



**800 Service
Common Channel Signaling System 7
Feature Document
1A ESS™ Switch**

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1. Introduction

Definition

1.01 The **800 Service** feature provides the capability to route toll-free calls over the carrier chosen by the terminating 800 Service customer through the use of a TELCO (telephone company) data base. The TELCO data base is accessed via CCS7 (Common Channel Signaling System 7) SCCP (Signaling Connection Control Part) messages.

Reason For Reissue

1.02 This document is being reissued to add information concerning the Termination Attempt Trigger (TAT) and Advanced Intelligent Network (AIN) Release 0.1 Protocol and Capabilities Features.

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

1.04 Additional copies of this practice, associated appendixes, and all referenced practices may be ordered from the AT&T Customer Information Center. One of the following methods should be used:

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1.05 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.

1.06 This practice is issued by:

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Background

1.07 Before divestiture, INWATS (inward wide area telecommunications service) calls (that is, 1-800-NXX-XXXX) were routed from the originating end office to a toll OSO (originating screening office). The OSO, using CCIS (Common Channel Interoffice Signaling 6), would query an AT&T-owned 800 data base and receive a DDD (direct distance dialing) number as a response. The call was then routed to this 10-digit directory number over the AT&T network to the INWATS customer. With divestiture, however, it is necessary to specify the carrier that is used to route the call.

1.08 The BNI SSP/800 feature provides for CCS7 EA (equal access) signaling.

Previous to the BNI SSP/800 development, NS (Number Services) used only CCS7 intra-LATA signaling. Activation of BNI SSP/800 removes this restriction. It allows CCS7 to be used possibly all the way from the local exchange to an IXC (interexchange carrier). Interworking CCS7 signaling with inband signaling is also provided. The BNI SSP/800 development also upgrades CCS7 intra-LATA signaling.

1.09 The 800 Number Exhaust Feature provides additional (besides 800) Service Access Codes (SACs) for toll-free numbering services. The first two new toll-free SACs are 888 and 877. Other new toll-free SACs are forthcoming. Each new toll-free SAC functions virtually the same as the 800 SAC. The one exception is that 00Y codes are not supported for the new toll-free SACs.

1.10 Any reference in this document to "800 Number Service", "800 NS", or "800 Service" pertains to the feature which now includes all toll-free numbers. Also, in general, any reference to a "800 Call" or "800-NXX-XXXX" means a "toll-free" call or number.

Economic Worth

1.11 The 800 Service feature provides EA for toll-free calls in the divested environment. Typically, an access tandem serves as a SSP (service switching point) to which toll-free calls are routed for processing. The SSP office uses CCS7 to query a TELCO data base such as a SCP (service control point). A successful response to the query contains not only the routing number, but also the carrier that should be used to route the call.

1.12 The routing number could be a DDD number, an IDDD (international DDD), or a toll-free number that is routed to an IC/INC (inter-LATA/international carrier). Alternately, the response could indicate that the TELCO is the carrier, and the DDD number is routed intra-LATA. The routing information can be dependent on time of day, day of week, geographic location, or other arrangements made between the terminating toll-free customer and the TELCO from which the call originated.

Availability

1.13 The 800 Service feature is available with the 1AE10.01 generic program. An APS (Attached Processor System), operating with the AP<3>3 or later generic program, is required.

1.14 The BNI SSP/800 feature which provides EA CCS7 call processing is initially available with the 1AE11.01 generic program.

1.15 The 800 Number Exhaust Feature, which provides additional toll-free SACs, is available with the 1AE12.05 Generic Program.

Feature Groups

1.16 The 800 Service feature requires the feature packages/groups listed in Table A.

1.17 Intra-LATA CCS7 call processing requires feature group 9SISUP. Inter-LATA/international CCS7 call processing requires 9SISUP and 9SBNI. Refer to Part 6 A(16) and A(17).

Feature Assignment

1.18 The 800 Service feature is assigned on a per central office basis. The SSP feature is required in the office.

2. User Perspective

User Profile

A. Customer

2.01 The originating customer does not interact directly with the 800 Service feature. The SSP feature provides 800 Service when a 10-digit toll-free number is dialed.

Telephone Company

2.02 The office providing 800 Service treatment must be connected to the CCS7 network via data links to a single mated pair of STPs (signal transfer points). Only one

56-kb/s data link pair is required, but an additional link may be necessary if traffic density warrants it.

2.03 Calls that are routed via ICs/INCs may use EAMF (equal access multifrequency) signaling or, if the BNI feature is active, CCS7 ISDN-UP signaling. Trunks used to route toll-free calls to XCs are normally trunks used to route EA signaling and may handle other traffic besides toll-free calls to the IC. For transition purposes, trunks to ICs may also use traditional signaling.

2.04 Trunks used to route calls via the TELCO carrier may be traditional, CCS7, or CCIS trunks. Calls either terminate within the office or route out of the SSP office over a trunk group specified by the office routing translations.

Customer Premises Equipment

2.05 The customer requires only a POTS (plain old telephone set).

Feature Description

A. Introduction

2.06 When an originating customer dials a toll-free number, the SSP feature identifies the number as an 800 NS call and hands it off to the 800 Service feature. Refer to Part 6 A(15) for detailed SSP information. The 800 Service feature formats the information needed for the query and passes it to the TCAP (Transaction Capability Application Part) feature. When calling TCAP to send the query message, 800 Service provides TCAP with the following:

- MIP (message interface processor) header information
- Correlation data consisting of a time-out return address and a call register address
- An indication of the package type and number of components for the message
- The parameters of each component with parameter identifiers and parameter values.

If no response is expected, no correlation data is provided. Refer to Part 6 A(14) for detailed TCAP information.

2.07 After TCAP formats the message, it invokes MIP routines to send the CCS7 message. The data base is queried for routing information using CCS7 SCCP protocol. Refer to Part 6 A(13) for detailed MIP and SCCP information.

2.08 The 800 Service feature receives a response for the call from the data base via MIP. The response includes the carrier number and the directory number. The 800 Service feature subsequently routes the call to the directory number over the chosen carrier.

2.09 As can be deduced from the preceding, the 800 Service feature is not complete in itself, but depends upon other features to function.

B. Pre-Query

2.10 The SSP feature provides front-end processing for all NS calls. It recognizes 800 Service calls and passes them to the 800 Service feature to query the SCP data base and complete processing and routing.

2.11 When the 800 Service feature receives a call from the SSP feature needing toll-free treatment, it assumes that any NM (network management) controls on the called number were checked by the SSP feature and do not apply. The following information is collected by the SSP feature and passed to 800 Service:

- (a) 10-digit called toll-free number
- (b) 3-, 6-, or 10-digit billing number (NPA-[NXX-{XXXX}])
- (c) ANI (automatic number identification) information digits (for example, 11)
- (d) Index to originating LATA
- (e) Call configuration
- (f) The CI (carrier interconnect) route list data derived from the 3/6-digit translation that identified the call as requiring NS treatment
- (g) Indication of type of toll-free call (normal or call forwarding)
- (h) Indication whether the call was controlled by an ACG (automatic call gap) but passed through the control.

2.12 For the 800 SAC only, the called number may be pulsed into the SSP office with an arbitrary 3-digit code in place of 800. This code can indicate any combination of the originating NPA (numbering plan area) code, originating LATA, or a coin origination. The 3-digit code is replaced, by SSP, with 800 before passing the data to 800 Service.

2.13 Call configuration information includes such items as originating lines or incoming trunks, and so on. The path that 800 Service receives consists of the normal digit reception configuration for both line and trunks.

2.14 Note, once SSP enters 800 Service on a call, SSP relinquishes control. However, 800 Service calls SSP routines (for example, SSP AMA [automatic message accounting] subsystem) at various stages during call processing.

C. Query

2.15 Once 800 Service has control of the call, it tries to query an external SCP data base for routing instructions. The 800 Service depends directly on the TCAP feature for formation and initiation of outgoing messages.

2.16 The 800 Service feature parameterizes the called and billing numbers, LATA, and ANI digits and passes them, with a request to send a query, to the TCAP feature.

2.17 The TCAP feature formats and sends an SCP data base query requesting routing information corresponding to the toll-free number. The TCAP feature returns to 800 Service with a success indicator immediately after sending the message; if TCAP is unable to format or initiate the message, a failure indicator is returned. If failure is returned, TCAP indicates to 800 Service whether the query attempt failed due to an incorrectly formatted message from 800 Service or from an inability to send the message out to the CCS7 network. If the query attempt fails, 800 Service routes the call to reorder.

2.18 The 800 Service feature requests via TCAP that 3-second timing be applied to 800 Service query messages. Buffer administration routines perform timing for the query. The TCAP feature calls MIP CCS-COM (CCS7 common routines) to perform buffer administration. If a response from the data base is not received in 3 seconds, CCS-COM enters 800 Service at the time-out address that

was specified when the query was sent; it indicates that the query timed out with no response. The call is then routed to reorder.

D. Normal Response

2.19 Under normal circumstances, a response message with the data base response is returned to 800 Service by MIP before the end of the timing interval. The TCAP feature is called to correlate, validate, and parse the response message. The TCAP feature returns to 800 Service with the address of the call register associated with the call and the block of data contained in the message. The following information is returned:

- Carrier code (XXX or optional XXXX with 1AE12)
- Routing number (DDD or IDDD)
- Billing indicators (call code and service feature index)
- Alternate billing number (optional).

2.20 The routing number could be a 10-digit DDD or a variable length IDDD number (including a country code). As part of the data in the response message, an indicator is provided to identify the routing number as DDD or IDDD. The 800 Service feature uses the response data and data passed from the SSP feature to route the call to the specified routing number via the indicated carrier.

E. Response With Automatic Call Gap or Termination Notification Request

2.21 In addition to the routing information, the response message could contain a request for ACG/TN (automatic call gap and/or termination notification).

2.22 If an ACG control is requested, 800 Service receives the following additional information in the response:

- The 6- or 10-digit code to be gapped
- The gap interval
- The gap duration
- The reason for gap.

2.23 This information is passed to a SSP NM routine to effect the gap. If the gap cannot be placed due to list overflow, NM indicates this to 800 Service; the data base can

then be notified if it has so requested. After placement of the ACG, 800 Service routes the call according to the routing information that was returned.

2.24 If a response is received with no ACG component, and the SSP feature has previously indicated that the number passed through an ACG, any existing gap against the number will be removed. The 800 Service feature calls the SSP NM ACG routines and passes the 10-digit dialed number with an indication that removal is required.

2.25 The data base can also include a request for TN with the routing data. In this case, the response message contains an echo data parameter (from the data base) that 800 Service sends with the TN to identify the call. When a request for TN is received, 800 Service marks the call for notification. Upon call abandon or normal completion of calls marked for notification, 800 Service sends a TN message to the data base with the following data:

- Termination indicators (for example, answered, abandoned, ACG overflow)
- Echo data (for correlation)
- Connect time (call duration from AMA record)
- Error type (if TN cannot be provided)
- Data (data in error from data base, if any).

2.26 If the caller abandons the call after the routing query, but before the response, the response is ignored except when requesting TN. In that case, a TN message is sent indicating caller abandoned.

2.27 If the data base can not provide routing information for a particular toll-free number, the response message contains an announcement type parameter. This parameter instructs the 800 Service feature to connect the caller to the indicated tone or announcement. Refer to paragraph 2.53 for more details.

F. Routing

2.28 Calls experiencing 800 Service treatment are routed to the carrier specified in the data base response. This carrier may be an IXC (IC/INC) or the TELCO. (Routing to the TELCO is indicated by a unique carrier code. See paragraph 3.12.) Calls destined for an IC or the TELCO have 10-digit

DDD numbers. Calls to an INC may have a variable length IDDD number containing a country code.

2.29 If the call is to be routed to an IXC, and a direct route exists, it is routed over the trunk group to that carrier assigned for 800 Service traffic in preference to an indirect route. However, if no direct route exists or all direct routes are busy, the call routes indirectly via an AT (access tandem) (if this alternate route exists). Calls destined for the TELCO route over regular TELCO trunks to the serving end office or terminate to a line served by the SSP office.

2.30 If a call routes to an IXC, no routing translations are done on the 10-digit routing number. It is passed to the carrier intact, even though it may be an intra-LATA destination or an invalid national number.

2.31 If the routing number is a variable length IDDD number, it must be translated to determine the length of the country code contained in the number and to determine if the routing number has the correct length. If the country code is undefined or the number of digits is incorrect, the call is routed to reorder. If the routing number is acceptable, it is passed to the indicated INC using IDDD CI signaling. Refer to Part 6 A(1) for details on IDDD signaling.

2.32 For calls receiving 800 Service treatment that route indirectly to a carrier, the SSP office has the ability to specify to the AT which trunk group to use when routing to the IXC. This is done by using different OZZ codes in the outpulsing sequence to the AT.

2.33 If a call receives 800 Service treatment in an AT serving more than one LATA, the call routes to the IXC point of presence that is appropriate for the caller's LATA. This is accomplished by using standard CI routing procedures. Refer to Part 6 A(1) for details on CI routing.

2.34 If the toll-free number corresponds to an out-of-band, unassigned, or disconnected number, the call routes to the announcement specified in the response. If a call processing or signaling error occurs, the call is routed to reorder.

2.35 Network management controls against POTS numbers that are returned from the data base query apply to 800 Service calls

before they are completed. On all calls, controls against the destination number are checked unless the destination number is an toll-free number or the call is IDDD. For calls routing to an IXC, controls against the XXX (or optional XXXX with 1AE12) carrier code are also checked. If a call receives routing instructions as a result of a query, but is blocked as a result of NM, TN is sent to the data base if it was requested in the response.

2.36 The 800 NS SCP may return a routing number which corresponds to an ASP/SSP Dialed Number Trigger (DNT). If the 800 NS SCP returns a non-LEC carrier, the call will be outpulsed directly to the carrier and ASP/SSP trigger processing will not occur. If LEC routing is specified, the routing number will be analyzed in the switch and recognized as a DNT. Refer to Part 6 A(18) for more information about ASP/SSP.

Special Planning Considerations

2.37 Installation and testing of this feature in an office already providing the toll-free OSO function should not affect that function. The SSP feature performs 3/6-digit translation on the dialed digits to determine whether OSO treatment or SSP treatment should be given. Only calls requiring SCP routing enter 800 Service. Refer to Part 6 A(7) and A(15).

2.38 If a call receiving 800 Service treatment is destined for a carrier using the OSO function in the SSP office, the call must be routed over loop-around trunks. The call reenters the office as a call requiring OSO treatment.

Signaling

A. Intersystem DC Signaling

2.39 A SSP office is able to interface with IXCs using either CCS7 (with BNI SSP/800) or EAMF signaling. This applies to direct and indirect routing to carriers. Traditional per trunk signaling, CCIS, or CCS7 signaling is used when routing via the TELCO.

B. Intersystem AC Signaling

2.40 Equal access signaling between the SSP and the IXC or AT may be CCS7 or EAMF. Refer to Part 6 A(1) for details

concerning EA signaling.

2.41 An SSP office may serve more than one NPA. In this case, if an 800 number is returned from the data base, the 800 can be replaced (if possible) by 00Y to indicate the originating NPA for outpulsing if the call routes to an IXC. The format is KP+00Y+NXX+XXXX+ST. If a POTS number is returned, the existing ANI digits are replaced by "24" to indicate that the POTS number corresponds to an 800 number.

2.42 When an international number is received in the response, it is necessary to determine the country code so that it can be outpulsed in the first stage of signaling to the carrier. Special 01R codes are used if the call is for an INC and either a toll-free number or a number in the North American numbering plan is returned.

C. Common Channel Signaling

2.43 The SSP office communicates with the SCP using the CCS7 SCCP protocol. Data base queries destined for the SCP are routed via a STP. The STP is responsible for routing messages to the appropriate SCP.

2.44 When 800 Service is installed, the switch may be using CCIS for the OSO or other functions. The switch will be able to continue using this method of signaling in addition to CCS7 signaling.

Abnormal Operations

2.45 If the call experiences any of the call processing failures listed below, it is routed to reorder.

- Resource unavailable
- Receipt of incorrect command or data
- Timed out waiting for response
- Carrier does not serve LATA.

A. Error Treatment

2.46 Most errors in protocol are detected by TCAP. When this occurs, TCAP can not validate the response to 800 Service. The 800 Service feature has the responsibility of reporting the error to the data base. A protocol error such as an unrecognized operation (not defined for an application) can not be detected by TCAP, but by the particular application. If

this occurs in the response from a query, 800 Service indicates this to the data base. The TCAP feature is called to send a reject message and 800 Service passes the following information:

- Invoke ID from erroneous response message (if available)
- Problem code.

If this error occurs, the call is routed to reorder.

2.47 If the data base cannot provide routing information because of an improper or invalid component in the query, it returns an error response. The TCAP feature correlates the error message to the originating query, returns the call register address, and provides 800 Service with the following information:

- Error code (unexpected operation or data)
- Problem data.

2.48 If the data base detects a protocol error in the query, it returns a reject response. The TCAP feature correlates the response to the call and returns to 800 Service with the message containing a problem code which indicates the type of error.

2.49 In either of the above cases, the call is routed to tone or announcement.

2.50 If an incoming message is received by 800 Service that cannot be correlated by TCAP to an outstanding query, it is ignored. No call processing action is taken since the message can not be associated with a call in progress. If an incoming message was intended as a response to a query, and the ID is garbled during transmission, correlation failure occurs. Expiration of the 3-second timer causes entry into 800 Service where the call is routed to reorder because no usable response was received.

2.51 If 800 Service detects invalid or improper data in a response, an error message is sent to the data base. This message indicates that an error has been detected, and includes the entire parameter in which the error was found. Data errors can be classified as nonfatal if the call can still be completed despite the error. If the call cannot be completed, it is classified as fatal. (An ACG request with an 8-digit number would be a nonfatal error since it does not affect the routing of the call. A DDD routing number with

only nine digits would be a fatal error.)

2.52 If TN is requested and the error is fatal, the TN message can reflect the error and signify the end of the call. However, if TN is requested, but the error is nonfatal, a normal **report error message** is sent to notify the data base that an error has been detected. Processing of the call continues. If no TN is requested, both fatal and nonfatal errors are reported using report error. Processing continues for nonfatal errors, while fatal errors result in the call being routed to reorder.

2.53 If the data base receives a proper query, but cannot provide routing information (due to the following reasons), it responds with a message containing an announcement type.

- Vacant code
- Out-of-band call
- Disconnected number.

The announcement type is passed to 800 Service by TCAP for translation to its corresponding route index. The call routes to the announcement associated with the route index specified by the announcement type. However, if the 800 Service query is the result of call forwarding to a toll-free number, the call is routed to reorder.

Interactions

2.54 The 800 Service feature interacts with the following features:

- Directly with the SSP feature for code interpretation and screening. Refer to Part 6 A(15).
- The MIP and TCAP features for sending queries and receiving responses. Refer to Part 6 A(13) and A(14).
- The BNI SSP/800 feature to effect IN/INC CCS7 call processing.
- The 800 NS feature may interact with the ASP/SSP feature. The 800 NS SCP may specify LEC routing to a number which corresponds to a Dialed Number Trigger and/or the ASP/SSP SCP may return an 800 number that requires 800 NS processing. For a discussion of the interactions, refer to Part 6 A(18) for more information.

- The 800 NS feature may interact with the AIN Release 0.1 Termination Attempt Trigger (TAT) feature. The 800 NS SCP query may include AIN specified SCP information received in a Forward Call message in response to a TAT query. Refer to AT&T Practice 231-390-522 for more information on the Advanced Intelligent Network (AIN) Release 0.1 Protocol and Capabilities which include the TAT feature.

2.55 The 800 Service feature requires capabilities in the AMA, measurement, NM, and translation subsystems of the SSP feature. These capabilities are packaged with SSP because it provides common preprocessing and other services (such as AMA) for all NS.

2.56 A 1A ESS switch with 800 Service must be arranged for carrier interconnect and CCS7 SCCP signaling.

3. Engineering

3.01 These guidelines are for planning purposes only. The COEES (Central Office Equipment Engineering System) Information System engineering document, Index 75, 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 800 Service feature requires the hardware necessary to allow the switch to communicate over the CCS7 network. Refer to Part 6 A(13).

Software

A. Base Generic Program

- 3.03 The 800 Service feature is available with the 1AE10.01 generic program. The AP<3>3 generic program, or later, must be in place for the APS.
- 3.04 The BNI SSP/800 feature is available with the 1AE11.01 generic program.
- 3.05 The 800 Number Exhaust Feature is available with the 1AE12.05 Generic

Program.

B. Optionally Loaded Feature Groups

- 3.06 Table A lists the memory requirements for the 800 Service feature.
- 3.07 Refer to Part 6 A(16) and A(17) for feature group 9SBNI memory requirements.

C. Parameters/Call Store Areas

3.08 Refer to Part 6 A(15).

D. Translation Interfaces

3.09 The translations used by the 800 Service feature are implemented under the SSP feature. Refer to Part 6 A(7) and A(15) for specific translator information. Refer to Part 6 B(8) for general translation information. The following indicates the type of information required at various points in the 800 Service call flow.

3.10 **Trunk Group Translation:** The 800 Service feature attempts to derive the optional NS RLOPT (route list option), RLINDX (route list index), and RLSEL (route list selector) from the incoming trunk group for CI routing.

3.11 **NPA to 00Y Translation:** If the destination number received in the response has a NPA of 800, the ONPA (originating NPA) of the calling party can be translated to a 00Y code for outpulsing to the carrier. The ONPA is input, and if a 00Y exists for that ONPA, it is returned. If no 00Y exists, an indication of this is returned; this is not considered an error condition by 800 Service. This translation is not available for non-800 toll-free NPAs.

3.12 **TELCO XXX[X]:** This carrier code is stored in the office option table and is read directly without a call to translations. It is used by SSP to determine if an incoming EA call is a NS call. It is also used by 800 Service to determine if the XXX (or optional XXXX with 1AE12) returned in the response message indicates TELCO routing.

3.13 **LATA Index to LATA ID Translation:** The SSP passes a 4-bit LATA index to 800 that must be translated to a 12-bit LATA ID for inclusion in the query. The LATA index is input and the LATA ID is returned.

3.14 Announcement Type to Route Index Translation: If an announcement type is returned in the response message in place of routing instructions, the calling party must be connected to the announcement indicated by this value. The 800 Service inputs the announcement type and indicates whether the call is 2- or 4-wire and receives a route index that is used to route the call to tone or announcement.

3.15 The SSP Designated Translation Environment: The 800 Service feature reads the 3-digit translator ID of this environment directly from the office option table. This ID is then passed by 800 Service, along with the SSP prefix bit (also read directly from the office option table), to a routine that obtains routing for calls completed via the TELCO. The same translator is used for checking POTS NM call gaps on both TELCO and carrier routed calls. The home NPA of this environment is used for NM purposes, and the SSP prefix bit is used in conjunction with calls to this translator to resolve conflicts that may arise if it is shared.

3.16 XXX[X] Call Gap Translation: If the toll-free call routes over a carrier, this translation routine is called to determine if the XXX (or optional XXXX with 1AE12) code has a call gap control against it. A slot index is returned if the control is active.

3.17 POTS NM Call Gap Translations: This is a routine for accessing the designated environment for NM purposes only, without attempting routing. It is used to check call gap controls against the destination number on calls routed via an IC/INC and to get the gateway ID (R value) to use in outputting to an INC. The 800 Service feature passes three digits, the SSP prefix bit, and the designated environment translator ID. The slot index and gateway ID are returned.

3.18 Carrier Interconnect Translations: These translations are modifications of standard CI routines which allow for routing toll-free calls to the desired IXC. The following items are input by the 800 Service feature:

- The XXX (or optional XXXX with 1AE12) carrier code received in the response.
- The primary route list defaults for the 800 NS entry that should be used in the selection process.

- An indication that no 0+ prefix was dialed.
- An indicator that a 2-wire or HILO route should be chosen.
- Rate and route pattern route list data passed from SSP.
- NS route list information derived from the trunk group (if the call was incoming).
- Indications of whether IC and/or INC routing is allowed.

For calls returned IDDD, 800 routing numbers, and numbers with excepted codes, INC routing is allowed. For all calls except those marked as IDDD, IC routing is allowed.

3.19 IDDD Translation: If IDDD is indicated in the response message of a toll-free call, this translation routine provides the country code length in the destination number.

4. Implementation

4.01 Refer to Part 6 A(7) and A(15).

Set Cards

4.02 Refer to Part 6 B(2), B(4), and B(6) for comprehensive set card information. The set cards listed in Table A are required for the SSP/800 Service features.

Translation Forms

4.03 The translation forms that are applicable to the SSP feature also apply to the 800 Service feature. Refer to Part 6 A(15) and the TG-1A for details.

Recent Change Messages

4.04 Refer to Part 6 A(7) and A(15).

Verification

4.05 Input message SSP-EIGHT- is used to perform an 800 Service test query of the SCP data base. Output message SSP8OUT-

ERROR indicates the 800 Service test query failed and the reason for failure. Output message SSPOUT-RESPONSE indicates a successful 800 Service test query and the response data. Refer to Part 6 B(3) and B(5).

5. Administration

Measurements

5.01 Maintenance measurements are provided to indicate the level of service provided by the SSP feature in addition to the performance level of equipment in the office. Traffic engineering, network management, or administrative personnel may also use these counts. Refer to Part 6 A(12).

5.02 The following counts apply to SSP/800 Service. These traffic counts appear on the hourly (H/C), selected quarter hour (DA15), and special studies (S1 and S2) traffic schedules. The plant counts appear in the service measurement section of the PM01 TTY message.

- Call processing failure before query (traffic count).
- Call processing failure after query (traffic count).
- Signaling failure—time-out (plant measurement).
- Invalid command message (plant measurement).
- Abandon before outpulsing (traffic count).
- Abandon after outpulsing (traffic count).
- 800 queries sent (traffic count).

Automatic Message Accounting

5.03 The originating party is not charged for toll-free calls. However, an AMA record for access charge billing and possible end user billing is made at the SSP office. The AMA record type may be OFNS (old format for number services) or AMASE (automatic message accounting standard entries) depending upon the office AMA recording option. The data base response message call type indicates the call code to use in the

record. Refer to Part 6 A(8) and A(9).

5.04 The SSP AMA subsystem associates the call codes with structure codes to provide for future flexibility. Ten additional structure codes are provided with NS for use with 800 Service and future NS.

5.05 An AMA record is made on all calls routed to IXCs when a trunk is seized and an initial wink is returned, and on all calls routed to the TELCO that are answered. Recording of unanswered calls is provided on an optional basis for study purposes. The 800 Service feature calls SSP AMA routines to initiate the AMA record for 800 Service calls. Normal disconnect processing reports the end of the call to AMA so that the record can be closed.

5.06 The 800 Service feature calls the SSP AMA subsystem after the response has been received and validated to initiate AMA processing on the call. The following data is supplied to AMA in a scratch block:

- The AMA call code received in the response.
- The originating LATA ID.
- The customer's revenue accounting office. This is always set to 0.
- The alternate billing number if received in the response.
- As much of the billing number (3/6/10 digits) as SSP call processing has received or derived.
- The IDDD indicator that is received in the response message.
- The destination number that is received in the response.
- The 10-digit dialed toll-free number passed from SSP call processing.
- The service feature identification from the response message.
- An indicator of whether the call will be completed by the TELCO or a carrier.
- An indication of whether the TN is required, and if so, the echo data, originating point code, and calling party address from the response message. Also, an indicator is supplied of success or failure of a requested ACG placement.
- For IXC routing, an indicator of whether or not ANI was required on the call, that XXX

(or optional XXXX with 1AE12) was derived, and that 0+ was not dialed.

5.07 If TN is requested, the SSP AMA subsystem formats the data passed to it for TN purposes and the call duration (when disconnect is detected on an answered call, or when abandon is detected on an unanswered call). The AMA subsystem sends the TN message if requested. If AMA sends the TN message for an answered call, it is done from the AMASE/OFNS software on the APS. If sent for an abandoned call, it is done by AMA on the 1A ESS switch.

5.08 The AMA subsystem may be unable to perform billing on a call due to the unavailability of an AMA register, undefined call code, etc. This implies both loss of billing on the call and an inability to perform the TN function at disconnect. If AMA failure is due to an undefined call code, SSP AMA prints a data base error message on the TTY and sends a nonfatal report error message.

6. Supplementary Information

References

6.01 The following documentation contains information related to or affected by the 800 feature.

A. AT&T Practices

- (1) 231-090-120 – *Carrier Interconnect Feature*
- (2) 231-090-278 – *Centralized Automatic Message Accounting Feature*
- (3) 231-090-366 – *HIL0 4-Wire Switching Feature*
- (4) 231-090-416 – *Common Channel Interoffice Signaling Feature*
- (5) 231-318-334 – *Trunk Recent Change Formats*
- (6) 231-318-336 – *Rate and Route Recent Change Formats*
- (7) 231-318-376 – *CCS7 SSP Translation Implementation Procedures*
- (8) 231-390-063 – *Automatic Message Accounting Feature*

- (9) 231-390-069 – *Automatic Message Accounting Standard Entries and Multientry Teleprocessing Feature*
- (10) 231-390-207 – *Traffic Measurement Feature*
- (11) 231-390-220 – *HIL0 4-Wire Access Tandem Feature*
- (12) 231-390-305 – *Network Management Feature*
- (13) 231-390-500 – *Common Channel Signaling System 7 General Description*
- (14) 231-390-508 – *Transaction Capability Application Part (TCAP) CCS7 Feature*
- (15) 231-390-509 – *Service Switching Point (SSP) CCS7 Feature*
- (16) 231-390-502 – *Integrated Services User Part (ISUP) Feature*
- (17) 231-390-521 – *Basic Network Interconnect Feature*
- (18) 231-390-519 – *Advanced Services Platform/Service Switching Point (ASP/SSP) Feature Document*
- (19) 231-390-522 – *Advanced Intelligent Network (AIN) Release 0.1 Protocol and Capabilities Feature Document*

B. Other Documentation

- (1) *Call Store Data Layout Manual PK-6A006*
- (2) *COEES Information System Engineering Document Index 75*
- (3) *Input Message Manual IM-6A001*
- (4) *Office Parameter Specification PA-6A001*
- (5) *Output Message Manual OM-6A001*
- (6) *Parameter Guide PG-1A*
- (7) *Translation Guide TG-1A*
- (8) *Translation Output Configuration PA-6A002*

7. Abbreviations and Acronyms

A

ACG

Automatic Call Gap

AIN

Advanced Intelligent Network

AMA

Automatic Message Accounting

AMASE

Automatic Message Accounting Standard Entries

ANI

Automatic Number Identification

APS

Attached Processor System

AT

Access Tandem

C

CCS

Common Channel Signaling

CIC

Carrier Identification Code

CICE

Carrier Identification Code Expansion

D

DDD

Direct Distance Dialing

DNT

Dialed Number Trigger

E

EA

Equal Access

I

IC

Inter-LATA Carrier

IDDD

International Direct Distance Dialing

INC

International Carrier

INWATS

Inward Wide Area Telecommunications Service

IXC

Interexchange Carrier

L

LATA

Local Access and Transport Area

M

MIP

Message Interface Processor

N

NM

Network Management

NPA

Numbering Plan Area

NS

Number Services

O

OFNS

Old Format for Number Services

OSO

Originating Screening Office

S

SAC
Service Access Code

SCCP
Signaling Connection Control Part

SCP
Service Control Point

SSP
Service Switching Point

STP
Signal Transfer Point

T

TAT
Termination Attempt Trigger

TCAP
Transaction Capability Application Part

TELCO
Telephone Company

TN
Termination Notification

Table A. CCS7 Feature Group 9SSSP8

Feature Groups Required	Feature Packages Required	Size	
		10.07	11.01
9SSSP	9F800NS	3,552	3,648
9SMIP	9FSSP	10,240	7,904
9STCAP	9FMIP	2,973	3,168
9SAPS	9FTCAP	4,480	6,368
	9FAPS	960	960
	9FAPSCSN	0	0
	9FAPSPRC	0	0
	9FAPSUTL	32	32
	9FAPS20	0	0
9SAMAS/9SOFNS	9FAMASE/9FOFNS	3,648/2,000	3,712/2,558
9SDRPC	9FDRPC	1,248	1,248
9SVM11	9FVMI	12,104	13,568
9SCARI	9FCARI	2,784	2,784

Note: Either 9SAMAS or 9SOFNS must be selected.

FEEDBACK FORM

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Common Channel Signaling System 7
Feature Document
1A ESS™ Switch

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