Topic	Subtopic	Comment Summary	EPA Response
General	Data Analysis	One stakeholder commented that EPA's analysis lacks direct comparison of the individual technologies available in displays and recommended that EPA base allowances on individual analysis of each technology. The stakeholder further commented that reducing the baseline E_TEC Max should be sufficient for recognizing the most efficient products and there should be no further need to adjust the percentage allowances individually.	EPA acknowledges the input. However, EPA generally adopts a holistic approach to determining allowances and finds that this most accurately accounts for products with overlapping features that may not add linearly to energy consumption, and for the ability of manufacturers to implement more efficient technologies in models with certain features. Furthermore, while adjusting E_TEC_Max accounts for overall increases in efficiency across the monitors market, certain technologies can be expected to achieve disproportionately higher or lower increases in efficiency which require adjusting individual allowances accordingly.
General	Effective Date	One stakeholder expressed support for the proposed effective date of January 28, 2020.	EPA appreciates the feedback and has maintained the proposed effective date of January 28, 2020.
General	Market Trends	One stakeholder provided general comments regarding market trends in display technologies, including increasing demand for larger screen sizes and higher resolution.	EPA appreciates this information and will keep these trends in mind in future specifications.
Requirements	Curved Display Allowance	Two stakeholders recommended increasing the allowance for curved Monitors from 15% to 30%, citing lower transmittance of curved panels and levels set by the California Energy Commission.	EPA appreciates the input but is maintaining the final draft allowance of 15% as EPA did not receive model-specific data indicating increased power requirements for curved Monitors. That the allowance of 15% of TEC Max, which is triple the 5% allowance proposed in Draft 2, should enable the most efficient implementations of curved technology to achieve ENERGY STAR certification. Should EPA receive sufficient product-specific data, EPA would consider revisiting the allowance for curved Displays in future revisions.
Requirements	EPD Allowance	Five stakeholders requested that EPA revisit the allowance for Enhanced Performance Displays (EPDs). Suggestions varied in specific content but generally proposed increasing the allowance for displays with higher color gamuts. Two stakeholders argued that the EPD allowance should be based on the differing optical power characteristics of sRGB and Adobe RGB models, and provided proposed allowances based on optical power. Another stakeholder observed that the average percentage difference between measured TEC and the Final Draft TEC requirement was higher for Adobe RGB models than both sRGB and non-EPD models and suggested that this indicates that the Final Draft EPD allowance is relatively biased against Adobe RGB and other high color gamut models.	EPA considered the various proposals for the EPD allowance but found that all suggestions were disproportionately lenient for EPD models in the ENERGY STAR dataset with color gamuts above 38.4%. With an ENERGY STAR market penetration of 94%, EPA is confident that the ENERGY STAR dataset is reflective of overall market performance. Additionally, in response to stakeholder requests for further easing of the maximum Total Energy Consumption requirements and the EPD allowance, EPA determined that these stakeholder requests would: compromise national savings delivered by the specification (reduced savings by approximately $6 million/year); reduce the specification's effectiveness in differentiating more efficient products (resulted in an estimated pass rate at specification finalization of 40%); and disproportionately recognize models with certain features and select sizes. In order to fairly differentiate top-performing models of various sizes and features, EPA has not made the changes requested in these areas. Regarding basing the EPD allowance on optical power characteristics, EPA believes that manufacturers are able to implement more efficient components in EPD products which may enable them to make up for the differing optical power characteristics. This likely accounts for potential discrepancies between optical power demands and the overall TEC allowance which EPA has deemed appropriate based on holistic analysis. Regarding the percentage TEC difference for sRGB, Adobe RGB, and non-EPD models, EPA would like to point out that such a statistic depends on the distribution of measured TEC for various market segments. Because the distribution of measured TEC for EPD models may have a higher standard deviation or may be skewed compared to the distribution for non-EPD models, EPA does not believe that the average percent TEC difference is a good indicator of bias. The ENERGY STAR dataset pass rates for EPD models with color gamuts 32.9-38.4% and greater than 38.4% of CIE LUV are 33% and 32%, respectively, which are comparable with the overall dataset pass rate of 32%.
Requirements	Frame Rate Allowance	One stakeholder proposed an allowance based on monitor frame rate.	EPA acknowledges the suggestion. EPA requested data for models intended for gaming applications, including models with high frame rates, in the Draft 1 specification, but has yet to receive data from stakeholders. Should EPA receive energy consumption data for models with various refresh rates, EPA would consider revisiting this request in future revisions.
Requirements	HDR Allowance	One stakeholder expressed support for the HDR allowances proposed in the Final Draft.	EPA appreciates the stakeholder's support.
Requirements	Measurement Angle and Contrast Ratio	One stakeholder recommended changing the contrast ratio viewing angle requirement for Enhanced Performance Displays, citing difficulty in obtaining the necessary testing equipment.	EPA is not aware of testing laboratories having difficulty procuring the necessary equipment and is thus maintaining the requirement as is. Should EPA receive additional comment on this issue, EPA will consider modifying the requirement in future revisions.
Requirements	TEC Max Equation	Two stakeholders recommended increasing TEC Max for Ultra High Definition (UHD) monitors by either modifying the TEC Max resolution coefficient or developing a separate allowance, expressing concerns that this feature was not adequately accounted for. Two stakeholders recommended increasing TEC Max for monitors in the 210 to 315 sq. in. and >315 sq. in. size bins.	Upon reviewing the ENERGY STAR dataset, EPA found no evidence that UHD models require an additional allowance, and believes the final draft E_TEC_Max equation is sufficiently equitable in recognizing performance across size bins.
Requirements	Total Energy Consumption Requirement	One stakeholder requested clarification regarding the intention of the phrase "applied at most once" in Section 3.3.3.	EPA has revised the phrase in question in the final version to read "each applied at most once" to clarify that each individual allowance should only be applied once even if a product features multiple implementations. For example, products with multiple implementations of Automatic Brightness Control (ABC) or products meeting both HDR 600 and HDR 1000 performance levels would only apply the respective allowances once.
Requirements	USB-C Allowance	Three stakeholders recommended that EPA increase the USB-C allowance to 5 kWh in order to accommodate increased On Mode and Sleep Mode power needed to support Power Delivery functionality.	Upon further analysis of the ENERGY STAR dataset and review of stakeholder comments, EPA determined that the proposed USB-C allowance of 0.7 kWh did not adequately account for models with 45 W and greater Power Delivery capability, which requires additional hardware and thus additional power. Accordingly, EPA has revised the USB-C allowance in the final Version 8.0 Specification; USB-C models with 45W or greater Power Delivery shall apply an allowance of 2.75 kWh. Models with USB-C ports not capable of Power Delivery will not receive an allowance. EPA expects this to be adequate for recognizing the most efficient implementations of USB-C Power Delivery functionality.