Abstracts

Low Cost Electronically Steered Antenna and Receiver System for Mobile Satellite Communications (1996 Vol. II [MWSYM])

J.I. Alonso, J.M. Blas, L.E. Garcia, J. Ramos, J. de Pablos, J. Grajal, G. Gentilli, J. Gismero and F. Perez. "Low Cost Electronically Steered Antenna and Receiver System for Mobile Satellite Communications (1996 Vol. II [MWSYM])." 1996 MTT-S International Microwave Symposium Digest 96.2 (1996 Vol. II [MWSYM]): 1167-1170.

The design, construction and basic characteristics of an electronically steered, adaptive phased array antenna for land mobile satellite communications are described. The antenna system includes an array of six microstrip stacked patch antennas, each connected to an RF channel, which include an MMIC Low Noise Amplifier and a commercial silicon monolithic I-Q modulator. A 6-way microstrip combiner adds the six channels so that the resulting signal is introduced in a GPS receiver, constructed with two commercial ASICs. This receiver has a PC interface which include control boards, specifically designed for this application, that allow to set the amplitude and phase of each RF channel. Acquisition and tracking algorithms have been programmed in C-language for working in real time using as input data the signal levels provided by the receiver. The work involved in the antenna RF subsystem design, calibration and tracking algorithms and some field tests is reported.

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