



Department of
Taxation and Finance

Publication 132

Computer-Assisted Audits

Guidelines and Procedures for Sales Tax
Audits

Table of contents

Introduction	1
The computer-assisted audit process	2
Information gathering	2
A good candidate for a computer-assist audit	2
Computer-assisted audit techniques	3
Computer-assisted statistical sample audit	3
Sales data analysis	3
Focused detail audit	4
The TAA conference	5
Safeguarding confidential taxpayer information	6
Computer-assisted audit requirements	6
Basic data processing concepts – Definitions	6
Data requirements for a use tax statistical sample or focused detail audit	7
Data requirements for sales data analysis	10
Understanding computer-assisted statistical sampling	12
Precision	12
Confidence	12
Random sampling	13

Mid-point assessment guideline used for statistical sampling	14
Stratum boundary determination	15
Calculating stratum boundaries (Example A)	15
Sample allocation using Neyman allocation methodology	18
Including credit items in the sampling process	19
Common sampling methods	19
NYS Tax Department's sampling method	19
NYS Tax Department's process detailed	19
Reasoning for using NYS Tax Department's method	22
Handling of positive and negative transactions in a statistical sampling audit	22
Objective	22
Overview	22
Assumptions for purchases and returns	23
Positive invoice amounts - purchases	23
Negative invoice amounts - returns	24
Journal entries and reclassifications	25
Reclassification from one selected account to another selected account	25
Reclassification from a selected account to a nonselected account	26
Refund claims	26
Tax-only invoice	26

Installment and progress billings	27
Appendix A: Glossary of statistical terms basic theory, concepts, and terms	27
Statistical formulas used by New York State	29
Appendix B: Authority to request computerized records	31
Appendix C: <i>Data transfer options</i>	32
Sampling bibliography.....	33

Introduction

In this publication, we discuss three computer-assisted audit techniques:

- computer-assisted statistical sample audit,
- sales data analysis, and
- focused detail audit.

We will discuss more technologically advanced methods, such as statistical sampling and computer-assisted detail auditing using our new Audit Command Language (ACL) software, in more detail in this publication. Since more businesses accept and use electronic data as source documentation in the audit process, we can conduct audits with less disruption to normal business activities. In this age of computers and electronic data capability, many more businesses are asking us to use these new methods during audits which are:

- more accurate and more efficient than older manual methods, and
- less intrusive to the taxpayer's business activities.

Our field audit staff will perform computer-assisted audits whenever possible. As always, the field auditor and team leader retain responsibility for performing the audit. Our Technology Assist Audits (TAA) section provides any necessary technical assistance required to conduct audits using a taxpayer's electronic records.

The use of computer-assisted audit techniques—using ACL, statistical sampling, or both—gives taxpayers a more efficient way of determining their proper sales and use tax liability. When you have complete books and records, you have the right to have your books and records audited in detail. Be aware that some forms of computer-assisted audits are tests, and not detailed audits. If you have complete books and records, we must have your consent before we issue any tax assessments based on an audit that is not done in detail.

Questions?

- For general audit issues, contact your field auditor.
- For computer-assisted audits, contact us at:

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The computer-assisted audit process

Information gathering

At the beginning of the audit process, we usually ask taxpayers to complete Form DTF-76, *General Business Corporation Computer Audit Questionnaire*. We use the information on the questionnaire to:

- obtain basic information about the business, and
- determine if we can use computerized records to complete the audit in a more efficient manner.

A good candidate for a computer-assist audit

A business is a good candidate for a computer-assisted audit if it has any of the following:

- computerized records;
- a large volume of sale or purchase transactions;
- no hard copy invoices (such as for electronic data interchange [EDI] users);
- invoices that are difficult or expensive to retrieve;
- sales to many jurisdictions;
- multiple locations; or
- many types of transactions.

The first face-to-face meeting with your sales tax auditor, the auditor will:

- become acquainted with your business,
- obtain some general information about your business, and
- discuss a computer-assisted audit.

You should expect many questions at this initial conference. You are encouraged to ask questions as well.

We can use computer-assisted audit techniques on some or all areas of the audit (sales, expense purchases, capital assets). For example, we may combine a computer-assisted detail audit of capital assets with a statistical sample audit of expenses.

There are other techniques available that will verify exempt sales and proper jurisdictional reporting. With your input, the auditor will determine which methods are most appropriate for your audit.

A computer-assisted audit:

- requires the retrieval of fewer invoices,
- saves you time and the expense of handling paper, and
- often requires less on-site presence by the auditor, minimizing disruption to the business and reducing the time you (and your employees) must devote to the audit.

Computer-assisted audit techniques

Computer-assisted statistical sample audit

We generally use this audit method for audits of expense purchases, but we may use it for capital assets or other areas as well.

1. The auditor must determine which general ledger accounts to include in the group of invoices (universe) to be sampled.
2. We will break the universe down into dollar ranges (strata).
3. We will use statistical sampling software to select a random sample of invoices from each stratum. A random sample means that every invoice in the group has an equal chance of being selected without bias.
4. We will give you a list of the transactions randomly selected from each stratum and ask you to pull the corresponding invoices for the auditor to review. With statistical sampling, you will pull fewer invoices than in a manual audit and it saves you time and money.
5. After you and the auditor review the list of items and taxability is determined, we will project the result from the statistical sample using our statistical sampling software to calculate tax or credit due from the entire universe.

Advantages of a computer-assisted statistical sample include:

- ability to handle a large number of transactions
- efficient use of time for both the department and the taxpayer
- fewer invoices to pull
- less on-site presence by auditor
- less business disruption

Sales data analysis

Our TAA section has developed programs that:

- identify potential jurisdictional reporting errors;
- avoid the need to review the actual sales invoices on an item-by-item basis; and
- segregate and list exempt customers, and the dollar value of sales to each exempt customer.

We generate reports from the programs to analyze exempt sales and potential jurisdictional errors. We can use reports to perform a detailed review for the entire audit period, or test period, if you agree. The auditor will then give you the reports and ask for an explanation of the rate you charged, or an exemption document to justify the exempt sale. We produce these reports in our office to reduce the amount of time the auditor spends at your business location.

Advantages of a sales data analysis include:

- ability to review a large number of transactions in detail
- accurate jurisdictional determinations
- efficient use of time for the department and the taxpayer
- fewer invoices to pull
- less on-site presence by auditor
- less business disruption

Focused detail audit

This audit technique lets the auditor review all your books and records electronically in detail and then compute any liability or refund without using estimates or projections. The auditor will use descriptions contained in your electronic records to determine taxability. You may need to provide source documents, depending on the quantity and quality of the descriptions in your electronic records.

The auditor will also review for credits—areas where you overpaid tax or paid tax on goods or services that were not subject to tax. Credits may result in a refund or offset against any other tax due.

Your electronic records must include detailed descriptions of:

- items or services ordered and the department making the purchase;
- items or services received;
- items sold or services rendered;
- the general ledger account charged for the sale or purchase; and
- any codes used from table files.

For the auditor to determine the taxability of a transaction, the description must indicate:

- what the item is,
- how it is used, and
- where it is used.

The auditor will produce a report of items they determined you owe additional tax on or are due a credit for, and items requiring additional information. The auditor will ask you to review these reports and provide any additional electronic or hard copy documentation pertaining to the items listed. After reviewing the additional documentation, the auditor will then make a final tax determination. If you do not provide additional documentation for questionable items, the auditor will rely on whatever electronic or hard copy documentation was originally available to determine taxability.

Advantages of a focused detail audit include:

- uses all of the books and records with no estimates or projections
- allows for the detailed review of credits
- allows for less on-site presence by the auditor and less business disruption
- reduces the document retrieval needed, saving the taxpayer time and money
- reduces problems with missing invoices
- applies to all audit areas (capital assets, expenses, and sales)

The TAA conference

If your records are computerized, the auditor will schedule a TAA conference to determine what information is available for the audit. The following people may attend this conference:

- the auditor;
- the auditor's supervisor;
- representatives from our TAA section (data processing auditor); and
- someone from your business who has the authority to make decisions on behalf of the business, thoroughly understands the accounting system, and is knowledgeable about the computer system and computerized records.

We encourage you to bring anyone else who has knowledge and expertise to add to the meeting. The TAA conference is extremely important because it lays the groundwork for the entire audit and can save time in conducting the entire audit.

During the TAA conference the auditors will need to:

- learn the accounting system and sales and purchasing processes;
- identify information (files) that are maintained on the computer;
- determine relationships between files and any fields that link them together;
- determine which fields in those files contain the needed information; and
- observe a system walk through (an opportunity for the auditor to watch someone enter a sales or purchase invoice and obtain a screen print of what information is captured in the taxpayer's computer records. The more an auditor learns about the taxpayer's record keeping system, the smoother the audit process will be).

At the TAA conference, you and the auditors will determine which fields (in which files) contain the needed

information. The information is usually in several files and may be on a mainframe, network, or personal computer (PC). We will ask your computer staff to create one *composite file*. A *composite file* is one file containing all of the fields needed to complete the audit.

We may ask you to provide table files that contain descriptions of codes, or an electronic chart of accounts. You may keep these files on a PC in a word processing, spreadsheet, or database program. We ask that you provide the data in whatever format is most convenient for you, as long as we can properly handle the data. Refer to *Appendix C* for the various options available.

We do not prescribe the specific technology or technical specifications applicable to retaining or otherwise managing electronic records. To properly perform a computer assisted audit, we must be able to access and handle the electronic data you provide.

After reviewing and checking the data supplied for accuracy and adequacy, the auditor will begin to review the electronic data to perform the audit. The auditor may contact you with any questions that may arise.

- If the auditor is doing a focused detail audit, they will prepare a list of items that appear to be errors for you to review.
- If the auditor is doing a statistical sample audit, they will provide a list of invoices for you to pull. The auditor will then review the invoices to determine taxability and prepare a report of the exceptions for you to review.

Safeguarding confidential taxpayer information

The Tax Department follows established procedures to safeguard all documentation and records supplied or accessed as part of an audit. Tax Department employees or contractors are subject to the Tax Law's secrecy provisions and can be fired from their positions or prosecuted for unauthorized disclosure of confidential tax information (see Tax Law §§ 1146 and 1825). For additional information, see *Data Security* in *Appendix C: Data Transfer Options*.

Computer-assisted audit requirements

Basic data processing concepts – Definitions

- A computer *file* is a repository for all records of a given type, such as an accounts payable file containing all distribution records for purchase transactions.
- The *record* is made up of all the associated *fields*, such as vendor name, date, account, and amount, that are part of one individual transaction.
- A *character* is an individual component of a field, such as the individual digits that make up a number or the individual letters that make up a word.
- The *record layout* is the road map that details what information is contained in the file and where it is located.

To read the data from a computer file, we need a record layout (also known as a *file description*). On the record layout, you must indicate:

- which fields are included in the data,
- the start and end position for each field,
- the field length,
- the field name,
- the field description, and
- the type of data for each field (such as, alpha, numeric, date, and so on).

Field name	Start position	End position	Field length	Data type
Account number	1	5	5	Pic 9(5)
Invoice date	6	13	8	MMDDYYYY
Posting date	14	21	8	MMDDYYYY
Distribution amount	22	32	11	Pic S9(9)V99
Vendor name	33	52	20	Pic X(20)
Cost center	53	55	3	Pic 9(3)
Invoice number	56	60	5	Pic 9(5)

The sample below shows five records from a file that illustrate what the data would look like using the above record layout. As you can see, the distribution amount field has no decimal to indicate the cents. In this example, the amount field has two implied decimal places as indicated by the *V* in the data type field above. The distribution amount field for the first record below would translate to \$5,424.79.

```

50368081719990902199900000542479JOHN DOE ENTERPRISES01012379
35271042619990524199900000023848ABC COMPANY                01245875
74492021319990310199900002561039MY COMPANY INC              12163715
55189111219981215199800000004599XYZ INC                    54877934
69487060119980705199800000015763EXAMPLE COMPANY            22499147

```

Data requirements for a use tax statistical sample or focused detail audit

It is important to ensure that the data file you provide has sufficient detail for the auditor to identify and retrieve individual transactions. Additional information, such as item descriptions and tax paid or accrued, is useful for the auditor to determine the tax directly from the electronic data. This can be a tremendous time saver for both you and auditor.

Accounts payable suggested fields—Request is not limited to the following fields nor will all the following fields apply to each audit. Determining exact fields is dependent on file descriptions you provide.

Data element	Data element definition
Account charged **	Identifies the accounts to which the cost of the goods and services are being distributed (that is, from a chart of accounts)
Batch number	A unique control number assigned to a group of invoices in preparation of the data being keyed into a computer
Cash discount	The amount of price reduction given by a manufacturer or wholesaler when the invoice was paid within a specified discount period
Check number	The unique control number that is generally printed onto all checks
Cost center **	Identifies where the costs of the goods and services are or will be distributed (Also, see <i>Department.</i>)
Date of invoice * *	The date the vendor created the invoice
Date paid	The date you sent a check or payment to a vendor for an associated invoice
Department	The department from which the purchase was made or in which a job the goods and services were performed (Also, see <i>Cost center.</i>)
Distribution amount **	Detail line amount distributed to the general ledger (G/L) account above

Data element	Data element definition
Invoice amount	The total amount of the invoice, including merchandise cost, freight, tax, and so on
Invoice number **	A control number attached to the invoice that is assigned by the supplier
Job description ***	A description of the job for which the materials and services are being used
Job number/work order number	A unique number assigned to the job for which the materials and services were used
Location **	Identifies the location where goods or services were used
Product description ***	The invoice description of the goods being purchased, or services being provided
Purchase order number	A serial number printed on the purchase order sent by the purchasing department to a supplier or vendor for ordering material or services
Purchase order description ***	A purchase order description of the goods or services desired
Shipping and handling	The amount on the invoice representing the cost incurred to handle, transport, and deliver the goods
Vendor number **	A unique number or value assigned to a vendor
Vendor name **	Name of vendor providing the services, supplies, or materials associated with a given invoice

Data element	Data element definition
Tax paid amount ***	An amount on the invoice showing the tax charged and paid on the goods and services purchased
Tax accrued ***	Value of entry made in your records showing the tax due the department
Transaction date **	The date you posted the transaction onto the system. This date will reconcile the G/L to the one-month summary we produce using electronic records
Voucher number	A control number attached to a voucher that is assigned by the purchaser

** signifies minimum fields required for any computer-assisted statistical sample A/P audit

*** signifies additional fields necessary for focused detail audit using ACL

Data requirements for sales data analysis

Sales suggested fields—Request is not limited to the following fields, nor will all the following fields apply to each audit—determination of exact fields is dependent on file descriptions you provide.

Data element	Data element definition
Purchase order number	Serial number on the purchase order sent by a customer
Purchase order description	Description on purchase order of goods and services ordered
Batch number	Number assigned to a group of invoices for processing
Invoice number **	Control number on an invoice assigned by the taxpayer
Date of invoice **	The date the taxpayer created the invoice. This must be the date used by the taxpayer to create tax returns.

Data element	Data element definition
Customer name ** (bill-to and ship-to)	Name of customer making purchase
and/or	
Customer number ** (bill-to and ship-to)	Unique number assigned to a customer
Customer location ** (ship-to address)	Address where you delivered goods and services (city, state and ZIP code)
Product description	Description of goods being sold
Product number	Bar code number that identifies the product
Job description	Description of services performed
Job number/work order number	Unique number assigned to a job
Invoice amount **	Total cost (We need to know if shipping, handling, or tax is included in this field.)
Cash discount	Price reductions given by taxpayer
Shipping and handling **	Amount on invoice for transportation costs
Tax charged amount **	Amount on invoice indicating sales tax charged
Tax rate	Tax rate charged or code
Taxability code	Code to identify exempt items or customers
State indicator	Code used to show where good and services were shipped
G/L account number	The accounts to which certain associated charges are distributed

** signifies minimum fields required for any computer-assisted sales audit

Understanding computer-assisted statistical sampling

By using computers in tax auditing, combined with statistical sampling procedures, the auditor can make assertions about a great number of transactions or audit occurrences, by analyzing only a portion of them. Computer techniques allow us to:

- isolate the most important areas,
- segregate specific accounts, and
- identify high-dollar transactions.

Statistical sampling in tax auditing is a method of sampling that allows us to estimate and quantify some population value based upon the results of a sample drawn from that population. It allows the auditor to objectively determine:

- the precision of any estimate; and
- the confidence that may be placed in the result.

Both sample *precision* and *confidence* have specific statistical definitions:

Precision

Precision is the total range within which the population value would fall at a given confidence level. It can be expressed either in dollar value or as a percentage of additional tax. It is a range boundary around a particular estimate expressed as *plus* or *minus* some percent or amount. For example, an estimate at a given confidence level might be \$1000 plus or minus \$100 or 10%.

Confidence

Generally expressed as a percentage, *confidence* refers to the probability that the dollar-range from the lower precision limit to the upper limit as determined from the sample results includes the population value (the total amount of tax resulting from a 100% examination). For example, if the auditor states there was 90% confidence that the total additional tax was between \$500 and \$1000, this would indicate that 90 samples out of 100 with similar characteristics would be expected to contain the total tax value within the precision range.

Generally, we use precision and confidence levels to describe sample results and estimate population values. In fact, there is a direct relationship between the two. Given two audits with identical sample and population characteristics, the one with the higher specified confidence level will also exhibit a wider precision range.

Audit judgment is involved in planning a statistical sample. For example, the auditor decides:

- which accounts to sample,
- what constitutes an error,
- selection techniques, and
- confidence and precision criteria.

However, in describing the results of the sampling in terms of achieved precision for given confidence

levels, this subjective judgment plays no part. The overall estimate is described only in objective statistical terms.

Random sampling

One of the most important aspects of the statistical sample, and one well suited to the application of computer techniques, is the need to obtain a truly random selection of sample items. A sample is random when every item in the population or subsection of the population (stratum) has the identical chance of being selected in relation to all other items in the population or subsection.

The computer program will assign a distinct number to all sample population items and allocate a random number from an internal table to these items. Sample selection is done automatically and quickly, and the sample is easily generated. This is discussed in more detail below.

Once we obtain the sample, it is possible to state with a specific level of confidence that the estimated population characteristic, based on the extrapolation of the sample result, is no further away from the true value of that characteristic than some calculable amount. This is demonstrated and supported by the laws of probability.

The statistical sampling techniques we apply to tax audits are estimation techniques relating to the sampling of variables. There is no **prior** determination of sample sizes. The extension of sample results to the population is based on the number, dollar value, and distribution of errors occurring on sample items. To know beforehand what the sample size should be to meet precision and confidence level criteria, we need to know what the population error characteristics actually were, or at least have a reasonable estimate.

While the traditional recommended methods of using prior audit results either for a particular taxpayer or similar taxpayers may be appropriate, this information is not generally available. Even if it were, it may not be indicative of the error rates for the specific audit in question. The only practical method for determining the error rate is to conduct a preliminary sample. Since error rates for tax audits are generally low, large sample sizes are common. This, plus the fact that the preliminary sample items can be included into the final sample, often results in initial sample sizes of 250 to 350 units per stratum.

For tax audits, it is the relative precision (the precision expressed as a percentage of the tax estimate) that is the primary determinant of a satisfactory sample size. Again, we do not know this in advance; therefore, we set the initial sample size using judgment. This does not mean that the results of the sampling are subjective since the specification of the results in terms of precision and confidence are not subject to auditor or taxpayer discretion.

In statistical terms, the standard deviation affects the final sample sizes. This measure of the dispersion of sample amounts is a key in determining the precision limits. We cannot easily determine this variable since the calculation relates to the tax errors in the sample. However, a smaller standard deviation will result in smaller required sample sizes. We will tentatively determine the standard

deviation from the preliminary sample; larger preliminary sample sizes generally provide better estimates of the standard deviation. This adds additional support for us to use relatively large preliminary samples on tax audits.

Mid-point assessment guideline used for statistical sampling

The Tax Department's guideline regarding audit assessments determined through statistical sampling is to assess any tax liability or provide a refund based upon the mid-point of the estimate. We compute precision at a 90% confidence interval based on a two-sided test.

The statistical audit package developed by the TAA section is directly related to the statistical sampling as previously discussed. This package offers several important capabilities:

- Standardizes a consistent approach to do sampling for each audit case
- Accurately and readily analyzes large amounts of data
- Scans the entire audit period of data (vouchers, invoices, and so on) and displays information not otherwise obtainable
- Provides the ability to *stratify the data* by dividing the population into two or more *segments* (strata). This creates sub-populations allowing for sampling within each sub-population. The results of the separate strata may then be combined into an estimate for the total population. This provides greater sample precision and reduces the effects of extreme values, such as the segregation of high dollar items
- Determines optimal strata boundaries, or allows the auditor to set or adjust the strata as needed
- Calculates the same values for each stratum that are calculated for the population
- Provides the set of required random numbers and then identifies the records corresponding to these numbers
- Prints the sample records in a manner that:
 - sorts the records to be pulled in an order that conforms to the taxpayer's filing system, saving the taxpayer time and expense, and
 - permits the auditor to use output reports, saving time previously required to transcribe the data
- Determines precision and confidence by reference to appropriate statistical formulas included in the computer package
- Generates standard output reports:
 - a summary of accounts indicating number and amounts
 - a summary of data by month
 - detailed reports of accounts, as requested (such as, utilities)
- Selects, sorts, modifies, calculates, and prints any data that is available from the audit period

In summary, the auditor uses the computer to assist in defining all aspects of the sampling process. This includes:

- designing audit tests,
- defining the population to be sampled,
- deciding whether the sample results should be projected over the entire population,
- choosing an appropriate sampling plan,
- choosing a selection technique,
- selecting the sample, and
- evaluating the sample.

Stratum boundary determination

We use the *cumulative of the square root of the frequency* method to determine stratum boundaries. This method is well documented in many statistic textbooks and is well suited for determining stratum boundaries for accounting populations. This method allows for greater efficiency in the sampling process, compared with setting the boundaries using judgment only. Using judgment in setting up stratum boundaries is an acceptable method, but may not be the most efficient in many cases. The department is committed to performing audits using the most efficient and accurate methods available.

Calculating stratum boundaries (Example A)

The steps below illustrate how we determine stratum boundaries using the *cumulative of the square root of the frequency* method.

- Step 1 We evaluate the population and determine if we should eliminate transactions below a certain dollar level from the sample. In this example, we will not review any transactions under \$100. Auditors use their judgment to make this decision and it has no statistical significance.
- Step 2 We evaluate the population and determine what the high dollar cutoff will be for detailed review. In this example (see page 18), the auditor will review all items of \$10,000 and up in detail.
- Step 3 We stratify the remaining transactions within the population of items to be sampled (\$100 - \$9999.99) using a set dollar interval between the strata (\$500). We use \$500 for the current example to limit the number of strata displayed. In actuality, we use \$100 intervals.
- Step 4 We determine the frequency $f(y)$ for each dollar range. This is the number of transactions within each dollar range.
- Step 5 We calculate the square root of the frequency for the first sampled range (\$100 - \$499.99), which for this example is 146.5. We then calculate the square root for the next sampled range (\$500 - \$999.99), which is 94.1. Since we are accumulating this column, we add each result to the number before it. The cumulative of the first two strata is $146.5 + 94.1 = 240.6$. Continue this process for each of the sampled strata.

Step 6 Once we calculate the *cumulative square root of the frequency* for the last sampled strata (\$9,500 - \$9,999.99), we can determine the stratum. For the final result, we divide 770.1 by the number of sampled strata desired based on the population size or high-dollar cutoff (6 in this case, but can vary between 3 to 9 sampled strata). This result is the test interval of 128.4.

Step 7 We determine the first stratum range by comparing the test interval of 128.4 against the calculated cumulative square root of the frequency for each dollar range, and selecting the range that is closest to this test interval amount. In the immediate instance, 128.4 is closest to the 146.5 for the first sampled strata (\$100 - \$499.99).

We then determine the second stratum by doubling 128.4 and finding the closest range. Stratum 2 will encompass the range of \$500 - \$999.99 since 240.6 is the closest interval to 256.8.

We then determine the third stratum by tripling 128.4 and finding the closest range. Stratum 3 will encompass the range of \$1,000 - \$2,499.99 since 401 is the closest interval to 385.2. We continue this process until we determine all six sampled strata.

Dollar range	Number of items frequency $f(y)$	Cumulative square root of the frequency $\sum\sqrt{f(y)}$	Strata #	Strata range
0 - 99.99	20090			<i>Eliminated</i>
100 - 499.99	21472	146.5	1	100 - 499.99
500 - 999.99	8850	240.6	2	500 - 999.99
1000 - 1499.99	4149	305.0		
1500 - 1999.99	2637	356.4		
2000 - 2499.99	1990	401.0	3	1000 - 2499.99
2500 - 2999.99	1620	441.2		
3000 - 3499.99	1815	483.8		
3500 - 3999.99	1056	516.3	4	2500 - 3999.99
4000 - 4499.99	879	546.0		
4500 - 4999.99	627	571.0		
5000 - 5499.99	598	595.5		
5500 - 5999.99	520	618.3		
6000 - 6499.99	425	638.9	5	4000 - 6499.99
6500 - 6999.99	471	660.6		
7000 - 7499.99	458	682.0		
7500 - 7999.99	429	702.7		
8000 - 8499.99	358	721.6		
8500 - 8999.99	241	737.2		
9000 - 9499.99	275	753.7		
9500 - 9999.99	269	770.1	6	6500 - 9999.99
10000 and up	234		7	<i>Detail</i>

The population profile below summarizes the results from using the *cumulative square root of the frequency* method to determine the strata boundaries.

Population profile

Strata #	Strata range	Number of items	Population \$'s	Standard deviation
1	0 – 99.99	20,090	738,807	-
2	100 – 499.99	21,472	5,432,668	109.89
3	500 – 999.99	8,850	6,368,355	144.67
4	1,000 – 2,499.99	8,776	14,041,520	431.59
5	2,500 – 3,999.99	4,491	14,103,433	411.27
6	4,000 – 6,499.99	3,049	15,469,958	715.53
7	6,500 – 9,999.00	2,501	20,025,062	1010.26
8	10,000 and up	234	6,319,170	-

Sample allocation using Neyman allocation methodology

After we determine the strata boundaries, the number of items per strata, and the standard deviation for each of the strata that will be sampled, we are ready to determine the total sample size and allocate sample sizes to the individual strata.

In Example A, we have six strata that we need to be statistically sampled. While we have statistical formulas to determine optimum sample sizes that will meet specific objectives such as precision and confidence levels, auditors usually do not know how many errors exist within the population they are sampling. The expected number of errors is a key piece of the formula used to calculate optimum sample sizes. An estimate of the number of errors occurring within the population is normally determined by pre-samples, which can be as large as the sample sizes auditors use as their final sample sizes.

This is why we do not pre-sample, but rather evaluate the sample results to ensure that they meet pre-defined limits. We set sample sizes judgmentally using between 250 and 350 items, times the number of strata to be sampled. The immediate example will use 250 items as the average number for the six sampled strata, resulting in 1499 (*n*) items being allocated among the six strata 1733 sampled items, less 234 detailed items, equals 1499 items in the strata).

- Step 1 For each sampled stratum, we calculate the product (**C**) of the number of items in the strata (**A**) and the standard deviation for that stratum (**B**).
- Step 2 We add these products (**D**) together for the six strata.
- Step 3 We calculate what percentage (**E**) each individual stratum's product is of the sum.
- Step 4 We multiply the computed percentage by the total sample size for the six sampled strata (**n**), 1499 in this case. This result is the number of items to be sampled for each of the strata (**F**). If any strata has fewer than 100 items to be sampled, we will increase the sample size to equal 100.

Stratum	Population (A)	Standard deviation (B)	Product of population & standard deviation (C) = (A × B)	Sample allocation % (E) = (C/D)	Sample size (F) = (E × n)
1	20,090	-	-	-	0
2	21,472	109.89	2,359,558	.168746623	253
3	8,850	144.67	1,280,330	.091564298	137
4	8,776	431.59	3,787,634	.270877172	406
5	4,491	411.27	1,847,014	.132091388	198
6	3,049	715.53	2,181,651	.156023383	234
7	2,501	1,010.26	2,526,660	.180697136	271
8	234	-	-	-	234
TOTAL	69463		13,982,846 (D)		1,733

Including credit items in the sampling process

We need to include credit transactions (found in most types of accounting populations) in any sampling plan to properly reflect their impact on the overall audit results. The department has developed an approach that reflects the proper weighting of the credit items in the sampling process, as outlined below.

Common sampling methods

- include negative transactions in total population, stratify dollars, and select sample;
- include negative transactions in total population, stratify dollars based on absolute value, and select sample; and
- create separate populations for positive and negative transactions, stratify dollars in each population independently of the other, select samples from each projecting the errors against each population independently.

NYS Tax Department's sampling method

- create separate populations for positive and negative transactions;
- stratify dollars in the positive strata first;
- stratify negative dollars according to the same ranges used for the positive strata;
- determine sample sizes for the positive strata and for each corresponding negative strata, select sample sizes in the same proportion as the positive strata; and
- combine both the positive and negative number of items, population dollars, and sample sizes to create a new profile that can be used for projection purposes.

NYS Tax Department's process detailed

Step 1 We segregate the positive and negative transactions that appear in the total population.

Population value \$77,254,799

Population transactions 72,140

	Total \$'s	Total # of transactions
Positive	\$82,498,973	69,463
Negative	-\$5,244,174	2,677

Step 2 We determine the stratum boundaries for the sampled positive values using the cumulative of the square root of the frequency method.

Strata #	Strata range	Number of items	Population \$'s
1	0 - 99.99	20,090	738,807
2	100 – 499.99	21,472	5,432,668
3	500 – 999.99	8,850	6,368,355
4	1,000 – 2,499.99	8,776	14,041,520
5	2,500 – 3,999.99	4,491	14,103,433
6	4,000 – 6,499.99	3,049	15,469,958
7	6,500 – 9,999.00	2,501	20,025,062
8	10,000 and up	234	6,319,170

Step 3 We determine sample sizes (**B**) for each positive strata using Neyman allocation methodology.

				(B)
Strata #	Strata range	Number of items	Population \$'s	Sample size
1	0 - 99.99	20,090	738,807	0
2	100 - 499.99	21,472	5,432,668	253
3	500 - 999.99	8,850	6,368,355	137
4	1,000 – 2,499.99	8,776	14,041,520	406
5	2,500 – 3,999.99	4,491	14,103,433	198
6	4,000 – 6,499.99	3,049	15,469,958	234
7	6,500 – 9,999.00	2,501	20,025,062	271
8	10,000 and up	234	6,319,170	234

Step 4 We calculate the ratio (**C**) of the sample size (**B**) to the number of transactions (**A**) for each strata.

		(A)			(B)	(C) = B/A
Strata #	Strata range	Number of items	Population \$'s	Sample Size	Ratio	
1	0 - 99.99	20,090	738,807	0	0	
2	100 - 499.99	21,472	5,432,668	253	.011783	
3	500 - 999.99	8,850	6,368,355	137	.015480	
4	1000 - 2499.99	8,776	14,041,520	406	.046263	
5	2500 - 3999.99	4,491	14,103,433	198	.044088	
6	4000 - 6499.99	3,049	15,469,958	234	.076746	
7	6500 - 9999.00	2,501	20,025,062	271	.108357	
8	10000 and up	234	6,319,170	234	1.00	

Step 5 We stratify the negative transactions using the same strata ranges as used for the positive strata.

Strata #	Strata range	Number of items	Population \$'s
1	0 - (99.99)	563	-24,209
2	(100) - (499.99)	551	-171,912
3	(500) - (999.99)	442	-306,306
4	(1,000) - (2,499.99)	413	-695,905
5	(2,500) - (3,999.99)	271	-862,864
6	(4,000) - (6,499.99)	226	-1,184,014
7	(6,500) - (9,999.00)	193	-1,626,411
8	(10,000) and less	18	-372,553

Step 6 We apply the previously determined ratio (**C**) from the positive strata against the number of negative items in each strata (**D**) to arrive at a properly weighted sample size (**E**) for the negative transactions. Using this method ensures that we determined a properly weighted sample of negative transactions.

		(D)		(C)	(E) = D x C
Strata #	Strata range	Number of items	Population \$'s	Ratio	Sample size
1	0 - (99.99)	563	-24,209	0	0
2	(100) - (499.99)	551	-171,912	.011783	6
3	(500) - (999.99)	442	-306,306	.015480	7
4	(1,000) - (2,499.99)	413	-695,905	.046263	19
5	(2,500) - (3,999.99)	271	-862,864	.044088	12
6	(4,000) - (6,499.99)	226	-1,184,014	.076746	17
7	(6,500) - (9,999.00)	193	-1,626,411	.108357	21
8	(10,000) and less	18	-372,553	1.0	18

Step 7 We select the random samples from the positive and negative strata according to the sample sizes determined for each population in Step 3 and Step 6.

Step 8 We now combine the number of items, the population dollars, and the sample sizes for both positive and negative transactions, to arrive at the combined population profile that we will use as the basis for any tax projection.

Combined positive and negative transaction profile

Strata #	Strata range	Number of items	Population \$'s	Sample size
1	0 - 99.99	20,653	714,598	0
2	100 - 499.99	22,023	5,260,756	259
3	500 - 999.99	9,292	6,062,049	144
4	1,000 – 2,499.99	9,189	13,345,615	425
5	2,500 – 3,999.99	4,762	13,240,569	210
6	4,000 – 6,499.99	3,275	14,285,944	251
7	6,500 – 9,999.00	2,694	18,398,651	292
8	10,000 and up	252	5,946,617	252

Reasoning for using NYS Tax Department’s method

This method ensures that we:

- select and review a proportionate number of the negative transactions, and
- offset the negative items against any positive items before we project the tax liability.

If we keep the positive and negative items separate throughout the tax projection process, you would not receive the full benefit of any negative item, since there are far fewer negative items in most accounting populations than there are positive ones.

Handling of positive and negative transactions in a statistical sampling audit

Objective

In general, the use of statistical sampling does not change the Audit Division’s standard audit procedures when reviewing taxpayer records. A taxpayer’s electronic data frequently include records that contain both positive and negative amounts. It is important that the auditor uses a consistent procedure for determining the taxability of these records. The purpose of this section is to define the procedure auditors should follow when auditing these positive and negative records.

Overview

An auditor should treat every transaction reviewed in a statistical sampling audit as if it were part of a detailed audit. Since all invoices in the population are represented by the sample, the decision regarding the taxability of the invoice should stand alone; it should not be dependent on examining another invoice in the population or sample. In some rare instances, the review of a credit transaction selected in the sample may need to be researched prior to making a tax determination (detailed discussion below).

When an auditor reviews a negative transaction representing a return, while performing a statistical

sampling audit, they must first decide how the associated positive transaction should be treated, and do the exact opposite when dealing with the negative transaction.

The positive transaction (original purchase) **must have occurred** during the audit period and had an opportunity to be selected.

- If the original purchase did not occur during the period under audit, and the credit for the purchase is selected in the sample, the auditor will treat this item as having no tax implication (non-error item).
- If a purchase is made at the end of an audit period and it can be shown by the taxpayer that the merchandise was returned and not credited until sometime after the audit period, the auditor will treat the original purchase within the audit period as a non-error item. This is consistent with how the item would be handled in a detailed audit.

Assuming both the associated positive and negative items occur **during the audit period, the following treatment of the sampled items would hold true:**

- If the positive transaction results in crediting the taxpayer for an overpayment of tax, the entry for the negative transaction must assess the same amount of tax that would have been credited in the positive transaction.
- If the positive transaction results in additional tax due, the entry for the negative transaction must credit the taxpayer the same amount of tax that would have been assessed for the positive transaction.
- In either situation, the result of both the positive and negative sides of a transaction being randomly sampled is a net change of zero.

Assumptions for purchases and returns

- The audit is a use tax audit.
- The sampling unit is a distribution to an account.
- The taxpayer has the capability to self-accrue tax.
- A positive amount is a purchase made by the taxpayer.
- A negative amount represents a return of merchandise to the vendor.
- Both the purchase and return occur within the audit period.
- On purchases, the taxpayer either accrued or paid the full amount of tax or did not accrue or pay any tax.
- On returns, the taxpayer either recovered the full amount of tax originally paid or did not recover any tax.

Positive invoice amounts - purchases

When auditing a purchase, the auditor must determine if the purchase is taxable, and if the taxpayer paid or accrued tax on the purchase.

The decision matrix below identifies the auditing outcomes based on the answers to these questions.

Scenario	Transaction taxable	Transaction nontaxable
Taxpayer paid tax, no tax accrued	No change in tax	Negative change in tax equal to the tax amount
Taxpayer accrued tax, did not pay tax	No change in tax	Negative change in tax equal to the tax amount
Taxpayer paid tax and also accrued tax	Negative change in tax equal to the tax amount	Negative change in tax equal to two times the tax amount
Taxpayer did not pay tax, did not accrue tax	Positive change in tax equal to the tax amount	No change in tax

Negative invoice amounts - returns

When auditing a returned item, the auditor must determine if:

1. the original purchase was made within the audit period,
2. the original purchase is taxable, or
3. the taxpayer recovered the tax on the purchase or reversed the accrual.

The decision matrix below identifies the auditing outcomes based on the answers to these questions.

Scenario	Transaction taxable	Transaction nontaxable
Taxpayer recovered tax, no tax originally accrued	No change in tax	Positive change in tax equal to the tax amount
Taxpayer did not recover tax, tax originally accrued now reversed	No change in tax	Positive change in tax equal to the tax amount
Taxpayer did not recover tax, tax originally accrued never reversed	Negative change in tax equal to the tax amount	No change in tax

Scenario	Transaction taxable	Transaction nontaxable
Taxpayer recovered tax and tax originally accrued now reversed	Positive change in tax equal to the tax amount	Positive change in tax equal to two times the tax amount
Taxpayer recovered tax, tax originally accrued never reversed	No change in tax	Positive change in tax equal to the tax amount
Taxpayer did not recover tax, no tax originally accrued	Negative change in tax equal to the tax amount	No change in tax

It is important to note that only one side of a transaction will often be drawn for sample. The examples on the following pages will illustrate how to handle each side of the transaction, independently.

Journal entries and reclassifications

An auditor may also have to contend with a positive or negative item that did not represent a return, but rather represented a reclassification from one account to another. These can be reclassifications to an account that were or were not included in the population that was sampled.

- If the item went to an account **included** in the population, there would most likely exist two positive items and one negative item, all with an equal chance to be selected.
- If the item went to an account that was **not included** in the population, then there would most likely exist one positive and one negative item with an equal chance to be selected.

Reclassification from one selected account to another selected account

If you have a reclassification from a selected account to another selected account in the population, the item would be handled the way a normal returned item is handled. However, we handle these types of transactions in a manner that could not possibly skew the results and potentially over-assess the taxpayer.

- If only one of the positive reclassification entries is chosen as part of the sample, the auditor would tax it if tax were underpaid or give a tax credit if tax were overpaid.
- If the sample has two selected positive transactions representing the same transaction, and that transaction is an error (underpayment of tax or overpayment of tax), the auditor should choose only the one positive item that represents the re-class entry as the actual error. The remaining positive item representing the original charge to the incorrect account only represents an accounting entry that should have no tax impact.

In either instance, if the negative item associated with this re-classification is selected in the sample, the auditor should ignore the negative transaction.

Reclassification from a selected account to a nonselected account

If you reclassify a transaction from a selected account in the population to a nonselected account that is outside the population, the auditor will handle the item the way a normal returned item is handled. However, we handle these transactions in a manner that could not possibly skew the results by over-assessing the taxpayer.

If this type of transaction is selected in the sample and found to be an error, we will treat this item (either positive or negative) as a non-error transaction. The transaction now may be selected for review outside of the statistical sample. The auditor may choose to review any non-selected accounts either by a separate statistical sample or by a detailed review.

If the population of transactions contains many reclassification types of entries, the auditor should discuss possible alternatives with a member of the TAA section to ensure that the audit results are not skewed.

Refund claims

In some instances, you may be aware of certain transactions or specific accounts where you overpaid tax. In these situations, we often suggest that we remove the known items which will result in a refund from the audit population to be sampled. The auditor can then handle these items as a separate audit area.

If we decide to leave known refund items within the audit population, some transactions may randomly be selected for review as part of the sample population. The auditor will give you a proper tax credit for any item that was randomly selected into the same population, and will be extrapolated over the entire audit population. If we use this methodology to address refund items or transactions, you cannot later file a refund claim for items that were not selected in the sample population, assuming they were included in the population being sampled. We will deny any later refund claim related to items within the audit population. You can claim a refund for overpayment of tax for any items which are **not** part of the statistical sample population.

Tax-only invoice

It is extremely important for all parties involved to make every effort possible to remove tax-only invoices from the audit population being sampled. Tax-only invoices occur when a supplier did not originally bill tax at the time of the sale and then issued a separate tax invoice later. These invoices are a very different type of transaction when compared to the purchase transactions which will fall into the same stratum. In essence, a tax-only invoice left in the population will usually appear in a different stratum than the related purchase transaction, if both are randomly selected to be reviewed. If we leave these in the population, we may skew the projected audit results and increase sampling error. Once we remove tax-only invoices from the audit population, they can be matched to the corresponding purchase invoice, so that the auditor can apply the proper tax paid to that invoice.

If an auditor encounters a tax-only invoice in the sample that was unable to be removed from the population, the auditor must determine if you made the original purchase during the audit period.

- If yes, then the auditor must give you credit for the full amount of the tax being on the invoice, even though the original purchase invoice was not selected as part of the sample. That's because the auditor would have taxed the original invoice had it been drawn for sample, which would create a situation where the purchase would have been taxed twice. There is a likely

possibility that a credit given on a tax-only invoice will have to be projected in a different stratum than it originally appears in the statistical sample, since the projection factor must be the same as what would be used for the corresponding purchase transaction.

- If the original purchase was made prior to the beginning of the audit period, then there is no tax implication for the tax-only invoice since the auditor would have no opportunity to view the original purchase transaction. If the original purchase was made during the audit period but the tax was billed separately after the audit period, the auditor treats the original purchase as a non-error item. This is consistent with how this transaction would be handled in a detailed audit.

If the auditor becomes aware that a non-sampled tax-only invoice exists in the population relating to a sampled purchase transaction, they still need to assess tax on the original purchase transaction. The specific tax-only invoice in question had an opportunity to be selected as part of the sample, but was not, while another tax-only invoice may have been selected as part of the sample with its corresponding purchase invoice is not. If tax-only invoices were unable to be removed from the audit population, the consistency of handling transactions in the manner outlined becomes extremely important. For accurate sample results, you must avoid using a combination of methods for determining taxability when all such transactions cannot be positively identified. If an auditor is unsure how to handle specific types of transactions, they should contact the TAA section for clarification.

Installment and progress billings

When reviewing invoices that represent installment or progress billings, the auditor should refer to the original contract related to those billings. This contract should specify how taxes are handled. The auditor should **not** tax any invoices that fall into this category, if the contract specifically outlines that taxes will be billed either up-front or at the end of the contract. The auditor should confirm that taxes are billed according to the contract.

Appendix A: Glossary of statistical terms basic theory, concepts, and terms

The *audit population* is the total set of units or elements from which we randomly select the sample. In statistics books, the audit population is referred to as the *sampling frame*. For a use tax audit, the population is usually the total set of invoices or vouchers from which we draw the sample.

Confidence levels are the degree of confidence, expressed in terms of probability, within which the estimated population parameter will fall within an interval or range of values. The department uses a *90% two-sided confidence level* in estimating a change in the taxpayer's liability.

The sample *mean* is a measure of central tendency obtained by summing the values of all the invoices in the sample and dividing by the number of invoices in the sample.

A *normal probability distribution* is a bell curve. Approximately 68% of the area of a normal distribution lies within one standard deviation of the mean, 95% within two standard deviations of the mean, and almost all of the area within three standard deviations of the mean.

A *parameter* is the population value or characteristic that the auditor is estimating. In a use tax audit, the parameter is the total change in the taxpayer's tax liability. The *point estimate* is the estimated value of

the population parameter and represents what the auditor is attempting to estimate in a use tax audit.

Precision represents the total range within which the population value would fall at a given confidence level.

A *random sample* is a method of sampling in which each member of the population has an equal chance of being selected.

The *sample* is the set of units selected from the population that will be audited.

The *sampling unit* is the individual unit or element that is to be sampled. For a use tax audit, the sampling unit may be an invoice, a voucher, a line item from an invoice, or an account distribution from an invoice. The standard sample unit used by auditors is the account distribution, since this unit easily allows auditors to select the accounts that will make up the audit population.

The *standard deviation* is the square root of the variance. A large standard deviation relative to the mean is an indication that there is a lot of variability of the data.

The *standard error of the mean* is the standard deviation of a sampling distribution.

Stratification is the process of dividing the population of sampling units (account distributions) into segments (strata) based upon some characteristic such as the dollar amount of the sampling unit. Stratification usually increases sampling efficiency, enabling the department to draw a smaller sample.

In a *stratified random sample*, the population is divided into strata, and independent random samples are drawn from each stratum.

A *stratum* (plural, strata) is a section, layer, or division within a population. For example, if the population is stratified on the dollar amount of the account distribution, then a stratum might be the account distributions greater than or equal to \$100 and less than \$500.

A *statistic* is the value or characteristic derived from a sample such as a mean-error invoice. The statistic is used to estimate a population parameter.

A *statistical sample* is a randomly selected sample.

The *variance* is a measure of the dispersion of the values of a set of data about the mean.

Statistical formulas used by New York State

The *arithmetic mean of differences* found on audit for each individual stratum is equal to the dollar value of differences found on audit divided by the sample size. This value represents the per transaction error found for the sampled stratum.

The arithmetic mean of differences for all strata combined is calculated using the population size for each individual stratum as a weighting factor. We use the following formula to compute this value:

$$\sum_{i=1}^{Last} \frac{(N_i \bar{X}_i)}{N_T}$$

Σ = Sum of

N_i = i th stratum population size

\bar{X}_i = i th stratum arithmetic mean of audit differences

N_T = total population size for all strata being combined

The *standard deviation of differences* found on audit measures the variability of the audit differences. We use the following formulas to calculate the standard deviation, either for each stratum individually or for multi-strata:

(A) Each individual stratum:

(B) Multi-strata:

$$\sqrt{\frac{\sum_{i=1}^{Last} [(D_i^2)] - n(\bar{D})^2}{n - 1}}$$

$$\sqrt{\sum_{i=1}^{Last} \left(\frac{N_i}{N_T} \right)^2 (S_i)^2}$$

$\sqrt{\quad}$ = Square root

Σ = Sum of

D_i^2 = each individual audit difference squared =

n = stratum sample size

\bar{D} = stratum mean audit difference

$\sqrt{\quad}$ = Square root

Σ = Sum of

D_i = i th stratum population size

N_T = total population size for all sample strata

S_i = i th stratum individual stratum standard deviation as calculated in part (A)

The *sampling error or precision* represents the dollar value from the point estimate within which we are 90% certain that the actual dollar amount of additional tax due would fall, if 100% of the population were examined. We use the following formula to calculate precision:

$$\sqrt{\frac{\sum_{i=1}^{Last} (N_i)^2 \left(\frac{(S_i)^2}{n_i} \left(1 - \frac{n_i}{N_i} \right) (t_i)^2 \right)}{(N_T)^2}} (N_T)$$

$\sqrt{\quad}$ = Square root

Σ = Sum of

N_i = i th stratum population size

S_i = i th stratum individual stratum standard deviation

n_i = i th stratum sample size

t_i = student's t-table factor for i th stratum, degrees of freedom = stratum sample size - 1

N_T = total population size for all sampled strata

Note: The formula for the overall-sampling error (precision) is applied only to individual strata that were sampled. Strata that were examined in detail (sample size = population size) or strata from which no items were examined (sample size = 0) are not factored into this calculation because there is no element of variability in the values calculated for detailed strata and there are no values calculated for zero sample size strata.

Appendix B: Authority to request computerized records

Persons who elect to maintain sales tax records in an electronic format are required to make the electronic records available to the department, even if the records are also maintained in a hard copy format. [Tax Law section 1135(h).]

The Tax Department's Sales and Use Tax Regulations provide general provisions concerning records to be kept (20 NYCRR section 533.2). These provisions also give the Tax Department the authority to request that records maintained or processed on an electronic data processing system be presented on machine-sensible form [20 NYCRR section 533.2(a)(2)].

Part 2402 of the department's regulations, Taxpayer Record Retention Formats, also contains provisions with respect to the retention of electronic records and making them accessible to the department. For example, section 2402(c)(4) of the regulation states:

Electronic records must be accessible to the Department for the entire periods for which the records are required to be retained. Accordingly, a taxpayer that elects to produce or store any information by electronic means that evidences any act, transaction, occurrence, event, or other activity (or any portion thereof) must retain and make such electronic records available to the Department. For example, if a taxpayer elects to effect a transaction or capture information relating thereto by electronic means, the taxpayer must keep the electronic record and make it available to the Department upon its request. Generally, the records must be retained for as long as their contents are material to any period open or extended pursuant to statute, or in any action or proceeding pending before the Department of Taxation and Finance, or in any judicial action or proceeding.

The Tax Law contains specific penalties applicable to persons required to keep sales tax records:

If a person fails to make or maintain sales tax records or make them available to the Department, the penalty is up to \$1,000 for the first sales tax quarterly period or part thereof for which the failure occurs, and up to \$5,000 for each subsequent quarterly period or part thereof for which the failure continues.

[Tax Law section 1145(i), as added by Laws of 2009, Chapter 57, Part V-1, Subpart A, Section 2.]

If a person fails to present sales tax records or make them available for the Department's review in a form that can be audited, the penalty is up to \$1,000 for each sales tax quarterly period or part thereof, for which the failure occurs. This failure occurs when the records presented lack sufficient organization or are otherwise inadequate to permit direct reconciliation of the receipts, invoices, or other source documents with the entries for the quarterly period in the books and records and on the sales tax returns of that person. This penalty applies even if these records, if reorganized, are adequate to verify credits, receipts, and the taxability of items and to perform a complete audit. [Tax Law section 1145(j), as added by Laws of 2009, Chapter 57, Part V-1, Subpart A, Section 3.]

If a person chooses to maintain some or all sales tax records in an electronic format, and fails to present or make those records available and accessible to the Department in an electronic format, the penalty is up to \$5,000 for each sales tax quarterly period or part thereof in which the failure occurs,

notwithstanding that the records may also be maintained and available in hard copy format. [Tax Law section 1145(k), as added by Laws of 2009, Chapter 57, Part V-1, Subpart A, Section 4.]

The penalties described above may be imposed in addition to any other penalties applicable to sales and use taxes, but may not be imposed or collected more than once for failures in the same sales tax quarterly period or part thereof. If a failure that resulted in any of these penalties being imposed was entirely due to reasonable cause, and not due to willful neglect, the Department will waive the penalty or penalties.

Appendix C: Data transfer options

When sending confidential information to the Tax Department, you **must** use one of our Federal Information Processing Standard (FIPS) certified secure methods. Contact a TAA representative at 518-530-4407.

Do not send magnetic media. Do not send magnetic media, including magnetic tapes, CDs, DVDs, floppy discs, removable drives, or any other form of portable media.

File specifications:

- EBCDIC** - Fixed block, Fixed length records, Flat Sequential, Packed fields allowed
 - ASCII** - Fixed length or delimited (such as a comma), NO packed fields allowed
 - DBF** - Lowest version available; Designate version used
 - Compression** - IBM/DOS compatible, Self-Extracting Files, such as using ZIP2EXE.EXE
 - Other** - NO proprietary software (such as, Colorado Backup, BackupExec)
- Binary fields of any type are **not** allowed

Data security:

Once you transfer the data to the Tax Department, it resides on a DTF file server behind the NYSDTF firewall. We grant permissions on each specific folder to only the audit team working the case. Per our security policies, at no time is the data transferred to any type of portable media. If we use the data in the field, it is securely held on fully encrypted laptops.

Electronic audit data will reside in the working folder until no longer actively needed, at which time we will compress it and move it to a secured archive folder. The data remains archived until you pay all assessments in full and for 39 months thereafter. After the 39 months, we securely delete the files from the DTF systems.

Sampling bibliography

Books

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Tennessee Department of Revenue, Audit Division. *Statistical Sampling for Sales and Use Tax Audits*. January 1999.

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