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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  $\{0, 1, \dots, k\}$  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)