

AS/NZS 14842:1999  
ISO/IEC 14842:1996

AS/NZS 14842

Australian/New Zealand Standard™

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**Information technology—  
Telecommunications and  
information exchange between  
systems—Private integrated  
services network—Specification,  
functional model and information  
flows—Do not disturb and do not  
disturb override supplementary  
services**

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT/16, Private Telecommunications Networking.

This Standard is identical with, and has been reproduced from, ISO/IEC 14842:1996, *Information technology—Telecommunications and information exchange between systems—Private Integrated Services Network—Specification, functional model and information flows—Do not disturb and do not disturb override supplementary services*

The objective of this Standard is to provide private integrated services network (PISN) designers and users with the specification for do not disturb and do not disturb override in order to allow the called user to reject incoming calls and the calling user to override such rejection worldwide.

The Standard is one of a series of emerging ISO/IEC Standards applicable to private integrated service networking. The series uses the ISDN concepts as developed by ITU-T and is also within the framework of Standards for Open Systems Interconnection (OSI) as defined by ISO/IEC JTC 1.

The number of this Standard is not reproduced on each page; its identity is shown only on the cover and title page.

For the purpose of this Standard, the ISO/IEC text should be modified as follows:

- (a) The words 'this Australian/New Zealand Standard' should replace the words 'this International Standard' wherever they appear.
- (b) References to International Standards should be replaced by references, where appropriate, to the following Australian/New Zealand Standards:

| <i>Reference to International Standard<br/>or other publication</i> |                                                                                                                                                                                                                                                          | <i>Australian/New Zealand Standard</i> |                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISO/IEC                                                             |                                                                                                                                                                                                                                                          | AS/NZS                                 |                                                                                                                                                                                                                                                          |
| 11571                                                               | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Numbering and sub-addressing in<br>private integrated services networks                                                                                    | 4134                                   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Numbering and sub-addressing in<br>private integrated services networks                                                                                    |
| 11574                                                               | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private Integrated Services Network—<br>Circuit mode 64 kbit/s bearer<br>services—Service description,<br>functional capabilities and<br>information flows | 4135                                   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network—<br>Circuit-mode 64 kbit/s bearer<br>services—Service description,<br>functional capabilities and<br>information flows |
| 11579                                                               | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated service network                                                                                                                         | 4136                                   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network                                                                                                                        |
| 11579-1                                                             | Part 1: Reference configuration for<br>PISN Exchanges (PINX)                                                                                                                                                                                             | 4136.1                                 | Part 1: Reference configuration for<br>PISN exchanges (PINX)                                                                                                                                                                                             |

| ISO/IEC |                                                                                                                                                                                                                                               | AS/NZS |                                                                                                                                                                                                                                               |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| 13864   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private Integrated Services Network—<br>Specification, functional model and<br>information flows—Name<br>identification supplementary services  | 4336   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network—<br>Specification, functional model and<br>information flows—Name<br>identification supplementary services  |
| 13865   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private Integrated Services Network—<br>Specification, functional model and<br>information flows—Call transfer<br>supplementary service         | 4337   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network—<br>Specification, functional model and<br>information flows—Call transfer<br>supplementary service         |
| 13866   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private Integrated Services Network—<br>Specification, functional model and<br>information flows—Call completion<br>supplementary services      | 4338   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network—<br>Specification, functional model and<br>information flows—Call completion<br>supplementary services      |
| 13872   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private Integrated Services Network—<br>Specification, functional model and<br>information flows—Call diversion<br>supplementary services       | 4341   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network—<br>Specification, functional model and<br>information flows—Call diversion<br>supplementary services       |
| 14136   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private Integrated Services Network—<br>Specification, functional model and<br>information flows—Identification<br>supplementary services       | 4477   | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network—<br>Specificaliton, functional model and<br>information flows—Identification<br>supplementary services      |

| ISO/IEC    |                                                                                                                                                                                                                                    | AS/NZS |                                                                                                                                                                                                                                    |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14841      | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private Integrated Services Network—<br>Specification, functional model and<br>information flows—Call offer<br>supplementary service | 14841  | Information technology—<br>Telecommunications and information<br>exchange between systems—<br>Private integrated services network—<br>Specification, functional model and<br>information flows—Call offer<br>supplementary service |
| CCITT      |                                                                                                                                                                                                                                    |        |                                                                                                                                                                                                                                    |
| Rec. I.112 | Vocabulary of terms for ISDNs (Blue<br>Book)                                                                                                                                                                                       | —      |                                                                                                                                                                                                                                    |
| Rec. I.210 | Principles of telecommunication<br>services supported by an ISDN and<br>the means to describe them (Blue<br>Book)                                                                                                                  | —      |                                                                                                                                                                                                                                    |
| Rec. Z.100 | Specification and Description<br>Language (Blue Book)                                                                                                                                                                              | —      |                                                                                                                                                                                                                                    |

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CONTENTS

|                                                                     | <i>Page</i> |
|---------------------------------------------------------------------|-------------|
| 1 Scope                                                             | 1           |
| 2 Conformance                                                       | 1           |
| 3 Normative references                                              | 1           |
| 4 Definitions                                                       | 2           |
| 4.1 External definitions                                            | 2           |
| 4.2 Other definitions                                               | 3           |
| 5 List of acronyms                                                  | 3           |
| 6 SS-DND stage 1 specification                                      | 4           |
| 6.1 Description                                                     | 4           |
| 6.1.1 General description                                           | 4           |
| 6.1.2 Qualifications on applicability to telecommunication services | 4           |
| 6.2 Procedures                                                      | 4           |
| 6.2.1 Provision/withdrawal                                          | 4           |
| 6.2.2 Normal procedures                                             | 5           |
| 6.2.3 Exceptional procedures                                        | 6           |
| 6.3 Interactions with other supplementary services and ANFs         | 7           |
| 6.3.1 Calling Line Identification Presentation (SS-CLIP)            | 7           |
| 6.3.2 Connected Line Identification Presentation (SS-COLP)          | 7           |
| 6.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)   | 7           |
| 6.3.4 Calling Name Identification Presentation (SS-CNIP)            | 7           |
| 6.3.5 Connected Name Identification Presentation (SS-CONP)          | 7           |
| 6.3.6 Calling/Connected Name Identification Restriction (SS-CNIR)   | 7           |
| 6.3.7 Completion of Calls to Busy Subscriber (SS-CCBS)              | 7           |
| 6.3.8 Completion of Calls on No Reply (SS-CCNR)                     | 7           |
| 6.3.9 Call Transfer (SS-CT)                                         | 7           |
| 6.3.10 Call Forwarding Unconditional (SS-CFU)                       | 7           |
| 6.3.11 Call Forwarding Busy (SS-CFB)                                | 8           |
| 6.3.12 Call Forwarding No Reply (SS-CFNR)                           | 8           |
| 6.3.13 Call Deflection (SS-CD)                                      | 8           |
| 6.3.14 Path Replacement (ANF-PR)                                    | 8           |
| 6.3.15 Do Not Disturb Override (SS-DNDO)                            | 8           |
| 6.3.16 Call Offer (SS-CO)                                           | 8           |
| 6.3.17 Call Intrusion (SS-CI)                                       | 8           |
| 6.4 Interworking considerations                                     | 9           |

|                                                                                | <i>Page</i> |
|--------------------------------------------------------------------------------|-------------|
| <b>6.5 Overall SDL</b>                                                         | <b>9</b>    |
| <b>7 SS-DNDO stage 1 specification</b>                                         | <b>12</b>   |
| <b>7.1 Description</b>                                                         | <b>12</b>   |
| <b>7.1.1 General description</b>                                               | <b>12</b>   |
| <b>7.1.2 Qualifications on applicability to telecommunication services</b>     | <b>12</b>   |
| <b>7.2 Procedures</b>                                                          | <b>12</b>   |
| <b>7.2.1 Provision/withdrawal</b>                                              | <b>12</b>   |
| <b>7.2.2 Normal procedures</b>                                                 | <b>12</b>   |
| <b>7.2.3 Exceptional procedures</b>                                            | <b>13</b>   |
| <b>7.3 Interactions with other supplementary services and ANFs</b>             | <b>13</b>   |
| <b>7.3.1 Calling Line Identification Presentation (SS-CLIP)</b>                | <b>13</b>   |
| <b>7.3.2 Connected Line Identification Presentation (SS-COLP)</b>              | <b>13</b>   |
| <b>7.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)</b>       | <b>13</b>   |
| <b>7.3.4 Calling Name Identification Presentation (SS-CNIP)</b>                | <b>13</b>   |
| <b>7.3.5 Connected Name Identification Presentation (SS-CONP)</b>              | <b>13</b>   |
| <b>7.3.6 Calling/Connected Name Identification Restriction (SS-CNIR)</b>       | <b>13</b>   |
| <b>7.3.7 Completion of Calls to Busy Subscriber (SS-CCBS)</b>                  | <b>13</b>   |
| <b>7.3.8 Completion of Calls on No Reply (SS-CCNR)</b>                         | <b>13</b>   |
| <b>7.3.9 Call Transfer (SS-CT)</b>                                             | <b>13</b>   |
| <b>7.3.10 Call Forwarding Unconditional (SS-CFU)</b>                           | <b>13</b>   |
| <b>7.3.11 Call Forwarding Busy (SS-CFB)</b>                                    | <b>14</b>   |
| <b>7.3.12 Call Forwarding No Reply (SS-CFNR)</b>                               | <b>14</b>   |
| <b>7.3.13 Call Deflection (SS-CD)</b>                                          | <b>14</b>   |
| <b>7.3.14 Path Replacement (ANF-PR)</b>                                        | <b>14</b>   |
| <b>7.3.15 Do Not Disturb (SS-DND)</b>                                          | <b>14</b>   |
| <b>7.3.16 Call Offer (SS-CO)</b>                                               | <b>14</b>   |
| <b>7.3.17 Call Intrusion (SS-CI)</b>                                           | <b>14</b>   |
| <b>7.4 Interworking considerations</b>                                         | <b>15</b>   |
| <b>7.5 Overall SDL</b>                                                         | <b>15</b>   |
| <b>8 SS-DND stage 2 specification</b>                                          | <b>19</b>   |
| <b>8.1 Functional model</b>                                                    | <b>19</b>   |
| <b>8.1.1 Functional model description</b>                                      | <b>19</b>   |
| <b>8.1.2 Description of functional entities</b>                                | <b>19</b>   |
| <b>8.1.3 Relationship of functional model to basic call functional model</b>   | <b>20</b>   |
| <b>8.2 Information flows</b>                                                   | <b>20</b>   |
| <b>8.2.1 Definition of information flows</b>                                   | <b>20</b>   |
| <b>8.2.2 Relationship of information flows to basic call information flows</b> | <b>24</b>   |
| <b>8.2.3 Examples of information flow sequences</b>                            | <b>25</b>   |
| <b>8.3 Functional entity actions</b>                                           | <b>30</b>   |
| <b>8.3.1 Functional entity actions of FE1</b>                                  | <b>30</b>   |
| <b>8.3.2 Functional entity actions of FE2</b>                                  | <b>30</b>   |
| <b>8.3.3 Functional entity actions of FE3</b>                                  | <b>30</b>   |
| <b>8.3.4 Functional entity actions of FE4</b>                                  | <b>30</b>   |
| <b>8.3.5 Functional entity actions of FE5</b>                                  | <b>30</b>   |
| <b>8.3.6 Functional entity actions of FE6</b>                                  | <b>31</b>   |
| <b>8.4 Functional entity behaviour</b>                                         | <b>31</b>   |
| <b>8.4.1 Behaviour of FE1</b>                                                  | <b>31</b>   |

|                                                                         | <i>Page</i> |
|-------------------------------------------------------------------------|-------------|
| 8.4.2 Behaviour of FE2                                                  | 32          |
| 8.4.3 Behaviour of FE3                                                  | 33          |
| 8.4.4 Behaviour of FE4                                                  | 36          |
| 8.4.5 Behaviour of FE5                                                  | 37          |
| 8.4.6 Behaviour of FE6                                                  | 38          |
| 8.5 Allocation of functional entities to physical equipment             | 39          |
| 8.6 Interworking considerations                                         | 39          |
| 9 SS-DNDO stage 2 specification                                         | 40          |
| 9.1 Functional model                                                    | 40          |
| 9.1.1 Functional model description                                      | 40          |
| 9.1.2 Description of functional entities                                | 40          |
| 9.1.3 Relationship of functional model to basic call functional model   | 41          |
| 9.2 Information flows                                                   | 41          |
| 9.2.1 Definition of information flows                                   | 41          |
| 9.2.2 Relationship of information flows to basic call information flows | 43          |
| 9.2.3 Examples of information flow sequences                            | 44          |
| 9.3 Functional entity actions                                           | 57          |
| 9.3.1 Functional entity actions of FE1                                  | 57          |
| 9.3.2 Functional entity actions of FE2                                  | 57          |
| 9.3.3 Functional entity actions of FE3                                  | 58          |
| 9.4 Functional entity behaviour                                         | 58          |
| 9.4.1 Behaviour of FE1                                                  | 58          |
| 9.4.2 Behaviour of FE2                                                  | 58          |
| 9.4.3 Behaviour of FE3                                                  | 67          |
| 9.5 Allocation of functional entities to physical equipment             | 70          |
| 9.6 Interworking considerations                                         | 70          |

## AUSTRALIAN/NEW ZEALAND STANDARD

**Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Do not disturb and do not disturb override supplementary services****1 Scope**

This International Standard specifies the Supplementary Services Do Not Disturb (SS-DND) and Do Not Disturb Override (SS-DNDO), which are applicable to various basic services supported by Private Integrated Services Networks (PISN). Basic services are specified in ISO/IEC 11574.

SS-DND is a supplementary service which enables a served user to cause the PISN to reject any calls, or just those associated with a specified basic service, addressed to the served user's PISN number. The calling user is given an appropriate indication. Incoming calls are rejected as long as the service is active. The served user's outgoing service is unaffected.

SS-DNDO is a supplementary service which enables a served user to override SS-DND at a called user; that is, to allow the call to proceed as if the called user had not activated SS-DND.

SS-DND and SS-DNDO are described separately because SS-DND is a service used by a called user, and SS-DNDO is a service used by a calling user. This leads to describing two very related state machines.

Note 1 - It is possible to implement SS-DND without implementing SS-DNDO.

Supplementary service specifications are produced in three stages, according to the method described in CCITT Recommendation I.130. This International Standard contains the stage 1 and stage 2 specifications of SS-DND and SS-DNDO. The stage 1 specifications (clauses 6 and 7) specify the supplementary service as seen by users of PISNs. The stage 2 specification (clauses 8 and 9) identify the functional entities involved in the supplementary service and the information flows between them.

**2 Conformance**

In order to conform to this International Standard, a stage 3 International Standard shall specify signalling protocols and equipment behaviour that are capable of being used in a PISN which supports the supplementary service specified in this International Standard. This means that, to claim conformance, a stage 3 International Standard is required to be adequate for the support of those aspects of clauses 6 to 9 which are relevant to the interface or equipment to which the stage 3 International Standard applies.

The stage 1 and stage 2 clauses which a stage 3 International Standard for the Do Not Disturb supplementary service is required to support are clauses 6 and 8.

The stage 1 and stage 2 clauses which a stage 3 International Standard for the Do Not Disturb Override supplementary service is required to support are clauses 7 and 9.

**3 Normative references**

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

|                       |                                                                                                                                                                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISO/IEC 11571:1994,   | <i>Information technology - Telecommunications and information exchange between systems - Numbering and sub-addressing in private integrated services networks.</i>                                                                              |
| ISO/IEC 11574:1994,   | <i>Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit-mode 64 kbit/s bearer services - Service description, functional capabilities and information flows.</i> |
| ISO/IEC 11579-1:1994, | <i>Information technology - Telecommunications and information exchange between systems - Private integrated services network - Part 1: Reference configuration for PISN Exchanges (PINX).</i>                                                   |

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- ISO/IEC 13863:1995, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Path replacement additional network feature.*
- ISO/IEC 13864:1995, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Name identification supplementary services.*
- ISO/IEC 13865:1995, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Call transfer supplementary service.*
- ISO/IEC 13866:1995, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Call completion supplementary services.*
- ISO/IEC 13872:1995, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flow - Call diversion supplementary services.*
- ISO/IEC 14136:1995, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Identification supplementary services.*
- ISO/IEC 14841:1996, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Call offer supplementary service.*
- CCITT Rec. I.112:1988, *Vocabulary of terms for ISDNs (Blue Book).*
- CCITT Rec. I.210:1988, *Principles of telecommunication services supported by an ISDN and the means to describe them (Blue Book).*
- CCITT Rec. Z.100:1988, *Specification and Description Language (Blue Book).*

## 4 Definitions

For the purposes of this International Standard, the following definitions apply.

### 4.1 External definitions

This International Standard uses the following terms defined in other documents:

- Basic service (CCITT Rec. I.210)
- Calling Party Name (ISO/IEC 13864)
- Connection (CCITT Rec. I.112)
- Name (ISO/IEC 13864)
- Number (ISO/IEC 11571)
- Private Integrated Services Network (PISN) (ISO/IEC 11579-1)
- Private Integrated Services Network Exchange (PINX) (ISO/IEC 11579-1)
- Service (CCITT Rec. I.112)
- Signalling (CCITT Rec. I.112)
- Subaddress (ISO/IEC 11571)
- Supplementary Service (CCITT Rec. I.210)
- User (ISO/IEC 11574)

This International Standard refers to the following basic call functional entity (FEs) defined in ISO/IEC 11574:

- Call Control (CC)

- Call Control Agent (CCA)

This International Standard refers to the following basic call inter-FE relationships defined in ISO/IEC 11574:

- r1
- r2
- r3

This International Standard refers to the following basic call information flows defined in ISO/IEC 11574:

- CHAN ACK request/indication
- Disconnect request/indication
- Release request/indication
- Release response/confirmation
- Report request/indication
- Setup request/indication
- Setup response/confirmation.

This International Standard refers to the following basic call information flow service elements defined in ISO/IEC 11574:

- Destination Number
- Connection type.

This International Standard refers to the following information flow elements defined in ISO/IEC 14136:

- Originating number
- Originating subaddress.

## 4.2 Other definitions

**additional network feature** : A capability, over and above that of a basic service, provided by a PISN, but not directly to a PISN user.

**call, basic call** : An instance of the use of a basic service.

**consultation timer** : A timer governing the time in which the calling user is allowed to request invocation of SS-DNDO after being informed that a call has failed because of SS-DND active at the destination. The duration of the timer is an implementation option.

**originating number** : The number of the calling user.

**originating subaddress** : The subaddress of the calling user.

**path retention** : The retention of the network connection between the Originating CC and the Destination CC so that a supplementary service (such as SS-DNDO) can be invoked without establishing a new connection.

**served user** : The user for which SS-DND is activated or deactivated, or for which SS-DND is invoked.

## 5 List of acronyms

|      |                                        |
|------|----------------------------------------|
| ANF  | Additional Network Feature             |
| CC   | Call Control (functional entity)       |
| CCA  | Call Control Agent (functional entity) |
| CCBS | Call Completion to Busy Subscriber     |
| CCNR | Call Completion on No Reply            |
| CD   | Call Deflection                        |
| CFB  | Call Forwarding Busy                   |

|        |                                                   |
|--------|---------------------------------------------------|
| CFNR   | Call Forwarding No Reply                          |
| CFU    | Call Forwarding Unconditional                     |
| CI     | Call Intrusion                                    |
| CLIP   | Calling Line Identification Presentation          |
| CLIR   | Calling/Connected Line Identification Restriction |
| CNIP   | Calling Name Identification Presentation          |
| CNIR   | Calling/Connected Name Identification Restriction |
| CO     | Call Offer                                        |
| COLP   | Connected Line Identification Presentation        |
| CONP   | Connected Name Identification Presentation        |
| CT     | Call Transfer                                     |
| DND    | Do Not Disturb                                    |
| DNDO   | Do Not Disturb Override                           |
| DNDOCL | DNDO Capability Level                             |
| DNDPL  | DND Protection Level                              |
| FE     | Functional Entity                                 |
| ISDN   | Integrated Services Digital Network               |
| MSN    | Multiple Subscriber Number                        |
| PINX   | Private Integrated Services Network Exchange      |
| PISN   | Private Integrated Services Network               |
| PR     | Path Replacement                                  |
| SDL    | Specification and Description Language            |
| SS     | Supplementary Service                             |
| TE     | Terminal Equipment                                |

## 6 SS-DND stage 1 specification

### 6.1 Description

#### 6.1.1 General description

SS-DND is a supplementary service which enables a served user to cause the PISN to reject any calls, or just those associated with a specified basic service, addressed to the served user's PISN number. The calling user is given an appropriate indication. Incoming calls are rejected as long as the service is active. The served user's outgoing service is unaffected.

The related supplementary service Do Not Disturb Override allows a calling user to override Do Not Disturb, subject to service profiles.

The SS-DND service is provided on a PISN number.

For a given PISN number, this service (including options) may be subscribed to for each basic service to which the user of the number subscribes, or collectively for all the basic services to which the user subscribes.

#### 6.1.2 Qualifications on applicability to telecommunication services

SS-DND is applicable to all circuit mode basic services defined in ISO/IEC 11574.

### 6.2 Procedures

#### 6.2.1 Provision/withdrawal

SS-DND is provided or withdrawn after pre-arrangement with the service provider.

SS-DND is provided on a per PISN number basis and per basic service basis. For each PISN number, the supplementary service can be subscribed to for all basic services subscribed to by that PISN number, or for only some of the basic services subscribed to by that PISN number.

SS-DND subscription parameters may apply separately to each basic service to which SS-DND is subscribed, or for all the basic services to which SS-DND is subscribed.

If SS-DNDO is implemented then the subscription parameter "DND protection level" (DNDPL) shall be provided. The DNDPL has a value in the range 0 to 3 where 0 means no protection against DNDO and 3 means total protection against DNDO. The values 0 and 3 shall be offered. The values 1 and 2 may, as an implementation option, be offered. The effect of the subscription parameter DNDPL shall be as described in clause 6.3.10.

The subscription parameter "Served user notification of invocation of SS-DND" may be provided. If it is not provided, as an implementation option, the network may or may not notify the served user of DND invocation.

## **6.2.2 Normal procedures**

### **6.2.2.1 Activation/deactivation/registration/interrogation**

A PISN shall provide activation/deactivation by the served user (local activation/deactivation). In addition the PISN may provide activation/deactivation by another user (remote activation/deactivation). No information needs to be registered with the PISN for this supplementary service.

A PISN may provide interrogation, which can be local, remote or both.

#### **6.2.2.1.1 Local activation/deactivation**

To activate SS-DND the served user shall supply:

- 1 information as to whether SS-DND is to apply to all basic services for which SS-DND is subscribed to or to a specific basic service out of the basic services for which SS-DND is subscribed to;
- 2 where there is more than one PISN number assigned to the access (i.e. in the context of an MSN arrangement), the PISN number for which SS-DND shall apply.

As an implementation option, it may be possible for the served user to select a tone or announcement to be given to the calling user on invocation of SS-DND. The method of making this selection is outside the scope of this International Standard.

To deactivate SS-DND the served user shall supply:

- 1 information as to whether SS-DND is no longer to apply to all basic services for which SS-DND is subscribed to or to a specific basic service out of the basic services for which SS-DND is subscribed to;
- 2 where there is more than one PISN number assigned to the access (i.e. in the context of an MSN arrangement), the PISN number for which SS-DND shall no longer apply.

If a single number is used by more than one terminal, activation/deactivation of SS-DND shall be possible from any terminal that uses this number.

When the served user requests activation/deactivation of SS-DND, the service provider shall return notification of acceptance or rejection of the request (see exceptional procedures for a list of possible causes of rejection). This notification shall be sent only to the terminal from which the request was received.

When the served user successfully activates/deactivates SS-DND, the service provider shall send a notification to all the served user's terminals that are compatible with the service (or services) for which the activation/deactivation has been performed. In the case of successful activation, the notification may include the DNDPL of the served user.

#### **6.2.2.1.2 Remote activation/deactivation**

If remote activate/deactivation is provided the following shall apply:

A specially authorized user may activate and/or deactivate SS-DND at the served user. Authorization shall be implementation dependent (e.g. attendants may be authorized).

To activate SS-DND, the authorized user shall supply:

- 1 information as to whether SS-DND is to apply to all basic services for which SS-DND is subscribed to or to a specific basic service out of the basic services for which SS-DND is subscribed to;
- 2 the PISN number for which SS-DND shall apply.

To deactivate SS-DND, the authorized user shall supply:

- 1 information as to whether SS-DND is no longer to apply to all basic services for which SS-DND is subscribed to or to a specific basic service out of the basic services for which SS-DND is subscribed to;
- 2 the PISN number for which SS-DND shall no longer apply.

Note 2 - The use of a password facility for remote activation/deactivation as an implementation option is not excluded.

When the authorized user so activates or deactivates SS-DND, the service provider shall return notification of acceptance or rejection of the request (see exceptional procedures for a list of possible causes of rejection). If the request is accepted, then the notification shall be given to the terminal from which the request has been made, and to all the served user's terminals compatible with the basic service or services for which the activation/deactivation is performed; this notification may, as an implementation option, include the DNDPL of the served user. If the request is rejected, then the notification shall only be given to the terminal from which the request has been made.

#### 6.2.2.1.3 Local interrogation

If local interrogation is provided, a PISN shall support interrogation on a per PISN number basis. The PISN response to an interrogation request shall provide the following information to the user:

- if SS-DND is not activated for any basic service, an indication to that effect;
- if SS-DND is activated for any basic service or services, a list of basic services for which SS-DND is active.

The PISN response to an interrogation request may additionally provide the DNDPL for each basic service for which SS-DND is active.

#### 6.2.2.1.4 Remote interrogation

If remote interrogation is provided, a specially authorized user may interrogate SS-DND conditions at the served user. Authorization shall be implementation dependent (e.g. attendants may be authorized).

The remote interrogation request and response shall include the information as specified for local interrogation and additionally the request shall contain the PISN number of the served user.

Note 3 - The use of a password facility for remote interrogation as an implementation option is not excluded.

#### 6.2.2.2 Invocation and operation

When SS-DND is active for some PISN number for some service, incoming calls to that PISN number for that service shall not be presented to the served user. The call is regarded as unsuccessful and an indication that the call has failed due to SS-DND shall be returned to the calling user. For the basic services for which ISO/IEC 11574 requires tones or announcements to be given to indicate progress or otherwise of the call, an in-band tone or announcement shall be given to the calling user on invocation of SS-DND. For other basic services defined in ISO/IEC 11574, an in-band tone or announcement may be given to the calling user on invocation of SS-DND.

Note 4 - It is an implementation option which tones or announcements are given.

The served user, as a subscription option, may receive a notification of each invocation of SS-DND on incoming calls to the served user. This notification shall include the following information: Bearer Capability information and, if available, High Layer Compatibility information and Low Layer Compatibility information.

Note 5 - The calling party address and/or name may be provided by SS-CLIP and SS-CNIP respectively; see clauses 6.3.1 and 6.3.4.

### 6.2.3 Exceptional procedures

#### 6.2.3.1 Activation/deactivation/registration/interrogation

If the PISN cannot accept an activation/deactivation/interrogation request, then the user making the request shall be informed. Possible causes for rejection are:

- 1 Service not subscribed to;
- 2 Insufficient information;
- 3 Not authorized to perform activation/deactivation/interrogation.

#### 6.2.3.2 Invocation and operation

None.

### 6.3 Interactions with other supplementary services and ANFs

Interactions with other supplementary services and ANFs for which PISN International Standards were available at the time of publication of this International Standard are specified below.

#### 6.3.1 Calling Line Identification Presentation (SS-CLIP)

The served user shall receive, as part of the served user notification of the invocation of SS-DND, the Calling Line Identification of the calling party, unless SS-CLIR applies and the served user has no override capability.

#### 6.3.2 Connected Line Identification Presentation (SS-COLP)

No interaction.

#### 6.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)

When Calling Line Identification Restriction is invoked, the Calling Line Identification shall not be presented to the served user (as part of the notification that SS-DND has been invoked) unless the served user has an override category.

#### 6.3.4 Calling Name Identification Presentation (SS-CNIP)

The served user shall receive, as part of the served user notification of the invocation of SS-DND, the Calling Name Identification of the calling party, unless SS-CNIR applies and the served user has no override capability.

#### 6.3.5 Connected Name Identification Presentation (SS-CONP)

No interaction.

#### 6.3.6 Calling/Connected Name Identification Restriction (SS-CNIR)

When Calling Name Identification Restriction is invoked, the Calling Name Identification shall not be presented to the served user (as part of the notification that SS-DND has been invoked) unless the served user has an override category.

#### 6.3.7 Completion of Calls to Busy Subscriber (SS-CCBS)

##### 6.3.7.1 Interactions caused by SS-DND at the destination of SS-CCBS

If SS-CCBS is invoked on a destination with SS-DND active, then the SS-CCBS invocation shall fail due to SS-DND active.

Note 6 - This can occur if, at the time of the original call setup, SS-DND was not active but SS-DND is subsequently activated before the calling user requests SS-CCBS.

If at the time the PISN attempts to complete the call to the destination following SS-CCBS recall SS-DND is active at the destination, then SS-CCBS shall be cancelled with appropriate indication to the calling user.

##### 6.3.7.2 Interactions caused by SS-DND at the originator of SS-CCBS

A SS-CCBS recall shall override SS-DND.

#### 6.3.8 Completion of Calls on No Reply (SS-CCNR)

##### 6.3.8.1 Interactions caused by SS-DND at the destination of SS-CCNR

If SS-CCNR is invoked on a destination with SS-DND active, then the SS-CCNR invocation shall fail due to SS-DND active.

Note 7 - This can occur if, at the time of the original call setup, SS-DND was not active but SS-DND is subsequently activated before the calling user requests SS-CCNR.

If at the time the PISN attempts to complete the call to the destination following SS-CCNR recall SS-DND is active at the destination, then the SS-CCNR shall fail with appropriate indication to the calling user.

##### 6.3.8.2 Interactions caused by SS-DND at the originator of CCNR

A SS-CCNR recall shall override SS-DND.

#### 6.3.9 Call Transfer (SS-CT)

No interaction.

#### 6.3.10 Call Forwarding Unconditional (SS-CFU)

On a call to a PISN number with SS-CFU active, the call forwarding shall be invoked regardless of whether or not SS-DND is active.

At a forwarded-to number, the call is treated as an incoming call and, if SS-DND is active, SS-DND shall be invoked. If SS-DND is invoked at the forwarded-to number, then the call forwarding is regarded as being unsuccessful and the call shall be cleared following the procedures in SS-CFU. If the call is cleared back to the original calling user, then the calling user shall be

informed that the call failed because of SS-DND. If SS-CFNR or Call Deflection from Alert has previously occurred, then the call shall be cleared back to the served user of SS-CFNR or Call Deflection from Alert.

#### **6.3.11 Call Forwarding Busy (SS-CFB)**

On a call to a PISN number with SS-CFB and SS-DND active, then SS-DND shall be invoked regardless of the busy state of the PISN number and call forwarding shall not take place.

At a forwarded-to number, the call is treated as an incoming call and, if SS-DND is active, SS-DND shall be invoked at that number. If SS-DND is invoked at the forwarded-to number, then the call forwarding shall be regarded as being unsuccessful and the call shall be cleared following the procedures in SS-CFB. If the call is cleared back to the original calling user, then the calling user shall be informed that the call failed because of SS-DND. If SS-CFNR or Call Deflection from Alert has previously occurred, then the call shall be cleared back to the served user of SS-CFNR or Call Deflection from Alert.

#### **6.3.12 Call Forwarding No Reply (SS-CFNR)**

On a call to a PISN number with SS-CFNR and SS-DND active, then SS-DND shall be invoked and call forwarding shall not take place.

At a forwarded-to number, the call is treated as an incoming call and, if SS-DND is active, SS-DND shall be invoked at that number. If SS-DND is invoked at a forwarded-to number reached either directly by SS-CFNR or indirectly via subsequent invocations of SS-CFU and/or SS-CFB and/or Call Deflection Immediate, then the setup of the forwarded call shall fail and the procedures of SS-CFNR shall apply.

#### **6.3.13 Call Deflection (SS-CD)**

On a call to a PISN number with SS-DND active, SS-DND will be invoked and therefore SS-CD cannot be invoked.

At a diverted-to number reached as a result of Call Deflection Immediate, the call shall be treated as an incoming call and, if SS-DND is active, SS-DND shall be invoked at that number. If SS-DND is invoked at the diverted-to number, then Call Deflection Immediate shall be regarded as being unsuccessful and the call shall be cleared following the procedures for Call Deflection Immediate. If the call is cleared back to the original calling user, then the calling user shall be informed that the call failed because of SS-DND. If SS-CFNR or Call Deflection from Alert has already previously occurred, then the call shall be cleared back to the served user of SS-CFNR or Call Deflection from Alert.

At a diverted-to number reached as a result of Call Deflection from Alert, the call shall be treated as an incoming call and, if SS-DND is active, SS-DND shall be invoked at that number. If SS-DND is invoked at the diverted-to number reached either directly from Call Deflection from Alert or indirectly via subsequent invocations of SS-CFU, SS-CFB or Call Deflection Immediate, then the set up of the diverted call shall fail and the procedures of Call Deflection from Alert shall apply.

#### **6.3.14 Path Replacement (ANF-PR)**

No interaction.

#### **6.3.15 Do Not Disturb Override (SS-DNDO)**

If SS-DND and SS-DNDO are invoked, and SS-DNDO is allowed, then the call shall succeed as if SS-DND was not active.

SS-DNDO is allowed provided the calling user has subscribed to SS-DNDO and the "DNDO Capability Level" (DNDOCL - see clause 7.2.1) of the calling user is greater than the "DND Protection Level" (DNDPL - see clause 6.2.1) of the called user.

#### **6.3.16 Call Offer (SS-CO)**

If SS-CO has been invoked:

- as part of the initial call setup (i.e. by SS-CO immediate invocation),
- following consultation (i.e. by SS-CO Consultation), or
- by SS-CO network invocation (delayed),

and if, at the time of invocation, SS-DND is active at the destination and has not been successfully overridden, then the invocation of SS-CO shall be rejected, and the procedures of SS-DND shall apply.

#### **6.3.17 Call Intrusion (SS-CI)**

If a call for which SS-CI has been invoked as part of the initial call set up (immediate invocation) fails because of SS-DND active, then the invocation of SS-CI shall be rejected.

#### 6.4 Interworking considerations

A call originating in another network to a PISN destination for which SS-DND is activate will be rejected. An appropriate indication may be given to the calling user; this indication may depend on the requirements of the originating network.

#### 6.5 Overall SDL

Figure 1 contains the dynamic description of SS-DND using the Specification and Description Language (SDL) defined in CCITT Rec. Z.100 (1988). The SDL process represents the behaviour of the PISN in providing SS-DND. Input signals from the left and output signals to the left represent primitives from and to the user activating, deactivating or interrogating SS-DND, or from the basic call process, or to the calling user. Output signals to the right represent primitives to the compatible terminals of the served user.

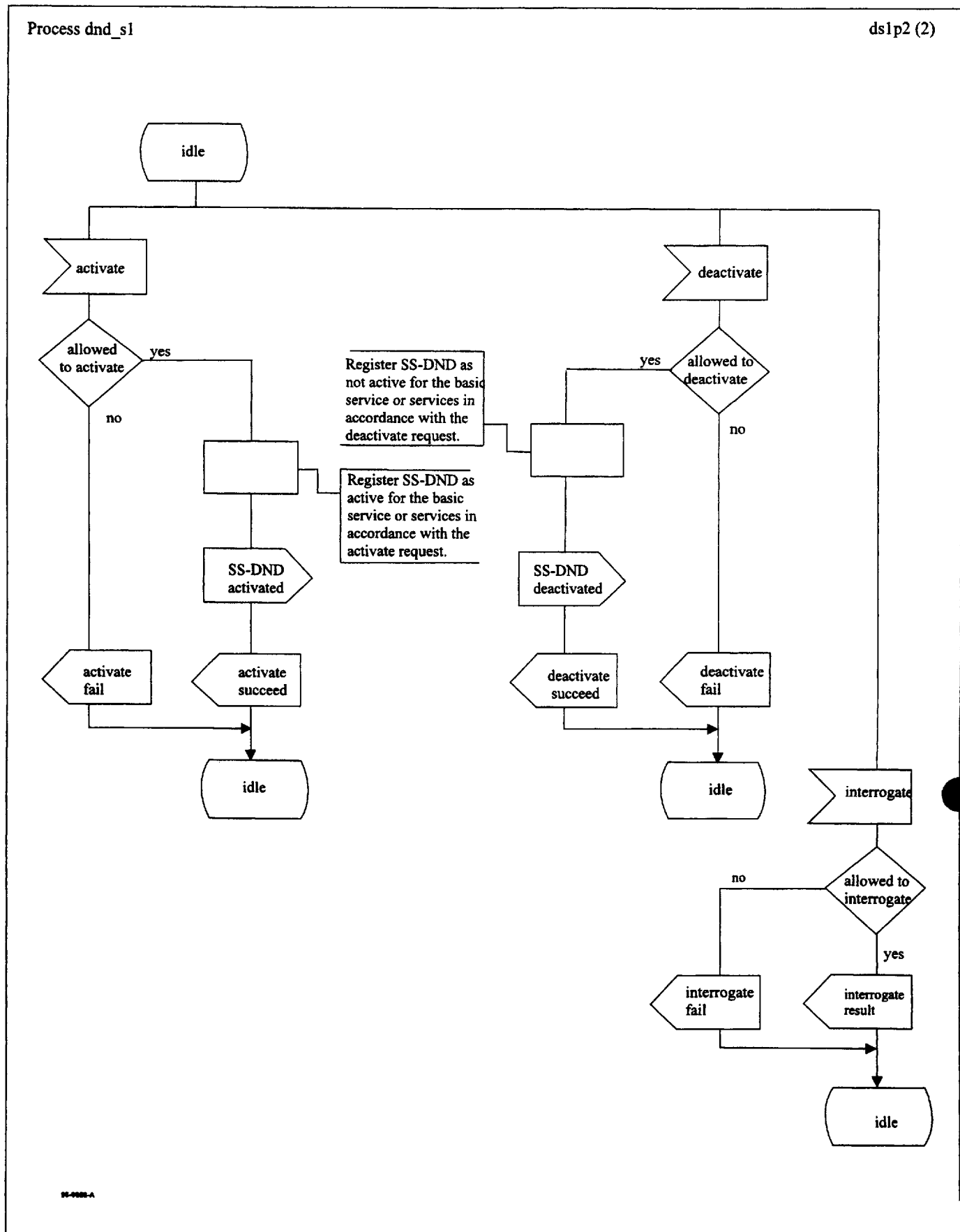


Figure 1 (part 1) - SS-DND, overall SDL

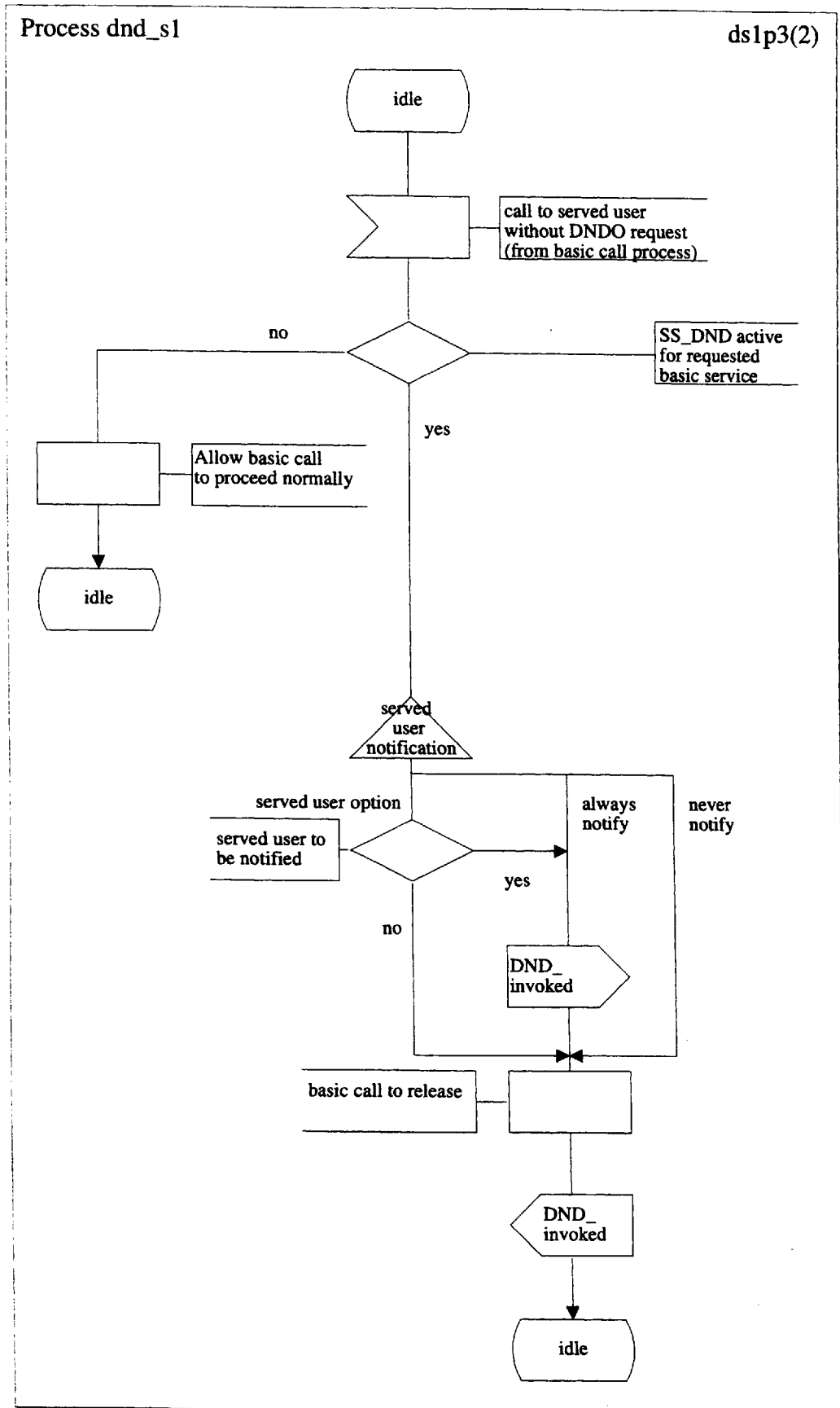


Figure 1 (part 2) - SS-DND, overall SDL

## **7 SS-DNDO stage 1 specification**

### **7.1 Description**

#### **7.1.1 General description**

SS-DNDO is a supplementary service which enables a calling user to override SS-DND at a called user, allowing the call to proceed as if the called user had not activated SS-DND.

The SS-DNDO service is provided on a PISN number.

For a given PISN number, this service may be subscribed to for each basic service to which the user of the number subscribes, or collectively for all the basic services to which the user subscribes.

#### **7.1.2 Qualifications on applicability to telecommunication services**

SS-DNDO is applicable to all circuit mode basic services defined in ISO/IEC 11574.

### **7.2 Procedures**

#### **7.2.1 Provision/withdrawal**

SS-DNDO is provided or withdrawn after pre-arrangement with the service provider.

SS-DNDO is provided on a per PISN number basis and per basic service basis. For each PISN number, the supplementary service can be subscribed to for every basic service subscribed to by that PISN number, or for only some of the basic services subscribed to by that PISN number.

SS-DNDO subscription parameters may apply separately to each basic service to which SS-DNDO is subscribed, or for all the basic services to which SS-DNDO is subscribed.

The subscription parameter "DNDO Capability Level" (DNDOCL) shall be provided. The DNDOCL has a value in the range 1 (lowest capability) to 3 (highest capability). At least one of the DNDOCL values shall be offered. The effect of the subscription parameter "DNDO Capability Level" shall be as described in clause 6.3.10.

At least one of the three methods of invoking SS-DNDO (see clause 7.2.2.2) shall be offered. For a subscription to be valid, at least one of the methods of invoking SS-DNDO shall be subscribed to, and if Network invocation is subscribed to, the other two methods of invoking SS-DNDO shall not be subscribed to.

#### **7.2.2 Normal procedures**

##### **7.2.2.1 Activation/deactivation/registration/interrogation**

None.

##### **7.2.2.2 Invocation and operation**

There are three different ways of invoking SS-DNDO. A PISN shall offer one or more of these ways. These ways are:

##### **1 Network invocation:**

The network shall automatically invoke SS-DNDO whenever the calling user makes a call to a user with SS-DND active, if required by the service profile of the calling user.

##### **2 Consultation:**

The calling user, on being informed that a call has failed because of SS-DND active at the destination and that SS-DNDO may be possible, shall be able, within a defined period (consultation timer), to request invocation of SS-DNDO.

##### **3 Immediate invocation:**

The calling user shall be able to request invocation of SS-DNDO as part of the initial call set up.

Once SS-DNDO has been invoked in a call, it applies to the complete call setup, including any call diversions that take place, and any requests for Call Offer or Intrusion, until a called user is alerting or has answered.

If the called user does not have SS-DND active, the invocation of SS-DNDO shall have no effect. If the called user has SS-DND active and SS-DNDO is invoked, then the network shall investigate whether or not the calling user is allowed to override SS-DND. If the calling user is not allowed to override SS-DND, then the procedures of SS-DND shall apply; if the calling user is allowed to override SS-DND, then the call proceeds as if the called user did not have SS-DND active.

### **7.2.3 Exceptional procedures**

#### **7.2.3.1 Activation/deactivation/registration/interrogation**

None.

#### **7.2.3.2 Invocation and operation**

If the calling user requests invocation of SS-DNDO as part of the initial call request, and immediate invocation is not provided to the calling user, then the request shall be ignored and the call shall proceed as if the request had not been made.

In the case of consultation, the request for invocation of SS-DNDO may be rejected, e.g. because SS-DNDO is not allowed.

If consultation applies to the call, the call shall be released either if the calling user does not request invocation within the defined timer period (consultation timer) or if the calling user requests invocation within the defined timer period (consultation timer) and this request is rejected.

### **7.3 Interactions with other supplementary services and ANFs**

Interactions with other supplementary services and ANFs for which PISN International Standards were available at the time of publication of this International Standard are specified below.

#### **7.3.1 Calling Line Identification Presentation (SS-CLIP)**

No interaction.

#### **7.3.2 Connected Line Identification Presentation (SS-COLP)**

No interaction.

#### **7.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)**

No interaction.

#### **7.3.4 Calling Name Identification Presentation (SS-CNIP)**

No interaction.

#### **7.3.5 Connected Name Identification Presentation (SS-CONP)**

No interaction.

#### **7.3.6 Calling/Connected Name Identification Restriction (SS-CNIR)**

No interaction.

#### **7.3.7 Completion of Calls to Busy Subscriber (SS-CCBS)**

No interaction.

Note 8 - Once the conditions have been reached for a possible invocation of SS-CCBS, any previous invocation of SS-DNDO in the call no longer applies, and it is not possible to invoke SS-DNDO together with SS-CCBS. If the called user has SS-DND active, clause 6.3.11.1 applies.

#### **7.3.8 Completion of Calls on No Reply (SS-CCNR)**

No interaction.

Note 9 - Once the conditions have been reached for a possible invocation of SS-CCNR, any previous invocation of SS-DNDO in the call no longer applies, and it is not possible to invoke SS-DNDO together with SS-CCNR. If the called user has SS-DND active, clause 6.3.12.1 applies.

#### **7.3.9 Call Transfer (SS-CT)**

No interaction.

#### **7.3.10 Call Forwarding Unconditional (SS-CFU)**

At a forwarded-to number for which SS-DND is active:

- 1 If SS-CFNR or Call Deflection from Alert has already been invoked in the call, clause 7.3.12 or 7.3.13 respectively shall apply.
- 2 If neither SS-CFNR nor Call Deflection from Alert has been invoked in the call and SS-DNDO has already been invoked, then the invocation of SS-DNDO applies to the forwarded-to number.
- 3 If neither SS-CFNR nor Call Deflection from Alert nor SS-DNDO have been invoked in the call, then if the calling user is informed that the call has failed because of SS-DND active at the destination and if the calling user invokes SS-DNDO, then the invocation of SS-DNDO shall apply to the forwarded-to number.

**7.3.11 Call Forwarding Busy (SS-CFB)**

On a call to a PISN number with SS-CFB and SS-DND active for which SS-DNDO is successfully invoked, SS-CFB proceeds normally as if the PISN number did not have SS-DND active.

At a forwarded-to number for which SS-DND is active:

- 1 If SS-CFNR or Call Deflection from Alert has already been invoked in the call, clause 7.3.12 or 7.3.13 respectively shall apply.
- 2 If neither SS-CFNR nor Call Deflection from Alert has been invoked in the call and SS-DNDO has already been invoked, then the invocation of SS-DNDO applies to the forwarded-to number.
- 3 If neither SS-CFNR nor Call Deflection from Alert nor SS-DNDO have been invoked in the call, then if the calling user is informed that the call has failed because of SS-DND active at the destination and if the calling user invokes SS-DNDO, then the invocation of SS-DNDO shall apply to the forwarded-to number.

**7.3.12 Call Forwarding No Reply (SS-CFNR)**

On a call to a PISN number with SS-CFNR and SS-DND active for which SS-DNDO is successfully invoked, SS-CFNR proceeds normally, i.e. as if the PISN number did not have SS-DND active.

At a forwarded-to number for which SS-DND is active, if SS-CFNR has been invoked in the call, SS-DNDO shall not be applied. The setup of the forwarded call shall fail and the procedures of SS-CFNR shall apply.

**7.3.13 Call Deflection (SS-CD)**

On a call to a PISN number at which SS-DND is active and for which SS-DNDO has been successfully invoked, Call Deflection Immediate or Call Deflection from Alert can occur.

At a diverted-to number reached as a result of Call Deflection Immediate and for which SS-DND is active:

- If SS-CFNR or Call Deflection from Alert has previously been invoked, SS-DNDO shall not apply, the diverted call shall fail and the procedures of SS-CFNR or Call Deflection from Alert respectively shall apply.
- If neither SS-CFNR nor Call Deflection from Alert has previously been invoked but SS-DNDO has been invoked, then the invocation of SS-DNDO shall apply to the diverted-to number.
- If neither SS-CFNR nor Call Deflection from Alert nor SS-DNDO has previously been invoked, then if the calling user is informed that the call has failed because of SS-DND active at the destination and if the calling user invokes SS-DNDO, then the invocation of SS-DNDO shall apply to the diverted-to number.

At a diverted-to number for which SS-DND is active, if Call Deflection from Alert has been invoked in the call, SS-DNDO shall not be applied. The set up of the diverted call shall fail and the procedures of Call Deflection from Alert shall apply.

**7.3.14 Path Replacement (ANF-PR)**

No interaction.

**7.3.15 Do Not Disturb (SS-DND)**

Clause 6.3.15 shall apply.

**7.3.16 Call Offer (SS-CO)**

If the called user has SS-DND active and SS-DNDO is successfully invoked, then:

- if Call Offer network invocation (immediate), immediate invocation or network invocation (delayed) is applicable to the call, then the invocation of Call Offer shall apply to the call after SS-DND has been overridden;
- if Call Offer consultation applies to the call, it shall apply after SS-DND has been overridden.

**7.3.17 Call Intrusion (SS-CI)**

If a called user has SS-DND active, and SS-DNDO is successfully invoked, then:

- if SS-CI immediate invocation is applicable to the call, then the invocation of SS-CI shall apply to the call after SS-DND has been overridden;
- if SS-CI consultation is applicable to the call, it shall apply after SS-DND has been overridden.

#### 7.4 Interworking considerations

- 1 For a call originating in a network that does not support SS-DND and/or SS-DNDO, then the PISN may automatically invoke SS-DNDO. If the invocation is not successful (due to the destination in the PISN having SS-DND active and a DNDPL which prevents SS-DNDO) then the call will be rejected due to SS-DND active, according to the procedures of SS-DND.
- 2 If a call is made, with invocation of SS-DNDO, to a destination in a network that does not support SS-DNDO, then the invocation of SS-DNDO will be ignored.

#### 7.5 Overall SDL

Figure 2 contains the dynamic description of SS-DNDO using the Specification and Description Language (SDL) defined in CCITT Rec. Z.100 (1988). The SDL process represents the behaviour of the PISN in providing SS-DNDO to a calling user. Input signals from the left and output signals to the left represent primitives from and to the calling user. Input signals from the right represent inputs from the basic call process or from an internal process.

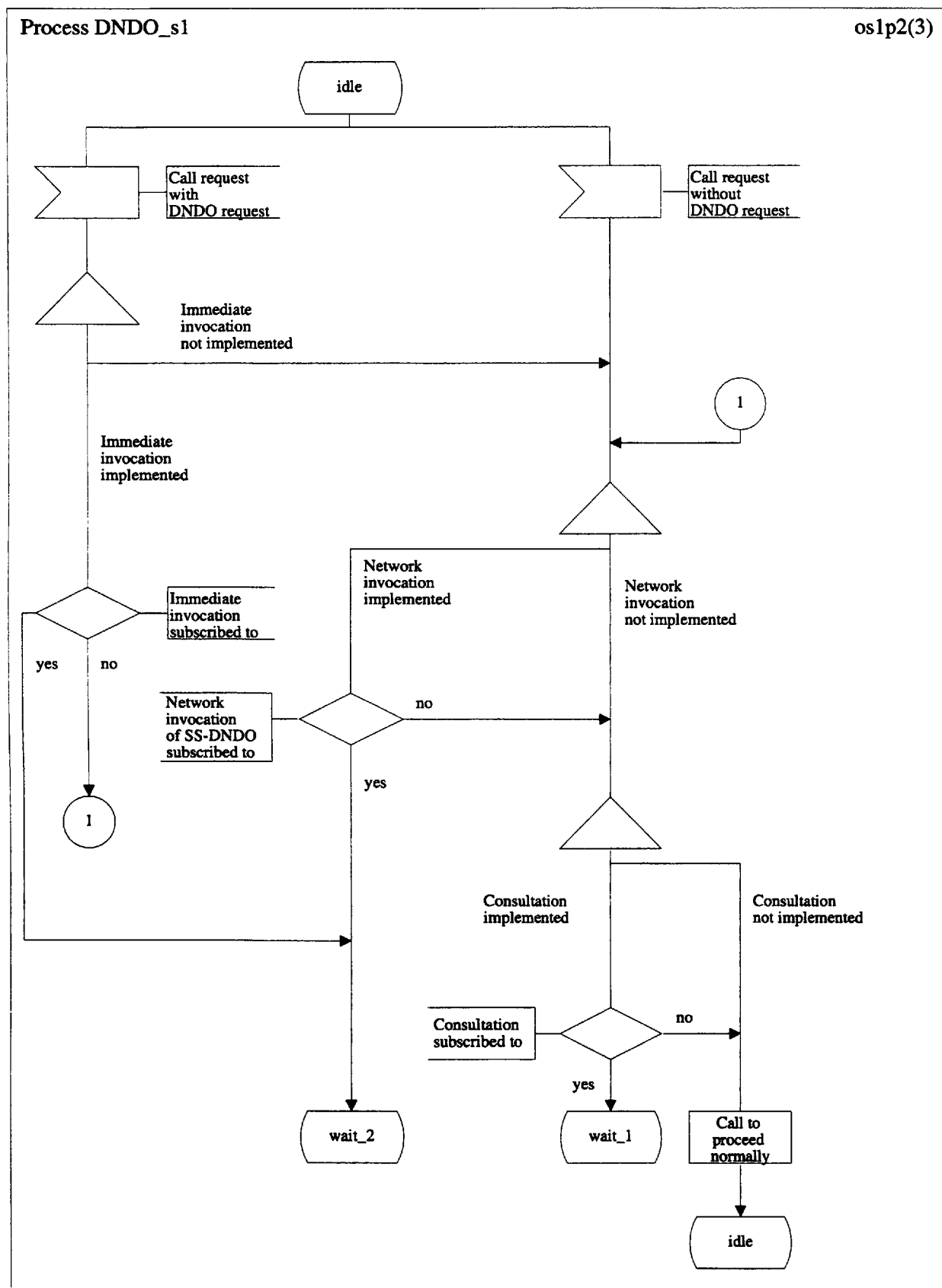


Figure 2 (part 1) - SS-DNDO, overall SDL