



Proposed Recognition Criteria Refrigerator-Freezers and Freezers

Scope

Included products: Refrigerator-freezers and freezers are eligible for ENERGY STAR® Most Efficient recognition in 2021.

Excluded products: The following products are not eligible for ENERGY STAR Most Efficient recognition in 2021:

- All-refrigerators. At the present time, standard-size all-refrigerators are not eligible for ENERGY STAR Most Efficient 2021 recognition.

Recognition Criteria

- 1) Product must be ENERGY STAR certified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the ENERGY STAR Program Requirements Product Specification for Residential Refrigerators and Freezers, Version 5.0. Product performance must be certified by a certification body recognized by the U.S. Environmental Protection Agency (EPA).
- 2) For standard-size refrigerator-freezers and freezers, product must have an Annual Energy Consumption (AEC) of less than or equal to 637 kWh per year.
- 3) For standard-size refrigerator-freezers other than top freezers¹, product must be at least 20% more efficient than federal requirements (see table below), as determined by the DOE test procedure in 10 CFR 430 Subpart B, Appendix A. For standard-size and compact freezers, product must be at least 15% (standard-size) or 20% (compact) more efficient than federal requirements, as determined by the DOE test procedure in 10 CFR 430 Subpart B, Appendix B. For compact refrigerators and refrigerator-freezers, product must be at least 25% more efficient than federal requirements, as determined by the DOE test procedure in 10 CFR 430 Subpart B, Appendix A.

¹ Top freezers are not subject to part 3 of the Recognition Criteria; all ENERGY STAR certified top freezers that have an AEC less than or equal to 637 kWh per year are eligible for ENERGY STAR Most Efficient recognition.

Product Class		Maximum AEC (kWh/year)
1	Refrigerator-freezers and refrigerators other than all-refrigerators with manual defrost.	AV ≤ 71.5, AEC _{MAX} ≤ 6.39*AV + 180.0 AV > 71.5, AEC _{MAX} ≤ 637
2	Refrigerator-freezers—partial automatic defrost.	AV ≤ 71.5, AEC _{MAX} ≤ 6.39*AV + 180.0 AV > 71.5, AEC _{MAX} ≤ 637
4	Refrigerator-freezers—automatic defrost with side-mounted freezer without an automatic icemaker.	AV ≤ 58.6, AEC _{MAX} ≤ 6.81*AV + 238.2 AV > 58.6, AEC _{MAX} ≤ 637
4-BI	Built-In Refrigerator-freezers—automatic defrost with side-mounted freezer without an automatic icemaker	AV ≤ 58.6, AEC _{MAX} ≤ 6.81*AV + 238.2 AV > 58.6, AEC _{MAX} ≤ 637
4I	Refrigerator-freezers—automatic defrost with side-mounted freezer with an automatic icemaker without through-the-door ice service.	AV ≤ 46.2, AEC _{MAX} ≤ 6.81*AV + 322.2 AV > 46.2, AEC _{MAX} ≤ 637
4I-BI	Built-In Refrigerator-freezers—automatic defrost with side-mounted freezer with an automatic icemaker without through-the-door ice service.	AV ≤ 46.2, AEC _{MAX} ≤ 6.81*AV + 322.2 AV > 46.2, AEC _{MAX} ≤ 637
5	Refrigerator-freezers—automatic defrost with bottom-mounted freezer without an automatic icemaker	AV ≤ 54.2, AEC _{MAX} ≤ 7.08*AV + 253.6 AV > 54.2, AEC _{MAX} ≤ 637
5-BI	Built-In Refrigerator-freezers—automatic defrost with bottom-mounted freezer without an automatic icemaker	AV ≤ 54.2, AEC _{MAX} ≤ 7.08*AV + 253.6 AV > 54.2, AEC _{MAX} ≤ 637
5I	Refrigerator-freezers—automatic defrost with bottom-mounted freezer with an automatic icemaker without through-the-door ice service	AV ≤ 42.3, AEC _{MAX} ≤ 7.08*AV + 337.6 AV > 42.3, AEC _{MAX} ≤ 637
5I-BI	Built-In Refrigerator-freezers—automatic defrost with bottom-mounted freezer with an automatic icemaker without through-the-door ice service	AV ≤ 42.3, AEC _{MAX} ≤ 7.08*AV + 337.6 AV > 42.3, AEC _{MAX} ≤ 637
5A	Refrigerator-freezers—automatic defrost with bottom-mounted freezer with through-the-door ice service	AV ≤ 32.4, AEC _{MAX} ≤ 7.40*AV + 397.1 AV > 32.4, AEC _{MAX} ≤ 637
5A-BI	Built-in refrigerator-freezer—automatic defrost with bottom-mounted freezer with through-the-door ice service	AV ≤ 32.4, AEC _{MAX} ≤ 7.40*AV + 397.1 AV > 32.4, AEC _{MAX} ≤ 637
7	Refrigerator-freezers—automatic defrost with side-mounted freezer with through-the-door ice service	AV ≤ 40.1, AEC _{MAX} ≤ 6.83*AV + 363.0 AV > 40.1, AEC _{MAX} ≤ 637
7-BI	Built-in refrigerator-freezers—automatic defrost with side-mounted freezer with through-the-door ice service	AV ≤ 40.1, AEC _{MAX} ≤ 6.83*AV + 363.0 AV > 40.1, AEC _{MAX} ≤ 637
AV = Adjusted Volume (AV) shall be calculated in accordance with the DOE test procedure in 10 CFR 430 Subpart B, Appendix A.		

Product Class		Maximum AEC (kWh/year)
8	Upright freezers with manual defrost	$AV \leq 99.9, AEC_{MAX} \leq 4.73*AV + 164.6$ $AV > 99.9, AEC_{MAX} \leq 637$
9	Upright freezers with automatic defrost without an automatic ice maker	$AV \leq 60.4, AEC_{MAX} \leq 7.33*AV + 194.1$ $AV > 60.4, AEC_{MAX} \leq 637$
9I	Upright freezers with automatic defrost with an automatic icemaker	$AV \leq 49.0, AEC_{MAX} \leq 7.33*AV + 278.1$ $AV > 49.0, AEC_{MAX} \leq 637$
9-BI	Built-In Upright freezers with automatic defrost without an automatic icemaker	$AV \leq 60.4, AEC_{MAX} \leq 7.33*AV + 194.1$ $AV > 60.4, AEC_{MAX} \leq 637$
9I-BI	Built-In upright freezers with automatic defrost with an automatic icemaker	$AV \leq 49.0, AEC_{MAX} \leq 7.33*AV + 278.1$ $AV > 49.0, AEC_{MAX} \leq 637$
10	Chest freezers and all other freezers except compact freezers	$AV \leq 88.0, AEC_{MAX} \leq 6.20*AV + 91.6$ $AV > 88.0, AEC_{MAX} \leq 637$
10A	Chest freezers with automatic defrost	$AV \leq 58.7, AEC_{MAX} \leq 8.70*AV + 125.9$ $AV > 58.7, AEC_{MAX} \leq 637$
11	Compact Refrigerator and Refrigerator-Freezer other than All-Refrigerator - manual defrost	$AEC_{MAX} \leq 6.77*AV + 189.2$
11A	Compact All-Refrigerator - manual defrost	$AEC_{MAX} \leq 5.88*AV + 164.3$
12	Compact Refrigerator-Freezer - partial automatic defrost	$AEC_{MAX} \leq 4.43*AV + 251.9$
13	Compact refrigerator-freezers - automatic defrost with top-mounted freezer	$AEC_{MAX} \leq 8.85*AV + 254.4$
13I	Compact refrigerator-freezers—automatic defrost with top-mounted freezer with an automatic icemaker	$AEC_{MAX} \leq 8.85*AV + 338.4$
13A	Compact All-Refrigerators - automatic defrost	$AEC_{MAX} \leq 6.88*AV + 194.5$
14	Compact Refrigerator-Freezer - automatic defrost with side-mounted freezer	$AEC_{MAX} \leq 5.12*AV + 342.7$
14I	Compact Refrigerator-Freezer - automatic defrost with side-mounted freezer with an automatic icemaker	$AEC_{MAX} \leq 5.12*AV + 426.7$
15	Compact Refrigerator-Freezer - automatic defrost with Bottom-Mounted freezer	$AEC_{MAX} \leq 8.85*AV + 254.4$
15I	Compact Refrigerator-Freezer - automatic defrost bottom-mount- with an automatic icemaker	$AEC_{MAX} \leq 8.85*AV + 338.4$
16	Compact upright freezers with manual defrost	$AEC_{MAX} \leq 6.92*AV + 180.6$
17	Compact upright freezers with automatic defrost	$AEC_{MAX} \leq 8.14*AV + 281.5$
18	Compact chest freezers	$AEC_{MAX} \leq 7.4*AV + 109.4$
AV = Adjusted Volume (AV) shall be calculated in accordance with the DOE test procedures in 10 CFR 430 Subpart B, Appendix A and 10 CFR 430 Subpart B, Appendix B.		

Recognition Period

EPA will add eligible models to the ENERGY STAR Most Efficient 2021 product list for refrigerators from January 1, 2021 through December 31, 2021. The ENERGY STAR Most Efficient 2021 designation may be used in association with models recognized during this period for as long as the model remains on the market.