

# ENERGY STAR<sup>®</sup> for Computers

## Verification Testing Guidelines and Procedures Manual Version 1.0

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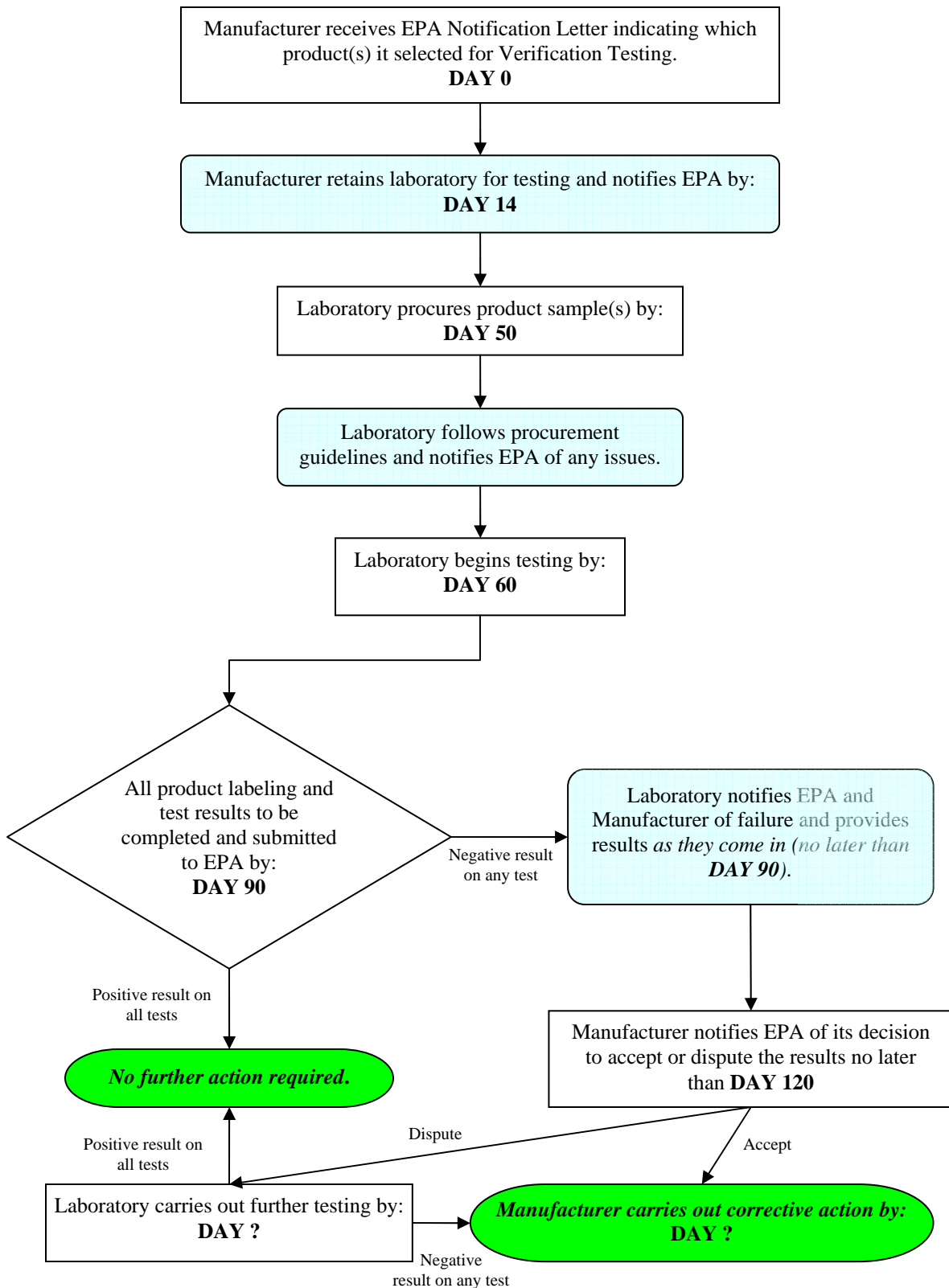
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## I. Summary

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 Verification 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 Verification 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 days<sup>1</sup> 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 EPA<sup>2</sup> it has done so.

In order to conduct verification 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.

A laboratory's Scope of Accreditation must reflect its specific competence to carry out the test procedures as outlined in the ENERGY STAR Program Requirements for Computers.

Manufacturers may use qualified in-house labs to perform verification testing. Following the requirements of ISO 17025 will ensure that the testing facility is independent from financial or other organizational pressures that may impact testing and reporting.

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<sup>1</sup> 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.

<sup>2</sup> 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.

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 qualified 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 one retailer 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. For in-house laboratories, units may be obtained from the production line, but must be representative of other units coming off the manufacturing line.

The Partner shall also provide details on proprietary test setups, including specific equipment, as appropriate. For example, smart power supplies may require specific proprietary test equipment for which only the manufacturer has access.

The Partner shall authorize the laboratory to share all test data and results with EPA, as well as purchase documentation. An example of purchase documentation would be a copy of the invoice with the unit serial number to indicate proof of purchase and source of purchase. The laboratory 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 sample of each computer to undergo testing from a retailer on the Partner-supplied list, or an alternate source of the laboratory's choosing. In-house laboratories may obtain the unit from their manufacturing line, but take full responsibility to ensure the unit is representative of all other units. For third-party laboratories, 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 a representative product to the laboratory and provide appropriate documentation to show that this process does not compromise the quality of the test sample. For example, samples selected from production lines could be controlled by some other product "safety" certification where the production line process is periodically audited. Participating in the Nationally Recognized Test Laboratory (NRTL) Program Audit Process is one way of documenting the representative nature of the product 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.

## 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.



*Appendix A: Partial Test Reporting Template – Example*

|   |
|---|
| <b>Laboratory Information</b>                                     |
| 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                                     |
| <b>Computer Purchasing Information</b>                            |
| Purchase Date   |
| Purchase From (Full Company Name)                                 |
| Purchase Location (city and state, or Web site)                   |
| <b>Computer Information</b>                                       |
| 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)                 |
| <b>Consumer Information Parameters (pass/fail)</b>                |
| Product Packaging   |
| Product Literature (e.g. instruction manual, specification sheet) |
| Product Itself  |
| Manufacturing Partner Web Site                                    |
| <b>Computer Test Data</b>   |
| 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 |
| <b>Power Supply Information</b>             |
| Power Supply Manufacturer                   |
| Power Supply Type (EPS/IPS)                 |
| Power Supply Model Number                   |
| <b>Power Supply Test Data</b>               |
| 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 Verification 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 Verification 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 verification testing.

Per the requirements of the Verification 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 60 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 *Verification 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 all test results and consumer informational parameter results directly to EPA, via email, **within 90 calendar days** of this notification letter.
4. 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 *Verification 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](mailto:computers@icfi.com).

Should you have any questions, please contact Josh Forgotson at [jforgotson@icfi.com](mailto: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 qualified 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. In the case that issues cannot be resolved through the actions listed above, delisted models may be posted at [www.energystar.gov](http://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.”)

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 or unique identifier.

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.