

Summary of Stakeholder Comments in Response to the
ENERGY STAR Framework Document for Imaging Equipment (April 2011)

Issue No.	Topic	Subtopic	Comment	ENERGY STAR Response
1	Non-Qualified Data		One stakeholder suggested using public data sources to retrieve more data on non-qualified products, while others suggested that in addition to the number of non-qualified products, EPA also request their dates of manufacture, and markets where they are sold.	ENERGY STAR specification development is a data driven process, and EPA thanks the manufacturers who have shared data on non-qualified units. EPA will supplement the data received to date with searches of manufacturer catalogs and will also record dates of manufacture and markets where available.
2	Scope	Scanners	Several stakeholders commented that, even though some scanners have low sales, they should remain included, especially those for business use. One stakeholder expressed support for removing them from the specification.	Despite falling shipments, EPA will retain scanners within the scope while increasing the stringency of the specification, possibly with different specification levels for different product speeds.
3	Scope	Fax Machines	Three stakeholders expressed support for excluding fax machines from the specification, while another suggesting placing them in their own category. One stakeholder commented that eliminating standby mode requirements can allow some non-qualifying models to qualify. A final stakeholder commented that manufacturers are diverting R&D resources from fax machines to MFDs while continuing to offer fax models from past years.	Despite low market penetration and decreasing sales, EPA will retain fax machines within the scope of the specification. EPA will seek to provide performance criteria that effectively differentiates the market and provide consumers with sufficient choice.
4	Scope		Several stakeholders commented that all products should stay within the scope due to government procurement policies. One stakeholder suggested removing copiers as they have reached maximum possible efficiency and are now being mostly offered as part of an MFD.	EPA does not intend to remove any other equipment types from the scope of the specification.
5	Scope	Small Format High Performance Inkjet	One stakeholder suggested including these products under the TEC method as some are only 7 mm short of being standard size format; another mentioned several growing applications where they may be used. Also, a preliminary estimate of the TEC amounted to 4 kWh per week for a 20 ppm device.	EPA will investigate the options of expanding the TEC qualifications to include small format EP products.
8	IEC 62301		Several stakeholders commented that since the IEC standard 62301 is focused on household appliances, and definitions for off, standby, and network modes have been modified from Ed. 1 to Ed. 2, incorporating it into the ENERGY STAR test method now would be disruptive. Others asked for EPA to list specifically the parts of the standard to be included. Several other stakeholders supported the inclusion or reference of the standard, citing its international recognition.	ENERGY STAR definitions and test methods shall take priority over any other specification referenced. EPA will reference specific portions of IEC standard 62301 Ed. 2.0 dealing with test equipment, uncertainty, and power and energy measurement.

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9	Color Printing	Energy Consumption	Two stakeholders commented that most of the energy during printing is due to fusing process, which is the same for both monochrome and color printing, while one stakeholder mentioned the dominance of parallel color devices, which were previously shown to have little additional consumption when used in color mode.	After reviewing comments received and further analysis, EPA has decided not to modify the test method to include color testing, due to the limited apparent impact of color testing on energy consumption. Nonetheless, EPA is interested in any additional information that manufacturers can provide on the energy impact of color use.
10	Color Printing	Prevalence	While one stakeholder noted that the shipments of color devices have surpassed that of monochrome, others mentioned that color features are seldom used and even then the density of the image (proportion of inked area to paper area) remains low, such that testing text mode continues to be representative. The above discussion applies to standard-format products, not large-format plotters.	After reviewing comments received and further analysis, EPA has decided not to include color testing in the test method, due to the limited apparent prevalence of color printing in typical use. Nonetheless, EPA is interested in any additional information that manufacturers can provide on the prevalence of color use.
11	Power Buffer		Although several stakeholders were skeptical of the power buffer, they noted that current test methods and third-party certification would be sufficient to account for it. Furthermore, the one commenter experienced with this technology noted that it is not prevalent in the market and is only expected to decline. Nonetheless, two stakeholders requested that EPA account for all energy potentially consumed.	Because of the lack of specific examples of products with a power buffer, EPA does not intend to modify the test method to require recording energy consumed during Step 2 of the TEC measurement.
12	Print Driver		Several stakeholders commented that current requirements are sufficient and specifying print driver settings might disrupt as-shipped manufacturer settings without yielding significant energy savings. One stakeholder suggested prescribing a simple text document for printing without modifying user settings while another requested the use of default settings.	To clarify the test method and promote repeatability in verification, EPA will clarify the test method to ensure that key driver settings used during testing correspond to the defaults upon shipment, regardless of the implementation details of those settings. Based on stakeholder input, EPA does not intend to require testing with the same driver as that installed upon shipment.
13	Additional Test Method Edits	Default Delay Times	Manufacturers specified alternative methods of clarifying when a unit under test has reached its lowest power mode, including: * The power level of the final sleep mode * The default delay time to the final sleep mode	EPA intends to clarify the TEC test method and reporting requirements when qualifying products to specify when the duration of time until the unit under test has reached its final sleep or auto-off mode, to remove potential testing ambiguity.

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13	Additional Test Method Edits		<p>Several manufacturers were opposed to significant changes to the TEC test method because of its acceptance in the industry and the burdens of additional testing. One requested that previously certified products be grandfathered in following any changes.</p> <p>Nonetheless other stakeholders recommended some changes, such as:</p> <ul style="list-style-type: none"> * Using an integrating watt-meter or directly measuring the power drawn by the unit under test; * Clarifying the default-delay time definition; * Manually turning off the unit to perform the off-mode test; * Measurement and requirements for TEC products in sleep mode and/or with fax enabled; or * More substantive changes as long as test reports certified under the current test method are accepted. 	<p>As TEC units typically require time to cool down between various steps of the test method, there is no benefit to shortening the measurement duration.</p> <p>EPA will, however, modify the TEC test method to require off mode testing at the end of the measurement procedure, so that the unit under test is in a known state. As off mode results are not currently used for qualification, this change will not impact the current qualified products list and no new re-testing of units is necessary.</p> <p>The other stakeholder recommendations (e.g., delay-time definition and fax machine testing) are discussed elsewhere in this document.</p>
13	Additional Test Method Edits	Duplex	<p>One manufacturer mentioned that TEC products with print speed above 40 ipm should be required to undergo testing in duplex mode.</p>	<p>EPA is interested in testing products in duplex in cases where duplex is the fastest, most efficient mode. This change should only impact a small segment of the qualified products. However, EPA understands that this may result in further product segmentation and test and reporting limits. EPA will further investigate to determine energy saving opportunities and propose edits in the draft 1 specification.</p>
14	Usage Profile		<p>Many stakeholders commented that modifying the usage profile used in the TEC test method would invalidate existing data without providing a more accurate representation of usage, as usage depends on many factors. Industry argued about this with EPA in 2005 at which point EPA decided to have a simple TEC method for use as a ranking metric. Developing a more accurate usage profile could be time consuming or even impossible.</p>	<p>EPA thanks stakeholders for their comments and will not modify the TEC test procedure regarding this point. EPA has no test or qualification data to support that the TEC usage assumptions result in an artificially high paper and energy consumption. Nonetheless, EPA is interested in any additional information on typical use of products.</p>
15	Recovery Time		<p>Stakeholders commented that the discrepancy between Active1 and Active0 times may be due to ambiguous language in the test procedure, misunderstanding of the instructions by select testers, and/or products where Active1 might be less than Active0. In addition, some recommended that EPA investigate these cases or require the product be retested when Active1 < Active0.</p>	<p>EPA thanks stakeholders for their comments and will continue to investigate cases where Active1 < Active0 as well as the possibility of clarifying this portion of the test method.</p>

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16	Recovery Time	OM Products	<p>Several stakeholders commented that setting a recovery time requirement for OM products is not necessary as they do not have heaters and furthermore, customers are not interested. One stakeholder commented that large format non-IJ devices and copiers might benefit from a specified recovery time requirement, while another mentioned that EPA should investigate recovery time in increasingly-complex IJ products.</p>	<p>Without the availability of appropriate test data, EPA has decided not to propose a recovery time requirement for OM products. Nonetheless, EPA continues to appreciate any information on the typical use of OM devices, and the expected benefit of recovery time requirements.</p>
17	Recovery Time	Requirements	<p>One stakeholder commented that recovery time depends on manufacturers' patented technologies and should therefore not be standardized. Further comments noted that specifying recovery time may over-constrain TEC measurement, while others debated whether recovery time requirements are crucial to prevent user dissatisfaction and enable shorter delay times to sleep or whether manufacturers can already ensure user satisfaction.</p> <p>One stakeholder requested an analysis of the relationship between recovery time and energy consumption or users disabling energy-saving features.</p>	<p>Without the availability of appropriate test data, EPA has decided not to propose a recovery time requirement for TEC products. Nonetheless, EPA continues to appreciate any information on the typical use of OM devices, and the expected benefit of recovery time requirements.</p>
18	DFE	Energy Consumption	<p>Manufacturers commented that DFEs differ from other computing products as they are purpose-designed to work with imaging equipment. Furthermore, they indicated that because DFEs are only active when the imaging equipment is active, the greatest savings will be in sleep mode, though that would need to be managed to prevent frequent wakeups.</p>	<p>EPA will further investigate the options on how to incentivize energy efficiency of imaging products with DFEs. EPA continues to appreciate any information on appropriate mechanisms to track and report the energy consumption of the DFE.</p>
18	DFE	Networking	<p>Manufacturers noted that the Ecma 393 ProxZzy could reduce the energy consumption of DFEs in sleep mode, though one noted that there may not yet be hardware available to implement the requirements of these standards.</p>	<p>Please see above.</p>
18	DFE	Qualification	<p>Although one stakeholder mentioned qualifying DFEs under the computers/servers program; others noted that DFEs differ significantly from other computers and servers, such that they would be unable to qualify. Another stakeholder recommended treating DFEs as a functional adder with its own power allowance, though a DFE manufacturer commented that this may be difficult to manage when the imaging equipment and the DFEs are manufactured by different companies.</p>	<p>Please see above.</p>

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21	Network Connection		<p>Many stakeholders support the current requirements for OM products while some agreed with limiting to one and/or specifying the network connections for use. Some also suggested prioritizing Ethernet over other connections (i.e. connect with Ethernet and, if not available, choose at manufacturer's discretion), though that could alternatively be determined by the intended use of the unit-under-test.</p> <p>Others pointed out the tradeoff between repeatability of the test method and its representativeness. One stakeholder in particular commented on the need to specify the number of PCs connected to the network or other network activity in addition to specifying the connection type.</p>	<p>EPA will clarify the number, order, and potentially the state (i.e., activity) of the network connections for test during the OM and TEC tests in an effort to promote repeatability and representativeness of the test method. EPA continues to appreciate any information on the prioritization of network connections.</p>
22	Network Connection	Fax Machines	<p>Several stakeholders commented that the fax need not be connected because it will not impact a product's energy consumption. One stakeholder commented that connecting the fax does increase energy consumption, but not enough to affect the relative standing of the product. Lastly, one stakeholder was in favor of connecting the fax function if that is the typical usage.</p>	<p>In the draft specification, EPA will clarify that any fax function be enabled and connected to a phone line during the OM and TEC tests in an effort to promote repeatability and representativeness of the test method.</p>
23	Default Delay Time		<p>Regarding measuring and setting default delay time requirements for TEC products (currently only in place for OM), several manufacturers were opposed because specifying both a default delay time and a TEC limit would over-constrain the requirements and prevent manufacturers from responding to market demands on default delay time.</p> <p>Other commenters brought up more practical concerns, including that TEC products only sleep a limited number of times per day due to frequent use, and that reporting default delay times would be less burdensome than measuring them.</p> <p>Lastly, individual commenters requested that the current definition of default delay time be clarified and that default delay time requirements be developed for TEC products.</p>	<p>EPA is not proposing to impose a default-delay time requirement for TEC products because the TEC metric already accounts for the time that a product remains in ready mode following a print job and there is lack of available test data to justify the setting a default delay time. Nonetheless, EPA continues to appreciate any information on the typical use of TEC products and the expected benefit of default-delay time requirements.</p>
24	Energy Efficient Ethernet		<p>Four stakeholders agreed with the proposal to test with network devices connected to the unit via Energy Efficient Ethernet (EEE) if present, while two disagreed. There was concern with the burdens of testing and the limited benefit (limited per-unit savings in the best case and insufficient infrastructure).</p>	<p>EPA will be requiring the testing of all products with Energy Efficient Ethernet (EEE) capability with appropriate EEE network equipment.</p>

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25	Moving OM Prods to TEC		Stakeholders commented that this requirement should not be implemented as it is unclear that OM products are mostly in active mode, especially since they do not have heaters, with the exception of ink jet printers for office use, and that many could not be tested like other TEC products, for example small-format receipt printers. One stakeholder requested that EPA not modify the TEC test method for large format products as they spend most of their time in sleep mode.	EPA will not be reclassifying as TEC any products currently classified as OM, or otherwise testing them in active mode.
26	Life-Cycle Assessment		<p>Stakeholders opposed to including life-cycle assessment (LCA) in ENERGY STAR pointed to its uncertainty and burden. According to commenters, LCA lacks international standards of quality and could conflict with other programs and/or be detrimental to the ENERGY STAR brand. Stakeholders also commented that there are already sufficient substance restrictions in place and that ENERGY STAR should continue to focus on energy efficiency of products.</p> <p>Also, compared to paper and use-phase consumption, the embedded energy in materials is much lower. Lastly, one manufacturer was interested in LCA and requested that 3rd-party certified LCAs be accepted.</p>	In order to guard against unintended consequences where ENERGY STAR is recommending a product based on use phase data exclusively, EPA has screened all of the ENERGY STAR product categories for opportunities or risks represented by non-use phase GHG emissions. EPA will be providing this analysis for stakeholder input, but for imaging equipment, EPA is continuing to look for opportunities to recognize industry leaders and will reference existing standards and efforts to reduce non-use phase GHG emissions.
	Third Party Certification		One manufacturer was concerned that Third-Party Certification requirements will be too burdensome to permit revisions to the test method. Further, the limited number of EPA-recognized laboratories will make it difficult to test existing products according to a new test method.	EPA thanks stakeholders for their comments but will nonetheless change the test method if necessary.
	Energy Savings Potential		One stakeholder pointed out that fuser technology has improved greatly in recent years, yielding shorter warm-up times. Given already low sleep power and ready power at its minimum, the only area left for consumption reduction is in printing power, which is nearly impossible to reduce further. Another stakeholder would like to know how and at what point does EPA deem the potential savings in a product category not worth pursuing.	EPA thanks stakeholders for their comments and will be addressing these issues further during the development of the revised specification later in the year.
	Insufficient Time		One stakeholder commented that the 15 business day comment period was not enough to provide thorough feedback on all 26 issues.	EPA thanks stakeholders for their comments and hopes to provide additional opportunities for comment throughout the specification development process.

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	Justification for Revision		<p>One stakeholder commented that using shipment data from 2009 is inappropriate since it includes models qualified under both V1.0 and V1.1. Another stakeholder pointed out that the number of non-qualified products may be low because they are usually discontinued due to government procurement regulations. Another stakeholder commented that the EPA should not base specification revision assessments and criteria on shipment data because it does not correlate to the number of ENERGY STAR models available on the market.</p>	<p>EPA thanks stakeholders for their comments and will be addressing these issues further during the development of a revised specification later in the year.</p>
	Logo Use		<p>A stakeholder commented that the current logo requirements must be reduced and proposed the following:</p> <ul style="list-style-type: none"> • ENERGY STAR logo required on the product manufacturer's web page. Listing of the qualified products on a single web page (e.g., ENERGY STAR education page) is acceptable. • ENERGY STAR logo can be voluntarily used in these locations: <ul style="list-style-type: none"> o On the product o On product packaging o On additional web pages beyond the single web page listing o In product literature 	<p>The ENERGY STAR certification mark on the product and the packaging is the best way for a consumer to ensure the top efficient products available in the retail environment. Weakening product labeling requirements would impact the effectiveness of the program and oppose the ENERGY STAR program's consumer education mission. There is some flexibility in labeling requirements and this will be handled on a case by case basis.</p> <p>EPA is, however, open to temporary labels that can be applied later in the manufacturing process, as stated in the current version of the partner commitments.</p>