ITU-T Telecommunications Standardization Sector
Study Group 15
Experts Group for Video Coding and Systems
in ATM and Other Network Environments

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Title: On the need for including the frame numbers in transport stream packets

Subject: Error resilient transmission

Introduction:

Transport stream packets do not carry information about the frame number of their contents. Under moderately large packet losses, which may occur on conventional networks, this may cause a decoder to decode data for one picture using the decoding syntax and picture level data for another picture. This causes errors even if the decoder synchronizes using the slice start codes. Additionally, not knowing the frame number may cause errors in the display timing. Inclusion of a frame sequence number in the transport stream packet which may be combined with reduced error rate transmission of the "high priority data" (AVC-732) will make it much easier for the decoders to recover after such packet losses.

Syntax:

We propose the following syntax definition (bold letters are used for the proposed additions):

```
if(adaptation_field_extension_flag == '1'){
    ...
    if(seamless_splice_flag == '1'{
    ...
    }

    frame_sequence_counter                          16bslbf

    for(i = 0; i < N; i++){
    reserved                                        8bslbf
    }
    ...
```