FEATURE DOCUMENT

INTERNATIONAL DIRECT DISTANCE DIALING (IDDD)

NO. 3 ELECTRONIC SWITCHING SYSTEM

CONTENTS PAGE

NOTICE
Not for use or disclosure outside the
Bell System except under written agreement

Figures

CONTENTS PAGE

Tables

CONTENTS PAGE

INTRODUCTION

1. GENERAL INFORMATION

1.01 This document describes the International Direct Distance Dialing (IDDD) feature for the No. 3 Electronic Switching System (ESS). This feature provides the capability for direct distance dialing (DDD) outside the North American Network. No additional hardware is required to provide this feature.

1.02 When this section is reissued, the reasons for reissue will be included in this paragraph.

FEATURE AVAILABILITY

1.03 The IDDD feature is available for all No. 3 ESS systems equipped with the 3E3 and later generic programs; however, a special IDDD feature package was provided for specific applications of Issue 4A of the SO-2 generic program.

2. DEFINITION

2.01 International direct distance dialing (IDDD) is a feature which allows customers served by a No. 3 ESS to place calls outside the North American continent without the assistance of an operator. The No. 3 ESS requires an interface with a Traffic Service Position System (TSPS) for the handling of calls involving international numbers. For details concerning the world numbering plan and the location of international switching centers, refer to the Notes On Distance Dialing, Section 781-030-100. The TSPS arrangement allows the routing of coin and noncoin calls to TSPS for subsequent completion. Section 233-190-149 provides further details concerning operations performed to provide compatibility between the TSPS and the No. 3 ESS.

2.02 Customer routing and charging for IDDD calls from a No. 3 ESS office are provided via a TSPS. The TSPS office forwards the call to a gateway office or to an overseas assistance operator. A call intended for an overseas operator may be handled by the TSPS operator, or may be forwarded to a gateway center (TSPS option).

2.03 The IDDD call type is identified by a 2- or 3-digit prefix which is dialed preceding the country code and national number. The prefix "01" identifies the call as an international call. When 01 is followed by a "0" (representing an international 0- call), the call is intended for the overseas operator. A station-to-station call is identified by the prefix "011." When the prefix "01" is followed by the first digit of the country code (representing an international 0+ call), the call is customer dialed but requires the assistance of the TSPS operator (usually for some type of special billing).

2.04 The country code consists of one to three digits used to identify the country or group of countries for which the overseas call is destined. After dialing the national number, which may consist of a uniform or a variable quantity of digits, dialing is considered to be complete. A total quantity of twelve digits are allowed excluding the IDDD access code. See Table A.

DESCRIPTION

3. USER OPERATION

3.01 In order to enable dialing to distant countries, country codes are assigned to a country or group of countries. A national number is assigned to each station in order to define the station within the associated country. The international telephone number consists of the country code and national number.

3.02 Customers using the IDDD feature must dial one of the three prefix codes. The prefix code "011" is dialed for direct distance dialing of station-to-station calls. International 0+ calls (those requiring the assistance of an operator, eg, person-to-person, credit card, etc) use a 2-digit prefix code of "01." Operator calls use "010" (international 0-) to reach an overseas assistance operator. In the latter case after dialing the code, dialing is considered complete. Operator assistance (010) calls are required when the called number consists of more than 12 digits.

3.03 After the prefix code has been dialed, the customer continues by dialing the country code (CC). The country code consists of one to three digits used to identify the country or countries in which the called station is located. The national number (NN) follows the country code and defines the called station in that country, or group of countries. The usual interdigital timing is employed for the IDDD access code and the country code, as well as the national number.

TABLE A

COUNTRY CODES AND NATIONAL NUMBERS

COUNTRY	COUNTRY CODE (CC)	NATIONAL NUMBER (NN) NO. OF DIGITS
HONG HONG	852	6 to 9
IRELAND	353	5 to 8
ISRAEL	972	6 or 7
JAPAN	81	6 to 11
SWITZERLAND	41	5
UNITED KINGDOM	44	7
U.S.S.R.	7	8

Note: This is an example. It is not intended to be accurate or complete. Consult the Traffic Routing Guide for complete details.

3.04 Some countries have a uniform numbering plan; therefore, the number of digits to be dialed can be predetermined and a normal end-of-dialing timing will occur. Some countries have a variable number of digits in their numbering plan. Customers with a TOUCH-TONE® station dialing these countries may dial a "#" digit to indicate to the system that the end of dialing has occurred. Otherwise, a waiting period of 4 seconds is required after the minimum number of digits have been dialed. When a station- or equipment-in-use condition is encountered, an interrupted audible signal is returned to the originating customer.

4. SYSTEM OPERATION

4.01 A flowchart illustrating the functions required to provide the IDDD feature is shown in Figure 1.

4.02 The No. 3 ESS recognizes a customer-dialed international call by the first two digits of the IDDD prefix (01). The last digit of the prefix (0 or 1) is used to index into the IDDD translator. This translator, shown in Figure 2, then translates the customer's dialed digits in order to identify a valid country code. When the country code has been identified, the IDDD translator specifies the number of digits to expect (maximum and minimum) for the international number and provides a code index which eventually points to a TSPS trunk group. If the country code is invalid, or if the office does not allow IDDD calls, the translator provides a code index which points to some error treatment as desired by the operating company.

4.03 When prefix code 01 or 011 has been dialed, the customer continues by dialing the country code and national number. If the IDDD prefix "010" is dialed, the call is intended for an overseas operator and no other digits are expected. The IDDD translator provides a code index leading to an overseas operator (via a TSPS trunk group). The No. 3 ESS performs a coin return operation if the originating translation indicates that the calling line is a coin line or a toll diversion operation if the calling line is a PBX line. A start code is then determined based on the type of line (coin or noncoin), and the leading zero of the prefix is deleted. The remaining digits of the prefix (10) are then outpulsed to the TSPS preceded by a keypulse signal and followed by the start code. The TSPS then has the option of handling the call or it may outpulse the proper code to the gateway office. When the TSPS is ready to receive the automatic number identification (ANI), an off-hook signal is returned to the No. 3 ESS. The operator then controls the call to completion.

4.04 When the prefix "011" or "01" is dialed, more digits are expected. A station-to-station call requires a "011" prefix and an international 0+ call (person-to-person, credit card, bill to third party, collect, etc) requires a "01" prefix. When proper billing information has been obtained, the operator connection is released and the TSPS provides the automatic message accounting (AMA) function until the call is completed just as if the call was placed without operator assistance.

4.05 When the "011" or "01" prefix is dialed, the IDDD translator interprets the digits

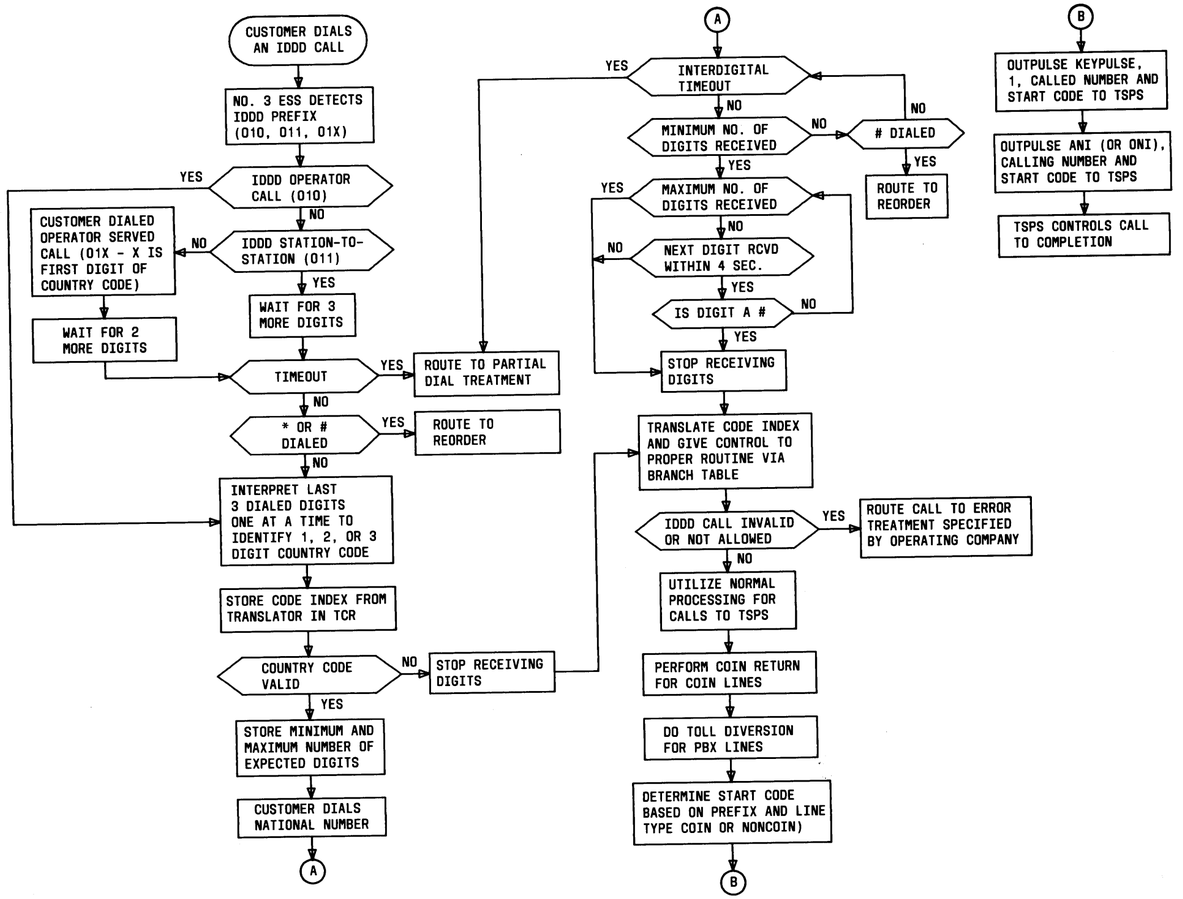

Fig. 1—IDDD Flowchart

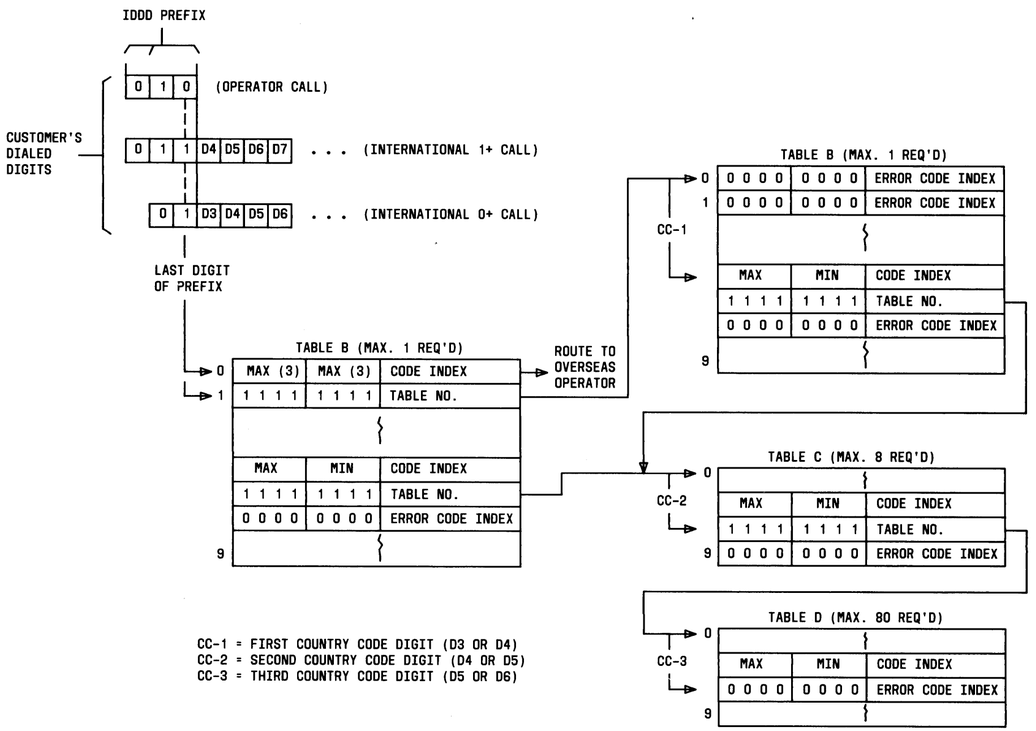

Fig. 2—IDDD Translator

following the prefix one at a time to identify a valid 1-, 2-, or 3-digit country code. The IDDD translator then provides a code index which leads to the appropriate disposition of the call. If the country code is valid, the same IDDD translation provides the number of digits to expect for the called party's national number. In some cases, the exact number of digits cannot be predicted so a maximum and minimum number of expected digits is provided. These numbers are stored for later use. If the exact number of digits can be predicted, the maximum and minimum numbers are equal.

4.06 Interdigital timing (10 or 30 seconds, depending on traffic) is performed between the customer's dialed digits just as with any other call. If an interdigital time-out occurs, the call is routed to partial dial treatment.

4.07 The usual interdigital timing is performed until the minimum number of expected digits is reached (based on the number obtained from the country code translation). When this number of digits has been received, the customer is allowed only 4 seconds between digits until the maximum number of digits is received representing the country code and national number. If the number of digits is less than 12, the customer can avoid this 4-second time-out by dialing a number sign (#) after the last digit of the national number. When the entire called telephone number has been received, the digit receiving is stopped and the code index (obtained from the IDDD translator) is translated to obtain a route index and charge index. The charge index must be 01 (indicating a free call) and the route index should point to a TSPS trunk group or to some error treatment as desired by the operating company.

4.08 When the charge index and route index have been stored in the TCR, a coin return is performed for coin lines or a toll diversion operation is performed for PBX lines. If the PBX chooses to allow the call, it is processed like any other IDDD call. Preparations are then made to outpulse the called and calling party telephone numbers to the TSPS office. First a start code must be determined based on the calling party's line type (coin or noncoin). These start codes are shown in Table B.

4.09 In order to determine the start code required, the called number, stored in the TCR, is shifted to delete the leading zero of the prefix. This is done to make room at the end of the called-number storage area to attach the start code as yet to be determined. The next two digits of the prefix are then examined. If the two digits are 11 (indicating a station-to-station call), the start code is determined based on this information and the originating line type. This start code is then inserted after the final digit of the called number and the leading 1 of the IDDD prefix is deleted. If the two remaining digits of the prefix are 1X (indicating a customer-dialed operator-assistance call), the start code is determined and inserted after the last digit of the called number. In this, the leading 1 of the IDDD prefix (the only prefix digit remaining) is not deleted. A keypulse signal is outpulsed to the TSPS followed by the called number which was previously stored in the TCR (this number always has a 1 as the first digit and a start code as the final digit).

4.10 When the TSPS is ready to receive the billing information, an off-hook signal is returned to the No. 3 ESS. Upon reception of this signal, the No. 3 ESS returns an ANI signal followed by the calling telephone number, or billing number, and start code. If the calling line is a multiparty line, no calling line identification is provided; therefore, an operator number identification (ONI) signal is outpulsed followed by the start code. The TSPS operator must then obtain the billing number just as if it was an operator-assistance call.

4.11 When the outpulsing is complete, the No. 3 ESS releases control of the call to the TSPS which is responsible for recording all AMA data for billing purposes. Table B provides an overall summary of information outpulsed to TSPS, and Table C provides the MF frequencies outpulsed to represent the digits of the calling and called telephone numbers, the keypulse, and the start codes.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The IDDD feature is assigned on a per-office basis and is made available by an Operating Telephone Company (OTC) request.

TABLE B

SUMMARY OF OUTPULSING TO TSPS

DIGITS DIALED	LINE TYPE	OUTPULSING		OPERATOR REQUIRED
			START CODE	
010	COIN NONCOIN	KP-10- KP-10-	STP ST3P	OVERSEAS OVERSEAS
01-CC-NN	COIN NONCOIN	KP-1-CC-NN- KP-1-CC-NN-	STP ST3P	REGULAR (TSPS) REGULAR (TSPS)
011-CC-NN	COIN NONCOIN	KP-1-CC-NN- KP-1-CC-NN-	ST ST2P	REGULAR (TSPS) NONE

CC - Country code

NN - National Number

KP - Keypulse

TABLE C

FREQUENCIES FOR MF PULSING (IN HERTZ)

	700	900	1100	1300	1500
900	1				
1100	2	3			
1300	4	5	6		
1500	7	8	9	0	
1700	ST3P	ST1P*	KP	ST2P	ST

* Sometimes called STP

6. LIMITATIONS

6.01 The country code and national number combined must be limited to a maximum of twelve digits.

6.02 IDDD calls are automatically disconnected if answer supervision is not detected within 4 minutes after digit outpulsing is completed.

6.03 The No. 3 ESS must be interfaced with a TSPS in order to provide the IDDD feature.

6.04 The No. 3 ESS must allow 0+ dialing to TSPS to prevent IDDD calls from being routed to a cord type operator position.

7. INTERACTIONS

7.01 Speed calling is not allowed for international calls; however, speed calling may be allowed for all domestic calls.

7.02 Call forwarding cannot be used with the IDDD feature. The customer may be allowed

call forwarding for domestic calls which are normally forwardable.

8. RESTRICTION CAPABILITY

8.01 Any station may be restricted from accessing the IDDD feature through the usual screening techniques.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 The IDDD feature is available for any No. 3 ESS equipped with the 3E3 and later generic programs. This feature is also provided for specific applications of Issue 4A of the SO-2 generic program.

9.02 If the IDDD feature is to be incorporated at the time of the initial installation of the No. 3 ESS, an office data administration (ODA) run is required to establish the country access code tables.

9.03 For an existing No. 3 ESS, the IDDD feature may be incorporated entirely through the use of recent change messages and reallocation messages.

10. HARDWARE REQUIREMENTS

10.01 No unusual hardware is required other than to establish a trunk group to the TSPS.

11. SOFTWARE REQUIREMENTS

11.01 As many as 90 ten-word tables are theoretically required (based on the 10-numerical-digit TOUCH-TONE pad) for the IDDD translator to provide a full complement of country codes; however, only current codes are placed in the machine.

11.02 The processor time required for calls from IDDD lines to TSPS trunks is generally the same as calls from other lines to outgoing trunks except that some additional processor time is required to translate the country code.

12. DATA ASSIGNMENTS AND RECORDS

12.01 If the IDDD feature is to be incorporated at the time of the initial No. 3 ESS installation, the following forms must be completed and submitted to the WECo Regional Data Center as a part of the ODA run.

- ***3307 International Direct Distance Dial Record***—This form is used to define the country codes associated with the IDDD feature. For each country code, assign the maximum and minimum number of digits expected and a code index for routing international calls to TSPS.

- ***3500-1 General Information Table***—Assign the number of the highest IDDD table (28 tables are presently required for all available country codes).

Refer to TG-3 for further details concerning the completion of these forms.

12.02 When the IDDD feature is to be incorporated in an existing No. 3 ESS, the following recent change messages must be used to make the necessary software assignments.

- ***RC:CAC***—This message is used to assign the country codes for IDDD. All codes to be offered by the office must be assigned.

- ***DIST:CAC***—This message is used to allocate translation words for the country code tables. This message is required unless these words have been previously allocated.

Refer to IM-3H300 for further details concerning the use of these messages.

13. TESTING

13.01 The appropriate test calls should be made to test the operation of the IDDD feature.

14. OTHER PLANNING TOPICS

14.01 Special consideration is required for the IDDD feature when retrofitting from SO-2, Issue 4A, to the 3E3 generic program. The retrofit program inserts data which causes the IDDD feature to operate in the same manner as prescribed by Issue 4A of the SO-2 program. This is done by automatically entering a code index into the incomplete country code translator. This code index contains the same route index provided by the SO-2 program. This route index leads to a

route index expansion which specifies that all of the customer dialed digits be outpulsed over the selected trunk to TSPS. No country code screening is provided by the No. 3 ESS; instead, all screening must be performed by the TSPS. When the country code translator has been completely built using the RC:CAC message (see DATA ASSIGNMENTS AND RECORDS), the code index must be changed so that the country codes can be translated through all the necessary country code tables. The code index may be changed using the RC:CAC message.

ADMINISTRATION

15. MEASUREMENTS

15.01 No special measurements are employed for IDDD calls.

16. CHARGING

16.01 Charging for IDDD calls is accomplished by the TSPS. Calls may be billed in a variety of ways depending on the requirements of the customer.

SUPPLEMENTARY INFORMATION

17. GLOSSARY

17.01 The following is an explanation of terms used in this section that may be unfamiliar to the reader.

- ***Automatic Message Accounting (AMA)***—A mechanized system used to record charging information in telephone switching systems.

- ***Automatic Number Identification (ANI)***—A system by which the local office automatically obtains the telephone number (or some prespecified billing number) and transfers it to the appropriate AMA equipment for recording. This system is required only when billable calls are originated.

- ***Keypulse (KP)***—An MF signal transmitted to indicate the beginning of an MF encoded message (ie, a called or calling party telephone number).

- ***Operator Number Identification (ONI)***—A means of obtaining billing information by connecting the calling party to an operator position.

- ***Outpulse***—The process of sending called and calling party telephone numbers to the appropriate AMA equipment (TSPS in this case).

- ***Start Code***—An MF signal transmitted to indicate the end of an MF encoded message. AMA processing begins with the reception of this signal.

18. REFERENCES

18.01 The following list identifies other documents which may be consulted for additional information related to the IDDD feature.

- PR-3H155—Digit Interpretation (DNTRP) program
- PR-3H164—Operator (OPER) program
- PR-3H165—Outgoing Call (OUTCAL) program
- PR-3H181—Three-Digit Translation (XSL3DG) program
- Section 233-190-149—TSPS Interface—No. 3 ESS
- Section 781-030-100—Notes on Direct Distance Dialing
- TG-3—Translation Guide
- PA-3H3XX—Translation Layout Specification
- IM-3H300—Input Message Manual
- OM-3H300—Output Message Manual
- Section 233-190-010—System Features, No. 3 ESS