ATIS-0300010

ATIS Standard on -

Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part II, Installation and Maintenance Responsibilities Switched Access Services Feature Group B, C, and D

As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's most pressing business priorities. ATIS' nearly 200 member companies are currently working to address the All-IP transition, 5G, network functions virtualization, big data analytics, cloud services, device solutions, emergency services, M2M, cyber security, network evolution, quality of service, billing support, operations, and much more. These priorities follow a fast-track development lifecycle — from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open source solutions, and interoperability testing.

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ATIS Standard on

Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part II, Installation and Maintenance Responsibilities Switched Access Services Feature Group B, C, and D

Alliance for Telecommunications Industry Solutions

Approved September 17, 2020

Abstract

This document outlines telecommunications service provider and customer installation and maintenance responsibilities for Switched Access Services (SAS) as established by the Next Generation Interconnection Interoperability Forum (NGIIF) and includes Telecommunications Service Priority (TSP) Guidelines. It includes procedures on installation and maintenance of trunk side connected Access Services Feature Groups (FG) B, C, and D. It specifically includes areas such as NXX Code Openings, FG D CIC Testing, Network Modification Notification, Trouble Detection Responsibilities, Trouble Reporting Procedures, 500/800/900 NXX Services, Toll-Free Database and LIDB Services Trouble Handling, and access services provided by multiple exchange carriers. Where applicable, this document may address Next Generation Network (NGN) aspects.

Foreword

The Alliance for Telecommunications Industry Solutions (ATIS) serves the public through improved understanding between carriers, customers, and manufacturers. The Next Generation Interconnection Interoperability Forum (NGIIF) addresses next-generation network interconnection and interoperability issues associated with emerging technologies. Specifically, it develops operational procedures which involve the network aspects of architecture, disaster preparedness, installation, maintenance, management, reliability, routing, security, and testing between network operators. In addition, the NGIIF addresses issues which impact the interconnection of existing and next generation networks and facilitate the transition to emerging technologies.

The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages. The word *may* denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, NGIIF, 1200 G Street NW, Suite 500, Washington, DC 20005.

At the time of consensus on this document, NGIIF, which was responsible for its development, had the following leadership:

Karen Riepenkroger, Sprint

Randee Ryan, Comcast

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1   Scope, Purpose, & Application

This document outlines telecommunications service provider and customer installation and maintenance responsibilities for Switched Access Services (SAS) as established by the NGIIF and includes Telecommunications Service Priority (TSP) Guidelines. It includes procedures on installation and maintenance of trunk side connected Access Services Feature Groups (FG) B, C and D. It specifically includes areas such as NXX Code Openings, FG D CIC Testing, Network Modification Notification, Trouble Detection Responsibilities, Trouble Reporting Procedures, 500/800/900 NXX Services, Toll-Free Database and LIDB Services Trouble Handling, and access services provided by multiple exchange carriers. Where applicable, this document may address Next Generation Network (NGN) aspects.

2   Informative References

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ATIS-0100510*, Digital Services for Rates Up to and Including DS3-Specifications.*[1]

ATIS-0300010, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part II, Installation and Maintenance Responsibilities Switched Access Services Feature Group B, C, and D.*[1]

ATIS-0300011, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part III, Installation and Maintenance Responsibilities for SS7 Links and Trunks.*[1]

ATIS-0300024, *Next Generation Interconnection Interoperability (NGIIF) Reference Document Part V, Test Line Guidelines.*[1]

ATIS-0300026, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part VI, Network Management Guidelines.*[1]

ATIS-0300032, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part X, Interconnection Between LECS Operations Handbook – Local Interconnection Service Arrangement.*[1]

ATIS-0300046, *Recommended Notification Procedures to Industry for Changes in Access Network Architecture.*[1]

ATIS-0300119, Thousands-Block (NPA-NXX-X) & Central Office Code (NPA-NXX) Administration Guidelines (TBCOCAG).*[1]*

ATIS-0300104, *Next Generation Interconnection Interoperability Forum (NGIIF) NGN Reference Document - NGN Basics, Emergency Services, NGN Testing, and Network Survivability.*[1]

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[1]   This document is available from the Alliance for Telecommunications Industry Solutions (ATIS) at: < https://www.atis.org/docstore >.

ATIS-0300206.2001(S2016), *Digital Exchanges and PBXs - Digital Circuit Loopback Test Line with N [infinity] DS0 Capability.*[1]

ATIS-0404000, Access Service Request Guidelines.[1]

3   Definitions, Acronyms, & Abbreviations

For a list of common communications terms and definitions, please visit the *ATIS Telecom Glossary*, which is located at < http://www.atis.org/glossary >.

3.1   *Acronyms & Abbreviations*

ACAT	Additional Cooperative Acceptance Testing
AMA	Automatic Message Accounting
ASC	Access Service Customer
ASP	Access Service Provider
ASPC	Access Service Provider Coordinator
ASR	Access Service Request
ATIS	Alliance for Telecommunications Industry Solutions
CPE	Customer Premises Equipment
FCC	Federal Communications Commission
FG	Feature Group
ICSC	Interconnection Customer Service Center
INC	Industry Numbering Committee
LEC	Local Exchange Carrier
LSC	Local Service Customer
LSP	Local Service Provider
NGIIF	Next Generation Interconnection Interoperability Forum
NSC	Network Service Center
NS/EP	National Security Emergency Preparedness
POT	Point of Termination
PUC	Public Utilities Commission
SAS	Switched Access Services
SS7	Signaling System 7
TCIC	Trunk Circuit Identification Code
TQ	Translation Questionnaire
TSP	Telecommunication Service Priority

4 General

This document outlines Access Service Customer (ASC) and Access Service Provider (ASP) responsibilities for Switched Access Services (SAS) as established by the Next Generation Interconnection Interoperability Forum (NGIIF). It is intended to be a living document to aid operations work forces. It does not replace nor supersede Tariffs, Contracts, or any other legally binding documents. It is limited to procedures on installation and maintenance of trunk side connected Access Services FG B, C, and D.

Guidelines for the Installation and Maintenance of Facilities, Signaling System 7 (SS7), Specials, Network Management, Test Coordinator, and FG A are included in separate Clauses of the NGIIF Reference Document.

This document covers other operational and technical agreements made at the Next Generation Interconnection Interoperability Forum.

The ASCs are communications common carriers authorized by the Federal Communications Commission (FCC) to provide interLATA, interstate communications and/or by state Public Utilities Commissions (PUCs) to provide interLATA, intrastate or intraLATA communications services to their end users. The ASCs may request ASPs provide various facilities to be used as part of the ASC's services.

5 Responsibilities

5.1 *Access Service Customer (ASC)*

The ASC has the overall installation and maintenance responsibility for the total service to its end user. It is responsible for the overall coordination of installation and testing of its services.

The following are the responsibilities of the ASC:

- Provide end-to-end service for their end users

- Provide trained personnel

- Advise the ASP when there is a potential service affecting ASC network failure

- Provide a contact number for trouble reporting that is readily accessible 24 hours a day, 7 days a week

- Maintain complete and accurate installation and repair records

- Provide ASP personnel access to the Point of Termination (POT) when required

- Provide access to testlines where appropriate

- Provide billing authorization to the ASP for any additional labor requested

- Ensure that test equipment used is compatible with the Local Service Provider's (LSP's) test equipment

- Cooperate with the ASP ensuring that trunks are installed in accordance with the service requests

- Notify the ASP of any changes affecting the service request, including the service due date

- Assume control functions for maintenance of its trunk(s)

- Consult with the ASP before making any changes that could affect service, except under emergency conditions

- Accept trouble reports from their end users

- Accept trouble reports from the ASPs

- Sectionalize and clear the trouble in its own network

- Tests cooperatively with the ASP to further isolate and clear the trouble

- Keep their end users advised of the status of all trouble report(s)

- Perform cooperative analysis to determine if a trouble pattern exists

- Refer troubles to the ASP using the trouble reporting procedures

- Dispatch its own maintenance forces

- Perform verification test to ensure that trouble has been cleared

- Perform scheduled testing and other maintenance services when requested

- Participate cooperatively with the LSP to further isolate and clear the trouble when trouble exists and cannot be sectionalized

- Provide access to the CIC validation number that is 700-555-4141 for routing/billing verification purposes. Such a CIC validation number shall terminate at a recorded announcement and shall indicate the carrier reached

- Where it is technically feasible, signaling for all internetwork calls to a 10-digit telephone number should always be sent or received using 10 digits for the called party number, independent of how the call is dialed.

5.2 *Access Service Provider (ASP)*

The ASP is responsible for ensuring that the SAS furnished to an ASC is installed and functions properly. In addition, the ASP should work cooperatively with the ASC in the acceptance testing of the SAS it provides.

Where the ASC is unable to perform cooperative testing at its POT, the ASP will provide test results from nearest ASP test access point, toward the ASC's POT. An Access Service Provider Coordinator (ASPC) will perform the control function for the installation of FG B, C, and D, SAS provided to the ASCs.

The following are the responsibilities of the ASP:

- Provide SAS to ASCs as set forth by their Access Service Tariffs and will show no discrimination between different ASCs

- The SAS provided by the ASP will include all wiring, cable, and facilities up to the POT

- Installation, operation and maintenance of Access Service within its operating area including the right to negotiate control responsibility to another entity

- Provide trained personnel

- Advise the ASC when there is a potential service affecting ASP network failure

- Provide a contact number for trouble reporting that is readily accessible 24 hours a day, 7 days a week

- Maintain complete and accurate installation and repair records

- Consult with the ASC before making any changes that could affect service except under emergency conditions

- Provide access to testlines where appropriate

- Assume control functions for installation of the trunk(s)

- Cooperate with the ASC ensuring that trunks are installed in accordance with the service requests

- Notify the ASC of any changes affecting the service request, including the service due date

- Accept trouble reports from the ASC

- Sectionalize and clear the trouble in its own network

- Test cooperatively with the ASC to identify and clear a trouble when the trouble has been sectionalized to the ASC network

- Perform cooperative analysis to determine if a trouble pattern exists

- Refer troubles to the ASC using the trouble reporting procedures

- Dispatch its own maintenance forces

- Clear troubles in its own network

- Perform verification test to ensure that trouble has been cleared

- Provide status reports to the ASCs regarding installation and repair activity

- Perform scheduled testing and other maintenance services when requested

- Participate cooperatively with the Local Service Customer (LSC) to further isolate and clear the trouble when trouble exists and cannot be sectionalized to the ASC or ASP portion

- Provide ASC personnel access to the POT

- Inform the ASC when additional billing is required

- Advise the ASC when there is a potential service affecting ASP network failure

- Cooperate with other ASP offices and the ASC in testing to isolate and clear the trouble

- Perform scheduled or non-scheduled testing (billable as per the tariff) when requested

- Where it is technically feasible, signaling for all internetwork calls to a 10-digit telephone number should always be sent or received using 10 digits for the called party number, independent of how the call is dialed.

6 NXX or NXX-X Code Openings[2]

NOTE: For information related to NPA-NXX testing refer to ATIS-0300024, *Next Generation Interconnection Interoperability (NGIIF) Reference Document Part V, Test Line Guidelines.*

This Clause outlines the process and procedures for the testing of newly assigned Central Office NXX or NXX-X Codes opened for the first time. In addition, this Clause provides references for the user to ensure that they are familiar with the obligations associated with obtaining codes and notifying the industry of the pending opening of CO NXX Codes. In a Thousands Block Number Pooling environment the first thousands block that is opened in an NPA/NXX will follow the same rules as outlined in all NXX Code opening procedures. NPA/NXX and NPA/NXX-X are interchangeable in NXX Code opening scenarios throughout the NGIIF documentation. In these cases, the Code Holder is responsible for the testing.

The non-operational aspects contained in this Clause do not replace or supersede existing industry forum agreements or documents covering NXX or NXX-X Code opening processes. Listed below is specific documentation provided by ATIS' Industry Numbering Committee (INC) and NGIIF that provides guidance to Code Administrators, Service Providers and Service Customers when obtaining, activating, and testing NXX or NXX-X codes:

- ATIS-0300046, *Recommended Notification Procedures to Industry for Changes in Access Network Architecture*

- ATIS-0300010, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part II, Installation and Maintenance Responsibilities Switched Access Services Feature Group B, C, and D*

- ATIS-0300032, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part X, Interconnection Between LECS Operations Handbook – Local Interconnection Service Arrangement*

- ATIS-0300119, Thousands-Block (NPA-NXX-X) & Central Office Code (NPA-NXX) Administration Guidelines (TBCOCAG)

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[2] Clause 7 of ATIS-0300032, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part X, Interconnection Between LECS Operations Handbook – Local Interconnection Service Arrangement*, includes the same information on NXX Code Openings. Any changes to the current Clause should also be reflected in Clause 7 of ATIS-0300032, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part X, Interconnection Between LECS Operations Handbook – Local Interconnection Service Arrangement.*

6.1 *NXX of NXX-X CO Code Activation Planning*

Service Providers requesting CO Code activation where the code involves the use of newly established switching facilities or additional interconnection trunking should perform the following prior to call through testing:

- Set up a planning session with the appropriate service providers where the code is being opened to determine what types of interconnection arrangements are required.

- Issue Service Orders to establish the appropriate facilities using the Access Service Request (ASR) and or translations using the Translation Questionnaire (TQ) for routing purposes. The following practices can be found within ATIS-0404000, Access Service Request Guidelines (ASR):[3]

  - ATIS-0404001, *Access Service Request (ASR) Form Preparation Guide*
  - ATIS-0404000, *Feature Group B, C, D (FG-B, C, D) Form Preparation Guide (Clause 10, Trunking)*
  - ATIS-0404019, *Translation Questionnaire (TQ) Form Preparation Guide.*

6.2 *Pre-NXX or NXX-X Activation*

The following reference is provided to aid in the performance of activation and testing of CO NXX or NXX-X Codes.

6.2.1 **BIRRDS**

Before a CO Code (NXX or NXX-X) can become active, the service provider requesting a new CO Code is responsible for either directly inputting the information in Part 2 of the CO Code Assignment Request form into BIRRDS, providing it to the Code Administrator, or another party with BIRRDS access for entry.

6.2.2 **iconectiv® LERG™ Routing Guide**

During the process of entering the new CO Code (NXX or NXX-X) in the iconectiv LERG Routing Guide, the Code Holder must identify the points of interconnection in the LATA where the CO Code resides. In addition, the Code Holder shall immediately assign a number to be utilized for call through testing purposes upon receipt of the CO Code and shall place the test number in the iconectiv LERG Routing Guide when entering the CO Code into the iconectiv LERG Routing Guide.

6.2.3 **Facilities**

Offices attempting to complete a call through test to the new CO Code (NXX or NXX-X) when the facilities are not in place shall contact the Code Holder and inform them that the routing of calls will not take place until the appropriate facility orders have been completed.

In cases where orders have been placed with Local Exchange Carriers (LECs) for facilities, but have not been implemented, the LEC shall provide the appropriate support to ensure that the orders are completed and appropriate testing has been performed to meet the due date.

6.2.4 **Points of Interconnection**

In cases where points of interconnection in the home NPA have not been identified and/or facilities have not been placed, the Code Holder (NXX or NXX-X) will accept full responsibility for placing such orders with the LEC and schedule the due date for facilities testing. This will ensure that the facilities are in place prior to the date of the code opening identified in the iconectiv LERG Routing Guide. The LEC cannot be expected to meet the original effective date in the iconectiv LERG Routing Guide if all supporting information is not received in a timely manner.

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[3] Access Service Ordering Guidelines (ASOG), available at https://www.atis.org/docstore/.

If interconnection already exists between service providers and a CO Code is being opened, the Code Holder shall provide appropriate routing information in the iconectiv LERG Routing Guide to inform other service providers with which they do not have direct interconnection.

Where direct interconnection exists between service providers, it is presumed that all new CO Codes would be routed the same way as existing CO Codes, unless otherwise specified by the Code Holder in the ASR.

6.3 *Translation Validation/Call through Testing*

The following process is outlined for the activation of new CO Codes (NXXs or NXX-X's) to provide assurance that routing and billing translations are tested/validated appropriately by all LECs and IXCs.

- Upon receipt of notification (iconectiv LERG Routing Guide) that a new CO Code is to be activated, the LECs and the IXCs shall ensure the integrity of routing and billing by the effective date in the iconectiv LERG Routing Guide.

- The new CO Code owner will provide a test number in the LERG that terminates to a recorded announcement (preferable) or milliwatt (1004 Hz) to provide assurance to personnel performing call through tests that they have reached the terminating (serving) office.

- Where billing is required, Automatic Message Accounting (AMA) validation shall take place by the LECs and the IXCs.

6.4 *Intermediate Office(s) (Tandems/Access Tandems)*

An Intermediate Office is an office(s) that calls would route through for InterLATA and IntraLATA purposes to reach someone in the newly opened CO Code (NXX or NXX-X). An intermediate Office shall:

- Complete all translations work five (5) calendar days prior to the date identified in the iconectiv LERG Routing Guide as the effective date.

- Perform call through testing starting five (5) calendar days prior to the date identified in the iconectiv LERG Routing Guide as the effective date.

- Identify problems during call through testing and resolve such problems prior to the effective date identified in the iconectiv LERG Routing Guide.

6.5 *LEC Terminating Office (Serving Office)*

The LEC Terminating Office is the office where a call terminates. The LEC will:

- Validate that all translations work is complete five (5) calendar days prior to the date identified in the iconectiv LERG Routing Guide as the effective date.

- Perform call through tests to ensure that calls can be initiated from the newly opened CO Code (NXX or NXX-X) starting five (5) calendar days prior to the date identified in the iconectiv LERG Routing Guide as the effective date. An interLATA or intraLATA call, and an intraoffice call to an existing CO Code, where applicable, should be performed within the serving office.

- Perform, where applicable, an intraoffice call from an existing CO Code within the serving office to the newly opened CO Code.

- Identify problems during call through testing and resolve such problems prior to the due date identified in the iconectiv LERG Routing Guide.

  NOTE: If the above functions are not performed, the originating office and intermediate office cannot perform their respective functions.

6.6 *Originating Office*

LEC end offices with direct interconnection to, or located within the same NPA as the LEC with the newly opened CO Code (NXX or NXX-X), will:

- Validate that all translations work is complete five (5) calendar days prior to the date identified in the iconectiv LERG Routing Guide as the effective date.

- Initiate a call through test to the test number to ensure that the call routes correctly. Call through testing should start no earlier than five (5) calendar days prior to the date identified in the iconectiv LERG Routing Guide as the effective date.

- Identify problems during call through testing and resolve such problems prior to the effective date identified in the iconectiv LERG Routing Guide.

6.7 *Mechanized Testing*

Where mechanized translation input and validation is available, such mechanized capabilities should be used to validate the routing and AMA capability. This function should be performed on or before the effective date identified in the iconectiv LERG Routing Guide.

6.8 *Verification of NXX or NXX-X Code Openings*

During the CO Code (NXX or NXX-X) Opening process, some Code Holders may want to verify that test calls to their new CO Code have been completed. Therefore, it is recommended that entities performing call through tests to CO Codes being activated provide the necessary Caller ID information required to verify the NPA-NXX or NPA/NXX-X from where the test call is being placed. Where contractual, technical, or regulatory restrictions apply, this capability cannot be utilized.

6.9 *Code Opening Jeopardy Situations*

If prior to the iconectiv LERG Routing Guide effective date for an NXX or NXX-X code opening, a Code Holder realizes that any problem in its own network jeopardizes the scheduled NXX or NXX-X code opening date, the Code Holder will notify the interconnected carrier(s) immediately.

If prior to the iconectiv LERG Routing Guide effective date for an NXX or NXX-X Code opening, an interconnected carrier realizes that it will not be able to meet the iconectiv LERG Routing Guide effective date for opening the NXX or NXX-X Code, that carrier will notify the Code Holder and other interconnected carrier(s) immediately.

Any carrier that identifies a problem within another carrier's network during call through testing will notify that carrier immediately.

Contact should be made using industry escalation procedures or published/mutually agreed to contact information.

6.10 *Code Opening Contact Information*

Should an SP encounter a situation where a code opening did not occur on the effective date or the testing outlined in section 3.5 was not completed, the SP may utilize the contact information in the NGIIF Contact Directory[4] to contact the company to resolve the testing/code opening issue.

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[4] https://www.atis.org/committees-forums/ngiif/ngiif-contact-directories/

7 FG D CIC Testing

The following process is recommended for the routing and billing when CICs are expanded or introduced. This process can be used to validate the opening of newly assigned CICs.

On completion of the switch translation for CIC expansion, the ASP will:

- Perform a validation of such translations and keep a record for audit purposes

- Place a call to each carrier assigned within that switch, utilizing a test CIC

- Call through tests will consist of:

  - Calls from all major classes of service within the switch

  - Calls will be made to an IntraLATA and InterLATA termination

  - Calls from 1+, 0+, 011+, 01+, 8YY+[5], and 1-710-NCS-GETS

    - Utilizing a test number and an appropriate test response

- Ensure that Casual Dialing (101XXXX) is allowed and that routing and AMA recording are correct

- Generate an AMA record to ensure that the 4-digit CIC is present. All AMA records shall be retained for audit purposes

- Verify the AMA record for the presence of the 4-digit CIC when mechanized call through testing is utilized.

ASCs that are issued 4-digit CICs should coordinate with all interconnecting companies to ensure that calls will be passed from all selected areas of service.

The following announcement should be used when an invalid carrier access code is dialed: "we're sorry; your call cannot be completed with the access code you dialed. Please check the code and try again or call your long-distance company for assistance."

Subsequent to the end of the 3-digit to 4-digit CIC expansion transition period, the following announcement should be used when an invalid carrier access code is dialed: "Your call cannot be completed as dialed. If you dialed a 5-digit code, it has changed. Please redial adding a one and a zero before the 5-digit code, or for assistance, contact the carrier you are trying to use."

Any announcement associated with the end of the 5-digit CAC permissive dialing period should be played at a minimum until July 1, 1999.

8 Network Service Center (NSC)

The NGIIF recommends immediate reporting of non-circuit-specific troubles via telephone in order to facilitate the rapid restoral of service.

The NSC, or other regionally designated centers, will be the contact point for non-circuit specific trouble reports from the ASCs. The ASP will provide the ASC with a contact number, escalation, and guidelines for the reporting of non-circuit specific troubles. The NSC will provide status and feedback to the reporting ASC, when requested.

9 Network Modification Notification

A Network Modification is any type of planned equipment, software, trunk, or facility activity that has the potential to significantly affect interconnected networks (e.g. rearrangement of existing network elements, switch homing arranges, SS7 rehoming).

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[5] For Toll-Free, YY can be any of the following: 99, 88, 77, 66, 55, 44, 33, 22, and 00 when assigned.

The NGIIF has developed the following guidelines outlining the medium by which internetwork affecting maintenance activity notification and the time frame prior to the planned activity will be provided to the interconnected company:

- Notification, when possible, should be made at least five (5) working days prior to the planned change activity.

- Notification should be made in the form of:

  o E-mail (recommended where available)

  o FAX

  o Telephone call

- Notification should be provided to the affected company's appropriate notification center. Contact information is included in the NGIIF Service Provider Contact Directory.[6] An example of a notification form can be found in ATIS-0300026, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part VI, Network Management Guidelines.*

Notifications that are made via the LERG Routing Guide:

- Network modifications (such as a rehome) will have an effective date in the LERG Routing Guide.

Any network modification not completed or rescheduled prior to the effective date in the LERG Routing Guide may result in routing errors, blocked, or incomplete calls etc.

Any network modification which has an effective date in the LERG Routing Guide must be completed by the effective date in the LERG Routing Guide. If rescheduled prior to the effective date in the LERG Routing Guide, it is recommended that an emergency notification request be submitted to iconectiv.

> NOTE: Effective dates rescheduled seven (7) days prior to the effective date in the LERG Routing Guide can be entered into BIRRDS by the AOCN. However, effective dates rescheduled less than seven (7) days prior to the effective date in the LERG Routing Guide must be entered into BIRRDS by iconectiv.

Any network modification that will not be completed by the effective date in the LERG Routing Guide by the service provider initiating the change will be required to update BIRRDS to return the network entries back to what it was prior to the effective date in the LERG Routing Guide. It is recommended that an emergency notification request be submitted to iconectiv.

- The originating service provider may elect to have their AOCN contact iconectiv directly to "zap" the records with the current view thereby returning the records to what they were prior to the most recent effective date in the LERG Routing Guide of the previous view

- The originating company's AOCN will then update the LERG Routing Guide with the new effective date

- The originating company's AOCN will then issue an emergency notification request to iconectiv.

When the zapping method is used, it significantly increases the probability that the "zapped" record changes may be missed by the industry and interconnected companies will not react. This may result in network outages and or blocked calls because other service providers were unaware that the proposed changes did not take place.

When network modifications are scheduled that could significantly affect traffic between directly interconnected networks, it is recommended that the affected ASPs and ASCs notify each other prior to the event.

The following information should be exchanged at the time of notification:

- Originator, (company name/contact number)

- Affected Network Element

- Date and Time of the Change

- Expected Duration

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[6] The Service Provider Contact Directory and instructions for gaining access can be found on ATIS' website: https://www.atis.org/01_committ_forums/ngiif/contact-directories/.

- Traffic Types Affected During Change
- Description of the Work to be Completed

9.1 *Network Modification Suspension Periods*

Due to the volumes of traffic and the potential for negative impacts to the Network, the following table identifies when Network Modifications should not be performed.

Table 9.1 - Network Modification Suspension Time Periods

Network Modification Suspension Time Periods		
Event	Start of Suspension Period (Inclusive)	End of Suspension Period (Inclusive)
Mother's Day	SATURDAY	MONDAY
Father's Day	SATURDAY	SUNDAY
Thanksgiving (US Only)	WEDNESDAY	MONDAY
Christmas	12/22	12/26
New Years	12/31	1/1

Network modifications (e.g. Generic Changes, Parameter Changes, Switch Rehomes) will not occur during the above-mentioned time periods unless agreed to by the interconnecting companies.

Emergency exceptions should be coordinated.

10 Telecommunications Service Priority (TSP) Guidelines

The TSP system provides for the priority treatment of National Security Emergency Preparedness (NS/EP) telecommunication services in order to prioritize their installation and maintenance. For more information, refer to ATIS-0300104, *Next Generation Interconnection Interoperability Forum (NGIIF) NGN Reference Document - NGN Basics, Emergency Services, NGN Testing, and Network Survivability.*

11 Switched Access Service Installation

11.1 *SAS Order Activity*

SAS Order Activity, or equivalent, is an Access Service Negotiation. The ASC will order the required SAS from each ASP through an ICSC (Interconnection Customer Service Center) or equivalent negotiation. The ICSC work group will handle inquiries and orders. The ICSC work group is to serve as a point of contact for the access service needs of Interexchange Customers. The ASP will negotiate the SAS due date intervals either on a standard or individual case basis. Ordering procedures are described in the Access Services Tariff. During the installation period, all ASC inquiries will be referenced by ASP order number and trunk identification number.

To mitigate inadvertent loopbacks, 64kb data services should be provisioned with loopback recognition timers. Where loopback recognition timers are an ordering option for such services, this option should be selected.

11.2 *Establishing an Interface*

It is the responsibility of the ASC to designate the POT. It is also the responsibility of the ASC to arrange for suitable equipment space in a safe working area and for suitable electrical power, if required, at the POT. The space furnished shall be accessible to ASP personnel during normal working hours for installation and maintenance purposes. If necessary, ASC personnel will be available to work with ASP personnel.

11.3 *Pre-service Testing*

Each company is responsible for pre-service testing to ensure that their circuit segments have been installed correctly, prior to cooperative acceptance tests.

11.4 *Cooperative Acceptance Testing - Analog*

The ASC has the option of accepting the service with or without performing cooperative acceptance testing. Prior to the due date, the ASP will contact the ASC and advise when the SAS will be ready for turn up. If the ASC requests cooperative acceptance tests, the ASP will schedule a mutually agreeable date and time and coordinate all normal and additional acceptance testing (as specified on the order). Test equipment compatibility should be verified at this time. In the event that the ASC does not request cooperative testing, the ASP will perform their own testing and not test directly with the ASC.

Once acceptance testing has been completed, whether or not cooperative acceptance testing was performed, the trunk will be Made-Busy to prevent false seizures from affecting the switching machines. It will be necessary for the ASC to coordinate with the designated ASP (both ends of their overall service) for the removal of the Make Busy.

At the time of acceptance testing, the ASP personnel will not test directly with the ASC unless otherwise directed. Once the acceptance tests have been completed on the SAS, the ASP will "make-busy" the termination to prevent selection and false seizures from affecting the switching machines.

If the ASC is neither available nor ready to perform normal installation acceptance tests at the scheduled time and does not request the ASP personnel to reschedule such tests by the due date, the ASP will consider the order complete on the due date. Unless otherwise specified in local tariffs, normal acceptance tests are:

- 3-Tone Slope
- Loss

- DC Continuity

- Operational Signaling

- Balance (ERL-SRL)

- C-Message Noise

- C-Notched Noise

NOTE: See Figure 21.1 - Acceptance Testing Decision Chart

11.5 *Switched Digital Data Access Service (56Kbs, 64KBS, ISDN Primary & Basic Rate)*

The following test patterns can be used to perform cooperative testing when access is gained at two (2) points on the circuit. Each test unit transmits a known test pattern toward the other. The data received by each unit is analyzed. It can also be used to do loopback testing if a 108 Type Test Line or other manual DSO loopback functions are provided. The test device will attempt to frame on the received data and count bit and 1-second block error rates. Bit and 1-second block errors will be reported upon termination of the test and must be possible for intermediate results to be reported at specified intervals.

To mitigate inadvertent loopbacks, 64kb data services should be provisioned with loopback recognition timers. Where loopback recognition timers are an ordering option for such services, this option should be selected.

11.5.1 **Switched Digital Data Services Stress Test Patterns (56kbs, 64kbs, ISDN Primary & Basic Rates)**

Any of four repetitive patterns should be placed in the six-or seven-bit data field of the byte with the eighth bit set to one and may be applied as follows:

Table 11.1 - Pattern Sensitivity Test Criteria for 56/64 kbit/s[7]

Test	Pattern Length Bytes	Binary Representation (see notes 1 & 2)	Test Interval	# of test (see note 3)	ES Test Limit
S1	100 100	1111 1111 0000 0000	(see note 4)	1	0
S2	100 100	0111 1110 0000 0000	(see note 4)	1	0
S3	Continuous	0100 1100	(see note 4)	1	0
S4	Continuous	0000 0010	(see note 4)	1	0
S5 (see note 5)	(see note 5)	(see note 5)	(see note 4)	1	0

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[7] Table A.1 in ATIS-0100510, *Digital Services for Rates Up to and Including DS3-Specifications*

NOTES:

For 56 kbit/s service, these patterns will appear only in the customers' data bits.

All binary presentations are transmitted left to right.

One retest is allowed if the initial test fails.

3-minute intervals are currently used: longer intervals may be recommended by the service provider. If test intervals of 15 minutes or longer are used, the test procedures, intervals and limits given in 8.1.2 and 8.1.3 should be followed.

This test utilizes all the test patterns defined above and, and as an option, may be used in lieu of any or all of the tests S1 through S4 if available. S1 through S4 are run sequentially; a minimum pattern length of 200 bytes for S3 and S4 is suggested.

11.5.2 Switched Digital Data Services Acceptance/ Maintenance Requirements (56kbs, 64kbs, ISDN Primary & Basic Rates)

These test patterns, selected by the OS Application or tester, are transmitted in the test direction. Each byte is repeated according to customer data rate.

Table 11.2 -Test Limits and Objectives for 56/64kbit/s Service[8]

Parameter Limit For:	Short-duration Tests 15-minute stages						Long-duration Test 24 hour	
	ES			SES			ES	SES
	15 min	30 min	45 min	15 min	30 min	45 min	24 hour	24 hour
Access	0	≤ 2	≤ 3	0	0	≤ 2 (see note)	≤ 60	≤ 7
Transit	0	≤ 2	≤ 3	0	0	≤ 2 (see note)	≤ 60	≤ 16
End-to-End	0	≤ 2	≤ 4	0	0	≤ 2 (see note)	≤ 120	≤ 21
NOTE: Accept at 2 only if the cause of the SES is identified as an isolated event.								

11.6 *Additional Cooperative Acceptance Testing (ACAT)*

Time required to perform ACAT, such as additional installation transmission or signaling tests over and above those specified in normal installation acceptance testing, is considered additional and is billable to the ASC. .The ASC should be advised that additional charges would be billed for these tests. Additional acceptance test should be specified on its initial order to the ASP or be mutually agreed upon at time of installation. These additional acceptance tests may include:

- Dial Pulse Percent Break

- Others as specified in the Tariff

- Data Parameters:
    - o Envelope Delay Distortion
    - o Frequency Shift
    - o Impulse Noise
    - o Intermodulation Distortion
    - o Phase Jitter
    - o Signal to C-Notched Noise Ratio.

Completion of the order will not be contingent on these additional tests parameters being met, provided the required design criteria have been satisfied.

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[8] Table 5 in ATIS-0100510*, Digital Services for Rates Up to and Including DS3-Specifications.*

11.7 *Traffic Routing & Billing Acceptance Testing*

Many different traffic arrangements are available to the ASCs when ordering FG B, C, and D Switched Access Services (e.g. unique CIC Code arrangements; Service Class Screening). Traffic Routing Acceptance testing requirements vary accordingly. If either the ASP or ASC require Traffic Routing acceptance testing for those arrangements not covered by Clause 11.4, terms, conditions and procedures should be negotiated on an individual case basis.

Outlined below are guidelines associated with Call Through Testing to provide assurance for the appropriate routing and generation of billing records.

11.7.1 **ASC**

When establishing a new trunk group or engaging in a rearrangement of an existing trunk group, the ASC shall perform, at a minimum, a call through test to a number furnished by the ASP. The switch supporting the furnished telephone number shall provide answer supervision.

The ASC shall initiate test call(s) to ensure that correct AMA recording and routing occurs. The scheduling of this call(s) shall be negotiated by the interconnecting companies so that the ASP can validate that the correct AMA recording and routing has taken place for the trunk group under test. The validation results, or the acknowledgment that routing and recording is functioning, shall be provided to the ASP upon request.

11.7.2 **ASP**

When establishing a new trunk group or engaging in a rearrangement of an existing trunk group, the ASP shall perform a call through test at a minimum. The switch supporting the furnished telephone number used for testing purposes shall provide answer supervision.

The ASP, upon completion of the call through test(s), shall validate that this call(s) was recorded for billing purposes. In addition, the ASP shall ensure that the call is routed over the correct trunk group. The validation results or the acknowledgment that routing and recording is functioning shall be provided to the ASC upon request.

11.8 *Completions*

Upon acceptance of the SAS order by the ASC, the ASPC should record the name of the ASC representative accepting the order and the basis of the acceptance, for example:

- Cooperative Acceptance Testing criteria being satisfied
- Automatic tests, where available, being completed
- Without acceptance testing.

The ASP should report the order as completed and furnish all the required information to the ICSC or equivalent, including any additional labor charges.

11.9 *SAS Disconnects*

Prior to performing disconnect activity, the ASC or ASP should be contacted to coordinate disconnect activities. When the trunks are removed from service and translation messages entered, order tracking documents should be updated, and the ASC or ASP notified.

11.10 *SAS Rearrangements*

SAS rearrangements may include ASC and/or ASP changes in switching and/or facility assignments. When the rearrangement requires physical work by the ASP, the ASP shall contact the ASC to determine the extent of the required coordination. If, however, the rearrangement can be accomplished solely by the ASC, requests for trunk(s)

make-busy will be handled as specified in the Clause titled Trouble Detection Responsibilities. Requests for non-scheduled testing will be handled as specified in the Clause titled Additional Billing.

A sufficient time period should be agreed upon for all entities to complete rearrangement work and appropriate tests. Credit allowance rules will only apply when trunks are out of service for a duration, which exceeds this period due to ASP caused problems.

Upon completion of the rearrangement, the ASP and the ASC may perform cooperative tests to determine that the rearrangement meets service requirements.

11.11 *Coordinated Conversions*

Coordinated conversions are processes that may be used to facilitate changes requested by the ASC(s) that involves the reuse of a portion of the ASP provided equipment and/or facilities previously assigned. Coordinated conversions require the issuance and processing of related disconnect and connect orders, and coordination of these orders throughout the entire conversion process.

ASC(s) are expected to bear full responsibility for the overall coordination of the various Service Orders associated with the conversion activities involved with its end-to-end service.

Where a coordinated conversion involves a change of service from one ASC to another, the new ASC will establish and coordinate conversion activities with the ASP, former ASC and End User when required. Those activities will include, but are not limited to:

- completion testing and notification
- requests for continuation of service
- conversion timing
- trunk release
- conversion sequence

Every effort must be made jointly by the new ASC and the ASP to successfully complete the conversion. If the new ASC encounters difficulties in activating end-to-end service following acceptance testing on the ASP provided facilities, the new ASC may negotiate and coordinate continuation of the use of the previous arrangement with the ASP and former ASC, and the restoral procedure should commence.

Since continuation of the former ASC service does not automatically defer the due date of the disconnect order, the new ASC must request the former ASC to contact the ASP ICSC, or equivalent, to request a due date change in order to prevent the disconnect of the former ASC service. This must take place prior to the disconnect due date.

It is the responsibility of the ASP to inform the new ASC that all work involved in restoring the former ASC service and subsequent cut-over activities of the new ASC facilities is above and beyond that required for normal coordinated conversion cutovers. This work may result in appropriate additional labor charges.

11.12 *Glare*

The ASC has the responsibility to determine Glare Master based on the following alternatives:

- ASC as Glare Master (default)
- ASP as Glare Master
- TCIC (Trunk Circuit Identification Code) where interconnecting companies' technology exists:
  - The ASC is Glare Master for odd-numbered circuits (SS7 only)
  - The ASP is Glare Master for the even-numbered circuits (SS7 only)

Implementation of hunting methodology to mitigate the occurrence of Glare should take into account differing options, their compatibility and efficiency and should be based on local negations. Where interconnected companies' technology exists, calls encountering subsequent glare should be route advanced.

12 Switched Access Service Maintenance

12.1 *Routine Maintenance*

Routine Maintenance is defined as preventive maintenance or work activities that, under normal circumstances, do not adversely affect interconnected networks. Where possible, routine maintenance should occur during maintenance windows (e.g., off-normal hours, 11:00 PM-5:00 AM).

12.2 *Potential Service Affecting Activities*

Other maintenance and scheduled work activities that can adversely affect interconnected networks should be performed during hours of minimum traffic (e.g., during an 11:00 PM to 5:00 AM "maintenance window") so that any inadvertent failure impacts the least number of customers.

At a minimum, high risk, activities that could potentially affect service, such as growth procedures and generic issue changes, should be scheduled during weekend and off-hours. The overall methods, procedures and scheduling of these work activities should be reviewed by a second-tier maintenance organization.

The activities that may affect other interconnected networks must be coordinated. See ATIS-0300011, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part III, Installation and Maintenance Responsibilities for SS7 Links and Trunks*.

12.3 *Deferred Service Restoration*

If customer service is impacted and total restoration would adversely affect the network, efforts will be devoted to re-establishing at least a minimum level of service as soon as possible. Total restoration will be cooperatively scheduled no sooner than the next maintenance window period.

12.4 *Scheduled & Nonscheduled Testing*

Switched access in-service testing is comprised of two categories of tests; scheduled and nonscheduled.

Scheduled tests are those tests performed by the ASP/ASC on a regular basis, e.g., monthly, quarterly. Scheduled tests may be done on an automatic basis [no ASP or ASC technician(s) involved] or on a cooperative basis [ASP technician(s) involved at ASP office(s) and ASC technician(s) involved at the ASC location].

Nonscheduled testing of SAS is when the ASC determines a need to test its services and contacts the ASP to perform (billable) tests in one of the following manners:

- The ASP performs automatic testing using ASC provided remote office test line and associated responder access, or their functional equivalent.

- The ASP performs cooperative testing utilizing a technician at its office(s) and the ASC provides a technician at its location, with suitable test equipment to perform the required tests.

The ASC may specify that testing include loss, noise, slope, envelope delay, etc.

Switch-to-Switch testing of SAS may be necessary to isolate troubles or to verify their clearance. It is expected that the use of test lines will minimize the need for far end support.

When the ASP performs automatic scheduled testing, a monthly test report (at no extra cost) will be provided, indicating the number of trunks tested and the test results. When cooperative scheduled testing is used, the ASP will provide the ASC with a quarterly report (at no extra cost) indicating the number of trunks tested and the test results.

12.5 *Local/Tandem Pad Operation*

When testing trunks that terminate into offices with local/tandem capabilities, the proper switch pad operation must be considered. The ASP should verify proper switch pad operation, or the ASP will provide the ASC with test line numbers for local/tandem operation, allowing the ASC to verify proper switch pad operation.

12.6 *Test Lines*

Test line information is contained in the ATIS-0300024, *Next Generation Interconnection Interoperability (NGIIF) Reference Document: Part V, Test Line Guidelines*.

12.7 *Lineside (Call Through/Routing) Testing*

When it is necessary for an ASP or end user to perform a lineside/call through test, the recommended number to call is 1-700-555-4141 for interLATA pre-subscription validation or (HNPA) 700-4141 for intraLATA toll pre-subscription validation and (101XXXX)-1-700-555-4141 for alternate carrier validation. These calls will not impact end-user billing.

12.8 *Testing through an Access Tandem*

Testing from an End Office through an Access Tandem to an ASC may be impossible due to Access Tandem test line number screening. It is recommended that the ASCs provide access to terminating test lines via the 700 Service Access Code (SAC), where available (e.g. 1-700-958-1102 or 1-700-959-1020).

13 Trouble Detection Responsibilities

13.1 *Inoperative & Impaired Circuits*

When ASP or ASC personnel become aware of an inoperative trunk, they will ensure the trunk is removed from service and cannot be accessed. The ASP or ASC detecting the inoperative condition will then sectionalize and repair or refer the trouble.

When ASP or ASC personnel become aware of an impaired trunk, the removal from service is to be determined by the ASC. When detected by the ASP, the ASC will be notified of the condition and will determine action and timing desired. If maintenance is to be delayed, a mutually agreed upon time should be negotiated for removal and sectionalization.

13.2 *Synchronization*

Improper synchronization can result in circuit impairments that should be investigated, and synchronization problems corrected. Problems that cannot be resolved should be referred to the appropriate Synchronization Coordinator.

If the ASC/ASP has its own primary frequency standard that meets the ITU standard for national networks (Recommendation ITU-T G.811, Timing Characteristics of Primary Reference Clocks, and Recommendation ITU-T G.822, Controlled Slip Rate Objectives on an International Digital Connection.), synchronization of the digital SS7 link(s) will be by the plesiochronous method of operation. If either network does not conform to the ITU standard, the non-conforming company will use loop timing to accept SS7 link(s) timing from the conforming company. When the link interface is a DSO-A interface, the interface must be plesiochronous or timed to the same source as the facility.

13.3 *Repair Verification Tests*

Cooperative repair verification tests will be performed when deemed necessary or when requested. The ASP will not normally dispatch an employee to make verification tests when a trouble has been cleared without dispatching; however, there may be cases when dispatch is necessary.

When repair verification tests identify a trouble that was masked by the original trouble, clearance activity will continue until the service is restored.

13.4 *Restoral Prioritization*

Trunk trouble reports will normally be given equal restoration priority by the ASP. When blockage/overflow conditions exist, the ASP will determine restoral priority by analyzing trouble reports and information from both internal and external sources, including overflow/blockage severity statistics (i.e., weighted percentage overflow).

The restoration priority shall be reassessed on a daily basis as needed as well as in emergency situations.

13.5 *Normal Make-Busy Procedure for SAS*

Requests for make-busy may be categorized as follows:

- Single trunk

- Trunk group (facility failure)

- Trunk group (maintenance)

Upon receipt of any request for make-busy, a trouble report will be generated. The trouble report shall be used as an informational report, and a trouble report number will be assigned for tracking purposes.

13.5.1 **Single Trunk Make-Busy**

When a trunk make busy is requested, the following actions are required:

- Contact the responsible interconnected company

- Provide the necessary information

- Indicate the required action(s)

- Determine the status of the trunk (idle or busy)

- Make the trunk busy

- Keep signaling enabled if the trunk was idle

- Disable signaling if the trunk was seized until the trunk becomes idle

- Complete all testing and/or repairs and coordinate release of make busy.

If an incoming trunk problem is encountered, the affected company has the right to demand that the trunk be made busy immediately.

When a trunk has been made-busy, either interconnected company could request a release to perform maintenance testing, at a mutually agreed time.

13.5.2 **Trunk Group Make-Busy (Facility Failure)**

When a facility failure is detected, the following actions are required:

- Contact the responsible interconnected company

- Advise the interconnected company of the detected failure

- Request the interconnected company for a make-busy

- Make trunk group(s) busy

- Correct the problem

- Complete all testing and/or repairs and coordinate release of make busy

13.5.3 Trunk Group Make-Busy (Maintenance)

When a request for a trunk group(s) make-busy is made for maintenance purposes, the following actions are required:

- Contact the interconnected company to schedule the activity

- Make trunk group(s) busy

- Perform maintenance activities

- Complete all testing and/or repairs and coordinate release of make busy

13.6 *Expedited Make-Busy Procedure*

An ASC or ASP must be able to promptly remove trunks from service. In order to accomplish this, the ASC or ASP may request that the affected trunk(s) be made-busy on an expedited basis to prevent selection by the other switch. The following actions are required:

- Provide trunk identification numbers(s)

- Generate informational report

- State reason for request

- Make the trunk(s) busy immediately

- Perform work operations

- Coordinate testing and the release of trunk(s) for service

    NOTE: If an expedited make-busy requires a dispatch, the request will be handled as soon as possible.

If a trouble is identified in the interconnected company's network, a trouble report will be generated referencing the expedited make-busy request report number. The trouble report will be handled in the normal manner.

13.7 *Requests for Circuit Trace*

It may become necessary to request a hold and trace on a trunk in order to resolve a difficult trouble that cannot be isolated by conventional testing methods. This request should handle on an expedited basis. When an end user is involved, the ASP will hold the trunk and release the end user.

Sectionalization and repair should take place once the trace has been completed.

13.8 *Emergency Call Tracing*

Emergency Call Tracing is directed toward identifying the source of an in-progress call for urgent physical assistance. These traces may require both ASC and ASP involvement. An ASC and/or ASP receiving such a request will initiate the trace on an expedited basis, recognizing that human life may be at stake. Information relative to these traces will be handled according to local guidelines.

The originator (ASC or ASP) of an emergency call trace assumes responsibility of the validity of a trace request and also is the controlling entity. When an emergency trace is passed from one company to another, the appropriate information (e.g., 41 character Common Language® Circuit Identification (CLCI™) Code or equivalent at the POT) should be exchanged in order to continue the trace. The originator and any interconnected company involved may elect to remain online throughout the trace. After completion of the trace, the trace information will be provided to the appropriate parties. The security of the trace information will be handled according to local guidelines.

Where on-line call traces cannot be completed, trace information may be retrieved from AMA records immediately after the call is disconnected.

13.9 *Killer Trunk Identification*

An Automatic Trunk Test (e.g., Automatic Progression Trunk Testing) should be performed on all trunk groups where switches with test line access have the ability to perform operational tests (i.e., 102 milliwatt or 103 synchronous) on a recurring basis. The trunks that fail should be removed from service and repaired per local procedures.

ASPs and/or ASCs must make compatible test line access available per previous NGIIF agreements and TR-NPL-000258, Compatibility Information for FG D Switched Access Service.

Some ASCs and/or ASPs have the ability to monitor short holding times on a per trunk real time basis. A trunk experiencing consistent short holding times associated with a high attempt rate may indicate a killer trunk condition. Killer trunks may be caused by a number of operational/transmission impairments such as low levels, one-way transmission, noise, echo, no answer supervision, etc. Killer trunks should be investigated to determine the reason for the short holding times. A talk-listen test should always be performed in the investigation/resolution of killer trunks.

14 Trouble Reporting Procedures for FGs B, C, & D

The NGIIF recommends immediate reporting of non-circuit-specific troubles via telephone in order to facilitate the rapid restoral of service.

Trouble reporting procedures can be divided into the following categories:

- Chronic Trunk Failures

- Switched Access Network Trouble

- Call Setup Time Trouble Reporting and Sectionalization

The reporting entity is responsible for performing all necessary tests to determine the nature of the trouble. If the trouble is found to be in the other entity, the ASC and/or ASP will report the trouble to the designated trouble reporting office.

14.1 *Chronic Trunk Failures*

Investigation of chronic trunk failures will involve exchange of information relative to the recurring failures. A detailed investigation should be completed to determine the cause of the trouble condition. This activity may involve cooperative testing and should be handled as an Impaired Trunk trouble report.

14.2 *Switched Access Network Trouble*

The following information should be mutually exchanged between the ASCs and ASPs:

- ASP 41-character Common Language Circuit Identification (CLCI) Code at the POT or equivalent. Where this is not available, local alternatives should be established and used

- Date and time of reported trouble

- Nature of trouble

- Any other information that may be of assistance (e.g., what tests have been made)

- The name or initials of the tester(s) referring and receiving the trouble

- Trouble report number or equivalent

Switched access network trouble reports will include two basic categories for FGs B, C, and D.

- Trunk specific troubles (i.e.: no wink on trunk number 4) will be reported to the designated trouble reporting center.

- The ASCs/ASPs will be provided with specified contact number(s) for the designated trouble reporting center.

- Non-trunk specific troubles (e.g., noisy when calling area code XXX) will be reported to NSC or the designated trouble reporting center.

- The ASCs and/or ASPs will be provided with a contact NSC or the designated trouble reporting center number.

14.3 *Call Setup Time Trouble Reporting & Sectionalization*

End user reported troubles of excessive call setup time, for interLATA FG-D originating and/or interLATA FG B/D terminating will be analyzed by the ASC. If the ASP receives a call setup time trouble from an end user for an interLATA call(s), the end user will be referred to the ASC.

> NOTE: See Figure 21.2- Call Setup Time (CST) Testing Methodology

Upon receiving a call setup time trouble report, the ASC will obtain specific information from the end user to aid in the trouble analysis process. The dialogue should include, but is not limited to, the following questions:

- Type of Customer Premises Equipment (CPE), etc.

- Type of access (e.g., 101XXXX, DDD)

- Directionality of the call(s) on which trouble was reported

- Calling and called telephone number

- Time of day the reported problem is experienced

- End user's estimation of call setup time

- Any other pertinent information which can be supplied by the end user.

Contributing factors to call setup time troubles could include:

- Manual/auto dialing

- Customer call forwarding options

- PBX equipment

- Dial repeating tie lines.

The ASC is responsible for sectionalizing the call setup time trouble to the:

- Terminating CPE

- Terminating ASP

- ASC network

- Originating ASP

- Originating CPE

Should the sectionalization/analysis require that a test call(s) be made, it is recommended that the test call be made to the 102 type test line. Testing to a 105 type test line may distort the intended call setup time results.

Originating ASP and/or ASC test calls to the ASC's first point of switching should be placed to 700-958-1102 or 700-959-1020 as appropriate (See Figure 21.3 or 21.4).

Access performance limits have been established based on the information contained in the Local Switching System Generic Requirements (LSSGR), and other performance criteria, to aid in the isolation of any suspected trouble

associated with call setup time. The ASC should specifically identify any parameters that have been exceeded when referring the trouble.

The ASP will accept a trouble report from the ASC when sectionalized to the ASP's network. The trouble report should include, but is not be limited to, the following information:

- ASC determined ASP call setup time

- Call direction

- FG B-D

- Direct versus tandem routing

- End Office CLLI™ Code

- Test line telephone number used

Upon receipt of the trouble report from the ASC, the ASP will initiate their own analysis and treat the report as an impaired trunk report. This analysis will include the following components as necessary:

- Pattern analysis - process of analyzing known information to determine particular scenarios where certain events are repeated.

- Translations verification, particularly trunk group routing, timing, and overlap outpulsing operation.

- Placing of test calls including those identified in Figures 21.3 and 21.4. A description of those tests follows:

  o The ASP places a call from the line side of the originating end office to a 102 test line in the ASC Switch (first point of switching in the ASC Network). It is recommended that dialing 700-958-1102 or 700-959-1020 as appropriate to access the ASC 102 test line.

  NOTE: See Call Setup Time: Figure 21.3 and Clause 21.2.1, Originating Test Procedure.

  o The ASC places a call from a test access point in the last point of switching in the ASC network to the 102 test line in the terminating ASP end office. Terminating ASC-ASP test calls should be placed to 7-digit directory number of the end office 102 test line.

  NOTE: See Call Setup Time: Figure 21.4 and Clause 21.2.2, Terminating Test Procedures.

If the ASP determines there is a problem in their network, they will exercise diligence in repairing the out-of-limits parameters. If the trouble cannot be found in the ASP's network, this information will be communicated to the ASC. If the ASC and ASP agree there appears to be no call setup time problem, the ASC will discuss this with the end user. If the end user is still encountering a call setup time trouble, further analysis/joint testing may be conducted between the ASC and ASP.

14.4 *Trouble Clearance Reporting*

14.4.1 Access Provider/Access Customer Trouble

When trouble reports are being closed between an ASP/ASC, whether they are using a mechanized system or a verbal notification, the disposition should be furnished by the company clearing the trouble and the following information shall be provided:

- Circuit ID/telephone number

- Trouble report number (ASC/ASP number)

- Name or initials of person closing out trouble

- Nature of the trouble found (e.g., bad cable)

- Resolution details (e.g., cut over to new cable)

- ASC will inform ASP if this trouble is measured

- Date and time trouble cleared

- Date and time trouble referred from the ASC to the ASP

- Date and time trouble report closed

- No access time (the period of time that the service is unavailable for maintenance activities

- Service charge information, if applicable

- Status of trunk(s) (working or made busy)

When there is a disagreement on the nature of the trouble found, the parties engaged in the dispute shall document their respective positions, the names of the individuals engaged in the dispute for audit purposes and close the trouble report. Escalations shall be in accordance with identified procedures if necessary.

When a trouble report has been cleared and either the ASP or ASC requests to change the nature of the trouble found, such changes should be negotiated.

14.5 *Escalation*

Escalation is a means of bringing problems to the attention of individuals who have responsibility and authority to expedite corrective action.

When either the ASC or the ASP experiences installation or maintenance difficulties, and progress toward resolution is not satisfactory, either company may contact the other company for escalation to a higher level of management.

The rate at which a problem is escalated through successive levels of management should allow each level a reasonable period of time to resolve the problem before it is presented to the next level for action.

Escalation procedures and contacts are based on local negotiations.

14.6 *Trouble Report Status*

The ASC and/or ASP receiving the initial trouble referral shall provide a status on the disposition of that referral based on local agreements negotiated at the time of referral or requested on an individual case basis.

Status reports shall be provided based on the following events:

- When the trouble has been isolated

- When there is a significant change in the status of the trouble

- When the negotiated status interval has expired

When mechanized trouble notification is utilized, the receiving company shall update their system based on paragraphs 1 and 2. In addition, it shall be the responsibility of the company issuing the trouble report to poll the mechanized system for the status of the trouble report.

15 Additional Billing

Additional billing may be applied in the following situations:

- Overtime for installation and repair

- Additional Cooperative Acceptance Testing

- Non-scheduled testing

- Maintenance of service charge

- Stand-by time

- Other labor.

Accurate records regarding additional billing must be forwarded to the ICSC or equivalent. A positive means of identifying ASP personnel engaged in these work activities must be established and used. It is the responsibility of the ASP to ascertain when additional billing applies and to ascertain the name of the ASC person who authorizing the additional billing.

Overtime is the time spent by ASP personnel doing the installation and repair functions outside their scheduled working hours.

Overtime installation and repair charges are computed on a fixed rate per half-hour fraction basis, at a rate dependent on when the work was done, as follows:

- Outside scheduled hours but on a scheduled day.

- Outside a scheduled day

15.1 *Billable Overtime Installation & Repair*

Request for billable overtime should be made by the ASC.

When ASP personnel are required to work on a non-scheduled basis, the billable overtime hours begin at the start time requested by the ASC. Billable overtime hours end when the job is completed, or the ASP personnel have been released by the ASC. Only those hours worked outside the normally scheduled hours are billable at the overtime rate. This includes travel time to and from a home or work location.

In the event ASP personnel are called out for ASC installation or repair work, the normal travel time from home, the work time, and the normal travel time back home are billable. A call out of an ASP employee is subject to a minimum charge of 4 hours.

15.2 *Additional Cooperative Acceptance Testing*

Time required to perform ACAT, such as additional installation transmission or signaling tests over and above those specified in normal installation acceptance testing, is considered additional and is billable to the ASC.

15.3 *Non-Scheduled Testing*

Non-scheduled testing occurs when an ASC determines a need to test its services and contacts the ASP to perform (billable) tests (e.g. loss, noise, envelope delay).

15.4 *Maintenance of Service Charge*

When an ASC reports a trouble to the ASP and requests that the ASP clear the trouble, the ASC shall be responsible for payment of a Maintenance Service Charge if dispatch to the POT is required and the trouble is determined not to be in the ASP equipment.

When a trouble is subsequently found in the ASP equipment or facilities, where a Maintenance Service Charge has been applied, the charge will be canceled or adjusted.

15.5 *Stand-By Time*

Stand-By Time authorized by the ASC may be billable and is predicated on local negotiated agreements and shall be documented by both the ASP and the ASC.

15.6 *Other Labor*

As agreed to by the ASP and the ASC, other labor is anything not identified above.

16 5XX/8YY/9YY NXX Services

This Clause describes the general responsibilities for ASCs, Transport Providers (TPs), and Designated Agents (DAs). It also provides guidelines for installation, and trouble/referral for 5XX/8YY/9YY NXX access services. For trouble reporting contacts, reference the ATIS Service Provider Contact Directory (SPCD).[9]

16.1 *Responsibilities*

The ASC, Transport Provider (TP), or Designated Agent (DA) has the overall coordination, installation and maintenance responsibilities for its 5XX/8YY/ NXX Subscriber's end-to-end service. The ASC, TP, or DA will provide to the ASP:

- A test number for each new NXX code when placing the order for service. It is recommended that the test number will be 5XX/8YY-NXX-4141

- Identification of an announcement response on the terminating test number

- Personnel to work with the ASP technicians on cases of trouble during service turn-up

- Notification of any changes affecting the service requested, including the due date

- Authorization to bill Additional labor for any additional testing or expedite requests

The ASC, TP, or DA is responsible for providing a trouble reporting number to its 5XX/8YY/9YY NXX Subscriber.

8YY-NXX Service Providers will transport disconnect referral messages across the Network, as appropriate for the disconnect service request.

The ASP is responsible for the installation, testing and maintenance of the 5XX/8YY/9YY NXX service within it operating area, in accordance with local tariffs. In addition, the ASP will work cooperatively with the 5XX/8YY/9YY NXX ASC, TP, or DA during the acceptance and maintenance of the access services.

16.2 *Installation*

When 5XX/8YY/9YY NXXs are opened (new translations installed) by ASPs, call through testing should be performed. It is recommended that the implementation of Test Line(s), as described in ATIS-0300206.2001(S2016), *Digital Exchanges and PBXs - Digital Circuit Loopback Test Line with N [infinity] DS0 Capability*, be instituted at offices equipped for Switched Digital Services. The plant test date (PTD) is the date by which the ASP, ASC, TP, or DA will complete all work necessary to perform the required tests. The intent of these tests is to ensure that the code being tested is routed to the correct ASC, TP, or DA on the correct Trunk Group and that appropriate billing takes place:

- From an Equal Access End Office - for each new NXX installed the ASP shall place a minimum of one test call to the new ASC 5XX/8YY/9YY NXX-XXXX test number. This number should provide an announcement identifying the ASC, TP, or DA.

- From a Non-Conforming End Office - for offices subtending an Access Tandem that performs 5XX, 8YY or 9YY NXX 6 digit translations, one Non-Conforming End Office will have a call through test performed to the new ASC 5XX, 8YY, or 9YY-NXX test number by the ASP.

- If either the ASC, TP or DA requires 5XX/8YY/9YY NXX acceptance testing other than described above, terms conditions and procedures should be negotiated on an individual case basis. The ASP will notify the ASC, TP or DA of overall work completion by the due date. In non-subscribed areas, the ASP will route 5XX/8YY/9YY NXX calls to a vacant code announcement.

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[9] The SPCD and instructions for gaining access to the Directory can be accessed on ATIS's website: http://www.atis.org/01_committ_forums/ngiif/contact-directories/.

In the case of non-conforming office(s) utilizing the 00Y codes, the access tandem should pass on the dialed digits to the interconnected carriers.

16.3 *Trouble Reporting/Referral*

For trouble reporting contacts, reference the ATIS SPCD. The ASC, TP, or DA is responsible for providing a trouble reporting number to its 5XX/8YY/9YY NXX Subscriber.

It is expected that the 5XX/8YY/9YY NXX Subscriber will report troubles to the ASC, TP, or DA.

The entity receiving the original trouble report from the subscriber is responsible for performing all necessary tests to determine the nature of the trouble. If the trouble is found not to be in the receiving entities network, the trouble will be referred to the appropriate designated trouble reporting center.

When a report is received by the ASP from the End User and dialog or testing determines that there may be a trouble external to the ASP's network, the ASP should refer the End User to the trouble reporting number listed in the 5XX/8YY/9YY NXX lookup table.

If the End User experiences difficulty in reaching the appropriate ASC, TP, or DA trouble reporting number, the ASP will accept the report and refer it to the ASC, TP or DA per local agreements.

If the ASP operator receives a call from the End User experiencing difficulty in reaching a 5XX/8YY/9YY NXX number, assistance may be offered. This may include the operator attempting to complete the call for the End User, suggesting the End User contact 800 Directory Assistance by calling 800-555-1212 (only 8YY troubles) or transferring the call to the ASP's Repair Service Center to report a case of trouble.

The ASC, TP, or DA will sectionalize the trouble. If the trouble is sectionalized to the ASP's network, the ASC, TP, or DA will refer the trouble to the appropriate ASP entity.

17 Toll-Free Database Services

This Clause provides guidance for RESP ORGs and ASCs/ASPs regarding Toll-Free Database Services trouble reporting, referrals, and closure. In addition, this Clause addresses Disaster Recovery Plans for SMS/800, SCPs/NCPs, and routine maintenance for SEP power sources.

17.1 *Responsible Organization (Resp Org)*

The Resp Org is the entity identified by the Toll-Free subscriber, or the subscribers' agent, that assumes the duty of managing the appropriate records in 800 Database Service Management Systems (SMS/800). Resp Org management and administration shall include data entry, record change, trouble acceptance, referral, and/or clearance of Toll-Free services. It is recommended that any entity performing the above function comply with this and other Toll-Free database services associated documents.

The Resp Org is responsible for:

- Providing a contact number that is readily accessible 24 hours a day, 7 days a week

- Providing trained personnel

- Overall coordination of testing of its Toll-Free database services

- Acting as the Toll-Free Subscriber's contact in all matters involving provisioning and maintenance of Toll-Free database services

- Accepting all trouble reports pertaining to their Toll-Free services

- Sectionalizing trouble to determine if the reported trouble is in its translations or facilities, or in another provider's network

- Testing cooperatively, if necessary, with other providers to further identify and clear a trouble when the trouble has been sectionalized to another provider's network

- Keeping the Toll-Free Subscriber advised of the status of trouble clearance

- Maintaining accurate repair records

Each Toll-Free Service Provider should provide Toll-Free database test numbers within the reserved range (Toll-Free NPA-250-0001/250-1499). These test numbers shall be obtained through the SMS/800 Help Desk at 888-SMS-3300.

17.2 *Treatment*

If a service provider has not provided trunking from a particular switch, the call shall be routed to a vacant code announcement.

17.3 *Trouble Reporting*

These are the recommended procedures for ASPs and ASCs to follow for trouble reporting:

- It has been recognized that the existing trouble handling procedure for Toll-Free database services failures between companies is satisfactory. However, the current procedures for referral of trouble among ASPs and/or ASCs need to be modified to ensure the appropriate information is exchanged for resolution of troubles in a timely manner. It is recommended that the following guidelines be used when referring or reporting Toll-Free database trouble between ASPs and ASCs.

- RESP ORG contact information for trouble reporting handling is obtainable through the SMS/800 Database System.

17.4 *Disaster Recovery Plans*

All SCP Owner/Operators should have Disaster Recovery Plans in place within their respective companies. The administrative organization for the SMS/800 system has a Disaster Recovery Plan in place. However, it has been determined that these plans are proprietary and will not be made available in public forums.

17.5 *Routine Maintenance for Service End Point (SEP) Power Sources*

Service Control Point (SCP)/Network Control Point (NCP) Owner/Operators should have SCP/NCP power source maintenance routines (e.g., uninterruptable power supplies, batteries, emergency generators, and loss of commercial power) in place and should perform based on their respective requirements.

18 Toll-Free Database Services-Trouble Handling Procedures

End users who experience trouble completing Toll-Free calls will most likely report the trouble to the following:

- Local repair bureau (ASP)

- Interexchange carrier (ASC)

- An operator

- The Resp Org- Entity identified by the Toll-Free Subscriber's agent who assumes the duty of managing the appropriate records in 800 Database Service Management Systems (SMS/800)

Written procedures using these guidelines should take into account the following requirements:

- The ability to identify a Toll-Free originating call as an IntraLATA/InterLATA call

- The ability to identify the Resp Org

- Information and methods to pass information to/from the ASP/ASC/Resp Org

- The ability to receive the trouble report on a 24 hour per day, 7 days a week basis

- Tracking and reporting of the trouble report and notifying the end user as to the disposition of their report

18.1 *Trouble Report*

18.1.1 **Trouble Report - NON-SMS Access (e.g., Resellers)**

- Entities receiving trouble reports for Toll-Free calls need to establish agreements to acquire information from the SMS/800 Database

- Entities receiving trouble reports should contact their SMS agent

18.1.2 **Trouble Report - SMS Access**

The entity receiving the trouble report should proceed as follows:

- Acquire the Toll-Free number dialed

- If not the appropriate Resp Org, identify the appropriate Resp Org or its trouble agent and refer/hand-off the reporting customer to the appropriate Resp Org

- If the Resp Org, or trouble reporting agent obtain all trouble reporting information, including the originating NPA-NXX-XXXX of the Toll-Free database call, and date and time of the failure

18.2 *Trouble Referral*

18.2.1 **Resp Org Responsibilities**

When referring troubles, the following information will be passed to the receiving entity:

- Trouble report number

- Originating telephone number

- Dialed number

- Time and date call was made

- Resp Org ID, contact name and telephone number

If required, the following carrier specific information should be passed to the receiving entity:

- Area of service

- CIC(s)/LATA routing at date/time of call

- Vertical features enabled

- POTS termination number

The Resp Org is responsible for the following activities:

- Coordinate repair activities
  - Parallel trouble referral to the ASP and/or ASC will only occur when Percent Allocation is used

- Status shall be provided based on locally negotiated agreements

- Final clearance and closure of customer troubles

- Escalations when necessary

Escalations of customer troubles will be based on locally negotiated agreements. The Resp Org making the escalation should specify to the level of severity to the receiving company. The following matrix is provided to determine the severity of the situation/trouble condition.

18.2.2 Severity Level Matrix

Severity   Description

S1-M1   Total out-of-service condition on all carriers.

M2   Total out-of-service condition on one carrier.

M3   Partial out-of-service. Possible problem with multi-carrier distribution.

LEGEND: M = Multiple Carrier

S = Single Carrier

Trouble Report handling should be prioritized according to severity level matrix.

18.3 *Trouble Closure*

The following information should be provided when closing out a trouble report:

- Circuit ID/telephone number

- Trouble ticket number (ASC and/or ASP number)

- The nature of the trouble (e.g., bad cable)

- Resolution details (e.g., cut over to new cable)

- ASC will inform ASP if this trouble is measured

- Date and time trouble cleared

- Date and time trouble referral from the ASC to the ASP

- Date and time trouble report closed

- No access time (the period of time that the service is unavailable for maintenance activities

- If trouble report results in a service charge, the ASP will provide this information to the ASC

When there is a disagreement on the disposition, the parties engaged in the dispute shall document their respective positions and the names of the individuals engaged in the dispute for audit purposes. Escalations, if necessary, shall be based on locally negotiated agreements.

If after a trouble has been cleared and either the ASP or ASC wishes to change the disposition, such changes shall be negotiated.

19 Industry Inter-Company ABS/LIDB Trouble Reporting

19.1 *Scope*

Recognizing that ABS (Alternate Billing Service) and ABS validation have been a part of the telecommunications industry for many years, this process describes trouble reporting procedures needed specifically for ABS/LIDB (Line Information Database) service in an interconnected SS7 (Signaling System Seven)/LIDB network environment. This document does not cover trouble processes already defined for link and trunk problems. This document specifically covers routing/data problems pertaining to ABS/LIDB service.

LIDB database related problems, and customer perceived problems with billing restrictions are described in this procedure, but the primary purpose is in identifying, reporting, and resolving network routing errors, node

translations, and outages. The process of ABS/LIDB network trouble identification requires an understanding of customer perceived problems, whether they are network-related or database-related.

Some problems encountered by customers stem from options made by a specific company in their OSSs (Operator Service Systems); while these problems are neither database nor network related, there may be difficulties identifying the exact trouble, and the customer still perceives a problem.

An industry ABS/LIDB trouble reporting process can be broken down into the following major categories:

- Trouble Identification

- Trouble Reporting

- Trouble Resolution

19.2 *Background*

Alternate Billing Service is the name given to a group of billing options that describes how a customer can choose to bill a call to other than the originating number (this does not include "Toll-Free" service). These billing options include Calling Card, Collect, and Bill to Third. Collect and Bill to Third are also collectively called Billed Number Screening (BNS). The telecommunication networks are designed to validate the billing number each time a call is attempted to check the validity of the billing number and to keep track of queries to monitor for potential fraud.

LIDBs are the databases that contain all the working line numbers for a company and specific information regarding line numbers including Calling Card PINs (Personal Identification Numbers). Most LECs that provide dial tone and allow Collect and Bill to Third to those line numbers have made arrangements for those line numbers to be housed in a LIDB. The LIDB may be owned and maintained by the LEC, or the LEC may contract with a LIDB owner for LIDB service. Line number based Calling Cards, and Special Billing Number Calling Cards issued by the LEC are also maintained in a LIDB.

In order for a transporting carrier, either an exchange carrier or an interexchange carrier, to validate an end user's (customer) billing number, the transporting carrier has to determine the appropriate LIDB to send the validation query. iconectiv administers the LIDB Access Support System (LASS, formerly named RDBS/ABS), that has all Billing Number Groups (BNG, NPA-NXX & RAO-0/1XX format) identified and the corresponding LIDB identifier. The output report of the LASS is the LIDB Access Routing Guide (LARG) to which carriers can subscribe. This monthly report provides the transporting carrier with basic BNG information needed to direct an ABS query to the correct LIDB for validation. Other information for ABS validation is required to access the LIDBs. This data (e.g., originating Point Codes) is normally provided with interconnection questionnaires or sales ordering documents.

The LARG report also provides contact information for each LIDB's BNG coordinator, and SNCC (Signaling Network Control Center), or equivalent, for information and trouble resolution.

19.3 *Trouble Identification*

ABS validation problems will appear in several ways. End users (customers) will report trouble to the operator serving the phone from which they are initiating an ABS call. In addition, they may also report trouble to their billing service provider (usually their business office) or to a number printed on the back of their Calling Card. The customer may call the local Repair Service serving the phone from which they are initiating an ABS call. Companies should use local practices to refer these customer-reported troubles. This may result in the customer's billing number service provider initiating a trouble report back to the company attempting to validate the billing number.

Other indicators of trouble may be network generated. For example, STPs (Signaling Transfer Points) may generate GTT (Global Title Translation) failure reports when an accessing network incorrectly routes ABS queries. The STP owner/operator experiencing the GTT failure may need to research the failing BNG to ensure correct translations. Depending on the volume of GTT failures, the STP owner/operator may want to inform the accessing company of the incorrectly routed query. STPs or SCPs (Service Control Points) may not recognize Originating Point Code (OPC) or Calling Party Address information in the query.

OSSs may generate reports regarding ABS validation queries and query responses. For example, excessive amounts of time-outs (ABS queries with no response or late response to the OSS) may indicate GTT problems in the home or distant STP. Time-outs may also indicate other network problems (e.g., links, nodes, and major outages).

ABS validation problems can be identified by the following reporting mechanisms:

- LIDB

- OSS reports

- SS7 network - STP/SCP/Internetwork Transport Provider (Hub) reports

- LASS/LARG data error reports

19.3.1 **LIDB Problems**

LIDB problems are normally errors in the database, or customer related problems regarding billing number functionality. Examples of database errors include:

- Working line number missing (missing customer record)

- Incorrect Toll Billing Exception (TBE) against line number

- Incorrect/missing PIN

- PIN/service denied in error

Examples of customer related errors include:

- Customer doesn't remember PIN

- Customer has incorrect PIN

- Customer doesn't know about TBE (e.g., customer calling collect when not authorized)

- PIN/service denied without customer's knowledge - problems with account, suspected fraud, etc.

19.3.2 **LIDB Trouble Referrals**

In the event of suspected database errors, or customer related problems, customers should be referred to either (1) the card issuing service provider, or (2) the billing number service provider (Collect, Bill to Third type calls), or companies may use local practices to handle these customer-reported troubles. However, it is recommended that customers experiencing validation problems should be able to report troubles on a 24-hour a day, 7-day a week basis.

In the event the customer will not receipt for contacting their service provider, or fraud is suspected on a specific billing number, then the appropriate LIDB owner/operator should be contacted by the company identifying the situation.

19.3.3 **OSS Detected Problems**

Examples of OSS detected problems include:

- Block calls based on time-outs - billing denied on time-out condition (no query response received)

- Block calls based on "missing customer record" (no record found in LIDB)

- Incorrect entry in a translation table - either BNG blocked in error (denies billing) or allows in error (potential fraud - sometimes detected by high number of time-outs).

While companies may choose to block or not block calls on time-outs or missing customer record, it is helpful to understand what the conditions are when identifying troubles. Some OSSs do not differentiate between an operator or customer call queries. In addition, some OSSs do not differentiate between LIDB denial or an option denial.

19.3.4 **SS7 Network Problems**

Examples of network problems include:

- STP Global Title Translation (GTT) failures

- OSS time-outs - needs correction whether or not the OSS blocks or allows on time-outs (both conditions cause problems, either in customer service or potential fraud) - OSS time-outs can be indications of GTT failures, or "circular" routing problems

- OSS "Return on error" - needs research to determine if GTT problem exists at local or distant STP

- Misc. failures - appear as SS7 error messages that are not identifiable to the originating OSS sometimes in the form of protocol errors (OSS cannot interpret error code)

- Network node failures - SS7 networks need to notify entities that access the node within specified time period (this may be a contractual issue) of expected/planned outages, more importantly, notification of emergency outages lasting more than "X" amount of time is recommended (this is a contractual issue). This is especially necessary for ASCs and ASPs that are major users of the node

- STP/SCP Originating Point Code (OPC) data missing or incorrect

- STP Gateway Screening translations incorrect

- STP Point Code to link set translations incorrect

- Internetwork Transport Provider (Hub) - incorrect Point Code/linkset translations

- SCP congestion – overload

19.3.5 **LASS/LARG Data Problems**

iconectiv administers the LIDB Access Support System (LASS). Each LIDB owner maintains the LASS BNG information for data residing in its respective LIDB. The LIDB Access Routing Guide (LARG) is the monthly output report from LASS.

Examples of LASS/LARG data problems that could result in misrouted queries:

- BNG with LIDB ID of "blank" - this may mean that the LEC has not chosen a LIDB, however the BNG may belong to a participating LEC and the BNG has no LIDB ID in error. This may mean that the BNG is due to change ownership and the receiving company has not yet "claimed" the BNG

- BNG completely missing - this is an error, as all BNGs are to be identified

- BNG with incorrect LIDB ID

19.4 *Trouble Reporting*

Prior to referring problems, the referring company needs to perform the appropriate investigation. Once the trouble has been identified, the trouble needs to be reported to the destination or terminating network. The focus of this process is network troubles, but it is sometimes difficult to determine the difference between LIDB problems, customer related troubles, and network troubles.

19.4.1 **Reporting Network Routing Troubles**

Once a validation problem is identified, a process of communication takes place. For this procedure, it is assumed that all the appropriate investigative work has taken place in the company originating the trouble report.

The LARG report contains a list of contact numbers (phone and facsimile) for SNCC (Signaling Network Control Center), or equivalent, for the LIDB networks. These contacts should be the point of contact for ABS/LIDB network routing trouble reporting. For ASP that do not have LIDB (i.e., no LIDB in their own network), the accessing company should exchange trouble contact numbers with the LIDB owner company under the LIDB contract or interconnection questionnaire. Companies utilizing an Internetwork Transport Provider as their agent should specify trouble contact numbers and referral processes in their LIDB contracts.

The following information should be provided when reporting network routing troubles:

- Name and phone number of contact originating trouble report

- Company name of contact originating trouble report

- Originating company's trouble report number

- Date and time problem encountered

- Billing number (10-digit billing number - if Calling Card, the PIN is not required to check routing)

- Billing Number Group (BNG) if 10-digit billing number not available

- Type of call - billing attempted (Calling Card, Collect, Bill to Third)

- Calling number; or at least, location of call origination

- Called number; or at least, location of attempted call termination

- Brief description of perceived trouble

- Brief description of investigative work already done

The reporting company should expect confirmation of the trouble report from the receiving company with some identification of the report, (e.g., the receiving company's trouble report number, name and number of the contact taking the report).

19.5 *Trouble Closure*

If the receiving company determines that the problem is not in its network, the receiving company will contact the reporting company and close out the report. Once the receiving company has reconciled the problem, the appropriate information should be provided to the reporting company to close out the report. Companies should use negotiated time frames for resolution reports and/or status reports. A flow chart (See Figure 21.5 – Industry Inter-company ABS/LIDB Trouble Reporting) is provided as a job aid for trouble reporting and closure.

20 Access Services Provided by Multiple Exchange Carriers

These procedures apply when Access Service is requested by an ASC and is provided by two or more ASPs. The ASC will order the access services required to provide its overall service from the ASPs.

It is recommended that a single ASPC point, specific to the function being performed, be identified for multi-ASP access service.

Before an ASR is issued by the ASC for an access service involving multiple ASPs, the ASPs involved should have a mutually agreeable working arrangement in place to allow one of the ASPs to be the ASPC for the installation of access service.

Each ASP is responsible for working cooperatively with ASCs and other ASPs to ensure that access services are installed, tested, and turned up in a timely manner. Each ASP should also work cooperatively with ASCs and other ASPs to ensure that trouble conditions are resolved without undue delay and to participate in repair verification as required.

20.1 *Installation*

Installation as used in this document pertains to that portion of the total provisioning process that starts when the order, e.g., "Work Order Record and Detail" (WORD) or equivalent, is received by the ASPs. The order includes installations, changes and disconnects.

The ASPC will:

- Ensure that their company's equipment and facilities pertaining to the ASC are installed and tested by the Plant Test Date (PTD)

- Receive and log status on the Designed Verified and Assigned Date (DVA) or equivalent. If the Other Access Service Provider (OASP) has not provided status within 24 hours after DVA or equivalent, the ASPC will contact the OASP and request status

- Schedule and coordinate pre-service tests prior to cooperative acceptance tests to ensure that the overall access service is installed correctly and meets design parameters

- Contact the ASC upon completion of the pre-service test and advise that the access service is ready to be turned up. The ASC has the option of acceptance with or without cooperative acceptance testing. The ASC is not obligated to accept the service prior to the due date

The OASP will:

- Ensure that their company's equipment and facilities pertaining to the specific ASR are installed and tested by PTD

- Contact the ASPC and provide circuit status

- Cooperate with the ASPC to perform the pre-service tests and acceptance tests as required

The first point of switching ASP will arrange for field forces to be dispatched when required and participate in the acceptance testing with the ASC.

20.2 *Common Completion*

All involved ASPs will utilize a common completion date. Therefore, no ASP may complete its order until the entire Access Service is completed and accepted by the ASC.

20.3 *Jeopardy*

If one or more ASPs cannot complete its portion of the overall Access Service on the due date, this should be considered a jeopardy situation by all ASPs involved. If, after a specified period of time (to be determined locally) past the due date, the overall Access Service remains incomplete due to ASP problems, those ASPs who completed their portion of the access service will review the status of the incomplete portions via the ASPC to determine the actual or approximate duration of the existing jeopardy condition and notify the ICSC or equivalent.

20.4 *Maintenance*

The ASC will be responsible for acceptance of trouble reports from their end user(s). The ASC should test its facilities first to determine if the trouble is located in its own network. If a trouble is found, the ASC will clear the trouble and no referral to an ASP is necessary. If the trouble is sectionalized by the ASC towards a connecting ASP, the trouble report will be referred to the ASP. The ASP(s) will work cooperatively with the ASC to sectionalize the trouble.

The following information should be exchanged when handing off or referring the trouble:

- Trouble report number or equivalent

- Contact telephone number

- Contact ID (i.e., name or initials)

- Time and date report was received from ASC

- ASC testing information (if requested by ASP)

- Circuit ID (41 Character CLCI Code)

- Non-circuit specific (Circuit ID may not be appropriate)

- Trouble reported

- Other information that may be of assistance (e.g., history, subsequent reports)

Upon receipt of a trouble report from the ASC, the ASP will conduct tests required to determine if the trouble is in its own equipment and facilities or to the point of interface of an adjacent OASP(s). These tests will be conducted independently or cooperatively with the ASC.

If the trouble is found to be in the ASP's equipment or facilities, the trouble report will be closed out with the ASC and the following information will be provided:

- Trouble report number or equivalent

- Date & time cleared

- Status of circuits(s) [temporary or permanent repair]

  o If temporary, estimated time of restoral

- Contact name or initials and telephone number of the person closing out the report

- Type & nature of trouble found and action taken

- ASP testing information (if requested by ASC)

- Circuit ID (if applicable)

If there is no trouble found in the ASP's own network, the ASP shall refer/hand-off the trouble to the OASP and provide the following information:

- Trouble report number or equivalent (ASC)

- Contact telephone number (ASC)

- Contact ID (ASC) (i.e., name or initials)

- Time and date report was received from ASC

- ASP testing information (if requested by OASP)

- 41-character CLCI Code for circuit specific problems

- Non-circuit specific (Circuit ID may not be appropriate)

- Trouble reported

- Other information that may be of assistance (e.g., history, subsequent reports, ASC testing information, if available)

In the event a premature or improper hand-off has occurred, the ASP will resume cooperative testing with the OASP in order to sectionalize the trouble.

When the ASP has referred/handed off the trouble report to an OASP, the ASP will close out the trouble report with the ASC and provide the following information:

- Trouble report number or equivalent (ASC)

- Trouble report number of OASP

- Time and date report was referred/handed off to the OASP

- Contact telephone number (OASP)

- Contact ID (OASP) (i.e., name or initials)

- ASP testing information (if requested by ASC)

- Trouble disposition (Test OK, NTF, Found OK)

- Circuit identification (if applicable)

- Contact name or initials of person closing the report

If the trouble report requires further hand-off/referral by the OASP to succeeding ASPs, the identity of the OASP switches to ASP when the referral is made.

The OASP will:

- Cooperatively test with the ASP to determine trouble location

- Accept the trouble report when sectionalized into its equipment or facilities

- Provide status to the ASC upon request

- Contact the ASC upon clearing trouble to close out the trouble report

20.5 *Trouble Report Exceptions*

The following information is provided in an effort to assist service providers and service customers in the resolution of troubles that fall outside of the normal ticket resolution flow once the original report has been closed out with the ASC.

20.5.1 Request for Test Assistance

- When a request for test assistance is made to an ASP, the ASP shall provide the necessary assistance to facilitate the request.

- A report (non-measured) shall be created for administration of test assist referrals. Subsequent request for a test assist may result in additional reports being created. In the event that additional reports are created, all relevant information from the prior trouble report/test assist reports should be cross-referenced.

20.5.2 Request for Escalation Assistance from ASC

- It is the responsibility of all service providers and service customers to work cooperatively to resolve all trouble reports as expeditiously as possible.

- The ASC is responsible for escalations to an OASP associated with trouble reports when the trouble has been isolated/referred by an ASP to an OASP. When a request for escalation assistance is made by the ASC to an ASP, the ASP will provide any information concerning escalation numbers or names that they may have to the requesting ASC. At the ASC managers' request, the ASP manager may participate on a phone call in an attempt to assist the ASC in escalating to the OASP.

20.5.3 Additional Escalation Information

- If the ASC refers the problem back to the ASP, it should be understood that the escalation process would reinitiate at the level when the problem was initially referred into the OASP.

- In the event the trouble cannot be sectionalized by a single company, the ASC and all ASPs/OASPs will cooperatively work together to locate and/or isolate the problem. Once the problem has been sectionalized, previously developed process for ASP/OASPs shall be followed.

21 Local Number Portability

21.1 *Default Routing Translations*

All interconnecting parties, for LNP purposes, should agree on having "Default Routing Translation" in place prior to implementation of LNP. Acceptance of inter-network LNP queries should be locally negotiated.

Carriers may block default routed calls in specific circumstances when failure to do so is likely to impair network reliability.

If the N-1 carrier experiences LNP database congestion and receives a 10-digit Automatic Code Gap (ACG) from its database, it should gap the queries to its LNP database for that 10-digit DN and abort the call. If the N-1 switch receives a 3 or 6-digit ACG from its database, it should gap such queries to its LNP database and default route the call. If the database fails to respond to a query from the N-1 switch, the call is default routed.

If the default carrier experiences LNP database congestion (e.g., the default switch receives an ACG from its database), it should gap the queries to its LNP database and abort the call.

21.2 *Background on Default Routing Translations:*

If a carrier cannot successfully query an LNP database, it should default route the call based on the dialed digits to the default carrier.

A "default routed call" situation may occur in a LNP environment when a call is made to a telephone number in an exchange with any ported numbers and the N-1 carrier (or its contracted entity) queries a number portability database to determine if the called number has been ported. If the N-1 carrier fails to perform the query, the call is routed by default to the service provider that originally serviced the telephone number. The original service provider, who may or may not still be serving the called number, should try to complete the call which may include an LNP database query.
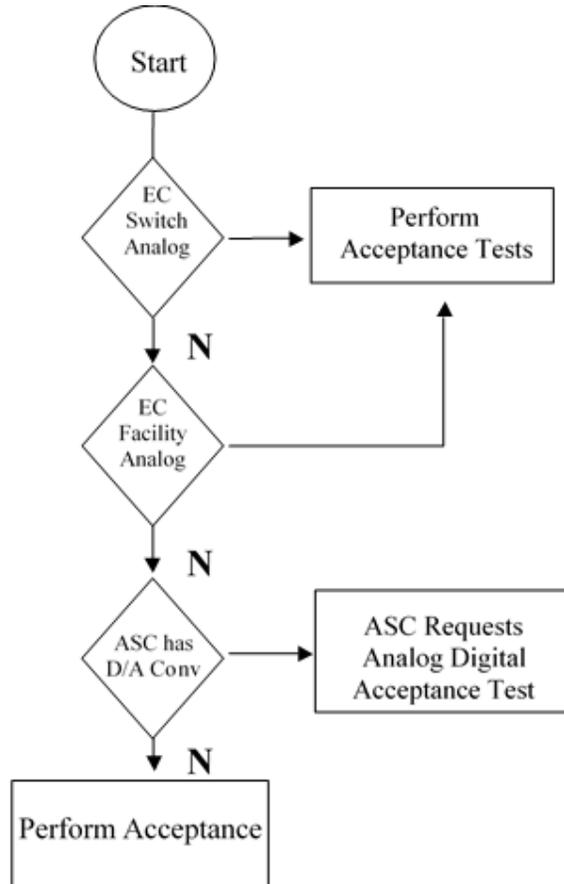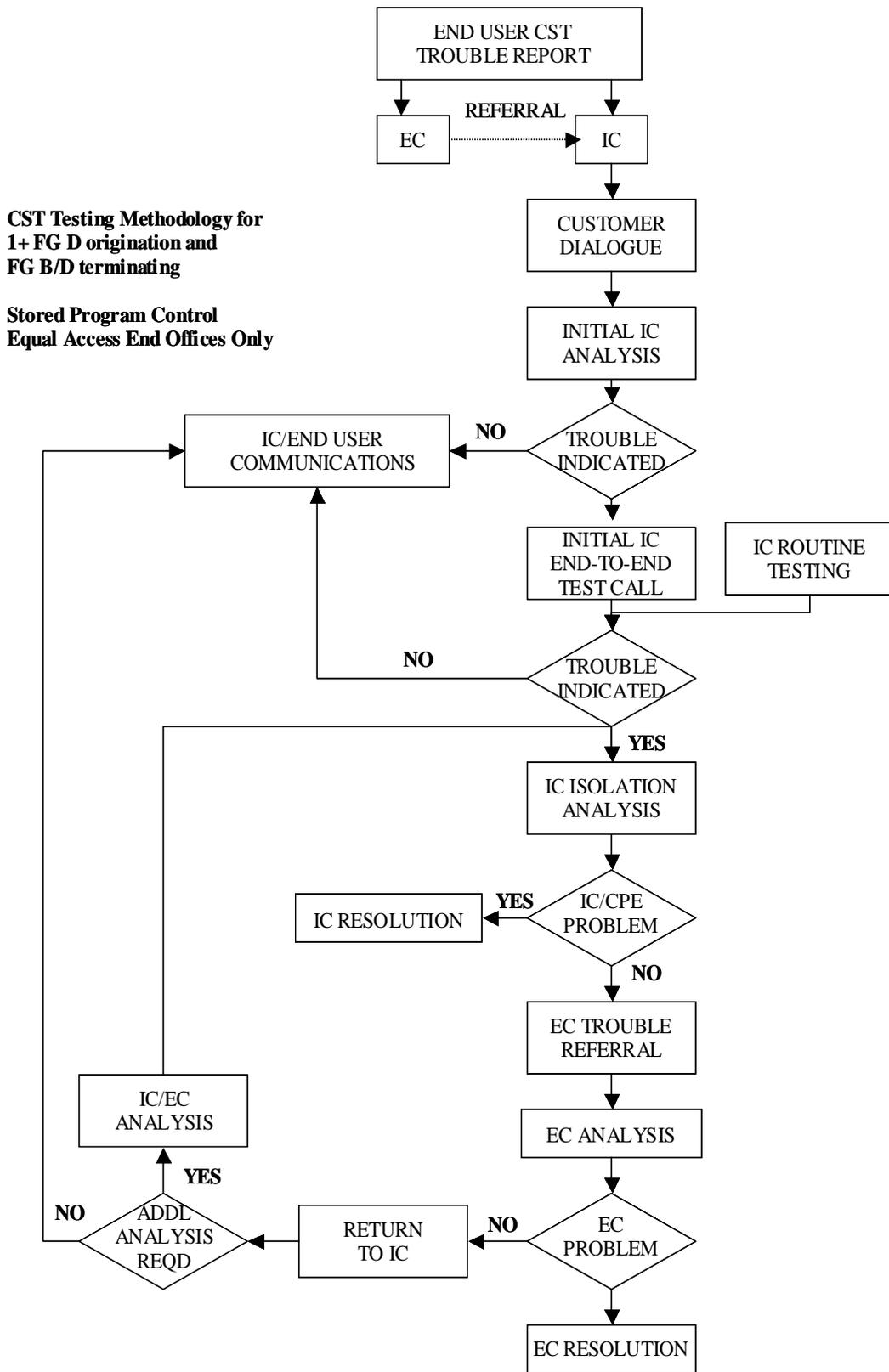

Figure 21.1 - Acceptance Testing Decision Chart

ATIS-0300010

CST Testing Methodology for
1+ FG D origination and
FG B/D terminating

Stored Program Control
Equal Access End Offices Only

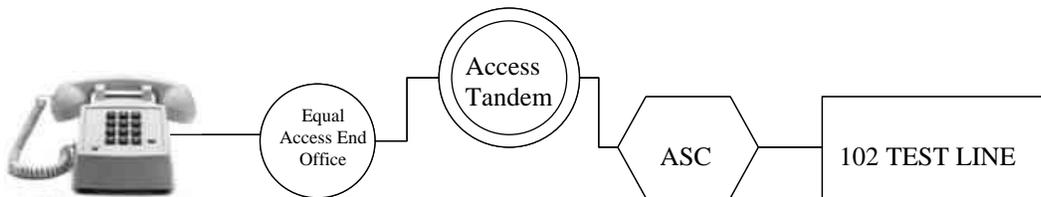**Figure 21.2 - Call Setup Time (CST) Testing Methodology**

Figure 21.3 - Call Setup Time

21.2.1 **Originating Test Procedure**

1. Place call from line side of originating EO to 102 test line in ASC switch. It is recommended that the ASC 102 test line be accessed by dialing 700 958-1102 or 700 959-1020, as appropriate.

2. Time stamp:

   a. Start at end of last digit dialed
   b. Stop at Network response

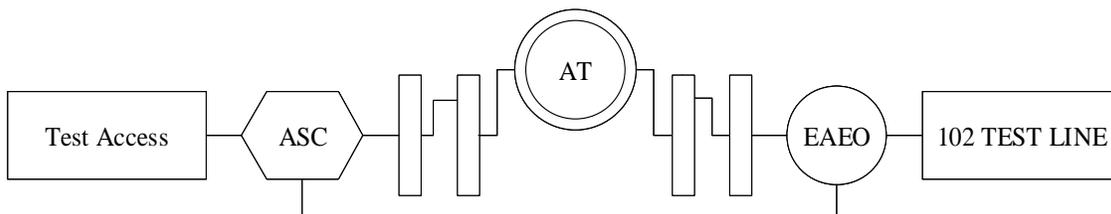May be accomplished with Personal Computer, stopwatch, or other test equipment, as available.

Figure 21.4 - Call Setup Time

21.2.2 **Terminating Test Procedures**

1. Place call from Test Access in the ASC switch to 102 test line in End Office (EO)

2. Time stamp:

   a. Start at ASP trunk seizure
   b. Stop at network response

May be accomplished with personal computer, stopwatch, or other test equipment, as available.
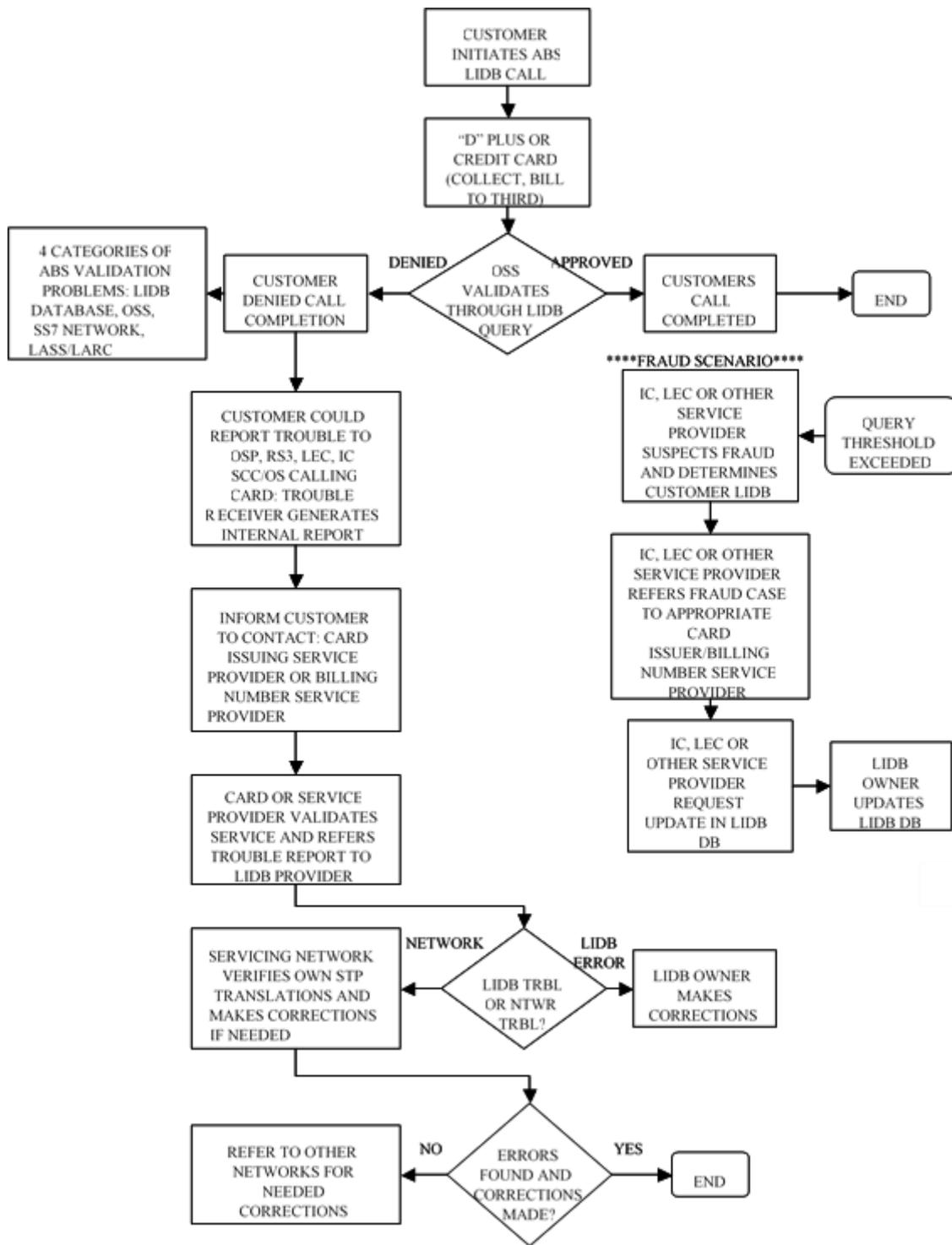
3. ASC switch time not included

Figure 21.5 - Industry Inter-Company ABS/LIDB Trouble Reporting