

Report Compiled by the Working Group on Classification Standards for Television Sets (Summary)

- The working group, which focuses on improving the performance of television sets in terms of energy consumption, held discussions on matters to be stipulated as standards (standard energy consumption efficiency or “energy efficiency standards”) based on which manufacturers and importers (hereinafter referred to as “manufacturers, etc.”) can assess their products, and finally compiled the discussion results into a report.
- The new energy efficiency standards sets FY2026 (fiscal year of Reiwa 8) as the target fiscal year and expects television sets to improve energy consumption efficiency by about 32% from the current level.

1. Background to preparation of the report

In FY2009, the Agency for Natural Resources and Energy (ANRE) stipulated the target fiscal year of the energy efficiency standards for television sets as FY2012 and the standards have remained unchanged since then, despite the fact that all manufacturers, etc. have already achieved the target standard value. Television sets display sizes have been becoming larger on average than about ten years ago when the existing standards were set, and manufacturers, etc. have been advancing development and dissemination of new technologies, e.g., high resolution (4K or higher resolution) and organic EL, which contribute to increasing energy consumption. In light of this fact, the working group considers it necessary to encourage manufacturers, etc. to further improve the energy consumption performance of television sets by stipulating new energy efficiency standards for such sets.

2. Scope of target television sets

Target television sets include “organic EL television sets” in addition to the conventional target equipment “liquid crystal television sets,” and now exclude “cathode-ray tube television sets” and “plasma television sets,” both of which are no longer on the market.

3. Matters to be stipulated as standards by which manufacturers, etc. should assess their products

(1) Energy consumption efficiency and measurement method thereof

The energy consumption efficiency of television sets should be the “annual electricity consumption (kWh per year),” and the measurement method of the energy consumption efficiency should be defined as shown in the Appendix.

(2) Target fiscal year

The target fiscal year is FY2026 (fiscal year of Reiwa 8).

(3) Categories and target standard values

Categories and target standard values for television sets are stipulated below.

Table 1: Target standard values for television sets

Category name	Category	Target standard value (kWh per year)
A	Liquid crystal TV sets of less than 2K	$0.00407A+30.08$
B	Liquid crystal TV sets of 2K or more but less than 4K	$0.00605A+56.13$
C	Liquid crystal TV sets of 4K or more	$0.00728A+62.99$
D	Organic EL TV sets	$0.02136A-16.40$ Note: 75.0 in the case of $A < 4,258$.

A: Screen area (square centimeters)

(4) The approach manufacturers, etc. should take to determine their achievements

Manufacturers, etc. should ensure that the weighted average of the energy consumption efficiency based on the number of shipped television sets by category in each fiscal year following the target fiscal year should not exceed the weighted average of the energy efficiency standards based on the number of shipped television sets by category. However, special consideration is to be given to the two cases as shown below.¹

[i] Added functions to be considered

If manufacturers, etc. cannot make target television sets achieve the energy efficiency standards in a certain category and if the weighted average of the value that results from deducting the estimated annual electricity consumption for each added function shown in the table below from the annual electricity consumption of the target television sets (based on the number of shipped television sets in

¹ If manufacturers, etc. takes advantage of the two special treatments simultaneously so that target television sets will not exceed the energy efficiency standards as of the time applying the treatments, such television sets are deemed to be not exceeding the energy efficiency standards.

the category) does not exceed the weighted average of the energy efficiency standards based on the number of shipped television sets in the category, the television sets are deemed to be not exceeding the energy efficiency standards.

Name of additional function	Estimated annual electricity consumption (kWh per year)
two or more built-in 2K tuners	2.8
two or more built-in 4K tuners	5.5
a built-in recording device (3.5-inch HDD)	11.0
a built-in recording device (2.5-inch HDD)	4.8
a built-in recording device (SSD)	3.7
a built-in Blu-ray recorder or built-in DVD recorder (compatible with 4K or more)	23.9
a built-in Blu-ray recorder or built-in DVD recorder (compatible with less than 4K)	16.7
double-speed video playback (compatible with 4K or more)	18.3
double-speed video playback (compatible with less than 4K)	17.0

[ii] Devices for 8K resolution to be considered

If manufacturers, etc. cannot make target television sets achieve the energy efficiency standards in any category for liquid crystal television sets with 4K or more resolution or organic EL television sets, and if the weighted average of the annual electricity consumption of the respective television sets in that category (excluding 8K devices (based on the number of shipped television sets excluding 8K devices)) does not exceed the weighted average of the energy efficiency standards (excluding 8K devices) based on the number of shipped television sets (excluding 8K devices), the television sets in that category are deemed to be not exceeding the energy efficiency standards.

(5) Details to be displayed, etc.

Details to be displayed by manufacturers, etc. concerning the energy efficiency standards were compiled.

4. Recommendations for the improvement of energy efficiency efficiency

Proactive and continuous efforts by stakeholders are indispensable to securing improved energy consumption efficiency of television sets under the new energy efficiency standards. The working group compiled recommendations with expectations for further efforts by these stakeholders, such as

the government, retailers and manufacturers.

- Reference 1: Expected improvement of energy consumption efficiency by setting a new target standard value

Energy consumption efficiency of television sets as a whole is expected to improve by 32.4%.

	Energy consumption efficiency (kWh per year)*	Target standard value in the target fiscal year (FY2026) (kWh per year)	Improvement rate
Liquid crystal TV sets of less than 2K	55.7	38.6	30.7%
Liquid crystal TV sets of 2K or more but less than 4K	103.0	85.7	16.8%
Liquid crystal TV sets of 4K or more	196.6	124.3	36.8%
Organic EL TV sets	276.6	209.9	24.1%
TV sets as a whole	162.5	109.8	32.4%

*Notes:

1. This table shows the average values of certain types of television sets based on the results of a questionnaire survey for the types of television sets that were shipped for domestic use in 2018 and fell under the scope of the equipment subject to the classification standards.
2. The values in this table were calculated on the premise that the ratios of the types of television sets will remain unchanged from 2018 as a reference year until the target fiscal year (FY2026).

- Reference 2: The Working Group on Classification Standards for Television Sets of the Energy Efficiency and Conservation Subcommittee of the Committee on Energy Efficiency and Renewable Energy under the Advisory Committee for Natural Resources and Energy

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Appendix

[Television sets with a built-in recording device]

$$E = \{ (P_o - P_A / 4) \times (t_o - t_{orec}) + (P_{orec} - P_A / 4) \times t_{orec} + P_{rec} \times t_{rec} + P_{epg} \times t_{epg} + P_s \times (24 \times 365 - t_o - t_{rec} - t_{epg}) \} / 1000$$

The variables in this formula “E, P_o, P_A, P_{orec}, P_{rec}, P_{epg}, P_s, t_o, t_{orec}, t_{rec} and t_{epg}” represent the following values, respectively.

E: Annual electricity consumption (kWh per year)

P_o: Power consumption in operation (W)

P_A: Saved electricity using power saving functions, etc. (W)

P_{orec}: Electricity consumption in operation and recording (W)

P_{rec}: Electricity consumption in recording (W)

P_{epg}: Electricity in acquiring EPG² data (W)

P_s: Electricity consumption in standby mode (W)

t_o: Standard annual operation time (h per year); 1861.5 (5.1 hours x 365 days)

t_{orec}: Standard annual operation and recording time (h per year); 146 (0.4 hours x 365 days)

t_{rec}: Standard annual recording time (h per year); 146 (0.4 hours x 365 days)

t_{epg}: Standard annual time for acquiring EPG data (h per year); This value varies depending on the types of television sets.

[Television sets other than those with built-in recording devices]

$$E = \{ (P_o - P_A / 4) \times t_o + P_{epg} \times t_{epg} + P_s \times (24 \times 365 - t_o - t_{epg}) \} / 1000$$

The variables in this formula “E, P_o, P_A, P_{epg}, P_s, t_o and t_{epg}” represent the following values, respectively.

E: Annual electricity consumption (kWh per year)

P_o: Power consumption in operation (W)

P_A: Saved electricity using power saving functions, etc. (W)

P_{epg}: Electricity in acquiring EPG data (W)

P_s: Power consumption in standby (W)

t_o: Standard annual operation time (h per year); 1861.5 (5.1 hours x 365 days)

² The term “EPG” is an acronym for “Electronic Program Guide.” This is a system for acquiring and displaying data on TV programs on a TV display.

tepg: Standard annual time for acquiring EPG data (h per year); This value varies depending on the types of television sets.