



Initial Certification of the DataMaster DMT Breath Testing Device

Type: SOP

Effective: 2/7/2020

Applies to: Breath Alcohol

Previously LAB SOP BAC-15

PURPOSE: Each DataMaster DMT breath alcohol testing device must be examined to be in proper working order prior to use.

DEFINITIONS:

- **Burn In:** a period of time in which a new instrument is turned on allowing the unit to come up to temperature.

1.0 SUMMARY

Before an instrument is ready for the field, it must be examined to ensure that it is in proper working order. This is typically done by the manufacturer according to their QA/QC procedures, but is also done by Criminalists in the Iowa DCI Criminalistics Laboratory Breath Alcohol Section.

2.0 REAGENTS

2.1 Standard ethanol stock or certified alcohol reference solutions

3.0 APPARATUS and EQUIPMENT

3.1 DataMaster DMT

3.2 Simulator(s)

3.3 Assortment of tools, including but not limited to: screwdrivers, wrenches, pliers, volt/ohm meter

4.0 SAFETY CONSIDERATIONS

Exercise precaution when working with electricity, especially if working on components inside the DataMaster DMT.

5.0 PROCEDURE

Prior to placing a DataMaster DMT in the field, the following steps shall be done to help ensure that the instrument is in proper working order:

- 5.1 Unpack the DataMaster DMT from the shipping package. Open the cover and perform a visual inspection to ensure internal components are present and properly connected.
- 5.2 Plug the unit into an outlet.
- 5.3 After 30 minutes, set the voltages to the manufacturer's and/or the Laboratory's specifications.
- 5.4 Update the software to the most current version (if necessary).
- 5.5 Ensure that the Time Zone and Daylight Savings features are set properly.
- 5.6 Allow the unit to go through a "burn in" period for a minimum of 24 hours.
- 5.7 Once the "burn in" period has elapsed, re-verify and/or adjust voltages to the manufacturer's and/or the Laboratory's specifications.



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- 5.8 Set the barometer reading either using a NIST traceable handheld manometer (or equivalent device).
- 5.9 Run a “Change Dry Gas Tank” procedure.
- 5.10 Adjust the DataMaster DMT, if necessary.
- 5.11 Run a diagnostic of the instrument and verify that it is operating within the manufacturer’s specifications.
- 5.12 A standard ethanol stock solution shall be analyzed a minimum of two (2) times to check the calibration of the unit.
 - 5.12.1 If the values obtained by the unit do not fall within 5% of the expected value, the unit must be adjusted.
 - 5.12.2 The unit may be adjusted at the discretion of the Criminalist, even if the values fall within 5% of the expected value.
- 5.13 If the unit does not need to be adjusted, blank/ethanol solutions at concentrations between 0.000 - 0.400 g/210 L Breath shall be run a minimum of five (5) times each to verify that the instrument is calibrated properly throughout a linear range.
 - 5.13.1 The alcohol concentration (grams/210 L) must be within 0.004 or 5%, whichever is greater. If they are not, the unit shall be recalibrated and the solutions shall be run again.
- 5.14 Set the RFI Detector Voltage and perform a RFI Check to ensure proper setting.
- 5.15 Perform an Interference Check by running a Supervisor test utilizing either approximately 500 milliliters of a water solution or known ethanol solution, containing approximately 200 microliters of acetone or isopropyl alcohol or approximately 100 microliters of both, placed into a simulator. Results of the test shall indicate “Interference Detected.”
- 5.16 Perform a Breath Volume Verification Test by utilizing a two (2) liter syringe filled with ambient air.
 - 5.16.1 Try to use constant pressure and flow rate throughout the test.
 - 5.16.2 Proper flow settings are present if the results are with 10% (1.8L – 2.2L) of the target.
 - 5.16.3 If the results fall outside the expect range, adjust the flow setting and retry.
- 5.17 Perform a Mouth Alcohol Check by placing alcohol (e.g. breath sprays, mouthwash) into the mouth and running a test. A passing test will result in an “Invalid” response.
- 5.18 Check the TraCS Connectivity by verifying the DataMaster DMT and the TraCS software are communicating. This can be done at the same time as Step 5.16.
- 5.19 Enter the Certification Date into the DMT in the Setup menu.
- 5.20 Verify in Setup that the number of copies on a subject test is set to three (3).

6.0 INTERPRETATION OF RESULTS

Not applicable.



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7.0 QUALITY CONTROL

- 7.1 A folder shall be created indicating the county, location and serial number of the DataMaster DMT device.
- 7.2 A copy of the Diagnostic, Calibration and valid Supervisor Tests shall be filed within the folder.
- 7.3 A completed DataMaster DMT Initial Setup Check Sheet ^{8.2} shall be completed and filed within the folder. Please note that all fields may not be needed as 9-18 solutions may be ran based on the discretion of the analyst.
- 7.4 Scan the initial calibration data printouts into the appropriate instrument within the LIMS Database.
- 7.5 Fill out the maintenance record.
- 7.6 Enter Measurement Uncertainty for the instrument by following the procedure set forth in the BA SOP "Record Keeping." ^{8.2}

8.0 REFERENCES

- 8.1 Breath Alcohol Form "DataMaster DMT Initial Set-up Check Sheet"
- 8.2 Breath Alcohol SOP "Record Keeping"

9.0 COMMENTS

On occasion, additional service, replacement of non-functional parts, or additional ethanol solutions may be necessary in order to verify that the instrument is in proper working order.