1023-42-843 **Matthew Fickus***, Air Force Institute of Technology, Building 641, Room 302, 2950 Hobson Way, Wright-Patterson AFB, OH 45433. *Maximally Equiangular Frames and Finite Wigner Distributions.*

A maximally equiangular frame for $\mathbb{C}^N$ is a collection of N^2 unit vectors, the inner product of any two of which has modulus $1/\sqrt{N+1}$. Though analytic expressions for such frames have been found for some N, the general question of their existence remains open. Many of the known examples of such frames were constructed as a discrete Weyl-Heisenberg frame, that is, the N^2 vectors are formed by taking all cyclic translations of all cyclic modulations of a single unit vector. After considering Weyl-Heisenberg maximally equiangular frames from the perspective of finite Wigner distributions, we discuss an optimization-based approach to numerically compute such frames. (Received September 22, 2006)