
Determination of the amplitude, azimuth and elevation bearings and the initial phase of the signal from radio source

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Determination of the signal amplitude, azimuth and elevation bearing of a radio source, and the initial phase of the signal includes division of arbitrary nonlinear antenna systems (AS) into logical parts so that at least three vibrators are at different angles to the direction of reference. Measurement of complex amplitudes of the signals obtained from the output of each element of the AS enter a calculation unit of the natural logarithms, and then into the computer, into which analytic expressions of the natural logarithm of the function describing the complex envelope outputs of the AS were introduced. Real and imaginary parts of the function are equal to real and imaginary parts of the natural logarithm of the measurements of complex amplitudes derived from the output of each AS element. We get a system of algebraic equations, which are defined analytical expressions for calculating the azimuth bearing, elevation bearing, and the initial phase of the signal.

Keywords: bearing, antenna systems, iterative process, the inverse matrix.

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