



ENERGY STAR® Program Requirements for Televisions

Partner Commitments

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Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified televisions (TVs). The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on TVs. EPA may, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at EPA's request;
- comply with current ENERGY STAR Identity Guidelines, describing how the ENERGY STAR name and mark may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;
- qualify at least one ENERGY STAR labeled TV model within six months of activating the TV portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;
- provide clear and consistent labeling of ENERGY STAR qualified TVs. The ENERGY STAR label must be clearly displayed on product packaging, in product literature (i.e., user manuals, spec sheets, etc.), and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed. In addition, ENERGY STAR qualified TVs must be labeled according to one of the following three options: 1) permanent label on the top/front of the TV; 2) temporary label on the top/front of the TV; or, 3) use of an electronic label so that the ENERGY STAR certification mark appears on the TV's menu-screen for pre-set picture settings.

Note: Several stakeholders raised concerns with the physical product labeling requirement in the Version 2.2 ENERGY STAR specification for TV products. In order to address these concerns, EPA has (i) explicitly allowed the use of temporary labels under this Draft 1 Version 3.0 TV products specification and (ii) provided stakeholders with an option to electronically label their qualifying models such that the ENERGY STAR certification mark appears on the TV's menu-screen for pre-set picture settings. EPA is seeking stakeholder recommendations regarding meeting the objective of making identification of ENERGY STAR products easy for consumers both pre- and post-purchase.

- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying TV models. Once the Partner submits its first list of ENERGY STAR labeled TV, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;
- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified TVs shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., capacity, size, speed, or other as relevant), total unit shipments for each model in its product

line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third party. The data will be used by EPA only for program evaluation purposes and will be closely controlled. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;

- notify EPA of a change in the designated responsible party or contacts for TVs within 30 days.

Performance for Special Distinction

In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures and should keep EPA informed on the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR label for buildings;
- purchase ENERGY STAR qualified products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR qualified product information to employees for use when purchasing products for their homes;
- ensure the power management feature is enabled on all ENERGY STAR qualified monitors in use in company facilities, particularly upon installation and after service is performed;
- provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR qualified product models;
- feature the ENERGY STAR mark(s) on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at www.energystar.gov), EPA may provide links where appropriate to the Partner Web site;
- provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR qualified products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products, and (4) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;
- provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.



ENERGY STAR® Program Requirements for Televisions

Eligibility Criteria (Version 3.0)

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Below is the product specification for ENERGY STAR qualified TVs (Version 3.0). A product must meet all of the identified criteria to be labeled as ENERGY STAR by its manufacturer.

1) **Definitions:** Below is a brief description of TVs and other terms as relevant to ENERGY STAR.

- A. **Television (TV):** A commercially available electronic product designed for the display and reception of audiovisual signals from terrestrial, cable, satellite, Internet Protocol TV (IPTV), or other transmission of analog and/or digital signals, consisting of a tuner/receiver and a display encased in a single housing. The monitor usually relies upon a cathode-ray tube (CRT), liquid crystal display (LCD), plasma display, or other display device.

Note: The above definition for a TV is broadly consistent with the definition provided in the current Draft of IEC 62087, Ed 2.0: Methods of Measurement for the Power Consumption of Audio, Video and Related Equipment, with minor modifications.

- B. **Television Monitor:** ~~An electronic product with a viewable (diagonal) screen size of greater than 19 inches that does not incorporate Display Power Management Signaling (a standard from the VESA consortium for managing the power supply of video monitors for computers through the graphics card), and is intended to display a video signal from an external tuner or other video source such as a video game console or DVD Player.~~

Note: The above definition for a TV Monitor has been revised from the Version 2.2 TV products specification to provide stakeholders greater clarity with regards to what is considered a TV Monitor by EPA, and therefore eligible to qualify under this specification. The screen size of greater than 19 inches to classify as a TV Monitor was lifted from the Official Journal of the European Union, published on December 30, 2006. Further, it is EPA's current understanding that products designed to be sold as TV Monitors do not incorporate Display Power Management Signaling (a standard from the VESA consortium for managing the power supply of video monitors for computers through the graphics card).

Stakeholders are requested to provide feedback on whether the above definition, with the inclusion of the screen size limitation and Display Power Management Signaling, provides enough differentiation between what EPA considers to be a TV Monitor versus a computer monitor.

- C. **Rear-Projection TV:** A type of TV in which the display device is a projector that focuses images onto a screen located within the housing of the TV.
- D. **Direct-View TV:** A type of TV whose display device emits light either directly from the screen surface or transmits light from a source mounted directly behind the screen. Examples include CRT, LCD, and plasma display technologies.
- E. **TV/VCR Combination Unit:** A system in which the TV and VCR are combined into a single unit and which meets all of the following criteria: the VCR is included in the television casing; it is not possible to measure the power requirements of the two components separately without removal of the television casing; and the system is connected to the wall outlet through a single power cable.
- F. **TV/DVD Combination Unit:** A system in which the TV and DVD are combined into a single unit and which meets all of the following criteria: the DVD is included in the television casing; it is not possible to measure the power requirements of the two components separately without removal of the television casing; and the system is connected to the wall outlet through a single power cable.

- G. TV/VCR/DVD Combination Unit: A system in which the TV, VCR, and DVD are combined into a single unit and which meets all of the following criteria: the VCR and DVD are included in the television casing; it is not possible to measure the power requirements of any of the components separately without removal of the television casing; and the system is connected to the wall outlet through a single power cable.
- H. Component Television Unit: A television system composed of two or more separate components (e.g., display device and tuner) marketed and sold as a television under one model or system designation. The system may have more than one power cord. For purposes of meeting ENERGY STAR criteria, the total power for the system is considered.
- I. Analog: For purposes of this agreement, analog units have an NTSC, PAL, or SECAM tuner and may have analog video inputs (e.g., composite video, component video, S-video, RGB).
- J. Digital: For purposes of this agreement, digital units include at least one digital tuner (e.g., ~~DSS, VSB or QAM~~) or at least one digital video input (e.g., HDMI). Products with an analog tuner and both analog and digital inputs should be considered digital units.
- K. Electronic Programming Guide (EPG): An interactive, onscreen menu of TV listings that downloads program information (e.g., time, date, description of TV programs, etc.) ~~from the vertical blanking interval of a regular TV signal.~~
- L. External Power Supply: A component contained in a separate physical enclosure external to the television casing and designed to convert line voltage ac input from the mains to lower dc voltage(s) for the purpose of powering the television. An external power supply must connect to the television via a removable or hard-wired male/female electrical connection, cable, cord or other wiring.
- M. Point of Deployment (POD) Module: A conditional access module for digital cable signal reception.
- N. ~~Off Mode: The product is connected to a power source, produces neither sound nor a picture and cannot be switched into any other mode with the remote control unit, an external or internal signal.~~
- O. Standby Mode: The product is connected to a power source, produces neither sound nor a picture but can be switched into another mode with the remote control unit or an internal signal. For purposes of this specification, Standby Mode is defined as the time when the product is connected to a power source, produces neither sound nor picture, neither transmits nor receives program information and/or data (excluding data transmitted to change the unit's condition from Standby Mode to On Mode), and is waiting to be switched to On Mode by a direct or indirect signal from the consumer, e.g., with the remote control.
- P. Download Acquisition Mode (DAM): The product is connected to a power source, produces neither sound nor a picture, and is either downloading channel listing information according to a defined schedule for use by the electronic programming guide or otherwise communicating with a connected device through a network protocol. The power requirement in this mode is typically greater than the power requirement in Standby Mode and less than that in On Mode. TVs without EPG functionality may not have a distinct Download Acquisition Mode.
- Q. On Mode/Active Power: The product is connected to a power source and produces sound and a picture. The power requirement in this mode is typically greater than the power requirement in Standby and Download Acquisition Modes.
- R. Disconnect: The product is disconnected from all external power sources.

Note: All operational mode definitions, apart from Download Acquisition Mode, are consistent with the operational mode definitions provided in the current Draft of IEC 62087, Ed 2.0: Methods of Measurement for the Power Consumption of Audio, Video and Related Equipment, with very minor modifications. The definition for Download Acquisition Mode is consistent with the definition provided in the Version 2.2 TV products specification, with very minor modifications.

- 2) **Qualifying Products:** Any TV, TV/VCR, TV/DVD, TV/VCR/DVD, Television Monitor, or Component Television Unit that is marketed to the consumer as such (i.e., focusing on television as the primary function), meets the respective product type definition in Section 1, and is capable of being powered from either a wall outlet or a battery unit that is sold with an AC adapter is eligible to earn the ENERGY STAR. This specification does not cover products with computer capability (e.g., a computer input port, such as VGA) that are marketed and sold as 1) computer monitors or 2) dual function televisions and computer monitors.

Note: EPA has moved language previously included under the product definitions in the Version 2.2 TV specification to Section 2 of this Draft 1 Version 3.0 specification, to eliminate repetition and improve readability of this document.

Stakeholders are requested to provide feedback to EPA regarding any specific dual function televisions and computer monitors they manufacture that would not be eligible for qualification under this proposed Draft 1 Version 3.0 ENERGY STAR TV products specification.

- 3) **Energy-Efficiency Criteria:** Only those products listed in Section 2 that meet the following criteria may qualify as ENERGY STAR. The effective date for these Version 3.0 requirements are provided in Section 6 of this specification. To qualify TVs, TV/VCRs, TV/DVDs, TV/VCR/DVDs, Television Monitors, or Component Television Units as ENERGY STAR, they must be tested according to the protocol outlined in Section 4, Test Methodology.

EPA will make On Mode, DAM, and Standby Mode data available on the ENERGY STAR Web site for interested consumers. Additionally, EPA will also provide consumers with an estimate of each ENERGY STAR qualified TV's annual energy consumption through publication of a kWh/year number. This annual power consumption estimate will be based on a daily usage pattern of 5 hours in On Mode, 3 hours in DAM (if manufacturer reports that DAM exists for their model), and 16 hours in Standby Mode. TV models without a DAM will have an annual power consumption estimate based on a daily usage pattern of 5 hours in On Mode and 19 hours in Standby Mode.

Note: Per correspondence from EPA dated September 21, 2005, initiating revision of the Version 2.2 TV products specification, EPA is including On Mode requirements in the Version 3.0 specification to address recent changes in product technology and usage patterns that have resulted in increased energy consumption by TVs. EPA's rationale for including On Mode requirements in the Version 3.0 TV products specification was also included in the TV Update Document distributed to stakeholders on January 3, 2007. Both documents are available at www.energystar.gov/productdevelopment for stakeholder review.

EPA intends to make available an annual energy consumption estimate for each ENERGY STAR qualified TV in order to provide consumers with as much information as possible to help them make informed TV purchasing decisions. For purposes of estimating energy consumption, EPA intends to assume five hours per day in On Mode for the daily usage pattern. This number of hours is consistent with the average number reported by Tiax LLC (5.2 hours) for how long TVs were reported to be On in their recently published report entitled *Energy Consumption by Consumer Electronics in U.S. Residences*, prepared for the Consumer Electronics Association. Three hours per day in DAM (if manufacturer reports that DAM exists for their model) is consistent with the proposed requirement in this Draft 1 Version 3.0 TV products specification that TVs may enter DAM for no longer than one hour in an eight hour period.

A. On Mode/Active Power

1. To qualify as ENERGY STAR, all TVs, TV/VCRs, TV/DVDs, TV/VCR/DVDs, Television Monitors, and Component Television Units must not exceed the following maximum On Mode power consumption equation: $Y = 0.245X + 11$. Y is the average On Mode power consumption in watts and rounded to the nearest whole number; X is the screen area of the product in square inches, found by multiplying the display width by the display height. For example, the maximum power consumption for a TV with a width of 27.9 inches and a height

of 15.7 inches (that has a screen area of 437.6 square inches) would be: $0.245(437.6) + 11 = 118.21$ or 118 watts when rounded to the nearest whole number. Under this metric, maximum allowed power consumption for TV products of various screen sizes is provided below in

Table 1.

Table 1: Average On Mode Power Level Requirements for TVs

Viewable Screen Size (Inches)	TV Dimensions (Width x Height) in Inches	Screen Area (Square Inches)	Maximum Power Use (Watts)
15	13.1 x 7.4	96.1	35
19	16.6 x 9.3	154.3	49
27	21.6 x 16.2	349.9	97
32	27.9 x 15.7	437.6	118
37	32.2 x 18.1	585	154
40	34.9 x 19.6	683.7	179
42	36.6 x 20.6	753.8	196
46	40.1 x 22.6	904.2	233
47	41 x 23	943.9	242
50	43.6 x 24.5	1068.2	273
57	49.7 x 27.9	1388.3	351
65	56.7 x 31.9	1805.3	453

2. **Televisions Using an External Power Supply:** To qualify, the external power supply must be ENERGY STAR qualified or meet the no-load and active mode efficiency levels provided in the ENERGY STAR Program Requirements for Single Voltage Ac-Ac and Ac-Dc External Power Supplies. The ENERGY STAR specification and qualified product list can be found at www.energystar.gov/powersupplies.

B. **Download Acquisition Mode (DAM):** To qualify as ENERGY STAR, TVs, TV/VCRs, TV/DVDs, TV/VCR/DVDs, Television Monitors, and Component Television Units must not exceed power consumption of 4 watts in DAM (if manufacturer reports that DAM exists for their model). Further, products may spend no longer than one hour in an eight hour period in DAM. If the one watt Standby Mode requirement is exceeded for longer than this, the product will not be eligible to earn the ENERGY STAR. Typically, products will enter DAM to download channel listing information according to a defined schedule for use by the EPG or otherwise to communicate with a connected device through a network protocol.

Note: EPA has included proposed requirements for DAM to address stakeholder comments that functionality such as EPG downloads and other communication activities through a networked protocol be addressed under the Version 3.0 TV products specification. Stakeholders are requested to provide feedback on the functionality covered by DAM, the proposed wattage requirements under this mode, and the proposal that TVs should spend no longer than one hour in an eight hour period in DAM.

C. **Standby Mode:** To qualify as ENERGY STAR, TVs, TV/VCRs, TV/DVDs, TV/VCR/DVDs, Television Monitors, and Component Television Units must not exceed power consumption of 1 watt in Standby Mode. Additionally, this lowest power consuming Standby Mode must be the default Standby Mode for the TV as shipped to consumers.

Note: The proposed Standby Mode requirement in this Draft 1 Version 3.0 TV products specification is identical to the Standby Mode requirement in the current Version 2.2 specification.

Note: There is significant international stakeholder interest in including an Off Mode requirement at zero watts under this proposed Version 3.0 ENERGY STAR TV products specification. EPA understands that currently, products manufactured for sale in the U.S. market do not typically incorporate a true Off Mode. Stakeholders are requested to provide feedback on the availability of an Off Mode in their products and/or the changes that would need to occur in order for products sold in the U.S. market to include this additional mode.

- D. **User Information Requirement:** In order to ensure that consumers are properly informed of the benefits of keeping their TVs in the default modes as shipped, particularly for those models that incorporate additional features and functionality that, if employed, would result in increased energy use beyond that intended by the ENERGY STAR requirements for On, DAM, and Standby Mode, the manufacturer will include with each TV one of the following:
- Information on ENERGY STAR and the benefits of keeping the TV at its factory default settings that meet ENERGY STAR criteria in either a hard copy or electronic copy of the user manual. Where necessary, manufacturers will also include language warning consumers that enabling certain features and functionality in their TV (e.g., instant-on) will increase its energy consumption, possibly beyond the limits required for ENERGY STAR qualification. This information should be near the front of the user manual; or,
 - A package or box insert on ENERGY STAR and the benefits of keeping the TV in its factory default modes. Where necessary, manufacturers will also include language advising consumers that enabling certain features and functionality in their TV (e.g., instant-on) will increase its energy consumption, possibly beyond the limits required for ENERGY STAR qualification.

Note: EPA has proposed a User Information Requirement in this Draft 1 Version 3.0 TV products specification to ensure that consumers are made aware of the benefits of keeping their TVs at the factory default settings that have been tested and reported as meeting the ENERGY STAR requirements. This is particularly important for those models that incorporate additional features and/or functionality that, if selected by the user, would result in increased energy use. An alternative approach would be to require testing for ENERGY STAR qualification in the most consumptive standby mode, for example, as currently required by the Version 2.2 TV products specification. EPA is seeking stakeholder feedback on the most effective way to ensure the energy savings ENERGY STAR intends.

- 4) **Test Methodology:** Manufacturers are required to perform tests and self-certify those models that meet the ENERGY STAR guidelines.
- In performing these tests, partner agrees to use the test procedures outlined in Table 3, below, with the clarifications outlined in Section 4.E.1.
 - The test results must be reported to EPA.

Additional testing and reporting requirements are provided below.

A. Test Conditions:

Supply Voltage:	North America/Taiwan:	115 (± 1%) Volts AC, 60 Hz (± 1%)
	Europe/Australia/New Zealand:	230 (± 1%) Volts AC, 50 Hz (± 1%)
	Japan:	100 (± 1%) Volts AC, 50 Hz (± 1%)/60 Hz (± 1%)
<i>Note: For products rated for > 1.5 kW maximum power, the voltage range is ± 4%</i>		
Total Harmonic Distortion (THD) (Voltage):	< 2% THD (< 5% for products which are rated for > 1.5 kW maximum power)	
Ambient Temperature:	23°C ± 5°C	
Relative Humidity:	10 – 80 %	

(Reference IEC 62301 Ed 1.0: Household Electrical Appliances – Measurement of Standby Power, Sections 4.2, 4.3)

B. Models Capable of Operating at Multiple Voltage/Frequency Combinations: Manufacturers shall test their products based on the market(s) in which the models will be sold and promoted as ENERGY STAR qualified. For products that are sold as ENERGY STAR in multiple international markets and, therefore, rated at multiple input voltages, the manufacturer must test at and report the required power consumption or efficiency values at all relevant voltage/frequency combinations. For example, a manufacturer that is shipping the same model to the United States and Europe must measure, meet the specification, and report test values at both 115 Volts/60 Hz and 230 Volts/50 Hz in order to qualify the model as ENERGY STAR in both markets. If a model qualifies as ENERGY STAR at only one voltage/frequency combination (e.g., 115 Volts/60 Hz), then it may only be qualified and promoted as ENERGY STAR in those regions that support the tested voltage/frequency combination (e.g., North America and Taiwan).

C. Approved Meter: Approved meters will ~~include the following attributes¹:~~

- ~~• Power resolution of 1 mW or better;~~
- ~~• An available current crest factor of 3 or more at its rated range value; and~~
- ~~• Lower bound on the current range of 10mA or less.~~

~~The following attributes in addition to those above are suggested:~~

- ~~• Frequency response of at least 3 kHz; and~~
- ~~• Calibration with a standard that is traceable to the U.S. National Institute of Standards and Technology (NIST).~~

It is also desirable for measurement instruments to be able to average power accurately over any user selected time interval (this is usually done with an internal math's calculation dividing accumulated energy by time within the meter, which is the most accurate approach). As an alternative, the measurement instrument would have to be capable of integrating energy over any user selected time interval with an energy resolution of less than or equal to 0.1 mWh and integrating time displayed with a resolution of 1 second or less.

D. Accuracy: Measurements of power of 0.5 W or greater shall be made with an uncertainty of less than or equal to 2% at the 95% confidence level. Measurements of power of less than 0.5 W shall be made with an uncertainty of less than or equal to 0.01 W at the 95% confidence level. The power measurement instrument shall have a resolution of:

¹ Characteristics of approved meters taken from IEC 62301 Ed 1.0: Household Electrical Appliances – Measurement of Standby Power

- 0.01 W or better for power measurements of 10 W or less;
- 0.1 W or better for power measurements of greater than 10 W up to 100 W; and
- 1 W or better for power measurements of greater than 100 W.

All power figures should be in watts and rounded to the second decimal place. For loads greater than or equal to 10 W, three significant figures shall be reported.

E. Test Procedures:

Table 2: Test Procedures for Measuring Operational Modes

Specification Requirement	Test Protocol	Source
Standby Mode	IEC 62301, Ed 1.0: Household Electrical Appliances – Measurement of Standby Power	www.iec.ch
On Mode	<i>Draft</i> IEC 62087, Ed 2.0: Methods of Measurement for the Power Consumption of Audio, Video and Related Equipment, Section 11, “Measuring conditions of television sets for On (average) mode.” ²	www.iec.ch

1. Guidance on Implementation of IEC 62301: Below, EPA provides specific guidance on using IEC 62301 for measuring TV Standby Mode power. For purposes of determining ENERGY STAR qualification of a product, the below clarifications apply:
 - a. All standby measurements shall be conducted and reported to EPA first at factory default conditions.
 - ~~b. Manufacturers must make additional measurements as necessary, in addition to the standby power consumption of the product at factory default settings, to report the highest observed power consumption of the product in Standby Mode.~~
 - c. For TVs that have EPG download capability, the manufacturer must measure and report the power consumption of the device while in DAM. During this mode, the TV must be downloading program guide updates over a live or simulated TV signal while the device is producing neither images nor sound.

Note: Stakeholders are requested to provide feedback on whether there is a standard EPG signal that would be suitable for testing the power consumption of TVs in DAM.

2. Guidance on Implementation of IEC 62087: Below, EPA provides guidance on using IEC 62087 for measuring TV On Mode power. For purposes of determining ENERGY STAR qualification of a product, the below exceptions and clarifications apply.
 - a. Accuracy of Input Signal Levels: *Section 11.3.9, “Accuracy of input signal levels”* reminds testers that video inputs used for testing should be within +/- 2% of reference white and black levels. *Section B.2 of Annex B, “Considerations for On (average) mode television set power measurements”* describes the importance of input signal accuracy in further detail. EPA would like to emphasize the importance of using accurate/calibrated video inputs during On Mode testing. Testers are encouraged to use digital video signals such as HDMI wherever possible. When using analog inputs, manufacturers are urged to use DVD player equipment with highly accurate analog outputs that are within +/- 2% of reference signal levels.

² IEC 62087, Ed 2.0 is still in draft form and under IEC committee review, as of the writing of this Draft 1 Version 3.0 specification. While significant changes to the relevant portions of the IEC document are not envisioned by its authors, EPA will review the final version, when available, to ensure that no material changes have been made to the applicable sections of the document.

- b. Use of Static Signals for Testing: Manufacturers should ignore *section 11.4, "On mode (average) testing with static video signals"* for the purposes of ENERGY STAR testing. EPA intends TVs to be measured using the dynamic video test signals referred to in *section 11.5, "On mode (average) testing with dynamic broadcast-content video signal"* ~~and the Internet derived content referred to in section 11.6, "On mode (average) testing with Internet content video signal."~~
- c. True Power Factor: Due to increased awareness of the importance of power quality on the part of EPA and electric utilities, manufacturers shall indicate the true power factor of their sets during On Mode measurement.
- d. Testing at Factory Default Settings: In measuring the On Mode power consumption of TVs, EPA is interested in capturing first and foremost the power consumption of products *as they are shipped from the factory*. Any sections of IEC 62087 that instruct the tester to modify factory default settings should be ignored when conducting initial On Mode measurements on a given product. These include *sections 11.3.4, "Special functions" and 11.3.5, "Power saving functions."*
- e. Automatic Brightness Control: If an automatic brightness control exists and is enabled by default, the TV should be tested in a room with a minimum ambient light level of 300 lux, as described in *section 11.3.5, "Power saving functions."*

Note: The guidance provided in this Draft 1 Version 3.0 TV products specification on implementation of IEC 62087 is identical to the guidance provided in the TV testing request distributed by EPA on April 2, 2007. As of the writing of this Draft 1 Version 3.0 specification, IEC 62087, Ed 2.0 is still in draft form and under IEC committee review. While significant changes to the relevant portions of the IEC document are not envisioned by its authors, EPA will continue to work closely with the IEC and monitor progress on the finalization of this test procedure. EPA will review the final version, when available, and if significant changes are made to the applicable sections of the document, EPA will engage in discussions with ENERGY STAR TV stakeholders prior to incorporating into the Version 3.0 ENERGY STAR TV products specification.

- 5) Effective Date: The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the *effective date* of the agreement. Any previously executed agreement on the subject of ENERGY STAR qualified TVs shall be terminated effective ~~August 31, 2008~~.
 - A. Qualifying Products Under the Version 3.0 Specification: This specification shall commence on ~~September 1, 2008~~. All products, including models originally qualified under Version 2.2, with a **date of manufacture** on or after ~~September 1, 2008~~ must meet the new Version 3.0 requirements in order to qualify for ENERGY STAR. The **date of manufacture** is specific to each unit and is the date (e.g., month and year) on which a unit is considered to be completely assembled.
- Note:** EPA anticipates finalizing the Version 3.0 ENERGY STAR TV products specification by December 2007. The proposed effective date of September 1, 2008, would allow industry the typical nine months transition time prior to the new specification taking effect.
- B. Elimination of Grandfathering: EPA will not allow grandfathering under this Version 3.0 ENERGY STAR specification. **ENERGY STAR qualification under previous versions is not automatically granted for the life of the product model.** Therefore, any product sold, marketed, or identified by the manufacturing partner as ENERGY STAR must meet the current specification in effect at the time of manufacture of the product
- 6) Future Specification Revisions: EPA reserves the right to revise the specification should technological and/or market changes affect its usefulness to consumers or industry or its impact on the environment. In keeping with current policy, revisions to the specification will be discussed with

stakeholders. In the event of a specification revision, please note that ENERGY STAR qualification is not automatically granted for the life of a product model. To qualify as ENERGY STAR, a product model must meet the ENERGY STAR specification in effect on the model's date of manufacture.