

**CORESTA
ALTERNATIVE SMOKING
REGIMES TASK FORCE**

FINAL REPORT

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Background

Since the late 1960s, a number of national and international standards (FTC, ISO, TIOJ, DIN, CORESTA) have been developed around the world for testing cigarettes by machine smoking to determine ‘tar’¹, nicotine and carbon monoxide² yields (1 - 21). These test methods share a common purpose: to provide a basis for comparing mainstream smoke yields from different cigarettes when those yields are generated with standardized testing conditions. While the standards differ in some respects, one element that has been common to each has been the puffing regimen (i.e., the puff volume, puff duration and puff frequency) applied to the cigarette during machine smoking. Cigarettes are smoked to a fixed final butt length during which the smoking machine applies a 35 cubic centimeter puff of 2 second duration once every 60 seconds. Cigarettes are smoked as manufactured without alteration. Substantial time, effort and financial resource have been committed by industry, government and commercial laboratories to ensure each standard is consistently applied. When practiced according to specifications, each individual standard has provided a reliable and robust system for the relative ranking of cigarette smoke yields.

In the mid- to late-1990s, U.S. and Canadian authorities initiated efforts to identify one or more machine-smoking regimens that represent the way in which people smoke cigarettes, thus departing from the historical purpose associated with machine-based measurements (22 - 24). Despite the technical limitations of such a concept, new requirements for machine-smoking cigarettes have emerged in two U.S. jurisdictions, Massachusetts and Texas (25, 26), and in Canada, both provincially in British Columbia and federally (27 - 29). Concomitantly, new smoking machine hardware designed for flexible application across a range of possible smoking regimens has been introduced commercially in response to such regulations.

Recently, new regulations that require testing of numerous individual smoke constituents reported to be associated with the risks of cigarette smoking have also been introduced in some countries (27 - 30). More broadly, the WHO Framework Convention on Tobacco Control mandates that Parties to the Convention will “propose guidelines for testing and measuring the contents and emissions of tobacco products, and for the regulation of these contents and emissions” (31). Several research studies have been reported that describe individual smoke constituent yields for cigarettes sold in specific geographical regions (32 - 36). A principal challenge and potential limitation of such studies is the current lack of standardized methodology for measuring most individual smoke constituents. Further, where analytical standards do exist, method validation through interlaboratory collaborative study has historically focused on a single machine puffing regimen as the intended scope of application.

¹ The designations ‘tar’ and NFDPM will be used interchangeably to denote nicotine-free dry particulate matter.

² Carbon monoxide will frequently be referred to as CO in the text.

Task Force Mandate

The Alternative Smoking Regimes (ASR) Task Force was established by the CORESTA Scientific Commission in 2000. The task force was charged with developing “correlation models for smoke yields between ISO and representative alternative smoking regimes”. The overall charge was further divided into sub-parts: “In the first instance the models will address ‘tar’, nicotine and CO. This will be followed by benchmarking the yields of specified smoke constituents from international products (smoke constituents to be specified by the Scientific Commission).”

Participating Laboratories and Chronology of Task Force Meetings

A summary of participating laboratories and principal investigators is found in Appendix 1. A chronology of the task force meetings conducted is also included in the appendix. The task force convenors wish to acknowledge the excellent contributions of each principal investigator and their colleagues without which the work of the task force could not have been completed.

Task Force Findings

The ASR task force has addressed the first objective, the development of correlation models relating ‘tar’, nicotine and CO yields between ISO and representative alternative smoking regimes, in two study phases. In the first phase, a pilot study (ring trial) was conducted to evaluate mainstream smoke ‘tar’, nicotine and carbon monoxide yields for a limited number of cigarette brands sold in Europe. In the second phase, the alternative smoking regime capabilities established by participating laboratories in the Phase 1 study were applied to a substantially greater number of cigarette brands that represented a more global perspective. Approximately ninety brands sold in markets around the world were tested.

Before beginning the pilot study (ring trial) it was necessary to identify “representative alternative smoking regimes” for investigation in the work. Experiments which alter machine puffing parameters or artificially block cigarette ventilation holes to study the effect on mainstream smoke yields have been conducted for many years and for many different reasons (37 - 46). As such, the relative contribution of each puffing parameter (i.e., puff volume, puff frequency, puff duration) and of intentional filter vent blocking to machine-generated smoke yields is well understood. Increases in puff volume, decreases in the time between puffs and intentional blocking of filter ventilation each produces significant increases in mainstream smoke yield. Changes in puff duration have minimal effect on mainstream smoke yields. However, while research studies employing alternative smoking regimes have been conducted for many years, no consensus view regarding an appropriate alternative smoking regime(s) is found in the scientific literature and there has been no consistency in alternative smoking regimes recently introduced in regulation (47).

After considering the scope of past research studies, the capabilities of existing smoking machine hardware and the task force objective, the ASR task force membership developed a consensus opinion regarding smoking regimes for study. A guiding principle during the discussion was the desire to achieve a range for three smoking regime parameters: puff volume, puff frequency and intentional vent blocking. It was decided that the parameters would not be varied independently, but rather in combination. Smoking regimes identified for testing by the ASR task force are summarized in Table 1. In addition to providing a range of puff volume settings, puff frequency settings and vent blocking conditions, the regimes identified are currently mandated as regulatory standards. Regime #1 is specified in the ISO standard method for machine smoking of cigarettes, regime #2 is mandated by the Commonwealth of Massachusetts and regime #3 is required in Canada.

Table 1. Smoking Regimes Studied by the ASR Task Force

Smoking Regime	Puff Volume (cc)	Puff Frequency* (s)	Puff Duration (s)	Vent Blocking (%)	Description
1	35	60	2	0	ISO Standard
2	45	30	2	50	Massachusetts "Average"
3	55	30	2	100	Canada "Intense"
* Time from the start of one puff to the start of the next puff.					

Objective #1 Findings. Each cigarette was tested according to the three smoking regimes to determine NFDPM, nicotine and CO yields. Subsequently, regression analysis employing a linear model was applied to mainstream smoke yield data from ~ 90 cigarette brands to explore the relationships between smoking regimens for NFDPM, nicotine and CO. Key findings include:

1. A set of generally applicable functional relationships between ISO (Regime #1) 'tar', nicotine and CO yields and Regime #2 'tar', nicotine and CO yields was observed based on all cigarettes studied.
2. A set of generally applicable functional relationships between ISO (Regime #1) 'tar' and nicotine yields and Regime #3 'tar' and nicotine yields was observed based on all cigarettes studied.
3. An "adequate" functional relationship was not observed between ISO (Regime #1) CO yields and Regime #3 CO yields based on the cigarettes studied.
4. Correlations between Regime #2 and Regime #1 smoke yields were generally "stronger" than correlations between Regime #3 and Regime #1 smoke yields.

(This finding is not surprising, given that Regime #3 eliminates one cigarette design feature, i.e., filter ventilation. With one design feature eliminated, the balance between the remaining cigarette design features (e.g., the filter, paper, blend) is altered, in some instances substantially so.)

The quality of the functional relationships established when results for all brands studied served as the basis for regression analysis was assessed by comparing yield values predicted from the functional relationships with measured yield values. Findings include:

1. A difference of 3 mg, or less, was observed between Regime #2 NFDPM yields predicted from Regime #1 yields and measured Regime #2 yields for more than 90% of the brands tested.
2. A difference of 3 mg, or less, was observed between Regime #3 NFDPM yields predicted from Regime #1 yields and measured Regime #3 yields for approximately 75% of the brands tested. A difference of 5 mg, or less, was observed for more than 90% of the brands tested.
3. A difference of 0.3 mg, or less, was observed between Regime #2 nicotine yields predicted from Regime #1 yields and measured Regime #2 yields for more than 90% of the brands tested.
4. A difference of 0.3 mg, or less, was observed between Regime #3 nicotine yields predicted from Regime #1 yields and measured Regime #3 yields for approximately 75% of the brands tested. A difference of 0.5 mg, or less, was observed for more than 90% of the brands tested.
5. A difference of 3 mg, or less, was observed between Regime #2 CO yields predicted from Regime #1 yields and measured Regime #2 yields for more than 90% of the brands tested.
6. A difference of 3 mg, or less, was observed between Regime #3 CO yields predicted from Regime #1 yields and measured Regime #3 yields for approximately 75% of the brands tested. A difference of 6 – 12 mg was observed for approximately 10% of the brands tested.

In addition to exploring functional relationships between smoking regimes based on all cigarettes studied, relationships based upon a subset of the cigarette brands studied were explored. Key findings when a subset of the total cigarette brands was studied include:

1. When relationships were explored based on a specific cigarette design feature (i.e., tobacco blend), significant additional variation was explained by individual blend group models (i.e., American, Flue-cured and Dark) compared to a single grand model fit to all cigarettes tested.
2. When relationships were explored based on a specific cigarette design feature (i.e., tobacco blend), distinct functional relationships between ISO (Regime #1) nicotine and Regime #2 or Regime #3 nicotine were observed for some blends.
3. When relationships were explored based on a specific cigarette design feature (i.e., tobacco blend), a tendency toward distinct functional relationships between ISO (Regime #1) NFDPM and Regime #2 or Regime #3 NFDPM were observed for some blends.

4. When relationships were explored based on a specific cigarette design feature (i.e., tobacco blend), similar functional relationships between ISO (Regime #1) CO and either Regime #2 or Regime #3 CO were observed for different blends.
5. When relationships were explored based on the “regional product groups” designated for the study, e.g., “European Flue Cured,” significant additional variation was explained by individual product group models compared to a single grand model fit to all cigarettes tested.
6. When relationships were explored based on the “regional product groups” designated for the study, e.g., “European Flue Cured,” distinct functional relationships between ISO (Regime #1) NFDPM and either Regime #2 or Regime #3 NFDPM were observed for different product groups.
7. When relationships were explored based on the “regional product groups” designated for the study, e.g., “European Flue Cured,” distinct functional relationships between ISO (Regime #1) nicotine and either Regime #2 or Regime #3 nicotine were observed for different product groups.
8. When relationships were explored based on the “regional product groups” designated for the study, e.g., “European Flue Cured,” distinct functional relationships between ISO (Regime #1) CO and either Regime #2 or Regime #3 CO were observed for different product groups.

Beyond developing correlation models for smoke yields between ISO and representative alternative smoking regimes, testing conducted to address Task Force Objective #1 provided an opportunity to compare and assess different types of smoking machine hardware and to investigate potential approaches for data normalization to correct for interlaboratory biases (interlaboratory biases are expected due to a lack of standardized, validated testing methods for Regime #2 and Regime #3). Studies to address the first task force objective employed five different smoking machine designs, two rotary smoking machine designs and three linear smoking machine designs. A number of cigarette brands were tested in all laboratories (twelve brands in the Phase 1 study, three brands in the Phase 2 study), providing a means to (a) compare yields obtained with different smoking machine hardware, (b) estimate repeatability standard deviation (s_r) and reproducibility standard deviation (s_R), and (c) explore potential data adjustments intended to correct for interlaboratory variability due to a lack of standardized, validated testing methods. Findings include:

1. Differences in mean smoke yields were observed for the five smoking machine types applied in the study. Smoking machine designs with a longer history of use under standard ISO conditions yielded generally similar results with smoking regimes #2 and #3, with minimal distinction between linear and rotary designs. However, recently introduced linear smoking machine designs produced results that were frequently biased either high or low compared to smoking machine designs with a longer history of use, with no consistent bias direction for the three smoking regimes studied.
2. Repeatability standard deviation (s_r), an estimate of variability among replicates run under controlled conditions in the same laboratory, and reproducibility standard deviation (s_R), an estimate of variability among replicates run at different

laboratories, were determined for “tar,” nicotine and CO yield measurements according to ISO 5725-2 based on Phase 1 study results. Standard deviations were found to generally increase with mean levels. Therefore, functional relationships relating repeatability and reproducibility standard deviations to the sample mean level were developed by combining results from all smoking regimes. Repeatability and reproducibility standard deviations determined for three brands tested in the Phase 2 study were in general agreement with values observed in the Phase 1 study.

(While analyses conducted according to ISO 5725-2 suggest that, as expected, absolute variability (i.e., standard deviations) will increase with increasing mean values; this finding does not fully describe the data set developed by the ASR task force. Analysis of the data set conducted by Mr. Steve Purkis (not included in this report) suggests that in addition to a general increase in variability with increasing mean values, variability will increase for a given value (e.g., a given NFDPM value) when the yield is produced with a more intense smoking regime. Therefore, a greater standard deviation would be expected for a 15 mg NFDPM yield produced with smoking regime 3 than with smoking regime 1. Whatever the fundamental cause of the observed interaction between yield variability and smoking regime, the observation has clear regulatory implications. Any new ISO standard based on more intensive smoking regimes and any new regulatory ceilings established for product yields will have investigate and understand differences in variability associated with interactions between analyte and smoking regime.)

3. Data adjustment to correct for interlaboratory variability due to a lack of standardized, validated testing methods was possible. Linear models were fitted relating the yields of three control cigarettes tested in each laboratory to the grand means observed for all laboratories in Phase 2. Models were fitted for control cigarette yields for all three smoking regimes combined and for each smoking regime separately. Adjustment of individual laboratory means based on application of either model (i.e., means observed at each laboratory were adjusted by subtracting the intercept and dividing by the slope of the model fit for that laboratory) reduced unexplained interlaboratory variation, making values at different laboratories more consistent. Adjustment of laboratory means based on individual smoking regimes eliminated the greatest degree of interlaboratory bias.

Objective #2 Status. Significant potential difficulties are faced when benchmarking smoke constituents other than ‘tar’, nicotine and CO, due to a lack of recognized international test methods. Currently, laboratories use their own methodology when testing to determine individual smoke constituents and substantial differences exist between test results from different laboratories (48). While the CORESTA Special Analytes task force is currently charged with collaborative evaluation of methodology for the measurement of several selected smoke constituents, the work of the task force has focused on a single machine puffing regimen (ISO) as the intended scope of application.

Given these factors, the ASR task force requested guidance from the Scientific Commission on the value of generating data without standardized, validated test methods. The ASR Task Force also proposed an initial review of existing benchmarking studies to assess the correlations found. The Scientific Commission agreed that the task force should in the first instance review the literature to identify gaps in the current knowledge base.

Review of the literature confirms that ASR task force Objective #2, "... This will be followed by benchmarking the yields of specified smoke constituents from international products (smoke constituents to be specified by the Scientific Commission)," has been achieved to a substantial extent, independent of the ASR task force. Numerous studies (32 – 36, 49, 50) have been conducted in recent years that determine the yields of individual smoke constituents (i.e., typically, "Hoffmann analytes"). The studies have included cigarette brands from several different global markets and, in some instances, have produced constituent smoke yield data using alternative smoking regimes. While in the absence of standardized, validated test methods the results of such studies cannot be viewed as "unequivocally accurate," studies conducted in a single laboratory do provide a reasonable basis for product comparison within the study.

Phase 1 Study

The Phase 1 (pilot) study provided a first opportunity for many of the participating laboratories to determine smoke yields when cigarettes are smoked in a non-standard manner (i.e., a smoking regime other than the ISO regime), in addition to providing initial insight into the general feasibility of achieving objective 1. Before beginning the pilot study, many participating laboratories had to modify smoking machine puffing capabilities and make other adjustments to analytical methods for the determination of nicotine, water and carbon monoxide. After implementing smoking and analysis capabilities consistent with the requirements of the pilot study protocol, participating laboratories conducted a pre-test with a Kentucky reference cigarette as a final capability and viability check.

Protocol. The Phase 1 study protocol (Appendix 2) was developed with intent to balance the practical scope of the study (i.e., a study that could be completed in a reasonable period of time) with scientific robustness (numbers of ports per smoking regime, replications, etc.). The pilot study protocol was developed to test twelve cigarette samples (ten commercial brands and two reference cigarettes) using the three puffing regimens. Each participating laboratory tested all cigarette samples. The three regimes specified for study represent a range of puff volume, puff frequency and vent-blocking conditions as summarized in Table 1. Cigarette brands specified for testing (Table 2) were selected based on multiple criteria. Brands selected for testing in the pilot study represented: (a) multiple cigarette manufacturers, (b) the range of NFDPM yields found in the European market at the time of the study (ISO NFDPM yields from 1 to 12 mg/cig) and (c) typical product designs. In addition to the smoking regimes and cigarette brands

prescribed for testing, the pilot study protocol provided specific run orders for linear and rotary smoking machines, as well as electronic templates for reporting all study results.

Table 2. Brands Selected for Testing in the Phase 1 Study

Sample code	Sample Description	NFDPM level (mg/cig.)	Butt length (mm)	Circumference (mm)
A	Manufacturer A	12	29	24.7
B	Manufacturer B	12	29	24.8
C	Manufacturer C	10	23	26.7
D	Manufacturer D	9	35	24.9
E	Manufacturer A	8	29	24.7
F	Manufacturer E	7	33	24.8
G	Manufacturer D	6	35	24.9
H	Manufacturer E	4	33	24.8
I	Manufacturer B	3	39	24.6
J	Manufacturer B	1	35	24.8
K	Kentucky Reference 1R4F	9	35	25.0
L	CORESTA Approved Monitor CM3	15~16	32	24.8

Statistical Analysis. Statistical analysis techniques were applied to Phase 1 test results with three objectives:

1. To determine the test method capability for each type of smoking machine applied by participating laboratories,
2. To compare mean performance of the different smoking machines, and
3. To develop functional relationships between the two alternative smoking regimes (Regimes #2 and #3) and the ISO standard smoking regime (Regime #1) for NFDPM, nicotine and carbon monoxide.

Statistical analysis for the first objective generally followed procedures described in ISO standard 5725-2 (51) which describes a standard approach for detection of outlier values, estimation of sample mean values, and estimation of repeatability and reproducibility standard deviations for each sample.

For these purposes, the combination of a particular smoking machine used to test a particular cigarette brand style with a particular smoking regime was treated as a test

sample. The smoking machine categories used were the RM20³, RM200, SM400, and ASM500. The KC Automation 10-port smoking machine was used by a single laboratory. While values for the mean and repeatability could be obtained for data from the single laboratory that used the KC Automation 10-port smoking machine, no estimate of reproducibility standard deviation could be obtained. As such, there could be no confidence that values so obtained would be typical of those produced by other laboratories using the machine. Thus, a fifth “smoking machine” category was defined by combining the SM400 and the KC Automation smoking machine data and analysis was applied to the combined smoking machine category to determine if the KC Automation machine performance was consistent with the SM400 smoking machines.

While many procedures have been developed to identify outliers in a data set, ISO 5725-2 specifically recommends the use of Mandel charts for visualization of outlier laboratories across samples, and Cochran’s test and Grubbs’ test for identification of outlier laboratories for individual test samples. Mandel charts present normalized mean and sample standard deviation values for all laboratories for all test samples, with lines to indicate statistically significant outlier laboratories. Based on these charts, all data from a laboratory may be excluded if the analyst judges that a laboratory is consistently different from the others, although the standard does not specify rules for making this determination.

For Phase 1, these charts were produced separately for yields of the twelve cigarette brands with each smoking regimen using either linear smoking machines or rotary smoking machines. They were used primarily to identify outlier smoking machine ports. Individual port values for laboratories with outlier standard deviations (identified by the Mandel charts) were examined for “reasonableness” using plots of the raw data. Ports which appeared different from others at the same lab were investigated further for assignable cause. If an assignable cause was identified by the participating laboratory that generated the data (e.g., a particular port yield value was not divided by the number of cigarettes), then the values were corrected and retained. If no assignable cause was identified, the port was excluded from further statistical analysis (14 ports in total were excluded). For linear machines, the ten individual port values exhibited a wider range for some laboratories than for others. When a wider range was observed without any particular port appearing unusual, all ports were retained. With only three ports generated with rotary machines, extremely wide ranges were required to justify dropping a port (in total, two individual ports were excluded based on this criteria). All six analytical endpoints were dropped for excluded ports. In addition, all CO data from one laboratory tested with regimen 3 were excluded since the Mandel chart showed that values were unusually low for all twelve cigarettes. For these measurements, data from the other endpoints were retained.

In contrast to the absence of firm recommendations for excluding data from outlier laboratories based on Mandel charts, ISO 5725-2 clearly specifies a procedure for applying Cochran’s test (for identifying laboratories with significantly greater variability

³ RM20 is used throughout this document and generally refers more specifically to Borgwaldt smoking machine model RM20CSR.

than the other laboratories), and Grubbs' test (for identifying laboratories with means which are significantly different from the other laboratories) in sequence, with multiple iterations. For this study, Cochran's test was applied, followed by Grubb's test. With as many as six laboratories using a particular smoking machine, outlier evaluation was stopped after the exclusion of one laboratory. With only four laboratories using the ASM500, critical values for outlier laboratories are relatively extreme, such that no outlier laboratories were identified for any endpoint for any test sample. Laboratories deemed outliers by either of these tests (which required $p < 0.01$) were excluded from calculations of the mean, repeatability standard deviation, and reproducibility standard deviation per ISO 5725-2 for that test sample for that particular analytical endpoint.

Repeatability standard deviation is an estimate of variability among replicates run under controlled conditions in the same laboratory (estimated by pooling standard deviation estimates across laboratories), while reproducibility standard deviation is an estimate of variability among replicates run at different laboratories. These quantities were estimated for each sample after the exclusion of outliers, as described in ISO 5725-2. The estimation of repeatability standard deviation and reproducibility standard deviation uses a "method of moments" variance components analysis.

ISO 5725-2 provides additional procedures for developing functional relationships for relating repeatability and reproducibility standard deviations to the sample mean level, where such relationships are consistent with the data. Linear models relating variability to the mean level with and without intercepts were fitted, as well as an exponential model relating the log of variability to the log of the mean, according to ISO 5725-2. These models were fitted to mean and standard deviation estimates for all cigarettes using any of the smoking regimens for each smoking machine (36 data points for each model – 12 cigarette brand styles with 3 regimens). The three model forms were compared across smoking machines and analytical endpoints to identify the simplest model form that would provide an adequate fit in most cases.

Comparisons of mean yields for different smoking machine types were made using analysis of variance in a two-way model with cigarette brand style and test instrument, followed by post hoc pair-wise Tukey's tests to find significant differences among the smoking machines. The KC Automation smoking machine was treated as a separate smoking machine in these analyses. These analyses were performed separately for each smoking regimen for each analytical endpoint. While cigarette by smoking machine interactions were significant in some cases, machine differences were generally consistent across cigarette brand styles.

In order to examine the relationship between yields of NFDPM, nicotine and CO under alternative smoking regimes to those of the standard ISO regime, linear and quadratic regression models were fitted to the means of these analytical endpoints across all laboratories. The improvement in the error sum of squares obtained by adding the quadratic term to the model was calculated and compared to the error mean square for the linear regression model using an F test. The reduction in the error sun of squares was declared significant if the associated p-value (denoted "P Imp" in Appendix 4, Tables 4 –

9) was less than 0.05, indicating that a significant improvement in the model fit was obtained by adding the quadratic term.

All analyses were performed using SAS[®] (SAS Institute, Cary, NC) software.

Discussion of Results.

Establish Viability of Participating Laboratories. Initial inspection and review of data generated in the Phase 1 study (Appendix 3) suggested reasonable agreement between the mean values obtained by each participating laboratory. For each cigarette studied, good general agreement was found for each smoke yield measurement conducted (NFDPM, nicotine, CO). Statistical analysis of the twenty-two data sets produced in the study did not reject any complete data set as an outlier, although some individual endpoints were excluded as outliers based on either preliminary assessment with Mandel Plots (Appendix 4, Table 1) or Cochran / Grubbs outlier tests (Appendix 4, Table 2). Coefficients of variation (i.e., %RSD) based on laboratory means for the twelve cigarettes tested were typically 4 – 9 for each smoke yield measurement and smoking regime (Table 3). In addition to good interlaboratory agreement, intralaboratory precision was generally comparable for all three smoking regimes studied. The degree of interlaboratory agreement observed and the general intralaboratory precision found were most impressive given that: (1) two of the smoking regimes applied in the study had not been previously attempted by many of the participating laboratories and (2) at least five different types of smoking machine were used to conduct the pilot study. It should be noted however, that while the coefficients of variation are generally comparable for each of the smoking regimes, absolute variability is increasing from regime #1 to regime #3. It is expected that interlaboratory validation of the more intensive smoking regimes will lead to reductions in the observed absolute variability and corresponding coefficients of variation.

Table 3. Coefficients of Variation Based on Laboratory Means

Smoke Yield	Smoking Regime	Coefficient of Variation for Twenty-two Laboratory Means (Twelve Brands)		
		Average of All Brands	Minimum (Single Brand)	Maximum (Single Brand)
NFDPM	1	7.0	4.4	20.0
	2	5.9	3.7	10.9
	3	6.3	4.4	10.5
Nicotine	1	5.4	3.1	12.8
	2	4.7	3.6	5.6
	3	4.3	3.6	6.1
CO	1	9.0	7.0	13.8
	2	6.8	6.1	8.3
	3	7.2	5.9	8.0

Evaluate Accuracy. Comparison of CM3 reference cigarette yields obtained in the Phase 1 study with yield values determined in the CM3 annual smoking study provide an indication of Regime #1 accuracy. Grand means for NFDPM, nicotine, CO and puffs from the twenty-two data sets generated in Phase 1 show good agreement with CM3 values established in 2000 (Table 4). Similarly, comparison of Kentucky reference cigarette yields obtained in the Phase 1 study with the limited data available for such yields when smoking with either Regime #2 or Regime #3 also demonstrated good agreement for NFDPM, nicotine and CO yields (Tables 5 and 6). (Available Kentucky reference yield data for Regimes #2 and #3 were generated in a relatively few laboratories (four, or less) and the laboratories had varying degrees of experience with alternative smoking regimes when the data were generated).

While the results summarized in Table 4 – 6 suggest good agreement when the grand means for results from all participating laboratories are compared to historical values, it is also important to consider the extent of agreement, or difference, observed for the various smoking machine types employed in the Phase 1 study. Differences in smoke yields, if found, would potentially guide the design of a Phase 2 study, a study intended to address a broader range of cigarettes. In such a study, it would not be possible to smoke all cigarettes in each laboratory, an approach that tends to “average out” individual laboratory differences when applied.

An analysis of variance was conducted for each smoking endpoint to discern possible smoking machine differences. Differences in smoke yields were observed for the five smoking machine types used by Phase 1 participants. A post-hoc Tukey’s test (Appendix 4, Table 3) identified smoking machine types that produced equivalent yields for each smoking regime. In general for the smoking regimes studied, smoking machines with a longer history of use (i.e., SM400, RM20 and RM200) tended to produce means towards the middle of the observed range, while smoking machines designed more recently to address the emerging demand for multiple smoking regime capability often tended to the upper and lower segments of the observe yield range. It should be noted that although statistically significant differences in smoke yields were observed for different smoking machine types, the differences were not extreme. For example, the range of NFDPM yields for Regime #3 was ~ 24 – 27 mg/cig. However, based on differences observed, the range of smoking machine designs available for use will be an important consideration in planning the Phase 2 study design.

**Table 4. Comparison of Historical and Phase 1 Study
CORESTA Monitor 3 Results – Regime #1 (Standard ISO regime)**

	NFDPM (mg/cig)	Nicotine (mg/cig)	CO (mg/cig)	Puffs (per cig)
Phase 1 Study (22 Data Sets)	15.1	1.25	14.9	8.9
CM3 annual Smoking Study 2000	15.1	1.24	15.0	8.9

**Table 5. Comparison of Historical and Phase 1 Study
1R4F Results – Regime #2**

	Historical Results Average \pm 1 SD	Phase 1 Study Average \pm 1 SD
NFDPM (mg/cig)	20.4 \pm 0.9	19.7 \pm 1.0
Nicotine (mg/cig)	1.60 \pm 0.07	1.54 \pm 0.06
CO (mg/cig)	24.7 \pm 1.4	24.2 \pm 1.6

**Table 6. Comparison of Historical and Phase 1 Study
1R4F Results – Regime #3**

	Historical Results Average \pm 1 SD	Phase 1 Study Average \pm 1 SD
NFDPM (mg/cig)	29.7 \pm 1.8	26.0 \pm 1.4
Nicotine (mg/cig)	1.87 \pm 0.11	1.90 \pm 0.08
CO (mg/cig)	30.9 \pm 2.0	31.6 \pm 2.0

Evaluate Precision. Repeatability standard deviation (s_r), an estimate of variability among replicates run under controlled conditions in the same laboratory, and reproducibility standard deviation (s_R), an estimate of variability among replicates run at different laboratories, were determined for “tar,” nicotine and CO yield measurements according to ISO 5725-2 based on Phase 1 study results. Standard deviations were found to generally increase with mean levels. Therefore, functional relationships relating repeatability and reproducibility standard deviations to the sample mean level were developed by combining results from all smoking regimes (Appendix 4, Figures 1 – 15). Slope and intercept coefficients for the functions so developed (Table 7) suggest that reproducibility standard deviations are comparable for different smoking machine types, while repeatability standard deviation may be somewhat less for rotary machines in comparison to linear machines. This may be due, in part, to different numbers of cigarettes smoked per replicate.

Table 7. Slope and Intercept Values for Repeatability SD and Reproducibility SD Functional Relationships

Analyte	Smoking Machine	Repeatability SD		Reproducibility SD	
		Intercept	Slope	Intercept	Slope
NFDPM	RM20	0.102	0.024	0.121	0.039
	RM200	0.082	0.019	0.174	0.037
	SM400	0.152	0.040	0.205	0.051
	KC Auto	0.153	0.042	0.371	0.047
	ASM500	0.116	0.039	0.184	0.044
Nicotine	RM20	0.009	0.018	0.010	0.047
	RM200	0.008	0.018	0.011	0.035
	SM400	0.006	0.040	0.010	0.049
	KC Auto	0.007	0.041	0.008	0.053
	ASM500	0.006	0.040	0.006	0.047
CO	RM20	0.050	0.023	0.007	0.062
	RM200	0.073	0.021	0.215	0.058
	SM400	0.076	0.040	0.123	0.052
	KC Auto	0.084	0.041	0.196	0.049
	ASM500	0.107	0.037	0.220	0.048

Develop Correlation Models. The ASR task force has examined the relationships between NFDPM, nicotine and carbon monoxide yields, when yields are generated with the three smoking regimes. Regression analysis using both linear and quadratic models was applied to the grand means for each yield parameter (NFDPM, nicotine, carbon monoxide) from the 22 available data sets. Regression analysis results based on the twelve cigarettes tested support the premise that empirical correlation models for smoke yields between ISO and representative alternative smoking regimes can be developed (Figures 1 – 3, Table 8). Comparison of linear and quadratic models suggests that a quadratic model offers little, if any improvement over a linear model when correlating the smoke yields generated with different smoking regimes (Appendix 4, Tables 4 – 9). This finding was consistently observed both when reference cigarette data were included and excluded from the data set during model generation.

Data from one product (Gauloise Filter) were excluded when generating models that relate nicotine yields from alternative smoking regimes with the nicotine yield from Regime #1. Gauloise Filter data were excluded because a different relationship was observed between nicotine and NFDPM when data from the three smoking regimes studied were combined and examined (Figure 4). Gauloise Filter was the only cigarette

in the Phase 1 study with a “dark tobacco blend,” suggesting that cigarettes with different tobacco blends (e.g. flue cured, American and dark blends) may produce different functional relationships for one or more smoke yield parameters.

Table 8. Summary of Model Coefficients and r^2 Statistic for Phase 1 Study Results

Analyte	Reference Cigarettes	<u>Linear Model</u>			<u>Quadratic Model</u>				
		X	Int	r^2	X^2	X	Int	r^2	
Regime #2 vs. Regime #1									
NFDPM	(+)	1.431	7.571	0.949	-0.051	2.252	4.983	0.973	
NFDPM	(-)	1.591	6.710	0.961	-0.048	2.248	4.977	0.972	
Nicotine	(+)	1.368	0.568	0.962	-0.244	1.703	0.476	0.966	
Nicotine	(-)	1.463	0.529	0.952	-0.264	1.761	0.461	0.954	
CO	(+)	0.932	12.180	0.901	-0.063	2.014	8.379	0.959	
CO	(-)	1.054	11.370	0.936	-0.047	1.789	9.009	0.958	
Regime #3 vs. Regime #1									
NFDPM	(+)	0.964	17.441	0.793	-0.029	1.434	15.959	0.808	
NFDPM	(-)	1.076	16.797	0.772	-0.009	1.196	16.482	0.772	
Nicotine	(+)	1.075	1.086	0.788	0.161	0.854	1.147	0.790	
Nicotine	(-)	1.050	1.099	0.664	0.305	0.705	1.177	0.668	
CO	(+)	0.286	25.114	0.265	-0.023	0.685	23.712	0.289	
CO	(-)	0.299	24.926	0.285	-0.003	0.339	24.795	0.285	

Note: (+) indicates that reference cigarettes were included in the regression analysis and (-) indicates that reference cigarettes were excluded from the regression analysis.

Figure 1. NFDPM Functional Relationships Observed Based on Commercial Brands and Reference Cigarettes (Linear Model)

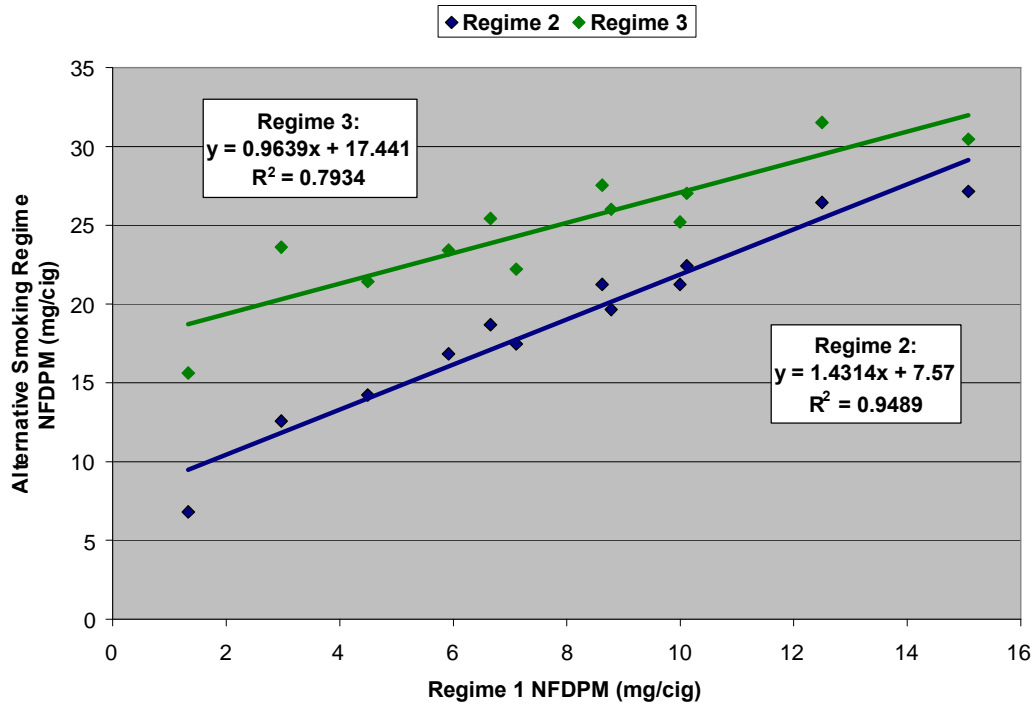


Figure 2. Nicotine Functional Relationships Observed Based on Commercial Brands and Reference Cigarettes (Linear Model)

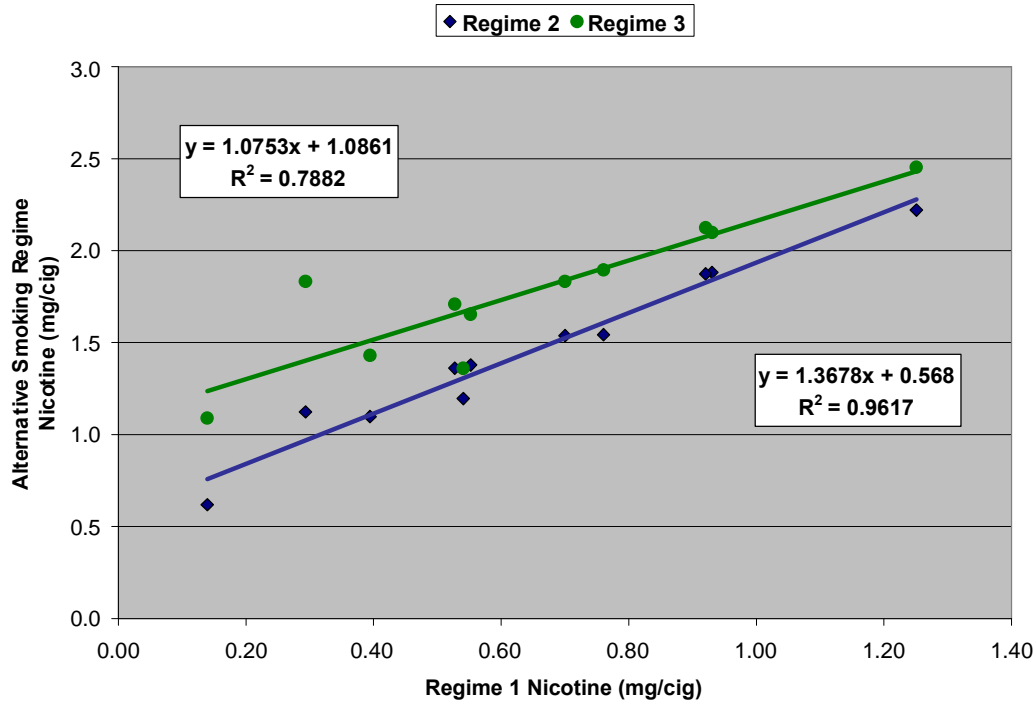


Figure 3. CO Functional Relationships Observed Based on Commercial Brands and Reference Cigarettes (Linear Model)

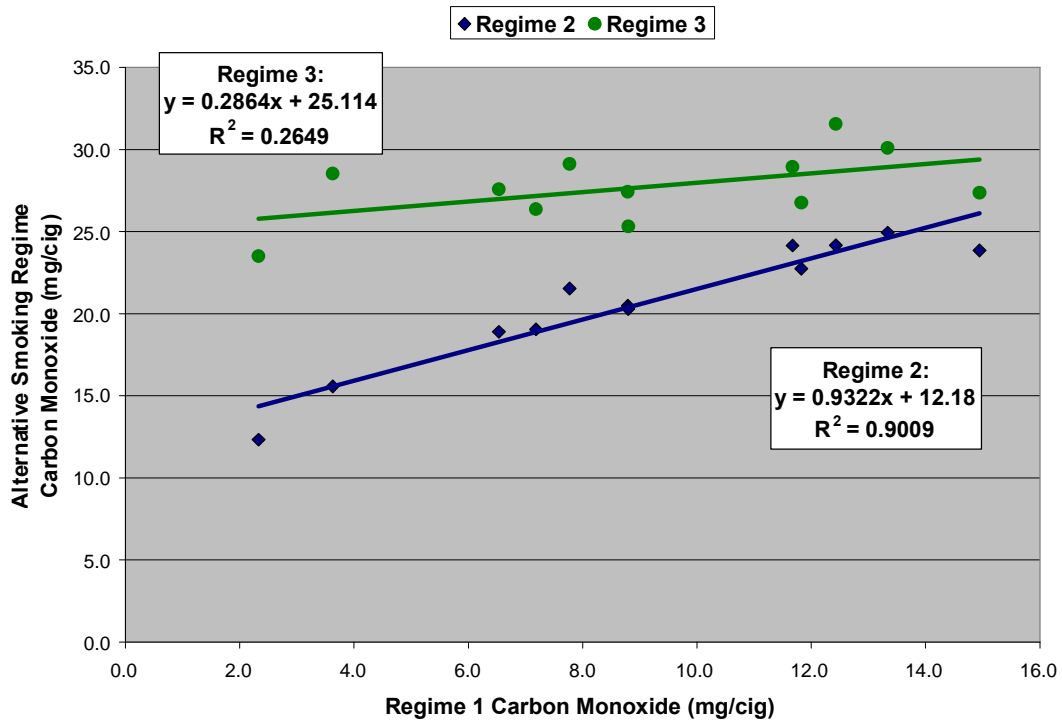
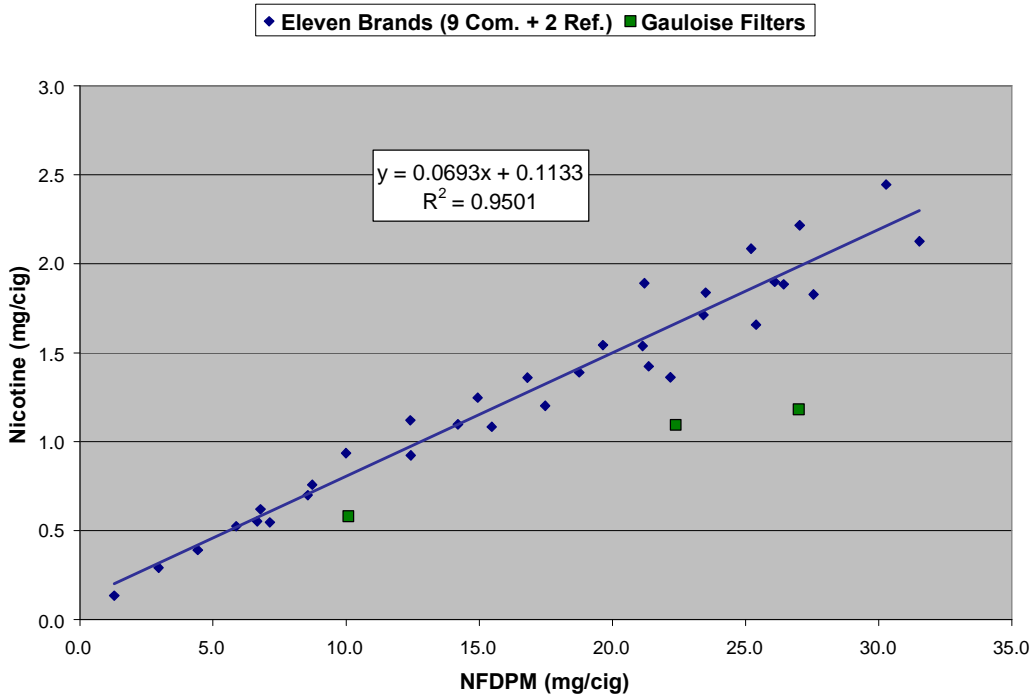


Figure 4. Relationship Observed Between Nicotine and NFDPM Yields for Gauloise Filter and Other Cigarettes



The quality of the functional relationships established in the Phase 1 study was assessed by comparing yield values predicted from the functional relationships with measured yield values (Tables 9 – 11). For functional both linear and quadratic relationships generated from commercial brands and reference cigarettes, findings for the ~264 values (i.e., 22 laboratory data sets x 12 products evaluated in each laboratory resulted in 264 values for each smoke yield parameter) include:

1. Differences of 2 mg, or less, were observed between predicted and measured Regime #2 NFDPM yields for more than 80% of the individual measurements conducted.
2. Differences of 3 mg, or less, were observed between predicted and measured Regime #3 NFDPM yields for more than 80% of the individual measurements conducted.
3. Differences of 0.2 mg, or less, were observed between predicted and measured Regime #2 nicotine yields for more than 95% of the individual measurements conducted.
4. Differences of 0.3 mg, or less, were observed between predicted and measured Regime #3 nicotine yields for approximately 90% of the individual measurements conducted.
5. Differences of 2 mg, or less, were observed between predicted and measured Regime #2 CO yields for more than 80% of the individual measurements conducted.
6. Differences of 3 mg, or less, were observed between predicted and measured Regime #3 CO yields for more than 80% of the individual measurements conducted.

Table 9. Difference Between Measured and Predicted NFDPM Values

Regression Model	Difference Observed (mg)				
	$\leq \pm 1$	± 2	± 3	± 4	$\pm 5+$
Regime 2, Percentage of Cigarettes Tested					
Linear	53	81	94	100	---
Quadratic	54	94	98	100	---
Regime 3, Percentage of Cigarettes Tested					
Linear	33	57	81	92	100
Quadratic	37	57	81	92	100

Table 10. Difference Between Measured and Predicted Nicotine Values

Regression Model	Difference Observed (mg)				
	± 0.1	± 0.2	± 0.3	± 0.4	± 0.5+
	Regime 2, Percentage of Cigarettes Tested				
Linear	67	97	100	---	---
Quadratic	73	97	100	---	---
	Regime 3, Percentage of Cigarettes Tested				
Linear	62	80	87	95	100
Quadratic	60	78	89	95	100

Table 11. Difference Between Measured and Predicted CO Values

Regression Model	Difference Observed (mg)				
	± 1	± 2	± 3	± 4	± 5+
	Regime 2, Percentage of Cigarettes Tested				
Linear	59	83	96	99	100
Quadratic	57	89	97	100	---
	Regime 3, Percentage of Cigarettes Tested				
Linear	33	55	74	90	100
Quadratic	30	56	73	89	100

Yield Modeling Based on Puff Volume, Filter Ventilation and Puff Interval. Discussion of statistical modeling techniques as a means of predicting alternative smoking regime smoke yields from a puff volume, puff interval and the cigarette filter ventilation value, rather than predicting alternative smoking regime smoke yields from the standard ISO smoking regime, was addressed during ASR task force meetings. Mr. Paul Case led the discussion based on research conducted at BAT. He has presented findings from such studies involving a statistically based central composite design at recent CORESTA meetings (52, 53) A principal advantage of such an approach is that models are obtained for a range of puff volumes, puff intervals and ventilation conditions, rather than models that correlate specific smoking conditions.

Conclusion from Phase 1 Study.

Phase 1 study results from twenty-two data sets suggest that sufficient technical capability exists within the participating laboratories to continue with a broader study to develop correlation models for smoke yields between ISO and representative alternative smoking regimes. Laboratories that participated in the Phase 1 study were able to test cigarettes with representative alternative smoking regimes that encompassed a range of puff volumes, puff frequencies and cigarette vent blocking conditions. Reasonable accuracy and precision were observed in the Phase 1 study when participating laboratories used one of five types of analytical smoking machine to smoke cigarettes with the ISO and two alternative smoking regimes. After developing sufficient technique, the study participants were able to successfully apply tape to the cigarette filter to block ventilation holes (when present) around either 50% or 100% of the cigarette circumference. Since statistically significant differences in smoke yields were observed for different smoking machine types, and while the observed differences were not extreme, consideration of potential adjustment methods to compensate for differences in smoke yields due to smoking machine type should be a key consideration for developing a plan to test a broader range of cigarettes.

Results of regression analysis based on the twelve cigarettes tested support the premise that empirical correlation models for smoke yields between ISO and representative alternative smoking regimes can be developed. Differences in smoke yields observed for one of the products tested suggests that unique correlation models may exist based on different tobacco blend or other product design features. In developing a study protocol to broaden the scope of correlation models beyond the ten European brands evaluated in the Phase 1 Study, cigarette brands representing a range of ISO “tar” yields, a variety of tobacco blends and commercial availability from many geographical regions is recommended. With such a diverse set of cigarettes, it must be recognized that: (a) a single set of generally applicable functional relationships for ‘tar’, nicotine and CO yields between ISO and representative alternative smoking regimes may be found, (b) multiple sets of functional relationships based upon specific cigarette design features (e.g., tobacco blend) may be observed or (c) a lack of adequate functional relationship(s) that correlate ‘tar’, nicotine and CO smoke yields between ISO and representative alternative smoking regimes is possible.

Phase 2 Study

Study objectives for Phase 2 of the ASR Task Force effort were (1) to apply experience and learning from the preliminary work (Phase 1 Study) to develop more robust correlation models for smoke yields between ISO and representative alternative smoking regimes based on ‘tar’, nicotine and CO; and (2) to broaden the scope of smoke yield relationships developed for ten European brands in the Phase 1 Study to include cigarette brands from many geographical regions (more global perspective).

Protocol. The Phase 2 study protocol was completed and distributed to participating laboratories in late 2002. Unlike the Phase 1 study in which all laboratories tested a single group of ten commercial products and two reference cigarettes, distinct product groups consisting of ten commercial products and three reference cigarettes were tested by designated laboratories only. Nine product groups arbitrarily identified as: Ad Hoc Group, American Blends, Canadian Brands, Dark Blends, Europe Flue Cured, European Group, Japan Domestic / Other, UK Benchmark Brands, US Brands were established for testing based on consensus of the participating laboratories and a willingness of the participating cigarette manufacturers to provide products for testing. Each product group consisted of cigarettes with a range of NFDPM yields, rod lengths, circumferences and other characteristics typical of various geographical regions represented by the product group. Cigarettes from Canada, Croatia, England, France, Germany, Indonesia, Italy, Japan and the United States were included in the various product groups. The product groupings were not constituted with the intention of ranking the “relative goodness” of different blend types or product designs, but rather with the intention of comparing a large number of cigarette brands representing a global perspective in an orderly manner.

At a minimum, each product group was tested in two laboratories, one with a linear smoking machine capability and another with rotary smoking machine capability. Some product groups were tested in as many as four laboratories. Linear smoking machines utilized by study participants included the TriCity Machines Hawktech 1000, Filtrona SM400 and Cerulean ASM516 smoking machines. Rotary smoking machines utilized by study participants included Borgwaldt RM20 and RM200 (with kit) smoking machines. The three smoking regimes applied in the Phase 2 study were identical to the smoking regimes applied in the pilot study. Puff volume, puff frequency, puff duration and vent-blocking conditions for each smoking regime are summarized in Table 1.

Participating laboratories, principal investigators, smoking machine types and product group assignments for the Phase 2 study are summarized in Tables 12 and 13. The principal investigators from each laboratory and their colleagues are to be commended for the excellent efforts put forth in completing the experimental portion of the Phase 2 study. The logistics of test product distribution alone were somewhat daunting and the laboratory portion (with many accompanying data spreadsheets) was quite complex, yet excellent data was produced by all participating laboratories in a timely manner.

Table 12. Product Group Assignments for Laboratories with Linear Smoking Machine Capability

Laboratory	Principal Investigator	Machine(s)	Product Group Assignment for Phase 2 Study
Arista Laboratories	Alexandra Martin	ASM 500	Dark
Ente Tabacchi Italiani	Giovani Lionetti	ASM 500	European Brands
Filtrona	Michael Taylor	ASM 500	Europe Flue Cured
Gallaher	Ron McKeivor	ASM 500	UK Benchmark
Labstat International	Peter Joza	ASM 500	American Blend
Lorillard	Jack Reid	ASM 500	American Blend
RJ Reynolds	Mike Borgerding	ASM 500	Japan Domestic / Other
BAT UK	Paul Case	SM400	Europe Flue Cured
RJ Reynolds	Mike Borgerding	SM400	"Ad Hoc"
Rothmans, Benson & Hedges Inc.	Paul Vassilakopoulos	SM400	Canadian Brands
RJ Reynolds	Mike Borgerding	SM400	US Brands

Table 13. Product Group Assignments for Laboratories with Rotary Smoking Machine Capability

Laboratory	Principal Investigator	Machine(s)	Product Group Assignment for Phase 2 Study
Altadis	Yves Saint-Jalm	RM20	US Brands
Baumgartner	Bertrand Moullet	RM20	Dark
House of Prince	Hans Thomsen	RM20	Canadian Brands
Imperial Tobacco UK	David Tuck	RM20	Europe Flue Cured
J.L Tiedemanns Tobaksfabrik AS	Rolf Olsen	RM20	Japan Domestic / Other
LTR Industries	Christophe Le Moigne	RM20	European Brands
RJ Reynolds	Mike Borgerding	RM20	Canadian Brands
Tvornica Duhana Rovinj	Marica Pokrajac	RM20	"Ad Hoc"
Wattenspapier	Georg Astl	RM20	Dark
Sampoerna Indonesia	Mochammad Sholichin	RM200 with kit	American Blend
Borgwaldt Technik GmbH	Bruno Kluss	RM200 with kit	UK Benchmark
Japan Tobacco	Yuichi Fukai	RM200 with kit	UK Benchmark
Austria Tabak	Jutta Muller	RM200 with kit	US Brands
JT International - Cologne	Uwe Thiel	RM200 with kit	American Blend
PM International	Michel Rigaux	RM200 with kit	Japan Domestic / Other

Statistical Analysis. Statistical analysis techniques were applied to Phase 2 test results with three objectives:

1. To determine the test method capability for each type of smoking machine applied by participating laboratories,
2. To compare mean performance of the different smoking machines, and
3. To develop functional relationships between the two alternative smoking regimes (Regimes #2 and #3) and the ISO standard smoking regime (Regime #1) for NFDPM, nicotine and carbon monoxide.

A Dixon test for normal distribution extreme outlier replicate values was performed on individual values for each cigarette measured at each smoking regime, when applicable. Dixon tests were performed for laboratories using linear smoking machines, but not for laboratories using rotary smoking machines since these laboratories only generated three replicate values per cigarette. Subsequently, Dixon tests for normal distribution extreme outlier laboratory means were performed on laboratory means for all laboratories for the three control cigarettes (a commercial 1 mg yield cigarette, the 1R4F Kentucky reference cigarette and CORESTA monitor cigarette CM4). These were performed separately for each type of smoking machine. (Data from the laboratory using the Hawktech smoking machine were excluded from this evaluation.)

As in Phase 1, the mean, repeatability standard deviation and reproducibility standard deviations were estimated to describe the test method capability for each type of smoking machine. Since most cigarette brand styles were smoked in 2 – 4 laboratories, statistical analysis was based on the three control cigarettes common to all laboratories. However,

since only three cigarettes were tested at every laboratory, no attempt was made to develop functional relationships between the means and repeatability or reproducibility standard deviations. Rather, estimates of these quantities established from Phase 2 study data were plotted together with the models developed in Phase 1 to evaluate the extent of consistency with Phase 1 results. Since no Cochran's or Grubb's tests were used to exclude laboratories, this comparison also provides a measure of potential improvement in laboratory performance since Phase 1.

Yields for the three control cigarettes were compared among the smoking machines using analysis of variance followed by post hoc Tukey's tests to compare the smoking machines on a pair-wise basis. The Hawktech smoking machine was treated as a separate smoking machine type in these analyses. Analysis was completed for each control cigarette separately with a one-way analysis of variance on smoking machine, and also with a two-way analysis of variance on smoking machine and cigarette. As in Phase 1, while cigarette by smoking machine interactions were significant in some cases, machine differences were generally consistent across cigarette brand styles.

In order to examine the relationship between yields of NFDPM, nicotine and CO under alternative smoking regimes to those of the standard ISO regime, linear regression models were fitted to the means of these analytical endpoints for (1) the laboratories that tested each product group, (2) all laboratories and (3) laboratories that tested cigarettes with a similar tobacco blend. However, because of differences observed for different types of smoking machine in the Phase 1 study and general interlaboratory differences typically expected, normalization of mean values seemed appropriate to make values generated at different laboratories as comparable as possible. This was especially important because different laboratories smoked different cigarette product groups. For this purpose, models relating the yields of the three control cigarettes at each laboratory to the grand means observed at all laboratories were fitted. Models were fitted both for yields of the control cigarettes for all three smoking regimes combined and for each smoking regime separately. Tests were performed to see if the set of models fit separately for each regime provided statistically significant improvement in the fit (i.e., a significant reduction of unexplained variation) compared to a single model fit for all three regimes combined. Means observed at each laboratory were adjusted by subtracting the intercept and dividing by the slope of the model fit for that laboratory. This adjusted value is the grand mean value that would have produced the observed value, and thus has the effect of removing laboratory differences. Adjusted values for all cigarettes smoked at each laboratory (not just the control cigarettes) were obtained using these models.

To describe the relationship between different smoking regimes, regression models were fitted to mean values for commercially available cigarette brand styles (control cigarettes were excluded) observed at each laboratory, predicting yields when smoking with the two alternative smoking regimes (Regimes #2 and #3) from the ISO standard smoking regime (Regime #1) yields. Models were fitted for the observed means, for means adjusted using models fit to all smoking regimes (All-Adjusted) and for means adjusted using models fit separately for each smoking regime (Regime-Adjusted). Next, similar models were fitted for all laboratories that tested the same cigarette brand styles. From these

results, a test was performed to see if the set of models fit for different laboratories smoking the same brand styles provided a statistically significant improvement over a single model fit to data from those laboratories (regardless of smoking machine). The extent to which this test becomes less significant (i.e., laboratories are more alike) as the level of adjustment increases (observed values to All-Adjusted to Regime-Adjusted) provides an indication of the effectiveness of the adjustment.

Finally, similar models were fitted to predict yields when smoking with Regimes #2 and #3 from yields under Regime #1, combining data from all laboratories. From these results, a test was performed to see if the set of models fit for different groups of cigarette brand styles provided a statistically significant improvement over a single model fit to data from all laboratories. These models were fitted and tests performed for laboratory means observed and using both methods of adjustment.

Discussion of Results.

Establish Viability of Participating Laboratories. The Phase 2 study results (mean values obtained in each laboratory) are summarized in Appendix 6.

Results from Dixon tests for normal distribution extreme outlier **replicate values** that were performed on individual linear smoking machine values for each cigarette measured at each smoking regime demonstrate the general viability of laboratories that used linear smoking machines. Across the thirteen cigarettes smoked with three different smoking regimes to yield six analytical endpoints (i.e., puff count; TPM, nicotine, water, NFDPM and CO yields), 2,575 total test sample values were produced by the eleven laboratories with linear smoking machines. Seventy-four values (2.9% of the total data) were identified as outliers. After careful examination, it was decided that removal of these outliers would have minimal impact on the reported mean values and none of these data were excluded.

Similarly, Dixon tests for normal distribution extreme outlier laboratory **means** performed on laboratory means for all laboratories for the three control cigarettes (a commercial 1 mg yield cigarette, the 1R4F Kentucky reference cigarette and CORESTA monitor cigarette CM4) demonstrate the general viability of all laboratories participating in the Phase 2 study. Only one outlier ($p < 0.01$) was identified in the 216 tests conducted (6 endpoints for each of 4 smoking machines for 3 cigarettes at 3 regimens), indicating a very high level of consistency of results among laboratories using the same type of smoking machines (Appendix 7, Table 1). With such minimal impact, no data were excluded as statistical outliers.

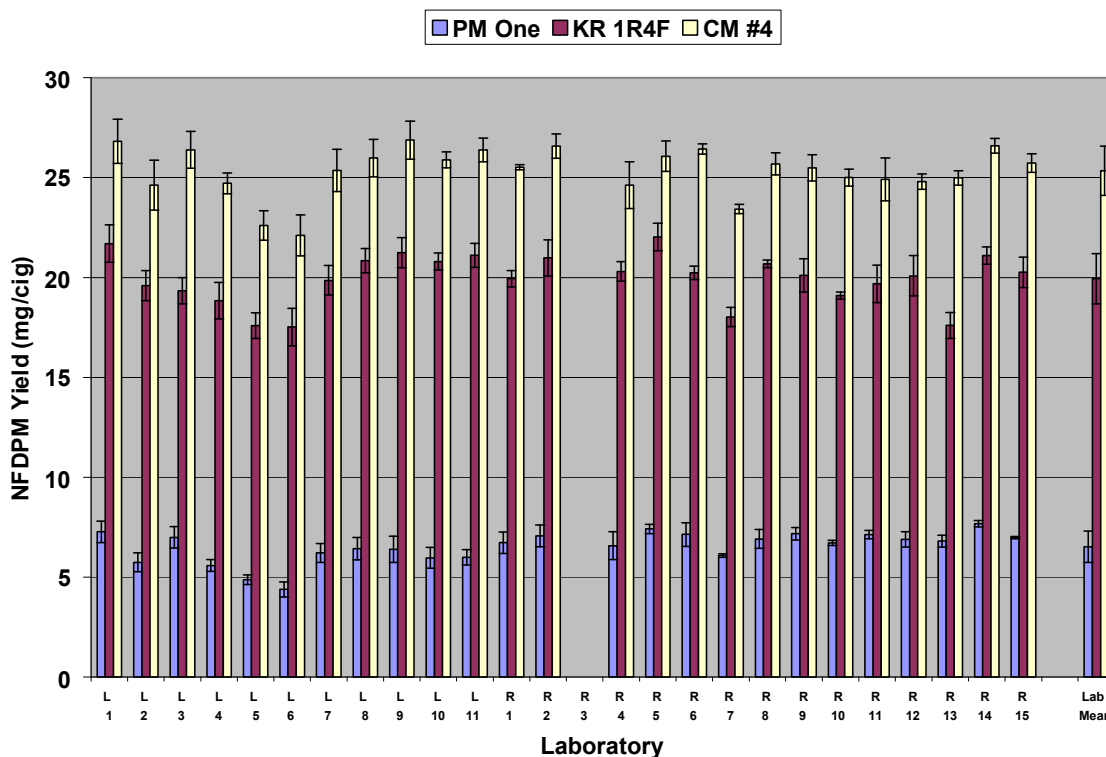
Results for Laboratory L2, products D and J, and for Laboratory R6, product J were excluded when establishing correlation models. Results for product D were excluded because an incorrect product was tested. Results for product J were excluded because it was a reference cigarette, rather than a commercially available cigarette brand. No other results were excluded for an assignable cause.

Evaluate Accuracy. Comparisons of reference cigarette yields obtained in the Phase 2 study with yield values determined historically and in the Phase 1 study provide an indication that general accuracy was achieved by Phase 2 study participants (Table 14). Further inspection of control cigarette data on an individual laboratory basis (e.g., Figure 5) suggests that smoke yields did vary from one laboratory to the next and, in some cases, significantly so (e.g., Laboratory L6 vs. Laboratory R2). Differences in smoking machine type contributed significantly to observed interlaboratory differences (Appendix 7, Tables 14– 16).

Table 14. Comparison of Historical, Phase 1 and Phase 2 Study Results – 1R4F

	Historical Results (54) Average \pm 1 SD	Phase 1 Study Average \pm 1 SD	Phase 2 Study Average \pm 1 SD
Regime #1			
NFDPM (mg/cig)	9.2	8.8 \pm 0.4	9.4 \pm 0.4
Nicotine (mg/cig)	0.80	0.76 \pm 0.03	0.83 \pm 0.05
CO (mg/cig)	11.6	12.4 \pm 0.9	11.7 \pm 0.8
Regime #2			
NFDPM (mg/cig)	20.4 \pm 0.9	19.7 \pm 1.0	19.2 \pm 1.3
Nicotine (mg/cig)	1.60 \pm 0.07	1.54 \pm 0.06	1.61 \pm 0.10
CO (mg/cig)	24.7 \pm 1.4	24.2 \pm 1.6	22.5 \pm 1.7
Regime #3			
NFDPM (mg/cig)	29.7 \pm 1.8	26.0 \pm 1.4	26.0 \pm 1.9
Nicotine (mg/cig)	1.87 \pm 0.11	1.90 \pm 0.08	1.98 \pm 0.13
CO (mg/cig)	30.9 \pm 2.0	31.6 \pm 2.0	29.3 \pm 2.3

Figure 5. Phase 2 Study Control Cigarette NFDPM Yields – Regime #2



(Note: One of the ASR task force participating laboratories (R3) was unable to provide yield data. However, the laboratory designation as defined in the study protocol was retained in the chart).

Since individual laboratory biases potentially confound the ability to accurately develop correlation models for smoke yields between ISO and representative alternative smoking regimes (the principal task force objective), adjustments to the data based on control cigarette yield values were investigated. By design, testing of control cigarettes with each product group provides a means of correcting for interlaboratory biases in much the same way as an internal standard corrects for injection volume variation in gas chromatography. Adjustments to correct for observed interlaboratory biases are particularly pertinent for the Phase 2 study design, because individual product groups are tested in only 2 – 4 laboratories. Such adjustments are intended to eliminate potential biases in individual data sets due to smoking machine type or other unique laboratory factors, such that the true smoke yield relationship between smoking regimes may be best discerned.

For this purpose, models relating the yields of the three control cigarettes at each laboratory to the grand means observed for all laboratories were fitted. Models were fitted both for yields of the control cigarettes for all three smoking regimes combined (e.g., Figure 6) and for each smoking regime separately. Differences in slope and intercept coefficients were observed for the different model types and for the individual smoking regimes in some instances (Table 15). Tests were performed to determine if the

set of control cigarette models fit separately for each regime provided statistically significant improvement in the fit (i.e., a significant reduction of unexplained variation) compared to a single model fit for all three regimes combined. Statistically significant improvements in the fit were observed for several laboratories when control cigarette yield models were fitted separately for each smoking regime (Appendix 7, Tables 2 – 4). For example, significantly improved control cigarette yield models for three of the four laboratories summarized in Table 15 (Laboratories L5, L6 and R14) were found with individual regime models. As such, adjustment models based on all smoking regimes and individual regimes were applied to all observed smoke yields (Appendix 7, Tables 5 – 7) prior to developing correlation models for smoke yields between ISO and representative alternative smoking regimes. For each endpoint, means observed at each laboratory were adjusted by subtracting the intercept and dividing by the slope of the model fit for that laboratory. This adjusted value is the grand mean that would have been produced if each product had been tested in all participating laboratories, and thus has the effect of removing laboratory differences.

Figure 6. Laboratory #9 Control Cigarette NFDPM Yields (Regimes 1 – 3) vs. Grand Mean Yields for All Laboratories

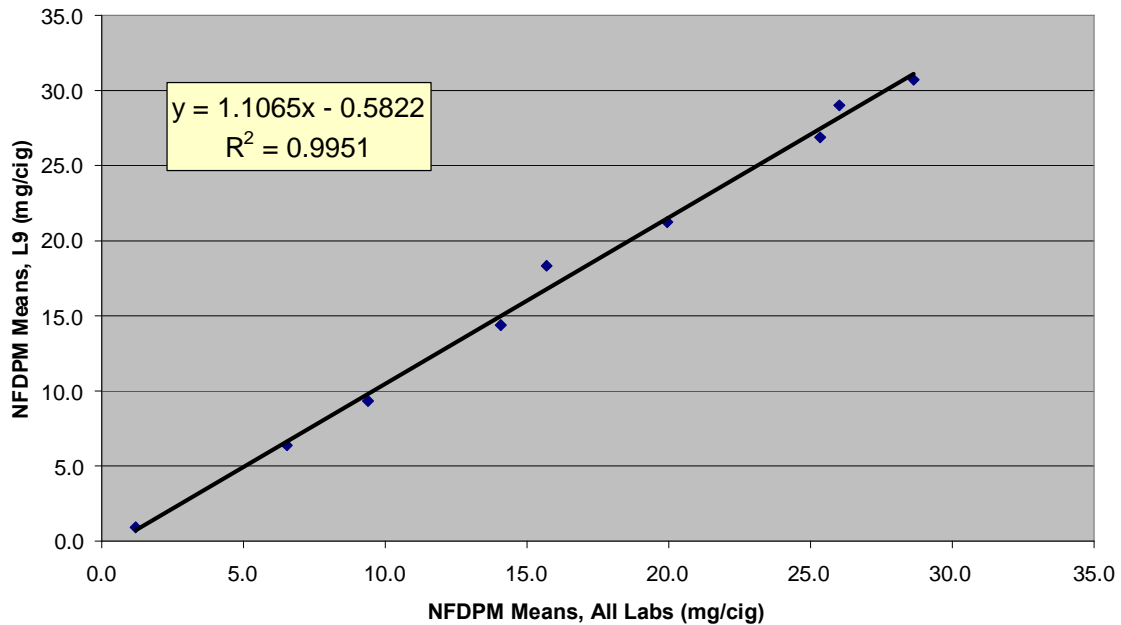


Table 15. Example of Control Cigarette NFDPM Adjustment Models for Laboratories Evaluating a Common Product Group

Model	Slope	Intercept	R ²
Laboratory L5			
Overall Model (All Regimes)	0.8814	0.2955	0.9817
Regime 1	1.0753	-0.2458	0.9998
Regime 2	0.9430	-1.2624	1.0000
Regime 3	0.9971	-2.9739	0.9976
Laboratory L6			
Overall Model (All Regimes)	0.8698	0.1486	0.9762
Regime 1	1.0403	-0.0730	0.9985
Regime 2	0.9489	-1.7139	0.9991
Regime 3	1.0334	-4.3683	0.9951
Laboratory R10			
Overall Model (All Regimes)	0.9776	-0.1234	0.9968
Regime 1	0.9193	0.3033	1.0000
Regime 2	0.9623	0.3189	0.9984
Regime 3	1.0712	-2.4451	0.9942
Laboratory R14			
Overall Model (All Regimes)	1.0427	0.1115	0.9974
Regime 1	0.9563	0.3382	0.9997
Regime 2	1.0043	1.1087	1.0000
Regime 3	1.0286	0.5887	1.0000

Evaluate Precision. Means, repeatability standard deviation and reproducibility standard deviation estimates to describe the test method capability for each type of smoking machine based on the three control cigarettes common to all laboratories in the Phase 2 study are summarized in Appendix 7, Tables 11 – 13. The variability among replicates run under controlled conditions in the same laboratory (s_r) and the variability among replicates run at different laboratories (s_R) were comparable for Phase 1 and Phase 2 control cigarette NFDPM, nicotine and CO measurements. While differences in both repeatability and reproducibility were observed between the two studies, trends suggesting a consistent increase or decrease from Phase 1 to Phase 2 were not observed. Comparison of Phase 2 study repeatability standard deviation and reproducibility standard deviation estimates to the Phase 1 functional relationships that relate repeatability and reproducibility standard deviations to the sample mean level when combining results from all smoking regimes and for all Phase 1 test products also demonstrate comparable analysis precision for the two studies (Appendix 7, Figures 1 –

30). One notable difference between the two studies concerns the reproducibility standard deviation for the ASM 500 smoking machine, which was generally greater in the Phase 2 study than in the Phase 1 study.

Develop Correlation Models. In order to develop correlation models for “tar”, nicotine and CO between the ISO and representative alternative smoking regimes, two factors were first considered: (a) the effect of potential adjustments to the originally observed data based on control cigarette yields and (b) the scope of the cigarette brands styles included as the basis for establishing functional relationships. A discussion of each of these concepts follows.

Potential Adjustments to the Data. Phase 2 study data were evaluated with and without adjustment to the data based on observed control cigarette yields. Correlation models for smoke yields between ISO and representative alternative smoking regimes were evaluated: (1) with no adjustment to the data, (2) with adjustment based on control cigarette yields at all three smoking regimes simultaneously (“All-Regimes-Adjusted”) and (3) with adjustment based on control product yields at each individual smoking regime (“Regime-Adjusted”) for the specific laboratory.

Adjustments based on the control cigarettes did eliminate potential interlaboratory biases caused by smoking machine type or other unique laboratory factors, with Regime-Adjusted data eliminating the greatest extent of bias. This effect is illustrated for the European brands group in Figures 7 – 9 (Regime 2 NFDPM yields) and Figures 10 – 12 (Regime #3 NFDPM yields). Significant differences are observed in the functional relationships found for the individual laboratories testing the European brands group when the data are evaluated without adjustment (Figures 7 and 10). While the All-Regimes Adjusted data eliminates some of the biases observed between the laboratories, the Regime-Adjusted data eliminates the greatest extent. With Regime-Adjusted data, NFDPM yields for each cigarette tend to cluster together and the most consistent regression results are observed for the four laboratories.

Statistical analysis results for each product group based on observed data, All Regimes-Adjusted data and Regime-Adjusted data are summarized in Appendix 7, Tables 8 – 10. In these tables the “p: multiple lines” statistic tests whether a multi-line model (i.e., lab by lab) reduces the error sum of squares as compared to a single line based on all labs. When $p < 0.05$, a multi-laboratory model significantly improves the fit. If adjustments to the data based on control cigarette yields reduce interlaboratory biases, then fewer incidences of $p < 0.05$ should be observed when adjustment is applied. This is the case, with the fewest incidences of $p < 0.05$ observed for Regime-Adjusted data.

The overall effect from data adjustment is evident from functional relationships based on all products tested in all product groups (Figures 13 – 18), with the least amount of variability in the data and the greatest R^2 values observed for Regime-Adjusted data. As such, functional relationship examples summarized in the tables below reflect Regime-Adjusted data.

Figure 7. Regime #2 vs. Regime #1 NFDPM Yields – No Adjustment

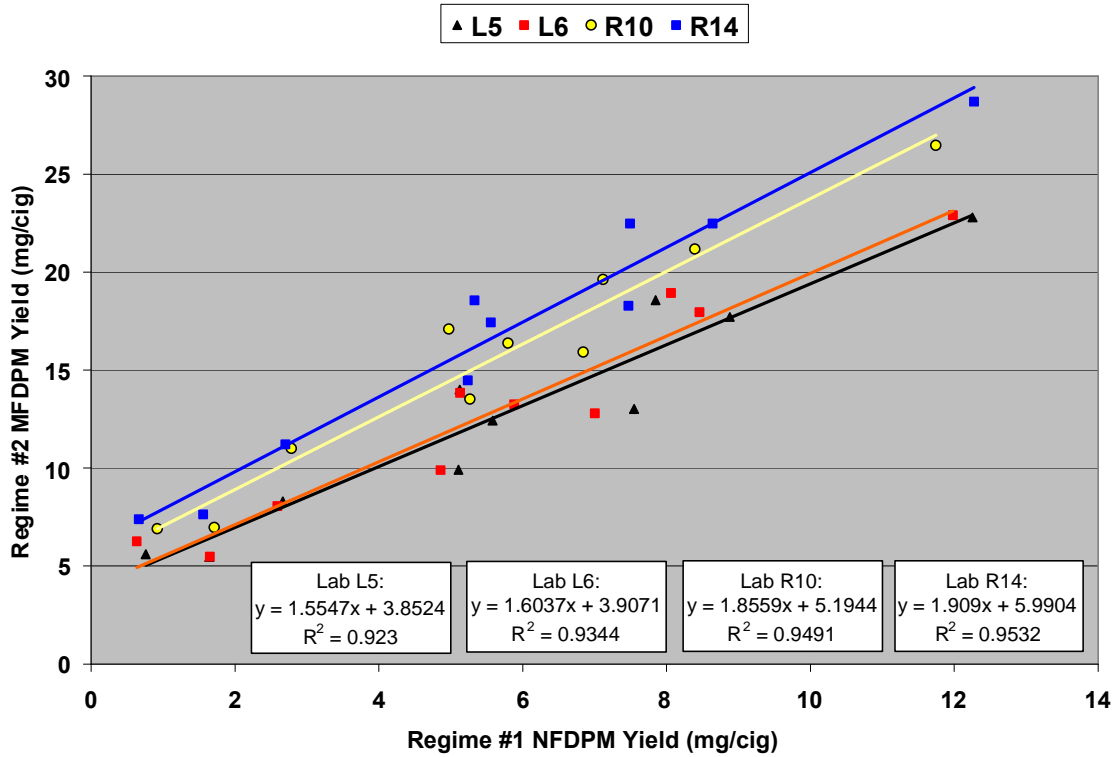


Figure 8. Regime #2 vs. Regime #1 NFDPM Yields - Adjusted by All Regimes Model

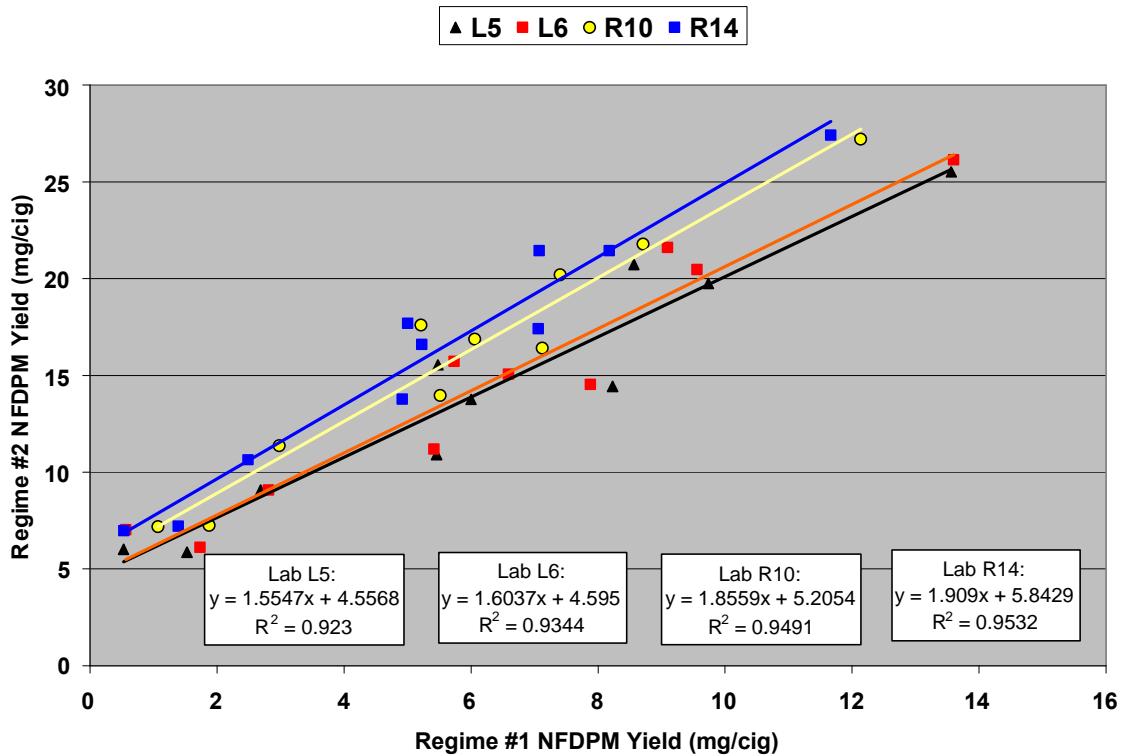


Figure 9. Regime #2 vs. Regime #1 NFDPM Yields - Adjusted by Individual Regime Models

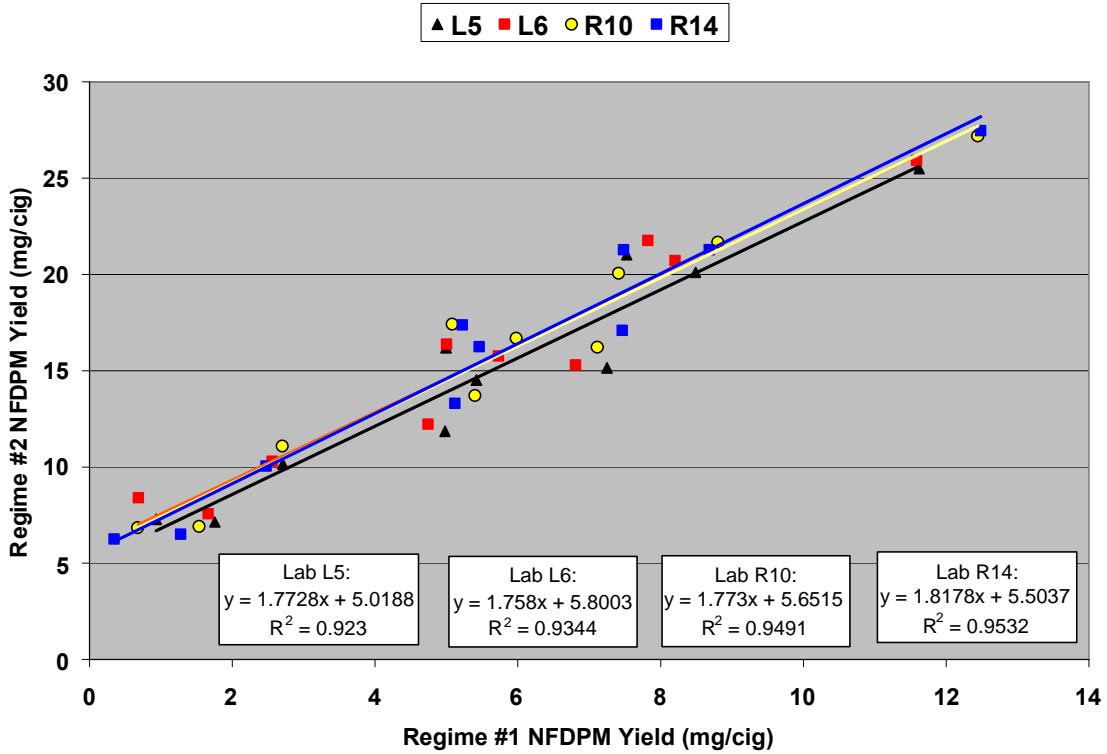


Figure 10. Regime #3 vs. Regime #1 NFDPM Yields – No Adjustment

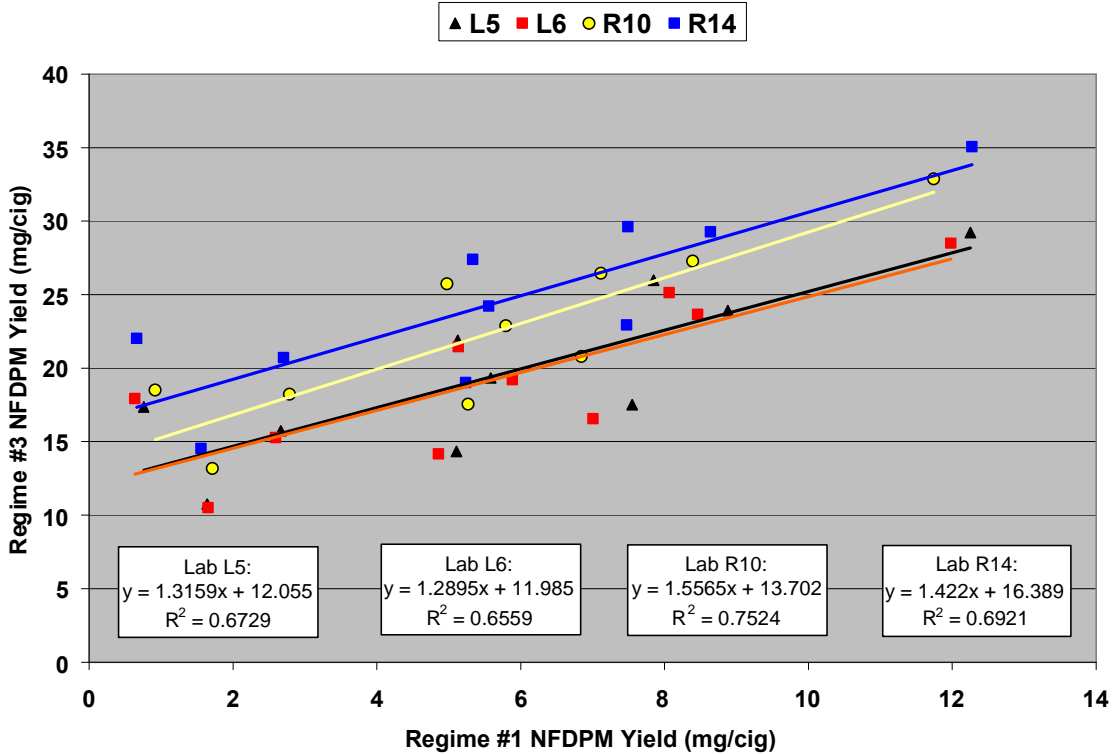


Figure 11. Regime #3 vs. Regime #1 NFDPM Yields - Adjusted by All Regimes Model

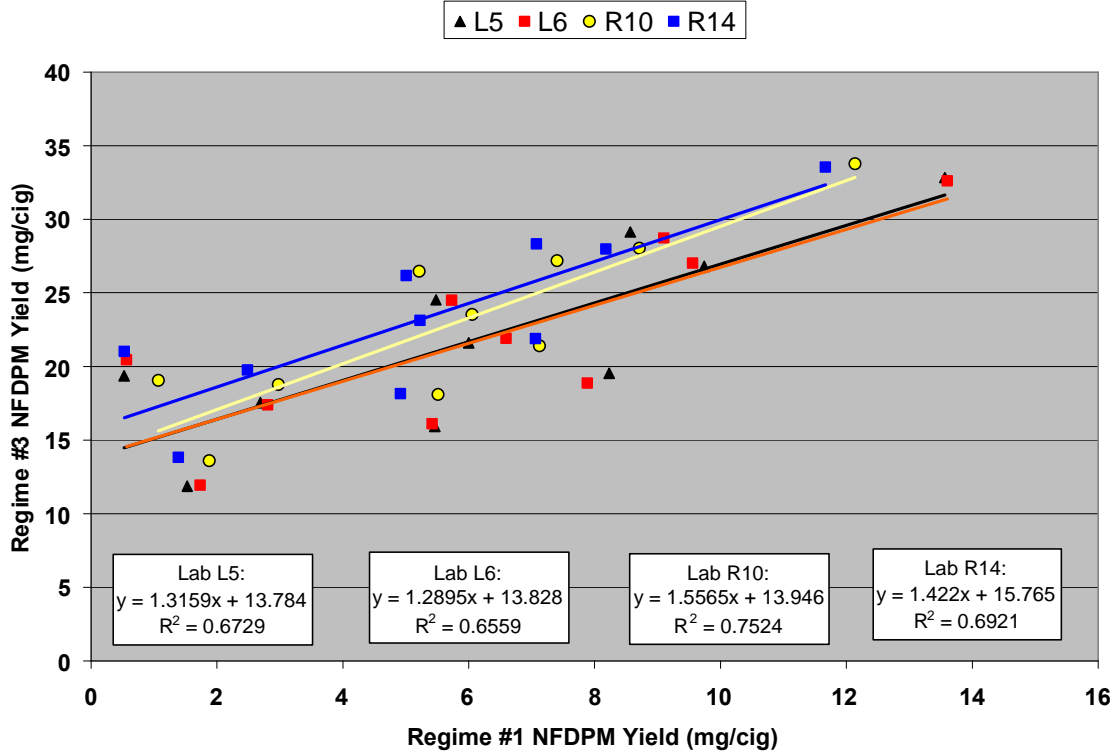


Figure 12. Regime #3 vs. Regime #1 NFDPM Yields - Adjusted by Individual Regime Models

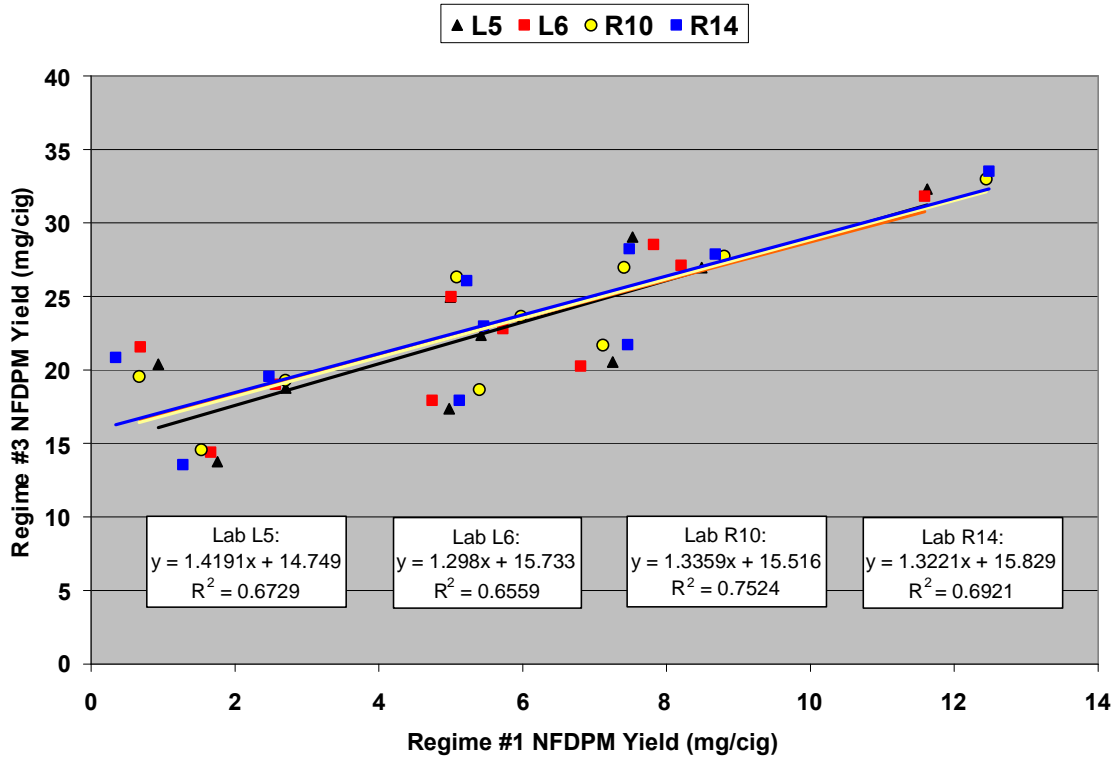


Figure 13. Regime #2 vs. Regime #1 NFDPM Yields, All Cigarettes - No Adjustment

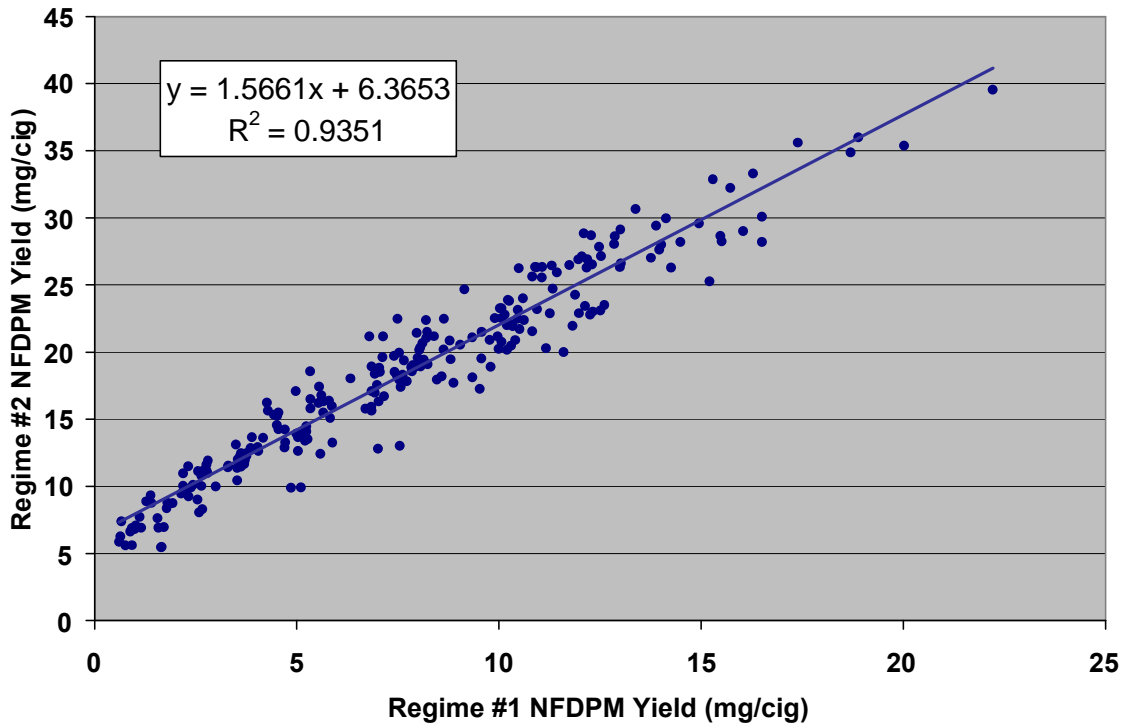


Figure 14. Regime #2 vs. Regime #1 NFDPM Yields, All Cigarettes – All Regimes-Adjusted

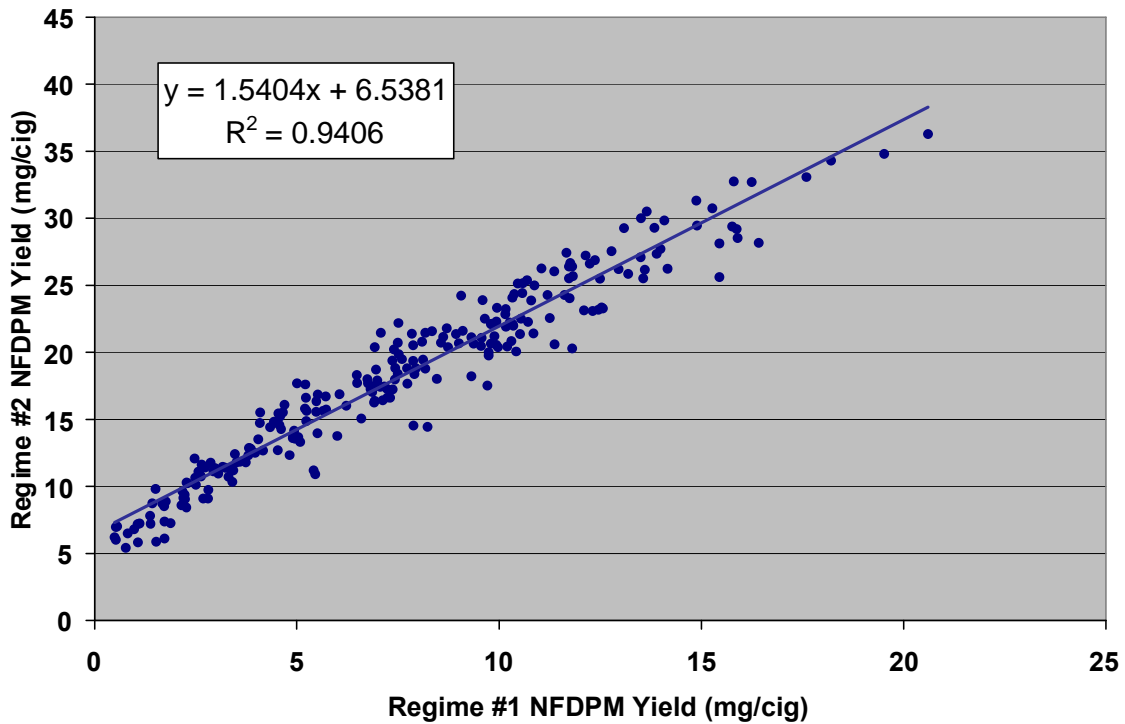


Figure 15. Regime #2 vs. Regime #1 NFDPM Yields, All Cigarettes – Regime-Adjusted

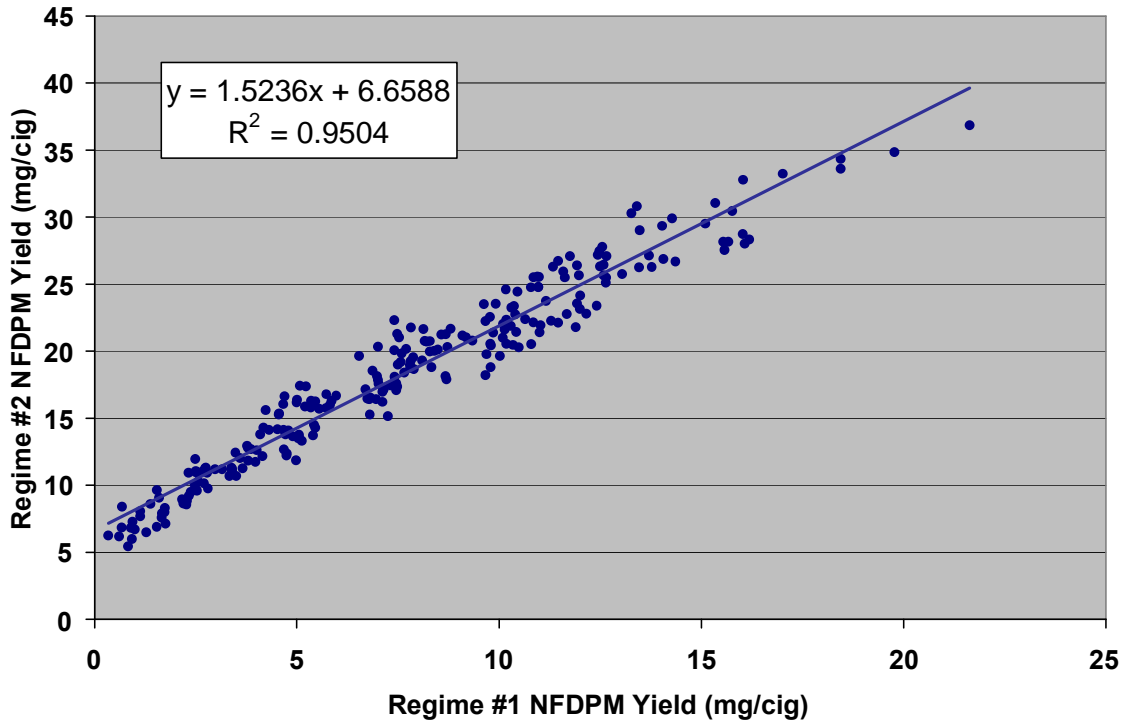


Figure 16. Regime #3 vs. Regime #1 NFDPM Yields, All Cigarettes - No Adjustment

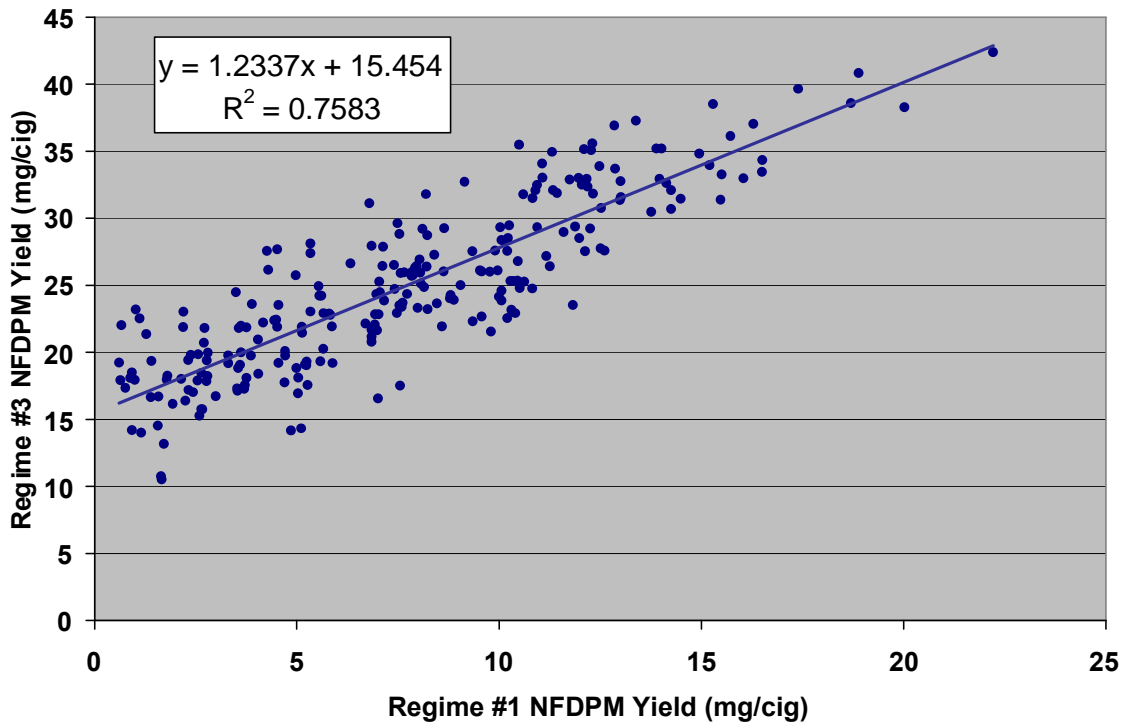


Figure 17. Regime #3 vs. Regime #1 NFDPM Yields, All Cigarettes – All Regimes-Adjusted

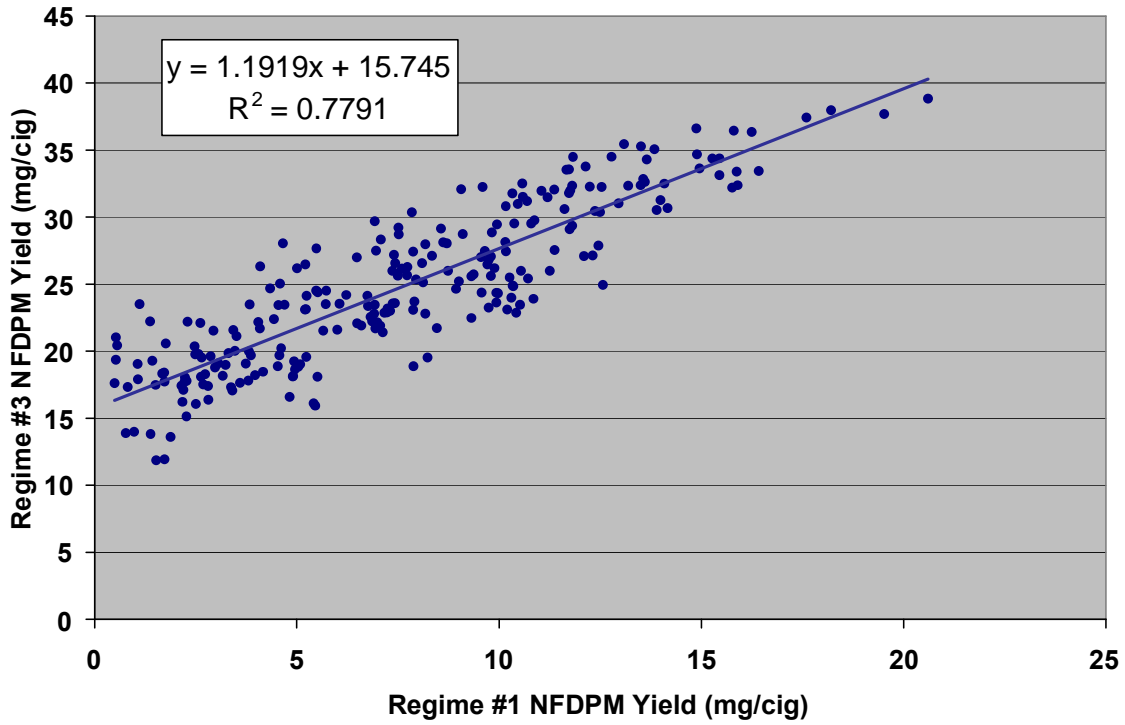
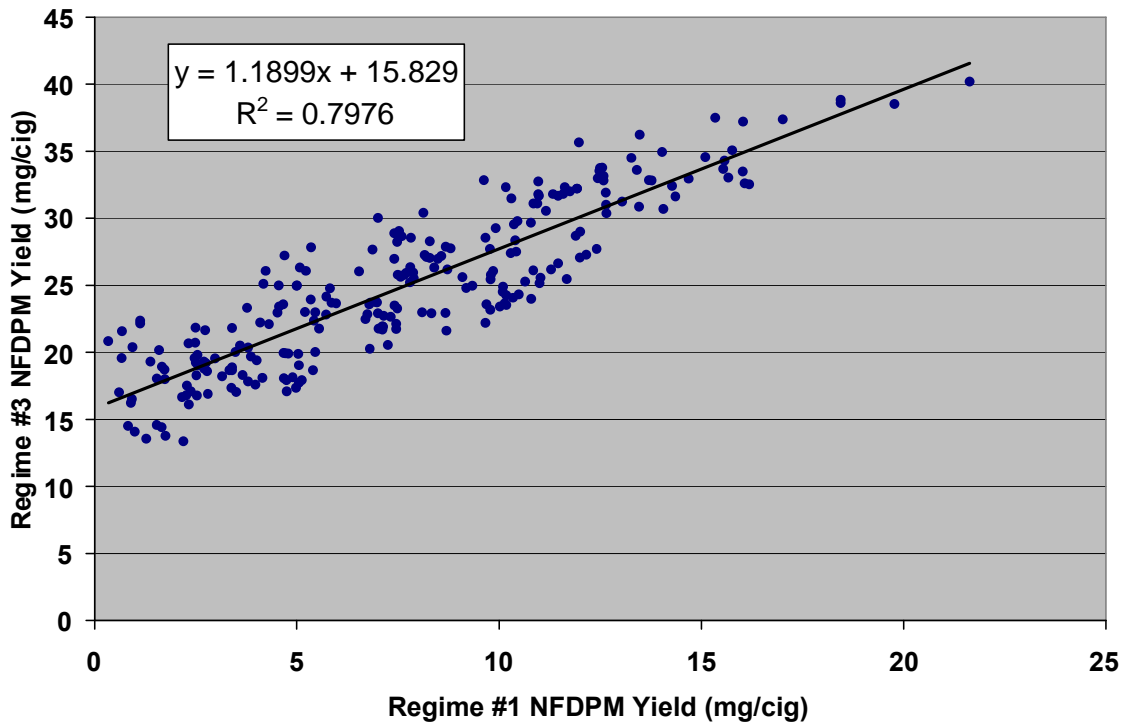


Figure 18. Regime #3 vs. Regime #1 NFDPM Yields, All Cigarettes – Regime-Adjusted



Cigarette Brand Styles Used to Establish Functional Relationships. After adjustment for potential laboratory biases, Phase 2 study data were evaluated in a number of ways. First, correlation models for ‘tar’, nicotine and CO smoke yields between ISO and representative alternative smoking regimes (“Massachusetts” and Canadian “Intense”) were compared using a linear model. Tables 16 - 18 summarizes the “global” models (i.e., in each case, a single, grand model for the ~ 90 cigarette brand styles tested from around the world) obtained for NFDPM, nicotine and CO. “Stronger” correlations with the ISO smoking regime were generally observed for Regime #2 than for Regime #3. “Stronger” correlations were also generally observed for ‘tar’ and nicotine than for CO.

Table 16. NFDPM Functional Relationships Based on All Products – Linear Models Relating Either Regime #2 or Regime #3 to the ISO Smoking Regime

<u>Smoking Regime</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Regime #2	1.5236	6.6588	0.9504
Regime #3	1.1899	15.829	0.7976
<u>NFDPM Yield Range Observed (mg/cig)</u>			
<u>Regime</u>	<u>Minimum</u>	<u>Maximum</u>	
Regime #1	~1	~22	
Regime #2	~ 5	~ 35	
Regime #3	~ 13	~ 40	

Table 17. Nicotine Functional Relationships Based on All Products – Linear Models Relating Either Regime #2 or Regime #3 to ISO Smoking Regime

<u>Smoking Regime</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Regime #2	1.5612	0.4434	0.9390
Regime #3	1.4111	0.8994	0.7632
<u>Nicotine Yield Range Observed (mg/cig)</u>			
<u>Regime</u>	<u>Minimum</u>	<u>Maximum</u>	
Regime #1	~ 0.1	~ 1.7	
Regime #2	~ 0.4	~ 3.3	
Regime #3	~ 0.5	~ 3.5	

Table 18. CO Functional Relationships Based on All Products – Linear Models Relating Either Regime #2 or Regime #3 to ISO Smoking Regime

<u>Smoking Regime</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Regime #2	1.1647	9.7471	0.8717
Regime #3	0.5346	22.1200	0.2978
<u>CO Yield Range Observed (mg/cig)</u>			
<u>Regime</u>	<u>Minimum</u>	<u>Maximum</u>	
Regime #1	~ 1	~ 17	
Regime #2	~ 7	~ 29	
Regime #3	~ 10	~ 30	

The quality of the functional relationships when results for all brands studied serve as the basis for regression analysis can be assessed by comparing yield values predicted from the functional relationships with measured yield values (Figures 19 – 22). Findings from such a comparison include:

1. A difference of 3 mg, or less, is observed between Regime #2 NFDPM yields predicted from Regime #1 yields and measured Regime #2 yields for more than 90% of the brands tested.
2. A difference of 3 mg, or less, is observed between Regime #3 NFDPM yields predicted from Regime #1 yields and measured Regime #3 yields for approximately 75% of the brands tested. A difference of 5 mg, or less, was observed for more than 90% of the brands tested.
3. A difference of 0.3 mg, or less, is observed between Regime #2 nicotine yields predicted from Regime #1 yields and measured Regime #2 yields for more than 90% of the brands tested.
4. A difference of 0.3 mg, or less, is observed between Regime #3 nicotine yields predicted from Regime #1 yields and measured Regime #3 yields for approximately 75% of the brands tested. A difference of 0.5 mg, or less, was observed for more than 90% of the brands tested.
5. A difference of 3 mg, or less, is observed between Regime #2 CO yields predicted from Regime #1 yields and measured Regime #2 yields for more than 90% of the brands tested.
6. A difference of 3 mg, or less, is observed between Regime #3 NFDPM yields predicted from Regime #1 yields and measured Regime #3 yields for approximately 75% of the brands tested. Further, a difference of 6 – 12 mg is observed for approximately 10% of the brands tested.

Figure 19. Difference between Phase 2 Study Measured and Predicted NFDPM Values

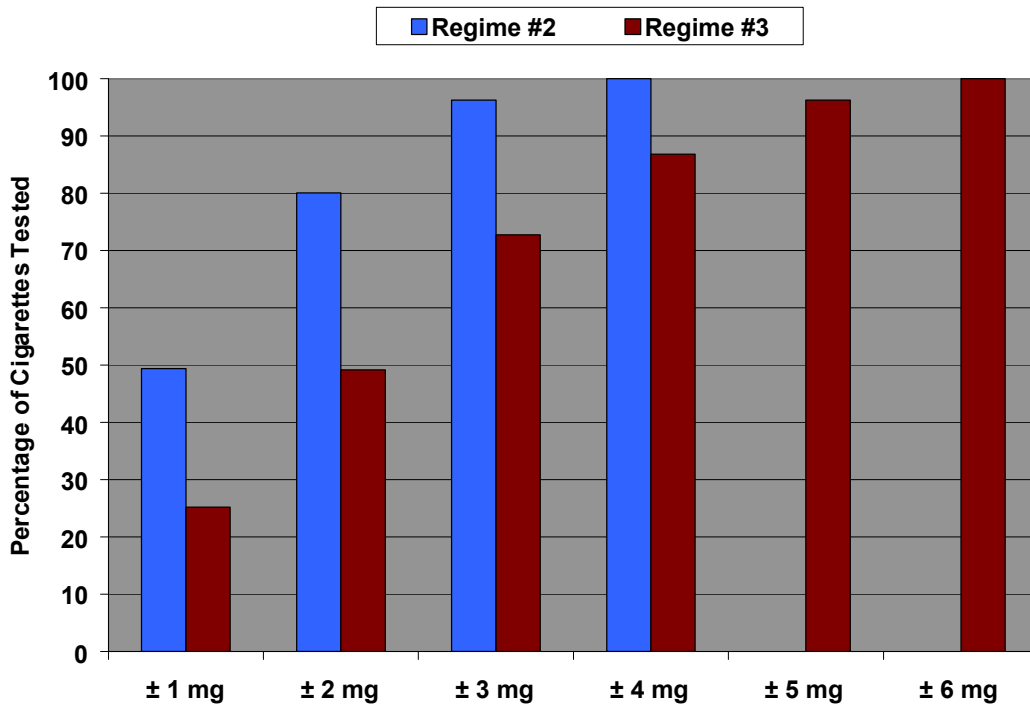


Figure 20. Difference between Phase 2 Study Measured and Predicted Nicotine Values

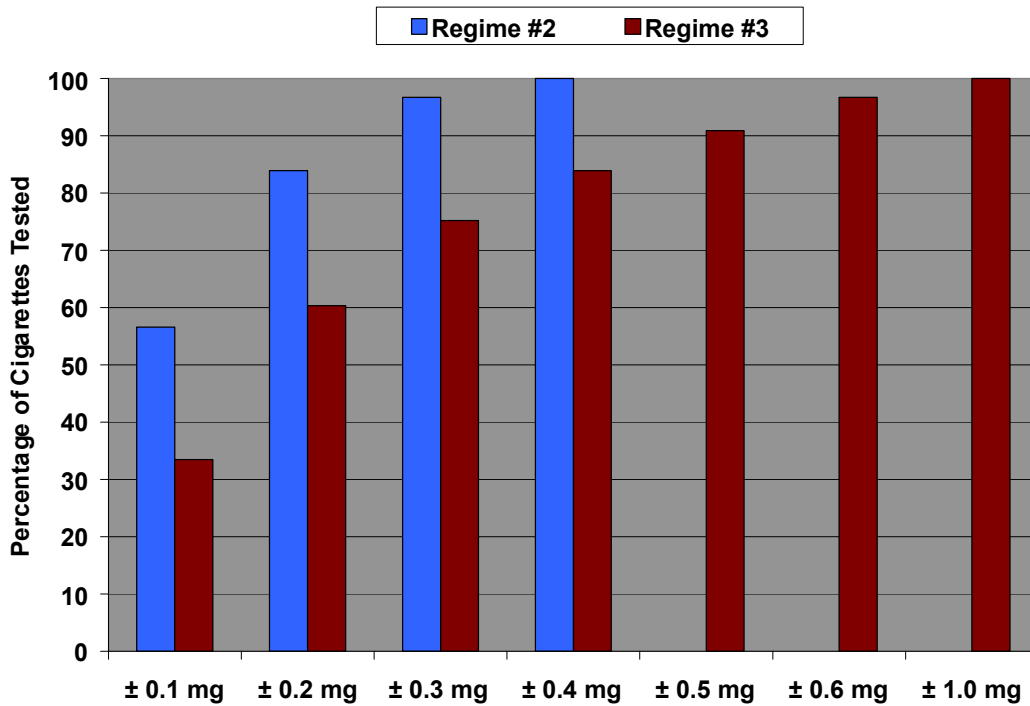
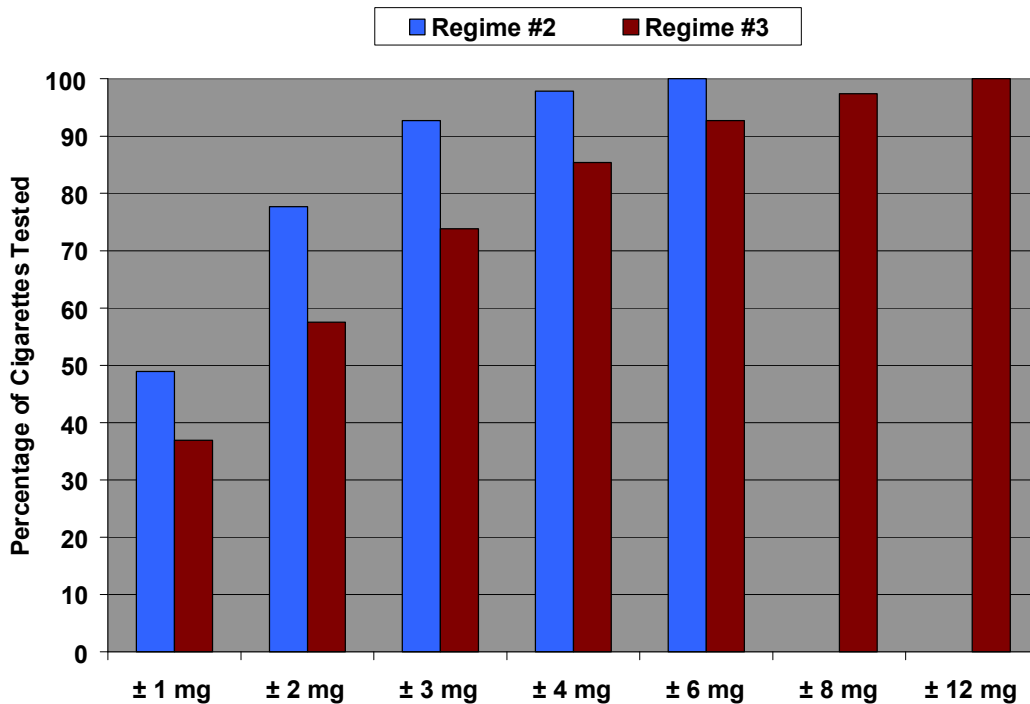


Figure 21. Difference between Phase 2 Study Measured and Predicted CO Values



Inspection of the Phase 2 study data by tobacco blend type (e.g., Figures 22 – 23) suggests that correlation models between ISO and alternative smoking regimes based on blend type may describe the data better than a single, grand model. Statistical analysis results (Appendix 7, Table 17) confirm that significant additional variation in the data is explained by individual blend group models compared to a single grand model inclusive of all cigarettes tested. Significant improvements are observed for all smoke yields (NFDPM, nicotine and CO). Correlation models based on blend type are summarized in Tables 19 – 24).

When correlation models are explored based on tobacco blend: (a) distinct functional relationships between ISO (Regime #1) nicotine and Regime #2 or Regime #3 nicotine were observed for some blends, (b) a tendency toward distinct slopes and intercepts (i.e., functional relationships) between ISO (Regime #1) NFDPM and Regime #2 or Regime #3 NFDPM were observed for some blends and (c) similar functional relationships between ISO (Regime #1) CO and either Regime #2 or Regime #3 CO were observed for different blends.

Similarly, inspection of Phase 2 study data by product group suggests that correlation models between ISO and alternative smoking regimes based on individual product groups may describe the data better than a single, grand model. Statistical analysis results (Appendix 7, Table 18) confirm that significant additional variation in the data is explained by individual product group models compared to a single grand model fit to all

cigarettes tested. Significant improvements are observed for all smoke yields (NFDPM, nicotine and CO). Correlation models based on blend type are summarized in Tables 25 – 30). When correlation models are explored by product group, distinct slope and intercept values are found for a number of product group NFDPM, nicotine and CO models.

Figure 22. Regime #2 vs. Regime #1 Nicotine Yields, All Cigarettes By Blend Type – Regime-Adjusted

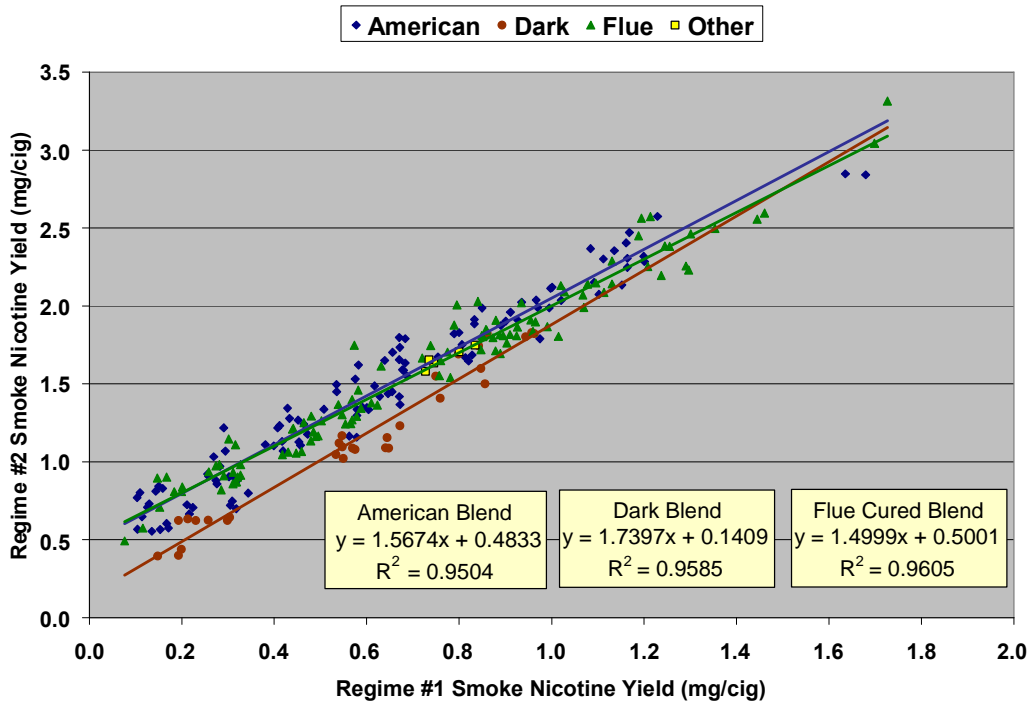


Figure 23. Regime #3 vs. Regime #1 Nicotine Yields, All Cigarettes By Blend Type – Regime-Adjusted

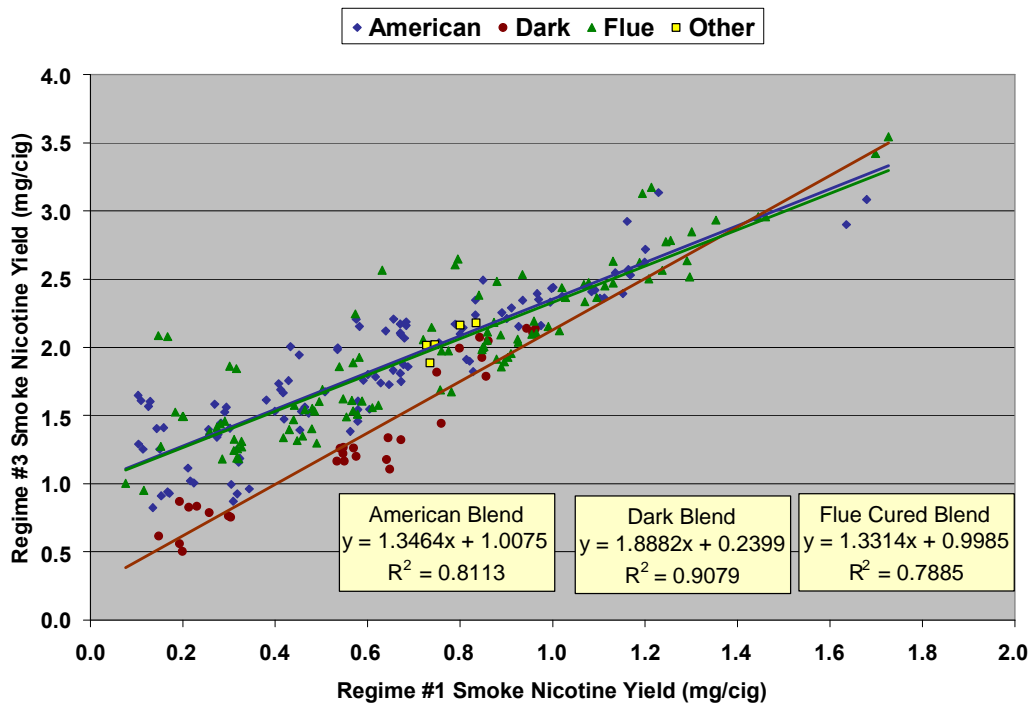


Table 19. NFDPM Functional Relationships Based on Products with Similar Tobacco Blends – Linear Models Relating Regime #2 to ISO Smoking Regime

<u>Blend</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
All	1.5236	6.6588	0.9504
<u>By Blend Type</u>			
American	1.5904	6.6553	0.9591
Flue Cured	1.4332	6.9218	0.9546
Dark	1.6564	5.3935	0.9593

Table 20. NFDPM Functional Relationships Based on Products with Similar Tobacco Blends – Linear Models Relating Regime #3 to ISO Smoking Regime

<u>Blend</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
All	1.1899	15.829	0.7976
<u>By Blend Type</u>			
American	1.2577	16.173	0.8490
Flue Cured	1.0853	15.954	0.7848
Dark	1.4444	13.086	0.7978

Table 21. Nicotine Functional Relationships Based on Products with Similar Tobacco Blends – Linear Models Relating Regime #2 to ISO Smoking Regime

<u>Blend</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
All	1.5612	0.4434	0.9390
<u>By Blend Type</u>			
American	1.5674	0.4833	0.9504
Flue Cured	1.4999	0.5001	0.9605
Dark	1.7397	0.1409	0.9585

Table 22. Nicotine Functional Relationships Based on Products with Similar Tobacco Blends – Linear Models Relating Regime #3 to ISO Smoking Regime

<u>Blend</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
All	1.4111	0.8994	0.7632
<u>By Blend Type</u>			
American	1.3464	1.0075	0.8113
Flue Cured	1.3314	0.9985	0.7885
Dark	1.8882	0.2399	0.9079

Table 23. CO Functional Relationships Based on Products with Similar Tobacco Blends – Linear Models Relating Regime #2 to ISO Smoking Regime

<u>Blend</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
All	1.1647	9.7471	0.8717
<u>By Blend Type</u>			
American	1.1818	9.9377	0.8570
Flue Cured	1.1484	9.4624	0.8878
Dark	1.2352	9.3487	0.9267

Table 24. CO Functional Relationships Based on Products with Similar Tobacco Blends – Linear Models Relating Regime #3 to ISO Smoking Regime

<u>Blend</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
All	0.5346	22.1200	0.2978
<u>By Blend Type</u>			
American	0.6289	22.0120	0.3187
Flue Cured	0.4503	22.2030	0.3359
Dark	0.6434	21.0080	0.3082

Table 25. NFDPM Functional Relationships Based on Product Groups – Linear Models Relating Regime #2 to ISO Smoking Regime

<u>Product Group</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Ad Hoc	1.5732	5.9270	0.9764
American Blend	1.7822	5.4837	0.9385
Canadian Brands	1.2537	8.4001	0.9450
Dark	1.6564	5.3936	0.9593
European Brands	1.6665	6.5810	0.9434
European Flue Cured	1.6541	5.6695	0.9676
Japan Domestic/Other	1.3871	7.1874	0.9635
UK Benchmark	1.4055	7.1007	0.9442
U. S. Brands	1.5285	7.7135	0.9693

Table 26. NFDPM Functional Relationships Based on Product Groups – Linear Models Relating Regime #3 to ISO Smoking Regime

<u>Product Group</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Ad Hoc	1.4009	14.095	0.8968
American Blend	1.3422	15.466	0.6918
Canadian Brands	0.6794	21.035	0.7266
Dark	1.4444	13.087	0.7978
European Brands	1.4774	14.968	0.7733
European Flue Cured	1.4032	13.752	0.8497
Japan Domestic/Other	1.1249	15.384	0.8607
UK Benchmark	0.7461	17.667	0.7068
U. S. Brands	1.1382	18.089	0.9196

Table 27. Nicotine Functional Relationships Based on Product Groups – Linear Models Relating Regime #2 to ISO Smoking Regime

<u>Product Group</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Ad Hoc	1.5360	0.4657	0.9806
American Blend	1.7289	0.3959	0.9074
Canadian Brands	1.2379	0.7900	0.9515
Dark	1.7398	0.1409	0.9585
European Brands	1.7112	0.4269	0.9743
European Flue Cured	1.6846	0.3694	0.9830
Japan Domestic/Other	1.5100	0.4352	0.9824
UK Benchmark	1.3896	0.5779	0.9457
U. S. Brands	1.4320	0.6103	0.9600

Table 28. Nicotine Functional Relationships Based on Product Groups – Linear Models Relating Regime #3 to ISO Smoking Regime

<u>Product Group</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Ad Hoc	1.3104	1.0034	0.9626
American Blend	1.4612	0.9330	0.6075
Canadian Brands	0.6582	1.8549	0.6306
Dark	1.8882	0.2399	0.9079
European Brands	1.6132	0.9346	0.8195
European Flue Cured	1.6479	0.7414	0.9241
Japan Domestic/Other	1.4762	0.8109	0.9506
UK Benchmark	0.8402	1.2483	0.6417
U. S. Brands	1.2047	1.1178	0.8850

Table 29. CO Functional Relationships Based on Product Groups – Linear Models Relating Regime #2 to ISO Smoking Regime

<u>Product Group</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Ad Hoc	1.2294	8.2596	0.8764
American Blend	1.3457	9.1623	0.9326
Canadian Brands	1.1513	8.8665	0.9296
Dark	1.2352	9.3487	0.9267
European Brands	1.4043	7.7753	0.8584
European Flue Cured	1.3446	8.3112	0.9063
Japan Domestic/Other	0.9632	10.5195	0.9688
UK Benchmark	1.2336	9.2347	0.8740
U. S. Brands	0.9129	13.3458	0.8228

Table 30. CO Functional Relationships Based on Product Groups – Linear Models Relating Regime #3 to ISO Smoking Regime

<u>Product Group</u>	<u>Slope</u>	<u>Intercept</u>	<u>R²</u>
Ad Hoc	0.5553	20.5811	0.2227
American Blend	0.8356	20.8692	0.6325
Canadian Brands	0.3529	24.4471	0.3643
Dark	0.6434	21.0077	0.3082
European Brands	0.9980	18.7667	0.2647
European Flue Cured	0.5491	21.2891	0.4295
Japan Domestic/Other	0.4790	21.4826	0.7031
UK Benchmark	0.4713	21.4839	0.2317
U. S. Brands	0.2920	26.9364	0.1179

Conclusion from Phase 2 Study. The Phase 2 study was successful in generalizing the results from the Phase 1 study, by expanding the breadth of cigarette designs studied. A comprehensive study applying alternative smoking regimes to approximately ninety cigarette brand styles from various regions of the world, with numerous designs and a variety of tobacco blends has been completed, broadening the scope of cigarette products evaluated in the first phase of the ASR task force work.

The ‘tar’, nicotine and CO yield data obtained from the study provide the basis for correlation models between ISO smoke yields and representative alternative smoking regime smoke yields, when such correlations exist. When correlation models between ISO and representative alternative smoking regimes were compared for the brands studied, “stronger” correlations were generally observed for Regime #2 than for Regime #3. “Stronger” correlations were generally observed for ‘tar’ and nicotine than for CO (An “adequate” functional relationship was not observed between ISO (Regime #1) CO yields and Regime #3 CO yields based on the cigarettes studied). Also, blend specific models improved the quality of the correlation models, as did models based on specific product groups.

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**Appendix 1. Participating
Laboratories and Chronology of
Task Force Meetings**

Appendix 1, Table 1. Summary of ASR Task Force Meetings

Meeting Date	Location	Host	Key Activities
September 19, 2000	London, England	Dr. Richard Baker, British American Tobacco Co.	<ul style="list-style-type: none"> • Provided task force charge according to SC mandate • Established technical objectives • Reviewed prior studies related to objectives • Reached consensus regarding smoking machine puffing regimens for study • Developed working plan for Phase 1 testing (ring trial)
May 30, 2001	Paris, France	Yves Saint-Jalm, Altadis	<ul style="list-style-type: none"> • Discussed technical challenges encountered in Phase 1 Study • Reviewed available Phase 1 study results (19 data sets) • Multiple linear regression models presented by P. Case
February 12, 2002	Geneva, Switzerland	Dr. Dimitri Parthenopolous, Philip Morris International	<ul style="list-style-type: none"> • Reviewed Phase 1 study final results and statistical analysis <ul style="list-style-type: none"> ○ Compared smoking machine types ○ Evaluated repeatability (r) and reproducibility (R) ○ Reviewed functional relationships found between smoking regimes • Reviewed BAT study applying a statistical approach to predict yields • Reviewed prior studies that employed alternative smoking regimes and cigarettes from several geographical regions • Initiated Phase 2 Study Planning to address a broad geographical range of products

Appendix 1, Table 1 (cont.). Summary of ASR Task Force Meetings

<u>Meeting Date</u>	<u>Location</u>	<u>Host</u>	<u>Key Activities</u>
March 25, 2003	Paris, France	Yves Saint-Jalm, Altadis	<ul style="list-style-type: none"> • Phase 2 study results reviewed <ul style="list-style-type: none"> ○ Reviewed “monitor cigarettes” (cig. smoked in all labs) ○ Reviewed smoking machine comparisons ○ Discussed potential adjustments to smoke yield data to correct for machine type and other interlaboratory differences ○ Reviewed functional relationships relating results from different smoking regimes for nine product groups

Appendix 1, Table 2. ASR Task Force Participants

			Data Set(s) Provided for:	
Company	Principal Investigator(s)	Smoking Machine(s)	Study #1 (Phase 1)	Study #2 (Phase 2)
Altadis	Yves Saint-Jalm	RM20	X	X
Arista Laboratories	Alexandra Martin	KC Auto / Hawktech	X	X
Austria Tabak	Jutta Muller, Hubert Klus	RM200 with kit	X	X
British American Tobacco	Paul Case	SM400	X	X
Baumgartner	Bertrand Moullet	RM20		X
Borgwaldt Technik GmbH	Bruno Kluss	RM200	X	X
Ente Tabacchi Italiani	Giovani Lionetti	ASM 500	X	X
Filtrona	Michael Taylor	ASM 500		X
Gallaher	Ron McKeivor	ASM 500	X	X
House of Prince	Hans Thomsen	RM20		
Imperial Tobacco UK	David Tuck, Steve Purkis	RM20	X	X
J.L. Tiedemanns Tobaksfabrik AS	Rolf Olsen	RM20		X
Japan Tobacco	Yuichi Fukai	RM200	X	X
JT International - Cologne	Uwe Thiel	RM200 with kit	X	X
Labstat International	Peter Joza	ASM 500	X	X
Lorillard	Jack Reid	ASM 500		X
LTR Industries	Christophe Le Moigne	RM20	X	X
Massalin Particulares Argentina	Sergio Paredes, Marcela Cagnone	ASM500	X	
Philip Morris USA	Brenda Strang	SM400	X	
PM International	Dimitri Parthenopoulos, Michel Rigaux	RM200 with kit	X	X
R. J. Reynolds Tobacco Co.	Mike Borgerding	SM400, ASM 500, RM20	X	X
Reemstsma	Henning Lutz	RM200	X	
Rothmans, Benson & Hedges Inc.	Steve Chapman, Paul Vassilakopoulos	SM400	X	X
Sampoerna Indonesia	Mochammad Sholichin	RM200		X
Tvornica Duhana Rovinj	Marica Pokrajac	RM20	X	X
Wattenspapier	Georg Astl	RM20	X	X

Appendix 2. Phase 1 Study Protocol

Test Protocol for the CORESTA Alternative Puffing Regime Task Force – Phase 1 Collaborative Study

1. Schedule

- Each supplier laboratory of test cigarettes shall ship two cartons of the same batch of test cigarettes to each participating laboratory by March 15, 2001. (Note: All participating laboratories will be responsible for purchasing CORESTA monitor cigarette CM3 for their own use. The supplier laboratories will provide all other cigarettes.)
- Cases and cartons shall be unpacked, and packages containing test cigarettes shall be mixed and sampled at random in each participating laboratory.
- Laboratories shall determine NFDPM, nicotine and CO in mainstream smoke of test cigarettes using three separate smoking regimes during March, April and early May 2001.
- All available test results shall be reported to Mike Borgerding, Steve Chapman and Yves St. Jalm by May 14, 2001.
- M. F. Borgerding and P. Case will compile test results and a preliminary analysis of data from the study will be reported to all participating laboratories at the Task Force Meeting scheduled for May 30, 2001.
- Next Task Force Meeting will be held on May 30, 2001 in Paris, France at the invitation of ALTADIS. The details will be decided by ALTADIS and each participating laboratory will be notified with an invitation letter.

2. Test Cigarettes

As shown in Table 1, ten (10) commercial test cigarettes different in “tar” (NFDPM) level and two reference cigarettes shall be used in the collaborative study.

Table 1. Test Cigarettes for Phase 1 Collaborative Study

Sample code	Sample name (Supplier)	NFDPM level (mg/cig.)	Butt length (mm)	Circumference (mm)
A	State Express	12	29	24.7
B	Marlboro KS	12	29	24.8
C	Gauloises Filtre	10	22	26.7
D	Camel Medium	9	35	24.9
E	B&H	8	29	24.7
F	Davidoff Light	7	33	24.8
G	Camel Light	6	35	24.9
H	R6 KS	4	33	24.8
I	Marlboro Ultra Light 100	3	39	24.6
J	Philip Morris One KS	1	35	24.8
K	Kentucky Reference Cig. 1R4F	9	35	
L	CORESTA Approved Monitor CM3	15~16	32	

3. Test Method

The CORESTA Alternative Puffing Regime Task Force – Phase 1 Collaborative Study shall be conducted in accordance with the ISO standards noted below. For smoking regimes other than the standard ISO regime, regulatory documents and/or analytical methods from Massachusetts and Canada, in addition to individual corporate analysis methods applied in the 1999 Massachusetts Benchmark Study, are provided for guidance.

ISO Standards (smoking regime: 35/60/2 w 0% VB)

ISO 3402 Tobacco and tobacco products - Atmosphere for conditioning and testing (4th edition, 1999-12-15)

ISO 3308 Routine analytical cigarette-smoking machine - Definitions and conditions (4th edition, 2000-04-15)

ISO 4387 Cigarettes - Determination of total and nicotine-free dry particulate matter using a routine analytical smoking machine (3rd edition, 2000-04-01)

ISO 10315 Cigarettes - Determination of nicotine in smoke condensates - Gas-chromatographic method (2nd edition, 2000-04-01)

ISO 10362-1 Cigarettes - Determination of water in smoke condensates - Part 1: Gas-chromatographic method (2nd edition, 1999-12-15)

ISO 8454 Cigarettes – Determination of carbon monoxide in the vapour phase of cigarette smoke – NDIR method (2nd edition, 1995-11-15)

Massachusetts Guidelines (smoking regime: 45/30/2 w 50% VB)

<http://www.state.ma.us/dph/mtcp/report/ingreg.htm#purpose>

Massachusetts Nicotine Reporting Regulation. 105 CMR: Department of Public Health 105 CMR 660.000 Cigarette and Smokeless Tobacco Products: Reports of Added Constituents and Nicotine Ratings 660.102: Cigarette Nicotine Yield Rating Reporting Requirements

Laboratory Test Methods Applied in the 1999 Massachusetts Benchmark Study (see attachments):

- **Brown & Williamson Tobacco Corporation – “Modified FTC Method for the Determination of Total Particulate Matter, Puff Number, Carbon Monoxide, Nicotine and “Tar” in Mainstream Smoke”**
- **Lorillard Tobacco Company – “Specifications for the Collection of Mainstream Smoke”**
- **Philip Morris USA – “Analysis of Mainstream Smoke for Nicotine and Water”**
- **R. J. Reynolds Tobacco Company – ‘Determination of “Tar,” Nicotine and Carbon Monoxide in Mainstream Smoke’**

Canadian Intense Guidelines (smoking regime: 55/30/2 w 100% VB)

<http://www.hc-sc.gc.ca/hppb/tobacco/ehd/tobacco/testmethods/pdf/Methods/100PDF-english/T-115e4.PDF> Health Canada ‘Official Method T-115, Determination of “Tar”, Nicotine and Carbon Monoxide in Mainstream Tobacco Smoke’ under conditions set out in section 14. (6) (b) (i.e. “Modified conditions”) of the current Canadian Federal Tobacco Reporting Regulations.

General Test Method Guidelines

As a general guide, experiments conducted under each puffing regime should be conducted according to ISO standard requirements. Exceptions to this guiding principle include the puffing parameters applied for the different smoking regimes, the cigarette vent blocking condition applied and the number of cigarettes smoked per sample. Please note that any operating conditions (a) not specified in the above ISO standards, or regarded as optional, (b) not specified in the Massachusetts or Canadian “methods” provided as guidelines and (c) any circumstances that may have influenced test results shall be noted in the test report.

Puffing parameter and vent blocking specifications for each puffing regime are summarized in Table 2. Figure 1 provides an example of vent blocking.

When vent blocking cigarettes, tape shall be applied from the tipping joint to the mouth end of the cigarette. For smoking regime #2 (pictured in Figure 1), 50% of the cigarette circumference shall be blocked with tape. Typically, this is accomplished by selecting tape of a width that corresponds to 50% \pm 1% of the cigarette circumference, applying the tape from the tipping joint to extend beyond the mouth end of the cigarette, rolling the tape around the filter circumference and then trimming at excess tape at the mouth end with scissors to complete the process. Three rolls of tape (each of a different width) will be provided to participating laboratories. Choice of tape for smoking regime #2 should be based on ranges found in Table 3.

Table 2. Smoking Regime Specifications

Smoking Regime	Puff Volume (cc)	Puff Frequency* (s)	Puff Duration (s)	Vent Blocking (%)	Description
1	35 \pm 0.3	60 \pm 0.5	2 \pm 0.2	0	ISO Standard
2	45 \pm 0.5	30 \pm 1	2 \pm 0.2	50 \pm 1	Massachusetts "Average"
3	55 \pm 0.5	30 \pm 1	2 \pm 0.2	100	Canada "Intense"
* Time from the start of one puff to the start of the next puff.					

Figure 1. Example of 50% Vent Blocking



Table 3. Choice of Tape Width for 50% Vent Blocking (Regime #2)

Tape Width Provided (mm)	Applicable to Cigarette Circumference Range (mm)
12.2	23.9 – 24.9
12.7	25.0 – 25.9
13.5	26.5 – 27.5

Major points to which special attention should be paid are as follows:

(1) Sampling, Conditioning and Selection of Test Cigarettes

- For each cigarette brand received, a composite of all packs shall be prepared for conditioning. If a substantial period of time is expected to occur between the times when cigarettes are smoked with the different smoking regimes, then three separate composite samples shall be prepared, one for each smoking regime.
- Test cigarettes sampled shall be conditioned more than 48 hours but less than 10 days under the following conditions.
 - Temperature: 22 ± 1 °C
 - Relative humidity: 60 ± 3 %
 Temperature and relative humidity of the conditioning enclosure shall be checked and recorded for every smoking run.
- Test cigarettes to be smoked for the determination of NFDPM, nicotine and CO shall be selected at random from the conditioned cigarettes. Any cigarettes with visible defects (e.g. air leak, badly filled, etc.) shall be discarded.

(2) Smoking Machine

A linear type smoking machine or a rotary type smoking machine shall be used, if available. If an automatic RM200 rotary smoking machine is used, the new modification kit proposed by Borgwaldt should be used when available. Report the presence or not of this modification kit.

(3) Number of Cigarettes Smoked

For smoking regime #1, either fifty (50) cigarettes or sixty (60) cigarettes shall be smoked for each test cigarette brand (depending upon smoking machine type) according to the smoking plan shown in Table 4 or 5. For a linear type smoking machine, 5 cigarettes shall be smoked per smoke trap.

For a rotary type smoking machine, 20 cigarettes shall be smoked per smoke trap.

For smoking regimes #2 and #3, thirty (30) cigarettes shall be smoked for each test cigarette brand according to the smoking plan shown in Table 4 or 5.

For a linear type smoking machine, 3 cigarettes shall be smoked per smoke trap.

For a rotary type smoking machine, 10 cigarettes shall be smoked per smoke trap.

(4) Smoking Plan

Table 4. Smoking plan for a 20-port linear type smoking machine

Day	Run No.	Smoking Port																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H
	2	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D
2	3	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L
	4	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I
3	5	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E
	6	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L	A

Table 5. Smoking plan for a rotary type smoking machine

Run No.	Sample code	Run No.	Sample code	Run No.	Sample code	Run No.	Sample code	Run No.	Sample code
1	A	9	I	17	F	25	C	33	K
2	B	10	J	18	G	26	D	34	L
3	C	11	K	19	H	27	E	35	A
4	D	12	L	20	I	28	F	36	B
5	E	13	B	21	J	29	G		
6	F	14	C	22	K	30	H		
7	G	15	D	23	L	31	I		
8	H	16	E	24	A	32	J		

(5) Cigarette Holder and Smoke Trap

Cigarette holder and smoke trap (filter assembly) defined by ISO 3308 shall be used.

(6) Butt Length

The butt length of each sample according to ISO 4387 is shown in Table 1.

(7) Air Velocity at the Cigarette Level

The mean air velocity at the reference position (see ISO 3308) shall lie in the range 200±30 mm/sec, with air velocity at each individual port in the range 200±50 mm/sec.

Air velocity should be checked, and adjusted within the above velocity if necessary, at least daily and recorded.

(8) Smoking Conditions

- Ambient conditions
 - Temperature 22 ± 2 °C
 - Relative humidity 60 ± 5 %
- Puff volume As specified in Table 2
- Puff duration As specified in Table 2
- Puff frequency As specified in Table 2

Temperature, relative humidity and atmospheric pressure (if determine CO) of the smoking environment shall be checked and recorded for every smoking run.

(9) Determination of TPM

The average amount of total particulate matter, TPM, for each smoke trap expressed in mg/cigarette shall be calculated as the increase in weight of the smoke trap before and after smoking.

Calculate the amount of TPM of each smoke trap in mg/cigarette to two decimals.

(10) Determination of Water and Nicotine

TPM collected on the glass fiber filter shall be dissolved in a solvent, and the water and nicotine content in this solution shall be determined by gas chromatograph in accordance with ISO 10362-1 and 10315, respectively. Calculate the water and nicotine content in TPM per cigarette in mg to two decimals.

(11) Calculation of Amount of NFDPM (Tar)

The amount of NFDPM for each smoke trap, expressed in mg/cigarette, is given by the equation;

$$\text{NFDPM} = \text{TPM} - N_i - W_a,$$

where,

TPM is the amount of TPM expressed in mg/cigarette (two decimals).

N_i is the nicotine content in TPM expressed in mg/cigarette (two decimals).

W_a is the water content in TPM expressed in mg/cigarette (two decimals).

Calculate the amount of NFDPM per cigarette, in mg to two decimals, for each smoke trap according to the above equation.

(12) Determination of CO

CO in the vapour phase of cigarette smoke shall be determined with a non-dispersive infrared (NDIR) analyzer calibrated for CO in accordance with ISO 8454. Calculate the amount of CO per cigarette, in mg to two decimals, for each smoke trap according to ISO 8454.

CO determination is encouraged, but it is optional.

4. Report of Test Results

Test results shall be reported electronically by floppy disk (3.5 inches/Windows/MS Excel) accompanied by printed copies of each

designated form. A floppy disk containing data sheets designated for each report and is enclosed with this protocol. Note: To facilitate rapid communication, electronic templates will also be e-mailed to each participating laboratory when e-mail is available. Also, please e-mail all results to borgerm@rjrt.com (M. F. Borgerding) as data becomes available.

Data Sheets for the CORESTA Alternative Puffing Regime Task Force –
Phase 1 Collaborative Study

Cover sheet

Sheet 1 (Regime #1): Equipment (ISO Smoking Condition)

Sheet 1 (Regime #2): Equipment (45/30/2 Smoking Condition)

Sheet 1 (Regime #3): Equipment (55/30/2 Smoking Condition)

Sheet 2L (Regime #1): Description of environmental conditions for a linear smoking machine

Sheet 2L (Regime #2): Description of environmental conditions for a linear smoking machine

Sheet 2L (Regime #3): Description of environmental conditions for a linear smoking machine

Sheet 2R (Regime #1): Description of environmental conditions for a rotary smoking machine

Sheet 2R (Regime #2): Description of environmental conditions for a rotary smoking machine

Sheet 2R (Regime #3): Description of environmental conditions for a rotary smoking machine

Sheet 3L(A) (Regime #1): Linear Test Results (Sample A)

Sheet 3L(A) (Regime #2): Linear Test Results (Sample A)

Sheet 3L(A) (Regime #3): Linear Test Results (Sample A)

Sheet 3L(B) (Regime #1): Linear Test Results (Sample B)

Sheet 3L(B) (Regime #2): Linear Test Results (Sample B)

Sheet 3L(B) (Regime #3): Linear Test Results (Sample B)

Sheet 3L(C) (Regime #1): Linear Test Results (Sample C)

Sheet 3L(C) (Regime #2): Linear Test Results (Sample C)

Sheet 3L(C) (Regime #3): Linear Test Results (Sample C)

Sheet 3L(D) (Regime #1): Linear Test Results (Sample D)

Sheet 3L(D) (Regime #2): Linear Test Results (Sample D)

Sheet 3L(D) (Regime #3): Linear Test Results (Sample D)

Sheet 3L(E) (Regime #1): Linear Test Results (Sample E)

Sheet 3L(E) (Regime #2): Linear Test Results (Sample E)

Sheet 3L(E) (Regime #3): Linear Test Results (Sample E)

Sheet 3L(F) (Regime #1): Linear Test Results (Sample F)

Sheet 3L(F) (Regime #2): Linear Test Results (Sample F)

Sheet 3L(F) (Regime #3): Linear Test Results (Sample F)

Sheet 3L(G) (Regime #1): Linear Test Results (Sample G)

Sheet 3L(G) (Regime #2): Linear Test Results (Sample G)

Sheet 3L(G) (Regime #3): Linear Test Results (Sample G)

Sheet 3L(H) (Regime #1): Linear Test Results (Sample H)

Sheet 3L(H) (Regime #2): Linear Test Results (Sample H)

Sheet 3L(H) (Regime #3): Linear Test Results (Sample H)

Sheet 3L(I) (Regime #1): Linear Test Results (Sample I)

Sheet 3L(I) (Regime #2): Linear Test Results (Sample I)
 Sheet 3L(I) (Regime #3): Linear Test Results (Sample I)
 Sheet 3L(J) (Regime #1): Linear Test Results (Sample J)
 Sheet 3L(J) (Regime #2): Linear Test Results (Sample J)
 Sheet 3L(J) (Regime #3): Linear Test Results (Sample J)
 Sheet 3L(K) (Regime #1): Linear Test Results (Sample K)
 Sheet 3L(K) (Regime #2): Linear Test Results (Sample K)
 Sheet 3L(K) (Regime #3): Linear Test Results (Sample K)
 Sheet 3L(L) (Regime #1): Linear Test Results (Sample L)
 Sheet 3L(L) (Regime #2): Linear Test Results (Sample L)
 Sheet 3L(L) (Regime #3): Linear Test Results (Sample L)
 Sheet 3R (Regime #1): Rotary Test Results
 Sheet 3R (Regime #2): Rotary Test Results
 Sheet 3R (Regime #3): Rotary Test Results

5. Notes for the CORESTA Alternative Puffing Regime Task Force – Phase 1 Collaborative Study

1. The study is considered a preliminary study.
2. A pre-test will be conducted for each smoking regime after smoking machines are adjusted to specifications for Regime #2 and Regime #3. It is recommended for linear smoking machines that ten ports of Kentucky reference cigarette 1R4F be smoked. It is recommended for rotary smoking machines that three samples of Kentucky reference cigarette 1R4F be smoked. When the preliminary experiment is completed, please e-mail all data to M. F. Borgerding (at borgerm@rjrt.com). Results from the pre-test will be shared with all participating laboratories, as they become available, to serve as a resource during the implementation phase of the study. Historical values obtained when smoking the 1R4F cigarette with Regime #2 and Regime #3 are summarized in Table 6. Regime #2 data are based on the determination of eighty ports worth of data (twenty ports per laboratory; four laboratories) from a “single composite” batch of product. Regime #3 data are based on results from a fifth laboratory over a two year period.

Table 6. Historical 1R4F Results

	Regime #2 (45/30/2 w 50% VB) Average \pm 1 SD	Regime #3 (55/30/2 w 100% VB) Average \pm 1 SD
“Tar” (mg/cig)	20.4 \pm 0.9	29.7 \pm 1.8
Nicotine (mg/cig)	1.60 \pm 0.07	1.87 \pm 0.11
CO (mg/cig)	24.7 \pm 1.4	30.9 \pm 2.0

3. Choice of the number of cigarettes smoked per smoke trap for each smoking regime applied in study and the number of replicate determinations mandated are based upon several factors, including: (a) available data regarding individual smoke trap collection capacity, (b) consideration of linear and rotary smoking machine design characteristics, (c) the fact that the fundamental purpose of the study is to compare aggregate results from multiple laboratories and cigarette types to evaluate the effect of different smoking regimes on smoke yields and (d) an attempt to maintain consistency when possible for different smoking machine types within a single smoking regime, as well as, consistency across smoking regimes for a single smoking machine type. These scientific considerations were also balanced against the practical consideration of a large study scope, i.e., three smoking regimes and twelve cigarette types in the study.

Data Sheet for the 1st CORESTA Alternative Smoking Regimes Task Force Collaborative Study

Laboratory name	
Person responsible for testing	
Address	
Tel	
Fax	
E-mail address	

Any laboratory that could not follow ISO standards for laboratory's own convenience is requested to specify the deviations from ISO standards (any operating conditions not specified in ISO standards) below.

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Sheet 1 Equipment - ISO Smoking Condition			
Laboratory name			
Description of Test Equipment Used			
Smoking machine Model/Manufacturer	Gas chromatograph Model/Manufacturer	Air flow meter Model/Manufacturer	NDIR analyzer Model/Manufacturer
Nicotine, Water & CO Analysis			
	Nicotine analysis	Water analysis	CO analysis
Column	J&W Scientific DB-WAX 2m x 0.18mm i.d., 0.3µm film thickness	Supleco Porapak Q 6 feet x 1/8" i.d. (80-100 mesh) Stainless Steel	
Internal standard			
Number of standards			
Concentration of standards			

Sheet 1 Equipment - 45/30/2 Smoking Condition			
Laboratory name			
Description of Test Equipment Used			
Smoking machine Model/Manufacturer	Gas chromatograph Model/Manufacturer	Air flow meter Model/Manufacturer	NDIR analyzer Model/Manufacturer
Nicotine, Water & CO Analysis			
	Nicotine analysis	Water analysis	CO analysis
Column			/
Internal standard			/
Number of standards			
Concentration of standards			

Sheet 1 Equipment - 55/30/2 Smoking Condition			
Laboratory name			
Description of Test Equipment Used			
Smoking machine Model/Manufacturer	Gas chromatograph Model/Manufacturer	Air flow meter Model/Manufacturer	NDIR analyzer Model/Manufacturer
Nicotine, Water & CO Analysis			
	Nicotine analysis	Water analysis	CO analysis
Column			/
Internal standard			/
Number of standards			
Concentration of standards			

Sheet 2L Environmental Conditions for a linear smoking machine - Regime #1							
	Laboratory name						
	Smoking machine						
Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
			(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa				
			If CO is tested, atmospheric pressure shall be measured and noted.				

Sheet 2L Environmental Conditions for a linear smoking machine - Regime #2							
	Laboratory name						
	Smoking machine						
Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
			(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa				
			If CO is tested, atmospheric pressure shall be measured and noted.				

Sheet 2L Environmental Conditions for a linear smoking machine - Regime #3							
	Laboratory name						
	Smoking machine						
Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
			(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa				
			If CO is tested, atmospheric pressure shall be measured and noted.				

Sheet 2R Environmental Cond. for a rotary smoking machine - Regime #1

Laboratory name							
Smoking machine		Rotary type					
Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
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32							
33							
34							
35							
36							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2R Environmental Cond. for a rotary smoking machine - Regime #2

Laboratory name							
Smoking machine				Rotary type			
Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2R Environmental Cond. for a rotary smoking machine - Regime #3

Laboratory name							
Smoking machine		Rotary type					
Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 3L(A) Linear Test Results (Sample A) - Regime #1

Laboratory name									
Smoking machine									
State Express							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	13								
2	5								
2	17								
3	9								
4	12								
5	4								
5	16								
6	8								
6	20								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(A) Linear Test Results (Sample A) - Regime #2

Laboratory name									
Smoking machine									
State Express							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	13								
2	5								
2	17								
3	9								
4	12								
5	4								
5	16								
6	8								
6	20								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(A) Linear Test Results (Sample A) - Regime #3

Laboratory name									
Smoking machine									
State Express							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	13								
2	5								
2	17								
3	9								
4	12								
5	4								
5	16								
6	8								
6	20								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(B) Linear Test Results (Sample B) - Regime #1

Laboratory name									
Smoking machine									
Marlboro KS							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	14								
2	6								
2	18								
3	10								
4	1								
4	13								
5	5								
5	17								
6	9								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(B) Linear Test Results (Sample B) - Regime #2

Laboratory name									
Smoking machine									
Marlboro KS							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	14								
2	6								
2	18								
3	10								
4	1								
4	13								
5	5								
5	17								
6	9								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(B) Linear Test Results (Sample B) - Regime #3

Laboratory name									
Smoking machine									
Marlboro KS							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	14								
2	6								
2	18								
3	10								
4	1								
4	13								
5	5								
5	17								
6	9								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(C) Linear Test Results (Sample C) - Regime #1

Laboratory name									
Smoking machine									
Gauloises Filtre							Butt length (mm)	22	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	15								
2	7								
2	19								
3	11								
4	2								
4	14								
5	6								
5	18								
6	10								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(C) Linear Test Results (Sample C) - Regime #2

Laboratory name									
Smoking machine									
Gauloises Filtre							Butt length (mm)	22	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	15								
2	7								
2	19								
3	11								
4	2								
4	14								
5	6								
5	18								
6	10								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(C) Linear Test Results (Sample C) - Regime #3

Laboratory name									
Smoking machine									
Gauloises Filtre							Butt length (mm)	22	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	15								
2	7								
2	19								
3	11								
4	2								
4	14								
5	6								
5	18								
6	10								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(D) Linear Test Results (Sample D) - Regime #1

Laboratory name									
Smoking machine									
Camel Medium							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
1	16								
2	8								
2	20								
3	12								
4	3								
4	15								
5	7								
5	19								
6	11								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(D) Linear Test Results (Sample D) - Regime #2

Laboratory name									
Smoking machine									
Camel Medium							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
1	16								
2	8								
2	20								
3	12								
4	3								
4	15								
5	7								
5	19								
6	11								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(D) Linear Test Results (Sample D) - Regime #3

Laboratory name									
Smoking machine									
Camel Medium							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
1	16								
2	8								
2	20								
3	12								
4	3								
4	15								
5	7								
5	19								
6	11								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(E) Linear Test Results (Sample E) - Regime #1

Laboratory name									
Smoking machine									
B&H							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
1	17								
2	9								
3	1								
3	13								
4	4								
4	16								
5	8								
5	20								
6	12								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(E) Linear Test Results (Sample E) - Regime #2

Laboratory name									
Smoking machine									
B&H							Butt length (mm)		29
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
1	17								
2	9								
3	1								
3	13								
4	4								
4	16								
5	8								
5	20								
6	12								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(E) Linear Test Results (Sample E) - Regime #3

Laboratory name									
Smoking machine									
B&H							Butt length (mm)	29	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
1	17								
2	9								
3	1								
3	13								
4	4								
4	16								
5	8								
5	20								
6	12								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(F) Linear Test Results (Sample F) - Regime #1

Laboratory name									
Smoking machine									
Davidoff Light							Butt length (mm)	33	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
1	18								
2	10								
3	2								
3	14								
4	5								
4	17								
5	9								
6	1								
6	13								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(F) Linear Test Results (Sample F) - Regime #2

Laboratory name									
Smoking machine									
Davidoff Light							Butt length (mm)	33	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
1	18								
2	10								
3	2								
3	14								
4	5								
4	17								
5	9								
6	1								
6	13								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(F) Linear Test Results (Sample F) - Regime #3

Laboratory name									
Smoking machine									
Davidoff Light							Butt length (mm)	33	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
1	18								
2	10								
3	2								
3	14								
4	5								
4	17								
5	9								
6	1								
6	13								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(G) Linear Test Results (Sample G) - Regime #1

Laboratory name									
Smoking machine									
Camel Light							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
1	19								
2	11								
3	3								
3	15								
4	6								
4	18								
5	10								
6	2								
6	14								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(G) Linear Test Results (Sample G) - Regime #2

Laboratory name									
Smoking machine									
Camel Light							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
1	19								
2	11								
3	3								
3	15								
4	6								
4	18								
5	10								
6	2								
6	14								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(G) Linear Test Results (Sample G) - Regime #3

Laboratory name									
Smoking machine									
Camel Light							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
1	19								
2	11								
3	3								
3	15								
4	6								
4	18								
5	10								
6	2								
6	14								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(H) Linear Test Results (Sample H) - Regime #1

Laboratory name									
Smoking machine									
R6 KS							Butt length (mm)	33	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
1	20								
2	12								
3	4								
3	16								
4	7								
4	19								
5	11								
6	3								
6	15								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(H) Linear Test Results (Sample H) - Regime #2

Laboratory name									
Smoking machine									
R6 KS							Butt length (mm)	33	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
1	20								
2	12								
3	4								
3	16								
4	7								
4	19								
5	11								
6	3								
6	15								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(H) Linear Test Results (Sample H) - Regime #3

Laboratory name									
Smoking machine									
R6 KS							Butt length (mm)	33	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
1	20								
2	12								
3	4								
3	16								
4	7								
4	19								
5	11								
6	3								
6	15								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(I) Linear Test Results (Sample I) - Regime #1

Laboratory name									
Smoking machine									
Marlboro Ultra Light 100							Butt length (mm)	39	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	1								
2	13								
3	5								
3	17								
4	8								
4	20								
5	12								
6	4								
6	16								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(I) Linear Test Results (Sample I) - Regime #2

Laboratory name									
Smoking machine									
Marlboro Ultra Light 100								Butt length (mm)	39
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	1								
2	13								
3	5								
3	17								
4	8								
4	20								
5	12								
6	4								
6	16								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(I) Linear Test Results (Sample I) - Regime #3

Laboratory name									
Smoking machine									
Marlboro Ultra Light 100							Butt length (mm)	39	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	1								
2	13								
3	5								
3	17								
4	8								
4	20								
5	12								
6	4								
6	16								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(J) Linear Test Results (Sample J) - Regime #1

Laboratory name									
Smoking machine									
Philip Morris One KS							Butt length (mm)		35
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	2								
2	14								
3	6								
3	18								
4	9								
5	1								
5	13								
6	5								
6	17								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(J) Linear Test Results (Sample J) - Regime #2

Laboratory name									
Smoking machine									
Philip Morris One KS							Butt length (mm)		35
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	2								
2	14								
3	6								
3	18								
4	9								
5	1								
5	13								
6	5								
6	17								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(J) Linear Test Results (Sample J) - Regime #3

Laboratory name									
Smoking machine									
Philip Morris One KS							Butt length (mm)		35
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	2								
2	14								
3	6								
3	18								
4	9								
5	1								
5	13								
6	5								
6	17								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(K) Linear Test Results (Sample K) - Regime #1

Laboratory name									
Smoking machine									
Kentucky Reference 1R4F							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	3								
2	15								
3	7								
3	19								
4	10								
5	2								
5	14								
6	6								
6	18								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(K) Linear Test Results (Sample K) - Regime #2

Laboratory name									
Smoking machine									
Kentucky Reference 1R4F							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	3								
2	15								
3	7								
3	19								
4	10								
5	2								
5	14								
6	6								
6	18								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(K) Linear Test Results (Sample K) - Regime #3

Laboratory name									
Smoking machine									
Kentucky Reference 1R4F							Butt length (mm)	35	
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	3								
2	15								
3	7								
3	19								
4	10								
5	2								
5	14								
6	6								
6	18								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(L) Linear Test Results (Sample L) - Regime #1

Laboratory name									
Smoking machine									
CORESTA Monitor CM3							Butt length (mm)		32
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	4								
2	16								
3	8								
3	20								
4	11								
5	3								
5	15								
6	7								
6	19								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(L) Linear Test Results (Sample L) - Regime #2

Laboratory name									
Smoking machine									
CORESTA Monitor CM3							Butt length (mm)		32
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	4								
2	16								
3	8								
3	20								
4	11								
5	3								
5	15								
6	7								
6	19								
* Describe any circumstances that may have influenced test results.									

Sheet 3L(L) Linear Test Results (Sample L) - Regime #3

Laboratory name									
Smoking machine									
CORESTA Monitor CM3							Butt length (mm)		32
Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	4								
2	16								
3	8								
3	20								
4	11								
5	3								
5	15								
6	7								
6	19								
* Describe any circumstances that may have influenced test results.									

Sheet 3R Rotary Test Results - Regime #1

Laboratory name									
Smoking machine				Rotary type					
Sample A (State Express)							Butt length (mm)		29
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	1								
2	24								
3	35								
Sample B (Marlboro KS)							Butt length (mm)		29
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	2								
2	13								
3	36								
Sample C (Gauloises Filtre)							Butt length (mm)		22
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	14								
3	25								
Sample D (Camel Medium)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	4								
2	15								
3	26								
Sample E (B&H)							Butt length (mm)		29
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	5								
2	16								
3	27								
Sample F (Davidoff Light)							Butt length (mm)		33
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	6								
2	17								
3	28								
Sample G (Camel Light)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	7								
2	18								
3	29								
Sample H (R6 KS)							Butt length (mm)		33
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	8								
2	19								
3	30								
Sample I (Marlboro Ultra Light 100)							Butt length (mm)		39
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	9								
2	20								
3	31								
Sample J (Philip Morris One KS)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	10								
2	21								
3	32								
Sample K (Kentucky Reference 1R4F)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	11								
2	22								
3	33								
Sample L (CORESTA CM3)							Butt length (mm)		32
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	12								
2	23								
3	34								

* Describe any circumstances that may have influenced test results.

Sheet 3R Rotary Test Results - Regime #2

Laboratory name									
Smoking machine				Rotary type					
Sample A (State Express)						Butt length (mm)		29	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	1								
2	24								
3	35								
Sample B (Marlboro KS)						Butt length (mm)		29	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	2								
2	13								
3	36								
Sample C (Gauloises Filtre)						Butt length (mm)		22	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	14								
3	25								
Sample D (Camel Medium)						Butt length (mm)		35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	4								
2	15								
3	26								
Sample E (B&H)						Butt length (mm)		29	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	5								
2	16								
3	27								
Sample F (Davidoff Light)						Butt length (mm)		33	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	6								
2	17								
3	28								
Sample G (Camel Light)						Butt length (mm)		35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	7								
2	18								
3	29								
Sample H (R6 KS)						Butt length (mm)		33	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	8								
2	19								
3	30								
Sample I (Marlboro Ultra Light 100)						Butt length (mm)		39	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	9								
2	20								
3	31								
Sample J (Philip Morris One KS)						Butt length (mm)		35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	10								
2	21								
3	32								
Sample K (Kentucky Reference 1R4F)						Butt length (mm)		35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	11								
2	22								
3	33								
Sample L (CORESTA CM3)						Butt length (mm)		32	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	12								
2	23								
3	34								

* Describe any circumstances that may have influenced test results.

Sheet 3R Rotary Test Results - Regime #3

Laboratory name									
Smoking machine				Rotary type					
Sample A (State Express)							Butt length (mm)		29
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	1								
2	24								
3	35								
Sample B (Marlboro KS)							Butt length (mm)		29
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	2								
2	13								
3	36								
Sample C (Gauloises Filtre)							Butt length (mm)		22
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	14								
3	25								
Sample D (Camel Medium)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	4								
2	15								
3	26								
Sample E (B&H)							Butt length (mm)		29
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	5								
2	16								
3	27								
Sample F (Davidoff Light)							Butt length (mm)		33
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	6								
2	17								
3	28								
Sample G (Camel Light)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	7								
2	18								
3	29								
Sample H (R6 KS)							Butt length (mm)		33
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	8								
2	19								
3	30								
Sample I (Marlboro Ultra Light 100)							Butt length (mm)		39
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	9								
2	20								
3	31								
Sample J (Philip Morris One KS)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	10								
2	21								
3	32								
Sample K (Kentucky Reference 1R4F)							Butt length (mm)		35
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	11								
2	22								
3	33								
Sample L (CORESTA CM3)							Butt length (mm)		32
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	12								
2	23								
3	34								

* Describe any circumstances that may have influenced test results.

**Appendix 3. Summary of Phase 1 Study Results: Mean
Values Obtained in Each Laboratory**

Table 1. Phase 1 Total Particulate Matter (TPM) Yield Results: Smoking Regime #1 (35/60/2, 0% vb).

Total Particulate Matter (TPM) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	12.7	15.6	12.3	9.9	8.8	7.9	7.2	5.3	3.5	1.5	10.5	18.6
2	13.2	16.7	12.7	10.9	9.6	8.6	7.3	5.6	3.6	1.6	11.0	19.4
3	12.9	16.3	12.4	10.6	8.8	7.9	7.1	5.3	3.4	1.4	10.4	18.1
4	13.0	15.4	13.2	9.5	8.6	7.5	6.7	4.8	3.3	1.5	10.3	18.6
5	13.3	16.6	11.7	10.5	9.4	8.3	7.5	5.5	3.6	1.7	10.7	18.0
6	13.0	16.5	12.7	10.6	9.1	8.2	7.2	5.1	3.5	1.6	10.9	19.3
7	12.1	15.9	12.0	10.2	8.4	7.6	7.0	5.3	3.6	1.4	10.5	18.2
8	13.1	16.3	12.8	11.0	9.6	8.6	7.3	5.5	4.0	1.7	10.5	18.9
9	12.1	15.0	11.4	9.7	8.2	7.7	6.8	4.9	3.3	1.5	10.5	18.0
10	12.9	16.3	11.9	10.5	8.7	8.4	7.3	5.4	3.6	1.9	10.5	18.6
11	12.6	16.4	12.3	10.9	9.5	8.8	7.3	5.7	3.6	1.8	11.0	19.1
12	12.2	15.3	11.5	10.5	8.5	8.2	7.4	5.5	4.0	1.8	10.5	18.2
13	12.0	15.7	12.3	10.2	8.4	7.8	7.1	5.2	3.8	1.6	11.0	18.6
14	12.0	14.8	12.3	9.8	8.3	7.4	6.6	4.9	3.3	1.4	10.2	18.4
15	13.2	16.4	13.3	10.5	8.7	8.2	7.3	5.2	3.6	1.8	10.8	19.0
16	11.7	14.9	14.1	9.4	8.7	7.4	6.6	4.7	3.3	1.3	10.4	18.4
17	12.5	15.4	12.6	10.4	8.5	7.5	7.2	5.2	3.7	1.4	11.2	19.6
18	12.4	17.4	12.7	11.4	8.6	8.1	7.9	6.6	4.2	2.6	11.4	20.0
19	11.1	13.7	11.2	9.4	7.3	7.2	6.2	4.8	3.1	1.5	9.9	17.6
20	12.3	15.2	---	10.4	8.0	7.7	7.1	5.5	3.4	1.6	11.2	19.5
21	12.2	15.2	11.6	10.2	8.1	7.7	7.1	5.3	3.6	1.6	10.9	18.8
22	11.5	14.2	11.9	9.6	7.6	7.3	6.8	5.1	3.3	1.4	10.7	18.4
Average	12.5	15.7	12.3	10.3	8.6	7.9	7.1	5.3	3.6	1.6	10.7	18.7
Std. Dev.	0.6	0.9	0.7	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.4	0.6

Table 2. Phase 1 Total Particulate Matter (TPM) Yield Results: Smoking Regime #2 (45/30/2, 50% vb).

Total Particulate Matter (TPM) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	30.4	37.6	32.3	28.3	24.5	24.6	22.2	19.5	15.9	10.0	26.6	38.0
2	29.8	37.9	29.2	28.7	23.8	25.1	23.7	19.3	16.6	8.7	28.3	38.6
3	30.0	39.7	31.3	29.5	25.6	25.9	23.7	19.2	16.6	8.4	28.0	38.2
4	28.0	35.8	31.5	26.7	22.2	23.2	21.7	17.2	15.1	7.9	25.1	36.4
5	31.0	37.7	30.1	28.2	25.6	24.3	21.6	19.1	14.4	7.7	27.1	37.0
6	30.2	39.0	30.2	30.5	25.0	26.0	25.2	19.5	16.7	8.8	28.1	39.6
7	29.4	36.4	29.3	27.6	23.9	24.5	22.7	18.8	15.8	8.8	27.9	36.8
8	28.8	37.1	29.5	29.0	23.5	25.4	23.1	19.1	16.7	9.4	27.3	37.1
9	28.4	35.5	27.6	27.4	22.5	24.1	21.8	17.7	14.4	8.2	26.4	36.6
10	28.8	37.0	28.5	27.7	23.2	25.0	22.7	18.4	16.1	9.1	26.7	36.8
11	29.2	37.8	29.3	29.2	24.2	25.1	23.7	18.9	16.2	9.5	27.9	38.4
12	29.3	36.2	29.4	28.9	23.2	25.1	22.6	18.6	16.5	8.4	27.0	36.8
13	30.1	37.2	32.2	27.8	24.3	23.6	21.3	16.5	15.6	7.9	27.3	37.0
14	33.6	39.2	34.5	28.0	26.3	25.2	22.0	17.8	14.2	7.5	27.8	40.5
15	34.5	40.9	35.8	30.2	27.2	26.4	23.6	18.7	15.9	8.6	29.0	41.3
16	31.1	38.5	38.9	27.4	25.0	24.6	22.4	18.0	13.7	7.5	27.6	39.5
17	33.1	39.5	36.3	28.8	26.7	25.7	23.0	17.4	14.9	7.9	29.5	40.6
18	31.9	38.5	31.8	31.1	26.3	23.2	24.3	18.6	19.7	9.8	29.1	38.2
19	28.4	34.2	30.8	25.2	21.7	22.2	19.9	16.5	13.9	7.0	23.4	34.7
20	28.7	35.7	---	25.5	23.2	22.3	20.6	16.6	14.2	7.3	24.8	38.1
21	29.3	34.8	29.9	25.9	22.8	22.1	20.2	17.5	14.2	7.7	25.7	37.3
22	27.6	34.2	28.5	24.6	21.2	21.3	19.9	16.3	13.8	7.1	24.8	35.5
Average	30.1	37.3	31.3	28.0	24.2	24.3	22.4	18.1	15.5	8.3	27.1	37.9
Std. Dev.	1.8	1.8	2.9	1.7	1.6	1.4	1.4	1.0	1.4	0.9	1.5	1.7

Table 3. Phase 1 Total Particulate Matter (TPM) Yield Results: Smoking Regime #3 (55/30/2, 100% vb).

Total Particulate Matter (TPM) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	39.2	49.9	40.9	43.6	34.8	39.4	38.2	33.0	37.1	25.0	41.9	47.6
2	37.5	48.7	37.7	42.7	33.2	39.1	37.4	32.9	37.7	25.2	41.8	46.7
3	38.7	49.1	37.5	40.7	33.6	38.5	34.8	31.5	35.8	24.1	40.2	45.4
4	38.0	47.9	40.9	39.0	33.1	36.6	35.3	32.1	35.0	24.0	39.0	44.1
5	39.5	48.7	39.2	40.3	32.5	35.8	35.4	31.2	33.4	22.3	40.3	43.3
6	38.9	50.9	39.2	44.3	34.7	39.8	39.8	34.3	39.2	26.3	46.6	49.2
7	35.5	46.8	37.3	37.4	29.7	35.4	34.6	29.8	35.7	22.6	38.3	43.2
8	36.6	46.2	38.6	40.2	32.6	37.7	35.6	31.1	35.6	23.9	40.4	44.6
9	35.7	44.9	34.5	39.5	30.1	34.2	35.6	31.1	34.4	22.0	37.6	43.1
10	34.9	46.6	35.2	37.8	30.5	35.0	34.3	30.3	34.4	22.3	39.2	43.1
11	36.7	46.5	36.7	43.0	32.6	38.8	37.2	32.6	36.6	25.2	42.3	46.7
12	35.6	46.7	35.2	40.6	30.1	36.6	34.8	30.9	34.5	23.1	38.9	44.6
13	40.2	51.1	47.0	42.9	36.8	40.2	38.8	33.4	34.5	25.5	43.7	45.4
14	43.5	53.5	49.0	46.6	39.4	42.2	41.4	38.4	34.3	25.8	48.6	50.8
15	42.6	55.8	49.5	50.1	41.0	40.4	40.5	35.4	35.8	31.7	47.9	52.3
16	44.9	53.4	51.4	42.9	38.4	41.5	37.1	36.0	35.2	27.7	44.7	48.2
17	45.4	54.5	48.4	45.6	40.7	44.3	40.3	35.3	38.7	28.8	46.3	49.4
18	41.1	53.2	44.1	44.4	38.3	42.0	39.8	37.0	35.0	29.4	42.6	49.7
19	38.4	46.5	44.3	36.3	33.9	34.5	32.5	30.1	31.4	21.9	36.6	40.2
20	40.8	49.1	---	41.9	35.1	39.1	37.8	34.9	34.6	24.6	40.6	47.9
21	38.9	46.3	39.0	37.9	33.4	35.8	33.8	32.2	31.7	23.8	40.0	44.0
22	36.7	44.7	39.2	35.4	32.4	33.9	32.0	29.6	30.1	22.0	35.6	43.4
Average	39.1	49.1	41.2	41.5	34.4	38.2	36.7	32.9	35.0	24.9	41.5	46.0
Std. Dev.	3.0	3.3	5.2	3.6	3.4	2.9	2.7	2.5	2.2	2.6	3.6	3.1

Table 4. Phase 1 Nicotine Yield Results: Smoking Regime #1 (35/60/2, 0% vb).

Laboratory Number	Nicotine Yield (mg/cigarette)											
	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	0.95	0.94	0.56	0.69	0.54	0.53	0.54	0.39	0.29	0.12	0.75	1.24
2	0.94	0.90	0.58	0.68	0.56	0.55	0.50	0.38	0.27	0.13	0.73	1.24
3	0.93	0.91	0.58	0.70	0.54	0.55	0.52	0.39	0.27	0.12	0.74	1.18
4	0.97	0.92	0.63	0.67	0.55	0.55	0.51	0.38	0.29	0.13	0.75	1.27
5	1.04	1.04	0.62	0.76	0.59	0.59	0.57	0.44	0.31	0.16	0.76	1.29
6	0.95	0.91	0.57	0.62	0.57	0.55	0.50	0.34	0.25	0.11	0.75	1.27
7	0.99	1.01	0.58	0.75	0.60	0.58	0.51	0.41	0.29	0.12	0.78	1.32
8	0.93	0.91	0.57	0.69	0.57	0.55	0.52	0.38	0.31	0.14	0.73	1.22
9	0.90	0.89	0.53	0.67	0.52	0.52	0.50	0.36	0.27	0.12	0.73	1.22
10	0.91	0.92	0.55	0.68	0.54	0.55	0.52	0.38	0.28	0.15	0.72	1.17
11	0.93	0.93	0.57	0.73	0.58	0.58	0.53	0.41	0.27	0.15	0.75	1.25
12	0.93	0.92	0.57	0.72	0.56	0.58	0.55	0.41	0.33	0.15	0.76	1.23
13	0.90	0.94	0.57	0.73	0.53	0.56	0.55	0.40	0.32	0.14	0.79	1.27
14	0.88	0.85	0.59	0.67	0.51	0.52	0.50	0.37	0.28	0.13	0.74	1.23
15	0.96	0.94	0.61	0.73	0.54	0.57	0.55	0.40	0.31	0.14	0.79	1.27
16	0.87	0.87	0.59	0.65	0.52	0.53	0.51	0.36	0.29	0.13	0.74	1.21
17	0.97	0.96	0.62	0.74	0.55	0.57	0.56	0.41	0.32	0.14	0.82	1.31
18	0.87	0.92	0.62	0.70	0.51	0.56	0.54	0.43	0.31	0.19	0.75	1.24
19	0.92	0.89	0.55	0.70	0.50	0.54	0.52	0.41	0.30	0.14	0.77	1.28
20	0.90	0.89	---	0.69	0.49	0.53	0.53	0.40	0.28	0.15	0.78	1.29
21	0.93	0.91	0.59	0.72	0.52	0.56	0.56	0.42	0.31	0.15	0.81	1.26
22	0.90	0.88	0.58	0.68	0.50	0.53	0.53	0.39	0.29	0.14	0.80	1.26
Average	0.93	0.92	0.58	0.70	0.54	0.55	0.53	0.39	0.29	0.14	0.76	1.25
Std. Dev.	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.04

Table 5. Phase 1 Nicotine Yield Results: Smoking Regime #2 (45/30/2, 50% vb).

Nicotine Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	1.93	1.91	1.11	1.57	1.25	1.47	1.39	1.14	1.18	0.72	1.53	2.22
2	1.89	1.89	1.07	1.49	1.21	1.34	1.38	1.10	1.11	0.60	1.52	2.17
3	1.80	1.85	1.05	1.53	1.19	1.34	1.30	1.04	1.14	0.60	1.53	2.10
4	1.83	1.85	1.19	1.51	1.17	1.41	1.33	1.07	1.16	0.63	1.50	2.19
5	2.14	2.12	1.22	1.79	1.34	1.59	1.51	1.21	1.15	0.66	1.71	2.47
6	1.96	1.89	1.09	1.51	1.26	1.35	1.41	1.19	1.09	0.58	1.54	2.27
7	1.96	1.99	1.05	1.46	1.30	1.40	1.36	1.08	1.19	0.64	1.46	2.23
8	1.71	1.80	1.01	1.44	1.12	1.32	1.29	1.04	1.10	0.63	1.42	2.04
9	1.88	1.86	1.05	1.52	1.20	1.40	1.32	1.07	1.07	0.62	1.52	2.20
10	1.80	1.82	1.05	1.44	1.17	1.36	1.31	1.04	1.11	0.61	1.46	2.05
11	1.90	1.87	1.09	1.57	1.19	1.42	1.38	1.10	1.12	0.66	1.55	2.19
12	1.94	1.89	1.14	1.58	1.24	1.43	1.37	1.11	1.14	0.63	1.59	2.17
13	1.84	1.88	1.05	1.62	1.19	1.43	1.36	1.05	1.21	0.62	1.57	2.24
14	1.88	1.82	1.03	1.49	1.13	1.34	1.29	1.06	1.04	0.55	1.52	2.23
15	1.98	1.92	1.14	1.62	1.23	1.41	1.38	1.09	1.13	0.62	1.59	2.29
16	1.85	1.89	1.19	1.53	1.18	1.36	1.35	1.08	1.08	0.58	1.54	2.28
17	1.97	1.92	1.11	1.57	1.24	1.41	1.40	1.14	1.14	0.62	1.62	2.30
18	1.75	1.70	1.10	1.47	1.15	1.27	1.34	1.08	1.23	0.63	1.54	2.11
19	1.93	1.91	1.09	1.64	1.16	1.40	1.41	1.15	1.14	0.61	1.58	2.31
20	1.79	1.83	---	1.49	1.14	1.27	1.33	1.06	1.04	0.57	1.52	2.26
21	1.86	1.79	1.07	1.56	1.14	1.32	1.38	1.16	1.09	0.61	1.60	2.28
22	1.83	1.83	1.08	1.45	1.11	1.28	1.35	1.09	1.07	0.60	1.54	2.27
Average	1.88	1.87	1.09	1.54	1.20	1.38	1.36	1.10	1.12	0.62	1.54	2.22
Std. Dev.	0.09	0.08	0.06	0.08	0.06	0.07	0.05	0.05	0.05	0.03	0.06	0.10

Table 6. Phase 1 Nicotine Yield Results: Smoking Regime #3 (55/30/2, 100% vb).

Nicotine Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	2.13	2.20	1.15	1.91	1.37	1.74	1.80	1.49	1.91	1.13	1.91	2.49
2	2.10	2.14	1.18	1.78	1.39	1.65	1.71	1.40	1.81	1.10	1.78	2.38
3	2.06	2.07	1.06	1.82	1.32	1.59	1.68	1.38	1.82	1.07	1.78	2.35
4	2.12	2.14	1.27	1.81	1.37	1.67	1.74	1.50	1.97	1.13	1.88	2.42
5	2.37	2.39	1.31	2.05	1.47	1.89	1.89	1.55	1.96	1.17	2.06	2.69
6	2.17	2.17	1.20	1.80	1.41	1.61	1.76	1.44	1.90	1.08	2.07	2.41
7	2.07	2.18	1.12	1.74	1.42	1.74	1.81	1.33	1.99	1.14	1.96	2.49
8	2.11	1.96	1.16	1.78	1.45	1.60	1.62	1.34	1.77	1.05	1.79	2.29
9	2.05	2.12	1.14	1.86	1.37	1.71	1.68	1.47	1.83	1.10	1.87	2.41
10	2.00	2.03	1.11	1.71	1.29	1.55	1.63	1.37	1.78	1.06	1.79	2.30
11	2.10	2.08	1.17	1.89	1.41	1.72	1.73	1.46	1.85	1.12	1.89	2.43
12	2.07	2.16	1.15	1.84	1.33	1.68	1.70	1.46	1.82	1.10	1.87	2.40
13	2.06	2.13	1.14	1.87	1.36	1.63	1.71	1.41	1.88	1.06	1.92	2.47
14	1.99	2.05	1.16	1.79	1.31	1.57	1.66	1.42	1.69	1.02	1.91	2.46
15	2.11	2.17	1.26	1.89	1.38	1.62	1.69	1.41	1.77	1.12	1.96	2.54
16	2.12	2.14	1.31	1.80	1.35	1.67	1.69	1.44	1.85	1.10	1.90	2.55
17	2.22	2.18	1.26	1.96	1.41	1.76	1.83	1.49	1.92	1.14	1.95	2.55
18	2.02	2.07	1.30	1.80	1.32	1.62	1.63	1.40	1.76	1.11	1.80	2.42
19	2.12	2.17	1.19	1.90	1.33	1.62	1.70	1.49	1.86	1.08	1.90	2.45
20	2.11	2.08	---	1.80	1.32	1.61	1.65	1.43	1.71	1.03	1.89	2.48
21	2.05	2.09	1.12	1.84	1.25	1.59	1.67	1.45	1.75	1.04	1.96	2.50
22	2.00	2.05	1.15	1.70	1.30	1.56	1.61	1.36	1.71	1.02	1.85	2.51
Average	2.10	2.13	1.19	1.83	1.36	1.65	1.71	1.43	1.83	1.09	1.90	2.45
Std. Dev.	0.08	0.08	0.07	0.08	0.06	0.08	0.07	0.06	0.09	0.04	0.08	0.09

Table 7. Phase 1 Water Yield Results: Smoking Regime #1 (35/60/2, 0% vb).

Water Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	1.4	2.1	1.4	0.7	0.7	0.5	0.5	0.3	0.2	0.1	1.0	2.2
2	2.1	3.1	2.1	1.4	1.5	1.1	1.0	0.6	0.3	0.1	1.5	3.3
3	1.7	2.4	1.6	1.1	1.0	0.7	0.6	0.3	0.2	0.1	0.9	2.2
4	1.7	2.4	1.8	1.0	1.1	0.8	0.8	0.5	0.4	0.3	1.2	2.6
5	1.8	2.6	1.7	1.1	1.2	0.7	0.5	0.3	0.3	0.2	1.1	2.4
6	1.8	3.1	2.1	1.4	1.5	1.3	1.1	0.7	0.4	0.4	2.0	3.2
7	1.9	3.1	2.0	1.4	1.3	0.9	0.8	0.7	0.5	0.2	1.7	3.1
8	1.8	2.7	1.8	1.3	1.3	1.0	0.8	0.4	0.3	0.1	1.2	2.7
9	2.0	2.5	1.7	1.1	1.1	0.8	0.7	0.4	0.3	0.1	1.4	2.7
10	2.1	2.9	2.0	1.3	1.3	1.0	1.2	0.5	0.5	0.2	1.4	3.1
11	1.7	2.6	1.8	1.2	1.4	1.0	0.8	0.5	0.4	0.2	1.3	2.7
12	1.7	2.3	1.7	1.1	1.1	0.8	0.7	0.5	0.3	0.2	1.2	2.4
13	1.2	1.9	1.4	0.6	0.6	0.4	0.4	0.2	0.1	0.0	0.9	2.0
14	1.7	1.9	1.6	0.8	0.9	0.4	0.5	0.5	0.2	0.0	1.1	2.1
15	1.7	2.3	1.9	0.8	0.8	0.5	0.5	0.3	0.3	0.1	0.9	2.1
16	1.4	2.0	2.3	0.8	1.0	0.6	0.6	0.4	0.3	0.2	1.1	2.2
17	1.3	1.8	1.5	0.8	0.7	0.5	0.6	0.3	0.3	0.1	1.0	2.1
18	1.1	2.2	1.0	0.8	0.6	0.6	0.5	0.3	0.3	0.1	1.0	2.2
19	0.8	1.2	0.9	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.7	1.5
20	1.1	1.5	---	0.6	0.4	0.4	0.4	0.2	0.2	0.1	0.9	1.8
21	1.1	1.6	1.0	0.7	0.5	0.4	0.5	0.3	0.2	0.1	0.8	1.7
22	1.0	1.4	1.1	0.7	0.5	0.5	0.5	0.3	0.2	0.1	0.9	1.7
Average	1.5	2.3	1.6	1.0	1.0	0.7	0.7	0.4	0.3	0.1	1.1	2.4
Std. Dev.	0.4	0.6	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.3	0.5

Table 8. Phase 1 Water Yield Results: Smoking Regime #2 (45/30/2, 50% vb).

Water Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	6.7	8.6	8.6	5.2	5.3	3.9	3.9	3.0	1.6	0.8	5.0	8.3
2	7.1	10.0	7.2	6.7	5.6	5.4	5.4	3.8	2.7	1.5	7.0	9.8
3	5.5	8.5	6.6	5.5	4.8	4.3	4.3	3.0	1.8	0.8	5.3	7.7
4	5.1	7.4	6.4	4.8	3.9	3.5	3.7	2.5	1.7	0.7	4.7	7.2
5	6.5	7.7	7.0	4.8	5.1	3.7	3.5	2.6	1.3	0.6	4.5	6.7
6	7.3	10.4	7.3	7.5	6.4	6.2	6.6	5.2	3.3	1.8	7.3	10.7
7	6.8	9.8	7.0	5.6	5.5	4.3	5.0	3.3	2.4	0.7	7.2	9.7
8	6.2	8.7	6.7	5.8	5.0	4.9	4.7	3.6	2.4	1.5	7.8	8.5
9	6.9	9.2	7.1	6.0	5.5	5.2	5.0	3.6	2.3	1.4	6.5	8.9
10	6.9	9.3	7.4	5.9	5.5	5.0	5.1	3.6	2.6	1.4	6.5	9.2
11	7.0	9.0	7.0	6.2	5.5	4.8	5.2	3.8	2.5	1.6	7.3	9.3
12	6.7	8.7	7.0	5.9	5.1	4.8	4.6	3.4	2.3	1.2	6.1	8.2
13	7.2	9.0	8.0	4.3	5.6	3.6	3.2	1.8	1.2	0.4	5.5	7.6
14	9.1	10.5	9.8	5.4	7.3	4.9	4.1	2.6	1.4	0.8	6.2	10.1
15	9.6	11.1	10.1	5.6	7.2	4.8	4.2	2.5	1.4	0.6	6.4	10.3
16	7.7	9.9	10.0	5.0	6.2	4.2	4.1	2.5	1.3	0.8	6.2	9.2
17	9.4	11.4	11.3	6.1	7.5	5.3	4.7	2.7	1.7	0.8	7.4	10.7
18	6.2	7.8	7.0	5.4	5.9	3.0	3.9	2.2	1.6	0.5	5.9	7.8
19	5.9	6.9	7.6	2.7	4.1	2.6	2.1	1.4	0.9	0.5	3.1	5.0
20	6.7	8.4	---	3.8	5.4	3.1	3.1	1.8	1.1	0.5	4.5	8.4
21	6.5	7.6	7.3	3.5	4.9	2.8	2.6	1.9	1.1	0.6	4.3	7.0
22	5.6	7.2	6.5	3.4	4.1	2.8	2.6	1.6	1.1	0.6	4.1	6.7
Average	6.9	9.0	7.7	5.2	5.5	4.2	4.2	2.8	1.8	0.9	5.9	8.5
Std. Dev.	1.2	1.3	1.4	1.1	1.0	1.0	1.1	0.9	0.7	0.4	1.3	1.5

Table 9. Phase 1 Water Yield Results: Smoking Regime #3 (55/30/2, 100% vb).

Water Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	11.7	15.3	12.9	13.0	10.5	11.1	12.2	9.9	10.2	8.3	13.9	14.2
2	10.7	15.2	11.2	13.2	9.9	11.6	12.4	10.3	11.1	8.3	14.5	14.4
3	9.3	12.5	9.8	10.0	7.9	9.1	9.4	7.6	8.1	6.0	11.1	11.2
4	8.7	12.4	9.9	9.9	8.0	8.9	9.8	8.3	8.4	6.2	11.1	11.0
5	10.8	13.5	12.3	9.8	8.7	9.5	9.6	8.5	8.1	6.1	12.8	10.4
6	12.2	16.4	9.9	14.3	11.6	12.3	13.8	11.6	12.3	9.9	16.3	15.2
7	11.1	15.9	11.5	10.4	8.7	10.2	11.6	9.6	11.1	7.7	9.6	13.4
8	10.2	13.8	12.0	11.2	9.8	10.5	11.6	9.2	10.1	7.5	13.3	12.9
9	10.8	14.2	10.6	12.0	9.0	9.2	12.1	9.5	10.5	7.1	12.2	12.0
10	9.9	14.2	10.8	10.7	9.3	9.9	10.5	8.7	9.5	6.9	13.1	12.0
11	9.8	13.9	11.1	12.4	9.2	10.7	11.1	9.3	9.9	8.1	14.0	13.6
12	10.0	13.8	9.6	12.0	8.6	10.0	10.5	9.1	9.6	7.2	12.5	12.8
13	12.9	16.9	17.1	12.1	13.0	12.5	11.9	10.6	9.8	8.6	14.7	12.6
14	14.8	18.9	17.1	16.1	13.9	14.2	15.3	13.8	10.2	9.3	18.6	16.7
15	14.6	20.5	17.7	18.2	15.3	13.2	14.5	12.3	10.2	12.4	18.5	17.4
16	13.5	17.1	15.5	12.5	11.7	12.3	11.3	10.8	9.7	9.4	14.4	13.5
17	16.8	20.2	19.7	15.4	16.3	15.6	14.6	12.2	12.5	11.2	17.8	16.1
18	12.6	17.9	14.1	13.1	12.5	13.3	12.0	11.3	7.7	9.4	14.2	15.1
19	12.3	14.9	15.4	9.1	11.8	9.8	9.1	8.2	7.4	6.8	10.7	9.0
20	13.1	15.7	---	12.8	12.0	12.1	12.5	11.8	9.6	8.7	13.7	14.0
21	12.0	14.3	12.5	9.9	11.0	10.1	9.7	9.7	7.9	7.8	12.2	10.6
22	10.6	13.0	11.7	8.5	9.7	8.6	8.7	8.1	6.8	6.8	9.9	10.6
Average	11.7	15.5	13.0	12.1	10.8	11.1	11.6	10.0	9.6	8.2	13.6	13.1
Std. Dev.	2.0	2.3	3.0	2.4	2.3	1.9	1.8	1.6	1.5	1.6	2.5	2.2

**Table 10. Phase 1 Nicotine Free Dry Particulate Matter (NFDPM) Yield Results:
Smoking Regime #1 (35/60/2, 0% vb).**

Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	10.4	12.6	10.3	8.5	7.5	6.8	6.2	4.6	3.0	1.3	8.8	15.2
2	10.2	12.7	10.0	8.8	7.5	6.9	5.9	4.7	3.0	1.4	8.8	14.8
3	10.3	12.9	10.2	8.9	7.3	6.6	6.0	4.5	2.9	1.2	8.8	14.7
4	10.3	12.1	10.8	7.8	7.0	6.2	5.4	4.0	2.7	1.1	8.4	14.7
5	10.5	12.9	9.4	8.6	7.6	7.0	6.4	4.7	3.0	1.3	8.9	14.3
6	10.3	12.4	10.1	8.6	7.0	6.4	5.7	4.1	2.8	1.0	8.2	14.8
7	9.2	11.8	9.4	8.1	6.5	6.1	5.7	4.2	2.8	1.0	8.0	13.8
8	10.4	12.7	10.5	9.1	7.7	7.1	6.0	4.7	3.4	1.5	8.6	15.0
9	9.2	11.7	9.2	8.0	6.5	6.4	5.6	4.2	2.7	1.3	8.3	14.1
10	9.9	12.4	9.4	8.5	6.9	6.8	5.6	4.5	2.8	1.5	8.4	14.3
11	9.9	12.8	10.0	9.0	7.6	7.2	6.0	4.8	2.9	1.4	9.0	15.1
12	9.6	12.1	9.3	8.6	6.9	6.8	6.1	4.7	3.3	1.5	8.6	14.6
13	10.0	12.8	10.3	8.9	7.2	6.8	6.2	4.6	3.3	1.5	9.4	15.4
14	9.5	12.0	10.2	8.4	6.9	6.5	5.7	4.1	2.8	1.3	8.3	15.1
15	10.6	13.1	10.8	9.0	7.3	7.1	6.2	4.5	3.1	1.5	9.1	15.6
16	9.5	12.0	11.2	8.0	7.2	6.3	5.5	4.0	2.7	1.0	8.6	15.0
17	10.3	12.7	10.5	8.9	7.2	6.4	6.0	4.4	3.1	1.2	9.4	16.2
18	10.4	14.2	11.0	10.0	7.5	7.0	6.9	5.9	3.6	2.2	9.6	16.6
19	9.4	11.6	9.8	8.1	6.3	6.2	5.3	4.1	2.6	1.1	8.4	14.8
20	10.3	12.7	---	9.0	7.1	6.8	6.2	4.8	3.0	1.4	9.5	16.4
21	10.2	12.6	10.1	8.8	7.0	6.7	6.1	4.6	3.1	1.3	9.3	15.8
22	9.7	11.9	10.3	8.2	6.6	6.3	5.8	4.3	2.8	1.1	9.0	15.4
Average	10.0	12.5	10.1	8.6	7.1	6.7	5.9	4.5	3.0	1.3	8.8	15.1
Std. Dev.	0.4	0.6	0.6	0.5	0.4	0.3	0.4	0.4	0.2	0.3	0.4	0.7

**Table 11. Phase 1 Nicotine Free Dry Particulate Matter (NFDPM) Yield Results:
Smoking Regime #2 (45/30/2, 50% vb).**

Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	21.8	27.1	22.6	21.5	18.0	19.3	16.9	15.3	13.1	8.5	20.1	27.5
2	20.9	26.0	20.9	20.6	17.0	18.4	16.9	14.4	12.8	6.6	19.7	26.7
3	22.6	29.4	23.6	22.5	19.6	20.3	18.1	15.2	13.7	7.0	21.2	28.4
4	21.0	26.5	23.9	20.3	17.1	18.3	16.6	13.7	12.2	6.5	19.0	27.0
5	22.3	27.9	21.9	21.6	19.2	19.0	16.6	15.3	11.9	6.5	20.9	27.8
6	21.0	26.7	21.8	21.5	17.4	18.4	17.2	13.1	12.4	6.4	19.2	26.6
7	20.6	24.6	21.3	20.5	17.1	18.7	16.4	14.5	12.2	7.5	19.2	24.9
8	20.9	26.5	21.8	21.8	17.4	19.2	17.1	14.4	13.1	7.3	18.1	26.5
9	19.7	24.5	19.4	19.9	15.8	17.5	15.5	13.1	11.1	6.2	18.4	25.5
10	20.1	25.8	20.1	20.4	16.6	18.7	16.3	13.8	12.4	7.1	18.8	25.6
11	20.3	26.9	21.2	21.4	17.5	18.9	17.1	14.0	12.5	7.2	19.0	26.9
12	20.6	25.6	21.3	21.4	16.9	18.8	16.6	14.1	13.1	6.6	19.4	26.4
13	21.1	26.3	23.2	21.9	17.5	18.6	16.7	13.7	13.2	6.9	20.2	27.1
14	22.6	26.8	23.7	21.1	17.8	19.0	16.6	14.1	11.8	6.2	20.1	28.2
15	22.9	27.8	24.5	23.0	18.7	20.1	18.0	15.2	13.4	7.4	21.0	28.8
16	21.6	26.7	27.8	20.9	17.7	19.0	16.9	14.4	11.3	6.2	19.9	28.1
17	21.8	26.3	23.9	21.1	17.9	19.0	16.9	13.7	12.0	6.4	20.5	27.6
18	23.9	28.9	23.7	24.2	19.2	18.9	19.1	15.3	16.9	8.7	21.6	28.3
19	20.6	25.4	22.1	20.8	16.5	18.2	16.4	14.0	11.9	5.8	18.8	27.4
20	20.2	25.5	---	20.2	16.6	17.9	16.2	13.7	12.1	6.2	18.7	27.5
21	20.8	25.4	21.5	20.8	16.7	17.9	16.3	14.4	12.0	6.5	19.7	28.0
22	20.2	25.2	20.9	19.8	16.0	17.2	16.0	13.7	11.7	6.0	19.1	26.5
Average	21.3	26.4	22.4	21.2	17.5	18.7	16.8	14.2	12.6	6.8	19.7	27.1
Std. Dev.	1.1	1.2	1.8	1.0	1.0	0.7	0.8	0.7	1.2	0.7	1.0	1.0

**Table 12. Phase 1 Nicotine Free Dry Particulate Matter (NFDPM) Yield Results:
Smoking Regime #3 (55/30/2, 100% vb).**

Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	25.4	32.4	26.8	28.7	23.0	26.6	24.2	21.7	24.9	15.6	26.1	30.9
2	24.7	31.4	25.3	27.8	21.8	25.8	23.3	21.2	24.8	15.8	25.6	29.9
3	27.4	34.5	26.6	28.9	24.4	27.8	23.8	22.5	25.8	17.0	27.3	31.8
4	27.2	33.3	29.7	27.2	23.8	26.1	23.8	22.3	24.6	16.7	26.0	30.7
5	26.3	32.7	25.6	28.4	22.4	24.4	23.9	21.1	23.4	15.0	25.4	30.2
6	24.6	32.4	28.1	28.2	21.7	25.8	24.2	21.3	25.0	15.3	28.2	31.7
7	22.3	28.8	24.7	25.2	19.5	23.5	21.2	18.8	22.6	13.7	26.7	27.3
8	24.3	30.4	25.5	27.2	21.4	25.6	22.4	20.6	23.7	15.4	25.3	29.3
9	22.8	28.6	22.8	25.6	19.7	23.3	21.9	20.1	22.0	13.8	23.6	28.6
10	23.0	30.4	23.3	25.4	20.0	23.5	22.2	20.3	23.1	14.4	24.4	28.8
11	24.8	30.5	24.4	28.8	22.0	26.4	24.4	21.9	24.8	16.0	26.4	30.7
12	23.5	30.7	24.5	26.7	20.2	24.9	22.6	20.4	23.0	14.8	24.5	29.4
13	25.2	32.0	28.8	28.9	22.5	26.0	25.2	21.5	22.9	15.8	27.1	30.3
14	26.6	32.6	30.8	28.7	24.2	26.5	24.4	23.1	22.4	15.4	28.1	31.6
15	25.8	33.1	30.6	29.9	24.3	25.6	24.3	21.6	23.8	18.1	27.4	32.4
16	29.3	34.1	34.6	28.6	25.3	27.6	24.1	23.7	23.6	17.3	28.3	32.1
17	26.3	32.1	27.4	28.2	23.0	26.9	23.9	21.6	24.3	16.5	26.5	30.8
18	26.5	33.3	28.7	29.4	24.5	27.1	26.1	24.3	25.5	18.9	26.6	32.1
19	23.9	29.4	27.7	25.3	20.7	23.1	21.7	20.4	22.1	14.0	23.9	28.8
20	25.6	31.3	---	27.3	21.8	25.4	23.6	21.6	23.3	14.9	25.1	31.4
21	24.9	29.9	25.4	26.1	21.1	24.1	22.5	21.1	22.1	15.0	25.8	31.0
22	24.1	29.6	26.3	25.2	21.4	23.7	21.7	20.2	21.6	14.2	23.9	30.3
Average	25.2	31.5	27.0	27.5	22.2	25.4	23.4	21.4	23.6	15.6	26.0	30.5
Std. Dev.	1.7	1.7	2.8	1.5	1.7	1.4	1.3	1.3	1.2	1.4	1.4	1.3

Table 13. Phase 1 Carbon Monoxide Yield Results: Smoking Regime #1 (35/60/2, 0% vb).

Carbon Monoxide (CO) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	11.8	13.3	12.0	8.6	8.8	7.9	7.4	6.7	3.6	2.0	12.2	15.2
2	13.2	14.9	12.5	10.0	9.9	8.7	7.7	7.3	3.8	2.5	13.6	16.1
3	11.9	13.3	11.2	9.0	8.8	7.9	7.3	6.8	3.7	2.2	12.2	14.6
4	11.9	13.2	12.1	8.8	8.7	7.5	7.2	6.1	3.8	2.2	11.6	14.4
5	13.5	14.4	12.1	9.0	9.6	8.0	7.8	6.9	3.6	2.4	14.6	15.2
6	13.1	14.8	12.8	9.4	10.0	8.9	7.9	7.1	3.9	2.4	13.1	16.4
7	12.8	16.5	13.8	10.5	10.3	8.3	9.1	7.6	4.4	2.6	13.1	18.8
8	13.2	14.2	12.7	10.4	9.9	9.1	7.7	7.4	4.4	2.7	12.9	15.5
9	11.8	13.4	11.9	8.9	8.8	7.8	7.2	6.5	3.7	2.4	12.9	14.1
10	12.6	13.9	12.1	9.0	9.0	8.2	7.7	6.8	3.7	2.9	12.6	15.4
11	12.4	14.5	12.4	9.5	9.8	8.7	7.8	7.5	3.9	2.8	13.6	16.1
12	11.0	12.1	11.0	8.4	8.2	7.2	6.8	6.0	3.5	2.2	11.7	14.7
13	11.0	12.9	10.9	8.2	8.3	7.6	7.0	6.5	3.7	2.4	12.2	14.5
14	10.7	11.9	10.7	8.1	8.1	7.1	6.4	5.9	3.3	2.1	11.2	14.0
15	11.5	12.9	10.9	8.2	8.3	7.5	6.7	5.8	3.4	1.9	11.7	14.4
16	10.5	11.8	11.1	7.8	7.9	6.8	6.4	5.4	3.2	1.9	11.0	13.6
17	11.8	13.0	11.4	8.4	8.6	7.2	6.7	5.8	3.3	1.9	13.1	15.0
18	10.5	13.4	10.3	8.9	8.0	7.7	6.8	6.8	3.7	2.8	11.8	14.5
19	10.7	11.6	10.9	7.6	7.8	7.1	6.3	5.9	3.2	2.0	12.0	13.3
20	12.0	13.1	---	8.8	8.9	7.8	7.2	7.2	3.7	2.7	12.7	14.9
21	11.1	12.2	10.7	8.1	8.0	7.2	6.5	6.0	3.3	2.2	11.9	14.1
22	11.1	12.2	11.6	8.0	8.0	7.0	6.6	5.9	3.1	2.0	11.9	14.2
Average	11.8	13.3	11.7	8.8	8.8	7.8	7.2	6.5	3.6	2.3	12.4	14.9
Std. Dev.	0.9	1.2	0.9	0.8	0.8	0.7	0.7	0.6	0.3	0.3	0.9	1.2

Table 14. Phase 1 Carbon Monoxide Yield Results: Smoking Regime #2 (45/30/2, 50% vb).

Carbon Monoxide (CO) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	22.5	24.4	24.1	20.2	19.6	20.6	19.0	18.8	15.4	13.3	22.7	23.4
2	24.8	27.1	25.5	22.1	22.0	23.6	20.6	20.5	17.0	13.3	27.1	25.8
3	22.4	25.3	22.5	20.2	21.0	22.6	19.5	19.1	16.2	12.2	24.4	23.9
4	22.6	24.0	24.6	20.7	19.7	21.7	19.7	18.9	15.6	12.7	22.8	23.0
5	24.5	26.9	26.1	21.4	22.6	21.8	20.2	20.8	15.6	12.2	25.4	25.4
6	24.4	26.2	25.1	22.1	21.9	23.6	20.2	20.1	16.0	12.0	23.7	25.0
7	25.4	28.1	27.4	22.4	22.7	24.1	20.7	21.3	16.5	13.8	28.1	27.7
8	24.6	26.7	25.6	22.2	21.9	23.1	20.6	20.9	17.5	14.3	26.1	26.2
9	23.4	26.3	24.6	22.5	20.3	21.7	19.3	18.8	15.9	12.6	26.0	25.8
10	23.5	26.6	24.3	21.5	21.1	22.7	19.4	19.5	16.5	13.7	24.9	25.0
11	23.9	27.9	25.6	21.8	22.1	22.6	20.4	20.2	16.9	14.2	25.7	25.8
12	22.4	24.1	23.9	19.6	19.5	20.9	17.9	18.2	14.8	10.9	23.1	23.6
13	21.2	22.9	22.5	18.9	18.4	20.3	17.3	17.0	15.0	11.6	23.4	20.8
14	21.0	22.6	22.6	18.7	18.2	19.9	16.8	16.8	13.7	10.9	22.8	22.3
15	22.1	24.1	24.0	19.4	19.5	21.3	18.2	17.9	15.3	11.6	23.4	22.9
16	21.3	23.4	24.2	19.1	19.0	20.2	17.9	17.5	13.6	11.7	22.7	22.4
17	22.9	24.6	24.5	20.7	20.2	21.8	18.8	18.4	15.1	11.9	24.9	23.2
18	20.9	23.2	21.2	20.1	19.1	19.0	18.5	17.2	17.4	11.8	23.8	22.2
19	21.7	23.5	24.1	18.7	19.6	20.6	18.4	18.3	14.3	11.7	22.9	22.2
20	22.8	24.4	---	20.2	20.5	21.5	20.6	19.4	15.3	12.2	23.0	23.6
21	21.6	23.2	22.5	19.2	18.7	20.5	17.5	18.6	14.5	11.6	22.8	22.3
22	20.8	23.1	22.5	19.0	18.7	19.8	17.6	17.4	14.6	11.0	22.3	22.0
Average	22.8	24.9	24.2	20.5	20.3	21.5	19.1	18.9	15.6	12.3	24.2	23.9
Std. Dev.	1.4	1.7	1.5	1.3	1.4	1.4	1.2	1.3	1.1	1.0	1.6	1.7

Table 15. Phase 1 Carbon Monoxide Yield Results: Smoking Regime #3 (55/30/2, 100% vb).

Carbon Monoxide (CO) Yield (mg/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	26.9	30.3	29.4	28.4	26.3	29.4	27.0	27.2	29.9	23.7	31.8	27.8
2	28.9	32.9	30.8	29.8	27.3	32.0	28.6	29.1	31.3	25.5	33.8	28.9
3	24.6	28.3	27.2	24.9	23.3	27.6	24.5	24.8	26.7	21.8	29.2	25.4
4	25.2	28.4	28.9	26.3	24.7	27.7	25.8	26.8	27.4	22.7	29.3	26.1
5	29.3	32.0	32.5	28.8	26.9	30.9	28.2	29.5	30.0	25.2	34.8	27.6
6	28.7	32.6	30.9	30.7	27.7	31.9	28.5	29.4	30.7	26.5	33.3	29.7
7	32.3	36.5	32.5	32.9	30.2	34.7	31.6	33.1	34.5	28.0	35.4	30.4
8	27.5	31.4	30.1	27.2	27.2	30.9	27.6	28.6	29.4	24.5	32.9	28.9
9	27.7	29.9	27.8	28.0	24.7	27.9	27.2	27.2	29.9	22.9	31.8	28.7
10	27.3	30.8	28.9	27.7	26.2	29.9	26.5	27.7	29.3	23.7	32.8	27.8
11	27.5	31.5	30.2	29.2	26.8	31.0	29.0	29.7	31.4	26.1	33.9	30.1
12	26.3	29.7	28.3	27.4	24.7	28.8	25.9	27.6	27.7	23.3	31.4	27.7
13	24.6	29.1	27.5	25.4	23.7	28.2	25.0	26.6	26.7	21.6	31.3	25.3
14	---	---	---	---	---	---	---	---	---	---	---	---
15	24.5	28.8	27.8	27.1	24.0	26.5	24.7	25.4	25.8	22.7	31.3	26.7
16	25.6	27.3	28.0	25.2	23.2	26.7	23.1	25.6	25.6	22.6	29.2	24.8
17	27.3	30.8	28.9	27.6	25.2	29.1	26.1	27.2	29.0	23.8	31.8	26.6
18	24.4	28.3	26.1	27.1	23.6	28.1	25.0	26.3	27.2	21.8	29.2	27.0
19	26.3	29.0	30.1	25.4	25.0	27.5	25.2	27.2	27.3	22.2	31.8	26.1
20	26.9	29.9	---	27.2	24.8	29.4	26.3	28.2	27.6	22.5	30.4	27.5
21	25.2	27.5	26.0	24.9	22.9	27.2	24.4	26.2	26.1	21.3	29.7	25.6
22	25.0	27.4	27.1	24.7	23.3	26.3	23.7	26.0	25.8	21.1	27.9	26.0
Average	26.8	30.1	28.9	27.4	25.3	29.1	26.4	27.6	28.5	23.5	31.6	27.4
Std. Dev.	2.0	2.2	1.9	2.1	1.9	2.1	2.1	1.9	2.3	1.9	2.0	1.6

Table 16. Phase 1 Puff Count Results: Smoking Regime #1 (35/60/2, 0% vb).

Puff Count (puffs/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	7.7	8.2	6.7	8.0	7.0	8.1	7.8	8.6	8.6	6.5	8.8	8.9
2	7.5	8.1	6.6	7.9	6.9	8.0	7.6	8.3	8.3	6.3	8.2	8.8
3	7.4	8.0	6.4	8.0	6.8	7.9	7.6	8.0	8.4	6.2	8.3	8.6
4	7.7	8.2	6.7	8.0	6.8	7.8	7.7	8.4	8.5	6.5	8.5	8.7
5	8.0	8.3	6.4	8.0	7.1	8.3	7.7	8.2	8.5	6.4	8.7	8.4
6	8.4	8.8	6.9	8.8	7.6	8.6	8.2	9.1	9.2	7.0	9.3	9.6
7	7.1	7.9	6.3	7.7	6.4	7.4	7.2	7.8	8.2	6.0	8.1	8.5
8	7.4	8.1	6.6	8.0	6.9	8.0	7.7	8.1	8.1	6.1	8.4	8.8
9	7.1	7.6	6.1	7.4	6.3	7.4	7.0	7.7	7.8	6.0	7.9	8.0
10	7.2	7.9	6.3	7.9	6.7	7.7	7.2	7.8	8.0	6.0	8.1	8.5
11	7.3	7.8	6.3	7.6	6.8	7.8	7.2	7.9	7.9	6.0	8.2	8.6
12	7.5	8.2	6.6	7.9	6.9	8.0	7.7	8.1	8.2	6.2	8.4	8.8
13	7.7	8.2	6.6	8.0	6.9	8.0	7.7	8.3	8.4	6.3	8.8	9.0
14	7.7	8.0	6.6	8.1	7.0	8.0	7.8	8.4	8.4	6.5	8.7	9.1
15	7.6	8.2	6.6	7.9	6.9	7.9	7.7	8.1	8.3	6.3	8.7	8.9
16	7.6	8.0	6.8	8.0	6.9	7.8	7.6	8.2	8.2	6.2	8.6	8.7
17	7.9	8.5	6.7	8.5	7.2	8.1	7.9	8.5	8.6	6.6	8.9	9.3
18	7.8	8.4	6.6	8.4	6.9	8.3	7.6	8.6	8.4	6.4	8.6	9.6
19	7.7	8.1	6.6	8.1	6.9	8.0	7.8	8.5	8.5	6.4	8.7	9.3
20	8.3	8.9	---	8.9	7.4	8.6	8.6	9.1	9.1	6.8	9.6	9.9
21	7.9	8.5	6.7	8.4	7.1	8.2	8.0	8.3	8.7	6.6	8.9	9.3
22	7.9	8.3	6.7	8.4	7.1	8.0	7.9	8.6	8.7	6.5	9.1	9.2
Average	7.7	8.2	6.6	8.1	6.9	8.0	7.7	8.3	8.4	6.3	8.6	8.9
Std. Dev.	0.3	0.3	0.2	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4

Table 17. Phase 1 Puff Count Results: Smoking Regime #2 (45/30/2, 50% vb).

Puff Count (puffs/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	11.5	12.3	9.9	12.3	10.3	12.1	11.1	11.9	12.8	9.1	13.0	13.7
2	11.4	12.4	9.6	12.1	10.3	11.8	11.6	12.1	12.7	9.8	12.6	13.6
3	11.3	12.3	9.5	12.5	10.5	11.9	11.4	12.1	13.0	9.8	12.7	13.5
4	11.5	12.4	10.2	12.3	10.3	11.8	11.5	12.4	12.9	9.7	12.9	13.3
5	11.5	12.0	9.6	11.8	10.3	12.1	10.9	11.9	12.4	9.4	12.7	12.4
6	12.7	13.7	10.3	13.6	11.4	12.8	12.4	13.2	14.2	10.7	14.3	15.2
7	11.3	12.0	9.4	11.6	10.0	11.4	10.8	11.7	12.7	9.4	12.5	13.1
8	11.0	11.9	9.2	11.6	10.1	11.6	10.8	11.4	12.3	9.0	11.9	13.0
9	10.4	11.3	8.9	11.1	9.6	11.2	10.4	11.3	11.5	8.8	11.5	12.3
10	10.9	11.8	9.3	11.7	9.7	11.5	11.0	11.7	12.1	9.0	12.3	12.9
11	10.9	11.7	9.3	11.5	9.7	11.4	10.9	11.4	12.2	9.0	12.5	13.1
12	11.7	12.5	10.0	12.0	10.5	11.8	11.4	12.3	12.6	9.6	13.4	13.6
13	10.9	11.7	9.2	11.7	9.7	11.5	10.9	11.8	12.2	8.9	12.3	13.1
14	11.6	12.2	9.8	12.3	10.3	11.7	11.4	12.3	12.7	9.6	13.0	14.1
15	11.2	12.0	9.2	11.8	10.1	11.4	11.2	11.7	12.4	9.2	12.9	13.3
16	11.1	11.9	9.8	12.2	10.0	11.3	11.0	11.8	12.4	9.3	12.5	13.0
17	11.8	12.5	9.8	12.6	10.5	11.7	11.5	12.4	13.3	9.9	13.3	14.1
18	11.2	12.2	9.9	12.2	10.4	11.2	11.5	11.7	12.7	9.0	13.0	14.0
19	11.0	11.7	9.3	11.9	9.9	11.1	11.0	11.8	12.1	8.9	12.7	13.5
20	12.0	13.0	---	12.9	10.8	12.1	12.1	12.7	13.6	9.5	14.3	14.6
21	11.5	12.1	9.5	12.3	10.0	11.5	11.2	12.2	12.6	9.2	12.8	13.8
22	11.4	12.3	9.4	12.1	10.0	11.5	11.2	12.2	12.4	9.3	13.2	13.4
Average	11.4	12.2	9.6	12.1	10.2	11.6	11.2	12.0	12.6	9.4	12.8	13.5
Std. Dev.	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.6	0.4	0.6	0.7

Table 18. Phase 1 Puff Count Results: Smoking Regime #3 (55/30/2, 100% vb).

Puff Count (puffs/cigarette)

Laboratory Number	State Express	Marlboro KS	Gauloises Filtre	Camel Medium	B&H	Davidoff Light	Camel Light	R6 KS	Marlboro Ultra Light 100	Philip Morris One KS	Kentucky Reference 1R4F	CORESTA CM3
1	10.5	12.0	8.6	10.5	8.9	10.1	9.5	9.7	9.6	6.7	12.1	13.3
2	10.4	11.1	8.6	10.5	9.1	9.9	9.4	9.8	9.8	6.7	11.0	12.9
3	9.8	10.4	8.0	10.2	8.5	9.1	8.9	9.2	9.2	6.6	10.4	12.2
4	10.3	11.1	9.0	10.8	8.9	9.7	9.6	10.1	10.1	6.8	11.1	12.5
5	10.4	10.7	8.6	10.3	8.8	10.1	9.5	9.9	9.3	6.4	11.4	11.9
6	11.7	12.5	9.3	11.7	10.1	10.7	10.6	10.9	10.9	7.4	12.3	14.6
7	9.9	10.7	8.3	10.3	8.7	9.6	9.2	9.3	9.8	6.6	10.8	12.5
8	9.4	10.4	8.2	9.5	8.4	9.5	9.0	9.2	9.1	6.3	10.5	12.2
9	9.5	10.3	7.7	9.7	8.3	9.2	8.7	9.4	8.9	6.3	9.9	11.4
10	9.9	10.8	8.2	10.4	8.5	9.5	9.1	9.5	9.1	6.5	10.6	12.1
11	10.0	10.5	8.3	10.0	8.7	9.7	8.9	9.4	9.3	6.4	10.7	12.3
12	10.3	11.1	8.7	10.4	8.9	9.8	9.3	9.7	9.7	6.7	11.1	12.7
13	9.9	10.4	8.3	10.3	8.7	9.3	9.2	9.6	9.6	6.4	11.0	12.4
14	10.3	11.0	8.5	10.7	9.1	9.7	9.5	9.9	10.0	7.1	11.4	12.9
15	10.6	11.0	8.4	10.4	8.6	10.0	9.4	10.0	9.7	6.5	11.2	12.6
16	10.3	10.9	8.8	10.5	8.9	9.7	9.6	10.0	9.9	6.7	11.2	12.5
17	10.7	11.4	8.9	11.1	8.9	9.7	9.6	9.8	9.7	6.4	11.5	13.1
18	10.7	10.8	8.3	10.3	8.9	9.4	9.6	9.3	9.8	6.3	10.7	12.7
19	9.9	10.6	8.3	10.1	8.5	9.1	8.6	9.4	9.3	6.0	10.4	12.3
20	11.2	11.7	---	11.4	9.5	10.1	9.9	10.5	10.1	6.7	12.5	13.6
21	10.3	10.9	8.0	10.5	8.8	9.8	9.3	9.8	9.5	6.5	11.0	12.9
22	10.3	11.0	8.6	10.4	8.9	9.4	9.2	9.5	9.5	6.3	11.3	12.5
Average	10.3	11.0	8.5	10.5	8.8	9.7	9.3	9.7	9.6	6.6	11.1	12.6
Std. Dev.	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.6	0.6

Appendix 4. Phase 1 Study Statistical Analysis Results

Appendix 4, Table 1. Phase 1 Study Outliers Based on Preliminary Mandel Plots

Original Data												
No.	Lab #	Lab	Cig	Regimen	Rep	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff Count	Description
1	1	ETI	K	2	8	23.13	3.07	2.40	17.66	24.32	11.70	2.4 Nicotine outlier, drop port
2	2	IMP	B	3	2	46.95	13.67	2.13	31.15	21.70	11.25	21.7 CO outlier - drop port
3	14	JT	A	3	3	36.27	10.37	1.35	24.55	27.60	10.05	1.35 Nicotine outlier, drop port
4	17	BAT	B	1	8	11.80	1.22	0.89	9.69	11.07	7.70	9.69 NFDPM outlier, drop port
5	17	BAT	D	2	10	21.50	4.26	1.62	15.62	18.87	11.13	15.62 NFDPM outlier, drop port
6	17	BAT	F	3	7	39.73	12.65	4.65	22.43	27.31	9.40	Correct nicotine (4.65/3) and NFDPM (was 22.43), replaced with correct value after dividing by number of cigarettes smoked
7	17	BAT	F	3	8	40.57	11.63	4.65	24.29	27.72	9.50	Correct nicotine (4.65/3) and NFDPM (was 24.29), replaced with correct value after dividing by number of cigarettes smoked
8	17	BAT	H	2	4	17.10	1.58	3.30	12.22	16.61	12.30	Correct nicotine (3.30/3) and NFDPM (was 12.22), replaced with correct value after dividing by number of cigarettes smoked
9	17	BAT	L	2	4	28.20	4.93	1.57	21.70	20.63	13.03	1.57 nicotine outlier, 21.7 NFDPM outlier, drop port
10	18	GAL	B	3	6	49.33	27.98	2.06	19.29	17.14	11.70	19.29 NFDPM outlier, drop port
11	18	GAL	G	2	7	21.30	4.13	1.23	21.30	21.37	11.50	21.3 NFDPM calc error, but 21.37 CO outlier, drop port
12	21	RBH	B	2	6	22.00	6.10	0.82	15.08	25.78	12.60	Leak, 15.08 NFDPM outlier, drop port
13	21	RBH	F	2	9	1.90	5.17	1.57	-4.84	22.02	12.20	Weighing Error, drop port
14	21	RBH	G	1	5	5.54	0.45	0.44	4.65	5.39	7.80	0.44 nicotine outlier, drop port

Additional: All Regimen 3 Gallaher CO data is excluded
 Arista shows generally higher NFDPM yields, NOT excluded from models initially

Appendix 4, Table 2. Phase 1 Study Incidence of Cochran/Grubbs Outliers per ISO 5725

Analyte	Smoking Regime #		Smoking Machine Type				
			RM20	RM200	SM400	SM400 + KC Automation	ASM500
Puffs	1	# Outliers	1	0	0	0	0
	2	# Outliers	3	1	1	1	0
	3	# Outliers	0	0	0	0	0
	Total (# Labs * Cigs.)		72	72	60	72	47
TPM	1	# Outliers	1	1	1	1	0
	2	# Outliers	3	0	0	2	0
	3	# Outliers	1	1	1	4	0
	Total (# Labs * Cigs.)		72	72	60	72	47
Nicotine	1	# Outliers	4	2	0	1	0
	2	# Outliers	3	3	0	0	0
	3	# Outliers	0	5	0	2	0
	Total (# Labs * Cigs.)		72	72	60	72	47
Water	1	# Outliers	4	1	5	8	0
	2	# Outliers	1	1	2	2	0
	3	# Outliers	0	1	1	4	0
	Total (# Labs * Cigs.)		72	72	60	72	47
NFDPM	1	# Outliers	0	0	0	0	0
	2	# Outliers	2	1	0	2	0
	3	# Outliers	2	1	1	3	0
	Total (# Labs * Cigs.)		72	72	60	72	47
CO	1	# Outliers	1	0	0	2	0
	2	# Outliers	1	2	1	3	0
	Total (# Labs * Cigs.)		72	72	60	72	47
	3	# Outliers	0	2	0	0	0
Total (# Labs * Cigs.)		72	72	48	60	47	

Appendix 4, Table 3. Tukey's Pairwise Comparison of Smoking Machine Category Means

NFDPM	Regime 1 Mean Smoking Machine	7.63 RM200	7.75 ASM500	7.78 RM20	7.87 SM400	8.74 KCAuto
	Regime 2 Mean Smoking Machine	18.05 ASM500	18.16 RM200	19.01 RM20	19.21 SM400	20.73 KCAuto
	Regime 3 Mean Smoking Machine	23.96 ASM500	23.65 RM200	25.53 RM20	26.23 SM400	26.93 KCAuto
Nicotine	Regime 1 Mean Smoking Machine	0.631 ASM500	0.631 RM200	0.633 SM400	0.634 RM20	0.636 KCAuto
	Regime 2 Mean Smoking Machine	1.36 KCAuto	1.39 RM200	1.40 ASM500	1.42 SM400	1.44 RM20
	Regime 3 Mean Smoking Machine	1.69 KCAuto	1.69 ASM500	1.70 RM200	1.74 SM400	1.76 RM20
CO	Regime 1 Mean Smoking Machine	8.52 SM400	8.57 ASM500	8.76 KCAuto	9.48 RM20	9.62 RM200
	Regime 2 Mean Smoking Machine	19.54 KCAuto	19.59 SM400	19.67 ASM500	21.28 RM20	21.80 RM200
	Regime 3 Mean Smoking Machine	26.17 KCAuto	26.31 ASM500	26.47 SM400	28.35 RM20	29.11 RM200

Note: No significant difference observed for smoking machines "connected" by solid lines.

Figure 1. Phase 1 Study Repeatability and Reproducibility, NFDPM, RM20
Variability vs. Mean Across Regimes w/ Weighted Regression Line
Nic-Free Dry TPM, Using the RM20 Smoking Machine

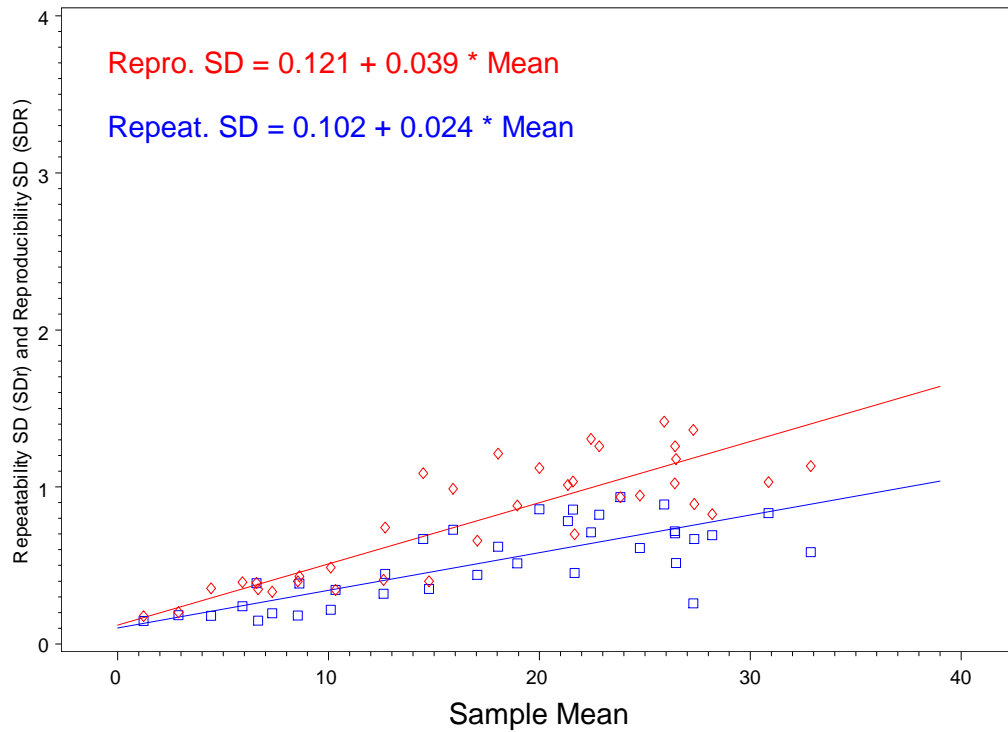


Figure 2. Phase 1 Study Repeatability and Reproducibility, NFDPM, RM200
Variability vs. Mean Across Regimes w/ Weighted Regression Line
Nic-Free Dry TPM, Using the RM200 Smoking Machine

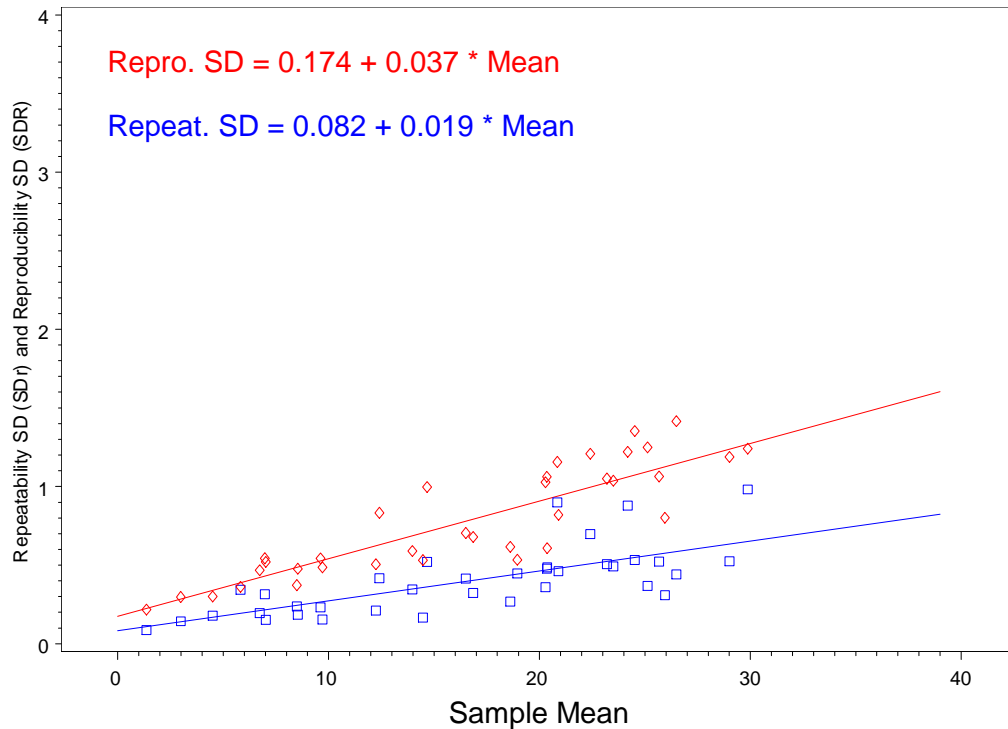


Figure 3. Phase 1 Study Repeatability and Reproducibility, NFDPM, SM400
 Variability vs. Mean Across Regimes w/ Weighted Regression Line
 Nic-Free Dry TPM, Using the SM400 Smoking Machine

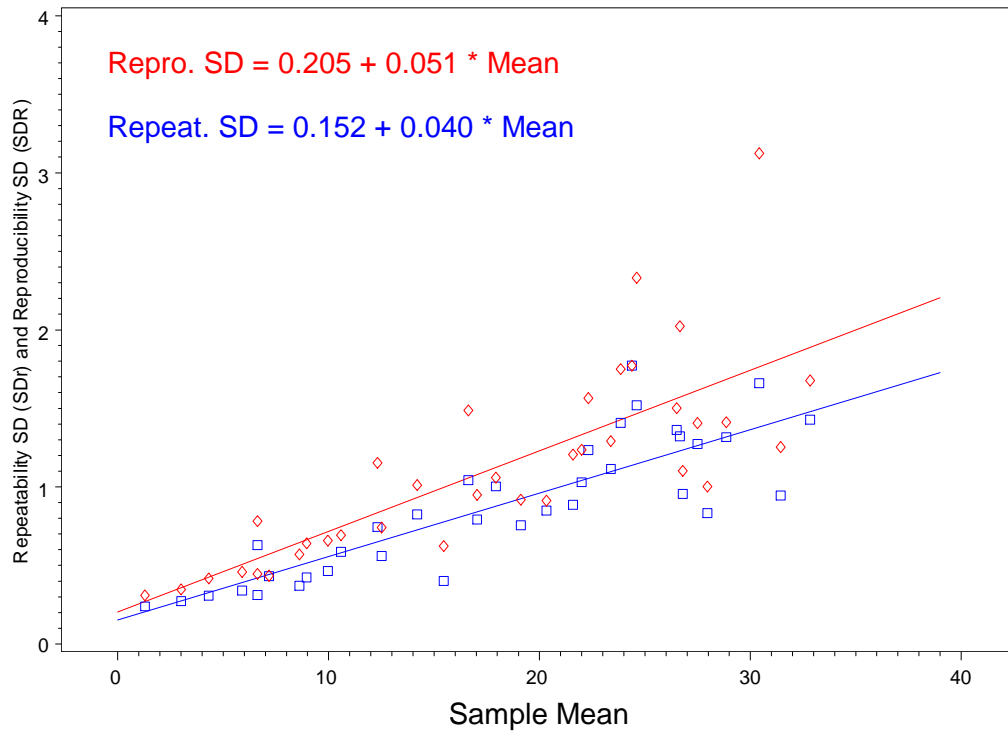


Figure 4. Phase 1 Study Repeatability and Reproducibility, NFDPM, SM400+KCAuto

Variability vs. Mean Across Regimes w/ Weighted Regression Line
 Nic-Free Dry TPM, Using the SM400+KCAuto Smoking Machine

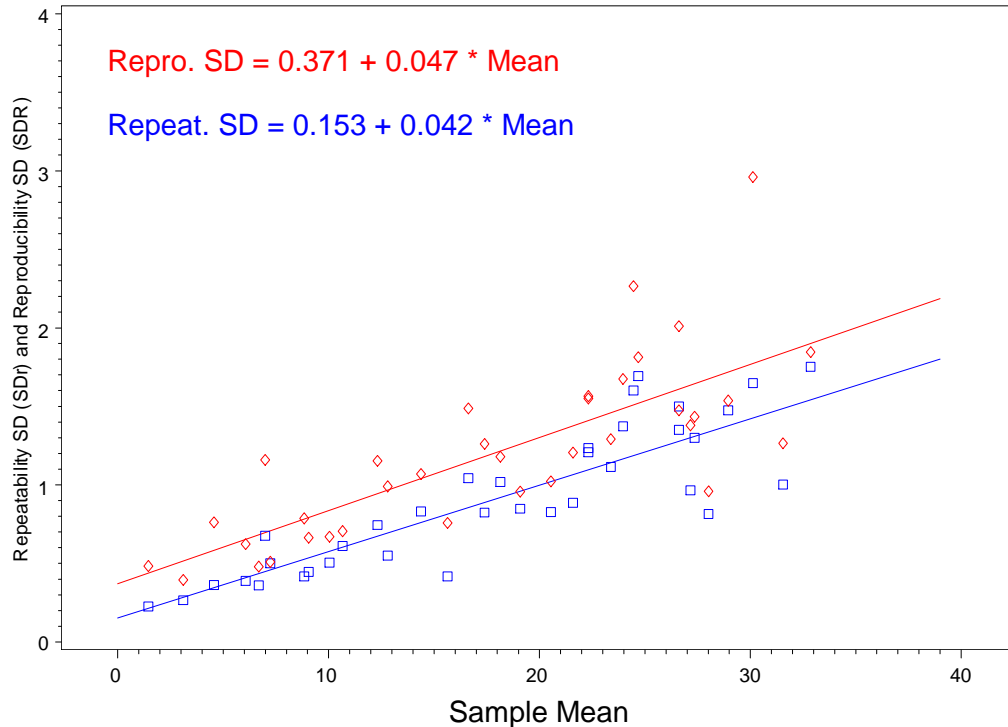


Figure 5. Phase 1 Study Repeatability and Reproducibility, NFDPM, ASM500

Variability vs. Mean Across Regimes w/ Weighted Regression Line
Nic-Free Dry TPM, Using the ASM500 Smoking Machine

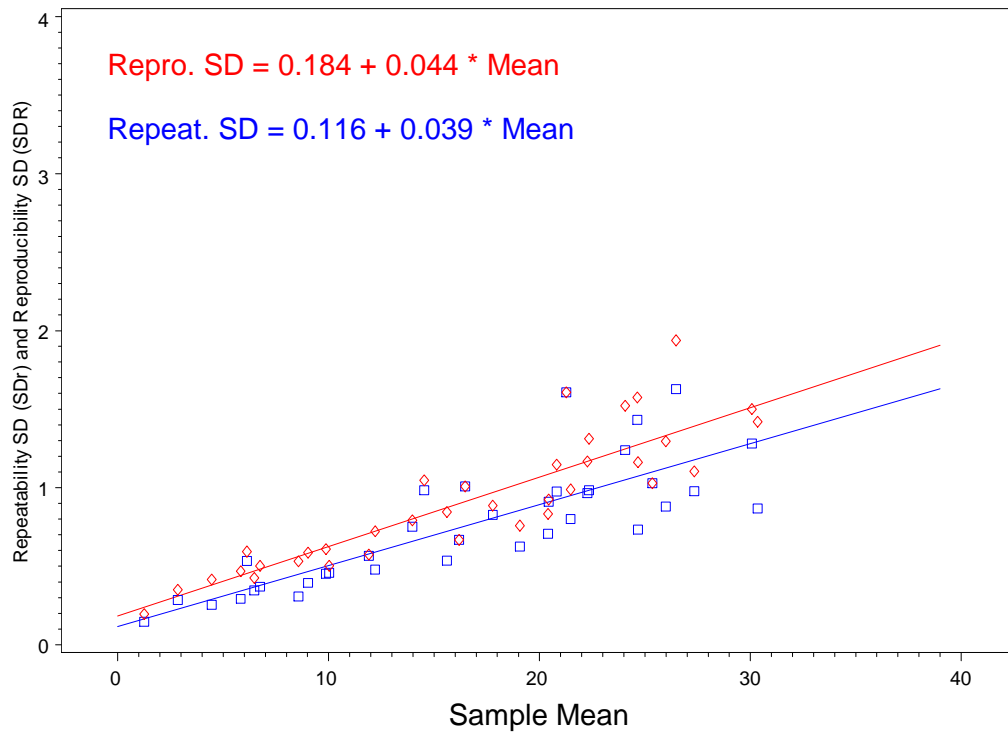


Figure 6. Phase 1 Study Repeatability and Reproducibility, Nicotine, RM20

Variability vs. Mean Across Regimes w/ Weighted Regression Line
Nicotine, Using the RM20 Smoking Machine

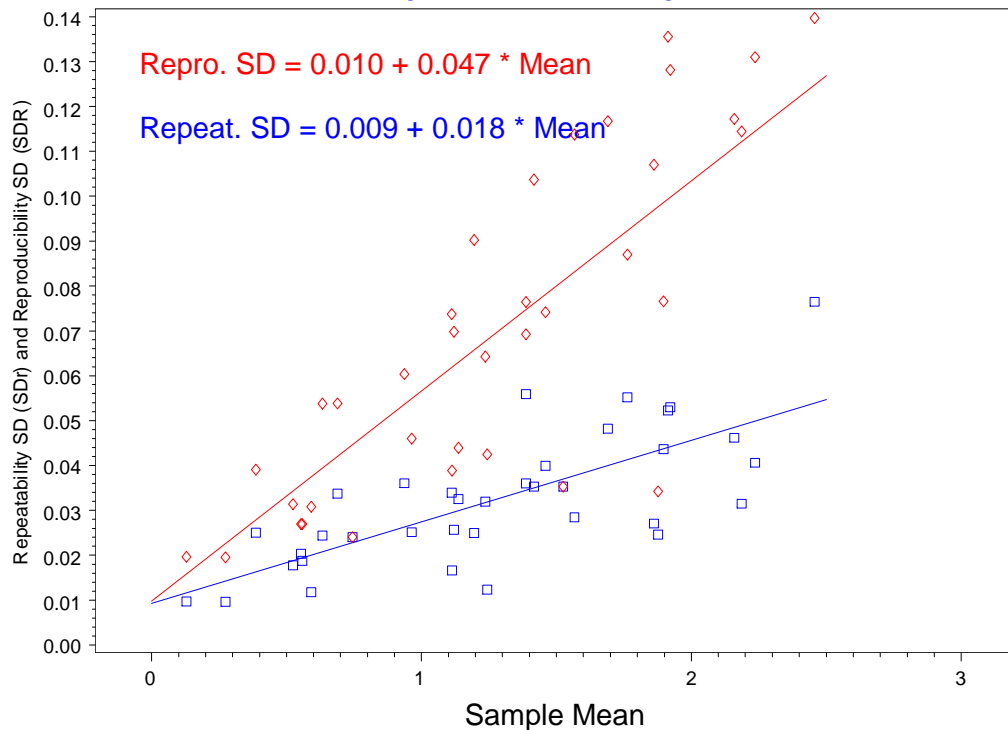


Figure 7. Phase 1 Study Repeatability and Reproducibility, Nicotine, RM200
 Variability vs. Mean Across Regimes w/ Weighted Regression Line
 Nicotine, Using the RM200 Smoking Machine

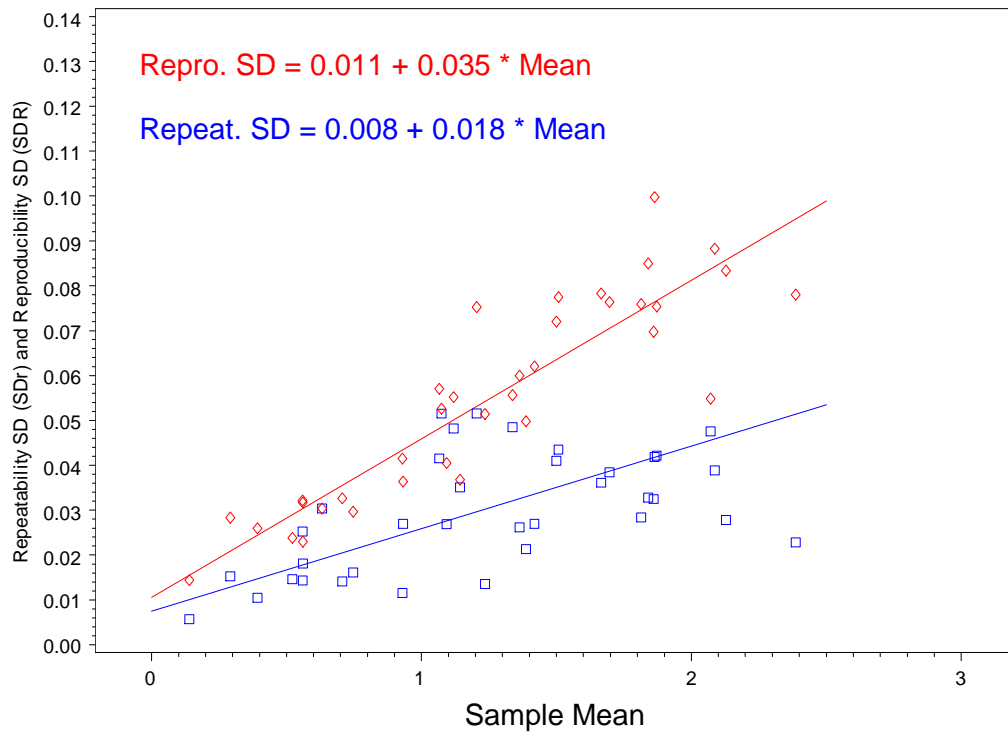


Figure 8. Phase 1 Study Repeatability and Reproducibility, Nicotine, SM400
 Variability vs. Mean Across Regimes w/ Weighted Regression Line
 Nicotine, Using the SM400 Smoking Machine

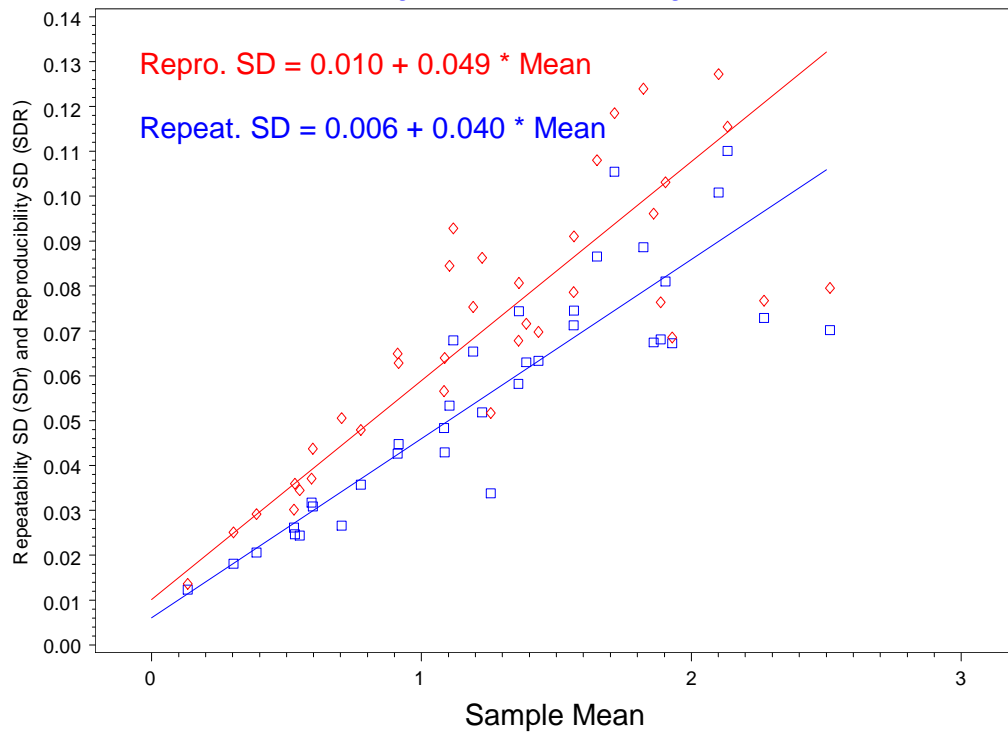


Figure 9. Phase 1 Study Repeatability and Reproducibility, Nicotine, SM400+KCAuto

Variability vs. Mean Across Regimes w/ Weighted Regression Line
Nicotine, Using the SM400+KCAuto Smoking Machine

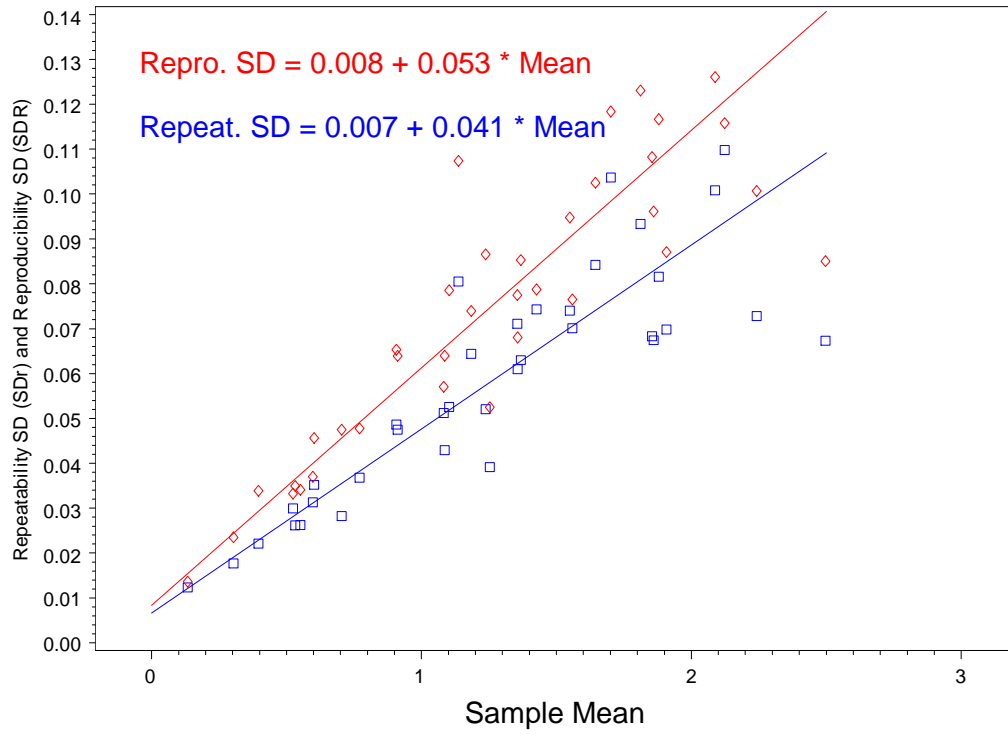


Figure 10. Phase 1 Study Repeatability and Reproducibility, Nicotine, ASM500

Variability vs. Mean Across Regimes w/ Weighted Regression Line
Nicotine, Using the ASM500 Smoking Machine

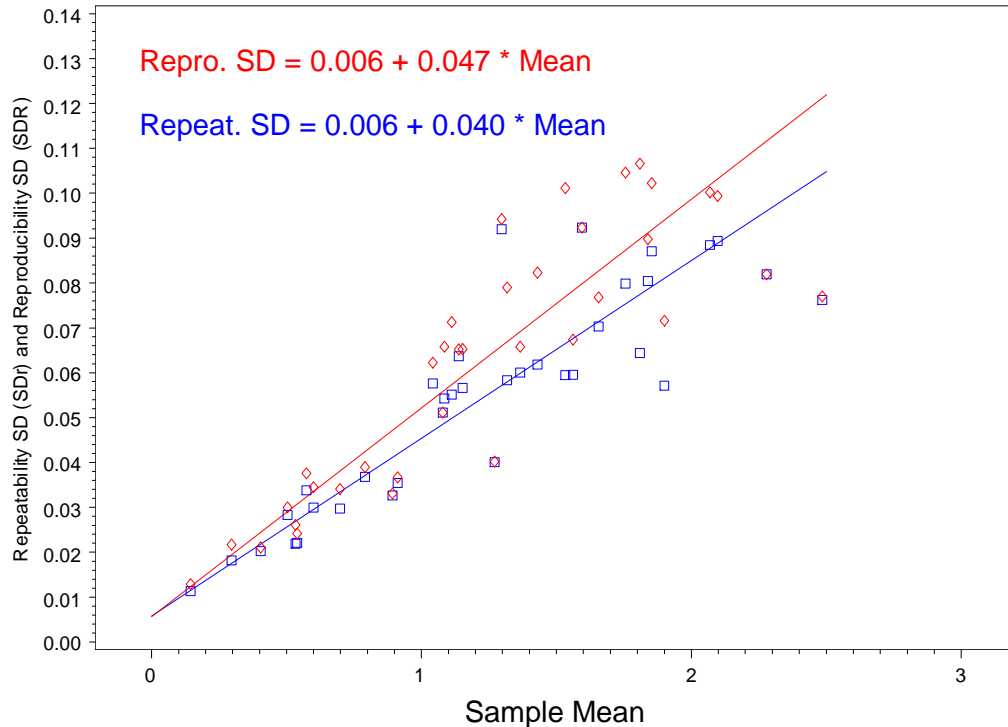


Figure 11. Phase 1 Study Repeatability and Reproducibility, CO, RM20
 Variability vs. Mean Across Regimes w/ Weighted Regression Line
 CO, Using the RM20 Smoking Machine

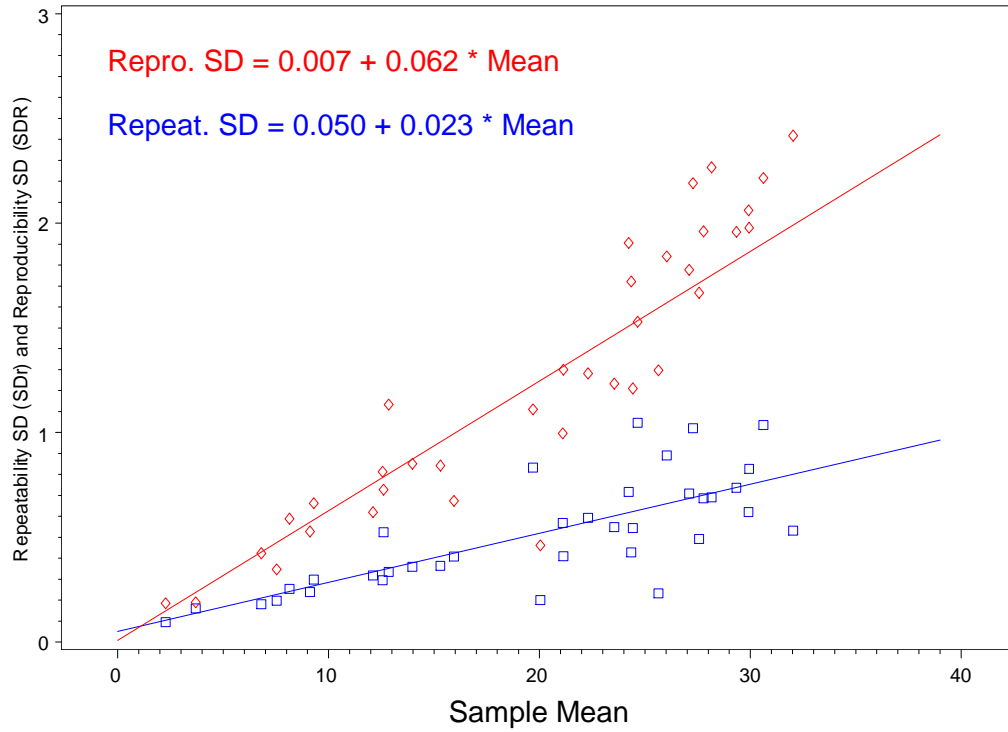


Figure 12. Phase 1 Study Repeatability and Reproducibility, CO, RM200
 Variability vs. Mean Across Regimes w/ Weighted Regression Line
 CO, Using the RM200 Smoking Machine

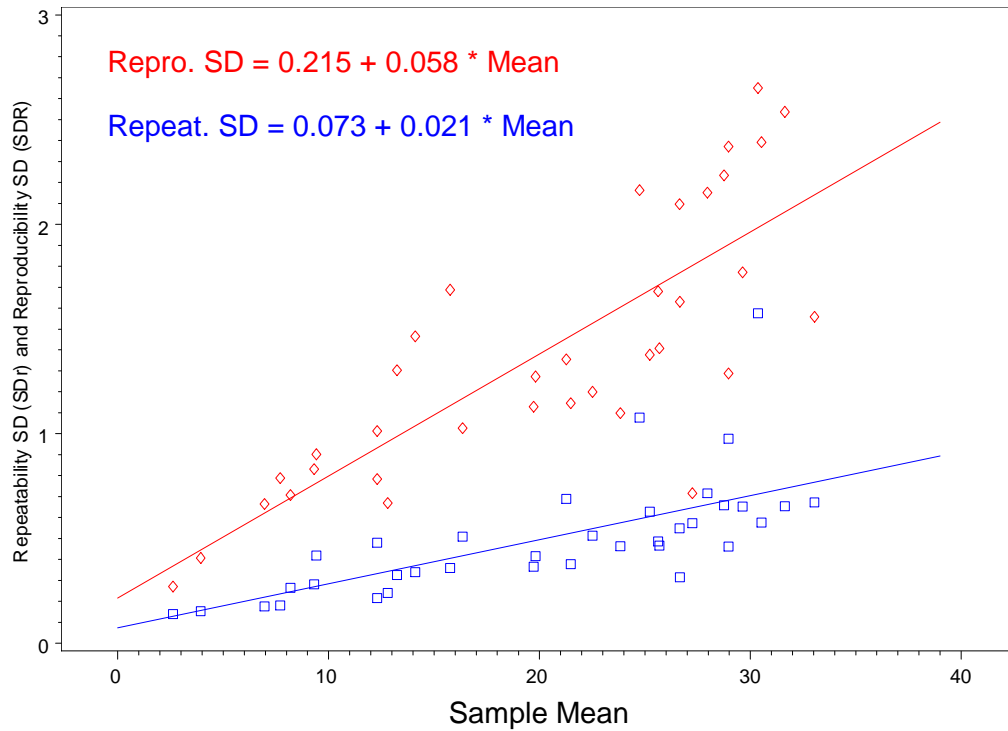


Figure 13. Phase 1 Study Repeatability and Reproducibility, CO, SM400
Variability vs. Mean Across Regimes w/ Weighted Regression Line
CO, Using the SM400 Smoking Machine

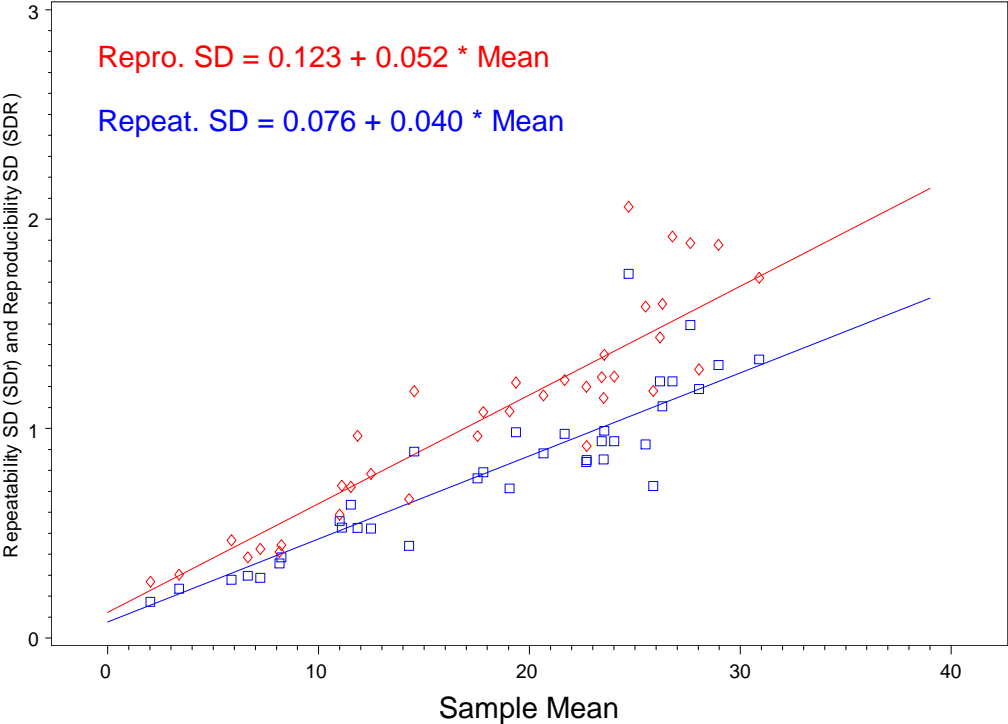


Figure 14. Phase 1 Study Repeatability and Reproducibility, CO, SM400+KCAuto
Variability vs. Mean Across Regimes w/ Weighted Regression Line
CO, Using the SM400+KCAuto Smoking Machine

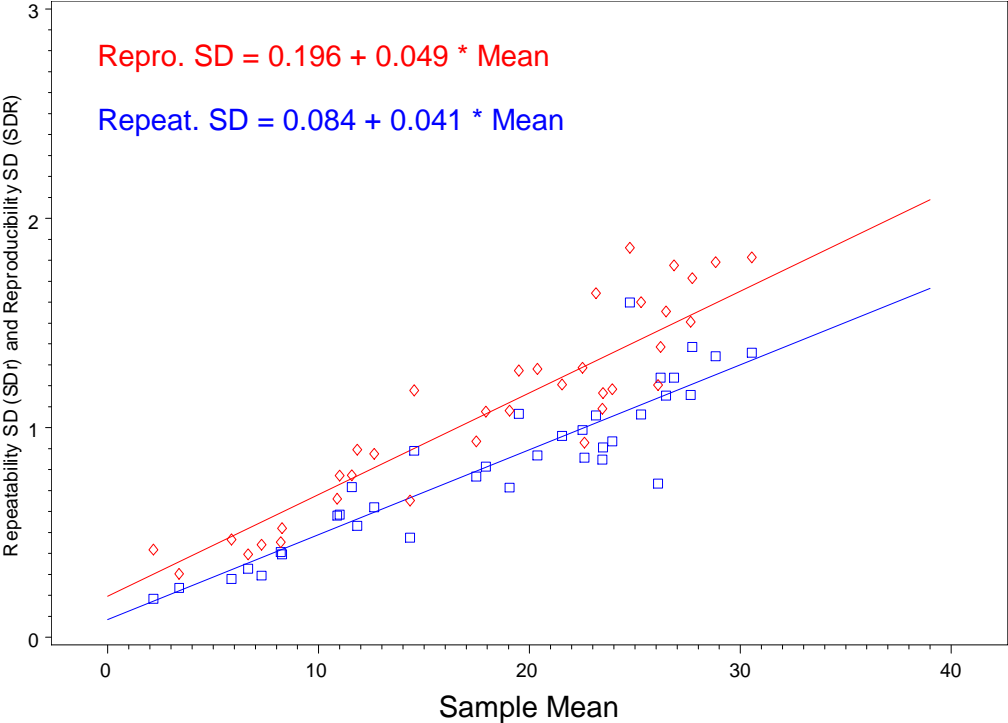
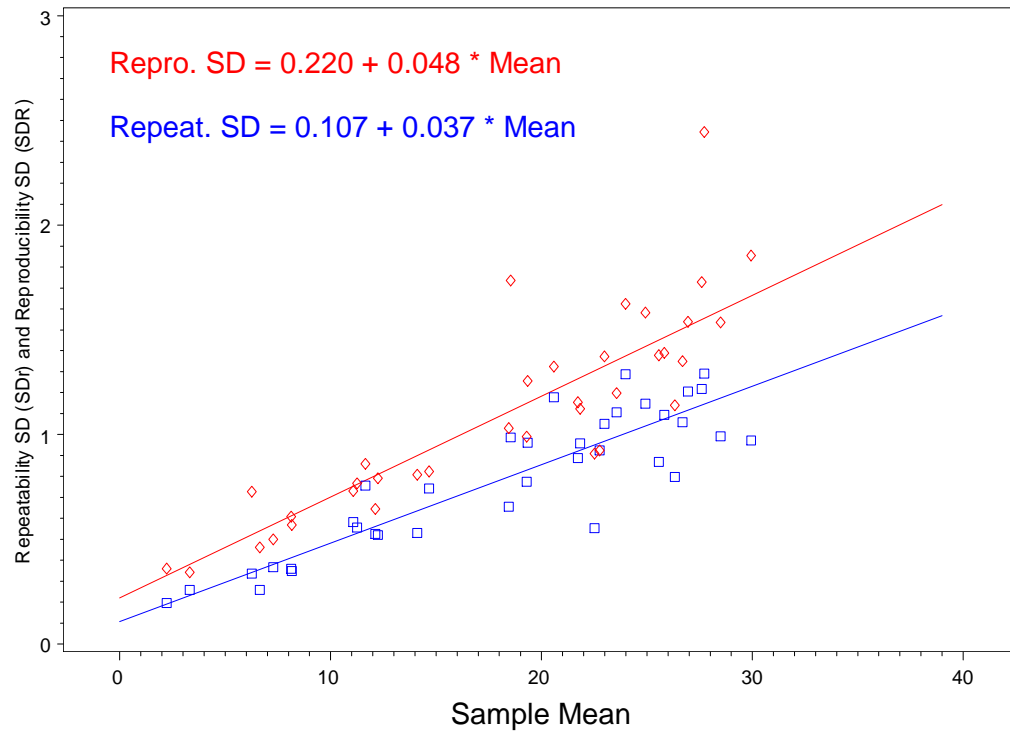


Figure 15. Phase 1 Study Repeatability and Reproducibility, CO, ASM500
Variability vs. Mean Across Regimes w/ Weighted Regression Line
CO, Using the ASM500 Smoking Machine



Appendix 4, Table 4. Phase 1 Study Comparison of NFDPM Functional Relationship Models (Linear vs. Quadratic)

LINEST Function Output Format				
Linear		Quadratic		
X	Int	X2	X	Int
X SE	Int SE	X2 SE	X SE	Int SE
r2	sey	r2	sey	#N/A
F	Error df	F	Error df	#N/A
SS Model	SS Error	SS Model	SS Error	#N/A

#	Cigarette	NFDPM Means				LINEST Function Output: Regime 2 vs 1					Compare	
		Regime 1	Regime 1 ²	Regime 2	Regime 3	Linear		Quadratic				
1	State Express	10.00	99.91	21.25	25.21	1.431	7.571	-0.051	2.252	4.983	SS Imp	8.748
2	Marlboro KS	12.49	156.12	26.45	31.52	0.105	0.908	0.018	0.300	1.148	F Imp	8.04
3	Gauloises Filtre	10.12	102.32	22.43	27.03	0.949	1.362	0.973	1.043	#N/A	P Imp	0.0196
4	Camel Medium	8.63	74.40	21.24	27.54	185.885	10	162.359	9	#N/A		
5	B&H	7.11	50.58	17.47	22.22	344.721	18.545	353.469	9.797	#N/A		
6	Davidoff Light	6.66	44.33	18.69	25.43	LINEST Function Output: Regime 3 vs 1						
7	Camel Light	5.92	35.01	16.84	23.41	Linear		Quadratic			Compare	
8	R6 KS	4.49	20.20	14.23	21.43	0.964	17.441	-0.029	1.434	15.96	SS Imp	2.872
9	Marlboro Ultra Light 100	2.97	8.82	12.58	23.61	0.156	1.345	0.035	0.590	2.26	F Imp	0.68
10	Philip Morris One KS	1.33	1.77	6.80	15.62	0.793	2.017	0.808	2.050	#N/A	P Imp	0.4298
11	Kentucky Reference 1R4F	8.78	77.12	19.66	26.01	38.405	10	18.936	9	#N/A		
12	CORESTA CM3	15.08	227.31	27.15	30.46	156.317	40.702	159.189	37.830	#N/A		

Appendix 4, Table 5. Phase 1 Study Comparison of Nicotine Functional Relationship Models (Linear vs. Quadratic)

LINEST Function Output Format				
Linear		Quadratic		
X	Int	X2	X	Int
X SE	Int SE	X2 SE	X SE	Int SE
r2	sey	r2	sey	#N/A
F	Error df	F	Error df	#N/A
SS Model	SS Error	SS Model	SS Error	#N/A

#	Cigarette	Nicotine Means				LINEST Function Output: Regime 2 vs 1					Compare	
		Regime 1	Regime 1 ²	Regime 2	Regime 3	Linear		Quadratic				
1	State Express	0.93	0.87	1.88	2.10	1.368	0.568	-0.244	1.703	0.476	SS Imp	0.008
2	Marlboro KS	0.92	0.85	1.87	2.13	0.091	0.064	0.254	0.360	0.115	F Imp	0.92
4	Camel Medium	0.70	0.49	1.54	1.83	0.962	0.092	0.966	0.092	#N/A	P Imp	0.3647
5	B&H	0.54	0.29	1.20	1.36	226.108	9	112.553	8	#N/A		
6	Davidoff Light	0.55	0.30	1.38	1.65	1.900	0.076	1.908	0.068	#N/A		
7	Camel Light	0.53	0.28	1.36	1.71	LINEST Function Output: Regime 3 vs 1						
8	R6 KS	0.39	0.16	1.10	1.43	Linear		Quadratic			Compare	
9	Marlboro Ultra Light 100	0.29	0.09	1.12	1.83	1.075	1.086	0.161	0.854	1.147	SS Imp	0.003
10	Philip Morris One KS	0.14	0.02	0.62	1.09	0.186	0.131	0.545	0.773	0.247	F Imp	0.09
11	Kentucky Reference 1R4F	0.76	0.58	1.54	1.90	0.788	0.187	0.790	0.198	#N/A	P Imp	0.7745
12	CORESTA CM3	1.25	1.56	2.22	2.45	33.488	9	15.091	8	#N/A		
						1.175	0.316	1.178	0.312	#N/A		

Appendix 4, Table 6. Phase 1 Study Comparison of Carbon Monoxide Functional Relationship Models (Linear vs. Quadratic)

LINEST Function Output Format				
Linear		Quadratic		
X	Int	X2	X	Int
X SE	Int SE	X2 SE	X SE	Int SE
r2	sey	r2	sey	#N/A
F	Error df	F	Error df	#N/A
SS Model	SS Error	SS Model	SS Error	#N/A

#	Cigarette	CO Means				LINEST Function Output: Regime 2 vs 1					Compare	
		Regime 1	Regime 1 ²	Regime 2	Regime 3	Linear		Quadratic				
1	State Express	11.83	139.92	22.75	26.76	0.932	12.180	-0.063	2.014	8.379	SS Imp	9.229
2	Marlboro KS	13.34	177.83	24.94	30.11	0.098	0.961	0.018	0.311	1.252	F Imp	12.67
3	Gauloises Filtre	11.67	136.24	24.16	28.95	0.901	1.256	0.959	0.854	#N/A	P Imp	0.0061
4	Camel Medium	8.79	77.26	20.48	27.43	90.952	10	104.871	9	#N/A		
5	B&H	8.80	77.41	20.28	25.32	143.578	15.786	152.807	6.557	#N/A		
6	Davidoff Light	7.77	60.44	21.53	29.13	LINEST Function Output: Regime 3 vs 1						
7	Camel Light	7.18	51.62	19.05	26.37	Linear		Quadratic			Compare	
8	R6 KS	6.54	42.74	18.90	27.59	0.286	25.114	-0.023	0.685	23.712	SS Imp	1.256
9	Marlboro Ultra Light 100	3.63	13.17	15.57	28.54	0.151	1.483	0.041	0.733	2.947	F Imp	0.31
10	Philip Morris One KS	2.33	5.43	12.33	23.51	0.265	1.939	0.289	2.010	#N/A	P Imp	0.5907
11	Kentucky Reference 1R4F	12.43	154.54	24.17	31.57	3.603	10	1.833	9	#N/A		
12	CORESTA CM3	14.95	223.42	23.85	27.37	13.549	37.605	14.805	36.350	#N/A		

**Appendix 4, Table 7. Phase 1 Study Comparison of NFDPM Functional Relationship Models
(Linear vs. Quadratic) – Reference Cigarettes Excluded**

LINEST Function Output Format				
Linear		Quadratic		
X	Int	X2	X	Int
X SE	Int SE	X2 SE	X SE	Int SE
r2	sey	r2	sey	#N/A
F	Error df	F	Error df	#N/A
SS Model	SS Error	SS Model	SS Error	#N/A

#	Cigarette	NFDPM Means				LINEST Function Output: Regime 2 vs 1					Compare	
		Regime 1	Regime 1 ²	Regime 2	Regime 3	Linear		Quadratic				
1	State Express	9.95	99.00	21.13	25.21	1.609	6.391	-0.050	2.316	4.4209276	SS Imp	3.377
2	Marlboro KS	12.84	164.84	26.33	32.04	0.114	0.901	0.029	0.420	1.3921415	F Imp	3.0094099
3	Gauloises Filtre	10.28	105.76	23.15	28.77	0.961	1.185	0.973	1.059	#N/A	P Imp	0.1264
4	Camel Medium	8.86	78.48	21.91	28.87	197.538	8	125.082	7	#N/A		
5	B&H	7.21	52.01	17.52	22.46	277.351	11.232	280.728	7.855	#N/A		
6	Davidoff Light	6.82	46.44	18.60	25.99	LINEST Function Output: Regime 3 vs 1						
7	Camel Light	6.16	37.95	16.68	25.22	Linear		Quadratic			Compare	
8	R6 KS	4.63	21.46	13.66	21.45	1.190	16.356	-0.030	1.608	15.191553	SS Imp	1.181
9	Marlboro Ultra Light	3.34	11.14	13.18	22.86	0.204	1.604	0.060	0.880	2.913918	F Imp	0.2402
10	Philip Morris One KS	1.47	2.17	6.89	15.84	0.810	2.109	0.816	2.217	#N/A	P Imp	0.6390
						34.082	8	15.543	7	#N/A		
						151.647	35.596	152.828	34.415	#N/A		

**Appendix 4, Table 8. Phase 1 Study Comparison of Nicotine Functional Relationship Models
(Linear vs. Quadratic) – Reference Cigarettes Excluded**

LINEST Function Output Format				
Linear		Quadratic		
X	Int	X2	X	Int
X SE	Int SE	X2 SE	X SE	Int SE
r2	sey	r2	sey	#N/A
F	Error df	F	Error df	#N/A
SS Model	SS Error	SS Model	SS Error	#N/A

#	Cigarette	Nicotine Means				LINEST Function Output: Regime 2 vs 1					Compare	
		Regime 1	Regime 1 ²	Regime 2	Regime 3	Linear		Quadratic				
1	State Express	2.14	4.57	2.37	1.78	0.775	0.698	0.050	0.629	0.7949821	SS Imp	0.001
2	Marlboro KS	2.12	4.49	2.39	2.61	0.133	0.208	0.286	0.849	0.5972741	F Imp	0.0304113
4	Camel Medium	1.79	3.19	2.05	1.11	0.829	0.179	0.830	0.193	#N/A	P Imp	0.8673
5	B&H	1.34	1.79	1.47	1.16	33.922	7	14.627	6	#N/A		
6	Davidoff Light	1.59	2.54	1.89	0.70	1.090	0.225	1.091	0.224	#N/A		
7	Camel Light	1.51	2.27	1.89	0.55	LINEST Function Output: Regime 3 vs 1						
8	R6 KS	1.21	1.47	1.55	0.34	Linear		Quadratic			Compare	
9	Marlboro Ultra Light	1.15	1.31	1.96	0.30	1.422	-1.165	1.066	-1.694	0.8964013	SS Imp	0.518
10	Philip Morris One KS	0.66	0.44	1.17	0.19	0.335	0.525	0.577	1.713	1.2053289	F Imp	3.4064
						0.720	0.452	0.821	0.390	#N/A	P Imp	0.1145
						17.977	7	13.782	6	#N/A		
						3.670	1.429	4.188	0.912	#N/A		

**Appendix 4, Table 9. Phase 1 Study Comparison of Carbon Monoxide Functional Relationship Models
(Linear vs. Quadratic) – Reference Cigarettes Excluded**

LINEST Function Output Format				
Linear		Quadratic		
X	Int	X2	X	Int
X SE	Int SE	X2 SE	X SE	Int SE
r2	sey	r2	sey	#N/A
F	Error df	F	Error df	#N/A
SS Model	SS Error	SS Model	SS Error	#N/A

#	Cigarette	CO Means				LINEST Function Output: Regime 2 vs 1					Compare	
		Regime 1	Regime 1 ²	Regime 2	Regime 3	Linear		Quadratic				
1	State Express	24.11	581.15	11.14	20.82	0.711	-8.659	0.009	0.328	-4.605552	SS Imp	0.385
2	Marlboro KS	29.64	878.65	12.16	23.12	0.151	3.493	0.028	1.234	13.469824	F Imp	0.0979913
3	Gauloises Filtre	26.34	693.74	11.62	22.45	0.735	1.867	0.738	1.982	#N/A	P Imp	0.7634
4	Camel Medium	25.24	637.26	7.96	18.96	22.169	8	9.884	7	#N/A		
5	B&H	21.39	457.66	7.99	18.65	77.305	27.897	77.690	27.511	#N/A		
6	Davidoff Light	23.69	561.07	7.03	19.76	LINEST Function Output: Regime 3 vs 1						
7	Camel Light	21.69	470.54	6.56	17.56	Linear		Quadratic			Compare	
8	R6 KS	20.17	406.63	5.93	17.44	0.805	0.084	-0.012	1.315	-5.312105	SS Imp	0.682
9	Marlboro Ultra Light	21.61	467.04	3.13	14.60	0.121	2.796	0.022	0.976	10.64634	F Imp	0.2779
10	Philip Morris One KS	14.22	202.08	2.00	11.04	0.847	1.495	0.853	1.567	#N/A	P Imp	0.6143
						44.377	8	20.325	7	#N/A		
						99.121	17.869	99.804	17.187	#N/A		

Appendix 5. Phase 2 Study Protocol

Test Protocol for the CORESTA Alternative Puffing Regime Task Force – Phase 2 Collaborative Study

1. Schedule

- Each supplier laboratory of test cigarettes shall ship two cartons of the same batch of test cigarettes to selected participating laboratories as set out in Appendix 1.
- Shipment of all products will be completed by July 15, 2002. (Note: All participating laboratories will be responsible for purchasing CORESTA monitor cigarette CM4 for their own use. PM International will provide two cartons of Philip Morris One KS and R. J. Reynolds Tobacco will provide two cartons of Kentucky Reference Cigarette 1R4F to each participating laboratory. The supplier laboratories will provide all other cigarettes.)
- CORESTA monitor cigarette CM4 can be purchased from:
 - Borgwaldt Technik
Schnackenburgallee 15
D-22525 Hamburg, Germany
Tel : + 49 40 85 31 380
Fax : + 49 40 85 05 600
email BT@borgwaldt.de
 - Cerulean
Rockingham Drive
Linford Wood East
Milton Keynes MK14 6LY, United Kingdom
Att : Vicky Diamond, Customer Service Manager
Tel + 44 1908 396016
Fax + 44 1908 396087
email: vicky.diamond@molins.com
- Cases and cartons shall be unpacked, and packages containing test cigarettes shall be mixed and sampled at random in each participating laboratory.
- Laboratories shall determine NFDPM, nicotine and CO in mainstream smoke of test cigarettes using three separate smoking regimes during August, September and October 2002.
- All test results shall be reported to Steve Chapman, Mike Borgerding and Yves St. Jalm by November 8, 2002.
- M. F. Borgerding and W. T. Morgan will compile test results and a preliminary analysis of data from the study will be reported to all participating laboratories at the Task Force Meeting tentatively scheduled for December 12, 2002 in Paris France.

2. Test Cigarettes

As shown in Tables 1 - 9, groups of ten (10) commercial test cigarettes different in “tar” (NFDPM) level and three “reference cigarettes” shall be used in the collaborative study.

Table 1. Test Cigarettes for Phase 2 Collaborative Study – Ad Hoc Brands

Sample code	Sample name	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	PHILIP MORRIS ONE 100	1	39.0	24.8
B	MS Club Lights slim	3	35.0	17.0
C	Davidoff Lights Slims	7	35.0	19.2
D	MS 821	8	35.0	24.8
E	Fine 120	11	38.0	21.4
F	ST Dupont	14	33.0	24.8
G	A-International	15	31.0	24.8
H	CAMEL NF	24	23.0	24.9
I	Basic King NF	26	23.0	24.8
J	MARK TEN PLAIN KS	19	23.0	25.0
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 2. Test Cigarettes for Phase 2 Collaborative Study – American Blends

Sample code	Sample name	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	R1 Slim Line Minima	1	35.0	19.2
B	Gauloises Blondes UL	2	35.0	24.8
C	MARLBORO ULTRA LIGHTS KS	3	35.0	24.8
D	West Ultra	4	33.0	24.8
E	Royale Menthol Light	5	35.0	24.8
F	Mildseven Superlight	6	33.0	25.0
G	Sax Lights	7	35.0	24.8
H	Fine 120 Light	8	38.0	21.4
I	MULTIFILTER 100	9	35.0	24.8
J	MARLBORO 100	12	35.0	24.6
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 3. Test Cigarettes for Phase 2 Collaborative Study – Canadian Brands

Sample code	Sample name	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Macdonald Select Ultra Mild KS	1	33.0	25.2
B	Viscount Extra Mild KS	3	33.0	25.0
C	Vantage Lights KS	5	33.0	25.2
D	Benson & Hedges Deluxe Ultra Lights 100's	7	35.0	23.8
E	du Maurier Extra Light King Size	9	28.0	25.0
F	du Maurier Light Regular	11	25.0	25.0
G	Export 'A' Light Regular Size	12	23.0	24.8
H	Craven A King Size	13	28.0	25.0
I	Player's Light Regular	13	25.0	25.0
J	Rothmans King Size	15	28.0	25.0
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 4. Test Cigarettes for Phase 2 Collaborative Study – Dark Blends

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Gitanes Internationale	7	33.0	24.8
B	Gauloises Légères	8	28.0	24.8
C	Gauloises Filtre	11	21.0	26.7
D	N 80	12	29.0	25.0
E	Gauloises	12	23.0	24.8
F	BRUNETTE DOUBLE FILTRE	12	29.0	24.8
G	Nazionale Filtro	12	29.0	25.0
H	Gallia	3	33.0	24.8
I	Gauloises ultra légères	2	33.0	24.8
J	Gauloises Extra légères	5	33.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 5. Test Cigarettes for Phase 2 Collaborative Study – Europe Flue Cured Brands

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Dunhill Ultimate Lights	1	35.0	24.6
B	Superkings Ultra Lights	3	34.0	24.7
C	Dunhill Super Lts	4	35.0	24.6
D	L&B Lights KS	5	34.0	24.9
E	Red Band Lights	6	33.0	24.8
F	Rothmans Lts	7	35.0	24.6
G	S.E. International Lts	10	35.0	24.8
H	Bastos	11	28.0	24.8
I	Davidoff Magnum	12	38.0	27.0
J	Horizon Filter	13	30.0	24.7
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 6. Test Cigarettes for Phase 2 Collaborative Study – European Group

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	MS Lights	4	35.0	24.8
B	MS De Luxe	6	35.0	24.5
C	Eura slim	6	35.0	17.0
D	MS Club slim	8	35.0	17.0
E	MS Mild	9	29.0	24.8
F	MS International	10	35.0	24.5
G	Linda Lights	10	29.0	24.8
H	MS	11	29.0	24.8
I	Drum	12	30.0	24.8
J	CORESTA Monitor #4	15	32.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 7. Test Cigarettes for Phase 2 Collaborative Study – Japan Domestic/Other

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Belmont Milds King Size	11	33.0	25.0
B	Cabinet Mild	8	29.0	24.8
C	Caster Supermild BOX	3	35.0	25.0
D	Caster Mild	5	33.0	25.0
E	Caster	8	33.0	25.0
F	Sevenstars	14	33.0	25.0
G	Hilite	17	33.0	25.0
H	ronhill LIGHTS	8	33.0	24.8
I	ronhill Super LIGHTS	4	35.0	24.8
J	ronhill ULTRA	2	35.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 8. Test Cigarettes for Phase 2 Collaborative Study – UK Benchmark Brands

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	L&B Ultra Lights	1	34.0	24.9
B	Superkings Lights	8	34.0	24.7
C	Regal Filter	11	26.0	24.7
D	L&B KS	12	30.0	24.6
E	Silk Cut Extra Mild	3	33.0	24.8
F	Mayfair Menthol	5	33.0	24.8
G	Silk Cut King Size	5	28.0	24.8
H	Mayfair Lights	8	28.0	24.8
I	Senior Service Plain	12	23.0	25.1
J	Berkeley Superkings	11	33.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 9. Test Cigarettes for Phase 2 Collaborative Study – US Brands

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Merit Ultima KFSP	1	35.0	24.9
B	NOW 100s 100FSP	2	38.0	24.8
C	MONARCH Ultra Lights KFSP	4	34.0	24.8
D	SALEM Ultra Lights 100s 100FMSP	5	38.0	24.8
E	SALEM Lights 100s 100FMSP	8	38.0	24.8
F	Marlboro Lights KFSP	11	35.0	24.9
G	Benson & Hedges Lights 100s Menthol 100FMS	12	39.0	25.0
H	KENT 100s 100FSP	14	36.5	24.6
I	CAMEL Filters KFHP	16	28.0	24.5
J	NEWPORT KFMS	18	28.5	24.9
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

3. Test Method

The CORESTA Alternative Puffing Regime Task Force – Phase 2 Collaborative Study, consistent with measurements made in the Phase 1 Collaborative Study, shall be conducted in accordance with the ISO standards noted below. For smoking regimes other than the standard ISO regime, regulatory documents and/or analytical methods from Massachusetts and Canada, in addition to individual corporate analysis methods applied in the 1999 Massachusetts Benchmark Study, are provided for guidance.

ISO Standards (smoking regime: 35/60/2 w 0% VB)

- ISO 3402** *Tobacco and tobacco products - Atmosphere for conditioning and testing (4th edition, 1999-12-15)*
- ISO 3308** *Routine analytical cigarette-smoking machine - Definitions and conditions (4th edition, 2000-04-15)*
- ISO 4387** *Cigarettes - Determination of total and nicotine-free dry particulate matter using a routine analytical smoking machine (3rd edition, 2000-04-01)*
- ISO 10315** *Cigarettes - Determination of nicotine in smoke condensates - Gas-chromatographic method (2nd edition, 2000-04-01)*
- ISO 10362-1** *Cigarettes - Determination of water in smoke condensates - Part 1: Gas-chromatographic method (2nd edition, 1999-12-15)*
- ISO 8454** *Cigarettes – Determination of carbon monoxide in the vapour phase of cigarette smoke – NDIR method (2nd edition, 1995-11-15)*

Massachusetts Guidelines (smoking regime: 45/30/2 w 50% VB)

<http://www.state.ma.us/dph/mtcp/report/ingreg.htm#purpose> Massachusetts Nicotine Reporting Regulation. 105 CMR: Department of Public Health 105 CMR 660.000 Cigarette and Smokeless Tobacco Products: Reports of Added Constituents and Nicotine Ratings 660.102: Cigarette Nicotine Yield Rating Reporting Requirements

Laboratory Test Methods Applied in the 1999 Massachusetts Benchmark Study (see attachments):

- **Brown & Williamson Tobacco Corporation – “Modified FTC Method for the Determination of Total Particulate Matter, Puff Number, Carbon Monoxide, Nicotine and “Tar” in Mainstream Smoke”**
- **Lorillard Tobacco Company – “Specifications for the Collection of Mainstream Smoke”**
- **Philip Morris USA – “Analysis of Mainstream Smoke for Nicotine and Water”**
- **R. J. Reynolds Tobacco Company – ‘Determination of “Tar,” Nicotine and Carbon Monoxide in Mainstream Smoke’**

Canadian Intense Guidelines (smoking regime: 55/30/2 w 100% VB)

<http://www.hc-sc.gc.ca/hppb/tobacco/ehd/tobacco/testmethods/pdf/Methods/100PDF-english/T-115e4.PDF> Health Canada ‘Official Method T-115, Determination of “Tar”, Nicotine and Carbon Monoxide in Mainstream Tobacco Smoke’ under conditions set out in section 14. (6) (b) (i.e. “Modified conditions”) of the current Canadian Federal Tobacco Reporting Regulations.

General Test Method Guidelines

As a general guide, experiments conducted under each puffing regime should be conducted according to ISO standard requirements. Exceptions to this guiding principle include the puffing parameters applied for the different smoking regimes, the cigarette vent blocking condition applied and the number of cigarettes smoked per sample. Please note that any operating conditions (a) not specified in the above ISO standards, or regarded as optional, (b) not specified in the Massachusetts or Canadian “methods” provided as guidelines and (c) any circumstances that may have influenced test results shall be noted in the test report.

Puffing parameter and vent blocking specifications for each puffing regime are summarized in Table 10. Figure 1 provides an example of vent blocking. When vent blocking cigarettes, tape shall be applied from the tipping joint to the mouth end of the cigarette. For smoking regime #2 (pictured in Figure 1), 50% of the cigarette

circumference shall be blocked with tape. Typically, this is accomplished by selecting tape of a width that corresponds to 50% ± 1.5% (i.e., 48.5 – 51.5%) of the cigarette circumference, applying the tape from the tipping joint to extend beyond the mouth end of the cigarette, rolling the tape around the filter circumference and then trimming at excess tape at the mouth end with scissors to complete the process. However, for the very few cigarettes with a circumference of 19.2 mm that are in the study, the coverage will be ~55% based on readily available tape widths. Tape rolls of various widths will be provided to participating laboratories. Choice of tape for smoking regime #2 should be based on ranges found in Table 11, as specified in Appendix 2 (i.e., specific tape widths for use are color coded in yellow in the Appendix).

Table 10. Smoking Regime Specifications

Smoking Regime	Puff Volume (cc)	Puff Frequency* (s)	Puff Duration (s)	Vent Blocking (%)	Description
1	35 ± 0.3	60 ± 0.5	2 ± 0.2	0	ISO Standard
2	45 ± 0.5	30 ± 1	2 ± 0.2	50 ± 1	Massachusetts "Average"
3	55 ± 0.5	30 ± 1	2 ± 0.2	100	Canada "Intense"
* Time from the start of one puff to the start of the next puff.					

Figure 1. Example of 50% Vent Blocking



Table 11. Choice of Tape Width for 50% Vent Blocking (Regime #2)

Tape Width Provided (mm)	Applicable to Cigarette Circumference Range (mm)
8.5	17.0
10.5	19.2 – 21.4
12.2	23.8 – 24.75
12.7	24.8 – 25.2
13.5	26.7 – 27.1

Major points to which special attention should be paid are as follows:

(1) Sampling, Conditioning and Selection of Test Cigarettes

- For each cigarette brand received, a composite of all packs shall be prepared for conditioning. If a substantial period of time is expected to occur between the times when cigarettes are smoked with the different smoking regimes, then three separate composite samples shall be prepared, one for each smoking regime.
- Test cigarettes sampled shall be conditioned more than 48 hours but less than 10 days under the following conditions.
 - Temperature: 22 ± 1 °C
 - Relative humidity: 60 ± 3 %
 Temperature and relative humidity of the conditioning enclosure shall be checked and recorded for every smoking run.
- Test cigarettes to be smoked for the determination of NFDPM, nicotine and CO shall be selected at random from the conditioned cigarettes. Any cigarettes with visible defects (e.g. air leak, badly filled, etc.) shall be discarded.

(2) Smoking Machine

A linear smoking machine or a rotary smoking machine shall be used, as available. If an automatic RM200 rotary smoking machine is used, the new modification kit proposed by Borgwaldt should be used when available. Report the presence or absence of this modification kit.

(3) Number of Cigarettes Smoked

For smoking regime #1, either fifty (50) cigarettes or sixty (60) cigarettes shall be smoked for each test cigarette brand (depending upon smoking machine type) according to the smoking plan shown in Table 12, 13 or 14.

For a linear smoking machine, 5 cigarettes shall be smoked per smoke trap.

For a rotary smoking machine, 20 cigarettes shall be smoked per smoke trap.

For smoking regimes #2 and #3, thirty (30) cigarettes shall be smoked for each test cigarette brand according to the smoking plan shown in Table 12, 13 or 14.

For a linear smoking machine, 3 cigarettes shall be smoked per smoke trap.

For a rotary smoking machine, 10 cigarettes shall be smoked per smoke trap.

(4) Smoking Plan

Table 12. Smoking plan for a 20-port linear smoking machine

Day	RunNo.	SmokingPort																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	A	B	C	D	E	F	G	H	I	J	K	L	M	A	B	C	D	E	F	G
	2	H	I	J	K	L	M	A	B	C	D	E	F	G	H	I	J	K	L	M	A
2	3	B	C	D	E	F	G	H	I	J	K	L	M	A	B	C	D	E	F	G	H
	4	I	J	K	L	M	A	B	C	D	E	F	G	H	I	J	K	L	M	A	B
3	5	C	D	E	F	G	H	I	J	K	L	M	A	B	C	D	E	F	G	H	I
	6	J	K	L	M	A	B	C	D	E	F	G	H	I	J	K	L	M	A	B	C
4	7	D	E	F	G	H	I	J	K	L	M										

Table 13. Smoking plan for a 16-port linear smoking machine

Day	Run No.	Smoking Port															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	A	B	C	D	E	F	G	H	I	J	K	L	M	A	B	C
	2	D	E	F	G	H	I	J	K	L	M	A	B	C	D	E	F
2	3	G	H	I	J	K	L	M	A	B	C	D	E	F	G	H	I
	4	J	K	L	M	A	B	C	D	E	F	G	H	I	J	K	L
3	5	M	A	B	C	D	E	F	G	H	I	J	K	L	M	A	B
	6	C	D	E	F	G	H	I	J	K	L	M	A	B	C	D	E
4	7	F	G	H	I	J	K	L	M	A	B	C	D	E	F	G	H
	8	I	J	K	L	M	A	B	C	D	E	F	G	H	I	J	K
5	9	L	M														

Table 14. Smoking plan for a rotary smoking machine

Run No.	Sample code	Run No.	Sample code	Run No.	Sample code	Run No.	Sample code	Run No.	Sample code
1	A	9	I	17	E	25	M	33	I
2	B	10	J	18	F	26	A	34	J
3	C	11	K	19	G	27	C	35	K
4	D	12	L	20	H	28	D	36	L
5	E	13	M	21	I	29	E	37	M
6	F	14	B	22	J	30	F	38	A
7	G	15	C	23	K	31	G	39	B
8	H	16	D	24	L	32	H		

(5) Cigarette Holder and Smoke Trap

Cigarette holder and smoke trap (filter assembly) defined by ISO 3308 shall be used.

(6) Butt Length

The butt length of each sample according to ISO 4387 is shown in Tables 1-9.

(7) Air Velocity at the Cigarette Level

The mean air velocity at the reference position (see ISO 3308) shall lie in the range 200 ± 30 mm/sec, with air velocity at each individual port in the range 200 ± 50 mm/sec. Air velocity should be checked, and adjusted within the above velocity if necessary, at least daily and recorded.

(8) Smoking Conditions

- Ambient conditions
 - Temperature 22 ± 2 °C
 - Relative humidity 60 ± 5 %
- Puff volume As specified in Table 10
- Puff duration As specified in Table 10
- Puff frequency As specified in Table 10

Temperature, relative humidity and atmospheric pressure of the smoking environment shall be checked and recorded for every smoking run.

(9) Determination of TPM

The average amount of total particulate matter, TPM, for each smoke trap expressed in mg/cigarette shall be calculated as the increase in weight of the smoke trap before and after smoking. Calculate the amount of TPM of each

smoke trap in mg/cigarette to two decimals.

(10) Determination of Water and Nicotine

TPM collected on the glass fiber filter shall be dissolved in a solvent, and the water and nicotine content in this solution shall be determined by gas chromatograph in accordance with ISO 10362-1 and 10315, respectively. Calculate the water and nicotine content in TPM per cigarette in mg to two decimals.

(11) Calculation of Amount of NFDPM (“Tar”)

The amount of NFDPM for each smoke trap, expressed in mg/cigarette, is given by the equation:

$$\text{NFDPM} = \text{TPM} - N_i - W_a,$$

where,

TPM is the amount of TPM expressed in mg/cigarette (two decimals).

N_i is the nicotine content in TPM expressed in mg/cigarette (two decimals).

W_a is the water content in TPM expressed in mg/cigarette (two decimals).

Calculate the amount of NFDPM per cigarette, in mg to two decimals, for each smoke trap according to the above equation.

(12) Determination of CO

CO in the vapour phase of cigarette smoke shall be determined with a non-dispersive infrared (NDIR) analyzer calibrated for CO in accordance with ISO 8454. Calculate the amount of CO per cigarette, in mg to two decimals, for each smoke trap according to ISO 8454. CO determination is encouraged, but it is optional.

4. Report of Test Results

Test results shall be reported electronically by e-mail or, optionally, by CD-R or floppy disk (3.5 inches/Windows/MS Excel). Three Microsoft Excel files designated: “ASR Phase 2 Study_16-port Linear data sheets.xls”, “ASR Phase 2 Study_20-port Linear data sheets.xls” and “ASR Phase 2 Study_20-port Rotary data sheets.xls” will be provided to each study participant via e-mail. **Please do not alter the formats of these files** in any way while entering analysis parameters and results, as this will preclude subsequent application of macro programs to the files. Printed copies of each designated form may accompany electronic reporting, but hard-copy reporting is not required.

Data Sheets for the CORESTA Alternative Puffing Regime Task Force –Phase 2 Collaborative Study in File: ASR Phase 2 Study 16-port Linear data sheets.xls

Cover sheet

Sheet 1 (Regime #1): Equipment (ISO Smoking Condition)

Sheet 1 (Regime #2): Equipment (45/30/2 Smoking Condition)

Sheet 1 (Regime #3): Equipment (55/30/2 Smoking Condition)

Sheet 2L (Regime #1): Description of environmental conditions for a linear smoking machine

Sheet 2L (Regime #2): Description of environmental conditions for a linear smoking machine

Sheet 2L (Regime #3): Description of environmental conditions for a linear smoking machine

Sheet 3L(A) (Regime #1): Linear Test Results (Sample A)

Sheet 3L(A) (Regime #2): Linear Test Results (Sample A)

Sheet 3L(A) (Regime #3): Linear Test Results (Sample A)

Sheet 3L(B) (Regime #1): Linear Test Results (Sample B)

Sheet 3L(B) (Regime #2): Linear Test Results (Sample B)

Sheet 3L(B) (Regime #3): Linear Test Results (Sample B)

Sheet 3L(C) (Regime #1): Linear Test Results (Sample C)

Sheet 3L(C) (Regime #2): Linear Test Results (Sample C)

Sheet 3L(C) (Regime #3): Linear Test Results (Sample C)

Sheet 3L(D) (Regime #1): Linear Test Results (Sample D)

Sheet 3L(D) (Regime #2): Linear Test Results (Sample D)

Sheet 3L(D) (Regime #3): Linear Test Results (Sample D)

Sheet 3L(E) (Regime #1): Linear Test Results (Sample E)

Sheet 3L(E) (Regime #2): Linear Test Results (Sample E)

Sheet 3L(E) (Regime #3): Linear Test Results (Sample E)

Sheet 3L(F) (Regime #1): Linear Test Results (Sample F)

Sheet 3L(F) (Regime #2): Linear Test Results (Sample F)

Sheet 3L(F) (Regime #3): Linear Test Results (Sample F)

Sheet 3L(G) (Regime #1): Linear Test Results (Sample G)

Sheet 3L(G) (Regime #2): Linear Test Results (Sample G)

Sheet 3L(G) (Regime #3): Linear Test Results (Sample G)

Sheet 3L(H) (Regime #1): Linear Test Results (Sample H)

Sheet 3L(H) (Regime #2): Linear Test Results (Sample H)

Sheet 3L(H) (Regime #3): Linear Test Results (Sample H)

Sheet 3L(I) (Regime #1): Linear Test Results (Sample I)

Sheet 3L(I) (Regime #2): Linear Test Results (Sample I)

Sheet 3L(I) (Regime #3): Linear Test Results (Sample I)

Sheet 3L(J) (Regime #1): Linear Test Results (Sample J)

Sheet 3L(J) (Regime #2): Linear Test Results (Sample J)

Sheet 3L(J) (Regime #3): Linear Test Results (Sample J)

Sheet 3L(K) (Regime #1): Linear Test Results (Sample K)

Sheet 3L(K) (Regime #2): Linear Test Results (Sample K)

Sheet 3L(K) (Regime #3): Linear Test Results (Sample K)

Sheet 3L(L) (Regime #1):	Linear Test Results (Sample L)
Sheet 3L(L) (Regime #2):	Linear Test Results (Sample L)
Sheet 3L(L) (Regime #3):	Linear Test Results (Sample L)
Sheet 3L(M) (Regime #1):	Linear Test Results (Sample M)
Sheet 3L(M) (Regime #2):	Linear Test Results (Sample M)
Sheet 3L(M) (Regime #3):	Linear Test Results (Sample M)
Data Summary	

Data Sheets for the CORESTA Alternative Puffing Regime Task Force –
Phase 2 Collaborative Study in File: ASR Phase 2 Study 20-port Linear data sheets.xls

Cover sheet

Sheet 1 (Regime #1):	Equipment (ISO Smoking Condition)
Sheet 1 (Regime #2):	Equipment (45/30/2 Smoking Condition)
Sheet 1 (Regime #3):	Equipment (55/30/2 Smoking Condition)
Sheet 2L (Regime #1):	Description of environmental conditions for a linear smoking machine
Sheet 2L (Regime #2):	Description of environmental conditions for a linear smoking machine
Sheet 2L (Regime #3):	Description of environmental conditions for a linear smoking machine
Sheet 3L(A) (Regime #1):	Linear Test Results (Sample A)
Sheet 3L(A) (Regime #2):	Linear Test Results (Sample A)
Sheet 3L(A) (Regime #3):	Linear Test Results (Sample A)
Sheet 3L(B) (Regime #1):	Linear Test Results (Sample B)
Sheet 3L(B) (Regime #2):	Linear Test Results (Sample B)
Sheet 3L(B) (Regime #3):	Linear Test Results (Sample B)
Sheet 3L(C) (Regime #1):	Linear Test Results (Sample C)
Sheet 3L(C) (Regime #2):	Linear Test Results (Sample C)
Sheet 3L(C) (Regime #3):	Linear Test Results (Sample C)
Sheet 3L(D) (Regime #1):	Linear Test Results (Sample D)
Sheet 3L(D) (Regime #2):	Linear Test Results (Sample D)
Sheet 3L(D) (Regime #3):	Linear Test Results (Sample D)
Sheet 3L(E) (Regime #1):	Linear Test Results (Sample E)
Sheet 3L(E) (Regime #2):	Linear Test Results (Sample E)
Sheet 3L(E) (Regime #3):	Linear Test Results (Sample E)
Sheet 3L(F) (Regime #1):	Linear Test Results (Sample F)
Sheet 3L(F) (Regime #2):	Linear Test Results (Sample F)
Sheet 3L(F) (Regime #3):	Linear Test Results (Sample F)
Sheet 3L(G) (Regime #1):	Linear Test Results (Sample G)
Sheet 3L(G) (Regime #2):	Linear Test Results (Sample G)
Sheet 3L(G) (Regime #3):	Linear Test Results (Sample G)
Sheet 3L(H) (Regime #1):	Linear Test Results (Sample H)
Sheet 3L(H) (Regime #2):	Linear Test Results (Sample H)
Sheet 3L(H) (Regime #3):	Linear Test Results (Sample H)
Sheet 3L(I) (Regime #1):	Linear Test Results (Sample I)

Sheet 3L(I) (Regime #2):	Linear Test Results (Sample I)
Sheet 3L(I) (Regime #3):	Linear Test Results (Sample I)
Sheet 3L(J) (Regime #1):	Linear Test Results (Sample J)
Sheet 3L(J) (Regime #2):	Linear Test Results (Sample J)
Sheet 3L(J) (Regime #3):	Linear Test Results (Sample J)
Sheet 3L(K) (Regime #1):	Linear Test Results (Sample K)
Sheet 3L(K) (Regime #2):	Linear Test Results (Sample K)
Sheet 3L(K) (Regime #3):	Linear Test Results (Sample K)
Sheet 3L(L) (Regime #1):	Linear Test Results (Sample L)
Sheet 3L(L) (Regime #2):	Linear Test Results (Sample L)
Sheet 3L(L) (Regime #3):	Linear Test Results (Sample L)
Sheet 3L(M) (Regime #1):	Linear Test Results (Sample M)
Sheet 3L(M) (Regime #2):	Linear Test Results (Sample M)
Sheet 3L(M) (Regime #3):	Linear Test Results (Sample M)

Data Summary

Data Sheets for the CORESTA Alternative Puffing Regime Task Force –

Phase 2 Collaborative Study in File: ASR Phase 2 Study 20-port Rotary data sheets.xls

Cover sheet

Sheet 1 (Regime #1): Equipment (ISO Smoking Condition)

Sheet 1 (Regime #2): Equipment (45/30/2 Smoking Condition)

Sheet 1 (Regime #3): Equipment (55/30/2 Smoking Condition)

Sheet 2R (Regime #1): Description of environmental conditions for a rotary smoking machine

Sheet 2R (Regime #2): Description of environmental conditions for a rotary smoking machine

Sheet 2R (Regime #3): Description of environmental conditions for a rotary smoking machine

Sheet 3R (Regime #1): Rotary Test Results

Sheet 3R (Regime #2): Rotary Test Results

Sheet 3R (Regime #3): Rotary Test Results

Data Summary

5. Notes for the CORESTA Alternative Puffing Regime Task Force – Phase 2 Collaborative Study

1. Choice of the number of cigarettes smoked per smoke trap for each smoking regime applied in study and the number of replicate determinations mandated are based upon several factors, including: (a) available data regarding individual smoke trap collection capacity, (b) consideration of linear and rotary smoking machine design characteristics, (c) the fact that the fundamental purpose of the study is to compare aggregate results from multiple laboratories and cigarette types to evaluate the effect of different smoking regimes on smoke yields and (d) an attempt to maintain consistency when possible for different smoking machine types within a single smoking regime, as well as, consistency across smoking

regimes for a single smoking machine type. These scientific considerations were also balanced against the practical consideration of a large study scope, i.e., three smoking regimes and thirteen cigarette types in the study.

Appendix 1.**Product Group Assignments for Phase 2 Testing**

	Company	Contact	Machine(s)	Product Group Assignment for Phase 2 Study
1	Arista Laboratories	Alexandra Martin	ASM 500	Dark
2	Ente Tabacchi Italiani	Giovani Lionetti	ASM 500	European Brands
3	Filtrona	Michael Taylor	ASM 500	Europe Flue Cured
4	Gallaher	Ron McKeivor	ASM 500	UK Benchmark
5	Labstat International	Peter Joza	ASM 500	American Blend
6	Lorillard	Jack Ried	ASM 500	American Blend
7	RJ Reynolds	Mike Borgerding	ASM 500	Japan Domestic / Other
8	BAT UK	Paul Case	SM400	Europe Flue Cured
9	RJ Reynolds	Mike Borgerding	SM400	"Ad Hoc"
10	Rothmans, Benson & Hedges Inc.	Paul Vassilakopoulos	SM400	Canadian Brands
11	RJ Reynolds	Mike Borgerding	SM400	US Brands
 				
1	Altadis	Yves Saint-Jalm	RM20	US Brands
2	Baumgartner	Bertrand Moullet	RM20	Dark
3	House of Prince	Hans Thomsen	RM20	Canadian Brands
4	Imperial Tobacco UK	David Tuck	RM20	Europe Flue Cured
5	J.L Tiedemanns Tobaksfabrik AS	Rolf Olsen	RM20	Japan Domestic / Other
6	LTR Industries	Christophe Le Moigne	RM20	European Brands
7	RJ Reynolds	Mike Borgerding	RM20	Canadian Brands
8	Tvornica Duhana Rovinj	Marica Pokrajac	RM20	"Ad Hoc"
9	Wattenspapier	Georg Astl	RM20	Dark
10	Sampoerna Indonesia	Mochammad Sholichin	RM200	American Blend
11	Borgwaldt Technik GmbH	Bruno Kluss	RM200	UK Benchmark
12	Japan Tobacco	Yuichi Fukai	RM200	UK Benchmark
13	Autria Tabak	Jutta Muller	RM200 with kit	US Brands
14	JT International - Cologne	Uwe Thiel	RM200 with kit	American Blend
15	PM International	Michel Rigaux	RM200 with kit	Japan Domestic / Other

Appendix 2.

CORESTA Alternative Smoking Regimes Task Force - Phase 2 Brands

Regime #2 Taping Requirements

Ad Hoc Group

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	PHILIP MORRIS ONE 100	24.8	34.3	42.3	49.2	51.2	54.4
2	MS Club Lights slim	17.0	50.0	61.8	71.8	74.7	79.4
3	Davidoff Lights Slims	19.2	44.3	54.7	63.5	66.1	70.3
4	MS 821	24.8	34.3	42.3	49.2	51.2	54.4
5	Fine 120	21.4	39.8	49.2	57.1	59.4	63.2
6	ST Dupont	24.8	34.3	42.3	49.2	51.2	54.4
7	A-International	24.8	34.3	42.3	49.2	51.2	54.4
8	CAMEL NF	24.9	Not Applicable				
9	Basic King NF	24.8	Not Applicable				
10	MARK TEN PLAIN KS	25.0	Not Applicable				
11	Philip Morris One KS	24.8	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

American Blends

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	R1 Slim Line Minima	19.2	44.3	54.7	63.5	66.1	70.3
2	Gauloises Blondes UL	24.8	34.2	42.3	49.2	51.2	54.4
3	MARLBORO ULTRA LIGHTS KS	24.8	34.3	42.3	49.2	51.2	54.4
4	West Ultra	24.8	34.3	42.3	49.2	51.2	54.4
5	Royale Menthol Light	24.8	34.2	42.3	49.2	51.2	54.4
6	Mildseven Superlight	25.0	34.0	42.0	48.8	50.8	54.0
7	Sax Lights	24.8	34.3	42.3	49.2	51.2	54.4
8	Fine 120 Light	21.4	39.8	49.2	57.1	59.4	63.2
9	MULTIFILTER 100	24.8	34.3	42.3	49.2	51.2	54.4
10	MARLBORO 100	24.6	34.5	42.6	49.5	51.5	54.8
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

Canadian Brands Group

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	Macdonald Select Ultra Mild KS	25.2	33.7	41.7	48.4	50.4	53.6
2	Viscount Extra Mild KS	25.0	34.0	42.0	48.8	50.8	54.1
3	Vantage Lights KS	25.2	33.7	41.7	48.4	50.4	53.6
4	Benson & Hedges Deluxe Ultra Lights 100's	23.8	35.7	44.2	51.3	53.4	56.8
5	du Maurier Extra Light King Size	25.0	34.0	42.0	48.8	50.8	54.0
6	du Maurier Light Regular	25.0	34.0	42.0	48.8	50.8	54.0
7	Export 'A' Light Regular Size	24.8	34.3	42.3	49.2	51.2	54.4
8	Craven A King Size	25.0	34.0	42.0	48.8	50.8	54.1
9	Player's Light Regular	25.0	34.0	42.0	48.8	50.8	54.0
10	Rothmans King Size	25.0	34.0	42.0	48.8	50.8	54.1
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

Dark Blends

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	Gitanes Internationale	24.8	34.2	42.3	49.2	51.2	54.4
2	Gauloises Légères	24.8	34.2	42.3	49.2	51.2	54.4
3	Gauloises Filtre	26.7	31.8	39.3	45.7	47.6	50.6
4	N 80	25.0	34.0	42.0	48.8	50.8	54.0
5	Gauloises	24.8	Not Applicable				
6	BRUNETTE DOUBLE FILTRE	24.8	34.3	42.3	49.2	51.2	54.4
7	Nazionale Filtro	25.0	34.0	42.0	48.8	50.8	54.0
8	Gallia	24.80	34.3	42.3	49.2	51.2	54.4
9	Gauloises ultra légères	24.80	34.3	42.3	49.2	51.2	54.4
10	Gauloises Extra légères	24.80	34.3	42.3	49.2	51.2	54.4
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

European Flue Cured Group

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	Dunhill Ultimate Lights	24.6	34.6	42.7	49.6	51.6	54.9
2	Superkings Ultra Lights	24.7	34.4	42.5	49.4	51.4	54.7
3	Dunhill Super Lts	24.6	34.6	42.7	49.6	51.6	54.9
4	L&B Lights KS	24.9	34.1	42.2	49.0	51.0	54.2
5	Red Band Lights	24.8	34.3	42.3	49.2	51.2	54.4
6	Rothmans Lts	24.6	34.6	42.7	49.6	51.6	54.9
7	S.E. International Lts	24.8	34.3	42.4	49.3	51.3	54.5
8	Bastos	24.8	34.2	42.3	49.2	51.2	54.4
9	Davidoff Magnum	27.0	31.5	38.9	45.2	47.0	50.0
10	Horizon Filter	24.7	34.4	42.5	49.4	51.4	54.7
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

European Group

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	MS Lights	24.8	34.3	42.3	49.2	51.2	54.4
2	MS De Luxe	24.5	34.7	42.9	49.8	51.8	55.1
3	Eura slim	17.0	50.0	61.8	71.8	74.7	79.4
4	MS Club slim	17.0	50.0	61.8	71.8	74.7	79.4
5	MS Mild	24.8	34.3	42.3	49.2	51.2	54.4
6	MS International	24.5	34.7	42.9	49.8	51.8	55.1
7	Linda Lights	24.8	34.3	42.3	49.2	51.2	54.4
8	MS	24.8	34.3	42.3	49.2	51.2	54.4
9	Drum	24.8	34.3	42.3	49.2	51.2	54.4
10	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

Japan Domestic / Other

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	Belmont Milds King Size	25.0	34.0	42.0	48.8	50.8	54.1
2	Cabinet Mild	24.8	34.3	42.3	49.2	51.2	54.4
3	Caster Supermild BOX	25.0	34.0	42.0	48.8	50.8	54.0
4	Caster Mild	25.0	34.0	42.0	48.8	50.8	54.0
5	Caster	25.0	34.0	42.0	48.8	50.8	54.0
6	Sevenstars	25.0	34.0	42.0	48.8	50.8	54.0
7	Hilite	25.0	34.0	42.0	48.8	50.8	54.0
8	ronhill LIGHTS	24.80	34.3	42.3	49.2	51.2	54.4
9	ronhill Super LIGHTS	24.80	34.3	42.3	49.2	51.2	54.4
10	ronhill ULTRA	24.80	34.3	42.3	49.2	51.2	54.4
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

UK Benchmark Group

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	L&B Ultra Lights	24.90	34.1	42.2	49.0	51.0	54.2
2	Superkings Lights	24.70	34.4	42.5	49.4	51.4	54.7
3	Regal Filter	24.70	34.4	42.5	49.4	51.4	54.7
4	L&B KS	24.60	34.6	42.7	49.6	51.6	54.9
5	Silk Cut Extra Mild	24.80	34.3	42.3	49.2	51.2	54.4
6	Mayfair Menthol	24.8	34.3	42.3	49.2	51.2	54.4
7	Silk Cut King Size	24.80	34.3	42.3	49.2	51.2	54.4
8	Mayfair Lights	24.8	34.3	42.3	49.2	51.2	54.4
9	Senior Service Plain	25.05	Not Applicable				
10	Berkeley Superkings	24.80	34.3	42.3	49.2	51.2	54.4
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

US Brands

Brand Number	Brand Name	Laser Circ. (mm)	Tape Width (mm)				
			8.5	10.5	12.2	12.7	13.5
1	Merit Ultima KFSP	24.9	34.1	42.2	49.0	51.0	54.2
2	NOW 100s 100FSP	24.8	34.2	42.3	49.1	51.1	54.4
3	MONARCH Ultra Lights KFSP	24.8	34.2	42.3	49.1	51.1	54.4
4	SALEM Ultra Lights 100s 100FMSP	24.8	34.2	42.3	49.1	51.1	54.4
5	SALEM Lights 100s 100FMSP	24.8	34.2	42.3	49.1	51.1	54.4
6	Marlboro Lights KFSP	24.9	34.1	42.2	49.0	51.0	54.2
7	Benson & Hedges Lights 100s Menthol 100FMSP	25.0	34.0	42.0	48.8	50.8	54.0
8	KENT 100s 100FSP	24.6	34.6	42.7	49.6	51.6	54.9
9	CAMEL Filters KFHP	24.5	34.7	42.9	49.8	51.9	55.1
10	NEWPORT KFMSP	24.9	34.1	42.2	49.0	51.0	54.2
11	Philip Morris One KS	24.80	34.3	42.3	49.2	51.2	54.4
12	Kentucky Reference 1R4F	24.9	34.1	42.2	49.0	51.0	54.2
13	CORESTA Monitor #4	24.8	34.3	42.3	49.2	51.2	54.4

Data Sheet for the 2nd CORESTA Alternative Smoking Regimes Task Force Collaborative Study

Laboratory name	
Person responsible for testing	
Address	
Tel	
Fax	
E-mail address	

Any laboratory that could not follow ISO standards for laboratory's own convenience is requested to specify the deviations from ISO standards (any operating conditions not specified in ISO standards) below.

Sheet 1 Equipment - ISO Smoking Condition

Laboratory name	
-----------------	--

Description of Test Equipment Used			
Smoking machine Model/Manufacturer	Gas chromatograph Model/Manufacturer	Air flow meter Model/Manufacturer	NDIR analyzer Model/Manufacturer

Nicotine, Water & CO Analysis			
	Nicotine analysis	Water analysis	CO analysis
Column			
Internal standard			
Number of standards			
Concentration of standards			

Sheet 1 Equipment - 45/30/2 Smoking Condition

Laboratory name	
-----------------	--

Description of Test Equipment Used			
Smoking machine Model/Manufacturer	Gas chromatograph Model/Manufacturer	Air flow meter Model/Manufacturer	NDIR analyzer Model/Manufacturer

Nicotine, Water & CO Analysis			
	Nicotine analysis	Water analysis	CO analysis
Column			
Internal standard			
Number of standards			
Concentration of standards			

Sheet 1 Equipment - 55/30/2 Smoking Condition

Laboratory name	
-----------------	--

Description of Test Equipment Used			
Smoking machine Model/Manufacturer	Gas chromatograph Model/Manufacturer	Air flow meter Model/Manufacturer	NDIR analyzer Model/Manufacturer

Nicotine, Water & CO Analysis			
	Nicotine analysis	Water analysis	CO analysis
Column			
Internal standard			
Number of standards			
Concentration of standards			

Sheet 2L Environmental Conditions for 16-port linear smoking machine - Regime #1

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 16 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2L Environmental Conditions for 16-port linear smoking machine - Regime #2

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 16 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2L Environmental Conditions for 16-port linear smoking machine - Regime #3

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 16 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2L Environmental Conditions for 20-port linear smoking machine - Regime #1

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2L Environmental Conditions for 20-port linear smoking machine - Regime #2

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2L Environmental Conditions for 20-port linear smoking machine - Regime #3

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 20 ports (mm/sec)	Conditioning enclosure		Smoking environment		
			Temp (?)	R.H. (%)	Temp (?)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							

(kPa)* : 760 mm Hg = 1013 mbar = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2R Environmental Conditions
for a rotary smoking machine - Regime #1

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 20 ports (mm/s)	Conditioning enclosure		Smoking environment		
			Temp (°C)	R.H. (%)	Temp (°C)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
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31							
32							
33							
34							
35							
36							
37							
38							
39							

(kPa)* : 760 mm Hg = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2R Environmental Conditions
for a rotary smoking machine - Regime #2

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 20 ports (mm/s)	Conditioning enclosure		Smoking environment		
			Temp (°C)	R.H. (%)	Temp (°C)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
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29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							

(kPa)* : 760 mm Hg = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 2R Environmental Conditions
for a rotary smoking machine - Regime #3

Laboratory name	
Smoking machine	

Run No.	Date	Air flow at cigarette level across 20 ports (mm/s)	Conditioning enclosure		Smoking environment		
			Temp (°C)	R.H. (%)	Temp (°C)	R.H. (%)	Atmospheric pressure (kPa)*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
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28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							

(kPa)* : 760 mm Hg = 101.3 kPa

If CO is tested, atmospheric pressure shall be measured and noted.

Sheet 3L(A) 16-Port Linear Test Results (Sample A) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	14								
2	11								
3	8								
4	5								
5	2								
5	15								
6	12								
7	9								
8	6								

* Describe any circumstances that may have influenced test results.

Sheet 3L(A) 16-Port Linear Test Results (Sample A) - Regime #2

Laboratory name	
Smoking machine	
Cigarette Group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	14								
2	11								
3	8								
4	5								
5	2								
5	15								
6	12								
7	9								
8	6								

* Describe any circumstances that may have influenced test results.

Sheet 3L(A) 16-Port Linear Test Results (Sample A) - Regime #3

Laboratory name	
Smoking machine	
Cigarette Group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	14								
2	11								
3	8								
4	5								
5	2								
5	15								
6	12								
7	9								
8	6								

* Describe any circumstances that may have influenced test results.

Sheet 3L(B) 16-Port Linear Test Results (Sample B) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	15								
2	12								
3	9								
4	6								
5	3								
5	16								
6	13								
7	10								
8	7								

* Describe any circumstances that may have influenced test results.

Sheet 3L(B) 16-Port Linear Test Results (Sample B) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	15								
2	12								
3	9								
4	6								
5	3								
5	16								
6	13								
7	10								
8	7								

* Describe any circumstances that may have influenced test results.

Sheet 3L(B) 16-Port Linear Test Results (Sample B) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	15								
2	12								
3	9								
4	6								
5	3								
5	16								
6	13								
7	10								
8	7								

* Describe any circumstances that may have influenced test results.

Sheet 3L(C) 16-Port Linear Test Results (Sample C) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	16								
2	13								
3	10								
4	7								
5	4								
6	1								
6	14								
7	11								
8	8								

* Describe any circumstances that may have influenced test results.

Sheet 3L(C) 16-Port Linear Test Results (Sample C) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	16								
2	13								
3	10								
4	7								
5	4								
6	1								
6	14								
7	11								
8	8								

* Describe any circumstances that may have influenced test results.

Sheet 3L(C) 16-Port Linear Test Results (Sample C) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	16								
2	13								
3	10								
4	7								
5	4								
6	1								
6	14								
7	11								
8	8								

* Describe any circumstances that may have influenced test results.

Sheet 3L(D) 16-Port Linear Test Results (Sample D) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
2	1								
2	14								
3	11								
4	8								
5	5								
6	2								
6	15								
7	12								
8	9								

* Describe any circumstances that may have influenced test results.

Sheet 3L(D) 16-Port Linear Test Results (Sample D) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
2	1								
2	14								
3	11								
4	8								
5	5								
6	2								
6	15								
7	12								
8	9								

* Describe any circumstances that may have influenced test results.

Sheet 3L(D) 16-Port Linear Test Results (Sample D) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
2	1								
2	14								
3	11								
4	8								
5	5								
6	2								
6	15								
7	12								
8	9								

* Describe any circumstances that may have influenced test results.

Sheet 3L(E) 16-Port Linear Test Results (Sample E) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
2	2								
2	15								
3	12								
4	9								
5	6								
6	3								
6	16								
7	13								
8	10								

* Describe any circumstances that may have influenced test results.

Sheet 3L(E) 16-Port Linear Test Results (Sample E) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
2	2								
2	15								
3	12								
4	9								
5	6								
6	3								
6	16								
7	13								
8	10								

* Describe any circumstances that may have influenced test results.

Sheet 3L(E) 16-Port Linear Test Results (Sample E) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
2	2								
2	15								
3	12								
4	9								
5	6								
6	3								
6	16								
7	13								
8	10								

* Describe any circumstances that may have influenced test results.

Sheet 3L(F) 16-Port Linear Test Results (Sample F) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
2	3								
2	16								
3	13								
4	10								
5	7								
6	4								
7	1								
7	14								
8	11								

* Describe any circumstances that may have influenced test results.

Sheet 3L(F) 16-Port Linear Test Results (Sample F) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
2	3								
2	16								
3	13								
4	10								
5	7								
6	4								
7	1								
7	14								
8	11								

* Describe any circumstances that may have influenced test results.

Sheet 3L(F) 16-Port Linear Test Results (Sample F) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
2	3								
2	16								
3	13								
4	10								
5	7								
6	4								
7	1								
7	14								
8	11								

* Describe any circumstances that may have influenced test results.

Sheet 3L(G) 16-Port Linear Test Results (Sample G) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
2	4								
3	1								
3	14								
4	11								
5	8								
6	5								
7	2								
7	15								
8	12								

* Describe any circumstances that may have influenced test results.

Sheet 3L(G) 16-Port Linear Test Results (Sample G) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
2	4								
3	1								
3	14								
4	11								
5	8								
6	5								
7	2								
7	15								
8	12								

* Describe any circumstances that may have influenced test results.

Sheet 3L(G) 16-Port Linear Test Results (Sample G) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
2	4								
3	1								
3	14								
4	11								
5	8								
6	5								
7	2								
7	15								
8	12								

* Describe any circumstances that may have influenced test results.

Sheet 3L(H) 16-Port Linear Test Results (Sample H) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
2	5								
3	2								
3	15								
4	12								
5	9								
6	6								
7	3								
7	16								
8	13								

* Describe any circumstances that may have influenced test results.

Sheet 3L(H) 16-Port Linear Test Results (Sample H) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
2	5								
3	2								
3	15								
4	12								
5	9								
6	6								
7	3								
7	16								
8	13								

* Describe any circumstances that may have influenced test results.

Sheet 3L(H) 16-Port Linear Test Results (Sample H) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
2	5								
3	2								
3	15								
4	12								
5	9								
6	6								
7	3								
7	16								
8	13								

* Describe any circumstances that may have influenced test results.

Sheet 3L(l) 16-Port Linear Test Results (Sample I) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	6								
3	3								
3	16								
4	13								
5	10								
6	7								
7	4								
8	1								
8	14								

* Describe any circumstances that may have influenced test results.

Sheet 3L(l) 16-Port Linear Test Results (Sample 1) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	6								
3	3								
3	16								
4	13								
5	10								
6	7								
7	4								
8	1								
8	14								

* Describe any circumstances that may have influenced test results.

Sheet 3L(l) 16-Port Linear Test Results (Sample I) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	6								
3	3								
3	16								
4	13								
5	10								
6	7								
7	4								
8	1								
8	14								

* Describe any circumstances that may have influenced test results.

Sheet 3L(J) 16-Port Linear Test Results (Sample J) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	7								
3	4								
4	1								
4	14								
5	11								
6	8								
7	5								
8	2								
8	15								

* Describe any circumstances that may have influenced test results.

Sheet 3L(J) 16-Port Linear Test Results (Sample J) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	7								
3	4								
4	1								
4	14								
5	11								
6	8								
7	5								
8	2								
8	15								

* Describe any circumstances that may have influenced test results.

Sheet 3L(J) 16-Port Linear Test Results (Sample J) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	7								
3	4								
4	1								
4	14								
5	11								
6	8								
7	5								
8	2								
8	15								

* Describe any circumstances that may have influenced test results.

Sheet 3L(K) 16-Port Linear Test Results (Sample K) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Philip Morris One KS **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	8								
3	5								
4	2								
4	15								
5	12								
6	9								
7	6								
8	3								
8	16								

* Describe any circumstances that may have influenced test results.

Sheet 3L(K) 16-Port Linear Test Results (Sample K) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Philip Morris One KS **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	8								
3	5								
4	2								
4	15								
5	12								
6	9								
7	6								
8	3								
8	16								

* Describe any circumstances that may have influenced test results.

Sheet 3L(K) 16-Port Linear Test Results (Sample K) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Philip Morris One KS **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	8								
3	5								
4	2								
4	15								
5	12								
6	9								
7	6								
8	3								
8	16								

* Describe any circumstances that may have influenced test results.

Sheet 3L(L) 16-Port Linear Test Results (Sample L) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Kentucky Reference 1R4F **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	9								
3	6								
4	3								
4	16								
5	13								
6	10								
7	7								
8	4								
9	1								

* Describe any circumstances that may have influenced test results.

Sheet 3L(L) 16-Port Linear Test Results (Sample L) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Kentucky Reference 1R4F **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	9								
3	6								
4	3								
4	16								
5	13								
6	10								
7	7								
8	4								
9	1								

* Describe any circumstances that may have influenced test results.

Sheet 3L(L) 16-Port Linear Test Results (Sample L) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Kentucky Reference 1R4F **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	9								
3	6								
4	3								
4	16								
5	13								
6	10								
7	7								
8	4								
9	1								

* Describe any circumstances that may have influenced test results.

Sheet 3L(M) 16-Port Linear Test Results (Sample M) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: CORESTA Monitor CM4 **Butt length (mm):** 32

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	13								
2	10								
3	7								
4	4								
5	1								
5	14								
6	11								
7	8								
8	5								
9	2								

* Describe any circumstances that may have influenced test results.

Sheet 3L(M) 16-Port Linear Test Results (Sample M) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: CORESTA Monitor CM4 **Butt length (mm):** 32

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	13								
2	10								
3	7								
4	4								
5	1								
5	14								
6	11								
7	8								
8	5								
9	2								

* Describe any circumstances that may have influenced test results.

Sheet 3L(M) 16-Port Linear Test Results (Sample M) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: CORESTA Monitor CM4 **Butt length (mm):** 32

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	13								
2	10								
3	7								
4	4								
5	1								
5	14								
6	11								
7	8								
8	5								
9	2								

* Describe any circumstances that may have influenced test results.

Sheet 3L(A) 20-Port Linear Test Results (Sample A) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	14								
2	7								
2	20								
3	13								
4	6								
4	19								
5	12								
6	5								
6	18								

* Describe any circumstances that may have influenced test results.

Sheet 3L(A) 20-Port Linear Test Results (Sample A) - Regime #2

Laboratory name	
Smoking machine	
Cigarette Group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	14								
2	7								
2	20								
3	13								
4	6								
4	19								
5	12								
6	5								
6	18								

* Describe any circumstances that may have influenced test results.

Sheet 3L(A) 20-Port Linear Test Results (Sample A) - Regime #3

Laboratory name	
Smoking machine	
Cigarette Group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1								
1	14								
2	7								
2	20								
3	13								
4	6								
4	19								
5	12								
6	5								
6	18								

* Describe any circumstances that may have influenced test results.

Sheet 3L(B) 20-Port Linear Test Results (Sample B) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	15								
2	8								
3	1								
3	14								
4	7								
4	20								
5	13								
6	6								
6	19								

* Describe any circumstances that may have influenced test results.

Sheet 3L(B) 20-Port Linear Test Results (Sample B) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	15								
2	8								
3	1								
3	14								
4	7								
4	20								
5	13								
6	6								
6	19								

* Describe any circumstances that may have influenced test results.

Sheet 3L(B) 20-Port Linear Test Results (Sample B) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2								
1	15								
2	8								
3	1								
3	14								
4	7								
4	20								
5	13								
6	6								
6	19								

* Describe any circumstances that may have influenced test results.

Sheet 3L(C) 20-Port Linear Test Results (Sample C) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	16								
2	9								
3	2								
3	15								
4	8								
5	1								
5	14								
6	7								
6	20								

* Describe any circumstances that may have influenced test results.

Sheet 3L(C) 20-Port Linear Test Results (Sample C) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	16								
2	9								
3	2								
3	15								
4	8								
5	1								
5	14								
6	7								
6	20								

* Describe any circumstances that may have influenced test results.

Sheet 3L(C) 20-Port Linear Test Results (Sample C) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3								
1	16								
2	9								
3	2								
3	15								
4	8								
5	1								
5	14								
6	7								
6	20								

* Describe any circumstances that may have influenced test results.

Sheet 3L(D) 20-Port Linear Test Results (Sample D) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
1	17								
2	10								
3	3								
3	16								
4	9								
5	2								
5	15								
6	8								
7	1								

* Describe any circumstances that may have influenced test results.

Sheet 3L(D) 20-Port Linear Test Results (Sample D) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
1	17								
2	10								
3	3								
3	16								
4	9								
5	2								
5	15								
6	8								
7	1								

* Describe any circumstances that may have influenced test results.

Sheet 3L(D) 20-Port Linear Test Results (Sample D) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4								
1	17								
2	10								
3	3								
3	16								
4	9								
5	2								
5	15								
6	8								
7	1								

* Describe any circumstances that may have influenced test results.

Sheet 3L(E) 20-Port Linear Test Results (Sample E) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
1	18								
2	11								
3	4								
3	17								
4	10								
5	3								
5	16								
6	9								
7	2								

* Describe any circumstances that may have influenced test results.

Sheet 3L(E) 20-Port Linear Test Results (Sample E) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
1	18								
2	11								
3	4								
3	17								
4	10								
5	3								
5	16								
6	9								
7	2								

* Describe any circumstances that may have influenced test results.

Sheet 3L(E) 20-Port Linear Test Results (Sample E) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5								
1	18								
2	11								
3	4								
3	17								
4	10								
5	3								
5	16								
6	9								
7	2								

* Describe any circumstances that may have influenced test results.

Sheet 3L(F) 20-Port Linear Test Results (Sample F) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
1	19								
2	12								
3	5								
3	18								
4	11								
5	4								
5	17								
6	10								
7	3								

* Describe any circumstances that may have influenced test results.

Sheet 3L(F) 20-Port Linear Test Results (Sample F) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
1	19								
2	12								
3	5								
3	18								
4	11								
5	4								
5	17								
6	10								
7	3								

* Describe any circumstances that may have influenced test results.

Sheet 3L(F) 20-Port Linear Test Results (Sample F) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	6								
1	19								
2	12								
3	5								
3	18								
4	11								
5	4								
5	17								
6	10								
7	3								

* Describe any circumstances that may have influenced test results.

Sheet 3L(G) 20-Port Linear Test Results (Sample G) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
1	20								
2	13								
3	6								
3	19								
4	12								
5	5								
5	18								
6	11								
7	4								

* Describe any circumstances that may have influenced test results.

Sheet 3L(G) 20-Port Linear Test Results (Sample G) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
1	20								
2	13								
3	6								
3	19								
4	12								
5	5								
5	18								
6	11								
7	4								

* Describe any circumstances that may have influenced test results.

Sheet 3L(G) 20-Port Linear Test Results (Sample G) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7								
1	20								
2	13								
3	6								
3	19								
4	12								
5	5								
5	18								
6	11								
7	4								

* Describe any circumstances that may have influenced test results.

Sheet 3L(H) 20-Port Linear Test Results (Sample H) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
2	1								
2	14								
3	7								
3	20								
4	13								
5	6								
5	19								
6	12								
7	5								

* Describe any circumstances that may have influenced test results.

Sheet 3L(H) 20-Port Linear Test Results (Sample H) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
2	1								
2	14								
3	7								
3	20								
4	13								
5	6								
5	19								
6	12								
7	5								

* Describe any circumstances that may have influenced test results.

Sheet 3L(H) 20-Port Linear Test Results (Sample H) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	8								
2	1								
2	14								
3	7								
3	20								
4	13								
5	6								
5	19								
6	12								
7	5								

* Describe any circumstances that may have influenced test results.

Sheet 3L(l) 20-Port Linear Test Results (Sample I) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	2								
2	15								
3	8								
4	1								
4	14								
5	7								
5	20								
6	13								
7	6								

* Describe any circumstances that may have influenced test results.

Sheet 3L(l) 20-Port Linear Test Results (Sample I) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	2								
2	15								
3	8								
4	1								
4	14								
5	7								
5	20								
6	13								
7	6								

* Describe any circumstances that may have influenced test results.

Sheet 3L(l) 20-Port Linear Test Results (Sample I) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9								
2	2								
2	15								
3	8								
4	1								
4	14								
5	7								
5	20								
6	13								
7	6								

* Describe any circumstances that may have influenced test results.

Sheet 3L(J) 20-Port Linear Test Results (Sample J) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	3								
2	16								
3	9								
4	2								
4	15								
5	8								
6	1								
6	14								
7	7								

* Describe any circumstances that may have influenced test results.

Sheet 3L(J) 20-Port Linear Test Results (Sample J) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	3								
2	16								
3	9								
4	2								
4	15								
5	8								
6	1								
6	14								
7	7								

* Describe any circumstances that may have influenced test results.

Sheet 3L(J) 20-Port Linear Test Results (Sample J) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: **Butt length (mm):**

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10								
2	3								
2	16								
3	9								
4	2								
4	15								
5	8								
6	1								
6	14								
7	7								

* Describe any circumstances that may have influenced test results.

Sheet 3L(K) 20-Port Linear Test Results (Sample K) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Philip Morris One KS **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	4								
2	17								
3	10								
4	3								
4	16								
5	9								
6	2								
6	15								
7	8								

* Describe any circumstances that may have influenced test results.

Sheet 3L(K) 20-Port Linear Test Results (Sample K) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Philip Morris One KS **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	4								
2	17								
3	10								
4	3								
4	16								
5	9								
6	2								
6	15								
7	8								

* Describe any circumstances that may have influenced test results.

Sheet 3L(K) 20-Port Linear Test Results (Sample K) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Philip Morris One KS **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11								
2	4								
2	17								
3	10								
4	3								
4	16								
5	9								
6	2								
6	15								
7	8								

* Describe any circumstances that may have influenced test results.

Sheet 3L(L) 20-Port Linear Test Results (Sample L) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Kentucky Reference 1R4F **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	5								
2	18								
3	11								
4	4								
4	17								
5	10								
6	3								
6	16								
7	9								

* Describe any circumstances that may have influenced test results.

Sheet 3L(L) 20-Port Linear Test Results (Sample L) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Kentucky Reference 1R4F **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	5								
2	18								
3	11								
4	4								
4	17								
5	10								
6	3								
6	16								
7	9								

* Describe any circumstances that may have influenced test results.

Sheet 3L(L) 20-Port Linear Test Results (Sample L) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: Kentucky Reference 1R4F **Butt length (mm):** 35

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12								
2	5								
2	18								
3	11								
4	4								
4	17								
5	10								
6	3								
6	16								
7	9								

* Describe any circumstances that may have influenced test results.

Sheet 3L(M) 20-Port Linear Test Results (Sample M) - Regime #1

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: CORESTA Monitor CM4 **Butt length (mm):** 32

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	13								
2	6								
2	19								
3	12								
4	5								
4	18								
5	11								
6	4								
6	17								
7	10								

* Describe any circumstances that may have influenced test results.

Sheet 3L(M) 20-Port Linear Test Results (Sample M) - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: CORESTA Monitor CM4 **Butt length (mm):** 32

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	13								
2	6								
2	19								
3	12								
4	5								
4	18								
5	11								
6	4								
6	17								
7	10								

* Describe any circumstances that may have influenced test results.

Sheet 3L(M) 20-Port Linear Test Results (Sample M) - Regime #3

Laboratory name	
Smoking machine	
Cigarette group	

Brand Tested: CORESTA Monitor CM4 **Butt length (mm):** 32

Run No.	Port No.	Smoking date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	13								
2	6								
2	19								
3	12								
4	5								
4	18								
5	11								
6	4								
6	17								
7	10								

* Describe any circumstances that may have influenced test results.

Sheet 3R 20-Port Rotary Test Results - Regime #1

Laboratory name									
Smoking machine									
Cigarette group									
Brand A Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	1								
2	26								
3	38								
Brand B Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	2								
2	14								
3	39								
Brand C Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	15								
3	27								
Brand D Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	4								
2	16								
3	28								
Brand E Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	5								
2	17								
3	29								
Brand F Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	18								
3	30								
Brand G Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	7								
2	19								
3	31								
Brand H Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	20								
3	32								
Brand I Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	21								
3	33								
Brand J Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	10								
2	22								
3	34								
Brand K Tested:		Philip Morris One KS						Butt length (mm): 35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	11								
2	23								
3	35								
Brand L Tested:		Kentucky Reference 1R4F						Butt length (mm): 35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	12								
2	24								
3	36								
Brand M Tested:		CORESTA Monitor CM4						Butt length (mm): 32	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	12								
2	24								
3	36								

* Describe any circumstances that may have influenced test results.

Sheet 3R 20-Port Rotary Test Results - Regime #2

Laboratory name	
Smoking machine	
Cigarette group	

Brand A Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	1							
2	26							
3	38							

Brand B Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	2							
2	14							
3	33							

Brand C Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3							
2	15							
3	27							

Brand D Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	4							
2	16							
3	28							

Brand E Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5							
2	17							
3	29							

Brand F Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	5							
2	18							
3	30							

Brand G Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	7							
2	19							
3	31							

Brand H Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	3							
2	20							
3	32							

Brand I Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	9							
2	21							
3	33							

Brand J Tested: _____ **Butt length (mm):** _____

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	10							
2	22							
3	34							

Brand K Tested: Philip Morris One KS **Butt length (mm):** 35

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	11							
2	23							
3	35							

Brand L Tested: Kentucky Reference 1R4F **Butt length (mm):** 35

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12							
2	24							
3	36							

Brand M Tested: CORESTA Monitor CM4 **Butt length (mm):** 32

Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*
1	12							
2	24							
3	36							

* Describe any circumstances that may have influenced test results.

Sheet 3R 20-Port Rotary Test Results - Regime #3

Laboratory name									
Smoking machine									
Cigarette group									
Brand A Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	1								
2	26								
3	38								
Brand B Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	2								
2	14								
3	39								
Brand C Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	3								
2	15								
3	27								
Brand D Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	4								
2	16								
3	28								
Brand E Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	5								
2	17								
3	29								
Brand F Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	6								
2	18								
3	30								
Brand G Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	7								
2	19								
3	31								
Brand H Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	8								
2	20								
3	32								
Brand I Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	9								
2	21								
3	33								
Brand J Tested:								Butt length (mm):	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	10								
2	22								
3	34								
Brand K Tested:		Philip Morris One KS						Butt length (mm): 35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	11								
2	23								
3	35								
Brand L Tested:		Kentucky Reference 1R4F						Butt length (mm): 35	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	12								
2	24								
3	36								
Brand M Tested:		CORESTA Monitor CM4						Butt length (mm): 32	
Run No.	Smoking Date	TPM (mg/cig.)	Water (mg/cig.)	Nicotine (mg/cig.)	NFDPM (mg/cig.)	CO (mg/cig.)	Puff count	Note*	
1	12								
2	24								
3	36								

* Describe any circumstances that may have influenced test results.

**Appendix 6. Summary of Phase 2 Study Results: Mean Values
Obtained in Each Laboratory**

Tables 1 – 9 of Appendix 6 summarize the groups of ten commercial cigarettes and three “reference cigarettes” that constituted each “product group” tested in the Phase 2 portion of the collaborative study. Product groups assigned to each laboratory for testing are indicated in Table 10. Tables 11 – 35 contain Phase 2 study results from each participating laboratory.

Table 1. Test Cigarettes for Phase 2 Collaborative Study – Ad Hoc Brands

Sample code	Sample name	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	PHILIP MORRIS ONE 100	1	39.0	24.8
B	MS Club Lights slim	3	35.0	17.0
C	Davidoff Lights Slims	7	35.0	19.2
D	MS 821	8	35.0	24.8
E	Fine 120	11	38.0	21.4
F	ST Dupont	14	33.0	24.8
G	A-International	15	31.0	24.8
H	CAMEL NF	24	23.0	24.9
I	Basic King NF	26	23.0	24.8
J	MARK TEN PLAIN KS	19	23.0	25.0
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 2. Test Cigarettes for Phase 2 Collaborative Study – American Blends

Sample code	Sample name	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	R1 Slim Line Minima	1	35.0	19.2
B	Gauloises Blondes UL	2	35.0	24.8
C	MARLBORO ULTRA LIGHTS KS	3	35.0	24.8
D	West Ultra	4	33.0	24.8
E	Royale Menthol Light	5	35.0	24.8
F	Mildseven Superlight	6	33.0	25.0
G	Sax Lights	7	35.0	24.8
H	Fine 120 Light	8	38.0	21.4
I	MULTIFILTER 100	9	35.0	24.8
J	MARLBORO 100	12	35.0	24.6
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 3. Test Cigarettes for Phase 2 Collaborative Study – Canadian Brands

Sample code	Sample name	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Macdonald Select Ultra Mild KS	1	33.0	25.2
B	Viscount Extra Mild KS	3	33.0	25.0
C	Vantage Lights KS	5	33.0	25.2
D	Benson & Hedges Deluxe Ultra Lights 100's	7	35.0	23.8
E	du Maurier Extra Light King Size	9	28.0	25.0
F	du Maurier Light Regular	11	25.0	25.0
G	Export 'A' Light Regular Size	12	23.0	24.8
H	Craven A King Size	13	28.0	25.0
I	Player's Light Regular	13	25.0	25.0
J	Rothmans King Size	15	28.0	25.0
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 4. Test Cigarettes for Phase 2 Collaborative Study – Dark Blends

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Gitanes Internationale	7	33.0	24.8
B	Gauloises Légères	8	28.0	24.8
C	Gauloises Filtre	11	21.0	26.7
D	N 80	12	29.0	25.0
E	Gauloises	12	23.0	24.8
F	BRUNETTE DOUBLE FILTRE	12	29.0	24.8
G	Nazionale Filtro	12	29.0	25.0
H	Gallia	3	33.0	24.8
I	Gauloises ultra légères	2	33.0	24.8
J	Gauloises Extra légères	5	33.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 5. Test Cigarettes for Phase 2 Collaborative Study – Europe Flue Cured Brands

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Dunhill Ultimate Lights	1	35.0	24.6
B	Superkings Ultra Lights	3	34.0	24.7
C	Dunhill Super Lts	4	35.0	24.6
D	L&B Lights KS	5	34.0	24.9
E	Red Band Lights	6	33.0	24.8
F	Rothmans Lts	7	35.0	24.6
G	S.E. International Lts	10	35.0	24.8
H	Bastos	11	28.0	24.8
I	Davidoff Magnum	12	38.0	27.0
J	Horizon Filter	13	30.0	24.7
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 6. Test Cigarettes for Phase 2 Collaborative Study – European Group

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	MS Lights	4	35.0	24.8
B	MS De Luxe	6	35.0	24.5
C	Eura slim	6	35.0	17.0
D	MS Club slim	8	35.0	17.0
E	MS Mild	9	29.0	24.8
F	MS International	10	35.0	24.5
G	Linda Lights	10	29.0	24.8
H	MS	11	29.0	24.8
I	Drum	12	30.0	24.8
J	CORESTA Monitor #4	15	32.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 7. Test Cigarettes for Phase 2 Collaborative Study – Japan Domestic/Other

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Belmont Milds King Size	11	33.0	25.0
B	Cabinet Mild	8	29.0	24.8
C	Caster Supermild BOX	3	35.0	25.0
D	Caster Mild	5	33.0	25.0
E	Caster	8	33.0	25.0
F	Sevenstars	14	33.0	25.0
G	Hilite	17	33.0	25.0
H	ronhill LIGHTS	8	33.0	24.8
I	ronhill Super LIGHTS	4	35.0	24.8
J	ronhill ULTRA	2	35.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 8. Test Cigarettes for Phase 2 Collaborative Study – UK Benchmark Brands

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	L&B Ultra Lights	1	34.0	24.9
B	Superkings Lights	8	34.0	24.7
C	Regal Filter	11	26.0	24.7
D	L&B KS	12	30.0	24.6
E	Silk Cut Extra Mild	3	33.0	24.8
F	Mayfair Menthol	5	33.0	24.8
G	Silk Cut King Size	5	28.0	24.8
H	Mayfair Lights	8	28.0	24.8
I	Senior Service Plain	12	23.0	25.1
J	Berkeley Superkings	11	33.0	24.8
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 9. Test Cigarettes for Phase 2 Collaborative Study – US Brands

Sample code	Sample name (Supplier)	ISO NFDPM (mg/cig.)	Butt length (mm)	Circ. (mm)
A	Merit Ultima KFSP	1	35.0	24.9
B	NOW 100s 100FSP	2	38.0	24.8
C	MONARCH Ultra Lights KFSP	4	34.0	24.8
D	SALEM Ultra Lights 100s 100FMSP	5	38.0	24.8
E	SALEM Lights 100s 100FMSP	8	38.0	24.8
F	Marlboro Lights KFSP	11	35.0	24.9
G	Benson & Hedges Lights 100s Menthol 100FMS	12	39.0	25.0
H	KENT 100s 100FSP	14	36.5	24.6
I	CAMEL Filters KFHP	16	28.0	24.5
J	NEWPORT KFMSP	18	28.5	24.9
K	Philip Morris One KS	1	35.0	24.8
L	Kentucky Reference 1R4F	9	35.0	24.9
M	CORESTA Monitor #4	15	32.0	24.8

Table 10. Product Groups Assigned to Each Laboratory for Phase 2 Study Testing

Laboratory Designation	Company	Smoking Machine Type	Product Group Assignment for Phase 2 Smoking
L1	Arista Laboratories	Hawktech 1000	Dark
L2	Ente Tabacchi Italiani	ASM 500	European Brands
L3	Filtrona	ASM 500	Europe Flue Cured
L4	Gallaher	ASM 500	UK Benchmark
L5	Labstat International	ASM 500	American Blend
L6	Lorillard	ASM 500	American Blend
L7	RJ Reynolds	ASM 500	Japan Domestic / Other
L8	BAT UK	SM400	Europe Flue Cured
L9	RJ Reynolds	SM400	"Ad Hoc"
L10	Rothmans, Benson & Hedges Inc.	SM400	Canadian Brands
L11	RJ Reynolds	SM400	US Brands
<hr/>			
R1	Altadis	RM20	US Brands
R2	Baumgartner	RM20	Dark
R4	Imperial Tobacco UK	RM20	Europe Flue Cured
R5	J.L Tiedemanns Tobaksfabrik AS	RM20	Japan Domestic / Other
R6	LTR Industries	RM20	European Brands
R7	RJ Reynolds	RM20	Canadian Brands
R8	Tvornica Duhana Rovinj	RM20	"Ad Hoc"
R9	Wattenspapier	RM20	Dark
R10	Sampoerna Indonesia	RM200 w/Kit	American Blend
R11	Borgwaldt Technik GmbH	RM200 w/Kit	UK Benchmark
R12	Japan Tobacco	RM200 w/Kit	UK Benchmark
R13	Autria Tabak	RM200 w/Kit	US Brands
R14	JT International - Cologne	RM200 w/Kit	American Blend
R15	PM International	RM200 w/Kit	Japan Domestic / Other

Table 11. Phase 2 Results: Laboratory L1

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	10.0	0.5	9.4	0.7	15.4	1.2	12.3	0.8	11.9	0.6	13.3	0.6	15.4	0.8
#2	27.4	2.3	27.6	2.0	41.7	4.1	34.9	1.7	29.6	2.2	37.7	1.5	38.5	1.6
#3	39.3	2.6	44.7	2.4	53.6	5.1	53.1	3.3	36.3	2.4	55.6	2.3	56.0	4.6
Water Yield (mg/cig)														
#1	0.9	0.1	0.8	0.1	2.8	0.5	1.1	0.2	1.0	0.1	1.4	0.1	1.7	0.2
#2	6.3	1.1	5.9	0.9	11.8	1.8	7.1	0.7	5.4	0.7	9.8	0.7	8.7	0.5
#3	12.2	1.4	14.3	1.1	17.3	2.3	15.8	1.7	8.4	1.1	18.9	1.2	17.1	2.1
Nicotine Yield (mg/cig)														
#1	0.50	0.03	0.50	0.03	0.52	0.02	0.72	0.03	0.49	0.02	0.68	0.03	0.85	0.04
#2	0.97	0.04	1.03	0.06	1.02	0.06	1.57	0.06	1.05	0.07	1.44	0.06	1.67	0.08
#3	1.06	0.06	1.16	0.07	1.10	0.08	1.87	0.06	1.15	0.07	1.70	0.10	2.01	0.10
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	8.6	0.4	8.1	0.6	12.1	0.8	10.5	0.6	10.5	0.5	11.3	0.4	12.8	0.6
#2	20.2	1.3	20.7	1.2	28.9	2.8	26.2	1.1	23.1	1.6	26.5	0.9	28.0	1.2
#3	26.0	1.5	29.2	1.4	35.2	3.1	35.5	1.8	26.8	1.7	34.9	1.2	36.9	2.6
Carbon Monoxide (CO) Yield (mg/cig)														
#1	10.3	0.6	8.7	0.8	12.6	0.6	10.0	0.8	8.5	0.6	11.1	0.6	12.6	0.9
#2	21.9	2.4	20.0	1.4	24.2	3.7	22.7	2.0	17.2	1.7	22.7	2.0	24.8	1.4
#3	26.4	1.9	27.0	1.9	29.7	2.7	30.8	1.8	19.1	1.4	28.5	1.5	32.4	3.4
Puff Count (puffs/cigarette)														
#1	7.0	0.2	7.6	0.3	7.1	0.2	9.3	0.3	6.1	0.2	8.3	0.3	9.8	0.5
#2	10.1	0.6	11.3	0.4	10.1	0.5	14.1	0.6	9.1	0.4	11.3	0.5	15.0	0.6
#3	9.0	0.3	9.9	0.4	9.1	0.5	12.5	0.5	8.4	0.3	9.3	0.4	13.4	0.6

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	3.9	0.3	2.7	0.3	4.5	0.2	1.5	0.1	12.1	0.4	17.6	1.0
#2	13.1	0.8	11.5	0.9	15.5	1.3	8.7	0.6	29.6	1.5	37.9	1.8
#3	30.5	3.4	29.8	2.3	30.9	2.3	29.2	4.3	46.9	2.3	48.1	1.6
Water Yield (mg/cig)												
#1	0.2	0.0	0.1	0.0	0.2	0.0	0.1	0.0	1.3	0.1	2.2	0.3
#2	1.0	0.2	1.0	0.3	2.0	0.4	0.8	0.2	6.4	0.6	9.0	0.7
#3	8.1	0.9	9.2	1.1	9.2	0.7	9.5	2.1	15.4	1.3	14.5	1.1
Nicotine Yield (mg/cig)												
#1	0.15	0.01	0.19	0.02	0.25	0.01	0.14	0.01	0.76	0.03	1.16	0.06
#2	0.40	0.02	0.60	0.04	0.61	0.03	0.59	0.04	1.51	0.06	2.14	0.09
#3	0.53	0.03	0.78	0.06	0.70	0.04	1.03	0.05	1.88	0.09	2.42	0.09
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	3.6	0.3	2.4	0.3	4.0	0.2	1.3	0.1	10.0	0.4	14.3	0.7
#2	11.7	0.6	9.9	0.7	12.9	0.9	7.3	0.5	21.7	0.9	26.8	1.1
#3	21.8	3.2	19.8	1.4	21.0	1.7	18.7	2.4	30.0	1.0	31.2	0.5
Carbon Monoxide (CO) Yield (mg/cig)												
#1	3.7	0.7	3.5	0.3	5.9	0.7	2.4	0.4	12.0	0.8	13.4	0.8
#2	13.1	2.1	15.4	1.4	16.9	1.6	11.4	1.3	22.5	1.1	21.1	1.1
#3	22.6	2.0	26.8	1.1	24.7	1.4	21.4	2.3	29.9	1.3	26.4	2.6
Puff Count (puffs/cigarette)												
#1	6.8	0.3	7.8	0.3	7.1	0.2	7.1	0.3	9.2	0.3	9.8	0.5
#2	10.7	0.4	11.6	0.4	10.6	0.5	10.4	0.5	13.7	0.4	15.2	0.7
#3	8.7	0.3	9.7	1.3	9.0	0.2	7.4	0.3	12.3	0.4	14.4	0.5

Table 12. Phase 2 Results: Laboratory L2

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	4.6	0.2	4.9	0.3	8.2	0.4	2.6	0.2	9.6	0.2	13.0	0.6	9.6	0.2
#2	14.4	1.2	16.2	1.2	20.2	1.4	10.4	0.6	25.1	1.2	28.5	2.0	23.9	1.9
#3	24.4	1.3	30.7	2.4	32.7	2.2	20.7	0.9	39.6	1.8	38.5	1.9	35.1	2.5
Water Yield (mg/cig)														
#1	0.5	0.1	0.5	0.1	0.7	0.1	0.3	0.1	0.7	0.1	0.8	0.1	0.6	0.1
#2	1.4	0.3	1.3	0.2	2.7	0.5	0.9	0.2	3.0	0.5	2.7	0.5	2.7	0.8
#3	5.3	1.0	5.0	1.2	8.3	1.1	4.3	0.5	10.1	1.5	6.0	1.4	8.0	1.7
Nicotine Yield (mg/cig)														
#1	0.47	0.02	0.51	0.05	0.77	0.03	0.29	0.01	0.94	0.03	1.31	0.05	0.85	0.04
#2	1.12	0.08	1.33	0.09	1.67	0.08	0.97	0.07	1.99	0.14	2.55	0.16	1.77	0.10
#3	1.55	0.11	2.09	0.14	2.23	0.12	1.46	0.05	2.54	0.06	3.20	0.17	2.19	0.11
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	3.7	0.1	3.9	0.3	6.7	0.4	2.0	0.2	8.0	0.2	10.9	0.5	8.1	0.2
#2	12.0	0.9	13.7	1.0	15.8	0.9	8.6	0.5	20.2	0.9	23.2	1.5	19.4	1.3
#3	17.6	0.7	23.6	1.3	22.1	1.5	14.9	0.7	26.9	0.8	29.3	0.9	24.9	1.0
Carbon Monoxide (CO) Yield (mg/cig)														
#1	5.8	0.5	4.4	0.4	4.7	0.3	1.9	0.1	6.7	0.4	9.1	0.6	7.7	0.3
#2	17.8	0.9	16.5	0.9	13.3	0.9	9.5	0.7	18.6	0.8	21.2	1.0	20.2	0.9
#3	22.8	1.8	29.0	1.8	17.4	1.5	15.7	0.9	25.0	1.2	27.7	2.3	25.2	2.2
Puff Count (puffs/cigarette)														
#1	7.7	0.2	11.9	0.6	8.3	0.4	8.8	0.3	8.7	0.3	10.7	0.4	8.3	0.2
#2	11.3	0.5	19.2	0.8	12.0	0.3	13.6	0.8	12.8	0.3	16.4	0.8	12.4	0.9
#3	8.9	0.2	14.1	1.4	10.0	0.5	10.6	0.4	9.9	0.3	14.1	0.6	10.0	0.4

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	12.2	0.3	12.2	0.4	17.3	0.5	1.2	0.1	11.0	0.3	17.0	0.4
#2	30.3	1.7	31.3	1.9	32.9	1.3	7.1	0.5	25.0	1.2	32.3	2.3
#3	41.6	2.0	42.1	1.8	37.7	1.8	19.4	2.0	35.0	2.3	37.2	2.2
Water Yield (mg/cig)												
#1	1.0	0.1	1.0	0.1	1.6	0.1	0.2	0.0	1.0	0.1	1.6	0.2
#2	5.4	0.9	5.5	1.2	5.9	0.5	0.7	0.1	3.7	0.8	5.2	1.2
#3	10.8	1.5	11.3	1.8	7.3	0.9	4.6	1.2	8.4	1.6	7.0	1.1
Nicotine Yield (mg/cig)												
#1	1.05	0.02	0.97	0.05	1.49	0.04	0.16	0.01	0.94	0.04	1.47	0.06
#2	2.14	0.13	1.95	0.07	2.50	0.10	0.62	0.04	1.72	0.08	2.45	0.14
#3	2.54	0.11	2.28	0.11	2.82	0.09	1.16	0.07	2.15	0.07	2.80	0.10
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	10.1	0.3	10.2	0.3	14.3	0.4	0.9	0.1	9.1	0.3	13.9	0.3
#2	22.8	0.8	23.9	0.9	24.5	1.1	5.7	0.5	19.6	0.8	24.6	1.3
#3	28.3	1.2	28.5	0.8	27.6	1.1	13.7	1.1	24.5	0.8	27.4	1.2
Carbon Monoxide (CO) Yield (mg/cig)												
#1	9.3	0.6	9.3	0.8	12.6	0.6	1.5	0.2	11.1	0.7	12.6	0.7
#2	21.7	0.9	22.3	0.8	22.0	1.0	10.6	0.8	23.3	1.0	22.0	1.0
#3	26.2	1.9	25.6	2.1	22.8	1.5	18.9	2.1	26.8	2.1	23.2	1.5
Puff Count (puffs/cigarette)												
#1	8.6	0.2	8.4	0.2	9.1	0.1	6.9	0.2	8.5	0.2	9.0	0.3
#2	12.5	0.3	12.5	0.5	13.9	0.6	9.8	0.5	12.2	0.6	14.1	0.6
#3	10.7	0.5	10.7	0.4	12.7	0.4	6.5	0.2	10.5	0.4	12.5	0.7

Table 13. Phase 2 Results: Laboratory L3

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.1	0.1	3.5	0.2	4.2	0.2	5.8	0.3	6.6	0.2	8.1	0.2	11.0	0.7
#2	6.4	0.5	11.7	1.0	13.4	0.7	15.2	1.1	19.0	0.9	20.3	0.9	27.3	1.4
#3	18.9	1.9	23.2	1.8	33.4	3.0	24.2	2.2	30.1	2.6	37.4	3.6	38.5	3.2
Water Yield (mg/cig)														
#1	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.2	0.1	0.5	0.2	0.6	0.1
#2	0.2	0.2	0.8	0.5	1.0	0.3	1.5	0.4	1.8	0.5	2.4	0.4	4.1	0.5
#3	3.8	0.9	5.4	1.3	10.1	1.6	6.0	1.1	6.6	1.2	12.0	1.8	10.6	1.7
Nicotine Yield (mg/cig)														
#1	0.10	0.03	0.31	0.02	0.32	0.01	0.48	0.02	0.53	0.01	0.53	0.01	0.81	0.04
#2	0.50	0.03	0.84	0.04	0.93	0.05	1.08	0.07	1.29	0.07	1.19	0.04	1.74	0.08
#3	0.92	0.07	1.11	0.05	1.39	0.06	1.24	0.08	1.63	0.11	1.54	0.07	1.92	0.08
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	0.9	0.1	3.0	0.2	3.6	0.2	5.0	0.2	5.9	0.2	7.2	0.2	9.6	0.6
#2	5.6	0.5	10.0	0.7	11.5	0.7	12.6	0.8	16.0	0.7	16.7	0.6	21.5	0.9
#3	14.2	1.0	16.7	0.8	22.0	1.5	16.9	1.0	21.9	1.8	23.9	1.9	26.0	1.8
Carbon Monoxide (CO) Yield (mg/cig)														
#1	0.7	0.1	3.3	0.2	4.3	0.4	5.7	0.4	5.9	0.3	6.8	0.2	10.1	0.5
#2	10.2	0.7	12.2	0.7	13.3	0.8	14.3	1.8	16.5	0.9	15.1	0.7	19.8	1.0
#3	21.4	1.6	19.0	0.9	22.2	0.7	18.3	1.2	23.2	1.4	20.4	1.7	24.7	1.6
Puff Count (puffs/cigarette)														
#1	7.7	0.3	7.0	0.2	7.6	0.2	6.2	0.2	9.0	0.2	6.9	0.2	7.4	0.2
#2	11.2	0.4	10.1	0.3	10.8	0.4	9.0	0.3	12.8	0.4	9.8	0.3	10.3	0.3
#3	8.4	0.3	8.5	0.3	9.1	0.3	7.8	0.2	10.9	0.4	9.1	0.4	9.8	0.4

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	14.3	0.5	12.4	0.6	15.5	0.4	1.5	0.2	11.4	0.5	17.6	0.3
#2	36.1	1.4	27.5	0.6	34.1	3.3	8.0	0.6	24.7	1.2	33.9	1.2
#3	49.8	2.7	32.1	1.7	43.1	2.8	22.8	1.5	36.8	1.8	41.1	2.1
Water Yield (mg/cig)												
#1	1.1	0.2	0.5	0.1	1.8	0.2	0.0	0.1	0.8	0.2	1.4	0.2
#2	6.9	0.6	2.6	0.3	8.7	1.5	0.4	0.1	3.8	0.8	5.1	0.3
#3	14.9	2.4	4.2	0.8	13.4	1.3	6.2	0.8	8.9	0.9	8.9	0.8
Nicotine Yield (mg/cig)												
#1	1.11	0.11	1.23	0.05	1.00	0.05	0.16	0.02	0.88	0.02	1.35	0.03
#2	2.12	0.08	2.50	0.06	1.88	0.15	0.67	0.03	1.56	0.05	2.42	0.08
#3	2.42	0.14	2.58	0.18	2.14	0.13	1.07	0.05	1.91	0.06	2.54	0.13
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	12.0	0.5	10.6	0.6	12.6	0.3	1.4	0.2	9.7	0.4	14.9	0.3
#2	27.1	0.9	22.4	0.5	23.5	1.7	7.0	0.5	19.3	0.7	26.4	0.9
#3	32.5	0.9	25.3	1.3	27.6	1.6	15.5	0.8	26.1	1.1	29.6	1.6
Carbon Monoxide (CO) Yield (mg/cig)												
#1	10.8	0.6	9.4	0.5	11.2	0.5	1.6	0.5	11.1	0.7	12.7	0.3
#2	23.5	1.1	21.0	1.0	19.2	0.9	10.2	0.8	19.9	1.0	19.7	0.9
#3	28.8	1.3	23.1	0.8	22.5	1.1	18.2	0.7	25.9	1.4	22.2	0.6
Puff Count (puffs/cigarette)												
#1	9.0	0.1	9.2	0.2	6.8	0.2	7.4	0.2	9.3	0.2	10.0	0.3
#2	13.3	0.5	13.3	0.4	9.0	0.3	10.1	0.3	13.3	0.5	14.2	0.4
#3	12.0	0.5	12.6	0.4	8.6	0.5	6.9	0.4	12.3	0.4	14.2	0.8

Table 14. Phase 2 Results: Laboratory L4

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.8	0.3	8.7	0.3	12.2	0.9	12.3	0.9	2.8	0.2	5.3	0.6	6.6	0.7
#2	8.3	0.9	22.7	1.1	28.5	2.0	28.4	1.6	12.0	0.8	16.3	1.3	18.4	1.0
#3	25.1	2.4	36.6	2.8	35.9	2.3	35.9	2.3	27.2	2.7	28.3	1.8	35.9	3.0
Water Yield (mg/cig)														
#1	0.1	0.1	0.4	0.1	1.5	0.6	1.3	0.6	0.1	0.2	0.1	0.1	0.2	0.1
#2	0.6	0.3	2.8	0.4	7.9	1.0	6.8	0.7	1.0	0.4	2.2	0.7	2.0	0.4
#3	7.1	1.5	10.9	1.6	12.5	1.3	11.7	1.3	8.9	1.8	9.2	1.0	11.3	1.5
Nicotine Yield (mg/cig)														
#1	0.20	0.02	0.72	0.02	0.88	0.04	0.76	0.03	0.26	0.01	0.44	0.03	0.54	0.02
#2	0.75	0.07	1.64	0.05	1.68	0.12	1.52	0.06	0.88	0.04	1.16	0.06	1.33	0.08
#3	1.38	0.08	1.99	0.11	1.83	0.11	1.59	0.12	1.26	0.06	1.35	0.07	1.78	0.11
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.6	0.3	7.6	0.3	9.8	0.5	10.2	0.4	2.4	0.3	4.7	0.5	5.8	0.7
#2	6.9	0.9	18.3	1.0	18.9	1.0	20.2	1.0	10.1	0.6	12.9	0.8	15.1	0.7
#3	16.7	1.2	23.7	1.3	21.6	1.0	22.5	1.3	17.0	1.0	17.8	1.1	22.8	1.7
Carbon Monoxide (CO) Yield (mg/cig)														
#1	1.4	0.1	6.8	0.3	9.9	0.7	12.3	1.2	2.6	0.3	5.3	0.4	5.4	0.4
#2	8.3	1.0	17.8	1.0	18.9	0.9	23.1	1.2	12.7	1.0	16.3	1.4	15.9	0.9
#3	20.4	1.5	24.1	1.4	22.2	1.0	25.7	2.0	21.0	1.2	22.5	1.2	24.5	1.6
Puff Count (puffs/cigarette)														
#1	7.2	0.3	8.0	0.2	6.7	0.2	7.4	0.1	7.0	0.2	7.0	0.3	8.0	0.2
#2	11.2	0.3	12.2	1.0	9.3	0.5	10.6	0.4	9.8	0.3	10.0	0.4	---	---
#3	8.4	0.2	9.9	0.3	8.3	0.2	9.8	0.4	7.4	0.3	8.1	0.3	10.0	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	8.0	0.7	14.0	1.9	10.2	0.4	1.3	0.3	11.3	0.6	17.1	0.5
#2	20.7	1.4	26.9	1.4	25.4	1.5	6.7	0.4	24.5	1.2	33.6	0.7
#3	35.9	4.0	29.6	3.0	35.8	2.6	21.4	2.7	36.9	2.1	41.3	2.4
Water Yield (mg/cig)												
#1	0.6	0.3	1.3	0.7	0.6	0.2	0.1	0.1	0.9	0.2	1.6	0.2
#2	3.9	0.6	3.2	0.8	4.4	0.8	0.6	0.3	4.0	0.4	6.5	0.4
#3	12.7	2.2	4.3	1.3	9.6	1.5	7.0	1.8	11.4	1.3	11.4	1.4
Nicotine Yield (mg/cig)												
#1	0.56	0.03	0.89	0.08	0.76	0.02	0.14	0.01	0.84	0.03	1.30	0.04
#2	1.20	0.06	1.78	0.16	1.62	0.07	0.54	0.03	1.59	0.07	2.31	0.09
#3	1.51	0.14	1.81	0.20	1.90	0.10	1.01	0.05	1.88	0.11	2.57	0.18
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	6.8	0.4	11.8	1.3	8.8	0.3	1.1	0.4	9.6	0.5	14.2	0.4
#2	15.6	0.9	21.9	1.0	19.5	1.4	5.6	0.3	18.8	0.9	24.7	0.5
#3	21.7	1.8	23.5	1.7	24.3	2.7	13.4	1.0	23.6	1.1	27.2	1.1
Carbon Monoxide (CO) Yield (mg/cig)												
#1	7.8	0.7	6.6	0.5	10.5	0.5	1.7	0.1	10.9	0.8	12.5	0.5
#2	18.2	1.1	13.5	0.9	22.7	1.4	9.3	0.5	20.3	0.9	19.8	0.7
#3	24.8	1.3	15.5	1.0	27.5	1.5	18.2	2.1	26.5	1.3	23.3	1.3
Puff Count (puffs/cigarette)												
#1	7.2	0.3	6.6	0.4	8.3	0.1	7.2	0.2	8.9	0.2	9.5	0.3
#2	10.0	0.2	10.4	0.2	12.5	0.2	10.1	0.3	13.0	0.5	14.3	0.5
#3	8.9	0.3	9.5	0.5	11.4	0.2	6.8	0.2	11.1	0.5	13.6	0.6

Table 15. Phase 2 Results: Laboratory L5

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	0.9	0.1	1.8	0.1	3.0	0.2	5.8	0.3	5.7	0.3	6.3	0.3	8.5	0.3
#2	6.3	0.3	6.1	0.5	9.5	0.4	16.5	0.8	11.5	0.7	14.7	0.6	15.5	1.0
#3	27.6	1.4	15.7	1.3	23.6	0.9	32.1	1.7	20.3	0.8	30.2	1.7	26.0	2.1
Water Yield (mg/cig)														
#1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.3	0.0	0.3	0.0	0.4	0.1
#2	0.2	0.1	0.3	0.1	0.5	0.1	1.3	0.2	1.1	0.3	1.4	0.2	1.5	0.4
#3	9.0	0.9	4.3	0.8	6.8	0.7	8.5	1.0	5.3	0.6	9.7	1.1	7.3	1.4
Nicotine Yield (mg/cig)														
#1	0.10	0.01	0.14	0.01	0.25	0.01	0.51	0.03	0.29	0.02	0.43	0.02	0.55	0.02
#2	0.53	0.03	0.41	0.03	0.67	0.04	1.21	0.06	0.52	0.02	0.89	0.03	0.94	0.06
#3	1.28	0.05	0.67	0.04	1.08	0.06	1.69	0.07	0.67	0.03	1.24	0.07	1.18	0.07
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	0.8	0.1	1.6	0.1	2.7	0.2	5.1	0.3	5.1	0.3	5.6	0.3	7.5	0.3
#2	5.6	0.3	5.5	0.5	8.3	0.3	14.0	0.6	9.9	0.4	12.4	0.5	13.0	0.7
#3	17.4	0.9	10.8	0.7	15.8	0.6	21.9	0.9	14.3	0.5	19.3	1.3	17.5	0.8
Carbon Monoxide (CO) Yield (mg/cig)														
#1	0.7	0.1	3.4	0.2	3.1	0.2	4.0	0.2	8.1	0.5	6.4	0.4	7.9	0.2
#2	6.9	0.2	11.3	0.9	11.4	0.6	13.5	0.6	16.6	0.7	16.1	0.8	14.6	1.1
#3	19.4	0.8	20.2	1.6	21.2	1.0	22.0	0.6	23.0	0.8	26.9	1.5	20.3	0.8
Puff Count (puffs/cigarette)														
#1	9.4	0.3	7.8	0.4	7.2	0.2	8.6	0.3	7.0	0.2	8.3	0.2	6.9	0.2
#2	10.9	0.3	8.9	0.4	8.2	0.3	9.7	0.3	8.0	0.3	9.8	0.4	8.1	0.3
#3	7.1	0.3	7.0	0.3	6.5	0.3	7.9	0.5	7.2	0.2	8.2	0.4	7.4	0.4

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	8.8	0.4	10.0	0.5	14.1	0.4	1.2	0.1	11.3	0.4	17.7	0.5
#2	22.0	1.8	21.1	1.6	28.5	1.2	5.5	0.2	21.7	0.8	29.3	1.2
#3	37.1	2.8	34.5	2.0	42.5	2.3	18.2	1.0	32.7	1.4	37.4	1.2
Water Yield (mg/cig)												
#1	0.3	0.1	0.5	0.1	1.0	0.1	0.0	0.0	0.7	0.1	1.4	0.2
#2	2.0	0.5	2.2	0.4	4.1	0.5	0.2	0.0	2.7	0.2	4.7	0.5
#3	9.3	1.5	9.1	1.1	11.3	1.3	4.6	0.7	8.4	0.9	9.3	0.4
Nicotine Yield (mg/cig)												
#1	0.63	0.02	0.63	0.03	0.87	0.04	0.12	0.01	0.79	0.04	1.30	0.03
#2	1.44	0.10	1.21	0.06	1.59	0.09	0.43	0.02	1.39	0.06	1.98	0.08
#3	1.89	0.10	1.53	0.08	1.94	0.08	0.86	0.04	1.69	0.09	2.24	0.08
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	7.8	0.3	8.9	0.5	12.3	0.3	1.1	0.1	9.7	0.3	15.0	0.4
#2	18.6	1.2	17.7	1.2	22.8	0.8	4.9	0.2	17.6	0.6	22.6	0.7
#3	26.0	1.3	23.9	1.1	29.2	1.0	12.7	0.5	22.6	0.7	25.9	0.9
Carbon Monoxide (CO) Yield (mg/cig)												
#1	8.1	0.3	10.3	0.5	11.6	0.3	1.6	0.1	11.6	0.3	13.4	0.5
#2	19.2	1.4	20.3	1.4	21.9	0.6	8.0	0.6	20.1	0.6	19.6	0.8
#3	28.6	1.1	29.1	0.8	29.6	1.3	18.1	0.7	26.4	0.8	23.4	0.7
Puff Count (puffs/cigarette)												
#1	12.1	0.2	9.8	0.2	10.2	0.2	7.1	0.2	8.8	0.3	9.5	0.3
#2	15.9	0.7	11.5	0.3	12.3	0.7	8.1	0.2	11.0	0.4	12.3	0.4
#3	14.5	0.5	10.3	0.4	11.2	0.3	5.9	0.2	9.8	0.5	12.0	0.5

Table 16. Phase 2 Results: Laboratory L6

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	0.8	0.1	2.0	0.2	3.1	0.2	6.1	0.5	5.6	0.2	6.9	0.5	8.2	0.4
#2	7.4	0.6	6.5	0.4	9.6	0.6	16.7	0.5	12.0	0.9	16.2	1.1	15.7	1.3
#3	29.1	2.1	15.3	1.3	22.5	1.9	30.8	1.4	20.2	1.7	28.9	2.5	23.6	1.0
Water Yield (mg/cig)														
#1	0.1	0.0	0.2	0.0	0.3	0.0	0.4	0.0	0.5	0.0	0.5	0.0	0.6	0.0
#2	0.5	0.1	0.6	0.1	0.9	0.1	1.6	0.1	1.6	0.3	2.0	0.2	2.0	0.5
#3	9.8	1.2	4.1	0.8	6.1	1.2	7.5	0.9	5.3	1.0	8.4	1.3	5.9	0.6
Nicotine Yield (mg/cig)														
#1	0.11	0.01	0.17	0.01	0.28	0.02	0.55	0.03	0.31	0.01	0.49	0.03	0.58	0.02
#2	0.65	0.06	0.46	0.02	0.73	0.05	1.31	0.05	0.58	0.04	1.01	0.06	1.00	0.06
#3	1.40	0.07	0.70	0.04	1.12	0.05	1.79	0.06	0.75	0.04	1.30	0.08	1.16	0.05
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	0.6	0.1	1.7	0.2	2.6	0.2	5.1	0.5	4.9	0.2	5.9	0.4	7.0	0.3
#2	6.3	0.5	5.5	0.3	8.1	0.5	13.8	0.4	9.9	0.6	13.2	0.8	12.8	0.7
#3	17.9	1.0	10.5	0.6	15.3	0.8	21.5	0.8	14.2	0.7	19.2	1.3	16.6	0.5
Carbon Monoxide (CO) Yield (mg/cig)														
#1	0.7	0.1	3.3	0.2	2.8	0.2	4.2	0.4	7.5	0.4	6.2	0.8	7.3	0.5
#2	7.4	0.5	10.8	0.8	10.4	0.6	12.1	0.9	15.8	0.9	16.2	1.4	13.7	0.9
#3	18.2	1.0	17.9	1.1	17.8	1.8	19.2	0.7	20.5	1.3	22.7	1.0	17.8	1.2
Puff Count (puffs/cigarette)														
#1	9.7	0.2	7.6	0.2	7.1	0.2	8.7	0.2	6.9	0.2	8.2	0.2	7.0	0.3
#2	11.6	0.4	9.2	0.4	8.4	0.3	10.0	0.3	8.2	0.3	9.8	0.4	8.4	0.2
#3	7.5	0.5	7.1	0.3	6.6	0.3	8.0	0.3	7.2	0.4	8.1	0.2	7.2	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	9.3	0.4	9.8	0.4	14.2	0.5	1.3	0.1	11.9	0.3	17.3	0.6
#2	23.2	1.5	22.4	1.7	29.4	2.0	5.3	0.5	22.2	1.5	28.9	1.6
#3	35.8	2.3	34.2	2.7	41.8	2.8	17.1	0.6	33.0	1.2	36.6	2.4
Water Yield (mg/cig)												
#1	0.6	0.0	0.7	0.0	1.3	0.1	0.1	0.0	1.1	0.1	1.6	0.1
#2	2.8	0.5	3.1	0.6	4.8	0.9	0.5	0.1	3.2	0.5	4.7	0.6
#3	8.8	0.9	9.0	1.4	11.3	1.5	4.2	0.3	9.2	1.7	8.6	1.2
Nicotine Yield (mg/cig)												
#1	0.70	0.03	0.64	0.02	0.93	0.04	0.14	0.01	0.87	0.02	1.36	0.08
#2	1.54	0.09	1.31	0.09	1.70	0.10	0.45	0.03	1.48	0.07	2.06	0.05
#3	1.91	0.12	1.58	0.10	2.03	0.15	0.88	0.04	1.85	0.26	2.38	0.11
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	8.1	0.3	8.5	0.3	12.0	0.4	1.1	0.1	10.0	0.2	14.4	0.5
#2	18.9	0.9	17.9	1.0	22.9	1.2	4.4	0.4	17.5	0.9	22.1	1.0
#3	25.1	1.4	23.6	1.2	28.5	1.3	12.0	0.4	22.0	1.6	25.7	1.2
Carbon Monoxide (CO) Yield (mg/cig)												
#1	7.9	0.4	9.3	0.4	11.0	0.4	1.6	0.1	12.1	0.6	11.7	0.9
#2	18.9	0.9	19.7	0.9	21.0	0.9	6.9	0.3	19.4	1.6	17.7	1.0
#3	26.0	2.5	26.2	1.5	26.4	1.4	15.7	0.8	24.5	1.4	21.1	0.9
Puff Count (puffs/cigarette)												
#1	12.4	0.4	9.7	0.2	10.8	0.5	7.1	0.1	9.0	0.2	9.7	0.4
#2	16.5	0.7	11.9	0.8	12.5	0.6	8.3	0.1	11.1	0.5	12.5	0.5
#3	14.4	0.8	10.1	0.5	11.4	0.4	5.9	0.2	9.8	0.3	12.3	0.6

Table 17. Phase 2 Results: Laboratory L7

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	12.4	0.4	10.1	0.5	4.2	0.2	6.1	0.3	8.3	0.3	17.8	0.7	20.6	0.6
#2	27.4	1.6	25.4	1.1	12.8	0.7	17.5	0.6	22.4	1.9	38.4	2.5	40.4	1.4
#3	35.3	1.6	41.7	2.8	27.0	2.1	31.9	1.1	39.1	2.5	50.7	1.8	53.3	2.2
Water Yield (mg/cig)														
#1	1.2	0.1	0.6	0.1	0.3	0.0	0.5	0.0	0.7	0.0	2.4	0.3	2.8	0.2
#2	5.2	1.3	3.6	0.4	1.6	0.4	3.1	0.2	4.8	1.0	9.9	1.0	10.1	0.7
#3	10.3	1.1	12.2	1.5	8.7	1.2	11.6	0.7	14.8	1.3	17.5	1.2	17.4	1.1
Nicotine Yield (mg/cig)														
#1	0.88	0.03	0.75	0.04	0.32	0.02	0.42	0.02	0.56	0.03	1.18	0.04	1.29	0.07
#2	1.76	0.07	1.54	0.06	0.83	0.04	1.00	0.04	1.26	0.09	2.25	0.14	2.15	0.04
#3	1.92	0.11	1.92	0.09	1.15	0.07	1.23	0.04	1.53	0.09	2.55	0.09	2.48	0.06
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	10.3	0.4	8.7	0.4	3.5	0.2	5.2	0.3	7.0	0.2	14.3	0.4	16.5	0.5
#2	20.5	0.5	20.3	0.8	10.4	0.4	13.4	0.5	16.3	1.1	26.3	1.4	28.2	0.8
#3	23.2	0.6	27.5	1.4	17.1	1.0	19.1	0.7	22.8	1.2	30.7	0.8	33.5	1.3
Carbon Monoxide (CO) Yield (mg/cig)														
#1	11.9	0.4	7.4	0.4	4.7	0.2	7.9	0.3	9.0	0.3	14.2	0.5	16.5	0.8
#2	20.2	0.9	17.1	0.7	14.4	0.7	18.9	0.9	18.9	1.1	23.3	1.3	24.9	1.0
#3	24.5	1.4	25.0	1.0	23.1	0.9	26.6	0.9	27.2	1.0	27.8	0.6	30.1	1.2
Puff Count (puffs/cigarette)														
#1	7.7	0.2	9.3	0.2	7.4	0.2	7.7	0.1	7.6	0.1	7.7	0.2	9.4	0.2
#2	11.2	0.5	13.0	0.4	10.3	0.3	10.6	0.5	10.5	0.5	11.0	0.4	13.2	0.3
#3	10.2	0.5	10.9	0.7	8.2	0.5	8.7	0.5	8.7	0.3	9.7	0.5	12.2	0.4

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	9.0	0.4	4.9	0.3	2.7	0.2	1.2	0.1	12.0	0.4	17.9	0.5
#2	22.8	0.9	16.1	0.8	10.8	0.8	7.5	0.6	26.0	1.3	34.2	1.6
#3	37.0	2.1	32.8	1.9	26.1	1.9	25.9	2.6	39.5	2.6	43.4	1.7
Water Yield (mg/cig)												
#1	0.6	0.1	0.3	0.0	0.2	0.0	0.1	0.0	1.1	0.1	1.8	0.1
#2	2.6	0.3	1.4	0.2	0.9	0.1	0.7	0.2	4.6	0.6	6.6	0.7
#3	9.6	1.1	9.1	1.2	7.9	1.1	8.8	1.6	12.5	1.8	11.8	1.1
Nicotine Yield (mg/cig)												
#1	0.61	0.03	0.38	0.02	0.20	0.01	0.13	0.01	0.87	0.03	1.36	0.03
#2	1.31	0.06	1.07	0.05	0.68	0.04	0.59	0.04	1.54	0.06	2.30	0.10
#3	1.66	0.11	1.52	0.07	1.01	0.06	1.07	0.06	1.82	0.08	2.54	0.09
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	7.8	0.3	4.2	0.2	2.3	0.2	1.0	0.1	10.1	0.3	14.8	0.4
#2	18.9	0.7	13.6	0.7	9.2	0.7	6.2	0.5	19.9	0.7	25.4	1.1
#3	25.7	1.2	22.2	0.8	17.2	0.9	16.0	1.1	25.2	0.9	29.1	0.6
Carbon Monoxide (CO) Yield (mg/cig)												
#1	6.9	0.2	3.7	0.2	3.7	0.2	1.5	0.1	12.0	0.6	13.1	0.4
#2	16.5	0.5	12.6	0.5	13.2	0.9	9.7	0.6	22.2	1.2	20.2	0.7
#3	24.4	1.2	22.2	0.8	23.4	0.9	21.5	1.1	29.5	1.2	24.5	0.9
Puff Count (puffs/cigarette)												
#1	8.7	0.2	8.4	0.2	8.5	0.2	7.3	0.2	9.4	0.2	10.1	0.2
#2	12.7	0.4	12.6	0.5	12.9	0.3	10.3	0.3	13.3	0.5	15.1	0.3
#3	10.6	0.4	9.8	0.4	9.7	0.3	6.8	0.4	11.8	0.5	14.0	0.7

Table 18. Phase 2 Results: Laboratory L8

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.2	0.1	3.8	0.2	4.2	0.1	6.1	0.4	6.1	0.5	9.0	0.4	12.1	0.5
#2	7.9	1.0	13.9	0.9	15.2	0.8	18.7	0.9	20.2	1.0	24.4	1.6	32.8	1.8
#3	30.3	1.9	33.4	3.1	36.4	3.3	31.2	3.1	39.9	4.5	40.3	2.6	46.6	3.7
Water Yield (mg/cig)														
#1	0.0	0.0	0.1	0.2	0.2	0.1	0.3	0.1	0.1	0.1	0.7	0.1	1.1	0.2
#2	0.3	0.1	1.6	0.5	1.9	0.3	3.4	0.6	2.7	0.4	5.2	0.8	7.6	1.2
#3	11.0	1.1	12.4	2.0	13.1	2.0	10.5	2.0	13.2	2.6	14.4	2.2	16.1	2.3
Nicotine Yield (mg/cig)														
#1	0.15	0.01	0.33	0.02	0.34	0.02	0.51	0.04	0.46	0.02	0.60	0.02	0.89	0.02
#2	0.72	0.05	0.93	0.06	1.01	0.04	1.20	0.05	1.26	0.05	1.34	0.05	1.90	0.10
#3	1.37	0.06	1.27	0.06	1.40	0.12	1.39	0.12	1.68	0.14	1.61	0.07	2.13	0.12
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.0	0.1	3.3	0.3	3.8	0.1	5.2	0.3	5.5	0.5	7.7	0.3	10.1	0.4
#2	6.8	0.9	11.4	0.8	12.3	0.6	14.1	1.0	16.2	0.8	17.8	0.9	23.3	1.2
#3	18.0	1.2	19.8	1.6	21.8	1.4	19.3	2.0	24.9	2.1	24.3	1.2	28.4	1.6
Carbon Monoxide (CO) Yield (mg/cig)														
#1	1.2	0.1	3.9	0.4	4.4	0.2	6.2	0.4	5.7	0.4	7.6	0.3	10.6	0.2
#2	7.3	0.5	13.9	0.7	14.0	0.5	15.9	0.7	17.5	0.7	16.6	0.7	21.6	1.0
#3	19.0	0.7	23.3	1.1	23.6	1.0	21.7	0.8	26.1	0.8	22.8	1.1	26.8	1.5
Puff Count (puffs/cigarette)														
#1	6.7	0.3	6.9	0.1	7.3	0.2	6.3	0.3	8.0	0.2	6.7	0.2	7.1	0.1
#2	10.4	0.5	10.2	0.4	10.9	0.5	9.1	0.5	12.1	0.2	10.2	0.5	10.5	0.3
#3	6.8	0.4	8.3	0.3	8.7	0.5	7.8	0.4	10.1	0.4	8.7	0.4	9.4	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	15.6	0.7	12.6	0.6	17.1	1.0	1.4	0.2	11.7	0.6	17.9	0.5
#2	39.3	1.4	31.8	1.9	40.6	2.5	7.5	0.7	29.2	1.0	37.5	1.5
#3	58.4	2.6	50.7	3.5	54.7	4.9	29.1	4.1	50.1	3.8	44.3	3.9
Water Yield (mg/cig)												
#1	2.2	0.4	0.7	0.1	3.0	0.4	0.0	0.0	1.0	0.1	2.2	0.2
#2	10.5	1.1	5.1	1.1	12.0	1.3	0.4	0.2	6.6	0.6	9.1	0.8
#3	20.2	2.2	15.6	1.9	20.9	3.4	10.9	2.2	19.2	2.8	13.9	1.9
Nicotine Yield (mg/cig)												
#1	1.13	0.06	1.28	0.03	1.08	0.06	0.14	0.01	0.88	0.02	1.37	0.04
#2	2.25	0.12	2.72	0.15	2.20	0.25	0.60	0.03	1.73	0.07	2.42	0.10
#3	2.62	0.09	3.35	0.19	2.51	0.19	1.19	0.11	2.19	0.12	2.68	0.12
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	12.3	0.3	10.6	0.6	13.0	0.7	1.2	0.2	9.8	0.5	14.3	0.4
#2	26.5	0.6	24.0	1.4	26.3	1.4	6.4	0.6	20.8	0.6	26.0	0.9
#3	35.6	2.0	31.8	2.9	31.4	2.4	17.1	2.1	28.7	1.5	27.7	3.8
Carbon Monoxide (CO) Yield (mg/cig)												
#1	11.6	0.4	9.8	0.4	12.1	0.6	1.8	0.1	11.8	0.6	12.8	0.4
#2	24.1	0.9	23.5	1.1	22.3	1.4	10.4	0.6	22.5	1.0	21.0	0.9
#3	30.6	1.8	31.4	0.8	25.5	0.7	20.8	1.0	30.7	1.3	24.7	1.0
Puff Count (puffs/cigarette)												
#1	8.7	0.3	9.0	0.3	6.4	0.2	7.0	0.2	8.6	0.2	9.3	0.2
#2	12.5	0.6	13.1	0.5	8.9	0.4	10.1	0.3	12.9	0.3	14.0	0.5
#3	11.2	0.4	11.5	0.6	8.1	0.2	7.1	0.2	11.4	0.4	13.2	0.6

Table 19. Phase 2 Results: Laboratory L9

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	0.8	0.1	2.3	0.1	8.2	0.5	8.6	0.4	12.8	0.7	16.5	0.6	16.7	0.8
#2	7.1	0.6	10.7	0.8	26.0	1.7	24.6	2.2	35.8	1.7	38.5	2.8	41.4	1.6
#3	30.5	2.2	27.6	1.3	41.0	2.1	39.7	2.5	49.4	2.2	55.2	1.4	62.1	2.5
Water Yield (mg/cig)														
#1	0.1	0.0	0.1	0.1	0.6	0.1	0.6	0.1	1.1	0.3	1.6	0.2	0.7	0.1
#2	0.6	0.1	1.1	0.2	6.2	0.8	4.6	0.9	7.6	1.0	8.7	1.1	5.2	0.6
#3	10.0	1.3	10.1	0.7	15.0	1.1	13.3	1.2	15.3	0.9	17.9	0.7	15.1	1.0
Nicotine Yield (mg/cig)														
#1	0.09	0.00	0.24	0.01	0.56	0.02	0.62	0.03	0.77	0.04	0.94	0.04	0.77	0.05
#2	0.55	0.03	0.89	0.04	1.33	0.06	1.43	0.10	1.83	0.08	1.79	0.10	1.70	0.05
#3	1.27	0.04	1.34	0.05	1.58	0.08	1.70	0.07	2.07	0.05	2.13	0.06	2.13	0.06
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	0.6	0.1	1.9	0.1	7.0	0.4	7.4	0.3	10.9	0.5	14.0	0.5	15.2	0.7
#2	5.9	0.5	8.7	0.6	18.5	0.9	18.5	1.2	26.3	0.9	28.0	1.6	34.4	1.1
#3	19.2	0.9	16.2	0.7	24.4	1.1	24.7	1.3	32.1	1.6	35.2	1.2	44.8	1.7
Carbon Monoxide (CO) Yield (mg/cig)														
#1	1.4	0.1	2.0	0.1	5.3	0.2	7.4	0.4	11.2	0.5	11.5	0.5	9.9	0.5
#2	10.7	0.8	9.6	0.7	15.1	0.5	17.5	1.1	25.2	0.7	22.0	0.9	23.7	0.9
#3	27.4	0.7	19.0	0.9	20.2	0.8	23.5	0.7	32.2	1.1	27.9	0.7	32.2	0.9
Puff Count (puffs/cigarette)														
#1	8.2	0.3	8.5	0.1	7.0	0.2	6.6	0.2	10.4	0.3	8.4	0.3	10.7	0.3
#2	13.1	0.5	13.7	0.5	10.9	0.6	10.4	0.4	16.7	0.7	12.7	0.5	17.2	0.5
#3	8.8	0.3	11.5	0.3	9.4	0.3	9.0	0.3	15.6	0.5	11.8	0.5	15.2	0.5

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	27.4	0.9	21.7	1.1	22.7	0.8	1.1	0.1	11.2	0.3	17.6	0.7
#2	52.9	1.6	47.8	1.2	45.7	1.3	7.7	0.7	29.4	1.3	37.9	1.6
#3	60.0	2.6	56.3	3.3	54.8	1.9	30.7	1.9	48.0	1.4	48.8	1.7
Water Yield (mg/cig)												
#1	3.6	0.4	3.2	0.4	2.2	0.2	0.1	0.0	1.0	0.1	1.9	0.2
#2	10.5	0.4	9.9	0.6	6.6	0.5	0.7	0.1	6.5	0.6	8.8	0.6
#3	14.6	0.8	14.1	1.4	10.6	0.6	11.2	0.8	17.1	1.0	15.5	0.8
Nicotine Yield (mg/cig)												
#1	1.63	0.08	1.13	0.06	1.65	0.05	0.13	0.01	0.80	0.02	1.27	0.03
#2	2.86	0.12	2.31	0.09	3.06	0.09	0.59	0.03	1.64	0.05	2.31	0.07
#3	3.04	0.14	2.53	0.07	3.38	0.18	1.11	0.05	1.96	0.08	2.53	0.11
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	22.2	0.7	17.4	0.6	18.9	0.6	0.9	0.1	9.3	0.2	14.4	0.5
#2	39.5	1.3	35.6	0.7	36.0	0.9	6.4	0.7	21.2	0.8	26.9	1.0
#3	42.4	1.8	39.6	1.9	40.8	1.3	18.3	1.1	29.0	0.6	30.7	1.0
Carbon Monoxide (CO) Yield (mg/cig)												
#1	13.1	0.7	9.7	0.5	11.2	0.4	1.7	0.1	10.4	0.4	12.2	0.6
#2	21.6	1.0	21.0	1.1	21.4	0.7	10.4	0.4	21.7	0.7	21.4	0.5
#3	24.8	1.0	23.7	1.0	25.7	0.7	23.0	0.7	29.5	1.0	25.0	0.8
Puff Count (puffs/cigarette)												
#1	7.1	0.2	7.4	0.4	9.4	0.3	7.0	0.1	8.6	0.2	9.0	0.1
#2	10.7	0.5	11.5	0.4	14.5	0.7	10.6	0.4	13.7	0.4	14.6	0.3
#3	9.7	0.6	11.0	0.4	13.6	0.5	7.3	0.2	12.1	0.6	13.7	0.4

Table 20. Phase 2 Results: Laboratory L10

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.6	0.6	3.4	0.3	6.5	0.3	8.3	0.6	9.6	0.5	12.2	0.8	14.7	0.9
#2	9.9	0.4	13.6	0.8	20.6	1.6	23.9	1.8	25.8	2.5	32.5	2.2	37.4	1.6
#3	37.3	1.7	35.8	2.2	48.3	2.1	43.8	2.2	44.3	2.5	47.7	2.5	49.1	1.2
Water Yield (mg/cig)														
#1	0.3	0.1	0.3	0.1	0.5	0.1	0.6	0.1	0.7	0.1	1.4	0.4	2.2	0.3
#2	1.2	0.7	1.2	0.2	2.4	0.2	2.9	0.4	4.6	1.0	9.5	1.1	12.2	0.9
#3	12.5	0.8	12.0	1.1	17.4	1.1	13.1	1.5	15.9	3.7	19.3	1.7	20.0	1.5
Nicotine Yield (mg/cig)														
#1	0.19	0.07	0.35	0.03	0.68	0.04	0.85	0.03	0.94	0.03	1.06	0.06	1.20	0.07
#2	1.00	0.07	1.22	0.05	1.77	0.12	2.06	0.13	2.09	0.13	2.05	0.11	2.35	0.10
#3	2.28	0.09	2.03	0.09	2.80	0.11	2.84	0.12	2.71	0.12	2.36	0.12	2.70	0.09
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.1	0.5	2.7	0.3	5.3	0.3	6.9	0.6	7.9	0.5	9.8	0.7	11.3	0.6
#2	7.7	0.6	11.1	0.7	16.5	1.4	18.9	1.5	19.0	1.5	20.9	1.1	22.9	0.9
#3	22.5	1.1	21.8	1.1	28.1	1.2	27.9	0.9	25.7	2.4	26.0	1.2	26.4	1.2
Carbon Monoxide (CO) Yield (mg/cig)														
#1	1.1	0.7	2.6	0.3	4.7	0.3	5.9	0.4	8.0	0.4	12.1	0.5	11.6	0.8
#2	7.6	0.7	12.0	0.8	16.0	0.9	17.0	1.1	18.5	1.2	23.9	0.7	22.1	0.6
#3	25.4	1.3	25.0	1.1	30.0	1.1	27.5	0.8	27.1	1.1	30.2	1.0	26.4	0.9
Puff Count (puffs/cigarette)														
#1	9.0	0.4	8.6	0.4	9.8	0.3	10.3	0.4	9.1	0.3	8.4	0.2	7.9	0.2
#2	14.9	0.7	13.0	0.6	14.5	0.5	15.3	1.0	13.7	0.6	11.4	0.5	11.5	0.4
#3	10.6	0.3	9.3	0.4	11.0	0.4	12.4	0.5	11.9	0.5	9.7	0.4	10.4	0.5

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	16.2	0.7	16.3	0.9	20.3	0.5	1.7	0.3	11.4	0.4	17.3	0.6
#2	39.8	2.5	37.8	1.9	43.8	3.7	7.7	0.5	28.6	0.9	37.2	0.8
#3	54.8	4.5	48.8	2.6	55.3	2.7	26.8	2.6	43.9	3.8	46.5	1.5
Water Yield (mg/cig)												
#1	1.8	0.2	3.0	0.3	2.7	0.2	0.3	0.1	1.2	0.5	1.9	0.3
#2	10.5	1.2	12.0	0.9	11.9	1.9	1.1	0.2	6.0	0.5	8.8	0.6
#3	20.1	2.5	18.7	1.2	19.1	1.5	9.8	1.6	15.3	1.8	14.8	1.0
Nicotine Yield (mg/cig)												
#1	1.38	0.04	1.17	0.07	1.55	0.09	0.17	0.01	0.89	0.04	1.39	0.06
#2	2.70	0.14	2.36	0.20	2.85	0.17	0.67	0.05	1.80	0.07	2.53	0.05
#3	3.10	0.19	2.59	0.10	3.22	0.16	1.27	0.05	2.17	0.10	2.81	0.10
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	13.0	0.5	12.1	0.6	16.0	0.4	1.2	0.4	9.3	0.6	14.1	0.7
#2	26.6	1.3	23.4	1.2	29.0	1.8	6.0	0.5	20.8	0.4	25.9	0.4
#3	31.6	2.0	27.5	1.4	33.0	1.3	15.7	1.1	26.3	2.1	28.9	0.9
Carbon Monoxide (CO) Yield (mg/cig)												
#1	12.5	0.5	12.3	0.5	16.7	0.6	1.7	0.1	11.4	0.5	12.9	0.5
#2	24.9	0.9	21.2	0.8	27.6	1.5	10.3	0.6	22.9	1.0	22.1	0.6
#3	30.9	1.3	24.8	1.1	32.2	0.8	22.1	1.2	29.0	1.3	25.7	0.8
Puff Count (puffs/cigarette)												
#1	9.1	0.1	7.3	0.2	9.4	0.3	7.0	0.1	8.8	0.2	9.3	0.2
#2	12.9	0.6	10.8	0.4	13.4	0.6	10.4	0.4	12.9	0.4	14.2	0.3
#3	11.1	0.3	10.2	0.4	12.0	0.5	7.0	0.2	11.1	0.4	12.9	0.3

Table 21. Phase 2 Results: Laboratory L11

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.6	0.2	2.6	0.1	4.1	0.3	5.1	0.3	8.0	0.5	12.3	0.6	15.0	0.6
#2	11.0	0.7	13.3	1.1	17.6	1.4	20.0	0.9	27.4	0.9	34.6	1.6	37.4	1.4
#3	35.6	1.8	37.1	1.8	42.4	4.3	42.1	2.6	49.6	3.1	49.0	1.6	51.1	2.5
Water Yield (mg/cig)														
#1	0.1	0.0	0.1	0.0	0.3	0.0	0.4	0.1	0.6	0.1	1.3	0.1	1.6	0.1
#2	1.3	0.2	1.4	0.2	3.6	0.8	3.2	0.3	4.6	0.3	9.1	0.9	7.6	0.5
#3	12.9	0.8	12.5	0.8	16.7	2.0	14.3	1.3	16.4	1.5	17.7	0.9	15.0	1.3
Nicotine Yield (mg/cig)														
#1	0.15	0.01	0.25	0.01	0.30	0.02	0.38	0.02	0.60	0.04	0.76	0.03	0.93	0.05
#2	0.80	0.05	1.00	0.08	0.86	0.03	1.19	0.05	1.63	0.05	1.65	0.05	1.97	0.06
#3	1.37	0.06	1.54	0.06	1.20	0.09	1.68	0.07	2.06	0.10	1.86	0.07	2.27	0.07
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.3	0.2	2.2	0.1	3.5	0.3	4.3	0.3	6.8	0.4	10.2	0.5	12.5	0.5
#2	8.9	0.6	11.0	0.9	13.1	0.6	15.6	0.6	21.2	0.7	23.8	0.7	27.8	0.9
#3	21.4	1.1	23.0	1.1	24.5	2.3	26.1	1.4	31.1	1.7	29.5	1.1	33.9	1.3
Carbon Monoxide (CO) Yield (mg/cig)														
#1	2.8	0.2	3.2	0.2	5.0	0.2	6.8	0.4	7.9	0.5	10.3	0.5	11.2	0.7
#2	13.1	0.6	16.0	1.4	18.1	0.7	22.2	0.6	23.2	0.7	22.0	1.0	23.4	1.0
#3	24.1	1.1	27.1	1.0	28.5	1.4	34.9	1.3	34.1	1.3	27.0	0.6	29.2	1.2
Puff Count (puffs/cigarette)														
#1	7.7	0.2	7.7	0.2	7.8	0.2	10.0	0.2	10.1	0.2	7.7	0.2	9.0	0.2
#2	10.5	0.4	10.9	0.3	10.4	0.3	14.1	0.5	14.5	0.6	11.0	0.3	13.3	0.4
#3	7.0	0.3	8.2	0.2	8.0	0.3	11.7	0.6	11.9	0.5	9.8	0.3	12.1	0.4

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	16.0	0.6	19.6	1.0	20.3	0.9	1.1	0.2	11.1	0.5	17.0	0.6
#2	41.8	2.2	49.0	2.1	48.4	3.9	7.2	0.5	29.3	1.0	37.3	1.2
#3	58.6	2.2	63.2	2.0	59.0	1.7	28.0	2.0	45.3	2.1	45.9	2.4
Water Yield (mg/cig)												
#1	1.7	0.1	3.3	0.6	3.6	0.4	0.1	0.0	1.1	0.1	1.8	0.1
#2	9.2	1.1	13.9	1.0	14.1	1.7	0.7	0.1	6.6	0.5	8.7	0.6
#3	19.0	1.5	22.2	0.8	20.6	0.9	10.1	1.0	15.8	1.2	14.0	1.3
Nicotine Yield (mg/cig)												
#1	0.95	0.04	1.08	0.05	1.03	0.04	0.13	0.01	0.79	0.04	1.21	0.04
#2	2.01	0.06	2.23	0.07	2.05	0.06	0.57	0.03	1.62	0.04	2.28	0.04
#3	2.31	0.07	2.49	0.07	2.30	0.08	1.09	0.04	1.95	0.04	2.50	0.11
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	13.4	0.5	15.3	0.6	15.7	0.7	0.8	0.1	9.3	0.4	14.0	0.4
#2	30.6	1.1	32.9	1.1	32.2	2.2	6.0	0.4	21.1	0.6	26.4	0.6
#3	37.3	0.9	38.5	1.3	36.1	1.0	16.9	1.2	27.5	1.0	29.5	1.1
Carbon Monoxide (CO) Yield (mg/cig)												
#1	11.4	0.4	11.8	0.5	13.9	0.7	1.7	0.1	10.1	0.6	11.6	0.4
#2	24.4	1.0	23.7	1.0	24.5	1.1	10.0	0.8	21.0	0.8	20.7	0.5
#3	30.6	0.7	28.8	0.6	27.6	0.5	21.3	1.1	28.2	0.8	23.9	0.9
Puff Count (puffs/cigarette)												
#1	9.0	0.2	8.6	0.3	7.6	0.2	7.0	0.1	8.8	0.2	9.1	0.3
#2	13.2	0.4	12.7	0.2	11.2	0.4	10.4	0.3	13.4	0.3	14.2	0.5
#3	12.1	0.3	11.3	0.4	10.5	0.3	7.2	0.2	11.8	0.4	13.3	0.6

Table 22. Phase 2 Results: Laboratory R1

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.7	0.1	3.0	0.1	4.6	0.0	5.4	0.1	9.0	0.3	12.6	0.1	17.6	0.3
#2	10.9	0.2	13.5	0.7	16.7	0.2	19.5	0.9	25.5	0.9	30.5	0.5	41.4	0.8
#3	30.6	1.2	30.1	0.8	32.2	1.2	35.9	1.0	44.5	0.3	43.7	0.5	47.8	0.4
Water Yield (mg/cig)														
#1	0.1	0.0	0.2	0.0	0.4	0.1	0.4	0.0	0.7	0.0	1.5	0.1	2.3	0.1
#2	1.3	0.1	1.3	0.1	3.0	0.0	2.8	0.2	3.9	0.4	6.8	0.3	9.1	0.8
#3	9.8	0.6	8.6	0.2	11.2	0.2	10.6	0.8	13.5	0.3	14.2	0.3	12.8	0.8
Nicotine Yield (mg/cig)														
#1	0.16	0.01	0.31	0.01	0.33	0.01	0.42	0.01	0.69	0.04	0.83	0.01	1.12	0.02
#2	0.82	0.02	1.08	0.04	0.90	0.04	1.24	0.05	1.64	0.02	1.65	0.01	2.31	0.04
#3	1.45	0.05	1.60	0.03	1.20	0.06	1.73	0.05	2.21	0.07	1.93	0.07	2.39	0.08
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.4	0.1	2.6	0.1	3.9	0.1	4.5	0.1	7.5	0.2	10.2	0.1	14.1	0.2
#2	8.8	0.1	11.1	0.5	12.8	0.1	15.5	0.7	19.9	0.5	22.0	0.6	30.0	0.2
#3	19.4	0.6	19.9	0.8	19.8	1.2	23.5	0.1	28.8	0.1	27.6	0.3	32.6	0.4
Carbon Monoxide (CO) Yield (mg/cig)														
#1	3.3	0.1	3.9	0.2	5.9	0.1	7.9	0.1	9.6	0.5	11.3	0.2	14.0	0.2
#2	13.3	0.6	16.8	0.8	19.3	0.2	24.1	0.3	23.5	0.8	22.8	0.3	28.0	0.9
#3	24.8	0.5	27.0	0.1	27.1	0.5	34.5	0.4	34.8	1.8	28.3	0.5	30.1	0.6
Puff Count (puffs/cigarette)														
#1	7.4	0.1	7.7	0.1	7.6	0.1	9.6	0.2	9.8	0.2	7.3	0.2	9.1	0.2
#2	10.6	0.1	10.9	0.3	10.2	0.3	14.0	0.3	14.1	0.3	10.7	0.2	13.7	0.3
#3	6.6	0.2	7.7	0.3	7.5	0.3	10.9	0.1	11.5	0.3	9.1	0.1	11.0	0.2

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	17.0	0.5	19.7	0.7	20.7	0.4	1.4	0.0	11.4	0.3	17.7	0.2
#2	39.9	0.8	43.8	0.5	42.4	0.5	8.2	0.5	27.1	0.6	36.3	0.3
#3	53.3	1.6	57.2	1.4	54.2	0.6	24.5	0.1	40.9	0.8	45.3	1.0
Water Yield (mg/cig)												
#1	2.0	0.2	3.6	0.2	4.0	0.2	0.1	0.1	1.2	0.1	2.4	0.1
#2	8.3	0.6	11.9	0.3	12.0	0.6	0.9	0.1	5.5	0.1	8.5	0.2
#3	15.7	0.9	19.7	0.5	18.5	0.5	7.5	0.3	13.0	0.5	13.6	0.5
Nicotine Yield (mg/cig)												
#1	1.10	0.03	1.21	0.01	1.16	0.01	0.16	0.01	0.84	0.04	1.32	0.03
#2	2.16	0.01	2.32	0.02	2.14	0.04	0.63	0.03	1.61	0.04	2.33	0.04
#3	2.44	0.03	2.64	0.05	2.42	0.04	1.19	0.02	2.00	0.02	2.61	0.07
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	13.9	0.2	14.9	0.5	15.5	0.1	1.2	0.0	9.3	0.2	13.9	0.1
#2	29.4	0.4	29.6	0.2	28.2	0.2	6.7	0.5	19.9	0.4	25.5	0.1
#3	35.2	0.7	34.8	0.9	33.3	0.4	15.8	0.3	25.8	0.4	29.1	0.4
Carbon Monoxide (CO) Yield (mg/cig)												
#1	13.5	0.2	13.4	0.1	16.0	0.6	2.1	0.0	11.6	0.3	13.4	0.2
#2	26.2	0.2	25.1	0.3	25.9	0.3	10.6	0.6	21.3	0.5	22.2	0.6
#3	32.3	1.3	31.0	0.2	29.7	0.6	21.4	0.8	29.3	0.8	25.8	0.2
Puff Count (puffs/cigarette)												
#1	8.8	0.2	8.4	0.1	7.4	0.2	6.9	0.1	8.4	0.0	8.6	0.1
#2	12.2	0.5	12.4	0.2	10.9	0.1	10.4	0.2	11.9	0.1	13.7	0.3
#3	11.3	0.2	10.8	0.2	9.9	0.1	7.2	0.2	10.5	0.1	12.7	0.2

Table 23. Phase 2 Results: Laboratory R2

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	9.6	0.4	8.7	0.2	11.9	0.7	10.9	0.5	12.1	0.2	13.5	0.6	14.2	0.7
#2	24.3	0.6	25.0	0.3	29.4	1.4	31.7	1.2	27.7	1.0	33.0	1.2	34.6	1.0
#3	30.8	1.1	36.9	0.4	37.9	0.5	44.5	0.1	32.1	0.8	45.9	0.6	45.6	1.2
Water Yield (mg/cig)														
#1	0.8	0.1	0.7	0.3	1.4	0.3	1.0	0.1	0.9	0.1	1.3	0.2	1.4	0.3
#2	4.0	0.4	4.0	0.3	5.8	0.7	5.2	0.4	3.7	0.2	6.7	0.2	5.9	0.5
#3	6.4	1.2	9.1	0.0	9.1	0.2	9.7	0.1	5.3	0.2	12.0	0.2	10.5	0.3
Nicotine Yield (mg/cig)														
#1	0.61	0.03	0.60	0.02	0.60	0.01	0.79	0.02	0.71	0.01	0.81	0.03	0.90	0.03
#2	1.14	0.05	1.20	0.07	1.14	0.05	1.78	0.06	1.45	0.05	1.54	0.06	1.86	0.02
#3	1.17	0.13	1.38	0.04	1.24	0.06	2.06	0.04	1.48	0.02	1.80	0.05	2.09	0.05
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	8.2	0.2	7.4	0.2	9.9	0.4	9.1	0.4	10.5	0.1	11.3	0.4	12.0	0.4
#2	19.1	0.3	19.7	0.5	22.5	0.8	24.7	0.8	22.5	1.1	24.7	0.9	26.9	0.6
#3	23.2	0.5	26.5	0.4	27.6	0.3	32.7	0.1	25.3	0.8	32.1	0.4	33.0	0.9
Carbon Monoxide (CO) Yield (mg/cig)														
#1	9.6	0.4	8.0	0.3	11.9	0.4	8.2	0.5	8.9	0.3	10.3	0.5	11.3	0.6
#2	21.7	0.5	20.5	0.7	24.0	0.6	21.7	1.3	18.7	0.2	22.8	0.7	23.4	0.6
#3	25.8	0.5	27.4	0.6	28.7	0.8	29.7	0.6	20.4	0.6	29.2	0.6	29.1	1.1
Puff Count (puffs/cigarette)														
#1	6.3	0.0	7.3	0.1	6.5	0.0	8.6	0.1	5.8	0.1	7.9	0.2	8.8	0.2
#2	9.4	0.1	11.2	0.2	9.4	0.2	13.2	0.2	9.0	0.3	10.4	0.2	13.9	0.4
#3	8.1	0.2	9.5	0.1	8.3	0.3	11.3	0.2	8.0	0.2	8.6	0.3	12.0	0.2

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	3.1	0.5	2.4	0.1	4.3	0.1	1.3	0.1	10.7	0.3	16.5	0.7
#2	13.6	0.1	10.9	0.2	14.6	0.4	8.5	0.5	27.9	1.2	36.2	0.9
#3	25.8	0.3	24.2	0.5	24.6	0.7	23.3	0.6	39.0	1.0	41.1	0.8
Water Yield (mg/cig)												
#1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.0	1.0	0.1	1.9	0.2
#2	1.2	0.3	0.7	0.2	1.4	0.3	0.8	0.1	5.2	0.3	7.3	0.4
#3	5.2	0.2	5.2	0.1	5.7	0.4	5.9	0.1	10.8	0.4	9.9	0.3
Nicotine Yield (mg/cig)												
#1	0.18	0.02	0.21	0.01	0.28	0.01	0.12	0.01	0.79	0.02	1.24	0.04
#2	0.50	0.02	0.68	0.04	0.70	0.05	0.67	0.03	1.68	0.08	2.32	0.01
#3	0.62	0.04	0.92	0.05	0.85	0.06	1.19	0.06	2.00	0.06	2.51	0.06
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	2.8	0.4	2.1	0.1	3.8	0.1	1.1	0.1	8.9	0.2	13.4	0.5
#2	11.9	0.4	9.5	0.3	12.5	0.5	7.1	0.5	21.0	0.9	26.6	0.6
#3	20.0	0.1	18.0	0.4	18.1	0.6	16.3	0.6	26.2	0.6	28.7	0.6
Carbon Monoxide (CO) Yield (mg/cig)												
#1	2.6	0.4	2.9	0.2	5.2	0.2	1.7	0.1	10.9	0.2	12.7	0.2
#2	13.3	0.2	14.0	0.6	17.0	0.2	11.3	0.4	22.6	1.2	21.8	0.2
#3	22.9	0.4	25.3	0.4	24.1	0.4	22.3	0.6	28.2	0.7	23.9	0.4
Puff Count (puffs/cigarette)												
#1	6.5	0.3	7.6	0.2	6.8	0.1	7.0	0.2	8.2	0.1	8.5	0.1
#2	10.5	0.1	11.7	0.2	10.5	0.1	10.2	0.3	12.4	0.3	13.3	0.2
#3	7.8	0.1	8.7	0.2	8.5	0.3	6.8	0.1	10.8	0.3	12.5	0.1

Table 24. Phase 2 Results: Laboratory R4

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.4	0.1	4.2	0.0	4.5	0.1	6.2	0.1	6.4	0.1	9.3	0.1	12.5	0.2
#2	8.8	0.4	14.5	0.7	16.7	0.5	18.2	0.3	20.6	0.3	25.0	0.2	29.7	0.8
#3	21.8	1.1	25.7	1.1	31.9	1.6	28.0	0.9	35.0	0.5	37.3	0.4	40.1	0.3
Water Yield (mg/cig)														
#1	0.1	0.1	0.4	0.1	0.5	0.1	0.7	0.1	0.5	0.1	1.2	0.1	1.7	0.0
#2	1.3	0.2	2.2	0.6	3.2	0.7	3.4	0.3	3.5	0.3	5.7	0.1	6.7	0.1
#3	6.8	0.7	7.2	1.0	10.5	0.9	8.4	0.6	10.4	0.3	12.2	0.3	11.8	0.4
Nicotine Yield (mg/cig)														
#1	0.12	0.01	0.33	0.00	0.32	0.01	0.49	0.02	0.50	0.01	0.57	0.01	0.91	0.01
#2	0.61	0.03	0.91	0.04	0.98	0.03	1.18	0.05	1.24	0.01	1.29	0.03	1.87	0.05
#3	1.00	0.03	1.23	0.02	1.37	0.00	1.45	0.05	1.58	0.18	1.54	0.03	2.14	0.04
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.2	0.0	3.5	0.1	3.6	0.1	5.0	0.0	5.3	0.1	7.5	0.1	10.0	0.2
#2	6.9	0.2	11.4	0.3	12.5	0.5	13.6	0.4	15.8	0.6	18.0	0.2	21.2	0.7
#3	14.0	0.5	17.3	0.1	20.0	0.7	18.1	0.4	23.0	0.4	23.5	0.6	26.1	0.5
Carbon Monoxide (CO) Yield (mg/cig)														
#1	2.4	0.2	4.5	0.2	5.0	0.1	6.9	0.2	6.9	0.1	9.0	0.2	12.2	0.4
#2	13.9	0.7	16.4	0.9	16.8	0.1	19.4	0.6	19.8	0.2	19.9	0.1	25.4	0.9
#3	25.9	1.1	26.8	0.4	27.0	1.0	25.6	0.6	28.8	0.6	25.6	0.2	29.3	0.8
Puff Count (puffs/cigarette)														
#1	7.4	0.2	6.8	0.1	7.4	0.0	6.1	0.1	8.4	0.1	6.9	0.0	7.2	0.0
#2	11.2	0.0	10.4	0.3	11.2	0.3	9.2	0.1	12.4	0.2	10.3	0.2	10.9	0.1
#3	8.0	0.2	8.4	0.2	9.0	0.1	7.8	0.1	10.2	0.1	8.9	0.3	9.7	0.1

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	14.8	0.3	12.6	0.3	16.5	0.3	1.7	0.1	12.0	0.4	18.4	0.1
#2	37.1	0.2	32.2	0.7	35.0	0.1	9.3	0.1	29.6	0.4	36.5	0.3
#3	49.4	0.6	44.3	0.5	43.7	1.5	25.6	0.8	43.0	1.0	44.9	0.5
Water Yield (mg/cig)												
#1	2.3	0.0	1.3	0.0	2.9	0.2	0.2	0.0	1.7	0.1	2.8	0.1
#2	9.0	0.1	6.3	0.7	9.8	0.8	2.1	0.7	7.6	0.3	9.5	1.4
#3	15.0	0.9	11.8	0.6	13.5	0.9	8.8	0.5	14.9	0.7	13.6	0.5
Nicotine Yield (mg/cig)												
#1	1.05	0.02	1.23	0.03	1.10	0.02	0.15	0.00	0.84	0.02	1.36	0.01
#2	2.20	0.03	2.64	0.09	2.05	0.05	0.66	0.03	1.66	0.06	2.39	0.01
#3	2.48	0.06	3.17	0.06	2.38	0.06	1.19	0.02	2.02	0.03	2.63	0.02
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	11.4	0.2	10.0	0.3	12.5	0.2	1.4	0.1	9.4	0.3	14.2	0.2
#2	25.9	0.3	23.3	0.3	23.1	0.9	6.6	0.7	20.3	0.5	24.6	1.2
#3	31.9	0.3	29.3	0.3	27.8	1.0	15.6	0.3	26.1	0.2	28.6	0.1
Carbon Monoxide (CO) Yield (mg/cig)												
#1	12.8	0.0	11.5	0.4	14.0	0.3	2.2	0.1	13.2	0.6	14.5	0.3
#2	27.2	0.8	26.1	0.6	24.6	0.1	13.3	0.9	24.5	0.7	23.7	0.3
#3	34.2	0.7	34.1	0.4	27.5	1.0	24.2	0.3	32.9	1.1	27.2	0.8
Puff Count (puffs/cigarette)												
#1	8.5	0.1	8.9	0.1	6.5	0.1	7.2	0.1	8.7	0.2	9.0	0.1
#2	13.1	0.2	13.5	0.3	8.9	0.2	10.6	0.2	13.1	0.2	14.2	0.1
#3	11.3	0.3	11.7	0.3	8.1	0.1	7.3	0.1	11.3	0.3	13.3	0.0

Table 25. Phase 2 Results: Laboratory R5

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	13.9	0.2	10.0	0.2	4.3	0.3	7.0	0.3	8.8	0.2	19.4	0.3	22.0	1.0
#2	30.5	0.1	28.7	0.5	15.5	0.9	21.5	0.8	26.4	0.9	43.3	0.3	44.8	0.6
#3	40.1	0.6	44.0	0.4	30.6	0.4	35.0	1.2	40.3	1.2	52.6	0.7	58.5	0.9
Water Yield (mg/cig)														
#1	2.1	0.1	0.9	0.0	0.5	0.1	0.9	0.0	1.3	0.2	3.7	0.3	4.2	0.5
#2	7.1	0.2	5.0	0.7	2.6	0.5	4.9	0.6	6.7	0.7	12.8	0.4	12.4	0.4
#3	13.3	1.1	13.5	0.7	10.5	0.5	13.4	1.1	16.0	0.9	18.4	1.1	21.5	0.5
Nicotine Yield (mg/cig)														
#1	0.93	0.03	0.74	0.03	0.30	0.01	0.45	0.01	0.56	0.01	1.25	0.02	1.30	0.03
#2	1.82	0.02	1.64	0.04	0.89	0.05	1.09	0.04	1.29	0.01	2.38	0.05	2.25	0.03
#3	2.03	0.03	1.99	0.01	1.25	0.02	1.35	0.01	1.53	0.08	2.72	0.12	2.58	0.02
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	10.8	0.3	8.3	0.1	3.5	0.3	5.7	0.3	6.9	0.3	14.5	0.1	16.5	0.5
#2	21.6	0.2	22.1	0.7	12.0	0.5	15.5	0.2	18.4	0.3	28.2	0.5	30.1	0.5
#3	24.8	1.3	28.5	0.9	18.8	0.6	20.3	0.9	22.8	0.2	31.4	0.8	34.4	0.5
Carbon Monoxide (CO) Yield (mg/cig)														
#1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
#2	---	---	---	---	---	---	---	---	---	---	---	---	---	---
#3	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Puff Count (puffs/cigarette)														
#1	7.4	0.3	8.8	0.2	7.6	0.2	7.8	0.1	7.3	0.1	7.5	0.1	8.7	0.1
#2	10.7	0.2	13.0	0.4	10.9	0.1	11.1	0.2	10.5	0.2	10.6	0.2	12.5	0.2
#3	10.2	0.5	10.6	0.1	8.7	0.1	8.9	0.3	8.5	0.1	9.6	0.2	11.8	0.6

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	9.5	0.5	5.2	0.1	3.0	0.1	1.5	0.0	12.2	0.4	18.2	0.6
#2	27.7	1.2	19.0	0.2	13.1	1.0	8.8	0.3	30.3	1.0	36.3	1.0
#3	40.1	0.9	34.6	0.7	28.6	0.2	25.6	0.8	45.5	1.1	45.1	0.5
Water Yield (mg/cig)												
#1	0.9	0.2	0.4	0.1	0.2	0.1	0.1	0.1	1.5	0.2	2.5	0.3
#2	4.8	0.5	2.5	0.2	1.6	0.4	0.8	0.2	6.6	0.3	8.0	0.2
#3	11.9	1.1	10.7	0.7	9.1	0.8	8.8	1.3	16.4	1.1	13.7	0.9
Nicotine Yield (mg/cig)												
#1	0.62	0.02	0.39	0.01	0.21	0.01	0.13	0.01	0.83	0.03	1.32	0.01
#2	1.44	0.08	1.13	0.04	0.70	0.03	0.61	0.03	1.71	0.07	2.27	0.02
#3	1.72	0.05	1.52	0.02	1.03	0.03	1.12	0.03	2.04	0.06	2.48	0.04
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	8.0	0.3	4.5	0.1	2.6	0.1	1.2	0.1	9.8	0.2	14.4	0.3
#2	21.4	0.8	15.3	0.3	10.8	0.6	7.4	0.2	22.0	0.7	26.1	0.8
#3	26.4	0.3	22.4	1.1	18.5	0.9	15.6	0.7	27.1	0.5	28.8	1.2
Carbon Monoxide (CO) Yield (mg/cig)												
#1	---	---	---	---	---	---	---	---	---	---	---	---
#2	---	---	---	---	---	---	---	---	---	---	---	---
#3	---	---	---	---	---	---	---	---	---	---	---	---
Puff Count (puffs/cigarette)												
#1	8.6	0.2	8.6	0.2	8.7	0.1	7.6	0.2	8.9	0.3	9.4	0.2
#2	12.7	0.4	12.8	0.2	12.9	0.3	10.9	0.2	13.2	0.3	14.2	0.2
#3	10.6	0.3	10.4	0.3	10.1	0.3	7.4	0.2	11.6	0.2	13.4	0.4

Table 26. Phase 2 Results: Laboratory R6

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	5.5	0.1	4.9	0.1	8.8	0.2	8.6	0.0	9.9	0.2	13.3	0.2	9.9	0.0
#2	17.0	0.8	20.0	1.2	25.0	0.1	25.5	0.4	29.0	0.5	33.2	2.0	27.9	0.2
#3	28.0	0.4	38.1	1.7	35.6	1.6	36.4	0.1	45.5	0.1	47.8	0.6	40.8	1.1
Water Yield (mg/cig)														
#1	0.3	0.2	0.2	0.1	0.9	0.1	0.7	0.1	0.9	0.1	1.0	0.1	0.8	0.1
#2	2.6	0.3	2.5	0.2	4.6	0.1	4.8	0.1	4.7	0.1	5.2	0.4	4.7	0.1
#3	6.8	0.4	8.6	0.6	8.9	0.4	9.0	0.3	11.3	0.2	10.6	0.2	9.9	0.3
Nicotine Yield (mg/cig)														
#1	0.45	0.01	0.43	0.01	0.78	0.03	0.83	0.01	0.84	0.02	1.22	0.03	0.80	0.02
#2	1.13	0.03	1.28	0.02	1.79	0.02	1.88	0.04	1.95	0.01	2.51	0.06	1.73	0.03
#3	1.42	0.03	2.00	0.09	2.15	0.03	2.21	0.03	2.45	0.04	3.05	0.04	2.13	0.05
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	4.7	0.2	4.3	0.1	7.1	0.2	7.0	0.1	8.2	0.1	11.1	0.2	8.2	0.2
#2	13.3	0.5	16.2	1.1	18.5	0.1	18.8	0.4	22.4	0.5	25.6	1.6	21.5	0.2
#3	19.8	0.1	27.6	1.0	24.5	1.2	25.3	0.2	31.8	0.1	34.1	0.4	28.7	0.7
Carbon Monoxide (CO) Yield (mg/cig)														
#1	7.1	0.2	5.1	0.2	5.4	0.1	4.9	0.1	7.4	0.1	10.3	0.2	9.0	0.1
#2	18.3	0.6	18.2	0.2	14.6	0.1	13.9	0.3	20.2	0.4	22.8	0.6	21.9	0.7
#3	23.2	0.3	29.9	0.7	17.7	0.4	17.2	0.2	26.0	0.1	29.3	0.4	26.9	0.5
Puff Count (puffs/cigarette)														
#1	7.7	0.1	11.8	0.2	7.8	0.2	8.5	0.1	8.7	0.0	10.7	0.1	8.2	0.1
#2	11.5	0.2	19.2	0.4	11.8	0.1	13.4	0.1	12.7	0.2	16.8	0.2	12.6	0.1
#3	9.4	0.3	15.7	0.6	9.9	0.4	11.5	0.1	10.5	0.1	14.6	0.2	10.7	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	13.5	0.5	13.7	0.8	18.2	0.2	1.6	0.0	11.3	0.4	18.0	0.4
#2	35.5	0.2	35.4	0.9	37.5	0.4	9.2	0.3	28.5	0.4	37.5	0.6
#3	47.2	0.6	48.4	0.6	43.9	0.6	25.5	1.0	41.6	1.4	44.1	0.4
Water Yield (mg/cig)												
#1	1.5	0.1	1.8	0.5	2.5	0.1	0.1	0.1	1.3	0.0	2.4	0.1
#2	7.1	0.3	7.3	1.0	8.4	0.4	1.4	0.5	6.7	0.3	8.8	0.4
#3	12.3	0.3	13.2	0.7	11.5	0.2	6.9	0.2	12.0	1.0	11.6	1.0
Nicotine Yield (mg/cig)												
#1	0.99	0.01	0.87	0.03	1.31	0.02	0.15	0.00	0.81	0.02	1.31	0.04
#2	2.08	0.04	1.77	0.03	2.29	0.05	0.67	0.01	1.55	0.02	2.29	0.04
#3	2.40	0.03	2.16	0.02	2.54	0.05	1.21	0.03	1.93	0.08	2.56	0.05
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	10.9	0.4	11.1	0.4	14.4	0.2	1.3	0.2	9.2	0.5	14.3	0.3
#2	26.3	0.2	26.4	0.3	26.8	0.5	7.1	0.6	20.2	0.3	26.4	0.3
#3	32.5	0.3	33.0	0.6	29.9	0.4	17.4	0.8	27.7	0.4	29.9	0.8
Carbon Monoxide (CO) Yield (mg/cig)												
#1	10.6	0.1	10.5	0.3	14.1	0.1	2.2	0.1	12.6	0.3	14.0	0.3
#2	23.5	0.3	22.1	0.1	23.1	0.1	12.5	0.3	24.0	0.5	23.5	0.5
#3	27.1	0.6	26.9	0.3	24.4	0.4	21.3	0.4	29.3	0.5	24.0	0.1
Puff Count (puffs/cigarette)												
#1	8.4	0.1	8.4	0.1	8.8	0.0	6.9	0.0	8.3	0.0	8.8	0.1
#2	12.5	0.1	12.7	0.3	13.9	0.3	10.2	0.0	12.7	0.1	13.9	0.0
#3	10.9	0.1	11.5	0.1	13.1	0.4	6.9	0.0	11.3	0.3	13.0	0.1

Table 27. Phase 2 Results: Laboratory R7

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.2	0.1	2.6	0.2	5.5	0.1	7.6	0.1	9.6	0.5	12.3	0.2	14.8	0.3
#2	8.9	0.3	12.6	0.4	19.9	1.1	23.3	0.8	23.9	1.0	25.4	0.2	31.6	1.0
#3	33.3	1.4	31.5	1.6	39.2	1.7	37.9	2.6	36.9	1.4	37.4	2.7	39.6	1.0
Water Yield (mg/cig)														
#1	0.1	0.0	0.2	0.0	0.4	0.0	0.6	0.0	1.2	0.2	1.9	0.1	2.5	0.1
#2	1.0	0.0	1.5	0.1	3.1	0.4	3.4	0.3	4.7	0.4	6.6	0.3	9.3	0.6
#3	8.2	0.3	7.9	1.0	9.4	1.2	8.9	0.3	8.7	0.5	9.4	0.7	10.2	0.3
Nicotine Yield (mg/cig)														
#1	0.13	0.02	0.27	0.01	0.53	0.01	0.74	0.01	0.87	0.02	0.94	0.03	1.12	0.03
#2	0.80	0.02	1.03	0.03	1.57	0.07	1.80	0.08	1.81	0.10	1.62	0.01	2.02	0.06
#3	1.91	0.11	1.72	0.05	2.05	0.35	2.39	0.11	2.30	0.05	1.94	0.09	2.27	0.06
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.0	0.0	2.2	0.2	4.5	0.1	6.3	0.1	7.6	0.3	9.5	0.2	11.2	0.3
#2	7.1	0.3	10.0	0.3	15.3	0.6	18.0	0.4	17.4	0.5	17.3	0.3	20.3	0.5
#3	23.2	1.2	21.9	0.7	27.7	0.3	26.6	2.2	25.9	0.9	26.1	1.9	27.2	1.1
Carbon Monoxide (CO) Yield (mg/cig)														
#1	0.9	0.1	2.4	0.0	4.4	0.1	5.7	0.0	7.7	0.1	12.5	0.4	11.8	0.3
#2	6.8	0.2	11.3	0.4	15.2	0.3	17.1	0.3	18.0	0.2	22.1	0.1	21.7	0.2
#3	24.4	1.1	24.6	0.3	28.0	1.2	27.3	0.6	26.7	1.2	28.9	0.7	25.9	0.5
Puff Count (puffs/cigarette)														
#1	9.7	0.1	8.5	0.1	9.6	0.3	9.9	0.1	9.0	0.2	8.1	0.1	7.7	0.2
#2	14.3	1.6	13.1	0.4	14.2	0.2	15.0	0.0	13.4	0.4	11.2	0.2	11.3	0.1
#3	11.3	0.4	9.9	0.3	11.1	0.2	12.7	0.3	12.9	0.9	10.3	0.3	10.8	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	15.9	0.4	15.5	0.2	19.9	0.2	1.3	0.1	11.3	0.2	17.6	0.3
#2	33.3	1.7	30.5	0.5	37.3	0.6	7.8	0.1	25.7	0.9	33.7	0.3
#3	46.2	2.6	41.1	1.8	48.3	1.3	25.7	1.6	40.6	2.2	41.9	0.6
Water Yield (mg/cig)												
#1	2.3	0.2	2.9	0.1	3.4	0.0	0.1	0.0	1.4	0.1	2.6	0.1
#2	8.0	0.8	8.6	0.3	9.7	0.3	1.1	0.0	6.3	0.3	8.2	0.3
#3	11.7	1.3	9.9	0.5	11.7	0.5	7.1	0.7	11.8	0.7	10.8	0.3
Nicotine Yield (mg/cig)												
#1	1.26	0.03	1.04	0.03	1.35	0.05	0.12	0.00	0.77	0.03	1.22	0.05
#2	2.24	0.09	1.88	0.05	2.30	0.03	0.57	0.01	1.40	0.06	2.11	0.06
#3	2.64	0.23	2.22	0.01	2.66	0.08	1.12	0.06	1.78	0.12	2.36	0.04
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	12.3	0.2	11.6	0.2	15.2	0.1	1.1	0.1	9.0	0.1	13.8	0.2
#2	23.0	0.9	20.0	0.3	25.3	0.5	6.1	0.1	18.0	0.5	23.4	0.2
#3	31.8	1.0	29.0	1.3	34.0	0.7	17.4	0.8	26.9	1.4	28.7	0.3
Carbon Monoxide (CO) Yield (mg/cig)												
#1	12.5	0.3	11.5	0.2	16.1	0.2	1.9	0.1	12.0	0.1	13.2	0.1
#2	23.3	0.7	19.1	0.2	25.5	0.2	10.4	0.5	21.2	0.4	20.7	0.5
#3	30.2	1.0	24.7	1.0	31.2	1.1	22.6	1.9	29.4	0.9	24.8	0.6
Puff Count (puffs/cigarette)												
#1	8.8	0.0	7.0	0.1	8.8	0.1	7.0	0.1	8.5	0.2	9.0	0.1
#2	12.6	0.3	10.5	0.2	12.8	0.1	9.9	0.2	12.4	0.1	13.7	0.3
#3	11.9	0.4	10.4	0.1	12.8	0.2	7.7	1.0	11.4	0.2	13.6	0.2

Table 28. Phase 2 Results: Laboratory R8

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.0	0.0	3.0	0.2	9.3	0.1	9.1	0.1	14.1	0.3	17.0	0.2	18.0	0.5
#2	7.8	1.1	11.2	0.0	25.4	0.5	23.6	0.6	36.2	2.2	37.6	0.7	41.9	0.8
#3	26.0	0.8	25.2	1.6	37.3	1.7	32.1	1.5	43.8	2.1	46.0	0.4	54.9	1.7
Water Yield (mg/cig)														
#1	0.0	0.0	0.2	0.0	0.6	0.1	0.8	0.3	0.9	0.1	2.1	0.1	1.1	0.3
#2	0.6	0.4	1.3	0.4	5.2	0.2	4.3	0.6	7.3	0.7	8.0	0.7	5.5	0.5
#3	6.6	0.5	5.8	1.4	9.1	1.8	6.8	1.3	9.1	1.8	10.7	1.9	9.4	2.3
Nicotine Yield (mg/cig)														
#1	0.10	0.01	0.30	0.01	0.70	0.04	0.62	0.01	0.95	0.02	0.97	0.01	0.76	0.02
#2	0.59	0.03	0.86	0.04	1.35	0.10	1.33	0.08	1.98	0.17	1.92	0.05	1.65	0.08
#3	1.31	0.04	1.48	0.06	1.84	0.07	1.89	0.13	2.41	0.09	2.26	0.11	1.98	0.05
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	0.9	0.1	2.5	0.2	7.9	0.1	7.6	0.4	12.2	0.4	14.0	0.1	16.2	0.2
#2	6.6	0.8	9.0	0.3	18.9	0.5	17.9	0.9	26.9	1.4	27.6	0.1	34.7	0.8
#3	18.1	0.3	17.9	0.5	26.3	0.2	23.4	1.6	32.4	0.7	32.9	1.5	43.5	1.1
Carbon Monoxide (CO) Yield (mg/cig)														
#1	1.3	0.1	2.6	0.2	6.0	0.8	8.8	0.2	12.1	1.2	12.2	0.3	11.8	0.6
#2	11.2	0.9	10.1	0.5	17.2	0.2	20.6	0.5	28.4	1.1	25.0	0.3	24.6	0.1
#3	29.7	1.4	18.9	0.5	20.8	0.7	24.3	0.9	31.9	1.7	29.0	1.3	34.0	3.1
Puff Count (puffs/cigarette)														
#1	8.2	0.2	8.3	0.1	7.0	0.1	6.1	0.1	10.2	0.2	8.1	0.1	10.5	0.1
#2	12.5	0.2	13.1	0.1	10.3	0.2	9.7	0.3	16.5	0.5	12.1	0.4	16.5	0.6
#3	8.5	0.5	10.0	0.3	8.6	0.2	8.1	0.1	14.1	0.9	10.4	0.5	14.3	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	25.2	0.1	20.5	0.5	22.6	0.5	1.7	0.1	11.9	0.1	18.3	0.6
#2	46.7	3.1	43.7	0.7	45.1	0.3	8.5	0.2	29.4	0.7	36.8	0.1
#3	53.7	0.8	51.0	0.8	50.4	1.3	23.9	1.5	40.0	1.1	41.6	1.5
Water Yield (mg/cig)												
#1	3.5	0.3	3.0	0.5	2.1	0.2	0.1	0.0	1.2	0.1	2.7	0.1
#2	8.4	1.0	7.9	0.6	6.8	0.9	1.0	0.4	7.2	0.9	8.7	0.7
#3	12.4	0.7	11.3	0.1	8.0	1.7	5.9	1.5	11.0	2.4	10.1	2.2
Nicotine Yield (mg/cig)												
#1	1.72	0.06	1.22	0.02	1.82	0.03	0.15	0.01	0.82	0.02	1.40	0.05
#2	2.91	0.09	2.52	0.10	3.41	0.19	0.60	0.02	1.50	0.05	2.42	0.11
#3	3.05	0.05	2.66	0.12	3.73	0.13	1.19	0.07	2.10	0.13	2.70	0.05
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	20.0	0.3	16.3	0.3	18.7	0.5	1.4	0.1	9.9	0.1	14.2	0.5
#2	35.4	2.0	33.3	0.8	34.9	0.8	6.9	0.5	20.7	0.2	25.7	0.6
#3	38.3	0.4	37.0	0.6	38.6	1.5	16.8	0.2	26.8	1.2	28.8	1.0
Carbon Monoxide (CO) Yield (mg/cig)												
#1	14.7	0.5	11.4	0.2	12.6	0.9	2.1	0.2	12.9	0.2	14.8	0.1
#2	23.4	1.4	22.5	0.6	24.6	0.0	12.1	0.7	25.4	0.4	23.2	0.1
#3	27.6	0.4	26.9	0.6	26.6	0.5	23.1	0.5	30.9	1.9	25.1	0.8
Puff Count (puffs/cigarette)												
#1	6.8	0.0	7.3	0.4	8.6	0.3	6.8	0.6	8.5	0.2	8.9	0.1
#2	9.3	0.5	10.7	0.4	14.1	0.3	10.7	0.8	13.1	0.5	14.0	0.3
#3	8.8	0.6	9.9	0.6	12.2	0.8	6.8	0.3	10.6	0.3	12.4	0.6

Table 29. Phase 2 Results: Laboratory R9

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	10.7	0.1	9.8	0.1	13.4	0.3	14.1	0.2	12.7	0.1	15.0	0.1	16.1	0.2
#2	26.5	0.3	27.1	0.6	33.0	1.0	36.3	0.9	28.5	0.8	36.0	0.4	38.3	1.6
#3	35.6	0.6	38.2	0.4	43.2	0.7	50.5	0.3	34.1	0.6	50.1	0.6	51.9	1.4
Water Yield (mg/cig)														
#1	1.6	0.1	1.3	0.0	2.8	0.2	2.5	0.1	2.0	0.3	2.3	0.1	2.6	0.3
#2	7.2	0.4	6.3	0.4	9.3	0.4	8.7	0.2	6.4	1.0	10.0	0.4	9.3	1.0
#3	12.4	1.3	13.6	1.5	17.2	1.7	16.9	1.4	8.8	1.5	18.7	1.4	18.9	2.2
Nicotine Yield (mg/cig)														
#1	0.51	0.01	0.53	0.02	0.55	0.02	0.84	0.03	0.65	0.02	0.83	0.04	0.95	0.03
#2	1.11	0.08	1.24	0.08	1.16	0.02	1.93	0.11	1.31	0.05	1.69	0.02	1.93	0.20
#3	1.23	0.03	1.29	0.00	1.33	0.07	2.17	0.03	1.40	0.02	2.04	0.02	2.26	0.04
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	8.6	0.0	8.0	0.1	10.1	0.2	10.8	0.3	10.1	0.2	11.9	0.0	12.5	0.2
#2	18.2	0.3	19.6	0.3	22.5	1.4	25.6	0.6	20.8	0.8	24.3	0.4	27.1	0.5
#3	21.9	0.7	23.3	1.6	24.6	1.9	31.5	1.4	23.9	0.9	29.4	1.0	30.8	0.8
Carbon Monoxide (CO) Yield (mg/cig)														
#1	11.6	0.2	9.7	0.4	13.1	0.4	11.2	0.2	9.6	0.3	12.1	0.3	12.7	0.4
#2	23.4	0.2	23.1	0.9	25.1	0.3	24.9	0.7	20.0	1.2	24.5	0.2	26.2	1.4
#3	29.7	0.6	30.3	0.3	32.9	1.3	34.5	0.5	22.0	0.6	33.0	0.8	34.6	1.4
Puff Count (puffs/cigarette)														
#1	7.0	0.1	7.7	0.1	7.1	0.0	9.0	0.1	6.2	0.1	8.5	0.1	9.7	0.1
#2	10.1	0.0	11.9	0.1	11.4	0.9	14.2	0.0	9.3	0.0	11.5	0.1	14.8	0.7
#3	9.1	0.3	9.9	0.2	10.0	0.1	12.3	0.2	8.7	0.2	9.7	0.1	13.3	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	3.8	0.1	2.7	0.1	4.7	0.0	1.3	0.0	12.1	0.1	18.3	0.3
#2	13.8	0.9	12.5	0.5	16.2	0.2	9.5	0.2	30.3	1.1	38.6	0.4
#3	29.8	0.5	27.4	0.2	29.3	0.7	28.2	1.3	46.3	0.1	48.9	0.8
Water Yield (mg/cig)												
#1	0.3	0.1	0.2	0.0	0.4	0.0	0.1	0.0	2.0	0.1	3.0	0.2
#2	1.9	0.2	2.1	0.2	2.9	0.1	1.7	0.4	8.5	0.4	10.6	0.5
#3	10.0	0.7	10.1	1.2	10.1	1.1	10.9	1.1	18.3	0.4	16.7	0.7
Nicotine Yield (mg/cig)												
#1	0.17	0.00	0.19	0.00	0.28	0.01	0.12	0.00	0.81	0.02	1.30	0.06
#2	0.43	0.02	0.68	0.05	0.67	0.07	0.68	0.04	1.67	0.07	2.47	0.03
#3	0.59	0.01	0.87	0.03	0.80	0.02	1.23	0.06	2.02	0.02	2.77	0.03
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	3.3	0.1	2.2	0.1	4.0	0.0	1.1	0.0	9.3	0.0	13.9	0.1
#2	11.5	0.6	9.8	0.5	12.6	0.3	7.2	0.3	20.1	0.8	25.5	0.7
#3	19.2	0.4	16.4	1.2	18.4	1.8	16.1	0.5	25.9	0.3	29.4	1.4
Carbon Monoxide (CO) Yield (mg/cig)												
#1	3.7	0.6	3.8	0.2	6.4	0.4	2.2	0.1	12.6	1.4	14.4	0.3
#2	13.2	1.3	15.4	0.3	18.6	0.4	12.3	0.5	23.7	0.7	23.6	0.8
#3	25.6	0.6	29.6	0.4	28.5	0.6	25.8	0.9	34.0	0.8	28.0	0.7
Puff Count (puffs/cigarette)												
#1	7.0	0.0	7.8	0.1	7.0	0.1	7.3	0.1	9.0	0.1	9.4	0.0
#2	11.1	0.3	12.0	0.2	11.1	0.1	11.2	0.3	13.7	0.2	14.9	0.1
#3	8.5	0.1	9.3	0.1	9.1	0.3	7.6	0.2	12.0	0.1	14.2	0.2

Table 30. Phase 2 Results: Laboratory R10

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.2	0.1	2.1	0.0	3.5	0.0	6.2	0.1	6.5	0.2	7.1	0.3	8.2	0.2
#2	8.7	0.4	8.9	0.2	14.0	0.1	21.9	0.3	18.1	0.2	21.8	0.2	21.0	0.7
#3	28.6	0.4	20.3	0.3	27.9	0.8	39.4	0.7	27.0	0.3	36.0	0.2	31.6	0.7
Water Yield (mg/cig)														
#1	0.2	0.1	0.2	0.0	0.4	0.1	0.6	0.1	0.9	0.1	0.8	0.1	0.8	0.1
#2	1.0	0.2	1.3	0.1	2.0	0.1	3.2	0.1	3.7	0.0	4.0	0.2	3.7	0.4
#3	8.5	0.3	6.2	0.1	8.2	0.3	11.5	0.4	8.5	0.3	11.5	0.3	9.3	0.4
Nicotine Yield (mg/cig)														
#1	0.14	0.01	0.17	0.01	0.29	0.01	0.58	0.01	0.35	0.01	0.51	0.01	0.58	0.01
#2	0.80	0.08	0.63	0.01	1.04	0.04	1.61	0.06	0.87	0.02	1.41	0.01	1.37	0.03
#3	1.62	0.03	0.93	0.01	1.46	0.02	2.21	0.02	0.98	0.01	1.69	0.02	1.56	0.02
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	0.9	0.0	1.7	0.1	2.8	0.2	5.0	0.1	5.3	0.2	5.8	0.2	6.8	0.1
#2	6.9	0.2	7.0	0.3	11.0	0.1	17.1	0.3	13.5	0.3	16.4	0.1	15.9	0.4
#3	18.5	0.2	13.2	0.2	18.2	0.5	25.7	0.4	17.6	0.1	22.9	0.1	20.8	0.3
Carbon Monoxide (CO) Yield (mg/cig)														
#1	0.8	0.0	3.6	0.2	3.4	0.1	4.2	0.2	8.8	0.5	7.2	0.2	7.4	0.2
#2	7.6	0.4	12.5	0.4	13.1	0.2	15.1	0.2	20.0	0.6	18.9	0.1	16.4	0.3
#3	19.5	0.4	22.1	0.8	22.0	0.8	24.3	0.4	25.3	0.4	27.4	0.1	21.0	0.2
Puff Count (puffs/cigarette)														
#1	8.0	0.2	7.3	0.1	6.9	0.2	8.0	0.1	6.9	0.0	8.1	0.1	6.9	0.0
#2	12.5	0.4	10.9	0.2	10.2	0.1	11.5	0.2	10.2	0.2	11.8	0.2	10.0	0.4
#3	8.0	0.0	8.6	0.2	8.1	0.1	9.3	0.2	8.5	0.2	9.5	0.2	8.7	0.1

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	8.8	0.0	10.2	0.0	14.7	0.1	1.8	0.0	11.1	0.1	17.0	0.3
#2	24.9	0.5	28.0	0.4	35.6	0.3	8.4	0.1	26.1	0.2	34.8	0.4
#3	37.5	0.5	39.8	1.3	48.9	1.2	22.5	0.7	39.1	0.9	44.1	0.7
Water Yield (mg/cig)												
#1	1.0	0.1	1.2	0.1	2.0	0.0	0.2	0.1	1.3	0.2	2.5	0.2
#2	3.6	0.2	5.1	0.2	7.0	0.3	1.0	0.1	5.3	0.2	7.4	0.2
#3	8.9	0.3	10.7	1.0	13.6	0.6	6.8	0.5	12.3	0.4	12.8	0.4
Nicotine Yield (mg/cig)												
#1	0.67	0.01	0.68	0.01	0.96	0.01	0.16	0.00	0.82	0.02	1.30	0.02
#2	1.73	0.03	1.67	0.01	2.12	0.02	0.68	0.02	1.69	0.02	2.41	0.05
#3	2.11	0.02	1.88	0.07	2.40	0.01	1.17	0.03	1.96	0.00	2.60	0.03
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	7.1	0.1	8.4	0.1	11.7	0.1	1.4	0.1	9.0	0.2	13.2	0.1
#2	19.6	0.4	21.2	0.3	26.5	0.0	6.7	0.1	19.1	0.2	25.0	0.4
#3	26.5	0.2	27.3	0.4	32.9	0.6	14.5	0.3	24.8	0.5	28.7	0.5
Carbon Monoxide (CO) Yield (mg/cig)												
#1	6.9	0.0	9.8	0.1	11.3	0.3	2.3	0.1	10.8	0.4	12.6	0.1
#2	18.9	0.7	22.5	0.1	23.5	0.1	9.8	0.2	20.8	0.1	21.2	0.3
#3	26.9	0.3	29.4	0.4	29.8	0.8	19.6	0.2	27.5	1.3	24.7	0.2
Puff Count (puffs/cigarette)												
#1	10.7	0.1	9.1	0.2	9.5	0.1	7.0	0.1	8.7	0.1	9.0	0.1
#2	17.5	0.1	13.6	0.2	14.4	0.3	10.2	0.1	12.8	0.2	13.9	0.2
#3	15.4	0.3	11.3	0.2	12.9	0.1	7.2	0.1	11.5	0.2	13.0	0.0

Table 31. Phase 2 Results: Laboratory R11

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	2.1	0.0	9.3	0.0	11.7	0.1	12.5	0.3	3.3	0.1	5.7	0.2	6.7	0.2
#2	10.9	0.5	25.4	0.4	27.3	0.8	29.6	0.9	15.3	0.3	19.3	0.7	22.1	0.5
#3	26.8	0.2	38.1	0.5	35.4	0.4	36.2	0.7	29.9	0.8	30.5	0.8	35.9	0.7
Water Yield (mg/cig)														
#1	0.1	0.0	0.9	0.0	1.5	0.1	1.7	0.2	0.3	0.1	0.5	0.1	0.6	0.1
#2	1.2	0.2	4.2	0.5	7.3	0.5	7.7	0.5	2.6	0.5	3.7	0.5	3.8	0.6
#3	6.9	0.4	9.8	0.3	11.0	0.4	10.3	0.2	8.9	0.4	8.7	0.6	9.6	0.8
Nicotine Yield (mg/cig)														
#1	0.19	0.01	0.73	0.02	0.88	0.03	0.77	0.01	0.27	0.01	0.47	0.02	0.56	0.02
#2	0.88	0.04	1.84	0.03	1.78	0.03	1.62	0.05	1.04	0.03	1.36	0.06	1.47	0.08
#3	1.62	0.02	2.35	0.08	2.02	0.03	1.82	0.04	1.56	0.07	1.68	0.05	2.06	0.06
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.8	0.0	7.7	0.0	9.3	0.0	10.0	0.1	2.8	0.1	4.7	0.2	5.6	0.1
#2	8.8	0.5	19.4	0.5	18.1	0.3	20.3	0.4	11.6	0.6	14.2	0.3	16.8	0.9
#3	18.2	0.2	26.0	0.1	22.3	0.2	24.1	0.5	19.4	0.6	20.1	1.1	24.2	1.2
Carbon Monoxide (CO) Yield (mg/cig)														
#1	2.0	0.2	7.9	0.2	10.7	0.2	13.2	0.1	3.6	0.2	6.0	0.2	5.9	0.1
#2	9.8	0.2	20.3	0.6	21.6	0.9	26.0	0.6	15.5	0.5	18.5	0.1	17.8	0.4
#3	25.1	0.6	28.8	0.2	26.5	0.4	29.5	0.2	25.9	0.3	26.8	0.8	28.3	0.3
Puff Count (puffs/cigarette)														
#1	7.0	0.0	7.5	0.1	6.3	0.1	7.0	0.0	6.7	0.1	6.8	0.1	7.8	0.0
#2	11.6	0.2	11.7	0.2	9.2	0.2	10.7	0.3	10.2	0.3	10.4	0.0	12.4	0.1
#3	8.7	0.1	9.9	0.2	8.4	0.2	9.8	0.2	7.6	0.1	8.5	0.2	10.3	0.1

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	8.4	0.2	12.5	0.1	11.3	0.4	1.6	0.0	11.1	0.2	17.1	0.2
#2	24.2	1.1	28.5	0.5	28.6	0.3	9.1	0.1	28.9	0.3	36.4	0.7
#3	33.5	0.5	33.9	0.6	37.0	1.1	25.2	0.8	41.4	0.2	44.3	0.9
Water Yield (mg/cig)												
#1	0.9	0.1	1.3	0.1	1.4	0.3	0.1	0.1	1.3	0.2	2.2	0.3
#2	5.8	0.2	4.5	0.7	6.2	0.6	1.3	0.2	7.5	0.7	9.1	0.6
#3	9.7	0.3	6.3	0.3	9.9	1.2	7.9	0.5	13.6	0.5	12.6	0.6
Nicotine Yield (mg/cig)												
#1	0.60	0.01	0.91	0.03	0.84	0.02	0.14	0.00	0.80	0.02	1.31	0.03
#2	1.45	0.05	1.96	0.02	1.81	0.04	0.66	0.01	1.69	0.04	2.45	0.04
#3	1.69	0.03	2.23	0.10	2.16	0.04	1.24	0.02	2.12	0.01	2.85	0.09
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	6.9	0.1	10.3	0.1	9.0	0.3	1.3	0.1	9.0	0.1	13.6	0.4
#2	17.0	1.2	22.1	0.3	20.6	0.8	7.1	0.2	19.7	0.9	24.9	1.1
#3	22.1	0.4	25.3	0.3	25.0	0.5	16.1	1.0	25.7	0.4	28.8	0.5
Carbon Monoxide (CO) Yield (mg/cig)												
#1	8.5	0.1	7.5	0.2	11.6	0.5	2.4	0.1	11.7	0.1	13.6	0.2
#2	21.9	0.9	15.7	0.3	25.7	0.2	11.7	0.4	24.0	0.3	23.3	0.7
#3	28.1	0.6	18.1	0.2	31.1	0.8	24.1	0.2	31.0	0.3	27.5	0.7
Puff Count (puffs/cigarette)												
#1	7.0	0.0	6.2	0.1	8.0	0.1	6.9	0.0	8.2	0.1	8.8	0.1
#2	10.6	0.1	10.4	0.2	12.5	0.4	10.3	0.0	12.7	0.3	14.0	0.2
#3	9.0	0.1	10.2	0.5	11.5	0.2	7.1	0.1	11.2	0.2	13.4	0.1

Table 32. Phase 2 Results: Laboratory R12

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	2.1	0.1	10.0	0.4	12.3	0.6	13.6	0.3	3.3	0.2	5.5	0.2	6.9	0.4
#2	10.5	0.3	27.6	0.4	28.5	0.6	30.8	0.8	15.0	0.2	19.3	0.2	21.7	0.9
#3	27.2	0.4	38.9	1.3	35.7	0.2	38.0	0.8	28.8	0.8	30.2	0.4	35.1	0.8
Water Yield (mg/cig)														
#1	0.2	0.1	1.0	0.3	1.9	0.3	2.2	0.3	0.3	0.0	0.5	0.1	0.6	0.2
#2	1.2	0.2	4.5	0.2	7.2	0.4	7.3	0.4	2.8	0.0	3.8	0.2	3.9	0.3
#3	7.7	0.6	10.1	1.1	11.1	0.4	11.2	0.5	9.5	0.3	9.4	0.3	10.3	0.4
Nicotine Yield (mg/cig)														
#1	0.18	0.01	0.81	0.01	0.87	0.02	0.88	0.02	0.27	0.02	0.45	0.01	0.56	0.02
#2	0.85	0.03	2.03	0.02	1.77	0.02	1.83	0.02	1.01	0.01	1.28	0.02	1.48	0.08
#3	1.56	0.06	2.39	0.05	1.95	0.02	1.98	0.07	1.46	0.04	1.58	0.01	1.95	0.05
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.8	0.1	8.2	0.1	9.6	0.2	10.5	0.1	2.8	0.2	4.5	0.1	5.7	0.2
#2	8.4	0.2	21.1	0.3	19.5	0.3	21.7	0.5	11.2	0.2	14.3	0.0	16.3	0.5
#3	18.0	0.7	26.4	0.4	22.7	0.4	24.8	0.2	17.9	0.5	19.2	0.2	22.9	0.3
Carbon Monoxide (CO) Yield (mg/cig)														
#1	1.7	0.2	7.9	0.1	10.5	0.6	13.8	0.4	3.3	0.3	5.6	0.1	5.6	0.2
#2	9.0	0.2	20.5	0.2	21.5	0.6	26.7	0.7	14.6	0.1	18.1	0.3	17.9	0.3
#3	23.2	0.6	28.0	0.6	25.5	0.5	30.2	0.6	24.6	0.6	25.6	0.6	27.6	0.8
Puff Count (puffs/cigarette)														
#1	7.0	0.0	7.5	0.1	6.5	0.0	7.1	0.0	6.7	0.1	6.7	0.1	7.9	0.0
#2	11.7	0.3	11.5	0.1	9.5	0.0	10.8	0.2	10.0	0.1	10.2	0.1	12.4	0.2
#3	8.4	0.0	9.9	0.2	8.5	0.1	10.2	0.2	7.8	0.0	8.5	0.1	10.2	0.1

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	8.5	0.3	12.6	0.3	11.0	0.2	1.7	0.1	10.8	0.1	17.3	0.4
#2	23.6	0.2	28.3	0.5	28.8	0.8	9.0	0.4	28.6	1.5	35.0	0.6
#3	33.1	0.5	34.5	2.0	36.4	0.2	24.0	0.8	41.1	0.9	43.7	0.5
Water Yield (mg/cig)												
#1	1.0	0.1	1.3	0.1	1.4	0.2	0.2	0.1	1.3	0.2	2.5	0.1
#2	5.1	0.2	4.4	0.1	6.1	0.1	1.5	0.0	6.8	0.4	7.9	0.2
#3	10.3	0.3	7.1	0.7	10.3	0.4	7.8	0.5	14.0	0.6	13.1	0.4
Nicotine Yield (mg/cig)												
#1	0.60	0.02	0.92	0.02	0.83	0.01	0.15	0.01	0.79	0.02	1.27	0.02
#2	1.39	0.01	1.92	0.08	1.86	0.04	0.64	0.02	1.68	0.08	2.29	0.06
#3	1.61	0.04	2.11	0.09	2.07	0.06	1.19	0.03	2.01	0.03	2.57	0.03
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	6.9	0.2	10.3	0.2	8.8	0.1	1.3	0.1	8.8	0.1	13.5	0.3
#2	17.1	0.1	21.9	0.4	20.8	0.7	6.9	0.4	20.1	1.0	24.8	0.4
#3	21.2	0.3	25.3	1.4	24.0	0.5	15.0	0.3	25.1	0.4	28.0	0.2
Carbon Monoxide (CO) Yield (mg/cig)												
#1	8.4	0.2	7.1	0.2	11.0	0.4	2.6	0.2	11.1	0.6	13.6	0.6
#2	21.2	0.4	15.1	0.2	25.4	0.3	10.8	0.6	23.2	0.6	22.8	0.2
#3	27.6	0.5	18.2	0.5	30.8	1.4	22.2	1.0	30.6	0.6	26.4	0.3
Puff Count (puffs/cigarette)												
#1	6.9	0.1	6.1	0.1	7.9	0.0	6.9	0.1	8.3	0.1	8.8	0.1
#2	10.6	0.0	10.4	0.2	12.7	0.2	10.1	0.1	13.0	0.3	13.7	0.1
#3	9.2	0.1	9.9	0.2	11.4	0.2	7.0	0.1	11.2	0.1	12.9	0.2

Table 33. Phase 2 Results: Laboratory R13

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.9	0.1	3.0	0.1	4.5	0.0	5.5	0.2	8.6	0.1	11.8	0.1	15.1	0.2
#2	12.6	0.2	15.2	0.6	17.2	0.4	20.8	0.3	27.4	0.6	29.7	0.4	35.5	0.4
#3	25.6	1.6	28.2	0.3	31.6	0.5	35.7	0.2	43.2	0.9	42.8	1.3	49.6	0.4
Water Yield (mg/cig)														
#1	0.3	0.1	0.4	0.1	0.5	0.1	0.6	0.1	0.8	0.1	1.6	0.0	1.9	0.1
#2	2.3	0.1	2.4	0.2	4.0	0.4	4.1	0.2	4.4	0.3	6.8	0.2	7.0	0.3
#3	7.5	0.8	7.1	0.6	11.1	0.4	11.3	0.3	13.0	0.4	13.3	0.7	14.1	0.5
Nicotine Yield (mg/cig)														
#1	0.19	0.01	0.33	0.01	0.36	0.01	0.47	0.01	0.73	0.01	0.87	0.02	1.04	0.03
#2	0.94	0.05	1.29	0.04	0.98	0.07	1.41	0.03	1.84	0.10	1.74	0.11	2.15	0.11
#3	1.46	0.04	1.71	0.08	1.40	0.03	1.93	0.03	2.30	0.15	1.99	0.12	2.56	0.07
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	1.4	0.1	2.3	0.1	3.6	0.1	4.4	0.2	7.1	0.1	9.3	0.2	12.2	0.2
#2	9.3	0.1	11.5	0.4	12.3	0.3	15.3	0.3	21.2	0.4	21.1	0.8	26.3	0.3
#3	16.7	0.8	19.4	0.2	19.1	0.5	22.4	0.3	27.9	1.2	27.5	0.9	32.9	0.9
Carbon Monoxide (CO) Yield (mg/cig)														
#1	3.6	0.3	3.8	0.1	5.8	0.1	7.9	0.3	9.3	0.2	11.5	0.3	13.2	0.3
#2	15.7	0.4	17.7	0.4	20.0	0.6	24.8	0.3	25.0	0.4	23.8	0.6	26.7	0.6
#3	24.2	0.6	27.8	0.1	29.8	0.6	36.5	0.2	36.6	0.6	30.3	0.7	32.3	0.4
Puff Count (puffs/cigarette)														
#1	7.3	0.1	7.2	0.1	7.3	0.1	9.2	0.0	9.5	0.1	7.2	0.1	8.2	0.1
#2	10.0	0.2	11.0	0.3	10.2	0.3	13.8	0.1	14.3	0.3	10.4	0.3	12.8	0.1
#3	7.5	0.4	8.3	0.3	7.8	0.4	11.3	0.4	12.3	0.2	9.4	0.2	12.2	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	15.6	0.1	17.5	0.2	19.0	0.2	1.6	0.0	11.2	0.2	17.7	0.3
#2	39.8	0.4	41.4	0.1	42.3	1.0	8.9	0.2	26.1	0.8	36.2	0.1
#3	50.2	1.0	51.2	0.6	50.8	1.2	23.3	0.4	40.3	0.8	43.7	0.5
Water Yield (mg/cig)												
#1	1.6	0.1	3.3	0.0	3.6	0.1	0.3	0.1	1.6	0.1	2.5	0.1
#2	8.8	0.1	9.9	0.6	1.2	0.0	1.4	0.2	6.8	0.4	8.9	0.2
#3	13.9	0.5	15.6	0.6	16.1	0.7	7.8	0.4	13.1	1.1	13.5	0.3
Nicotine Yield (mg/cig)												
#1	1.13	0.05	1.25	0.01	1.18	0.02	0.17	0.00	0.91	0.03	1.34	0.02
#2	2.39	0.04	2.31	0.16	2.38	0.05	0.70	0.03	1.72	0.03	2.32	0.09
#3	2.53	0.13	2.82	0.06	2.66	0.03	1.32	0.03	2.22	0.02	2.64	0.04
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	12.9	0.1	13.0	0.2	14.3	0.3	1.2	0.1	8.7	0.1	13.9	0.2
#2	28.6	0.3	29.1	0.5	38.7	0.9	6.8	0.3	17.6	0.6	25.0	0.4
#3	33.7	0.7	32.8	1.1	32.1	0.5	14.2	0.6	25.0	0.5	27.6	0.2
Carbon Monoxide (CO) Yield (mg/cig)												
#1	13.1	0.3	12.7	0.2	15.8	0.3	2.2	0.1	12.0	0.1	15.5	0.2
#2	28.2	0.5	25.7	0.4	27.9	0.4	11.7	0.6	25.4	0.2	25.3	0.5
#3	33.5	0.6	29.7	0.2	30.4	0.5	22.9	0.6	31.1	0.8	28.8	0.6
Puff Count (puffs/cigarette)												
#1	8.4	0.1	8.2	0.0	7.4	0.1	6.8	0.0	8.2	0.1	8.7	0.1
#2	12.9	0.2	12.3	0.1	11.2	0.2	10.4	0.3	12.6	0.1	13.2	0.2
#3	11.6	0.2	11.1	0.3	10.2	0.2	7.2	0.1	11.3	0.1	12.4	0.1

Table 34. Phase 2 Results: Laboratory R14

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	1.1	0.0	2.0	0.0	3.3	0.1	6.4	0.1	6.2	0.1	6.6	0.2	8.8	0.1
#2	9.3	0.2	9.5	0.1	14.1	0.4	23.6	0.3	18.7	0.1	22.8	0.2	23.8	0.4
#3	32.1	0.6	21.0	0.5	30.0	0.3	39.5	0.9	28.1	0.6	35.8	0.9	32.7	0.6
Water Yield (mg/cig)														
#1	0.3	0.0	0.3	0.1	0.4	0.1	0.5	0.1	0.7	0.2	0.6	0.2	0.8	0.1
#2	1.1	0.2	1.2	0.0	1.9	0.1	3.4	0.3	3.5	0.2	4.1	0.2	4.2	0.1
#3	8.3	0.3	5.5	0.6	7.9	0.4	9.9	0.4	8.1	0.7	9.9	0.2	8.1	0.2
Nicotine Yield (mg/cig)														
#1	0.12	0.00	0.15	0.00	0.27	0.00	0.57	0.01	0.32	0.01	0.46	0.02	0.59	0.01
#2	0.82	0.03	0.61	0.01	0.96	0.01	1.64	0.01	0.79	0.01	1.27	0.01	1.36	0.04
#3	1.71	0.04	0.91	0.04	1.47	0.02	2.19	0.08	0.96	0.03	1.62	0.05	1.61	0.01
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	0.7	0.0	1.6	0.0	2.7	0.1	5.3	0.1	5.2	0.1	5.6	0.1	7.5	0.1
#2	7.4	0.1	7.6	0.1	11.2	0.3	18.6	0.2	14.5	0.3	17.4	0.1	18.3	0.3
#3	22.0	0.8	14.5	0.2	20.7	0.1	27.4	0.5	19.0	0.3	24.2	1.0	22.9	0.4
Carbon Monoxide (CO) Yield (mg/cig)														
#1	0.8	0.1	3.5	0.1	3.4	0.1	4.6	0.2	8.6	0.2	6.8	0.4	8.1	0.2
#2	8.6	0.3	13.9	0.2	14.1	0.2	16.8	0.5	21.7	0.2	20.8	0.3	18.8	0.2
#3	23.4	0.2	25.2	0.3	25.4	0.4	26.2	0.7	29.0	0.4	29.5	0.2	23.0	0.5
Puff Count (puffs/cigarette)														
#1	8.1	0.1	7.0	0.0	6.7	0.0	7.9	0.0	6.7	0.1	7.9	0.1	6.6	0.1
#2	13.0	0.2	10.8	0.2	10.2	0.2	11.6	0.4	10.0	0.1	11.4	0.2	9.7	0.1
#3	7.7	0.1	8.1	0.0	7.5	0.1	8.9	0.4	8.3	0.1	8.8	0.1	8.7	0.1

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	8.8	0.2	10.2	0.1	14.8	0.3	1.8	0.1	11.4	0.0	17.0	0.2
#2	28.4	0.2	29.4	0.2	37.7	0.8	9.4	0.3	28.1	0.2	36.4	0.3
#3	40.2	0.7	41.8	0.5	49.7	0.8	24.6	0.7	41.3	0.6	43.4	0.3
Water Yield (mg/cig)												
#1	0.6	0.0	0.9	0.0	1.6	0.2	0.3	0.0	1.1	0.1	2.1	0.2
#2	4.1	0.0	5.4	0.2	7.0	0.7	1.1	0.1	5.4	0.3	7.4	0.3
#3	8.3	0.3	10.6	0.2	12.2	0.5	6.6	0.2	11.9	0.3	10.8	0.3
Nicotine Yield (mg/cig)												
#1	0.66	0.02	0.67	0.03	0.94	0.01	0.16	0.01	0.80	0.01	1.25	0.02
#2	1.81	0.04	1.57	0.02	2.00	0.04	0.69	0.02	1.59	0.01	2.35	0.02
#3	2.21	0.05	1.91	0.04	2.38	0.03	1.23	0.06	2.00	0.08	2.62	0.02
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	7.5	0.2	8.6	0.0	12.3	0.1	1.4	0.1	9.4	0.1	13.7	0.2
#2	22.5	0.1	22.5	0.3	28.7	0.3	7.7	0.2	21.1	0.4	26.6	0.4
#3	29.6	0.4	29.3	0.4	35.1	0.4	16.7	0.4	27.4	0.5	30.0	0.5
Carbon Monoxide (CO) Yield (mg/cig)												
#1	7.5	0.4	10.3	0.0	11.7	0.1	2.4	0.0	12.0	0.1	13.7	0.4
#2	21.2	0.3	24.5	0.2	26.0	0.5	11.7	0.3	23.9	0.4	23.0	0.1
#3	30.2	0.6	31.6	0.6	32.7	0.1	23.2	0.3	30.8	0.7	26.3	0.5
Puff Count (puffs/cigarette)												
#1	10.6	0.1	9.0	0.1	9.3	0.1	6.8	0.1	8.4	0.1	8.9	0.1
#2	17.1	0.2	13.2	0.2	13.9	0.0	9.9	0.2	12.8	0.4	14.0	0.2
#3	14.7	0.2	11.0	0.1	12.2	0.2	6.9	0.1	11.2	0.2	13.0	0.0

Table 35. Phase 2 Results: Laboratory R15

Regime	Cig. A		Cig. B		Cig. C		Cig. D		Cig. E		Cig. F		Cig. G	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)														
#1	13.3	0.1	10.7	0.4	4.5	0.2	6.1	0.1	8.6	0.1	18.1	0.1	20.2	0.0
#2	30.1	1.8	28.9	0.3	15.1	0.1	19.0	0.3	24.6	0.4	40.7	0.7	42.5	0.3
#3	34.7	1.8	41.2	0.4	26.4	1.1	30.2	1.2	34.6	1.4	48.6	2.0	49.1	0.8
Water Yield (mg/cig)														
#1	2.0	0.1	1.0	0.1	0.5	0.1	0.7	0.0	1.0	0.0	3.2	0.1	3.5	0.0
#2	7.3	0.5	5.2	0.2	2.5	0.2	4.0	0.1	5.6	0.1	11.2	0.2	11.6	0.3
#3	9.7	1.2	11.4	0.5	7.9	0.5	9.9	0.3	11.3	0.4	15.5	0.8	15.3	0.4
Nicotine Yield (mg/cig)														
#1	0.94	0.01	0.82	0.03	0.33	0.01	0.43	0.00	0.58	0.01	1.22	0.01	1.26	0.00
#2	1.93	0.10	1.78	0.03	0.92	0.01	1.07	0.03	1.36	0.01	2.43	0.08	2.28	0.03
#3	2.05	0.16	2.12	0.04	1.27	0.03	1.38	0.05	1.58	0.07	2.69	0.13	2.44	0.01
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)														
#1	10.4	0.1	8.9	0.3	3.7	0.1	5.0	0.1	7.0	0.1	13.8	0.1	15.5	0.1
#2	20.9	1.3	21.9	0.4	11.7	0.2	13.9	0.3	17.6	0.3	27.0	0.5	28.7	0.0
#3	22.9	0.5	27.7	0.3	17.3	0.6	18.8	0.9	21.7	1.0	30.5	1.1	31.4	0.6
Carbon Monoxide (CO) Yield (mg/cig)														
#1	12.4	0.1	7.3	0.1	4.8	0.1	7.5	0.1	9.0	0.1	14.5	0.3	16.9	0.1
#2	23.3	1.3	18.6	0.1	14.8	0.2	19.8	0.5	21.2	0.6	25.7	0.1	27.9	0.5
#3	25.9	0.7	27.2	0.9	24.9	0.6	29.3	0.8	28.3	0.9	29.4	1.3	32.4	0.8
Puff Count (puffs/cigarette)														
#1	7.2	0.1	8.6	0.0	7.0	0.1	7.4	0.2	7.1	0.0	7.3	0.1	8.5	0.1
#2	10.9	0.4	13.1	0.2	10.8	0.2	10.8	0.2	10.6	0.2	10.9	0.4	12.8	0.2
#3	10.1	0.1	11.0	0.3	8.4	0.2	8.7	0.2	8.8	0.3	10.0	0.4	11.4	0.3

Regime	Cig. H		Cig. I		Cig. J		Philip Morris One KS		Kentucky Ref. 1R4F		CORESTA Monitor CM4	
	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.	Avg.	Std. Dev.
Total Particulate Matter (TPM) Yield (mg/cig)												
#1	9.6	0.3	5.3	0.1	3.1	0.1	1.7	0.0	11.1	0.2	17.3	0.1
#2	26.5	0.5	18.3	0.6	12.5	0.7	8.7	0.1	27.9	1.3	36.5	0.5
#3	37.5	0.8	32.4	1.0	23.3	0.6	23.3	0.4	38.7	1.4	42.3	1.9
Water Yield (mg/cig)												
#1	0.9	0.1	0.4	0.1	0.2	0.1	0.1	0.0	1.4	0.2	2.4	0.1
#2	4.7	0.3	2.6	0.2	1.7	0.2	1.1	0.1	6.1	0.6	8.4	0.1
#3	9.8	0.5	8.9	0.5	6.5	0.3	7.3	0.3	12.5	0.6	11.8	0.8
Nicotine Yield (mg/cig)												
#1	0.66	0.02	0.42	0.01	0.23	0.01	0.16	0.00	0.80	0.02	1.29	0.01
#2	1.44	0.01	1.14	0.04	0.71	0.03	0.64	0.01	1.59	0.06	2.40	0.00
#3	1.77	0.00	1.64	0.04	1.02	0.05	1.17	0.00	1.87	0.06	2.53	0.11
Nicotine Free Dry Particulate Matter (NFDPM) Yield (mg/cig)												
#1	8.1	0.3	4.5	0.1	2.6	0.1	1.4	0.0	9.0	0.1	13.6	0.1
#2	20.3	0.3	14.6	0.3	10.0	0.5	7.0	0.0	20.3	0.8	25.7	0.5
#3	25.9	0.4	21.9	0.5	15.8	0.3	14.8	0.2	24.3	0.8	28.0	1.0
Carbon Monoxide (CO) Yield (mg/cig)												
#1	7.5	0.3	4.2	0.1	4.2	0.2	2.0	0.0	12.1	0.2	13.2	0.1
#2	18.4	0.3	13.5	0.4	14.1	0.4	10.4	0.4	23.9	0.4	22.8	0.5
#3	26.2	0.4	23.0	0.4	23.5	2.3	22.3	0.7	31.6	1.0	25.4	0.1
Puff Count (puffs/cigarette)												
#1	8.1	0.1	8.0	0.0	8.1	0.1	7.0	0.1	8.3	0.1	9.0	0.1
#2	12.5	0.2	12.6	0.1	12.8	0.2	10.6	0.2	12.9	0.0	14.2	0.2
#3	10.7	0.4	10.2	0.3	9.8	0.2	7.1	0.1	10.7	0.5	13.2	0.4

Appendix 7. Phase 2 Study Statistical Analysis Results

Table 1. Dixon's Test for Extreme Outliers – Applied to Laboratory Means within a Smoking Machine Type

Smoking Machine	Analyte	Cigarette	Regime	Lab	Result Category	Lab Mean	Range (Others Labs)		Dixon Value	# Labs	Dixon Critical Value	
							Min	Max			p = 0.05	p = 0.01
RM20	TPM	CM4	1	R2	Low Straggler *	16.55	17.59	18.38	0.572	8	0.524	0.638
RM200	Nicotine	1R4F	1	R13	High Straggler	0.91	0.79	0.82	0.726	6	0.621	0.737
RM200	NFDPM	1R4F	1	R14	High Straggler	9.44	8.74	8.97	0.666	6	0.621	0.737
RM200	CO	1R4F	3	R10	Low Outlier	27.46	30.57	31.55	0.760	6	0.621	0.737
RM200	TPM	CM4	1	R13	High Straggler	17.70	17.01	17.27	0.626	6	0.621	0.737
RM200	Nicotine	CM4	3	R11	High Straggler	2.85	2.53	2.64	0.648	6	0.621	0.737
SM400	NFDPM	1R4F	1	L8	High Straggler	9.82	9.28	9.33	0.902	4	0.831	0.922
ASM500	TPM	PM One	1	L3	High Straggler	1.54	1.22	1.31	0.698	6	0.621	0.737
ASM500	NFDPM	PM One	1	L3	High Straggler	1.37	0.90	1.07	0.629	6	0.621	0.737
ASM500	Nicotine	CM4	1	L2	High Straggler	1.47	1.30	1.36	0.634	6	0.621	0.737

* Straggler for p<0.05, Outlier for p<0.01

Table 2. Comparison of Control Cigarette NFDPM Adjustment Based on Individual Smoking Regimes and Overall Model (All Regimes)

Data Set	Overall Model			Regime 1			Regime 2			Regime 3			P: Slopes Same*	P: Lines Improve**
	Intercept	Slope	R ²	Intercept	Slope	R ²	Intercept	Slope	R ²	Intercept	Slope	R ²		
L1	-0.0836	1.1025	0.9925	0.1918	1.0129	0.9985	0.5450	1.0451	0.9993	3.0939	1.0022	0.9891	0.86	0.19
L2	-0.3152	0.9687	0.9960	-0.3306	1.0097	0.9999	-0.7658	1.0087	0.9995	-2.9098	1.0555	0.9999	0.30	0.0234
L3	0.1479	1.0117	0.9969	0.0630	1.0454	0.9996	0.1254	1.0101	0.9928	-1.3230	1.0683	0.9973	0.83	0.89
L4	-0.0564	0.9452	0.9919	-0.1281	1.0238	0.9998	-1.0864	1.0114	0.9995	-3.0567	1.0438	0.9959	0.84	0.08
L5	0.2955	0.8814	0.9817	-0.2458	1.0753	0.9998	-1.2624	0.9430	1.0000	-2.9739	0.9971	0.9976	0.08	0.0089
L6	0.1486	0.8698	0.9762	-0.0730	1.0403	0.9985	-1.7139	0.9489	0.9991	-4.3683	1.0334	0.9951	0.38	0.0347
L7	0.1354	0.9966	0.9971	-0.2433	1.0775	0.9995	-0.4323	1.0176	1.0000	0.4430	0.9800	0.9896	0.58	0.60
L8	0.1528	1.0273	0.9897	0.0828	1.0207	0.9996	-0.3086	1.0457	0.9993	3.2294	0.9075	0.9277	0.76	0.92
L9	-0.5822	1.1065	0.9951	-0.3591	1.0435	0.9998	-0.6892	1.0919	0.9998	3.0818	0.9781	0.9957	0.21	0.08
L10	-0.3007	1.0276	0.9990	-0.0106	0.9984	1.0000	-0.8861	1.0675	0.9988	-0.2624	1.0193	0.9999	0.30	0.41
L11	-0.6047	1.0687	0.9982	-0.3495	1.0191	0.9999	-1.0266	1.0919	0.9991	1.4449	0.9887	0.9974	0.23	0.33
R1	-0.0249	1.0052	0.9996	0.0465	0.9867	1.0000	0.1990	0.9958	0.9999	-0.2026	1.0136	0.9981	0.79	0.86
R2	-0.1386	1.0246	0.9961	-0.0355	0.9534	1.0000	0.3015	1.0369	1.0000	1.2364	0.9586	1.0000	0.0000	0.0000
R4	0.1880	0.9892	0.9991	0.1605	0.9947	0.9999	0.3906	0.9714	0.9974	-0.1590	1.0078	0.9999	0.77	0.90
R5	0.3183	1.0196	0.9956	0.0573	1.0265	0.9997	1.0541	1.0104	0.9944	-0.6701	1.0460	0.9947	0.93	0.63
R6	-0.0368	1.0491	0.9972	-0.0079	1.0086	0.9991	0.3876	1.0162	0.9986	2.1406	0.9752	0.9994	0.70	0.18
R7	-0.0922	0.9903	0.9846	-0.0978	0.9829	0.9999	0.0339	0.9157	0.9993	3.6230	0.8842	0.9977	0.24	0.0107
R8	0.3835	1.0060	0.9988	0.2789	0.9986	0.9992	0.4379	1.0030	0.9995	2.1325	0.9384	0.9986	0.36	0.37
R9	0.0443	1.0084	0.9989	-0.0846	0.9966	1.0000	0.8093	0.9716	1.0000	0.1516	1.0080	0.9967	0.68	0.47
R10	-0.1234	0.9776	0.9968	0.3033	0.9193	1.0000	0.3189	0.9623	0.9984	-2.4451	1.0712	0.9942	0.29	0.49
R11	0.1559	0.9868	0.9984	0.1491	0.9522	0.9997	0.9548	0.9430	0.9999	0.7489	0.9722	0.9982	0.69	0.16
R12	0.1156	0.9700	0.9984	0.1562	0.9391	0.9992	0.7204	0.9574	0.9993	-0.6614	0.9958	0.9994	0.46	0.21
R13	-0.0546	0.9566	0.9941	-0.1212	0.9788	0.9980	0.3126	0.9353	0.9823	-2.0221	1.0356	0.9999	0.76	0.93
R14	0.1115	1.0427	0.9974	0.3382	0.9563	0.9997	1.1087	1.0043	1.0000	0.5887	1.0286	1.0000	0.0357	0.0043
R15	0.2159	0.9680	0.9950	0.2594	0.9399	0.9998	0.4716	0.9950	1.0000	-0.8603	0.9911	0.9939	0.66	0.16

* Compares slopes only from Regime 1, 2 and 3. When $p < 0.05$, slopes are statistically significantly different.

** Tests whether a 3-line model (i.e., regime by regime) reduces the error sum of squares as compared to a single line based on all three regimes. When $p < 0.05$, then 3-line model significantly improves the fit.

Table 3. Comparison of Control Cigarette Nicotine Adjustment Based on Individual Smoking Regimes and Overall Model (All Regimes)

Data Set	Overall Model			Regime 1			Regime 2			Regime 3			P: Slopes Same*	P: Lines Improve**
	Intercept	Slope	R ²	Intercept	Slope	R ²	Intercept	Slope	R ²	Intercept	Slope	R ²		
L1	-0.0107	0.9362	0.9982	0.0209	0.8740	0.9993	0.0386	0.9074	0.9998	-0.0687	0.9720	0.9988	0.15	0.22
L2	-0.0023	1.0763	0.9975	-0.0011	1.1272	0.9999	-0.0344	1.0756	0.9998	-0.1259	1.1378	0.9995	0.16	0.0496
L3	0.0223	0.9858	0.9940	0.0204	1.0189	0.9994	-0.0016	1.0225	0.9924	-0.1044	1.0235	0.9996	1.00	0.50
L4	-0.0428	1.0027	0.9961	-0.0038	1.0025	0.9998	-0.0908	1.0365	0.9999	-0.2430	1.0859	0.9989	0.21	0.06
L5	-0.0101	0.8700	0.9852	-0.0287	1.0065	0.9995	-0.1124	0.9103	0.9981	-0.2207	0.9576	0.9995	0.26	0.0289
L6	-0.0089	0.9222	0.9823	-0.0041	1.0404	0.9999	-0.1109	0.9519	0.9960	-0.2903	1.0503	0.9954	0.46	0.11
L7	0.0019	0.9725	0.9941	-0.0196	1.0589	0.9998	-0.0440	1.0010	0.9991	-0.1255	1.0177	0.9924	0.80	0.38
L8	-0.0160	1.0644	0.9975	-0.0120	1.0605	0.9999	-0.0401	1.0705	0.9980	0.0341	1.0453	0.9914	0.96	0.98
L9	-0.0204	0.9995	0.9992	-0.0079	0.9738	1.0000	-0.0269	1.0145	0.9989	-0.0119	0.9901	0.9998	0.57	0.59
L10	0.0033	1.0913	0.9993	0.0190	1.0469	1.0000	0.0115	1.0911	0.9993	0.0528	1.0705	1.0000	0.42	0.29
L11	-0.0298	0.9904	0.9984	0.0036	0.9271	0.9993	-0.0356	1.0074	0.9989	-0.0197	0.9821	0.9989	0.37	0.45
R1	0.0148	1.0012	0.9996	0.0137	0.9949	1.0000	0.0108	0.9975	0.9999	0.0692	0.9808	0.9997	0.61	0.23
R2	0.0105	0.9910	0.9957	-0.0145	0.9590	0.9998	0.0761	0.9756	0.9992	0.1549	0.9187	0.9986	0.42	0.09
R4	0.0156	1.0183	0.9997	-0.0019	1.0323	0.9996	0.0258	1.0183	0.9999	0.0508	0.9979	0.9999	0.33	0.35
R5	0.0195	0.9840	0.9952	-0.0156	1.0188	1.0000	0.0452	0.9796	0.9918	0.0543	0.9602	0.9900	0.91	0.97
R6	0.0310	0.9728	0.9978	0.0002	0.9923	0.9993	0.0614	0.9509	0.9978	0.1211	0.9353	0.9964	0.76	0.76
R7	0.0165	0.9021	0.9969	-0.0131	0.9420	1.0000	-0.0017	0.8989	0.9967	0.1239	0.8574	0.9962	0.58	0.65
R8	-0.0326	1.0515	0.9940	-0.0177	1.0625	0.9962	-0.0937	1.0561	0.9891	-0.0071	1.0543	0.9995	1.00	0.76
R9	-0.0403	1.0727	0.9968	-0.0250	1.0092	1.0000	0.0157	1.0491	0.9985	-0.0074	1.0621	0.9933	0.85	0.68
R10	0.0195	1.0069	0.9978	0.0165	0.9796	0.9999	0.0579	1.0118	1.0000	0.0284	0.9906	0.9987	0.61	0.10
R11	-0.0558	1.0976	0.9967	-0.0133	1.0023	0.9995	0.0015	1.0523	0.9999	-0.0440	1.1132	0.9979	0.23	0.14
R12	0.0097	0.9974	0.9977	0.0026	0.9643	0.9996	0.0607	0.9719	0.9974	0.0960	0.9626	0.9999	0.98	0.40
R13	0.0761	1.0092	0.9910	0.0364	1.0092	0.9970	0.1366	0.9510	0.9974	0.2927	0.9306	0.9883	0.80	0.39
R14	0.0178	0.9997	0.9967	0.0280	0.9354	1.0000	0.0691	0.9701	0.9977	0.1178	0.9640	0.9991	0.82	0.25
R15	0.0113	0.9846	0.9957	0.0170	0.9614	0.9994	-0.0187	1.0282	0.9972	0.0724	0.9396	0.9941	0.54	0.58

* Compares slopes only from Regime 1, 2 and 3. When $p < 0.05$, slopes are statistically significantly different.

** Tests whether a 3-line model (i.e., regime by regime) reduces the error sum of squares as compared to a single line based on all three regimes. When $p < 0.05$, then 3-line model significantly improves the fit.

Table 4. Comparison of Control Cigarette CO Adjustment Based on Individual Smoking Regimes and Overall Model (All Regimes)

Data Set	Overall Model			Regime 1			Regime 2			Regime 3			P: Slopes Same*	P: Lines Improve**
	Intercept	Slope	R ²	Intercept	Slope	R ²	Intercept	Slope	R ²	Intercept	Slope	R ²		
L1	0.3445	0.9990	0.9960	0.4772	0.9826	0.9998	1.6714	0.9102	0.9970	-1.0654	1.0672	0.9802	0.47	0.48
L2	0.1924	0.9413	0.9830	-0.3921	0.9836	1.0000	-0.6644	1.0534	0.9989	-2.3537	1.0028	0.9906	0.54	0.0226
L3	0.6053	0.8636	0.9951	-0.3271	0.9828	1.0000	1.2215	0.8395	0.9982	-2.5349	0.9756	0.9958	0.09	0.08
L4	-0.0093	0.9049	0.9951	-0.2342	0.9589	1.0000	-0.6078	0.9340	0.9998	-3.9802	1.0545	0.9705	0.66	0.55
L5	-0.0279	0.9047	0.9841	-0.4348	1.0377	1.0000	-2.9457	1.0299	0.9999	-3.7113	1.0442	0.9590	0.99	0.18
L6	0.1246	0.8223	0.9630	-0.1955	0.9665	0.9736	-4.0000	1.0204	0.9947	-7.5772	1.1084	0.9679	0.84	0.25
L7	-0.4158	1.0031	0.9955	-0.4543	1.0414	0.9984	-1.0323	1.0074	0.9909	-0.5294	1.0169	0.9891	0.95	0.59
L8	-0.4936	1.0214	0.9954	-0.0688	0.9895	0.9982	-0.0990	0.9867	0.9964	-6.2340	1.2526	0.9941	0.15	0.28
L9	-0.8326	1.0332	0.9925	-0.1221	0.9209	0.9992	0.0127	0.9722	0.9991	4.9007	0.8287	0.9695	0.49	0.15
L10	-0.4163	1.0270	0.9981	-0.2206	0.9944	0.9999	-1.0712	1.0642	1.0000	3.7069	0.8666	0.9939	0.05	0.10
L11	-0.7257	0.9844	0.9962	-0.0322	0.8745	0.9997	-0.0086	0.9435	0.9992	2.0968	0.8855	0.9919	0.43	0.10
R1	0.0243	0.9993	0.9963	0.1442	0.9917	0.9998	0.2700	0.9710	0.9846	0.3353	0.9958	0.9859	0.98	0.93
R2	0.0807	0.9806	0.9928	-0.2048	0.9612	0.9995	1.1371	0.9532	1.0000	5.6573	0.7560	0.9547	0.31	0.22
R4	0.4973	1.0863	0.9961	0.1091	1.0997	0.9990	3.1823	0.9461	1.0000	0.0900	1.1084	0.9844	0.23	0.27
R6	1.2315	0.9673	0.9877	0.1942	1.0514	0.9996	2.1156	0.9781	0.9998	-0.7875	1.0155	0.9812	0.65	0.07
R7	0.0521	0.9886	0.9927	-0.0200	1.0116	0.9985	0.7176	0.9130	0.9999	3.4581	0.8768	0.9762	0.41	0.15
R8	0.7460	1.0338	0.9921	-0.1150	1.1215	1.0000	0.7418	1.0653	0.9895	1.0958	1.0002	0.9517	0.83	0.65
R9	-0.3593	1.1412	0.9899	0.0765	1.0773	0.9999	1.7530	0.9884	0.9980	2.6842	1.0532	0.9546	0.78	0.24
R10	0.0428	0.9445	0.9955	0.4910	0.8977	0.9988	-0.5094	0.9712	0.9932	-0.9398	0.9847	0.9535	0.83	0.97
R11	-0.1324	1.0815	0.9958	0.4087	0.9832	0.9989	0.5530	1.0430	1.0000	5.2866	0.8811	0.9983	0.07	0.0204
R12	-0.1769	1.0455	0.9977	0.6502	0.9414	0.9934	-0.4732	1.0590	0.9993	-0.3359	1.0580	0.9979	0.33	0.46
R13	0.0459	1.1062	0.9910	-0.1558	1.1181	0.9842	-0.9691	1.1881	0.9974	1.7931	1.0216	0.9203	0.82	0.85
R14	0.2115	1.0476	0.9988	0.4229	0.9986	0.9999	0.7090	1.0291	0.9999	2.3572	0.9655	0.9963	0.41	0.14
R15	-0.6092	1.0729	0.9969	0.0033	1.0137	0.9987	-1.7043	1.1333	0.9996	-3.4127	1.1802	0.9777	0.43	0.67

* Compares slopes only from Regime 1, 2 and 3. When p < 0.05, slopes are statistically significantly different.

** Tests whether a 3-line model (i.e., regime by regime) reduces the error sum of squares as compared to a single line based on all three regimes. When p < 0.05, then 3-line model significantly improves the fit.

Table 5. NFDPM Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L1	Cig A	8.6	20.2	26.0	7.9	18.4	23.7	8.3	18.8	22.9
L1	Cig B	8.1	20.7	29.2	7.4	18.8	26.6	7.8	19.3	26.1
L1	Cig C	12.1	28.9	35.2	11.0	26.2	32.0	11.8	27.1	32.0
L1	Cig D	10.5	26.2	35.5	9.6	23.9	32.3	10.2	24.6	32.3
L1	Cig E	10.5	23.1	26.8	9.6	21.1	24.4	10.1	21.6	23.6
L1	Cig F	11.3	26.5	34.9	10.3	24.1	31.8	11.0	24.8	31.8
L1	Cig G	12.8	28.0	36.9	11.7	25.5	33.6	12.5	26.3	33.7
L1	Cig H	3.6	11.7	21.8	3.3	10.7	19.9	3.3	10.7	18.7
L1	Cig I	2.4	9.9	19.8	2.2	9.1	18.0	2.2	9.0	16.7
L1	Cig J	4.0	12.9	21.0	3.7	11.8	19.1	3.8	11.8	17.8
L2	Cig A	3.7	12.0	17.6	4.2	12.7	18.5	4.0	12.6	19.4
L2	Cig B	3.9	13.7	23.6	4.3	14.4	24.7	4.2	14.3	25.1
L2	Cig C	6.7	15.8	22.1	7.2	16.6	23.2	7.0	16.4	23.7
L2	Cig E	8.0	20.2	26.9	8.6	21.1	28.1	8.3	20.8	28.3
L2	Cig F	10.9	23.2	29.3	11.6	24.3	30.6	11.2	23.8	30.5
L2	Cig G	8.1	19.4	24.9	8.7	20.4	26.0	8.4	20.0	26.3
L2	Cig H	10.1	22.8	28.3	10.8	23.9	29.5	10.4	23.4	29.5
L2	Cig I	10.2	23.9	28.5	10.9	25.0	29.8	10.5	24.4	29.8
L3	Cig A	0.9	5.6	14.2	0.8	5.4	13.9	0.8	5.4	14.5
L3	Cig B	3.0	10.0	16.7	2.8	9.7	16.4	2.8	9.8	16.9
L3	Cig C	3.6	11.5	22.0	3.4	11.2	21.6	3.4	11.2	21.8
L3	Cig D	5.0	12.6	16.9	4.8	12.3	16.6	4.7	12.4	17.1
L3	Cig E	5.9	16.0	21.9	5.7	15.7	21.5	5.6	15.7	21.8
L3	Cig F	7.2	16.7	23.9	6.9	16.4	23.5	6.8	16.4	23.6
L3	Cig G	9.6	21.5	26.0	9.3	21.1	25.6	9.1	21.2	25.6
L3	Cig H	12.0	27.1	32.5	11.8	26.7	32.0	11.5	26.7	31.7
L3	Cig I	10.6	22.4	25.3	10.4	22.0	24.8	10.1	22.0	24.9
L3	Cig J	12.6	23.5	27.6	12.3	23.1	27.1	12.0	23.2	27.1
L4	Cig A	1.6	6.9	16.7	1.7	7.4	17.7	1.7	7.9	18.9
L4	Cig B	7.6	18.3	23.7	8.1	19.4	25.1	7.6	19.2	25.6
L4	Cig C	9.8	18.9	21.6	10.4	20.1	22.9	9.7	19.8	23.6
L4	Cig D	10.2	20.2	22.5	10.9	21.4	23.9	10.1	21.0	24.5
L4	Cig E	2.4	10.1	17.0	2.6	10.7	18.1	2.5	11.1	19.2
L4	Cig F	4.7	12.9	17.8	5.0	13.7	18.8	4.7	13.8	19.9
L4	Cig G	5.8	15.1	22.8	6.2	16.0	24.2	5.8	16.0	24.8
L4	Cig H	6.8	15.6	21.7	7.3	16.6	23.0	6.8	16.5	23.7
L4	Cig I	11.8	21.9	23.5	12.6	23.3	24.9	11.7	22.8	25.5
L4	Cig J	8.8	19.5	24.3	9.4	20.7	25.7	8.7	20.3	26.2
L5	Cig A	0.8	5.6	17.4	0.5	6.0	19.4	0.9	7.3	20.4
L5	Cig B	1.6	5.5	10.8	1.5	5.9	11.9	1.8	7.1	13.8
L5	Cig C	2.7	8.3	15.8	2.7	9.1	17.5	2.7	10.1	18.8
L5	Cig D	5.1	14.0	21.9	5.5	15.6	24.5	5.0	16.2	25.0
L5	Cig E	5.1	9.9	14.3	5.5	10.9	15.9	5.0	11.9	17.4
L5	Cig F	5.6	12.4	19.3	6.0	13.8	21.6	5.4	14.5	22.4
L5	Cig G	7.5	13.0	17.5	8.2	14.4	19.5	7.2	15.1	20.5
L5	Cig H	7.8	18.6	26.0	8.6	20.7	29.1	7.5	21.0	29.0
L5	Cig I	8.9	17.7	23.9	9.7	19.8	26.8	8.5	20.1	27.0
L5	Cig J	12.3	22.8	29.2	13.6	25.5	32.8	11.6	25.5	32.3

Table 5. NFDPM Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L6	Cig A	0.6	6.3	17.9	0.6	7.0	20.4	0.7	8.4	21.6
L6	Cig B	1.7	5.5	10.5	1.7	6.1	11.9	1.7	7.6	14.4
L6	Cig C	2.6	8.1	15.3	2.8	9.1	17.4	2.6	10.3	19.0
L6	Cig D	5.1	13.8	21.5	5.7	15.7	24.5	5.0	16.4	25.0
L6	Cig E	4.9	9.9	14.2	5.4	11.2	16.1	4.7	12.2	17.9
L6	Cig F	5.9	13.2	19.2	6.6	15.1	21.9	5.7	15.8	22.8
L6	Cig G	7.0	12.8	16.6	7.9	14.5	18.9	6.8	15.3	20.3
L6	Cig H	8.1	18.9	25.1	9.1	21.6	28.7	7.8	21.8	28.5
L6	Cig I	8.5	17.9	23.6	9.6	20.5	27.0	8.2	20.7	27.1
L6	Cig J	12.0	22.9	28.5	13.6	26.1	32.6	11.6	25.9	31.8
L7	Cig A	10.3	20.5	23.2	10.2	20.4	23.1	9.8	20.6	23.2
L7	Cig B	8.7	20.3	27.5	8.6	20.2	27.5	8.3	20.3	27.6
L7	Cig C	3.5	10.4	17.1	3.4	10.3	17.1	3.5	10.7	17.0
L7	Cig D	5.2	13.4	19.1	5.1	13.3	19.0	5.1	13.6	19.0
L7	Cig E	7.0	16.3	22.8	6.9	16.2	22.8	6.7	16.5	22.9
L7	Cig F	14.3	26.3	30.7	14.2	26.2	30.7	13.5	26.3	30.9
L7	Cig G	16.5	28.2	33.5	16.4	28.2	33.4	15.5	28.1	33.7
L7	Cig H	7.8	18.9	25.7	7.7	18.8	25.7	7.5	19.0	25.8
L7	Cig I	4.2	13.6	22.2	4.0	13.5	22.2	4.1	13.8	22.2
L7	Cig J	2.3	9.2	17.2	2.2	9.1	17.1	2.4	9.5	17.1
L8	Cig A	1.0	6.8	18.0	0.8	6.5	17.3	0.9	6.8	16.2
L8	Cig B	3.3	11.4	19.8	3.1	11.0	19.1	3.2	11.2	18.2
L8	Cig C	3.8	12.3	21.8	3.5	11.8	21.1	3.6	12.0	20.5
L8	Cig D	5.2	14.1	19.3	5.0	13.6	18.6	5.1	13.8	17.7
L8	Cig E	5.5	16.2	24.9	5.2	15.6	24.1	5.3	15.8	23.9
L8	Cig F	7.7	17.8	24.3	7.4	17.2	23.6	7.5	17.4	23.3
L8	Cig G	10.1	23.3	28.4	9.6	22.5	27.5	9.8	22.5	27.7
L8	Cig H	12.3	26.5	35.6	11.8	25.7	34.5	12.0	25.7	35.7
L8	Cig I	10.6	24.0	31.8	10.2	23.2	30.8	10.3	23.3	31.5
L8	Cig J	13.0	26.3	31.4	12.5	25.5	30.4	12.6	25.5	31.0
L9	Cig A	0.6	5.9	19.2	1.1	5.8	17.9	0.9	6.0	16.5
L9	Cig B	1.9	8.7	16.2	2.3	8.4	15.1	2.2	8.6	13.4
L9	Cig C	7.0	18.5	24.4	6.8	17.2	22.5	7.0	17.6	21.8
L9	Cig D	7.4	18.5	24.7	7.2	17.3	22.9	7.5	17.6	22.1
L9	Cig E	10.9	26.3	32.1	10.4	24.3	29.5	10.8	24.8	29.7
L9	Cig F	14.0	28.0	35.2	13.2	25.8	32.3	13.8	26.3	32.8
L9	Cig G	15.2	34.4	44.8	14.3	31.7	41.1	14.9	32.2	42.7
L9	Cig H	22.2	39.5	42.4	20.6	36.3	38.8	21.6	36.9	40.2
L9	Cig I	17.4	35.6	39.6	16.2	32.7	36.4	17.0	33.2	37.4
L9	Cig J	18.9	36.0	40.8	17.6	33.1	37.4	18.4	33.6	38.6
L10	Cig A	1.1	7.7	22.5	1.4	7.8	22.2	1.1	8.1	22.4
L10	Cig B	2.7	11.1	21.8	2.9	11.1	21.5	2.7	11.3	21.7
L10	Cig C	5.3	16.5	28.1	5.5	16.4	27.7	5.4	16.3	27.8
L10	Cig D	6.9	18.9	27.9	7.0	18.7	27.5	6.9	18.6	27.7
L10	Cig E	7.9	19.0	25.7	7.9	18.8	25.4	7.9	18.7	25.5
L10	Cig F	9.8	20.9	26.0	9.8	20.7	25.6	9.8	20.4	25.8
L10	Cig G	11.3	22.9	26.4	11.2	22.6	26.0	11.3	22.3	26.2
L10	Cig H	13.0	26.6	31.6	13.0	26.2	31.0	13.0	25.8	31.2
L10	Cig I	12.1	23.4	27.5	12.1	23.1	27.1	12.2	22.8	27.3
L10	Cig J	16.0	29.0	33.0	15.9	28.5	32.4	16.1	28.0	32.6

Table 5. NFDPM Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L11	Cig A	1.3	8.9	21.4	1.8	8.9	20.6	1.6	9.1	20.2
L11	Cig B	2.2	11.0	23.0	2.6	10.8	22.1	2.5	11.0	21.8
L11	Cig C	3.5	13.1	24.5	3.8	12.8	23.5	3.8	13.0	23.3
L11	Cig D	4.3	15.6	26.1	4.6	15.2	25.0	4.6	15.3	25.0
L11	Cig E	6.8	21.2	31.1	6.9	20.4	29.7	7.0	20.3	30.0
L11	Cig F	10.2	23.8	29.5	10.2	22.8	28.1	10.4	22.7	28.3
L11	Cig G	12.5	27.8	33.9	12.2	26.6	32.3	12.6	26.4	32.8
L11	Cig H	13.4	30.6	37.3	13.1	29.2	35.4	13.5	29.0	36.2
L11	Cig I	15.3	32.9	38.5	14.9	31.3	36.6	15.3	31.0	37.5
L11	Cig J	15.7	32.2	36.1	15.3	30.7	34.4	15.8	30.5	35.1
R1	Cig A	1.4	8.8	19.4	1.4	8.7	19.3	1.4	8.6	19.3
R1	Cig B	2.6	11.1	19.9	2.6	11.1	19.8	2.5	11.0	19.8
R1	Cig C	3.9	12.8	19.8	3.9	12.8	19.7	3.9	12.7	19.7
R1	Cig D	4.5	15.5	23.5	4.5	15.4	23.4	4.6	15.4	23.4
R1	Cig E	7.5	19.9	28.8	7.5	19.9	28.7	7.6	19.8	28.6
R1	Cig F	10.2	22.0	27.6	10.2	21.9	27.4	10.3	21.9	27.4
R1	Cig G	14.1	30.0	32.6	14.1	29.8	32.5	14.3	29.9	32.4
R1	Cig H	13.9	29.4	35.2	13.8	29.3	35.0	14.0	29.3	34.9
R1	Cig I	14.9	29.6	34.8	14.9	29.4	34.7	15.1	29.5	34.6
R1	Cig J	15.5	28.2	33.3	15.4	28.1	33.1	15.7	28.2	33.0
R2	Cig A	8.2	19.1	23.2	8.2	18.8	22.8	8.7	18.1	22.9
R2	Cig B	7.4	19.7	26.5	7.4	19.4	26.0	7.8	18.7	26.4
R2	Cig C	9.9	22.5	27.6	9.8	22.1	27.1	10.4	21.4	27.5
R2	Cig D	9.1	24.7	32.7	9.1	24.2	32.1	9.6	23.5	32.8
R2	Cig E	10.5	22.5	25.3	10.3	22.1	24.9	11.0	21.4	25.2
R2	Cig F	11.3	24.7	32.1	11.2	24.3	31.5	11.9	23.6	32.2
R2	Cig G	12.0	26.9	33.0	11.8	26.4	32.3	12.6	25.7	33.1
R2	Cig H	2.8	11.9	20.0	2.9	11.8	19.6	3.0	11.2	19.5
R2	Cig I	2.1	9.5	18.0	2.2	9.4	17.7	2.3	8.8	17.5
R2	Cig J	3.8	12.5	18.1	3.8	12.3	17.8	4.0	11.7	17.6
R4	Cig A	1.2	6.9	14.0	1.0	6.8	14.0	1.0	6.7	14.1
R4	Cig B	3.5	11.4	17.3	3.4	11.3	17.3	3.4	11.3	17.3
R4	Cig C	3.6	12.5	20.0	3.5	12.4	20.0	3.5	12.4	20.0
R4	Cig D	5.0	13.6	18.1	4.9	13.6	18.1	4.9	13.6	18.1
R4	Cig E	5.3	15.8	23.0	5.2	15.8	23.1	5.2	15.9	23.0
R4	Cig F	7.5	18.0	23.5	7.4	18.0	23.6	7.4	18.1	23.5
R4	Cig G	10.0	21.2	26.1	9.9	21.2	26.2	9.9	21.4	26.1
R4	Cig H	11.4	25.9	31.9	11.4	26.0	32.0	11.3	26.3	31.8
R4	Cig I	10.0	23.3	29.3	9.9	23.3	29.4	9.9	23.5	29.3
R4	Cig J	12.5	23.1	27.8	12.5	23.2	27.9	12.4	23.4	27.7
R5	Cig A	10.8	21.6	24.8	10.3	20.8	24.0	10.5	20.3	24.3
R5	Cig B	8.3	22.1	28.5	7.8	21.4	27.7	8.0	20.8	27.9
R5	Cig C	3.5	12.0	18.8	3.2	11.5	18.2	3.4	10.9	18.7
R5	Cig D	5.7	15.5	20.3	5.2	14.9	19.6	5.5	14.3	20.0
R5	Cig E	6.9	18.4	22.8	6.5	17.7	22.1	6.7	17.1	22.5
R5	Cig F	14.5	28.2	31.4	13.9	27.3	30.5	14.1	26.9	30.7
R5	Cig G	16.5	30.1	34.4	15.9	29.2	33.4	16.0	28.7	33.5
R5	Cig H	8.0	21.4	26.4	7.5	20.7	25.6	7.7	20.2	25.9
R5	Cig I	4.5	15.3	22.4	4.1	14.7	21.7	4.3	14.1	22.1
R5	Cig J	2.6	10.8	18.5	2.3	10.3	17.8	2.5	9.7	18.3

Table 5. NFDPM Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
R6	Cig A	4.7	13.3	19.8	4.5	12.7	18.9	4.7	12.7	18.1
R6	Cig B	4.3	16.2	27.6	4.1	15.5	26.3	4.2	15.6	26.1
R6	Cig C	7.1	18.5	24.5	6.8	17.7	23.4	7.0	17.9	22.9
R6	Cig D	7.0	18.8	25.3	6.7	18.0	24.1	7.0	18.2	23.7
R6	Cig E	8.2	22.4	31.8	7.8	21.4	30.3	8.1	21.7	30.4
R6	Cig F	11.1	25.6	34.1	10.6	24.4	32.5	11.0	24.8	32.7
R6	Cig G	8.2	21.5	28.7	7.9	20.5	27.4	8.2	20.8	27.3
R6	Cig H	10.9	26.3	32.5	10.5	25.1	31.0	10.9	25.5	31.1
R6	Cig I	11.1	26.4	33.0	10.6	25.2	31.5	11.0	25.5	31.7
R7	Cig A	1.0	7.1	23.2	1.1	7.2	23.5	1.1	7.7	22.1
R7	Cig B	2.2	10.0	21.9	2.3	10.2	22.2	2.3	10.9	20.7
R7	Cig C	4.5	15.3	27.7	4.7	15.5	28.1	4.7	16.6	27.2
R7	Cig D	6.3	18.0	26.6	6.5	18.3	27.0	6.5	19.7	26.0
R7	Cig E	7.6	17.4	25.9	7.7	17.7	26.3	7.8	19.0	25.2
R7	Cig F	9.5	17.3	26.1	9.7	17.5	26.5	9.8	18.8	25.4
R7	Cig G	11.2	20.3	27.2	11.4	20.6	27.5	11.5	22.1	26.6
R7	Cig H	12.3	23.0	31.8	12.5	23.3	32.2	12.6	25.1	31.9
R7	Cig I	11.6	20.0	29.0	11.8	20.3	29.4	11.9	21.8	28.7
R7	Cig J	15.2	25.3	34.0	15.4	25.6	34.4	15.6	27.5	34.3
R8	Cig A	0.9	6.6	18.1	0.5	6.2	17.6	0.6	6.2	17.0
R8	Cig B	2.5	9.0	17.9	2.2	8.6	17.4	2.3	8.6	16.8
R8	Cig C	7.9	18.9	26.3	7.5	18.4	25.8	7.7	18.4	25.8
R8	Cig D	7.6	17.9	23.4	7.2	17.5	22.9	7.3	17.5	22.6
R8	Cig E	12.2	26.9	32.4	11.7	26.4	31.8	11.9	26.4	32.2
R8	Cig F	14.0	27.6	32.9	13.5	27.1	32.4	13.7	27.1	32.8
R8	Cig G	16.2	34.7	43.5	15.7	34.1	42.9	16.0	34.2	44.1
R8	Cig H	20.0	35.4	38.3	19.5	34.8	37.7	19.8	34.8	38.5
R8	Cig I	16.3	33.3	37.0	15.8	32.7	36.4	16.0	32.8	37.2
R8	Cig J	18.7	34.9	38.6	18.2	34.3	38.0	18.4	34.3	38.8
R9	Cig A	8.6	18.2	21.9	8.5	18.0	21.7	8.7	17.9	21.6
R9	Cig B	8.0	19.6	23.3	7.9	19.4	23.1	8.1	19.3	23.0
R9	Cig C	10.1	22.5	24.6	9.9	22.3	24.3	10.2	22.3	24.3
R9	Cig D	10.8	25.6	31.5	10.7	25.4	31.2	10.9	25.6	31.1
R9	Cig E	10.1	20.8	23.9	9.9	20.5	23.6	10.2	20.5	23.5
R9	Cig F	11.9	24.3	29.4	11.7	24.0	29.1	12.0	24.1	29.0
R9	Cig G	12.5	27.1	30.8	12.4	26.9	30.5	12.7	27.1	30.4
R9	Cig H	3.3	11.5	19.2	3.2	11.4	19.0	3.4	11.0	18.9
R9	Cig I	2.2	9.8	16.4	2.2	9.6	16.2	2.3	9.2	16.1
R9	Cig J	4.0	12.6	18.4	4.0	12.5	18.2	4.1	12.2	18.1
R10	Cig A	0.9	6.9	18.5	1.1	7.2	19.1	0.7	6.8	19.6
R10	Cig B	1.7	7.0	13.2	1.9	7.3	13.6	1.5	6.9	14.6
R10	Cig C	2.8	11.0	18.2	3.0	11.4	18.8	2.7	11.1	19.3
R10	Cig D	5.0	17.1	25.7	5.2	17.6	26.5	5.1	17.4	26.3
R10	Cig E	5.3	13.5	17.6	5.5	14.0	18.1	5.4	13.7	18.7
R10	Cig F	5.8	16.4	22.9	6.1	16.9	23.5	6.0	16.7	23.7
R10	Cig G	6.8	15.9	20.8	7.1	16.4	21.4	7.1	16.2	21.7
R10	Cig H	7.1	19.6	26.5	7.4	20.2	27.2	7.4	20.1	27.0
R10	Cig I	8.4	21.2	27.3	8.7	21.8	28.0	8.8	21.7	27.7
R10	Cig J	11.7	26.5	32.9	12.1	27.2	33.8	12.4	27.2	33.0

Table 5. NFDPM Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
R11	Cig A	1.8	8.8	18.2	1.7	8.7	18.3	1.7	8.3	18.0
R11	Cig B	7.7	19.4	26.0	7.6	19.5	26.2	7.9	19.5	25.9
R11	Cig C	9.3	18.1	22.3	9.3	18.2	22.5	9.7	18.2	22.2
R11	Cig D	10.0	20.3	24.1	10.0	20.4	24.3	10.3	20.5	24.1
R11	Cig E	2.8	11.6	19.4	2.6	11.6	19.5	2.8	11.3	19.2
R11	Cig F	4.7	14.2	20.1	4.6	14.3	20.2	4.8	14.1	19.9
R11	Cig G	5.6	16.8	24.2	5.5	16.8	24.4	5.7	16.8	24.1
R11	Cig H	6.9	17.0	22.1	6.9	17.0	22.2	7.1	17.0	21.9
R11	Cig I	10.3	22.1	25.3	10.3	22.2	25.5	10.6	22.4	25.3
R11	Cig J	9.0	20.6	25.0	9.0	20.7	25.2	9.3	20.8	25.0
R12	Cig A	1.8	8.4	18.0	1.7	8.5	18.4	1.7	8.0	18.7
R12	Cig B	8.2	21.1	26.4	8.3	21.6	27.1	8.6	21.2	27.2
R12	Cig C	9.6	19.5	22.7	9.7	20.0	23.2	10.0	19.6	23.4
R12	Cig D	10.5	21.7	24.8	10.7	22.3	25.4	11.0	21.9	25.6
R12	Cig E	2.8	11.2	17.9	2.7	11.4	18.3	2.8	10.9	18.6
R12	Cig F	4.5	14.3	19.2	4.6	14.6	19.7	4.7	14.1	20.0
R12	Cig G	5.7	16.3	22.9	5.7	16.7	23.5	5.9	16.3	23.7
R12	Cig H	6.9	17.1	21.2	6.9	17.5	21.7	7.1	17.1	21.9
R12	Cig I	10.3	21.9	25.3	10.5	22.5	26.0	10.8	22.2	26.1
R12	Cig J	8.8	20.8	24.0	8.9	21.4	24.6	9.2	21.0	24.8
R13	Cig A	1.4	9.3	16.7	1.5	9.8	17.5	1.5	9.6	18.0
R13	Cig B	2.3	11.5	19.4	2.5	12.1	20.4	2.5	11.9	20.7
R13	Cig C	3.6	12.3	19.1	3.8	12.9	20.0	3.8	12.8	20.4
R13	Cig D	4.4	15.3	22.4	4.7	16.1	23.5	4.7	16.1	23.6
R13	Cig E	7.1	21.2	27.9	7.5	22.2	29.2	7.4	22.3	28.9
R13	Cig F	9.3	21.1	27.5	9.8	22.1	28.8	9.7	22.2	28.5
R13	Cig G	12.2	26.3	32.9	12.8	27.5	34.5	12.6	27.8	33.8
R13	Cig H	12.9	28.6	33.7	13.5	30.0	35.3	13.3	30.3	34.5
R13	Cig I	13.0	29.1	32.8	13.6	30.5	34.3	13.4	30.8	33.6
R13	Cig J	14.3	38.7	32.1	15.0	40.5	33.6	14.7	41.0	33.0
R14	Cig A	0.7	7.4	22.0	0.5	7.0	21.0	0.3	6.3	20.8
R14	Cig B	1.6	7.6	14.5	1.4	7.2	13.8	1.3	6.5	13.6
R14	Cig C	2.7	11.2	20.7	2.5	10.6	19.8	2.5	10.1	19.6
R14	Cig D	5.3	18.6	27.4	5.0	17.7	26.2	5.2	17.4	26.1
R14	Cig E	5.2	14.5	19.0	4.9	13.8	18.1	5.1	13.3	17.9
R14	Cig F	5.6	17.4	24.2	5.2	16.6	23.1	5.5	16.2	23.0
R14	Cig G	7.5	18.3	22.9	7.1	17.4	21.9	7.5	17.1	21.7
R14	Cig H	7.5	22.5	29.6	7.1	21.4	28.3	7.5	21.3	28.2
R14	Cig I	8.6	22.5	29.3	8.2	21.4	28.0	8.7	21.3	27.9
R14	Cig J	12.3	28.7	35.1	11.7	27.4	33.5	12.5	27.5	33.5
R15	Cig A	10.4	20.9	22.9	10.5	21.4	23.5	10.8	20.5	24.0
R15	Cig B	8.9	21.9	27.7	9.0	22.4	28.4	9.2	21.6	28.8
R15	Cig C	3.7	11.7	17.3	3.6	11.8	17.6	3.7	11.3	18.3
R15	Cig D	5.0	13.9	18.8	4.9	14.2	19.2	5.0	13.5	19.9
R15	Cig E	7.0	17.6	21.7	7.0	17.9	22.2	7.2	17.2	22.7
R15	Cig F	13.8	27.0	30.5	14.0	27.7	31.3	14.4	26.7	31.6
R15	Cig G	15.5	28.7	31.4	15.8	29.4	32.2	16.2	28.3	32.5
R15	Cig H	8.1	20.3	25.9	8.1	20.8	26.6	8.3	20.0	27.0
R15	Cig I	4.5	14.6	21.9	4.4	14.8	22.4	4.5	14.2	23.0
R15	Cig J	2.6	10.0	15.8	2.5	10.1	16.1	2.5	9.6	16.8

Table 6. Nicotine Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L1	Cig A	0.501	0.965	1.063	0.547	1.043	1.147	0.549	1.021	1.164
L1	Cig B	0.500	1.033	1.162	0.545	1.115	1.253	0.548	1.096	1.266
L1	Cig C	0.524	1.017	1.097	0.571	1.098	1.183	0.575	1.078	1.199
L1	Cig D	0.719	1.573	1.870	0.779	1.692	2.009	0.799	1.691	1.994
L1	Cig E	0.493	1.054	1.154	0.538	1.138	1.244	0.540	1.119	1.258
L1	Cig F	0.676	1.444	1.697	0.733	1.554	1.824	0.749	1.549	1.816
L1	Cig G	0.846	1.674	2.009	0.915	1.800	2.158	0.944	1.802	2.138
L1	Cig H	0.150	0.396	0.529	0.172	0.435	0.577	0.148	0.394	0.615
L1	Cig I	0.190	0.604	0.776	0.214	0.657	0.840	0.193	0.623	0.869
L1	Cig J	0.246	0.605	0.697	0.274	0.658	0.756	0.257	0.624	0.788
L2	Cig A	0.471	1.116	1.550	0.440	1.039	1.442	0.419	1.070	1.473
L2	Cig B	0.508	1.328	2.086	0.474	1.236	1.940	0.452	1.267	1.944
L2	Cig C	0.765	1.671	2.225	0.713	1.555	2.069	0.680	1.586	2.066
L2	Cig E	0.938	1.993	2.543	0.874	1.854	2.365	0.833	1.885	2.346
L2	Cig F	1.308	2.553	3.201	1.217	2.374	2.976	1.161	2.406	2.924
L2	Cig G	0.849	1.765	2.188	0.791	1.642	2.035	0.754	1.673	2.034
L2	Cig H	1.053	2.142	2.541	0.980	1.992	2.363	0.935	2.023	2.344
L2	Cig I	0.967	1.949	2.277	0.901	1.813	2.118	0.859	1.844	2.112
L3	Cig A	0.098	0.501	0.922	0.077	0.486	0.913	0.076	0.492	1.003
L3	Cig B	0.311	0.836	1.105	0.293	0.825	1.098	0.285	0.819	1.182
L3	Cig C	0.317	0.929	1.387	0.299	0.920	1.384	0.291	0.910	1.457
L3	Cig D	0.476	1.079	1.243	0.460	1.072	1.238	0.447	1.057	1.317
L3	Cig E	0.532	1.290	1.625	0.517	1.286	1.626	0.502	1.263	1.690
L3	Cig F	0.525	1.190	1.535	0.510	1.185	1.535	0.495	1.165	1.602
L3	Cig G	0.810	1.740	1.916	0.799	1.743	1.921	0.775	1.703	1.974
L3	Cig H	1.108	2.116	2.415	1.101	2.124	2.427	1.067	2.071	2.462
L3	Cig I	1.231	2.504	2.579	1.226	2.518	2.594	1.188	2.450	2.622
L3	Cig J	0.998	1.876	2.140	0.990	1.880	2.148	0.960	1.836	2.193
L4	Cig A	0.196	0.748	1.379	0.238	0.789	1.418	0.199	0.809	1.494
L4	Cig B	0.718	1.637	1.991	0.759	1.675	2.028	0.720	1.667	2.057
L4	Cig C	0.877	1.684	1.834	0.917	1.722	1.872	0.879	1.712	1.913
L4	Cig D	0.755	1.519	1.590	0.796	1.558	1.628	0.757	1.553	1.688
L4	Cig E	0.255	0.879	1.255	0.297	0.919	1.294	0.258	0.936	1.379
L4	Cig F	0.437	1.163	1.351	0.479	1.203	1.390	0.440	1.210	1.468
L4	Cig G	0.536	1.326	1.775	0.577	1.365	1.813	0.539	1.367	1.858
L4	Cig H	0.563	1.199	1.505	0.604	1.238	1.544	0.565	1.244	1.610
L4	Cig I	0.894	1.784	1.814	0.934	1.822	1.852	0.896	1.809	1.894
L4	Cig J	0.758	1.619	1.899	0.799	1.657	1.937	0.760	1.650	1.973
L5	Cig A	0.098	0.533	1.278	0.124	0.624	1.481	0.126	0.709	1.566
L5	Cig B	0.144	0.411	0.668	0.177	0.484	0.779	0.171	0.575	0.928
L5	Cig C	0.249	0.669	1.081	0.298	0.780	1.254	0.276	0.858	1.359
L5	Cig D	0.510	1.208	1.691	0.598	1.400	1.955	0.535	1.450	1.996
L5	Cig E	0.291	0.524	0.666	0.346	0.613	0.777	0.318	0.699	0.926
L5	Cig F	0.431	0.895	1.244	0.507	1.040	1.442	0.457	1.106	1.530
L5	Cig G	0.554	0.942	1.175	0.648	1.094	1.362	0.579	1.158	1.458
L5	Cig H	0.632	1.437	1.892	0.738	1.664	2.186	0.656	1.702	2.206
L5	Cig I	0.631	1.207	1.533	0.737	1.399	1.774	0.655	1.450	1.831
L5	Cig J	0.868	1.594	1.938	1.009	1.844	2.239	0.890	1.875	2.254

Table 6. Nicotine Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L6	Cig A	0.110	0.652	1.400	0.129	0.717	1.528	0.110	0.801	1.609
L6	Cig B	0.170	0.464	0.696	0.194	0.513	0.764	0.167	0.604	0.939
L6	Cig C	0.281	0.726	1.118	0.314	0.797	1.222	0.274	0.879	1.341
L6	Cig D	0.552	1.313	1.792	0.608	1.433	1.953	0.534	1.496	1.983
L6	Cig E	0.313	0.575	0.754	0.349	0.633	0.827	0.305	0.721	0.994
L6	Cig F	0.487	1.009	1.302	0.538	1.104	1.422	0.472	1.176	1.516
L6	Cig G	0.581	0.998	1.162	0.640	1.092	1.270	0.562	1.165	1.383
L6	Cig H	0.695	1.540	1.908	0.763	1.680	2.079	0.672	1.734	2.093
L6	Cig I	0.638	1.305	1.583	0.701	1.425	1.726	0.617	1.487	1.784
L6	Cig J	0.933	1.700	2.032	1.021	1.853	2.213	0.901	1.902	2.211
L7	Cig A	0.882	1.761	1.915	0.905	1.808	1.968	0.852	1.803	2.005
L7	Cig B	0.751	1.539	1.925	0.770	1.581	1.977	0.727	1.582	2.015
L7	Cig C	0.317	0.828	1.153	0.324	0.850	1.183	0.318	0.871	1.256
L7	Cig D	0.423	1.003	1.234	0.433	1.030	1.267	0.418	1.046	1.336
L7	Cig E	0.560	1.259	1.526	0.573	1.292	1.567	0.547	1.301	1.623
L7	Cig F	1.178	2.246	2.553	1.209	2.308	2.624	1.131	2.288	2.632
L7	Cig G	1.291	2.154	2.485	1.325	2.213	2.553	1.237	2.196	2.565
L7	Cig H	0.606	1.307	1.663	0.621	1.342	1.708	0.590	1.350	1.757
L7	Cig I	0.384	1.066	1.516	0.393	1.095	1.556	0.381	1.109	1.613
L7	Cig J	0.204	0.682	1.008	0.208	0.699	1.035	0.211	0.725	1.114
L8	Cig A	0.149	0.717	1.365	0.155	0.689	1.297	0.152	0.707	1.273
L8	Cig B	0.328	0.926	1.272	0.323	0.885	1.210	0.321	0.902	1.184
L8	Cig C	0.335	1.011	1.404	0.330	0.965	1.334	0.327	0.982	1.311
L8	Cig D	0.507	1.204	1.390	0.491	1.146	1.321	0.489	1.162	1.297
L8	Cig E	0.456	1.260	1.680	0.443	1.199	1.593	0.441	1.214	1.575
L8	Cig F	0.601	1.342	1.613	0.580	1.276	1.530	0.578	1.291	1.510
L8	Cig G	0.888	1.898	2.125	0.849	1.798	2.011	0.849	1.810	2.000
L8	Cig H	1.131	2.251	2.620	1.078	2.130	2.476	1.078	2.140	2.474
L8	Cig I	1.275	2.715	3.352	1.213	2.566	3.164	1.214	2.574	3.174
L8	Cig J	1.078	2.199	2.506	1.028	2.081	2.369	1.028	2.092	2.365
L9	Cig A	0.094	0.549	1.266	0.114	0.569	1.287	0.104	0.567	1.290
L9	Cig B	0.243	0.894	1.337	0.264	0.915	1.358	0.258	0.908	1.362
L9	Cig C	0.556	1.329	1.578	0.576	1.350	1.599	0.579	1.336	1.605
L9	Cig D	0.621	1.430	1.698	0.642	1.451	1.719	0.646	1.436	1.727
L9	Cig E	0.771	1.828	2.066	0.792	1.849	2.087	0.800	1.828	2.098
L9	Cig F	0.941	1.788	2.127	0.962	1.809	2.149	0.975	1.789	2.160
L9	Cig G	0.771	1.703	2.130	0.792	1.724	2.151	0.800	1.705	2.163
L9	Cig H	1.627	2.857	3.041	1.649	2.879	3.063	1.679	2.842	3.084
L9	Cig I	1.125	2.312	2.535	1.146	2.333	2.556	1.164	2.305	2.572
L9	Cig J	1.646	3.061	3.376	1.667	3.083	3.398	1.699	3.044	3.422
L10	Cig A	0.194	0.997	2.278	0.175	0.910	2.085	0.167	0.903	2.079
L10	Cig B	0.350	1.222	2.027	0.318	1.117	1.854	0.316	1.109	1.844
L10	Cig C	0.680	1.772	2.800	0.620	1.621	2.563	0.631	1.613	2.566
L10	Cig D	0.845	2.060	2.840	0.771	1.885	2.600	0.789	1.877	2.604
L10	Cig E	0.940	2.093	2.712	0.858	1.915	2.482	0.880	1.908	2.484
L10	Cig F	1.056	2.048	2.357	0.965	1.874	2.157	0.991	1.867	2.152
L10	Cig G	1.203	2.348	2.700	1.099	2.149	2.471	1.131	2.142	2.473
L10	Cig H	1.381	2.698	3.102	1.263	2.470	2.839	1.301	2.462	2.848
L10	Cig I	1.166	2.355	2.585	1.065	2.155	2.366	1.096	2.148	2.366
L10	Cig J	1.548	2.845	3.218	1.416	2.604	2.946	1.460	2.597	2.957

Table 6. Nicotine Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L11	Cig A	0.151	0.800	1.366	0.182	0.838	1.410	0.159	0.829	1.411
L11	Cig B	0.253	1.004	1.535	0.286	1.044	1.580	0.269	1.032	1.583
L11	Cig C	0.296	0.864	1.202	0.329	0.902	1.243	0.316	0.893	1.243
L11	Cig D	0.381	1.191	1.683	0.415	1.232	1.729	0.407	1.217	1.734
L11	Cig E	0.596	1.627	2.063	0.632	1.673	2.113	0.639	1.650	2.120
L11	Cig F	0.758	1.645	1.857	0.796	1.691	1.905	0.814	1.669	1.911
L11	Cig G	0.926	1.967	2.269	0.965	2.017	2.321	0.995	1.988	2.331
L11	Cig H	0.950	2.015	2.312	0.990	2.065	2.365	1.021	2.035	2.374
L11	Cig I	1.083	2.229	2.487	1.123	2.281	2.541	1.164	2.248	2.552
L11	Cig J	1.026	2.054	2.298	1.066	2.105	2.350	1.102	2.075	2.359
R1	Cig A	0.157	0.820	1.447	0.142	0.804	1.430	0.144	0.811	1.404
R1	Cig B	0.307	1.077	1.600	0.292	1.061	1.583	0.294	1.069	1.561
R1	Cig C	0.333	0.903	1.203	0.318	0.887	1.187	0.321	0.895	1.156
R1	Cig D	0.423	1.240	1.727	0.408	1.224	1.710	0.412	1.232	1.690
R1	Cig E	0.693	1.640	2.213	0.678	1.623	2.196	0.683	1.633	2.186
R1	Cig F	0.830	1.653	1.930	0.814	1.637	1.913	0.820	1.647	1.897
R1	Cig G	1.120	2.307	2.387	1.104	2.289	2.369	1.112	2.302	2.363
R1	Cig H	1.100	2.157	2.443	1.084	2.139	2.426	1.092	2.151	2.421
R1	Cig I	1.207	2.323	2.643	1.190	2.306	2.625	1.199	2.318	2.625
R1	Cig J	1.160	2.140	2.417	1.144	2.123	2.399	1.152	2.135	2.393
R2	Cig A	0.607	1.137	1.170	0.602	1.136	1.170	0.648	1.087	1.105
R2	Cig B	0.603	1.203	1.383	0.598	1.204	1.385	0.644	1.155	1.337
R2	Cig C	0.600	1.140	1.237	0.595	1.140	1.237	0.641	1.091	1.177
R2	Cig D	0.793	1.777	2.060	0.790	1.782	2.068	0.842	1.743	2.074
R2	Cig E	0.713	1.450	1.480	0.709	1.453	1.483	0.759	1.408	1.442
R2	Cig F	0.807	1.540	1.797	0.803	1.543	1.802	0.856	1.500	1.787
R2	Cig G	0.903	1.860	2.090	0.901	1.866	2.098	0.957	1.828	2.106
R2	Cig H	0.177	0.503	0.617	0.168	0.497	0.612	0.199	0.438	0.503
R2	Cig I	0.207	0.683	0.920	0.198	0.679	0.918	0.231	0.622	0.833
R2	Cig J	0.277	0.703	0.847	0.269	0.699	0.844	0.304	0.643	0.753
R4	Cig A	0.117	0.610	1.000	0.100	0.584	0.967	0.115	0.574	0.951
R4	Cig B	0.325	0.911	1.235	0.304	0.880	1.197	0.317	0.870	1.186
R4	Cig C	0.319	0.975	1.374	0.298	0.943	1.334	0.311	0.932	1.326
R4	Cig D	0.493	1.180	1.451	0.468	1.144	1.410	0.479	1.134	1.403
R4	Cig E	0.499	1.239	1.581	0.474	1.202	1.537	0.485	1.192	1.533
R4	Cig F	0.570	1.291	1.537	0.544	1.253	1.494	0.554	1.242	1.489
R4	Cig G	0.915	1.873	2.137	0.883	1.824	2.083	0.888	1.814	2.090
R4	Cig H	1.051	2.196	2.484	1.017	2.141	2.424	1.020	2.131	2.439
R4	Cig I	1.231	2.637	3.174	1.194	2.574	3.102	1.194	2.564	3.130
R4	Cig J	1.102	2.052	2.381	1.067	2.000	2.323	1.070	1.990	2.335
R5	Cig A	0.926	1.817	2.032	0.921	1.826	2.045	0.924	1.808	2.059
R5	Cig B	0.744	1.644	1.994	0.736	1.651	2.006	0.745	1.632	2.020
R5	Cig C	0.301	0.886	1.248	0.286	0.881	1.248	0.310	0.859	1.243
R5	Cig D	0.452	1.089	1.350	0.440	1.087	1.352	0.459	1.066	1.349
R5	Cig E	0.563	1.287	1.528	0.553	1.288	1.533	0.568	1.268	1.535
R5	Cig F	1.253	2.381	2.719	1.253	2.400	2.743	1.245	2.384	2.775
R5	Cig G	1.300	2.255	2.584	1.301	2.271	2.606	1.291	2.256	2.634
R5	Cig H	0.624	1.436	1.723	0.614	1.440	1.731	0.628	1.420	1.738
R5	Cig I	0.391	1.125	1.524	0.378	1.124	1.529	0.399	1.103	1.531
R5	Cig J	0.205	0.697	1.034	0.189	0.689	1.031	0.217	0.665	1.021

Table 6. Nicotine Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
R6	Cig A	0.450	1.133	1.423	0.431	1.133	1.431	0.453	1.127	1.392
R6	Cig B	0.430	1.277	1.997	0.410	1.280	2.021	0.433	1.278	2.005
R6	Cig C	0.783	1.793	2.150	0.773	1.812	2.178	0.789	1.821	2.169
R6	Cig D	0.827	1.880	2.213	0.818	1.901	2.243	0.833	1.913	2.237
R6	Cig E	0.843	1.950	2.453	0.835	1.973	2.490	0.850	1.986	2.493
R6	Cig F	1.220	2.510	3.053	1.222	2.548	3.107	1.229	2.575	3.135
R6	Cig G	0.800	1.727	2.127	0.791	1.743	2.154	0.806	1.751	2.144
R6	Cig H	0.993	2.077	2.403	0.989	2.103	2.439	1.001	2.119	2.440
R6	Cig I	0.867	1.770	2.163	0.859	1.788	2.192	0.873	1.797	2.183
R7	Cig A	0.126	0.803	1.912	0.121	0.872	2.101	0.147	0.895	2.086
R7	Cig B	0.271	1.029	1.721	0.282	1.123	1.889	0.302	1.147	1.862
R7	Cig C	0.527	1.570	2.049	0.566	1.722	2.253	0.573	1.748	2.245
R7	Cig D	0.736	1.803	2.394	0.798	1.980	2.636	0.795	2.007	2.648
R7	Cig E	0.867	1.814	2.296	0.943	1.993	2.527	0.935	2.020	2.534
R7	Cig F	0.943	1.621	1.943	1.027	1.778	2.135	1.015	1.805	2.121
R7	Cig G	1.125	2.024	2.270	1.228	2.225	2.498	1.208	2.254	2.503
R7	Cig H	1.262	2.243	2.639	1.380	2.468	2.907	1.353	2.498	2.934
R7	Cig I	1.035	1.875	2.225	1.129	2.060	2.448	1.113	2.088	2.450
R7	Cig J	1.348	2.297	2.659	1.476	2.528	2.930	1.445	2.557	2.957
R8	Cig A	0.103	0.590	1.313	0.129	0.592	1.280	0.114	0.647	1.252
R8	Cig B	0.303	0.860	1.477	0.319	0.849	1.435	0.302	0.903	1.407
R8	Cig C	0.697	1.350	1.837	0.694	1.315	1.778	0.672	1.367	1.749
R8	Cig D	0.620	1.330	1.890	0.621	1.296	1.828	0.600	1.348	1.799
R8	Cig E	0.950	1.977	2.407	0.934	1.911	2.320	0.911	1.960	2.289
R8	Cig F	0.967	1.923	2.263	0.950	1.860	2.184	0.927	1.910	2.153
R8	Cig G	0.763	1.653	1.980	0.757	1.603	1.914	0.735	1.654	1.885
R8	Cig H	1.720	2.913	3.050	1.667	2.802	2.932	1.636	2.847	2.900
R8	Cig I	1.223	2.517	2.660	1.194	2.424	2.561	1.168	2.472	2.530
R8	Cig J	1.817	3.407	3.730	1.759	3.271	3.578	1.727	3.315	3.545
R9	Cig A	0.513	1.113	1.230	0.516	1.075	1.184	0.533	1.046	1.165
R9	Cig B	0.527	1.240	1.290	0.529	1.194	1.240	0.547	1.167	1.222
R9	Cig C	0.550	1.157	1.333	0.550	1.116	1.281	0.570	1.088	1.262
R9	Cig D	0.843	1.927	2.167	0.824	1.834	2.057	0.860	1.821	2.047
R9	Cig E	0.653	1.307	1.397	0.647	1.256	1.340	0.672	1.230	1.322
R9	Cig F	0.830	1.693	2.037	0.811	1.616	1.936	0.847	1.599	1.925
R9	Cig G	0.947	1.927	2.260	0.920	1.834	2.144	0.963	1.821	2.135
R9	Cig H	0.170	0.433	0.587	0.196	0.442	0.584	0.193	0.398	0.559
R9	Cig I	0.190	0.680	0.870	0.215	0.672	0.849	0.213	0.633	0.826
R9	Cig J	0.277	0.670	0.803	0.296	0.662	0.786	0.299	0.624	0.763
R10	Cig A	0.143	0.797	1.617	0.123	0.772	1.586	0.130	0.730	1.603
R10	Cig B	0.167	0.630	0.930	0.146	0.606	0.904	0.153	0.565	0.910
R10	Cig C	0.293	1.040	1.460	0.272	1.014	1.431	0.283	0.971	1.445
R10	Cig D	0.580	1.607	2.213	0.557	1.576	2.179	0.575	1.531	2.206
R10	Cig E	0.353	0.867	0.980	0.332	0.841	0.954	0.344	0.799	0.961
R10	Cig F	0.513	1.410	1.687	0.490	1.381	1.656	0.507	1.336	1.674
R10	Cig G	0.583	1.370	1.557	0.560	1.341	1.527	0.579	1.297	1.543
R10	Cig H	0.673	1.733	2.113	0.649	1.702	2.080	0.671	1.656	2.105
R10	Cig I	0.680	1.667	1.883	0.656	1.636	1.851	0.677	1.590	1.873
R10	Cig J	0.963	2.120	2.400	0.937	2.086	2.364	0.967	2.038	2.394

Table 6. Nicotine Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
R11	Cig A	0.189	0.883	1.619	0.223	0.856	1.526	0.201	0.838	1.494
R11	Cig B	0.727	1.839	2.346	0.713	1.726	2.188	0.738	1.746	2.147
R11	Cig C	0.878	1.784	2.022	0.850	1.676	1.893	0.889	1.694	1.856
R11	Cig D	0.770	1.623	1.819	0.752	1.529	1.708	0.781	1.541	1.673
R11	Cig E	0.269	1.035	1.558	0.296	0.994	1.470	0.281	0.982	1.439
R11	Cig F	0.468	1.362	1.682	0.477	1.292	1.584	0.480	1.293	1.551
R11	Cig G	0.556	1.474	2.058	0.558	1.394	1.926	0.568	1.400	1.888
R11	Cig H	0.598	1.451	1.690	0.596	1.373	1.591	0.610	1.377	1.558
R11	Cig I	0.915	1.964	2.225	0.884	1.840	2.078	0.926	1.865	2.038
R11	Cig J	0.836	1.811	2.164	0.812	1.701	2.023	0.847	1.720	1.984
R12	Cig A	0.180	0.847	1.563	0.171	0.839	1.558	0.184	0.809	1.524
R12	Cig B	0.813	2.033	2.390	0.806	2.029	2.386	0.841	2.030	2.383
R12	Cig C	0.873	1.773	1.950	0.866	1.768	1.945	0.903	1.762	1.926
R12	Cig D	0.880	1.827	1.977	0.873	1.822	1.972	0.910	1.817	1.954
R12	Cig E	0.267	1.007	1.457	0.258	1.000	1.451	0.274	0.973	1.414
R12	Cig F	0.450	1.277	1.580	0.441	1.270	1.574	0.464	1.251	1.542
R12	Cig G	0.563	1.480	1.950	0.555	1.474	1.945	0.582	1.460	1.926
R12	Cig H	0.603	1.387	1.613	0.595	1.381	1.608	0.623	1.364	1.576
R12	Cig I	0.923	1.917	2.113	0.916	1.912	2.109	0.955	1.910	2.096
R12	Cig J	0.830	1.857	2.070	0.822	1.852	2.066	0.858	1.848	2.051
R13	Cig A	0.188	0.939	1.458	0.111	0.855	1.369	0.150	0.843	1.252
R13	Cig B	0.330	1.294	1.712	0.251	1.207	1.621	0.291	1.217	1.525
R13	Cig C	0.363	0.985	1.395	0.284	0.900	1.307	0.324	0.892	1.185
R13	Cig D	0.469	1.414	1.927	0.389	1.326	1.834	0.428	1.343	1.756
R13	Cig E	0.726	1.839	2.303	0.644	1.747	2.207	0.683	1.790	2.160
R13	Cig F	0.872	1.740	1.988	0.789	1.648	1.895	0.828	1.686	1.822
R13	Cig G	1.043	2.146	2.556	0.959	2.051	2.457	0.998	2.113	2.432
R13	Cig H	1.130	2.388	2.533	1.045	2.291	2.435	1.084	2.368	2.407
R13	Cig I	1.248	2.309	2.822	1.162	2.213	2.721	1.201	2.285	2.718
R13	Cig J	1.183	2.375	2.663	1.096	2.278	2.563	1.136	2.354	2.547
R14	Cig A	0.125	0.816	1.706	0.107	0.798	1.689	0.103	0.770	1.648
R14	Cig B	0.154	0.606	0.912	0.137	0.589	0.895	0.135	0.554	0.824
R14	Cig C	0.267	0.962	1.465	0.250	0.944	1.448	0.256	0.920	1.397
R14	Cig D	0.572	1.641	2.193	0.555	1.623	2.176	0.582	1.620	2.153
R14	Cig E	0.317	0.794	0.957	0.300	0.777	0.939	0.309	0.748	0.870
R14	Cig F	0.462	1.273	1.624	0.444	1.256	1.606	0.464	1.241	1.562
R14	Cig G	0.593	1.363	1.608	0.575	1.346	1.590	0.604	1.334	1.545
R14	Cig H	0.655	1.813	2.210	0.638	1.796	2.193	0.671	1.798	2.171
R14	Cig I	0.671	1.572	1.909	0.653	1.555	1.891	0.687	1.550	1.858
R14	Cig J	0.935	2.000	2.383	0.918	1.983	2.366	0.970	1.991	2.350
R15	Cig A	0.945	1.932	2.048	0.948	1.951	2.068	0.965	1.897	2.102
R15	Cig B	0.819	1.780	2.121	0.821	1.796	2.142	0.835	1.749	2.180
R15	Cig C	0.332	0.922	1.266	0.325	0.925	1.274	0.327	0.915	1.270
R15	Cig D	0.431	1.074	1.385	0.426	1.079	1.395	0.430	1.062	1.397
R15	Cig E	0.582	1.363	1.582	0.580	1.373	1.595	0.588	1.344	1.606
R15	Cig F	1.224	2.431	2.688	1.231	2.458	2.719	1.255	2.383	2.784
R15	Cig G	1.263	2.275	2.437	1.272	2.300	2.464	1.296	2.231	2.517
R15	Cig H	0.662	1.439	1.772	0.661	1.450	1.789	0.671	1.418	1.809
R15	Cig I	0.418	1.145	1.638	0.413	1.151	1.652	0.417	1.131	1.666
R15	Cig J	0.232	0.708	1.017	0.225	0.708	1.021	0.224	0.707	1.005

Table 7. CO Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L1	Cig A	10.3	21.9	26.4	9.9	21.6	26.1	9.9	22.3	25.7
L1	Cig B	8.7	20.0	27.0	8.4	19.7	26.7	8.4	20.1	26.3
L1	Cig C	12.6	24.2	29.7	12.2	23.9	29.4	12.3	24.8	28.8
L1	Cig D	10.0	22.7	30.8	9.7	22.3	30.5	9.7	23.1	29.8
L1	Cig E	8.5	17.2	19.1	8.1	16.9	18.8	8.1	17.1	18.9
L1	Cig F	11.1	22.7	28.5	10.7	22.3	28.2	10.8	23.0	27.7
L1	Cig G	12.6	24.8	32.4	12.3	24.5	32.1	12.4	25.4	31.4
L1	Cig H	3.7	13.1	22.6	3.4	12.7	22.3	3.3	12.5	22.2
L1	Cig I	3.5	15.4	26.8	3.2	15.1	26.4	3.1	15.1	26.1
L1	Cig J	5.9	16.9	24.7	5.5	16.6	24.4	5.5	16.8	24.1
L2	Cig A	5.8	17.8	22.8	5.9	18.7	24.0	6.3	17.5	25.0
L2	Cig B	4.4	16.5	29.0	4.4	17.4	30.7	4.8	16.3	31.3
L2	Cig C	4.7	13.3	17.4	4.8	13.9	18.2	5.2	13.3	19.7
L2	Cig E	6.7	18.6	25.0	6.9	19.6	26.4	7.2	18.3	27.3
L2	Cig F	9.1	21.2	27.7	9.4	22.3	29.2	9.6	20.7	30.0
L2	Cig G	7.7	20.2	25.2	7.9	21.3	26.6	8.2	19.8	27.5
L2	Cig H	9.3	21.7	26.2	9.7	22.9	27.6	9.8	21.3	28.4
L2	Cig I	9.3	22.3	25.6	9.6	23.5	27.0	9.8	21.8	27.9
L3	Cig A	0.7	10.2	21.4	0.1	11.1	24.1	1.0	10.7	24.5
L3	Cig B	3.3	12.2	19.0	3.1	13.4	21.3	3.7	13.1	22.1
L3	Cig C	4.3	13.3	22.2	4.3	14.7	25.0	4.8	14.4	25.3
L3	Cig D	5.7	14.3	18.3	5.8	15.8	20.5	6.1	15.5	21.4
L3	Cig E	5.9	16.5	23.2	6.2	18.3	26.2	6.4	18.1	26.4
L3	Cig F	6.8	15.1	20.4	7.1	16.7	22.9	7.2	16.5	23.5
L3	Cig G	10.1	19.8	24.7	10.9	22.2	28.0	10.6	22.1	28.0
L3	Cig H	10.8	23.5	28.8	11.8	26.5	32.7	11.3	26.6	32.1
L3	Cig I	9.4	21.0	23.1	10.2	23.7	26.0	9.9	23.6	26.2
L3	Cig J	11.2	19.2	22.5	12.2	21.6	25.4	11.7	21.5	25.7
L4	Cig A	1.4	8.3	20.4	1.5	9.2	22.6	1.7	9.5	23.2
L4	Cig B	6.8	17.8	24.1	7.5	19.7	26.6	7.3	19.8	26.6
L4	Cig C	9.9	18.9	22.2	11.0	20.9	24.5	10.6	20.9	24.8
L4	Cig D	12.3	23.1	25.7	13.6	25.5	28.4	13.1	25.3	28.2
L4	Cig E	2.6	12.7	21.0	2.9	14.1	23.2	3.0	14.3	23.7
L4	Cig F	5.3	16.3	22.5	5.9	18.0	24.9	5.8	18.1	25.1
L4	Cig G	5.4	15.9	24.5	5.9	17.6	27.1	5.8	17.7	27.0
L4	Cig H	7.8	18.2	24.8	8.6	20.2	27.4	8.3	20.2	27.3
L4	Cig I	6.6	13.5	15.5	7.3	15.0	17.1	7.1	15.1	18.5
L4	Cig J	10.5	22.7	27.5	11.6	25.1	30.4	11.2	24.9	29.9
L5	Cig A	0.7	6.9	19.4	0.8	7.7	21.5	1.1	9.6	22.1
L5	Cig B	3.4	11.3	20.2	3.8	12.5	22.4	3.7	13.8	22.9
L5	Cig C	3.1	11.4	21.2	3.4	12.7	23.5	3.4	14.0	23.9
L5	Cig D	4.0	13.5	22.0	4.4	14.9	24.4	4.3	15.9	24.7
L5	Cig E	8.1	16.6	23.0	9.0	18.3	25.5	8.2	18.9	25.6
L5	Cig F	6.4	16.1	26.9	7.1	17.8	29.8	6.6	18.5	29.3
L5	Cig G	7.9	14.6	20.3	8.8	16.2	22.4	8.1	17.0	23.0
L5	Cig H	8.1	19.2	28.6	9.0	21.2	31.7	8.2	21.5	30.9
L5	Cig I	10.3	20.3	29.1	11.5	22.5	32.2	10.4	22.6	31.4
L5	Cig J	11.6	21.9	29.6	12.9	24.3	32.7	11.6	24.2	31.9

Table 7. CO Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L6	Cig A	0.7	7.4	18.2	0.7	8.9	22.0	0.9	11.2	23.3
L6	Cig B	3.3	10.8	17.9	3.8	13.0	21.6	3.6	14.5	23.0
L6	Cig C	2.8	10.4	17.8	3.2	12.5	21.5	3.1	14.1	22.9
L6	Cig D	4.2	12.1	19.2	4.9	14.5	23.2	4.5	15.8	24.2
L6	Cig E	7.5	15.8	20.5	9.0	19.1	24.8	8.0	19.4	25.4
L6	Cig F	6.2	16.2	22.7	7.4	19.5	27.4	6.7	19.8	27.3
L6	Cig G	7.3	13.7	17.8	8.7	16.6	21.5	7.7	17.4	22.9
L6	Cig H	7.9	18.9	26.0	9.4	22.8	31.4	8.4	22.4	30.3
L6	Cig I	9.3	19.7	26.2	11.1	23.7	31.7	9.8	23.2	30.5
L6	Cig J	11.0	21.0	26.4	13.2	25.4	31.9	11.6	24.5	30.6
L7	Cig A	11.9	20.2	24.5	12.3	20.6	24.8	11.9	21.1	24.6
L7	Cig B	7.4	17.1	25.0	7.8	17.5	25.3	7.5	18.0	25.1
L7	Cig C	4.7	14.4	23.1	5.1	14.8	23.4	4.9	15.3	23.2
L7	Cig D	7.9	18.9	26.6	8.3	19.2	26.9	8.0	19.8	26.7
L7	Cig E	9.0	18.9	27.2	9.4	19.2	27.6	9.1	19.8	27.3
L7	Cig F	14.2	23.3	27.8	14.5	23.6	28.1	14.0	24.1	27.9
L7	Cig G	16.5	24.9	30.1	16.8	25.2	30.4	16.3	25.7	30.1
L7	Cig H	6.9	16.5	24.4	7.3	16.9	24.7	7.0	17.4	24.5
L7	Cig I	3.7	12.6	22.2	4.1	13.0	22.6	4.0	13.5	22.4
L7	Cig J	3.7	13.2	23.4	4.1	13.5	23.7	4.0	14.1	23.5
L8	Cig A	1.2	7.3	19.0	1.6	7.6	19.1	1.2	7.5	20.1
L8	Cig B	3.9	13.9	23.3	4.3	14.1	23.3	4.1	14.2	23.6
L8	Cig C	4.4	14.0	23.6	4.7	14.2	23.6	4.5	14.3	23.8
L8	Cig D	6.2	15.9	21.7	6.6	16.0	21.7	6.4	16.2	22.3
L8	Cig E	5.7	17.5	26.1	6.1	17.6	26.1	5.9	17.8	25.8
L8	Cig F	7.6	16.6	22.8	8.0	16.7	22.8	7.8	16.9	23.2
L8	Cig G	10.6	21.6	26.8	10.8	21.6	26.7	10.7	22.0	26.4
L8	Cig H	11.6	24.1	30.6	11.8	24.1	30.5	11.8	24.5	29.4
L8	Cig I	9.8	23.5	31.4	10.1	23.5	31.2	10.0	24.0	30.1
L8	Cig J	12.1	22.3	25.5	12.3	22.3	25.5	12.3	22.6	25.3
L9	Cig A	1.4	10.7	27.4	2.1	11.2	27.3	1.6	11.0	27.1
L9	Cig B	2.0	9.6	19.0	2.7	10.1	19.2	2.3	9.9	17.0
L9	Cig C	5.3	15.1	20.2	6.0	15.4	20.3	5.9	15.5	18.5
L9	Cig D	7.4	17.5	23.5	7.9	17.7	23.6	8.1	18.0	22.5
L9	Cig E	11.2	25.2	32.2	11.6	25.2	32.0	12.3	25.9	32.9
L9	Cig F	11.5	22.0	27.9	11.9	22.1	27.8	12.6	22.6	27.8
L9	Cig G	9.9	23.7	32.2	10.4	23.8	32.0	10.9	24.4	33.0
L9	Cig H	13.1	21.6	24.8	13.5	21.7	24.8	14.3	22.2	24.0
L9	Cig I	9.7	21.0	23.7	10.2	21.1	23.7	10.7	21.6	22.6
L9	Cig J	11.2	21.4	25.7	11.7	21.5	25.7	12.3	22.0	25.1
L10	Cig A	1.1	7.6	25.4	1.5	7.8	25.2	1.3	8.1	25.0
L10	Cig B	2.6	12.0	25.0	2.9	12.0	24.7	2.8	12.2	24.6
L10	Cig C	4.7	16.0	30.0	5.0	16.0	29.6	5.0	16.0	30.4
L10	Cig D	5.9	17.0	27.5	6.2	16.9	27.2	6.2	17.0	27.5
L10	Cig E	8.0	18.5	27.1	8.2	18.4	26.8	8.2	18.4	27.0
L10	Cig F	12.1	23.9	30.2	12.2	23.7	29.8	12.4	23.5	30.6
L10	Cig G	11.6	22.1	26.4	11.7	21.9	26.1	11.9	21.8	26.2
L10	Cig H	12.5	24.9	30.9	12.6	24.6	30.5	12.8	24.4	31.3
L10	Cig I	12.3	21.2	24.8	12.3	21.1	24.5	12.5	20.9	24.3
L10	Cig J	16.7	27.6	32.2	16.6	27.3	31.7	17.0	27.0	32.9

Table 7. CO Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
L11	Cig A	2.8	13.1	24.1	3.5	14.0	25.3	3.2	13.9	24.9
L11	Cig B	3.2	16.0	27.1	4.0	17.0	28.3	3.7	17.0	28.3
L11	Cig C	5.0	18.1	28.5	5.8	19.1	29.7	5.7	19.1	29.8
L11	Cig D	6.8	22.2	34.9	7.6	23.3	36.2	7.8	23.6	37.0
L11	Cig E	7.9	23.2	34.1	8.7	24.3	35.4	9.0	24.6	36.1
L11	Cig F	10.3	22.0	27.0	11.2	23.1	28.2	11.8	23.3	28.2
L11	Cig G	11.2	23.4	29.2	12.1	24.5	30.4	12.8	24.8	30.6
L11	Cig H	11.4	24.4	30.6	12.3	25.5	31.8	13.1	25.8	32.2
L11	Cig I	11.8	23.7	28.8	12.7	24.8	30.0	13.5	25.2	30.2
L11	Cig J	13.9	24.5	27.6	14.9	25.7	28.8	15.9	26.0	28.8
R1	Cig A	3.3	13.3	24.8	3.2	13.3	24.8	3.1	13.5	24.6
R1	Cig B	3.9	16.8	27.0	3.9	16.8	27.0	3.8	17.0	26.8
R1	Cig C	5.9	19.3	27.1	5.9	19.3	27.1	5.8	19.6	26.9
R1	Cig D	7.9	24.1	34.5	7.8	24.1	34.5	7.8	24.5	34.3
R1	Cig E	9.6	23.5	34.8	9.5	23.5	34.8	9.5	24.0	34.6
R1	Cig F	11.3	22.8	28.3	11.3	22.8	28.3	11.3	23.2	28.1
R1	Cig G	14.0	28.0	30.1	14.0	28.0	30.1	14.0	28.6	29.9
R1	Cig H	13.5	26.2	32.3	13.5	26.2	32.3	13.5	26.7	32.1
R1	Cig I	13.4	25.1	31.0	13.4	25.1	31.0	13.4	25.5	30.8
R1	Cig J	16.0	25.9	29.7	16.0	25.9	29.7	16.0	26.4	29.5
R2	Cig A	9.6	21.7	25.8	9.7	22.0	26.2	10.2	21.6	26.7
R2	Cig B	8.0	20.5	27.4	8.1	20.8	27.9	8.6	20.3	28.8
R2	Cig C	11.9	24.0	28.7	12.1	24.4	29.2	12.6	24.0	30.5
R2	Cig D	8.2	21.7	29.7	8.3	22.0	30.2	8.8	21.6	31.8
R2	Cig E	8.9	18.7	20.4	9.0	19.0	20.7	9.5	18.5	19.5
R2	Cig F	10.3	22.8	29.2	10.4	23.2	29.7	10.9	22.7	31.1
R2	Cig G	11.3	23.4	29.1	11.5	23.8	29.6	12.0	23.4	31.0
R2	Cig H	2.6	13.3	22.9	2.6	13.5	23.3	3.0	12.8	22.8
R2	Cig I	2.9	14.0	25.3	2.9	14.2	25.7	3.3	13.5	26.0
R2	Cig J	5.2	17.0	24.1	5.2	17.2	24.5	5.6	16.6	24.5
R4	Cig A	2.4	13.9	25.9	1.8	12.4	23.4	2.1	11.4	23.3
R4	Cig B	4.5	16.4	26.8	3.7	14.6	24.2	4.0	14.0	24.1
R4	Cig C	5.0	16.8	27.0	4.1	15.0	24.4	4.4	14.4	24.3
R4	Cig D	6.9	19.4	25.6	5.9	17.4	23.1	6.2	17.2	23.0
R4	Cig E	6.9	19.8	28.8	5.9	17.8	26.1	6.2	17.6	25.9
R4	Cig F	9.0	19.9	25.6	7.8	17.9	23.1	8.1	17.7	23.0
R4	Cig G	12.2	25.4	29.3	10.7	23.0	26.5	11.0	23.5	26.4
R4	Cig H	12.8	27.2	34.2	11.3	24.6	31.0	11.5	25.4	30.7
R4	Cig I	11.5	26.1	34.1	10.1	23.6	30.9	10.4	24.2	30.7
R4	Cig J	14.0	24.6	27.5	12.4	22.2	24.9	12.6	22.7	24.7

Table 7. CO Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
R6	Cig A	7.1	18.3	23.2	6.1	17.6	22.8	6.6	16.5	23.7
R6	Cig B	5.1	18.2	29.9	4.0	17.5	29.6	4.6	16.5	30.2
R6	Cig C	5.4	14.6	17.7	4.3	13.8	17.0	4.9	12.8	18.2
R6	Cig D	4.9	13.9	17.2	3.7	13.1	16.5	4.4	12.1	17.7
R6	Cig E	7.4	20.2	26.0	6.4	19.6	25.6	6.9	18.5	26.4
R6	Cig F	10.3	22.8	29.3	9.4	22.3	29.0	9.6	21.1	29.6
R6	Cig G	9.0	21.9	26.9	8.0	21.4	26.5	8.4	20.3	27.3
R6	Cig H	10.6	23.5	27.1	9.7	23.0	26.7	9.9	21.8	27.4
R6	Cig I	10.5	22.1	26.9	9.5	21.6	26.5	9.8	20.5	27.2
R7	Cig A	0.9	6.8	24.4	0.9	6.9	24.6	0.9	6.7	23.8
R7	Cig B	2.4	11.3	24.6	2.3	11.4	24.9	2.3	11.6	24.1
R7	Cig C	4.4	15.2	28.0	4.4	15.4	28.3	4.3	15.9	28.0
R7	Cig D	5.7	17.1	27.3	5.7	17.2	27.5	5.7	17.9	27.2
R7	Cig E	7.7	18.0	26.7	7.8	18.1	27.0	7.7	18.9	26.6
R7	Cig F	12.5	22.1	28.9	12.6	22.3	29.2	12.4	23.4	29.1
R7	Cig G	11.8	21.7	25.9	11.9	21.9	26.2	11.7	23.0	25.6
R7	Cig H	12.5	23.3	30.2	12.6	23.5	30.5	12.4	24.7	30.5
R7	Cig I	11.5	19.1	24.7	11.6	19.3	24.9	11.4	20.2	24.2
R7	Cig J	16.1	25.5	31.2	16.3	25.8	31.5	16.0	27.2	31.7
R8	Cig A	1.3	11.2	29.7	0.5	10.1	28.0	1.3	9.8	28.6
R8	Cig B	2.6	10.1	18.9	1.8	9.0	17.6	2.4	8.8	17.8
R8	Cig C	6.0	17.2	20.8	5.1	15.9	19.4	5.5	15.5	19.7
R8	Cig D	8.8	20.6	24.3	7.8	19.2	22.8	8.0	18.7	23.2
R8	Cig E	12.1	28.4	31.9	11.0	26.8	30.1	10.9	26.0	30.8
R8	Cig F	12.2	25.0	29.0	11.1	23.5	27.4	11.0	22.8	27.9
R8	Cig G	11.8	24.6	34.0	10.7	23.1	32.1	10.6	22.4	32.9
R8	Cig H	14.7	23.4	27.6	13.5	21.9	26.0	13.2	21.2	26.5
R8	Cig I	11.4	22.5	26.9	10.3	21.1	25.3	10.2	20.4	25.8
R8	Cig J	12.6	24.6	26.6	11.5	23.0	25.0	11.3	22.4	25.5
R9	Cig A	11.6	23.4	29.7	10.5	20.8	26.4	10.7	21.9	25.7
R9	Cig B	9.7	23.1	30.3	8.8	20.6	26.8	8.9	21.6	26.2
R9	Cig C	13.1	25.1	32.9	11.8	22.3	29.1	12.1	23.7	28.7
R9	Cig D	11.2	24.9	34.5	10.1	22.1	30.5	10.3	23.4	30.2
R9	Cig E	9.6	20.0	22.0	8.7	17.8	19.6	8.8	18.4	18.4
R9	Cig F	12.1	24.5	33.0	10.9	21.8	29.2	11.2	23.0	28.8
R9	Cig G	12.7	26.2	34.6	11.5	23.2	30.6	11.7	24.7	30.3
R9	Cig H	3.7	13.2	25.6	3.5	11.9	22.8	3.3	11.6	21.8
R9	Cig I	3.8	15.4	29.6	3.6	13.8	26.3	3.4	13.8	25.6
R9	Cig J	6.4	18.6	28.5	5.9	16.6	25.3	5.8	17.0	24.5
R10	Cig A	0.8	7.6	19.5	0.8	8.0	20.6	0.3	8.3	20.8
R10	Cig B	3.6	12.5	22.1	3.8	13.2	23.4	3.5	13.4	23.4
R10	Cig C	3.4	13.1	22.0	3.5	13.8	23.2	3.2	14.0	23.3
R10	Cig D	4.2	15.1	24.3	4.4	15.9	25.7	4.2	16.1	25.6
R10	Cig E	8.8	20.0	25.3	9.3	21.2	26.7	9.3	21.1	26.6
R10	Cig F	7.2	18.9	27.4	7.5	20.0	29.0	7.4	20.0	28.8
R10	Cig G	7.4	16.4	21.0	7.8	17.3	22.2	7.7	17.4	22.3
R10	Cig H	6.9	18.9	26.9	7.3	20.0	28.4	7.2	20.0	28.2
R10	Cig I	9.8	22.5	29.4	10.3	23.8	31.1	10.3	23.7	30.8
R10	Cig J	11.3	23.5	29.8	11.9	24.8	31.5	12.1	24.7	31.2

Table 7. CO Mean Values (mg/cig) – Observed, All Regime-Adjusted and Individual Regime Adjusted (continued)

Data Set	Cig	No Adjustment			All Regimes-Adjusted			Individual Regime-Adjusted		
		Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3	Regime 1	Regime 2	Regime 3
R11	Cig A	2.0	9.8	25.1	2.0	9.2	23.3	1.7	8.9	22.5
R11	Cig B	7.9	20.3	28.8	7.4	18.9	26.7	7.6	18.9	26.6
R11	Cig C	10.7	21.6	26.5	10.0	20.1	24.6	10.5	20.2	24.1
R11	Cig D	13.2	26.0	29.5	12.3	24.2	27.4	13.0	24.4	27.5
R11	Cig E	3.6	15.5	25.9	3.5	14.5	24.1	3.3	14.4	23.4
R11	Cig F	6.0	18.5	26.8	5.6	17.2	24.9	5.7	17.2	24.5
R11	Cig G	5.9	17.8	28.3	5.5	16.6	26.3	5.6	16.5	26.1
R11	Cig H	8.5	21.9	28.1	8.0	20.4	26.1	8.2	20.5	25.9
R11	Cig I	7.5	15.7	18.1	7.0	14.6	16.8	7.2	14.5	14.5
R11	Cig J	11.6	25.7	31.1	10.8	23.9	28.8	11.4	24.1	29.3
R12	Cig A	1.7	9.0	23.2	1.8	8.7	22.3	1.1	8.9	22.2
R12	Cig B	7.9	20.5	28.0	7.8	19.8	27.0	7.7	19.8	26.8
R12	Cig C	10.5	21.5	25.5	10.2	20.7	24.5	10.5	20.7	24.4
R12	Cig D	13.8	26.7	30.2	13.3	25.7	29.1	13.9	25.7	28.9
R12	Cig E	3.3	14.6	24.6	3.4	14.1	23.7	2.9	14.2	23.5
R12	Cig F	5.6	18.1	25.6	5.5	17.5	24.6	5.2	17.6	24.5
R12	Cig G	5.6	17.9	27.6	5.5	17.3	26.5	5.3	17.3	26.4
R12	Cig H	8.4	21.2	27.6	8.2	20.4	26.6	8.3	20.5	26.4
R12	Cig I	7.1	15.1	18.2	7.0	14.6	17.6	6.9	14.7	17.6
R12	Cig J	11.0	25.4	30.8	10.7	24.4	29.7	11.0	24.4	29.5
R13	Cig A	3.6	15.7	24.2	3.2	14.2	21.8	3.3	14.1	21.9
R13	Cig B	3.8	17.7	27.8	3.4	15.9	25.1	3.5	15.7	25.5
R13	Cig C	5.8	20.0	29.8	5.2	18.1	26.9	5.3	17.7	27.4
R13	Cig D	7.9	24.8	36.5	7.1	22.3	33.0	7.2	21.7	34.0
R13	Cig E	9.3	25.0	36.6	8.4	22.6	33.0	8.5	21.9	34.0
R13	Cig F	11.5	23.8	30.3	10.4	21.4	27.3	10.5	20.8	27.9
R13	Cig G	13.2	26.7	32.3	11.9	24.1	29.1	11.9	23.3	29.8
R13	Cig H	13.1	28.2	33.5	11.8	25.4	30.3	11.9	24.5	31.1
R13	Cig I	12.7	25.7	29.7	11.4	23.2	26.8	11.5	22.4	27.3
R13	Cig J	15.8	27.9	30.4	14.2	25.2	27.5	14.3	24.3	28.0
R14	Cig A	0.8	8.6	23.4	0.6	8.0	22.1	0.4	7.7	21.8
R14	Cig B	3.5	13.9	25.2	3.2	13.1	23.9	3.1	12.8	23.7
R14	Cig C	3.4	14.1	25.4	3.1	13.3	24.1	3.0	13.0	23.9
R14	Cig D	4.6	16.8	26.2	4.2	15.8	24.8	4.2	15.6	24.7
R14	Cig E	8.6	21.7	29.0	8.0	20.5	27.5	8.2	20.4	27.6
R14	Cig F	6.8	20.8	29.5	6.3	19.7	27.9	6.4	19.5	28.1
R14	Cig G	8.1	18.8	23.0	7.6	17.8	21.7	7.7	17.6	21.4
R14	Cig H	7.5	21.2	30.2	6.9	20.1	28.6	7.1	20.0	28.9
R14	Cig I	10.3	24.5	31.6	9.6	23.2	29.9	9.9	23.1	30.2
R14	Cig J	11.7	26.0	32.7	11.0	24.6	31.0	11.3	24.5	31.4
R15	Cig A	12.4	23.3	25.9	12.1	22.3	24.7	12.2	22.1	24.8
R15	Cig B	7.3	18.6	27.2	7.4	17.9	25.9	7.2	17.9	26.0
R15	Cig C	4.8	14.8	24.9	5.0	14.4	23.8	4.7	14.6	24.0
R15	Cig D	7.5	19.8	29.3	7.6	19.0	27.9	7.4	19.0	27.7
R15	Cig E	9.0	21.2	28.3	8.9	20.3	26.9	8.8	20.2	26.9
R15	Cig F	14.5	25.7	29.4	14.1	24.5	28.0	14.3	24.2	27.8
R15	Cig G	16.9	27.9	32.4	16.3	26.5	30.7	16.7	26.1	30.3
R15	Cig H	7.5	18.4	26.2	7.5	17.7	25.0	7.4	17.7	25.1
R15	Cig I	4.2	13.5	23.0	4.5	13.1	22.0	4.2	13.4	22.3
R15	Cig J	4.2	14.1	23.5	4.5	13.7	22.4	4.1	13.9	22.8

**Table 8. NFDPM Regression Analysis by Product Group – Observed,
All Regime-Adjusted and Individual Regime-Adjusted**

Product Group	Regime #2 vs Regime #1											
	Observed			P: Multiple Lines	All Regimes-Adjusted			P: Multiple Lines	Regime-Adjusted			P: Multiple Lines
	Intercept	Slope	R ²		Intercept	Slope	R ²		Intercept	Slope	R ²	
Ad Hoc	6.1420	1.6136	0.9758	0.66	5.7558	1.6146	0.9769	0.88	5.9272	1.5732	0.9764	0.74
American Blend	4.7754	1.7231	0.8548	0.0000	5.3897	1.6645	0.8836	0.0008	5.4834	1.7823	0.9385	0.96
Canadian Brands	7.8691	1.2682	0.9237	0.0262	7.8042	1.2601	0.9291	0.06	8.4003	1.2537	0.9450	0.92
Dark Blends	5.9670	1.7114	0.9590	0.13	5.7611	1.6989	0.9622	0.39	5.3935	1.6564	0.9593	0.17
Europe Flue Cured	5.6077	1.6387	0.9669	0.54	5.6735	1.6366	0.9666	0.56	5.6694	1.6541	0.9676	0.76
European Brands	6.6223	1.6921	0.9229	0.0294	6.8373	1.6385	0.9318	0.09	6.5810	1.6665	0.9434	0.30
Japan Domestic / Other	7.5522	1.3821	0.9524	0.09	7.6934	1.3800	0.9528	0.10	7.1873	1.3871	0.9635	0.92
UK Benchmark	7.0273	1.4011	0.9264	0.09	7.3547	1.3914	0.9300	0.15	7.1006	1.4055	0.9442	0.99
US Brands	7.4522	1.6298	0.9456	0.05	7.1630	1.6413	0.9398	0.0300	7.3485	1.6126	0.9253	0.0036

Product Group	Regime #3 vs Regime #1											
	Observed			P: Multiple Lines	All Regimes-Adjusted			P: Multiple Lines	Regime-Adjusted			P: Multiple Lines
	Intercept	Slope	R ²		Intercept	Slope	R ²		Intercept	Slope	R ²	
Ad Hoc	16.1455	1.3155	0.8960	0.69	15.2822	1.3145	0.8995	0.88	14.0952	1.4009	0.8968	0.73
American Blend	13.5713	1.3883	0.5970	0.0268	14.6040	1.3457	0.6539	0.63	15.4658	1.3422	0.6918	1.00
Canadian Brands	21.8045	0.6445	0.7235	0.76	21.7039	0.6432	0.7015	0.33	21.0347	0.6794	0.7266	0.74
Dark Blends	14.2366	1.4673	0.7538	0.0131	13.8644	1.4275	0.7808	0.11	13.0862	1.4444	0.7978	0.26
Europe Flue Cured	14.1433	1.3566	0.8325	0.14	14.0957	1.3515	0.8397	0.25	13.7519	1.4032	0.8497	0.41
European Brands	15.6288	1.4347	0.6562	0.08	16.0580	1.3457	0.6848	0.31	15.7200	1.3948	0.7112	0.70
Japan Domestic / Other	15.0707	1.1185	0.8554	0.76	15.1934	1.1159	0.8613	0.98	15.3839	1.1249	0.8608	0.97
UK Benchmark	16.7473	0.7656	0.6681	0.25	17.3400	0.7582	0.6952	0.73	17.6670	0.7461	0.7068	0.87
US Brands	18.1915	1.1604	0.8828	0.0013	17.9334	1.1625	0.9203	0.12	18.0890	1.1382	0.9196	0.12

**Table 9. Nicotine Regression Analysis by Product Group – Observed,
All Regime-Adjusted and Individual Regime-Adjusted**

Product Group	Regime #2 vs Regime #1											
	Observed			P: Multiple Lines	All Regimes-Adjusted			P: Multiple Lines	Regime-Adjusted			P: Multiple Lines
	Intercept	Slope	R ²		Intercept	Slope	R ²		Intercept	Slope	R ²	
Ad Hoc	0.4421	1.5620	0.9825	0.57	0.4189	1.5604	0.9813	0.32	0.4657	1.5360	0.9806	0.24
American Blend	0.3351	1.7158	0.8296	0.0001	0.3992	1.6132	0.8249	0.0005	0.3959	1.7289	0.9074	0.96
Canadian Brands	0.7494	1.2799	0.9238	0.0032	0.8022	1.2231	0.9448	0.24	0.7900	1.2379	0.9515	0.68
Dark Blends	0.1776	1.8204	0.9617	0.60	0.1706	1.8125	0.9636	0.94	0.1409	1.7398	0.9585	0.39
Europe Flue Cured	0.3733	1.6864	0.9809	0.27	0.3721	1.6823	0.9834	0.85	0.3694	1.6846	0.9830	0.75
European Brands	0.4638	1.6165	0.9694	0.20	0.4572	1.6284	0.9485	0.0081	0.4269	1.7112	0.9743	0.84
Japan Domestic / Other	0.4358	1.5032	0.9787	0.15	0.4518	1.5005	0.9786	0.15	0.4352	1.5100	0.9824	0.77
UK Benchmark	0.5846	1.4346	0.9226	0.0152	0.5642	1.4181	0.9187	0.0118	0.5779	1.3896	0.9457	0.66
US Brands	0.6136	1.4401	0.9624	0.45	0.6267	1.4335	0.9590	0.25	0.6103	1.4320	0.9600	0.36

Product Group	Regime #3 vs Regime #1											
	Observed			P: Multiple Lines	All Regimes-Adjusted			P: Multiple Lines	Regime-Adjusted			P: Multiple Lines
	Intercept	Slope	R ²		Intercept	Slope	R ²		Intercept	Slope	R ²	
Ad Hoc	1.0301	1.3188	0.9616	0.78	0.9991	1.3158	0.9625	0.96	1.0034	1.3104	0.9626	0.99
American Blend	0.8144	1.4916	0.5565	0.18	0.8988	1.3998	0.5545	0.53	0.9330	1.4612	0.6075	1.00
Canadian Brands	1.8193	0.7011	0.5181	0.0056	1.8831	0.6299	0.6276	0.94	1.8549	0.6582	0.6306	0.98
Dark Blends	0.2560	1.9929	0.9199	0.64	0.2451	1.9884	0.9205	0.87	0.2399	1.8882	0.9079	0.38
Europe Flue Cured	0.7415	1.6334	0.9119	0.16	0.7352	1.6224	0.9218	0.44	0.7414	1.6479	0.9241	0.65
European Brands	0.9711	1.5694	0.8260	0.98	0.9670	1.5628	0.8094	0.62	0.9346	1.6132	0.8195	0.95
Japan Domestic / Other	0.7939	1.4240	0.9514	0.86	0.8158	1.4217	0.9516	0.89	0.8109	1.4762	0.9506	0.83
UK Benchmark	1.2517	0.8984	0.5607	0.0435	1.2334	0.8681	0.5810	0.18	1.2483	0.8402	0.6417	0.91
US Brands	1.1651	1.1963	0.8834	0.63	1.1789	1.1814	0.8792	0.63	1.1178	1.2047	0.8850	0.86

**Table 10. CO Regression Analysis by Product Group – Observed,
All Regime-Adjusted and Individual Regime-Adjusted**

Product Group	Regime #2 vs Regime #1											
	Observed			P: Multiple Lines	All Regimes-Adjusted			P: Multiple Lines	Regime-Adjusted			P: Multiple Lines
	Intercept	Slope	R ²		Intercept	Slope	R ²		Intercept	Slope	R ²	
Ad Hoc	8.7523	1.2507	0.8806	0.80	8.6067	1.2333	0.8716	0.57	8.2596	1.2294	0.8764	0.75
American Blend	7.3598	1.4184	0.8624	0.0000	8.3043	1.3579	0.9055	0.0224	9.1623	1.3457	0.9326	0.66
Canadian Brands	8.7027	1.1376	0.9290	0.41	8.6242	1.1356	0.9324	0.65	8.8665	1.1513	0.9296	0.59
Dark Blends	10.2267	1.1702	0.9283	0.52	10.0327	1.1510	0.9051	0.05	9.3487	1.2352	0.9267	0.60
Europe Flue Cured	8.8042	1.2689	0.8738	0.0128	9.4495	1.2015	0.8826	0.17	8.3112	1.3446	0.9063	0.92
European Brands	9.0999	1.3596	0.8577	0.81	9.6356	1.3843	0.8627	0.90	7.7753	1.4043	0.8584	0.80
Japan Domestic / Other	10.0536	1.0108	0.9350	0.0020	9.7833	0.9977	0.9535	0.0377	10.5195	0.9632	0.9688	0.95
UK Benchmark	8.6180	1.3238	0.8634	0.38	8.7000	1.2958	0.8764	0.98	9.2347	1.2336	0.8740	0.93
US Brands	13.5984	0.9402	0.8265	0.54	13.2969	0.9321	0.8372	1.00	13.3458	0.9129	0.8228	0.55

Product Group	Regime #3 vs Regime #1											
	Observed			P: Multiple Lines	All Regimes-Adjusted			P: Multiple Lines	Regime-Adjusted			P: Multiple Lines
	Intercept	Slope	R ²		Intercept	Slope	R ²		Intercept	Slope	R ²	
Ad Hoc	21.7382	0.5190	0.2434	0.92	21.1539	0.5074	0.2344	1.00	20.5811	0.5553	0.2227	0.85
American Blend	18.6293	0.9181	0.4889	0.0007	20.2800	0.8743	0.6207	0.93	20.8692	0.8356	0.6325	1.00
Canadian Brands	24.9462	0.3046	0.3597	0.77	24.8858	0.3038	0.3677	0.99	24.4471	0.3529	0.3643	0.81
Dark Blends	21.8201	0.6809	0.3288	0.28	21.5709	0.6092	0.3168	0.99	21.0077	0.6434	0.3082	0.92
Europe Flue Cured	19.9386	0.7124	0.3951	0.0056	20.9461	0.5931	0.4228	0.82	21.2891	0.5491	0.4295	0.96
European Brands	17.8838	0.9372	0.2574	0.83	18.3163	0.9896	0.2721	0.73	18.7667	0.9980	0.2647	0.63
Japan Domestic / Other	21.7111	0.5170	0.6500	0.15	21.2169	0.5098	0.6997	0.94	21.4826	0.4790	0.7031	0.91
UK Benchmark	21.2767	0.5410	0.2334	0.17	21.4375	0.4958	0.2474	1.00	21.4839	0.4713	0.2317	0.97
US Brands	27.2869	0.3009	0.1318	0.83	26.6945	0.3002	0.1261	0.63	26.9364	0.2920	0.1179	0.82

Table 11. Comparison of Mean, Repeatability Standard Deviation and Reproducibility Standard Deviation from Phase 2 and Phase 1 Studies (Philip Morris One KS Data)

Analyte	Smoking Machine	Regime	Phase 2 Study			Phase 1 Study			Ratio (Phase 2 / Phase 1)			
			Philip Morris One KS			Philip Morris One KS			Philip Morris One KS			
			Mean	Repeatability SD	Reproducibility SD	Mean	Repeatability SD	Reproducibility SD	Mean	Repeatability SD	Reproducibility SD	
Nicotine	RM20	1	0.14	0.007	0.017	0.13	0.010	0.020	1.07	0.74	0.88	
		2	0.64	0.025	0.042	0.63	0.024	0.054	1.00	1.02	0.79	
		3	1.18	0.045	0.055	1.11	0.017	0.039	1.06	2.69	1.42	
	RM200	1	0.16	0.006	0.012	0.14	0.006	0.014	1.11	1.03	0.85	
		2	0.67	0.020	0.032	0.63	0.030	0.030	1.06	0.65	1.04	
		3	1.22	0.032	0.063	1.09	0.027	0.040	1.11	1.20	1.55	
	SM400	1	0.14	0.010	0.020	0.13	0.012	0.014	1.06	0.82	1.47	
		2	0.61	0.035	0.056	0.60	0.031	0.044	1.02	1.15	1.28	
		3	1.17	0.070	0.107	1.09	0.043	0.064	1.07	1.62	1.67	
	SM400 + KC Auto / Hawktech	1	0.14	0.009	0.018	0.13	0.012	0.014	1.05	0.76	1.29	
		2	0.61	0.037	0.053	0.60	0.035	0.046	1.00	1.06	1.16	
		3	1.14	0.066	0.114	1.09	0.043	0.064	1.05	1.54	1.79	
	ASM500	1	0.14	0.010	0.018	0.14	0.011	0.013	0.98	0.92	1.41	
		2	0.55	0.034	0.098	0.60	0.030	0.035	0.92	1.12	2.85	
		3	1.01	0.053	0.127	1.04	0.058	0.062	0.97	0.92	2.03	
	NFDPM	RM20	1	1.22	0.101	0.143	1.23	0.147	0.179	1.00	0.69	0.80
			2	6.89	0.474	0.568	6.59	0.388	0.389	1.05	1.22	1.46
			3	16.38	0.569	0.882	15.91	0.728	0.988	1.03	0.78	0.89
RM200		1	1.34	0.081	0.117	1.37	0.086	0.217	0.98	0.93	0.54	
		2	7.03	0.232	0.393	6.98	0.315	0.543	1.01	0.74	0.72	
		3	15.22	0.553	1.074	14.67	0.520	0.996	1.04	1.06	1.08	
SM400		1	1.05	0.230	0.295	1.30	0.240	0.310	0.81	0.96	0.95	
		2	6.19	0.538	0.568	6.63	0.629	0.782	0.93	0.85	0.73	
		3	17.00	1.431	1.730	16.63	1.044	1.487	1.02	1.37	1.16	
SM400 + KC Auto / Hawktech		1	1.10	0.214	0.287	1.46	0.228	0.485	0.75	0.94	0.59	
		2	6.41	0.538	0.735	6.99	0.678	1.160	0.92	0.79	0.63	
		3	17.34	1.663	1.975	16.63	1.044	1.487	1.04	1.59	1.33	
ASM500		1	1.07	0.198	0.245	1.25	0.147	0.196	0.86	1.35	1.25	
		2	5.63	0.413	1.006	6.13	0.535	0.594	0.92	0.77	1.69	
		3	13.88	0.865	1.771	14.53	0.984	1.047	0.96	0.88	1.69	
CO		RM20	1	2.07	0.103	0.213	2.28	0.095	0.185	0.91	1.08	1.15
			2	11.79	0.589	1.156	12.61	0.525	0.728	0.93	1.12	1.59
			3	22.93	0.906	1.768	24.24	0.717	1.906	0.95	1.26	0.93
	RM200	1	2.29	0.096	0.223	2.62	0.140	0.270	0.87	0.68	0.83	
		2	11.00	0.426	0.872	13.24	0.326	1.303	0.83	1.31	0.67	
		3	22.38	0.576	1.587	24.75	1.078	2.163	0.90	0.53	0.73	
	SM400	1	1.74	0.105	0.118	2.03	0.173	0.269	0.86	0.61	0.44	
		2	10.28	0.615	0.615	11.53	0.637	0.722	0.89	0.97	0.85	
		3	21.80	1.019	1.366	22.70	0.841	1.200	0.96	1.21	1.14	
	SM400 + KC Auto / Hawktech	1	1.87	0.193	0.349	2.16	0.183	0.418	0.86	1.05	0.83	
		2	10.50	0.792	0.915	11.57	0.717	0.773	0.91	1.10	1.18	
		3	21.72	1.358	1.545	22.52	0.990	1.287	0.96	1.37	1.20	
	ASM500	1	1.58	0.239	0.239	2.23	0.195	0.361	0.71	1.22	0.66	
		2	9.12	0.622	1.515	11.66	0.757	0.860	0.78	0.82	1.76	
		3	18.42	1.373	2.282	21.84	0.959	1.123	0.84	1.43	2.03	

Table 12. Comparison of Mean, Repeatability Standard Deviation and Reproducibility Standard Deviation from Phase 2 and Phase 1 Studies (Kentucky Reference 1R4F Data)

Analyte	Smoking Machine	Regime	Phase 2 Study			Phase 1 Study			Ratio (Phase 2 / Phase 1)			
			Kentucky Reference 1R4F			Kentucky Reference 1R4F			Kentucky Reference 1R4F			
			Mean	Repeatability SD	Reproducibility SD	Mean	Repeatability SD	Reproducibility SD	Mean	Repeatability SD	Reproducibility SD	
Nicotine	RM20	1	0.81	0.025	0.032	0.75	0.024	0.024	1.09	1.04	1.32	
		2	1.60	0.058	0.117	1.53	0.035	0.035	1.05	1.64	3.32	
		3	1.99	0.075	0.114	1.91	0.052	0.136	1.04	1.44	0.84	
	RM200	1	0.82	0.021	0.048	0.75	0.016	0.030	1.10	1.29	1.63	
		2	1.66	0.045	0.067	1.51	0.044	0.077	1.10	1.03	0.87	
		3	2.03	0.042	0.127	1.86	0.032	0.070	1.09	1.29	1.82	
	SM400	1	0.84	0.032	0.061	0.78	0.036	0.048	1.08	0.89	1.26	
		2	1.70	0.059	0.099	1.56	0.071	0.079	1.09	0.82	1.26	
		3	2.07	0.090	0.154	1.93	0.067	0.069	1.07	1.34	2.24	
	SM400 + KC Auto / Hawktech	1	0.82	0.031	0.064	0.77	0.037	0.048	1.07	0.85	1.34	
		2	1.66	0.059	0.123	1.56	0.070	0.076	1.07	0.85	1.61	
		3	2.03	0.090	0.162	1.91	0.070	0.087	1.06	1.29	1.86	
	ASM500	1	0.87	0.031	0.058	0.79	0.037	0.039	1.09	0.85	1.48	
		2	1.55	0.067	0.125	1.56	0.060	0.067	0.99	1.12	1.85	
		3	1.88	0.129	0.194	1.90	0.057	0.072	0.99	2.26	2.71	
	NFDPM	RM20	1	9.36	0.235	0.390	8.62	0.386	0.431	1.09	0.61	0.90
			2	20.29	0.589	1.228	20.00	0.859	1.121	1.01	0.69	1.10
			3	26.58	0.760	0.907	26.43	0.705	1.259	1.01	1.08	0.72
RM200		1	8.98	0.112	0.267	8.49	0.237	0.372	1.06	0.47	0.72	
		2	19.63	0.719	1.332	18.95	0.448	0.533	1.04	1.61	2.50	
		3	25.38	0.532	1.159	25.13	0.367	1.249	1.01	1.45	0.93	
SM400		1	9.44	0.464	0.508	8.96	0.424	0.641	1.05	1.09	0.79	
		2	20.99	0.607	0.614	20.33	0.850	0.913	1.03	0.71	0.67	
		3	27.90	1.391	1.798	27.50	1.274	1.407	1.01	1.09	1.28	
SM400 + KC Auto / Hawktech		1	9.55	0.445	0.537	9.07	0.447	0.665	1.05	0.99	0.81	
		2	21.13	0.686	0.744	20.55	0.827	1.022	1.03	0.83	0.73	
		3	28.31	1.325	1.881	27.36	1.300	1.435	1.03	1.02	1.31	
ASM500		1	9.69	0.362	0.494	9.04	0.395	0.587	1.07	0.92	0.84	
		2	18.79	0.781	1.256	19.08	0.626	0.759	0.98	1.25	1.66	
		3	23.98	1.044	1.843	24.67	0.733	1.163	0.97	1.43	1.58	
CO		RM20	1	12.26	0.596	0.938	12.86	0.335	1.134	0.95	1.78	0.83
			2	23.25	0.665	1.688	24.35	0.428	1.722	0.96	1.55	0.98
			3	30.56	1.025	2.311	32.04	0.532	2.418	0.95	1.93	0.96
	RM200	1	11.60	0.313	0.597	12.80	0.240	0.669	0.91	1.30	0.89	
		2	23.54	0.357	1.539	25.63	0.486	1.681	0.92	0.73	0.92	
		3	30.41	0.822	1.630	33.04	0.673	1.559	0.92	1.22	1.05	
	SM400	1	10.93	0.530	0.940	11.85	0.526	0.966	0.92	1.01	0.97	
		2	22.03	0.874	1.167	23.43	0.940	1.245	0.94	0.93	0.94	
		3	29.34	1.108	1.477	30.89	1.330	1.720	0.95	0.83	0.86	
	SM400 + KC Auto / Hawktech	1	11.15	0.604	1.021	11.84	0.532	0.896	0.94	1.14	1.14	
		2	22.11	0.929	1.150	23.49	0.907	1.167	0.94	1.02	0.99	
		3	29.45	1.146	1.432	30.55	1.358	1.814	0.96	0.84	0.79	
	ASM500	1	11.48	0.641	0.787	12.13	0.527	0.645	0.95	1.22	1.22	
		2	20.88	1.079	1.828	22.76	0.924	0.924	0.92	1.17	1.98	
		3	26.62	1.407	2.113	29.95	0.973	1.855	0.89	1.45	1.14	

Table 13. Comparison of Mean, Repeatability Standard Deviation and Reproducibility Standard Deviation from Phase 2 and Phase 1 Studies (CORESTA CM4 Data)

Analyte	Smoking Machine	Regime	Phase 2 Study CORESTA CM4			Phase 1 Study CORESTA CM3			Ratio (Phase 2 / Phase 1) CORESTA CM4 / CM3			
			Mean	Repeatability SD	Reproducibility SD	Mean	Repeatability SD	Reproducibility SD	Mean	Repeatability SD	Reproducibility SD	
Nicotine	RM20	1	1.31	0.040	0.067	1.24	0.012	0.042	1.05	3.21	1.58	
		2	2.33	0.051	0.117	2.24	0.041	0.131	1.04	1.24	0.90	
		3	2.58	0.046	0.135	2.46	0.076	0.140	1.05	0.60	0.97	
	RM200	1	1.29	0.022	0.034	1.24	0.014	0.051	1.05	1.66	0.67	
		2	2.37	0.051	0.074	2.13	0.028	0.083	1.11	1.85	0.89	
		3	2.64	0.064	0.124	2.39	0.023	0.078	1.10	2.80	1.59	
	SM400	1	1.31	0.042	0.095	1.26	0.034	0.052	1.04	1.25	1.83	
		2	2.38	0.072	0.131	2.27	0.073	0.077	1.05	0.99	1.71	
		3	2.63	0.111	0.179	2.51	0.070	0.080	1.05	1.58	2.25	
	SM400 + KC Auto / Hawktech	1	1.28	0.047	0.110	1.25	0.039	0.053	1.02	1.20	2.10	
		2	2.33	0.076	0.163	2.24	0.073	0.101	1.04	1.04	1.62	
		3	2.59	0.107	0.187	2.50	0.067	0.085	1.04	1.59	2.20	
	ASM500	1	1.36	0.049	0.078	1.27	0.040	0.040	1.07	1.23	1.94	
		2	2.25	0.094	0.212	2.28	0.082	0.082	0.99	1.15	2.59	
		3	2.51	0.120	0.220	2.49	0.076	0.077	1.01	1.57	2.86	
	NFDPM	RM20	1	14.02	0.309	0.420	14.76	0.352	0.400	0.95	0.88	1.05
			2	25.48	0.631	1.153	27.34	0.670	0.892	0.93	0.94	1.29
			3	29.00	0.855	0.855	30.86	0.833	1.030	0.94	1.03	0.83
RM200		1	13.58	0.261	0.306	14.47	0.166	0.531	0.94	1.57	0.58	
		2	25.33	0.573	0.840	25.96	0.310	0.801	0.98	1.85	1.05	
		3	28.52	0.571	0.992	29.02	0.524	1.187	0.98	1.09	0.84	
SM400		1	14.19	0.510	0.529	15.45	0.402	0.624	0.92	1.27	0.85	
		2	26.28	0.758	0.848	27.97	0.833	1.003	0.94	0.91	0.85	
		3	29.18	2.076	2.333	31.44	0.946	1.254	0.93	2.19	1.86	
SM400 + KC Auto / Hawktech		1	14.20	0.546	0.551	15.65	0.418	0.758	0.91	1.30	0.73	
		2	26.39	0.839	0.917	28.02	0.816	0.960	0.94	1.03	0.96	
		3	29.58	1.870	2.259	31.55	1.003	1.266	0.94	1.86	1.78	
ASM500		1	14.53	0.380	0.549	15.61	0.537	0.845	0.93	0.71	0.65	
		2	24.30	0.949	1.871	27.35	0.978	1.105	0.89	0.97	1.69	
		3	27.47	1.122	1.938	30.36	0.868	1.421	0.90	1.29	1.36	
CO		RM20	1	13.85	0.216	0.813	15.30	0.365	0.843	0.91	0.59	0.96
			2	22.67	0.459	1.202	24.43	0.545	1.211	0.93	0.84	0.99
			3	25.56	0.564	1.647	27.58	0.492	1.668	0.93	1.15	0.99
	RM200	1	13.70	0.303	0.993	15.76	0.360	1.687	0.87	0.84	0.59	
		2	23.06	0.437	1.370	25.69	0.467	1.408	0.90	0.94	0.97	
		3	26.51	0.438	1.507	28.97	0.462	1.288	0.92	0.95	1.17	
	SM400	1	12.41	0.459	0.731	14.29	0.441	0.663	0.87	1.04	1.10	
		2	21.28	0.661	0.860	22.72	0.850	0.917	0.94	0.78	0.94	
		3	24.84	0.881	1.122	25.87	0.726	1.180	0.96	1.21	0.95	
	SM400 + KC Auto / Hawktech	1	12.61	0.541	0.857	14.33	0.475	0.652	0.88	1.14	1.31	
		2	21.25	0.782	0.902	22.61	0.858	0.930	0.94	0.91	0.97	
		3	25.15	1.394	1.624	26.10	0.734	1.205	0.96	1.90	1.35	
	ASM500	1	12.68	0.618	0.812	14.12	0.531	0.808	0.90	1.16	1.01	
		2	19.84	0.853	1.605	22.52	0.553	0.910	0.88	1.54	1.76	
		3	22.96	1.048	1.522	26.33	0.799	1.141	0.87	1.31	1.33	

Figure 1. Phase Two vs. Phase One Repeatability, Nicotine, RM20
Repeatability and Reproducibility for Phase 2 vs. Phase 1
Nicotine, Using the RM20 Smoking Machine

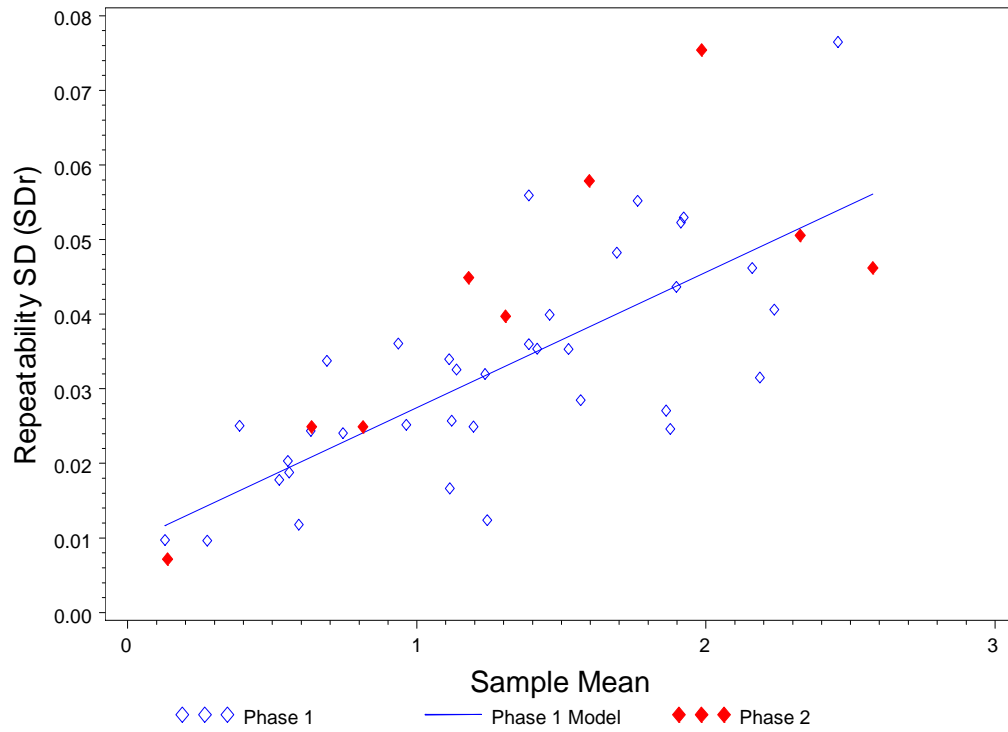


Figure 2. Phase Two vs. Phase One Reproducibility, Nicotine, RM20
Repeatability and Reproducibility for Phase 2 vs. Phase 1
Nicotine, Using the RM20 Smoking Machine

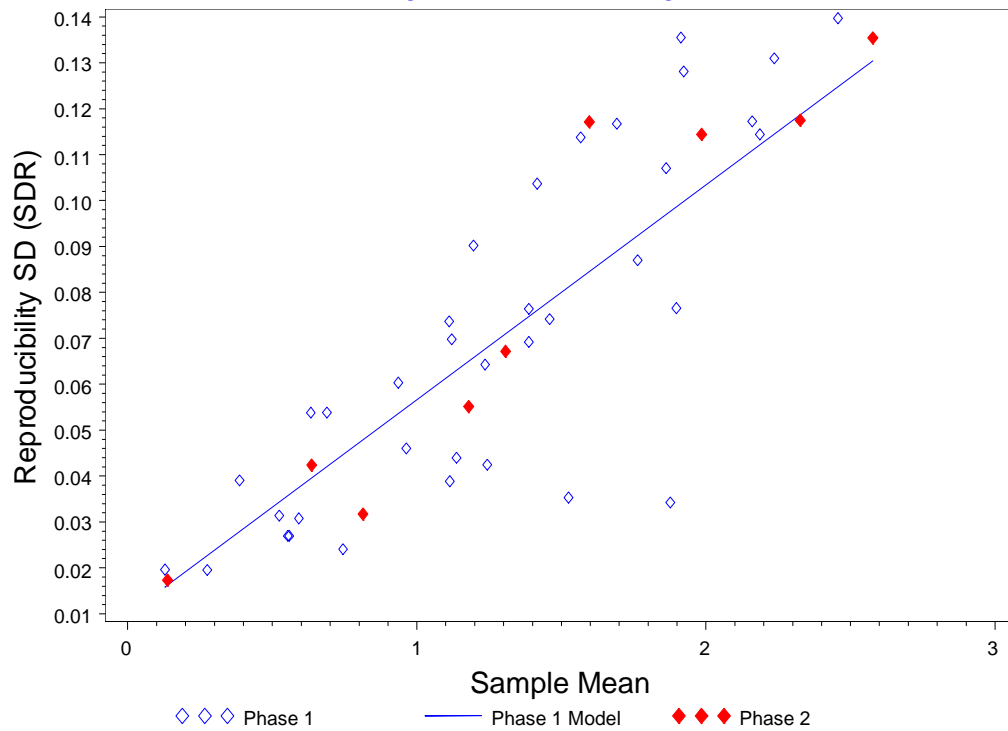


Figure 3. Phase Two vs. Phase One Repeatability, Nicotine, RM200
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the RM200 Smoking Machine

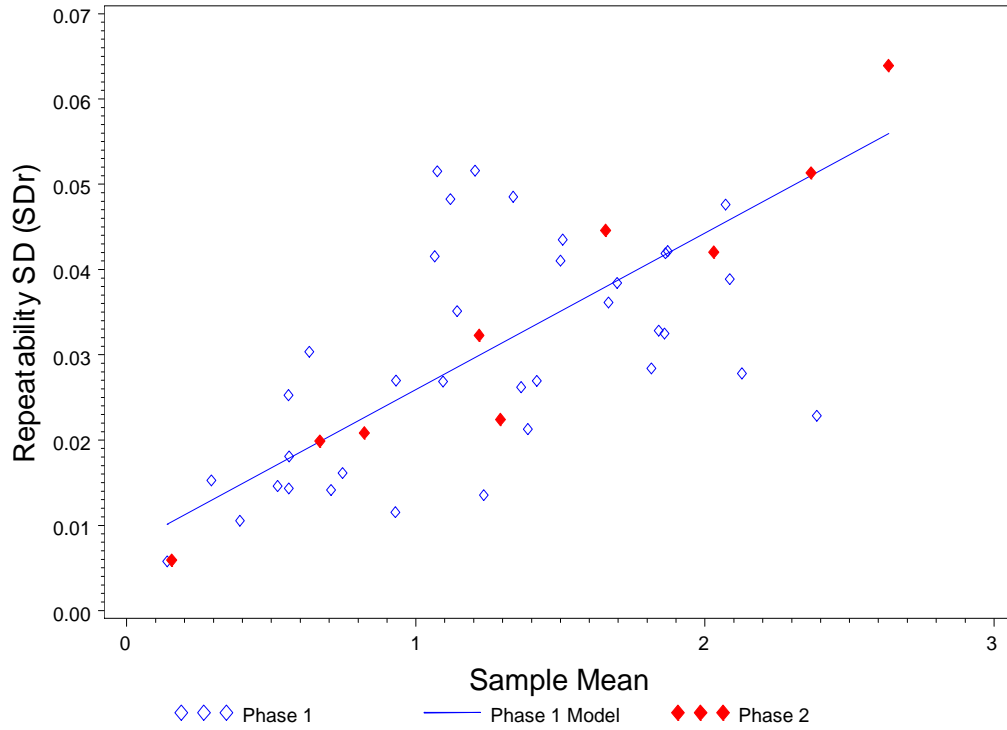


Figure 4. Phase Two vs. Phase One Reproducibility, Nicotine, RM200
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the RM200 Smoking Machine

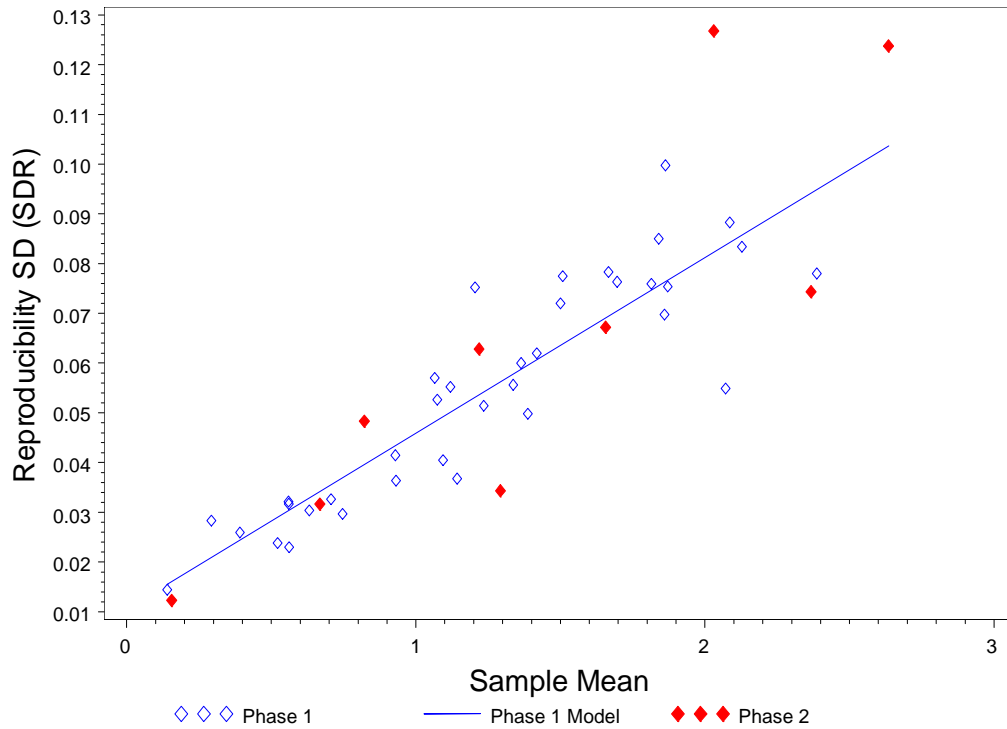


Figure 5. Phase Two vs. Phase One Repeatability, Nicotine, SM400
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the SM400 Smoking Machine

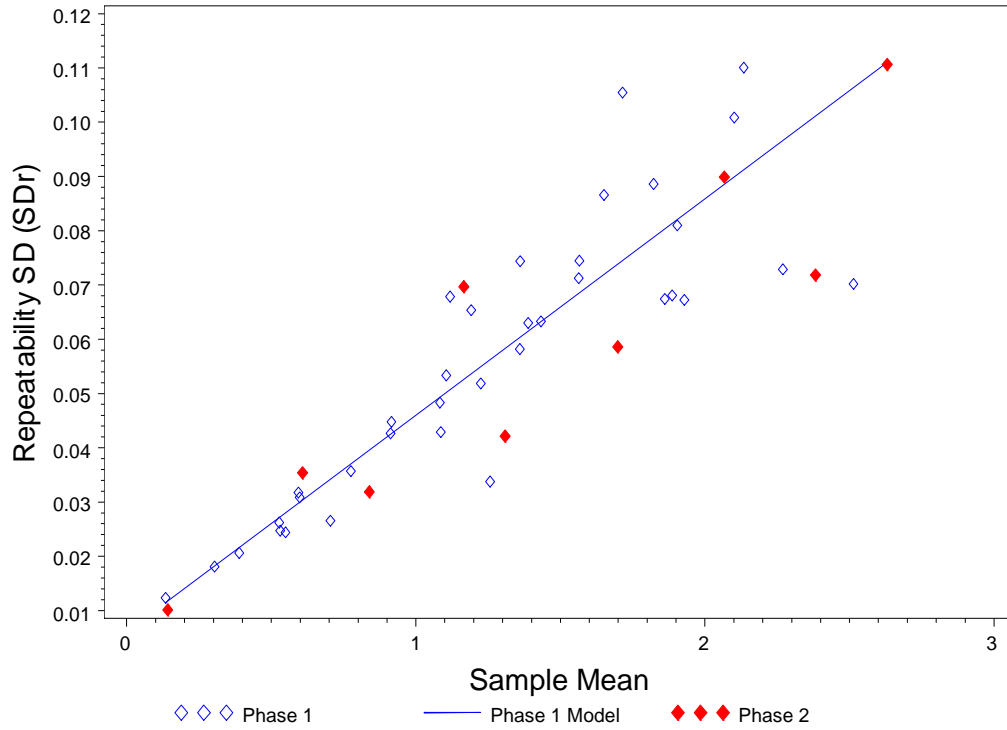


Figure 6. Phase Two vs. Phase One Reproducibility, Nicotine, SM400
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the SM400 Smoking Machine

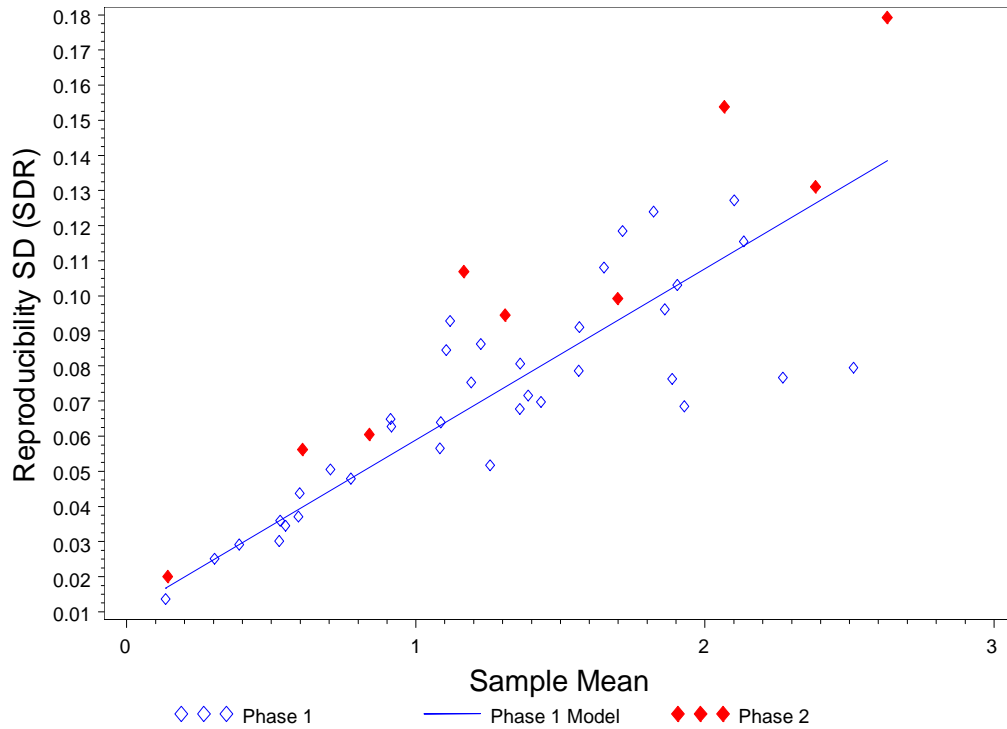


Figure 7. Phase Two vs. Phase One Repeatability, Nicotine, SM400+KCAuto
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the SM400+KCAuto Smoking Machine

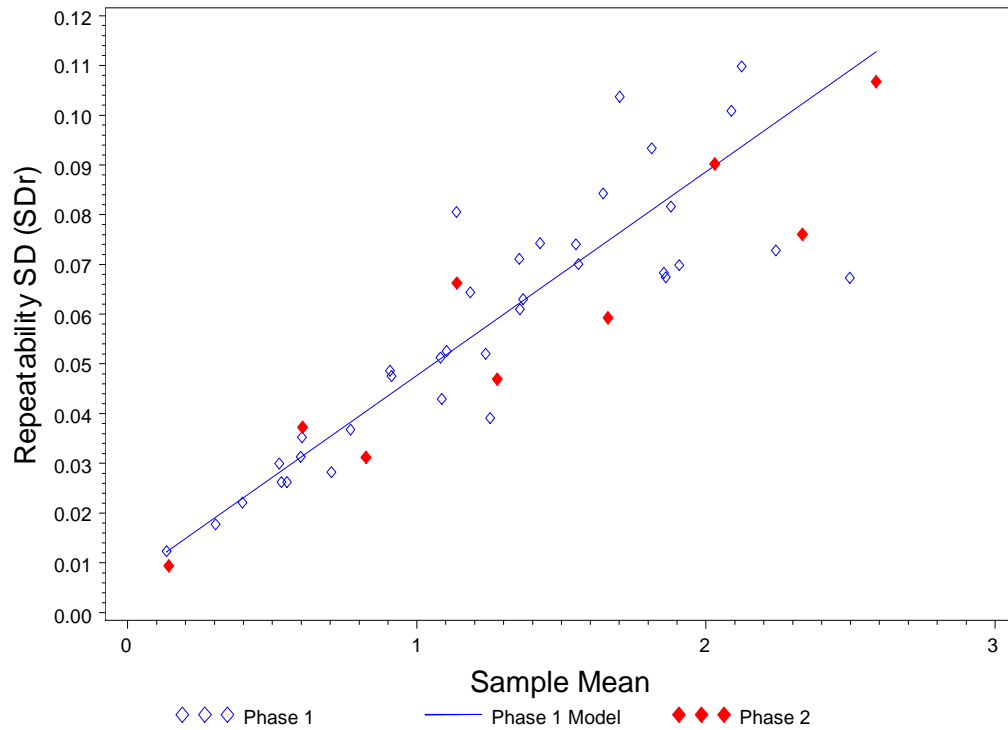


Figure 8. Phase Two vs. Phase One Reproducibility, Nicotine, SM400+KCAuto
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the SM400+KCAuto Smoking Machine

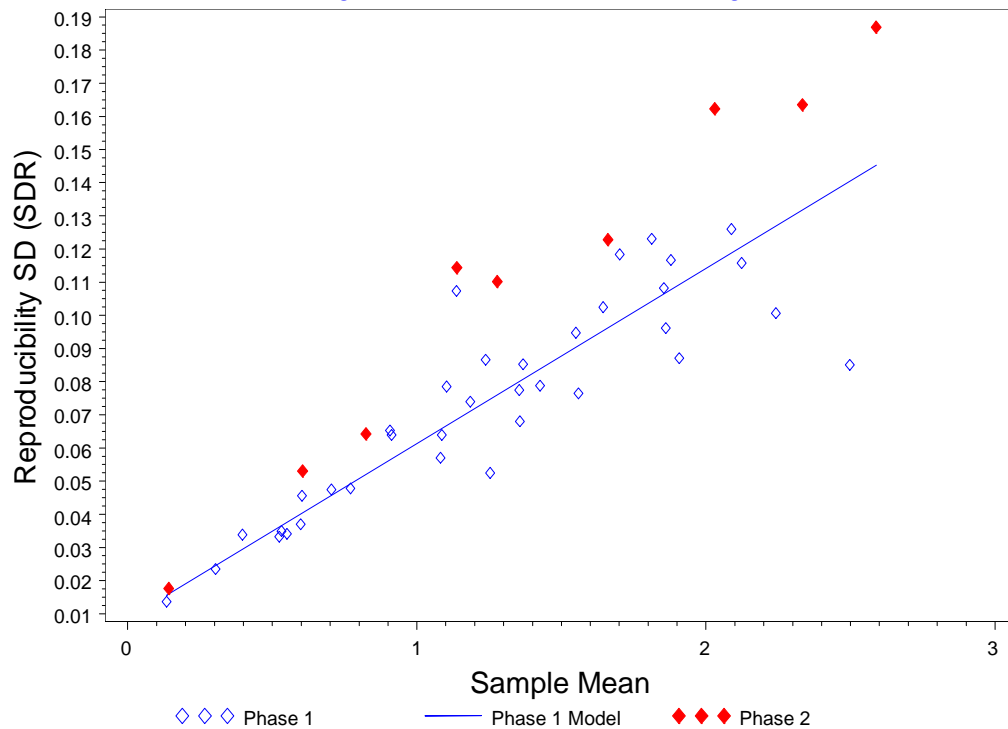


Figure 9. Phase Two vs. Phase One Repeatability, Nicotine, ASM500
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the ASM500 Smoking Machine

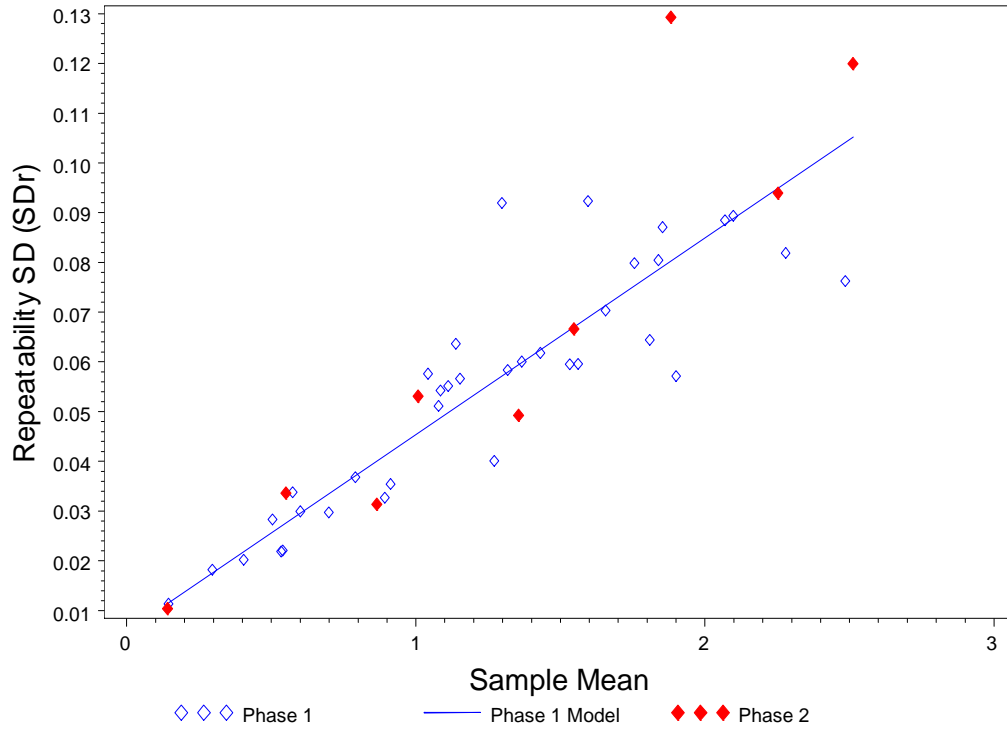


Figure 10. Phase Two vs. Phase One Reproducibility, Nicotine, ASM500
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nicotine, Using the ASM500 Smoking Machine

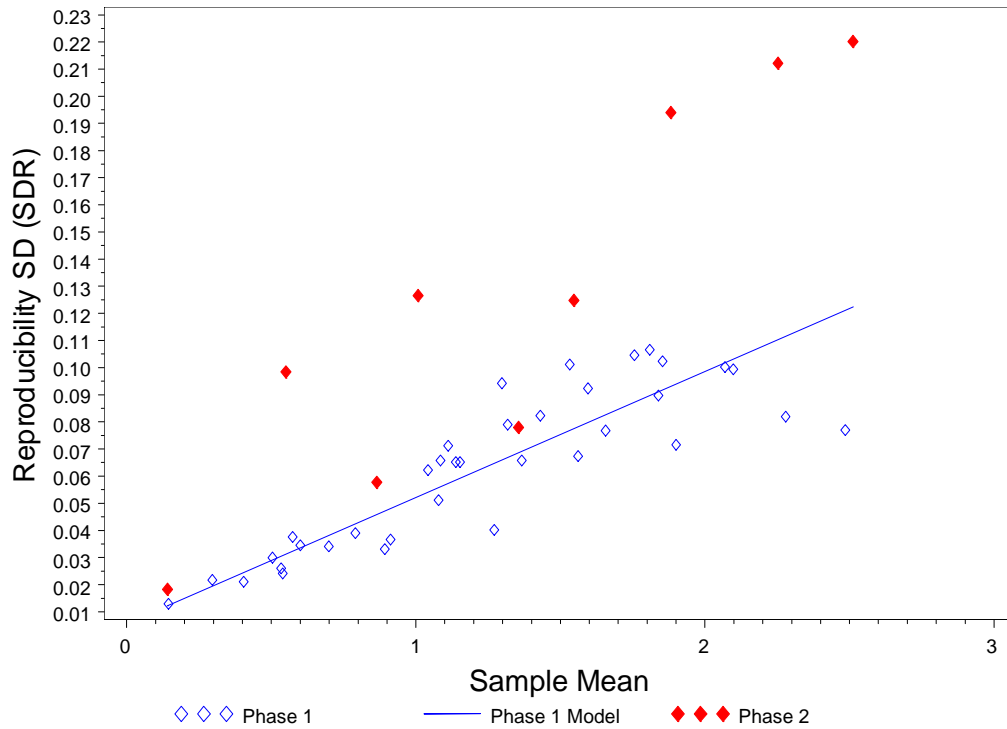


Figure 11. Phase Two vs. Phase One Repeatability, NFDPM, RM20
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the RM20 Smoking Machine

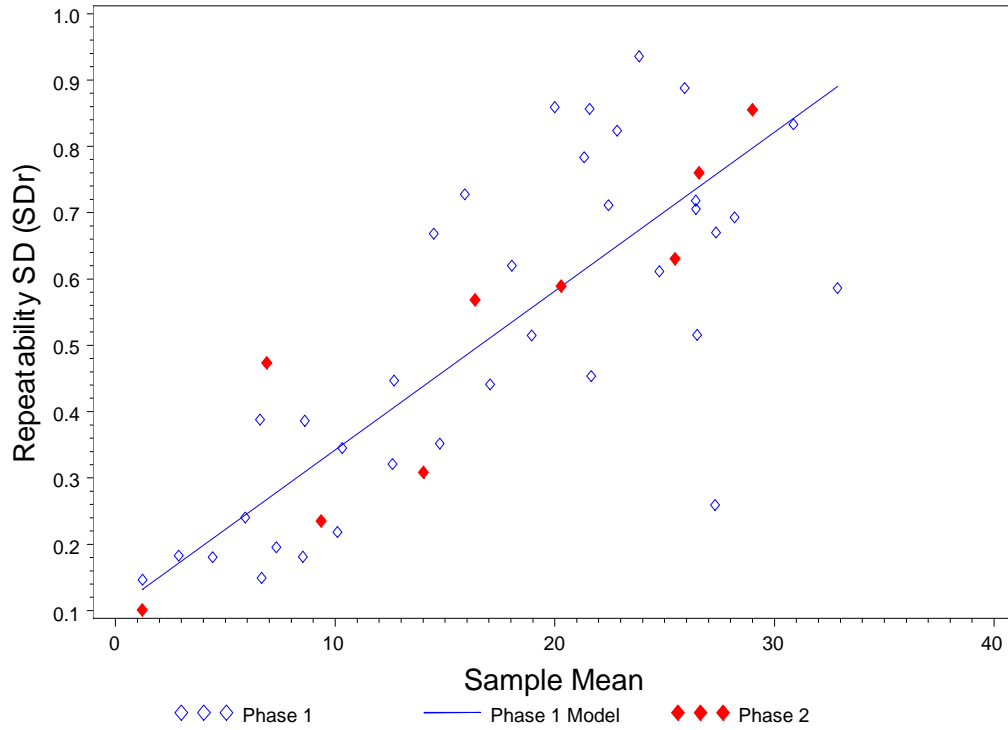


Figure 12. Phase Two vs. Phase One Reproducibility, NFDPM, RM20
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the RM20 Smoking Machine

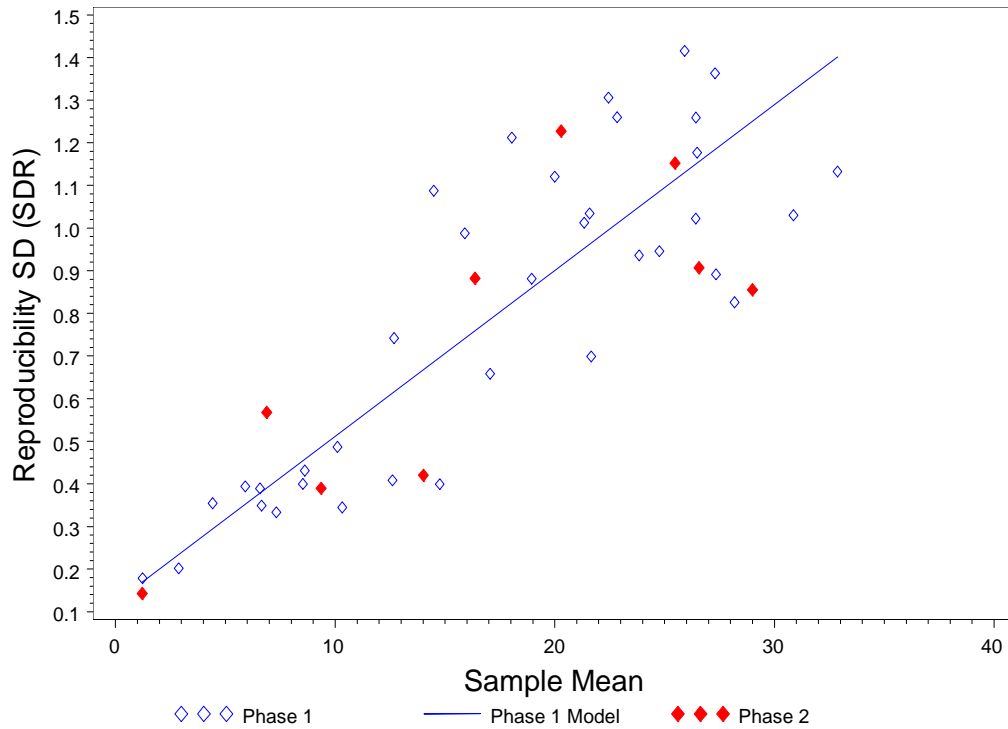


Figure 13. Phase Two vs. Phase One Repeatability, NFDPM, RM200
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the RM200 Smoking Machine

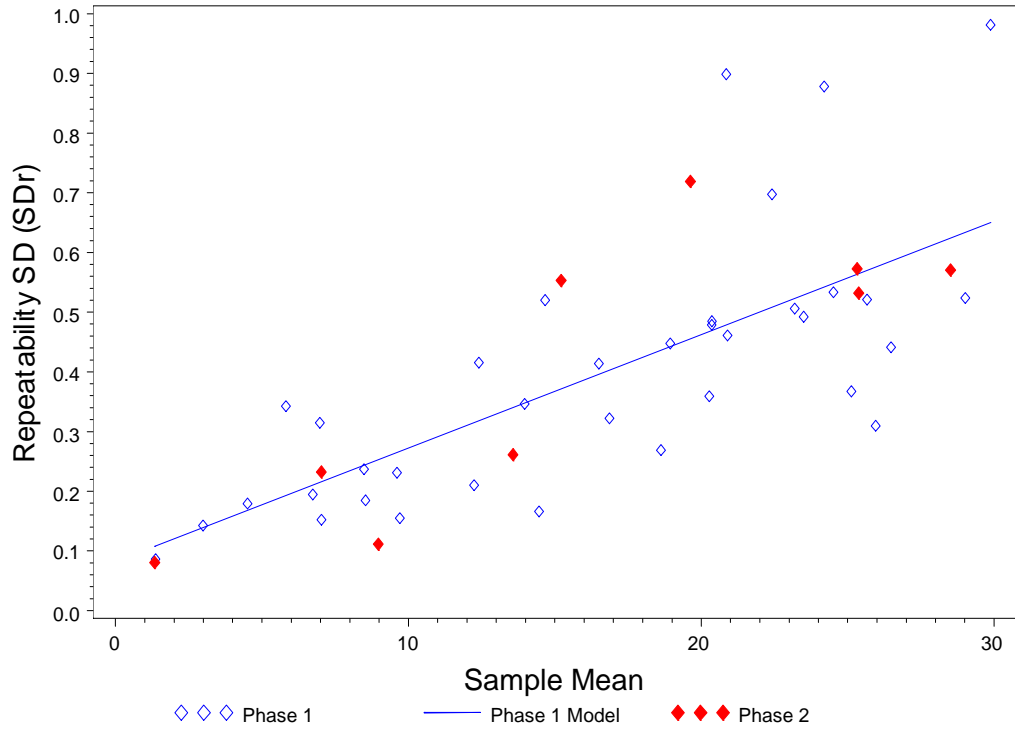


Figure 14. Phase Two vs. Phase One Reproducibility, NFDPM, RM200
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the RM200 Smoking Machine

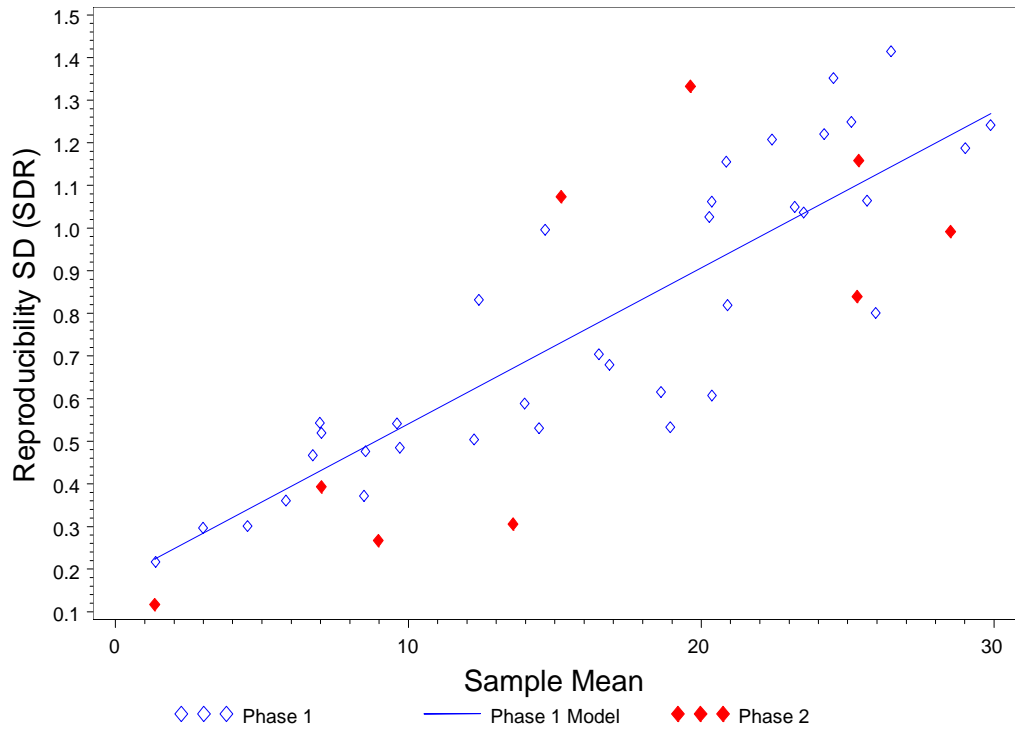


Figure 15. Phase Two vs. Phase One Repeatability, NFDPM, SM400
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the SM400 Smoking Machine

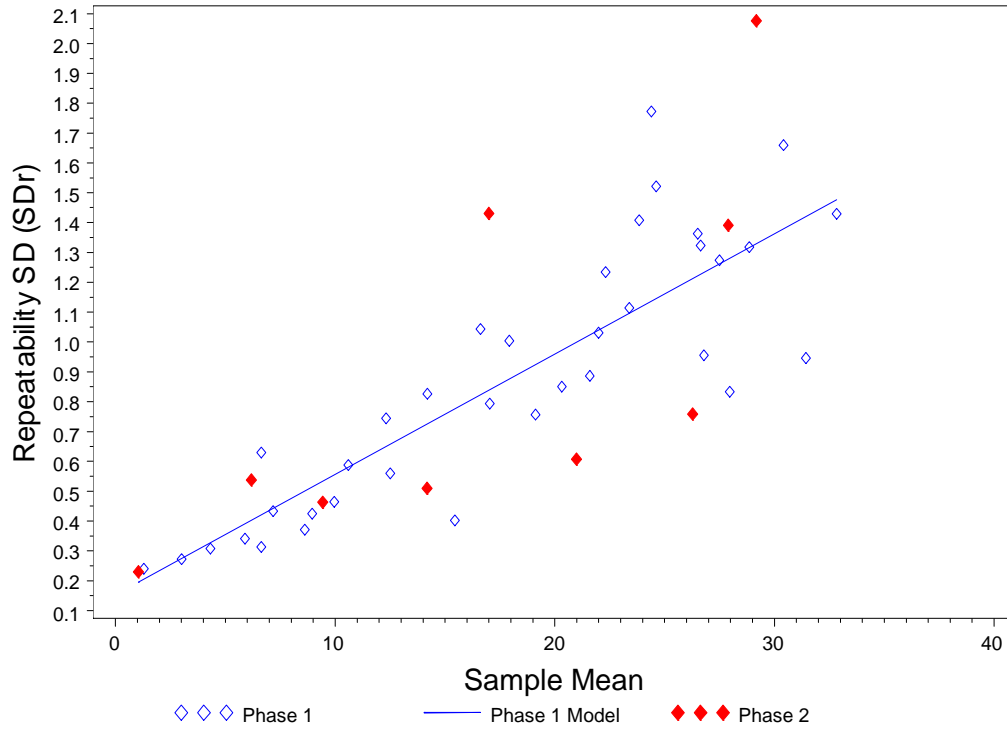


Figure 16. Phase Two vs. Phase One Reproducibility, NFDPM, SM400
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the SM400 Smoking Machine

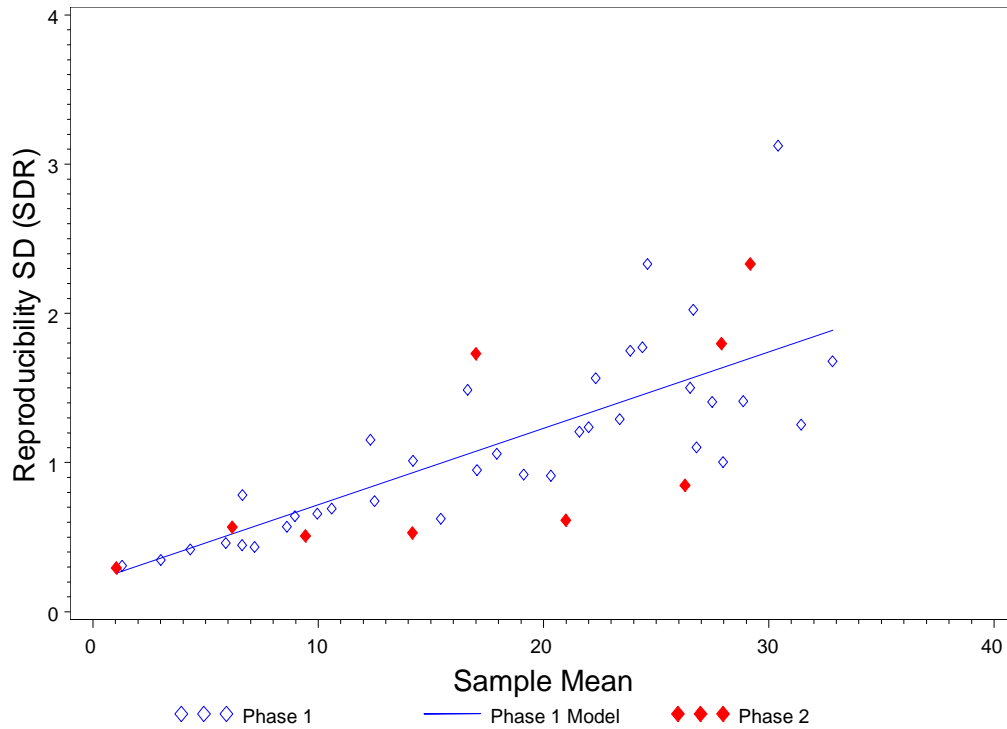


Figure 17. Phase Two vs. Phase One Repeatability, NFDPM, SM400+KCAuto
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the SM400+KCAuto Smoking Machine

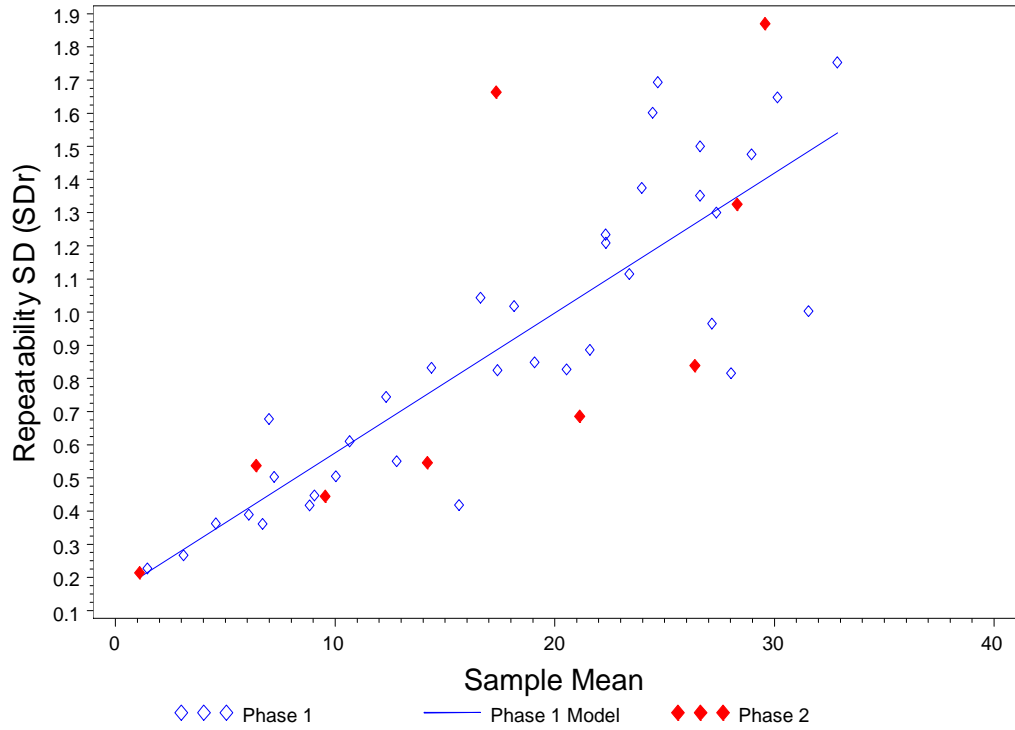


Figure 18. Phase Two vs. Phase One Reproducibility, NFDPM, SM400+KCAuto
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the SM400+KCAuto Smoking Machine

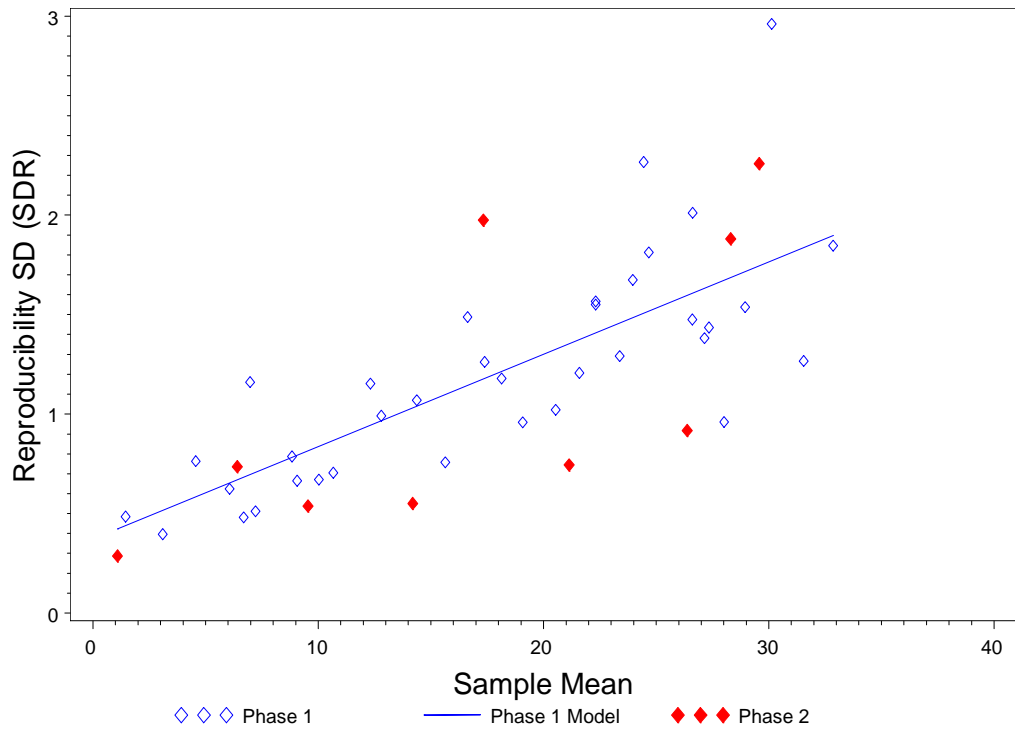


Figure 19. Phase Two vs. Phase One Repeatability, NFDPM, ASM500
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the ASM500 Smoking Machine

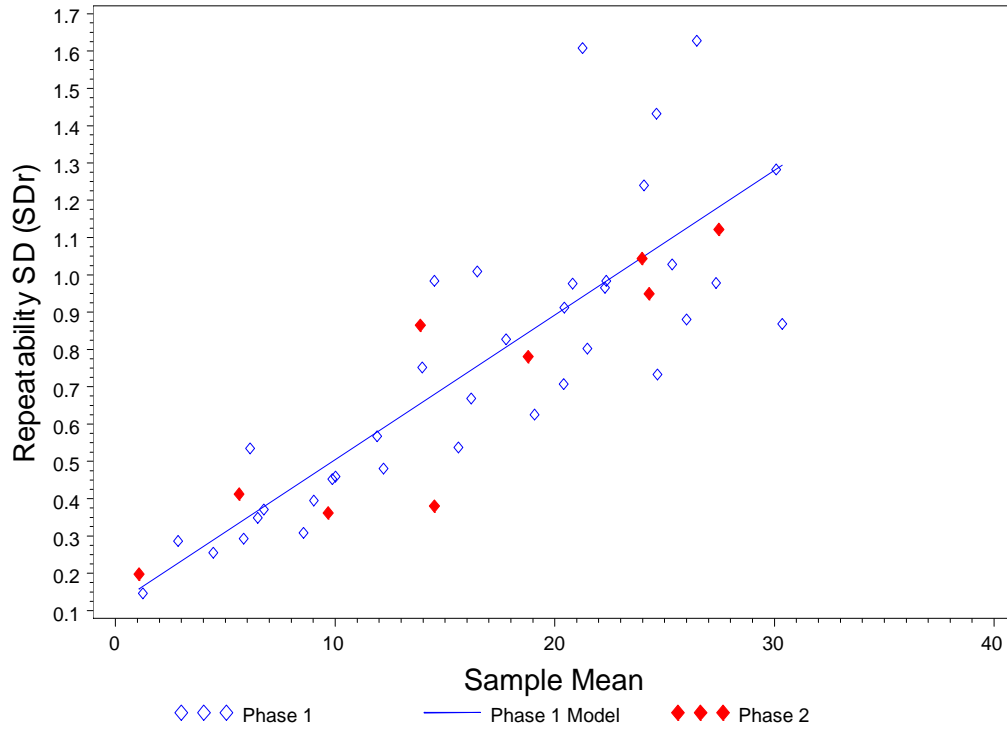


Figure 20. Phase Two vs. Phase One Reproducibility, NFDPM, ASM500
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 Nic-Free Dry TPM, Using the ASM500 Smoking Machine

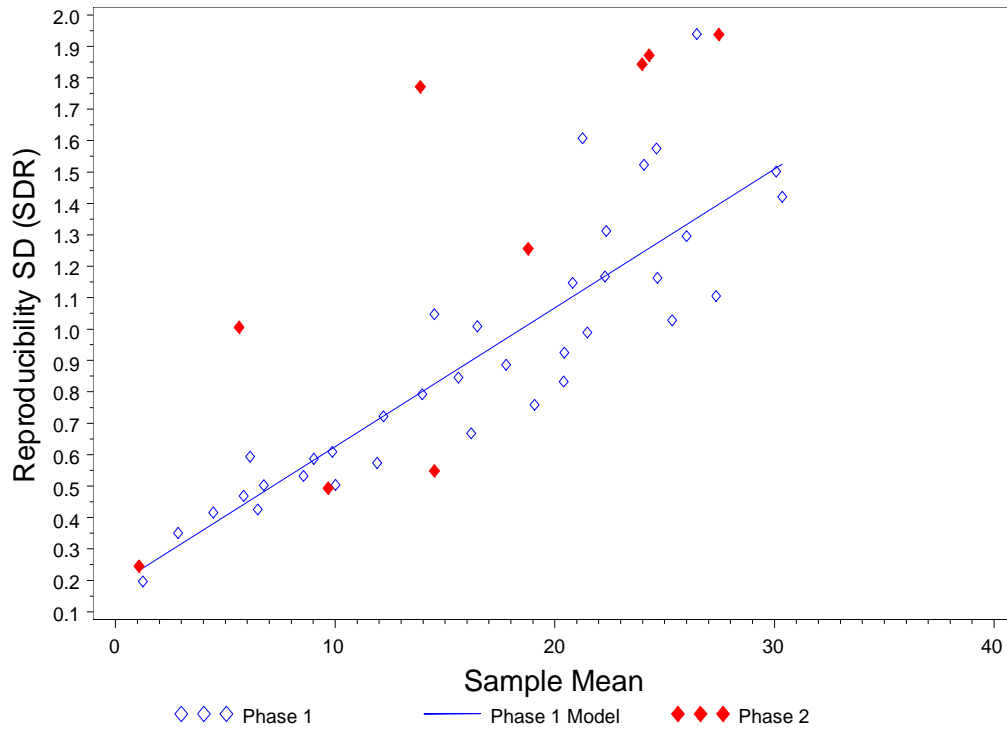


Figure 21. Phase Two vs. Phase One Repeatability, CO, RM20
Repeatability and Reproducibility for Phase 2 vs. Phase 1
CO, Using the RM20 Smoking Machine

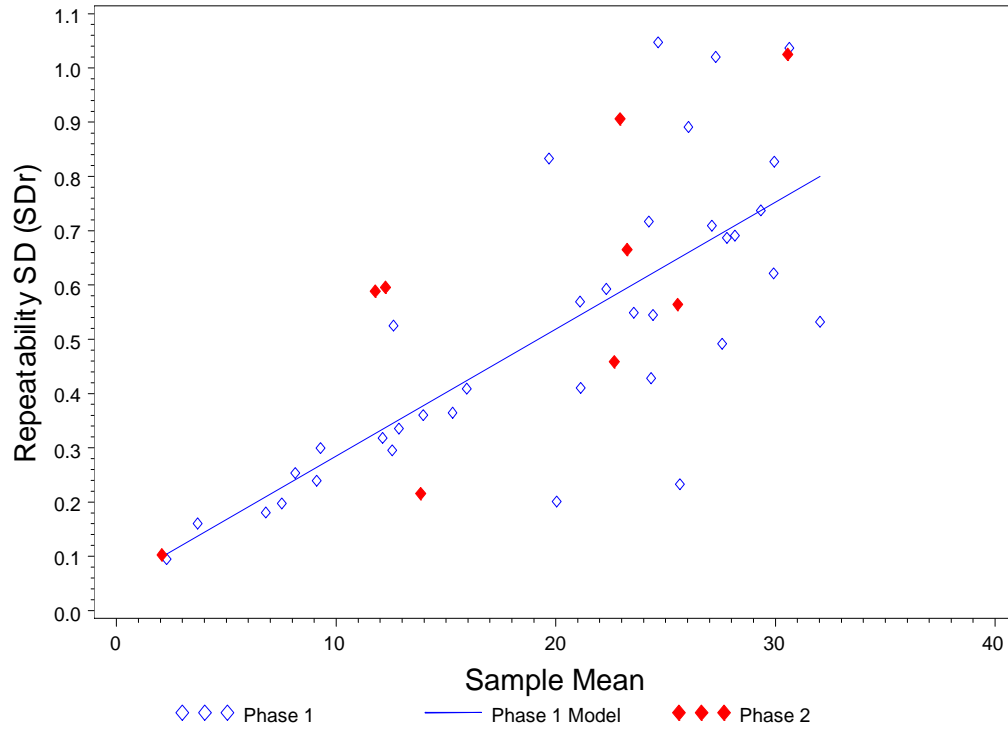


Figure 22. Phase Two vs. Phase One Reproducibility, CO, RM20
Repeatability and Reproducibility for Phase 2 vs. Phase 1
CO, Using the RM20 Smoking Machine

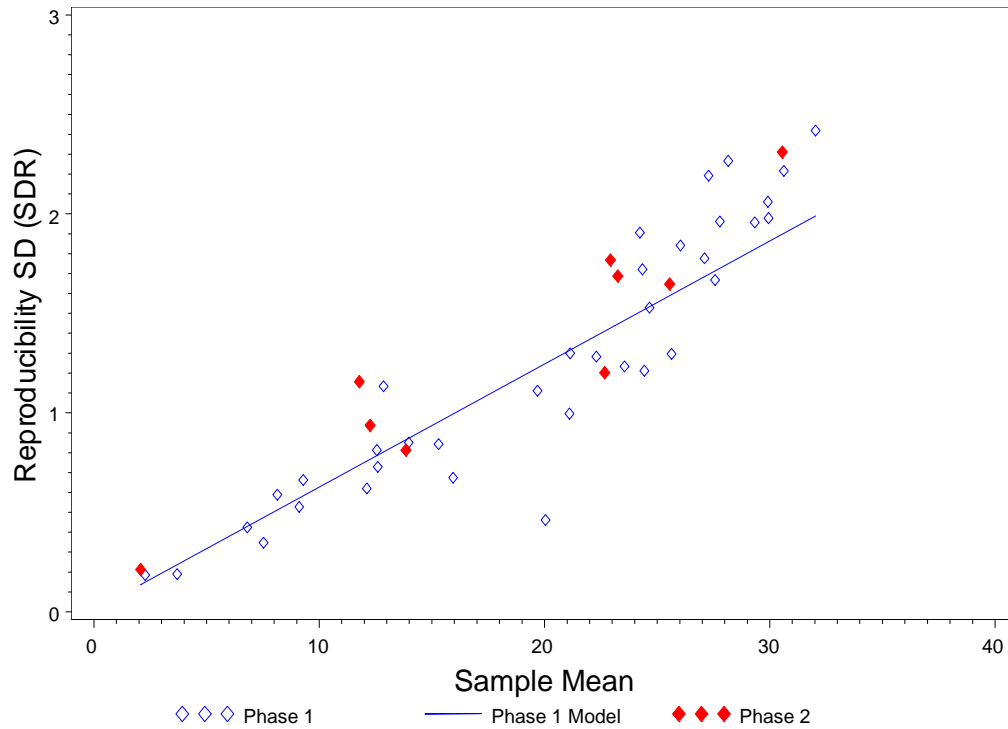


Figure 23. Phase Two vs. Phase One Repeatability, CO, RM200
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the RM200 Smoking Machine

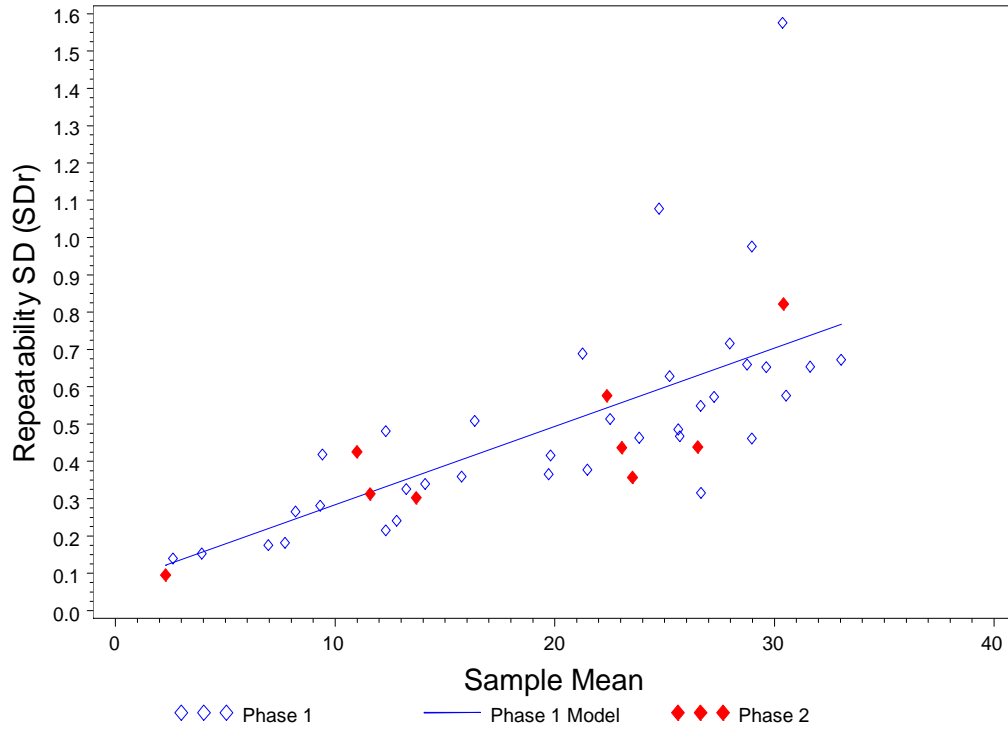


Figure 24. Phase Two vs. Phase One Reproducibility, CO, RM200
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the RM200 Smoking Machine

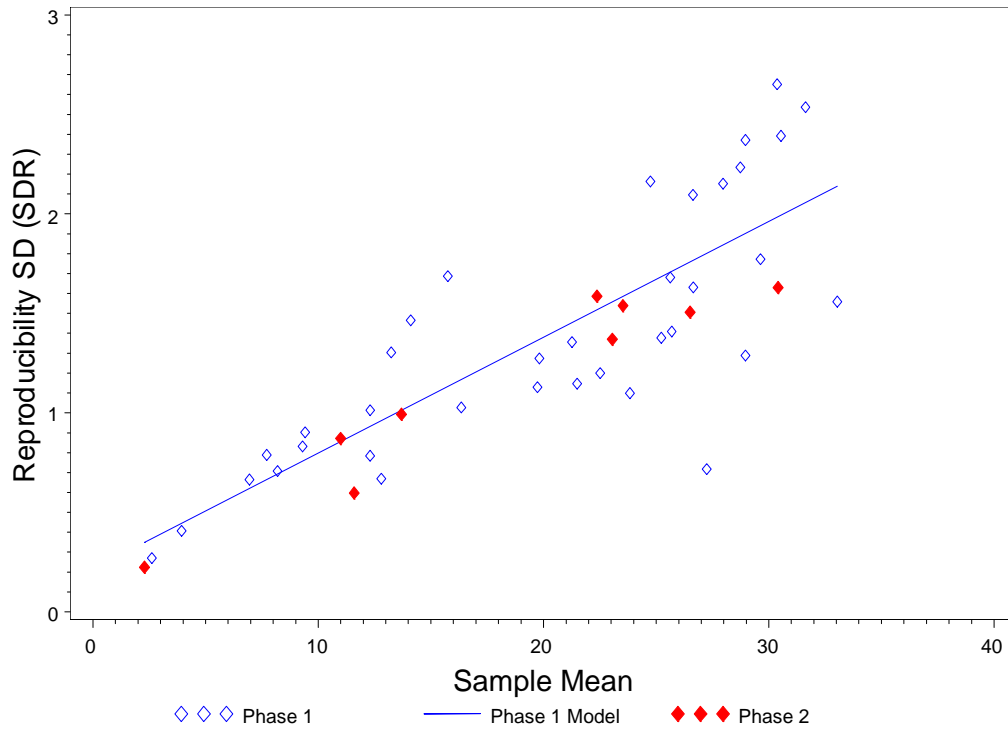


Figure 25. Phase Two vs. Phase One Repeatability, CO, SM400
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the SM400 Smoking Machine

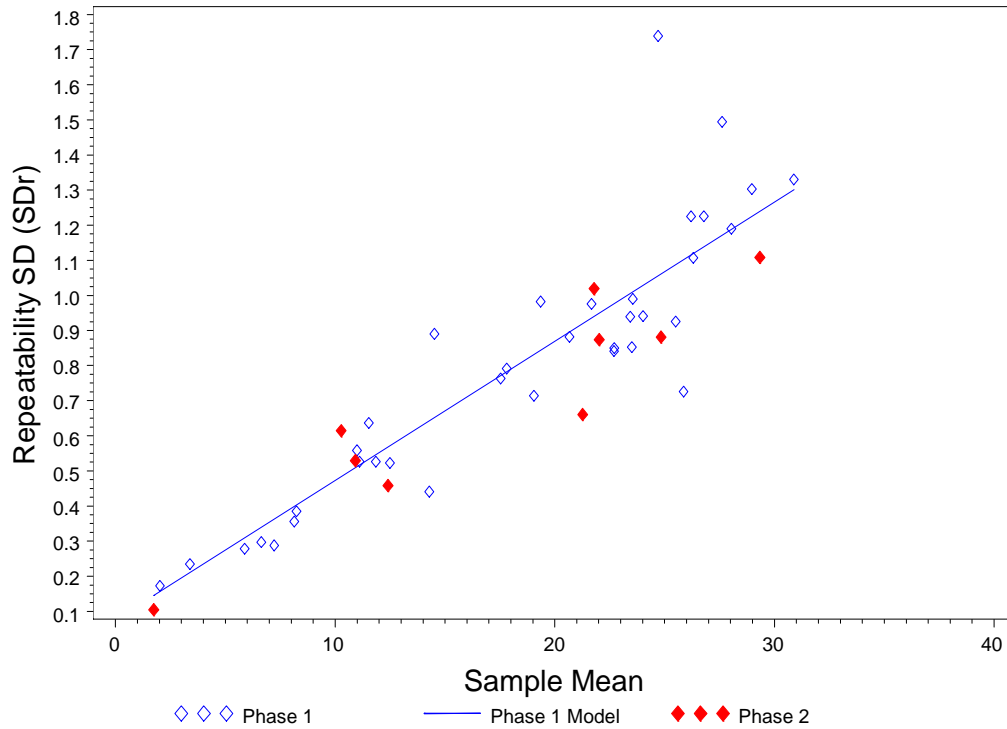


Figure 26. Phase Two vs. Phase One Reproducibility, CO, SM400
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the SM400 Smoking Machine

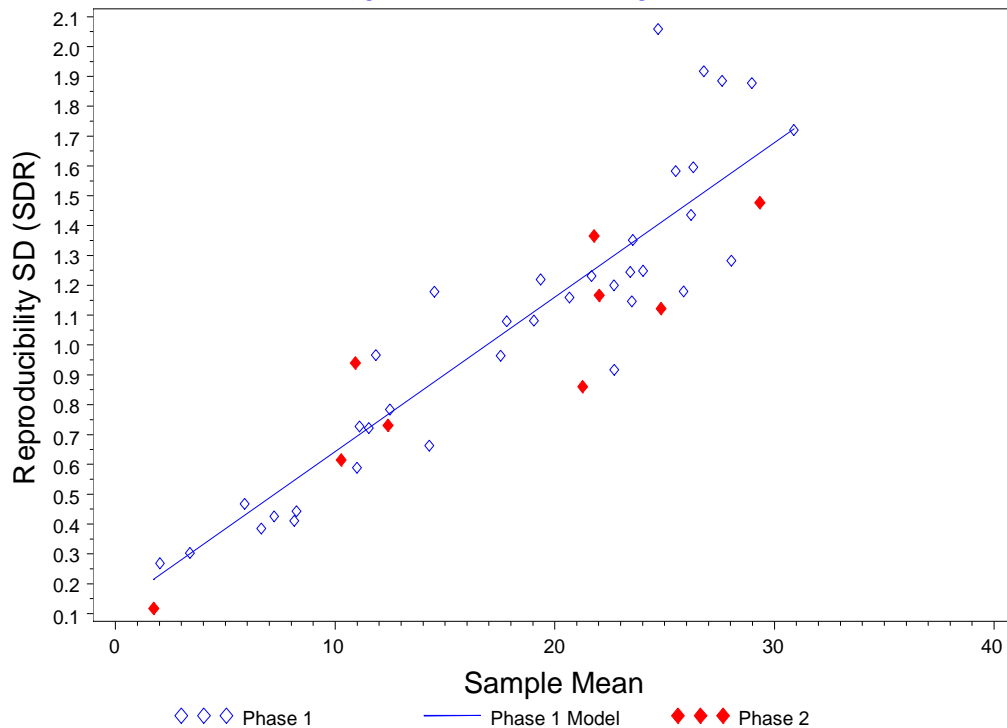


Figure 27. Phase Two vs. Phase One Repeatability, CO, SM400+KCAuto
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the SM400+KCAuto Smoking Machine

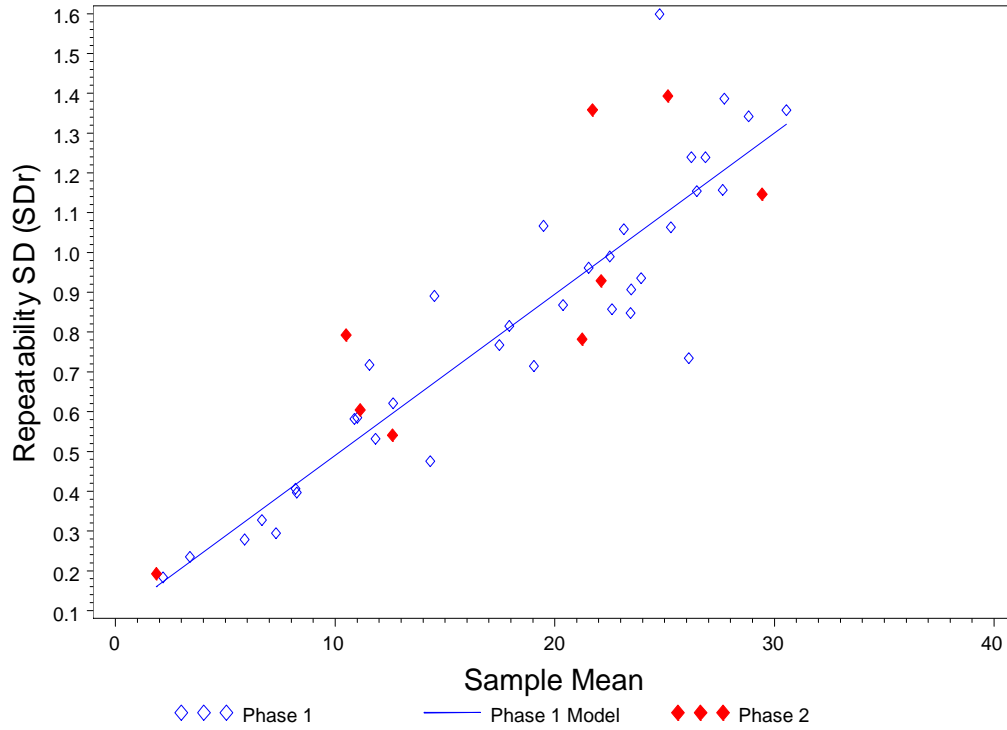


Figure 28. Phase Two vs. Phase One Reproducibility, CO, SM400+KCAuto
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the SM400+KCAuto Smoking Machine

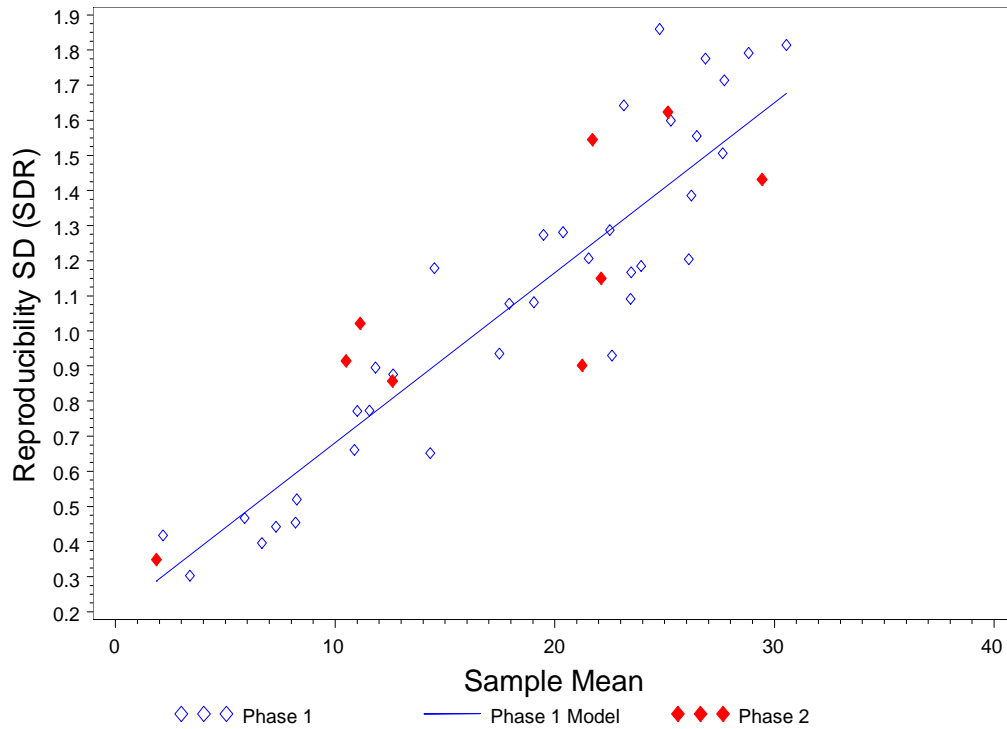


Figure 29. Phase Two vs. Phase One Repeatability, CO, ASM500
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the ASM500 Smoking Machine

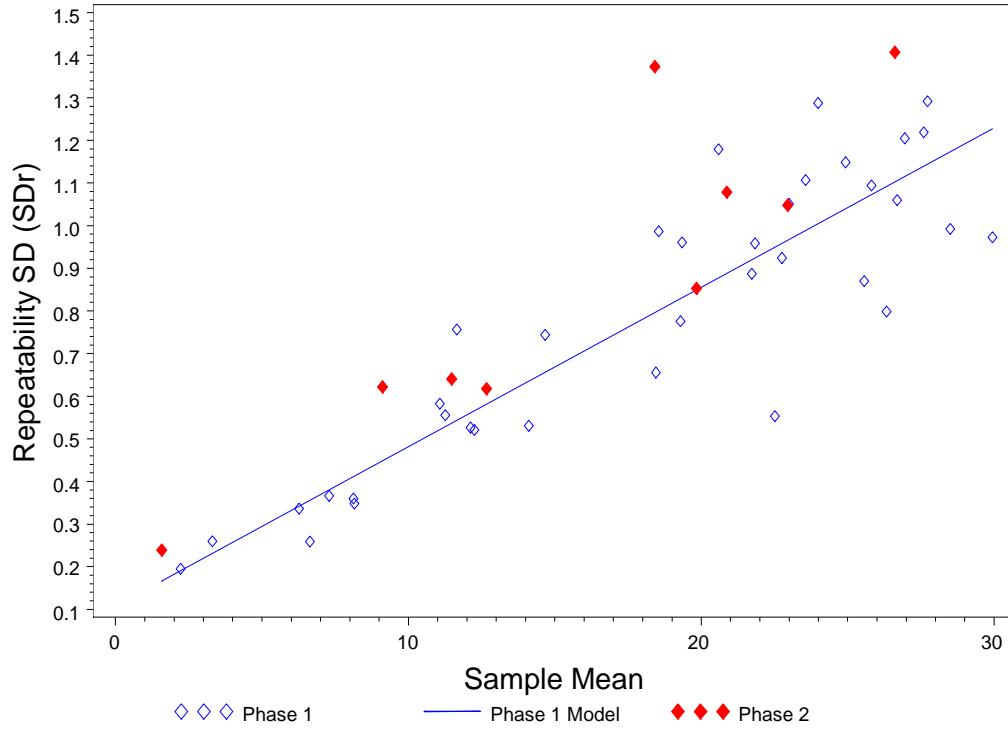
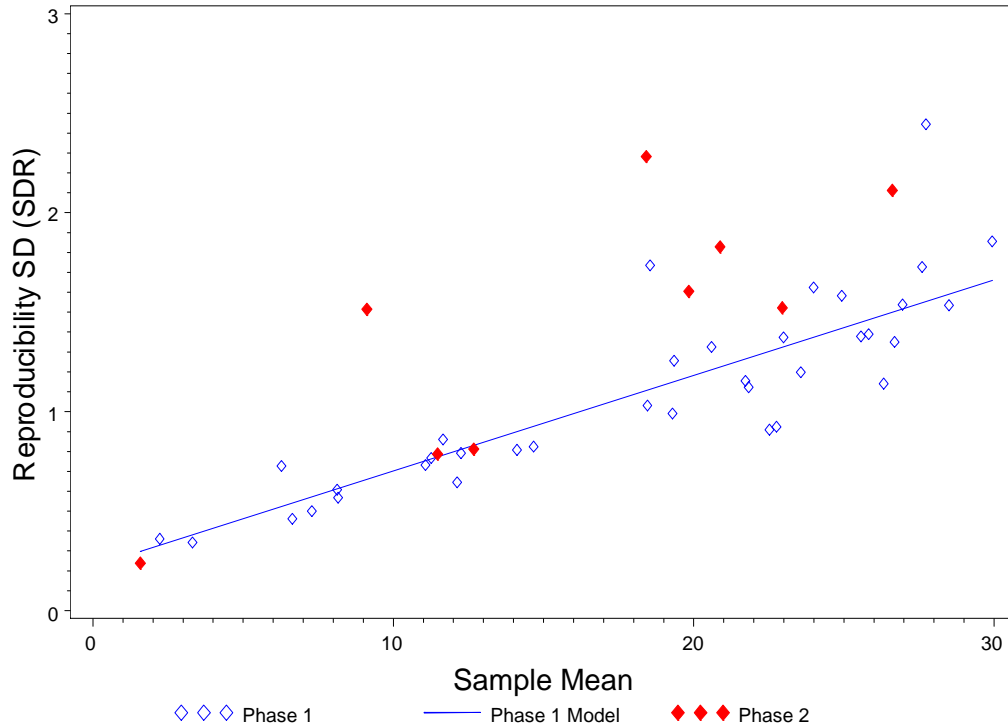


Figure 30. Phase Two vs. Phase One Reproducibility, CO, ASM500
 Repeatability and Reproducibility for Phase 2 vs. Phase 1
 CO, Using the ASM500 Smoking Machine



Appendix 7, Table 14. Tukey's Pairwise Comparison of Smoking Machine Category Means Based on NFDPM Yields

<u>Cigarette</u>	<u>Regime</u>	<u>NFDPM Mean (mg/cig)</u>				
PM One	Regime #1 Mean Smoking Machine	1.05	1.07	1.22	1.29	1.34
		SM400	ASM500	RM20	Hawktech	RM200
1R4F	Regime #1 Mean Smoking Machine	8.98	9.36	9.44	9.69	9.99
		RM200	RM20	SM400	ASM500	Hawktech
CM4	Regime #1 Mean Smoking Machine	13.58	14.02	14.19	14.26	14.53
		RM200	RM20	SM400	Hawktech	ASM500
PM One	Regime #2 Mean Smoking Machine	5.63	6.19	6.89	7.03	7.28
		ASM500	SM400	RM20	RM200	Hawktech
1R4F	Regime #2 Mean Smoking Machine	18.79	19.63	20.29	20.99	21.69
		ASM500	RM200	RM20	SM400	Hawktech
CM4	Regime #2 Mean Smoking Machine	24.30	25.33	25.48	26.28	26.81
		ASM500	RM200	RM20	SM400	Hawktech
PM One	Regime #3 Mean Smoking Machine	13.88	15.22	16.38	17.00	18.66
		ASM500	RM200	RM20	SM400	Hawktech
1R4F	Regime #3 Mean Smoking Machine	23.98	25.38	26.58	27.90	29.95
		ASM500	RM200	RM20	SM400	Hawktech
CM4	Regime #3 Mean Smoking Machine	27.47	28.52	29.00	29.18	31.16
		ASM500	RM200	RM20	SM400	Hawktech

Note: No significant difference observed for mean values connected by lines.

Appendix 7, Table 15. Tukey's Pairwise Comparison of Smoking Machine Category Means Based on Nicotine Yields

<u>Cigarette</u>	<u>Regime</u>	<u>Nicotine Mean (mg/cig)</u>				
PM One	Regime #1 Mean Smoking Machine	0.138	0.140	0.141	0.142	0.156
		RM20	Hawktech	ASM500	SM400	RM200
1R4F	Regime #1 Mean Smoking Machine	0.76	0.81	0.82	0.84	0.87
		Hawktech	RM20	RM200	SM400	ASM500
CM4	Regime #1 Mean Smoking Machine	1.16	1.29	1.31	1.31	1.36
		Hawktech	RM200	RM20	SM400	ASM500
PM One	Regime #2 Mean Smoking Machine	0.55	0.59	0.61	0.64	0.67
		ASM500	Hawktech	SM400	RM20	RM200
1R4F	Regime #2 Mean Smoking Machine	1.51	1.55	1.60	1.66	1.70
		Hawktech	ASM500	RM20	RM200	SM400
CM4	Regime #2 Mean Smoking Machine	2.14	2.25	2.33	2.37	2.38
		Hawktech	ASM500	RM20	RM200	SM400
PM One	Regime #3 Mean Smoking Machine	1.01	1.03	1.17	1.18	1.22
		ASM500	Hawktech	SM400	RM20	RM200
1R4F	Regime #3 Mean Smoking Machine	1.88	1.88	1.99	2.03	2.07
		ASM500	Hawktech	RM20	RM200	SM400
CM4	Regime #3 Mean Smoking Machine	2.42	2.51	2.58	2.63	2.64
		Hawktech	ASM500	RM20	SM400	RM200

Note: No significant difference observed for mean values connected by lines.

Appendix 7, Table 16. Tukey's Pairwise Comparison of Smoking Machine Category Means Based on CO Yields

<u>Cigarette</u>	<u>Regime</u>	<u>CO Mean (mg/cig)</u>				
PM One	Regime #1 Mean Smoking Machine	1.58	1.74	2.07	2.29	2.39
		ASM500	SM400	RM20	RM200	Hawktech
1R4F	Regime #1 Mean Smoking Machine	10.93	11.48	11.60	12.03	12.26
		SM400	ASM500	RM200	Hawktech	RM20
CM4	Regime #1 Mean Smoking Machine	12.41	12.68	13.44	13.70	13.85
		SM400	ASM500	Hawktech	RM200	RM20
PM One	Regime #2 Mean Smoking Machine	9.12	10.28	11.00	11.39	11.79
		ASM500	SM400	RM200	Hawktech	RM20
1R4F	Regime #2 Mean Smoking Machine	20.88	22.03	22.47	23.25	23.54
		ASM500	SM400	Hawktech	RM20	RM200
CM4	Regime #2 Mean Smoking Machine	19.84	21.14	21.28	22.67	23.06
		ASM500	Hawktech	SM400	RM20	RM200
PM One	Regime #3 Mean Smoking Machine	18.42	21.42	21.80	22.38	22.93
		ASM500	Hawktech	SM400	RM200	RM20
1R4F	Regime #3 Mean Smoking Machine	26.62	29.34	29.89	30.41	30.56
		ASM500	SM400	Hawktech	RM200	RM20
CM4	Regime #3 Mean Smoking Machine	22.96	24.84	25.56	26.37	26.51
		ASM500	SM400	RM20	Hawktech	RM200

Note: No significant difference observed for mean values connected by lines.

Table 17. Comparison of Three Blend-specific Models with a Single, Grand Model

Observed		3 Lines Model		Single Line Model		Lack of Fit			
Analyte	Regime	Error SS	Error DF	Error SS	Error DF	SS	DF	F	p *
NFDPM	2	748.56	236	873.95	240	125.39	4	9.88	0.0000
NFDPM	3	2036.34	236	2229.94	240	193.60	4	5.61	0.0003
Nicotine	2	4.36	236	5.09	240	0.73	4	9.88	0.0000
Nicotine	3	15.77	236	20.13	240	4.36	4	16.34	0.0000
CO	2	818.85	227	862.45	231	43.60	4	3.02	0.0187
CO	3	2604.98	227	2688.72	231	83.74	4	1.82	0.1250
All Regimes-Adjusted									
		3 Lines Model		Single Line Model		Lack of Fit			
Analyte	Regime	Error SS	Error DF	Error SS	Error DF	SS	DF	F	p *
NFDPM	2	675.84	236	775.68	240	99.84	4	8.72	0.0000
NFDPM	3	1628.1	236	1791.25	240	163.15	4	5.91	0.0002
Nicotine	2	4.26	236	5.06	240	0.80	4	11.13	0.0000
Nicotine	3	14.67	236	19.29	240	4.62	4	18.56	0.0000
CO	2	711.48	227	757.98	231	46.50	4	3.71	0.0060
CO	3	2071.12	227	2156.84	231	85.72	4	2.35	0.0552
Regime-Adjusted									
		3 Lines Model		Single Line Model		Lack of Fit			
Analyte	Regime	Error SS	Error DF	Error SS	Error DF	SS	DF	F	p *
NFDPM	2	586.04	236	689.31	240	103.27	4	10.40	0.0000
NFDPM	3	1446.17	236	1643.08	240	196.91	4	8.03	0.0000
Nicotine	2	3.31	236	4.86	240	1.55	4	27.73	0.0000
Nicotine	3	13.18	236	18.97	240	5.79	4	25.93	0.0000
CO	2	639.46	227	670.77	231	31.31	4	2.78	0.0277
CO	3	2160.5	227	2263.95	231	103.45	4	2.72	0.0306

* P< 0.05 means that significant additional variation is explained by individual blend group models compared to a single grand model fit to all groups

Table 18. Comparison Nine Product Group Models with a Single, Grand Model

Observed		9 Lines Model		Single Line Model		Lack of Fit			
Analyte	Regime	Error SS	Error DF	Error SS	Error DF	SS	DF	F	p *
NFDPM	2	647.46	229	907.29	245	259.83	16	5.74	0.0000
NFDPM	3	1660.28	229	2412.61	245	752.33	16	6.49	0.0000
Nicotine	2	3.44	229	5.1	245	1.66	16	6.91	0.0000
Nicotine	3	10.45	229	20.16	245	9.71	16	13.30	0.0000
CO	2	607.1	219	870.39	235	263.29	16	5.94	0.0000
CO	3	2193.33	219	2740.4	235	547.07	16	3.41	0.0000
All Regimes-Adjusted									
		9 Lines Model		Single Line Model		Lack of Fit			
Analyte	Regime	Error SS	Error DF	Error SS	Error DF	SS	DF	F	p
NFDPM	2	598.44	229	805.07	245	206.63	16	4.94	0.0000
NFDPM	3	1394.5	229	1937.95	245	543.45	16	5.58	0.0000
Nicotine	2	3.34	229	5.07	245	1.73	16	7.41	0.0000
Nicotine	3	9.32	229	19.33	245	10.01	16	15.37	0.0000
CO	2	519.29	219	764.39	235	245.1	16	6.46	0.0000
CO	3	1774.12	219	2194.27	235	420.15	16	3.24	0.0000
Regime-Adjusted									
		9 Lines Model		Single Line Model		Lack of Fit			
Analyte	Regime	Error SS	Error DF	Error SS	Error DF	SS	DF	F	p
NFDPM	2	511.41	229	709.43	245	198.02	16	5.54	0.0000
NFDPM	3	1293.78	229	1820.11	245	526.33	16	5.82	0.0000
Nicotine	2	2.43	229	4.86	245	2.43	16	14.31	0.0000
Nicotine	3	8.43	229	19.01	245	10.58	16	17.96	0.0000
CO	2	479.12	219	674.87	235	195.75	16	5.59	0.0000
CO	3	1874.81	219	2315.59	235	440.78	16	3.22	0.0001

* P< 0.05 means that significant additional variation is explained by individual product group models compared to a single grand model fit to all groups