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# Scope

This document provides a working draft for ISO/IEC 13818-1 10th edition Amd. 1, "Improvements for the transport of MPEG-GREEN".

This Amendment clarifies the mandatory usage of the Green Extension descriptor in streams that contain Green Access Units, assuring the proper application of the standard.

<<Ed.: We also need to improve the handling of tuning into an ongoing program (random access). >>

# Problem description

In the 9th edition of the ISO/IEC 13818-1 specification, a Green Access Unit is defined which syntax uses some metadata *num\_constant\_backlight\_voltage\_time\_intervals* and *num\_max\_variations*, without defining their values. These metadata are defined in a Green Extension Descriptor. This implies that a Green Extension Descriptor needs to be signalled in the transport stream before the Green Access Unit is sent.

However, the 10th edition of the ISO/IEC 13818-1 specification does not provide any guidance towards this.

This amendment of ISO/IEC 13818-1 specifies the ordering of signalling between the two messages (changes highlighted in yellow).

# Proposed Changes

*Add the following text at the beginning of subclause 2.6.104:*

The green extension descriptor shall be sent once per event or program and hence is signalled using a descriptor in the program map table. This descriptor shall appear in the elementary stream loop of the PID for which green information is provided.

<<Ed.: The green extension descriptor should be inserted in a PMT at the beginning of a program that includes Green information, before the first Green AU is transmitted, and repeated in PMT sections after that as long as Green information is included in that program. >>

Dynamic green metadata is stored in access units and is associated with one or more video frames. These access units are encapsulated in MPEG sections identified by stream\_type value of 0x2C.

The green extension descriptor describes the different constant backlight voltage time intervals and the maximal variations that are used, and their numbers that are used in each Green Access Unit.

*In 2.18.3, replace:*

The metadata in the Green\_AU is applicable to the presentation subsystem until the next Green\_AU containing metadata arrives.

*With:*

The metadata in the Green\_AU is applicable to the presentation subsystem until the next Green\_AU containing metadata arrives. A green extension descriptor shall be signalled in the transport stream before the signalling of the first Green\_AU.

<<Ed.: Any Green AU sections should be silently ignored until the values for *num\_constant\_backlight\_voltage\_time\_intervals* and *num\_max\_variations* are obtained from the green extension descriptor in the PMT. >>

**References**

[1] ISO/IEC  23001-11 Energy-Efficient Media Consumption (Green Metadata).

[2] ISO/IEC  23001-11 (AMD 2) Energy-Efficient Media Consumption (Green Metadata).

[3] https://git.mpeg.expert/MPEG/Systems/MPEG2-System/defects\_under-investigation/-/issues/4

[4] ISO/IEC JTC 1/SC 29/WG 03 N1517 (MDMS 25053)

[5] ISO/IEC JTC 1/SC 29/WG 03 N1632 (MDMS 25606)