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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication
procedures

Gateway control protocol: International CAS compelled register signalling packages

Recommendation ITU-T H.248.29



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Recommendation ITU-T H.248.29

Gateway control protocol: International CAS compelled register signalling packages

Summary

The packages in Recommendation ITU-T H.248.29 provide ITU-T H.248 support for channel associated signalling (CAS) compelled register signalling. This can be used for R2, although the packages are generic so that they can also be used for other non-R2 compelled schemes. This Recommendation proposes methods to support:

- standard *en bloc* compelling;
- overlap compelling;
- the ability to enable end-to-end compelled signalling.

This Recommendation provides only the capabilities of compelled register signalling and it is expected that a system would need to implement the bcas, icas and casblk packages for the line signalling components of any CAS protocol.

Three packages are defined in Annex A:

- icas which provides standard *en bloc* compelling;
- icasco which extends icas and provides overlap compelling in addition to *en bloc*;
- icasce which extends icasco and provides the ability to enable end-to-end signalling in addition to *en bloc* and overlap.

Annex B defines an alternative package for support of these functions, called icasgen. This package defines a generic register signalling, which may be used for national variants of Signalling System R2. This kind of interregister signalling is a compelled multifrequency code system. The package is suitable for ITU-T Signalling System R2, although it is defined in a generic way. Thus it can also be used exclusively, or in addition to the packages defined in Annex A. The proposed package comprises following compelled address transfer modes:

- generic standard *en bloc* compelling; and
- overlap procedures.

NOTE – The ability to enable end-to-end compelled signalling utilizing Annex B is for further study.

Annex B introduces the concepts of Detection Events Map and Generation Signals Map, which are very similar to ITU-T H.248 Digit Map usage.

This revision incorporates a new parameter to indicate whether the Generic Digit information Event is generated in the event of an unsuccessful events map match.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T H.248.29	2005-01-08	16
1.1	ITU-T H.248.29 (2005) Cor. 1	2007-08-29	16
2.0	ITU-T H.248.29	2013-03-16	16

FOREWORD

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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.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T H.248.29

Gateway control protocol: International CAS compelled register signalling packages

1 Scope

These packages are intended for use in analogue (one-way operation) or digital transmission systems (one-way or both-ways operations). The MGC should be unaware of the transmission details at the physical layer. The MG is therefore assumed to be provisioned with the actual signalling frequencies for interregister signalling (for example 2-out-of-n inband multifrequency code with forward and backward compelled signalling for R2) along with their properties such as amplitude, tone duration, cadence, etc. and also their logical significance. Any timers that dictate the interregister compelling actions are also assumed to be provisioned in the MG.

NOTE – Annex B specifies additional termination properties allowing the definition of some SSR2 timers.

Support for any of these packages is optional.

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 H.248.1] Recommendation ITU-T H.248.1 (2013), *Gateway control protocol: Version 3*.
- [ITU-T H.248.16] Recommendation ITU-T H.248.16 (2013), *Gateway control protocol: Enhanced digit collection packages and procedures*.
- [ITU-T H.248.25] Recommendation ITU-T H.248.25 (2013), *Gateway control protocol: Basic CAS packages*.
- [ITU-T H.248.28] Recommendation ITU-T H.248.28 (2007), *Gateway control protocol: International CAS packages*.
- [ITU-T Q.400] Recommendation ITU-T Q.400-Q.490 (1988), *Specifications of Signalling System R2*.
- [ITU-T Q-Sup.7] ITU-T Q-series Recommendations – Supplement 7 (1988), *Semi-compelled and non-compelled multifrequency interregister signalling for national satellite applications based on System R2 interregister signalling*.

3 Definitions

This Recommendation defines the following terms:

3.1 backward signal: A signal, used for the establishment, release or other control of a connection, sent in the opposite direction to call set-up.

3.2 compelled signalling: A signalling method in which the signal to be transmitted is applied continuously until acknowledged or until a timeout occurs. Upon recognition of the initial signal, the acknowledgement signal is applied continuously until the cessation of the initial signal or until a timeout occurs. The cessation of the acknowledgement signal may provoke the beginning of the

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next subsequent compelled cycle. In addition to the acknowledgement, the acknowledgement signal may carry other signalling information (e.g., concerning the next cycle).

3.3 *en bloc* signalling: A signalling method in which the address digits are assembled into one block for onward transmission, the block containing all of the address information necessary to route the call to its destination.

3.4 *end-to-end* signalling: A signalling method in which signals are transmitted from one end of a multi-link connection to the other end where processing of these signals is required.

3.5 *forward* signal: A signal, used for the establishment, release or other control of a connection sent in the same direction as call set-up.

3.6 *interregister* signalling: Signalling System R2: Interregister signals are of the multifrequency type using a 2-out-of-6 in-band code in both directions. The multifrequency combinations are sent and received by multifrequency signalling equipment which is assumed to be associated with the registers used to control the switching equipment at both ends of the inter-exchange link.

3.7 *KP (start-of-pulsing)* signal (sent in the forward direction): This register signal is sent subsequent to the recognition of a start-dialling signal and is used to prepare the incoming multifrequency register for the receipt of subsequent interregister signals.

3.8 *line* signalling: A signalling method in which signals are transmitted between equipment which terminate and continuously monitor part or all of the traffic circuit.

3.9 *overlap address* signalling: A signalling method in which the onward transmission of address signals from a switching centre may commence before the reception of all the address signals over the preceding link has been completed.

3.10 *register*: The apparatus, in an automatic system, which receives the dialled impulses and controls the subsequent switching operations.

3.11 *register* function: The functions of receiving, storing, analysing and possibly translating and transmitting address information and other information for the purpose of controlling the setting-up of a call.

3.12 *register* signalling: Signalling System R1: Link-by-link multifrequency (MF) in-band pulse signalling is used for the transmission of address information. The signalling frequencies are 700 Hz to 1700 Hz, in 200 Hz steps, and combinations of two, and two only, determine the signal. The address information is preceded by a KP signal (start-of-pulsing) and terminated by an ST signal (end-of-pulsing). Either *en bloc*, *en bloc* overlap or overlap sending may apply. This register signalling arrangement is used extensively with other in-band and out-of-band line signalling systems.

3.13 *ST (end-of-pulsing)* signal (sent in the forward direction): This register signal is sent to indicate that there are no more address signals to follow. The signal is always sent in semi-automatic as well as automatic working.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CAS	Channel Associated Signalling
IC	Incoming
MC	Multifrequency Combination
MF	Multifrequency
MG	Media Gateway

MGC	Media Gateway Controller
NGN	Next Generation Network
OG	Outgoing
SSR2	Signalling System R2

5 ITU-T H.248 package approaches for compelled CAS

This Recommendation takes into account that there are various NGN evolution scenarios for legacy compelled CAS equipment. Thus, it supports different modes of operation.

5.1 System operation modes

This Recommendation defines two operation modes of the ITU-T H.248 interface for support of international compelled CAS register signalling systems (see Appendix II for a complete CAS system overview). The first design is more "MG centric" and covered in Annex A. The second approach in Annex B may be correspondingly called "MGC centric".

The background is a slightly different functional partitioning concept with respect to control and CAS signalling handling. "MGC centric" means that the full handling is more or less located in the ITU-T H.248 media gateway controller. In the "MG centric" approach, the ITU-T H.248 media gateway provides local handling, for instance in order to offload the MGC.

Annexes A and B are basically functionally equivalent. Of course, both halves of an associated MGC-MG pair must be operated in the same mode. It is further anticipated that an MGC is either operated in Annex A or Annex B mode, but not supporting both operation modes in parallel. This is due to the underlying functional partitioning approach.

The ITU-T H.248.29 operation mode on the media gateway side is determined by the corresponding MGC node.

5.2 Reasons and criteria

There are a number of different possible approaches for partitioning the functional responsibility between the media gateway controller and the media gateway. Partitioning criteria are dependent upon the system or network architecture and may consider the following: the number of interactions between the MGC and MG, timing considerations, the abstraction level of the ITU-T H.248 interface, signalling complexity, coverage of compelled CAS address transfer modes, coverage of existing CAS systems, reusability of control logic, recognition of existing CAS equipment, recognition of /market/region/country specific CAS variants or recognition of customized design extensions (CDE) in general.

It shall be noted that this list is unweighted and not exhaustive. Deciding upon an ITU-T H.248.29 operation mode according to Annex A or Annex B may be the natural result of an evaluation of a specific subset of these types of criteria.

5.3 Motivation for two package approaches

Channel associated signalling (CAS) has been successfully deployed in private and public telecommunication networks for more than a half-century, since the introduction of electro-mechanical and stored-program controlled circuit switching techniques. This historical situation and background is the prime reason why it is not easy to define a straightforward interconnection model between ITU-T H.248 media gateways for next generation networks (NGN) and the broad spectrum of CAS standards and variants in use.

The two operation modes of ITU-T H.248.29 originate in different partitioning principles of the control architecture in legacy synchronous transfer mode (STM) switches. The decomposition principles may be diverse, particularly for compelled CAS capable switching systems. ITU-T H.248.29 recognizes the fact of this installed legacy switching base and offers seamless evolution paths toward NGN by applying either Annex A or B.

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Annex A

International CAS compelled register signalling packages

(This annex forms an integral part of this Recommendation.)

A.1 International CAS Compelled Package

Package name:	ICAS Compelled Package
Package ID:	icasc (0x007d)
Description:	This package defines ITU-T H.248 methods to support channel associated signalling (CAS) compelled standard <i>en bloc</i> register signalling.
Version:	1
Extends:	None

A.1.1 Properties

A.1.1.1 Source Number Length

Property name:	Source Number Length
Property ID:	snl (0x0001)
Description:	Indicates that the calling party digits are to be collected by the MG up to a maximum length as specified by this parameter value.
Type:	Integer
Possible values:	Non-negative number of digits; 0 indicates no defined maximum length.
Default:	Provisioned
Defined in:	TerminationState
Characteristics:	Read/Write

A.1.1.2 Compelling Sequence Keepalive Time

Property name:	Compelling Sequence Keepalive Time
Property ID:	cstk (0x0002)
Description:	Specifies the time duration for which the incoming MG may keep alive the compelling sequence waiting for the called party reachability status information (or alternative compelled sequence completion signal) from the MGC.
Type:	Integer
Possible values:	Non-negative number of milliseconds
Default:	Provisioned
Defined in:	TerminationState
Characteristics:	Read

A.1.2 Events

A.1.2.1 Address

Event name:	Address
Event ID:	addr (0x0001)
Description:	Reports the address parameters collected through compelled register signalling. The Event supports <i>en bloc</i> compelled register signalling. The MG will perform standard <i>en bloc</i> compelled register signalling, with all the relevant information (di, si, sc, etc.) being collected and then Notified at the end as a single ObservedEvent. After receiving the first incoming digit, the information collected and the order of collecting the information is determined by local MG provisioning.

A.1.2.1.1 EventsDescriptor parameters

A DigitMap (as defined in clause 7.1.14 of [ITU-T H.248.1]) parameter activated for collection of destination number, by specifying a digitmap by name (previously configured) or by value. Where such a digitmap is missing, destination number shall be collected until end-of-digit signal is detected.

A.1.2.1.2 ObservedEventsDescriptor parameters

A.1.2.1.2.1 Destination Number

Parameter name:	Destination Number
Parameter ID:	di (0x0001)
Description:	The called party number digit string collected through the compelled register signalling.
Type:	String
Optional:	No
Possible values:	A sequence of the characters '0' through '9'.
Default:	None

A.1.2.1.2.2 Destination Number Termination Method

Parameter name:	Destination Number Termination Method
Parameter ID:	dimeth (0x0002)
Description:	Indicates the reason for the generation of the Destination Number parameter. When a digitmap is present in the EventsDescriptor, this is a mandatory ObservedEventsDescriptor parameter. When a digitmap is absent from the EventsDescriptor, this parameter shall be absent from the ObservedEvents Descriptor.
Type:	Enumeration
Optional:	Yes
Possible values:	"UM" (0x0001) Unambiguous Match "PM" (0x0002) Partial Match
Default:	None

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A.1.2.1.2.3 Source Number

Parameter name:	Source Number
Parameter ID:	si (0x0003)
Description:	The calling party number digit string, that is collected during compelled register signalling.
Type:	String
Optional:	Yes
Possible values:	A sequence of the characters '0' through '9'.
Default:	None

A.1.2.1.2.4 Source Number Termination Method

Parameter name:	Source Number Termination Method
Parameter ID:	simeth (0x0004)
Description:	If the Source Number parameter is reported, this parameter indicates the method of its termination.
Type:	Enumeration
Optional:	Yes
Possible values:	"EP" (0x0001) End of Pulsing "ML" (0x0002) Maximum Length "TO" (0x0003) Timeout
Default:	None

A.1.2.1.2.5 Calling Subscriber Category 1

Parameter name:	Calling Subscriber Category 1
Parameter ID:	sc1 (0x0005)
Description:	The Calling Party subscriber's category, as collected through compelled register signalling delivered in response to category request A-3.
Type:	Enumeration
Optional:	Yes
Possible values:	"NNPS" (0x0001) Non-priority subscriber (National Working) "NPRS" (0x0002) Priority subscriber (National Working) "NMNT" (0x0003) Maintenance equipment (National working) "NOPR" (0x0004) Operator call (National Working) "NDT" (0x0005) Data transmission (National working) "ISOPR" (0x0006) Subscriber or operator without forward transfer facility (International working) "IOPRF" (0x0007) Operator with forward transfer facility (International working) "IDT" (0x0008) Data transmission (International working) "IPRS" (0x0009) Priority subscriber (International working) "NSMTR" (0x000a) Subscriber with meter (National working) "SIDD" (0x000b) Subscriber with IDD "NATL1" (0x000c) Spare for National Use (equivalent to II-4)

"NATL2" (0x000d)	Spare for National Use (equivalent to II-11)
"NATL3" (0x000e)	Spare for National Use (equivalent to II-12)
"NATL4" (0x000f)	Spare for National Use (equivalent to II-13)
"NATL5" (0x0010)	Spare for National Use (equivalent to II-14)
"NATL6" (0x0011)	Spare for National Use (equivalent to II-15)

Default: None

A.1.2.1.2.6 Echo Suppression

Parameter name: Echo Suppression

Parameter ID: es (0x0006)

Description: Control information on echo suppressors.

Type: Enumeration

Optional: Yes

Possible values:

"OGRQ" (0x0001)	Call requires echo suppressors and outgoing half-echo suppressor has to be inserted
"NRQ" (0x0002)	Call may not require any echo suppressor
"OGINS" (0x0003)	Call requires echo suppressors and outgoing half-echo suppressor has already been inserted
"ICRQ" (0x0004)	Call requires incoming echo suppressors to be inserted

Default: None

A.1.2.1.2.7 Country Code

Parameter name: Country Code

Parameter ID: cc (0x0007)

Description: If present, conveys the country code (and possibly the area code) information digits collected as a part of the compelled register signalling in international working.

Type: String

Optional: Yes

Possible values: A sequence of the characters '0' through '9'.

Default: None

A.1.2.1.2.8 Discriminating Indicator

Parameter name: Discriminating Indicator

Parameter ID: disc (0x0008)

Description: For automatic working, this will specify that a discriminating digit is used. For semi-automatic working, this will specify the service language (Language digit) to be used by the operator. For international working this may serve as a test call indicator.

Type: Enumeration

Optional: Yes

Possible values:	"DISC" (0x0001)	Discriminating digit for automatic working
	"FR" (0x0002)	Language digit French
	"EN" (0x0003)	Language digit English
	"GR" (0x0004)	Language digit German
	"RU" (0x0005)	Language digit Russian
	"SP" (0x0006)	Language digit Spanish
	"OT1" (0x0007)	Language digit Other (as indicated by I-6 pulse)
	"OT2" (0x0008)	Language digit Other (as indicated by I-7 pulse)
	"OT3" (0x0009)	Language digit Other (as indicated by I-8 pulse)
	"OT4" (0x000a)	Language digit Other (as indicated by I-9 pulse)
	"TCI" (0x000b)	Call by automatic test equipment

Default: None

A.1.2.1.2.9 Nature of Circuit

Parameter name: Nature of Circuit

Parameter ID: noc (0x0009)

Description: Reports if satellite links are included in circuits involved with the connection.

Type: Enumeration

Optional: Yes

Possible values: "SATINC" (0x0001) Satellite link included
"SATNOINC" (0x0002) Satellite link not included

Default: None

A.1.2.1.2.10 Access Indicator

Parameter name: Access Indicator

Parameter ID: ai (0x000a)

Description: If present, indicates that the call must be routed to the indicated position. In the case of "TST", test equipment address digits are conveyed in the destination number parameter.

Type: Enumeration

Optional: Yes

Possible values: "INC" (0x0001) Incoming Operator
"DEL" (0x0002) Delay Operator
"TST" (0x0003) Test Equipment

Default: None

A.1.2.1.2.11 Calling Subscriber Category 2

Parameter name: Calling Subscriber Category 2

Parameter ID: sc2 (0x000b)

Description: The Calling Party subscriber's category, as collected through compelled register signalling delivered in response to category request A-5. This category is occasionally known as the Billing category.

Type: Enumeration

Optional:	Yes	
Possible values:	"NNPS" (0x0001) Non-priority subscriber (National Working) "NPRS" (0x0002) Priority subscriber (National Working) "NMNT" (0x0003) Maintenance equipment (National working) "NOPR" (0x0004) Operator call (National Working) "NDT" (0x0005) Data transmission (National working) "ISOPR" (0x0006) Subscriber or operator without forward transfer facility (International working) "IOPRF" (0x0007) Operator with forward transfer facility (International working) "IDT" (0x0008) Data transmission (International working) "IPRS" (0x0009) Priority subscriber (International working) "NSMTR" (0x000a) Subscriber with meter (National working) "SIDD" (0x000b) Subscriber with IDD "NATL1" (0x000c) Spare for National Use (equivalent to II-4) "NATL2" (0x000d) Spare for National Use (equivalent to II-11) "NATL3" (0x000e) Spare for National Use (equivalent to II-12) "NATL4" (0x000f) Spare for National Use (equivalent to II-13) "NATL5" (0x0010) Spare for National Use (equivalent to II-14) "NATL6" (0x0011) Spare for National Use (equivalent to II-15)	
Default:	None	

A.1.2.2 CAS Failure Event

Event name:	CAS Failure Event
Event ID:	casf (0x0002)
Description:	This event handles failure or abnormal register signalling conditions associated with this package.

A.1.2.2.1 EventsDescriptor parameters

None.

A.1.2.2.2 ObservedEventsDescriptor parameters

A.1.2.2.2.1 Error Code

Parameter name:	Error Code
Parameter ID:	ec (0x0001)
Description:	Describes the failure reason.
Type:	Enumeration
Optional:	No
Possible values:	"RTO" (0x0001) Register Signalling Timeout "ADR" (0x0002) Error during outpulsing "ERR" (0x0003) Error in compelling sequence with peer signalling entity. "INC" (0x0004) Information signalled by the MGC is incomplete, and the compelling sequence at the outgoing MG cannot continue. "CSKT" (0x0005) The Compelling Sequence Keepalive Timer has expired.

"SME" (0x0006) CAS protocol state machine error

Default: None

A.1.2.3 Called Party Reachability Status

Event name: Called Party Reachability Status

Event ID: cprs (0x0003)

Description: Reports the line status of the called subscriber in order to terminate compelling.

A.1.2.3.1 EventsDescriptor parameters

None.

A.1.2.3.2 ObservedEventsDescriptor parameters

A.1.2.3.2.1 Subscriber Line Condition

Parameter name: Subscriber Line Condition

Parameter ID: lsts (0x0001)

Description: Conveys the line condition of the subscriber.

Type: Enumeration

Optional: No

Possible values:

"UN" (0x0001)	Unallocated number
"SLB" (0x0002)	Subscriber line busy
"SLFC" (0x0003)	Subscriber line free, charge
"SLFNOC" (0x0004)	Subscriber line free, no charge
"SOO" (0x0005)	Subscriber out of order
"SIT" (0x0006)	Send special information tone
"NK" (0x0007)	Subscriber status not known, set-up speech path
"NATL1" (0x0008)	Spare for National Use (equivalent to B-1)
"NATL2" (0x0009)	Spare for National Use (equivalent to B-9)
"NATL3" (0x000a)	Spare for National Use (equivalent to B-10)
"NATL4" (0x000b)	Spare for National Use (equivalent to B-11)
"NATL5" (0x000c)	Spare for National Use (equivalent to B-12)
"NATL6" (0x000d)	Spare for National Use (equivalent to B-13)
"NATL7" (0x000e)	Spare for National Use (equivalent to B-14)
"NATL8" (0x000f)	Spare for National Use (equivalent to B-15)

Default: None

A.1.2.4 Congestion

Event name: Congestion

Event ID: cng (0x0004)

Description: Reports the register signal indicating network congestion at the far end.

A.1.2.4.1 EventsDescriptor parameters

None.

A.1.2.4.2 ObservedEventsDescriptor parameters

A.1.2.4.2.1 Location

Parameter name:	Location
Parameter ID:	loc (0x0001)
Description:	Conveys the location of the congestion.
Type:	Enumeration
Optional:	Yes
Possible values:	"NATL" (0x0001) Congestion at national level "INTL" (0x0002) Congestion at international level
Default:	NATL

A.1.3 Signals

A.1.3.1 Address

Signal name:	Address
Signal ID:	addr (0x0001)
Description:	This is a composite signal that supplies all the necessary address parameters to start the compelling register signalling from the outgoing MG. The MG shall transmit only the information that is relevant to the compelling action configured at the MG and requested by the compelling peer.
Signal type:	TimeOut
Duration:	Depends on parameters supplied

A.1.3.1.1 Additional parameters

A.1.3.1.1.1 Destination Number

Parameter name:	Destination Number
Parameter ID:	di (0x0001)
Description:	The called party number digits.
Type:	String
Optional:	No
Possible values:	A sequence of the characters '0' through '9'.
Default:	None

A.1.3.1.1.2 Source Number

Parameter name:	Source Number
Parameter ID:	si (0x0002)
Description:	The calling party number digits.
Type:	String
Optional:	Yes
Possible values:	A sequence of the characters '0' through '9'.

Default: Empty ("")

A.1.3.1.1.3 Calling Subscriber Category 1

Parameter name: Calling Subscriber Category 1

Parameter ID: sc1 (0x0003)

Description: The Calling Party subscriber's category, as collected through compelled register signalling delivered in response to category request A-3.

Type: Enumeration

Optional: Yes

Possible values:

"NNPS" (0x0001)	Non-priority subscriber (National Working)
"NPRS" (0x0002)	Priority subscriber (National Working)
"NMNT" (0x0003)	Maintenance equipment (National working)
"NOPR" (0x0004)	Operator call (National Working)
"NDT" (0x0005)	Data transmission (National working)
"ISOPR" (0x0006)	Subscriber or operator without forward transfer facility (International working)
"IOPRF" (0x0007)	Operator with forward transfer facility (International working)
"IDT" (0x0008)	Data transmission (International working)
"IPRS" (0x0009)	Priority subscriber (International working)
"NSMTR" (0x000a)	Subscriber with meter (National working)
"SIDD" (0x000b)	Subscriber with IDD
"NATL1" (0x000c)	Spare for National Use (equivalent to II-4)
"NATL2" (0x000d)	Spare for National Use (equivalent to II-11)
"NATL3" (0x000e)	Spare for National Use (equivalent to II-12)
"NATL4" (0x000f)	Spare for National Use (equivalent to II-13)
"NATL5" (0x0010)	Spare for National Use (equivalent to II-14)
"NATL6" (0x0011)	Spare for National Use (equivalent to II-15)

Default: None

A.1.3.1.1.4 Echo Suppression

Parameter name: Echo Suppression

Parameter ID: es (0x0004)

Description: Control information on echo suppressors.

Type: Enumeration

Optional: Yes

Possible values:

"OGRQ" (0x0001)	Call requires echo suppressors and outgoing half-echo suppressor has to be inserted
"NRQ" (0x0002)	Call may not require any echo suppressor
"OGINS" (0x0003)	Call requires echo suppressors and outgoing half-echo suppressor has already been inserted
"ICRQ" (0x0004)	Call requires incoming echo suppressors to be inserted

Default: None