Audio Encoder and Decoder with Program Loudness and Boundary Metadata

Abstract

Apparatus and methods for generating an encoded audio bitstream, including by including program loudness metadata and audio data in the bitstream, and optionally also program boundary metadata in at least one segment (e.g., frame) of the bitstream. Other aspects are apparatus and methods for decoding such a bitstream, e.g., including by performing adaptive loudness processing of the audio data of an audio program indicated by the bitstream, or authentication and/or validation of metadata and/or audio data of such an audio program. Another aspect is an audio processing unit (e.g., an encoder, decoder, or post-processor) configured (e.g., programmed) to perform any embodiment of the method or which includes a buffer memory which stores at least one frame of an audio bitstream generated in accordance with any embodiment of the method.

Fig. 3