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The Decomposition of the Time Reversal Operator with virtual transducers

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The FDORT method (French acronym for Decomposition Of the Time Reversal Operator using Focused beams) is a variant of the DORT method using focused transmits instead of single element transmits. An intuitive interpretation of the method is presented here. It is shown that the FDORT method is equivalent to a DORT method with two different arrays: the actual array and a virtual array whose transducers are located at the foci of the transmits. By changing the focal depth, it is possible to change the position of the virtual array and thus obtain different information. An application to aberration correction in a far field phase screen model will be presented.