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When assigning frequencies to radio channels the distances between radio towers, and the strengths of the towers must be considered. A mathematical model developed to optimize the frequency assignment is called radio labeling. The radio towers are the vertices and the edges are determined by geographical locations. All towers are assumed to interact with each other. The vertices are labeled in a way that all labels are different and closer vertices must have labels that differ more substantially than the labels of vertices further away from each other. The goal is to minimize the largest label. There are several modifications to the radio labeling problem, the most studied is the $L(2,1)$ -labeling where labels of vertices distance 1 or 2 apart must differ. A natural step in the generalization is the $L(3,2,1)$ -labeling, where vertices of distance 1, 2 and 3 have restrictions on their labels. (Received August 06, 2007)