OSS-56

EXHIBIT OSS – 56

JIA for ECTA Gateway for Local Service Between CLEC and BellSouth

Joint Implementation Agreement (JIA)

for

Electronic Communications Trouble Administration (ECTA) Gateway for Local Service

between

CLEC
and
BellSouth Telecommunications, Inc.

ISSUE 3.0

TABLE OF CONTENTS

LIST OF TABLES

Distribution List for CLEC and BST

CLEC:

Name
Name
Name
Name

BST:

Ken Ainsworth
Arthur Defee
Preeti Hess
Terrie Hudson
Gene Piatkowski
John Wilshear

A table listing the various terms and definitions used in BST's maintenance and repair arena is provided in Section 22, beginning on page 109.

1 INTRODUCTION / SCOPE

1.1 Basis and Scope of the Agreement

The Scope of this Joint Implementation Agreement (JIA) is to outline the roles and responsibilities of both the CLEC Telephone Company (CLEC) and BellSouth Telecommunications, Inc. (BST) for implementing Electronic Communications (EC) for maintenance, in support of the ANSI T1.227-1995, T1.227A-1998, T1.228-1995 and T1.262-1998 standards on Trouble Administration (TA). This JIA is subject to the terms and conditions of the Interconnection Agreement entered into between CLEC and BST.

This JIA reflects the CLEC and BST specific implementation plans for this Local Competition (CLEC) interface. Both parties recognize that requirements specification may change over time and any requested change from the initial baseline defined in this JIA will be handled via the Change Management and Control provisions (see Section 1.3).

This document memorializes the understanding that exists between CLEC and BST. This document not only outlines the specifications for implementation by CLEC and BST, but also details the exceptions to specifications including attribute support, security procedures, levels of support and other items necessary to implement electronic communications for trouble administration between CLEC and BST.

1.1.1 Principal Parties

CLEC and BST

Principal points of contact for the distribution and sharing of information, issues, inquiries and responses within the respective teams will be as follows:

CLEC	BST
Name	Gene Piatkowski
CLEC *Address* *Address* *City, State Zip*	BellSouth Telecommunications, Inc. Room E3A1 3535 Colonnade Parkway Birmingham, AL 35243
(phone)	205-977-1143 (phone)
(fax)	205-977-1143 (fax)

The use of electronic mail is the preferred distribution method so as to enable speedy and widespread distribution among the respective teams. FAX is the preferred alternative should e-mail communications fail or if there is an urgent need for distribution that e-mail cannot accommodate.

Ordinary business communications involving respective subject matter experts shall occur as deemed appropriate between the respective parties, with relevant decisions subsequently shared with the principal contacts for distribution within the teams as necessary.

1.1.2 CLEC & BST Objectives and Goals

CLEC and BST's maintenance support systems will be real time electronically bonded to report service troubles.

1.2 Change Control Log

As discussed in section 1.3, changes may occur to this document over time. As changes are implemented, the affected sections will be updated as appropriate. In addition to filing the Change Control Forms in "Appendix A - Change Control Form", a Change Control Log will be maintained in this section for easy reference.

LOG #	Origination Date	Target Response Date	Approved/ Disapproved/ Pending	Description
000	09/01/00	09/31/00	Pending	Sample Change Control Log entry to demonstrate format, etc.

1.3 Change Management and Control

1.3.1 Introduction

System requirements or system changes for electronic bonding may change for a number of reasons. During the initial implementation of this interface, changes will be made in accordance with the documented change procedure described below. Once the system is "in production", all future change requests initiated by CLEC will be made via the BST "Electronic Interface Change Control Process", documented at the BST Internet Web site:

http://www.interconnection.bellsouth.com/guides/eiccp/index.htm

Any changes in this system initiated by BST that could impact CLEC's operation of the system will be communicated via this JIA update process.

1.3.2 Baseline

After all identified organizations have agreed to and signed off on this initial document, it will serve as the baseline. All future changes (up to implementation) to this document will be made in accordance with the procedure described in this section.

1.3.3 Procedure

Either CLEC or BST may submit a change request to the JIA through their Change Control Coordinators. The Change Control Coordinators for this project are:

CLEC Project Manager – *Name*
BST Project Manager - Gene Piatkowski
BST Development Manager – Art Defee

Any Change Control Coordinator may submit a change to this document. One Change Control Coordinator will be designated as the editor of this document and will be responsible for updating and distributing this document. The document editor is:

BST - Gene Piatkowski

Prior to submission, the requested change will be reviewed internally within CLEC/BST to determine if inclusion in the agreement is warranted.

1.3.4 Process

The purpose of this process is to ensure each company's EC team has evaluated all potential impacts from the change. CLEC and BST will utilize their own internal change control processes for documenting and evaluating potential impacts.

1. The originator of the proposed change will fill out a JIA Change Control Form ("Appendix A - Change Control Form"). The Change Control Coordinator will be responsible to ensure the form is correctly filled out.

2. The originator will send the completed Change Control Form to the document editor who will insure the form is complete and will work with the originator to resolve any problems.

3. The editor will assign a Change Control Log Number, log the requested change in the Change Control Log (Section 1.2) along with the origination date.

4. The editor will then distribute copies of the completed form to all Change Control Coordinators.

5. Each organization will have two calendar weeks from the date that the request is distributed for review to complete their internal impact evaluation and respond to the editor with 'approved', 'disapproved' or 'comments' unless a longer interval is mutually agreed to.

6. The Development Manager for both companies, guided by their respective organizations, must concur and sign the Change Control Form to "approve" or "reject" a request. If "rejected", the reason for the status will be stated in the appropriate area. Prior to "rejecting," there should be communications between the respective company's Change Control Coordinators to determine if a compromise can be reached.

7. The editor will make the appropriate log entries, notify all coordinators of the status and make changes to the documentation (if appropriate). The completed Change Control Form shall be inserted into Appendix A.

1.4 Schedules and Commitments for Project Milestones

The schedule and major milestones will be tracked and monitored outside the scope of this JIA document.

2 COMMUNICATIONS PROTOCOL

CLEC has and will continue to participate in the Electronic Communication Implementation Committee (ECIC) and will support proposals made by the committee. CLEC's preference in communications between gateways is CMIP over TCP/IP. CMIP over X.25 is supported.

The following list characterizes communication between CLEC and the agents.

- Dedicated Circuits between Manager and Agent.
- Interconnection of X.25 networks is supported
- Gateway-to-Gateway communications are over a seven-layer OSI stack.
- Connections using TCP/IP (once adopted for ECTA by BellSouth) will conform to Internet RFC 1006 "ISO Transport Service on top of the TCP".
- The objects exchanged between gateways are defined in ANSI T1M1.5 T1.227.
- The services supported between gateways are defined in ANSI T1M1.5 T1.228.

Time between the gateways must be maintained within plus or minus two minutes using the National Institute for Standards and Technology (NIST) clock in Boulder, Colorado to support the security policies.

2.1 Access Topology

CLEC maintains a their system in *City, State* and this one interface will serve as both the test and production system for this effort.

BST maintains a primary production site in Charlotte, NC, a disaster recovery system in Birmingham, AL and development system in Jackson, MS.

The current topology requires manual intervention at both ends to switch traffic between the BST production and backup systems. Once notified by BST to switch to their backup system, CLEC will change the X121 address and the agent's NSAP address to the values indicating BST's backup location. These addresses will be changed back to their original values once the BST production system is operational again.

3 SECURITY

3.1 Summary of Required Security Characteristics

- The security information contained in this section follows the Electronic Communications Implementation Committee (ECIC) document *TR No. 40 May 1995 - Security Requirements for Electronic Bonding Between Two TMNs*
- Closed User Groups (CUGs) will be used to secure the X.25 connections.
- All time stamps will be in Generalized Time, Format 2 (YYYYMMDDHHSS.SZ). This form corresponds to the Greenwich Mean Time (GMT) time format.
- The system clocks on the gateways will be maintained plus or minus two minutes of the National Institute for Standards and Technology (NIST) atomic clock in Boulder, Colorado.
- The Data Encryption Standard/Cipher Block Chaining mode (DES/CBC) will be used to encrypt and decrypt security information.
- The manager will determine when and which new key will be used and will change the key at random time intervals. This frequency of key change will be determined by the manager. Once a key has been discarded it will not be used again.
- In the initial implementation, the security information in the CMIPUserInfo, AccessControl field will be composed of an entity identifier which is plain text and an encrypted time stamp using a format of Generalized Time, Format 2 - YYYYMMDDHHSS.SZ, the key index and a DES/CBC initialization vector.
- CLEC does not support an agent change to accessControl. An agent attempt to change the key will be a security violation.

3.2 Security Key Requirements

BST is responsible for supplying security key files to CLEC. These files must be on a 3 ½" Windows diskette. Under normal conditions, BST will supply a new file once every twelve months. Prior to production, BST will supply CLEC with two initial disks containing the sequential and backup security key files.

Each disk must meet the following requirements:

- contain no more than one file of 1000 keys.
- be clearly labeled with both "BST" and the file name.
- must arrive with a return address and the name/phone number of the person responsible for generating and sending the disk.
- indices must be sequential and cannot be re-used in subsequent files.
- provided keys must be of odd parity.

3.2.1 Security Key Files

The naming convention for security key files is: ***keys.networkid.version,*** where

networkid is the network identification name for BST and *version* is the sequential number of the file, beginning with 1. CLEC initially requires a second disk of security keys that will be reserved for use as a backup disk. If the secondary set of keys is not required as a backup disk, it will be used as the next disk in the normal key sequence. The initial keys will be numbered 1 through 1000, and the second file will contain keys 1001 through 2000, and so on.

Backup disks will be used when one of the following situations occurs:

1. BST feels that the current security key file has been compromised.
2. The current security key file has used up all keys and there is no replacement file.
3. The current security key file has been corrupted.

If security is breached and a backup disk is used, CLEC requires BST to send a new primary and secondary set of disks. Upon receipt of the new disk, CLEC will coordinate use of the primary security keys. The second set of keys will be held in reserve as a backup disk.

At year-end, given no breach of security, CLEC requires a disk containing new security keys. The year is measured from the date of the last receipt of a security key disk from BST.

3.2.2 Security Key File Format

Both key files must be in the format of "index", followed by either a "tab" or "white space" and then the "key". Leading zeros for the indices are not allowed. The index value must begin in column 1 of the file. If the key file violates this format, the responsible person at BST will be contacted and a new disk will be requested.

The following are examples of the required file format:

1 bc941aa8137c269d
2 25ba9b5125cef2dc
3 7abf6df83ee5da98
4 6e7a3d5ef8ec23cd

3.3 Physical Security

Specifications for the Physical Security of the CLEC CMIP Gateway and the BST CMIP Gateway:

Both CLEC and BST will establish a physically secure environment based upon their corporate procedures and policies required for Physical Security.

3.4 X.25 Security

Specifications for the X.25 Security of the CLEC CMIP Gateway and BST CMIP Gateway:

- The ITU-T Recommendation X.121, International Numbering Plan for Public Data Networks will be used to identify calling and called DTEs and control access from the network.
- The ITU-T Recommendation X.25 Facility, Closed User Groups (CUGs) with outgoing access will be used to control access from the network.
- A Virtual Call (VC)/Switched Virtual Circuit (SVC) will be used to enforce the validation of the CUG and X.121 addresses.

- CLEC will write all valid calls to an X.25 Access granted security log.

3.5 OSI Upper Layer and CMIP Security

Special security mechanisms are required between CLEC's CMIP gateway and BST's gateway. The security measures identified in this section perform peer entity authentication at the application layer (e.g. ACSE). Given the nature of the electronic exchange of information, explicit security procedures are required to validate the identity of the BST gateway.

This section contains the specifications for the ACSE Security of the CLEC CMIP Gateway and the BST CMIP Gateway interfacing to the CLEC CMIP Gateway. In order to exchange authentication information, the access control parameter contained in an A-ASSOCIATE and CMIP Requests/Responses must be extended for purposes of authentication. The access control parameter contained in the A-Associate and CMIP request messages is defined by the following abstract syntax.

```
DEFINITION ::= BEGIN
 AccessControl ::= SEQUENCE {
     entityIdentifier   [0] IMPLICIT VisibleString (SIZE (1..64)),
     initializationVector  [1] IMPLICIT OCTET STRING (SIZE 8),
     keyIdentifier  [2] IMPLICIT INTEGER,
     encryptedString  [3] IMPLICIT OCTET STRING (SIZE (8..64))
} -- AccessControl
```

The access control parameter identified above assumes both CLEC and BST have knowledge of the following data.

- Private encryption keys.
- System clocks maintained plus or minus two minutes of the NIST clock in Boulder.
- Security policies identifying when to change encryption keys.
- DES/CBC encryption software.

In addition to the access control syntax, two other external abstract syntax's are required in the A-Associate. These are CMIP-USER-INFO and SMASE defined in ISO/IEC 9596-1 and ISO/IEC 10040, respectively.

This initial exchange of security information occurs when CLEC issues an A-ASSOCIATE to BST to establish an association for the exchange of electronic bonding information. To ensure a complete understanding of this process a step-by-step explanation is provided below.

1. CLEC will initiate an A-ASSOCIATE with BST upon request from the CLEC Standardized Interface.

2. CLEC will retrieve the proper application context name from static configuration information based on the customer name.

3. In order to create the A-ASSOCIATE request, CLEC will populate the A-ASSOCIATE request with the following data. A-ASSOCIATE Request w/valid parameters, for a graphical view of these parameters.

A-ASSOCATE Request:

Application Context Name **2.9.0.0.2**

- Populated from static information based on the customer name.

CMIP User Info **2.9.1.0.1**

- This field is the first external placed in the userInfo parameter of the A-ASSOCIATE request. The parameter contains the following information protocol version, functional units, and access control. These fields are described below.

Protocol Version

- Bit position for version 2 is ON.

Functional Units

- Null.

Access Control **1.2.840.10016.4.1**

- CLEC will determine the current system time and format the information according the Generalized Time, format 2 (GMT). Following the determination of time, the proper encryption key will be determined based on date and time. The encryptedString parameter populated using the DES/CBC encryption. CLEC will set the entityIdentifier to "CLEC-LSR".

SMASE User Information **2.9.0.1.1**

- This parameter is the second external placed in the userInfo field in the A-ASSOCIATE request. This parameter will be populated with the functional unit parameters described below.

smfuPackages

- This parameter is populated with two sets of values. The first set contains the Trouble Administration Functional Units. The second set contains the Extended Modify Function Units. The value specified for each of these parameters is specified below.

Trouble Administration Functional Units **1.2.840.10016.2**

- This parameter is specified in the managerRoleFunctionalUnits contained inFunctionalUnitPackage. The different bit positions are defined in ANSI T1M1.5 228. This parameter will be set with the following bit position ON.

  Bit 0 - Kernel
  Bit 4 - Add Trouble Information
  Bit 6 - Verify Trouble Repair Completion
  Bit 7 - Modify Trouble Administration Information
  Bit 8 - Configuration Trouble Administration Event Notification

Bit 10 - Cancel Trouble Report

Extended Modify Functional Units **1.2.124.360501.12.1**

- This parameter is specified in the managerRoleFunctionalUnits contained in the FunctionalUnitPackage. This parameter will be set to the following bit position: ON.

  Bit 0 - Extended Modify Trouble Report Administration

4. CLEC will initiate the A-ASSOCIATE Request to BST and start a 90 second timer. The message contains manager identification to the agent and an encrypted version of the GMT system time represented as ASN.1 GeneralizedTime (version b). This data is encrypted using the manager selected key and initialization vector.

5. BST will receive the A-ASSOCIATE request and determine from the access control parameter entityIdentifier that CLEC initiated the request.

6. BST will decrypt the encryptedString field of the access control parameter using the proper encryption key based upon the manager selected key and initialization vector. The date and time information sent by CLEC will be compared to BST system date and time. If the system times are different by more than 6 minutes, BST should reject the request using an A-ABORT. Six minutes allows for synchronization within plus or minus two minutes of GMT time, up to one minute for inter machine transport time, and up to one minute for processing and queuing time.

7. After validating the system time, BST should determine its local date/time and format the date/time according to generalized time, format 2 (GMT). The date/time should be encrypted using the current encryption key based upon the manager selected key and initialization vector and placed in the encryptedString field of the access control parameter contained in the A-ASSOCIATE response.
8. BST will set the entityIdentifier field of the access control parameter to their company name.

9. BST will determine the other A-ASSOCIATE response parameters and return the results to CLEC. A-ASSOCIATE response with valid parameter for a graphical view of the required information.

10. CLEC will compare the system time sent by BST to its local system time. If the difference between system times is greater than 6 minutes, CLEC will issue an A-ABORT.

11. After the association is established between CLEC and BST, CLEC will issue CMIP operations. Each CMIP operation contains the access control parameter with the same syntax identified above. CLEC will populate the access control parameters in the same manner identified in the A-ASSOCIATE request. The current date/time is encrypted using the current DES/CBC key and placed in the encryptedString field of the access control parameter.

12. CLEC will issue the CMIP operation (e.g. Create, Get, Set) to BST.

13. BST will receive the CMIP operation and determine the customer name by retrieving "CLEC-LSR" from the entityIdentifier parameter of access control.

14. BST extracts the CLEC date/time from the encryptedString using the current DES/CBC key.

15. BST validates CLEC's date/time against BST's local date/time. If the system time is greater than 6 minutes, BST should issue an A-ABORT to CLEC.

16. If the request from CLEC is valid, BST should process the request. Note: CMIP responses do not contain a return access control parameter from BST to CLEC.

3.5.1 Details of Required Upper Layer Security Characteristics

1. The Data Encryption Standard/Cipher Block Chaining mode (DES/CBC) will be the algorithm used to encrypt or decrypt the information contained in the encryptedString field of the A-Associate, AccessControl extension.

2. The system clocks on the gateways must be maintained plus or minus two minutes of the atomic clock at NIST, in Boulder, Colorado. A telephone number (303-499-7111) can be called to hear a recorded message of the current time.

3. If an association request or CMIP operation is received by the agent outside of the six minute time window, it should be viewed as a security violation. Six minutes includes time for transmission and processing. During an association operation, BST will reject the request. If the violation occurs during a CMIP operation the agent should issue an A-Abort.

4. The encryption/decryption key composition and secure distribution of the keys will be handled by BST. These keys allow the manager (CLEC) and the agent (BST) to encrypt/decrypt information used in the association establishment and CMIP requests. BST will send to CLEC via Federal Express a clear text file on 2 disks with a list of 1,000 keys once per year. From that set, CLEC will indicate which member is the valid key used for encryption/decryption. The member will be randomly selected at random intervals by CLEC. The initiation of a new key will commence at an agreed upon time by both CLEC and BST.

5. The list of keys should have a format of one keynumber and key per line.

6. CLEC will change keys at random time intervals and frequencies. Once the key has been discarded it will not be used again.

7. Associations will remain open until predetermined time intervals that correspond to the maintenance windows on the end systems. If no window exists (a 7x24 system), an agreement will have to be implemented between the manager and the agent to satisfy this requirement.

3.6 UNIX Host Security

Specifications for the UNIX host used in the CLEC CMIP Gateway:

- The accounting functions will be activated to monitor the usage of the system, users logging onto the system, and activities of the users.
- The accounting logs will be reviewed at regular intervals to detect security and system violations.
- The accounting logs will be retained for a period of one year.

3.7 Associations

The following (case sensitive) selector names will be used for CLEC's Local Service trouble reports:

Presentation selector name:	CLECLSRAgentP
Transportation selector name:	CLECLSRAgentT
Session selector name:	CLECLSRAgentS

4 BUSINESS FUNCTIONS

4.1 Business Dependencies

Refer to "Appendix B - BST Trouble Admin. Attribute Information for CLECs".

4.2 TTR Already exists (POTS)

Trouble reports entered in LMOS via some other path (i.e., systems down and CLEC user calls BST) can not be 'bonded' to the EC Gateway at some later time for automatic status messaging, etc. This is a characteristic of BST's LMOS system.

4.3 Validation of Ownership/Agency

BST will accept any trouble from CLEC with an Account Name of CLEC-LSR. Trouble reports entered with the Account Name "CLEC-LSR" will be handled as Local Service reports.

Note: *The BST gateway validates that a trouble report entered for a given telephone number belongs to the Manager (e.g., CLEC) via OCN comparison.*

4.4 Attribute Value Change (AVC)

Every time a trouble report is statused in LMOS and WFA (i.e., some activity has occurred which impacts the status of the report), the BST gateway sends CLEC the corresponding AVC (edited to conform to the standards).

Note: *A subsequent report generated in LMOS (i.e., additional information added to an existing report) does not impact the current 'status' of the report and therefore no AVC is returned to CLEC at the time of generation. However, the next time the report changes status, confirmation of the subsequent report will be provided.*

Although BST is prepared to send all AVCs, CLEC has requested that only the AVCs associated with (1) no access, (2) dispatched in, (3) dispatched out, (4) cleared and (5) closed transactions be sent. The AVC selection is a tunable selection at the BST gateway and will be adjusted during the initial testing with CLEC.

4.5 Attribute Error Checking

BST and CLEC understand and agree that this ECTA interface is a machine-to-machine interface built upon the ANSI standards. As such, both parties agree that the values communicated

between the gateways shall be within the range of values specified in the appendices to this document.

The CLEC users access the trouble reporting process via a man-to-machine interface, built and maintained by CLEC (e.g., a GUI), which is connected to the CLEC gateway that communicates with the BST gateway. Therefore CLEC is responsible for all user error checking to insure that attribute values communicated to BST conform to the ANSI standard values.

With the exceptions noted below, the BST gateway will not perform attribute value error checking and the resultant trouble report will be generated based upon the CLEC provided information.

4.5.1 Default Trouble Description Code

The BST gateway accepts all T1.227 troubleType objects as defined in Appendix E - BST Trouble Type Codes: WFA & LMOS. Should the BST gateway receive an invalid troubleType object (i.e., one not listed in the table) it will apply the Can't Call Other (CCO) trouble description code for the report. This approach will generate a trouble report in BST's OSSs and an AVC will be returned to CLEC. Should CLEC determine that this is not the appropriate trouble description code, it can call the BRMC for assistance. (Note: In the history of ECTA, there is no documented occurrence of this default processing actually being used.)

4.5.2 closeOutVerification Object Processing

If CLEC sends any value other than the anticipated values of 0, 1, 2, 3 or 4 for the closeOutVerification object, the BST gateway will return an appropriate error message forcing CLEC to resubmit his response.

4.6 Commitment Time (ETTR)

LMOS commitment times (Estimated Time To Repair - ETTR) are established by the BST Work Management Center (WMC) for each geographical area. Elements considered include the volume of work and available resources in each geography and these commitment values are managed in real time. (i.e., The commitment time for a given geography could change throughout the day depending upon load.) Other factors such as Service Impacts, Class of Service (COS) and Telecommunications Service Priority (TSP) assignments are also considered. A customer out of service will obtain a shorter commitment than one with an affecting service condition. Business customers are typically given a shorter commitment than Residence customers. TSP customers automatically receive priority treatment which are appropriate for their TSP level.

For complex trouble reports processed in WFA, the ETTR is defined in 'objective' times. The objective for a specific circuit type is defined by established defaults or individual contractual requirements.

4.7 Escalation

Both parties recognize that there may be unusual circumstances that warrant special treatment (i.e., an emergency situation). Situations qualifying for such consideration include those conditions that may seriously affect life or property. Examples include:

- Serious illness (e.g., the home bound patient is connected to monitoring equipment accessed by medical personnel via the telephone)

- Doctors on call
- Death in the family
- Handicapped individuals (where the phone is the only link to the outside)

In addition to these emergency situations, CLEC may wish to escalate a trouble report for a Major Account customer. Definitions and processes for escalating this category of trouble report will be addressed in the Maintenance Center Operational Understanding for Local Services agreement.

For POTS trouble reports, CLEC will enter the trouble report in the established manner (to establish the Electronic Bonding) and then call the BST Resale Maintenance Center at 888-467-0612 to escalate the problem. The BST representative will then adjust the commitment time on the existing trouble report appropriately. CLEC will receive the new commitment time directly from the BST representative at the time of escalation. The AVC reflecting the new commitment time will be sent to CLEC's gateway the next time the trouble report is statused in LMOS.

For Designed Circuit escalations, CLEC will use the procedures defined in the Maintenance Center Operational Understanding for Local Services agreement.

4.8 Front End Close Out (FECO)

With the introduction of ECTA Release 5.0 on June 29, 1999, the system now automatically performs an MLT test if the POTS trouble description denotes a testable report (i.e., NDT). The system then routes the report based upon the test results thereby reducing the volume of reports requiring manual screening.

A number of MLT test results could indicate that there is nothing wrong with the BST facilities (i.e., VER 0 – TOK) and the problem is either a transient condition or customer premises equipment problems (i.e., VER 71 – ROH).

When the test results indicate a non-BST trouble (or the trouble condition no longer exists), ECTA will status the report 'FEC' and the Manager will receive the corresponding AVC (troubleReport Status value of 26, "*clearedAwaitingCustVer*") which indicates that no problems with BST service was found.

In BST, a FECO recommendation triggers dialogue between the repair attendant and the customer explaining the situation and giving the customer some time to verify the analysis – i.e., that the problem no longer exists. The FEC status code places the LMOS ticket in a 'Hold Queue' for approximately 12 hours. If the customer does not call back challenging the analysis, the report is automatically closed at the end of the window.

In a similar fashion, the CLEC FEC statused report goes into the LMOS FECO Hold Queue. At this point, CLEC has three options:

- Do nothing
- Confirm ticket closure
- Reject ticket closure

4.8.1 CLEC Does Nothing

If CLEC does not respond to the FEC AVC, LMOS will wait the prescribed time interval and will then automatically close the report (to either a TOK or CPE disposition). When LMOS closes the report, a 'closed' AVC (troubleReportStatus value of 27, "*closeOut*") will be sent to CLEC and CLEC will close their record.

4.8.2 CLEC Accepts FECO

CLEC may wish to pro-actively close the report (i.e., after confirming with their customer that the trouble is cleared).

In this situation CLEC will send the *closeOutVerification* attribute with a value of verified (1) to indicate that the FEC message is accepted.

4.8.3 CLEC Rejects FECO

If after receiving the FEC AVC, CLEC contacts their customer and confirms that the trouble condition still exists, CLEC will perform a SET function (subsequent report) indicating that the trouble still exists. CLEC uses the *closeOutVerification* attribute with a value of denied (2) to indicate that the FEC message is rejected.

ECTA then re-statuses the reports to either pending dispatch out (PDO) (Residence) or pending dispatch business (PDB).

4.9 MLT VER Code

As indicated above, ECTA now executes a MLT test for testable trouble description codes. When the test results are returned, ECTA writes the resultant VER code in the status narrative that gets returned to the CLEC gateway as an AVC. For example:

VER=71, ROH, FECOCPE - CUST TO CHK EQUIP

4.10 Closing Trouble Reports

With the implementation of this EC Gateway process, the BST field technicians will no longer call CLEC to close a POTS trouble report (which was created via the gateway)[1]. Closing the report in LMOS will automatically notify CLEC via the appropriate AVC.

[1] Trouble reports generated via ECTA will have "%CLEC-LSR" in the narrative field. Reports generated manually (i.e., reported to the BRMC and input via TAFI) will have "%CLEC" in the narrative. Therefore, the field technician will know that reports containing the "-LSR" label were generated via ECTA and do not require a call back to CLEC at closure.

4.11 UNE

Non-designed services provisioned by BST that are assigned a telephone number are supported by LMOS while designed services assigned a circuit-id are supported in WFA. Some non-designed services (e.g., SL1 UNE loops) are assigned a circuit ID and are supported via LMOS. The BST ECTA Gateway supports these trouble categories today.

The Managed Object Instance (MOI) for the SL1 UNE is shown as Format 7 in Section 14. The area code must be entered with the Prefix, Service Code[2], Modifier and Serial Number. For example:

404 00 TYNU 000000

Interim number portability is provisioned with the Remote Call Forwarding (RCF) feature. **CLEC must use Trouble Type Code "1124"** (see Appendix E - BST Trouble Type Codes: WFA & LMOS) to ensure proper resolution of RCF trouble reports.

4.12 Request for MLT Test Results

The BST gateway supports ANSI standard T1.262-1998 that allows CLEC to request an MLT test to be run on a specific telephone number (supported in LMOS) without generating a trouble report on that telephone number. Details are found in Appendix N - ANSI T1.262-1998 Support, beginning on page 99.

4.13 Georgia ISDN Line Processing

Although ISDN lines have telephone numbers associated with them, they are provisioned and maintained via a circuit ID. In all BST states except Georgia, ISDN lines are inventoried and maintained via WFA. Therefore, when entering a circuit ID number for an ISDN line in say Alabama, ECTA routes the report to WFA and everything works as expected.

In Georgia, ISDN lines are assigned circuit IDs but they are inventoried and maintained via LMOS. Unfortunately there are no unique characteristics about the Georgia ISDN circuit IDs and ECTA can not mechanically determine where to send these reports. Therefore, trouble reports for Georgia ISDN lines must be reported manually to the BRMC for processing.

4.14 Additional Charges

Should the dispatch of a BST field technician warrant extra billing to CLEC, the actual amount of the charges and the process for providing those charges to CLEC will be addressed in the Maintenance Center Operational Understanding for Local Services agreement. CLEC will be sent a Trouble Found Code of 31, along with the LMOS status narrative, indicating that billing took place. The actual amount of this billing will appear on CLEC's statement from BST associated with the customer's telephone number that experienced this billing.

Note: *Prior to taking any corrective action to repair inside wiring faults (for end-users without a BST Inside Wire Maintenance Plan), the BST technician will obtain authorization by calling*

[2] Two Service Codes identify a circuit ID to be an SL1 UNE. They are "TY" and "TX".

CLEC from the end-user's location (unless other arrangements have been defined in the CLEC-BST Maintenance Center Operational Understanding for Local Services agreement).

5 PERFORMANCE

5.1 Response Time

BST plans to use its best effort to meet CLEC's response time expectations of two minutes for a 'create' and one minute for a 'set' transaction. The BST gateway is sized based upon initial projections of traffic volume. However, this gateway is scaleable and upgrades to the system can be deployed in 90 days if needed. The driver for the upgrade will be decreased response time and/or increased volumes.

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 maximum response time will not exceed 180 seconds. End to End is defined as CLEC Gateway to BSG to BST Host to BSG to CLEC Gateway.

To avoid premature unbonding (i.e., time out for not obtaining a response), BST provided the following parameters as a guide for CLEC to establish appropriate timing parameters on their interface:

Table 1: Response Time

Transaction Type	Sunny Day Response (90% of Responses within...)	Rainy Day Response (10% of Responses within...)
ASSOC-REQ->ASSOC-RESP	10 sec.	30 sec.
CREATE – REQ-> CREATE-RESP	30 sec.	3 min.
SET-REQ->SET-RESP	30 sec.	3 min.
EVT-RPT->EVT-RPT-RESP	30 sec.	3 min.

5.2 Reliability

This metric is not included in the measurements identified in the Interconnection Agreement between CLEC and BST. However, as a goal, both parties anticipate successfully exchanging messages 99.8% of the time. This measurement includes 'un-replied to" messages, i.e., messages that were unsuccessful or inaccurate due to hardware, software or communication link failures. This measurement excludes valid errors (e.g., "TTR already exists").

Both parties also recognize that a failure to exchange messages could be caused by problems at either side of the interface (CLEC or BST). Should significant failures occur, both parties agree to work together to resolve the situation.

5.3 Availability

The CLEC EC Gateway is operational 24 x 7.

The BST processors involved in providing application-to-application Trouble Reporting via the ANSI T1.227-1995, T1.227A-1998, T1.228-1995, and T1.262-1998 standards are the BST Electronic

Communications Trouble Administration (ECTA) Gateway and the Operational Support Systems, LMOS (via HAL), WFA and CRIS.

These systems are scheduled for periodic down time in order to perform system backups and proactive maintenance. These down times are typically scheduled for off peak hours to minimize impact on the business.

The information below represents a sample schedule of system down time and the actual times may vary at BST's discretion.[3]

Should a maintenance activity require protracted down time, BST will notify CLEC at the same time that the BST maintenance centers are notified. This notification will be made via the BST ECTA support contacts.

5.3.1 BST EC Gateway Schedule

The BST Electronic Communications Gateway will be available 24 hours per day, 7 days a week, except when scheduled maintenance is needed.
On the test, production and backup systems, full weekly backups will typically be made on Saturday and Sunday with incremental backups made daily. The Production system has disk-mirroring capability that allows incremental backups to be made without downtime. Backups on the EC Gateway systems typically begin at 2:00 AM ET and this time most closely coincides with the scheduled downtime of the BST Operational Support Systems.

If scheduled maintenance must be performed on the EC Gateway processor, it will most likely be done between 2:00 AM and 6:00 AM ET on Sunday. Scheduled re-boot of the EC Gateway will typically be performed after the backups beginning at 02:00 EST on Sunday.

CLEC will continue the practice of disabling the associations with the BST ECTA Gateway during BST down time intervals.

Table 2: Scheduled Testbed Availability

Site	Area	On-Line	
Z	Testbed	Mon-Fri	06:00 - 22:00
		Sat	07:00 - 19:00
		Sun	08:00 - 18:00

Table 3: Scheduled LMOS Front End Downtimes

Site	Area	Off-Line	
ALL	ALL	Daily	00:00 - 02:00

[3] Note: When a BST Legacy system is down, it impacts all users of that system (not just the EC Gateway users).

Table 4: Scheduled WFA Downtimes

Site	Area	Off-Line	
G - Jackson MS Regional Data Center	G (GA)	Mon- Sat Sun	02:00 - 04:00 02:00 - 06:00
G - Jackson MS Regional Data Center	S (LA / MS)	Mon- Sat Sun	02:00 - 04:00 02:00 - 06:00
H - Miami FL Regional Data Center	V (North Florida)	Mon- Sat Sun	02:00 - 04:00 01:00 - 05:00
H - Miami FL Regional Data Center	H (South Florida)	Mon- Sat Sun	02:00 - 04:00 01:00 - 05:00
I - Charlotte (*Control Region*) NC Regional Data Center	I (NC / SC)	Wed Sun	03:00 - 05:00 02:00 - 06:00
K - Nashville TN Regional Data Center	E (TN)	Mon- Sat Sun	03:00 - 05:00 02:00 - 06:00
S - Birmingham AL Regional Data Center	N (AL / KY)	Mon-Sat Sun	02:00 - 04:00 01:00 - 05:00

Note: All times are stated in military time (Eastern Time Zone)

5.3.2 CLEC EB Gateway and Host Application Scheduled Downtimes

Table 5: CLEC Gateway and Application Downtimes

CIMP Translator	EB Gateway	Trouble Admin Service	OSS-1	OSS-2
Sun 12:00am → Sun 4:00am	Sun 12:00am → Sun 4:00am	Sun 12:00am → Sun 4:00am	Sun 12:00am → Sun 4:00am	Sun 12:00am → Sun 4:00am
Mon 1:30am → Mon 2:30am	Mon 1:30am → Mon 2:30am	Mon 1:30am → Mon 2:30am	Mon 1:30am → Mon 2:30am	Mon 1:30am → Mon 2:30am
Tue 1:30am → Tue 2:30am	Tue 1:30am → Tue 2:30am	Tue 1:30am → Tue 2:30am	Tue 1:30am → Tue 2:30am	Tue 1:30am → Tue 2:30am
Wed 1:30am → Wed 2:30am	Wed 1:30am → Wed 2:30am	Wed 1:30am → Wed 2:30am	Wed 1:30am → Wed 2:30am	Wed 1:30am → Wed 2:30am
Thur 1:30am → Thur 2:30am	Thur 1:30am → Thur 2:30am	Thur 1:30am → Thur 2:30am	Thur 1:30am → Thur 2:30am	Thur 1:30am → Thur 2:30am
Fri 1:30am → Fri 2:30am	Fri 1:30am → Fri 2:30am	Fri 1:30am → Fri 2:30am	Fri 1:30am → Fri 2:30am	Fri 1:30am → Fri 2:30am
Sat 1:30am → Sat 2:30am	Sat 1:30am → Sat 2:30am	Sat 1:30am → Sat 2:30am	Sat 1:30am → Sat 2:30am	Sat 1:30am → Sat 2:30am

Note: All times in the above chart are in Central Time

5.4 Throughput

The average annual number of POTS and WFA trouble reports forecasted from CLEC is _____ per year with a ____ percent growth year over year.

6 RECOVERY

Both parties recognize that system failures of various magnitudes may occur on either company's interface at any time. Both CLEC and BST will maintain back-up systems to process trouble reports in the event of a production system failure. The recovery procedures used for managing Local trouble reports will be identical to the existing procedure used for the IXC interface. These procedures include:

6.1 Component Recovery

Some failure modes are quickly resolved and therefore do not require moving traffic to an alternate processor. Details of the component recovery requirements and scenarios are given in "Appendix H - Component Recovery Requirements / Scenarios".

6.2 Fail-Over Recovery

Should CLEC experience a problem with their production processor (that exceeds the definition of a component failure) CLEC will coordinate to transition the BST gateway traffic to the CLEC "Disaster Recovery" system (see Section 6.3). Once the production system failure is restored, CLEC will coordinate with BST to move the gateway traffic back to the primary production site.

Should BST experience a problem with their production processor (that exceeds the definition of a component failure) BST will coordinate to transition CLEC gateway traffic to the BST "Disaster Recovery" system (see Section 6.3). Once the production system failure is restored, BST will coordinate with CLEC to move the gateway traffic back to the primary production site.

6.3 Disaster Recovery

Both parties recognize the requirement for detailed Disaster Recovery procedures since manual intervention will be required to maintain efficient production. BST is currently formulating a mechanized Disaster Recovery procedure and, once completed, will share specific details and communications topologies with CLEC.

7 OTHER

7.1 Name Binding

The Name Binding of the Managed Objects for Trouble Administration with BST EB gateway will be as follows:

Network= "BellSouth EB Gateway"
Entity Identifier= "CLEC-LSR Gateway"

BST and CLEC will exchange additional assignments (NSAPS, for example) prior to initiating testing.

7.2 Testing Strategies

Individual Test Plans and Schedule Dates will be jointly developed, tracked and executed prior to the controlled introduction.

These tests include:

1. Gateway to Gateway
2. End-to-End (with Soak and Load)
3. Operations Ready
4. Controlled Introduction begins on [Date].

The testing plan will be maintained outside the scope of this JIA.

7.3 Requirements vs Supportable Attributes in LMOS/WFA

This section documents CLEC's understanding of functionality supported by BST systems in the current implementation. CLEC understands that BST does not support the following items in LMOS, however, should support become available in the future, these requirements will be addressed via the Change Management process.

Table 6: Requirements vs. Supportable Attributes

REQUIREMENTS / ISSUES	SUPPORTED BY BST LMOS	SUPPORTED BY BST WFA
Dispatch Authorization Request	NO	YES

Interim Test Request	NO	YES
All Sent Remarks Displayed at ILECS OS	50 Char Limit	YES
Subsequent Remarks Logged at ILEC OS (Previous Remarks not Overwritten)	NO	YES
Escalation Request	NO	YES
Commitment Time Request Displayed at OS	NO	YES

8 Appendix A - Change Control Form

Approved: ____ Declined: ____ Pending ____

Change Control Log #:_____

Originator's Name: _____ CLEC: _____ BST: _____

Originator's Phone #: _____ Date Submitted: ___/___/___

Title of Change: _____ Response Due: ___/___/___

Complete Description of requested change including the section of the document that is being changed, identification of deleted text, changed text, and added text diagrams or tables: (Use additional sheets if necessary)

_____

_____

_____

_____

_____

_____

_____

_____

Review Results: _____

_____

Concurrence: CLEC _____ BST: _____ Date: ___/___/___

This is a blank page

9 Appendix B - BST Trouble Admin. Attribute Information for CLECs

Note: The following information is provided for supporting both 1992 and 1995 standards of T1.227 & T1.228 (Other updates to this matrix document are indicated in Italics):

Table 7: Attribute Information

Impacted Areas	1995 Standard	1992 Standard	BST Implementation:
Access Control & Security	• Allows dynamic selection of encryption keys • Allows mechanized interface for exchanging to the keys • Improved security Note: 1995 Standard provides two abstract syntax. For local services TA application, the customer (CLEC) is using Abstract syntax	Requires predetermined set of keys implemented through joint agreement.	• BST will implement this security as appropriate.
Name Binding	• Service Id is graphic string • Has a different registered identifier than what was in the 1992 standard	Only printable allowed	• BST will implement both the graphical and printable string and registered identifiers for the 1995 & 1992 standard.
Request State/Deny Authorization	Allows explicit means for denial of authorization	Did not have any explicit means for denial	• The gateway supports implicit denied however, is not processed in LMOS.
Repeat Report	Added two new values for repeat report: chronic and bothinstallationAndChronic values	Did not have these values	• Chronic is supported (see #28 below) • bothinstallationAndChronic values are not supported (see #28 below)

5600036

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
1	ActivityDuration	Agent	Agent	Supported	The BSG supports the activityDuration values of duration and type. From type, the BSG only supports "no-access (6)" and "delayed-maintenance (7)" values. ***Note:*** *The BSG will provide total "no access" time elapsed during the life of the ticket. For detailed breakout of each time the ticket was "no accessed", the gateway manager (CLEC) will be able to calculate this breakout, based upon the AVC's sent by the BSG indicating no access and restored time (i.e. no access start, no access stop, etc.).* ***Note:*** *Time and Material (T&M) customer billing is a manual process in BST. Technicians show that a bill was issued (by disposition code) on the close out AVC. Complete charges will be provided separately (i.e., details of billing will appear on the CLEC 'Billing Statement". There will be an entry associated with the given end-user telephone number on this bill reflecting the "T&M" charges.*
2	AdditionalTroubleInfoList	Manager	Manager	Supported	The BSG supports one element of SET OF GraphicString (Size(0..256)). For LMOS: **Currently, one element of 50 Bytes** will be supported in the CREATE and SET operations. ***Note****: For any operation, CREATE, SET, GET on a trouble ticket which is handled by OSS for POTS (LMOS), there is a limit on the total number of bytes that compose the attribute list. This limitation is a characteristic of the LMOS system. The maximum number of bytes supported is 102. Actually, the BST GW will support the T1.227 standard, but, LMOS can not. Hence, BST has given specific limits on particular attributes, such as 50 bytes for additionalTroubleInfoList. This enables each attribute to have enough space to be represented in a CREATE, SET, GET operation and allows the BST technician to view the necessary information.*

5600037

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
3	AdditionalTroubleStatusInfo	Agent	Agent	Supported	The BSG supports one element of SET OF GraphicString (Size(0..256)) For WFA: One element of 256 Bytes will be supported in the Set For LMOS: One element of 50 Bytes will be supported in the Set
4	AgentContactPerson	Agent	Agent	Supported	The BSG will support the following PersonReach attribute values: PersonName GraphicString(Size(0..20)) PersonPhone GraphicString(Size(10..15)) where: PersonNumber is defaulted to "" (zero length String). PersonName will be Work Center Name. PersonPhone will be the actual Work Center telephone number PersonReach(loc), PersonReach(email), PersonReach(fax), PersonReach(respon) and PersonReach(pager) values will not be supported.

5600038

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
5	AlocationAccessAddress	Manager	Manager	Supported	The BSG will support the full T1.227 definition. The Location Address attribute values and sizes are: PremisesName GraphicString(SIZE(1..38)) and PremisesAddress CivicAddress GraphicString(SIZE(1..38)) City GraphicString(SIZE(1..36)) State GraphicString(SIZE(2)) Zip GraphicString(SIZE(5..9)) For LMOS: Only civicAddress, is available from LMOS. (City, State and Zip are not stored in LMOS TR mask since ticket routing achieved by an internal 'Unit Number'.) This attribute will not be populated in the initial LMOS report (i.e. Narrative). ***Note:*** *BST will provide CLEC the LMOS address in the 'additionalTrouble StatusInfo' attribute on the Create. If the customer (CLEC) determines that this Service Address (SA) value is incorrect, they will supply correct information in the 'aLocationAccessAddress' on a Modify. BST will place this updated information in the narrative field on the subsequent report as follows:* ***LA-123 S. Main St.*** *(i.e., Corrections to the customer address field will require a database update. This process is handled manually.)*

5600039

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks

6	AlocationAccessHours	Manager	Manager	Supported	The T1.227 definition is : SET OF WeekMask
					
					WeekMask ::= SEQUENCE{
					DaysOfWeek BITSTRING{
					sunday (0),
					monday (1),
					tuesday (2),
					wednesday (3),
					thursday (4),
					friday (5),
					saturday (6)}
					DEFAULT '1111111'B
					IntervalsOfDay SET OF SEQUENCE{
					intervalStart Time24,
					intervalEnd Time24}
					DEFAULT {(0,0),(23,59)}}}
					Time24 ::= SEQUENCE{
					hour INTEGER(0..23),
					minute INTEGER(0..59)}
					
					The BSG will support a set of 7 elements of WeekMask. Each element of WeekMask will contain a single day's interval.
					
					For WFA: 3 elements (i.e., 3- 24 hour sets) will be supported in the Set of WeekMask
					
					For LMOS: One element (i.e., 1- 24-hour sets) will be supported in the Set of WeekMask.. CLECs's default value for intervalOfDay is: {(0800), (1900)}

					***Note**: A Location Access Hours are populated in the "A" and "B" field on the LMOS TR screen. The BSG will populate these fields with the CREATE date's aLocAccessHours. These times cannot be modified to reflect a future commit date.*

5600040

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
7	AlocationAccessPerson	Manager	Manager	Supported	The BSG will support PersonReach attribute value size (up to 64 bytes) on PersonReach(number), PersonReach(name) and PersonReach(phone) sent through the interface. However, BST will not support PersonReach(location), PersonReach(email), PersonReach(fax) PersonReach(respon) and PersonReach(pager) attribute values. For WFA: Will support only the following attributes and values: PersonName GraphicString(Size(1..20)) PersonPhone GraphicString(Size(10..17)) PersonNumber will be "" (Null String) For LMOS: Will support only the following attributes: PersonNumber (""), (PersonName (1..10) and PersonPhone (10..17). These values will not be populated on the initial report (saving Narrative space). CLEC expects BST to call the CLEC center and the CLEC center will contact the access person to arrange access. The flag "ACN=S" will be entered in the Narrative to alert field technician of procedure.

5600041

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
8	AuthorizationList	Manager	Both	Supported	The BSG uses "implicit denied" (i.e., if not authorized, then it is implicitly denied.) For WFA: See "Appendix J - AuthorizationList Functionality - Ad Hoc Committee - ECIC Data Mapping Sub Committee". For LMOS: AuthorizationAuthorizationInitial SEQUENCE::={} -- (EMPTY SEQUENCE) ***Note**: Once a trouble ticket is submitted, the customer(CLEC) has agreed to BST performing work necessary to repair trouble. LMOS does not accept authorization prior to dispatch or taking line out of service to repair the trouble. The BSG will support authorization denied attribute, and will not reject the transaction (causing the "set or create ticket" to fail).* *To force a dispatch when BST indicates a No Trouble Found, CLEC will send the authorization attribute with a single entry containing the following elements: requestState - provided and activityType - dispatch. This action will pre-approve billing (if appropriate). The BSG will enter "CLEC REQ DISP" in the Narrative field to notify the screener of the dispatch request.*
9	CalledNumber	Manager	No Update	Supported	The calledNumber attribute will be stored in the BSG and will be available for GET. For WFA: This attribute is not stored. For LMOS: This attribute value is stored in Called Number field in LMOS.

5600042

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
10	CancelRequestedByManager	Defaulted By Agent	Manager	Supported	T1.227 definition is Boolean. The BSG will support a Boolean value For WFA: Supported For LMOS: Supported (see the Note below) Default Value will be FALSE ***Note**: A cancel request will be accepted by the BSG and sent to LMOS as a subsequent report. If IST value (status) of report is DPO (dispatched out), the report **can not** be closed. The cancel request will be noted in the narrative as "OK NOW PER CUST" so the field technician may see the request and may respond appropriately. If not DPO (i.e., PDO - pending dispatch out), then report can be closed appropriately by the next BST technician handling the report. (i.e., LMOS Excluded report with a status of CLO; Disposition and Cause codes blank and Narrative "CX Customer Request". The BSG will return TR-Status value of "28".) BST may have incurred a cost for this repair attempt and may charge the customer (CLEC) appropriately for the repair service.*
11	CloseOutNarr	Defaulted By Agent	Agent	Supported	The BSG will support the full T1.227 definition of GraphicString (SIZE(0..256)) Initial/default value will be "" -- (NULL STRING) For WFA: The remarks that have been entered to close the Trouble Report will be reported as the Narrative. A maximum of 200 characters will be reported. This attribute is "not applicable" until the trouble is closed. For LMOS: The maximum length for Narrative will be 50 characters. This attribute is "not applicable" until the trouble is closed.

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
12	CloseOutVerification	Defaulted By Agent	Manager	Supported	The BSG will support for the following ENUMERATED value functionality primarily for Designed Services: NoAction (0), Verified (1), Denied (2), DeniedActivity DurationDisputed (3), DeniedCloseOutNarrDisputed (4) If CLEC sends an incorrect value for this attribute, ECTA will send an error message and request the CLEC resubmit the report. *Note: LMOS tickets, with the exception of FECO reports (see Section 4.8), will be closed without the verify process (originator does not verify fix before close of ticket). The close out narrative, as provided by the LMOS FST transaction, will be provided on the close AVC.*
13	CommitmentTime	Agent	Agent	Supported	The BSG will support commitmentTime(clearedTime) value in GMT format. The supported GeneralizedTime is: YYYYMMDDHHMMSSZ for GMT. For LMOS: The attribute value will be a valid value The format in LMOS is: MM-DD-YY HHMMA/P (A=AM, P=PM). *Note: BST establishes commitment time. This is the same as ETTR. LMOS assigns commitment based upon internal algorithms and will set that time. Should CLEC require a better than offered commitment (i.e., emergency situation), CLEC should call the BST Center contact after entering the report (to preserve 'bonding'). The BST Center contact will adjust the commitment appropriately. CLEC will receive AVC reflecting change.*

5600044

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
14	CommitmentTimeRequest	Manager	Manager	Supported	The BSG will support the commitmentTimeRequest attribute with the full T1.227 definition (i.e., SIZE (0..64)) in GMT format. For LMOS: The BSG will accept this attribute but not process it in LMOS. (See #13)
15	CustomerWorkCenter	Manager	No Update	Supported But Not Implemented	The customerWorkCenter value sent by CLEC will be stored in the BSG and will be available for GET. For WFA: The value is stored in the OSSLOG Remarks field. For LMOS: This attribute is not stored.
16	CustTroubleTickNum	Manager	No Update	Supported	The BSG supports the full T1.227 definition of SIZE(0..64) and is stored in the BSG available for a GET request. For WFA: a GraphicString(SIZE(0..15)) value is stored in the "Reported by" field. For LMOS: a GraphicString(SIZE(0..15)) value is stored in the "Remarks" field.
17	escalationList.	Manager	Both	Supported	For WFA: See "Appendix K - EscalationList Attribute Explanation" for further description. For LMOS: Electronic escalation is not supported by LMOS for non-designed services. Note: M&P's in JIA to handle this manually. (i.e., Automatic escalation levels not supported within LMOS. Should the commitment be missed due to BST failure, CLEC will generate a subsequent report. The BST Mntc. Admin. will set a new commitment value of 5 minutes from clock time to prioritize the report. This action may cause CLEC's system to flag another missed appointment (5 minutes later) and CLEC will inform their users of the process and instruct them not re-escalate the same problem at that time.).
18	InitiatingMode	Agent	No Update	Not Supported	The BSG does not currently support this attribute. It is an optional attribute for both TRFD1 and TRFD2. CLEC does not support this attribute at this time.

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
19	maintServiceCharge (MSC)	Defaulted By Agent	Agent	Supported	The BSG supports a Boolean value. For WFA: This attribute will be supported and reported at Request-to-Close time. For LMOS: This attribute will be supported but not implemented. Only the INIT value will be valid. INIT value will be FALSE. Following are some examples of MSC repair guidelines: - After hours repair request that requires a dispatch to the station or central office to repair and a call out is required. - Dispatches that are requested where trouble is isolated to customer's equipment. - Standby and After Hours standby requested by the customer. - Any test initiated and requested by the customer that are above the maintenance test requirements that are defined by the tariff. Any and all questions concerning how MSC is applied, should be addressed in the applicable tariff.

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks

20	ManagedObjectAccessHours	Manager	Manager	Supported	The T1.227 definition is : SET OF WeekMask
					
					WeekMask ::= SEQUENCE{
					daysOfWeek BITSTRING{
					sunday (0),
					monday (1),
					tuesday (2),
					wednesday (3),
					thursday (4),
					friday (5),
					saturday (6)}
					DEFAULT '1111111'B
					intervalsOfDay SET OF SEQUENCE{
					intervalStart Time24,
					intervalEnd Time24}
					DEFAULT {(0,0),(23,59)}}}
					Time24 ::= SEQUENCE{
					hour INTEGER(0..23),
					minute INTEGER(0..59)}
					
					The BSG will support a set of 7 elements of WeekMasks. Each element of WeekMasks will contain a single days interval.
					
					For WFA: 3 elements (i.e., 3- 24 hour sets) will be supported in the Set of WeekMask.
					
					For LMOS: The managedObjectAccessHours for the commitment date will be written into the narrative field in LMOS preceded by "Don't Interrupt".
					
					Note: BST/LMOS assumes permission is granted to test and fix the problem. The BST technician will not take the service down (i.e., switch cable pairs) during these indicated hours.

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
21	ManagedObjectInstance	Manager	No Update	Supported	The BSG will support DistinguishedName where the last Relative Distinguished Name (RDN) level on a Create will be the actual circuit identifier of the format as follows: <circuitID> -- max. size of 46 bytes See "Appendix G - Managed Object Instance (MOI or circuitID) BST Formats" for additional details.
22	ManagedObjectInstanceAliasList	Manager	Agent	Not Supported	The BSG (not the back end OSSs) will store this value (i.e., CLEC's Circuit ID). For LMOS: This attribute will not be supported.
23	ManagerContactPerson	Manager	Manager	Supported	The BSG will only support the following ReachPerson attribute values and sizes: PersonName GraphicString(SIZE(1..39)) PersonPhone GraphicString(SIZE(10..18)) PersonNumber will be "" (Null String) For LMOS: Will only store the following: PersonPhone GraphicString(SIZE(1..10)) PersonNumber will be "" (Null String) *Note: The Person Phone will be populated in the LMOS 'Reach Number' field and the CLEC ID will be populated in the LMOS "Narrative' field preceeded with a percent sign (%) – e.g., %CLEC-LSR.*

5600048

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
24	OutageDuration	Defaulted By Agent	Agent	Supported	The T1.227 definition is: CHOICE(NULL, TimeInterval) The BSG will support this attribute with default value and actual TimeInterval when the Trouble Report is closed for both WFA and POTS reports. The initial/default value is NULL. The attribute value will be calculated as follows: For WFA: OutageDuration = (Total Time) - (Delayed Maintenance Time) - (No Access Time) For LMOS: outageDuration = (Total Time) - (No Access Time) *Note: BST will not request 'No Access." It will report "No Access" time in the activity duration attribute and sent as an AVC when no access is entered into LMOS. LMOS does not support delayed maintenance.*

5600049

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
25	PerceivedTroubleSeverity	Manager	Manager	Supported	The BSG will only support the following attribute definitions: number INTEGER{ outOfService (0), backInService (1), serviceImpairment (2), nonServiceAffectingTrouble (3)} For WFA: This information will be stored in the Remarks/Log section with specific header information. For LMOS: OutOfService will be mapped to Out of Service (OS). The remaining three values will be mapped to Affecting Service (AS). *Note: If the perceived trouble severity is a 0, it is labeled "out of service". This is part of LMOS's algorithm for ETTR/commitment time calculation. Conditions for this attribute (to determine commitment time) differ from state to state and depend upon work load, technician's location, date/time of notification of trouble.* *BST repair procedures only prioritize on Trouble Type and not based on customer's profile with the exception of TSP customers.*
26	PreferredPriority	Manager	Manager	Supported	The BSG will support all attribute values: undefined(0), minor(1), major(2) and serious(3). For WFA: Will store the value For LMOS: Mnemonic is stored in the narrative as 7 bytes, max.

5600050

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
27	ReceivedTime	Agent	No Update	Supported	The BSG will support receivedTime with GeneralizedTime. The supported GeneralizedTime is: YYYYMMDDHHMMSSZ for GMT. For WFA: The time that is retrieved when Trouble Report is created in WFA. For LMOS: The time that is retrieved when the Trouble Report is created in LMOS.
28	RepeatReport	Manager	Both	Supported	The BSG will not support all values for the repeatReport attribute. See "Appendix L - RepeatReport Attribute Explanation" for additional details. For LMOS: The BSG will not support repeat codes of: (0) unspecified (1) recentinstallation (3) bothInstallationAndRepeat (5) InstallationAndChronic The BSG will support repeat code (2) 'repeat' and (4) 'chronic'. However, the BST LMOS system does not automatically flag chronic reports.
29	RestoredTime	Defaulted By Agent	Agent	Supported	The T1.227 definition is: RestoredTime ::= CHOICE{NULL,GeneralizedTime} The initial/default value is NULL. Time in GMT format. The BSG supports both the choices of NULL (i.e., while the trouble is being fixed) and GeneralizedTime (i.e., after the trouble is fixed). *Note: BST will use "cleared time" from LMOS to define restoredTime.*

5600051

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
30	TroubleClearancePerson	Defaulted By Agent	Manager	Supported	The BSG will support only the following PersonReach attribute values and sizes: PersonReach(name) GraphicString(SIZE(0..64)) PersonReach(phone) GraphicString(SIZE(0..64)) However, PersonReach(location), PersonReach(email), PersonReach(fax) PersonReach(respon) and PersonReach(pager) will not be supported. PersonReach(number) should be "" (Null String) supplied by the Manager. The initial/default value is (Null String). For WFA: The BSG will update WFA to store: PersonName GraphicString(Size(1..20)) PersonPhone GraphicString(Size(10..18)) For LMOS: This attribute will not implemented in LMOS (i.e., will not be stored as part of the Trouble Report).
31	TroubleDetectionTime	Manager	Manager	Not Supported	This attribute will not be supported.

5600052

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks

32	TroubleFound	Agent	Agent	Supported	The T1.227 definition is:
					TroubleFound ::= CHOICE{
					number INTEGER{
					--- Integer values are to be registered in the standard.
					--- Administrations may restrict the values to be used.}
					
					The initial/default value is CHOICE::= {pending (0)}
					
					See "Appendix C - BST Trouble Found Codes in LMOS" for further description and supported values.
					
					Note: The four digit LMOS disposition codes (trouble found indicator) are mapped to their equivalent T1.227 representation. As shown in Appendix C, multiple LMOS disposition codes may be mapped to a single T1.227 equivalent. The T1.227 'standard' does not accommodate individual disposition code values. Under change control, BST will expand this mapping to support all new T1.227 adopted troubleFound codes.

5600053

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
33	TroubleReportFormatObjectPtr	Manager	No Update	Supported	The T1.227 definition is: ObjectInstance The choice of ObjectInstance will be DN. The DN should have the last RDN as the trFormatId object. The trFormatId object is defined in T1.227 as: INTEGER For TRFD1 the value should be 1. For TRFD2 the value should be 2. See "Appendix F - Trouble Report Format Definitions" for more detailed information on TRFDs from ECIC/TRA/95-003 document.
34	TroubleReportID	Agent	No Update	Supported	The BSG will support the following size: GraphicString (16) The BSG will provide a Trouble Report ID on each successful creation of a new Trouble Report with the following format: TSSXXXXXXXX where: T = value of W = WFA; value of L = LMOS SS = State in which the trouble has been created (GA, AL, etc.). X = any alphanumeric value.

5600054

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
35	TroubleReportState	Agent	Agent	Supported	The T1.227 definition is: TroubleReportState ::= CHOICE{ --- Additional values can be added by submitting T1M1 --- contributions to request new integer values or --- by registering your own values. number INTEGER} The values that the BSG supports are available in "Appendix D - BST TTR State/Status Mapping to LMOS Status Codes". These values depict the areas where AVCs will be sent for State/Status changes from WFA and LMOS.

36	TroubleReportStatus	Agent	Agent	Supported	The T1.227 definition is:
					TroubleReportStatus ::= CHOICE{
					number INTEGER{
					--- Integer values are to be registered in the standard.
					--- Administrations may restrict the values to be used.}
					
					The values that the BSG supports are available in "Appendix D - BST TTR State/Status Mapping to LMOS Status Codes".

37	TroubleReportStatusTime	Agent	Agent	Supported	The BSG will support troubleReportStatusTime with Generalized Time. The supported GeneralizedTime is: YYYYMMDDHHMMSSZ for GMT The BSG will provide the appropriate GMT Time for both WFA and LMOS reports.

5600055

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
38	TroubleReportStatusWindow	Manager	Manager	Supported	The BSG will support a "non-0" TimeInterval for this attribute. ***Note**: Based upon no auto-escalation in LMOS, this is supported in the BSG and not used in LMOS.*

39	TroubleType	Manager	No Update	Supported	The T1.227 definition is:
					TroubleType ::= CHOICE{
					--- Additional values can be added by submitting T1M1
					--- contributions to request new integer values or
					--- by registering your own values.
					number INTEGER{
					--- Integer values are to be registered in the standard.
					--- Administrations may restrict the values to be used.
					
					The troubleType values that the BSG supports are available in "Appendix E - BST Trouble Type Codes: WFA & LMOS".

40	TspPriority	Manager	No Update	Supported	The BSG will support tspPriority: SIZE(2) For WFA: The TSP value if present in the initial request to create a Trouble Report could be verified against the circuit's TSP and an appropriate message will be sent in the additionalTroubleStatus attribute indicating a TSP mismatch. For LMOS: The TSP value if present in the initial request to create a Trouble Report could be verified against the circuit's TSP. Currently, there is no way to automatically update this value. Any discrepancy will have to be resolved manually with the BST Center contact. *Note: Customers with TSP attributes are identified in LMOS and their trouble reports are automatically given the appropriate handling characteristics.*

5600056

No.	Attribute Name	Provided By	Updatable By	Supported	Remarks
41	ZlocationAccessAddress	Manager	Manager	Supported	Similar to Attribute 5 except that this attribute represents the other end (i.e., Z) of the circuit connection when applicable. The BSG supports this attribute with the same definition as the aLocationAccessAddress attribute. This attribute will not be stored WFA and is not applicable for LMOS.
42	ZlocationAccessHours	Manager	Manager	Supported	Similar to Attribute 6 except that this attribute represents the other end (i.e., Z) of the circuit connection when applicable. The BSG supports this attribute with the same definition as the aLocationAccessHours attribute. This attribute will not be stored WFA and is not applicable for LMOS.
43	ZlocationAccessPerson	Manager	Manager	Supported	Similar to Attribute 7 except that this attribute represents the other end (i.e., Z) of the circuit connection when applicable. The BSG supports this attribute with the same definition as the aLocationAccessPerson attribute. This attribute will not be stored WFA and is not applicable for LMOS.

10 Appendix C - BST Trouble Found Codes in LMOS

Table 8: Trouble Found Codes

TROUBLE FOUND CODES (T1.227)	WFA CODE	LMOS CODE
pending (0)		
cameClear (1)	CC	
centralOffice (2)	CO	0501-0599
switchTrouble (3)		
CustomerProvidedEquipment (4)[4]	CPE	1210-1214, 1290
facility (5)	FAC	0401-0413
CentralOfficeFacility (6)		
iCfacility (7)		
InterexchangeCarrier (8)	IEC	
information (9)	INF	Excluded[5]
nonplanClassified (10)	NPC	
NonplanClassifiedIC (11)		
NonplanClassifiedEA (12)		
noTroubleFound (13)	NTF	0800, 0900
station (14)[6]	STN	
stationProductData (15)		0270
StationProductTerminal (16)		
StationProductVideo (17)		
stationProductVoice (18)		
stationWiring (19)		0340, 0350, 0380-0384
OtherStationEquipment (20)		
foundOKStation (21)		
servingBureau (22)	SVB	
testOK (23)	TOK	0700

4 Defined in BST as non bill activities

5 In BST's OSS, an "excluded" report does not have a disposition code associated and therefore not mapped to the standard. CLEC can read the close out narrative to determine more information about the excluded report.

6 Other than a data set (0270), BST does not repair any station equipment (i.e., all station equipment is "CPE")

TROUBLE FOUND CODES (T1.227)	WFA CODE	LMOS CODE
publicServicesCoinSet (24)[7]		
CustomerOperatingInstructions (25)		Excluded
testedOKVerifiedOK (26)		
coFacilityTestedFoundOK (27)		
OutsideFacilityTestedFoundOK (28)		0400
referredOutToOtherDept (29)		
ProtectiveConnectingArrang (30)		0370
cpeCustomerResponsibility (31)[8]		1201-1203
preService (32)		
preServiceIC (33)		
preServiceEA (34)		
serviceNode (35)		
data (36)		
CustomerReferredToVendor (37)		Excluded
exchangeAccess (38)		
international (39)		
otherProvidedAccess (40)		
existingReport (41)		
cancelExclude (42)		Excluded
paBX(43)		
outsideWire(44)		0440
outsideTerminals(45)		0430,0431
outsidePlantEquipment(46)		0460-0476
outsidePlantFiberOptic(47)		0450-0459
outsidePlantOther(48)		0420, 0477-0490
CentralOfficeEquipmentOther(49)		
cOEquipmentFrames(50)		
cOConcentrator(51)		
receiverOffHook(52)		
TROUBLE FOUND CODES (T1.227)	**WFA CODE**	**LMOS CODE**
cpeAuthorized(53)		
CpeTelcoMaintained(54)		
IndependentCompany(55)		
cpeCalledNumber(56)		
AssigningProvisioning(57)		

[7] BST Telecommunications no longer supports Public Coin Telephone service (handled by a separate, non-regulated subsidiary).

[8] Disposition codes that indicate billing occurred.

interServiceCenter(58)		
referredOut(59)		
network(60)		

Note: For definitions of Trouble Found Codes see ECIC/TRA/95-009 document.

11 Appendix D - BST TTR State/Status Mapping to LMOS Status Codes

Table 9: State/Status Mapping

TR - STATE VALUES	TR – STATUS VALUES	WFA STATUS CODE	LMOS STATUS CODE
queued	screening(1)	Not supported	Not supported
openActive	testing(2)	IP	TST, PAB, ROH, TCR, TSM, TPL, TPA, TPM, AJR, TDA
	DispatchedIn (3)	HDC, HDIL, HDIJ, HDID, HDIV, HDIR	DPI
	DispatchedOut (4)	HDD, HDF, HDOL, HDOJ	DPO
	Preassigned Out(5)	HDOA	PAO, PFJ, DFJ, DDO
	BulkDispatched Out(6)		BDO
	startRepair(7)		
	PendingTest (8)	PP, AT	PDT, PS, PSH, PSM, IPP, LEC, GEN
	PendingDispatch (9)	HDIP, HDOS, HDOP	PDI, PDO, (PD1 - PD9) TSA, PDS, PWS, DCR, PDF, PDG, TFA, TFL, TFM, PDB, TSM
	requestRepair (10)		
	ReferMtceCenter (11)	REF	RFC, HLD, PAB, RMR, PL3, HSO, ROP, RSG, RCC, RRC, RBC, RSS, WMC
	referVendor (12)		
	Trouble Escalated(18)		
	Craft Dispatched(19)		PUT
	Cable Failure(21)		CAF, PDM, DFC, PDG
	OriginatingEquip Failure(22)		OEC, OEF
	backOrder(23)		
	techOnSite(34)(*)		
	techLeftSite(35)(*)		
deferred	NoAccess Other(13)	NA	NAS, NAO

TR - STATE VALUES	TR – STATUS VALUES	WFA STATUS CODE	LMOS STATUS CODE
	StartNo Access(14)		
	StopNo Access(15)		
	StartDelayed Mtce(16)	DM, DMS	
	StopDelayed Mtce(17)	DM	
cleared	TemporaryOK(20)		TDA, TMK
	ClearedCust NotAdvised(24)	RSTN	CNA
	ClearedCust Advised(25)	RST	CCA
	ClearedAwaiting CustVer(26)		FEC
closed	CloseOut(27)	CLD	CLO
	CloseOutBy CustReq(28)		
	ClosedOutCust Verified(29)		
	CloseOutCust Denied (30)		
	CanceledPending WorkInProgress (31)	CAN	
	CanceledPending TestCompletion (32)		
	CanceledPending DispatchCompl (33)		
disabled	Not Supported	Not supported	Not supported

(*) New Status codes recommended by ECIC Data Mapping Sub-committee.

Trouble Report State Definitions from ECIC/TRA/95-007 :

queued	the TR is queued in the SP's gateway until a trouble report is created in its OSS(s).
openActive	repair and administrative activities (excluding screening) have been initiated.
deferred	corrective action on the TR has been suspended; the duration timer has been stopped by the SP.
cleared	trouble has been corrected, awaiting closure; awaiting verification for closure from the Customer.
closed	the TR had been closed and trouble history will be noted; no further action will be perform; the customer may or may not have authorized the closure.
disabled	the gateway is inoperative/unavailable for traffic.

12 Appendix E - BST Trouble Type Codes: WFA & LMOS

Table 10: Trouble Type Code Translations

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
noDialToneGroup (100)	NDT	NDT	Dial tone problems.
noDialTone (101)	NDT	NDT	No audible tone when the telephone receiver is off-hook
slowDialTone (102)	SDT	NDT	The audible tone is not heard immediately when the receiver is off-hook
circuitDead (103)	CKD	NDT	No audible tone when the telephone receiver is off-hook, flash hook is depressed multiple time and operator does not respond or audible tones are not heard when dial buttons are depressed.* See 617 and 622
canNotCallOutGroup (200)	CCO	CCO	Problem making calls.
canNotCallOut (201)	CCO	CCO	Audible tone is heard but after depressing dial buttons no connection noise or ringing is heard* See 205
canNotBreakDialTone (203)	CBT	CCO	Audible tone is heard but after depressing dial buttons dial tone is still heard. Audible tone is heard after depressing any button.
dialToneAfterDialing (204)	DAD	CCO	Audible tone is heard but after depressing dial buttons dial tone is still heard. Reverts to dial tone after called number is dialed.
highAndDry (205)	HAD	CCO	Audible tone is heard and audible tones are heard after depressing dial buttons but the distant ringing or connecting noise is not heard* See 201
canNotRaise (206)	CNR	CCO	Audible tone is heard and audible tones are heard after depressing dial buttons but distant ringing is heard and phone is not answered.
allAccessBusy (207)	AAB	CCO	After dialing recording message "all Circuits Busy" is received
canNotCallOut2 (208)	CCO	CCO	Same as (201) on an extension with the same primary number previously reported in trouble.
canNotCallLongDistance (209)	CCL	CCO	After dialing a telephone number with a different area code then the caller's area code system sends a prerecorded message "can not complete the call, etc." or ringing is not heard.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
canNotCallOverseas (210)	CCL	CCO	After dialing a telephone number with a different area code then the callers area code a prerecorded message "cannot complete the call, etc." or ringing is not heard
speedCall (211)	SPD	CCO	Unable to complete/access the feature that allows frequently called numbers by 7 dialing a one or two digit code. (Local or long distance calls)
cannotCall911 (212)	CCO	CCO	Customer is unable to call 911.
cannotCall700 (213)	CCO	CCO	Customer is unable to call any 700 number.
cannotCall800/888 (214)	CCO	CCO	Customer is unable to call any 800 or 888 number.
cannotCall900 (215)	CCO	CCO	Customer is unable to call any 900 number.
cannotCallDA (216)	CCO	CCO	Customer is unable to reach Directory Assistance.
cannotCallInterLATAToll (217)	CCO	CCO	Customer is unable to make any intra-LATA toll calls
canNotBeCalledGroup (300)	CBC	CBC	Problem receiving calls
canNotBeCalled (301)	CBC	CBC	The premise customer is not receiving calls
canNotBeCalledBusy (302)	CBC	CBC	The premise customer's telephone is continually busy and calls cannot be received.
doNotGetCalled (303)	DBC	CBC	The premise customer does not receive calls and is notified by the calling party.
canNotTripRing (304)	CTR	CBC	The premise customer's phone rings and when the receiver is picked up the phone continues to ring.
falseRings (305)	FSR	CBC	The premise customer's phone rings and there is no calling party.
doNotAnswer (306)	DTA	CBC	A call is not answered at the customer premise location.
reachRecording (307)	RRC	CBC	All calls go to a reorder tone when the calling party calls the customer premise.
canNotRaiseAStation (308)	CDS	CBC	A call is not answered at a station at the premise location.
canNotRaiseADrop (309)	CNR	CBC	A call is not answered at the premise location.
canNotRaiseACircuitLocation (310)	CRL	CBC	A call is not answered at the premise location.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
ringNoAnswer (311)	RNA	CBC	The telephone number rings and is never answered.
reorder (312)	ROR	CBC	The premise customer gets a reorder tone when trying to call out.
alwaysBusy (313)	BSY	CBC	The telephone number is busy when the line is not in use.
bellDoesNotRing (314)	BDR	CBC	The premise customer's telephone bell does not ring.
bellDoesNotRing2 (315)	BDR	CBC	The premise customer's telephone bell does not ring on a second telephone set.
bellRingsCanNotAnswer (316)	RCA	CBC	The premise customer's telephone set rings and when answered the customer hears nothing.
bellRingsAfterAnswer (317)	RAA	CBC	The customer's telephone set continues to ring after answer the initial ring(s).
noRingNoAnswer (318)	NRA	CBC	The calling party hears ringing but the call is never answered.
otherRingTrouble (319)	RNG	CBC	All other ringing problems. This code should not be used.
receivesCallsForWrongNumber (320)	CWN	CBC	The called party receives calls for wrong number.
recordingOnLine (321)	ROL	CBC	The calling party hears a recorded message (e.g., disconnected number).
ringsThenGoesBusy (322)	RGB	CBC	Caller dials a number, receives one ring immediately followed by a busy signal.
canNotBeHeardGroup (400)	CBH	TRAN	Can not be heard
canNotBeHeard (401)	CBH	TRAN	The customer can not be heard at the distant end.
canNotHear (402)	CTH	TRAN	The customer can not hear the conversation from the distant end connection.
fading (403)	FAD	TRAN	The premise customer can hear the conversation and sometime during this conversation the voice gets fainter.
distant (404)	DIS	TRAN	The premise customer hears the conversation as if it were far away, faint during the entire conversation.
reachedWrongNumberGroup (500)	WNR	MISC	Wrong number reached
wrongNumber (501)	WNR	MISC	The calling party reaches an incorrect telephone number when dialing a correct number
circuitOperationGroup (600)	OTH	MISC	Circuit problem

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
open (601)	OPX	MISC	The circuit will not allow a DC signal to pass through it. Often an open wire or defective equipment anywhere within the circuit.
falseDisconnect (602)	FSD	MISC	When the premises customer connects to a called party, the circuit disconnects and either the customer receives dial tone or the call goes "high and dry".
grounded (603)	GRD	MISC	A DC ground is on the wire or equipment. Often causes noise, off-hook or garbled signal.
canNotBeSignalled (604)	CBS	MISC	The connecting circuit's signaling equipment is defective. Does not allow a circuit connection to occur.
canNotSignal (605)	CNS	MISC	The premises customer's circuit does not provide signals to allow a connection to occur, e.g., wink start, ground start, loop start, CCS7, SS7.
permanentSignal (606)	PRS	MISC	Permanent signal is being generated within the signaling system or signaling equipment, e.g., wink start, ground start, loop start, CCS7, SS7.
improperSupervision (607)	SUP	MISC	Improper supervision or supervision configuration is incorrect within the signaling system or signaling equipment, e.g., wink start, ground start, loop start, CCS7, SS7.
supervision (608)	SUP	MISC	A lack of, abuse of, or improper functioning of supervision processes or supervision configuration setting, e.g., improper wiring for E&M signaling, ground start signaling, or improper software/hardware DSU/CSU configuration settings established to perform signaling functions between CPE equipment and network transmission, multiplexing or switching equipment.
canNotMeet (609)	CTM	MISC	A failure of intercom conference channel equipment's ability to establish bridged connections
canNotReleaseCircuit (610)	CRC	MISC	The signaling equipment is receiving DC applicable to cause the circuit to be constantly seized.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
hungUp (611)	HUP	MISC	The transmission system, switching system, call processing system, signaling system or other equipment remains in a fixed state such as busy, waiting for digits, etc.
noWinkStart (612)	NWS	MISC	Inability of the far-end signaling equipment, using wink start signaling, to provide a "Wink Signal" to the near end system, following the requested seizure of the channel.
noSF (613)	NSF	MISC	The inability of the far-end signaling system using single frequency signaling, to provide a SF tone to the near end system.
lowSF (614)	LSF	MISC	Low power level generated by the far-end signaling system or equipment using single frequency signaling, in providing an SF tone to the near end system.
noContinuity (615)	NCN	MISC	The inability of the transmission equipment to pass a "DC continuity" cheCLEC to ensure the existence of an uninterrupted electrical signal for the channel or channels.
cutCable (616)	CAB	MISC	Copper or fiber cable is open due to a cut of the cable.
openToDEMARC (617)	OPD	MISC	DC continuity is non-existent on the circuit provided by the LEC to the premise demarcation (DEMARC).
noRingGenerator (618)	NRG	MISC	Absence of attached ring generation equipment or interfaces to common channel equipment in the switching office.
badERL (619)	ERL	MISC	Improperly engineered Echo Returned Loss for the transmission equipment supporting the circuit. Often causes howling or singing in the copper facility.
echo (620)	ECO	MISC	Improperly engineered echo suppressers or echo canceller or absence of such equipment in the Central Office facilities/ equipment.
hollow (621)	HOL	MISC	Improperly engineered transmission equipment power levels, load coils, echo suppressers or echo canceller or absence of such equipment for the transmission signal.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
circuitDead (622)	CKD	MISC	No activity on circuit that was previously working correctly. *See 103
circuitDown (623)	DWN	MISC	No activity on circuit that was previously working correctly. * See 622 and 103
failingCircuit (624)	FLG	MISC	Frequency tones fail to reach the distant end. Non-Descriptive code.
noSignal (625)	NOS	MISC	Circuit appears to be working in all directions except for the absence of signaling.* See 605
seizureOnCircuit (626)	SZR	MISC	Circuit appears to be working in all directions except for the presence of a constant seizure.* See 606
lossEPSCSorSwitchedServices (627)	LSS	MISC	Possible signal strength loss is being experienced on the service.
monitorCircuit (628)	MON	MISC	Request for a non-intrusive monitor to be placed on the circuit for a specified period of time in order to capture intermittent failures.* See 1514
newServiceNotWorking (629)	SNW	MISC	Recently installed service is not working as expected.
openEPSCSorSwithedServices (630)	OSS	MISC	An "Open" is suspected on the service. A facility media break is suspected.
otherVoiceDescribeAdditInfo (631)	OTH	MISC	A trouble not listed in troubleType list experienced on a voice circuit and information concerning this report is included in ticket remarks.
trunkBlockedFarend (632)	BKL	MISC	Trunk is active at the near end but has been removed from service or is unequipped at the far end.
badBalance (633)	OTH	MISC	Circuit facility is out of balance.
highRateIncompleteIncoming (634)	EAI	MISC	Trunk has a high rate of failure to complete calls incoming to switch
outgoingFailureAfterWink (635)	OPF	MISC	Trunk has high rate-of-failure to complete calls to the far-end switch for reasons other than no-wink.
cutOffsGroup (700)	CTO	TRAN	Cut off problems
cutsOff (701)	CTO	TRAN	Voice service user experiencing interruption during the course of service use.
noiseProblemGroup (800)	NSY	TRAN	Noise problems
intermittentNoise (801)	INT	TRAN	Intermittent audible noise is heard during the course of normal service use.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
noisy (802)	NSY	TRAN	Constant audible noise is heard during the course of normal service use.
foreignTone (803)	FOR	TRAN	Foreign constant tone heard during the course of normal service use.
clipping (804)	CLP	TRAN	Voice Service(s) users are perceived by the listener being clipped (beginning and/or end of phrases being cut-off during conversation).
crossTalk (805)	XTK	TRAN	Same as cross talk except Customer can normally talk to other party. Two different lines tied together.
staticOnLine (806)	SOL	TRAN	Crackling noise on the line
groundHum (807)	HUM	TRAN	Low hum in background. Normally associated with cable.
hearsOtherOnLine (808)	OOL	TRAN	Another conversation is going on (possibly intermittently) in the Customer's call. Customer normally can't talk to other parties.
humOnLine (809)	HUM	TRAN	Low hum in background. * See 807
clicking (810)	CLK	TRAN	Loud clicks during conversation. May be intermittent or constant. * See 802
noiseEPSCSorSwitchedServices (811)	NSS	TRAN	Locally assigned
levelTroublesGroup (900)	LOW	MISC	Level problems
lowLevels (901)	LOW	MISC	Can't hear, volume low
highLevels (902)	HIL	MISC	Squeal on line during conversation. Like talking into a barrel.
longLevels (903)	LOL	MISC	Normally reference to data services. Levels are longer referenced to 0db as shown on engineering design.* See 901
hotLevels (904)	HOT	MISC	Normally reference to data services. Levels are smaller reference to 0db as shown on engineering design.* See 902
highEndRollOff (905)	HER	MISC	Normally referenced to data services. Levels on the high end of the frequency range, normally between 2000-3000 Hz are not constant, but have a dip or roll of through this range.
lowEndRollOff (906)	LER	MISC	Normally referenced to data services. Levels on the low end of the frequency range, normally between 300-1000 Hz are not constant, but have a dip or roll off through this range.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
needsEqualized (907)	EQL	MISC	Normally associated with data services. The levels associated with the circuit on the low end 300-100 Hz are not the same as the levels on the high end 2000-3000 Hz and need to be "Equalized".* See 905 and 906
lineLoss (908)	LOS	MISC	Normally associated with data services. The service goes dead intermittently, data service is up and down.* See 903 and 904
doesNotPassFreqResponse (909)	FRQ	MISC	Normally associated with data services. The frequency range of 300-3000 Hz normally associated with the data service is not meeting level parameters. Associated with high and low ends roll off. (Does not pass parameters for a conditioned service.)
levelsOutOfLimits (910)	QLS	MISC	Transmission levels out of tolerance. 1004 Hz tone measurement too high or too low to meet maintenance requirements.
miscellaneousTroubleGroup (1000)	OTH	MISC	Miscellaneous problems
hiCapDown (1001)	HCD	MISC	A High Capacity circuit (DS1 and above) is not able to send and/or receive data
carrierDown (1002)	CXR	MISC	Loss of the continuous waveform on a circuit * See 1212
biPolarViolations (1003)	BPV	MISC	A condition which occurs when a bit streams contains a pulse of the same polarity as the previous pulse and which is not part of the bipolar zero substitution code.
frameErrorsHiCap (1004)	FRE	MISC	(DS1) - A frame synchronization bit error which occurs in either a terminal framing (Ft) bit or signaling framing (Fs) bit of the superframe format. (DS3) - A frame synchronization bit error detected in either the multi-frame alignment signal (M-bit) or frame alignment signal (F-bit)* See 1214
outOfFrame (1005)	OOF	MISC	Line errors which alter the framing pattern * See 1214
lossOfSync (1006)	SYN	MISC	In Super Frame (SF), once in sync, two of the last five framing bits (Ft) in error. In Extended Super Frame (ESF), once in sync, two of the last five framing patterns indicate bits in error. (Intermittent)* See 1001, 1212, 1007

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
frameSlips (1007)	FRS	MISC	The deletion or duplication of a frame of data. * See 1231
noLoopback (1008)	NLB	MISC	Unable to receive test signal from a device with loopback capabilities.* See 1211
canNotLoopbackDEMARC (1009)	CLD	MISC	Unable to receive test signal back when DEMARC device is placed in a loopback mode.* See 617
recordingOnCircuit (1010)	ROC	MISC	A continued recording is heard on the line and call cannot be received or placed.
linesNeedTagging (1011)	LNT	MISC	Premises Customer cannot locate their DEMARC and needs to have the DEMARC located and tagged.
outwatsRingingIn (1012)	OWR	MISC	The Customer has an OUTWARD ONLY WATS line and is receiving incoming calls.
remoteAccess (1013)	RAC	MISC	Locally assigned
other (1014)	OTH	MISC	Supports a trouble that is not identifiable by any other codes.
alarm (1015)	ALM	MISC	A trouble on a circuit has been identified by alarm equipment within a LEC Central Office.
multipleShortDurationHit (1016)	SDH	MISC	Multiple short term DS1 outages have occurred within a specified amount of time
frameErrors (1017)	FRB	MISC	Di-group framing threshold high (or low) has been exceeded
facilityAlarm (1018)	LCA	MISC	Alarm condition exists on facility.
SoftwareGroupAlarm (1019)	RPF	MISC	Alarm condition exists on a set of related circuits/trunks (not necessarily on the facility they ride on).
DChannelDown (1020)	CDD	MISC	The data channel of the ISDN service is not transmitting information.
DegradationOfT1.5 (1021)	DT1	MISC	The T1 facility is experiencing slippage or errors that causes interruption to a customer's data service.
NetworkFailure (1022)	NWF	MISC	Circuit or service has failed due to known network failure.
memoryServiceProblemGroup (1100)	MEM	MEM	Troubles associated with stored memory features
pICTrouble (1101)	OTH	CCO	Unable to complete a Long-Distance telephone call using the Preferred Inter-LATA Carrier (PIC) codes.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
callTransferProblem (1102)	MEM	MEM	Unable to activate the call transfer features for a dial tone service. * See 1501
callWaitingProblem (1103)	MEM	MEM	Unable to hear signal for an incoming call while call is in progress or caller always gets a busy signal when only one call is in progress and no other calls are waiting.* See 1502
customCallFeature (1104)	MEM	MEM	Other unspecified features are not working. * See 1503
threeWayCalling (1105)	MEM	MEM	The inability to add an additional call on to a call which currently has two parties connected.* See 1505
callTraceNotWorking (1106)	MEM	MEM	Unable to use the "automatic trace" features. These feature traces the last call received provided no incoming call was attempted before the feature was activated.
callTraceBlockNotWorking (1107)	MEM	MEM	Unable to block an automatic trace of the last call placed.
repeatDialNotWorking (1108)	MEM	MEM	Unable to use the feature that automatically re-dials the last telephone number dialed by customer.
repeatDialBlockNotWorking (1109)	MEM	MEM	Unable to block the feature that automatically re-dials the last telephone number dialed by customer.
callReturnNotWorking (1110)	MEM	MEM	Unable to use the feature that automatically re-dials the last telephone number dialed by customer.
callReturnBlockNotWorking (1111)	MEM	MEM	Unable to block the feature which automatically re-dials the most recent incoming call even if it is not answered.
callerIdentificationNotWorking (1112)	MEM	MEM	Unable to determine the incoming telephone number prior to answering a call.
CallBlockingNotWorking (1113)	MEM	MEM	Blocked numbers can be called.
VoiceMessagingServicesProblem (1114)	MEM	MCAL	Unable to use and/or access voice recording services.
callForwardingNotWorking (1115)	MEM	MEM	Unable to forward calls to another telephone number.
callForwardingBusyLineNotWorking (1116)	MEM	MEM	Calls do not forward when called number is busy.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
callForwardingNoAnswerNotWorking (1117)	MEM	MEM	Calls do not go forward when "no answer" does work after designated number of rings.
huntingNotWorking (1118)	MEM	MEM	Calls do not automatically roll over to the next number in a hunt group calling party with a unique ring.
selectiveCallForwardingNotWorking (1119)	MEM	MEM	Unable to pre-select identified telephone numbers to be call forwarded.
cannotSetupUniqueRingID (1120)	MEM	MEM	Unable to store a specific number of telephone numbers and identify the unique ring.
callerIDBlockNotWorkingPerLine (1121)	MEM	MEM	Unable to prevent caller ID information from being sent on that line.
callerIDBlockNotWorkingPerCall (1122)	MEM	MEM	Unable to prevent caller ID information from being sent on all calls on a single call.
cannotRemoveBlockingOnASingleLine (1123)	MEM	MEM	Cannot unblock the name and telephone number of one call on a blocked line.
remoteCallForwarding (1124)	MEM	MEM	Calls do not forward to target telephone number.
dataTroubleGroup (1200)	NTR	DATA	Data problems
canNotReceiveData (1201)	CRD	DATA	Unable to receive data signals from the far end.
canNotSendData (1202)	CSD	DATA	Unable to transmit data signals to the far end.
canNotTransmitCanNotReceive (1203)	NTR	DATA	Unable to either transmit or receive data signals to or from the far end.
noReceive (1204)	NRC	DATA	Same as (1201)
noResponse (1205)	NRS	DATA	Same as (1202)
delay (1206)	DEL	DATA	Usually referred to as Envelop Delay Distortion (EDD). EDD is the distortion of a signal due to differences in propagation of different frequencies which comprise the data signal. EDD is determined by measuring the delay of various frequencies, within the band of interest, with respect to a reference frequency. Absolute delay generally has little effect on data transmission.
impulseNoise (1207)	IMP	DATA	Large amplitude peaks that occur unpredictably in infrequent bursts against the data carrier background that produce error impairments in the data signal.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
phaseJitter (1208)	JIT	DATA	An unwanted change in phase or frequency of a transmitted signal - generally characterized by a continuous time variation in the zero crossings of a sign wave or a pulsed signal.
harmonicDistortion (1209)	HAR	DATA	Impairments in the receiving input data signal caused by non-linear interference from higher harmonic frequency (usually 2nd and 3rd order) components.
highDistortion (1210)	HID	DATA	Impairments that attenuate and distort the pulses in the data signal and make them unrecognizable to detection circuits.
noDataLoopback (1211)	NDL	DATA	Unable to receive test signal back when far end is in a loopback mode.* See 1008
noCarrier (1212)	NCR	DATA	Unable to detect the carrier's signal from the far end. * See 1002
notPolling (1213)	NPL	DATA	Under normal idle conditions unable to detect a polling data pattern from the far end.
dataFramingErrors (1214)	DFE	DATA	Line errors which alter the framing pattern and cause the receiver to react falsely as it were out of frame.* See 1004 & 1005
dropOuts (1215)	DRP	DATA	Decrease in receiving signal level equal or greater than 12dB and lasting more than 4 milliseconds.
hits (1216)	HIT	DATA	Sudden variation in receiving signal amplitude equal or greater than 3dB and lasting more than 4 milliseconds.* See 1004
noAnswerBack (1217)	NAB	DATA	No response from the far end CPE.
streamer (1218)	STR	DATA	Continuous flood of repeated data
outOfSpecification (1219)	OOS	DATA	Not conforming to established standards, e.g., ITU-T, ANSI, Bellcore practice etc.
canNotRunToCSU (1220)	CRC	DATA	In loopback test condition, can not reach CSU (Customer Service Unit - CPE)
canNotRunToOSU (1221)	CRO	DATA	Data does not reach the Office Channel Unit (Carrier Channel Unit)
deadDataCircuit (1222)	DCD	DATA	Can't send or receive data
circuitInLoopback (1223)	CIL	DATA	The DEMARC or CPE is in a loopback condition
errors (1224)	ERR	DATA	Errors in the data signals are detected (i.e., LRC-CRC errors).

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
garbledData (1225)	GAR	DATA	Errors causing distortion of the data signals.
invalidData (1226)	INV	DATA	Error message indicating possible bad or incorrect parameters.
crossModulation (1227)	XMD	DATA	Unstable or interfering frequency.
slowResponse (1228)	SLO	DATA	Not receiving the data in the expected time interval. Possibly caused by error detection.
otherDataDescribeAdditInfo (1229)	OTH	DATA	Additional information relating to the trouble identified on the data circuit.
gettingAllOnes (1230)	GAO	DATA	Bit stream indicates line is out of service
slip (1231)	SLP	DATA	Frames missing or arrived out of sequence
stationTroubleGroup (1300)	OTH	PHYS	Station problems
voiceEquipment (1301)	VOI	PHYS	Station equipment before the DEMARC associated with a voice circuit is defective
dataEquipment (1302)	DAT	PHYS	Station equipment before the DEMARC associated with a data circuit is defective.
videoEquipment (1303)	VID	PHYS	Station equipment before the DEMARC associated with a video circuit is defective.
otherEquipment (1304)	OTH	PHYS	Station equipment before the DEMARC associated with an audio or any other circuit except voice, data or video circuit is defective.
stationWiring (1305)	WRG	PHYS	The wire before the DEMARC at a premise location is open, grounded, shorted or defective.
physicalTroubleGroup (1400)	PHY	PHYS	Physical/Hardware problems
lightBurnedOut (1401)	LBO	PHYS	A light bulb on the equipment at the premises is burned out or not lighting. (Normally CPE)** Code no longer used in a regulated environment **
dataset (1402)	DAS	PHYS	The data set at the premises connected to the circuit is defective. (Normally CPE)** Code no longer used in a regulated environment **
ttySet (1403)	TTY	PHYS	The teletype equipment at the premises connected to the circuit is defective. (Normally CPE)
highSpeedPrinter (1404)	PRN	PHYS	The printer equipment at the premises connected to the circuit is defective. (Normally CPE)** Code no longer used in a regulated environment **

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
aNI (1405)	ANI	PHYS	Failure to receive Automatic Number Identification (ANI) digits completely
aLI (1406)	ALI	PHYS	Automatic Line Identification
canNotActivatePC (1407)	CAP	PHYS	The personal computer equipment at the premises connected to the circuit is defective. (Normally CPE)
modem (1408)	MOD	PHYS	The modem is defective or not responding. Modems can be located in the LEC Central Offices or the CPE sites.
cathodeRayTube (1409)	CRT	PHYS	The cathode ray tube in a device or equipment at the premises connected to the circuit is defective. (Normally CPE)** Code no longer used in a regulated environment **
looseJack (1410)	LJK	PHYS	A jack which is used to connect equipment or devices or additional wire at the premises is loose causing errors, noise or loss of signals.
offHook (1411)	OHK	PHYS	A telephone set or signaling equipment at the premises is causing an off-hook condition. The trouble identified might be reorder or dead air on the line.
physicalProblem (1412)	PHY	PHYS	A physical condition has been identified in wire or equipment.
processorDead (1413)	PRC	PHYS	A Customer processor is not responding or inoperative.
wiringProblem (1414)	WRG	PHYS	A problem with the wiring at the customer's premise.
wireBrokeSetBrokePoleDown (1415)	WSP	PHYS	The telephone pole is broken or the drop wire is broken to a Customer premises location. This could also be used for drop down without service impairment.
noRegister (1416)	REG	PHYS	The register counting the out going and call for a POTS circuit is inoperative.
StuckSender (1417)	STS	PHYS	The Sender for a step-by-step office is stuck and will not process the last digits that are needed to complete the call.
otherStationTrouble (1418)	STA	PHYS	Used to indicate a station trouble which is not supported by any other trouble type code. Should not be used.
otherCaseGroup (1500)	CTP	MISC	Other problems
callTransferProblem (1501)	CTP	MEM	Unable to activate the call transfer features for a dial tone service.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
callWaitingProblem (1502)	CWT	MEM	Unable to hear signal for an incoming call while call is in progress or caller always gets a busy signal when only one call is in progress and no other calls are waiting.
customCallFeatureDoNotWork (1503)	CCS	MEM	Other unspecified features are not working.* See 1104
information (1504)	INF	MEM	Circuit is not out of service. Requesting attention outside of the normal trouble clearance process.
threeWayCallingProblem (1505)	TWC	MEM	The inability to add an additional call on to a call which currently has two parties connected.* See 1105
orderWork (1506)	ORD	MISC	Provisioning activities will require the LEC to take the circuit out-of- service.
releaseCktRequestedByIC (1507)	RCI	MISC	The IC is performing an activity which will cause a service interruption and is notifying the LEC.
releaseCktRequestedByEC (1508)	RFE	MISC	The LEC is performing an activity which will cause a service interruption and is notifying the IC to request a time and date from the paying customer when the circuit will be idle. Required any time the LEC is performing internal work which will cause an out-of-service condition to the circuit.
releaseFacilityRequestedByIC (1509)	RFI	MISC	The IC is performing an activity which will cause a service interruption to a Hi Cap or interoffice facility and is notifying the LEC. Might be used to inform the LEC to disregard alarms on a Hi Cap circuit.
releaseFacilityRequestedByEC (1510)	RFE	MISC	The LEC is performing an activity which will cause a service interruption to a Facility used to support access services and is notifying the IC to request a time and date, from the bill- paying customer, when the circuit will be "idle". Required any time the LEC is performing internal work which will cause an out-of- service condition to a circuit.
requestForRoutine (1511)	RFR	MISC	A release of the circuit or trunk is being requested to perform routines. Normally 1508 will be used.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
release (1512)	RLS	MISC	The LEC is performing an activity which will cause a service interruption and is notifying the IC to request a time and date from the bill-paying Customer when the circuit will be idle. Required any time the LEC is performing internal work which will cause an out-of- service condition to the circuit.
requestDispatch (1513)	RQD	MISC	The Customer is requesting an automatic dispatch and is waiving testing requirements prior to the dispatch.
requestMonitorOfCircuit (1514)	RQM	MISC	A request that a non-intrusive monitoring device be connected to the circuit for a specified period of time. The monitoring device could be in the Central Office or at the premise location. Normally requested on chronic circuits.
routineTestFailure (1515)	RTF	MISC	Routine testing has identified a problem on the circuit by the results of a failed test. Normally performed on traffic trunks, e.g., FG-B, C and D.
lostTimerReport (1516)	LTR	MISC	Locally defined.
historicalReports (1517)	HIS	MISC	Locally defined.
switchOrTrunkRelated (1518)	SWT	MISC	The problem identified on the access in on a connecting switching equipment. The switching equipment is not part of the circuit design.
testAssist (1519)	TST	MISC	A request from the manager to assist in isolation of a trouble. The test assist activity usually requires intrusive testing, if approved by the manager
analogTestLine (1520)	TL5	MISC	Analog test line trouble.
digitalTestLine (1521)	TL8	MISC	Digital test line trouble.
ManualIntervertionRequested (1522)	OTH	MISC	Independent of test results or process activities. Human intervention is being requested. Testing request that requires manual intervention to obtain the results.
recovery (1600)	OTH	MISC	Recovery report problems

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
recoveryReport (1601) NOT USED BY LMOS. Used when a trouble report is created in manual mode, but later is changed to an electronically bonded mode, and the trouble is in recovery stage.	OTH	MISC	Identifies a manual trouble report that exists in the Agent's OSS that can now be electronically bonded. The trouble report was created manually due to a failure somewhere within the EB network or OSSs. The failure has now been fixed and further interaction can be performed electronically after the Agent has received a create request from the manager with this troubleType code.
switchedNetworkProblemsGroup (1700)	OTH	MISC	Problems related to the operations of the public switched network
aNITimeout (1701)	OTH	MISC	Trouble occurred in a time out between when the called number digits were being passed and before the ANI digits were expected.
extraDigit (1702)	OTH	MISC	More digits than the expected number of digits were received from the far office for an incoming call during digit collection.
extraPulse (1703)	OTH	MISC	Extra pulse reported.
falseKeyPulse (1704)	OTH	MISC	Incorrect KP digit(s) for incoming call.
misplacedStartPulse (1705)	OTH	MISC	For an incoming call during the collection of a digit sequence, a start pulse (ST digit) was received from the far office before the expected number of digits were collected.
mutilatedDigitGroup (1706)	OTH	MISC	For an incoming call over a trunk that uses DTMF or MF address signaling, an invalid tone combination was detected during digit collection. For an outgoing call over a revertive pulsing trunk, an invalid pulse width was detected during outpulsing.
noKeyPulse (1707)	OTH	MISC	No key pulse digit received.
partialDialTimeout (1708)	OTH	MISC	Partial dial time-out reported during digit collection and analysis.
signalingNetworkFailureIncoming (1709)	OTH	MISC	Signaling network failure, incoming.
stationGroupDesignationDigitFailure (1710)	OTH	MISC	For an incoming call over a private facilities trunk, an expected SGD digit (to be put into the call record) was received from the far office.
payPhoneProblemsGroup (1800)	OTH	MISC	Problems associated with pay phones, other than line troubles.

Trouble Type Codes (from T1.227)	WFA Code	LMOS Code	ECIC Trouble Type Definitions
noCoinReturn (1801)	OTH	MISC	Coin not returned at pay phone (Coin should return on a ring no answer, busy or on receipt of Central Office Recorded Message.)
coinStuck (1802)	OTH	MISC	Coin visibly stuck in the pay phones therefore no further coins can be placed in the pay phone.
cannotDepositCoin (1803)	OTH	MISC	Cannot deposit coins in pay phones – possible jam.
coinsFallThrough (1804)	OTH	MISC	Coins fall through pay phone.
coinsDoNotRegister (1805)	OTH	MISC	Coins not registered – Operator not receiving indication of coins being deposited.
payPhoneDamage (1806)	OTH	MISC	Other physical pay phone set damage.

Definitions:

NDT	No Dial Tone	DATA	Data
CCO	Can't Call Other	PHYS	Physical
CBC	Can't Be Called	MEM	Memory (feature related problem)
TRAN	Transmission	MCAL	MemoryCall
MISC	Miscellaneous		

13 Appendix F - Trouble Report Format Definitions

Data found in ECIC/TRA/95-003 document and provided here for convenience:

- **TRFD1 -** Used when the service being reported involves a Customer Premises, e.g., Voice Grade, DDS, HiCap.

- **TRFD2 -** Used when the service being reported does not have a Customer Premises, e.g., facility, feature groups.

The two TRFD's are the same except for A Location and Z Location Access Information - the rationale being, if there is a Customer Premise, all access information (3 Attributes) is required, if not, no access information is required.

Mandatory Attributes as defined in the Telecommunications Trouble Report object specification required regardless of TRFD,

Table 11: Mandatory Attributes

T1.227 Attribute	Supplied By	Updatable By
additionalTroubleInfoList	Manager	Manager
managedObjectInstance	Manager	no update
receivedTime	Agent	no update
troubleFound	Agent	Agent
troubleReportID	Agent	no update
troubleReportState	Agent	Agent
troubleReportStatus	Agent	Agent
troubleReportStatusTime	Agent	Agent
troubleType	Manager	no update

Table 12: Conditional Package Attributes - Manager Supplied

T1.227 Attribute	Updatable by	TRFD1	TRFD2
aLocationAccessAddress	Manager	**MUST BE PRESENT**	
aLocationAccessHours	Manager	**MUST BE PRESENT**	
aLocationAccessPerson	Manager	**MUST BE PRESENT**	
alternateManagerContactObjectPtr.	Manager		
alternateManagerContactPerson	Manager		
authorizationList	Both	**MUST BE PRESENT**	**MUST BE PRESENT**
callBackInfoList	Manager		
calledNumber	no update	May be present	May be present
commitmentTimeRequest	Manager	**MUST BE PRESENT**	**MUST BE PRESENT**
customerWorkCenter	no update	May be present	May be present
custTroubleTickNum	no update	**MUST BE PRESENT**	**MUST BE PRESENT**
dialog	Both		
escalationList	Both	**MUST BE PRESENT**	**MUST BE PRESENT**
managedObjectAccessFromTime	Manager		
managedObjectAccessHours	Manager	**MUST BE PRESENT**	**MUST BE PRESENT**
managedObjectAccessToTime	Manager		
managedObjectInstanceAliasList	Agent	May be present	May be present
managerContactObjectPtr	Manager		
managerContactPerson	Manager	**MUST BE PRESENT**	**MUST BE PRESENT**
managerSearchKey1	Manager		
managerSearchKey2	Manager		
managerSearchKey3	Manager		
managerSearchKeyList	Manager		
perceivedTroubleSeverity	Manager	May be present	May be present
preferredPriority	Manager	May be present	May be present
repeatReport	Both	May be present	May be present
suspectObjectList	Manager		
troubleReportFormatObjectPtr	no update	**MUST BE PRESENT**	**MUST BE PRESENT**
troubleReportStatusWindow	Manager	**MUST BE PRESENT**	**MUST BE PRESENT**
tspPriority	no update	May be present	May be present
zLocationAccessAddress	Manager	May be present	
zLocationAccessPerson	Manager	May be present	
zLocationAccessHours	Manager	May be present	

Table 13: Conditional Package Attributes - Agent Supplied

T1.227 Attribute	Updatable By	TRFD1	TRFD2
activityDuration	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
additionalTroubleStatusInfo	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
agentContactObjectPtr	Agent		
agentContactPerson	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
alarmRecordPtrList	Agent		
entryTime	Agent		
commitmentTime	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
initiatingMode	no update	May be present	May be present
lastUpdateTime	Agent		
relatedTroubleReportList	Agent		
responsiblePersonName	Agent		
responsiblePersonPtr	Agent		
troubleLocation	Agent		
troubleReportNumberList	Agent		

Table 14: Conditional Package Attributes - Defaulted Agent

T1.227 Attribute	Updatable By	TRFD1	TRFD2
afterHrsRepairAuth	Manager		
cancelRequestedByManager	Manager	**MUST BE PRESENT**	**MUST BE PRESENT**
closeOutNarr	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
CloseOutVerification	Manager	**MUST BE PRESENT**	**MUST BE PRESENT**
handOffCenter	Agent		
handOffLocation	Agent		
handOffPersonName	Agent		
handOffPersonPtr	Agent		
handOffTime	Agent		
maintenanceOrgContactName	Agent		
maintenanceOrgContactPtr	Agent		
maintenanceOrgContactTime	Agent		
maintServiceChaarge	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
outageDuration	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
repairActivityList	Agent		
restoredTime	Agent	**MUST BE PRESENT**	**MUST BE PRESENT**
troubleClearancePerson	Manager	**MUST BE PRESENT**	**MUST BE PRESENT**

14 Appendix G - Managed Object Instance (MOI or circuitID) BST Formats

The Managed Object Instance (MOI) of the Telecommunications Trouble Report (TTR) is the circuitID. Following are the different formats listed below (listing in no particular order):

Format 1 : Serial Number Format Circuits (e.g., High Cap, FD, ISDN, etc.)

Prefix		Service Code		Modifier		Serial Number						Suffix			Company Assigning CircuitId				Segment Number		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
/				/						/		/			/						

.....alphanumeric...../.....numeric...../..numeric.../..... alphanumeric.....

The **Serial Prefix** is a very crucial element of this type of circuit. BST always expects a valid entry in the Prefix area of this type of Circuit. BSG performs the routing for this type of circuit using the **Serial Prefix** and the **aLocationAccessAddress** information. There are several OBF 697 issues with this circuit. The circuit format as displayed above is the way it is stored in the WFA OSSs.

Note: In Georgia a TTR on a Basic ISDN service is reported as a non-designed circuit in the Georgia LMOS OSS by manually calling the BRMC and having the BST Maintenance Administrator enter the report. These reports can not be processed via ECTA (see Section 4.13).

As per ECIC discussions and our own implementation this circuit type is considered ANSI T1.227 TRFD 1 type.

The basic characteristics of a Serial Number format is as follows:

1) There are (.) or (/) delimiters
2) A least 3 delimiters
3) First character in the third field is numeric
4) Length of the third and fourth fields that are not equal to 3.

Example of a Serial Number circuit for a Hi-Cap service: 74/HCGS/402838/PN.
Example of a Serial Number circuit for an ISDN service: A1/IBSD/550466/SB.

Format 2 : Telephone Number Format Circuits (e.g., FX, TT, watts, etc.)

Prefix	ServiceCode	Modifier	NPA Code	Central Office Code	Line Number Code	Extension Number or Trunk Code	Segment Number
1 2	3 4	5 6	7 8 9	10 11 12	13 14 15 16	17 18 19 20	21 22 23 24

/	/	/	/	/	/

……alphanumeric……../……..……..numeric……../….alphanumeric……..

BSG performs the routing for this type of a circuit using the **NPA Code and Central Office Unit Code (NXX)**. Internally during routing BST also takes care of NPA exceptions that may occur in cross-state-boundary circuits. The circuit as displayed above is the way it is stored in our WFA OSS. There are also OBF 697 normalization issues here.

As per ECIC discussions and BST implementation this circuit type is considered ANSI T1.227 TRFD 1 type.

The basic characteristics of a Telephone Number format is as follows:

1) There are (.) or (/) delimiters
2) A least 3 delimiters
3) First character in the third field is numeric
4) Length of the third and fourth fields is equal to 3.

An example of a Telephone Number format for a Foreign Exchange (FX) service is: 20/FXNC/704/841/6633

Format 3 : Carrier Facility Format Circuits (e.g., FG A, FG C, etc.)

Facility Description	Facility Type	TERM A	TERM Z
1 5	6 11	12 22	23 33

/	/	/

…..numeric…./…...alphanumeric……/…..first six alphabetic……./….first six alphabetic…….

BSG performs the routing for this type of a circuit using the **TERM A** field of this circuit. Positions **16-17** of the circuit fall inside the **TERM A** field and they contain the State Code of the circuit. The circuit as displayed above is the way it is stored in the WFA OSSs. OBF 697 normalization issues apply to this circuit. BSG has implemented the TRFD 2 per client requests.

The basic characteristics of a Carrier Facility format is as follows:

1) There are (.) or (/) delimiters
2) A least 3 delimiters
3) First character in the third field is alphabetic
4) Length of the fourth field is not equal to 2.

Example of a Carrier facility format for a T1 service: 101/T1/STTLWAST/STTLWAO6.

Format 4 : Message Trunk Format Circuits (e.g., CO-CO, CO-Cust, etc.)

Trunk Number	Traffic Class	Off Cls	Traffic Use	Trunk-Type Modifier	Office A (Term A)	Code	Office Z (Term Z)
1 4	5 6	7 8	9 10	11 17	18 28	29 30	31 41

/	/	/	/	/

.numeric./……..…..alphanumeric……../…first 6 alpha…/alpha./.first 6 alpha.

BSG performs the routing for this type of a circuit using the **Office A** field of this circuit. Positions **22-23** of the circuit fall inside the **Office A** field and they contain the State Code of the circuit. The circuit as displayed above is the way it is

stored in WFA OSSs. OBF 697 normalization issues apply to this circuit format. BSG has implemented both TRFD1 and TRFD 2 as per different client requests.

The basic characteristics of a Message Trunk format is as follows:

1) There are (.) or (/) delimiters
2) A least 3 delimiters
3) First character in the third field is alphabetic
4) Length of the fourth field is equal to 2.

Example of a Message trunk circuit: 386/DF5-ED//STTLWASUDS0/MM/STTLWAO6AMD.

Format 5 : Telephone Number (i.e., POTS) format

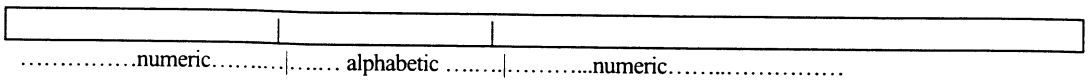
This is a simple ten-digit numeric (i.e., NPA NNXXXXX) circuitID with no delimiters. BSG creates a TTR in a corresponding LMOS OSS based on the NPA.

Format 6 : ISDN format

Same as Format 1 (Serial Number) for the OSS for Access Services (i.e., WFA).

Format 7 : SL1 (non-designed UNE Loop)

Area Code		Prefix		Service Code		Modifier		Serial Number	
1	3	4	5	6	7	8	9	10	15



.....numeric.....|..... alphabetic .....|.....numeric.....

The basic characteristics of the SL1 format is as follows:

1) The alphanumeric string is entered without delimiters

An example of an SL1 circuit ID is: 77040TYNU123456

Invalid formats

Invalid circuit ID format:

1) If delimiters, must have at least 3.

15 Appendix H - Component Recovery Requirements / Scenarios

This section describes the various component recovery scenarios and the procedures to be utilized. BST (BST) scheduled downtime will be handled utilizing these same procedures.

15.1 Best Effort

Each system is required to make a "best effort" attempt to forward a message to the next downstream system. The purpose of this "best effort" is to recover from temporary failures in the event of system or network glitches.

15.2 Initialization

After verifying that all Manager OSSs are ready, the Manager will send the AARQ message to the Agent.

The Agent will hold off responses to AARQ until all system start up processes are completed. The manager may resend outstanding transactions. It is the responsibility of the manager to control the initial transaction rate to be less than the maximum transaction rate per second.

15.3 CLEC Gateway (CGW) to BST Gateway (ECG) Link is Down

Upon failure, both gateways will receive an ABORT message indicating that the association has been terminated.

15.3.1 CGW Procedures

When the CLEC Gateway (CGW) receives the ABORT message, the CGW will retry the association every 20 seconds. This value is reconfigurable.

15.3.2 ECG Procedures

The BSTGateway (ECG) will broadcast a message to the BST Center via the BST Electronic Bonding Single Point of Contact (EB SPOC) stating "CLEC Off-line". When the ECG cannot send a message to the CGW, an automatic alarm notification will be sent to the BST Surveillance Monitoring group (RTOC - Real Time Operations Center /AMCS) for investigation.

Tickets entered manually into LMOS during a failure will remain manual for the life of the ticket. The ECG LMOS user IDs must be defined to the appropriate tables in LMOS in order to provide proactive statusing on tickets entered via the ECG or Customer Presentation Manager.

15.3.3 CLEC OSS Work Center Procedures

When the CLEC work center receives notification via error message that the association is not available, the CLEC work center personnel will begin communicating trouble report information to the BST Center via telephone.

The CLEC work centers will continue to send subsequent messages to the ECG from the CLEC OSS involved and not automatically revert to manual. These work centers will determine the availability of the association on a message by message basis.

15.3.4 BST OSS Work Center Procedures

When the ECG cannot send the messages electronically, each time a trouble report is pro-actively status'd by LMOS, a message will be sent from the ECG to the EB SPOC. Work center personnel will communicate trouble report information via telephone for statusing and entry of trouble tickets. Tickets entered prior to the failure via the ECG which are still open at restoral will automatically be resynchronized when the failed component is restored. Proactive statusing will begin when the resynchronization is complete.

15.4 CGW to ECG Link is Restored

15.4.1 CGW Procedures

The CGW will re-establish the association with the ECG and notify the impacted CLEC Work Center/OSS that the BST link is operational.

15.4.2 ECG Procedures

The ECG will broadcast a message, "CLEC On-line", to the work center personnel via the EB SPOC. The ECGBSG will re-establish the association when the ASSOCIATE request is received. Electronically entered trouble tickets which go through manual verification and close procedures while the association is down will not be transmitted when the association is restored.

15.4.3 CLEC OSS Work Center Procedures

When the association is restored, the CLEC center will revert to "Electronic Bonding mode" and will refer all new trouble reports via Electronic Bonding. Existing trouble reports that were created manually via telephone will continue to be handled via telephone.

15.4.4 BST OSS Work Center Procedures

The BST Center procedures will be normal.

15.5 CGW is Down

The CLEC OSS and the ECG will detect that the association does not exist.

15.5.1 CGW Procedures

The CLEC EB SPOC will contact the BST EB SPOC to inform BST of the CGW failure. This will allow the BST EB SPOC to differentiate between ECG to CGW link failure and a CGW failure.

15.5.2 ECG Procedures

The procedures will be the same as those described in paragraph 14.3.2 ECG Procedures, when CGW to ECG link is down.

15.5.3 CLEC OSS Work Center Procedures

The procedures will be the same as those described in paragraph 14.3.3 CLEC OSS Work Center Procedures, when the CGW to ECG link is down.

15.5.4 BST Center Procedures

The procedures will be the same as those described in paragraph 14.3.4 BST OSS Work Center Procedures when the CGW to ECG link is down

15.6 CGW is Restored

15.6.1 CGW Procedures

The CGW will re-establish the associations to ECG and the communications with the CLEC OSS.

15.6.2 ECG Procedures

The procedures will be the same as those described in paragraph 14.4.2 ECG Procedures, when CGW to ECG link is restored.

15.6.3 CLEC OSS/Work Center Procedures

The procedures will be the same as those described in paragraph 14.4.3 CLEC OSS Work Center Procedures when CGW to ECG link is restored.

15.6.4 BST OSS Work Center Procedures

The BST Center procedures will be normal.

15.7 ECG is Down

The CGW will detect that the association does not exist.

15.7.1 CGW Procedures

The procedures will be the same as those described in paragraph 14.3.1 CGW Procedures, when CGW to ECG link is down.

15.7.2 ECG Procedures

When the ECG is down, an automatic alarm notification will be sent to the BST Surveillance Monitoring group (RTOC - Real Time Operations Center /AMCS) for investigation and restart.

15.7.3 CLEC OSS/Work Center Procedures

The procedures will be the same as those described in paragraph 14.3.3 CLEC OSS Work Center Procedures, when CGW to ECG link is down.

15.7.4 BST Center Procedures

The ECG will not be available to provide status messages to BST work center personnel. All statuses must be provided manually, via telephone call, to the CLEC Work Center. The BST work center personnel must enter the tickets into LMOS.

Tickets entered manually into LMOS during a failure will remain manual for the life of the ticket.

15.8 ECG is Restored

15.8.1 CGW Procedures

The CGW will re-establish the association with the ECG and notify the impacted CLEC Work Center/OSS that the ECG is operational.

15.8.2 ECG Procedures

The ECG will re-establish the association when the ASSOCIATE request is received. The ECG will restore the trouble ticket to time of failure. No AVC's will be sent to CLEC which occurred prior to the restoral time. If the proactive notification is a close, the ticket will be closed. Electronically entered trouble tickets which go through manual verification and close procedures while the association is down will not be transmitted when the association is restored.

The ECG will broadcast a message, "BST Gateway Restored", to the work center personnel.

15.8.3 CLEC OSS Work Center Procedures

The procedures will be the same as those described in paragraph 14.4.3 CLEC OSS Work Center Procedures, when CGW to ECG link is restored.

15.8.4 BST OSS Work Center Procedures

The BST Center procedures will be normal after receiving the notification that the ECG is operational and manual mode will be discontinued.

15.9 CGW to One CLEC OSS Link is Down

When the link between the CGW and one of the OSS is down, both the CGW and the OSS involved will detect the failure.

15.9.1 CLEC Procedures

When the CGW receives messages from the ECG that are destined for the OSS involved in the failure, the CGW will send a message of "resourceLimitation" back to the ECG.

15.9.2 ECG Procedures

When the ECG attempts to send a message to the CGW, the ECG will receive a message of "resourceLimitation" indicating that the connection to the particular CLEC OSS is not available. The ECG will notify the BST work centers which are impacted directing them to communicate trouble report information via telephone on a message by message basis. This message will also go the BST EB SPOC.

15.9.3 CLEC OSS/Work Center Procedures

The procedures will be the same as those described in paragraph 14.3.3 CLEC OSS Work Center Procedures, when the CGW to ECG Link is down, for the affected CLEC OSS and its work centers. For other CLEC OSS and work centers, the procedures will be normal.

15.9.4 BST Center Procedures

The procedures will be the same as those described in paragraph 14.3.4 BST OSS Work Center Procedures, when the CGW to ECG link is down.

15.10 CGW to 1 CLEC OSS Link is Restored

When the link between the CGW and the OSS is restored, both the CGW and the CLEC OSS will detect that the link is operational.

15.10.1 CGW Procedures

When the link is restored, the CGW will re-establish the communication with the corresponding OSS and the CLEC procedures will be normal.

15.10.2 ECG Procedures

The ECG will evaluate link status on a message by message basis. If the ECG does not receive the "Resource Limitation" message it will resume normal mode of operation. Status messages will not be sent on troubles which have closed in a manual mode. Electronically entered trouble tickets which go through manual verification and close procedures while the link is down will not be transmitted when the link is restored.

15.10.3 CLEC OSS/Work Center Procedures

The procedures will be similar to those described in paragraph 14.4.3 CLEC OSS Work Center Procedures, when CGW to ECG link is restored for the affected CLEC OSS and its work centers. For other CLEC OSSs and work centers, the procedures will be normal.

15.10.4 BST Center Procedures

The BST Center procedures will be normal.

15.11 ECG to One BST OSS Link is Down

When the link between the ECG and one of the OSS is down, the ECG will detect this condition and not abnormally terminate.

15.11.1 CGW Procedures

When the CGW attempts to send a message to the ECG, the CGW will receive a message of "resourceLimitation" indicating that the connection to the particular BST OSS line is not available. The CGW will notify the CLEC Work centers which are impacted directing them to communicate trouble report information via telephone on a message by message basis.

15.11.2 ECG Procedures

When the ECG receives messages from the CGW that are destined for the OSS involved in the link failure, the ECG will send an error message of "resource Limitation" back to the CGW.

This could involve the link to one of 5 LMOS Cross Front Ends or multiple LMOS front end processors.

When the ECG cannot send a message via the OSS to ECG link, an automatic notification will be sent to the BST Surveillance Monitoring group (RTOC - Real Time Operations Center /AMCS) for investigation.

15.11.3 CLEC OSS/Work Center Procedures

When the CLEC Work center receives notification that a BST OSS link is down, the CLEC Work center personnel will begin communicating trouble information to the BST Center via telephone.

The CLEC Work centers will continue to send subsequent messages to the ECG from the CLEC OSS involved and not automatically revert to manual. These work centers will determine the availability of the link on a message by message basis.

15.11.4 BST Center Procedures

The BST Center must be advised when the link to the OSS is down and that proactive statusing cannot be accomplished via the ECG therefore must be done via telephone. The CLEC Work centers will begin calling the BST work centers when they receive the "resourceLimitation" message.

If tickets are closed manually while the ECG link to the OSS is down, the ticket must be closed in the ECG upon restoral of the link.

15.12 ECG to 1 BST OSS Link is Restored

When the link between the ECG and one of the OSS is restored, both the ECG and the OSS involved will detect that the connection is available. The ECG will not receive an error message when it attempts to send a message to the OSS.

15.12.1 CLEC Procedures

The CLEC Procedures will be normal. The CGW will stop receiving "resourceLimitation" error messages on input of trouble ticket information.

15.12.2 ECG Procedures

The ECGBSG will broadcast a message, "ECG to OSS Link Restored", to the work center personnel. The ECG will utilize queued proactive status messages from LMOS to bring the trouble ticket up to date. No AVC's will be sent to CLEC which occurred prior to the restoral time. If the proactive notification is a close, the ticket will be closed. Electronically entered trouble tickets which go through manual verification and close procedures while the association is down will not be transmitted when the association is restored.

15.12.3 CLEC OSS/Work Center Procedures

The procedures for all CLEC OSS and Work Centers will be the same as those described in paragraph 14.4.3 CLEC OSS Work Center Procedures, when the CLEC to ECG link is restored.

15.12.4 BST Center Procedures

The BST Center will receive a message that the ECG link is operational.

15.13 One CLEC OSS is Down

When one CLEC OSS is down, the CGW and the corresponding work center will detect that the OSS is not available.

15.13.1 CGW Procedures

The CGW Procedures will be the same as those described in the paragraph 14.9.1 CLEC Procedures, when CGW to One OSS link is down.

15.13.2 ECG Procedures

The ECG procedures will be the same as those described in paragraph 14.9.2 ECG Procedures, when the CGW to CLEC OSS link is down.

15.13.3 CLEC OSS/Work Center Procedures

There are no procedures for the OSS which is down. For other OSS and their work centers the procedures will be normal. The work center(s) connected to the unavailable OSS must communicate trouble report information via telephone when there are any messages to send to the ECG. The work center(s) will continue reverting to manual until the OSS is restored.

15.13.4 BST Center Procedures

When the ECG cannot send the messages electronically, each time a trouble report is pro-actively status'd by LMOS, a message will be sent from the ECG to the EB SPOC. Work center personnel will communicate trouble report information via telephone for statusing and entry of trouble tickets.

Tickets entered manually into LMOS during a failure will remain manual for the life of the ticket. The ECG LMOS User IDs must be defined to the appropriate tables in LMOS in order to provide proactive statusing on tickets entered via the ECG or Customer Presentation Manager.

15.14 One CLEC OSS is Restored

The CGW and the corresponding work center(s) will detect that the OSS is available.

15.14.1 CGW Procedures

The CGW procedures will be the same as those described in paragraph 14.10.1 CGW Procedures, when CGW to One OSS link is restored.

15.14.2 ECG Procedures

The ECG procedures will be the same as those described in paragraph 14.10.2 ECG Procedures, when CLEC to CGW OSS link is restored.

15.14.3 CLEC OSS/Work Center Procedures

The work center(s) connected to the restored OSS, will detect that the OSS is restored and will input the data for those tickets that were created when the OSS was down. The remaining procedures will be similar to those described in paragraph 14.4.3 CLEC OSS Work Center Procedures, when CLEC to ECG link is restored. For other OSS and work centers, the procedures will be normal.

15.14.4 BST Center Procedures

The BST Center procedures will be normal. Electronic transfer has resumed.

15.15 One BST OSS is Down

When a BST OSS is down, the ECG will detect this condition and inform the BST work centers involved.

15.15.1 CGW Procedures

The CGW procedures will be the same as those described in paragraph 14.11.1 CGW Procedures, when ECG to BST OSS link is down.

15.15.2 ECG Procedures

The ECG procedures will be the same as those described in paragraph 14.11.2 ECG Procedures, when ECG to BST OSS link is down.

15.15.3 CLEC OSS/Work Center Procedures

The CLEC Work Center procedures will be the same as those described in paragraph 7.11.3 CLEC OSS Work Center Procedures, when ECG to BST OSS link is down.

15.15.4 BST Center Procedures

The work center M&P's will be similar to M&P's available for LMOS outages. The ticket is worked manually via a paper ticket. Status messages are transmitted via telephone to the CLEC Work Center.

15.16 ECG to 1 BST OSS is Restored

When a BST OSS is restored, both the ECG and the BST Center(s) involved will detect that the OSS is available.

15.16.1 CGW Procedures

The CGW procedures will be the same as those in paragraph 14.12.1 CLEC Procedures, when ECG to BST OSS link is restored.

The CGW Procedures will be normal. The CLEC will stop receiving "resourceLimitation" error messages on input of trouble ticket information.

15.16.2 ECG Procedures

ECG procedures will be the same as those in paragraph 14.12.2 ECG Procedures, when ECG to BST OSS link is restored.

15.16.3 CLEC OSS/Work Center Procedures

The procedures will be the same as those described in paragraph 14.4.3 CLEC OSS Work Center Procedures, when CGW to ECG OSS link is restored.

15.16.4 BST Center Procedures

The BST Center will receive a message that the BST OSS is operational. The manual paper tickets will be entered into the affected OSS for tracking and measurement purposes

16 Appendix I - Disaster Recovery Procedures

Procedures to be added when completed

17 Appendix J - AuthorizationList Functionality - Ad Hoc Committee - ECIC Data Mapping Sub Committee

PURPOSE

Describes the functionality of the authorizationList attribute in T1.227. The description represents the consensus of the members prticipating.

NUMBER OF SEQUENCES

The manager uses a PT-SET addValues to provide authorization.
The number of sequences in the authorizationList attribute at the agent will increase by the number of sequences added by the manager in the PT-SET message. The agent cannot intervene in the PT-SET operation and reduce the number of sequences within the set.

The agent, is free to reduce the number of occurrences at some other time. Thus, if there are two or more "provided" occurrences, the agent can amalgamate all the "provided" occurrences into one summary "provided" occurrence just before making a new request for authorization. The agent does an inclusive OR on the type BIT STRING of the current "provided" sequences reducing them to one SEQUENCE whose type BIT STRING holds all current authorizations.

The authorizing person (authPerson) and time of authorization (authTime) of the last received "provided" string are retained. It is implied that, by authorizing the last request, the authPerson concurs in the previous authorizations.

INITIAL STATES

The manager might provide some authorizations in the PT-CREATE. In this case there will be one "provided" SEQUENCE with the type BIT STRING set. However, the manager is not required to provide initial authorizations.

An initial state of no authorizations can be indicated either by one SEQUENCE with all bits zero or an empty SET OF SEQUENCE. Thus at the first request for authorization there will be either one or no "provided" SEQUENCES.

REQUESTS

Immediately after the PT-CREATE there will be no "requested" SEQUENCE. In the first request for authorization, the agent adds a "requested" SEQUENCE to authorizationList. The new "requested" authorizations are set by the agent in this SEQUENCE's type BIT STRING.

Later, in additional requests for authorization, this same "requested" SEQUENCE will hold both new requested authorizations and any existing authorizations which the agent needs to maintain. (This is done to conform to the wording in T1.227).

The authorizing person (authPerson) and time of authorization (authTime) are not included in the SEQUENCE.

The agent then issues an Attribute Value Change notification (AVC) for authorizationList.
AuthorizationList will either contain two sequences, one "provided" and one "requested", or

just one "requested" sequence. (The only instance when authorizationList will not contain a "provided" sequence occurs on the first request AVC were provided in the PT-CREATE). If there are two such sequences then the manager can do an exclusive OR (XOR) between the BIT STRINGS in the two to derive the new requests for authorizations. If there is only one SEQUENCE, a "requested" SEQUENCE, then the bits set in this SEQUENCE all indicate new requests for authorizations.

MANAGER Responding to the request for authorization, the manager sends a **RESPONSE** PT-SET operations.

This PT-SET includes a modifyOperator of addValues for the attribute authorization List. Only one sequence of authorizationList is added in this operation by the manager.

This SEQUENCE has the type BIT STRING set for all newly authorized activities-newly authorized by this PT-SET. It is not necessary to renew the authorization of previously authorized activities. Including existing authorizations produces no effect.

MULTIPLE PT.SETs Although one authorizationList SEQUENCE is added in one PT-SET, the manager might send multiple authorization PT-SETs between agent AVC requests for authorization. AuthorizationList will hold the two SEQUENCEs existing at AVC time plus the number of SEQUENCEs added by subsequent authorization PT-SETs. Later PT-GETs on authorizationList will return all existing authorizationList SEQUENCEs.

ASSUMPTIONS Confirmations to operations and events are assumed.

EXAMPLE 1. The manager authorizes dispatch (5) on the initial PT-CREATE.

```
authorizationList ::= {{   state = 2 --- provided
                           type = "00000100"B
                           --- authTime and authPerson may be provided }}
```

EXAMPLE 2. Agent requests authorization for after-hours-repair (0), test(3) and manager-initiated-test(4).

Agent adds a "requested" SEQUENCE to authorizationList and sets bits. The agent sends an AVC for these changes.

```
authorizationList ::= {{   state = 1 --- requested
                           type = "10011000"B}
                      {    state = 2 --- provided
                           type = "00000100"B
                           --- authTime and authPerson may be provided }}
```

EXAMPLE 3. After some time the manager authorizes after-hours-repair(0). No decision has been reached on manager-initiated-test(4) or test(3). This authorization is provided in a PT-SET addValues, adding a new SEQUENCE.

SENT BY MANAGER

```
authorizationList ::= {{   state = 2
                           type = "10000000"B
                           --- authTime and authPerson may be provided }}
```

AGENT VALUES

```
authorizationList ::= {{   state = 1 --- requested
                           type = "10011000"B}
                      {    state = 2 --- provided
                           type = "00000100"B
                           --- authTime and authPerson may be provided }
                      {    state = 2
                           type = "10000000"B
                           --- authPerson and authTime may be provided }}
```

EXAMPLE 4. The manager authorizes test(3). No decision has been reached on manager-initiated-test(4). The authorization is provided in a PT-SET addValues, adding a new SEQUENCE.

MANAGER SENDS

```
authorizationList ::= {{   state = 2
                           type = "00010000"B
                           --- authTime and authPerson may be provided }}
```

AGENT VALUES

```
authorizationList ::= {{   state = 1 --- requested
                           type = "10011000"B}
                      {    state = 2 --- provided
                           type = "00000100"B
                           --- authTime and authPerson may be provided }
                      {    state = 2
                           type = "00010000"B
                           --- authPerson and authTime may be provided }}
```

EXAMPLE 5. The agent decides to request authorization for standby(1). No decision has been reached on manager-initiated-test(4). The multiple "provided" SEQUENCEs are reduced to one. The agent issues an AVC for these changes.

```
authorizationList ::= {{   state = 1 --- requested
                           type = "11011100"B }
                      {    state = 2 --- provided
                           type = "10010100"B
                           --- authTime and authPerson may be provided }
```

EXAMPLE 6. The manager authorizes standby(1). No decision has been reached on manager-initiated-test(4). The authorization is provided in a PT-SET addValues adding a new SEQUENCE. (If the manager had included all existing authorizations in the PT-SET addValues it would have had no additional effect.

MANAGER SENDS

```
authorizationList ::= {{   state = 2 --- provided
                           type = "10010100"B
                           --- authTime and authPerson may be provided }}
```

18 Appendix K - EscalationList Attribute Explanation

This T1.227 attribute consists of the following:

```
EscalationList ::= Set OF SEQUENCE {
                        stateRequestState,
                        escTimeEscalationTime,
                        -- supplied by agent
                        requestPerson [0]PersonReach,
                        level [1]OrgLevel OPTIONAL,
                        escPerson [2]PersonReach OPTIONAL}
```

This attribute will be supported only for Designed Services (WFA).

When the Manager sends an escalation request, the escalation information will be stored in the WFA System in the Remarks field. In addition, the information is forwarded to the BST Center as a "Priority Message". The "Priority Message" will require the technician at the BST Center to provide the following information:

```
level                   ENUMERATED
escPerson
        PersonReach
                PersonNumber    DEFAULT VALUE ""
                PersonName      GraphicString(30)
                PersonPhone     GraphicString(15)
```

On receiving this information from the BST Center, the BST Gateway will send this information as an appropriate message to the Manager.

19 Appendix L - RepeatReport Attribute Explanation

Table 15: RepeatReport Definitions

RepeatReport Code	Definition	BST Support
unspecified (0)	Unable to specify whether or not an installation, or a trouble activity have occurred, or been reported, on this managed object within the last 30 days.	BST Gateway will not support this attribute value.
recentInstallation (1)	An installation of the circuit occurred within the last 30 days and is currently defective or inoperative.	For Designed Services: BST Gateway will support this attribute value. For POTS: BST Gateway will not support this attribute value.
repeat (2)	A trouble has been reported on this managed object within the last 30 days.	BST Gateway will support this attribute value for both Designed Services and POTS.
bothInstallationAndRepeat (3)	The installation of the circuit and previous trouble condition(s) occurred within the last 30 days.	BST Gateway will not support this attribute value.
chronic (4)	A "chronic" trouble (three or more troubles) has been reported on this managed object within the last 30 days.	BST Gateway will support this attribute value for both Designed Services and POTS.
installationAndChronic (5)	The circuit was installed within the last 30 days and is considered as "chronic".	BST Gateway will not support this attribute value.

20 Appendix M - ActivityDuration Attribute Explanation

This T1.227 attribute consists of the following:

Activity Duration
Billable Flag
Activity Type

On a Create Response, this information will be an empty set.

The GET will provide an empty set until the Trouble Report closure is complete.

The Gateway will report the activityDuration to the Manager at Request-to-Close time (for WFA) or Close time (for LMOS). Only the following activity types will be supported:

No Access
Delayed Maintenance (WFA only)

The activityDuration segments will be calculated cumulatively (not on an individual segment basis) across the lifetime of the Trouble Report.

If the Maintenance of Service Charge is TRUE, then this attribute will indicate that some Billable Activity occurred. If the Customer (CLEC) needs more information, manual follow-up is deemed necessary.

21 Appendix N - ANSI T1.262-1998 Support

21.1 Purpose

To briefly describe the M-Action enhancements to the Electronic Communications Trouble Administration (ECTA) Gateway.

21.2 Scope

The scope of the document covers that information needed by Customer Gateways to implement a M-Action request/response interface conformant to the BST ECTA Gateway.

21.3 Business Requirements

A. To request an MLT on a Plain Old Telephone Service (POTS) Telephone Number (TN), a CLEC Customer Gateway shall send the ECTA a CMIP "m_Action_Confirmed" Request Event containing an "ActionArgument" Abstract Data (AD) structure. The ActionArgument AD contains the T1.262-1998 MLT Request Data.

B. The ECTA Gateway shall request an MLT test on the POTS TN via HAL/CLIP on behalf of the CLEC Customer Gateway.

C. The ECTA Gateway shall send the CLEC Customer Gateway a "m_Action_Confirmed" Response Event containing an "ActionResult" AD. The ActionResult AD shall contain the appropriate response based on the results received from MLT.

21.4 MLT Request

The Request is implemented as the set of activities arising from a "m_Action_Confirmed" Request Event received from the Manager. The Request shall contain an "ActionArgument" AD structure.

A. ActionArgument

The ASN.1 syntax for ActionArgument is shown below:

```
ActionArgument ::= SEQUENCE {
        baseManagedObjectClass      ObjectClass ,
        baseManagedObjectInstance   ObjectInstance ,
        accessControl               [5]   AccessControl OPTIONAL ,
        synchronization             [6]   IMPLICIT CMISSync DEFAULT bestEffort ,
        scope                       [7]   Scope DEFAULT baseObject ,
        filter                            CMISFilter DEFAULT and {} ,
        actionInfo                  [12]  IMPLICIT ActionInfo
}
```

The CLEC Customer Gateway shall provide the ActionArgument with the following mandatory member(s) containing values other than default or NULL:

1. baseManagedObjectClass
2. baseManagedObjectInstance
3. actionInfo

The CLEC Customer Gateway shall send the following member(s) with values set to the default value for the member:

1. synchronization
2. scope
3. filter

The CLEC Customer Gateway may send the following optional member:

1. accessControl

B. baseManagedObjectClass

The baseManagedObjectClass is an ActionArgument member of type ObjectClass. ObjectClass has the following ASN.1 syntax:

```
ObjectClass ::= CHOICE {
        GlobalForm      [0]   IMPLICIT OBJECT IDENTIFIER ,
        localForm       [1]   IMPLICIT INTEGER
}
```

The CLEC Customer Gateway shall provide baseManagedObjectClass with globalForm chosen. The value of globalForm shall be the T1.262-1998 Object Identifier (OID) value for "potsTestActionPerformer".

C. baseManagedObjectInstance

The baseManagedObjectInstance is an ActionArgument member of type ObjectInstance. ObjectInstance has the following ASN.1 syntax:

```
ObjectInstance ::= CHOICE {
        distinguishedName       [2]   IMPLICIT DistinguishedName ,
        nonSpecificForm         [3]   IMPLICIT OCTET STRING ,
        localDistinguishedName  [4]   IMPLICIT RDNSequence
}
```

The CLEC Customer Gateway shall provide baseManagedObjectInstance with disinguishedName chosen. distinguishedName is an ObjectInstance member of type DistinguishedName. The derivation of DistinguishedName, in ASN.1 syntax is shown below:

```
AttributeType ::= OBJECT IDENTIFIER

AttributeValue ::= ANY

AttributeValueAssertion ::= SEQUENCE {
        attributeType AttributeType ,
        attributeValue AttributeValue
 }

RelativeDistinguishedName ::= SET OF AttributeValueAssertion
```

RDNSequence ::= SEQUENCE OF RelativeDistinguishedName

DistinguishedName ::= RDNSequence

baseManagedObjectInstance is constructed from the following NameBinding structure:

testActionPerformer --binds to--> account --binds to--> network

The CLEC Gateway shall provide the distinguishedName member as a SEQUENCE OF RelativeDistinguishedName types, i.e the SEQUENCE contains three RelativeDistinguishedName types. Each RelativeDistinguishedName (RDName) type element is a SET OF AttributeValueAssertion types. The AttributeValueAssertion (AVAssertion) member of each RelativeDistinguishedName element shall be comprised of one of the nodes of the NameBinding structure, i.e:

RDName Element	AVAssertion Element	NameBinding Node	NamBinding Attribute Type
0	0	network	NetworkId
1	0	account	AccountName
2	0	testActionPerfomer	TestActionPerformerId

D. accessControl

accessControl is an ActionArgument member of type AccessControl.

AccessControl has the following ASN.1 syntax:
AccessControl ::= EXTERNAL

The CLEC Gateway shall implement accessControl in the same manner as described in the T1.227 standard, or agreed upon in previous JIA documentation.

E. synchronization

synchronization is an ActionArgument member of type CMISSync.
CMISSync has the following ASN.1 syntax:

```
CMISSync ::= ENUMERATED { bestEffort (0), atomic     (1) }
```

The CLEC Gateway shall provide synchronization with the default value described in the ActionArgument ASN.1 definition.

F. scope

scope is an ActionArgument member of type Scope. Scope has the following ASN.1 syntax:

```
Scope ::= CHOICE {
    level INTEGER {
        baseObject          (0),
        firstLevelOnly      (1),
        wholeSubtree        (2)
    },
    individualLevels        [1] IMPLICIT INTEGER ,
    baseToNthLevel          [2] IMPLICIT INTEGER
}
```

The CLEC Gateway shall provide scope with the default value described in the ActionArgument ASN.1 definition.

G. filter

filter is an ActionArgument member of type CMISFilter.
CMISFilter has the following ASN.1 syntax:

```
CMISFilter ::= CHOICE {
        Item    [8]                     FilterItem ,
        and     [9]     IMPLICIT SET OF CMISFilter ,
```

```
        or      [10]  IMPLICIT SET OF CMISFilter ,
        not     [11]                   CMISFilter
}
```

The CLEC Gateway shall provide filter with the default value described in the ActionArgument ASN.1 definition.

H. actionInfo

actionInfo is an ActionArgument member of type ActionInfo.
ActionInfo has the following ASN.1 syntax:

```
ActionInfo ::= SEQUENCE {
        actionType          ActionTypeId,
        actionInfoArg  [4]  ANY DEFINED BY actionType OPTIONAL
}
```

actionType is a member of type ActionTypeId. ActionTypeId has the following ASN.1 syntax:

```
ActionTypeId ::= CHOICE {
        GlobalForm          [2]  IMPLICIT OBJECT IDENTIFIER ,
        localForm           [3]  IMPLICIT INTEGER
}
```

The CLEC Customer Gateway shall provide actionType with the globalForm member chosen. The value of globalForm shall be the T1.262-1998 OID value for "testRequestUncontrolledAction".

actionInfoArg is an ActionArgument member of type ANY, meaning that actionInfoArg may be assigned any value. The CLEC Customer Gateway shall assign the type TestRequestUncontrolledInfo to actionInfoArg.

TestRequestUncontrolledInfo has the following ASN.1 syntax:

```
TestRequestUncontrolledInfo ::= SEQUENCE {
        testCategoryInformation     [1]  TestCategoryInformation,
        testSessionId               [2]  TestSessionId OPTIONAL,
        timeoutPeriod               [3]  TimeoutPeriod OPTIONAL,
        associatedObjects           [4]  AssociatedObjects OPTIONAL,
        toBeTestedMORTs                  ToBeTestedMORTs OPTIONAL
}
```

The CLEC Gateway shall provide the following members of TestRequestUncontrolledInfo:

1. testCategoryInformation
2. toBeTestedMORTs

testCategoryInformation is a TestRequestUncontrolledInfo member of type TestCategoryInformation. The derivation of TestCategoryInformation is shown below:

```
AD_TYPE struct {
```

```
        Oid identifier[];
        char significance;
        Any information;
    } ManagementExtension;

AD_TYPE ManagementExtension    AdditionalInformation[]; /*<SETOF>*/

AD_TYPE AdditionalInformation  TestCategoryInformation;
```

The CLEC Gateway shall provide testCategoryInformation as a SET OF ManagementExtension types; the length of the SET being one (1).

The following members of ManagementExtension shall be provided by the CLEC Gateway:

1. identifier
2. information

The identifier member is an OID type that shall have as its value the T1.262-1998 OID value for potsUncontrolledTestRequest.

The information member is an ANY that shall contain the PotsTestRequest type. PotsTestRequest has the following ASN.1 syntax:

```
PotsTestRequest ::= INTEGER {
    full (1),
    quick (2),
    centralOffice (3),
    loop (4)
}
```

The values for PotsTestRequest correspond to the type of test being requested.

toBeTestedMORTs is a TestRequestUncontrolledInfo member of type ToBeTestedMORTs. ToBeTestedMORTs has the following ASN.1 syntax:

```
ToBeTestedMORTs ::= CHOICE {
        normalForm          [29]   SET OF ObjectInstance,
        scopedSet           [30]   SEQUENCE {
                base                   ObjectInstance,
                mORTsScope             Scope DEFAULT namedNumbers:baseObject,
                mORTsFilter CMISFilter DEFAULT and:{ }
        }
    }
```

ToBeTestedMORTs shall be provided with the normalForm member chosen. normalForm shall be constructed in the same manner as baseManagedObjectInstance in Section 21.4B above.

21.5 MLT Response

The Response is implemented as the set of activities leading up to a "m_Action_Confirmed" Response Event sent to the Manager from the ECTA Gateway. The Response shall contain the "ActionArgument" AD structure.

A. ActionResult

The ASN.1 syntax for ActionResult is shown below:

```
ActionResult ::= SEQUENCE {
        managedObjectClass              ObjectClass   OPTIONAL ,
        managedObjectInstance       ObjectInstance OPTIONAL ,
        currentTime                     [5]    IMPLICIT GeneralizedTime  OPTIONAL ,
        actionReply                     [6]    IMPLICIT ActionReply   OPTIONAL
    }
```

The ECTA Gateway shall provide the ActionResult with the following members present:

1. managedObjectClass
2. managedObjectInstance
3. actionReply

B. managedObjectClass

managedObjectClass is an ActionResult member of type ObjectClass. the managedObjectClass member is a mirror of the baseManagedObjectClass provided by the CLEC Gateway in the ActionArgument of the "m_Action_Confirmed" Request Event.

C. managedObjectInstance

managedObjectInstance is an ActionResult member of type ObjectInstance. The managedObjectInstance member is a mirror of the baseManagedObjectInstance provided by the CLEC Gateway in the ActionArgument of the "m_Action_Confirmed" Request Event.

D. actionReply

actionReply is an ActionResult member of type ActionReply.
The ASN.1 syntax for ActionReply is shown below:

```
ActionReply ::= SEQUENCE {
        actionType          ActionTypeId ,
        actionReplyInfo     [4]    ANY DEFINED BY actionType
    }
```

actionType is an ActionReply member of type ActionTypeId. The actionType member is a mirror of the actionType member provided by the CLEC Gateway in the actionInfo member of the ActionArgument.

actionReplyInfo is an ActionReply member of type ANY. The actionReplyInfo shall contain a TestRequestUncontrolledResult type. The ASN.1 syntax for TestRequestUncontrolledResult is shown below:

```
TestRequestUncontrolledResult ::= SEQUENCE {
        testOutcome                 [0]    TestOutcome OPTIONAL,
        mORTs                       [1]    SET OF ObjectInstance OPTIONAL,
        proposedRepairActions       [2]    ProposedRepairActions OPTIONAL,
        additionalText              [3]    AdditionalText OPTIONAL,
        additionalInformation       [4]    AdditionalInformation OPTIONAL
```

}

The following members of TestRequestUncontrolledResult shall be provided by the ECTA Gateway:

1. testOutcome
2. mORTs
3. additionalInformation

testOutcome is a TestRequestUncontrolledResult member of type TestOutcome. TestOutcome has the following ASN.1 syntax:

```
TestOutcome ::= INTEGER {
    inconclusive(0),
    pass(1),
    fail(2),
    timed-out(3),
    premature-termination(4)
  }
```

The ECTA Gateway shall provide a value of "pass" for testOutcome if a test result with MLT data was received from the MLT system.

mORTs is a TestRequestUncontrolledResult member of type ObjectInstance. mORTs is a mirror of the baseManagedObjectInstance received in the ActionArgument.

additionalInformation is a TestRequestUncontrolledResult member of type AdditionalInformation. The derivation of additionalInformation is shown below:

```
AD_TYPE struct {
        Oid  identifier[];
        char significance;
        Any  information;
  } ManagementExtension;

AD_TYPE ManagementExtension     AdditionalInformation[]; /*<SETOF>*/
```

The ECTA Gateway shall provide additionalInformation as a SET OF ManagementExtension types; the length of the SET being one (1).

The following members of ManagementExtension shall be provided by the CLEC Gateway:

1. identifier
2. information

The identifier member is an OID type that shall contain the T1.262-1998 OID value for potsUncontrolledTestResults.

The information member is an ANY that shall contain the PotsTestResults type. PotsTestResults has the following ASN.1 syntax:

```
PotsTestResults ::= SEQUENCE {
        summary         [0]     GraphicString,
        results         [1]     CHOICE {
          full                  [0]     FullTestResults,
          quick                 [1]     QuickTestResults,
          centralOffice         [2]     CentralOfficeTestResults,
          loop                  [3]     LoopTestResults
        } OPTIONAL
  }
```

The ECTA Gateway shall provide the following members of PotsTestResults:

1. summary
2. results

The summary member is a GraphicString type that shall contain a text summary of the MLT test.

The results member is comprised of a CHOICE of test result types that are defined in the T1.262-1998 standard.

D. Error

The following types may be provided for the following CMIP error conditions:

Error Condition	Error Type
accessDenied	NONE
classInstanceConflict	BaseManagedObjectid
complexityLimitation	ComplexityLimitation
invalidArgumentValue	InvalidArgumentValue
invalidFilter	CMISFilter
invalidScope	Scope
noSuchAction	NoSuchAction
noSuchArgument	NoSuchArgument
noSuchObjectClass	ObjectClass
noSuchObjectInstance	ObjectInstnace
processingFailure	ProcessingFailure
syncNotSupported	CMISSync

The Error Conditions and Error Types are CMIP types.

E. ProcessingFailure

The following error types defined in the T1.262-1998 standard may be provided for error conditions arising from handling a the MLT request.

Error Condition	Error Type
troubleRepairInProgress	TroubleRepairInProgress
mORTNotAvailable	MORTNotAvailable
noSuchMORT	NoSuchMORT
mistypedTestCategoryInformation	MistypedTestCategoryInformation

The Error Conditions and Error Types are defined in the T1.262-1998 standard.

22 Appendix O – Terms and Definitions

The following table provides a listing of definitions, abbreviations and acronyms used in BST's maintenance and repair process:

Table 16 - Definitions

Term	Meaning	Notes
A/C	Access and Commitment window in TAFI	
ACAC	Access Customer Advocacy Center	BST Work Center set up specifically to handle trouble maintenance for long-distance provider companies (such as AT&T, MCI, etc.) serving local end users in BST territory
ACD	Automatic Call Distributor	A telephone system used to route calls to the next available attendant
Agent	In the OSI arena, it is the role played by an individual, organization, or company that is responsible for resolving trouble and any corresponding trouble reports that have been raised or submitted by the Manager.	
AI	Artificial Intelligence	A programming methodology used by TAFI to apply consistent processing of customer trouble reports
AIS	Alarm Indication Signal	Indication that an alarm has occurred at the far end in a point-to-point architecture
AML	Added Main Line	An MLT testing procedure
ANSI	American National Standards Institute	Committee that produces US national standards T1 is that part of ANSI that deals with national standards in the area of telecommunications
AS	Affecting Service	A commitment interval set by the WMC to correct non-designed trouble reports where the customer is not out of service
AVC	Attribute Value Change	In OSI, an automatic notification from the agent's system to the manager's system that provides the last new value of a given attribute as it changes
BAL	Abbreviation for the term *balance*	
BAT	BST Applied Technologies	Group within BST that is responsible for the actual development (coding) of specific software application systems
BC	Bulk Commitment	The lowest priority commitment interval – no longer used in BST
BOCRIS	Business Office Customer Record Inquiry System	An interface used within BST to access CRIS and SOCS records from a single (non-windowing) terminal

Term	Meaning	Notes
BOSIP	BST Open System Interconnect Platform	BST's corporate Transport Control Protocol/Internet Protocol (TCP/IP) network, which provides local area network (LAN) interconnectivity
BRC	Business Repair Center	An organization within BST to handle BST's retail business customers' trouble reports
BRMC	BST Resale Maintenance Center	The repair center dedicated to CLEC customers (i.e., where CLECs call to report their customer's troubles) Provides the initial trouble receipt and screening functions
BSG	BST Gateway	BST Electronic Communications Gateway
BST	BST Telecommunications, Inc.	Local Exchange Carrier serving a nine state area in the southeastern portion of the USA
BSW	Buried Service Wire	Physical facility used to serve a local end user from a serving terminal
BSY	Abbreviation for the term *busy*	
BTI	Boston Technologies, Inc.	One of several MemoryCall system providers used within BST
Busy speech	Commonly used term for *busy line*	
CAT	CATegory of report	A field used in LMOS
CBDT	Can not Break Dial Tone	Expression for an abnormal condition in the customer's line in which a dial tone still exists in the line after the receiver goes off hook and the user tries to dial
CCC	Routing code to send a trouble report to the After Hours Call Out Center	
CCS	Custom Calling Service	A CRIS term used to signify the vertical services that the local customer has subscribed to
CD	Customer Direct	One of several trouble report categories used in LMOS
CFDA	Call Forward – Don't Answer	The call is routed to an alternate source (i.e., telephone number) if the original party does not answer the call after a predetermined number of rings
CGW	CLEC Gateway	CLEC's Electronic Communications Gateway
CHNL	Abbreviation for the term *channel*	
CKT	Commonly used abbreviation for the term *circuit*	
CLD	Abbreviation for the term *called*	
CLEC	Competitive Local Exchange Carrier	A Local Exchange Carrier (LEC) competing with BST for local services within the nine-state region of BST territory
CLG	Abbreviation for the term *calling*	

Term	Meaning	Notes
CLG-CLD	Calling / Called	Describes the situation where the party reporting the trouble condition is the one who is trying to reach the reported number (and can't) and typically is not the owner of the line
CNMAC	Customer Network MAintenance Center	Operations system that administers several optional or vertical services (such as Memory Call, Caller ID, etc.)
CO	Central Office	Switching equipment used to route local end user telephone calls
COS	Class of Service is a category that represents the type of service that a local customer has. For example: • Residential customer (1FR) - RES • Business customer (1FB) – BUS	Class of Service is represented as COS
COU	Customer Operations Unit	Describes the four customer focused organizations within BST (i.e., Residence, Small Business, Large Business and Interconnection Services)
CPE	Customer Premises Equipment	Privately owned terminal equipment inside the local end customer's premises (such as a PBX, telephone sets, and key sets)
CPNI	Customer Proprietary Network Information	Specific data regarding the features and services that the customer has on his line
CRIS	Customer Record Information Services	Computer system used by the BST Business Office to access customer information profile and billing system
CSR	Customer Service Record	Part of the CRIS data that details the specific features purchased from BST
CUID	Common User ID	Methodology used to uniquely identify users accessing BST systems
CX	Customer eXcluded report	A category of trouble report that is excluded from the count of customer trouble reports for measurement purposes For example, all subsequent reports are CX reports since these reports provide additional information on an existing report and the initial reports are counted for measurements
DA	Directory Service	
DAML	Digital Added Main Line	An MLT testing procedure
DATH	Display Abbreviated Trouble History	An LMOS trouble history summary report for the requested telephone number
DIALS	Direct Inward Access Line Security	A secure access path the BST systems via a dial-up telephone line access (as opposed to a dedicated circuit)
DISP	Abbreviation for the term *dispatch*	

Term	Meaning	Notes
DLETH	Detailed Trouble History Report (LMOS)	Provides detailed information for every trouble report for a given line stored in LMOS
DLR	Detailed Line Record	A report in LMOS providing detailed line information on the specific telephone number
DR	Disaster Recovery	Methodology for providing access to OSSs given the primary path is down (e.g., accessing the Backup CLEC processor)
DSL	Digital Subscriber Line	An outside-plant piece of equipment where many analog signals are digitized and division multiplexed when placed into a digital facility to be transported jointly downstream
DT	Date / Time	
EB	Electronic Bonding	Synonymous to EC (Electronic Communications)
EC	Electronic Communications	Commonly used term for the Object Oriented Electronic Communications Gateway-to-Gateway services (TA being the first service) used by some CLECS, Regional Bell Operating Companies (RBOCs) and General Telephone (GTE)
EC	Employee Code	Abbreviation used in LMOS to identify a user
EO	Employee Originated	A category of LMOS trouble report where a BST employee, during the course of performing his normal duty, identifies a problem with a customer's line without the customer reporting the condition
ERR	Abbreviation for the term *error*	
EST	Enter Status Transaction	A function in LMOS that allows the user (e.g., HAL) to status a given trouble report
F1 ... F12	Function Keys found on a VT220 Terminal	
FCC	Federal Communications Commission	
FE	Front End	Typically applies to the LMOS processor used to initiate, track and manage customer trouble reports
FECO	Front End Close Out	A term to indicate that initial testing showed that the reported trouble condition no longer exists and that the trouble report will be closed after a predetermined number of hours thus giving the customer time to verify that the reported trouble condition is cleared
FEMF	Foreign voltage (electromotive force)	A DC or AC voltage that appears in the customer line by a crossed cable pair or by induction from power company cables
FIFO	First In, First Out	

Term	Meaning	Notes
FITL	Fiber In The Loop	A special BST project for trailing fiber facilities services to the customer premises or the curb
Flows	Defines the logical processes used by TAFI to analyze and process specific types of customer trouble reports	
HAL	Hands-Off Assignment Logic	System that provides access to and resolves errors from a multitude of back-end legacy systems (LMOS, CRIS, MLT, SOCS, and others) for some front-end systems
Host	Refers to the LMOS host processor that stores archived information about a given line	For example: DLETH reports are created from history data stored on the LMOS host processor while trouble reports are managed on the LMOS FE processor
ICS	InterConnection Services	One of the four COUs dealing with non-retail customers connecting to BST (e.g., CLECs, IXCs, etc.)
IMS	Information Management Service	A security layer controlling access to some legacy systems
IPP	Independent Pay-phone Provider	Call receipt center for processing trouble reports from the Independent Pay-phone Providers
ISDN	Integrated Services Digital Network	A network architecture that, through standardization of user and network interfaces, allows customer access to multiple communication services The basic interface structure consists of two 64 kb/s (kilobits per second) B channels (for voice or data) and one 16 kb/s D channel (primarily for signaling) This basic service is called 2B+D
IST	Intermediate Status Transaction	LMOS TTR status codes
IT	Information Technologies	An organization within BST dealing with computer systems, etc.
ITEW	Initial Trouble Entry Window	The initial screen in TAFI used to initiate a trouble report
IW	Inside Wire	Wiring facilities owned by the end customer
IXC	IntereXchange Carrier	Provider of long-distance services (between LATAs) regulated by the Federal Communications Commission (FCC)
LAN	Local Area Network	A group of computer systems (i.e., work stations, PCs, printers, minicomputers, etc.) dispersed over a limited area and connected by a communications link that enables any device to interact with any other device within the network
LCC	Line Class Code	Code used and maintained in CRIS that signifies the end-customer class of service
LD	Long Distance	

Term	Meaning	Notes
LEC	Local Exchange Carrier	Refers to the local telephone company franchised to provide service in a given geography The Incumbent LECs (i.e., RBOCs) are referred to as ILECs while the Competative LECs are called CLECs
LIU	Line In Use	
LMOS	Loop Maintenance Operations System	BST Operations Support System used for non-designed (POTS) trouble report management
LPIC	Local Pre-designated Interexchange Carrier	Indicates which carrier (ILEC, CLEC or IXC) is providing local (intralata) toll service)
LXD	Abbreviation for the term *lines crossed*	
M&P	Methods and Procedures	A set of established guidelines that an organization follows to satisfy a given situation
MA	Maintenance Administrator	BST employee in the Maintenance Center (MC) who screens and routes trouble reports that are beyond current BSG or HAL capabilities
Manager	In the OSI arena, it is the role played by an individual, organization, or company that manages troubles and any corresponding trouble reports that have been raised or submitted to the Agent for resolution.	
MAPPER	Utility in LMOS that routes technicians	
MARCH	Computer system that implements CO translations changes	
MDF	Main Distributing Frame	Frame where cross-connections are made between the outside plant and the CO equipment
MLT	Mechanized Loop Testing	Computerized system that performs analog tests on local end-customer lines (also called a customer loop)
MOI	Managed Object Instance	In object-oriented theory, refers to a particular managed object of a managed object class For example, a specific 1990 Chevy Camaro is an instance of the 1990 Chevy Camaro Managed Object Class
MR	Message Report	Documentation that initiates a trouble report when a TN (Telephone Number) is not available (for example, the customer reported a broken terminal)
NAC	Network Access Controller	A security layer controlling access to BST systems
NAR	Narrative field in TAFI/LMOS	
Navigator	A proprietary BST communications protocol	
NBR	Number	
NIW	Network Information Warehouse	System used to store switch blockage data used by TAFI for trouble analysis

Term	Meaning	Notes
OCN	Operating Company Number	A four-digit, numeric, line-of-business representation for an operating company A given CLEC company may have more than one OCN value
OPN	Abbreviation for the term *open*	
OS	Out (of) Service	A commitment level provided to a customer who is out of service
OSI	Open System Interconnection	Open interconnection computer mechanism that exchanges information between two arbitrary systems
OSPCM	Out Side Plant Construction Management system	Tracks outside plant construction including the burying of drop wires to a customer's property
OSS	Operations Support System	Internal computer system of a telecommunications company that manages a given service or network For example, LMOS is the BST's OSS for POTS
PBX	Private Branch Exchange	Customer-owned premise telephone equipment
PC	Personal Computer	
PDB	Pending Dispatch Business	LMOS status indication meaning that a report is waiting for the next available business technician
PDI	Pending Dispatch In	LMOS status indication meaning that a report is waiting for the next available inside (CO) technician
PDO	Pending Dispatch Out	LMOS status indication meaning that a report is waiting for the next available "outside" technician
PIC	Pre-designated Interexchange Carrier	Indicates which LD carrier is providing interlata service to the customers
Ported In	A former CLEC customer, with a CLEC telephone number, who becomes a BST customer, and who was brought from the CLEC switch to a BST switch	PSTAT = I in LMOS TR Mask
Ported Out	A former BST customer, with a BST telephone number, who becomes a CLEC customer, and who moved from its original BST switch to the CLEC switch	PSTAT = O in LMOS TR Mask
POTS	Plain Old Telephone Service	For example, a 1FR (residential flat rate) or a 1FB (business flat rate) telephone service
Predictor	A system used to query CO translations	
Predictor		Computer system used to query CO switch translations
PREM	Abbreviation for the term *premises* (normally for customer's premises)	
Priority Messaging		Expression used for a messaging service application that allows messages to be sent and displayed from a remote host machine

Term	Meaning	Notes
PSO	Pending Service Order	
PSTAT	Ported Status	An LMOS single-letter field designation in several LMOS mask screens (DLR, TR, and others) that depicts the nature of the customer's local service from a BST reference point For example, an I depicts a service ported-in to BST, an O depicts a service ported-out from BST, and an R depicts a service reclaimed back into BST
RCF	Remote Call Forwarding (C.O. Feature)	The C.O. is programmed to forward calls from the customer's line to another (defined) line Commonly used to support interim number portability The BSG will route reports on this feature to the UNE Center for manual processing
RCMAG	Recent Changes Maintenance Activity Group	BST's Work Center for administering vertical services translations in COs
Resale	An ex-BST customer who is physically connected to the BST network for both originating and terminating call processing capabilities and is owned by a CLEC.	This type is not in the PSTAT field because it is not an LNP case
RESH	A fid in the CRIS record indicating Resold service	RESH is followed by the 4 digit OCN value to identify the CLEC owning the account
RFC	Abbreviation for the term *referenced*	
ROH	Receiver Off hook	The customer's line is busy
ROL	Recording On Line	Testing-results condition of a recording on a customer's line after dialing Is checked in CRIS for a possible non-payment condition
RRC	Residence Repair Service	Organization within BST to manage BST's retail residential customer's trouble reports
RST	Recent Status Transaction	A function in LMOS that allow the user (e.g., HAL) to view the current status of a given trouble report
RTE	Abbreviation for the term *route*	Also an LMOS code that sends a given trouble report to an LMOS location to be picked-up by a technician and resolve this trouble
RTOC	Real Time Operations Center	BST's Work Center for internal network problem resolution
Screen	The process of analyzing available data from multiple sources and determining (and activating) appropriate trouble resolution procedures to resolve customer troubles	
SME	Subject Matter Expert	Individual with a specific field of expertise
SNECS	Secured Network Element Contract Server	Peer-to-peer computer interface between HAL and the Predictor and MARCH back-end systems

Term	Meaning	Notes
SO	Service Order	Document used by BST to initiate/modify a local end-user service
SOCS	Service Order Control System	Computer system used by BST to keep track of the local service-order process
SPOC	Single Point Of Contact	Individual who is responsible for a complete Work Center unit to assist outside companies and customers in recording and following up on reported problems in a given service or network facility
T1	Telecommunications	ANSI nationally accredited organization to create interconnection and interoperability standards for the United States telecommunications networks
TA	Trouble Administration	ANSI T1.227 & T1.228 Object Oriented (OO) Gateway-to-Gateway service to administer telecommunications trouble reports
TAFI	Trouble Analysis Facilitation Interface	The man-to-machine user interface used to process non-designed customer trouble reports in BST
TE	Trouble Entry	Refers to the initial screen in LMOS to initiate a customer trouble report
Telnet	A communications protocol used to communicate with character based systems over BOSIP	
TN	Telephone Number	
TOK	Tested OK	MLT test result signifying that the local customer's line is in good working condition after a full test was completed and verified
TR	Trouble Report	Refers to the report screen in LMOS
TRBL	Abbreviation for the term *trouble*	
TTR	Telecommunications Trouble Report	Object in the ANSI T1.227 & T1.228 standards that contains the information to be shared at the gateway-to-gateway interface through the trouble resolution process
USOC	Universal Service Order Code	Used to identify specific products and services provided by BST
VLTG	Abbreviation for the term *voltage*	
VRG	Video Repair Group	BST's specialized repair center for video services
WATS	Wide Area Telephone Service	Special BST service for customers (mostly business) desiring a wider local calling area
WFA	Work Force Administration	BST's Special Services OSS

Term	Meaning	Notes
Win Back	A BST customer, with a BST telephone number, who was ported out to a CLEC and now has returned to BST with the same telephone number, and who was returned to the BST switch of origin	PSTAT = W in LMOS TR Mask
WMC	Work Management Center	The BST center that manages (load and control) the dispatch of resources according to the daily workload for a given geographic area

23 Appendix P - TEAM CONTACTS

CLEC

Name	Contact Number	Fax Number
Name *Title* *E-mail address*	*number*	*number*
Name *Title* *E-mail address*	*number*	*number*
Name *Title* *E-mail address*	*number*	*number*
Name *Title* *E-mail address*	*number*	*number*
...		

BST

Name	Contact Number	Fax Number
KEN AINSWORTH Maintenance Center Staff Ken.Ainsworth@bridge.bellsouth.com	404-270-2970	
ARTHUR DEFEE Development Manager adefee@bsat.com	770-209-8333	770-209-8001
PREETI HESS Analyst Preeti.Hess@bridge.bellsouth.com	404-927-1815	404-529-0170
GENE PIATKOWSKI ECTA Project Manager Eugene.Piatkowski@bridge.bellsouth.com	205-977-1143	205-977-1143
TERRIE HUDSON PCU Project Manager Terrie.J.Hudson@bridge.bellsouth.com	404-927-	404-892-2494
JOHN WILSHEAR Analyst jwilshear@bsat.com	770-209-8091	770-209-8001

24 Appendix Q - SIGN OFF

CLEC Approval/Signature	BST Approval/Signature
_____ /date	_____ /date
Name	Eugene Piatkowski
Title	ECTA Project Manager