LogLinearST model equation is:

$$\log_{10}(Nt) = log_{10}(A \times B \times C + 10^{log_{10}(N_r)})$$

where

$$A = 10^{log_{10}(N_0)} - 10^{log_{10}(N_r)}$$

$$B = exp(-k_{max} \times t)$$

$$C = D/(1 + (D - 1) \times B)$$

with

$$D = exp(k_{max} \times S1)$$

t is time, log_{10} is base 10 logarithm. The parameters to estimate are k_{max}, $S1$, $log_{10}(N_0)$ and $log_{10}(N_r)$.
The noisy output is defined as:

$$\log_{10}(Nt) = \mathcal{N}(\log_{10}(Nt), \%noise)$$

i.e random number from the normal distribution with mean parameter $\log_{10}(Nt)$ and standard deviation parameter $\%noise$.

Example of LogLinearST curve
Time unit is mn. Maximal time is 60mn. $k_{max} = 0.5$, $S1 = 8$, $log_{10}(N_0) = 6$ and $log_{10}(N_r) = 0.5$.