

The Rao test is an important method in signal detection in the presence of unknown parameters. The traditional approach to the problem when the unknown parameters are complex valued is to form a corresponding real-valued parameter vector and then to use the real Rao test. Alternatively, we present a complex parameter Rao test by reformulating the calculations with respect to the complex-valued quantities directly. Two important examples of the application of the complex parameter Rao test are given to illustrate the procedure.