Appendix B: SEEM Submetrics

1. Tier 1 Submetrics

Table B-1 contains a list of Tier 1 submetrics.

Table B-1: Tier 1 Submetrics

Item No.	Submetric
1	Loop Makeup - Response Time - Manual
2	Loop Makeup - Response Time - Electronic
3	Acknowledgement Message Timeliness
4	Acknowledgement Message Completeness
5	Percent Flow-Through Service Requests (Detail)
6	Reject Interval
7	Firm Order Confirmation Timeliness
8	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
9	Percent Missed Installation Appointments - Resale POTS
10	Percent Missed Installation Appointments - Resale Design
11	Percent Missed Installation Appointments - UNE Loop and Port Combinations
12	Percent Missed Installation Appointments - UNE Loops
13	Percent Missed Installation Appointments - UNE xDSL
14	Percent Missed Installation Appointments - UNE Line Sharing
15	Percent Missed Installation Appointments - Local IC Trunks
16	Average Completion Interval - Resale POTS
17	Average Completion Interval - Resale Design
18	Average Completion Interval - UNE Loop and Port Combinations
19	Average Completion Interval - UNE Loops
20	Average Completion Interval - UNE xDSL
21	Average Completion Interval - UNE Line Sharing
22	Average Completion Interval - Local IC Trunks
23	Coordinated Customer Conversions Interval - Unbundled Loops
24	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
25	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
26	Cooperative Acceptance Testing - Percent of xDSL Loops Tested
27	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
28	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design
29	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
30	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
31	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
32	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing

Table B-1: Tier 1 Submetrics (Continued)

Item No.	Submetric
33	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
34	LNP - Percent Missed Installation Appointments - LNP
35	Missed Repair Appointments - Resale POTS
36	Missed Repair Appointments - Resale Design
37	Missed Repair Appointments - UNE Loop and Port Combinations
38	Missed Repair Appointments - UNE Loops
39	Missed Repair Appointments - UNE xDSL
40	Missed Repair Appointments - UNE Line Sharing
41	Missed Repair Appointments - Local IC Trunks
42	Customer Trouble Report Rate - Resale POTS
43	Customer Trouble Report Rate - Resale Design
44	Customer Trouble Report Rate - UNE Loop and Port Combinations
45	Customer Trouble Report Rate - UNE Loops
46	Customer Trouble Report Rate - UNE xDSL
47	Customer Trouble Report Rate - UNE Line Sharing
48	Customer Trouble Report Rate - Local IC Trunks
49	Maintenance Average Duration - Resale POTS
50	Maintenance Average Duration - Resale Design
51	Maintenance Average Duration - UNE Loop and Port Combinations
52	Maintenance Average Duration - UNE Loops
53	Maintenance Average Duration - UNE xDSL
54	Maintenance Average Duration - UNE Line Sharing
55	Maintenance Average Duration - Local IC Trunks
56	Percent Repeat Troubles within 30 days - Resale POTS
57	Percent Repeat Troubles within 30 days - Resale Design
58	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
59	Percent Repeat Troubles within 30 days - UNE Loops
60	Percent Repeat Troubles within 30 days - UNE xDSL
61	Percent Repeat Troubles within 30 days - UNE Line Sharing
62	Percent Repeat Troubles within 30 days - Local IC Trunks
63	Invoice Accuracy
64	Mean Time to Deliver Invoices
65	Usage Data Delivery Accuracy
66	Trunk Group Performance - CLEC Specific
67	Collocation Percent of Due Dates Missed

2. Tier 2 Submetrics

Table B-2 contains a list of Tier 2 submetrics.

Table B-2: Tier 2 Submetrics

Item No.	Tier 2 Sub Metrics
1	Average Response Time - Pre-Ordering/Ordering
2	Interface Availability - Pre-Ordering/Ordering
3	Interface Availability - Maintenance & Repair
4	Loop Makeup - Response Time - Manual
5	Loop Makeup - Response Time - Electronic
6	Acknowledgement Message Timeliness - EDI
7	Acknowledgement Message Timeliness - TAG
8	Acknowledgement Message Completeness EDI
9	Acknowledgement Message Completeness TAG
10	Percent Flow-through Service Requests (Summary)
11	Reject Interval
12	Firm Order Confirmation Timeliness
13	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
14	Percent Missed Installation Appointments - Resale POTS
15	Percent Missed Installation Appointments - Resale Design
16	Percent Missed Installation Appointments - UNE Loop and Port Combinations
17	Percent Missed Installation Appointments - UNE Loops
18	Percent Missed Installation Appointments - UNE xDSL
19	Percent Missed Installation Appointments - UNE Line Sharing
20	Percent Missed Installation Appointments - Local IC Trunks
21	Average Completion Interval - Resale POTS
22	Average Completion Interval - Resale Design
23	Average Completion Interval - UNE Loop and Port Combinations
24	Average Completion Interval - UNE Loops
25	Average Completion Interval - UNE xDSL
26	Average Completion Interval - UNE Line Sharing
27	Average Completion Interval - Local IC Trunks
28	Coordinated Customer Conversions Interval - Unbundled Loops
29	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
30	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
31	Cooperative Acceptance Testing - Percent xDSL Loops Tested
32	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
33	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
34	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
35	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
36	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
37	Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing
38	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
39	LNP - Percent Missed Installation Appointments
40	Missed Repair Appointments - Resale POTS
41	Missed Repair Appointments - Resale Design
42	Missed Repair Appointments - UNE Loop and Port Combinations
43	Missed Repair Appointments - UNE Loops
44	Missed Repair Appointments - UNE xDSL
45	Missed Repair Appointments - UNE Line Sharing
46	Missed Repair Appointments - Local IC Trunks
47	Customer Trouble Report Rate - Resale POTS
48	Customer Trouble Report Rate - Resale Design
49	Customer Trouble Report Rate - UNE Loop and Port Combinations
50	Customer Trouble Report Rate - UNE Loops
51	Customer Trouble Report Rate - UNE xDSL
52	Customer Trouble Report Rate - UNE Line Sharing
53	Customer Trouble Report Rate - Local IC Trunks
54	Maintenance Average Duration - Resale POTS
55	Maintenance Average Duration - Resale Design
56	Maintenance Average Duration - UNE Loop and Port Combinations
57	Maintenance Average Duration - UNE Loops
58	Maintenance Average Duration - UNE xDSL
59	Maintenance Average Duration - UNE Line Sharing
60	Maintenance Average Duration - Local IC Trunks
61	Percent Repeat Troubles within 30 days - Resale POTS
62	Percent Repeat Troubles within 30 days - Resale Design
63	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
64	Percent Repeat Troubles within 30 days - UNE Loops
65	Percent Repeat Troubles within 30 days - UNE xDSL
66	Percent Repeat Troubles within 30 days - UNE Line Sharing
67	Percent Repeat Troubles within 30 days - Local IC Trunks
68	Invoice Accuracy
69	Mean Time to Deliver Invoices
70	Usage Data Delivery Accuracy

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
71	Trunk Group Performance - Aggregate
72	Collocation Percent of Due Dates Missed
73	Timeliness of Change Management Notices
74	Timeliness of Documents Associated with Change
75	Service Order Accuracy - Resale Residence
76	Service Order Accuracy - Resale Business
77	Service Order Accuracy - Resale Design
78	Service Order Accuracy - UNE Specials (Design)
79	Service Order Accuracy UNE (Non-design)
80	Service Order Accuracy Local Interconnection Trunks

3. Tier 3 Submetrics

Table B-3 contains a list of Tier 3 submetrics.

Table B-3: Tier 3 Submetrics

Item No.	Tier 3 Sub Metrics
1	Percent Missed Installation Appointments - Resale POTS
2	Percent Missed Installation Appointments - Resale Design
3	Percent Missed Installation Appointments - UNE Loop
4	Percent Missed Installation Appointments - UNE Loop & Port Combo
5	Percent Missed Installation Appointments - UNE xDSL (ADSL, HDSL, UCL)
6	Percent Missed Installation Appointments - UNE Line Sharing
7	Percent Missed Installation Appointments - Interconnection Trunks
8	Average Completion Interval (OCI) & Order Completion Interval Distribution - Resale POTS
9	Average Completion Interval (OCI) & Order Completion Interval Distribution - Resale Design
10	Average Completion Interval (OCI) & Order Completion Interval Distribution - UNE Loop & Port Combo
11	Average Completion Interval (OCI) & Order Completion Interval Distribution - UNE xDSL (ADSL, HDSL, UCL)
12	Average Completion Interval (OCI) & Order Completion Interval Distribution - UNE Line Sharing
13	Average Completion Interval (OCI) & Order Completion Interval Distribution - Interconnection Trunks
14	Missed Repair Appointments - Resale POTS
15	Missed Repair Appointments - Resale Design
16	Missed Repair Appointments - UNE Loop + Port Combo
17	Missed Repair Appointments - UNE Loops
18	Missed Repair Appointments - UNE xDSL
19	Missed Repair Appointments - UNE Line Sharing
20	Missed Repair Appointments - Interconnection Trunks
21	Invoice Accuracy
22	Mean Time To Deliver Invoices
23	Trunk Group Performance - Aggregate
24	Collocation Percent of Due Dates Missed
25	Timeliness of Change Management Notices
26	Timeliness of Documents Associated with Change

Appendix C: Statistical Properties and Definitions

Statistical Methods for BellSouth Performance Measure Analysis

1. Necessary Properties for a Test Methodology

The statistical process for testing if competing local exchange carriers (CLECs) customers are being treat equally with BellSouth (BST) customers involves more than just a mathematical formula. Three key elements need to be considered before an appropriate decision process can be developed. These are

- the type of data,
- the type of comparison, and
- the type of performance measure.

Once these elements are determined a test methodology should be developed that complies with the following properties.

- *Like-to-Like Comparisons* – When possible, data should be compared at appropriate levels, e.g. wire center, time of month, dispatched, and residential, new orders. The testing process should:
  - Identify variables that may affect the performance measure.
  - Record these important confounding covariates.
  - Adjust for the observed covariates in order to remove potential biases and to make the CLEC and the ILEC units as comparable as possible.

- *Aggregate Level Test Statistic* – Each performance measure of interest should be summarized by one overall test statistic giving the decision maker a rule that determines whether a statistically significant difference exists. The test statistic should have the following properties.
  - The method should provide a single overall index, on a standard scale.
  - If entries in comparison cells are exactly proportional over a covariate, the aggregated index should be very nearly the same as if comparisons on the covariate had not been done.
  - The contribution of each comparison cell should depend on the number of observations in the cell.
  - Cancellation between comparison cells should be limited.
  - The index should be a continuous function of the observations.

- *Production Mode Process* – The decision system must be developed so that it does not require intermediate manual intervention, i.e. the process must be a "black box."
  - Calculations are well defined for possible eventualities.
  - The decision process is an algorithm that needs no manual intervention.
  - Results should be arrived at in a timely manner.
  - The system must recognize that resources are needed for other performance measure-related processes that also must be run in a timely manner.
  - The system should be auditable, and adjustable over time.

- *Balancing* – The testing methodology should balance Type I and Type II Error probabilities.
  - P(Type I Error) = P(Type II Error) for well defined null and alternative hypotheses.
  - The formula for a test's balancing critical value should be simple enough to calculate using standard mathematical functions, i.e. one should avoid methods that require computationally intensive techniques.
  - Little to no information beyond the null hypothesis, the alternative hypothesis, and the number of observations should be required for calculating the balancing critical value.

- *Trimming* – Removing extreme observations from BellSouth and CLEC distributions is needed in order to ensure that a fair comparison is made between performance measures. Three conditions are needed to accomplish this goal. These are:
  - Trimming should be based on a general rule that can be used in a production setting.
  - Trimmed observations should not simply be discarded; they need to be examined and possibly used in the final decision making process.
  - Trimming should only be used on performance measures that are sensitive to "outliers."

Measurement Types

The performance measures that will undergo testing are of four types:

- means
- proportions,
- rates, and
- ratio

While all four have similar characteristics, proportions and rates are derived from count data while means and ratios are derived from interval measurements.

2. Testing Methodology – The Truncated Z

Many covariates are chosen in order to provide deep comparison levels. In each comparison cell, a Z statistic is calculated. The form of the Z statistic may vary depending on the performance measure, but it should be distributed approximately as a standard normal, with mean zero and variance equal to one. Assuming that the test statistic is derived so that it is negative when the performance for the CLEC is worse than for the ILEC, a positive truncation is done – i.e. if the result is negative it is left alone, if the result is positive it is changed to zero. A weighted average of the truncated statistics is calculated where a cell weight depends on the volume of BST and CLEC orders in the cell. The weighted average is re-centered by the theoretical mean of a truncated distribution, and this is divided by the standard error of the weighted average. The standard error is computed assuming a fixed effects model.

Proportion Measures

For performance measures that are calculated as a proportion, in each adjustment cell, the truncated Z and the moments for the truncated Z can be calculated in a direct manner. In adjustment cells where proportions are not close to zero or one, and where the sample sizes are reasonably large, a normal approximation can be used. In this case, the moments for the truncated Z come directly from properties of the standard normal distribution. If the normal approximation is not appropriate, then the Z statistic is calculated from the hypergeometric distribution. In this case, the moments of the truncated Z are calculated exactly using the hypergeometric probabilities.

Rate Measures

The truncated Z methodology for rate measures has the same general structure for calculating the Z in each cell as proportion measures. For a rate measure, there are a fixed number of circuits or units for the CLEC, n_{2j} and a fixed number of units for BST, n_{1j}. Suppose that the performance measure is a "trouble rate." The modeling assumption is that the occurrence of a trouble is independent between units and the number of troubles in n circuits follows a Poisson distribution with mean λ_n where λ is the probability of a trouble in 1 circuit and n is the number of circuits.

In an adjustment cell, if the number of CLEC troubles is greater than 15 and the number of BST troubles is greater than 15, then the Z test is calculated using the normal approximation to the Poisson. In this case, the moments of the truncated Z come directly from properties of the standard normal distribution. Otherwise, if there are very few troubles, the number of CLEC troubles can be modeled using a binomial distribution with n equal to the total number of troubles (CLEC plus BST troubles.) In this case, the moments for the truncated Z are calculated explicitly using the binomial distribution.

Mean Measures

For mean measures, an adjusted "t" statistic is calculated for each like-to-like cell which has at least 7 BST and 7 CLEC transactions. A permutation test is used when one or both of the BST and CLEC sample sizes is less than 6. Both the adjusted "t" statistic and the permutation calculation are described in Appendix D, Statistical Formulas and Technical Description.

Ratio Measures

Rules will be given for computing a cell test statistic for a ratio measure, however, the current plan for measures in this category, namely billing accuracy, does not call for the use of a Z parity statistic.

Appendix D: Statistical Formulas and Technical Description

We start by assuming that any necessary trimming[1] of the data is complete, and that the data are disaggregated so that comparisons are made within appropriate classes or adjustment cells that define "like" observations.

1. Notation and Exact Testing Distributions

Below, we have detailed the basic notation for the construction of the truncated z statistic. In what follows the word "cell" should be taken to mean a like-to-like comparison cell that has both one (or more) ILEC observation and one (or more) CLEC observation.

$L =$ the total number of occupied cells

$j =$ 1,...,L; an index for the cells

$n_{1j} =$ the number of ILEC transactions in cell j

$n_{2j} =$ the number of CLEC transactions in cell j

$n_j =$ the total number transactions in cell j; $n_{1j} + n_{2j}$

$X_{1jk} =$ individual ILEC transactions in cell j; $k = 1,\ldots, n_{1j}$

$X_{2jk} =$ individual CLEC transactions in cell j; $k = 1,\ldots, n_{2j}$

$Y_{jk} =$ individual transaction (both ILEC and CLEC) in cell j

$$= \begin{cases} X_{1jk} & k = 1,\ldots, n_{1j} \\ X_{2jk} & k = n_{1j}+1,\ldots, n_j \end{cases}$$

$\Phi^{-1}(\cdot) =$ the inverse of the cumulative standard normal distribution function

1. When it is determined that a measure should be trimmed, a trimming rule that is easy to implement in a production setting is:

Trim the ILEC observations to the largest CLEC value from all CLEC observations in the month under consideration.

That is, no CLEC values are removed; all ILEC observations greater than the largest CLEC observation are trimmed.

For Mean Performance Measures the following additional notation is needed.

$\overline{X}_{1j}$ = The ILEC sample mean of cell j

$\overline{X}_{2j}$ = The CLEC sample mean of cell j

s_{1j}^2 = The ILEC sample variance in cell j

s_{2j}^2 = The CLEC sample variance in cell j

$\{y_{jk}\}$ = a random sample of size n_{2j} from the set of $Y_{j1},\ldots,Y_{jn_j}$; $k = 1,\ldots,n_{2j}$

M_j = The total number of distinct pairs of samples of size n_{1j} and n_{2j};

$$= \binom{n_j}{n_{1j}}$$

The exact parity test is the permutation test based on the "modified Z" statistic. For large samples, we can avoid permutation calculations since this statistic will be normal (or Student's t) to a good approximation. For small samples, where we cannot avoid permutation calculations, we have found that the difference between "modified Z" and the textbook "pooled Z" is negligible. We therefore propose to use the permutation test based on pooled Z for small samples. This decision speeds up the permutation computations considerably, because for each permutation we need only compute the sum of the CLEC sample values, and not the pooled statistic itself.

A permutation probability mass function distribution for cell j, based on the "pooled Z" can be written as

$$PM(t) = P(\sum_k y_{jk} = t) = \frac{\textit{the number of samples that sum to } t}{M_j}$$

and the corresponding cumulative permutation distribution is

$$CPM(t) = P(\sum_k y_{jk} \le t) = \frac{\textit{the number of samples with sum } \le t}{M_j}$$

For Proportion Performance Measures the following notation is defined

a_{1j} = The number of ILEC cases possessing an attribute of interest in cell j

a_{2j} = The number of CLEC cases possessing an attribute of interest in cell j

a_j = The number of cases possessing an attribute of interest in cell j; $a_{1j} + a_{2j}$

The exact distribution for a parity test is the hypergeometric distribution. The hypergeometric probability mass function distribution for cell j is

$$HG(h) = P(H = h) = \begin{cases} \dfrac{\binom{n_{1j}}{h}\binom{n_{2j}}{a_j - h}}{\binom{n_j}{a_j}}, & \max(0, a_j - n_{2j}) \le h \le \min(a_j, n_{1j}) \\ 0 & \text{otherwise} \end{cases}$$

and the cumulative hypergeometric distribution is

$$CHG(x) = P(H \le x) = \begin{cases} 0 & x < \max(0, a_j - n_{2j}) \\ \sum_{h=\max(0,a_j-n_{1j})}^{x} HG(h), & \max(0, a_j - n_{2j}) \le x \le \min(a_j, n_{1j}) \\ 1 & x > \min(a_j, n_{1j}) \end{cases}$$

For Rate Measures, the notation needed is defined as

b_{1j} = The number of ILEC base elements in cell j

b_{2j} = The number of CLEC base elements in cell j

b_j = The total number of base elements in cell j; $b_{1j} + b_{2j}$

$\hat{r}_{1j}$ = The ILEC sample rate of cell j; n_{1j}/b_{1j}

$\hat{r}_{2j}$ = The CLEC sample rate of cell j; n_{2j}/b_{2j}

q_j = The relative proportion of ILEC elements for cell j; b_{1j}/b_j

The exact distribution for a parity test is the binomial distribution. The binomial probability mass function distribution for cell j is

$$BN(k) = P(B = k) = \begin{cases} \binom{n_j}{k} q_j^k (1-q_j)^{n_j - k}, & 0 \le k \le n_j \\ 0 & \text{otherwise} \end{cases}$$

and the cumulative binomial distribution is

$$CBN(x) = P(B \le x) = \begin{cases} 0 & x < 0 \\ \sum_{k=0}^{x} BN(k), & 0 \le x \le n_j \\ 1 & x > n_j \end{cases}$$

For Ratio Performance Measures the following additional notation is needed.

U_{1jk} = additional quantity of interest of an individual ILEC transaction in cell j; k = 1,..., n_{1j}

U_{2jk} = additional quantity of interest of an individual CLEC transaction in cell j; k = 1,..., n_{2j}

$\hat{R}_{ij}$ = the ILEC (I = 1) or CLEC (i = 2) ratio of the total additional quantity of interest to the base transaction total in cell j, i.e., $\sum_k U_{ijk} / \sum_k X_{ijk}$

2. Calculating the Truncated Z

The general methodology for calculating an aggregate level test statistic is outlined below.

Calculate Cell Weights (W_j)

A weight based on the number of transactions is used so that a cell, which has a larger number of transactions, has a larger weight. The actual weight formulae will depend on the type of measure.

Mean or Ratio Measure

$$W_j = \sqrt{\frac{n_{1j} n_{2j}}{n_j}}$$

Proportion Measure

$$W_j = \sqrt{\frac{n_{2j} n_{1j}}{n_j} \cdot \frac{a_j}{n_j} \cdot \left(1 - \frac{a_j}{n_j}\right)}$$

Rate Measure

$$W_j = \sqrt{\frac{b_{1j} b_{2j}}{b_j} \cdot \frac{n_j}{b_j}}$$

Calculate a Z Value (Z_j) for each Cell

A Z statistic with mean 0 and variance 1 is needed for each cell.

- If $W_j = 0$, set $Z_j = 0$.
- Otherwise, the actual Z statistic calculation depends on the type of performance measure.

Mean Measure

$Z_j = \Phi^{-1}(\alpha)$

where α is determined by the following algorithm.

If $\min(n_{1j}, n_{2j}) > 6$, then determine α as

$$\alpha = P(t_{n_{1j}-1} \le T_j)$$

that is, α is the probability that a t random variable with $n_{1j} - 1$ degrees of freedom, is less than

$$T_j = \begin{cases} t_j + \frac{g}{6}\left(\frac{n_{1j}+2n_{2j}}{\sqrt{n_{1j}\,n_{2j}(n_{1j}+n_{2j})}}\right)\left(t_j^2 + \frac{n_{2j}-n_{1j}}{n_{1j}+2n_{2j}}\right) & t_j \ge t_{\min j} \\ t_j + \frac{g}{6}\left(\frac{n_{1j}+2n_{2j}}{\sqrt{n_{1j}\,n_{2j}(n_{1j}+n_{2j})}}\right)\left(t_{\min j}^2 + \frac{n_{2j}-n_{1j}}{n_{1j}+2n_{2j}}\right) & \text{otherwise} \end{cases}$$

where

$$t_j = \frac{\bar{X}_{1j} - \bar{X}_{2j}}{s_{1j}\sqrt{\frac{1}{n_{1j}} + \frac{1}{n_{2j}}}}$$

$$t_{\min j} = \frac{-3\sqrt{n_{1j}n_{2j}n_j}}{g(n_{1j}+2n_{2j})}$$

and g is the median value of all values of

$$\gamma_{1j} = \frac{n_{1j}}{(n_{1j}-1)(n_{1j}-2)} \sum_k \left(\frac{X_{1jk} - \bar{X}_{1j}}{s_{1j}} \right)^3$$

with $n_{1j} > n_{3q}$ for all values of j. n_{3q} is the 3 quartile of all values of n_{1j}

Note, that t_j is the "modified Z" statistic. The statistic T_j is a "modified Z" corrected for the skewness of the ILEC data.

If $\min(n_{1j}, n_{2j}) \leq 6$, and

- $M_j \leq 1{,}000$ (the total number of distinct pairs of samples of size n_{1j} and n_{2j} is 1,000 or less).
  - Calculate the sample sum for all possible samples of size n_{2j}.
  - Rank the sample sums from smallest to largest. Ties are dealt by using average ranks.
  - Let R_0 be the rank of the observed sample sum with respect all the sample sums.

$$\alpha = 1 - \frac{R_0 - 0.5}{M_j}$$

- b) $M_j > 1{,}000$
  - Draw a random sample of 1,000 sample sums from the permutation distribution.
  - Add the observed sample sum to the list. There are a total of 1001 sample sums. Rank the sample sums from smallest to largest. Ties are dealt by using average ranks.
  - Let R_0 be the rank of the observed sample sum with respect all the sample sums.

$$\alpha = 1 - \frac{R_0 - 0.5}{1001}$$

Proportion Measure

$$Z_j = \frac{n_j a_{1j} - n_{1j} a_j}{\sqrt{\frac{n_{1j} n_{2j} a_j (n_j - a_j)}{n_j - 1}}}$$

Rate Measure

$$Z_j = \frac{n_{1j} - n_j\, q_j}{\sqrt{n_j\, q_j (1 - q_j)}}$$

Ratio Measure

$$Z_j = \frac{\hat{R}_{1j} - \hat{R}_{2j}}{\sqrt{V(\hat{R}_{1j})\left(\frac{1}{n_{1j}} + \frac{1}{n_{2j}}\right)}}$$

$$V(\hat{R}_{1j}) = \frac{\sum_k \left(U_{1jk} - \hat{R}_{1j} X_{1jk}\right)^2}{\bar{X}_{1j}^2 (n_{1j} - 1)} = \frac{\sum_k U_{1jk}^2 - 2\hat{R}_{1j} \sum_k \left(U_{1jk} X_{1jk}\right) + \hat{R}_{1j}^2 \sum_k X_{1jk}^2}{\bar{X}_{1j}^2 (n_{1j} - 1)}$$

Obtain a Truncated Z Value for each Cell (Z^*_j)

To limit the amount of cancellation that takes place between cell results during aggregation, cells whose results suggest possible favoritism are left alone. Otherwise the cell statistic is set to zero. This means that positive equivalent Z values are set to 0, and negative values are left alone. Mathematically, this is written as

$$Z_j^* = \min(0, Z_j)$$

Calculate the Theoretical Mean and Variance

Calculate the theoretical mean and variance of the truncated statistic under the null hypothesis of parity, $E(Z_j^*|H_0)$ and $Var(Z_j^*|H_0)$. To compensate for the truncation in step 3, an aggregated, weighted sum of the Z^*_j will need to be centered and scaled properly so that the final aggregate statistic follows a standard normal distribution.

- If $W_j = 0$, then no evidence of favoritism is contained in the cell. The formulae for calculating $E(Z_j^*|H_0)$ and $Var(Z_j^*|H_0)$ cannot be used. Set both equal to 0.
- If $\min(n_{1j}, n_{2j}) > 6$ for a mean measure, $\min\left\{a_{1j}\left(1-\frac{a_{1j}}{n_{1j}}\right), a_{2j}\left(1-\frac{a_{2j}}{n_{2j}}\right)\right\} > 9$ for a proportion measure, $\min(n_{1j}, n_{2j}) > 15$ and $n_j q_j (1-q_j) > 9$ for a rate measure, or n_{1j} and n_{2j} are large for a ratio measure then

$$E(Z_j^* \mid H_0) = -\frac{1}{\sqrt{2\pi}}$$

and

$$Var(Z_j^* \mid H_0) = \frac{1}{2} - \frac{1}{2\pi}$$

- Otherwise, determine the total number of values for Z^*_j. Let z_{ji} and θ_{ji}, denote the values of Z^*_j and the probabilities of observing each value, respectively.

$$E(Z_j^* \mid H_0) = \sum_i \theta_{ji} z_{ji}$$

and

$$Var(Z_j^* \mid H_0) = \sum_i \theta_{ji} z_{ji}^2 - \left[E(Z_j^* \mid H_0)\right]^2$$

The actual values of the z's and θ's depends on the type of measure.

Mean Measure

$$N_j = \min(M_j, 1{,}000),\ i = 1, \ldots, N_j$$

$$z_{ji} = \min\left\{0, \Phi^{-1}\left(1 - \frac{R_i - 0.5}{N_j}\right)\right\} \quad \text{where } R_i \text{ is the rank of sample sum i}$$

$$\theta_j = \frac{1}{N_j}$$

Proportion Measure

$$z_{ji} = \min\left\{0, \frac{n_j\, i - n_{1j}\, a_j}{\sqrt{\frac{n_{1j}\, n_{2j}\, a_j\, (n_j - a_j)}{n_j - 1}}}\right\}, \quad i = \max(0, a_j - n_{2j}), \ldots, \min(a_j, n_{1j})$$

$$\theta_{ji} = HG(i)$$

Rate Measure

$$z_{ji} = \min\left\{0, \frac{i - n_j\, q_j}{\sqrt{n_j\, q_j (1 - q_j)}}\right\}, \quad i = 0, \ldots, n_j$$

$$\theta_{ji} = BN(i)$$

Ratio Measure

The performance measure that is in this class is billing accuracy. If a parity test were used, the sample sizes for this measure are quite large, so there is no need for a small sample technique. If one does need a small sample technique, then a re-sampling method can be used.

Calculate the Aggregate Test Statistic (Z^T)

$$Z^T = \frac{\sum_j W_j Z_j^* - \sum_j W_j E(Z_j^* \mid H_0)}{\sqrt{\sum_j W_j^2 \mathrm{Var}(Z_j^* \mid H_0)}}$$

The Balancing Critical Value

There are four key elements of the statistical testing process:

- the null hypothesis, H_0, that parity exists between ILEC and CLEC services
- the alternative hypothesis, H_a, that the ILEC is giving better service to its own customers
- the Truncated Z test statistic, Z^T, and
- a critical value, c

The decision rule[2] is

•If	$Z^T < c$	then	accept H_a.
•If	$Z^T \geq c$	then	accept H_0.

There are two types of error possible when using such a decision rule:

- **Type I Error**: Deciding favoritism exists when there is, in fact, no favoritism.
- **Type II Error**: Deciding parity exists when there is, in fact, favoritism.

The probabilities of each type of each are:

- **Type I Error**: $\alpha = P(Z^T < c \mid H_0)$
- **Type II Error**: $\beta = P(Z^T \geq c \mid H_a)$

We want a balancing critical value, c_B, so that $\alpha = \beta$.

It can be shown that.

$$c_B = \frac{\sum_j W_j M(m_j, se_j) - \sum_j W_j \frac{-1}{\sqrt{2\pi}}}{\sqrt{\sum_j W_j^2 V(m_j, se_j)} + \sqrt{\sum_j W_j^2 \left(\frac{1}{2} - \frac{1}{2\pi}\right)}}$$

2. This decision rule assumes that a negative test statistic indicates poor service for the CLEC customer. If the opposite is true, then reverse the decision rule.

where

$$M(\mu,\sigma) = \mu\,\Phi(\tfrac{-\mu}{\sigma}) - \sigma\,\phi(\tfrac{-\mu}{\sigma})$$

$$V(\mu,\sigma) = (\mu^2+\sigma^2)\Phi(\tfrac{-\mu}{\sigma}) - \mu\,\sigma\,\phi(\tfrac{-\mu}{\sigma}) - M(\mu,\sigma)^2$$

$\Phi(\cdot)$ is the cumulative standard normal distribution function, and $\phi(\cdot)$ is the standard normal density function.

This formula assumes that Z_j is approximately normally distributed within cell j. When the cell sample sizes, n_{1j} and n_{2j}, are small this may not be true. It is possible to determine the cell mean and variance under the null hypothesis when the cell sample sizes are small. It is much more difficult to determine these values under the alternative hypothesis. Since the cell weight, W_j will also be small (see calculate weights section above) for a cell with small volume, the cell mean and variance will not contribute much to the weighted sum. Therefore, the above formula provides a reasonable approximation to the balancing critical value.

The values of m_j and se_j will depend on the type of performance measure.

Mean Measure

For mean measures, one is concerned with two parameters in each cell, namely, the mean and variance. A possible lack of parity may be due to a difference in cell means, and/or a difference in cell variances. One possible set of hypotheses that capture this notion, and take into account the assumption that transaction are identically distributed within cells is:

H_0: $\mu_{1j} = \mu_{2j}$, $\sigma_{1j}^2 = \sigma_{2j}^2$

H_a: $\mu_{2j} = \mu_{1j} + \delta_j \cdot \sigma_{1j}$, $\sigma_{2j}^2 = \lambda_j \cdot \sigma_{1j}^2$ $\qquad \delta_j > 0$, $\lambda_j \geq 1$ and $j = 1,\ldots,L$.

Under this form of alternative hypothesis, the cell test statistic Z_j has mean and standard error given by

$$m_j = \frac{-\delta_j}{\sqrt{\frac{1}{n_{1j}} + \frac{1}{n_{2j}}}}$$

and

$$se_j = \sqrt{\frac{\lambda_j n_{1j} + n_{2j}}{n_{1j} + n_{2j}}}$$

Proportion Measure

For a proportion measure there is only one parameter of interest in each cell, the proportion of transaction possessing an attribute of interest. A possible lack of parity may be due to a difference in cell proportions. A set of hypotheses that take into account the assumption that transaction are identically distributed within cells while allowing for an analytically tractable solution is:

$$H_0: \frac{p_{2j}(1-p_{1j})}{(1-p_{2j})p_{1j}} = 1$$

$$H_a: \frac{p_{2j}(1-p_{1j})}{(1-p_{2j})p_{1j}} = \psi_j \qquad \psi_j > 1 \text{ and } j = 1,\ldots,L.$$

These hypotheses are based on the "odds ratio." If the transaction attribute of interest is a missed trouble repair, then an interpretation of the alternative hypothesis is that a CLEC trouble repair appointment is ψ_j times more likely to be missed than an ILEC trouble.

Under this form of alternative hypothesis, the within cell asymptotic mean and variance of a_{1j} are given by[3]

$$E(a_{1j}) = n_j \pi_j^{(1)}$$

$$\text{var}(a_{1j}) = \frac{n_j}{\frac{1}{\pi_j^{(1)}} + \frac{1}{\pi_j^{(2)}} + \frac{1}{\pi_j^{(3)}} + \frac{1}{\pi_j^{(4)}}}$$

where

$$\pi_j^{(1)} = f_j^{(1)}\left(n_j^2 + f_j^{(2)} + f_j^{(3)} - f_j^{(4)}\right)$$

$$\pi_j^{(2)} = f_j^{(1)}\left(-n_j^2 - f_j^{(2)} + f_j^{(3)} + f_j^{(4)}\right)$$

$$\pi_j^{(3)} = f_j^{(1)}\left(-n_j^2 + f_j^{(2)} - f_j^{(3)} + f_j^{(4)}\right)$$

$$\pi_j^{(4)} = f_j^{(1)}\left(n_j^2\left(\frac{2}{\psi_j} - 1\right) - f_j^{(2)} - f_j^{(3)} - f_j^{(4)}\right)$$

$$f_j^{(1)} = \frac{1}{2n_j^2\left(\frac{1}{\psi_j} - 1\right)}$$

$$f_j^{(2)} = n_j n_{1j}\left(\frac{1}{\psi_j} - 1\right)$$

$$f_j^{(3)} = n_j a_j\left(\frac{1}{\psi_j} - 1\right)$$

$$f_j^{(4)} = \sqrt{n_j^2\left[4n_{1j}\left(n_j - a_j\right)\left(\frac{1}{\psi_j} - 1\right) + \left(n_j + \left(a_j - n_{1j}\right)\left(\frac{1}{\psi_j} - 1\right)\right)^2\right]}$$

3. Stevens, W. L. (1951) Mean and Variance of an entry in a Contingency Table. *Biometrica*, 38, 468-470.

Recall that the cell test statistic is given by

$$Z_j = \frac{n_j\, a_{1j} - n_{1j}\, a_j}{\sqrt{\frac{n_{1j}\, n_{2j}\, a_j\, (n_j - a_j)}{n_j - 1}}}$$

Using the equations above, we see that Z_j has mean and standard error given by

$$m_j = \frac{n_j^2 \pi_j^{(1)} - n_{1j}\, a_j}{\sqrt{\frac{n_{1j}\, n_{2j}\, a_j\, (n_j - a_j)}{n_j - 1}}}$$

and

$$se_j = \sqrt{\frac{n_j^3 (n_j - 1)}{n_{1j}\, n_{2j}\, a_j\, (n_j - a_j)\left(\frac{1}{\pi_j^{(1)}} + \frac{1}{\pi_j^{(2)}} + \frac{1}{\pi_j^{(3)}} + \frac{1}{\pi_j^{(4)}}\right)}}$$

Rate Measure

A rate measure also has only one parameter of interest in each cell, the rate at which a phenomenon is observed relative to a base unit, e.g. the number of troubles per available line. A possible lack of parity may be due to a difference in cell rates. A set of hypotheses that take into account the assumption that transaction are identically distributed within cells is:

H_0: $r_{1j} = r_{2j}$

H_a: $r_{2j} = \varepsilon_j r_{1j}$ $\varepsilon_j > 1$ and $j = 1,\ldots,L$.

Given the total number of ILEC and CLEC transactions in a cell, n_j, and the number of base elements, b_{1j} and b_{2j}, the number of ILEC transaction, n_{1j}, has a binomial distribution from n_j trials and a probability of

$$q_j^* = \frac{r_{1j} b_{1j}}{r_{1j} b_{1j} + r_{2j} b_{2j}}$$

Therefore, the mean and variance of n_{1j}, are given by

$$E(n_{1j}) = n_j q_j^*$$
$$\text{var}(n_{1j}) = n_j q_j^* (1 - q_j^*)$$

Under the null hypothesis

$$q_j^* = q_j = \frac{b_{1j}}{b_j}$$

but under the alternative hypothesis

$$q_j^* = q_j^a = \frac{b_{1j}}{b_{1j} + \varepsilon_j b_{2j}}$$

Recall that the cell test statistic is given by

$$Z_j = \frac{n_{1j} - n_j q_j}{\sqrt{n_j q_j (1 - q_j)}}$$

Using the relationships above, we see that Z_j has mean and standard error given by

$$m_j = \frac{n_j (q_j^a - q_j)}{\sqrt{n_j q_j (1 - q_j)}} = (1 - \varepsilon_j) \frac{\sqrt{n_j b_{1j} b_{2j}}}{b_{1j} + \varepsilon_j b_{2j}}$$

and

$$se_j = \sqrt{\frac{q_j^a (1 - q_j^a)}{q_j (1 - q_j)}} = \sqrt{\varepsilon_j} \frac{b_j}{b_{1j} + \varepsilon_j b_{2j}}$$

Ratio Measure

As with mean measures, one is concerned with two parameters in each cell, the mean and variance, when testing for parity of ratio measures. As long as sample sizes are large, as in the case of billing accuracy, the same method for finding m_j and se_j that is used for mean measures can be used for ratio measures.

Determining the Parameters of the Alternative Hypothesis

In this section we have indexed the alternative hypothesis of mean measures by two sets of parameters, λ_j and δ_j. Proportion and rate measures have been indexed by one set of parameters each, ψ_j and ε_j respectively. A major difficulty with this approach is that more than one alternative will be of interest; for example we may consider one alternative in which all the δ_j are set to a common non-zero value, and another set of alternatives in each of which just one δ_j is non-zero, while all the rest are zero. There are very many other possibilities. Each possibility leads to a single value for the balancing critical value; and each possible critical value corresponds to many sets of alternative hypotheses, for each of which it constitutes the correct balancing value.

The formulas we have presented can be used to evaluate the impact of different choices of the overall critical value. For each putative choice, we can evaluate the set of alternatives for which this is the correct balancing value. While statistical science can be used to evaluate the impact of different choices of these parameters, there is not much that an appeal to statistical principles can offer in directing specific choices. Specific choices are best left to telephony experts. Still, it is possible to comment on some aspects of these choices:

Parameter Choices for λ_j – The set of parameters λ_j index alternatives to the null hypothesis that arise because there might be greater unpredictability or variability in the delivery of service to a CLEC customer over that which would be achieved for an otherwise comparable ILEC customer. While concerns about differences in the variability of service are important, it turns out that the truncated Z testing which is being recommended here is relatively insensitive to all but very large values of the λ_j. Put another way, reasonable differences in the values chosen here could make very little difference in the balancing points chosen.

Parameter Choices for δ_j – The set of parameters δ_j are much more important in the choice of the balancing point than was true for the λ_j. The reason for this is that they directly index differences in average service. The truncated Z test is very sensitive to any such differences; hence, even small disagreements among experts in the choice of the δ_j could be very important. Sample size matters here too. For example, setting all the δ_j to a single value – $\delta_j = \delta \angle$ might be fine for tests across individual CLECs where currently in Tennessee the CLEC customer bases are not too different. Using the same value of δ for the overall state testing does not seem sensible. At the state level we are aggregating over CLECs, so using the same δ as for an individual CLEC would be saying that a "meaningful" degree of disparity is one where the violation is the same (δ) for each CLEC. But the detection of disparity for any component CLEC is important, so the relevant "overall" δ should be smaller.

Parameter Choices for ψ_j *or* ε_j – The set of parameters ψ_j or ε_j are also important in the choice of the balancing point for tests of their respective measures. The reason for this is that they directly index increases in the proportion or rate of service performance. The truncated Z test is sensitive to such increases; but not as sensitive as the case of δ for mean measures. Sample size matters here too. As with mean measures, using the same value of ψ or ε for the overall state testing does not seem sensible.

The three parameters are related however. If a decision is made on the value of δ, it is possible to determine equivalent values of ψ and ε. The following equations, in conjunction with the definitions of ψ and ε, show the relationship with delta.

$$\delta = 2 \cdot \arcsin(\sqrt{\hat{p}_2}) - 2 \cdot \arcsin(\sqrt{\hat{p}_1})$$
$$\delta = 2\sqrt{\hat{r}_2} - 2\sqrt{\hat{r}_1}$$

The bottom line here is that beyond a few general considerations, like those given above, a principled approach to the choice of the alternative hypotheses to guard against must come from elsewhere.

Decision Process

Once Z^T has been calculated, it is compared to the balancing critical value to determine if the ILEC is favoring its own customers over a CLEC's customers.

This critical value changes as the ILEC and CLEC transaction volume change. One way to make this transparent to the decision-maker, is to report the difference between the test statistic and the critical value, *diff* = Z^T - c_B. If favoritism is concluded when $Z^T < c_B$, then the *diff* < 0 indicates favoritism.

This makes it very easy to determine favoritism: a positive *diff* suggests no favoritism, and a negative *diff* suggests favoritism.

Appendix E: BST SEEM Remedy Calculation Procedures

BST SEEM Remedy Procedure

1. Tier-1 Calculation For Retail Analogues

1. Calculate the overall test statistic for each CLEC; $z^{T}_{CLEC\text{-}1}$ (Per Statistical Methodology - by Dr. Mulrow)
2. Calculate the balancing critical value ($^{c}B_{CLEC\text{-}1}$) that is associated with the alternative hypothesis (for fixed parameters δ, Ψ, or ε)
3. If the overall test statistic is equal to or above the balancing critical value, stop here. That is, if $^{c}B_{CLEC\text{-}1} < z^{T}_{CLEC\text{-}1}$, stop here. Otherwise, go to step 4.
4. Calculate the Parity Gap by subtracting the value of step 2 from that of step 1. ABS ($z^{T}_{CLEC\text{-}1} - {}^{c}B_{CLEC\text{-}1}$)
5. Calculate the Volume Proportion using a linear distribution with slope of ¼. This can be accomplished by taking the absolute value of the Parity Gap from step 4 divided by 4; ABS (($z^{T}_{CLEC\text{-}1} - {}^{c}B_{CLEC\text{-}1}$) / 4). All parity gaps equal or greater to 4 will result in a volume proportion of 100%.
6. Calculate the Affected Volume by multiplying the Volume Proportion from step 5 by the Total Impacted CLEC-1 Volume (I_c) in the negatively affected cell; where the cell value is negative.
7. Calculate the payment to CLEC-1 by multiplying the result of step 6 by the appropriate dollar amount from the fee schedule.
8. Then, CLEC-1 payment = Affected $Volume_{CLEC1}$ * $$from Fee Schedule

Example: CLEC-1 Missed Installation Appointments (MIA) for Resale POTS

Note – the statistical results are only illustrative. They are not a result of a statistical test of this data.

	n_I	N_C	I_c	MIA_I	MIA_C	z^T_{CLEC-1}	C_B	Parity Gap	Volume Proportion	Affected Volume
State	50000	600	96	9%	16%	-1.92	-0.21	1.71	0.4275	
Cell						z_{CLEC-1}				
1		150	17	0.091	0.113	-1.994				8
2		75	8	0.176	0.107	0.734				
3		10	4	0.128	0.400	-2.619				2
4		50	17	0.158	0.340	-2.878				8
5		15	2	0.245	0.133	1.345				
6		200	26	0.156	0.130	0.021				
7		30	7	0.166	0.233	-0.600				3
8		20	3	0.106	0.150	-0.065				2
9		40	9	0.193	0.225	-0.918				4
10		10	3	0.160	0.300	-0.660				2
										29

where n_I = ILEC observations and n_C = CLEC-1 observations

Payout for CLEC-1 is (29 units) * ($100/unit) = $2,900

Example: CLEC-1 Order Completion Interval (OCI) for Resale POTS

	n_I	n_C	I_c	OCI_I	OCI_C	z^T_{CLEC-1}	C_B	Parity Gap	Volume Proportion	Affected Volume
State	50000	600	600	5days	7days	-1.92	-0.21	1.71	0.4275	
Cell						z_{CLEC-1}				
1		150	150	5	7	-1.994				64
2		75	75	5	4	0.734				
3		10	10	2	3.8	-2.619				4
4		50	50	5	7	-2.878				21
5		15	15	4	2.6	1.345				
6		200	200	3.8	2.7	0.021				
7		30	30	6	7.2	-0.600				13
8		20	20	5.5	6	-0.065				9
9		40	40	8	10	-0.918				17
10		10	10	6	7.3	-0.660				4
										133

where n_I = ILEC observations and n_C = CLEC-1 observations

Payout for CLEC-1 is (133 units) * ($100/unit) = $13,300

2. Tier-2 Calculation For Retail Analogues

1. Tier-2 is triggered by three consecutive monthly failures of any Tier 2 Remedy Plan sub-metric.
2. Therefore, calculate monthly statistical results and affected volumes as outlined in steps 2 through 6 for the CLEC Aggregate performance. Determine average monthly affected volume for the rolling 3-month period.
3. Calculate the payment to State Designated Agency by multiplying average monthly volume by the appropriate dollar amount from the Tier-2 fee schedule.
4. Therefore, State Designated Agency payment = Average monthly volume * $$from Fee Schedule

Example: CLEC-A Missed Installation Appointments (MIA) for Resale POTS

State	n_I	n_C	l_c	MIA_I	MIA_C	z^T_{CLEC-A}	C_B	Parity Gap	Volume Proportion	Affected Volume
Month 1	180000	2100	336	9%	16%	-1.92	-0.21	1.71	0.4275	
Cell						z_{CLEC-A}				
1		500	56	0.091	0.112	-1.994				24
2		300	30	0.176	0.100	0.734				
3		80	27	0.128	0.338	-2.619				12
4		205	60	0.158	0.293	-2.878				26
5		45	4	0.245	0.089	1.345				
6		605	79	0.156	0.131	0.021				
7		80	19	0.166	0.238	-0.600				9
8		40	6	0.106	0.150	-0.065				3
9		165	36	0.193	0.218	-0.918				16
10		80	19	0.160	0.238	-0.660				9
										99

where n_I = ILEC observations and n_C = CLEC-A observations

Assume Months 2 and 3 have the same affected volumes. Payout 99 units * $300/unit = $29,700.

If the above example represented performance for each of months 1 through 3, then

Example: CLEC-A Missed Installation Appointments for 1Q00

State	Miss	Remedy Dollars
Month 1	X	$29,700
Month 2	X	$29,700
Month 3	X	$29,700
1Q00		$89,100

3. Tier-1 Calculation For Benchmarks

1. For each CLEC, with five or more observations, calculate monthly performance results for the State.
2. CLECs having observations (sample sizes) between 5 and 30 will use Table I below. The only exception will be for Collocation Percent Missed Due Dates.

Table I - Small Sample Size Table (95% Confidence)

Sample Size	Equivalent 90% Benchmark	Equivalent 95% Benchmark	Sample Size	Equivalent 90% Benchmark	Equivalent 95% Benchmark
5	60.00%	80.00%	18	77.78%	83.33%
6	66.67%	83.33%	19	78.95%	84.21%
7	71.43%	85.71%	20	80.00%	85.00%
8	75.00%	75.00%	21	76.19%	85.71%
9	66.67%	77.78%	22	77.27%	86.36%
10	70.00%	80.00%	23	78.26%	86.96%
11	72.73%	81.82%	24	79.17%	87.50%
12	75.00%	83.33%	25	80.00%	88.00%
13	76.92%	84.62%	26	80.77%	88.46%
14	78.57%	85.71%	27	81.48%	88.89%
15	73.33%	86.67%	28	78.57%	89.29%
16	75.00%	87.50%	29	79.31%	86.21%
17	76.47%	82.35%	30	80.00%	86.67%

3. If the percentage (or equivalent percentage for small samples) meets the benchmark standard, stop here. Otherwise, go to step 4.
4. Determine the Volume Proportion by taking the difference between the benchmark and the actual performance result.
5. Calculate the Affected Volume by multiplying the Volume Proportion from step 4 by the Total Impacted CLEC-1 Volume.
6. Calculate the payment to CLEC-1 by multiplying the result of step 5 by the appropriate dollar amount from the fee schedule.
7. CLEC-1 payment = Affected $\text{Volume}_{\text{CLEC-1}}$ * $$from Fee Schedule

Example: CLEC-1 Percent Missed Due Dates for Collocations

	n_C	Benchmark	MIA_C	Volume Proportion	Affected Volume
State	600	10%	13%	.03	18

Payout for CLEC-1 is (18 units) * ($5000/unit) = $90,000

4. Tier-1 Calculation For Benchmarks (In The Form Of A Target)

1. For each CLEC with five or more observations calculate monthly performance results for the State.
2. CLECs having observations (sample sizes) between 5 and 30 will use Table I above.
3. Calculate the interval distribution based on the same data set used in step 1.
4. If the 'percent within' (or equivalent percentage for small samples) meets the benchmark standard, stop here. Otherwise, go to step 5.
5. Determine the Volume Proportion by taking the difference between benchmark and the actual performance result.
6. Calculate the Affected Volume by multiplying the Volume Proportion from step 5 by the Total CLEC-$_1$ Volume.
7. Calculate the payment to CLEC-1 by multiplying the result of step 6 by the appropriate dollar amount from the fee schedule.

CLEC-1 payment = Affected Volume$_{CLEC1}$ * $$from Fee Schedule

Example: CLEC-1 Reject Timeliness

	n_C	Benchmark	Reject Timeliness	Volume Proportion	Affected Volume
State	600	95% within 1 hour	93% within 1 hour	.02	12

Payout for CLEC-1 is (12 units) * ($100/unit) = $1,200

5. Tier-2 Calculations For Benchmarks

Tier-2 calculations for benchmark measures are the same as the Tier-1 benchmark calculations, except the CLEC Aggregate data having failed for three months.

Appendix F: Index

EXHIBIT NO. AJV-15

March 28, 2002, Letter of Guy Hicks to TRA

BellSouth Telecommunications, Inc.
333 Commerce Street, Suite 2101
Nashville, TN 37201-3300

guy.hicks@bellsouth.com

Guy M. Hicks
General Counsel

615 214 6301
Fax 615 214 7406

March 28, 2002

VIA HAND DELIVERY

David Waddell, Executive Secretary
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37238

Re: *Docket to Establish Generic Performance Measurements, Benchmarks and Enforcement Mechanisms for BellSouth Telecommunications, Inc.*
Docket No. 01-00193

Dear Mr. Waddell:

This letter is to follow up on our letter of January 23, 2002 and comments filed in Docket No. 01-00362 on January 10, 2002, which confirmed that, to the extent the Georgia Public Service Commission ("Georgia PSC") adopts modifications to the Georgia SQM, whether in response to comments from the parties or input from the FCC, BellSouth will agree, as explained below, to implement such modifications in Tennessee. Therefore, under BellSouth's proposal, the Authority and CLECs in Tennessee will benefit from those modifications.

To bring you up to date, this is to advise that during the performance measures workshops conducted by the Georgia PSC, the CLEC Coalition proposed, and BellSouth did not object, to including Measure P-11 (Service Order Accuracy) as a measure under the Georgia PSC's Self-Effectuating Enforcement Mechanism ("SEEM") Plan.

BellSouth has previously offered to implement the Georgia SQM and the Georgia SEEM in Tennessee. The SQM is the basis of BellSouth's MSS filing and provides more than sufficient data to assess BellSouth's compliance with the Act. If the Authority adopts the Georgia SQM, and BellSouth's MSS, BellSouth will

implement the Revised SEEM "penalty" plan currently in effect in Georgia in Tennessee, including the Service Order Accuracy measure. BellSouth will pay Tier II penalty payments to the State of Tennessee consistent with that plan when, and if, that plan becomes effective in this State. The relevant SEEM documentation, which has already been provided to the FCC and to the CLECs in other state proceedings, is attached to this letter.

Tier II payments will be paid based on an average of three months data (as are all Tier II penalties) and on $50 per affected occurrence. The penalty will be calculated as follows: First, a statistically valid sample of orders will be selected from completed orders, and the monthly service order accuracy rate will be computed as described in the business rules of BellSouth's Service Quality Measurement ("SQM") plan. Second, if the service order accuracy rate is less than the benchmark, BellSouth will compute the difference between the achieved rate and the benchmark. Third, the difference between the achieved rate and the benchmark will be multiplied by the number of completed orders for the disaggregated category, which will then be multiplied by $50. The number of completed orders will be equal to the CLEC denominator for the applicable disaggregated category as reported in Measure P-3 (Missed Installation Appointments).

The following example will illustrate the manner by which BellSouth will calculate Tier II payments under the existing Service Order Accuracy measure. For 3 months ending April 2002, assume the service order accuracy rate for Residence < 10 Circuits (Non-Dispatch) is 92%, which is less than the Commission-approved benchmark of 95%. The difference between the monthly rate and the benchmark (3%) would then be multiplied by the average number of completed orders for Residence < 10 Circuits (Non-Dispatch) for 3 months ending April 2002, which will be obtained from the Measure P-3 report and which for purposes of this example is assumed to be 25,000. With the $50 penalty per occurrence, the total Tier II SEEM penalty in this example for Residence < 10 Circuits (Non-Dispatch) in April 2002 would be $37,500 (3% x 25,000 x $50). If BellSouth missed the measure for three consecutive months, BellSouth would then pay this Tier II penalty to the State.

This same calculation would be made for each of the 20 levels of disaggregation for resale and unbundled network elements under the current

Service Order Accuracy measure adopted in Georgia. The penalty calculation for interconnection trunks will be made on the aggregate basis, since the product disaggregation levels for trunks under the existing Service Order Accuracy measure do not correspond to the disaggregation levels under the Missed Installation Appointments measure.

BellSouth is agreeing voluntarily to include the Georgia Service Order Accuracy measure in the Georgia SEEM plan here in Tennessee until such time as the Georgia PSC (or the Authority) adopts a revised Service Order Accuracy measure. Details regarding a revised SOA measure are currently being discussed by the industry. Upon adoption by the Georgia PSC (or the Authority), the new Service Order Accuracy measure will be included, in the SEEM plan, if adopted in Tennessee, and BellSouth's agreement to pay Tier II payments under the existing Service Order Accuracy measure described in this letter will terminate.

Finally, BellSouth has no objection to the Authority allowing other parties to file a response to this letter.

Thank you for your attention to this matter. Copies of the enclosed are being provided to counsel of record.

Very truly yours,

Guy M. Hicks

GMH:ch

P-11: Service Order Accuracy

Definition

The "service order accuracy" measurement measures the accuracy and completeness of a sample of BellSouth service orders by comparing what was ordered and what was completed.

Exclusions

- Cancelled Service Orders
- Order Activities of BellSouth or the CLEC associated with internal or administrative use of local services (Record Orders, Listing Orders, Test Orders, etc.)
- D & F orders

Business Rules

A statistically valid sample of service orders, completed during a monthly reporting period, is compared to the original account profile and the order that the CLEC sent to BellSouth. An order is "completed without error" if all service attributes and account detail changes (as determined by comparing the original order) completely and accurately reflect the activity specified on the original order and any supplemental CLEC order. For both small and large sample sizes, when a Service Request cannot be matched with a corresponding Service Order, it will not be counted. For small sample sizes an effort will be made to replace the service request.

Calculation

Percent Service Order Accuracy = (a ÷ b) X 100

- a = Orders Completed without Error
- b = Orders Completed in Reporting Period

Report Structure

- CLEC Aggregate
- Reported in categories of <10 line/circuits; > = 10 line/circuits
- Dispatch/Non-Dispatch

Data Retained

• Report Month • CLEC Order Number and PON • Local Service Request (LSR) • Order Submission Date • Committed Due Date • Service Type • Standard Order Activity	• No BellSouth Analog Exist

SQM Disaggregation - Analog/Benchmark

• Resale Residence • Resale Business • Resale Design (Specials) • UNE Specials (Design) • UNE (Non-Design) • Local Interconnection Trunks	• 95% Accurate

SEEM Measure

[redacted]		
Yes	Tier I	
	Tier II	X

SEEM Disaggregation - Analog/Benchmark

[redacted]	
• Resale Residence • Resale Business • Resale Design (Specials) • UNE Specials (Design) • UNE (Non-Design) • Local Interconnection Trunks	• 95% Accurate

Appendix A: Fee Schedule

1. Table-1: Liquidated Damages For Tier-1 Measures (Per Affected Item)

Performance Measurement	Month 1	Month 2	Month3	Month4	Month 5	Month 6
Pre-Ordering	$20	$30	$40	$50	$60	$70
Ordering	$40	$50	$60	$70	$80	$90
Provisioning	$100	$125	$175	$250	$325	$500
Provisioning UNE (Coordinated Customer Conversions)	$400	$450	$500	$550	$650	$800
Maintenance and Repair	$100	$125	$175	$250	$325	$500
Maintenance and Repair UNE	$400	$450	$500	$550	$650	$800
LNP	$150	$250	$500	$600	$700	$800
Billing	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00
IC Trunks	$100	$125	$175	$250	$325	$500
Collocation	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000

2. Table-2: Remedy Payments For Tier-2 Measures

Performance Measurement	Per Affected Item
OSS/Pre-Ordering	$20
Ordering	$60
Provisioning	$300
Provisioning-UNE (Coordinated Customer Conversions)	$875
Maintenance and Repair	$300
Maintenance and Repair-UNE	$875
Billing	$1.00
LNP	$500
IC Trunks	$500
Collocation	$15,000
Change Management	$1,000
Service Order Accuracy	$50

Appendix B: SEEM Submetrics

1. Tier 1 Submetrics

Table B-1 contains a list of Tier 1 submetrics.

Table B-1: Tier 1 Submetrics

Item No.	Submetric
1	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
2	Percent Missed Installation Appointments - Resale POTS
3	Percent Missed Installation Appointments - Resale Design
4	Percent Missed Installation Appointments - UNE Loop and Port Combinations
5	Percent Missed Installation Appointments - UNE Loops
6	Percent Missed Installation Appointments - UNE xDSL
7	Percent Missed Installation Appointments - UNE Line Sharing
8	Percent Missed Installation Appointments - Local IC Trunks
9	Average Completion Interval - Resale POTS
10	Average Completion Interval - Resale Design
11	Average Completion Interval - UNE Loop and Port Combinations
12	Average Completion Interval - UNE Loops
13	Average Completion Interval - UNE xDSL
14	Average Completion Interval - UNE Line Sharing
15	Average Completion Interval - Local IC Trunks
16	Coordinated Customer Conversions Interval - Unbundled Loops
17	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
18	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
19	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
20	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design
21	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
22	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
23	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
24	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing
25	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
26	LNP – Average Time Out of Service for LNP Conversions
27	LNP – Percent Missed Installation Appointments
28	Missed Repair Appointments - Resale POTS
29	Missed Repair Appointments - Resale Design

Table B-1: Tier 1 Submetrics (Continued)

Item No.	Submetric
30	Missed Repair Appointments - UNE Loop and Port Combinations
31	Missed Repair Appointments - UNE Loops
32	Missed Repair Appointments - UNE xDSL
33	Missed Repair Appointments - UNE Line Sharing
34	Missed Repair Appointments - Local IC Trunks
35	Customer Trouble Report Rate - Resale POTS
36	Customer Trouble Report Rate - Resale Design
37	Customer Trouble Report Rate - UNE Loop and Port Combinations
38	Customer Trouble Report Rate - UNE Loops
39	Customer Trouble Report Rate - UNE xDSL
40	Customer Trouble Report Rate - UNE Line Sharing
41	Customer Trouble Report Rate - Local IC Trunks
42	Maintenance Average Duration - Resale POTS
43	Maintenance Average Duration - Resale Design
44	Maintenance Average Duration - UNE Loop and Port Combinations
45	Maintenance Average Duration - UNE Loops
46	Maintenance Average Duration - UNE xDSL
47	Maintenance Average Duration - UNE Line Sharing
48	Maintenance Average Duration - Local IC Trunks
49	Percent Repeat Troubles within 30 days - Resale POTS
50	Percent Repeat Troubles within 30 days - Resale Design
51	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
52	Percent Repeat Troubles within 30 days - UNE Loops
53	Percent Repeat Troubles within 30 days - UNE xDSL
54	Percent Repeat Troubles within 30 days - UNE Line Sharing
55	Percent Repeat Troubles within 30 days - Local IC Trunks
56	Trunk Group Performance - CLEC Trunk Group
57	Collocation Percent of Due Dates Missed

2. Tier 2 Submetrics

Table B-2 contains a list of Tier 2 submetrics.

Table B-2: Tier 2 Submetrics

Item No.	Tier 2 Sub Metrics
1	Average Response Time - Pre-Ordering/Ordering
2	Interface Availability - Pre-Ordering/Ordering
3	Interface Availability - Maintenance & Repair
4	Loop Makeup - Response Time - Manual
5	Loop Makeup - Response Time - Electronic
6	Acknowledgement Message Timeliness - EDI
7	Acknowledgement Message Timeliness - TAG
8	Acknowledgement Message Completeness EDI
9	Acknowledgement Message Completeness TAG
10	Percent Flow-through Service Requests (Summary)
11	Reject Interval
12	Firm Order Confirmation Timeliness
13	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
14	Percent Missed Installation Appointments - Resale POTS
15	Percent Missed Installation Appointments - Resale Design
16	Percent Missed Installation Appointments - UNE Loop and Port Combinations
17	Percent Missed Installation Appointments - UNE Loops
18	Percent Missed Installation Appointments - UNE xDSL
19	Percent Missed Installation Appointments - UNE Line Sharing
20	Percent Missed Installation Appointments - Local IC Trunks
21	Average Completion Interval - Resale POTS
22	Average Completion Interval - Resale Design
23	Average Completion Interval - UNE Loop and Port Combinations
24	Average Completion Interval - UNE Loops
25	Average Completion Interval - UNE xDSL
26	Average Completion Interval - UNE Line Sharing
27	Average Completion Interval - Local IC Trunks
28	Coordinated Customer Conversions Interval - Unbundled Loops
29	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
30	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
31	Cooperative Acceptance Testing - Percent xDSL Loops Tested
32	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
33	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
34	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
35	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
36	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
37	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing
38	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
39	LNP – Average Time Out of Service for LNP Conversions
40	LNP - Percent Missed Installation Appointments
41	Missed Repair Appointments - Resale POTS
42	Missed Repair Appointments - Resale Design
43	Missed Repair Appointments - UNE Loop and Port Combinations
44	Missed Repair Appointments - UNE Loops
45	Missed Repair Appointments - UNE xDSL
46	Missed Repair Appointments - UNE Line Sharing
47	Missed Repair Appointments - Local IC Trunks
48	Customer Trouble Report Rate - Resale POTS
49	Customer Trouble Report Rate - Resale Design
50	Customer Trouble Report Rate - UNE Loop and Port Combinations
51	Customer Trouble Report Rate - UNE Loops
52	Customer Trouble Report Rate - UNE xDSL
53	Customer Trouble Report Rate - UNE Line Sharing
54	Customer Trouble Report Rate - Local IC Trunks
55	Maintenance Average Duration - Resale POTS
56	Maintenance Average Duration - Resale Design
57	Maintenance Average Duration - UNE Loop and Port Combinations
58	Maintenance Average Duration - UNE Loops
59	Maintenance Average Duration - UNE xDSL
60	Maintenance Average Duration - UNE Line Sharing
61	Maintenance Average Duration - Local IC Trunks
62	Percent Repeat Troubles within 30 days - Resale POTS
63	Percent Repeat Troubles within 30 days - Resale Design
64	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
65	Percent Repeat Troubles within 30 days - UNE Loops
66	Percent Repeat Troubles within 30 days - UNE xDSL
67	Percent Repeat Troubles within 30 days - UNE Line Sharing
68	Percent Repeat Troubles within 30 days - Local IC Trunks
69	Invoice Accuracy
70	Mean Time to Deliver Invoices

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
71	Usage Data Delivery Accuracy
72	Trunk Group Performance - Aggregate
73	Collocation Percent of Due Dates Missed
74	Timeliness of Change Management Notices
75	Timeliness of Documents Associated with Change
76	Service Order Accuracy - Resale Residence
77	Service Order Accuracy - Resale Business
78	Service Order Accuracy - Resale Design (Specials)
79	Service Order Accuracy - UNE Specials (Design)
80	Service Order Accuracy - UNE (Non-Design)
81	Service Order Accuracy - Local Interconnection Trunks

P-11: Service Order Accuracy

Definition

The "service order accuracy" measurement measures the accuracy and completeness of a sample of BellSouth service orders by comparing what was ordered and what was completed.

Exclusions

- Cancelled Service Orders
- Order Activities of BellSouth or the CLEC associated with internal or administrative use of local services (Record Orders, Listing Orders, Test Orders, etc.)
- D & F orders

Business Rules

A statistically valid sample of service orders, completed during a monthly reporting period, is compared to the original account profile and the order that the CLEC sent to BellSouth. An order is "completed without error" if all service attributes and account detail changes (as determined by comparing the original order) completely and accurately reflect the activity specified on the original order and any supplemental CLEC order. For both small and large sample sizes, when a Service Request cannot be matched with a corresponding Service Order, it will not be counted. For small sample sizes an effort will be made to replace the service request.

Calculation

Percent Service Order Accuracy = (a ÷ b) X 100

- a = Orders Completed without Error
- b = Orders Completed in Reporting Period

Report Structure

- CLEC Aggregate
- Reported in categories of <10 line/circuits; >= 10 line/circuits
- Dispatch / No Dispatch

Data Retained

• Report Month • CLEC Order Number and PON • Local Service Request (LSR) • Order Submission Date • Committed Due Date • Service Type • Standard Order Activity	• No BellSouth Analog Exist

SQM Disaggregation - Analog/Benchmark

• Resale Residence • Resale Business • Resale Design (Specials) • UNE Specials (Design) • UNE (Non-Design) • Local Interconnection Trunks	• 95% Accurate

SEEM Measure

[redacted]		
Yes	Tier I	
	Tier II	X

SEEM Disaggregation - Analog/Benchmark

[redacted]	
• Resale Residence • Resale Business • Resale Design (Specials) • UNE Specials (Design) • UNE (Non-Design) • Local Interconnection Trunks	• 95% Accurate

Appendix A: Fee Schedule

1. Table-1: Liquidated Damages For Tier-1 Measures (per affected item)

Performance Measurment	Month 1	Month 2	Month3	Month4	Month 5	Month 6
Pre-Ordering	$20	$30	$40	$50	$60	$70
Ordering	$40	$50	$60	$70	$80	$90
Provisioning	$100	$125	$175	$250	$325	$500
Provisioning UNE (Coordinated Customer Conversions)	$400	$450	$500	$550	$650	$800
Maintenance and Repair	$100	$125	$175	$250	$325	$500
Maintenance and Repair UNE	$400	$450	$500	$550	$650	$800
LNP	$150	$250	$500	$600	$700	$800
Billing	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00
IC Trunks	$100	$125	$175	$250	$325	$500
Collocation	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000

2. Table-2: Remedy Payments For Tier-2 Measures

Performance Measurment	Per Affected Item
OSS/Pre-Ordering	$20
Ordering	$60
Provisioning	$300
Provisioning-UNE (Coordinated Customer Conversions)	$875
Maintenance and Repair	$300
Maintenance and Repair-UNE	$875
Billing	$1.00
LNP	$500
IC Trunks	$500
Collocation	$15,000
Change Management	$1,000
Service Order Accuracy	$50

Appendix B: SEEM Submetrics

1. Tier 1 Submetrics

Table B-1 contains a list of Tier 1 submetrics.

Table B-1: Tier 1 Submetrics

Item No.	Submetric
1	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
2	Percent Missed Installation Appointments - Resale POTS
3	Percent Missed Installation Appointments - Resale Design
4	Percent Missed Installation Appointments - UNE Loop and Port Combinations
5	Percent Missed Installation Appointments - UNE Loops
6	Percent Missed Installation Appointments - UNE xDSL
7	Percent Missed Installation Appointments - UNE Line Sharing
8	Percent Missed Installation Appointments - Local IC Trunks
9	Average Completion Interval - Resale POTS
10	Average Completion Interval - Resale Design
11	Average Completion Interval - UNE Loop and Port Combinations
12	Average Completion Interval - UNE Loops
13	Average Completion Interval - UNE xDSL
14	Average Completion Interval - UNE Line Sharing
15	Average Completion Interval - Local IC Trunks
16	Coordinated Customer Conversions Interval - Unbundled Loops
17	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
18	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
19	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
20	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design
21	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
22	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
23	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
24	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing
25	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
26	LNP - Percent Missed Installation Appointments
27	Missed Repair Appointments - Resale POTS
28	Missed Repair Appointments - Resale Design
29	Missed Repair Appointments - UNE Loop and Port Combinations

Table B-1: Tier 1 Submetrics (Continued)

Item No.	Submetric
30	Missed Repair Appointments - UNE Loops
31	Missed Repair Appointments - UNE xDSL
32	Missed Repair Appointments - UNE Line Sharing
33	Missed Repair Appointments - Local IC Trunks
34	Customer Trouble Report Rate - Resale POTS
35	Customer Trouble Report Rate - Resale Design
36	Customer Trouble Report Rate - UNE Loop and Port Combinations
37	Customer Trouble Report Rate - UNE Loops
38	Customer Trouble Report Rate - UNE xDSL
39	Customer Trouble Report Rate - UNE Line Sharing
40	Customer Trouble Report Rate - Local IC Trunks
41	Maintenance Average Duration - Resale POTS
42	Maintenance Average Duration - Resale Design
43	Maintenance Average Duration - UNE Loop and Port Combinations
44	Maintenance Average Duration - UNE Loops
45	Maintenance Average Duration - UNE xDSL
46	Maintenance Average Duration - UNE Line Sharing
47	Maintenance Average Duration - Local IC Trunks
48	Percent Repeat Troubles within 30 days - Resale POTS
49	Percent Repeat Troubles within 30 days - Resale Design
50	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
51	Percent Repeat Troubles within 30 days - UNE Loops
52	Percent Repeat Troubles within 30 days - UNE xDSL
53	Percent Repeat Troubles within 30 days - UNE Line Sharing
54	Percent Repeat Troubles within 30 days - Local IC Trunks
55	Trunk Group Performance - CLEC Trunk Group
56	Collocation Percent of Due Dates Missed

2. Tier 2 Submetrics

Table B-2 contains a list of Tier 2 submetrics.

Table B-2: Tier 2 Submetrics

Item No.	Tier 2 Sub Metrics
1	Average Response Time - Pre-Ordering/Ordering
2	Interface Availability - Pre-Ordering/Ordering
3	Interface Availability - Maintenance & Repair
4	Loop Makeup - Response Time - Manual
5	Loop Makeup - Response Time - Electronic
6	Acknowledgement Message Timeliness - EDI
7	Acknowledgement Message Timeliness - TAG
8	Acknowledgement Message Completeness EDI
9	Acknowledgement Message Completeness TAG
10	Percent Flow-through Service Requests (Summary)
11	Reject Interval
12	Firm Order Confirmation Timeliness
13	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
14	Percent Missed Installation Appointments - Resale POTS
15	Percent Missed Installation Appointments - Resale Design
16	Percent Missed Installation Appointments - UNE Loop and Port Combinations
17	Percent Missed Installation Appointments - UNE Loops
18	Percent Missed Installation Appointments - UNE xDSL
19	Percent Missed Installation Appointments - UNE Line Sharing
20	Percent Missed Installation Appointments - Local IC Trunks
21	Average Completion Interval - Resale POTS
22	Average Completion Interval - Resale Design
23	Average Completion Interval - UNE Loop and Port Combinations
24	Average Completion Interval - UNE Loops
25	Average Completion Interval - UNE xDSL
26	Average Completion Interval - UNE Line Sharing
27	Average Completion Interval - Local IC Trunks
28	Coordinated Customer Conversions Interval - Unbundled Loops
29	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
30	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
31	Cooperative Acceptance Testing - Percent xDSL Loops Tested
32	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
33	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
34	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
35	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
36	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
37	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing
38	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
39	LNP - Percent Missed Installation Appointments
40	Missed Repair Appointments - Resale POTS
41	Missed Repair Appointments - Resale Design
42	Missed Repair Appointments - UNE Loop and Port Combinations
43	Missed Repair Appointments - UNE Loops
44	Missed Repair Appointments - UNE xDSL
45	Missed Repair Appointments - UNE Line Sharing
46	Missed Repair Appointments - Local IC Trunks
47	Customer Trouble Report Rate - Resale POTS
48	Customer Trouble Report Rate - Resale Design
49	Customer Trouble Report Rate - UNE Loop and Port Combinations
50	Customer Trouble Report Rate - UNE Loops
51	Customer Trouble Report Rate - UNE xDSL
52	Customer Trouble Report Rate - UNE Line Sharing
53	Customer Trouble Report Rate - Local IC Trunks
54	Maintenance Average Duration - Resale POTS
55	Maintenance Average Duration - Resale Design
56	Maintenance Average Duration - UNE Loop and Port Combinations
57	Maintenance Average Duration - UNE Loops
58	Maintenance Average Duration - UNE xDSL
59	Maintenance Average Duration - UNE Line Sharing
60	Maintenance Average Duration - Local IC Trunks
61	Percent Repeat Troubles within 30 days - Resale POTS
62	Percent Repeat Troubles within 30 days - Resale Design
63	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
64	Percent Repeat Troubles within 30 days - UNE Loops
65	Percent Repeat Troubles within 30 days - UNE xDSL
66	Percent Repeat Troubles within 30 days - UNE Line Sharing
67	Percent Repeat Troubles within 30 days - Local IC Trunks
68	Invoice Accuracy
69	Mean Time to Deliver Invoices
70	Usage Data Delivery Accuracy

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
71	Trunk Group Performance - Aggregate
72	Collocation Percent of Due Dates Missed
73	Timeliness of Change Management Notices
74	Timeliness of Documents Associated with Change
75	Service Order Accuracy - Resale Residence
76	Service Order Accuracy - Resale Business
77	Service Order Accuracy - Resale Design (Specials)
78	Service Order Accuracy - UNE Specials (Design)
79	Service Order Accuracy - UNE (Non-Design)
80	Service Order Accuracy - Local Interconnection Trunks

P-11: Service Order Accuracy

Definition

The "service order accuracy" measurement measures the accuracy and completeness of a sample of BellSouth service orders by comparing what was ordered and what was completed.

Exclusions

- Cancelled Service Orders
- Order Activities of BellSouth or the CLEC associated with internal or administrative use of local services (Record Orders, Listing Orders, Test Orders, etc.)
- D & F orders

Business Rules

A statistically valid sample of service orders, completed during a monthly reporting period, is compared to the original account profile and the order that the CLEC sent to BellSouth. An order is "completed without error" if all service attributes and account detail changes (as determined by comparing the original order) completely and accurately reflect the activity specified on the original order and any supplemental CLEC order. For both small and large sample sizes, when a Service Request cannot be matched with a corresponding Service Order, it will not be counted. For small sample sizes an effort will be made to replace the service request.

Calculation

Percent Service Order Accuracy = (a ÷ b) X 100

- a = Orders Completed without Error
- b = Orders Completed in Reporting Period

Report Structure

- CLEC Aggregate
- Reported in categories of <10 line/circuits; >= 10 line/circuits
- Dispatch / No Dispatch

Data Retained

• Report Month • CLEC Order Number and PON • Local Service Request (LSR) • Order Submission Date • Committed Due Date • Service Type • Standard Order Activity	• No BellSouth Analog Exist

SQM Disaggregation - Analog/Benchmark

• Resale Residence • Resale Business • Resale Design (Specials) • UNE Specials (Design) • UNE (Non-Design) • Local Interconnection Trunks	• 95% Accurate

SEEM Measure

[redacted]		
Yes	Tier I	
	Tier II	X

SEEM Disaggregation - Analog/Benchmark

[redacted]	
• Resale Residence • Resale Business • Resale Design (Specials) • UNE Specials (Design) • UNE (Non-Design) • Local Interconnection Trunks	• 95% Accurate

Appendix A: Fee Schedule

1. Table-1: Liquidated Damages For Tier-1 Measures (per affected item)

Performance Measurment	Month 1	Month 2	Month3	Month4	Month 5	Month 6
Pre-Ordering	$20	$30	$40	$50	$60	$70
Ordering	$40	$50	$60	$70	$80	$90
Provisioning	$100	$125	$175	$250	$325	$500
Provisioning UNE (Coordinated Customer Conversions)	$400	$450	$500	$550	$650	$800
Maintenance and Repair	$100	$125	$175	$250	$325	$500
Maintenance and Repair UNE	$400	$450	$500	$550	$650	$800
LNP	$150	$250	$500	$600	$700	$800
Billing	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00
IC Trunks	$100	$125	$175	$250	$325	$500
Collocation	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000

2. Table-2: Remedy Payments For Tier-2 Measures

Performance Measurment	Per Affected Item
OSS/Pre-Ordering	$20
Ordering	$60
Provisioning	$300
Provisioning-UNE (Coordinated Customer Conversions)	$875
Maintenance and Repair	$300
Maintenance and Repair-UNE	$875
Billing	$1.00
LNP	$500
IC Trunks	$500
Collocation	$15,000
Change Management	$1,000
Service Order Accuracy	$50

Appendix B: SEEM Submetrics

1. Tier 1 Submetrics

Table B-1 contains a list of Tier 1 submetrics.

Table B-1: Tier 1 Submetrics

Item No.	Submetric
1	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
2	Percent Missed Installation Appointments - Resale POTS
3	Percent Missed Installation Appointments - Resale Design
4	Percent Missed Installation Appointments - UNE Loop and Port Combinations
5	Percent Missed Installation Appointments - UNE Loops
6	Percent Missed Installation Appointments - UNE xDSL
7	Percent Missed Installation Appointments - UNE Line Sharing
8	Percent Missed Installation Appointments - Local IC Trunks
9	Average Completion Interval - Resale POTS
10	Average Completion Interval - Resale Design
11	Average Completion Interval - UNE Loop and Port Combinations
12	Average Completion Interval - UNE Loops
13	Average Completion Interval - UNE xDSL
14	Average Completion Interval - UNE Line Sharing
15	Average Completion Interval - Local IC Trunks
16	Coordinated Customer Conversions Interval - Unbundled Loops
17	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
18	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
19	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
20	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design
21	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
22	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
23	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
24	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing
25	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
26	LNP – Average Time Out of Service for LNP Conversions
27	LNP – Percent Missed Installation Appointments
28	Missed Repair Appointments - Resale POTS
29	Missed Repair Appointments - Resale Design

Table B-1: Tier 1 Submetrics (Continued)

Item No.	Submetric
30	Missed Repair Appointments - UNE Loop and Port Combinations
31	Missed Repair Appointments - UNE Loops
32	Missed Repair Appointments - UNE xDSL
33	Missed Repair Appointments - UNE Line Sharing
34	Missed Repair Appointments - Local IC Trunks
35	Customer Trouble Report Rate - Resale POTS
36	Customer Trouble Report Rate - Resale Design
37	Customer Trouble Report Rate - UNE Loop and Port Combinations
38	Customer Trouble Report Rate - UNE Loops
39	Customer Trouble Report Rate - UNE xDSL
40	Customer Trouble Report Rate - UNE Line Sharing
41	Customer Trouble Report Rate - Local IC Trunks
42	Maintenance Average Duration - Resale POTS
43	Maintenance Average Duration - Resale Design
44	Maintenance Average Duration - UNE Loop and Port Combinations
45	Maintenance Average Duration - UNE Loops
46	Maintenance Average Duration - UNE xDSL
47	Maintenance Average Duration - UNE Line Sharing
48	Maintenance Average Duration - Local IC Trunks
49	Percent Repeat Troubles within 30 days - Resale POTS
50	Percent Repeat Troubles within 30 days - Resale Design
51	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
52	Percent Repeat Troubles within 30 days - UNE Loops
53	Percent Repeat Troubles within 30 days - UNE xDSL
54	Percent Repeat Troubles within 30 days - UNE Line Sharing
55	Percent Repeat Troubles within 30 days - Local IC Trunks
56	Trunk Group Performance - CLEC Trunk Group
57	Collocation Percent of Due Dates Missed

2. Tier 2 Submetrics

Table B-2 contains a list of Tier 2 submetrics.

Table B-2: Tier 2 Submetrics

Item No.	Tier 2 Sub Metrics
1	Average Response Time - Pre-Ordering/Ordering
2	Interface Availability - Pre-Ordering/Ordering
3	Interface Availability - Maintenance & Repair
4	Loop Makeup - Response Time - Manual
5	Loop Makeup - Response Time - Electronic
6	Acknowledgement Message Timeliness - EDI
7	Acknowledgement Message Timeliness - TAG
8	Acknowledgement Message Completeness EDI
9	Acknowledgement Message Completeness TAG
10	Percent Flow-through Service Requests (Summary)
11	Reject Interval
12	Firm Order Confirmation Timeliness
13	Firm Order Confirmation and Reject Response Completeness - Fully Mechanized
14	Percent Missed Installation Appointments - Resale POTS
15	Percent Missed Installation Appointments - Resale Design
16	Percent Missed Installation Appointments - UNE Loop and Port Combinations
17	Percent Missed Installation Appointments - UNE Loops
18	Percent Missed Installation Appointments - UNE xDSL
19	Percent Missed Installation Appointments - UNE Line Sharing
20	Percent Missed Installation Appointments - Local IC Trunks
21	Average Completion Interval - Resale POTS
22	Average Completion Interval - Resale Design
23	Average Completion Interval - UNE Loop and Port Combinations
24	Average Completion Interval - UNE Loops
25	Average Completion Interval - UNE xDSL
26	Average Completion Interval - UNE Line Sharing
27	Average Completion Interval - Local IC Trunks
28	Coordinated Customer Conversions Interval - Unbundled Loops
29	Coordinated Customer Conversions - Hot Cut Timeliness Percent within interval - UNE Loops
30	Coordinated Customer Conversions - Percent Provisioning Troubles Received within 7 days of a completed service order - UNE Loops
31	Cooperative Acceptance Testing - Percent xDSL Loops Tested
32	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale POTS
33	Percent Provisioning Troubles within 30 days of Service Order Completion - Resale Design

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
34	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loop and Port Combinations
35	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Loops
36	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE xDSL
37	Percent Provisioning Troubles within 30 days of Service Order Completion - UNE Line Sharing
38	Percent Provisioning Troubles within 30 days of Service Order Completion - Local IC Trunks
39	LNP – Average Time Out of Service for LNP Conversions
40	LNP - Percent Missed Installation Appointments
41	Missed Repair Appointments - Resale POTS
42	Missed Repair Appointments - Resale Design
43	Missed Repair Appointments - UNE Loop and Port Combinations
44	Missed Repair Appointments - UNE Loops
45	Missed Repair Appointments - UNE xDSL
46	Missed Repair Appointments - UNE Line Sharing
47	Missed Repair Appointments - Local IC Trunks
48	Customer Trouble Report Rate - Resale POTS
49	Customer Trouble Report Rate - Resale Design
50	Customer Trouble Report Rate - UNE Loop and Port Combinations
51	Customer Trouble Report Rate - UNE Loops
52	Customer Trouble Report Rate - UNE xDSL
53	Customer Trouble Report Rate - UNE Line Sharing
54	Customer Trouble Report Rate - Local IC Trunks
55	Maintenance Average Duration - Resale POTS
56	Maintenance Average Duration - Resale Design
57	Maintenance Average Duration - UNE Loop and Port Combinations
58	Maintenance Average Duration - UNE Loops
59	Maintenance Average Duration - UNE xDSL
60	Maintenance Average Duration - UNE Line Sharing
61	Maintenance Average Duration - Local IC Trunks
62	Percent Repeat Troubles within 30 days - Resale POTS
63	Percent Repeat Troubles within 30 days - Resale Design
64	Percent Repeat Troubles within 30 days - UNE Loop and Port Combinations
65	Percent Repeat Troubles within 30 days - UNE Loops
66	Percent Repeat Troubles within 30 days - UNE xDSL
67	Percent Repeat Troubles within 30 days - UNE Line Sharing
68	Percent Repeat Troubles within 30 days - Local IC Trunks
69	Invoice Accuracy
70	Mean Time to Deliver Invoices

Table B-2: Tier 2 Submetrics (Continued)

Item No.	Tier 2 Sub Metrics
71	Usage Data Delivery Accuracy
72	Trunk Group Performance - Aggregate
73	Collocation Percent of Due Dates Missed
74	Timeliness of Change Management Notices
75	Timeliness of Documents Associated with Change
76	Service Order Accuracy - Resale Residence
77	Service Order Accuracy - Resale Business
78	Service Order Accuracy - Resale Design (Specials)
79	Service Order Accuracy - UNE Specials (Design)
80	Service Order Accuracy - UNE (Non-Design)
81	Service Order Accuracy - Local Interconnection Trunks

CERTIFICATE OF SERVICE

I hereby certify that on March 28, 2002, a copy of the foregoing document was served on the parties of record as indicated:

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

Henry Walker, Esquire
Boult, Cummings, et al.
414 Union Ave., #1600
P. O. Box 198062
Nashville, TN 39219-8062

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

Erick Soriano, Esquire
Kelley, Drye & Warren
1200 19th St., NW, #500
Washington, DC 20036

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

James Wright, Esq.
United Telephone - Southeast
14111 Capitol Blvd.
Wake Forest, NC 27587

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

Jon Hastings, Esquire
Boult, Cummings, et al.
414 Union St., #1600
Nashville, TN 37219

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

Don Baltimore, Esquire
Farrar & Bates
211 Seventh Ave., N., #320
Nashville, TN 37219-1823

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

Charles B. Welch, Esquire
Farris, Mathews, et al.
205 Capitol Blvd, #303
Nashville, TN 37219

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

Kenneth Bryant, Esquire
Trabue, Sturdivant & DeWitt
150 4th Ave, N., #1200
Nashville, TN 37219-12433

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

William C. Carriger, Esquire
Strang, Fletcher, et al.
One Union Square, #400
Chattanooga, TN 37402

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

James P. Lamoureux, Esquire
AT&T
1200 Peachtree St., NE, #4068
Atlanta, GA 30367

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

Timothy Phillips, Esquire
Office of Tennessee Attorney General
P. O. Box 20207
Nashville, TN 37202

[ ] Hand
[X] Mail
[ ] Facsimile
[ ] Overnight

J. Barclay Phillips, Esquire
Miller, Martin, et al.
150 4th Avenue, N, #1200
Nashville, TN 37219-2433

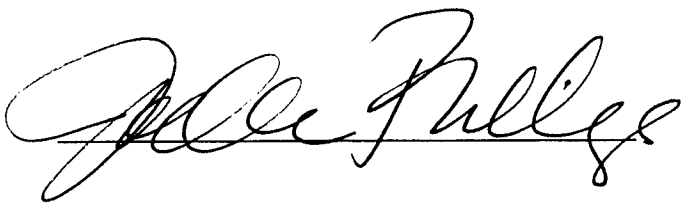

EXHIBIT NO. AJV-16

Data Integrity Issues

DATA INTEGRITY ISSUES

DATA ISSUE/ MSS Impact	ISSUE DESCRIPTION
Reject Interval and FOC Timeliness/ >0.5%	The incomplete migration of the start/stop timestamps to the ordering gateways combined with the incomplete implementation of the OSS downtime exclusion resulted in a discrepancy caused by the fact that some of BellSouth's systems are on Eastern time, and some are on Central time. As a result of this discrepancy, BellSouth's performance is understated because an hour is inappropriately added to the interval in some cases. A change to address this issue for EDI was implemented with February 2002 data, and BellSouth is in the process of scheduling a similar change for TAG. Overall, these changes are expected to increase reported performance by 1-3% for Reject Interval and a negligible amount for FOC Timeliness.
% Provisioning Troubles Within 30 Days/ Understates Perfomance	There is a minor issue with % Provisioning Troubles Within 30 Days for November 2001 data for a subset of one product category (ISDN/BRI loop troubles processed in LMOS). LMOS tracks orders by telephone number. The PMAP system could not connect a telephone number to a circuit identification to a service order on the retail side. Thus, certain troubles were not accounted for, making BellSouth's retail performance look better than it really was. Based on the increase in the retail analogue after this correction, BellSouth likely would have been in parity for the previous months had this correction in the retail analogue been made earlier. BellSouth fixed this issue with December 2001 data.
Average Response Interval/ No Impact After Retail Analog Change	For the OSS Pre-Ordering Average Response Interval, CLEC Aggregate performance is compared with the retail response times achieved via the RNS and ROS systems. In accordance with the GPSC's *January 16, 2001 Order*, BellSouth added two seconds to the retail analogs in order to account for the machine-to-machine message translations and security processing required for wholesale CLEC transactions. BellSouth discovered, contrary to its original belief, that it needed to move the LENS timestamps to comply with the GPSC's January 16, 2001 Order. BellSouth is currently working to resolve this issue. Consequently, the Authority should subtract 2 seconds from the retail analogue associated with LENS.
ACNI LSR Exclusions/ <0.5%	There are two issues that are related to ACNI. The first issue, ACNI is disaggregated based on whether the LSR was received through mechanized versus non-mechanized means. To determine how the LSR was received, the completion notice has to be matched to the original LSR that only appears in the ordering measures. Some LSRs, however, are legitimately excluded from the ordering measures but are included in provisioning measures. Completion notices for these LSRs could not be matched to the LSR so they were excluded. However, LSRs excluded from ordering raw data are placed in an "error" file, so BellSouth now reviews this error file to match LSRs to completion notices. This enhancement implemented with February 2002 data, will add additional SOs to the ACNI volume; however, it should not have a disproportionate impact on the reported interval. Second, when BellSouth processes auto-restorals of service, BellSouth is adding twenty-four hours to the retail completion notice time for jobs that typically take 3-5 hours. Auto-restorals are about 1% of the retail orders so the problem is slightly elongating the retail analogue. Further, there is no impact on the reported equity results. BellSouth implemented an interim fix for this issue for February 2002 data.
ACNI Intervals/ Understates Performance	BellSouth has identified that the ACNI results are incorrectly extended for multi-point designed circuits. For these orders, BellSouth is starting the clock upon receipt of the initial location CP identifier, as opposed to the last location CP identifier. These cutovers (depending on the number of locations) could be scheduled to take place during the course of several days or even weeks and BellSouth's OCI timestamp is linked to the final order completion date. As a result, BellSouth is introducing unnecessary overlap across the OCI and ACNI results. BellSouth is working to identify a solution for these multi-point designed circuits such that the ACNI interval will begin upon completion of work for the last location/circuit.
% Repeat	

DATA INTEGRITY ISSUES

DATA ISSUE/ MSS Impact	ISSUE DESCRIPTION
Troubles Within 30 Days/ <0.5%	There are two minor issues associated with % Repeat Troubles Within 30 Days. The first is specific to WFA-generated CPE and information tickets, which are not trouble tickets for which BellSouth is responsible. These are being counted as initial troubles rather than being excluded from the measurement such that when there is a subsequent trouble on that line (for which BellSouth was legitimately responsible), PMAP erroneously counts it as a repeat trouble. There is a minimal impact on results. For example, based on December 2001 data, both the retail analogue and CLEC data are overstated by less than 0.5%. The second issue associated with this measure involves troubles reported just prior to and following a customer migrating from BellSouth to a CLEC or vice versa. In these instances, a repeat trouble is logged against the new local carrier when, in fact, the counter and "clock" should be reset upon implementation of the customer switch. While BellSouth is working to fix this issue as soon as possible and does not have material impact on the reliability of BellSouth's results.
Provisioning Measures/ <0.5%	On March 26, 2002, Network Telephone sent an e-mail regarding allegations that numerous Purchase Order Numbers (PONs) were not found in BellSouth's Performance Measurement Analysis Platform (PMAP) raw data files for December 2001 and January 2002. BellSouth has researched these PONs and provided a response to Network Telephone (see Exhibit AJV-14). BellSouth was able to identify all PONs for December 2001 data, and explained in the aforementioned letter, how Network Telephone could match the PONs. It was merely a clarification. In January 2002, there was one issue with the data. PONs were identified in the PMAP FOC raw data but Network Telephone could not find them in OCI, TSOCT or % Reject raw data. This list of PONs was also included in the ex parte filing made by Network Telephone on March 26, 2002, with the Federal Communications Commission (see Exhibit AJV-15). Of the list of 50 PONs provided, 47 were properly excluded (*See* BellSouth's letter, Exhibit AJV-14). BellSouth's investigation of the remaining three PONs determined that they were not in the OCI or TSOCT raw data files because these orders did not appear in the SOCS feed used to calculate those measures. In certain rare situations on both BellSouth retail and CLEC orders, SOCS may generate duplicate service order numbers in the same month. When this rare situation occurs, only the most recent service order appears in the measurement feed. This does not affect the provisioning of CLEC or BellSouth orders. Based on January and February 2002 data, this occurs on only 0.2% - 0.4% of CLEC orders with a negligible effect on performance results. BellSouth's analysis of January and February 2002 data indicates that the inclusion of these service orders would have affected BellSouth retail aggregate and CLEC aggregate OCI results by no more than 0.01 days in the region. This minor issue should be resolved with May 2002 data.
Provisioning Measures Processing Window Issue/ <0.5%	In a very small number of cases, if a completion notice is issued after the processing window for the prior month's data closes, the order is not counted in provisioning measures. This is not an error, but simply the result of having to post data on a monthly basis. In order to process and produce the data, BellSouth has to take a snapshot of the data at a single point in time. For the provisioning measures, BellSouth leaves the processing window open 4 days past the end of the month to capture as many completion notices as possible. If a completion notice is sent after the window closes, however, it is not counted. BellSouth estimates that this occurs no more than 0.30% of the time. However, to ensure that all orders are captured BellSouth will begin to report on orders in the month that the completion notice is sent.