



ENERGY STAR® Program Requirements for Room Air Conditioners

Partner Commitments

Following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacture and labeling of ENERGY STAR qualified products. The ENERGY STAR Partner must adhere to the following partner commitments:

Qualifying Products

1. Comply with current ENERGY STAR Eligibility Criteria, which define performance requirements and test procedures for room air conditioners. A list of eligible products and their corresponding Eligibility Criteria can be found at www.energystar.gov/specifications.
2. **Prior to associating the ENERGY STAR name or mark with any product**, obtain written certification of ENERGY STAR qualification from a Certification Body recognized by EPA for room air conditioners. As part of this certification process, products must be tested in a laboratory recognized by EPA to perform room air conditioner testing. A list of EPA-recognized laboratories and Certification Bodies can be found at www.energystar.gov/testingandverification.

Using the ENERGY STAR Name and Marks

3. Comply with current ENERGY STAR Identity Guidelines, which define how the ENERGY STAR name and marks may be used. Partner is responsible for adhering to these guidelines and ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance. The ENERGY STAR Identity Guidelines are available at www.energystar.gov/logouse.
4. Use the ENERGY STAR name and marks only in association with qualified products. Partner may not refer to itself as an ENERGY STAR Partner unless at least one product is qualified and offered for sale in the U.S. and/or ENERGY STAR partner countries.
5. Provide clear and consistent labeling of ENERGY STAR qualified room air conditioners.
 - 5.1. The ENERGY STAR mark must be clearly displayed on the top/front of the product (by placement of the ENERGY STAR logo on the FTC's EnergyGuide label, on product labels, and/or as a permanent mark), 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.
 - 5.2. It is also recommended that the mark appear on the product packaging.

Verifying Ongoing Product Qualification

6. Participate in third-party verification testing through a Certification Body recognized by EPA for room air conditioners, providing full cooperation and timely responses. EPA/DOE may also, 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 the government's request.

Providing Information to EPA

7. Provide unit shipment data or other market indicators to EPA annually to assist with creation of ENERGY STAR market penetration estimates, as follows:

- 7.1. Partner must submit the total number of ENERGY STAR qualified room air conditioners shipped in the calendar year or an equivalent measurement as agreed to in advance by EPA and Partner. Partner shall exclude shipments to organizations that rebrand and resell the shipments (unaffiliated private labelers).
- 7.2. Partner must provide unit shipment data segmented by meaningful product characteristics (e.g., type, capacity, presence of additional functions) as prescribed by EPA.
- 7.3. Partner must submit unit shipment data for each calendar year to EPA or an EPA-authorized third party, preferably in electronic format, no later than March 1 of the following year.

Submitted unit shipment 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.

8. Report to EPA any attempts by recognized laboratories or Certification Bodies (CBs) to influence testing or certification results or to engage in discriminatory practices.
9. Notify EPA of a change in the designated responsible party or contacts within 30 days using the My ENERGY STAR Account tool (MESA) available at www.energystar.gov/mesa.

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:

- 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.
- Consider energy efficiency improvements in company facilities and pursue benchmarking buildings through the ENERGY STAR Buildings program.
- 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.
- Feature the ENERGY STAR mark(s) on Partner website and other promotional materials. If information concerning ENERGY STAR is provided on the Partner website as specified by the ENERGY STAR Web Linking Policy (available in the Partner Resources section of the ENERGY STAR website), EPA may provide links where appropriate to the Partner website.
- Ensure the power management feature is enabled on all ENERGY STAR qualified displays and computers 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 products.
- 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, and communicate Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR website, etc. The plan may be as simple as providing a list of planned activities or milestones of which Partner would like EPA to be aware. For example, activities may include: (1) increasing the availability of ENERGY STAR qualified products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrating the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) providing information to users (via the website and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products; and (4) building awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event.

- Join EPA's SmartWay Transport Partnership to improve the environmental performance of the company's shipping operations. The SmartWay Transport Partnership works with freight carriers, shippers, and other stakeholders in the goods movement industry to reduce fuel consumption, greenhouse gases, and air pollution. For more information on SmartWay, visit www.epa.gov/smartway.
- Join EPA's Green Power Partnership. EPA's Green Power Partnership encourages organizations to buy green power as a way to reduce the environmental impacts associated with traditional fossil fuel-based electricity use. The partnership includes a diverse set of organizations including Fortune 500 companies, small and medium businesses, government institutions as well as a growing number of colleges and universities. For more information on Green Power, visit www.epa.gov/greenpower.



ENERGY STAR® Program Requirements Product Specification for Room Air Conditioners

Eligibility Criteria Version 3.1

Following is the **Version 3.1** ENERGY STAR Product Specification for Room Air Conditioners. A product shall meet all of the identified criteria to earn the ENERGY STAR.

- 1) **Definitions:** Below are the definitions of the relevant terms in this document. Unless otherwise specified, these definitions are consistent with the definitions in the DOE test procedure at 10 CFR 430, Subpart B, Appendix F.
 - A. **Room Air Conditioner (RAC):** A consumer product, other than a “packaged terminal air conditioner,” which is powered by a single phase electric current and which is an encased assembly designed as a unit for mounting in a window or through the wall for the purpose of providing delivery of conditioned air to an enclosed space. It includes a prime source of refrigeration and may include a means for ventilating and heating.
 1. **Casement-only:** A RAC designed for mounting in a casement window with an encased assembly with a width of 14.8 inches or less and a height of 11.2 inches or less.
 2. **Casement-slider:** A RAC with an encased assembly designed for mounting in a sliding or casement window with a width of 15.5 inches or less.
 3. **Reverse Cycle:** A RAC that employs a means for reversing the function of the indoor and outdoor coils such that the indoor coil becomes the refrigerating system condenser, allowing for heating of the air in the conditioned space; similarly, the outdoor coil becomes the evaporator, utilizing outdoor air as a source of heat.
 4. **Through the Wall (TTW):** A RAC without louvered sides. These units may also be referred to as “built-in” units.
 5. **Electromechanical:** A RAC that measures room temperature with a thermostat that undergoes a physical change (dimensional, phase change, etc.) relative to temperature, and utilizes mechanical rotary, switch, or similar user controls for cooling output, fan speed, desired temperature, or other features.
 - B. **Basic Model:** All units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.
 - C. **Energy Efficiency Ratio (EER):** The ratio of measured cooling output (measured in BTU per hour) to the measured average electrical energy input (measured in Watts) during the cooling capacity test.
 - D. **Combined Energy Efficiency Ratio (CEER):** The ratio of measured cooling output (measured in BTU per hour) to measured average electrical energy input (measured in Watts) and measured standby/off-mode power consumption (measured in Watts.)
 - E. **Louvered Sides:** Exterior side vents on a RAC enclosure to facilitate airflow over the outdoor coil.
 - F. **Packaged Terminal Air Conditioner (PTAC):** A wall sleeve and a separate unencased combination of heating and cooling assemblies specified by the builder and intended for mounting through the wall. It includes a prime source of refrigeration, separable outdoor louvers, forced ventilation, and heating availability energy.
 - G. **Portable Air Conditioner:** A single package air conditioner typically mounted on wheels for the purpose of moving the unit from place to place within a building or structure.
- 2) **Scope:**

- A. Included Products: Products that meet the definition of a Room Air Conditioner as specified herein are eligible for ENERGY STAR qualification, with the exception of those products listed in Section 2.B.
- B. Excluded Products: PTACs, portable air conditioners, and models with electric resistance heat as the primary heat source are not eligible for ENERGY STAR qualification under this specification. Products that are covered under other ENERGY STAR product specifications are not eligible for qualification under this specification.

3) **Core Qualification Criteria:**

- A. Energy Efficiency Ratio (EER) or Combined Energy Efficiency Ratio (CEER):

EER shall be greater than or equal to the Minimum EER (EER_{MIN}) as calculated per Equation 1.

Equation 1. Calculation of Minimum EER

$$EER_{MIN} = EER_{BASE} - EER_{Adder_Connected}$$

where,

EER_{BASE} is the base EER, per Table 1, 2 or 3

$EER_{Adder_Connected}$ is the EER connected allowance, per Table 4

Alternatively, CEER shall be greater than or equal to the Minimum CEER ($CEER_{MIN}$) as calculated per Equation 2.

Equation 2. Calculation of Minimum CEER

$$CEER_{MIN} = CEER_{BASE} - CEER_{Adder_Connected}$$

where,

$CEER_{BASE}$ is the base CEER, per Table 1, 2 or 3

$CEER_{Adder_Connected}$ is the CEER connected allowance, per Table 4

Table 1: Units Without Reverse Cycle

Capacity (BTU/hour)	EER_{BASE} (units with louvered sides)	EER_{BASE} (units without louvered sides)	$CEER_{BASE}$ (units with louvered sides)	$CEER_{BASE}$ (units without louvered sides)
< 6,000	11.2	10.4	11.0	10.2
6,000 to 7,999				
8,000 to 10,999	11.3	9.8	11.2	9.7
11,000 to 13,999			11.1	
14,000 to 19,999				
20,000 to 27,999	9.8	9.8	9.8	9.8
≥ 28,000				

Table 2: Units With Reverse Cycle

Capacity (BTU/hour)	EER _{BASE} (units with louvered sides)	EER _{BASE} (units without louvered sides)	CEER _{BASE} (units with louvered sides)	CEER _{BASE} (units without louvered sides)
< 14,000		9.8		9.7
≥ 14,000		9.2		9.1
< 20,000	10.4		10.3	
≥ 20,000	9.8		9.8	

Table 3: Casement Units

Casement Type	EER _{BASE}	CEER _{BASE}
Casement-Only	10.0	9.9
Casement-Slider	10.9	10.8

Table 4: Connected Allowance

Product Type	EER _{Adder_Connected}	CEER _{Adder_Connected}
All RAC types covered in Tables 1, 2 and 3	TBD	TBD

B. Energy Saver Mode:

1. Product shall have an “Energy Saver Mode,” which may be consumer override-able. In this mode, fan operation shall occur only in conjunction with compressor operation, with the following exceptions:
 - a. The fan may continue to run for a period not exceeding 5 minutes after the compressor is switched off.
 - b. After the above period, when the compressor is off, the fan may be cycled on for up to 17% of the total cycle time to facilitate accurate control of room temperature. For example, the fan may run for 1 minute then cycle off for at least 5 minutes or the fan may run for 2 minutes then cycle off for at least 10 minutes. Manufacturers may use other fan run durations, but fan run time shall not exceed 17% of total cycle time.
 - c. Through the Wall RACs, as defined in Section 1 may include an installer accessible setting that disables Energy Saver Mode functionality. The setting may be accessible from the product’s controls or may use a physical switch, jumper or the like. Appropriate measures shall be taken to ensure that the setting is implemented as an installer setting not intended to be consumer accessible. For example, physical switches or jumpers shall require the use of tool(s), removal of a panel, or the like; settings accessible in the product’s controls shall require a unique sequence of button presses, shall be in a hidden menu, shall require an installer password, or the like.

2. Products, excepting electromechanical RACs as defined in Section 1, shall ship with Energy Saver Mode enabled as the default setting.
3. Products, excepting electromechanical RACs as defined in Section 1, shall default to Energy Saver Mode each time the unit is switched on. However, products are not required to default to Energy Saver Mode upon restoration of power after an electrical power outage that results in a loss of power to the unit.

C. Filter Reminder:

1. Products, excepting electromechanical RACs as defined in Section 1, shall have a filter reminder that provides visual notification recommending the filter be checked, cleaned or replaced, as applicable. The filter reminder may be based on operating hours, sensing technology, or other means.
2. Through the Wall RACs, as defined in Section 1, may include an installer accessible setting that disables Filter Reminder functionality. The setting may be accessible from the product's controls or may use a physical switch, jumper or the like. Appropriate measures shall be taken to ensure that the setting is implemented as an installer setting not intended to be consumer accessible. For example, physical switches or jumpers shall require the use of tool(s), removal of a panel, or the like; settings accessible in the product's controls shall require a unique sequence of button presses, shall be in a hidden menu, shall require an installer password, or the like.

D. Significant Digits and Rounding: All calculations shall be carried out as specified in Appendix F to Subpart B of Part 430 and 10 CFR Part 430.23(f).

E. Model Numbers: Model numbers used for ENERGY STAR qualified product submissions shall be consistent with Federal Trade Commission (FTC) and Department of Energy (DOE) submissions.

4) **Connected Product Criteria: TBD**

5) **Test Requirements:**

- A. One of the following sampling plans shall be used to test energy performance for qualification to ENERGY STAR:
 1. A representative unit shall be selected for testing based on the definition for Basic Model provided in Section 1. above; or
 2. Units shall be selected for testing per the sampling requirements defined in 10 CFR 429.15.
- B. When testing energy efficiency of room air conditioners, the following test method shall be used to determine ENERGY STAR qualification:

Table 5: Test Methods for ENERGY STAR Qualification

ENERGY STAR Requirement	Test Method Reference
EER	10 CFR 430, Subpart B, Appendix F
CEER	

Note: Manufacturers may either use CEER or EER for purposes of ENERGY STAR certification in accordance with the minimum efficiency standards that apply to their products. According to DOE, as of June 1, 2014 room air conditioner products must demonstrate compliance with the minimum federal efficiency standards expressed in CEER as determined through the use of the DOE test method, 10 CFR 430, Appendix F, and pursuant with the DOE certification requirements outlined in 10 CFR 429.

- C. Compliance with Energy Saver Mode and Filter Reminder criteria shall be through examination of product and/or product documentation.

- 6) **Effective Date:** The ENERGY STAR Room Air Conditioner specification shall take effect on October 1, 2013. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. 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.

- 7) **Future Specification Revisions:** EPA reserves the right to change the criteria should technological and/or market changes affect its usefulness to consumers, industry or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. In the event of a specification revision, please note that ENERGY STAR qualification is not automatically granted for the life of a product model.