



ENERGY STAR® Program Requirements Product Specification for Televisions

Addendum to the Department of Energy's (DOE) Test Procedure for Television Sets Rev. Apr-2012

1 OVERVIEW

It is the intent that the following test method will be used as an addendum to the DOE Test Procedure for Television Sets (TVs) for determining product power consumption with network connections in Standby-Active, Low Mode as defined by the DOE Test Procedure Notice of Proposed Rulemaking (TV TP NOPR) for Television Sets¹. If it is determined that the TV does not have network capabilities, the test for standby-active, low mode does not need to be performed.

Note: This test method is an addendum to the test procedure outlined in DOE's TV TP NOPR. Although the TV TP NOPR provides a definition for Standby-Active, Low Mode, DOE does not suggest an approach for measuring its power consumption.

Once DOE has published the TV TP final rule, this test method may be updated, as needed.

2 APPLICABILITY

The following test method addendum is applicable to all products eligible for qualification under the ENERGY STAR Product Specification for Televisions that have network capabilities.

Products must be tested with hardware and software features in the default, or "as-shipped" configuration, unless otherwise specified in this document.

3 DEFINITIONS

- A) LAN: Local Area Network
- B) UUT: Unit Under Test
- C) WAN: Wide Area Network

4 TEST CONDUCT

- A) UUT (Unit Under Test) Configuration and Control:

- 1) Network Connection Capabilities:

¹ Test Procedure for Television Sets Notice of Proposed Rulemaking, *Federal Register*, 77 FR 2830, January 19, 2012

a) Verify the UUT has network connection capabilities:

i. Network connections should be listed in the user manual. If no connections are specified in the user manual, verify that the TV does not have network capabilities by checking for the absence of physical connections or the absence of network settings in the menu.

ii. If the UUT has the capabilities to be connected to a network but was not shipped with a required piece of hardware (e.g. wireless adapter), that connection type shall not be tested.

2) Peripherals and Network Connections:

a) UUT connections shall be set up as follows:

i. If a physical network connection is present, network connectivity is listed in the TV menu, or listed in the user manual; the UUT network capabilities shall be activated and the UUT shall be connected to a Local Area Network (LAN) prior to being placed into standby mode.

ii. The LAN shall allow devices to ping other devices on the network but will not allow access to a wide area network (WAN).

Note: Limiting the connection to a LAN ensures that the UUT is in Standby-Active, Low Mode, where it is connected to a network but does not receive external data. The LAN, including wireless Radio Frequency (RF), shall support the highest and lowest data speeds of the UUT's network function.

b) If the UUT has multiple network connections (e.g., Wi-Fi, Ethernet, other), the UUT shall be configured and connected to a single network source in accordance with the hierarchy of connections listed below², while maintaining a video signal connection (i.e., connected to a video signal generating device).

i. Wi-Fi (Institution of Electrical and Electronics Engineers - IEEE 802.11- 2007³).

ii. Ethernet (IEEE 802.3). If the UUT supports Energy Efficient Ethernet (IEEE 802.3az-2010⁴), then it shall be connected to a device that also supports IEEE 802.3az.

iii. Other

B) Power Measurement:

4) Measurement Procedure⁵:

² This order of preference may change in future revisions

³ IEEE 802 – Telecommunications and information exchange between systems – Local and metropolitan area networks – Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

⁴ Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications - Amendment 5: Media Access Control Parameters, Physical Layers, and Management Parameters for Energy-Efficient Ethernet

⁵ Measurement procedure is based off of Standby-Passive measurements in Section 8.6.5.8 of IEC 62087-2011

- 54 a) After the TV is placed into Standby-Active, Low Mode, leave the UUT for a minimum of 30
55 minutes to allow Standby-Active, Low Mode power to stabilize.
- 56 b) Measure the average power consumed for a 10 minute period. Record the power for
57 Standby-Active, Low Mode.