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**Information technology — ASN.1
encoding rules: Specification of
Encoding Control Notation (ECN)**

AMENDMENT 2

*Technologies de l'information — Règles de codage ASN.1:
Spécification de la notation de contrôle de codage (ECN)*

AMENDEMENT 2

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Foreword

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INTERNATIONAL STANDARD
ITU-T RECOMMENDATIONInformation technology – ASN.1 encoding rules: Specification of
Encoding Control Notation (ECN)

Amendment 2: Time type support

1) Subclause 8.5

Insert the following 5 new reserved encoding class names in subclause 8.5:

#DATE
#DATE-TIME
#DURATION
#TIME
#TIME-OF-DAY

2) Subclause 9.6.6

Replace 9.6.6 with the following:

- 9.6.6** The categories of encoding class (see 16.1.3) are:
- The alternatives category (classes that are derived by class assignment from #ALTERNATIVES).
 - The concatenation category (classes that are derived by class assignment from #CONCATENATION).
 - The repetition category (classes that are derived by class assignment from #REPETITION).
 - The optionality category (classes that are derived by class assignment from #OPTIONAL).
 - The tag category (classes that are derived by class assignment from #TAG).
 - The boolean, bitstring, characterstring, integer, null, objectidentifier, octetstring, opentype, pad, ~~and~~ real, and time categories (categories for classes that are derived from the corresponding primitive classes).
 - The encoding structure category (classes generated from ASN.1 type definitions, or by explicit definition of an encoding structure).

3) Table 2

Insert the following lines into Table 2 above "GeneralizedTime":

TIME	#TIME	#TIME
DATE	#DATE	#TIME
TIME-OF-DAY	#TIME-OF-DAY	#TIME
DATE-TIME	#DATE-TIME	#TIME
DURATION	#DURATION	#TIME

4) Subclause 16.1.7

Replace 16.1.7 with the following:

16.1.7 The "BitfieldClassReference" is:

```

BitfieldClassReference ::=
    #NUL
    | #BOOL
    | #INT
    | #BITS
    | #OCTETS
    | #CHARS
    | #PAD
    | #BIT-STRING
    | #BOOLEAN
    | #CHARACTER-STRING
    | #EMBEDDED-PDV
    | #ENUMERATED
    | #EXTERNAL
    | #INTEGER
    | #NULL
    | #OBJECT-IDENTIFIER
    | #OCTET-STRING
    | #OPEN-TYPE
    | #REAL
    | #RELATIVE-OID
    | #TIME
    | #DATE
    | #DATE-TIME
    | #TIME-OF-DAY
    | #DURATION
    | #GeneralizedTime
    | #UTCTime
    | #ObjectDescriptor
    | #BMPString
    | #GeneralString
    | #GraphicString
    | #IA5String
    | #NumericString
    | #PrintableString
    | #TeletexString
    | #UniversalString
    | #UTF8String
    | #VideotexString
    | #VisibleString
    
```

The categories of the classes that these built-in names reference (see 16.1.14) are all defined to be in the bit-field group of categories.

5) Subclause 16.1.14

Insert the following lines in 16.1.14 above "#TRANSFORM":

#TIME	(primitive)	time
#DATE	#TIME	
#TIME-OF-DAY	#TIME	
#DATE-TIME	#TIME	
#DURATION	#TIME	

6) Subclause 16.2.6

Replace 16.2.6 with the following:

16.2.6 The "EncodingStructureField" is:

EncodingStructureField ::=

#NUL	
#BOOL	
#INT	Bounds?
#BITS	Size?
#OCTETS	Size?
#CHARS	Size?
#PAD	
#BIT-STRING	Size?
#BOOLEAN	
#CHARACTER-STRING	
#EMBEDDED-PDV	
#ENUMERATED	Bounds?
#EXTERNAL	
#INTEGER	Bounds?
#NULL	
#OBJECT-IDENTIFIER	
#OCTET-STRING	Size?
#OPEN-TYPE	
#REAL	
#RELATIVE-OID	
#TIME	
#DATE	
#TIME-OF-DAY	
#DATE-TIME	
#DURATION	
#GeneralizedTime	
#UTCTime	
#ObjectDescriptor	Size?
#BMPString	Size?
#GeneralString	Size?
#GraphicString	Size?
#IA5String	Size?
#NumericString	Size?
#PrintableString	Size?
#TeletexString	Size?
#UniversalString	Size?
#UTF8String	Size?
#VideotexString	Size?
#VisibleString	Size?

7) Subclause 16.2.8

Replace 16.2.8 with the following:

16.2.8 The ASN.1 values which can be associated with each primitive field are as follows:

#NUL	The null value
#BOOL	The boolean values
#INT	The integer values
#BITS	Bitstring values
#OCTETS	Octetstring values
#CHARS	Character string values
#PAD	None
#OBJECT-IDENTIFIER	Object identifier values
#OPEN-TYPE	Open type values
#REAL	Real values
#TIME	Time values
#TAG	Tag numbers

NOTE – The #PAD field cannot have associated ASN.1 values, and is never visible outside the encoding and decoding procedures.

8) Table 5

Insert the following in Table 5 below "real":

time	"TimeValue"
	(see ITU-T Rec. X.680 ISO/IEC 8824-1, 34 bis. 3.2)

9) Subclause 23.15

Replace 23.15 with the following:

23.15 Defining encoding objects for classes in the other categories

In this version of this Recommendation | International Standard, there is no defined syntax for classes in the following categories:

objectidentifier
opentype
real
<u>time</u>

10) Annex G

In Annex G, replace the corresponding productions with the following:

```

BitfieldClassReference ::=
    #NUL
    | #BOOL
    | #INT
    | #BITS
    | #OCTETS
    | #CHARS
    | #PAD
    | #BIT-STRING
    | #BOOLEAN
    | #CHARACTER-STRING
    | #EMBEDDED-PDV
    | #ENUMERATED
    | #EXTERNAL
    | #INTEGER
    | #NULL
    | #OBJECT-IDENTIFIER
    | #OCTET-STRING
    | #OPEN-TYPE
    | #REAL
    | #RELATIVE-OID
    | #TIME
    | #DATE
    | #DATE-TIME
    | #TIME-OF-DAY
    | #DURATION
    | #GeneralizedTime
    | #UTCTime
    | #ObjectDescriptor
    | #BMPString
    | #GeneralString
    | #GraphicString
    | #IA5String
    | #NumericString
    | #PrintableString
    | #TeletexString
    | #UniversalString
    | #UTF8String
    | #VideotexString
    | #VisibleString
    
```

