1012-43-170 **Tom McNamara*** (mathcs@slu.edu), Math and CS Department, 221 N. Grand Blvd., St. Louis, MO 63103. *Admissible Vectors for $F(n) \ltimes SO(n)$.* Preliminary report.

Let $F(n)$ be the free, two step nilpotent Lie group on n generators. We define $G = F(n) \ltimes SO(n)$ and let τ denote the quasi-regular representation of G acting in $L^2(F(n))$. We say $\psi \in L^2(F(n))$ is admissible if the map $f \mapsto \langle f, \tau(\cdot)\psi \rangle$ is an isometry from $L^2(F(n))$ to $L^2(G)$. We investigate the existance of admissible vectors for G. We also examine the admissibilty question for the group $F(n) \ltimes (SO(n) \times D)$, where D is a one parameter group of dilations. (Received September 19, 2005)