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OUTCOMES REPORT
EPEAT VERIFICATION ROUND TWO

0. Summary of Verification Round Two

This report provides the detailed results of the second full round of EPEAT verifications. In Round One the names of subscribers (participating manufacturers) and products were not provided. This report provides the names of subscribers and products for which non-conformances were identified, the apparent causes of non-conformance, and subscriber actions in response.

Background – To assure the credibility of the Registry, verification must be rigorous, independent and transparent. Verification is conducted strictly according to policies and procedures described in the Standard and in documents provided on www.epeat.net. Subscribers have no forewarning that their products will be verified and must be prepared to demonstrate that all units of their products meet the declared criterion.

Given the relative youth of EPEAT, both Rounds One and Two verifications have targeted specific criteria considered difficult to meet. This was to ensure that subscribers understood the requirement for full conformance with the 1680 Standard, and that supporting data must be readily available upon request. In future rounds, the Product Verification Committee may combine targeted investigations with random sampling of the Registry, to review the overall level of conformance.

In verification, subscribers are required to provide detailed and accurate information in a timely manner that demonstrates conformance, such as supply chain management records. EPEAT also conducts independent product investigations and testing.

The consequences of a non-conformance are first that the subscriber must un-declare the criterion for the product, and for any other products for which the non-conformance applies. If the non-conformant criterion is an optional criterion, they lose a point, and possibly the product drops a tier. If it is a required criterion, they must archive the product, until the non-conformance is corrected. If it is a required corporate criterion, all their products must be archived until corrected.

A second, and serious, consequence of non-conformance is the publication in this report of the companies and products that received non-conformances.

Round Two Details – In Round Two, EPEAT tested conformance with some of the most-difficult-to-meet criteria. The growth in Gold products, and the marketplace value of Gold registration, leads staff and the Product Verification Committee to strictly police the most ambitious declarations. As a consequence, Round Two outcomes are probably not representative of a random sampling of the full Registry. A random sample would be likely to show significantly lower rates of nonconformance.

Section 3.1 provides an overview of the outcomes of Round Two. Highlights include:

- Of 52 completed investigations, 8 non-conformances were identified, all of optional criteria.
- 2 non-conformances were administrative errors; 1 a misunderstanding; and 5 were outright non-conformances.
- 3 products left the Registry (either by subscriber removing or EPEAT staff archiving the product), including 1 Gold product; 5 products lost a point but did not drop a tier; and one

non-conformance for an optional corporate criterion resulted in 10 products dropping from Silver to Bronze.

Two causes of nonconformance stand out:

1) Inadequate internal controls of product declarations on the Registry, and
2) Inadequate due diligence of suppliers for conformance.

The reason that products were archived – that is, removed from the Registry by EPEAT staff – was subscriber failure to un-declare the non-conforming criterion or correct the non-conformance.

Looking Forward

1. ***Plans for Future Verification Activities:*** EPEAT staff has interviewed a number of stakeholders, including a discussion at the Board of Advisors meeting, and the consensus is that verifications should be conducted more frequently. This input and the number of non-conformances found in Rounds One and Two, lead staff to recommend that further verification rounds be conducted as soon as possible. Staff, together with the PVC and EPEAT Board of Advisors, will be investigating ways to add shorter or more tightly focused verifications to supplement the rounds.

2. ***Investigation Protocols:*** Staff and Verifiers have gained experience from two verification rounds that will provide the basis to develop a comprehensive set of investigation protocols for Level One verifications of all criteria. (Level One is where Verifiers review verification data provided by subscribers.) In the first two rounds staff and Verifiers developed protocols for the criteria being verified, relating to the information that subscribers are asked to provide. The new protocols will build on these, fill the gaps for criteria not yet verified, and develop a detailed, systematic and comprehensive set of verification data requirements. Subscribers need to know what they are committing to when they declare to a criterion, and they need to be prepared in advance for verification. These protocols will be used by Verifiers when requesting information from subscribers, and will be included in the training. The PVC will approve these protocols.

3. ***Conformance and Verification Training Workshop:*** EPEAT staff intends to develop and deliver a training workshop for subscribers, potential future Verifiers, individuals who wish to provide conformance consulting services to subscribers, and others. This workshop, based on interpretations of the criteria and verification protocols, will cover questions of conformance assurance for declaration and demonstration of conformance for verification. This will be an in depth examination of how to assure conformance for all criteria and how verification is performed.

1. Overview

1.1. Report Purpose and Contents

The Round Two verification procedures followed those defined in the document "EPEAT Product Verification Plan", which is available on the Product Verification page – http://www.epeat.net/ProductVerification.aspx – as "Generic Verification Plan". Also linked on the Product Verification page are the Round Two Plan and other documents, issued in advance of the Round.

This Outcomes Report describes the results of Round Two – 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 EPEAT 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 Rounds One and Two. Subscribers should take this Report and the Round One Report under serious consideration in order to avoid future non-conformance decisions.

1.2. Round Two Verification Results with Subscribers and Products Identified

The specific results of the Round Two verifications, with the manufacturers and products identified are included in Table 2 of this report. This follows the policy adopted by the EPEAT Board of Advisors, which reads:

> Purchasers and other parties who specifically request will be notified of the specific verification decisions and actions. Verification results, clearly noting de-registrations, will be provided on the website.

2. Round Two Investigations

2.1. Background

See the Round One Outcomes Report for general background on verification personnel and procedures.

2.2. Strategic Selection of Investigations

2.2.1. Objective of Round Two

The primary focus of Round Two was to verify product declarations for particular criteria that are difficult to meet and are being declared by subscribers with increasing frequency in order to achieve higher EPEAT performance tiers. ***In other words, the Round Two selection process looked at criteria and product declarations for which there seemed likely to be some reason to expect difficulties.*** In addition, certain other criteria and products were selected due to specific concerns that had been raised by purchasers, PVC members, or EPEAT staff. Because we set out 'looking for trouble', the results of this round should not be assumed to be representative of the Registry as a whole.

Also, eight investigations were conducted to test, and eventually develop, protocols for the use of XRF screening in EPEAT verification. XRF is a technical tool that can detect the presence of elements in a material, for example, the RoHS restricted heavy metals. This EPEAT Level Three testing necessitates dismantling the product, isolating as much as possible homogeneous materials, and then applying the tool to a single homogeneous material. The intent in Round Two was to determine if, and how, EPEAT verification procedures could use XRF to verify certain 4.1

criteria. Three such criteria were selected and two products were purchased for this testing. A fourth criterion (4.1.3.3 – Elimination of intentionally added mercury in lighting) was selected for investigation during disassembly of the product. The XRF screening protocol was intended to preserve the functionality of the products.

2.2.2. Selection Process

The PVC determined the guidelines for the investigations to be performed in Round Two. They established principles for the selection of criteria to be investigated, and 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 Two Verification Plan provides details on the product selection process.

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 verified until, in rare cases, it was necessary in the final verification steps for the PVC to interact with the subscriber, or to review their product-specific information, in order to reach a final decision. ***As a general EPEAT policy, the PVC is blind to the subscribers and products they are making decisions about***.

Since IEEE interpretations and revisions processes are being performed simultaneously with this verification, Round Two excluded those criteria or portions of criteria that are currently subject to such reconsideration by stakeholders.

At the time Round Two was initiated there were 721 products on the Registry from 24 manufacturers. The PVC targeted 61 investigations – 53 for Level One verifications and 8 for XRF screening.

Following product selection for verification, three investigations were cancelled for the following reasons:

- One investigation was cancelled after it was demonstrated that a computer programming error in the EPEAT Registry spreadsheet download program provided inaccurate information that resulted in an inaccurate declaration.
- Two investigations of Hg-free backlighting that were scheduled as part of the XRF screening verifications were cancelled because the laptop screens were not disassembled, and therefore, the backlight technology could not be inspected.

The criteria selected, and the number of investigations for each criterion, are outlined in the Appendix.

3. Outcomes of Round Two Investigations

3.1. Overview of Round Two Outcomes – See details in following sections

Of the 52 completed investigations, 8 non-conformances were identified, for a non-conformance rate of 15%. Is this indicative of a possible non-conformance rate for the full Registry? The EPEAT verification team does not think so. As noted above, we intentionally selected difficult-to-meet or suspect criteria, and so the results of this round likely significantly overstate the rate of non-conformance to be found in the Registry

Note that a non-conformance means that the subscriber was unable to adequately prove that the declaration on the EPEAT Registry accurately reflects the environmental characteristics of the product. A non-conformance may be inadvertent (an administrative error), result from misunderstanding of the requirements, or indicate a lack of adequate supply chain controls.

The Round Two non-conformances seem to divide along these lines:

- 2 non-conformances were claimed to be administrative errors in declaration, with supporting evidence that bore this out to the PVC's satisfaction.
- 1 seemed to be a misunderstanding of the standard's requirements.
- 5 subscribers admitted the product was non-conformant, asserted that the supplier misinformed them, or did not report a reason.

Two causes of nonconformance stand out:

1) Inadequate internal controls of product declarations on the Registry, and
2) Inadequate due diligence of suppliers for conformance.

Both of these causes demonstrate the value of developing detailed verification protocols and delivering conformance training.

All non-conformances involved optional EPEAT criteria, and not required criteria, since the investigations of the only required criterion selected were not completed for reasons cited in section 3.3. The only reason that products were removed from the Registry through archiving by EPEAT staff was subscriber failure to correct the non-conformance by either fixing it or by un-declaring the non-conforming criterion.

In this round, three products were removed from the Registry either by the subscriber or by EPEAT staff. One of these products was previously Gold and two were Silver. One investigation resulted in ten products dropping from Silver to Bronze because the subscriber was found to not be in conformance with an optional corporate criterion that affected all their declarations. Four additional products lost an optional point that did not result in a change of level.

By the close of the verification round, 6 of the 8 products with a non-conformance decision were brought into conformance by the subscriber un-declaring the non-conforming criterion. After the close of the verification round, one additional product was brought into conformance. As of the publication of this report, one product remains archived.

3.2. Cooperation of Subscribers

Initially the cooperation of subscribers in providing requested information within 30 days, and the quality of the information provided, was good. If a subscriber requested and had good cause for a delay in providing verification data, the Verifier was authorized to grant an additional 15 days for response.

However, good cooperation was not universally the case throughout the verification process. In the final stages of the verification process there were some considerable delays for a few subscribers, due primarily to difficulties in getting verification information from suppliers. Some of the initial evidence provided was not adequate, and there were delays in obtaining complete and adequate demonstration of conformance as required.

This echoed similar problems that arose in Round One, and is one of the main reasons that EPEAT staff intends to provide a conformance and verification training workshop. If subscribers have a clear and detailed understanding in advance of what information will be required for each criterion, there will be no excuses for such delays.

The following notification is repeated from the Round One Outcomes Report.

> ***It is essential that subscribers prepare in advance; that is, that they have verification information readily available for the declared criteria.***

3.3. Outcomes of XRF Screening

XRF is a promising technology for verification of conformance with certain substance restriction criteria. XRF methodologies for verification to RoHS are being developed by the IEC as an international standard.

However, methodologies for use of XRF screening in EPEAT verification are still being developed. Certain inadequacies were identified in the application of XRF in Round Two:

- We attempted to use the XRF without complete destructive disassembly down to homogeneous materials. As a result, it was difficult, in most cases, to adequately isolate homogeneous materials of sufficient diameter or thickness to obtain accurate and reliable XRF readings. Products will need to be destructively disassembled down to homogeneous materials for future XRF screening.
- The XRF can only detect if elemental bromine is in a material, not if the material contains one of the restricted bromine compounds. Also XRF measures total chromium and cannot distinguish between hexavalent chromium (Cr+6), which is restricted by RoHS, and other forms of chromium. Therefore, certain substances, if found during XRF screening, must be verified by analytical testing or other methods.

We intend to continue development of XRF methodologies for EPEAT verification. However, for the above reasons the XRF findings in Round Two are not definitive and are not reported as completed verifications.

3.4. Non-conformances, Corrective Actions, and Impact on EPEAT Registry

Table 1 identifies the criteria for which non-conformances were found.

TABLE 1
Criteria Involving Non-Conformance Decisions

Criterion		# of NCs	Total # of Invstgs
4.1.3.3	Optional—Elimination of intentionally added mercury used in light sources	1	7
4.2.1.2	Optional—Minimum content (10%) of postconsumer recycled plastic	1	3
4.2.1.3	Optional—Higher content (25%) of postconsumer recycled plastic	1	2
4.2.2.2	Optional—Minimum content of renewable/biobased plastic material	2	2
4.5.2.1	Optional—Renewable energy accessory available	0	5
4.7.3.2	Optional—Corporate report based on GRI	2	15
4.8.4.1	Optional—Provision of take-back program for packaging	0	8
4.8.5.1	Optional—Documentation of reusable packaging	1	9

It is especially notable that both of the verifications of biobased content in 4.2.2.2 were found to be non-conformances, and one of the two verifications of higher recycled plastic content in 4.2.1.3 resulted in a non-conformance. These are clearly difficult criteria and should be watched closely.

In addition, two criteria were found to have no non-conformances – 4.5.2.1 – Renewable energy accessory available with 5 investigations and 4.8.4.1 – Provision of take-back program for packaging with 8 investigations.

Table 2 identifies the subscribers and products for which non-conformances were determined, the actions taken, and the final outcomes.

TABLE 2
Initial Non-Conformance Findings
Showing Corrective Actions Taken and Outcomes

Invest #	Subscriber	Product	Criterion	Explanation of NC Finding	Corrective Actions Taken and Outcomes
R2-12	Panasonic	Notebook: CF-T7	4.1.3.3	Subscriber claimed the criterion was declared to through an administrative error.	Subscriber un-declared the criterion. Product remains Silver.
R2-17	MPC	Monitor: MPC FHD2400W	4.2.1.3	Subscriber could not obtain conformance data from supplier, though supplier had asserted conformance.	Subscriber un-declared the criterion. Product remains Silver.
R2-19	Fujitsu	Notebook: Lifebook P7230	4.2.1.2	Subscriber admitted that conformance with the criterion had been inaccurately asserted by a supplier.	Subscriber un-declared the criterion. Product remains Silver.
R2-21	CIARA-TECH	Desktop: C888-3	4.2.2.2	Subscriber could not provide evidence of conformance from the supplier.	Declaration was not changed as of the end of the verification round. Product was archived. Subscriber then un-declared criterion and product was reactivated. Product remains Gold.
R2-22	Philips	Monitor: 170B7CS/27	4.2.2.2	Subscriber did not provide evidence of conformance, stating only that the product had been previously discontinued.	Subscriber removed product from the Registry because it had been discontinued. Product dropped from Silver to not registered.
R2-34	LG	Corporate	4.7.3.2	Subscriber admitted incorrect declaration due to a misinterpretation of the requirements of the criterion.	Declaration was not changed as of the end of the verification round. Subscriber later un-declared the criterion. 10 monitors dropped from Silver to Bronze.
R2-38	One Laptop per Child	Corporate	4.7.3.2	Subscriber provided no evidence in support of conformance and apparently was not in conformance.	Declaration was not changed as of the end of the verification round. Staff archived the product and it remains archived. Product dropped from Gold to not registered.
R2-60	Toshiba	Notebook: Tecra M9-PTM90U	4.8.5.1	Subscriber claimed the criterion was declared to through an administrative error.	Product had been removed from the Registry in midst of Round due to ES 3.0 to 4.0 conversion. Has been reinstated without 4.8.5.1.

Explanation of table 2 – The findings are based on the product declaration on the Registry when the round is begun. Subscribers can change their declaration or even remove the product during the round, but they must still demonstrate conformance to the declaration as it was when the round began. When a declaration is found to be in non-conformance the subscriber is required to take corrective action to return their declaration to conformance. They may un-declare the non-conforming criterion or may change the product to bring it into conformance with the declaration. However, the non-conformance is still recorded.

Product archiving – If the non-conformance is not corrected by a date-certain, the product is archived by EPEAT staff. If the declaration or product is later changed to resolve the non-conformance, the product can be reactivated.

EPEAT policy is that the subscriber, not EPEAT staff, performs edits on product declarations by changing a criterion declaration, even when non-conformances must be corrected. If such edits are not performed by the deadline, EPEAT staff archive the product. The following verifications resulted in actions taken by EPEAT staff at the end of the round:

- R2-21: Product was archived for a period of time because by the end of the verification round the subscriber had not altered the declaration. The declaration to this criterion was subsequently changed and the product was reactivated.
- R2-38: Product was archived and remains archived. Since this is the only product listed by this subscriber, the subscriber is no longer on the EPEAT Registry. Since this is an optional criterion, the subscriber could un-declare this criterion and the product and subscriber could be reactivated.

Two products being verified were removed from the Registry during the verification round by the subscriber, citing, for example, that the products had been discontinued. In such cases the investigation still continues to completion to yield a finding of conformance or non-conformance against the criterion as it was declared when the round started.

4. Key messages for subscribers

Following are key messages learned from Round Two that we urge subscribers to attend to.

1. Conformance means that ***the product must be in conformance when it is declared*** to the standard, not when it is selected for verification. In the case of one criterion – 4.7.3.2 Optional — Corporate report based on GRI – due to its somewhat ambiguous wording the PVC decided that the subscriber was not required in Round Two to demonstrate that they had produced a report prior to product declaration. However, the PVC has clarified this – in future rounds, a report must have been produced in advance of declaring the criterion. See Clarification Report #3.
2. Several non-conformances were due to subscriber administrative error, e.g. unintentionally checking a criterion. The errors were shown not to be intentional, as demonstrated by declarations for similar products or other evidence. However, an unintended criterion declaration results in a non-conformance. ***All declarations should be carefully double-checked.***
3. When one product is determined to have a non-conformance, subscribers are urged to check other products, to ensure that they do not have similar non-conformances.

APPENDIX TABLE I
Criteria Selected for Verification

Criterion		Selection Principle	# of Invstgs
Optional 4.1.3.3	Elimination of intentionally added mercury used in light sources	59 products are declared to 4.1.3.3 by 9 subscribers, including 6 gold products by 2 subscribers. • Select one product from each subscriber, taking the gold product where possible. • Do not select the two subscribers verified to this criterion in the XRF investigations. • Perform a level one verification. This verification will focus on a confirmation that the backlight technology in the product does not utilize Hg, not on, for example, supplier assurance that Hg is not used in their LED bulbs.	7
Optional 4.2.1.2	Minimum content (10%) of postconsumer recycled plastic	12 products by 7 subscribers are declared to 4.2.1.2 or 4.2.1.3 or 4.2.2.2. The following verification will only be conducted on products that have an enclosure that is made principally from plastic or that otherwise include substantial amounts of plastics. • 1) Select one product for each subscriber declared to 4.2.2.2 (total of 3 subscribers) then • 2) Of those not declared to 4.2.2.2, select one product for each subscriber declared to 4.2.1.3 (total of 4 since one of those declared to 4.2.2.2). • Perform a level one verification. • Include queries of the supply chain to assure that the recycled plastic does not include RoHS restricted substances above thresholds. We are doing an Interpretation affecting one aspect of the definition of "postconsumer", namely whether resin from old CDs that have not been distributed to consumers constitute postconsumer. So this round will not distinguish between pre- and post consumer for this type of source.	7
Optional 4.2.1.3	Higher content (25%) of postconsumer recycled plastic		
Optional 4.2.2.2	Product shall contain on average a minimum of 10% renewable/biobased plastic, measured as a percentage of total plastic (by weight) in the product.		
Optional 4.5.2.1	Renewable energy accessory available	68 products are declared to 4.5.2.1 by 6 subscribers. 8 are Gold by 5 subscribers. • Select one product from each of the subscribers, a Gold product when possible. • Search for the accessory on the web site and attempt to purchase it. Cancel the order when assured that it is available as declared. An IEEE Interpretation is being considered that will address the degree to which an accessory must provide all, or a substantial portion, of the power requirements of the product. The verification will test the **commercial availability** of the power supply for purchase with the product.	6
Optional 4.7.3.2	Corporate report based on GRI	542 declarations to 4.7.3.2 by 15 subscribers – Note this is a corporate criterion. • Perform a level one verification for each of the 15 subscribers This verification was requested by a purchaser.	15
Optional 4.8.4.1	Provision of take-back program for packaging	118 products are declared to 4.8.4.1 by 9 subscribers. 18 are Gold by 5 subscribers • Select one product from each of the subscribers, a Gold product when possible. • Perform a level one verification.	9

Optional 4.8.5.1	Documentation of reusable packaging	82 products are declared to 4.8.4.1 by 9 subscribers. 18 are Gold by 7 subscribers • Select one product from each of the subscribers, a Gold product when possible. • Perform a level one verification. Only verify that the major packaging elements meet the criterion. Do not verify small, internal packing material elements. A subscriber has asked if the criterion applies only to the external package, or if it also applies to the internal packing material. The standard is silent. Presumably then it would apply to all of the packaging, not matter how small the pieces. We shall limit the verification in this round to the major packaging elements, and ask for a standard revision. The core purpose for this verification will be achieved by only verifying the major packaging elements.	9
Total number of investigations			**53**

APPENDIX TABLE II
Criteria Selected for XRF Screening

Required 4.1.1.1	Compliance with provisions of EU RoHS directive	399 declarations to 4.1.2.1. 486 declarations to 4.1.5.1. 59 declarations to 4.1.3.3 by 9 subscribers, including 56 notebooks and 3 monitors. • Purchase 2 notebooks declared to 4.1.2.1, 4.1.5.1 and 4.1.3.3, from two randomly selected subscribers. • Disassemble and test to the criteria that can be tested using an XRF, including 4.1.1.1, 4.1.2.1, and 4.1.5.1. • Disassemble and test to 4.1.3.3 using observation of lamp technology. Note that the purpose of this verification is to gain experience with XRF and to develop an XRF verification protocol. Note also that XRF only detects chromium and can't differentiate species of chromium (e.g., trivalent vs. hexavalent). If no chromium is detected, then we can assume no hex chrome is present. If chromium is detected then laboratory testing for hex chrome is needed. Note that investigations of 4.1.3.3 by observation of lamp technology were cancelled, due to the inability to determine the lamp technology without completely disassembling and possibly destroying the product. Note that an IEEE Interpretation is being developed for several 4.1 criteria that clarify the subscriber verification requirements to provide analytical and/or empirical data. However, this Interpretation will not effect this investigation because the PVC will not call for subscriber verification data.
Optional 4.1.2.1	Elimination of intentionally added cadmium	
Optional 4.1.3.3	Elimination of intentionally added mercury used in light sources	
Optional 4.1.5.1	Elimination of intentionally added hexavalent chromium (by observation of lamp technology)	