



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 063

October 1991

Source: ETSI TC-SPS

Reference: T/S 22-27

ICS: 33.080

Key words: ISDN, supplementary service.

**Integrated Services Digital Network (ISDN);
Direct Dialling In (DDI) supplementary service
Functional capabilities and information flows**

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1991. All rights reserved.

Contents

Foreword.....	5
1 Scope	7
2 Normative references	7
3 Definitions.....	8
4 Symbols and abbreviations.....	8
5 Description	8
6 Derivation of the functional model	8
6.1 Functional model description	8
6.2 Description of the functional entities.....	9
6.3 Relationship with a basic service	9
7 Information flows.....	9
7.1 Information flow diagrams.....	9
7.1.1 Incoming call to private ISDN using en-bloc sending	9
7.1.2 Incoming call to private ISDN using overlap sending	10
7.2 Definition of individual information flows.....	10
8 SDL diagrams for functional entities.....	11
8.1 DDI functions in FE1 - reception of DDI digits.....	11
8.2 DDI functions in FE2 - transmission of DDI Digits.....	13
9 Functional entity actions (FEAs).....	14
9.1 FEAs of FE1.....	14
9.2 FEAs of FE2.....	14
10 Allocation of functional entities to physical locations.....	14
History	15

Blank page

Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols & Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

In accordance with CCITT Recommendation I.130 [1], the following three level structure is used to describe the supplementary telecommunications services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (ISDN):

- Stage 1: is an overall service description, from the user's standpoint;
- Stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and
- Stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

This ETS details the stage 2 aspects (functional capabilities and information flows) needed to support the Direct Dialling In (DDI) supplementary service. The stage 1 and stage 3 aspects are detailed in ETS 300 062 (1991) and ETS 300 064 (1991), respectively.

Blank page

1 Scope

This standard defines the stage two of the Direct Dialling In (DDI) supplementary service for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators. Stage two identifies the functional capabilities and the information flows needed to support the stage 1 service description. The stage two description also identifies user operations not directly associated with a call (see CCITT Recommendation I.130 [1]).

This standard is specified according to the methodology specified in CCITT Recommendation Q.65 [2].

This standard does not formally describe the relationship between this supplementary service and the basic call, but where possible this information is included for guidance.

In addition this standard does not specify the requirements where the service is provided to the user via a private ISDN. This standard does not specify the requirements for the allocation of defined functional entities within a private ISDN; it does however define which functional entities may be allocated to a private ISDN.

This standard does not specify the additional requirements where the service is provided to the user via a telecommunications network that is not an ISDN.

The DDI supplementary service enables a user to call directly via a public ISDN a user on a private ISDN by using the public ISDN numbering plan.

The DDI supplementary service is applicable to all telecommunication services.

This standard is applicable to the stage three standards for the ISDN DDI supplementary service. The term "stage three" is also defined in CCITT Recommendation I.130 [1]. Where the text indicates the status of a requirement (i.e. as a strict command or prohibition, as authorisation leaving freedom, as a capability or possibility) this shall be reflected in the text of the relevant stage three standards.

Furthermore, conformance to this standard is met by conforming to the stage three standards with the field of application appropriate to the equipment being implemented. Therefore no method of testing is provided for this standard.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] CCITT Recommendation I.130 (1988): "Method for the characterisation of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [2] CCITT Recommendation Q.65 (1988): "Stage 2 of the method for the characterisation of services supported by an ISDN."
- [3] CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".
- [4] CCITT Recommendation E.164 (1988): "Numbering plan for the ISDN era".

- [5] CCITT Recommendation Q.71 (1988): "ISDN 64 kbit/s circuit mode switched bearer services".
- [6] CCITT Recommendation I.210 (1988): "Principles of telecommunication services supported by an ISDN and the means used to describe them".
- [7] CCITT Recommendation Z.100 (1988): "Functional Specification and Description Language (SDL)".

3 Definitions

For the purposes of this standard, the following definitions apply:

Integrated Services Digital Network (ISDN): see CCITT Recommendation I.112 [3], § 2.3, definition 308.

Service; telecommunications service: see CCITT Recommendation I.112 [3], § 2.2, definition 201.

Supplementary service: see CCITT Recommendation I.210 [6], § 2.4.

ISDN number: a number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [4].

DDI digits: at least a part of the ISDN number, which is significant to the private ISDN.

4 Symbols and abbreviations

DDI	Direct Dialling In
FEA	Functional Entity Action
ISDN	Integrated Services Digital Network
LE	Local Exchange
PTNX	Private Telecommunications Network Exchange
SDL	Specification and Description Language

5 Description

Not applicable.

6 Derivation of the functional model

6.1 Functional model description

The functional model for the DDI supplementary service is shown in figure 1.



Figure 1

6.2 Description of the functional entities

The functional entities required by the DDI supplementary service above those of the basic call are as follows:

FE1: DDI user agent

FE2: DDI network agent

6.3 Relationship with a basic service

The relationship with a basic service is shown in figure 2.

NOTE: The basic call model is defined in CCITT Recommendation Q.71 [5], subclause 2.1, with the exception that r1 represents an outgoing call relationship from a CCA and r3 represents an incoming call relationship to a CCA.

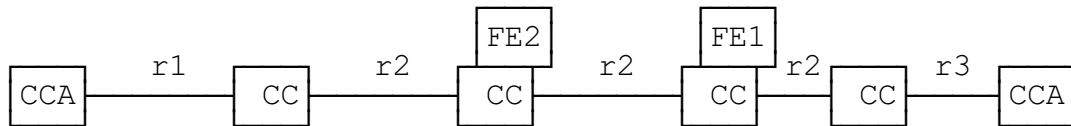


Figure 2

7 Information flows

7.1 Information flow diagrams

In the information flow sequence diagrams shown in figures 3 and 4, all information flows shown are those of the basic call.

7.1.1 Incoming call to private ISDN using en-bloc sending

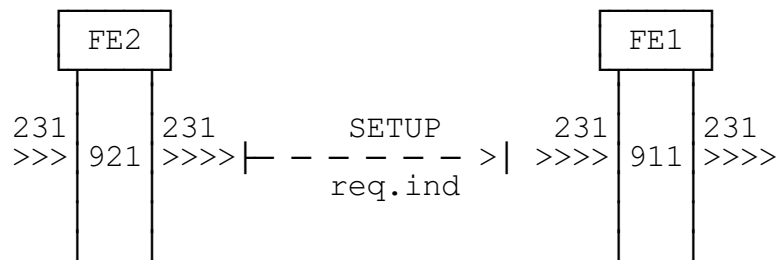
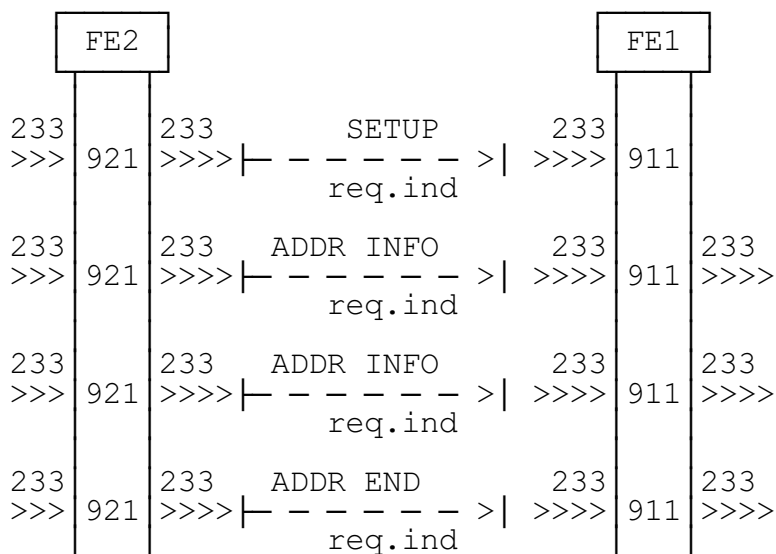


Figure 3

7.1.2 Incoming call to private ISDN using overlap sending



NOTE: The ADDR INFO req.ind information flow of basic call may be repeated if further digits become available after it has been sent.

Figure 4

7.2 Definition of individual information flows

There are no information flows specific to this service.

NOTE 1: The contents for SETUP req.ind, ADDR INFO req.ind and ADDR END req.ind in basic call are as specified in basic call (see CCITT Recommendation Q.71 [5]).

NOTE 2: To cater for open numbering plans, the SETUP req.ind or ADDR INFO req.ind may be sent without the public ISDN knowing whether the DDI digits are complete. If further digits arrive, these shall be sent to the private ISDN using the ADDR INFO req.ind information flow.

NOTE 3: Sending complete may be included if the last digit of the ISDN number is known to be included in DDI digits, by using the ADDR END req.ind information flow.

8 SDL diagrams for functional entities

SDLs are provided according to CCITT Recommendation Z.100 [7].

8.1 DDI functions in FE1 - reception of DDI digits

The SDL for FE1 is shown in figure 5.

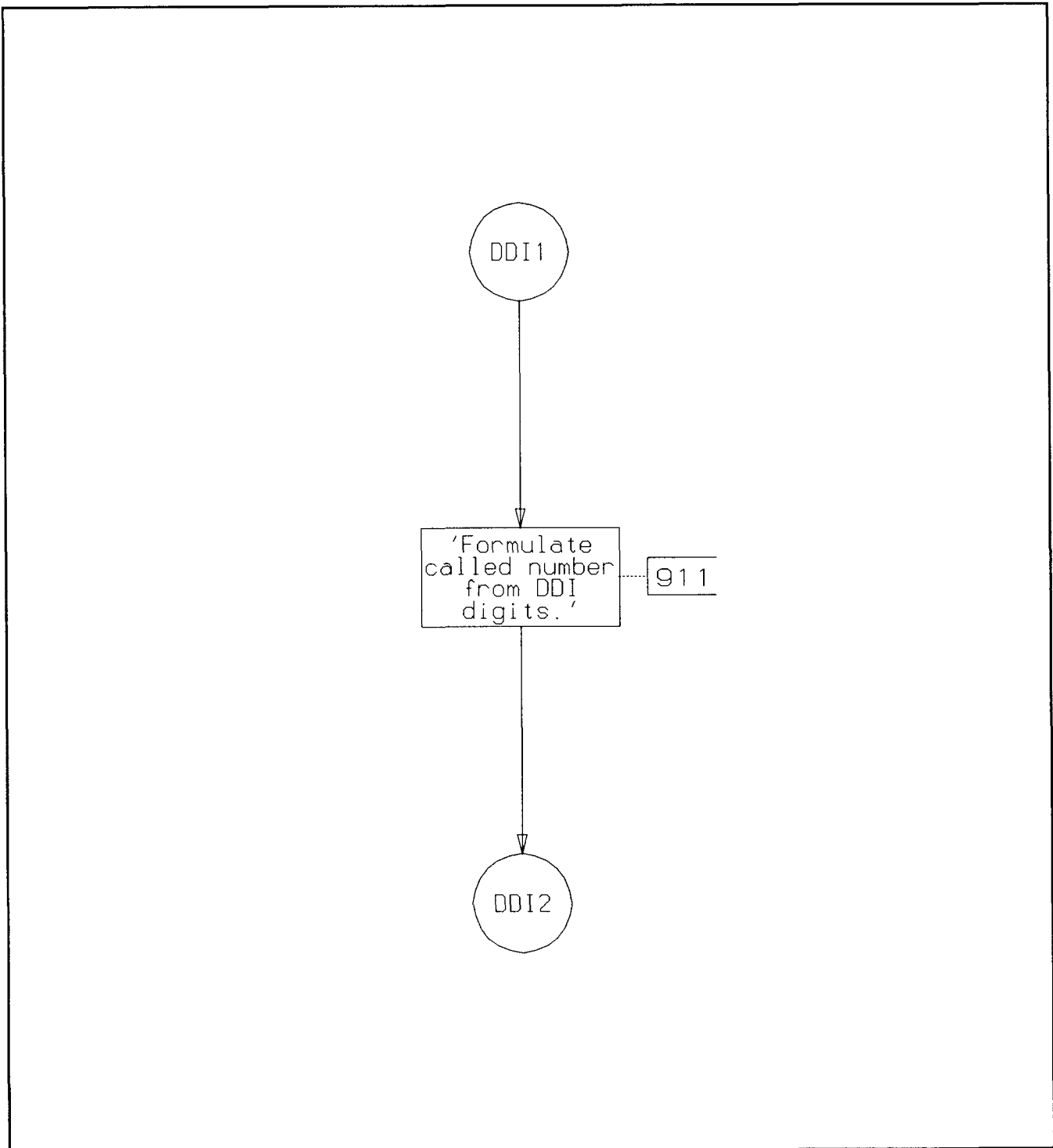


Figure 5

Note to figure 5.

NOTE: DDI1 and DDI2 break the basic call transition during FEA 231 (see figure 2-9 (Sheet 7 of 19) of CCITT Recommendation Q.71 [5]) following the "Y" branch of the decision "Successful" in the "Process Attempt" path.

8.2 DDI functions in FE2 - transmission of DDI Digits

The SDL for FE2 is shown in figure 6.

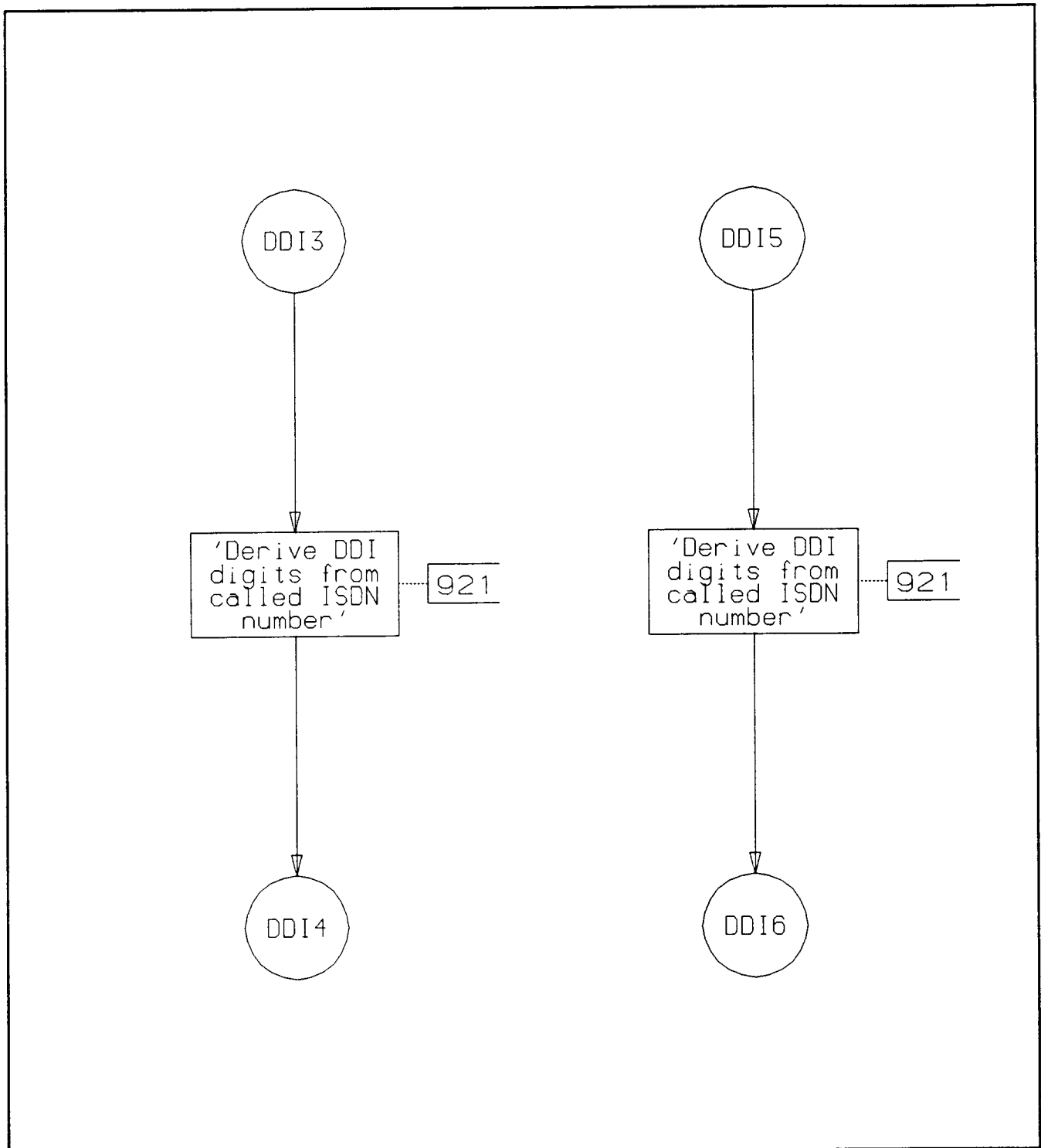


Figure 6

Notes to figure 6.

NOTE 1: DDI3 and DDI4 break the basic call transition during FEA 241 (see figure 2-9 (Sheet 7 of 19) of CCITT Recommendation Q.71 [5]) following the "Y" branch of the decision "Successful" in the "Term. Screen Process Attempt" path.

NOTE 2: DDI5 and DDI6 break the basic call transition during FEA 221 (see figure 2-9 (sheet 2 of 19) of CCITT Recommendation Q.71 [5]) between the input and SETUP req.ind signal definitions.

9 Functional entity actions (FEAs)

9.1 FEAs of FE1

911: The functional entity shall recognise DDI digits received by FEA 231 or FEA 233 in basic call (CCITT Recommendation Q.71 [5]) and formulate called party number information for use by FEA 231 or FEA 233 in basic call.

9.2 FEAs of FE2

921: The functional entity shall recognise called party number information received by FEA 221, 226, 231 or 233 in basic call (CCITT Recommendation Q.71 [5]) and derive DDI digits from the called party number information for use by FEA 231 or FEA 233 in basic call.

NOTE: FEA 226 or 233 receives DDI digits in basic call overlap procedures (added to CCITT Recommendation Q.71 [5] in October 1990).

10 Allocation of functional entities to physical locations

The possible locations of functional entities FE1 and FE2 are shown in table 1.

Table 1

	FE2	FE1
Scenario 1	LE	PTNX

NOTE: FE2 and FE1 are always allocated at opposite ends of the same access.

History

Document history	
October 1991	First Edition
May 1996	Converted into Adobe Acrobat Portable Document Format (PDF)