Title (en)
CALCULATION OF FIR FILTER COEFFICIENTS FOR BEAMFORMER FILTER

Title (de)
FIR-FILTER-KOEFFIZIENTEN-BERECHNUNG FÜR BEAMFORMING-FILTER

Title (fr)
CALCULE DE COEFFICIENTS D'UN FILTRE RIF POUR UN FILTRE D'UN DISPOSITIF DE BEAMFORMING

Publication
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Application
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Abstract (en)
[origin: WO2016026970A1] The effectiveness of a calculation of FIR filter coefficients for beam forming filters for transducer arrays, such as e.g. arrays of microphones or loudspeakers, is increased by the calculation being carried out in two stages, namely firstly by the calculation of frequency domain filter weights of the beam forming filters, i.e. coefficients that describe the transfer function of the beam forming filters in the frequency dimension, in order to obtain target frequency responses for the beam forming filters, such that an application of the beam forming filters to the array approximates a desired directional selectivity, and followed by a calculation of the FIR filter coefficients for the beam forming filters, i.e. of coefficients that describe the impulse response of the beam forming filters in the time domain, in such a way that frequency responses of the FIR beam forming filters optimally approximate the target frequency responses in accordance with predefined criteria. The two-stage procedure allows an independent selection of the frequency resolution underlying the calculation of the target frequency responses, compared with the frequency resolution such as results from the discrete Fourier transformation of the impulse responses described by the FIR filter coefficients. Furthermore, both in the calculation of the beam forming driving weights in the frequency domain and in the calculation of the time domain FIR filter coefficients, it is possible to predefine specific constraints in order to influence the respective calculation in a targeted manner.

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