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Product Verification Committee Clarifications Report Number 6

I. BACKGROUND

See Clarification Report Number 1 for the background on the authority of the Product Verification Committee (PVC) and the context for PVC Clarifications.

This report describes recent actions taken by the Product Verification Committee. These actions are of two types:

1. Modifications and eliminations of previous Clarifications due to subsequent Interpretations and the revision of IEEE 1680 and 1680.1. These actions are not given new clarification numbers since they refer to previous Clarifications. A note will be provided in place of the modified/eliminated Clarification on the website explaining what it was, and why it was eliminated.
2. New Clarifications for issues not previously addressed.

II. ACTIONS TO MODIFY PREVIOUS CLARIFICATIONS

Note that new text is in red and deleted text is crossed out.

Action 1: Edit Clarification 1-1

Discussion: Clarification 1-1 pertains to 4.1.4.1 – Optional criterion: Elimination of intentionally added lead. The Clarification now reads:

PVC Determination: The wording of the criterion prevails over the title of the criterion wherever there is a conflict or inconsistency. In this case, the criterion defines the threshold to which the determination of no added lead must be measured – “50ppm by weight per listed part”.

- Certification by suppliers of no intentional added lead and manufacturer specifications are not sufficient to satisfy the Verification Requirements.
- The Verification Requirements are very clear that certifications are based on either empirical or analytic test data demonstrating compliance. See the Guidelines on Subscriber Verification Data for the submittal of quality control procedures to satisfy these data requirements.
- Demonstration that parts do not exceed the 50 ppm level is required according to the wording of the criterion.
- The term “listed part”, which differs from the RoHS test of homogeneous material, refers to the types of parts listed as example in the criterion, or the VDU as a whole.

Subsequent to the adoption of this Clarification, two Interpretations were adopted by an IEEE Interpretations Group related to this criterion. They are:

Interpretation 1-5: Vague use of the phrase “listed part” in criterion 4.1.4.1

The term “listed part” as used in 4.1.4.1 includes any part or component of the VDU, such as those listed in the criterion or others listed on a Bill of Materials, but not the VDU as a whole.

Interpretation 1-6: Clarification of substance threshold requirements and demonstration of conformance in criterion 4.1.4.1

It was the intent of the standards developers that either empirical or analytical data would be adequate to demonstrate conformance for several criteria in clause 4.1 which call for the elimination of intentionally added environmentally sensitive materials. Those criteria all state in the verification requirements: “either empirical data demonstrating compliance or analytical test data demonstrating compliance”, or equivalent language. Empirical data may include supplier assurance of conformance, and must include component sampling or data collection that is evaluated within a quality control system that demonstrates conformance. It shall not be required that analytical test data also be provided to demonstrate a substance level below the threshold. Of course, such analytical test data alone would also demonstrate conformance.

PVC Action: Clarification 1-1 has some inconsistencies with the Interpretations and should be made consistent. The Interpretations address all elements of the Clarification, with the exception of a specific reference to the 50 ppm threshold. Therefore, the following edits to the bullets in the Clarification will eliminate inconsistencies, delete elements addressed in the Interpretations even when not inconsistent, and preserve the unique elements in the Clarification:

- See Interpretations 1-5 and 1-6 for further detail on these questions.
- ~~Certification by suppliers of no intentional added lead and manufacturer specifications are not sufficient to satisfy the Verification Requirements.~~
- ~~The Verification Requirements are very clear that certifications are based on either empirical or analytic test data demonstrating compliance. See the Guidelines on Subscriber Verification Data~~ **Conformity Assessment Protocols** ~~for the submittal of quality control procedures to satisfy these data requirements.~~
- Demonstration that parts do not exceed the 50 ppm level is required according to the wording of the criterion.
- ~~The term “listed part”, which differs from the RoHS test of homogeneous material, refers to the types of parts listed as example in the criterion, or the VDU as a whole.~~

The bullets of Clarification 1-1 will now read:

- Demonstration that parts do not exceed the 50 ppm level is required according to the wording of the criterion.
- See Interpretations 1-5 and 1-6 for further detail on these questions.
- See the **Conformity Assessment Protocols** for quality control procedures to satisfy these data requirements.

Action 2: Eliminate Clarification 1-5

Discussion: Clarification 1-5 pertains to 4.5.1.2 – Optional criterion: Early adopter of a new ENERGY STAR standard. The Clarification now reads:

PVC Determination: The term “ES certification” was intended to mean the subscriber’s evidence (certification) that the product meets ES 4.0, and that evidence would be the applicable test data that would be required for ENERGY STAR compliance.

The revision of the 1680.1 standard clarifies this issue and the Clarification is no longer needed. The applicable verification requirement of the criterion now reads (showing changes):

Demonstration of ENERGY STAR **qualification, or compliance with the ENERGY STAR eligibility criteria** ~~certification~~

PVC Action: Eliminate Clarification 1-5.

Action 3: Edit Clarification 1-6

Discussion: Clarification 1-6 pertains to 4.6.1.2 – Optional annual corporate declaration criterion: Auditing of recycling vendors. It also relates to 4.6.1.1 – Required annual corporate declaration criterion: Provision of product take-back service. The Clarification now reads:

PVC Determination: The criterion is silent on specifying a regional restriction. It therefore applies worldwide, especially when considering the intent of the criterion to partially address environmentally unfriendly recycling resulting from export. Since the criterion applies to recycling vendors, rather than the product itself, it should apply wherever the recycling vendors (first through third tier) are located. Also, an EPEAT declaration applies to all units of the product sold anywhere, and the 4.6.1.1 criterion requires that a product take-back service be offered to institutional purchasers anywhere. It seems to follow that auditing should apply to recycling vendors anywhere who are downstream processors servicing product from the subscriber registered to this standard.

The subscriber should provide to the Qualified Verifier a map or guide to the first through third tier recyclers that participate in the subscriber’s “take-back and recycling service” to support the verification process.

Note that some components may be removed from products during recycling and sold for reuse. If sold as tested working products or components, they leave the recycling stream and therefore do not require further auditing. The auditing requirement applies only to the take-back and recycling service. However, if materials are separated and sold for recycling, the audit requirements apply.

The criterion does not exclude internal audits; however, in all cases an on-site visit must be conducted by the subscriber or a third party to ascertain the adequacy and relevance of the audit to the requirements of this criterion.

If this criterion is selected for verification, additional guidance may be forthcoming to assist the subscriber.

The revision of the 1680.1 Standard added language to both 4.6.1.1 and 4.6.1.2 that clarified the geographic application of the criteria. These revisions require a change of some of the text in the Clarification, but not the essential message.

The revised criteria now reads:

4.6.1.1 Required—Provision of product take-back service

Annual Corporate Declaration Criterion: Manufacturer shall provide a take-back or recycling service at a competitive price that meets U.S. EPA’s “Plug-In To eCycling: Guidelines for Materials Management,” published May 2004. **This criterion is applicable only in those regions or countries for which the product is declared on the Registry.**

4.6.1.2 Optional—Auditing of recycling vendors

Annual Corporate Declaration Criterion: 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 criterion is dependent on the region or country and may be declared by a manufacturer differently in different regions or countries.**

PVC Action: Clarification 1-6 should therefore be amended to read as follows (showing changes):

PVC Determination: The 4.6.1.2 criterion is silent on specifying a regional restriction. ~~It therefore applies worldwide~~ **only in the regions/countries where the product is declared to the criterion.**, especially when considering ~~It is~~ the intent of the criterion to **partially in part to** address environmentally unfriendly recycling resulting from export. Since the criterion applies to recycling vendors, rather than the product itself, it should apply wherever the recycling vendors (first through third tier) are located. ~~Also, an EPEAT declaration applies to all units of the product sold anywhere, and~~ **Note that** the 4.6.1.1 criterion requires that a product take-back service be offered to institutional purchasers anywhere **that the product is declared on the Registry**. It seems to follow that auditing should apply to recycling vendors anywhere who are downstream processors servicing product from the subscriber registered to this standard.

The subscriber should provide to the Qualified Verifier a map or guide to the first through third tier recyclers that participate in the subscriber's "take-back and recycling service" to support the verification process.

Note that some components may be removed from products during recycling and sold for reuse. If sold as tested working products or components, they leave the recycling stream and therefore do not require further auditing. The auditing requirement applies only to the take-back and recycling service. However, if materials are separated and sold for recycling, the audit requirements apply.

The criterion does not exclude internal audits; however, in all cases an on-site visit must be conducted by the subscriber or a third party to ascertain the adequacy and relevance of the audit to the requirements of this criterion.

If this criterion is selected for verification, additional guidance may be forthcoming to assist the subscriber.

Action 4: Eliminate Clarification 1-9

Discussion: Clarification 1-9 relates to 4.8.2.1 – Required criterion: Separable packing materials. The Clarification now reads:

PVC Determination: The wording of the criterion should take precedence over the more restrictive wording of the verification requirement. Even if "glue" is used, but the materials can "be segregated into like materials without the use of tools", then the product (packaging) is in conformance with the criterion.

The revision of the 1680.1 standard addressed this issue. Even though it may not totally satisfy all concerns, the stakeholders decided on the new text, and the Clarification is no longer needed. The applicable verification requirement of the criterion now reads (showing changes):

Documentation stating that dissimilar materials are **separable and are** not glued together.

PVC Action: Eliminate Clarification 1-9.

Action 5: Eliminate Clarification 1-10

Discussion: Clarification 1-10 pertains to 4.8.2.2 – Optional criterion: Packaging 90% recyclable and plastics labeled. It now reads:

PVC Determination: Per the advice given by the EPEAT Board of Advisors, the PVC shall, if this criterion is selected for verification, verify only the 90% recyclable portion of the criterion.

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

The revision of the 1680.1 standard followed the PVC advice and clarifies this issue. The Clarification is no longer needed. The “Applies to” section of the criterion now reads (showing changes):

Applies to: Packaging of products that are declared to conform to this Standard. **Labeling requirement does not apply to plastic parts weighing less than 25g or with surface area less than 50 cm²; plastic protective and stretch wraps and labels; or plastic pieces when due to shape affixing a label is not possible.**

PVC Action: Eliminate Clarification 1-10.

Action 6: Eliminate Clarification 2-2

Discussion: Clarification 2-2 pertains to use of the exceptions field. It is a modification of Clarification 2-1 which was issued in August 2007. The Clarification now reads:

PVC Determination: In the meantime, we wish to provide *limited temporary flexibility in use of the exceptions field*. Unless and until the 1680 Standard is amended, the exceptions field must be used to identify specific configurations, per PVC Clarification #2. However, until the ES 4.0 solution is implemented, we will allow a note in the Exceptions field that states that certain configurations of the product may not be ENERGY STAR 4.0 compliant, and that specific compliant, or non-compliant, configurations can be identified through contact with your company.

This non-specific use of the exceptions field is not in strict conformance with 1680 and will only be permitted until a full ES 4.0 solution is implemented.

The revision of the 1680 standard has been completed, and the conditions for this Clarification are no longer applicable. The Clarification should be eliminated.

In fact, the exceptions text in 1680 was not modified. However, the realities of the qualification requirements of ENERGY STAR do not allow for any further flexibility. Therefore, the 1680 exceptions do not need to be made more flexible. Subscribers have been fully notified and have adapted, though verification may be in order.

PVC Action: Eliminate Clarification 2-2.

III. PVC CLARIFICATIONS

Clarification 6-1: Regarding 4.4.2.2 – Optional criterion: Modular design

The following was received from two subscribers and a supplier. Their names have been replaced with X, Y and Z.:

X, Y and Z formally request an interpretation and clarification of the IEEE 1680 standard for criteria 4.4.2.2 – Optional criteria for modular design by the EPEAT Product Verification Committee. This is a follow up to the request made by X in May 2009.

The modular design 4.4.2.2 product optional criteria states: *Product shall have a modular design; for example, major components and processor can be changed.*

Specifically, the EPEAT conformity assessment protocols guidance document (<http://www.epeat.net/Docs/Protocols%20v.1.2.pdf> page 4.4-9) states that processors cannot be soldered to the motherboard as shown in the table below.

4. Evaluation guidance	<p>Modularity means that major components must be easily removable, have standard connectors, and are readily replaceable.</p> <p>Processor cannot be soldered to motherboard.</p> <p>Note that criterion does not require that modules must be changeable by user and may be limited to designated service entities or the manufacturer. However, stating “take item to service entity” does not fulfill the “description of the module change method”, which must be provided for the service entity.</p>
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At this time no interpretations or clarifications for modular design have been issued since the EPEAT criteria were developed in 2004 and 2005 and finalized as the IEEE 1680 standard in mid-2006. As you know, electronics technology is advancing rapidly with entirely new generations of technology and products introduced every 12 – 18 months. The latest processor technology often uses processors that are soldered to motherboards or cards to enable slimmer, lighter form factors that reduce the weight and materials used in both notebook and desktop computers. The latest products are also lower voltage with significantly improved energy efficiency.

X, Y and Z believe the original intent of the modular design criteria was to allow for the processor to be replaced as a singular component as it is provided as an example. The standard, however, does not explicitly state that the processor must be singularly replaceable. Allowing motherboards with soldered processors to be replaced as an upgrade option to meet the modular design criteria is desirable for the following reasons:

- Processors and motherboards work as a single subassembly or component. In product repair or upgrade situations the entire board is normally replaced rather than single components.
- Today’s technologies increasingly use processors soldered to boards that help enable slimmer, lighter form factors that reduce materials use. For example new ultra portable notebooks and netbooks weigh about 3 pounds, while the previous generations of notebooks weigh 5 pounds or more. Weight examples for various models are available on the web sites for X and Y.
- The new lighter models also are lower voltage and more energy efficient. The new smaller form factor systems are in the 30 watt range and older models about 100 watts.
- Note that these new, lower cost products help enable access to technology and the internet for more consumers globally. As EPEAT becomes more active in retail situations this criteria will become more important to clarify.

The requested interpretation would not require a modification of the standard itself. However, the language noted above in the Conformity Assessment Protocols on the EPEAT.net website should be considered for modification to allow replacing entire

motherboards (or similar module) with soldered processors as a valid upgrade option to meet the modular design optional criteria 4.4.2.2.

Background Analysis:

Staff is, of course, unwilling to change the protocols until the PVC provides direction. A literal reading of the criterion states that the processor must be changeable, and that is the provision in the Protocols.

However, there are two factors to be considered:

1. The case is made by the supplicants that, in essence, the intent can be met by considering the entire motherboard as the module, and allowing the replacement of the motherboard to be equivalent to “processor can be changed”.
2. The reference to the processor is an example. The criterion reads “for example”, it does not read “including”. Does referencing an example mean that the example must be included, or may be included?

Clearly, this criterion will be subject to revision when the 1680.1 standard is reopened this coming year. However, for at least a year this optional criterion will not be available to subscribers that use certain popular processors that are designed to be, and apparently are only available, soldered to the motherboard.

The PVC determination is based on the following logic:

- The intent of the standard developers was to assure that the processor alone could be changed, and therefore it is not appropriate for the PVC to allow that the entire motherboard must be changed in order to change the processor.
- While non-removable processors are supported by current design and recycling practices, EPEAT is intended to drive environmentally preferable change, not to adapt to industry practice. It’s not clear that removable processors are not technologically feasible. Rather, it is current industry practice. Couldn’t EPEAT drive a change in this practice if left as is?
- LCAs show that the manufacture of electronic components (and upstream processes) contribute substantially to the environmental impact of computer products. If the PVC allows that the entire motherboard must be replaced in order to change the processor, we are significantly reducing the environmental benefit of this criterion.
- Changing out the motherboard which has other functions integrated on the board defeats the purpose of extending the life of a product and reducing the environmental impact.
- Finally, this is an optional criteria. If the intent is changed, the standard will be giving away a point, rather than creating an incentive towards a stretch goal.

PVC Determination: The criterion requires that the processor must be changeable independent of other components such as the circuit board to which it is attached.

Clarification 6-2: Regarding rounding methodologies as relates to meeting threshold requirements.

The following was received from a subscriber:

I am being asked for clarification to a specific example where we have calculated a PCC for plastic as being 9.99%. What guidance would you give me to pass along to our

design team? Do they have to reformulate to be at least or higher or is there a provision for rounding.

Background Analysis: The applicable provision in the standard reads: “Product shall contain on average a minimum of 10% postconsumer recycled plastic”.

The standard sets a threshold of 10%, not a specific value to be achieved. Therefore it is not valid to round up to that amount in a declaration of conformance. If the standard were to specify an amount to be achieved (no examples are identified), then normal rounding practice would apply.

PVC Determination: When the standard sets a threshold of a specified amount, or of a percentage, for a specified quantity, the threshold cannot be said to be met if the actual amount is rounded up from below (or down from above) that amount. For example, a threshold of 10% recycled plastic means that the amount of recycled plastic must be at least 10%. The calculated value of recycled plastic must be at or above the stated threshold. Rounding a percentage up to the threshold is not allowed.

Subscribers must report the specified quantity with the highest level of accuracy their measurements allow, following standard engineering practice for significant digits.

A threshold is signified by language such as the following, or its equivalent:

- A floor: “greater than”, “>”, “a minimum of”, “not less than”, “minimum”.
- A ceiling: “less than” “<”, “a maximum of”, “not more than”, “shall not exceed”, “maximum”.

Clarification 6-3: Regarding 4.4.3.1 – Optional: Availability of replacement parts

The criterion reads:

Product Criterion: Spare parts and/or compatible replacement parts shall be available five years after end of production. Information on how to obtain replacement parts shall be provided to user.

Several issues were identified with this criterion in Verification Round 4 and the bulleted text below was decided on by the PVC during that Round.

PVC Determination: The following principles shall be applied in determining conformance with criterion 4.4.3.1:

- The whole product is not a part. The intent of the criterion is to extend the life of the product by replacing parts. So replacement of the whole product does not meet the intent.
- The replacement parts must be available regardless of whether the user has taken an extended warranty.
- Any charges for replacement parts are up to the subscriber, or their designated agent (the party who provides the replacement parts).
- The subscriber is responsible for assuring that any agent designated to provide replacement parts will meet the replacement part requirements for the required period of time – 5 years after end of production.
- The subscriber can determine for which parts replacement parts will be made available.

- Parts may, at subscriber's choice and user notification, be available only through service centers that do the replacement.
- Replacement parts may be after-market, or refurbished, etc.
- EPEAT can verify, within the 5-year period after end-of-production, that this criterion is met for products that have been archived.

The finding of an NC for this criterion should trigger EPEAT staff to request the subscriber to check that corrective action is taken for all their products, where needed. EPEAT staff will subsequently check with the subscriber to make sure that such actions have been taken.