

VI. Maintenance and Repair Domain Results and Analysis

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A. Test Results: End-to-End M&R Process Evaluation (PPR14)

1.0 Description

The End-to-End Maintenance and Repair (M&R) Process Evaluation (PPR14) assessed the functional equivalence of BellSouth's M&R processing for wholesale and retail trouble reports. The end-to-end M&R process includes all activities from the moment a trouble repair call is received by the repair receipt bureau or a trouble ticket is captured in BellSouth's systems until the same trouble is closed and the customer is notified of the resolution.

Additionally, this test reviewed wholesale and retail process flows and related methods and procedures adhered to by the various BellSouth M&R work centers involved in the end-to-end M&R process. These activities were performed to assess whether there are substantive differences between BellSouth retail and wholesale M&R processes and to identify any differences between the processes practiced in the related work centers.

2.0 Business Process

This section describes BellSouth's M&R end-to-end business process for wholesale and retail work centers.

2.1 Business Process Description

2.1.1 M&R End-to-End Business Process Description – ALEC/Wholesale

Alternative Local Exchange Carriers (ALECs) contact the BellSouth Customer Wholesale Interconnection Network Services (CWINS) Center with M&R concerns. The CWINS Center serves as the single point of contact for ALECs verbally reporting troubles. Alternately, ALECs may initiate trouble reports electronically through the Trouble Analysis Facilitation Interface (TAFI) or the Electronic Communications Trouble Administration (ECTA) gateway.

TAFI is a Telnet protocol that ALECs can access through either a LAN-to-LAN or dial up connection in order to electronically enter trouble reports for non-designed Unbundled Network Element (UNE), UNE-Platform (UNE-P), and Resale circuits. TAFI serves as an interface to the Loop Maintenance Operating System (LMOS). ALECs obtain access to TAFI through their account team and attend TAFI user training sessions. TAFI allows ALECs to create, change, modify, close and check status on reported troubles. TAFI also allows ALECs to view repair history information within each trouble ticket. The CWINS Center assists ALECs with basic questions regarding the use of TAFI; however, the center does not serve as a TAFI user help desk.

ECTA is a high end electronic bonding system that ALECs may access in order to electronically enter trouble reports for both non-designed, designed UNE and Resale circuits. In order to receive ECTA functionality, ALECs must develop a gateway-to-gateway interface with BellSouth. The ECTA gateway interfaces with LMOS for non-designed related services and with the Work Force Administration/Control (WFA/C) system for designed services. Both non-designed and designed UNE circuits are inventoried with serialized circuit numbers rather than telephone numbers. ECTA allows ALECs to create, change, modify, close and check status on reported troubles. ECTA also allows ALECs to view repair history information within each

trouble ticket. Although ECTA supports the submission of both non-designed and designed services trouble tickets, most ALECs do not use ECTA to report non-designed services trouble because of the cost associated with the development of this functionality.

For non-designed related services inventoried with a 10-digit telephone number in LMOS, the ALEC using TAFI or ECTA has the ability to perform a Mechanized Loop Test (MLT) without the generation of a trouble report to identify and isolate the fault.

ALEC troubles reported via telephone through the CWINS Center are handled by Electronic Technicians (ETs)³¹⁸. ETs are responsible for (i) identifying the type of trouble and affected network element; (ii) checking the trouble ticket to ensure that it was correctly entered; (iii) initiating an MLT if appropriate; (iv) providing the customer with a commitment for the completion of the repair; and (v) managing the repair process to closure.

Trouble tickets are created in different systems depending on whether they are non-designed or designed service type troubles. Non-designed and UNE-P trouble tickets affecting Plain Old Telephone Service (POTS) circuits are entered into TAFI which serves as the interface to LMOS. Designed trouble tickets for problems affecting Interoffice Facilities (IOF), UNEs, DS1 and DS3 circuits are entered into the WFA/C system. Troubles entered into LMOS are assigned specific handle codes while troubles entered into WFA/C are assigned Major Customer Number (MCP) codes that determine where the trouble ticket will be routed. These codes also enable BellSouth systems to distinguish between wholesale and retail customers and route trouble tickets to differentiated wholesale and retail groups within the Call Receipt Center (CRC).

Dispatch in (DI) troubles are routed through WFA/C to WFA/DI to the Workforce Management Center (WMC) for further trouble isolation, as necessary. The WMC dispatches the ticket to the central office to resolve the reported trouble. Upon repair, the ticket is closed within WFA/DI by the central office or WMC, and routed to the CWINS Center in WFA/C. The CWINS Center closes the trouble ticket in WFA/C and contacts the ALEC for customer notification.

Dispatch Out (DO) trouble reports are electronically delivered via WFA/DO to the WMC, which dispatches an outside technician to resolve the reported trouble. Trouble reports are dispatched on a due date and due time basis with no distinction made between wholesale and retail customer circuits. Troubles are prioritized based on (i) whether or not they are out of service trouble reports, and (ii) on system generated repair commitment dates and times.

ALEC customers may request expedites as well as escalate repair commitment times verbally with the CWINS Center. For troubles that require further investigation, such as an unclear cause of trouble, the ALEC may request a coordinated vendor meet at either a field location or in the central office. When such a request is made, BellSouth sends a technician to meet with the ALEC to locate the cause of the trouble for repair by either organization.

2.1.2 M&R End-to-End Business Process Description – Retail

BellSouth residential, large business and small business retail customers report trouble calls to Residence Repair Centers (RRCs), Business Repair Centers (BRCs) and Small Business Telecommunication Centers (SBTCs) respectively. The Customer Service Assistants (CSAs)

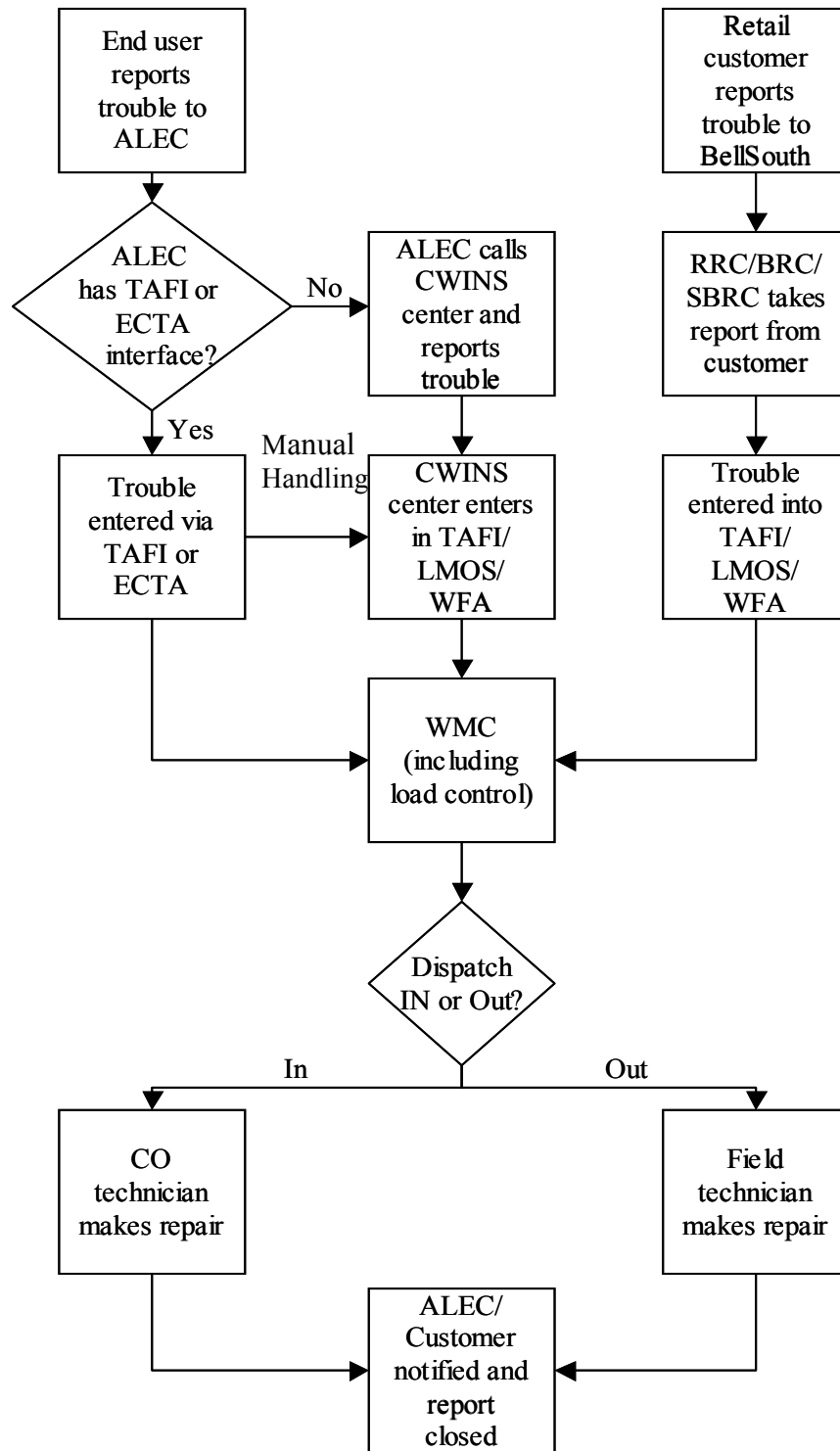
³¹⁸ BellSouth refers to CWINS Center M&R personnel either as ETs or Maintenance Administrators (MAs) depending upon the specific activity performed in the CWINS Center. This final report will refer to all BellSouth CWINS Center M&R personnel as ETs.

within the RRCs, Maintenance Administrators (MAs) within the BRCs, and Sales Associates (SAs) within the SBTCs create a repair ticket in either LMOS via TAFI or WFA/C systems. Once a trouble report is entered, the ticket follows the same resolution process as described above for ALEC faults until the matter is resolved.

The retail business process flow is consistent with the wholesale process flow to escalate and expedite trouble tickets and to coordinate vendor meets. The retail closure reporting procedure differs slightly from the wholesale procedure. A BellSouth technician notifies the customer directly for retail ticket closure confirmation after completing the closeout. For wholesale POTS service, the BellSouth technician contacts the ALEC for ticket closure confirmation and the ALEC then notifies its customer. For Designed Services, the CWINS Center contacts the ALEC for ticket closure confirmation and the ALEC then notifies its customer.

Figure 14-1 below illustrates BellSouth's end-to-end M&R process flow for wholesale and retail customers.

Figure 14-1: BellSouth End-to-End Process Flow



3.0 Methodology

3.1 Scenarios

Scenarios were not applicable to this test.

3.2 Test Targets & Measures

The test target for BellSouth's End-to-End M&R Process Evaluation (PPR14) was retail and wholesale work centers, which included reviews of the following processes and sub-processes:

- ◆ End-to-End M&R Process Flow: Resale;
 - ◆ Process flow documentation;
 - ◆ Process evaluation;
- ◆ End-to-End M&R process flow: UNE/UNE-P;
 - ◆ Process flow documentation;
 - ◆ Process evaluation; and
- ◆ Capacity management processes and procedures.

3.3 Data Sources

The data collection performed for this test entailed (i) interviews with and observations of BellSouth retail and wholesale center personnel with direct responsibility and knowledge of the processes and procedures targeted for review, and (ii) reviews of BellSouth end-to-end M&R process documentation for retail and wholesale work centers. Primary sources of documentation reviewed include:

- ◆ Trouble reporting procedures;
- ◆ Trouble handling procedures;
- ◆ Trouble ticket coding procedures;
- ◆ Trouble ticket prioritization criteria;
- ◆ Trouble analysis and isolation process procedures;
- ◆ Trouble ticket dispatch procedures;
- ◆ Trouble ticket closing procedures;
- ◆ Expedite and escalation procedures;
- ◆ Vendor meet procedures;
- ◆ Coordinated testing procedures;
- ◆ Documentation development and distribution procedures;
- ◆ Work center performance reports; and
- ◆ Forecasting and scheduling procedures.

3.4 Data Generation/Volumes

This test did not rely on data generation or volume testing.

3.5 Evaluation and Analysis Methods

BellSouth end-to-end M&R procedures were reviewed and evaluated according to targets established by KPMG Consulting. The following provides additional detail on the testing methods used to conduct the End-to-End M&R Process Evaluation (PPR14):

- ◆ BellSouth interviews – KPMG Consulting conducted on-site interviews with management and staff with direct responsibility for and knowledge of targeted processes at the following retail and wholesale M&R work centers: (i) BRC; (ii) central office; (iii) CWINS Center; (iv) Executive Customer Care Group (ECCG); (v) Load Control Center (LCC); (vi) Regional Force Management Center (RFMC); (vii) RRC; and (viii) SBTC.
- ◆ ALEC interviews – KPMG Consulting conducted interviews with ALECs that provide service in the BellSouth operating area and interact on an on-going basis with BellSouth CWINS Centers.
- ◆ Observations – KPMG Consulting performed observations of personnel at the work centers outlined above performing trouble processing activities. These observations were conducted in order to identify substantive differences between the processes practiced in the work centers and those processes defined in BellSouth's methods and procedures (M&P) documentation.
- ◆ Documentation review – KPMG Consulting conducted a review of process flow documentation, methods and procedures, and performance data related to end-to-end business operations.

The End-to-End M&R Process Evaluation (PPR14) included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the BellSouth OSS Evaluation. These evaluation criteria provided the framework of norms, standards, and guidelines for the End-to-End M&R Process Evaluation (PPR14).

The data collected were analyzed employing the evaluation criteria referenced in Section 4.1 below.

4.0 Results

This section contains the overall test results.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 14-1. For additional exception and observation information, refer to Appendices D and E, respectively. The test criteria and results are presented in Table 14-2.

Table 14-1: PPR14 Exception and Observation Count

Activity	Exceptions	Observations
Total Issued	1	4
Total Disposed as of Final Report Date	1	4
Total Remaining Open as of Final Report Date	0	0

Table 14-2: PPR14 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
PPR14-1	M&R process flows relating to trouble reporting and handling activities are comparably accessible to BellSouth wholesale and retail work center personnel.	Satisfied	<p>M&R process flows relating to trouble reporting and handling activities are comparably accessible to BellSouth wholesale and retail work center personnel through intranet access.</p> <p>BellSouth retail and wholesale work center personnel have access to M&R method and procedure documentation through an intranet-based document repository called the Corporate Documentation and Information Access (CDIA) system.</p> <p>As procedures change, updates are distributed via email to wholesale and retail center personnel to alert them of the change. The updates are posted on the intranet-based document repositories prior to the implementation of any procedural change.</p> <p>KPMG Consulting reviewed the following BellSouth documents:</p> <ul style="list-style-type: none"> ◆ Local Operating Procedures: Document and Data Control; ◆ Overview – Maintenance and Repair Process; ◆ Electronic Bonding Network and Carrier Services; ◆ UNE Designed Maintenance Process Flow; and ◆ Call Receipt & Non-Designed Screening – UNE Maintenance. <p>KPMG Consulting found that these documents describe procedures for accessing M&Ps related to trouble reporting and handling activities that are designed to produce equivalent levels of service for both ALECs and retail end user customers.</p> <p>KPMG Consulting observed BellSouth wholesale and retail work center personnel accessing and</p>

Test Reference	Evaluation Criteria	Result	Comments
			following M&Ps on the intranet-based document repositories, as defined in the documents above.
PPR14-2	M&R procedures for developing, updating, and distributing documentation related to trouble reporting and handling activities are comparably administered between wholesale and retail work centers.	Satisfied	<p>BellSouth has a dedicated personnel group responsible for developing, updating, improving and distributing M&R process documentation related to trouble reporting and handling activities for wholesale and retail work centers.</p> <p>Additionally, wholesale call receipt centers have a process improvement team responsible for recommending new M&R processes.</p> <p>KPMG Consulting reviewed the following BellSouth documents:</p> <ul style="list-style-type: none"> ◆ Local Operating Procedures: Document and Data Control; ◆ Quality Control Group; and ◆ Resale Maintenance – Quality Inspection Review. <p>KPMG Consulting found that these documents describe the procedures for developing, updating and distributing documentation related to trouble reporting and handling activities. KPMG Consulting also found that this documentation is designed to produce equivalent levels of service for both ALECs and retail end user customers.</p>
PPR14-3	M&R trouble handling activities and processes are comparably administered between wholesale and retail work centers.	Satisfied	<p>BellSouth’s M&R trouble handling activities and processes are comparably administered between wholesale and retail work centers.</p> <p>The CWINS Center is responsible for handling trouble reports from wholesale customers. ETs within the CWINS Center use TAFI and LMOS for non-designed tickets and the WFA/C system for designed tickets. Both non-designed and designed trouble tickets are assigned specific codes, which enable BellSouth systems to route the ticket to the dispatch group within the WMC.</p> <p>The RRC, BRC and SBTC are responsible for handling trouble reports from retail customers. CSAs and MAs within these centers use the same processes and operational support systems as the CWINS Center. In addition, both non-designed and designed trouble tickets within these centers are assigned specific codes, which enable BellSouth systems to route the ticket to the dispatch group</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>within the WMC.</p> <p>The WMC is the single point of contact for dispatch in and dispatch out activities for both wholesale and retail work centers and uses comparable trouble handling procedures for wholesale and retail customers. Codes assigned to non-designed trouble tickets enable BellSouth to distinguish between wholesale and retail customers.</p> <p>KPMG Consulting reviewed end-to-end BellSouth process flows for processing wholesale and retail trouble reports. KPMG Consulting found that once a trouble ticket is submitted into BellSouth’s M&R operational support systems, including LMOS and WFA, the M&R trouble resolution process is the same for wholesale and retail work centers.</p> <p>KPMG Consulting reviewed the following BellSouth documents, which describe trouble handling procedures that are designed to produce equivalent levels of service for both ALECs and retail end user customers:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; ◆ The BellSouth Start-Up Guide; ◆ BellSouth Interface Agreements; ◆ Call Receipt & Non-Designed Screening – UNE Maintenance; ◆ Resale Maintenance – Call Receipt; ◆ Electronic Bonding Network and Carrier Services; ◆ Resale Maintenance and Provisioning (Complex and POTS) Index; ◆ Resale Maintenance – Complex and Design: RPVO/RPVI, RPVR; ◆ Resale POTS and Non-Designed Maintenance Screening; ◆ Quality Control Group; and ◆ Resale Maintenance – Quality Inspection Review. <p>KPMG Consulting observed BellSouth retail and wholesale work center personnel process trouble reports. These activities were accurately and</p>

Test Reference	Evaluation Criteria	Result	Comments
			consistently performed, as defined in the documents referenced above.
PPR14-4	Customer dispute resolution procedures are comparably administered between wholesale and retail work centers.	Satisfied	<p>Customer dispute resolution procedures are similar and comparably administered between wholesale and retail work centers.</p> <p>When an ALEC representative or retail end user customer reports that service is not of sufficient quality or is down, but no trouble can be identified within the BellSouth network, more in-depth testing and trouble-shooting may be necessary.</p> <p>For wholesale troubles, ALECs are encouraged to ensure that the end user customer’s equipment is not at fault. If the service can be tested remotely, coordinated testing by the BellSouth electronic technician (ET) and the ALEC representative may be sufficient to locate the trouble. If the trouble remains, the ET or ALEC representative may suggest a vendor meet. In such a case, an ALEC technician, a BellSouth technician, and sometimes, a third party technician meet in the field or in the central office to test, troubleshoot, and repair the trouble.</p> <p>For retail troubles, end user customers are encouraged to conduct testing on their own equipment to verify that the trouble is not located on the customer side of the network interface. If the trouble cannot be located, the end user customer is notified of potential trouble isolation charges that may apply, and the ticket is dispatched to an outside technician for repair. In some cases, BellSouth’s call receipt personnel may also suggest a vendor meet with the retail customer’s equipment vendor to jointly locate, test, and resolve the trouble.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Escalation Procedures for the Unbundled Network Element (UNE) Center; ◆ Standard Customer Operations for Regional Excellence Initiative; ◆ Vendor/Joint Meets; ◆ Vendor/Agent Trouble Reporting/Resolution and Joint Testing Procedures fro the BCAC and IMC;

Test Reference	Evaluation Criteria	Result	Comments
			<ul style="list-style-type: none"> ◆ Mechanized Escalation Procedures/Policy/Job Aid; ◆ Network Services Contact Reference Screenshots; ◆ Network Services Regional Escalation Guidelines; ◆ Expedite Procedures Wholesale Services; ◆ BellSouth UNE Center Contacts and Escalation Guide; ◆ Control Office Administration of Special Services Trouble Reports; ◆ Electric Bonding Network and Carrier Services and; ◆ Call Receipt & Non-Designed Screening – UNE Maintenance. <p>KPMG Consulting found that this documentation defines trouble ticket dispute resolution procedures, including escalation, coordinated testing and vendor meet procedures that are designed to produce equivalent levels of service for both wholesale and retail customers.</p> <p>KPMG Consulting observed wholesale and retail work center personnel handling customer requests for escalations. These activities were consistently practiced, as defined in the documents referenced above.</p> <p>While conducting refresh interviews, KPMG Consulting found that RRC customers have access to a new escalation resource called the ECCG. The ECCG is responsible for investigating and responding to complaints from the Florida Public Service Commission (FPSC) and executive appeals from RRC customers.</p> <p>KPMG Consulting found that both the ECCG and CWINS center follow dispute resolution procedures that result in equivalent levels of service for both wholesale and retail customers.</p>
PPR14-5	M&R processes for collection and review of center performance data are comparably administered between	Satisfied	M&R processes for collection and review of performance data are comparably administered between wholesale and retail work centers through the same operational support systems and documentation.

Test Reference	Evaluation Criteria	Result	Comments
	wholesale and retail work centers.		<p>documentation.</p> <p>An Automated Call Distributor (ACD) and Operational Support Systems such as LMOS and WFA collect ALEC and retail end user customer trouble performance data. Discrete staff groups consolidate the actual and expected results into reports, which are distributed to center management on a regular basis.</p> <p>This performance data includes the following:</p> <p><u>Non-Designed Services</u></p> <ul style="list-style-type: none"> ◆ Average speed of call answer; ◆ Average receipt-to-pending; ◆ Percentage appointment met; and ◆ Percentage repeat reports. <p><u>Designed Services</u></p> <ul style="list-style-type: none"> ◆ Average speed of answer (DS0 only); ◆ Average serving bureau time; ◆ Average duration; and ◆ Percentage repeat reports (DS0 only). <p>Through interviews with wholesale and retail work center management, KPMG Consulting identified BellSouth procedures for monitoring and benchmarking center performance and found that these procedures are comparable for both wholesale and retail work centers.</p> <p>KPMG Consulting reviewed the following BellSouth documents:</p> <ul style="list-style-type: none"> ◆ Standard Customer Operations for Regional Excellence; ◆ Overview – Maintenance and Repair Process; ◆ CWINS Monthly Performance Measurements Reports; ◆ ECCG Complaints Summary; ◆ UNE Reports Page; ◆ UNE Skill Perform Report; and

Test Reference	Evaluation Criteria	Result	Comments
			<p>◆ Sound Financial Judgment.</p> <p>KPMG Consulting reviewed performance reports covering both wholesale and retail M&R work centers and found that the collection and review procedures for M&R performance data are designed to produce equivalent levels of service for both ALECs and retail end user customers.</p>
PPR14-6	Repair intervals are established, prioritized and comparably administered for wholesale and retail customers.	Satisfied	<p>Repair intervals are established, prioritized and comparably administered for wholesale and retail customers by the WMC.</p> <p>The WMC is responsible for meeting standardized repair intervals for both wholesale and retail work centers based upon the existing workload and technician availability. The WMC is the single point of contact for dispatch in and dispatch out activities for both wholesale and retail work centers.</p> <p>KPMG Consulting reviewed the following BellSouth documents:</p> <ul style="list-style-type: none"> ◆ Network Services “Dispatch Priority” and “Appointment Strategy”; ◆ Commitments and Appointments in TAFI Overview; ◆ Assigning Business TAFI Commitments; ◆ Overview – Maintenance and Repair Process; ◆ UNE Maintenance Targets; ◆ LMOS ADW Print Screens; ◆ Resale Maintenance – Complex & Designed PP, AP, ATC; ◆ Resale Maintenance – Complex and Design: RPVO/RPVI, RPVR; ◆ Designed Troubles in an RPVO/RPVI Status; ◆ Design Troubles in a PP, AP, or ATC Status; ◆ RPVI Status – Routing Troubles; and ◆ LMOS Codes and Procedures. <p>KPMG Consulting found that this documentation outlines the process for repair intervals for both wholesale and retail customers.</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>KPMG Consulting observed personnel in the wholesale and retail work centers providing standard repair intervals for both wholesale and retail work centers based upon technician availability as communicated by the WMC. These activities were accurately and consistently practiced, as defined in the documents referenced above.</p> <p>While conducting observations, KPMG Consulting found that BellSouth processes for responding to customer requests for earlier appointments in the CWINS Center differed from those in the BRC and SBTC, resulting in a disparity in service between wholesale and retail. As a result, KPMG Consulting issued Exception 35. In response, BellSouth created a standardized process outlining customer requests for earlier appointments, distributed documentation of the new process to wholesale and retail work center personnel, and conducted work center training sessions. KPMG Consulting reviewed the new documentation and observed employees following a standardized process. KPMG Consulting subsequently closed the exception.</p>
PPR14-7	Processes and procedures for severity coding of trouble tickets is comparably administered between wholesale and retail work centers.	Satisfied	<p>Processes and procedures for severity coding of trouble tickets is comparably administered between wholesale and retail work centers. Both wholesale and retail trouble tickets are categorized as either out-of-service or affecting service trouble.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Control Office Administration of Special Services Trouble Reports; ◆ UNE Work Types; ◆ WFA Analysis Codes; ◆ LMOS Codes and Procedures; ◆ Required Criteria for Trouble Receipt; ◆ Quality Control Group; ◆ Resale Maintenance – Quality Inspection Review; ◆ Electronic Bonding Network and Carrier Services; and

Test Reference	Evaluation Criteria	Result	Comments
			<ul style="list-style-type: none"> ◆ Timing of Acceptance, MARCH, Jep & MFC Codes, Completions, and Cancellation Policy. <p>KPMG Consulting found that this documentation defines the processes and procedures for severity coding of trouble tickets.</p> <p>KPMG Consulting observed BellSouth wholesale and retail work center personnel assign severity coding to wholesale and retail troubles. The severity coding was based upon the trouble type and initial test results. These activities were consistently practiced, as defined in the documents referenced above.</p>
PPR14-8	M&R processes for individual performance monitoring activities are comparably administered between wholesale and retail work centers.	Satisfied	<p>M&R processes for individual performance monitoring activities are comparably administered between wholesale and retail work centers.</p> <p>KPMG Consulting confirmed that both wholesale and retail work centers conduct employee performance reviews on a regular basis. Performance reviews are based upon individual Performance Management Plans (PMP). The PMP monitors employee performance through statistical data as defined in PPR14-5 above and observations conducted by center supervisors.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Standard Customer Operations for Regional Excellence Initiative; ◆ WMC 2000-2001 Appraisal Plan; ◆ ECCG Executive Escalation Competency; and ◆ ReportCard 2001. <p>KPMG Consulting found that this documentation establishes performance monitoring processes and activities for both retail and wholesale work centers.</p>
PPR14-9	Established processes for evaluating and adjusting resource levels are comparable between wholesale and retail work centers.	Satisfied	<p>Processes for evaluating and adjusting resource levels exist in BellSouth documentation and are applicable to both wholesale and retail.</p> <p>BellSouth wholesale and retail work centers use the ACD and operation support systems such as LMOS and WFA to generate call volume and trouble ticket information. The RFMC gathers volume data and produces forecasts for retail work centers.</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>Wholesale work centers and the WMC handle forecasting needs internally through dedicated resources. Each center uses the forecasts to evaluate and adjust wholesale and retail resource levels.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Standard Customer Operations for Regional Excellence Initiative; ◆ Business and Consumer Customer Services: Future Center Design Plan; and ◆ Installation and Maintenance Force Management Plan. <p>KPMG Consulting reviewed performance metric documentation from the ACD system and found that the necessary information to evaluate and adjust resources is captured and comparable between wholesale and retail work centers.</p>

5.0 Parity Evaluation

This section contains the parity evaluation for the End-to-End M&R Process Evaluation (PPR14).

5.1 Overview

In accordance with the Master Test Plan, KPMG Consulting evaluated the functional equivalence of BellSouth’s M&R processing for wholesale and retail trouble reports. The evaluation included an end-to-end analysis of BellSouth trouble ticket handling activities and related methods and procedures for wholesale and retail customers.

KPMG Consulting evaluated the following end-to-end M&R sub-process areas: trouble reporting and handling, trouble ticket coding, trouble ticket prioritization, dispute resolution, documentation, performance measurement and capacity management.

The evaluation was performed to identify and assess the differences between BellSouth’s wholesale and retail M&R work centers. When KPMG Consulting identified differences between BellSouth’s wholesale and retail work centers, KPMG Consulting found that the differences were attributable to variations in customers and products served at the respective centers.

Based on the analysis, KPMG Consulting determined that BellSouth’s wholesale and retail end-to-end M&R sub-processes are in parity.

5.2 Method of Analysis

KPMG Consulting conducted interviews with M&R wholesale and retail work center management and staff. The interviewees had direct responsibility for and knowledge of BellSouth end-to-end M&R processes and sub-processes.

KPMG Consulting also conducted observations of wholesale and retail work center personnel performing trouble-processing activities.

Finally, KPMG Consulting conducted a review of process flow documentation, methods and procedures, and performance data related to end-to-end business operations.

5.3 Results

A summary of the results of KPMG Consulting’s parity evaluation is presented in Table 14-3 below.

Table 14-3: PPR14 Parity Review

Process Area	Retail M&R Work Centers	Wholesale M&R Work Centers	Parity Evaluation
<p>Trouble Reporting and Handling</p>	<p>The RRC, BRC and SBTC are responsible for handling trouble reports from retail customers.</p> <p>CSAs within the RRC handle trouble receipt for residence and small business customers, while MAs within the BRC handle trouble receipt for business customers. Additionally, testing technicians (TTs) and MAs within the BRC are responsible for trouble analysis and isolation for business customers. MAs also provide screening for the SBTC when required.</p> <p>Retail work centers use TAFI and LMOS for non-designed tickets, and WFA/C for designed tickets. Additionally, retail work centers rely upon standardized BellSouth testing, account and service order systems to analyze and isolate troubles.</p>	<p>The CWINS Center is responsible for handling trouble reports from wholesale customers.</p> <p>ETs within the CWINS Center are responsible for trouble receipt, trouble analysis and trouble isolation for wholesale customers.</p> <p>The CWINS Center uses TAFI and LMOS for non-designed tickets, and WFA/C for designed tickets. Additionally, the CWINS Center relies upon the same BellSouth testing, account and service order systems to analyze and isolate troubles as retail work centers.</p> <p>For troubles that require a dispatch, trouble tickets are sent via TAFI to the dispatch group within the WMC. MAs within the WMC are responsible for performing further trouble analysis and/or dispatching to the central office or field.</p>	<p>Trouble reporting and handling within the wholesale and retail work centers are comparable.</p> <p>Both the retail and wholesale work centers have dedicated personnel responsible for trouble receipt, trouble analysis and trouble isolation.</p> <p>Additionally, retail and wholesale work centers rely upon the same systems (TAFI, LMOS, WFA and MLT) for trouble ticket receipt, analysis and isolation.</p> <p>While the retail work centers separate their trouble receipt and trouble-testing functions, the CWINS Center has a single resource responsible for performing both functions.</p> <p>Finally, the organization of the WMC as the single point of contact for dispatch in and dispatch out activities for both wholesale and retail work centers ensures comparable trouble handling procedures for wholesale and retail customers.</p>

Process Area	Retail M&R Work Centers	Wholesale M&R Work Centers	Parity Evaluation
	<p>For troubles that require a dispatch, retail work centers send trouble tickets to the WMC. MAs within the WMC are responsible for performing further trouble analysis and/or dispatching to the central office or field.</p> <p>Once a retail customer trouble is repaired, the BellSouth technician who performed the repair or the MA within the WMC is responsible for notifying the customer of the repair and closing the ticket within the respective operational support system.</p>	<p>field.</p> <p>Once a designed wholesale customer trouble is repaired, the ET within the CWINS Center is responsible for notifying the ALEC of the repair and closing the ticket within the respective operational support system. For non-designed troubles, the field technician closes the trouble report and notifies the ALEC.</p>	
<p>Trouble Ticket Coding</p>	<p>Retail work centers code trouble tickets based upon service type and trouble. The assigned codes are TAFI, LMOS and WFA/C-system specific.</p> <p>Additionally, both non-designed and designed retail trouble tickets are assigned specific codes, which enable BellSouth systems to route the ticket to the dispatch group within the WMC.</p>	<p>Wholesale work centers code trouble tickets based upon service type and trouble. The assigned codes are TAFI, LMOS and WFA/C-system specific.</p> <p>Additionally, both non-designed and designed wholesale trouble tickets are assigned specific codes, which enable BellSouth systems to route the ticket to the dispatch group within the WMC.</p>	<p>The processes, procedures and systems used for trouble ticket coding within the wholesale and retail work centers are comparable.</p> <p>Additionally, both wholesale and retail work centers generate trouble ticket codes enabling BellSouth systems to distinguish between wholesale and retail customers and route trouble tickets to the appropriate wholesale or retail screening group for the call receipt center.</p>
<p>Trouble Ticket Prioritization</p>	<p>The WMC is responsible for establishing standardized repair intervals based upon force-to-load modeling. Trouble tickets are handled according to the repair interval set by the WMC.</p> <p>BellSouth operational</p>	<p>The WMC is responsible for establishing standardized repair intervals based upon force-to-load modeling. Trouble tickets are handled according to the repair interval set by the WMC.</p> <p>BellSouth operational support systems distinguish</p>	<p>The processes, procedures and systems used for trouble ticket prioritization within the wholesale and retail work centers are comparable.</p> <p>Both the wholesale and retail work centers rely upon the WMC in order to receive standardized repair intervals.</p>

Process Area	Retail M&R Work Centers	Wholesale M&R Work Centers	Parity Evaluation
	<p>support systems distinguish between out-of-service and affecting service customer troubles. Out-of-service troubles receive a higher priority than affecting service troubles.</p> <p>Retail work centers handle incoming calls and trouble tickets in the order that they arrive. However, if an emergency exists, such as a medical emergency, retail work centers attempt to prioritize the trouble ticket. In such a case, retail work center personnel record the details of the emergency within the ticket narrative and contact the WMC to notify them of the emergency.</p> <p>In the event that a customer requests an earlier appointment, the retail work centers contact the WMC for approval before providing the customer with an earlier appointment.</p>	<p>between out-of-service and affecting service customer troubles. Out-of-service troubles receive a higher priority than affecting service troubles.</p> <p>Wholesale work centers handle incoming calls and trouble tickets in the order that they arrive. However, if an emergency exists, such as a medical emergency, wholesale work centers attempt to prioritize the trouble ticket. In such a case, wholesale work center personnel record the details of the emergency within the ticket narrative and contact the WMC to notify them of the emergency.</p> <p>In the event that a customer requests an earlier appointment, the wholesale work centers contact the WMC for approval before providing the customer with an earlier appointment.</p>	<p>Additionally, both the wholesale and retail work centers distinguish between out-of-service and affecting service customer troubles and prioritize these troubles respectively. These centers also prioritize emergency trouble tickets.</p> <p>In the event that a customer requests an earlier appointment, both the wholesale and retail work centers contact the WMC for approval before providing the customer with an earlier appointment.</p>
Dispute Resolution	<p>The retail work centers have dedicated resources responsible for handling dispute resolution. CSAs and MAs serve as the first escalation level; supervisors serve as the second escalation level; team leaders serve as the third escalation level; center managers serve as the fourth escalation level; and vice presidents</p>	<p>The wholesale work centers have dedicated resources responsible for handling dispute resolution. ETs serve as the first escalation level; network managers serve as the second escalation level; center support managers serve as the third escalation level; directors serve as the fourth escalation level; and operational assistant vice</p>	<p>Both the wholesale and retail work centers have dedicated resources responsible for handling customer disputes.</p> <p>While the retail work center receives assistance from the ECCG in handling customer disputes, the processes and procedures for handling customer disputes within the wholesale and retail work centers are comparable.</p>

Process Area	Retail M&R Work Centers	Wholesale M&R Work Centers	Parity Evaluation
	<p>serve as the fifth escalation level.</p> <p>RRCs also have access to the ECCG, which serves as an additional escalation resource. The ECCG is staffed by a group of more experienced CSAs and typically handles residential customers that have experienced missed commitments, chronic troubles or medical emergencies.</p> <p>Retail work centers do not proactively monitor trouble tickets and escalate based upon internal and external system timers. The WMC performs this responsibility based upon internal system timers.</p>	<p>presidents serve as the fifth escalation level.</p> <p>The CWINS Center serves as the single point of contact for wholesale customer escalations. Therefore, wholesale work centers do not have access to an additional escalation resource such as the ECCG.</p> <p>Wholesale work centers proactively monitor wholesale customer trouble tickets and escalate based upon internal and external system timers. Depending upon where the repair process is stagnating, wholesale work center personnel escalate within the wholesale work center, WMC, central office or field. These escalations typically occur to prevent BellSouth from missing repair appointment times.</p>	
Performance Measurement	<p>Discrete BellSouth staff groups are responsible for generating and distributing center performance reports to retail work center management.</p> <p>Performance data related to the handling of retail end user customer troubles are collected by an ACD and operation support systems such as LMOS and WFA/C.</p> <p>Retail work centers are responsible for monitoring individual employee performance on a semi-annual basis.</p>	<p>Discrete BellSouth staff groups are responsible for generating and distributing center performance reports to wholesale work center management.</p> <p>Performance data related to the handling of wholesale customer troubles are collected by an ACD and operation support systems such as LMOS and WFA/C.</p> <p>Wholesale work centers are responsible for monitoring individual employee performance on a semi-annual basis.</p> <p>Wholesale work centers</p>	<p>The procedures and objectives used for performance measurement within the wholesale and retail work centers are comparable.</p> <p>Both wholesale and retail work centers collect performance data from the same systems.</p> <p>Additionally, both wholesale and retail work centers conduct semi-annual employee reviews and use statistical data and employee observations to monitor employee performance.</p>

Process Area	Retail M&R Work Centers	Wholesale M&R Work Centers	Parity Evaluation
	Retail work centers monitor employee performance through statistical data and employee observations.	monitor employee performance through statistical data and employee observations.	
Capacity Management	<p>The RFMC is responsible for capacity management within the retail work centers. The RFMC is specifically responsible for (i) scheduling non-management personnel, (ii) monitoring and balancing the workload, (iii) forecasting the potential workload, and (iv) assigning overtime as necessary.</p> <p>The RFMC forecasts retail work center workload on an on-going basis. The center relies upon LMOS and WFA/C to collect historical ticket volume data and uses Meridian Max, Nortel Symposium and Lucent G3 to collect historical call data such as call volume, call time and availability.</p> <p>Forecast data generated by the RFMC is inputted into the Employee Scheduling Program (ESP) and Force Management System (FMS) to generate employee schedules. These schedules are distributed to managers within the retail work centers.</p>	<p>Dedicated internal resources are responsible for capacity management within the wholesale work centers and WMC. These resources are specifically responsible for (i) scheduling non-management personnel, (ii) monitoring and balancing the workload, and (iii) forecasting the potential workload. Center managers and supervisors are responsible for assigning overtime as necessary.</p> <p>The wholesale work centers and WMC forecast center workload on an on-going basis. The centers rely upon WFA/C to collect historical ticket volume data and uses Nortel Symposium to collect historical call data such as call volume, call time and availability.</p> <p>The wholesale work centers and WMC use the forecast data to generate employee schedules. Schedules are provided to employees one month in advance and each schedule covers a 13-week period.</p>	<p>Despite differences in who is responsible for capacity management, wholesale and retail capacity management processes, procedures and systems used are comparable.</p> <p>Both wholesale and retail work centers rely upon comparable procedures to forecast center workload and generate employee schedules.</p> <p>Both the wholesale and retail work centers rely upon comparable call and ticket systems to generate historical data for forecasting purposes.</p> <p>Additionally, both the wholesale and retail work centers also use forecast data to generate employee schedules.</p>
Documentation	BellSouth retail work center personnel also	BellSouth wholesale work center personnel have	The documentation available to wholesale and retail work center

Process Area	Retail M&R Work Centers	Wholesale M&R Work Centers	Parity Evaluation
	<p>have access to M&R method and procedure documentation through the general company intranet.</p> <p>BellSouth has a centralized M&P group responsible for updating and improving processes relating to retail work centers.</p> <p>When a new process is introduced, documentation is distributed to retail work center personnel via email to alert them of the change. Additionally, personnel are given the opportunity to provide feedback on the documentation through their supervisors or through email.</p>	<p>access to M&R method and procedure documentation through an intranet-based document repository called the Corporate Documentation and Information Access (CDIA) system.</p> <p>BellSouth has a centralized M&P group responsible for updating and improving processes relating to wholesale work centers. Additionally, managers of the CWINS Centers are part of a process improvement team that is responsible for recommending new M&R processes.</p> <p>When a new process is introduced, documentation is distributed to wholesale work center personnel via email to alert them of the change. Additionally, personnel are given the opportunity to provide feedback on the documentation through their supervisors or through email.</p>	<p>personnel, and the medium through which it is disseminated, are comparable.</p> <p>Both wholesale and retail work center personnel have access to corporate documentation online including M&Ps, process flows and job aides.</p> <p>Both wholesale and retail work center personnel receive documentation of new processes electronically.</p> <p>Additionally, both wholesale and retail work center personnel are given the opportunity to provide feedback on all documentation.</p>

5.4 Parity Results Summary

KPMG Consulting determined that BellSouth’s wholesale and retail end-to-end M&R sub-processes are in parity.

6.0 Final Summary

This section summarizes the number of test evaluation criteria discussed in Section 4.1, Table 14-2 above and the number that were satisfied or not satisfied at the conclusion of this test.

6.1 Summary of Findings

There were nine evaluation criteria considered for the End-to-End Maintenance & Repair Process Evaluation (PPR14). All nine evaluation criteria received a satisfied result.

Since all evaluation criteria are satisfied, KPMG Consulting considers the End-to-End M&R Process Evaluation (PPR14) satisfactory at the time of final report delivery.

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B. Test Results: M&R Work Center Support Evaluation (PPR15)

1.0 Description

The Maintenance and Repair (M&R) Work Center Support Evaluation (PPR15) was an operational analysis of the M&R work center processes developed by BellSouth. These processes and procedures provide support to Alternative Local Exchange Carriers (ALECs) with questions, problems, and issues related to wholesale trouble reporting and repair operations. M&R work center processes include creating trouble tickets, managing and monitoring open trouble tickets, resolving troubles, closing trouble tickets, and providing trouble ticket status information. Basic functionality, performance and escalation procedures were evaluated. Additionally, KPMG Consulting interviewed nine ALECs as part of this evaluation.

2.0 Business Process

This section describes BellSouth's M&R work center support business process.

2.1 Business Process Description

2.1.1 Trouble Ticket Handling Activities

BellSouth provides ALECs with M&R support through the Customer Wholesale Interconnection Network Services (CWINS) Center. Maintenance Administrators (MAs) and Electronic Technicians (ETs) at the center are responsible for taking trouble reports, performing trouble isolation and testing analysis, and dispatching trouble reports to the appropriate BellSouth group if the report cannot be cleared within the center.

The CWINS Center records and responds to ALEC questions regarding trouble tickets for all nine states in the BellSouth operating area. The CWINS Center serves as the primary point of contact for ALEC reported troubles and is accessible to ALECs 24 hours a day, seven days a week, 365 days a year. The CWINS Center has three locations: (i) Birmingham, Alabama, (ii) Duluth, Georgia, and (iii) Fleming Island, Florida. The CWINS Center is responsible for handling troubles for both non-designed and designed services³¹⁹. Non-designed services consist of Plain Old Telephone Service (POTS) while designed services consist of DS1 and DS3 services. The CWINS Center in Birmingham, Alabama handles Unbundled Network Element (UNE) customers reporting non-designed and designed troubles in addition to Local Number Portability (LNP) troubles; the CWINS Center in Duluth, Georgia handles Resale and UNE customers reporting non-designed and designed troubles; and the CWINS Center in Fleming Island, Florida handles UNE customers reporting designed troubles.

The business processes are identical for all three CWINS Centers and all operate according to the same methods and procedures (M&P). CWINS Center work functions are separated into groups according to the state in which the ALEC operates. This enables BellSouth personnel to access support systems and interface with ALECs that in many cases provide service to customers in a single state. In situations where an ALEC offers service in multiple states, the CWINS Center takes troubles for the entire BellSouth area where the ALEC provides service.

³¹⁹ BellSouth refers to non-designed services as SL1 services and designed services as SL2 services.

ALECs report troubles by using one of the following three methods:

- ◆ Connect to the Trouble Analysis Facilitation Interface (TAFI). TAFI is a Telnet protocol that ALECs can access through either a LAN-to-LAN or dial up connection to electronically enter trouble reports for non-designed UNE and Resale circuits. TAFI serves as an interface to the Loop Maintenance Operating System (LMOS), the legacy system used to open, screen, hand off and close non-designed service trouble tickets. ALECs obtain access to TAFI through their account team and attend TAFI user training sessions. TAFI allows ALECs to create, change, modify, close and check status on reported troubles. TAFI also allows ALECs to view repair history information within each trouble ticket. The CWINS Center assists ALECs with basic questions regarding the use of TAFI; however, the center does not serve as a TAFI user help desk.
- ◆ Connect to the Electronic Communications Trouble Administration (ECTA) system. ECTA is a high end electronic bonding system that ALECs may access to electronically enter trouble reports for both non-designed and designed UNE and Resale circuits. To receive ECTA functionality, ALECs must develop a gateway-to-gateway interface with BellSouth. The ECTA gateway interfaces with LMOS for non-designed related services and with the Work Force Administration/Control (WFA/C) system for designed services³²⁰. Both non-designed and designed UNE and Resale circuits are inventoried with serialized circuit numbers rather than telephone numbers. ECTA allows ALECs to create, change, modify, close and check status on reported troubles. ECTA also allows ALECs to view repair history information within each trouble ticket. Although ECTA supports the submission of both non-designed and designed services trouble tickets, most ALECs do not use ECTA to report non-designed services trouble due to the cost associated with the development of this system.
- ◆ Call the CWINS Center directly.

All calls coming into the CWINS Center are logged in an Automatic Call Distributor (ACD), which captures call metrics including the time and duration of each call. MAs and ETs within the center log each trouble report into the appropriate BellSouth system. MAs within the CWINS Center utilize TAFI to report non-designed service trouble and ETs within the CWINS Center utilize WFA/C to report designed service trouble. Both TAFI and WFA/C assign a tracking number to each trouble ticket.

The MA or ET receiving the call verifies that the ALEC owns the account for which they are making a report by viewing the Major Customer Number (MCN) code, which is unique to each ALEC. Since ALECs have access only to their own accounts, the MA or ET does not take the report if the caller is not an authorized user for the account. Once the account is verified, the MA or ET logs relevant customer information and a description of the problem in either TAFI or WFA/C depending upon the type of trouble.

Once an ALEC has reported a trouble, MAs and ETs attempt to diagnose the cause of each trouble through testing. MAs access TAFI and review automated test results for non-designed troubles while ETs use automated BellSouth systems to access circuits and perform testing³²¹. If

³²⁰ WFA/C is a legacy system used for the creation, handoff and closing of designed service trouble tickets.

³²¹ ETs receiving trouble reports are responsible for performing manual testing isolation and trouble analysis for designed troubles in addition to taking trouble reports. MAs receiving trouble reports are only responsible for reviewing automated test results for non-designed troubles in addition to taking trouble reports. In the event that TAFI

the diagnosis is successful, and trouble is identified, TAFI or WFA/C categorize the trouble ticket by the type of trouble and provide dispatch recommendations based upon guidelines built into the system. The MA or ET accepts the recommendation and the system routes the trouble to the appropriate center and group for correction. Should the ALEC desire a different action, the MA or ET can manually route the trouble at the ALEC's request. Additionally, MAs and ETs resolve ALEC troubles entered directly through BellSouth systems when the system does not have a rule to route the trouble to another group responsible for resolution.

Non-designed troubles that cannot be resolved by TAFI require human intervention. If the system cannot clearly identify the fault and the MA is unable to identify the problem, the MA routes the trouble to the "Pending Screen" in LMOS. The trouble is then routed to a different group of MAs whose responsibility is to conduct detailed testing and trouble analysis. Once a trouble ticket is routed to the Pending Screening status, the MA who performs detailed testing and trouble analysis becomes responsible for the trouble ticket and communicating with the ALEC. The original MA who received the incoming call is no longer responsible for communicating with the ALEC. This enables the MAs responsible for call intake to assist other ALECs while other MAs perform detailed testing.

In the event of an established cable failure on the reported line, a cable failure flag and estimated clear time is displayed on the screen. The MA advises the ALEC of the condition and provides a commitment time based on the estimated clearing time of the cable failure. Identification and monitoring of cable failures is performed by down-stream work centers such as the Work Management Center (WMC) and not by the CWINS Center.

Should testing determine that the trouble report requires routing to the WMC for dispatch to the central office or to a field technician, a tracking number is assigned to the trouble ticket. Non-designed trouble tickets are assigned a numeric tracking number in LMOS called the trouble ticket number (TTN). Should the ALEC be unable to provide the LMOS-generated TTN, the MA can identify the TTN by the customer telephone number in cases involving BellSouth telephone numbers. Designed trouble tickets are assigned an alpha-numeric tracking number in WFA/C. If the ALEC is unable to provide a WFA/C-generated tracking number, the ET would need the circuit identification number to identify the trouble report.

Test results and instructions provided by the CWINS Center determine whether a trouble report should be "dispatched in" to a central office or "dispatched out" to a field technician. ALECs are advised of the decision and provided a commitment time for trouble repair. Non-designed commitment times are based upon information provided by the WMC while designed commitment times are based upon the type of circuit reported (DS1, DS3, etc.)³²². The WMC is responsible for maintaining non-designed commitment times according to the center's work force management, which requires the center to evaluate the amount of work that can be taken for any given time period based on number of technicians available and work volume. The center inputs commitment times into LMOS on an on-going basis based upon technician availability and work

cannot identify a fault through automated testing, additional manual testing for non-designed troubles is necessary as described below.

³²² When an MA enters a trouble report in TAFI, non-designed commitment times are automatically generated within TAFI based upon commitment times entered in LMOS by the WMC. When an ET enters a trouble report in WFA/C, designed commitment times are generated within WFA/C based upon the type of circuit (DS1, DS3, etc.) reported.

volume. When an ALEC reports a non-designed trouble and an MA generates a trouble report in TAFI, TAFI interfaces with LMOS to receive the next available commitment time from LMOS.

The CWINS Center is responsible for providing ALECs with status updates based upon ALEC request. For non-design tickets, the MA enters the TTN in LMOS to identify the trouble report. The MA reviews the Intermediate Status Code (IST) to determine the ticket status and reports the status to the ALEC. For design tickets, the ET enters the ticket number in WFA/C to identify the trouble report. The ET reviews the WFA/C status log to identify the status of the repair. After providing the repair history to the ALEC, the ET logs the details of the call in the WFA/C trouble ticket status log.

The process for closing reports prior to dispatch is based on the outcome of the trouble found. Generally, the differences are:

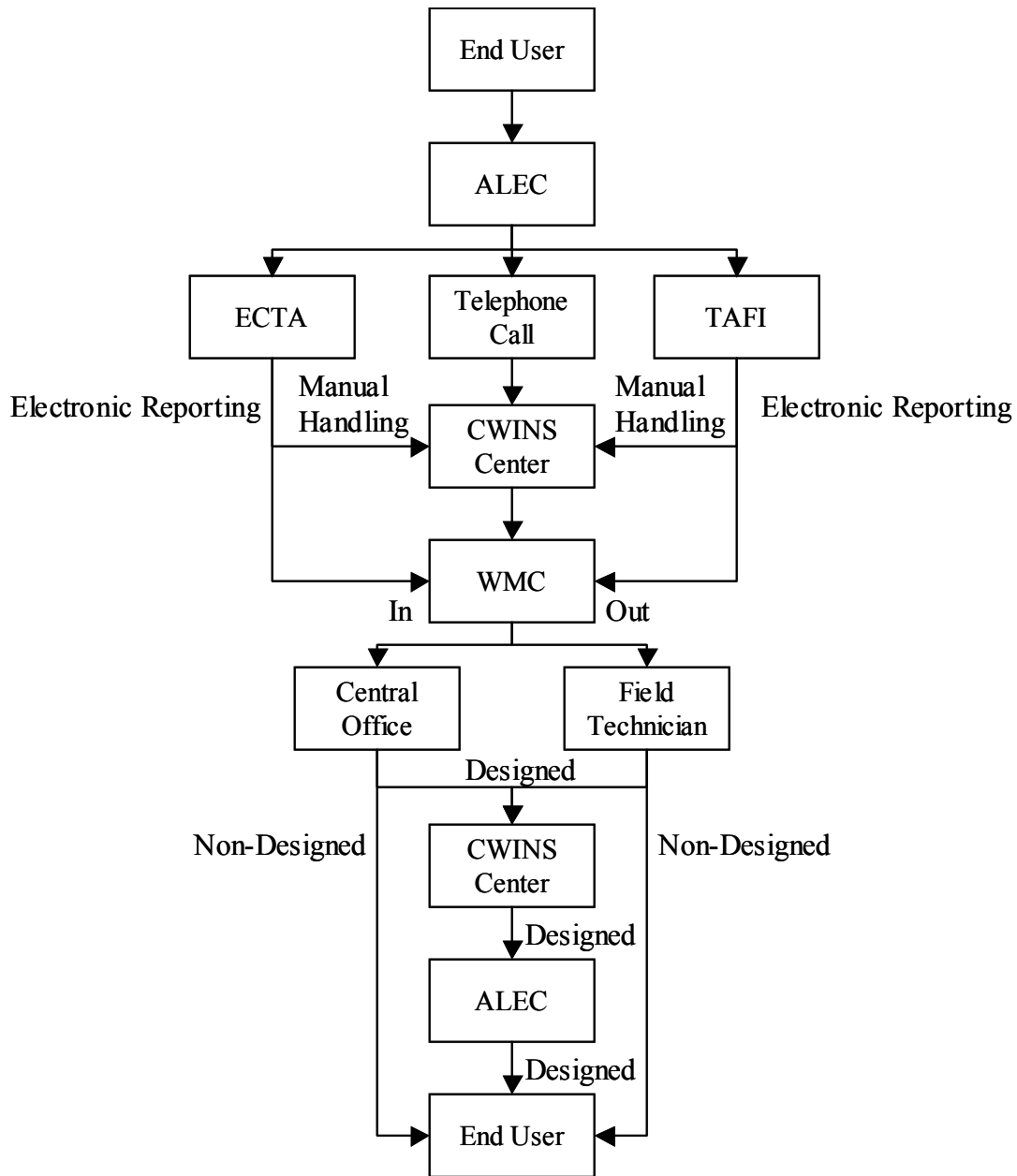
- ◆ The CWINS Center is responsible for ensuring ticket closeout. For designed troubles, a central office or field technician contacts the CWINS Center to report the trouble resolution or test results once the repair is performed. The ET within the CWINS Center then retests the line to verify the resolution while the technician remains on the line. Upon retest, the ET records the resolution within the WFA/C ticket status log and performs a post-repair quality check to validate circuit integrity. Additionally, the ET categorizes the trouble ticket based upon the trouble type and trouble location. The ET then calls the ALEC to report the resolution and to obtain acceptance in order to restore the ticket. If acceptance is obtained, the ET closes the ticket in WFA/C. If the ET is unable to contact the ALEC, or the ALEC does not provide permission to close the ticket, the ET will place the ticket on delayed maintenance status and hold the ticket for 24 hours. Within this time frame, calls are made to the ALEC to obtain permission to close. If the ET is unable to reach the ALEC within 48 hours of the repair, the trouble ticket is closed.
- ◆ For non-designed troubles that are dispatched in or out, the central office technician or field technician completes the repair, notifies the ALEC end user of the repair and closes the trouble ticket in LMOS.
- ◆ For non-designed troubles, if the MA determines there is no fault on the line, the report is closed out as Front End Close Out (FECO).
- ◆ Should the ALEC report a service or item they do not have on their customer service or maintenance records, they are advised to contact the business office to order the desired item.
- ◆ If the ALEC decides to cancel a ticket after a trouble report has been completed in TAFI or WFA/C, the MA or ET closes the report in TAFI or WFA/C with a specific closeout code denoting the ALEC request³²³. In such a case, the information previously input is not considered a measurable report.

Trouble on newly completed service orders may be complicated because the customer record in LMOS, which takes 24 hours or longer to build, may not yet be in the system. In this situation, the MA looks at order systems to view the order and obtain the necessary information to build a Message Report (MR). Once the MA builds the MR, a trouble ticket is sent for repair.

³²³ Trouble reports recorded in LMOS and WFA/C cannot be deleted or altered. Additional information added to a trouble ticket, such as information added to the WFA/C status log, is time stamped and cannot be deleted or altered.

The directional arrows in Figure 15-1 below, illustrate the flow of trouble information between the following organizations: (i) ALECs, (ii) CWINS Center, (iii) WMC, and (iv) other BellSouth entities such as central offices and field technicians.

Figure 15-1: CWINS Process Flow



2.1.2 Escalation Procedures

Two types of escalations exist within the CWINS Center: internal and external. Internal escalation occurs when a trouble ticket commitment time is in jeopardy. External escalation

occurs when the reporting ALEC calls to dispute a trouble ticket or report a medical, fire or police emergency.

There are several levels of escalation within the CWINS Center, including escalation to the MA or ET, network manager, center support manager, director, and operations assistant vice president. BellSouth provides ALECs with documentation outlining the levels of escalation and related contact details. This information is available to ALECs on BellSouth's website.

MA and ETs within the CWINS Center are responsible for handling escalations for both designed and non-designed service troubles. When an ALEC requests an escalation, the MA or ET notes the request in the WFA/C or LMOS status log and contacts the appropriate BellSouth personnel. The MA or ET is responsible for monitoring the escalation, keeping the ALEC updated of status, logging escalation status updates, and recording escalation trouble history within the WFA/C and LMOS status logs. The MA or ET also notifies the ALEC of completion by following the regular trouble ticket closeout and notification procedures described in Section 2.1.1 above.

2.1.3 Expedite Procedures

BellSouth is responsible for handling customer requests for earlier commitments, which are referred to as expedite requests³²⁴.

When a wholesale customer requests an earlier repair commitment, call receipt personnel are responsible for attempting to persuade the customer to accept the original commitment. If call receipt personnel are unable to maintain the original commitment, and field dispatch is required, call receipt personnel must contact the WMC and request an earlier commitment on behalf of the customer. The WMC is responsible for approving and providing an earlier commitment if possible, based upon force-to-load modeling. The WMC then communicates the earlier commitment to the call receipt personnel who in turn communicate it back to the customer.

2.1.4 Joint Meet and Coordinated Testing Procedures

When an ALEC reports a trouble indicating that service is not of sufficient quality or is unavailable, but no BellSouth network trouble is identified, a coordinated effort may be necessary to resolve the trouble.

If the service can be tested remotely, coordinated testing may be sufficient. Typically, the ALEC, a BellSouth MA or ET, and a third party vendor remotely test the service to locate and identify the trouble.

If remote access is not available, the MA or ET or ALEC may suggest a third party vendor meeting to resolve the trouble. When this occurs, a BellSouth technician, an ALEC technician, and a third party technician, if applicable, meet in the field or in the central office to test, troubleshoot, and repair the trouble.

BellSouth requests at least 24-hours of advance notification from the ALEC of a joint meet request.

³²⁴ BellSouth differentiates between appointments and commitments. Definitions and expedite procedures for appointments and commitments are outlined in the "Appointments and Commitments in TAFI Overview" documentation for non-designed troubles.

If the ALEC initially requests a joint meet, the CWINS Center MA or ET creates a trouble ticket following the standard trouble ticket generation process described in section 2.1.1 above, and notes the request in the narrative section of WFA/C or LMOS. The WMC receives notification of the vendor meet from the trouble ticket generated within the CWINS Center.

Joint meet trouble tickets are closed, and the ALEC is notified following the standard trouble ticket closeout and notification procedures described in Section 2.1.1 above.

3.0 Methodology

This section summarizes the test methodology.

3.1 Scenarios

Scenarios were not applicable to this test.

3.2 Test Targets and Measures

The test target was BellSouth's work center support functions, which included reviews of the following process areas and sub-processes:

- ◆ Call Processing;
 - ◆ Call answer;
 - ◆ Call logging;
 - ◆ Prioritization;
- ◆ Problem Tracking and Resolution;
 - ◆ Documentation;
 - ◆ Identify and resolve;
 - ◆ Track problem;
 - ◆ Log status and close;
 - ◆ Notify customer;
- ◆ Expedite/Escalation Procedures;
 - ◆ Documentation;
 - ◆ Call answer;
 - ◆ Escalation logging;
 - ◆ Identify and resolve;
 - ◆ Log status and close;
 - ◆ Notify customer;
- ◆ Work Center Procedures;
- ◆ Joint Meet Procedures;

- ◆ Process documentation;
- ◆ Notification procedures;
- ◆ Coordinated Testing;
 - ◆ Process documentation;
 - ◆ Notification procedures;
- ◆ Manual Handling – Resale;
- ◆ Manual Handling – UNE / UNE - Platform; and
- ◆ Capacity Management.

3.3 *Data Sources*

The data collection performed for this test entailed (i) interviews with CWINS Center management, (ii) direct observations of CWINS personnel; and (iii) review of BellSouth M&R work center support documentation for wholesale services. Primary sources of documentation include:

- ◆ The BellSouth Start-Up Guide;
- ◆ Overview – Maintenance & Repair Process;
- ◆ Control Office Administration of Special Services Trouble Reports;
- ◆ Business and Consumer Customer Services: Future Center Design Plan;
- ◆ Standard Customer Operations for Regional Excellence Initiative;
- ◆ CLEC Requirements for Unbundled Loops; and
- ◆ BellSouth interface agreements.

3.4 *Data Generation/Volumes*

This test did not rely on data generation or volume testing.

3.5 *Evaluation and Analysis Methods*

BellSouth M&R work center procedures were reviewed and evaluated according to targets established by KPMG Consulting. The following provides additional detail on the testing methods used to conduct the M&R Work Center Support Evaluation (PPR15):

- ◆ BellSouth interviews – KPMG Consulting conducted on-site interviews with management and personnel with direct responsibility and knowledge of targeted processes in the Birmingham, Alabama, Duluth, Georgia, and Fleming Island, Florida CWINS Centers.
- ◆ ALEC interviews – KPMG Consulting conducted interviews with ALECs that provide service in the BellSouth operating area and interact on an on-going basis with BellSouth CWINS Centers.

- ◆ Observations – KPMG Consulting conducted observations of CWINS personnel performing trouble processing activities in order to identify if differences between the processes practiced in the CWINS Center and those processes defined in BellSouth’s M&P documentation exist.
- ◆ Documentation Review – KPMG Consulting conducted a review of process flow documentation, M&Ps, and performance data related to CWINS Center business operations.

The M&R Work Center Support Evaluation (PPR15) included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the BellSouth OSS Evaluation. These evaluation criteria provided the framework of norms, standards, and guidelines for the M&R Work Center Support Evaluation (PPR15).

The data collected were analyzed employing the evaluation criteria defined in Section 4.1 below.

4.0 Results

This section contains the overall test results.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 15-1. For additional exception and observation information, refer to Appendices D and E, respectively. The test criteria and results are presented in Table 15-2.

Table 15-1: PPR15 Exception and Observation Count

Activity	Exceptions	Observations
Total Issued	0	1
Total Disposed as of Final Report Date	0	1
Total Open as of Final Report Date	0	0

Table 15-2: PPR15 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
PPR15-1	M&R work center responsibilities and activities are defined and documented.	Satisfied	<p>KPMG Consulting verified that specific responsibilities and activities of the CWINS Center are defined and documented.</p> <p>CWINS Center personnel have access to M&P documentation through an intranet-based document repository called the Corporate Documentation Information Access (CDIA) database.</p> <p>BellSouth has a dedicated group responsible for creating, updating and maintaining CWINS Center M&P documentation. The CWINS Center has a process improvement team responsible for recommending the creation of new M&Ps.</p> <p>As procedures change, updates are distributed via</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>email to CWINS Center personnel to alert them of the change. Updates are posted on the CDIA prior to implementation of any procedural change.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ BellSouth Telecommunications Job Briefs and Qualifications: Electronic Technician; ◆ Roles and Responsibilities: Job Descriptions; ◆ WMC-UNE Group Methods & Procedures; ◆ Overview – Maintenance and Repair Process; ◆ UNE Designed Maintenance; ◆ Maintenance – Call Receipt; ◆ The BellSouth Start-Up Guide; ◆ BellSouth Interface Agreements; ◆ UNEC – Maintenance Process; ◆ Call Receipt & Non-Designed Screening; ◆ Electronic Bonding Network and Carrier Services; ◆ Resale Maintenance & Provisioning (Complex and POTS) Index; and ◆ Resale Maintenance – Call Receipt. <p>KPMG Consulting found that these documents define CWINS Center personnel responsibilities and activities.</p>
PPR15-2	M&R work centers answer calls in a timely manner.	Satisfied	<p>KPMG Consulting verified that the CWINS Centers use an ACD to (i) answer and distribute calls, and (ii) produce center and employee performance metrics.</p> <p>The CWINS Center uses average speed of answer to measure the quality of service provided by the MAs and ETs, and use an average queue time of 45 seconds per call as the performance target.</p> <p>Message boards at the CWINS Centers with both audio and visual capabilities alert MAs and ETs of calls in queue.</p> <p>To ensure the timely assignment of work, the CWINS Center uses average receipt to pending time; this measures the time interval between when</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>the center receives a trouble ticket and when it routes the trouble ticket to the appropriate center for repair. The internal BellSouth performance target for this measurement is one hour.</p> <p>KPMG Consulting observed CWINS Center personnel answer incoming calls in accordance with the quality target metrics outlined above.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; and ◆ CWINS Monthly Performance Measurements Report. <p>KPMG Consulting found that these documents adequately outline performance targets for the CWINS Center.</p> <p>KPMG Consulting also reviewed CWINS Center performance reports for a three month period and found that the CWINS Centers met center performance targets for average speed of answer and average receipt to pending.</p>
PPR15-3	M&R work centers have call logging procedures.	Satisfied	<p>KPMG Consulting verified that incoming calls are logged by the ACD, which measures the receipt time, speed of answer, average queue time, receipt to pending and duration of each call. These metrics are used for daily and monthly reports.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; ◆ Maintenance Call Receipt; ◆ Call Receipt & Non-Designed Screening; ◆ Electronic Bonding Network and Carrier Services; ◆ Resale Maintenance & Provisioning (Complex and POTS) Index; ◆ Resale Maintenance – Call Receipt; and ◆ LMOS Codes and Procedures. <p>KPMG Consulting found that these documents outline call logging procedures for the CWINS</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>Center.</p> <p>KPMG Consulting observed BellSouth CWINS Center personnel processing trouble reports. These activities were accurately and consistently performed, as defined in the documents referenced above.</p>
PPR15-4	M&R work centers prioritize and categorize calls.	Satisfied	<p>KPMG Consulting verified that trouble reports are coded by type of trouble (categories), and when required, priority is assigned.</p> <p>Trouble tickets are prioritized based upon factors including out-of-service versus affecting service trouble; business versus residential customer; and commitment times. Trouble tickets associated with police, fire or medical emergencies receive priority handling.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Network Services “Dispatch Priority” and “Appointment Strategy”; ◆ Commitments and Appointments in TAFI Overview; ◆ Assigning Business TAFI Commitments; ◆ Overview – Maintenance and Repair Process; ◆ Electronic Bonding Network and Carrier Services; ◆ Control Office Administration of Special Services Trouble Reports; ◆ WFA Analysis Codes; ◆ LMOS Codes and Procedures; ◆ UNE Work Types; ◆ Design Troubles in a PP, AP, or ATC Status; ◆ Resale Maintenance – Complex & Design: RPVO/RPVI, RPVR ET Procedures; ◆ Designed Troubles in RPVO/RPVI Status; and ◆ RPVI Status – Routing Troubles. <p>KPMG Consulting found that these documents outline trouble type categories and prioritization criteria for the CWINS Center.</p>

Test Reference	Evaluation Criteria	Result	Comments
			KPMG Consulting observed BellSouth CWINS Center personnel categorize and prioritize trouble tickets. These activities were accurately and consistently performed, as described in the documents referenced above.
PPR15-5	Problem tracking and resolution M&Ps are documented.	Satisfied	<p>KPMG Consulting verified that M&Ps for problem tracking and resolution within the CWINS Center are documented in the CDIA database and BellSouth intranet.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; ◆ UNE Designed Maintenance; ◆ Electronic Bonding Network and Carrier Services; ◆ Resale Maintenance & Provisioning (Complex and POTS) Index; ◆ Design Troubles in a PP, AP, or ATC Status; ◆ Designed Troubles in HDC, HDD, or HDX Status; ◆ Resale Maintenance – Complex & Design: RPVO/RPVI, RPVR ET Procedures; ◆ Designed Troubles in RPVO/RPVI Status; and ◆ RPVI Status – Routing Troubles. <p>KPMG Consulting found that these documents outline problem tracking and resolution procedures for the CWINS Center.</p>
PPR15-6	M&R work centers identify and resolve problems in a timely manner.	Satisfied	<p>KPMG Consulting observed MAs and ETs in the CWINS Center identify and resolve ALEC problems in a timely manner.</p> <p>BellSouth uses the following internal performance standards to ensure that problems are identified and resolved in a timely manner³²⁵:</p> <p><u>Non-Designed</u></p>

³²⁵ BellSouth defines trouble identification and resolution performance targets for the CWINS Center in the following documentation: CWINS Monthly Performance Measurements Report; UNE Reports Page; UNE Maintenance Targets; Overview – Maintenance and Repair Process; Call Receipt & Non-Designed Screening; and Resale Maintenance: Quality Inspection Review.

Test Reference	Evaluation Criteria	Result	Comments
			<ul style="list-style-type: none"> ◆ Average receipt to pending: < 1 Hour; ◆ Average receipt to closure: < 24 Hours; ◆ Percentage appointments met: > 90%; and ◆ Percentage repeat reports: < 13%. <p><u>Designed</u></p> <ul style="list-style-type: none"> ◆ Average serving bureau (DS0): < 1.8 Hours; ◆ Average serving bureau (DS1): < 1 Hour; ◆ Average duration (DS0): < 24 Hours; ◆ Average duration (DS1): < 4 Hours; and ◆ Percentage repeat reports (DS0 only): < 19%. <p>KPMG Consulting reviewed CWINS Center performance reports for a three month period and found that the CWINS Center met the internal performance targets as defined above.</p>
PPR15-7	M&R work centers track problems through resolution.	Satisfied	<p>KPMG Consulting verified that trouble ticket information, create time, condition, duration and close time are tracked using both LMOS and WFA/C systems. Reports are available on demand.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; ◆ UNE Designed Maintenance; ◆ Electronic Bonding Network and Carrier Services; ◆ Resale Maintenance & Provisioning (Complex and POTS) Index; ◆ Design Troubles in a PP, AP, or ATC Status; ◆ Designed Troubles in HDC, HDD, or HDX Status; ◆ Resale Maintenance – Complex & Design: RPVO/RPVI, RPVR ET Procedures; ◆ Designed Troubles in RPVO/RPVI Status; and ◆ RPVI Status – Routing Troubles. <p>KPMG Consulting found that these documents outline problem tracking and resolution procedures for the CWINS Center. KPMG Consulting verified</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>that this documentation is available to CWINS Center personnel on the CDIA and BellSouth intranet.</p> <p>KPMG Consulting observed BellSouth CWINS Center personnel tracking problems through resolution. These activities were accurately and consistently performed, as described in the documents referenced above.</p>
PPR15-8	M&R work centers log status updates and close tickets.	Satisfied	<p>KPMG Consulting verified that trouble ticket status and close information, as well as trouble history, is logged and recorded using both LMOS and WFA/C systems.</p> <p>KPMG Consulting reviewed the following documentation:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; ◆ Call Receipt & Non-Designed Screening; ◆ UNE Designed Maintenance; ◆ Electronic Bonding Network and Carrier Services; ◆ Control Office Administration of Special Services Trouble Reports; ◆ Resale Maintenance & Provisioning (Complex and POTS) Index; and ◆ Resale Maintenance – Call Receipt. <p>KPMG Consulting found that these documents outline BellSouth CWINS Center procedures for logging status updates and closing trouble tickets.</p> <p>KPMG Consulting observed BellSouth CWINS Center personnel logging status updates and closing trouble tickets. These activities were accurately and consistently performed, as described in the documents referenced above.</p>
PPR15-9	M&R work centers notify ALEC customers of closure postings.	Satisfied	<p>KPMG Consulting verified that CWINS Center personnel notify ALEC customers of trouble ticket closures.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; ◆ Call Receipt & Non-Designed Screening;

Test Reference	Evaluation Criteria	Result	Comments
			<ul style="list-style-type: none"> ◆ UNE Designed Maintenance; ◆ Electronic Bonding Network and Carrier Services; ◆ Control Office Administration of Special Services Trouble Reports; ◆ Resale Maintenance & Provisioning (Complex and POTS) Index; ◆ Resale Maintenance – Call Receipt; ◆ Design Troubles in a PP, AP, or ATC Status; ◆ Resale Maintenance – Complex & Design: RPVO/RPVI, RPVR ET Procedures; ◆ Designed Troubles in RPVO/RPVI Status; and ◆ RPVI Status – Routing Troubles. <p>KPMG Consulting found that these documents outline BellSouth CWINS Center procedures for notifying ALEC customers of trouble ticket closures.</p> <p>KPMG Consulting observed MAs and ETs in the CWINS Center use BellSouth’s mechanized systems to close trouble tickets when applicable. In each instance, the MAs and ETs notified the ALEC of the closure and provided them with the appropriate information. These activities were accurately and consistently performed, as described in the documents referenced above.</p> <p>KPMG Consulting also observed instances in which the trouble was dispatched to a technician who notified the ALEC with closure information. These activities were accurately and consistently performed, as described in the documents referenced above.</p>
PPR15-10	M&R work centers adhere to documented M&Ps outlining escalation and expedite procedures.	Satisfied	<p>KPMG Consulting verified that CWINS Center adheres to documented M&Ps outlining escalation and expedite procedures.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Escalation Procedures for the Unbundled Network Element (UNE) Center; ◆ Mechanized Escalation Procedures / Policy /

Test Reference	Evaluation Criteria	Result	Comments
			<p>Job Aids;</p> <ul style="list-style-type: none"> ◆ Network Services Contact Reference Screenshots; ◆ Network Services Regional Escalation Guidelines; ◆ Expedite Procedures Wholesale Services; ◆ Commitments and Appointments in TAFI Overview; ◆ Assigning Business TAFI Commitments; ◆ Electronic Bonding Network and Carrier Services; and ◆ Control Office Administration of Special Services Trouble Reports. <p>KPMG Consulting found that these documents outline BellSouth CWINS Center procedures for escalating and expediting trouble tickets. KPMG Consulting verified that this documentation is available to CWINS Center personnel on the CDIA database.</p> <p>KPMG Consulting observed BellSouth CWINS Center personnel escalating and expediting trouble tickets. These activities were accurately and consistently performed, as described in the documents referenced above.</p>
PPR15-11	M&R work centers answer escalation and expedite calls in a timely manner.	Satisfied	<p>KPMG Consulting verified that the CWINS Center uses speed of answer to measure the quality of service provided by personnel for both escalation and expedite calls. The center uses an average queue time of 45 seconds per call as its quality standard for both escalation and expedite.</p> <p>The CWINS Center receives escalation calls when an ALEC calls to dispute a trouble ticket or report a medical, fire or police emergency. The CWINS Center receives expedite calls when an ALEC calls to request an earlier appointment on behalf of the end user.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Escalation Procedures for the Unbundled Network Element (UNE) Center;

Test Reference	Evaluation Criteria	Result	Comments
			<ul style="list-style-type: none"> ◆ Control Office Administration of Special Services Trouble Reports; ◆ Mechanized Escalation Procedures / Policy / Job Aids; and ◆ Electronic Bonding Network and Carrier Services. <p>KPMG Consulting found that these documents outline escalation and expedite response time standards for the CWINS Center and WMC.</p> <p>KPMG Consulting observed BellSouth CWINS Center and WMC handle escalations and expedites in a timely manner as defined in the internal documentation referenced above.</p>
PPR15-12	M&R work centers log, identify, and resolve escalation and expedite requests.	Satisfied	<p>KPMG Consulting observed personnel at the CWINS Center (i) identify escalations and expedites (ii) log associated information in the appropriate system; LMOS for non-designed service troubles and WFA/C for designed circuit troubles, and (iii) contact the WMC for new appointment times.</p> <p>If an ALEC escalates or expedites a trouble either during the reporting process or after the fact, an MA or ET within the CWINS Center handles it. Depending on the escalation level, the MA or ET either contacts the WMC directly or informs their supervisor who contacts the WMC for a decision.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Escalation Procedures for the Unbundled Network Element (UNE) Center; ◆ Network Services Contact Reference Screenshots; ◆ Network Services Regional Escalation Guidelines; ◆ Commitments and Appointments in TAFI Overview; ◆ Assigning Business TAFI Commitments; and ◆ Control Office Administration of Special Services Trouble Reports. <p>KPMG Consulting found that these documents</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>outline problem escalation and expedite identification and resolution procedures for the CWINS Center and WMC.</p> <p>KPMG Consulting observed BellSouth CWINS Center and WMC identify and resolve escalations and expedites. These activities were accurately and consistently performed, as defined in documents referenced above.</p>
PPR15-13	M&R work centers log status and closure of escalation and expedite requests.	Satisfied	<p>KPMG Consulting verified that the CWINS Center logs status updates and closures of escalations and expedites.</p> <p>KPMG Consulting reviewed the following documentation:</p> <ul style="list-style-type: none"> ◆ Overview – Maintenance and Repair Process; ◆ Call Receipt & Non-Designed Screening; ◆ UNE Designed Maintenance; ◆ Electronic Bonding Network and Carrier Services; ◆ Control Office Administration of Special Services Trouble Reports; ◆ Resale Maintenance & Provisioning (Complex and POTS) Index; and ◆ Resale Maintenance – Call Receipt. <p>KPMG Consulting found that these documents outline BellSouth CWINS Center procedures for logging status updates and closing escalation and expedite trouble tickets.</p> <p>KPMG Consulting observed personnel at the CWINS Center inform ALECs of escalation and expedite status and log the outcome/closure into the appropriate system, LMOS for non-designed service troubles and WFA/C for designed circuit troubles.</p>
PPR15-14	M&R work centers have documented M&Ps for joint meets and coordinated testing.	Satisfied	<p>KPMG Consulting verified that M&Ps for joint meets and coordinated testing are documented on the CDIA database and available to CWINS Center personnel.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Vendor/Agent Trouble Reporting/Resolution

Test Reference	Evaluation Criteria	Result	Comments
			<p>and Joint Testing Procedures fro the BCAC and IMC;</p> <ul style="list-style-type: none"> ◆ Vendor / Joint Meets; and ◆ Design Troubles in a PP, AP, or ATC Status. <p>KPMG Consulting found that these documents outline joint meet and coordinated testing procedures for the CWINS Center.</p>
PPR15-15	M&R work centers notify ALEC customers of coordinated testing and joint meet schedules and closures.	Satisfied	<p>KPMG Consulting verified that M&R work centers assist ALEC customers with coordinated testing and joint meets.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Vendor/Agent Trouble Reporting/Resolution and Joint Testing Procedures fro the BCAC and IMC; and ◆ Vendor / Joint Meets. <p>KPMG Consulting found that these documents outline CWINS Center procedures for notifying ALEC customers of coordinated testing and joint meet schedules and closures.</p> <p>KPMG Consulting observed BellSouth call receipt and testing personnel handling the scheduling, coordination and closure of coordinated testing and joint meet trouble tickets. These activities were performed accurately and consistently, as described in the documents above.</p>
PPR15-16	M&R work centers adhere to M&Ps for manual handling of resale customers.	Satisfied	<p>KPMG Consulting verified that M&Ps for manual handling of resale customers are documented and available to call receipt and testing personnel.</p> <p>When a trouble is reported, BellSouth call receipt and testing personnel offer assistance with resale service fault identification by testing the BellSouth network, and dispatching a technician to the location of the trouble. Should the cause of the trouble be identified as outside of the BellSouth network, the customer is notified that trouble identification charges apply.</p> <p>KPMG Consulting observed BellSouth call receipt and testing personnel assisting with resale service fault identification. These activities were practiced accurately and consistently, as described above.</p>

Test Reference	Evaluation Criteria	Result	Comments
PPR15-17	M&R work centers adhere to M&Ps for manual handling of UNE and UNE Platform customers.	Satisfied	<p>KPMG Consulting verified that M&Ps for manual handling of UNE and UNE Platform customers are documented and available to call receipt and testing personnel.</p> <p>When a trouble is reported, BellSouth call receipt and testing personnel offer assistance with UNE service fault identification by testing the BellSouth network, and dispatching a technician to the location of the trouble. Should the cause of the trouble be identified as outside of the BellSouth network, the customer is notified that trouble identification charges apply.</p> <p>KPMG Consulting observed BellSouth call receipt and testing personnel assisting with UNE service fault identification. These activities were accurately and consistently practiced, as described above.</p>
PPR15-18	M&R work centers have M&Ps for capacity management.	Satisfied	<p>KPMG Consulting verified that the M&R work centers have M&Ps for capacity management.</p> <p>The CWINS Center scheduling is performed based on the daily call volume reports. Based on these reports, CWINS Center management is able to plan the number of employees required to meet center demand. To handle peak load periods, the center uses a combination of solutions, which includes temporarily moving MAs or ETs from screening to call receipt and/or offering overtime opportunities.</p> <p>To ensure that the CWINS Center has the necessary number of employees available to handle daily call volume, the CWINS Center established a forcing plan that is monitored by a Load Balance Supervisor. Additionally, the budget group monitors call volume and allocates head count for the center.</p> <p>Management is able to forecast the number of employees needed based on the analysis of the headquarters group that monitors the activity of the center. When additional resources are required, additional headcount is authorized if the need is justified. As of June 2001, a new facility in Fleming Island, Florida was established to handle growing demand. This decision was made based on current and projected call volume forecasts.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p>

Test Reference	Evaluation Criteria	Result	Comments
			<ul style="list-style-type: none"> ◆ Installation & Maintenance Force Management Plan; ◆ Standard Customer Operations for Regional Excellence (SCORE); and ◆ Business and Consumer Customer Services: Future Center Design Plan. <p>KPMG Consulting found that this documentation outlines the capacity management procedures for the CWINS Center.</p>

5.0 Parity Evaluation

A parity evaluation was not required for this test.

6.0 Final Summary

This section summarizes the number of test evaluation criteria discussed above and the number that was satisfied or not satisfied at the conclusion of this test.

6.1 Summary of Findings

There were 18 evaluation criteria considered for the M&R Work Center Support Evaluation (PPR15) test. All 18 evaluation criteria received a satisfied result.

Since all evaluation criteria are satisfied, KPMG Consulting considers the M&R Work Center Support Evaluation (PPR15) satisfactory at the time of final report delivery.

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C. Test Results: Network Surveillance Support Evaluation (PPR16)

1.0 Description

The Network Surveillance Support Evaluation (PPR16) was an analysis of the processes, procedures and responsibilities associated with BellSouth's Maintenance and Repair (M&R) network surveillance and network outages related to wholesale operations. KPMG Consulting examined network surveillance processes for both retail and wholesale operations to assess completeness. The evaluation focused on the operations within the Network Reliability Center (NRC) that is responsible for overseeing, monitoring and maintaining BellSouth's network.

2.0 Business Process

This section describes BellSouth's network surveillance business processes.

2.1 Business Process Description

Network Surveillance:

The NRC is responsible for monitoring and maintaining the BellSouth network, specifically, Interoffice Facilities (IOF), switching networks, and digital loop carriers. The NRC also provides quick-response solutions to major network outages or failures in the BellSouth operating region.

BellSouth defines the network elements for which the NRC has surveillance and outage notification responsibilities as follows:

- ◆ Interoffice Facilities (IOF) – A high capacity digital transmission path that is dedicated for the transport of local, toll, and/or access traffic between central offices. IOF can be dedicated to BellSouth, an Alternative Local Exchange Carrier (ALEC) or a combination of both. The ALEC can purchase IOF in either DS1 or DS3 transport levels.
- ◆ IOF Dedicated Trunk Port – A dedicated high capacity termination on a BellSouth switch (i.e., tandem or end office) that provides signaling and transport options for moving local, toll, and/or access traffic between BellSouth unbundled switches or ALECs' collocated or non-collocated switches.
- ◆ Advanced Intelligent Network (AIN) – A network architecture that includes three basic call processing elements (i) Service Control Points (SCPs), (ii) Service Switching Points (SSPs), and (iii) Signal Transfer Points (STPs). An AIN SCP is a database that executes service application logic in response to queries sent to it by a SSP equipped with AIN functionality. AIN SSPs are digital switches that may query a SCP for customer specific instructions on how to process a call (routing, blocking, etc.). AIN STPs are packet switches that shuttle messages between an SSP and SCP or between SSP and SSP. All three communicate via out-of-band signaling using the Signaling System 7 (SS7) protocol as detailed below.
- ◆ Signaling System 7 (SS7) – A system used by network elements to exchange information over an out-of-band channel called an SS7 link. There are two distinct protocols used: (i) Integrated Services Digital Network User Part (ISUP), and (ii) Transaction Capabilities Application Part (TCAP). ISUP messaging allows a SSP to communicate with another SSP through a STP. Examples of information exchange include trunk reservation, trunk setup,

and call teardown requests. SSPs may need additional information on how to route or treat a specific call request. This data may be found in a SCP. TCAP messaging allows a SSP to communicate with a SCP (or a SCP with another SCP) through a STP. Examples of information exchange include Local Number Portability (LNP) related data queries and responses regarding Location Routing Numbers and Line Information Database addresses.

The NRC monitors outages that are the result of abnormal events that could affect the service capability of the BellSouth network. BellSouth defines abnormal events as unusual events, conditions or situations that affect, or might be expected to affect, telephone company personnel, telephone service, equipment, or other related property.

The NRC operates in two locations: Charlotte, North Carolina and Nashville, Tennessee. The Charlotte center monitors and maintains the network for Florida, Alabama, Louisiana and Mississippi and monitors emergency 911 services for all nine BellSouth states. The Nashville center monitors and maintains the network for Georgia, Kentucky, North Carolina, South Carolina and Tennessee. The Nashville center also maintains the SS7 system for all nine BellSouth states.

In an emergency, either NRC location is capable of assuming the other location's responsibilities and continuing the work of both centers. Disaster recovery procedures exist for management and technical personnel to monitor and maintain the entire network from a single center in the event a center is isolated.

The NRC has nine major functional groups:

- ◆ Surveillance: Monitors switch and transport network elements/alarms;
- ◆ Facility Analysis: Provides Tier 1 support (high level technical facility support);
- ◆ Switch Analysis: Provides Tier 1 support (high level technical switch support);
- ◆ Database: Monitors program scan points on network elements (facility alarms);
- ◆ Power Testing: Coordinates testing with field technicians on central office power alarms;
- ◆ SS7: Monitors call setup and transport connections/circuits (links);
- ◆ Voice Mail: Monitors all BellSouth voice mail systems within the nine state area;
- ◆ Local Area Network (LAN) Administration: Supports technicians within the NRC (infrastructure, personal computers and printers); and
- ◆ Broadband: Monitors and analyzes Asynchronous Transfer Mode (ATM) and Asymmetrical Digital Subscriber Line (ADSL) activity.

NRC technicians monitor and analyze the network through the following systems:

- ◆ Network Monitoring Analysis (NMA): The NMA system monitors all network facilities in the BellSouth footprint for abnormalities and provides transport trouble alarm information. NMA generates alarms when transport conditions breach preset performance thresholds. The alarms are categorized by severity. Severity categories include Critical (outage), Major (service affecting), and Minor (non-service affecting). A Critical alarm requires immediate repair or resolution. A Major alarm also requires immediate resolution as service to customers may be affected. A Minor alarm is non-service affecting, and can be repaired

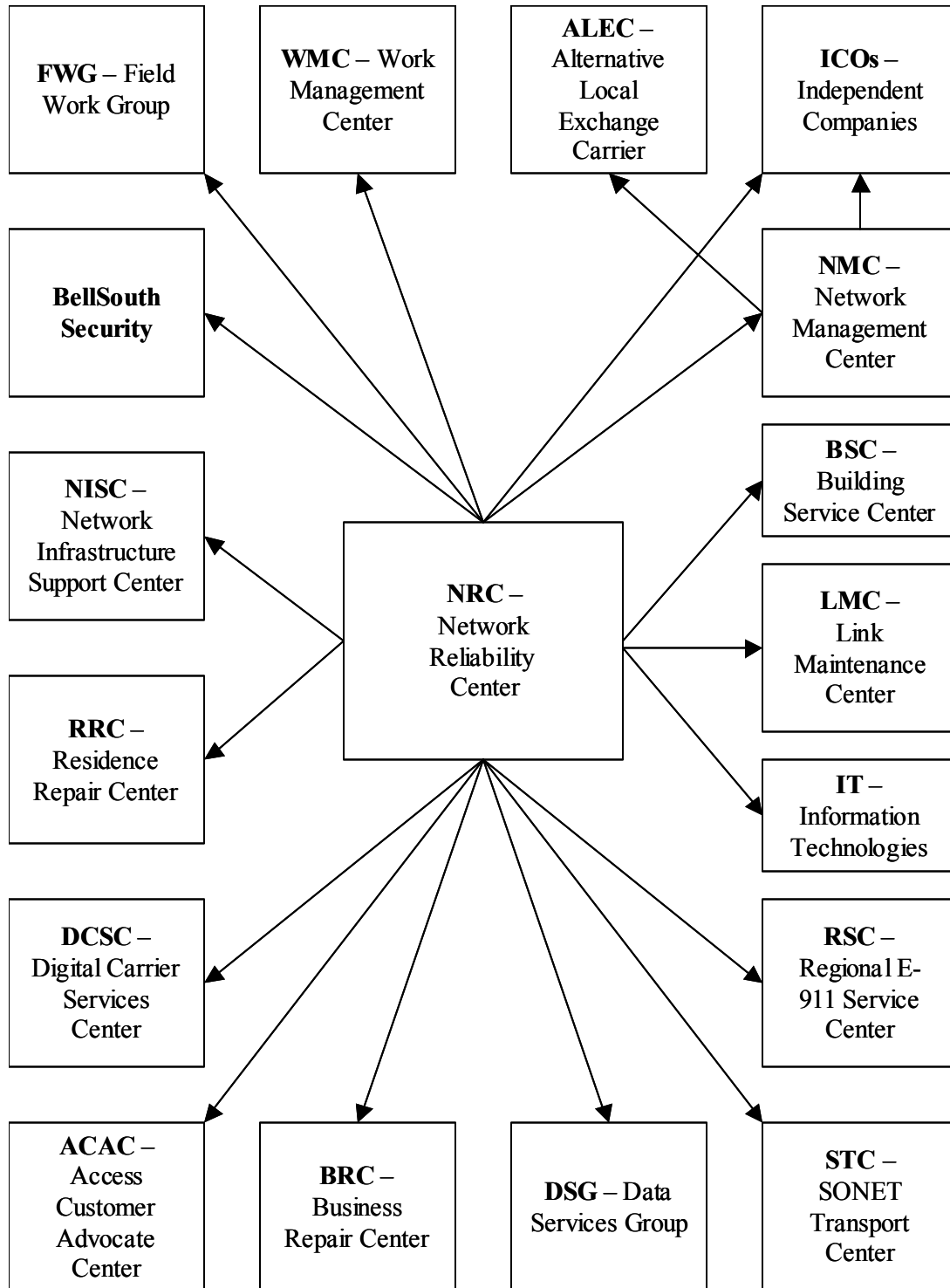
during the next safe time hours. In addition to providing alarms, NMA is used to test network elements for localizing and diagnosing troubles. When jeopardy thresholds are reached, for such items as traffic load capacity, facility failure or system failure, NMA automatically generates a trouble ticket into the Work Force Administration (WFA) system. In response to the alarm, a trouble ticket is created and dispatched to the technicians at the Work Management Center (WMC). Priority is automatically determined based on thresholds (severity of faults) built into the NMA system.

- ◆ Network Fault Monitoring (NFM): The NFM system features awareness screens that provide alarm condition descriptions for switch and facility alarms. NFM is used for the monitoring analysis of switches. NFM scans switch channels for irregular patterns. Similar to the NMA system, priority is automatically determined based on thresholds (severity of faults) built into the NFM system. NFM provides the NRC with visible, color-coded alarms that contain detailed data on IOF load volumes and traffic congestion.

The NRC adheres to documented methods and procedures (M&Ps) when dealing with a network outage. The NRC sends out an Alpha Page that transmits a message containing information about the problem to relevant BellSouth personnel. Established call lists allow for notification of BellSouth personnel involved in the restoration and repair of the fault causing the outage. Additionally, an outage bridge is established to allow for the distribution of information pertaining to the nature and scope of the problem as well as the status of any required corrective action. The various BellSouth centers are able to call in and request information over the outage bridge line; however, communication between the NRC and the technicians working on the problem is given priority. A Bridge Manager whose main function is the restoration of service oversees the outage bridge and maintains control until the problem is corrected. The NRC is capable of maintaining a number of different bridges simultaneously. To expedite the restoration of service, where possible, calls are rerouted before damaged lines are repaired. In case of an emergency or a major network outage, reconnecting essential emergency services (hospitals, police stations etc.) is given priority along with federal and state government facilities.

Figure 16-1 below illustrates the NRC's communication flow.

Figure 16-1: NRC Communication Flow



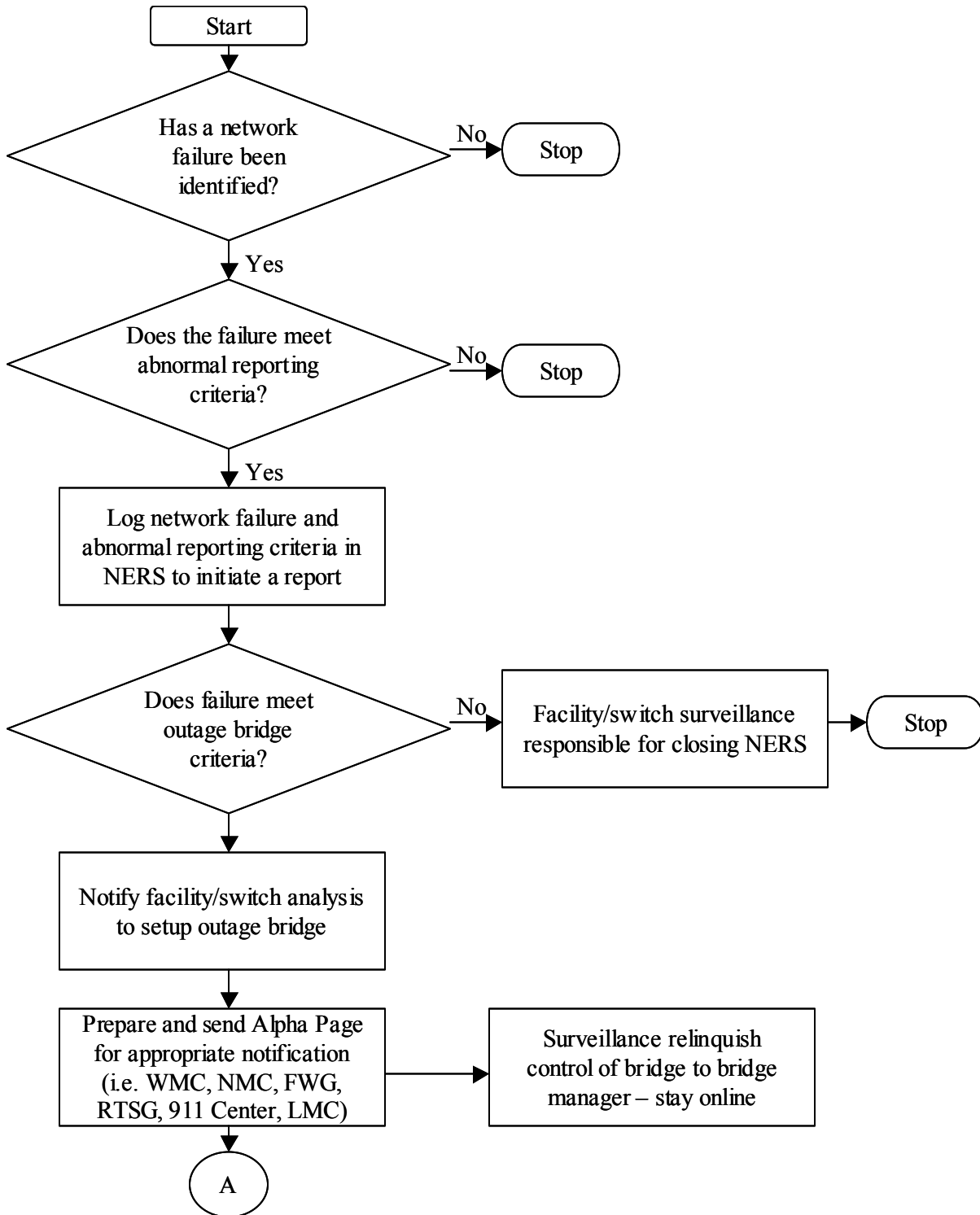
BellSouth recently implemented the Network Event Reporting System (NERS) to better facilitate the reporting required after an outage has occurred. The NERS replaced the Abnormal system and now serves as the primary system used for logging network failures and abnormal reporting criteria. NERS is a data store that automatically populates managerial reports, sent to affected central offices, with desired data on a particular outage.

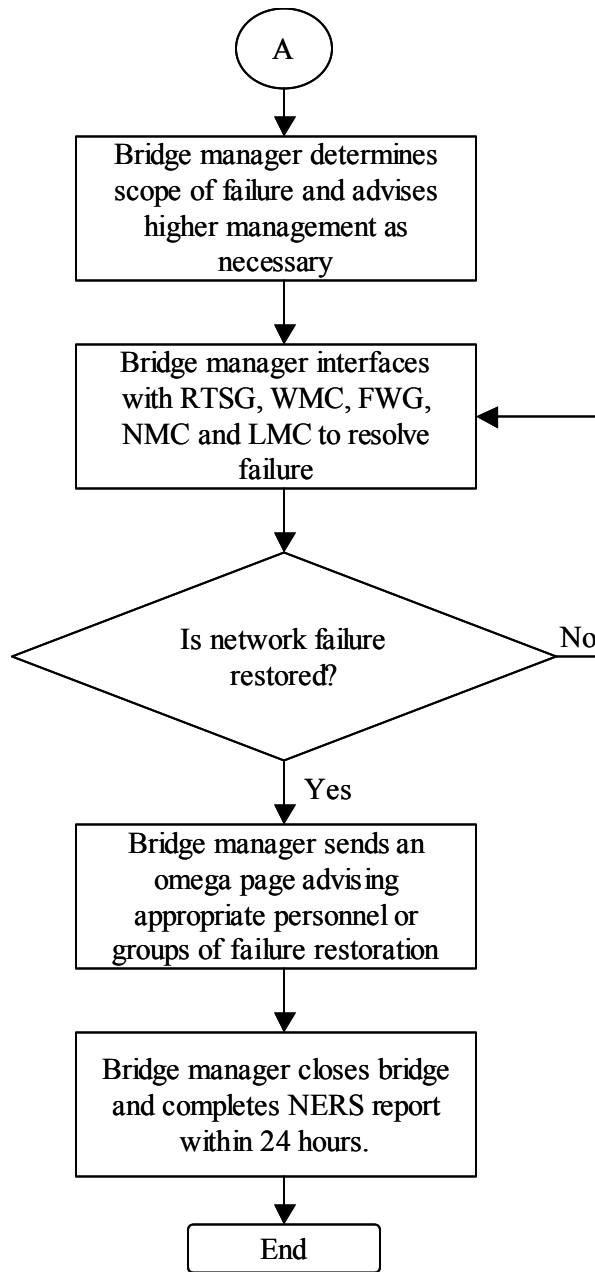
NERS is a web-based system that allows both major and non-major outage reporting to be done from one system using a single BellSouth Practice to govern tracking and notification and house the Bridge Manager's Outage Bridge Report. NERS provides BellSouth with a single database and a single report to store all the relative information pertaining to an outage. NERS is flexible and user friendly, allowing for quick, easy access for extracting information. NERS is governed by BellSouth's Regional Operations Centers Network Failure Procedure (BSP 010-400-008BT) and is an internal BellSouth system.

NERS accesses the Central Office Profile System (COPS) database for local information. The COPS database stores information about the central offices for which the NRC is responsible for surveillance and analysis. The information stored includes the fieldwork group personnel with local responsibility, their contact numbers, the office location including the street address, and the number of working lines. Additional information such as BellSouth internal coding information used in generating various reports is housed in this database. The database also provides BellSouth emergency contact information, such as the local police and fire departments. This database is used primarily by BellSouth's Regional Operation Centers organization and is internal to BellSouth.

Figure 16-2 below illustrates the NRC's Network/Facility Failure Process Flow.

Figure 16-2: NRC Network/Facility Failure Process Flow





The NRC maintains historical data on outages. For major troubles, a Switch Failure Investigation (SFI) or Facility Failure Investigation (FFI) report is generated. These reports allow the center to maintain records of equipment failure rates on BellSouth and ALEC systems, as well as enable the NRC to monitor its own activities. An analysis team is responsible for proactively identifying chronic troubles and maintaining particular network elements such as transport links, central office equipment and network congestion. This identification of troubles enables the NRC to take a proactive approach in preventing major outages.

Recognizing the volatility of Florida weather, the NRC conducts frequent tests of its emergency response activities and works closely with the state's Emergency Operations Centers (EOCs). In the case of an abnormal event, the NRC follows BellSouth methods and procedures in order to restore service in a timely manner.

The NRC responds to two types of system-generated alarms: network and environmental alarms. The network alarm signals an abnormality with a piece of equipment or a facility. The environmental alarm identifies a problem resulting from environmental conditions (e.g., humidity or gases). Network and environmental alarms are unable to differentiate between BellSouth equipment and ALEC collocated equipment since they share the same space within a central office.

Notification Procedures:

As problems occur on the BellSouth network, the NRC receives system alarms. The NRC provides immediate response to these alarms as stated in the Abnormal Identification and Notification Procedure and the Regional Operations Center Failure Procedures documents. The NRC receives the alarms, analyzes the impact, requests a dispatch to the field, if necessary, and notifies management of all troubles that may cause an adverse reaction to the customers. The BellSouth NMC makes an initial notification of a network event within 30 minutes of awareness. The notification procedures and timers are the same for IOF, AIN and SS7 alarms.

In addition to responding to system-generated alarms, the NRC receives calls from the Network Management Center (NMC), the Business Repair Center (BRC), and the Access Carrier Advocacy Center (ACAC). These centers call the NRC to report a major outage and check to see if there is an identifying alarm. An established procedure exists that outlines the steps that must be followed when the NRC determines that the report was a false alarm.

The NRC does not have direct interaction with ALECs. If an ALEC needs to report a major system failure, they must contact the NMC or the ACAC. These centers then refer the problem to the NRC. It is not unusual for both BellSouth and ALEC technicians to independently search for a fault and inform the other of their findings. The NMC and ACAC are also responsible for informing ALECs of any major outage via voice or fax notification.

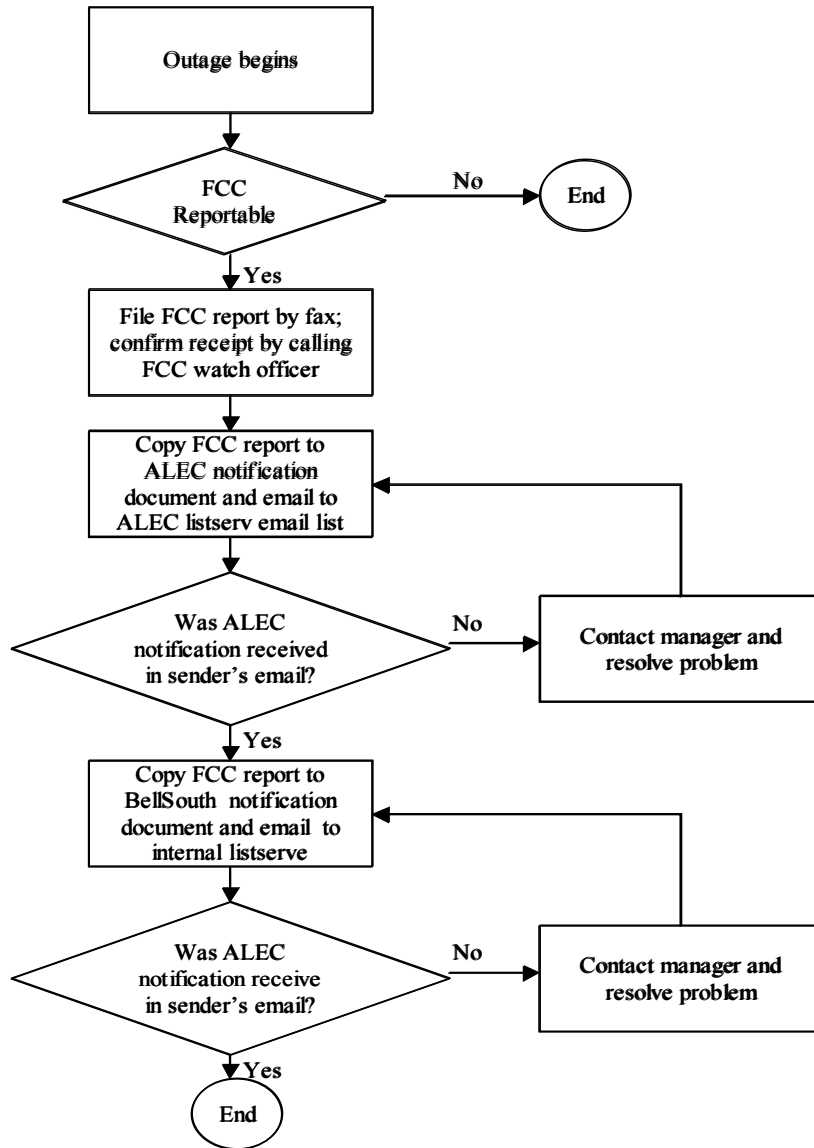
The NMC is responsible for monitoring BellSouth's network traffic and interoffice voice traffic by rerouting traffic as well as applying controls/protective controls to the network to maximize call completion. The mission of the NMC is to support the NRC in ensuring network reliability.

The NMC is located in Atlanta, Georgia and is responsible for the entire BellSouth region. It is open 24 hours a day, seven days a week, 365 days year. The NMC consists of 13 personnel: 11 specialists, which are management employees, one subject matter specialist and one manager. The NMC has three works shifts and schedules network technicians in overlapping shifts to allow for a clean hand-off of any on-going problems. The NMC adheres to basic procedures when

dealing with an outage as they notify the Federal Communications Commission (FCC) and ALECs of certain events as appropriate. NMC employees have a set of guidelines to follow in the case of such network event notifications. Interface agreements defined in the CLEC and BellSouth NMA Requirements and Notification Process documentation outline BellSouth and ALEC responsibilities in the event of a network outage. ALECs are responsible for providing BellSouth with a Single Point of Contact (SPOC) for outage notification. ALECs that provide a SPOC to the BellSouth NMC are notified of network outages via telephone, facsimile or email according to the procedures defined in the interface agreements. ALECs wishing to receive network outage notification via email are required to sign up for this service through their BellSouth account representative. The interface agreements state that BellSouth is not required to notify ALECs of outages if a SPOC is not provided. However, BellSouth provides Carrier Notifications to inform ALECs of the process for self-subscribing to outage notifications.

Figure 16-3 below illustrates the NMC's notification process for retail and wholesale outages.

Figure 16–3: NMC Notification Process



3.0 Methodology

This section summarizes the test methodology.

3.1 Scenarios

Scenarios were not applicable to this test.

3.2 Test Targets and Measures

The test targets are BellSouth's network surveillance and outage notification processes, which include the following sub-processes:

- ◆ IOF surveillance;
- ◆ AIN interconnect surveillance;
- ◆ SS7 interconnect surveillance;
- ◆ Process documentation; and
- ◆ Notification procedures.

3.3 Data Sources

The data collection performed for this test included (i) interviews with and observations of BellSouth NRC personnel with direct responsibility and knowledge of the targeted processes and procedures, (ii) detailed reviews of surveillance and outage notification documentation supplied by BellSouth at the request of KPMG Consulting, and (iii) an examination of the NRC's coverage of the BellSouth network. Primary sources of data include:

- ◆ Abnormal Identification and Notification Procedures;
- ◆ Regional Operations Centers Network Failure Procedures;
 - Section 1: Statement of Practice;
 - Section 2: Method of Notification;
 - Section 3: Procedures for Notification;
 - Section 4: Network Event Classification;
 - Section 5: Outage Notification by Voice Mail Distribution List;
 - Section 6: Voice Mail Notification Procedures;
 - Section 7: Criteria for FCC Outage Reporting;
- ◆ FCC Reportable Outages;
- ◆ CLEC and BellSouth Work Center-Disaster Recovery for Local Service; and
- ◆ CLEC and BellSouth NMA-Requirements and Notification Process.

3.4 Data Generation/Volumes

This test did not rely on data generation or volume testing.

3.5 Evaluation and Analysis Methods

BellSouth network surveillance and outage notification procedures were reviewed and evaluated according to targets established by KPMG Consulting. The following provides additional detail on the testing methods used to conduct the Network Surveillance Support Evaluation (PPR16):

- ◆ Interviews – KPMG Consulting conducted interviews with personnel with direct responsibility and knowledge of the targeted processes in the following centers: (i) NRC, Charlotte, North Carolina, (ii) NRC, Nashville, Tennessee.
- ◆ Observations – KPMG Consulting performed observations of NRC personnel coverage of the BellSouth network. This was done in order to identify the presence of any substantive differences between the processes practiced in the NRC and those processes as detailed in the reviewed BellSouth methods and procedures documentation.
- ◆ Document Review – KPMG Consulting conducted a detailed review of process flow and methods and procedures documentation related to network surveillance and outage notification.

Summaries of the information gathered during the interviews with and observations of BellSouth personnel were provided to BellSouth for review to verify the accuracy of the information documented. After verifying accuracy, KPMG Consulting evaluated the data against the evaluation measures established for the test. The Network Surveillance Support Evaluation (PPR16) used evaluation criteria developed by KPMG Consulting during the initial phase of the BellSouth OSS evaluation. These evaluation criteria, detailed in the Florida Master Test Plan, provided the framework of norms, standards, and guidelines for evaluating the identified test targets.

4.0 Results

This section contains the overall test results.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 16-1. For additional exception and observation information, refer to Appendices D and E, respectively. The test criteria and results are presented in Table 16-2.

Table 16-1: PPR16 Exception and Observation Count

Activity	Exceptions	Observations
Total Issued	1	0
Total Disposed as of Final Report Date	1	0
Total Open as of Final Report Date	0	0

Table 16-2: Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
Network Surveillance			
PPR16-1	Interoffice Facility (IOF) surveillance processes exist for ALEC IOFs that are located on the BellSouth network.	Satisfied	<p>KPMG Consulting verified that ALEC IOF, such as trunk groups and transport, are monitored through the use of two dedicated systems: (i) Network Fault Management (NFM), and (ii) Network Monitoring & Analysis (NMA). The same systems are used to monitor ALEC and BellSouth IOF.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Abnormal Identification and Notification Procedures; and ◆ Regional Operations Centers Network Failure Procedures. <p>KPMG Consulting found that this documentation outlines BellSouth procedures for ALEC IOF surveillance.</p> <p>KPMG Consulting observed BellSouth network technicians at the NRC in Charlotte, North Carolina using surveillance systems to monitor and analyze the performance of BellSouth and ALEC IOF. These activities were accurately and consistently performed, as defined in the documentation referenced above.</p>
PPR16-2	Service affecting events involving IOF are logged, categorized, and tracked and this information is made available to ALECs.	Satisfied	<p>KPMG Consulting verified that trouble tickets for IOF events are logged into the WFA system and are categorized as Out of Service (OS) or Affecting Service (AS) within the NRC in Charlotte, North Carolina. These trouble tickets are tracked according to the level of severity (i.e. level of service affected).</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Abnormal Identification and Notification; ◆ Regional Operations Centers Network Failure Procedures; ◆ Facility Abnormal Worksheet; ◆ WFA/C Methods and Procedures; and ◆ CLEC and BellSouth NMA Requirements

Test Reference	Evaluation Criteria	Result	Comments
			<p>and Notification Process.</p> <p>KPMG Consulting found that this documentation outlined BellSouth procedures for logging, categorizing and tracking IOF service affecting events. This documentation also described BellSouth procedures for ALEC notification of IOF events that may affect their customer service.</p> <p>KPMG Consulting also found that this documentation was made available to ALECs on the BellSouth interconnection website.³²⁶</p>
PPR16-3	Advanced Intelligent Network (AIN) interconnection surveillance processes exist for BellSouth AIN interconnections that service ALECs.	Satisfied	<p>KPMG Consulting verified that AIN connectivity is monitored by the use of the NMA and NFM systems within the NRC located in Charlotte, North Carolina.</p> <p>KPMG Consulting reviewed the following BellSouth documents:</p> <ul style="list-style-type: none"> ◆ AIN SCP SS7 Link Restoration Job Aid; and ◆ Abnormal Identification and Notification Procedures. <p>KPMG Consulting found that this documentation defined the AIN interconnection surveillance processes for BellSouth AIN interconnections that service ALECs.</p> <p>KPMG Consulting observed BellSouth network technicians at the NRC in Charlotte, North Carolina using surveillance systems to monitor and analyze the performance of BellSouth and ALEC AIN network elements. These activities were accurately and consistently performed, as defined in the documentation referenced above.</p>
PPR16-4	Service affecting events involving AIN interconnection are logged, categorized, and tracked and this information is made available to ALECs.	Satisfied	<p>KPMG Consulting verified that service affecting events involving AIN interconnection are logged, categorized and tracked in the WFA system within the NRC in Charlotte, North Carolina.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Regional Operations Centers Network

³²⁶ <http://www.interconnection.bellsouth.com/guides/html/gopue/indexf.htm>.

Test Reference	Evaluation Criteria	Result	Comments
			<p>Failure Procedures;</p> <ul style="list-style-type: none"> ◆ Abnormal Identification and Notification; ◆ AIN SCP SS7 Link Restoration Procedures; ◆ Facility Abnormal Worksheet; ◆ WFA/C Methods and Procedures; and ◆ CLEC and BellSouth NMA Requirements and Notification Process. <p>KPMG Consulting found that this documentation outlined the procedures for logging, categorizing and tracking events affecting the AIN Network. Additionally, this documentation defined BellSouth procedures for ALEC notification of AIN events that may affect their customer service.</p> <p>KPMG Consulting also found that this documentation was made available to ALECs on the BellSouth interconnection website.</p> <p>KPMG Consulting observed BellSouth network technicians at the NRC in Charlotte, North Carolina logging, categorizing and tracking AIN service affecting events. These activities were accurately and consistently performed, as defined in the documentation referenced above.</p>
PPR16-5	Signaling System Seven (SS7) surveillance processes exist for ALEC SS7 interconnections that are located on the BellSouth network.	Satisfied	<p>KPMG Consulting verified that SS7 surveillance processes are documented for ALEC SS7 interconnections that are part of BellSouth’s network.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ 5ESS SS7 Link Restoration Procedures; and ◆ 5ESS SS7 Peripheral Equipment Restoration Procedures. <p>KPMG Consulting found that this documentation outlined the procedures for SS7 surveillance.</p> <p>KPMG Consulting observed BellSouth network technicians at the NRC in Nashville, Tennessee conducting surveillance for ALEC SS7 interconnections that are part of BellSouth’s</p>

Test Reference	Evaluation Criteria	Result	Comments
			network. These activities were accurately and consistently performed, as defined in the documentation referenced above.
PPR16-6	Service affecting events involving the SS7 network are logged, categorized, and tracked and this information is made available to ALECs.	Satisfied	<p>KPMG Consulting verified that service affecting events involving the SS7 network are logged, categorized and tracked within the NRC in Charlotte, North Carolina.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Regional Operations Centers Network Failure Procedures; ◆ Abnormal Identification and Notification; ◆ 1AESS/3B SS7 Link Restoration Procedures; ◆ 1AESS/3B SS7 Peripheral Equipment Restoration Procedures; ◆ 5ESS SS7 Link Restoration Procedures; ◆ 5ESS SS7 Peripheral Equipment Restoration Procedures; ◆ Facility Abnormal Worksheet; ◆ WFA/C Methods and Procedures; and ◆ CLEC and BellSouth NMA Requirements and Notification Process. <p>KPMG Consulting found that this documentation outlined the procedures for logging, categorizing, and tracking events affecting the SS7 Network defines BellSouth procedures for ALEC notification of SS7 events that may affect ALEC customer service.</p> <p>KPMG Consulting also found that this documentation was available for ALECs on the BellSouth interconnection website.</p> <p>KPMG Consulting observed BellSouth network technicians at the NRC in Charlotte, North Carolina logging, categorizing and tracking SS7 service affecting events. These activities were accurately and consistently performed, as defined in the documentation referenced above.</p>
Outage Notification			

Test Reference	Evaluation Criteria	Result	Comments
PPR16-7	BellSouth has an operationally complete process for network outages and major service affecting event notification.	Satisfied	<p>KPMG Consulting verified that BellSouth has an operationally complete process for network outages and major service affecting event notification.</p> <p>Interface agreements defined in the CLEC and BellSouth NMA Requirements and Notification Process documentation outline BellSouth and ALEC responsibilities in the event of a network outage and major service affecting event. KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Facility Surveillance Abnormal Verification and Handling Procedures; ◆ Abnormal Identification and Notification Procedure; ◆ Regional Operations Centers Network Failure Procedures; ◆ NRC WFA Ticket Follow-Up Procedures; ◆ NRC/ROC Escalation Matrix; and ◆ CLEC and BellSouth NMA Requirements and Notification Process. <p>KPMG Consulting found that this documentation defined BellSouth procedures for notifying ALECs of network outages and major service effecting events.</p> <p>Because it is not feasible for KPMG Consulting to be present at the BellSouth NRC during an actual network outage, KPMG Consulting observed BellSouth network technicians using NFM, NMA and WFA/C in training mode³²⁷ and notifying ALECs of network outages via email, telephone and facsimile. These activities were accurately and consistently performed, as defined in the documentation referenced above.</p> <p>While conducting observations at the NMC in Atlanta, Georgia, KPMG Consulting randomly selected and reviewed five service disruption reports and outage trouble tickets. KPMG</p>

³²⁷ BellSouth provides continuous training to its network technicians. While participating in continuous training, network technicians experience simulated network outages in order to practice using relevant systems and notifying ALECs of network outages.

Test Reference	Evaluation Criteria	Result	Comments
			<p>Consulting found that in the instances observed, BellSouth followed the documented procedures for network outage and major service effecting event notification.</p> <p>While conducting interviews at the NRC in March 2001, KPMG Consulting discovered that ALEC notification procedures were not included in BellSouth Abnormal Identification and Notification Procedure documentation. As a result, Exception 18 was issued. BellSouth responded that a notification process existed, documented and published on the BellSouth interconnection website. KPMG Consulting conducted a retest and verified that the documentation defined the policy and procedures for notifying ALECs. This resulted in the closure of Exception 18.</p>
PPR16-8	BellSouth has documented procedures for timely notification of network outages and major service affecting events.	Satisfied	<p>KPMG Consulting verified that BellSouth has documented procedures for timely notification of network outages and major service affecting events.</p> <p>Interface agreements defined in the CLEC and BellSouth NMA Requirements and Notification Process documentation outline BellSouth and ALEC responsibilities in the event of a network outage. ALECs are responsible for providing BellSouth with a SPOC for outage notification. ALECs that provide a SPOC to the BellSouth NMC are notified of network outages via telephone, facsimile or email within 30 minutes of a network outage or major service affecting event. Status is also provided during network outages or major service affecting events within 30 minutes from initial notification, if requested by the ALEC. The interface agreements also state that BellSouth is not required to notify ALECs of outages if a SPOC is not provided.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Regional Operations Centers Network Failure Procedures; and ◆ CLEC and BellSouth NMA Requirements and Notification Process. <p>KPMG Consulting found that this</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>documentation defined conditions, outage durations and reporting periods for timely ALEC notification in the event of network outages and major network outages.</p> <p>While conducting observations at the NMC in Atlanta, Georgia in November 2001, KPMG Consulting randomly selected and reviewed five service disruption reports and outage trouble tickets. KPMG Consulting found that in the instances observed, BellSouth notified ALECs of network outages and major service effecting events within 30 minutes of each occurrence.</p>
PPR16-9	BellSouth has documented procedures for accurate reporting of network outages and major service affecting events.	Satisfied	<p>KPMG Consulting verified that the procedures for accurate outage notification and major service affecting event notification are documented on the BellSouth interconnection website.</p> <p>Interface agreements between BellSouth and ALECs require BellSouth to notify of network outages and major service affecting events. BellSouth updates ALEC contact information on a monthly basis to assure accuracy of reporting.</p> <p>KPMG Consulting reviewed the following BellSouth documentation:</p> <ul style="list-style-type: none"> ◆ Regional Operations Centers Network Failure Procedures; and ◆ CLEC and BellSouth NMA Requirements and Notification Process. <p>KPMG Consulting found that this documentation outlined procedures that result in the accurate reporting of network outages and major service affecting events.</p> <p>While conducting observations at the NMC in Atlanta, Georgia in November 2001, KPMG Consulting randomly selected and reviewed five service disruption reports and outage trouble tickets. KPMG Consulting found that in the instances observed, network outage and major service effecting event notification activities were accurately and consistently performed, as defined in the documentation referenced above.</p>

5.0 Parity Evaluation

A parity evaluation was not required for this test.

6.0 Final Summary

This section summarizes the number of test evaluation criteria discussed above and the number that was satisfied or not satisfied at the conclusion of the test.

6.1 Summary of Findings

There were nine evaluation criteria considered for the Network Surveillance Support Evaluation (PPR16). All nine evaluation criteria received a satisfied result.

Since all evaluation criteria are satisfied, KPMG Consulting considers the test area satisfied at the time of the final report delivery.

D. Test Results: M&R TAFI Functional Evaluation (TVV5)

1.0 Description

The objective of the Maintenance and Repair (M&R) Trouble Analysis Facilitation Interface (TAFI) Functional Evaluation (TVV5) was to validate the existence of TAFI trouble reporting and screening functionality. TAFI functions associated with trouble management activities were evaluated in BellSouth's production environment using test bed accounts. Scenarios designed to test these functions were executed via a TAFI Local Area Network - to - Local Area Network (LAN-to-LAN) connection and via TAFI dial-up access. The scenarios were designed to observe differences in system response times associated with the two methods of access.

The functional elements specifically targeted by this test include the entry and resolution of trouble reports, query and receipt of status reports, access to test capabilities, access to trouble history, and error conditions. TAFI functionality and usability were evaluated in conjunction with TAFI user documentation.

2.0 Business Process

This section provides a description of the processes used by the Alternative Local Exchange Carriers (ALEC) for managing trouble activities.

2.1 Business Process Description

TAFI is a rules-based system that provides automated trouble receipt and screening functionality to both ALEC and BellSouth retail repair center users. TAFI is designed to guide users through a series of questions and instructions to allow users to provide the information necessary to help isolate or identify the nature of the fault being reported. This results in expediting the routing of Plain Old Telephone Service (POTS) troubles to the correct work groups for resolution. TAFI collects data from the user and various downstream systems in order to generate recommendations for resolving POTS problems. Reports generated by TAFI as a result of a trouble fall into one of three categories: resolved/closed, routed to the appropriate entity for resolution, or cancelled. While TAFI does not perform any repair functions, it allows access to downstream systems that can repair some trouble types in real time.

The TAFI application was used for the following M&R transactions:

- ◆ Create Trouble Reports including multiple (reporting more than one telephone number) and subsequent trouble reports;
- ◆ Cancel Trouble Reports;
- ◆ Initiate Mechanized Loop Test (MLT);
- ◆ Receive MLT results;
- ◆ Retrieve Loop Maintenance Operating System (LMOS) Recent Status Report;
- ◆ Obtain Customer Line Records;
- ◆ Obtain Predictor results;

- ◆ View Display Line Record (DLR);
- ◆ Retrieve Trouble History; and
- ◆ Use of TAFI provided Supervisor Functions.

2.1.1 TAFI Application

TAFI is accessed using a Telnet protocol through a LAN-to-LAN or dial-up connection to BellSouth. TAFI does not support a Graphical User Interface (GUI). TAFI uses a unique BellSouth window format that is divided into three types: Main Menu, Sub Menus, and Pop-up Windows.

Both BellSouth and ALECs use the TAFI system for handling POTS trouble reports. The version created for ALECs is similar to the BellSouth retail version for trouble processing functionality, with the following differences:

- ◆ ALECs are restricted by TAFI to accessing only records for their own customers.
- ◆ The TAFI Supervisor function that allows an ALEC to view, sort and control work in queue, is restricted to a specific ALEC User Group.
- ◆ BellSouth processes retail residential and business customers on different TAFI servers, while ALECs currently use one server for all ALEC residential and business customers. This separate server for ALEC service allows load balancing and provides for the security functionality that restricts an ALEC's access to only their customers' records. The security feature in TAFI allows users to access only the records they are authorized to view.

TAFI interacts with specific BellSouth downstream systems, the functions of which fall within two primary areas:

- ◆ Trouble administration systems for POTS lines; and
- ◆ Test systems for fault identification.

BellSouth downstream systems, their functions and reports, accessed by TAFI are highlighted in Table 5-1 below. Multiple copies of ALEC TAFI exist for load balancing purposes, and provide identical functionality.

Table 5-1: BellSouth M&R Downstream Systems and Reports Accessed by TAFI

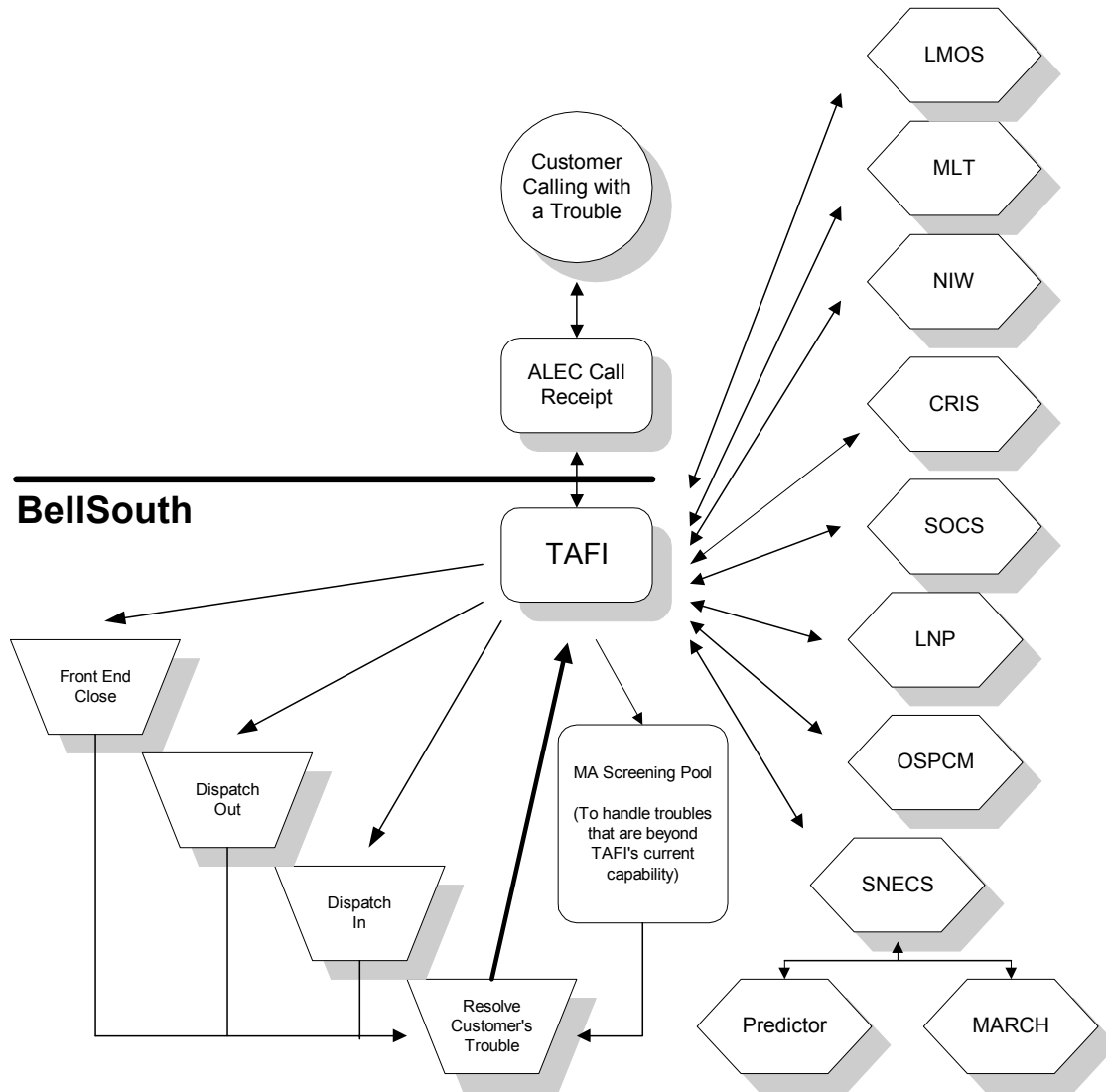
System	Description
CRIS: Customer Record Inventory System	Provides service order information including name, address, class of service, maintenance plan, restrictions, features, and Preferred Interexchange Carrier (PIC).
LMOS: Loop Maintenance Operations System	Supplies trouble ticket processing and the following information: name and address verification, working condition, trouble history, commitments, failure information, unit #, pending reports, status, category of report and pending service order information.
MARCH	Provides the mechanism to add or delete switch features to or from a line.

System	Description
LNP: Local Number Portability	Used to check the status of ported numbers.
NIW: Network Information Warehouse	Used to check for central office blocking.
MLT: Mechanized Loop Testing	Provides loop testing on the customer's line and diagnostic recommendations.
OSPCM: Outside Plant Construction Management System	The Navigator compatible replacement for Job Management Operations System (JMOS).
Predictor	Identifies and verifies line features present on the customer's line.
SNECS: Secured Network Element Contract Server	A peer-to- peer computer interface between TAFI and the Predictor and MARCH systems.
SOCS: Service Order Communication System	Issues a service order when adding a new feature to a customer's line, and verifies the status of an order.
DATH: Display Abbreviated Trouble History	A trouble history report showing the close out information on the previous trouble report.
DLETH: Display Extended Trouble History	A trouble history report showing each line of status on previous trouble reports.
DLR: Display Line Record	LMOS Display Line Record - Displays the customer's Line Record in LMOS.

If TAFI cannot identify the fault or determine the correct downstream system or work group to make the repairs, it routes the trouble to the Maintenance Assistant Screening Pool for further analysis.

The downstream systems and their relationship to TAFI are illustrated in figure 5-1.

Figure 5-1: BellSouth Trouble Administration Systems Used by ALECs



3.0 Methodology

This section summarizes the test methodology.

3.1 Scenarios

TAFI functionality was tested by manually processing maintenance and repair related scenarios via both dial-up and LAN-to-LAN connections. The transactions used in this evaluation were chosen to test the applicable TAFI functions across various line types including Unbundled Network Elements – Platform (UNE-P), resale and UNE-Ports. The scenarios represent a subset

of the scenarios defined in Appendix A³²⁸ from the Florida Master Test Plan (MTP). All basic TAFI functions³²⁹ were executed via a LAN-to-LAN connection and via dial-up access in order to ensure the consistency of responses associated with both methods of access.

Table 5-2: TAFI Functional Scenarios

Scenario Number	Scenario Description
1	Residential POTS customer with UNE-P ³³⁰ line is having problems with a vertical feature.
2	Business POTS customer with UNE-P line is having problems with a vertical feature.
3	Residential POTS customer with a UNE port service is having problems with a vertical feature.
4	Residential POTS customer with a UNE-P line is having transmission problems.
5	Residential POTS customer with a UNE port service is having transmission problems.
6	Business POTS customer with a UNE-P line is having transmission problems.
7	Business POTS customer with a UNE port service is having transmission problems.
8	Residential POTS customer with UNE port service has a problem with the area calling plan.
9	Business POTS customer with a UNE port service is having problems with out-going calls.
10	Residential POTS customer with UNE-P line has a problem with incoming calls.
11	Residential POTS customer with resale line is having problems with a vertical feature.
12	Residential POTS customer with UNE-P line is experiencing physical trouble with the line.
13	Residential POTS customer with two UNE port service has a dial tone problem on both lines.
14	Business customer with multiple UNE-P lines is having problems with incoming calls on two lines.
15	Business customer with multiple UNE-P lines is experiencing transmission problems on two lines.
16	Business customer with multiple UNE-P lines is experiencing troubles making out-going calls on two lines.

³²⁸ Appendix A contains suggested test scenarios for several M&R tests.

³²⁹ Not all test scenarios were executed in both the LAN-to-LAN and dial up modes.

³³⁰ Also referred to as loop/port combination or UNE combination

Scenario Number	Scenario Description
17	Business customer with multiple UNE-P lines is experiencing physical problems with two lines.
18	Business customer with multiple UNE-P lines is experiencing dial tone problems with two lines.
19	Business customer with multiple UNE-P lines is having problems with incoming calls on two lines.

3.2 Targets and Measures

The test target was the accessibility and functionality of TAFI, which included reviews of the following processes and sub-processes:

- ◆ Trouble Functionality (Reporting);
 - ◆ Create/enter trouble report (TR);
 - ◆ Modify TR;
 - ◆ Close/cancel TR;
 - ◆ Retrieve TR status;
- ◆ Trouble history access;
- ◆ Access to test capability;
 - ◆ Initiate MLT;
 - ◆ Receive MLT test results;
- ◆ Retail Comparison Functionality;
 - ◆ Functional equivalence to TAFI; and
 - ◆ Trouble reporting on newly migrated lines (Within 24 hours of Service Order.)

3.3 Data Sources

The data sources for the TAFI Functional Evaluation (TVV5) included the following:

- ◆ TAFI User Guide, Issue 5 – September 2000;
- ◆ CLEC TAFI End-User Training Manual, Issue 1 – March 2000;
- ◆ Functional test logs created while conducting the functional evaluation; and
- ◆ Functional test approach statements.

3.4 Data Generation/Volumes

This test did not rely on data generation/volume testing.

3.5 Evaluation and Analysis Methods

In preparation for functional testing, interviews and observations with BellSouth Customer Service Associates (CSA), Maintenance Administrators (MAs), and management personnel from the Residential Repair Center (RRC) and Business Repair Center (BRC) were conducted. Interview guides focusing on functionality in terms of usability and documentation served as the basis for initial questioning. Follow-up questions designed to expand the scope of some responses were also included. Interviews were conducted with ALECs providing service in Florida to understand their experiences in using TAFI.

This test was executed by exercising a defined set of TAFI functions associated with trouble management activities against test bed accounts. The CLEC TAFI User Guide and M&R test bed data were used to process 19 M&R test scenarios using TAFI. During testing, other functionality, such as edit rules, and designed errors, for example invalid entries, cancels, and repeat troubles were checked. These 19 scenarios comprised the input used to test the following product types: UNE-P POTS lines, resale POTS lines and UNE ports.

The following steps outline the test approach.

- ◆ The CLEC TAFI User Guide was reviewed to determine process steps for each of the functional tests associated with the 19 M&R scenarios defined in Table 5-2 above.
- ◆ Functional test approach statements, including expected results for each scenario, were completed using the CLEC TAFI User Guide.
- ◆ The functional test approach statements provided the key data to be entered in the TAFI system during test execution. Due to the decision tree logic embedded in TAFI, the exact data required to perform some of the functions could not be predetermined for the functional test approach statements by referencing the user manual. Therefore, the user manual was actively used during test execution.
- ◆ In order to prevent technicians from being unnecessarily dispatched and inappropriately interrupting BellSouth operations, KPMG Consulting, with the FPSC's concurrence, took the following steps for each trouble report created:
 - ◆ The phrase TST TCKT DN DISP / PLS IGNR was placed in the narrative section of each trouble report.
 - ◆ The commitment time was set at a date one month out.
- ◆ During test execution, functional test logs were used to document steps taken by KPMG Consulting and system responses. Two categories of evaluation criteria (functionality, usability) were considered as these system responses and comments were recorded.
- ◆ As part of the data entry process, TAFI fields were validated to ensure that invalid data were flagged and that required fields were populated.
- ◆ Test scripts for manual trouble reporting transactions to be called into the Customer Wholesale Interconnect Network Service (CWINS) Center were designed since the manual reporting of troubles is documented as the back up process to electronically entering troubles.
- ◆ A review was performed of BellSouth's ability to execute trouble ticket create functions, both manually and via TAFI, on newly migrated services within 24 hours of the service order completion.

The M&R TAFI Functional Evaluation (TVV5) included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the BellSouth Operations Support System (OSS) Evaluation. These evaluation criteria provided the framework of norms, standards, and guidelines for the M&R TAFI Functional Test (TVV5).

The data collected were analyzed employing the evaluation criteria detailed in Section 4.1 below.

4.0 Results

This section contains the overall test results.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 5-3. For additional exception and observation information, refer to Appendices D and E, respectively. The test criteria and results are presented in Table 5-4 below.

Table 5-3: TVV5 Exception and Observation Activity

Activity	Exceptions	Observations
Total Issued	0	0
Total Disposed as of Final Report Date	0	0
Total Remaining Open as of Final Report Date	0	0

Table 5-4: TVV5 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
Existence of Documented Functionality			
TVV5-1-1	The user is able to create and enter a trouble report using TAFI and receive responses as documented.	Satisfied [∞]	KPMG Consulting verified that the user is able to create and enter a trouble report using TAFI and receive responses as documented. In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion. TAFI was used to create 244 trouble tickets and 100% received the expected responses.
TVV5-1-2	The user is able to create a subsequent report using TAFI and receive	Satisfied [∞]	KPMG Consulting verified that the user is able to create a subsequent report using TAFI and receive responses as

[∞] Satisfied at the time of data collection, which was March 2001. As a result of the passage of time, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes.

Test Reference	Evaluation Criteria	Result	Comments
	responses as documented.		<p>documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to create 55 subsequent reports and 100% received the expected responses.</p>
TVV5-1-3	The user is able to enter multiple trouble reports (MTR) using TAFI and receive responses as documented.	Satisfied ^o	<p>KPMG Consulting verified that the user is able to enter multiple trouble reports (MTR) using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to enter 40 multiple trouble reports (MTR) for accounts experiencing problems on multiple lines. The user was able to create each MTR successfully and 100% received the expected responses.</p>
TVV5-1-4	The user is able to enter and retrieve trouble reports from the queue in TAFI and receive responses as documented.	Satisfied ^o	<p>KPMG Consulting verified that the user is able to enter and retrieve trouble reports from the queue in TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to enter and retrieve 75 trouble reports into and from the queue and 100% received the expected responses.</p>
TVV5-1-5	The user is able to execute supervisor functions within TAFI and receive responses as documented.	Satisfied ^o	<p>KPMG Consulting verified that the user is able to execute supervisor functions within TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to execute the reviewing and reassigning queued report supervisor functions. These functions were performed for 57 telephone numbers and</p>

Test Reference	Evaluation Criteria	Result	Comments
			100% received the expected responses.
TVV5-1-6	The user is able to close a trouble report using TAFI and receive responses as documented.	Satisfied ^{oo}	<p>KPMG Consulting verified that the user is able to close a trouble report using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to close 42 trouble tickets and 100% received the expected responses.</p>
TVV5-1-7	The user is able to cancel a trouble report using TAFI and receive responses as documented.	Satisfied ^{oo}	<p>KPMG Consulting verified that the user is able to cancel a trouble report using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to cancel 132 trouble tickets and 100% received the expected responses.</p>
TVV5-1-8	The user is able to retrieve trouble report status and receive responses as documented.	Satisfied ^{oo}	<p>KPMG Consulting verified that the user is able to retrieve trouble report status and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to retrieve the trouble report status on 140 lines and 100% received the expected responses.</p>
TVV5-1-9	The user is able to retrieve trouble history using TAFI and receive responses as documented.	Satisfied ^{oo}	<p>KPMG Consulting verified that the user is able to retrieve trouble history using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to retrieve the trouble history on 119 lines and 100% received</p>

Test Reference	Evaluation Criteria	Result	Comments
			the expected responses.
TVV5-1-10	The user is able to initiate a port and loop-port test (MLT) using TAFI and receive responses as documented.	Satisfied ^{oo}	KPMG Consulting verified that the user is able to initiate a port and loop-port test (MLT) using TAFI and receive responses as documented. In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion. TAFI was used to conduct 244 MLTs and 100% received the expected responses.
TVV5-1-11	The user is able to retrieve and view MLT test results using TAFI and receive responses as documented.	Satisfied ^{oo}	KPMG Consulting verified that the user is able to retrieve and view MLT test results using TAFI and receive responses as documented. In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion. TAFI was used to view 94 MLT test results and 100% received the expected responses.
TVV5-1-12	The user is able to retrieve a LMOS recent status report and receive responses as documented.	Satisfied ^{oo}	KPMG Consulting verified that the user is able to retrieve a LMOS recent status report and receive responses as documented. In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion. TAFI was used to retrieve 103 LMOS recent status reports and 100% received the expected responses.
TVV5-1-13	The user is able to obtain customer line record information (CRIS CSR) using TAFI and receive responses as documented.	Satisfied ^{oo}	KPMG Consulting verified that the user is able to obtain customer line record information (CRIS CSR) using TAFI and receive responses as documented. In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion. TAFI was used to view 86 CRIS CSR reports and 100% received the expected responses.

Test Reference	Evaluation Criteria	Result	Comments
TVV5-1-14	The user is able to obtain predictor results using TAFI and receive responses as documented.	Satisfied ^{oo}	<p>KPMG Consulting verified that the user is able to obtain predictor results using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to obtain predictor results 95 times and 100% received the expected responses.</p>
TVV5-1-15	The user is able to view Display Line Record (DLR) information using TAFI and receive responses as documented.	Satisfied ^{oo}	<p>KPMG Consulting verified that the user is able to view Display Line Record (DLR) information using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to view 134 DLR reports and 100% received the expected responses.</p>
TVV5-1-16	The user is able to view and resend transactions that incurred host request errors using TAFI and receive responses as documented.	Satisfied ^{oo}	<p>KPMG Consulting verified that the user is able to view and resend transactions that incurred host request errors using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to resend five transactions that had incurred host request errors and 100% received the expected responses.</p>
TVV5-1-17	The TAFI application provided for ALEC usage is the functional equivalent of the retail BellSouth system that is used for the same purpose.	Satisfied ^{oo}	<p>KPMG Consulting verified that the TAFI application provided for ALEC usage is the functional equivalent of the retail BellSouth system that is used for the same purpose.</p> <p>KPMG Consulting visited the Residential Repair Center and the Business Repair Center. Through interviews and observations, it was confirmed that BellSouth uses the same system (TAFI) to process retail trouble</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>reports that it provides to ALECs.</p> <p>The functionality of the BellSouth retail TAFI system was examined by observing BellSouth retail Maintenance Administrators operate the system in the performance of their regular duties. It was confirmed that BellSouth retail Maintenance Administrators use the same version of the TAFI system as provided to ALECs (v1.1.1). It was also confirmed that the BellSouth ALEC TAFI system provides the same functionality as the BellSouth retail TAFI system.</p>
Newly Transitioned Lines			
TVV5-2-1	The user is able to enter a UNE-P trouble report using TAFI within 24 hours of service order completion and receive a response as documented.	Satisfied [#]	<p>KPMG Consulting was able to verify that the user is able to enter a UNE-P trouble report using TAFI within 24 hours of service order completion and receive a response as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to create 35 trouble tickets within 24 hours of service order completion and 100% received the expected responses.</p>
TVV5-2-2	The user is able to enter a UNE-P trouble report manually through a phone call to the Customer Wholesale Interconnect Network Service (CWINS) Center immediately after the receipt of the provisioning completion message (PCM), and obtain a response as documented.	Satisfied [#]	<p>KPMG Consulting verified that the user is able to enter a UNE-P trouble report manually through a phone call to the Customer Wholesale Interconnect Network Service (CWINS) Center immediately after the receipt of the provisioning completion message (PCM), and obtain a response as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>The BellSouth Resale Maintenance Center was used to create 35 trouble reports immediately after receipt of the</p>

[#] Satisfied between October 17, 2001 and December 7, 2001.

Test Reference	Evaluation Criteria	Result	Comments
			PCM and 100% received the expected responses.
TVV5-2-3	The user is able to retrieve trouble history from reports created within 24 hours of service order completion using TAFI and receive responses as documented.	Satisfied [#]	<p>KPMG Consulting verified that the user is able to retrieve trouble history from reports created within 24 hours of service order completion using TAFI and receive responses as documented.</p> <p>In the absence of a defined standard KPMG Consulting applied a benchmark of 95% to this criterion.</p> <p>TAFI was used to retrieve the trouble history on 70 lines with troubles created within 24 hours of service order completion and 100% received the expected responses.</p>
TAFI Usability			
TVV5-3-1	The usability and timeliness of the TAFI application provided for ALEC usage is the functional equivalent of the retail BellSouth system that is used for the same purpose.	Satisfied ^o	<p>KPMG Consulting verified that the TAFI application usability and timeliness provided for ALEC usage is the functional equivalent of the retail BellSouth system that is used for the same purpose.</p> <p>TAFI looks and responds the same for ALEC and BellSouth retail users.</p>

5.0 Parity Evaluation

This section contains the parity evaluation that compared the usability and timeliness of the TAFI application provided for ALEC usage with the TAFI application used for retail trouble administration.

5.1 Overview

In accordance with the Florida MTP, KPMG Consulting reviewed the BellSouth provided TAFI User Guides and performed transactions to verify the functions and to become knowledgeable with the system used to support wholesale service. With a full understanding of the TAFI functionality provided to ALEC users, KPMG Consulting interviewed and observed BellSouth employees in the RRC and BRC as they performed trouble administration activity using TAFI in support of retail service. Through observations of, and interviews with retail employees, KPMG

Consulting was then able to compare the wholesale and retail system transactions to see if the wholesale functionality was in parity with that provided for retail service. KPMG Consulting determined that BellSouth processes for managing wholesale and TAFI transactions are in parity with processes used to manage retail system TAFI transactions.

5.2 Method of Analysis

KPMG Consulting conducted interviews with BellSouth employees and observed as they performed maintenance activity using the TAFI system provided in support of retail service to see if the features and functions of the TAFI system provided for ALEC use was in parity with that of retail.

5.3 Results

A summary of the results of the KPMG Consulting parity evaluation is presented in Table 5-5 below:

Table 5-5: TAFI Systems, Retail to Wholesale Parity Comparison

Process Target Area	TAFI System Provided for Retail	TAFI System Provided for ALECs	KPMG Consulting Comments
Usability	<p>KPMG Consulting observed BellSouth employees perform transactions in support of retail trouble administration which included:</p> <p>Creating a trouble, modifying a trouble, retrieving status for a trouble, performing MLTs on accounts and, retrieving histories on closed reports.</p> <p>The observations looked at the data required to perform transactions, the format of screens and the results of transactions.</p>	<p>KPMG Consulting performed transactions against ALEC accounts which included:</p> <p>Creating a trouble, modifying a trouble, retrieving status for a trouble and performing MLTs on ALEC accounts, and, retrieving histories on closed reports.</p> <p>The tester made note of the data required to perform transactions, the format of screens and the results of transactions.</p>	<p>KPMG Consulting concluded that the system provided for wholesale maintenance activity was in parity with the system provided in support of retail maintenance activity.</p> <p>As was stated in the interviews with BellSouth, both systems are the same. No difference was observed in basic functionality other than the security rules that restrict ALEC’s access to only those accounts for which they are the account owner.</p>
Timeliness	<p>KPMG Consulting watched the retail users process troubles and observed the time required for transactions to complete.</p>	<p>KPMG Consulting testers observed the time required for transactions to complete as they were performed on ALEC accounts.</p>	<p>KPMG Consulting concluded that the timeliness of TAFI transactions for the wholesale maintenance activity was in parity with the system</p>

Process Target Area	TAFI System Provided for Retail	TAFI System Provided for ALECs	KPMG Consulting Comments
			timeliness provided in support of retail maintenance activity. KPMG Consulting found that all transactions times can fluctuate; however, there was no noticeable difference between the transaction times between wholesale and retail maintenance transactions.

6.0 Final Summary

This section summarizes the number of test evaluation criteria discussed in Table 5-4 above and the number that was satisfied or not satisfied at the conclusion of this test.

6.1 Summary of Findings

There were 21 evaluation criteria considered for the M&R TAFI Functional Evaluation (TVV5) test. Eighteen of the 21 evaluation criteria were satisfied at the time of data collection in March 2001. As a result of the passage of time since data collection, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes associated with these 18 evaluation criteria.

Three evaluation criteria, TVV5-2-1, TVV5-2-2 and TVV5-2-3, were satisfied between October 17, 2001 and December 7, 2001. KPMG Consulting considers these three evaluation criteria of the M&R TAFI Functional Evaluation (TVV5) area satisfied at the time of the final report delivery.

E. Test Results: M&R ECTA Functional Evaluation (TVV6)

1.0 Description

The Maintenance and Repair (M&R) Electronic Communication Trouble Administration (ECTA) Functional Evaluation (TVV6) was a comprehensive review of all of the functional elements of BellSouth's ECTA System and its conformance to documented interface specifications for M&R trouble reporting. The test was divided into two phases: Phase-1 was a basic functional evaluation of the ECTA Gateway and Phase-2 was an industry standard comparison. Phase-2 was conducted by comparing the functional elements of ECTA to those outlined in the American National Standards Institute (ANSI) T1.227, T1.228 and T1.262 standards for trouble administration.

This test was conducted by submitting trouble administration transactions against test bed accounts to the ECTA Gateway and analyzing ECTA Gateway responses to these transactions.

2.0 Business Process

This section describes BellSouth's ECTA business processes.

2.1 Business Process Description

ECTA is an electronic bonding system that provides connectivity to BellSouth's backend Loop Maintenance Operating System (LMOS) and Work Force Administration/Control (WFA/C) systems. ECTA routes trouble tickets for non-design service to LMOS and trouble tickets for design circuits to WFA/C.

The electronic bonding platform design classifies the host company (i.e. BellSouth) as the system agent and the external user (i.e. Alternate Local Exchange Carrier (ALEC)) as the system manager. The ALEC gateway is installed and maintained by the ALEC system manager. The ALEC gateway is connected to the BellSouth gateway, which has access to the appropriate backend operations support systems (OSS) such as LMOS and WFA/C. The communication between the ALEC and BellSouth gateways is done using the national standards format.

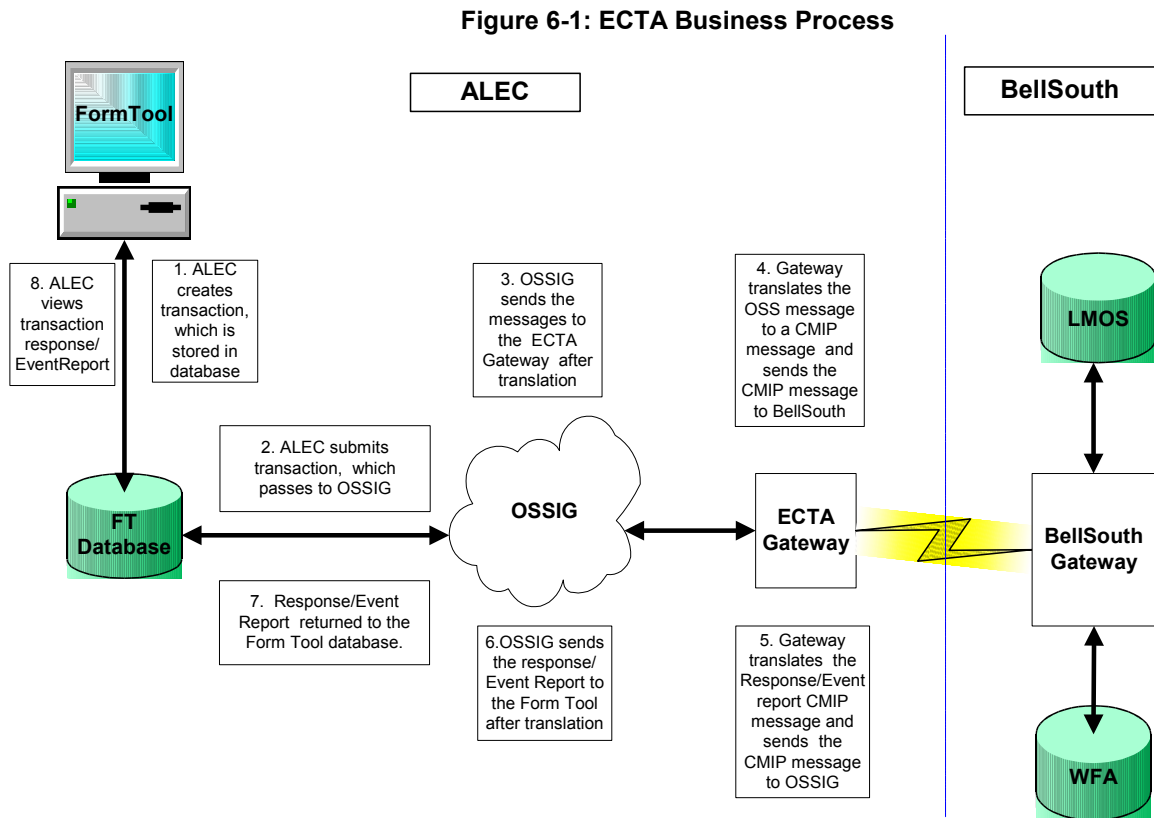
For purposes of testing, transactions initiated by KPMG Consulting³³¹ consisted of data inserted into mandatory fields in KPMG Consulting's front-end tool, which is known as the Form Tool. The data submitted via the Form Tool was processed by the Form Tool Database³³². From the database, the data flowed to the Operational Support System Interconnection Gateway (OSSIG)³³³. From OSSIG, the transactions were submitted to the ECTA Gateway (on KPMG Consulting's side), which translated the data and routed it to the BellSouth Gateway (Agent Gateway). The translated data, once submitted to the BellSouth gateway, was processed and routed to the appropriate BellSouth back-end systems such as LMOS and WFA. Responses originated from BellSouth backend systems follow the architecture described above, in the opposite direction.

³³¹ KPMG Consulting's Account Name as outlined in the Joint Implementation Agreement version 05/08/00 between BellSouth and KPMG Consulting is CKS.

³³² For comparative purposes, KPMG Consulting's Form Tool Database (shown in Figure 6-1), represents a real-world ALEC's back-end systems (such as LMOS and WFA).

³³³ The OSSIG gateway is an internal component of KPMG Consulting's ECTA architecture.

The diagram below illustrates the processes involved with the transfer of trouble administration transactions between KPMG Consulting’s front-end tool to the BellSouth ECTA Gateway.



3.0 Methodology

This section summarizes the test methodology.

3.1 Scenarios

A subset of scenarios listed in Appendix A of the Florida Master Test Plan (MTP) was used. The objective of the test was to evaluate ECTA system functionality and therefore all of the scenarios listed in Appendix A are not applicable.

3.2 Test Targets and Measures

The test target was the ECTA maintenance and repair functionality and included reviews of the following sub-processes:

- ◆ Create non-design trouble report;
- ◆ Create complex and designed trouble report;
- ◆ Modify trouble report;

- ◆ Close/Cancel trouble report;
- ◆ Front end trouble close out;
- ◆ Retrieve trouble status;
- ◆ Initiate Mechanized Loop Test (MLT) test;
- ◆ Receive MLT test results; and
- ◆ Compare functions to industry standards.

3.3 Data Sources

The sources of data for this test included reviews of the Joint Implementation Agreement (JIA) version 05/08/00, the ANSI T1.227, T1.228 and T1.262 standards and the ECTA Start-Up Guide.

3.4 Data Generation/Volumes

This test did not rely on data generation or volume testing.

3.5 Evaluation and Analysis Methods

The objective of the M&R ECTA Functional Evaluation (TVV6) test was to validate the existence and performance of ECTA trouble reporting and screening functionality for both telephone number-assigned and circuit identified services, in accordance with BellSouth's specifications and the ANSI T1.227, T1.228 and T1.262 standards for trouble administration. KPMG Consulting expected that the national standards would be followed unless specified differently in the JIA.

The following ECTA functions were tested in the M&R ECTA Functional Evaluation (TVV6):

- ◆ MLT;
- ◆ Create trouble ticket;
- ◆ Modify trouble ticket;
- ◆ Add trouble information;
- ◆ Status inquiry;
- ◆ Close/Cancel trouble ticket; and
- ◆ Verify/Deny response.

The functional evaluation tested each of the ECTA functional processes against two criteria: presence of functionality and performance according to documentation.

The following steps outline the test approach:

1. A list of test scenarios was developed to exercise the functionality of the ECTA Gateway across all available Resale, Unbundled Network Element (UNE) and Unbundled Network Element – Platform (UNE-P) line types. To obtain an exhaustive list of available ECTA Gateway functionality, KPMG Consulting followed the process an ALEC uses in implementing an interface to the BellSouth ECTA Gateway. The standard process involves

an ALEC requesting that BellSouth support certain functionality and system objects in the ECTA Gateway. Negotiations between BellSouth and the ALEC occur to define final functionality and object support. KPMG Consulting followed this request/negotiation process by presenting BellSouth ECTA managers and developers with a list of T1M1 compliant functions³³⁴ and asking BellSouth to extract from that list an exhaustive set of available ECTA Gateway functions.

2. A test scenario portfolio was developed for each scenario. The portfolio included:
 - ◆ Data entry files for each ECTA function within a scenario that required data to be entered into the KPMG Consulting Form Tool;
 - ◆ System steps to be submitted to the test interface;
 - ◆ BellSouth Maintenance Administrator steps for functions that required responses from backend systems; and
 - ◆ Expected results for each function.

Data entry was based on information obtained from the JIA and information provided by BellSouth Maintenance and Systems Development personnel on use of ECTA.

Data entry files from step two were uploaded into the Form Tool system.

Using the test scenario portfolios, the test scenarios were executed by:

- ◆ Using the Form Tool to access and submit data entry files to the ECTA Gateway;
- ◆ Using the Form Tool to submit transactions directly to the ECTA Gateway; and
- ◆ Prompting a BellSouth Maintenance Administrator to submit responses to the ECTA Gateway from a backend system.

The ECTA Gateway system agent log and response messages to the ECTA Test Interface were analyzed to evaluate responses and determine response times from the ECTA Gateway. System responses were documented in a test log and errors were categorized by the following underlying causes:

- ◆ ECTA functional deficiency; and
- ◆ User error.

Data from step five were compiled and mapped against the individual assessment criteria.

The M&R ECTA Functional Evaluation (TVV6) included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the BellSouth OSS Evaluation. These evaluation criteria provided the framework of norms, standards and guidelines for the M&R ECTA Functional Evaluation (TVV6).

4.0 Results

This section contains the overall test results.

³³⁴ The ANSI T1.228 standard lists 18 functions that can be included in a T1M1 compliant gateway. In addition, ANSI T1.262 adds the POTS line testing function (MLT) to the original 18.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 6-1. For additional exception and observation information, refer to Appendices D and E, respectively. The evaluation criteria and test results are presented in Table 6-2.

Table 6-1: TVV6 Exception and Observation Activity

Activity	Exceptions	Observations
Total Issued	0	3
Total Disposed as of Final Report Date	0	3
Total Remaining Open as of Final Report Date	0	0

Table 6-2: TVV6 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
TVV6-1	The user is able to enter trouble reports on established non-design service accounts via ECTA and receive the expected responses.	Satisfied*	KPMG Consulting validated that the user is able to enter trouble reports on established non-design service accounts via ECTA and receive the expected responses. KPMG Consulting applied a benchmark of 95%. Following the criteria set forth in the JIA, ECTA was used to enter 40 trouble reports on established non-design service accounts. Expected responses were received on 100% of the transactions.
TVV6-2	The user is able to enter trouble reports on established design and complex services accounts via ECTA and receive the expected responses.	Satisfied*	KPMG Consulting validated that the user is able to enter trouble reports on established design and complex services accounts via ECTA and receive the expected responses. KPMG Consulting applied a benchmark of 95%. Following the criteria set forth in the JIA, ECTA was used to enter 37 trouble reports on established design and complex services accounts. Expected responses were received on 100% of the

* Satisfied at the time of data collection, which was February 2001. As a result of the passage of time, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes.

Test	Evaluation Criteria	Result	Comments
			transactions.
TVV6-3	The user is able to request trouble report status from ECTA and receive the expected responses.	Satisfied*	<p>KPMG Consulting validated that the user is able to request trouble report status from ECTA and receive the expected responses.</p> <p>KPMG Consulting applied a benchmark of 95%.</p> <p>Following the criteria set forth in the JIA, ECTA was used to check the status of 11 trouble tickets. Expected responses were received on 100% of the transactions.</p>
TVV6-4	The user is able to add trouble information to ECTA trouble reports and receive the expected response.	Satisfied*	<p>KPMG Consulting validated that the user is able to add trouble information to ECTA trouble reports and receive the expected response.</p> <p>KPMG Consulting applied a benchmark of 95%.</p> <p>Following the criteria set forth in the JIA, ECTA was used to add information to 17 trouble reports. Expected responses were received on 100% of the transactions.</p>
TVV6-5	The user is able to modify trouble administration information on ECTA trouble reports and receive expected responses.	Satisfied*	<p>KPMG Consulting validated that the user is able to modify trouble administration information on ECTA trouble reports and receive expected responses.</p> <p>KPMG Consulting applied a benchmark of 95%.</p> <p>Following the criteria set forth in the JIA, ECTA was used to modify information on 18 trouble reports. Expected responses were received on 100% of the transactions.</p>
TVV6-6	The user is able to close/cancel trouble reports in ECTA and receive the expected responses.	Satisfied*	<p>KPMG Consulting validated that the user is able to close/cancel trouble reports in ECTA and receive the expected responses.</p> <p>KPMG Consulting applied a benchmark of 95%.</p> <p>Following the criteria set forth in the</p>

Test	Evaluation Criteria	Result	Comments
			JIA, ECTA was used to close/cancel 20 trouble tickets. Expected responses were received on 100% of the transactions.
TVV6-7	The user is able to respond to trouble repair completion notifications and receive the expected response.	Satisfied*	KPMG Consulting validated that the user is able to respond to trouble repair completion notifications and receive the expected response. KPMG Consulting applied a benchmark of 95%. Following the criteria set forth in the JIA, ECTA was used to verify repair completion on six trouble tickets. All variations of the verify transactions were tested. Expected responses were received on 100% of the transactions.
TVV6-8	The user is able to initiate and conduct Mechanized Loop Tests and receive expected responses.	Satisfied ³³⁵	KPMG Consulting validated that the user is able to initiate and conduct Mechanized Loop Tests and receive expected responses. KPMG Consulting applied a benchmark of 95%. Following the criteria set forth in the JIA, ECTA was used to submit 40 MLT transactions. Expected responses were received on 38 of the 40 transactions resulting in 95% success ³³⁶ .
TVV6-9	The ECTA system adheres to industry standards.	Satisfied*	KPMG Consulting validated that the ECTA system adheres to industry standards. A total of 187 transactions were transmitted via ECTA to verify that all electronic bonding attributes were designed according to TIM1 standards and JIA requirements. All transactions were submitted and received according to the industry standards.

5.0 Parity Evaluation

³³⁵ Satisfied as of March 2002.

³³⁶ KPMG Consulting did not build the MLT interface on the ECTA system. Testing was completed with the assistance of a Friendly CLEC.

A parity evaluation was not required for this test.

6.0 Final Summary

This section summarizes the number of test evaluation criteria discussed above and the number that was satisfied or not satisfied at the conclusion of this test.

6.1 Summary of Findings

There were nine evaluation criteria considered for the M&R ECTA Functional Evaluation (TVV6) test. Eight evaluation criteria were satisfied at the time of data collection, which was February 2001. As a result of the passage of time since data collection, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes for eight evaluation criteria.

TVV6-8 evaluation criterion was retested in March 2002 as a result of an observation. KPMG Consulting considers this evaluation criterion of the M&R ECTA Functional Evaluation (TVV6) area satisfied at the time of the final report delivery.

F. Test Results: M&R TAFI Performance Evaluation (TVV7)

1.0 Description

The Maintenance and Repair (M&R) Trouble Analysis Facilitation Interface (TAFI) Performance Evaluation (TVV7) was a transaction driven test designed to evaluate the behavior of the BellSouth trouble administration system and its interfaces under varying load conditions. The objective of this evaluation was to test the responsiveness of the BellSouth trouble administration system developed for Alternative Local Exchange Carriers (ALEC) during normal, peak, and stress load conditions.

The M&R TAFI Performance Evaluation (TVV7) was conducted in two phases. In Phase I, TAFI responsiveness was measured for normal and peak loads. Transaction sets were used in Phase I to simulate projected March 2002 volumes for normal, peak busy hour, and peak busy day operations. In Phase II, TAFI responsiveness was measured for stress loads. Phase I normal load tests were executed on March 12, 2001 and March 14, 2001 and the peak load test was executed on March 26, 2001. The Phase II stress load test was executed on March 28, 2001.

The M&R TAFI Performance Evaluation (TVV7) was executed in BellSouth's production environment by exercising a defined set of TAFI functions associated with trouble management activities against test bed accounts. The TAFI functions that were targeted by this test included the entry and resolution of trouble reports, access to test capabilities, access to trouble history, and access to back-end systems that are used by the TAFI application.

2.0 Business Process

This section describes BellSouth's TAFI business process.

2.1 Business Process Description

TAFI is a rules-based system that provides automated trouble receipt and screening functionality to both ALEC and BellSouth retail repair center users. TAFI is designed to guide users through a series of questions and instructions in order to allow an initial point of contact to resolve or route non-design customer service problems. TAFI acts as a tool that collects data from the user and the various downstream systems in order to generate recommendations for resolving Plain Old Telephone Service (POTS) problems. Reports generated by TAFI fall into one of three categories: resolved/closed, routed to the appropriate entity for resolution, or cancelled. While TAFI does not perform any repair functions, it directs to downstream systems that can repair certain trouble types in real time such as vertical features.

The TAFI application is used for the following M&R transactions:

- ◆ Create Trouble Reports including multiple (reporting more than one telephone number) and subsequent trouble reports;
- ◆ Cancel Trouble Reports;
- ◆ Initiate Mechanized Loop Test (MLT);
- ◆ Receive MLT Results;
- ◆ Retrieve Loop Maintenance Operating System (LMOS) Recent Status Report;

- ◆ Obtain Customer Line Records;
- ◆ Obtain Predictor results;
- ◆ View Display Line Record (DLR);
- ◆ Retrieve Trouble History; and
- ◆ Use of TAFI provided Supervisor Functions;

2.1.1 TAFI Application

TAFI is accessed using a Telnet protocol through a Local Area Network- to- Local Area Network (LAN-to-LAN) or dial-up connection³³⁷ to BellSouth. TAFI uses a unique window format that is divided into three types: Main Menu, Sub Menus, and Pop-up Windows.

Both BellSouth Retail and ALECs use the TAFI system for handling POTS trouble reports. The version created for ALECs is similar to the BellSouth retail version for trouble processing functionality, with the following differences:

- ◆ The ALEC is restricted to accessing BellSouth records for its own customers.
- ◆ The TAFI Supervisor function is confined for a given CLEC User Group,
- ◆ BellSouth Retail processes its residential and business customers on different TAFI servers, while there is currently one system for all ALEC customers.

TAFI interacts with specific BellSouth downstream systems, the functions of which fall within two primary areas:

- ◆ Trouble administration systems for non-design service; and
- ◆ Test systems for fault identification.

The downstream systems and their functions, as well as reports accessed by TAFI are highlighted in Table 7-1 below. Multiple copies of TAFI exist for load balancing purposes, and provide identical functionality.

Table 7-1: BellSouth M&R Downstream Systems and Reports Accessed by TAFI

System	Description
CRIS: Customer Record Inventory System	Provides service order information including Name, Address, Class of Service, Maintenance Plan, Restrictions, Features, and Preferred Interexchange Carrier (PIC).
LMOS: Loop Maintenance Operations System	Supplies trouble ticket processing and the following information: Name and Address verification, Working condition, Trouble History, Commitments, Failure information, Unit #, Pending Reports, Status, Category of Report and Pending Service Order information.
MARCH: Memory Administration Recent Change History	Provides the mechanism to add or delete switch features to or from a line.

³³⁷ TAFI does not support a Graphical User Interface (GUI).

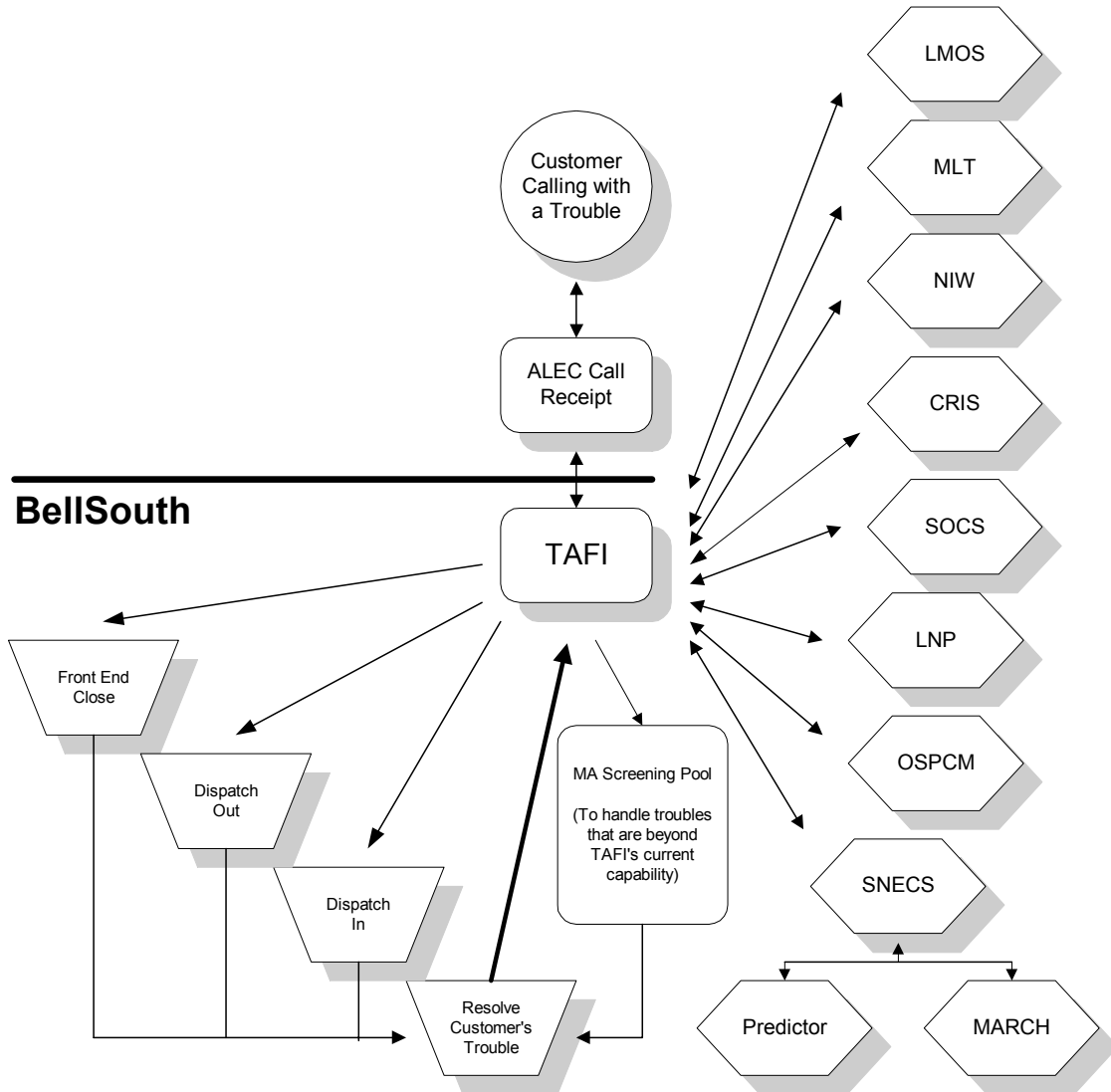
System	Description
MLT: Mechanized Loop Testing	Provides loop testing on the customer's line and diagnostic recommendations.
OSPCM: Outside Plant Construction Management System	The Navigator compatible replacement for JMOS.
Predictor	Identifies and verifies line features present on the customer's line.
SNECS: Secured Network Element Contract Server	A peer-to-peer computer interface between TAFI and the Predictor and MARCH systems.
SOCS: Service Order Communication System	Issues a service order when adding a new feature to a customer's line, and verifies the status of an order.
DATH: Display Abbreviated Trouble History	An LMOS trouble history report showing the close out information on the previous trouble report.
DLETH: Display Extended Trouble History	An LMOS trouble history report showing each line of status on previous trouble reports.
DLR: Display Line Record	Displays the customer's Line Record in LMOS.
LNP: Local Number Portability Status	Checks the status of the ported numbers.
NIW: Network Information Warehouse	Checks for Central Office blocking.

If TAFI cannot identify the fault or determine the correct downstream system or work group to make the repairs, it routes the trouble to either the Maintenance Assistant Screening Pool for further analysis or to the Work Management Center (WMC) for dispatching of technicians to the Central Office (Dispatch In) or the customer site (Dispatch Out).

The downstream systems and their relationship to TAFI are illustrated in figure 7-1³³⁸.

³³⁸ Figure 7-1 represents Figure 2 from BellSouth's Trouble Processing with TAFI in the CLEC TAFI User Guide, Issue 5, September 2000.

Figure 7-1: BellSouth Trouble Administration Systems Used by ALECs



3.0 Methodology

This section summarizes the test methodology.

3.1 Scenarios

Scenarios are not applicable to the M&R TAFI Performance Evaluation (TVV7); however the transaction sets included a mix of the following M&R transaction types consistent with current system usage:

- ◆ Create trouble reports;
- ◆ Cancel trouble reports;
- ◆ Initiate MLT results;
- ◆ Receive MLT results;
- ◆ Retrieve LMOS recent status report;
- ◆ Obtain customer service records (CSR);
- ◆ Obtain Predictor results;
- ◆ View DLR; and
- ◆ Retrieve trouble history.

3.2 Test Targets and Measures

The test target was the TAFI system. Included in the evaluation were the following processes and sub-processes:

- ◆ Performance;
 - ◆ Projected normal loads;
 - ◆ Projected peak loads;
 - ◆ Projected stress load;
- ◆ TAFI back-end system response times;
 - ◆ LMOS;
 - ◆ CRIS;
 - ◆ Predictor
 - ◆ DLR;
- ◆ DLETH;
- ◆ MLT;
- ◆ Trouble reporting;
 - ◆ Create;
 - ◆ Close/cancel trouble report; and

- ◆ Test Capability - Mechanized Loop Test (MLT).

3.3 Data Sources

The data sources for the M&R TAFI Performance Evaluation (TVV7) include the following:

- ◆ TAFI User Guide, Issue 5, September 2000;
- ◆ Volume forecast and analysis;
- ◆ Test result data extracted from the TAFI system; and
- ◆ Response time data for normal, peak and stress days.

3.4 Data Generation/Volumes

A scripting tool was used to submit transactions at projected March 2002 normal, peak, and stress loads. KPMG Consulting collected the transaction times and counts for use in the test data analysis.

For the purpose of this test, each day consisted of seven normal hours and five peak hours. Every peak hour corresponded to a transaction flow rate that was 1.5 times the normal flow rate while every stress hour corresponded to a transaction flow rate that was 2.5 times the normal flow rate.

Since the volume test was executed on BellSouth's TAFI system during normal business hours, KPMG Consulting accounted for the volume of live transactions that went through the TAFI system while the volume test transactions occurred. The number of transactions created every hour was the difference in the March, 2002-forecasted number and the actual numbers for February 2001. The different load conditions are summarized in the table below.

Table 7-2: TAFI Load Conditions

Load Condition	Definition
Normal Hour Load	Load based on projected March 2002 minus February 2001 Normal Load
Peak Hour Load	Load based on 1.5 times Load based on projected March 2002 minus February 2001 Normal Load
Stress Hour Load	Load Based on 2.5 times Load based on projected March 2002 minus February 2001 Normal Load

The TAFI application is shared by all nine states in the BellSouth region. Transactions entered into the TAFI application are routed to backend systems for each state. In order to simulate a Florida only volume for BellSouth, KPMG Consulting also simulated volume entering the BellSouth TAFI gateway for the other eight BellSouth states. Only Florida transactions for BellSouth were processed by the backend systems. Non-Florida BellSouth transactions were simulated by submitting trouble tickets to the TAFI training environment. The training environment stops transactions from accessing the backend systems.

3.4.1 March 2002 Projected Normal Volume Load

BellSouth projected that by March 2002 ALECs will have approximately 5.6 million BellSouth lines in use. The projected lines by product type for March 2002 are as follows:

Table 7-3: BellSouth Lines Projection as of March 2002

Line Type	March 2002 Lines
Resale	1,831,146
UNE Loop and Port	2,300,040
Other (includes LNP, unbundled loops)	1,477,523
Total	5,608,709

The total projected troubles reported through the TAFI gateway in March 2002 are the sum of all the individual troubles by line type. A trouble report rate per line per month of 3%³³⁹ and the assumption that TAFI is used to report troubles for 50%³⁴⁰ of POTS lines were applied to the March 2002 projected lines in service. BellSouth reported that circuits such as Local Number Portability (LNP) and unbundled loops have a lower trouble report rate. Thus, in order to adjust “TAFI usage load” for the lower trouble report rate, a correction factor of 27.9%³⁴¹ was applied to lines comprising the “Other” Line Type category in Table 7-3. The result of the application of these assumptions to the projected March 2002 lines in use is exhibited in Table 7-4 below:

Table 7-4: Projected March 2002 BellSouth TAFI Usage Load

Line Type	March 2002 Lines	Trouble Report Rate	TAFI use for Trouble Reporting	Projected March 2002 Troubles
Resale	1,831,146	3%	50%	27,467 ³⁴²
UNE Loop & Port	2,300,040	3%	50%	34,501 ³⁴³
Other (includes LNP, unbundled loops)	1,477,523	3%	50%	6,183 ³⁴⁴
Total				68,151

As exhibited in Table 7-4, a total of 68,151 wholesale trouble reports were projected to be reported via TAFI in March 2002.

³³⁹ Data provided by BellSouth.

³⁴⁰ Assumption made by BellSouth in order to account for other means of trouble reporting such as phone, fax, and Electronic Communication Trouble Administration (ECTA).

³⁴¹ The 27.9% correction factor is calculated by taking a weighted average of BellSouth reported LNP trouble impact of 15% and a 50% trouble reports closed to loop problems.

³⁴² The number is calculated by multiplying 1,831,146 * 0.03 * 0.50.

³⁴³ The number is calculated by multiplying 2,300,040 * 0.03 * 0.50.

³⁴⁴ The number is calculated by multiplying 1,477,523 * 0.03 * 0.50 * 0.279. The 0.279 is LNP correction factor.

3.4.2 February 2001 Projected Normal Volume Load

BellSouth data on the wholesale lines in use in February 2001 is outlined below in Table 7-5:

Table 7-5: Bell South Lines Projection as of February 2001

Line Type	February 2001 Lines
Resale	1,204,067
UNE Loop and Port	1,509,067
Other (includes LNP, unbundled loops)	950,299
Total	3,663,433

The total projected troubles reported through the TAFI gateway in February 2001 are the sum of all the individual troubles by line type. A trouble report rate per line per month of 3%³⁴⁵ and the assumption that TAFI is used to report troubles for 50%³⁴⁶ of POTS lines were applied to the February 2001 projected lines in service. BellSouth reported that circuits such as LNP and unbundled loops have a lower trouble report rate. Thus, in order to adjust “TAFI usage load” for the lower trouble report rate, a correction factor of 27.9%³⁴⁷ was used. The result of the application of these assumptions to the projected February 2001 lines in use is exhibited in Table 7-6 below:

Table 7-6: February 2001 BellSouth Calculated TAFI Usage Load

Line Type	March 2002 Lines	Trouble Report Rate	TAFI use for Trouble Reporting	Projected February 2001 Troubles
Resale	1,204,067	3%	50%	18,061 ³⁴⁸
UNE Loop & Port	1,509,067	3%	50%	22,636 ³⁴⁹
Other (includes LNP, unbundled loops)	950,299	3%	50%	3,977 ³⁵⁰
Total				44,674

The number of trouble reports per hour was calculated by assuming that 90% of trouble reports occur on the 22 average weekdays during a month and that 85% of all daily trouble tickets are handled between 7 a.m. and 7 p.m. It was also assumed that a BellSouth normal 12-hour day

³⁴⁵ Data provided by BellSouth.

³⁴⁶ Assumption made by BellSouth in order to account for other means of trouble reporting such as phone, fax, and Electronic Communication Trouble Administration (ECTA).

³⁴⁷ The 27.9% correction factor is calculated by taking a weighted average of BellSouth reported LNP trouble impact of 15% and a 50% trouble reports closed to loop problems.

³⁴⁸ The number is calculated by multiplying 1,204,067 * 0.03 * 0.50.

³⁴⁹ The number is calculated by multiplying 1,509,067 * 0.03 * 0.50.

³⁵⁰ The number is calculated by multiplying 950,299 * 0.03 * 0.50 * 0.279. The 0.279 is LNP correction factor.

consists of 14.5 (seven normal hours and five peak hours, where each peak hour is 1.5 times a normal hour) normal hours. The application of these assumptions³⁵¹ to the projected March 2002 and February 2001 total monthly trouble reports yields Table 7-7:

Table 7-7: Calculated February 2001 and March 2002 Hourly Trouble Reports

Date	Projected Troubles	Week Day Trouble tickets	Average Week days in Month	Tickets handled from 7 a.m. to 7 p.m.	Normal 12-hour day consists of seven normal hours and five peak hours	Trouble Reports
March, 2002	68,151	90%	22	85%	14.5	163 ³⁵²
February, 2001	44,674	90%	22	85%	14.5	107 ³⁵³
Difference between March 2002 and February 2001						56

Since the volume test was executed in a live environment, KPMG Consulting accounted for the volume of live transactions that went through the TAFI system while the volume test was conducted. The difference of the projected load for March 2002 and the trouble report load expected during a normal hour on the test date in February 2001 was submitted. The number of transactions submitted per hour is shown above in Table 7-7 and is calculated as 56.

Several transactions occurred for each trouble report entered into TAFI. The frequency of each transaction that occurred for every trouble reported is defined in Table 7-8: Transactions Per Hour – Normal Volume.

According to BellSouth documentation, 18.42% of the trouble report volume was specific to Florida. Table 7-8 also lists the Florida bound transaction distribution projected for a normal hour. Therefore, 10 (.1842*56) of the 56 normal load test's trouble reports accessed backend systems in Florida, while the other 46 were captured at the TAFI processor and proceeded no further.

Table 7-8: Transactions Per Hour - Normal Volume

Transaction	Transactions / Create	FL - Transactions/ Hour	Total Transactions/ Hour
Create trouble reports			
Communicate with LMOS	1.0	10	56
Obtain customer line records (CRIS)	1.0	10	56

³⁵¹ The assumptions outlined in this paragraph are standard KPMG Consulting assumptions formulated and applied based on professional judgment.

³⁵² The number was calculated using the numbers from the table $(68,151 * 0.9 \div 22) * .85 / 14.5$.

³⁵³ The number was calculated using the numbers from the table $(44,674 * 0.9 \div 22) * .85 / 14.5$.

Transaction	Transactions / Create	FL - Transactions/	Total Transactions/
View Direct Line Record (DLR)	1.0	10	56
Initiate Mechanized Loop Test (MLT)	0.60	6	34
View MLT test results	0.60	6	34
Obtain Predictor results	0.04	1	2
Retrieve trouble history (DLETH)	0.04	1	2
Cancel Trouble Ticket	1.00 ³⁵⁴	10	56
Total		54	296

The normal test consisted of two days of 12 hours of normal load volume testing. The normal day tests were conducted on March 12 and March 14, 2001 and consisted of 56 transactions per hour. The goal was to execute at least 1,344 (24*56) transactions over a period of 2 normal load days.

3.4.3 Peak Volume Load

The peak hour was conducted at a load of 1.5 times the normal volume. The 558 transactions per hour calculated as the peak volume were used as the load for the peak volume test. According to BellSouth documentation, 18.42% of trouble report volume is specific to Florida. Therefore, 103 (.1842*558) of the 558 peak load test's transactions accessed backend end systems in Florida, while the other 455 were captured at the TAFI processor and proceeded no further.

The peak test consisted of 12 hours of peak load volume testing. The peak day test was conducted on March 26, 2001. The goal was to execute at least 1,236 (12*103) transactions over a period of one peak load day.

3.4.4 Stress Volume Load

The stress load was conducted at 2.5 times the normal volume. The 1,249 transactions per hour calculated as the stress volume was used as the load for the stress volume test. According to BellSouth documentation, 18.42% of trouble report volume is specific to Florida. Therefore, 230 (.1842*1,249) of the 1,249 stress load test's transactions accessed backend systems in Florida, while the other 1,019 were captured at the TAFI processor and proceeded no further. The stress test consisted of 12 hours of stress load volume testing. The stress day test was conducted on March 28, 2001. The goal was to execute at least 2,760 (12*230) transactions over a period of one stress load day.

³⁵⁴ According to BellSouth statistics, 56% of the trouble tickets that are created are carried through to closure. 44% of the trouble tickets that are created are cancelled. A BellSouth field technician closes a trouble ticket if the ticket has been dispatched or it can be front-end closed out by an ALEC. For the purpose of this test, all tickets were cancelled to avoid field dispatch and to ensure uniformity of TAFI responses to programmed automated transactions over numerous iterations.

3.5 Evaluation and Analysis Methods

The M&R TAFI Performance Evaluation (TVV7) included the following steps:

- ◆ The M&R TAFI test was conducted four times over four days. The first two executions used transaction sets of sufficient number and variation to simulate projected March 2002 volume for normal day operations. The third execution was a peak multiple (1.5) of the volume used for the normal day execution to test TAFI under peak load conditions. The fourth execution was a stress multiple (2.5) of the volumes used in the first two executions to test TAFI under stress load conditions.
- ◆ Profiles for the normal, peak, and stress tests outlining the transaction order and transaction timing were developed using the BellSouth forecast for TAFI troubles.
- ◆ The transaction type, data required, and the expected outcome for each transaction of the normal, peak, and stress load tests were defined and outlined for input into the test tool.
- ◆ TAFI responsiveness for the following transaction types was tested:
 - ◆ Create trouble reports;
 - ◆ Cancel trouble reports;
 - ◆ Initiate MLT results;
 - ◆ Receive MLT results;
 - ◆ Retrieve LMOS recent status report;
 - ◆ Obtain customer service records (CSR);
 - ◆ Obtain Predictor results;
 - ◆ View DLR; and
 - ◆ Retrieve trouble history
- ◆ The scripting tool was populated and the data submitted to the TAFI application server.
- ◆ The performance volume test was conducted over four days consisting of two normal load days, one peak load day, and one stress load day. The testing occurred for twelve hours on each testing day.
- ◆ TAFI responses and response times for various backend systems were captured and analyzed.
- ◆ Response times from the performance evaluation were compared to the BellSouth retail data.

The M&R TAFI Performance Evaluation (TVV7) included a checklist of evaluation measures developed by KPMG Consulting during the initial phase of the BellSouth OSS Evaluation. These evaluation measures provided the framework of norms, standards, and guidelines for the M&R TAFI Performance Evaluation (TVV7).

The data collected were analyzed employing the evaluation criteria identified in Section 4.1 below.

4.0 Results

This section contains the overall test results.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 7-9. For additional exception and observation information, refer to Appendices D and E, respectively. The test criteria and results are presented in Table 7-10.

Table 7-9: TVV7 Exception and Observation Count

Activity	Exceptions	Observations
Total Issued	0	0
Total Disposed as of Final Report Date	0	0
Total Remaining Open as of Final Report Date	0	0

Table 7-10: TVV7 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
TVV7-1	Normal load transaction volumes are submitted and returned through the TAFI gateway.	Satisfied [∞]	KPMG Consulting validated that normal load transaction volumes are submitted and returned through the TAFI gateway. KPMG Consulting applied a benchmark of 95%. 1,392 normal hour transactions were submitted to determine if BellSouth's TAFI system processed transactions accurately. 1,378 transactions (99%) resulted in a successful response.
TVV7-2	Peak load transaction volumes are submitted and returned through the TAFI gateway.	Satisfied [∞]	KPMG Consulting validated that peak load transaction volumes are submitted and returned through the TAFI gateway. KPMG Consulting applied a benchmark of 95%. 1,236 peak hour transactions were

[∞]Satisfied at the time of data collection, which was March 2001. As a result of the passage of time, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes.

Test Reference	Evaluation Criteria	Result	Comments
			<p>submitted to determine if BellSouth’s TAFI system processed transactions accurately.</p> <p>1,227 transactions (99%) resulted in a successful response.</p>
TVV7-3	<p>Stress load transaction volumes are submitted and returned through the TAFI gateway.</p>	Satisfied ^o	<p>KPMG Consulting validated that stress load transaction volumes are submitted and returned through the TAFI gateway.</p> <p>KPMG Consulting applied a benchmark of 95%.</p> <p>2,760 transactions stress hour transactions were submitted to determine if BellSouth’s TAFI system processed transactions accurately.</p> <p>2,672 transactions (97%) resulted in a successful response.</p>
TVV7-4	<p>Average response time for retrieving an LMOS recent status report using TAFI is in parity with retail.</p>	Satisfied ^o	<p>KPMG Consulting validated the average response time for retrieving an LMOS recent status report using TAFI is in parity with retail.</p> <p>KPMG Consulting compared the wholesale and retail average response times for retrieving an LMOS recent status report using TAFI within 4 seconds.</p> <p>99.9% of ALEC TAFI LMOS reports were retrieved with a response time of less than 4 seconds. 99.8% of BellSouth Retail TAFI LMOS reports were retrieved with a response time of less than 4 seconds.</p> <p>The average response time for retrieving an LMOS recent status report using ALEC TAFI was found to be at parity with Retail TAFI.</p>

Test Reference	Evaluation Criteria	Result	Comments
TVV7-5	Average response time for obtaining customer line records (from CRIS database) using TAFI is in parity with retail.	Satisfied ^o	<p>KPMG Consulting validated the average response time for obtaining customer line records (from CRIS database) using TAFI is in parity with retail.</p> <p>KPMG Consulting compared the wholesale and retail average response times for obtaining customer line records (from CRIS database) using TAFI within 10 seconds.</p> <p>99% of ALEC TAFI customer line records were retrieved with a response time of less than 10 seconds. 99% of BellSouth Retail TAFI customer line records were retrieved with a response time of less than 10 seconds.</p> <p>The average response time for retrieving a customer line records using ALEC TAFI was found to be at parity with Retail TAFI.</p>
TVV7-6	Average response time for obtaining predictor results using TAFI is in parity with retail.	Satisfied ^o	<p>KPMG Consulting validated the average response time for obtaining predictor results using TAFI is in parity with retail.</p> <p>KPMG Consulting compared the wholesale and retail average response times for obtaining predictor results using TAFI within 10 seconds.</p> <p>24% of ALEC TAFI predictor system access had a response time of less than 10 seconds. 14% of BellSouth Retail TAFI predictor system access had a response time of less than 10 seconds.</p> <p>The average response time for obtaining predictor results using ALEC TAFI was found to be better than Retail TAFI.</p>

Test Reference	Evaluation Criteria	Result	Comments
TVV7-7	Average response time for obtaining DLR information using TAFI is in parity with retail.	Satisfied ^o	<p>KPMG Consulting validated the average response time for obtaining DLR information using TAFI is in parity with retail.</p> <p>KPMG Consulting compared the wholesale and retail average response times for obtaining DLR information using TAFI within 10 seconds.</p> <p>98% of ALEC TAFI DLR information was retrieved with a response time of less than 10 seconds. 90% of BellSouth Retail TAFI DLR information was retrieved with a response time of less than 10 seconds.</p> <p>The average response time for obtaining DLR results using ALEC TAFI was found to be better than Retail TAFI.</p>
TVV7-8	Average response time for obtaining trouble history using TAFI is in parity with retail.	Satisfied ^o	<p>KPMG Consulting validated the average response time for obtaining trouble history using TAFI is in parity with retail.</p> <p>KPMG Consulting compared the wholesale and retail average response times for obtaining trouble history using TAFI within 10 seconds.</p> <p>95% of ALEC TAFI trouble history using DLETH information was retrieved with a response time of less than 10 seconds. 81% of BellSouth Retail TAFI trouble history using DLETH information was retrieved with a response time of less than 10 seconds.</p> <p>The average response time for retrieving results using ALEC TAFI was found to be better than Retail TAFI.</p>

Test Reference	Evaluation Criteria	Result	Comments
TVV7-9	Trouble ticket create function does not degrade under increasing load.	Satisfied ^o	KPMG Consulting validated that trouble ticket create function does not degrade under increasing load. KPMG Consulting applied a benchmark of 95%. KPMG Consulting observed a 98.3% success rate on creating trouble tickets during the TAFI performance test. No performance degradation was observed under increasing loads.
TVV7-10	Trouble ticket close/cancel function does not degrade under increasing load.	Satisfied ^o	KPMG Consulting validated that trouble ticket close/cancel function does not degrade under increasing load. KPMG Consulting applied a benchmark of 95%. KPMG Consulting observed a 99.6% success rate on close/cancel requests during the TAFI performance test. No performance degradation was observed under increasing loads.
TVV7-11	MLT testing performance does not degrade under increasing load.	Satisfied ^o	KPMG Consulting validated that MLT testing performance does not degrade under increasing load. KPMG Consulting applied a benchmark of 95%. KPMG Consulting observed a 96.4% success rate on MLT requests during the TAFI performance test. No performance degradation was observed under increasing loads.

5.0 Parity Evaluation

A parity evaluation was not required for this test.

6.0 Final Summary

This section summarizes the number of test evaluation criteria discussed above and the number that was satisfied or not satisfied at the conclusion of this test.

6.1 Summary of Findings

There were 11 evaluation criteria considered for the M&R TAFI Performance Evaluation (TVV7) test. All 11 evaluation criteria were satisfied at the time of data collection, which was March 2001. As a result of the passage of time since data collection, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes.

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G. Test Results: M&R ECTA Performance Evaluation (TVV8)

1.0 Description

The Maintenance and Repair (M&R) Electronic Communication Trouble Administration (ECTA) Performance Evaluation (TVV8) was a transaction driven test designed to evaluate the behavior of BellSouth's ECTA system and its interfaces associated with maintenance and repair processes under load conditions.

The key objective of the volume test was to determine if BellSouth is able to handle volumes in a post-271 environment. The purpose of the volume test was to identify the capacity and potential choke points at projected future transaction volumes. The volume test looks at the performance of BellSouth's ECTA maintenance and repair system at projected future volumes. The forecasted date reflects anticipated volumes after BellSouth is granted approval to provide interLATA service pursuant to Section 271 of the Act. The forecast date of the "anticipated volumes" is the estimated test completion date plus nine months. The nine months was derived based on an assumption of three months for 271 approval and a six-month "ramp-up" period in ALEC volumes after FCC 271 approval is granted.

The volume test was conducted in four phases. The first and second phases used transaction sets of sufficient number and variation established to simulate projected August 2002 volumes for normal hour operations. The third phase used transaction sets established to simulate projected September 2002 volumes for peak hour³⁵⁵ operations. The fourth phase used transaction sets calculated to simulate projected September 2002 volumes for stress hour³⁵⁶ operations. The projected transaction volume was determined by analyzing historical ALEC maintenance and repair behavior and BellSouth regional volume forecasts.

The M&R ECTA Performance Evaluation (TVV8) was executed in BellSouth's production environment by exercising a defined set of ECTA functions associated with trouble management activities against test bed accounts. The ECTA functions targeted by this test included the entry and resolution of trouble reports and access to backend systems used by the ECTA application.

2.0 Business Process

This section provides a description of the processes used by the ALEC for managing trouble activities using ECTA.

2.1 Business Process Description

ECTA is an electronic bonding system that provides connectivity to BellSouth's backend Loop Maintenance Operating System (LMOS) and Work Force Administration/Control (WFA/C) systems. ECTA routes trouble tickets for non-design service to LMOS and trouble tickets for design circuits to WFA/C.

The electronic bonding platform design classifies the host company (i.e. BellSouth) as the system agent and the external user (i.e. Alternate Local Exchange Carrier or ALEC) as the system manager. The ALEC gateway is installed and maintained by the ALEC system manager. The ALEC gateway is connected to the appropriate backend operations support systems (OSS) such as LMOS and WFA/C on the ALEC's side, and to the Incumbent Local Exchange Carrier (ILEC)

³⁵⁵ The peak hour volume was calculated using a multiple of 1.5 times the normal hour volume.

³⁵⁶ The stress hour volume was calculated using a multiple of 2.5 times the normal hour volume.

gateway on the opposite side. Communication between the ALEC and ILEC gateways is accomplished using the American National Standards Institute (ANSI) national standards format.

A transaction initiated by KPMG Consulting³⁵⁷ consisted of data inserted into mandatory fields³⁵⁸ in KPMG Consulting's front-end tool. KPMG Consulting's front-end tool is known as the Form Tool. The Form Tool Database³⁵⁹ processed the data submitted via the Form Tool. From the database, the data flowed to the Operational Support System Interconnection Gateway (OSSIG).³⁶⁰ From OSSIG, the transactions were submitted to the ECTA Gateway (on KPMG Consulting's side), which translated the data and routed it to the BellSouth Gateway (Agent Gateway). The translated data once submitted to the BellSouth gateway was processed and routed to the appropriate BellSouth back-end systems such as LMOS and WFA. Responses originated from BellSouth backend systems and traveled employing the architecture described above, in the opposite direction.

Figure 8-1 illustrates the processes involved with the transfer of trouble administration transactions between KPMG Consulting's front-end tool to the BellSouth ECTA Gateway.

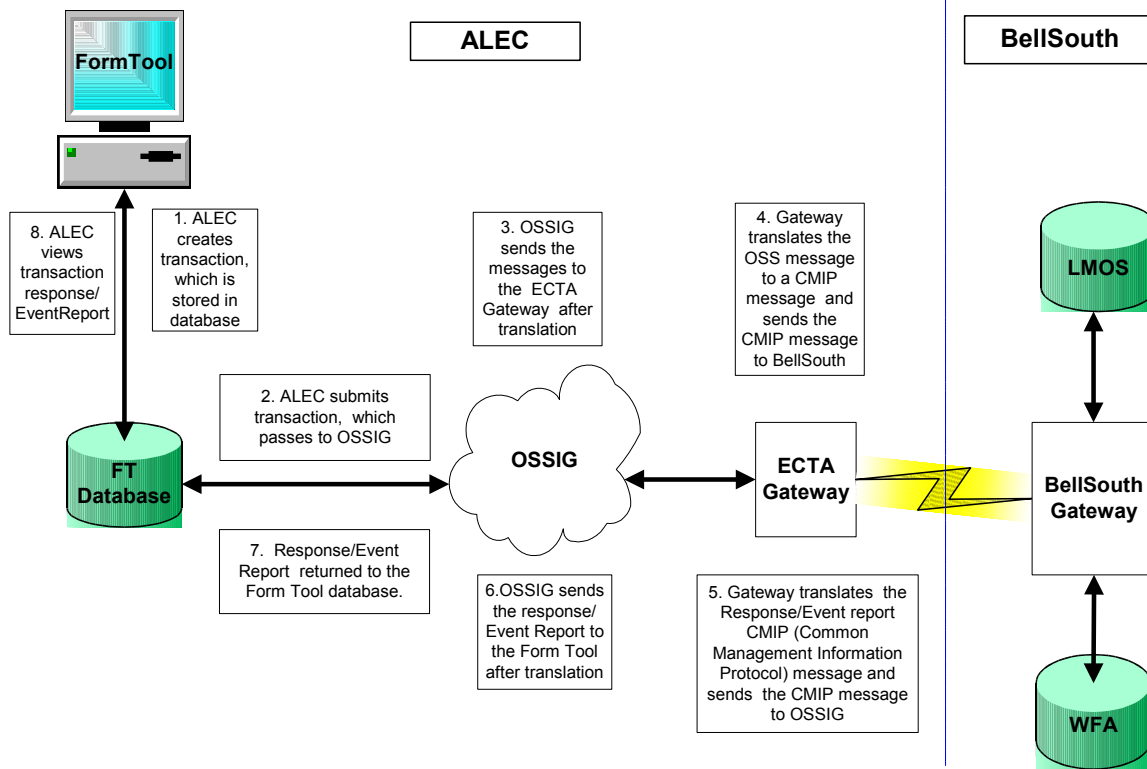
³⁵⁷ KPMG Consulting's Account Name as outlined in the Joint Implementation Agreement version 05/08/00 between BellSouth and KPMG Consulting is CKS-LSR.

³⁵⁸ Mandatory fields were identified in the Joint Implementation Agreement version 05/08/00 between BellSouth and KPMG Consulting.

³⁵⁹ For comparative purposes, KPMG Consulting's Form Tool Database (shown in Figure 6-1), represents a real-world ALEC's back-end systems (such as LMOS and WFA).

³⁶⁰ The OSSIG gateway is an internal component of KPMG Consulting's ECTA architecture.

Figure 8-1: ECTA Business Process



2.2 ECTA Application

ECTA provides a direct connection using a dedicated X.25 (or CMIP over TCP/IP) protocol between the ALEC and BellSouth. Transactions initiated by the KPMG Consulting pseudo-ALEC consisted of data inserted into mandatory fields in the Form Tool and submitted to the BellSouth ECTA Gateway over the dedicated X.25 connection.

ALECs have the ability to report and manage troubles on both non-design lines and design circuits using ECTA. Although all ECTA Gateway configurations must adhere to ANSI T1M1 communication protocols, each ALEC has the ability to modify the subset of attributes in accordance with customized Joint Implementation Agreements (JIA) between the ALEC and BellSouth. ECTA Gateway configurations may vary from one ALEC to another, depending on the specifics of the JIA between the ALEC and BellSouth.

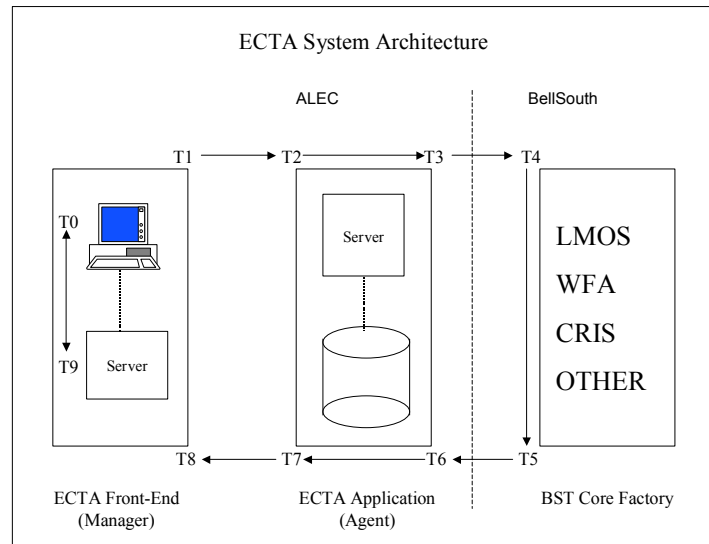
ECTA interacts with specific BellSouth back-end systems, the functions of which fall within two primary areas:

- ◆ Trouble administration systems for non-design and design lines; and
- ◆ Mechanized Loop Test (MLT) system for non-design lines³⁶¹.

Figure 8-2 below shows the discrete time intervals associated with processing a transaction through the ECTA Gateway:

³⁶¹ The MLT capability of ECTA was not built into KPMG Consulting’s ECTA Gateway.

Figure 8-2: Time Intervals Associated with ECTA Transaction Processing



Time T1-T8 is a function of the combined responsiveness of all M&R systems (ECTA front-end, ECTA Gateway, and BellSouth Core Factory) and the connectivity between them. Because the purpose of the M&R ECTA Performance Evaluation (TVV8) is primarily to test ECTA, the performance time for this test is defined as time T2-T7 and not T1-T8. Time T2-T7, the interval beginning with the receipt of an instruction by the ECTA Gateway and ending with a response from the ECTA Gateway, is an appropriate measure of ECTA performance³⁶².

In addition, the time T9-T0 was not evaluated because this time depends on the connectivity options and interfaces selected by BellSouth's ALEC customers.

3.0 Methodology

This section summarizes the test methodology.

3.1 Scenarios

Scenarios were not applicable to the M&R ECTA Performance Evaluation (TVV8). The transaction sets included a mix of the following M&R transaction types consistent with current system usage:

- ◆ Create trouble report;
- ◆ Request trouble ticket status;
- ◆ Add trouble information;
- ◆ Modify trouble report;
- ◆ Close/cancel trouble report

³⁶² KPMG Consulting analyzed the ECTA Gateway agent log to assess the timing of messages flowing to and from ECTA.

3.2 Test Targets and Measures

The test target was the ECTA system. Included in the evaluation were the following processes and sub-processes:

- ◆ Performance;
 - ◆ Projected normal loads;
 - ◆ Projected peak loads;
 - ◆ Projected stress load;
- ◆ ECTA backend system response times;
 - ◆ Add;
 - ◆ Modify;
 - ◆ Status request transactions;
- ◆ Trouble reporting;
 - ◆ Create; and
 - ◆ Close/cancel trouble report.

3.3 Data Sources

The sources of data for this test included reviews of the BellSouth-KPMG Consulting JIA³⁶³, the ANSI T1.227, T1.228 and T1.262, data provided by BellSouth³⁶⁴, BellSouth's Performance Measurement and Analysis Platform (PMAP)³⁶⁵, and the ECTA Start-Up Guide.

3.4 Data Generation/Volumes

A KPMG Consulting volume-generating tool was employed to generate the projected normal, peak and stress loads. Test results were captured in a database maintained by KPMG Consulting.

In order to test ECTA at anticipated volumes in a post-271 environment, KPMG Consulting forecasted levels of transactions nine months beyond the anticipated completion of testing. For example, the first and second normal day volume loads were forecasted for August 2002, based on the assumption that testing would end in November 2001. Similarly, volume levels for the peak and stress days were forecasted for September 2002, in anticipation of testing ending in December 2001.

All instances of the performance test were executed in BellSouth's production environment, KPMG Consulting accounted for the volume of live transactions already being processed by ECTA, in addition to the volume of test transactions. The number of transactions executed by KPMG Consulting for volume testing was the difference between the total number of transactions forecasted for the future date and the number of ALEC transactions projected for the days of testing. The different load conditions are summarized in Table 8-1 below.

Table 8-1: ECTA Load Conditions

³⁶³ Joint Interconnection Agreement, Version May 8, 2000

³⁶⁴ Data regarding actual lines in service was provided by BellSouth on 10/12/01.

³⁶⁵ Data evaluated on 10/01/01

Load Conditions	Definition
Normal Hour Load	Load based on projected future ECTA transactions.
Peak Hour Load	Load based on 1.5 times projected normal hour load transactions.
Stress Hour Load	Load based on 2.5 times projected normal hour transactions.

ECTA is a universal standard based trouble administration application for the entire nine-state BellSouth region. Transactions submitted via ECTA are routed to the respective backend systems based on the physical location of the line/circuit on which the trouble ticket is generated. Only transactions specific to Florida were submitted with valid Florida circuits. Other transactions were submitted to simulate for the transaction volume of the remaining eight BellSouth states. This method was used to emulate what the ECTA front-end experienced based on the forecasted regional transaction load, while the Florida backend experienced only Florida-specific transactions. Further geographic desegregation was used to ensure troubles were processed equally between the Florida-North and Florida-South backend systems. The test bed was divided equally between the North and South Florida regions.

3.4.1 Normal Hour Load Calculations

The ECTA normal hour day transaction volumes were calculated employing the methodology described in Section 3.4.1.2. It was estimated that in August 2002, a total of 2,734,990 wholesale lines would be in service in the BellSouth region. Trouble report rates on wholesale non-design and design lines were calculated as 3% and 0.4% respectively³⁶⁶. Further, it was assumed that ECTA handled 15% of all non-design electronic trouble reports and 70% of electronic design trouble reports³⁶⁷.

Based on the information outlined above, Table 8-2 summarizes the number of transactions projected to be processed by ECTA for the two normal-hour load days:

Table 8-2: Summary of Normal Day Volume Loads

Volume Day	Transactions Load
Normal Day-1	57 ³⁶⁸
Normal Day-2	54

The normal test consisted of two days of 12 hours of normal load volume testing. The normal day tests were conducted on March 19 and May 16, 2001 and consisted of 57 and 54 transactions per hour. The goal was to execute at least 1,332 ((12*57) + (12*54)) transactions over a period of 2 normal load days.

³⁶⁶ Wholesale non-design and design trouble report rates provided by BellSouth.

³⁶⁷ Assumption of 15% of troubles on non-design lines provided by BellSouth; assumption that 70% of design troubles processed by ECTA made by KPMG Consulting based on professional judgment.

³⁶⁸ The forecasting methodology used for Normal Day 1 was determined to be inaccurate and the new methodology for Normal Day 2 was applied as outlined in section 3.4.1.2

3.4.2 Methodology for Hourly Load Calculation

Transactions volumes to test ECTA peak and stress load days were calculated applying the methodology described in the following sections³⁶⁹.

The peak and stress load portions of this test were conducted using forecasted transaction volumes for September 2002. To calculate the peak and stress volume loads, the normal hourly load is first determined. The regional forecasted September 2002 installed base of wholesale non-design and design circuits was based on projections calculated from December 2000 to August 2001 historical data³⁷⁰.

Table 8-3: Wholesale Lines In Service Projection for September 2002³⁷¹

Line Type	Projected September 2002 Lines in Service	
	Region (not including Florida)	Florida
Non-Design	1,956,223	761,730
Design	217,358	84,637
Total	2,173,581	846,367

Monthly wholesale trouble report rates³⁷² were applied to the total design and non-design lines in service presented in Table 8-3. The application of the regional and Florida-specific monthly wholesale trouble report rates resulted in the number of trouble reports exhibited in Table 8-4.

Table 8-4: Calculated Monthly Trouble Reports (September 2002)

Line Type	Calculated Monthly Wholesale Trouble Reports	
	Region (not including Florida)	Florida
Non-Design Trouble Reports	58,687	23,157
Design Trouble Reports	87	1,617
Total	58,774	24,774

To determine the number of ECTA trouble reports per month, electronic trouble report rates were applied to the total design and non-design troubles exhibited in Table 8-4³⁷³. The results of the application of an electronic trouble report rate are shown in Table 8-5.

³⁶⁹ The forecast was extended from August 2002 to September 2002 based on the availability of additional historical data. August 2002 forecast was used to calculate the normal hour load for the second day of volume testing.

³⁷⁰ Historical lines in service data provided by BellSouth were used for forecasting purposes.

³⁷¹ The division of the total wholesale lines in service into non-design and design caps categories was done assuming a 9:1 ratio between non-design and design lines in service.

³⁷² BellSouth provided a wholesale non-design trouble report rate of 3.0%. KPMG Consulting verified the accuracy of this trouble report rate by examining the non-design caps portions of metric MR-2, published in BellSouth's monthly PMAP reports. The design portions of metric MR-2, published in BellSouth's monthly PMAP reports were used to calculate a trouble report rate of 0.04% on regional wholesale design circuits. The corresponding non-design and design trouble report rates for the state of Florida were also calculated using PMAP reports and were found to be 3.04% and 1.91% respectively.

Table 8-5: Calculated Monthly ECTA Trouble Reports (September 2002)

Regional/Florida	Calculated Monthly Wholesale Electronic Trouble Reports
Regional Electronic Trouble Reports	12,912
Florida Trouble Reports	5,111

The number of electronic trouble reports per hour was calculated by assuming that approximately 90% of all transactions occur between 7 a.m. and 7 p.m., that 85% of all trouble reports occur during the 22 weekdays in an average month, and that a BellSouth normal 12-hour day consists of 14.5 (7 normal hours plus 5 peak hours, where 1 peak hour equals 1.5 normal hours). The results of the application of the assumptions listed above are exhibited in Table 8-6.

Table 8-6: Calculated Daily ECTA Trouble Reports (September 2002)

Regional/Florida	Calculated Daily Wholesale Electronic Trouble Reports
Regional Electronic Trouble Reports	31
Florida Trouble Reports	12

A multiple of 1.7 subsequent transactions³⁷⁴ per trouble report was applied to account for the varied transaction types that may accompany the creation of a trouble ticket. The September 2002 regional ECTA projected total transactions were calculated as 84 ((1.7 multiplied by 31) plus 31). Similarly, the total Florida-specific transactions projected to be entered via ECTA in September 2002 were calculated as 32 ((1.7 multiplied by 12) plus 12). Table 8-7 exhibits the results of the application of 1.7 subsequent transactions per trouble report.

Table 8-7: Calculated Daily ECTA Trouble Reports and Subsequent Transactions (September 2002)

Regional/Florida	Calculated Daily Wholesale Electronic Trouble Reports and Subsequent Transactions
Regional Electronic Trouble Reports	84
Florida Trouble Reports	32

ECTA volume testing was conducted in a live environment. Historical data indicated the level of transactions flowing through ECTA during the test days to be negligible. Hence, the current level

³⁷³ An Electronic trouble report rate is defined as the number of troubles reported via ECTA as a percentage of total trouble reports in any given time frame. Electronic trouble report rates of 22% and 1% were applied to the non-design and design troubles per month, respectively. These electronic trouble report rates were provided by BellSouth.

³⁷⁴ A subsequent transaction is any transaction that is submitted following the creation of a trouble ticket. Subsequent transactions may be submitted to modify, add information to, verify repair on, request the status of, or to request the closure of a trouble ticket.

of transactions expected during the test days was not taken into account while determining various test transaction loads.

Since only Florida-specific transactions that flow through to BellSouth backend systems were relevant to this test, the actual volume of transactions generated to simulate a normal hour in September 2002, was 32. The remaining 52 transactions were submitted as regional trouble reports³⁷⁵ to approximate load conditions on the ECTA Gateway while limiting backend transactions to Florida lines/circuits only.

Table 8-8 lists the regional and Florida-specific normal volume transactions per hour.

Table 8-8: Transactions per Hour- Normal Volume

Transaction Type	Transactions/Create	Florida-Specific Transactions	Regional/Non-Florida Transactions
Create Trouble Ticket	1	12	19
Subsequent Transaction	1.7	20	32
Total Transactions	2.7	32	52

3.4.3 Peak Volume Load

The peak volume performance test was conducted at a load of 1.5 times the normal volume. A total of 126 (1.5 multiplied by 84) regional transactions were calculated as peak volume for the BellSouth region. Of these 126 transactions, 48 (32 multiplied by 1.5), were Florida backend transactions and 78 (126 minus 48) were regional/non-Florida transactions.

The peak test consisted of 12 hours of peak load volume testing. The peak day test was conducted on December 6, 2001. The goal was to execute at least 576 (12*48) transactions over a period of one peak load day.

3.4.4 Stress Volume Load

The stress volume performance test was conducted at a load of 2.5 times the normal volume. A total of 210 (2.5 multiplied by 84) regional transactions were calculated as stress volume for the BellSouth region. Of these 210 transactions, it was determined that 80 (32 multiplied by 2.5) were Florida backend transactions and 130 (210 minus 80) were regional/non-Florida transactions.

The stress test consisted of 12 hours of stress load volume testing. The stress day test was conducted on December 13, 2001. The goal was to execute at least 960 (12*80) transactions over a period of one stress load day.

3.4.5 Installed Base Load

The installed base is defined as the current number of transactions that flow through ECTA during the days of testing and is calculated by applying standard assumptions to historical data.

³⁷⁵A regional trouble report is defined as a trouble report submitted to the ECTA gateway with a non-existent area code, intended to proceed no further than the gateway.

The installed base is subtracted from the projected volume of transactions to ensure the system being tested is not over-loaded. In the case of ECTA, the actual system usage (as evidenced by historical data provided by BellSouth) was negligible. Accounting for the installed base volume of transactions was determined to be unnecessary.

3.5 Evaluation and Analysis Methods

The M&R ECTA Performance Evaluation (TVV8) test consisted of the following steps:

- ◆ The volume test was executed four times, twice with normal phase loads, once with peak phase load, and one with stress phase load. The phases were completed over four separate days from 7 a.m. to 7 p.m.
- ◆ Load profiles for the normal and peak tests outlining the order and timing of transactions were developed using data from ALECs and BellSouth to which KPMG Consulting's internal trouble forecast methodology was applied.
- ◆ The transaction type and required data for each transaction of the normal, peak, and stress load tests was defined and input into the test tool used to generate the necessary volumes. The test tool was also used to input data and record ECTA system performance and timing.
- ◆ Data was submitted to BellSouth's backend systems via a gateway that served as the front-end component to the ECTA system. The test tool exercised ECTA functionality as defined by data inserted by the user. A database observed and captured ECTA responses and response times for all modes of testing. Any exceptions or mismatched responses that led to less than 95% expected results were flagged and communicated to BellSouth for investigation.
- ◆ Data from the previous step were compiled and mapped against the individual assessment criteria. Each evaluation criterion was scored with one of the two types of results as follows:
 - ◆ Satisfied – the evaluation criterion was satisfied; or
 - ◆ Not Satisfied – the evaluation criterion was not satisfied. All issues that may impact the ALEC were identified.
- ◆ KPMG Consulting generated summary reports for each day of performance testing.

The M&R ECTA Performance Evaluation (TVV8) test included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the test. These evaluation criteria provided the framework of norms, standards, and guidelines for the M&R ECTA Performance Evaluation (TVV8).

The data collected were analyzed employing the evaluation measures shown in Section 4.1 below.

4.0 Results

This section contains the overall test results.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 8-9. For additional exception and observation information, refer to Appendices D and E, respectively. The evaluation criteria and test results are presented in Table 8-10.

Table 8-9: Exception and Observation Count

Activity	Exceptions	Observations
Total Issued	2	2
Total Disposed as of Final Report Date	2	2
Total Remaining Open as of Final Report Date	0	0

Table 8-10: TVV8 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
TVV8-1	Normal load transaction volumes are submitted and returned through the ECTA gateway.	Satisfied	<p>BellSouth's ECTA system processed transactions correctly under normal load conditions.</p> <p>KPMG Consulting applied a benchmark of 95% for this criterion.</p> <p>1,324 normal hour transactions were submitted over two 12 hour periods to determine if BellSouth's ECTA system processed the transactions accurately. Normal day 1 was conducted on March 19, 2001 and normal day 2 was conducted on May 16, 2001.</p> <p>1,287 transactions (97%) resulted in a successful response as outlined in the JIA.</p> <p>The ECTA system failed to process correctly following an outage and re-initialization during the second normal day of testing. Exception 38 was issued to address this issue. A successful retest was conducted on March 4, 2001 and Exception 38 was closed.</p> <p>The ECTA system failed to process "enterTroubleReport" transactions on May 22, 2001. Exception 63 was issued to address this failure. On December 6, 2001 KPMG Consulting retested the "enterTroubleReport" transaction and the system performed as expected. The exception was closed.</p>
TVV8-2	Peak load transaction volumes are submitted and returned through the ECTA gateway.	Satisfied	<p>BellSouth's ECTA system processed transactions correctly under peak load conditions.</p> <p>KPMG Consulting applied a benchmark of 95% for this criterion.</p> <p>738 peak hour transactions were</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>submitted over a 12 hour period on December 6, 2001 to determine if BellSouth’s ECTA system processed transactions accurately</p> <p>717 transactions (97%) resulted in a successful response as outlined in the JIA.</p>
TVV8-3	<p>Stress load transaction volumes are submitted and returned through the ECTA gateway.</p>	Satisfied	<p>BellSouth’s ECTA system processed transactions correctly under stress load conditions.</p> <p>KPMG Consulting applied a benchmark of 95% for this criterion.</p> <p>939 stress hour transactions were submitted over a 12 hour period on December 13, 2001 to determine if BellSouth’s ECTA system processed transactions accurately.</p> <p>922 transactions (98%) resulted in a successful response as outlined in the JIA.</p>
TVV8-4	<p>Established average response times for creating trouble reports using ECTA are met.</p>	Satisfied	<p>KPMG Consulting validated that established average response times for creating trouble reports using ECTA are met.</p> <p>BellSouth’s JIA for the ECTA Gateway for Local Service version 05/08/00 states “The end-to-end protocol target response time will be 30 seconds or less for 90% of the requests while handling 40 messages per minute. End to End [sic] maximum response time will not exceed 180 seconds.”</p> <p>1,029 troubles were created using ECTA. All 1,029 (100%) trouble create responses were received in less than 30 seconds.</p>
TVV8-5	<p>Established average response times for request trouble information transactions are met.</p>	Satisfied	<p>KPMG Consulting validated that established average response times for request trouble information transactions are met.</p> <p>BellSouth’s JIA for the ECTA Gateway for Local Service version 05/08/00 states “The end-to-end protocol target response time will be 30 seconds or less for 90% of the requests while handling</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>40 messages per minute. End to End [sic] maximum response time will not exceed 180 seconds.”</p> <p>612 requests for trouble information were made using ECTA. All 612 (100%) request trouble information transaction responses were received in less than 30 seconds.</p>
TVV8-6	Established average response times for add trouble information transactions using ECTA are met.	Satisfied	<p>KPMG Consulting validated that established average response times for add trouble information transactions using ECTA are met.</p> <p>BellSouth’s JIA for the ECTA Gateway for Local Service version 05/08/00 states “The end-to-end protocol target response time will be 30 seconds or less for 90% of the requests while handling 40 messages per minute. End to End [sic] maximum response time will not exceed 180 seconds.”</p> <p>506 add trouble information transactions were executed using ECTA. All 506 (100%) add trouble information transaction responses were received in less than 30 seconds.</p>
TVV8-7	Established average response times for modify trouble information transactions using ECTA are met.	Satisfied	<p>KPMG Consulting validated that established average response times for modify trouble information transactions using ECTA are met.</p> <p>BellSouth’s JIA for the ECTA Gateway for Local Service version 05/08/00 states “The end-to-end protocol target response time will be 30 seconds or less for 90% of the requests while handling 40 messages per minute. End to End [sic] maximum response time will not exceed 180 seconds.”</p> <p>485 modify trouble ticket transactions were executed using ECTA. All 485 (100%) modify trouble ticket transaction responses were received in less than 30 seconds.</p>
TVV8-8	Established average response times for cancel/close trouble report transactions using ECTA are met.	Satisfied	<p>KPMG Consulting validated that established average response times for cancel/close trouble report transactions using ECTA are met.</p>

Test Reference	Evaluation Criteria	Result	Comments
	ECTA are met.		<p>BellSouth's JIA for the ECTA Gateway for Local Service version 05/08/00 states "The end-to-end protocol target response time will be 30 seconds or less for 90% of the requests while handling 40 messages per minute. End-to-End [sic] maximum response time will not exceed 180 seconds.</p> <p>542 cancel/close trouble ticket transactions were executed using ECTA. All 542 (100%) cancel/close trouble ticket transaction responses were received in less than 30 seconds.</p>

5.0 Parity Evaluation

A parity evaluation was not required for this test.

6.0 Final Summary

This section summarizes the number of test evaluation criteria discussed above and the number that was satisfied or not satisfied at the conclusion of this test.

6.1 Summary of Findings

There were eight evaluation criteria considered for the M&R ECTA Performance Evaluation (TVV8). All eight evaluation criteria received a satisfied result.

As all evaluation criteria are satisfied, KPMG Consulting considers the M&R ECTA Performance Evaluation (TVV8) area satisfied at the time of the final report delivery.

H. Test Results: End-to-End Trouble Report Processing (TVV9)

1.0 Description

The End-to-End Trouble Report Processing (TVV9) test was a transaction driven test designed to evaluate the timeliness and accuracy of BellSouth's performance in conducting end-to-end maintenance and repair (M&R) for Alternative Local Exchange Carriers (ALEC).

2.0 Business Process

This section provides a brief description of the processes related to end-to-end trouble reporting.

2.1 Business Process Description

ALECs contact the Customer Wholesale Interconnect Network Service (CWINS) Center to report maintenance and repair trouble conditions. The CWINS Center serves as the wholesale customers' single point of contact for verbally reporting troubles to BellSouth. Additionally, ALECs may initiate trouble reports through the Trouble Analysis Facilitation Interface (TAFI) or the Electronic Communications Trouble Administration (ECTA) interface.

Troubles reported through the CWINS Center for non-design circuits are initially received and processed by Maintenance Administrators (MAs). Designed circuits are initially received and processed by Electronic Technicians (ETs) in the CWINS Center. MAs and ETs (i) obtain the necessary trouble and access information; (ii) initiate tests, if appropriate, to assist in the identification of faults and trouble type as well as the affected network elements; and (iii) check the trouble ticket to ensure that it was correctly entered and all required data was supplied.

Trouble tickets for Plain Old Telephone Service (POTS) are entered into the TAFI system, which interfaces with the Loop Maintenance Operating System (LMOS). Through LMOS, the trouble is dispatched "in" to the central office or dispatched "out" to a field technician. The dispatch is based on BellSouth diagnostic rules regarding the type of fault reported, the test result, and specific information about the fault supplied by the ALEC.

Troubles entered in the LMOS system are routed to appropriate work groups (central office or field technicians) through the use of handle codes provided by the ALEC or by the CWINS Center employee entering the trouble. An ALEC entering a POTS trouble via TAFI also has the ability to supply the appropriate handle code to direct the dispatch to the desired work group. If the ALEC does not supply a handle code, the LMOS system will attempt to identify the correct work group using system diagnostic rules based on the trouble reported and the test result. If the fault is identified as matching a handle code rule, the trouble is automatically routed to the appropriate central office or field technician; however, if the fault is not identified by the system, it is sent to a screening pool queue in the CWINS Center. From the queue, an MA or ET manually selects the trouble, performs additional fault analysis, and routes the trouble to the correct work group.

POTS troubles, when created, receive a LMOS ticket number and system generated repair commitment date and time that is provided to the ALEC when the trouble is generated. The commitment interval is controlled by the BellSouth Work Management Centers (WMCs) and used to prioritize the POTS maintenance activity.

Troubles for designed service (Specials) and Unbundled Network Elements (UNE) - Loops are entered into the Work Force Administration/Control (WFA/C) system where they receive a trouble ticket number and an objective date and time similar to the LMOS commitment. The

ALEC reporting the trouble is supplied the trouble ticket number and objective date and time once the report is generated. The interval for Specials is either two, four or eight hours based on the service type while most POTS appointments are for a 24-hour interval³⁷⁶. While LMOS reports are prioritized based on the commitment date and time, Specials are worked by service type on a first in, first out basis. Once entered, the Specials trouble will be tested and diagnosed by the CWINS Center employee and with the ALECs concurrence the CWINS Center performs a hand-off to the central office or field technicians using the Work Force Administration/Dispatch In (WFA/DI) or Work Force Administration/Dispatch Out (WFA/DO) system.

ALECs entering or processing troubles have the ability to request an earlier appointment³⁷⁷ or have the responsible BellSouth work group or employees made aware that a repair is in jeopardy and the ALEC would like some action taken to improve the situation. These requests are commonly referred to as escalations. When the CWINS Center MAs receive escalation requests, they process the request through the WMC who is responsible for making such decisions. The WMC will consider the request and determine what action can be taken. This information is then provided to the requesting ALEC.

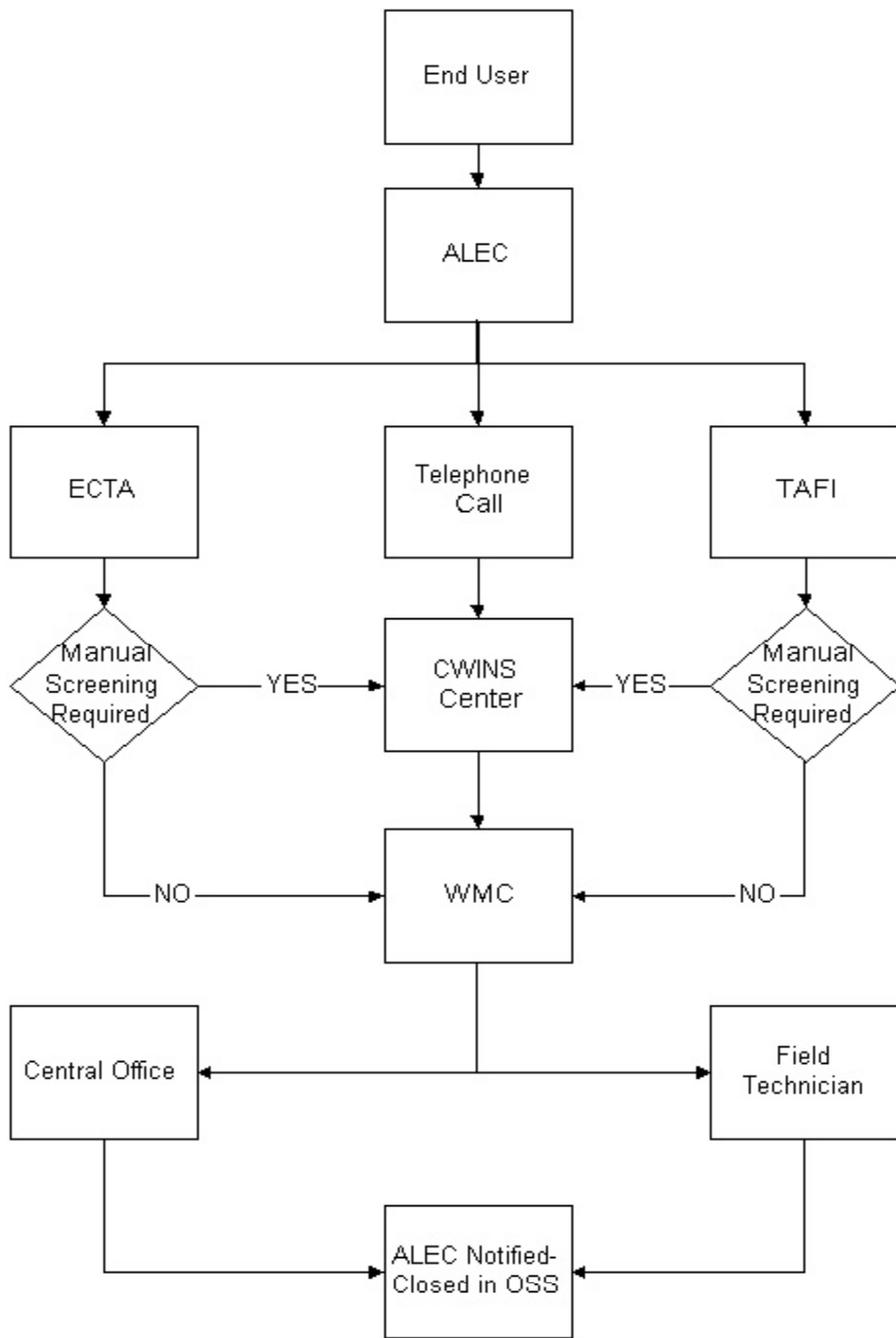
Once troubles are routed to a repair group, they are under the control of the WMC. The WMC will ensure that the troubles are forwarded to central office or field technicians and will monitor the troubles until the technicians make the repairs and the reports are closed.

The directional arrows in Figure 9-1 below illustrate the flow of trouble information between the following organizations: (i) ALECs, (ii) CWINS Center, (iii) WMC, and (iv) other BellSouth entities such as central offices and field technicians.

³⁷⁶ UNE Maintenance Targets, JA-COMI-001 Issue 1, November 1999.

³⁷⁷ For additional process information see End-to-End M&R Process Evaluation (PPR14).

Figure 9-1: ALEC Maintenance Flow



3.0 Methodology

This section summarizes the test methodology.

3.1 Scenarios

Appendix A of the Florida Master Test Plan (MTP) identified the scenarios for use in this test. Table 9-1 below shows the scenarios used in the End-to-End Trouble Report Processing (TVV9) test.

Table 9-1: Stand Alone Maintenance & Repair

Activity	Res. POTS	Bus. POTS	Res. ISDN	Bus. ISDN	Centrex	Private Line	PBX
Short on outside plant facility	X	X					X
Open on outside plant facility	X	X		X			
Short on the line within the central office	X	X			X	X	
Open on the line within the central office	X	X	X	X	X	X	X
Noise on line	X	X		X			
Echo on line	X	X					
Customer w/INP not receiving incoming calls ³⁷⁸	X	X					
Customer w/LNP not receiving incoming calls	X	X					
Customer receiving incoming calls intended for another customer's number.	X						
Call waiting not working	X	X					
Repeat dialing not working	X						
Customer cannot call 900 numbers	X						
Calls do not roll-over for customer w/ multi-line hunt group		X			X		
Call forwarding not working		X					
Caller ID not working	X	X					
Pick-up group order for large Centrex customer not functioning properly					X		
DS1 loop MUXed to DS3 IOF not functioning.							X

³⁷⁸ INP was not tested. BellSouth no longer offers INP.

3.2 Test Targets and Measures

The test targets were the working Resale, UNE-Platform (UNE-P) and UNE circuits with specific faults placed that were reported to and repaired by BellSouth maintenance organizations under normal conditions. They were evaluated for timeliness and accuracy of the repair and maintenance activities performed on them.

3.3 Data Sources

Information on the retail metrics used for comparison was gathered from the BellSouth Retail Service Quality Measurement results (SQM) for the months of December 2000, January 2001 and February 2001. Additionally, BellSouth provided detailed trouble histories on all of the trouble tickets created for this test. KPMG Consulting conducted these transactions during the months of December through February 2001.

3.4 Data Generation/Volumes

This test did not rely on volume testing. The data generated during this test captured KPMG Consulting's verification of inserted and repaired faults and BellSouth trouble resolution data obtained using the history function in TAFI/ECTA, as well as detailed trouble histories provided by BellSouth.

The following table details the faults evaluated at different BellSouth central office locations.

Table 9-2: TVV9 Types of Faults Observed

Process Area	Detail	KPMG ALEC Faults	Commercial ALEC Faults	Total
Dispatch In	Troubles handled by central office technicians	53	5	58
Dispatch Out	Troubles handled by outside technicians	56	20	76
Found OK (F/OK)		25	20	45
	Total	134	45	179

3.5 Evaluation and Analysis Methods

For this test, BellSouth provisioned a test bed of circuits specified by KPMG Consulting. The test bed contained circuit types and features representative of those provisioned by BellSouth for its wholesale customers. The test bed was designed to let KPMG Consulting introduce all categories of commonly reported faults.

Field teams inserted the faults into working test bed lines according to the M&R test scenarios. Each field team consisted of at least one KPMG Consulting team member, one BellSouth representative and a representative from the Florida Public Service Commission (FPSC). Faults were inserted in each circuit according to the MTP. KPMG Consulting personnel responsible for calling troubles into the CWINS Center or entering them using the TAFI and ECTA interfaces also supported the field teams. Test faults were placed in circuits served by the Pensacola,

Panama City, Jacksonville, Chiefland, Orlando, West Palm Beach, Fort Lauderdale, Opa Locka, and Miami central offices.

KPMG Consulting reported troubles caused by these faults to the BellSouth CWINS Center either using the TAFI or ECTA interface or the CWINS Center toll free number. KPMG Consulting tracked BellSouth's response to reported troubles and gathered data for analysis. Specifically, data was collected relating to the timeliness of repair and the accuracy in diagnosing and resolving troubles. Once BellSouth closed out a trouble ticket, KPMG Consulting printed a trouble history from TAFI or ECTA and checked the circuits to confirm that the repairs were made.

In addition to inserting its own faults, KPMG Consulting worked with ALECs to further evaluate BellSouth's response to actual commercial troubles. KPMG Consulting conducted observations at ALEC repair call centers as actual troubles reported by ALECs to the BellSouth CWINS Center by phone and via TAFI or ECTA. A description of the trouble, the BellSouth provided appointment and the closeout times were recorded and reviewed for timeliness and whether troubles were successfully identified and repaired. The accuracy of the closeout codes provided for these ALEC initiated trouble reports was not assessed as KPMG Consulting could not validate the exact nature of the fault.

The End-to-End Trouble Report Processing (TVV9) test included a checklist of evaluation criteria developed by KPMG Consulting during the initial phase of the BellSouth OSS Evaluation. These evaluation criteria provided the framework of norms, standards, and guidelines for End-to-End Trouble Report Processing (TVV9).

The data collected was analyzed using the evaluation criteria defined in Section 4.1 below.

4.0 Results

This section contains the overall test results.

4.1 Results Summary

The number of exceptions and observations issued during the life of the test is depicted in Table 9-3. For additional exception and observation information, refer to Appendices D and E, respectively. The test criteria and results are presented in Table 9-4.

Table 9-3: Exception and Observation Count

Activity	Exceptions	Observations
Total Issued	0	2
Total Disposed as of Final Report Date	0	2
Total Remaining Open as of Final Report Date	0	0

Table 9-4: TVV9 Evaluation Criteria and Results

Test Reference	Evaluation Criteria	Result	Comments
TVV9-1	Resale end-to-end trouble reports are processed in accordance with BellSouth provided intervals with an on time success rate, at least equal to that of retail.	Satisfied*	<p>Resale end-to-end trouble reports are processed in accordance with BellSouth provided intervals with an on time success rate, at least equal to that of retail.</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-1 metric, a comparison of the successful completion rate for test troubles to the 94% for combined retail service indicates the test success rate met the retail metric.</p> <p>KPMG Consulting evaluated 35 Resale troubles with faults located in central offices, outside plant, or in Customer Provided Equipment (CPE).</p> <p>Of the 35 wholesale troubles evaluated, 33 (94%) of the troubles were successfully completed within the BellSouth provided appointment time.</p> <p>M&R-1 – Missed Repair Appointments - Count of Customer Troubles Not Cleared by the Commitment Date and Time is the SQM used to evaluate this criterion.</p>
TVV9-2	Resale end-to-end trouble faults are accurately identified and repaired.	Satisfied*	<p>Resale end-to-end trouble faults are accurately identified and repaired.</p> <p>KPMG Consulting applied a benchmark of 95% accuracy for evaluating this criterion.</p> <p>KPMG Consulting evaluated 35 Resale troubles with faults located in central offices, outside plant, or in CPE.</p> <p>BellSouth identified and successfully repaired 34 (97%) out of the 35 Resale troubles.</p>
TVV9-3	Resale end-to-end out of service troubles were accurately repaired within 24 hours with a success rate at least equal to that	Satisfied*	Resale end-to-end out of service troubles were accurately repaired within 24 hours with a success rate at least equal to that of retail.

* Satisfied at the time of data collection, which was February 2001. As a result of the passage of time, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes.

Test Reference	Evaluation Criteria	Result	Comments
	of retail.		<p>Based on the BellSouth Service Quality Measurement Plan M&R-5 metric, a comparison of the successful completion rate for test out of service troubles to the 84% for combined retail service indicates the test success rate exceeded the retail metric.</p> <p>KPMG Consulting evaluated 22 out of service Resale troubles. Of the 22 out of service Resale troubles evaluated, 19 (86%) of the troubles were successfully repaired within the 24-hour time frame.</p> <p>M&R-5 – Out of Service (OOS) >24 Hours - Out of Service Troubles of (no dial tone, cannot be called or cannot call out) measures the percentage of Total OOS Troubles cleared in excess of 24 hours is the SQM used to evaluate this criterion.</p>
TVV9-4	Resale end-to-end trouble reports are processed in accordance with BellSouth stated timing intervals with an average success rate at least equal to that of retail.	Satisfied*	<p>Resale end-to-end trouble reports are processed in accordance with BellSouth stated timing intervals with an average success rate at least equal to that of retail.</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-3 metric, a comparison of the average duration time of “receipt to clear” for test troubles to the 13.74 hours for combined retail service indicates the test trouble time was lower than the retail metric.</p> <p>KPMG Consulting evaluated 35 Resale troubles with faults located in central offices, outside plant, or in CPE.</p> <p>Of the 35 Resale troubles evaluated, the average duration time of “receipt to clear” was 9.44 hours.</p> <p>M&R-3 Maintenance Average Duration - Average duration of Customer Trouble Reports from the receipt of the Customer Trouble Report to the time the trouble report is cleared is the SQM used to evaluate this criterion.</p>

Test Reference	Evaluation Criteria	Result	Comments
TVV9-5	Resale end-to-end trouble reports contain accurate entries to required fields.	Satisfied*	<p>Resale end-to-end trouble reports contain accurate entries to required fields</p> <p>KPMG Consulting applied a benchmark of 95% accuracy for evaluating this criterion.</p> <p>KPMG Consulting evaluated 105 Resale codes. Of the 105 BellSouth provided codes reviewed, 101 (96%) were accurately coded.</p>
TVV9-6	UNE and UNE-P end-to-end trouble reports are processed in accordance with BellSouth stated timing intervals with an on time success rate at least equal to that of retail.	Satisfied*	<p>UNE and UNE-P end-to-end trouble reports are processed in accordance with BellSouth stated timing intervals with an on time success rate at least equal to that of retail.</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-1 metric, a comparison of the successful completion rate for test troubles to the 89% for combined retail service indicates the test success rate exceeded the retail metric.</p> <p>KPMG Consulting evaluated 58 UNE-P and UNE-Loop troubles with faults located in central offices, outside plant or in CPE.</p> <p>Additionally, KPMG Consulting observed 45 troubles as commercial ALECs reported them to BellSouth.</p> <p>Of the 103 troubles evaluated, 94 (91%) of the troubles were successfully completed within the BellSouth provided appointment time.</p> <p>M&R-1 – Missed Repair Appointments - Count of Customer Troubles Not Cleared by the Quoted Commitment Date and Time is the SQM used to evaluate this criterion.</p>

Test Reference	Evaluation Criteria	Result	Comments
TVV9-7	UNE and UNE-P end-to-end trouble faults are accurately identified and repaired.	Satisfied*	<p>UNE and UNE-P end-to-end trouble faults are accurately identified and repaired.</p> <p>KPMG Consulting applied a benchmark of 95% accuracy for evaluating this criterion.</p> <p>KPMG Consulting evaluated 103 UNE and UNE-P troubles with faults located in central offices, outside plant, or in CPE.</p> <p>BellSouth identified and successfully repaired 100 (97%) of the 103 UNE and UNE-P troubles.</p>
TVV9-8	UNE and UNE-P end-to-end Out of Service troubles were accurately repaired within 24 hours with a success rate at least equal to that of retail.	Satisfied*	<p>UNE and UNE-P end-to-end Out of Service troubles were accurately repaired within 24 hours with a success rate at least equal to that of retail.</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-5 metric, a comparison of the successful completion rate for out of service test troubles to the 88% for combined retail service indicates the test success rate exceeded the retail metric.</p> <p>KPMG Consulting evaluated 98 out of service UNE and UNE-P troubles. Of the 98 UNE and UNE-P out of service troubles evaluated, 87 (89%) of the troubles were successfully completed within the 24-hour time frame.</p> <p>M&R-5 – Out of Service (OOS) >24 Hours - Out of Service Troubles of (no dial tone, cannot be called or cannot call out) measures the percentage of Total OOS Troubles cleared in excess of 24 hours is the SQM used to evaluate this criterion.</p>
TVV9-9	UNE and UNE-P end-to-end trouble reports are processed in accordance with stated timing intervals with an average success rate at least equal to that of retail.	Satisfied	<p>UNE and UNE-P end-to-end trouble reports are processed in accordance with stated timing intervals with an average success rate at least equal to that of retail.</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-3 metric, a comparison of the average duration time of “receipt to clear” for</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>test troubles to the 9.38 hours for combined retail service indicates the test trouble time was lower than the retail metric.</p> <p>KPMG Consulting evaluated 103 UNE and UNE-P troubles. Of the 103 UNE and UNE-P troubles evaluated, the average duration time of “receipt to clear” was 8.52 hours.</p> <p>M&R-3 Maintenance Average Duration - Average duration of Customer Trouble Reports from the receipt of the Customer Trouble Report to the time the trouble report is cleared is the SQM used to evaluate this criterion.</p>
TVV9-10	UNE and /UNE-P end-to-end troubles reports contain accurate entries to required fields.	Satisfied*	<p>UNE and /UNE-P end-to-end troubles reports contain accurate entries to required fields.</p> <p>KPMG Consulting applied a benchmark of 95% accuracy for this criterion.</p> <p>Although the coding accuracy percent is below the 95% standard, the statistical evidence is not strong enough to conclude that the performance is below the benchmark with a 95% confidence level. The statistical test for this criterion produced a p-value of .3759, indicating that the inherent variation in the process is large enough to have produced the sub-standard result, even with a process that is operating above the benchmark standard.</p> <p>KPMG Consulting evaluated 174 UNE and UNE-P codes. Of the 174 BellSouth provided codes reviewed, 164 (94%) were accurately coded.</p>
TVV9-11	Special Circuit end-to-end trouble reports are processed in accordance with stated timing intervals with an on time success rate at least equal to that of retail.	Satisfied*	<p>Special Circuit end-to-end trouble reports are processed in accordance with stated timing intervals with an on time success rate at least equal to that of retail.</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-1 metric, a comparison of the successful</p>

Test Reference	Evaluation Criteria	Result	Comments
			<p>completion rate for test troubles to the 94% for combined retail service indicates the test success rate exceeded the retail metric.</p> <p>KPMG Consulting evaluated 41 Special Circuit troubles located in central offices, outside plant or in CPE.</p> <p>Of the 41 Special Circuit troubles evaluated, 39 (95%) of the troubles were successfully completed within the BellSouth provided appointment time.</p> <p>M&R-1 – Missed Repair Appointments - Count of Customer Troubles Not Cleared by the Quoted Commitment Date and Time is the SQM used to evaluate this criterion.</p>
TVV9-12	Special Circuits end-to-end troubles are accurately identified and repaired.	Satisfied*	<p>Special Circuits end-to-end troubles are accurately identified and repaired.</p> <p>KPMG Consulting applied a benchmark of 95% accuracy for this criterion.</p> <p>KPMG Consulting evaluated 41 Special Circuit troubles with faults located in central offices, outside plant, or in CPE.</p> <p>BellSouth identified and successfully repaired 39 (95%) out of the 41 Special Circuit troubles.</p>
TVV9-13	Special Circuits end-to-end out of service troubles were accurately repaired within 24 hours with a success rate at least equal to that of retail.	Satisfied*	<p>Special Circuits end-to-end out of service troubles were accurately repaired within 24 hours with a success rate at least equal to that of retail</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-5 metric, a comparison of the successful completion rate for test out of service troubles to the 97% for combined retail service indicates the test success rate met the retail metric.</p> <p>KPMG Consulting evaluated 41 Special Circuit troubles. Of the 41 out of service Special Circuit troubles evaluated, 40 (97%) of the troubles were successfully completed within the 24-hour time frame.</p>

Test Reference	Evaluation Criteria	Result	Comments
			M&R-5 – Out of Service (OOS) >24 Hours - Out of Service Troubles of (no dial tone, cannot be called or cannot call out) measures the percentage of Total OOS Troubles cleared in excess of 24 hours is the SQM which was used to evaluate this criterion.
TVV9-14	Special Circuit end-to-end trouble reports are processed in accordance with BellSouth stated timing intervals with an average success rate at least equal to that of retail.	Satisfied*	<p>Special Circuit end-to-end trouble reports are processed in accordance with BellSouth stated timing intervals with an average success rate at least equal to that of retail.</p> <p>Based on the BellSouth Service Quality Measurement Plan M&R-3 metric, a comparison of the average duration time of “receipt to clear” for test troubles to the 10.19 hours for combined retail service indicates the test trouble time was lower than the retail metric.</p> <p>KPMG Consulting evaluated 41 Special Circuit troubles. Of the 41 troubles evaluated, the average duration time of “receipt to clear” was 9.92 hours.</p> <p>M&R-3 Maintenance Average Duration - Average duration of Customer Trouble Reports from the receipt of the Customer Trouble Report to the time the trouble report is cleared is the SQM used to evaluate this criterion.</p>
TVV9-15	Special Circuit end-to-end trouble reports contain accurate entries to required fields.	Satisfied*	<p>Special Circuit end-to-end trouble reports contain accurate entries to required fields.</p> <p>KPMG Consulting applied a benchmark of 95% accuracy for this criterion.</p> <p>KPMG Consulting evaluated 123 Special Circuit codes. Of the 123 BellSouth provided codes reviewed, 117 (95%) were accurately coded.</p>

5.0 Parity Evaluation

A parity evaluation was not required for this test.

6.0 *Final Summary*

This section summarizes the number of test evaluation criteria discussed above and the number that was satisfied or not satisfied at the conclusion of this test.

6.1 *Summary of Findings*

There were 15 evaluation criteria considered for the End-to-End Trouble Report Processing (TVV9) test. All 15 evaluation criteria were satisfied at the time of data collection which was February 2001. As a result of the passage of time since data collection, KPMG Consulting is unable to assess the current performance of the underlying systems and/or processes.