Abstracts

Comparison of CPU Level Data Mixing to T/R Level Data Mixing Architectures in Optically Controlled Phased Arrays

R. Saedi, J. Wen, N. Samant, A. Daryoush, D. Sturzebecher and P. Herczfeld. "Comparison of CPU Level Data Mixing to T/R Level Data Mixing Architectures in Optically Controlled Phased Arrays." 1993 MTT-S International Microwave Symposium Digest 93.2 (1993 Vol. II [MWSYM]): 501-504.

Directly modulated fiber optic links are employed to control the active T/R modules of large aperture phased array antennas. The viable architectures considered for distribution of the modulated camier are CPU level data mixing and T/R level data mixing. In this study, custom designed fiberoptic links were developed for distribution of the modulated carrier at 5.5-5.8GHz operating at 1300nm, whereas fiberoptic links operating at 5GHz and 65±M150MHz were employed to provide the carrier and data separately, to the T/R modules generating the modulated carrier over 5.5 to 5.8GHz. These two architectures were used in optical control of a C-band 2x4 phased array antennas. The experimental comparison of fiber optic link performance is presented in this paper. Compression dynamic range of fiber optic link operating at 1300 nm was measured to be 72 dB.MHz over 5.5 to 5.8 GHz using the CPU level data mixing compared to the 77dB.MHz for the T/R level data mixing.

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