Glossary of Symbols and Conventions

A	Gain factor.
A	Determines starting point in z plane for chirp z-transform.
$A(\varpi)$	RDT output as a function of frequency.
β_0	Intercept regression coefficient.
β_1	Slope regression coefficient.
$\hat{\beta}_1$	Slope estimate using least squares.
b_1	Slope estimate using maximum likelihood.
bw	Bandwidth.
C	Constant.
$\overline{c}$	Mean of contamination model.
cov(.,.)	Covariance.
C_ρ	Correlation coefficient matrix.
D	Continuous time to discrete time converter.
D	Product of the number of averages and sum of squared deviations of f.
DW	Durban Watson test statistic.
d_U	Upper bound Durban Watson test statistic.
d_L	Lower bound Durban Watson test statistic.
$E(x)$	Expected value of random variable x.
e_s	Residual.
ε	Error.
ε_L	Log of mean error criterion.

f	Frequency in Hz.
fs	Sampling frequency or Nyquist rate.
$\frac{1}{2} fs$	Half sampling frequency or Nyquist limit.
$F(\omega)$	Power spectral response of filter.
$f_{X_R}(x_R)$	pdf of real coefficient of a DFT.
$f_{X_I}(x_I)$	pdf of imaginary coefficient of a DFT.
$g(t)$	Time domain input signal as a sum of x(t) and η(t).
$G(j\omega)$	Input signal as a sum of x(t) and η(t) expressed in the frequency domain.
g	Gain of contamination model.
$H(t)$	Impulse response.
$H(j\omega)$	Transfer function.
H_o	Hypothesis.
H_a	Alternative hypothesis.
I	Total number of elements I.
i	i^{th} element.
J	Total number of transform points used over a frequency ROI for the RDT.
j	The j^{th} transform point of the RDT.
$(j\omega)$	Fourier transform of a time domain signal; written instead of $(e^{j\omega})$.
$(j\varpi)$	As $(j\omega)$ but defined over a limited spectral region.
k_G	A constant defining a noise spectral density.
K	Kurtosis.
K	Total number of segments of time domain data/Fourier transforms.
k	The k^{th} segment of data.
κ	Sum of additional noise sources.
L	Log of mean.
$L(b_1)$	Likelihood function of the slope parameter.
$l_R(r)$	pdf of the log-power of a coefficient of a DFT.
MSE	Mean square error.
M	Total number of data points required for a frequency transform.
m	The m^{th} data point of a frequency transform.
$m_Z(z)$	pdf of the magnitude of a coefficient of a DFT.
N	Total number of elements n.

n	n^{th} element.
nT	Discrete time.
P	Probability.
P	Number of passes through the same filter.
$P(t)$	Pulse train.
$P(j\omega)$	Pulse train expressed in the frequency domain.
$p_Q(q)$	pdf of the power of a coefficient of a DFT.
p	p^{th} order polynomial.
Q	Quantiser.
q	Quantisation error.
$R(\omega)$	Log of the power spectrum output as a function of frequency.
R_{bw}	Percentage of redundant bandwidth.
r	z-plane radius.
r^2	Coefficient of determination.
r_a^2	Modified coefficient of determination.
S	Total number of frequency coefficients.
s	The s^{th} frequency coefficient.
s^2	Sample variance.
SSY	Sum of squares.
SSE	Sum of squares of errors.
sqr	Signal conditioning to quantisation noise ratio.
T	Sampling period.
t	Continuous time in seconds.
μ^N	N^{th} moment.
μ	Mean.
$Var(.)$	Variance of a variable.
v^2	Coefficient of determination.
W	Determines the spiral contour produced by the chirp z-transform.
$w(t)$	Time domain window function.
wn	White noise source.
$W(j\omega)$	Window function in frequency domain.
ω	Radian frequency $2\pi f$.

ϖ	Radian frequency specified over the ROI.
$x(t)$	Input signal in the time domain.
$X(j\omega)$	Input signal in the frequency domain.
$y(t)$	Output signal in the time domain.
$Y(j\omega)$	Output signal in the frequency domain.
Z	Magnitude of real and imaginary parts of a single FFT transform point.
z	z-transform.
z_s	Chirp z-transform.
$\varphi_A(a)$	pdf of the RDT of a coefficient of the DFT.
ξ	Coefficient of bandwidth increase due to a particular weighting window.
γ	Skewness.
$\eta(t)$	Signal conditioning noise.
ρ	Correlation coefficient.
Δ	Quantisation interval.
Λ	Sum of error terms.
$\Phi(j\omega)$	Output spectrum.
Υ	Euler's constant having a value of 0.577 (Difference between 'mean of log' and 'log of mean' under null conditions).
Γ	Gamma function.
σ^2	Variance.
Ω	Centre frequency of a frequency region.
Ψ	Difference between 'mean of log' and 'log of mean'.
$*$	Convolution operator.