Florida Department of Law Enforcement

Guy M. Tunnell, Commissioner

Jeb Bush, Governor
Charlie Crist, Attorney General
Tom Gallagher, Chief Financial Officer
Charles H. Bronson, Commissioner of Agriculture

MEMORANDUM

TO: Alcohol Testing Program Department Inspectors

FROM: Laura D. Barfield, Alcohol Testing Program Manager LDB

DATE: November 30, 2005

SUBJECT: CMI, Inc. Intoxilyzer 8000 Instrumentation Vessel Power Source Research Study – April 2005

Attached you will find the CMI, Inc. Intoxilyzer 8000 Instrumentation Vessel Power Source Research Study Report dated November 30, 2005. The report was generated using data obtained during the study conducted on April 21, 2005.

The results of this research study establish that the CMI, Inc. Intoxilyzer 8000 instrument produces accurate and reliable breath alcohol test results using a 12 volt DC vessel power source. If you have any questions, please feel free to contact me.

LDB

Attachments

CMI, Inc. Intoxilyzer 8000
Instrumentation Vessel Power Source
Research Study Report

Report Prepared November 30, 2005

Conducted April 21, 2005
Jacksonville, Florida
Florida Department of Law Enforcement
Alcohol Testing Program

CMI, Inc. Intoxilyzer 8000 Instrumentation
Vessel Power Source Research Study

Purpose

The purpose of this research study was to assess the capabilities of the CMI, Inc. Intoxilyzer Model 8000 breath test instrumentation using a 12 volt DC vessel power source. The research study ensures that the methodology utilized by the breath test instrumentation provides accurate and scientifically reliable analytical results.

Procedures

FDLE/ATP Form 34 Instrument Evaluation Procedures, Revision March 2004 was used as the analytical procedures for this research study.

Testing Location and Operating Conditions

Testing Location: FFWCC Boat Dock (Pier 17) on Lakeshore Drive, Jacksonville, FL 32210
Operating Conditions: 70 to 82^{0}F

FDLE Personnel Present During the Evaluation

Laura D. Barfield, Program Manager
Rafael E. Madrigal, Assistant General Counsel
Matthew E. Malhiot, Regional Inspector
Dwite N. Hackney, Department Inspector
George L. Venturi, Department Inspector
Warren H. Sanger, Department Inspector
Roger G. Skipper, Department Inspector
Donald P. Suereth, Department Inspector
Stephen N. Neff, Department Inspector

Make, Model and Serial Number of Instrumentation

CMI, Inc. Intoxilyzer 8000, Serial Number 80-001173
CMI, Inc. Intoxilyzer 8000, Serial Number 80-001175
CMI, Inc. Intoxilyzer 8000, Serial Number 80-001181 (not used due to vessel power source problem)

Instrumentation Description

- Make and Model Designation: Intoxilyzer 8000, listed on the US Department of Transportation Conforming Products List of Evidential Breath Measurement Devices.
- Method of Analysis: Non-dispersive infrared absorption
- Software Version: 8100.24
- Description of Instrumentation: An infrared-based instrument designed for both mobile and stationary evidential breath alcohol testing.
- Specification for Precision: Average Standard deviation of 0.003 g/210L or better
- Response Prescribed to Denote an Interferent: Display INTERFERENT DETECT and a high/low tone will sound
- Response Prescribed to Denote Mouth Alcohol: Display SLOPE NOT MET and a high/low tone will sound

Equipment and Supplies

Vessel

Twenty-two (22) foot Angler Outboard

Reference Sample Devices (Simulators)

Fifteen (15) reference sample devices (simulators) were used during this research study. All simulators were operated within 34 ± 0.2C and had air leak resistant seals. The make, model and serial number of each simulator is outlined in Appendix A.

Digital Thermometers

Five (5) digital thermometers were used during this research study. All digital thermometers were operated according to manufacturer's specifications. The make, model and serial number of each digital thermometer is outlined in Appendix A.

External Printers

One (1) external printer was used during this research study. The make, model and serial number of each external printer is outlined in Appendix A.

Standards, Solutions, and Distilled Water

All alcohol reference solutions were analyzed by the Florida Department of Law Enforcement in accordance with Rule 11D-8.0035(2)(a), FAC. The dry gas standard was prepared and certified by Scott Specialty Gases, Inc. The results of the alcohol reference solution analyses and the certified concentration of the dry gas standard are outlined in Appendix B. Acetone Stock Solution, Lot Number 2004-C, and Mouth Alcohol Solution, Lot Number 2004-A, prepared and analyzed by the Florida Department of Law Enforcement were used for the acetone interference tests and the mouth alcohol tests, respectively. Crystal Springs distilled water was analyzed by gas chromatography subsequent to the evaluation.

Other Supplies

All other supplies and equipment used were commercially available and compatible with this type of instrumentation (printer tape, mouthpieces, tubing, office supplies, etc.).

Process

All CMI, Inc. Intoxilyzer 8000 breath test instruments were operated using a 12 volt DC vessel power source as follows:

- Twenty-five (25) repetitions each of a 0.00 g/210L test, an acetone interference test, and a mouth alcohol test;
- Twenty-five (25) repetitions of alcohol reference solution analyses at the following concentrations: 0.05, 0.08, and 0.20 g/210L; and
- Twenty-five (25) repetitions of a 0.08 g/210L dry gas standard analysis.
- Five (5) subject breath tests – Two subjects were dosed with alcohol. The vessel was brought out into open water and subject testing occurred pursuant to FDLE/ATP Form 37 Operational Procedures – Intoxilyzer 8000. The purpose of this testing was to see if the rocking of the boat affected the operation of the instrument and to demonstrate the printing of a test receipt and recall of the Breath Alcohol Test Affidavit. This testing was not related to alcohol concentration.

The vessel was equipped with multiple 12 volt DC power source connections. All instruments were placed on a table on the dock directly next to the vessel with its engines running and shut off at different times during the testing process, using one external printer and one internal printer. Testing of the third instrument began but was not completed due to a faulty connector to one of the vessel's 12 volt DC power sources. The results are outlined in Appendix C-1, C-2, C-3 and C-4.

Analytical Results

The use of Intoxilyzer 8000 instrumentation with a 12 volt DC vessel power source did not affect the method of analysis or the analytical reliability of the results. Results of all analyses met the requirements of FDLE/ATP Form 34 Instrument Evaluation Procedures for accuracy, precision, and correct instrument responses prescribed by the manufacturer.

Conclusion

The results of this research study establish that the CMI, Inc. Intoxilyzer 8000 instrument produces accurate and reliable breath alcohol test results using a 12 volt DC vessel power source.

APPENDIX A

External Equipment

Reference Sample Devices (Simulators)

Make	Model	Serial Number
Guth	10-4D	SD1024
Guth	10-4D	SD1011
Guth	10-4D	SD1012
Guth	10-4D	SD1013
Guth	10-4D	SD1014
Guth	10-4D	SD1017
Guth	10-4D	SD1023
Guth	10-4D	SD1020
Guth	10-4D	SD1025
Guth	10-4D	SD1018
Guth	34C	G6621
Guth	34C	G2840
Guth	34C	G11621
Guth	210021	DR1280
Guth	210021	DR1279

Digital Thermometers

Make	Model	Serial Number
Ertco-Eutechnics	4400	300502
Ertco-Eutechnics	4400	300948
Ertco-Eutechnics	4400	300505
Ertco-Eutechnics	4400	300504
Ertco-Eutechnics	4400	300949
Ertco-Eutechnics	4400	300918

External Printer

Make	Model	Serial Number
Samsung	ML-1750	BKDXB11895B

APPENDIX B

Standards

Alcohol Reference Solution

	0.050 g/210L (g/100mL)	0.080 g/210L (g/100mL)	0.200 g/210L (g/100mL)
Source	Alcohol Countermeasure Systems, Inc.	Alcohol Countermeasure Systems, Inc.	Alcohol Countermeasure Systems, Inc.
Lot Number	200411C	200411G	200411D
Manufacture Date	11/4/2004	11/18/2004	11/4/2004
Expiration Date	11/4/2006	11/18/2006	11/4/2006
Target Concentration (g/100mL)	0.0605	0.0968	0.2420
Acceptable Range (g/100mL)	0.0586 to 0.0623	0.0938 to 0.0997	0.2347 to 0.2492
1	0.0609	0.0978	0.2429
2	0.0609	0.0979	0.2422
3	0.0607	0.0980	0.2422
4	0.0608	0.0983	0.2420
5	0.0612	0.0980	0.2434
6	0.0611	0.0975	0.2418
7	0.0611	0.0980	0.2431
8	0.0609	0.0982	0.2423
9	0.0618	0.0981	0.2431
10	0.0609	0.0980	0.2436
11	0.0609	0.0977	0.2420
12	0.0610	0.0978	0.2435
13	0.0610	0.0980	0.2415
14	0.0615	0.0978	0.2436
15	0.0612	0.0978	0.2433
16	0.0604	0.0975	0.2426
17	0.0608	0.0979	0.2426
18	0.0610	0.0977	0.2424
19	0.0615	0.0979	0.2427
20	0.0611	0.0978	0.2431
Mean	0.0610	0.0979	0.2427
Std Dev	0.0003	0.0002	0.0006
Minimum	0.0604	0.0975	0.2415
Maximum	0.0618	0.0983	0.2436

Dry Gas Standard

Manufacturer	Lot Number	Expiration Date	Certified Concentration
Scott Specialty Gases, Inc.	504502I	2/17/2007	0.080 g/210L

APPENDIX C-1

Analytical Results

80-001173

	0.00 g/210L Test (g/210L)	0.05 g/210L Test (g/210L)	0.08 g/210L Test (g/210L)	0.20 g/210L Test (g/210L)	0.08 g/210L (g/210L) Dry Gas Std Test	Acetone Interference Test	Mouth Alcohol Test
1	0.000	0.050	0.080	0.201	0.080	INT*	SNM*
2	0.000	0.050	0.080	0.201	0.080	INT*	SNM*
3	0.000	0.050	0.081	0.201	0.080	INT*	SNM*
4	0.000	0.050	0.080	0.201	0.080	INT*	SNM*
5	0.000	0.050	0.079	0.201	0.080	INT*	SNM*
6	0.000	0.050	0.080	0.201	0.080	INT*	SNM*
7	0.000	0.050	0.080	0.200	0.080	INT*	SNM*
8	0.000	0.050	0.081	0.201	0.080	INT*	SNM*
9	0.000	0.050	0.080	0.201	0.080	INT*	SNM*
10	0.000	0.051	0.081	0.200	0.081	INT*	SNM*
11	0.000	0.051	0.080	0.200	0.080	INT*	SNM*
12	0.000	0.051	0.081	0.199	0.080	INT*	SNM*
13	0.000	0.051	0.081	0.199	0.081	INT*	SNM*
14	0.000	0.051	0.081	0.199	0.080	INT*	SNM*
15	0.000	0.051	0.081	0.199	0.080	INT*	SNM*
16	0.000	0.051	0.081	0.204	0.081	INT*	SNM*
17	0.000	0.051	0.080	0.201	0.080	INT*	SNM*
18	0.000	0.050	0.081	0.201	0.080	INT*	SNM*
19	0.000	0.050	0.081	0.201	0.080	INT*	SNM*
20	0.000	0.051	0.081	0.201	0.081	INT*	SNM*
21	0.000	0.050	0.080	0.201	0.080	INT*	SNM*
22	0.000	0.050	0.081	0.202	0.081	INT*	SNM*
23	0.000	0.050	0.080	0.202	0.080	INT*	SNM*
24	0.000	0.050	0.081	0.203	0.081	INT*	SNM*
25	0.000	0.050	0.080	0.204	0.080	INT*	SNM*
Mean		0.050	0.080	0.201	0.080		
Std Dev		0.0005	0.0006	0.0013	0.0004		
Minimum		0.050	0.079	0.199	0.080		
Maximum		0.051	0.081	0.204	0.081		

Average Standard Deviation: 0.0007

Comments: INT* = Interferent Detect
SNM* = Slope Not Met

APPENDIX C-2

Analytical Results

80-001175

	0.00 g/210L Test (g/210L)	0.05 g/210L Test (g/210L)	0.08 g/210L Test (g/210L)	0.20 g/210L Test (g/210L)	0.08 g/210L (g/210L) Dry Gas Std Test	Acetone Interference Test	Mouth Alcohol Test
1	0.000	0.048	0.078	0.203	0.079	INT*	SNM*
2	0.000	0.050	0.078	0.202	0.079	INT*	SNM*
3	0.000	0.050	0.079	0.201	0.080	INT*	SNM*
4	0.000	0.050	0.080	0.201	0.079	INT*	SNM*
5	0.000	0.051	0.080	0.200	0.079	INT*	SNM*
6	0.000	0.050	0.080	0.201	0.079	INT*	SNM*
7	0.000	0.052	0.080	0.200	0.080	INT*	SNM*
8	0.000	0.051	0.080	0.200	0.080	INT*	SNM*
9	0.000	0.050	0.080	0.199	0.079	INT*	SNM*
10	0.000	0.051	0.081	0.199	0.080	INT*	SNM*
11	0.000	0.047	0.081	0.199	0.080	INT*	SNM*
12	0.000	0.049	0.080	0.198	0.080	INT*	SNM*
13	0.000	0.049	0.080	0.199	0.080	INT*	SNM*
14	0.000	0.051	0.079	0.199	0.080	INT*	SNM*
15	0.000	0.051	0.080	0.199	0.081	INT*	SNM*
16	0.000	0.049	0.079	0.199	0.080	INT*	SNM*
17	0.000	0.051	0.080	0.198	0.081	INT*	SNM*
18	0.000	0.049	0.080	0.198	0.080	INT*	SNM*
19	0.000	0.050	0.080	0.198	0.080	INT*	SNM*
20	0.000	0.047	0.080	0.197	0.080	INT*	SNM*
21	0.000	0.050	0.081	0.200	0.079	INT*	SNM*
22	0.000	0.051	0.080	0.199	0.081	INT*	SNM*
23	0.000	0.050	0.080	0.198	0.080	INT*	SNM*
24	0.000	0.048	0.080	0.197	0.080	INT*	SNM*
25	0.000	0.053	0.080	0.197	0.080	INT*	SNM*
Mean		0.050	0.080	0.199	0.080		
Std Dev		0.0014	0.0007	0.015	0.0006		
Minimum		0.047	0.078	0.197	0.079		
Maximum		0.053	0.081	0.203	0.081		

Average Standard Deviation: 0.0011

Comments: INT* = Interferent Detect
SNM* = Slope Not Met

APPENDIX C-3

Analytical Results

80-001181

	0.00 g/210L Test (g/210L)	0.05 g/210L Test (g/210L)	0.08 g/210L Test (g/210L)	0.20 g/210L Test (g/210L)	0.08 g/210L (g/210L) Dry Gas Std Test	Acetone Interference Test	Mouth Alcohol Test
1	0.000	0.048			0.080		
2	0.000	0.048			0.080		
3	0.000	0.047			0.080		
4	0.000	0.053			0.081		
5	0.000	0.048			0.080		
6	0.000	0.053			0.080		
7	0.000	0.052			0.080		
8	0.000	0.047			0.080		
9	0.000	0.048			0.081		
10	0.000	0.051			0.080		
11	0.000	0.047			0.080		
12	0.000	0.047			0.081		
13	0.000	0.054			0.081		
14	0.000	0.050			0.081		
15	0.000	0.053			0.081		
16	0.000	0.054			0.081		
17	0.000	0.049			0.080		
18	0.000	0.050			0.081		
19	0.000	0.050			0.080		
20	0.000	0.047			0.081		
21	0.000				0.082		
22	0.000				0.080		
23	0.000				0.081		
24	0.000				0.080		
25	0.000				0.081		
Mean					0.081		
Std Dev					0.0006		
Minimum					0.080		
Maximum					0.082		

Average Standard Deviation:

Comments: Testing of the third instrument began but was not completed due to a faulty connector to one of the vessel's 12 volt DC power sources.

APPENDIX C-4

Subject Breath Tests

Drinking Subject Testing on Vessel Subject #1, Test #1 (80-001173)	
Diagnostics Check	OK
Air Blank	0.000
Control Test	0.080
Air Blank	0.000
Subject Sample #1	0.035
Air Blank	0.000
Air Blank	0.000
Subject Sample #2	0.040
Air Blank	0.000
Control Test	0.080
Air Blank	0.000
Diagnostics Check	OK

Drinking Subject Testing on Vessel Subject #1, Test #2 (80-001173)	
Diagnostics Check	OK
Air Blank	0.000
Control Test	0.080
Air Blank	0.000
Subject Sample #1	0.037
Air Blank	0.000
Air Blank	0.000
Subject Sample #2	0.041
Air Blank	0.000
Control Test	0.081
Air Blank	0.000
Diagnostics Check	OK

Drinking Subject Testing on Vessel Subject #1, Test #3 (80-001173)	
Diagnostics Check	OK
Air Blank	0.000
Control Test	0.081
Air Blank	0.000
Subject Sample #1	0.041
Air Blank	0.000
Air Blank	0.000
Subject Sample #2	0.041
Air Blank	0.000
Control Test	0.080
Air Blank	0.000
Diagnostics Check	OK

Drinking Subject Testing on Vessel Subject #2, Test #1 (80-001173)	
Diagnostics Check	OK
Air Blank	0.000
Control Test	0.079
Air Blank	0.000
Subject Sample #1	0.064
Air Blank	0.000
Air Blank	0.000
Subject Sample #2	0.063
Air Blank	0.000
Control Test	0.080
Air Blank	0.000
Diagnostics Check	OK

Drinking Subject Testing on Vessel Subject #2, Test #2 (80-001173)	
Diagnostics Check	OK
Air Blank	0.000
Control Test	0.080
Air Blank	0.000
Subject Sample #1	0.064
Air Blank	0.000
Air Blank	0.000
Subject Sample #2	0.062
Air Blank	0.000
Control Test	0.079
Air Blank	0.000
Diagnostics Check	OK