

 <p>Iowa DCI Crime Laboratory Official Document</p>	<b>Title:</b> Initial Certification of the DataMaster DMT Breath Testing Device	
	<b>Document ID:</b> SOP BAC-15	<b>Revision #:</b> 2
	<b>Effective Date:</b> 6-22-10	<b>Applies To:</b> Breath Alcohol
	<b>Reason for Revision/Sections Revised:</b> 4.1, 4.16, 4.17, 5.3, 5.4, and Attachment 1	

**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 insure 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 Breath Alcohol Section of the Criminalistics Laboratory.

## 2.0 REAGENTS APPARATUS and EQUIPMENT

- 2.1 DataMaster DMT
- 2.2 Standard Ethanol Stock Solution(s)
- 2.3 Simulator(s)
- 2.4 Assortment of tools: screwdrivers, wrenches, pliers, volt/ohm meter, etc.

## 3.0 SAFETY CONSIDERATIONS

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

## 4.0 PROCEDURE

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

- 4.1 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.

- 4.2 Plug the unit into an outlet.
- 4.3 After approximately 15 minutes, adjust voltages to the manufacturer's and/or DCI Crime Laboratory's specifications.
- 4.4 Update the software to the most current version (if necessary).
- 4.5 Ensure that the Time Zone and Daylight Savings features are set properly.
- 4.6 Allow the unit to go through a "burn in" period for a minimum of 24 hours.
- 4.7 Once the "burn in" period has elapsed, re-verify and/or adjust voltages to the manufacturer's and/or the DCI Crime Lab specifications.
- 4.8 Set the barometer reading either using a handheld device or from the National Oceanic and Atmospheric Administration's website at [www.noaa.gov](http://www.noaa.gov). Additionally, set the altitude reading either using a handheld device or from U.S. Geological Survey's website at <http://geonames.usgs.gov/pls/gnispublic>.
- 4.9 Run a "Change Dry Gas Tank" procedure.
- 4.10 Calibrate the DataMaster DMT if necessary
- 4.11 Run a diagnostic of the instrument and verify that it is operating within the manufacturer's specifications.
- 4.12 A standard ethanol stock solution shall be analyzed a minimum of two (2) times to check the calibration of the unit.
  - 4.12.1 If the values obtained by the unit do not fall within 5% of the expected value, the unit must be recalibrated.
  - 4.12.2 The unit may be recalibrated at the discretion of the Criminalist even if the values fall within 5% of the expected value.
- 4.13 If the unit does not need to be calibrated, ethanol stock solutions at varying concentrations between 0.010 - 0.300 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.
  - 4.13.1 The alcohol concentration (grams/210L) 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.
- 4.14 Set the RFI Detector Voltage and perform a RFI check to ensure proper setting.
- 4.15 Perform an Interference Check by running a Supervisor test utilizing a water solution containing acetone, isopropyl alcohol or a combination of both. Results of the test shall indicate "Interference Detected".
- 4.16 Perform a breath volume verification test.
- 4.17 Perform a "Mouth Alcohol Check" – Place alcohol (breath sprays, mouthwash, etc.) into the mouth and run a test - a passing test will result in an "Invalid" response.
- 4.18 TraCS Connectivity – verify the DMT and the TraCS software are communicating. This can be done at the same time as 4.16.
- 4.19 Enter the Certification Date into the DMT in the Setup menu.

- 4.20 Verify in Setup that the number of copies on a subject test is set to three (3).

## 5.0 QUALITY CONTROL

- 5.1 A folder shall be created indicating the county, location and serial number of the DataMaster.
- 5.2 A copy of the Diagnostic, Calibration and valid Supervisor tests shall be filed within the folder.
- 5.3 A completed DMT Initial Setup Check sheet shall be completed and filed within the folder (**Attachment 1**). Please note that all fields may not be needed as 9-18 solutions may be ran based on the discretion of the analyst.
- 5.4 The margin of error of the instrument will be determined at the time of certification.
- 5.4.1 These calculations may be done by the Criminalist or the DataMaster DMT.
- 5.4.2 For alcohol concentrations 0.080 g/210L and below, subtract the average of the simulator results from the expected alcohol concentration.
- 5.4.3 For alcohol concentrations 0.081 g/210L or greater, take the average of the simulator results and subtract this from the expected concentration, then divide this value by the expected concentration and then multiply by 100.
- 5.4.4 Determine this for each level of simulator tested.
- 5.4.5 The margin of error shall be no greater than +/- 0.004 or 5% which ever is greater.
- 5.5 Scan the initial calibration data printouts into the appropriate instrument within the LIMS database.
- 5.6 Fill out the maintenance record.

## 6.0 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.

DMT Initial Setup Check sheet

DataMaster DMT Serial Number \_\_\_\_\_

Date \_\_\_\_\_

Criminalist(s) Name(s) \_\_\_\_\_

VOLTAGE CHECKS

- SAMPLE CELL BETWEEN (44-52) DEGREES  YES  NO
- BREATH TUBE BETWEEN (38-50) DEGREES  YES  NO
- DETECTOR BIAS SET, either 80V or 120V  DONE
- CHOPPER FREQUENCY SET BETWEEN (525-575)  DONE
- DETECTOR VOLTAGE SET BETWEEN (0 – +0.400)  DONE
- BAROMETER SET  DONE
- RFI DETECTOR SET  DONE

DIAGNOSTIC TEST  PASS  FAIL

LINEARITY CHECK

CONC _____	CONC _____	CONC _____
SOLN NUM _____	SOLN NUM _____	SOLN NUM _____
SIM. S/N _____	SIM S/N _____	SIM S/N _____

TEST 1 _____	TEST 1 _____	TEST 1 _____
TEST 2 _____	TEST 2 _____	TEST 2 _____
TEST 3 _____	TEST 3 _____	TEST 3 _____
TEST 4 _____	TEST 4 _____	TEST 4 _____
TEST 5 _____	TEST 5 _____	TEST 5 _____
MOE _____	MOE _____	MOE _____

CONC _____	CONC _____	CONC _____
SOLN NUM _____	SOLN NUM _____	SOLN NUM _____
SIM. S/N _____	SIM S/N _____	SIM S/N _____

TEST 1 _____	TEST 1 _____	TEST 1 _____
TEST 2 _____	TEST 2 _____	TEST 2 _____
TEST 3 _____	TEST 3 _____	TEST 3 _____
TEST 4 _____	TEST 4 _____	TEST 4 _____
TEST 5 _____	TEST 5 _____	TEST 5 _____
MOE _____	MOE _____	MOE _____

CONC _____	CONC _____	CONC _____
SOLN NUM _____	SOLN NUM _____	SOLN NUM _____
SIM. S/N _____	SIM S/N _____	SIM S/N _____

TEST 1 _____	TEST 1 _____	TEST 1 _____
TEST 2 _____	TEST 2 _____	TEST 2 _____
TEST 3 _____	TEST 3 _____	TEST 3 _____
TEST 4 _____	TEST 4 _____	TEST 4 _____
TEST 5 _____	TEST 5 _____	TEST 5 _____

MOE \_\_\_\_\_

MOE \_\_\_\_\_

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DataMaster DMT Serial Number \_\_\_\_\_

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SOLN NUM \_\_\_\_\_  
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MOE \_\_\_\_\_

RFI CHECK  
INTERFERENCE CHECK  
BREATH VOLUME VERIFICATION TEST  
MOUTH ALCOHOL CHECK  
TRACS CONNECTIVITY TEST

PASS       FAIL  
 PASS       FAIL  
 PASS       FAIL  
 PASS       FAIL  
 PASS       FAIL

CERTIFICATION DATE ENTERED INTO DMT  DONE

NOTES:

SIGNATURE(S) OF PERSON(S) RESPONSIBLE FOR INITIAL SETUP:

\_\_\_\_\_

REVIEWED BY:

\_\_\_\_\_

Attachment 1