Glossary

Clarification of some terms and procedures used in the spreadsheet:

The quantities marked with an asterisk (*) are recalculated in real time. It should be observed that the longer the observation cycle (up to 500 observations) the less sensitive will the summary statistics (e.g. laboratory interpretations) be.

Average* answers the question: If all results had the same value what would that be? Mean is often used with the same understanding. The average is estimated from all observation at a given time (real time).

Median* is the value of a data set above and below which the data set contains the same number of observations.

Standard deviation* (SD) describes the width of a normal (Gaussian) distribution. The average ±1 standard deviation contains about 68 % of the dataset and 1.96 SD about 97 % of the data set

(Standard) uncertainty* is by definition independent of the type of distribution but in the present spreadsheet equal to standard deviation. It is symbolized by u.

Confidence interval* the standard deviation divided by the square root of the number of observations. It illustrates the uncertainty of the average value and is shown with a 95 % probability. It is thus related to the average and a 'Gaussian distribution.

Percentile*. The 25- and 75 percentiles are reported**.** They define the interquartile interval within which 50 % of the dataset is found. In the middle is the median. The median and the average will be the same if the distribution of the results is Gaussian.

Relative uncertainty* is the uncertainty divided by the value of the average and expressed in percent in the present spreadsheet. It is abbreviated %CV

Combined uncertainty* u_c is the uncertainty obtained by addition of squared uncertainties of specific processes. It is expressed as the square root of the sum.

Within instrument uncertainty* (u_w) describes the uncertainty estimated for an instrument during a period of time.

Between instruments uncertainty* (u_b) is the uncertainty estimated between instruments, cleansed from within instrument uncertainty.

Within network uncertainty* (u_c) is the combined within- and between instrument uncertainty.

Minimum significant difference* is the minimal significant difference between two (successive) observations i.e. $u \times \sqrt{2}$

F-value* is the ratio between the between and within instrument variances and is the statistic that describes if a statistically significant difference between the instruments (groups) is observed. The p-value and critical F-values refer to a 95 % probability of a significant difference between instruments

Interpretation (statistical) * The F-value is interpreted as Significant or Non-significant difference between instruments. This I shown in the summay table and transferred to the main table.

Acceptable network uncertainty* is the uncertainty that the network has decided shall be acceptable If the estimated value of the within network uncertainty exceeds that acceptable the comparison may be rejected. The uncertainty can be entered as an absolute or relative uncertainty. An entered relative uncertainty is interpreted in relation to the overall average. The verdict is Reject or Accept

Acceptable instrument uncertainty* is the acceptable uncertainty the network has decided to accept for an individual instrument. The quantity evaluated is the within instrument uncertainty. The uncertainty can be entered as an absolute or relative uncertainty. An entered relative uncertainty is interpreted in relation to the overall average. The verdict is Reject or Accept is considering the absolute uncertainty calculated and reported for the individual instrument.

Instrument The code for the instruments are entered in row 37, columns C to N. The codes are copied to cells O to Y.

Identification of the control material is entered in row 35, cells C and O. If no ID is entered, no calculations will be performed.