The channel assignment problem is the problem of assigning radio frequencies to transmitters while avoiding interference. This problem can be modeled and examined using graphs and graph colorings. $L(2,1)$ coloring was first studied as a model of a variation of the channel assignment problem. An $L(2,1)$ coloring of a graph is a vertex labeling $f$ such that $|f(u) - f(v)| \geq 2$ if $u$ and $v$ are adjacent and $|f(u) - f(v)| \geq 1$ if $d(u,v) = 2$. A no-hole $L(2,1)$ coloring is defined to be an $L(2,1)$ coloring which uses all the colors $\{0, 1, \ldots, k\}$ for some integer $k$. An $L(2,1)$ coloring is irreducible if no vertex labels can be decreased and yield another $L(2,1)$ coloring. A graph $G$ is inh-colorable if there exists an irreducible no-hole coloring on $G$.

We will discuss the inh-colorability of certain classes of graphs. (Received September 22, 2010)