Date: 06/20/11	Due Date: 06/27/11

Name and Title of Reviewers	Signature	Comments? Y/N *	Date of Signature	Control Copy #
Amanda Bolduc PH III Chemist		Y ☑	6/22	
Steven Merrill PH II Chemist		Y ☑	06/23/11	
Steven Harnois PH Electronics Technician		Y ☑	6/30/11	
Edward Luce QA/QC Officer		☐		
Mary-Stella Celotti Laboratory Director		Y ☑	7-5-11 and 7/8/11	
Kirk Kimball Organic Program Chief		N ☐	7-5-11	
		☐		
		☐		
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* (√) in checkbox indicates reviewer comments have been discussed and incorporated if applicable.

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1.2. The scope of this procedure includes site inspection, installation and testing of evidentiary breath testing instruments at police agencies.

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4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into an electrical outlet. Plug the DataMaster DMT and printer into the UPS or line conditioner.

4.4.2. Turn the DMT on. Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run".

4.4.3. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

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4.4.5. Attach the BNC connector to the head of the simulator. Ensure the DMT registers a temperature for the simulator. Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock

4.4.6. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary).

4.4.7. Connect the keyboard to a USB slot in the back of the DMT.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

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4.5. Installation Protocol

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required and review before continuing.

4.5.2. The instrument will now perform a mandatory thirty minute wait period which gives the simulator solution time to warm up and equilibrate.

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4.5.3.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

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Appendix A
Acceptable Installation Report

INSTALLATION REPORT

VERMONT
DEPARTMENT OF HEALTH

DataMaster DMT	[illegible]
Location	[illegible]
Calibration Date	[illegible]
Certification Date	[illegible]
Installation Date	[illegible]
Installed By	[illegible]

[illegible]

Diagnostic Results

[illegible]

Accuracy and Precision Check

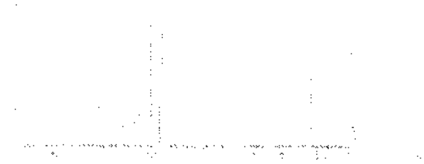
[illegible]

RFI Interference Test

[illegible]

Sample Acceptance Test

[illegible]



INSTALLATION PASSED

Performed by [illegible] Date [illegible]

Reviewed by [illegible] Date [illegible]

[illegible]

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4.3.1. All agencies shall agree to and sign a DataMaster DMT Site Maintenance Agreement as part of a DataMaster DMT Site Evaluation Checklist (Alc 904) prior to an instrument being deployed to an agency.

4.3.2. With an agency representative present, complete a DataMaster DMT Site Evaluation Checklist (Alc 904).

4.3.3. The area of instrument placement must meet specifications outlined in the site inspection standards as listed in P-Alc-210.

4.3.4. Review the area for limited access, instrument security, cleanliness, adequate ventilation, stable temperature, and lack of potentially interfering volatile substances. Ensure availability of appropriate power and telephone outlets. If any deficiencies are noted, document them on the Site Evaluation Checklist; submit this to the Organic Chemistry Program Chief for disposition.

4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into an electrical outlet. Plug the DataMaster DMT and printer into the UPS or line conditioner.

4.4.2. Turn the DMT on. Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run".

4.4.3. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

4.4.4. Plug the simulator in to the UPS or line conditioner. Ensure the simulator is powered on correctly and the paddle is rotating.

4.4.5. Attach the BNC connector to the head of the simulator. Ensure the DMT registers a temperature for the simulator. Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock

4.4.6. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary).

4.4.7. Connect the keyboard to a USB slot in the back of the DMT.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

4.4.9. Ensure the date and times are correct. Adjust as necessary.

4.5. Installation Protocol

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required and review before continuing.

4.5.2. The instrument will now perform a mandatory thirty minute wait period, which gives the simulator solution time to warm up and equilibrate.

4.5.3. Once the wait period is complete, the instrument will automatically begin the Installation Protocol. Follow all instructions on the screen. The instrument will only continue on to the next step once each check passes.

4.5.3.1. The first step is a Diagnostic Check, which also resets the options to default. The instrument will run a self check to ensure all temperatures, settings and components are functioning properly.

4.5.3.2. The second step is an Accuracy and Precision Check. The instrument will run five replicates of the simulator solution and calculate and average and standard deviation. The average must be within ±5% of the certified simulator solution concentration and the standard deviation must be <0.002.

4.5.3.3. The third step is the Radio Frequency Detection check.

4.5.3.3.1. When prompted to perform the RF check, if the agency has a console radio located in their building, have dispatch key all commonly used frequencies. The instrument should not react to dispatch frequencies. If a dispatch frequency causes an RF error, post a sign alerting operators to be aware of the potential RF detection warnings.

4.5.3.3.2. Key a handheld radio within two feet of the instrument. An RF should be reported. If the instrument does not report RF detected then refer to the power-up procedure (P-Alc-116) to reset the RF sensitivity and begin the test again.

4.5.3.4. The final step is a sample acceptance check.

4.5.3.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

4.5.3.4.2. When prompted "Please Blow" and an intermittent tone ~~are~~ is heard, insert a new mouthpiece into the breath tube.

4.5.3.4.3. Provide breath samples. The bottom left corner of the screen will display the type of breath to deliver.

4.5.3.4.4. **Shallow Breath**: Very lightly blow a small amount of air into the mouth piece, allowing some air to escape out the sides of your mouth. The air flow should be very slight, but strong enough to just register air flow (blue line) on the screen. Blow for a few seconds then stop. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

change font to match rest of document

4.5.3.4.5. **Intermittent Breath**: Strongly blow into the mouth piece for 1-2 seconds and stop a couple of times. Be careful not to suck back on the mouth piece between puffs of air. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.6. **Suck Back Test**: **VERY GENTLY** suck back on the mouth piece just enough so you feel a one-way valve stop the air flow (less than one second of pressure). If you suck too hard, you may damage the one-way valve. Once you feel this one way valve hit, you are finished. **Do not continue to suck back on the breath tube. Once is enough.** The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.7. **1.5L Alcohol Free Sample:** While watching the total volume box in the bottom right corner of the screen, provide a sample of ~1.5L of air to the instrument. The instrument should accept a sample of 1.5L of air. The instrument should **not** report an alcohol response (black line).

4.5.3.4.8. Once the Sample Acceptance test is complete, the instrument will prompt "Did Instrument Pass All Sample Acceptance Checks? Yes/No" If all checks passed, select "Yes". If any of the checks failed, select "No". When prompted, type in which check failed and why.

4.5.3.5. Once the protocol is complete, the instrument will prompt for technician signature. Sign in the box and press "finished". Two copies of the report will now print.

4.6. Record Keeping

4.6.1. When the Installation reports print, file one copy with the onsite maintenance records. One copy of the report and the site evaluation checklist (Alc 904) will be returned to the laboratory and reviewed in triplicate, then filed in the DataMaster DMT filing cabinet in room 124. An electronic copy will be placed into the instrument folder on the VDHL server.

4.6.2. In the DataMaster DMT Maintenance Logbook (Alc 803), affix one copy of the simulator solution label, document your name, date of installation and note any corrective actions that may have been performed.

4.6.3. In the DataMaster DMT Operators Logbook (Alc 603), document your name, under the "subject" column write "test/Install" and enter the result of the simulator vapor average.

5.0 Emergency or High Priority Situations

5.1. The Laboratory Director or Organic Chemistry Program Chief may designate any DataMaster DMT Installation to be a high priority and request service as soon as possible.

6.0 Quality Criteria and Corrective Action

6.1. The standard approach to correct a problem would be to first repeat the test to confirm the problem. Consult the service manual or ask for technical support from another program staff member. Try to correct the problem and document the event. Write the problem and corrective actions taken on the failing installation reports and in the instrument's maintenance log.

6.2. After three failed installation attempts, the installation is considered failed and the instrument shall be returned to VDHL for further evaluation.

6.3. If the problem is not correctable in the field or a repair or technical evaluation is needed, a DataMaster DMT Technical Support Inquiry worksheet (Alc 626) must be started. The instrument shall be returned to the laboratory for further evaluation. Once the repair is complete, the TSI is finished and placed in the instrument's file. This procedure may be redone again when the problem is resolved.

7.0 Preventative Maintenance and Backup Procedures

7.1. If a problem is encountered that cannot be resolved by program staff, the instrument manufacturer, National Patent Analytical Systems, Inc. (NPAS) will be contacted for technical support.

7.1.1. Contact NPAS at 1-800-800-8143 or service@npas.com.

7.2. If an agency's instrument requires repair and cannot be returned to service within two weeks, a replacement instrument may be installed at that site.

8.0 References

8.1. DataMaster DMT In-house Service Manual.

8.2. VDHL DataMaster DMT Power-Up Procedure (P-Alc-116).

8.3. VDHL Laboratory Calibration of DataMaster DMT (P-Alc-117).

8.4. VDHL Laboratory Certification of DataMaster DMT (P-Alc-118).

8.5. VDHL BAC DataMaster Field Installation (P-Alc-210).

8.6. DataMaster Site Evaluation Checklist (Alc 904).

8.7. DataMaster Maintenance Logbook (Alc 803).

8.8. DataMaster Operators Logbook (Alc 603).

8.9. DataMaster Technical Support Inquiry worksheet (Alc 626).

Appendix A
Acceptable Installation Report

INSTALLATION REPORT

VERMONT

DEPARTMENT OF HEALTH

need better (more visible) example

1.0 Purpose and Scope

1.1. The purpose of this procedure is to describe the process used by Vermont Department of Health Laboratory (VDHL) staff for the installation of the DataMaster DMT infrared breath alcohol analysis instruments designated for use as evidentiary breath testing devices.

1.2. The scope of this procedure includes site inspection, installation and testing of evidentiary breath testing instruments at police agencies.

2.0 Responsibility

2.1. All instruments shall only be installed by trained laboratory staff.

2.2. It is the responsibility of staff performing this task to follow the procedure as written, to note any omissions, errors or unclear instructions in the procedure and bring them to the attention of the Organic Chemistry Program Chief.

2.3. This procedure will be reviewed periodically by organic program staff. Revisions of the procedure will be made when a need is identified.

3.0 Precautions

3.1. Appropriate caution must be taken to avoid electrical shock when working with or using any electrically charged equipment.

3.2. All instruments shall undergo a power-up procedure, calibration and certification before installation may occur. See P-Alc-116, P-Alc-117 and P-Alc-118.

3.3. All reports generated during this procedure must be retained; this includes those displaying error messages or failures. One copy of the report will be retained by the agency in which the instrument is installed. One copy of the report will be returned to VDHL, reviewed by another trained technician and filed in the appropriate instrument's file in the DataMaster DMT filing cabinet in room 124 and an electronic copy placed into the instrument electronic folder on the VDHL server.

triple?

4.0 Procedure Steps

4.1. Materials and Supplies

4.1.1. DataMaster DMT Instrument with keyboard and simulator lock.

4.1.2. HP 5650 or equivalent (HP PLC3e, PLC4 or PLC5) printer and USB cable.

4.1.3. Uninterruptible Power Supply (UPS) or Line Power Conditioner.

4.1.4. Guth 34C-NP Wet Bath Simulator or equivalent.

4.1.5. DataMaster DMT Simulator Solution ~0.100 EtOH.

4.1.6. DataMaster DMT Mouthpieces.

4.1.7. Radio Frequency Transmitter.

4.1.8. Field Service Tool Kit.

If moving to new location with same agency, use a TSI to document the move and a new site inspection worksheet

4.2. Transport

4.2.1. Contact the agency representative at the site of the pending installation to schedule date and time for instrument installation.

4.2.2. Use a protective cover when transporting instruments through precipitation and prevent simulator solution from freezing during cold weather.

4.2.3. The simulator should be transported ~~"dry" – i.e.~~ with no simulator solution ~~should be removed before transport.~~ if it.

4.3. Site Inspection and DataMaster DMT Placement for New Sites

4.3.1. All agencies shall agree to a DataMaster DMT Site Maintenance Agreement as part of a DataMaster DMT Site Evaluation Checklist (Alc 904) prior to an instrument being deployed to an agency.

4.3.2. With an agency representative present, complete a DataMaster DMT Site Evaluation Checklist (Alc 904).

4.3.3. The area of instrument placement must meet specifications outlined in the site inspection standards as listed in ~~P-Alc-210: bel~~ in Section x.x (copy from P-Alc-210 then retire 210)

4.3.4. Review the area for limited access, instrument security, cleanliness, adequate ventilation, stable temperature, and lack of potentially interfering volatile substances. Ensure availability of appropriate power and telephone outlets. If any deficiencies are noted, document them on the Site Evaluation Checklist; submit this to the Organic Chemistry Program Chief for disposition.

4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into a ~~power~~ electrical outlet. Plug the DataMaster DMT ~~and printer~~ into the UPS or line conditioner.

4.4.2. Turn the DMT on. ~~Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation~~. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run". NOT needed

Do This First

4.4.3. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary). via flexback

4.4.4. Connect the keyboard to a USB slot in the back of the DMT.

4.4.5. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

move with 4.4.5

4.4.6. Plug the simulator in to the UPS or line conditioner. Ensure the simulator powered on correctly and the paddle is rotating.

If temp of solution is L 25°C no temp or 0.0 will be the R reading this will not be the first time the simulator is plugged into this instrument, so much of 4.4.7 (crossed out) can be removed

4.4.7. Attach the BNC connector to the head of the simulator. ~~Ensure the DMT registers a temperature for the simulator.~~ Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

4.4.9. Ensure the date and times are correct. Adjust as necessary.

4.5. Installation Protocol

Y/N or site inspection not needed

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required. Review lot and [x] for accuracy!

4.5.2. The instrument will now perform a mandatory thirty minute wait period which gives the simulator solution time to warm up and equilibrate.

4.5.3. Once the wait period is complete, the instrument will automatically begin the Installation Protocol. Follow all instructions on the screen. The instrument will only continue on to the next step once each check passes.

4.5.3.1. First Step is the options automate reset

4.5.3.~~1~~2. The ~~first~~ next step is a Diagnostic Check. The instrument will run a self check to ensure all temperatures, settings and components are functioning properly.

4.5.3.~~2~~3. The ~~second~~ third step is an Accuracy and Precision Check. The instrument will run five replicates of the simulator solution and calculate and average and standard deviation. The average must be within ±5% of the certified simulator solution concentration and the standard deviation must be <0.002.

4.5.3.3. The ~~third~~ forth step is the Radio Frequency ~~Interference~~ Detection check. Check no RFI for

4.5.3.3.1. When prompted to perform the RF~~I~~ check, if the agency has a console radio located in their building, have dispatch key all commonly used frequencies. The instrument should not react to dispatch frequencies. If a dispatch frequency causes an RF~~I~~ error, post a sign ~~warning~~ alerting operators to be aware of the potential RF ~~interferences~~. detection warnings

4.5.3.3.2. Key a handheld radio ~~within two feet of the~~ near instrument. ~~An~~ RF~~I~~ should be reported. If the instrument's radio frequency sensitivity is incorrect, reset the sensitivity and begin the test again. detected

Cannot do in Protocall

refer to powerup procedure

4.5.3.4. The final step is a sample acceptance check.

4.5.3.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

4.5.3.4.2. When prompted "Please Blow" and an intermittent tone ~~are~~ is heard, insert a new mouthpiece into the breath tube.

4.5.3.4.3. Provide breath samples. The bottom left corner of the screen will display the type of breath to deliver.

4.5.3.4.4. **Shallow Breath**: Very lightly blow a small amount of air into the mouth piece, allowing some air to escape out the sides of your mouth. The air flow should be very slight, but strong enough to just register air flow (blue line) on the screen. Blow for a few seconds then stop. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.5. **Intermittent Breath**: Strongly blow into the mouth piece for 1-2 seconds and stop a couple of times. Be careful not to suck back on the mouth piece between puffs of air. The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.6. **Suck Back Test**: **VERY GENTLY** suck back on the mouth piece just enough so you feel a one-way valve stop the air flow (less than one second of pressure). If you suck too hard, you may damage the one-way valve. Once you feel this one way valve hit, you are finished. **Do not continue to suck back on the breath tube. Once is enough.** The instrument should **not** report an alcohol response (black line) and should **not** accept the sample.

4.5.3.4.7. **1.5L Alcohol Free Sample:** While watching the total volume box in the bottom right corner of the screen, provide a sample of ~1.5L of air to the instrument. The instrument should accept a sample of 1.5L of air. The instrument should **not** report an alcohol response (black line).

4.5.3.4.8. Once the Sample Acceptance test is complete, the instrument will prompt "Did Instrument Pass All Sample Acceptance Checks? Yes/No" If all checks passed, select "Yes". If any of the checks failed, select "No". When prompted, type in which check failed and why.

4.5.3.5. Once the protocol is complete, the instrument will prompt for technician signature. Sign in the box and press "finished". Two copies of the report will now print.

4.6. Record Keeping

4.6.1. When the Installation reports print, file one copy with the onsite maintenance records. One copy of the report will be returned to the laboratory ~~and reviewed by another technician~~, then filed in the DataMaster DMT filing cabinet in room 124. An electronic copy will be placed into the instrument folder on the VDHL server.

triple review along with site inspection and TSI for moved units

4.6.2. In the DataMaster DMT Maintenance Logbook (Alc 803) affix one copy of the simulator solution label, document your name, date of installation and note any corrective actions that may have been performed.

4.6.3. In the DataMaster DMT Operators Logbook (Alc 603) document your name, under the "subject" column write "test/Install" and enter the result of the simulator vapor average.

5.0 Emergency or High Priority Situations

5.1. The Laboratory Director or Organic Chemistry Program Chief may designate any DataMaster DMT Installation to be a high priority and request service as soon as possible.

6.0 Quality Criteria and Corrective Action

6.1. The standard approach to correct a problem would be to first repeat the test to confirm the problem. Consult the service manual or ask for technical support from another program staff member. Try to correct the problem and document the event. Write the problem and corrective actions taken on the failing installation reports and in the instrument's maintenance log.

6.2. After three failed installation attempts, the installation is considered failed, and the instrument shall be returned to VDHL for further evaluation.

6.3. If the problem is not correctable in the field or a repair or technical evaluation is needed, a DataMaster DMT Technical Support Inquiry worksheet (Alc 626) must be started. The instrument shall be returned to the laboratory for further evaluation. Once the repair is complete, the TSI is finished and placed in the instrument's file. This procedure may be redone again when the problem is resolved.

7.0 Preventative Maintenance and Backup Procedures

7.1. If a problem is encountered that cannot be resolved by program staff, the instrument manufacturer, National Patent Analytical Systems, Inc. (NPAS) will be contacted for technical support.

7.1.1. Contact NPAS at 1-800-800-8143 or service@npas.com.

7.2. If an agency's instrument requires repair and cannot be returned to service within two weeks, a replacement instrument may be installed at that site.

8.0 References

8.1. DataMaster DMT In-house Service Manual.

8.2. VDHL DataMaster DMT Power-Up Procedure (P-Alc-116).

8.3. VDHL Laboratory Calibration of DataMaster DMT (P-Alc-117).

8.4. VDHL Laboratory Certification of DataMaster DMT (P-Alc-118).

8.5. VDHL BAC DataMaster Field Installation (P-Alc-210).

8.6. DataMaster Site Evaluation Checklist (Alc 904). ← Should be attached!

8.7. DataMaster Maintenance Logbook (Alc 803).

8.8. DataMaster Operators Logbook (Alc 603).

8.9. DataMaster Technical Support Inquiry worksheet (Alc 626).

Appendix A
Acceptable Installation Report

INSTALLATION REPORT

VERMONT

DEPARTMENT OF HEALTH

PASSED

Bryce-Parrott, Cara

From: Celotti, Stella

Sent: Thursday, August 04, 2011 12:37 PM

To: Kimball, Kirk

Cc: Bryce-Parrott, Cara

Subject: Procedure Approved

Hello, P-ALC-118, Rev 1, Lab Certification of the DMT and P-ALC-119, Rev 1, DataMaster DMT Installation Procedure, have been approved and can be moved to Document Control. Thanks, Stella.

Mary (Stella) Celotti
Laboratory Director
Vermont Department of Health Laboratory
195 Colchester Avenue
Burlington, Vermont 05401
802-863-7570
(Fax) 802-863-7632
Stella.Celotti@ahs.state.vt.us

1.0 Purpose and Scope

1.1. The purpose of this procedure is to describe the process used by Vermont Department of Health Laboratory (VDHL) staff for the installation of the DataMaster DMT infrared breath alcohol analysis instruments designated for use as evidentiary breath testing devices.

1.2. The scope of this procedure includes site inspection, installation and testing of evidentiary breath testing instruments at police agencies.

2.0 Responsibility

2.1. All instruments shall only be installed by trained laboratory staff.

2.2. It is the responsibility of staff performing this task to follow the procedure as written, to note any omissions, errors or unclear instructions in the procedure and bring them to the attention of the Toxicology Program Chief.

2.3. This procedure will be reviewed periodically by toxicology staff. Revisions of the procedure will be made when a need is identified.

3.0 Precautions

3.1. Appropriate caution must be taken to avoid electrical shock when working with or using any electrically charged equipment.

3.2. All instruments shall undergo a power-up procedure, calibration and certification before installation may occur. See P-Alc-116, P-Alc-117 and P-Alc-118.

3.3. All reports generated during this procedure must be retained, this includes those displaying error messages or failures. One copy of the report will be retained by the agency in which the instrument is installed. One copy of the report will be returned to VDHL, reviewed by another trained technician and filed in the appropriate instrument's file in the DataMaster filing cabinet in room 124.

4.0 Procedure Steps

4.1. Materials and Supplies

4.1.1. DataMaster DMT Instrument with keyboard and simulator lock.

4.1.2. HP 5650 or equivalent (HP PLC3e, PLC4 or PLC5) printer and USB cable.

4.1.3. Uninterruptible Power Supply (UPS) or Line Power Conditioner.

4.1.4. Guth 34C-NP Wet Bath Simulator.

4.1.5. DataMaster Simulator Solution ~0.100 EtOH.

4.1.6. DataMaster Mouthpieces.

4.1.7. Radio Frequency Transmitter.

4.1.8. Field Service Tool Kit.

4.2. Transport

4.2.1. Contact the agency representative at the site of the pending installation to schedule date and time for instrument installation.

4.2.2. Use a protective cover when transporting instruments through precipitation and prevent simulator solution from freezing during cold weather.

4.2.3. The simulator should be transported 'dry' –i.e. simulator solution should be removed before transport.

4.3. Site Inspection and DataMaster Placement for New Sites

4.3.1. All agencies shall agree to a DataMaster Site Maintenance Agreement as part of a DataMaster Site Evaluation Checklist (Alc 904) prior to an instrument being deployed to an agency.

4.3.2. With an agency representative present, complete a DataMaster Site Evaluation Checklist (Alc 904).

4.3.3. The area of instrument placement must meet specifications outlined in the site inspection standards as listed in P-Alc-210.

4.3.4. Review the area for limited access, instrument security, cleanliness, adequate ventilation, stable temperature, and lack of potentially interfering volatile substances. Ensure availability of appropriate power and telephone outlets. If any deficiencies are noted, document them on the Site Evaluation Checklist; submit this to the Toxicology Program Chief for disposition.

4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into a power outlet. Plug the DataMaster DMT and printer into the UPS or line conditioner.

4.4.2. Turn the DMT on. Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run".

4.4.3. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary).

4.4.4. Connect the keyboard to a USB slot in the back of the DMT.

4.4.5. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

4.4.6. Plug the simulator in to the UPS or line conditioner. Ensure the simulator powered on correctly and the paddle is rotating.

4.4.7. Attach the BNC connector to the head of the simulator. Ensure the DMT registers a temperature for the simulator. Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

4.4.9. Ensure the date and time are correct. Adjust as necessary.

4.5. Installation Protocol

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required.

4.5.2. The instrument will now perform a mandatory thirty minute wait period which gives the simulator solution time to warm up and equilibrate.

4.5.3. Once the wait period is complete, the instrument will automatically begin the Installation Protocol. Follow all instructions on the screen. The instrument will only continue on to the next step once each check passes.

4.5.3.1. The first step is a Diagnostic Check. The instrument will run a self check to ensure all temperatures, settings and components are functioning properly.

4.5.3.2. The second step is an Accuracy and Precision Check. The instrument will run five replicates of the simulator solution and calculate and average and standard deviation. The average must be within ±5% of the certified simulator solution concentration and the standard deviation must be <0.002.

4.5.3.3. The third step is the Radio Frequency Interference check.

4.5.3.3.1. When prompted to perform the RFI check, if the agency has a console radio located in their building, have dispatch key all commonly used frequencies. The instrument should not react to dispatch frequencies. If a dispatch frequency causes an RFI error, post a sign warning operators to be aware of the potential RF interferences.

4.5.3.3.2. Key a handheld radio within two feet of the instrument. An RFI should be reported. If the instrument's radio frequency sensitivity is incorrect, reset the sensitivity and begin the test again.

4.5.3.4. The final step is a sample acceptance check.

4.5.3.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

4.5.3.4.2. When prompted "Please Blow" and an intermittent tone is heard, insert a new mouthpiece into the breath tube.

4.5.3.4.3. Provide breath samples. The bottom left corner of the screen will display the type of breath to deliver.

A: Shallow Breath Test: Blow lightly into the mouth piece so that flow is visible on the display, but the tone remains intermittent. The test is considered failed if the DMT accepts a shallow breath.

B: Intermittent Breath Test: Blow and stop repeatedly. The test is considered failed if the DMT accepts an intermittent breath.

C: Suck Back Test: Inhale **gently** through the breath tube for two to three seconds. You should feel some slight resistance. The test is considered failed only if the DMT accepts a suck back breath as a valid sample or if while sucking back, alcohol is reported.

D: Alcohol Free Test: Blow normally until at least 1.5L of air has been delivered. The test is considered failed if the result for alcohol was ≥0.002 g/210L or if the breath sample was not accepted and at least 1.7L of air had been delivered.

4.5.3.4.4. Once the Sample Acceptance test is complete, the instrument will prompt "Did Instrument Pass All Sample Acceptance Checks? Yes/No" If all checks passed, select "Yes". If any of the checks failed, select "No". When prompted, type in which check failed and why.

4.5.3.5. Once the protocol is complete, the instrument will prompt for technician signature. Sign in the box and press "finished". Two copies of the report will now print.

4.6. Record Keeping

4.6.1. When the Installation reports print, file one copy with the onsite maintenance records. One copy of the report will be returned to the laboratory and reviewed by another technician, then filed in the DataMaster filing cabinet in room 124.

4.6.2. In the DataMaster Maintenance Logbook (Alc 803) affix one copy of the simulator solution label, document your name, date of installation and note any corrective actions that may have been performed.

4.6.3. In the DataMaster Operators Logbook (Alc 603) document your name, under the "subject" column write "test/Install" and enter the result of the simulator vapor average.

5.0 Emergency or High Priority Situations

5.1. The Laboratory Director or Toxicology Program Chief may designate any DataMaster DMT Installation to be a high priority and request service as soon as possible.

6.0 Quality Criteria and Corrective Action

6.1. The standard approach to correct a problem would be to first repeat the test to confirm the problem. Consult the service manual or ask for technical support from another toxicology staff member. Try to correct the problem and document the event. Write the problem and corrective actions taken on the failing installation reports and in the instrument's maintenance log.

6.2. After three failed installation attempts, the installation is considered failed and the instrument shall be returned to VDHL for further evaluation.

6.3. If the problem is not correctable in the field or a repair or technical evaluation is needed, a DataMaster Technical Support Inquiry worksheet (Alc 626) must be started. The instrument shall be returned to the laboratory for further evaluation. Once the repair is complete, the TSI is finished and placed in the instrument's file. This procedure may be begun again when the problem is resolved.

7.0 Preventative Maintenance and Backup Procedures

7.1. If a problem is encountered that cannot be resolved by Toxicology staff, the instrument manufacturer, National Patent Analytical Systems, Inc. (NPAS) will be contacted for technical support.

7.1.1. Contact NPAS at 1-800-800-8143 or service@npas.com.

7.2. If an agency's instrument requires repair and cannot be returned to service within two weeks, a replacement instrument may be installed at that site.

8.0 References

8.1. DataMaster DMT In-house Service Manual.

8.2. VDHL DataMaster DMT Power-Up Procedure (P-Alc-116).

8.3. VDHL Laboratory Calibration of DataMaster DMT (P-Alc-117).

8.4. VDHL Laboratory Certification of DataMaster DMT (P-Alc-118).

8.5. VDHL BAC DataMaster Field Installation (P-Alc-210).

8.6. DataMaster Site Evaluation Checklist (Alc 904).

8.7. DataMaster Maintenance Logbook (Alc 803).

8.8. DataMaster Operators Logbook (Alc 603).

8.9. DataMaster Technical Support Inquiry worksheet (Alc 626).

Appendix A
Acceptable Installation Report

INSTALLATION REPORT

VERMONT
DEPARTMENT OF HEALTH

DataMaster DMT 122206
Location WILLISTON VSP
Calibration Date 06/10/2009
Certification Date 06/11/2009
Installation Date 06/11/2009
Installed By STEVEN F. HARNOIS

Site meets specification in doc P-ALC-210

Diagnostic Results

Accuracy and Precision Check

RFI Interference Test

Sample Acceptance Test
Passed

INSTALLATION PASSED

Performed by

Date 06/11/2009

Reviewed by

Date 6/15/09

DMT Serial Number 122206

Vermont Department of Health Laboratory
Procedure and Document Review Coversheet

Document Title: DataMaster DMT Installation Procedure	
Document #: P-Alc-119	Revision #: 0
File Name:	
Author or Editor: Amanda Bolduc	Owner: Toxicology Program Chief
Start Date:1/6/09	**Due Date:1/23/09**

Name and Title of Reviewers	Signature	Comments? Y/N *	Date of Signature	Control Copy #
Darcy Richardson Chemist	Darcy Richardson	N ☐	1/6/09	
Steven Harnois Technician	Steven Harnois	Y ☐	1/7/09	
Robert Drawbaugh Tox Program Chief	Robert Drawbaugh	Y ☐	1/8/09	
Ed Luce QC Specialist	Edmund P. Luce	Approved ☐	6/12/09	
Mary Celotti Lab Director	Mary Celotti	N ☐	6/24/09	
		☐		
		☐		
	FOR FINAL REVIEW/APPROVAL	☐		
		☐		
		☐		
		☐		
		☐		
		☐		
		☐		

* (√) in checkbox indicates reviewer comments have been discussed and incorporated if applicable.

1.0 Purpose and Scope

1.1. The purpose of this procedure is to describe the process used by Vermont Department of Health Laboratory (VDHL) staff for the installation of the DataMaster DMT infrared breath alcohol analysis instruments designated for use as evidentiary breath testing devices.

1.2. The scope of this procedure includes site inspection, installation and testing of evidentiary breath testing instruments at police agencies.

2.0 Responsibility

2.1. All instruments shall only be installed by trained laboratory staff.

2.2. It is the responsibility of staff performing this task to follow the procedure as written, to note any omissions, errors or unclear instructions in the procedure and bring them to the attention of the Toxicology Program Chief.

2.3. This procedure will be reviewed periodically by toxicology staff. Revisions of the procedure will be made when a need is identified.

3.0 Precautions

3.1. Appropriate caution must be taken to avoid electrical shock when working with or using any electrically charged equipment.

3.2. All instruments shall undergo a power-up procedure, calibration and certification before installation may occur. See P-Alc-116, P-Alc-117 and P-Alc-118.

3.3. All reports generated during this procedure must be retained, this includes those displaying error messages or failures. One copy of the report will be retained by the agency in which the instrument is installed. One copy of the report will be returned to VDHL, reviewed by another trained technician and filed in the appropriate instrument's file in the DataMaster filing cabinet in room 124.

4.0 Procedure Steps

4.1. Materials and Supplies

4.1.1. DataMaster DMT Instrument with keyboard and simulator lock.

4.1.2. HP 5650 or equivalent (HP PLC3e, PLC4 or PLC5) printer and USB cable.

4.1.3. Uninterruptible Power Supply (UPS) or Line Power Conditioner.

4.1.4. Guth 34C-NP Wet Bath Simulator.

4.1.5. DataMaster Simulator Solution ~0.100 EtOH.

4.1.6. DataMaster Mouthpieces.

4.1.7. Radio Frequency Transmitter.

4.1.8. Field Service Tool Kit.

4.2. Transport

4.2.1. Contact the agency representative at the site of the pending installation to schedule date and time for instrument installation.

4.2.2. Use a protective cover when transporting instruments through precipitation and prevent simulator solution from freezing during cold weather.

4.2.3. The simulator should be transported 'dry' –i.e. simulator solution should be removed before transport.

4.3. Site Inspection and DataMaster Placement for New Sites

4.3.1. All agencies shall agree to a DataMaster Site Maintenance Agreement as part of a DataMaster Site Evaluation Checklist (Alc 904) prior to an instrument being deployed to an agency.

4.3.2. With an agency representative present, complete a DataMaster Site Evaluation Checklist (Alc 904).

4.3.3. The area of instrument placement must meet specifications outlined in the site inspection standards as listed in P-Alc-210.

4.3.4. Review the area for limited access, instrument security, cleanliness, adequate ventilation, stable temperature, and lack of potentially interfering volatile substances. Ensure availability of appropriate power and telephone outlets. If any deficiencies are noted, document them on the Site Evaluation Checklist; submit this to the Toxicology Program Chief for disposition.

4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into a power outlet. Plug the DataMaster DMT and printer into the UPS or line conditioner.

4.4.2. Turn the DMT on. Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run".

4.4.3. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary).

4.4.4. Connect the keyboard to a USB slot in the back of the DMT.

4.4.5. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

4.4.6. Plug the simulator in to the UPS or line conditioner. Ensure the simulator powered on correctly and the paddle is rotating.

4.4.7. Attach the BNC connector to the head of the simulator. Ensure the DMT registers a temperature for the simulator. Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

4.4.9. Ensure the date and time are correct. Adjust as necessary.

4.5. Installation Protocol

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required.

4.5.2. The instrument will now perform a mandatory thirty minute wait period which gives the simulator solution time to warm up and equilibrate.

4.5.3. Once the wait period is complete, the instrument will automatically begin the Installation Protocol. Follow all instructions on the screen. The instrument will only continue on to the next step once each check passes.

4.5.3.1. The first step is a Diagnostic Check. The instrument will run a self check to ensure all temperatures, settings and components are functioning properly.

4.5.3.2. The second step is an Accuracy and Precision Check. The instrument will run five replicates of the simulator solution and calculate and average and standard deviation. The average must be within ±5% of the certified simulator solution concentration and the standard deviation must be <0.002.

4.5.3.3. The third step is the Radio Frequency Interference check.

4.5.3.3.1. When prompted to perform the RFI check, if the agency has a console radio located in their building, have dispatch key all commonly used frequencies. The instrument should not react to dispatch frequencies. If a dispatch frequency causes an RFI error, post a sign warning operators to be aware of the potential RF interferences.

4.5.3.3.2. Key a handheld radio within two feet of the instrument. An RFI should be reported. If the instrument's radio frequency sensitivity is incorrect, reset the sensitivity and begin the test again.

4.5.3.4. The final step is a sample acceptance check.

4.5.3.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

4.5.3.4.2. When prompted "Please Blow" and an intermittent tone is heard, insert a new mouthpiece into the breath tube.

4.5.3.4.3. Provide breath samples. The bottom left corner of the screen will display the type of breath to deliver.

A: Shallow Breath Test: Blow lightly into the mouth piece so that flow is visible on the display, but the tone remains intermittent. The test is considered failed if the DMT accepts a shallow breath.

B: Intermittent Breath Test: Blow and stop repeatedly. The test is considered failed if the DMT accepts an intermittent breath.

C: Suck Back Test: Inhale **gently** through the breath tube for two to three seconds. You should feel some slight resistance. The test is considered failed only if the DMT accepts a suck back breath as a valid sample or if while sucking back, alcohol is reported.

D: Alcohol Free Test: Blow normally until at least 1.5L of air has been delivered. The test is considered failed if the result for alcohol was ≥0.002 g/210L or if the breath sample was not accepted and at least 1.7L of air had been delivered.

4.5.3.4.4. Once the Sample Acceptance test is complete, the instrument will prompt "Did Instrument Pass All Sample Acceptance Checks? Yes/No" If all checks passed, select "Yes". If any of the checks failed, select "No". When prompted, type in which check failed and why.

4.5.3.5. Once the protocol is complete, the instrument will prompt for technician signature. Sign in the box and press "finished". Two copies of the report will now print.

4.6. Record Keeping

4.6.1. When the Installation reports print, file one copy with the onsite maintenance records. One copy of the report will be returned to the laboratory and reviewed by another technician, then filed in the DataMaster filing cabinet in room 124.

4.6.2. In the DataMaster Maintenance Logbook (Alc 803) affix one copy of the simulator solution label, document your name, date of installation and note any corrective actions that may have been performed.

4.6.3. In the DataMaster Operators Logbook (Alc 603) document your name, under the "subject" column write "test/Install" and enter the result of the simulator vapor average.

5.0 Emergency or High Priority Situations

5.1. The Laboratory Director or Toxicology Program Chief may designate any DataMaster DMT Installation to be a high priority and request service as soon as possible.

6.0 Quality Criteria and Corrective Action

6.1. The standard approach to correct a problem would be to first repeat the test to confirm the problem. Consult the service manual or ask for technical support from another toxicology staff member. Try to correct the problem and document the event. Write the problem and corrective actions taken on the failing installation reports and in the instrument's maintenance log.

6.2. After three failed installation attempts, the installation is considered failed and the instrument shall be returned to VDHL for further evaluation.

6.3. If the problem is not correctable in the field or a repair or technical evaluation is needed, a DataMaster Technical Support Inquiry worksheet (Alc 626) must be started. The instrument shall be returned to the laboratory for further evaluation. Once the repair is complete, the TSI is finished and placed in the instrument's file. This procedure may be begun again when the problem is resolved.

7.0 Preventative Maintenance and Backup Procedures

7.1. If a problem is encountered that cannot be resolved by Toxicology staff, the instrument manufacturer, National Patent Analytical Systems, Inc. (NPAS) will be contacted for technical support.

7.1.1. Contact NPAS at 1-800-800-8143 or service@npas.com.

7.2. If an agency's instrument requires repair and cannot be returned to service within two weeks, a replacement instrument may be installed at that site.

8.0 References

8.1. DataMaster DMT In-house Service Manual.

8.2. VDHL DataMaster DMT Power-Up Procedure (P-Alc-116).

8.3. VDHL Laboratory Calibration of DataMaster DMT (P-Alc-117).

8.4. VDHL Laboratory Certification of DataMaster DMT (P-Alc-118).

8.5. VDHL BAC DataMaster Field Installation (P-Alc-210).

8.6. DataMaster Site Evaluation Checklist (Alc 904).

8.7. DataMaster Maintenance Logbook (Alc 803).

8.8. DataMaster Operators Logbook (Alc 603).

8.9. DataMaster Technical Support Inquiry worksheet (Alc 626).

Appendix A
Acceptable Installation Report

INSTALLATION REPORT

VERMONT
DEPARTMENT OF HEALTH

DataMaster DMT 122206
Location WILLISTON VSP
Calibration Date: 06/10/2009
Certification Date: 06/11/2009
Installation Date: 06/11/2009
Installed By STEVEN E HARNOIS

Site meets specification in doc P-ALC-210

Diagnostic Results

VERSIONS
DMT 1.00
PIC 2.05
Modem 1.04
Quantum 1.00
Reports 1.00

TEMPERATURES
Sample Chamber = 48.74°C
Breath Tube = 48.10°C
Digital Sim = 33.9°C

SETTINGS
Lamp Voltage = 1.81 V
Cooler Voltage = 1.53 V
Bias Voltage = 80.1 V
Chopper Freq = 543.3 Hz

PUMP INFO
Flow Rate = 4.536 LPM

DETECTOR INFO
PUMP ON OFF
MAX(V) 0.0159 0.0191
MIN(V) 0.0128 0.0175

FILTER INFO
Filter 1 0.017 Zero = true
Filter 2 0.712 Zero = true
Filter 3 1.480 Zero = true

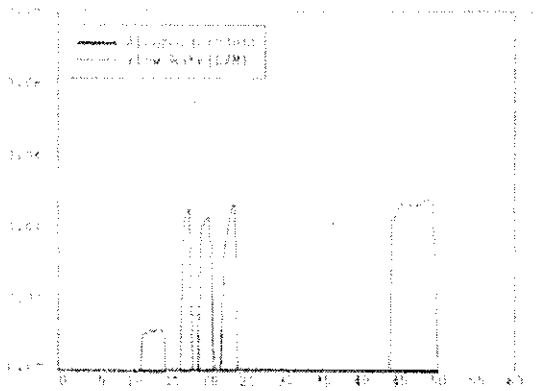
CALIBRATION CHECK
Xq = 0.0298 0.76%

INSTALLATION PASSED

Accuracy and Precision Check
Concentration = 0.100 g/210L
Lot # = 09-KS-100
Average = 0.102 g/210L
Std Dev = 0.000

RFI Interference Test
RFI detected

Sample Acceptance Test
Passed



Performed by _____ Date 06/11/2009

Reviewed by _____ Date 6/15/09

DMT Serial Number #122206 Page 1 of 1 06/11/2009 13:09

1.0 Purpose and Scope

1.1. The purpose of this procedure is to describe the process used by Vermont Department of Health Laboratory (VDHL) staff for the installation of the DataMaster DMT infrared breath alcohol analysis instruments designated for use as evidentiary breath testing devices at police agencies.

1.2. The scope of this procedure includes site inspection, installation and testing of evidentiary breath testing instruments at police agencies.

2.0 Responsibility

2.1. All instruments shall only be installed by trained laboratory staff. Any instrument failing its ~~their~~ installation shall be returned to VDHL for service as necessary.

2.2. It is the responsibility of staff performing this task to follow the procedure as written, to note any omissions, errors or unclear instructions in the procedure and bring them to the attention of the Toxicology Program Chief.

2.3. This procedure will be reviewed periodically by toxicology staff. Revisions of the procedure will be made when a need is identified.

2.4. All instruments shall undergo a power-up procedure, calibration and certification before installation may occur. See P-Alc-116, P-Alc-117 and P-Alc-118.

2.5. All agencies shall agree to a DataMaster Site Maintenance Agreement as part of a DataMaster Site Evaluation Checklist (Alc XXX) prior to an instrument being deployed to an agency. Site Inspection P-Alc-210 Move to 4.3

3.0 Precautions

3.1. Appropriate caution must be taken to avoid electrical shock when working with or using any electrically charged equipment.

3.2. All reports generated during this procedure must be retained, this includes those displaying error messages or failures. One copy of the report will be retained by the agency in which the instrument is installed. One copy returned to VDHL

4.0 Procedure Steps

4.1. Materials and Supplies

4.1.1. DataMaster DMT Instrument with keyboard and simulator lock.

4.1.2. HP 5650 or ~~equivalent~~ (Compatible ~~HP~~ PLC3e, PLC4 or PLC5) printer and USB cable.

4.1.3. UPS or Line Conditioner.

4.1.4. Guth 34CNP Wet Bath Simulator.

4.1.5. DataMaster Simulator Solution ~0.100 EtOH.

4.1.6. DataMaster Mouthpieces.

4.1.7. Radio Frequency Transmitter.

4.2. Transport

4.2.1. Contact the agency representative at the site of the pending installation to schedule instrument installation date and time.

4.2.2. Use a protective cover when transporting instruments through precipitation and prevent simulator solution from freezing during cold weather.

4.2.3. The ~~DataMaster DMT~~ Simulator should be transported 'dry' –i.e. simulator solution should be removed before transport.

4.3. Site Inspection and DataMaster Placement for new Sites(Bayer)

4.3.1. With an agency representative present, complete a DataMaster Site Evaluation Checklist (AIc xxx).

4.3.2. Review the area for limited access, instrument security, cleanliness, adequate ventilation, stable temperature, and lack of potentially interfering volatile substances. Ensure availability of appropriate power and telephone outlets. If any deficiencies are noted, document them on the Site Evaluation Checklist, submit this to the Toxicology Program Chief for disposition.

4.4. Setting up the DataMaster DMT

4.4.1. Plug the UPS or line conditioner into a power outlet. Plug the DataMaster DMT and printer into the UPS or line conditioner.

4.4.2. Turn the DMT on. Depending on instrument temperature, a minimum of ten minutes is necessary for the instrument to come to temperature and be ready to perform an installation. When the instrument reaches adequate temperature, the screen will display "Ready, Push Run".

4.4.3. Plug in the printer, turn it on and connect it to the DMT using a USB cable. Fill the printer with ink and paper (as necessary)

4.4.4. Connect the keyboard to ~~the~~ a USB slot in the back of the DMT.

4.4.5. Add solution to the simulator. Replace the simulator head snugly. Affix one copy of the simulator solution label to the top of the simulator head.

4.4.6. Plug the simulator in to the UPS or line conditioner. Ensure the simulator powered on correctly and the paddle is rotating.

ensure DMT registers @ 7°

4.4.7. Attach the BNC connector to the head of the simulator. Connect the simulator to the simulator tower on the DMT. Lock the arms around the simulator head using a small padlock.

4.4.8. On the "Ready, Push Run" screen, press the NPAS logo to open the drop down menu. Select TECH MODE. Enter password.

4.4.8.1. On the Technician screen, press the "Set RFI" button to set the Radio Frequency sensitivity. The instrument will adjust the RF sensitivity to the ambient level. Press "Save" to save the RF setting.

4.4.8.2. Exit when complete.

4.5. Installation Protocol

4.5.1. Open the drop down menu. Select: Protocols → Installation. Fill in all fields on the data entry screen as required.

4.5.2. The instrument will now perform a mandatory thirty minute wait period which gives the simulator solution time to warm up and equilibrate.

4.5.3. Once the wait period is complete, the instrument will automatically begin the Installation Protocol. Follow all instructions on the screen. The instrument will only continue on to the next step once each check passes.

4.5.3.1. The first step is a Diagnostic Check. The instrument will run a self check to ensure all temperatures, settings and components are functioning properly.

4.5.3.2. The second step is an Accuracy and Precision Check. The instrument will run five replicates of the simulator solution and calculate an average and standard deviation. The average must be within ±5% of the certified simulator solution concentration and the standard deviation must be <0.002.

4.5.3.3. The third step is the Radio Frequency Interference check.

4.5.3.3.1. When prompted to perform the RFI check, if the agency has a console radio located in their building, have dispatch key all commonly used frequencies. The instrument should not react to dispatch frequencies. If a dispatch frequency causes an RFI error, post a sign warning operators to be aware of the potential RF interferences.

4.5.3.3.2. Key a handheld radio within two feet of the instrument. An RFI should be reported. If the instrument's radio frequency sensitivity is incorrect, reset the sensitivity and begin the test again.

→ 4.5.4. The final step is a sample acceptance check.

4.5.4.1. Press "OK" when you are ready to start the test. The DMT will run through a series of quality control checks.

4.5.4.2. When prompted "Please Blow" and an intermittent tone is heard, insert a new mouthpiece into the breath tube.

4.5.4.3. Provide breath samples. The bottom left corner of the screen will display the type of breath to deliver.

4.5.4.4. **Shallow Breath Test**: Blow lightly into the mouth piece so that flow is visible on the display, but the tone remains intermittent. The test is considered failed if the DMT accepts a shallow breath.

4.5.4.5. **Intermittent Breath Test**: Blow and stop repeatedly. The test is considered failed if the DMT accepts an intermittent breath.

4.5.4.6. **Suck Back Test**: Inhale **gently** through the breath tube for two to three seconds. You should feel some slight resistance. The test is considered failed only if the DMT accepts a suck back breath as a valid sample or if while sucking back, alcohol is reported.

4.5.4.7. **Alcohol Free Test**: Blow normally until at least 1.5L of air has been delivered. The test is considered failed if the result for alcohol was ≥0.002 g/210L or if the breath sample was not accepted and at least 1.7L of air had been delivered.

4.5.4.8. Once the Sample Acceptance test is complete, the instrument will prompt "Did Instrument Pass All Sample Acceptance Checks? Yes/No" If all checks passed, select "Yes". If any of the checks failed, select "No". When prompted, type in which check failed and why.

4.5.5. Once the protocol is complete, the instrument will prompt for technician signature. Sign in the box and press "finished". Two copies of the report will now print.

4.6. Record Keeping

4.6.1. When the Installation reports print, file one copy with the onsite maintenance records. One copy of the report will be returned to the laboratory and reviewed by another technician, then filed in the DataMaster filing cabinet in room 124.

4.6.2. In the DataMaster Maintenance Logbook (Alc 803) affix one copy of the simulator solution label, document your name, date of installation and note any corrective actions that may have been performed.

4.6.3. In the DataMaster Operators Logbook (Alc 603) document your name, under the "subject" column write "test/Install" and enter the result of the simulator vapor average.

5.0 Emergency or High Priority Situations

5.1. The Laboratory Director or Toxicology Program Chief may designate any DataMaster DMT Installation to be a high priority and request service as soon as possible.

6.0 Quality Criteria and Corrective Action

6.1. The standard approach to correct a problem would be to first repeat the test to confirm the problem. Consult the service manual or ask for technical support from another toxicology staff member. Try to correct the problem and document the event. On failed install + maint (any)

6.2. After three failed installation attempts, the installation is considered failed and the instrument shall be returned to VDHL for further evaluation.

6.3. If the problem is not correctable in the field or a repair or technical evaluation is needed, a DataMaster Technical Support Inquiry worksheet (Alc 626) must be started. The instrument shall be returned to the laboratory for further evaluation. Once the repair is complete, the TSI is finished and placed in the instrument's file. This procedure may be begun again when the problem is resolved.

7.0 Preventative Maintenance and Backup Procedures

7.1. If a problem is encountered that cannot be resolved by Toxicology staff, the instrument manufacturer, National Patent Analytical Systems, Inc. will be contacted for technical support. 7.1.1 1-800-800-8143 service@NPAS.com

7.2. If an agencies instrument requires repair and cannot be returned to service within two weeks, a replacement instrument may be installed at that site.

8.0 References

8.1. VDHL ~~Chemical Hygiene Plan~~ and Laboratory Safety Manual (D-AD-003).

8.2. DataMaster DMT In-house Service Manual.

8.3. DataMaster Site Evaluation Checklist (Alc XXX).

8.4. DataMaster Maintenance Logbook (Alc 803).

8.5. DataMaster Operators Logbook (Alc 603).

8.6. DataMaster Technical Support Inquiry worksheet (Alc 626).

8.7. Appendix A: Example Acceptable Installation Report.

Appendix A
Acceptable Installation Report

Bryce-Parrott, Cara

From: Celotti, Stella
Sent: Wednesday, June 24, 2009 12:21 PM
To: Bolduc, Amanda; Drawbaugh, Bob
Cc: Bryce-Parrott, Cara
Subject: Procedures Approved

Hello, P-ALC-118, Rev 0, Lab Certification of the DMT and P-ALC-119, Rev 0, DataMaster DMT Installation have been approved and can be moved to Document Control. Thanks, Stella.

Mary Celotti
Laboratory Director
Vermont Department of Health Laboratory
195 Colchester Avenue
Burlington, Vermont 05401
Office:802-863-7570
Fax:802-863-7632
scelott@vdh.state.vt.us