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Gestur Olafsson* (olafsson@math.lsu.edu), Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803, and **David Larson** and **Peter Massopust**. *Three-way tiling sets in the plane.*

It is well known that wavelet set for an expansive matrix A and a full rank lattice of translation form a two way tilings of the Euclidean space: Under dilations by powers of the transpose of A , and under translation by the dual lattice. In a recent work by D. Larson and P. Massopust it was shown, that given a expansive dilation matrix and an affine Weyl group, then one can also find a two way tiling sets for those two groups. The question is then, if one can find a full rank lattice and a measurable set that tiles the space in under each one of those groups. So far the answer is only known for the plane, where it is affirmative. We will discuss this result and show an explicit construction in one case. (Received September 19, 2007)