Service Quality Measurements
Formula Quick Reference

	Measurement Description By Business Process:	Measurement Formula:
	Pre-Ordering (PO)	
PO-1	Average Response Interval for Pre-Ordering Information	**Average Response Interval = Σ[(Query Response Date & Time) - (Query Submission Date & Time)]/(Number of Queries Submitted in Reporting Period**
	Ordering and Provisioning (OP)	
OP-1	Average Completion Interval	**Average Completion Interval = Σ[(Completion Date & Time) - (Order Submission Date & Time)]/(Count of Orders Completed in Reporting Period)**
OP-2	Percent Orders Completed on Time	**Percent Orders Completed on Time = (Count of Orders Completed within ILEC Committed Due Date) / (Count of Orders Completed in Reporting Period) x 100**
OP-3	Percent Order Accuracy	**Percent Order Accuracy = (Σ Orders Completed w/o Error) / (ΣOrders Completed) x 100**
OP-4	Mean Reject Interval	**Mean Reject Interval = Σ[(Date and Time of Order Rejection) - (Date and Time of Order Acknowledgment)]/(Number of Orders Rejected in Reporting Period)**
OP-5	Mean FOC Interval	**Mean FOC Interval = Σ[(Date and Time of Firm Order Confirmation) - (Date and Time of Order Acknowledgment)]/(Number of Orders Confirmed in Reporting Period)**
OP-6	Mean Jeopardy Interval	**Mean Jeopardy Interval = Σ[(Date and Time of Committed Due Date for the Order) - (Date and Time of Jeopardy Notice)]/(Number of Orders Jeopardized in Reporting Period)**
OP-7	Mean Completion Interval	**Completion Interval = Σ[(Date and Time of Notice of Completion Issued to the CLEC) - (Date and Time of Work Completion by ILEC)]/(Number of Orders Completed in Reporting Period)**
OP-8	Percent Jeopardies Returned	**Percent Jeopardies Returned = (Number of Orders Jeopardized in Reporting Period)/(Number of Orders Confirmed in Reporting Period)**
OP-9	Mean Held Order Interval	**Mean Held Order Interval = Σ(Reporting Period Close Date - Committed Order Due Date) / (Number of Orders Pending and Past The Committed Due Date) for all orders pending and past the committed due date**
OP-10	Percent Orders Held ≥ 90 Days	**(# of Orders Held for ≥ 90 days) / (Total # of Orders Pending But Not Completed) x 100**
OP-11	Percent Orders Held ≥ 15 Days	**(# of Orders Held for ≥ 15 days) / (Total # of Orders Pending But Not Completed) x 100**

Service Quality Measurements
Formula Quick Reference

	Maintenance and Repair (MR)	
MR-1	Mean Time to Restore	**Mean Time To Restore = Σ[(Date and Time of Ticket Closure)-(Date and Time of Ticket Creation)] / (Count of Trouble Tickets Closed in Reporting Period)**
MR-2	Repeat Trouble Rate	**Repeat Trouble Rate = (Count of Service Access Line Generating More Than One Trouble Within a Continuous 30 Day Period) / (Number of Reports in the Report Period) x 100**
MR-3	Trouble Rate	**Trouble Rate = (Count of Initial & Repeated Trouble Reports in the Current Period) / (Number of Service Access Line in Service at End of the Report Period) x 100**
MR-4	Percentage of Customer Troubles Resolved Within Estimate	**Percentage of Customer Troubles Resolved Within Estimate = (Count of Customer Troubles Resolved By The Quoted Resolution Time and Date) / (Count of Customer Troubles Tickets Closed) x 100**
	General (GE)	
GE-1	Percent System Availability	**% System Availability = [(Hours Functionality is Available to CLECs During Report Period) / (Number of Hours Functionality was Scheduled to be Available During the Period)] x 100**
GE-2	Mean Time to Answer Calls	**Mean Time to Answer Calls = Σ [(Date and Time of Call Answer) - (Date and Time of Call Receipt)]/(Total Calls Answered by Center)**
GE-3	Call Abandonment Rate	**Call Abandonment Rate = (Count of Calls Terminated Before Answer During the Reporting Period)/(Count of All Calls Placed in Queue During the Reporting Period)**
	Billing (BI)	
BI-1	Mean Time to Provide Recorded Usage Records	**Mean Time to Provide Recorded Usage Records ={ Σ[(Data Set Transmission Date)-(Date of Message Recording)]}/(Count of All Messages Transmitted in Reporting Period)**
BI-2	Mean Time to Deliver Invoices	**Mean Time to Deliver Invoices = Σ[(Invoice Transmission Date)-(Date of Scheduled Bill Cycle Close)]/(Count of Invoices Transmitted in Reporting Period)**
BI-3	Percent Invoice Accuracy	**Percent Invoice Accuracy = [(Number of Invoices Delivered in the Reporting Period that Have Complete Information, Reflect Accurate Calculations and are Properly Formatted) / Total Number of Invoices Issued in the Reporting Period)] x 100**
BI-4	Percent Usage Accuracy	**Percent Usage Accuracy = [(Number of Usage Records Delivered in the Reporting Period That Reflected Complete Information Content and Proper Formatting) / (Total Number of Usage Records Transmitted)] x 100**

Service Quality Measurements
Formula Quick Reference

	Operator Services and Directory Assistance (OS, DA)	
OS/DA-1	Mean Time To Answer	**Mean Time To Answer =[Σ(Date and Time of Call Answer) - (Date and Time of Call Receipt)]/(Total Calls Answered on Behalf of CLECs in Reporting Period)**
	Network Performance (NP)	
NP-1	Network Performance Parity	**Network Performance Parity = Σ(Network Performance Parameter Result)/(Number of Tests Conducted)**
	Interconnect / Unbundled Elements and Combos (IUE)	
IUE-1	Function Availability	**Function Availability[1] = (Amount of Time[2] a Functionality is Useable[1] by a CLEC in a Specified Period)/(Total Time[2] Functionality Was Intended to Be Useable)** **Notes:** **1. These measure may also be expressed in the negative, that is, in term of unavailability.** **2. In some instances, rather than time, the availability will be express in terms of transactions executed successfully compared to transactions attempted.**
IUE-2	Timeliness of Element Performance	**Timeliness of Element Performance = (Number of Times Functionality Executes Successfully Within the Established Timeliness Standard)/(Number of Times Execution of Functionality was Attempted)**

Service Quality Measurements
Measurement Detail

The Measurement Detail section:

- Provides explicit detail information for each measurement
- Provides business reasons for the measurement, required data elements, analogs to the existing ILEC business function and comparative results suggestions
- Is targeted at those individuals who need to know and understand the detail categories and measurement methodologies

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Service Quality Measurements
Measurement Detail

Pre-Ordering (PO)

Function:	**Average Response Interval for Pre-Ordering Information**
Business Implications:	As an initial step of establishing service, the customer service agent must establish such basic facts as availability of desired features, likely service delivery intervals, the telephone number to be assigned, the current products and features the customer has, and the validity of the street address. Typically, this type of information is gathered from supporting OSS while the customer (or potential customer) is on the telephone with the customer service agent. Because pre-ordering activities are the first tangible contact that a customer may have with a CLEC, it is critical that the CLEC be perceived as equally competent, knowledgeable and fast as and ILEC customer service agent. This measure is designed to monitor the time required for CLECs to obtain the pre-ordering information necessary to establish and modify service. Comparison to the ILEC results allow conclusions whether an equal opportunity exists for the CLEC to deliver a comparable customer experience (compared to the ILEC) when a retail customer calls the CLEC with a service inquiry.
Measurement Methodology:	**Average Response Interval = Σ[(Query Response Date & Time) - (Query Submission Date & Time)]/(Number of Queries Submitted in Reporting Period)** **For CLEC Results:** The response interval for each pre-ordering query is determined by computing the elapsed time from the ILEC receipt of a query from the CLEC, whether or not syntactically correct, to the time the ILEC returns the requested data to the CLEC. Elapsed time is accumulated for each major query type, consistent with the specified reporting dimension, and then divided by the associated total number of query received by the ILEC during the reporting period. **For ILEC Results:** The ILEC computation is identical to that for the CLEC with the clarifications noted below. **Other Clarifications and Qualification:** • The elapsed time for an ILEC query is measured from the point in time when the ILEC customer service agent submits the request for identical or similar information into the ILEC OSS until the time when the ILEC OSS returns the requested information to the ILEC customer service agent. • As additional pre-ordering functionality is established by industry, for example with respect to unbundled network elements, the reporting dimensions may be expanded. • Elapsed time is measured in seconds and tenths of seconds rounded to the nearest tenth of a second • Elapsed time is to be measured through automated rather than manual monitor and logging. • The ILEC service agent entry of a request for pre-ordering information (to the ILEC OSS) is considered to be the equivalent of the ILEC receipt of a query from the CLEC. • The ILEC OSS return of information, whether in hard copy or by display on the ILEC service agent's terminal is considered equivalent to the return of requested information to the CLEC.

Service Quality Measurements

Measurement Detail

Reporting Dimensions:	**Excluded Situations:**
• Pre-Ordering Query Types (See Appendix A) Geographic Scope	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Query Identifier (e.g., unique tracking number) • Query Receipt Date by ILEC • Query Receipt Time by ILEC • Query Type (per reporting dimension) • Data Response Date • Data Response Time • Geographic Scope	• Report Month • Query Type (per reporting dimension) • Mean response interval • Standard error of the mean response interval • Geographic Scope

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Other than a query when 30 or more telephone numbers are requested, the response interval will be less than or equal 2 seconds for 98% of the CLEC's queries received by the ILEC during the reporting period and no query will take more than 5 seconds. • For queries requesting 30 or more telephone numbers, the response interval is never to exceed two hours.

Service Quality Measurements
Measurement Detail
Ordering and Provisioning (OP)

Function:	**Order Completion Intervals**
Business Implications:	In order to be successful in the marketplace, CLECs must be capable of delivering service in time frames equal or better than what the ILEC delivers for comparable service configurations. Likewise, when the CLEC commits to a due date for service delivery, the customer plans for service availability has been established and the customer will be dissatisfied if the requested service or feature is not delivered when promised. The "average completion interval" measure monitors the time required by the ILEC to deliver integrated and operable service components requested by the CLEC, regardless of whether services resale or unbundled network elements are employed. When the service delivery interval of the ILEC is measured for comparable services, then conclusion can be drawn regarding whether or not CLECs have a reasonable opportunity to compete for customers. The "orders completed on time" measure monitors the reliability of ILEC commitments with respect to committed due dates to assure that CLECs can reliably quote expected due dates to their retail customer. In addition, when monitored over time, the "average completion interval" and "percent completed on time" may prove useful in detecting developing capacity issues.
Measurement Methodology:	**Average Completion Interval = Σ [(Completion Date & Time) - (Order Submission Date & Time)]/(Count of Orders Completed in Reporting Period)** **Percent Orders Completed on Time = (Count of Orders Completed within ILEC Committed Due Date) / (Count of Orders Completed in Reporting Period) x 100** **For CLEC Results:** The actual completion interval is determined for each order processed during the reporting period. The completion interval is the elapsed time from the ILEC receipt of a syntactically correct order from the CLEC to the ILEC's return of a valid completion notification to the CLEC. Elapsed time for each order is accumulated for each reporting dimension (see below). The accumulated time for each reporting dimension is then divided by the associated total number of orders completed within the reporting period. The percentage of orders completed on time is determined by first counting, for each specified reporting dimension, both the total numbers of orders completed within the reporting interval and the number of orders completed by the committed due date (as specified on the initial FOC returned to the CLEC). For each reporting dimension, the resulting count of orders completed no later than the committed due date is divided by the total number of order completed with the resulting fraction expressed as a percentage. **For ILEC Results:** The ILEC computation is identical to that for the CLEC with the clarifications noted below. **Other Clarifications and Qualification:** • The elapsed time for an ILEC order is measured from the point in time when the ILEC customer service agent enters the order into the ILEC order processing system until the date and time reported by the ILEC installation personnel log actual completion of all work necessary to permit service initiation, whether or not the ILEC initiates customer billing at that point in

	time. • Results for the CLECs are captured and reported at the order level (e.g., unique PON). • The Completion Date is the date upon which the ILEC issues the Order Completion Notice to the CLEC. • If the CLEC initiates a supplement to the originally submitted order and the supplement reflects changes in customer requirements (rather than responding to 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. • See "Order Status" metric sheet for discussion of ILEC analogs receipt of a syntactically correct and return of a valid completion notice. • Elapsed time is measured in hours and hundredths of hours rounded to the nearest tenth of an hour. • Because this should be a highly automated process, the accumulation of elapsed time continues through off-schedule, weekends and holidays.

Reporting Dimensions:	**Excluded Situations:**
• Service - Standard Service Groupings (See Appendix A) • Activity - Standard Order Activities (See Appendix A) • Geographic Scope	• Canceled orders • Initial Order when supplemented by CLEC • ILEC Orders associated with internal or administrative use of local services
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Order Number • Order Submission Date • Order Submission Time • Order Completion Date • Order Completion Time • Service Type • Activity Type • Geographic Scope	• Report Month • Average Order Completion Interval • Standard Error for the Order Completion Interval • Service Type • Activity Type • Geographic Scope

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete:
	• Unless otherwise noted, the order completion interval for installations that do not require a premise visit and do not require anything beyond software updates is 1 business day.
	• Unless otherwise noted, the order completion intervals for installations that involve a premise visit or physical work is three business days.
	• Installation Interval Exceptions:
	  • UNE Platform (at least DS0 loop + local switching + common transport elements) installation interval is 1 business day whether or not premise work is required.
	  • The installation interval for unbundled loops is always 1 business day.

	• UNE Channelized DS1 (DS1 unbundled loop + multiplexing) installation interval is within 2 business days. • Unbundled Switching Element installation interval is within 2 business days • DS0/DS1 Dedicated Transport installation interval is within 3 business days • All other Dedicated Transport installation interval is within 5 business days. • The installation interval for all order involving only feature modification is 5 hours. • Order completion interval for all disconnection orders is 1 business day.

Service Quality Measurements
Measurement Detail

Function:	**Order Accuracy**
Business Implications:	Customers expect that their service provider will deliver precisely the service ordered and all the features specified. Any service provider that is unreliable, with respect to fulfilling orders, will not only generate ill-will with customers where errors are made, but will also incur higher cost due to rework and processing of customer complaints. This measurement monitors the accuracy of the provisioning work performed by the ILEC, in response to CLEC orders. When the ILEC provide the comparable measure for its own operation then it is possible to know if provisioning work performed for CLECs is at least as that performed by the ILEC for its own retail local service operations.
Measurement Methodology:	**Percent Order Accuracy = (Σ Orders Completed w/o Error) / (ΣOrders Completed) x 100** **For CLEC Results:** For each order completed during the reporting period, the original account profile and the order that the CLEC sent to the ILEC are compared to the services and features reflected upon the account profile as it existed following completion of the order by the ILEC. An order is "completed without error" if all service attribute and account detail changes (as determined by comparing the original and the post order completion account profile) completely and accurately reflect the activity specified on the original and supplemental CLEC orders. "Total number of orders completed" refers to order completions received by the CLEC from the ILEC for each reporting dimension identified below. **For ILEC Results:** Same computation as for the CLEC with the clarifications noted below. **Other Clarifications and Qualification:** • **Order Supplements -** If the CLEC initiates any supplements to the originally submitted order, for the purposes of reflecting changes in customer requirements, then the cumulative effect of the initial order and all the supplemental orders will be the compared with differences determined by comparison of the pre- and post order completion account profiles. • **Completion Notices -** To the extent that the ILEC supplies a completion notice containing sufficient information to perform validation of the order accuracy, then the Completion Notice information can be utilized in lieu of the comparison of the "before" and "after" account profiles. Use of the completion notice for this purpose would need to be at the mutual agreement of the ILEC and the CLEC. **All Orders -** The comparison is between the CLEC order and the account profile as it existed before and after order completion. • **Service Profile -** If a sample is employed for this measurement, then the ILEC should also be prepared, if requested, to provide the percentage distribution of order activity types represented within each service type for both the ILEC and CLEC sample. Sampling may be utilized to establish order accuracy provided the results produced are consistent with the reporting dimensions specified, the sample methodology is disclosed in advance and reflects generally accepted sampling methodology, and the sampling process may be audited by the CLEC.

Service Quality Measurements

Measurement Detail

Reporting Dimensions:	**Excluded Situations:**
• Service - Standard Service Groupings (See Appendix A)	• Orders canceled by the CLEC • Order Activities of the ILEC associated with internal or administrative use of local services.
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Percentage Order Accuracy • Service Type • Geographic Scope	• Report Month • Percentage Order Accuracy • Service Type • Geographic Scope
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Completed CLEC orders, by reporting dimension, are accurate no less than 99% of the time.

Service Quality Measurements
Measurement Detail

Function:	**Order Status**
Business Implications:	When a customer calls their service provider, they expect to get information promptly regarding the progress on their order(s). Likewise, when changes must be made, such as to the expected delivery date, customers expect that they will be immediately notified so that they may modify their own plans. A service provider that cannot fulfill such expectations will generate customer dissatisfaction. Lengthy delays in exchange of status information will result in the delay of other customer affecting activities: Inside wiring activity is often not confirmed until the firm order confirmation is returned, and customer billing will not be initiated until the CLEC receives the order completion notice, to cite two examples of impact. The order status measurements monitor, when compared to the ILEC result, that the CLEC has timely access to order progress information so that the customer may be updated or notified, early on, when changes and rescheduling are necessary. Furthermore, the "% jeopardies returned" measure for the CLEC, when reported in comparison to the ILEC result, will gauge whether initial commitments to the CLEC for order processing are at least as reliable as the commitments the ILEC makes for its own operations.
Measurement Methodology:	Order status intervals measure the elapsed time necessary to provide a notice to the CLEC that an "unexpected" condition has been encountered when processing an order. Order status includes notification of order rejection due to violation of order content or syntax requirements, confirmation of order acceptance, jeopardy of an order due to the inability to complete work as originally committed and work completion notification. The interval required to supply each of these four preceding major categories of status must be separately monitored and reported. **Reject Interval = Σ[(Date and Time of Order Rejection) - (Date and Time of Order Acknowledgment)]/(Number of Orders Rejected in Reporting Period)** Reject Interval is the elapsed time between the ILEC receipt of an order from the CLEC to the ILEC return of a notice of a syntax rejection to the CLEC. The time measurement starts when the ILEC accepts (acknowledges) the order from the CLEC. The time measurement stops when the ILEC returns a rejection notice to the CLEC. The elapsed time is accumulated by order type with the resulting accumulated time then divided by the count of rejected orders associated with the particular service and order type. **FOC Interval = Σ[(Date and Time of Firm Order Confirmation) - (Date and Time of Order Acknowledgment)]/(Number of Orders Confirmed in Reporting Period)** Interval for Return of a Firm Order Confirmation (FOC Interval) is the elapsed time between the ILEC acceptance of a syntactically correct order and the return of a confirmation to the CLEC that the order will be worked as submitted or worked with the modifications specified on the confirmation. The time measurement starts when the ILEC accepts (acknowledges) the order from the CLEC. The time measurement stops when the ILEC returns a valid firm order confirmation to the CLEC. The elapsed time is accumulated by order type with the resulting accumulated time then divided by the count of orders associated with the particular service and order type. **Jeopardy Interval = Σ[(Date and Time of Committed Due Date for the Order) -**

(Date and Time of Jeopardy Notice)]/(Number of Orders Jeopardized in Reporting Period)

Jeopardy Interval is the remaining time between the pre-existing committed order completion date and time (communicated via the FOC) and the date and time the ILEC issues a notice to the CLEC indicating an order is in jeopardy of missing the due date. The scheduled completion time will be assumed to be 5:00 p.m. local time unless other information is communicated in the FOC. The date and time of the jeopardy notice delivered by the ILEC is subtracted from the scheduled completion date to establish the jeopardy interval for any order placed in jeopardy. The jeopardy interval is accumulated by standard order activity with the resulting accumulated time then divided by the count of orders associated with the particular service and standard order activity.

Completion Interval = Σ[(Date and Time of Notice of Completion Issued to the CLEC) - (Date and Time of Work Completion by ILEC)]/(Number of Orders Completed in Reporting Period)

Completion Notice Interval is the elapsed time between the ILEC technician's reported completion of physical work and the issuance of a valid completion notice to the CLEC. Where physical work is not required, such as in the case of software-only changes, the elapsed time will be measured beginning at 5:00 p.m. local time of the date for the committed completion and will end when the ILEC returns a valid completion notice to the CLEC. If a valid completion notice is returned before 5:00 p.m. on the committed completion date and no physical work is involved, then the elapsed time will be recorded as 1/10 hour. The elapsed time is accumulated by order type with the resulting accumulated time then divided by the count of orders associated with the particular service and order type.

% Jeopardies = (Number of Orders Jeopardized in Reporting Period)/(Number of Orders Confirmed in Reporting Period)

Percentage Jeopardies Returned is the percentage of total orders processed for which the ILEC notifies the CLEC that the work will not be completed as committed on the original FOC. The measurement result is derived by dividing the count of jeopardy notices the ILEC issues to the CLEC by the count of FOC returned by the ILEC during the identical period. Both the "Number of Orders Jeopardized in Reporting Period" and "Number of Orders Confirmed in Reporting Period" are utilized in other status measurement computations.

For ILEC Results: Same computation as the CLEC with the clarifications outlined below.

Other Clarifications and Qualification:

- When the ILEC processes orders for a CLEC via different interfaces (e.g., ASR and EDI) then the preceding measurement must be computed for each interface arrangement.
- All intervals are measured in hours and hundredths of hour rounded to the nearest hundredth.
- Because this should be a highly automated process, the accumulation of elapsed time continues through off-schedule, weekends and holidays.
- "Syntactically correct" means all fields required to process an order are

	populated and reflect the correct format. • The ILEC service agent's attempt to submit an order for processing by the ILEC OSS is considered equivalent to the ILEC acknowledgment of the CLEC's 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. • Return of any information (e.g., order recapitulation) to the ILEC customer service agent that indicates the order can be processed, is the equivalent of the ILEC return of a FOC to the CLEC. • 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. • Automatic logging of work completion and manual logging of work completion, whether input to directly to the ILEC OSS or into an intermediate storage devise, is consider the equivalent of the return of a completion notice to the CLEC.

Reporting Dimensions:	**Excluded Situations:**
• Standard Order Activities (See Appendix A) • Geographic Scope	• Rejection Interval - None • Jeopardy Interval - None • Firm Order Confirmation Interval - None • Completion Notification Interval - None • Percentage Jeopardies Returned - None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Order Number • Order Submission Date • Order Submission Time • Status Type (Rejection, FOC, Jeopardy Type, Completion Notice) • Status Notice Date • Status Notice Time • Standard Order Activity • Geographic Scope	• Report Month • Status Type (Rejection, FOC, Jeopardy Type, Completion Notice) • Average Status interval • Standard error of status interval • Standard Order Activity • Geographic Scope

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • no less than 97% of Rejects in a reporting period are returned within 15 seconds • all Firm Order Confirmations are returned within 4 hours • no less than 97% of order completions are returned within 30 minutes of work completion • no less than 97% of Jeopardies should be received by the CLEC a minimum of 2 business days prior to the due date indicated on the final FOC • no more than 5% of the total number of orders should result in a Jeopardy in any given report period

Service Quality Measurements
Measurement Detail

Function:	**Held Orders**
Business Implications:	Customers expect that work will be completed when promised. Therefore, when delays occur in completing CLEC orders, there must be assurances that the average period that CLEC orders are held, pending a delayed completion, is no worse for the CLEC when compared to ILEC orders.
Measurement Methodology:	**Held Order Interval = Σ(Reporting Period Close Date - Committed Order Due Date) / (Number of Orders Pending and Past The Committed Due Date) for all orders pending and past the committed due date** **For CLEC Results:** 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" via a valid completion notice and have passed the currently "committed completion date" for the order. For each such order the number of calendar days between the committed completion 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 standard service grouping and reason for the order being held, if identified.) The total number of day accumulated in a category is then divided by the number of held orders within the same category to produce the mean held order interval. **(# of Orders Held for ≥ 90 days) / (Total # of Orders Pending But Not Completed) x 100** **(# of Orders Held for ≥ 15 days) / (Total # of Orders Pending But Not Completed) x 100** This "percentage orders held" measure is complementary to the held order interval but is designed to detect orders continuing in a "non-completed" state for an extended period of time. Computation of this metric utilizes a subset of the data accumulated for the "held order interval" measure. All orders, for which the "held order interval" equals or exceeds 90 (or 15) days, are counted by service type. The total number of pending and past due orders for the same service type are counted (as was done for the held order interval) and divided into the count of orders held past 90 (or 15) days. **For ILEC Results:** Same computation as for the CLEC with the clarifications provided below.. **Other Clarifications and Qualification:** • The "held order" measure established by some state commissions as part of minimum service standards is analogous to this proposed measure but, because it is typically limited to monitoring only those orders held because of facility shortages, needs to be expanded to include all reasons that an order is past due. • **Order Supplements -** 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. • See "Order Status" measurement definitions for discussion of the ILEC analog to a completion notice.

	• The held order interval is measured in calendar rather than business days.
Reporting Dimensions:	**Excluded Situations:**
• Service - Standard Service Groupings (See Appendix A) • Reason for Hold (no facilities, no equipment, workload, other) • Geographic Scope	• Any orders canceled by the CLEC will be excluded from this measurement. • Order Activities of the ILEC associated with internal or administrative use of local services
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Order Number • Committed Due Date • Order Submission Date • Service Type • Hold Reason • Geographic Scope	• Report Month • Average Held Order Interval • Standard Error for Average Held Order. Interval • Service Type • Hold Reason • Geographic Scope
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Less than 0.1% of orders held for more than 15 calendar days • No orders held for more than 90 calendar days

Service Quality Measurements
Measurement Detail

Maintenance and Repair (MR)

Function:	**Time To Restore**
Business Implications:	Customers expect prompt restoral of service to the normal operating parameters whenever troubles are detected. The longer the time required to correct a service problem, the greater the customer dissatisfaction. This measure, when collected for both the CLEC and ILEC and compared, monitors that CLEC maintenance requests at least as quickly as ILEC maintenance requests.
Measurement Methodology:	**Mean Time To Restore = Σ[(Date and Time of Ticket Closure)-(Date and Time of Ticket Creation)] / (Count of Trouble Tickets Closed in Reporting Period)** **For CLEC Results:** The restoral interval for resolution of customer requested maintenance and repair is the elapsed time, measured in hours and tenths of hours, measured from the CLEC logging a trouble ticket with the ILEC, regardless of the ultimate resolution of the trouble, to the time the ILEC returns a valid trouble resolution notification to the CLEC. The elapsed time is accumulated by service type and trouble disposition for the reporting period. The accumulated time is divided by the count of maintenance tickets reported as resolved by the ILEC (by service type and trouble disposition and cause) during the report period. **For ILEC Results:** Same computation as for the CLEC. **Other Clarifications and Qualification:** • This measure is analogous to the Out Of Service Measure of the ILEC with the exception that all trouble causes are monitored and that the average time to restore is reported rather than a comparison to a target (the same underlying data is required for both computations) • Elapsed time is measured on a 24 hour day, seven days a week basis. The time is measured in hours and hundredths of hours rounded to the nearest hundredth hour. • Multiple reports for the same customer service are treated as separate incidents. • "Restore" means to return to the normally expected operating parameters for the service regardless of whether or not the service, at the time of trouble ticket creations, was operated in a degraded mode or was completely unusable. • A trouble ticket or trouble report is any record (whether paper or electronic) by the ILEC for the purpose of monitoring action and disposition of a service repair or maintenance situation. • ILEC acceptance of a trouble by the call receipt agent is considered equivalent to the CLEC logging or submitting a trouble to the ILEC. • The ILEC closure of a trouble ticket (whether automatic or manual) is considered equivalent to returning a trouble resolution notice to the CLEC.

Reporting Dimensions:	**Excluded Situations:**
• Service - Standard Service Groupings (See Appendix A) • Disposition and Cause (See Appendix A) • Geographic Scope	• 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.

Service Quality Measurements
Measurement Detail

	• Subsequent Reports (additional reports on an already open ticket).
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Ticket Completion Time • Ticket Completion Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Disposition and Cause • Geographic Scope	• Report Month • Average Restoral Interval • Standard Error for the Average Restoral Interval • Service Type • Disposition and Cause • Geographic Scope
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Out of Service conditions where dispatch is required: •≥90% resolved within 4 hours •≥95% resolved within 8 hours •≥99% resolved within 16 hours • Out of Service conditions where no dispatch is required: •≥85% resolved within 2 hours •≥95% resolved within 3 hours •≥99% resolved within 4 hours • ≥ all other troubles resolved within 24 hours

Service Quality Measurements
Measurement Detail

Function:	**Frequency of Repeat Troubles**
Business Implications:	Customers are keenly aware of the effectiveness of repair activities. First time troubles are sufficiently annoying and disruptive. When the trouble recurs within a short time frame it is even more dissatisfying. This measurement, when gathered for both the ILEC and CLEC can establish whether or not CLECs are competitively disadvantaged (vis-à-vis the ILEC) as a result of experiencing more frequent occurrence of customer troubles not being resolved in the first attempt to repair the trouble. Differences in this measure may indicate that the CLEC is receiving inferior maintenance support in the initial resolution of troubles or, in the alternative, it may indicate that the network components supplied are of inferior quality.
Measurement Methodology:	**Repeat Trouble Rate = (Count of Service Access Line Generating More Than One Trouble Within a Continuous 30 Day Period) / (Number of Reports in the Report Period) x 100** **For CLEC Results:** The repeat trouble rate measure is computed by accumulating the number of instances where a trouble ticket is submitted by a CLEC to the ILEC for a service arrangement that had at least one prior trouble ticket any time in the 30 calendar days preceding the creation of the current trouble ticket. The number of repeat troubles are accumulated for the reporting period by service type. The count of repeat troubles, by service type, is divided by the count of initial trouble reports (by service type) received during the report period. **For ILEC Results:** Same computation as for CLECs. **Other Clarifications and Qualification:** • No trouble types excluded (for example, trouble dispositions of "no access" are included) • Unbundled loops or UNE combination involving and unbundled loops are considered a "service access line". • The "same service arrangement" means a trouble report being reported for the same telephone number or the same circuit identifier. • The trouble resolution need not be identical between the repeated reports for the incident to be counted as a repeated trouble.

Reporting Dimensions:	**Excluded Situations:**
• Service - Standard Service Groupings (See Appendix A) • Disposition and Cause (See Appendix A) • Geographic Scope	• 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. • Subsequent trouble report(s) on a maintenance ticket that has (have) not been reported as resolved (or closed)

Service Quality Measurements

Measurement Detail

Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Ticket Completion Time • Ticket Completion Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Disposition and Cause • Geographic Scope	• Report Month • % repeat trouble • Service Type • Disposition and Cause • Geographic Scope

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Less than 1% of trouble reports, by service type, experience a repeat report, regardless of the trouble disposition, within a 30 day period.

Service Quality Measurements
Measurement Detail

Function:	**Frequency of Troubles (Troubles per 100 lines)**
Business Implications:	Customers demand high quality of service performance from their supplier and differentials in performance are quickly recognized throughout the market place. Poor performance is difficult to overcome and may require lengthy periods of sustained superb performance in order to re-establish a product image that has been tarnished. When measured for both the ILEC and CLEC and compared, this measure can be used to establish that CLECs are not competitively disadvantaged, compared to ILEC, as a result of experiencing more frequent incidents of trouble reports. Disparity in this measure may indicate differences in the underlying quality of the network components supplied.
Measurement Methodology:	**Trouble Rate = (Count of Initial & Repeated Trouble Reports in the Current Period) / (Number of Service Access Line in Service at End of the Report Period) x 100** **For CLEC Results:** The frequency of trouble metric is computed by accumulating, by standard service grouping and disposition and cause, the total number of maintenance tickets logged by a CLEC (with the ILEC) during the reporting period. The resulting number of tickets for each disposition and cause is accumulated within each standard service grouping, is divided by the total number of "service access lines" existing for the CLEC at the end of the report period. **For ILEC Results:** Same calculation as for the CLEC with the clarifications provided below. **Other Clarifications and Qualification:** • This measure is frequently a minimum service standard required by state commissions for monitoring ILEC performance. • There are no trouble types that are excluded from this measurement. • Unbundled loops or UNE combinations involving unbundled loops would be counted as a "service access line". • See the "Time to Restore" measurement for a discussion of the ILEC equivalent of "trouble tickets" and "trouble logging".

Reporting Dimensions:	**Excluded Situations:**
• Standard Service Groupings (See Appendix A) • Disposition and Cause (See Appendix A) • Geographic Scope	• 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 a ticket be "held open" for monitoring.

Service Quality Measurements
Measurement Detail

Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Ticket Completion Time • Ticket Completion Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Disposition and Cause • Geographic Scope	• Report Month • Trouble Rate • Service Type • Disposition and Cause • Geographic Scope
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Less than 1.5% of lines, by service type, experience a trouble in a report period.

Service Quality Measurements
Measurement Detail

Function:	**Estimated Time To Restore Met**
Business Implications:	When customers experience trouble on working services, they naturally expect the services to be restored within the time frame promised. When such commitments are not fulfilled, an already unsatisfactory condition, in the customer's eyes, becomes even worse. When this measure is collected for the ILEC and CLEC and then compared, it can be used to establish that CLECs are receiving equally reliable (as compared to the ILEC operations) estimates of the time required to complete service repairs.
Measurement Methodology:	**Percentage of Customer Troubles Resolved Within Estimate = (Count of Customer Troubles Resolved By The Quoted Resolution Time and Date) / (Count of Customer Troubles Tickets Closed) x 100** **For CLEC Results:** The computation of the measure is as follows: The quoted repair completion date and time is compared to the actual repair date and time (ticket closure as defined in Time to Restore metric). In each instance where the actual repair date and time is on or before the initially provided estimated or quoted date and time to restore, the count of "troubles resolved within estimate" is incremented by one for the relevant "service type" and "disposition and cause". The resulting count is divided by the total number of troubles resolved (for the consistent service type - disposition and cause), for the report period, where a estimated interval was provided or a standard interval existed. **For ILEC Results:** Same as for CLEC. **Other Clarifications and Qualification:** • The ILEC analog for this measure is derived by comparing the actual date and time of ILEC trouble ticket closure compared to the projected trouble clearance date and time established through the ILEC agent's on-line interaction with the work management system of the ILEC, regardless of whether or not the ILEC currently quotes this information to its retail customer. • There are no trouble types that are excluded from this measurement. • See the "Time To Restore" measurement for discussion of analogous ILEC maintenance activities (e.g., trouble resolution). • The "quoted" or "estimated" time to restore is the actual schedule time projection returned by the ILEC work management system or the standardized repair interval that the ILEC uses for its own operations when equivalent service arrangements are involved. • If the ILEC supplies only the estimated repair interval, then the estimated date and time of repair is determined by adding the repair interval to the date and time that the CLEC logged the repair request with the ILEC.

Reporting Dimensions:	**Excluded Situations:**
• Service - Standard Service Groupings (See Appendix A) • Disposition and Cause (see Appendix A) • Geographic Scope	• 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 a ticket be "held open" for monitoring.

Service Quality Measurements

Measurement Detail

Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • CLEC Ticket # • Ticket Submission Time • Ticket Submission Date • Ticket Completion Time • Ticket Completion Date • Service Type • WTN or CKTID (a unique identifier for elements combined in a service configuration) • Disposition and Cause • Geographic Scope	• Report Month • Percentage of Customer Troubles Resolved Within Estimate • Service Type • Disposition and Cause • Geographic Scope

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Greater than 99% of a maintenance problems, by service type, are corrected by the quoted or estimated date and time of repair.

Service Quality Measurements
Measurement Detail

General (GE)

Function:	**Systems Availability**
Business Implications:	Access to essential business functionality, supported by OSS of the ILEC, is absolutely essential to CLEC operations. This measure monitors that such OSS functionality is at least as accessible to the CLEC as to the ILEC.
Measurement Methodology:	**% System Availability = [(Hours Functionality is Available to CLECs During Report Period) / (Number of Hours Functionality was Scheduled to be Available During the Period)] x 100** **For CLEC Results:** The total "number of hours functionality was scheduled to be available" is the cumulative number of hours (by date and time on a 24 hour clock) over which the ILEC planned to offer and support CLEC access to ILEC OSS functionality during the reporting period. The ILEC 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 advance notice then the default availability for the subsequent reporting period will be seven days per week, 24 hours per day. "Hours Functionality is Available" is the actual number of hours, during scheduled available time, that the ILEC gateway or interface is capable of accepting CLEC transactions or data files for processing in the gateway / interface and supporting OSS. The actual time available is divided by the scheduled time available and then multiplied by 100 to produce the "% system availability" measure. The "% system availability" measure is required for each unique interface type offered by the ILEC . **For ILEC Results:** Each OSS of the ILEC that is employed in the support of CLEC operations must first be identified by supported functional area (e.g., pre-ordering, ordering and provisioning, repair and maintenance and billing) with such mapping disclosed to the CLECs. The "available time" and "scheduled available time" is gathered for each of the identified ILEC OSS during the report period. The OSS function availability is computed based upon the weighted average availability of the subtending support OSS. That is, the available time for each OSS supporting a functional area is accumulated over the report period and then divided by the summation of the scheduled available time for those same supporting OSS. **Other Clarifications and Qualification:** • The ILEC analogs for this performance measure are the internal measures of system downtime (up time) typically established between the ILEC Systems Management Organization and the client organizations. • OSS scheduled and available time may be utilized in the computation of more than one functional area. • Parity exists if the CLEC "% system availability" ≥ ILEC function availability for the functionality accessed by the CLEC. • "Capable of accepting" must have a meaning consistent with the ILEC definition of down time, whether planned or unplanned, for internal ILEC systems having a comparable potential for customer impact. • Time is measured in hours and tenths of hours rounded to the nearest tenth of an hour.