

XII.B. TEST CASES

The SAMMY quality assurance program involves a series of “test cases,” each of which is designed to test a particular feature of the code. Whenever a new feature is added to SAMMY or a major bug exterminated, a new test case is developed. Prior to the release of a new version of the code, all test cases are run on several computer platforms, to ensure that recent changes have not adversely affected the behavior of older features. These test cases, both input and output, are released, along with the source codes (e.g., from RSICC); anyone wishing to port SAMMY to his or her own computer is advised to run a significant number of test cases, compare output, and resolve major differences before beginning new analyses. In particular, a user should run the test cases which contain those features that are used in her/his own research.

Table XII B.1 gives a brief description of the test cases, which are numbered in arbitrary order. Cases 1 through 180 are labeled “tr001” through “tr180” where “tr” denotes “trial” number.

Each test case is contained in a separate subdirectory named `.../samtry/trxyz`, where `xyz` represents the three-digit case number. The Unix command file for each test case is denoted “testxyz”; the comparable command file for Windows is named “test.bat”. Running this file will cause several SAMMY (or auxiliary code) runs to be made with results written into subdirectory `.../samtry/trxyz/results`. A second additional command file, named “check”, is provided for each test case; this file can be used to compare new results (those run on the user’s computer) to the standard results (found in subdirectory `.../samtry/trxyz/answers`). A third command file, named “t”, runs both “testxyz” and “check”. The command file “zzauto” (found in subdirectory `.../samtry`) can be used to run all test cases automatically.

For version 7.0.0 of SAMMY, the test cases have been somewhat reorganized from previous versions. Certain of the old test cases (e.g., tr038) were incomplete or used non-portable input; these cases have been eliminated and the numbers reassigned to newer examples. Test cases involving Monte Carlo simulations of multiple-scattering corrections have been relocated into “samsim” instead of “samtry”; see Section XII.C for details.

Note: All experimental data used in the test cases are to be treated as “dummy” data, not to be used for any purpose other than to verify the accuracy of the SAMMY calculations. The same is true of resonance parameters used in the test cases. *Neither data nor parameters should ever be assumed to have any physical validity.*

In addition to providing the basis for SAMMY’s quality assurance program, the test cases fill another role: They serve as examples of input for the various features of the code. Persons wishing to begin using an unfamiliar feature of the code may consult the test cases for guidance in preparing input.