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INTERNATIONAL STANDARD

ISO 8613-5

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Information processing — Text and office systems — Office Document Architecture (ODA) and interchange format —

Part 5 :
Office Document Interchange Format (ODIF)

Traitement de l'information — Bureautique — Architecture des documents de bureau (ODA) et format d'échange —

Partie 5 : Format d'échange de documents de bureau

Reference number
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Contents

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75% approval by the member bodies voting.

International Standard ISO 8613-5 was prepared by Technical Committee ISO/TC 97, *Information processing systems.*

At present, ISO 8613 consists of seven parts:

- part 1, Introduction and general principles;
- part 2, Document structures;
- part 4, Document profile;
- part 5, Office document interchange format (ODIF);
- part 6, Character content architectures;
- part 7, Raster graphics content architectures;
- part 8, Geometric graphics content architectures.

NOTE – At present, there is no part 3.

Further parts may be added to this International Standard.

Development of this International Standard has been in parallel with:

- ECMA 101: 1985, *Office document architecture*;
- CCITT Recommendation T.73 (1984) : *Document interchange protocol for the telematic services*;
- CCITT Recommendations in the T.410 series (1988) : *Open Document Architecture (ODA) and Interchange Format.*

This part contains six annexes:

- annex A (informative): Coded representation;
- annex B (normative): Application class tag assignments;
- annex C (informative): Summary of object identifiers;
- annex D (informative): Examples;
- annex E (normative): Office Document Language (ODL);
- annex F (informative): Examples of Office Document Language representations.

Information processing — Text and office systems — Office Document Architecture (ODA) and interchange format —

Part 5 : Office Document Interchange Format (ODIF)

1 Scope

The purpose of ISO 8613 is to facilitate the interchange of documents.

In the context of ISO 8613, documents are considered to be items such as memoranda, letters, invoices, forms and reports, which may include pictures and tabular material. The content elements used within the documents may include graphic characters, geometric graphics elements and raster graphics elements, all potentially within one document.

NOTE – ISO 8613 is designed to allow for extensions, including typographical features, colour, spreadsheets and additional types of content such as sound.

ISO 8613 applies to the interchange of documents by means of data communications or the exchange of storage media.

ISO 8613 provides for the interchange of documents for either or both of the following purposes:

- to allow presentation as intended by the originator;
- to allow processing such as editing and reformatting.

The composition of a document in interchange can take several forms:

- formatted form, allowing presentation of the document;
- processable form, allowing processing of the document;
- formatted processable form, allowing both presentation and processing.

ISO 8613 also provides for the interchange of ODA information structures used for the processing of interchanged documents.

Furthermore, ISO 8613 allows for the interchange of documents containing one or more different types of content such as character text, images, graphics and sound.

This part of ISO 8613 defines

- the format of the data stream used to interchange documents structured in accordance with ISO 8613–2;
- the representation of the constituents which may appear in an interchanged document.

NOTES

1 This part of ISO 8613 does not specify the coded representation of content elements.

2 Data formats for presentation attributes and coding attributes are defined in other parts of ISO 8613.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8613. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8613 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 8601 : 1988, *Data elements and interchange formats – Information interchange – Representation of dates and times.*

ISO 8613 : 1989, *Information processing – Text and office systems – Office Document Architecture (ODA) and Interchange Format –*

Part 1 – Introduction and general principles;

Part 2 – Document structures;

Part 4 – Document profile;

Part 6 – Character content architectures;

Part 7 – Raster graphics content architectures;

Part 8 – Geometric graphics content architectures.

ISO 8824 : 1987, *Information processing – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1).*

ISO 8824 Add.1 : [1], *Information processing systems – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1) – Addendum 1 : ASN.1 extensions.*

ISO 8825 : 1987, *Information processing – Open Systems Interconnection – Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1).*

ISO 8825 Add.1 : [1], *Information processing systems – Open Systems Interconnection – Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1) – Addendum 1 : ASN.1 extensions.*

ISO 8879 : 1986, *Information processing – Text and office systems – Standard Generalized Markup Language (SGML).*

ISO 9069 : 1988, *Information processing – SGML support facilities – SGML Document Interchange Format (SDIF).*

ISO 9541–6 : [1], *Information processing – Font and character information interchange – Part 6: Font and character attribute subsets and applications.*

3 Definitions

For the purpose of this part of ISO 8613, the definitions given in ISO 8613–1 apply.

[1] To be published.

4 Document representations

A document structured in accordance with ISO 8613 is represented for interchange by either the Office Document Interchange Format (ODIF), or the Office Document Language (ODL) in conjunction with the SGML Document Interchange Format (SDIF). The ODIF and ODL/SDIF representations are technically equivalent; a document can be transformed from one to the other without loss of information about the document constituents and attributes.

NOTE – Both data structure (ODIF) and language (ODL) representations have been standardized in order to meet the document representation requirements of distinct application environments. ODIF, being a data structure specified using ASN.1, is particularly intended for use in an OSI environment. ODL is particularly appropriate for systems that share information through marked–up text files, especially where human users can access the markup directly.

4.1 ODIF

ODIF is an abstract data syntax in which the constituents and attributes of the document are represented by a hierarchy of data structures and data items, specified using the abstract syntax notation ASN.1 defined in ISO 8824.

The coded representation of each data structure or data item is obtained by applying a set of encoding rules.

ODIF is specified in clause 5.

NOTE – ASN.1 is a formal description method that allows data types relevant to an application to be specified in terms of other data types, including basic data types such as "integer" and "octet string" which are defined in ISO 8824 itself. Basic encoding rules for ASN.1 are defined in ISO 8825 and are summarized in annex A.

4.2 ODL and SDIF

ODL is a language in which the constituents and attributes of the document are identified by descriptive tags, and are grouped into one or more storage entities (e.g. files) as the user may require.

For interchange, each ODL entity is represented as a single data structure or data item, specified using ASN.1, in a data stream constructed according to the SGML Document Interchange Format defined in ISO 9069.

ODL is specified in annex E (normative).

NOTE – ODL is an SGML application conforming to ISO 8879.

5 Office Document Interchange Format (ODIF)

5.1 General description

A document structured in accordance with ISO 8613 is represented by a data stream consisting of one or more data structures of the following types:

- document profile descriptor;
- layout object descriptor;
- layout object class descriptor;
- logical object descriptor;
- logical object class descriptor;
- presentation style descriptor;
- layout style descriptor;
- text unit.

These data structures are called *interchange data elements*. Within a data stream, the interchange data elements are ordered in accordance with certain rules which are specified below. This part of ISO 8613 defines two such sets of rules; they are called *interchange format class A* and *interchange format class B*.

Which of these sets of rules applies to a given data stream is indicated in the document profile descriptor. In all cases, a data stream contains one and only one document profile descriptor which is always the first interchange data element in the data stream. The document profile descriptor may be the only data structure in the data stream.

When an ODIF data stream is used as part of an ASN.1 external data type, the abstract syntax shall be formed by an ASN.1 SEQUENCE–OF type referencing the Interchange-Data-Element type; the encoding of the data value shall consist of an integral number of octets, formed by applying the ASN.1 basic encoding rules; and the value of the associated ASN.1 object identifier shall be { 2 8 0 0 }.

NOTE – The manner of incorporating the interchange data elements, or the external data type, in an application protocol or the manner of mapping them on service data units (in an OSI environment) is not defined by this part of ISO 8613.

5.2 Interchange format class A

According to interchange format class A, a data stream consists of one document profile descriptor and, optionally, one or more interchange data elements of the following types:

- layout object descriptor;
- layout object class descriptor;
- logical object descriptor;
- logical object class descriptor;
- presentation style descriptor;
- layout style descriptor;
- text unit.

The order of the interchange data elements is as follows:

a) document profile descriptor;
b) layout object class descriptors;
c) logical object class descriptors;
d) text units representing generic content portions;
e) presentation style descriptors;
f) layout style descriptors;
g) layout object descriptors;
h) logical object descriptors;
i) text units representing specific content portions.

Within each of the groups of layout object descriptors and logical object descriptors, the order of the descriptors is equal to the sequential order defined in ISO 8613–2.

If the data stream contains layout object descriptors, the text units representing specific content portions are ordered according to the sequential layout order; otherwise, they are ordered according to the sequential logical order.

Within each of the other groups of interchange data elements, the order is arbitrary.

5.3 Interchange format class B

According to interchange format class B, a data stream consists of one document profile descriptor and, optionally, one or more interchange data elements of the following types:

- layout object descriptor;
- layout object class descriptor;
- presentation style descriptor;
- text unit.

Interchange format class B can be used only to represent documents that do not contain any specific or generic logical structure, i.e. documents that conform to the formatted document architecture class.

The order of the interchange data elements is as follows:

a) document profile descriptor;

b) layout object class descriptors and associated text units;

c) presentation style descriptors;

d) layout object descriptors and associated text units.

Within the group of layout object class descriptors and associated text units, the order is such that a group of descriptors that have identical identifiers, except for the last number in each identifier, follow each other in the data stream without any other descriptor between them. However, each descriptor of an object class for a basic layout object is followed immediately by the associated text units.

Within the group of layout object descriptors and associated text units, the order of the descriptors is equal to the sequential order defined in ISO 8613–2. However, each descriptor of a basic layout object is followed immediately by the associated text units.

Within the group of presentation style descriptors, the order is arbitrary.

5.4 Descriptors and text units

A document profile descriptor, layout object descriptor, layout object class descriptor, logical object descriptor, logical object class descriptor, presentation style descriptor or layout style descriptor consists of simple and composite data items representing the attributes of the constituent concerned.

The document profile, each object class, each style and each object is represented by one descriptor.

A text unit consists of two parts:

a) an attribute field, i.e. a data structure consisting of simple and composite data items representing the attributes of the content portion concerned;

b) an information field, i.e. a data structure that is either a data item or a set of data items representing the content elements making up the content portion concerned.

Each content portion is represented by one text unit.

The data formats of the interchange data elements are specified in 5.5 to 5.12, using the abstract syntax notation ASN.1 defined in ISO 8824.

NOTE – 5.5 to 5.12 by themselves do not completely define the data stream format; additional rules are specified in 5.1 to 5.4 of this part and in other parts of ISO 8613. For example, the keyword OPTIONAL merely indicates that a particular data structure or data item is not part of every instance of the containing data structure; the conditions controlling the presence or absence of the data structure or data item are specified in part 2 or part 4.

5.5 Interchange data elements

```
Interchange–Data–Elements { 2 8 1 5 5 }

DEFINITIONS                    ::= BEGIN

EXPORTS Interchange–Data–Element;

IMPORTS Document–Profile–Descriptor
          FROM Document–Profile–Descriptor                              - - see 5.6
          Layout–Class–Descriptor, Layout–Object–Descriptor
          FROM Layout–Descriptors                                       - - see 5.8
          Logical–Class–Descriptor, Logical–Object–Descriptor
          FROM Logical–Descriptors                                      - - see 5.9
          Presentation–Style–Descriptor, Layout–Style–Descriptor
          FROM Style–Descriptors                                        - - see 5.10
          Text–Unit
          FROM Text–Units;                                              - - see 5.12

Interchange–Data–Element        ::= CHOICE {
    document–profile                  [0] IMPLICIT Document–Profile–Descriptor,
    layout–object–class               [1] IMPLICIT Layout–Class–Descriptor,
    layout–object                     [2] IMPLICIT Layout–Object–Descriptor,
    content–portion                   [3] IMPLICIT Text–Unit,
    logical–object–class              [5] IMPLICIT Logical–Class–Descriptor,
    logical–object                    [6] IMPLICIT Logical–Object–Descriptor,
    presentation–style                [7] IMPLICIT Presentation–Style–Descriptor,
    layout–style                      [8] IMPLICIT Layout–Style–Descriptor}

                                      END
```

5.6 Document profile descriptor

```
Document–Profile–Descriptor { 2 8 1 5 6 }

DEFINITIONS                    ::= BEGIN

EXPORTS Document–Profile–Descriptor;

IMPORTS Resource–Name, Object–or–Class–Identifier
          FROM Identifiers–and–Expressions                          - - see 5.7
          Measure–Pair, Transparency, Colour, Dimension–Pair, One–Of–Four–Angles,
          Border, Medium–Type
          FROM Layout–Descriptors                                   - -see 5.8
          Protection
          FROM Logical–Descriptors                                  - - see 5.9
          Content–Architecture–Class, Content–Type, Block–Alignment, Fill–Order
          FROM Style–Descriptors                                    - - see 5.10
          Type–of–Coding
          FROM Text–Units                                           - - see 5.12
          Character–Content–Defaults, Char–Presentation–Feature,
          Character–Coding–Attribute
          FROM Character–Profile–Attributes { 2 8 1 6 4 }           - - see ISO 8613–6
          Raster–Gr–Content–Defaults, Ra–Gr–Presentation–Feature,
          Ra–Gr–Coding–Attribute
          FROM Raster–Gr–Profile–Attributes { 2 8 1 7 4 }           - - see ISO 8613–7
          Geo–Gr–Content–Defaults, Geo–Gr–Presentation–Feature,
          Geo–Gr–Coding–Attribute
          FROM Geo–Gr–Profile–Attributes { 2 8 1 8 4 }              - - see ISO 8613–8
          Font–Reference FROM ISO9541–FONTS { 1 9541 6 1 0 };       - - see ISO 9541–6


Document–Profile–Descriptor          ::= SET {
    generic–layout–structure                [0]  IMPLICIT NumericString OPTIONAL,
    specific–layout–structure               [1]  IMPLICIT NumericString OPTIONAL,
    generic–logical–structure               [4]  IMPLICIT NumericString OPTIONAL,
    specific–logical–structure              [5]  IMPLICIT NumericString OPTIONAL,
    presentation–styles                     [6]  IMPLICIT NumericString OPTIONAL,
    layout–styles                           [7]  IMPLICIT NumericString OPTIONAL,

        - - for the generic structures;
        - - 'partial generator–set' is represented by "0", 'complete–generator–set'
        - - is represented by "1", 'factor–set' is represented by "2";
        - - for the other cases, the numeric string has the value 'present'
        - - represented by "1".

    external–document–class             [9]  Document–Reference OPTIONAL,
    resource–document                   [10] Document–Reference OPTIONAL,
    resources                           [11] IMPLICIT SET OF SET {
        resource–identifier                      Resource–Name,
        object–class–identifier                  Object–or–Class–Identifier} OPTIONAL,
    document–characteristics            [2]  IMPLICIT Document–Characteristics OPTIONAL,
    document–management–attributes      [3]  IMPLICIT Document–Management–Attributes OPTIONAL}

Document–Characteristics             ::= SET {
    document–application–profile            CHOICE {
                                        [0]  IMPLICIT INTEGER {
                                             group–4–facsimile (2)},
                                        [4]  IMPLICIT OBJECT IDENTIFIER} OPTIONAL,
    doc–appl–profile–defaults           [10] IMPLICIT Doc–Appl–Profile–Defaults OPTIONAL,
    document–architecture–class         [1]  IMPLICIT INTEGER {
                                             formatted (0),
                                             processable (1),
                                             formatted–processable (2)} OPTIONAL,
    content–architecture–classes        [5]  IMPLICIT SET OF OBJECT IDENTIFIER OPTIONAL,
```

```
    interchange-format-class                [6]  IMPLICIT INTEGER {
                                                     if-a (0),
                                                     if-b (1)} OPTIONAL,

    oda-version                             [8]  IMPLICIT SEQUENCE {
        standard-or-recommendation                   Character-Data,
        publication-date                             Date-and-Time} OPTIONAL,
    non-basic-doc-characteristics           [2]  IMPLICIT Non-Basic-Doc-Characteristics OPTIONAL,
    non-basic-struc-characteristics         [3]  IMPLICIT Non-Basic-Struc-Characteristics OPTIONAL,
    additional-doc-characteristics          [9]  IMPLICIT Additional-Doc-Characteristics OPTIONAL}

Doc-Appl-Profile-Defaults                   ::= SET {
    document-architecture-defaults          [0]  IMPLICIT Document-Architecture-Defaults OPTIONAL,
    character-content-defaults              [1]  IMPLICIT Character-Content-Defaults OPTIONAL,
    raster-gr-content-defaults              [2]  IMPLICIT Raster-Gr-Content-Defaults OPTIONAL,
    geo-gr-content-defaults                 [3]  IMPLICIT Geo-Gr-Content-Defaults OPTIONAL,

        - - the following tags are reserved for additional types
        - - of content defaults:
            - - [4] videotex, for use in conjunction with CCITT Recommendations
            - - [5] audio
            - - [6] dynamic-graphics

    external-content-architecture-defaults  [7]  IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL }

Document-Architecture-Defaults              ::= SET {
    content-architecture-class              [0]  IMPLICIT Content-Architecture-Class OPTIONAL,
    content-type                            [1]  IMPLICIT Content-Type OPTIONAL,
    page-dimensions                         [2]  IMPLICIT Measure-Pair OPTIONAL,
    transparency                            [3]  IMPLICIT Transparency OPTIONAL,
    colour                                  [4]  IMPLICIT Colour OPTIONAL,
    layout-path                             [5]  IMPLICIT One-Of-Four-Angles OPTIONAL,
    medium-type                             [6]  IMPLICIT Medium-Type OPTIONAL,
    block-alignment                         [7]  IMPLICIT Block-Alignment OPTIONAL,
    border                                  [8]  IMPLICIT Border OPTIONAL,
    page-position                           [9]  IMPLICIT Measure-Pair OPTIONAL,
    type-of-coding                          [10] Type-of-Coding OPTIONAL}

Non-Basic-Doc-Characteristics               ::= SET {
    profile-character-sets                  [5]  IMPLICIT OCTET STRING OPTIONAL,
    comments-character-sets                 [1]  IMPLICIT OCTET STRING OPTIONAL,
    alternative-repr-char-sets              [6]  IMPLICIT OCTET STRING OPTIONAL,

        - - each of these octet strings represents a string of escape sequences

    page-dimensions                         [2]  IMPLICIT SET OF Dimension-Pair OPTIONAL,
    medium-types                            [8]  IMPLICIT SET OF Medium-Type OPTIONAL,
    layout-paths                            [21] IMPLICIT SET OF One-Of-Four-Angles OPTIONAL,
    transparencies                          [22] IMPLICIT SET OF Transparency OPTIONAL,
    protections                             [23] IMPLICIT SET OF Protection OPTIONAL,
    block-alignments                        [24] IMPLICIT SET OF Block-Alignment OPTIONAL,
    fill-orders                             [25] IMPLICIT SET OF Fill-Order OPTIONAL,
    colours                                 [26] IMPLICIT SET OF Colour OPTIONAL,
    borders                                 [27] IMPLICIT SET OF Border OPTIONAL,
    page-positions                          [28] IMPLICIT SET OF Measure-Pair OPTIONAL,
    types-of-coding                         [29] IMPLICIT SET OF Type-of-Coding OPTIONAL,
    char-presentation-features               [9] IMPLICIT SET OF Char-Presentation-Feature OPTIONAL,
    ra-gr-presentation-features              [4] IMPLICIT SET OF Ra-Gr-Presentation-Feature OPTIONAL,
    geo-gr-presentation-features            [12] IMPLICIT SET OF Geo-Gr-Presentation-Feature OPTIONAL,
```

```
        - - the following tags are reserved for additional types
        - - of presentation features:
          - - [13] videotex, for use in conjunction with CCITT Recommendations
          - - [14] audio
          - - [15] dynamic–graphics

    character–coding–attributes          [16]  IMPLICIT SET OF Character–Coding–Attribute OPTIONAL,
    ra–gr–coding–attributes               [3]  IMPLICIT SET OF Ra–Gr–Coding–Attribute OPTIONAL,
    geo–gr–coding–attributes             [17]  IMPLICIT SET OF Geo–Gr–Coding–Attribute OPTIONAL,

        - - the following tags are reserved for additional types
        - - of coding attributes:
          - - [18] videotex, for use in conjunction with CCITT Recommendations
          - - [19] audio
          - - [20] dynamic–graphics

    ext–non–basic–pres–features          [10]  IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL,
    ext–non–basic–coding–attributes      [11]  IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL}

Non–Basic–Struc–Characteristics      ::= SET {
    number–of–objects–per–page            [0]  IMPLICIT INTEGER OPTIONAL}

Additional–Doc–Characteristics       ::= SET {
    unit–scaling                          [3]  IMPLICIT SEQUENCE {INTEGER,INTEGER} OPTIONAL,
    fonts–list                            [2]  IMPLICIT Fonts–List OPTIONAL}

Fonts–List                           ::= SET OF SET {
    font–identifier                           INTEGER,
    font–reference                            Font–Reference}

Document–Management–Attributes       ::= SET {
    document–description                  [7]  IMPLICIT Document–Description OPTIONAL,
    dates–and–times                       [0]  IMPLICIT Dates–and–Times OPTIONAL,
    originators                           [1]  IMPLICIT Originators OPTIONAL,
    other–user–information                [2]  IMPLICIT Other–User–Information OPTIONAL,
    external–references                   [3]  IMPLICIT External–References OPTIONAL,
    local–file–references                 [4]  IMPLICIT Local–File–References OPTIONAL,
    content–attributes                    [5]  IMPLICIT Content–Attributes OPTIONAL,
    security–information                  [6]  IMPLICIT Security–Information OPTIONAL}

Document–Description                 ::= SET {
    title                                 [0]  IMPLICIT Character–Data OPTIONAL,
    subject                               [1]  IMPLICIT Character–Data OPTIONAL,
    document–type                         [2]  IMPLICIT Character–Data OPTIONAL,
    abstract                              [3]  IMPLICIT Character–Data OPTIONAL,
    keywords                              [4]  IMPLICIT SET OF Character–Data OPTIONAL,
    document–reference                    [5]  Document–Reference OPTIONAL}

Character–Data                       ::= [APPLICATION 3] IMPLICIT OCTET STRING

        - - string of characters from the sets designated by the attribute
        - - "profile character sets", plus carriage return and line feed

Document–Reference                   ::= CHOICE {
    unique–reference                          OBJECT IDENTIFIER,
    descriptive–reference                     Character–Data}
```

```
Dates-and-Times                    ::= SET {
    document-date-and-time                 [0]  IMPLICIT Date-and-Time OPTIONAL,
    creation-date-and-time                 [1]  IMPLICIT Date-and-Time OPTIONAL,
    local-filing-date-and-time             [2]  IMPLICIT SEQUENCE OF Date-and-Time OPTIONAL,
    expiry-date-and-time                   [3]  IMPLICIT Date-and-Time OPTIONAL,
    start-date-and-time                    [4]  IMPLICIT Date-and-Time OPTIONAL,
    purge-date-and-time                    [5]  IMPLICIT Date-and-Time OPTIONAL,
    release-date-and-time                  [6]  IMPLICIT Date-and-Time OPTIONAL,
    revision-history                       [7]  IMPLICIT SEQUENCE OF SET {
        revision-date-and-time                      [0] IMPLICIT Date-and-Time OPTIONAL,
        version-number                              [1] IMPLICIT Character-Data OPTIONAL,
        revisors                                    [2] IMPLICIT SET OF SET {
            names                                       [0] IMPLICIT SET OF Personal-Name OPTIONAL,
            position                                    [1] IMPLICIT Character-Data OPTIONAL,
            organization                                [2] IMPLICIT Character-Data OPTIONAL} OPTIONAL,
        version-reference                           [3] Document-Reference OPTIONAL,
        user-comments                               [4] IMPLICIT Character-Data OPTIONAL} OPTIONAL}

Date-and-Time                      ::= [APPLICATION 4] IMPLICIT PrintableString

        - - string of characters representing a date and, optionally, a time
        - - in accordance with ISO 8601

Originators                        ::= SET {
    organizations                          [0]  IMPLICIT SET OF Character-Data OPTIONAL,
    preparers                              [1]  IMPLICIT SEQUENCE OF SET {
        personal-name                               [0] IMPLICIT Personal-Name OPTIONAL,
        organization                                [1] IMPLICIT Character-Data OPTIONAL} OPTIONAL,
     owners                                [2]  IMPLICIT SEQUENCE OF SET {
        personal-name                               [0] IMPLICIT Personal-Name OPTIONAL,
        organization                                [1] IMPLICIT Character-Data OPTIONAL} OPTIONAL,
    authors                                [3]  IMPLICIT SEQUENCE OF SET {
        personal-name                               [0] IMPLICIT Personal-Name OPTIONAL,
        organization                                [1] IMPLICIT Character-Data OPTIONAL} OPTIONAL}

Personal-Name                      ::= [APPLICATION 6] IMPLICIT SET {
    surname                                [0] IMPLICIT Character-Data,
    givenname                              [1] IMPLICIT Character-Data OPTIONAL,
    initials                               [2] IMPLICIT Character-Data OPTIONAL,
    title                                  [3] IMPLICIT Character-Data OPTIONAL}

Other-User-Information             ::= SET {
    copyright                              [0]  IMPLICIT SET OF SET {
        copyright-information                       [0] IMPLICIT SET OF Character-Data OPTIONAL,
        copyright-dates                             [1] IMPLICIT SET OF Date-and-Time OPTIONAL}
                                                                                    OPTIONAL,
    status                                 [1]  IMPLICIT Character-Data OPTIONAL,
    user-specific-codes                    [2]  IMPLICIT SET OF Character-Data OPTIONAL,
    distribution-list                      [3]  IMPLICIT SEQUENCE OF SET {
        personal-name                               [0] IMPLICIT Personal-Name OPTIONAL,
        organization                                [1] IMPLICIT Character-Data OPTIONAL} OPTIONAL,
    additional-information                 [5]  ANY OPTIONAL}

External-References                ::= SET {
    references-to-other-documents          [0]  IMPLICIT SET OF Document-Reference OPTIONAL,
    superseded-documents                   [1]  IMPLICIT SET OF Document-Reference OPTIONAL}

Local-File-References              ::= SET OF SET {
        file-name                          [0]  IMPLICIT Character-Data OPTIONAL,
        location                           [1]  IMPLICIT Character-Data OPTIONAL,
        user-comments                      [2]  IMPLICIT Character-Data OPTIONAL}

Content-Attributes                 ::= SET {
    document-size                          [1]  IMPLICIT INTEGER OPTIONAL,
    number-of-pages                        [2]  IMPLICIT INTEGER OPTIONAL,
    languages                              [4]  IMPLICIT SET OF Character-Data OPTIONAL}
```

```
Security–Information                ::= SET {
    authorization                       CHOICE {
        person                                [0] IMPLICIT Personal–Name,
        organization                          [4] IMPLICIT Character–Data} OPTIONAL,
    security–classification              [1]  IMPLICIT Character–Data OPTIONAL,
    access–rights                        [2]  IMPLICIT SET OF Character–Data OPTIONAL}

                                    END
```

5.7 Identifiers and expressions

```
Identifiers–and–Expressions { 2 8 1 5 7 }

DEFINITIONS                    ::= BEGIN

EXPORTS Content–Portion–Identifier, Object–or–Class–Identifier,
        Style–Identifier, Layout–Category–Name,
        Resource–Name, Binding–Name,
        Construction–Expression, Object–Id–Expression,
        Numeric–Expression, String–Expression;

IMPORTS Layout–Object–Type
        FROM Layout–Descriptors                                  - - see 5.8
        Logical–Object–Type
        FROM Logical–Descriptors;                                - - see 5.9


Content–Portion–Identifier          ::= [APPLICATION 0] IMPLICIT PrintableString

    - - only digits and space are used in the present version
    - - of the standard; other characters are reserved for extensions

Object–or–Class–Identifier          ::= [APPLICATION 1] IMPLICIT PrintableString

    - - only digits and space are used in the present version
    - - of the standard; other characters are reserved for extensions;
    - - a "null" value is represented by an empty string

Style–Identifier                    ::= [APPLICATION 5] IMPLICIT PrintableString

    - - only digits and space are used in the present version
    - - of the standard; other characters are reserved for extensions;
    - - a "null" value is represented by an empty string

Layout–Category–Name                ::= PrintableString

    - - a "null" value is represented by an empty string

Resource–Name                       ::= PrintableString

Binding–Name                        ::= PrintableString

Construction–Expression             ::= CHOICE {
  construction–type                       Construction–Type,
  single–term–construction                [3]  Construction–Term }

Construction–Type                   ::= CHOICE {
  sequence–construction                   [0]  IMPLICIT Term–Sequence,
  aggregate–construction                  [1]  IMPLICIT Term–Sequence,
  choice–construction                     [2]  IMPLICIT Term–Sequence }

Term–Sequence                       ::= SEQUENCE OF Construction–Term

Construction–Term                   ::= CHOICE {
  required–construction–factor            [0]  Construction–Factor,
  optional–construction–factor            [1]  Construction–Factor,
  repetitive–construction–factor          [2]  Construction–Factor,
  optional–repetitive–factor              [3]  Construction–Factor}

Construction–Factor                 ::= CHOICE {
  object–class–identifier                 Object–or–Class–Identifier,
  construction–type                       Construction–Type}
```

```
Object–Id–Expression                ::= CHOICE {
    current–object–function                 [0]  IMPLICIT NULL,
    preceding–object–function               [1]  Object–Id–Expression,
    superior–object–function                [3]  Object–Id–Expression,
    current–instance–function               [4]  Current–Instance–Function}

Numeric–Expression                  ::= CHOICE {
    numeric–literal                         [0]  IMPLICIT INTEGER,
    increment–application                    [1]  Numeric–Expression,
    decrement–application                    [2]  Numeric–Expression,
    ordinal–application                      [3]  CHOICE {
        identifier                                   Object–or–Class–Identifier,
        expression                                   Object–Id–Expression},
    binding–reference                       [4]  IMPLICIT Binding–Reference}

Binding–Reference                   ::= SET {
    object–reference                        CHOICE {
        identifier                                   Object–or–Class–Identifier,
        expression                                   Binding–Selection–Function},
    binding–identifier                      Binding–Name}

Binding–Selection–Function          ::= CHOICE {
    current–object–function                 [0]  IMPLICIT NULL,
    preceding–function                      [1]  Object–Id–Expression,
    superior–function                       [3]  Object–Id–Expression,
    current–instance–function               [4]  Current–Instance–Function}

Current–Instance–Function           ::= SEQUENCE {
    first–parameter                         CHOICE {
        identifier                              [0]  IMPLICIT Object–or–Class–Identifier,
        layout–object–type                      [1]  IMPLICIT Layout–Object–Type,
        logical–object–type                     [2]  IMPLICIT Logical–Object–Type},
    second–parameter                        CHOICE {
        identifier                                   Object–or–Class–Identifier,
        expression                                   Object–Id–Expression}}

String–Expression                   ::= SEQUENCE OF Atomic–String–Expression

Atomic–String–Expression            ::= CHOICE {
    string–literal                          [0]  IMPLICIT OCTET STRING,
    binding–reference                       [2]  IMPLICIT Binding–Reference,
    make–string–application                 [3]  Numeric–Expression,
    upper–alpha–application                 [4]  Numeric–Expression,
    lower–alpha–application                 [5]  Numeric–Expression,
    upper–roman–application                 [6]  Numeric–Expression,
    lower–roman–application                 [7]  Numeric–Expression}

                                        END
```

5.8 Layout descriptors

```
Layout–Descriptors { 2 8 1 5 8 }

DEFINITIONS                    ::= BEGIN

EXPORTS Layout–Object–Descriptor, Layout–Class–Descriptor,
        Layout–Object–Type, Transparency, Comment–String,
        Binding–Pair, One–Of–Four–Angles, Measure–Pair, Dimension–Pair,
        Medium–Type, Colour, Border;

IMPORTS Object–or–Class–Identifier, Style–Identifier,
        Layout–Category–Name, Resource–Name, Binding–Name,
        Construction–Expression, Object–Id–Expression,
        Numeric–Expression, String–Expression
        FROM Identifiers–and–Expressions                    - - see 5.7
        Presentation–Attributes
        FROM Style–Descriptors                              - - see 5.10
        Default–Value–Lists–Layout
        FROM Default–Value–Lists;                           - - see 5.11

Position–Spec                  ::= SET {
    offset                             [0] IMPLICIT SET {
        leading                            [0] IMPLICIT INTEGER OPTIONAL,
        trailing                           [1] IMPLICIT INTEGER OPTIONAL,
        left–hand                          [2] IMPLICIT INTEGER OPTIONAL,
        right–hand                         [3] IMPLICIT INTEGER OPTIONAL} OPTIONAL,
    separation                         [1] IMPLICIT SET {
        leading                            [0] IMPLICIT INTEGER OPTIONAL,
        trailing                           [1] IMPLICIT INTEGER OPTIONAL,
        centre                             [2] IMPLICIT INTEGER OPTIONAL} OPTIONAL,
    alignment                          [2] IMPLICIT INTEGER {
                                           right–hand (0), centred (1),
                                           left–hand (2)} OPTIONAL,
    fill–order                         [3] IMPLICIT INTEGER {
                                           normal (0), reverse (1)} OPTIONAL}

Dimension–Pair                 ::= SEQUENCE {
    horizontal                         [0] IMPLICIT INTEGER,
    vertical                           CHOICE {
        fixed                              [0] IMPLICIT INTEGER,
        variable                           [1] IMPLICIT INTEGER}}

Dimension–Spec                 ::= SEQUENCE {
    horizontal                         Dimension,
    vertical                           Dimension}

Dimension                      ::= CHOICE {
    fixed                              [0] IMPLICIT INTEGER,
    rule–a                             [1] IMPLICIT SET {
        minimum                            [0] IMPLICIT INTEGER OPTIONAL,
        maximum                            [1] IMPLICIT INTEGER OPTIONAL},
    rule–b                             [2] IMPLICIT SET {
        minimum                            [0] IMPLICIT INTEGER OPTIONAL,
        maximum                            [1] IMPLICIT INTEGER OPTIONAL},
    maximum–size                       [3] IMPLICIT NULL}

Transparency                   ::= INTEGER {transparent (0), opaque (1)}

Comment–String                 ::= OCTET STRING

        - - string of characters from the sets designated by
        - - the document profile attribute "comments character sets",
        - - plus code extension control functions,
        - - carriage return and line feed
```

```
Binding–Pair                    ::= SET {
    binding–identifier              [0]  IMPLICIT Binding–Name,
    binding–value                   CHOICE {
                                      [1]  Object–Id–Expression,
                                      [2]  Numeric–Expression,
                                      [3]  String–Expression,
                                      [4]  IMPLICIT Object–or–Class–Identifier,
                                      [5]  IMPLICIT INTEGER,
                                      [6]  IMPLICIT OCTET STRING}}

One–Of–Four–Angles              ::= INTEGER {d0 (0), d90 (1), d180 (2), d270 (3)}

Measure–Pair                    ::= SEQUENCE {
    horizontal                      [0]  IMPLICIT INTEGER,
    vertical                        [0]  IMPLICIT INTEGER}

Medium–Type                     ::= SEQUENCE {
    nominal–page–size               Measure–Pair OPTIONAL,
    side–of–sheet                   INTEGER {unspecified (0), recto (1), verso (2)} OPTIONAL}

Colour                          ::= INTEGER {colourless (0), white (1)}

Border                          ::= SET {
    left–hand–edge                  [0]  IMPLICIT Border–Edge OPTIONAL,
    right–hand–edge                 [1]  IMPLICIT Border–Edge OPTIONAL,
    trailing–edge                   [2]  IMPLICIT Border–Edge OPTIONAL,
    leading–edge                    [3]  IMPLICIT Border–Edge OPTIONAL}

Border–Edge                     ::= SET {
    line–width                      [0]  IMPLICIT INTEGER OPTIONAL,
    line–type                       [1]  IMPLICIT INTEGER {
                                           invisible (0), solid (1),
                                           dashed (2), dot (3),
                                           dash–dot (4),
                                           dash–dot–dot (5)} OPTIONAL,
    freespace–width                 [2]  IMPLICIT INTEGER OPTIONAL}

        - - a "null" border edge is represented by an empty set

Layout–Object–Descriptor        ::= SEQUENCE {
    object–type                     Layout–Object–Type OPTIONAL,
    descriptor–body                 Layout–Object–Descriptor–Body OPTIONAL}

Layout–Object–Type              ::= INTEGER {document–layout–root (0),
                                    page–set (1), page (2),frame (3), block (4)}

Layout–Object–Descriptor–Body   ::= SET {
    object–identifier               Object–or–Class–Identifier OPTIONAL,
    subordinates                    [0]  IMPLICIT SEQUENCE OF NumericString OPTIONAL,
    content–portions                [1] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
    object–class                    [2]  IMPLICIT Object–or–Class–Identifier OPTIONAL,
    position                        [3]  IMPLICIT Measure–Pair OPTIONAL,
    dimensions                      [4]  IMPLICIT Dimension–Pair OPTIONAL,
    transparency                    [5]  IMPLICIT Transparency OPTIONAL,
    presentation–attributes         [6]  IMPLICIT Presentation–Attributes OPTIONAL,
    default–value–lists             [7]  IMPLICIT Default–Value–Lists–Layout OPTIONAL,
    user–readable–comments          [8]  IMPLICIT Comment–String OPTIONAL,
    bindings                        [9]  IMPLICIT SET OF Binding–Pair OPTIONAL,
    layout–path                    [11]  IMPLICIT One–Of–Four–Angles OPTIONAL,
    imaging–order                  [12]  IMPLICIT SEQUENCE OF NumericString OPTIONAL,
    permitted–categories           [13]  IMPLICIT SET OF Layout–Category–Name OPTIONAL,

        - - a "null" value is represented by an empty set

    user–visible–name              [14]  IMPLICIT Comment–String OPTIONAL,
    page–position                  [15]  IMPLICIT Measure–Pair OPTIONAL,
```

```
    medium–type                         [16]  IMPLICIT Medium–Type OPTIONAL,
    presentation–style                  [17]  IMPLICIT Style–Identifier OPTIONAL,
    balance                             [21]  IMPLICIT SEQUENCE OF Object–or–Class–Identifier
                                                                                OPTIONAL,

            - - a "null" value is represented by an empty set

    colour                              [22]  IMPLICIT Colour OPTIONAL,
    border                              [23]  IMPLICIT Border OPTIONAL,
    application–comments                [25]  IMPLICIT OCTET STRING OPTIONAL}

Layout–Class–Descriptor                 ::= SEQUENCE {
    object–type                             Layout–Object–Type,
    descriptor–body                         Layout–Class–Descriptor–Body}

Layout–Class–Descriptor–Body            ::= SET {
    object–class–identifier                 Object–or–Class–Identifier,
    generator–for–subordinates               [0]  Construction–Expression OPTIONAL,
    content–portions                         [1]  IMPLICIT SEQUENCE OF NumericString OPTIONAL,
    position                                 CHOICE {
        fixed–position                        [3]  IMPLICIT Measure–Pair,
        variable–position                    [26]  IMPLICIT Position–Spec} OPTIONAL,
    dimensions                               [4]  IMPLICIT Dimension–Spec OPTIONAL,
    transparency                             [5]  IMPLICIT Transparency OPTIONAL,
    presentation–attributes                  [6]  IMPLICIT Presentation–Attributes OPTIONAL,
    default–value–lists                      [7]  IMPLICIT Default–Value–Lists–Layout OPTIONAL,
    user–readable–comments                   [8]  IMPLICIT Comment–String OPTIONAL,
    bindings                                 [9]  IMPLICIT SET OF Binding–Pair OPTIONAL,
    content–generator                       [10]  IMPLICIT String–Expression OPTIONAL,
    layout–path                             [11]  IMPLICIT One–Of–Four–Angles OPTIONAL,
    permitted–categories                    [13] IMPLICIT SET OF Layout–Category–Name OPTIONAL,

            - - a "null" value is represented by an empty set

    user–visible–name                   [14] IMPLICIT Comment–String OPTIONAL,
    page–position                       [15] IMPLICIT Measure–Pair OPTIONAL,
    medium–type                         [16] IMPLICIT Medium–Type OPTIONAL,
    presentation–style                  [17] IMPLICIT Style–Identifier OPTIONAL,
    logical–source                      [18] IMPLICIT Object–or–Class–Identifier OPTIONAL,
    balance                             [21] IMPLICIT SEQUENCE OF Object–or–Class–Identifier
                                                                                OPTIONAL,

            - - a "null" value is represented by an empty sequence

    colour                              [22] IMPLICIT Colour OPTIONAL,
    border                              [23] IMPLICIT Border OPTIONAL,
    resource                            [24] IMPLICIT Resource–Name OPTIONAL,
    application–comments                [25] IMPLICIT OCTET STRING OPTIONAL}

                                            END
```

5.9 Logical descriptors

```
Logical–Descriptors { 2 8 1 5 9 }

DEFINITIONS                    ::= BEGIN

EXPORTS Logical–Object–Descriptor, Logical–Class–Descriptor,
        Logical–Object–Type, Protection;

IMPORTS Object–or–Class–Identifier, Style–Identifier,
        Resource–Name, Construction–Expression, String–Expression
        FROM Identifiers–and–Expressions                          - - see 5.7
        Comment–String, Binding–Pair
        FROM Layout–Descriptors                                   - - see 5.8
        Presentation–Attributes FROM Style–Descriptors            - - see 5.10
        Default–Value–Lists–Logical
        FROM Default–Value–Lists;                                 - - see 5.11


Logical–Object–Descriptor          ::= SEQUENCE {
  object–type                          Logical–Object–Type OPTIONAL,
  descriptor–body                      Logical–Object–Descriptor–Body OPTIONAL}

Logical–Object–Type                ::= INTEGER {document–logical–root (0),
                                               composite–logical–object (1),
                                               basic–logical–object (2)}

Logical–Object–Descriptor–Body     ::= SET {
    object–identifier                    Object–or–Class–Identifier OPTIONAL,
    subordinates                     [0] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
    content–portions                 [1] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
    object–class                     [2] IMPLICIT Object–or–Class–Identifier OPTIONAL,
    presentation–attributes          [6] IMPLICIT Presentation–Attributes OPTIONAL,

        - - only for use for the attribute content–architecture–class
        - - the content architecture specific attributes can only be referenced by
        - - use of presentation style

    default–value–lists              [7] IMPLICIT Default–Value–Lists–Logical OPTIONAL,
    user–readable–comments           [8] IMPLICIT Comment–String OPTIONAL,
    bindings                         [9] IMPLICIT SET OF Binding–Pair OPTIONAL,
    content–generator               [10] IMPLICIT String–Expression OPTIONAL,
    user–visible–name               [14] IMPLICIT Comment–String OPTIONAL,
    presentation–style              [17] IMPLICIT Style–Identifier OPTIONAL,
    layout–style                    [19] IMPLICIT Style–Identifier OPTIONAL,
    protection                      [20] IMPLICIT Protection OPTIONAL,
    application–comments            [25] IMPLICIT OCTET STRING OPTIONAL}

Logical–Class–Descriptor           ::= SEQUENCE {
    object–type                          Logical–Object–Type,
    descriptor–body                      Logical–Class–Descriptor–Body}

Logical–Class–Descriptor–Body      ::= SET {
    object–class–identifier              Object–or–Class–Identifier,
    generator–for–subordinates       [0] Construction–Expression OPTIONAL,
    content–portions                 [1] IMPLICIT SEQUENCE OF NumericString OPTIONAL,
    presentation–attributes          [6] IMPLICIT Presentation–Attributes OPTIONAL,

        - - only for use for the attribute content–architecture–class
        - - the content architecture specific attributes can only be referenced by
        - - use of presentation style

    default–value–lists              [7] IMPLICIT Default–Value–Lists–Logical OPTIONAL,
    user–readable–comments           [8] IMPLICIT Comment–String OPTIONAL,
    bindings                         [9] IMPLICIT SET OF Binding–Pair OPTIONAL,
    content–generator               [10] IMPLICIT String–Expression OPTIONAL,
```

```
    user–visible–name                [14]  IMPLICIT Comment–String OPTIONAL,
    presentation–style               [17]  IMPLICIT Style–Identifier OPTIONAL,
    layout–style                     [19]  IMPLICIT Style–Identifier OPTIONAL,
    protection                       [20]  IMPLICIT Protection OPTIONAL,
    resource                         [24]  IMPLICIT Resource–Name OPTIONAL,
    application–comments             [25]  IMPLICIT OCTET STRING OPTIONAL}

Protection                       ::= INTEGER {unprotected (0), protected (1)}

                                     END
```

5.10 Style descriptors

```
Style–Descriptors { 2 8 1 5 10 }

DEFINITIONS                    ::= BEGIN

EXPORTS Presentation–Style–Descriptor, Presentation–Attributes,
        Content–Type, Content–Architecture–Class,
        Layout–Style–Descriptor, Fill–Order, Block–Alignment;

IMPORTS Object–or–Class–Identifier, Style–Identifier,
        Layout–Category–Name, Object–Id–Expression,
        FROM Identifiers–and–Expressions                          - - see 5.7
        Comment–String, Transparency, Colour, Border,
        Layout–Object–Type
        FROM Layout–Descriptors                                   - - see 5.8
        Character–Attributes
        FROM Character–Presentation–Attributes { 2 8 1 6 2 }      - - see ISO 8613–6
        Raster–Graphics–Attributes
        FROM Raster–Gr–Presentation–Attributes { 2 8 1 7 2 }      - - see ISO 8613–7
        Geometric–Graphics–Attributes
        FROM Geo–Gr–Presentation–Attributes { 2 8 1 8 2 };        - - see ISO 8613–8


Presentation–Style–Descriptor      ::= SET {
    style–identifier                       Style–Identifier,
    user–readable–comments                 [0] IMPLICIT Comment–String OPTIONAL,
    user–visible–name                      [1] IMPLICIT Comment–String OPTIONAL,
    transparency                           [2] IMPLICIT Transparency OPTIONAL,
    presentation–attributes                [3] IMPLICIT Presentation–Attributes OPTIONAL,
    colour                                 [4] IMPLICIT Colour OPTIONAL,
    border                                 [5] IMPLICIT Border OPTIONAL}

Presentation–Attributes            ::= SET {
    content–type                           Content–Type OPTIONAL,
    content–architecture–class             Content–Architecture–Class OPTIONAL,
    character–attributes                   [0] IMPLICIT Character–Attributes OPTIONAL,
    raster–graphics–attributes             [1] IMPLICIT Raster–Graphics–Attributes OPTIONAL,
    geometric–graphics–attributes          [2] IMPLICIT Geometric–Graphics–Attributes OPTIONAL,

        - - the following tags are reserved for additional types
        - - of presentation attributes:
            - - [3] videotex, for use in conjunction with CCITT Recommendations
            - - [4] audio
            - - [5] dynamic–graphics

    ext–cont–arch–pres–attributes          [6] IMPLICIT SEQUENCE OF EXTERNAL OPTIONAL}

Content–Type                       ::= [APPLICATION 2] IMPLICIT INTEGER {
                                           formatted–raster–graphics (1)}

Content–Architecture–Class         ::= OBJECT IDENTIFIER

Layout–Style–Descriptor            ::= SET {
    style–identifier                       Style–Identifier,
    user–readable–comments                 [0] IMPLICIT Comment–String OPTIONAL,
    user–visible–name                      [1] IMPLICIT Comment–String OPTIONAL,
    layout–directives                      [4] IMPLICIT Layout–Directives OPTIONAL}

Layout–Directives                  ::= SET {
    indivisibility                         CHOICE {
        to–layout–object–class                 [0] IMPLICIT Object–or–Class–Identifier,
        to–layout–category                     [1] IMPLICIT Layout–Category–Name,
        to–layout–object–type                  [2] IMPLICIT Layout–Object–Type,
        null                                  [15] IMPLICIT NULL} OPTIONAL,
```

```
    separation                      [3]  IMPLICIT Separation OPTIONAL,
    offset                          [4]  IMPLICIT Offset OPTIONAL,
    fill–order                      [5]  IMPLICIT Fill–Order OPTIONAL,
    concatenation                   [6]  IMPLICIT Concatenation OPTIONAL,
    new–layout–object              CHOICE {
        to–layout–object–class      [7]  IMPLICIT Object–or–Class–Identifier,
        to–layout–category          [8]  IMPLICIT Layout–Category–Name,
        to–layout–object–type       [9]  IMPLICIT Layout–Object–Type,
        null                       [16]  IMPLICIT NULL} OPTIONAL,
    same–layout–object             [10]  IMPLICIT Same–Layout–Object OPTIONAL,
    layout–object–class            [11]  IMPLICIT Object–or–Class–Identifier OPTIONAL,
    layout–category                [12]  IMPLICIT Layout–Category–Name OPTIONAL,
    synchronization                CHOICE {
                                   [13]  IMPLICIT Object–or–Class–Identifier,
                                   [17]  Object–Id–Expression,
                                   [18]  IMPLICIT NULL} OPTIONAL,
    block–alignment                [14]  IMPLICIT Block–Alignment OPTIONAL}

Separation                      ::= SET {
    leading                         [0]  IMPLICIT INTEGER OPTIONAL,
    trailing                        [1]  IMPLICIT INTEGER OPTIONAL,
    centre                          [2]  IMPLICIT INTEGER OPTIONAL}

Offset                          ::= SET {
    right–hand                      [0]  IMPLICIT INTEGER OPTIONAL,
    left–hand                       [1]  IMPLICIT INTEGER OPTIONAL,
    trailing                        [2]  IMPLICIT INTEGER OPTIONAL,
    leading                         [3]  IMPLICIT INTEGER OPTIONAL}

Fill–Order                      ::= INTEGER {normal (0), reverse (1)}

Concatenation                   ::= INTEGER {non–concatenated (0), concatenated (1)}

Same–Layout–Object              ::= SET {
    to–logical–object              CHOICE {
                                       [0]  IMPLICIT Object–or–Class–Identifier,
                                       [4]  Object–Id–Expression,
                                       [5]  IMPLICIT NULL},
                                   CHOICE {
    to–layout–object–class             [1]  IMPLICIT Object–or–Class–Identifier,
    to–layout–category                 [2]  IMPLICIT Layout–Category–Name,
    to–layout–object–type              [3]  IMPLICIT Layout–Object–Type} OPTIONAL}

Block–Alignment                 ::= INTEGER {
                                        right–hand (0), left–hand (1),
                                        centred (2), null (3)}
                                   END
```

5.11 Default value lists

```
Default–Value–Lists { 2 8 1 5 11 }

DEFINITIONS                    ::= BEGIN

EXPORTS Default–Value–Lists–Logical, Default–Value–Lists–Layout;

IMPORTS Style–Identifier, Layout–Category–Name
        FROM Identifiers–and–Expressions                          - - see 5.7
        Measure–Pair, One–Of–Four–Angles, Medium–Type,
        Dimension–Pair, Transparency, Colour, Border
        FROM Layout–Descriptors                                   - - see 5.8
        Protection FROM Logical–Descriptors                       - - see 5.9
        Presentation–Attributes
        FROM Style–Descriptors;                                   - - see 5.10


Default–Value–Lists–Layout          ::= SET {
    page–attributes                       [2]  IMPLICIT Page–Attributes OPTIONAL,
    frame–attributes                      [3]  IMPLICIT Frame–Attributes OPTIONAL,
    block–attributes                      [4]  IMPLICIT Block–Attributes OPTIONAL}

Default–Value–Lists–Logical         ::= SET {
    composite–logical–attributes          [5]  IMPLICIT Composite–Logical–Attributes OPTIONAL,
    basic–logical–attributes              [6]  IMPLICIT Basic–Logical–Attributes OPTIONAL}

Page–Attributes                     ::= SET {
    dimensions                            < Attribute OPTIONAL,
    transparency                          < Attribute OPTIONAL,
    presentation–attributes               < Attribute OPTIONAL,
    page–position                         < Attribute OPTIONAL.
    medium–type                           < Attribute OPTIONAL,
    presentation–style                    < Attribute OPTIONAL,
    colour                                < Attribute OPTIONAL}

Frame–Attributes                    ::= SET {
    position                              < Attribute OPTIONAL,
    dimensions                            < Attribute OPTIONAL,
    transparency                          < Attribute OPTIONAL,
    layout–path                           < Attribute OPTIONAL,
    permitted–categories                  < Attribute OPTIONAL,
    colour                                < Attribute OPTIONAL,
    border                                < Attribute OPTIONAL}

Block–Attributes                    ::= SET {
    position                              < Attribute OPTIONAL,
    dimensions                            < Attribute OPTIONAL,
    transparency                          < Attribute OPTIONAL,
    presentation–attributes               < Attribute OPTIONAL,
    presentation–style                    < Attribute OPTIONAL,
    colour                                < Attribute OPTIONAL,
    border                                < Attribute OPTIONAL}

Composite–Logical–Attributes        ::= SET {
    protection                            < Attribute OPTIONAL,
    layout–style                          < Attribute OPTIONAL}

Basic–Logical–Attributes            ::= SET {
    presentation–attributes               < Attribute OPTIONAL,

    - - only for use for the attribute content–architecture–class
    - - the content architecture specific attributes can only be referenced by
    - - use of presentation style

    protection                            < Attribute OPTIONAL,
```

```
    presentation–style                  < Attribute OPTIONAL,
    layout–style                        < Attribute OPTIONAL}

Attribute                           ::= CHOICE {
    position                              [0]  IMPLICIT Measure–Pair,
    dimensions                            [1]  IMPLICIT Dimension–Pair,
    transparency                          [2]  IMPLICIT Transparency,
    presentation–attributes               [3]  IMPLICIT Presentation–Attributes,
    layout–path                           [4]  IMPLICIT One–Of–Four–Angles,
    page–position                         [5]  IMPLICIT Measure–Pair,
    medium–type                           [6]  IMPLICIT Medium–Type,
    permitted–categories                  [7]  IMPLICIT SET OF Layout–Category–Name,
    protection                            [8]  IMPLICIT Protection,
    presentation–style                    [9]  IMPLICIT Style–Identifier,
    layout–style                         [10]  IMPLICIT Style–Identifier,
    colour                               [11]  IMPLICIT Colour,
    border                               [12]  IMPLICIT Border}

                                        END
```

5.12 Text units

```
Text–Units { 2 8 1 5 12 }

DEFINITIONS                          ::= BEGIN

EXPORTS Text–Unit, Type–Of–Coding;

IMPORTS Content–Portion–Identifier
          FROM Identifiers–and–Expressions                          - - see 5.7
          Character–Coding–Attributes
          FROM Character–Coding–Attributes { 2 8 1 6 3 }            - - see ISO 8613–6
          Raster–Gr–Coding–Attributes
          FROM Raster–Gr–Coding–Attributes { 2 8 1 7 3 }            - - see ISO 8613–7
          Geo–Gr–Coding–Attributes
          FROM Geo–Gr–Coding–Attributes { 2 8 1 8 3 };              - - see ISO 8613–8


Text–Unit                            ::= SEQUENCE {
    content–portion–attributes           Content–Portion–Attributes OPTIONAL,
    content–information                  Content–Information OPTIONAL}

Content–Portion–Attributes           ::= SET {
    content–identifier–layout            Content–Portion–Identifier OPTIONAL,
    content–identifier–logical             [4]  IMPLICIT Content–Portion–Identifier OPTIONAL,
    type–of–coding                       Type–Of–Coding OPTIONAL,
    coding–attributes                    CHOICE {
        character–coding–attributes        [1]  IMPLICIT Character–Coding–Attributes,
        raster–gr–coding–attributes        [2]  IMPLICIT Raster–Gr–Coding–Attributes,
        geo–gr–coding–attributes           [7]  IMPLICIT Geo–Gr–Coding–Attributes,

            - - the following data element is used in CCITT Recommendations T.415
            - - videotex–coding–attributes
                - - [8] IMPLICIT Videotex–Coding–Attributes,

            - - the following tags are reserved for additional types
            - - of coding attributes:
                - - [9] audio
                - - [10] dynamic–graphics

        ext–cont–arch–coding–attributes    [11]  IMPLICIT EXTERNAL} OPTIONAL,
        alternative–representation            [3]  IMPLICIT Alternative–Representation OPTIONAL}

Content–Information                  ::= OCTET STRING

Type–Of–Coding                       ::= CHOICE {
                                           [0]  IMPLICIT INTEGER { t6 (1)},
                                           [6]  IMPLICIT OBJECT IDENTIFIER}

Alternative–Representation           ::= OCTET STRING

            - - string of characters from the sets designated by the document
            - - profile attribute "alternative representation character sets",
            - - plus carriage return and line feed

                                         END
```

Annex A

(informative)

Coded representation

This annex is a summary of the basic encoding rules for the abstract syntax notation ASN.1 defined in ISO 8825.

The coded representation of each data structure or data item that constitutes, or constitutes part of, a descriptor or a text unit consists of a type field, a length field and a value field.

If the data item concerned is an elementary data item, then the type field specifies the elementary data type, the length field specifies the length of the value field, and the value field represents the value of the data item.

If the data structure or data item concerned is not elementary, then the type field identifies the attribute or group of attributes corresponding to the data structure or data item, the length field specifies the length of the value field, and the value field consists of one or more triplets, each of which is composed of a type field, a length field and a value field, representing the subordinate data structures and data items.

The *type field* (which is called "identifier octets" in ISO 8825) consists of one or more bytes. The bits of the first byte are used as follows:

bits 8 and 7:	tag class (00: universal, 01: application, 10: context–specific, 11: private);
bit 6:	contents encoding form (0: simple, 1: structured);
bits 5 to 1:	00000 to 11110: tag number; 11111 indicates a multi–octet type field.

The following tag numbers for universal tags have been assigned in ISO 8824 and ISO 8825:

Built–in data types	Defined data types
0: End–of–contents	18: Numeric String
1: Boolean	19: Printable String
2: Integer	20: Teletex String
3: Bit String	21: Videotex String
4: Octet String	22: IA5 String
5: Null	23: UTC Time
6: Object Identifier	24: Generalized Time
7: Object Descriptor	25: Graphic Character String
8: External	26: General String
9: Real	27: Visible String
10: Enumerated	
11: Encrypted	
16: Sequence	
17: Set	

Data items of type End–of–contents, Boolean, Integer or Null are simple (elementary data items). Sequences and Sets are structured (data structures with subordinate data items). Data items of type Bit String, Octet String or any of the defined data types can be either simple or structured.

The *length field* consists of one or more bytes. It takes one of three forms: short, long and indefinite. The bits of the first byte are used as follows:

bit 8:	length field form (0: short, 1: long or indefinite)
bits 7 to 1:	if bit 8 = 0: number of bytes of the value field; if bit 8 = 1: number of bytes of the length field following the first byte; 0000000 indicates the indefinite form of the length field.

A data structure or data item with an indefinite length field must be structured and must be terminated by a delimiter consisting of an End–of–contents (EOC) item. An EOC item consists of two bytes: a type field of one byte and a length field of one byte. Both are equal to zero. An EOC item has no value field.

Annex B

(informative)

Application class tag assignments

The application class tag assignments made in various clauses of this part of ISO 8613 are summarized in the table below:

Tag	Data type	Clause
APPLICATION 0	Content–Portion–Identifier	5.7
APPLICATION 1	Object–or–Class–Identifier	5.7
APPLICATION 2	Content–Type	5.10
APPLICATION 3	Character–Data	5.6
APPLICATION 4	Date–and–Time	5.6
APPLICATION 5	Style–Identifier	5.7
APPLICATION 6	Personal–Name	5.6

Annex C

(informative)

Summary of object identifiers

Values of ASN.1 object identifiers are assigned in various clauses in this part of ISO 8613. These are summarized below.

Object identifier value	Meaning	Clause
{ 2 8 0 0 }	Identifies External data type	5.1
{ 2 8 1 5 5 }	Identifies Module Interchange–Data–Elements	5.5
{ 2 8 1 5 6 }	Identifies Module Document–Profile–Descriptor	5.6
{ 2 8 1 5 7 }	Identifies Module Identifiers–and–Expressions	5.7
{ 2 8 1 5 8 }	Identifies Module Layout–Descriptors	5.8
{ 2 8 1 5 9 }	Identifies Module Logical–Descriptors	5.9
{ 2 8 1 5 10 }	Identifies Module Style–Descriptors	5.10
{ 2 8 1 5 11 }	Identifies Module Default–Value–Lists	5.11
{ 2 8 1 5 12 }	Identifies Module Text–Units	5.12

Annex D

(informative)

Examples

The first four examples in this annex consist of data streams representing various versions of the sample document in annex B of ISO 8613–2.

Four versions of the sample document are considered:

– Example 1: specific layout structure only. This example is specified by clause B.4.1, including figure B.7 and table B.1, of ISO 8613–2.

– Example 2: specific logical structure only. This example is specified by clause B.4.2, including figure B.8 and tables B.2, B.3 of ISO 8613–2.

– Example 3: specific logical structure, generic logical structure and generic layout structure. This example is specified by clause B.5, including figures B.8, B.9, B.10, and tables B.4, B.5, B.6, B.7 of ISO 8613–2.

– Example 4: specific layout structure only, as generated from the structures in example 3. This example is specified by clause B.6, including figure B.11 and table B.8, of ISO 8613–2.

The four examples are presented in clauses D.1, D.2, D.3 and D.4 below. The data stream constituting each example is shown in two forms of notation:

a) the ASN.1 notation for data values defined in ISO 8824;

b) the hexadecimal notation of the encoded data values, after applying the basic encoding rules defined in ISO 8825.

The ASN.1 notation is shown on the left and the hexadecimal notation is shown on the right of each page. The symbol LL represents a length field of which the length is unknown.

NOTE – ODL data streams equivalent to these examples are presented in annex F.

In addition, clause D.5 presents an example consisting of a data stream representing the sample document profile in annex C of ISO 8613–4.

D.1 Example 1: Sample document from annex B of ISO 8613–2; Specific layout structure only

```
document–profile{
    specific–layout–structure "1",
    document–characteristics {
        document–architecture–class formatted,
        content–architecture–classes{
            {2 8 2 6 0},
            {2 8 2 7 0},
            {2 8 2 8 0}},
        interchange–format–class if–b,
        oda–version {
            standard–or–recommendation "ISO 8613",
            publication–date "1988"}}}
layout–object{
    object–type document–layout–root,
    descriptor–body{
        object–identifier "1",
        user–visible–name "Letter",
        subordinates{
                "0","1","2"}}},
layout–object{
    object–type page,
    descriptor–body{
        object–identifier "1 0",
        user–visible–name "Header Page",

        dimensions{
                horizontal 9920,
                vertical fixed 14030},
        subordinates{
        "0","1","2","3","4"}}},

layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 0",
        user–visible–name "Logo",
        position{
                horizontal 710,
                vertical 730},
        dimensions{
                horizontal 3685,
                vertical fixed 2495},
        presentation–attributes{
                content–architecture–class
                {2 8 2 7 0},
                raster–graphics–attributes{
                    pel–transmission–density 5}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 0 0 0",
        raster–gr–coding–attributes{
            number–of–pels–per–line 737}},
    content–information{/*Array of raster
        graphic elements for the logo*/}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 1",
        user–visible–name "Date",
        position{
                horizontal 5440,
                vertical 1275},
```

```
A030
810131
A22B
810100
A512
060458020600
060458020700
060458020800
860101
8810
430849534F2038363133
440431393838
A21B
020100
3116
410131
8E064C6574746572
A009
120130120131120132
A232
020102
312D
4103312030
8E0B4865616465720D506167
                                    65
A408
800226C0
800236CE
A00F
120130120131120132120133
                                120134
A238
020104
3133
41053120302030
8E044C6F676F
A308
800202C6
800202DA
A408
80020E65
800209BF
A60B

060458020700
A103
820105
A103120130
A3LL
31LL
4009400731203020302030
A204
800202E1
04LL ..........................................
.....
A22B
020104
3126
41053120302031
8E0444617465
A308
80021540
800204FB
```

```
        dimensions{
                horizontal 3060,
                vertical fixed 540},
        content–portions{"0"}}},
 text–unit{
    content–portion–attributes{
        content–identifier–layout "1 0 1 0"},
    content–information{"CESSON, 26 JUNE 1985"}},

layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 2",
        user–visible–name "Addressee",
        position{
                horizontal 1105,
                vertical 4310},
        dimensions{
                horizontal 4505,
                vertical fixed 540},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 0 2 0"},
    content–information{"To members of ISO/
                        TC97/SC18/WG3"}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 3",
        user–visible–name "Subject",
        position{
                horizontal 1105,
                vertical 6660},
        dimensions{
                horizontal 7200,
                vertical fixed 905},
        presentation–attributes{
            character–attributes{
                    line–spacing 300}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 0 3 0"},
    content–information{"SUBJECT: PROPOSED
                        EXAMPLE TO CLARIFY
                        THE DOCUMENT\n
                        ARCHITECTURE MODEL"}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 4",
        user–visible–name "Summary",
        position{
                horizontal 2180,
                vertical 9695},
        dimensions{
                horizontal 5585,
                vertical fixed 2325},
        presentation–attributes{
                character–attributes{
                    alignment justified}},
    content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 0 4 0"},
```

```
A408
80020BF4
8002021C
A103120130
A323
310B
4009400731203020312030
0414434553534F4E2C..
..31393835
A230
020104
312B
41053120302032
8E09416464726573736565
A308
80020451
800210D6
A408
80021199
8002021C
A103120130
A32E
310B
4009400731203020322030
041F546F206D656D626572
73...574733
A234
020104
312F
41053120302033
8E075375626A656374
A308
80020451
80021A04
A408
80021C20
80020389
A604

8702012C
A103120130
A3LL
310B
4009400731203020332030
04LL5456424A4543553A..
.....
.....
.....4D4F44454C
A233
020104
312E
41053120302034
8E0753756D6D617279
A308
80020884
800225DF
A408
800215D1
80020915
A603

880103
A103120130
A3LL
31LL
4009400731203020342030
```

```
    content-information{/*Formatted string of
                                    SUMMARY- */}},
layout-object{
    object-type page,
    descriptor-body{
        object-identifier "1 1",
        user-visible-name "Body Page 1",
        dimensions{
                horizontal 9920,
                vertical fixed 14030},
        subordinates{
        "0","1","2","3","4"}}},
layout-object{
    object-type block,
    descriptor-body{
        object-identifier "1 1 0",
        user-visible-name "Para A",
        position{
                horizontal 1105,
                vertical 1105},
        dimensions{
                horizontal 7935,
                vertical fixed 1785},
        presentation-attributes{
                character-attributes{
                    line-spacing 300,
                    alignment justified}},
        content-portions{"0"}}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 1 0 0"},
    content-information{/*Formatted string
                                    of A's*/}},
layout-object{
    object-type block,
    descriptor-body{
        object-identifier "1 1 1",
        user-visible-name "Para B",
        position{
                horizontal 1105,
                vertical 3770},
        dimensions{
                horizontal 7935,
                vertical fixed 1785},
        presentation-attributes{
                character-attributes{
                    line-spacing 400,
                    alignment justified}},
        content-portions{"0"}}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 1 1 0"},
    content-information{/*Formatted string
                                    of B's*/}},
layout-object{
    object-type block,
    descriptor-body{
        object-identifier "1 1 2",
        user-visible-name "Drawing",
        position{
                horizontal 2180,
                vertical 6460},
        dimensions{
                horizontal 5045,
                vertical fixed 4140},
```

```
04LL53554D4D4152415259..
.....
A232
020102
312D
4103312031
8E0B426F647920506167652031
A408
800226C0
800236CE
A00F
120130120131120132120133 12
A236
020104
3131
41053120312030
8E06506172612041
A308
80020451
80020451
A408
80021EFF
800206F9
A607

87020120
880103
A103120130
A3LL
310B
400940073120312030 2030
04LL414141 .....
.....
A236
020104
3131
41053120312031
8E06506172612042
A308
80020451
80020EBA
A408
80021EFF
800206F9
A607

87020190
880103
A103120130
A3LL
310B
400940073120312030 312030
04LL4242 .....
.....
A236
020104
3131
41053120312032
8E0744726177686E67
A308
80020884
8002193C
A408
800213B5
8002102C
```

```
        presentation–attributes{
                content–architecture–class
                { 2 8 2 8 0 }},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 1 2 0"},
    content–information{/* Ordered set of
                        geometric graphics
                        content elements for
                        the diagram*/}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 1 3",
        user–visible–name "Caption",
        position{
                horizontal 2550,
                vertical 10800},
        dimensions{
                horizontal 3970,
                vertical fixed 370},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 1 3 0"},
    content–information{/*Formatted string
                        for the caption*/}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 1 4",
        user–visible–name "Para C1",
        position{
                horizontal 1105,
                vertical 11980},
        dimensions{
                horizontal 7935,
                vertical fixed 1075},
        presentation–attributes{
                character–attributes{
                    line–spacing 300,
                    alignment justified}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 1 4 0"},
    content–information{/*Formatted string
                        of C's*/}},
layout–object{
    object–type page,
    descriptor–body{
        object–identifier "1 2",
        user–visible–name "Body Page 2",
        dimensions{
                horizontal 9920,
                vertical fixed 14030},
        subordinates{"0","1","2","3","4"}}},

layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 2 0",
        user–visible–name "Para C2",
        position{
                horizontal 1105,
                vertical 1105},
```

```
A606
060458020800

A103120130
A3LL
310B
400940073120312032 0030
04LL .....
.....
.....
.....
A22E
020104
3129
41053120312033
8E0743617074696F6E
A308
800209F6
80022A30
A408
80020F82
80020172
A103120130
A3LL
310B
400940073120312033 2030
04LL63617074696F6E..
.....
A239
020104
3134
41053120312034
8E095061726120432831 29
A308
80020451
80022ED6
A408
80021EFF
80020433
A607

8702012C
880103
A103120130
A3LL
310B
400940073120312034 2030
04LL .....
.....
A232
020102
312D
4103312032
8E0B426F647920506167652032
A408
800226C0
800236CE
A00F120130120131120132120133
                                120134

A239
020104
3134
41053120322030
8E095061726120432832 29
A308
80020451
80020451
```

```
        dimensions{
                horizontal 7935,
                vertical fixed 1275},
        presentation–attributes{
                character–attributes{
                    line–spacing 300,
                    alignment justified}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 2 0 0"},
    content–information{/*Formatted string
                            of C's*/}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 2 1",
        user–visible–name "Para D",
        position{
                horizontal 1105,
                vertical 3260},
        dimensions{
                horizontal 7935,
                vertical fixed 1615},
        presentation–attributes{
                character–attributes{
                    line–spacing 300,
                    alignment justified}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 2 1 0"},
    content–information{/*Formatted string
                            of D's*/}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 2 2",
        user–visible–name "Ending",
        position{
                horizontal 1985,
                vertical 5755},
        dimensions{
                horizontal 6860,
                vertical fixed 2155},
        presentation–attributes{
                character–attributes{
                    line–spacing 300,
                    alignment justified}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 2 2 0"},
    content–information{"Formatted string of
                        FORMAL ENDING"}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 2 3",
        user–visible–name "signature",
        position{
                horizontal 3260,
                vertical 8675},
        dimensions{
                horizontal 5585,
                vertical fixed 2495},
```

```
A408
80021EFF
800206F9
A607

8702012C
880103
A003120130
A3LL
310B
4009400731203230302030
04LL4343 .....
.....
A236
020104
3131
41053120322031
8E06506172612044
A308
80020451
80020CBC
A408
80021EFF
8002064F
A607

8702012C
880103
A103120130
A3LL
310B
4009400731203220312030
04LL444444 .....
.....
A236
020104
3131
41053120322032
8E06456E64696E67
A308
800207C1
8002167B
A408
80021ACC
8002086B
A607

8702012C
880103
A103120130
A3LL
310B
4009400731203220322030
04LL464F52524D41402045
4E44494E47 .....
A23D
020104
3138
41053120322033
8E095369676E6174757265
A308
80020CBC
800221E3
A408
800215D1
800209BF
```

```
        presentation–attributes{
          content–architecture–class
                                    { 2 8 2 7 0},
          raster–graphics–attributes{
                pel–transmission–density 5}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 2 3 0",
        raster–gr–coding–attributes{
          number–of–pels–per–line 1117}},
    content–information{/*Array of
                        raster–graphics content
                        elements for the
                        signature*/}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 2 4",
        user–visible–name "Name",
        position{
                horizontal 5950,
                vertical 11170},
        dimensions{
                horizontal 2520,
                vertical fixed 905},
        presentation–attributes{
                character–attributes{
                        line–spacing 300}},
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout "1 2 4 0"},
    content–information{"Miss Aude HEA\n
                         Document Architect"}}
```

```
A60B

060458020700
A103
820105
A103120130
A3LL
310B
4009400731203220332030
A204
8002045D
04LL .....
.....
.....
.....
A231
020104
312C
41053120322034
8E044E616D65
A308
8002173E
80022BA2
A408
800209D8
80020389
A604

8702012C
A103120130
A3LL
310B
4009400731203220342030
04LL4D697373.....
.....
```

D.2 Example 2: Sample document from annex B of ISO 8613–2; Specific logical structure only

```
document–profile{                                                    A033
    presentation–styles “1”,                                         860131
    specific–logical–structure “1”,                                  850131
    document–characteristics {                                       A22B
        document–architecture–class
                formatted–processable,                               810101
        content–architecture–classes{                                A512
                { 2 8 2 6 1},                                        060458020600
                { 2 8 2 7 1},                                        060458020701
                { 2 8 2 8 0}},                                       060458020800
        interchange–format–class if–a,                               860100
        oda–version {                                                8810
            standard–or–recommendation “ISO 8613”,                   430849534F2038363133
            publication–date “1988” }}} ,                            440431393838
presentation–style{                                                  A70D
    style–identifier “5 0”,                                          4503352030
    presentation–attributes{                                         A306
        character–attributes{                                        A004
            line–spacing 300}}},                                     8702012C
presentation–style{                                                  A711
    style–identifier “5 1”,                                          4503352031
    presentation–attributes{                                         A30A
        character–attributes{                                        A008
            first–line–offset 1417,                                  97020589
            line–spacing 300}}},                                     8702012C
presentation–style{                                                  A714
    style–identifier “5 2”,                                          4503352032
    presentation–attributes{                                         A30D
        character–attributes{                                        A00B
            first–line–offset 1417,                                  97020589
            alignment justified,                                     880103
            line–spacing 300}}},                                     8702012C
presentation–style{                                                  A714
    style–identifier “5 3”,                                          4503352033
    presentation–attributes{                                         A30D
        character–attributes{                                        A00B
            first–line–offset 1020,                                  970203FC
            alignment justified,                                     880103
            line–spacing 300”}}},                                    8702012C
presentation–style{                                                  A714
    style–identifier “5 4”,                                          4503352034
    presentation–attributes{                                         A30D
        character–attributes{                                        A00B
            first–line–offset 1417,                                  97020589
            alignment justified,                                     880103
            line–spacing 400”}}},                                    87020190
logical–object {                                                     A624
        object–type document–logical–root,                           020100
        descriptor–body {                                            311F
            object–identifier “3”,                                   410133
            user–visible–name “Letter”,                              8E064C6574746572
            subordinates{”0”,”1”},                                   A006120130120131
            default–value–lists{                                     A70A
              basic–logical–attributes {                             A608
                presentation–attributes {                            3106
                  content–architecture–class                         060458020601
                { 2 8 2 6 1}}}}}},
logical–object{                                                      A620
    object–type composite–logical,                                   020101
    descriptor–body{                                                 311B
        object–identifier “3 0”,                                     4103332030
        user–visible–name “Header”,                                  8E06486561646572
        subordinates {”0”,”1”,”2”,”3”}}},                            A00C120130120131120132120133
```

```
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 0 0”,
        user–visible–name “Date”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 0 1”,
        user–visible–name “Addressee”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 0 2”,
        user–visible–name “Subject”,
        presentation–style “5 0”,
        content–portions{”0”}}},
logical–object{
    object–type composite–logical,
    descriptor–body{
        object–identifier “3 0 3”,
        user–visible–name “Summary”,
        subordinates{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 0 3 0”,
        user–visible–name “Summary–paragraph”,

        presentation–style “5 1”,
        content–portions{”0”}}},
logical–object{
    object–type composite–logical,
    descriptor–body{
        object–identifier “3 1”,
        user–visible–name “Body”,
        subordinates{”0”,”1”,”2”,”3”,”4”,
                                “5”,”6”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 0”,
        user–visible–name “Paragraph A”,
        presentation–style “5 2”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 1”,
        user–visible–name “Paragraph B”,
        presentation–style “5 2”,
        content–portions{”0”}}},
logical–object{
    object–type composite–logical,
    descriptor–body{
        object–identifier “3 1 2”,
        user–visible–name “Figure”,
        subordinates{”0”,”1”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 2 0”,
        user–visible–name “Drawing”,
        presentation–attributes{
```

```
A617
020102
3112
41053320302030
8E0444617465
A103120130
A61C
020102
3117
41053320302031
8E094164726573736565
A103120130
A61F
020102
311A
41053320302032
8E075375626A656374
9103352030
A103120130
A61A
020101
3115
41053320302033
8E0753756D6D617279
A003120130
A62B
020102
3126
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2D706172616772617068
9103352031
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A627
020101
3122
4103332031
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120134120135120136
A623
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41053320312030
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9103352032
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A623
020102
311E
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8E0B506172616772617068204 2
9103352032
A103120130
A61C
020101
3117
41053320322032
8E06466967757265
A006120130120131
A624
020102
311F
410733203120322030
8E0744726177686E67
A606
```

```
        content–architecture–class
                        {2 8 2 8 0}},
    content–portions{"0"}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier "3 1 2 1",
        user–visible–name "Caption",
        content–portions{"0"}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier "3 1 3",
        user–visible–name "Paragraph C",
        presentation–style "5 2",
        content–portions{"0"}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier "3 1 4",
        user–visible–name "Paragraph D",
        presentation–style "5 2",
        content–portions{"0"}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier "3 1 5",
        user–visible–name "Ending",
        presentation–style "5 3",
        content–portions{"0"}}},
logical–object{
    object–type composite–logical,
    descriptor–body{
        object–identifier "3 1 6",
        user–visible–name "Signature and Name",

        subordinates{"0","1"}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier "3 1 6 0",
        user–visible–name "Signature",
        presentation–attributes{
            content–architecture–class
                {2 8 2 7 1}},
        content–portions{"0"}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier "3 1 6 1",
        user–visible–name "Name",
        presentation–style "5 0",
        content–portions{"0"}}},
text–unit{
    content–portion–attributes{
        content–identifier–logical "3 0 0 0"},
    content–information{"CESSON, 26
                        JUNE 1985"}},
text–unit{
    content–portion–attributes{
        content–identifier–logical "3 0 1 0"},
    content–information{"To members
                of TC97/SC18/WG3"}},
text–unit{
    content–portion–attributes{
        content–identifier–logical "3 0 2 0"},
```

```
060458020800

A103120130
A61C
020102
3117
410733203120322031
8E0743617074696F6E
A103120130
A623
020102
311E
41053320312033
8E0B506172616726170682043
9103352032
A103120130
A623
020102
311E
41053320312034
8E0B506172616726170682043
9103352032
A103120130
A61E
020102
3119
41053320312035
8E06456E64696E67
9103352033
A103120130
A628
020101
3123
41053320312036
8E125369676E61747572652D
                    4E616D65
A006120130120131
A626
020102
3121
410733203120362030
8E095369676E6174757265
A606
060458020701

A103120130
A61E
020102
3119
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8E044E616D65
9103352030
A103120130
A321
3109
840733203020312030

0414434553534F4E2C.....31393835
A32C
3109
840730203020312030

041F546F206D656D62657273..
A3LL
3109
840733203020322030
```

```
    content-information{"SUBJECT: PROPOSED
                        EXAMPLE TO CLARIFY THE
                        DOCUMENT ARCHITECTURE
                        MODEL"}},
text-unit{
    content-portion-attributes{
      content-identifier-logical "3 0 3 0 0"},
    content-information{/*Unformatted string of
                                SUMMARY-*/}},
text-unit{
    content-portion-attributes{
        content-identifier-logical "3 1 0 0"},
    content-information{/*Unformatted string of
                                A's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-logical "3 1 1 0"},
    content-information{/*Unformatted string of
                                B's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-logical "3 1 2 0 0"},
    content-information{/*Ordered set of
                          geometric-graphics
                          content elements for
                          the diagram*/}},
text-unit{
    content-portion-attributes{
        content-identifier-logical "3 1 2 1 0"},
    content-information{/*Unformatted string
                         for the caption*/}},
text-unit{
    content-portion-attributes{
        content-identifier-logical "3 1 3 0"},
    content-information{/*Unformatted string of
                                C's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-logical "3 1 4 0"},
    content-information{/*Unformatted
                          string of D's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-logical "3 1 5 0"},
    content-information{/*Unformatted string
                         for Ending*/}},
text-unit{
    content-portion-attributes{
      content-identifier-logical "3 1 6 0 0",
      raster-gr-coding-attributes{
        number-of-pels-per-line 1117}},
    content-information{"/*Array of
                         raster-graphics
                         content elements for
                         the signature*/}},
text-unit{
    content-portion-attributes{
      content-identifier-logical "3 1 6 1 0"},
    content-information{"Miss Aude HEA Document
                                Architect"}}
```

```
04LL5456424A4543553A..

.....4D4F44454C
A3LL
310B
8409332030203320302030
04LL53554D4D415259 .....

A3LL
3109
840733203120302030

04LL414141 .....
A3LL
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840733203120312030

04LL4242424242 .....
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A3LL
310B
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840733203120332030

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A3LL
3109
840733203120352030
04LL464F524D414C2D
454E44494E47 .....
A3LL
3111
4109332031203620302030
A204
8002045D
04LLZZZZZZZZZZZZ.....
.....
.....
.....
A3LL
310B
8409332031203620312030
04LL4D697373.....
.....
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D.3 Example 3: Sample document from annex B of ISO 8613–2; Generic layout, generic logical and specific logical structures

```
document–profile{                                                A03C
    generic–layout–structure "1",                                800131
    generic–logical–structure "1",                               840131
    presentation–styles "1",                                     860131
    layout–styles "1",                                           870131
    specific–logical–structure "1",                              850131
    document–characteristics {                                   A22B
        document–architecture–class
                        processable,                             810101
        content–architecture–classes{                            A512
            {2 8 2 6 1},                                         060458020601
            {2 8 2 7 0},                                         060458020700
            {2 8 2 8 0}},                                        060458020800
        interchange–format–class if–a,                           860101
        oda–version {                                            8810
            standard–or–recommendation "ISO 8613",               430849534F2038363133
            publication–date "1988"}}},                          440431393838
layout–object–class{                                             A122
    object–type document–layout–root,                            020100
    descriptor–body{                                             311D
     object–class–identifier "0",                                410130
     user–visible–name "Letter",                                 8E064C6574746572
     generator–for–subordinates{                                 A010
      sequence–construction                                      A00E
       required–construction–factor                              A005
        object–class–identifier "0 0",                           4103302030
       repetitive–construction–factor                            A205
        object–class–identifier "0 1"}}},                        4103302031
layout–object–class{                                             A14D
    object–type page,                                            020102
    descriptor–body{                                             3148
        object–class–identifier "0 0",                           4103302030
        user–visible–name "Header",                              8E06486561646572
        dimensions{                                              A408
                horizontal fixed 9920,                           800226C0
                vertical fixed 14030},                           800236CE
        generator–for–subordinates{                              A02F
         sequence–construction                                   A02D
          required–construction–factor                           A007
           object–class–identifier "0 0 0",                      41053020302030
          required–construction–factor                           A007
           object–class–identifier "0 0 1",                      41053020302031
          required–construction–factor                           A007
           object–class–identifier "0 0 2",                      41053020302032
          required–construction–factor                           A007
           object–class–identifier "0 0 3",                      41053020302033
          required–construction–factor                           A007
           object–class–identifier
                        "0 0 4"}}},                              41053020302034
layout–object–class{                                             A12F
    object–type frame,                                           020103
    descriptor–body{                                             312A
        object–class–identifier "0 0 0",                         41053020302030
        position{
            fixed–position{                                      A308
                horizontal 710,                                  800202C6
                vertical 730}},                                  800202DA
        dimensions{                                              A408
            horizontal fixed 3685,                               80020E65
            vertical fixed 2495},                                800209BF
        generator–for–subordinates{                              A00D
         single–term–construction                                A30B
          required–construction–factor                           A009
```

```
            object–class–identifier
                                “0 0 0 0”}}},
layout–object–class{
    object–type block,
    descriptor–body{
        object–class–identifier ”0 0 0 0”,
        user–visible–name ”Logo”,
        presentation–attributes{
                content–architecture–class
                { 2 8 2 7 0}},
        content–portions{”0”}}},
layout–object–class{
    object–type frame,
    descriptor–body{
        object–class–identifier “0 0 1”,
        user–visible–name “Date”,
        position{
                fixed–position{
                        horizontal 5045,
                        vertical 565}},
        dimensions{
                horizontal fixed 3970,
                vertical fixed 1615}}},
layout–object–class{
    object–type frame,
    descriptor–body{
        object–class–identifier “0 0 2”,
        user–visible–name “Addressee”,
        position{
                fixed–position{
                        horizontal 1105,
                        vertical 4310}},
        dimensions{
                horizontal fixed 5395,
                vertical fixed 1415}}},
layout–object–class{
    object–type frame,
    descriptor–body{
        object–class–identifier “0 0 3”,
        user–visible–name “Subject”,
        position{
                fixed–position{
                        horizontal 1105,
                        vertical 6660}},
        dimensions{
                horizontal fixed 7200,
                vertical fixed 1785}}},
layout–object–class{
    object–type frame,
    descriptor–body{
        object–class–identifier “0 0 4”,
        user–visible–name “Summary”,
        position{
                fixed–position{
                        horizontal 2180,
                        vertical 9695}},
        dimensions{
                horizontal fixed 6290,
                vertical fixed 3570}}},
layout–object–class{
    object–type page,
    descriptor–body{
        object–class–identifier “0 1”,
        user–visible–name “Body”,
        dimensions{
                horizontal fixed 9920,
                vertical fixed 14030},
```

```
410730203020302030
A121
020104
311C
410730203020302030
8E044C6F676F
A606

060458020700
A103120130
A126
020103
3121
41053020302031
8E0444617465

A308
800213B5
80020235
A408
80020F82
8002064F
A12B
020103
3126
41053020302032
8E09416464726573736565

A308
80020451
800210D6
A408
80021513
80020587
A129
020103
3124
41053020302033
8E075375626A656374

A308
80020451
80021A04
A408
80021C20
800206F9
A129
020103
3124
41053020302034
8E0753756D6D617279

A308
80020884
800225DF
A408
80021892
80020DF2
A127
020102
3122
4103302031
8E04426F6479
A408
800226C0
800236CE
```

```
        generator–for–subordinates{
          single–term–construction
            required–construction–factor
              object–class–identifier
                                "0 1 0"}}},
layout–object–class{
    object–type frame,
    descriptor–body{
        object–class–identifier "0 1 0",
        user–visible–name "Body",
        position{
                fixed–position{
                        horizontal 565,
                        vertical 565}},
        dimensions{
                horizontal fixed 8815,
                vertical fixed 12870}}},
logical–object–class{
    object–type document–logical–root,
    descriptor–body{
        object–class–identifier "2",
        user–visible–name "Letter",
        generator–for–subordinates{
          sequence–construction
            required–construction–factor
              object–class–identifier "2 0",
            required–construction–factor
              object–class–identifier
                                "2 1"}}},
logical–object–class{
    object–type composite–logical,
    descriptor–body{
        object–class–identifier "2 0",
        user–visible–name "Header",
        generator–for–subordinates{
          sequence–construction
            required–construction–factor
              object–class–identifier "2 0 0",
            required–construction–factor
              object–class–identifier "2 0 1",
            required–construction–factor
              object–class–identifier "2 0 2",
            required–construction–factor
              object–class–identifier
                                "2 0 3"}}},
logical–object–class{
    object–type basic–logical,
    descriptor–body{
        object–class–identifier "2 0 0",
        user–visible–name "Date",
        layout–style "4 0",
        presentation–attributes{
          content–architecture–class
                                { 2 8 2 6 1}}}},
logical–object–class{
    object–type basic–logical,
    descriptor–body{
        object–class–identifier "2 0 1",
        user–visible–name "Addressee",
        layout–style "4 1",
        presentation–attributes{
          content–architecture–class
                                { 2 8 2 6 1}}}},
logical–object–class{
    object–type basic–logical,
    descriptor–body{
        object–class–identifier "2 0 2",
```

```
A00B
A309
A007

41053020312030
A126
020103
3121
41053020312030
8E04426F6479

A308
80020235
80020235
A408
8002226F
80023246
A522
020100
311D
410132
8E064C6574746572
A010
A00E
A005
4103322030
A005

4103322031
A53A
020101
3135
4103322030
8E06486561646572
A026
A024
A007
41053220302030
A007
41053220302031
A007
41053220302032
A007

41053220302033
A51F
020102
311A
41053220302030
8E0444617465
9303342030
A606
060458020601

A524
020102
311F
41053220302031
8E09416464726573736565
9303342031
A606
060458020601

A527
020102
3122
41053220302032
```

```
        user–visible–name “Subject”,                                    8E075375626A656374
        layout–style “4 2”,                                             9303342032
        presentation–style “5 0”,                                       9103352030
        presentation–attributes{                                        A606
          content–architecture–class                                    060458020601
                        { 2 8 2 6 1}}}},
logical–object–class{                                                   A529
    object–type composite–logical,                                      020101
    descriptor–body{                                                    3124
        object–class–identifier “2 0 3”,                                41053220302033
        user–visible–name “Summary”,                                    8E0753756D6D617279
        layout–style “4 3”,                                             9303342033
        generator–for–subordinates{                                     A00D
          single–term–construction                                      A30B
            repetitive–construction–factor                              A309
              object–class–identifier
                        ”2 0 3 1”}}},                                   410732203020332031
logical–object–class{                                                   A533
    object–type basic–logical,                                          020102
    descriptor–body{                                                    312E
        object–class–identifier “2 0 3 1”,                              410732203020332031
        user–visible–name “Summary–paragraph”,                          8E1153756D6D6172792D70617261
                                                                        6772617068
        layout–style “4 4”,                                             9303342034
        presentation–style “5 1”,                                       9103352031
        presentation–attributes{                                        A606
          content–architecture–class                                    060458020601
          { 2 8 2 6 1}}}},
logical–object–class{                                                   A531
    object–type composite–logical,                                      020101
    descriptor–body{                                                    312C
        object–class–identifier “2 1”,                                  4103322031
        user–visible–name “Body”,                                       8E04426F6479
        layout–style “4 5”,                                             9303342035
        generator–for–subordinates{                                     A02A
          sequence–construction                                         A028
            repetitive–construction–factor                              A214
              choice–construction                                       A212
                required–construction–factor                            A007
                  object–class–identifier
                        “2 1 0”,                                        41053220312030
                required–construction–factor                            A007
                  object–class–identifier
                        “2 1 1”,                                        41053220312031
                required–construction–factor                            A007
                  object–class–identifier
                        “2 1 2”,                                        41053220312032
                required–construction–factor                            A007
                  object–class–identifier
                        “2 1 3”}}},                                     41053220312033
logical–object–class{                                                   A533
    object–type composite–logical,                                      020101
    descriptor–body{                                                    312E
        object–class–identifier “2 1 0”,                                41053220312030
        user–visible–name “Figure”,                                     8E06466967757265
        layout–style “4 6”,                                             9303342036
        generator–for–subordinates{                                     A018
          sequence–construction                                         A016
            required–construction–factor                                A009
              object–class–identifier
                        “2 1 0 0”,                                      410732203120302030
            required–construction–factor                                A009
              object–class–identifier
                        “2 1 0 1”}}},                                   410732203120302031
logical–object–class{                                                   A524
    object–type basic–logical,                                          020102
    descriptor–body{                                                    311F
```

```
        object–class–identifier “2 1 0 0”,                    410732203120302030
        user–visible–name “Drawing”,                          8E0744726177686E67
        presentation–attributes{                              A606
                content–architecture–class                    060458020800
                { 2 8 2 8 0}},
        layout–style “4 7”}},                                 9303342037
logical–object–class{                                         A524
    object–type basic–logical,                                020102
    descriptor–body{                                          311F
        object–class–identifier “2 1 0 1”,                    410732203120302031
        user–visible–name “Caption”,                          8E0743617074696F6E
        layout–style “4 8”,                                   9303342038
        presentation–attributes{                              A606
                content–architecture–class                    060458020601
                { 2 8 2 6 1}}}},
logical–object–class{                                         A52E
    object–type basic–logical,                                020102
    descriptor–body{                                          3129
        object–class–identifier “2 1 1”,                      41053220312031
        user–visible–name “Body–paragraph”,                   8E0E426F64792D70617261677261
                                                                                    7068
        layout–style “4 9”,                                   9303342039
        presentation–style “5 3”,                             9103352033
        presentation–attributes{                              A606
                content–architecture–class                    060458020601
                { 2 8 2 6 1}}}},
logical–object–class{                                         A52C
    object–type basic–logical,                                020102
    descriptor–body{                                          3127
        object–class–identifier “2 1 2”,                      41053220312032
        user–visible–name “Ending”,                           8E06456E64696E67
        layout–style “4 10”,                                  930434203130
        presentation–style “5 4”,                             9103352034
        content–portions{”0”},                                A103120130
        presentation–attributes{                              A606
                content–architecture–class                    060458020601
                {2 8 2 6 1}}}},
logical–object–class{                                         A538
    object–type composite–logical,                            020101
    descriptor–body{                                          3133
        object–class–identifier “2 1 3”,                      41053220312033
        user–visible–name “Signature–and–Name”,                8E125369676E61747572652D616E
                                                                                642D4E616D65
        generator–for–subordinates{                           A018
          sequence–construction                               A016
            required–construction–factor                      A009
              object–class–identifier
                        “2 1 3 0”,                            410732203120332030
            required–construction–factor                      A009
              object–class–identifier
                        “2 1 3 1”}}},                         410732203120332031
logical–object–class{                                         A527
    object–type basic–logical,                                020102
    descriptor–body{                                          3122
        object–class–identifier “2 1 3 0”,                    410732203120332030
        user–visible–name “Signature”,                        8E095369676E6174757265
        presentation–attributes{                              A606
                content–architecture–class                    060458020701
                { 2 8 2 7 1}},
        layout–style “4 11”}},                                930434203131
logical–object–class{                                         A527
    object–type basic–logical,                                020101
    descriptor–body{                                          3122
        object–class–identifier “2 1 3 1”,                    410732203120332031
        user–visible–name “Name”,                             8E044E616D65
        layout–style “4 12”,                                  930434203132
        presentation–style “5 0”,                             9103352030
```

```
        presentation–attributes{                                A606
                content–architecture–class                      060458020601
                { 2 8 2 6 1}}}},
text–unit{                                                      A3LL
    content–portion–attributes{                                 3111
        content–identifier–layout “0 0 0 0 0”,                  400940073020302030 20
        raster–gr–coding–attributes{                            A204
         number–of–pels–per–line 737}},                         800202E1
    content–information{/*Array of
                        raster–graphics                         04LL .....
                        content elements for                     .....
                              the logo*/ }},                     .....
text–unit{                                                      A3LL
    content–portion–attributes{                                 3109
        content–identifier–logical “2 1 2 0”},                  400732032032203020
    content–information{/*Unformatted string                    04LL .....
                              of ending*/}},                     .....
presentation–style{                                             A70D
    style–identifier “5 0”,                                     4503352030
    presentation–attributes{                                    A306
        character–attributes{                                   A004
            line–spacing 300}}},                                8702012C
presentation–style{                                             A710
    style–identifier “5 1”,                                     4503352031
    presentation–attributes{                                    A309
        character–attributes{                                   A007
            first–line–offset 1417,                             97020589
            alignment justified}}},                             880103
presentation–style{                                             A714
    style–identifier “5 3”,                                     4503352033
    presentation–attributes{                                    A30D
        character–attributes{                                   A00B
            first–line–offset 1417,                             97020589
            alignment justified,                                880103
            line–spacing 300}}},                                8702012C
presentation–style{                                             A714
    style–identifier “5 4”,                                     4503352034
    presentation–attributes{                                    A30D
        character–attributes{                                   A00B
            first–line–offset 1020,                             970203FC
            alignment justified,                                880103
            line–spacing 300}}},                                8702012C
layout–style{                                                   A818
    style–identifier “4 0”,                                     4503342030
    layout–directives{                                          A411
        layout–object–class “0 0 1”,                            8B053020302031
        offset{                                                 A408
            trailing 710,                                       820202C6
            right–hand 395}}},                                  8002018B
layout–style{                                                   A80E
    style–identifier “4 1”,                                     4503342031
    layout–directives{                                          A407
        layout–object–class “0 0 2”}},                          8B053020302032
layout–style{                                                   A80E
    style–identifier “4 2”,                                     4503342032
    layout–directives{                                          A407
        layout–object–class “0 0 3”}},                          8B053020302033
layout–style{                                                   A80E
    style–identifier “4 3”,                                     4503342033
    layout–directives{                                          A407
        layout–object–class “0 0 4”}},                          8B053020302034
layout–style{                                                   A80D
    style–identifier “4 4”,                                     4503342034
    layout–directives{                                          A406
        offset{                                                 A404
            left–hand 705}}},                                   810202C1
```

```
layout–style{
    style–identifier “4 5”,
    layout–directives{
        new–layout–object{
            to–layout–object–class “0 1”}}},
layout–style{
    style–identifier “4 6”,
    layout–directives{
        indivisibility{
            to–layout–object–class “0 1 0”}}},
layout–style{
    style–identifier “4 7”,
    layout–directives{
        offset{
            right–hand 1615,
            left–hand 2155},
        separation{
            trailing 905}}},
layout–style{
    style–identifier “4 8”,
    layout–directives{
        offset{
            right–hand 1985,
            left–hand 2860},
        separation{
            trailing 200}}},
layout–style{
    style–identifier “4 9”,
    layout–directives{
        offset{
            trailing 540,
            leading 280,
            right–hand 540,
            left–hand 340},
        separation{
            trailing 880}}},
layout–style{
    style–identifier “4 10”,
    layout–directives{
        offset{
            right–hand 1420,
            left–hand 535},
        separation{
            trailing 880}}},
layout–style{
    style–identifier “4 11”,
    layout–directives{
        offset{
            right–hand 2695,
            left–hand 535},
        separation{
            trailing 765}}},
layout–style{
    style–identifier “4 12”,
    layout–directives{
        offset{
            right–hand 5385,
            left–hand 910}}},
logical–object{
    object–type document–logical–root,
    descriptor–body{
        object–identifier “3”,
        object–class “2”,
        user–visible–name “Letter”,
        subordinates{”0”,”1”}}},
logical–object{
    object–type composite–logical,
```

```
A80C
4503342035
A405

8703302031
A80E
4503342036
A407

80053020312030
A817
4503342037
A410
A408
8002064F
8102086B
A304
81020389
A817
4503342038
A410
A408
800207C1
81020B26
A304
810201C8
A81F
4503342039
A418
A410
8202021C
83020118
8002021C
81020154
A304
81020370
A818
450434203130
A410
A408
8002058C
81020217
A304
81020370
A818
450434203131
A410
A408
80020A87
81020217
A304
810202FD
A812
450434203132
A40A
A408
80021509
8102038E
A61B
020100
3118
410103
820132
8E064C6574746572
A006120130120131
A625
020101
```

```
    descriptor–body{                                        3120
        object–identifier “3 0”,                            4103302030
        object–class “2 0”,                                 8203322030
        user–visible–name “Header”,                         8E06486561646572
        subordinates{”0”,”1”,”2”,”3”}}},                    A00C120130120131120132120133
logical–object{                                             A61E
    object–type basic–logical,                              020102
    descriptor–body{                                        3119
        object–identifier “3 0 0”,                          41053320302030
        object–class “2 0 0”,                               82053220302030
        user–visible–name “Date”,                           8E0444617465
        content–portions{”0”}}},                            A103120130
logical–object{                                             A623
    object–type basic–logical,                              020102
    descriptor–body{                                        311E
        object–identifier “3 0 1”,                          41053320302031
        object–class “2 0 1”,                               82053220302031
        user–visible–name “Addressee”,                      8E0941646472657373736565
        content–portions{”0”}}},                            A103120130
logical–object{                                             A621
    object–type basic–logical,                              020102
    descriptor–body{                                        311C
        object–identifier “3 0 2”,                          41053320302032
        object–class “2 0 2”,                               82053220302032
        user–visible–name “Subject”,                        8E075375626A656374
        content–portions{”0”}}},                            A103120130
logical–object{                                             A621
    object–type composite–logical,                          020101
    descriptor–body{                                        311C
        object–identifier “3 0 3”,                          41053320302033
        object–class “2 0 3”,                               82053320302033
        user–visible–name “Summary”,                        8E0753756D6D617279
        subordinates{”0”}}},                                A003120130
logical–object{                                             A62F
    object–type basic–logical,                              020102
    descriptor–body{                                        312A
        object–identifier “3 0 3 0”,                        410733203020332030
        object–class “2 0 3 1”,                             820732203020332031
        user–visible–name “Summary–paragraph”,              8E1153756D6D617279
                                                            2D706172616772617068
        content–portions{”0”}}},                            A103120130
logical–object{                                             A62C
    object–type composite–logical,                          020101
    descriptor–body{                                        3127
        object–identifier “3 1”,                            4103332031
        object–class “2 1”,                                 8203322031
        user–visible–name “Body”,                           8E04426F6479
        subordinates{”0”,”1”,”2”,”3”,”4”,
                                “5”,”6”}}},                 A0151201301201311201321201331
                                                                120134120135120136
logical–object{                                             A625
    object–type basic–logical,                              020102
    descriptor–body{                                        3120
        object–identifier “3 1 0”,                          41053320312030
        object–class “2 1 1”,                               82053220312031
        user–visible–name “Paragraph A”,                    8E0B5061726167726170682041
    content–portions{”0”}}},                                A103120130
logical–object{                                             A62D
    object–type basic–logical,                              020102
    descriptor–body{                                        3128
        object–identifier “3 1 1”,                          41053320312031
        object–class “2 1 1”,                               82053220312031
        user–visible–name “Paragraph B”,                    8E0B5061726167726170682042
        presentation–attributes{                            A606
            character–attributes{                           A004
                line–spacing 400}},                         87020190
        content–portions{”0”}}},                            A103120130
```

```
logical–object{
    object–type composite–logical,
    descriptor–body{
        object–identifier “3 1 2”,
        object–class “2 1 0”,
        user–visible–name “Figure”,
        subordinates{”0”,”1”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 2 0”,
        object–class “2 1 0 0”,
        user–visible–name “Drawing”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 2 1”,
        object–class “2 1 0 1”,
        user–visible–name “Caption”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 3”,
        object–class “2 1 1”,
        user–visible–name “Paragraph C”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 4”,
        object–class “2 1 1”,
        user–visible–name “Paragraph D”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 5”,
        object–class “2 1 2”,
        user–visible–name “Ending”}},
logical–object{
    object–type composite–logical,
    descriptor–body{
        object–identifier “3 1 6”,
        object–class “2 1 3”,
        user–visible–name “Signature and Name”,

        subordinates{”0”,”1”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 6 0”,
        object–class “2 1 3 0”,
        user–visible–name “Signature”,
        content–portions{”0”}}},
logical–object{
    object–type basic–logical,
    descriptor–body{
        object–identifier “3 1 6 1”,
        object–class “2 1 3 1”,
        user–visible–name “Name”,
        content–portions{”0”}}},
text–unit{
    content–portion–attributes{
        content–identifier–logical “3 0 0 0”},
    content–information{”CESSON, 26 JUNE 1985”}},
```

```
A623
020101
311E
41053320312032
82053220312030
8E06466967757265
A006120130120131
A625
020102
3120
410733203120322030
820732203120302030
8E0744726177686E67
A103120130
A625
020102
3120
410733203120322031
820732203120302031
8E07436170746967E6E
A103120130
A625
020102
3120
41053320312033
82053220312031
8E0B506172616772617068204 3
A103120130
A625
020102
3120
41053320312034
82053220312031
8E0B506172616772617068204 3
A103120130
A61B
020102
3116
41053320312035
82053220312032
8E06456E64696E67
A62F
020101
312A
41053320312036
82053220312033
8E125369676E61747572652D
                        4E616D65
A006120130120131
A627
020102
3122
410733203120362030
820732203120332030
8E095369676E6174757265
A103120130
A622
020102
311D
410733203120362031
820732203120332031
8E044E616D65
A103120130
A321
3109
840733203020312030
0414434553534F4E2C.....31393835
```

```
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 0 1 0"},
  content–information{"To members of TC97
                       /SC18 /WG3"}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 0 2 0"},
  content–information{"SUBJECT: PROPOSED
          EXAMPLE TO CLARIFY THE DOCUMENT
          ARCHITECTURE MODEL"}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 0 3 0 0"},
  content–information{/*Unformatted string
                          of SUMMARY–*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 0 0"},
  content–information{/*Unformatted string of
                          A's*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 1 0"},
  content–information{/*Unformatted string
                          of B's*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 2 0 0"},
  content–information{/*Ordered set of
                geometric–graphics content
                 elements for the diagram*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 2 1 0"},
  content–information{/*Unformatted string
                       for the caption*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 3 0"},
  content–information{/*Unformatted string of
                          C's*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 4 0"},
  content–information{/*Unformatted string of
                          D's*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 6 0 0",
      raster–gr–coding–attributes{
          number–of–pels–per–line 1117}},
  content–information{"/*Array of
          raster–graphics content elements
          for the signature*/}},
text–unit{
  content–portion–attributes{
      content–identifier–logical "3 1 6 1 0"},
  content–information{"Miss Aude HEA Document
                          Architect"}}
```

```
A32C
3109
840730203020312030
041F546F206D656D62657273..
..4733
A3LL
3109
840733203020322030

04LL5456424A4543553A..
.....4D4F44454C
A3LL
310B
8409332030203320302030
04LL53554D4D415259.....

A3LL
3109
840733203120302030

04LL414141.....
A3LL
3109
840733203120312030

04LL4242424242 .....
A3LL
310B
8409332031203220302030

04LL4242424242 .....
.....
A3LL
310B
8409332031203220312030

04LL63617074696F6E .....
A3LL
3109
840733203120332030

04LL4343434343 .....
A3LL
3109
840733203120342030

04LL44444444 .....
A3LL
310B
4109332031203620302030
A104
8002045D

04LLZZZZZZZZZZZZ.....
.....
A3LL
310B
4109332031203620312030
04LL4D697373.....
.....
```

D.4 Example 4: Sample document from annex B of ISO 8613–2; Specific layout structure only

document–profile{	A030
specific–layout–structure"1"	810131
document–characteristics {	A22B
document–architecture–class formatted,	810100
content–architecture–classes{	A512
{2 8 2 6 0},	060458020600
{2 8 2 7 0},	060458020700
{2 8 2 8 0}},	060458020800
interchange–format–class if–b,	860101
oda–version {	8810
standard–or–recommendation "ISO 8613",	430849534F2038363133
publication–date "1988"}}},	440431393838
layout–object{	A21E
object–type document–layout–root,	020100
descriptor–body{	3119
object–identifier "1",	410131
object–class "0",	820130
user–visible–name "Letter",	8E064C6574746572
subordinates{"0","1","2"}}},	A009120130120131120132
layout–object{	A228
object–type page,	020102
descriptor–body{	3123
object–identifier "1 0",	4103312030
object–class "0 0",	8203302030
user–visible–name "Header",	8E06486561646572
subordinates{"0","1","2","3","4"}}},	A00F120130120131120132120133 120134
layout–object{	A218
object–type frame,	020103
descriptor–body{	3113
object–identifier "1 0 0",	41053120302030
object–class "0 0 0",	82053020302030
subordinates{"0"}}},	A003120130
layout–object{	A229
object–type block,	020104
descriptor–body{	3124
object–identifier "1 0 0 0",	410531203020302030
object–class "0 0 0 0",	820730203020302030
user–visible–name "Logo",	8E044C6F676F
presentation–attributes{	A60C
content–architecture–class { 2 8 2 7 0},	060458020700
raster–graphics–attributes{	A104
pel–transmission–density 5}}}},	820105
layout–object{	A21E
object–type frame,	020103
descriptor–body{	3119
object–identifier "1 0 1",	41053120302031
object–class "0 0 1",	82053020302031
user–visible–name "Date",	8E0444617465
subordinates{"0"}}},	A003120130
layout–object{	A22F
object–type block,	020104
descriptor–body{	312A
object–identifier "1 0 1 0",	410731203020312030
position{	A308
horizontal 395,	8002018B
vertical 710},	800202C6
dimensions{	A408
horizontal 3060,	80020BF4
vertical fixed 540},	8002021C
content–portions{"0"},	A103180130
presentation–attributes{	A606

```
                content–architecture–class
                {2 8 2 6 2}}}},
 layout–object{
    object–type frame,
    descriptor–body{
        object–identifier "1 0 2",
        object–class "0 0 2",
        user–visible–name "Addressee",
        subordinates{"0"}}},
 layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 2 0",
        dimensions{
                horizontal 4505,
                vertical fixed 540},
        content–portions{"0"},
        presentation–attributes{
                content–architecture–class
                {2 8 2 6 2}}}},
 layout–object{
    object–type frame,
    descriptor–body{
        object–identifier "1 0 3",
        object–class "0 0 3",
        user–visible–name "Subject",
        subordinates{"0"}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 3 0",
        dimensions{
                horizontal 7200,
                vertical fixed 905},
        presentation–style "5 0",
        content–portions{"0"},
        presentation–attributes{
                content–architecture–class
                {2 8 2 6 2}}}},
layout–object{
    object–type frame,
    descriptor–body{
        object–identifier "1 0 4",
        object–class "0 0 4",
        user–visible–name "Summary",
        subordinates{"0"}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 0 4 0",
        dimensions{
                horizontal 5585,
                vertical fixed 2325},
        presentation–style "5 1",
        content–portions{"0"},
        presentation–attributes{
                content–architecture–class
                {2 8 2 6 2}}}},
layout–object{
    object–type page,
    descriptor–body{
        object–identifier "1 1",
        object–class "0 1",
        user–visible–name "Body",
        subordinates{"0"}}},
layout–object{
    object–type frame,
```

```
060458020602

A223
020103
311E
41053120302032
82053020302032
8E094164647265737365 65
A003120130
A225
020104
3120
410731203020322030
A408
80021199
8002021C
A103180130
A606
060458020602

A221
020103
311C
41053120302033
82053020302033
8E075375626A656374
A003120130
A22A
020104
3125
410731203020332030
A408
80021C20
80020389
9103352030
A103120130
A606
060458020602

A221
020103
311C
41053120302034
82053020302034
8E0753756D6D617279
A003120130
A22A
020104
3125
410731203020342030
A408
800215D1
80020915
9103352031
A103120130
A606
060458020602

A21A
020102
3115
4103312031
8203302031
8E04426F6479
A00310130
A22A
020103
```

```
    descriptor–body{
        object–identifier "1 1 0",
        object–class "0 1 0",
        user–visible–name "Body",
        subordinates{"0","1","2","3","4"}}},

layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 1 0 0",
        position{
                horizontal 540,
                vertical 540},
        dimensions{
                horizontal 7935,
                vertical fixed 1785},
        presentation–style "5 3",
        content–portions{"0"},
        presentation–attributes{
                content–architecture–class
                {2 8 2 6 2}}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 1 0 1",
        position{
                horizontal 540,
                vertical 3205},
        dimensions{
                horizontal 7935,
                vertical fixed 1785},
        presentation–style "5 3",
        content–portions{"0"},
        presentation–attributes{
                character–attributes{
                     line–spacing 400},
                content–architecture–class
                {2 8 2 6 2}}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 1 0 2",
        position{
                horizontal 1615,
                vertical 6460},
        dimensions{
                horizontal 5045,
                vertical fixed 4140},
        presentation–attributes{
                content–architecture–class
                { 2 8 2 8 0}},
        content–portions{"0"}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier "1 1 0 3",
        position{
                horizontal 1985,
                vertical 10235},
        dimensions{
                horizontal 3970,
                vertical fixed 370},
        content–portions{"0"},
        presentation–attributes{
                content–architecture–class
                { 2 8 2 6 2}}}},
```

```
3125
41053120312030
82053020312030
8E04426F6479
A00F120130120131120132120133120134
A234
020104
312F
410731203120302030
A308
8002021C
8002021C
A408
80021EFF
800206F9
9103352033
A103120130
A606
060458020602

A238
020104
3133
410731203120302031
A308
8002021C
80020C85
A408
80021EFF
800206F9
9103352033
A103120130
A60A

87020190
060458020602

A22D
020104
3128
410531203120302032
A308
8002064F
8002193C
A408
800213B5
8002102C
A606
060458020800

A103120130
A22D
020104
3128
410531203120302033
A308
800207C1
800227FB
A408
80020782
80020172
A103120130
A606
060458020602
```

```
layout–object{
    object–type block,
    descriptor–body{
        object–identifier “1 1 0 4”,
        position{
                horizontal 540,
                vertical 11485},
        dimensions{
                horizontal 7935,
                vertical fixed 1075},
        presentation–style “5 3”,
        content–portions{”0”},
        presentation–attributes{
                content–architecture–class
                { 2 8 2 6 2}}}},
layout–object{
    object–type page,
    descriptor–body{
        object–identifier “1 2”,
        object–class “0 1”,
        user–visible–name “Body”,
        subordinates{”0”}}},
layout–object{
    object–type frame,
    descriptor–body{
        object–identifier “1 2 0”,
        object–class “0 1 0”,
        user–visible–name “Body”,
        subordinates{”0”,”1”,”2”,”3”,”4”}}},

layout–object{
    object–type block,
    descriptor–body{
        object–identifier “1 2 0 0”,
        position{
                horizontal 540,
                vertical 540},
        dimensions{
                horizontal 7935,
                vertical fixed 1275},
        presentation–style “5 3”,
        content–portions{”0”},
        presentation–attributes{
                content–architecture–class
                { 2 8 2 6 2}}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier “1 2 0 1”,
        position{
                horizontal 540,
                vertical 2695},
        dimensions{
                horizontal 7935,
                vertical fixed 1615},
        presentation–style “5 3”,
        content–portions{”0”},
        presentation–attributes{
                content–architecture–class
                { 2 8 2 6 2}}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier “1 2 0 2”,
        position{
                horizontal 1820,
                vertical 5190},
```

```
A232
020104
312D
410531203120302034
A308
8002021C
80022CDD
A408
80021EFF
80020433
9103352033
A103120130
A606
060458020602

A21A
020102
3115
4103312032
8203302031
8E04426F6479
A003120130
A22A
020103
3125
41053120322030
82053020312030
8E04426F6479
A00F120130120131120132120133
                                120134

A234
020104
312F
410731203220302030
A308
8002021C
8002021C
A408
80021EFF
800206F9
9103352033
A103120130
A606
060458020602

A234
020104
312F
410731203220302031
A308
8002021C
80020A87
A408
80021EFF
8002064F
9103352033
A103120130
A606
060458020602

A234
020104
312F
410731203220302032
A308
8002071C
80021446
```

```
        dimensions{
                horizontal 6860,
                vertical fixed 2155},
        presentation–style “5 4”,
        content–portions{”0”},
        presentation–attributes{
                content–architecture–class
                { 2 8 2 6 2}}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier “1 2 0 3”,
        position{
                horizontal 2695,
                vertical 8110},
        dimensions{
                horizontal 5585,
                vertical fixed 2495},
        presentation–attributes{
                content–architecture–class
                        { 2 8 2 7 0}},
        content–portions{”0”}}},
layout–object{
    object–type block,
    descriptor–body{
        object–identifier “1 2 0 4”,
        position{
                horizontal 5385,
                vertical 10605},
        dimensions{
                horizontal 2520,
                vertical fixed 905},
        presentation–style “5 0”,
        content–portions{”0”},
        presentation–attributes{
                content–architecture–class
                {2 8 2 6 2}}}},
text–unit{
    content–portion–attributes{
        content–identifier–layout “1 0 1 0 0”,
        content–identifier–logical “3 0 0 0”},
    content–information{”CESSON, 26 JUNE 1985”}},

text–unit{
    content–portion–attributes{
        content–identifier–layout “1 0 2 0 0”,
        content–identifier–logical “3 0 1 0”},
    content–information{”To members of ISO/
                        TC97/SC18/WG3”}},
text–unit{
    content–portion–attributes{
        content–identifier–layout “1 0 3 0 0”,
        content–identifier–logical “3 0 2 0”},
    content–information{”SUBJECT: PROPOSED
                        EXAMPLE TO CLARIFY
                        THE DOCUMENT\n
                        ARCHITECTURE MODEL”}},
text–unit{
    content–portion–attributes{
        content–identifier–layout “1 0 4 0 0”,
        content–identifier–logical “3 0 3 0 0”},
    content–information{/*Formatted string of
                        SUMMARY–*/}},
text–unit{
    content–portion–attributes{
        content–identifier–layout “1 1 0 0 0”,
        content–identifier–logical “3 1 0 0”},
```

```
A408
80021ACC
8002086B
9103352034
A103120130
A606
060458020602

A22F
020104
312A
410731203220302033
A308
80020A87
80021FAE
A408
800215D1
800209BF
A606
060458020700

A103120130
A234
020104
312F
410731203220302034
A308
80021509
8002296F
A408
800209DA
80020389
9103352030
A103120130
A606
060458020602

A32E
312C
400B4009312030203120302030
840733203020302030
0414434553534F4E2C..
..31393835
A339
3116
400B4009312030203220302030
840733203020312030
041F546F206D656D62657273..
..574733
A3LL
3116
400B4009312030203320302030
840733203020322030
04LL5456424A4543553A..
..4D4F44454C


A3LL
3118
400B4009312030203420302030
8409332030203320302030
04LL53554D4D415259 .....

A3LL
3116
400B4009312031203020302030
840733203120302030
```

```
    content-information{/*Formatted string of
                                A's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 1 0 1 0",
        content-identifier-logical "3 1 1 0"},
    content-information{/*Formatted string of
                                B's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 1 0 2 0",
        content-identifier-logical "3 1 2 0 0"},
    content-information{/*Ordered set of
                        geometric-graphics
                        content elements
                        for the diagram*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 1 0 3 0",
        content-identifier-logical "3 1 2 1 0"},
    content-information{/*Formatted string for
                        the caption*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 1 0 4 0",
        content-identifier-logical "3 1 3 0"},
    content-information{/*Formatted string
                        of C's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 2 0 0 0" ,
        content-identifier-logical "3 1 3 1"} ,
    content-information{/*Formatted string
                        of C's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 2 0 1 0",
        content-identifier-logical "3 1 4 0"},
    content-information{/*Formatted string
                        of D's*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 2 0 2 0"},
    content-information{/*Formatted string
                        of ENDING*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 2 0 3 0",
        content-identifier-logical "3 1 6 0 0"},
        raster-gr-coding-attributes{
         number-of-pels-per-line 1117}},
    content-information{/*Array of
                        raster-graphics
                        content elements for
                        the signature*/}},
text-unit{
    content-portion-attributes{
        content-identifier-layout "1 2 0 4 0",
        content-identifier-logical "3 1 6 1 0"},
    content-information{"Miss Aude HEA\n
                        Document Architect"}}
```

```
04LL414141 .....

A3LL
3116
400B400931203120302031 2030
840733203120312030
04LL424242 .....

A3LL
3118
400B400931203120302032 2030
840933203120322030 2030
04LL .....


A3LL
3118
400B400931203120302033 2030
840933203120322031 2030
04LL636170746 96F6E..

A3LL
3116
400B400931203120302034 2030
840733203120332030
04LL434343 .....

A3LL
3116
400B400931203220302030 2030
840733203120332031
04LL434343 .....

A3LL
3116
400B400931203220302031 2030
840733203120342030
04LL444444 .....

A3LL
310D
400B400931203220302032 2030
04LL454E44494E47 .....

A3LL
311E
400B400931203220302033 2030
840933203120362030 2030
A204
8002045D
04LL .....


A3LL
3118
400B400931203220302034 2030
840933203120362031 2030
04LL4D697373.....
```

D.5 Example 5: Sample document profile from annex C of ISO 8613–4; Document profile only

```
document–profile {                                          A082LLLL
  generic–layout–structure "1",                             800131
  specific–layout–structure "1",                            810131
  specific–logical–structure "1",                           850131
  resource–document                                         AA41
    descriptive–reference "Finance Master,                  433F46696E616E636520
      Widget Inc, 4511 McKenzie,                            4D61737465722C576964
      Atlanta, Georgia, USA",                               67657420496E632E2C34
                                                            353131204D634B656E7A
                                                            69652C41746C616E7461
                                                            2C2047656F726769612C
                                                            205553412E
document–characteristics {                                 A2LL
  document–application–profile {          },                800103
  doc–app–profile–defaults {                                AA0F
    document–architecture–defaults {                        A00D
      page–dimensions {                                     A208
        horizontal 10200,                                   800227D8
        vertical 13200},                                    80023390
      transparency opaque (1)}},                            830101
  document–architecture–class                               810102
    formatted–processable (2),
  content–architecture–classes {                            A50706058808020602
    {28262}},
  interchange–format–class if–a (0),                        860100
  oda–version {                                             8814
    standard–or–recommendation "ISO 8613",                  430849534F2038363133
    publication–date "1989–5–1"},                           44083139383831323135
non–basic–doc–characteristics {                             A222
  page–dimensions {                                         A20A
    {horizontal 13200,                                      300880023390
     vertical 10200}},                                      800227D8
  medium types {                                            A80F
    {nominal–page–size {                                    300D3008
       horizontal 10200,                                    800227D8
       vertical 13200},                                     80023390
    side–of–sheet recto (1)}},                              020101
  protections {                                             B703
    protected (1)}},                                        020101
additional–doc–characteristics {                            A9LL
  unit–scaling {12, 10},                                    A30602010C02010A
  fonts–list {                                              A2LL
    {font–identifier 0,                                     020100
     font–reference {          }},

    {font–identifier 1,                                     30LL .....
     font–reference {          }}}}},                       020101

                                                            30LL .....
                                                            .....
document–management–attributes {                           A382036C
  document–description {                                    A7E9
    title "May finance report",                             80124D61792066696E61
                                                            6E6365207265706F7274
    subject "May results",                                  810B4D61792072657375
                                                            6C7473

    document–reference
      descriptive–reference
      "May financial prelim."                               A51743154D6179206669
                                                            6E616E6369616C207072
                                                            656C696D2E
```

```
document–type "Report",
    abstract "The current figures show
              an improvement in return
              on assets but still show
              an undercapitalization of
              production capacity.",

    keywords {
      "Finance", "Financial",
      "May", "Return on assets"}}

  dates–and–times {
    document–date–and–time "1988–06–05",
    creation–date–and–time
      "1988–06–05,16:29:57",
    local–filing–date–and–time
      {"1988–06–05,11:51:03"},

    expiry–date–and–time "1989",
    purge–date–and–time "1989–12–31",
    release–date–and–time "1988–06–05"},
  originators {
    organizations {
      "Widget Inc., Finance and control"},

    preparers {
      {personal–name {
        surname "Maltby",
        givenname "Reginald",
        initials "P.",
        title "Accountant"}}},

    owners {
      {organization
        "Widget Inc., 4511 McKenzie,
        Atlanta, Georgia, USA"}},

    authors{
      {organization
      "Dewey, Cheatam & Howe CPA"}}},

    other–user–information {
      copyright {
        copyright–information {"Widget Inc."},

        copyright–dates {"1988"}},
      status "May financial report",

      distribution–list {
        {personal–name {
          surname "Marks",
          initials "D",
          title "Accountant"}},
```

```
82065265706F7274
83795468652063757272
656E7420666967757265
732073686F7720616E20
696D70726F76656D656E
7420696E207265747572
6E206F6E206173736574
7320627574207374696C
6C2073686F7720616E20
756E64657263
61706974616C697A6174
696F6E206F662070726F
64756374696F6E206361
7061636974792E
A42A
430746696E616E6365
430846696E616369616C
43034D6179
4310526574757265206F
6E206173736574
A046
80083139383830363035
810E3139383830353233
3136382393537
A210
440E3139383830363035
313135313033
830431393839
85083139383931323331
86083139383830363035
A181A4
A022
43205769646765742049
6E632E2C2046696E616E
636520616E6420436F6E
74726F6C
A1253123
A021
80064D616C746279
8108526567696E616C64
820150
830A4163636F756E7461
6E74
A2353133
81315769646765742049
6E632E2C203435313120
41746C616E74612C4765
6F726769612C20555341
2E
A320311E
81184465776579
2C204368656174616D20
2620486F7765
20435041
A281B7
A01A3118
A00E
430C5769646765742049
6E632E2C
A106440431393838
81104D61792066696E61
6C207265606F7274
A36C
3118A016
80054D61726B73
820144
830A4163636F756E7461
```

```
        {personal–name {
          surname "Bucks",
          initials "B.",
          title "VP" ,
          organization "Finance"}},
        {personal–name {
          surname "Pencil",
          givenname "James",
          initials "K.",
          organization "Audits"}},
        {personal–name {
          surname "Duck",
          initials "D.",
          title "Controller"}}},
      additional–information},



      external–references {
        references–to–other–documents {
          descriptive–reference
            "April finance report",

          descriptive–reference
            "May balance",
          descriptive–reference
            "May accounting prelim."},

        superceded–documents {
          descriptive–reference
            "May financial A"}},
      local–file–references{
        {file–name "mayfin",

          location "financial–previous"},

        {file–name "mayfin",

          location "financial–current"}},

content–attributes {
      document–size 40447,
      number–of–pages 16,
      languages {"US English"}},


    security information {
      authorization
        organization "Widget Inc., Finance",

      security–classification
        "Company Financial",
      access–rights "Finance Group"}}}
```

```
6E74
3119A00E
80054275636B73
820142
83025650
810746696E616E6365
311CA012
800650656E63696C
81054A616D6573
82014B
8106417564697473
3117A015
80044475636B
820144
830A436F6E74726F6C6C
A519
43175369676E61747572
652072656536569707420
7265712764
A34F
A03A
4314417072696C206669
6E616E6365207265706F
7274
430B4D61792062616C61
6E6365
43154D6179206163636F
756E74696E6720707265
6C696D
A111
430F4D61792066696E61
6E6369616C2041
A43B
311C
80066D617966696E
811266696E616E636961
6C5F70726576696F7573
311B
80066D617966696E
811166696E616E636961
6C5F63757272656E74
A516
8103009DFF
820110
840C
430A555320456E676C69
7368
A632

840C5769646765742049
6E632E2C
8111436F6D70616E7920
46696E616E6369616C
A20F
430D46696E616E636520
47726F7470
```

Annex E

(normative)

Office Document Language (ODL)

NOTE – To maintain correspondence in clause numbering with CCITT Recommendation T.415, this portion of the Office Document Language (ODL) is specified in a normative annex rather than in the body of this part of ISO 8613.

E.1 Introduction

This annex specifies a standardized SGML representation of ODA documents, known as the Office Document Language (ODL). ODL is an SGML application conforming to ISO 8879.

This annex also includes rules for using the SGML Document Interchange Format (SDIF) for ODA/ODL documents.

The definitions of ISO 8879 apply to this annex.

E.2 Fundamentals

E.2.1 Basic objects and their content

In ODA, a basic object can have the attribute "content portions" and cannot have the attribute "subordinates". In the ODL representation of ODA, all content portions occur in "data elements".

A data element is an element that is declared either to be empty, or to contain only data. An application should normally define at least one data element type for each content architecture class in use.

NOTE – Definitions for "generic" data elements are given in E.10.2.1 and E.10.2.2. Specialized data element types could also be defined. For example, see the element declaration for "logo" in F.1.2.2.

In the layout structure, a data element is itself a basic object. In the logical structure, however, a data element is the sole subelement of a basic object. Attributes of a basic object that are dependent on the content architecture (such as presentation attributes) are represented as attributes of its data element.

A content model for a basic logical object normally offers a choice of all possible data element types (and therefore content architecture classes), as in:

<!ELEMENT blo O O (cf|cfp|cp|gfp|rf|rfp) >

An instance of a basic logical object, however, can contain only a single data element.

E.2.2 ODL names

ODL names are used as generic identifiers of element types, in attribute values, and in the construction of certain data content notation and attribute names.

NOTE – In some SGML concrete syntaxes, including the reference concrete syntax, case distinctions in names other than entity names are not significant. The names defined in ODL are unique even in such syntaxes.

E.2.2.1 Logical object type names

The ODL names for the logical object types are the short form human-readable names defined in A.2.5 of ISO 8613–2:

DLOR —— document logical root
CLO —— composite logical object
BLO —— basic logical object

E.2.2.2 Layout object type names

The ODL names for the layout object types are the short form human-readable names defined in A.2.5 of ISO 8613–2, with two exceptions noted below:

DLAR —— document layout root
PAGES —— page set (Exception: equivalent to PAGE_SET)
PAGE —— page (composite)
BPAGE —— page (basic) (Exception: see note.)
FRAME —— frame
BLOCK —— block

NOTE – For syntactic convenience, an object of the type "composite or basic page" is given the ODL object type name "PAGE" when it is a composite page and the ODL object type name "BPAGE" when it is a basic page. This technique allows composite and basic pages to be represented in ODL as distinct element types, with the appropriate attributes defined for each.

E.2.2.3 Content architecture class names

ODL names for content architecture classes are defined in the parts of ISO 8613 where the SGML representations of the content-related attributes are defined.

Those defined at present are:

cf —— character formatted content architecture
cfp —— character formatted processable content architecture
cp —— character processable content architecture
gfp —— geometric graphics formatted processable content architecture
rf —— raster graphics formatted content architecture
rfp —— raster graphics formatted processable content architecture

E.2.2.4 Data element type names

The ODL names for data element types are the same as the ODL names for the content architecture classes. All are permitted in the logical structure; those with "formatted" in the name are also permitted in the layout structure.

E.2.2.5 Data content notation names

In ODL, content architectures are represented by an SGML construct called a "data content notation". It is necessary to declare each notation that is used in a document (see E.10).

An ODL notation name is constructed by prefixing "ODA" to the ODL content architecture class name. To allow for future changes in ODA, the prefix "ODA" in notation names and parameter entity names is reserved.

E.2.2.6 SGML generic identifier (GI)

An element's generic identifier is normally derived from the ODA user-visible name for an object class description.

Where no object class description exists (for example, when there is no generic part), the ODL name for the object type (see E.2.2.1 and E.2.2.2) is used instead.

A generic identifier cannot be the same as an ODL object type name, unless the element is of that object type and no other elements are of that object type. In the layout structure, such elements must have a fixed object type attribute whose value is the object type name.

A generic identifier cannot be the same as an ODL data element type (content architecture class) name, unless the element is a data element of that type (see E.2.2.4).

A generic identifier cannot be "null", in any combination of uppercase and/or lowercase characters.

E.2.2.7 SGML unique identifier (ID)

In ODL, an object identifier is represented symbolically by an SGML construct called a "unique identifier", or "ID". A symbol is assigned only if there is a need to reference the object.

NOTE – This technique is practical because the attribute "subordinates", which conceptually requires a reference to every object, is implied in ODL by the position of the subordinate objects.

An ODL unique identifier cannot be "null", in any combination of upper-case and/or lower-case characters.

E.2.2.8 Default value list attribute names

Each default value list that can be specified for an element is represented in ODL by an individual attribute. The attribute names are constructed by prefixing the letters "dv" to the ODL name for an object type or content architecture class.

The presently recognized default value list attribute names are:

dvclo — composite logical object
dvblo — basic logical object
dvpage — page (composite)
dvbpage — page (basic)
dvframe — frame
dvblock — block
dvcf — character formatted content architecture
dvcfp — character formatted processable content architecture
dvcp — character processable content architecture
dvgfp — geometric graphics formatted processable content architecture
dvrf — raster graphics formatted content architecture
dvrfp — raster graphics formatted processable content architecture

E.2.3 Content

NOTE – In most SGML applications, the content information (data) of an element with character content normally occurs between its start- and end-tags. The data is either recognized as such because the element's content is declared to be data and has no markup within it, or because the element has mixed content and the parser distinguishes the data from any nested subelement tags or other markup. In ODL, however, even though nested subelements cannot occur, character content is normally declared to be #PCDATA in order to permit entity references and markup declarations. Geometric and raster graphics content are NDATA entities.

The content information attribute of a content portion is represented in ODL as the content of a data element. The other attributes of a content portion are represented as attributes of the data element.

For character content architectures, the data can occur either in the normal content, or in one or more data entities that are referenced from the ODL attribute "content" that is defined for the data element. The normal content is declared to be #PCDATA, so that it can contain references to other content portions, and so that the start–tag can be minimized when only one data element type can occur.

Raster and geometric graphics content, which cannot be parsed for markup, is always stored in separate data entities. The entities are referenced by the ODL attribute "content" on the data element's start-tag.

Generic content is discussed in E.4.2.2.

E.2.4 Linking the logical and layout structures

In order to permit the automatic generation of a specific layout structure, the generic logical and layout structures must be linked. In ODL, this is accomplished by an explicit LINKTYPE declaration. The declaration encompasses other SGML declarations (just as a document type declaration does). In particular, it contains one or more LINK set declarations, which associate the ODA logical object class, layout style, presentation style, and layout object class.

NOTE – The following example illustrates two link sets, named "#INITIAL" and "set1". Consider the last line, which is the link rule for "logobj3" in the link set named "set1". It has four parameters: the logical object class, the layout style directives, the layout object class, and the presentation style attributes. In SGML, they are called the source element type, link attribute specification, result element type, and result attribute specification, respectively.

```
<!LINK  #INITIAL
        dlor                                        dlar
        logobj1   [sep="450 00 00"]                 #IMPLIED
        logobj2   #USELINK set1 [newlay=page]       #IMPLIED
        logobj3   [blkalign=c]                      layobj2 >
<!LINK  set1
        logobj3   [blkalign=l]                      layobj2     [trans=o] >
```

The optional "USELINK" parameter in line 4 identifies the link set that will be current for the specified logical object class, except when overridden by the link set associated with a subordinate object. A link set called "#INITIAL" must always be present, and is the current link set at the start of the document. In the example, #INITIAL is the current link set for all of the logical structure, except within logobj2 and its subordinates, where set1 is current.

E.2.5 Attributes

Attribute definitions must be associated with the corresponding element definition (object class description) for all potential attributes of an object. Except, however, that an attribute need not be defined if the attribute is not specified for the object class concerned, or for any object derived from it.

If the attribute definition's default value is to be overridden for a particular specific object, the attribute must be specified in the start-tag of the element, or in a link or result attribute specification list. Parameter-wise defaulting is achieved by defining entities for each parameter.

NOTE – Conventions for such defaulting can be established by a document application profile.

E.3 Representation of attribute values

The representations of the ODA attributes are presented in the form of SGML public text. In this form they can be referenced from a document rather than included within it.

The semantics of the attribute values are specified in ISO 8613–2. The representation of attribute values is as specified in ISO 8613–2, except where a different representation is specified in the public text or elsewhere in this annex.

The default values specified in the public text are those defined in ISO 8613–2. If a different default value is wanted for an element (such as a non-standard default value specified in the document profile or in an object class description), the public text should not be referenced; instead, the definitions should be duplicated with the required changes made in the default values.

Attribute values are sequences of one or more parameters, separated by SGML separator characters. The description of the attribute in ISO 8613–2 determines the number of parameters, and whether any can be omitted. An omitted parameter is represented by a keyword consisting of two zeros: 00.

A parameter is either constructed, or is one of a number of primitive types: string, keyword, integer, expression, or identifier. String and expression parameters are delimited, and can contain separator characters. Other parameters are not delimited and cannot contain separator characters.

NOTE – Most attribute values consist of a single parameter.

E.3.1 Constructed parameters

In ISO 8613–2, a parameter is a constructed parameter if one or more of its permissible values is a group of two or more sub-parameters. The description of the attribute in ISO 8613–2 determines the number of sub-parameters, and whether any can be omitted. If more than one sub-parameter is present, they are separated from one another by commas. Successive commas denote an omitted sub-parameter, but they are required only if a succeeding sub-parameter is present.

NOTE – For an example of a constructed parameter, see the attribute "position" in the public text.

E.3.2 String parameters

A string parameter could contain characters not permitted in an SGML name token, and it is therefore delimited by SGML LIT or LITA delimiters.

E.3.3. Keyword parameters

Possible keyword values are defined in ISO 8613–2 for some parameters, and by this annex for others.

Lowercase letters in keyword parameters are treated as though they were uppercase.

For certain parameters whose permissible values constitute a set of keywords, fixed numeric values, or both keywords and fixed numeric values, the value is represented by choosing from a set of substitute keywords. These parameters are documented in comments in the public text, in the form:

parameter name: keyword keyword ...

with the keywords appearing in the same order as the permissible values that they represent appear within ISO 8613–2. For attributes that have but one parameter, the attribute name is the parameter name.

NOTE – For example:

–– side of sheet: R V U ––

means that in the "side of sheet" parameter of the attribute "medium type", a value of "r" represents "recto", a value of "v" represents "verso", and so on.

E.3.4 Integer parameters

An integer is represented by a sequence of digits. If preceded by a hyphen, it represents a negative integer.

Parameters whose permissible values constitute an enumerated set of quantities of degrees or SMUs are represented by the integer quantities alone, without the word "degrees" or "SMU".

E.3.5 Expression parameters

Expression parameters use the ODA human-readable expression notation defined in normative annex A of ISO 8613–2. Its application to ODL is specified in this sub-clause.

NOTE – Construction expressions are discussed in E.4.2.1.

E.3.5.1 Delimiters

The hexadecimal form of a string literal is represented in functional notation to minimize potential conflicts with SGML delimiters:

H(hexadecimal string)

NOTE – When the reference delimiter set is used, attribute values containing ODA string expressions should normally be delimited with LITA delimiters, as the ODA expression notation uses LIT delimiters for string literals.

E.3.5.2 Names and identifiers

An object class identifier is represented by the ODL generic identifier (element type).

An object type is represented by its ODL name.

NOTE – ODL naming rules prevent conflicts between GIs and ODL object type names.

An object identifier is represented by an SGML unique identifier.

NOTE – An element must have an ID attribute specified on its start-tag in order for there to be an object identifier to reference.

A binding name is represented by an SGML name derived from it.

NOTE – It cannot be confused with any other ODL name because it can only occur as the second argument of a binding reference.

E.3.5.3 String literals

A string literal in an expression parameter may be contained in a general entity that is referenced from the expression by means of an ODL function called "E":

E(general entity name)

NOTE – The E function may be used for string literals that contain non-SGML characters.

E.3.6 Parameters requiring names or identifiers

Object types, object class identifiers, and object identifiers, are represented as specified in E.3.5.2.

When a unique identifier occurs in a context in which a generic identifier or object type name could also occur, the unique identifier is represented as the argument to an "ID" function to distinguish it.

EXAMPLE – ID(myid)

A null name or identifier is represented by the keyword "null".

E.3.7 Special SGML constructs

Some ODA attributes are represented by SGML constructs other than the SGML attribute syntax. Their representation is described for each such attribute individually.

E.4 Shared attributes

E.4.1 Identification attributes

E.4.1.1 Object type

E.4.1.1.1 Logical objects

The attribute "object type" is not specified for logical objects, as it is implied by the content model:

a) if the content is declared to be a data element or a choice of data elements, the object is a basic logical object;

b) if the element is the document element, the object is the document logical root;

c) in all other cases, the object is a composite logical object.

E.4.1.1.2 Layout objects

The attribute "object type" is declared as follows:

objtype NAME #FIXED ODLname

where "ODLname" is the ODL name for the object type, as described above.

NOTE – The attribute "object type" must be defined for a layout object class even if the object type name is used as its generic identifier.

E.4.1.2 Object identifier

The attribute "object identifier" is represented symbolically by an SGML "unique identifier" attribute, as follows:

id ID #IMPLIED

It need be defined and specified only for elements that are actually referenced.

E.4.1.3 Object class identifier

The attribute "object class identifier" is the "element type" in an element definition.

E.4.2 Construction attributes

E.4.2.1 Generator for subordinates

The semantics of the attribute "generator for subordinates" are represented in ODL by the SGML content model syntax.

NOTE – The content model syntax differs only in notational constructs from the human-readable construction expression in annex A of ISO 8613–2.

An ambiguous generator for subordinates must be made unambiguous by means of "intermediate elements", as described in ISO 8879. An intermediate element has no semantic effect. It is distinguished from other elements in the following manner:

1. In the logical DTD, the following attribute is defined for it:

   ignore NAME #FIXED ignore

2. In the layout DTD, the object type attribute is defined for it as follows:

   objtype NAME #FIXED ignore

E.4.2.2 Content generator and generic content information

E.4.2.2.1 Layout structure

In the layout structure, the attribute "content generator" is declared for data elements as follows:

congen CDATA #FIXED 'string expression'

and the attribute "content information" is declared as:

coninfo ENTITIES #FIXED 'entity names'

E.4.2.2.2 Link attribute definition

In a link attribute definition, the attribute "content generator" is declared as follows:

congen CDATA 'string expression'

The attribute "content information" is not declared as such; instead, its value is assigned to the attribute "congen", and the ODL attribute "gentype" is set to "CONINFO" to indicate this. The latter attribute is declared as:

gentype NAME "CONGEN"

If the attribute "content generator" is specified at the same time, it is specified as the value of the ODL attribute "ignored content generator":

icongen CDATA #IMPLIED

The ODL attribute "congen" can have semantic significance only when the instance of the source data element has no data and the ODL attribute "content" is not specified. In such cases, the attribute will cause generation of content data for the result data element when the value of the ODL attribute "use content generator" is "YES" (the default). To prevent content generation, the attribute "use content generator" should be specified as "NO".

The link attribute "use content generator" is declared as:

ucongen CDATA yes

E.4.3 Relationship attributes

E.4.3.1 Object class

The attribute "object class" is an element's generic identifier, which is specified on its tags.

E.4.3.2 Subordinates

The attribute "subordinates" is not specified as such. Elements that occur between the start- and end-tags of another element are that element's subordinates (sub-elements). The order of appearance of the sub-elements defines the sequential order among them.

E.4.3.3 Content portions

All content portions occur in data elements. Non-character content is always stored in data entities and is referenced by specifying the entity names as the value of a content attribute of the data element, as follows:

content ENTITIES #REQUIRED

Non-character data elements are declared to have EMPTY normal content.

For character content, the content portions normally occur between the start- and end-tags of the data element. They are declared to be #PCDATA and can contain references to character data entities. The declaration

content ENTITIES #CONREF

allows the data for a given element to occur in separate entities, depending upon whether a value is specified for the attribute. When a content attribute value is specified, the normal content of that instance of the element must be empty.

Generic content is discussed in E.4.2.2.

E.4.3.4 Resource

This attribute is declared as:

resource CDATA #FIXED "table key"

E.4.3.5 Presentation style

See E.8.1.

E.4.4 Content architecture class attributes

E.4.4.1 Content architecture class

This attribute is declared for data elements as:

conarch NAME #FIXED ODLarch

where "ODLarch" is the ODL name for a content architecture class (see E.2.2.3).

E.4.4.2 Content type

This attribute is not recognized in ODL. Its equivalent, "content architecture class", is used instead.

NOTE – When an ODA/ODL document is converted to ODIF, the attribute "content architecture class" would be coded in ODIF as either "content architecture class" or "content type", as appropriate.

E.4.5 Miscellaneous attributes

E.4.5.1 User-readable comments

These are represented by SGML comment declarations.

E.4.5.2 Application comments

An application comment is the text of an entity whose name is specified as the value of an attribute that is declared as follows:

appcmnt ENTITY #IMPLIED

E.4.5.3 User-visible name

This attribute is represented either by the element's generic identifier or unique identifier, or by an associated comment.

E.4.5.4 Bindings

Each binding is represented as an SGML attribute that is declared as:

binding-name CDATA #IMPLIED

or

binding-name CDATA 'binding-value'

and specified in the form

binding-name = 'binding-value'

where

"binding-name" is an SGML name derived from the ODA binding name; and
"binding-value" is an expression, represented as specified in E.3.5.

E.4.5.5 Default value lists

Default value lists are represented by one or more of the following attributes:

ODLdvnm ENTITY #IMPLIED

where "ODLdvnm" is replaced by an ODL name for a default value list (see E.2.2.8).

The value of each attribute is the name of a data entity whose value conforms to the syntax of an attribute specification list.

Default value list attributes can be defined for elements in the source and result document types, and as link attributes. A default value list that is a link attribute must contain a link attribute specification list.

NOTE – In ODL, the attributes "presentation style" and "layout style" are represented as attribute specification lists in link rules (see E.7 and E.8). Default value lists for these attributes consist of similarly-formed attribute specification lists.

E.5 Layout attributes

E.5.1 Property, formatting, and imaging attributes

This sub-clause defines a public entity set whose entities contain standard definitions of ODA layout attributes. When the public entity is referenced in a document type definition, the individual entities can be referenced as needed in attribute definition lists.

```
<! -- (C) International Organization for Standardization 1989
     Permission to copy in any form is granted for use with conforming SGML systems and applications as
     defined in ISO 8879, provided this notice is included in all copies.
-->
<! -- Public entity set. Typical invocation:
<!ENTITY % layatt PUBLIC "ISO 8613-5:1989//ENTITIES
                          ODA Layout Attributes//EN">
        %layatt;
-->
                <! -- Property Attributes -->
<!ENTITY % ODApos -- position --
                "pos CDATA '0 0'"
                    -- fixed or variable: implied by number of parameters --
                    -- horizontal position: integer --
                    -- vertical position: integer --
                    -- offset: (integer,integer,integer,integer) --
                    -- separation: (integer,integer,integer) --
                    -- alignment: R C L --
                    -- fill order: N R -->
<!ENTITY % ODAdim -- dimensions --
                "dim CDATA #IMPLIED"
                  -- fixed dimension: integer --
                  -- variable page height: (V,integer) --
                  -- rule a: (A,(integer,integer)) --
                  -- rule b: (B,(integer,integer)) --
                  -- maximum size: M -->
<!ENTITY % ODAbor -- border --
```

```
                    "border CDATA #IMPLIED"
                        -- null: N --
                        -- border line width: integer --
                        -- border line type: S DA DO DD DDD I --
                        -- border free space width: integer -->

                    <! -- Formatting Attributes -->
<!ENTITY % ODAbal     -- balance --
                    "balance    CDATA null">
<!ENTITY % ODApath    -- layout path: 0 90 180 270 --
                    "laypath    NUMBER 270">
<!ENTITY % ODAsrce    -- logical source --
                    "logsrce    NAME #IMPLIED">
<!ENTITY % ODAperm    -- permitted categories --
                    "permcat    NAMES null" >

                    <! -- Imaging Attributes -->
<!ENTITY % ODAiord    -- imaging order --
                    "imagord    IDREFS #IMPLIED" >
<!ENTITY % ODAtran    -- transparency: T O --
                    "trans      NAME t" >
<!ENTITY % ODAcol     -- colour: C W --
                    "colour     NAME c" >
<!ENTITY % ODAppos    -- page position: integer integer --
                    "ppos       NUMBERS #IMPLIED">
<!ENTITY % ODAmed     -- medium type --
                    "medium     NMTOKENS '9920,14030 u'"
                        -- nominal page size: (integer,integer) --
                        -- side of sheet: R V U -->
```

E.5.2 Presentation attributes

The presentation attributes are described in the parts of ISO 8613 in which content architectures are specified.

Presentation attributes can be defined and specified only for data elements. The syntactically allowable set of attributes depends on the data element type (that is, on the data element's content architecture class).

Layout presentation attributes are applicable to formatted (F) and formatted processable (FP) architecture classes. They are known in ODL as "format attributes" and are specified as attributes of a data element in the layout structure.

NOTE – Although they are also syntactically valid in a result attribute specification, they are ignored by the layout process.

Logical presentation attributes are applicable to unformatted processable (P) and FP architecture classes. They are known in ODL as "format directives" and are specified as link attributes.

ODA also defines "shared" attributes that apply to all three categories of architecture class. They are known in ODL as "format attribute-directives" and are specified for the various content architecture classes as follows:

a) P: result attribute specifications in link rules (that is, in presentation styles).

b) F: like format attributes (that is, in data element start-tags in the layout structure).

c) FP: both of the above, with the link rules being recognized for the layout process and the layout structure start-tags for the imaging process.

When a result attribute must be specified and the layout object class is either a composite layout object or is unspecified, a subordinate link set must be defined. The result attributes are then specified in an entry in the subordinate link set in which the source element type is specified as "#IMPLIED", and the result element type is the generic identifier of the basic layout object whose content architecture class is that to which the result attributes apply.

NOTE – See how "para" is handled in the example in F.1.2.3.

E.6 Logical attributes

E.6.1 Protection

The attribute "protection" is defined as:

protect NAME unprot -- protection: PROTECT UNPROT --

E.6.2 Layout style

See E.7.1.

E.7 Layout style attributes

Layout directive attributes are specified as "link attributes" in the link rule for the logical object class.

E.7.1 Layout style identifier

Layout styles are represented by entities, conventions for which can be defined in a document application profile. The entity name is the layout style identifier. (See the example in F.1.2.3)

E.7.2 Layout object class

The layout object class attribute is represented by specifying the generic identifier of the layout object class as the result element type in the link rule. If the logical object does not have a known layout object class, the keyword "#IMPLIED" should be specified in the link rule instead.

E.7.3 Layout category

A layout category name is represented by an SGML name. In situations where another type of name could also occur, a layout category name is represented as the argument to a "CAT" function, to distinguish it.

EXAMPLE – CAT(mycat)

A layout category name cannot be "null", in any combination of uppercase and/or lowercase characters.

E.7.4 Other layout directive attributes

This sub-sub-clause includes public entities containing attribute definitions for the layout directives. The entities can be referenced directly within an attribute definition list declaration.

E.7.4.1 Layout directives for basic and composite logical objects

```
<! -- (C) International Organization for Standardization 1989
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     defined in ISO 8879, provided this notice is included in all copies.
-->
<! -- Public text entity. Typical invocation:
<!ENTITY % ldir-bc PUBLIC "ISO 8613-5:1989//TEXT
                    Layout Directives: Basic and Composite//EN">
<!ATTLIST clo %ldir-bc; >
```

```
-->
        -- layout object class is not an attribute: see E.7.2 --
        -- 'object type page' is represented by 'PAGE' --
        indiv     CDATA   null   -- indivisibility --
        newlay    CDATA   null   -- new layout object --
        samelay   CDATA   null   -- same layout object --
        synchr    CDATA   null   -- synchronization --
```

E.7.4.2 Layout directives for basic logical objects

```
<! -- (C) International Organization for Standardization 1989
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     defined in ISO 8879, provided this notice is included in all copies.
-->
<! -- Public text entity. Typical invocation:
<!ENTITY % ldir-b PUBLIC "ISO 8613-5:1989//TEXT
                  Layout Directives: Basic//EN">
<!ATTLIST blo %ldir-b; %ldir-bc;>
-->
        blkalign  NAME      r        -- block alignment: R L C N --
        concat    NAME      n        -- concatenation: C N --
        fillord   NAME      n        -- fill order: N R --
        category  NAME      null     -- layout category --
        offset    NUMBERS   "0 0 0 0" -- offset: four integers --
        sep       NUMBERS   "0 0 0"  -- separation: three integers --
```

E.8 Presentation style attributes

E.8.1 Presentation style identifier

Presentation styles are represented by entities, conventions for which can be defined in a document application profile. The entity name is the presentation style identifier. (See the example in F.1.2.3).

E.8.2 Other presentation style attributes

Layout attributes that have been defined for a result element are syntactically valid as result attributes in link rules. However, only the attributes "border", "transparency", and "colour" (see E.5.1) are semantically valid during the layout process, and only when they are attributes of blocks.

E.9 Content portion attributes

E.9.1 Identification attributes: content identifier

Content (data) is normally identified by the fact that it occurs between the start-tag and end-tag of a data element. The document type specification on the start-tag or tags that introduce the data indicate whether it is part of the logical or layout structure, or both.

When data is stored in a separate entity, its name serves as the content identifier.

E.9.2 Common coding attributes: type of coding

The attribute "type of coding" is defined as an attribute of a data content notation, in the form:

codetype NAME (default)

where the default and permissible values are defined in the parts of ISO 8613 that deal with content architectures, or in document application profiles.

The attribute is specified on the entity declarations of entities containing content portions that conform to the notation.

E.9.3 Content information attributes

E.9.3.1 Content information

The content information attribute is discussed in E.2.3.

E.9.3.2 Alternative representation

The attribute "alternative representation" is defined as follows for data elements whose content portions could have alternative representations:

altreps ENTITIES #IMPLIED

The value of this attribute is a list of names of data entities that contain the alternative representations of the corresponding content portions.

If there is no alternative representation for one or more content portions, the reserved entity name "NONE" should occupy its position in the list. An entity used for an alternative representation cannot be named "NONE".

E.9.4 Coding attributes

The representation of these attributes is defined in the parts of ISO 8613 that deal with content architectures.

The attributes are defined as attributes of a data content notation, and are specified on the entity declarations of entities containing content portions that conform to the notation.

E.10 Data content notations

E.10.1 Notation declarations for content architectures

ODL notation declarations for data content notations representing the content architecture classes are included in the parts of ISO 8613 where the content-related attributes are defined. Those notations apply to the full function of the content architecture class.

NOTE – If a different content architecture level is used, the external identifier parameter of the standard notation declaration should be changed to identify the correct level.

E.10.2 Content-related public text

The following SGML public text contains notation declarations for existing ODA content architecture classes, element and attribute list declarations for the corresponding data element types, entity declarations for presentation attribute definitions, and entity declarations for lists of data element GIs and default value lists derived from them.

E.10.2.1 Logical structure

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-->