



ATIS-1000008.2006

**ANSI EXTENSIONS TO THE  
NARROWBAND SIGNALING SYNTAX (NSS) – SYNTAX DEFINITION**

**AMERICAN NATIONAL STANDARD FOR TELECOMMUNICATIONS**



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## ATIS-1000008.2006, *ANSI Extensions to the Narrowband Signaling Syntax (NSS) – Syntax Definition*

Is an American National Standard developed by the **Signalling, Architecture, and Control (SAC)** Subcommittee under the **ATIS Packet Technologies and Systems Committee (PTSC)**.

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American National Standard for Telecommunications

## ANSI Extensions to the Narrowband Signaling Syntax (NSS) – Syntax Definition

Secretariat

**Alliance for Telecommunications Industry Solutions**

Approved January 13, 2006

**American National Standards Institute, Inc.**

### **Abstract**

This Standard describes ANSI parameter, field, and field value extensions to the Q.1980.1, *Narrowband Signalling Syntax (NSS) – Syntax Definition*, to provide a normalized set of telephony parameters. NSS enables mapping from multiple telephony protocols in use today into a common parameter set.

## FOREWORD

The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

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American National Standard for Telecommunications –

# ANSI Extensions to the Narrowband Signaling Syntax (NSS) – Syntax Definition

## 1 SCOPE AND APPLICATION

### 1.1 Scope

This standard specifies extensions to ITU-T Recommendation Q.1980.1, *Narrowband Signaling Syntax (NSS) – Syntax Definition*, which specifies a flexible encoding syntax of narrowband signaling information to be transferred in protocols that cannot inherently transfer such information. These extensions enable the transfer of ANSI-based narrowband signaling information by the native protocol.

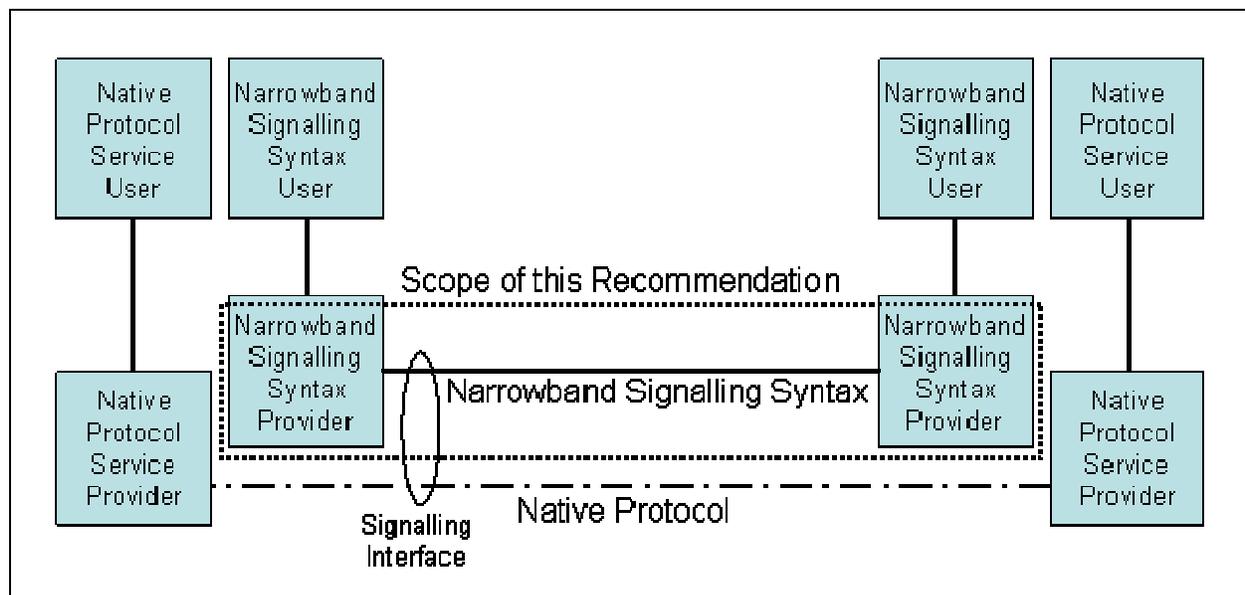


Figure 1 – Scope of this Standard

### 1.2 Application

NSS may be used to augment SIP and H.323 signaling with one or more selected values corresponding to ISUP/BICC parameters or information elements, while minimizing redundancy between SIP/H.323 and ISUP/BICC. Compatibility mechanisms also enable the identification and inclusion of operator, vendor, or country variant data.

## 2 NORMATIVE REFERENCES

The following standards and ITU-T Recommendations contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based

on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below.

ATIS-1000113.2005, *Signalling System No.7 (SS7) Integrated Services Digital Network (ISDN) User Part*.<sup>1</sup>

NOTE - This standard is a revision of T1.113-2000; all references to T1.113 in the text below apply to ATIS-1000113.2006.

T1.607-2000 (R2004), *Integrated Services Digital Network (ISDN) – Layer 3 Signalling Specification for Circuit Switched Bearer Service for Digital Subscriber Signalling System Number 1 (DSS1)*.<sup>1</sup>

ISO 3166-1 (1997), *Codes for the representation of names of countries and their subdivisions - Part 1: Country codes*.<sup>2</sup>

ITU-T Q.1902.3 (2001), *Bearer Independent Call Control protocol (Capability Set 2) and Signalling System No. 7 ISDN user part: Formats and codes, plus Amendment 1 (2002), Support for the International Emergency Preference Scheme*.<sup>3</sup>

ITU-T Q.1980.1, *The Narrowband Signalling Syntax (NSS) – Syntax Definition*.<sup>3</sup>

ITU-T Recommendation H.323 Amendment 2 (01/2005), *Packet-based multimedia communications systems Amendment 2: New Annex M4 – Tunnelling of narrowband signalling syntax (NSS) for H.323*.<sup>3</sup>

### 3 DEFINITIONS, ACRONYMS, & ABBREVIATIONS

---

#### 3.1 Definitions

This Standard uses the terms defined in Q.1980.1 and defines no additional terms.

#### 3.2 Acronyms & Abbreviations

ABNF	Augmented Backus-Naur Form (see RFC 2234)
ACG	Automatic Call Gapping
AIOD	Automatic Identification of Outward Dialing
ANI	Automatic Number Identification
ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange
BCD	Binary Coded Decimal
BICC	Bearer Independent Call Control
CPE	Customer Premise Equipment
IA5	International Alphabet 5 (same as 7-bit ASCII)
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part

---

<sup>1</sup> This document is available from the Alliance for Telecommunications Industry Solutions, 1200 G Street N.W., Suite 500, Washington, DC 20005. <<http://www.atis.org>>

<sup>2</sup> This document is available from the International Organization for Standardization at: <<http://www.iso.ch/iso/en/prods-services/ISOstore/store.html>>.

<sup>3</sup> This document is available from the International Telecommunications Union at: <<http://www.itu.int/ITU-T/>>.

ITU-T	International Telecommunications Union - Telecom Sector
LATA	Local Access and Transport Area
MIME	Multipurpose Internet Mail Extensions
NIDB	Network Information Data Base
OUTWATS	Outgoing Wide Area Telecommunication Service (WATS)
PBX	Private Branch Exchange
PCS	Personal Communications Service
SIP	Session Initiation Protocol
SCCP	Signalling Connection Control Part
SS7	Signalling System No. 7
TRS	Telecommunication Relay Service
VPN	Virtual Private Network

## 4 MESSAGE AND PARAMETER SYNTAX OVERVIEW FOR ANSI EXTENSIONS

---

The ANSI extensions to Q.1980.1 follow the general rules for NSS message, parameter, and field formats specified in Q.1980.1.

The set of ANSI message identifiers defined in this specification is listed in clause 5.2, *NSS Message Identifier Codes for ANSI Extensions*.

The set of ANSI parameter identifiers defined in this specification is listed in clause 6.2, *NSS Parameter Codes for New Parameter ANSI Extensions*.

The type and the actual set of values permitted for each field is specified in the applicable clauses within clauses 6.3, *Detailed Parameter Descriptions for New Parameter ANSI Extensions*, and 6.4, *Detailed Parameter Descriptions for New Field and Field Value ANSI Extensions*.

The normal encoding of NSS requires that field values be presented without identifying tags. This is possible because all field values in a parameter have a fixed order.

NOTE - For human display purposes, a "field-name=" construct may be inserted before each field value. Alphabetic characters within field names are always lower case. The field names for fields specified in this document are shown in clauses 6.3 and 6.4 to aid in readability, but are not transmitted. The corresponding ABNF for converting from the transmission mode to a display is shown in Annex B.

## 5 MESSAGE DEFINITIONS FOR ANSI EXTENSIONS

---

This clause describes the Message Identifiers supported by the NSS for ANSI-specific extensions. Clause 6 describes all parameters and fields specifically introduced by the ANSI extensions with both structure and intended use. Although this Standard provides detailed breakdowns of NSS parameter structure and field values, these must not be considered to be descriptions of the structure and use of existing ANSI-specific ISUP/BICC messages, parameters, and fields.

Note – It is intended that the procedures associated with parameters in NSS will be those applicable to the source protocol parameter from which they were mapped. This topic is not within the scope of this document.

### 5.1 *Unsupported Messages*

The ANSI extensions follow Q.1980.1 conventions and only NSS equivalents for ANSI-specific ISUP/BICC messages that have end-to-end significance are supported.

5.2 *NSS Message Identifier Codes for ANSI Extensions*

The following is the list of ANSI-specific message names and their associated NSS Message Identifier codes.

**Table 1 - ANSI Extensions to NSS Message Identifier Codes**

MESSAGE NAME	MESSAGE IDENTIFIER CODE
Exit	EXM

## 6 PARAMETER DEFINITIONS FOR ANSI EXTENSIONS

---

This clause describes the syntax, parameters, fields, and field values for ANSI Extensions to NSS.

6.1 *Unsupported Parameter Disposition*

The parameter "End Of Optional Parameters" is derived from ISUP/BICC specifications. It is not supported in NSS because that role is superseded by the encoding rules defined in Q.1980.1.

6.2 *NSS Parameter Codes for New Parameter ANSI Extensions*

The following list of parameter names is derived from ANSI ISUP/BICC parameters from the specifications identified in clause 2. Q.1980.1 defines the parameter code assignment rules.

**Table 2 - ANSI Extensions to NSS Parameter Identifier Codes**

PARAMETER NAME	NSS CODE
Business Group	BSG
Carrier Identification	CID
Carrier Service Provider Information	CSP
Charge Number	CHN
Egress	EGR
Generic Name	GEN
Jurisdiction	JUR
Local Service Provider Information	LSP
Network Transport	NET
Operator Services Information	OSI
Originating Line Information	OLI
Outgoing Trunk Group Number	OTN
Special Processing Request	SPR
Transaction Request	TRR

Notes: Notification Indicator is contained in Q.1980.1 Generic Notification (GNO) parameter.

Carrier Selection Information (CSI) is included in Q.1980.1 CSI parameter.

Service Code Indicator (SCI) was dropped because it is FFS and under specified in T1.113-2000.

The order of the parameters detailed in clause 6.3 follows the order in the above list. The following list is ordered by NSS code to aid in finding the full parameter name.

**Table 3 - ANSI NSS Parameter Identifiers by Code Order**

NSS CODE	PARAMETER NAME
BSG	Business Group
CHN	Charge Number
CID	Carrier Identification
CSP	Carrier Service Provider Information
EGR	Egress
GEN	Generic Name
JUR	Jurisdiction
LSP	Local Service Provider Information
NET	Network Transport
OLI	Originating Line Information
OSI	Operator Services Information
OTN	Outgoing Trunk Group Number
SPR	Special Processing Request
TRR	Transaction Request

### 6.3 Detailed Parameter Descriptions for New Parameter ANSI Extensions

This clause describes parameters added by this Standard to the NSS parameter set defined in ITU-T Recommendation Q.1980.1. These parameters may be present in NSS messages when the PRN parameter Field-01 indicates a protocol of "t1113".

The designation "a" means all possible characters allowed according to Q.1980.1 clause 5.1, unless otherwise constrained by the field description. The designation "d" means only characters 0-9 are used. The designation "h" means that the field or sub-field is to be hexadecimal-encoded.

The first field value for most fields will be the "unknown" value. "Unknown" means that the information was absent or unavailable at the source of the NSS encoding.

The left-hand columns in the following clauses are *literal* values to be used as codepoints. The Format lines show "<tag>=" preceding the field values; however, these field names (tags) are not transmitted in the compact encoding used on the wire.

#### 6.3.1 Business Group (BSG)

Format:

BSG, as=a, bgid\_type=a, lp\_ind=a, ps=a, bgid=aaaaaa, sgid=aaaa, lp=aa

Fields:

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Field-01: as - attendant status

a	description
-	-----
u	- unknown
y	- Attendant line
0	- no indication

Field-02: bgid\_type - business group identifier type

a	description
-	-----
u	- unknown
y	- Interworking with private network identifier
n	- Multi-location business group identifier

Field-03: lp\_ind - line privileges information indicator

a	description
-	-----
u	- unknown
y	- Customer defined line privileges
n	- Fixed line privileges

Field-04: ps - party selector

a	description
-	-----
0	- No indication
1	- Calling party number
2	- Called party number
3	- Connected party number
4	- Redirecting number
5	- Original called number

[Note: 0 to F shall cover the 4 bits in ISUP/BICC specs.]

Field-05: bgid - business group identifier

hhhhh	description
-----	
000000	- unknown
-FFFFFF	- hexadecimal numbers 0-9, A-F

Field-06: sgid - sub-group identifier

hhhh	description
----	-----
0000	- unknown
-FFFF	- hexadecimal numbers 0-9, A-F

Field-07: lp - line privileges

hh	description
--	-----
00	- unknown
-FF	- hexadecimal numbers 0-9, A-F

[Note: Further separation based on lp\_ind is also possible.]

### 6.3.2 Carrier Identification (CID)

Format: CID,ton=a,cid=1\*h

Fields:

Field-01: ton - type of network

a	description
---	-------------

- -----  
u - unknown  
c - ITU/CCITT  
n - national

Field-02: cid - carrier id

1\*h description  
- -----

1\*h - 1 or more characters 0-9, A-F to identify the carrier  
(e.g., 0-F, 10-FF, 100-FFF, 1000-FFFF, etc., see Annex A)

### 6.3.3 Carrier Service Provider Information (CSP)

Format: CSP,type=a,sp=d,es=d,#=1\*h

Fields:

Field-01: typ - carrier service provider identifier (CSPI) type

a definition  
- -----

u - unknown  
1 - intraLATA toll carrier  
2 - interLATA toll carrier  
3 - international carrier

Field-02: sp - selected/potential

d description  
- -----

0 - selected  
1 - potential

Field-03: es - Encoding scheme

d description  
- -----

0 - BCD even  
1 - BCD odd  
2 - IA5  
3 - binary NSS-specific

Field-04: # - digits

1\*h description  
- -----

1\*h - one or more telephony digits: 0-9 A-F  
(see formal grammar)

### 6.3.4 Charge Number (CHN)

Format: CHN,noa=dd,mpi=a,#=1\*h

Fields:

Field-01: noa - nature of address

Note: The noa field follows the convention established in T1.113 for Charge Number nature of address, which does not contain the same value set as other parameters containing noa as listed in Section 6.4.3 below.

dd description  
-- -----

00 - unknown  
01 - calling subscriber - not available

- 02 - calling subscribers number
- 03 - calling subscriber - national number
- 04 - calling subscriber - international number
- 05 - calling subscriber VPN
- 06 - called subscriber no number present
- 07 - called subscriber number
- 08 - called subscriber national number
- 09 - called subscriber international number
- 10 - called subscriber VPN

Field-02: npi - numbering plan indicator

- a description
- -----
- u - unknown
- 1 - ISDN numbering plan (recommendation E164)
- 2 - Data numbering plan (recommendation X.121)
- 3 - Telex numbering plan (recommendation F.69)
- 4 - Private numbering plan
- 5 - national
- 6 - maritime mobile
- 7 - land mobile
- 8 - isdn mobile

Field-06: # - address

- 1\*h description
- -----
- 1\*h - one or more telephony digits: 0-9 A-F
- (see formal grammar)

### 6.3.5 Egress (EGR)

Format: EGR,egr=1\*(2Hex)

Fields:

Field-01: egr - egress

- 1\*(2h) description
- 
- 1\*(2h) - one or more pairs of characters (0-9, A-F) representing a hexadecimal encoding (see Q.1980.1 clause 5.1).

### 6.3.6 Generic Name (GEN)

Format: GEN,pi=a,avail=a,ton=d,name=1\*(2Hex)

Fields:

Field-01: pi - Presentation

- a description
- -----
- u - unknown
- y - presentation allowed
- n - presentation restricted
- b - blocking toggle

Field-02: avail - Availability

- a description
- -----
- y name available/unknown

n name not available

Field-03: ton - Type of Name

d description  
 - -----  
 0 - calling name  
 1 - original calling name  
 2 - redirecting name  
 3 - connected name

Field-04: name - name (sequence of IA5 characters)

1\*(2h) description  
 -----  
 1\*(2h) - one or more pairs of characters (0-9, A-F) representing a hexadecimal encoding (see Q.1980.1 clause 5.1).  
 (If unknown, parameter is omitted.)

### 6.3.7 Jurisdiction (JUR)

Format: JUR,jur=hhhhhh

Fields:

Field1 : jur - jurisdiction information

hhhhhh definition  
 -----  
 000000 - unknown  
 -FFFFFF six ASCII characters representing a hexadecimal value

### 6.3.8 Local Service Provider Information (LSP)

Format: LSP,type=d,es=d,ci=d,#=1\*h

Fields:

Field-01: typ - local service provider identifier (LSPI) type

d definition  
 - -----  
 u - unknown  
 1 - switch owner  
 2 - account owner

Field-02: es - Encoding scheme

d description  
 - -----  
 0 - BCD even  
 1 - BCD odd  
 2 - IA5  
 3 - binary

Field-03: ci - context identification

d description  
 - -----  
 0 - null  
 1 - native  
 2 - unbundled  
 3 - resold  
 4 - wireless native

5 - wireless resold

Field-04: # - digits

1\*h description

--- -----

1\*h - one or more telephony digits: 0-9 A-F  
(see formal grammar)

### 6.3.9 Network Transport (NET)

Format: NET,dat=1\*(2Hex)

Fields:

Field-01: dat - network transport data

1\*(2h) description

-----

1\*(2h) - one or more pairs of characters (0-9, A-F) representing a hexadecimal encoding (see Q.1980.1 clause 5.1).  
(If unknown, parameter is omitted.)

### 6.3.10 Operator Services Information (OSI)

Format: OSI,type=dd,[field container]

Based on the value of "type", one of the following field containers will follow.

Fields:

Field-01: type - type of Operator Services Information

dd definition

-- -----

01 - original access prefix	field container 1
02 - bill-to information entry type and handling type	field container 2
03 - bill-to type	field container 3
04 - bill-to specific information	field container 4
05 - special handling	field container 5
06 - access signalling	field container 6

Field Containers:

Field Container 1 (type=01)

Format: iv=dd

Fields:

Field-02: iv - information value

dd definition

-- -----

00 - unknown  
01 - 1+ or 011+  
02 - 0+ or 01+  
03 - 0-

Field Container 2 (type = 02)

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Format: iv=dd

Fields:

Field-02: iv - information value

dd	definition
--	-----
00	- information entry unknown, unknown handling
01	- information entry manual by operator, station handling
02	- information entry manual by operator, person handling
03	- information entry manual by tone input, station handling
04	- information entry unknown, station handling
05	- information entry unknown, person handling
06	- information entry manual by operator, unknown handling
07	- information entry automated by tone input, unknown handling
08	- information entry automated by tone input, person handling
09	- information entry automated by spoken input, unknown handling
10	- information entry automated by spoken input, station handling
11	- information entry automated by spoken input, person handling

Field Container 3 (type = 03)

Format: iv=dd

Fields:

Field-02: iv - information value

dd	definition
--	-----
00	- unknown
01	- card - 14 digit format
02	- card - 89C format
03	- card - other format
04	- collect
05	- third number
06	- sent paid

Field Container 4 (type = 04)

Format: iv=dd

Fields:

Field-02: iv - information value

dd	definition
--	-----
01	- NIDB authorizes
02	- NIDB reports, verify by authorized means
03	- NIDB reports, verify by operator
04	- no NIDB query
05	- no NIDB response
06	- NIDB reports unavailable
07	- no NIDB response - timeout
08	- no NIDB response - reject component
09	- no NIDB response - ACG in effect
10	- no NIDB response - SCCP failure

Field Container 5 (type = 05)

Format: iv=dd

Fields:

Field-02: iv - information value  
 dd definition  
 -- -----  
 00 - unknown  
 01 - call completion  
 02 - rate information  
 03 - trouble reporting  
 04 - time and charges  
 05 - credit reporting  
 06 - general assistance

Field Container 6 (type = 07)

Format: iv=dd

Fields:

Field-02: iv - information value  
 dd definition  
 -- -----  
 00 - unknown  
 01 - dial pulse  
 02 - dual tone multifrequency

### 6.3.11 Originating Line Information (OLI)

Format: OLI,oli=dd

Fields:

Field-01: oli - Originating Line Information  
 dd description  
 -- -----  
 00 - pots  
 01 - multiparty line  
 02 - ANI failure  
 06 - Station Level Rating  
 07 - special operator handling required  
 08 - inter-LATA restricted  
 10 - test call  
 20 - AIOD-listed DN sent  
 23 - coin or non-coin on calls using database access  
 24 - 800 service call  
 25 - 800 service call from a pay station  
 27 - payphone using coin control signalling  
 29 - prison/inmate service  
 30 - intercept (blank)  
 31 - intercept (trouble)  
 32 - intercept (regular)  
 34 - telco operator handled call  
 36 - CPE  
 52 - OUTWATS  
 60 - TRS call from unrestricted line  
 61 - wireless/cellular PCS (type 1)  
 62 - wireless/cellular PCS (type 2)

- 63 - wireless/cellular PCS (roaming)
- 66 - TRS call from hotel
- 67 - TRS call from restricted line
- 68 - inter-LATA restricted hotel
- 78 - inter-LATA restricted coin-less
- 70 - private pay-stations
- 93 - private virtual network

### 6.3.12 Outgoing Trunk Group Number (OTN)

Format: OTN,tkg=hhhhhh

Fields:

Field-01: tkg - outgoing trunk group number

hhhhhh description

-----

000000 - unknown

-FFFFFF - six ASCII characters representing a hexadecimal value

### 6.3.13 Special Processing Request (SPR)

Format: SPR,spr=ddd

Fields:

Field-01: spr - special processing request

ddd description

---

000 - unknown

001 - service processing requested

### 6.3.14 Transaction Request (TRR)

Format: TRR,tid=1\*a,sccp=1\*a

Fields: [Note: coded following Call Reference]

Field-01: tid - Transaction ID

1\*a description

---

IA5 - IA5 printable characters of the form: token [@token]

See definition of TID (Q.1980.1 clause 7.3.96)

Field-02: sccp - SCCP address

1\*a description

---

u - unknown

IA5 - 1\*a means one or more IA5 characters (excludes delimiters)

#### 6.4 Detailed Parameter Descriptions for New Field and Field Value ANSI Extensions

This clause describes the addition of new fields and new field values to parameters defined in Q.1980.1. These fields and field values may be present in NSS messages when the PRN parameter Field-01 indicates a protocol of "t1113".

The designation "a" means all possible characters allowed according to Q.1980.1 clause 5.1, unless otherwise constrained by the field description. The designation "d" means only characters 0-9 are used. The designation "h" means that the field or sub-field is to be hexadecimal-encoded.

The first field value for most fields will be the "unknown" value. "Unknown" means that the information was absent or unavailable at the source of the NSS encoding.

The left-hand columns in the following clauses are **literal** values to be used as codepoints. The Format lines show "<tag>=" preceding the field values; however, these field names (tags) are not transmitted in the compact encoding used on the wire.

##### 6.4.1 Automatic Congestion Level (ACL) ANSI Field Value Extension

This ANSI extension adds the indicated codepoint to Field-01 "acl" of the ACL parameter.

```
Field-01: acl - auto congestion level
a  description
-  -----
3 - congestion level 3 exceeded
```

##### 6.4.2 Backward Call Indicators (BCI) ANSI Field Value Extension

This ANSI extension adds the indicated codepoint to Field-02 "sta" of the BCI parameter.

```
Field-02: sta - called party status
a  description
-  -----
e - excessive delay
```

##### 6.4.3 Call Transfer Number (CTN) ANSI Field Value Extensions

This ANSI extension adds the indicated codepoints to Field-01 "noa" and Field-02 "npi". Note that these are used in multiple parameters throughout NSS. No changes to ABNF are required for either of these fields.

```
Field-01: noa - nature of address
dd  description
--  -----
01 - unknown, number absent, presentation restricted
03 - non-unique subscriber number
05 - non-unique national number
07 - non-unique international number
09 - non-subscriber number
10 - subscriber number, operator requested
11 - national number, operator requested
12 - international number, operator requested
13 - no number present, operator requested
14 - no number present, cut through call to carrier
```

- 15 - 950+ call from local exchange carrier public station, hotel/motel or non-exchange access end office
- 16 - test line test code
- 17 - unique 3 digit national number
- 18 - credit card
- 19 - international inbound
- 20 - national or international with carrier access code included
- 21 - cellular - global ID GSM
- 22 - cellular - global ID NWT 900
- 23 - cellular - global ID autonet
- 24 - mobile (other)
- 25 - ported number
- 27 - International operator to operator outside WZ1
- 28 - International operator to operator inside WZ1
- 29 - operator requested - treated
- 33 - screened for number portability
- 34 - abbreviated number

[Note: noa= appears in the following parameters: CTN, CDN, CPN, CIN, CGN, CNN, FVN, GEA, HTR, LON, OCI, OCN, RGN, RNN. Those parameters refer back to the above list because of its size. The CHN and NRN parameters use alternative lists.]

Field-02: npi - numbering plan indicator

- a description
- -----
- 6 - maritime mobile
- 7 - land mobile
- 8 - isdn mobile

[Note: npi= appears in the following parameters: CTN, CDN, CHN, CPN, CIN, CGN, CNN, FVN, GEA, HTR, LON, OCI, OCN, RGN, RNN. Those parameters refer back to the above list because of its size. The NRN parameter uses an alternative list.]

#### 6.4.4 Called Directory Number (CDN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.5 Called IN Number (CIN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.6 Called Party Number (CPN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

### 6.4.7 Calling Party Number (CGN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

### 6.4.8 Calling Party's Category (CPC) ANSI Field Value Extension

This ANSI extension adds the indicated codepoints to Field-01 "cpc" of the CPC parameter. No changes to ABNF are required for this field.

Field-01: cpc - Call(ing) Party Category  
 (Calling or called derived from parameter context)

dd	description
--	-----
10	- ordinary calling subscriber with customer meter
14	- customer payphone
16	- emergency service call
17	- high priority emergency service call
18	- national security and emergency preparedness (NS/EP call)
20	- trunk offering
21	- mobile customer
22	- PBX subscriber
23	- operator with forward facility
24	- intercept operator
25	- cross-border operator
26	- long distance payphone
27	- international payphone
28	- international test equipment
29	- check calling party number
30	- national operator

### 6.4.9 Cause Indicators (CAI) ANSI Field Value Extensions

This ANSI extension adds the indicated codepoint to Field-02 "loc" and Field-04 "cau" of the CAI parameter. No changes to ABNF are required for the "cau" field.

Field-02: loc - location

aaa	definition
---	-----
lin	- local interface controlled by this interface

Field-04: cau - cause indicators

ddd	definition
---	-----
128	- unallocated destination number ; ANSI code 023
129	- unkown business group ; ANSI code 024
130	- exchange routing error ; ANSI code 025
131	- misrouted call to ported number ; ANSI code 026
132	- Number Portability (NP) Query on Release (QoR)-number not found ; ANSI code 027
133	- call type incompatible with service request ; ANSI code 051
134	- call blocked due to group restrictions

; ANSI code 054

[Note: ANSI Codes 45 (pre-emption) and 46 (precedence call blocked) have direct equivalents in ITU-T and no additional codepoints are required. Because the ANSI code semantics tend to conflict with ITU semantics, the ANSI semantic extensions are added starting with code 128.]

#### 6.4.10 Connected Number (CNN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.11 Event Information Indicators (EVI) ANSI Field Value Extension

This ANSI extension adds the indicated codepoints to Field-01 "evi" of the EVI parameter. No changes to ABNF are required for this field.

Field-01: evi - event Information Indicator

a	description
-	-----
4	- notification of supplementary service
5	- service information included
6	- type A interworking (NSS-specific)
7	- type B interworking (NSS-specific)

#### 6.4.12 Forward GVNS (FVN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.13 Generic Number/Address (GEA) ANSI Field Value Extension

This ANSI extension adds the indicated codepoints to Field-01 "type" of the GEA parameter.

Field-01: type - type of address (number qualifier indicator)

aaaa	definition
----	-----
cesd	- Caller's Emergency Service ID
cesi	- Called's Emergency Service ID ; NSS-specific
cmpn	- completion number
port	- ported number
abn3	- alternately billed number (third number)
afwd	- associated forward number

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.14 Generic Digits (GED) ANSI Field Value Extension

This ANSI extension adds the indicated codepoints to Field-01 "tod" of the GED parameter. No changes to ABNF are required for this field.

```
Field-01: tod - type of digits
d  definition
-  -----
3  - originating party service provider      ; NSS-specific
4  - bill-to-number
6  - location identification number
```

#### 6.4.15 Generic Notification Indication (GNO) ANSI Field Value Extension

This ANSI extension adds the indicated codepoints to Field-01 "ni" of the GNO parameter. No changes to ABNF are required for this field.

Fields:

```
Field-01: ni - notification indicator
dd description
-- -----
22 - transfer in progress
23 - call isolated from conference call
24 - call split from conference call
25 - call reattached from conference call
26 - call added to conference call
27 - call is forwarded/deflected
```

#### 6.4.16 Hard To Reach (HTR) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.17 Information Indicators (INI) ANSI Field Value Extension

This ANSI extension adds the indicated codepoint to Field-01 "inf" of the INI parameter. No changes to ABNF are required for this field.

```
Field-01: inf - information requested
a  definition
-  -----
6  - multi-location business group information
```

#### 6.4.18 Information Request Indicators (IRI) ANSI Field Value Extension

This ANSI extension adds the indicated codepoint to Field-01 "inf" of the IRI parameter. No changes to ABNF are required for this field.

```
Field-01: inf - information requested
a  definition
-  -----
6  - multi-location business group information
```

#### 6.4.19 Location Number (LON) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.20 Nature Of Connection Indicator (NOC) ANSI Field and Value Extensions

This ANSI extension adds the indicated codepoint to Field-01 "sat" of the NOC parameter and adds a new Field-04. No changes to ABNF are required for the "sat" field.

Format: NOC,sat=d,eco=a,cot=d,**vci=a**

Field-01: sat - Satellite Indicator  
 d definition  
 - -----  
 3 - three or more satellites in connection

Field-04: vci - virtual call indicator  
 a definition  
 - -----  
 u - unknown  
 n - not a virtual call  
 y - this call is considered to be a virtual call  
 (see DPNSS)

#### 6.4.21 Network Routing Number (NRN) ANSI Field Value Extension

This ANSI extension adds the indicated codepoint to Field-02 "noa" of the NRN parameter. No changes to ABNF are required for this field.

Field-02: noa - nature of address  
 d description  
 - -----  
 3 - network routing number concatenated with called directory  
 Number

#### 6.4.22 Number Portability Forward Information (NPF) ANSI Field Extension

This ANSI extension adds a new Field-02 to the NPF parameter (instead of FCI).

Format: NPF,nps=a,**porc=a**

Field-02: porc - ported out of rate center query  
 a definition  
 - -----  
 u - unknown/no indication  
 y - rate center query performed  
 n - rate center query not performed

### 6.4.23 Optional Backward Call Indicators (OBI) ANSI Field Extensions

This ANSI extension adds a new Field-04 and Field-05 to the OBI parameter.

Format: OBI,inb=a,cf=a,mlpp=a,**del=a,nii=a**

Field-04: del - Network Excessive delay Indicator

a definition  
 - -----  
 0 - no indication  
 n - network excessive delay not encountered  
 y - network excessive delay encountered

Field-05: nii - Network Interaction Indicator

a definition  
 - -----  
 0 - no indication  
 n - user-network interaction not occurring  
 y - user-network interaction occurs, cut through in both directions

### 6.4.24 Original Called IN Number (OCI) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

### 6.4.25 Original Called Number (OCN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

### 6.4.26 Protocol Name (PRN) ANSI Field Value Extension

This ANSI extension adds the indicated codepoint to Field-01 "prot" of the PRN parameter, and adds Field-02, Field-03, and Field-04. No changes to ABNF are required for the prot field.

The Protocol Base Derivative (prot=aaaaa) field identifies the set of standardized NSS messages, parameters, fields, and field values in use by the protocol sending the message. Parameters that conform to the indicated standard do not require the use of compatibility parameters (MCI, PCI, UFC, FDC). The designation t1113 identifies this Standard and incorporates Q.1980.1 by reference.

The Country Variant (c=aaa), Operator or Vendor Variant (o=aaaaa), and Protocol Variant (prv=aaaa) fields collectively identify potential messages, parameters, fields, and field values that have not been included in the NSS syntax standards indicated by the Protocol Base Derivative field. Any such syntax elements require the use of the compatibility parameters.

Format: PRN,prot=aaaaa,**c=aaa,o=aaaaa,prv=aaaa**

Field-01: prot - Protocol base derivative  
 aaaaa - 5 char String indicating base variant derivative  
 -----  
 t1113 - ANSI T1.113 (use Field-04 prv= to distinguish year)

Field-02: c - Country Variant  
 aaa - definition  
 ---  
 aaa - 3 char string representing the country  
 ISO-3166-1 alpha-2 country codes followed by "\*" padding character  
 or 3-letter codes represent Internet Top Level Domains (TLD), while  
 "\*\*\*\*" represents a non-variant

Field-03: o - operator or vendor variant  
 aaaaa - definition  
 -----  
 aaaaa - IA5 characters a-z or 0-9 indicating the operator variant  
 Pad with "\*" characters

Field-04: prv -protocol variant  
 aaaa definition  
 ----  
 0000 - unknown variant  
 xxxx - IA5 characters a-z or 0-9 indicating version number  
 Pad with "\*" characters

#### 6.4.27 Redirecting Number (RGN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.28 Redirection Number (RNN) ANSI Field Value Extensions

The Nature of Address (noa) field is extended with new values; see Section 6.4.3 (CTN) for details.

The Numbering Plan Indicator (npi) field is extended with new values; see Section 6.4.3 (CTN) for details.

#### 6.4.29 Service Activation (SEA) ANSI Field Value Extension

This ANSI extension adds the indicated codepoints to Field-01 "fci" of the SEA parameter. No changes to ABNF are required for this field.

Field-01: fci - feature code indicator (omit parameter if unknown)

dd	description
--	-----
00	- call waiting originating invoked
01	- dial call waiting invoked
02	- complete call request, ISDN user part used all the way
03	- complete call request, ISDN user part not used all the way
04	- Network service attached
05	- network service released
06	- coin collect

- 07 - coin return
- 08 - network service recall
- 09 - billing verification
- 10 - hold available
- 11 - hold not available
- 12 - hold request
- 13 - hold acknowledge
- 14 - hold release request
- 15 - hold release acknowledge
- 16 - hold continuation request
- 17 - disconnect request
- 18 - reconnect request
- 19 - resume operator services
- 21 - number portability release to pivot (not applicable in US networks)
- 22 - intercept - regular
- 23 - hold request, acknowledge required
- 24 - hold release request, acknowledge required
- 25 - ICD notification
- 26 - ringback request
- 27 - intercept - blank number
- 28 - intercept - trouble

#### 6.4.30 Transit Network Selection (TNS) ANSI Field and Value Extensions

This ANSI extension adds the indicated codepoints to Field-02 "nip" of the TNS parameter and inserts a new Field-03. (The current "tns" field becomes Field-04.) No changes to ABNF are required for the "nip" field.

Format: TNS,ton=a,nip=a,cc=a,tns=1\*a

Field-02: nip - network identification plan

a definition

- -----

3 - 3-digit carrier identification with circuit code

4 - 4-digit carrier identification with circuit code

Field-03: cc - circuit code

a definition

- -----

u - unknown

n - not applicable

1 - international call, no operator requested

2 - international call, operator requested

## 7 SECURITY CONSIDERATIONS

This Standard specifies extensions to ITU-T Recommendation Q.1980.1, *Narrowband Signaling Syntax (NSS) - Syntax Definition*, which specifies a flexible encoding syntax of narrowband signaling information to be transferred in protocols that cannot inherently transfer such information. As such, it does nothing more than define messages and parameters, and as a result there are no specific security considerations with the exception of the coding used to identify ANSI extensions. This coding has not been reserved within ITU-T Recommendation Q.1980.1 for ANSI. However, there are security considerations associated with the use of these messages and parameters, and these security considerations shall be specified in Interworking Standards.

## **8 NSS SPECIFIC SYNTACTICAL ELEMENTS AND PROCEDURES**

---

This specification follows Q.1980.1 use of NSS specific syntactical elements and procedures.

**ANNEX A**  
(Normative)

**A NARROWBAND SIGNALLING SYNTAX ABNF GRAMMAR**

---

*Part 1. General format of NSS parameters*

This section extends the ABNF of Q.1980.1 as follows below.

NOTE - For detail on the numbers of compact\_fields for nss parameters, see Part 2, Detail format of individual NSS parameters.

nss\_msg\_name = ... / "EXM" ; this code added to Q.1980.1 list

*Part 2. Detail formats of individual NSS parameters*

compact\_nss\_param = ( ... /  
BSG\_param / CHN\_param / CID\_param / CSP\_param / EGR\_param /  
GEN\_param / GRF\_param / JUR\_param / LSP\_param / NET\_param /  
OLI\_param / OSI\_param / OTN\_param / SPR\_param / TRR\_param /  
...) CRLF ; these codepoints added to Q.1980.1 list

NOTE - Unless specified explicitly, each field can occur in a parameter at most once, in the order specified below.

NOTE - The following is an alphabetized list of ANSI-specific parameter definitions. In many cases, fields already defined in Q.1980.1 are reused.

BSG\_param = "BSG," as\_field "," bgid\_type\_field "," lp\_ind\_field ","  
ps\_field "," bgid\_field "," sgid\_field "," lp\_field

CHN\_param = "CHN," chn\_noa\_field "," npi\_field "," nr\_field

CID\_param = "CID," ton\_field "," cid\_field

CSP\_param = "CSP," csp\_typ\_field "," csp\_sp\_field "," csp\_es\_field "," nr\_field

EGR\_param = "EGR," egr\_field

GEN\_param = "GEN," gen\_pi\_field "," avail\_field "," type\_of\_name "," name\_field

JUR\_param = "JUR," jur\_field

LSP\_param = "LSP," lsp\_i\_type "," encoding\_scheme "," lsp\_context\_id "," nr\_field

NET\_param = "NET," dat\_field

OLI\_param = "OLI," oli\_field

OSI\_param = ("OSI," osi\_field\_1) |  
("OSI," osi\_field\_2) |  
("OSI," osi\_field\_3) |  
("OSI," osi\_field\_4) |  
("OSI," osi\_field\_5) |

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("OSI," osi\_field\_6)

OTN\_param = "OTN," otn\_field

SPR\_param = "SPR," spr\_field

TRR\_param = "TRR," trr\_tid\_field "," sccp\_field

NOTE - The following shows the extension of parameters defined in Q.1980.1 with additional fields shown in bold.

NOC\_param = "NOC," sat\_field "," echo\_field "," cot\_field "," **vci\_field**

NPF\_param = "NPF," nps\_field "," **ported\_out**

OBI\_param = "OBI," obi\_inb "," obi\_cf "," obi\_mlpp "," **obi\_del** "," **obi\_nii**

PRN\_param = "PRN," prot\_field "," **country\_field** "," **oper\_vend\_field** "," **variant\_field**

TNS\_param = "TNS," ton\_field "," nip\_field "," **cc\_field** "," trans\_field

NOTE - The following is an alphabetized list of compact field definitions.

acl\_field = ( ... / "3" ) ; new value added

as\_field = (opt-unk / "y" / "0" ) ; BSG

avail\_field = ("n" / "y")

bgid\_type\_field = (opt-unk / "n" / "y")

bgid\_field = 6HEX ;3 bytes in T1.113

chn\_noa\_field = 2DIGIT

cid\_field = 1\*HEX ; carrier id for CID, other moved to call\_id\_field

country\_field = 3CHAR

csp\_es\_field = DIGIT

csp\_sp\_field = ("0" / "1")

csp\_typ\_field = opt-unk / DIGIT

egr\_field = 1\*(2HEX)

gea\_type = ( ... / "cesd" / "cesi" / "cmpn" / "port" / "abn3" / "afwd" )  
; new values added

gen\_pi\_field = opt-unk / "y" / "n" / "b"

info\_val = 2DIGIT ; 6 containers have 6 distinct value sets

jur\_field = 6HEX

lc\_field = ( ... / "lin" ) ; new value added

lp\_field = 2HEX ;two nibbles or 8 bits in T1.113

lp\_ind\_field = (opt-unk / "n" / "y")

```

lsp_context_id = DIGIT
lspi_type = (opt-unk / "1" / "2")
name_field = 1*(2Hex) ;GEN
obi_del = ("0" / "y" / "n")
obi_nii = ("0" / "y" / "n")
oli_field = 2DIGIT
oper_vend_field = 5CHAR
osi_field_1 = "01," info_val
osi_field_2 = "02," info_val
osi_field_3 = "03," info_val
osi_field_4 = "04," info_val
osi_field_5 = "05," info_val
osi_field_6 = "06," info_val
otn_field = 6HEX
ported_out = (opt-unk / "n" / "y")
ps_field = HEX ; binary 0000 is "no indication" in T1.113
sccp_field = 1*CHAR
sgid_field = 4HEX ;2 bytes in T1.113
spr_field = 3DIGIT
status_field = (... / "e") ; new value added
trr_tid_field = tid_field
type_of_name = DIGIT ; GEN
variant_field = 4LALPHANUM
vci_field = (opt-unk / "n" / "y")

```

**ANNEX B**  
(Informative)

## **B NSS VERBOSE ENCODING**

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It is possible to easily generate the verbose description from compact mode by inserting the field name string literals of the form "tag=" into their fixed positions. Likewise, the compact mode can be generated from the verbose description by removing the "tag=" from all fields.

### *B.1 General format of NSS Verbose description ABNF*

The Compact Transmission encoding and Verbose description use identical message, parameter, and value formats; only the field encoding differs. The field formats include the tag literals as defined below.

NOTE - The following is an alphabetized list of verbose field definitions.

```
acl_field = "acl=" ( ... / "3" ) ; value "3" added
as_field = "as=" (opt-unk / "y" / "0" ) ; BSG
avail_field = "avail=" ("n" / "y")
bgid_type_field = "bgid_type=" (opt-unk / "n" / "y")
bgid_field = "bgid=" 6HEX ;3 bytes in T1.113
chn_noa_field = "noa=" 2DIGIT
cid_field = "cid=" 1*HEX ; carrier id for CID, other moved to call_id_field
country_field = "c=" 3CHAR
csp_es_field = "es=" DIGIT
csp_sp_field = "sp=" ("0" / "1")
csp_typ_field = "type=" opt-unk / DIGIT
egr_field = "egr=" 1*(2HEX)
gea_type = "type=" (... / "cesd" / "cesi" / "cmpn" / "port" / "abn3" / "afwd")
           ; new values added
gen_pi_field = opt-unk / "y" / "n" / "b"
info_val = "iv=" 2DIGIT ; 6 containers have 6 distinct value sets
jur_field = "jur=" 6HEX
lc_field = "loc=" ( ... / "lin" ) ; new value added
lp_field = "lp=" 2HEX ;two nibbles or 8 bits in T1.113
```

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```
lp_ind_field = "lp_ind=" (opt-unk / "n" / "y")
lsp_context_id = "ci=" DIGIT
lspi_type = "type=" (opt-unk / "1" / "2")
name_field = "name=" 1*(2Hex) ;GEN
obi_del = "del=" ("0" / "y" / "n")
obi_nii = "nii=" ("0" / "y" / "n")
oli_field = "oli=" 2DIGIT
oper_vend_field = "o=" 5CHAR
osi_field_1 = "type=01," info_val
osi_field_2 = "type=02," info_val
osi_field_3 = "type=03," info_val
osi_field_4 = "type=04," info_val
osi_field_5 = "type=05," info_val
osi_field_6 = "type=06," info_val
otn_field = "tkg=" 6HEX
ported_out = "porc=" (opt-unk / "n" / "y")
ps_field = "ps=" HEX ; binary 0000 is "no indication" in T1.113
sccp_field = "sccp=" 1*CHAR
sgid_field = "sgid=" 4HEX ;2 bytes in T1.113
spr_field = "spr=" 3DIGIT
status_field = "sta=" ( ... / "e") ; new value added
trr_tid_field = tid_field
type_of_name = "ton=" DIGIT ; GEN
variant_field = "prv=" 4LALPHANUM
vci_field = "vci=" (opt-unk / "n" / "y")
```