



SLOVENSKI STANDARD
SIST ETS 300 777-1 E1:2003
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Terminalska oprema (TE) – Protokoli sistema konec-konec za multimedijske informacijske poiskavne storitve – 1. del: Kodiranje multimedijskih in hipermedijskih podatkov za osnovne multimedijske aplikacije (MHEG-5)

Terminal Equipment (TE); End-to-end protocols for multimedia information retrieval services; Part 1: Coding of multimedia and hypermedia information for basic multimedia applications (MHEG-5)

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ICS:

33.160.60	Multimedia systems and teleconferencing equipment
35.180	Terminalska in druga periferna oprema IT

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**Terminal Equipment (TE);
End-to-end protocols for, multimedia information
retrieval services;
Part 1: Coding of multimedia and hypermedia
information for basic
multimedia applications (MHEG-5)**

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS consists of four parts as follows:

- Part 1:** "Coding of multimedia and hypermedia information for basic multimedia applications (MHEG-5)";
- Part 2: "Use of Digital Storage Media Command and Control (DSM-CC) for basic multimedia applications";
- Part 3: "Application Programmable Interface (API) for MHEG-5 ";
- Part 4: "Videotex Man Machine Interface (VEMMI) enhancements to support broadband multimedia information retrieval services".

Transposition dates	
Date of adoption:	5 September 1997
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1 Scope

This European Telecommunications Standard (ETS) specifies the MHEG part 5 Abstract Syntax Notation One (ASN.1) notation consisting of a syntax description (equivalent to the Extended Backus Naur Form (EBNF) syntax) and encoding rules.

MHEG part 5 (ISO/IEC IS 13522-5 [1]) specifies the coded representation of interchanged multimedia/hypermedia information objects (MHEG-5 objects) for use in the domain of base-level interactive applications such as movies-on-demand, teleshopping, near video-on-demand.

MHEG-5 specifies objects and their semantics using an informal text description. It also provides a formal description of the interchanged objects syntax using EBNF.

This specification is included in ISO/IEC IS 13522-5 [1] as normative annex A.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ISO/IEC 13522-5 (1996): "Information technology - Coding of Multimedia and Hypermedia information - Part 5: Support for Base-Level Interactive Applications".
- [2] ISO/IEC 8824-1 (1996)/ITU-T Recommendation X.680 (1995): "Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation (Amendment 1)".
- [3] ISO/IEC 8825-1 (1996)/ITU-T Recommendation X.690 (1995): "Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the definitions in ISO/IEC IS 13522-5 [1], ISO/IEC 8824-1 [2] and ISO/IEC 8825-1 [3] apply.

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

ASN.1	Abstract Syntax Notation One
BER	Basic Encoding Rules
DER	Distinguished Encoding Rules
EBNF	Extended Backus Naur Form
MHEG	Multimedia and Hypermedia Expert Group

4 MHEG-5 ASN.1 notation design principles

Designing an ASN.1 encoding is always a trade-off between the compactness of the encoded datasyntax and the compactness of the ASN.1 parser required. As this syntax is designed to run on a minimal resource platform, the compactness of the ASN.1 parser is favoured with regard to the compactness of the interchanged code.

These constraints lead to the following design principles:

- 1) use of semantic constraints to allow parsers to do more conformance checking;
- 2) use of context-free tags to allow parsers to do strong type checking;
- 3) uniform structure for elementary action to allow parsers to use a general algorithm.

5 MHEG-5 ASN.1 notation

This clause defines the ASN.1 notation for the syntax of MHEG-5 objects conforming to ISO/IEC 13522-5 [1].

The encoding of the MHEG-5 objects from this ASN.1 syntax shall make use of the Distinguished Encoding Rules (DER) defined in ISO/IEC 8825-1 [3].

The syntax that shall be used in the DER is detailed below:

```
--$PREFIX=ISOMHEG-mheg-5:mheg-5
-- Module: mheg-5
```

```
ISO13522-MHEG-5
```

```
{joint-iso-itu-t(2) mheg(19) version(1) mheg-5(17)} DEFINITIONS IMPLICIT
```

```
TAGS ::=
```

```
BEGIN
```

```
-- This module defines the MHEG-5 abstract syntax which consists of data values of type:
```

```
-- ISO13522-MHEG-5.InterchangedObject.
```

```
-- This abstract syntax is identified by the name: {joint-iso-itu-t(2) mheg(19) version(1) mheg-5(17)}.
```

```
InterchangedObject ::= CHOICE
```

```
{
  application  [0] ApplicationClass,
  scene       [1] SceneClass
}
```

```
-- Root Class _____
```

```
RootClass ::= ObjectReference
```

```
-- Group Class _____
```

```
GroupClass ::= SET
```

```
{
  RootClass (WITH COMPONENTS
    {external-reference (WITH COMPONENTS {..., object-number (0)}) PRESENT,
     internal-reference ABSENT}),
  standard-identifier [2] StandardIdentifier OPTIONAL,
  standard-version [3] INTEGER (1) OPTIONAL,
  object-information [4] OCTET STRING OPTIONAL,
  on-start-up [5] ActionClass OPTIONAL,
  on-close-down [6] ActionClass OPTIONAL,
  original-group-cache-priority [7] INTEGER (0..255) DEFAULT 127,
  items [8] SEQUENCE SIZE (1..MAX) OF GroupItem OPTIONAL
}
```

```
StandardIdentifier ::= SEQUENCE
```

```
{
  joint-iso-itu INTEGER (2),
  mheg INTEGER (19)
}
```

```
GroupItem ::= CHOICE
```

```
{
  resident-program [9] ResidentProgramClass,
  remote-program [10] RemoteProgramClass,
  interchanged-program [11] InterchangedProgramClass,
  palette [12] PaletteClass,
  font [13] FontClass,
  cursor-shape [14] CursorShapeClass,
}
```

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```

boolean-variable [15] BooleanVariableClass,
integer-variable [16] IntegerVariableClass,
octet-string-variable [17] OctetStringVariableClass,
object-ref-variable [18] ObjectRefVariableClass,
content-ref-variable [19] ContentRefVariableClass,
link [20] LinkClass,
stream [21] StreamClass,
bitmap [22] BitmapClass,
line-art [23] LineArtClass,
dynamic-line-art [24] DynamicLineArtClass,
rectangle [25] RectangleClass,
hotspot [26] HotspotClass,
switch-button [27] SwitchButtonClass,
push-button [28] PushButtonClass,
text [29] TextClass,
entry-field [30] EntryFieldClass,
hyper-text [31] HyperTextClass,
slider [32] SliderClass,
token-group [33] TokenGroupClass,
list-group [34] ListGroupClass
}

-- . Application Class _____

ApplicationClass ::= SET
{
  COMPONENTS OF GroupClass,
  on-spawn-close-down [35] ActionClass OPTIONAL,
  on-restart [36] ActionClass OPTIONAL,
  default-attributes [37] SEQUENCE SIZE (1..MAX) OF DefaultAttribute OPTIONAL
}

DefaultAttribute ::= CHOICE
{
  character-set [38] INTEGER,
  background-colour [39] Colour,
  text-content-hook [40] INTEGER,
  text-colour [41] Colour,
  font [42] FontBody,
  font-attributes [43] OCTET STRING,
  interchanged-program-content-hook [44] INTEGER,
  stream-content-hook [45] INTEGER,
  bitmap-content-hook [46] INTEGER,
  line-art-content-hook [47] INTEGER,
  button-ref-colour [48] Colour,
  highlight-ref-colour [49] Colour,
  slider-ref-colour [50] Colour
}

FontBody ::= CHOICE
{
  direct-font OCTET STRING,
  indirect-font ObjectReference
}

-- Scene Class _____

SceneClass ::= SET
{
  COMPONENTS OF GroupClass,
  input-event-register [51] INTEGER,
  scene-coordinate-system [52] SceneCoordinateSystem,
  aspect-ratio [53] AspectRatio DEFAULT {width 4, height 3},
  moving-cursor [54] BOOLEAN DEFAULT FALSE,
  next-scenes [55] SEQUENCE SIZE (1..MAX) OF NextScene OPTIONAL
}

SceneCoordinateSystem ::= SEQUENCE
{
  x-scene INTEGER,
  y-scene INTEGER
}

AspectRatio ::= SEQUENCE
{
  width INTEGER,
  height INTEGER
}

NextScene ::= SEQUENCE
{
  scene-ref OCTET STRING,
  scene-weight INTEGER (0..255)
}

-- . Ingredient Class _____

```