Topic	Subtopic	Comment	Response
Digital Front-End (DFE) Requirements	Maximum TECDFE Requirements	A stakeholder noted that the only difference between a Type 1 DFE and Type 2 is the presence of the AC power supply. The AC power supply consumers no more than 25% of the energy of the DFE without the power supply. Furthermore, the DFE requirements should be a function of the productivity, as follows: Type 1: TECDFE ≤ 0.15 x s Type 2: TECDFE ≤ 0.12 x s	EPA's analysis of certified product data did not reveal any direct relationship between print speed and DFE energy consumption. Moreover, the performance of DFEs clustered such that relaxing the requirements would significantly affect the DFE pass rate. EPA is therefore proposing to leave the proposal unchanged in the Final Draft.
DFE Requirements	Professional DFEs	Three stakeholder requested a lower performance score criterion for Professional DFEs. One noted that a performance score (number of processor cores × clock speed in GHz) of 12 would recognize more high-performance PC-like products, while another noted that even server-based DFEs may have scores as low as 14 due to less parallelism and fewer cores at higher frequencies and recommended removing this part of the definition. A third stakeholder requested a score of 10.	EPA has reviewed the performance of the latest generation server-based DFEs, and these have a performance score of 20. The lower-performance workstation-based systems cited by stakeholders should be able to meet the proposed Type 1 DFE requirements; therefore, EPA is not proposing to change the DFE requirements.
Effective Date		One stakeholder commented that Version 3.0 requirements will require testing and design changes and requested ta total of 15-18 months from the final draft date for products to qualify to the new requirements.	The 9 month transition time is not intended to accommodate product redesign, only to update web and collateral material to the new specification, the retesting of products as well as relabeling.
Job Volume		One stakeholder claimed that the print volume for printers with high printing speed has been reduced by a factor of 2, not 4.	While EPA acknowledges that any metric that incorporates a usage factor is at best an estimate, the revised usage assumptions are based on two manufacturers' data from equipment deployed in the field: one manufacturer provided data for models at 25-65 ipm, and another at 25-77 ipm. The 1/4 reduction in assumed print volume was based on a best-fit line for these data. Absent any comparable data from other manufacturers, EPA continues to propose the new TEC metric.
OM Requirements	Off Mode Requirement	One stakeholder remarked that there should be a distinction between industrial products versus those intended for consumer (home) use. Consumer products can meet sleep and off mode power requirements more easily than industrial products; moreover, industrial products have a more active duty cycle.	EPA reviewed currently-certified OM products and found that while 93% meet the proposed 0.3 W off mode requirements, there are some categories that would have a lower pass rate. However, even for those the pass rates are quite high: - 63% for large-format electrophotographic (EP) MFDs; - 75% for small-format ink jet mailing machines; - 79% for small-format scanners; - 88% for large-format EP printers; and - 89% for small-format direct thermal printers. Given these high pass rates and the difficulty with further separating consumer from industrial products, EPA proposes to maintain its proposed requirement at 0.3 W.
Professional Imaging Products	Three-Phase Products	One stakeholder wanted clarification on whether 3 phase products would be in the scope of Professional Imaging Products.	EPA clarifies that three-phase products are excluded from the scope of the ENERGY STAR specification, and this exclusion applies to professional imaging products as well.
Recovery Time		One stakeholder commented that a 60-second recovery time is not sufficient for initialization and pre-heating. Furthermore, printers with high speed do not enter energy saving modes as much as slower printers. Higher recovery times would not frustrate a user. Another stakeholder agreed with the proposed recovery time requirement, but asked that in future revision, the requirement be considered as a promotion of energy conservation for customers.	EPA's analysis of the requirement found that 759 of 992 of TEC models (76%) had a recovery time between 0 and 61 seconds. EPA therefore does not consider the recovery time to be overly strict. Furthermore, models with longer default delay times than those specified in Table 7 are not subject to a recovery time requirement.
Recovery Time	Test Method	One stakeholder questioned the repeatability of the recovery time measurement in the TEC test method and requested that EPA consider accepting Blue Angel test results and consult with CBs regarding verification testing.	While the ENERGY STAR TEC test method and Blue Angel Recovery Time test method (Section 5 of Appendix E-M) are similar, the Blue Angel test allows manufacturers to disable delay times to additional, deeper sleep modes, such that the sleep mode that is used for the recovery time requirement is the same as the one for the default delay time requirement. In the ENERGY STAR TEC test method, the sleep mode delay times are left in default conditions, so it is possible that a product will meet the default delay time requirement using one sleep mode, but then have difficulty meeting the recovery time requirement from a deeper sleep mode. However, 66% of currently certified TEC products do not list additional sleep modes and of the ones that do, 61% would meet the proposed recovery time requirements using the recovery times measured using the ENERGY STAR TEC test method. Therefore, so as not to impose additional test burden, EPA proposes for manufacturers to use the TEC test results to meet the requirements rather than Blue Angel.

Topic	Subtopic	Comment	Response
Re-Testing		One stakeholder commented that specification revisions in the past have resulted in significant re-testing, and recommends that EPA give instructions to labs and CBs outlining how V2.0 test results can be recalculated to demonstrate compliance with V3.0 requirements.	EPA can provide a calculator along with instructions to CBs convert current test results into the new metric to avoid any additional testing and reduce recertification burden.
Reuse/Remanufacturing		One stakeholder asked EPA to allow remanufactured products two more years to comply with new V3.0 requirements due to their non-energy benefits.	While EPA appreciates the impacts of manufacturing energy embedded in products, there is currently no alternative program for remanufactured imaging equipment, and all products shall meet the proposed requirements at their effective date.
Standby Mode		One stakeholder recommended the removal of a reference to International Energy Commission (IEC) Standard 62301 as Standby Power "is no longer defined in the ENERGY STAR requirements or test methods."	While EPA is proposing to no longer define standby power within the Version 3.0 specification, Off, Sleep, and Ready Modes, which fell under the former definition of standby continue to be used and measured using IEC 62301. Furthermore, IEC 62301 can be used for modes beyond standby as long as those modes are repeatable or long-lived such that they can be measured using the standard's procedures.
TEC Requirements	Functional Adders	One stakeholder asked to include more functional adders for TEC products, which include: -A scanner adder with an allowance of 0.5 watts; -A fax adder, applied to MFDs only, with an allowance of 0.2 watts; -A memory adder, applicable to internal capacity for storing data and all volume of internal memory scaled accordingly for RAM (not to hard disk or flash memory), with an allowance of 0.5 GB; -A touch panel adder, for all sized panels, with an allowance of 0.01 kWh/week; -A near-field communication adder with an allowance of 0.1 kWh/week; and -A Bluetooth adder with an allowance of 0.1 kWh/week.	EPA has reviewed the TEC and specifications of 40 models by three manufacturers to determine the impact of these adders on energy performance. EPA did not find a meaningful impact on performance and is therefore not proposing to include any additional allowances. Specifically: - Scanner is already accounted for by different MFD and printer requirements; - Fax capability is mostly available at lower speeds where the proposed requirements are more stringent, but models with fax have lower TEC than models without fax; - Touch panels are widely available and also correlate with product speed, so should be accounted for by less stringent requirements at higher speeds; - Similarly, memory is somewhat correlated with print speed, plus there exists a variety of performance for a given amount of memory (e.g., models with 2 GB of memory varied in TEC between 0.3 and 3.4 kWh/wk); - Near-field communication (NFC) is available across the range of speeds, and while lower-speed models with NFC consumed more energy on average than ones without, that was not the case at higher speeds. - Finally, Bluetooth was very rare, and the two models with this adder consumed less energy than the average.
TEC Requirements	A3 Adder	A stakeholder asked EPA to consider real-life energy consumption when determining the A3 adder requirement, estimated at 0.125 kWh/Wk.	EPA has reviewed further data provided by stakeholders regarding the energy requirements of larger A3 fusers, which appear to reinforce the proposed adder allowance, which also balances the pass rates between A3 and non-A3 models.
TEC Requirements	MFD/Printer Requirements	One stakeholder commented that the proposed TEC requirements for MFDs should be higher, as MFDs typically require greater energy than printers do due to their greater functionality.	During the previous versions of the Imaging Equipment specification, the requirements for MFDs were less stringent than those for printers. However, EPA has heard from one manufacturer that investments in MFDs have exceeded those in printers with corresponding increases in efficiency. This has been reflected in product data upon which the proposed Version 3.0 requirements have been based.
Professional Imaging Product Test Set Up	Professional Imaging Product Air Conditioning	One stakeholder commented that the Professional Imaging Equipment test method should not take into account the energy use of any air conditioning equipment, in contrast to ISO 21632.	EPA confirms that the proposed test method does not take into account the air conditioning energy.
Professional Imaging Product Test Set Up	AC Input Power	One stakeholder commented that professional products should have higher test voltages (208 - 240 Vac for North America and Taiwan and 200 Vac for Japan).	This situation should already be covered by the requirement directly above the voltage table: "If a product is rated to operate at a voltage/frequency combination in a specific market that is different from the voltage/frequency combination for that market (e.g., 230 volts (V), 60 hertz (Hz) in North America), the unit shall be tested at the manufacturer rated voltage/frequency combination for that unit. The voltage/frequency used shall be reported."
Professional Imaging Product Test Set Up	As-shipped Condition	One stakeholder recommended that the test method specify that "Professional Imaging Products shall be tested in their "as-shipped" configuration under one Best Quality/Best Productivity (BQ/BP) condition."	EPA confirms that this requirement is included in Section 4.1.J) As-shipped Condition.
Professional Imaging Product Test Set Up	Scan/Copy Speed	One stakeholder commented that the reporting of copy speed and scan speed is unnecessary for Professional Imaging Products as these functions are supplementary to printing.	The copy speed and scan speed are reported only if the UUT cannot print. If a given Professional Imaging Product has print functionality, it will not need to report the copy speed and scan speed.
Professional Imaging Product Test Set Up	Mono/Color Print Speed	One stakeholder commented that in contrast to office equipment, where monochrome product speed is always reported, color professional products should have their highest manufacturer-claimed color print speed reported.	EPA proposed the monochrome product speed because there could be a difference between the rated speed reported and the speed as tested. This is also the case for non-professional imaging products, where the reported speed is the highest rated speed while the product is tested in its default setting

Topic	Subtopic	Comment	Response
Test Set Up	Network Connections	One stakeholder asked to eliminated the "Network or Data Connection for Use in Test" table allowing manufacturers to choose their test preference.	A preferred order of connectivity is required to ensure repeatable results and fair comparisons between products.
Test Setup	USB Cable Length	A stakeholder questioned the requirement of the length of a USB cable, when setting up the test for imaging equipment, to be 1 foot and that the cable be less than 50 milliohms of resistance, and proposed to not place a restriction.	This requirement is related to the spliced cable needed to measure the DC voltage and current, not the shipped cable. The shipped cable is still included with testing, but the spliced cable has tight limits in order to minimize the impact on the test results.
User Interface		A stakeholder commented that the link for the user interface standard was broken.	The link has now been updated.
Verification Testing		A stakeholder asked for more consideration to standard variability in testing due to variability between units and test method and equipment variability, and that EPA identify a reasonable buffer margin for such testing.	While it is manufacturers' responsibility to account for manufacturing and testing variation before submitting their products for ENERGY STAR certification, EPA has reviewed the proposed requirements to confirm that the requirements will continue to recognize a wide range of products, even allowing for some testing variance.