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**Characterization of Mainstream  
Tobacco Smoke and Filter Tip Extracts**

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***Labstat International ULC  
Test Report***



***Prepared for  
R.J. Reynolds Tobacco Corporation***

**Project Code: M124**

**Date: December 15, 2009**

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## 1 Use of Labstat's<sup>1</sup> Analytical Reports<sup>2</sup>

Labstat International ULC is a recognized centre of analytical excellence related to tobacco and tobacco products. Our clients include major international tobacco manufacturers, various Governments and Government agencies such as the Canadian Federal Department of Health and the Massachusetts Department of Public Health, agricultural interests, university researchers and private research interests. Normally our contractual obligations extend **only** to the provision of data and related reports.

It should be noted<sup>3</sup>, in this regard, that

***All analytical data and reports, provided by Labstat International ULC, are for the exclusive use of the person, partnership, or corporation to whom it is addressed, and neither the data, the report nor the name of the laboratory (Labstat International ULC) nor any member of its staff may be used in connection with the advertising or sale of any product or process without written authorization from the CEO of the company or his designate. Labstat International ULC is not responsible for unauthorized use of test reports.***

The following also applies to reported data.

***All Labstat reports on testing relate only to the sample received and tested by it at the time of testing. Labstat warrants that all samples submitted were tested in accordance with its standard test procedures. Except as stated herein, there is no warranty expressed or implied, statutory or other wise, as to the results of Labstat tests. Labstat does not warrant or guarantee the fitness of the materials from which the samples have been drawn for any particular purpose including without limitation for consumption as cigarettes, cigars, smokeless tobacco or any other form of tobacco or tobacco-related product.***

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<sup>1</sup> Labstat International ULC,  
262 Manitou Drive, Kitchener, ON Canada N2C 1L3  
Phone: (519) 748-5409; Fax: (519) 748-1654; Email: [labstat@labstat.com](mailto:labstat@labstat.com)

<sup>2</sup> *This document may not be reproduced, in whole or in part in any form, without the written consent of the author(s) on behalf of Labstat International ULC*

<sup>3</sup> *Unless superseded by a specific contractual obligation or other written agreement.*

## 2 Administrative Information<sup>4</sup>

### 2.1 Quotation Reference

Quotation Number: T2924

Date: October 2, 2009

Recipient's Name: Joe Keeney

### 2.2 Client Identification

R.J. Reynolds Tobacco Corporation  
950 Reynolds Boulevard  
Winston-Salem NC 27102-1487  
U.S.A

### 2.3 Date of Sample Receipt

The samples to be tested for M124 were received on October 30 2009 via DHL and November 17, 2009 via Fed-Ex.

### 2.4 Sample Characteristics

The shipment received on October 30 2009 consisted of one carton for each of 10 products. The shipment received on November 17, 2009 consisted of one vial for each of 15 subjects. There was no physical damage to packages, cartons or vial. Individual cigarettes were normal in appearance.

### 2.5 Test Article Identification

The following sample codes have been used to identify the products associated with the results in each of the tables that are part of this report.

#### 2.5.1 Cigarette Brand Identification

Sample ID	Sample Description
0905430	Winston Lights 100's Box
0905431	Camel Lights Hard Pack
0905432	Salem Gold Box
0905433	Doral Menthol Lights 100's Box
0905434	Kool Menthol Milds Box
0905435	Pall Mall Blue
0905436	Winston Lights Box King Size
0905437	Marlboro Lights Flip-Top Box King Size
0905438	Marlboro Lights Flip-Top Box Regular Size
0905439	Marlboro Flip-Top Box King Size

<sup>4</sup> Provided in accord with International Standard ISO/IEC 17025 "General requirements for the competence of testing and calibration laboratories" Section 5.10



## 2.5.2 Cigarette Filter Identification

Sample ID	Sample Description	Client Description
0905644	Subject 1 Visit 1	Winston 100 HP FFLT
0905645	Subject 3 Visit 1	Camel 85 HP FFLT
0905646	Subject 5 Visit 1	Marlboro 85 FFLT
0905647	Subject 7 Visit 1	Marlboro 85 FFLT
0905648	Subject 9 Visit 1	Salem 85 HP FFLT
0905649	Subject 11 Visit 1	Doral Menthol 100 HP FFLT
0905650	Subject 12 Visit 1	Marlboro 85 FFLT
0905651	Subject 13 Visit 1	KOOL Menthol Milds HP 85 FFLT
0905652	Subject 15 Visit 1	Camel 85 HP FFLT
0905653	Subject 18 Visit 1	Camel 85 HP FFLT
0905654	Subject 19 Visit 1	Pall Mall 85 HP FFLT
0905655	Subject 21 Visit 1	Marlboro 72 HP FFLT
0905656	Subject 24 Visit 1	Marlboro Medium 85 HP FFLT
0905657	Subject 26 Visit 1	Winston 85 HP FFLT
0905658	Subject 28 Visit 1	Camel 85 HP FFLT

## 2.6 Special Instructions

As requested, all samples were placed in a freezer immediately upon receipt, and allowed to come back to room temperature prior to testing.

## 2.7 Date of Test Report

December 15, 2009

# 3 Accreditation

## 3.1 Scope (refer to appendix A)

Labstat International ULC has been accredited by the Standards Council of Canada to International Standard ISO/IEC 17025 "General requirements for the competence of testing and calibration laboratories" with a scope that includes all of the mandated tobacco-related Health Canada methods (see Tobacco Reporting Regulations dated 26 June 2000, Canada Gazette Part II, Vol. 134, No. 15 Schedules 1, 2 and 3 pages 1780 – 1785). The testing included in this report is within the scope of this accreditation, unless otherwise noted in Section 5.



Accredited LAB 368

(SCC Accreditation & Design Mark is an Official Mark of the Standards Council of Canada, used under license)

Report prepared by Labstat International ULC



### **3.2 International Recognition of Tests**

Our accrediting organization, Standards Council of Canada, is one of a number of such member bodies participating in a global mutual recognition agreement (MRA), known as the ILAC (International Laboratory Accreditation Cooperation) Arrangement. The arrangement, effective January 31, 2001, requires acceptance of technical test data from accredited laboratories by member bodies in numerous international economies.

## **4 Acceptance of Data**

### **4.1 Overview**

In most cases, data are evaluated in two stages. The first consists of a comparison of results for control materials with certified values or Labstat's historical in-house database. If the control results are acceptable and there are three (3) or more samples per analysis brand, then the data obtained from the analysis of samples is subjected to an outlier test. Values identified as outliers are then scrutinized for an assignable cause and, if one is found, the value is removed from the data set. If none is found, the value is assumed to be a legitimate member of the data set and included in all subsequent calculations.

### **4.2 Evaluation of Results from Control Materials**

(b) (4)

### 4.3 Identification of Outliers<sup>6</sup>

#### 4.3.1 Definition

An outlying observation, or "outlier," is one that appears to deviate markedly from other members of the sample in which it occurs. In this case, there are two alternatives:

1. An outlying observation may be merely an extreme manifestation of the random variability inherent in the data. If this is true, the value is retained and processed in the same manner as the other observations in the sample.
2. The observation may be the result of gross deviation from prescribed experimental procedure or an error in calculating or recording the numerical value. In such cases, an investigation must be carried out. When the experimenter is clearly aware that a gross deviation from prescribed experimental procedure has taken place, the resultant observation is discarded (assignable cause) without recourse to a statistical test. A statistical test may always be used to support a judgment that a physical reason does actually exist for an outlier, or the statistical criterion may be used routinely as a basis to initiate action to find a physical cause.

#### 4.3.2 Statistical Criteria

(b) (4)



<sup>6</sup> The term "outlier" has been defined in International Standard ISO 3534-1 (1993) entitled "*Statistics - Vocabulary and symbols - Part 1: Probability and general statistical terms*" section 2.64

<sup>7</sup> ASTM Designation: E178-02. *Standard Practice for Dealing with Outlying Observations*

<sup>8</sup> Data, which are related, but not normally required as part of the reporting process (e.g. puff counts, TPM, cigarette weights etc.). Outliers in the analyte data that have an assignable cause are always repeated.

## 5 Methods

### 5.1 General References

Test methods for the analysis of mainstream tobacco smoke are referenced in the table(s) below and were practiced as written unless otherwise indicated (see "Method Deviations").

#### OFFICIAL METHODS FOR THE COLLECTION OF EMISSION DATA ON MAINSTREAM SMOKE<sup>9</sup>

Item	Emission	Official Method
1.	(a) Tar (b) Nicotine (c) Carbon Monoxide	Official Method T-115, <i>Determination of "Tar", Nicotine and Carbon Monoxide in Mainstream Tobacco Smoke</i>

### 5.2 Cigarette Conditioning and Smoking Environments

Cigarettes were conditioned and smoked under the environmental conditions specified in ISO 3402 (1999) "Tobacco and tobacco products – Atmosphere for conditioning and testing". With respect to conditioning, this document states "The conditioning atmosphere shall be as follows: temperature  $22 \pm 1^\circ\text{C}$ ; relative humidity  $60 \pm 3\%$ . Smoking requires an environment in which the temperature is  $22 \pm 2^\circ\text{C}$  and the relative humidity  $60 \pm 5\%$ .

### 5.3 Standard Machine Smoking Conditions

Smoking of test and reference cigarettes were carried out on either a rotary smoking machine or a linear smoking machine. The smoking parameters and smoking machine specifications which were used are set out in the International Organization for Standardization standard ISO 3308, Fourth Edition 2000-04-15, *Routine analytical cigarette-smoking machine - Definitions and standard conditions, 2000 (E)* with modifications as noted in the table below.

### 5.4 Calibration Procedure

(b) (4)



(b) (4)

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#### **5.5 UV Absorbance and Nicotine Measurements of Filter Tip Extract**

(b) (4)

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samples), filter tip length corrected nicotine/filter tip is calculated as follows.

(b) (4)

**5.6 YIU Calibration Data – Linear Regressions and Quality Control**

(b) (4)

**5.7 Method Deviations**

Methods followed as written (see Section 5).

**6 Results****6.1 Quality Control**

The control results for the variables of interest were acceptable as defined in section 4.2. Consequently it is reasonable to assume that the values determined for the test samples are reflective of the characteristics of the products as received and tested as described in the Methods Section.

**6.2 Analytical Data**

Individual results and the corresponding sample statistics may be found on the compact disk (CD) that accompanies this report. The data file has been labeled *M124\_Calibration Data\_Filter Tip Results.xls*

### 6.2.1 Filter Calculation Data

In addition to the summarized calibration and filter data, all raw data including extraction volumes and dilutions can also be found on the compact disk (CD) that accompanies this report. The data file has been labeled *M124\_Filter\_Calculations\_Summary.xls*.

## 7 Authorization

This report has been reviewed by me and is certified, to the best of my knowledge, to be a true and accurate description of the procedures, protocols and test methods used to arrive at the data and/or findings that accompany this report.

Dated: December 15, 2009

A handwritten signature in black ink, appearing to read 'Peter Joza', written in a cursive style.

Peter Joza  
Technical Director (Chemistry)  
Labstat International ULC.

# **Appendix A**

## **Scope of Accreditation**





Standards Council of Canada  
Conseil canadien des normes

206-270, rue Albert St.  
Ottawa, ON (Canada)  
K1P 6N7

Canada

Tel : +1 613 233 3222

Fax : +1 613 559 7800

E-mail/Contact : [info@scc.ca](mailto:info@scc.ca)

Internet: <http://www.scc.ca>

## SCOPE OF ACCREDITATION

LABSTAT INTERNATIONAL ULC  
262 Manitou Drive, Unit 5  
Kitchener, ON  
N2C 1L3

Accredited Laboratory No. 368  
(Conforms with requirements of CAN-P-4E (ISO/IEC 17025:2005))

CONTACT: Mr. Lucian Hirtie  
TEL: (519) 748-5409  
FAX: (519) 748-1654  
EMAIL: [lhirtie@labstat.com](mailto:lhirtie@labstat.com)

CLIENTS SERVED: All interested parties

FIELDS OF TESTING: Biological, Chemical/Physical

ISSUED ON: 2008-10-06

VALID TO: 2012-01-22

**Remarque:** La présente portée d'accréditation existe également en français, sous la forme d'un document distinct.

**Note:** This scope of accreditation is also available in French as a separately issued document.

### ANIMAL AND PLANTS (AGRICULTURE)

#### Agricultural products: (except food and chemicals)

##### **Tobacco**

AOAC 966.02	Moisture in Tobacco
ASTM E2187	Standard Test Method for Measuring the Ignition Strength of Cigarettes
ISO 10315	Cigarettes – Determination of Nicotine in Smoke Condensates Gas-Chromatographic Method
ISO 10362-1	Cigarettes – Determination of Water in Smoke Condensates – Part 1

The approved and most recent version of this document can be viewed on the SCC website at <http://palcan.scc.ca/SpecSearch/QLSearchForm.do>

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	Gas-Chromatographic Method
ISO 15592-2	Fine-cut Tobacco and smoking articles made from it – Methods of sampling, conditioning and analysis – Part 2: Atmosphere for conditioning and testing
ISO 15592-3	Fine-cut Tobacco and smoking articles made from it – Methods of sampling, conditioning and analysis – Part 3: Determination of total particulate matter of smoking articles using a routine analytical smoking machine, preparation for the determination of water and nicotine, and calculation of nicotine-free dry particulate matter
ISO 3308	Routine Analytical Cigarette-Smoking Machine– Definitions and Standard Conditions
ISO 3402	Tobacco and Tobacco Products – Atmosphere for Conditioning and Testing
ISO 4387	Cigarettes – Determination of Total and Nicotine-Free Dry Particulate Matter Using a Routine Analytical Smoking Machine
ISO 6565	Tobacco and Tobacco Products – Draw Resistance of Cigarettes and Pressure Drop of Filter Rods–Standard Conditions and Measurement
ISO 8454	Cigarettes – Determination of Carbon Monoxide in the Vapour Phase of Cigarette Smoke – NDIR method
TMS-118	Determination of Volatile Nitrosamines in Mainstream Tobacco Smoke
TMS-120	Determination of Selected Polynuclear Aromatic Hydrocarbons (PAHs) in Mainstream Tobacco Smoke
TMS-124	Determination of Vinyl Chloride, 1,3-Butadiene, Isoprene, Acrylonitrile, Benzene, Toluene, Styrene and Acetamide in Mainstream Tobacco Smoke (Expanded List)
TMS-127	Determination of Selected Polynuclear Aromatic Hydrocarbons (PAHs) And Aza-Arenes in the Particulate Phase of Mainstream Tobacco Smoke
TMS-128	Determination of Aromatic Amines in Mainstream Tobacco smoke (Expanded list: Aniline, o-Toluidine, m-Toluidine, p-Toluidine, o-Anisidine, 1- and 2-Aminonaphthalene and 3- and 4-Aminobiphenyl)
TMS-132	Determination of Gas Phase and Particulate Phase Free Radicals in Mainstream Tobacco Smoke
TMS-133	Determination of Selected Heterocyclic Aromatic Amines (HAAs) in Mainstream Tobacco Smoke
TMS-135	Determination of Tobacco Specific Nitrosamines in Mainstream Tobacco Smoke by Liquid Chromatography–Tandem Mass Spectrometry
TMS-137	Determination of Acetamide and Acrylamide in Mainstream Tobacco Smoke
TSS-219	Determination of Selected Polynuclear Aromatic Hydrocarbons (PAHs) in Sidestream Tobacco Smoke
TSS-222	Determination of Sidestream Tobacco Smoke pH
TWT-303	Determination of Carbonyls in Tobacco Samples
TWT-320	Determination of 1- and 2- Aminonaphthalene and 3- and 4-Aminobiphenyl in Tobacco Samples
TWT-321	

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	Determination Of Nicotine Alkaloids And Reducing Sugars In Tobacco Samples
TWT-324	Determination of Nicotine in Tobacco Samples (CDC method)
TWT-332	Determination of Volatile Nitrosamines in Tobacco Samples
TWT-333	Determination of Tobacco Specific Nitrosamines in Tobacco Samples by Liquid Chromatography-Tandem Mass Spectrometry
TWT-334	Determination of Chloride in Tobacco Samples
TWT-335	Determination of Selected Polycyclic Aromatic Hydrocarbons (PAHs) in Tobacco Samples
TWT-336	Determination of Acrylamide in Tobacco Samples by Liquid Chromatography - Tandem Mass Spectrometry
TWT-337	Determination of 1,3-Butadiene and Benzene in Tobacco Samples

**(Health Canada Tobacco Reporting Regulations Official Methods)**

T-101	Determination of Ammonia in Mainstream Tobacco Smoke
T-102	Determination of 1- and 2- Aminonaphthalene and 3- and 4- Aminobiphenyl in Mainstream Tobacco Smoke
T-103	Determination of Benzo[a]pyrene in Mainstream Tobacco Smoke
T-104	Determination of Selected Carbonyls in Mainstream Tobacco Smoke
T-105	Determination of Eugenol in Mainstream Tobacco Smoke
T-106	Determination of Filter Efficiency in Mainstream Tobacco Smoke
T-107	Determination of Hydrogen Cyanide in Mainstream Tobacco Smoke
T-108	Determination of Mercury in Mainstream Tobacco Smoke
T-109	Determination of Ni, Pb, Cd, Cr, As and Se in Mainstream Tobacco Smoke
T-110	Determination of Oxides of Nitrogen in Mainstream Tobacco Smoke
T-111	Determination of Nitrosamines in Mainstream Tobacco Smoke
T-112	Determination of Pyridine, Quinoline and Styrene in Mainstream Tobacco Smoke
T-113	Determination of Mainstream Tobacco Smoke pH
T-114	Determination of Phenolic Compounds in Mainstream Tobacco Smoke
T-115	Determination of Tar, Nicotine and Carbon Monoxide in Mainstream Tobacco Smoke
T-116	Determination of 1,3- Butadiene, Isoprene, Acrylonitrile, Benzene and Toluene in Mainstream Tobacco Smoke
T-201	Determination of Ammonia in Sidestream Tobacco Smoke
T-202	Determination of 1- and 2- Aminonaphthalene and 3- and 4- Aminobiphenyl in Sidestream Tobacco Smoke
T-203	Determination of Benzo[a]pyrene in Sidestream Tobacco Smoke
T-203A	Determination of Benzo[a]pyrene in Sidestream Tobacco Smoke (GC/MS)
T-204	Determination of Selected Carbonyls in Sidestream Tobacco Smoke
T-205	Determination of Hydrogen Cyanide in Sidestream Tobacco Smoke
T-206	Determination of Mercury in Sidestream Tobacco Smoke
T-207	Determination of Toxic Trace Metals in Sidestream Smoke

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T-208	Determination of Oxides of Nitrogen in Sidestream Tobacco Smoke
T-209	Determination of Nitrosamines in Sidestream Tobacco Smoke
T-210	Determination of Pyridine and Quinoline in Sidestream Tobacco Smoke
T-211	Determination of Phenolic Compounds in Sidestream Tobacco Smoke
T-212	Determination of "Tar" and Nicotine in Sidestream Tobacco Smoke
T-213	Determination of 1,3 Butadiene, Isoprene, Acrylonitrile, Benzene, Toluene and Styrene in Sidestream Tobacco Smoke
T-214	Determination of Carbon Monoxide (CO) in Sidestream Tobacco Smoke
T-301	Determination of Alkaloids in Whole Tobacco
T-302	Determination of Ammonia in Whole Tobacco
T-304	Determination of Humectants in Whole Tobacco
T-306	Determination of Ni, Pb, Cd, Cr, As, Se and Hg in Whole Tobacco
T-307	Determination of Benzo[a]pyrene in Whole Tobacco
T-308	Determination of Nitrate from Whole Tobacco
T-309	Determination of Nitrosamines in Whole Tobacco
T-310	Determination of Whole Tobacco pH
T-311	Determination of Triacetin in Whole Tobacco
T-312	Determination of Sodium Propionate in Whole Tobacco
T-313	Determination of Sorbic Acid in Whole Tobacco
T-314	Determination of Eugenol in Whole Tobacco
T-401	Preparation of Cigarettes from Packaged Leaf Tobacco for Testing
T-402	Preparation of Cigarettes, Cigarette Tobacco, Cigars, Kreteks, Bidis, Packaged Leaf Tobacco, Pipe Tobacco and Smokeless Tobacco for testing

**(Microbiology Tests)**

T-501	Bacterial Reverse Mutation Assay for Mainstream Tobacco Smoke
T-502	Neutral Red Uptake Assay for Mainstream Tobacco Smoke
T-503	In Vitro Micronucleus Assay for Mainstream Tobacco Smoke
TBA-504	<i>In vitro</i> Sister Chromatid Exchange (SCE) Assay for Mainstream Tobacco Smoke

**(Other: Measures of Exposure)**

TME-001	Determination of Nicotine, Cotinine and Caffeine in Physiological Fluid Samples
TME-002	Determination of Creatinine in Urine
TME-003	Determination of 3-Hydroxycotinine in Physiological Fluid Samples
TME-004	<i>Salmonella Typhimurium</i> Reverse Mutation Assay: Microsuspension Method For Testing Urine Mutagenicity
TME-005	Determination of Nicotine and its Major Metabolites in Urine by Liquid Chromatography – Tandem Mass Spectrometry

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TME-006	Determination of S-Phenylmercapturic Acid (S-PMA) in Urine by Liquid Chromatography – Tandem Mass Spectrometry
TME-007	Determination of 8-Hydroxy-2'-Deoxyguanosine (8-OHdG) in Urine by Liquid Chromatography – Tandem Mass Spectrometry
TME-008	Determination of 1-Hydroxypyrene (1-HOP) in Urine by Liquid Chromatography – Tandem Mass Spectrometry
TME-009	Determination of 4-(Methyl-Nitrosamino)-1-(3-Pyridyl)-1-Butanol (NNAL) and its Glucuronides in Urine by Liquid Chromatography – Tandem Mass Spectrometry
TME-010	Determination of 1,3-Butadiene Urinary Metabolites by Liquid Chromatography – Tandem Mass Spectrometry
TME-011	Determination of 3-Hydroxypropylmercapturic Acid (3-HPMA) in Urine by Liquid Chromatography – Tandem Mass Spectrometry
TME-012	Determination of Selected Arylamines in Urine by Gas Chromatography – Mass Spectrometry (GC-MS)

**Notes:**

**AOAC:** Association of Official Analytical Chemists

**ASTM:** American Society for Testing and Materials

**CAN-P-4E (ISO/IEC 17025):** General Requirements for the Competence of Testing and Calibration Laboratories (ISO/IEC 17025-2005)

**CDC:** Centers for Disease Control and Prevention

**ISO:** International Organization for Standardization

**T:** Health Canada Tobacco Reporting Regulations Official Methods

**TBA:** Test Method, Biological Activity

**TME:** Test Method, Measures of Exposure

**TMS:** Test method, Mainstream Smoke

**TSS:** Test method, Sidestream Smoke

**TWT:** Test method, Whole Tobacco

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P. Paladino, P. Eng., Director, Conformity Assessment

Date: 2008-10-06

Number of Scope Listings: 93  
SCC 1003-15/420

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Standards Council of Canada Accredited Laboratory No. 368

Partner File #0

Partner: None

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# **Appendix B**

## **“Raw” Data and Summary Statistics (See Enclosed CD)**

## Use of Labstat's<sup>1</sup> Analytical Reports<sup>2</sup>

Labstat International ULC is a recognized centre of analytical excellence related to tobacco and tobacco products. Our clients include major international tobacco manufacturers, various Governments and Government agencies such as the Canadian Federal Department of Health and the Massachusetts Department of Public Health, agricultural interests, university researchers and private research interests. Normally our contractual obligations extend **only** to the provision of data and related reports.

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The following also applies to reported data.

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<sup>1</sup>. Labstat International ULC,  
262 Manitou Drive, Kitchener, ON Canada N2C 1L3  
Phone: (519) 748-5409; Fax: (519) 748-1654; Email: labstat@labstat.com

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<b>Sample ID</b>	<b>Sample Description</b>
0905430	Winston Lights 100's Box
0905431	Camel Lights Hard Pack
0905432	Salem Gold Box
0905433	Doral Menthol Lights 100's Box
0905434	Kool Menthol Milds Box
0905435	Pall Mall Blue
0905436	Winston Lights Box King Size
0905437	Marlboro Lights Flip-Top Box King Size
0905438	Marlboro Lights Flip-Top Box Regular Size
0905439	Marlboro Flip-Top Box King Size

<b>Sample ID</b>	<b>Sample Description</b>	<b>Client Description</b>
0905644	Subject 1 Visit 1	Winston 100 HP FFLT
0905645	Subject 3 Visit 1	Camel 85 HP FFLT
0905646	Subject 5 Visit 1	Marlboro 85 FFLT
0905647	Subject 7 Visit 1	Marlboro 85 FFLT
0905648	Subject 9 Visit 1	Salem 85 HP FFLT
0905649	Subject 11 Visit 1	Doral Menthol 100 HP FFLT
0905650	Subject 12 Visit 1	Marlboro 85 FFLT
0905651	Subject 13 Visit 1	KOOL Menthol Milds HP 85 FFLT
0905652	Subject 15 Visit 1	Camel 85 HP FFLT
0905653	Subject 18 Visit 1	Camel 85 HP FFLT
0905654	Subject 19 Visit 1	Pall Mall 85 HP FFLT
0905655	Subject 21 Visit 1	Marlboro 72 HP FFLT
0905656	Subject 24 Visit 1	Marlboro Medium 85 HP FFLT
0905657	Subject 26 Visit 1	Winston 85 HP FFLT
0905658	Subject 28 Visit 1	Camel 85 HP FFLT

**Yield in Use (YIU) Smoking Regime Summary used in the Preparation of Calibrations :  
"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Point (Regime)	Smoking Conditions				Amount to be Smoked (Length/puffs)	FTC "tar" Yield (mg/cig)	
	Volume (ml)	Interval (s)	Duration (s)	Flow (ml/s)		1 - 3mg	4mg plus
0	-	-	-	-	-	✓	✓
1	40	60	2	20	4 puffs	✓	✓
2	40	30	2	20	Tipping + 3 mm	✓	✓
3	50	60	1.5	33.3	4 puffs	✓	-
4	50	60	1.5	33.3	Tipping + 3 mm	-	✓
5	50	30	1.5	33.3	Tipping + 3 mm	✓	✓
6	70	60	1.5	46.7	4 puffs	-	✓
7	70	30	1.5	46.7	Tipping + 3 mm	✓	✓
8	70	20	1.5	46.7	Tipping + 3 mm	✓	-

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905430	40	60	2	4 puffs	1006	4.0	5.16	0.12	0.381	4.66	0.0746	0.3910
1	0905430	40	60	2	4 puffs	1003	4.0	5.62	0.16	0.455	5.00	0.0758	0.4101
1	0905430	40	60	2	4 puffs	994	4.0	4.86	0.19	0.363	4.31	0.0758	0.3805
2	0905430	40	30	2	Tipping + 3	1024	13.4	23.54	2.13	1.693	19.72	0.3136	1.3759
2	0905430	40	30	2	Tipping + 3	1016	13.4	23.38	2.05	1.604	19.72	0.3184	1.3573
2	0905430	40	30	2	Tipping + 3	1011	13.6	23.36	2.01	1.677	19.67	0.3038	1.4233
4	0905430	50	60	1.5	Tipping + 3	993	7.9	16.88	1.54	1.208	14.13	0.1955	0.9601
4	0905430	50	60	1.5	Tipping + 3	1012	8.0	16.96	1.70	1.193	14.07	0.2013	0.9571
4	0905430	50	60	1.5	Tipping + 3	1011	8.0	17.28	1.53	1.218	14.53	0.2211	0.9521
5	0905430	50	30	1.5	Tipping + 3	1020	12.9	29.94	4.29	1.987	23.66	0.3204	1.4534
5	0905430	50	30	1.5	Tipping + 3	1002	12.4	30.86	5.61	1.950	23.30	0.3169	1.4812
5	0905430	50	30	1.5	Tipping + 3	990	11.9	28.84	4.69	1.856	22.30	0.3247	1.4564
6	0905430	70	60	1.5	4 puffs	1004	4.0	9.76	0.74	0.734	8.29	0.1147	0.6089
6	0905430	70	60	1.5	4 puffs	1012	4.0	9.40	0.59	0.680	8.13	0.1065	0.5422
6	0905430	70	60	1.5	4 puffs	1019	4.0	9.80	0.64	0.706	8.46	0.1112	0.5615
7	0905430	70	30	1.5	Tipping + 3	1013	11.1	42.04	10.84	2.318	28.88	0.3869	1.7173
7	0905430	70	30	1.5	Tipping + 3	1001	10.6	41.14	10.80	2.301	28.04	0.3855	1.6827
7	0905430	70	30	1.5	Tipping + 3	981	10.6	41.24	11.98	2.279	26.98	0.3914	1.7111



**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905431	40	60	2	4 puffs	889	4.0	5.82	0.38	0.397	5.04	0.0798	0.4255
1	0905431	40	60	2	4 puffs	908	4.0	5.22	0.34	0.359	4.52	0.0711	0.3585
1	0905431	40	60	2	4 puffs	891	4.0	5.86	0.42	0.404	5.03	0.0794	0.3955
2	0905431	40	30	2	Tipping + 3	902	12.0	21.22	3.16	1.338	16.72	0.2837	1.2607
2	0905431	40	30	2	Tipping + 3	918	12.4	22.44	3.43	1.385	17.63	0.2971	1.3496
2	0905431	40	30	2	Tipping + 3	896	12.1	23.16	3.56	1.417	18.18	0.2960	1.3428
4	0905431	50	60	1.5	Tipping + 3	928	7.7	16.10	2.46	0.989	12.65	0.1907	0.8890
4	0905431	50	60	1.5	Tipping + 3	891	7.3	17.64	3.22	1.067	13.35	0.2000	0.9212
4	0905431	50	60	1.5	Tipping + 3	881	7.1	17.78	3.12	1.064	13.60	0.2069	0.9518
5	0905431	50	30	1.5	Tipping + 3	908	11.8	27.62	5.94	1.580	20.10	0.2883	1.2929
5	0905431	50	30	1.5	Tipping + 3	891	11.1	29.58	7.37	1.665	20.55	0.2999	1.3331
5	0905431	50	30	1.5	Tipping + 3	902	10.9	29.04	6.74	1.654	20.65	0.3022	1.3600
6	0905431	70	60	1.5	4 puffs	899	4.0	9.88	1.03	0.631	8.22	0.1032	0.5294
6	0905431	70	60	1.5	4 puffs	911	4.0	11.02	1.24	0.674	9.11	0.1068	0.5678
6	0905431	70	60	1.5	4 puffs	908	4.0	10.16	1.05	0.667	8.44	0.1089	0.5395
7	0905431	70	30	1.5	Tipping + 3	900	10.3	41.94	13.83	2.015	26.10	0.4048	1.6224
7	0905431	70	30	1.5	Tipping + 3	897	10.3	40.62	12.92	1.942	25.76	0.4173	1.7666
7	0905431	70	30	1.5	Tipping + 3	908	10.0	40.52	12.96	2.022	25.54	0.4005	1.7104

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905432	40	60	2	4 puffs	889	4.0	5.74	0.31	0.360	5.07	0.0798	0.4274
1	0905432	40	60	2	4 puffs	881	4.0	5.82	0.38	0.373	5.07	0.0816	0.4090
1	0905432	40	60	2	4 puffs	892	4.0	5.62	0.38	0.355	4.88	0.0796	0.3930
2	0905432	40	30	2	Tipping + 3	888	11.0	22.28	3.89	1.220	17.17	0.2647	1.2913
2	0905432	40	30	2	Tipping + 3	911	11.9	21.62	3.46	1.248	16.91	0.2785	1.2851
2	0905432	40	30	2	Tipping + 3	903	11.7	22.38	3.77	1.255	17.36	0.2864	1.3023
4	0905432	50	60	1.5	Tipping + 3	889	6.9	16.50	3.03	0.896	12.58	0.1767	0.8763
4	0905432	50	60	1.5	Tipping + 3	900	6.9	16.02	2.54	0.905	12.57	0.1831	0.8950
4	0905432	50	60	1.5	Tipping + 3	905	6.9	16.24	3.06	0.862	12.32	0.1840	0.9211
5	0905432	50	30	1.5	Tipping + 3	892	10.3	28.36	6.66	1.403	20.30	0.2955	1.3477
5	0905432	50	30	1.5	Tipping + 3	881	9.8	26.92	6.23	1.387	19.30	0.2595	1.2570
5	0905432	50	30	1.5	Tipping + 3	895	10.6	26.82	5.99	1.399	19.43	0.2779	1.3412
6	0905432	70	60	1.5	4 puffs	898	4.0	10.46	1.16	0.621	8.68	0.1005	0.5770
6	0905432	70	60	1.5	4 puffs	904	4.0	10.16	1.14	0.576	8.45	0.1009	0.5778
6	0905432	70	60	1.5	4 puffs	899	4.0	10.00	1.17	0.590	8.24	0.0973	0.5245
7	0905432	70	30	1.5	Tipping + 3	893	9.5	41.50	14.16	1.800	25.54	0.3590	1.5579
7	0905432	70	30	1.5	Tipping + 3	885	9.0	40.50	13.74	1.690	25.07	0.3464	1.5570
7	0905432	70	30	1.5	Tipping + 3	877	8.9	40.88	14.15	1.785	24.95	0.3693	1.5906

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905433	40	60	2	4 puffs	1013	4.0	4.70	0.29	0.259	4.16	0.0429	0.2585
1	0905433	40	60	2	4 puffs	1022	4.0	4.68	0.31	0.255	4.12	0.0464	0.2722
1	0905433	40	60	2	4 puffs	1023	4.0	4.98	0.36	0.276	4.34	0.0415	0.2533
2	0905433	40	30	2	Tipping + 3	1025	13.9	25.30	3.48	1.306	20.51	0.2047	1.2024
2	0905433	40	30	2	Tipping + 3	1015	13.2	23.98	3.34	1.207	19.44	0.1917	1.1278
2	0905433	40	30	2	Tipping + 3	1016	13.1	24.08	3.61	1.252	19.21	0.2075	1.1443
4	0905433	50	60	1.5	Tipping + 3	1021	7.9	17.64	2.88	0.879	13.88	0.1256	0.7519
4	0905433	50	60	1.5	Tipping + 3	1019	8.2	18.46	2.60	0.907	14.95	0.1284	0.7349
4	0905433	50	60	1.5	Tipping + 3	1000	8.0	18.50	2.48	0.940	15.08	0.1215	0.7273
5	0905433	50	30	1.5	Tipping + 3	1003	12.1	32.12	5.96	1.439	24.72	0.1924	1.1235
5	0905433	50	30	1.5	Tipping + 3	1018	12.5	33.50	6.94	1.618	24.94	0.2187	1.2001
5	0905433	50	30	1.5	Tipping + 3	1024	12.8	32.26	5.86	1.602	24.80	0.2269	1.2007
6	0905433	70	60	1.5	4 puffs	1009	4.0	9.52	0.92	0.499	8.10	0.0642	0.4265
6	0905433	70	60	1.5	4 puffs	1029	4.0	9.28	0.86	0.489	7.93	0.0618	0.4287
6	0905433	70	60	1.5	4 puffs	1048	4.0	10.16	0.99	0.529	8.65	0.0675	0.4388
7	0905433	70	30	1.5	Tipping + 3	1019	10.9	48.00	15.56	1.896	30.55	0.2825	1.3838
7	0905433	70	30	1.5	Tipping + 3	1005	10.6	47.34	15.53	1.865	29.94	0.2652	1.4341
7	0905433	70	30	1.5	Tipping + 3	1010	10.6	44.86	13.56	1.824	29.47	0.2698	1.4285

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905434	40	60	2	4 puffs	880	4.0	6.78	0.53	0.433	5.82	0.0686	0.3602
1	0905434	40	60	2	4 puffs	888	4.0	7.24	0.63	0.443	6.17	0.0669	0.3603
1	0905434	40	60	2	4 puffs	897	4.0	6.54	0.53	0.415	5.59	0.0687	0.3400
2	0905434	40	30	2	Tipping + 3	888	11.3	28.30	5.41	1.559	21.33	0.2604	1.2061
2	0905434	40	30	2	Tipping + 3	909	11.1	25.74	4.65	1.474	19.62	0.2395	1.1450
2	0905434	40	30	2	Tipping + 3	872	10.6	27.06	5.07	1.477	20.51	0.2396	1.2017
4	0905434	50	60	1.5	Tipping + 3	873	6.6	19.56	4.12	1.001	14.44	0.1491	0.7205
4	0905434	50	60	1.5	Tipping + 3	911	7.1	20.24	4.42	1.014	14.81	0.1540	0.7508
4	0905434	50	60	1.5	Tipping + 3	893	6.7	20.52	4.45	1.030	15.04	0.1629	0.8084
5	0905434	50	30	1.5	Tipping + 3	892	10.4	34.38	9.01	1.702	23.67	0.2666	1.1627
5	0905434	50	30	1.5	Tipping + 3	873	10.3	36.78	9.95	1.848	24.98	0.2713	1.2436
5	0905434	50	30	1.5	Tipping + 3	881	10.0	36.84	10.61	1.750	24.48	0.2713	1.2211
6	0905434	70	60	1.5	4 puffs	888	4.0	13.06	1.92	0.766	10.37	0.1094	0.5299
6	0905434	70	60	1.5	4 puffs	892	4.0	12.02	1.66	0.708	9.66	0.0959	0.4903
6	0905434	70	60	1.5	4 puffs	878	4.0	12.92	1.79	0.714	10.42	0.0935	0.4799
7	0905434	70	30	1.5	Tipping + 3	888	9.4	51.32	18.23	2.118	30.97	0.3534	1.4933
7	0905434	70	30	1.5	Tipping + 3	884	9.4	47.50	16.14	2.193	29.17	0.3334	1.3795
7	0905434	70	30	1.5	Tipping + 3	895	9.4	49.52	17.72	2.054	29.75	0.3513	1.4217

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905435	40	60	2	4 puffs	941	4.0	5.02	0.22	0.314	4.49	0.0482	0.2826
1	0905435	40	60	2	4 puffs	935	4.0	4.70	0.23	0.294	4.18	0.0461	0.2755
1	0905435	40	60	2	4 puffs	955	4.0	4.80	0.33	0.285	4.19	0.0457	0.2680
2	0905435	40	30	2	Tipping + 3	947	13.2	24.52	4.28	1.342	18.90	0.1927	1.0609
2	0905435	40	30	2	Tipping + 3	945	13.0	21.80	3.11	1.245	17.44	0.1922	1.0425
2	0905435	40	30	2	Tipping + 3	946	13.0	22.78	3.64	1.287	17.85	0.1957	1.0087
4	0905435	50	60	1.5	Tipping + 3	968	8.4	18.74	3.37	1.043	14.32	0.1380	0.7208
4	0905435	50	60	1.5	Tipping + 3	985	8.4	17.98	3.21	0.951	13.82	0.1356	0.7074
4	0905435	50	60	1.5	Tipping + 3	961	8.3	17.68	3.48	0.976	13.22	0.1408	0.7536
5	0905435	50	30	1.5	Tipping + 3	956	12.8	31.02	7.29	1.623	22.11	0.2105	1.0860
5	0905435	50	30	1.5	Tipping + 3	956	13.1	28.98	6.49	1.648	20.85	0.2221	1.0967
5	0905435	50	30	1.5	Tipping + 3	953	12.7	30.72	7.34	1.522	21.85	0.2207	1.1547
6	0905435	70	60	1.5	4 puffs	946	4.0	8.48	0.79	0.543	7.14	0.0677	0.3659
6	0905435	70	60	1.5	4 puffs	956	4.0	9.38	0.91	0.588	7.88	0.0750	0.4345
6	0905435	70	60	1.5	4 puffs	941	4.0	9.96	0.99	0.597	8.38	0.0645	0.3887
7	0905435	70	30	1.5	Tipping + 3	934	11.1	44.48	14.82	2.025	27.64	0.2728	1.3229
7	0905435	70	30	1.5	Tipping + 3	933	10.7	42.78	14.07	1.988	26.72	0.2613	1.2804
7	0905435	70	30	1.5	Tipping + 3	944	10.9	43.94	14.80	1.929	27.21	0.2649	1.3331

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905436	40	60	2	4 puffs	833	4.0	5.88	0.17	0.432	5.28	0.0795	0.4383
1	0905436	40	60	2	4 puffs	860	4.0	5.34	0.22	0.405	4.71	0.0810	0.4173
1	0905436	40	60	2	4 puffs	857	4.0	5.32	0.20	0.408	4.72	0.0782	0.3801
2	0905436	40	30	2	Tipping + 3	909	11.2	20.40	2.02	1.419	16.96	0.2587	1.2622
2	0905436	40	30	2	Tipping + 3	853	11.3	19.78	2.05	1.347	16.38	0.2609	1.2716
2	0905436	40	30	2	Tipping + 3	856	11.2	20.52	2.53	1.411	16.58	0.2795	1.1858
4	0905436	50	60	1.5	Tipping + 3	855	6.6	15.30	2.28	1.047	11.98	0.1693	0.8206
4	0905436	50	60	1.5	Tipping + 3	853	6.9	15.32	2.10	1.020	12.20	0.1757	0.8107
4	0905436	50	60	1.5	Tipping + 3	848	6.7	14.68	2.06	0.986	11.64	0.1706	0.8271
5	0905436	50	30	1.5	Tipping + 3	858	10.2	24.80	4.55	1.549	18.70	0.2747	1.2077
5	0905436	50	30	1.5	Tipping + 3	832	10.2	27.44	5.67	1.703	20.07	0.2769	1.2854
5	0905436	50	30	1.5	Tipping + 3	850	10.1	23.18	3.64	1.583	17.96	0.2638	1.2859
6	0905436	70	60	1.5	4 puffs	849	4.0	9.98	0.81	0.737	8.43	0.1134	0.5767
6	0905436	70	60	1.5	4 puffs	826	4.0	10.50	1.01	0.725	8.77	0.1119	0.5618
6	0905436	70	60	1.5	4 puffs	855	4.0	9.74	0.82	0.735	8.19	0.1136	0.5832
7	0905436	70	30	1.5	Tipping + 3	852	9.3	37.60	11.23	1.998	24.37	0.3515	1.5340
7	0905436	70	30	1.5	Tipping + 3	852	8.9	36.10	10.73	1.857	23.52	0.3223	1.4772
7	0905436	70	30	1.5	Tipping + 3	846	9.2	38.30	11.45	1.969	24.88	0.3338	1.6053



**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905437	40	60	2	4 puffs	900	4.0	6.84	0.42	0.436	5.98	0.0852	0.5007
1	0905437	40	60	2	4 puffs	911	4.0	6.72	0.35	0.412	5.95	0.0856	0.5019
1	0905437	40	60	2	4 puffs	904	4.0	6.46	0.36	0.406	5.69	0.0850	0.4764
2	0905437	40	30	2	Tipping + 3	912	11.3	21.80	2.55	1.301	17.94	0.2589	1.3648
2	0905437	40	30	2	Tipping + 3	903	11.1	22.30	2.58	1.386	18.33	0.2851	1.3878
2	0905437	40	30	2	Tipping + 3	907	11.2	22.52	2.65	1.336	18.54	0.2735	1.3990
4	0905437	50	60	1.5	Tipping + 3	905	6.7	15.96	1.78	0.940	13.24	0.1607	0.8584
4	0905437	50	60	1.5	Tipping + 3	910	6.5	15.42	1.82	0.832	12.77	0.1509	0.8602
4	0905437	50	60	1.5	Tipping + 3	892	6.4	15.30	1.82	0.905	12.57	0.1613	0.9268
5	0905437	50	30	1.5	Tipping + 3	904	10.1	29.80	5.59	1.619	22.59	0.2949	1.4488
5	0905437	50	30	1.5	Tipping + 3	894	9.9	28.20	4.81	1.596	21.80	0.2708	1.3717
5	0905437	50	30	1.5	Tipping + 3	911	10.3	29.78	5.88	1.642	22.26	0.2794	1.4237
6	0905437	70	60	1.5	4 puffs	907	4.0	11.42	1.18	0.717	9.53	0.1155	0.6241
6	0905437	70	60	1.5	4 puffs	906	4.0	10.92	1.03	0.668	9.22	0.1058	0.5978
6	0905437	70	60	1.5	4 puffs	902	4.0	10.70	1.05	0.644	9.01	0.1042	0.5895
7	0905437	70	30	1.5	Tipping + 3	902	9.0	39.04	12.12	1.850	25.07	0.3353	1.5946
7	0905437	70	30	1.5	Tipping + 3	917	9.0	35.32	9.39	1.795	24.13	0.3207	1.4983
7	0905437	70	30	1.5	Tipping + 3	896	9.2	38.10	11.23	1.845	25.03	0.3198	1.5851

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905438	40	60	2	4 puffs	809	4.0	5.82	0.36	0.388	5.07	0.1170	0.5832
1	0905438	40	60	2	4 puffs	821	4.0	5.82	0.41	0.404	5.01	0.1134	0.6006
1	0905438	40	60	2	4 puffs	810	4.0	6.48	0.48	0.423	5.58	0.1287	0.6477
2	0905438	40	30	2	Tipping + 3	789	9.9	22.76	3.71	1.277	17.77	0.3211	1.6237
2	0905438	40	30	2	Tipping + 3	790	9.6	21.32	3.60	1.206	16.51	0.3610	1.5385
2	0905438	40	30	2	Tipping + 3	796	10.3	22.74	3.92	1.317	17.50	0.3904	1.8743
4	0905438	50	60	1.5	Tipping + 3	815	6.2	17.12	3.27	0.908	12.94	0.2394	1.2622
4	0905438	50	60	1.5	Tipping + 3	805	6.4	16.18	3.18	0.896	12.10	0.2492	1.2709
4	0905438	50	60	1.5	Tipping + 3	801	6.1	15.82	3.00	0.868	11.96	0.2459	1.2654
5	0905438	50	30	1.5	Tipping + 3	812	9.5	30.28	7.26	1.612	21.40	0.3863	1.8510
5	0905438	50	30	1.5	Tipping + 3	796	8.9	27.80	6.94	1.390	19.47	0.3731	1.8930
5	0905438	50	30	1.5	Tipping + 3	797	9.3	27.66	6.83	1.385	19.44	0.3779	1.7931
6	0905438	70	60	1.5	4 puffs	805	4.0	12.18	1.54	0.713	9.93	0.1744	0.9035
6	0905438	70	60	1.5	4 puffs	791	4.0	13.04	1.97	0.731	10.34	0.1830	0.9768
6	0905438	70	60	1.5	4 puffs	815	4.0	11.40	1.26	0.676	9.46	0.1666	0.8833
7	0905438	70	30	1.5	Tipping + 3	800	8.0	39.12	13.25	1.704	24.16	0.4501	2.2178
7	0905438	70	30	1.5	Tipping + 3	792	8.0	38.34	12.61	1.709	24.02	0.4447	2.0615
7	0905438	70	30	1.5	Tipping + 3	797	8.6	42.72	14.68	1.822	26.21	0.4940	2.2418

**Yield in Use (YIU) Calibration Data :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

Regime *	Sample ID	Puff Vol. (mL)	Interval (sec.)	Duration (sec.)	Smoked Length/Puffs	Weight (mg/cig)	Puff Count (per cig)	MS TPM (mg/cig)	Water (mg/cig)	Nicotine (mg/cig)	Tar (mg/cig)	Filter Nicotine (mg/filter)	UV Absorbance (per filter)
1	0905439	40	60	2	4 puffs	900	4.0	8.38	0.65	0.525	7.20	0.1105	0.6335
1	0905439	40	60	2	4 puffs	877	4.0	8.12	0.60	0.496	7.03	0.1044	0.5990
1	0905439	40	60	2	4 puffs	861	4.0	8.74	0.78	0.549	7.41	0.1035	0.5919
2	0905439	40	30	2	Tipping + 3	896	11.1	33.62	7.33	1.722	24.56	0.3957	1.9572
2	0905439	40	30	2	Tipping + 3	883	10.8	33.74	7.00	1.749	24.99	0.4054	2.0170
2	0905439	40	30	2	Tipping + 3	875	10.4	34.88	7.72	1.738	25.42	0.3989	1.9978
4	0905439	50	60	1.5	Tipping + 3	894	7.0	23.88	6.27	1.085	16.52	0.2329	1.2875
4	0905439	50	60	1.5	Tipping + 3	892	6.6	24.00	6.09	1.102	16.80	0.2262	1.2307
4	0905439	50	60	1.5	Tipping + 3	888	6.6	24.74	6.35	1.142	17.25	0.2316	1.2241
5	0905439	50	30	1.5	Tipping + 3	883	9.9	39.60	10.96	1.913	26.72	0.3769	1.8446
5	0905439	50	30	1.5	Tipping + 3	878	10.4	43.22	12.97	2.000	28.25	0.3852	1.9334
5	0905439	50	30	1.5	Tipping + 3	888	10.3	41.94	12.51	1.965	27.47	0.4237	2.1967
6	0905439	70	60	1.5	4 puffs	881	4.0	14.82	2.02	0.787	12.01	0.1327	0.8067
6	0905439	70	60	1.5	4 puffs	885	4.0	14.18	1.82	0.783	11.58	0.1277	0.7284
6	0905439	70	60	1.5	4 puffs	900	4.0	14.54	1.94	0.816	11.79	0.1313	0.8016
7	0905439	70	30	1.5	Tipping + 3	883	9.0	55.72	19.22	2.316	34.18	0.4725	2.3427
7	0905439	70	30	1.5	Tipping + 3	870	9.1	57.02	19.74	2.378	34.90	0.5357	2.6730
7	0905439	70	30	1.5	Tipping + 3	872	8.8	53.66	18.16	2.266	33.24	0.5002	2.4457

\* See text for additional details.

**Yield in Use (YIU) Calibration Summary :**  
**"Tar" and Nicotine Predictions using Part Filter Analysis Methodology**

<b>Sample ID</b>		<b>Primary Calibration Filter Nicotine</b>	<b>Primary Calibration UV Absorbance</b>	<b>Quality Control Curve - Tar vs. Nic. Yields</b>	<b>Quality Control Curve - Filter Abs. vs. Filter Nic.</b>	<b>Alternative QC Curve - Nic. Yield vs. Filter Abs.</b>	<b>Alternative QC Curve - Tar Yield vs. Filter Nic.</b>
<b>0905430</b>	<b>Slope</b>	5.781050	16.883066	12.191064	4.173879	1.386169	70.500683
	<b>Intercept</b>	0.005666	-1.891774	-0.337742	0.096267	-0.128872	-0.274212
	<b>Correlation</b>	0.990407	0.992080	0.998922	0.997105	0.994081	0.989669
<b>0905431</b>	<b>Slope</b>	4.737612	15.131742	12.779959	3.993385	1.181596	60.745426
	<b>Intercept</b>	0.092918	-0.584126	-0.035577	0.116545	-0.040414	1.106201
	<b>Correlation</b>	0.988310	0.988054	0.998658	0.996943	0.987355	0.990226
<b>0905432</b>	<b>Slope</b>	4.659651	15.726045	14.344064	4.222267	1.099284	66.714821
	<b>Intercept</b>	0.050450	-1.245819	-0.237696	0.115786	-0.073141	0.511034
	<b>Correlation</b>	0.986772	0.982941	0.998217	0.995529	0.987336	0.983192
<b>0905433</b>	<b>Slope</b>	6.729516	21.017075	15.945503	5.036109	1.320214	107.018382
	<b>Intercept</b>	0.026310	-1.207683	0.065970	0.091219	-0.081737	0.529505
	<b>Correlation</b>	0.990078	0.981481	0.998039	0.993071	0.985019	0.985492
<b>0905434</b>	<b>Slope</b>	5.967132	20.535579	13.933457	3.994679	1.470111	83.538075
	<b>Intercept</b>	0.082117	-1.013278	0.030243	0.117208	-0.071520	1.096324
	<b>Correlation</b>	0.992771	0.984713	0.996532	0.991278	0.985645	0.994032
<b>0905435</b>	<b>Slope</b>	7.252766	20.457689	13.572254	4.792565	1.496420	98.855384
	<b>Intercept</b>	-0.003789	-1.119592	0.223020	0.066087	-0.090095	0.106549
	<b>Correlation</b>	0.991477	0.987902	0.997244	0.996871	0.983470	0.992953
<b>0905436</b>	<b>Slope</b>	5.595154	15.940656	12.462913	4.351368	1.275955	69.867864
	<b>Intercept</b>	0.030179	-1.339919	-0.584121	0.075777	-0.057632	-0.236059
	<b>Correlation</b>	0.988145	0.986790	0.996967	0.993063	0.987399	0.987068
<b>0905437</b>	<b>Slope</b>	5.421402	15.972404	13.361782	4.503826	1.192257	72.423487
	<b>Intercept</b>	0.017294	-1.332298	0.444922	0.132191	-0.129709	0.679306
	<b>Correlation</b>	0.985137	0.980853	0.998334	0.995736	0.979924	0.983277
<b>0905438</b>	<b>Slope</b>	3.747966	11.903260	14.226853	4.449099	0.836183	53.302780
	<b>Intercept</b>	-0.006674	-1.917050	-0.418889	0.126721	-0.104608	-0.508344
	<b>Correlation</b>	0.987107	0.986540	0.997929	0.991705	0.988005	0.984712
<b>0905439</b>	<b>Slope</b>	4.289087	13.272315	14.416019	4.658183	0.918853	61.883666
	<b>Intercept</b>	0.145575	0.269349	0.120137	0.147025	0.013098	2.203416
	<b>Correlation</b>	0.987586	0.986835	0.997974	0.998625	0.986894	0.986415

December 2, 2009

Revision: 0

Labstat International ULC

**Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology****Calibration Data from Labstat Sample ID 0905430**

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	1	0905644	9.95	0.3816	0.5271	0.3836	1.5892	2.22	24.94

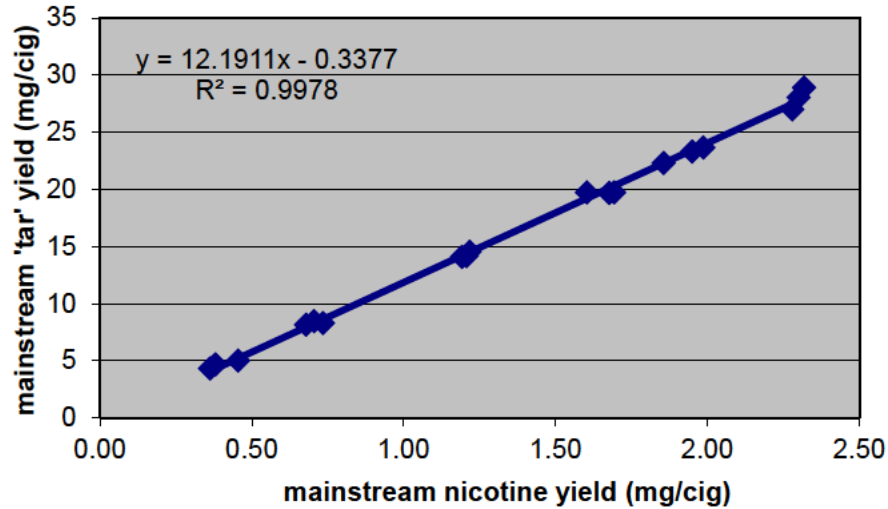
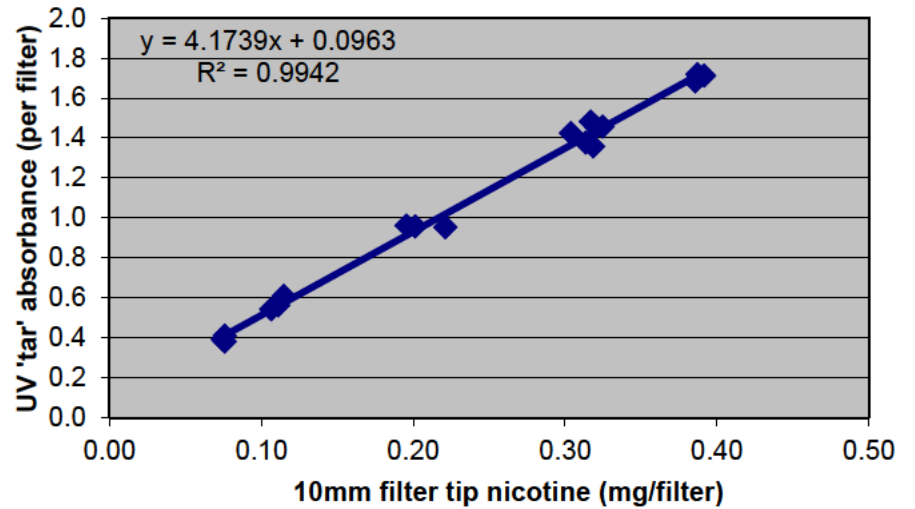
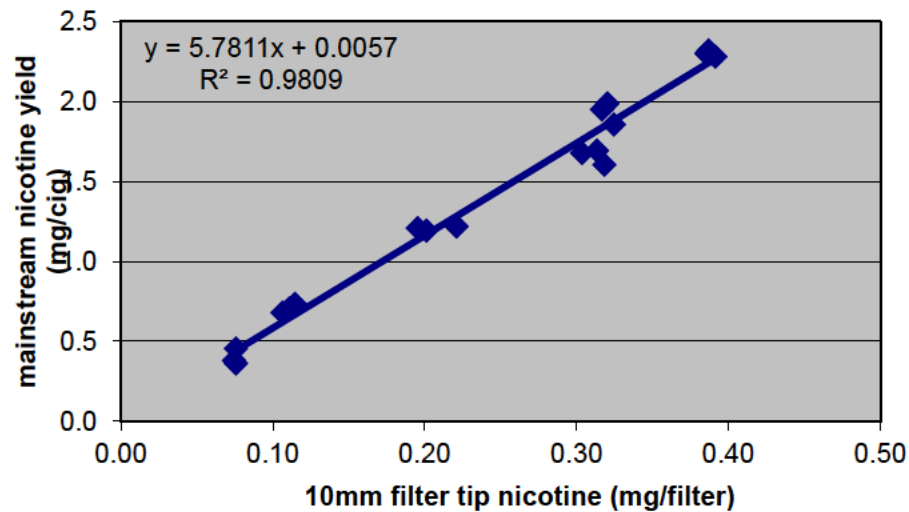
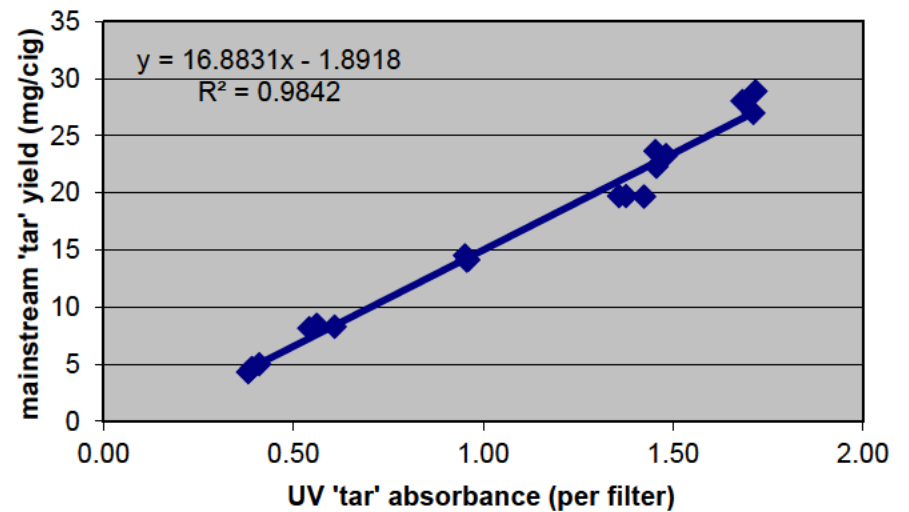
\* Corrected for filter tip length and changes in Quinoline response.

**Quality Control Information**

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	1	0905644	11.370449	0.93	3.892381	0.93	1.479911	1.07	65.735461	0.93

**QC and Calibration Plots**

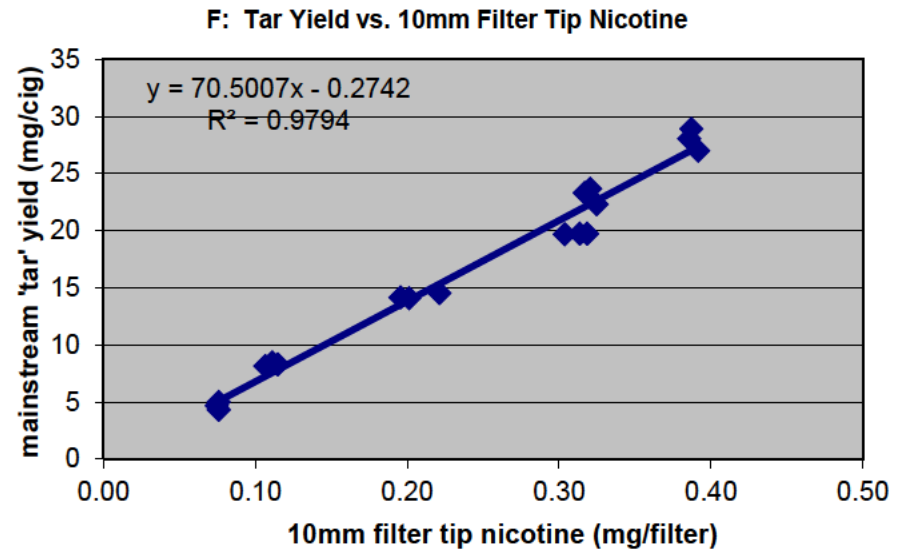
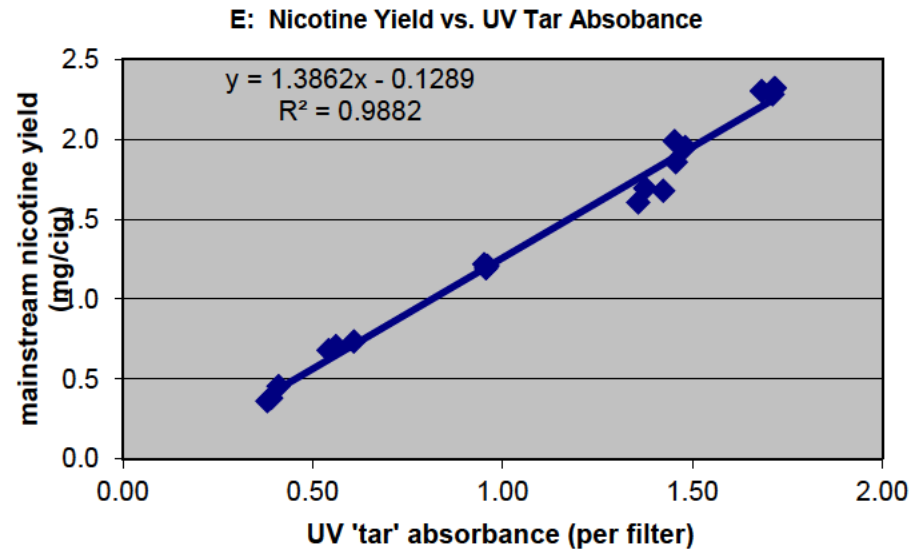
Sample ID: 0905430

**A: Tar vs. Nicotine Yields****B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine****C: 10mm Filter Tip Nicotine Calibration****D: UV Tar Absorbance Calibration**



**Cross-Check QC Plots**

Sample ID: 0905430



## Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology

## Calibration Data from Labstat Sample ID 0905431

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	2	0905645	9.95	0.3032	0.4288	0.3047	1.2929	1.54	18.98
2	1	9	0905652	9.95	0.4003	0.5184	0.4023	1.5630	2.00	23.07
3	1	10	0905653	9.95	0.2118	0.2972	0.2129	0.8961	1.10	12.98
4	1	15	0905658	10.00	0.1725	0.2384	0.1725	0.7152	0.91	10.24

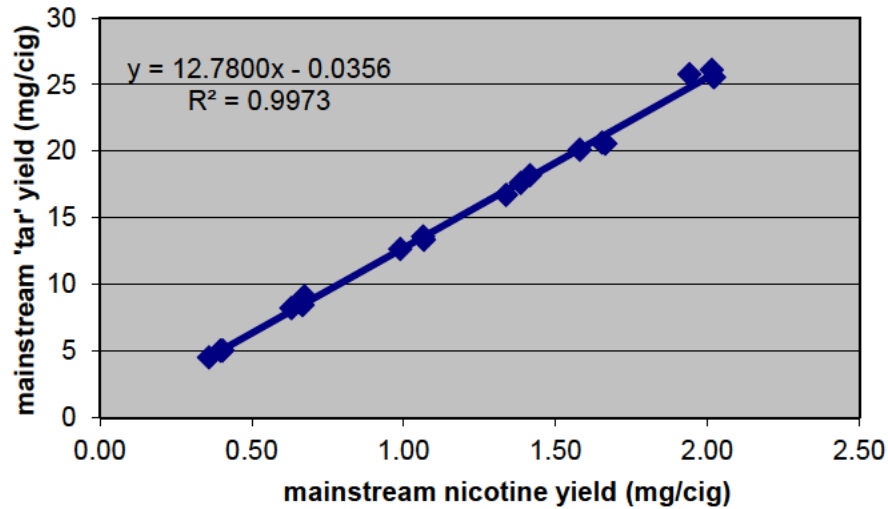
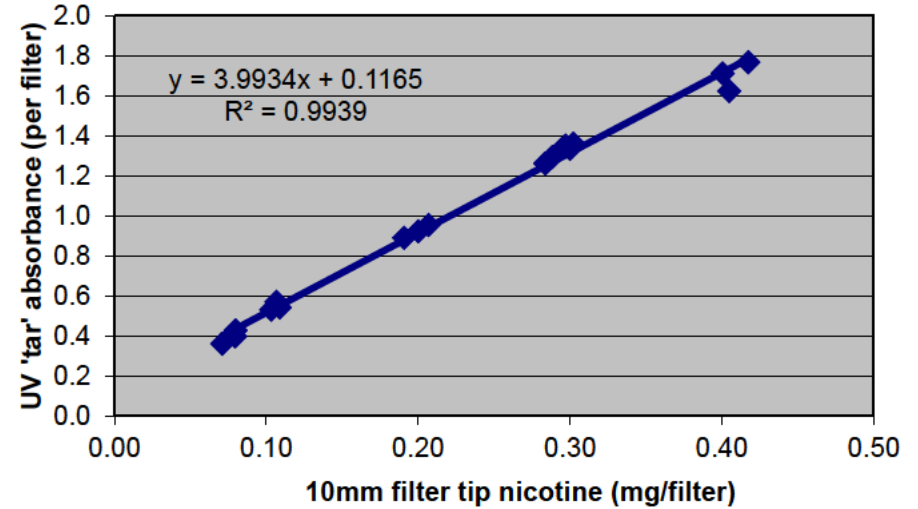
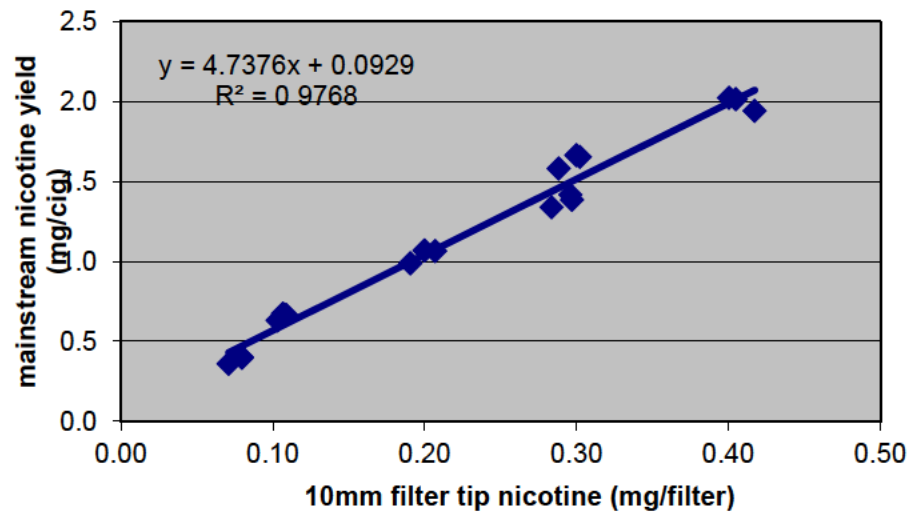
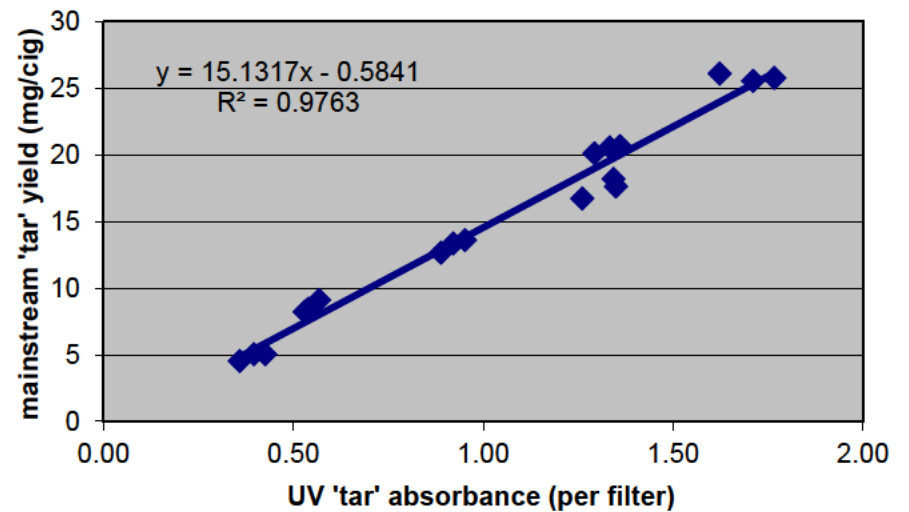
\* Corrected for filter tip length and changes in Quinoline response.

## Quality Control Information

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	2	0905645	12.375596	0.97	3.860576	0.97	1.219683	1.03	58.657503	0.97
2	1	9	0905652	11.558654	0.90	3.595752	0.90	1.304620	1.10	54.591967	0.90
3	1	10	0905653	11.811818	0.92	3.661715	0.92	1.274342	1.08	55.751999	0.92
4	1	15	0905658	11.289325	0.88	3.470982	0.87	1.328926	1.12	52.946448	0.87

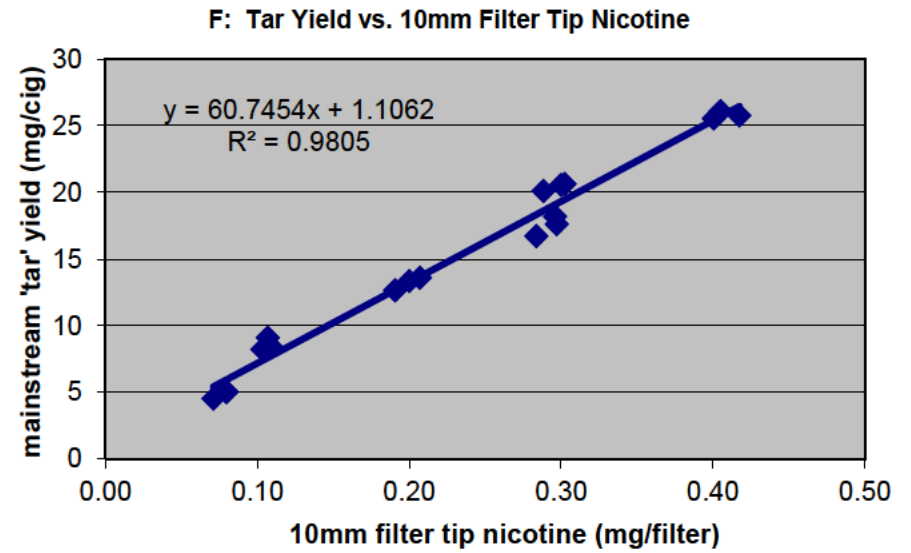
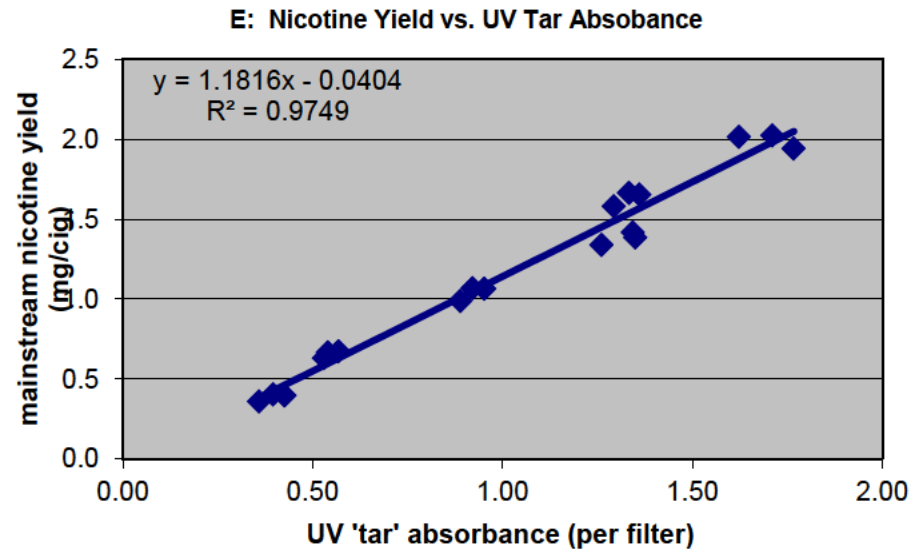
**QC and Calibration Plots**

Sample ID: 0905431

**A: Tar vs. Nicotine Yields****B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine****C: 10mm Filter Tip Nicotine Calibration****D: UV Tar Absorbance Calibration**

**Cross-Check QC Plots**

Sample ID: 0905431



**Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology****Calibration Data from Labstat Sample ID 0905432**

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	5	0905648	9.95	0.3417	0.4717	0.3434	1.4222	1.65	21.12

\* Corrected for filter tip length and changes in Quinoline response.

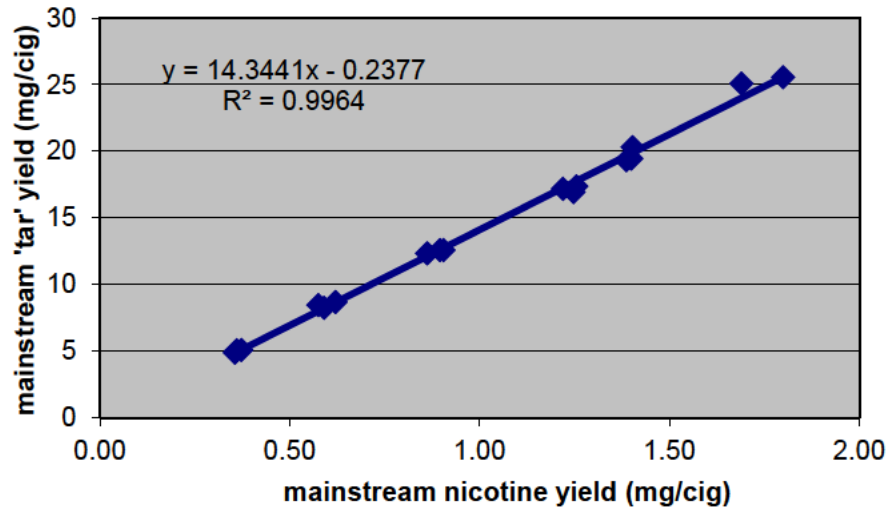
**Quality Control Information**

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	5	0905648	12.939083	0.90	3.804251	0.90	1.212035	1.10	60.012192	0.90

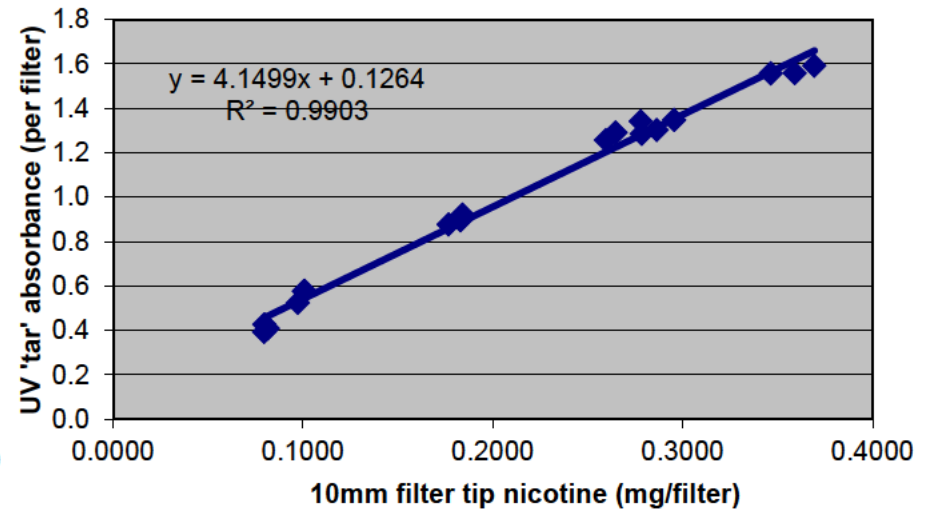
## QC and Calibration Plots

Sample ID: 0905432

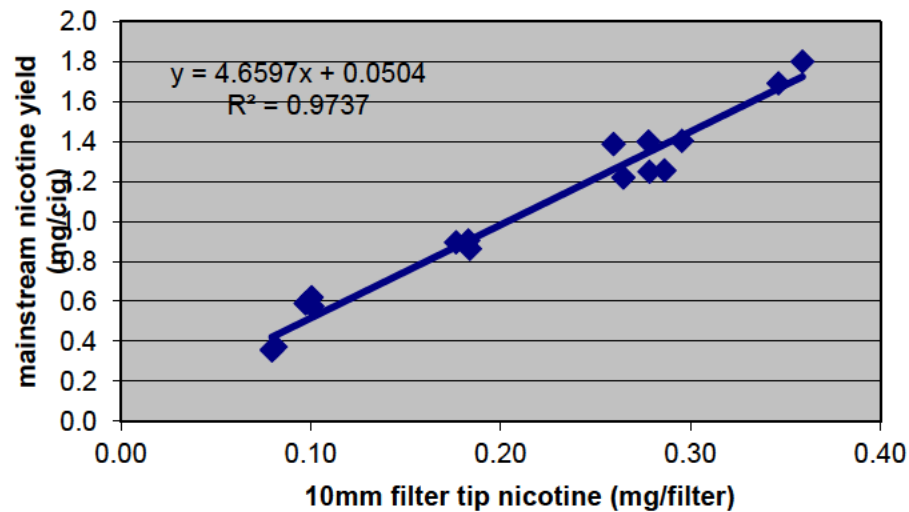
A: Tar vs. Nicotine Yields



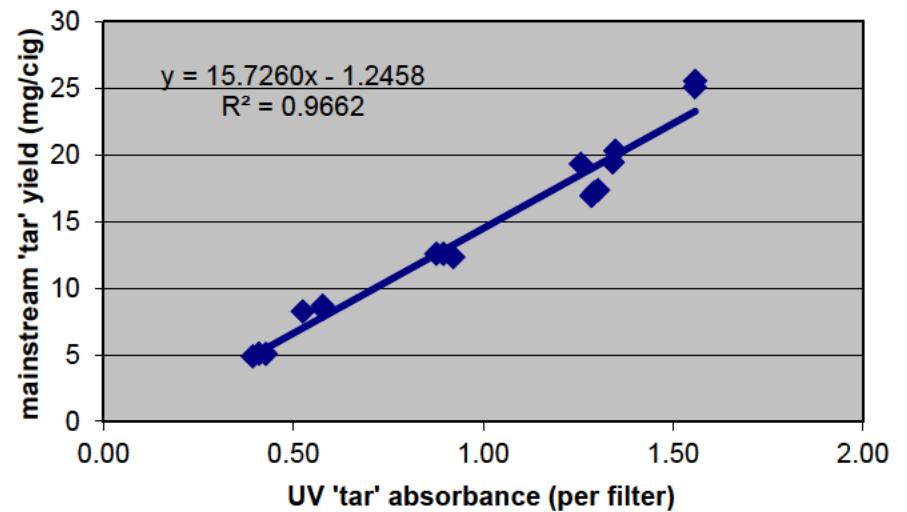
B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine



C: 10mm Filter Tip Nicotine Calibration



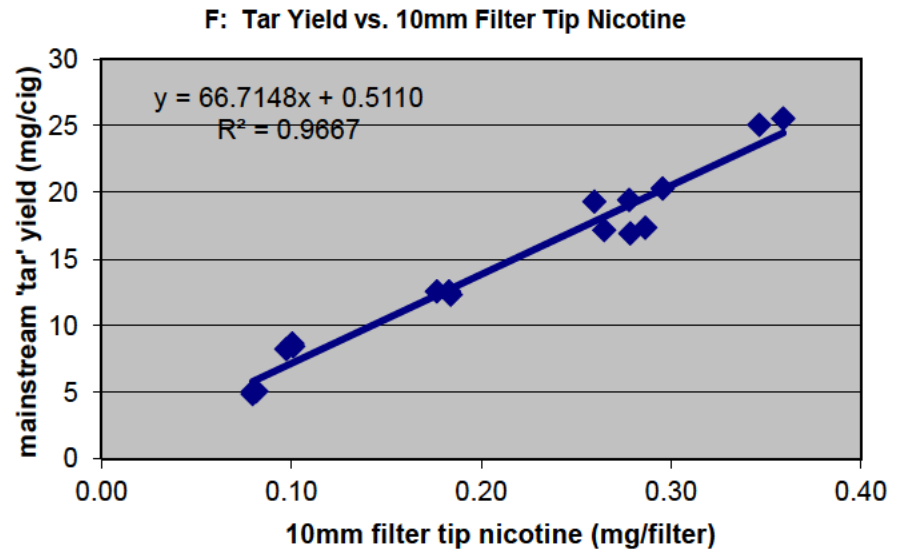
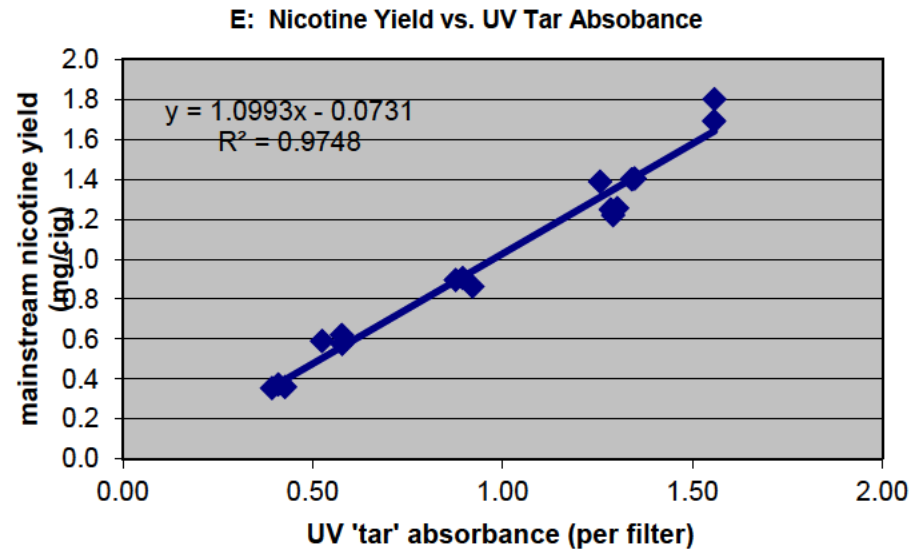
D: UV Tar Absorbance Calibration





**Cross-Check QC Plots**

Sample ID: 0905432



**Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology****Calibration Data from Labstat Sample ID 0905433**

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	6	0905649	9.95	0.3264	0.4962	0.3281	1.4961	2.23	30.24

\* Corrected for filter tip length and changes in Quinoline response.

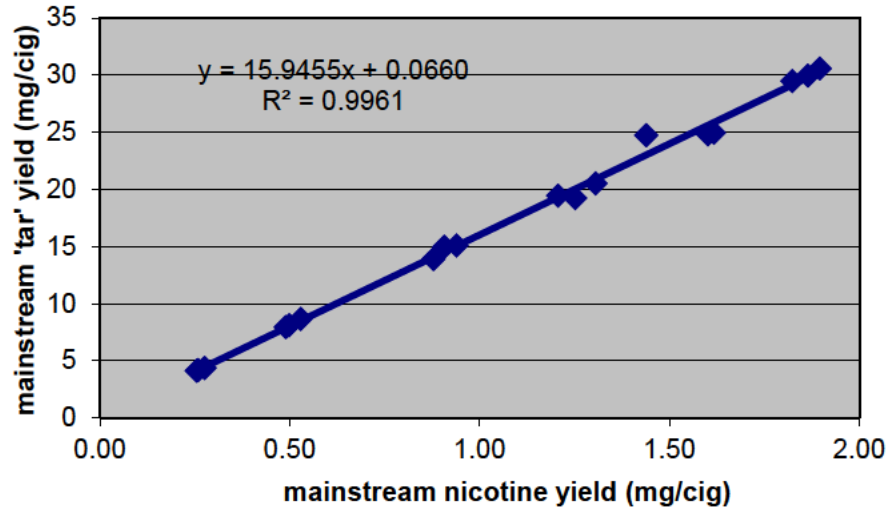
**Quality Control Information**

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	6	0905649	13.503580	0.85	4.281949	0.85	1.547998	1.17	90.542583	0.85

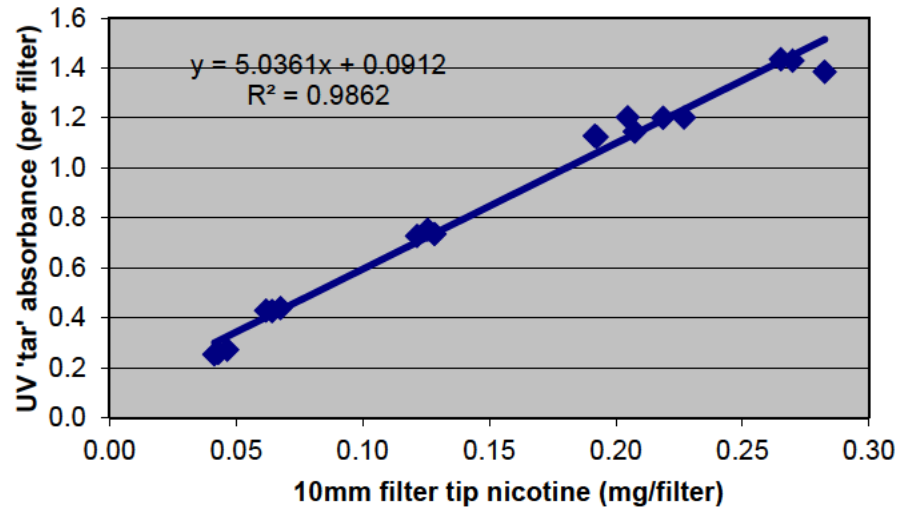
## QC and Calibration Plots

Sample ID: 0905433

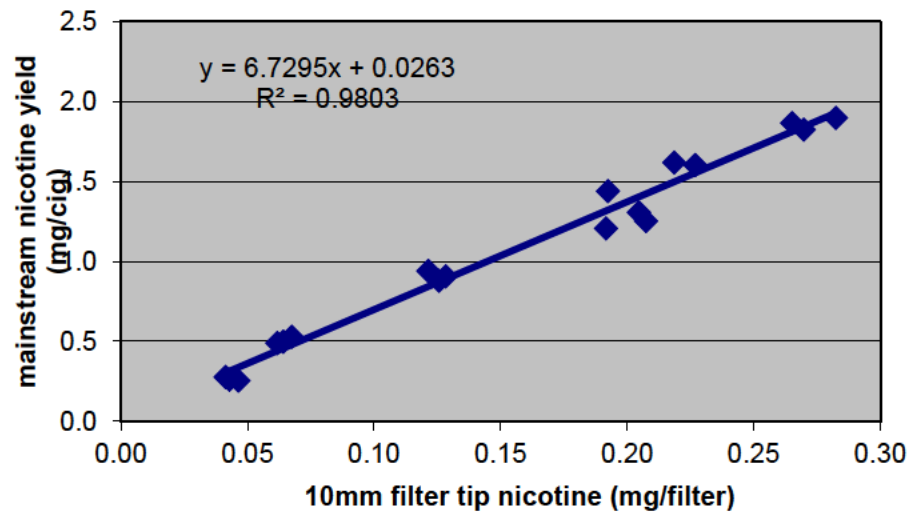
A: Tar vs. Nicotine Yields



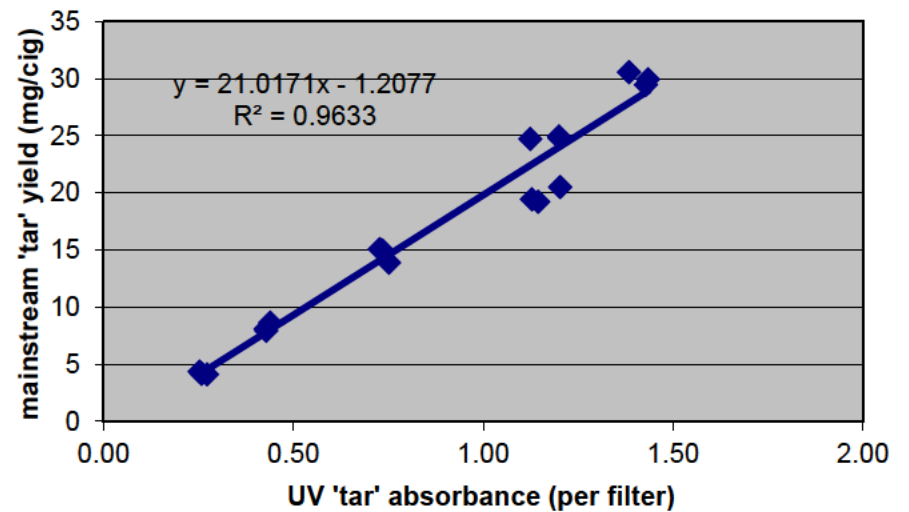
B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine



C: 10mm Filter Tip Nicotine Calibration

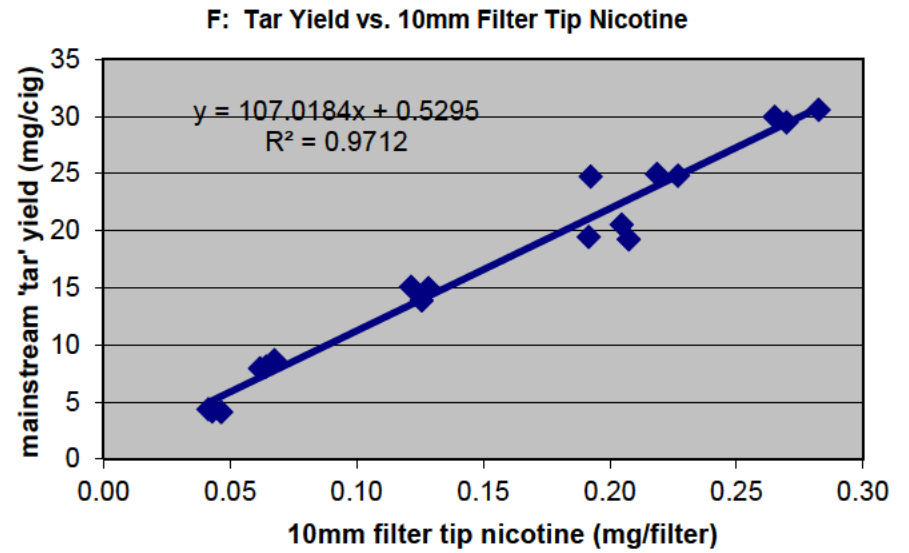
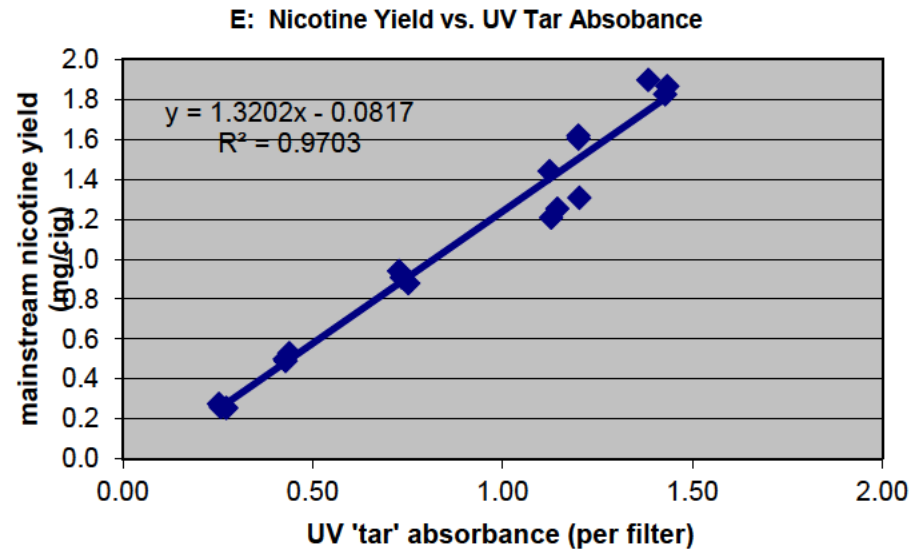


D: UV Tar Absorbance Calibration



**Cross-Check QC Plots**

Sample ID: 0905433



**Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology****Calibration Data from Labstat Sample ID 0905434**

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	8	0905651	9.95	0.2728	0.3894	0.2742	1.1741	1.72	23.10

\* Corrected for filter tip length and changes in Quinoline response.

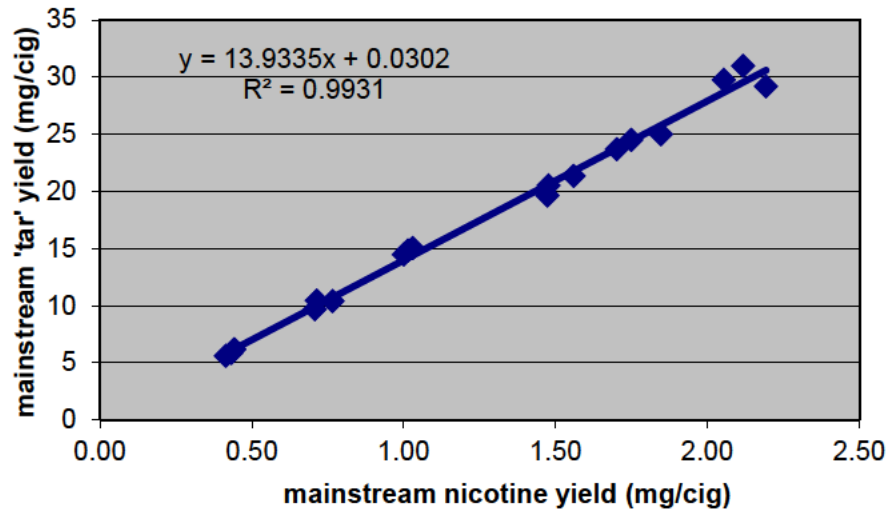
**Quality Control Information**

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	8	0905651	13.425809	0.96	3.854865	0.96	1.524275	1.04	80.246367	0.96

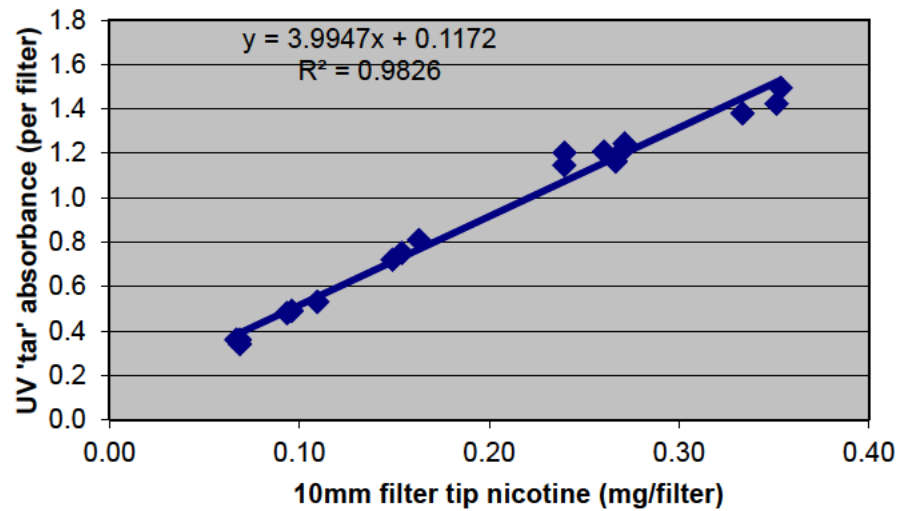
## QC and Calibration Plots

Sample ID: 0905434

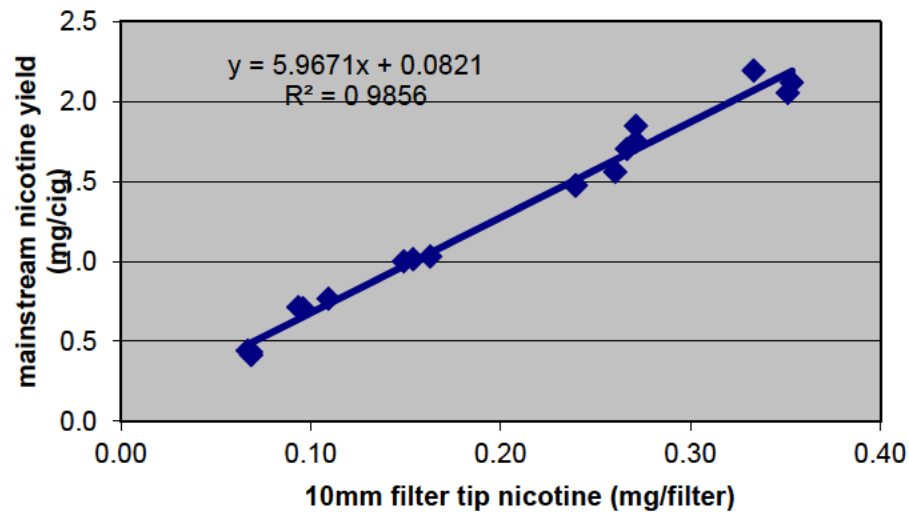
A: Tar vs. Nicotine Yields



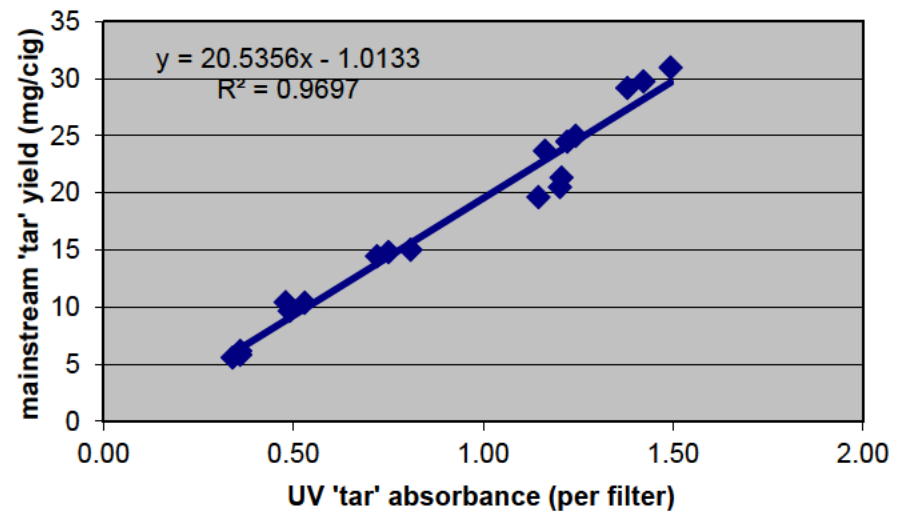
B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine



C: 10mm Filter Tip Nicotine Calibration

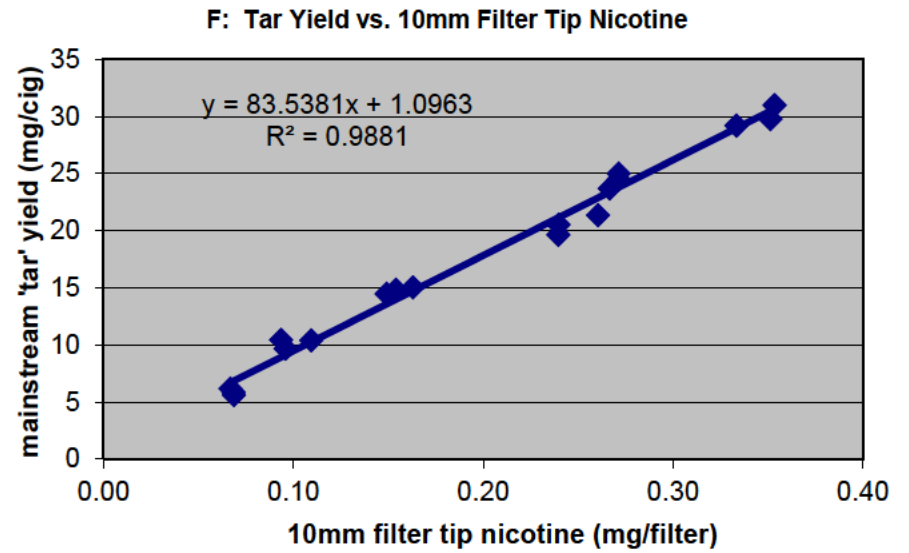
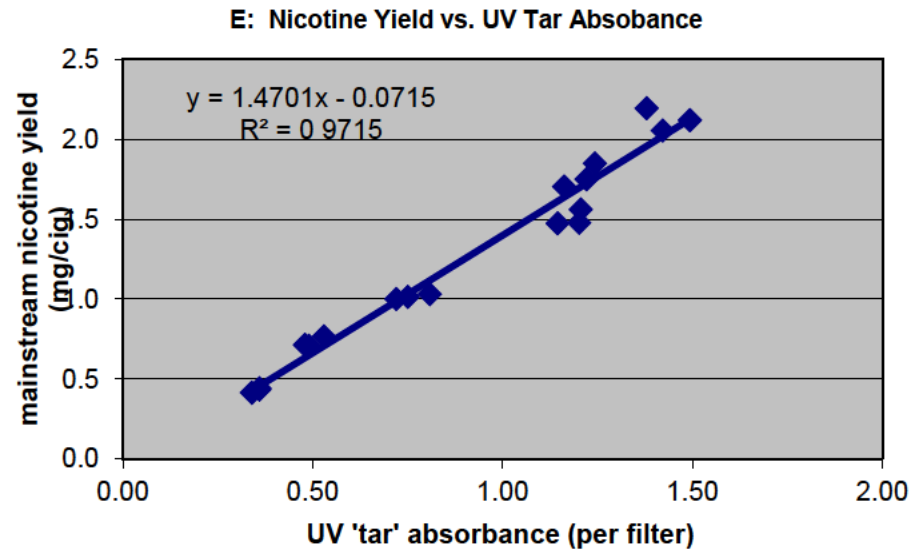


D: UV Tar Absorbance Calibration



**Cross-Check QC Plots**

Sample ID: 0905434





## Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology

### Calibration Data from Labstat Sample ID 0905435

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	11	0905654	10.00	0.2056	0.3255	0.2056	0.9765	1.49	18.86

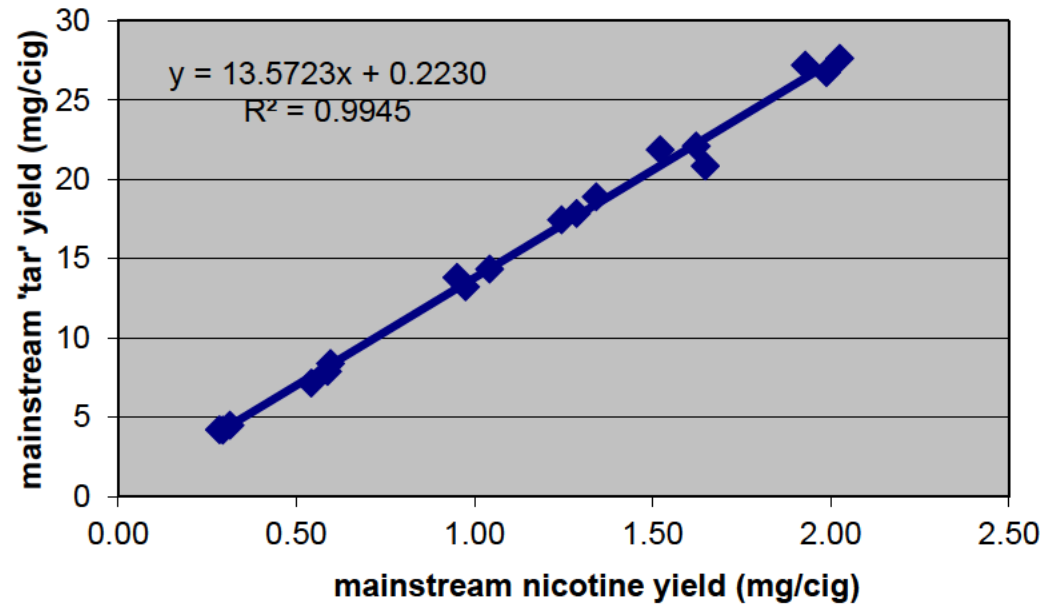
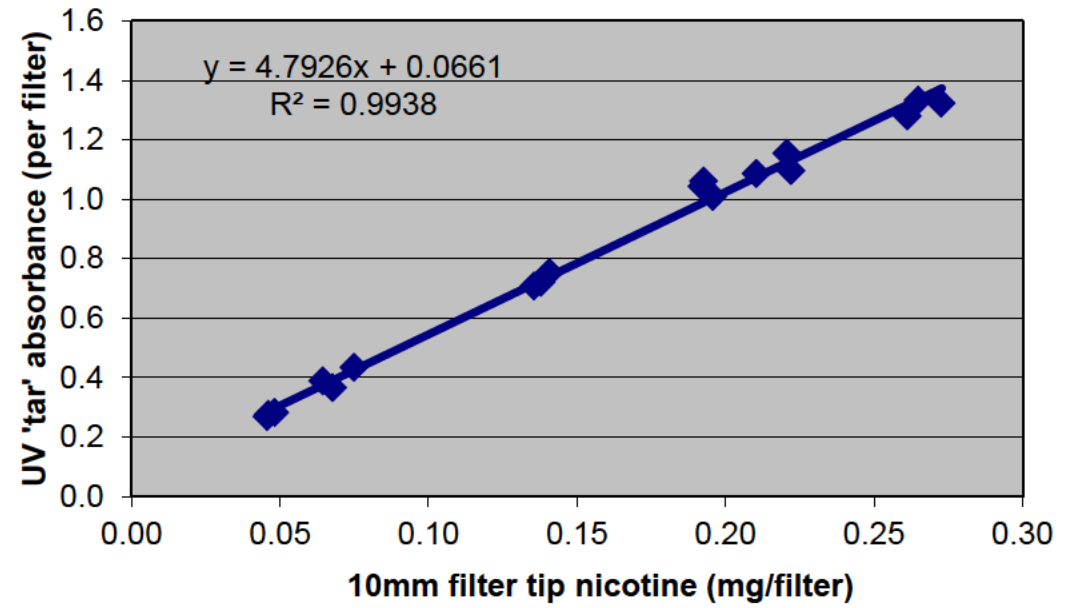
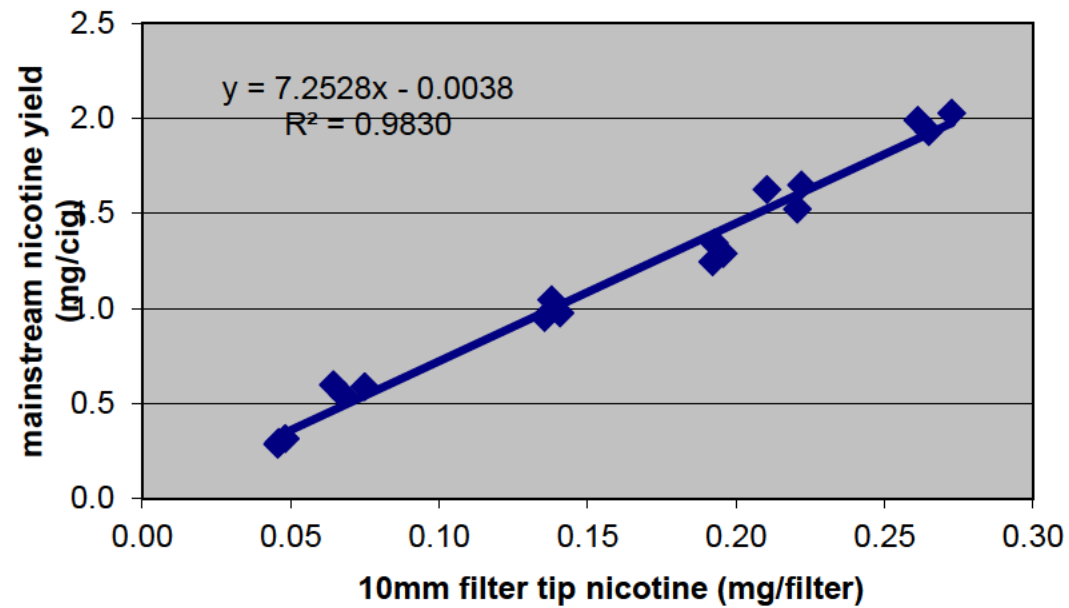
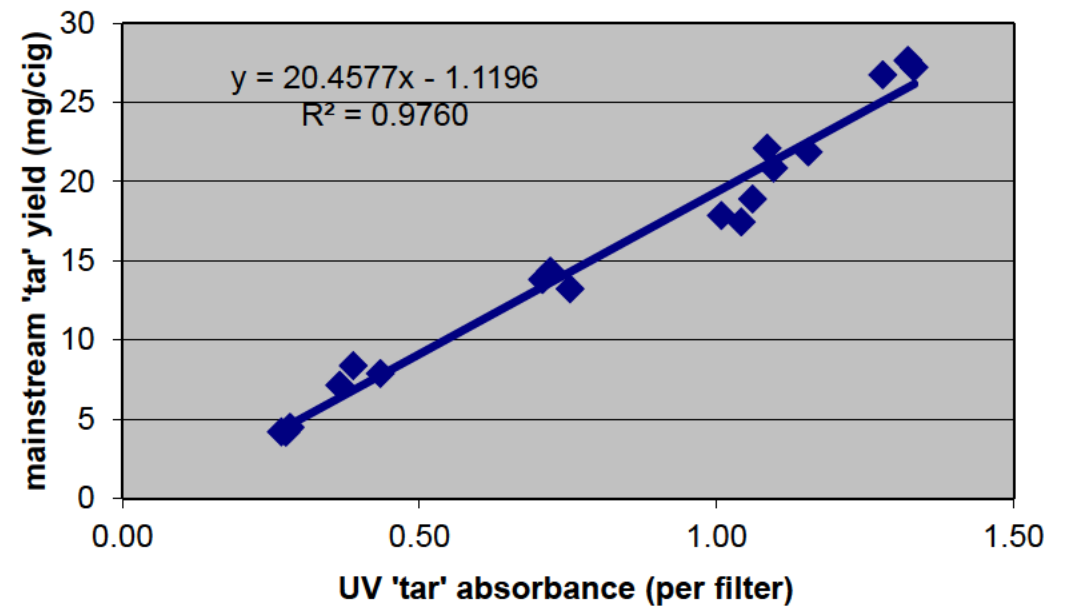
\* Corrected for filter tip length and changes in Quinoline response.

### Quality Control Information

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	11	0905654	12.526825	0.92	4.427564	0.92	1.615615	1.08	91.189757	0.92

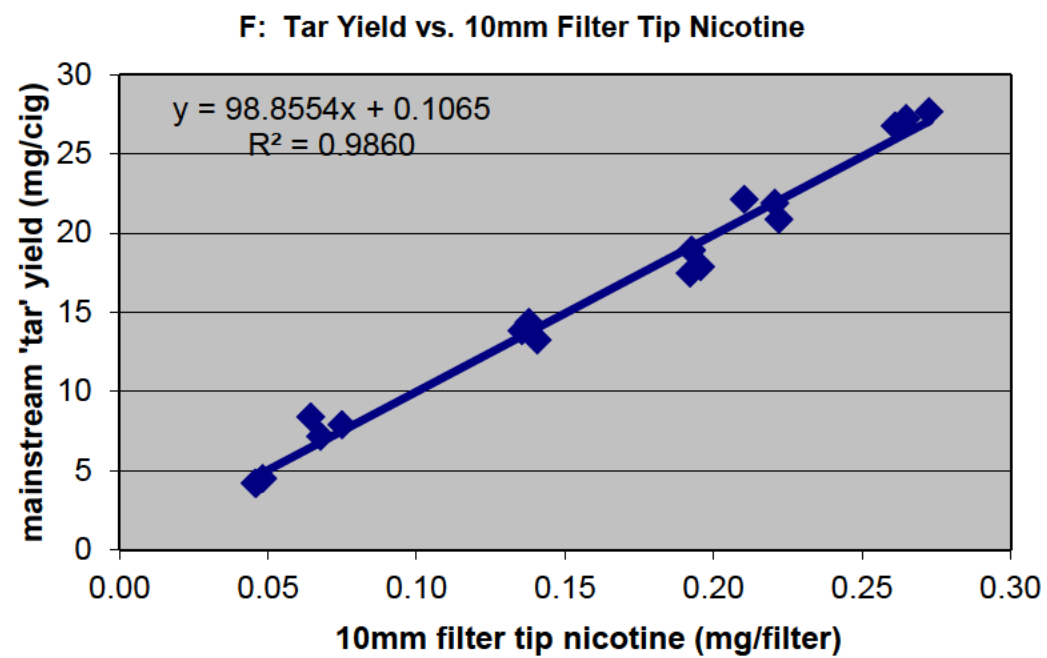
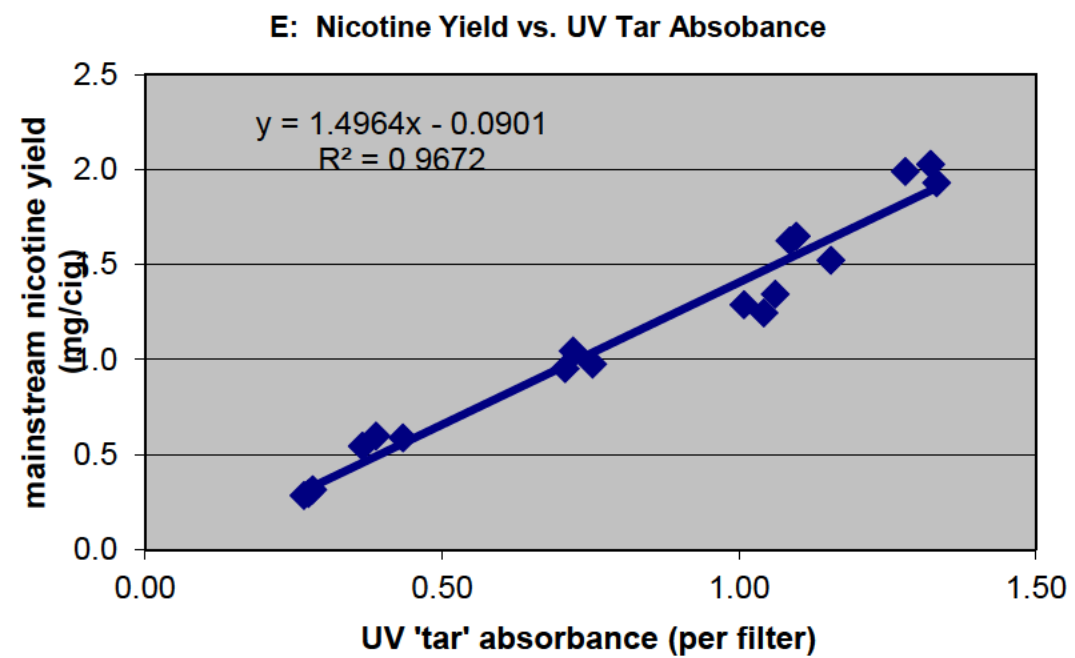
**QC and Calibration Plots**

Sample ID: 0905435

**A: Tar vs. Nicotine Yields****B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine****C: 10mm Filter Tip Nicotine Calibration****D: UV Tar Absorbance Calibration**

**Cross-Check QC Plots**

Sample ID: 0905435



**Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology****Calibration Data from Labstat Sample ID 0905436**

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	14	0905657	9.95	0.3771	0.5592	0.3790	1.6860	2.15	25.54

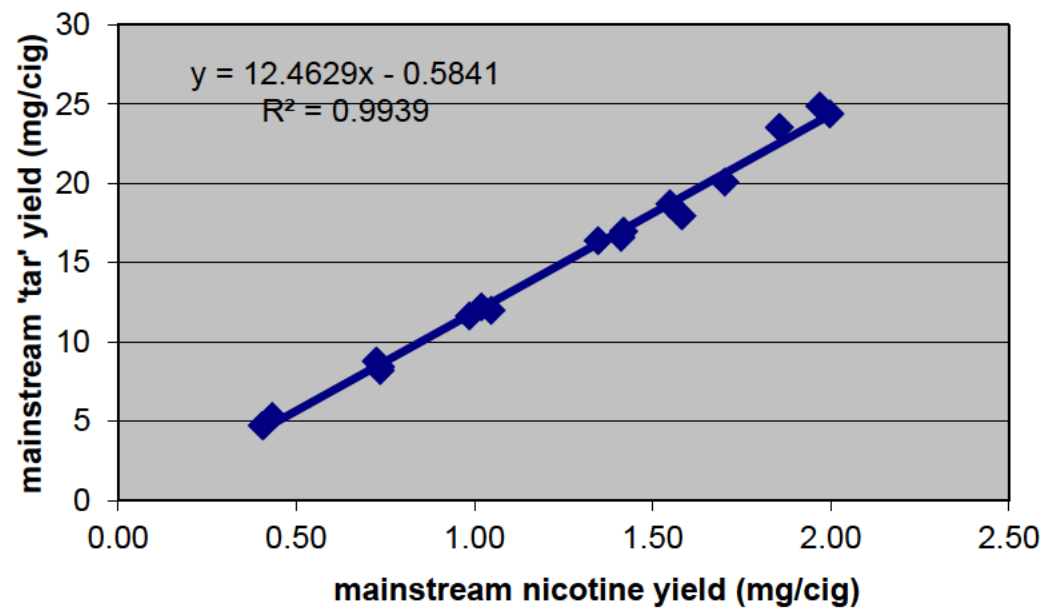
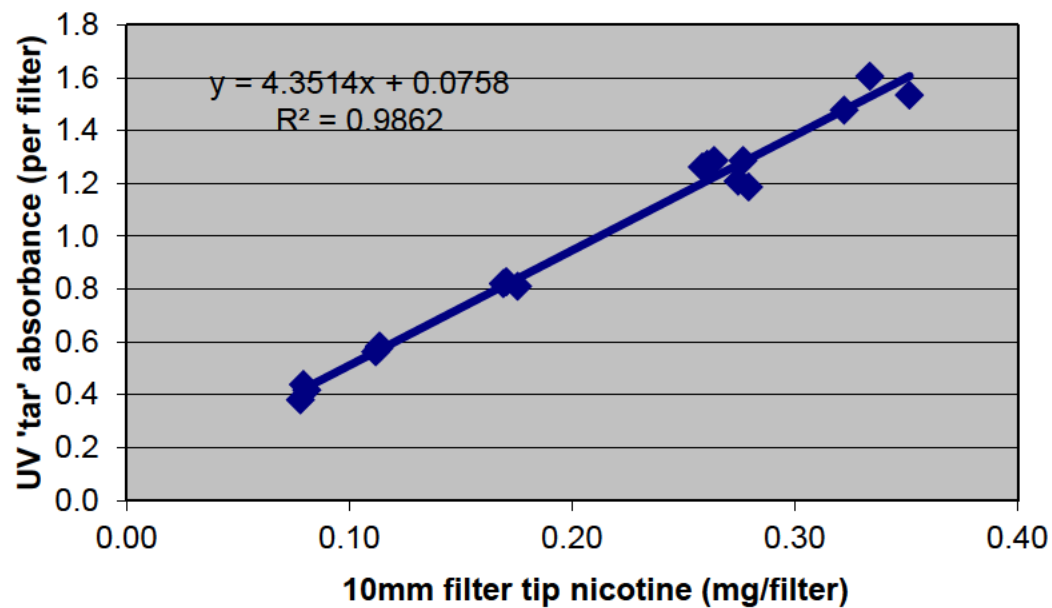
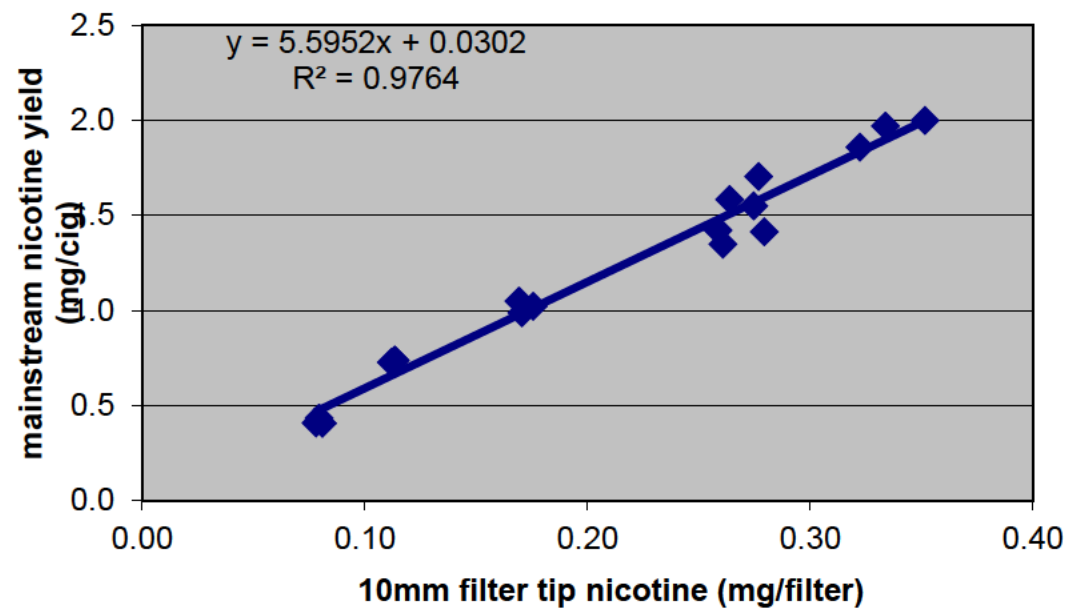
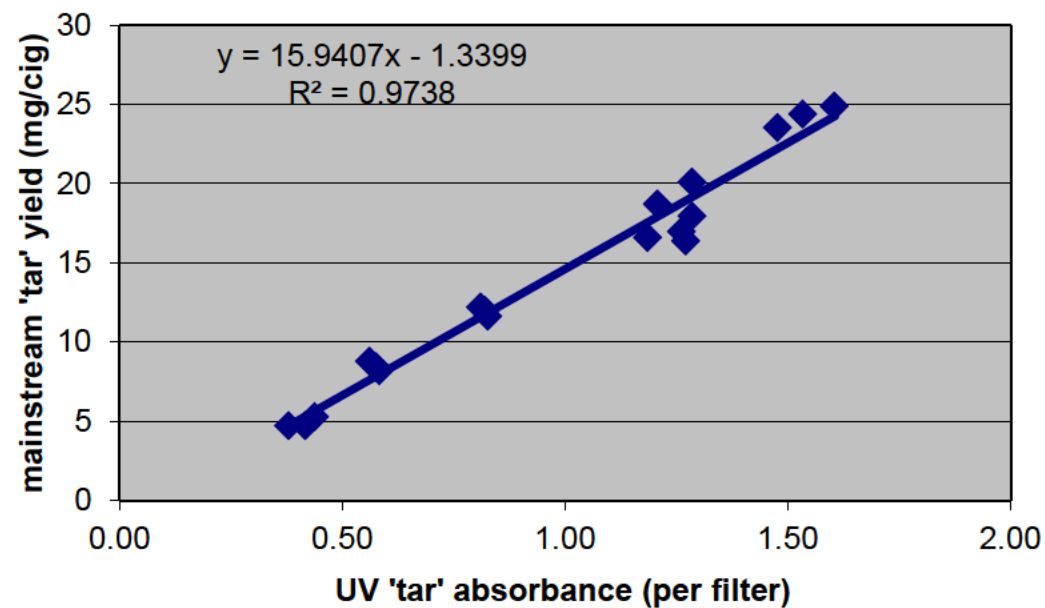
\* Corrected for filter tip length and changes in Quinoline response.

**Quality Control Information**

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	14	0905657	12.145262	0.97	4.248806	0.98	1.309773	1.03	68.003358	0.97

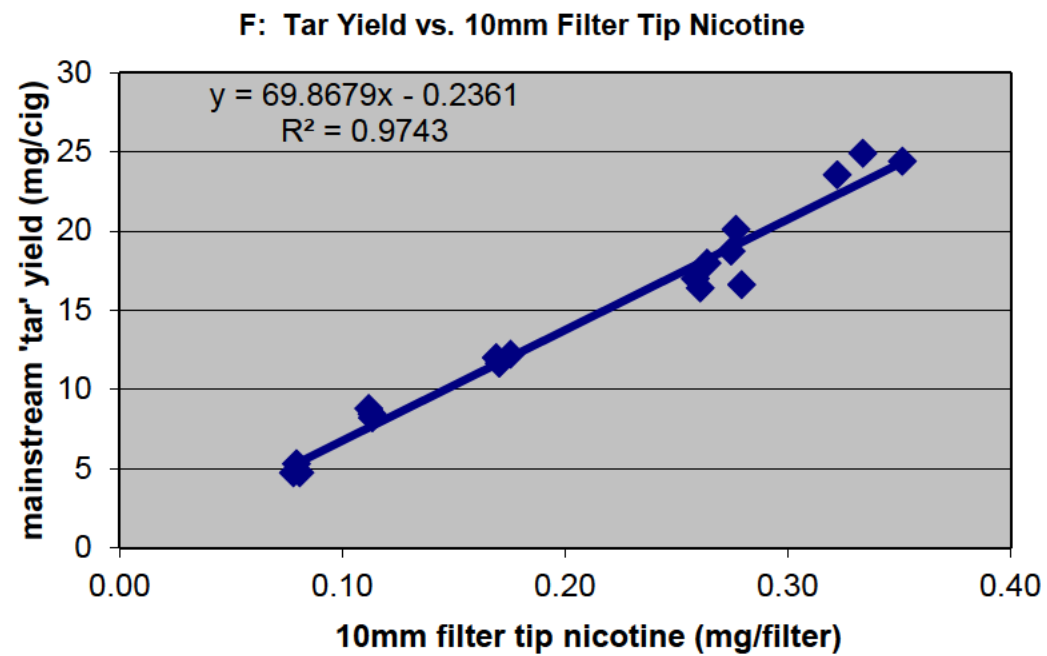
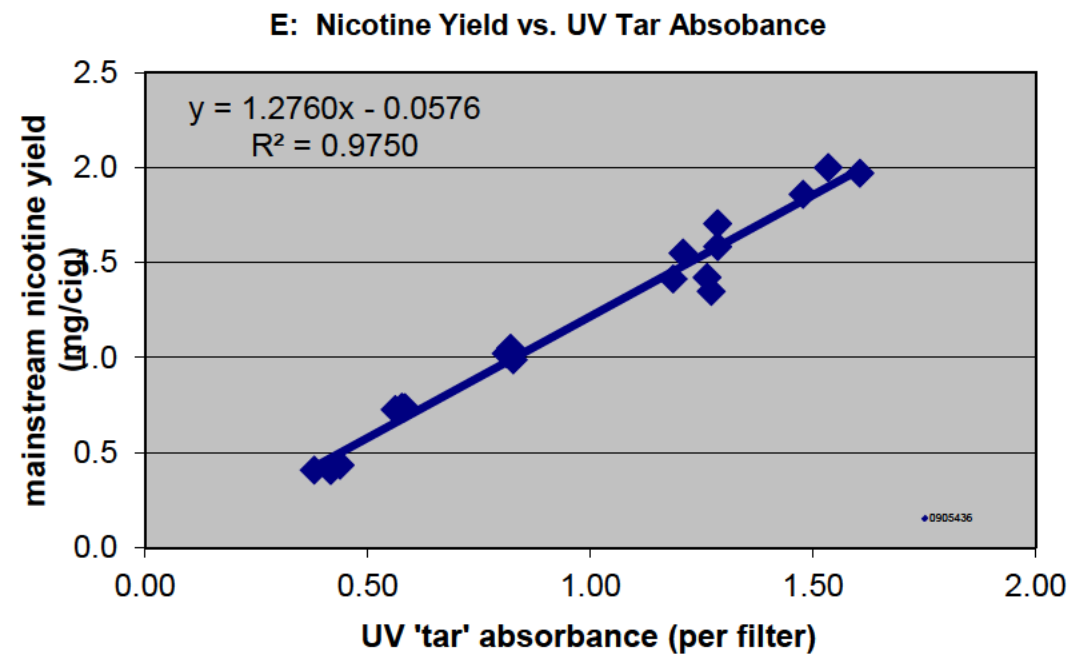
**QC and Calibration Plots**

Sample ID: 0905436

**A: Tar vs. Nicotine Yields****B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine****C: 10mm Filter Tip Nicotine Calibration****D: UV Tar Absorbance Calibration**

**Cross-Check QC Plots**

Sample ID: 0905436



## Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology

## Calibration Data from Labstat Sample ID 0905437

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	3	0905646	9.95	0.2855	0.4769	0.2869	1.4379	1.57	21.63
2	1	4	0905647	9.95	0.1840	0.3056	0.1849	0.9214	1.02	13.38
3	1	7	0905650	9.95	0.3010	0.4507	0.3025	1.3589	1.66	20.37

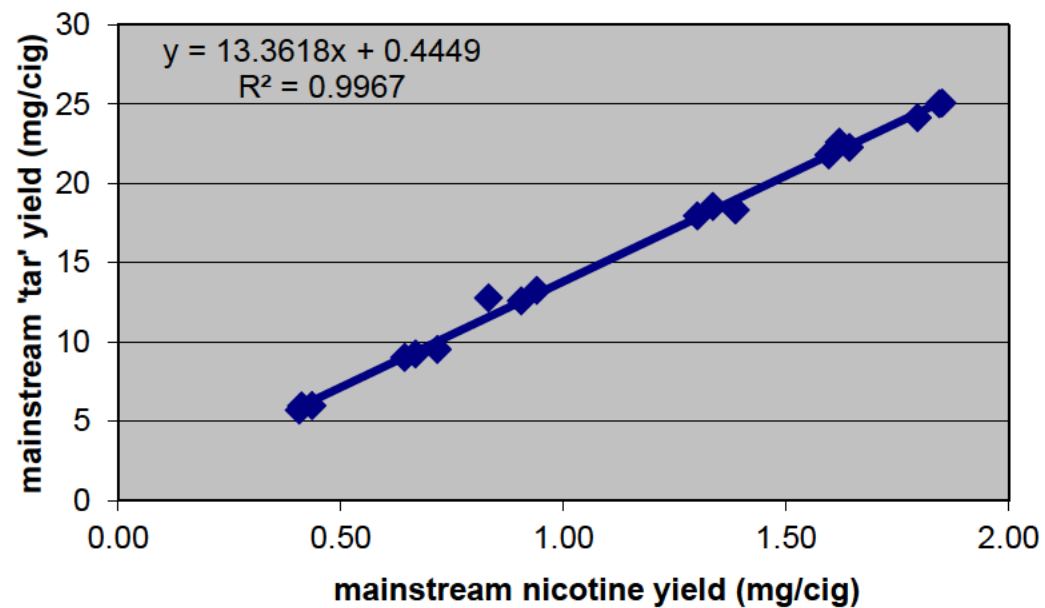
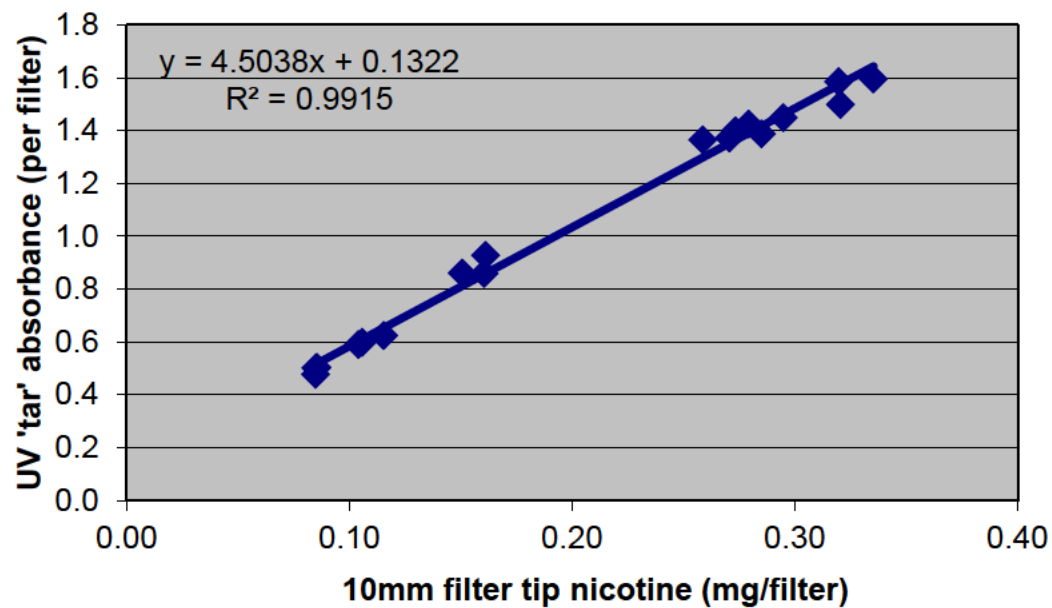
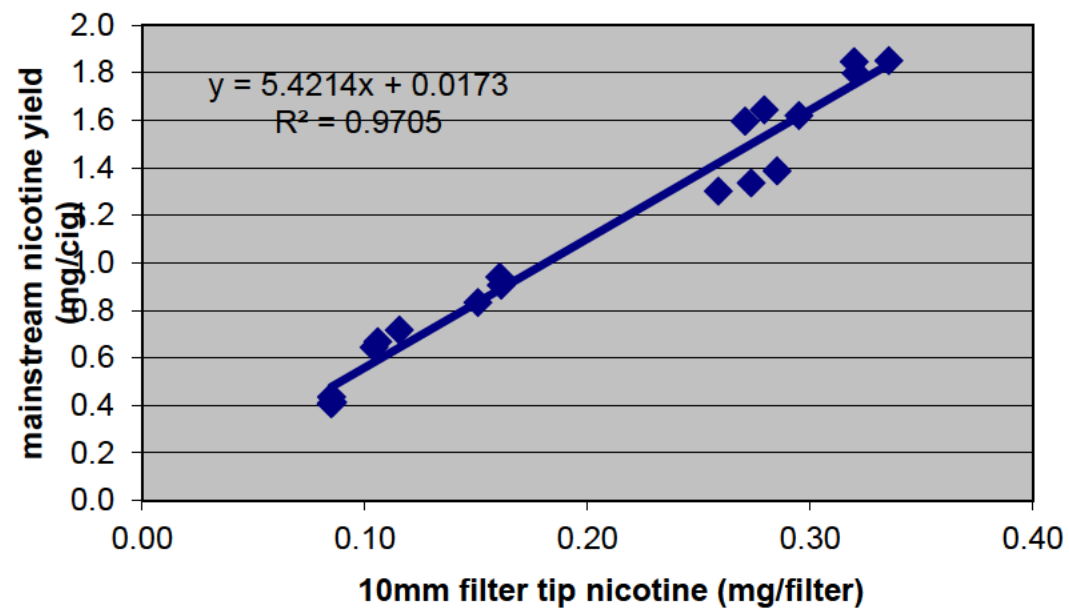
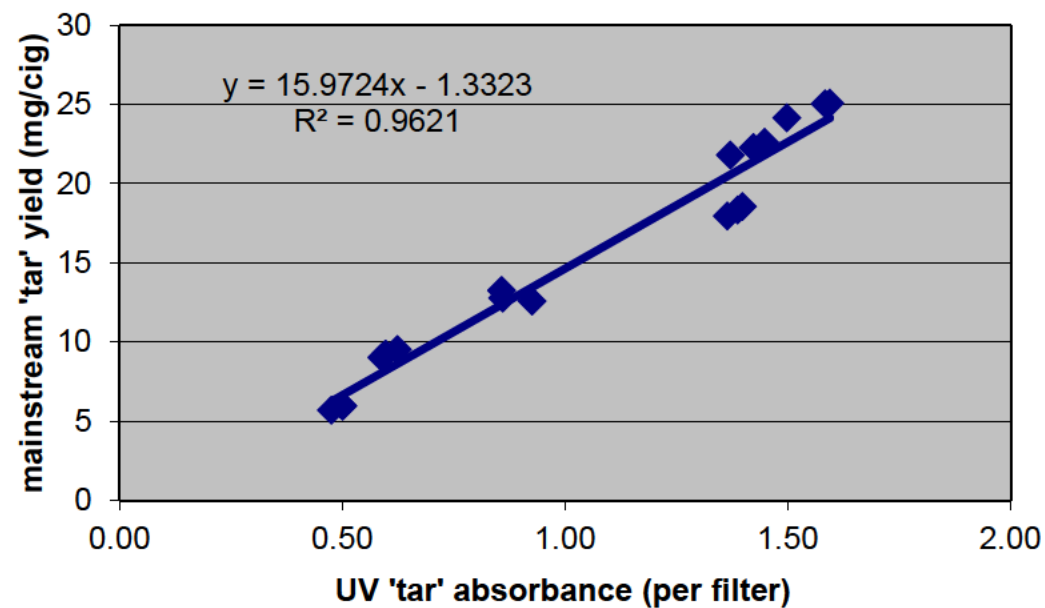
\* Corrected for filter tip length and changes in Quinoline response.

## Quality Control Information

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	3	0905646	13.473775	1.01	4.551229	1.01	1.183919	0.99	73.041983	1.01
2	1	4	0905647	12.690157	0.95	4.268482	0.95	1.247426	1.05	68.717750	0.95
3	1	7	0905650	12.023358	0.90	4.054875	0.90	1.315125	1.10	65.096024	0.90

**QC and Calibration Plots**

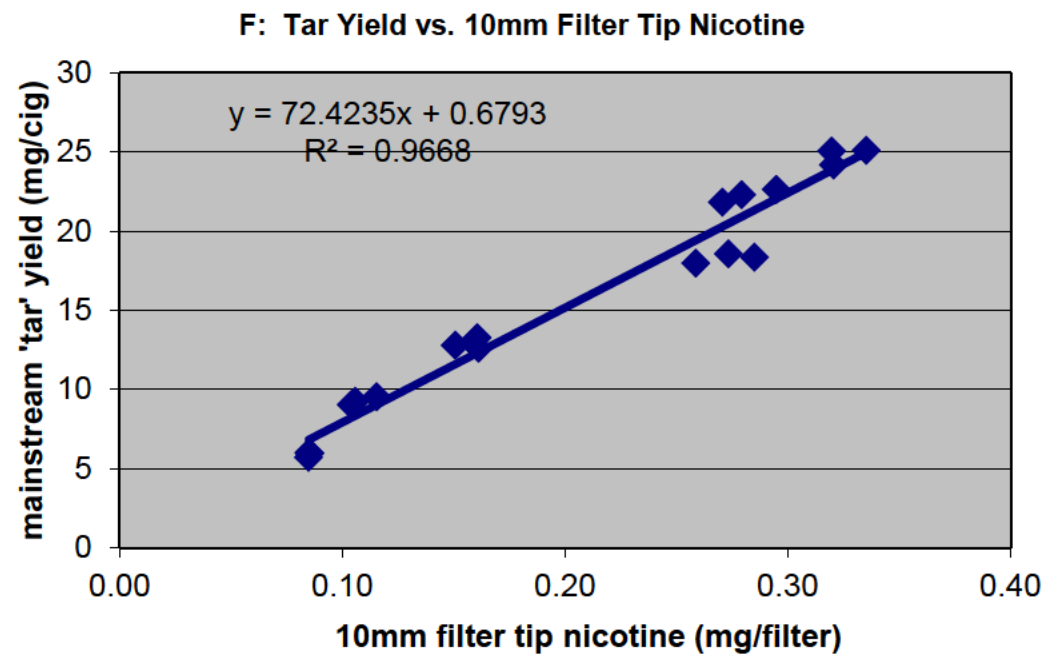
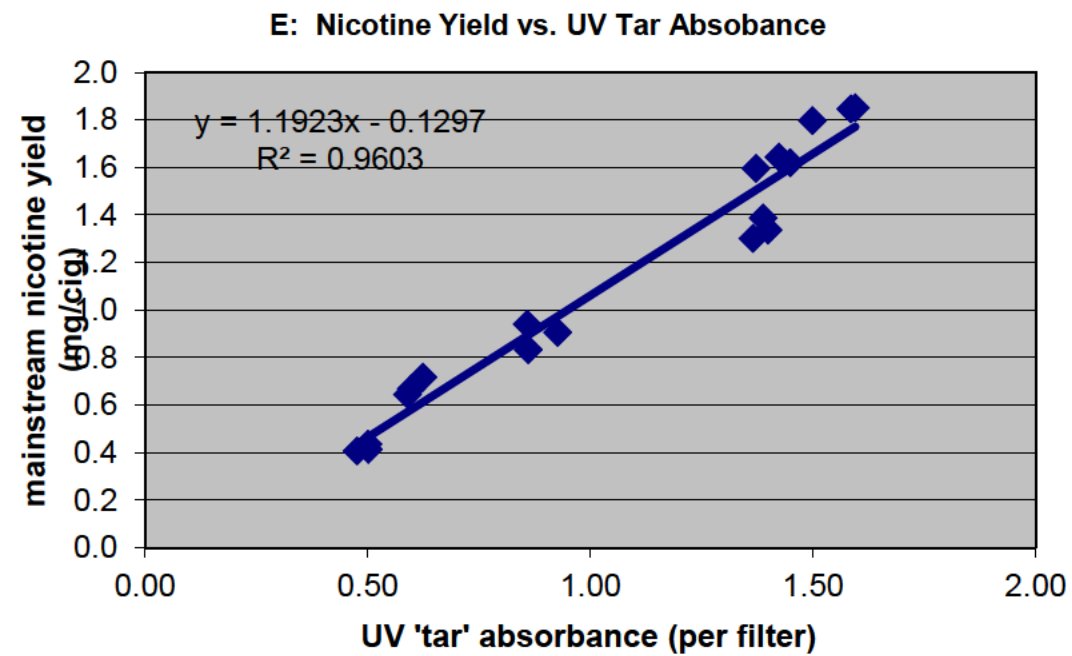
Sample ID: 0905437

**A: Tar vs. Nicotine Yields****B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine****C: 10mm Filter Tip Nicotine Calibration****D: UV Tar Absorbance Calibration**



**Cross-Check QC Plots**

Sample ID: 0905437



**Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology****Calibration Data from Labstat Sample ID 0905438**

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	12	0905655	9.95	0.1973	0.3327	0.1983	1.0031	0.74	10.02

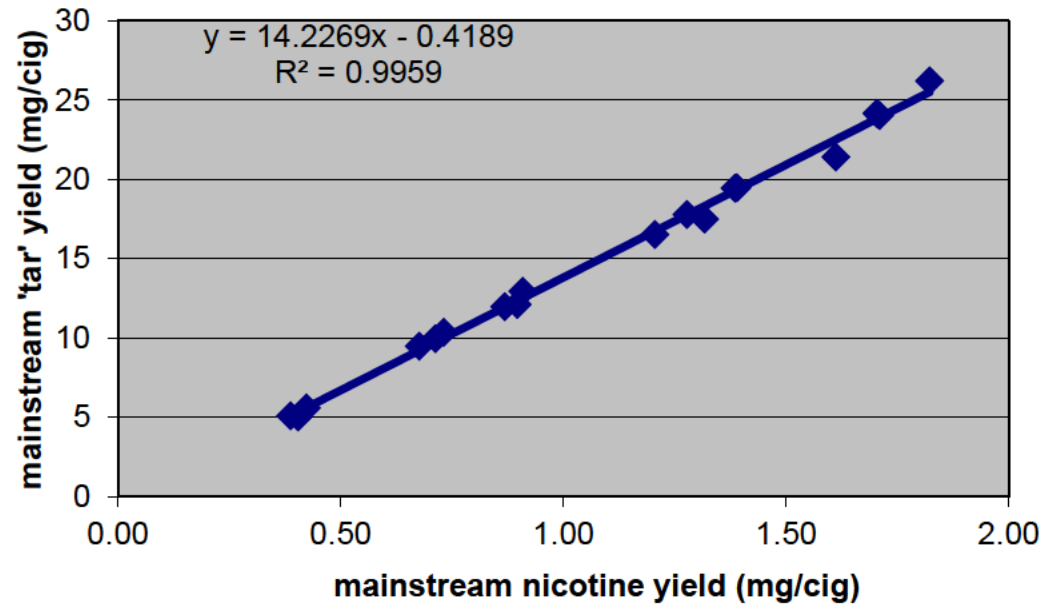
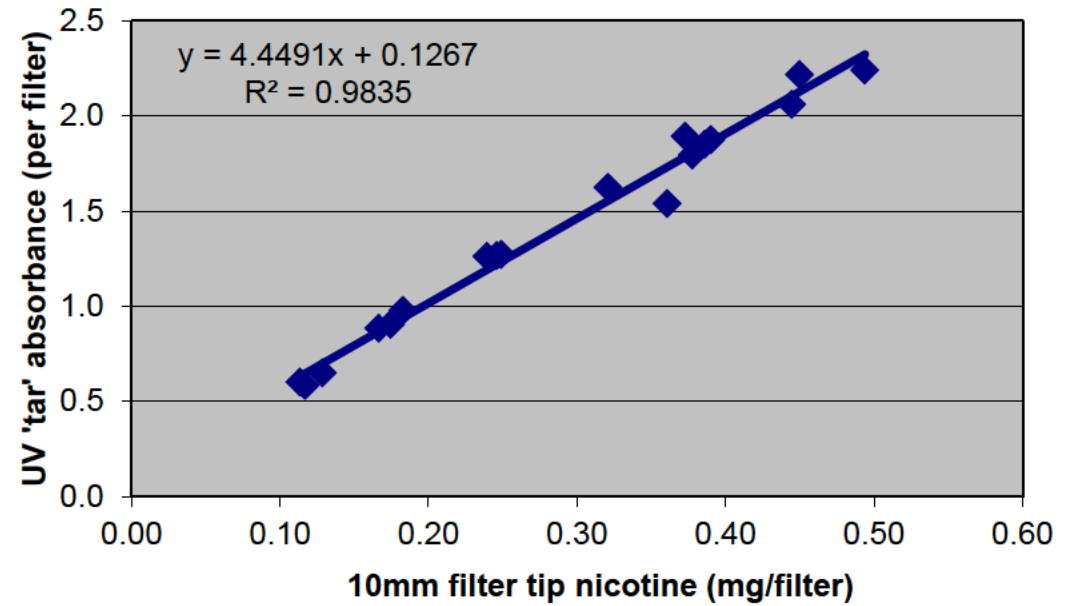
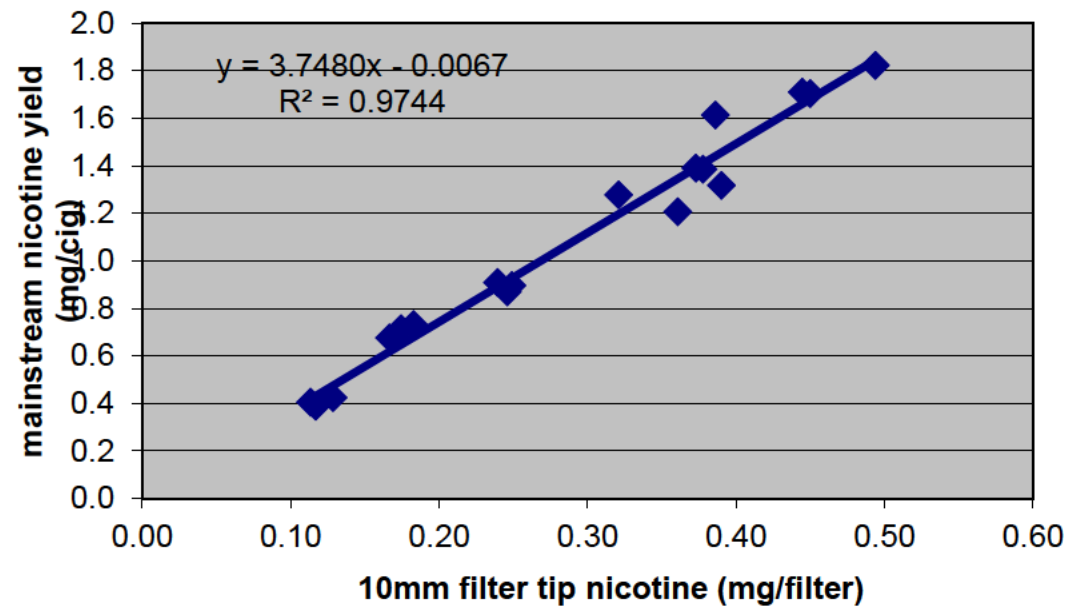
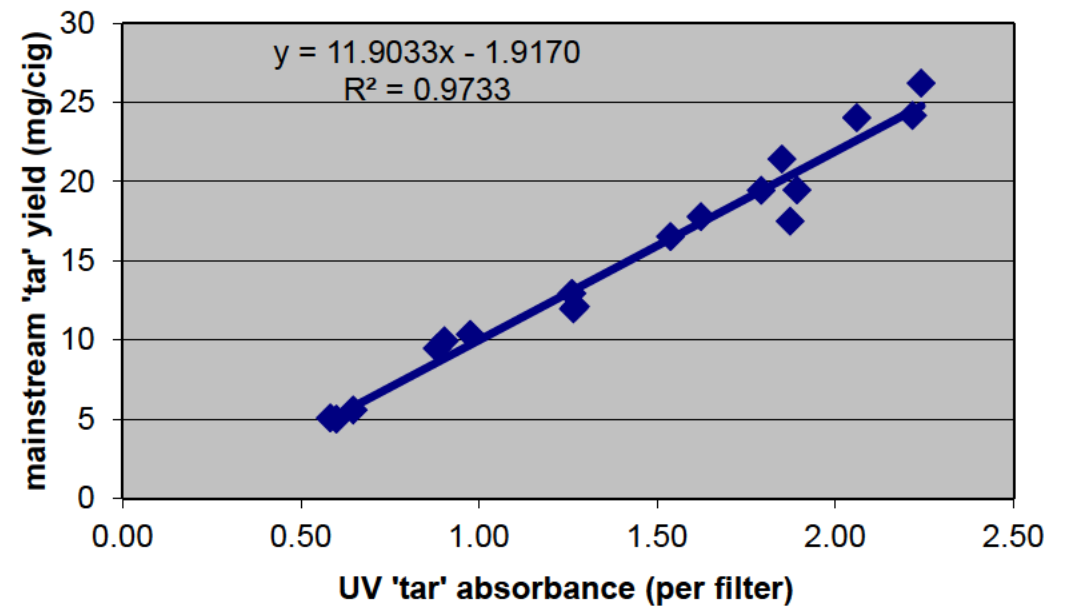
\* Corrected for filter tip length and changes in Quinoline response.

**Quality Control Information**

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	12	0905655	14.175904	1.00	4.419136	0.99	0.838610	1.00	53.104790	1.00

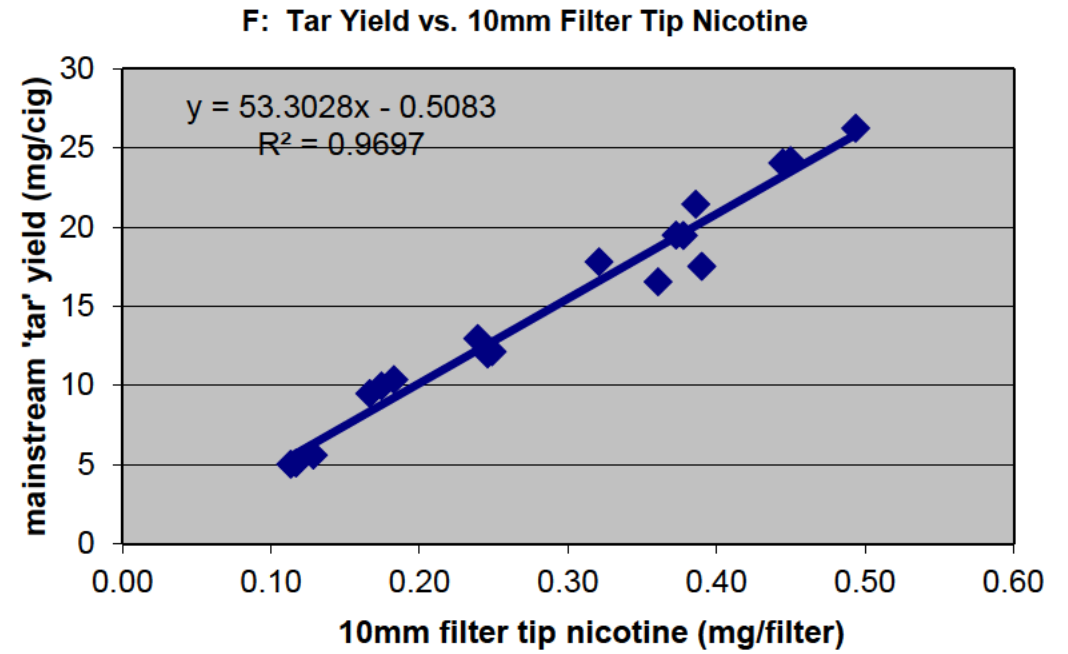
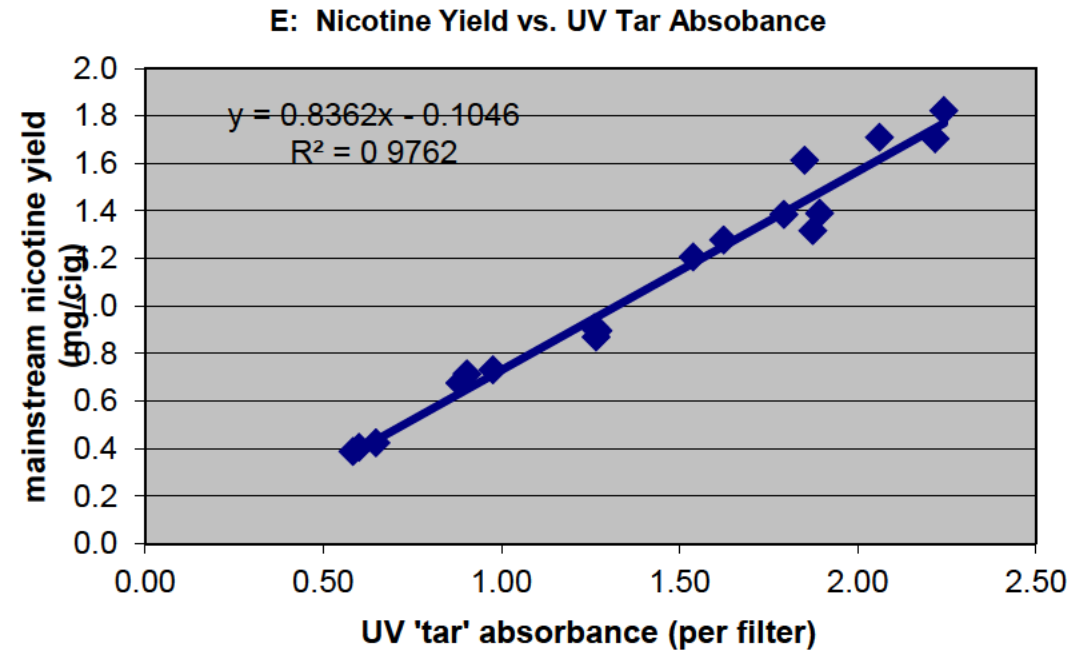
**QC and Calibration Plots**

Sample ID: 0905438

**A: Tar vs. Nicotine Yields****B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine****C: 10mm Filter Tip Nicotine Calibration****D: UV Tar Absorbance Calibration**

**Cross-Check QC Plots**

Sample ID: 0905438



**Yield in Use (YIU) Results : "Tar" and Nicotine Predictions using Part Filter Analysis Methodology****Calibration Data from Labstat Sample ID 0905439**

Obs. No.	Run No.	Vial No.	Sample ID	Part Filter Measured Average (mm)	Measured Filter Nicotine (mg/filter)	Measured UV Absorbance (per filter)	Normalized Filter Nicotine (mg/filter)	Normalized * UV Absorbance (per filter)	Calculated Nicotine Delivery (mg/cig)	Calculated Tar Delivery (mg/cig)
1	1	13	0905656	9.95	0.3915	0.6607	0.3935	1.9921	1.83	26.71

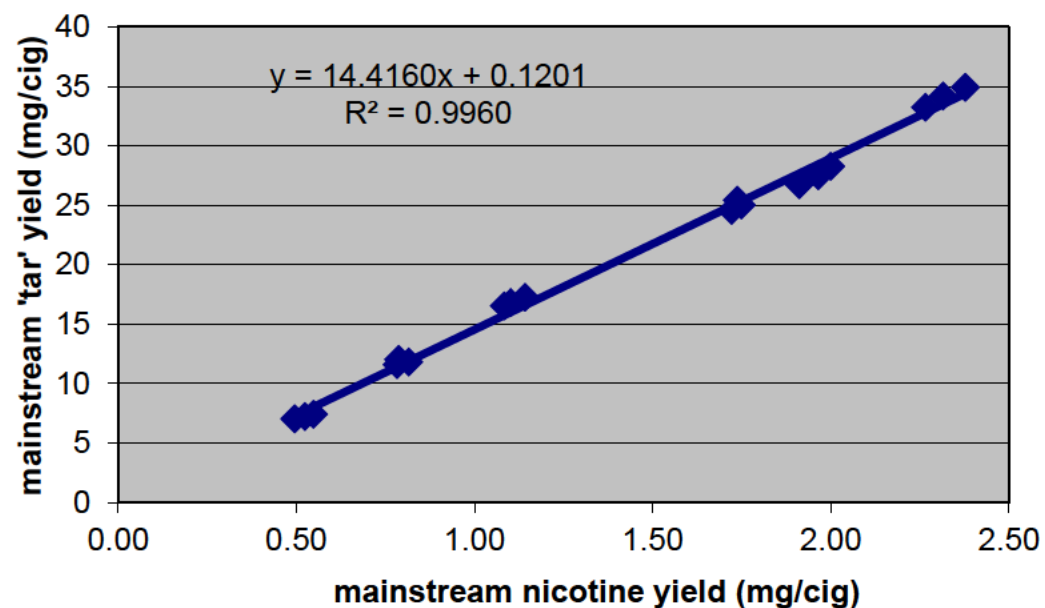
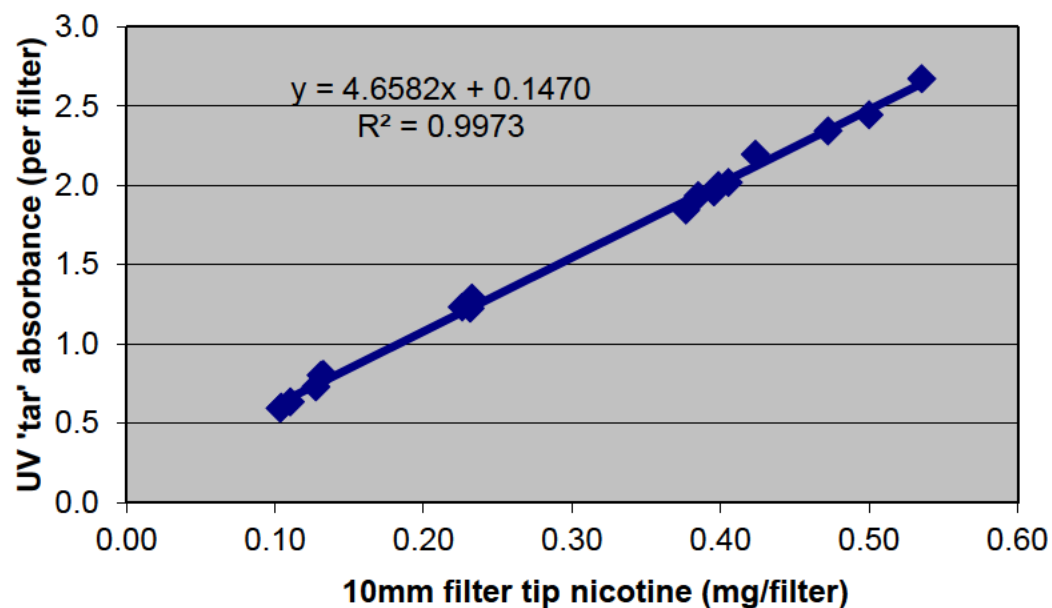
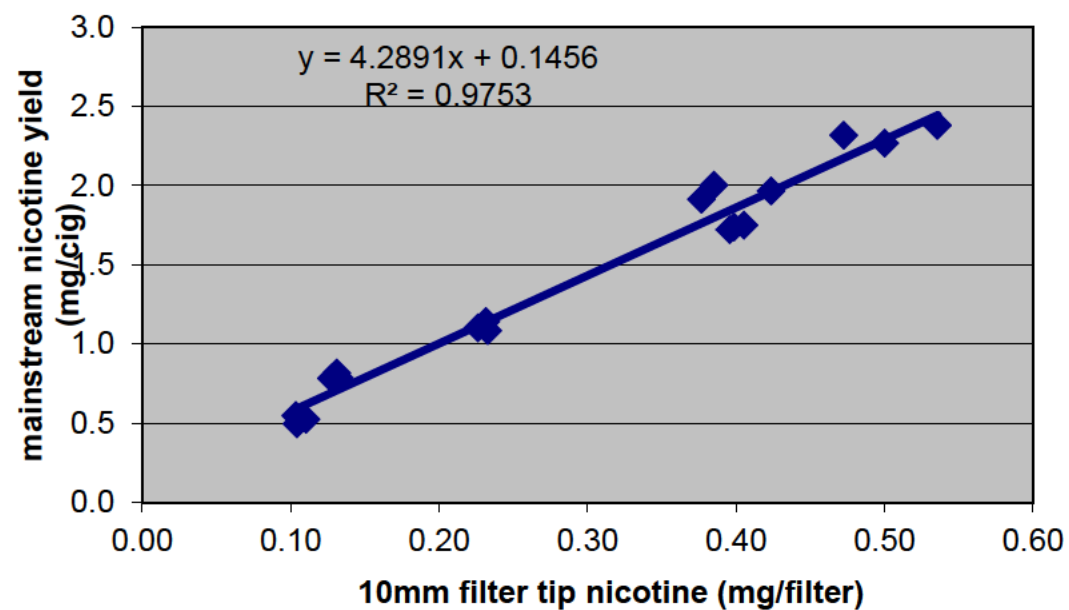
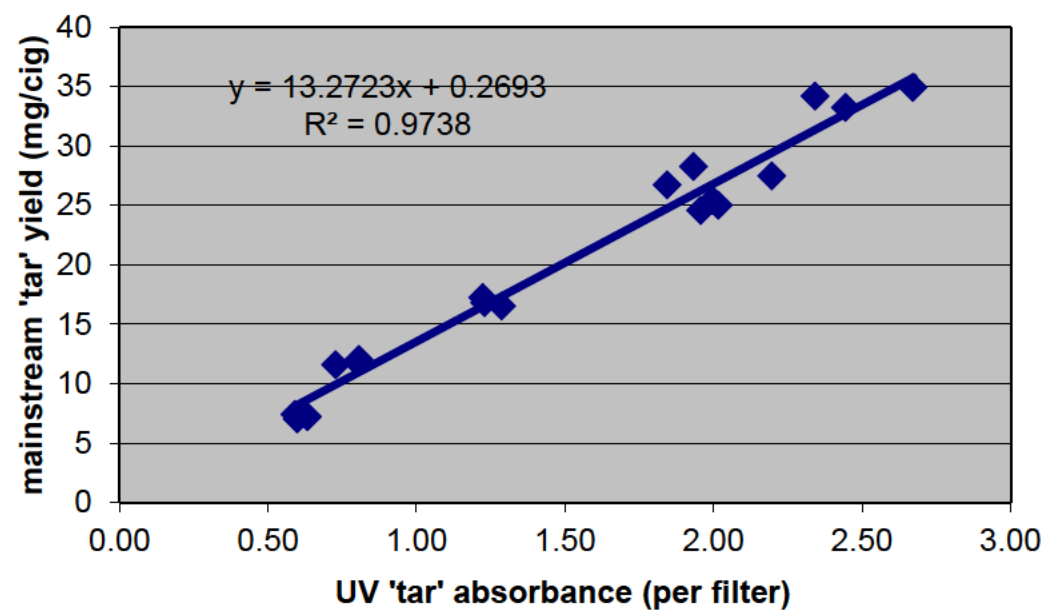
\* Corrected for filter tip length and changes in Quinoline response.

**Quality Control Information**

Obs. No.	Run No.	Vial No.	Sample ID	Tar vs. Nicotine (Deliveries)		Filter Abs. vs. Filter Nicotine		Nicotine Del. vs. Filter Abs.		Tar Del. vs. Filter Nicotine	
				Calculated Ratio	% of Expected Slope	Normalized Ratio	% of Expected Slope	Ratio	% of Expected Slope	Ratio	% of Expected Slope
1	1	13	0905656	14.503868	1.01	4.689149	1.01	0.913677	0.99	62.279810	1.01

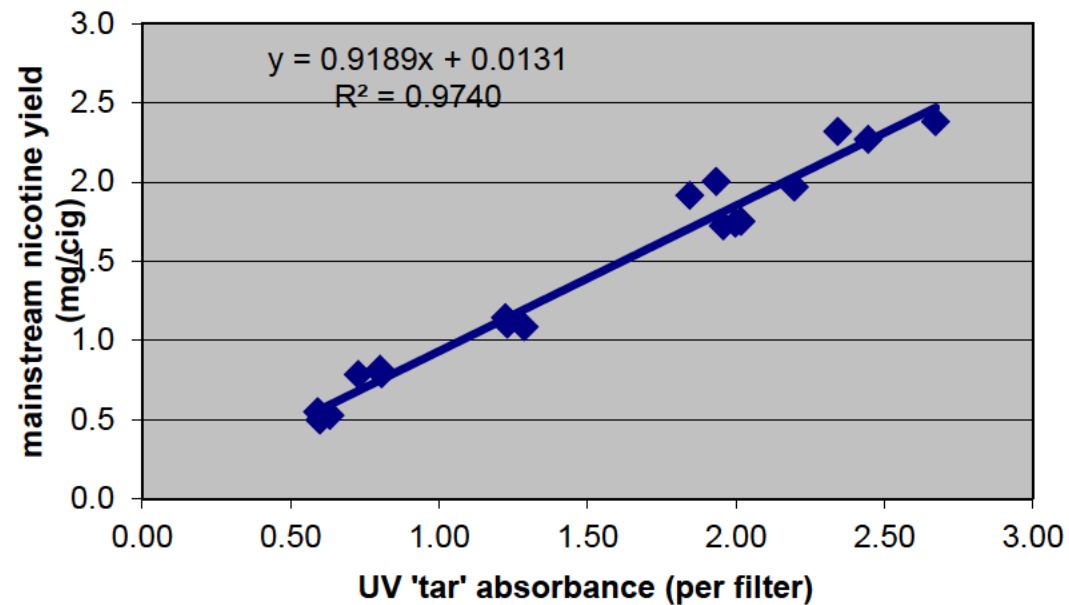
**QC and Calibration Plots**

Sample ID: 0905439

**A: Tar vs. Nicotine Yields****B: UV Tar Absorbance vs. 10mm Filter Tip Nicotine****C: 10mm Filter Tip Nicotine Calibration****D: UV Tar Absorbance Calibration**

**Cross-Check QC Plots**

Sample ID: 0905439

**E: Nicotine Yield vs. UV Tar Absorbance****F: Tar Yield vs. 10mm Filter Tip Nicotine**