4. General message format and information elements coding

The figures and text in this clause describe message contents.

4.1 Overview

Within this protocol, every message shall consist of the following parts:

a) protocol discriminator;
b) call reference;
c) message type (including message compatibility instruction indicator);
d) message length;
e) variable length information elements, as required.

Information elements a), b), c) and d) are common to all the messages and shall always be present, while information elements e) isare specific to each message type.

This organization is illustrated in the example shown in Figure 4-/Q.2931. The first four information elements (Protocol discriminator, Call reference, Message type, and Message length) shall appear in the order specified in Figure 4-/Q.2931.

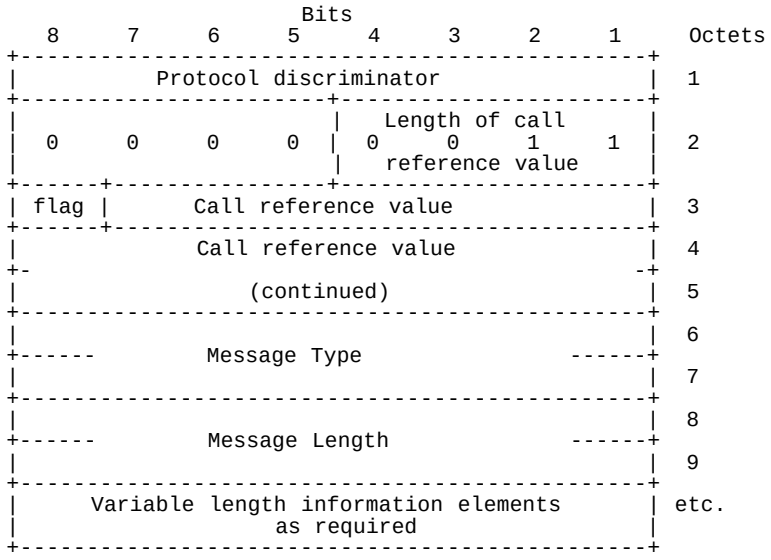


FIGURE 4-/Q.2931.
General message organization example

A particular message may contain more information than a particular (user or network) equipment needs or can understand. All equipment should be able to ignore

any extra information, present in a message, which is not required for the proper operation of that equipment. For example, a user may ignore the calling party number if that number is of no interest to the user when a SETUP message is received.

Unless specified otherwise, a particular information element mayshall not be present onlymore than once in a given message.

The term "default" implies that the value defined shouldshall be used in the absence of any assignment, or the negotiation of alternative values.

When a field, such as the call reference value, extends over more than one octet, the order of bit values progressively decreases as the octet number increases. The least significant bit of the field is represented by the lowest numbered bit of the highest-numbered octet of the field.

4.2 Protocol discriminator

The purpose of the protocol discriminator is to distinguish messages for user-network call control from other messages (to be defined) within this Recommendation. It also distinguishes messages of this Recommendation from those OSI network layer protocol units which are coded according to other ITU-T Recommendations and other standards.

Note: The protocol discriminator is the first part of every message. The protocol discriminator is coded according to Table 4-/Q.2931. The specification of the protocol discriminator does not imply that the protocol may share the signalling virtual channel with other layer 3 protocols (except when encapsulated in Q.2931 Messages).

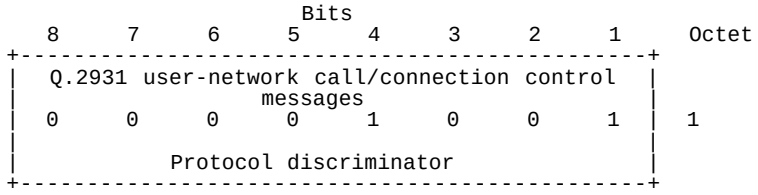


FIGURE 4-/Q.2931.
Protocol discriminator

TABLE 4-/Q.2931
Protocol discriminator

Bits 8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0 through 0 0 0 0 0 1 1 1	assigned in clause 4/Q.931; not available for use in the message protocol discriminator
0 0 0 0 1 0 0 0	Q.931/(I.451) user-network call control messages
1 0 0 1	Q.2931 user-network call/bearerconnection control messages
0 0 0 1 0 0 0 0 through 0 0 1 1 1 1 1 1	reserved for other network layer or layer 3 protocols, including X.25 (Note)
0 1 0 0 0 0 0 0 through 0 1 0 0 1 1 1 1	national use
0 1 0 1 0 0 0 0 through 1 1 1 1 1 1 1 0	reserved for other network layer or layer 3 protocols, including X.25 (Note)
All other values are reserved	

Note - These values are reserved to discriminate these protocol discriminators from the first octet of a Rec. X.25 packet including general format identifier.

4.3 Call reference

The purpose of the call reference is to identify the call at the local user-network interface to which the particular message applies. The call reference does not have end-to-end significance across B-ISDNs.

The call reference is the second part of every message. The call reference is coded as shown in Figure 4-/Q.2931. The length of the call reference value is indicated in octet 1, bits 1-4. The length of the call reference information element is four octets long. The actions taken by the receiver are based on the numerical value of the call reference and are independent of the length of the call reference information element.

The call reference information element includes the call reference value and the call reference flag. The call reference value 0 (all bits = 0) is reserved for the global call reference, see Figure 4-; the call reference value with all bits set to 1 is reserved for the dummy call reference, see Figure 4-.

Call reference values are assigned by the originating side of the interface for a call. These values are unique to the originating side only within a particular signalingsignalling virtual channel. The call reference value is assigned at the beginning of a call and remains fixed for the lifetime of a call. After a call ends, the associated call reference value may be reassigned to a later call. Two identical call reference values on the same signalingsignalling virtual

channel may be used when each value pertains to a call originated at opposite ends of the signalling virtual channel link.

To avoid race conditions in certain error scenarios, it is suggested that implementors avoid immediate reuse of the call reference values after they are released.

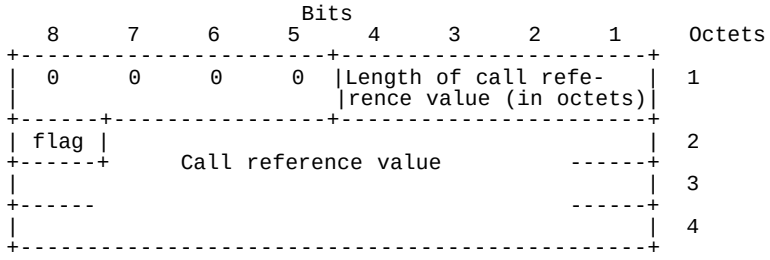
The call reference flag can take the values "0" or "1". The call reference flag is used to identify which end of the signalingsignalling virtual channel originated a call reference. The originating side always sets the call reference flag to "0". The destination side always sets the call reference flag to a "1".

Hence the call reference flag identifies who allocated the call reference value and the only purpose of the call reference flag is to resolve simultaneous attempts to allocate the same call reference value. The call reference flag also applies to functions which use the global call reference (e.g. restart procedures).

The numerical value of the global call reference is zero. The equipment receiving a message containing the global call reference shouldshall interpret the message as pertaining to all call references associated with the appropriate signalingsignalling virtual channel; see figure 4-/Q.2931.

For the global call reference, the flag is used as specified above. This means that in a RESTART message, it is set to 0; in case of a RESTART ACK or STATUS message with the global call reference sent in response to a RESTART message, it is set to 1.

The dummy call reference is coded with all bits of the call reference value set to 1; see figure 4-/Q.2931. The dummy call reference ismay be used for the control of semipermanent connections (see Annex G) certain supplementary services. For the dummy call reference, the flag is also used as specified above.



Call reference flag (octet 2)

Bit
8

0 the message is sent from the side that originatesd the call reference.
1 the message is sent to the side that originatesd the call reference.

FIGURE 4-/Q.2931
Call reference information element

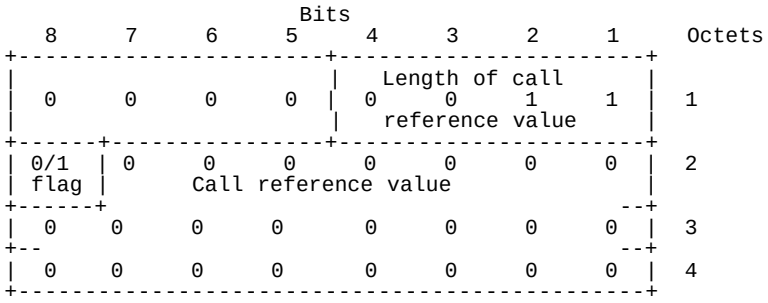


FIGURE 4-/Q.2931
Encoding for global call reference

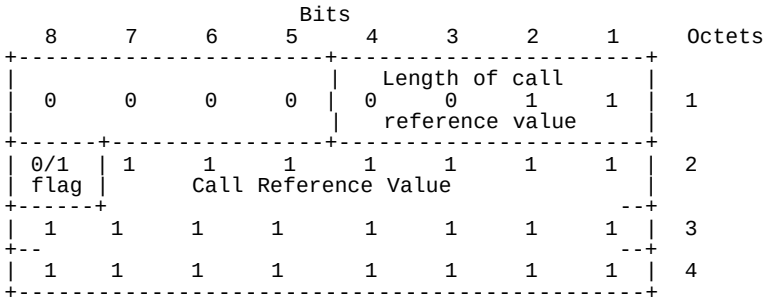


Figure 4-/Q.2931
Encoding of the Dummy Call Reference (Note)

4.4 Message type, and message length

4.4.1 Message type (including message compatibility instruction indicator)

The purpose of the message type is to identify the function of the message being sent.

The message type is the third part of every message. The message type is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

The value "0000 0000" is used for escape to national specific messages (see Table 4-/Q.2931.

The value "1111 1111" is reserved for an extension mechanism when all other message type values are exhausted (see Table 4-/Q.2931.

The message compatibility instruction indicator allows the sender of a message to indicate explicitly the way the receiver shouldshall handle unrecognized messages. The format and coding of the message compatibility instruction indicator is shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

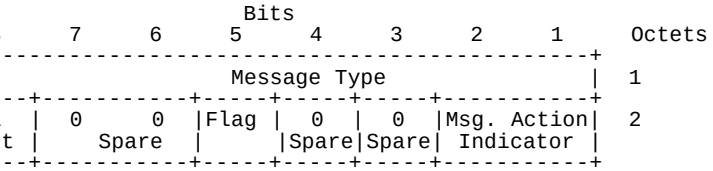


FIGURE 4-/Q.2931
Message type

TABLE 4-/Q.2931 (part 1 of 2)
Message types (including message compatibility instruction indicator)

Bits 8 7 6 5 4 3 2 1	- Message type (octet 1)
0 0 0 0 0 0 0 0	escape to nationally specific message type; see Note 1.
0 0 0 - - - - -	Call establishment message:
0 0 0 0 1	- ALERTING
0 0 0 1 0	- CALL PROCEEDING
0 0 1 1 1	- CONNECT
0 1 1 1 1	- CONNECT ACKNOWLEDGE
0 0 0 1 1	- PROGRESS
0 0 1 0 1	- SETUP
0 1 1 0 1	- SETUP ACKNOWLEDGE
0 1 0 - - - - -	Call clearing messages:
0 1 1 0 1	- RELEASE
1 1 0 1 0	- RELEASE COMPLETE
0 0 1 1 0	- RESTART
0 1 1 1 0	- RESTART ACKNOWLEDGE
0 1 1 - - - - -	Miscellaneous messages:
1 1 0 1 1	- INFORMATION
0 1 1 1 0	- NOTIFY
1 1 1 0 1	- STATUS
1 0 1 0 1	- STATUS ENQUIRY
0 1 1 1 - - - -	Messages used for the status monitoring of SPCs:
1 1 1 0	- SPC STATUS REPORT
1 1 1 1	- SPC UPDATE STATUS ACK
0 1 1 0	- SPC STATUS ENQUIRY
0 1 1 1	- SPC UPDATE STATUS
1 1 1 1 1 1 1 1	reserved for extension mechanism when all other message type values are exhausted; see Note 2.

Note 1:
When used, the message type (excluding the message compatibility instruction indicator) is defined in the following octet(s) 10 of the message, and the contents follows in the subsequent octets, both according to the national specification.

Note 2:
In this case, the message type (excluding the message compatibility instruction indicator) is defined in octet 10 of the message, and the contents follows in the subsequent octets.

TABLE 4-/Q.2931 (part 2 of 2)

- Flag (octet 2)
  Bits
  5

  0 Message instruction field not significant (=regular error handling procedures apply)
  1 Follow explicit instructions (these supersede the regular error handling procedures)

- Message action indicator (octet 2)
  Bits
  2 1

  0 0 Clear call
  0 1 Discard and ignore (Note)
  1 0 Discard and report status
  1 1 Reserved

Note: For the meaning of "ignore", see Annex J.

4.4.2 Message length

The purpose of the message length is to identify the length of the contents of a message. It is the binary coding of the number of octets of the message contents, i.e., excluding the octets used for 'protocol discriminator', 'call reference', 'message type', and for the message length indication itself.

The message length indication has a fixed length of 2 octets. The coding of the message length follows the coding rules for integer values outlined in subclause 4.5.1.

The message length is the fourth part of every message. The message length is coded as shown in Figure 4-/Q.2931. If the message contains no further octets, the message length is coded as all zeroes.

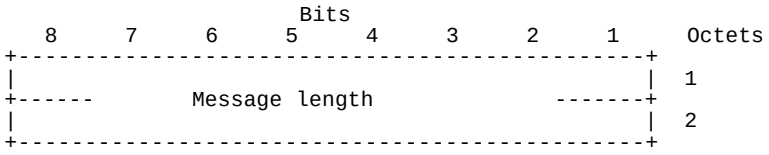


FIGURE 4-/Q.2931
Message Length

4.5 Variable length information elements for B-ISDN environment

4.5. Coding rules

The coding of variable length information elements follows the coding rules described below. These rules are formulated to allow each equipment which processes a message to find information elements important to it, and yet remain ignorant of information elements not important to that equipment.

For the information elements listed below, the coding of the information element identifier bits is summarized in Table 4-/Q.2931 and Figure 4-/Q.2931.

The value "1111 1111" for the information element identifier is reserved for an extension mechanism, when all other information element identifier values are exhausted (see Figure 4-/Q.2931). This mechanism allows to identify 65,536 additional information elements.

The specific variable length information elements within a message may appear in any order except for the following cases:

a) If information elements are repeated without using the Broadband repeat indicator information element, the following rule applies:
   - The second occurrence of a repeated information element must immediately follow the first occurrence of the repeated information element. The third occurrence of the repeated information element must immediately follow the second occurrence of the repeated information element. Etc.

   This rule does not apply to the Broadband locking shift information element and the Broadband non-locking shift information element.

b) When information elements are repeated and the Broadband repeat indicator information element is used, the following rules apply:
   - The Broadband repeat indicator must immediately precede the first occurrence of the repeated information element.
   - The first occurrence of the repeated information element (immediately following the Broadband repeat indicator) is interpreted as the highest priority. The second, third, fourth, etc., occurrences of the repeated information element are interpreted in descending order of priority
   - The second occurrence of the repeated information element must immediately follow the first occurrence of the repeated information element. The third occurrence of the repeated information element must immediately follow the second occurrence of the repeated information element. Etc.

   With regard to these rules, a Broadband non-locking shift information element with the succeeding information element are regarded together as one "occurrence" in the sense of the text above.

   The use of the Broadband repeat indicator information element in conjunction with an information element that occurs only once in a message shall not in itself constitute an error, i.e. the Broadband repeat indicator information element shall then be ignored.

c) If a Broadband locking-shift information element is used, it applies only to all information elements following. The ordering of these information elements is as specified by the new codeset indicated in the Broadband locking shift.

d) If a Broadband non-locking shift information element is used, it shall immediately precede the information element it refers to.

   Annex L/Q.2931 shows an example message structuring following these rules.

Where the description of information elements in this Recommendation contains spare bits, these bits are indicated as being set to "0". On reception, no action is taken on spare bits, even if they are not set to "0".

The second octet of the information element identifier contains the information element compatibility instruction indicator. The coding of the information element compatibility instruction indicator is shown in Table 4-/Q.2931.

The third and fourth octet of an information element indicates the length of that information element. The length of an information element does not include the length of the Information Element Identifier field, the information element compatibility instruction indicator field or the length of the length field itself. It is the binary coding of the number of octets of the contents. The information element length indication has a fixed length of 2 octets. The coding of the information element length follows the coding rules for integer values outlined in subclause 4.5.1.

An information element may be present, but empty. For example, a SETUP message may contain a called party number information element, the contents of which is of zero length. This should be interpreted by the receiver as equivalent to that information element being absent. Similarly, an absent information element should be interpreted by the receiver as equivalent to that information element being empty.

An "Empty IE" is an IE satisfying the following conditions: Has a (valid) Information Element Identifier, and has IE length set to 0.

The following rules apply for the coding of information elements

a) Variable length information elements consist of octets or groups of octets. These octets or octet groups are numbered to facilitate referencing. The first digit in the octet number identifies one octet or a group of octets.

b) Each octet group is a self contained entity. The internal structure of an octet group may be defined in alternative ways.

c) An octet group is formed by using some extension mechanism. The preferred extension mechanism is to extend an octet (N) through the next octet(s) (Na, Nb, etc.) by using bit 8 in each octet as an extension bit. The bit value "0" indicates that the octet continues through the next octet. The bit value "1" indicates that this octet is the last octet. If one octet (Nb) is present, also the preceding octets (N and Na) must be present.

   In the format descriptions appearing in 4.5.5, etc., bit 8 is marked as:
   -"0/1 ext", if another octet of this octet group may follow.
   -"1 ext", if this is the last octet in the extension domain.
   -"0 ext", if another octet of this octet group always follows.

Additional octets may be defined later ("1 ext" changed to "0/1 ext") and equipments shall be prepared to receive such additional octets although the equipment need not be able to interpret or act upon the content of these octets.

d) In addition to the extension mechanism defined above, an octet (N) may be extended through the next octet(s) (N.1, N.2, etc.) by indications in bits 8-1 (of octet N).

e) The mechanisms in c) and d) may be combined. Mechanism c) shall take priority in the ordering, such that all octets Na, Nb etc. shall occur before octets N.1, N.2 etc. This rule shall apply even where the extension to octets N.1, N.2 etc. is indicated in one of octet Na, Nb, etc.; similar conventions apply even when mechanism d) is being repeated, i.e., octets N.1, N.2 etc. shall occur before octets N.1.1, N.1.2 etc.

f) Optional octets are marked with asterisks (*).

g) If information elements are structured using subfield identifiers, these subfield identifiers are position independent, i.e. they need not appear in a certain order within the information element.

Note 1. It is not possible to use mechanism c) repeatedly, i.e. it is not possible to construct an octet 4aa as this would become octet 4b.

Note 2. Protocol designers should exercise care in using multiple extension mechanisms to insure that a unique interpretation of the resultant coding is possible.

Note 3. For all information elements there is a field that defines the coding standard. When the coding standard defines a national standard it is recommended that the national standard be structured similar to the information element defined in this Recommendation.

The following rules apply for the coding of integers in Q.2931. These rules apply if not indicated otherwise explicitly.

a) Where integer values are coded using more than 1 octet, octets with lower octet numbers contain the more significant bits. In particular, the octet with the lowest octet number contains the most significant bits, and the octet with the highest octet number contains the least significant bits.

b) Within one octet or within a field forming part of an octet, the following applies:
- the bits with higher bit numbers contain the more significant bits;
- in particular, the bit with the highest bit number of the integer coding denotes the most significant bit,
- and the bit with the lowest bit number of the integer coding denotes the least significant bit;
- the bit representation is "right-aligned", i.e. aligned to the lowest bit numbers; therefore, if leading "zeroes" are present, they have to

appear on the "left-hand" side of the octet or field (i.e. on the side of the higher bit numbers).

c) Where integer values are represented by a fixed number of octets, the bit representation is aligned to the higher octet numbers, i.e. if leading "zeroes" are present, they appear within the octets with the lowest octet numbers.

d) Where integer values are represented by a variable number of octets (e.g. by using bit 8 as an extension mechanism), the integer value shall be coded with a minimum number of octets, i.e., no leading all-zero octets are present.

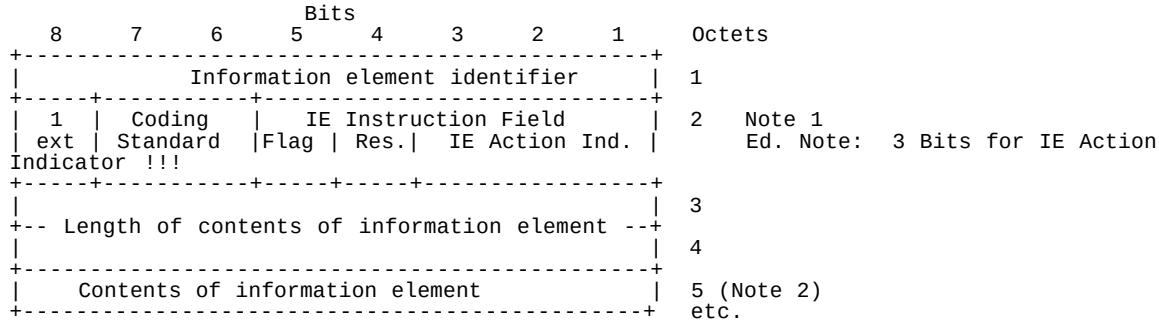


FIGURE 4-/Q.2931
General Information element format

Note 1: - The IE instruction field (Bits 5-1 of octet 2) is only interpreted in case of unexpected information elements, unrecognized information element identifier or information elements with unrecognized information element contents. For some information elements of Q.2931, the allocation of values to the IE instruction field may be restricted to a limited number of value combinations (see description of individual information elements below).

Note 2: Annex L shows an example structure for an information element using subfield identifiers.

TABLE 4-/Q.2931 (part 1 of 2)
General Information Element Format - New Information element identifiers
(other identifiers, see Rec. Q.931).

Bits 8	7	6	5	4	3	2	1	
0	1	1	0	0	0	0	0	Broadband-Llocking Sshift
0	1	1	0	0	0	0	1	Broadband-Nnon-Llocking Sshift
0	1	1	0	0	0	1	0	Broadband-Ssending Ccomplete
0	1	1	0	0	0	1	1	Broadband-Rrepeat indicator
0	1	0	1	1	0	0	0	ATM Aadaptation Llayer Pparameter
0	1	0	1	1	0	0	1	ATM Ttraffic Ddescriptor
0	1	0	1	1	0	1	0	Connection Iidentifier
0	1	0	1	1	0	1	1	OAM Ttraffic Ddescriptor
0	1	0	1	1	1	0	0	Quality of Sservice Pparameter
0	1	0	1	1	1	1	0	Broadband Bbearer Ccapability
0	1	0	1	1	1	1	1	Broadband Llow Llayer Iinformation (B-LLI)
0	1	0	1	1	1	0	1	Broadband Hhigh Llayer Iinformation (B-HLI)
0	0	1	0	0	1	1	1	Notification Iindicator
0	1	1	0	0	1	0	0	Transaction Number
0	1	1	0	0	1	0	1	SPC Status
0	1	1	0	0	1	1	0	SPC Report Type

Table 4-/Q.2931 (part 2 of 2)
General Information Element Format - Compatibility instruction indicator octet

- Coding Standard (octet 2)

Bits 7 6	
0 0	ITU-T standardized coding as described below
0 1	ISO/IEC standard (Note)
1 0	National standard (Note)
1 1	Standard defined for the network (either public or private) present on the network side of the interface (Note)

Note: These other coding standards should be used only when the information element contents cannot be represented with the ITU-T standardized coding.

- Flag (octet 2)

Bit 5	
0	IE instruction field not significant (=regular error handling procedures apply)
1	Follow explicite instructions (these supersede the regular error handling procedures)

- Reserved (octet 2)

Bit 4	
	This bit is reserved for a possible use to indicate a "pass along request". It is currently coded as "0 "(= no "pass along request" indicated)

- IE Action Indicator (octet 2)

Bits 3 2 1	
0 0 0	Clear call
0 0 1	Discard information element and proceed
0 1 0	Discard information element, proceed, and report status
1 0 1	Discard message, and ignore (Note)
1 1 0	Discard message, and report status

all other values are reserved

Note: For the meaning of "ignore", see Annex J.

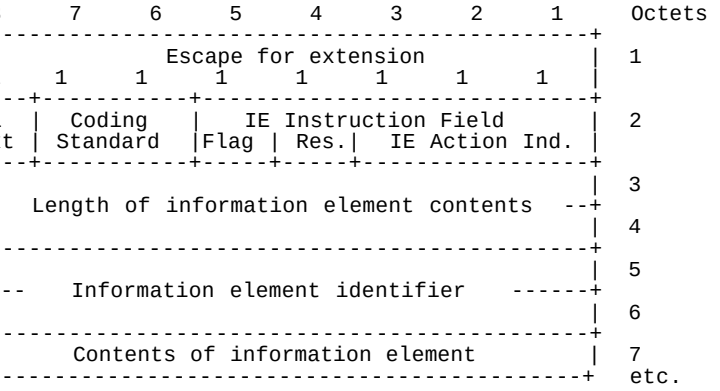


FIGURE 4-/Q.2931.
Information element format using escape for extension

Note: The escape mechanism is applicable to codesets 0 to 7 (see 4.5.). When the escape for extension is used, the information element identifier is contained in octets 5 and 6, and the contents of the information element follows in the subsequent octets as shown in Figure 4-/Q.2931.

4.5. Extensions of codesets

There is a number 128of possible information element identifier values using the formatting rules described in 4.5..

It is possible to expand this structure to eight codesets of at least 125 information element identifier values each. One common value of an information element identifier is employed in each codeset to facilitate shifting from one codeset to another. The contents of this Shift information element identifies the codeset to be used for the next information element or elements. The codeset in use at any given time is referred to as the "active codeset". By convention, codeset 0 is the initially active codeset.

Two codeset shifting procedures are supported: locking shift and non-locking shift.

Codesets 1 to 3 are reserved for future ITU-use.

Codeset 4 is reserved for use by ISO/IEC standards.

Codeset 5 is reserved for information elements for national use.

Codeset 6 is reserved for information elements specific to the local network (either public or private).

Codeset 7 is reserved for user-specific information elements.

The coding rules specified in 4.5. shall apply for information elements belonging to any active codeset.

Transitions from one active codeset to another (i.e., by means of the locking shift procedure) may only be made to a codeset with a higher numerical value than the codeset being left.

An information element belonging to codesets 4, 5, 6, or 7, may appear together with information elements belonging to codeset 0 (being the active codeset) by using the non-locking shift procedure (see 4.5.).

A user ofr network equipment shall have the capability to recognize a Shift information element and to determine the length of the following information element, although the equipment need not be able to interpret and act upon the contents of the information element. This enables the equipment to determine the start of a subsequent information element.

Codeset 7 information element shall be handled according to the procedures for unrecognized information elements (see 5.6.8.1) by the first exchange in the

local network, unless allowed by a future service definition, bilateral agreement, or provision is made to support this across the local network for a specific user.

Codeset 6 is reserved for information elements specific to the local network (either public or private). As such they do not have significance across the boundaries between local networks, or across a national, or international boundary. Therefore, codeset 6 information elements shall be handled according to the procedures for unrecognized information elements (see 5.6.8.1) beyond local network boundary, unless allowed by bilateral agreement.

Codeset 5 is reserved for information elements reserved for national use. As such they do not have significance across an international boundary. Therefore, codeset 5 information elements shall be handled according to the procedures for unrecognized information elements (see 5.6.8.1) at the first exchange beyond the international boundary, unless there are bilateral agreements to the contrary.

Codeset 4 is reserved for information elements specified in ISO/IEC standards.

Codesets 1 to 3 are reserved for future ITU-use.

4.5. Broadband-locking shift procedure

The Broadband-locking shift procedure employs an information element to indicate the new active codeset. The specified codeset remains active until another Broadband-locking shift information element is encountered which specifies the use of another codeset. For example, codeset 0 is active at the start of message contents analysis. If a Broadband-locking shift to codeset 5 is encountered, the next information elements will be interpreted according to the information element identifiers assigned in codeset 5, until another shift information element is encountered.

This procedure is used only to shift to a higher order codeset than the one being left.

The Broadband-locking shift is valid only within that message which contains the Broadband-locking Shift information element. At the start of every message contents analysis, the active codeset is codeset 0.

The Broadband-locking Sshift information element uses the information element format and coding shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

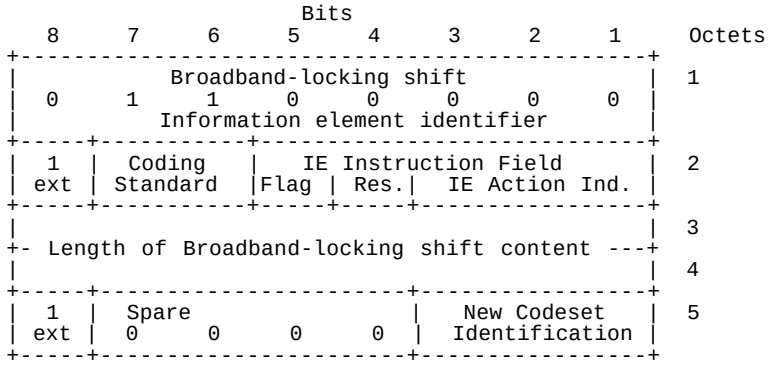


FIGURE 4-/Q.2931
BBroadband-Llocking Sshift information element

TABLE 4-/Q.2931
BBroadband-Llocking Sshift information element

- New Codeset identification (octet 5):

Bits 3 2 1	
0 0 0	not applicable
0 0 1) to 0 1 1)	} reserved
1 0 0	codeset 4: information elements for ISO/IEC use
1 0 1	codeset 5: information elements for national use
1 1 0	codeset 6: information elements specific to the local network (either public or private)
1 1 1	codeset 7: user-specific information elements

4.5. Broadband-Nnon-locking shift procedure

The Broadband-non-locking shift procedure provides a temporary shift to the specified lower or higher codeset. The B-ISDN-non-locking shift procedure uses a Broadband-non-locking shift information element to indicate the codeset to be used to interpret the next single information element. After the interpretation of the next single information element, the active codeset is again used for interpreting any following information elements. For example, codeset 0 is active at the beginning of message contents analysis. If a Broadband-non-locking shift to codeset 6 is encountered, only the next information element is interpreted according to the information element identifiers assigned in codeset 6. After this information element is interpreted, codeset 0 will again be used to interpret the following information elements. A Broadband-non-locking Sshift information element indicating the current codeset shall not be regarded as an error.

A Broadband-locking Sshift information element shall not follow directly on a Broadband-non-locking Sshift information element. If this combination is received, it shall be interpreted as though a Broadband-locking Sshift information element only had been received.

The Broadband-non-locking Sshift information element uses the information element format and coding shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

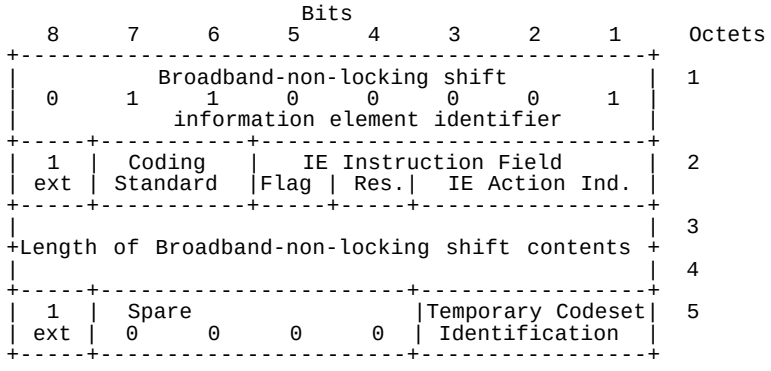


FIGURE 4-/Q.2931
BB-Nnon-locking Sshift information element

TABLE 4-/Q.2931
BB-Nnon-locking Sshift information element

- Temporary codeset identification (octet 5):

Bits 3 2 1	
0 0 0	codeset 0 (initially active): Q.2931 information elements
0 0 1) to 0 1 1)	} reserved
1 0 0	codeset 4: information elements for ISO/IEC use
1 0 1	codeset 5: information elements for national use
1 1 0	codeset 6: information elements specific to the local network (either public or private)
1 1 1	codeset 7: user-specific information elements

4.5. ATM Aadaptation Llayer parameters

The purpose of the ATM Aadaptation layer (AAL) parameters information element is to indicate the requested ATM Aadaptation layer parameter values (end-to-end significance) for the ATM Aadaptation layer elements of procedures to be used for the call. It contains the parameters selectable by the user for all AAL sublayers.

The contents of this information element is transparent for the network, except for the case of interworking.

The maximum length of this information element is 21 octets.

The AAL parameters information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

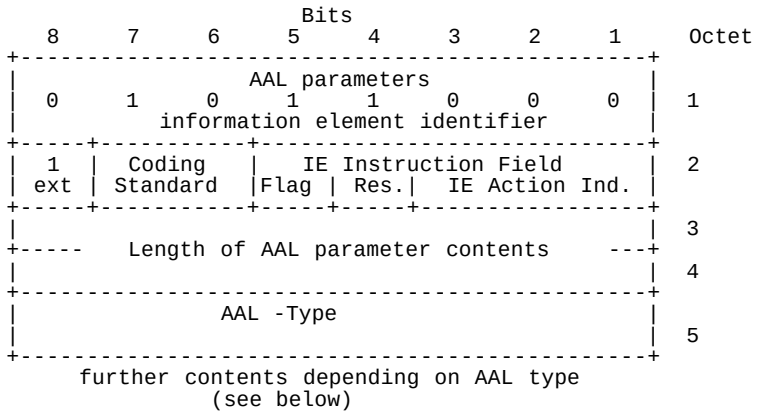


Figure 4-/Q.2931 (part 1 of 5: Octets 1-5)
AAL parameters information element

(further contents for AAL type 1:)

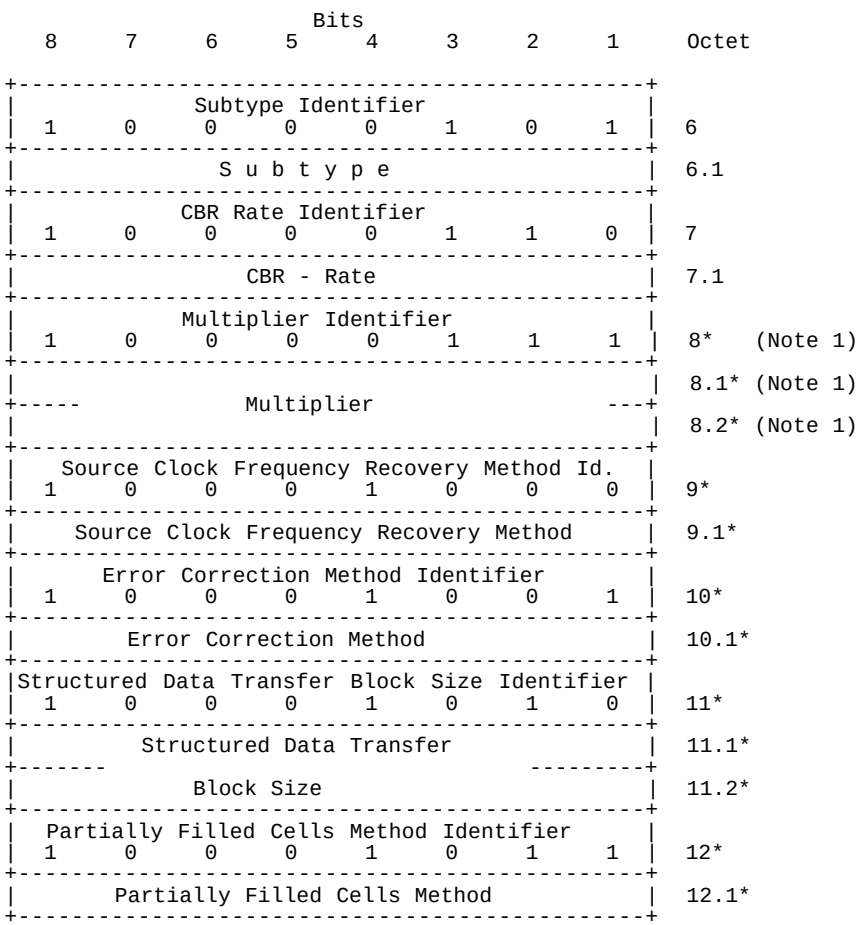


Figure 4-/Q.2931 (part 2 of 5: further octets for AAL type 1)
AAL parameters information element

Note 1: These octets are only present if octet 7.1 indicates "n x 64 kbit/s or n x 8 kbit/s"

(further contents for AAL type 3/4)

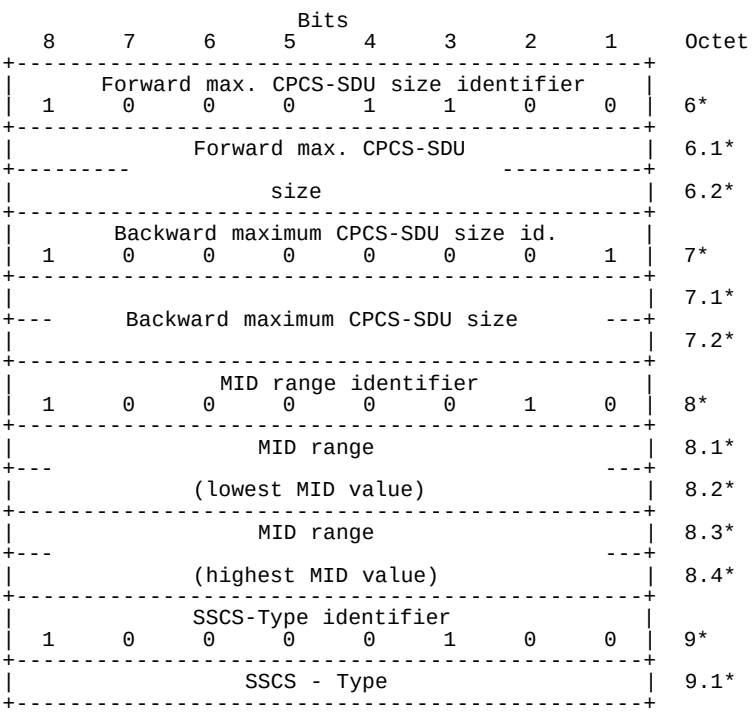


Figure 4-/Q.2931 (part 3 of 5: further octets for AAL type 3/4)
AAL parameters information element

Note: The indication of values for octet groups 6-8 for the use in the CONNECT message is specified in Annex F.

(further contents for AAL type 5)

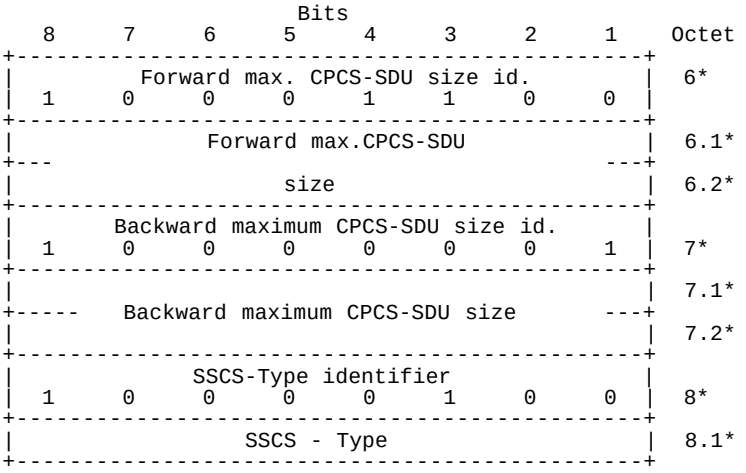


Figure 4-/Q.2931 (part 4 of 5: further octets for AAL type 5)
AAL parameters information element

Note: the indication of values for octet groups 6-7 for the use in the CONNECT message is specified in Annex F.

(further contents for User-defined AAL)

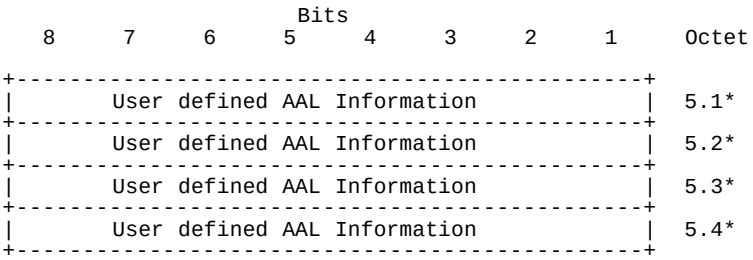


Figure 4-/Q.2931 (part 5 of 5: further octets for user-defined AAL)
AAL parameters information element

Table 4-/Q.2931 (Sheet 1 of 3)
AAL parameters information element

- AAL type (octet 5)

Bits
8 7 6 5 4 3 2 1

0 0 0 0 0 0 0 1 AAL type 1
0 0 0 0 0 0 1 0 AAL type 2 (Note)
0 0 0 0 0 0 1 1 AAL type 3 / 4
0 0 0 0 0 1 0 1 AAL type 5
0 0 0 1 0 0 0 0 User defined AAL
all other values are reserved

Note: For AAL type 2, no further parameters are specified beyond the ones given in part 1 of 5 of Figure 4-/Q.2931.

- Subtype (octet 6.1 for AAL type 1)

Bits
8 7 6 5 4 3 2 1

0 0 0 0 0 0 0 0 Null
0 0 0 0 0 0 0 1 Voice-band signal transport based on 64 kbit/s (G.711 / G.722). (Note: ffs, cf. Rec. I.363)
0 0 0 0 0 0 1 0 Circuit Transport (see Rec.I.363, subclause 2.5.1.1)
0 0 0 0 0 1 0 0 High-quality audio signal transport (Note: ffs., cf. Rec. I.363)
0 0 0 0 0 1 0 1 Video signal transport (Note: ffs., cf. Rec. I.363)
all other values are reserved

- CBR rate (octet 7.1 for AAL type 1)

Bits
8 7 6 5 4 3 2 1

0 0 0 0 0 0 0 1 64 kbit/s
0 0 0 0 0 1 0 0 1544 kbit/s (DS 1)
0 0 0 0 0 1 0 1 6312 kbit/s (DS 2)
0 0 0 0 0 1 1 0 32064 kbit/s
0 0 0 0 0 1 1 1 44736 kbit/s (DS 3)
0 0 0 0 1 0 0 0 97728 kbit/s
0 0 0 1 0 0 0 0 2048 kbit/s (E 1)
0 0 0 1 0 0 0 1 8448 kbit/s (E 2)
0 0 0 1 0 0 1 0 34368 kbit/s (E 3)
0 0 0 1 0 0 1 1 139264 kbit/s
0 1 0 0 0 0 0 0 n x 64 kbit/s
0 1 0 0 0 0 0 1 n x 8 kbit/s
other values are reserved

- Multiplier (octets 8.1 and 8.2 for AAL type 1 and n x 64kbit/s or n x 8kbit/s indication in octet 7.1)

Integer representation of multiplier values between 2 and 2^{16}-1 for n x 64kbit/s;
Integer representation of multiplier values between 1 and 7 for n x 8 kbit/s.

Table 4-/Q.2931 (Sheet 2 of 3)
AAL parameters information element

- Source Clock Frequency Recovery Method (octet 9.1 for AAL type 1):

Bits
8 7 6 5 4 3 2 1

0 0 0 0 0 0 0 0 Null (Synchronous circuit transport)
0 0 0 0 0 0 0 1 Synchronous residual time stamp (SRTS) method (asynchronous circuit transport) (cf. Rec. I.363 subclause 2.5.2.2.1)
0 0 0 0 0 0 1 0 Adaptive Clock method (cf. Rec. I.363 subclause 2.5.2.2.1)
All other values are reserved

- Error Correction Method (octet 10.1 for AAL type 1):

Bits
8 7 6 5 4 3 2 1

0 0 0 0 0 0 0 0 Null (No error correction is provided)
0 0 0 0 0 0 0 1 A forward error correction method for loss sensitive signal transport (cf. Rec. I.363)
0 0 0 0 0 0 1 0 A forward error correction method for delay sensitive signal transport (Note: ffs., cf. Rec. I.363)
All other values are reserved

- Structured Data Transfer Block Size (octet 11.1 and 11.2 for AAL type 1):

16 Bit integer representation of values between 1 and 65,535, i.e. 2^{16}-1. This parameter represents the block size of SDT CBR service.

- Partially Filled Cells Method (octet 12.1 for AAL type 1)

Bits
8 7 6 5 4 3 2 1

0 0 0 0 0 0 0 1 - 0 0 1 0 1 1 1 1
Integer representation of the number of leading octets of SAR-PDU payload in use (values between 1 and 47).
(Note : ffs, cf. Rec. I.363)

Table 4-/Q.2931 (Sheet 3 of 3)
AAL parameters information element

- Forward maximum CPCS-SDU size (octets 6.1 and 6.2 for AAL type 3/4 and 5)

16 Bit integer representation of the values between 1 and 65,535,i.e. 2^{16} -1. This parameter refers to the forward direction (calling user to called user, see Annex J)

Backward maximum CPCS-SDU size (octets 7.1 and 7.2 for AAL type 3/4 and 5)

16 Bit integer representation of the values between 1 and 65,535, i.e. 2^{16} -1. This parameter refers to the backward direction (called user to calling user, see Annex J)

- MID range (octets 8.1, 8.2, 8.3 and 8.4 for AAL type 3/4)

Integer representation of the lowest MID value (octets 8.1 and 8.2) and of the highest MID value (octets 8.3 and 8.4) of the MID range, only values between 0 and 1023.

- SSCS Type (octet 9.1 for AAL type 3/4; octet 8.1 for AAL type 5):

Bits 8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0	Null
0 0 0 0 0 0 0 1	Data SSCS based on SSCOP (assured operation)
0 0 0 0 0 0 1 0	Data SSCS based on SSCOP (non-assured operation)
0 0 0 0 0 1 0 0	Frame Relay SSCS
all other values are reserved	

- User defined AAL information (octets 5.1 to 5.4 for user defined AAL):

Bits 8 7 6 5 4 3 2 1	
	user-specified

Note: In case of the absence of AAL parameter subfields, the following default values will apply:

```
Subtype:       no default (mandatory for AAL type 1)
CBR Rate:      no default (mandatory for AAL type 1)
Multiplier:    no default (mandatory for CBR Rate nx64 kbit/s and n x 8 kbit/s)
Clock Frequency Recovery:    default = Null
Error Correction:            default = Null
SDT Block Size               default = Null(=No SDT is used)
Partially Filled Cells:      default = 47 octets
Forward max. CPCS-SDU size:  default = 65,535 octets
Backward max. CPCS-SDU size: default = 65 ,535 octets
MID range :                  default = 0-0 (no Multiplexing via MID field)
SSCS-Type:                   default = Null
```

4.5. ATM Ttraffic Ddescriptor

The purpose of the ATM Ttraffic Ddescriptor is to specify the set of traffic parameters which, together, specify a traffic control capability.

In Release 1, the ATM peak cell rate (see Rec. I.371) values are indicated by the ATM Ttraffic Ddescriptor. If the OAM traffic descriptor information element (see subclause 4.5.) is not present within the same message, the ATM traffic descriptor information element includes only the user plane information rate. If the OAM traffic descriptor information element is present within the same message, tThe ATM peak cell rate values (indicated in the ATM traffic descriptor information element) specify the sum of both the user plane information rate and theall end-to-end user originated OAM F5 flow information rate.

If the OAM traffic descriptor information element is not present within the same messageuser intends to use end-to-end F5 OAM flow messages, the peak cell rate for the reverse direction of a unidirectional connection is indicated should not be indicated with the value "0".

The peak cell rate is described using subfield identifiers followed by a pure 3 octet integer representation of the cells per second.

The ATM traffic descriptor information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931. The maximum length of this information element is 20 octets.

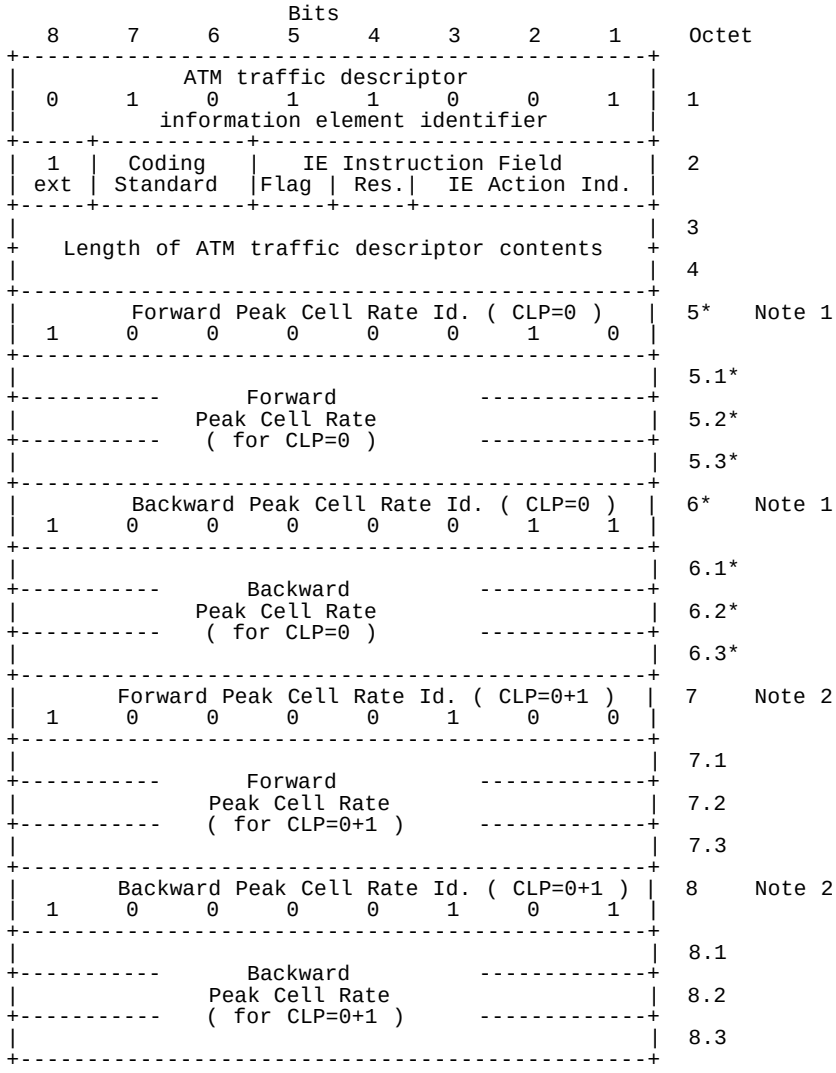


Figure 4-/Q.2931
ATM traffic descriptor information element

Note 1: If Peak Cell Rate for CLP = 0 is present, the network resource allocation shall assume that the difference between the indicated Peak Cell Rate for CLP = 0+1 and the Peak Cell Rate for CLP = 0 may be used for CLP = 1.

Note 2: If only Peak Cell Rate for CLP = 0+1 is specified, the network resource allocation shall assume that the entire peak cell rate can be used for CLP = 0.

Table 4-/Q.2931
ATM traffic descriptor information element

- Forward/backward peak cell rate (octets i.1 - i.3, where i may have the values 5 , 6, 7, or 8): A code expressing in pure 3 octet integer representation the number of cells per second, with Bit 8 of the first octet being the most significant bit, and Bit 1 of the third octet being the least significant bit. The "forward" direction is defined as that from the calling user to the called user. The "backward" direction is the reverse, i.e. from the called user to the calling user (see Annex J).

4.5. Broadband Bbearer Ccapability

The purpose of the Broadband Bbearer capability information element is to indicate a requested broadband connection oriented bearer service (see Rec. F.811) to be provided by the network. It contains only information that may be used by the network. The use of the Broadband Bbearer capability information element in relation to compatibility checking is described in Annex B.

No default Bbroadband bearer capability may be assumed by the absence of this information element.

The Broadband bearer capability information element will be examined by both the network and the customer equipment. The Broadband bearer capability information element should not duplicate B-LLI information unnecessarily.

The Broadband bearer capability information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931. The maximum length of this information element is 7 octets.

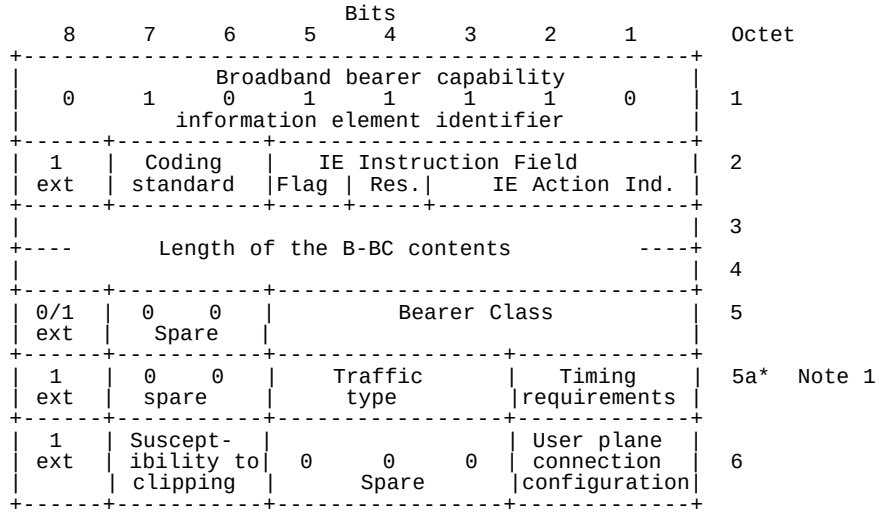


Figure 4-/Q.2931
Broadband Bbearer capability information element

Note 1: This octet may only be present if Bearer Class "X" is indicated in octet 5.

Table 4-/Q.2931
Broadband bearer capability information element

- Bearer Class (octet 5)
 Bits
 5 4 3 2 1
 0 0 0 0 1 BCOB-A
 0 0 0 1 1 BCOB -C (Note 1)
 1 0 0 0 0 BCOB-X
All other values are reserved.

- Traffic Type (octet 5a)
 Bits
 5 4 3
 0 0 0 No indication
 0 0 1 Constant Bit Rate
 0 1 0 Variable Bit Rate
All other values are reserved

- Timing Requirements (octet 5a)
 Bits
 2 1
 0 0 No indication
 0 1 End-to-End Timing Required
 1 0 End-to-End Timing Not Required
 1 1 reserved

- Susceptaibility to clipping (octet 6)
 Bits
 7 6
 0 0 not susceptible to clipping
 0 1 susceptible to clipping
 All other values are reserved

- User plane connection configuration (octet 6)
 Bits
 2 1
 0 0 point-to-point
 0 1 point-to-multipoint (Note 2)
All other values are reserved

Note 1: If Bearer Class BCOB-C is indicated, the network may allocate resources, as if Bearer Class BCOB-A was requested, and allocate resources on the basis of the peak cell rate only.

Note 2: It shouldshall be noted that procedures for point-to-multipoint connections are not provided in Release 1. However, the support of this codepoint may allow a user to participate via a point-to-point connection segment in a point-to-multipoint connection (e.g. when a user, implementing Release 1 procedures, receives a SETUP message with the user plane connection configuration coding set to "point-to-multipoint", it shouldshall treat it as if the coding were "point-to-point". This will allow the user to be a "leaf" of a point-to-multipoint connection).

4.5. Broadband Hhigh Llayer Iinformation (B-HLI)

The purpose of the Broadband high layer information IE is to provide a means which should be used for compatibility checking by an addressed entity (e.g., a remote user, or an interworking unit or a high layer function network node addressed by the calling user). The Broadband high layer information IE is transferred transparently by a B-ISDN between the call originating entity (e.g., the calling user) and the addressed entity.

The Broadband high layer information IE is coded as shown in Figure 4-/Q.2931 and in Table 4-/Q.2931. The maximum length of this information element is 13 octets.

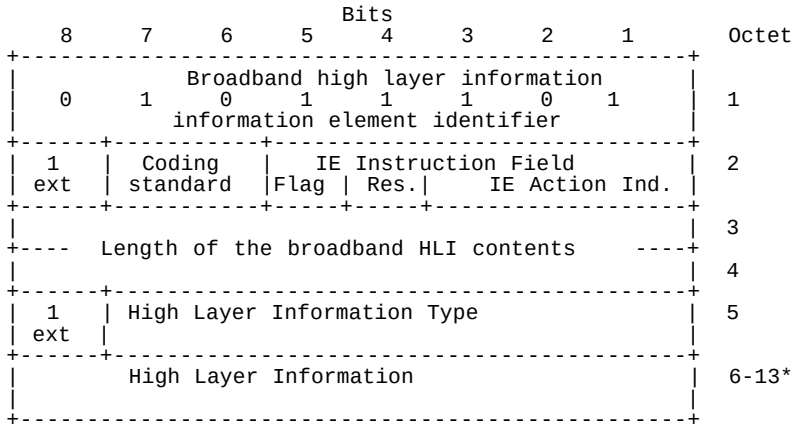


Figure 4-/Q.2931
Broadband Hhigh Llayer Iinformation

Table 4-/Q.2931:
Broadband Hhigh Llayer Iinformation

- High Layer Information Type (octet 5)

Bits 7 6 5 4 3 2 1	
0 0 0 0 0 0 0	ISO/IEC (Note 1)
0 0 0 0 0 0 1	User specific (Note 12)
0 0 0 0 0 1 0	High Layer profile (Note 2)
0 0 0 0 0 1 1	Vendor-Specific Application Identifier (Note 3)
0 0 0 0 1 0 0	Reference to ITU-T SG 1 B-ISDN teleservice recommendation (Note 4)
Other values reserved	

Note 1: The exact coding of octets 6-13, when this higher layer information type is used, is for further study.This codepoint is reserved for use as specified in ISO/IEC standards.

Note 2: High Layer profiles consist of a 4 byte field containing a user to user profile identifier.The exact coding of octets 6-13, when this higher layer information type is used, is user-defined. The use of this codepoint requires bilateral agreement between the two end users.

Note 3: Vendor-specific application identifier consists of a 7-octet field; the leftmost three octets consist of a globally-administered Organizationally Unique Identifier (OUI) (as per IEEE standard 802-1990ISO/IEC 8802-1), the rightmost four octets are an application identifier, which is administered by the vendor identified by the OUI.

Note 4: Codepoints for these recommendations will be indicated in octet 6. The specific codepoints will be added at the time when SG 1 has completed the corresponding recommendations.

- High Layer Information (octets 6-13)

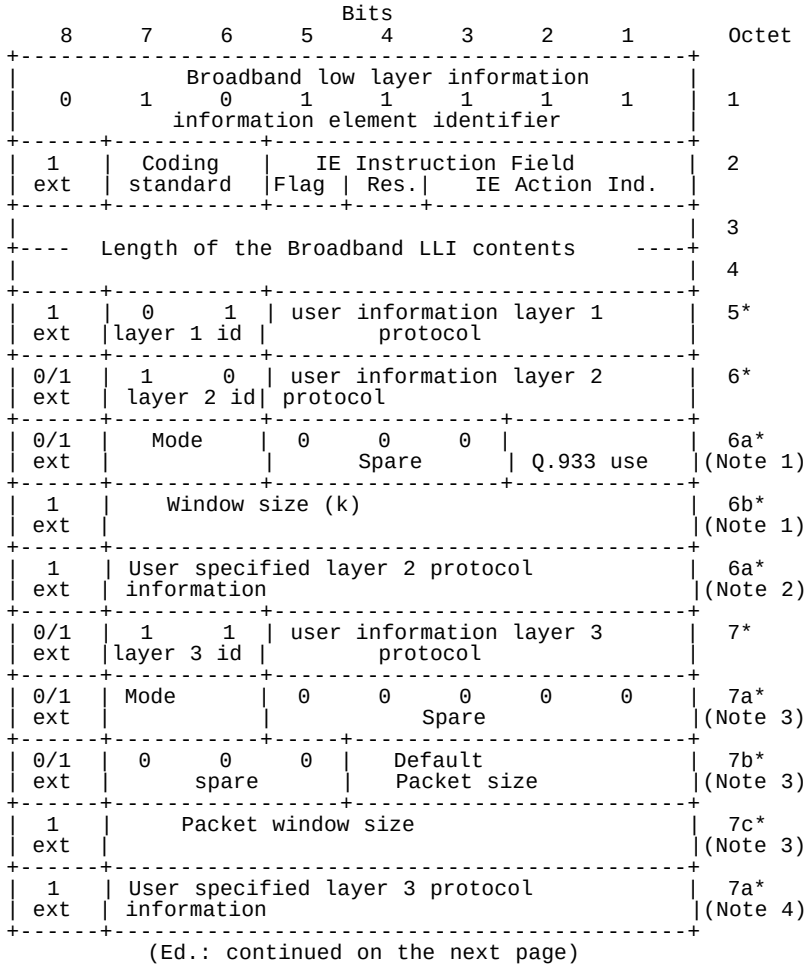
The contents of these octets depends on the High Layer Information Type

4.5. Broadband Llow Llayer Iinformation (B-LLI)

The purpose of the Broadband low layer information IE is to provide a means which should be used for compatibility checking by an addressed entity (e.g., a remote user or an interworking unit or a high layer function network node addressed by the calling user). The Broadband Llow layer information IE is transferred transparently by a B-ISDN between the call originating entity (e.g., the calling user) and the addressed entity.

For Broadband low layer information negotiation (see Annex C), the Broadband low layer information IE is also passed transparently from the addressed entity to the originating entity.

The Broadband low layer information IE is coded as shown in Figure 4-/Q.2931 and in Table 4-/Q.2931. The maximum length of this information element is 17 octets.



(Ed.: continued on the next page)

Figure 4-/Q.2931 (part 1 of 2)
Broadband Llow Llayer Iinformation

(Ed.: continued from previous page)

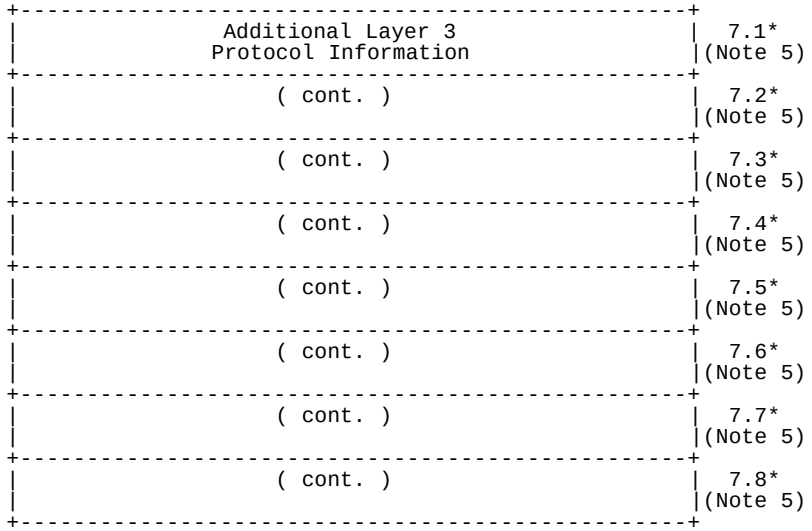


Figure 4-/Q.2931 (part 2 of 2)
Broadband Llow Llayer Iinformation

Note 1 - This octet may be present only if octet 6 indicates certain acknowledged mode HDLC elements of procedure as indicated in Table 4-150/Q.2931

Note 2 - This octet may be present only if octet 6 indicates user specified layer 2 protocol.

Note 3 - This octet may be present only if octet 7 indicates a layer 3 protocol based on Recommendation X.25, ISO/IEC 8208 or X.223/ISO/IEC 8878 as indicated in Table 4-150/Q.2931.

Note 4 - This octet may be present only if octet 7 indicates user specified layer 3 protocol.

Note 5 - These octets may be present only if octet 7 indicates ISO/IEC TR 9577

TABLE 4-/Q.2931 (Sheet 1 of 4)
Broadband Llow layer information element

User information layer 1 protocol (octet 5)
All values are reserved.

TABLE 4-/Q.2931 (Sheet 2 of 4)
Broadband Llow layer information element

- User information layer 2 protocol (octet 6)

Bits 5 4 3 2 1	
0 0 0 0 1	Basic mode ISO 1745
0 0 0 1 0	ITU-T Recommendation Q.921 (I.441)
0 0 1 1 0	ITU-T Recommendation X.25, link layer (Notes 1,4)
0 0 1 1 1	ITU-T Recommendation X.25 Multilink (Note 4)
0 1 0 0 0	Extended LAPB; for half duplex operation (T.71)
0 1 0 0 1	HDLC ARM (ISO/IEC 4335) (Note 4)
0 1 0 1 0	HDLC NRM (ISO/IEC 4335) (Note 4)
0 1 0 1 1	HDLC ABM (ISO/IEC 4335) (Note 4)
0 1 1 0 0	LAN logical link control (ISO/IEC 8802/2)
0 1 1 0 1	ITU-T Recommentation X.75 . Single Link Procedure (SLP) (Note 4)
0 1 1 1 0	ITU-T Recommendation Q.922 (Note 4)
1 0 0 0 0	User specified (Note 2)
1 0 0 0 1	ISO/IEC 7776 DTE-DTE operation (Notes 3, 4)

All other values are reserved.

Note 1 - This Recommendation is compatible with ISO/IEC 7776 DTE-DCE operation.
Note 2 - When this coding is included, octet 6a will include user coding for the user specified layer 2 protocol.
Note 3 - This Standard is compatible with Recommendation X.75 modified by the application rules defined in Recommendation T.90.
Note 4 - When this coding is included, octets 6a and 6b with ITU-TS encoding may be included.

- Octet 6a for ITU-TS codings:

Mode of operation (octet 6a)

Bits 7 6	
0 1	normal mode of operation
1 0	extended mode of operation

All other values are reserved.

- Q.933 use (octet 6a)

Bits 2 1	
0 0	for use when the coding defined in Recommendation Q.933 is not used.

All other values are reserved.

- Octet 6a for user protocol:

User specified layer 2 protocol information (octet 6a).
The use and coding of octet 6a is according to user defined requirements.

TABLE 4-/Q.93B (Sheet 3 of 4)
Broadband Llow layer information element

- Window size (k) (octer 6b)

Bits 7-1	

Binary coding of k parameter value in the range from 1 to 127.

- User information layer 3 protocol (octet 7)

Bits 5 4 3 2 1	
0 0 1 1 0	ITU-T Recommendation X.25, packet layer (Note 2)
0 0 1 1 1	ISO/IEC 8208 (X.25 packet level protocol for data terminal equipment) (Note 2)
0 1 0 0 0	X.223 / ISO/IEC 8878 (use of ISO/IEC 8208 and ITU-T X.25 to provide the OSI-CONS) (Note 2)
0 1 0 0 1	X.223 / ISO/IEC 8473 (OSI connectionless mode protocol)
0 1 0 1 0	ITU-T Recommendation T.70 [32] minimum network layer
0 1 0 1 1	ISO/IEC TR 9577 (Note 3)
1 0 0 0 0	User specified (Note 1)

All other values are reserved.

Note 1 - When this coding is included, octet 7a will include user coding for the user specified layer 3 protocol.
Note 2 - When this coding is included, octets 7a, 7b and 7c with ITU-TS encoding may be included.
Note 3 - If extention octets (7.1 - 7.8) are included, they will identify the Layer 3 protocol identification according to ISO/IEC TR 9577 (e.g., see Annex C and D of ISO/IEC TR 9577); otherwise, the Network Layer Protocol Identificatiton (NLPID) carried on a connection, as defined in ISO/IEC TR 9577, is supported.

- Octet 7a for ITU-TS codings:

Mode of operation (octet 7a)

Bits 7 6	
0 1	normal packet sequence numbering
1 0	extended packet sequence numbering

All other values are reserved.

- Octet 7a for user protocol:

User specified layer 3 protocol information (octet 7a)

The use and coding of octet 7a depends on user defined requirements.

TABLE 4-/Q.2931 (Sheet 4 of 4)
Broadband Llow layer information element

- Default packet size (octet 7b)

Bits 4 3 2 1	
0 1 0 0	default packet size 16 octets
0 1 0 1	default packet size 32 octets
0 1 1 0	default packet size 64 octets
0 1 1 1	default packet size 128 octets
1 0 0 0	default packet size 256 octets
1 0 0 1	default packet size 512 octets
1 0 1 0	default packet size 1024 octets
1 0 1 1	default packet size 2048 octets
1 1 0 0	default packet size 4096 octets

All other values are reserved

- Packet window size (octet 7c)
Bits 7-1

Binary coding of packet window size value in the range from 1 to 127.

- Additional Layer 3 Protocol Information (octets 7.1-7.8) for ISO/IEC TR 9577:
as specified in ISO/IEC TR 9577

4.5. Call state

The purpose of the Call state information element is to describe the current status of a call/connection, (see 2.1) or of a call/connection with regard to interworking (see 2.2) or of a call/connection with regard to the global call reference (see 2.3).

The Call state information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

The maximum length of this information element is 5 octets when ITU-TS standard coding is used.

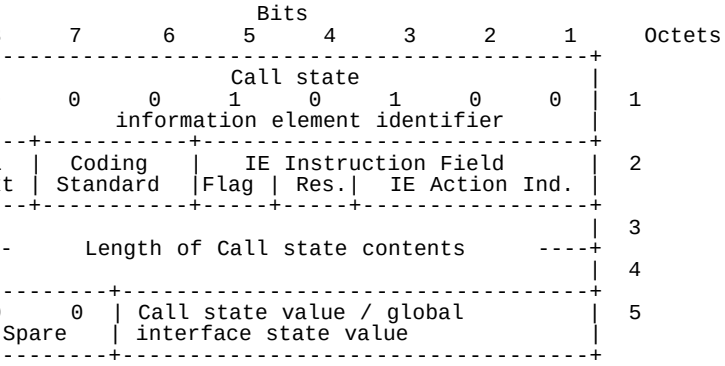


FIGURE 4-/Q.2931
Call state information element

Table 4-/Q.2931
Call Sstate information element

- Call state value (octet 5)

Bits 6 5 4 3 2 1	user state	network state
0 0 0 0 0 0	U0 - Null	N0 - Null
0 0 0 0 0 1	U1 - Call initiated	N1 - Call initiated
0 0 0 0 1 0	U2 - Overlap sending	N2 - Overlap sending
0 0 0 0 1 1	U3 - Outgoing call proceeding	N3 - Outgoing call proceeding
0 0 0 1 0 0	U4 - Call delivered	N4 - Call delivered
0 0 0 1 1 0	U6 - Call present	N6 - Call present
0 0 0 1 1 1	U7 - Call received	N7 - Call received
0 0 1 0 0 0	U8 - Connect request	N8 - Connect request
0 0 1 0 0 1	U9 - Incoming call proceeding	N9 - Incoming call proceeding
0 0 1 0 1 0	U10 - Active	N10 - Active
0 0 1 0 1 1	U11 - Release request	N11 - Release request
0 0 1 1 0 0	U12 - Release indication	N12 - Release indication
0 1 1 0 0 1	U25 - Overlap receiving	N25 - Overlap receiving

- Global interface state value (octet 5)

Bits 6 5 4 3 2 1	State
0 0 0 0 0 0	REST 0 - null
1 1 1 1 0 1	REST 1 - restart request
1 1 1 1 1 0	REST 2 - restart

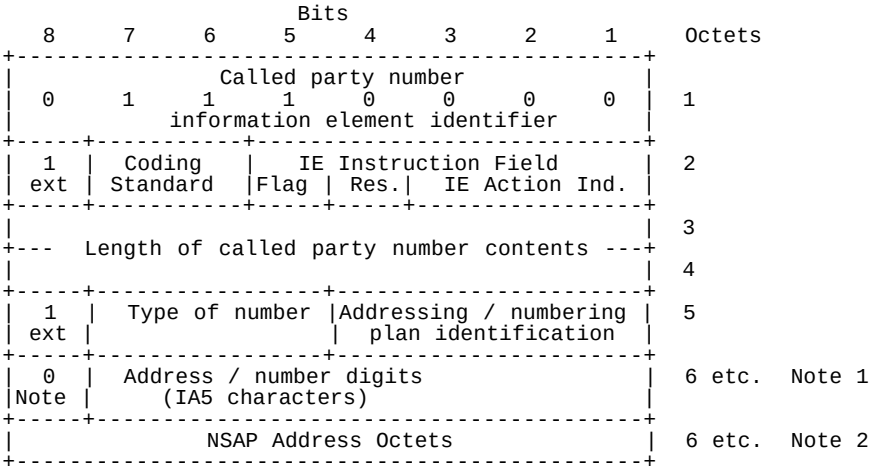
All other values are reserved.

4.5. Called party number

The purpose of the Called party number information element is to identify the called party of a call.

The Called party number information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

The maximum length of this information element is network dependent.



Note 1: The number digits appear in multiple octet 6's in the same order in which they would be entered, that is, the number digit which would be entered first is located in the first octet 6. Digits are coded in IA 5 characters. Bit 8 is set to 0.

Note 2: If the use of ISO NSAP addressing is indicated in the addressing / numbering plan identification, the address is coded as described in X.213 | ISO/IEC 8348/AD 2.

FIGURE 4-/Q.2931
Called party number information element

Table 4-/Q.2931
Called party number information element

- Type of number (octet 5): (Note 1)

Bits 7 6 5	
0 0 0	unknown (Note 2)
0 0 1	international number (Note 3)
0 1 0	national number (Note 3)
0 1 1	network specific number (Note 4)
1 0 0	subscriber number (Note 3)
1 1 0	abbreviated number (Note 5)
1 1 1	reserved for extension

All other values are reserved.

Note 1 - For the definition of international, national and subscriber number, see Recommendation I.330.

Note 2 - The type of number "unknown" is used when ISO NSAP addressing is indicated in the addressing / numbering plan identification or when the user or the network has no knowledge of the type of number, e.g., international number, national number, etc. In the latter case the number digits field is organized according to the network dialling plan; e.g., prefix or escape digits might be present.

Note 3 - Prefix or escape digits shall not be included.

Note 4 - The type of number "network specific number" is used to indicate administration/service number specific to the serving network, e.g., used to access an operator.

Note 5 - The support of this code is network dependent. The number provided in this information element presents a shorthand representation of the complete number in the specified numbering plan as supported by the network.

- Addressing / numbering plan identification (octet 5):

- Addressing / numbering plan (applies for type of number = 000, 001, 010 and 100)

Bits 4 3 2 1	
0 0 0 0	unknown (Note 1)
0 0 0 1	ISDN/telephony numbering plan (Recommendation E.164)
0 0 1 0	ISO NSAP addressing (Note 2)
1 0 0 1	private numbering plan
1 1 1 1	reserved for extension

All other values are reserved.

Note 1 - The numbering plan "unknown" is used when the user or the network has no knowledge of the numbering plan. In this case the number digits field is organized according to the network dialling plan; e.g., prefix or escape digits might be present.

Note 2 - The support of this codepoint is a network option. If this codepoint is used, the type of number shall be coded as "unknown".

- Address / number digits (octets 6, etc. for IA5-coding):
This field is coded with IA5 characters, according to the formats specified in the appropriate numbering/dialling plan.

-ISO NSAP Address Octets (octets 6, etc. for ISO NSAP Addressing)
If the use of ISO NSAP addressing is indicated in the addressing / numbering plan identification, the address is coded as described in ISO/IEC 8348/AD 2.

4.5. Called party subaddress

The purpose of the Called party subaddress information element is to identify the subaddress of the called party of a call. For the definition of subaddress see Recommendation I.330.

The Called party subaddress is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

The maximum length of this information element is 25 octets.

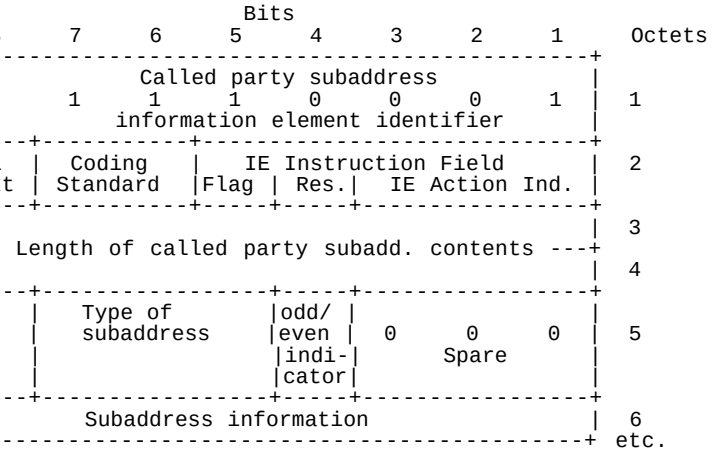


FIGURE 4-/Q.2931
Called party subaddress information element

Table 4-/Q.2931
Called party subaddress information element

- Type of subaddress (octet 5)

Bits
7 6 5

0 0 0 NSAP (X.213/ | ISO/IEC 8348 AD2)
0 1 0 User specified
All other values are reserved.

- Odd/even indicator (octet 5)

Bit
4

0 even number of address signals
1 odd number of address signals

Note.
The odd/even indicator is used when the type of subaddress is "user specified" and the coding is BCD.

- Subaddress information (octet 6, etc.)

The NSAP X.213 / ISO/IEC 8348 AD2 address, shall be formatted as specified by octet 6 which contains the Authority and Format Identifier (AFI). The encoding is made according to the "preferred binary encoding" as defined in X.213 / ISO/IEC 8348 AD2 except when used for terminal selection (see Note 2).
For the definition of this type of subaddress, see Recommendation I.334.

For user specified subaddress, this field is encoded according to the user specification, subject to a maximum length of 20 octets. When interworking with X.25 networks BCD coding should be applied.

Note 1. It is recommended that users apply the NSAP subaddress type since this subaddress type allows the use of decimal, binary and IA5 characters in a standardized manner.

Note 2. It is recommended that users apply the Local IDI format (the AFI field is coded 50 in BCD) when the subaddress is used for terminal selection at the S interface. In this case the IA5 character syntax using only digits 0 to 9 shall be used for the DSP. Each character is the coded in one octet according to recommendation T.50/ISO 646, with zero parity in the most significant position.

4.5. Calling party number

The purpose of the Calling party number information element is to identify the origin of a call.

The Calling party number information element is coded as shown in Figure 4-/Q.2931, and Table 4-/Q.2931. The maximum length of this information element is network dependent.

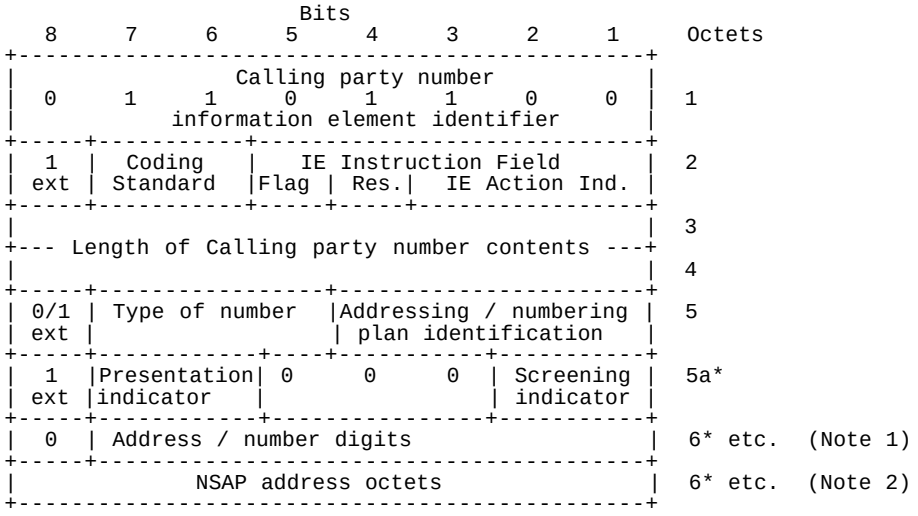


FIGURE 4-/Q.2931
Calling party number information element

Note 1: The number digits appear in multiple octet 6's in the same order in which they would be entered, that is, the number digit which would be entered first is located in the first octet 6. Digits are coded in IA 5 characters. Bit 8 is set to 0.

Note 2: If the use of ISO NSAP addressing is indicated in the addressing / numbering plan identification, the address is coded as described in X.213 |ISO/IEC 8348/AD 2.

TABLE 4-/Q.2931 (Sheet 1 of 2)
Calling party number information element

- Type of number (octet 5) (Note 1)

Bits 7 6 5	
0 0 0	unknown (Note 2)
0 0 1	international number (Note 3)
0 1 0	national number (Note 3)
0 1 1	network specific number (Note 4)
1 0 0	subscriber number (Note 3)
1 1 0	abbreviated number (Note 5)
1 1 1	reserved for extension

All other values are reserved.

Note 1 - For the definition of international, national and subscriber number, see Recommendation I.330.

Note 2 - The type of number "unknown" is used when ISO NSAP addressing is indicated in the addressing / numbering plan identification or when the user or the network has no knowledge of the type of number, e.g., international number, national number, etc. In the latter case the number digits field is organized according to the network dialling plan; e.g., prefix or escape digits might be present.

Note 3 - Prefix or escape digits shall not be included.

Note 4 - The type of number "network specific number" is used to indicate administration/service number specific to the serving network, e.g., used to access an operator.

Note 5 - The support of this code is network dependent. The number provided in this information element presents a shorthand representation of the complete number in the specified numbering plan as supported by the network.

- Addressing / numbering plan identification (octet 5)

- Adressing / numbering plan (applies for type of number = 000, 001, 010 and 100)

Bits 4 3 2 1	
0 0 0 0	unknown (Note 1)
0 0 0 1	ISDN/telephony numbering plan (Recommendation E.164)
0 0 1 0	ISO NSAP addressing (Note 2)
1 0 0 1	private numbering plan
1 1 1 1	reserved for extension

All other values are reserved.

Note 1 - The numbering plan "unknown" is used when the user or the network has no knowledge of the numbering plan. In this case the number digits field is organized according to the network dialling plan; e.g., prefix or escape digits might be present.

Note 2 - The support of this codepoint is a network option. If this codepoint is used, the type of number shall be coded as "unknown".

TABLE 4-/Q.2931 (Sheet 2 of 2)
Calling party number information element

- Presentation indicator (octet 5a)

Bits 7	6	
0	0	Presentation allowed
0	1	Presentation restricted
1	0	Number not available
1	1	Reserved

Note - At the originating user-network interface, the presentation indicator is used for indicating the intention of the calling user for the presentation of the calling party number to the called user. This may also be requested on a subscription basis. If octet 45a is omitted, and the network does not support subscription information for the calling party number information restrictions, the value "00 - presentation allowed" is assumed.

- Screening indicator (octet 5a)

Bits 2	1	
0	0	User-provided, not screened
0	1	User-provided, verified and passed
1	0	User-provided, verified and failed
1	1	Network provided

Note - If octet 5a is omitted, "00 - User provided not screened" is assumed.

- Address / number digits (octets 6, etc. for IA 5 coding)

This field is coded with IA5 characters, according to the formats specified in the appropriate numbering/dialling plan.

-ISO NSAP Address Octets (octets 6 , etc. for ISO NSAP Addressing)
If the use of ISO NSAP addressing is indicated in the addressing / numbering plan identification, the address is coded as described in Rec. X.213 / ISO 8348/AD 2 (for details, cf. also the description of subaddress information in Table 4-11/Q.2931).

4.5. Calling party subaddress

The purpose of the Calling party subaddress is to identify a subaddress associated with the origin of a call. For the definition of subaddress, see Recommendation I.330.

The Calling party subaddress information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

The maximum length of this information element is 25 octets.

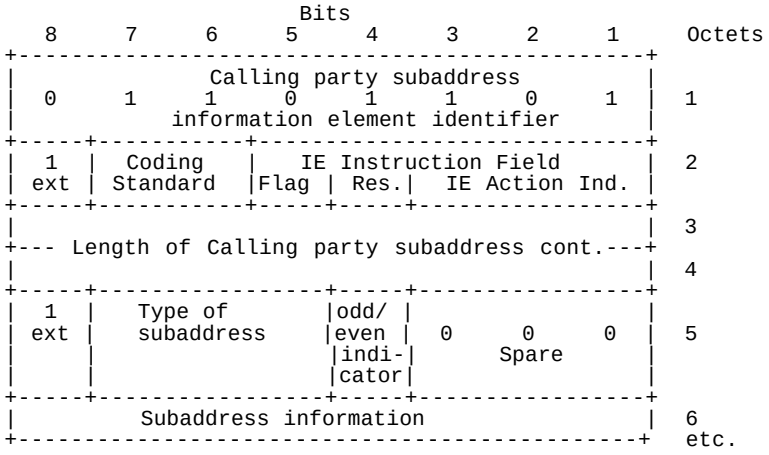


FIGURE 4-/Q.2931
Calling party subaddress information element

TABLE 4-/Q.2931
Calling party subaddress information element

- Type of subaddress (octet 5)
 Bits
 7 6 5

 0 0 0 NSAP (X.213 / ISO 8348 AD2)
 0 1 0 User specified
 All other values are reserved.

- Odd/even indicator (octet 5)
 Bit
 4

 0 even number of address signals
 1 odd number of address signals

 Note.
 The odd/even indicator is used when the type of subaddress is "user specified" and the coding is BCD.

- Subaddress information (octet 6, etc.)

 The NSAP X.213/ISO 8348 AD2 address, shall be formatted as specified by octet 6 which contains the Authority and Format Identifier (AFI). The encoding is made according to the "preferred binary encoding" as defined in X.213/ISO 8348 AD2 except when used for terminal selection (see Note 2). For the definition of this type of subaddress, see Recommendation I.334.

 For user specified subaddress, this field is encoded according to the user specification, subject to a maximum length of 20 octets. When interworking with X.25 networks, BCD coding should be applied.

 Note 1. It is recommended that users apply the NSAP subaddress type since this subaddress type allows the use of decimal, binary and IA5 characters in a standardized manner.

 Note 2. It is recommended that users apply the Local IDI format (the AFI field is coded 50 in BCD) when the subaddress is used for terminal selection at the S interface. In this case the IA5 character syntax using only digits 0 to 9 shall be used for the DSP. Each character is the coded in one octet according to recommendation T.50/ISO 646, with zero parity in the most significant position.

4.5. Cause

The contents and use of the Cause information element is defined in Recommendation Q.28502610.

4.5. Connection identifier

The connection identifier information element identifies the local ATM connection resources on the interface. This information element is optionally present in the SETUP message, and optionally in the first response to the SETUP message.

The connection identifier information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931. The length of this information element is 9 octets.

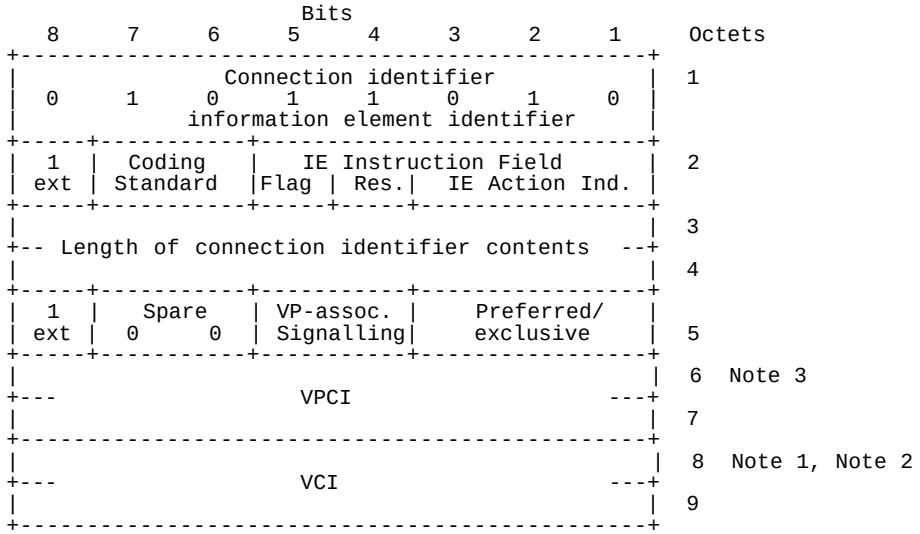


FIGURE 4-/Q.2931
Connection identifier information element

Note 1: If the "Pref./Ex."-Field indicates "any VCI", the VCI field should be ignored.

Note 2: In case of the restart class " 001" (see Table 4- and subclause 3.3), the VCI field should be ignored.

Note 3: When VP-associated signalling is indicated in octet 5, the VPCI field shall be ignored.

TABLE 4-/Q.2931
Connection identifier information element

- VP-assoc. signalling (VP-associated signalling), (octet 5)

Bits
5 4

0 0 VP-associated signalling (same VPI for user information as for signalling)
0 1 explicit indication of VPCI
other values reserved

- Pref./Ex. (preferred / exclusive), (octet 5)

Bits
3 2 1

0 0 0 Exclusive VPCI; exclusive VCI
0 0 1 Exclusive VPCI; any VCI
all other values are reserved

- Virtual Path Connection Identifier (octet 6 and 7)

0 through 65,535
a code representing the identifier of the
virtual path connection (Note 1)

- Virtual Channel Identifier (octet 8 and 9) (Note 2)
0 through 31 not used for on-demand user plane connections.
32 through 65,535 identifier of the Virtual Channel (Note 3)

Note 1: For the use of VPCIs see sectionsubclause 5.1.2.2/Q.2931.
Note 2: The value of the Virtual Channel Identifier field is the same as the value used in the VCI field
of the corresponding ATM cell headers.
Note 3: Some values in the range may not be available for
use for user plane connections.

4.5. End-to-end transit delay

The purpose of the End-to-end transit delay information element is to indicate the nominal maximum end-to-end transit delay acceptable on a per call basis, and to indicate the cumulative transit delay actually experienced by a virtual channel connection.

Transit delay is the end-to-end one-way transit delay of user data transferred during the data transfer phase on the user plane, between the calling user and the called user. It includes

- the total processing time in the end user systems (e.g. processing time, AAL handling delay, ATM cell assembly delay, and possibly any additional processing delay), and

- the network transfer delay (e.g. propagation delay, ATM layer transfer delay, possibly any additional processing delay in the network).

The cumulative transit delay value indicated by the calling user in the SETUP message (if present) includes the cumulative transit delay from the calling user to the network boundary.

The maximum end-to-end transit delay value may be indicated by the calling user to specify his end-to-end transit delay requirements for this call. If the

network detects that these requirements cannot be met, it may clear the call with cause No. 49 (Quality of Service not available).

The cumulative transit delay value sent in the SETUP message is updated sequentially along the route of the call to determine the end-to-end transit delay to be expected for this call. In the SETUP message sent to the called user, the network shall add to the value of the cumulative transit delay received by the calling user an amount equal to the delay expected within the network for user data transfer over the related virtual channel connection during the data transfer phase of the call.

If the calling user had not included an end-to-end transit delay information element in the SETUP message, the network need not deliver an end-to-end transit delay information element in the SETUP message to the called user.

The cumulative transit delay value indicated by the network in the SETUP message sent to the called user is the sum of the value which was indicated at the originating UNI and the transfer delay accumulated within the network. It does not include further transfer delay on the way from the network boundary to the called user.

The cumulative transit delay value which is transferred over both UNIs in the CONNECT message is the expected total end-to-end transit delay value for user data transfer over the related virtual channel connection as provided for a given call.

If the calling user includes an end-to-end transit delay information element in the SETUP message without an indication of the cumulative transit delay value, the network shall handle this information element, as if a cumulative transit delay value 0 would have been indicated.

The CONNECT message contains the final end-to-end accumulated transit delay value, as provided by the called end user, provided that it does not exceed the maximum end-to-end transit delay value, if included by the calling user in the SETUP message (otherwise the called end user shall reject the call).

The maximum end-to-end transit delay value may be indicated by the calling user to specify end-to-end transit delay requirements for this call. This field is included by the network in the SETUP message to indicate that the calling user has specified end-to-end transit delay requirements for this call.

The procedures which are applicable are described in Annex K/Q.2931.

The maximum end-to-end transit delay is not included in the CONNECT message.

The End-to-end transit delay is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931.

The maximum length of this information element is 10 octets.

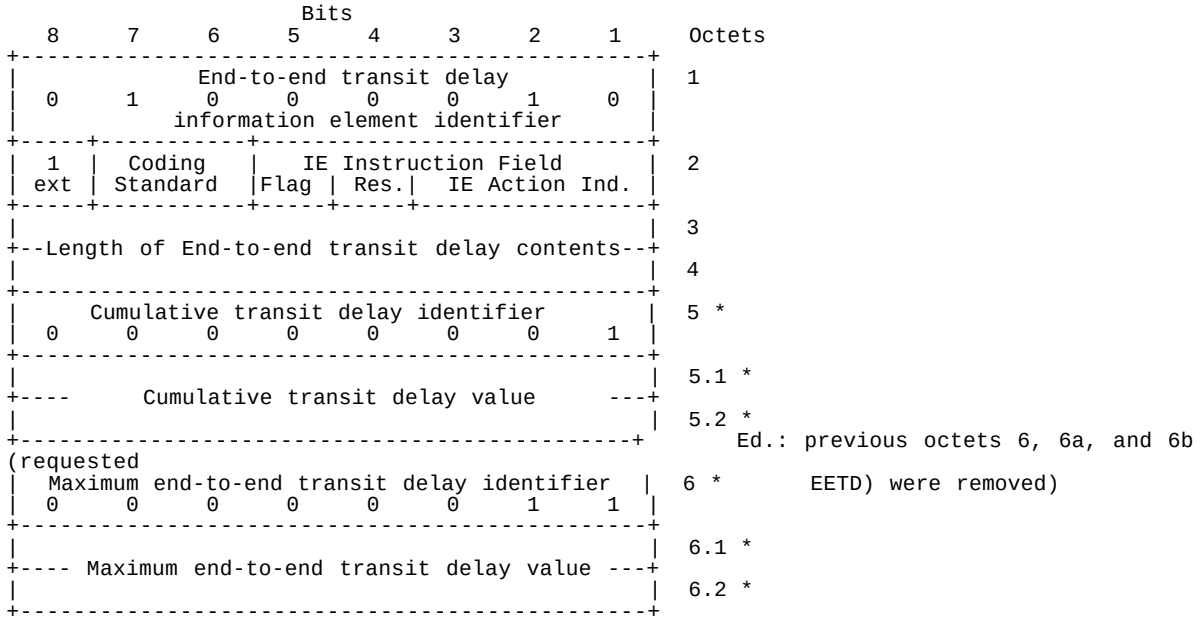


FIGURE 4-/Q.2931
End-to-end transit delay information element

TABLE 4-/Q.2931
End-to-end transit delay information element

- Cumulative transit delay value [octets 5.1 and 5.2]: CThe cumulative transit delay value is binary encoded in milliseconds. The coding rules for integer values described in subclause 4.5.1 apply. Bit 8 of octet 5.1 is the highest order bit and bit 1 of octet 5.2 is the lowest order bit. The cumulative transit delay value occupies 16 bits total. - Maximum end-to-end transit delay value [octets 6.1 and 6.2]: MThe maximum end-to-end transit delay value is binary encoded in milliseconds. The coding rules for integer values described in subclause 4.5.1 apply. Bit 8 of octet 6.1 is the highest order bit and bit 1 of octet 6.2 is the lowest order bit. The maximum end-to-end transit delay value occupies 16 bits total. The value "1111 1111 1111 1111", however, is not to be interpreted as a maximum end-to-end transfer delay value. This codepoint indicates: 'any end-to-end transit delay value acceptable; deliver cumulative end-to-end transit delay value to the called user'.

4.5. Quality of Sservice (QOS) Pparameter

In addition to End-to-Eend Ttransit Ddelay, the QOS parameter information element is specified. The purpose of the QOS-Pparameter information element is to indicate a certain QOS class.

The Quality of Sservice (QOS) parameter information element will not be supported by B-ISUP Release 1, i.e. some networks will not transfer the QOS parameter information element. These networks will generate the default value

(unspecified QOS class) for the QOS parameter information element for the transfer to the called user at the terminating interface.

The Quality of Service (QOS) parameter information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931. The length of this information element is 6 octets.

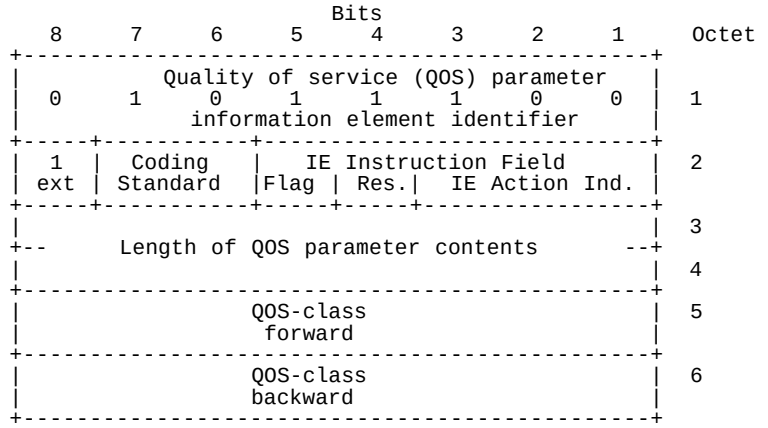


FIGURE 4-/Q.2931
Quality of service parameter information element

Table 4-/Q.2931
Quality of service parameter information element

- QOS-class forward (octet 5)

Bits 8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0	Unspecified QOS class (Note 1)
1 1 1 1 1 1 1 1	reserved for future indications of parameterized QOS (Note 2)
all other values are reserved	

- QOS-class backward (octet 6)

Bits 8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0	Unspecified QOS class (Note 1)
1 1 1 1 1 1 1 1	reserved for future indications of parameterized QOS (Note 2)
all other values are reserved	

Note 1: If this class is indicated, the network does not guarantee any specific quality of service.

Note 2: This codepoint is reserved for use when individual QOS parameters are defined. The individual parameters would then be contained in octets 7 and higher.

4.5. Broadband Rrepeat indicator

The purpose of the Broadband Rrepeat indicator information element is to indicate how repeated information elements shall be interpreted, when included in a message. The Broadband Rrepeat indicator information element is included before the first occurence of the information element which will be repeated in a message. The Broadband Rrepeat indicator information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931. The length of this information element is 5 octets.

Note - Use of the Broadband-R repeat indicator information element in conjunction with an information element that occurs only once in a message shall not ofin itself constitute an error.

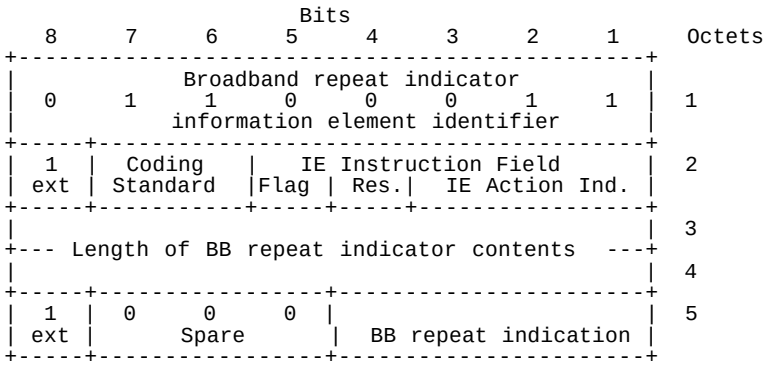


FIGURE 4-/Q.2931
Broadband-R repeat indicator information element

TABLE 4-/Q.2931
Broadband-R repeat indicator information element

- Broadband r-Repeat indication (octet 5)

Bits 4 3 2 1	
0 0 0 0	Reserved for use by Rec. Q.2763 (B-ISUP)
0 0 0 1	Reserved for use by Rec. Q.2763 (B-ISUP)
0 0 1 0	Prioritized list for selecting one possibility (descending order of priority)

All other values are reserved.

4.5. Restart indicator

The purpose of the Restart indicator information element is to identify the class of the facility to be restarted.

The Restart indicator information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931. The length of this information element is 5 octets.

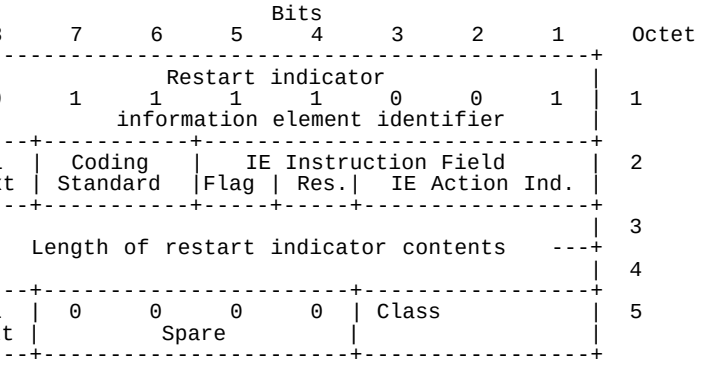


FIGURE 4-/Q.2931
Restart indicator information element

TABLE 4-/Q.2931
Restart indicator information element

- Class (octet 5)

Bits
3 2 1

0 0 0 Indicated virtual channel (Note 1)
0 0 1 All Virtual Channels in the indicated VPC which are controlled via the signalling virtual channel on which the RESTART message is sent (Note 2)
0 1 0 All Virtual Channels controlled by the layer 3 entity which sends the RESTART message (Note 3)
All other values are reserved.

Note 1: The Connection Identifier IE must be included and indicates the virtual channel to be restarted.
Note 2: The Connection Identifier IE must be included and indicates the Virtual Path Connection in which all virtual channels are to be restarted. The virtual channel identification field in the connection identifier information element is ignored.
Note 3: The Connection Identifier IE is not included. All virtual channels controlled by the point-to-point signalling channel are to be restarted.

4.5. Broadband-S sending complete

The purpose of the Broadband-S sending complete information element is to optionally indicate completion of called party number, see clauses 5 and 6.

This information element is mandatory if operating in en-bloc mode; however, if missing, regular error handling procedures for "mandatory IE missing" need not be applied.

It is an information element coded as shown in Figure 4-/Q.2931. The length of this information element is 5 octets.

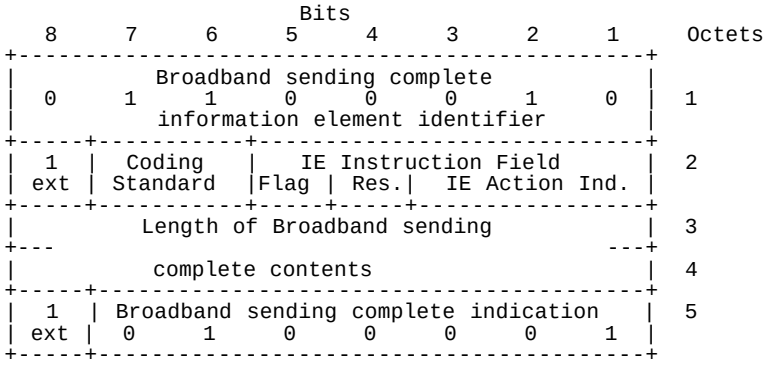
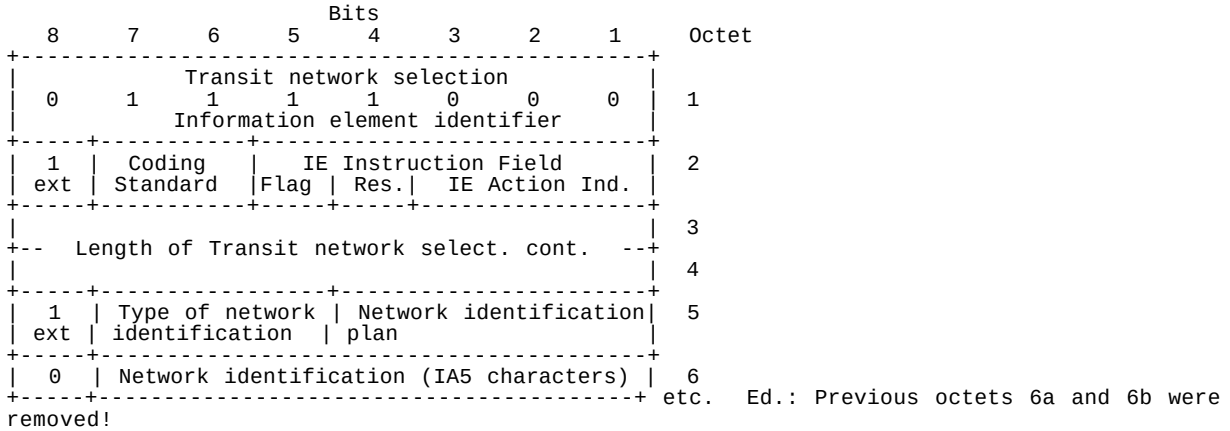


FIGURE 4-/Q.2931
Broadband-S sending complete information element

4.5. Transit network selection

The purpose of the Transit network selection information element is to identify one requested transit network. The Transit network selection information element may be repeated in a message to select a sequence of transit networks through which a call must pass. See Annex D/Q.2931.

The Transit network selection information element is coded as shown in Figure 4-/Q.2931 and Table 4-/Q.2931. The maximum length of this information element is network dependent.



Ed.: Previous octets 6a and 6b were removed!

FIGURE 4-/Q.2931
Transit network selection information element

TABLE 4-/Q.2931
Transit network selection information element

- Type of network identification (octet 5)

Bits 7 6 5	
0 0 0	user specified
0 1 0	national network identification
0 1 1	international network identification

All other values are reserved.

Note - In the case that type of network identification is coded as 010, national network identification, "national identification plan" is coded according to national specification.

- Network identification plan (octet 5)

Bits 4 3 2 1	
0 0 0 0	unknown
0 0 0 1	Carrier Identification Code (Note)
0 0 1 1	Data network identification code (Recommendation X.121)

All other values are reserved.

Note - Carrier Identification Codes may be an appropriate method of identifying the network serving the remote user.

- Network identification (octet 6)

These IA5 characters are organized according to the network identification plan specified in octet 5.

4.5 Notification Iindicator

The purpose of the Notification indicator information element is to indicate information pertaining to a call. The notification indicator is coded as shown in Figure 4-/Q.2931.

The maximum length of this information element is 5 octets.

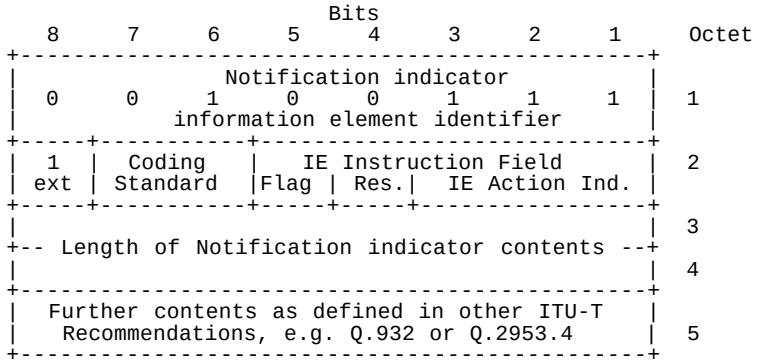


Figure 4-/Q.2931
Notification indicator information element

4.5. OAM Ttraffic Ddescriptor

The purpose of the OAM Ttraffic Ddescriptor information element is to provide information relating to the presence and handling of the end-to-end F5 OAM information flow for performance management and user-originated fault management associated with the user connection involved in the call.

The handling of the OAM traffic descriptor information element is specified in Annex I/Q.2931. If the OAM traffic descriptor is included in the SETUP message, the user shall select ATM peak cell rate values (indicated in the ATM traffic descriptor) which are able to carry the sum of both the user plane traffic and the end-to-end F5 OAM flow traffic.

The end-to-end OAM F5 flow for performance management includes two types of flows:

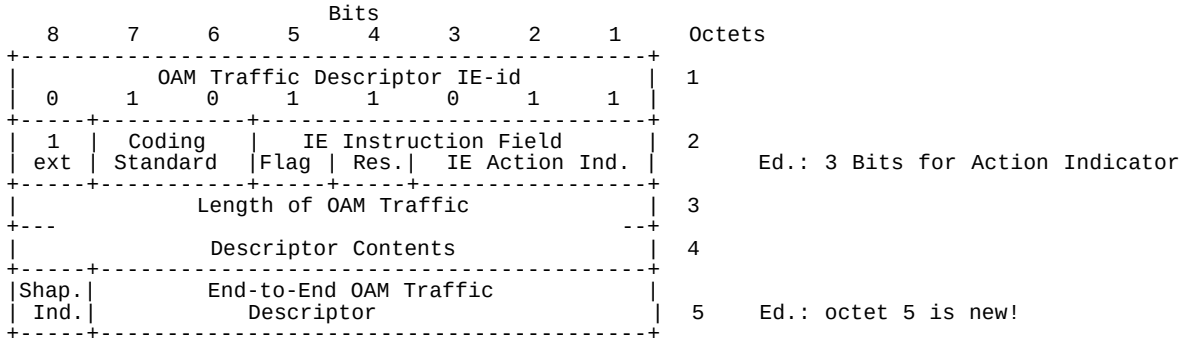
a) requests from calling user to called user; responses (monitoring results) from called user to calling user ("forward requests")

b) requests from called user to calling user; responses (monitoring results) from calling user to called user ("backward requests").

Each of these flows is symmetric.

When this information element is absent, no end-to-end F5 OAM flow will be used.

The length of this information element is 56 octets. The format of this information element is shown in Figure 4-/Q.2931 and in Table 4-/Q.2931.



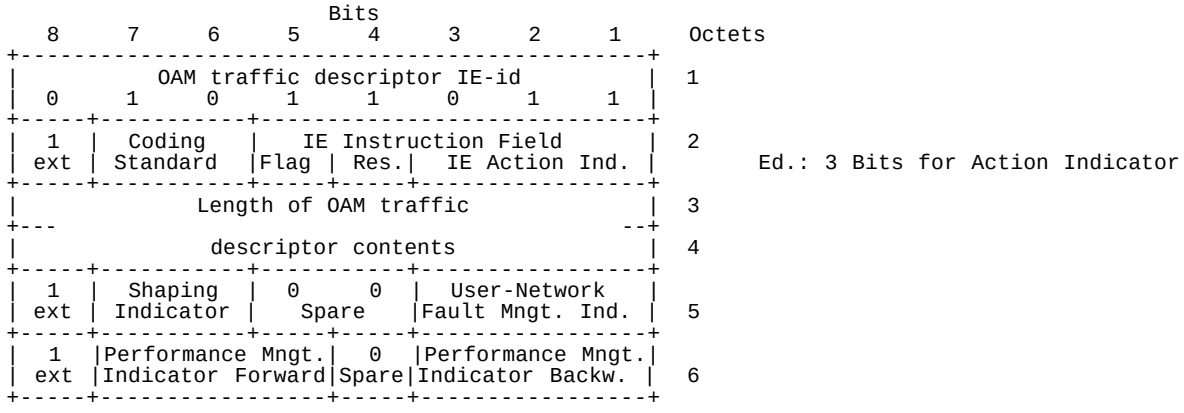


Figure 4-/Q.2931:
OAM traffic descriptor

TABLE 4-/Q.2931
OAM Ttraffic Ddescriptor information element

- Shap. Ind. (Shaping Indicator) (octet 5)

Bit
8

0 No user specified requirement on shaping by the network, if shaping is applied by the network
1 Aggregate shaping of user and OAM cells is not allowed, if shaping is applied by the network.

All other values are reserved.

- End-to-end OAM Traffic Descriptor (octet 5)

Bits 7 6 5 4 3 2 1	F5 Flow End-to-End Cell Rate
0 0 0 0 0 0 1	1 cell/sec.
0 0 0 0 0 1 0	1 cell/sec. + 0.1% of the maximum of the forward and backward user peak cell rate
0 0 0 0 0 1 1	1 cell/sec. + 1% of the maximum of the forward and backward user peak cell rate

All other values are reserved.

- Shaping Indicator (octet 5)

Bits
7 6
0 0 No user specified requirement on shaping by the network, if shaping is applied by the network
0 1 Aggregate shaping of user and OAM cells is not allowed, if shaping is applied by the network.
All other values are reserved.

- User-Network Fault Management Indicator (octet 5)
Bits
3 2 1
0 0 0 no user-originated fault management indications (Note 1)
0 0 1 use of user-originated fault management indications (Note 1)
All other values are reserved.

- Performance Management Indicator Forward Request (octet 6) (Note 2)

Bits
7 6 5
0 0 0 No end-to-end F5 flow for performance monitoring forward request is used (Note 2)
0 0 1 End-to-end F5 flow for performance monitoring forward request is used - possibly using up to 0.1 % of the maximum of the forward and backward user peak cell rate (Note 2)
1 0 0 End-to-end F5 flow for performance monitoring forward request is used - possibly using up to 1 % of the maximum of the forward and backward user peak cell rate (Note 2).
All other values are reserved.

- Performance Management Indicator Backward Request (octet 6) (Note 3)

Bits
3 2 1
0 0 0 No end-to-end F5 flow for performance monitoring backward request is used (Note 3)
0 0 1 End-to-end F5 flow for performance monitoring backward request is used - possibly using up to 0.1 % of the maximum of the forward and backward user peak cell rate (Note 3)
1 0 0 End-to-end F5 flow for performance monitoring backward request is used - possibly using up to 1 % of the maximum of the forward and backward user peak cell rate (Note 3).
All other values are reserved.

Note 1: Fault Management indications from the network to the user (e.g. alarm indications) will always be transferred to the user, independent of the codepoint used in the user-network fault management indicator field.

Note 2: The term "forward request" refers to requests from the calling user to the called user; and responses (monitoring results) from the called user to the calling user.

Note 3: The term "backward request" refers to requests from the called user to the calling user; and responses (monitoring results) from the calling user to the called user.

4.6 Information Elements for the support of 64 kbit/s based ISDN circuit mode services

4.6.1 Coding Rules

The information elements described in this section 4.6 use the general information element format as described in Figure 4-/Q.2931. The coding of these IEs follows the coding rules of Q.931 / Q.2931.

4.6.2 Narrowband Bbearer Ccapability

The purpose of the Narrowband Bbearer capability information element is to indicate a requested circuit-mode N-ISDN bearer service to be provided by the network. It contains only information that may be used by the network (see Annex I/Q.931). The use of the Narrowband Bbearer capability information element in relation to compatibility checking is described in Annex B/Q.931.

The Narrowband Bbearer Ccapability is transferred transparently through the B-ISDN.

The Narrowband Bbearer capability information element is coded as shown in Figure 4-/Q.2931.

No default Narrowband bearer capability may be assumed by the absence of this information element.

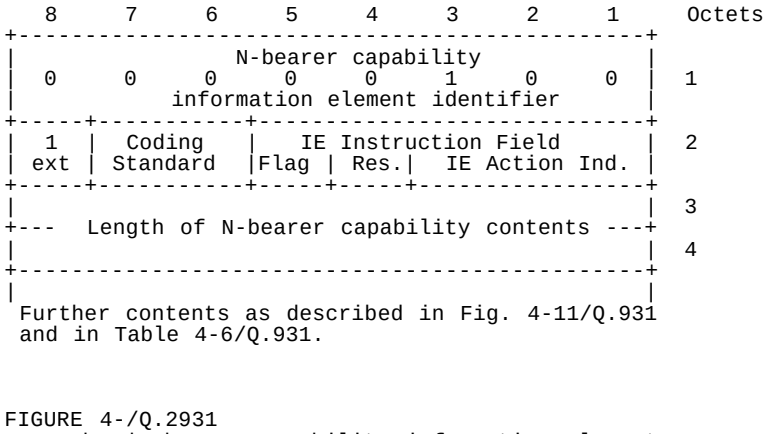


FIGURE 4-/Q.2931
Narrowband Bbearer capability information element

4.6.3 Narrowband Hhigh layer compatibility

The purpose of the Narrowband Hhigh layer compatibility information element is to provide a means which should be used by the remote user for compatibility checking. See Annex B/Q.931.

The Narrowband Hhigh layer compatibility information element is coded as shown in Figure 4-/Q.2931.

The maximum length of this information element is 7 octets.

Note - The Narrowband Hhigh layer compatibility information element is transported transparently by a B-ISDN between a call originating entity, e.g., a calling user and the addressed entity, e.g., a remote user or a high layer function network node addressed by the call originating entity. However, if explicitly requested by the user (at subscription time), a network which provides some capabilities to realize teleservices may interpret this information to provide a particular service.

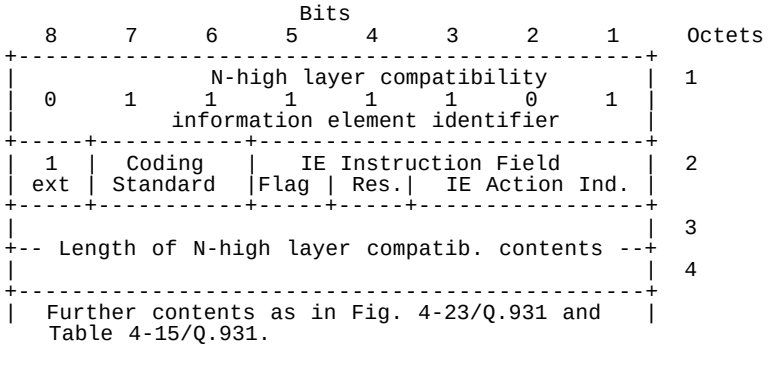


FIGURE 4-/Q.2931
Narrowband Hhigh layer compatibility information element

4.6.4 Narrowband Llow layer compatibility

The purpose of the Narrowband Llow layer compatibility information element is to provide a means which should be used for compatibility checking by an addressed entity (e.g., a remote user or an interworking unit or a high layer function network node addressed by the calling user). The Llow layer compatibility information element is transferred transparently by a B-ISDN between the call originating entity (e.g., the calling user) and the addressed entity.

For Narrowband low layer compatibility negotiation (see Annex J/Q.931), the Narrowband Llow layer compatibility information element is also passed transparently from the addressed entity to the originating entity.

The Narrowband Llow layer compatibility information element is coded as shown in Figure 4-/Q.2931. The maximum length of this information element is 20 octets.

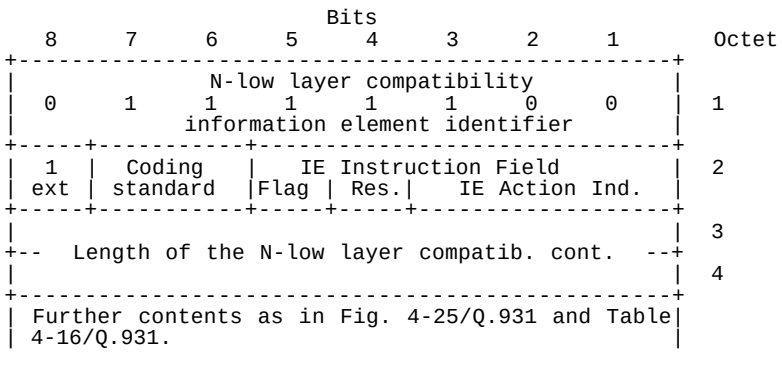


Fig. 4-/Q.2931
Narrowband Llow layer compatibility information element

4.6.5 Progress Iindicator

The purpose of the Progress indicator information element is to describe an event which has occurred during the life of a call. The information element may occur twice in a message.

The Progress indicator information element is coded as shown in Figure 4-/Q.2931. The maximum length of this information element is 6 octets.

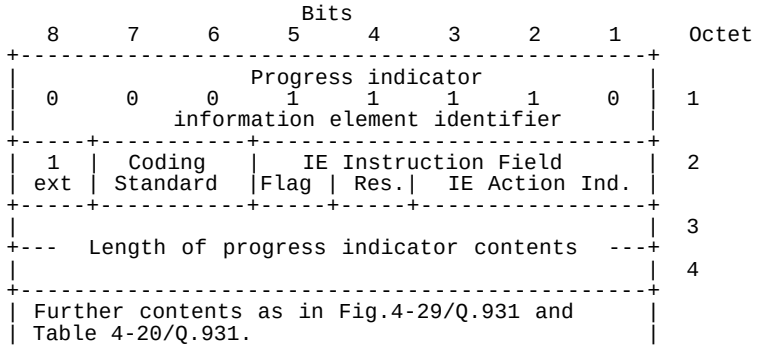


Fig. 4-/Q.2931
Progress Iindicator Iinformation Eelement