



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.1980.1

(12/2004)

SERIES Q: SWITCHING AND SIGNALLING

Specifications of signalling related to Bearer Independent
Call Control (BICC)

The Narrowband Signalling Syntax (NSS) – Syntax definition

ITU-T Recommendation Q.1980.1

ITU-T Q-SERIES RECOMMENDATIONS
SWITCHING AND SIGNALLING

SIGNALLING IN THE INTERNATIONAL MANUAL SERVICE	Q.1–Q.3
INTERNATIONAL AUTOMATIC AND SEMI-AUTOMATIC WORKING	Q.4–Q.59
FUNCTIONS AND INFORMATION FLOWS FOR SERVICES IN THE ISDN	Q.60–Q.99
CLAUSES APPLICABLE TO ITU-T STANDARD SYSTEMS	Q.100–Q.119
SPECIFICATIONS OF SIGNALLING SYSTEMS No. 4, 5, 6, R1 AND R2	Q.120–Q.499
DIGITAL EXCHANGES	Q.500–Q.599
INTERWORKING OF SIGNALLING SYSTEMS	Q.600–Q.699
SPECIFICATIONS OF SIGNALLING SYSTEM No. 7	Q.700–Q.799
Q3 INTERFACE	Q.800–Q.849
DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 1	Q.850–Q.999
PUBLIC LAND MOBILE NETWORK	Q.1000–Q.1099
INTERWORKING WITH SATELLITE MOBILE SYSTEMS	Q.1100–Q.1199
INTELLIGENT NETWORK	Q.1200–Q.1699
SIGNALLING REQUIREMENTS AND PROTOCOLS FOR IMT-2000	Q.1700–Q.1799
SPECIFICATIONS OF SIGNALLING RELATED TO BEARER INDEPENDENT CALL CONTROL (BICC)	Q.1900–Q.1999
BROADBAND ISDN	Q.2000–Q.2999

For further details, please refer to the list of ITU-T Recommendations.

ITU-T Recommendation Q.1980.1

The Narrowband Signalling Syntax (NSS) – Syntax definition

Summary

This Recommendation describes a Narrowband Signalling Syntax (NSS) to provide a normalized set of telephony parameters. NSS enables mapping from multiple telephony protocols in use today into a common parameter set.

Source

ITU-T Recommendation Q.1980.1 was approved on 10 December 2004 by ITU-T Study Group 11 (2005-2008) under the ITU-T Recommendation A.8 procedure.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 2005

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

CONTENTS

Page

1	Scope	1
2	References.....	1
3	Definitions	2
4	Abbreviations.....	3
5	Message and parameter syntax overview	3
5.1	Character set	3
5.2	Structure	4
5.3	NSS compact transmission mode	5
6	Message definitions	5
6.1	Unsupported messages	5
6.2	NSS message identifier codes	5
7	Parameter definitions	7
7.1	Unsupported parameter disposition	7
7.2	NSS parameter codes.....	7
7.3	Detailed parameter descriptions	14
7.4	BAT ASE parameters	78
8	MIME encoding of NSS body	90
8.1	MIME-Version header field	90
8.2	Content-Type header field.....	90
8.3	Content-Transfer-Encoding header field.....	90
8.4	Content-Disposition header field.....	90
8.5	NSS MIME media type specification.....	91
9	Encapsulation in SIP.....	91
10	Encapsulation in H.323.....	91
11	Security considerations.....	91
12	NSS-specific syntactical elements and procedures	91
12.1	NSS-specific messages.....	91
12.2	NSS-specific parameters	91
12.3	NSS compatibility procedures	92
	Annex A – Narrowband Signalling Syntax ABNF grammar	94
	Appendix I – Narrowband Signalling Syntax (NSS) encoding examples	113
I.1	Message examples	113
I.2	Compatibility ordering example.....	115
I.3	GCI and TID structure example	115
	Appendix II – NSS verbose encoding.....	117

ITU-T Recommendation Q.1980.1

The Narrowband Signalling Syntax (NSS) – Syntax definition

1 Scope

This Recommendation specifies a flexible encoding syntax of narrowband signalling information to be transferred in protocols that cannot inherently transfer such information.

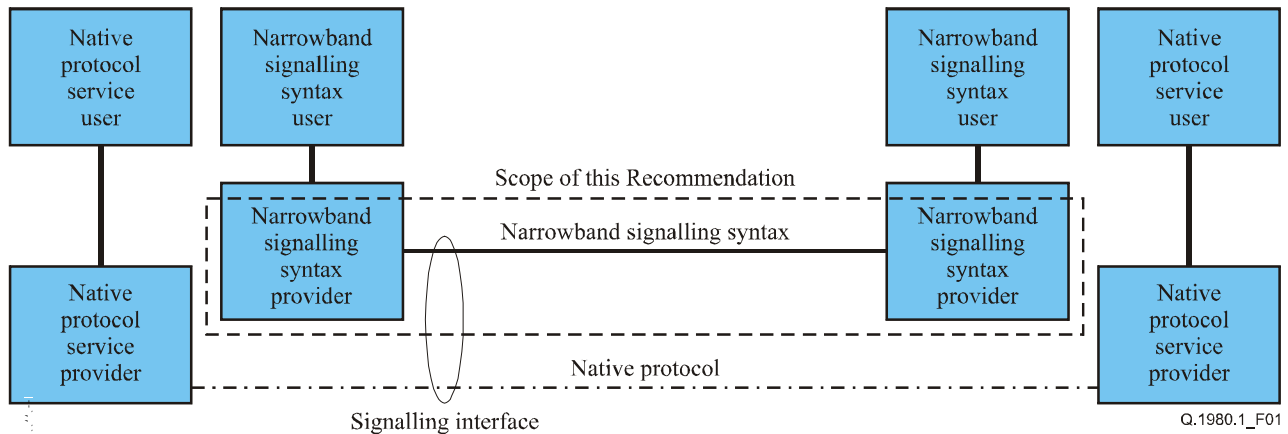


Figure 1/Q.1980.1 – Scope of this Recommendation

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- ITU-T Recommendation H.225.0 (2003), *Call signalling protocols and media stream packetization for packet-based multimedia communication systems*.
- ITU-T Recommendation H.323 (2003), *Packet-based multimedia communication systems*.
- ITU-T Recommendation Q.761 (1999), *Signalling System No. 7 – ISDN User Part functional description*.
- ITU-T Recommendation Q.762 (1999), *Signalling System No. 7 – ISDN User Part general functions of messages and signals*.
- ITU-T Recommendation Q.763 (1999), *Signalling System No. 7 – ISDN User Part formats and codes*; plus Amendment 1 (2001), *Coding of the application transport parameter*; Corrigendum 1 (2001); plus Amendment 2 (2002), *Support for the International Emergency Preference Scheme*.
- ITU-T Recommendation Q.765.5 (2004), *Signalling System No. 7 – Application Transport Mechanism: Bearer Independent Call Control (BICC)*.
- ITU-T Recommendation Q.767 (1991), *Application of the ISDN User Part of CCITT Signalling System No. 7 for international ISDN interconnections*; plus Amendment 1 (2002), *Support for the International Emergency Preference Scheme*.

- ITU-T Recommendation Q.850 (1998), *Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part*; plus Addendum 1 (2000), plus Amendment 1 (2001).
- ITU-T Recommendation Q.931 (1998), *ISDN user-network interface layer 3 specification for basic call control*; plus Amendment 1 (2002), *Extensions for the support of digital multiplexing equipment*; plus Erratum 1 (2003).
- ITU-T Recommendation 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*.
- ETSI TS 126 103 v 5.5.0 (2004-09), *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Speech codec list for GSM and UMTS (3GPP TS 26.103 version 5.5.0 Release 5)*.
- IETF RFC 2045 (1996), *Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies*.
- IETF RFC 2046 (1996), *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*.
- IETF RFC 2183 (1997), *Communicating Presentation Information in Internet Messages: The Content-Disposition Header Field*.
- IETF RFC 2234 (1997), *Augmented BNF for Syntax Specifications: ABNF*.
- IETF RFC 2327 (1998), *SDP: Session Description Protocol*.
- IETF RFC 3261 (2002), *SIP: Session Initiation Protocol*.

3 Definitions

This Recommendation defines the following terms:

3.1 compatibility parameter: A compatibility parameter is a NSS parameter used to carry unrecognized syntax objects and requiring the PRN parameter for interpretation. The set of compatibility parameters includes FDC, UFC, PCI, and MCI.

NOTE – The ATP parameter also requires the PRN parameter for interpretation.

3.2 mappable parameter: An ISUP/BICC parameter which satisfies the following conditions with respect to the protocol transporting the NSS body:

- every field in the ISUP/BICC parameter is accounted for by a field or combination of fields in the encapsulating protocol;
- every potential value of the ISUP/BICC field is accounted for by a value of the corresponding field(s) in the encapsulating protocol; and
- the original value of every ISUP/BICC field can be recovered when the encapsulating protocol alone (disregarding any encapsulated NSS or ISUP/BICC) is mapped back to the same variant of ISUP/BICC as was mapped into the encapsulating protocol at the NSS-originating node.

3.3 NSS message: A NSS message is a body composed of a contiguous set of text lines as defined in clause 5.

4 Abbreviations

This Recommendation uses the following abbreviations:

ABNF	Augmented Backus-Naur Form (see RFC 2234)
ASCII	American Standard Code for Information Interchange
BICC	Bearer Independent Call Control
COT	Continuity Test (used for TDM circuits)
IA5	International Alphabet No. 5 (same as 7-bit ASCII)
IE	Information Element
IEPS	International Emergency Preference Scheme
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITU-T	International Telecommunication Union – Telecommunication Standardization Sector
MIME	Multipurpose Internet Mail Extensions
NSS	Narrowband Signalling Syntax
PBX	Private Branch eXchange
POTS	Plain Old Telephone Service
PSTN	Public Switched Telephone Network
RAS	Registration, Admission and Status (see ITU-T Rec. H.225.0)
RTP	Real-time Transport Protocol
SDP	Session Description Protocol
SIP	Session Initiation Protocol
SS7	Signalling System No. 7
TDM	Time Division Multiplexing

5 Message and parameter syntax overview

The general rules for NSS message, parameter, and field formats are specified in this clause.

5.1 Character set

NSS messages are composed of printable IA5 (i.e., 7-bit US ASCII) characters plus carriage return (CR = x0D) and line feed (LF = x0A). Alphabetic characters are case sensitive. The case rules are described in this clause and in 5.2.

Values potentially requiring the representation of information lying outside this character set shall be presented as a sequence of one or more binary octets, expressed as a series of one or more pairs of characters ("0"- "9", "A"- "F") without a preceding "x" representing the binary octets as hexadecimal values. The characters "A" through "F" must be upper case. The ordering of the binary octets in a given value is defined by the source protocol. The resulting sequence of character pairs will be placed into an NSS value field with no leading "x" character in that same order. The first character of each pair represents the most significant four bits of the binary octet being expressed. If an octet of the source protocol contains bits which do not belong to the field or sub-field value being encoded, these bits shall be set to zero before applying the hexadecimal encoding.

NOTE – The ordering of bits within individual octets as represented by the hexadecimal encoding is the reverse of their order of transmission in the source protocol. See 1.9/Q.763.

Clauses 7.3 and 7.4 indicate for each field or subfield value whether the direct or ASCII-hexadecimal representation is used.

The CR and LF characters are reserved for use together as line termination. See 5.2.1.

The ",", and "=" characters are reserved for use as separators. Parentheses "(" and ")" and braces "{" and "}" are reserved for use as group delimiters. The application of these reserved characters is described in 5.2.

The "\" character is reserved for use as an escape mechanism and must be placed immediately before any ",", or "=" or "(" or ")" or "{" or "}" or CR or LF or "\" character found in a field value during parameter construction. During parsing, each first encounter of an "\" character is not used as part of the field value and the character following the "\" is treated as part of the field value.

5.2 Structure

5.2.1 NSS message

A NSS message is composed of a sequence of lines, each beginning with a sequence of three upper-case letters followed by a comma and ending with a carriage return – line feed sequence (x0Dx0A).

Except for the Message Identifier line, the initial sequence of letters on a line identifies a parameter. On the Message Identifier line, the initial sequence of letters identifies a message.

The set of message identifiers defined in this Recommendation is listed in 6.2, "NSS message identifier codes".

The set of parameter identifiers defined in this Recommendation is listed in 7.2, "NSS parameter codes".

A NSS message begins with three mandatory NSS-specific parameters: Version (VER), Protocol Name/Version (PRN), and Message Identifier in that order. These are followed by zero or more other parameters.

This Recommendation does not specify which additional parameters must be present in a NSS message, nor does it specify the order in which those parameter lines must appear. It is recommended that this order be the same as that of the corresponding parameters in the source protocol message.

NOTE – It is expected that NSS messages will not include parameter lines derived from source protocol parameters that have been successfully mapped to the encapsulating protocol. Rules for interworking BICC and ISUP to the combination of SIP (RFC 3261) or ITU-T Rec. H.323 and NSS are not in the scope of this Recommendation.

Multiple parameters of the same type indicate concurrent instances of a parameter within a single NSS message.

5.2.2 NSS parameter line

Each parameter identifier is followed by a sequence of fields. The set of fields that is required to be present for each parameter defined in this Recommendation and the order in which these fields must appear is specified in the applicable sub-clauses of Recommendation 7.3, "Detailed parameter descriptions", and 7.4, "BAT ASE parameters".

Two successive fields are separated by a comma ",".

5.2.3 NSS fields

The type and the actual set of values permitted for each field is specified in the applicable sub-clause of Recommendation 7.3, "Detailed parameter descriptions" and of 7.4, "BAT ASE parameters".

The value may be omitted if the field value is unknown, leaving only the separating comma if there is a following field. This is permitted only if the range of permissible values for the field includes "unknown". The decoding end must correspondingly interpret an empty field value as having the "unknown" value.

Field values defined as literals in 7.3 must be transmitted exactly as defined, e.g., a field value of "0001" must not be transmitted as "1".

For multiple groups of fields and values within some parameters, multiple iterations of the same element type or value may be enclosed by parentheses "(" and ")". Braces "{" and "}" denote a tuple of dissimilar elements. Commas must separate elements within each type of group. From the perspective of higher-level constructs, those groups are viewed as a single field value. Detailed descriptions are provided in those parameters where this applies, e.g., in 7.3.18, "Calling Geodetic Location (CGL)" and in 7.3.23, "Cause indicators (CAI)".

5.3 NSS compact transmission mode

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 Recommendation are shown in 7.3, "Detailed parameter descriptions", to aid in readability, but are not transmitted. The corresponding ABNF for converting from the transmission mode to a display is shown in Appendix II.

For an example of a NSS message in compact transmission mode, see Appendix I.

6 Message definitions

This clause describes the Message Identifiers supported by the NSS. Clause 7 describes all messages, parameters, and fields specifically introduced by the NSS protocol with both structure and intended use. Although this Recommendation 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 ISUP 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 in the scope of this Recommendation.

6.1 Unsupported messages

There are no NSS equivalents for ISUP/BICC messages that do not have end-to-end significance, especially the TDM circuit management messages. Unrecognized NSS Message Handling (see 12.3) procedures can be used in the event that the such messages are required to be transmitted.

6.2 NSS message identifier codes

The following is the list of message names and their associated NSS Message Identifier codes. Parameter codes and Message Identifier codes share the same code space.

<i>Message Name</i>	<i>Message Identifier Code</i>
Address Complete	ACM
Answer	ANM
Application Transport	APM
Call Progress	CPG
Charge Information	CRG
Confusion	CFN
Connect	CON
Continuity	COT
Facility	FAC
Facility Accepted	FAA
Facility Reject	FRJ
Facility Request	FAR
Forward Transfer	FOT
Generic Parameter List	GPL NSS-specific
Identification Request	IDR
Identification Response	IRS
Information	INF
Information Request	INR
Initial Address	IAM
Loop Prevention	LOP
Network Resource Management	NRM
Overload	OLM
Pass Along	PAM
Pre-Release Information	PRI
Release	REL
Release Complete	RLC
Resume	RES
Segmentation	SGM
Subsequent Address	SAM
Subsequent Directory Number	SDN
Suspend	SUS
Unrecognized Message	UNR NSS-specific
User-to-user Information	USR

See 12.1 for explanations of NSS-specific messages.

7 Parameter definitions

This clause describes the syntax, parameters, fields, and field values.

7.1 Unsupported parameter disposition

The parameter "End Of Optional Parameters" is derived from ISUP specifications. It is not supported in NSS because that role is superseded by the encoding rules defined in 5.2.1.

7.2 NSS parameter codes

The following list of parameter names is derived as a superset of ISUP and BICC parameters from the specifications identified in clause 2. The NSS-specific parameters are needed to address transparency issues.

Parameter codes and Message Identifier codes share the same code space.

<i>Parameter name</i>	<i>NSS code</i>	
Access Delivery Information	ADI	
Access Transport	ATP	
Action Indicator	ACT	BAT ASE
Application Transport	APP	
Automatic Congestion Level	ACL	
Backward Call Indicators	BCI	
Backward GVNS	BVN	
Backward Network Connection Identifier	BID	BAT ASE
BAT Compatibility Report	BAT	BAT ASE
Bearer Control Information	BCD	BAT ASE
Bearer Control Tunnelling	BCT	BAT ASE
Bearer Control Unit Identifier	BDU	BAT ASE
Bearer Network Connection Characteristics	BNC	BAT ASE
Bearer Redirection Capability	BRC	BAT ASE
Bearer Redirection Indicators	BRI	BAT ASE
Call Completion Service Set-up	CCS	
Call Diversion Information	CDI	
Call Diversion Treatment Indicators	CDT	
Call History Information	CHI	
Call Offering Treatment Indicators	OCT	
Call Reference	CRF	
Call Transfer Number	CTN	
Call Transfer Reference	CTR	
Called Directory Number	CDN	
Called IN Number	CIN	
Called Party Number	CPN	

Calling Geodetic Location	CGL	
Calling Party Geodetic Velocity Information	CGV	
Calling Party Number	CGN	
Calling Party's Category	CPC	
Carrier Selection Information	CSI	
Cause Indicators	CAI	
CCNR Possible Indicator	CCN	
Charged Party Identification	CPI	
Circuit Identification (Call Instance) Code	CIC	
Closed User Group Interlock Code	GIC	
Codec	COD	BAT ASE
Codec List	CDL	BAT ASE
Coding Decoding Processing	CDP	
Collect Call Request	COL	
Conference Treatment Indicator	CNF	
Connected Number	CNN	
Connection Request	CNR	
Continuity Indicators	CTI	
Correlation Identity	COR	
Display Information	DIS	
Echo Control Information	ECI	
Event Information Indicators	EVI	
Facility Indicators	FAI	
Forward Call Indicators	FCI	
Forward GVNS	FVN	
Generic Address (Generic Number)	GEA	
Generic Digits	GED	
Generic Notification Indicator	GNO	
Global Call Identification (Global Call Reference)	GCI	NSS-specific
Hard To Reach	HTR	
Hop Counter	HOC	
Information Indicators	INI	
Information Request Indicators	IRI	
IN Service Compatibility	INC	
Inter-nodal Traffic Group Identifier	ITG	
Interworking Function Address	IWF	BAT ASE
Known Field Compatibility Information	FDC	NSS-specific

Location Number	LON	
Loop Prevention Indicator	LPI	
Mapped Parameter List	MPL	NSS-specific
MCID Request Indicator	MRI	
MCID Response Indicator	MCR	
Message Compatibility Information	MCI	
MLPP Precedence	MLP	
Nature of Connection Indicators	NOC	
Network Management Controls	NMC	
Network Routing Number	NRN	
Network Specific Facilities	NSF	
Number Portability Forward Information	NPF	
Optional Backward Call Indicators	OBI	
Optional Forward Call Indicators	OFI	
Original Called IN Number	OCI	
Original Called Number	OCN	
Originating ISC Point Code	ISC	
Parameter Compatibility Information	PCI	
Pivot Capability	PCA	
Pivot Counter	PCT	
Pivot Routing Backward Information	PBI	
Pivot Routing Forward Information	PFI	
Pivot Routing Indicator	PVR	
Pivot Status	PVS	
Propagation Delay Counter	PDC	
Protocol Name	PRN	NSS-specific
Query On Release Capability	QOR	
Redirect Backward Information	RBI	
Redirect Capability	RDC	
Redirect Counter	RCT	
Redirect Forward Information	RFI	
Redirect Status	RDS	
Redirecting Number	RGN	
Redirection Information	RNI	
Redirection Number	RNN	
Redirection Number Restriction	RNR	
Remote Operations	RMO	

SCF ID	SCF	
Segmentation Indicator	SEG	NSS-specific
Service Activation	SEA	
Signal	SIG	BAT ASE
Signalling Point Code	SPC	
Source Parameter Information	SPI	NSS-specific
Subsequent Number	SUN	
Suspend/Resume Indicators	SRI	
Transaction ID	TID	NSS-specific
Transit Network Selection	TNS	
Transmission Medium Required	TMR	
Transmission Medium Required Prime	TMP	
Transmission Medium Used	TMU	
UID Action Indicators	UID	
UID Capability Indicators	UCI	
Unknown Field Compatibility Information	UFC	NSS-specific
User Service Information	USI	
User Service Information Prime	USP	
User Teleservice Information	UTI	
User-To-User Indicators	UUI	
User-To-User Information	UUS	
Version of NSS	VER	NSS-specific

Telecommunications vendors and operators may wish to use new or private network-specific parameters. In such cases, the parameter must use a three-letter code different from the above list and should encapsulate it within the Parameter Compatibility Information (PCI) parameter so that intermediate nodes are not burdened. Nodes that agree to use that parameter should also agree on PRN values to indicate what parameter set to expect.

The order of the parameters detailed in the remainder of clause 7 follows the order in the above list. The following list is ordered by NSS code to aid in finding the full parameter name.

<i>NSS code</i>	<i>Parameter name</i>
ACL	Automatic Congestion Level
ACT	Action Indicator
ADI	Access Delivery Information
APP	Application Transport
ATP	Access Transport
BAT	BAT Compatibility Report
BCD	Bearer Control Information
BCI	Backward Call Indicators

BCT	Bearer Control Tunnelling
BDU	Bearer Control Unit Identifier
BID	Backward Network Connection Identifier
BNC	Bearer Network Connection Characteristics
BRC	Bearer Redirection Capability
BRI	Bearer Redirection Indicators
BVN	Backward GVNS
CAI	Cause Indicators
CCN	CCNR Possible Indicator
CCS	Call Completion Service Set-up
CDI	Call Diversion Information
CDL	Codec List
CDN	Called Directory Number
CDP	Coding Decoding Processing
CDT	Call Diversion Treatment Indicators
CGL	Calling Geodetic Location
CGN	Calling Party Number
CGV	Calling Party Geodetic Velocity Information
CHI	Call History Information
CIC	Circuit Identification (Call Instance) Code
CIN	Called IN Number
CNF	Conference Treatment Indicator
CNN	Connected Number
CNR	Connection Request
COD	Codec
COL	Collect Call Request
COR	Correlation Identity
CPC	Calling Party's Category
CPI	Charged Party Identification
CPN	Called Party Number
CRF	Call Reference
CSI	Carrier Selection Information
CTI	Continuity Indicators
CTN	Call Transfer Number
CTR	Call Transfer Reference
DIS	Display Information
ECI	Echo Control Information



EVI	Event Information Indicators
FAI	Facility Indicators
FCI	Forward Call Indicators
FDC	Known Field Compatibility Information
FVN	Forward GVNS
GCI	Global Call Identification
GEA	Generic Address
GED	Generic Digits
GIC	Closed User Group Interlock Code
GNO	Generic Notification Indicator
HOC	Hop Counter
HTR	Hard To Reach
INC	IN Service Compatibility
INI	Information Indicators
IRI	Information Request Indicators
ISC	Originating ISC Point Code
ITG	Inter-nodal Traffic Group Identifier
IWF	Interworking Function Address
LON	Location Number
LPI	Loop Prevention Indicator
MCI	Message Compatibility Information
MCR	MCID Response Indicator
MLP	MLPP Precedence
MPL	Mapped Parameter List
MRI	MCID Request Indicator
NMC	Network Management Controls
NOC	Nature of Connection Indicators
NPF	Number Portability Forward Information
NRN	Network Routing Number
NSF	Network-Specific Facilities
OBI	Optional Backward Call Indicators
OCI	Original Called IN Number
OCN	Original Called Number
OCT	Call Offering Treatment Indicators
OFI	Optional Forward Call Indicators
PBI	Pivot Backward Information
PCA	Pivot Capability

PCI	Parameter Compatibility Information
PCT	Pivot Counter
PDC	Propagation Delay Counter
PFI	Pivot Forward Information
PRN	Protocol Name
PVR	Pivot Routing Indicator
PVS	Pivot Status
QOR	Query On Release Capability
RBI	Redirect Routing Backward Information
RCT	Redirect Counter
RDC	Redirect Capability
RDS	Redirect Status
RFI	Redirect Routing Forward Information
RGN	Redirecting Number
RMO	Remote Operations
RNI	Redirection Information
RNN	Redirection Number
RNR	Redirection Number Restriction
SCF	SCF ID
SEA	Service Activation
SEG	Segmentation Indicator
SIG	Signal
SPC	Signalling Point Code
SPI	Source Parameter Information
SRI	Suspend/Resume Indicators
SUN	Subsequent Number
TID	Transaction ID
TMP	Transmission Medium Required Prime
TMR	Transmission Medium Required
TMU	Transmission Medium Used
TNS	Transit Network Selection
UCI	UID Capability Indicators
UFC	Unknown Field Compatibility Information
UID	UID Action Indicators
USI	User Service Information
USP	User Service Information Prime
UTI	User Teleservice Information



UUI	User-To-User Indicators
UUS	User-To-User Information
VER	Version of NSS

7.3 Detailed parameter descriptions

The designation "a" means all possible characters allowed in 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 subfield 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.

7.3.1 Access Delivery Information (ADI)

Format: ADI,adi=a

Fields:

Field-01: adi - access delivery indicator
a description
- -----
u - unknown
y - set-up message generated
n - no set-up message generated

7.3.2 Access Transport (ATP)

Format: ATP,dat=1*(2Hex)

Fields: (may carry Q.931 IE)

Field-01: dat - access Transport data
1*(2h) description

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

7.3.3 Application Transport (APP)

Format: APP,aci=a,sni=a,rci=a,si=a,seg=hh,slr=hh,apm=0*(2Hex)

Fields:

Field-01: aci - application context identifier
a definition
- -----
u - unknown
0 - Unidentified Context and Error Handling (UCEH) ASE
1 - PSS1 ASE (VPN)
2 - Charging ASE
3 - GAT ASE
4 - BAT ASE
5 - Enhanced Unidentified Context and Error Handling (EUCEH) ASE

Field-02: sni - send notification indicator

a definition
- -----
u - unknown
n - do not send notification
y - send notification

Field-03: rci - release call indicator

a definition
- -----
u - unknown
n - do not release call
y - release call

Field-04: si - sequence indicator

a definition
- -----
0 - subsequent segment to first segment
1 - new sequence

Field-05: seg - segmentation indicator

dd definition
-- -----
00
-99 - 2 decimal digits 0-9 - indicates number
of following segments

Field-06: slr - segmentation local reference

hh definition
-- -----
00
-FF - 2 hexadecimal digits 0-9 or A-F

Field-07: apm - APM user information

0*(2h) description

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

See clause 7.4 for additional NSS parameters that must be used with the APP Field-01 code point number 4 (BAT ASE) instead of tunnelling in Field-07. In this case, Field-07 shall be left empty in the encoding of the APP parameter. When other Field-01 code point values are used, the APM user information is encoded in Field-07 and not parameters in clause 7.4. When Field-07 is empty and BAT ASE clause 7.4 parameters are absent from the message, then the APM user information value is "unknown".

7.3.4 Automatic Congestion Level (ACL)

Format: ACL, acl=a

Fields:

Field-01: acl - auto congestion level

a description
- -----
u - unknown
1 - congestion level 1 exceeded
2 - congestion level 2 exceeded

7.3.5 Backward Call Indicators (BCI)

Format: BCI, cha=a, sta=a, cpc=dd, e2ei=a, e2em=a, inter=a, iupi=a, h=a,
acc=a, eco=a, sccpm=d <NOTE - continuation of same line.>

Fields:

Field-01: cha - charge indicator

a description
- -----
0 - no indication
y - charge
n - no charge

Field-02: sta - called party status

a description
- -----
0 - no indication
f - subscriber free
c - connect when free

Field-03: cpc - call(ed) party category (reuses clause 7.3.21 cpc=field)

dd description
-- -----
00 - unknown/no indication
09 - ordinary subscriber
15 - public payphone

Field-04: e2ei - end-to-end information indicator

a definition
- -----
u - unknown (meaning 'No Indication')
y - end-to-end information is available
n - end-to-end information is not available

Field-05: e2em - end-to-end method indicator

a definition
- -----
u - unknown
n - no end-to-end method available
1 - pass-along method available
2 - SCCP method available
3 - pass-along and SCCP methods available

Field-06: inter - interworking Indicator

a definition
- -----
u - unknown
y - interworking has been encountered
n - interworking has not been encountered (SS7/BICC all the way)

Field-07: iupi - ISDN user part indicator

a definition
- -----
u - unknown
y - ISDN user part/BICC is used all the way
n - ISDN user part/BICC is not used all the way

Field-08: h - hold indicator

a definition
- -----
u - unknown
y - call hold requested
n - call hold not requested

Field-09: acc - ISDN access indicator

a definition

- -----

u - unknown

y - Terminating access is ISDN

n - Terminating Access is not ISDN

Field-10: eco - Echo control device indicator

a definition

- -----

u - unknown

y - incoming half echo device included

n - incoming half echo device not included

Field-11: sccpm - SCCP Method Indicator

d definition

- -----

0 - no indication

1 - connectionless method available

2 - connection-oriented method available

3 - connectionless and connection-oriented methods available

7.3.6 Backward GVNS (BVN)

Format: BVN,tai=a

Fields:

Field-01: tai - terminating access indicator

a description

- -----

0 - no information

d - dedicated terminating access

s - switched terminating access

7.3.7 Call Completion Service Set-up (CCS)

Format: CCS,ccss=a

Fields:

Field-01: ccss - CCSS call indicator

a description

- -----

0 - no indication

y - CCSS call

7.3.8 Call Diversion Information (CDI)

Format: CDI,nso=a,rr=a

Fields:

Field-01: nso - notification subscription options

a description

- -----

u - unknown

1 - presentation restricted

2 - presentation allowed with redirection number

3 - presentation allowed without redirection number

Field-02: rr - redirecting reason
a description
- -----
u - unknown
1 - user busy
2 - no reply
3 - unconditional
4 - deflection during alerting
5 - deflection immediate response
6 - mobile subscriber not reachable

7.3.9 Call Diversion Treatment Indicators (CDT)

Format: CDT,ct=a

Fields:

Field-01: ct - call diversion treatment
a definition
- -----
u - unknown
y - call diversion allowed
n - call diversion not allowed

7.3.10 Call History Information (CHI)

Format: CHI,pd=dddddd

Fields:

Field1 : pd - propagation delay

dddddd definition

000000 - delay unknown
-65535 - delay in milliseconds

7.3.11 Call Offering Treatment Indicators (OCT)

Format: OCT,coi=a

Fields:

Field-01: coi - call offering treatment indicator

a description
- -----
u - unknown
n - call offering not allowed
y - call offering allowed

7.3.12 Call Reference (CRF)

Format: CRF,cid=hhhhhh,pc=aaaaaaaaaaaa

Fields:

Field-01: cid - call identity
hhhhhh description

000000 - 6 characters 0-9, A-F representing hexadecimal values
-FFFFFFF

Field-02: pc - Point Code

aaaaaaaaaaaa	description
-----	-----
nnn.ccc.mmm	- nine characters separated by two periods, where nnn is for network/zone (most significant 3 or 8 bits), ccc is for cluster/area (middle 8 bits), mmm is for member (least significant 3 or 8 bits). The nnn, ccc, and mmm are 3-digit numbers from 000 to 255 representing the decimal equivalent of the subfield viewed as a binary number. [NOTE - ITU format is 3.8.3 bit.]

7.3.13 Call Transfer Number (CTN)

Format: CTN,noa=dd,mpi=a,pi=a,si=a,#=1*h

Fields:

Field-01: noa - nature of address

dd	description
--	-----
00	- unknown, number present
02	- unique subscriber number
04	- unique national (significant) number
06	- unique international number
08	- network-specific number
30	- network routing number in national (significant) format
31	- network routing number in network-specific format
32	- network routing number concatenated with Called Directory Number
35	- PISN specific number

[NOTE - noa= appears in the following additional parameters:
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 NRN parameters use alternative lists.]

Field-02: mpi - numbering plan indicator

a	description
-	-----
u	- unknown
1	- ISDN numbering plan (ITU-T Rec. E.164)
2	- Data numbering plan (ITU-T Rec. X.121)
3	- Telex numbering plan (ITU-T Rec. F.69)
4	- Private numbering plan
5	- national

Field-03: pi - presentation indicator

a	description
-	-----
u	- unknown
y	- presentation allowed
n	- presentation restricted
0	- address not available

Field-04: si - screening indicator

a	description
-	-----
u	- unknown
1	- user provided not screened
2	- user provided screening passed
3	- user provided screening failed
4	- network provided

Field-05: # - address

1*h	description
-----	-------------

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

7.3.14 Call Transfer Reference (CTR)

Format: CTR,ref=ddd

Fields:

Field-01: ref - call transfer reference
ddd description
--- -----
000 - positive integer number 0-9 (omit if parameter unknown)
-255

7.3.15 Called Directory Number (CDN)

Format: CDN,noa=dd,inn=a,npi=a,#=1*h

Fields:

Field-01: noa - nature of address
dd description
-- -----
See definition of "noa=" in clause 7.3.13,
Call Transfer Number (CTN).

Field-02: inn - internal network number indicator
a description
- -----
u - unknown
n - routing to internal network number not allowed
y - routing to internal network number allowed

Field-03: npi - numbering plan indicator
a description
- -----
u - unknown
1 - ISDN numbering plan (ITU-T Rec. E.164)
2 - Data numbering plan (ITU-T Rec. X.121)
3 - Telex numbering plan (ITU-T Rec. F.69)
4 - Private numbering plan
5 - national

Field-04: # - address
1*h description
--- -----
1*h - one or more telephony digits: 0-9, A-F
(see formal grammar)

7.3.16 Called IN Number (CIN)

Format: CIN,noa=dd,npi=a,pi=a,#=1*h

Fields:

Field-01: noa - nature of address
dd description
-- -----
See definition of "noa=" in clause 7.3.13,
Call Transfer Number (CTN).

Field-02: np i - numbering plan indicator
a description
- -----
u - unknown
1 - ISDN numbering plan (ITU-T Rec. E.164)
2 - Data numbering plan (ITU-T Rec. X.121)
3 - Telex numbering plan (ITU-T Rec. F.69)
4 - Private numbering plan
5 - national

Field-03: pi - presentation indicator
a description
- -----
u - unknown
y - presentation allowed
n - presentation restricted
0 - address not available

Field-04: # - address
1*h description
--- -----
1*h - one or more telephony digits: 0-9, A-F
(see formal grammar)

7.3.17 Called Party Number (CPN)

Format: CPN,noa=dd,inn=a,np i=a,#=1*h

Fields:

Field-01: noa - nature of address
dd description
-- -----
See definition of "noa=" in clause 7.3.13,
Call Transfer Number (CTN).

Field-02: inn - Internal network number indicator
a description
- -----
u - unknown
n - routing to internal network number not allowed
y - routing to internal network number allowed

Field-03: np i - numbering plan indicator
a description
- -----
u - unknown
1 - ISDN numbering plan (ITU-T Rec. E.164)
2 - Data numbering plan (ITU-T Rec. X.121)
3 - Telex numbering plan (ITU-T Rec. F.69)
4 - Private numbering plan
5 - national

Field-04: # - address
1*h description
--- -----
1*h - one or more telephony digits: 0-9, A-F
(see formal grammar)

7.3.18 Calling Geodetic Location (CGL)

Format: CGL,pi=a,si=a,type=d,[Field Container]

Fields:

Field-01: pi - presentation indicator

a description

- -----

u - unknown

y - presentation allowed

n - presentation restricted

0 - location not available

Field-02: si - screening indicator

a description

- -----

u - unknown

1 - user provided not screened

2 - user provided screening passed

3 - user provided screening failed

4 - network provided

Field-03: type - type of shape

d definition

- -----

u - unknown

0 - ellipsoid point field container 1

1 - ellipsoid point with uncertainty field container 2

2 - ellipsoid point with altitude and uncertainty field container 3

3 - ellipse on ellipsoid field container 4

4 - ellipsoid circle sector field container 5

5 - polygon field container 6

6 - ellipsoid point with altitude field container 7

7 - ellipsoid point with altitude and uncertainty ellipsoid field container 8

8 - ellipsoid arc field container 9

Field containers:

Field container 1 - ellipsoid point

Format: ns=d,lat=1*d,lon=1*d

Field-04: ns - north/south

d description

- -----

0 - north

1 - south

Field-05: lat - degrees of latitude

1*d description

- -----

1*d - This field value is the decimal equivalent of the 23-bit binary value N, that when multiplied by 90 and divided by 2^{23} produces degrees and fraction of degrees to multiple decimal places of precision. This note applies to all latitude fields in this parameter.

Example: 111 0000 0000 0000 0000 0000 = 7,340,032

$\times 90 = 660,602,880 / 2^{23} = 78.75$ degrees.

In other words, $N/(2^{23})$ produces a fraction $0 \leq X < 1$ of the total 90 degrees.

Field-06: lon - degrees of longitude

1*d description

- -----

1*d - This field value is the decimal equivalent of the 24-bit binary value N, that when multiplied by 360 and divided by 2^{24} produces degrees and fraction of degrees to multiple decimal places of precision. For conversion to negative degrees West, when resulting degrees exceed 180, subtract 360. This note applies to all longitude fields in this parameter.
Example: $N/(2^{24}) \times 360$ is similar to that above. A value of 275 degrees converts to: $275 - 360 = -85$ degrees West.

Field container 2 - ellipsoid point with uncertainty

Format: ns=d,lat=1*d,lon=1*d,unc=d,con=d

Field-04: ns - north/south

d description

- -----

0 - north

1 - south

Field-05: lat - degrees of latitude

1*d description

--- -----

1*d - same as in field container 1

Field-06: lon - degrees of longitude

1*d description

--- -----

1*d - same as in field container 1

Field-07: unc - uncertainty

1*d description

--- -----

1*d - This field value is the decimal equivalent of the 7-bit binary value K used in the formula:
 $\text{uncertainty} = 10 \times [(1.1)^K - 1]$ that produces uncertainty values in the range of 0 to 1800 metres. This applies to all Latitude/Longitude uncertainty fields in this parameter.

Field-08: con - confidence

1*d description

--- -----

1*d - This field value is the decimal equivalent of the 7-bit binary value $0 \leq K \leq 100$ expressed as a percentage, and where $K=0$ means "no information". This applies to any confidence field in this parameter.

Field container 3 - ellipsoid point with altitude and uncertainty

Format: ns=d,lat=1*d,lon=1*d,unc=1*d,as=d,alt=1*d,
auc=1*d,con=1*d [NOTE - continued on same line.]

Field-04: ns - north/south

d description

- -----

0 - north

1 - south

Field-05: lat - degrees of latitude
 1*d description
 -
 1*d - same as in field container 1

Field-06: lon - degrees of longitude
 1*d description
 -
 1*d - same as in field container 1

Field-07: unc - uncertainty
 1*d description
 -
 1*d - same as in field container 2

Field-08: as - altitude sign
 d description
 -
 0 - above ellipsoid
 1 - below ellipsoid

Field-09: alt - altitude
 1*d description

 1*d - This field value is the decimal equivalent of the 15-bit binary value indicating $0 \leq a \leq 32767$ metres. This applies to any altitude field in this parameter.

Field-10: auc - altitude uncertainty code
 1*d description

 1*d - This field value is the decimal equivalent of the 7-bit binary value K used in the formula:

$$\text{uncertainty} = 45 \times [(1.025)^K - 1]$$
 that produces uncertainty values in the range of 0 to 1000 metres. This note applies to all altitude uncertainty fields in this parameter.

Field-11: con - confidence
 1*d description

 1*d - same as in field container 2

Field container 4 - ellipse on ellipsoid

Format: ns=d,lat=1*d,lon=1*d,maj=1*d,min=1*d,ori=1*d,
 con=1*d

Field-04: ns - latitude sign
 d description
 -
 0 - north
 1 - south

Field-05: lat - degrees of latitude
 1*d description

 1*d - same as in field container 1

Field-06: lon - degrees of longitude
 1*d description

 1*d - same as in field container 1

Field-07: maj - major radius

1*d description

--- -----

1*d - This field value is the decimal equivalent of the 7-bit binary value K used in the formula:
$$\text{radius} = 10 \times [(1.1)^K - 1]$$
that produces radius values in the range of 0 to 1800 metres. This note applies to most Radius fields in this parameter.

Field-08: min - minor radius

1*d description

--- -----

1*d - same as major radius above

Field-09: ori - orientation

1*d description

--- -----

1*d - This field value is the decimal equivalent of the 8-bit binary value $0 \leq K \leq 180$ degrees. This applies to any orientation field in this parameter.

Field-10: con - confidence

1*d description

--- -----

1*d - same as in field container 2

Field container 5 - ellipsoid circle sector

Format: ns=d,lat=1*d,lon=1*d,rad=1*d,off=1*d,ang=1*d,
con=1*d

Field-04: ns - north/south

d description

- -----

0 - north

1 - south

Field-05: lat - degrees of latitude

1*d description

--- -----

1*d - same as in field container 1

Field-06: lon - degrees of longitude

1*d description

--- -----

1*d - same as in field container 1

Field-07: rad - radius

1*d description

--- -----

1*d - same as major radius in container 4

Field-08: off - offset angle

1*d description

--- -----

1*d - This field value is the decimal equivalent of the 8-bit binary value $0 \leq K \leq 180$ with $\text{degrees} = 2 \times K$, where 0 degrees is North and 90 degrees is East. This applies to any offset or included angle field in this parameter.

Field-09: ang - included angle
1*d description

1*d - same as offset angle above

Field-10: con - confidence
1*d description

1*d - same as in field container 2

Field container 6 - polygon

Format: num=dd,(3*15{ns=d,lat=1*d,lon=1*d}),con=1*d

Field-04: num - number of points
dd description
--
03 - the number of points in the polygon
-15

For each point in the polygon, a tuple of three fields is needed to describe that point. The number of tuples is indicated by Field-04 above. Each tuple must begin with an open brace "{", end with a close brace "}", with tuples comma-delimited. A comma separates subfields within the tuple. Example:
Triangle: ({ns=0,lat=33,lon=89},
 {ns=0,lat=34,lon=90},
 {ns=0,lat=34,lon=89})

In the following fields, T1, T2, and T3 compose the tuple:

Field-T1: ns - north/south
d description
-
0 - north
1 - south

Field-T2: lat - degrees of latitude
1*d description
-
1*d - same as in field container 1

Field-T3: lon - degrees of longitude
1*d description
-
1*d - same as in field container 1

A single occurrence of confidence ends the parameter:

Field-NN: con - confidence
1*d description

1*d - same as in field container 2

Field container 7 - ellipsoid point with altitude

Format: ns=d,lat=1*d,lon=1*d,as=d,alt=1*d

Field-04: ns - north/south
d description
-
0 - north
1 - south

Field-05: lat - degrees of latitude
1*d description
- -----
1*d - same as in field container 1

Field-06: lon - degrees of longitude
1*d description
- -----
1*d - same as in field container 1

Field-07: as - altitude sign
d description
- -----
0 - above ellipsoid
1 - below ellipsoid

Field-08: alt - altitude
1*d description
--- -----
1*d - same as in field container 3

Field container 8 - ellipsoid point with altitude and
uncertainty ellipsoid

Format: ns=d,lat=1*d,lon=1*d,as=d,alt=1*d,maj=1*d,min=1*d,
ori=1*d,auc=1*d,con=1*d

Field-04: ns - latitude sign
d description
- -----
0 - north
1 - south

Field-05: lat - degrees of latitude
1*d description
--- -----
1*d - same as in field container 1

Field-06: lon - degrees of longitude
1*d description
--- -----
1*d - same as in field container 1

Field-07: as - altitude sign
d description
- -----
0 - above ellipsoid
1 - below ellipsoid

Field-08: alt - altitude
1*d description
--- -----
1*d - same as in field container 3

Field-09: maj - major radius
1*d description
--- -----
1*d - same as in field container 4

Field-10: min - minor radius
1*d description
--- -----
1*d - see ITU-T Recs Q.763/Q.1902.3 for encoding

ITU-T Rec. Q.1980.1 (12/2004)

Field-11: ori - orientation
1*d description

1*d - same as in field container 4

Field-12: auc - altitude uncertainty code
1*d description

1*d - same as in field container 3

Field-13: con - confidence
1*d description

1*d - same as in field container 2

Field container 9 - ellipsoid arc

Format: ns=d,lat=1*d,lon=1*d,inr=1*d,unc=1*d,off=1*d,ang=1*d,
con=1*d

Field-04: ns - latitude sign
d description
-
0 - north
1 - south

Field-05: lat - degrees of latitude
1*d description

1*d - same as in field container 1

Field-06: lon - degrees of longitude
1*d description

1*d - same as in field container 1

Field-07: inr - inner radius
1*d description

1*d - This field value is the decimal equivalent of the
16-bit binary value N used in the standard formula. This
note applies to most Radius fields in this parameter.

Field-08: unc - uncertainty radius (identical to uncertainty)
1*d description

1*d - same as in field container 2

Field-09: off - offset angle
1*d description

1*d - same as in field container 5

Field-10: ang - included angle
1*d description

1*d - same as offset angle in container 5

Field-11: con - confidence
1*d description

1*d - same as in field container 2

7.3.19 Calling Party Geodetic Velocity Information (CGV)

Format: CGV,pi=a,si=a,type=d,[field container]

Based on the value of "type", none or one of the following field containers will follow. This parameter can appear multiple times, indicating different types of information within the same message.

Fields:

Field-01: pi - presentation indicator

a description

- -----

u - unknown

y - presentation allowed

n - presentation restricted

0 - location not available

Field-02: si - screening indicator

a description

- -----

u - unknown

1 - user provided not screened

2 - user provided screening passed

3 - user provided screening failed

4 - network provided

Field-03: type - type of geodetic velocity information

d definition

- -----

0 - unknown

1 - Horizontal velocity field container 1

2 - Horizontal with Vertical velocity field container 2

3 - Horizontal velocity with Uncertainty field container 3

4 - Horizontal with Vertical velocity
and Uncertainty field container 4

Field Containers:

Field Container 1 (type=1)

Format: bear=ddd,hvel=dddddd

Fields:

Field-04: bear - bearing

ddd definition

--- -----

000 - degrees clockwise from North

-360 (maximum)

Field-05: hvel - horizontal speed

dddddd definition

00000 - rounded up to nearest kilometer per hour

-65535 (e.g., X.5 rounds to X+1)

Field Container 2 (type=2)

Format: bear=ddd,hvel=dddddd,dir=d,vvel=ddd

Fields:

Field-04: bear - bearing

ddd definition

000 - degrees clockwise from North
-360 (maximum)

Field-05: hvel - horizontal speed

dddddd definition

00000 - rounded up to nearest kilometer per hour
-65535 (e.g., X.5 rounds to X+1)

Field-06: dir - direction of vertical speed

d definition
-
0 - upward
1 - downward

Field-07: vvel - vertical speed

ddd definition

000 - rounded up to nearest kilometer per hour
-255 (e.g., X.5 rounds to X+1)

Field Container 3 (type=3)

Format: bear=ddd,hvel=dddddd,hu=ddd

Fields:

Field-04: bear - bearing

ddd definition

000 - degrees clockwise from North
-360 (maximum)

Field-05: hvel - horizontal speed

dddddd definition

00000 - rounded up to nearest kilometer per hour
-65535 (e.g., X.5 rounds to X+1)

Field-06: hu - horizontal uncertainty speed

ddd definition

000 - increments of one kilometer per hour
-254
255 - indicates that uncertainty is not specified

Field Container 4 (type=4)

Format: bear=ddd,hvel=dddddd,hu=ddd,dir=d,vvel=ddd,vu=ddd

Fields:

Field-04: bear - bearing

ddd definition

000 - degrees clockwise from North
-360 (maximum)

Field-05: hvel - horizontal speed
 dddd definition

 00000 - rounded up to nearest kilometer per hour
 -65535 (e.g., X.5 rounds to X+1)

Field-06: hu - horizontal uncertainty speed
 ddd definition

 000 - increments of one kilometer per hour
 -254
 255 - indicates that uncertainty is not specified

Field-07: dir - direction of vertical speed
 d definition
 -
 0 - upward
 1 - downward

Field-08: vvel - vertical speed
 ddd definition

 000 - rounded up to nearest kilometer per hour
 -255 (e.g., X.5 rounds to X+1)

Field-09: vu - vertical uncertainty speed
 ddd definition

 000 - increments of one kilometer per hour
 -254
 255 - indicates that uncertainty is not specified

7.3.20 Calling Party Number (CGN)

Format: CGN,noa=dd,cni=a,npi=a,pi=a,si=a,#=1*h

Fields:

Field-01: noa - nature of address
 dd description
 --
 See definition of "noa=" in clause 7.3.13,
 Call Transfer Number (CTN).

Field-02: cni - complete number indicator
 a description
 -
 u - unknown
 y - number complete
 n - number incomplete

Field-03: npi - numbering plan indicator
 a description
 -
 u - unknown
 1 - ISDN numbering plan (ITU-T Rec. E.164)
 2 - Data numbering plan (ITU-T Rec. X.121)
 3 - Telex numbering plan (ITU-T Rec. F.69)
 4 - Private numbering plan
 5 - national

Field-04: pi - presentation indicator

a description
- -----
u - unknown
y - presentation allowed
n - presentation restricted
0 - address not available
1 - restricted by network

Field-05: si - screening indicator

a description
- -----
u - unknown
1 - user provided not screened
2 - user provided screening passed
3 - user provided screening failed
4 - network provided

Field-06: # - address

1*h description

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

7.3.21 Calling Party's Category (CPC)

Format: CPC,cpc=dd

Fields:

Field-01: cpc - Call(ing) Party Category

(Calling or called derived from parameter context)

dd description
-- -----
00 - unknown
01 - operator, Language French
02 - operator, Language English
03 - operator, Language German
04 - operator, Language Russian
05 - operator, Language Spanish
06 - admin1
07 - admin2
08 - admin3
09 - ordinary calling subscriber
11 - calling subscriber with priority
12 - data call (voiceband data)
13 - test call
15 - public payphone
19 - IEPS call marking for preferential call set-up

7.3.22 Carrier Selection Information (CSI)

Format: CSI,csi=dd

Fields:

Field-01: csi - carrier selection information (omit parm if unknown)

dd description
-- -----
00 - no indication
01 - selected carrier identification pre-subscribed and
input by calling party
02 - selected carrier identification pre-subscribed and
input by calling party

- 03 - selected carrier identification pre-subscribed and input by calling party undetermined
- 04 - selected carrier identification not pre-subscribed and input by calling party
- 05 - primary preferred carrier of the charged party
- 06 - alternate preferred carrier of the charged party
- 07 - selected carrier identification presubscription unknown (verbal) instructions from the calling party
- 08 - selected carrier identification presubscription unknown (verbal) instructions from the charged party
- 09 - emergency call handling
- 10 - carrier selected by input from the calling party
- 11 - carrier selected by a network operator

7.3.23 Cause Indicators (CAI)

Format: CAI,cs=a,loc=aaa,rec=a,cau=ddd,
 di={condition_coding,tni_coding,ccbs_ind,
 call_rejected_ind,cdpn_coding,fac_id_reject,
 attribute_ids,chan_type,incompat_param,
 timer_num,msg_type,param_name}

[NOTE - The eleven subfields according to ITU-T Rec. Q.850 may occur. Their values are defined in detail in the grammar in Annex A. When no diagnostics are included, the braces and all between the braces are omitted, and only the comma before the di= remains.]

Fields:

Field-01: cs - code standard

a definition

- -----

u - unknown

c - ITU-T standardized coding

i - ISO/IEC

n - national standard

p - standard defined for the network either public or private

Field-02: loc - location

aaa definition

--- -----

unk - unknown

usr - user

lpn - local private network (private network serving local user)

lln - local public network (public network serving local user)

tra - transit network

rln - remote local network (public network serving remote user)

rpn - remote private network (private network serving remote user)

int - international network

bip - network beyond interworking point

Field-03: rec - recommendation (specific standard)

a definition

- -----

u - unknown

q - ITU-T Rec. Q.763

p - Public land and mobile networks, Q.1000-series Recommendations

1 - ITU-T Rec. X.21

5 - ITU-T Rec. X.25

Field-04: cau - cause indicators

ddd definition

--- -----

000 - unknown

001 - Unallocated number
 002 - no route to specified transit network
 003 - no route to destination
 004 - send special information tone
 005 - misdialed trunk prefix
 006 - channel unacceptable
 007 - call awarded and being delivered in an established channel
 008 - preemption
 009 - preemption - circuit reserved for reuse
 014 - Query On Release (QOR): ported number
 016 - normal call clearing
 017 - user busy
 018 - no user responding
 019 - no answer from user
 020 - subscriber absent
 021 - call rejected
 022 - number changed
 023 - redirect to new destination (e.g., release to pivot)
 024 - call rejected due to feature at the destination
 026 - non-selected user clearing
 027 - destination out of order
 028 - invalid number format
 029 - facility rejected
 030 - response to status enquiry
 031 - normal unspecified
 034 - no circuit/channel available
 038 - network out of order
 039 - permanent frame mode connection out of service
 040 - permanent frame mode connection operational
 041 - temporary failure
 042 - switching equipment congestion
 043 - access information discarded
 044 - requested circuit/channel not available
 046 - precedence call blocked
 047 - resource unavailable unspecified
 049 - quality of service unavailable
 050 - requested facility not subscribed
 053 - outgoing calls barred within CUG
 055 - incoming calls barred within CUG
 057 - bearer capability not authorized
 058 - bearer capability not presently available
 062 - Inconsistency in designated outgoing access information and subscriber class
 063 - service or option not available unspecified
 065 - bearer capability not implemented
 066 - channel type not implemented
 069 - requested facility not implemented
 070 - only restricted digital information bearer capability is available
 079 - service or option not implemented unspecified
 081 - invalid call reference value
 082 - identified channel does not exist
 083 - a suspended call exists but this call identity does not
 084 - call identity in use
 085 - no call suspended
 086 - call having the requested call identity has been cleared
 087 - user not member of CUG
 088 - incompatible destination
 090 - non-existent CUG
 091 - invalid transit network selection
 095 - invalid message unspecified
 096 - mandatory information element missing
 097 - message type non-existent or not implemented
 098 - message not compatible with call state or

message type non-existent or not implemented
 099 - information element/parameter not implemented
 100 - invalid parameter contents
 101 - message not compatible with call state
 102 - recovery on timer expiry
 103 - parameter non-existent or not implemented passed on
 110 - message with unrecognized parameter
 111 - protocol error unspecified
 127 - interworking unspecified

Field-05: di - diagnostics

di={condition_coding,tni_coding,ccbs_ind,call_rejected_ind,
 cdpn_coding,fac_id_reject,attribute_ids,chan_type,
 incompat_param,timer_num,msg_type,param_name}

[NOTES - Subfields tni_codings and attribute_ids may occur multiple times. When that occurs, the subfield encoding takes the form of:
 ... , (val1,val2,val3), ... in the comma-delimited list within the di= braces.

The value of the subfield may also be a tuple of values. In that case, that one subfield takes the form of:
 ... , ({part1-1,part1-2,part1-3},{part2-1,part2-2,part2-3}), ...
 Note that any collective set of related values, be it di={ } or the set composing the subfield value {part1,part2,part3} are enclosed with braces. In contrast, parentheses () are used to enclose multiple instances of the same type of value. Combined example:
 ,di={val1,({x1,x2,x3},{y1,y2,y3}),,,,,,,,,}, with 2 instances of value 2 named x and y, each composed of 3 sub-subfields.

The twelve subfields according to Q.850 may occur independently. Their values are defined in detail in the grammar in Annex A.

When no diagnostics are included, the compact form uses only one comma: ",di=" becomes "," -- NOT ",di={,,,,,,,,,}" and ",{,,,,,,,,,}".

Note that if any subfield is present, the braces and all placeholder commas are required: ,{,,,,,,,,val8,,,,}]

7.3.24 CCNR Possible Indicator (CCN)

Format: CCN,cpi=a

Fields:

Field-01: cpi - ccnr possible indicator

a definition

- -----

u - unknown

n - CCNR not possible

y - CCNR possible

7.3.25 Charged Party Identification (CPI)

Format: CPI,dat=1*(2Hex)

Fields:

Field-01: dat - charge information used in ITU-T Rec. Q.1218 or Q.1228

1*(2h) description
