Abstract:

Compared with conventional tracking systems the presented tracking system using adaptive beam forming offers the following substantial advantages. The signal to noise ratio is increased. This improves the design margin for future systems. Disturbances of the tracking system by interfering transmitters are suppressed by fading out interrupters selectively. This is based on the following system properties: The additional coarse satellite tracking allows rapid beam forming and tracking of the satellites by the antenna beams. The position and velocity of all transmitters are detected in parallel. Using digital beam forming steering beams are available in very high velocity only limited by the capacity of the processor. Especially for future tracking systems operating in higher frequency bands the application of adaptive beam forming antennas may be necessary in order to obtain the required sensitivity.

Stichworte:

adaptive beam forming, antenna beams, array signal processing, coarse satellite tracking, design margin, digital beam forming, Global Positioning System, interfering transmitters, radio transmitters, satellite tracking, sensitivity, signal to noise ratio, steering beams, system properties