SUPPORTED MESSAGE SETS

A number of ISDN D–Channel Layer 3 Message Sets are available to support all application monitor and simulation tests. CCITT is the international message set and is provided as the default to all ISDN users.

Contact your IDACOM/HP sales representative to either purchase additional sets and/or update existing message sets.

The following table contains a complete list of all currently available message sets and the corresponding release dates and numbers.

<table>
<thead>
<tr>
<th>Message Set</th>
<th>Description</th>
<th>Release Date</th>
<th>Release #</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>AT&amp;T 5D5–900–321, 5E6 Generic Program (03/89)</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td></td>
<td>AT&amp;T Primary Rate Interface Spec, TR41449 (07/89)</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td></td>
<td>Northern Telecom NIS S208–2 (1986), Stimulus</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td></td>
<td>Northern Telecom NIS A211–1, Issue AB01 (03/87)</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td>Europe</td>
<td>CNET Tech Spec ST/LAA/RSM/ 133, Ed 3 (07/88) English</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td></td>
<td>CNET Tech Spec ST/LAA/RSM/ 133, Ed 3 (07/88) French</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td></td>
<td>FTZ 1TR6 ISDN–D–Kanal–Protokoll (Auszgabe 1.90) – MGK</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td></td>
<td>FTZ 1TR6 ISDN–D–Kanal–Protokoll (Auszgabe 1.90) – NStAnl</td>
<td>November 1990</td>
<td>R01</td>
</tr>
<tr>
<td>Asia</td>
<td>NTT INS Net 64/1500 Service Interface (1989)</td>
<td>November 1990</td>
<td>R01</td>
</tr>
</tbody>
</table>
This manual is intended to provide a list of message identifiers, information element identifiers, and information element structures for the NT_S208-4 Message Set. Refer to the ISDN Programmer’s Manual for a list of identifiers and structures for the CCITT (default) message set.

This manual is not intended to provide basic user instruction, but rather provides examples which apply standard techniques for writing layer 3 test scripts using the Interactive Test Language (ITL). Refer to the Programmer’s Reference Manual for general programming information, and the ISDN Programmer’s Manual for more information and examples regarding ISDN test scripts. Refer to the machine specific User Manual for a quick reference to the basic operation of the protocol tester and for instructions to load and operate the software.

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<th>IE STRUCTURES [continued]</th>
<th></th>
</tr>
</thead>
<tbody>
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<td>4.11</td>
<td>Feature Activation IE (I#NTL_FEAT_ACT)</td>
<td>4-6</td>
</tr>
<tr>
<td>4.12</td>
<td>Feature Indicator IE (I#NTL_FEAT_IND)</td>
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</tr>
<tr>
<td>4.13</td>
<td>Information Request IE (I#INFO_REQ)</td>
<td>4-7</td>
</tr>
<tr>
<td>4.14</td>
<td>Keypad IE (I#KEYPAD)</td>
<td>4-7</td>
</tr>
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<td>4.15</td>
<td>Notification Indicator IE (I#NOTIFIC_IND)</td>
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<td>4.16</td>
<td>Progress Indicator IE (I#PROGRESS_IND)</td>
<td>4-8</td>
</tr>
<tr>
<td>4.17</td>
<td>Redirecting Number IE (I#REDIRING_NUM)</td>
<td>4-9</td>
</tr>
<tr>
<td>4.18</td>
<td>Redirection Number IE (I#REDIRION_NUM)</td>
<td>4-9</td>
</tr>
<tr>
<td>4.19</td>
<td>Restart Indicator IE (I#RESTART_IND)</td>
<td>4-10</td>
</tr>
<tr>
<td>4.20</td>
<td>Service Profile Identification IE (I#SPID)</td>
<td>4-10</td>
</tr>
<tr>
<td>4.21</td>
<td>Shift IE (I#SHIFT)</td>
<td>4-10</td>
</tr>
<tr>
<td>4.22</td>
<td>Signal IE (I#SIGNAL)</td>
<td>4-11</td>
</tr>
</tbody>
</table>
This message set is implemented in accordance with: Northern Telecom NIS S208-4, Issue 1, ISDN Basic Rate Access User-Network Interface Specification, October 1988.

The message set name (NT_S208-4) is used with the LOAD_MESSAGE_SET command or the Load Message Set function key under the MessageSet topic. This name is also displayed on various menus, and is used to identify the message set variation when layer 3 complete report format is selected. The corresponding entry on the Message Set Selection Menu identifies the message set name, description, and release number:

**NT_S208-4**  
Northern Telecom NIS S208-4 (1988), Functional  
R01

This message set contains unique identifiers which can be used in ISDN test scripts to reference received and transmitted messages. These identifiers are listed in three sections:

- Message Type Identifiers
- Information Element Identifiers
- Information Element Structures (including parameter field selectors and associated field values constants)

The following subsections provide some examples illustrating the use of each of these types of identifiers. Refer to the ISDN Programmer’s Manual for more information and detailed examples.

### 1.1 Using Message Identifiers

Message identifiers uniquely identify a message type in both received and transmitted messages, and are expressed in the following form:

\[ M\#xxxx \text{ (eg. M\#SETUP)} \]

In addition, the following default identifiers (specific received messages only) are also included with each message set:
- M\#ANY (any valid message)
- M\#INVALID (an invalid message)
- M\#UNDEF (an unknown/undefined message type)
Example 1:
After receiving a Setup message, perform an action (e.g., send a Setup Acknowledge response, increment a counter, etc.).

M#SETUP ?L3_MSG
ACTION[
    ( code specifying action taken if Setup message received )
]ACTION

Example 2:
Send an Alert message in an I frame complete with desired information elements.

M#ALERT MESSAGE>
    I#DISPLAY
    I#SIGNAL
<SEND

Message identifiers can also be used for filter/trigger management from within a script.

Example 3:
Set the display/report filter to only pass Setup and Connect messages.

R_FILTER             ( Select the display filter )
F3=NONE              ( Block all message types )
M#SETUP F+MSG        ( Pass Setup messages )
M#CONN F+MSG         ( Pass Connect messages )

1.2 Using IE Identifiers

IE identifiers uniquely identify an information element in both received and transmitted messages, and are expressed in the following form:

I#xxxx (eg. I#CAUSE)

Example 1:
Determine if the Cause IE appears in the last received message at least once.

I#CAUSE 1 ?L3_IE
IF
    ( code specifying action taken if the first Cause IE is found )
ELSE
    ( code specifying action taken if the first Cause IE is not found; ie: none present )
ENDIF
Example 2:
Prepare a Cause IE for later inclusion and transmission within a message.

```xml
<CAUSE_ELEMENT>
    ALL_EXCLUDED
    OCTET_3 INCLUDED
    OCTET_4 INCLUDED
    OCTET_5 INCLUDED
</CAUSE_ELEMENT>
```

Also in this group are octet identifiers which uniquely identify an octet number that can be used for any IE that contains that octet number. Octet identifiers are used in both received and transmitted messages and are expressed in the following form:

```
OCTET_xx (eg. OCTET_3.1)
```

Example 1:
Determine if Octet 3A is present in the Cause IE of the latest message received.

```xml
<CAUSE OCTET_3A ?L3_OCTET IF
    ( code specifying action taken if the octet is present;
      ie: process the specified Recommendation )
ENDIF
```

### 1.3 Using IE Structures

Information element structures consist of the information element parameter field selectors and the associated field value identifiers.

The parameter field selectors are expressed in the following form:

```
->xxx_yyyy (eg. ->BC_CODING_STANDARD)
```

where:

- `xxx` = the information element associated with that parameter field
  (eg: Bearer Capability)
- `yyyy` = the parameter field (either a string or a bit field)

The field value identifiers are expressed in the following form:

```
#xxxxx (eg. #INTERNATIONAL = 0b00000001)
```

All parameter field selectors are used with the "DEC and "COD structure indicators. "DEC provides the base address of the decoder parameter structure. When used with a field selector, decoded parameter values can be accessed. "COD complements "DEC and provides the base address of the coder parameter structure for the current connection. The contents of specific parameter fields can then be changed prior to transmission.
Example 1:
Depending on the contents of the received Bearer Capability Coding Standard parameter field (Octet 3, 2 bits), perform one of two different actions.

*DEC ->BC_CODING_STANDARD @ (Obtain the received value)
#CCITT = (Compare with identifier)
IF
  T. Coding Standard is CCITT TCR
ELSE
  T. Coding Standard is not CCITT TCR
ENDIF

\( \text{\textbullet\quad \text{NOTE}} \)
\text{The preceding example uses a bit field and @} (fetch); ! (store) and T. (print value) can also be used. If the parameter is a string (a sequence of one or more characters), !STRING or T.TYPE can be used.

Example 2:
Set the appropriate values of the two parameter fields of Octet 4 of the Bearer Capability IE prior to transmission.

#CIRCUIT_MODE *COD ->BC_TRANSFER_MODE !
#384KBIT/S *COD ->BC_TRANSFER_RATE !
2.1 Q.931 Protocol Discriminator

M#ALERT
M#CALL_PROC
M#CONN
M#CONN_ACK
M#DISC
M#HOLD
M#HOLD_ACK
M#HOLD_REJ
M/INFO
M#KEY_HOLD
M#KEY_REL
M#KEY_SETUP
M#KEY_S_ACK
M#NOTIFY
M#PROG
M#REL
M#REL_COM
M#REST
M#REST_ACK
M#RETR
M#RETR_ACK
M#RETR_REJ
M#SETUP
M#SETUP_ACK
M#STATUS
M#STATUS_ENQ

Alerting
Call Proceeding
Connect
Connect Acknowledge
Disconnect
Hold
Hold Acknowledge
Hold Reject
Information
Key Hold
Key Release
Key Setup
Key Setup Acknowledge
Notify
Progress
Release
Release Complete
Restart
Restart Acknowledge
Retrive
Retrive Acknowledge
Retrive Reject
Setup
Setup Acknowledge
Status
Status Enquiry
### 3.1 Codeset 0

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I#BEARER_CAP</td>
<td>Bearer Capability</td>
</tr>
<tr>
<td>I#CALLED_NUM</td>
<td>Called Party Number</td>
</tr>
<tr>
<td>I#CALLING_NUM</td>
<td>Calling Party Number</td>
</tr>
<tr>
<td>I#CALL_STATE</td>
<td>Call State</td>
</tr>
<tr>
<td>I#CAUSE</td>
<td>Cause</td>
</tr>
<tr>
<td>I#CHANNEL_ID</td>
<td>Channel Identification</td>
</tr>
<tr>
<td>I#CONNECTED_NUM</td>
<td>Connected Number</td>
</tr>
<tr>
<td>I#DISPLAY</td>
<td>Display</td>
</tr>
<tr>
<td>I#ENDPOINT_ID</td>
<td>Endpoint Identifier</td>
</tr>
<tr>
<td>I/INFO_REQ</td>
<td>Information Request</td>
</tr>
<tr>
<td>I#KEYPAD</td>
<td>Keypad</td>
</tr>
<tr>
<td>I#NOTIFIC_IND</td>
<td>Notification Indicator</td>
</tr>
<tr>
<td>I#NTL_FEAT_ACT</td>
<td>Feature Activation</td>
</tr>
<tr>
<td>I#NTL_FEAT_IND</td>
<td>Feature Indicator</td>
</tr>
<tr>
<td>I#PROGRESS_IND</td>
<td>Progress Indicator</td>
</tr>
<tr>
<td>I#REDIRING_NUM</td>
<td>Redirecting Number</td>
</tr>
<tr>
<td>I#REDIRION_NUM</td>
<td>Redirection Number</td>
</tr>
<tr>
<td>I#RESTART_IND</td>
<td>Restart Indicator</td>
</tr>
<tr>
<td>I#SHIFT</td>
<td>Shift</td>
</tr>
<tr>
<td>I#SIGNAL</td>
<td>Signal</td>
</tr>
<tr>
<td>I#SPID</td>
<td>Service Profile Identification</td>
</tr>
</tbody>
</table>

### 3.2 Codeset 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I#CALL_APPEAR</td>
<td>Call Appearance</td>
</tr>
<tr>
<td>I#SHIFT</td>
<td>Shift</td>
</tr>
</tbody>
</table>
## 4.1 Bearer Capability IE (I#BEARER_CAP)

Possible octet inclusions/exclusions:

<table>
<thead>
<tr>
<th>OCTET</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>BC_CODING_STANDARD: Coding standard, Octet 3</td>
</tr>
<tr>
<td>4</td>
<td>BC_TRANSFER_CAP: Info. trans. cap., Octet 3</td>
</tr>
<tr>
<td>5</td>
<td>BC_TRANSFER_MODE: Transfer mode, Octet 4</td>
</tr>
<tr>
<td>4</td>
<td>BC_TRANSFER_RATE: Info. transfer rate, Octet 4</td>
</tr>
<tr>
<td>5</td>
<td>BC_LAYER1_ID: Layer identifier, Octet 5</td>
</tr>
<tr>
<td>5a</td>
<td>BC_USER_RATE: User rate, Octet 5</td>
</tr>
<tr>
<td>3</td>
<td>3.1 kHz audio</td>
</tr>
<tr>
<td>4</td>
<td>restricted digital information</td>
</tr>
<tr>
<td>5</td>
<td>unrestricted digital information</td>
</tr>
</tbody>
</table>

## 4.2 Call Appearance IE (I#CALL_APPEAR)

Possible octet inclusions/exclusions:

<table>
<thead>
<tr>
<th>OCTET</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>CA_CALL_APPEAR: Call Appearance, Octet 3 &amp; 3a</td>
</tr>
<tr>
<td>3a</td>
<td>range 0 through 16383</td>
</tr>
</tbody>
</table>
4.3 Call State IE (I#CALL_STATE)

Possible octet inclusions/exclusions:

OCTET_3

->CS_CALL_STATE

<table>
<thead>
<tr>
<th>Octet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCTET_3</td>
<td>Call state, Octet 3</td>
</tr>
<tr>
<td>#NULL</td>
<td>Null</td>
</tr>
<tr>
<td>#CALL_INIT</td>
<td>Call Initiated</td>
</tr>
<tr>
<td>#OUTGOING_CALL_PROC</td>
<td>Outgoing Call Proceeding</td>
</tr>
<tr>
<td>#CALL_DELIVERED</td>
<td>Call Delivered</td>
</tr>
<tr>
<td>#CALL_PRESENT</td>
<td>Call Present</td>
</tr>
<tr>
<td>#CALL_RECEIVED</td>
<td>Call Received</td>
</tr>
<tr>
<td>#CONNECT_REQUEST</td>
<td>Connect Request</td>
</tr>
<tr>
<td>#INCOMING_CALL_PROC</td>
<td>Incoming Call Proceeding</td>
</tr>
<tr>
<td>#ACTIVE</td>
<td>Active</td>
</tr>
<tr>
<td>#DISC_REQUEST</td>
<td>Disconnect Request</td>
</tr>
<tr>
<td>#DISC_INDICATION</td>
<td>Disconnect Indication</td>
</tr>
<tr>
<td>#RELEASE_REQUEST</td>
<td>Release Request</td>
</tr>
</tbody>
</table>

4.4 Called Party Number IE (I#CALLED_NUM)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

->CLDN_NUMBER_TYPE

<table>
<thead>
<tr>
<th>Octet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCTET_3</td>
<td>Type of number, Octet 3</td>
</tr>
<tr>
<td>#UNKNOWN</td>
<td>unknown</td>
</tr>
<tr>
<td>#INTERNATIONAL</td>
<td>international number</td>
</tr>
<tr>
<td>#NATIONAL</td>
<td>national number</td>
</tr>
<tr>
<td>#NETWORK_SPECIFIC</td>
<td>network specific</td>
</tr>
<tr>
<td>#LOCAL_DIRECTORY</td>
<td>subscriber number</td>
</tr>
<tr>
<td>#ABBREVIATED</td>
<td>abbreviated number</td>
</tr>
</tbody>
</table>

->CLDN_NUMBERING_PLAN

<table>
<thead>
<tr>
<th>Octet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCTET_3</td>
<td>Numbering plan, Octet 3</td>
</tr>
<tr>
<td>#UNKNOWN_PLAN</td>
<td>unknown</td>
</tr>
<tr>
<td>#ISDN_PLAN</td>
<td>ISDN numbering plan Rec. E.164</td>
</tr>
<tr>
<td>#DATA_PLAN</td>
<td>data numbering plan Rec.X.121</td>
</tr>
<tr>
<td>#PRIVATE_PLAN</td>
<td>private numbering plan</td>
</tr>
</tbody>
</table>

->CLDN_NUMBER

<table>
<thead>
<tr>
<th>Octet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCTET_4</td>
<td>Number, Octet 4</td>
</tr>
<tr>
<td>(IA5 characters)</td>
<td>max. length 24 octets</td>
</tr>
</tbody>
</table>
4.5 Calling Party Number IE (I#CALLING_NUM)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_3A, OCTET_4

-->CLGN_NUMBER_TYPE
    #UNKNOWN
    #INTERNATIONAL
    #NATIONAL
    #NETWORK_SPECIFIC
    #LOCAL_DIRECTORY
    #ABBREVIATED

-->CLGN_NUMBERING_PLAN
    #UNKNOWN_PLAN
    #ISDN_PLAN
    #DATA_PLAN
    #PRIVATE_PLAN

-->CLGN_PRESENTATION
    #PRESENT_ALLOWED
    #PRESENT_RESTRICTED
    #NUMBER_UNAVAIL

-->CLGN_SCREENING
    #UNSCREENED
    #VERIFY_PASSED
    #VERIFY_FAILED
    #NETWORK_PROVIDED

-->CLGN_NUMBER
    (IA5 characters)

Type of number, Octet 3
unknown
international number
national number
network specific
subscriber number
abbreviated number

Numbering plan, Octet 3
unknown
ISDN numbering plan Rec. E.164
data numbering plan Rec.X.121
private numbering plan

Presentation ind., Octet 3a
presentation allowed
presentation restricted
not available due to interworking

Screening indicator, Octet 3a
user—provided, not screened
user—provided, verified and passed
user—provided, verified and failed
network provided

Number, Octet 4
max. length 12 octets

4.6 Cause IE (I#CAUSE)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4, OCTET_5

-->C_CODING_STANDARD
    #CCITT
    #NETWORK_SPECIFIC

-->C_LOCATION
    #USER
    #LOCAL_PRIVATE
    #LOCAL_PUBLIC

Coding standard, Octet 3
CCITT
network specific

Location, Octet 3
user
private network serving local user
public network serving local user
Cause value, Octet 4

- **Cause value, Octet 4**
- Unassigned number
- No route to transit network
- Call is proceeding
- Normal call clearing
- User busy
- No user responding
- Call rejected
- Number changed
- Destination out of order
- Invalid number format
- Facility rejected
- Response to STATUS ENQUIRY
- Normal, unspecified
- No circuit/channel available
- Temporary failure
- Switching equipment congestion
- Access information discarded
- Requested circuit not available
- Resources unavailable, unspecified
- Requested facility not subscribed
- Bearer cap. incompat with service
- Service operation violated
- Incoming calls barred
- Bearer capability not authorized
- Bearer capability not available
- Service not available
- Bearer capability not implemented
- Channel type not implemented
- Requested facility not implemented
- Restricted Digital info.
- Services/Options not unspecified
- Invalid call reference value
- Identified channel does not exist
- Incompatible destination
- Invalid message, unspecified
- Mandatory IE is missing
- Message type non-existent
- Message not compatible
- Information element not implemented
- Invalid IE contents
- Protocol error, unspecified
- Invalid calling party number
- Interworking, unspecified
- Diagnostic(s), Octet 5
  - max. length 18 octets
4.7 Channel Identification IE (I#CHANNEL_ID)

Possible octet inclusions/exclusions:

OCTET_3

->CID_INT_PRESENT
  #IMPLICIT
  #EXPLICIT
->CID_INT_TYPE
  #BASIC_INTERFACE
  #OTHER_INTERFACE
->CID_PREF/EXCL
  #PREFERRED
  #EXCLUSIVE
->CID_DCHANNEL
  #NOT_D_CHANNEL
  #D_CHANNEL
->CID_INFO_CHAN_SEL
  #NO_CHANNEL
  #B1_CHANNEL
  #B2_CHANNEL
  #ANY_CHANNEL

Interface ident., Octet 3
implicitly identified
explicitly identified

Interface type, Octet 3
basic interface
other interface

Preferred/Exclusive, Octet 3
indicated channel preferred
only indicated channel acceptable

D-channel indicator, Octet 3
not D-channel
D-channel identified

Info. chan. sel., Octet 3
no channel
B1 channel
B2 channel
any channel

4.8 Connected Number IE (I#CONNECTED_NUM)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_3A, OCTET_4

->CNDN_NUMBER_TYPE
  #UNKNOWN
  #INTERNATIONAL
  #NATIONAL
  #NETWORK_SPECIFIC
  #LOCAL_DIRECTORY
  #ABBREVIATED
->CNDN_NUMBERING_PLAN
  #UNKNOWN_PLAN
  #ISDN_PLAN
  #DATA_PLAN
  #PRIVATE_PLAN
->CNDN_PRESENTATION
  #PRESENT_ALLOWED
  #PRESENT_RESTRICTED
  #NUMBER_UNAVAIL

Type of number, Octet 3
unknown
international number
national number
network specific
subscriber number
abbreviated number

Numbering plan, Octet 3
unknown
ISDN numbering plan Rec. E.164
data numbering plan Rec.X.121
private numbering plan

Presentation ind., Octet 3a
presentation allowed
presentation restricted
not available due to interworking
4.9 Display IE (I#DISPLAY)

Possible octet inclusions/exclusions:

OCTET_3

-->D_DISPLAY
   ( IA5 characters )

Display information, Octet 3 *
max. length 32 octets

4.10 Endpoint Identifier IE (I#ENDPOINT_ID)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

-->EP_USID
   ( numeric value )

User Srv Id(USID), Octet 3
range 0 through 127

-->EP_INTERPRETER
   #MATCHES_USID+TID
   #MATCHES_USID

Interpreter, Octet 4
Addressed if USID and TID matches
Addressed if USID and not TID match

-->EP_TID
   ( numeric value )

Terminal Id (TID), Octet 4
range 0 through 63

4.11 Feature Activation IE (I#NTL_FEAT_ACT)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_3A

-->FA_FEAT_NUM
   ( numeric value )

Feature_Id_Number, Octet 3 & 3a
range 0 through 16383
4.12 Feature Indicator IE (I#NTL_FEAT_IND)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_3A, OCTET_4

->FI_FEAT_NUM
   ( numeric value )
->FI_STATUS
   #IDLE
   #ACTIVE_STATE
   #PROMPT
   #PENDING

4.13 Information Request IE (I#INFO_REQ)

Possible octet inclusions/exclusions:

OCTET_3

->IRQ_INDICATOR
   #INFO_REQ_COMPL
   #PROMPT_INFO
->IRQ_INFO_TYPE
   #UNDEFINED
   #AUTH_CODE
   #ADDRESS_DIGITS
   #TERMINAL_ID

4.14 Keypad IE (I#KEYPAD)

Possible octet inclusions/exclusions:

OCTET_3

->K_KEYPAD
   ( IA5 characters )

Feature_Id_Number, Octet 3 & 3a
   range 0 through 16383
Feature Indicator, Octet 4
   feature in idle state
   feature in active state
   prompt for user input
   feature is pending

Info Request ind, Octet 3
   information request complete
   prompt for additional info
Information Type, Octet 3
   undefined
   authorization code
   address digits
   terminal identification

Keypad information, Octet 3
   max. length 30 octets
4.15 Notification Indicator IE (I#NOTIFIC_IND)

Possible octet inclusions/exclusions:

OCTET_3

->NI_DESCRIPTION
   #CONF_FACIL_CONT
   #CONF_FACIL
   #TWO_PARTY_CALL
   #CONF_FACIL_REL
   #EMERGENCY_SERV
   #ATTENDANT_CONSOLE
   #REM_PARTY_DISCON
   #BRIDGED_CALL
   #UNBRIDGED_CALL
   #RETRIEVE_CALL
   #ATTEND_CONSOLE_DISC
   #CALL_TRANSFER
   #HOLD_CALL
   #PRIVACY_ENABLE
   #PRIVACY_DISABLE
   #CALL_RETRIEVED

   Notific descrp., Octet 3
   via conference facility controller
   via conference facility conferee
   two party call
   conference facility released
   connected to emergency service
   connected to attendant console
   remote party disconnected
   bridged call
   call no longer bridged
   retrieve held call
   attendant console disconnected
   call transferred
   call on hold
   privacy enabled
   privacy disabled
   call retrieved from hold

4.16 Progress Indicator IE (I#PROGRESS_IND)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_4

->PL_CODING_STANDARD
   #CCITT
   #NETWORK_SPECIFIC

->PL_LOCATION
   #USER
   #LOCAL_PRIVATE
   #LOCAL_PUBLIC

->PL_DESCRIPTION
   #NOT_END_TO_END
   #DEST_NON_ISDN
   #ORIG_NON_ISDN
   #INBAND_INFO_AVAIL
   #DEST_NOT_RESP

   Coding standard, Octet 3
   CCITT
   network specific

   Location, Octet 3
   user
   private network serving local user
   public network serving local user

   Progress descrp., Octet 4
   call is not end-to-end ISDN
   destination address is non-ISDN
   origination address is non-ISDN
   in-band info. now available
   destination not responding
### 4.17 Redirecting Number IE (l#REDIRING_NUM)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_3A, OCTET_4

- \texttt{-->RDGN\_NUMBER\_TYPE}
  - \#UNKNOWN
  - \#INTERNATIONAL
  - \#NATIONAL
  - \#NETWORK\_SPECIFIC
  - \#LOCAL\_DIRECTORY
  - \#ABBREVIATED

- \texttt{-->RDGN\_NUMBER\_NUMBERING\_PLAN}
  - \#UNKNOWN\_PLAN
  - \#ISDN\_PLAN
  - \#DATA\_PLAN
  - \#PRIVATE\_PLAN

- \texttt{-->RDGN\_PRESENTATION}
  - \#PRESENT\_ALLOWED
  - \#PRESENT\_RESTRICTED
  - \#NUMBER\_UNAVAIL

- \texttt{-->RDGN\_SCREENING}
  - \#UNSCREENED
  - \#VERIFY\_PASSED
  - \#VERIFY\_FAILED
  - \#NETWORK\_PROVIDED

- \texttt{-->RDGN\_NUMBER}
  (IA5 characters)

Type of number, Octet 3
- \texttt{unknown}
- \texttt{international number}
- \texttt{national number}
- \texttt{network specific}
- \texttt{subscriber number}
- \texttt{abbreviated number}

Numbering plan, Octet 3
- \texttt{unknown}
- \texttt{ISDN numbering plan Rec. E.164}
- \texttt{data numbering plan Rec.X.121}
- \texttt{private numbering plan}

Presentation ind., Octet 3a
- \texttt{presentation allowed}
- \texttt{presentation restricted}
- \texttt{not available due to interworking}

Screening indicator, Octet 3a
- \texttt{user-provided, not screened}
- \texttt{user-provided, verified and passed}
- \texttt{user-provided, verified and failed}
- \texttt{network provided}

Number, Octet 4 *
- \texttt{max. length 12 octets}

### 4.18 Redirection Number IE (I#REDIRION_NUM)

Possible octet inclusions/exclusions:

OCTET_3, OCTET_3A, OCTET_4

- \texttt{-->RDNN\_NUMBER\_TYPE}
  - \#UNKNOWN
  - \#INTERNATIONAL
  - \#NATIONAL
  - \#NETWORK\_SPECIFIC
  - \#LOCAL\_DIRECTORY
  - \#ABBREVIATED

- \texttt{-->RDNN\_NUMBER\_NUMBERING\_PLAN}
  - \#UNKNOWN\_PLAN
  - \#ISDN\_PLAN
  - \#DATA\_PLAN
  - \#PRIVATE\_PLAN

Type of number, Octet 3
- \texttt{unknown}
- \texttt{international number}
- \texttt{national number}
- \texttt{network specific}
- \texttt{subscriber number}
- \texttt{abbreviated number}

Numbering plan, Octet 3
- \texttt{unknown}
- \texttt{ISDN numbering plan Rec. E.164}
- \texttt{data numbering plan Rec.X.121}
- \texttt{private numbering plan}
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4.19 Restart Indicator IE (I#RESTART_IND)

Possible octet inclusions/exclusions:

OCTET_3

->RI_CLASS
  #INDICATED_CHANNEL
  #ALL_INTERFACES

Class, Octet 3
indicated channels
all D-chan. calls and chans.

4.20 Service Profile Identification IE (I#SPID)

Possible octet inclusions/exclusions:

OCTET_3

->SPID
  ( IA5 characters )

Service Profile ID, Octet 3 *
max. length 20 octets

4.21 Shift IE (I#SHIFT)

->SH_TYPE
  #LOCKING
  #NON_LOCKING

Shift type
locking
non-locking

->SH_CODESET
  #CODESET0
  #CODESET6

Codeset ident.
Q.931 IE
local network specific IE

Presentation ind., Octet 3a
presentation allowed
presentation restricted
not available due to interworking

Screening indicator, Octet 3a
user-provided, not screened
user-provided, verified and passed
user-provided, verified and failed
network provided

Number, Octet 4 *
max. length 12 octets
4.22 Signal IE (I#SIGNAL)

Possible octet inclusions/exclusions:

OCTET_3

-> SI_VALUE
   #DIAL_ON            Signal value, Octet 3
   #RING_BACK_ON       dial tone on
   #CONGESTION_ON      ring back tone on
   #BUSY_ON            network congestion tone on
   #CONFIRM_ON         busy tone on
   #RECALL_TONE_ON     confirm tone on
   #TONES_OFF          recall dial tone on
   #ALERTING_ON_0      tones off
   #ALERTING_ON_1      alerting on – pattern 0
   #ALERTING_ON_2      alerting on – pattern 1
   #ALERTING_ON_3      alerting on – pattern 2
   #ALERTING_ON_6      alerting on – pattern 3
   #ALERTING_OFF       alerting on – pattern 6