Chapter 1
What's New in SAS/QC

Overview

The ANOM, CAPABILITY, CUSUM, MACONTROL, PARETO, RELIABILITY, and SHEWHART procedures now produce graphs that conform to ODS styles, so that creating consistent output is easier. Also, you now have two alternative methods for producing graphs. With traditional graphics you can control every detail of a graph through familiar procedure syntax and GOPTION and SYMBOL statements. With ODS Graphics (experimental in SAS/QC 9.2), you can obtain the highest quality output with minimal syntax and full compatibility with graphics produced by SAS/STAT and SAS/ETS procedures.

ADX Interface for Design of Experiments

The SAS ADX Interface for Design of Experiments includes enhancements related to response surface designs, mixture designs, general factorial designs, and split-plot designs. Furthermore, ADX can now import data from SAS data sets or external file formats, and it can export design information to SAS data sets or external file formats.

The SAS 9.2 ADX Interface now enables you to do the following:

- create general factorial designs with factors having up to nine levels
- construct and analyze two-level full factorial and fractional factorial split-plot designs
- choose a mixed-level design from a new expanded design selection
- analyze unstructured experimental data that is imported from external sources
- analyze fitted models by using the new graphical ANOVA
- construct a lambda plot to evaluate the need for a response transformation
- add center points to a design before or after replication
- add replicated points in a new block
- apply a user-specified alpha value for the graphical techniques that are used to fit and optimize a model
- delete inactive factors and project a fractional-factorial design to a higher-resolution design
- join the means in a box plot
- show clear and aliased effects in the alias structure
- display confidence intervals in the response calculator and experiment report
- honor block structure in a blocked design during design randomization

The ADX interface is documented in *Getting Started with the SAS 9.2 ADX Interface for Design of Experiments*.

CAPABILITY Procedure

The new CLASS statement enables you to group the data into classification levels. You can specify one or two class variables. Results are computed separately for each classification level, and any chart statements you specify produce comparative charts that are analogous to the comparative histograms produced by the COMPHISTOGRAM statement in previous releases. The COMPHISTOGRAM statement continues to be supported in SAS 9.2, but you cannot specify a CLASS statement together with a COMPHISTOGRAM statement.

You can now superimpose more than one fitted distribution from a given family (two normal curves, for example) on a histogram.

FACTEX Procedure

The new BLOCK and UNITEFFECT statements enable you to construct designs for experiments with multiple stages, such as split-plot (Huang, Chen, and Voelkel 1998) and split-lot designs (Butler 2004).

References

Butler, N.A. (2004), "Construction of Two-Level Split-Plot Fractional Factorial Designs for Multistage Processes," *Technometrics*, 46, 445–451.

Huang, P., Chen, D., and Voelkel, J.O. (1998), "Minimum-Aberration Two-Level Split-Plot Designs," *Technometrics*, 40, 314–326.