

ENERGY STAR[®] FOR RESIDENTIAL LIGHT FIXTURES

QUALITY ASSURANCE TESTING GUIDELINES AND PROCEDURES MANUAL

Version 2.0

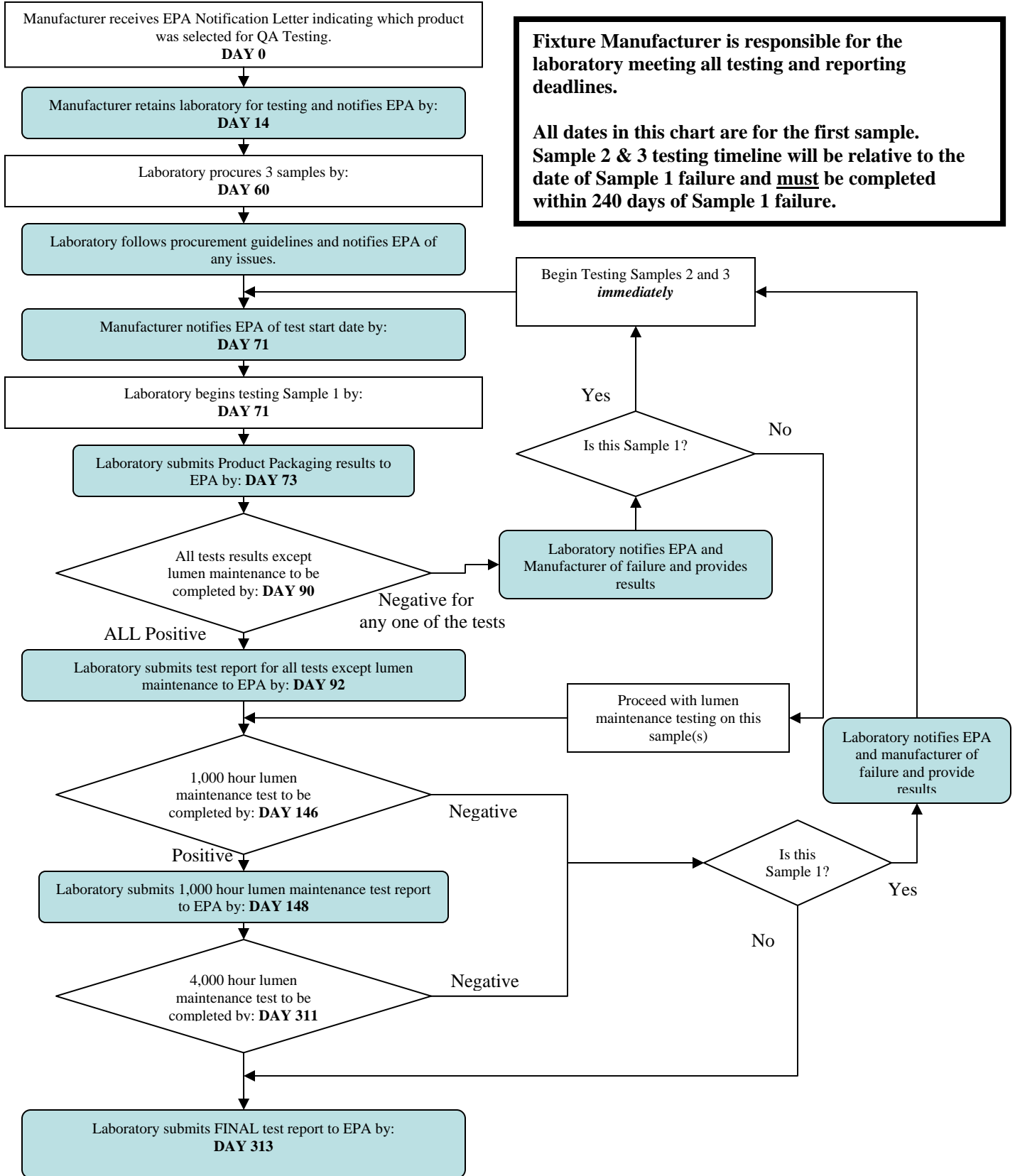
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**PART ONE: QUALITY ASSURANCE TESTING FOR
FIXTURES**

FIXTURE Quality Assurance Testing General Summary of Milestones and Reporting Deadlines



Section 1: EPA Selection of Fixture Manufacturer

- 1) Product Selection
 - a. The Environmental Protection Agency (EPA) may select products for Quality Assurance (QA) testing at any time, but it is anticipated that EPA will select products in batches twice a year.
 - i. Initial product (lamp and/or ballast) nomination begins with products recommended for testing by EPA, the Department of Energy (DOE), and Energy Efficiency Program Sponsors (EEPS).
 - ii. Additional products may be nominated by retailers, designers, homebuilders, manufacturers, or other industry stakeholders.
 - iii. Additional products may be selected randomly from the ENERGY STAR Qualified Product list.
 - iv. List is rationalized by EPA.
 1. Remove duplicates (multiple private-label versions of the same product).
 2. Address burden on any particular manufacturer (no manufacturer will have more than 2 fixtures with unique lamp/ballast platforms selected for QA testing per year).
 3. Eliminate products for any additional reasons, such as being discontinued by the manufacturer.
 - b. EPA shall notify each manufacturer in writing that their product(s) is selected for QA testing and provide 14 days for the manufacturer to contract with a qualified third-party National Voluntary Laboratory Accreditation Program (NVLAP) accredited testing laboratory. The 14 days begins upon manufacturer 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*.

Section 2: Manufacturer Selection of Testing Laboratory

- 1) The manufacturer shall retain a qualified third-party NVLAP accredited testing lab **within 14 days**¹ of receipt of the EPA Notification Letter. EPA recommends that manufacturers establish task order agreements with one or more labs to expedite both initial qualification and QA testing. A list of NVLAP accredited testing labs is available in *Appendix D*.
 - a. The manufacturer shall authorize the laboratory to share all test data and results with EPA.
 - b. The laboratory shall not inform manufacturers where samples are purchased, but labs may, at their discretion, include the manufacturer in all other communications between the lab and EPA or EPA's contractor.
- 2) The manufacturer shall provide the laboratory the *Test Reporting Template* at time of laboratory retention. The manufacturer is responsible for ensuring that the laboratory uses this form to submit results to EPA, via email, within 313 calendar days from the date the manufacturer receives the EPA Notification Letter.
 - a. EPA will provide the *Test Reporting Template*, including a customized "milestone" reporting calendar to the manufacturer upon manufacturer receipt of the EPA Notification Letter as verified by express mail delivery notification.

Manufacturer must retain a qualified third-party NVLAP accredited testing lab and notify EPA within **14 days** from the date of receipt of the EPA Notification Letter. The **manufacturer** must also provide the lab a list of locations and contact information where products can be purchased.

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.

- 3) **The fixture manufacturer is responsible for the lab meeting all deadlines, sending deliverables to EPA or their contractor within the allotted time, and providing accurate and complete reports. Failure by the lab or the fixture manufacturer to meet the deadlines or provide accurate and complete reports may result in EPA immediately delisting the fixture from the ENERGY STAR qualified fixture list.**
- 4) The manufacturer shall notify EPA or their contractor, via email to RLF@icfi.com², that a lab has been retained. Notification must be received by EPA **within 14 days** from the date of receipt of the EPA Notification Letter.
 - a. If the testing laboratory determines that it is necessary to issue a deposit invoice and receive payment prior to purchasing the samples, the lab shall inform EPA and the manufacturer immediately.
 - i. The notice from the lab to the manufacturer shall include a specific date that payment is due (no more than 30 days).
 - ii. The **manufacturer and lab** shall inform EPA, via email, of the date that payment is due and the date that payment is received.
 - iii. The **lab and manufacturer shall** notify EPA, via email, if payment is not received from the manufacturer within one day past the due date.
 1. EPA, at its discretion, may delist that particular fixture. EPA will inform the manufacturer of its decision.
- 5) If the manufacturer refuses to pay for QA testing, then EPA will suspend the manufacturer's specific product selected for QA testing. This action will include, but may not be limited to, sending a suspension letter to the Partner and notifying retailers and utilities that the product is in suspension.
 - a. The product is suspended until testing begins and will be automatically selected in next round (approximately six [6] months).
 - b. If the manufacturer continues to refuse to pay for QA testing in the next round, then the following will occur: the manufacturer's ENERGY STAR Partnership Agreement is revoked, all their qualified products are removed from Qualified Product list, the manufacturer is not listed as an Residential Light Fixtures (RLF) Partner on the ENERGY STAR Web site, and utilities and retailer Partners will be notified that the manufacturer is no longer a Partner and their platforms or fixtures are no longer being recognized by ENERGY STAR. After a minimum of a six (6) month period, the manufacturer may contact EPA to discuss rejoining the program and signing a new Partnership Agreement.

Section 3: Laboratory Fixture Procurement and Sampling

- 1) The **laboratory** shall procure three (3) samples of the fixture **within 60 days** from the date the manufacturer receives the EPA Notification Letter.
 - a. At time of laboratory retention, the **manufacturer** shall provide the laboratory a list of at least three (3) locations where the samples can be purchased.

The **laboratory** must procure samples **within 60 days** from date the manufacturer receives the EPA Notification Letter.

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

- b. The laboratory shall procure three (3) samples of the product from a retailer, E-tailer, or wholesaler. Walk-in, catalog mail order, or online purchases are acceptable. If product is not available through distribution, then it may be purchased manufacturer-direct (in this instance, the list of three locations of where to purchase the samples is not required).
 - c. The laboratory shall require two-day shipping to ensure the receipt of the product in a timely manner and minimize the risk of lost or damaged samples.
 - d. **The laboratory must purchase the product, but failure to meet the 60-day deadline is the responsibility of the fixture manufacturer. The manufacturer shall be diligent in providing the laboratory an accurate list of locations where to purchase the product.**
- 2) The laboratory shall initiate procurement of samples of specified products from the open market.
- a. **Within 39 days** from date the manufacturer receives the EPA Notification Letter, the lab will immediately notify EPA via email if it is unable to locate samples on the open market.
 - i. If it is determined that the samples are not available through retail or distribution then the samples may be purchased manufacturer-direct.
 - b. If samples have been ordered, but have not arrived at the lab within the 60-day deadline or are damaged upon receipt, the **laboratory** shall notify EPA, via email, with the details of the cause of the delay.
 - i. If EPA does not receive detailed notification of lost or damaged samples, EPA may at its discretion begin delisting the fixture. EPA will inform the manufacturer if such an action takes place.
 - ii. If the samples are damaged during shipment and the laboratory does not have at least one working sample to start testing, the **laboratory** shall immediately begin the return goods authorization process, order replacements, and inform EPA, via email, of the damage and expected new arrival date. If at least one of the samples is in working order but other(s) are damaged, then the laboratory shall commence testing on sample one and begin the return goods authorization process and order replacements for the other sample(s).
- 3) The **manufacturer is responsible for the laboratory procuring the correct product**. It is recommended that the manufacturer stay in frequent communication with the laboratory to make sure the model procured by the laboratory is the model selected by EPA.
- a. EPA is aware that there may be times when multiple versions of the same model available in the market are built to different versions of the ENERGY STAR for Residential Light Fixture specification. Upon receipt of the samples, the **laboratory** shall confirm with the manufacturer the date the product was manufactured and inform EPA, via email, of this date.

Refer to NVLAP Handbook 150 (2001 Edition) – Procedures and General Requirements, section 5.7, for further guidelines on sampling procedures.

Section 4: Laboratory Sample Receiving and Handling
(Follow the procedures described in the NVLAP NIST Handbook 150-1 and the steps described below)

4.1 Reviewing Manufacturer Requirements and Accepting Work Orders.

The **laboratory** is responsible for proper receiving and handling in accordance with NVLAP procedures; the **manufacturer** is responsible for meeting all testing and reporting deadlines to EPA.

- 1) The laboratory will receive “Test Request” or “Purchase Order” from manufacturer (via email, fax, or letter) for ENERGY STAR QA testing.
- 2) The laboratory shall disclose to the manufacturer any pending staff changes, plans to relocate facilities, or capacity issues.
- 3) **Qualified laboratory staff shall review purchase order** for completeness and assure the following:
 - a. The testing requirements, including the methods to be used, are adequately defined, documented and understood.
 - b. The lab has the capability and resources (personnel, space, and time) to meet the testing and schedule requirements.
- 4) If the lab determines that they do not have the capability and/or resources to meet the requirements or schedule, the laboratory shall immediately notify the manufacturer and EPA.
- 5) Any changes to the purchase order after the initial agreement with the laboratory shall be submitted by the manufacturer using a revised purchase order. This revised purchase order is subject to the same review process. In addition, EPA must be informed of any changes.

4.2 Receiving and Sample Identification

- 1) Upon receiving the samples, the **laboratory** shall immediately place identification labels (stickers) on the lamp, ballast, fixture, accessories, product box/packaging, warranty, and any additional hardware or materials sent with the product.
 - a. The identification labels shall contain a number that used to indicate the product model *and* a number used to identify the sample number. For example, 18476-1, 18476-2, 18476-3, (model number – sample number).
 - b. The laboratory shall have enough preprinted labels for each sample to place on the lamp, ballast, fixture, accessories, product box/packaging, warranty, etc.
- 2) Upon receipt of the three (3) fixture samples, qualified laboratory staff shall inspect the model numbers and confirm with the manufacturer that they are the same fixtures as on the Purchase Order *and* the same fixtures for which EPA requested QA testing.
 - a. Prior to testing the laboratory shall confirm with the manufacturer that the correct model number was received, and confirm that the model received was manufactured on or after the effective date of the current ENERGY STAR for RLF specification. Manufacturers may use date-coding on the product to determine when the product was manufactured.
 - b. If the wrong fixture was received by the laboratory,
 - i. **Manufacturer and laboratory** shall notify EPA immediately.
 - ii. The **manufacturer** is responsible for the laboratory procuring the correct model.
 - iii. If necessary, the manufacturer shall propose corrective action, subject to EPA approval. No extensions in testing timeline requirements will be granted.
 - c. If testing has commenced on the wrong fixture
 - i. **Manufacturer and laboratory** shall notify EPA immediately if testing has commenced on the wrong fixture.

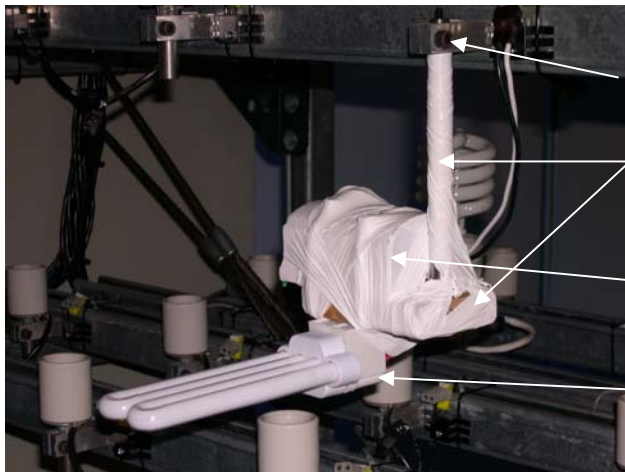
- ii. **Manufacturer** is responsible for testing the correct product and meeting all deadlines and deliverables and shall closely coordinate with the laboratory in real time.
 - iii. If necessary, the manufacturer shall propose corrective action, subject to EPA approval. No extensions in testing timeline requirements will be granted.
- 3) Laboratory shall inspect the samples for any abnormalities, which may render the sample unsuitable for testing. If the sample is unsuitable for testing, the laboratory shall notify the manufacturer and EPA before proceeding.
- 4) Fixture samples shall be placed in individual bubble-wrap bags in an organized and orderly manner to facilitate easy identification and selection during the testing process. Alternatively, the laboratory may place/store the fixtures to original product packaging should they deem the packaging sufficient protection from damage that would impact test results.
- 5) Samples shall be stored in conditions that do not affect the specifications of the product. The sample and all packaging materials shall be stored and accessible for the entire testing process.
 - a. The areas where test fixtures are stored shall not have unusual or harsh environmental conditions and shall be a secure location only accessible to authorized laboratory personnel.
- 6) Copies of the testing request Purchase Order form shall accompany each of the samples through the testing process to ensure requirements are accurately and completely communicated.
- 7) At the manufacturer's expense, all hardware and packaging of all samples shall be retained by the laboratory for a minimum of 12 months after testing is complete and the final report is submitted to EPA.
 - a. The manufacturer may elect to direct the laboratory to properly dispose of the samples and therefore avoid the 12-month storage costs. However, taking this action negates the manufacturer's ability to contest the test results. Further, the manufacturer shall send a written communication to EPA and the laboratory indicating that it does not wish to contest the results and is authorizing the lab to dispose of samples.
- 8) Upon testing completion, the laboratory is required to take adequate measures to make sure that at the end of the 12-month storage period (or at the manufacturer elected time), all samples and packaging are disposed of in an environmentally responsible manner that at least meets federal, state and local disposal laws.

4.3 Sample Preparation

- 1) A visual inspection on all 3 samples of the fixture packaging and lamp labeling is required by the laboratory to determine if the product packaging and lamp labeling requirements are met. The laboratory shall refer to the latest version of the ENERGY STAR for Residential Lighting Fixture Eligibility Criteria (aka specification) for the current requirement.
- 2) The laboratory shall set up and run the Maximum Measured Ballast Case Temperature test prior to any disassembly of the fixture. Setup shall follow UL 1598, Section 11 (acceptable when the thermocouple is placed at the hot-spot location indicated by the ballast manufacturer) or as described in Appendix I of the LRC's Durability Testing method available at:
<http://www.lrc.rpi.edu/programs/lightingTransformation/pdf/durabilityTestingFinalReport.pdf>.

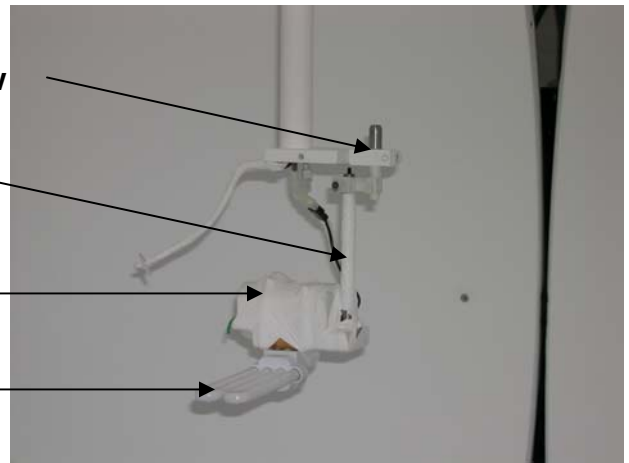
- 3) Laboratory personnel shall disassemble the sample and remove the ballast, socket, and lamp without damage to their individual components. Electrical connections shall be disconnected by lab personnel in a manner where they can be easily reconnected without any change in electrical current being supplied to the socket, ballast, and lamp.
- 4) Laboratory personnel shall note the designed lamp positioning and orientation inside the fixture (horizontal, vertical, or degree of tilt). The lamp orientation during the test shall be the same as the intended application or the manufacturer’s recommendation.
- 5) If the platform has a GU-24 base, the laboratory shall have GU-24 sockets or GU-24 adapters readily available on the testing and seasoning racks.
- 6) If the platform is a lamp and ballast that is hardwired into the fixture and does not contain a GU-24 base then the **laboratory shall construct a “Platform Holder”** to securely hold the lamp and ballast together during testing and on the seasoning racks.
 - a. The Platform Holder may be constructed of different materials but shall be capable of easily moving the platform and securing to the racks and testing equipment with minimal effort. A bar with a thumbscrew can be used to achieve this goal.
 - b. The platform may be secured to the platform holder with **white Teflon® tape**. This tape is highly reflective (minimizing light absorption during testing), strong, and easily removable.

Lamp/Ballast and Platform Holder on Seasoning Rack



Thumbscrew Attachment
 Platform Holder
 Ballast
 Lamp

Lamp/Ballast and Platform Holder in Integrating Sphere



- 7) Lamp bulbs shall be kept clean of finger prints and any kind of contamination that might interfere with lamp performance. Clean cloth gloves shall be worn by lab personnel when handling lamps for testing.
- 8) Laboratory personnel shall wipe the glass surface of the lamp with a clean soft cloth and alcohol to remove any oils or outside contamination. Dust and debris may be removed with “Dust Off” or a flow of clean air.

- 9) Laboratory personnel shall season all lamps prior to testing unless otherwise specified. Typically, discharge lamps need 100 hours. Refer to IES LM 54.
- 10) Laboratory personnel shall maintain the orientation of as it is moved from the aging rack to the testing equipment (e.g. Integrating Sphere). If orientation is disturbed, a pre-burn is required.

Section 5: Sample Testing and Reporting

- 1) Manufacturer shall commence testing and notify EPA of the test start date, via email, **no later than 71 days** from the date the manufacturer receives the EPA Notification Letter. Notification shall be sent to EPA within 24 hours of the testing start date.

Testing shall commence and the **manufacturer** must provide EPA the testing start date within **71 days** from the date the manufacturer receives the EPA Notification Letter.

- 2) **Manufacturer is responsible for the laboratory** providing results of the product packaging and lamp labeling inspection (positive or negative) directly to EPA via email **within 73 days** from the date the manufacturer receives the EPA Notification Letter. The laboratory shall also attach digital photograph files of the lamps and packaging to the email message to EPA.

Manufacturer shall have the laboratory provide EPA the lamp labeling inspection results within **73 days** from the date the manufacturer receives the EPA Notification Letter.

- 3) The laboratory shall begin performance parameter testing on only one of the samples procured, henceforth referred to as Sample One, in the following sequence³:
 1. Maximum Ballast Operating Case Temperature During Normal Operation Inside Fixture(s);
 2. ANSI or IEC Lamp Base;
 3. Efficacy;
 4. Color Rendering Index;
 5. Correlated Color Temperature;
 6. Lamp Start Time; and
 7. Lumen Maintenance.
- 4) Refer to the latest version of the ENERGY STAR for Residential Lighting Fixture Eligibility Criteria (a.k.a. the specification) for current testing requirements, including the standards and procedures.
 - a. The remaining two samples (Sample Two and Sample Three) will be tested only if Sample One fails.
- 5) **The manufacturer is responsible for the laboratory** sending all test results (except lumen maintenance) directly to EPA **within 92 days** from the date the manufacturer receives the EPA Notification Letter.
 - a. The laboratory shall use EPA’s QA Testing Report Form to report the test results. An electronic copy of this form

Manufacturer shall have the laboratory provide EPA the test results (except lumen maintenance) within **92 days** from the date the manufacturer receives the EPA Notification Letter.

³ Fixtures that are not required to ship with lamps per the ENERGY STAR Residential Lighting Fixtures specification must still complete testing for all listed performance parameters. The laboratory must purchase the lamps as indicated on/in the fixture packaging.

will be provided to the manufacturer with the EPA Notification Letter; the manufacturer shall forward this form to the selected test laboratory. See *Appendix A* for a sample.

- b. If test results for all tests for Sample One are positive, the laboratory shall inform EPA, via email, and continue with the Lumen Maintenance test to completion.
- c. If test results for any of the tests on Sample One are negative, the laboratory shall begin testing Samples Two and Three immediately. Repeat Step 3 onwards for BOTH Samples Two and Three.
 - i. The laboratory shall send notification to EPA, via email, of the performance parameter that failed, the date of failure, and the date that testing began on the other two fixtures. The laboratory shall send this notification **within two days** of the testing start date for Samples Two and Three.
 - ii. During QA testing, EPA shall allow a testing variance of plus or minus (+/-) 3 percent on efficacy and lumen maintenance to account for variability between NVLAP labs (e.g., an efficacy of 48.5 Lm/W would pass ENERGY STAR required level of 50 since this is 3 percent below the requirement).
 - iii. The laboratory shall continue testing Sample One to completion.
 - iv. A QA failure is when two or three Samples fail to meet the same informational or performance parameter of the ENERGY STAR specification.

6) Lumen Maintenance Test (1,000 hour)

- a. **Manufacturer shall have the laboratory directly send to EPA the 1,000-hour lumen maintenance test results within 148 days from the date the manufacturer receives the EPA Notification Letter.**
- b. Lumen maintenance shall be checked at 1,000 hours, regardless of rated lamp life to ensure that the lamp maintained at least 80 percent of its initial lumen output.
 - i. If test results for the 1,000 hour lumen maintenance check are positive, the laboratory shall inform EPA via email and continue the lumen maintenance test to completion.
 - ii. If test results for 1,000 hours of lumen maintenance are negative, then the laboratory shall continue with lumen maintenance test on Sample One to completion and begin testing Samples Two and Three immediately. The laboratory shall repeat steps 3 through 7 for BOTH Samples Two and Three. The laboratory shall send notification to EPA and manufacturer, via email, of the performance failure date and the date that testing began on the other two fixtures, **within two days** of the Sample Two and Three testing start date.

Manufacturer shall have the laboratory provide EPA 1,000-hour lumen maintenance test results within **148 days** from the date the manufacturer receives the EPA Notification Letter.

7) Lumen Maintenance Test (4,000 hour)

- a. **Manufacturer shall have the laboratory directly send to EPA the 4,000-hour lumen maintenance test results within 311 days from the date the manufacturer receives the EPA Notification Letter.**
- b. If results for the 4,000 hour lumen maintenance test are positive, the laboratory shall compile the final report with this and **all** other tests results and submit, by email, the final report to EPA **within 313 days** from the date the manufacturer receives the EPA Notification Letter (see *Section 6: Submission of Final Report [ALL Tests]*).

Manufacturer shall have the laboratory provide EPA 4,000-hour lumen maintenance test results within **311 days** from the date the manufacturer receives the EPA Notification Letter.

- c. If results for the 4,000 hour lumen maintenance test are negative, then the laboratory shall **immediately** repeat steps 3 and onward for BOTH Samples Two and Three. The lab shall send notification to EPA and manufacturer, via email, of the performance failure date and the date that testing began on the other two fixtures, **within two days** of the Sample Two and Three testing start date.

Section 6: Submission of Final Report (ALL Tests)

- 1) The laboratory shall complete all tests on sample one, including the lumen maintenance testing, **within 313 days** from the date the manufacturer receives the EPA Notification Letter.
- 2) **At time of laboratory retention, the manufacturer shall provide the laboratory with the EPA QA Testing Report Form (provided to the manufacturer with the EPA Notification Letter). The manufacturer is responsible for ensuring that the laboratory uses this form to submit results to EPA, via email, within 313 days from the date the manufacturer receives the EPA Notification Letter.**
- 3) Failure of the laboratory to submit the final report by the deadline will result in EPA immediately disqualifying the fixture and removal of the fixture from the ENERGY STAR Qualified Fixture List.
- 4) Failure of two or more fixtures to meet the same performance parameter of the ENERGY STAR specification results in a QA failure. The fixture model tested and related models, (same lamp/ballast platform) will be disqualified and removed from the ENERGY STAR Qualified Fixture List.
 - a. Fixtures that *are* required to ship with lamps per the Residential Light Fixtures Specification: the situation will be addressed under EPA’s Standard Operating Procedure for Performance Failures (*Appendix F*) and the model will be removed from the ENERGY STAR Qualified Product list as addressed under EPA’s Delisting Protocol.
 - b. Fixtures that *are not* required to ship with lamps per the Residential Light Fixtures Specification: the situation will be addressed under EPA’s Standard Operating Procedure for Underperforming Components (*Appendix G*), sections C and D, as appropriate. EPA, at its discretion, may additionally remove the fixture from the ENERGY STAR Qualified Product list as addressed under EPA’s Delisting Protocol.

Manufacturer shall have the laboratory provide EPA the FINAL test report within **313 days** from the date the manufacturer receives the EPA Notification Letter.

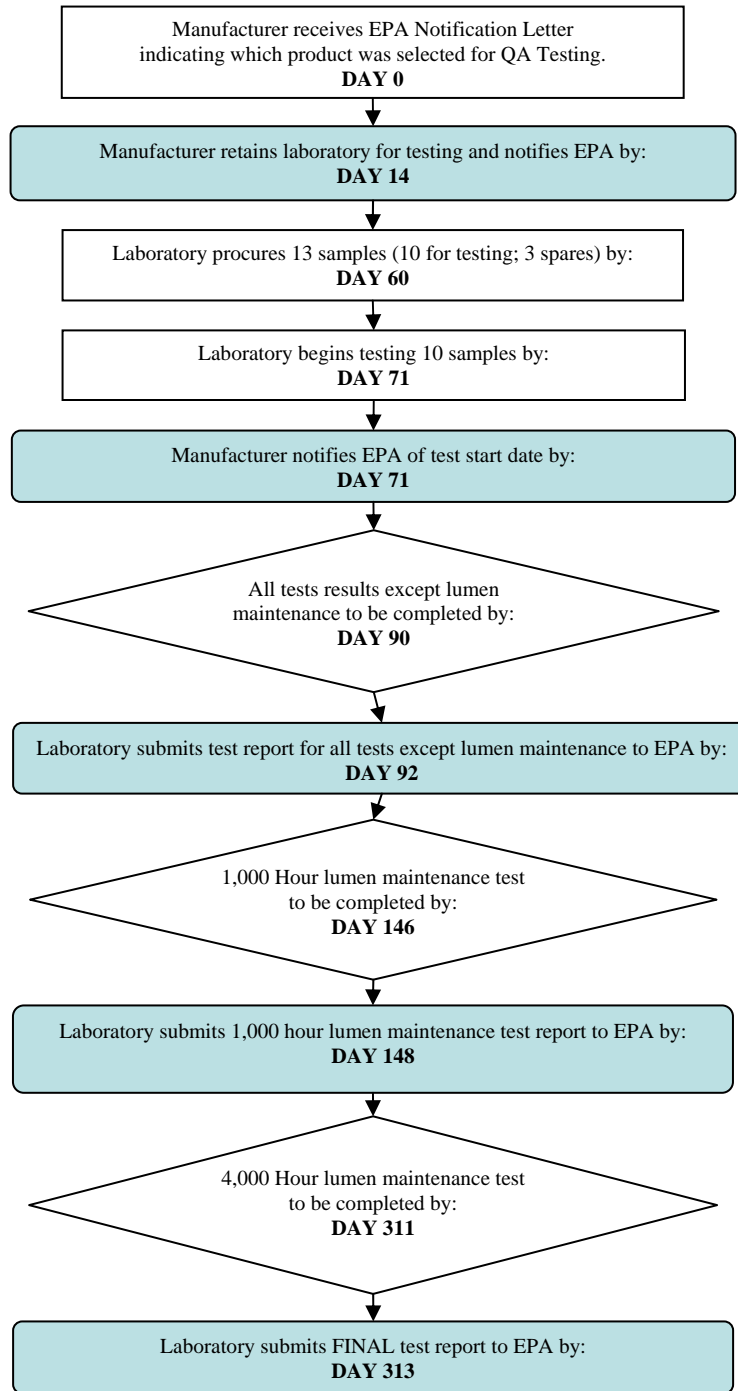
Section 7: Dispute Resolution

- 1) The manufacturer has the right to dispute the laboratory tests. If the disputed result(s) is a negative result of QA testing, the product will remain suspended (off of the Qualified Product list) while in dispute.
 - a. While in suspension EPA may decide not to consider or review any new fixtures using the same platform for ENERGY STAR qualification.
- 2) The manufacturer may submit a dispute for the following reasons:

- a. The manufacturer has evidence that the laboratory has misinterpreted the ENERGY STAR specifications by selecting inappropriate tests,
 - b. The manufacturer has evidence that the laboratory performed a test incorrectly,
 - c. The manufacturer has evidence that the laboratory contaminated the samples during testing, or
 - d. The manufacturer has evidence that the laboratory misinterpreted the results of a test.
- 3) The manufacturer 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 manufacturer loses the right to dispute the laboratory findings. The written dispute shall include:
- a. Clear reason for the dispute, and
 - b. Documentation supporting the dispute claim.
- 4) EPA will review the dispute within 30 days upon receipt of the dispute and respond with a decision that may include any of the following actions:
- a. Reject the dispute and uphold the laboratory findings,
 - b. Reverse the outcome and determine that the product passes QA testing, or
 - c. Find that the laboratory test results may be incorrect and give the manufacturer the option to conduct additional testing to prove the product is in compliance with ENERGY STAR. The manufacturer would be responsible for any additional testing fees.

**PART TWO: QUALITY ASSURANCE TESTING FOR
LAMP/BALLAST PLATFORMS**

***LAMP/BALLAST PLATFORM Quality Assurance Testing
General Summary of Milestones and Reporting Deadlines***



Platform (lamp and/or ballast) Manufacturer is responsible for the laboratory meeting all testing and reporting deadlines.

NOTE: Refer to the procedures on the following pages and QA Reporting Timeline in the QA Testing Reporting Form for complete details on deliverables and due dates.

Section 1: EPA Selection of Lamp/Ballast Platform Manufacturer

1) Product Selection

- a. The Environmental Protection Agency (EPA) may select products for Quality Assurance (QA) testing at any time, but it is anticipated that EPA will select products in batches twice a year.
 - i. Initial product (lamp and/or ballast) nomination begins with products recommended for testing by EPA, the Department of Energy (DOE), and Energy Efficiency Program Sponsors (EEPS).
 - ii. Additional products may be nominated by retailers, designers, homebuilders, manufacturers, or other industry stakeholders.
 - iii. Additional lamp/ballast platforms may be selected randomly from the ENERGY STAR Qualified Product list.
 - iv. List is rationalized by EPA.
 1. Remove duplicates (multiple private-label versions of the same product).
 2. Address burden on any particular manufacturer (no manufacturer will have more than 2 lamp/ballast platforms selected for QA testing per year).
 3. Eliminate products for any additional reasons, such as being discontinued by the manufacturer.
- b. EPA shall notify each manufacturer in writing that their product(s) is selected for QA testing and provide 14 days for the manufacturer to contract with a qualified third-party National Voluntary Laboratory Accreditation Program (NVLAP) accredited testing laboratory. The 14 days begins upon manufacturer receipt of the EPA Notification Letter as verified by express mail delivery notification. An example of the EPA Notification Letter is available in *Appendix C*.
- c. The qualified third-party NVLAP accredited testing lab shall purchase 13 platforms. Ten samples will be used in testing with three extra samples as spares in case of breakage during shipment.

Section 2: Manufacturer Selection of Testing Laboratory

- 1) The manufacturer shall retain a qualified third-party NVLAP accredited testing lab **within 14 days**⁴ of receipt of the EPA Notification Letter. EPA recommends that manufacturers establish task order agreements with one or more labs to expedite both initial qualification and QA testing. A list of NVLAP accredited testing labs is available in *Appendix D*.
 - a. The manufacturer shall authorize the laboratory to share all test data and results with EPA.
 - b. The laboratory shall not inform manufacturers where samples are purchased, but labs may, at their discretion, include the manufacturer in all other communications between the lab and EPA or EPA's contractor.
- 2) The manufacturer shall provide the laboratory the *Test Reporting Template* at time of laboratory retention. The manufacturer is responsible for ensuring that the laboratory uses this form to submit results to EPA, via email, within 313 calendar days from the date the manufacturer receives the EPA Notification Letter.

The **manufacturer** must retain a qualified third-party NVLAP accredited testing lab and notify EPA within **14 days** from the date of receipt of the EPA Notification Letter. The **manufacturer** must also provide the lab a list of locations and contact information where products can be purchased.

⁴ 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.

- a. EPA will provide the *Test Reporting Template*, including a customized “milestone” reporting calendar to the manufacturer upon manufacturer receipt of the EPA Notification Letter as verified by express mail delivery notification.
- 3) **The manufacturer is responsible for the lab meeting all deadlines, sending deliverables to EPA or their contractor within the allotted time, and providing accurate and complete reports. Failure by the lab or the manufacturer to meet the deadlines or provide accurate and complete reports may result in EPA immediately revoking platform letter or NEMA/ALA Lamp or Ballast Matrix listing for the lamp and/or ballast being tested.**
 - 4) The manufacturer shall notify EPA or their contractor, via email to RLF@icfi.com⁵, that a lab has been retained. Notification must be received by EPA **within 14 days** from the date of receipt of the EPA Notification Letter.
 - a. If the testing laboratory determines that it is necessary to issue a deposit invoice and receive payment prior to purchasing the samples, the lab shall inform EPA and the manufacturer immediately.
 - i. The notice from the lab to the manufacturer shall include a specific date that payment is due (no more than 30 days).
 - ii. The **manufacturer and lab** shall inform EPA, via email, of the date that payment is due and the date that payment is received.
 - iii. The **lab and manufacturer** shall notify EPA, via email, if payment is not received from the manufacturer within one day past the due date.
 1. EPA, at its discretion, may revoke that particular lamp and/or ballast. EPA will inform the manufacturer of its decision.
 - 5) If the manufacturer refuses to pay for QA testing, then EPA will revoke the manufacturer platform letter for the specific product selected for QA testing. This action will include, but not be limited to, sending a revocation letter to the manufacturer and notifying retailers and utilities that the product has been revoked.
 - a. The product is suspended until testing begins and will be automatically selected in next round of QA testing (approximately six [6] months).
 - b. If the manufacturer continues to refuse to pay for QA testing in next round, then all of its “pre-approved” platforms will be revoked for at least six (6) months and the platforms will not appear on the Website or GU24 matrix list (as applicable).
 - c. Fixture manufacturers using the platform shall be subject to delisting per the SOP in *Appendix E*.

Section 3: Laboratory Lamp/Ballast Platform Procurement and Sampling

- 1) The **laboratory** shall procure 13 samples of the lamp and/or ballast **within 60 days** from the date the manufacturer receives the EPA Notification Letter.
 - a. At time of laboratory retention, the **manufacturer** shall provide the laboratory a list of at least three (3) locations where the samples can be purchased.

The **laboratory** must procure samples within **60 days** from date the manufacturer receives the EPA Notification Letter.

⁵ In all cases throughout this document, unless otherwise indicated, the lab shall send all communications to EPA or their contractor at RLF@icfi.com. Any reference to sending deliverables to EPA shall be read to include EPA’s contractor.

- b. The laboratory shall procure 13 samples of the product from a retailer, E-tailer, or wholesaler. Walk-in, catalog mail order, or online purchases are acceptable. If product is not available through distribution, then it may be purchased manufacturer-direct (in this instance, the list of three locations of where to purchase the samples is not required).
 - c. When possible, the laboratory shall procure the samples from at least two retail or wholesale sources to acquire products from different manufacturing lots.
 - d. The laboratory shall require two-day shipping to ensure the receipt of the product in a timely manner and minimize the risk of lost or damaged samples.
 - e. **The laboratory shall purchase the product, but failure to meet the 60-day deadline is the responsibility of the manufacturer. The manufacturer shall be diligent in providing the laboratory an accurate list of locations where to purchase the product.**
- 2) The laboratory shall initiate procurement of samples of specified products from the open market.
- a. **Within 39 days** from date the manufacturer receives the EPA Notification Letter, the lab will immediately notify EPA via email if it is unable to locate samples on the open market.
 - i. If it is determined that the samples are not available through retail or distribution then the samples may be purchased manufacturer-direct.
 - b. If samples have been ordered, but have not arrived at the lab within the 60-day deadline or are damaged upon receipt, the **laboratory** shall notify EPA, via email, with the details of the cause of the delay.
 - i. If EPA does not receive detailed notification of lost or damaged samples, EPA may at its discretion begin revoking the lamp and/or ballast platform letter of approval. EPA will inform the manufacturer if such an action takes place.
 - ii. If the samples are damaged during shipment and the laboratory does not have 10 working samples to start testing, the **laboratory** shall immediately begin the return goods authorization process, order replacements, and inform EPA, via email, of the damage and expected new arrival date.
- 3) The **manufacturer is responsible for the laboratory procuring the correct product**. It is recommended that the manufacturer stay in frequent communication with the laboratory to make sure the model procured by the laboratory is the model selected by EPA.
- a. EPA is aware that there may be times when multiple versions of the same model available in the market are built to different versions of the ENERGY STAR for Residential Light Fixture specification. Upon receipt of the samples, the **laboratory** shall confirm with the manufacturer the date the product was manufactured and inform EPA, via email, of this date.

Refer to NVLAP Handbook 150 (2001 Edition) – Procedures and General Requirements, section 5.7, for further guidelines on sampling procedures.

Section 4: Laboratory Sample Receiving and Handling

(Follow the procedures described in the NVLAP NIST Handbook 150-1, as applicable, and the steps described below)

4.1 Reviewing Manufacturer Requirements and Accepting Work Orders.

The **laboratory** is responsible for proper receiving and handling in accordance with NVLAP procedures; the **manufacturer** is responsible for meeting all testing and reporting deadlines to EPA.

- 1) The laboratory will receive “Test Request” or “Purchase Order” from manufacturer (via email, fax, or letter) for ENERGY STAR QA testing.
- 2) The laboratory shall disclose to the manufacturer any pending staff changes, plans to relocate facilities, or capacity issues.
- 3) **Qualified laboratory staff shall review purchase order** for completeness and assure the following:
 - a. The testing requirements, including the methods to be used, are adequately defined, documented and understood.
 - b. The lab has the capability and resources (personnel, space, and time) to meet the testing requirements and schedule.
- 4) If the lab determines that it does not have the capability and/or resources to meet the requirements or schedule, the laboratory shall immediately notify the manufacturer and EPA.
- 5) Any changes to the purchase order after the initial agreement with the laboratory shall be submitted by the manufacturer using a revised purchase order. This revised purchase order is subject to the same review process. In addition, EPA must be informed of any changes.

4.2 Receiving and Sample Identification

- 1) Upon receiving the samples, the **laboratory shall** immediately place identification labels (stickers) on the lamp, ballast, accessories, product box/packaging, warranty, and any additional hardware or materials sent with the product.
 - a. The identification labels shall contain a number that used to indicate the product model *and* a number used to identify the sample number. For example, 18476-1, 18476-2, 18476-3, (model number – sample number).
 - b. The laboratory shall have enough preprinted labels for each sample to place on the lamp, ballast, fixture, accessories, product box/packaging, warranty, etc.
- 2) Upon receipt of the 13 samples, qualified laboratory staff shall inspect the model numbers and confirm with the manufacturer that they are the same as the lamp and/or ballasts on the Purchase Order *and* the same as the lamp and/or ballasts for which EPA requested QA testing.
 - a. Prior to testing, the laboratory shall confirm with the manufacturer that the correct model number was received, and confirm that the model received was manufactured on or after the effective date of the current ENERGY STAR for RLF specification. Manufacturers may use date-coding on the product to determine when the product was manufactured.
 - b. If the wrong model was received by the laboratory,
 - i. **Manufacturer and laboratory** shall notify EPA immediately.
 - ii. The **manufacturer is responsible** for the laboratory procuring the correct model.
 - iii. If necessary, the **manufacturer** shall propose corrective action, subject to EPA approval. No extensions in testing timeline requirements will be granted.
 - c. If testing has commenced on the wrong lamp and/or ballast,
 - i. **Manufacturer and laboratory shall notify EPA** immediately if testing has commenced on the wrong lamp and/or ballast.

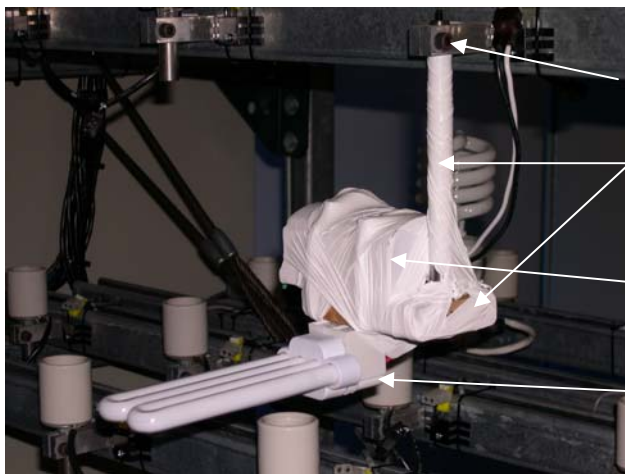
- ii. **Manufacturer is responsible** for testing the correct product and meeting all deadlines and deliverables and shall closely coordinate with the laboratory in real time.
 - iii. If necessary, the **manufacturer** shall propose corrective action, subject to EPA approval. No extensions in testing timeline requirements will be granted.
- 3) Laboratory shall inspect the samples for any abnormalities, which may render the sample unsuitable for testing. If the sample is unsuitable for testing, the laboratory shall contact the manufacturer and EPA before proceeding.
- 4) Platform samples shall be placed in individual bubble-wrap bags in an organized and orderly manner to facilitate easy identification and selection during the testing process. Alternatively, the laboratory may place/store the fixtures to original product packaging should they deem the packaging sufficient protection from damage that would impact test results.
- 5) Samples shall be stored in conditions that do not affect the specifications of the product. The sample and all packaging materials shall be stored and accessible for the entire testing process.
 - a. The areas where the samples are stored shall not have unusual or harsh environmental conditions and shall be secure locations only accessible to authorized laboratory personnel.
- 6) Copies of the testing request Purchase Order form shall accompany each of the samples through the testing process to ensure requirements are accurately and completely communicated.
- 7) At the manufacturer's expense, all hardware and packaging of all samples shall be retained by the laboratory for a minimum of 12 months after testing is complete and the final report is submitted to EPA.
 - a. The manufacturer may elect to direct the laboratory to properly dispose of the samples and therefore avoid the 12-month storage costs. However, taking this action negates the manufacturer's ability to contest the test results. Further, the manufacturer shall send a written communication to EPA and the laboratory indicating that it does not wish to contest the results and is authorizing the lab to dispose of samples.
- 8) Upon testing completion, the laboratory is required to take adequate measures to make sure that at the end of the 12-month storage period (or at the manufacturer elected time), all samples and packaging are disposed of in an environmentally responsible manner that at least meets federal, state and local disposal laws.

4.3. Sample Preparation

- 1) For each sample, a complete visual inspection of the lamp is required by the laboratory to determine if the lamp labeling requirement is met. The laboratory shall refer to the latest version of the ENERGY STAR for Residential Lighting Fixture Eligibility Criteria (aka specification) for the current requirement.
- 2) If the platform sample has a GU-24 base, the laboratory shall have GU-24 sockets or GU-24 adapters readily available on the testing and seasoning racks.

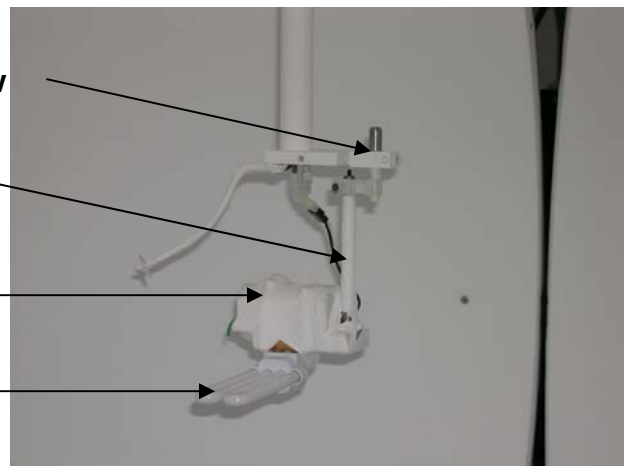
- 3) If the platform sample is a lamp and ballast that is hardwired into the fixture and does not contain a GU-24 base then the **laboratory shall construct a “Platform Holder”** to securely hold the lamp and ballast together during testing and on the seasoning racks.
 - a. The Platform Holder may be constructed of different materials, but shall be capable of easily moving the platform and securing to the racks and testing equipment with minimal effort. A bar with a thumbscrew may be used to achieve this goal.
 - b. The platform may be secured to the platform holder with **white Teflon® tape**. This tape is highly reflective (minimizing light absorption during testing), strong, and easily removable.

Lamp/Ballast and Platform Holder on Seasoning Rack



Thumbscrew Attachment
Platform Holder
Ballast
Lamp

Lamp/Ballast and Platform Holder in Integrating Sphere



- 3) Lamp bulbs shall be kept clean of finger prints and any kind of contamination that might interfere with lamp performance. Clean cloth gloves shall be worn when handling lamps for testing.
- 4) The glass surface of the lamp shall be wiped with a clean soft cloth and alcohol to remove any oils or outside contamination. Dust and debris may be removed with “Dust Off” or a flow of clean air.
- 5) All lamps shall be seasoned prior to testing unless otherwise specified. Typically, discharge lamps need 100 hours. Refer to IES LM 54.
- 6) The orientation of lamps shall be maintained as they are moved from the aging rack to the testing equipment (e.g., Integrating Sphere). If orientation is disturbed, a pre-burn is required.

Section 5: Sample Testing and Reporting

- 1) Manufacturer shall notify EPA, via email, the date that testing begins **no later than 71 days** from the date the manufacturer receives the EPA Notification Letter. Notification shall be sent to EPA within 24 hours of the testing start date.
 - a. **The laboratory shall test all ten samples simultaneously.**

Testing shall commence and the **manufacturer** shall provide EPA the testing start date within **71 days** from the date the manufacturer receives the EPA Notification Letter.

2) **Manufacturer is responsible for the laboratory** providing results of the lamp labeling inspection (positive or negative) directly to EPA via email **within 73 days** from the date the manufacturer receives the EPA Notification Letter. The laboratory shall also attach digital photographs of the lamps and packaging to the email message to EPA.

Manufacturer shall have the laboratory provide EPA the lamp labeling inspection results within **73 days** from the date the manufacturer receives the EPA Notification Letter.

3) Begin performance parameter testing on all ten samples in the following sequence:

1. ANSI or IEC Lamp Base;
2. Efficacy;
3. Color Rendering Index;
4. Correlated Color Temperature;
5. Lamp Start Time; and
6. Lumen Maintenance.

4) Refer to the latest version of the ENERGY STAR for Residential Lighting Fixture Eligibility Criteria (a.k.a. the specification) for current testing requirements, including the standards and procedures.

5) **Manufacturer is responsible for the laboratory** sending all test results (except lumen maintenance) directly to EPA **within 92 days** from the date the manufacturer receives the EPA Notification Letter.

Manufacturer shall have the laboratory provide EPA the test results (except lumen maintenance) within **92 days** from the date the manufacturer receives the EPA Notification Letter.

- a. The laboratory shall use EPA's QA Testing Report Form to report the test results. An electronic copy of this form will be provided to the manufacturer with the EPA Notification Letter; the manufacturer shall forward this form to the selected test laboratory. See *Appendix A* for a sample.
- b. If test results for all ten samples are positive, the laboratory shall inform EPA via email and continue with the lumen maintenance test to completion.
- c. If test results for any of the ten samples tested are negative, that laboratory shall inform EPA via email of the performance parameter that failed and the date of failure.
 - i. A "Failure" is when three out of ten samples fail to meet the same performance parameter of the ENERGY STAR Specification (e.g., three out of ten samples fail CRI).
 - ii. During QA testing, EPA shall allow a testing variance of plus or minus (+/-) 3 percent on efficacy and lumen maintenance to account for variability between NVLAP labs (e.g., an efficacy of 48.5 Lm/W would pass ENERGY STAR required level of 50 since this is 3 percent below the requirement).

6) Lumen Maintenance Test (1,000 hour)

- a. **Manufacturer shall have the laboratory directly send to EPA the 1,000-hour lumen maintenance test results within 148 days from the date the manufacturer receives the EPA Notification Letter.**

Manufacturer shall have the laboratory provide EPA 1,000-hour lumen maintenance test results within **148 days** from the date the manufacturer receives the EPA Notification Letter.

- b. Lumen maintenance shall be checked at 1,000 hours, regardless of rated lamp life to ensure that the lamp maintained at least 80 percent of its initial lumen output.
 - i. If test results for the 1,000 hour lumen maintenance check are positive, the laboratory shall inform EPA via email and continue the lumen maintenance test to completion.
 - ii. If test results for the 1,000 hour lumen maintenance check are negative (three out of ten samples fail), the laboratory shall inform EPA via email and continue lumen maintenance test to completion.
- 7) Lumen Maintenance Test (4,000 hour)
- a. **Manufacturer shall have the laboratory directly send to EPA the 4,000-hour lumen maintenance test results within 311 days from the date the manufacturer receives the EPA Notification Letter.**
 - b. If results for the 4,000 hour lumen maintenance test are positive or negative, the laboratory shall compile the final report with this and **all** other tests results and submit, by email, the final report to EPA **within 313 days** from the date the manufacturer receives the EPA Notification Letter (see Section 6: *Submission of Final Report [ALL Tests]*).

Manufacturer shall have the laboratory provide EPA 4,000-hour lumen maintenance test results within **311 days** from the date the manufacturer receives the EPA Notification Letter.

Section 6: Submission of Final Report (ALL Tests)

- 1) The laboratory shall complete all tests, including the lumen maintenance testing, **within 313 days** from the date the manufacturer receives the EPA Notification Letter.
- 2) **At time of laboratory retention, the manufacturer shall provide the laboratory with the EPA QA Testing Report Form (provided to the manufacturer with the EPA Notification Letter). The manufacturer is responsible for ensuring that the laboratory uses this form to submit results to EPA, via email, within 313 days from the date the manufacturer receives the EPA Notification Letter.**
- 3) Failure of the laboratory to submit the final report by the deadline will result in EPA immediately revoking the platform letter of approval and/or removal of the platform from the NEMA/ALA matrix.
- 4) QA failure is when three out of ten Samples fail to meet the same performance parameter of the ENERGY STAR Specification. Upon such a failure, the platform (lamp, ballast, or lamp ballast combination) will be considered for corrective action, have its platform letter of approval revoked, and/or be removed from the NEMA/ALA matrix. The situation will be addressed under EPA’s Standard Operating Procedure (SOP) for Underperforming Components (*Appendix G*).

Manufacturer shall have the laboratory provide EPA the FINAL test report within **313 days** from the date the manufacturer receives the EPA Notification Letter.

Section 7: Dispute Resolution

- 1) The manufacturer has the right to dispute the laboratory tests. If the disputed result(s) is a negative result of QA testing, the product will remain suspended (off of the Qualified Product list) while in dispute.

- a. While in suspension:
 - i. EPA will not consider or review any new fixtures using the platform for ENERGY STAR qualification and
 - ii. Fixture manufacturers will be notified by EPA that the platform is currently in suspension and be provided with an expected final decision date.
- 2) The manufacturer may submit a dispute for the following reasons:
 - a. The manufacturer has evidence that the laboratory has misinterpreted the ENERGY STAR specifications by selecting inappropriate tests,
 - b. The manufacturer has evidence that the laboratory performed a test incorrectly,
 - c. The manufacturer has evidence that the laboratory contaminated the samples during testing, or
 - d. The manufacturer has evidence that the laboratory misinterpreted the results of a test.
- 3) The manufacturer 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 manufacturer loses the right to dispute the laboratory findings. The written dispute shall include:
 - a. Clear reason for the dispute, and
 - b. Documentation supporting the dispute claim.
- 4) EPA will review the dispute within 30 days upon receipt of the dispute and respond with a decision that may include any of the following actions:
 - a. Reject the dispute and uphold the laboratory findings,
 - b. Reverse the outcome and determine that the product passes QA testing, or
 - c. Find that the laboratory test results may be incorrect and give the manufacturer the option to conduct additional testing to prove the product is in compliance with ENERGY STAR. The manufacturer would be responsible for any additional testing fees.

Appendix A: Partial QA4 Reporting Template - Example

I. TEST RESULTS

EPA will provide an electronic copy of the QA4 reporting template to each manufacturer upon manufacturer receipt of the EPA Notification Letter as verified by express mail delivery notification. The template will be in Excel. It is the manufacturer's responsibility to make sure the laboratory uses the EPA template for

NVLAP Laboratory Information			
Laboratory Name			
Contact Name			
Phone Number			
Fax Number			
Mailing Address			
Email Address			
Date of Agreement between Laboratory and Manufacturer			
Date Samples Purchased			
Date Sample Testing Began			
Date Sample Testing Completed			
Lamp and/or Ballast Purchasing Information			
Purchase Date			
Purchase Location (city and state)			
Purchased from (Full Company Name)			
Lot Number and/or production date and/or other identifiers			
Consumer Information Parameters			
Lamp Labeling Information (pass/fail)			
Lamp & Ballast Information			
Platform Letter or NEMA/ALA Matrix Listing			
Number of Lamps/Ballast			
Individual Listed Lamp Wattage			
Lamp Type			
Lamp Size			
ANSI or IEC Lamp Base Type			
Lamp Manufacturer			
Lamp Model Number			
Ballast Manufacturer			
Ballast Model Number			
Target CCT (per lamp label)			
Test Results for Combined Lamp & Ballast Requirements			
Lamp & Ballast (Sample)	Luminous Flux (Lumens)	System Power (Watts)	System Efficacy
Sample 1			
Sample 2			
Sample 3			
Sample 4			
Sample 5			
Sample 6			
Sample 7			

APPENDIX B: Quality Assurance *FIXTURE* Notification Letter



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, the *ENERGY STAR*[®] Program Requirements for Residential Light Fixtures (RLF): Version 4.0 includes a Quality Assurance Testing System. The purpose of this letter is to notify you that the Environmental Protection Agency (EPA) has selected [company name] fixture model [XXX] for quality assurance testing.

Per the requirements of the Quality Assurance Testing System [company name] shall retain a qualified manufacturer-independent National Voluntary Laboratory Accreditation Program (NVLAP) accredited testing laboratory within **14 calendar days** of this notification (a list of NVLAP accredited, manufacturer-independent laboratories is provided below). [company name] shall authorize the laboratory to share all test data and results with EPA. The following performance parameters shall be tested and the following consumer information shall be verified:

Performance Parameters:

Efficacy

Correlated Color Temperature

ANSI or IEC Lamp Base Type

Maximum Ballast Operating Case Temperature

During Normal Operation Inside Fixture(s)

Lamp Start Time

Color Rendering Index (CRI)

Lumen Maintenance

Consumer Informational Parameters

Product Packaging

Lamp Labeling Information as written on the lamp or lamp base (manufacturer designation that encompasses the lamp manufacturer name, wattage, correlated color temperature, and CRI)

[company name] shall provide the laboratory a list of at least three (3) locations of where to purchase three (3) samples on the open market if possible, (walk-in, catalog mail order, or online purchases are acceptable) with ten sample used for testing.

The **laboratory** shall procure samples and begin testing **no later than 71 calendar days** from the date this EPA Notification Letter is received. If all performance parameters are met during initial testing, the second and third samples will not be tested, unless the first sample becomes damaged, fails one or more performance parameters, or is otherwise unavailable for testing. If two or three samples fail to meet the same informational or performance parameters of the *ENERGY STAR* specification, the model and related models, (same lamp/ballast platform) will be considered for corrective action or unqualified; the situation will be addressed under EPA's *Standard Operating Procedure for*

Performance Failures and the model may be removed from the ENERGY STAR Qualified Product list as addressed under EPA's *Delisting Protocol*. Both of these documents are included below.

In addition, [Company Name] is responsible for the lab meeting all deadlines, sending deliverables to EPA or their contractor within the allotted time, and providing accurate and complete reports as defined below *and* in the *Quality Assurance Testing Guidelines and Procedures Manual Version 2.0*. Failure by the lab to meet the deadlines or provide accurate and complete reports may result in EPA immediately disqualifying the fixture being tested.

[Company Name] shall complete the following NEXT STEPS:

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

1. **Within 14 calendar** days of this notification, commission a third-party, manufacturer-independent, NVLAP 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 count down.
2. Notify EPA, via email, the date that testing begins **within 71 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 (for all three samples) **within 73 calendar days** from this notification letter.
4. Instruct the laboratory to send all test results (except lumen maintenance) directly to EPA, via email, **within 92 calendar days** of this notification letter.
5. Instruct the laboratory to send the 1,000 hour lumen maintenance test results directly to EPA, via email, **within 148 calendar days** of this notification letter.
6. Instruct the laboratory to send the 4,000-hour lumen maintenance test results directly to EPA, via email, **within 311 calendar days** of this notification letter.
7. Instruct the laboratory to send the FINAL test report directly to EPA, via email, **within 313 calendar days** from the date of this notification letter.
8. If the first sample fails any performance parameter, instruct the laboratory to begin testing the second and third samples immediately. The laboratory shall immediately notify EPA via email with the exact date that second and third sample testing began. Testing shall be completed **within 240 calendar days** of the first sample failure.

Attached to this letter are *the Quality Assurance Testing Guidelines and Procedures Manual Version 2.0* and a *Test Report template*. Provide these documents to the manufacturer independent NVLAP accredited laboratory that is performing the tests. Instruct the laboratory to send all correspondence to EPA, via email to RLF@icfi.com.

Should you have any questions, please contact Bijit Kundu at bkundu@icfi.com. Your prompt and careful attention to this important matter is appreciated.

Sincerely,



Andrew Fanara, Manager
ENERGY STAR® Product Specification Development
U.S. EPA (MC6202J)
1200 Pennsylvania Ave., NW
Washington, DC 20460

APPENDIX C: Quality Assurance LAMP/BALLAST PLATFORM Notification Letter



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, the *ENERGY STAR*[®] Program Requirements for Residential Light Fixtures (RLF): Version 4.0 includes a Quality Assurance Testing System. The purpose of this letter is to notify you that the Environmental Protection Agency (EPA) has selected [company name] lamp/ballast model [XXX] for quality assurance testing.

Per the requirements of the Quality Assurance Testing System [company name] shall retain a qualified manufacturer-independent National Voluntary Laboratory Accreditation Program (NVLAP) accredited testing laboratory by **14 calendar days** of this notification (a list of NVLAP accredited, manufacturer-independent laboratories is provided below). [company name] shall authorize the laboratory to share all test data and results with EPA. The following performance parameters shall be tested and the following consumer information shall be verified:

Performance Parameters:

Efficacy

Correlated Color Temperature

ANSI or IEC Lamp Base Type

Lamp Start Time

Color Rendering Index (CRI)

Lumen Maintenance

Consumer Informational Parameters

Lamp Labeling Information as written on the lamp or lamp base (manufacturer designation that encompasses the lamp manufacturer name, wattage, correlated color temperature, and CRI)

[Company Name] shall provide the laboratory a list of at least three (3) locations of where to purchase thirteen (13) samples on the open market if possible, (walk-in, catalog mail order, or online purchases are acceptable) with ten sample used for testing.

The **laboratory** shall procure samples and begin testing, ten samples simultaneously, **no later than 71 calendar days** from the date this EPA Notification Letter is received. If three out of ten samples fail to meet the same informational or performance parameters of the ENERGY STAR specification, the platform will be considered for corrective action or unqualified; the situation will be addressed under EPA's *Standard Operating Procedure (SOP) for Underperforming Components (Lamps, Ballasts, or Drivers)*.

In addition, [Company Name] is responsible for the lab meeting all deadlines, sending deliverables to EPA or their contractor within the allotted time, and providing accurate and complete reports as defined below *and* in the *Quality*

Assurance Testing Guidelines and Procedures Manual Version 2.0. Failure by the lab to meet the deadlines or provide accurate and complete reports may result in EPA immediately revoking the platform being tested.

[Company Name] shall complete the following NEXT STEPS:

1. **Within 14 calendar** days of this notification, commission a third-party, manufacturer-independent, NVLAP 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 count down.
2. Notify EPA, via email, the date that testing begins **within 71 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 (for all three samples) **within 73 calendar days** from this notification letter.
4. Instruct the laboratory to send all test results (except lumen maintenance) directly to EPA, via email, **within 92 calendar days** of this notification letter.
5. Instruct the laboratory to send the 1,000 hour lumen maintenance test results directly to EPA, via email, **within 148 calendar days** of this notification letter.
6. Instruct the laboratory to send the 4,000-hour lumen maintenance test results directly to EPA, via email, **within 311 calendar days** of this notification letter.
7. Instruct the laboratory to send the FINAL test report directly to EPA, via email, **within 313 calendar days** from the date of this notification letter.

Attached with this letter is the *Quality Assurance Testing Guidelines and Procedures Manual Version 2.0*. EPA will email the *Test Reporting Template*, including a customized “milestone” reporting calendar, to [Company Name] upon receipt of this Notification Letter as verified by express mail delivery notification. Please provide these documents to the manufacturer-independent NVLAP accredited laboratory that is performing the tests. Instruct the laboratory to send all correspondence to EPA, via email to RLF@icfi.com.

Should you have any questions, please contact Bijit Kundu at bkundu@icfi.com. Your prompt and careful attention to this important matter is appreciated.

Sincerely,



Andrew Fanara, Manager
ENERGY STAR® Product Specification Development
U.S. EPA (MC6202J)
1200 Pennsylvania Ave., NW
Washington, DC 20460

APPENDIX D: Manufacturer-Independent NVLAP Accredited Laboratories

(Check www.nist.gov/nvlap or call (301) 975-4016 for any updates)

<p>Aurora International Testing Laboratory Joe Marella Laboratory Manager 300 Lena Drive Aurora, OH 44202 330-995-1335 330-995-1343 (fax) jmarella@aitesting.com</p>	<p>Bay Area Compliance Laboratories Corp. (BACL) Mavin Lin Project Coordinator 1274 Anvilwood Avenue Sunnyvale, CA 94089 408-732-9164 (fax) bacl.regulatory@baclcorp.com</p>
<p>CSA International Tim Gentry, CSA International 2210 Justin Trail Alpharetta, GA 30004 678-992-0134 770-500-3948 (fax) Tim.Gentry@CSA-International.org</p>	<p>Intertek ETL SEMKO Todd A. Straka Business Manager Lighting & Cabling Products 3933 U.S. Route 11 Cortland, NY 13045 607-758-6280 607-758-6637 (fax) todd.straka@intertek.com</p>
<p>Underwriters Laboratories Inc. Juan M. Caamano, Jr. 1285 Walt Whitman Road Melville, NY 11747-3081 631-271-6200 x22752 631-439-6190 (fax) Juan.m.caamanojr@us.ul.com</p>	<p>National Lighting Test Centre (NLTC) Jayond Lee NO.A3, Changpocun Dabeiyaoyao, Chaoyang District Beijing, China 100022 010-67704230/40/50/60-410 010-67704260-11 (fax) jayond@nlte.cn</p>

APPENDIX E: Fixture Delisting Process

Background

Any ENERGY STAR program change may lead to confusion due to the carryover of ENERGY STAR qualified inventory that does not meet the new specification/enforcement criteria. But, much of this can be avoided through advanced notification and preparation. Since EPA's Residential Light Fixture Specification, Version 4.0, Quality Assurance testing, and Challenge testing efforts will be conducted on an ongoing basis, it is important to devise a procedure for removing unqualified models from the ENERGY STAR Web site that balances the need to enforce the ENERGY STAR specification with minimizing customer confusion and disruption to the marketplace.

With valuable input from partners, EPA has established the following protocol as a way to inform retail and utility/state/regional partners (Energy Efficiency Program Sponsors or EEPS) of the de-listing determination and notification process. Part I describes the procedure for determining which models will be de-listed and associated timelines. Part II focuses on how the changes will impact the Web site at www.energystar.gov.

Note: EPA has established a Standard Operating Procedure (SOP) for manufacturers to follow when the ENERGY STAR qualification status is called into question; the SOP is available in *Appendix F*. The protocol below describes the steps that EPA will take after all options defined in the SOP are exhausted.

Part I. Procedure for Product that Fails to Meet Performance Parameters or Consumer Informational Parameters

- 1) If manufacturer or laboratory supplied information, submitted according to previously defined Standard Operating Procedures, that is either:
 - a) Complete, but indicates the product does not meet the required performance threshold;
Or
 - b) Insufficient to determine whether the product meets the required performance threshold;
Or
 - c) Manufacturer(s) fail to respond to EPA request for additional documentation or testing;

Then:

EPA will send written notification to the manufacturing partner stating that their product is no longer ENERGY STAR qualified, and will be removed from the ENERGY STAR Qualified Product List on the Web in **30 days**.

Note: Information supplied to EPA by third parties (such as a consumer) will be handled on a case-by-case basis.

- 2) While this follow-up is conducted with manufacturers, EPA simultaneously notifies retail partners and EEPS in writing that the product in question is considered “unqualified,” and will be “de-listed” from the ENERGY STAR Web site in 30 days. EPA will consolidate individual notices into one written letter if multiple products are deemed unqualified at the same time. (“Unqualified” Product – Product does not meet the current ENERGY STAR program requirements/specification. “De-listed” Product – Product does not meet the current ENERGY STAR specification, and does not appear on the current ENERGY STAR qualified product Web list.)
- 3) At the end of the 30-day time period, products described in sections 1a through 1c above will be “de-listed” from the ENERGY STAR Web site for a **minimum of six (6) months**. The affected manufacturer and all

retail, wholesale and EEPS partners will be sent written notices of this product de-listing immediately. The notice sent to the manufacturer will contain language to the effect: “Only those products that meet ENERGY STAR specification can bear the ENERGY STAR label. Therefore, manufacturers must cease labeling unqualified product immediately and cease shipment of already labeled product within 30 days.”

- 3a) at any time before or after the six-month de-listing period partner may resubmit products for re-qualification. However, products will not be re-listed until after the six-month time period is complete.
- 4) Starting from the time the de-listing notification (described in step 3 above) is received by retail and wholesale partners and EEPS, existing stock marked ENERGY STAR is allowed **six (6) months** to sell through from retail and wholesale inventories. This provides six months of continued sales to customers to eliminate existing inventories. EPA understands that EEPS at their own discretion will decide whether to fulfill rebate requests on ENERGY STAR marked models in retail outlets that are no longer listed on the ENERGY STAR Web site. At the end of the six months, retailers and wholesalers are to cover the ENERGY STAR label on any unqualified product they still wish to sell.
- 5) If a manufacturing partner chooses to continue to distribute the de-listed product to the market, EPA will remind the manufacturer that the ENERGY STAR cannot be associated with “unqualified” products, and the ENERGY STAR mark must be removed from existing stock and product literature immediately. EPA will further remind the manufacturer that ENERGY STAR is a registered trademark of EPA and will direct them to the ENERGY STAR Identity Guidelines. EPA reserves the right to terminate the ENERGY STAR Partnership if the manufacturing partner is found to be in clear violation of the current specification or is promoting “unqualified” product as ENERGY STAR.

Part II. Procedure for How the De -Listings will be Portrayed on the Web site:

- 1) Only those products that meet the current RLF Specification can appear on the qualified product list on the ENERGY STAR Web site.
- 2) Unqualified products will be posted on the ENERGY STAR Web site along with manufacturer name, model number, date of de-listing, and a standardized note explaining why the product was de-listed. (e.g., "Retired Product - Removed from Web site per manufacturer request" or "Unqualified Product - Removed from Web site due to failure to meet ENERGY STAR specification.")

Questions about this Protocol can be directed to Peter Banwell, Energy Star Marketing Team Manager, at banwell.peter@epa.gov.

APPENDIX F: Standard Operating Procedure for Performance Failures Supported by Laboratory Test Documentation

Purpose:

This Standard Operating Procedure (SOP) will cover ENERGY STAR qualified Residential Light Fixture (RLF) third party performance complaints that are supported with testing documentation conducted by a manufacturer-independent, NVLAP accredited laboratory. This SOP covers *Quality Assurance Testing and Challenge Testing* per the RLF 4.0 specification.

Definitions:

Unqualified Product – Product does not meet the current ENERGY STAR program requirements/specification.

De-listed Product – Product does not meet the current ENERGY STAR specification, and does not appear on the current ENERGY STAR qualified product Web list

Third Party: Any organization other than EPA, DOE, or one of their contractors. Third parties include utilities, energy efficiency program sponsors, energy efficiency program administrators, manufacturers, and retailers.

SOP:

1. Review and compare the laboratory test results with product information already submitted by the ENERGY STAR manufacturer within five days of receiving testing documentation.
 - Obtain clarification on the data, test results, and testing methods from the third party source, if necessary.
 - Develop a summary of non-compliance issues for internal ICF/EPA review.
2. Within ten days of receiving testing documentation, provide written notification to manufacturer, delivered via FedEx, indicating that tested products failed the ENERGY STAR performance requirements for Residential Light Fixtures (RLF): Version 4.0 and will be unqualified and de-listed from the ENERGY STAR RLF Qualified Products List for a minimum of six months so the partner can make necessary improvements to the products. This notification will also include the following:
 - Direction to the manufacturer to supply, in writing, a corrective action plan within five business days.
 - The notice sent to the manufacturer will contain language to the effect: “Only those products that meet ENERGY STAR specification can bear the ENERGY STAR label. Therefore, manufacturers must cease labeling unqualified product immediately and cease shipment of already labeled product within 30 days.”
 - At any time manufacturer may resubmit products for re-qualification. However, products will not be re-listed until the corrective action plan is submitted and approved and the six-month time period is complete.

3. Upon receipt of corrective action plan send manufacturer confirmation of receipt via email. Review corrective action plan within five business days. If necessary contact manufacturer for clarification.
- 3a. If manufacturer does not submit the corrective action plan by day five, contact the manufacturer via email and telephone to determine why they have not responded. Provide two additional days for manufacturer to submit corrective action plan.
 - If manufacturer continues to fail to respond after the two day period, inform them in writing, delivered via FedEx, that the product(s) will be removed from the ENERGY STAR Web site indefinitely.
4. The additional product information and testing documentation submitted by the partner is reviewed for compliance within 5 business days from the date of receipt of documentation.
 - If additional documentation is approved the product will be re-qualified and re-listed at the end of the six month delisting period.
 - In the event that significant concerns remain, products will remain de-listed until the partner can make necessary improvements to the products.
5. Partners whose products are repeatedly found to be in violation of the specification will be terminated from the ENERGY STAR program.

APPENDIX G: Standard Operating Procedure (SOP) for Underperforming Components (Lamps, Ballasts, or Drivers)

This SOP is broken into four sections that address the following:

- A. Procedure for reviewing underperforming Platform Letters and NEMA/ALA Matrix Listings
- B. Procedure for fixture submittals that are under review for ENERGY STAR Qualification that use an underperforming Platform Letter or NEMA/ALA Matrix Listing
- C. Procedure for ENERGY STAR *qualified* fixtures that use an underperforming Component
- D. Procedure for Fixture Manufacturers using a lamp or power supply that fails EPA directed “off-the-shelf” testing

Definitions:

Component – A lamp, power supply (ballast, driver, etc), or lamp and power supply platform supported by an ENERGY STAR Platform Letter, listed on the NEMA/ALA Matrices, or both. When capitalized, this refers to the component in question.

Component manufacturer – Manufacturer of the component being investigated under the terms of this document.

Fixture manufacturer – Manufacturer of RLF product using the Component in question.

“Third-Party” – Any organization other than EPA, DOE, or one of their contractors. Third parties include utilities, energy efficiency program sponsors, energy efficiency program administrators, manufacturers, and retailers. “Third-Party” in capital letters will be used to denote the party bringing the challenge to EPA’s attention.

A. Procedure for reviewing underperforming Platform Letters and NEMA/ALA Matrix Listings

A.1 Information Gathering and Fact Checking

- A.1.1 ICF receives test data from a Third-Party who tested the Component .
- A.1.2 ICF reviews and compares the Third-Party’s data or test results against the Component manufacturer’s Component information on file.
- A.1.3 ICF develops a summary of non-compliance issues for internal ICF/EPA review.
- A.1.4 ICF obtains clarification on the data, test results, and testing methods from the Third-Party, if necessary.
- A.1.5 Determine if the Third-Party has contacted the Component manufacturer.
 - a. If the Third-Party is a neutral source, ICF contacts the source to verify that the Component manufacturer has or has not been contacted and informed of the non-compliance issues and any applicable test results.
 - b. If the Third-Party is a competitor to the Component manufacturer, the Third-Party will remain anonymous.

- A.1.6 Determine if the Component(s) tested is technologically the same component that is currently listed on the EPA Platform Letter or NEMA/ALA Matrices. If possible obtain the Component date code.
- a. If the Component tested was “listed” under a previous version of the ENERGY STAR specification AND the Component manufacturer has provided updated information and received a new Platform Letter of Qualification, then EPA requires the Component manufacturer to provide information on the last date of sale (to fixture manufacturers or other mid-market stakeholder) of the old platform. Unless directed by EPA, the platform will not be removed from the ENERGY STAR website and/or NEMA/ALA Matrix.
 - b. If the Component tested is identified as technologically the same as what is listed on a current version of an EPA Platform Letter or NEMA/ALA Matrix, then ICF will continue the process as outlined in section A.2 below.
- A.1.7 If the information received is from a manufacturer-independent NVLAP accredited lab, and upon EPA approval, ICF will remove the platform letter from the ENERGY STAR Web site and will request that NEMA/ALA remove the failed unit from the NEMA/ALA lamp or ballast matrix.

A.2 Component Manufacturer Notification and Corrective Action Plan Request

- A.2.1 EPA/ICF contacts the Component manufacturer in writing to communicate the identified discrepancy and inform them if the platform letter and/or matrix listing has been removed.
- A.2.2 In addition, ICF requests a Corrective Action Plan detailing the failure cause and what steps the Component manufacturer will take to correct the failure.
- a. The Corrective Action Plan is due to ICF within thirty (30) calendar days from the date on the letter requesting the information.
 - b. If the Component manufacturer fails to confirm receipt of the notification by day fifteen (15), an attempt will be made via telephone to communicate that the 30-day deadline is approaching and to encourage submittal of the required data.
 - c. Additionally, the Component manufacturer will be notified that ICF/EPA will contact all fixture manufacturer(s) utilizing the Components in question. ICF/EPA will notify the fixture manufacturer of the platform issue on the fifth (5th) business day after the Component manufacturer notification. This will allow the Component manufacturer an opportunity to alert the fixture manufacturer prior to the ICF/EPA notification and present alternate solutions.
- A.2.3 The Corrective Action Plan and any additional Component information submitted by the Component manufacturer (including testing documentation) will be reviewed for compliance by ICF within five (5) business days upon receipt of documentation.
- A.2.4 ICF provides recommended next steps to EPA.

A.3 Actions taken if the Corrective Action Resolves the Issue:

- A.3.1 Inform the Component manufacturer, in writing via e-mail, that the matter is resolved.

- A.3.2 If appropriate, re-post the platform letter to the ENERGY STAR Web and/or listings on the NEMA ALA lamp or ballast matrix.
- A.3.3 Inform fixture manufacturers *using the Component* that the issue is resolved and no further actions are required of the Component manufacturer. ***Other fixture manufacturers may also be notified at EPA/ICF’s discretion.*** This information can be conveyed in writing or via phone conversation.

A.4 Actions taken if significant concerns remain: *(The following process will help ensure that the Component manufacturer does not pre-select Component samples for testing that they know will pass.)*

A.4.1 If not already removed, the platform letter will be removed from the ENERGY STAR Web site and EPA/ICF will request that NEMA/ALA remove the failed Component from the NEMA/ALA lamp or ballast matrix.

A.4.2. Until satisfactory “off the shelf” testing is completed, the platform letter will not be re-posted on the ENERGY STAR Web site or listings returned to the NEMA/ALA matrices, AND pending/subsequent platform submittals using the Component will not be approved. The Component manufacturer will be notified of this decision in writing, which will include the following:

- a. Re-testing by a manufacturer-independent NVLAP accredited testing laboratory is required for continued ENERGY STAR applicability.
- b. A minimum sample size of ten (10) is required for testing. Required tests can include, but are not limited to, the following:

Efficacy	Lamp Start Time
Correlated Color Temperature	Color Rendering Index (CRI)
ANSI or IEC Lamp Base Type	Lumen Maintenance

- c. Component manufacturer is given ten (10) business days to retain a manufacturer-independent NVLAP accredited laboratory of their choice.
- d. Component manufacturer must notify EPA/ICF of their laboratory choice and provide contact information within five (5) business days.
- e. Component manufacturer must provide EPA/ICF with a list of five (5) locations where these Components can be purchased. EPA/ICF will provide this information to the labs. Whenever possible, the purchased samples will be the lamp and/or power supply only and not a complete fixture. If these outlets do not carry the Component, or the laboratory has continued difficulty procuring valid samples, EPA reserves the right to revoke applicable platform letters/remove NEMA/ALA matrix entries for the Component.
- f. The company from which the samples are procured will remain confidential between EPA/ICF and the laboratory. The origin of the samples will not be disclosed to the Component manufacturer until after the laboratory’s receipt of the samples unless directed to do so by EPA.

A.4.3 Component manufacturer is responsible for sending EPA/ICF weekly updates including information on meetings the following milestones. EPA reserves the right to revoke applicable

platform letters/remove NEMA/ALA matrix entries if the manufacturer is delinquent on weekly updates.

- a. when the lab has procured and received the samples
- b. When the commencing has started and confirmation on number of samples being tested.
- c. Premature failures of samples
- d. Results of concluded tests
- e. Any issues with sample procurement, testing, staff changes, or other issues that impact the testing.

A.5 Actions taken upon receipt of laboratory testing results:

- A.5.1 Components that pass all tests (8 out of 10) will be issued a new version of the platform letter (if applicable) and will be re-posted to the ENERGY STAR Web site and/or NEMA/ALA matrices.
- A.5.2 Components that do not pass are subject to additional testing or immediate revocation of the platform letter at EPA's discretion.
 - a. A list of platforms that are revoked will be maintained on the Partner Resources page of the ENERGY STAR Web site so that fixture manufacturers can ensure they are not using a revoked component at the fixture design stage. The list will include the component manufacturer name, model number, platform letter date, and revocation date.

B. Procedure for fixture submittals that are under review for ENERGY STAR Qualification that use an underperforming Platform Letter or NEMA/ALA Matrix Listing

- B.1 Any fixture submittal currently under review by ICF (or labs) which uses the underperforming Component continues to be eligible for qualification prior to final EPA resolution.
- B.2 ICF or lab will contact⁶ the fixture manufacturer in writing to:
 - B.2.1 inform them of the issues related to the Component;
 - B.2.3 explain that any ENERGY STAR qualified fixture that uses the Component in question will be subject to delisting pending the result of the EPA review of the Component manufacturer's Corrective Action Plan and/or the satisfactory completion of "off-the-shelf" manufacturer-independent NVLAP accredited laboratory testing;
 - B.2.4 provide options for proceeding that may include the following:
 - a. find an alternative component and submit the appropriate documentation. The appropriate documentation types will be listed in the letter; or
 - b. conduct and provide off-the-shelf re-testing of the Component^{7,8} (the manufacturer has the option of commencing testing upon receipt of this written notification); or

⁶ All communications with fixture manufacturers will take place after the fifth (5th) business day.

c. take no action.

B.2.5 require the fixture manufacturer to provide, via email, an acknowledgment of this information and state their understanding that all fixtures using the Component in question are subject to delisting pending the outcome of EPA's review. Review will not proceed unless the fixture manufacturer gives the approval to continue in this email.

B.3 Upon receipt of the acknowledgement email, ICF (or the lab) will continue the fixture qualification process.

C. Procedure for ENERGY STAR Qualified Fixtures that use an underperforming Component

C.1 Any qualified fixture that uses the underperforming Component will remain qualified while EPA works with the Component manufacturer toward resolution.

C.2 ICF or lab will contact⁹ the fixture manufacturer in writing to:

C.2.1 inform them of the issues related to the Component;

C.2.3 explain that any ENERGY STAR qualified fixture that uses the Component in question will be subject to delisting pending the result of the EPA review of the Component manufacturer's Corrective Action Plan and/or the satisfactory completion of "off-the-shelf" manufacturer-independent NVLAP accredited laboratory testing;

C.2.4 provide options for proceeding that may include the following:

a. find an alternative component and submit the appropriate documentation. The appropriate documentation types will be listed in the letter; or

b. conduct and provide off-the-shelf re-testing of the Component^{10,11} (the manufacturer has the option of commencing testing upon receipt of this written notification); or

c. take no action.

C.2.5 Request the partner provide, via email, an acknowledgment of this information and state their understanding that all fixtures using the Component in question are subject to delisting pending

⁷ If the fixture manufacturer chooses to retest they are subject to the same requirements as the Component manufacturer described above in section I, Part D "Actions Taken if Significant Concerns Remain". If the fixture manufacturer retests the Components and the samples pass testing, the fixtures using the Components will not be subject to delisting regardless of the results of any Component manufacturer test results.

⁸ Note that any Component testing paid for by a single fixture manufacturer will apply only to that specific fixture manufacturer's products; UNLESS, the fixture manufacturer provides written permission for another fixture manufacturer to use their test results. The test results cannot be used by the Component manufacturer to obtain a Platform letter.

⁹ All communications with fixture manufacturers will take place after the fifth (5th) business day.

¹⁰ If the fixture manufacturer chooses to retest they are subject to the same requirements as the Component manufacturer described above in section I, Part D "Actions Taken if Significant Concerns Remain". If the fixture manufacturer retests the Components and the samples pass testing, the fixtures using the Components will not be subject to delisting regardless of the results of any Component manufacturer test results.

¹¹ Note that any Component testing paid for by a single fixture manufacturer will apply only to that specific fixture manufacturer's products; UNLESS, the fixture manufacturer provides written permission for another fixture manufacturer to use their test results. The test results cannot be used by the Component manufacturer to obtain a Platform letter.

the outcome of EPA's review of the Component manufacturers' corrective action plan and/or subsequent testing.

D. Procedure for Fixture Manufacturers using a lamp or power supply that fails EPA directed "off-the-shelf" testing [the tests that occur in A.4, above]

D.1 Fixture Manufacturer Notification and Corrective Action Plan Request

D.1.1 The SOP for the fixture manufacturer is initiated the day that EPA informs the Component manufacturer that their Component fails to meet the ENERGY STAR for RLF Program Requirements.

D.1.2 EPA/ICF informs the fixture manufacturer in writing of the Component failure and requests a Corrective Action Plan. The Corrective Action Plan is due to EPA within 30 calendar days from the date on the letter. The letter will include steps that the fixture manufacturer must take, which may include, but are not limited to:

- a. finding an alternative lamp and/or power supply and submitting the appropriate documentation. The appropriate documentation types will be listed in the letter; or
- b. conducting off-the-shelf re-testing of the Component; or
- c. providing updated off-the-shelf testing provided by the Component manufacturer; or
- d. taking no action.

D.1.3 In addition, the letter will convey the following information:

- a. For options a-c described above, EPA will allow the fixture manufacturer eight (8) months to resubmit the product for continued qualification;
- b. For option d described above, EPA will allow the fixture manufacturer thirty (30) days to inform EPA/ICF of this decision per the timeline of the Corrective Action Plan. This option will result in the immediate initiation of the fixture delisting process; and,
- c. Remind the fixture manufacturer that ENERGY STAR is a registered trade mark that can only be associated with products that meet ENERGY STAR Program Requirements. Partners whose products are repeatedly found to be in violation of the specification will be disassociated from ENERGY STAR program. For more information regarding EPA's policy refer to the Dispute Resolution guidelines described in the Partnership Agreement.

D.1.4 If the fixture manufacturer does not respond to confirm receipt of the notification by day fifteen (15), an attempt will be made via telephone to communicate the impending 30-day deadline and to encourage submittal of the required data.

D.1.5 The Corrective Action Plan submitted by the fixture manufacturer is reviewed for compliance by ICF within five (5) business days from the date of receipt of documentation. ***In the event that significant concerns remain, EPA reserves the right to delist the fixtures in question until satisfactory off-the-shelf testing is completed.***

D.2 Actions taken if the Corrective Action Resolves the Issue:

D.2.1 Inform the fixture manufacturer, in writing, that the matter is resolved.

D.3 Actions taken if significant concerns remain:

- D.3.1 In the event that additional off-the-shelf testing data is not provided within the eight month window or data provided fails to prove compliance, the delisting process will be initiated immediately upon notification.

NOTE: Utilities and EEPS will be informed of ENERGY STAR qualified fixture delistings in accordance with the ENERGY STAR RLF Delisting Protocol.