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FORENSIC TESTING PROGRAM

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Breath Alcohol Calibration Verification
Test No. 25-5691 Summary Report

Each participant received a sample pack containing four 34 L NIST traceable reference material dry gas cylinders; they were asked to analyze each item and report the ethanol concentration of each cylinder and expanded uncertainty. Data were returned from 60 participants and are compiled into the following tables:

This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample pack contained four 34 L NIST traceable reference material dry gas cylinders (Items 1-4). Participants were asked to analyze each item and report the resultant ethanol concentration and expanded uncertainty.

SAMPLE PREPARATION: Cylinders were sourced from an external specialty gas material provider. The Certificate of Analysis for each lot of dry gas cylinders was compared to the requested breath alcohol concentration. Once confirmed, each cylinder within a lot was labeled with the appropriate item and lot number.

SAMPLE PACK ASSEMBLY: One of each item was placed into a pre-labeled shipping container.

Item	Lot Number	BrAC (g/210 L)	Uncertainty (g/210 L)
1	23025003A3	0.040	± 0.0020
2	23025004A4	0.130	± 0.0026
3	23025001A1	0.210	± 0.0042
4	23025002A2	0.310	± 0.0062

Summary Comments

This test was designed to allow participants to assess their proficiency in the last calibration performed on their breath alcohol instrument. Participants were supplied with four items: 34 L NIST traceable reference material dry gas cylinders of different breath alcohol concentration (BrAC) values. Items 1, 2, 3, and 4 were manufactured with BrAC values of 0.040 ± 0.0020 g/210 L, 0.130 ± 0.0026 g/210 L, 0.210 ± 0.0042 g/210 L, and 0.310 ± 0.0062 g/210 L, respectively. Refer to the Manufacturer's Information for preparation details.

En analysis was performed on reported results for each item. En is not calculated for labs who did not report their expanded uncertainty. Participants with extreme data (En absolute values greater than 1.00) have been marked with an "X". Please refer to the En Analysis Guide for more information on this statistical analysis. A total of 60 participants reported results; however, not all participants reported an expanded uncertainty for every item. The percentage of participants reporting their expanded uncertainty for each item was 65%. A breakdown of the number of participants reporting extreme data per item based on En analysis is as follows: zero for Item 1, three for Item 2, one for Item 3, and three for Item 4. Participants are advised to consider their reported expanded uncertainty when evaluating their En results. CTS uses a coverage factor equal to 2 for analysis. At this time, the linearity of the results for each participant will not be evaluated utilizing regression statistics.

CTS noted many participants reported their instrument's serial numbers. For the sake of anonymity, CTS did not reproduce this information in the report.

En Analysis Guide

Normalized Error, or En, is used in proficiency testing in many other industries to judge the quality of measurement results. It measures the relationship of a participant's value to the reference value, relative to the combined uncertainties of those values. En is calculated as follows:

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Where the assigned value, Xref, is determined in the manufacturer's reference laboratory, Uref is the expanded uncertainty of Xref, and Ulab is the Expanded Uncertainty of a participant's result, Xlab. En is not calculated for participants who did not report their Expanded Uncertainty.

Absolute values of En less than 1.00 should be obtained for the measurements to be acceptable. This is because there is a 95% probability that the calculated En will fall within an absolute value of 1.00. Any absolute values over 1.00 have been highlighted with an "X".

The following table and graph represent the results reported by participants.

Xref and Uref were determined by the dry gas cylinder supplier, which is ISO 17025 and ISO 17034 accredited.

Reported Results

As a verification of calibration, report the ethanol concentration of each cylinder and the uncertainty determined during the last calibration of the instrument.

TABLE 1 - Item 1

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key		
	EC	= Electrochemical Oxidation/Fuel Cell Detector
	IR	= Infrared Detector
	†	= Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 1 BrAC : 0.040 g/210 L **Item 1 Uncertainty :** 0.0020 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
2BFPP7	EC	0.039	0.0090	741	-0.11
2FCAQ4	IR	0.040	0.0020	993.475	0.00
2G9P42	EC	0.042		990	†
	IR	0.040		990	†
33JAD7	IR	0.041		1012	†
38C9R3	EC	0.040	0.0040	745 mmHg	0.00
48UMU6	EC	0.039	0.0050	747 mmHg	-0.19
4CMM9Z	EC	0.040		1008	†
	IR	0.039		1008	†
4RG9D8	EC	0.040	0.0010	756	0.00
67TAM3	EC	0.0406	0.0037	765 mmHg	0.14
	IR	0.0413	0.0028	765 mmHg	0.38
6GCJBW	EC	0.039	0.0020	866	-0.35
	IR	0.039	0.0020	866	-0.35
6UYTX3	IR	0.041	0.0020	1020.0 mbar	0.35
8ZYRLW	EC	0.039	0.0030	756	-0.28
9K2YD2	EC	0.040	0.0050	749 mm Hg	0.00
BEPVFX	EC	0.041	0.0050	1005	0.19

TABLE 1 - Item 1

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
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Uref: Reference material uncertainty

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Item 1 BrAC : 0.040 g/210 L **Item 1 Uncertainty :** 0.0020 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
BPQH8U	IR	0.040	0.0030	900 mB	0.00
BU6TKY	EC	0.039	0.0030	N/A - measured by on board barometer	-0.28
C7TE4Y	IR	0.043		974	†
CZNJKY	IR	0.039			†
D4GZAX	IR	0.041	0.0040	28.88 Hg and 28.87 Hg	0.22
DHF74T	EC	0.039		1007 hpa	†
	IR	0.040		1007 hpa	†
E29AKU	EC	0.037	0.0030	N/A - measured by on board barometer	-0.83
EGKN3R	IR	0.041	0.0020	974.5	0.35
EGZ8LP	IR	0.038	0.0030	1006	-0.55
EKYHHP	EC	0.040		751 mmHg	†
EVMCUL	EC	0.043		993	†
	IR	0.041		993	†
FAKM3P	EC	0.039	0.0040	745 mmHg	-0.22
G9JAUM	IR	0.041	0.0125	999.4	0.08
GBPRTJ	EC	0.041		933	†
	IR	0.040		933	†
HBKXMH	EC	0.042		1023	†
	IR	0.040		1023	†

TABLE 1 - Item 1

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
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Uref: Reference material uncertainty

Key		
	EC	= Electrochemical Oxidation/Fuel Cell Detector
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Item 1 BrAC : 0.040 g/210 L **Item 1 Uncertainty :** 0.0020 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
HQFXYR	EC	0.039	0.0050	748 mmHg	-0.19
HVTZKM	IR	0.040	0.0020	978.05	0.00
HWNFXK	EC	0.040		1000	†
	IR	0.040		1000	†
HYRBGM	IR	0.042	0.0100	1006	0.20
HZMUHN	IR	0.040	0.0040	846 hPa	0.00
J2BPKM	EC	0.039	0.0030	747	-0.28
JMUU6Q	IR	0.040		1010 mbar	†
K6RA6H	EC	0.039	0.0020	757	-0.35
LGFVNH	EC	0.039	0.0030	1023 hPa	-0.28
	IR	0.040	0.0020	1023 hPa	0.00
LRJQ7M	EC	0.038	0.0050	755.9 mmHg	-0.37
LVWUTJ	IR	0.043	0.0050	945 hPa	0.56
MPA2GJ	IR	0.043		1005.3 hPA	†
MVQWXD	EC	0.037		1014	†
	IR	0.038		1014	†
MWMEYE	EC	0.039		1005	†
	IR	0.040		1005	†
N8KFCJ	IR	0.042	0.0040	856 hPa	0.45
N9GQ8L	IR	0.041	0.0100	N/A	0.10

TABLE 1 - Item 1

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key		
	EC	= Electrochemical Oxidation/Fuel Cell Detector
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Item 1 BrAC : 0.040 g/210 L **Item 1 Uncertainty :** 0.0020 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
NGA2HG	IR	0.040	0.0040	756.8 mmHg	0.00
P4WKNG	EC	0.039	0.0060	745 mmHg	-0.16
PWL2RC	EC	0.039		760	†
RVZ6CH	IR	0.040		1002	†
TELH4C	IR	0.041	0.0050	931	0.19
TTT97K	IR	0.040		1012 mbar	†
U6HMK8	EC	0.040	0.0020	942 mBar	0.00
	IR	0.040	0.0020	942 mBar	0.00
UH33N7	EC	0.040		1024	†
	IR	0.040		1024	†
UK9RQF	EC	0.038	0.0020	924 mBar	-0.71
	IR	0.039	0.0020	924 mBar	-0.35
UUHUCG	IR	0.040	0.0020	1014.2 mbar	0.00
VKMEZG	IR	0.040		1011 mbar	†
VPKVCB	IR	0.040	0.0040	849 hPa	0.00
WCCCEG	IR	0.040		1012 mbar	†
WUARE8	EC	0.038	0.0020	753	-0.71
YAWUA2	EC	0.042		1009	†
	IR	0.040		1009	†

TABLE 1 - Item 2

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector
† = Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 2 BrAC : 0.130 g/210 L **Item 2 Uncertainty :** 0.0026 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
2BFPP7	EC	0.123	0.0090	741	-0.75
2FCAQ4	IR	0.129	0.0040	993.475	-0.21
2G9P42	EC	0.131		990	†
	IR	0.128		990	†
33JAD7	IR	0.133		1012	†
38C9R3	EC	0.129	0.0060	745 mmHg	-0.15
48UMU6	EC	0.130	0.0070	747 mmHg	0.00
4CMM9Z	EC	0.127		1008	†
	IR	0.126		1008	†
4RG9D8	EC	0.129	0.0030	756	-0.25
67TAM3	EC	0.1297	0.0048	765 mmHg	-0.05
	IR	0.1299	0.0039	765 mmHg	-0.02
6GCJBW	EC	0.128	0.0030	866	-0.50
	IR	0.129	0.0030	866	-0.25
6UYTX3	IR	0.129	0.0030	1020.0 mbar	-0.25
8ZYRLW	EC	0.127	0.0050	756	-0.53
9K2YD2	EC	0.130	0.0070	749 mm Hg	0.00
BEPVFX	EC	0.128	0.0080	1005	-0.24
BPQH8U	IR	0.128	0.0046	900 mB	-0.38
BU6TKY	EC	0.129	0.0050	N/A - measured by on board barometer	-0.18
C7TE4Y	IR	0.130		974	†
CZNJKY	IR	0.129			†

TABLE 1 - Item 2

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector
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Item 2 BrAC : 0.130 g/210 L **Item 2 Uncertainty :** 0.0026 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
D4GZAX	IR	0.127	0.0060	28.88 Hg and 28.87 Hg	-0.46
DHF74T	EC	0.128		1007 hpa	†
	IR	0.129		1007 hpa	†
E29AKU	EC	0.132	0.0060	N/A - measured by on board barometer	0.31
EGKN3R	IR	0.128	0.0040	974.5	-0.42
EGZ8LP	IR	0.125	0.0030	1006	-1.26 X
EKYHHP	EC	0.130		751 mmHg	†
EVMCUL	EC	0.136		993	†
	IR	0.133		993	†
FAKM3P	EC	0.128	0.0060	745 mmHg	-0.31
G9JAUM	IR	0.129	0.0125	999.4	-0.08
GBPRTJ	EC	0.128		933	†
	IR	0.127		933	†
HBKXMH	EC	0.130		1023	†
	IR	0.127		1023	†
HQFXYR	EC	0.128	0.0070	748 mmHg	-0.27
HVTZKM	IR	0.128	0.0040	978.05	-0.42
HWNFXK	EC	0.125		1000	†
	IR	0.127		1000	†
HYRBGM	IR	0.129	0.0100	1006	-0.10
HZMUHN	IR	0.126	0.0040	846 hPa	-0.84
J2BPKM	EC	0.128	0.0050	747	-0.35
JMUU6Q	IR	0.127		1010 mbar	†

TABLE 1 - Item 2

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector
† = Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 2 BrAC : 0.130 g/210 L **Item 2 Uncertainty :** 0.0026 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
K6RA6H	EC	0.126	0.0080	757	-0.48
LGFVNH	EC	0.126	0.0080	1023 hPa	-0.48
	IR	0.129	0.0070	1023 hPa	-0.13
LRJQ7M	EC	0.127	0.0070	755.9 mmHg	-0.40
LVWUTJ	IR	0.131	0.0070	945 hPa	0.13
MPA2GJ	IR	0.131		1005.3 hPA	†
MVQWXD	EC	0.116		1014	†
	IR	0.123		1014	†
MWMEYE	EC	0.124		1005	†
	IR	0.127		1005	†
N8KFCJ	IR	0.130	0.0040	856 hPa	0.00
N9GQ8L	IR	0.128	0.0100	N/A	-0.19
NGA2HG	IR	0.130	0.0060	756.8 mmHg	0.00
P4WKNG	EC	0.126	0.0060	745 mmHg	-0.61
PWL2RC	EC	0.127		760	†
RVZ6CH	IR	0.130		1002	†
TELH4C	IR	0.128	0.0090	931	-0.21
TTT97K	IR	0.128		1012 mbar	†
U6HMK8	EC	0.128	0.0030	942 mBar	-0.50
	IR	0.129	0.0030	942 mBar	-0.25
UH33N7	EC	0.126		1024	†
	IR	0.128		1024	†
UK9RQF	EC	0.123	0.0020	924 mBar	-2.13 X
	IR	0.126	0.0020	924 mBar	-1.22 X

TABLE 1 - Item 2

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector
† = Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 2 BrAC : 0.130 g/210 L **Item 2 Uncertainty :** 0.0026 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
UUHUCG	IR	0.131	0.0060	1014.2 mbar	0.15
VKMEZG	IR	0.127		1011 mbar	†
VPKVCB	IR	0.126	0.0040	849 hPa	-0.84
WCCCEG	IR	0.128		1012 mbar	†
WUARE8	EC	0.122	0.0029	753	-2.05 X
YAWUA2	EC	0.129		1009	†
	IR	0.129		1009	†

TABLE 1 - Item 3

$$E_n = \frac{(X_{lab} - X_{ref})}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key		
	EC	= Electrochemical Oxidation/Fuel Cell Detector
	IR	= Infrared Detector
	†	= Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 3 BrAC : 0.210 g/210 L **Item 3 Uncertainty :** 0.0042 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
2BFPP7	EC	0.201	0.0090	741	-0.91
2FCAQ4	IR	0.208	0.0040	993.475	-0.34
2G9P42	EC	0.210		990	†
	IR	0.208		990	†
33JAD7	IR	0.219		1012	†
38C9R3	EC	0.209	0.0120	745 mmHg	-0.08
48UMU6	EC	0.209	0.0120	747 mmHg	-0.08
4CMM9Z	EC	0.204		1008	†
	IR	0.205		1008	†
4RG9D8	EC	0.210	0.0040	756	0.00
67TAM3	EC	0.2099	0.0091	765 mmHg	-0.01
	IR	0.210	0.0110	765 mmHg	0.00
6GCJBW	EC	0.208	0.0050	866	-0.31
	IR	0.209	0.0050	866	-0.15
6UYTX3	IR	0.209	0.0100	1020.0 mbar	-0.09
8ZYRLW	EC	0.205	0.0050	756	-0.77
9K2YD2	EC	0.211	0.0120	749 mm Hg	0.08
BEPVFX	EC	0.206	0.0130	1005	-0.29
BPQH8U	IR	0.209	0.0046	900 mB	-0.16

TABLE 1 - Item 3

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key		
	EC	= Electrochemical Oxidation/Fuel Cell Detector
	IR	= Infrared Detector
	†	= Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 3 BrAC : 0.210 g/210 L **Item 3 Uncertainty :** 0.0042 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
BU6TKY	EC	0.212	0.0090	N/A - measured by on board barometer	0.20
C7TE4Y	IR	0.206		974	†
CZNJKY	IR	0.209			†
D4GZAX	IR	0.206	0.0120	28.88 Hg and 28.87 Hg	-0.31
DHF74T	EC	0.206		1007 hpa	†
	IR	0.208		1007 hpa	†
E29AKU	EC	0.210	0.0080	N/A - measured by on board barometer	0.00
EGKN3R	IR	0.207	0.0040	974.5	-0.52
EGZ8LP	IR	0.206	0.0030	1006	-0.77
EKYHHP	EC	0.211		751 mmHg	†
EVMCUL	EC	0.218		993	†
	IR	0.216		993	†
FAKM3P	EC	0.208	0.0120	745 mmHg	-0.16
G9JAUM	IR	0.210	0.0125	999.4	0.00
GBPRTJ	EC	0.209		933	†
	IR	0.209		933	†
HBKXMH	EC	0.209		1023	†
	IR	0.208		1023	†
HQFXYR	EC	0.208	0.0120	748 mmHg	-0.16

TABLE 1 - Item 3

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key			
	EC	=	Electrochemical Oxidation/Fuel Cell Detector
	IR	=	Infrared Detector
	†	=	Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 3 BrAC : 0.210 g/210 L **Item 3 Uncertainty :** 0.0042 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
HVTZKM	IR	0.208	0.0040	978.05	-0.34
HWNFXK	EC	0.201		1000	†
	IR	0.205		1000	†
HYRBGM	IR	0.212	0.0100	1006	0.18
HZMUHN	IR	0.204	0.0050	846 hPa	-0.92
J2BPKM	EC	0.207	0.0050	747	-0.46
JMUU6Q	IR	0.207		1010 mbar	†
K6RA6H	EC	0.206	0.0130	757	-0.29
LGFVNH	EC	0.204	0.0130	1023 hPa	-0.44
	IR	0.209	0.0100	1023 hPa	-0.09
LRJQ7M	EC	0.207	0.0120	755.9 mmHg	-0.24
LVWUTJ	IR	0.211	0.0110	945 hPa	0.08
MPA2GJ	IR	0.208		1005.3 hPA	†
MVQWXD	EC	0.189		1014	†
	IR	0.200		1014	†
MWMEYE	EC	0.200		1005	†
	IR	0.206		1005	†
N8KFCJ	IR	0.210	0.0050	856 hPa	0.00
N9GQ8L	IR	0.212	0.0100	N/A	0.18
NGA2HG	IR	0.213	0.0090	756.8 mmHg	0.30

TABLE 1 - Item 3

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key		
	EC	= Electrochemical Oxidation/Fuel Cell Detector
	IR	= Infrared Detector
	†	= Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 3 BrAC : 0.210 g/210 L **Item 3 Uncertainty :** 0.0042 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
P4WKNG	EC	0.203	0.0060	745 mmHg	-0.96
PWL2RC	EC	0.204		760	†
RVZ6CH	IR	0.213		1002	†
TELH4C	IR	0.207	0.0130	931	-0.22
TTT97K	IR	0.207		1012 mbar	†
U6HMK8	EC	0.208	0.0050	942 mBar	-0.31
	IR	0.208	0.0050	942 mBar	-0.31
UH33N7	EC	0.201		1024	†
	IR	0.208		1024	†
UK9RQF	EC	0.199	0.0040	924 mBar	-1.90 X
	IR	0.204	0.0040	924 mBar	-1.03 X
UUHUCG	IR	0.213	0.0090	1014.2 mbar	0.30
VKMEZG	IR	0.206		1011 mbar	†
VPKVCB	IR	0.209	0.0050	849 hPa	-0.15
WCCCEG	IR	0.208		1012 mbar	†
WUARE8	EC	0.198		753	†
YAWUA2	EC	0.208		1009	†
	IR	0.211		1009	†

TABLE 1 - Item 4

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector
† = Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 4 BrAC : 0.310 g/210 L **Item 4 Uncertainty :** 0.0062 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
2BFPP7	EC	0.296	0.0090	741	-1.28 X
2FCAQ4	IR	0.306	0.0090	993.475	-0.37
2G9P42	EC	0.307		990	†
	IR	0.307		990	†
33JAD7	IR	0.322		1012	†
38C9R3	EC	0.307	0.0120	745 mmHg	-0.22
48UMU6	EC	0.308	0.0170	747 mmHg	-0.11
4CMM9Z	EC	0.297		1008	†
	IR	0.302		1008	†
4RG9D8	EC	0.307	0.0080	756	-0.30
67TAM3	EC	0.307	0.0120	765 mmHg	-0.22
	IR	0.308	0.0110	765 mmHg	-0.16
6GCJBW	EC	0.310	0.0070	866	0.00
	IR	0.310	0.0070	866	0.00
6UYTX3	IR	0.307	0.0100	1020.0 mbar	-0.25
8ZYRLW	EC	0.303	0.0050	756	-0.88
9K2YD2	EC	0.310	0.0170	749 mm Hg	0.00
BEPVFX	EC	0.299	0.0250	1005	-0.43
BPQH8U	IR	0.309	0.0064	900 mB	-0.11

TABLE 1 - Item 4

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key		
	EC	= Electrochemical Oxidation/Fuel Cell Detector
	IR	= Infrared Detector
	†	= Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 4 BrAC : 0.310 g/210 L **Item 4 Uncertainty :** 0.0062 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
BU6TKY	EC	0.309	0.0090	N/A - measured by on board barometer	-0.09
C7TE4Y	IR	0.305		974	†
CZNJKY	IR	0.310			†
D4GZAX	IR	0.303	0.0120	28.88 Hg and 28.87 Hg	-0.52
DHF74T	EC	0.305		1007 hpa	†
	IR	0.307		1007 hpa	†
E29AKU	EC	0.315	0.0080	N/A - measured by on board barometer	0.49
EGKN3R	IR	0.303	0.0090	974.5	-0.64
EGZ8LP	IR	0.305	0.0030	1006	-0.73
EKYHHP	EC	0.297		751 mmHg	†
EVMCUL	EC	0.318		993	†
	IR	0.317		993	†
FAKM3P	EC	0.306	0.0120	745 mmHg	-0.30
G9JAUM	IR	0.309	0.0125	999.4	-0.07
GBPRTJ	EC	0.305		933	†
	IR	0.309		933	†
HBKXMH	EC	0.303		1023	†
	IR	0.305		1023	†
HQFXYR	EC	0.305	0.0170	748 mmHg	-0.28

TABLE 1 - Item 4

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector
† = Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 4 BrAC : 0.310 g/210 L **Item 4 Uncertainty :** 0.0062 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
HVTZKM	IR	0.305	0.0090	978.05	-0.46
HWNFXK	EC	0.296		1000	†
	IR	0.301		1000	†
HYRBGM	IR	0.314	0.0100	1006	0.34
HZMUHN	IR	0.302	0.0100	846 hPa	-0.68
J2BPKM	EC	0.303	0.0050	747	-0.88
JMUU6Q	IR	0.303		1010 mbar	†
K6RA6H	EC	0.302	0.0130	757	-0.56
LGFVNH	EC	0.301	0.0190	1023 hPa	-0.45
	IR	0.307	0.0150	1023 hPa	-0.18
LRJQ7M	EC	0.306	0.0180	755.9 mmHg	-0.21
LVWUTJ	IR	0.311	0.0160	945 hPa	0.06
MPA2GJ	IR	0.307		1005.3 hPA	†
MVQWXD	EC	0.276		1014	†
	IR	0.294		1014	†
MWMEYE	EC	0.292		1005	†
	IR	0.301		1005	†
N8KFCJ	IR	0.308	0.0100	856 hPa	-0.17
N9GQ8L	IR	0.316	0.0100	N/A	0.51
NGA2HG	IR	0.316	0.0090	756.8 mmHg	0.55

TABLE 1 - Item 4

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xlab: Participant's concentration
Xref: Reference material concentration
Ulab: Participant's uncertainty
Uref: Reference material uncertainty

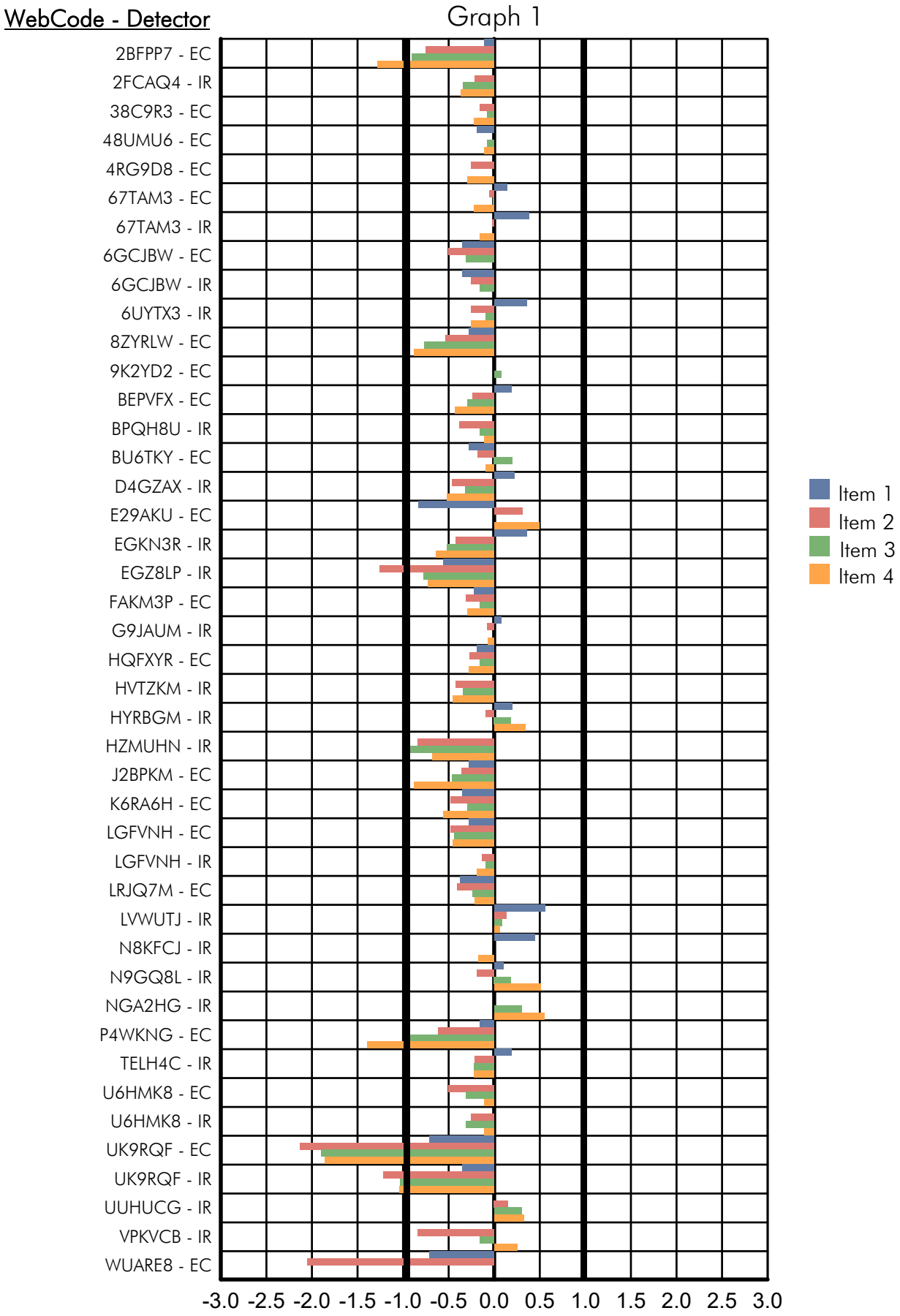
Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector
† = Uncertainty not reported or reported in units other than g/210 L, therefore En could not be calculated.

Item 4 BrAC : 0.310 g/210 L **Item 4 Uncertainty :** 0.0062 g/210 L

WebCode	Detector Type	Concentration (g/210 L)	Uncertainty k=2 (g/210 L)	Barometric Pressure (not used in En)	Performance Statistic (En)
P4WKNG	EC	0.298	0.0060	745 mmHg	-1.39 X
PWL2RC	EC	0.305		760	†
RVZ6CH	IR	0.315		1002	†
TELH4C	IR	0.302	0.0350	931	-0.23
TTT97K	IR	0.304		1012 mbar	†
U6HMK8	EC	0.309	0.0070	942 mBar	-0.11
	IR	0.309	0.0070	942 mBar	-0.11
UH33N7	EC	0.293		1024	†
	IR	0.306		1024	†
UK9RQF	EC	0.294	0.0060	924 mBar	-1.85 X
	IR	0.301	0.0060	924 mBar	-1.04 X
UUHUCG	IR	0.315	0.0140	1014.2 mbar	0.33
VKMEZG	IR	0.303		1011 mbar	†
VPKVCB	IR	0.313	0.0100	849 hPa	0.25
WCCCEG	IR	0.303		1012 mbar	†
WUARE8	EC	0.290		753	†
YAWUA2	EC	0.303		1009	†
	IR	0.311		1009	†

En Results

Graph 1



Raw Data Adjustments

TABLE 2

List the type and amount of any adjustments made on the raw data to produce the reported concentration, such as for barometric pressure, the wet/dry offset, etc.

WebCode	Raw Data Adjustments
2BFPP7	1. Normalized results for barometric pressure (Normalized= (760/x)* mean of raw data result of each tank) 2. Wet/dry offset- Converted results from corrected dry gas calibration (272 ppm = .100 g/210L) to an uncorrected result (.100 g/210L= 260 ppm) in units of g/210L. (UnC results = 0.1/260 * corrected PPM)
2FCAQ4	IR Average as measured was adjusted to sea level equivalent by taking (analyzed value/barometric pressure) * 1013.25
38C9R3	+4% dry gas correction, barometric pressure correction (760 mmHg/Lab Pressure mmHg)
48UMU6	The following calculation was used to normalize for barometric pressure and the wet/ dry offset: (mean instrument value in g/210L) x (760/ barometric pressure reading) x 1.045= value normalized for pressure
4RG9D8	Barometric pressure is adjusted by the instrument software. A 4.5% wet/dry offset adjustment is applied to the raw data.
67TAM3	Instrument has built in pressure sensor, it is auto calculated. Wet/Dry Offset correction done by the instrument's software.
8ZYRLW	Raw data adjusted for wet/dry offset(+4.5%) and normalized to sea level (760/xxx*760mmHg)
9K2YD2	Reported value was corrected for barometric pressure and the wet/dry offset using the following formula: mean of duplicate readings x (760/instrument pressure reading) x 1.045 = uncorrected value, normalized for pressure, in g/210L
BEPVFX	No adjustments made manually
BPQH8U	Barometric Correction Factor 1.12
BU6TKY	4.5% off set for dry gas tanks. On board barometer and thermometer adjusts target value of accuracy/calibration checks.
D4GZAX	Adjusted the measured average (of 5 replicates) for each tank to standard pressure (29.92 inHg) for the dry offset.
E29AKU	4.5% off set for dry gas tanks. On board barometer and thermometer adjusts target value of accuracy/calibration checks.
EGZ8LP	A stability test was used to acquire the data. To stay consistent with Implied Consent policies. The lower of the two values was reported.
EKYHHP	4.5% was added to the result to adjust for wet/dry offset
FAKM3P	+4% dry gas correction, barometric pressure correction (760 mmHg/Lab Pressure mmHg)
G9JAUM	No adjustments made to results.
HQFXYR	Mean Instrument Value in g/210L x (760/barometric pressure reading) x 1.045 (for the wet dry offset) = uncorrected value, normalized for pressure, in g/210L.

TABLE 2

WebCode	Raw Data Adjustments
HVTZKM	IR measurements were normalized to seal level equivalent Normalized value = analyzed value/barometric pressure*1013.25
J2BPKM	Wet/dry offset: +4.5% Normalized to sea level: 760/747*760mmHg
JMUU6Q	Barometric pressure. The Datamaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
K6RA6H	The raw data is normalized to 760 mmHg and corrected with a factor of 4.5% to account for the wet/dry offset.
LRJQ7M	All adjustments on the raw data to produce the reported concentrations were programmed in the instrument's software.
MPA2GJ	For barometric pressure a correction factor of 1.00 was calculated, so no adjustments were made to the raw data.
P4WKNG	1. Normalized results for barometric pressure (Normalized= (760/x)* mean of raw data result of each tank) 2. wet/dry offset- Converted results from corrected dry gas calibration (272 ppm = .100 g/210L) to an uncorrected result (.100 g/210L= 260 ppm) in units of g/210L. (UnC results = 0.1/260 * corrected PPM)
PWL2RC	Each result was adjusted from actual pressure to 760 mmHg (actuals: Item 1 - 741 mmHg, Item 2: 740 mmHg, Item 3: 742 mmHg, Item 4: 749 mmHg). A 0.045 adjustment was applied to each raw result to account for wet-dry offset.
TTT97K	Barometric pressure. The DataMaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
U6HMK8	Preadjustment settings: EC Cal Factor 1040 CalGas Inlet Drygas 1% EC Drygas Offset 10 Adsorption 3 IR Cal Factor 940 IR Slope Multiplier 13484 EC Quadratic Correction 10 Post Adjustment Settings: EC Cal Factor 1125 CalGas Inlet Drygas 0% EC Drygas Offset 11 Adsorption 3 IR Cal Factor 920 IR Slope Multiplier 13484 EC Quadratic Correction 10
UK9RQF	EC and IR cal factors adjusted using 0.100 wet bath solution, Cal gas inlet dry gas decreased by 4%. EC drygas off set increased by 1% barometric pressure increased by 2 mBar prior to measuring items 1, 2, 3, and 4. Once measured, no additional adjustments were made on the instrument or the raw data.
UUHUCG	Reported concentration is the mean of 3 replicates, truncated to 3 digits after the decimal.
VKMEZG	Barometric pressure. The DataMaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
WCCCEG	Barometric pressure. The DataMaster DMT is equipped with a barometric sensor. The target value is adjusted based on the site specific reading of barometric pressure.
WUARE8	No adjustments were made.

Instrument Information

TABLE 3

Key	EC = Electrochemical Oxidation/Fuel Cell Detector IR = Infrared Detector

WebCode	Instrument used	Detector type
2BFPP7	Intox ASV-XL	EC
2FCAQ4	Intox DMT	IR
2G9P42	[Serial Number]	EC
	[Serial Number]	IR
33JAD7	Alcotest 9510	IR
38C9R3	EC/IR II	EC
48UMU6	Intoximeter Intox EC/IR II	EC
4CMM9Z	[Serial Number]	EC
	[Serial Number]	IR
4RG9D8	Intoximeter EC/IR II	EC
67TAM3	Intox-DMT Dual Sensor	EC
	Intox-DMT Dual Sensor	IR
6GCJBW	Draeger 9510	EC
	Draeger 9510	IR
6UYTX3	Intoxilyzer 8000	IR
8ZYRLW	Intox EC/IR II	EC
9K2YD2	Intoximeters, Intox EC/IR II	EC
BEPVFX	Dräger Alcotest A7510	EC
BPQH8U	Intoxilyzer 9000	IR
BU6TKY	Alcosensor V-XL	EC
C7TE4Y	CMI Intoxilyzer 9000	IR
CZNJKY	Draeger ALCOTEST 7110 [Serial Number]	IR
D4GZAX	Datamaster DMT	IR

TABLE 3

Key EC = Electrochemical Oxidation/Fuel Cell Detector
IR = Infrared Detector

WebCode	Instrument used	Detector type
DHF74T	Draeger AlcoTest 9510	EC
	Draeger AlcoTest 9510	IR
E29AKU	Alcosensor V-XL	EC
EGKN3R	Intox DMT	IR
EGZ8LP	Intoxilyzer 9000	IR
EKYHHP	Intox EC/IR II	EC
EVMCUL	[Serial Number]	EC
	[Serial Number]	IR
FAKM3P	EC/IR II (Intoximeters, Inc.)	EC
G9JAUM	Intoxilyzer 9000	IR
GBPRTJ	[Serial Number]	EC
	[Serial Number]	IR
HBKXMH	[Serial Number]	EC
	[Serial Number]	IR
HQFXYR	Intoximeter ECIR II	EC
HVTZKM	DMT	IR
HWNFXK	[Serial Number]	EC
	[Serial Number]	IR
HYRBGM	INTOX 8000	IR
HZMUHN	Intoxilyzer I8000	IR
J2BPKM	Intox EC/IR II	EC
JMUU6Q	Datamaster DMT	IR
K6RA6H	Intoximeter EC/IR II	EC
LGFVNH	Draeger Alcotest 9510	EC
	Draeger Alcotest 9510	IR

TABLE 3

Key	EC = Electrochemical Oxidation/Fuel Cell Detector IR = Infrared Detector

WebCode	Instrument used	Detector type
LRJQ7M	Alco-Sensor V-XL	EC
LVWUTJ	Intoxilyzer 8000	IR
MPA2GJ	Intoxilyzer 9000	IR
MVQWXD	[Serial Number]	EC
	[Serial Number]	IR
MWMEYE	[Serial Number]	EC
	[Serial Number]	IR
N8KFCJ	Intoxilyzer 8000	IR
N9GQ8L	INTOXILYZER 9000	IR
NGA2HG	Draeger Alcotest 7110	IR
P4WKNG	Intoximeter EC/IR 2	EC
PWL2RC	Intoximeter EC/IR2	EC
RVZ6CH	Alcotest 9510	IR
TELH4C	Intoxilyzer 8000	IR
TTT97K	DataMaster DMT	IR
U6HMK8	Draeger Alcotest 9510	EC
	Draeger Alcotest 9510	IR
UH33N7	[Serial Number]	EC
	[Serial Number]	IR
UK9RQF	Draeger Alcotest 9510	EC
	Draeger Alcotest 9510	IR
UUHUCG	Draeger Alcotest 9510	IR
VKMEZG	DataMaster DMT	IR
VPKVCB	Intoxilyzer I8000	IR
WCCCEG	DataMaster DMT	IR

TABLE 3

Key	EC = Electrochemical Oxidation/Fuel Cell Detector IR = Infrared Detector

WebCode	Instrument used	Detector type
WUARE8	Intoximeter EC/IR II	EC
YAWUA2	[Serial Number]	EC
	[Serial Number]	IR

Additional Comments

TABLE 4

WebCode	Additional Comments
2G9P42	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.022 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.016 Item 4: +/- 0.022
48UMU6	The uncertainty of measurement used is 5.6% or 0.005, whichever is greater, with a coverage factor of k=2; corresponding to a ~95% level of confidence.
4CMM9Z	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021
4RG9D8	Each item was analyzed in 10 replicates.
9K2YD2	UM is reported to k=2, which is 5.6% or 0.005 g/210L, whichever is greater
CZNJKY	[From Table 1 - Reported Results, Items 1-4: Expanded uncertainty values of 0.000 were removed as they are unsuitable for comparison against the reference values.]
D4GZAX	Barometric pressure slightly varied between tanks ranging from 28.87 (for one tank) to 28.88 Hg (three tanks).
DHF74T	This laboratory has not calculated measurement uncertainty for breath alcohol calibration.
EKYHHP	The laboratory only calculates uncertainty for the calibration of the instrument, not individual samples. The uncertainty of measurement is calculated using coverage factor k=3 using four different reference values: 0.020g/210L +/- 0.004; 0.082g/210L +/- 0.005; 0.100g/210L +/- 0.005; 0.200g/210L +/- 0.010;
EVMCUL	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.016 Item 4: +/- 0.022
GBPRTJ	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021
HBKXMH	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.016 Item 4: +/- 0.022

TABLE 4

WebCode	Additional Comments
HQFXYR	UM at a k=2 is 5.6% or 0.005g/210L, whichever range is greater.
HVTZKM	[Serial Number]
HWNFXK	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021
JMUU6Q	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration, and hence not reported for the items.
K6RA6H	A Laboratory certificate of instrument accuracy is issued with an expanded uncertainty using a coverage factor of K=3. The uncertainty of measurement is calculated for the certification process. Four concentrations of dry gas standards are used to certify the instrument accuracy, and the uncertainty of measurement is calculated for these concentrations. The uncertainty provided with the reported concentration was determined using a coverage factor of K=2.
MPA2GJ	The expanded uncertainty is calculated using historical data from the calibration of the evidential instruments. This uncertainty is not calculated on the individual samples but rather the four different reference materials used during the calibration: 0.050 +/-0.004 g/210L, 0.100 +/-0.004 g/210L, 0.200 +/-0.006 g/210L, and 0.300 +/-0.010 g/210L. With that said, I cannot assign an uncertainty to the reported value.
MVQWXD	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Item 1: +/- 0.005 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.005 Item 2: +/- 0.010 Item 3: +/- 0.014 Item 4: +/- 0.020
MWMEYE	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021
PWL2RC	Measurement uncertainty is calculated for calibration purposes only at three concentrations (per our Testing Method, 0.020 g/210L, 0.082 g/210L, and 0.150 g/210L).
TELH4C	For measurement uncertainty, a coverage factor of 3 was applied.
TTT97K	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration, and hence not reported for the items.

TABLE 4

WebCode	Additional Comments
UH33N7	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021
UK9RQF	Draeger Alcotest 9510 [Serial Number] calibrated 11/3/25-11/4/25
VKMEZG	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration, and hence not reported for the items.
WCCCEG	Each item was analyzed three times. The average value of the three analyses for each item was reported to three decimal places (reported concentration). The laboratory only calculates expanded uncertainty for the calibration of the instrument, applying it to calibration measurements during the certification process. Uncertainty is not calculated for the verification of calibration, and hence not reported for the items.
YAWUA2	[Laboratory] Breath Test Program utilizes an expanded uncertainty at a k=2.87 at 95.45% confidence interval. CTS utilizes k=2 for statistical analysis. CTS suggested we record our uncertainties below as reporting at k=2 is outside our normal procedure. Uncertainties that would be reported according to our normal procedure would be as follows: Detector Type: IR Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021 Detector Type: EC Item 1: +/- 0.006 Item 2: +/- 0.011 Item 3: +/- 0.015 Item 4: +/- 0.021

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 25-5691: Breath Alcohol Calibration Verification

DATA MUST BE SUBMITTED BY **Dec. 08, 2025, 11:59 p.m. EST** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A WebCode: VJCCDH

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Items Submitted (Sample Pack BRC):
Items 1-4: 34L NIST traceable reference material dry gas cylinders
Item 1: Lot # 23025003A3; Exp. Date: 10/5/2027
Item 2: Lot # 23025004A4; Exp. Date: 10/5/2027
Item 3: Lot # 23025001A1; Exp. Date: 10/5/2027
Item 4: Lot # 23025002A2; Exp. Date: 10/5/2027

1.) Detector type:
If additional detectors used, click the "Add Detector" link below.

2.) As a verification of calibration, report the ethanol concentration of each cylinder and the expanded uncertainty determined during the last calibration of the instrument. Results should be reported to three decimal places in g/210L and use a coverage factor of 2 for expanded uncertainty.

	Reported Concentration (g/210L)		Uncertainty (k=2)
Item 1:		±	
Item 2:		±	
Item 3:		±	
Item 4:		±	

Please note that it is the responsibility of the laboratory to normalize for barometric pressure and the wet/dry offset (if applicable).

3.) Instrument used (excluding serial number):

4.) Barometric Pressure:

5.) List the type and amount of any adjustments made on the raw data to produce the reported concentration, such as for barometric pressure, the wet/dry offset etc.

6.) Additional Comments

Please note: *Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.*

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ANAB and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

○ This participant's data is intended for submission to ANAB and/or A2LA. (Accreditation Release section below must be completed.)
○ This participant's data is **not** intended for submission to ANAB and/or A2LA.

Have the laboratory's designated individual complete the following steps
only if your laboratory is accredited in this testing/calibration discipline
by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory

ANAB Certificate No.

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety

Authorized Contact Person and Title

Laboratory Name

Location (City/State)

ILMO specialty gases

7 Eastgate Dr. • P.O. Box 790 • Jacksonville, IL 62651-0790
217-245-2183 • Fax: 217-243-7634 • www.ilmoproducts.com

Certificate of Analysis

Certificate ID: 17492

Part #: BAC34L040T
Cylinder Size: 34L
Lot Number: 23025003A3
Expiration: 10/5/2027

0.040 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 34 Liters @ 500 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2): abs	Analytical Method:
Ethanol	104 ppm	+/- 0.002 BAC (G/210L) [5.2 ppm]	NDIR
Nitrogen	Balance		

*Reference Standard:
NIST Traceable Certified Reference Material - 104.7 µmol/mol Ethanol in Nitrogen - Serial No. ND7023 Lot No. 080722E1

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

09-15-2025
Issuance Date

PJLA Calibration and Testing Accreditation #61895

ISO/IEC 17025:2017 Accredited Laboratory

ILMO specialty gases

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217-245-2183 • Fax: 217-243-7634 • www.ilmoproducts.com

Certificate of Analysis

Certificate ID: 17493
Part #: BAC34L130T
Cylinder Size: 34L
Lot Number: 23025004A4
Expiration: 10/5/2027

0.130 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 34 Liters @ 500 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	339 ppm	+/- 2% (rel. ppm)	Gravimetric
Nitrogen	Balance		

*NIST Traceable to:
Gravimetric Balance
Calibration Certificate No. 95620
Calibration Certificate No. 95625

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

09-15-2025
Issuance Date

PJLA
Calibration and Testing
Accreditation #61895

ISO/IEC 17025:2017 Accredited Laboratory

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Certificate of Analysis

Certificate ID: 17490

Part #: BAC34L210T
Cylinder Size: 34L_210
Lot Number: 23025001A1
Expiration: 10/5/2027

0.210 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 34 Liters @ 500 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	547 ppm	+/- 2% (rel. ppm)	Gravimetric
Nitrogen	Balance		

*NIST Traceable to:
Gravimetric Balance
Calibration Certificate No. 95620
Calibration Certificate No. 95625

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

09-16-2025
Issuance Date

PJLA
Calibration and Testing
Accreditation #61895

ISO/IEC 17025:2017 Accredited Laboratory

ILMO specialty gases

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217-245-2183 • Fax: 217-243-7634 • www.ilmoproducts.com

Certificate of Analysis

Certificate ID: 17491

Part #: BAC34L310T
Cylinder Size: 34L_310
Lot Number: 23025002A2
Expiration: 10/5/2027

0.310 BAC (For the calibration of instruments used to determine breath alcohol concentration)

Contents: 34 Liters @ 350 psig 70°F (21°C)

Component:	Reported Concentration:	Analytical Accuracy (U, k=2):	Analytical Method:
Ethanol	808 ppm	+/- 2% (rel. ppm)	Gravimetric
Nitrogen	Balance		

*NIST Traceable to:
Gravimetric Balance
Calibration Certificate No. 95620
Calibration Certificate No. 95625

Store in dry area, away from sources of heat, ignition and direct sunlight. Do not allow storage area to exceed 52 °C (125 °F).

Specialty Gas Lab Tech

09-16-2025
Issuance Date

PJLA
Calibration and Testing
Accreditation #61895

ISO/IEC 17025:2017 Accredited Laboratory