



Verification of Calibration Curve

Analyte	Amphetamines (amphetamine, methamphetamine, 3,4-methylenedioxyamphetamine (MDA), 3,4-methylenedioxymethamphetamine (MDMA), and 3,4-methylenedioxy-N-ethylamphetamine (MDEA))
Units of Measure	ng/mL
Analyst Performing Verification Studies	Cassandra Duvall
Responsible Supervisor	Dayong Lee
Start Date	December 2, 2022
Completion Date	December 6, 2022
Primary Matrix	Blood
Secondary Matrix	N/A
Low Calibrator Concentration	10 ng/mL
Highest Calibrator Concentration	500 ng/mL for amphetamine, MDA, and MDEA; 1000 ng/mL for methamphetamine and MDMA
Equipment/Instrument	LCMS-2
Instrument Serial Number	SG1936G104
Method	AMP.M

Verification Approval

Analyst: **Cassandra Duvall** Digitally signed by Cassandra Duvall
DN: cn=Cassandra Duvall, o=Houston Forensic Science Center, ou=Toxicology, email=cduvall@houstonforensicscience.org, c=US
Date: 2023.01.09 16:50:45 -06'00' 01/09/2023

Responsible Supervisor: **Dayong Lee** Digitally signed by Dayong Lee
Date: 2023.01.09 17:02:57 -06'00' 01/09/2023

Date

Verification

Analyte: Amphetamine
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Calibration

Calibrator	Target Conc.	Current Cals (x)*	New Cals (y)*	% Difference
Cal 1	10	9.94	8.97	-9.74
Cal 2	20	20.19	17.68	-12.41
Cal 3	50	50.96	42.88	-15.87
Cal 4	100	96.64	90.65	-6.20
Cal 5	250	252.98	227.93	-9.90
Cal 6	500	499.36	457.01	-8.48

*Calculated concentrations using current calibration lot

Slope	0.9154
Std err in slope	0.0135
Confidence level	95%
95% CI Range	0.8779 - 0.9529

REVIEW

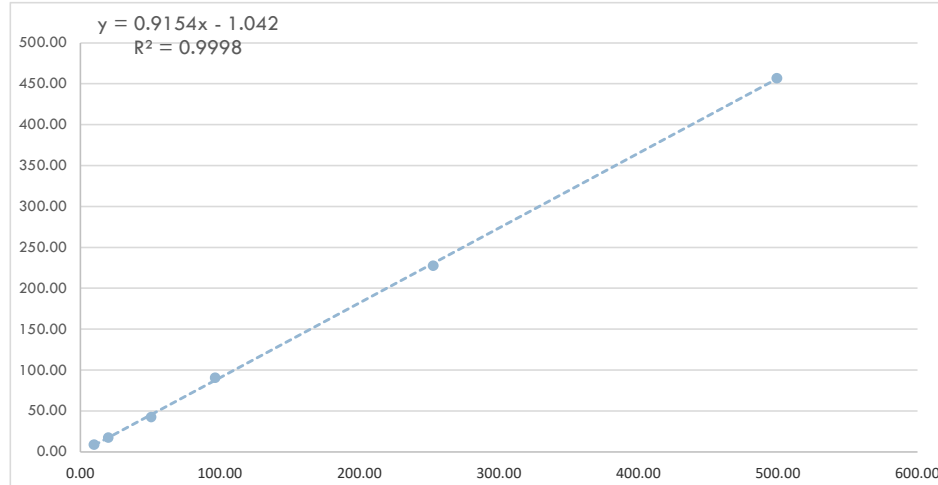
Intercept	-1.04204
Std err in Intercept	1.67024
Confidence Level	95%
95% CI Range	-5.6794 - 3.5953

PASS

New Calibrator Lot

Sample	Nominal Conc.	Concentration	% of Nominal	
Cal 1	10	10.05	-0.46	PASS
Cal 2	20	19.95	0.26	PASS
Cal 3	50	48.50	3.00	PASS
Cal 4	100	102.26	-2.26	PASS
Cal 5	250	253.72	-1.49	PASS
Cal 6	500	495.21	0.96	PASS

Calculated concentrations using new calibration lot



Pass/Review **Review**

Comments: When the current calibrator is compared to the new calibrator, the 95% CI of slope does not include 1. However when individually compared to the target concentration, the slope of the new lot of calibrators includes 1 (See next page for data and graph). Verified controls (220126L-Q-0.5 and 220126L-Q-mix) also showed acceptable results when quantified against new calibrators. The new calibrator lots are deemed acceptable for casework.

Approved? **Yes -DL 1/9/2023**

Verification

Analyte: Amphetamine
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Current Calibrators

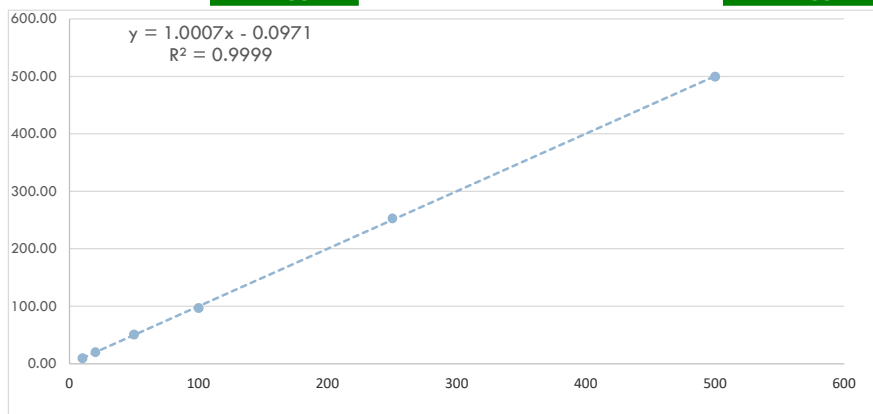
Calibrator	Target Conc.(x)	Current Cals (y)	% Difference
Cal 1	10	9.94	-0.57
Cal 2	20	20.19	0.94
Cal 3	50	50.96	1.93
Cal 4	100	96.64	-3.36
Cal 5	250	252.98	1.19
Cal 6	500	499.36	-0.13

Slope	1.0103
Std err in slope	0.0118
Confidence lev	95%
95% CI Range	0.9775 - 1.0432

PASS

Intercept	-0.09705
Std err in Intercept	1.46345
Confidence Level	95%
95% CI Range	-4.1602 - 3.9661

PASS



New Calibrators

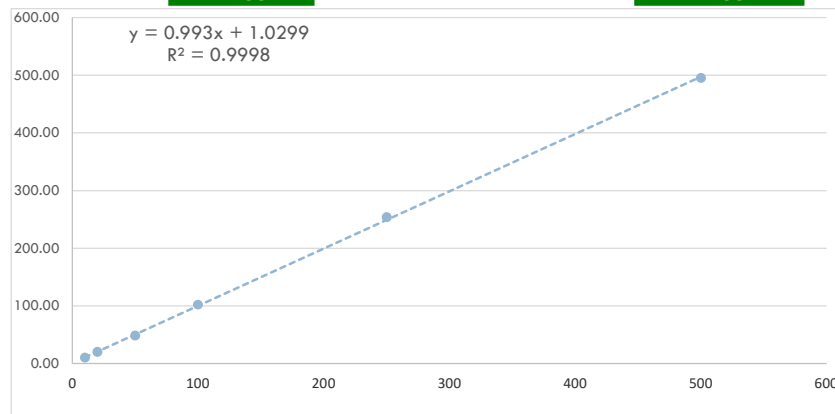
Calibrator	Target Conc.(x)	New Cals (y)	% Difference
Cal 1	10	10.05	0.46
Cal 2	20	19.95	-0.26
Cal 3	50	48.50	-3.00
Cal 4	100	102.26	2.26
Cal 5	250	253.72	1.49
Cal 6	500	495.21	-0.96

Slope	0.9930
Std err in slope	0.0061
Confidence level	95%
95% CI Range	0.9760 - 1.0100

PASS

Intercept	1.02990
Std err in Intercept	0.76202
Confidence Level	95%
95% CI Range	-1.0858 - 3.1456

PASS



Verification

Analyte: Methamphetamine
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Calibration

Calibrator	Target Conc.	Current Cals (x)*	New Cals (y)*	% Difference
Cal 1	10	9.69	8.34	-13.95
Cal 2	20	19.94	16.73	-16.08
Cal 3	50	51.84	41.62	-19.71
Cal 4	100	99.36	87.13	-12.32
Cal 5	250	255.02	221.40	-13.18
Cal 6	500	489.09	426.07	-12.88
Cal 7	1000	1006.13	887.06	-11.83

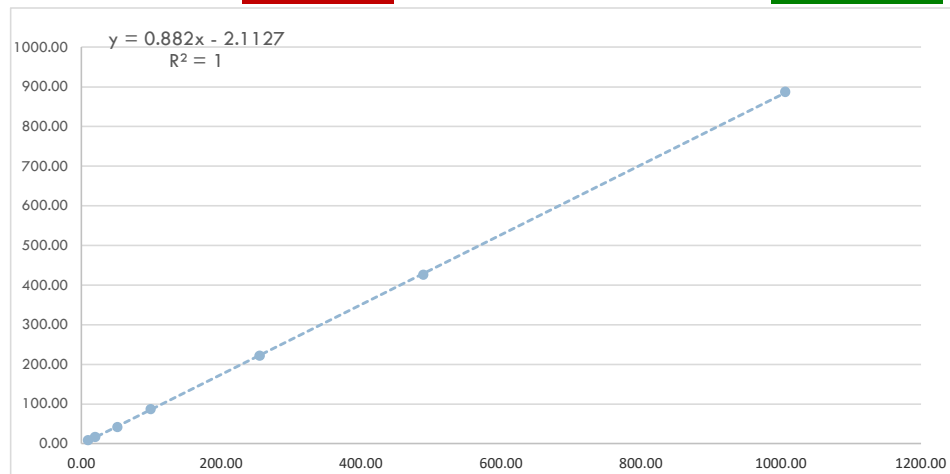
*Calculated concentrations using current calibration lot

Slope	0.8820
Std err in slope	0.0037
Confidence level	95%
95% CI Range	0.8723 - 0.8916

REVIEW

Intercept	-2.11270
Std err in Intercept	0.86057
Confidence Level	95%
95% CI Range	-4.3249 - 0.0995

PASS



New Calibrator Lot

Sample	Nominal Conc.	Concentration	% of Nominal	
Cal 1	10	10.13	-1.30	PASS
Cal 2	20	19.85	0.75	PASS
Cal 3	50	48.66	2.68	PASS
Cal 4	100	101.28	-1.28	PASS
Cal 5	250	256.05	-2.42	PASS
Cal 6	500	490.17	1.97	PASS
Cal 7	1000	1004.30	-0.43	PASS

Calculated concentrations using new calibration lot

Pass/Review **Review**

Comments: When the current calibrator is compared to the new calibrator, the 95% CI of slope does not include 1. However when individually compared to the target concentration, the slope of the new lot of calibrators includes 1 (See next page for data and graph). Verified controls (220126L-Q-0.5 and 220126L-Q-mix) also showed acceptable results when quantified against new calibrators. The new calibrator lots are deemed acceptable for casework.

Approved? **Yes -DL 1/9/2023**

Verification

Analyte: Methamphetamine
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Current Calibrators

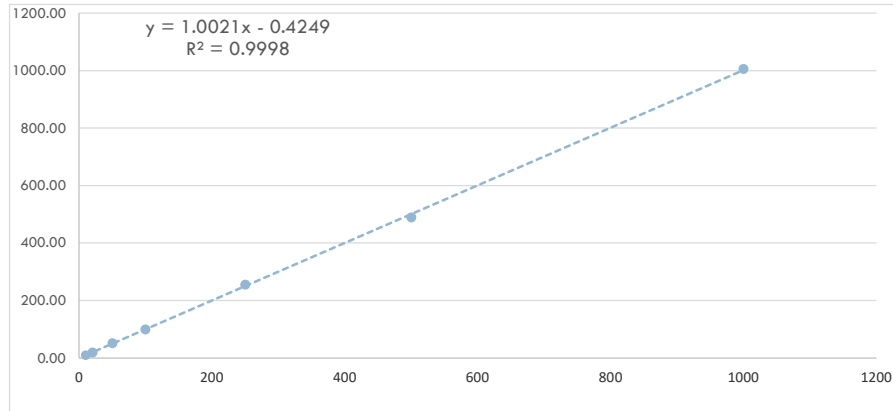
Calibrator	Target Conc.(x)	Current Cals (y)	% Difference
Cal 1	10	9.69	-3.09
Cal 2	20	19.94	-0.32
Cal 3	50	51.84	3.67
Cal 4	100	99.36	-0.64
Cal 5	250	255.02	2.01
Cal 6	500	489.09	-2.18
Cal 7	1000	1006.13	0.61

Slope	1.0021
Std err in slope	0.0109
Confidence level	95%
95% CI Range	0.9740 - 1.0302

PASS

Intercept	-0.42494
Std err in Intercept	2.51263
Confidence Level	95%
95% CI Range	-6.8839 - 6.0340

PASS



New Calibrators

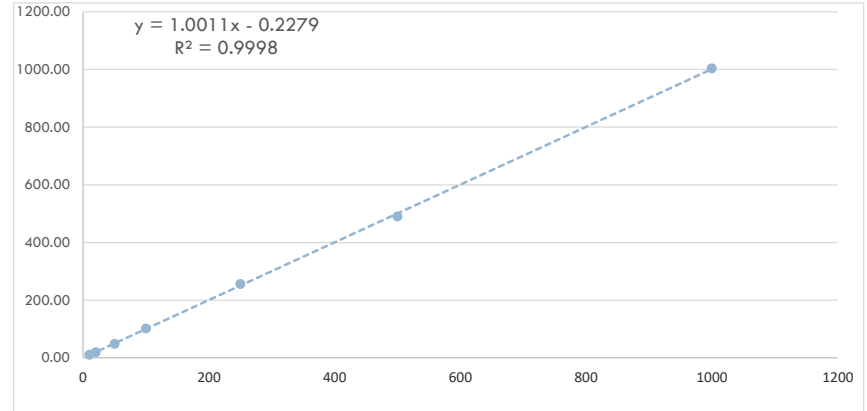
Calibrator	Target Conc.(x)	New Cals (y)	% Difference
Cal 1	10	10.13	1.30
Cal 2	20	19.85	-0.75
Cal 3	50	48.66	-2.68
Cal 4	100	101.28	1.28
Cal 5	250	256.05	2.42
Cal 6	500	490.17	-1.97
Cal 7	1000	1004.30	0.43

Slope	1.0011
Std err in slope	0.0116
Confidence level	95%
95% CI Range	0.9711 - 1.0310

PASS

Intercept	-0.22791
Std err in Intercept	2.68477
Confidence Level	95%
95% CI Range	-7.1293 - 6.6735

PASS



Verification

Analyte: MDA
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Calibration

Calibrator	Target Conc.	Current Cals (x)*	New Cals (y)*	% Difference
Cal 1	10	10.06	8.74	-13.09
Cal 2	20	19.76	16.81	-14.92
Cal 3	50	50.53	40.80	-19.26
Cal 4	100	96.59	85.69	-11.28
Cal 5	250	257.73	219.95	-14.66
Cal 6	500	499.26	460.67	-7.73

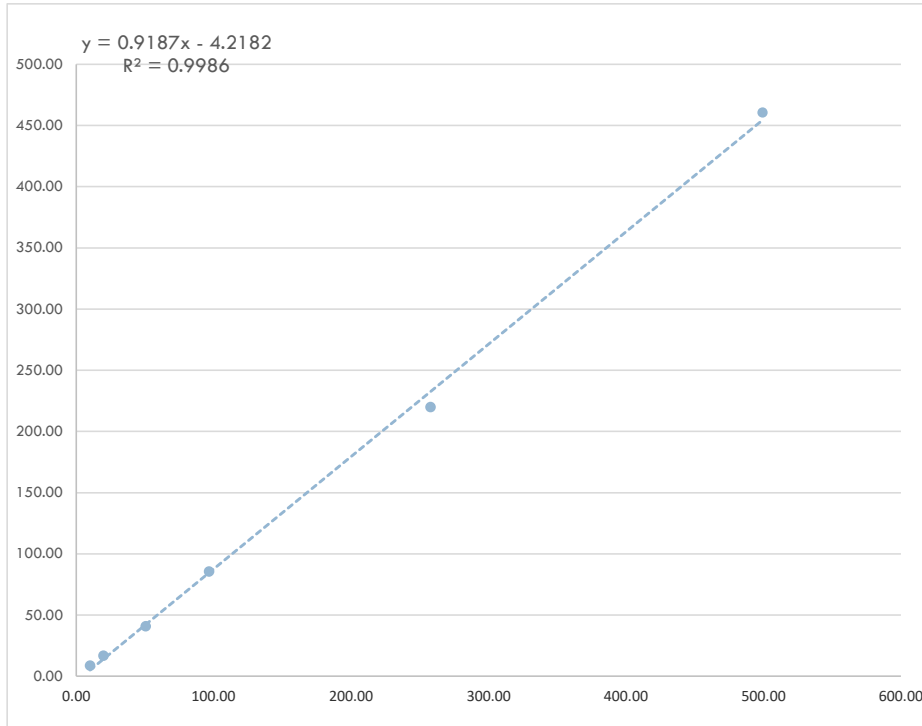
*Calculated concentrations using current calibration lot

Slope	0.9187
Std err in slope	0.0113
Confidence level	95%
95% CI Range	0.8875 - 0.9499

REVIEW

Intercept	-4.21823
Std err in Intercept	1.41260
Confidence Level	95%
95% CI Range	-8.1402 - -0.2962

REVIEW



New Calibrator Lot

Sample	Nominal Conc.	Concentration	% of Nominal	
Cal 1	10	10.23	-2.34	PASS
Cal 2	20	19.51	2.44	PASS
Cal 3	50	47.09	5.82	PASS
Cal 4	100	98.71	1.29	PASS
Cal 5	250	253.08	-1.23	PASS
Cal 6	500	529.86	-5.97	PASS

Calculated concentrations using new calibration lot

Pass/Review **Review**

Comments: When the current calibrator is compared to the new calibrator, the 95% CI of slope does not include 1. When individually compared to the target concentration, the slope of the new lot of calibrators does not include 1 (See next page for data and graph). When the current calibrator is compared to the new calibrator, the 95% CI of intercept does not include 0. When individually compared to the target concentration, the slope of the new lot of calibrators does not include 0 (See next page for data and graph). Verified controls (220126L-Q-0.5 and 220126L-Q-mix) and an external control (C7674) showed acceptable results when quantified against new calibrators. For the internal LQC the range of %difference is 5.67% to 5.74% while the HQC range is from -1.62% to -1.59%. The external control %difference range is 13.40% to 14.48%. New calibrator solutions of MDA are considered acceptable based on the acceptable R2 value of the new curve, quantification of individual calibrators of the new solutions and quantification of verified internal and external controls.

Approved? **Yes -DL 1/9/2023**

Verification

Analyte: MDA
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Current Calibrators

Calibrator	Target Conc.(x)	Current Cals (y)	% Difference
Cal 1	10	10.06	0.61
Cal 2	20	19.76	-1.20
Cal 3	50	50.53	1.06
Cal 4	100	96.59	-3.41
Cal 5	250	257.73	3.09
Cal 6	500	499.26	-0.15

New Calibrators

Calibrator	Target Conc.(x)	New Cals (y)	% Difference
Cal 1	10	10.23	2.34
Cal 2	20	19.51	-2.44
Cal 3	50	47.09	-5.82
Cal 4	100	98.71	-1.29
Cal 5	250	253.08	1.23
Cal 6	500	529.86	5.97

Slope	1.0035
Std err in slope	0.0149
Confidence level	95%
95% CI Range	0.9620 - 1.0450

PASS

Intercept	0.11299
Std err in Intercept	1.87510
Confidence Level	95%
95% CI Range	-5.0931 - 5.3191

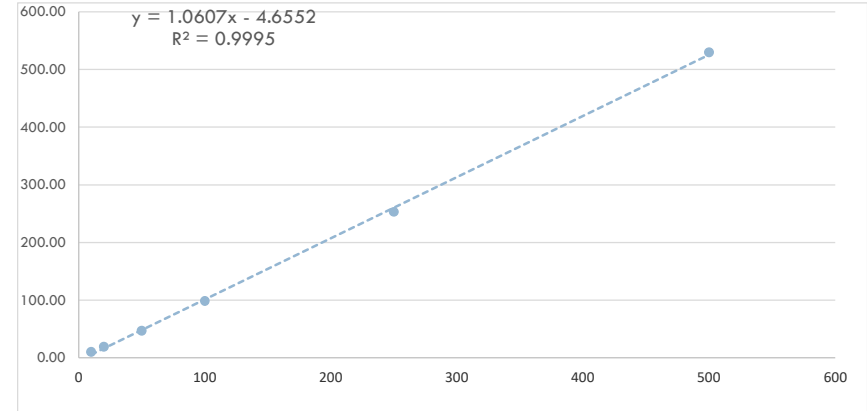
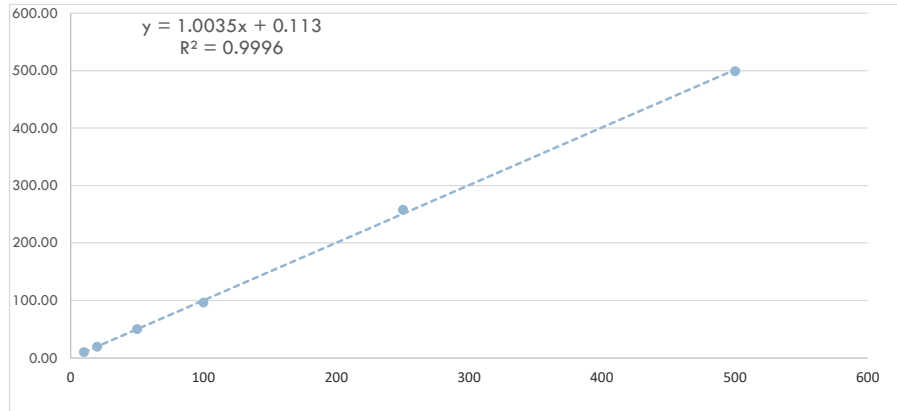
PASS

Slope	1.0607
Std err in slope	0.0090
Confidence level	95%
95% CI Range	1.0357 - 1.0857

REVIEW

Intercept	-4.65524
Std err in Intercept	1.11426
Confidence Level	95%
95% CI Range	-7.7489 - -1.5616

REVIEW



Verification

Analyte: MDMA
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Calibration

Calibrator	Target Conc.	Current Cals (x)*	New Cals (y)*	% Difference
Cal 1	10	9.93	8.76	-11.77
Cal 2	20	20.12	17.62	-12.43
Cal 3	50	51.39	42.84	-16.63
Cal 4	100	98.32	89.17	-9.31
Cal 5	250	255.70	228.60	-10.60
Cal 6	500	494.18	447.84	-9.38
Cal 7	1000	979.23	883.11	-9.82

*Calculated concentrations using current calibration lot

Slope	0.9037
Std err in slope	0.0045
Confidence level	95%
95% CI Range	0.8922 - 0.9151

REVIEW

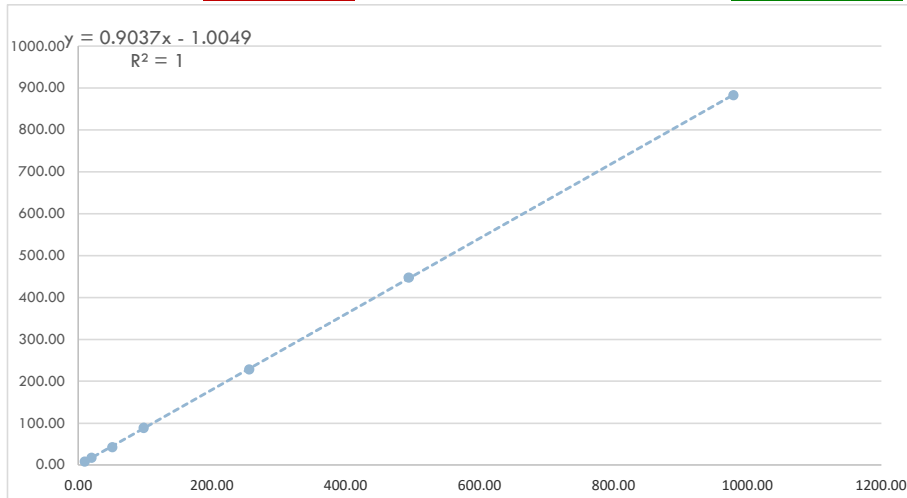
Intercept	-1.00494
Std err in Intercept	1.03323
Confidence Level	95%
95% CI Range	-3.6609 - 1.6511

PASS

New Calibrator Lot

Sample	Nominal Conc.	Concentration	% of Nominal	
Cal 1	10	10.05	-0.53	PASS
Cal 2	20	20.00	0.00	PASS
Cal 3	50	48.31	3.37	PASS
Cal 4	100	100.33	-0.33	PASS
Cal 5	250	256.87	-2.75	PASS
Cal 6	500	503.00	-0.60	PASS
Cal 7	1000	991.67	0.83	PASS

Calculated concentrations using new calibration lot



Pass/Review **Review**
 Comments: When the current calibrator is compared to the new calibrator, the 95% CI of slope does not include 1. However when individually compared to the target concentration, the slope of the new lot of calibrators includes 1 (See next page for data and graph). Verified controls (220126L-Q-0.5 and 220126L-Q-mix) also showed acceptable results when quantified against new calibrators. The new calibrator lots are deemed acceptable for casework.
 Approved? **Yes -DL 1/9/2023**

Verification

Analyte: MDMA

Units: ng/mL

Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2

New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2

Batch Name: AMP_20221202B_CD

Current Calibrators

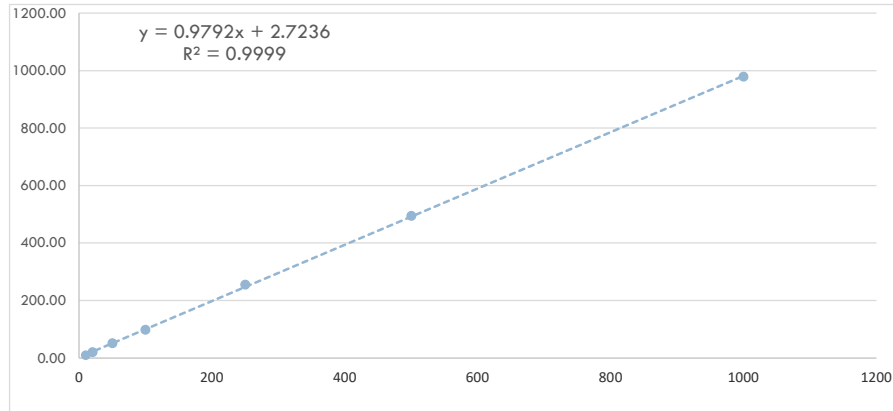
Calibrator	Target Conc.(x)	Current Cals (y)	% Difference
Cal 1	10	9.93	-0.73
Cal 2	20	20.12	0.60
Cal 3	50	51.39	2.77
Cal 4	100	98.32	-1.68
Cal 5	250	255.70	2.28
Cal 6	500	494.18	-1.16
Cal 7	1000	979.23	-2.08

Slope	0.9792
Std err in slope	0.0091
Confidence level	95%
95% CI Range	0.9557 - 1.0026

PASS

Intercept	2.72356
Std err in Intercept	2.11236
Confidence Level	95%
95% CI Range	-2.7064 - 8.1536

PASS



New Calibrators

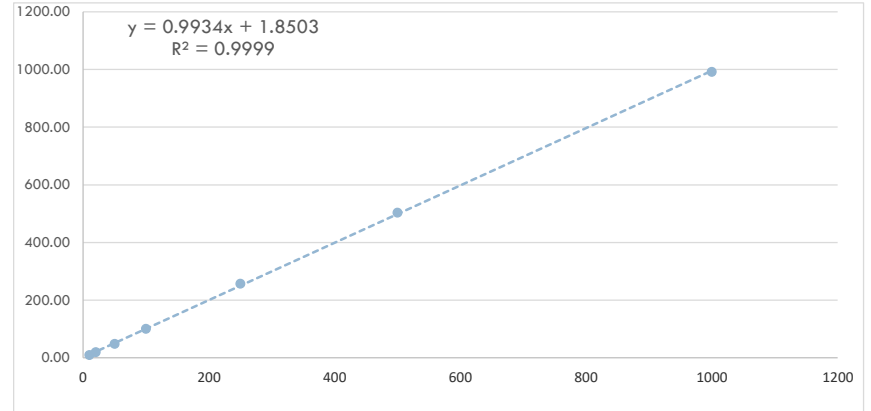
Calibrator	Target Conc.(x)	New Cals (y)	% Difference
Cal 1	10	10.05	0.53
Cal 2	20	20.00	0.00
Cal 3	50	48.31	-3.37
Cal 4	100	100.33	0.33
Cal 5	250	256.87	2.75
Cal 6	500	503.00	0.60
Cal 7	1000	991.67	-0.83

Slope	0.9934
Std err in slope	0.0061
Confidence level	95%
95% CI Range	0.9777 - 1.0091

PASS

Intercept	1.85026
Std err in Intercept	1.43805
Confidence Level	95%
95% CI Range	-1.8464 - 5.5469

PASS



Verification

Analyte: MDEA
 Units: ng/mL
 Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2
 New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2
 Batch Name: AMP_20221202B_CD

Calibration

Calibrator	Target Conc.	Current Cals (x)*	New Cals (y)*	% Difference
Cal 1	10	9.95	9.15	-8.09
Cal 2	20	19.93	17.82	-10.59
Cal 3	50	52.14	43.34	-16.88
Cal 4	100	98.17	91.24	-7.06
Cal 5	250	249.97	227.27	-9.08
Cal 6	500	491.84	441.13	-10.31

*Calculated concentrations using current calibration lot

Slope	0.8994
Std err in	0.0128
Confiden	95%
95% CI R	0.8640 - 0.9349

REVIEW

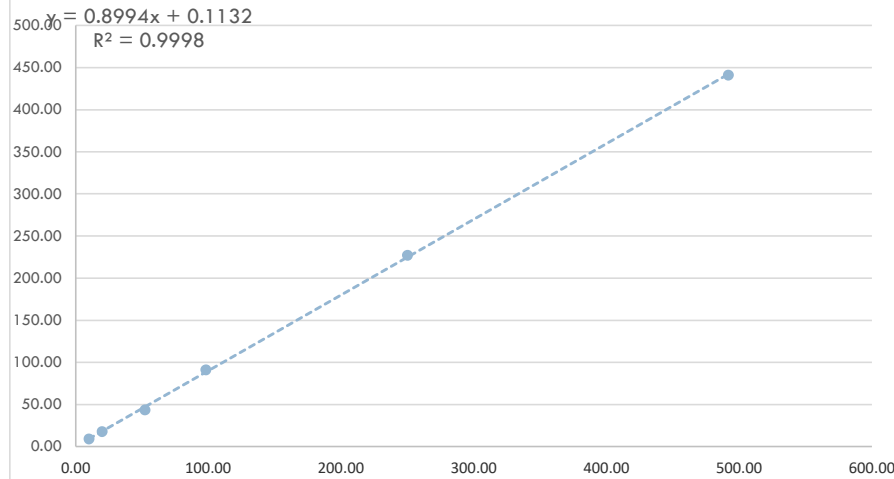
Intercept	0.11320
Std err in Intercept	1.56675
Confidence Level	95%
95% CI Range	-4.2368 - 4.4632

PASS

New Calibrator Lot

Sample	Nominal Conc.	Concentration	% of Nominal	
Cal 1	10	10.08	-0.80	PASS
Cal 2	20	19.81	0.93	PASS
Cal 3	50	48.46	3.07	PASS
Cal 4	100	102.24	-2.24	PASS
Cal 5	250	254.93	-1.97	PASS
Cal 6	500	494.99	1.00	PASS

Calculated concentrations using new calibration lot



Pass/Review	Review
Comments:	When the current calibrator is compared to the new calibrator, the 95% CI of slope does not include 1. However when individually compared to the target concentration, the slope of the new lot of calibrators includes 1 (See next page for data and graph). Verified controls (220126L-Q-0.5 and 220126L-Q-mix) also showed acceptable results when quantified against new calibrators. The new calibrator lots are deemed acceptable for casework.
Approved?	Yes -DL 1/9/2023

Verification

Analyte: MDEA

Units: ng/mL

Instrument: LCMS-2

New Lots of Calibration Solutions

Current Lot #: 211207C-C-10, 211207C-C-2.5, 211207C-C-0.2

New Lot #: 221123C-C-10, 221123C-C-2.5, 221123C-C-0.2

Batch Name: AMP_20221202B_CD

Current Calibrators

Calibrator	Target Conc.(x)	Current Cals (y)	% Difference
Cal 1	10	9.95	-0.47
Cal 2	20	19.93	-0.35
Cal 3	50	52.14	4.29
Cal 4	100	98.17	-1.83
Cal 5	250	249.97	-0.01
Cal 6	500	491.84	-1.63

New Calibrators

Calibrator	Target Conc.(x)	New Cals (y)	% Difference
Cal 1	10	10.08	0.80
Cal 2	20	19.81	-0.93
Cal 3	50	48.46	-3.07
Cal 4	100	102.24	2.24
Cal 5	250	254.93	1.97
Cal 6	500	494.99	-1.00

Slope	0.9839
Std err in slope	0.0082
Confidence level	95%
95% CI Range	0.9611 - 1.0066

PASS

Intercept	1.16896
Std err in Intercept	1.00567
Confidence Level	95%
95% CI Range	-1.6232 - 3.9611

PASS

Slope	0.9933
Std err in slope	0.0060
Confidence level	95%
95% CI Range	0.9768 - 1.0099

PASS

Intercept	1.11720
Std err in Intercept	0.74663
Confidence Level	95%
95% CI Range	-0.9558 - 3.1902

PASS

