

Traffic and travel information — Messages via media independent stationary dissemination systems — Graphic data dictionary for pre-trip and in-trip information dissemination systems

ICS 35.240..60; 43.040.15

National foreword

This Draft for Development is the UK implementation of CEN ISO/TS 14823:2008.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature. It should be applied on this provisional basis, so that information and experience of its practical application can be obtained.

Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the international organization responsible for its conversion to an international standard. A review of this publication will be initiated not later than 3 years after its publication by the international organization so that a decision can be taken on its status. Notification of the start of the review period will be made in an announcement in the appropriate issue of Update Standards.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into an international Standard, to extend the life of the Technical Specification or to withdraw it. Comments should be sent to the Secretary of the responsible BSI Technical Committee at British Standards House, 389 Chiswick High Road, London W4 4AL.

The UK participation in its preparation was entrusted to Technical Committee EPL/278, Road transport informatics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Date	Comments

English Version

Traffic and travel information - Messages via media independent
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14823:2008)

Informations sur le trafic et le tourisme - Messages par
systèmes de dissémination stationnaire indépendants du
support - Dictionnaire de données graphiques pour les
systèmes de dissémination d'informations avant le trajet et
durant le trajet (ISO/TS 14823:2008)

Verkehrs- und Reiseinformation - Meldungen, die über
medienunabhängige stationäre Verteilsysteme übertragen
werden - Verzeichnis graphischer Symbole, die vor und
während der Reise über Informationsverteilsysteme
übertragen werden (ISO/TS 14823:2008)

This Technical Specification (CEN/TS) was approved by CEN on 9 April 2007 for provisional application.

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Foreword

This document (CEN ISO/TS 14823:2008) has been prepared by Technical Committee CEN/TC 278 "Road transport and traffic telematics", the secretariat of which is held by NEN, in collaboration with Technical Committee ISO/TC 204 "Transport information and control systems".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 14823 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 278, *Road transport and traffic telematics*, in collaboration with Technical Committee ISO/TC 204, *Intelligent transport systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Introduction

This Technical Specification presents a Graphic Data Dictionary (GDD) which has been developed with the intent of creating a common basis for transmitting graphic information data that can be, irrespective of language or regional differences, decoded and understood by the users who obtain TTI (pre-trip and in-trip information) service through TTI system operators such as traffic management centres (TMCs), traffic information centres (TICs) and value-added service providers (VASPs) which add value to the TTI. Adopting unified graphic data is expected to improve the understandability of the graphic information by the user and thereby increase the convenience of TTI systems.

The purpose of GDD is, in order to facilitate the data exchange between media, to catalogue graphic images like traffic signs and pictograms specified and used uniquely in each country and to assign them a certain code.

Elements of Graphic Data

These include:

- full name of the pictogram,
- definition of the pictogram,
- code for the pictogram,
- attribute(s) of the pictogram, and
- pictogram itself.

Normative items in this document are the coding scheme involving the full name, definition and attributes to define each graphic image. It is not intended to create and specify a common design of graphic images.

Application of Graphic Data

Graphic data shall be stored in advance as a database by TTI system operators (such as TMC, TIC etc.), VASP, or in media systems, and then used as a part of TTI for data exchange among these entities. "The GDD" is a database that registers the codes and attributes of a set of graphic data in a systematic manner.

Message Creation

Data elements to be stored in the database of a TIC shall be those created by using TTI collected in the TIC. Similarly, graphic data shall be those coded beforehand and registered into the database. Messages to be dealt with in this Technical Specification are to be generated basically with data elements registered in the database of the TIC.

Traffic and travel information — Messages via media independent stationary dissemination systems — Graphic data dictionary for pre-trip and in-trip information dissemination systems

IMPORTANT — The electronic file of this document contains colours which are considered to be useful for the correct understanding of the document. Users should therefore consider printing this document using a colour printer.

1 Scope

This Technical Specification presents a system of standardized codes for existing signs and pictograms used to deliver traffic and traveller information (TTI). The coding system can be used to form messages to be handled by respective media systems, graphic messages on on-board units, and media system information on TTI dissemination systems (VMS, PC, PAT, etc.) (including graphic data). These types of information are required by travellers for their pre-trip planning as well as their in-trip plan modification based on information obtained through media systems.

As shown in Figure 1, a system handling graphic messages generally comprises TTI system operators, media systems and communication networks interconnecting these systems.

This Technical Specification relates to:

- TTI systems operators which include
 - Traffic Management Centres (TMC),
 - Traffic Information Centres (TIC),
 - Parking Information Centres (PIC),
 - Public Transport Centres (PTC),
 - Value-Added Service Providers (VASP), and
 - others;
- media systems which include
 - On-board Units (OBU),
 - Variable Message Signs (VMS),
 - Personal Computers (PC),
 - Public Access Terminals (PAT), and
 - others.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9735, *Electronic data interchange for administration, commerce and transport (EDIFACT) — Application level syntax rules*

ISO 3166 (all parts), *Codes for the representation of names of countries and their subdivisions*

CEN prENV/278/8/15 RTTT — *Traffic and Travel Data Dictionary — Part 1: General Definitions, Entities, Attributes*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply

3.1 traffic and traveller information

TTI

generic term for traffic and travel-related information such as road traffic information, transfer information, or public transit information

3.2 traffic information centre

TIC

one of the TTI system operators

NOTE Each TIC is connected to TMC, PIC, PTC and some other TICs to collect and process information generated at each of the said centres. The TIC disseminates information periodically in accordance with procedures as agreed with the corresponding VASP or from time to time on request from the VASP.

3.3 value added service provider

VASP

each VASP requests information from the corresponding TTI system operators in accordance with procedures as agreed with the TTI system operators and stores the received information in its database, then edits/processes and disseminates information requested from users in accordance with appropriate procedures as agreed with any media systems

3.4 traffic management centre

TMC

one of the TTI system operators

NOTE Each TMC manages systems for traffic surveillance and controls by collecting and processing traffic information.

3.5 parking information centre

PIC

one of the TTI system operators

NOTE PIC disseminates information such as the location, capacity, vacancy and other information related to the status of service/parking facilities.

3.6

public transport centre

PTC

one of the TTI system operators

NOTE PTC disseminates information about public transport such as regular routes, travel time, fares and transfer points.

3.7

variable message sign

VMS

one of the TTI display systems

NOTE Each VMS provides travellers with dynamic information by words and possibly with simple graphics.

3.8

on-board unit

OBU

unit fitted in a vehicle to display TTI messages

3.9

personal computer

PC

each PC functions as the man-machine interface for travellers and requests/receives information in accordance with procedures as agreed with the corresponding VASP

NOTE Each PC processes and presents received information according to the purpose of the request.

3.10

public access terminal

PAT

equipment installed in public places (e.g. airport terminals, shopping centres or service areas) to provide ondemand information requested by travellers

3.11

graphic data dictionary

GDD

compilation of all relevant graphic data, such as full names, definitions, and attributes of pictograms

4 System Architecture

A TTI dissemination system to any kind of media system is generally composed of TTI system operators such as TMCs, TICs, PICs and PTCs, VASPs which intervene between each of the TTI system operators, media systems as the end users, and communications networks interconnecting the TTI system operators and media systems. A schematic presentation of the system architecture is given in Figure 1 — TTI Dissemination System Architecture.

4.1 Alpha (α) Interface:

The α (alpha) Interface shall have two functions as a communications interface: one is to exchange data locally among TMCs and TICs, and the other is for a TMC or TIC to collect data from PICs and PTCs.

4.2 Beta (β) Interface:

The β (beta) Interface shall function as a communications interface between each TTI source and a VASP connected with a communications network

4.3 Gamma (γ) Interface:

The γ (gamma) Interface shall function as a communications interface that enables secure and direct dissemination of information to the media system as the end user, as requested by the media system by collecting, processing, and storing the information from TTI system operators.

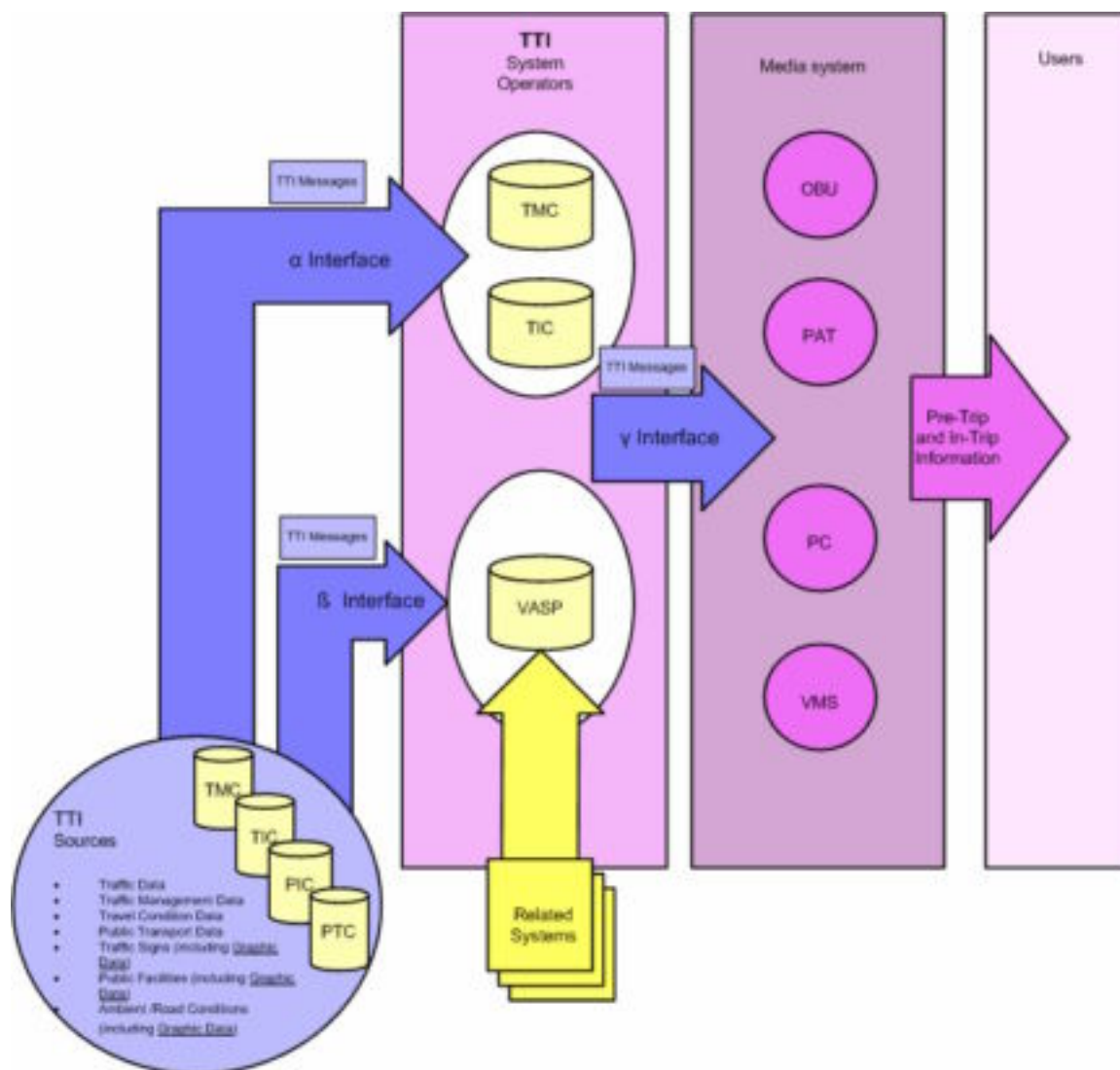


Figure 1 — TTI Dissemination System Architecture

5 Document Structure

This standard is divided into a main part and several appendices. The main part explains the concepts of graphic data information service to the users who need TTI information service, and presents an overview of the user service.

5.1 Main Part

This section provides a structural overview of the GDD (Graphic Data Dictionary).

Graphic Data: There exist graphic data that have been obtained by coding information on traffic signs, public facilities, ambient/road conditions, etc. as a part of TTI messages at TMCs and TICs. The data elements of such information consist of country code, service category code, pictogram category code, and attribute indicator code, organized as communication data.

Section 8 provides Items Subject to Standardisation which are needed to facilitate communications with the users which includes: full names; definitions; attributes; and pictograms which are listed as data to be provided to users.

5.2 Annexes

The Annexes provide examples of configurations and services that fall within the scope of this standard.

The Annexes consist of the following four parts:

5.2.1 Annex A (Normative)

This annex provides pictogram attributes as data elements for traffic sign pictograms in the categories of – warning signs, regulatory signs and guide signs.

5.2.2 Annex B (Informative)

This annex provides relationships among the full name, definition, code, and pictogram designs from U.N. and selected countries.

5.2.3 Annex C (Informative)

This annex provides examples of data coding and the description of attributes for traffic sign pictograms.

5.2.4 Annex D (Normative)

The coding scheme that applies to complex configurations of roadway intersections is presented in this annex as part of the coding system for traffic sign pictograms.

6 Graphic Data Dictionary

6.1 General

The flow of graphic data and the roles of the graphic data dictionary are illustrated in Figure 2 — Flow and Content of Graphic Data in TTI Messages based on Figure 1 — TTI Dissemination System Architecture

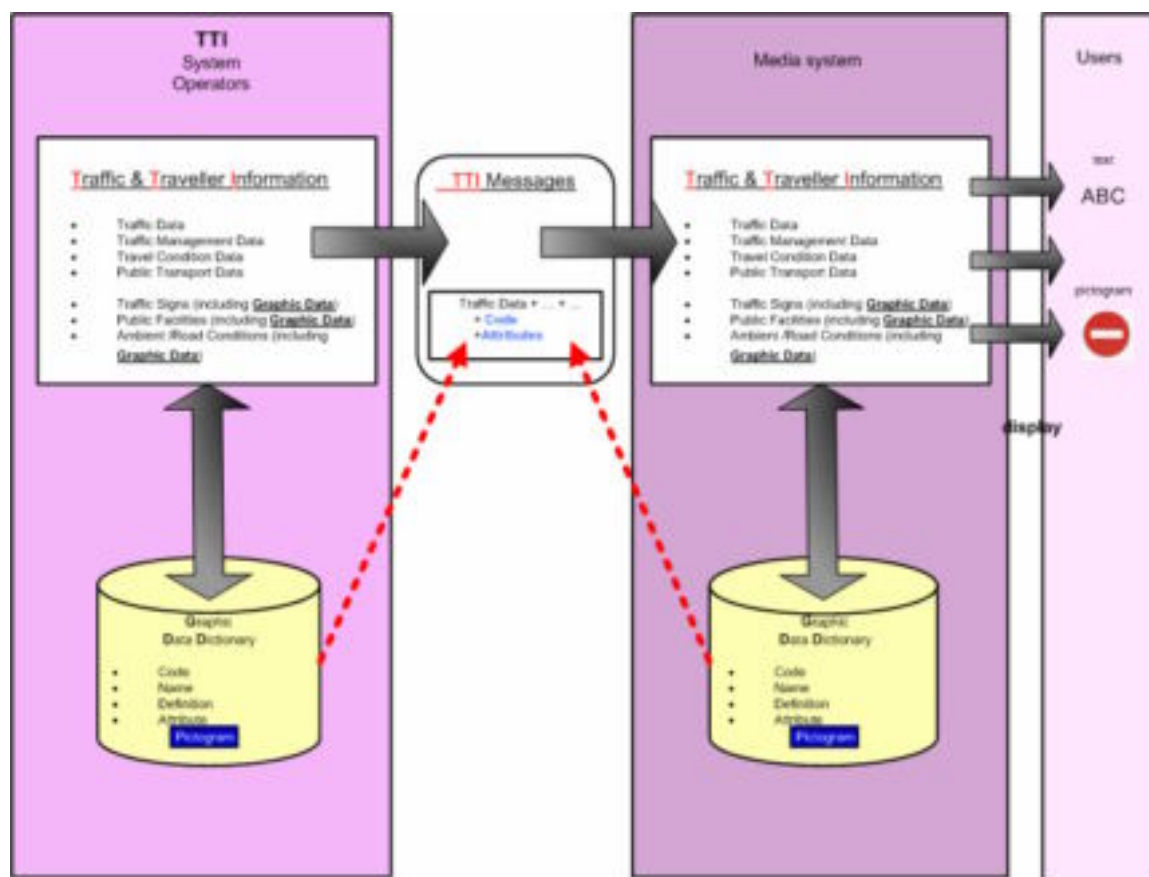


Figure 2 — Flow and Content of Graphic Data in TTI Messages

Graphic data are conveyed as part of TTI messages issued by TMCs or TICs. The graphic information in a TTI message is coded and according to the Graphic Data Dictionary used by both the TTI system operator and media system. Information elements to be prescribed by the Graphic Data Dictionary concern Traffic Sign Information, Public Facilities Information, and Ambient/Road Condition Information as described in Section 7.2. Data elements consist of communication data, including the country code, service category code, pictogram category code and attribute indicator code, and user service data, including full name, definition, attributes, and pictogram itself as described in Section 7.3.

6.2 Information Elements

Information elements (IEs) contained in messages provided by pre-trip and in-trip information services can be broadly divided into these types. This classification conforms to the “Final Act and Related Documents” enacted by the “United Nations Conference on Road Traffic (UNCRT).”

Table 1 — Information Elements

Type of Service (Division)	Subdivision	Nature
1) Traffic Sign Information	a) Danger warning	Warning / Priority sign information
	c) Regulatory	Priority sign information
		Prohibitory or restrictive sign information
		Mandatory / End sign information
	c) Informative	Advance direction sign information
		Direction sign information
		Road/ Place identification sign information
		Confirmatory sign information
		Pedestrian crossing sign information
		Other sign information providing information useful to the drivers of vehicles
		Lane affectation
2) Public Facilities Information	a) Public facilities	Information giving notice of public facilities which may be useful to road users
3) Ambient/Road Condition Information	b) Ambient conditions	Information indicating ambient conditions which may be useful to the drivers of vehicles
	c) Road conditions	Sign information indicating road conditions which may be useful information for drivers of vehicles

The ‘Traffic Sign Information’ is subdivided into three categories, each of which defines information for each traffic sign established in each member country (see Section 7.5.1 ‘Country Code’). Each subcategory may be divided further based on its properties. The Public Facilities Information indicates the existence of certain public facilities and their service details (e.g., toilets, restaurants, first aid facilities, etc.). The “Ambient/ Road Condition Information” is concerned with the ambient condition of a roadway or local condition which may affect the flow of road traffic (such as bad weather and traffic congestion). IEs are all defined with their full names and are provided in the form of pictograms easily recognizable by the users. Pictograms to be used for information display may vary from country to country, from political jurisdiction to political jurisdiction, or from system operator to system operator.

6.3 Data Elements

Used as a “Pictogram Code” when transmitting IEs (described in Section 6.2) as communication data is a combination of the following four Data Elements (DEs): country code data, service category data pictogram category data, and attribute indicator code. When these “Communication Data” (consisting of pictogram code and attributes) are provided to the users, they are served with four components: the unified full name, and definition of a pictogram, details of its attributes if any, and the pictogram itself. They are called User Service Data. The data configuration of the IEs (described in Section 6.2) is as follows:

6.3.1 Communication Data:

Pictogram Code

Country code data	DE 1 (the code number assigned to the country to which the system operator belongs);
Service category data	DE 2 (the code number assigned to the category of IE);
Pictogram category data	DE 3 (the code number assigned to the category of a pictogram type under the service category);
Attribute indicator code data	DE4 (the code number indicating whether any attributes are attached to the pictogram);

Attributes

Attributes	When any attributes are needed for details, one or more of the eight attributes are added.
------------	--

6.3.2 User Service Data:

Full name

Definition

Attributes

Pictogram

6.4 Data Structure

Each of the four DEs described in Section 6.3 has its own data field. By combining these data fields, the IEs described in Section 6.2 can be represented in various ways. Each data field is coded in units of DEs to create a certain IE. As a rule, every data field in every DE is represented by one integer or one letter. See Section 7.5 for details of the coding rule, and Section 7.7 for the attributes.

The coded data structure is as follows:

	Data Element (DE) 1: Country Code (ISO/3166)		DE 2: Service Category Code		DE 3: Pictogram Category Code			DE 4: Attribute Indicator Code
Data Field	X8	X7	X6	X5	X4	X3	X2	X1

6.5 Coding Rules

This section describes the coding rules for storing DEs in a database for the provision of graphic data to the users as accurate information. See 'Table 2.

6.5.1 Data Element 1: Country Code (X8 X7)

The numeric value of each 'Country Code' shall be assigned according to the ISO 3166 (Alpha 2-code country name notation).

Bit length = 16 bits

Value range = X8: A to Z

X7: A to Z

Field	X8	X7
Value & Description	A to Z	A to Z

6.5.2 Data Element 2: Service Category Code (X6 X5)

Bit length = 16 bits

Value range = X6: 1-9

X5: 1-9

Field	X6	X5
	Division Code	Class Code
Value & Description	1: Traffic Sign Pictogram	1: Danger Warning
		2: Regulatory
		3: Informative
		4:
	2: Public Facilities Pictogram	1: Public Facilities
		2:
	3: Ambient/Road Condition Pictogram	1: Ambient Condition
		2: Road Condition
	4:	1:

6.5.3 Data Element 3: Pictogram Category Code (X4 X3 X2)

Bit length = 24 bits

Value range = X4: 1 to 9

X3: 1 to 9

X2: 1 to 9

Field	X4	X3	X2
	Pictogram Code		
Value & Description	Indicates items to be classified in X5 field by nature: 1 to 9 See Table X 'Code Ordering' for details. Serial number (1 to 9)	Serial number (1 to 9)	Serial number (1 to 9)
Note: For pictograms corresponding to the coded items, see 'Annex B: Graphic Data Dictionary. Pictograms to be displayed actually will vary from country to country (depending on the self-governing system or system operator of the country).			

6.5.4 Data Element 4: Attribute Indicator Code (X1)

Bit length = 8 bit

Value range = 1 or 2

Field	X1
Value & Description	Indicates whether any attributes are attached. 1: Yes 2: No

Table 2 — Code Ordering (without attribute data)

Data Elements	X8	X7	X6	X5	X4	X3	X2	X1	
	Country Code		Service category code		Pictogram category code			Attribute indicator	
Number of bits	2 alphabetic notation (16 bits)		2 alphabetic notation (16 bits)		3 numeric notation (24 bits)			1 numeric notation (8 bit)	
Field			Division	Class	Nature				
	ISO 3166 - 1993		1: Traffic Sign Pictogram	1: Danger Warning	1-9: Danger warning Priority and nature	Serial number (1-9)		Indicates whether any attributes are attached. 1: yes 2: no	
				2: Regulatory					1-3: Priority
									4-6: Prohibitory or Restrictive
									7-9: Mandatory / End
				3: Informative					1-3: Advance direction
									4: Direction
									5: Place identification
									6: Confirmatory
									7: pedestrian crossing
									8-9: Other providing information useful to the drivers
			2: Public Facilities Pictogram	1: Public Facilities	1-9: Public facilities & services				
			3: Ambient / Road Condition Pictogram	1: Ambient Condition	1-9: Ambient condition & nature				
				2: Road Condition	1-9 Road condition and nature				
Code No. 00000000 (all zeros) reserved for specific case									

6.6 ASN.1 Description of Pictogram Code

TTI-MIB DEFINITIONS ::= BEGIN

IMPORTS

Enterprises FROM RFC1155-MIB
OBJECT-TYPE FROM RFC-1212;

TTI Group OBJECT IDENTIFIER ::= { enterprises 999 }

TTI Data Elements OBJECT IDENTIFIER ::= { TTI Group 1 }

TTI Attribute Des OBJECT IDENTIFIER ::= { TTI Group 2 }

--
-- Data Element 1 : Country Code (X8 X7)
--

Country Code OBJECT-TYPE

SYNTAX OCTET STRING (SIZE (2))

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Numeric value of each 'Country Code' shall be assigned according to
ISO 3166 (Alpha 2-code country name notation.)"

::= { TTI Data Elements 1 }

--
-- Data Element 2 : Service Category Code (X6 X5)
--

Service Category OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(2))

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Service category data (the code number assigned to the category of IE)

'1x' : Traffic Sign Pictogram

'11' : Danger Warning

'12' : Regulatory

'13' : Informative

'2x' : Public Facilities Pictogram

'21' : Public Facilities

'3x' : Ambient Road Condition Pictogram

'31' : Ambient Condition

'32' : Road Condition

"

::= { TTI Data Elements 2 }

--
-- Data Element 3 : Pictogram Category Code (X4 X3 X2)
--

Pictogram Category OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(3))

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Service category data (the code number assigned to the category of IE)

X4 : The nature of X5: '1'-'9' See Table 1 'Code Ordering' for details.

X3,X2 : Serial number ('11'-'99')

For pictograms corresponding to the coded entities, see

'Annex B: Graphic Data Dictionary.'

Each country (or autonomous unit, or system operator) will be responsible
for local specification of pictogram design used for the actual display.

"

::= { TTI Data Elements 3 }

--

-- Data Element 4 : Attribute Indicator Code (X1)

--

--

Attribute Indicator Code OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(1))

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Indicate whether any attributes are attached or not.

'1': Yes

'2': No "

::= { TTI Data Elements 4 }

6.7 Attributes

6.7.1 Attribute Segment

The attribute segment consists of the following data elements:

(Data Element) (Code)

— Date/Time/Period	DTM	(7.7.2.1)
— Exemption status of Date/Time/Period	EDT	(7.7.2.2)
— Section	SET	(7.7.2.3)
— Number of Lanes	NOL	(7.7.2.4)
— Directional Flow of Lane	DFL	(7.7.2.5)
— Vehicle Dimensions	VED	(7.7.2.6)
— Speed	SPE	(7.7.2.7)
— Rate of Incline	ROI	(7.7.2.8)
— Distance Between Vehicles	DBV	(7.7.2.9)
— Destination/Direction/Distance	DDD	(7.7.2.10)

NOTE Each DE has its own qualifiers carrying coded values.

Attributes defined can be used mainly for Traffic Sign Pictograms. For details, see 'Annex A: List of GDD Attributes':

6.7.2 Data Element

6.7.2.1 DTM (Date/Time/Period)

Definition: Code DTM indicates the date/ time/ period status when the sign is valid and consists of qualifiers on 'Year,' 'Month and Day,' 'Hour and Minute,' 'Day of the week,' and 'Time Limit.' Also, 'Start' and 'End' properties are prepared for all these qualifiers. As for 'Special Month and Day,' only the assigned day is applicable to any regulation. (If needed, it may be followed by the 'Start' and 'End' properties.) These qualifiers must be used in DTM occurrences. Moreover, two or more values may be assigned to each qualifier.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
DTM (Date / Time / Period)	SYR	Year (Start)	YYYY	Year: 0-9999	none	none
	EYR	Year (End)	YYYY	Year: 0-9999	none	non
	SMD	Month & Day (Start)	MMDD	Month: 1-12 Day: 1-31 LCL: Local time	none	none
	EMD	Month & Day (End)	MMDD	Month: 1-12 Day: 1-31 LCL: Local time	none	none
	PMD	Special Month & Day	MMDD	Month: 1-12 Day: 1-31 LCL: Local time NAH: National Holiday EVD: Even days ODD: Odd days	none	none
	SHM	Hour & Minute (Start)	HHMM	Hour: 1-23 Minute: 0-59 LCL: Local time	none	none
	EHM	Hour & Minute (End)	HHMM	Hour: 1-23 Minute: 0-59 LCL: Local time	none	none
	SDY	Day of the week (Start)	WWW	Assigned according to 'ISO 8601' 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday	none	none
	EDY	Day of the week (End)	WWW	Assigned according to 'ISO 8601' 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday	none	none
	LHM	Hour & Minute	NNN	Hour Minute	HOR: Hour MIN: Minute	Hour Minute

EXAMPLE

Parking or No Parking with Time Limit

The left sign indicates that parking is allowed between 8:00 and 20:00 hours for maximum 60 minutes, 'SHM: 8 hours' and 'EHM: 20 hours' give starting and ending times respectively, and 'LHM: 60 minutes' gives a time duration. The right sign is that parking is not allowed in the time period indicated. These values are variable according to the change in ambient and/or road conditions. If a special event such as festival or parade is held, date attributes (SYR, SMD, EYR, EMD) are assigned temporally. 'Exclusive Lane Route Bus' and 'Assigned Lane for Trucks' are other examples of the application of DTM. Furthermore, there is a case of plural DTM assignments, such as two time periods of '8-10' and '16-20' for parking.



6.7.2.1.1 ASN.1 Description of DTM

--
-- DTM(Date/Time/Period):
--

DTMAttributeTable OBJECT-TYPE
SYNTAX SEQUENCE OF AttrDTMEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
 "Date/Time/Period Group"
 ::= { TTIAAttributeDEs 1 }

AttrDTMEntry OBJECT-TYPE
SYNTAX AttrDTMEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
 "Date/Time/Period Entry "
INDEX { AttrDTMEntryIndex }
 ::= { DTMAttributeTable 1 }

AttrDTMEntry ::= SEQUENCE {
 AttrDTMEntryIndex INTEGER ,
 AttrDTMSYR INTEGER ,
 AttrDTMEYR INTEGER ,
 AttrDTMSMD OCTET STRING ,
 AttrDTMEMD OCTET STRING ,
 AttrDTMPMD OCTET STRING ,
 AttrDTMSHM OCTET STRING ,
 AttrDTMEHM OCTET STRING ,
 AttrDTMSDY INTEGER ,
 AttrDTMEDY INTEGER ,
 AttrDTMLHM OCTET STRING
}

AttrDTMEntryIndex OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "INDEX of DTM Entry "
 ::= { AttrDTMEntry 1 }

AttrDTMSYR OBJECT-TYPE
SYNTAX INTEGER (0..9999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Year(Start)
 Data Format(Default):YYYY
 year (0-9999) "
 ::= { AttrDTMEntry 2 }

AttrDTMEYR OBJECT-TYPE
SYNTAX INTEGER (0..9999)
ACCESS read-only
STATUS mandatory

DESCRIPTION

"Year(End)

Data Format(Default):YYYY

year (0-9999) "

::= { AttrDTMEntry 4 }

AttrDTMSMD OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Month & Day(Start)

Data Format(Default):MMDD

Month: 1-12

Day : 1-31

LCL : local time "

::= { AttrDTMEntry 6 }

AttrDTMEMD OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Month & Day(End)

Data Format(Default):MMDD

Month: 1-12

Day : 1-31

LCL : local time "

::= { AttrDTMEntry 8 }

AttrDTMPMD OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Special Month & Day

Data Format(Default):MMDD

Month: 1-12

Day : 1-31

LCL : Local time

NAH : National Holiday

EVD : Even days

ODD : Odd days "

::= { AttrDTMEntry 10 }

AttrDTMSHM OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Hour & Minute(Start)

Data Format(Default):HHMM

Hour : 0-23

Minute : 0-59

LCL : local time "

::= { AttrDTMEntry 12 }

AttrDTMEHM OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only
STATUS mandatory
DESCRIPTION
"Hour & Minute(End)
Data Format(Default):HHMM
Hour : 0-23
Minute : 0-59
LCL : local time "
::= { AttrDTMEntry 14 }

AttrDTMSDY OBJECT-TYPE

SYNTAX INTEGER {
Monday(1) ,
Tuesday(2) ,
Wednesday(3) ,
Thursday(4) ,
Friday(5) ,
Saturday(6) ,
Sunday (7)
}

ACCESS read-only
STATUS mandatory
DESCRIPTION
"Day of the week(Start)
Data Format(Default):WWW
Assigned according to 'ISO 8601'
1: Monday
2: Tuesday
3: Wednesday
4: Thursday
5: Friday
6: Saturday
7: Sunday "
::= { AttrDTMEntry 16 }

AttrDTMEDY OBJECT-TYPE

SYNTAX INTEGER {
Monday(1) ,
Tuesday(2) ,
Wednesday(3) ,
Thursday(4) ,
Friday(5) ,
Saturday(6) ,
Sunday (7)
}

ACCESS read-only
STATUS mandatory
DESCRIPTION
"Day of the week(End)
Data Format(Default):WWW
Assigned according to 'ISO 8601'
1: Monday
2: Tuesday
3: Wednesday
4: Thursday
5: Friday
6: Saturday
7: Sunday "
::= { AttrDTMEntry 18 }

AttrDTMLHM OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Time Limit (Hour & Minute)
 Data Format(Default):HHMM
 Hour : 0-23
 Minute: 0-59
 LCL : local time "
 ::= { AttrDTMEntry 20 }

6.7.2.2 EDT (Exemption Status of Date/Time/Period)

Definition: Code EDT indicates the Day/ time/ period status to be exempted when the sign is invalid and contains qualifiers on 'Year,' 'Month and Day,' 'Hour and Minute,' 'Day of the week,' and 'Time Limit.' Also, 'Start' and 'End' properties are prepared for all these qualifiers. As for 'Special Month and Day,' only the assigned day is applicable to any regulation. (If needed, it may be followed by the 'Start' and 'End' properties.) These qualifiers must be used in EDT occurrences. Moreover, two or more values may be assigned to each qualifier.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
ETM (Exemption Status of Date/ Time / Period)	SYR	Year (Start)	YYYY	Year: 0-9999	none	none
	EYR	Year (End)	YYYY	Year: 0-9999	none	non
	SMD	Month & Day (Start)	MMDD	Month: 1-12 Day: 1-31 LCL: Local time	none	none
	EMD	Month & Day (End)	MMDD	Month: 1-12 Day: 1-31 LCL: Local time	none	none
	PMD	Special Month & Day	MMDD	Month: 1-12 Day: 1-31 LCL: Local time NAH: National Holiday EVD: Even days ODD: Odd days	none	none
	SHM	Hour & Minute (Start)	HHMM	Hour: 1-23 Minute: 0-59 LCL: Local time	none	none
	EHM	Hour & Minute (End)	HHMM	Hour: 1-23 Minute: 0-59 LCL: Local time	none	none
	SDY	Day of the week (Start)	WWW	Assigned according to 'ISO 8601' 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday	none	none
	EDY	Day of the week (End)	WWW	Assigned according to 'ISO 8601' 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday 7: Sunday	none	none
	LHM	Hour & Minute	NNN	Hour Minute	HOR: Hour MIN: Minute	Hour Minute

EXAMPLE

'Parking with Time Limit and Day Exemption'

The sign tells that parking for 60 minutes is allowed between 8:00 to 20:00 hours except for Sundays and holidays, using qualifiers 'SDY' and 'EDY'. Furthermore, there are other cases where two or more values can be assigned to each qualifier, such as 'Exempt on Sunday/Holiday and Saturday' for day-of-the week exemption representation.



6.7.2.2.1 ASN.1 Description of EDT

```
--
-- EDT(Exemption Status of Date/Time/Period):
--

EDTAttributeTable OBJECT-TYPE
    SYNTAX SEQUENCE OF AttrEDTEntry
    ACCESS not-accessible
    STATUS mandatory
    DESCRIPTION
        "Exemption Status of Date/Time/Period Group"
    ::= { TTIAAttributeDEs 2 }

AttrEDTEntry OBJECT-TYPE
    SYNTAX AttrEDTEntry
    ACCESS not-accessible
    STATUS mandatory
    DESCRIPTION
        "Exemption Status of Date/Time/Period Entry "
    INDEX { AttrEDTEntryIndex }
    ::= { EDTAttributeTable 1 }

AttrEDTEntry ::= SEQUENCE {
    AttrEDTEntryIndex INTEGER ,
    AttrEDTSYR OCTET STRING ,
    AttrEDTEYR INTEGER ,
    AttrEDTSMD OCTET STRING ,
    AttrEDTEMD OCTET STRING ,
    AttrEDTPMD OCTET STRING ,
    AttrEDTSHM OCTET STRING ,
    AttrEDTEHM OCTET STRING ,
    AttrEDTSDY INTEGER ,
    AttrEDTEDY INTEGER ,
    AttrEDTLHM OCTET STRING
}

AttrEDTEntryIndex OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "INDEX of EDT Entry "
    ::= { AttrEDTEntry 1 }

AttrEDTSYR OBJECT-TYPE
    SYNTAX INTEGER ( 0..9999 )
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Year(Start)
        Data Format(Default):YYYY
        year (0-9999) "
    ::= { AttrEDTEntry 2 }

AttrEDTEYR OBJECT-TYPE
    SYNTAX INTEGER ( 0..9999 )
    ACCESS read-only
    STATUS mandatory
```

DESCRIPTION

"Year(End)

Data Format(Default):YYYY

year (0-9999) "

::= { AttrEDTEntry 4 }

AttrEDTSMD OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Month & Day(Start)

Data Format(Default):MMDD

Month : 1-12

Day : 1-31

LCL : local time "

::= { AttrEDTEntry 6 }

AttrEDTEMD OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Month & Day(End)

Data Format(Default):MMDD

Month : 1-12

Day : 1-31

LCL : local time "

::= { AttrEDTEntry 8 }

AttrEDTPMD OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Special Month & Day

Data Format(Default):MMDD

Month : 1-12

Day : 1-31

LCL : local time

NAH : National Holiday

EVD : Even days

ODD : Odd days "

::= { AttrEDTEntry 10 }

AttrEDTSHM OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory

DESCRIPTION

"Hour & Minute(Start)

Data Format(Default):HHMM

Hour : 0-23

Minute : 0-59

LCL : local time "

::= { AttrEDTEntry 12 }

AttrEDTEHM OBJECT-TYPE

SYNTAX OCTET STRING

ACCESS read-only

STATUS mandatory
DESCRIPTION
"Hour & Minute(End)
Data Format(Default):HHMM
Hour : 0-23
Minute : 0-59
LCL : local time "
::= { AttrEDTEntry 14 }

AttrEDTSDY OBJECT-TYPE
SYNTAX INTEGER {
Monday(1) ,
Tuesday(2) ,
Wednesday(3) ,
Thursday(4) ,
Friday(5) ,
Saturday(6) ,
Sunday (7)
}
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Day of the week(Start)
Data Format(Default):WWW
Assigned according to 'ISO 8601'
1: Monday
2: Tuesday
3: Wednesday
4: Thursday
5: Friday
6: Saturday
7: Sunday "
::= { AttrEDTEntry 16 }

AttrEDTEDY OBJECT-TYPE
SYNTAX INTEGER {
Monday(1) ,
Tuesday(2) ,
Wednesday(3) ,
Thursday(4) ,
Friday(5) ,
Saturday(6) ,
Sunday (7)
}
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Day of the week(End)
Data Format(Default):WWW
Assigned according to 'ISO 8601'
1: Monday
2: Tuesday
3: Wednesday
4: Thursday
5: Friday
6: Saturday
7: Sunday "
::= { AttrEDTEntry 18 }

AttrEDTLHM OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Time Limit (Hour & Minute)
 Data Format(Default):HHMM
 Hour : 0-23
 Minute : 0-59
 LCL : local time "
 ::= { AttrEDTEntry 20 }

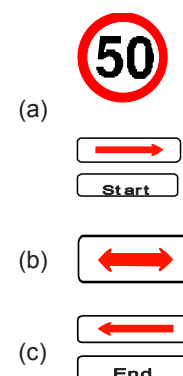
6.7.2.3 SET (Section)

Definition: Code SET indicates a roadway section within which the sign takes effect and contains qualifiers on 'Starting point & Length,' 'Applicable distance & Length,' and 'End point.' These qualifiers must be used in SET occurrences.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
SET (Section)	SPD	Starting point & Length	NNNN	Length: 1 to 9999 9999 used for only 'Start Point' but no length	KMT: km MTR: m MIL: mile FOT: foot	m
	ADL	Applicable Distance & length	NNNN	Length: 1 to 9999 9999 used for only 'Start Point' but no length	KMT: km MTR: m MIL: mile FOT: foot	m
	EPT	End point				

EXAMPLE**'Mandatory Speed Limitation'**

In this case, the pictogram indicates that 50km/hr speed limitation (a) starts from this point as indicated by qualifier 'SPD', (b) is continuously valid as indicated by qualifier 'ADL', and (c) ends at this point as indicated by qualifier 'EPT'. These values are variable according to the change in ambient and/or road conditions. Signs on vehicle limitation, parking zone and beeping zone also need such attributes of code SET. There are other representations, for example: 'Start from here' or 'Start from xxx m ahead' for (a) 'SPD'; 'Continuously valid for xxx m' for (b) 'ADL'. If distance values are specifically added to the representation, they are also variable according to the change in ambient and/or road conditions.



6.7.2.3.1 ASN.1 Description of SET

--
-- SET (Section):
--

SETAttributeTable OBJECT-TYPE
SYNTAX SEQUENCE OF AttrSETEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
 "Section Group"
 ::= { TTIAAttributeDEs 3 }

AttrSETEntry OBJECT-TYPE
SYNTAX AttrSETEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
 "Section Entry "
 INDEX { AttrSETEntryIndex }
 ::= { SETAttributeTable 1 }

AttrSETEntry ::= SEQUENCE {
 AttrSETEntryIndex INTEGER ,
 AttrSETSPD INTEGER ,
 AttrSETSPDUnitCode OCTET STRING ,
 AttrSETADLINTEGER ,
 AttrSETADLUnitCode OCTET STRING ,
 AttrSETEPTNULL
}

AttrSETEntryIndex OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "INDEX of SET Entry "
 ::= { AttrSETEntry 1 }

AttrSETSPD OBJECT-TYPE
SYNTAX INTEGER (1..9999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Starting point & Length
 Data Format(Default):NNNN
 Length: 1-9999
 9999 used for only 'Start Point' but with no length."
 ::= { AttrSETEntry 2 }

AttrSETSPDUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Unit Code of Starting point & Length
 KMT: km
 MTR: m
 MIL: mile

FOT: foot"
DEFVAL { 'MTR' }
::= { AttrSETEntry 3 }

AttrSETADL OBJECT-TYPE
SYNTAX INTEGER (1..9999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Applicable Distance & Length
 Data Format(Default):NNNN
 Length: 1-9999
 9999 used for only 'Start Point' but with no length."
::= { AttrSETEntry 4 }

AttrSETADLUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Unit Code of Applicable Distance & Length
 KMT: km
 MTR: m
 MIL: mile
 FOT: foot"
DEFVAL { 'MTR' }
::= { AttrSETEntry 5 }

AttrSETEPT OBJECT-TYPE
SYNTAX NULL
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "End point
 Data Format(Default):none "
::= { AttrSETEntry 6 }

6.7.2.4 NOL (Number of Lanes)

Definition: Code NOL indicates the number of lanes and lane numbers in numeric order (1 to NN) from the left in the travelling direction of vehicles. These qualifiers must be used in NOL occurrences.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
NOL	NLN	Number of Lanes	NN	01 to NN	none	none

6.7.2.4.1 ASN.1 Description of NOL

--
-- NOL (Number of Lanes):
--

NOLAttributeTable OBJECT-TYPE
SYNTAX SEQUENCE OF AttrNOLEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Number of Lanes Group"
::= { TTIAAttributeDEs 4 }

AttrNOLEntry OBJECT-TYPE
SYNTAX AttrNOLEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Number of Lanes Entry "
INDEX { AttrNOLEntryIndex }
::= { NOLAttributeTable 1 }

AttrNOLEntry ::= SEQUENCE {
AttrNOLEntryIndex INTEGER ,
AttrNOLNLN INTEGER
}

AttrNOLEntryIndex OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
"INDEX of NOL Entry "
::= { AttrNOLEntry 1 }

AttrNOLNLN OBJECT-TYPE
SYNTAX INTEGER (1..99)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Number of Lanes: 01 to 99 "
::= { AttrNOLEntry 2 }

6.7.2.5 DFL (Directional Flow of Lane)

Definition: Code DFL consists of eight qualifiers, each of which has directional flow of lane. These qualifiers must be used in DFL occurrences.

Data Element Code & Full Name	Data Source				
	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
DFL	Directional Flow of Lane	N	1  Straight direction Only SDL	none	none
			2  Straight and Left Turn Only SLT	none	none
			3  Straight and Right Turn Only SRT	none	none
			4  Left Turn Only LTO	none	none
			5  Right Turn Only RTO	none	none
			6  Convergence from the Left CLL	none	none
			7  Convergence from the Right CRI	none	none
			8  Oncoming Vehicles Lane OVL	none	none

EXAMPLE

Pre-selecting Intersections on Roads with Several Lanes This sign indicates the traffic flow direction of each lane by using the coded values of DFL starting with the left lane. In this case, qualifiers SLT, SDL and RTO are indicated in this order.



Lane Number 1 2 3

6.7.2.5.1 ASN.1 Description of DFL

--
-- DFL (Directional Flow of Lane):
--

DFLAttributeTable OBJECT-TYPE
SYNTAX SEQUENCE OF AttrDFLEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Directional Flow of Lane Group"
::= { TTIAAttributeDEs 5 }

AttrDFLEntry OBJECT-TYPE
SYNTAX AttrDFLEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Directional Flow of Lane Entry "
INDEX { AttrDFLEntryIndex }
::= { DFLAttributeTable 1 }

AttrDFLEntry ::= SEQUENCE {
AttrDFLEntryIndex INTEGER ,
AttrDFL INTEGER
}

AttrDFLEntryIndex OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
"INDEX of DFL Entry "
::= { AttrDFLEntry 1 }

AttrDFL OBJECT-TYPE
SYNTAX INTEGER {
SDL (1) , -- Straight Direction Only
SLT (2) , -- Straight and Left Turn Only
SRT (3) , -- Straight and Right Turn Only
LTO (4) , -- Left Turn Only
RTO (5) , -- Right Turn Only
CLL (6) , -- Convergence from the Left Lane
CRI (7) , -- Convergence from the Right Lane
OVL (8) , -- Oncoming Vehicles Lane
}
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Directional Flow of Lane
1 : Straight Direction Only
2 : Straight and Left Turn Only
3 : Straight and Right Turn Only
4 : Left Turn Only
5 : Right Turn Only
6 : Convergence from the Left Lane
7 : Convergence from the Right Lane
8 : Oncoming Vehicles Lane "
::= { AttrDFLEntry 2 }

6.7.2.6 VED (Vehicle Dimensions)

Definition: Code VED indicates the dimensional limitations or regulations of vehicles and consists of qualifiers on 'Vehicle class,' 'Vehicle class exemption,' 'Vehicle height,' 'Vehicle width,' 'Vehicle weight,' and 'Vehicle length.' These qualifiers must be used in VED occurrences.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
VED (Vehicle Dimensions)	VCL	Vehicle Class	Assigned according to 'CEN prENV/278/8/15 RTTT – Traffic and travel data dictionary - Part 1: General definitions, entities, attributes'			
	VCE	Vehicle Class Exemption	Assigned according to 'CEN prENV/278/8/15 RTTT – Traffic and travel data dictionary - Part 1: General definitions, entities, attributes'			
	HEI	Vehicle Height	NNN.N	Height: 1 to 999.9	MTR: m CMT: cm FOT: foot YRD: yard	m
	WID	Vehicle Width	NNN.N	Width: 1 to 999.9	MTR: m CMT: cm FOT: foot YRD: yard	m
	WEI	Vehicle Weight	NNN.N	Weight: 1 to 999.9	TNE: ton	T
	VLN	Vehicle length	Assigned according to 'CEN prENV/278/8/15 RTTT – Traffic and travel data dictionary - Part 1: General definitions, entities, attributes'			

EXAMPLE**(a) Vehicle Class Regulation**

Indicates that motor vehicles of the class specified by VCL are not allowed to pass through this point. The designated vehicle class can be changed to 'Large Vehicle,' 'Bicycle,' 'Pedestrian' or other classes as well as to any combination of these classes. Vehicle class is also variable according to the change in ambient and/or road conditions. (a)

**(b) Maximum Speed Limitation except for Mopeds (Vehicle class exemption)**

Besides this exemption, 'except for route buses,' 'except for light vehicles,' etc. may be specified by using VCE. In this case, vehicles subject to a maximum speed limitation of 50 km/h exclude mopeds. (b)

**(c) Height Limit**

Indicates that vehicles with a maximum height of 3.3m are permitted to pass through this point as specified by HEI. This value is variable according to the change in ambient and/or road conditions. (c)

**(d) Width Limit**

Indicates that vehicles with a maximum width of 2.2m are permitted to pass through this point as specified by WID. This value is variable according to the change in ambient and/or road conditions (d)

**(e) Weight Limit**

Indicates that vehicles with a maximum weight of 5 tons are permitted to pass through this point as specified by WEI. This value is variable according to the change in ambient and/or road conditions. (e)



6.7.2.6.1 ASN.1 Description of VED

--
-- VED (Vehicle Dimensions):
--

VEDAttributeTable OBJECT-TYPE
SYNTAX SEQUENCE OF AttrVEDEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
 "Vehicle Dimensions Group"
 ::= { TTIAAttributeDEs 6 }

AttrVEDEntry OBJECT-TYPE
SYNTAX AttrVEDEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
 "Vehicle Dimensions Entry "
INDEX { AttrVEDEntryIndex }
::= { VEDAttributeTable 1 }

AttrVEDEntry ::= SEQUENCE {
 AttrVEDEntryIndex INTEGER ,
 AttrVEDVCL OCTET STRING ,
 AttrVEDVCE OCTET STRING ,
 AttrVEDHEI INTEGER ,
 AttrVEDHEIUnitCode OCTET STRING ,
 AttrVEDWID INTEGER ,
 AttrVEDWIDUnitCode OCTET STRING ,
 AttrVEDWEI INTEGER ,
 AttrVEDWEIUnitCode OCTET STRING ,
 AttrVEDVLN OCTET STRING
}

AttrVEDEntryIndex OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "INDEX of VED Entry "
 ::= { AttrVEDEntry 1 }

AttrVEDVCL OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Vehicle class
 Assigned according to 'CEN prENV/278/8/15 RTT - Traffic and
 travel data dictionary - Part 1:
 General definitions, entities, attributes'"
 ::= { AttrVEDEntry 2 }

AttrVEDVCE OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION

"Vehicle class exemption
Assigned according to 'CEN prENV/278/8/15 RTTT - Traffic and
travel data dictionary - Part 1:
General definitions, entities, attributes"
::= { AttrVEDEntry 4 }

AttrVEDHEI OBJECT-TYPE
SYNTAX REAL (0..999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Vehicle height
Data Format(Default):NNN
height: 1-999"
::= { AttrVEDEntry 6 }

AttrVEDHEIUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Unit Code of Vehicle height
MTR: m
CMT: cm
FOT: foot
YRD: yard"
DEFVAL { 'MTR' }
::= { AttrVEDEntry 7 }

AttrVEDWID OBJECT-TYPE
SYNTAX REAL (0..999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Vehicle width
Data Format(Default):NNN
width: 1-999"
::= { AttrVEDEntry 8 }

AttrVEDWIDUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Unit Code of Vehicle width
MTR: m
CMT: cm
FOT: foot
YRD: yard"
DEFVAL { 'MTR' }
::= { AttrVEDEntry 9 }

AttrVEDWEI OBJECT-TYPE
SYNTAX REAL (0..999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Vehicle weight
Data Format(Default):NNN

weight: 1-999"
::= { AttrVEDEntry 10 }

AttrVEDWEIUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Unit Code of Vehicle weight
TNE: t
"
DEFVAL { 'TNE' }
::= { AttrVEDEntry 11 }

AttrVEDVLN OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Vehicle length
Assigned according to 'CEN prENV/278/8/15 RTTT - Traffic and
travel data dictionary - Part 1:
General definitions, entities, attributes"
::= { AttrVEDEntry 12 }

6.7.2.7 SPE (Speed)

Definition: Code SPE indicates the limit values of vehicle speeds and consists of qualifiers on 'Maximum speed' and 'Minimum speed.' These qualifiers must be used in SPE occurrences.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
SPE (Speed)	SPM	Max. speed	NNN	Speed: 1-250	KMH: km/hr	Km/hr
	MNS	Min. speed	NNN	Speed: 1-250	KMH: km/hr	Km/hr

EXAMPLE**(a) Mandatory Maximum Speed Limitation**

Indicates that vehicles with a maximum speed of 50km/hr are permitted to pass through this point as specified by SPM. This value is variable according to the change in ambient and/or road conditions. This regulation may also be enforced in conjunction with the vehicle class limitation. (a)

**(b) Mandatory Minimum Speed Limitation**

Indicates that vehicles using the road at the entrance to which this sign is placed shall travel at not less than the speed specified by MNS. This value is variable according to the change in ambient and/or road conditions. This regulation may also be enforced in conjunction with the vehicle class limitation. (b)



6.7.2.7.1 ASN.1 Description of SPE

--
-- SPE (Speed):
--

SPEAttributeTable OBJECT-TYPE
SYNTAX SEQUENCE OF AttrSPEEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Speed Group"
::= { TTIAAttributeDEs 7 }

AttrSPEEntry OBJECT-TYPE
SYNTAX AttrSPEEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Speed Entry "
INDEX { AttrSPEEntryIndex }
::= { SPEAttributeTable 1 }

AttrSPEEntry ::= SEQUENCE {
AttrSPEEntryIndex INTEGER ,
AttrSPESPM INTEGER ,
AttrSPESPMUnitCode OCTET STRING ,
AttrSPEMNS INTEGER ,
AttrSPEMNSUnitCode OCTET STRING
}

AttrSPEEntryIndex OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
"INDEX of SPE Entry "
::= { AttrSPEEntry 1 }

AttrSPESPM OBJECT-TYPE
SYNTAX INTEGER (1..250)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Max. speed
Data Format(Default):NNN
Speed: 1-250"
::= { AttrSPEEntry 2 }

AttrSPESPMUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Unit Code of Max. speed
KMH: km/hr
MIH: mile/hr"
DEFVAL { 'KMH' }
::= { AttrSPEEntry 3 }

AttrSPEMNS OBJECT-TYPE
SYNTAX INTEGER (1..100)
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Min. speed
 Data Format(Default):NNN
 Speed: 1-100"
::= { AttrSPEEntry 4 }

AttrSPEMNSUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Unit Code of Min. speed
 KMH: km/hr
 MIH: mile/hr"
DEFVAL { 'KMH' }
::= { AttrSPEEntry 5 }

6.7.2.8 ROI (Rate of Incline)

Definition: Code ROI indicates the rate of incline of a roadway expressed in percentage and consists of qualifiers on 'Uphill' and 'Downhill.' These qualifiers must be used in ROI occurrences.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
RO (Rate of Incline)	UHL	Uphill	NN	Percentage: 1 to 99	PER: %	%
	DHL	Downhill	NN	Percentage: 1 to 99	PER: %	%

EXAMPLE

a) 'Slope' - 'Uphill'

Indicates that there is an uphill slope with an inclination of about 10% which starts from this point as specified by UHL. This sign is intended to arouse attention of heavy motor vehicles and/or trucks with full loads so as to prevent any traffic obstruction.



(b) 'Slope' - 'Downhill'

Indicates that there is a downhill slope with an inclination of about 10% which starts from this point as specified by DHL. This sign is intended to arouse attention of heavy motor vehicles and/or trucks with full loads so as to prevent any traffic obstruction.



6.7.2.8.1 ASN.1 Description of ROI

```
--
-- ROI (Rate of Incline):
--

ROIAttributeTable OBJECT-TYPE
    SYNTAX SEQUENCE OF AttrROIEEntry
    ACCESS not-accessible
    STATUS mandatory
    DESCRIPTION
        "Rate of Incline Group"
    ::= { TTIAAttributeDEs 8 }

AttrROIEEntry OBJECT-TYPE
    SYNTAX AttrROIEEntry
    ACCESS not-accessible
    STATUS mandatory
    DESCRIPTION
        "Rate of Incline Entry "
    INDEX { AttrROIEEntryIndex }
    ::= { ROIAttributeTable 1 }

AttrROIEEntry ::= SEQUENCE {
    AttrROIEEntryIndex INTEGER ,
    AttrROIUHL INTEGER ,
    AttrROIUHLUnitCodeOCTET STRING ,
    AttrROIDHL INTEGER ,
    AttrROIDHLUnitCodeOCTET STRING
}

AttrROIEEntryIndex OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "INDEX of ROI Entry "
    ::= { AttrROIEEntry 1 }

AttrROIUHL OBJECT-TYPE
    SYNTAX INTEGER ( 1..99 )
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Uphill
        Data Format(Default):NN
        Percentage: 1-99 "
    ::= { AttrROIEEntry 2 }

AttrROIUHLUnitCode OBJECT-TYPE
    SYNTAX OCTET STRING
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Unit Code of Uphill
        PER: percent "
    DEFVAL { 'PER' }
    ::= { AttrROIEEntry 3 }
```

AttrROIDHL OBJECT-TYPE
SYNTAX INTEGER (1..99)
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Downhill
 Data Format(Default):NN
 Percentage: 1-99 "
::= { AttrROEntry 4 }

AttrROIDHLUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Unit Code of Downhill
 PER: percent "
DEFVAL { 'PER' }
::= { AttrROEntry 5 }

6.7.2.9 DBV (Distance Between Vehicles)

Definition: Code DBV indicates the value of a distance between vehicles (i.e., vehicular gap) and has a qualifier on 'Gap.' This qualifier must be used in DBV occurrences.

Data Element Code & Full Name	Data Source					
	Qualifier	Full Name	Data Format (Default)	Coded Value	Unit Code	Default Units
DBV (Distance between vehicles)	GAP	Vehicular gap	NNN	Length: 1 to 999	MTR: m FOT: foot	m

EXAMPLE

Driving of Vehicles Less than XXm apart Prohibited'

Indicates that a distance as specified by GAP must be kept between the front end of one vehicle and the rear end of another preceding vehicle. In this example, travelling of vehicles with a gap less than the given distance is prohibited. This value is variable according to the change in ambient and/or road conditions.

**6.7.2.9.1 DBV (Distance Between Vehicles)**

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-- DBV (Distance Between Vehicles):

DBVAttributeTable OBJECT-TYPE
SYNTAX SEQUENCE OF AttrDBVEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Distance Between Vehicles Group"
::= { TTIAAttributeDEs 9 }

AttrDBVEntry OBJECT-TYPE
SYNTAX AttrDBVEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"Distance Between Vehicles Entry "
INDEX { AttrDBVEntryIndex }
::= { DBVAttributeTable 1 }

AttrDBVEntry ::= SEQUENCE {
AttrDBVEntryIndex INTEGER ,
AttrDBVGAP INTEGER ,
AttrDBVGAPUnitCode OCTET STRING
}

AttrDBVEntryIndex OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION
"INDEX of DBV Entry "

::= { AttrDBVEntry 1 }

AttrDBVGAP OBJECT-TYPE
SYNTAX INTEGER (1..999)
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Vehicular gap
 Data Format(Default):NNN
 Length: 1-999 "
::= { AttrDBVEntry 2 }

AttrDBVGAPUnitCode OBJECT-TYPE
SYNTAX OCTET STRING
ACCESS read-only
STATUS mandatory
DESCRIPTION
 "Unit Code of Vehicular gap
 MTR: m
 FOT: foot "
DEFVAL { 'MTR' }
::= { AttrDBVEntry 3 }