

ENERGY STAR® for Computers

Verification Testing Guidelines and Procedures Manual Version 1.0

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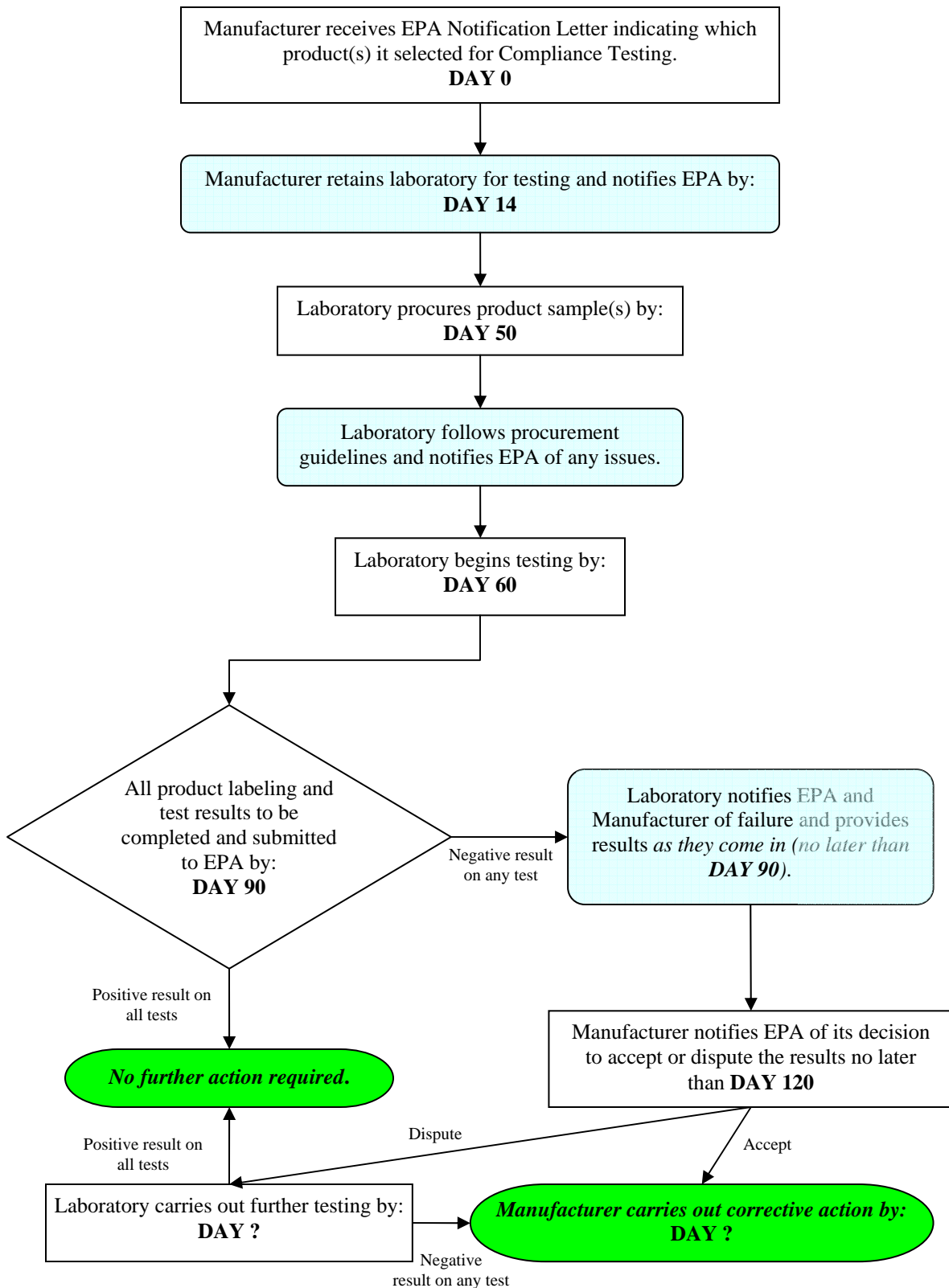
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I. Summary

This manual contains verification testing guidelines and procedures for conducting product testing as specified in the ENERGY STAR Program Requirements for Computers. These procedures include:

- Computer Compliance Testing Milestones and Reporting Deadlines
- EPA Selection of Computer Manufacturing Partners and Products
- Partner Selecting of Testing Laboratory
- Laboratory Computer Procurement and Sampling
- Laboratory Sample Receiving and Handling
- Sample Testing and Reporting
- Submission of Final Report
- Product Failure and Delisting Process

II. Computer Verification Testing Milestones and Reporting Deadlines



III. EPA Selection of Computer Manufacturing Partner and Products

The Environmental Protection Agency (EPA) may select products for Compliance Testing (testing) at any time, but it is anticipated EPA will select products in batches once per year. Initial product nomination begins with products recommended for testing by EPA. Additional products may be nominated by retailers, manufacturers, or other industry stakeholders, or selected randomly from the ENERGY STAR Qualified Product list.

To alleviate the burden on any one manufacturing Partner (Partner), none shall have more than five (5) computers selected for testing per year. Further, EPA will not select for testing any products the Partner has discontinued.

EPA shall notify each Partner in writing which of its products have been selected for testing, and provide 14 days¹ for the Partner to contract with an accredited testing laboratory. The 14 days shall begin upon Partner receipt of the EPA Notification Letter as verified by express mail delivery notification. An example of the EPA Notification Letter is available in *Appendix B*.

IV. Partner Selection of Testing Laboratory

Within 14 days from the date of receipt of the EPA Notification Letter, the Partner shall retain an accredited testing laboratory, authorize the laboratory to share all test data and results with EPA, and notify EPA² it has done so.

In order to conduct compliance testing to determine whether computers meet ENERGY STAR requirements, the computer must be tested in a laboratory that is accredited by an accreditation body that is a signatory, in good standing, to a mutual recognition arrangement of a laboratory accreditation cooperation (i.e. ILAC, APLAC, etc.) that verifies, by evaluation and peer assessment, that its signatory members are in full compliance with ISO/IEC 17011 and that their accredited laboratories comply with ISO/IEC 17025.

Laboratories must be specifically qualified to carry out tests to determine whether computers meet the Computer Key Product Criteria as outlined in the ENERGY STAR Program Requirements for Computers.

¹ All timeframe data is to be considered in calendar days. If a reporting date falls on a weekend or holiday, then the required information must be reported on the next business day.

² In all cases throughout this document, unless otherwise indicated, the laboratory shall send all communications to EPA or its contractor at computers@icfi.com. Any reference to sending deliverables to EPA shall be read to include EPA's contractor.

Note: The language in italics was provided by David Alderman of NIST as a recommendation for laboratory accreditation requirements. EPA would appreciate comments from stakeholders on this specific language and any recommendations to ensure that competent laboratories are provided the opportunity to conduct testing.

The computer Partner is responsible for the laboratory meeting all deadlines, sending deliverables to EPA within the allotted time, and providing accurate and complete reports. Failure by the laboratory or the computer Partner to meet the deadlines or provide accurate and complete reports may result in EPA immediately delisting the computer model from the ENERGY STAR Qualified Product list.

EPA recommends Partners establish agreements with one or more laboratories to expedite verification testing. The Partner is responsible for sending the testing request to the laboratory and ensuring that the laboratory has the qualifications, capacity, and appropriate staff to meet the testing and scheduling requirements for verification testing required in the ENERGY STAR Program Requirements for Computers

If the Partner refuses to engage with a third-party laboratory to conduct the testing, EPA will de-list the Partner's specific product(s) selected for testing. This action will include, but may not be limited to, sending a notification letter to the Partner and notifying retailers that the product has been de-listed. The Partner will be required to take actions required under EPA's standard operating procedure for delisting products in Appendix D.

If the Partner continues to refuse to engage in verification testing in the next round, then the following will occur:

- The manufacturer's ENERGY STAR Partnership Agreement shall be revoked;
- all of its qualified products shall be removed from the Qualified Product list;
- the manufacturer shall not be listed as a Computers Partner on the ENERGY STAR Web site;
- retail partners shall be notified the manufacturer is no longer a Partner and its computers are no longer recognized by ENERGY STAR; and,
- after a minimum of a six (6) month period, the manufacturer shall be permitted to discuss with EPA rejoining the program and signing a new Partnership Agreement.

V. Laboratory Computer Procurement and Sampling

Upon laboratory retention, the Partner shall provide the laboratory with a list of the names and URLs or off-line addresses of at least three retailers from which the sample may be purchased, including the manufacturer website if relevant. The Partner shall verify at the time it creates this list that the computers to be tested are available through those retailers. Also, the Partner shall authorize the laboratory to share all test data and results with EPA. The laboratory shall not inform Partners where the sample is purchased, but laboratories may, at their discretion, include the Partner in all other communications between the laboratory and EPA.

Within 50 days from the date the Partner receives the EPA Notification Letter, the laboratory shall procure one (1) sample of each computer to undergo testing from a retailer on the Partner-supplied list, or an alternate source of the laboratory's choosing. If within 30 days from the date the Partner receives the EPA Notification Letter, the laboratory is unable to locate samples on the open market, it shall inform EPA of this via email. If EPA determines the samples are not available other than directly from the Partner, then and only then may the laboratory obtain them from the Partner. In this case, the Partner must provide the product to the laboratory in a manner approved by EPA that does not compromise the quality of the test sample.

The laboratory shall require two-day shipping to ensure the receipt of samples in a timely manner and minimize the risk of lost or damaged samples. Note that while the laboratory shall be responsible for sample purchasing, failure to meet the 50-day deadline shall be the responsibility of the computer Partner. If the laboratory has ordered a sample but it has not arrived within the 50-day deadline or it is damaged upon receipt, the laboratory shall notify EPA via email of the details of the cause of the delay. If EPA does not receive this detailed notification of a lost or damaged sample, EPA may at its discretion begin delisting the computer model. EPA will inform the Partner if this takes place.

If a sample is damaged during shipment, the laboratory shall immediately begin the return goods authorization process, order a replacement, and inform EPA via email of the damage and expected new arrival date.

The Partner is responsible for the laboratory obtaining the correct product. It is recommended that the Partner stay in frequent communication with the laboratory to make sure the models procured by the laboratory are the models selected by EPA.

Upon sample receipt, the laboratory shall confirm with the Partner the date the sample was manufactured and inform EPA via email of that date.

Note: EPA considered the options for testing discussed during previous stakeholder meetings and decided not to include provisions for in-house laboratory testing based on comments received that tests would not be independent and therefore would not be appropriate for verifying product performance. EPA welcomes feedback on what regulatory programs accept in terms of in-house testing and what requirements could be set for in-house testing that would allow the testing results to be valid for the purposes of verifying product performance. EPA is also interested in pursuing the idea of third-party test labs being able to pull products off the factory line and test in the factory, but is concerned that this is not feasible in practice. EPA would appreciate ideas from stakeholders on what the requirements would be for allowing third-party testing in the factory

VI. Sample Testing and Reporting

A. Testing and Reporting Timeline

The laboratory shall commence testing **no later than 60 days** from the date the Partner receives the EPA Notification Letter, and notify EPA of the test start date, via email, within 24 hours of the testing start date.

The laboratory shall review product packaging, product literature (e.g., instruction manual, specification sheet), the product itself, and the Partner's Web site to determine if ENERGY STAR Labeling and User Information requirements have been met (as outlined in "ENERGY STAR Program Requirements for Computers").

EPA will provide the *Test Reporting Template*, including a customized "milestone" reporting calendar, to the Partner upon Partner receipt of the EPA Notification Letter as verified by express mail delivery notification, and the Partner shall forward this form to the laboratory upon its retention. The Partner is responsible for ensuring that the laboratory uses this form to submit results to EPA, via email, **within 90 days** from the date the Partner receives the EPA Notification Letter. See *Appendix A* for a sample of this form. In addition, the Partner shall be responsible for the laboratory providing results of the product packaging and computer labeling inspection (positive or negative) directly to EPA via email **within 90 days** from the date the Partner receives the EPA Notification Letter at the same time the laboratory submits test results to EPA. The laboratory shall also attach digital photograph files of the sample, packaging, and product literature to the email message to EPA.

If results for all tests are positive, the laboratory shall inform EPA via email. If test results for any of the tests are negative, the laboratory shall send notification to EPA, via email, of the performance parameter that failed and the date of failure within two days of the failure.

Upon completion of testing, the Partner may request the tested product from the laboratory.

B. Testing Guidelines

Testing should be carried out as described in the ENERGY STAR Program Requirements for Computers

VII. Submission of Final Report

The laboratory shall complete all tests **within 90 days** from the date the Partner receives the EPA Notification Letter.

Failure of the laboratory to submit the final report by the deadline will result in EPA immediately disqualifying the computer and removal of the computer from the ENERGY STAR Qualified Product list.

VIII. Product Failure and Delisting Process

EPA follows standard operating procedures (SOP) for addressing product performance failures supported by laboratory test documentation. First, EPA determines whether the product fails to meet ENERGY STAR requirements by following the standard operating procedure for product failure and dispute resolution in Appendix C. If EPA determines that the product fails, then EPA and the Partner take the steps outlined in the standard operating procedure for delisting products in Appendix D.

EPA will make public information about the number of models and samples tested, the characteristics of these models, and the number of models that passed. Products delisted as a result of testing will be published on the ENERGY STAR Web site (<http://www.energystar.gov>).

Appendix A: Partial Test Reporting Template – Example

Laboratory Information
Laboratory Name
Contact Name
Phone Number
Fax Number
Mailing Address
Email Address
Date of Agreement between Laboratory and Manufacturing Partner
Date Sample Purchased
Date Sample Testing Began
Date Sample Testing Completed
Computer Purchasing Information
Purchase Date
Purchase From (Full Company Name)
Purchase Location (city and state, or Web site)
Computer Information
Computer Manufacturer/Brand
Computer Model Number
Computer Serial Number
Computer Type (Desktop, Notebook, etc.)
Processor Make
Processor Type/Model
Operating System
Number of Installed Hard Drives
Hard Drive RPMs
System Memory (GB)
of DIMMs Installed
Size of Display (Notebooks and Integrated Computers, Only)
Graphics Card
Discrete Video Memory (0 for integrated graphics)
Consumer Information Parameters (pass/fail)
Product Packaging
Product Literature (e.g. instruction manual, specification sheet)
Product Itself
Manufacturing Partner Web Site
Computer Test Data
Idle Category
WOL Enabled From Sleep
WOL Enabled From Off
Idle Power
Sleep Power
Off Power

Power Management Default Setting - Display
Power Management Default Setting - Computer
Power Supply Information
Power Supply Manufacturer
Power Supply Type (EPS/IPS)
Power Supply Model Number
Power Supply Test Data
EPS – No Load power
EPS - Average Active Efficiency
EPS – Power Factor (where applicable)
IPS – Power Factor @ 100% rated output
IPS – Efficiency @ 20% rated output
IPS – Efficiency @ 50% rated output
IPS – Efficiency @ 100% rated output

Appendix B: Computer Compliance Testing Notification Letter – Example

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF
AIR AND RADIATION

Date

Name

Title

Company

Address

City, State Zip

Dear [Name]:

As you are aware, *ENERGY STAR*[®] *Program Requirements for Computers: Version 5.0* includes a Compliance Testing Protocol. The purpose of this letter is to notify you that the Environmental Protection Agency (EPA) has selected [company name] computer model(s) [XXX] for compliance testing.

Per the requirements of the Compliance Testing Protocol, [company name] shall retain a qualified manufacturer-independent, accredited testing laboratory within **14 calendar days** of this notification. [company name] shall authorize the laboratory to share all test data and results with EPA. The following performance parameters shall be tested and consumer information verified:

Performance Parameters:

Computer Test Data:

Idle Category

WOL Enabled From Sleep

WOL Enabled From Off

Idle Power

Sleep Power

Off Power

Power Management Default Setting - Display

Power Management Default Setting – Computer

Power Supply Test Data:

EPS – No Load power

EPS - Average Active Efficiency
EPS – Power Factor (where applicable)
IPS – Power Factor @ 100% rated output
IPS – Efficiency @ 20% rated output
IPS – Efficiency @ 50% rated output
IPS – Efficiency @ 100% rated output

Consumer Informational Parameters

Product Packaging
Product Literature
Product Itself
Manufacturing Partner Web site

[company name] shall provide the laboratory a list of at least three (3) locations where it may purchase the product sample. These locations may include on- or off-line retailers.

The laboratory shall procure the sample and begin testing **no later than 70 calendar days** from the date this EPA Notification Letter is received. If the sample fails to meet the same informational or performance parameters of the ENERGY STAR specification, the model(s) and all related models (where listed under a product family) will be considered for corrective action or delisted. Further, in accordance with EPA's *Standard Operating Procedure for Product Failure and Dispute Resolution*, the model may be removed from the ENERGY STAR Qualified Product list as addressed under EPA's *Standard Operating Procedure for Delisting Products*. Both of these documents are included below.

In addition, [Company Name] is responsible for the laboratory meeting all deadlines, sending deliverables to EPA or its contractor within the allotted time, and providing accurate and complete reports as defined below *and in the Compliance Testing Guidelines and Procedures Manual Version 1.0*. Failure by the laboratory to meet the deadlines or provide accurate and complete reports may result in EPA immediately disqualifying the computer(s) being tested.

[Company Name] shall complete the following NEXT STEPS:

Note: all email correspondence to EPA listed below shall be directed to computers@icfi.com.

1. **Within 14 calendar** days of this notification, commission an accredited testing laboratory and direct the laboratory to begin testing. [Company Name] is required to authorize the laboratory to release all test data and results to EPA. Receipt of this letter by [Company Name], verified through Express Mail tracking, begins the 14-day period.
2. Instruct the laboratory to notify EPA, via email, the date that testing begins **within 60 calendar days** from the date of this notification letter. The email shall be sent

out within 24 hours of testing start date.

3. Instruct the laboratory to send the consumer informational parameter results **within 62 calendar days** from this notification letter.
4. Instruct the laboratory to send all test results directly to EPA, via email, **within 90 calendar days** of this notification letter.
5. In the event of retesting, instruct the laboratory to send the FINAL test report directly to EPA, via email, **within 120 calendar days** from the date of this notification letter.

Attached to this letter are the *Compliance Testing Guidelines and Procedures Manual Version 1.0* and a *Test Reporting Template*. Please provide these documents to the manufacturer-independent accredited laboratory that is performing the tests, and instruct the laboratory to send all correspondence to EPA, via email to computers@icfi.com.

Should you have any questions, please contact Josh Forgotson at jforgotson@icfi.com. Your prompt attention to this important process is appreciated.

Sincerely,
[EPA personnel]
[EPA address]

Appendix C: Standard Operating Procedure for Product Failure and Dispute Resolution

This Standard Operating Procedure (SOP) describes EPA's process for determining product failures based on documented testing conducted by an accredited laboratory.

- A. Review and compare the laboratory test results with product information already submitted by the ENERGY STAR Partner.
 - i. Obtain clarification on the data, test results, and testing methods from the third party source, if necessary.
 - ii. Develop a summary of non-compliance issues for internal ICF/EPA review.
- B. Determine whether the test results are sufficient to conclude that the model did not meet ENERGY STAR performance requirements.
- C. Provide written notification to Partner via FedEx indicating that their model did not meet ENERGY STAR performance requirements. Upon notification of a product failure, the Partner may:
 - Accept the test results and:
 - **within 30 days** of the laboratory sending the final test report to EPA, notify EPA of its decision to accept the test results; and,
 - immediately upon informing EPA of its decision to accept the results, take the actions required for delisting products under the Standard Operating Procedure for Delisting Products in Appendix D:
 - Dispute the test results:
 - The Partner may dispute the test results if it has evidence that the laboratory:
 - misinterpreted the ENERGY STAR specifications by selecting inappropriate tests;
 - performed a test incorrectly;
 - contaminated the sample during testing; or,
 - misinterpreted the results of a test.
 - The Partner shall submit the dispute in writing to EPA **within 30 days** of the laboratory sending the final test report to EPA. After the 30-day period, the Partner shall lose the right to dispute the laboratory findings. The written dispute shall include:
 - clear reason for the dispute; and,
 - documentation supporting the dispute claim.
 - EPA will review the dispute within 30 days upon receipt of documentation, and respond with a decision that may include any of the following actions:
 - reject the dispute and uphold the laboratory findings;
 - reverse the outcome and determine that the product meets the performance requirements; or,

- find that the laboratory test results may be incorrect and grant the Partner the option to conduct additional testing to prove the product meets the qualification requirements of ENERGY STAR. The Partner would be responsible for any additional testing fees.
 - If the Partner takes no action **within 30 days** of the laboratory sending the final test report to EPA, EPA will consider the Partner to have accepted the test results. Further, the Partner shall be required to follow the steps contingent upon accepting the test results, as outlined in the Standard Operating Procedure for Delisting Products in Appendix D:.
- D. Testing information indicating performance failures supplied to EPA by a third party will be handled on a case-by-case basis as it relates to this SOP. A third Party is any organization other than EPA or one of its contractors. Third parties include, but are not limited to utilities, energy efficiency program sponsors, energy efficiency program administrators, manufacturers, and retailers.

Appendix D: Standard Operating Procedure for Delisting Products

EPA has established the following protocol to delist “unqualified” products on the ENERGY STAR Qualified Product List. An unqualified product is a product that does not meet the current ENERGY STAR program and specification requirements.

- 1) EPA or DOE notifies the product manufacturer that the product will be removed from the ENERGY STAR Qualified Product List on the Web site and requests a corrective action plan from the manufacturer.
- 2) Upon notification, the manufacturer must immediately
 - stop shipment of the model with the ENERGY STAR mark;
 - suspend the labeling of the unqualified product with the ENERGY STAR mark;
 - remove or obscure the ENERGY STAR mark on product units within its control; and
 - remove or obscure the ENERGY STAR mark on all collateral materials such as product packaging, Web pages and other marketing materials associated with the product.

Depending on the amount of mislabeled product in the distribution chain and the nature of the mislabeling and distribution, EPA may require the Partner to remove or obscure labels on products already shipped. Within 30 days upon receiving written notification from EPA that such actions must be taken, the Partner must provide EPA with a corrective action plan that confirms the above actions were/are being taken and informs EPA as to whether the Partner plans to re-qualify the product at a later date. EPA and/or an ENERGY STAR representative will work with the Partner throughout the process until it is considered resolved by the Agency.

For products that are commonly sold through retail channels and/or subject to financial incentives, EPA may notify retail partners and Energy Efficiency Program Sponsors (EEPS) that a product is considered “unqualified,” and has been de-listed from the ENERGY STAR Web site. *Delisted models will be posted at www.energystar.gov along with the Partner name, model number, date of delisting, and a standardized note explaining why the models were delisted (e.g., “Retired Model - Removed from Web site per Partner request,” or, “Unqualified Model - Removed from Web site due to failure to meet ENERGY STAR specification.”)* EPA will consolidate individual notices into one written letter if multiple products are deemed unqualified at the same time.

At any time, the Partner may resubmit products with appropriate test data for re-qualification. Products submitted to EPA for re-qualification must be submitted with a new model number.

Note: The purpose of the new model number is to ensure that products that fail to meet performance requirements are distinguished from re-qualified models with modifications that allow them to meet the performance requirements.

As the ENERGY STAR name and logo are registered marks belonging to the U.S. government, EPA must ensure they are used correctly in order to protect the integrity of the program they represent. Any Partner that uses the name and/or logo improperly and fails to take corrective action upon EPA request may be subject to termination of its ENERGY STAR Partnership Agreement, and legal action through EPA's Office of General Counsel.