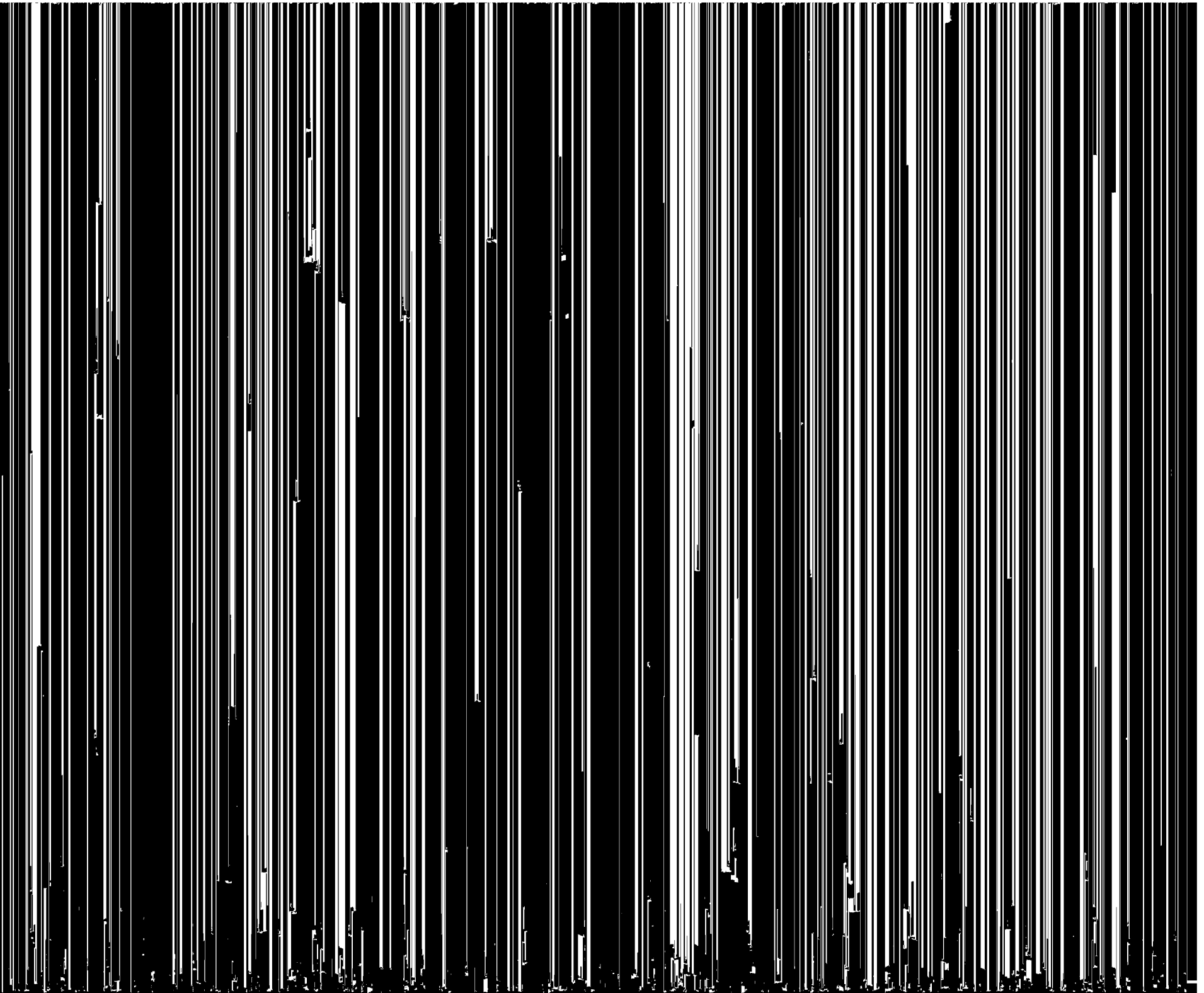
93-1-0474 and ONR Grant N00014-91-J4037.
[2] E-mail address: beylkin@boulder.colorado.edu.

final is to ensure efficiency of the resulting filter. In this paper we depart from the traditional approach and do not

1063-5203/95 $12.00



$$\tilde{H}(z) = \prod_{j=0}^{N} \left[1 + \left(\frac{\alpha}{z} \right)^{2^j} \right] \tag{2.13}$$

property of the scaling function. The Fourier transform of the scaling function is defined as

[redacted]

PROPOSITION III.1. *If* $j_i, i = 1, \ldots, \nu_Q$ *and* $j_m, m = 1, \ldots,$
N_Q^{out} *in* (3.6) *are such that the conditions in* (2.4) *and* (2.5)

$$E_4(z) \approx 2.9 \times 10^{-31} - 5.4 \times 10^{-16} \left(z^{64} + \frac{1}{z^{64}} \right). \quad (3.14)$$

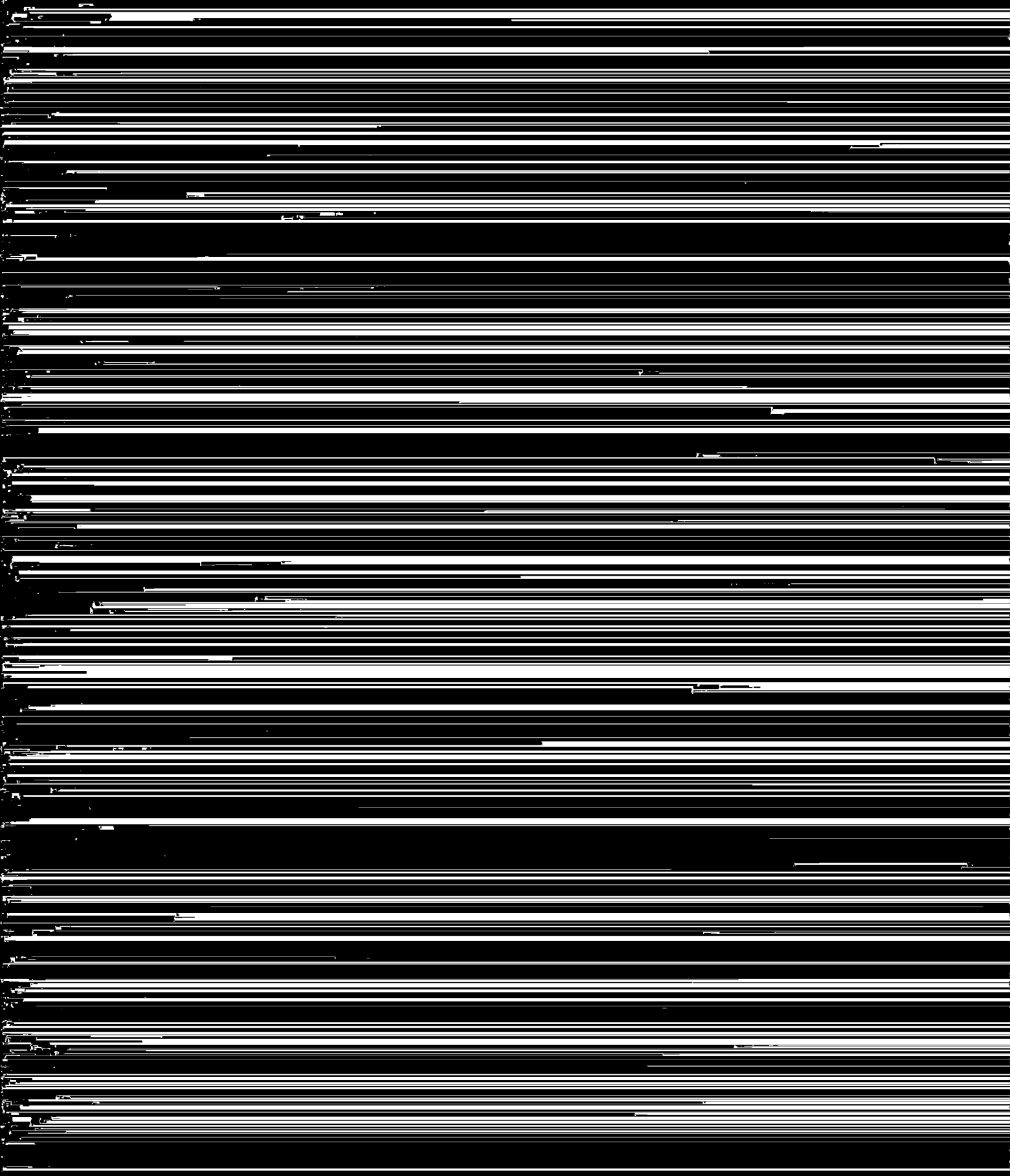


FIG. 2. Compactly supported approximation of Butterworth scaling function $N = 5$ obtained by FIR approximation to QMF's. The support is wider than shown in the picture.