***Add a new clause and an editor's note after C.5.3:***

C.5.4 Receive scope

This parameter informs the NS provider of any scope limitations (as opposed to the global networking address domain) for the multicast NSDUs the NS user requests to receive. For example the NS user may request NSDUs available on a single subnetwork or all subnetworks within his own area.

*Editor's Note:*

*The Receive scope parameter is being investigated as a means of passing information to a NS provider on how far away to look for specific multicast NSDUs. It is felt at this time that a NS user may know whether the NSDUs are very local (perhaps originated on a common subnetwork) or of global interest (perhaps originated anywhere in the global network addressing domain). Further work is needed to specify this parameter.*

## A. Annex A.

***This Amendment makes no changes to Annex A of ISO/IEC 8348 | CCITT Recommendation X.213.***

## B. Annex B.

***This Amendment makes no changes to Annex B of ISO/IEC 8348 | CCITT Recommendation X.213.***

## C. Annex C.

***Replace in three parts of the Annex (second paragraph in C.1, first paragraph in C.2 and the second paragraph of C.4.2) the words "pair of NSAPs" with:***

pair of NSAPs or a sending NSAP and a group of receiving NSAPs

***Replace the first four lines of C.3 with:***

Five primitives are defined:

a) the N-FACILITY request;

b) the N-FACILITY indication;

c) the N-REPORT indication;

d) the N-ENABLE-MULTIPEER-RECEPTION request; and

e) the N-DISABLE-MULTIPEER-RECEPTION request.

***Add the following two new paragraphs to the end of clause C.3:***

The N-ENABLE-MULTIPEER-RECECPTION request provides a means for the NS user to register with the NS provider to receive specific multicast NSDUs. The multicast NSDU requested is identified by the destination address of the NSDU matching the destination address passed as a parameter of this primitive. This primitive notifies the NS provider of a request which may involve actions of Network layer routeing protocols. The NS provider upon being issued this primitive will attempt to obtain the multicast PDUs as defined in the parameters of this primitive, but there is no guarantee that the provider will actually receive such PDUs for passing on to the requesting NS user.

The N-DISABLE-MULTIPEER-RECEPTION request provides a means for the NS user to terminate the reception of specific multicast NSDUs. After issuing an N-DISABLE-MULTIPEER-RECEPTION request primitive for specific multicast NSDUs, it is still possible for the NS user to receive N-UNITDATA indications for these specific multicast NSDUs for a short undefined period of time.

***Change Table C-1 to add two new Primitives (N-ENABLE-MULTIPEER-RECEPTION Request and N-DISABLE-MULTIPEER-RECEPTION Request) and one new parameter (Receive scope). The N-ENABLE-MULTIPEER-RECEPTION request has two parameters (Destination address and Receive scope) and the N-DISABLE-MULTIPEER-RECEPTION request has one parameter (Destination Address).***

***Replace the first sentence of C.5.1 with:***

The address referred to in Table C-1 is an NSAP address for unicast transfer or a group Network address for multicast transfer.

## 17. Quality of connectionless-mode Network Service

***Change the first paragraph, first sentence of clause 17 from "between a pair of NSAPs." to:***

between a pair of NSAPs or a sending NSAP and a group of receiving NSAPs

***Change the end of the first paragraph, last sentence of 17.2.1 from "intended receiving NS user." to:***

intended receiving NS user or all receiving NS users in the case of multicast transfer.

## 18. Sequence of primitives

***This Amendment makes no changes to clause 18 of ISO/IEC 8348 | CCITT Recommendation X.213.***

## 19. Data Transfer

***Change the first paragraph, first sentence of 19.1 from "to another network-service-access-point" to:***

to another network-service-access-point or a group of network-service-access-points

***Change the third paragraph, first sentence of 19.1 from "any specific pair of NSAPs." to:***

any specific pair of NSAPs or a specific sending NSAP and a specific group of receiving NSAPs.

***Add to the end of 19.2.1 a new sentence:***

For multicast transfer, the destination address must be a group Network address.

***Change Figure 22 to Figure 22a. Add Figure 22b. Replace the present clause 19.3 with:***

The sequence of primitives in a non-multicast network-connectionless-mode transmission is defined in the network service primitive time sequence diagram, see figure 20a. The sequence of primitives in multicast network-connectionless-mode transmission is defined in the network service multicast primitive time sequence diagram, see figure 20b. The N-UNITDATA.Indications for the multicast transmission case arrive in an arbitrary order that is not simultaneous and in addition there is no deterministic ordering of N-UNITDATA.Indications arriving at any particular receiving NSAP resulting from separate N-UNITDATA.Requests.

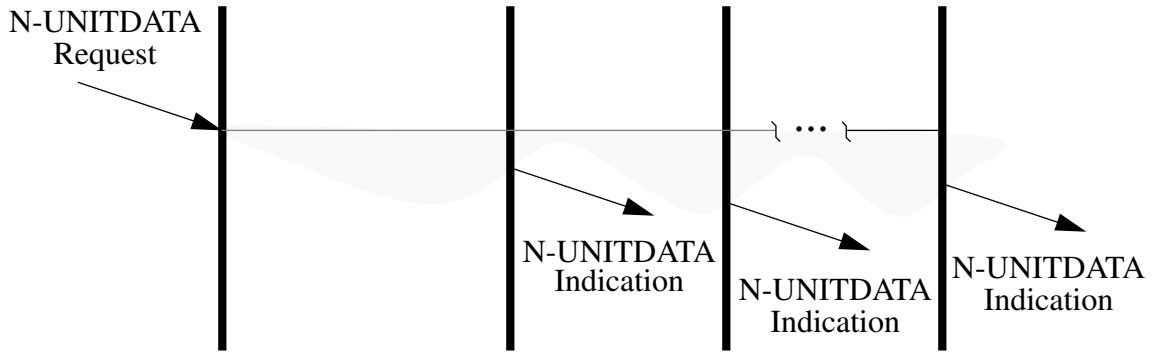


Figure 22b -- Sequence of primitives in a multicast network-connectionless-mode transmission

**C.**

## 16. Model of the connectionless-mode Network Service

***Change the first paragraph, end of the second sentence of 16.1, from "two NSAPs." to:***

different NSAPs.

***Change the second paragraph, end of the first sentence of 16.2 from "a given pair of NSAPs." to***

a given pair of NSAPs or a sending NSAP and a group of receiving NSAPs.

***Change the third paragraph (following NOTE 37) of 16.2 from ", as provided between any two NSAPs, can be modelled in the abstract as an a priori association between the two NSAPS." to:***

, as provided between any two NSAPs or a sending NSAP and a group of receiving NSAPs can be modelled in the abstract as an *a priori* association between the NSAPs involved.

***Change Figure 20 to Figure 20a. Change the reference in the fourth paragraph (following NOTE 38) of 16.2 from figure 20 to figure 20a. Add to the end of this paragraph the following sentences:***

In Figure 20b, USER X represents the NS user that passes objects to the NS provider. USERS Y, Z and others represent the NS users that accept multicast objects from the NS provider.

***Add Figure 20b:***

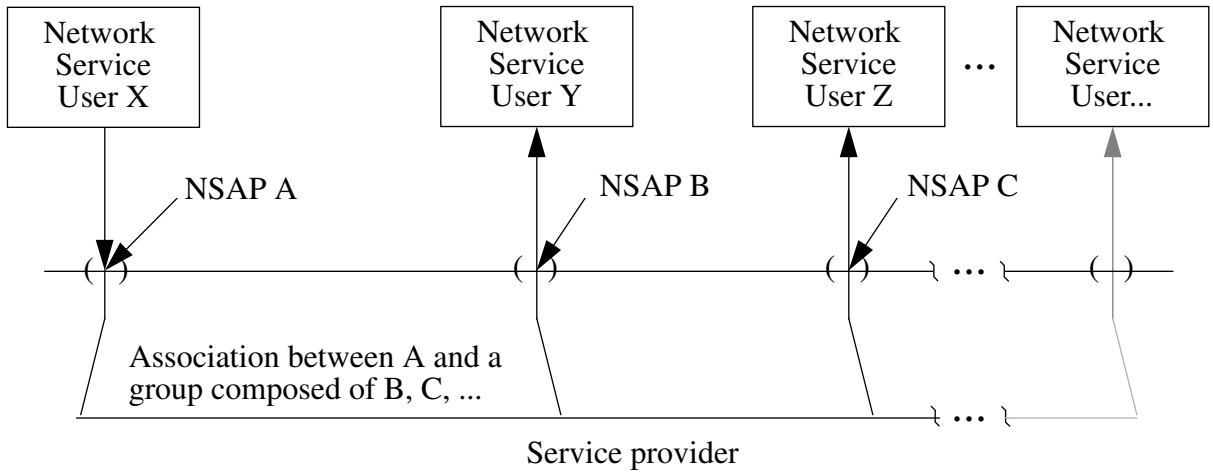


Figure 20b -- Model of a multicast network-connectionless-mode transmission

***Change the sixth paragraph (beginning "However, with ...) of 16.2 from "between a pair of NSAPs," to:***

between a pair of NSAPs or a sending NSAP and a group of receiving NSAPs,

## 3. Definitions

***Add to clause 3.3.6 (definition of Network connectionless-mode Data Transmission) after the words "destination NSAP":***

or group of destination NSAPs

***Add a definition as 3.3.X (after the present 3.3.6) within clause 3 of ISO/IEC 8348 | CCITT Recommendation X.213 with the following text:***

3.3.X **Network connectionless-mode multicast transfer:** connectionless-mode transmission can deliver a unit of data from one Network entity to one or more Network entities by the performance of a single service access. In order to support the sending of a unit to multiple Network entities, the Network service providers must support the optional features of OSI Connectionless-mode Multicast and the destination address used must be a group address.

## 4. Abbreviations

***This Amendment makes no changes to clause 4 of ISO/IEC 8348 | CCITT Recommendation X.213.***

## 5. Conventions

***This Amendment makes no changes to clause 5 of ISO/IEC 8348 | CCITT Recommendation X.213.***

## 6. Overview and general characteristics

***This Amendment makes no changes to clause 6 of ISO/IEC 8348 | CCITT Recommendation X.213.***

## 7. Types and classes of Network Service

***Change the second paragraph, first sentence of clause 7, from "to both NS users" to:***

to all NS users

# SECTION 2 - DEFINITION OF CONNECTION-MODE SERVICE

***This Amendment makes no changes to clauses 8 through 14 of ISO/IEC 8348 | CCITT Recommendation X.213.***

## 15 Model of the Network Service

***Add to clause 15 point (a) after the words "destination NSAP":***

or group of destination NSAPs

Date: 1992-10-31

# Information processing systems - Data communications - Network service definition

## Amendment 7: Addition of connectionless-mode multicast services

## 0. Introduction

This Amendment to ISO/IEC 8348 | CCITT Recommendation X.213 provides additions to the connectionless-mode transmission service definition in order to support multicast NSDU transfer. The connectionless-mode transmission service is contained in ISO/IEC 8348 | CCITT Recommendation X.213, Section 3.

ISO/IEC 8348 | CCITT Recommendation X.213 restricts the connectionless-mode transmission to the case of exchanging NSDUs between one sending NS user and one receiving NS user. Subnetwork standards exist which support the transfer of a SDU from one entity to a number of other entities in a single logical operation. With the current ISO/IEC 8348 | CCITT Recommendation X.213, no Network layer services are described to utilize such multicast capabilities. While the capability of a subnetwork to directly support multicast is advantageous to the utility of the multicast networking service, this is not a requirement for the multicast services provided here.

This Amendment defines “connectionless-mode multicast transfer network services” and the functions related to it, which may be provided by the Network Layer of the of the OSI Reference Model. It adds to the concepts and principles defined in ISO/IEC 8348 | CCITT Recommendation X.213; it does not modify them.

## 1. Scope

***This Amendment makes no changes to clause 1 of ISO/IEC 8348 | CCITT Recommendation X.213.***

## 2. Normative References

***This Amendment makes no changes to clause 2 of ISO/IEC 8348 | CCITT Recommendation X.213.***

## Preface

This Amendment is one component of a number of standardization actions on-going to support an OSI connectionless-mode multicast capability. Additional proposals are on-going to provide additions to the connectionless-mode Network Layer Protocol, the ES-IS routeing protocol as well as the Network layer addressing which is also covered in ISO/IEC 8348 | CCITT Recommendation X.213.

**Accredited Standards Committee** **X3S3.3/92-419**
**X3, INFORMATION PROCESSING SYSTEMS** **31October, 1992**

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To: X3S3.3

From: D. Marlow

Re: Multicast extensions to the connectionless-mode Network service definition (ISO/IEC 8348 | CCITT Recommendation X.213 Proposed

NSWC, Dahlgren Division has provided this reformatting to the text attached to the New Project ballot for the multicast extensions to the connectionless-mode Network service (SC6N7510). The update covers changes due to the new version of ISO/IEC 8348 | CCITT Recommendation X.213 and is intended to be the text for a PDAM ballot for this project.
U.S. discussion on this input is planned for the ANSI X3S3.3 committee's November meeting in Cambridge, MA.