1046-05-1811 **John P. Georges** and **David W. Mauro*** (david.mauro@trincoll.edu), Math Dept, Trinity College, Hartford, CT 06106, and **Yan Wang**. *Further results on labeling the r-path with a condition at distance two.*

For integers $1 \leq k \leq j$, an $L(j,k)$-labeling of simple graph G is a vertex labeling such that vertices at distance 1 (resp. 2) receive labels that differ by at least j (resp. k). The r-path on $n \leq \infty$ vertices $v_0, v_1, ..., v_{n-1}$ is the graph $P_n(r)$ such that v_x and v_y are adjacent iff $1 \leq |x-y| \leq r-1$. Since $P_n(r)$ is a natural representation of transmitters (vertices) deployed along a straight line such that the distance between transmitters is given by the distance between corresponding vertices, it is equally natural to approach the problem of economical frequency assignment to the transmitters by considering the minimum span $\lambda_{j,k}(P_n(r))$ over the collection of $L(j,k)$-labelings of $P_n(r)$. In this paper, we discuss techniques for establishing $\lambda_{j,k}(P_n(r))$ for various n, r, j, and k, including techniques that have emerged from results on the infinite r-regular tree and the piecewise linearity of $\lambda_{x,1}(G)$, the natural extension of $\lambda_{j,k}(G)$ from positive integer j to real non-negative x. Open questions are posed. (Received September 16, 2008)