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SOME TECHNIQUES TO FIND LARGE LOWER BOUND TREES FOR THE RADIO NUMBER

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Abstract: For a simple finite connected graph G, let $\mathrm{diam}(G)$ and $d_G(u,v)$ denote the diameter of G and distance between u and v in G, respectively. A radio labeling of a graph G is a mapping $f : V(G) \to \{0, 1, 2,...\}$ such that $|f(u) - f(v)| \geq \mathrm{diam}(G) + 1 - d_G(u,v)$ holds for every pair of distinct vertices u, v of G. The radio number $\mathrm{rn}(G)$ of G is the smallest number k such that G has radio labeling f with $\max\{f(v) : v \in V(G)\} = k$. Bantva *et al.* gave a lower bound for the radio number of trees in [1, Lemma 3.1] and, a necessary and sufficient condition to achieve this lower bound in [1, Theorem 3.2]. Denote the lower bound for the radio number of trees given in [1, Lemma 3.1] by $lb(T)$. A tree T is called a lower bound tree for the radio number if $\mathrm{rn}(T) = lb(T)$. In this paper, we construct some large lower bound trees for the radio number using known lower bound trees.

Keywords and Phrases: Interference, channel assignment, radio labeling, radio number, tree.

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