

## Minimum connected dominating sets in unit disk graphs

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A unit disk graph is a graph having points in the Euclidean plane as vertices and any two vertices are joined by an edge if the distance between them is at most 1. Finding the minimum connected dominating set in unit disk graphs is NP-hard problem which plays an important role in efficient routing in ad hoc wireless networks. Many approximation algorithms (see, for example, \cite{duo}, \cite{trzy} ) construct maximal independent set at first step. The relation between the size  $\text{mis}(G)$  of a maximum independent set and the size  $\text{cds}(G)$  of a minimum connected dominating set in the same graph  $G$  is used to determine the performance ratio of such algorithms. It is shown in \cite{uno} that in every unit disk graph  $G$ ,  $\text{mis}(G) \leq 3.8 \cdot \text{cds}(G) + 1.2$ . We improve this result by showing that  $\text{mis}(G) \leq 3.6 \cdot \text{cds}(G) + 1.4$ .