

Energy Star Program for UPS

CyberPower Systems' Comments and Recommendations for Draft 2 Spec

- CyberPower is impressed with the direction the EPA is taking the Energy Star program for UPS systems.
- We appreciate the opportunity to participate in the process.
- CyberPower is committed to supporting the specifications development and providing our input and perspective on the details of the program.

- We are concerned the weighting for average efficiency is not realistic:
 - The weighting of 100% load is too high.
 - Most users will never load up a UPS with its max output.
 - The vast majority of users will use a UPS to support a single computing system, a limited number of telecom devices or select home electronics.
 - Most of the time, less than **3 devices** are connected to a UPS and the average load is less than **65%**.
 - With almost every UPS being equipped with LEDs, an LCD, or software management, users are aware of the load status and receive warnings on overload situations.
 - **Operation at 100% load is extremely rare.**

- If we consider the daily usage time:
 - Connected devices are either switched-off, in standby, or at idle most of the time.
 - Consumers typically use their PCs (supported by a UPS) after work. The projected time for use would be from **6pm to 2am (or up to a 1/3 of a day)**. The rest of the time the UPS will be at idle with a minimal load level.
 - After business hours, more than **70%** of the office servers are on standby or operating with minimal traffic. As a result, the power draw on a UPS is considerably less. **(As with consumer usage, the business hours count for roughly a 1/3 of a day)**

- Fact - most UPS' operate with a moderate load:
 - The weighting should reflect real world usage.
 - The assumption that a UPS is continuously working with a peak load is **not realistic**.
 - Operating at 100% load would push the threshold of the UPS' safety designs and **possibly launch an auto-shutdown procedure** to protect the UPS and connected equipment from damage.
 - The current calculations for weighting each load level are not appropriate. Both the consumer and commercial UPS calculations need some adjustments.

CyberPower proposes the following for weighting the load:

- We recommend placing a higher weighting at 50% load to accurately account for where the majority of UPS' will be operated most of the time.

* Changes are marked in RED.

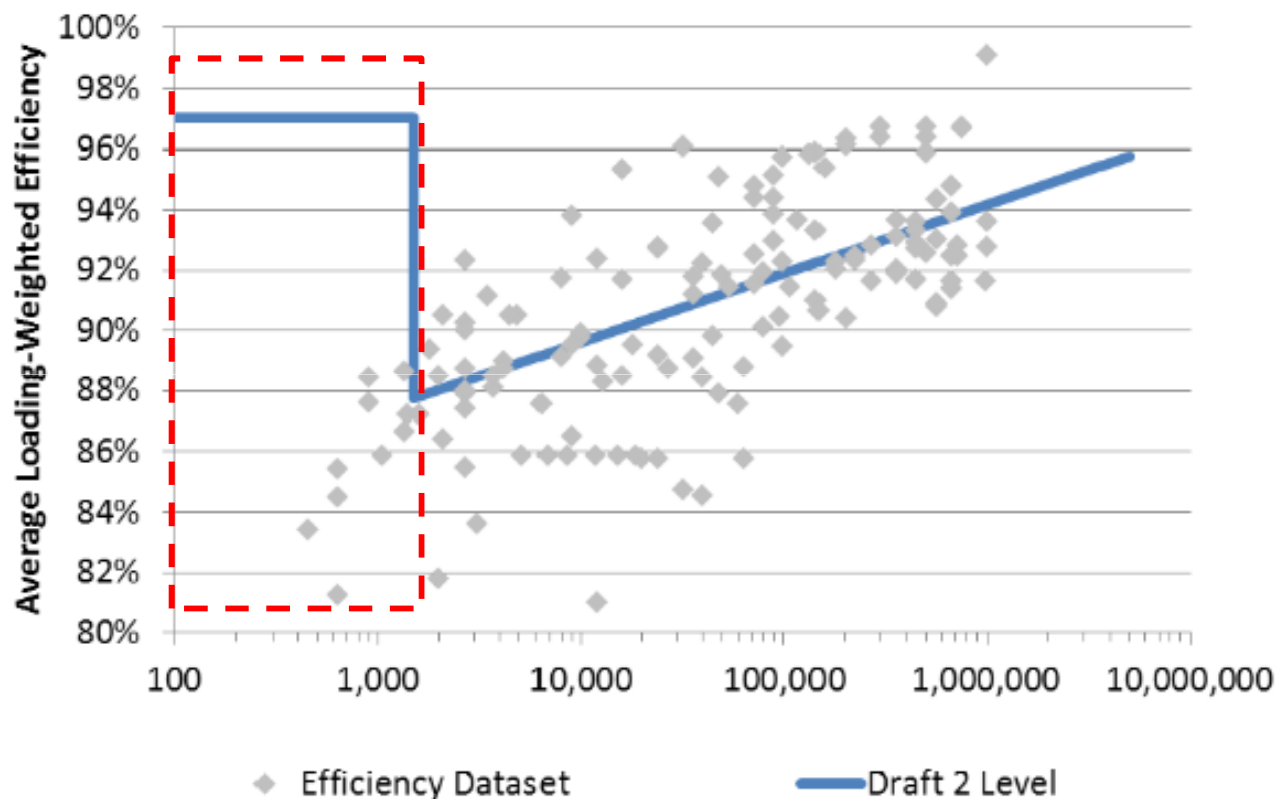
UPS Class	Proportion of Reference Test Load			
	25%	50%	75%	100%
Consumer UPS P ≤ 1.5kW	0.25	0.5	0.25	0
Commercial UPS 1.5kW < P ≤ 10kW	0.25	0.5	0.25	0
Data Center UPS P > 10kW	0.25	0.5	0.25	0

- Commercial UPS systems with higher capacity should require at least the same efficiency as consumer UPS systems. The reasoning behind this recommendation is that all commercial UPS systems are typically designed for general purpose vs. specific needs.
- On the other hand, some requirements seem to be too strict regarding the current technology.

■ Draft 2 requires 97% for VFI on UPS at $\leq 1.5\text{kW}$

→ No UPS ($\leq 1.5\text{kW}$) will meet the VFI spec. In fact, the diagram of the dataset revealed this phenomenon.

→ **None of the test results come close to the required level.**



We propose the following:

- Commercial & consumer UPS' shares the same requirements.
- VFI $\leq 1.5\text{kW}$ uses the same formula with other power levels.

* Changes are marked in RED.

UPS Class	Input Dependency		
	VFD	VI	VFI
Consumer UPS $P \leq 1.5\text{kW}$	0.97	0.97	$0.0099 \times \ln(P) + 0.805$
Commercial UPS $1.5\text{kW} < P \leq 10\text{kW}$	0.97	0.97	$0.0099 \times \ln(P) + 0.805$
Data Center UPS $P > 10\text{kW}$	0.97	0.95	$0.0099 \times \ln(P) + 0.805$

END

**Thank you for the opportunity to provide
input on the new Energy Star program.**