When the covariance matrix formulation is used for multilook polarimetric synthetic aperture radar (SAR) data, the complex Wishart distribution applies. Based on this distribution, a test statistic for equality of two complex covariance–covariance matrices and an associated asymptotic probability of obtaining a smaller value of the test statistic are given. In a case study, airborne EMISAR C- and L-band SAR images from the spring of 1998 covering agricultural fields and wooded areas near Foulum, Denmark, are used in single- and bifrequency, bitemporal change detection with full and dual polarimetry data.