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(54) **Title**: APPARATUS, METHOD AND COMPUTER PROGRAM FOR UPMIXING A DOWNMIX AUDIO SIGNAL USING A PHASE VALUE SMOOTHING

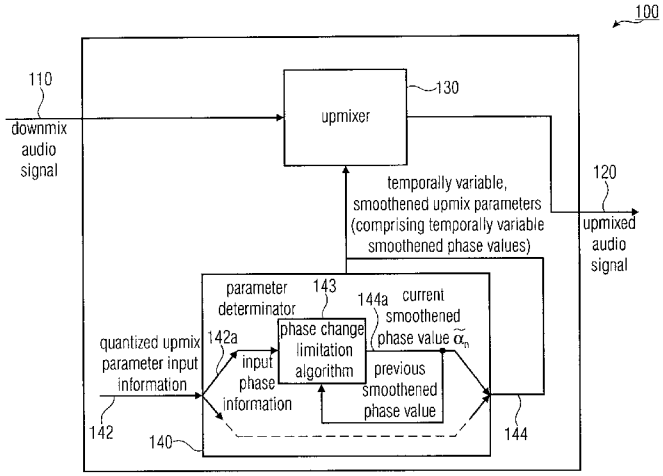


FIG 1

(57) **Abstract**: An apparatus for upmixing a downmix audio signal describing one or more downmix audio channels into an upmixed audio signal describing a plurality of upmixed audio channels comprises an upmixer and a parameter determinator. The upmixer is configured to apply temporally variable upmix parameters to upmix the downmix audio signal in order to obtain the upmixed audio signal, wherein the temporally variable upmix parameters comprise temporally variable smoothened phase values. The parameter determinator is configured to obtain one or more temporally smoothened upmix parameters for usage by the upmixer on the basis of a quantized upmix parameter input information. The parameter determinator is configured to combine a scaled version of a previous smoothened phase value with a scaled version of an input phase information using a phase change limitation algorithm, to determine a current smoothened phase value on the basis of the previous smoothened phase value and the phase input information.

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