Rank 3 abelian groups with minimum cyclic generating sets

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Abstract:

A generating set for a finite group is said to be cyclic if there is an automorphism of the group that cyclically permutes the set. Every finite abelian group has a cyclic generating set and under certain conditions we can find a cyclic generating set of minimum size. Necessary and sufficient conditions are given for a finite abelian group of rank three to have a cyclic generating set of minimum size.