FDLE

Florida Department of
Law Enforcement

Guy M. Tunnell
Commissioner

Criminal Justice
Professionalism Program
Alcohol Testing Program

P.O. Box 1489
Tallahassee, Florida 32302
(850) 410-8600
(850) 410-7816 Fax
http://www.fdle.state.fl.us

MEMORANDUM

TO: Alcohol Testing Program Department Inspectors

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

DATE: February 10, 2005

SUBJECT: CMI, Inc. Intoxilyzer 8000 Instrumentation Research Study Report - October 2004

Attached you will find the CMI, Inc. Intoxilyzer 8000 Instrumentation Research Study Report dated February 10, 2005. The report was generated using data obtained during analyses conducted on October 18, 2004.

If you have any questions, please feel free to contact me.

LDB

Attachments

CMI, Inc. Intoxilyzer 8000 Instrumentation Research Study Report

Report Prepared February 10, 2005

Conducted October 18, 2004
Ft. Myers, Florida
Florida Department of Law Enforcement
Alcohol Testing Program

CMI, Inc. Intoxilyzer 8000 Instrumentation Research Study

Purpose
The purpose of this research study was to assess the CMI, Inc. Intoxilyzer Model 8000 breath test instrumentation, which utilizes infrared light absorption as the method of analysis, with software version 8100.20.

Procedure
FDLE/ATP Form 34, Revision March 2002 was used as a reference for the analytical procedures of this research project.

Testing Location and Operating Conditions
Testing Location: Florida Department of Law Enforcement
Ft. Myers Regional Operations Center
4700 Terminal Drive, Suite 1
Ft. Myers, Florida 33907
Operating Conditions: Room Temperature: 70 to 71F

FDLE Personnel Present During the Research Study
George L. Venturi

Make, Model and Serial Number of Instrumentation
CMI, Inc. Intoxilyzer 8000 – 80-000818
CMI, Inc. Intoxilyzer 8000 – 80-000864

Equipment and Materials
Reference Sample Devices (Simulators)
A total of five (5) 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
A digital thermometer was used during this research study. The digital thermometer was operated within manufacturer's specifications. The make, model and serial number of each digital thermometer is outlined in Appendix A.
External Printer
An external printer was used with the Intoxilyzer 8000 instrumentation.
Other Supplies
All other supplies and equipment used were commercially available and compatible with this type instrumentation (printer tape, mouthpieces, tubing, office supplies, etc.).

Process
The research study included the analysis of alcohol reference solutions at 0.05, 0.08, and 0.20 g/210L. Alcohol reference solutions prepared by Alcohol Countermeasure System, Inc. were used. All solutions were analyzed in accordance with Rule 11D-8.0035(2)(a), FAC. The results of the alcohol reference solution analyses are outlined in Appendix B.

The instrumentation was also studied for its ability to detect acetone interference, mouth alcohol and an alcohol free sample. The distilled water was used for the alcohol-free sample test. Acetone stock solution, Lot Number

2004-D, and mouth alcohol solution, Lot Number 2004-A, prepared by the Florida Department of Law Enforcement was used for the acetone interference test and the mouth alcohol test, respectively. Dry gas standard manufactured by Scott Specialty Gases, Lot number 4223011, was used for the dry gas standard analyses.

Alcohol Free Test, Acetone Interference Test and Mouth Alcohol Test
The Intoxilyzer 8000 instrumentation was subjected to twenty-five (25) repetitions of an alcohol free test, twenty-five (25) repetitions of an acetone interference test and two (2) repetitions of a mouth alcohol test. The results are outlined in Appendix C.

Alcohol Reference Solution Analyses at 0.05, 0.08, and 0.20 g/210L
The Intoxilyzer 8000 instrumentation was subjected to twenty-five (25) repetitions of alcohol reference solution analyses at the following concentrations: 0.05, 0.08, and 0.20 g/210L. The results are outlined in Appendix C.

Dry Gas Standard Analysis
The Intoxilyzer 8000 instrumentation was subjected to twenty-five (25) repetitions of 0.08 g/210L dry gas standard analyses. The results are outlined in Appendix D.

Internal Standard Test Analysis
The Intoxilyzer 8000 instrumentation was subjected to twenty-five (25) repetitions of a 0.08 g/210L internal standard test analyses. The results are outlined in Appendix D.

Analytical Results
All results met the requirements of FDLE/ATP Form 34 Instrument Evaluation Procedures for accuracy, and all instrumentation performed within the manufacturer's specification for precision of 0.003. All results for the acetone interferent test were 0.000 g/210L and acetone was detected by the correct instrument response prescribed by the manufacturer to denote the interferent. Mouth alcohol was correctly determined by the instrumentation.

Conclusion

The results of this research study establish that the CMI, Inc. Intoxilyzer 8000 instrumentation produces accurate and reliable breath alcohol test results using software version 8100.20.

APPENDIX A

External Equipment

Reference Sample Devices (Simulators)

Make	Model	Serial Number
Guth	10-4	S0259
Guth	10-4	S0382
Guth	34C	G2835
Guth	34C	G11739
Guth	2100	DR3856

Digital Thermometers

Make	Model	Serial Number
Ertco-Euthechnics	4400	300503

APPENDIX B

Solutions

Alcohol Reference Solution

	0.05 g/210L (g/100mL)	0.08 g/210L (g/100mL)	0.20 g/210L (g/100mL)
Source	ACS	ACS	ACS
Lot Number	200403E	200403F	200403A
Manufacture Date	3/26/2004	3/26/2004	3/11/2004
Expiration Date	3/26/2006	3/26/2006	3/11/2006
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	0.0604	0.0977	0.2464
2	0.0605	0.0976	0.2465
3	0.0606	0.0974	0.2463
4	0.0604	0.0975	0.2463
5	0.0607	0.0976	0.2464
6	0.0606	0.0978	0.2471
7	0.0605	0.0972	0.2463
8	0.0602	0.0974	0.2466
9	0.0604	0.0976	0.2469
10	0.0604	0.0976	0.2456
11	0.0605	0.0974	0.2466
12	0.0602	0.0976	0.2471
13	0.0603	0.0974	0.2470
14	0.0603	0.0971	0.2467
15	0.0603	0.0974	0.2469
16	0.0601	0.0976	0.2461
17	0.0603	0.0974	0.2467
18	0.0604	0.0971	0.2460
19	0.0605	0.0978	0.2467
20	0.0601	0.0978	0.2466
Mean	0.0604	0.0975	0.2465
Std Dev	0.0002	0.0002	0.0004
Minimum	0.0601	0.0971	0.2456
Maximum	0.0607	0.0978	0.2471

Note: ACS = Alcohol Countermeasure Systems, Inc.

APPENDIX C

Analytical Results

80-000818

	Alcohol Free Test (g/210L)	0.05 g/210L (g/210L)	0.08 g/210L (g/210L)	0.20 g/210L (g/210L)	Acetone Interference Test	Mouth Alcohol Test
1	0.000	0.048	0.079	0.195	INT DET	M A DET
2	0.000	0.049	0.079	0.197	INT DET	M A DET
3	0.000	0.049	0.080	0.196	INT DET	
4	0.000	0.050	0.079	0.197	INT DET	
5	0.000	0.049	0.078	0.196	INT DET	
6	0.000	0.049	0.079	0.196	INT DET	
7	0.000	0.050	0.079	0.197	INT DET	
8	0.000	0.050	0.079	0.196	INT DET	
9	0.000	0.049	0.079	0.197	INT DET	
10	0.000	0.050	0.079	0.196	INT DET	
11	0.000	0.049	0.080	0.196	INT DET	
12	0.000	0.049	0.079	0.196	INT DET	
13	0.000	0.049	0.079	0.198	INT DET	
14	0.000	0.049	0.080	0.197	INT DET	
15	0.000	0.048	0.080	0.197	INT DET	
16	0.000	0.050	0.079	0.197	INT DET	
17	0.000	0.050	0.080	0.196	INT DET	
18	0.000	0.050	0.079	0.196	INT DET	
19	0.000	0.050	0.079	0.196	INT DET	
20	0.000	0.050	0.079	0.197	INT DET	
21	0.000	0.050	0.080	0.197	INT DET	
22	0.000	0.050	0.080	0.197	INT DET	
23	0.000	0.050	0.080	0.197	INT DET	
24	0.000	0.049	0.079	0.197	INT DET	
25	0.000	0.049	0.079	0.197	INT DET	
Mean		0.049	0.079	0.197		
Std Dev		0.0006	0.0005	0.0007		
Maximum		0.050	0.080	0.198		
Minimum		0.048	0.078	0.195		

Average Standard Deviation: 0.0006

Comments: INT DET = Interferent Detected (INT*)
M A DET = Mouth Alcohol Detected (Test Aborted – Invalid Sample)

APPENDIX C

Analytical Results

80-000864

	Alcohol Free Test (g/210L)	0.05 g/210L (g/210L)	0.08 g/210L (g/210L)	0.20 g/210L (g/210L)	Acetone Interference Test	Mouth Alcohol Test
1	0.000	0.048	0.075	0.192	INT DET	M A DET
2	0.000	0.048	0.077	0.192	INT DET	M A DET
3	0.000	0.048	0.076	0.192	INT DET	
4	0.000	0.048	0.077	0.194	INT DET	
5	0.000	0.049	0.077	0.193	INT DET	
6	0.000	0.048	0.077	0.193	INT DET	
7	0.000	0.048	0.077	0.193	INT DET	
8	0.000	0.048	0.078	0.193	INT DET	
9	0.000	0.048	0.078	0.193	INT DET	
10	0.000	0.048	0.078	0.193	INT DET	
11	0.000	0.048	0.077	0.193	INT DET	
12	0.000	0.048	0.077	0.194	INT DET	
13	0.000	0.048	0.078	0.194	INT DET	
14	0.000	0.048	0.078	0.194	INT DET	
15	0.000	0.048	0.078	0.194	INT DET	
16	0.000	0.048	0.078	0.194	INT DET	
17	0.000	0.049	0.077	0.194	INT DET	
18	0.000	0.049	0.077	0.193	INT DET	
19	0.000	0.049	0.077	0.194	INT DET	
20	0.000	0.049	0.077	0.193	INT DET	
21	0.000	0.048	0.077	0.193	INT DET	
22	0.000	0.048	0.078	0.193	INT DET	
23	0.000	0.048	0.079	0.194	INT DET	
24	0.000	0.048	0.078	0.194	INT DET	
25	0.000	0.047	0.077	0.194	INT DET	
Mean		0.048	0.077	0.193		
Std Dev		0.0005	0.0008	0.0007		
Maximum		0.049	0.079	0.194		
Minimum		0.047	0.075	0.192		

Average Standard Deviation: 0.0007

Comments: INT DET = Interferent Detected (INT*)
M A DET = Mouth Alcohol Detected (Test Aborted – Invalid Sample)

APPENDIX D

0.08 g/210L Dry Gas Standard and 0.08 g/210L Internal Standard Test Analytical Results

	80-000818 0.08 g/210L Dry Gas Standard (g/210L)	80-000818 0.08 g/210L Internal Standard Test (g/210L)	80-000864 0.08 g/210L Dry Gas Standard (g/210L)	80-000864 0.08 g/210L Internal Standard Test (g/210L)
Acceptable Range (g/210L)	0.075 to 0.085	0.075 to 0.085	0.075 to 0.085	0.075 to 0.085
1	0.080	0.078	0.081	0.079
2	0.078	0.079	0.080	0.080
3	0.079	0.078	0.080	0.079
4	0.078	0.078	0.080	0.080
5	0.080	0.078	0.081	0.079
6	0.079	0.078	0.080	0.080
7	0.079	0.079	0.081	0.079
8	0.079	0.080	0.080	0.079
9	0.079	0.079	0.081	0.080
10	0.080	0.079	0.081	0.079
11	0.079	0.079	0.081	0.079
12	0.079	0.078	0.081	0.079
13	0.079	0.079	0.080	0.079
14	0.079	0.079	0.080	0.078
15	0.079	0.079	0.081	0.079
16	0.080	0.079	0.081	0.080
17	0.079	0.078	0.080	0.079
18	0.079	0.079	0.081	0.078
19	0.079	0.079	0.080	0.079
20	0.080	0.078	0.081	0.079
21	0.079	0.078	0.081	0.079
22	0.080	0.078	0.080	0.079
23	0.080	0.079	0.081	0.080
24	0.079	0.078	0.080	0.078
25	0.079	0.079	0.081	0.078
Mean	0.079	0.079	0.081	0.079
Standard Deviation	0.0006	0.0006	0.0005	0.0006
Maximum	0.080	0.080	0.081	0.080
Minimum	0.078	0.078	0.080	0.078

Average Standard Deviation: 0.0006