Abstracts

Distribution of Ultra-Stable Reference Frequency Signals Over Fiber Optic Cable

L. Primas, R. Logan, G. Lutes and L. Maleki. "Distribution of Ultra-Stable Reference Frequency Signals Over Fiber Optic Cable." 1990 MTT-S International Microwave Symposium Digest 90.1 (1990 Vol. I [MWSYM]): 241-244.

Radio telescope systems, which operate primarily at microwave frequencies, are used for radio and radar astronomy, very large baseline interferometry (VLBI), geodynamic measurements, and spacecraft navigation. Experimenters have struggled for years to overcome the deficiencies of metallic coaxial cables and waveguides which have limited the stability and accuracy of measurements made with radio telescope systems. Recent advances in fiber optic technology are on the verge of eliminating transmission lines as the major source of error in these systems. This paper describes high stability fiber optic links developed at JPL which are used to distribute reference frequencies over distances as far as 29 kilometers. Reference signals generated by hydrogen masers are: distributed over these links and maintain a stability of 1 part in 10/sup 15/ for 1000 second averaging times.

❑ Return to main document.