Flags

/ALPH = *val*	Sets the significance level (default *val*=0.05).
/Q	No results printed in the history area.
/T=*k*	Displays results in a table. *k* specifies the table behavior when it is closed. *k*=0: Normal with dialog (default). *k*=1: Kills with no dialog. *k*=2: Disables killing.
/TAIL=*tc*	Specifies the tail tested. *tc*=1: Lower one-tail test with H_a: sigma1>sigma2. *tc*=2: Upper one-tail test with H_a: sigma1<sigma2. *tc*=3: Default; the null hypothesis H_0: sigma1=sigma2 with H_a: sigma1!=sigma2.
/Z	Ignores errors. V_flag will be set to -1 for any error and to zero otherwise.

Details

The F statistic is the ratio of the variance of *wave1* to the variance of *wave2*. We assume the waves have equal wave variances and that H_0 is sigma1=sigma2. For the upper one-tail test we reject H_0 if F is greater than the upper critical value or if F is smaller than the lower critical value in the lower one-tail test. In the two-tailed test we reject H_0 if F is either greater than the upper critical value or smaller than the lower critical value. The critical values are computed by numerically solving for the argument at which the cumulative distribution function (CDF) equals the appropriate values for the tests. The CDF is given by

$$F(x,n_1,n_2) = 1 - betai\left(\frac{n_2}{2},\frac{n_1}{2},\frac{n_2}{n_2+n_1x}\right),$$

where the degrees of freedom n_1 and n_2 equal the number of valid (non-NaN) points in each wave -1, and *betai* is the incomplete beta function. To get the critical value for the upper one-tail test we solve F(x)=1-alpha. For the lower one-tail test we solve F(x)=alpha. In the two-tailed test the lower critical value is a solution for F(x)=alpha/2 and the upper critical value is a solution for F(x)=1-alpha/2.

The F-test requires that the two samples are from normally distributed populations.

See Also

Chapter III-12, **Statistics** for a function and operation overview; **StatsVariancesTest**, **StatsFCDF**, and **betai**.

StatsGammaCDF

StatsGammaCDF(*x*, μ, σ, γ)

The StatsGammaCDF function returns the gamma cumulative distribution function

$$F(x;\mu,\sigma,\gamma) = \frac{\Gamma_{inc}\left(\gamma,\frac{x-\mu}{\sigma}\right)}{\Gamma(\gamma)}. \qquad \begin{matrix} x \ge \mu \\ \sigma,\gamma > 0 \end{matrix}$$

where Γ is the gamma function and Γ_{inc} is the incomplete gamma function **gammaInc**.

See Also

Chapter III-12, **Statistics** for a function and operation overview; **StatsGammaPDF** and **StatsInvGammaCDF**.