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**American National Standard
for Information Processing Systems**

Data Communications — Structure and Semantics of the Domain Specific Part (DSP) of the OSI Network Service Access Point (NSAP) Address

Secretariat

Computer and Business Equipment Manufacturers Association

Approved <199y–mm–dd>

American National Standards Institute, Inc.

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Abstract

<to be supplied>

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Foreword

(This foreword is not part of American National Standard X3.xxx–199y)

This American National Standard complements the ISO standard for OSI Network Service Access Point (NSAP) addresses, ISO 8348 Addendum 2. This standard applies to those NSAP addresses that use the "ISO-DCC" format, in which the value of the Authority and Format Identifier (AFI) part of the NSAP address is (decimal) 39; and, specifically (although not exclusively), to those NSAP addresses using the "ISO–DCC" format for which the value of the Initial Domain Identifier (IDI) part of the NSAP address is (decimal) 840 (the value assigned by ISO 8348 Addendum 2 to the National Body representing the USA in ISO, which is ANSI). For these NSAP addresses, this American National Standard specifies the syntax and semantics of the Domain Specific Part (DSP) of the NSAP address — that part of the address which is not specified by ISO 8348 Addendum 2 itself.

SO 8348 Addendum 2 does not require that the DSP part of the NSAP address be specified by this or any other standard. The objective of this American National Standard is to facilitate the operation of OSI routing functions, by enabling those functions to recognize a relationship between the hierarchical structure of the DSP part of the NSAP address and the hierarchical structure of routing domains and areas in the OSI environment. This capability is particularly valuable when intra-domain routing information is exchanged among Intermediate Systems (ISs) using the routing protocol defined by ISO/IEC 10589.

This document was prepared by Task Group X3S3.3 of Technical Committee X3S3 of Accredited Standards Committee X3. Suggestions for improvement will be welcomed. They should be sent to the X3 Secretariat, c/o Computer and Business Equipment Manufacturers Association, 311 First Street NW, Washington, DC 20001.

This standard was processed and approved for submission to ANSI by the Accredited Standards Committee on Information Processing Systems, X3. Committee Approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, Accredited Standards Committee X3 had the following members:

R. Gibson, chairman

<membership to be provided at time of approval>

Task Group X3S3.3, which developed this standard, had the following participants:

A. L. Chapin, chairman
E. B. Taylor, vice-chairman
B. Kemp, secretary

<membership to be provided at time of approval>

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Contents <to be supplied>

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Structure and Semantics of the Domain Specific Part of the OSI Network Service Access Point Address

1 Scope, Purpose, and Field of Application

1.1 Scope. The standard for OSI Network layer addressing, ISO 8348 Addendum 2, does not specify the structure or the semantics of the Domain Specific Part of the NSAP address; this is left to the individual Registration Authorities which are responsible for allocation and assignment of NSAP addresses in the formats identified by individual values of the Authority and Format Identifier (AFI) and Initial Domain Identifier (IDI). In the case of the AFI/IDI value 39/840 (AFI = 39, IDI = 840), the responsible Registration Authority is ANSI. This American National Standard specifies the structure and semantics of the DSP part of the NSAP address when the value of the AFI and IDI parts of the address are 39 and 840 (respectively).

ISO 8348 Addendum 2 also describes, in a general way, the relationship between NSAP addresses and Network Entity Titles (NETs). This American National Standard applies to Network Entity Titles in the same way in which it applies to NSAP addresses. Specifically, the statements made in this Standard about the structure of the DSP part of the NSAP address shall be considered to apply also to the structure of the DSP part of the Network Entity Title.

This American National Standard also specifies the way in which the Organization Identifier allocated and assigned by the ANSI-administered USA Registration Authority for OSI Organization Names shall be used as a component of the NSAP address. When the Organization Identifier is used for this purpose, it shall be used in accordance with this American National Standard.

I**1.2 Purpose.** The OSI Network layer routing architecture, as specified by ISO Technical Report 9575, defines a hierarchy of routing areas and domains. The OSI routing protocols (ISO 9542, ISO/IEC 10030, ISO/IEC 10589, and the working draft inter-domain routing protocol) have been specified in such a way that routing operations are much more efficient if the hierarchical structure of routing areas and domains is reflected by a corresponding hierarchical structure of the OSI NSAP address, including a hierarchical sub-structure of the DSP. Such a structure is strongly implied by, in particular, ISO 10589, and has been adopted by the United States Government OSI Profile (GOSIP) specification. The purpose of this American National Standard is to specify the structure and semantics of the DSP for those NSAP addresses over which ANSI has direct authority.

1.3 Field of Application. This American National Standard applies to the allocation and assignment of OSI NSAP addresses when the value of the AFI and IDI parts of the address are 39 and 840 (respectively). The field of application includes all environments in which this class of NSAP addresses is used, whether or not the hierarchical routing architecture to which clause 1.2 refers is used.

The DSP structure defined by this standard may also be used in other circumstances that are not specifically included within the scope and field of application of this standard.

2 References

2.1 Referenced International Standards. This standard is intended to be used in conjunction with the following International Standards:[1]

<8348, 9542, 10030, 10589>

2.2 Related International Standards. The International Standards listed here are for information only, and are not essential for the completion of the requirements of this standard.

<7498, 9575, 9834>

[1]Available from American National Standards Institute, Inc., 11 West 2nd Street, New York, NY 10036.

3 Definitions

This standard makes use of the following terms defined in [1]:

<lots of definitions>

This standard makes use of the following terms defined in [2]:

<lots more definitions>

...and so on...

4 Abbreviations

<lots of abbreviations>

5 Overview of the NSAP Address

This section recapitulates essential information from ISO 8348 Addendum 2 concerning the basic structure of the OSI NSAP address.

<from 8348/Add. 2 — structure of the NSAP address (AFI, IDI, DSP)>

6 Structure and Semantics of the DSP

6.1 Structure. Within the scope and field of application of this American National Standard, the Domain Specific Part of the OSI NSAP address shall have the structure depicted in the part of Figure 1 labelled "DSP". The part of Figure 1 labelled "IDP" is included for the sake of completeness only; its structure is specified by ISO 8348 Addendum 2.

IDP		DSP						
AFI	IDI	DFI						
39	840	128	org	res	rd	area	system	sel
1	2	1	3	2	2	2	6	1

Figure 1 — Structure of the DSP

For consistency, all of the numeric values shown in Figure 1 are decimal values. However, the numeric values that actually appear in the fields identified within the DSP will, for every NSAP allocated in this format, be binary values.

The numeric values in the bottom row of Figure 1 represent the number of octets occupied by the corresponding field. The row immediately above contains either a specific value (in the case of the first three fields) or a field name. A specific value is shown for the three fields which must actually contain that value in every NSAP allocated and assigned according to this Standard. Specific values for the remaining fields are not specified by this Standard.

6.2 Semantics. For the purposes of OSI routing, the individual fields of the DSP defined above shall be interpreted in the following way:

6.2.1 [IDP] The two sub-fields of the IDP are allocated and assigned according to ISO 8348 Addendum 2, and are not affected in any way by this Standard.

6.2.2 [DFI] The DSP Format Identifier, which specifies the version of this DSP structure Standard. The value of this field shall be binary 1000 0000 (shown in Figure 1 as decimal 128).

6.2.3 [org] An organization identifier allocated and assigned by the ANSI-administered USA Registration Authority for OSI Organization Names. The USA Registration Authority allocates organization identifiers as decimal

DRAFT

numeric values. The value of this field shall be the binary value obtained by encoding the organization identifier according to the "Network address encoding" procedure defined in ISO 8348 Addendum 2.

6.2.4 [res] Reserved. The value of this field shall be zero (0), unless a separate agreement pertaining to a particular context of use specifies the use of a value other than zero.

6.2.5 [rd] The portion of the NSAP address up to and including the rd (routing domain) field summarizes information about some or all of the area addresses within a routing domain. This enables the border ISs in a routing domain to advertise one or more "prefixes", in lieu of an enumeration of the corresponding individual area addresses, for the purposes of inter-domain routing information exchange.

6.2.6 [area] An identifier for the area within a routing domain to which the NSAP address belongs. The portion of the NSAP address up to and including the area field constitutes an "area address" in the sense in which the term is used (and defined) by ISO/IEC 10589. In the ISO/IEC 10589 context, level 1 ISs report only area addresses, and level 2 ISs exchange among themselves only area address information (and thus route only on the basis of area addresses).

6.2.7 [system] An identifier for the individual End System (in the case of an NSAP address) or Intermediate System (in the case of an NET) with which the NSAP or NET is associated. The internal structure, value, and meaning of the system field are not specified or constrained by this Standard.

6.2.8 [sel] The "NSAP selector", which serves to differentiate multiple NSAP addresses associated with the same Network entity. The value of the sel field in a Network Entity Title shall be zero (0).