Lucent Technologies
Bell Labs Innovations

1A ESS™ Switch
Distinctive Alerting
Local Area Signaling Services
Feature Document

Contents **Page**

1. **Overview** 1
   - Definition 1
   - Economic Worth 1
   - Availability 2
   - Feature Groups 2
   - Feature Assignment 2

2. **User Perspective** 2
   - User Profile 2
   - Customer Premises Equipment 2
   - Feature Description 2
   - A. Distinctive Alerting Screen List Editing 2
   - B. Terminations to Distinctive Alerting Lines 4
   - Special Planning Consideration 5
   - Activation/Deactivation 5
   - A. Screen List Editing 5
   - B. Distinctive Alerting Terminations 5
   - Abnormal Operations 5
   - Interactions 6
   - Restriction Capability 7

3. **Engineering** 7
   - Hardware 7
   - Software 8
   - A. Base Generic Program 8
   - B. Optionally Loaded Feature Groups 8
   - C. Parameters/Call Store Areas 8
   - D. Translations 9
   - Real Time 10

4. **Implementation** 10
   - Assignment Restriction 10
   - Set Cards 11
   - A. LASS Feature Groups 11
   - B. General LASS Set Cards 11
   - Translation Forms 12
   - Recent Change Messages 12

Lucent Technologies Inc. – Proprietary
This document contains proprietary information of
Lucent Technologies Inc. and is not to be disclosed or used
except in accordance with applicable agreements

Copyright © 1996 Lucent Technologies Inc.
Unpublished and Not for Publication
All Rights Reserved
Printed in U.S.A.

Contents Page

5. **Administration** 12
Measurements 12
Automatic Message Accounting 13

6. **Supplementary Information** 13
References 13
A. LT Practices 13
B. Other Documentation 13

7. **Abbreviations and Acronyms** 14

Figures

1. Distinctive Alerting Terminating Treatment 17
2. Screen List Editing Activation Sequence 18
3. Screen List Editing Deactivation Sequence 19

Tables

A. Distinctive Alerting Terminating Treatment 20

1. Overview

Definition

1.01 The **Distinctive Alerting (DA)** feature allows a customer to preselect calls which will be provided distinctive alerting treatment, based on the identity attribute of the calling parties. An identity attribute may be the calling line directory number (CLDN) or the centrex extension of the calling party. The DA feature allows a customer to determine the identity of the calling party and, based on the identity, decide whether or not to answer the call.

1.02 This practice is being reissued to include information for the Advanced Intelligent Network (AIN) Release 0.1 Termination Attempt Trigger (TAT) and Alerting Treatment Processing (ATP) features affecting Distinctive Alerting.

1.03 This practice does not contain admonishments.

1.04 Lucent Technologies welcomes your comments on this practice. Your comments aid us in improving the quality and usefulness of Lucent Technologies documentation. Please use the Feedback Form provided in this practice or call the Lucent Technologies Documentation Preparation Group at 708-224-7053.

1.05 Additional copies of this practice, associated appendixes, and all referenced practices may be ordered from the Lucent Technologies Customer Information Center. One of the following methods should be used:

(a) **Lucent Technologies Employees:** Lucent Technologies employees should mail Form IND 1-80.80, available from the Lucent Technologies Customer Information Center, to:

Lucent Technologies Inc.
Customer Information Center
Attention: Order Entry Department
2855 N. Franklin Road
P. O. Box 19901
Indianapolis, Indiana 46219-1999

or

Call 800-432-6600

⇒ **NOTE:**
When ordering documentation from the Lucent Technologies Customer Information Center, each Lucent Technologies Business Unit/Division must be identified and all required billing information must be provided.

(b) **Local Exchange Carrier (LEC):** Orders should be processed through your Technical Information Resource Management (TIRM) coordinator. If you are unsure who your TIRM coordinator is, call 800-432-6600.

(c) **Federal Government:** These orders should be processed through:

Lucent Technologies Inc.
P. O. Box 20046
Greensboro, NC 27420

or

Call 919-279-7424

(d) **All Others:** Call 800-432-6600.

1.06 Every effort has been made to ensure that the information in this practice is complete and accurate at the time of printing. However, information is subject to change.

1.07 This practice is issued by:

Document Preparation Group
c/o M. W. Auter
Lucent Technologies Inc.
Network Software Center
2600 Warrenville Road
Lisle, IL 60532

1.08 Part 7 lists the abbreviations and acronyms with applicable terms used in this practice.

Economic Worth

1.09 The DA feature may be usage sensitive and available to all lines in a Local Area Signaling Services (LASS) office/boundary area that have a unique line equipment number (LEN). The DA feature can also be provided on

a subscription basis.

Availability

1.10 The DA feature is included in the LASS feature which is initially available with the 1AE9 generic program.

1.11 The Network Interconnect (NI) and the Inter-Local Access and Transport Area (LATA) Calling Party Number/Billing Number Delivery and Related Services (CPNBND) features are available with the 1AE11 and later generic programs.

1.12 The Shared/Split NXX (S/SNXX) enhancement is available with the 1AE10 and later generic programs.

1.13 The LASS Office Option Feature (LOOF) is available with the 1AE10 and later generic programs.

Feature Groups

1.14 The DA feature requires LASS optional feature group 9SLASA or 9SDA for intraoffice only applications. For interoffice applications, 9SLASS or 9SDA must be selected. [For interoffice applications, 9SDA requires common channel signaling (CCS); refer to paragraph 1.18.] The DA feature also requires the distinctive ringing/distinctive call waiting tone (DRNG/DCWT) feature group 9SDRNG. See Part 6 A(8) for a general description of the LASS feature.

1.15 The NI feature group 9SBNI is required to deliver the calling party number (CPN) across LATA boundaries. Refer to Part 6 A(9) for NI information.

1.16 The CPNBND feature group 9SCNBN is recommended to be loaded on the 1AE11 generic program when the transaction capability application part (TCAP) and screen list editing (SLE) features are loaded.

Feature Assignment

1.17 The DA feature is provided on a single office (intraoffice) basis, or on a multiple office (interoffice) basis. When applied on an interoffice basis, the end offices must be within the LASS boundary area.

1.18 The LASS boundary area is a geographical area within which the telephone company offices are connected by a Common Channel Signaling System 7 (CCS7) network. Refer to Part 6 A(7).

1.19 For inter-LATA delivery of the CPN, the signaling network must be a CCS7 network. If the LASS boundary area extends beyond a LATA, the NI feature is required in all offices within the network. Refer to Part 6 A(9).

1.20 Common channel signaling is used by the retrieval of distant line status (RDLS) and the retrieval of calling line DN (RCLDN) primitives on interoffice DA calls.

2. User Perspective

User Profile

2.01 The DA feature is provided to plain old telephone service (POTS) users and to centrex groups in the 1AE10 and 1AE11 generic programs on a usage-sensitive or subscription basis. In the 1AE9 generic program, DA is provided to centrex groups on a subscription basis and to POTS users on a usage-sensitive or subscription basis.

Customer Premises Equipment

2.02 The DA feature requires only a telephone station set at the customer premises. Either dial pulse (DP) or dual tone multifrequency (DTMF) telephones may be used. The DA feature is optimized for DTMF customers; extensive use is made of the star (*) and number sign (#). A DP customer must dial 11 for * and 12 for #. (A DTMF customer may also dial 11 and 12 instead of * and #.)

Feature Description

A. Distinctive Alerting Screen List Editing

2.03 When a user dials the DA access code, a check is made to determine if the line is restricted from using LASS or DA. The access code is translated via the prefixed access code translator (PACT) for POTS lines, or the centrex translator (digit interpreter tables) for centrex lines. If the access code is

unassigned for the office or centrex group, the line receives reorder treatment. This translation also checks the line prohibit indicators. The line prohibit indicators are located in the line equipment number class 2 (LENCL2) word. The LENCL2 word contains either the access code restriction group (ACRG) field (POTS lines) or the centrex access treatment (CAT) code field (centrex lines). These fields can be used to deny a line services that are associated with an access code. If access is not allowed, an announcement/tone indicates denial.

2.04 If the access code is assigned, the restriction field (RESTR) of the primary translation word (PTW) from the PACT or the data word from the centrex digit interpreter table is used to evaluate the ACRG or CAT code for the requesting line.

2.05 If the ACRG/CAT evaluation indicates that the customer is allowed access, the class of service prohibit indicators in the PTW of the class of service information (CLSI) translator are checked. This check determines whether the line should be denied access to the DA feature because of its service class. The classes of service which should be denied access are listed in paragraph 4.03.

2.06 If the class of service of the user is allowed access to DA, option word L of the LEN supplementary auxiliary block is checked. If this word is not assigned and LOOF is not loaded, no restrictions apply, and the user is allowed access. If this word is not assigned and LOOF is loaded, word 19 of the office options table is used as the default option word L. If the LEN option word L exists or the default option word L is used, it is checked to see if the user is denied access to DA. If DA is not denied, processing continues. If access to DA is not allowed, the line receives LASS denial announcements.

2.07 Further checking is done for restrictions that apply specifically to the LASS screening features. In particular, certain multiline group (MLG) members are restricted from using DA (paragraph 4.04). If the line is denied access to DA for failure to satisfy the preceding conditions, an announcement is played to indicate denial.

2.08 When a line is allowed access to DA, control is passed to the Screen List Editing (SLE) primitive. Refer to Part 6 A(8) for further details concerning the LASS primitives. The LASS primitives include: SLE, RDLS, RCLDN, and line history (LH).

2.09 The SLE primitive requires the following inputs from DA:

- Call register address (CRA)
- LEN
- Client ID (DA)
- Mode (activation or deactivation).

2.10 If resources are available, an [announcement service circuit (ASC) trunk interface (ATI)] is seized and replaces the customer digit receiver (CDR). A SLE register (SLR) replaces the originating register (OR). A SLE buffer (SLEB) is obtained with a copy of the permanent screening list. Current editing is done using the SLEB. At the end of the editing session, the contents of the SLEB are used to update the permanent screening list.

2.11 The SLE primitive returns control to DA to verify the validity of an identity attribute that is to be added to the DA screening list. The DA feature uses the RDLS primitive to verify an identity attribute. The RDLS primitive requires as input the identity attribute to be verified, the client ID, a return address, and the CRA. The DA client ID indicates to RDLS that originating characteristics are requested. The DA screening list includes 7- and 10-digit DNs as well as centrex extensions. If the attribute is a centrex extension, the extension is converted to a 10-digit DN.

2.12 The **CPNBND** feature provides an inter-LATA SLE blocking option that blocks the sending of a TCAP query message for distant line status of an inter-LATA DN. The RDLS primitive uses 3/6-digit translations to determine if the DN to be added is intraoffice, interoffice, intra-LATA, or inter-LATA. If RDLS identifies the DN as inter-LATA, and the CPNBND feature group is loaded, return is to DA, and the SLE blocking option is checked (paragraph 3.35).

2.13 The inter-LATA SLE blocking option is an office option that blocks or allows a TCAP query for the originating information on an inter-LATA DN. This option, when set to "block" prevents the inter-LATA DN from being placed on the end user's screening list. If the SLE blocking option is set to "block", no return is made to RDLS to send the TCAP query.

Instead, DA returns long-term denial indication to SLE. If the option is set to "allow", return is made to RDLS to send a TCAP query message. If the CPNBND feature group is not loaded, the TCAP query is sent.

2.14 The **S/SNXX** enhancement optionally allows a TCAP query to be sent for a number that has a shared or split NXX. A shared NXX is when all ten thousand DNs for that NXX are shared between switches. A split NXX is when thousand's blocks of numbers are assigned (split) to different switches. The 3/6-digit translations identify these numbers as intraoffice. The RDLS primitive uses terminating DN translation to get the status information for intraoffice DNs. Terminating DN translations indicate that these numbers point to a route index and RDLS normally returns an indication that the number is unassigned. With the S/SNXX enhancement active (paragraph 3.36), if DN translations return a route index with an outpulsing trunk indicated and a terminating major class of trunk group without ringing, a TCAP message is formatted and sent for the shared/split DN.

2.15 If RDLS is successful, the following status information is returned to DA:

- Valid DN (assigned).
- Input DN matches calling line DN.
- Originating major class code.
- Multistatus indicator (1AE9 only).
- Temporarily-out-of-service indicator (1AE10 and later).

If the number is added to the list, an announcement is played.

2.16 A failure to verify the identity attribute is returned to SLE by DA if any of the following conditions exist:

- Resources required by RDLS are unavailable.
- RDLS request times out.
- DN or centrex extension input by user does not match the DN or centrex extension that would be retrieved by RCLDN.
- DN is a multiparty line.
- DN or centrex extension (centrex only) is denied origination.
- DN is temporarily out-of-service – this information is available only for a DN in another office that is not a 1A ESS switch.

If the number cannot be validated, an announcement is set up to that effect.

2.17 When SLE processing is done, SLE returns control to the DA feature. The SLR contains required automatic message accounting (AMA) data. The AMA routine processes the data and writes an AMA record. The following SLR information is formatted and passed to the AMA routine:

- Start and end times of the editing session
- Number of entries on the screening list
- Status of the screening list
- Customer billing DN
- Client ID.

After the necessary information is copied from the SLR, the register is released and return is made to the main program.

B. Terminations to Distinctive Alerting Lines

2.18 Initially, on any call terminating in an office with the LASS feature, the identity attribute of the calling party is received from the originating office if the office is in the CCS7 network. As mentioned previously, the identity attribute is the CLDN or centrex extension. Call processing proceeds normally until it is determined that DA is active. Refer to Figure 1.

2.19 If DA is active, the identity attribute of the calling party is compared to the screening list. If the identity attribute of the calling party is not specified on the list, standard alerting is provided.

2.20 If a call to a DA line originates from an identity attribute that is on the DA screening list, the call is given distinctive alerting treatment. The terminating treatment is dependent on several factors which include: line busy/idle status, existence and status of a DA screening list, and whether or not the Call Waiting Terminating (CWT) feature is active for the line. See Table A.

Special Planning Consideration

2.21 Currently, there are no specifications available that provide instructions on how to route LASS inter-LATA TCAP messages (neither the query messages nor the response messages). If CPNBND is loaded and the blocking option is set to "allow", a TCAP message is sent from the originating end office but it may not be possible to deliver it to its destination. Also, the terminating office may not be able to correctly deliver the response back to the originating office. The inter-LATA application of the TCAP issue currently is not resolved. Therefore, if the SLE blocking option is not set to "block", it is the responsibility of the operating telephone companies to make the necessary routing translations in their signal transfer points (STPs). These translation changes should allow TCAP messages to be routed across LATA boundaries to assure that TCAP messages for LASS are appropriately delivered.

Activation/Deactivation

A. Screen List Editing

2.22 The DA feature is activated by dialing the DA activation code. A DA screening list is activated when it is initially created during DA activation. (A deactivated DA screening list is also activated by dialing the DA activation code.) When the screening list is active and has at least one identity attribute on it, the DA feature is ON.

2.23 The SLE primitive allows DA users to build and manipulate a list of numbers (typically DNs) that DA utilizes during call processing. The user is guided by SLE. The SLE interactive procedure allows users to tailor a screening list to their satisfaction.

2.24 Although the SLE primitive interfaces with individual users, it is transparent to the user who perceives only the interaction with the DA feature. Basically, the user has two initial choices when using SLE. The user may activate the feature and edit the list (Figure 2). Alternately, the user may deactivate the feature (Figure 3); the screening list may be saved or removed. When editing a screening list, SLE allows a customer to accomplish the following:

- Create a list.
- Add entries.
- Delete entries.
- Hear the list.
- Obtain instructions.

2.25 The SLE primitive is activated/deactivated when a user dials the DA activation/deactivation code. The user also controls SLE operation by dialing valid digit strings. A DP or DTMF telephone may be used, however, a DTMF telephone is more efficient. The following defines valid types of character strings that may be dialed (input) for use with SLE.

(a) A **command** is an input string that causes immediate system action (play instructions, read list, delete entry, add entry, delete list).

(b) A **subcode** is a 2-digit string that implies further input is required (for example, subcode 02 is used to prefix centrex extensions).

(c) An **identity attribute** is an entry on the screening list (DN, centrex extension). An identity attribute may be added from the Incoming Line History Block (ILHB) by dialing 01.

B. Distinctive Alerting Terminations

2.26 For any call terminating in an office with LASS, the identity attribute of the calling party is received from the originating office. Call processing proceeds normally until determination of the busy/idle status of the called line (Figure 1). If the called line is idle, the calling party identity attribute is compared to the DA screening list. Cases 1, 2, and 3 in Table A show the resulting termination treatment based on the status of the DA list. If the called line is busy and the line has CWT, cases 5 and 7 in Table A reflect possible treatment based on the status of the DA screening list. As shown in cases 4 and 6, if the line does not have CWT, standard busy treatment is provided.

Abnormal Operations

2.27 An abnormality related to DA occurs when the identity of a calling party,

previously specified on the screening list, cannot be obtained. This may be caused by CCS7 failure or major far-end overload/outage. When this happens, determination of whether the call should be provided distinctive alerting cannot be made. As a result, the call will not distinctively alert regardless of specification of the calling party identity on the DA screening list.

2.28 If the activation or deactivation access code dialed is unassigned, standard error treatment is provided. If the user is not permitted access to the DA feature, an appropriate announcement is provided when the access code is dialed.

2.29 Generally, after dialing incorrectly, a user may continue with the SLE procedure; the call is not terminated. The system responds with an error announcement when either of the following occurs:

(a) Invalid subcode/command

(b) Incomplete dialing (not enough digits)

(c) Entry of extra digits.

2.30 There are two cases when time-out occurs during SLE: interdigital time-out and time-out between user actions. The system responds with an error announcement indicating a dialing error in case of interdigital time-out. In case of time-out between user actions, the user is prompted for more input. This occurs whether the action is successful or unsuccessful. If the user does not dial within a specified timing interval after the prompt, the instructions are played. If the user fails to dial after four consecutive prompts, the call is dropped. When the user completes all editing action, the session is ended by the user simply hanging up.

2.31 Abandon can be an abnormal termination of SLE. If abandon occurs before actions requested by the user are executed, the last action requested by the user is ignored and the SLE procedure is terminated. All previous successful actions are preserved (successful actions are indicated via announcements). If a user goes on-hook before an entered identity attribute is verified (a real time break is taken to verify an interoffice identity attribute), SLE treats the call as abandoned. An announcement is provided to indicate success or failure of the verification attempt.

2.32 If a user attempts to add the last CLDN from the ILHB to the DA screening list, and the CLDN is not available, an announcement is given. The CLDN may not be available if, for example, the last incoming call originated outside the LASS area. Since LHBs are not maintained in duplicated call store on the 1AE12 and later generics, the CLDN may be temporarily unavailable when switch resource limitations prevent retrieval of the ILHB. An announcement is also given for this situation. Refer to Part 6 A(8) for details about the LHB structures available on each generic.

Interactions

2.33 The DA feature by itself provides only the distinctive ringing capability. In order to be provided with distinctive call waiting tone, the customer must subscribe to the CWT feature. See Part 6 A(1) for details concerning the CWT feature.

2.34 The DA feature also interacts with the DRNG/DCWT, Dial Call Waiting (DCW), and Call Waiting Originating (CWO) features. Precedence of DA to these features is based on the precedence already established for CWT. As such, DA has precedence over DRNG/DCWT. The DCW and CWO features have precedence over DA.

2.35 If the Voice Data Protection (VDP) feature is active, all call waiting treatment is suppressed for the line.

2.36 The AIN Release 0.1 Termination Attempt Trigger (TAT) and Alerting Treatment Processing (ATP) features affect DA. Refer to Part 6 A(10) for detailed information on the AIN Release 0.1, TAT, and ATP features.

2.37 A call to a TAT that receives an Authorize_Termination response is subject to DA screening. Screening is based on the most recent SCP returned Calling Party ID. If the SCP response does not include a Calling Party ID, the latest pre-Query calling party is used in DA screening.

2.38 The ATP feature allows the office to process the Passive Leg Treatment and the Controlling Leg Treatment parameters contained in response messages from the SCP. Otherwise, these parameters are ignored.

2.39 If an Analyze_Route message from the SCP contains the Passive Leg Treatment parameter and the routing of the call is intraoffice, then the SCP supplied alerting pattern is used and, therefore, no DA screening is necessary. If the Controlling Leg Treatment parameter is present in the Authorize_Termination message, then the pattern specified in the Controlling Leg Treatment parameter is used on the terminating line. DA processing is not necessary in this case since Controlling Leg Treatment takes precedence over DA treatment. If the Passive Leg Treatment parameter is present in the Forward_Call message, then the pattern specified in the Passive Leg Treatment is used when terminating to the forward-to DN if the forwarding is intraoffice. DA processing is not necessary in this case since Passive Leg Treatment takes precedence over DA treatment. If a Response Message causes a call to terminate to a line with DA and the SCP omits the Passive/Controlling Leg Treatment parameter, distinctive alerting is provided consistent with the alerting pattern produced by the DA screening.

Restriction Capability

2.40 Each of the LASS features can be denied to certain classes of lines (paragraphs 4.02 and 4.03). The telephone company determines the features that are included in each service class. On a class of service basis, the RC:CCOL recent change message can be used to restrict access to all SLE features.

2.41 The LASS features can also be denied to a specific line. On a per line basis, the ACRG/CAT code field in the LENCL2 word is used to determine if a LASS feature can be accessed. The RC:LINE recent change message is used to change the ACRG/CAT code to allow or deny access to DA for a specific line. Refer to Part 6 A(3) for the keywords associated with RC:CCOL and RC:LINE.

2.42 In addition to the ACRG/CAT code mechanism of feature denial, option word L of the LEN supplementary auxiliary block can be used to disallow DA. This allows for greater flexibility than can be achieved via the ACRG/CAT code mechanism. Option word L is built for lines that have access to certain LASS features (subscription or usage-sensitive), but are denied access to others.

2.43 An alternative mechanism to restricting all lines access to LASS features is to implement LOOF. LOOF eliminates the need for ACRG/CAT codes in offices implementing the LASS features on a subscription only basis by allowing all lines to dial the LASS feature access codes. After the access code is dialed, normal ACRG/CAT screening still applies but is not required. The second level of screening is performed on a class of service basis. The final level of restriction is the option word L check. LOOF, if loaded, will provide all lines without an option word L a default option word L from word 19 of the office options table. Word 19 of the office options table is the recent change default and, if LOOF is loaded, will also be the call processing default for all lines without an option word L. If a line has been assigned LASS features and has a LEN option word L, then the individual LEN option word L is used instead of the office default option word L. LOOF is controlled by fast feature 069.

3. Engineering

3.01 These guidelines are for planning purposes only. The Central Office Equipment Engineering System (COEES) Information System engineering document, Index 38, should be used to manually order and engineer the 1A ESS switch. The standard recommended automated procedure is COEES-MO (Mechanized Ordering).

Hardware

3.02 The DA feature requires the following hardware:

- CDR
- ASC (SD-6A003-01) and ATI (TM 504).
- Tone or recorded announcement circuit (SD-1A218-01).

3.03 A terminating call to a line with DA active is connected to one of the following four circuits:

- Regular ringing circuit (SD-1A168-01)

- Special ringing circuit (SD-1A188-01)
- Call waiting tone circuit (SD-1A218-01)
- Individual calling line identification (ICLID) service unit (ISU) ringing circuit for individual lines (SD-1A621-01).

The ISU is used for DA only when the called line has the ICLID and/or Calling Name Delivery (CNAM) features.

3.04 For interoffice applications, the DA feature requires the hardware necessary to allow the switch to communicate over a CCS7 network. Refer to Part 6 A(7).

Software

A. Base Generic Program

3.05 The DA feature uses some base program store memory. For further information concerning memory usage, refer to Part 6 B(2).

B. Optionally Loaded Feature Groups

3.06 The DA feature code is provided in the optionally loaded LASS feature package required by the LASS or LASA feature group. Refer to Part 6 B(2) for information about other feature packages needed for DA. Refer to Part 6 B(5) for feature package word size information.

C. Parameters/Call Store Areas

3.07 Refer to Part 6 B(4) and B(5) for comprehensive parameter information.

Parameters

3.08 Parameter word L9LASS determines which LASS features are in the office. If 9SDA is set, bit 3 of L9LASS should be set to 1.

3.09 Parameter L9DA_SIZE (set card LADAE) is required for DA. It defines the size of the DA screening list (the maximum number of entries) per customer in an office.

3.10 The following parameters are related to the DA feature:

(a) Parameter L9EDIT_BUF_ADMIN contains the starting address of the SLEB busy/idle head cell.

(b) Parameter L9EDIT_BUF_NSIZE contains the number of SLEBs provided and the size of an SLEB.

(c) Parameter L9EDIT_BUF_PTR contains the starting address of the SLEB block.

(d) Parameter R2SLEDB contains the address and length of the call store table (RSLEKMDB) used by SLE to build keyword message data block (KMDB) information.

3.11 Parameter B6LASS is the Compool defined address and size of the LASS traffic count block. The LASS traffic count block is 50 words in length.

3.12 Parameter B6SLE contains the Compool defined address and size of the SLE traffic count block. The SLE traffic count block is six words in length.

3.13 Parameter C7BATBTA contains the starting address of the buffer administration timing block (BATB) table. This group of call store blocks provides the means for applications to store data over the real-time breaks involved in interoffice information exchange. The BATB table is allocated in unprotected variable duplicated call store (DCS). Parameter word C7BATBTA + 1 contains the number of 6-word BATBs in the table. Parameter C7BATBTA + 2 contains two parameter values. The MAXTIME field contains the maximum timer value that a BATB may have. The MAXNOTIFY field contains the maximum number of clients that may be notified of time-out in a real-time segment.

3.14 The DA feature requires ILHBs to store the last CLDN. Refer to Part 6 A(8) for the parameters needed on each generic to implement Line History Blocks (LHBs).

Call Store

3.15 Refer to Part 6 B(3) for call store data layout information.

3.16 If CCS7 is used, the BATB table is required to provide timing on interoffice RDLS TCAP queries. When the Message Interface Processor is loaded, and set card BATBS (paragraph 4.15) is nonzero, the size of the BATB table is equal to six times set card BATBS plus six. Otherwise, no BATB table is built.

3.17 The DA feature requires ILHBs to store the last CLDN. Refer to Part 6 A(8) for

details about the LHB call store options on each generic.

3.18 The SLEB table (set card LASLEB), in unrestricted DCS, is a contiguous block of memory allocated for the total number of SLEBs. When SLE changes screen list information for a line, it seizes an SLEB. The SLE links the SLEB to a temporary recent change (TRC) register and loads new screen list data in the SLEB. Upon termination of the editing session, a request is queued to the RC system to process the change. After processing, the TRC register is removed and the SLEB is restored to the idle link list. Administration (seize and release) of the SLEBs uses a busy/idle head cell with one bit allocated per SLEB.

3.19 Table RSLEKMDB (SLE service order KMDB), located in DCS, is required for SLE customer originated messages.

3.20 The size of the Originating Registers (&OR), Cathode Ray Tube Originating Register (&CRTOR) and SXS Foreign Exchange SR Registers (&SOR) is defined in the Parameter Guide PG-1A.

3.21 The SLR is a senior call register in restricted duplicated call store (RDCS) used for storing screen list editor information. The length of the SLR is 28 words. The number of SLRs is equal to set card NSLR.

3.22 The SLE requires the use of TRC registers (set card TRCR) to process changes to the screening lists. A TRC register is required for linking the SLEBs for the duration of an editing session. The number of additional TRC registers required is equal to the number of SLEBs (set card LASLEB).

3.23 Event records and continuation records are the two types of AMA records written for DA. An event record is generated whenever a customer accesses or edits the DA screening list. A continuation record is written on a daily basis for each customer that has a DA list. In many cases, existing AMA registers will suffice.

D. Translations

3.24 The following translations are required or are affected by the DA feature. Refer to Part 6 A(3) for further details concerning DA translations. Refer to Part 6 B(6) and B(7) for comprehensive translation information.

3.25 Pseudo route index 167 is used when a customer dials a DA access code, but is denied service.

3.26 The ASC trunk translations include the following:

(a) One 9-word trunk network number to peripheral equipment number (TNN-PEN) miscellaneous trunk frame circuit auxiliary block per ATI circuit.

(b) One 3-word TNN-PEN supplementary auxiliary block per ATI circuit.

(c) A 4-word trunk class code (TCC) expansion block is required for the ATI circuit.

(d) The trunk group number (TGN) translator requires one word per ATI circuit trunk group.

3.27 The following translations are affected by the ATI circuits.

(a) Pseudo route index

(b) Route index

(c) Master scanner number to trunk network number (MSN-TNN)

(d) Trunk network number to trunk group number (TNN-TGN).

3.28 Each LEN supplementary auxiliary block requires an option word F that contains the address of the screen list head table (SLHT) if the customer has screening lists.

3.29 Additionally, each LEN supplementary auxiliary block requires an optional word L that contains the per feature access mode indicators. This word is required only if the customer chooses to subscribe to or be denied access to one or more, but not all, of the LASS features. The indicator specifies the access mode (that is, usage-sensitive, subscription, or denied access) of each feature for the associated LEN.

3.30 The SLHT is required for each customer with one or more screen lists. Each SLHT requires one word for each screen list that is built plus one word. The SLHT contains the addresses of the screen list auxiliary blocks (SLABs).

3.31 A SLAB is required for each DA screen list in the office.

3.32 A 3- or 4-word CLSI auxiliary block is required for every class of service that is denied one or more of the usage-sensitive LASS features.

3.33 Available in 1AE10 and later, bits 7 through 9 in word 0 of the office options table defines the timing interval (LASS timer required for TCAP) in the originating switch to wait for the response from the terminating switch. The range of values in this bit field is from 1 to 6. If bits 7 through 9 are 000, then the default value is 3 seconds. If 111, then 6-second timing is used.

3.34 Interoffice RDLS TCAP signaling requires word 1, bit 17 in the office options table be set to 1. If TCAP is loaded, and bit 17 is set to 0, the office will not send interoffice RDLS TCAP signaling messages.

3.35 Word 10, bit 8 of the office options table is used to allow or block TCAP queries for the originating characteristics of an inter-LATA DN. If set to 0 (default case - block), inter-LATA DNs are prevented from being placed on the user's screening list of any SLE feature since the TCAP query is blocked. If this bit is set to 1 (do not block), the TCAP query is sent.

3.36 Word 10, bit 10 of the office options table is used for the S/SNXX enhancement. If this item is set to 1, a TCAP query is sent for a shared/split NXX DN. If bit 10 of word 10 is 0, a TCAP query is not sent for shared/split NXX DNs, and the number is not added to the user's screening list.

3.37 Word 18 in the office options table translator contains the office AMA mode indicators for each feature. The indicator is used to specify when AMA records should be written. The options per feature are:

(1) Never write AMA records.

(2) Always write AMA records.

(3) Write AMA records for usage-sensitive customers only.

3.38 Word 19 of the office options table contains the office default option word L. This value represents the office default handling for the type of access this feature is given (that is, usage sensitive, subscription, denied access, or unused). The default option word L is consulted by RC when building a customer's LEN supplementary auxiliary block option word L for the first time. When a LASS feature is added to a line for the first time, the default option word L is used by RC to build out the remaining fields of the customer's option word L. If the default option word L is set to deny all LASS features, RC builds all unspecified feature fields the same as the default option word L which, in this case, is denied access. If LOOF is loaded, word 19 of the office options table is used as the default option word L by call processing if the LEN supplementary auxiliary block option word L does not exist.

3.39 The DA access codes are assigned in the PACT and the centrex translator (centrex common block and centrex digit interpreter tables). Adding the assignments in the PACT and centrex translators is done by the standard recent change procedure for those translators.

Real Time

3.40 For the real time penalty due to LASS, refer to CIS (COEES Information System) indexes 38 (LASS), 60 (1AE10 CCS7), and 47 (1AE9 base). For the impact of the ISPI feature, refer to CIS Document Index 43.

4. Implementation

4.01 The DA feature is installed with the LASS feature. For detailed LASS installation procedures, refer to Part 6 A(3).

Assignment Restriction

4.02 Customers with the following types of lines are denied access to the DA feature:

(a) Two-party/multiparty

(b) Manual (POTS and centrex). These lines may be allowed access via recent change message RC:SLE.

(c) Private branch exchange (PBX)

(d) Remote Switching System (RSS)

(e) Centrex attendant with console.

4.03 Customers with the following types of lines should be denied access to the DA feature:

(a) Coin lines

(b) Coinless public lines

(c) Denied terminating treatment.

4.04 One Distinctive Alerting (DA) screening list is allowed per multiline hunt group (MLHG) and is built and controlled by terminal 1 [the listed DN (LDN)] of the MLHG. Calls terminating to the LDN or to any hunting DN within the MLHG are screened against the screening list for terminal 1. Calls to any nonhunt DN within the MLHG are not screened. In addition, a nonhunt DN within the MLHG cannot have its own screening list. If terminal 1 of the MLHG is an ESS switch line and the MLHG contains both ESS switch and RSS lines, these types of lines (ESS switch and RSS) are provided DA treatment. An RSS line cannot have screening lists. If terminal 1 is an RSS line, DA treatment is denied to the group.

4.05 In a MLG with no hunting members, every member of the MLG can have a screening list. In this case, calls to a member of the MLG will only be screened against the member's own screening list.

Set Cards

4.06 The following set cards are required by or affect the DA feature. Refer to Part 6 A(3) and A(8) for additional DA and LASS set card information. Refer to Part 6 B(4) and B(5) for comprehensive set card information.

A. LASS Feature Groups

4.07 The following feature group set cards apply to LASS.

- **9SLASA** defines the intraoffice only feature group for LASS. Feature groups 9SDRNG and 9SSLE, and feature packages 9FACRB and 9FLASS are required for 9SLASA.
- **9SLASS** defines the intra/interoffice feature group for LASS. Feature group 9SLASS requires 9SCILC and FF051; FF024 and FF051; or 9SISUP, 9SMIP, and 9STCAP. Feature groups 9SDRNG and 9SSLE and feature packages 9FACRB and 9FLASS are also required for 9SLASS.
- **9SSLE** defines the feature group for SLE. Feature groups 9SISPI and 9SVMI1, and feature package 9FSLE are required for 9SSLE.

4.08 If all the LASS features are loaded, 9SLASS (interoffice) or 9SLASA (intraoffice) is set to 1. If only some of the features are to be provided, LASS Unbundling is required. With LASS Unbundling, only set card 9SDA is submitted. Feature group 9SDA requires 9SSLE and feature package 9FLASS.

4.09 Set card **9SCNBN** provides SLE features including DA with the ability to block inter-LATA TCAP status query messages. Feature group 9SCNBN contains feature package 9FCNBN and requires feature groups 9STCAP and 9SSLE.

B. General LASS Set Cards

4.10 The following feature package set cards apply to LASS:

- **9FLASS** defines the feature package for LASS.
- **9FISPI** defines the feature package for ISPI.
- **9FSLE** defines the feature package for SLE.
- **9FCNBN** defines the feature package for CPNBND.

4.11 The LH primitive requires the presence of certain set cards. Refer to Part 6 A(8) for specific information.

4.12 Set card **FF050** defines the SLEPR (SLE Privacy) optional feature (1AE10 and later). If FF050 is set to 1, an identity attribute (DN) on a customer's screening list from an ILHB is marked as private only if the privacy bit for the entry is set in the ILHB. If the privacy bit is not set, the entry is public. If FF050 is set to 0, all entries from the ILHB are marked as private. Set card 9SSLE must be set to 1 for SLEPR.

4.13 Set card **FF069** defines the LOOF optional feature available in the 1AE10 and later generic programs. If FF069 is set to 1, then all lines without an individual option word L in the supplementary auxiliary block will use the office default option word L. The office option table word 19 defines the call processing/recent change default option word

L. The LOOF eliminates the need to restrict nonsubscribers access to LASS features by using the ACRG/CAT codes in the PACT/CTXDIT translators thus simplifying recent change procedures required to implement the LASS features. If set card FF069 is set to 0, LASS feature access defaults to usage-sensitive access if no option word L exists in the LEN supplementary auxiliary block.

4.14 The SLE primitive requires the following set cards:

- **LADAE** specifies the maximum number of entries a customer can have on a DA screen list. The default value is 3.
- **LASLEB** specifies the number of SLEBs. The value of this set card is equal to NSLR + NRCSBQ.
- **NSLR** defines the number of SLRs. The value of NSLR is equal to the number of ATI circuits dedicated for LASS plus 1.
- **NRCSBQ** defines the number of RC batch queue entries required for SLE customer originated RC messages. The value of this set card is equal to NSLR.
- **NRCBQ** is an existing set card which defines the number of RC batch queue entries.

4.15 The following set cards are required by DA for RDLS CCS7 TCAP signaling messages. (Refer to COEES Information System Document, Index 60 for all the set cards required by CCS7 and to Part 6 A(7) for a general description of CCS7.)

- **9SMIP** defines the feature group for the CCS7 Message Interface Processor.
- **9STCAP** defines the feature group for TCAP. The CCS7 feature requires TCAP protocol for interoffice LASS; 9SMIP is required for 9STCAP.
- **SNLASS** defines the Signaling Connection Control Part (SCCP) subsystem number (SSN) used for LASS features when CCS7 signaling is used.
- **STLASS** defines the global title translation type value to be used by the LASS features when using global title routing.
- **BATBS** defines the number of BATBs used with 9STCAP. The minimum value is 0 and the maximum value is 150.

4.16 Set card **9SBNI** defines the feature group for the NI feature. The NI feature allows the use of an inter-LATA CCS7 network.

Translation Forms

4.17 The following translation forms, detailed in Part 6 B(6), are applicable to the DA feature:

ESS 1101	Directory Number Record
ESS 1107A/B	Supplementary Information Record/Centrex Group Supplementary Information Record
ESS 1109	Centrex Group Record
ESS 1115	Multiline Group Record
ESS 1303	Trunk and Service Circuit Route Index Record
ESS 1304	Rate and Route Chart.

Recent Change Messages

4.18 Refer to Part 6 A(3) for comprehensive information concerning installation of all LASS features (including DA).

5. Administration

Measurements

5.01 Refer to Part 6 A(6) for comprehensive traffic measurement information. The following equipment group number (EGO) and type measurement code (TMC) 148 traffic counts apply specifically to the DA feature:

EGO	Definition
3	DA screen list access peg count
4	DA calls distinctive alert peg count.

5.02 The following TMC 149 traffic counts apply to the SLE primitive:

EGO	Definition
0	Screen list edit buffer peg count
1	Screen list edit buffer overflow count
2	Screen list edit buffer usage count
3	Screen list edit call register usage count.

Automatic Message Accounting

5.03 Two types of records can be generated for the DA feature based on the office AMA options and the individual line billing option.

(a) An event record can be made each time the DA access code is entered by a customer to access/edit their screening list. Charges can be made based on activities and/or resources used during the editing session or as a single event.

(b) A daily record can be generated for each customer who has a DA list whether currently active or not. This allows billing for use of memory to store the list.

5.04 For POTS and centrex (1AE10 and 1AE11 generic programs), billing is based on the use of the SLE functions and the existence of a DA screening list. In the 1AE9 generic program, centrex customers are billed on a subscription basis as determined by the number of lines in the centrex group. Centrex and POTS AMA records are generated similarly. Refer to Part 6 A(8) for further DA AMA information. Refer to Part 6 A(5) and B(1) for comprehensive AMA information.

6. Supplementary Information

References

A. LT Practices

(1) 231-090-081 – *Call Waiting Terminating*

(2) 231-090-158 – *Distinctive Ringing (DRNG)/Distinctive Call Waiting Tone (DCWT)*

(3) 231-318-340 – *Local Area Signaling Services (LASS) Recent Change Implementation Procedures*

(4) 231-365-005 – *Intelligent Simplex Peripheral Interface Description Implementation and Maintenance*

(5) 231-390-063 – *Automatic Message Accounting Feature*

(6) 231-390-207 – *Traffic Measurements Feature*

(7) 231-390-500 – *Common Channel Signaling System 7 General Description*

(8) 231-390-515 – *Local Area Signaling Services (LASS) CCS7 Feature*

(9) 231-390-521 – *Network Interconnect Feature*

(10) 231-390-522 – *Advanced Intelligent Network (AIN) Release 0.1 Protocol and Capabilities Feature Document*

B. Other Documentation

(1) *TR-TSY-000508 LSS-GR-AMA, Section 8.1*

(2) *COEES Information System Engineering Document Index 38*

(3) *Data Layout Document PK-6A006*

(4) *Office Parameter Specification PA-6A001*

(5) *Parameter Guide PG-1A*

(6) *Translation Guide TG-1A*

(7) *Translation Output Configuration PA-6A002*

7. Abbreviations and Acronyms

A

ACRG
Access Code Restriction Group

AIN
Advanced Intelligent Network

AMA
Automatic Message Accounting

ASC
Announcement Service Circuit

ATI
ASC Trunk Interface

ATP
Alerting Treatment Processing

B

BATB
Buffer Administration Timing Block

C

CAT
Centrex Access Treatment

CCS
Common Channel Signaling

CCS7
Common Channel Signaling System 7

CDR
Customer Digit Receiver

CLDN
Calling Line Directory Number

CLSI
Class of Service Information

CNAM
Calling Name Delivery

COEES
Central Office Equipment Engineering System

COEES-MO
COEES-Mechanized Ordering

CPN
Calling Party Number

CPNBND
Inter-LATA Calling Party Number/Billing Number Delivery and Related Services

CRA
Call Register Address

CRT
Cathode Ray Tube

CWO
Call Waiting Originating

CWT
Call Waiting Terminating

D

DA
Distinctive Alerting

DCS
Duplicated Call Store

DCW
Dial Call Waiting

DCWT
Distinctive Call Waiting Tone

DN
Directory Number

DP
Dial Pulse

DRNG
Distinctive Ringing

DTMF
Dual Tone Multifrequency

E

EGO
Equipment Group Number

I

ICLID
Individual Calling Line Identification

ILHB
Incoming Line History Block

ISU
ICLID Service Units

K

KMDB
Keyword Message Data Block

L

LASS
Local Area Signaling Services

LATA
Local Access and Transport Area

LDN
Listed DN

LEN
Line Equipment Number

LENCL2
Line Equipment Number Class 2 Word

LH
Line History

LHB
Line History Block

LOOF
LASS Office Option Feature

LSC
Line Switch Circuit

LSF
Line Switch Frame

M

MLG
Multiline Group

MLHG
Multiline Hunt Group

MSN
Master Scanner Number

N

NI
Network Interconnect

O

OR
Originating Register

P

PACT
Prefixed Access Code Translator

PBX
Private Branch Exchange

PEN
Peripheral Equipment Number

POTS
Plain Old Telephone Service

PTW
Primary Translation Word

R

RCLDN
Retrieval of Calling Line DN

RDCS
Restricted Duplicated Call Store

RDLS
Retrieval of Distant Line Status

RESTR
Restriction Field

RSS
Remote Switching System

S

S/SNXX
Shared/Split NXX

SCCP
Signaling Connection Control Part

SCP
Service Control Point

SLAB
Screen List Auxiliary Block

SLE
Screen List Editing

SLEB
SLE Buffer

SLEPR
SLE Privacy

SLHT
Screen List Head Table

SLR
SLE Register

SSN
Subsystem Number

STP
Signal Transfer Point

T

TAT
Termination Attempt Trigger

TCAP
Transaction Capability Application Part

TCC
Trunk Class Code

TGN
Trunk Group Number

TMC
Type Measurement Code

TNN
Trunk Network Number

TNN
Trunk Network Number

TRC
Temporary Recent Change

U

UCS
Unduplicated Call Store

V

VDP
Voice Data Protection

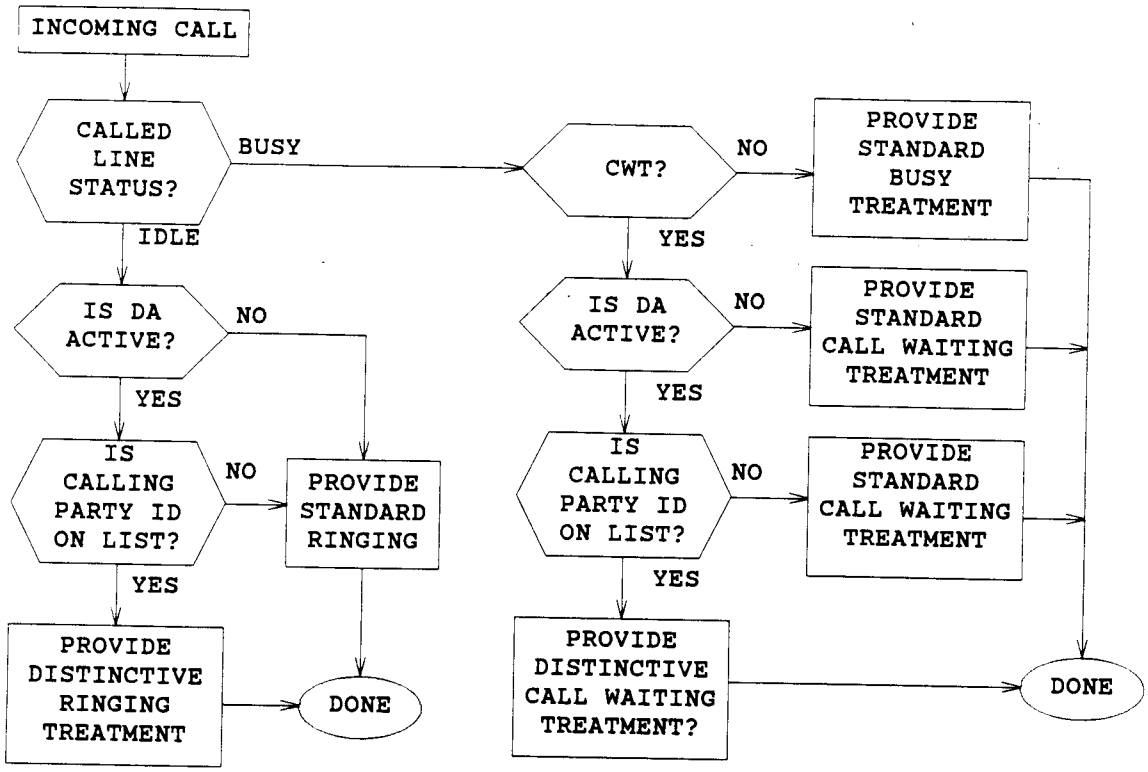
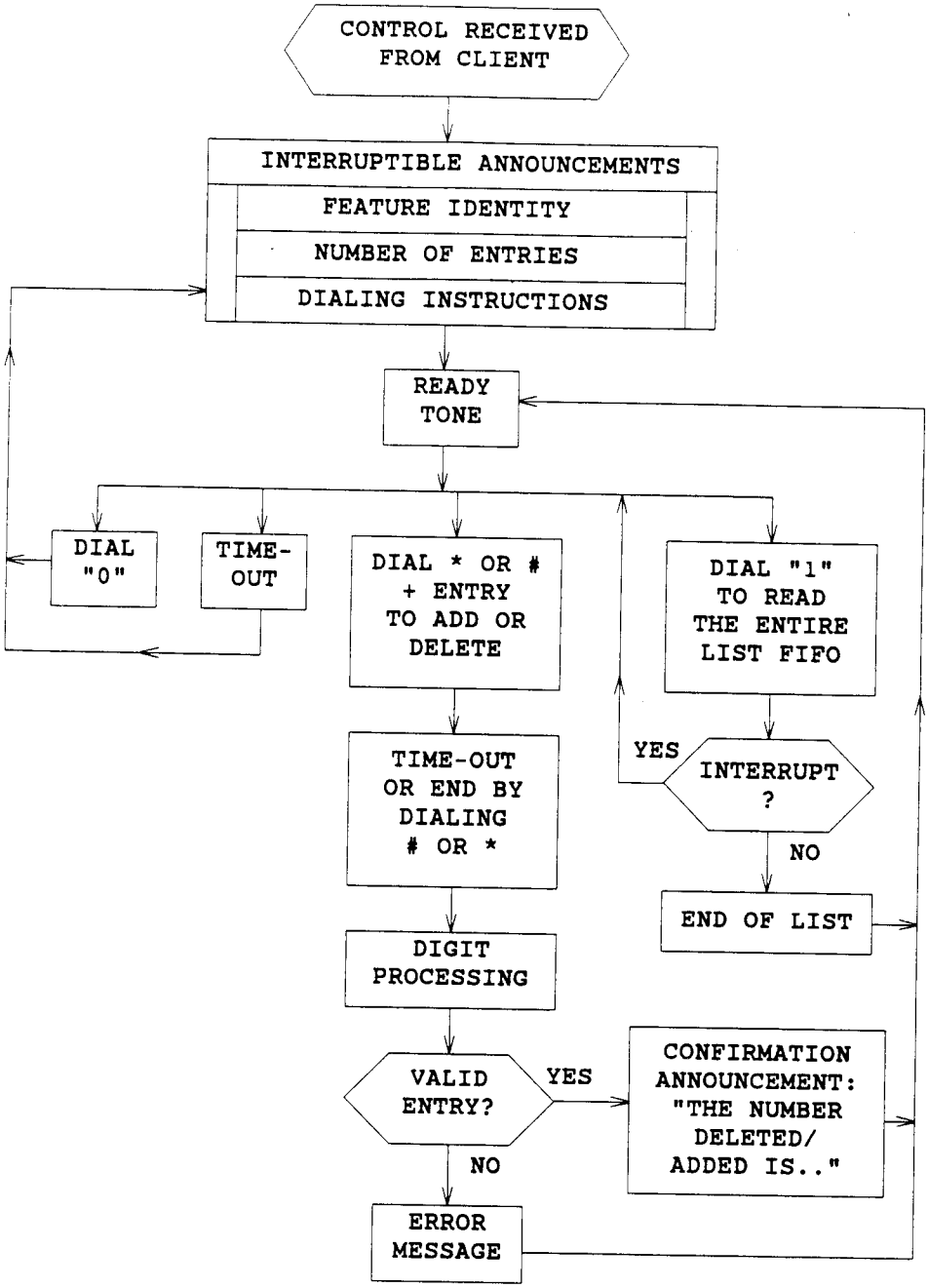


Figure 1. Distinctive Alerting Terminating Treatment



LEGEND:

FIFO - FIRST-IN, FIRST-OUT

Figure 2. Screen List Editing Activation Sequence

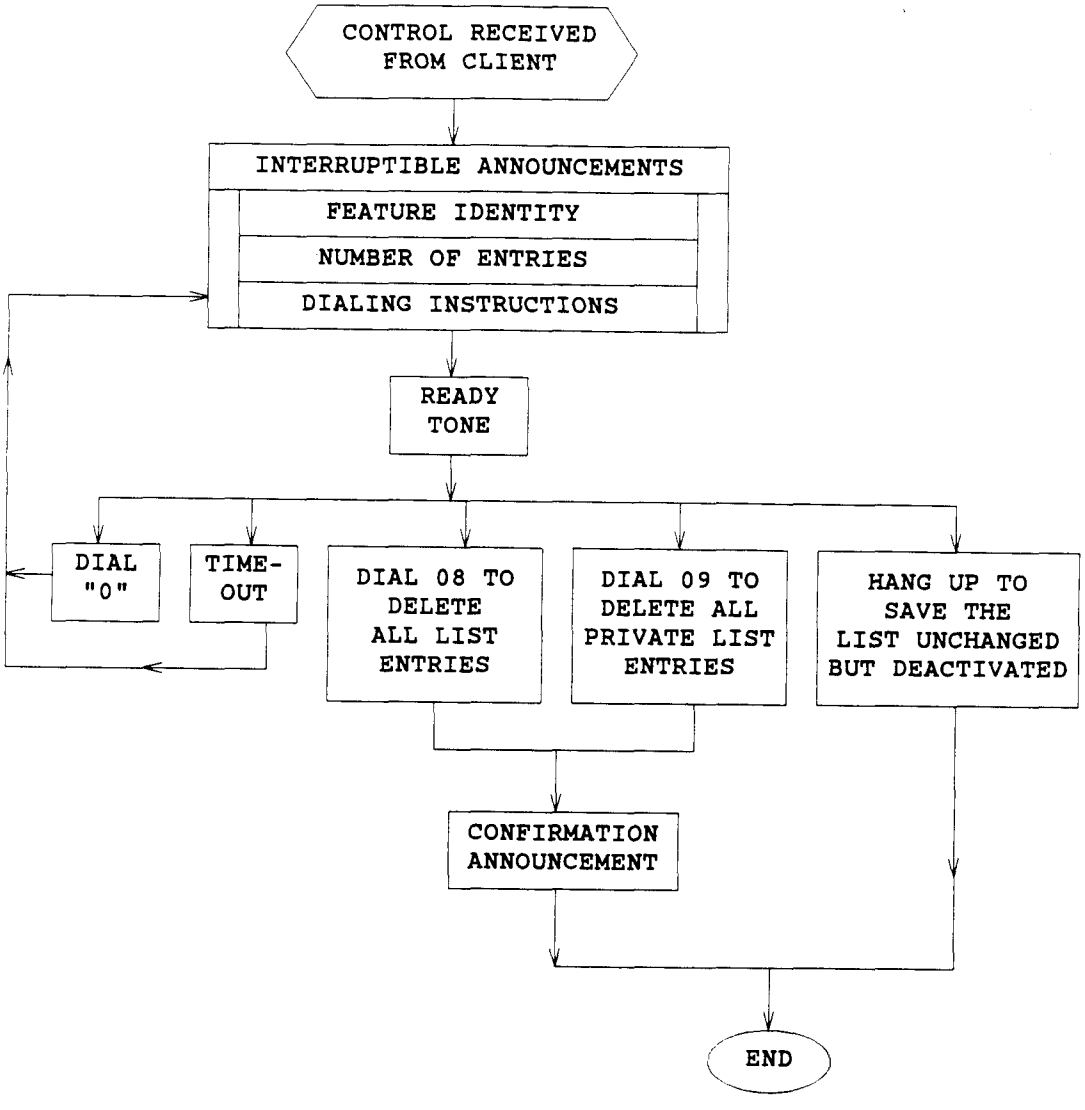


Figure 3. Screen List Editing Deactivation Sequence

Table A. Distinctive Alerting Terminating Treatment

Case	Busy/ Idle	DA	CWT	Results
1	Idle	No List	N/A	Standard ringing
2	Idle	Inactive List	N/A	Standard ringing
3	Idle	Active List	N/A	Distinctive ringing for specified calls, standard ringing for others
4	Busy	No List or Inactive List	No	No alerting, standard busy treatment
5	Busy	No List or Inactive List	Yes	Standard call waiting tone
6	Busy	Active List	No	No alerting, standard busy treatment
7	Busy	Active List	Yes	Distinctive call waiting tone for specified calls, standard ringing for others

FEEDBACK FORM

Document Title: 1A ESS™ Switch
Distinctive Alerting
Local Area Signaling Services
Feature Document

Document Number: 231-390-237

Issue Number: 5

Issue Date: August 1996

Lucent Technologies welcomes your feedback on this document. When commenting on specific items within this document, please include the section/chapter, paragraph, and page numbers in question. If you choose to complete the "Submitted by" information at the bottom of this form, a Lucent Technologies representative will respond to your comments.

Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Submitted by (optional):

Name: _____

Company/Organizations: _____

Address: _____

Telephone Number: _____

Date: _____

Return to:

Document Preparation Group
c/o M. W. Auter
Lucent Technologies Inc.
Network Software Center
2600 Warrenville Road
Lisle, IL 60532
or FAX 708-224-7180