CLAIMS

1. An iterative method for synthesizing digital filters, the method comprising:

generating an emission filter to be applied to a signal to be transmitted, and

generating a reception filter to be applied to a received signal,

wherein the method further comprises the following iteratively executed steps:

a first convolution of the emission filter and the reception filter to generate a transmission filter,

determination of a criterion representative of a level of intersymbol interference on the transmission filter, and

if the level of intersymbol interference is higher than a given level,

calculating an equalizing filter for the intersymbol interference, and

replacing, at a next iteration, selectively either the emission filter with a second convolution of the emission filter and the equalizing filter or the reception filter with a third convolution of the reception filter and the equalizing filter,

wherein a choice between replacing the emission filter with the second convolution of the emission filter and the equalizing filter or replacing the reception filter with the third convolution of the reception filter and the equalizing filter is done based on a proximity of the emission filter or the reception filter to a desired frequency template for the emission filter or the reception filter.

2. The iterative method for synthesizing digital filters according to claim 1, further comprising stopping the iteratively executed steps when the level of intersymbol interference is below a given threshold.

3. The iterative method for synthesizing digital filters according to claim 1, wherein the criterion that is representative of the level of intersymbol

interference on the transmission filter is taken to be equal to a ratio between a sum of absolute values of coefficients of the transmission filter except a central coefficient and an absolute value of the central coefficient of the transmission filter.

4. The iterative method for synthesizing digital filters according to claim 1, wherein the equalizing filter is multiplied by a weighting window, a type of weighting window is selected based on a desired speed of convergence of the iterative method.

5. The iterative method for synthesizing digital filters according to claim 1, wherein the emission filter and the reception filter are root raised-cosine filters.

6. The iterative method for synthesizing digital filters according to claim 5, wherein the root raised-cosine filters are multiplied by a weighting window.

7. A non-transitory computer-readable medium including a computer program having instructions for executing the iterative method for synthesizing filters according to claim 1 when the computer program is executed by a processor.