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John J Benedetto* (jjb@math.umd.edu), Norbert Wiener Center, Department of Mathematics, University of Maryland, College Park, MD 20742. *Sparse solutions of number-theoretic Gabor equations*. Preliminary report.

The discrete narrow band ambiguity function of a sequence $u(p)$ of prime length p is proven to have the smallest possible upper bound $B(p)$ off the dc-component of the discrete time-Doppler plane. The sequence $u(p)$ was constructed by Goran Bjorck, and it is used to construct a discrete Gabor frame $G(u(p))$. Because of $B(p)$, the sparsest solution x of $G(u(p))x = b$ can be computed by orthogonal matching pursuit. The relevance of this process is explained in the context of transform-based image compression. (Received January 11, 2012)