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Written Comments Received on the Computer and Computer Monitor Regulations
Title 20, Division 2, Chapter 4, Article 4 California Code of Regulations
45-Day Public Comment Period
October 2, 2020 through November 16, 2020

Commenter's Name	Comments/ Suggested Revisions	Response
Erica Thomas, Information Technology Industry Council (ITI)	The only minor change we would propose to the draft rulemaking is with regard to Table X, which pertains to computers with cyclical behavior. We would like to request that, when running the full charging cycle test for various power modes, Table X not require reporting test time duration in seconds. Since some of the modal testing time could exceed 24 hours, it would be better to report test duration in one of the following two formats: 1) Hrs:Mins 2) Hours and minutes expressed in a decimal number as XX.XX hours. Reporting a vast number of seconds is not practical (for example for a 26-hour test, the current draft would require reporting the number as 93,600 secs).	Comment acknowledged Comment accepted The reporting of the test duration was changed from *seconds* to *hours:minutes:seconds* as requiring reporting of a vast number of seconds is not practical. This change is deemed non-substantive because it only changes the units the measurements of time are reported in.
Erica Thomas, Information Technology Industry Council (ITI)	In addition, ITI would appreciate if CEC could clarify when the amendments will become effective after the proposed rulemaking is adopted. Specifically, ITI recommends that all of changes pertaining to the computers and computer monitors regulation should apply starting on January 1, 2021	Comment acknowledged The CEC has been working with Stakeholders to expedite as quickly as possible and anticipates an effective date upon filing with the Secretary of State.
California Investor Owned Utilities Comments	Multi-screen notebook computers: The Energy Commission proposes updates to the test procedure and display adders for multi-screen notebook computers. This type of notebook computer was first introduced in 2006, failed to gain significant market share, and is now being reintroduced. The Statewide CASE Team worked with an accredited lab to test the	Comment acknowledged No Change The proposed changes do not include a new energy adder or a new test procedure for this type of computer. It merely clarifies that each integrated display receives its own integrated display adder and that to receive this adder it

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	proposed changes on two notebooks: one notebook with an LCD secondary display (system D) and one with an E ink secondary display that can be used as an e-reader, keyboard, or stylus pad (system E). …. The E ink secondary display in system E was unable to display the test image. The Statewide CASE Team understands, based on correspondence with Energy Commission staff, that this system would therefore not qualify for a secondary display adder. The E ink display draws very little power: 0.2W, equivalent to 0.5 kWh/yr in energy use for the conventional duty cycle. E ink displays draw power only when changing pixel color and do not draw power when showing a static image. The minimal power draw measured is likely due to the display backlight. Although the system tested could not display the test image, other E ink displays may be able to do so and qualify for a secondary display adder. Because E ink displays draw minimal power, however, the Statewide CASE Team recommends that the secondary display adder not apply to screens that draw no or minimal power when displaying a static image. In addition, the Statewide CASE Team recommends clarifying that the adder does not apply to secondary screens that cannot display the test image by updating the proposed language in Table V-8 with the changes in red type (deletions shown with strike out text (~~example~~); additions are underlined (<u>example</u>)): For a multi-screen notebook, this adder is applied for each integrated display that is enabled when shipped and ~~shall~~ <u>is capable of</u>	must be enabled when shipped and must be configured in the same manner as the primary integrated display by showing the test image during testing. As noted in the comment, the display was not able to display the test image during testing and therefore would not receive an energy adder. It is not clear how its energy consumption would have changed if it was able to be setup according to the test procedure to show the test image. This comment recommends that the secondary display adder not apply to screens that draw no or minimal power when displaying a static image. However, the primary and secondary displays are setup in a similar manner for testing and their power consumption would not change based on assigning them as the primary or the secondary display. Moreover, the amount of the energy adder for each integrated display is specified in the existing computer regulations. Excluding specific types of displays, such as E ink, from receiving the integrated display adder is not in the scope of this rulemaking. The changes to the regulatory language that are proposed in this comment are consistent with the original language and therefore no change is required.

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	showing and configured to show the ~~same~~ test image during testing.	
California Investor Owned Utilities Comments	Computers with High Bandwidth Ethernet: Increasing Ethernet bandwidth has led the Energy Commission to propose a new adder of ten kWh/yr for computer systems with Ethernet bandwidths greater than one Gb/s and less than ten Gb/s. … Because Ethernet functionality integrated into the computer is expected to be better optimized in terms of power than Ethernet functionality on add-in cards, the Statewide CASE Team believes the proposed adder of ten kWh/yr is appropriate at this time. The Energy Commission should monitor the energy use of computers with high bandwidth Ethernet as they become available on the market to ensure that the adder continues to be appropriate.	Comment Acknowledged No Change Clarification on comment provided. CEC is proposing a new energy adder of 4 kWh/yr per computer for wired Ethernets with a transmit rate of greater than 1 Gb/s and less than 10 Gb/s that are not an Add-in card. The energy adder of 10 kWh/yr for Add-in cards, including Ethernet cards, is in the existing regulations.
	Fast Refresh Rate Computer Monitors: Because these models have not yet been released to the market, the Statewide CASE Team was unable to obtain fast refresh-rate computer monitors to test. However, the continued growth of power allowances for gaming computer monitors raises concern. The video used during on-mode power tests is 60 Hz, and no graphics processing capability requirements of the attached computer for the test. Consequently, it is likely that gaming computer monitors are displaying the test video at 60 Hz during the test, suggesting that the graphics hardware on these computer monitors may draw significantly more power when not needed, a potential missed opportunity to improve power management in these type computer monitors. If increased refresh rate becomes a more common feature of displays in the future, it has potential to	Comment Acknowledged No change No data was presented to contradict the proposed energy adder and therefore no change is incorporated based on this comment.

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	increase energy use of computer monitors. In addition, fast refresh rate computer monitors must be paired to computers with fast refresh rate graphics cards, further increasing the power impacts of gaming systems. Unfortunately, because the Energy Commission is setting the adder based on confidential industry data and before any of the products it applies to are available to the public, the Statewide CASE Team and other energy efficiency advocates have no means to evaluate the appropriateness of this adder. The Statewide CASE Team plans to monitor and track this technology as it evolves.	