Regression model:

$$y_k = b_0 + b_1 t_k + x_k,$$

in particular, noise x_k could fit an AR(1) model:

$$x_k = a x_{k - 1} + \sqrt{1 - a^2}\, e_k,$$

where e_k is a white noise.

Results:

1. Exact values of coverage factor K for normal e_k
2. Values of coverage factor K for e_k having two-side power (TSP) distribution (obtained by Monte Carlo simulation)
3. Values of coverage factor K when x_k is 1/f^alpha noise (obtained by Monte Carlo simulation)