EPEAT, Inc.
One World Trade Center
121 SW Salmon St., Suite 210
Portland OR 97204
www.epeat.net
Voice: (503) 279-9382
Fax: (503) 279-9381

OUTCOMES REPORT
EPEAT VERIFICATION ROUND ONE

1. Introduction

1.1. Report Purpose and Contents

This report summarizes the outcomes of the first round of verification of subscriber registrations on the EPEAT Registry – www.epeat.net.

The verification procedures followed those defined in the document "EPEAT Product Verification Plan", which is available on the Product Verification page of www.epeat.net as "Generic Verification Plan". Also linked on the Product Verification page are documents, issued in advance of the Round, that describe:

- Requirements for the information that was requested to be provided by subscribers for products being verified;
- Clarifications to a number of questions that were asked by subscribers and others;
- Members of the verification team; and
- Round One Verification Plan

The experiences of Round One will provide the basis for modifying and improving the verification procedures for future rounds. Participants in the verification process – subscribers, verifiers, etc. – will be debriefed and their input considered in order to continually improve EPEAT.

This Outcomes Report describes the statistical results of Round One – the investigations undertaken, the non-conformances found, and corrective actions undertaken. In addition, this report analyzes the results and offers a number of observations and conclusions arrived at by the staff, Qualified Verifiers, and the Product Verification Committee (PVC).

Subscribers are advised to consider the findings and recommendations of this report relative to their products' registrations, especially those highlighted in the final section. Future rounds will continue to examine the issues and types of non-conformances identified in the Registry in Round One. Subscribers should take this Report under serious consideration in order to avoid future non-conformance decisions.

1.2. Special Conditions for Round One

As described in the Round One Verification Plan ***this round is understood to be a learning experience for EPEAT as well as for subscribers***. It is possible that subscribers may have misinterpreted the requirements of the 1680 standard, and the standard may contain ambiguities or even, in the judgment of the PVC, unintended requirements. As noted below, such instances were identified and certain criteria or

portions of criteria were excluded from verification. The unintended requirements will be referred to the IEEE 1680 Working Group for resolution.

In addition ***this Report does not name names***. That is, the product and the manufacturer of specific non-conformance decisions are not identified. ***In future verification rounds specific products and manufacturers subject to non-conformance decisions, as stated in the EPEAT Product Verification Plan, will be identified.***

1.3. Plans for Verification Round Two

The decision to initiate Round Two will be made by the EPEAT Director in consultation with the Product Verification Committee. The EPEAT staff recommends that Round Two be conducted as soon as possible. Based on Round One, the Registry may contain other non-conformances that should be identified soon. In addition, since Round One was initiated in March 2007 new subscribers have joined EPEAT, a substantial number of products have been registered (including the first EPEAT Gold rated products), and new criteria have been claimed.

EPEAT staff also recommends that two steps be undertaken:

1. The IEEE 1680 Working Group publish an interpretations document relative to a number of ambiguities in the 1680 standard that can be adequately resolved through an interpretation.
2. The IEEE 1680 Working Group open the 1680 standard for amendment to correct certain deficiencies in the standard that require an amendment for resolution.

EPEAT staff will compile a summary document of issues that it recommends for consideration by the IEEE 1680 Working Group to initiate the proposed interpretation and amendment process. The sections below provide some insights into the issues identified during the development and execution of the Round One Verification, which will be forwarded to the IEEE 1680 Working Group.

Then if the 1680 Standard has been amended before Round Two is begun, it will be conducted with a standard that has been clarified and improved based on experience to date. If Round Two is initiated before the standard is amended, the PVC may avoid selecting certain criteria that are being considered for revision.

2. Investigations

2.1. Verification Personnel

The verification personnel consist of the following. See the Round One Verification Plan for details.

1. Qualified Verifiers (called Verifiers) who directly interfaced with subscribers, requested information, evaluated that information, and submitted Investigation Reports with their recommendations of conformance or non-conformance. A Verifier also conducted the two disassembly verifications.
2. Product Verification Committee (PVC) consisting of three independent experts who hold the final authority for all conformance/nonconformance decisions, and who reviewed Investigation Reports from the Verifiers without knowing the identity of the subscribers.

3. EPEAT staff who managed the process and also interfaced with subscribers.

2.2. Strategic Selection of Investigations

Before Round One was initiated the PVC issued a Clarifications Report and provided to subscribers and Verifiers the verification data specifications. The clarifications are intended to stand for future rounds, and in fact, will likely be added to in order to build an on-going reference for subscribers and others in understanding EPEAT's interpretations of the requirements of IEEE 1680.

The PVC then determined the guidelines for the investigations to be performed in Round One (each verification of one criterion of one product is called an investigation). They established principles for the selection of criteria to be investigated, and they identified specific criteria for investigation based on these principles. The PVC also defined the number of and rules for selecting subscribers and products to be investigated for each criterion. The Round One Verification Plan provides details on the product selection process.

The overriding factor for the PVC in defining the principles for selecting investigations was the effectiveness of the verification process to identify potential non-conformances. Following are those principles:

- The overall number of investigations will be large enough to provide a good representation of the products and the categories of criteria.
- A product will be selected for verification from each subscriber for a set of required criteria.
- Some of the more difficult to achieve optional criteria will be selected for verification.
- Certain criteria that are of special public visibility and concern will be selected for verification.
- A small number of products, and a specified set of criteria, will be selected for verification by means of product disassembly.

At the time Round One was initiated there were 386 products on the Registry from 18 manufacturers. The PVC targeted 79 investigations. The criteria selected, and the number of investigations for each criterion, are outlined in the Appendix. EPEAT staff, following these PVC rules, then selected the specific products for investigation. The PVC was not aware of the specific products nor the manufacturers being judged until they had reached a final decision on each investigation – ***the PVC was blind to the subscribers they were making decisions about***.

2.3. Evidentiary Requirements

Verifications are of two types – those that are based on evidence provided by the subscriber and those based on examination of the product. For the first of these it was critical that the investigators receive credible and representative evidence that truly demonstrates conformance. The 1680 standard specifies the information required to demonstrate conformance and the PVC issued a number of clarifications and

specifications for those information requirements. For example, if the standard requires the elimination of a specified substance, it is impractical to examine the records of the hundreds or thousands of components that make up a computer across a supply chain that spans the globe. The subscriber was asked to provide a Bill of Materials (BOM). The Verifier then selected a sample of components or materials from the BOM and requested the subscriber to supply specific evidence of conformance from the suppliers for those components or materials. The subscriber also was required to demonstrate a quality control system for assuring the supplier claims and to describe how that system assured that the product was in conformance with that criterion for all units of the product.

EPEAT provided to subscribers in advance details of the information that was requested for verification, consistent with the requirements of the standard, and was flexible as to alternative data that the subscriber might use to provide comparable demonstration of conformance.

The disassembly and examination of products took place at the location of a recycler, with the recycler performing disassembly and responding to Verifier questions regarding the criteria being investigated. A photo record of the disassembly is available.

3. Outcomes of Round One Investigations

3.1. Cooperation of Subscribers

Generally the cooperation of subscribers in providing requested information, and the quality of the information provided, was good.

However, this was not universally the case. Two primary problems were noted:

1. Subscribers were occasionally not prompt in providing required information, according to the timelines laid out in the Verification Plan. In truth, the EPEAT staff and Verifiers were in rapid learning mode about how to specify the information required, and so share responsibility. These processes will be improved for future rounds. However, there were some clear situations where the subscriber did not attend to the requests promptly, and the investigation period had to be extended to accommodate these delays.

2. Also, it was apparent that in some cases subscribers had not adequately considered the information requirements of the standard when they declared to the criterion. In some cases, when the subscriber sought information from its supplier to demonstrate conformance to a criterion, they were surprised to learn that the product did not meet the criterion, resulting in a nonconformance. It is also sometimes impossible to obtain all supplier information required in the 30-day window allotted. ***It is essential that subscribers prepare in advance; that is, that they have information readily available for the declared criteria.*** These are simply good practices of quality assurance in meeting standard requirements.

3.2. Technical Problems with the 1680 Standard

During the verification process, and considering input from subscribers, a number of ambiguities or technical shortcomings were identified in the 1680 Standard. These will be referred to the IEEE 1680 Working Group for amendment to the Standard.

In two cases the PVC determined that unintended and unreasonable requirements are implied by the wording of the standard, and that conformance with those unintended requirements goes beyond the intent of the criterion. These cases are as follows:

1. Criterion 4.8.2.2 Optional – Packaging 90% recyclable and plastics labeled

   Prior to starting the Round the PVC noted, based on a question asked by a subscriber, that this criterion requires that "**All** plastics shall be identified by material type…."

   Marking standards generally (e.g., 1680 for product components and even laws relative to plastic bottles) have a lower size or mass limit for marked parts. This is an instance where the wording in 1680 is clearly unreasonable by not providing an exemption for small parts. The PVC determined that it would not verify that plastics used in packaging are labeled in Round One.

   The PVC further recommended that this criterion be amended to establish a lower mass threshold for labeling of packaging in future revisions of the standard.

2. Criterion 4.8.2.1 Required – Separable packing materials

   This criterion requires that "**All** non-reusable packaging shall be separable."

   In the middle of the verification process, while this criterion was being verified for two products, it was identified that the product of one of the subscribers included some small plastic bags containing small components with inventory codes printed on paper labels applied to the bags such that they could not be easily removed. It was decided that this is a parallel situation to 4.8.2.2. The PVC determined that it would not verify this criterion in Round One.

   The PVC further recommended that this criterion be amended to establish a lower mass threshold for separable packaging components, or otherwise address the issue.

3.3. Non-conformances

Of the 77 investigations completed, 11 non-conformances were identified[1]. The following table identifies the criteria for which non-conformances were identified, each line representing a separate investigation.

TABLE OF NON-CONFORMANCE DECISIONS

Criterion Number	Criterion	# of Non-conforms
4.1.3.3	Elimination of intentionally added mercury used in light sources	2
4.2.1.2	Minimum content of postconsumer recycled plastic	2
4.6.1.2	Auditing of recycling vendors	6
4.8.5.1	Documentation of reusable packaging	1

The following sections identify specific non-conformance issues:

3.3.1. There were two non-conformances to Criterion 4.1.3.3 – Elimination of intentionally added mercury to light sources.

The wording in the criterion is.

[1] Note that the process originally identified 79 investigations but two were removed as explained in section 3.2.

"Maximum of 0.01% mercury per lamp."

The reasons for non-conformance were:

- Subscriber determined that they had incorrectly calculated the concentration limits of their light source.
- Subscriber failed to provide to the Verifier documentation of the concentration of mercury in the bulb.

These non-conformances seem to demonstrate inadequate attention to the technical limits set by the criterion at the time of declaration, and/or to retaining accurate documentation.

3.3.2. There were two non-conformances to Criterion 4.2.1.2 – Minimum content of post-consumer plastic.

The wording in the criterion is:

"Product shall contain on average a minimum of 10% post-consumer recycled plastic, measured as a percentage of total plastic (by weight) in the product."

Both non-conformances were due to the use of pre-consumer (in-plant) recycled content rather than post-consumer plastic. This is a very important, and explicit, distinction. "Post-consumer" is defined in the 1680 Standard. Other subscribers have inquired about the distinction between the two, indicating that there is not universal understanding about the importance of distinguishing between pre- and post-consumer plastic within the electronics industry. In cases, it even appears that plastic suppliers may not keep records that distinguish the two sources. This distinction is critical in order that using recycled content in new product creates a market for the use of secondary plastics that have been recovered after it has entered the marketplace.

3.3.3. There were six non-conformances out of eight investigations for Criterion 4.6.1.2 – Auditing of recycling vendors.

The wording in the criterion is quite clear and unambiguous:

"An annual audit is performed of all first, second, and third tier recyclers' facilities; this ensures that the recycler is complying in full with all Plug-In Guidelines, as published in May 2004, and with any and all applicable regulations and laws."

This optional criterion accompanies the required Criterion 4.6.1.1 which calls for a take-back service that meets the Plug-In Guidelines.

The reasons for non-conformance were, in different cases, and sometimes with multiple reasons, as follows:

- Audits were conducted but not annually. Note that the standard requires annual and "on-site" audits, but that the on-site audits need not be annual. (See full text of criterion.)
- Audits could not be demonstrated for all three tiers of vendors. In some cases audits were conducted less frequently. In others not at all.

- In some cases auditing of 2nd and 3rd tier recyclers is left to the 1st tier recycler, which is no problem, but the subscriber could not demonstrate that audits are performed annually. It is the subscriber who is responsible for demonstrating conformance.
- The only audits conducted were performed after the notification of verification and there was no evidence of an audit program in place when the subscriber declared conformance with the criterion.
- Audits were performed only for North American recyclers. This is contrary to the intent of the 1680 Standard, which applies wherever the product is sold, as well as the instructions contained in the Clarification Report provided to subscribers in advance of the Round.

In contrast, two subscribers demonstrated excellent recycler auditing programs, and another subscriber with a robust recycling program chose not to declare to this criterion as the subscriber knew it didn't have annual data for three tiers on file.

The PVC and EPEAT staff are concerned that subscribers simply did not take the requirements of this criterion seriously when declaring to it. Six non-conformances in eight investigations for this criterion suggest a lack of attention to the criterion's requirement to audit recycling vendors. An annual, three-tier vendor auditing program can be quite rigorous to establish and to document, and this criterion should not be claimed lightly.

3.3.4. There was one non-conformance to Criterion 4.8.5.1 – Documentation of reusable packaging.

The wording in the criterion is:

> "Manufacturer shall provide a reusable packaging process that reuses the packaging for the same or similar product, at a competitive price. Manufacturer designs packaging for a minimum of five reuses."

The Subscriber had mistakenly declared to this criterion even though they did not have such a program.

3.4. Corrective Actions and Impact on EPEAT Product Registry

All non-conformances were quickly resolved by the subscriber un-declaring the criterion. There were no real challenges or appeals by subscribers. The impact on the EPEAT product Registry of the subscribers un-declaring the criteria were:

- No products were removed from the Registry because all of the non-conformances were for optional criteria.
- Some un-declarations resulted in the product dropping a tier – from Silver to Bronze.
- In some cases, the subscriber un-declared criteria for products that weren't investigated because they realized that the same non-conformance existed for those other products.

- We anticipate that publication of this report may result in subscribers un-declaring some criteria that weren't investigated for their products but for which other subscribers received nonconformances.

In many cases EPEAT staff communicated with the subscriber regarding what would be required to reinstate the criterion, and several of them are proceeding on Corrective Actions.

One non-conformance for every seven investigations is too many. However, EPEAT staff believes that it is not representative of the Registry as a whole. The PVC selected criteria for investigation that are most likely to show non-conformances. On the other hand, it does suggest that verification should be conducted on a frequent basis until that number declines significantly.

3.5. Key messages for subscribers

Following are key messages learned from Round One that we urge subscribers to attend to for their product registrations. Some of these may indicate the focus, at least in part, of the Round Two verifications. The Round Two Outcomes Report will name names.

1. Conformance means that the product is in conformance when it is declared to the standard, not when it is selected for verification.
2. When one product was determined to have a non-conformance, the subscriber was urged to check that other products that were not verified do not have similar non-conformances.
3. Each criterion in the 1680 standard specifies verification requirements that are data that must be provided to the Verifier within 30 days if the product and criterion is selected for verification. The availability of this data must be, in many cases, planned for in advance of verification.
4. Conformance means that the product is in conformance everywhere that specific product is sold. If a service is required by a criterion (e.g. take-back), that service must be provided everywhere that product is sold.
5. Declarations should be double-checked. An unintended criterion declaration could result in an embarrassing non-conformance decision in the future.
6. When declaring to a criterion, subscribers should look at its requirements as if through the eyes of a Verifier and the PVC. What information would you expect to demonstrate conformance? Does this information demonstrate conformance to the criterion as it is specifically worded?

As stated above, the PVC has committed that future rounds will include an expanded examination of some of the patterns of non-conformance identified in Round One. In addition, there are now many more products on the Registry then there were when Round One was launched, and there are now declarations to a number of criteria that weren't declared during Round One, resulting in the first EPEAT Gold ratings. It should be expected that new subscribers and new criteria will also be investigated.

APPENDIX
Criteria Selected for Verification

Criterion		Selection Principle	Invstgs
Verification by Verification Data			
REQ. 4.1.1.1	Compliance with provisions of European RoHS Directive	See disassembly verification selection for the selection of the first two products[2]. Then randomly select one product for each remaining subscriber; rotate the product types.	15
OPT. 4.1.3.3	Elimination of intentionally added mercury used in light sources	Randomly select a product of the largest screen size of the three subscribers that have declared to this criterion.	3
OPT. 4.2.1.2	Minimum content of postconsumer recycled plastic	For each subscriber with products declared to this criterion, select the product declared to this criterion that has the highest declared amount in 4.2.1.1	2
REQ. 4.3.1.2	Elimination of paints or coatings that are not compatible with recycling or reuse	The next three criteria (4.3.1.2, 4.3.1.5, and 4.3.1.9) will be verified for five subscribers each, covering all 15 subscribers. See disassembly verification selection for the selection of the first two products to be verified to this criterion[1]. Then proceed to the selection of products for 4.3.1.9. Then randomly select one product for three subscribers (bringing the total products to five when adding the two products selected for disassembly); exclude subscribers selected for 4.3.1.9; select a monitor if possible, if not select a desktop.	5
REQ. 4.3.1.5	Identification and removal of components containing hazardous materials	After selection for 4.3.1.9 and 4.3.1.2, randomly select one product for the five remaining subscribers (excluding those selected for 4.3.1.9 and 4.3.1.2); rotate the product types.	5
OPT. 4.3.1.9	Minimum 90% reusable/recyclable	See disassembly verification selection; exclude the two subscribers selected for disassembly since they will be verified to 4.3.1.2. Randomly select five of the remaining subscribers with products declared to 4.3.1.9[3] and verify 4.3.1.9 for the smallest product by mass of each of these subscribers.	5
OPT. 4.5.2.1	Renewable energy accessory available	Randomly select a product of all subscribers that declare to this criterion.	1
OPT. 4.6.1.2	Auditing of recycling vendors	Verify all subscribers that declare to this criterion (corporate criterion).	8
REQ. 4.7.2.1	Self-certified environmental management system	Verify one specific subscriber per request from a purchaser (corporate criterion).	1
OPT. 4.7.2.2	Third-party certified environmental management system	Verify all subscribers that declare to this criterion (corporate criterion).	12
OPT. 4.8.5.1	Documentation of reusable packaging	Randomly select a product of all subscribers that declare to this criterion.	4

[2] For the rationale of using this selection process see the disassembly verification selection principles.
[3] There are a total of 10 subscribers that have declared products to 4.3.1.9.

Disassembly Verification			
REQ. 4.3.1.3	Easy disassembly of external enclosure	The selection of products for disassembly verification will be conducted first. Those products will then be two of the products verified to 4.3.1.2. Select one product for subscribers that have products declared to a large number of applicable criteria and assure a cross section of non-monitor product types; place into a pool; select 2 products randomly, assuring that two different product types are selected. Qualified Verifiers will obtain verification data from subscriber and verify criteria. A unit will have been purchased in advance of notifying the subscriber. A disassembly will be conducted with the assistance of an experienced recycler and the verifier will confirm conformance with each criterion. The products selected for disassembly will be included in the products that are verified to 4.1.1.1 and 4.3.1.2. The reason is in disassembly verification the parts/components in the product will be inventoried and cross-checked for correspondence with the parts/components that the subscriber has identified to be in the product for those criteria.	2
REQ. 4.3.1.4	Marking of plastic components		2
REQ. 4.3.1.5	Identification and removal of components containing hazardous materials		2
OPT. 4.3.1.7	Reduced number of plastic material types		2
OPT. 4.3.2.1	Molded/glued in metal eliminated or removable		2
OPT. 4.3.2.2	Marking of plastics		2
REQ. 4.4.2.1	Upgradeable with common tools		2
REQ. 4.4.2.2	Modular design		2
REQ. 4.8.2.1	Separable packing materials		2
Total number of investigations			79