TRUNK GROUP PERFORMANCE - (Trunk Group Performance-Aggregate – Continued)

Calculation:

Monthly Weighted Average Blocking:

(Blocking data for each hour X number of valid measurement days within each week) / Σ (Total number of valid measurement days within each week)

Example: Hour		Week 1	Week 2	Week 3	Week 4	Monthly
1	Blocking	1%	0.5%	2%	1.5%	1.8%
	# Days	7	7	5	6	
2	Blocking	0%	0%	0.2%	0.3%	.1%
	# Days	7	5	5	7	
3	Blocking	1%	1%	0.5%	2%	1.1%
	# Days	7	7	7	7	
24	Blocking	1%	0.5%	2%	1.5%	1.2%
	# Days	7	7	5	6	

The monthly weighted average blocking for hour 1 for a particular trunk group is calculated as follows:

$$\frac{(1x5)+(0.5x5)+(2x4)+(1.5x4)}{(5+5+4+4)} = 1.2\%$$

Aggregate Monthly Blocking:

(Monthly weighted average blocking value for each trunk group) X (number of trunks within each trunk group) / Σ (number of trunks in the aggregate group)

Example: Trunk Group	Trunks in Service	Blocking Hour 1	Blocking Hour 2	Blocking Hour 3	Blocking Hour 4	..... Blocking Hour 24
A	24	3%	0%	1%	0%	0%
B	144	2%	0%	1%	0.5%	0.5%
C	528	0%	0.5%	1%	1%	1%
D	316	1%	0%	1%	0.1%	0%
E	940	1%	1%	4%	0%	0%
Aggregate		0.8%	0.6%	2.4%	0.3%	0.3%

The aggregate weighted monthly blocking for hour 1 is calculated as follows:

$$\frac{(3x24)+(2x144)+(0x528)+(1x316)+(1x940)}{(24+144+528+316+940)} = 0.8\%$$

The purpose of the Trunk Group Performance Report is to provide trunk blocking measurements on CLEC and BST trunk groups for comparison only. It is not the intent of the report that it be used for network management and/or engineering.

Report Structure:

- CLEC Aggregate
  - ➢ State

Level of Disaggregation:

Trunk Group

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
• Report Month • Total Trunk Groups • Number of Trunk Groups by CLEC • Hourly average blocking per trunk group	• Report Month • Total Trunk Groups • Aggregate Hourly average blocking

Retail Analog/Benchmark:

Any 2 hour period in 24 hours where CLEC blockage exceeds BST blockage by more than 0.5% = a miss using trunk groups 1, 3, 4, 5, 10, 16 for CLECs and 9 for BST.

Revision Date: 02/28/00 (tm)

TRUNK GROUP PERFORMANCE

Report/Measurement:

TGP-2. Trunk Group Performance-CLEC Specific

Definition:

A report of blocking information for CLEC trunk groups.

Exclusions:

- Trunk Groups for which valid data is not available for an entire study period
- Duplicate trunk group information

Business Rules:

- Aggregate blocking results are created using the statistical analysis package and are output into Excel with separate table for each geographic area.

- For each geographic area, plots are generated for the monthly blocking by hour

- The TCBH blocking is calculated by determining the monthly averaging blocking for each hour for each trunk. The hour with the highest usage is selected as the TCBH and the blocking for that hour is reported.

- Trunk Categorization: This report displays, over a reporting cycle, aggregate, weighted average blocking data for each hour of a day. Therefore, for each reporting cycle, 24 blocking data points are generated for CLEC trunk groups. In order to assign trunk groups to the CLEC group, all trunk groups are first assigned to a category. A trunk group's end points and the type of traffic that is transmitted on it define a category. Selected categories of trunk groups are assigned to the aggregate groups to that trunk reports can be generated. The categories to which trunk groups have been assigned for this report are as follows:

CLEC Affecting Categories:

	Point A	Point B
Category 1:	BellSouth End Office	BellSouth Access Tandem
Category 3:	BellSouth End Office	CLEC Switch
Category 4:	BellSouth Local Tandem	CLEC Switch
Category 5:	BellSouth Access Tandem	CLEC Switch
Category 10:	BellSouth End Office	BellSouth Local Tandem
Category 16:	BellSouth Tandem	BellSouth Tandem

TRUNK GROUP PERFORMANCE - (Trunk Group Performance-CLEC Specific – Continued)

Calculation:

Monthly Weighted Average Blocking:

(Blocking data for each hour X number of valid measurement days within each week) / Σ (Total number of valid measurement days within each week)

Example: Hour		Week 1	Week 2	Week 3	Week 4	Monthly
1	Blocking	1%	0.5%	2%	1.5%	1.8%
	# Days	7	7	5	6	
2	Blocking	0%	0%	0.2%	0.3%	.1%
	# Days	7	5	5	7	
3	Blocking	1%	1%	0.5%	2%	1.1%
	# Days	7	7	7	7	5
24	Blocking	1%	0.5%	2%	1.5%	1.2%
	# Days	7	7	5	6	

The monthly weighted average blocking for hour 1 for a particular trunk group is calculated as follows:

$$\frac{(1x5)+(0.5x5)+(2x4)+(1.5x4)}{(5+5+4+4)} = 1.2\%$$

Aggregate Monthly Blocking:

(Monthly weighted average blocking value for each trunk group) X (number of trunks within each trunk group) / Σ (number of trunks in the aggregate group)

Example: Trunk Group	Trunks in Service	Blocking Hour 1	Blocking Hour 2	Blocking Hour 3	Blocking Hour 4	..... Blocking Hour 24
A	24	3%	0%	1%	0%	0%
B	144	2%	0%	1%	0.5%	0.5%
C	528	0%	0.5%	1%	1%	1%
D	316	1%	0%	1%	0.1%	0%
E	940	1%	1%	4%	0%	0%
Aggregate		0.8%	0.6%	2.4%	0.3%	0.3%

The aggregate weighted monthly blocking for hour 1 is calculated as follows:

$$\frac{(3x24)+(2x144)+(0x528)+(1x316)+(1x940)}{(24+144+528+316+940)} = 0.8\%$$

The purpose of the Trunk Group Performance Report is to provide trunk blocking measurements on CLEC and BST trunk groups for comparison only. It is not the intent of the report that it be used for network management and/or engineering.

Report Structure:

- CLEC Specific
- Trunk Group

Level of Disaggregation:

Trunk Group

Data Retained Relating to CLEC Experience	Data Retained Relating to BST Experience
• Report Month • Total Trunk Groups • Number of Trunk Groups by CLEC • Hourly average blocking per trunk group	• Report Month • Total Trunk Groups • Aggregate Hourly average blocking

Retail Analog/Benchmark:

Any 2 hour period in 24 hours where CLEC blockage exceeds BST blockage by more than 0.5% = a miss using trunk groups 1, 3, 4, 5, 10, 16 for CLECs and 9 for BST.

Revision Date: 02/28/00 (tm)

TRUNK GROUP PERFORMANCE

Report/Measurement:

TGP-3. Trunk Group Service Report

Definition:

A report of the percent blocking above the Measured Blocking Threshold (MBT) on all final trunk groups between CLEC Points of Termination and BST end offices or tandems.

Exclusions:

- Trunk groups for which valid traffic data is not available
- High use trunk groups

Business Rules:

Traffic trunking data measurements are validated and processed by the Total Network Data System/Trunking (TNDS/TK), a Telcordia (BellCore) supported application, on an hourly basis for Average Business Days (Monday through Friday). The traffic load sets, including offered load and observed blocking ratio (calls blocked divided by calls attempted), are averaged for a 20 day period, and the busy hour is selected. The busy hour average data for each trunk group is captured for reporting purposes. Although all trunk groups are available for reporting, the report highlight those trunk groups with blocking greater than the Measured Blocking Threshold (MBT) and the number of consecutive monthly reports that the trunk group blocking has exceeded the MBT. The MBT for CTTG is 2% and the MBT for all other trunk groups is 3%.

Calculation:

Measured blocking = (Total number of blocked calls) / (Total number of attempted calls) X 100

Report Structure:

- BST Aggregate
  - CTTG
  - Local
- CLEC Aggregate
  - BST Administered CLEC Trunk
  - CLEC Administered CLEC Trunk
- CLEC Specific
  - BST Administered CLEC Trunk
  - CLEC Administered CLEC Trunk

Level of Disaggregation:

State

Data Retained Relating to CLEC Experience	**Data Retained Relating to BST Experience**
• Report month • Total trunk groups • Total trunk groups for which data is available • Trunk groups with blocking greater than the MBT • Percent of trunk groups with blocking greater than the MBT	• Report month • Total trunk groups • Total trunk groups for which data is available • Trunk groups with blocking greater than the MBT • Percent of trunk groups with blocking greater than the MBT

Retail Analog/Benchmark:

CLEC Trunk Blockage/BST Trunk Blockage
See Appendix D

Revision Date: 02/28/00 (tm)

TRUNK GROUP PERFORMANCE

Report/Measurement:

TGP-4. Trunk Group Service Detail

Definition:

A detailed list of all final trunk groups between CLEC Points of Presence and BST end offices or tandems, and the actual blocking performance when the blocking exceeds the Measured Blocking Threshold (MBT) for the trunk groups.

Exclusions:

- Trunk groups for which valid traffic data is not available
- High use trunk groups

Business Rules:

Traffic trunking data measurements are validated and processed by the Total Network Data System/Trunking (TNDS/TK), a Telcordia (Bellcore) supported application, on an hourly basis for Average Business Days (Monday through Friday). The traffic load sets, including offered load and observed blocking ratio (calls blocked divided by calls attempted), are averaged for a 20 day period, and the busy hour is selected. The busy hour average data for each trunk group is captured for reporting purposes. Although all trunk groups are available for reporting, the report highlight those trunk groups with blocking greater than the Measured Blocking Threshold (MBT) and the number of consecutive monthly reports that the trunk group blocking has exceeded the MBT. The MBT for CTTG is 2% and the MBT for all other trunk groups is 3%.

Calculation:

Measured Blocking = (Total number of blocked calls) / (Total number of attempted calls) X 100

Report Structure:

- BST Specific
  - Traffic Identity
  - TGSN
  - Tandem
  - End Office
  - Description
  - Observed Blocking
  - Busy Hour
  - Number Trunks
  - Valid study days
  - Number reports
  - Remarks

- CLEC Specific
  - Traffic Identity
  - TGSN
  - Tandem
  - CLEC POT
  - Description
  - Observed Blocking
  - Busy Hour
  - Number Trunks
  - Valid study days
  - Number reports
  - Remarks

Level of Disaggregation:

State

Data Retained Relating to CLEC Experience	**Data Retained Relating to BST Experience**
• Report month • Total trunk groups • Total trunk groups for which data is available • Trunk groups with blocking greater than the MBT • Percent of trunk groups with blocking greater than the MBT • Traffic identity, TGSN, end points, description, busy hour, valid study days, number reports	• Report month • Total trunk groups • Total trunk groups for which data is available • Trunk groups with blocking greater than the MBT • Percent of trunk groups with blocking greater than the MBT • Traffic identity, TGSN, end points, description, busy hour, valid study days, number reports

Retail Analog/Benchmark:

CLEC Trunk Blockage/BST Blockage
See Appendix D

Revision Date: 02/28/00 (tm)

COLLOCATION

Report/Measurement:
C-1. Average Response Time
Definition:
Measures the average time (counted in business days) from the receipt of a complete and accurate collocation application (including receipt of application fees) to the date BellSouth responds in writing.
Exclusions:
• Requests to augment previously completed arrangements • Any application cancelled by the CLEC
Business Rules:
The clock starts on the date that BST receives a complete and accurate collocation application accompanied by the appropriate application fee. The clock stops on the date that BST returns a response. The clock will restart upon receipt of changes to the original application request.
Calculation:
Average Response Time = Σ(Request Response Date) – (Request Submission Date) / Count of Responses Returned within Reporting Period.
Report Structure:
• Individual CLEC (alias) aggregate • Aggregate of all CLECs
Level of Disaggregation:
• State, Region and further geographic disaggregation as required by State Commission Order (e.g. Metropolitan Service Area – MSA) • Virtual • Physical
Data Retained:
• Report period • Aggregate data
Retail Analog/Benchmark:
See Appendix D

Revision Date: 01/27/00 (tg)

COLLOCATION

Report/Measurement:
C-2. Average Arrangement Time
Definition:
Measures the average time from the receipt of a complete and accurate Bona Fide firm order (including receipt of appropriate fee) to the date BST completes the collocation arrangement.
Exclusions:
• Any Bona Fide firm order cancelled by the CLEC • Bona Fide firm orders to augment previously completed arrangements • Time for BST to obtain permits • Time during which the collocation contract is being negotiated
Business Rules:
The clock starts on the date that BST receives a complete and accurate Bona Fide firm order accompanied by the appropriate fee. The clock stops upon submission of the permit request and restarts upon receipt of the approved permit. Changes (affecting the provisioning interval or capital expenditures) that are submitted while provisioning is in progress may alter the completion date. The clock stops on the date that BST completes the collocation arrangement.
Calculation:
Average Arrangement Time = Σ(Date Collocation Arrangement is Complete) – (Date Order for Collocation Arrangement Submitted) / Total Number of Collocation Arrangements Completed during Reporting Period.
Report Structure:
• Individual CLEC (alias) aggregate • Aggregate of all CLECs
Level of Disaggregation:
• State, Region and further geographic disaggregation as required by State Commission Order (e.g. Metropolitan Service Area – MSA) • Virtual • Physical
Data Retained:
• Report period • Aggregate data
Retail Analog/Benchmark:
See Appendix D

Revision Date: 01/27/00 (tg)

COLLOCATION

Report/Measurement:
C-3. Percent of Due Dates Missed
Definition:
Measures the percent of missed due dates for collocation arrangements.
Exclusions:
• Any Bona Fide firm order cancelled by the CLEC • Bona Fide firm orders to augment previously completed arrangements • Time for BST to obtain permits • Time during which the collocation contract is being negotiated
Business Rules:
The clock starts on the date that BST receives a complete and accurate Bona Fide firm order accompanied by the appropriate fee. The clock stops on the date that BST completes the collocation arrangement.
Calculation:
% of Due Dates Missed = Σ (Number of Orders not completed w/i ILEC Committed Due Date during Reporting Period) / Number of Orders Completed in Reporting Period) X 100
Report Structure:
• Individual CLEC (alias) aggregate • Aggregate of all CLECs
Level of Disaggregation:
• State, Region and further geographic disaggregation as required by State Commission Order (e.g. Metropolitan Service Area-MSA) • Virtual • Physical
Data Retained:
• Report period • Aggregate data
Retail Analog/Benchmark:
90% ≤ Commit Date

Revision Date: 01/27/00 (tg)

Appendix A: Reporting Scope*

Standard Service Groupings	*Pre-Order, Ordering* ➢ Resale Residence ➢ Resale Business ➢ Resale Special ➢ Local Interconnection Trunks ➢ UNE ➢ UNE - Loops w/LNP *Provisioning* ➢ UNE Non-Design ➢ UNE Design ➢ Local Interconnection Trunks ➢ Resale Residence ➢ Resale Business ➢ Resale Design ➢ BST Trunks ➢ BST Residence Retail ➢ BST Business Retail ➢ BST Design Retail *Maintenance and Repair* ➢ Local Interconnection Trunks ➢ UNE Non-Design ➢ UNE Design ➢ Resale Residence ➢ Resale Business ➢ Resale Design ➢ BST Interconnection Trunks ➢ BST Residence Retail ➢ BST Business Retail ➢ BST Design Retail Local Interconnection Trunk Group Blockage ➢ BST CTTG Trunk Groups ➢ CLEC Trunk Groups

Appendix A: Reporting Scope*

Standard Service Order Activities *These are the generic BST/CLEC service order activities which are included in the Pre-Ordering, Ordering, and Provisioning sections of this document. It is not meant to indicate specific reporting categories.*	➢ New Service Installations ➢ Service Migrations Without Changes ➢ Service Migrations With Changes ➢ Move and Change Activities ➢ Service Disconnects (Unless noted otherwise)
Pre-Ordering Query Types: **Maintenance Query Types:**	➢ Address ➢ Telephone Number ➢ Appointment Scheduling ➢ Customer Service Record ➢ Feature Availability
Report Levels	➢ CLEC RESH ➢ CLEC MSA ➢ CLEC State ➢ CLEC Region ➢ Aggregate CLEC State ➢ Aggregate CLEC Region ➢ BST State ➢ BST Region

* Scope is report, data source and system dependent, and, therefore, will differ with each report.

Appendix B: Glossary of Acronyms and Terms

A	**ACD**	Automatic Call Distributor - A service that provides status monitoring of agents in a call center and routes high volume incoming telephone calls to available agents while collecting management information on both callers and attendants.
	AGGREGATE	Sum total of all items in like category, e.g. CLEC aggregate equals the sum total of all CLECs' data for a given reporting level.
	ASR	Access Service Request - A request for access service terminating delivery of carrier traffic into a Local Exchange Carrier's network.
	ATLAS	Application for Telephone Number Load Administration System - The BellSouth Operations System used to administer the pool of available telephone numbers and to reserve selected numbers from the pool for use on pending service requests/service orders.
	ATLASTN	ATLAS software contract for Telephone Number
	AUTO CLARIFICATION	The number of LSRs that were electronically rejected from LESOG and electronically returned to the CLEC for correction.
B	**BILLING**	The process and functions by which billing data is collected and by which account information is processed in order to render accurate and timely billing.
	BOCRIS	Business Office Customer Record Information System - A front-end presentation manager used by BellSouth organizations to access the CRIS database.
	BRC	Business Repair Center – The BellSouth Business Systems trouble receipt center which serves large business and CLEC customers.
	BST	BellSouth Telecommunications, Inc.
C	**CKTID**	A unique identifier for elements combined in a service configuration
	CLEC	Competitive Local Exchange Carrier
	CMDS	Centralized Message Distribution System - BellCore administered national system used to transfer specially formatted messages among companies.
	COFFI	Central Office Feature File Interface - A BellSouth Operations System database which maintains Universal Service Order Code (USOC) information based on current tariffs.

Appendix B: Glossary of Acronyms and Terms – Continued

C	**COFIUSOC**	COFFI software contract for feature/service information
	CRIS	Customer Record Information System - The BellSouth proprietary corporate database and billing system for non-access customers and services.
	CRSACCTS	CRIS software contract for CSR information
	CSR	Customer Service Record
	CTTG	Common Transport Trunk Group - Final trunk groups between BST & Independent end offices and the BST access tandems.
D	**DESIGN**	Design Service is defined as any Special or Plain Old Telephone Service Order which requires BellSouth Design Engineering Activities
	DISPOSITION & CAUSE	Types of trouble conditions, e.g. No Trouble Found, Central Office Equipment, Customer Premises Equipment, etc.
	DLETH	Display Lengthy Trouble History - A history report that gives all activity on a line record for trouble reports in LMOS
	DLR	Detail Line Record - All the basic information maintained on a line record in LMOS, e.g. name, address, facilities, features etc.
	DOE	Direct Order Entry System - An internal BellSouth service order entry system used by BellSouth Service Representatives to input business service orders in BellSouth format.
	DSAP	DOE (Direct Order Entry) Support Application - The BellSouth Operations System which assists a Service Representative or similar carrier agent in negotiating service provisioning commitments for non-designed services and UNEs.
	DSAPDDI	DSAP software contract for schedule information
E	**E911**	Provides callers access to the applicable emergency services bureau by dialing a 3-digit universal telephone number.
	EDI	Electronic Data Interchange - The computer-to-computer exchange of inter and/or intra company business documents in a public standard format.
F	**FATAL REJECT**	The number of LSRs that were electronically rejected from LEO, which checks to see of the LSR has all the required fields correctly populated
	FLOW-THROUGH	In the context of this document, LSRs submitted electronically via the CLEC mechanized ordering process that flow through to the BST OSS without manual or human intervention.
	FOC	Firm Order Confirmation - A notification returned to the CLEC confirming that the LSR has been received and accepted, including the specified commitment date.

Appendix B: Glossary of Acronyms and Terms - Continued

G		
H	**HAL**	"Hands Off" Assignment Logic - Front end access and error resolution logic used in interfacing BellSouth Operations Systems such as ATLAS, BOCRIS, LMOS, PSIMS, RSAG and SOCS.
	HALCRIS	HAL software contract for CSR information
I	**ISDN**	Integrated Services Digital Network
K		
L	**LCSC**	Local Carrier Service Center - The BellSouth center which is dedicated to handling CLEC LSRs, ASRs, and Preordering transactions along with associated expedite requests and escalations.
	LEGACY SYSTEM	Term used to refer to BellSouth Operations Support Systems (see OSS)
	LENS	Local Exchange Negotiation System - The BellSouth LAN/web server/OS application developed to provide both preordering and ordering electronic interface functions for CLECs.
	LEO	Local Exchange Ordering - A BellSouth system which accepts the output of EDI, applies edit and formatting checks, and reformats the Local Service Requests in BellSouth Service Order format.
	LESOG	Local Exchange Service Order Generator - A BellSouth system which accepts the service order output of LEO and enters the Service Order into the Service Order Control System using terminal emulation technology.
	LMOS	Loop Maintenance Operations System - A BellSouth Operations System that stores the assignment and selected account information for use by downstream OSS and BellSouth personnel during provisioning and maintenance activities.
	LMOS HOST	LMOS host computer
	LMOSupd	LMOS updates
	LNP	Local Number Portability - In the context of this document, the capability for a subscriber to retain his current telephone number as he transfers to a different local service provider.
	LOOPS	Transmission paths from the central office to the customer premises.
	LSR	Local Service Request – A request for local resale service or unbundled network elements from a CLEC.
M	**MAINTENANCE & REPAIR**	The process and function by which trouble reports are passed to BellSouth and by which the related service problems are resolved.
	MARCH	A BellSouth Operations System which accepts service orders, interprets the coding contained in the service order image, and constructs the specific switching system Recent Change command messages for input into end office switches.

Appendix B: Glossary of Acronyms and Terms – Continued

N	NC	"No Circuits" - All circuits busy announcement
O	**OASIS**	Obtain Availability Services Information System - A BellSouth front-end processor, which acts as an interface between COFFI and RNS. This system takes the USOCs in COFFI and translates them to English for display in RNS.
	OASISBSN	OASIS software contract for feature/service
	OASISCAR	OASIS software contract for feature/service
	OASISLPC	OASIS software contract for feature/service
	OASISMTN	OASIS software contract for feature/service
	OASISNET	OASIS software contract for feature/service
	OASISOCP	OASIS software contract for feature/service
	ORDERING	The process and functions by which resale services or unbundled network elements are ordered from BellSouth as well as the process by which an LSR or ASR is placed with BellSouth.
	OSPCM	Outside Plant Contract Management System - Provides Scheduling Information.
	OSS	Operations Support System - A support system or database which is used to mechanize the flow or performance of work. The term is used to refer to the overall system consisting of hardware complex, computer operating system(s), and application which is used to provide the support functions.
	OUT OF SERVICE	Customer has no dial tone and cannot call out.
P	**POTS**	Plain Old Telephone Service
	PREDICTOR	The BellSouth Operations system which is used to administer proactive maintenance and rehabilitation activities on outside plant facilities, provide access to selected work groups (e.g. RRC & BRC) to Mechanized Loop Testing and switching system I/O ports, and provide certain information regarding the attributes and capabilities of outside plant facilities.
	PREORDERING	The process and functions by which vital information is obtained, verified, or validated prior to placing a service request.
	PROVISIONING	The process and functions by which necessary work is performed to activate a service requested via an LSR or ASR and to initiate the proper billing and accounting functions.
	PSIMS	Product/Service Inventory Management System - A BellSouth database Operations System which contains availability information on switching system features and capabilities and on BellSouth service availability. This database is used to verify the availability of a feature or service in an NXX prior to making a commitment to the customer.
	PSIMSORB	PSIMS software contract for feature/service

Appendix B: Glossary of Acronyms and Terms – Continued

Q		
R	**RNS**	Regional Negotiation System - An internal BellSouth service order entry system used by BellSouth Consumer Services to input service orders in BellSouth format.
	RRC	Residence Repair Center - The BellSouth Consumer Services trouble receipt center which serves residential customers.
	RSAG	Regional Street Address Guide - The BellSouth database, which contains street addresses validated to be accurate with state and local governments.
	RSAGADDR	RSAG software contract for address search
	RSAGTN	RSAG software contract for telephone number search
S	**SOCS**	Service Order Control System - The BellSouth Operations System which routes service order images among BellSouth drop points and BellSouth Operations Systems during the service provisioning process.
	SOIR	Service Order Interface Record - any change effecting activity to a customer account by service order that impacts 911/E911.
T	**TAFI**	Trouble Analysis Facilitation Interface - The BellSouth Operations System that supports trouble receipt center personnel in taking and handling customer trouble reports.
	TAG	Telecommunications Access Gateway – TAG was designed to provide an electronic interface, or machine-to-machine interface for the bi-directional flow of information between BellSouth's OSSs and participating CLECs.
	TN	Telephone Number
	TOTAL MANUAL FALLOUT	The number of LSRs which are entered electronically but require manual entering into a service order generator.
U	**UNE**	Unbundled Network Element
V		
W	**WTN**	A unique identifier for elements combined in a service configuration
X		
Y		
Z		
Σ		Sum of:

Appendix C

BELLSOUTH'S AUDIT POLICY:

BellSouth currently provides many CLECs with certain audit rights as a part of their individual interconnection agreements. However, it is not reasonable for BellSouth to undergo an audit of the SQM for every CLEC with which it has a contract. BellSouth has developed a proposed Audit Plan for use by the parties to an audit. If requested by a Public Service Commission or by a CLEC exercising contractual audit rights, BellSouth will agree to undergo a comprehensive audit of the aggregate level reports for both BellSouth and the CLEC(s) for each of the next five (5) years (2000 – 2005), to be conducted by an independent third party. The results of that audit will be made available to all the parties subject to proper safeguards to protect proprietary information. This aggregate level audit includes the following specifications:

1. The cost shall be borne 50% by BellSouth and 50% by the CLEC or CLECs.

2. The independent third party auditor shall be selected with input from BellSouth, the PSC, if applicable, and the CLEC(s).

3. BellSouth, the PSC and the CLEC(s) shall jointly determine the scope of the audit.

BellSouth reserves the right to make changes to this audit policy as growth and changes in the industry dictate.

APPENDIX D Analogs and Benchmarks				
BST SQM Category	**MEASURES AND SUB-METRICS**	**RESALE** Retail Analogue	**UNES** Retail Analogue	Benchmark*
Pre-Ordering	**Percent Response Received within "X" seconds**	Parity w/ retail where applicable.		
	OSS Interface Availability			99.5%
Ordering	**Percent Flow-Through Service Request** • Residence • Business • UNE			90% 80% 80%
	Percent Rejected Service Request	Diagnostic		Diagnostic.
	Reject Interval (Mechanized)	UD	UD	95% within 1 hrs
	• Reject Interval (Non-Mechanized and Partially Mechanized)	UD	UD	85% < 24 hrs
	Firm Order Confirmation Timeliness (Mechanized) (Non-Mechanized and Partially Mechanized)	UD	UD	95% within 4 hrs 85% <48 Hrs
	Speed of Answer in Ordering Center	X	X	
Provisioning	**Mean Held Order Interval**			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop with NP – Non-Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Non-Design		Retail Residence and Business	
	• UNE Loop Other with NP Non-Design		Retail Residence and Business	
	• UNE Loop Other without NP Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop with NP – Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Design		Retail Residence and Business	
	• UNE Loop Other with NP – Design		Retail Design	

APPENDIX D
Analogs and Benchmarks

BST SQM Category	MEASURES AND SUB-METRICS	RESALE Retail Analogue	UNES Retail Analogue	Benchmark*
	• UNE Loop Other without NP - Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Average Jeopardy Notice Interval (Mechanized)			
	• Resale Residence			95% >=24 Hrs
	• Resale Business			95% >=24 Hrs
	• Resale Design			95% >=24 Hrs
	• Resale PBX			95% >=24 Hrs
	• Resale Centrex			95% >=24 Hrs
	• Resale IDSN			95% >=24 Hrs
	• UNE Loop and Port Combos			95% >=24 Hrs
	• UNE 2w Loop with NP – Non-Design			95% >=24 Hrs
	• UNE 2w Loop without NP – Non-Design			95% >=24 Hrs
	• UNE Loop Other with NP Non-Design			95% >=24 Hrs
	• UNE Loop Other without NP Non-Design			95% >=24 Hrs
	• UNE Other Non Design			95% >=24 Hrs
	• UNE 2w Loop with NP – Design			95% >=24 Hrs
	• UNE 2w Loop without NP – Design			95% >=24 Hrs
	• UNE Loop Other with NP – Design			95% >=24 Hrs
	• UNE Loop Other without NP - Design			95% >=24 Hrs
	• UNE Other Design			95% >=24 Hrs
	• Local Interconnection Trunks			95% >=24 Hrs
	% of Orders given jeopardy notice (Mechanized)			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop with NP – Non-Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Non-Design		Retail Residence and Business	
	• UNE Loop Other with NP Non-Design		Retail Residence and Business	

APPENDIX D Analogs and Benchmarks				
BST SQM Category	**MEASURES AND SUB-METRICS**	**RESALE** Retail Analogue	**UNES** Retail Analogue	Benchmark*
	• UNE Loop Other without NP Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop with NP – Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Design		Retail Residence and Business	
	• UNE Loop Other with NP – Design		Retail Design	
	• UNE Loop Other without NP - Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Percent Missed Installation Appointments			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop with NP – Non-Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Non-Design		Retail Residence and Business	
	• UNE Loop Other with NP Non-Design		Retail Residence and Business	
	• UNE Loop Other without NP Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop with NP – Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Design		Retail Residence and Business	
	• UNE Loop Other with NP – Design		Retail Design	
	• UNE Loop Other without NP – Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Order Completion Interval			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		

APPENDIX D
Analogs and Benchmarks

BST SQM Category	MEASURES AND SUB-METRICS	RESALE Retail Analogue	UNES Retail Analogue	Benchmark*
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop with NP – Non-Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Non-Design		Retail Residence and Business	
	• UNE Loop Other with NP Non-Design		Retail Residence and Business	
	• UNE Loop Other without NP Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop with NP – Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Design		Retail Residence and Business	
	• UNE Loop Other with NP – Design		Retail Design	
	• UNE Loop Other without NP - Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Average Completion Notice Interval – Resale POTS (Mech)			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop with NP – Non-Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Non-Design		Retail Residence and Business	
	• UNE Loop Other with NP Non-Design		Retail Residence and Business	
	• UNE Loop Other without NP Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop with NP – Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Design		Retail Residence and Business	
	• UNE Loop Other with NP – Design		Retail Design	
	• UNE Loop Other without NP - Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Percent Provisioning Troubles within 30 Days			

APPENDIX D Analogs and Benchmarks				
BST SQM Category	**MEASURES AND SUB-METRICS**	**RESALE** Retail Analogue	**UNES** Retail Analogue	Benchmark*
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop with NP – Non-Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Non-Design		Retail Residence and Business	
	• UNE Loop Other with NP Non-Design		Retail Residence and Business	
	• UNE Loop Other without NP Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop with NP – Design		Retail Residence and Business	
	• UNE 2w Loop without NP – Design		Retail Residence and Business	
	• UNE Loop Other with NP – Design		Retail Design	
	• UNE Loop Other without NP - Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Total Service Order Cycle Time	Diag.	Diagnostic	Diagnostic
Maintenance	**Customer Trouble Report Rate**			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop – Non-Design		Retail Residence and Business	
	• UNE Loop Other - Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop – Design		Retail Residence and Business	
	• UNE Loop Other – Design		Retail Design	
	• UNE Other Design		Retail Design	

APPENDIX D Analogs and Benchmarks				
BST SQM Category	**MEASURES AND SUB-METRICS**	**RESALE** Retail Analogue	**UNES** Retail Analogue	Benchmark*
	• Local Interconnection Trunks	X		
	Percent Missed Repair Appointments			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop – Non-Design		Retail Residence and Business	
	• UNE Loop Other - Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop – Design		Retail Residence and Business	
	• UNE Loop Other – Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Maintenance Average Duration			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop – Non-Design		Retail Residence and Business	
	• UNE Loop Other - Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop – Design		Retail Residence and Business	
	• UNE Loop Other – Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Percent Repeat Troubles within 30 Days			
	• Resale Residence	X		

APPENDIX D Analogs and Benchmarks				
BST SQM Category	**MEASURES AND SUB-METRICS**	**RESALE** Retail Analogue	**UNES** Retail Analogue	Benchmark*
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop – Non-Design		Retail Residence and Business	
	• UNE Loop Other - Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop – Design		Retail Residence and Business	
	• UNE Loop Other – Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	Out of Service > 24hrs			
	• Resale Residence	X		
	• Resale Business	X		
	• Resale Design	X		
	• Resale PBX	X		
	• Resale Centrex	X		
	• Resale IDSN	X		
	• UNE Loop and Port Combos		Retail Residence and Business	
	• UNE 2w Loop – Non-Design		Retail Residence and Business	
	• UNE Loop Other - Non-Design		Retail Residence and Business	
	• UNE Other Non Design		Retail Residence and Business	
	• UNE 2w Loop – Design		Retail Residence and Business	
	• UNE Loop Other – Design		Retail Design	
	• UNE Other Design		Retail Design	
	• Local Interconnection Trunks	X		
	OSS Interface Availability • All systems except ECTA	X		
	• ECTA			99.5%
	OSS Response Interval and % • TAFI (Front End)	X		

APPENDIX D
Analogs and Benchmarks

BST SQM Category	MEASURES AND SUB-METRICS	RESALE Retail Analogue	UNES Retail Analogue	Benchmark*
	• CRIS, DLETH, DLR, OSPCM, LMOS, LMOSUP, MARCH, Predictor, SOCS, LNP (Parity by Design)	PBD		
	Average Answer Time – Repair Center	X		
Billing	**Invoice Accuracy**	X		
	Mean Time To Deliver Invoices	X		
	Usage Data Delivery Accuracy	X		
	Usage Data Delivery Timeliness	X		
	Usage Data Delivery Completeness	X		
	Mean Time to Deliver Usage	X		
Operator Services (Toll)	**Average Speed to Answer**	PBD		
	% Answered in "X" Seconds	PBD		
Directory Assistance	**Average Speed to Answer**	PBD		
	% Answered in "X" Seconds	PBD		
E911	**Timelinesss**	PBD		
	Accuracy	PBD		
	Mean Interval	PBD		
Trunk Group Performance (Blockage)	**Trunk Group Service Report (Percent Trunk Blockage)** Any 2 hour period in 24 hours where CLEC blockage exceeds BST blockage by more than 0.5% = a miss using trunk groups 1, 3, 4, 5, 10, 16 for CLECs and 9 for BST.	X		
	Trunk Group Service Report (Percent Trunk Blockage)	X		
LNP	**Average Disconnect Timeliness Interval**			
	Percent Missed Installation Appointments		Retail Residence and Business	
	FOC Mechanized			95% ≤4 hours
	% Reject Service Request		Diagnostic	
	Average Reject Interval Mechanized			95% ≤1 hour
	TSOC		Diagnostic	
	% Flow Through			80%

APPENDIX D
Analogs and Benchmarks

BST SQM Category	**MEASURES AND SUB-METRICS**	**RESALE** Retail Analogue	**UNES** Retail Analogue	Benchmark*
Customer Coordinated Conversions	**Coordinated Customer Conversions – UNE Loop**			95% ≤ 15min
	Coordinated Customer Conversions – LNP			95% ≤ 15 min
Collocation +	**% of Due Dates Missed**			90% ≤ Comm Date
	Average Response Time		FL PSC is addressing this in generic docket	
+A contract with each CLEC required.	**Average Arrangement Time**		FL PSC is addressing this in generic docket	

Note 1: PBD = Parity by Design. UD = Under Development – Benchmarks will be replaced when Analogs are complete.

Note2: The retail analog for UNE Non-Design and UNE 2w Loops – Design is the average of Retail Residence Dispatch and Retail Business Dispatch transactions for the particular month. The retail analog for other UNE Design is Retail Design Dispatch.

Note3: Analogs and Benchmarks will be re-evaluated periodically, at least once a year, to validate applicability.

EXHBIT B

VSEEMIII TIER-1 SUBMETRICS

- FOC Timeliness (Mechanized only)
- Reject Interval (Mechanized only)
- Order Completion Interval (Dispatch only) – Resale POTS
- Order Completion Interval (Dispatch only) – Resale Design
- Order Completion Interval (No Dispatch only) – UNE Loop and Port Combos
- Order Completion Interval ('w' code orders, Dispatch only) – UNE Loops
- Order Completion Interval (Dispatch only) – IC Trunks
- Percent Missed Installation Appointments – Resale POTS
- Percent Missed Installation Appointments – Resale Design
- Percent Missed Installation Appointments – UNE Loop and Port Combos
- Percent Missed Installation Appointments – UNE Loops
- Percent Provisioning Troubles within 4 Days - Resale POTS
- Percent Provisioning Troubles within 4 Days - Resale Design
- Percent Provisioning Troubles within 4 Days - UNE Loop and Port Combos
- Percent Provisioning Troubles within 4 Days - UNE Loops
- Customer Trouble Report Rate – Resale POTS
- Customer Trouble Report Rate – Resale Design
- Customer Trouble Report Rate - UNE Loop and Port Combos
- Customer Trouble Report Rate - UNE Loops
- Percent Missed Repair Appointments – Resale POTS
- Percent Missed Repair Appointments - Resale Design
- Percent Missed Repair Appointments - UNE Loop and Port Combos
- Percent Missed Repair Appointments - UNE Loops
- Maintenance Average Duration – Resale POTS
- Maintenance Average Duration – Resale Design
- Maintenance Average Duration - UNE Loop and Port Combos
- Maintenance Average Duration - UNE Loops
- Maintenance Average Duration – IC Trunks
- Percent Repeat Troubles within 30 Days – Resale POTS
- Percent Repeat Troubles within 30 Days – Resale Design
- Percent Repeat Troubles within 30 Days - UNE Loop and Port Combos
- Percent Repeat Troubles within 30 Days - UNE Loops
- Percent Trunk Blockage
- LNP Disconnect Timeliness
- LNP Percent Missed Installation Appointment
- Coordinated Customer Conversions for UNE Loops
- Coordinated Customer Conversions for LNP
- Percent Missed Collocation Due Dates

VSEEMIII TIER-2 SUBMETRICS

- Percent Response Received within "X" seconds – Pre-Order OSS
- OSS Interface Availability
- Order Process Percent Flow-Through (Mechanized only)
- Order Completion Interval (Dispatch only) – Resale POTS
- Order Completion Interval (Dispatch only) – Resale Design
- Order Completion Interval (No Dispatch only) – UNE Loop and Port Combos
- Order Completion Interval ('w' code orders, Dispatch only) – UNE Loops
- Order Completion Interval (Dispatch only) – IC Trunks
- Percent Missed Installation Appointments – Resale POTS
- Percent Missed Installation Appointments – Resale Design
- Percent Missed Installation Appointments – UNE Loop and Port Combos
- Percent Missed Installation Appointments – UNE Loops
- Percent Provisioning Troubles within 4 Days - Resale POTS
- Percent Provisioning Troubles within 4 Days - Resale Design
- Percent Provisioning Troubles within 4 Days - UNE Loop and Port Combos
- Percent Provisioning Troubles within 4 Days - UNE Loops
- Customer Trouble Report Rate – Resale POTS
- Customer Trouble Report Rate – Resale Design
- Customer Trouble Report Rate - UNE Loop and Port Combos
- Customer Trouble Report Rate - UNE Loops
- Percent Missed Repair Appointments – Resale POTS
- Percent Missed Repair Appointments - Resale Design
- Percent Missed Repair Appointments - UNE Loop and Port Combos
- Percent Missed Repair Appointments - UNE Loops
- Maintenance Average Duration – Resale POTS
- Maintenance Average Duration – Resale Design
- Maintenance Average Duration - UNE Loop and Port Combos
- Maintenance Average Duration - UNE Loops
- Maintenance Average Duration – IC Trunks
- Percent Repeat Troubles within 30 Days – Resale POTS
- Percent Repeat Troubles within 30 Days – Resale Design
- Percent Repeat Troubles within 30 Days - UNE Loop and Port Combos
- Percent Repeat Troubles within 30 Days - UNE Loops
- Billing Timeliness
- Billing Accuracy
- Usage Data Delivery Timeliness
- Usage Data Delivery Accuracy
- Percent Trunk Blockage
- LNP Disconnect Timeliness
- LNP Percent Missed Installation Appointment
- Coordinated Customer Conversions for UNE Loops
- Coordinated Customer Conversions for LNP
- Percent Missed Collocation Due Dates

VSEEMIII TIER-3 SUBMETRICS

- Percent Missed Installation Appointments – Resale POTS
- Percent Missed Installation Appointments – Resale Design
- Percent Missed Installation Appointments – UNE Loop and Port Combos
- Percent Missed Installation Appointments – UNE Loops
- Percent Missed Repair Appointments – Resale POTS
- Percent Missed Repair Appointments - Resale Design
- Percent Missed Repair Appointments - UNE Loop and Port Combos
- Percent Missed Repair Appointments - UNE Loops
- Billing Timeliness
- Billing Accuracy
- Percent Trunk Blockage
- Percent Missed Collocation Due Dates

VSEEM III	MEASURES AND SUB-METRICS	RETAIL ANALOGUE Resale (x) and UNEs	BENCH MARK
Pre-Ordering	Percent Response Received within "X" seconds	Retail Analogue + 4 sec	
	OSS Interface Availability	x	
Ordering	Percent Flow-Through Service Request (Fully Mechanized only)		90%
	Firm Order Confirmation Timeliness (Mechanized only)		95% ≤ 4 hrs
	Reject Interval (Mechanized only)		95% ≤ 1 hrs
Provisioning	Order Completion Interval (Dispatch only) – Resale POTS	x	
	Order Completion Interval (Dispatch only) – Resale Design	x	
	Order Completion Interval (No Dispatch only) – UNE Loop & Port Combos	Retail Residence and Business	
	Order Completion Interval (Dispatch only) – UNE Loops	Design: Retail Design Dispatch 'w' Orders Non-Design: Retail Res, Bus Dispatch 'w' Orders	
	Order Completion Interval (Dispatch only) – IC Trunks	x	
	Percent Missed Installation Appointments – Resale POTS	x	
	Percent Missed Installation Appointments – Resale Design	x	
	Percent Missed Installation Appointments – UNE Loop and Port Combos	Retail Residence and Business	
	Percent Missed Installation Appointments – UNE Loops	Design: Retail Design [1] Non-Design: Retail Res, Bus [1]	
	Percent Provisioning Troubles within 4 Days - Resale POTS	x	
	Percent Provisioning Troubles within 4 Days - Resale Design	x	
	Percent Provisioning Troubles within 4 Days - UNE Loop and Port Combos	Retail Residence and Business	
	Percent Provisioning Troubles within 4 Days - UNE Loops	Design: Retail Design [1] Non-Design: Retail Res, Bus [1]	
Maintenance	Customer Trouble Report Rate – Resale POTS	x	
	Customer Trouble Report Rate – Resale Design	x	
	Customer Trouble Report Rate - UNE Loop and Port Combos	Retail Residence and Business	
	Customer Trouble Report Rate - UNE Loops	Design: Retail Design [1] Non-Design: Retail Res, Bus [1]	
	Percent Missed Repair Appointments – Resale POTS	x	
	Percent Missed Repair Appointments - Resale Design	x	
	Percent Missed Repair Appointments - UNE Loop and Port Combos	Retail Residence and Business	
	Percent Missed Repair Appointments - UNE Loops	Design: Retail Design [1] Non-Design: Retail Res, Bus [1]	

NOTES: [1] The retail analog for UNE Non-Design is the average of all retail residence and retail business transactions for the particular month. The retail analog for UNE Design is calculated similarly using retail residence, business and design results.
[2] UD = Under Development

Maintenance Continued	Maintenance Average Duration – Resale POTS	x	
	Maintenance Average Duration – Resale Design	x	
	Maintenance Average Duration - UNE Loop and Port Combos	Retail Residence and Business	
	Maintenance Average Duration - UNE Loops	Design: Retail Design [1] Non-Design: Retail Res, Bus [1]	
	Maintenance Average Duration – IC Trunks	x	
	Percent Repeat Troubles within 30 Days – Resale POTS	x	
	Percent Repeat Troubles within 30 Days – Resale Design	x	
	Percent Repeat Troubles within 30 Days - UNE Loop and Port Combos	Retail Residence and Business	
	Percent Repeat Troubles within 30 Days - UNE Loops	Design: Retail Design [1] Non-Design: Retail Res, Bus [1]	
Billing	Invoice Accuracy	x	
	Mean Time To Deliver Invoices	x	
	Usage Data Delivery Accuracy	x	
	Usage Data Delivery Timeliness	x	
Trunk Blockage	Trunk Group Service Report (Percent Trunk Blockage)	x	
LNP	Average Disconnect Timeliness Interval		UD [2]
	Percent Missed Installation Appointments		UD [2]
CC Conversions	Coordinated Customer Conversions – UNE Loop		95% ≤ 15min
	Coordinated Customer Conversions – LNP		95% ≤ 15 min
Collocation	% of Due Dates Missed		≤ 10%

NOTES: [1] The retail analog for UNE Non-Design is the average of all retail residence and retail business transactions for the particular month. The retail analog for UNE Design is calculated similarly using retail residence, business and design results.
[2] UD = Under Development

EXHIBIT C

Statistical Methods for BellSouth Performance Measure Analysis

I. Necessary Properties for a Test Methodology

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

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

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

- Like-to-Like Comparisons. When possible, data should be compared at appropriate levels, e.g. wire center, time of month, dispatched, residential, new orders. The testing process should:
  - Identify variables that may affect the performance measure.
  - Record these important confounding covariates.
  - Adjust for the observed covariates in order to remove potential biases and to make the CLEC and the ILEC units as comparable as possible.
- Aggregate Level Test Statistic. Each performance measure of interest should be summarized by one overall test statistic giving the decision maker a rule that determines whether a statistically significant difference exists. The test statistic should have the following properties.
  - The method should provide a single overall index, on a standard scale.
  - If entries in comparison cells are exactly proportional over a covariate, the aggregated index should be very nearly the same as if comparisons on the covariate had not been done.
  - The contribution of each comparison cell should depend on the number of observations in the cell.
  - Cancellation between comparison cells should be limited.
  - The index should be a continuous function of the observations.
- Production Mode Process. The decision system must be developed so that it does not require intermediate manual intervention, i.e. the process must be a "black box."
  - Calculations are well defined for possible eventualities.
  - The decision process is an algorithm that needs no manual intervention.
  - Results should be arrived at in a timely manner.
  - The system must recognize that resources are needed for other performance measure-related processes that also must be run in a timely manner.
  - The system should be auditable, and adjustable over time.
- Balancing. The testing methodology should balance Type I and Type II Error probabilities.
  - P(Type I Error) = P(Type II Error) for well defined null and alternative hypotheses.
  - The formula for a test's balancing critical value should be simple enough to calculate using standard mathematical functions, i.e. one should avoid methods that require computationally intensive techniques.

- Little to no information beyond the null hypothesis, the alternative hypothesis, and the number of observations should be required for calculating the balancing critical value.

In the following sections we describe appropriate testing processes that adhere as much as possible to the testing principles.

Measurement Types

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

1) means
2) proportions, and
3) rates

While all three have similar characteristics (a proportion is the average of a measure that takes on only the values of 0 or 1), a proportion or rate is derived from count data while a mean is generally an average of interval measurements.

II. Testing Methodology – The Truncated Z

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

Proportion Measures

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

Rate Measures

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

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

Mean Measures

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

APPENDIX
TECHNICAL DESCRIPTION

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

NOTATION AND EXACT TESTING DISTRIBUTIONS

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

L = the total number of occupied cells

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

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

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

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

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

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

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

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

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

For Mean Performance Measures the following additional notation is needed.

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

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

s^2_{1j} = the ILEC sample variance in cell j

s^2_{2j} = the CLEC sample variance in cell j

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

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

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

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

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

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

and the corresponding cumulative permutation distribution is

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

For Proportion Performance Measures the following notation is defined

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

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

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

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

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

and the cumulative hypergeometric distribution is

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

For Rate Measures, the notation needed is defined as

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

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

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

$\bar{p}_{1j}$ = the ILEC sample rate of cell j; n_{1j}/b_{1j}

$\bar{p}_{2j}$ = the CLEC sample rate of cell j; n_{2j}/b_{2j}

q_j = the relative proportion of CLEC elements for cell j; b_{2j}/b_j

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

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

and the cumulative binomial distribution is

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

CALCULATING THE TRUNCATED Z

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

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

Mean Measure

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

Proportion Measure

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

Rate Measure

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

2. **In each cell, calculate a Z value**, Z_j. A Z statistic with mean 0 and variance 1 is needed for each cell.

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

Mean Measure

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

where α is determine by the following algorithm.

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

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

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

$$T_j = t_j + \frac{g}{6}\left(\frac{n_{1j} + 2n_{2j}}{\sqrt{n_{1j}\, n_{2j}(n_{1j} + n_{2j})}}\right)\left(t^2 + \frac{n_{2j} - n_{1j}}{2n_{1j} + n_{2j}}\right),$$

where

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

and the coefficient g is an estimate of the skewness of the parent population, which we assume is the same in all cells. It can be estimated from the ILEC values in the largest cells. This needs to be done only once for each measure. We have found that attempting to estimate this skewness parameter for each cell separately leads to excessive variability in the "adjusted" t. We therefore use a single compromise value in all cells.

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

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

a) $M_j \leq 1{,}000$ (the total number of distinct pairs of samples of size n_{1j} and n_{2j} is 1,000 or less).

- Calculate the sample sum for all possible samples of size n_{2j}.
- Rank the sample sums from smallest to largest. Ties are dealt by using average ranks.
- Let R_0 be the rank of the observed sample sum with respect all the sample sums.

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

b) $M_j > 1{,}000$

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

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

Proportion Measure

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

Rate Measure

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

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

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

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

   - If $W_j = 0$, then no evidence of favoritism is contained in the cell. The formulae for calculating $E(Z_j^* | H_0)$ and $Var(Z_j^* | H_0)$ cannot be used. Set both equal to 0.

   - If $\min(n_{1j}, n_{2j}) > 6$ for a mean measure, $\min\left\{a_{1j}\left(1-\frac{a_{1j}}{n_{1j}}\right), a_{2j}\left(1-\frac{a_{2j}}{n_{2j}}\right)\right\} > 9$ for a proportion measure, or $\min(n_{1j}, n_{2j}) > 15$ and $n_j q_j (1-q_j) > 9$ for a rate measure then

$$E(Z_j^* | H_0) = -\frac{1}{\sqrt{2\pi}}, \text{ and}$$

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

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

$$E(Z_j^* | H_0) = \sum_i \theta_{ji} z_{ji}, \text{and}$$

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

The actual values of the z's and θ's depends on the type of measure, and the sums in the equations are over all possible values of the index i.

Mean Measure

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

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

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

Proportion Measure

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

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

Rate Measure

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

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

5. **Calculate the aggregate test statistic, Z^T.**

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

The Balancing Critical Value

There are four key elements of the statistical testing process:

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

The decision rule[1] is

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

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

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

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

The probabilities of each type of each are:

Type I Error: $\alpha = P(Z^T < c \mid H_0)$.

Type II Error: $\beta = P(Z^T \geq c \mid H_a)$.

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

It can be shown that.

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

where

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

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

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

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

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

Mean Measure

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

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

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

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

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

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

Proportion Measure

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

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

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

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

Under this form of alternative hypothesis, the within cell asymptotic mean and variance of a_{1j} are given by[2]

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

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

where

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

$$\pi_j^{(1)} = f_j^{(1)}\left(n_j^2 + f_j^{(2)} + f_j^{(3)} - f_j^{(4)}\right)$$
$$\pi_j^{(2)} = f_j^{(1)}\left(-n_j^2 - f_j^{(2)} + f_j^{(3)} + f_j^{(4)}\right)$$
$$\pi_j^{(3)} = f_j^{(1)}\left(-n_j^2 + f_j^{(2)} - f_j^{(3)} + f_j^{(4)}\right)$$
$$\pi_j^{(4)} = f_j^{(1)}\left(n_j^2\left(\tfrac{2}{\psi_j}-1\right) - f_j^{(2)} - f_j^{(3)} - f_j^{(4)}\right)$$
$$f_j^{(1)} = \frac{1}{2n_j^2\left(\frac{1}{\psi_j}-1\right)}$$
$$f_j^{(2)} = n_j n_{1j}\left(\tfrac{1}{\psi_j}-1\right)$$
$$f_j^{(3)} = n_j a_j\left(\tfrac{1}{\psi_j}-1\right)$$
$$f_j^{(4)} = \sqrt{n_j^2\left[4n_{1j}\left(n_j - a_j\right)\left(\tfrac{1}{\psi_j}-1\right) + \left(n_j + \left(a_j - n_{1j}\right)\left(\tfrac{1}{\psi_j}-1\right)\right)^2\right]}$$

Recall that the cell test statistic is given by

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

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

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

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

Rate Measure

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

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

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

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

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

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

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

Under the null hypothesis

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

but under the alternative hypothesis

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

Recall that the cell test statistic is given by

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

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

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

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

Determining the Parameters of the Alternative Hypothesis

In this appendix we have indexed the alternative hypothesis of mean measures by two sets of parameters, λ_j and δ_j. Proportion and rate measures have been indexed by one set of parameters each, ψ_j and ε_j respectively. While statistical science can be used to evaluate the impact of different choices of these parameters, there is not much that an appeal to statistical principles can offer in directing specific choices. Specific choices are best left to telephony experts. Still, it is possible to comment on some aspects of these choices:

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

- Parameter Choices for δ_j. The set of parameters δ_j are much more important in the choice of the balancing point than was true for the λ_j. The reason for this is that they directly index differences in average service. The truncated Z test is very sensitive to any such differences; hence, even small disagreements among experts in the choice of the δ_j could be very important. Sample size matters here too. For example, setting all the δ_j to a single value – $\delta_j = \delta$ – might be fine for tests across individual CLECs where currently in Louisiana the CLEC customer bases are not too different. Using the same value of δ for the overall state testing does not seem sensible, however, since the state sample would be so much larger.

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

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

DECISION PROCESS

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

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

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

EXHIBIT D

BST VSEEM REMEDY PROCEDURE

TIER-1 CALCULATION FOR RETAIL ANALOGUES:

1. Calculate the overall test statistic for each CLEC; z^{T}_{CLEC1} (See Exhibit C)
2. Calculate the balancing critical value($^{C}B_{CLEC1}$) that is associated with the alternative hypothesis (for fixed parameters δ, ψ or ε). (See Exhibit C)
3. If the overall test statistic is equal to or above the balancing critical value, stop here. Otherwise, go to step 4.
4. Calculate the Parity Gap by subtracting the value of step 2. from that of step 1.; $z^{T}_{CLEC1} - {}^{C}B_{CLEC1}$
5. Calculate the Volume Proportion using a linear distribution with slope of ¼. This can be accomplished by taking the absolute value of the Parity Gap from step 4. divided by 4; $ABS((z^{T}_{CLEC1} - {}^{C}B_{CLEC1}) / 4)$. All parity gaps equal or greater to 4 will result in a volume proportion of 100%.
6. Calculate the Affected Volume by multiplying the Volume Proportion from step 5. by the Total $CLEC_1$ Volume in the negatively affected cell; where the cell value is negative. (See Exhibit C)
7. Calculate the payment to AT&T by multiplying the result of step 6. by the appropriate dollar amount from the fee schedule.

So, AT&T payment = $\text{Affected Volume}_{CLEC1}$ * $$ from Fee Schedule

Example: AT&T Missed Installation Appointments (MIA) for Resale POTS

	n_I	n_C	MIA_I	MIA_C	z^{T}_{CLEC1}	C_B	**Parity Gap**	Volume Proportion	Affected Volume
State	50000	600	9%	16%	-1.92	-0.21	**1.71**	0.4275	
Cell					z_{CLEC1}				
1		150	0.091	0.112	-1.994				64
2		75	0.176	0.098	0.734				
3		10	0.128	0.333	-2.619				4
4		50	0.158	0.242	-2.878				21
5		15	0.245	0.075	1.345				
6		200	0.156	0.130	0.021				
7		30	0.166	0.233	-0.600				13
8		20	0.106	0.127	-0.065				9
9		40	0.193	0.218	-0.918				17
10		10	0.160	0.235	-0.660				4
									133

where n_I = ILEC observations and n_C = AT&T observations

Payout for AT&T is (133 units) * ($100/unit) = $13,300

TIER-2 CALCULATION for RETAIL ANALOGUES:

1. Tier-2 is triggered by three monthly failures of any VSEEM submetric in the same quarter.

2. Calculate the overall test statistic for the CLEC Aggregate using all transactions from the calendar quarter; z^T_{CLECA}

3. Calculate the balancing critical value($^{C}B_{CLEC1}$) that is associated with the alternative hypothesis (for fixed parameters δ, ψ or ε). (See Exhibit C)

4. If the overall test statistic is equal to or above the balancing critical value for the calendar quarter, stop here. Otherwise, go to step 5.

5. Calculate the Parity Gap by subtracting the value of step 3. from that of step 2.; $z^T_{CLECA} - {}^{C}B_{CLECA}$

6. Calculate the Volume Proportion using a linear distribution with slope of ¼. This can be accomplished by dividing the Parity Gap from step 5. by 4; ABS(($z^T_{CLECA} - {}^{C}B_{CLECA}$) / 4). All parity gaps equal or greater to 4 will result in a volume proportion of 100%.

7. Calculate the Affected Volume by multiplying the Volume Proportion from step 6. by the Total $CLEC_A$ Volume (CLEC Aggregate) in the negatively affected cell; where the cell value is negative (See Exhibit C).

8. Calculate the payment to State Designated Agency by multiplying the result of step 7. by the appropriate dollar amount from the fee schedule.

   So, State Designated Agency payment = Affected $Volume_{CLECA}$ * $$ from Fee Schedule

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

State	n_I	n_C	MIA_I	MIA_C	Z^T_{CLECA}	C_B	**Parity Gap**	Volume Proportion	Affected Volume
Quarter1	180000	2100	9%	16%	-1.92	-0.21	**1.71**	0.4275	
Cell					Z_{CLECA}				
1		500	0.091	0.112	-1.994				214
2		300	0.176	0.098	0.734				
3		80	0.128	0.333	-2.619				34
4		205	0.158	0.242	-2.878				88
5		45	0.245	0.075	1.345				
6		605	0.156	0.130	0.021				
7		80	0.166	0.233	-0.600				34
8		40	0.106	0.127	-0.065				17

9	165	0.193	0.218	-0.918	71
10	80	0.160	0.235	-0.660	34
					492

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

Payout for CLEC-A is (492 units) * ($300/unit) = $147,600

Tier-3

Tier-3 uses the monthly CLEC Aggregate results in a given State. Tier-3 is triggered when five of the twelve Tier-3 sub-metrics experience consecutive failures in a given calendar quarter. The table below displays a situation that would trigger a Tier-3 failure, and one that would not.

		TIER-3 FAILURE X = Miss			NOT A TIER-3 FAILURE X = Miss		
Process	Measures	Jan	Feb	Mar	Jan	Feb	Mar
Percent Missed Installation Appointments	Resale POTS	X	X	X	X		
	Resale Design	X			X	X	X
	UNE Loop & Port Combo		X				
	UNE Loops	X	X	X			
Percent Missed Repair Appointments	Resale POTS	X	X	X	X		X
	Resale Design		X	X		X	
	UNE Loop & Port Combo					X	X
	UNE Loops				X		
Billing	Billing Accuracy	X	X	X			
	Billing Timeliness				X	X	X
Blockage	Percent Trunk Blockage	X	X	X			
ocation	Percent Missed Collocation Due Dates						

Tier-3 is effective immediately after quarter results, and can only be lifted when two of the five failed sub-metrics show compliance for two consecutive months in the following quarter.

All tiers standalone, such that triggering Tier-3 will not cease payout of any Tier-1 or Tier-2 failures.

TIER-1 CALCULATION FOR BENCHMARKS:

1. For each CLEC, with five or more observations, calculate monthly performance results for the State.

2. CLECs having observations (sample sizes) between 5 and 30 will use Table I below:

TABLE I SMALL SAMPLE SIZE TABLE
(95% Confidence)

Sample Size	Equivalent 90% Benchmark	Equivalent 95% Benchmark
5	60.00%	80.00%
6	66.67%	83.33%
7	71.43%	85.71%
8	75.00%	75.00%
9	66.67%	77.78%
10	70.00%	80.00%
11	72.73%	81.82%
12	75.00%	83.33%
13	76.92%	84.62%
14	78.57%	85.71%
15	73.33%	86.67%

Sample Size	Equivalent 90% Benchmark	Equivalent 95% Benchmark
16	75.00%	87.50%
17	76.47%	82.35%
18	77.78%	83.33%
19	78.95%	84.21%
20	80.00%	85.00%
21	76.19%	85.71%
22	77.27%	86.36%
23	78.26%	86.96%
24	79.17%	87.50%
25	80.00%	88.00%
26	80.77%	88.46%
27	81.48%	88.89%
28	78.57%	89.29%
29	79.31%	86.21%
30	80.00%	86.67%

3. If the percentage (or equivalent percentage for small samples) is equal to or below the benchmark standard, stop here. Otherwise, go to step 4.

4. Determine the Volume Proportion by taking the difference between the benchmark and the actual performance result.

5. Calculate the Affected Volume by multiplying the Volume Proportion from step 4. by the Total $CLEC_1$ Volume.

6. Calculate the payment to AT&T by multiplying the result of step 5. by the appropriate dollar amount from the fee schedule.

So, AT&T payment = Affected $Volume_{CLEC1}$ * $$ from Fee Schedule

Example: AT&T Missed Installation Appointments (MIA) for UNE Loops

	n_C	Benchmark	MIA_C	Volume Proportion	Affected Volume
State	600	9%	12%	.03	18

Payout for AT&T is (18 units) * ($400/unit) = $7,200

TIER-1 CALCULATION FOR BENCHMARKS (IN THE FORM OF A TARGET):

1. For each, with five or more observations, CLEC calculate monthly performance results for the State.
2. CLECs having observations (sample sizes) between 5 and 30 will use Table I above.
3. Calculate the interval distribution based on the same data set used in step 1.
4. If the 'percent within' is equal to or exceeds the benchmark standard, stop here. Otherwise, go to step 5.
5. Determine the Volume Proportion by taking the difference between 100% and the actual performance result.
6. Calculate the Affected Volume by multiplying the Volume Proportion from step 5. by the Total $CLEC_1$ Volume.
7. Calculate the payment to AT&T by multiplying the result of step 6. by the appropriate dollar amount from the fee schedule.

So, AT&T payment = Affected $Volume_{CLEC1}$ * $$ from Fee Schedule

Example: AT&T Reject Timeliness

	n_C	Benchmark	Reject $Timeliness_C$	Volume Proportion	Affected Volume
State	600	95% within 1 hour	93% within 1 hour	.07	42

Payout for AT&T is (42 units) * ($100/unit) = $4,200

TIER-2 CALCULATIONS for BENCHMARKS:

Tier-2 calculations for benchmark measures are the same as the Tier-1 benchmark calculations except the CLEC Aggregate data having failed for three months in a given calendar quarter is being assessed.

EXHIBIT E

Table-1

LIQUIDATED DAMAGES TABLE FOR TIER-1 MEASURES

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

Table-2

VOLUNTARY PAYMENTS FOR TIER-2 MEASURES

	Per Affected Item
OSS Pre-Ordering	$20
Ordering	$60
Provisioning	$300
UNE Provisioning (Coordinated Customer Conversions)	$875
Maintenance and Repair	$300
UNE Maintenance and Repair	$875
Billing	$1.00
LNP	$500
IC Trunks	$500
Collocation	$15,000