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Eaton Corporation would like to respond to the Environmental Protection Agency (EPA) proposed Draft 1 ENERGY STAR® for UPS Specification. Eaton representatives participated in the Washington DC Face-to-Face Stakeholder meeting held on May 12, 2011. This meeting was very informative, and discussions with the EPA and fellow stakeholders were productive. Included in this response is Eaton's review of the anonymized dataset and analysis that was released by the EPA on May 19, 2011. We thank you for the continued opportunity to participate in the Energy Star for UPS Specification development process.

Efficiency Requirement Levels

Eaton believes that the Draft 1 Efficiency levels are very aggressive, given the industry's proactive stance on energy efficiency. Energy efficiency has always been a central performance metric for the industry, and it has delivered market-driven improvements in this regard. As a newcomer to Energy Star, the UPS industry faces new challenges; the ramp-up and costs associated with certification and uncertainties surrounding the verification/enforcement processes. Any difficulties meeting these challenges are further exacerbated by overly aggressive efficiency requirements. We think the EPA should encourage rather than discourage program participation at this time by lowering the Draft 1 efficiency requirements to levels that are both achievable and sustainable by participants.

Eaton believes that the Draft 1 requirements for VFD and VI, found in Table 1 of section 3.2, should not be a simple straight line and should at a minimum contain some degree of slope. This adjustment would account for the higher proportion of power losses presented by communications, displays, cooling, and DSP controls in lower kVA UPS products.

We also wish to reiterate the discussion point that the Efficiency Requirements should be based on kW and not kVA.

Treatment of Multi-mode UPS

Eaton supports the EPA in its continued efforts to apply performance-based UPS classification categories with highest efficiency as a core objective. Eaton supports the EPA's proposal to include multi-mode UPS models as products that can switch modes within industry accepted performance boundaries; and that these products be

tested in their highest efficiency mode using the efficiency requirements for that mode as the primary means for Energy Star qualification. Eaton is committed to the development, deployment, and support of world class efficiency and energy saving products as exemplified by our continued success delivering these innovations to end users.

Eaton supports the use of PPDS to publish UPS product performance including efficiency performance, energy saving features, and reporting capabilities. This datasheet will be key to assisting consumers to make the best decision regarding the potential for a UPS product's energy savings; we look forward to participating in the design and layout of these datasheets.

Review of the Anonymized Data Set

Eaton recognizes the challenge faced by the EPA to arrive at a representative, yet definitive set of Energy Star for UPS Efficiency Requirements. This challenge is made even greater by the coverage of a wide UPS power range. While we see the benefits of a "simplified" requirement, we caution that fitting lines to the data inadvertently excludes models that may otherwise be included. One such example is the exclusion all UPS VFD models at the lower kVA range (< 1.5 kVA). The Energy Star program must remain relevant in the consumer UPS market space where the smaller kVA VI/VFD models are predominant and where the Energy Star Program will have the most immediate impact.

With the product data grouping of performance so tightly packed together in some kVA sizes, the 20 to 25 % market penetration targets should consider safety margin in the count. A product model that is either "on or just above" the requirement level should not be easily counted in the analysis as an Energy Star Qualified model. Manufacturing tolerances may not allow that model to actually qualify at that performance level. Language should be provided in the specification that both educates and guides the Energy Star for UPS participant about the potential issues within the test verification process should a product's performance be absent of safety margin.

Communications

Eaton has long since recognized that communications does allow the UPS to become a more integral part of the datacenter with the potential benefit of further reducing total energy consumption. However, this is true only to the extent that the communicated data is currently utilized and supported by the datacenter components at any given location or site. A requirement that every UPS communicates output kWh has the potential of burdening smaller UPS products with unjustified additional cost and power consumption. For the larger datacenter UPS's, a kWh reading at every UPS output has the potential of producing duplicate and un-used measurement data points. The Energy Star for UPS Specification should remain focused on UPS product efficiency and should not require the communication of measurement data that can be achieved by other proven and more effective means.

Charger Specifications

Efficiency measurements should be taken with the battery disconnected consistent with IEC standard 62040-3 Second Edition.

We look forward to further discussions on the proposed Energy Star for UPS Specification.

A handwritten signature in black ink, appearing to read "Miguel E. Chavez", with a horizontal line underneath.

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