

# Frequently Asked Questions for: DOE's Round Robin Test Program

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## **Introduction**

The objective of the Department of Energy's (DOE) round robin test program is to perform an assessment of the repeatability and reproducibility of DOE test procedures for various appliances. Currently, the National Energy Technology Laboratory (NETL) Appliance Technology Evaluation Center (ATEC), the National Institute of Standards (NIST), and many third party and manufacturer-operated facilities perform these tests. The round robin testing will document the variability of test results, both within a single test lab (repeatability) and from test lab to test lab (reproducibility), and seek to identify the potential contributors to variability. The results will form the basis of recommended corrective actions for facilities and are expected to highlight needed clarifications or modifications to DOE test procedures.

## **What products will be tested?**

The round robin test program will only include covered products and covered equipment that are listed in 10 CFR Part 430 and Part 431. The first set of products identified for the round robin program includes refrigerator-freezers, dishwashers, and residential clothes washers. Once the product type is selected, DOE chooses specific models to test based on the following factors:

1. Representative of a 'typical' model currently available on the market;
2. Currently available for purchase (appliance models that are obsolete or discontinued are avoided); and
3. Meets other test needs of the Department (e.g., models whose efficiency data can also contribute to energy conservation standard and/or test procedure rulemakings).

The Department is also considering round robin testing of room air conditioners, residential central air conditioners and heat pumps, furnace fans, clothes dryers, dehumidifiers, residential water heaters, plumbing products, electric motors, and lighting products.

## **What is the testing process?**

Once DOE selects the model(s) for the round robin test program, DOE will issue an email invitation for laboratory participation, including a draft test schedule (see "[How do I get my lab involved?](#)"). Interested labs, whether manufacturer-operated or third party, should respond to the announcement by signing up for a test window in which to perform the test. Test slot requests will be granted on a first come, first served basis.

After determining lab interest and confirming schedules, DOE, through its contractor, will enter into a testing contract with the interested test labs. Each appliance is tested several times at each participating test laboratory. Depending on the number of participating test labs, more than one unit of the same model may be tested in parallel.

Time permitting, DOE will designate a 'master test laboratory' to conduct the first and last test of the round robin cycle. The master lab is designated by DOE and will vary from product type to product type. The initial and final tests at the master test laboratory will assess if any degradation has occurred to the test unit during the course of the round robin test study.

Each lab will be informed of the applicable test procedure (including any relevant test procedure guidance) that is to be used for each test. DOE will also provide uniform test report templates to each participant. Each lab will be free to follow its own process without observation from any DOE representative; however, as part of the round robin test agreement, DOE will ask the laboratory to use a DOE-provided test report template to document as fully as possible their approach to the test. DOE believes this approach will help DOE identify any parts of the test procedure that may need further clarification.

### **What labs can participate in testing?**

Any government, third-party, or manufacturer-operated lab may participate in DOE round robin testing by informing DOE of its interest and entering a testing contract with a DOE representative.

### **Who pays for the testing?**

For the current effort, the U.S. Department of Energy will pay third-party labs for round robin testing services. Payment and terms will be addressed in testing contracts. Future iterations of the round robin program may be structured differently. DOE cannot pay manufacturer labs for their participation in the round robin program; however, DOE encourages manufacturers to participate to improve test quality and consistency. For all labs involved, DOE will pay for obtaining the test units and all shipping costs associated with the program.

### **How will the test results be used?**

Individual products and product test results will be kept confidential. DOE will compile the test results from participating labs and use statistical methods to assess the repeatability and reproducibility of test results. At the conclusion of the round robin program for each product type, DOE will summarize its key findings in a report that will be posted on DOE's website for public viewing. DOE may also work with labs individually and confidentially to provide constructive feedback and address any questions resulting from the program.

Lessons learned from the round robin program will be used to serve the following purposes:

1. Guide improvements to DOE test procedures, via test procedure rulemaking or through DOE-issued guidance;
2. Determine if DOE test procedures are being interpreted consistently;
3. Educate labs on how to implement DOE test procedures correctly;
4. Identify factors that affect test result variability;
5. Increase DOE's understanding of the statistical variability of product performance and test results; and
6. Aid in the establishment of improved sampling plans and statistical procedures for product certification and enforcement.

### **How will DOE maintain confidentiality?**

The identities of the round robin test labs and the products being tested will be kept anonymous throughout the program. A DOE representative will not observe the tests.

All external visible markings present on the test unit and all materials provided with the test unit (packaging, owner's manual, installation guide, etc.) which indicate the manufacturer, brand, model number, or serial number will be obscured or removed. The test unit will be relabeled with a round robin identification number.

The identity of each participating test laboratory will not be made known to the other participating test laboratories and will not be referred to in any report. Each participating lab will be issued an identification number that is known only to them. Note: Each participating test laboratory will know the identity of the previous test laboratory and the subsequent test laboratory due to shipping documentation.

In addition, all round robin test data will be de-identified prior to being analyzed.

### **How long will the round robin program continue?**

The current program is funded by the American Recovery and Reinvestment Act and is set to expire in fiscal year 2012. However, based on the merits of the program in relation to other long term goals, DOE may consider continuation, consolidation, or expansion of the program in future years.

### **I operate a test laboratory, why should I participate?**

One of the goals of the round robin program is to improve test practices and consistency at all labs that test covered products. The round robin program is an opportunity for labs to learn and improve. All participating labs will have access to the final report outlining how the results obtained at their lab compares to other labs.

Manufacturer test labs will benefit from participating because the test data they produce is used to certify that covered products can be sold in the United States. Manufacturers currently are required to certify that their products meet applicable energy or water conservation standards. These certifications are based on test data. Furthermore, DOE's enforcement regulations are based on tests conducted at third party labs. Therefore, it is in the manufacturer's interest to ensure that the test data used for certification purposes is 1) conducted properly according to the DOE test procedure, and 2) that it aligns with results that are obtained at third party labs. By participating in the round robin program, manufacturer test labs will gain insight into how their test results compare to other labs, though the identity of those labs will be confidential.

For third party labs, the round robin program is an opportunity to increase proficiency in a test procedure. Participating labs will learn how to improve their laboratory practices and therefore provide more value to their clients. Labs may also use the round robin program to support ISO 17025 requirements.

From the Department's perspective, the more labs that participate in the round robin program, the better.

## **How do I get my lab involved?**

If you would like to participate in the program, please email DOE's Round Robin Test Program ([roundrobintesting@ee.doe.gov](mailto:roundrobintesting@ee.doe.gov)), stating your interest and what products you are able to test. Your contact information will be kept on file and you will receive email notification whenever DOE posts a round robin invitation.