

Guidance on Data Acquisition/Collection and Analysis

Derived data are seldom obtained in the exact form needed. Raw data are usually reduced either by manual analysis or through available computer analysis programs. When a computer program is used, the computer program and version are identified. Reasonable measures are taken to provide confidence in the reduced data results. Comparisons are made with alternate calculations where validated alternate techniques are available and accepted. Alternate computer data reduction codes are used for comparison where practically available. Benchmarks of the data reduction process for areas where the end data are known assist in developing confidence in the data reduction process. Any assumptions used in the data analysis or reduction are listed and justified.

Requirements

When performing data acquisition/collection and analysis, universities shall define:

- The assumptions and methods used;
- The results obtained and the results used, such that competent experts can evaluate how the data were interpreted;
- The methods used to identify and minimize measurement uncertainty;
- The analytical model used
- Whether the research results have been documented adequately and can be validated.

Documentation

Documentation of data acquisition/collection and analysis shall be included in the laboratory/research notebook or in a final report. The documentation shall contain:

- The results obtained, and their range of application and validation;
- The relationship of the results to previous publications, experiments, theories or technological developments;
- A description of the apparatus and the operations/data acquisition activities;
- A description of significant problems that occurred during the operations/data acquisition activities;
- A description of data collection/analysis information as specified in the bullets under the requirements section;
- A summary of the work performed, including conclusions, recommendations and a description of any possible impacts on safety objectives.

Oversight

University faculty shall provide guidance to students/researchers on performing and documenting data acquisition/collection and analysis and shall review and approve documentation for data acquisition/collection and analysis.