

Verification Testing for ENERGY STAR Products (2002 - 2009)

Product	Specification Requirements	Model Selection	# Mfrs	# Units Tested	Characteristics	Passed	Follow On Action
2009							
Imaging Equipment	Sleep Mode power consumption: ≤ a wattage that differs by model. Standby Mode power consumption: ≤ 1 watt for all OM models in the sample. Default delay time to sleep: ≤ an amount of time that differs by model. External power supply efficiency: ≥ % that differs by model. External power supply no-load maximum power consumption: ≤ 0.75 watts. TEC requirements: ≤ # kWh/week that differs by model.	Chose 16 models representing best sellers (especially to government/business buyers); borderline passes; TEC and OM represented	8	16 (1 unit of each model)	3 color photo printers; 3 inkjet MFDs; 1 photo scanner; 2 B/W laser printers; 1 color inkjet printer; 1 laser MFD; 1 color printer; 2 color laser printers; 1 MFD; 1 laser printer	All	NA
External Power Supplies	(All differ by model) Average active mode efficiency: ≥ a calculated percentage. No-load power: ≤ a calculated wattage. Power factor correction: Power supplies with ≥ 100 watts input power must have a true power factor of ≥ 0.9 at 100% of rated load when tested at 115 volts @ 60Hz.	Chose 12 models. Cross-referenced EPS qualified products list with End-use Products (EuPs) qualified products list to identify EPSs packaged with ENERGY STAR qualified EuPs; top manufacturers; retail availability (EPS replacement market)	13	24 (2 units of each model)	NA	2 models failed because of possible testing errors on the part of the partner, and were delisted.	NA

Product	Specification Requirements	Model Selection	# Mfrs	# Units Tested	Characteristics	Passed	Follow On Action
Televisions	Default On Mode power consumption: ≤ a wattage that varies according to native vertical resolution and visible screen area. Standby Mode power consumption: ≤ 1 watt.	Chose 20 models representing best sellers; assortment of brands and technologies; popular sizes	13	20 (1 unit of each model)	Diagonal screen sizes from 26-60"; LCD, Plasma, LED, Rear Projection	All	NA

2008							
Battery Charging Systems	Energy Ratio \leq # determined on a model-to-model basis	Chose 5 models representing best selling brands; assortment of applications.	4	5 (1 unit of each model)	2 multi-voltage a la carte models; 2 single voltage models; 1 multi-port, multi-voltage, a la carte model	All	NA
Computers	<p>Internal power supply: Efficiency \geq 80%; Power Factor at 100% of rated output \geq 0.90.</p> <p>External power supply: Minimum average efficiency \geq 84%; No-load mode maximum power consumption \leq 0.75 watts.</p> <p>Operational mode: \leq # determined on a model-to-model basis.</p> <p>Power management: Display's Sleep Mode set to activate within 15 minutes of user inactivity. Computer's Sleep mode set to activate within 30 minutes of user inactivity.</p>	Chose 12 models representing an assortment of brands; high processor and hard drive speeds; best sellers (business and consumer); mix of discrete and integrated graphics; mix of operating systems.	10	12 (1 unit of each model)	5 desktops; 7 laptops	1 model failed, and EPA worked with partner to resolve the issue.	NA
Digital-to-Analog Converter Boxes	<p>On Mode: \leq 8.0 W.</p> <p>Sleep Mode: \leq 1.0 W.</p> <p>Factory settings for Auto-Sleep Mode: DTA must incorporate an auto-power-down feature to automatically switch from On Mode to Sleep Mode after four hours or less of user inactivity.</p> <p>Scanning for program and system information or private data (PSIP): When coming out of Sleep Mode to scan for program and system information or private data, DTA may exceed the 1 watt Sleep Mode requirement for no longer than one hour in an eight-hour period.</p>	Chose 7 models representing an assortment of brands; models that were predicted to remain available on the market during the federal DTA coupon program.	6	14 (2 units of each model)	NA	All	NA

2007							
Room Air Cleaners	≥ 2.0 CADR/Watt (Dust) and ≤ 2.0 Watts in Standby mode, where applicable	Chose 11 room air cleaner models that were on the ENERGY STAR Qualified Products Listing, but did not appear on AHAM's Directory of Certified Room Air Cleaners	7	11 (1 unit of each model)	NA	1 Room Air Cleaner model failed by not meeting the dust CADR/Watt requirement; EPA worked with partner to resolve issue.	Retest in turn
2006							
Computers ¹⁰	≤ 15 – 50 Watts in Sleep mode, depending on the power supply rating; enter Sleep mode < 30 min.	Chose 16 computers based on input from EPA's Product Development Team to ensure a wide array of configurations and manufacturers were represented.	11	16 (1 unit of each model)	2 notebooks and 14 desktops; memory range 113 – 1,048 MB	All ¹¹	Retest after new spec in effect
Monitors	Active: If X < 1 megapixel, then Y = 23; if X ≥ 1 megapixel, then Y = 28X Sleep: ≤ 2 watts Off: ≤ 1 watt	Chose 16 computer monitor models from the top 50 in terms of market sales, based on NPD Techworld data for April – June 2006. Chose an additional 4 models from other sources to ensure a range of manufacturers.	11	20 (1 unit of each model)	LCD models ranging in screen size from 15 to 23 inches	All ¹²	Retest in turn
2005							
Dehumidifiers ⁸	Capacity of L/day < 10; EF ≥ 1.20 L/kWh. Capacity of 10 ≤ L/day < 25; EF ≥ 1.30 L/kWh. Capacity of 25 ≤ L/day ≤ 35; EF ≥ 1.50 L/kWh. Capacity of 36 ≤ L/day ≤ 57; EF ≥ 2.25 L/kWh.	Chose 20 dehumidifiers based on input from EPA's Product Development Team to ensure a wide array of products and manufacturers were represented.	11	20 (1 unit of each model)	Rated pints 20 – 101.2/day (9.6 – 47.9 liters); range in rated energy factor 1.3 – 2.75 L/day	All ⁹	Retest after new spec in effect

2004							
Scanners ⁵	≤ 12 Watts in Low-power mode; ≤ 15 min default-delay time to Low-power mode	Chose 8 scanner models from the top 30 in terms of market sales, based on NPD Techworld data for June – September 2003. Chose an additional 7 models from other sources to ensure a range of technologies (i.e., flatbed, sheet-fed, network). Some models were non-ENERGY STAR.	7	45 (3 units of each model)	Scan rates 4 – 16 ms/line and 15 – 25 ppm	1 non-ENERGY STAR model failed to pass ⁶	Retest after new spec in effect
MFDs & UDCs ⁷	For MFDs , ≤ (3.85 x ipm + 50) Watts in Low-power mode; ≤ 30 sec recovery time from Low-power mode; ≤ 25 – 105 Watts in Sleep mode, and ≤ 15 – 120 min default-delay time to Sleep mode, based on product speed. For UDCs , ≤ (3.85 x ipm + 5) Watts in Low-power mode; ≤ 30 sec recovery time from Low-power mode; ≤ 5 – 20 Watts in Sleep mode and ≤ 15 – 120 min default delay-time to Sleep mode, based on product speed.	Chose 8 MFDs, 2 UDCs, and 1 digital duplicator based on input from EPA's Product Development Team to ensure a wide array of products and manufacturers were represented. The sample size for this test cycle was small given the higher per unit cost of MFDs and UDCs.	10	11 (1 unit of each model)	5 monochrome and 6 color, range in speed 12 – 120 ipm and 4.9 – 31 ppm	1 MFD model failed by exceeding Sleep mode default time; EPA worked with partner to resolve the issue.	Retest after new spec in effect
Printers & Faxes ⁷	For printers , ≤ 10 – 75 Watts in Sleep mode; ≤ 5 – 60 min default delay-time to Sleep mode, depending on color capability, marking technology, and print speed. For faxes , ≤ 10 – 15 Watts in Sleep mode and ≤ 5 min default delay-time to Sleep mode, based on product speed.	Chose 9 printers, 1 photo printer, and 4 faxes from the top 25 faxes, laser printers, and inkjet printers in terms of market sales, based on NPD Techworld data for June – August 2004.	10	14 (1 unit of each model)	6 monochrome and 8 color, range in speed 3.8 – 33 ppm	1 printer model failed by exceeding Sleep mode default time; model no longer appears on ENERGY STAR Qualified Products List	Retest after new spec in effect

2003							
Monitors ³	≤ 15 Watts in Sleep mode; ≤ 8 Watts in Low-power deep sleep mode	Chose 10 CRT and 5 LCD models from among the top 25 CRT and top 5 LCD monitors in terms of market sales, based on NPD Techworld data for April – June 2002.	7	45 (3 units of each model)	30 CRTs and 15 LCDs; range in screen size 13.8” – 17”	All	Retest after new spec in effect
Telephony ⁴	For answering machines/cordless telephones , ≤ 3.3 Watts in Standby mode (w/SST ≤ 3.6 Watts). For combination cordless telephone & answering machines , ≤ 4.0 Watts in Standby mode (w/SST ≤ 5.1 Watts)	Chose 7 cordless phones, 8 combo phones and answering machines, and 5 handsets from the top 30 cordless phones and combo units in terms of market sales, based on NPD Techworld data for April – June. 2003.	6	50 (3 units of each cordless phone and combo model; 1 unit of each handset model)	24 combo phone & answering machines, 21 cordless phones, 5 handset only	All	Retest in turn
2002							
Televisions	≤ 3 Watts in Standby mode	Chose 15 ENERGY STAR models from among the top 25 TVs in terms of market sales, based on NPD Techworld data for January – March. 2002.	5	45 (3 units of each model)	Screen size 31” – 57”; tube, flat screen, and rear projection technologies	All	Retest in turn
DVDs ¹	For DVDs , ≤ 3 Watts in Standby mode. For DVD/VCR combos , ≤ 4 Watts in Standby mode.	Chose 15 ENERGY STAR and non-ENERGY STAR models from among the top 25 TVs in terms of market sales, based on NPD Techworld data for April – June 2002.	8	45 (3 units of each model)	NA	1 non-ENERGY STAR model failed to pass ²	Retest in turn

Totals (2002-2009)

Models tested: 244

Models passed: 236

Models failed: 6 ENERGY STAR models

NOTES:

¹ In addition to compliance testing, a few non-ENERGY STAR models were tested to a) gain an understanding of the Standby mode energy consumption range of the top-selling DVD players, and b) determine whether the non-Audio/DVD partners have models that potentially could qualify.

² All ENERGY STAR qualified models passed the Standby power test. Only one of the non-ENERGY STAR models did not pass.

³ In addition to compliance testing, data were collected to inform specification development activities. F-Squared Laboratories conducted preliminary testing on and provided feedback for the draft Active mode test procedure and tested various voltage/frequency combinations.

⁴ In addition to compliance testing, data were collected to inform specification development work on an amendment for individual handsets and Tier 2 levels.

⁵ In addition to compliance testing, data were collected on non-ENERGY STAR models and for On/Active and Off/Standby modes to support specification development activities.

⁶ All ENERGY STAR qualified models passed the Sleep/Low-power test. A few non-ENERGY STAR models were tested in support of specification development efforts for Imaging Equipment; one of these models did not pass.

⁷ In addition to compliance testing, the new Total Electricity Consumption (TEC) test procedure also was used to inform the specification development process.

⁸ In addition to compliance testing, data were collected to inform specification development activities. Testing was conducted on both ENERGY STAR and non-ENERGY STAR qualified models.

⁹ Initially, one ENERGY STAR qualified model did not pass the test for ENERGY STAR compliance. After testing, Intertek ETL SEMKO examined the internal components of the unit and found some damage, most likely caused during shipping. A new unit was sent to Intertek for testing and it met the ENERGY STAR specifications.

¹⁰ In addition to compliance testing, data were collected on multiple operational modes, including Idle and Off, to inform specification revision activities.

¹¹ All ENERGY STAR qualified models passed the Sleep mode test. Several non-ENERGY STAR models were tested in support of specification development efforts.

¹² One model failed due to a software error. This error was immediately corrected and a new unit was tested to verify compliance.