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Study Group 15
Experts Group for Video Coding and Systems in ATM and other network environments **October 1995**

Title: Proposal for adding a simple ACK/NACK of H.222 information to H.245
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Purpose: Informational and Proposal

This document presents an H.245 example of how to send video using the modified Data Partitioning syntax to achieve reliable transmission on ATM networks. It also proposes a minor modification to the existing H.245 syntax.

1. Introduction

H.222.1 describes a method for sending video across two virtual channels so as to achieve reliable transmission. The base layer is decodable by all decoders. The enhancement layer uses a modified Data Partitioning syntax and consists only of header information. It should be transported reliably. The base layer need not have 100% reliable transmission.

To initiate transmission of such a signal with reliable transport for the enhancement layer, H.245 can be used to set up a video logical channel for transporting the base layer, and a data-application logical channel with acknowledgements for transporting the enhancement layer. The data sent on the second channel happens to be H.222.1 video data.

2. Modified syntax for H.245

Currently, there is no simple data application that can be selected to transport the H.222.1 video data reliably with acknowledgements. We propose that a code-point be added to "DataApplicationCapability" and its twin, "DataMode" to achieve this. The code-point to be added is "h222Data", which indicates that the data to be sent is comprised of H.222 information. In our application, the H.222 information happens to be H.222.1 video data.

This proposed modification would change DataApplicationCapability to be:

```
DataApplicationCapability              :=CHOICE
{
   nonStandard                         NonStandardParameter
  t120                                 DataProtocolCapability
   dsm-cc                              DataProtocolCapability
   userData                            DataProtocolCapability
  t84                                  SEQUENCE
  {
     t84Protocol                       DataProtocolCapability
     t84Profile                        T84Profile
  }
  t434                                 DataProtocolCapability
  h224                                 DataProtocolCapability
   nlpid                               SEQUENCE
  {
      nlpidProtocol                    DataModeProtocol
     nlpidData                         OCTET STRING
  }
  h222Data                             DataProtocolCapability    <- add this
```

```
  ...
}
```

and DataMode to be:

```
DataMode                                :=CHOICE
{
   nonStandard                          NonStandardParameter
  t120                                  DataModeProtocol
   dsm-cc                               DataModeProtocol
   userData                             DataModeProtocol
  t84                                   DataModeProtocol
  t434                                  DataModeProtocol
  h224                                  DataModeProtocol
   nlpid                                SEQUENCE
  {
      nlpidProtocol                     DataModeProtocol
     nlpidData                          OCTET STRING
  }
  h222Data                              DataModeProtocol      <- add this
  ...
}
```

3. Modified Semantic Text for H.245

At the end of Section 7.2.2.7, the following should be inserted:
"h222Data indicates the capability to support H.222 applications."
At the end of section 7.5.1.3, the following text should be inserted:
"h222Data requests the use of an H.222 application on a data channel."

4. Example Usage

The following example illustrates the channel setup for the enhancement layer channel, using this new code-point. A bi-directional logical channel is opened by issuing an OpenLogicalChannel signal using an appropriate logicalChannelNumber. The forwardLogicalChannelParameters have an appropriate portNumber, dataType=data, and logicalChannelMultiplexParameters = h222LogicalChannelParameters.

The DataApplicationCapability sent for dataType=data should be h222Data, with DataProtocolCapability=v42lapm. V.42 LAPM is a fairly simple retransmision protocol. The H222LogicalChannelParameters in the forward channel consist only of virtualChannelID and subChannelID values.

The reverseLogicalChannelParameters in the OpenLogicalChannel signal again have an appropriate portNumber, and dataType=data and logicalChannelMultiplexParameters=h222LogicalChannelParameters as the forward channel. The DataApplicationCapability sent for dataType=data should be identical to that for the forward channel, namely h222Data, with DataProtocolMode=v42lapm. The h222LogicalChannelParameters again consist only of virtualChannelID and subChannelID values.

5. Descriptive text for H.310

In section 7 (7.1?) of H.310, text should be added describing the intended usage of this new syntax. The following paragraph may be appropriate:
"To achieve reliable transmission of video information or other H.222 information, a bi-directional channel can be initiated using dataType=data, DataApplicationCapability=h222, with DataProtocolMode=v42lapm."