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ORIGINAL

RECORDS AND REPORTING

NOV 19 PM 4:42

RECEIVED-FPSC

Ms. Blanca S. Bayó
Director, Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: BellSouth OSS Performance Metrics Docket #'s 960786-TL
and 981834-TP

Dear Ms. Bayó:

Enclosed for filing on behalf of MCI WorldCom, Inc. and ITC^DeltaCom Communications, Inc. are the original and fifteen copies of their comments on interim performance metrics.

By copy of this letter, this document has been provided to the parties on the attached service list.

Very truly yours,

Richard D. Melson

Richard D. Melson

- AFA
- APP
- CAF
- CMU
- CTR
- EAG
- LEG 2
- MAS 3
- OPC
- PAI
- SEC 1
- WAW
- OTH

RDM/kcg
Enclosures
cc: Parties of Record

132674.1

RECEIVED & FILED

FPSC-BUREAU OF RECORDS

Done 11/24/99

DOCUMENT NUMBER-DATE

14357 NOV 19 99

FPSC-RECORDS/REPORTING

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of Competitive)
Carriers for Commission action)
to support local competition in)
BellSouth Telecommunications,)
Inc.'s service territory.)

Docket No. 981834-TP

In re: Consideration of)
BellSouth Telecommunications,)
Inc.'s entry into interLATA)
services pursuant to Section 271)
of the Federal)
Telecommunications Act of 1996.)

Docket No. 960786-TL
Filed: November 19, 1999

**COMMENTS OF MCI WORLDCOM AND ITC^DELTACOM
ON INTERIM PERFORMANCE METRICS**

MCI WorldCom, Inc. ("MCI WorldCom") and ITC^DeltaCom Communications, Inc. ("ITC^DeltaCom") hereby file their comments on the interim performance metrics to be used during third party testing of BellSouth's operations support systems ("OSS").

I. INTRODUCTION

In comments submitted to the Florida Public Service Commission concerning the draft Master Test Plan, MCI WorldCom and others encouraged the Commission to review the issue of performance measures prior to implementation of third party testing. The Commission responded by scheduling two workshops to address the issue and inviting parties to file comments on BellSouth's current Service Quality Measurements ("SQM"). MCI WorldCom and ITC^DeltaCom are encouraged by this response because this approach will enable the Commission to ensure that the metrics used by the Phase II test manager are clearly and appropriately defined; that the metrics are disaggregated so

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FPSC-RECORDS/REPORTING

BellSouth's OSS can be thoroughly evaluated; and that OSS performance is graded using performance standards and a valid statistical methodology that accurately assess parity and whether CLECs are being given a meaningful opportunity to compete.

The Notice of Staff Workshop issued on November 12, 1999 requested parties to put proposed modifications to BellSouth's SQM in a format tracking the categories used in the SQM itself. To comply with this requirement, a red-lined version of the SQM (as it relates to pre-ordering, ordering, provisioning, maintenance and repair and billing) has been prepared and is attached as Exhibit A. MCI WorldCom and ITC^DeltaCom note that the changes proposed in this red-lined version are not exhaustive and that they would propose additional changes in a proceeding for the establishment of permanent performance metrics. In limiting their proposed changes, MCI WorldCom and ITC^DeltaCom have been mindful that the requested changes would have to be implemented quickly so that third party testing could proceed without delay. MCI WorldCom and ITC^DeltaCom also propose that certain additional metrics be used during third party testing, which are included in Exhibit B. For the reasons discussed below, these metrics would provide important additional insight into BellSouth's OSS and give the Phase II test manager useful tools to assess the adequacy of BellSouth's OSS. MCI WorldCom and ITC^DeltaCom reserve the right to present other metrics when the Commission undertakes consideration of permanent performance measurements.

The Notice of Staff Workshop requested parties to address the issues of (i) performance measures, (ii) retail analogs and benchmarks, and (iii) statistical methodology. The discussion below of the recommended changes to BellSouth's SQM

(reflected in Exhibits A and B) is organized accordingly. In addition, CLECs were asked to prioritize their suggestions and comments to the extent possible. In general, the lack of analogs or benchmarks, along with the absence of a valid statistical methodology to compare results (where analogs exist), appear to be the most significant problems. Until these issues are addressed, it will be impossible for the test manager to evaluate BellSouth's performance -- put simply, there will be no way to grade the test. The next priority, generally speaking, is ensuring that BellSouth's measurements are properly defined so that calculations yield meaningful results. Once the measurements are calculated correctly, the results must be reported and evaluated in sufficient detail -- or in another words at a sufficient level of disaggregation -- to ensure meaningful assessment. Finally, certain additional measurements should be adopted so that BellSouth's OSS is thoroughly evaluated.

II. PERFORMANCE MEASURES

Performance measurement issues generally fall into three categories: (a) definition and calculation of the SQM measurements; (b) disaggregation of measurements in BellSouth's SQM; and (c) additional measurements. Each of these issues is addressed below.

A. Definition and Calculation

In a number of instances, BellSouth's performance measurements require clarification or change, either in the definition of the measurement itself, in the exclusions from the measurement, in the applicable business rules, or in the formula used to calculate the measurement. Proposed clarifications and changes, which for the most

part are self-explanatory, are reflected in the red-lined version of BellSouth's SQM attached as Exhibit A.

B. Disaggregation

The performance measurements to be applied by the Phase II test manager should be disaggregated sufficiently so that apples-to-apples comparisons can be made. In particular, disaggregation should be required by product, by ordering activity, by geographic scope, by volume category, by interface type and (in some cases) by reason for held order. Whatever concerns BellSouth may have about disaggregation as a general matter should not apply where third party testing is concerned. The test manager should evaluate the performance data at a level of detail that will ensure that all aspects of BellSouth's OSS are tested.

Product disaggregation is key because different performance can be expected based on the type of product being ordered. Lumping together one type of order that has a two day interval with another type of order that has a ten day interval and producing a report showing that on average the orders are provisioned in seven days tells one nothing about whether either type of order was provided at parity. Such aggregate treatment masks disparities in service and should not be permitted. For most ordering and provisioning measurements, the recommended levels of disaggregation are listed in Attachment A to Exhibit C. For most maintenance and repair measurements, the recommended levels are listed in Attachment C to Exhibit C. The basic principle of product disaggregation is that each product should be tracked separately.¹ In the context

¹ Obviously, if it is determined that a product listed in Attachment A or C will not be tested, there would be no reason to disaggregate data for that product.

of third party testing, application of that principle will enable the test manager to ensure that idiosyncrasies of a given product do not impair OSS functionality for CLECs.

The performance data collected by the test manager (and by BellSouth) also should be disaggregated by ordering activity. Examples of ordering activities include new service installations and service migrations without changes. Other order activities are listed in Attachments A and C to Exhibit C. Because these different order activities involve different processes, they should be reported separately. For third party testing purposes, the test manager should evaluate each ordering activity being tested to ensure that it meets the test of parity and provides a reasonable opportunity to compete.

Disaggregation of this data ensures that the test manager can do so.

BellSouth generally disaggregates data geographically at the state or regional level, and will provide further disaggregation at the MSA level if required by Commission order. If only statewide reporting is provided, CLECs that operate only in discrete areas of the state cannot compare the performance they receive to what BellSouth provides itself in those areas. Because service levels may vary from area to area, such CLECs cannot determine whether they are receiving parity of service. For third party testing purposes, the test manager should at least report and evaluate data by MSA to ensure that geographic differences are accounted for.

Other types of disaggregation also are required. Volume category disaggregation captures differences that may arise based on, *e.g.*, the number of lines being ordered. For instance, MCI WorldCom has learned through experience using BellSouth's EDI 7.0 interface that the number of lines that can be requested on one purchase order is limited to 325. By capturing data based on the volume involved, such problems can be detected.

Disaggregation also should be provided by interface type. The only way to determine, for example, whether BellSouth's TAG interface meets the applicable standards is to provide data specifically for that interface. If TAG data is lumped together with LENS data, the performance of the TAG interface will be obscured. Finally, in cases involving held orders, the reason for the order being held should be captured and reported. For instance, it is important to know whether the order was held because of a lack of facilities, a problem with workload, or a system error of some kind. That information is critical to resolving problems that arise in this area.

C. Additional Measures

MCI WorldCom and ITC/DeltaCom recommend that the nine additional measurements included in Exhibit B be used in the third party test. A brief explanation of each measurement follows.

1. Provisioning troubles prior to loop acceptance

A customer suddenly experiencing degraded service or other problems during but before completion of the transition of service to the CLEC provider may blame the rough transition on the CLEC, even if the CLEC is not yet the official owner of the customer. Monitoring troubles during this initial phase of establishing a customer relationship is critical.

2. Percent orders canceled after missed due date

This metric is designed to measure the impact of missed due dates. Poor service from the ILEC can cause a CLEC to supplement an order, but sometimes a significant lack of ILEC performance leaves the CLEC no choice but to cancel the order. In some

cases customers, frustrated by installation delays that are actually the fault of the ILEC, will cancel their orders with the CLEC.

3. Percent loss from early cuts and late cuts

CLEC customers often suffer from degraded or lost service through ILEC mistakes or failure to adhere to established cutover procedures. A late cut translation often means the customer cannot receive all or certain incoming calls. This metric should be reported separately for loop orders, loop with LNP orders and standalone LNP orders.

4. Percent found OK/test OK/ CPE

The manual assignment of these categories can provide incorrect outcomes regarding troubles. The ILEC and the CLEC should agree that the assignment of these codes is valid. This measure provides a tracking mechanism that will trigger a root cause analysis or reconciliation if needed.

5. Call abandonment rate

CLECs should be able to quickly reach an ILEC representative and receive assistance promptly. They should not be placed on hold for an excessive amount of time. This metric indicates that the ILEC's CLEC centers may be inadequately equipped and staffed to handle calls. CLECs often hang up because no one answers or they are put on hold for long periods of time.

6. Average notification of interface/OSS outage

CLECs need to be informed promptly when ILEC systems are down so that they can make alternative work plans. Failure to timely inform CLECs of outages can cause them to waste time troubleshooting their own interfaces. Timely notification also

prevents the ILEC's CLEC help centers from being inundated with calls about an already known outage.

7. Percent of change management notices and documentation sent on time

Often ILEC failures to adhere to change management notice requirements have caused delays in the building or have stopped the operations of functioning CLEC OSS interfaces. ILECs must measure their adherence to their change management notice commitments and definitions of emergency notices.

8. Percent of software certification failures and software problem resolution

This measurement provides some assurance that ILECs will sufficiently test before a system is rolled out. CLECs need to be sure that when ILECs introduce software upgrades, the CLECs' existing systems still will be able to function with them.

9. Percent Billing Errors Corrected in X Days

The length of time until a CLEC can accurately bill its customers is directly correlated to the length of time it takes an ILEC to correct errors in the bills it provides CLECs. CLECs need the ILEC to be responsive to requests to correct billing errors, particularly daily usage feed records.

III. RETAIL ANALOGS AND BENCHMARKS

OSS functions provided to CLECs must be compared to BellSouth retail analogs if they exist. If no analog exists, BellSouth's performance must be gauged by a performance standard.² *Application of Ameritech Michigan to Provide In-Region,*

² MCI WorldCom generally supports the use of performance standards for all measures (in addition to analogs, where applicable). Performance standards give carriers incentive to meet specified performance levels that CLECs can rely on in developing their business processes. Further, performance standards help ensure that CLECs have a meaningful opportunity to compete, even when the ILEC provides poor

InterLATA Services in Michigan, CC Docket 97-137, Memorandum Opinion and Order, FCC 97-137 at ¶¶ 139-41 (rel. Aug. 19, 1997). For most ordering measures, BellSouth states that it has analogs, benchmarks or both under development. Similarly, for most provisioning and maintenance and repair measurements, Bell South currently does not provide an analog or a benchmark for UNE products. As a result, the test manager has no basis for grading many parts of the third party test to determine whether BellSouth's OSS should receive a passing grade or whether it still needs improvement. For most measurements, MCI WorldCom and ITC^DeltaCom have suggested a performance standard to be used to the extent no retail analog is available.³

IV. STATISTICAL METHODOLOGY

To determine whether BellSouth's OSS provides parity to CLECs, it is critical that a statistically valid method be used to compare BellSouth retail data to CLEC data. In the Louisiana performance measurement workshops, the parties have discussed extensively such a statistical method and appear to be close to reaching agreement. If agreement on a statistical method can be reached before third party testing begins, MCI WorldCom and ITC^DeltaCom propose that the agreed upon method be used. Otherwise, we propose that the "modified z" statistical method described in Exhibit D be used.

performance to its retail unit. For the purposes of Florida third party testing, however, MCI WorldCom does not oppose exclusive use of valid retail analogs where they exist.

³ Because detailed knowledge of BellSouth's OSS generally is necessary to assess the existence of retail analogs, such analogs have not been proposed. In a few cases, where CLECs generally have not adopted the measurement in question, no performance standard is suggested.

V. CONCLUSION

Interim performance measurements should be adopted that provide a true assessment of whether BellSouth's OSS provides parity and a meaningful opportunity to compete. MCI WorldCom and ITC^DeltaCom respectfully submit that making the changes they propose to BellSouth's SQM will put the Phase II test manager in a position to provide such an assessment.

RESPECTFULLY SUBMITTED this 19 day of November, 1999

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing was furnished to the following parties by U.S. Mail or Hand Delivery (*) this 19th day of November, 1999.

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BellSouth
Service Quality Measurements
Regional Performance Reports

EXHIBIT A

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* These reports are subject to change due to regulatory requirements or to correct errors and etc.

BellSouth
Service Quality Measurements
Regional Performance Reports

PRE-ORDERING - OSS

Report/Measurement :	
Average OSS Response Time and Response Interval	
Definition:	
Average response time and response intervals are the average times and number of requests responded to within certain intervals for accessing legacy data associated with appointment scheduling, service & feature availability, address verification, request for Telephone Numbers (TNs), and Customer Service Records (CSRs).	
Exclusions:	
None	
Business Rules:	
The average response time for retrieving pre-order/order information from a given legacy system is determined by summing the response times for all requests submitted to the legacy during the reporting period and dividing by the total number of legacy requests for that day X 100. The response interval starts when the client application (LENS or TAG for CLECs and RNS for BST) submits a request to the legacy system and ends when the appropriate response is returned to the client application. The number of legacy accesses during the reporting period, which take less than 2.3 seconds and the number, which take more than 6 seconds are also captured. <u>ELAPSED TIME IS MEASURED IN SECONDS AND TENTHS OF SECONDS ROUNDED TO THE NEAREST TENTH OF A SECOND.</u>	
Level of Disaggregation:	
<ul style="list-style-type: none"> • RSAG – Address (Regional Street Address Guide- Address) - stores street address information used to validate customer addresses • RSAG – TN (Regional Street Address Guide- Telephone Number) - contains information about facilities available and telephone numbers working at a given address. • ATLAS (Application for Telephone Number Load Administration and Selection) - acts as a warehouse for storing telephone numbers that are available for assignment by the system. It enables CLECs and BST service reps to select and reserve telephone numbers. • COFFI (Central Office Feature File Interface) - stores information about product and service offerings and availability. • DSAP (DOE Support Application) - provides due date information. • HAL (Hands-Off Assignment Logic) - a system used to access the Business Office Customer Record Information System (BOCRIS). It allows BST servers, including LENS, access to legacy systems. • P/SIMS (Product/Services Inventory Management System) - provides information on capacity, tariffs, inventory and service availability. • OASIS (Obtain Available Services Information Systems) - Information on feature and rate availability. 	
Calculation:	
$\frac{\sum[(Date \& Time \ of \ Legacy \ Response) - (Date \& Time \ of \ Request \ to \ Legacy)]}{(Number \ of \ Legacy \ Requests \ During \ the \ Reporting \ Period) \times 100}$	
Report Structure:	
<ul style="list-style-type: none"> • Not CLEC Specific • Not product/service specific • Regional Level 	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Legacy Contract (per reporting dimension) • Response Interval • Regional Scope 	<ul style="list-style-type: none"> • Report Month • Legacy Contract (per reporting dimension) • Response Interval • Regional Scope
Retail Analog/Benchmark	
CLEC Average Response Interval is comparable to BST Average Response Interval <u>STANDARD: TN RESERVATIONS 1-30: 2 SECONDS AND NONE GREATER THAN 5 SECONDS. TN RESERVATIONS 31+: LESS THAN 2 HOURS. ADDRESS VALIDATION, DUE DATE, LIDB: 2 SECONDS. CSR: 5 SECONDS. DISPATCH: 8 SECONDS. PIC AND DIRECTORY LISTINGS: PARITY.</u>	

Revision date: 09/14/99 (lg)

BellSouth
Service Quality Measurements
Regional Performance Reports

LEGACY SYSTEM ACCESS TIMES FOR RNS

System	Contract	Data	< 2.3 sec	> 6 sec	Avg. Sec	# of Calls
RSAG	RSAG-TN	Address	x	x	x	x
RSAG	RSAG-ADDR	Address	x	x	x	x
ATLAS	ATLAS-TN	TN	x	x	x	x
DSAP	DSAP-DDI	Schedule	x	x	x	x
CRIS	CRSACCTS	CSR	x	x	x	x
OASIS	OASISBSN	Feature/Service	x	x	x	x
OASIS	OASISCAR	Feature/Service	x	x	x	x
OASIS	OASISLPC	Feature/Service	x	x	x	x
OASIS	OASISMTN	Feature/Service	x	x	x	x
OASIS	OASISBIG	Feature/Service	x	x	x	x

LEGACY SYSTEM ACCESS TIMES FOR LENS

System	Contract	Data	< 2.3 sec	> 6 sec	Avg. Sec	# of Calls
RSAG	RSAG-TN	Address	x	x	x	x
RSAG	RSAG-ADDR	Address	x	x	x	x
ATLAS	ATLAS-TN	TN	x	x	x	x
DSAP	DSAPDDI	Schedule	x	x	x	x
HAL	HAL/CRIS	CSR	x	x	x	x
COFFI	COFFI/USOC	Feature/Service	x	x	x	x
P/SIMS	PSIMS/ORB	Feature/Service	x	x	x	x

LEGACY SYSTEM ACCESS TIMES FOR TAG

System	Contract	Data	< 2.3 sec	> 6 sec	Avg. Sec	# of Calls
RSAG	RSAG-TN	Address	x	x	x	x
RSAG	RSAG-ADDR	Address	x	x	x	x
ATLAS	ATLASTN	TN	x	x	x	x
DSAP	DSAPDDI	Schedule	x	x	x	x
HAL	HAL/CRIS	CSR	x	x	x	x
CRIS	CRSEINIT	CSR	x	x	x	x
CRIS	CRSECSR	CSR	x	x	x	x

Revision date: 08/10/99 (lg)

BellSouth
Service Quality Measurements
Regional Performance Reports

PRE-ORDERING - OSS

Report/Measurement:	
OSS Interface Availability	
Definition:	
Percent of time OSS interface is functionally available compared to scheduled availability. Availability percentages for CLEC interface systems and for all Legacy systems accessed by them are captured	
Exclusions:	
None	
Business Rules:	
<p>This measurement captures the availability percentages for the BST systems, which are used by CLECs during Pre-Ordering functions. Comparison to BST results allow conclusions as to whether an equal opportunity exists for the CLEC to deliver a comparable customer experience.</p> <p><u>BST MUST PROVIDE A MINIMUM ADVANCE NOTICE OF ONE REPORTING PERIOD REGARDING AVAILABILITY PLANS AND SUCH PLANS MUST BE INTERFACE SPECIFIC. IF SCHEDULED AVAILABILITY IS NOT PROVIDED WITH AT LEAST ONE REPORT PERIOD'S NOTICE, THEN THE DEFAULT AVAILABILITY FOR THE SUBSEQUENT REPORTING PERIOD WILL BE SEVEN DAYS PER WEEK, 24 HOURS PER DAY.</u></p> <p><u>THE ANALOGS FOR THIS PERFORMANCE MEASURE ARE THE INTERNAL MEASURES OF SYSTEM DOWNTIME (OR UP TIME) TYPICALLY ESTABLISHED BETWEEN THE ILEC SYSTEMS MANAGEMENT ORGANIZATION AND THE CLIENT ORGANIZATIONS. "FUNCTIONALLY AVAILABLE" MUST HAVE A MEANING CONSISTENT WITH THE ILEC DEFINITION OF DOWN TIME, WHETHER SCHEDULED OR UNSCHEDULED FOR INTERNAL ILEC SYSTEMS HAVING A COMPARABLE POTENTIAL FOR CUSTOMER IMPACT.</u></p> <p><u>TIME IS MEASURED IN HOURS AND TENTHS OF HOURS ROUNDED TO THE NEAREST TENTH OF AN HOUR.</u></p>	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Regional Level 	
Calculation:	
$(\text{Functional Availability}) / (\text{Scheduled Availability}) \times 100$	
Report Structure:	
<ul style="list-style-type: none"> • Not CLEC Specific • Not product/service specific • Regional Level 	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • Legacy contract type (per reporting dimension) • Regional Scope 	<ul style="list-style-type: none"> • Report Month • Legacy contract type (per reporting dimension) • Regional Scope
Retail Analog/Benchmark:	
<p>CLEC OSS Interface Availability is comparable to BST OSS Interface Availability</p> <p><u>LESS THAN 0.1% OF UNSCHEDULED DOWNTIME; NO SCHEDULED DOWNTIME DURING PRIME TIME OPERATING HOURS.</u></p>	

Revision date: 09/14/99 (lg)

**BellSouth
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OSS Interface Availability

OSS Interface	% Availability
LENS	X
LEO Mainframe	X
LEO UNIX	X
LESOG	X
EDI	X
HAL	X
BOCRIS	X
ATLAS/COFFI	X
RSAG/DSAP	X
SOCS	X
TAG	X

BellSouth
Service Quality Measurements
Regional Performance Reports

ORDERING

Report/Measurement:
Percent Flow Through Service Requests (Summary)
Definition:
The percentage of Local Service Requests (LSR) submitted electronically via the CLEC mechanized ordering process that flow through to SOCS without manual intervention
Exclusions:
<ul style="list-style-type: none">• Fatal Rejects• Auto Clarification• Manual Fallout• CLEC System Fallout• Supplements (subsequent versions) to cancel LSRs that are not LESOG eligible (Under development)
Business Rules:
<p>The CLEC mechanized ordering process includes all LSRs, including supplements (subsequent versions) which are submitted through one of the three gateway interfaces (TAG, EDI, and LENS), and flow through to SOCS without manual intervention. These LSRs can be divided into two classes of service; Business and Residence, and three types of service; Resale, Unbundled Network Elements (UNE), and specials. The CLEC mechanized ordering process does not include LSRs, which are, submitted manually (e.g., fax, and courier), or are not designed to flow through, i.e., Manual Fallout.</p>
Definitions:
<p><u>Fatal Rejects:</u> Errors that prevent an LSR, submitted by the CLEC, from being processed further. When an LSR is submitted by a CLEC, LEO will perform edit checks to ensure the data received is correctly formatted and complete. For example, if the PON field contains an invalid character, LEO will reject the LSR and the CLEC will receive a Fatal Reject.</p>
<p><u>Auto-Clarification:</u> errors that occur due to invalid data within the LSR. LESOG will perform data validity checks to ensure the data within the LSR is correct and valid. For example, if the address on the LSR is not valid according to RSAG, the CLEC will receive an Auto-Clarification.</p>
<p><u>Manual Fallout:</u> errors that occur by design. Certain LSRs are designed to fallout of the Mechanized Order Process due to their complexity. These LSRs are manually processed by the LCSC. When a CLEC submits an LSR, LESOG will determine if the LSR should be forwarded to LCSC for manual handling. Following are the categories for Manual Fallout.</p>
<ol style="list-style-type: none">1. Complex services*2. Expedites (requested by the CLEC)3. Special pricing plans4. Denials-restore and conversion, or disconnect and conversion orders5. Partial migrations6. Class of service invalid in certain states with some types of service7. New telephone number not yet posted to BOCRIS8. Low volume such as activity type "T" (move)9. Pending order review required10. More than 25 business lines11. Restore or suspend for UNE combos12. Transfer of calls option for the CLEC's end users13. CSR inaccuracies such as invalid or missing CSR data in CRIS
<p>* Attached is a list of services, including complex services, and whether LSRs issued for the services are eligible to flow through.</p>
<p><u>Total System Fallout:</u> Errors that require manual review by the LCSC to determine if the error is caused by the CLEC, or is due to system functionality. If it is determined the error is caused by the CLEC, the LSR will be sent back to the CLEC as clarification. If it is determined the error is BST caused, the LCSC representative will correct the error.</p>

BellSouth
Service Quality Measurements
Regional Performance Reports

ORDERING – (Percent Flow Through Service Requests (Summary) – Continued)

Calculation:	
Percent Flow Through Service Requests = $\Sigma[(\text{Total number of valid service requests that flow-through to SOCS}) / (\text{Total number of valid service requests delivered to SOCS}) \times 100$	
Description: Percent Flow Through = $(\text{The total number of LSRs that flow through LESOG to SOCS}) / (\text{the number of LSRs passed from LEO to LESOG}) - \Sigma[(\text{the number of LSRs that fall out for manual processing}) + (\text{the number of LSRs that are returned to the CLEC for clarification}) + (\text{the number of LSRs that contain errors made by CLECs})] \times 100.$	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Aggregate <ul style="list-style-type: none"> ➢ Region 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Geography <ul style="list-style-type: none"> ➢ Region • Product (Under Development) <ul style="list-style-type: none"> ➢ Residence ➢ Business ➢ UNE ➢ Special 	
LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT A	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report month • Total number of LSRs received, by interface, by CLEC: <ul style="list-style-type: none"> ➢ TAG ➢ EDI ➢ LENS • Total number of errors by type, by CLEC: <ul style="list-style-type: none"> ➢ Fatal rejects ➢ Total fallout for manual processing ➢ Auto clarification ➢ CLEC caused system fallout • Total number of errors by error code 	<ul style="list-style-type: none"> • Report month • Total number of errors by type: <ul style="list-style-type: none"> ➢ BST system error
Retail Analog/Benchmark:	
CLEC Flow Through/benchmark comparison (Under Development) STANDARD: 98%	

Revision Date: 09/03/99 (tm)

BellSouth
Service Quality Measurements
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ORDERING

Report/Measurement:
Percent Flow Through Service Requests (Detail)
Definition:
A detailed list by CLEC of the percentage of Local Service Requests (LSR) submitted electronically via the CLEC mechanized ordering process that flow through to SOCS without manual or human intervention.
Exclusions:
<ul style="list-style-type: none">• Fatal Rejects• Auto Clarification• Manual Fallout• CLEC System Fallout• Supplements (subsequent versions) to cancel LSRs that are not LESOG eligible(Under development)
Business Rules:
<p>The CLEC mechanized ordering process includes all LSRs, including supplements (subsequent versions) which are submitted through one of the three gateway interfaces (TAG, EDI, and LENS), and flow through to SOCS without manual intervention. These LSRs can be divided into two classes of service; Business and Residence, and three types of service; Resale, Unbundled Network Elements (UNE) and specials. The CLEC mechanized ordering process does not include LSRs, which are, submitted manually (e.g., fax, and courier), or are not designed to flow through, i.e., Manual Fallout.</p>
Definitions:
<p><u>Fatal Rejects:</u> Errors that prevent an LSR, submitted by the CLEC, from being processed further. When an LSR is submitted by a CLEC, LEO will perform edit checks to ensure the data received is correctly formatted and complete. For example, if the PON field contains an invalid character, LEO will reject the LSR and the CLEC will receive a Fatal Reject.</p>
<p><u>Auto-Clarification:</u> errors that occur due to invalid data within the LSR. LESOG will perform data validity checks to ensure the data within the LSR is correct and valid. For example, if the address on the LSR is not valid according to RSAG, the CLEC will receive an Auto-Clarification.</p>
<p><u>Manual Fallout:</u> errors that occur by design. Certain LSRs are designed to fallout of the Mechanized Order Process due to their complexity. These LSRs are manually processed by the LCSC. When a CLEC submits an LSR, LESOG will determine if the LSR should be forwarded to LCSC for manual handling. Following are the categories for Manual Fallout:</p>
<ol style="list-style-type: none">1. Complex services*2. Expedites (requested by the CLEC)3. Special pricing plans4. Denials-restore and conversion, or disconnect and conversion orders5. Partial migrations6. Class of service invalid in certain states with some types of service7. New telephone number not yet posted to BOCRIS8. Low volume such as activity type "T" (move)9. Pending order review required10. More than 25 business lines11. Restore or suspend for UNE combos12. Transfer of calls option for the CLEC's end users13. CSR inaccuracies such as invalid or missing CSR data in CRIS
<p>*Attached is a list of services, including complex services, and whether LSRs issued for the services are eligible to flow through.</p>
<p><u>Total System Fallout:</u> Errors that require manual review by the LCSC to determine if the error is caused by the CLEC, or is due to system functionality. If it is determined the error is caused by the CLEC, the LSR will be sent back to the CLEC as clarification. If it is determined the error is BST caused, the LCSC representative will correct the error.</p>

BellSouth
Service Quality Measurements
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ORDERING – (Percent Flow Through Service Requests (Detail) – Continued)

Calculation:	
Percent Flow Through Service Requests = (Total number of valid service requests that flow-through to SOCS) / (Total number of valid service requests delivered to SOCS) X 100	
Description:	
Percent Flow Through = The total number of LSRs that flow through LESOG to SOCS / (the number of LSRs passed from LEO to LESOG) – Σ[(the number of LSRs that fall out for manual processing + the number of LSRs that are returned to the CLEC for clarification + the number of LSRs that contain errors made by CLECs)] X 100.	
Report Structure:	
<ul style="list-style-type: none"> • Provides the flow through percentage for each CLEC (by alias designation) submitting LSRs through the CLEC mechanized ordering process. The report provides the following: <ul style="list-style-type: none"> ➢ CLEC (by alias designation) ➢ Number of fatal rejects ➢ Mechanized interface used ➢ Total mechanized LSRs ➢ Total manual fallout ➢ Number of auto clarifications returned to CLEC ➢ Number of validated LSRs ➢ Number of BST caused fallout ➢ Number of CLEC caused fallout ➢ Number of Service Orders Issued ➢ Base calculation ➢ CLEC error excluded calculation 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • CLEC Specific (by alias designation to protect CLEC specific proprietary data) • Geographic: <ul style="list-style-type: none"> ➢ Region • Product (Under development) <ul style="list-style-type: none"> ➢ Residence ➢ Business ➢ UNE ➢ Special 	
LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT A	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report month • Total number of LSRs received, by interface, by CLEC <ul style="list-style-type: none"> ➢ TAG ➢ EDI ➢ LENS • Total number of errors by type, by CLEC <ul style="list-style-type: none"> ➢ Fatal rejects ➢ Total fallout for manual processing ➢ Auto clarification ➢ CLEC errors • Total number of errors by error code 	<ul style="list-style-type: none"> • Report month • Total number of errors by type: <ul style="list-style-type: none"> ➢ BST system error
Retail Analog/Benchmark:	
CLEC Flow Through/benchmark comparison (Under development)	
STANDARD: 98%	

Revision Date: 09/03/99 (tm)

Bell South
Service Quality Measurements
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ORDERING

Report/Measurement:	
Flow Through Error Analysis	
Definition:	
An analysis of each error type (by error code) that was experienced by the LSRs that did not flow through to SOCS.	
Exclusions:	
Each Error Analysis is error code specific; therefore exclusions are not applicable.	
Business Rules:	
The CLEC mechanized ordering process includes all LSRs, including supplements (subsequent versions) which are submitted through one of the three gateway interfaces (TAG, EDI, and LENS), and flow through to provisioning SOCS without manual intervention. These LSRs can be divided into two classes of service; Business and Residence, and two types of service; Resale and Unbundled Network Elements (UNE). This measurement captures the total number of errors by type. The CLEC mechanized ordering process does not include LSRs, which are, submitted manually (e.g., fax, and courier).	
Calculation:	
Σ Of errors by type	
Report Structure:	
<ul style="list-style-type: none"> • Provides an analysis of each error type (by error code). The report is in descending order by count of each error code and provides the following: <ul style="list-style-type: none"> ➢ Error Type (by error code) ➢ Count of each error type ➢ Percent of each error type ➢ Cumulative percent ➢ Error Description ➢ CLEC Caused Count of each error code ➢ Percent of aggregate by CLEC caused count ➢ Percent of CLEC by CLEC caused count ➢ BST Caused Count of each error code ➢ Percent of aggregate by BST caused count ➢ Percent of BST by BST caused count 	
Level of Disaggregation:	
Region	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report month • Total number of LSRs received • Total number of errors by type (by error code) <ul style="list-style-type: none"> ➢ CLEC caused error 	<ul style="list-style-type: none"> • Report month • Total number of errors by type (by error code) <ul style="list-style-type: none"> ➢ BST system error
Retail Analog/Benchmark:	
Not Applicable	

Revision Date: 09/03/99 (tm)

BellSouth
Service Quality Measurements
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Attachment
BellSouth Flow-through Analysis
For CLECs LSRs placed via EDI or TAG

	BellSouth Service Offered to CLEC via resale or UNE	Flow-through if no BST or CLEC Errors (Yes/No)	Complex Service (Yes/No)	Complex Order (Yes/No)	Design Service (Yes/No)	Can ordering this service cause fall out for a reason other than errors or complex? If so, what reason?
1	Flat Rate/Residence	Yes	No	No	no	
2	Flat Rate/Business	Yes	No	No	no	
3	Pay Phone Provider	No	No	No	no	
4	Measured Rate/Res.	Yes	No	No	no	
5	Measured Rate/Bus.	Yes	No	No	no	
6	Area Plus	Yes	No	No	no	
7	Package/Complete Choice and area plus	Yes	No	No	no	
8	Optional Calling Plan	Yes	No	No	no	
9	Ga. Community Calling	Yes	No	No	no	
10	Call Waiting Deluxe	Yes	No	No	no	
11	Call Waiting	Yes	No	No	no	
12	Caller ID	Yes	No	No	no	
13	Speed Calling	Yes	No	No	no	
14	3 Way Calling	Yes	No	No	no	
15	Call Forwarding-Variable	Yes	No	No	no	
16	Remote Access to CF	Yes	No	No	no	
17	Enhanced Caller ID	Yes	No	No	no	
18	Memory Call	Yes	No	No	no	
19	Memory Call Ans. Svc.	Yes	No	No	no	
20	MTS	Yes	No	No	no	
21	RCF	Yes	No	No	no	
22	Ringmaster	Yes	No	No	no	
23	Call Tracing	Yes	No	No	no	
24	Call Block	Yes	No	No	no	
25	Repeat Dialing	Yes	No	No	no	
26	Call Selector	Yes	No	No	no	
27	Call Return	Yes	No	No	no	
28	Preferred Call Forward	Yes	No	No	no	
29	Touchtone	Yes	No	No	no	
30	Visual Director	Yes	No	No	no	
31	INP (all types?)	Yes	UNE	No	no	
32	Unbundled Loop-Analog 2W, SL1, SL2	Yes	UNE	No	Yes-designed, no-non-designed	
33	2 wire analog port	Yes	UNE	No	no	
34	Local Number Portability (always?)	Yes	UNE	No	no	
35	Accupulse	No	Yes	Yes	yes	See note at bottom of matrix.
36	Basic Rate ISDN	No	Yes	Yes	yes	LSR electronically submitted; no flow through

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	BellSouth Service Offered to CLEC via resale or UNE	Flow-through if no BST or CLEC Errors (Yes/No)	Complex Service (Yes/No)	Complex Order (Yes/No)	Design Service (Yes/No)	Can ordering this service cause fall out for a reason other than errors or complex? If so, what reason?
37	DID	No*	Yes	Yes	Yes	* yes with OSS'99
38	Frame Relay	No	Yes	Yes	yes	
39	Megalink	No	Yes	Yes	yes	
40	Megalink-T1	No	Yes	Yes	yes	
41	Native Mode LAN Interconnection (NMLI)	No	Yes	Yes	yes	
42	Pathlink Primary Rate ISDN	No	Yes	Yes	yes	
43	Synchronet	No	Yes	Yes	yes	LSR electronically submitted; no flow through
44	PBX Trunks	No	Yes	Yes	Yes	LSR electronically submitted; no flow through
45	LightGate	No	Yes	Yes	yes	
46	Smartpath	No	Yes	Yes	yes	
47	Hunting	No	Yes	no	no	LSR electronically submitted; no flow through
48	CENTREX	No	Yes	Yes	no	
49	FLEXSERV	No	Yes	Yes	yes	
50	Multiserv	No	Yes	Yes	yes	
51	Off-Prem Stations	No	Yes	Yes	yes	
52	SmartRING	No	Yes	Yes	yes	
53	FX	No	Yes	Yes	yes	
54	Tie Lines	No	Yes	Yes	Yes	
55	WATS	No	Yes	Yes	yes	
56	4 wire analog voice grade loop	No	UNE	Yes	yes-designed, no-non-designed	
57	4 wire DS1 & PRI digital loop	No	UNE	Yes	yes	
58	2 wire ISDN digital loop	No	UNE	Yes	yes	
59	4 wire DS1 & PRI digital loop	No	UNE	Yes	yes	
60	ADSL	No*	UNE	Yes	yes	* yes as of OSS'99?
61	HDSL	No	UNE	Yes	yes	
62	2 wire analog DID trunk port	No	UNE	Yes	Yes	
63	2 wire ISDN digital line side port	No	UNE	Yes	yes	
64	4 wire ISDN DSI digital trunk ports	No	UNE	Yes	yes	
65	UNE Combinations	y-loop+port	UNE	Yes	yes	
66	Directory Listings (simple)	No*	UNE	Yes	no	* yes as of OSS'99

**BellSouth
Service Quality Measurements
Regional Performance Reports**

	BellSouth Service Offered to CLEC via resale or UNE	Flow-through if no BST or CLEC Errors (Yes/No)	Complex Service (Yes/No)	Complex Order (Yes/No)	Design Service (Yes/No)	Can ordering this service cause fall out for a reason other than errors or complex? If so, what reason?
67	Directory Listings (complex)	No*	UNE	yes	no	* yes as of OSS'99, captions and indentions
68	ESSX	No	Yes	Yes	no	

Note for last column: For all services that indicate 'No' for flow-through, the following reasons, in addition to errors or complex services, also prompt manual handling: Expedites from CLECs, special pricing plans, for denials – restore and conversion or disconnect and conversion both required, partial migrations (although conversions-as-is flow through), class of service invalid in certain states with some TOS – e.g. gov't, or cannot be changed when changing main TN on C activity, low volume – e.g. activity type T=move, pending order review required, more than 25 business lines, restore or suspend for UNE combos, transfer of calls option for CLEC end user – fixed with release 6.0, new TN not yet posted to BOCRIS. All but the last one are unique to the CLEC environment.

BellSouth
Service Quality Measurements
Regional Performance Reports

ORDERING

Report/Measurement:	
Percent Rejected Service Requests	
Definition:	
Percent Rejected Service Request is the percent of total Local Service Requests (LSRs) received which are rejected due to error or omission. An LSR is considered valid when it is electronically submitted by the CLEC and passes LEO edit checks to insure the data received is correctly formatted and complete.	
Exclusions:	
Service Requests canceled by the CLEC prior to being rejected/clarified.	
Business Rules:	
<p>Fully Mechanized: An LSR is considered "rejected" when it is submitted electronically but does not pass LEO edit checks in the ordering systems (EDI, TAG, LEO, LESOG) and is returned to the CLEC. There are two types of "Rejects" in the Mechanized category:</p> <ul style="list-style-type: none"> • A Fatal Reject occurs when a CLEC attempts to electronically submit an LSR but required fields are not populated correctly and the request is returned to the CLEC before it is considered an LSR. Fatal Rejects are included in the calculation for regional reports only. • An Auto Clarification is a valid LSR, which is electronically submitted but rejected from LESOG because it does not pass further edit checks for order accuracy. <p>Partially Mechanized: A valid LSR, which is electronically submitted (via EDI or TAG), but cannot be processed electronically and "falls out" for manual handling. It is then put into "clarification" and (rejected) sent back to the CLEC.</p> <p>Total Mechanized: Combination of Fully Mechanized and Partially Mechanized LSRs.</p> <p>Non Mechanized: An LSR which is faxed or mailed to the LCSC for processing and is "clarified" (rejected) back to the CLEC by the BST service representative.</p> <p>LNP: Under Development</p>	
Calculation:	
Percent Rejected Service Requests = (Total Number of Rejected Service Requests) / (Total Number of Service Requests Received <u>IN THE REPORTING PERIOD</u>) X 100 <u>during the month.</u>	
Report Structure:	
<ul style="list-style-type: none"> • Fully Mechanized, Partially Mechanized, Total Mechanized, Non-Mechanized • State and Region • CLEC Specific • CLEC Aggregate 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Resale Residence • Resale Business • Resale Specials • UNE • UNE Loop with NP • Other • Trunks <p>LEVELS OF DISAGGREGATION ARE INADEQUATE. SEE ATTACHMENT A</p>	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Total number of LSRs • Total number of Rejects • Total Number of Errors • State and Region 	<ul style="list-style-type: none"> • Report Month • Total number of LSRs • Total number of Errors • Adjusted Error Volume • State and Region
Retail Analog/Benchmark:	
Benchmark is under development. Retail Analog also under development STANDARD: NO MORE THAN 2% ILEC CAUSED REJECTIONS	

Revision date: 09/13/99 (lg)

BellSouth
Service Quality Measurements
Regional Performance Reports

ORDERING

Report/Measurement:
Reject Interval
Definition:
Reject Interval is the average reject time from receipt of an LSR to the distribution of a Reject. An LSR is considered valid when it is electronically submitted by the CLEC and passes LEO edit checks to insure the data received is correctly formatted and complete.
Exclusions:
Service Requests canceled by CLEC prior to being rejected/clarified
Business Rules:
<ul style="list-style-type: none"> • Fully Mechanized: The elapsed time from receipt of a valid LSR (date and time stamp in ED or TAG) until the LSR is rejected (date and time stamp of reject in LEO). Fatal Rejects and Auto Clarifications are considered in the Fully Mechanized category. • Partially Mechanized: The elapsed time from receipt of a valid LSR (date and time stamp in EDI or TAG) until it falls out for manual handling. The stop time on partially mechanized LSRs is when the LCSC Service Representative clarifies the LSR back to the CLEC via LEO. • Total Mechanized: Combination of Fully Mechanized and Partially Mechanized LSRs. • Non-Mechanized: The elapsed time from receipt of a valid LSR (date and time stamp from FAX stamp) until notice of the reject is returned to the CLEC via LON. • LNP: Under development. <p><u>ALL INTERVALS MEASURED IN HOURS AND HUNDRETHS OF HOURS ROUNDED TO THE NEAREST HUNDRETH. THE ACCUMULATION OF ELAPSED TIME IS BASED ON BUSINESS DAYS/HOURS. THE ILEC SERVICE AGENT'S ATTEMPT TO SUBMIT AN ORDER FOR PROCESSING BY THE ILEC'S OSS IS CONSIDERED EQUIVALENT TO THE ILEC ACKNOWLEDGEMENT OF THE CLEC ORDER. THE ILEC OSS RETURN OF ANY INDICATION TO THE SERVICE AGENT THAT AN ORDER CANNOT BE PROCESSED AS SUBMITTED IS CONSIDERED EQUIVALENT TO THE ILEC RETURN OF A REJECTION NOTICE TO THE CLEC.</u></p>
Calculation:
Reject Interval = $\Sigma[(\text{Date and Time of Service Request Rejection}) - (\text{Date and Time of Service Request Receipt})] / (\text{Number of Service Requests Rejected in Reporting Period})$
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • Fully Mechanized, Partially Mechanized, Total Mechanized, Non-Mechanized, Trunks
Level of Disaggregation:
<ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ Interconnection Trunks ➢ Resale – Residence ➢ Resale – Business ➢ Resale – Design ➢ UNE Design ➢ UNE Non- Design ➢ UNE Loop with and w/o NP • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation as required by State Commission Order • Mechanized: 0-4 minutes, 4-8 minutes, 8-12 minutes, 12-60 minutes, 0-1 hour 1-8 hours, 8-24 hours, >24 hours. • Non-mechanized: 0-1 hour, 1-4 hours, 4-8 hours, 8-12 hours, 12-16 hours, 16-20 hours, 20-24 hours >24 hours • Average Interval in Days • Trunks: <p>LEVELS OF DISAGGREGATION ARE INADEQUATE: SEE ATTACHMENT A</p>

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Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Reject Interval • Total Number of LSRs • Total number of Errors • State and Region 	<ul style="list-style-type: none"> • Report Month • Reject Interval • Total number of LSRs • Total number of Errors • State and Region
Retail Analog/Benchmark:	
Benchmark is under development. Retail Analog also under development <u>STANDARD: MECHANIZED/ELECTRONIC: 15 SECONDS. MANUAL: 4 HOURS. LNP/INP ONLY: 2 DAYS</u>	

Revision date: 09/13/99 (lg)

BellSouth
Service Quality Measurements
Regional Performance Reports

ORDERING

Report/Measurement:
Firm Order Confirmation Timeliness
Definition:
Interval for Return of a Firm Order Confirmation (FOC Interval) is the average response time from receipt of valid LSR to distribution of a firm order confirmation.
Exclusions:
<ul style="list-style-type: none"> • Rejected LSRs • Partially Mechanized or Non-Mechanized LSRs received and/or FOCd outside of normal business hours. CALCULATION SHOULD REFLECT BUSINESS HOURS INSTEAD OF THESE ITEMS BEING EXCLUDED.
Business Rules:
<ul style="list-style-type: none"> • Mechanized: The elapsed time from receipt of a valid electronically submitted LSR (date and time stamp in LENS, EDI, TAG) until the LSR is processed and appropriate service orders are generated in SOCS. • Partially Mechanized: The elapsed time from receipt of a valid electronically submitted LSR which falls out for manual handling by the LCSC personnel until appropriate service orders are issued by a BST service representative via Direct Order Entry (DOE) or Service Order Negotiation Generation System (SONGS) to SOCS. • Total Mechanized: Combination of Fully Mechanized and Partially Mechanized LSRs • Non-Mechanized: The elapsed time from receipt of a valid LSR (fax receive date and time stamp) until appropriate service orders are issued by BST service representative via Direct Order Entry (DOE) or Service Order Negotiation Generation System (SONGS) to SOCS. • LNP: Under development. <p><u>A VALID FOC INCLUDES ALL INFORMATION NEEDED BY THE CLEC TO ACCURATELY COMPLETE THE ORDER. ALL INTERVALS ARE MEASURED IN HOURS AND HUNDRETHS OF HOURS ROUNDED TO THE NEAREST HUNDRETH. THE ACCUMULATION OF TIME IS BASED ON BUSINESS DAYS/HOURS.</u></p>
Calculation:
Firm Order Confirmation Timeliness = $\Sigma[(\text{Date and Time of Firm Order Confirmation}) - (\text{Date and Time of Service Request Receipt})] / (\text{Number of Service Requests Confirmed in Reporting Period})$
Report Structure:
<ul style="list-style-type: none"> • Fully Mechanized, Partially Mechanized, Total Mechanized, Non-Mechanized • CLEC Specific • CLEC Aggregate
Level of Disaggregation:
<ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ Interconnection Trunks ➢ Resale – Residence ➢ Resale – Business ➢ Resale – Design ➢ UNE Design ➢ UNE Non- Design ➢ UNE Loop with and w/o NP ➢ Trunks • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation (MSA) as required by State Commission Order • Mechanized: 0-15 minutes, 15-30 minutes, 30-45 minutes, 45-60 minutes, 60-90 minutes, 90-120 minutes, 120-240 minutes, 4-8 hours, 8-12 hours, 12-16 hours, 16-20 hours, 20-24 hours, 24-48 hours, > 48 hours. • Non-mechanized: 0-4 hours, 4-8 hours, 8-12 hours, 12-16 hours, 16-20 hours, 20-24 hours, 24-48 hours, > 48 hours. • Trunks: 0-5 days, 6-8 days, 9-11 days, 12-14 days, 15-17 days, 18-20 days, >20 days • < 10 and > 10 Circuits / Lines • Average Interval in Days

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LEVELS OF DISAGGREGATION ARE INADEQUATE - SEE ATTACHMENT A

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ORDERING - (Firm Order Confirmation Timeliness – Continued)

Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none">• Report Month• Interval for FOC• Total number of LSRs• State and Region	<ul style="list-style-type: none">• Report Month• Interval for FOC• Total Number of LSRs• State and Region
Retail Analog/Benchmark:	
Benchmark is under development. Retail Analog also under development STANDARD: SEE ATTACHMENT B	

Revision date: 09/13/99 (lg)

BellSouth
Service Quality Measurements
Regional Performance Reports

ORDERING

Report/Measurement:	
Speed of Answer in Ordering Center	
Definition:	
Measures the average time a customer is in queue.	
Exclusions:	
None	
Business Rules:	
<p>The clock starts when the appropriate option is selected (i.e. 1 for Resale Consumer, 2 for Resale Multiline, and 3 for UNE-LNP, etc.) and the call enters the queue for that particular group in the LCSC. The clock stops when a BST service representative in the LCSC answers the call. The speed of answer is determined by measuring and accumulating the elapsed time from the entry of a CLEC call into the BellSouth automatic call distributor (ACD) until the a service representative in BSTs Local Carrier Service Center (LCSC) answers the CLEC call.</p> <p><u>AGENTS PLACING A CALL ON HOLD DOES NOT STOP THE CLOCK.</u></p> <p><u>A VOICE RESPONSE UNIT DOES NOT STOP THE CLOCK.</u></p>	
Calculation:	
$(\text{Total time in seconds to reach the LCSC}) / (\text{Total Number of Calls})$ in the Reporting Period.	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Aggregate • BST Aggregate (Combination of Residence Service Center and Business Service Center data under development) 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • CLEC Aggregate • BST Aggregate (Combination of Residence Service Center and Business Service Center data under development) 	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Mechanized tracking through LCSC Automatic Call Distributor 	<ul style="list-style-type: none"> • Mechanized tracking through BST Retail center support systems
Retail Analog/Benchmark:	
<p>For CLEC, Speed of Answer in Ordering Center (LCSC) is comparable to Speed of Answer in BST Business Offices.</p> <p><u>STANDARD: LIVE AGENT – 90% OF THE CALLS ANSWERED IN 10 SECONDS. VRU: 100% OF THE CALLS ANSWERED BY LIVE AGENT WITHIN 2 SECONDS OF TRANSFER.</u></p>	

Revision date: 09/13/99 (lg)

BellSouth
Service Quality Measurements
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PROVISIONING

Report/Measurement:
Mean Held Order Interval & Distribution Intervals
Definition:
When delays occur in completing CLEC orders, the average period that CLEC orders are held for BST reasons, pending a delayed completion, should be no worse for the CLEC when compared to BST delayed orders.
Exclusions:
<ul style="list-style-type: none"> • Any order canceled by the CLEC will be excluded from this measurement. • Order Activities of BST associated with internal or administrative use of local services.
Business Rules:
<p>Mean Held Order Interval: This metric is computed at the close of each report period. The held order interval is established by first identifying all orders, at the close of the reporting interval, that both have not been reported as completed in SOCS and have passed the currently committed due date for the order. For each such order, the number of calendar days between the committed due date and the close of the reporting period is established and represents the held order interval for that particular order. The held order interval is accumulated by the standard groupings, unless otherwise noted, and the reason for the order being held. The total number of days accumulated in a category is then divided by the number of held orders within the same category to produce the mean held order interval.</p> <p>CLEC Specific reporting is by type of held order (facilities, equipment, other), total number of orders held, and the total and average days.</p> <p><u>IF THE CLEC INITIATES A SUPPLEMENT TO THE ORIGINALLY SUBMITTED ORDER FOR THE PURPOSE OF REFLECTING CHANGES IN CUSTOMER REQUIREMENTS, THEN THE DUE DATE RETURNED ON THE FOC WILL BE THE BASIS FOR THE PRECEDING CALCULATIONS. NO OTHER SUPPLEMENTAL ORDER ACTIVITIES WILL RESULT IN AN UPDATE TO THE COMMITTED DUE DATE. SHOULD BE MEASURED IN CALENDAR RATHER THAN BUSINESS DAYS.</u></p> <p>Held Order Distribution Interval: This measure provides data to report total days held and identifies these in categories of >15 days and > 90 days. (orders counted in >90 days are also included in >15 days). <u>THESE CATEGORIES SHOULD BE 10/30/60 DAYS TO PROVIDE A MORE TIMELY AND MORE FREQUENT VIEW INTO THE PROCESS</u></p>
Calculation:
<p>Mean Held Order Interval: $\frac{\sum (\text{Reporting Period Close Date} - \text{Committed Order Due Date})}{(\text{Number of Orders Pending and Past The Committed Due Date})}$ for all orders pending and past the committed due date.</p> <p>Held Order Distribution Interval: $\frac{(\# \text{ of Orders Held for } \geq 90 \text{ days})}{(\text{Total } \# \text{ of Orders Pending But Not Completed})} \times 100$ $\frac{(\# \text{ of Orders Held for } \geq 15 \text{ days})}{(\text{Total } \# \text{ of Orders Pending But Not Completed})} \times 100$ <u>THESE CATEGORIES SHOULD BE 10/30/60 DAYS WITH SAME CALCULATION AS ABOVE FOR ALL THREE</u></p>
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate
Level of Disaggregation:
<ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS – Residence ➢ POTS – Business ➢ DESIGN ➢ PBX ➢ CENTREX ➢ ISDN ➢ UNE 2 Wire Loop with NP (Design and Non-Design) ➢ UNE 2 Wire Loop without NP (Design and Non-Design) ➢ UNE Loop Other with NP (Design and Non-Design)

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- UNE Loop Other without NP (Design and Non-Design)
- UNE Other (Design and Non-Design)
- Switching (Under development)
- Local Transport (Under development)
- Combos (Under development)
- NP (Under development as separate category)
- Local Interconnection Trunks
- Geographic Scope
 - State, Region, and further geographic disaggregation (MSA) as required by State Commission Order

LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT A

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Order Number and PON (PON) • Order Submission Date (TICKET_ID) • Committed Due Date (DD) • Service Type(CLASS_SVC_DESC) • Hold Reason • Total line/circuit count (under development) • Geographic Scope 	<ul style="list-style-type: none"> • Report Month • BST Order Number • Order Submission Date • Committed Due Date • Service Type • Hold Reason • Geographic Scope
<p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	
<p>Retail Analog/Benchmark: CLEC Residence Resale / BST Residence Retail CLEC Business Resale / BST Business Retail CLEC Design / BST Design CLEC PBX, CENTREX, ISDN/ BST PBX, CENTREX, ISDN Interconnection Trunks-CLEC / Interconnection Trunks –BST UNEs-Retail Analog (under development at this time) <u>STANDARD: <2% OF DELAYED ORDERS HELD FOR 1-10 DAYS</u> <u><1% HELD FOR 11-30 DAYS</u> <u><0.5% HELD FOR 31-60 DAYS</u> <u>NO ORDERS HELD FOR 61 DAYS OR LONGER</u></p>	

Revision date: 06/24/99 (taf)

BellSouth
Service Quality Measurements
Regional Performance Reports

PROVISIONING

Report/Measurement:
Average Jeopardy Notice Interval & Percentage of Orders Given Jeopardy Notice
Definition:
When BST can determine in advance that a committed due date is in jeopardy, it will provide advance notice to the CLEC.
Exclusions:
<ul style="list-style-type: none"> • Any order canceled by the CLEC will be excluded from this measurement • Orders held for CLEC end user reasons • Orders submitted to BST through non-mechanized methods
<u>ALL METHODS OF INTERFACE SHOULD BE CONSIDERED.</u>
Business Rules:
<p>When BST can determine in advance that a committed due date is in jeopardy it will provide advance notice to the CLEC. The number of committed orders in a report period is the number of orders that have a due date in the reporting period.</p> <p><u>SHOULD BE COMPUTED FOR EACH INTERFACE USED (e.g. FAX AND EACH TYPE OF ELECTRONIC METHOD). LOGGING OF INFORMATION IN THE ILEC OSS, WHETHER MANUAL OR AUTOMATIC, THAT INDICATES AN ORDER MAY NOT BE COMPLETED BY THE EXISTING DUE DATE, IS EQUIVALENT OF THE RETURN OF A JEOPARDY NOTICE TO THE CLEC REGARDLESS OF WHETHER OR NOT THE ILEC TAKES ACTION BASED UPON SUCH INFORMATION. THE SCHEDULED ORDER COMPLETION TIME WILL BE ASSUMED TO BE 5:00 PM LOCAL TIME UNLESS OTHER INFORMATION IS COMMUNICATED IN THE FOC. THE ACCUMULATION OF ELAPSED TIME IS BASED ON BUSINESS DAYS/HOURS.</u></p>
Calculation:
<p>Average Jeopardy Interval = $\Sigma [(Date\ and\ Time\ of\ Scheduled\ Due\ Date\ on\ Service\ Order) - (Date\ and\ Time\ of\ Jeopardy\ Notice)] / (\text{Number of Orders Notified of Jeopardy in Reporting Period} - \text{NUMBER OF ORDERS JEOPARDIZED IN THE REPORTING PERIOD})$.</p> <p>Percent of Orders Given Jeopardy Notice = $\Sigma (\text{Number of Orders Given Jeopardy Notices in Reporting Period}) / (\text{Number of Orders Confirmed (due) in Reporting Period} - \text{NUMBER OF MISSED DUE DATES DURING THE REPORTING PERIOD}) \times 100$</p>
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific and CLEC Aggregate • BST Aggregate (under development with estimated release date of 8/15/99 for June reporting)
Level of Disaggregation:
<ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS – Residence ➢ POTS – Business ➢ DESIGN ➢ PBX ➢ CENTREX ➢ ISDN ➢ UNE 2 Wire Loop with NP (Design and Non-Design) ➢ UNE 2 Wire Loop without NP (Design and Non-Design) ➢ UNE Loop Other with NP (Design and Non-Design) ➢ UNE Loop Other without NP (Design and Non-Design) ➢ UNE Other (Design and Non-Design) ➢ Switching (Under development) ➢ Local Transport (Under development) ➢ Combos (Under development) ➢ NP (Under development as separate category) ➢ Local Interconnection Trunks

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➤ Geographic Scope
 ➤ State, Region, and further geographic disaggregation (MSA) as required by State Commission Order
LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT A

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Order Number and PON • Date and Time Jeopardy Notice sent • Committed Due Date • Service Type 	<ul style="list-style-type: none"> • Report Month • CLEC Order Number and PON • Date and Time Jeopardy Notice sent • Committed Due Date • Service Type
<p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>

Retail Analog/Benchmark:
 CLEC Residence Resale / BST Residence Retail
 CLEC Business Resale / BST Business Retail
 CLEC Design / BST Design
 CLEC PBX, CENTREX, ISDN/ BST PBX, CENTREX, ISDN
 Interconnection Trunks-CLEC / Interconnection Trunks -BST
 UNEs-Retail Analog (under development at this time)
% JEOPARDIES STANDARD: 98% ADVANCE NOTICE OF MISSED DUE DATES
JEOPARDY INTERVAL STANDARD: FACILITY ISSUES – 48 HOURS, WORKLOAD ISSUES – 24 HOURS

Revision date: 09/15/99 (taf)

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PROVISIONING

Report/Measurement:
Percent Missed Installation Appointments
Definition:
"Percent missed installation appointments" monitors the reliability of BST commitments with respect to committed due dates to assure that CLECs can reliably quote expected due dates to their retail customer as compared to BST.
Exclusions:
<ul style="list-style-type: none"> • Canceled Service Orders • Order Activities of BST or the CLEC associated with internal or administrative use of local services (Record Orders, Test Orders, etc.) • Disconnect (D) & From (F) orders
Business Rules:
<p>Percent Missed Installation Appointments is the percentage of total orders processed for which BST is unable to complete the service orders on the committed due dates. Missed Appointments caused by end-user reasons will be included and reported separately. A business day is any time period within the same date frame, which means there cannot be a cutoff time for commitments as certain types of orders are requested to be worked after standard business hours. Also, during Daylight Savings Time, field technicians are scheduled until 9PM in some areas and the customer is offered a greater range of intervals from which to select.</p> <p><u>ELAPSED TIME IS MEASURED IN HOURS AND HUNDRETHS OF HOURS ROUNDED TO THE NEAREST HUNDRETH OF AN HOUR. THE ACCUMULATION OF ELAPSED TIME IS BASED ON BUSINESS DAYS/HOURS. THE COMPLETION DATE AND TIME IS THE DATE UPON WHICH THE ILEC ISSUES THE ORDER COMPLETION NOTICE TO THE CLEC.</u></p>
Calculation:
Percent Missed Installation Appointments = Σ (Number of Orders Not Complete by Committed Due Date in Reporting Period) / (Number of Orders Completed in Reporting Period) X 100
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate <p>Report explanation: The difference between End User MA and Total MA is the result of BST caused misses. Here, Total MA is the total % of orders missed either by BST or CLEC end user and End User MA represents the percentage of orders missed by the end user</p>

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Service Quality Measurements
Regional Performance Reports

PROVISIONING – (Percent Missed Installation Appointments – Continued)

<p>Level of Disaggregation:</p> <ul style="list-style-type: none"> • Reported in categories of <10 line/circuits; > 10 line/circuits • Dispatch / No Dispatch • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS – Residence ➢ POTS – Business ➢ DESIGN ➢ PBX ➢ CENTREX ➢ ISDN ➢ UNE 2 Wire Loop with NP (Design and Non-Design) ➢ UNE 2 Wire Loop without NP (Design and Non-Design) ➢ UNE Loop Other with NP (Design and Non-Design) ➢ UNE Loop Other without NP (Design and Non-Design) ➢ UNE Other (Design and Non-Design) ➢ Switching (Under development) ➢ Local Transport (Under development) ➢ Combos (Under development) ➢ NP (Under development as separate category) ➢ Local Interconnection Trunks ➢ Geographic Scope ➢ State, Region, and further geographic disaggregation (MSA) as required by State Commission Order <p><u>LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT A</u></p>	
<p>Data Retained Relating to CLEC Experience</p> <ul style="list-style-type: none"> • Report Month • CLEC Order Number and PON (PON) • Committed Due Date (DD) • Completion Date (CMPLTN DD) • Status Type • Status Notice Date • Standard Order Activity • Geographic Scope 	<p>Data Retained Relating to BST Experience</p> <ul style="list-style-type: none"> • Report Month • BST Order Number • Committed Due Date • Completion Date • Status Type • Status Notice Date • Standard Order Activity • Geographic Scope
<p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	
<p>Retail Analog/Benchmark:</p> <p>CLEC Residence Resale / BST Residence Retail CLEC Business Resale / BST Business Retail CLEC Design / BST Design CLEC PBX, CENTREX, ISDN/ BST PBX, CENTREX, ISDN Interconnection Trunks-CLEC / Interconnection Trunks –BST UNEs-Retail Analog (under development at this time) STANDARD: 2% MISSED</p>	

Revision date: 06/24/99 (taf)

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Service Quality Measurements
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PROVISIONING

Report/Measurement :
Average Completion Interval (OCI) & Order Completion Interval Distribution
Definition:
The "average completion interval" measure monitors the interval of time it takes BST to provide service for the CLEC or its' own customers. The "Order Completion Interval Distribution" provides the percentage of orders completed within certain time periods.
Exclusions:
<ul style="list-style-type: none"> • Canceled Service Orders • Order Activities of BST or the CLEC associated with internal or administrative use of local services (Record Orders, Test Orders, etc.) • D (Disconnect) and F (From) orders. (From is disconnect side of a move order when the customer moves to a new address). • "L" Appointment coded orders (where the customer has requested a later than offered interval)
Business Rules:
<p>The actual completion interval is determined for each order processed during the reporting period. The completion interval is the elapsed time from when the order is electronically entered into SOCS after the FOC on a CLEC order, or the date time stamp receipt into SOCS by BST on retail orders to the order completion date. The clock starts when a valid order number is assigned by SOCS and stops when the technician or system completes the order in SOCS. Elapsed time for each order is accumulated for each reporting dimension. The accumulated time for each reporting dimension is then divided by the associated total number of orders completed</p> <p><u>IF THE CLEC INITIATES A SUPPLEMENT TO THE ORIGINALLY SUBMITTED ORDER AND THE SUPPLEMENT REFLECTS CHANGES IN CUSTOMER REQUIREMENTS (RATHER THAN RESPONDING TO THE ILEC INITIATED CHANGES), THEN THE ORDER SUBMISSION DATE AND TIME WILL BE THE DATE AND TIME OF THE ILEC RECEIPT OF A SYNTACTICALLY CORRECT ORDER SUPPLEMENT. NO OTHER SUPPLEMENTAL ORDER ACTIVITIES WILL RESULT IN AN UPDATE TO THE ORDER SUBMISSION DATE AND TIME USED FOR THE PURPOSES OF COMPUTING THE ORDER COMPLETION INTERVAL.</u></p>
Calculation:
<p>Average Completion Interval: $\frac{\sum [(\text{Completion Date \& Time}) - (\text{Order Issue SUBMISSION Date \& Time})]}{\sum (\text{Count of Orders Completed in Reporting Period})}$</p> <p>Order Completion Interval Distribution: $\frac{\sum (\text{Service Orders Completed in "X" days})}{(\text{Total Service Orders Completed in Reporting Period})} \times 100$</p>
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate

BellSouth
Service Quality Measurements
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PROVISIONING –
(Average Completion Interval (OCI) & Order Completion Interval Distribution – Continued)

Level of Disaggregation:	
<ul style="list-style-type: none"> • Dispatch/No Dispatch categories applicable to all levels except trunks. • Residence & Business reported in day intervals = 0,1,2,3,4, 5, 5+ • UNE and Design reported in day intervals = 0-5, 5-10, 10-15, 15-20, 20-25, 25-30, 30+ • All Levels are reported <10 line/circuits; >10 line/circuits • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS – Residence ➢ POTS – Business ➢ DESIGN ➢ PBX ➢ CENTREX ➢ ISDN ➢ UNE 2 Wire Loop with NP (Design and Non-Design) ➢ UNE 2 Wire Loop without NP (Design and Non-Design) ➢ UNE Loop Other with NP (Design and Non-Design) ➢ UNE Loop Other without NP (Design and Non-Design) ➢ UNE Other (Design and Non-Design) ➢ Switching (Under development) ➢ Local Transport (Under development) ➢ Combos (Under development) ➢ NP (Under development as separate category) ➢ Local Interconnection Trunks ➢ Geographic Scope ➢ State, Region, and further geographic disaggregation (MSA) as required by State Commission Order 	
DISAGGREGATION IS INADEQUATE – SEE ATTACHEMENT A	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Company Name • Order Number (PON) • Submission Date & Time (TICKET_ID) • Completion Date (CMPLTN_DT) • Service Type (CLASS_SVC_DESC) • Geographic Scope 	<ul style="list-style-type: none"> • Report Month • CLEC Order Number • Order Submission Date & Time • Order Completion Date & Time • Service Type • Geographic Scope
NOTE: Code in parentheses is the corresponding header found in the raw data file.	
Retail Analog/Benchmark	
CLEC Residence Resale / BST Residence Retail CLEC Business Resale / BST Business Retail CLEC Non-UNE Design / BST Design CLEC PBX, CENTREX, ISDN/ BST PBX, CENTREX, ISDN Interconnection Trunks-CLEC / Interconnection Trunks-BST UNEs-Retail Analog (under development at this time) STANDARD: SEE ATTACHMENT B	

Revision date: 09/08/99 (taf)

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PROVISIONING

Report/Measurement:
Average Completion Notice Interval
Definition:
The Completion Notice Interval is the elapsed time between the BST reported completion of work and the issuance of a valid completion notice to the CLEC.
Exclusions:
<ul style="list-style-type: none"> • Non-mechanized Orders • Cancelled Service Orders • Order Activities of BST associated with internal or administrative use of local services • D & F orders
Business Rules:
<p>Measurement of interval of completion date and time by a field technician on dispatched orders, and 5PM on the due date for non-dispatched orders; to the release of a notice to the CLEC/BST of the completion status. On all orders (mechanized and non-mechanized) the field technician notifies the CLEC by telephone the work was complete and then he enters the work order completion information and completion time in his computer. This information switches through to the SOCS systems either completing the order or rejecting the order to the Work Management Center (WMC). If the completion is rejected, it is manually corrected and then completed by the WMC. The notice is returned on each individual order submitted and as the notice is sent electronically, it can only be switched to those orders that were submitted by the CLEC electronically.</p> <p><u>THIS MEASUREMENT MUST BE COMPUTED FOR EACH INTERFACE ARRANGEMENT (E.G., FAX AND EACH TYPE OF ELECTRONIC METHOD). ALL INTERVALS ARE MEASURED IN HOURS AND HUNDRETHS OF HOURS ROUNDED TO THE NEAREST HUNDRETH. THE ACCUMULATION OF ELAPSED TIME IS BASED ON BUSINESS DAYS/HOURS. THE TECHNICIAN'S REPORTED COMPLETION IS THE AUTOMATIC LOGGING OF WORK COMPLETION, WHETHER INPUT DIRECTLY TO THE ILEC OSS OR INTO AN INTERMEDIATE STORAGE DEVICE. THE TIME FROM ACTUAL WORK COMPLETION UNTIL SUCH LOGGING ACTIVITY IS THE ILEC'S EQUIVALENT OF THE RETURN OF A COMPLETION NOTICE TO THE CLEC.</u></p>
Calculation:
$\frac{\Sigma (\text{Date and Time of Notice of Completion IS ISSUED TO THE CLEC}) - (\text{Date and Time of Work Completion})}{(\text{Number of Orders Completed in Reporting Period})}$
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate (in development-expected release date 08/15/99 reporting)
Level of Disaggregation:
<ul style="list-style-type: none"> • Reporting intervals in Hours: 0-1, 1-2, 2-4, 4-8, 8-12, 12-24, > 24, plus Overall Average Hour Interval • Reported in categories of <10 line/circuits; > 10 line/circuits • Product Reporting Levels <ul style="list-style-type: none"> ➤ POTS – Residence ➤ POTS – Business ➤ DESIGN ➤ PBX ➤ CENTREX ➤ ISDN ➤ UNE 2 Wire Loop with NP (Design and Non-Design) ➤ UNE 2 Wire Loop without NP (Design and Non-Design) ➤ UNE Loop Other with NP (Design and Non-Design) ➤ UNE Loop Other without NP (Design and Non-Design) ➤ UNE Other (Design and Non-Design) ➤ Switching (Under development)

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- Local Transport (Under development)
- Combos (Under development)
- NP (Under development as separate category)
- Local Interconnection Trunks
- Geographic Scope
- State, Region, and further geographic disaggregation (MSA) as required by State Commission Order

LEVELS OF DISAGGREGATION INADEQUATE – SEE ATTACHMENT A

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Order Number • Work Completion Date • Work Completion Time • Completion Notice Availability Date • Completion Notice Availability Time • Service Type • Activity Type • Geographic Scope 	<ul style="list-style-type: none"> • Report Month • Service Order Number • Work Completion Date • Work Completion Time • Completion Notice Availability Date • Completion Notice Availability Time • Service Type • Activity Type • Geographic Scope
<p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>

Retail Analog/Benchmark:

CLEC Residence Resale / BST Residence Retail
 CLEC Business Resale / BST Business Retail
 CLEC Non-UNE Design / BST Design
 CLEC PBX, CENTREX, ISDN/ BST PBX, CENTREX, ISDN
 Interconnection Trunks-CLEC / Interconnection Trunks-BST
 UNEs-Retail Analog (under development at this time)
STANDARD: MANUAL – 24 HOURS, MECHANIZED/ELECTRONIC – 1 HOUR

Revision date: 09/15/99 (taf)

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Service Quality Measurements
Regional Performance Reports

PROVISIONING

Report/Measurement:	
Coordinated Customer Conversions	
Definition:	
This category measures the average time it takes BST to disconnect an unbundled loop from the BST switch and cross connect it to a CLEC's equipment. This measurement applies to service orders with and without NP, and where the CLEC has requested BST to provide a coordinated cutover.	
Exclusions:	
<ul style="list-style-type: none"> • Any order canceled by the CLEC will be excluded from this measurement. • Delays due to CLEC following disconnection of the unbundled loop • Unbundled Loops where there is no existing subscriber loop 	
Business Rules:	
Where the service order includes NP, the interval includes the total time for the cutover including the translation time to place the line back in service on the ported line. The interval is calculated for the entire cutover time for the service order and then divided by items worked in that time to give the average per item interval for each service order.	
Calculation:	
$\frac{\Sigma [(Completion\ Date\ and\ Time\ for\ Cross\ Connection\ of\ an\ Unbundled\ Loop) - (Disconnection\ Date\ and\ Time\ of\ an\ Unbundled\ Loop)]}{Total\ Number\ of\ COMPLETED\ Unbundled\ Loop\ Items\ for\ the\ reporting\ period.}$	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Reported in intervals <=5 minutes; >5,<15 minutes; >15 minutes, plus Overall Average interval • Product Reporting Levels <ul style="list-style-type: none"> ➢ UNE Loops without NP ➢ UNE Loops with NP ➢ Geographic Scope ➢ State, Region, and further geographic disaggregation as required by State Commission Order 	
LEVELS OF DISAGGREGATION ARE INADEQUATE, SEE ATTACHEMENT A	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Order Number • Committed Due Date (DD) • Service Type (CLASS_SVC_DESC) • Cutover Start Time • Cutover Completion time • Portability start and completion times (NP orders) • Total Items 	<ul style="list-style-type: none"> • No BST Analog Exists
NOTE: Code in parentheses is the corresponding header found in the raw data file.	
Retail Analog/Benchmark:	
There is no retail analog for this measurement because it measures cutting loops to the CLEC. Benchmark under development.	
STANDARD:	
<u>1-9 LINES IN 1 HOUR</u>	
<u>10-25 LINES IN 1.5 HOUR</u>	
<u>26-49 LINES IN 2 HOURS</u>	
<u>50-99 LINES IN 3 HOURS</u>	
<u>100-199 LINES IN 4 HOURS</u>	
<u>200+ LINES IN 8 HOURS</u>	

Revision date: 09/09/99 (taf)

BellSouth
Service Quality Measurements
Regional Performance Reports

PROVISIONING

Report/Measurement:
% Provisioning Troubles within 30 days of Service Order Activity
Definition:
Percent Provisioning Troubles within 30 days of Installation measures the quality and accuracy of installation activities.
Exclusions:
<ul style="list-style-type: none"> • Canceled Service Orders • Order Activities of BST or the CLEC associated with internal or administrative use of local services. (R Orders, Test Orders, etc.) • D & F orders • <u>MUTUALLY AGREED TO CPE/TOK/FOK</u> • <u>TICKETS USED TO TRACK REFERRALS OF MISDIRECTED CALLS</u>
Business Rules:
Measures the quality and accuracy of completed orders. The first trouble report from a service order after completion is counted in this measure. Subsequent trouble reports are measured in Repeat Report Rate. Reports are calculated searching in the prior report period for completed service orders and following 30 days after completion for a trouble report. D & F orders are excluded as there is no subsequent activity following a disconnect.
Calculation:
$\% \text{ Provisioning Troubles within 30 days of Service Order Activity} = \frac{\Sigma (\text{Trouble reports on all completed orders} \leq 30 \text{ days following service order(s) completion})}{(\text{All Service Orders completed in the calendar month}) \times 100}$
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate
Level of Disaggregation:
<ul style="list-style-type: none"> • Reported in categories of <10 line/circuits; > 10 line/circuits • Dispatch / No Dispatch • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS – Residence ➢ POTS – Business ➢ DESIGN ➢ PBX ➢ CENTREX ➢ ISDN ➢ UNE 2 Wire Loop with NP (Design and Non-Design) ➢ UNE 2 Wire Loop without NP (Design and Non-Design) ➢ UNE Loop Other with NP (Design and Non-Design) ➢ UNE Loop Other without NP (Design and Non-Design) ➢ UNE Other (Design and Non-Design) ➢ Switching (Under development) ➢ Local Transport (Under development) ➢ Combos (Under development) ➢ NP (Under development as separate category) ➢ Local Interconnection Trunks ➢ Geographic Scope <ul style="list-style-type: none"> ➢ State, Region, and further geographic disaggregation (MSA) as required by State Commission Order
<u>LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT A</u>

BellSouth
Service Quality Measurements
Regional Performance Reports

PROVISIONING – (% Provisioning Troubles within 30 days of Service Order Activity – Continued)

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Order Number and PON • Order Submission Date(TICKET_ID) • Order Submission Time (TICKET_ID) • Status Type • Status Notice Date • Standard Order Activity • Geographic Scope <p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<ul style="list-style-type: none"> • Report Month • BST Order Number • Order Submission Date • Order Submission Time • Status Type • Status Notice Date • Standard Order Activity • Geographic Scope
<p>Retail Analog/Benchmark: CLEC Residence Resale / BST Residence Retail CLEC Business Resale / BST Business Retail CLEC Design / BST Design CLEC PBX, CENTREX, ISDN/ BST PBX, CENTREX, ISDN Interconnection Trunks-CLEC / Interconnection Trunks –BST UNEs-Retail Analog (Under Development at this time) <u>STANDARD: <1.5 FAILED CIRCUITS PER 100 SERVICE ORDERS INSTALLED IN THE REPORT PERIOD.</u></p>	

Revision date: 09/09/99 (taf)

BellSouth
Service Quality Measurements
Regional Performance Reports

PROVISIONING

Report/Measurement :
Total Service Order Cycle Time (TSOCT) (under development 3Q99)
Definition:
This is a new measurement under development to measure the total service order cycle time from receipt of a valid service order request to the completion of the service order.
Exclusions:
<ul style="list-style-type: none"> • Canceled Service Orders • Order Activities of BST or the CLEC associated with internal or administrative use of local services (Record Orders, Test Orders, etc.) • D (Disconnect) and F (From) orders. (From is disconnect side of a move order when the customer moves to a new address). • "L" Appointment coded orders (where the customer has requested a later than offered interval) • Orders with CLEC/Subscriber caused delays or CLEC/Subscriber requested due date changes.
Business Rules:
The interval is determined for each order processed during the reporting period. This measurement combines two reports: FOC (Firm Order Confirmation) with Average Order Completion Interval. This interval starts with the receipt of a valid service order request and stops when the technician or system completes the order in SOCS. Elapsed time for each order is accumulated for each reporting dimension. The accumulated time for each reporting dimension is then divided by the associated total number of orders completed
Calculation :
Total Service Order Cycle Time (under development)
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate
Level of Disaggregation:
<ul style="list-style-type: none"> • ISDN Orders included in Non Design - GA Only • Dispatch/No Dispatch categories applicable to all levels except trunks. • Intervals under development • Product Reporting Levels <ul style="list-style-type: none"> ➢ Interconnection Trunks ➢ POTS – Residence ➢ POTS – Business ➢ DESIGN ➢ PBX ➢ CENTREX ➢ ISDN ➢ UNE 2 Wire Loop with NP (Design and Non-Design) ➢ UNE 2 Wire Loop without NP (Design and Non-Design) ➢ UNE Loop Other with NP (Design and Non-Design) ➢ UNE Loop Other without NP (Design and Non-Design) ➢ UNE Other (Design and Non-Design) ➢ Switching (Under development) ➢ Local Transport (Under development) ➢ Combos (Under development) ➢ NP (Under development as separate category) ➢ Local Interconnection Trunks • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation as required by State Commission Order
LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT A

BellSouth
 Service Quality Measurements
 Regional Performance Reports

PROVISIONING -- (Total Service Order Cycle Time (TSOCT) -- Continued)

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • Interval for FOC • CLEC Company Name • Order Number (PON) • Submission Date & Time (TICKET_ID) • Completion Date (CMPLTN_DT) • Service Type (CLASS_SVC_DESC) • Geographic Scope <p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<ul style="list-style-type: none"> • Report Month • CLEC Order Number • Order Submission Date & Time • Order Completion Date & Time • Service Type • Geographic Scope
Retail Analog/Benchmark	
Under development (BST retail analog available at this time would be Average Completion Interval)	

Revision date: 09/08/99 (taf)

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR

Report/Measurement:
Missed Repair Appointments
Definition:
The percent of trouble reports not cleared by the committed date and time.
Exclusions:
<ul style="list-style-type: none"> • Trouble tickets canceled at the CLEC request. • BST trouble reports associated with internal or administrative service. • Customer Provided Equipment (CPE) troubles or CLEC Equipment Trouble. <u>THESE MUST BE DEEMED VALID THROUGH MUTUAL AGREEMENT BETWEEN THE CLEC AND THE ILEC.</u>
Business Rules:
<p>The negotiated commitment date and time is established when the repair report is received. The cleared time is the date and time that BST personnel clear the trouble and closes the trouble report in his Computer Access Terminal (CAT) or workstation. <u>NOTIFY THE CLEC THAT THE TROUBLE IS CLEARED.</u> If this is after the Commitment time, the report is flagged as a "Missed Commitment" or a missed repair appointment. When the data for this measure is collected for BST and a CLEC, it can be used to compare the percentage of the time repair appointments are missed due to BST reasons. Note: Appointment intervals vary with force availability in the POTS environment. Specials and Trunk intervals are standard interval appointments of no greater than 24 hours.</p> <p><u>A TROUBLE IS RESOLVED WHEN THE ILEC ISSUES NOTICE TO THE CLEC THAT THE CUSTOMER'S SERVICE IS RESTORED TO NORMAL OPERATING PARAMETERS.</u></p>
Calculation:
$\text{Percentage of Missed Repair Appointments} = \frac{\Sigma (\text{Count of Customer Troubles Not Cleared by the Quoted Commitment Date and Time})}{\Sigma (\text{Total Trouble reports closed in Reporting Period})} \times 100$
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate
Level of Disaggregation:
<p><u>ISDN Troubles included in Non-Design – GA ONLY</u></p> <ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS – Residence, Business ➢ Design ➢ PBX, CENTREX and ISDN ➢ UNE 2 Wire Loop (Design and Non – Design) ➢ UNE Loop Other (Design and Non Design) ➢ UNE Other (Design and Non – Design) ➢ Switching, Local Transport and Combos (under development) ➢ Local Interconnection Trunks • Dispatch/No Dispatch categories applicable to all product levels • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation as required by State Commission Order (e.g. Metropolitan Service Area - MSA)
<u>LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT C</u>

BellSouth
Service Quality Measurements
Regional Performance Reports

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Company Name • Submission Date & Time (TICKET_ID) • Completion Date (CMPLTN_DT) • Service Type (CLASS_SVC_DESC) • Disposition and Cause (CAUSE_CD & CAUSE_DESC) • Geographic Scope <p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<ul style="list-style-type: none"> • Report Month • BST Company Code • Submission Date & Time • Completion Date • Service Type • Disposition and Cause (Non-Design / Non-Special Only) • Trouble Code (Design and Trunking Services) • Geographic Scope
<p>Retail Analog/Benchmark</p> <p>CLEC Residence-Resale / BST Residence-Retail CLEC Business-Resale / BST Business-Retail CLEC Design-Resale / BST Design-Retail CLEC PBX, Centrex, and ISDN Resale/ BST PBX, Centrex, and ISDN Retail CLEC Trunking-Resale / BST Trunking-Retail UNEs - Retail Analog (under development at this time.) STANDARD: 2% MISSED</p>	

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR

Report/Measurement:
Customer Trouble Report Rate
Definition:
Initial and repeated customer direct or referred troubles reported within a calendar month per 100 lines/circuits in service.
Exclusions:
<ul style="list-style-type: none"> • Trouble tickets canceled at the CLEC request. • BST trouble reports associated with administrative service. • Customer provided Equipment (CPE) troubles or CLEC equipment troubles. <u>THESE EXCLUSIONS SHOULD BE DEEMED VALID THROUGH MUTUAL AGREEMENT BETWEEN THE ILEC AND CLEC.</u> • <u>MUTUALLY AGREED UPON TOK/FOK</u> • <u>TICKETS USED TO TRACK REFERRALS OF MISDIRECTED CALLS</u>
Business Rules:
<p>Customer Trouble Report Rate is computed by accumulating the number of maintenance initial and repeated trouble reports during the reporting period. The resulting number of trouble reports are divided by the total "number of service" lines, ports or combination of existing for the CLEC's and BST respectively at the end of the report month.</p> <p><u>UNBUNDLED LOOPS OR UNE COMBINATIONS INVOLVING UNBUNDLED LOOPS WOULD BE COUNTED AS A "SERVICE ACCESS LINE." A TROUBLE IS RESOLVED WHEN THE ILEC ISSUES A NOTICE TO THE CLEC THAT THE CUSTOMER'S SERVICE IS RESTORED TO NORMAL OPERATING PARAMETERS. IF THE ILEC-CLEC MAINTENANCE INTERFACE ALLOWS THE CLEC TO CHECK THE STATUS OF PENDING OPEN AND CLOSED TICKETS THAT DAY THEN NO NOTIFICATION IS REQUIRED. BUT IF NO CONSOLIDATED REPORT IS AVAILABLE, THE CLEC MUST RECEIVE NOTIFICATION AND THE CAUSE CODE WHEN EACH TICKET IS CLOSED. IF A TROUBLE TICKET WAS CLOSED OUT PREVIOUSLY WITH THE DISPOSITION CODE WRONGLY CLASSIFYING IT AS FOK/TOK/CPE, THEN THE TROUBLE MUST BE COUNTED AS BOTH AN INITIAL AND A REPEAT TROUBLE REPORT. FOR THE PURPOSES OF THE ILEC'S OWN RESULTS, THE ILEC CLOSURE OF A TICKET (WHETHER AUTOMATIC OR MANUAL) IS CONSIDERED EQUIVALENT TO RETURNING A TROUBLE RESOLUTION NOTICE TO THE CLEC.</u></p>
Calculation:
Customer Trouble Report Rate = (Count of Initial and Repeated Trouble Reports in the Current Period) / (Number of Service Access Lines in service at End of the Report Period) X 100
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate
Level of Disaggregation:
<p>ISDN Troubles included in Non Design – GA Only</p> <ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS Residence and Business ➢ Design ➢ PBX, CENTREX, and ISDN ➢ UNE 2 Wire Loop (Design and Non – Design) ➢ UNE Loop Other (Design and Non – Design) ➢ UNE Other (Design and Non – Design) ➢ Switching, Local Transport, and Combos (under development) ➢ Local Interconnection Trunks • Dispatch/No Dispatch categories applicable to all product levels • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation as required by State Commission Order . (e.g. Metropolitan Service Area - MSA)

BellSouth
Service Quality Measurements
Regional Performance Reports

LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT C	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • CLEC Company Name • Ticket Submission Date & Time (TICKET_ID) • Ticket Completion Date (CMPLTN_DT) • Service Type (CLASS_SVC_DESC) • Disposition and Cause (CAUSE_CD & CAUSE_DESC) • # Service Access Lines in Service at the end of period • Geographic Scope <p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<ul style="list-style-type: none"> • Report Month • BST Company Code • Ticket Submission Date & Time • Ticket Completion Date • Service Type • Disposition and Cause (Non-Design / Non-Special Only) • Trouble Code (Design and Trunking Services) • # Service Access Lines in Service at the end of period • Geographic Scope
<p>Retail Analog/Benchmark:</p> <ul style="list-style-type: none"> CLEC Residence-Resale / BST Residence -Retail CLEC Business-Resale / BST Business-Retail CLEC Design-Resale / BST Design-Retail CLEC PBX, Centrex and ISDN Resale/ BST PBX, Centrex, and ISDN Retail CLEC Trunking-Resale / BST Trunking-Retail UNEs - Retail Analog (under development at this time) <p>STANDARD: 1 PER 100 LINES</p>	

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR

Report/Measurement:
Maintenance Average Duration
Definition:
The Average duration of Customer Trouble Reports from the receipt of the Customer Trouble Report to the time the trouble report is cleared.
Exclusions:
<ul style="list-style-type: none"> • Trouble reports canceled at the CLEC request • BST trouble reports associated with administrative service • Customer Provided Equipment (CPE) troubles or CLEC Equipment Troubles. <u>THESE SHOULD BE DEEMED VALID THROUGH MUTUAL AGREEMENT BETWEEN CLEC AND ILEC</u> • Trouble reports greater than 10 days <p><u>INSTANCES WHERE A CLEC OR AN ILEC CUSTOMER REQUESTS THAT A TICKET BE "HELD OPEN" FOR MONITORING OR WHERE A TROUBLE TICKET IS CREATED TO TRACK AND/OR MONITOR REQUESTS FOR CLARIFYING INFORMATION. TICKETS USED TO TRACK REFERRALS OF MISDIRECTED CALLS</u></p>
Business Rules:
<p>For Average Duration the clock starts on the date and time of the receipt of a correct repair request. The clock stops on the date and time the service is restored (when the technician completes the trouble ticket on his/her CAT or work system). <u>(WHEN THE CLEC HAS BEEN NOTIFIED THAT THE CUSTOMER'S SERVICE HAS BEEN RESTORED TO NORMAL OPERATING PARAMETERS).</u> <u>ELAPSED TIME IS MEASURED ON A 24 HOUR A DAY, 7 DAYS A WEEK BASIS. TIME IS MEASURED IN HOURS AND HUNDRETHS OF HOURS ROUNDED TO THE NEAREST HUNDRETH HOUR. A TROUBLE TICKET OR TROUBLE REPORT IS ANY RECORD (WHETHER PAPER OR ELECTRONIC) USED BY THE ILEC FOR THE PURPOSE OF MONITORING ACTION AND DISPOSITION OF A SERVICE REPAIR OR MAINTENANCE SITUATION.</u> <u>ILEC ACCEPTANCE OF A TROUBLE BY THE CALL RECEIPT AGENT IS CONSIDERED EQUIVALENT TO THE CLEC LOGGING OR SUBMITTING A TROUBLE TO THE ILEC.</u></p>
Calculation:
Maintenance Average Duration = $\Sigma(\text{Date and Time of Service Restoration}) - (\text{Date and Time Trouble Ticket was Opened}) / \Sigma(\text{Total Closed Troubles in the reporting period})$
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • BST Aggregate • CLEC Aggregate
Level of Disaggregation:
<p>ISDN Troubles included in Non Design – GA Only</p> <ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS– Residence and Business ➢ Design ➢ PBX, CENTREX, and ISDN ➢ UNE 2 Wire Loop (Design Non – Design) ➢ UNE Loop Other (Design Non – Design) ➢ UNE Other (Design Non – Design) ➢ Switching, Local Transport and Combos (under development) ➢ Local Interconnection Trunks • Dispatch/No Dispatch categories applicable to all product levels • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation as required by State Commission Order (e.g. Metropolitan Service Area – MSA) <p><u>LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT C</u></p>

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR – (Maintenance Average Duration – Continued)

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • Total Tickets (LINE_NBR) • CLEC Company Name • Ticket Submission Date & Time (TIME_ID) • Ticket Completion Date (CMPLTN_DT) • Service Type (CLASS_SVC_DESC) • Disposition and Cause (CAUSE_CD & CAUSE_DESC) • Geographic Scope <p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<ul style="list-style-type: none"> • Report Month • Total Tickets • BST Company Code • Ticket Submission Date • Ticket submission Time • Ticket completion Date • Ticket Completion Time • Total Duration Time • Service Type • Disposition and Cause (Non – Design / Non-Special Only) • Trouble Code (Design and Trunking Services) • Geographic Scope
<p>Retail Analog/Benchmark:</p> <p>CLEC Residence-Resale / BST Residence-Resale CLEC Business-Resale / BST Business-Retail CLEC Design-Resale / BST Design-Retail CLEC PBX, Centrex and ISDN Resale / BST PBX, Centrex and ISDN Retail CLEC Trunking-Resale /BST Trunking-Retail UNEs - Retail Analog (under development at this time) <u>STANDARD: 1 HOUR FOR ALL SERVICE DELIVERY METHODS. PARITY BUT NOT MORE THAN 24 HOURS FOR REPAIR OF NETWORK ELEMENTS, INCLUDING COMBINATIONS OF NETWORK ELEMENTS.</u></p>	

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR

Report/Measurement:
Percent Repeat Troubles within 30 Days
Definition:
Trouble reports on the same line/circuit as a previous trouble report received within 30 calendar days as a percent of total troubles reported.
Exclusions:
<ul style="list-style-type: none"> • Trouble Reports canceled at the CLEC request • BST Trouble Reports associated with administrative service • Customer Provided Equipment (CPE) Troubles or CLEC Equipment Troubles. <u>THESE EXCLUSIONS SHOULD BE DEEMED VALID MUTUALLY BETWEEN THE ILEC AND THE CLEC. TICKETS USED TO TRACK REFERRALS OF MISDIRECTED CALLS.</u>
Business Rules:
<p>Includes Customer trouble reports received within 30 days of an original Customer trouble report. <u>IF A TROUBLE TICKET WAS CLOSED OUT PREVIOUSLY WITH THE DISPOSITION CODE WRONGLY CLASSIFYING IT AS A FOK/TOK/CPE THEN THE TROUBLE MUST BE COUNTED AS BOTH AN INITIAL AND A REPEAT TROUBLE REPORT.</u></p> <p><u>UNBUNDLED LOOPS OR UNE COMBINATIONS INVOLVING AN UNBUNDLED LOOP ARE CONSIDERED A "SERVICE ACCESS LINE". THE TROUBLE RESOLUTION NEED NOT BE IDENTICAL BETWEEN THE REPEATED REPORTS FOR THE INCIDENT TO BE COUNTED AS A REPEATED TROUBLE. FOR PURPOSES OF ILECS' OWN RESULTS, THE ILEC CLOSURE OF A TROUBLE TICKET (WHETHER AUTOMATIC OR MANUAL) IS CONSIDERED EQUIVALENT TO RETURNING A TROUBLE RESOLUTION NOTICE TO THE CLEC.</u></p>
Calculation:
Percentage of Missed Repair Appointments = (Count of Customer Troubles where more than one trouble report was logged for the same service line within a continuous 30 days) / (Total Trouble Reports Closed in Reporting Period) X 100
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate
Level of Disaggregation:
<p>ISDN Troubles included in Non Design – GA Only</p> <ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS Residence and Business ➢ Design ➢ PBX, CENTREX and ISDN ➢ UNE 2 Wire Loop (Design and Non – Design) ➢ UNE Loop Other (Design and Non – Design) ➢ UNE Other (Design Non – Design) ➢ Switching, Local Transport and Combos (under development) ➢ Local Interconnection Trunks • Dispatch/No Dispatch categories applicable to all product levels • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation as required by State Commission Order (e.g. Metropolitan Service Area - MSA) <p><u>LEVELS OF DIAGGREGATION ARE INADEQUATE – SEE ATTACHMENT C</u></p>

BellSouth
Service Quality Measurements
Regional Performance Reports

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • Total Tickets (LINE_NBR) • CLEC Company Name • Ticket Submission Date & Time (TICKET_ID) • Ticket Completion Date (CMPLTN_DT) • Total and Percent Repeat Trouble Reports within 30 Days (TOT_REPEAT) • Service Type • Disposition and Cause (CAUSE_CD & CAUSE_DESC) • Geographic Scope <p>NOTE: Code parentheses is the corresponding header format found in the raw data file.</p>	<ul style="list-style-type: none"> • Report Month • Total Tickets • BST Company Code • Ticket Submission Date • Ticket Submission Time • Ticket Completion Date • Ticket Completion Time • Total and Percent Repeat Trouble Reports within 30 Days • Service Type • Disposition and Cause (Non – Design/ Non-Special only) • Trouble Code (Design and Trunking Services) • Geographic Scope
<p>Retail Analog/Benchmark:</p> <p>CLEC Residence-Resale / BST Residence-Retail CLEC Business- Resale / BST Business-Retail CLEC Design-Resale / BST Design-Retail CLEC PBX, Centrex and ISDN Resale / BST PBX, Centrex and ISDN Retail CLEC Trunking-Resale / BST Trunking-Retail UNEs - Retail Analog (under development at this time) STANDARD: 6 PER 100 TROUBLE REPORTS</p>	

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

MANTENANCE & REPAIR

Report/Measurement:
Out of Service (OOS) > 24 Hours
Definition:
For Out of Service Troubles (no dial tone, cannot be called or cannot call out) the percentage of troubles cleared in excess of 24 hours. (All design services are considered to be out of service).
Exclusions:
<ul style="list-style-type: none"> • Trouble Reports canceled at the CLEC request • BST Trouble Reports associated with administrative service • Customer Provided Equipment (CPE) Troubles or CLEC Equipment Troubles. <u>THESE EXCLUSIONS SHOULD BE DEEMED VALID BY MUTUAL AGREEMENT BETWEEN CLEC AND ILEC</u>
Business Rules:
Customer Trouble reports that are out of service and cleared in excess of 24 hours. The clock begins when the trouble report is created in LMOS and the trouble is counted if the time exceeds 24 hours.
Calculation:
Out of Service (OOS) > 24 hours = (Total Troubles OOS > 24 Hours) / Total OOS Troubles in Reporting Period) X 100
Report Structure:
<ul style="list-style-type: none"> • CLEC Specific • BST Aggregate • CLEC Aggregate
Level of Disaggregation:
<p>ISDN Troubles included in Non Design – GA Only</p> <ul style="list-style-type: none"> • Product Reporting Levels <ul style="list-style-type: none"> ➢ POTS Residence and Business ➢ Design ➢ PBX and CENTREX and ISDN ➢ UNE 2 Wire Loop (Design and Non – Design) ➢ UNE Loop Other (Design and Non – Design) ➢ UNE Other (Design and Non – Design) ➢ Switching, Local Transport and Combos (under development) ➢ Local Interconnection Trunks • Dispatch/No Dispatch categories applicable to all product levels • Geographic Scope <ul style="list-style-type: none"> ➢ State, Region and further geographic disaggregation as required by State Commission Order (e.g. Metropolitan Service Area - MSA)
<u>LEVELS OF DISAGGREGATION ARE INADEQUATE – SEE ATTACHMENT C</u>

BellSouth
 Service Quality Measurements
 Regional Performance Reports

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Report Month • Total Tickets • CLEC Company Name • Ticket Submission Date & Time (TICKET_ID) • Ticket Completion Date (CMPLTN_DT) • Percentage of Customer Troubles out of Service > 24 Hours (OOS>24_FLAG) • Service type (CLASS_SVC_DESC) • Disposition and Cause (CAUSE_CD & CAUSE-DESC) • Geographic Scope <p>NOTE: Code in parentheses is the corresponding header found in the raw data file.</p>	<ul style="list-style-type: none"> • Report Month • Total Tickets • BST Company Code • Ticket Submission Date • Ticket Submission time • Ticket Completion Date • Ticket Completion Time • Percent of Customer Troubles out of Service > 24 Hours • Service type • Disposition and Cause (Non – Design/ Non-Special only) • Trouble Code (Design and Trunking Services) • Geographic Scope

BellSouth
Service Quality Measurements
Regional Performance Reports

MANTENANCE & REPAIR – (Out of Service (OOS) > 24 Hours – Continued)

Retail Analog/Benchmark:

CLEC Residence-Resale / BST Residence- Retail
CLEC Business- Resale / BST Business-Retail
CLEC Design-Resale / BST Design-Retail
CLEC PBX, Centrex and ISDN Resale / BST PBX, Centrex and ISDN Retail
CLEC Trunking-Resale /BST Trunking- Retail
UNEs Retail Analog (under development at this time.)

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR

Report/Measurement:	
OSS Interface Availability	
Definition:	
The percentage of time the OSS Interface is functionally available compared to scheduled availability. Availability percentage for the CLEC and BST interface systems and for the legacy systems accessed by them are captured.	
Exclusions:	
None	
Business Rules:	
<p>This measure is designed to compare the OSS availability versus scheduled availability of BST's legacy systems.</p> <p><u>ELAPSED TIME IS MEASURED IN SECONDS AND TENTHS OF SECONDS ROUNDED TO THE NEAREST TENTH OF A SECOND</u></p> <p><u>BST MUST PROVIDE A MINIMUM ADVANCE NOTICE OF ONE REPORTING PERIOD REGARDING AVAILABILITY PLANS AND SUCH PLANS MUST BE INTERFACE SPECIFIC. IF SCHEDULED AVAILABILITY IS NOT PROVIDED WITH AT LEAST ONE REPORT PERIOD'S NOTICE, THEN THE DEFAULT AVAILABILITY FOR THE SUBSEQUENT REPORTING PERIOD WILL BE SEVEN DAYS PER WEEK, 24 HOURS PER DAY.</u></p> <p><u>THE ANALOGS FOR THIS PERFORMANCE MEASURE ARE THE INTERNAL MEASURES OF SYSTEM DOWNTIME (OR UP TIME) TYPICALLY ESTABLISHED BETWEEN THE ILEC SYSTEMS MANAGEMENT ORGANIZATION AND THE CLIENT ORGANIZATIONS.</u></p> <p><u>"FUNCTIONALLY AVAILABLE" MUST HAVE A MEANING CONSISTENT WITH THE ILEC DEFINITION OF DOWN TIME, WHETHER SCHEDULED OR UNSCHEDULED FOR INTERNAL ILEC SYSTEMS HAVING A COMPARABLE POTENTIAL FOR CUSTOMER IMPACT.</u></p>	
Calculation:	
OSS Interface Availability = (Actual System Functional Availability) / (Actual planned System Availability) X 100	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Aggregate • BST Aggregate • BST/CLEC 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Region 	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • Availability of CLEC TAFI • Availability of LMOS HOST, MARCH and SOCS • CRIS, PREDICTOR, LNP, and OSPCM (under development at this time) 	<ul style="list-style-type: none"> • Availability of BST TAFI • Availability of LMOS HOST, MARCH and SOCS
Retail Analog/Benchmark:	
Parity by design; Retail Analog	

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR

Report/Measurement:	
OSS Response Interval and Percentages	
Definition:	
The response intervals are determined by subtracting the time a request is received on the BST side of the interface until the response is received from the legacy system. Percentages of requests falling into each interval category are reported, along with the actual number of requests falling into those categories. <u>ELAPSED TIME IS MEASURED IN SECONDS AND TENTHS OF SECONDS ROUNDED TO THE NEAREST TENTH OF A SECOND</u>	
Exclusions:	
Queries received during scheduled system maintenance time.	
Business Rules:	
This measure is designed to monitor the time required for the CLEC and BST interface system to obtain from BST's legacy systems the information required to handle maintenance and repair functions. The clock starts on the date and time when the request is received and the clock stops when the response has been transmitted through that same point to the requester.	
Calculation:	
OSS Response Interval = (Query Response Date and Time for Category "X") - (Query Request Date and Time for Category "X") / (Number of Queries Submitted in the Reporting Period) where, "X" is 0-4, ≥ 4 to 10, > 10, > 30 seconds.	
Report Structure:	
<ul style="list-style-type: none"> • CLEC • BST Residence • BST Business (BST Total is under development at this time) by interface for each legacy system and function as appropriate. 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Region 	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • CLEC Transaction Intervals 	<ul style="list-style-type: none"> • BST Business and Residence transaction Intervals
Retail Analog/Benchmark:	
Retail Analog Audit Verification <u>STANDARD: PARITY FOR CREATE, OBTAIN STATUS, OBTAIN TEST RESULTS, CANCEL REQUEST, REJECTED OR FAILED QUERIES, CLEARANCE NOTIFICATION, CLOSURE NOTIFICATION</u>	

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

MAINTENANCE & REPAIR

Report/Measurement:	
Average Answer Time – Repair Centers	
Definition:	
<p>This measure demonstrates an average response time for the CLEC representative to contact a BST representative. The average time a CLEC Rep is in queue waiting for the LCSC or UNE Center Rep to answer.</p> <p><u>AGENTS PLACING A CALL ON HOLD DOES NOT STOP THE CLOCK.</u></p> <p><u>A VOICE RESPONSE UNIT DOES NOT STOP THE CLOCK.</u></p>	
Exclusions:	
None	
Business Rules:	
<p>This measure is designed to measure the time required for CLEC & BST from the time of the ACD choice <u>CALL RECEIPT</u> to the time of being answered. The clock starts when the CLEC Rep makes a choice to be put in queue for the next repair attendant and the clock stops when the repair attendant answers the call.</p>	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Region. CLEC/BST Service Centers and BST Repair Centers are regional. 	
Calculation:	
<p>Average Answer Time for BST's Repair Centers = $(\text{DATE AND Time BST Repair Attendant Answers Call}) - (\text{Time of entry into queue until ACD Selection}) (\text{DATE AND TIME OF CALL RECEIPT}) / (\text{Total number of calls by reporting period})$</p>	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Aggregate • BST Aggregate • CLEC Aggregate 	
Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
<ul style="list-style-type: none"> • CLEC Average Answer Time 	<ul style="list-style-type: none"> • BST Average Answer Time
Retail Analog/Benchmark:	
<p>Retail Analog Audit Verification</p> <p><u>STANDARD: LIVE AGENT – 90% OF THE CALLS ANSWERED IN 10 SECONDS. VRU – 100% OF CALLS ANSWERED BY LIVE AGENT WITHIN 2 SECONDS OF TRANSFER</u></p>	

Revision date: 06/09/99 (see)

BellSouth
Service Quality Measurements
Regional Performance Reports

BILLING

Report/Measurement:	
Invoice Accuracy	
Definition:	
This measure provides the percentage of accuracy of the billing invoices rendered to CLECs during the current month.	
Exclusions:	
<ul style="list-style-type: none"> • Adjustments not related to billing errors (e.g., credits for service outage, special promotion credits, adjustments to satisfy the customer) 	
Business Rules:	
The accuracy of billing invoices delivered by BST to the CLEC must enable them to provide a degree of billing accuracy comparative to BST bills rendered to retail customers BST. CLECs request adjustments on bills determined to be incorrect. The BellSouth Billing verification process includes manually analyzing a sample of local bills from each bill period. The bill verification process draws from a mix of different customer billing options and types of service. An end-to-end auditing process is performed for new products and services. Internal measurements and controls are maintained on all billing processes.	
Calculation:	
$\text{Invoice Accuracy} = \frac{(\text{Total Billed Revenues during current month}) - (\text{Billing Related Adjustments during current month})}{\text{Total Billed Revenues during current month}} \times 100$	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate 	
Level of Disaggregation :	
<ul style="list-style-type: none"> • Product / Invoice Type <ul style="list-style-type: none"> ➢ Resale ➢ UNE ➢ Interconnection • Geographic Scope <ul style="list-style-type: none"> ➢ Region 	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Invoice Type • Total Billed Revenue • Billing Related Adjustments 	<ul style="list-style-type: none"> • Report Month • Retail Type <ul style="list-style-type: none"> ➢ CRIS ➢ CABS • Total Billed Revenue • Billing Related Adjustments
Retail Analog/Benchmark	
CLEC Invoice Accuracy is comparable to BST Invoice Accuracy STANDARD: 99.99%	

Revision date: 09/15/99 (lg)

BellSouth
Service Quality Measurements
Regional Performance Reports

BILLING

Report/Measurement:	
Mean Time to Deliver Invoices	
Definition:	
This measure provides the mean interval for billing invoices	
Exclusions:	
Any invoices rejected due to formatting or content errors.	
Business Rules:	
Measures the mean interval for timeliness of billing records delivered to CLECs in an agreed upon format. CRIS-based invoices are measured in business days, and CABS-based invoices in calendar days.	
Calculation:	
$\text{Mean Time To Deliver Invoices} = \frac{\sum [(\text{Invoice Transmission Date}) - (\text{Close Date of Scheduled Bill Cycle})]}{(\text{Count of Invoices Transmitted in Reporting Period})}$	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Product / Invoice Type <ul style="list-style-type: none"> > Resale > UNE > Interconnection • Geographic Scope <ul style="list-style-type: none"> > Region 	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Invoice Type • Invoice Transmission Count • Date of Scheduled Bill Close 	<ul style="list-style-type: none"> • Report Month • Retail Type <ul style="list-style-type: none"> > CRIS > CABS • Invoice Transmission Count • Date of Scheduled Bill Close
Retail Analog/Benchmark:	
<ul style="list-style-type: none"> • CRIS-based invoices will be released for delivery within six (6) business days • CABS-based invoices will be released for delivery within eight (8) calendar days. • CLEC Average Delivery Intervals for both CRIS and CABS Invoices are comparable to BST Average delivery time for both systems. <p>STANDARD: 100% IN 48 HOURS</p>	

Revision date: 09/15/99 (lg)

BellSouth
Service Quality Measurements
Regional Performance Reports

BILLING

Report/Measurement:	
Usage Data Delivery Accuracy	
Definition:	
This measurement captures the percentage of recorded usage that is delivered error free and in an acceptable format to the appropriate Competitive Local Exchange Carrier (CLEC). These percentages will provide the necessary data for use as a comparative measurement for BellSouth performance. This measurement captures Data Delivery Accuracy rather than the accuracy of the individual usage recording.	
Exclusions:	
None	
Business Rules:	
The accuracy of the data delivery of usage records delivered by BST to the CLEC must enable them to provide a degree of accuracy comparative to BST bills rendered to their retail customers. If errors are detected in the delivery process, they are investigated, evaluated and documented. Errors are corrected and the data retransmitted to the CLEC.	
Calculations:	
Usage Data Delivery Accuracy = Σ [(Total number of usage data packs sent during current month <u>THAT REFLECTED COMPLETE INFORMATION AND PROPER FORMATTING</u>) - (Total number of usage data packs requiring retransmission during current month)] / (Total number of usage data packs sent during current month) X 100	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Geographic Scope <ul style="list-style-type: none"> ➢ Region 	
SHOULD INCLUDE TYPE OF RECORD AS APPLICABLE	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Record Type <ul style="list-style-type: none"> ➢ BellSouth Recorded ➢ Non BellSouth Recorded 	<ul style="list-style-type: none"> • Report Month • Record Type
Retail Analog/Benchmark:	
CLEC Usage Data Delivery Accuracy is comparable to BST Usage Data Delivery Accuracy STANDARD: 99.99%	

Revision date: 09/15/99 (1g)

BellSouth
Service Quality Measurements
Regional Performance Reports

BILLING

Report/Measurement:	
Usage Data Delivery Completeness	
Definition:	
This measurement provides percentage of complete and accurately recorded usage data (usage recorded by BellSouth and usage recorded by other companies and sent to BST for billing) that is processed and transmitted to the CLEC within thirty (30) days of the message recording date. A parity measure is also provided showing completeness of BST messages processed and transmitted via CMDS. BellSouth delivers its own retail usage from recording location to billing location via CMDS as well as delivering billing data to other companies. Timeliness, Completeness and Mean Time to Deliver Usage measures are reported on the same report.	
Exclusions:	
None	
Business Rules:	
The purpose of these measurements is to demonstrate the level of quality of usage data delivered to the appropriate CLEC. Method of delivery is at the option of the CLEC.	
Calculation:	
Usage Data Delivery Completeness = $\frac{\Sigma(\text{Total number of Recorded usage records delivered during the current month that are within thirty (30) days of the message recording date})}{\Sigma(\text{Total number of Recorded usage records delivered during the current month})} \times 100$	
Report Structure	
<ul style="list-style-type: none"> • CLEC Specific • CLEC Aggregate • BST Aggregate 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Geographic Scope <ul style="list-style-type: none"> > Region 	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Record Type <ul style="list-style-type: none"> > BellSouth Recorded > Non BellSouth Recorded 	<ul style="list-style-type: none"> • Report Monthly • Record Type
Retail Analog/Benchmark:	
CLEC Usage Delivery Completeness is comparable to BST Usage Delivery Completeness	

Revision date: 09/15/99 (1g)

BellSouth
Service Quality Measurements
Regional Performance Reports

BILLING

Report/Measurement:	
Usage Data Delivery Timeliness	
Definition:	
This measurement provides a percentage of recorded usage data (usage recorded by BST and usage recorded by other companies and sent to BST for billing) that is delivered to the appropriate CLEC within six (6) calendar days from the receipt of the initial recording. A parity measure is also provided showing timeliness of BST messages processed and transmitted via CMDS. Timeliness, Completeness and Mean Time to Deliver Usage measures are reported on the same report.	
Exclusions:	
None	
Business Rules:	
The purpose of this measurement is to demonstrate the level of timeliness for processing and transmission of usage data delivered to the appropriate CLEC. The usage data will be mechanically transmitted or mailed to the CLEC data processing center once daily. The Timeliness interval of usage recorded by other companies is measured from the date BST receives the records to the date BST distributes to the CLEC. Method of delivery is at the option of the CLEC. <u>REPORTED SEPERATELY FOR END USER USAGE AND ACCESS RELATED USAGE.</u>	
Calculation:	
Usage Data Delivery Timeliness = Σ (Total number of usage records sent within six (6) calendar days from initial recording/receipt) / Σ (Total number of usage records sent) X 100	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Aggregate • CLEC Specific • BST Aggregate 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Geographic Scope <ul style="list-style-type: none"> ➢ Region 	
SHOULD INCLUDE TYPE OF RECORD AS APPLICABLE	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Record Type <ul style="list-style-type: none"> ➢ BellSouth Recorded ➢ Non-BellSouth Recorded 	<ul style="list-style-type: none"> • Report Monthly • Record Type
Retail Analog/Benchmark:	
CLEC Usage Data Delivery Timeliness is comparable to BST Usage Data Delivery Timeliness <u>99.94% IN 24 HOURS</u> <u>100% IN 48 HOURS</u>	

Revision date: 09/15/99 (lg)

EXHIBIT B

Measurement

Provisioning Troubles Prior to Loop Acceptance

Function

Troubles during loop conversions with and without LNP

Calculation Methodology

Provisioning Troubles Prior to Service Order Completion : $\Sigma [(Count\ of\ Loop\ Lines\ with\ Troubles\ Reported\ by\ CLEC\ Following\ Notification\ of\ Completion\ but\ Before\ Acceptance) / (Count\ of\ Loop\ Conversions\ Completed)] \times 100$

Business Rules

- Metric applies to mechanized and non-mechanized loop cut orders.
- If CLEC cannot yet enter trouble in maintenance system, then CLEC help center will be designated to receive and code such reports.
- Metric may measure troubles by lines affected or by number of troubles.

Levels of Disaggregation

See Appendix A

Performance Standard

No more than 1% of lines cut over will have troubles

No more than 1 trouble per 100 cutovers

Measurement

Percent Orders Cancelled after Missed Due Date

Function

Order Status

Calculation Methodology

Percent of Orders Cancelled after Missed Due Date = Σ [(Number of Orders Cancelled After Due Date in the Reporting Period) / (Number of Orders Cancelled in the Identical Period)] x 100

Business Rules

- Applies to orders which have not been completed and for which a cancellation is received during the reporting period but after the committed due date.
- This metric is designed to measure the impact of missed due dates.

Levels of Disaggregation

See Attachment A

Performance Standard

Diagnostic measurement; however, upon review of data, no more than 1% of orders cancelled because of missed due date

Measurement

Percent Service Loss from Early Cuts and Percent Service Loss from Late Cuts

Function

Coordinated Cutovers

Calculation Methodology

Percent Service Loss from Early Cuts = Σ [(Customer Conversion Where Cutover Time is Earlier Than Due Date and Time) / (All Customer Conversions Completed During Reporting Period)] x 100

Percent Service Loss from Late Cuts = Σ [(Customer Conversions Where Cutover Time is More than 30 Minutes Past Due Date and Time) / (All Customer Conversions Completed During Reporting Period)] x 100

Business Rules

Some state proceedings have produced alternative or supplemental means of monitoring this issue; measurements that may be substituted or added include:

Percent Lines Cut Early = [(Count of Loop Lines with and without Number Portability Cut Before the Frame Due Time)/(Count of Loop Cuts Completed)] x 100

- Loops with and without number portability will be reported separately.

Percent Lines with Translations Timely Cut = [(Total Number of Lines Where Translations Were Not Timely Cut at Close of the Cutover Window)/(Total Number of Loop Cuts Scheduled in the Month)] x 100

- The successful cut includes notification to the CLEC that the cut is completed.

LNP Provisioning Failures = [(Total Number of LNP Network Provisioning Failures)/(Total Number of NPAC Porting Broadcasts)] x 100

- Such provisioning failure data will be collected at two points in the provisioning process
 - Partial failures of NPAC broadcasts to reach and be processed by ILEC LSMS
 - Individual network database failures – failures to provision between the ILEC LSMS and LNP network databases (Signal Transfer Point or Service Control Point).
- This supplemental measurement excludes total failures from the NPAC to all LSMS systems and broadcasts failing due to a lack of GTT information made available to ILEC (no SS7 signaling agreement in place between ILEC and CLEC)

For CLEC Results: For hot loop cuts, the same loop is moved from an existing port to what is effectively a different port (The CLEC collocation point). Translation disconnections also are reported if they occur too early or late in a conversion involving local number portability. For each conversion, the ILEC will track whether the cutover time (for facilities and translations) was earlier or later than the committed due date and time that appeared on the FOC/LSRC. The total number of early cutovers will be divided by the total number of customer conversions that were completed during the reporting period. Likewise, the total number of cutovers that were completed with untimely translation will be divided by the total number of customer conversions that were completed during the reporting period. For both formulas, the resulting ratio will be expressed as a percentage.

For ILEC Results: ILECs would use retail residential or business POTS outside move activity as an analog. An outside move occurs when a customer, with existing service, moves from one premise to another within the same central office area without disconnecting and reconnecting service. With inside moves the customer keeps their own phone number. Although an outside move involves disconnecting an

For ILEC Results (cont.): existing loop from an operating port and reconnecting a different loop (within the same office) to that same port, the work involved is very similar (i.e. coordinated re-termination).

Other Clarifications and Qualifications:

- For orders canceled at least 30 minutes prior to the scheduled disconnection and frame due time, any cutover that occurs on the previously scheduled frame due date will be considered early and included in the early cut measurement.
- Any old ILEC translations taken down before or more than 15 minutes after NPAC broadcast of ported number will be considered untimely unless CLEC and ILEC agree otherwise.

Levels of Disaggregation

See Attachment A

Performance Standard

Less than 1% loss for no more than 5 minutes

Measurement and Purpose

Percent Found OK/Test OK/CPE

Function

Frequency of Troubles

Calculation Methodology

Percent Found OK/Test OK/CPE = Σ [(Count of All Troubles With Resolution Codes of CPE/TOK/FOK) / (Number of Troubles During the Reporting Period)] x 100

Business Rules

- Unbundled loops or UNE combinations involving an unbundled loops are considered a “service access line”.
- For purposes of ILEC’s own results, the ILEC closure of a trouble ticket (whether automatic or manual) is considered equivalent to returning a trouble resolution notice to the CLEC.
- Excluded situations:
 - Trouble tickets that are canceled at the CLEC request
 - ILEC trouble reports associated with administrative service
 - Instances where the CLEC or an ILEC customer requests that a ticket be “held open” for monitoring, or where a trouble ticket is created to track and/or monitor requests for clarifying information (e.g. confirmation of customer ownership from CLEC support centers
 - Subsequent trouble report(s) on a maintenance ticket that has (have) not been reported as resolved (or closed)
 - Tickets used to track referrals of misdirected calls

Levels of Disaggregation

See Attachment C

Performance Standard

Diagnostic, but remedies may be sought if raw data indicates that trouble reports were wrongly excluded because of errors in coding FOK/TOK/CPE

Measurement

Call Abandonment Rate

Function

Center Responsiveness

Calculation Methodology

Call Abandonment Rate = Σ [(Count of Calls Terminated Before Answer During the Reporting Period) / (Count of All Calls Placed in Queue During the Reporting Period)]

Business Rules

Call abandonment rates are monitored through the call management technology utilized to distribute calls to ILEC agents supporting CLEC activities (i.e., call receipt personnel staffing ILEC support centers intended for CLEC use). Results are to be provided separately for each center handling CLEC inquiries. If centers deployed by the ILEC support multiple functions (e.g., both maintenance and provisioning) then the results for each function supported should be separately reported.

The Call Abandonment Rate is based on the number of calls received by the call distribution system of the ILEC center for the reporting period, regardless of whether the call actually is transferred to ILEC personnel for processing. In addition, a count is accumulated of all calls that are subsequently terminated by the calling party or dropped due to equipment failure before transfer to the service agent for processing. The accumulated count of calls abandoned (terminated) is divided by the total count of calls received at the monitored center.

- A voice response unit (VRU) does not stop the count for purposes of the call abandonment rate if the caller terminates or is terminated prior to transfer to the ILEC Agent for processing.
- Results may be reported for CLEC industry in aggregate to the extent that separate carrier-specific support centers are not provided. If separate centers are provided (either for an individual CLEC or a group of CLECs) then results should be gathered and supplied for each center and reported to the CLEC(s) based upon the center providing the specific CLEC support. Support center types include center supporting CLEC maintenance and provisioning and ILEC Center supporting retail customer maintenance calls and business office inquiries etc.

Levels of Disaggregation

Company

Interface Type offered for each functional area

Business Period

Pre-Ordering Query Types

Maintenance Query Types

Support Center Type

Change Management Notifications

Software Problem Resolution

Performance Standard

No more than 0.5% of calls abandoned

Measurement

Average Notification of Interface/OSS Outage

Function

Reporting Interface/OSS Outages

Calculation Methodology

Average Notification of Interface/OSS Outage = Σ [(Date and Time of Outage Notification to CLECs - Date and Time of ILEC Awareness of Interface/OSS Outage) / (Number of Interface Outages in Reporting Period)]

Business Rules

Average Notification of Interface/OSS Outage is the time it takes from when ILEC first learns of an OSS/interface outage to the time it takes to notify the CLEC. ILEC will report by each interface used by CLECs for pre-ordering, ordering and maintenance. Notifications will be provided by email and will not be considered received unless email is directed to appropriate CLEC designated point(s) of contact for receiving interface outage information.

To extent known, email should obtain information on estimated time of restoration for the interface.

Levels of Disaggregation

Company

Interface Type offered for each functional area

Business Period

Pre-Ordering Query Types

Maintenance Query Types

Support Center Type

Change Management Notifications

Software Problem Resolution

Performance Standard

15 minutes

Measurement and Purpose

Percent of Change Management Notices and Documentation Sent On-Time

Function

Change Management

Calculation Methodology

Percent of Change Management Notices Sent On Time = Σ [(Change Management Notifications Sent Within Required Time Frames) / (Total Number of Change Management Notices Sent)] x 100

Percent of Change Management Final Documentation Sent On Time = Σ [(Change Management Documentation Sent Within Required Time Frames After Notices) / (Total Number of Change Management Documentation Sent)] x 100

Average Delay Dates for Change Notices = Σ [(Date Notice Sent – Date Notice Due) / (Total Number of Notices Sent)]

Average Delay Dates for Final Documentation = Σ [(Date Final Documentation Provided – Final Documentation Due) / (Total Final Change Management Documents Sent)]

Percent ILEC Changes vs. CLEC Changes Made = Σ [(Number of Type 5 CLEC-Initiated Changes Implemented in Period) / (Total Number of CLEC Changes Requested)] x 100; and Σ [(Number of Type 4 ILEC-Initiated Changes Implemented in Period) / (Total Number of ILEC Changes Requested)] x 100

- Ratios will be expressed in terms of percentage and compared.
- Counts of rejected and pending requests also will be reported monthly for both Type 4 (ILEC initiated) and Type 5 (CLEC initiated) categories.

Business Rules

- These metrics are designed to measure the percent of change management notices and associated final documentation sent to the CLEC according to notification/documentation standards and timeframes prescribed by the Parties' Change Management Agreement.
- Each type of change management notice is to be reported separately (see Appendix C).
- Timely documentation is to be measured separately to the extent that times for providing documentation after each type of notice differ.
- Documentation that is not accurate and complete to the extent that CLECs can implement change to their interfaces is not considered timely sent.
- All intervals are measured in hours and hundredths of hours rounded to the nearest hundredth.
- The accumulation of elapsed time is based on business days/hours.
- Change notification must comply with agreed upon business rules for notification procedures and definition of type of change.
- Any changes made without notification will be considered "sent late".

Levels of Disaggregation

Company

Interface Type offered for each functional area

Business Period

Pre-Ordering Query Types

Maintenance Query Types

Support Center Type

Change Management Notifications

Software Problem Resolution

Performance Standard

98% on-time notification

98% on-time final documentation

Measurement

Percent Software Certification Failures and Software Problem Resolution Timeliness

Function

OSS Software Change Problems

Calculation Methodology

Percent Software Certification Failures = Σ [(Number of Test Transactions in Test Deck – Count of Changes Required Due to CLECs Experiencing Malfunctions) / (Number of Test Transactions in Test Deck)] x 100

Percent Software Problems Resolved On-Time = Σ [Number of Times Problem Resolved on Time / Number of Problems Resolved] x 100

Average Delay Hours/Days for Software Problem = Σ [(Date and Time Problem Resolution Confirmed by CLEC – Date and Time Problem Resolution Due) / (Total Number of Problems Resolved)]

Business Rules

- ILEC test deck may either represent regression testing of a new software release or progression testing of software being released for the first time. A regression test deck is a collection of test scenarios designed to verify that functionality in a software release that was available in a previous release continues to work as prescribed. A progression test deck is a collection of test scenarios designed to verify that functionality in a software release that is being introduced for the first time (or is being removed) works as prescribed.
- Test scenario is a description of a business event and the systems transactions performed to accomplish the business event. Test scenarios also include pre-conditions, input data and expected results.
- During a 30 day period following release to production, ILEC will track the number of changes required as a result of CLEC experiencing malfunctions during the execution of transactions directly related to the pre-defined conditions in the test desk.
- A transaction is defined as failed if the request cannot be submitted or processed or results in incorrect or improperly formatted data.
- Software validation procedures, test deck scenarios and error correction standards are to be agreed to by CLEC and the ILEC, with this metric monitoring adherence to that agreement.
- ILEC may exclude any CLEC malfunctions if both parties agree that malfunctions were CLEC's fault. If parties cannot agree on fault, then ILEC must report the number of malfunction incidents in dispute.
- Problem resolution timeliness will reflect the percentage of preorder and order transaction rejections resolved within the timeframe agreed to by CLEC and the ILEC for both errors with and without work-around.
- Problem resolution time will start being measured from time problem reported to help desk to time CLEC concurs that problem no longer exists as confirmed on resolution notice call from the ILEC's help desk.

Levels of Disaggregation

Company

Interface Type offered for each functional area

Business Period

Pre-Ordering Query Types

Maintenance Query Types

Support Center Type

Change Management Notifications

Software Problem Resolution

Performance Standard

No more than 0.1% of test deck transactions should result in CLEC problems

Software errors with no work-around should be corrected in 24 hours.

Software errors with work-arounds should be corrected in 72 hours.

Measurement and Purpose

Percent Billing Errors Corrected in X Days

Function

Timeliness of Billing Error Corrections

Calculation Methodology

Percent Billing Errors Corrected in X Days = Σ [(Number of ILEC Responses in X Days/Hours) / (Total Number of Queries in Reporting Period)] x 100

Business Rules

- This measurement applies to the daily usage feed.
- Performance for this measurement is measured at two levels:
 - Severity 1 Bill Affecting where X = 24 hours with a maximum of 5 business days to correct error
 - Severity 2 Non-Bill Affecting where X = 3 business days with a maximum of 10 business days to correct error
- Elapsed time is measured in business days/hours. Clock starts when ILEC receives the CLEC's query or request for an adjustment (whether in electronic, written or voice form) and the clock stops when the CLEC receives the correct usage record from the ILEC.
- The ILEC shall send correct usage record within X days/hours of receipt of a query.
- Only usage records fully corrected to the CLEC's specifications will be considered timely.
- Excluded situations:
 - CLEC may agree to exclude adjustments disputed by ILEC from metric. If ILEC does not wish to pursue mutual agreement on such exclusion, ILEC must report separately the number of queries in dispute at end of the month as separate sub-metric

Levels of Disaggregation

Company

Type of Record or invoice

Performance Standard

Severity 1 = 90% corrected in 24 hours and 100% in 5 business days

Severity 2 = 90% corrected in 3 business days and 100% in 10 business days

EXHIBIT C

ATTACHMENT A

The following provides detail regarding the levels of disaggregation (i.e., sub-metrics, reporting dimensions) .

Levels of Disaggregation

- Company
- Service
 - Resold Residence POTS
 - Resold Business POTS
 - Resold BRI ISDN
 - Resold PRI ISDN
 - Resold Centrex/Centrex-like
 - Resold Analog PBX trunks
 - Resold DID Trunks
 - Resold Voice-Grade Private Line
 - Resold DS1 Services
 - Resold DS3 Services
 - Resold >DS3 Services
 - Other Resold Services
 - UNE Platform (at least DS0 loop + local switch + transport elements)
 - UNE Channelized DS1 (DS1 loop + multiplexing)
 - Unbundled or UNE-derived 8 dB Analog Loops
 - Unbundled or UNE-derived 2-wire Digital Loops
 - Unbundled or UNE-derived 4-wire Digital Loops
 - Unbundled or UNE-derived ADSL Loops
 - Unbundled or UNE-derived HDSL Loops
 - Unbundled or UNE-derived xDSL Loops
 - Other Unbundled or UNE-derived Loops
 - UNE Analog Switch Port (line side)
 - UNE BRI Capable Switch Port (line side)
 - UNE DS1 Switch Port (line side)
 - UNE PRI Switch Port (trunk side)
 - UNE DID-capable Switch Port (trunk side)
 - UNE Message Trunk Port
 - UNE Dedicated DS0 Transport
 - UNE Dedicated DS1 Transport
 - UNE Dedicated DS3 Transport
 - Interconnect Trunks (DS0s, DS1s and DS3s,
 - Two-Way Trunking, Inbound Augments, separately)
 - Common Transport
 - ILNP
 - PNP
 - ILNP-to-LNP conversions
- Order Activity
 - New Service Installations
 - Service Migrations Without Changes
 - Service Migrations With Changes
 - Local Number Porting
 - Inside Move
 - Outside Move

- Records Change
- Feature Changes
- Service Disconnects
- Translation Disconnects
- Standalone Directory Listing (DL)
- Standalone Directory Assistance (DA) Listing
- Standalone DL & DA Activity
- Geographic Scope
- Volume Category
- Interface Type
- Reason for Hold (if applicable)

ATTACHMENT B

Measurement Description	Business Need	
	Installation Interval (In Business Days Unless Otherwise Noted)	FOC/LSRC (In Business Days Unless Otherwise Noted)
UNE-P/Resale	1	15 s (electronic); 4 hours (other)
INTERCONNECTION TRUNK		
DS0 1-10 lines	5	2
DS0 11+ lines	10	2
DS1	10	2 days except SWB and Alltel in 2; GTE in 1
DS3 1-10 lines	10	3
DS3 11+ lines	15	3
UNBUNDLED LOOP PROVISIONING		
2 and 4 Wire analog voice grade loop	3	1
2 Wire ISDN digital loop	5 (1-5)	2 (1-5)
4 Wire 56 of 64 Kbps digital loop	7 (6-14)	2 (6-14)
ADSL – 2 Wire asymmetrical digital subscriber line loop (conditioning required)	ICB (15+)	N/A (15+)
HDSL – 2 and 4 Wire high bit rate digital subscriber line loop (conditioning required)	These intervals apply to each category at left.	These intervals apply to each category at left.
LOOP CONCENTRATION		
Loop channelization system	30	8
Central Office Channel Interfaces 2 and 4 wire	10	3
SUB LOOPS (OUTSIDE PLANT)		
Loop Feeder	30	7
Loop Concentration (dependent on equipment and right of way)	30	5
NETWORK INTERFACE DEVICE (NID)		
NID to NID Cross Connect 2 and 4 wire	3	1
NID to Spare Capacity	3	1
OPEN AIN (OAIN)		
OAIN tool kit	45	10
OAIN service management system	45	10
CCS7 SIGNALLING TRANSPORT SERVICE		
A and D-Link Signaling	30	5
STP – Signaling Transfer Point	30	5
Dedicated 2 and 4 wire voice grade	3	1
UNBUNDLED INTEROFFICE TRANSPORT		
Interoffice Transport and MUX: Analog line grade, DS0, DS1, DS3 and Dedicated 2 and 4 wire voice grade and Local channel dedicated DS1	15 for all	6 for all
Dark Fiber	ICB	N/A

Measurement Description	Business Need	
	Installation Interval (In Business Days Unless Otherwise Noted)	FOC/SRC (In Business Days Unless Otherwise Noted)
OS AND DA LINES		
Operator Call Processing – OPCH, FACH, BLV, EI, ECT and Facility based Inward Operator Services Directory Assistance: Access Service, Call Completion, Number Services Intercept, Transport, Database Service Direct Access to DA service	30 for all	7 for all
CUSTOMIZED CALL ROUTING (SELECTIVE ROUTING - LCC)		
1-5 LCC	30	7
6-25 LCC	60	15
> 25 LCC	ICB	N/A
UNBUNDLED LOCAL SWITCHING		
2-Wire analog line port: 1 –25	3	2
2-Wire analog line port: 25+	ICB	N/A
Hunting	3	1
Switching Functionality	3	1
Unbundled Local Usage (entire local calling area)	3	1
2 Wire analog DID trunk port	3	1
2 Wire ISDN digital line side port	3	1
4 Wire ISDN DS1 digital trunk port	ICB	N/A
UNBUNDLED ACCESS TO OSS		
Preorder	30	7
Ordering/Provisioning	30	7
Maintenance/Repair	30	7
ACCESS TO DATABASES		
800 Database	10	3
Line Information Database (LIDB)	30	7
INTERIM NUMBER PORTABILITY		
Typical (<20 lines, paths, trunks)	6	2
Non-Typical	ICB	2
LOCAL NUMBER PORTABILITY		
Typical (<20 lines, paths, trunks)	5	2
Non-Typical	ICB	2
COLLOCATION		
Physical Collocation -- caged	90 calendar days	N/A
Physical Collocation -- cageless	60 calendar days	N/A
Virtual	60 calendar days	N/A
Augments of cabling only.	30 calendar days	N/A
Augments of cabling, space, powering, etc.	60 calendar days	N/A

ATTACHMENT C

The following provides detail regarding the levels of disaggregation (i.e., sub-metrics, reporting dimensions).

Levels of Disaggregation

- Service Type
 - Resold Residence POTS
 - Resold Business POTS
 - Resold BRI ISDN
 - Resold PRI ISDN
 - Resold Centrex/Centrex-like
 - Resold Analog PBX trunks
 - Resold DID Trunks
 - Resold Voice-Grade Private Line
 - Resold DS1 Services
 - Resold DS3 Services
 - Resold >DS3 Services
 - Other Resold Services
 - UNE Platform (at least DS0 loop + local switch + transport elements)
 - UNE Channelized DS1 (DS1 loop + multiplexing)
 - Unbundled or UNE-derived 8 dB Analog Loops
 - Unbundled or UNE-derived 2-wire Digital Loops
 - Unbundled or UNE-derived 4-wire Digital Loops
 - Unbundled or UNE-derived ADSL Loops
 - Unbundled or UNE-derived HDSL Loops
 - Unbundled or UNE-derived xDSL Loops
 - Other Unbundled or UNE-derived Loops
 - UNE Analog Switch Port (line side)
 - UNE BRI Capable Switch Port (line side)
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 - UNE DID-capable Switch Port (trunk side)
 - UNE Message Trunk Port
 - UNE Dedicated DS0 Transport
 - UNE Dedicated DS1 Transport
 - UNE Dedicated DS3 Transport
 - Interconnect Trunks (DS0s, DS1s and DS3s, Two-Way Trunking, Inbound Augments, separately)
 - Common Transport
 - ILNP
 - PNP
 - ILNP-to-LNP conversions
- Trouble Type
 - Inside (Central Office) Dispatch - Out of Service
 - Outside Dispatch - Out of Service
 - Inside Dispatch – Degraded Service
 - Outside Dispatch – Degraded Service
 - No Access or No Trouble Found
 - NXXs not loaded properly by ILEC
 - NXXs not loaded properly by party other than CLEC/ILEC
 - All Other Troubles
 - “Out of Service” means that the customer has no dial tone.
 - “Dispatch” means that ILEC repair personnel must be dispatched to a location outside an ILEC building (to customer premises or other off-site facilities) to resolve the trouble.
- Geographic Scope
- Company

EXHIBIT D

Testing for Parity in in the Quality of Services Provided by ILECs to CLECs: A Comparison of Large Sample Procedures

We wish to address the problem of determining whether the ILEC provides the same quality of service to a given CLEC that it provides to itself. On the surface, this appears to be a simple problem in means difference testing, a procedure which is well documented in elementary statistics texts. But on closer inspection, it is clear that testing for parity is an inherently different problem than the one addressed in these texts. In the case of a particular service quality measure (SQM), the standard textbook treatment considers only a test of the null hypothesis that the SQM mean for the ILEC equals the SQM mean for the CLEC. However, *parity requires not only that the CLEC and ILEC means be equal but also that their variances be equal*. Intuitively, the CLEC would be put at a competitive disadvantage even with the same average level of service provision as the ILEC, if in addition, the CLEC's service was more dispersed (more uneven) than the ILEC's. While the FCC recognizes these dual requirements (see Dr. Colin Mallows affidavit before the FCC, p.9 and attachments), many analysts overlook the second null -- that the CLEC and ILEC variances also be equal. It is this omission that leads to controversy over which large sample means difference testing procedure is appropriate.

In the subsequent discussion, we make use of the following definitions. The sample mean based on n_{ILEC} observations of the ILEC's retail service is

$$\bar{X}_{ILEC} \quad (= \sum_{i=1}^{n_{ILEC}} X_i / n_{ILEC})$$

and ILEC sample variance

$$S_{ILEC}^2 \quad [= \sum_{i=1}^{n_{ILEC}} (X_i - \bar{X}_{ILEC})^2 / (n_{ILEC} - 1)]$$

Similarly the sample mean, based on n_{CLEC} observations of the ILEC's resale (to the CLEC) service is

$$\bar{X}_{CLEC} \quad (= \sum_{i=1}^{n_{CLEC}} X_i / n_{CLEC})$$

and sample variance is

$$S_{CLEC}^2 \quad [= \sum_{i=1}^{n_{CLEC}} (X_i - \bar{X}_{CLEC})^2 / (n_{CLEC} - 1)]$$

In what follows, we will first consider the statistical foundations of means difference testing and then discuss the derivation the “parent statistic” on which the various alternative tests are based. Next we will present each of the alternative approaches and discuss their idiosyncrasies. Finally, we will compare the pooled variance approach with the LCUG Z approach both analytically and via a numerical illustration using actual data on order receipt to completion in minutes.

Statistical Underpinnings of Means Difference Testing

The Central Limit Theorem (CLT) presents what is perhaps the most powerful result of inferential statistics. Basically, it states that the distribution of sample means is approximately normal with mean equal to the population mean and variance equal to the population variance divided by the sample size. While these results hold for “large” sample sizes (and nobody knows how large is “large”), it also holds *regardless of the distribution of the parent population from which the sample is drawn*. For example, if we are analyzing receipt to clear order times, this means that we do not need to know what the distribution of times required to execute an order looks like for the ILEC, nor do we need to know what the corresponding CLEC's distribution looks like. All we need to know is that we have computed means from random samples of each of these two distributions. The theorem guarantees us that each mean is drawn from an approximately normal distribution whose (true, but unknown) mean is the mean of the corresponding population (μ) and whose (true, but unknown) variance is the variance of the corresponding population divided by the relevant sample size (σ^2/\sqrt{n}), assuming that each of our samples is large enough.¹ Put another way, the theorem tells us that \bar{X}_{ILEC} follows an approximately normal distribution with mean μ_{ILEC} and variance σ^2_{ILEC}/n_{ILEC} , and similarly that \bar{X}_{CLEC} follows an approximately normal distribution with mean μ_{CLEC} and variance σ^2_{CLEC}/n_{CLEC} – the approximations will be close assuming that n_{ILEC} and n_{CLEC} , respectively, are sufficiently large.

A second step in understanding the basis of the LCUG-Z lies in a result from statistical distribution theory. Specifically, it can be shown that if we create a new random variable by taking the difference between two independent normally distributed random variables, that new random variable will also be normally distributed with mean equal to the difference between the means of the two normal random variables and variance equal to the sum of their variances. Thus, since \bar{X}_{ILEC} follows a normal distribution with mean μ_{ILEC} and variance σ^2_{ILEC}/n_{ILEC} , and since \bar{X}_{CLEC} follows a normal distribution with mean μ_{CLEC} and variance σ^2_{CLEC}/n_{CLEC} , $(\bar{X}_{ILEC} - \bar{X}_{CLEC})$ follows a normal distribution with mean $(\mu_{ILEC} - \mu_{CLEC})$ and variance $[(\sigma^2_{ILEC}/n_{ILEC}) + (\sigma^2_{CLEC}/n_{CLEC})]$.

Finally, it is known that any normally distributed random variable can be converted into one following a standard normal (a normal distribution whose mean is

¹ Be clear, the distribution that the CLT refers to is the distribution of sample means – not order times. That is, we could draw one sample of ILEC order times and compute its mean, we could draw another sample and compute its – undoubtedly different – mean, we could draw a third sample These means that we could compute follow a statistical distribution, and it is this distribution that the CLT shows to be asymptotically normal.

zero and whose variance is one), by subtracting out its mean and dividing through by its standard deviation. Performing this standardization operation on the above means-differenced random variable leads to

$$Z = \frac{(\bar{X}_{CLEC} - \bar{X}_{ILEC}) - (\mu_{CLEC} - \mu_{ILEC})}{\sqrt{\left(\frac{\sigma_{CLEC}^2}{n_{CLEC}} + \frac{\sigma_{ILEC}^2}{n_{ILEC}}\right)}} \quad (1)$$

which is the random variable upon which standard means difference testing is based.

A "Parent Statistic" for Testing the Parity Hypotheses

Equation (1) can be used to construct a general statistic from which several specific statistics to test parity in service provision can be derived. Recall that the parity question requires a test of the joint null hypothesis

$$H_0: \mu_{ILEC} = \mu_{CLEC} \text{ and } \sigma_{ILEC}^2 = \sigma_{CLEC}^2$$

Substituting these constraints into equation (1), we have

$$Z = \frac{\bar{X}_{CLEC} - \bar{X}_{ILEC}}{\sigma \sqrt{\left(\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}}\right)}} \quad (2)$$

where σ is the square root of the common variance ($\sigma_{ILEC}^2 = \sigma_{CLEC}^2$). Next we note that the random variable $(\phi S^2 / \sigma^2)$ follows a χ^2 distribution with ϕ degrees of freedom.

$$Z = \frac{\bar{X}_{CLEC} - \bar{X}_{ILEC}}{S \sqrt{\left(\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}}\right)}} \quad (3)$$

Taking the square root of this expression divided by its degrees of freedom and dividing the result into (2), yields

the "parent statistic" we desire. Technically, this statistic follows a Student's t distribution whose degrees of freedom (ϕ) are inherited from S. However, since the statistic is valid only for large samples and since the distinction between the t distribution and the standard normal (Z) vanishes with increased sample size, equation (3) is sometimes termed a Z statistic. We will follow this convention.

We refer to equation (3) as a "parent statistic" because it can give rise to many forms, depending on how one chooses to estimate S. Two of these forms, one using a pooled variance estimator (Z_{pooled}) and one using the ILEC variance estimator (Z_{LCUG}), are particularly relevant to the problem of testing for parity. Before defining and comparing these two statistics, however, it is important to note that one commonly used form of (3) is not suitable for parity testing.

Often, one sees a version of (3) which amounts to substituting the sample variances, S^2_{ILEC} and S^2_{CLEC} , for their corresponding parameters in (1). This statistic is used to test means differences when the population variances are unequal. It follows a t distribution and requires a degrees of freedom adjustment to be accurate. Since parity requires the variances to be equal and since this statistic would be appropriate only when $\sigma^2_{ILEC} = \sigma^2_{CLEC}$, it is particularly ill suited to testing for parity. Alternatively, the two variants of (3) discussed below are both well suited to parity testing, however, one provides a more powerful test of the parity hypothesis than the other.

The Traditional Approach Using a Pooled Variance Estimator

Since our objective is to find an appropriate estimate S^2 of the common variance σ^2 to be used in (3), an obvious procedure is to simply take a weighted average of the CLEC and ILEC variance estimates. If we take the weights to be the percent of the total degrees of freedom attributable to each carrier, we obtain the traditional pooled variance estimator

$$S^2_{pooled} = \frac{(n_{CLEC} - 1)S^2_{CLEC} + (n_{ILEC} - 1)S^2_{ILEC}}{n_{CLEC} + n_{ILEC} - 2}$$

where the CLEC weight is $[(n_{CLEC}-1)/(n_{CLEC}+n_{ILEC}-2)]$, the ILEC weight is $[(n_{ILEC}-1)/(n_{CLEC}+n_{ILEC}-2)]$, and the total degrees of freedom is $(n_{CLEC}+n_{ILEC}-2)$. It is worth noting that since the weights are normalized, i.e., they sum to one, the value of S^2_{pooled} will always lie between the values of S^2_{CLEC} and S^2_{ILEC} . Substituting $S_p (= \sqrt{S^2_p})$ into (3)

$$Z_{pooled} = \frac{\bar{X}_{CLEC} - \bar{X}_{ILEC}}{S_p \sqrt{\left(\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}}\right)}} \quad \text{yields} \quad (4)$$

which we shall refer to as the pooled Z. It follows a standard normal distribution for large samples. [Technically, it follows a t distribution with $(n_{CLEC}+n_{ILEC}-2)$ degrees of freedom, but for sample sizes in excess of thirty, it can be treated as standard normal for practical purposes.] This statistic is the one typically used for testing null hypotheses of the form $H_0: \mu_1 = \mu_2$.

The Local Competition Users Group (LCUG) Approach Using the ILEC Variance

An alternative to the traditional approach of using Z_{pooled} was proposed by LCUG in February 1998; the LCUG document describing the test in detail is attached. This approach amounts to substituting the estimated ILEC standard deviation $S_{ILEC} (= \sqrt{S^2_{ILEC}})$ for S in (3). At first glance this approach might seem overly simplistic, but it turns out to have substantial intuitive appeal, and it produces a statistically more powerful test of the parity hypothesis than the traditional approach -- as will be demonstrated below. The test statistic, which we shall term the LCUG Z (or Z_{LCUG}), can be seen to be

$$Z_{ILEC} = \frac{\bar{X}_{CLEC} - \bar{X}_{ILEC}}{S_{ILEC} \sqrt{\left(\frac{1}{n_{CLEC}} + \frac{1}{n_{ILEC}}\right)}} \quad (5)$$

Again, from a technical standpoint, this statistic follows a t distribution with $(n_{ILEC}-1)$ degrees of freedom. But since it is only asymptotically valid, we treat it as a standard normal and hence the term LCUG Z. While this statistic is clearly useful for testing means difference hypotheses, it is also sensitive to departures from parity caused by the CLEC variance exceeding the ILEC variance.

A Comparison of the Two Approaches as Tests for Parity in Service Provision

Under the 1996 Telecommunication Act each CLEC is entitled to interconnection with each ILEC that is *at least equal to* that which the ILEC provides for itself. As we have argued, this means that parity requires both equality of means and equality of variances for each SQM. While both Z_{pooled} and Z_{LCUG} have power to detect violations in the form of means differences (since both statistics have the same numerator), the LCUG Z is a more powerful test of parity since it also incorporates an indirect test of equality of variances.

To see this, first note that the traditional method requires two tests to establish parity or lack thereof. A test of $H_0: \mu_{CLEC} = \mu_{ILEC}$ using Z_{pooled} must be coupled with a test of $H_0: \sigma_{CLEC} = \sigma_{ILEC}$. This second test typically employs an F statistic computed as the ratio of the CLEC and ILEC variance estimates. Parity requires that neither null be rejected. It is important to note that the necessity of using two tests to investigate parity reduces the power of each test. Thus we would prefer a single test that can detect violations of parity due to both differences in means and differences in variances. The LCUG Z provides such a test statistic.

From the standpoint of comparing variances, the fact that the ILEC is required to provide the CLEC with *at least the same* service level means that the ILEC variance is the relevant standard of comparison. If the CLEC variance exceeds the ILEC variance, then parity in service provision cannot be accepted. Moreover, since the ILEC samples are typically quite large (many times, in the hundreds of thousands), they may be expected to provide very accurate estimates of the variances in the relevant ILEC performance measures.

For a given means difference, a more powerful test of parity would be more likely to reject the null if $\sigma_{CLEC}^2 > \sigma_{ILEC}^2$ and less likely to reject if $\sigma_{CLEC}^2 < \sigma_{ILEC}^2$. For a given level of significance and critical value, say $\alpha=.05$ for a one tailed test so that the critical value of Z is 1.645, Z_{pooled} , in comparison with Z_{LCUG} , does exactly the opposite. If $\sigma_{CLEC}^2 > \sigma_{ILEC}^2$ we would expect $S_{CLEC}^2 > S_{ILEC}^2$ so that $S_p^2 > S_{ILEC}^2$ and hence $|Z_{LCUG}| > |Z_{pooled}|$. Thus when parity is not present, Z_{LCUG} would be more likely to reject the null than Z_{pooled} . On the other hand, if $\sigma_{CLEC}^2 < \sigma_{ILEC}^2$ we would expect $S_{CLEC}^2 < S_{ILEC}^2$ so that $S_p^2 < S_{ILEC}^2$ and hence $|Z_{LCUG}| < |Z_{pooled}|$. Thus when parity is present, Z_{LCUG} would be less likely to reject the null than Z_{pooled} . Of course, when equality holds the two approaches produce identical results. It should now be clear why the LCUG Z provides a more powerful test of the parity hypothesis.

While the LCUG Z has a clear theoretical advantage over the traditional approach, the two approaches will typically provide very similar statistical results in practice. This is because both procedures are only valid for large samples, and in practice, when CLEC samples are large, ILEC samples are very large. For example, it is not uncommon for ILEC samples to be 1000 times as large as CLEC samples. In this case the weight attached to S^2_{CLEC} in computing S^2_p is roughly (1/1000)th of that attached to S^2_{ILEC} . Thus, for all practical purposes, $S^2_p \approx S^2_{ILEC}$ so that $Z_{pooled} \approx Z_{ILEC}$. But please be clear, Z_{LCUG} is the statistic that should be used in such cases because of its theoretical superiority. We illustrate these observations below using real world data. The illustration also points out a potential problem caused by outliers in the data that could turn out to be considerably more pernicious than the question of which Z statistic to use.

The following illustration compares the pooled variance Z and the LCUG Z using the Pacific data on receipt to clear in minutes. The following are the results for one CLEC with 131 observations:

N CLEC = 131 Xbar CLEC = 1232.69 S.D. CLEC = 1571.34 Zpooled = 1.6200
 N ILEC = 167533 Xbar ILEC = 1690.85 S.D. ILEC = 3236.67 ZLCUG = 1.6195

Interestingly, there were several extreme observations in the ILEC data. In fact, five observations exceeded 160000 minutes (about 3 mo.). Eliminating these five observations yields markedly different results:

N CLEC = 131 Xbar CLEC = 1232.69 S.D. CLEC = 1571.34 Zpooled = 2.1594
 N ILEC = 167528 Xbar ILEC = 1679.31 S.D. ILEC = 2366.79 ZLCUG = 2.15896

These results suggest that, as a practical matter, for ILEC/ CLEC samples of this relative magnitude, it does not make much difference whether the pooled or LCUG Z is used, as a practical matter. Since the LCUG Z is theoretically superior for parity testing, it should be used.

A second implication of these results is quite striking: by eliminating .003% of the ILEC sample (the 5 outliers), we convert an implication of parity ($\alpha = .05$, one tailed test) to a clear indication of non-parity. This result certainly highlights the need to cull the data for outliers.

What About Small Samples?

The testing procedures that we have discussed thus far are appropriate if only both CLEC and ILEC samples are "large". What is to be done if the CLEC sample is less than, say thirty, as is commonly the case? When this small sample problem arises, the Central Limit Theorem is not applicable so that we cannot be sure that either Z_{pooled} or Z_{LCUG} follow a standard normal distribution. In this case, we recommend the use of *permutation tests*. Precisely what permutation tests are, how they solve the small sample problem, and how they should be conducted (along with general computer programs designed to implement them in conducting parity tests) are questions that are answered (and information provided) in an attached document.

BellSouth
Service Quality Measurements
Regional Performance Reports

BILLING

Report/Measurement:	
Mean Time to Deliver Usage	
Definition:	
This measurement provides the average time it takes to deliver Usage Records to a CLEC. A parity measure is also provided showing timeliness of BST messages processed and transmitted via CMDS. Timeliness, Completeness and Mean Time to Deliver Usage measures are reported on the same report.	
Exclusions:	
None	
Business Rules:	
The purpose of this measurement is to demonstrate the average number of days it takes BST to deliver Usage data to the appropriate CLEC. Usage data is mechanically transmitted or mailed to the CLEC data processing center once daily. Method of delivery is at the option of the CLEC. <u>REPORTED SEPERATELY FOR END USER USAGE AND ACCESS RELATED USAGE</u>	
Calculation:	
Mean Time to Deliver Usage = Σ (Record volume X estimated number of days to deliver the Usage Record) / total record volume	
Report Structure:	
<ul style="list-style-type: none"> • CLEC Aggregate • CLEC Specific • BST Aggregate 	
Level of Disaggregation:	
<ul style="list-style-type: none"> • Geographic Scope <ul style="list-style-type: none"> ➢ Region 	
<u>SHOULD INCLUDE TYPE OF RECORD AS APPLICABLE</u>	
Data Retained Relating to CLEC Experience:	Data Retained Relating to BST Performance:
<ul style="list-style-type: none"> • Report Month • Record Type <ul style="list-style-type: none"> ➢ BellSouth Recorded ➢ Non-BellSouth Recorded 	<ul style="list-style-type: none"> • Report Monthly • Record Type
Retail Analog/Benchmark:	
Mean Time to Deliver Usage to CLEC is comparable to Mean Time to Deliver Usage to BST <u>99.94% IN 24 HOURS</u> <u>100% IN 48 HOURS</u>	

Revision date: 09/15/99 (1g)