1106-VN-1021 **John Villalpando*** (`jvillalp@callutheran.edu`), California Lutheran University, 60 West Olsen Road, Thousand Oaks, CA 91360, and **Vesta Coufal**, **Kathie Yerion** and **Rob Ray**. *The Existence of Trees for Given Values of λ, $\bar{\kappa}$, and κ for $L(2,1)$-Colorings and Irreducible $L(2,1)$-Colorings.*

An L(2,1)-coloring of a graph is a labeling of the vertices using non negative integers such that adjacent vertices differ in label by at least 2 and distance two vertices differ in label. A well studied invariant of $L(2,1)$-colorings, the span denoted by λ, is the smallest integer k for a given graph such that there exists an $L(2,1)$-coloring of the graph using only integers less than or equal to k. The invariant $\bar{\kappa}$ is the least number of color classes required to create an $L(2,1)$-coloring on a given graph. An $L(2,1)$-coloring of a graph is irreducible if reducing the label on any vertex violates an $L(2,1)$-coloring condition. The invariant κ is the least number of color classes required to create an irreducible $L(2,1)$-coloring on a given graph. For any tree T it is known that $\Delta + 1 \leq \bar{\kappa} \leq \kappa \leq \lambda + 1$ and $\lambda \in \{\Delta + 1, \Delta + 2\}$ where Δ is the maximum degree of the tree. We study the 18 possible cases of the values $\bar{\kappa}, \kappa$, and λ on trees providing examples, families of examples or when necessary proving no such tree exists. (Received September 09, 2014)