

GUIDE ON MINIMUM ENERGY PERFORMANCE STANDARDS FOR TELEVISION

[DATE] [23rd JULY, 2019]

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1. OBJECTIVE

- 1.1. This Guide is developed by the Commission to specify the MEPS and energy labeling requirements for televisions that can be connected to mains power and for household use.

2. SCOPE

- 2.1. Subject to paragraph 2.2, this Guide shall apply to the following types of television with size up to or equal to 177.8 cm (70 inch):
- (a) plasma;
 - (b) liquid crystal display (LCD);
 - (c) light emitting diode (LED);
 - (d) cathode ray tube (CRT); and
 - (e) any other display type with similar function.
- 2.2. The following products and technologies are excluded from this Guide:
- (a) television sets powered solely by batteries;
 - (b) front and rear projection display devices;
 - (c) type 8K televisions; and
 - (d) any television model(s) that have been granted exemption by the Commission.
- 2.3. This Guide does not specify the procedure for the application of a COA. For further information regarding the application of a COA, please visit www.st.gov.my.
- 2.4. This Guide is not intended in any way to circumvent the application of and obligations or requirements under any other written law or standards. Parties relying on this Guide are advised to obtain independent advice on the applicability of the same to their equipment.

3. DEFINITIONS AND INTERPRETATION

- 3.1. In this Guide, the following terms shall bear the following meanings:

“8K”	means an accreditation given to a television as stated in the relevant safety test report;
“Act”	means the Electricity Supply Act 1990 [Act 447], as amended, modified or supplemented from time to time;
“Active Standby Mode”	means an equipment being on either “Standby-active low” or “Standby-active high” sub-modes as more particularly described in Table 1 of MS IEC 62087-3:2017;
“CAB”	means a conformity assessment body recognised by the Commission;
“COA”	means the Certificate of Approval issued in accordance with Regulation 97 of the Electricity Regulations 1994, as amended, modified or supplemented from time to time;
“Commission”	means Suruhanjaya Tenaga;
“EEF_{average}”	means the energy efficiency factor for television models determined through local market survey and is a value that is determined and published by the Commission from time to time;
“EEF_{lowest 2-Stars model}”	means the energy efficiency factor for 2-star television models determined through local market survey and is a value that is determined and published by the Commission from time to time;
“EEF_{tested}”	means the energy efficiency factor for each individual television model and is a value obtained from the relevant test report;
“Energy Laws”	means the Act and all subsidiary legislations made thereunder;

“MEPS”	means minimum energy performance standards, which is the minimum level of energy efficiency which has to be met by an appliance; and
“On Mode”	means an equipment being on “On” mode as more particularly described in Table 1 of MS IEC 62087-3:2017;
“Passive Standby Mode”	means an equipment being on “Standby-passive” sub-mode as more particularly described in Table 1 of MS IEC 62087-3:2017;
“Standby Mode”	means an equipment being on “Partial On” mode as more particularly described in Table 1 of MS IEC 62087-3:2017;
“test report”	means a test report issued by a CAB.

3.2. Subject to paragraph 3.1 and unless expressly indicated to the contrary or unless the context otherwise requires, terms adopted and used in this Guide shall bear the same meaning as they are defined in the Energy Laws.

3.3. If there are any conflict between the provisions of this Guide and of those contained in the Energy Laws, the provisions in the Energy Laws shall prevail.

4. TESTING STANDARD

4.1. The following testing standard references are indispensable for the application of this Guide. For dated references, only the edition cited applies:

- (i) MS IEC 62301:2012, Household electrical appliances - Measurement of standby power.
- (ii) MS IEC 62087-3:2017, Audio, video and related equipment - Determination of power consumption - Part 3: Television sets or equivalent to International Standard IEC 62087-3:2017, Audio, video and related equipment - Determination of power consumption - Part 3: Television sets.

5. STAR RATING INDEX

5.1. The star rating index shall be calculated in accordance with the following formula:

$$\left(\frac{EEF_{\text{tested}}}{EEF_{\text{average}}} - 1 \right) \times 100\%$$

6.1. For purposes of reference, the following is a formula to calculate EEF_{tested} . However, for the avoidance of doubt, in the event of an inconsistency between the value obtained from using the formula and the value obtained from a test report, the value in the test report shall prevail :

$$EEF_{\text{tested}} = \frac{\text{Screen Area (in cm}^2\text{)}}{\text{Annual Energy Consumption (in kWh)}}$$

Where:

$$\begin{aligned} \text{Annual Energy Consumption (kWh)} \\ = 0.365 [(P_{\text{on}} \times 5) + P_{\text{ps}}(19 - T_{\text{as}}) + (P_{\text{as}} \times T_{\text{as}})] \end{aligned}$$

Where:

P_{on} = Power at On Mode (in W)

P_{ps} = Power at Passive Standby Mode (in W)

P_{as} = Power at Active Standby Mode (in W)

T_{as} = Time on Active Standby Mode (in hour)

6. MEASUREMENT CONDITIONS

6.2. Testing of power measurement shall be carried out under following conditions:

- (a) Power measurement at a time when the device is on On Mode; and
- (b) Power measurement at a time when the device is on Standby Mode.

6.3. The On Mode power consumption shall have the following specific conditions:

- (a) Supply voltage and frequency: 230V, 50Hz.
- (b) Configuration and picture setting: home configuration (clause 3.1.9 of MS IEC 62087-3:2017) or default picture setting (clause 3.1.7 of MS IEC 62087-3:2017).

- (c) Light source for disabling the ABC feature: ABC sensor disabled by means of control setting or light source control (clause 5.6.5 of MS IEC 62087-3:2017).
- (d) Networking equipment: no networking connectivity applies (clause 5.6.6 of MS IEC 62087-3:2017).
- (e) Sound level adjustments: Volume control adjusted to obtain 50 mW at the loudspeaker terminal (Clause 6.3.10.7 of MS IEC 62087-3:2017).
- (f) Power measurement: Dynamic broadcast-content video signal applies during measurement (Clause 6.4.5 of MS IEC 62087-3:2017).
- (g) Peak Luminance Measurement: Box and outline video signal applies during measurement (Clause 4.2.2.2 of MS IEC 62087-2:2017).

6.4. The Standby Mode power consumption shall be measured according to MS IEC 62301:2012.

6.5. Any modifications made to the device after measurement has been completed, other than cosmetic modifications which do not in any way affect the functionality of the device, would require the device to be retested.

7. STAR RATING

7.1. The star rating shall be in accordance with Table 1 below:

Star Rating	Star Index
5	$+70\% \leq \text{Star Index}$
4	$+25\% \leq \text{Star Index} < +70\%$
3	$-22\% \leq \text{Star Index} < +25\%$
2	$-55\% \leq \text{Star Index} < -22\%$
1	$\text{Star Index} < -55\%$

Table 1 : Star Rating

8. MEPS REQUIREMENT

A COA will only be issued upon fulfillment of all of the following requirements:

- 8.1. The MEPS rating to be achieved shall be 2-Star.
- 8.2. The maximum power consumption during Passive Standby Mode shall be 1 W.
- 8.3. The minimum peak luminance ratio shall be 60%.

9. ENERGY EFFICIENCY LABEL

- 9.1. In accordance with the Energy Laws, any equipment that meets all the requirements of efficient use of electricity shall be affixed with an efficiency rating label. It shall be the responsibility of the manufacturer or importer to affix such label.
- 9.2. Information to be included in the label is as per Figure 1.

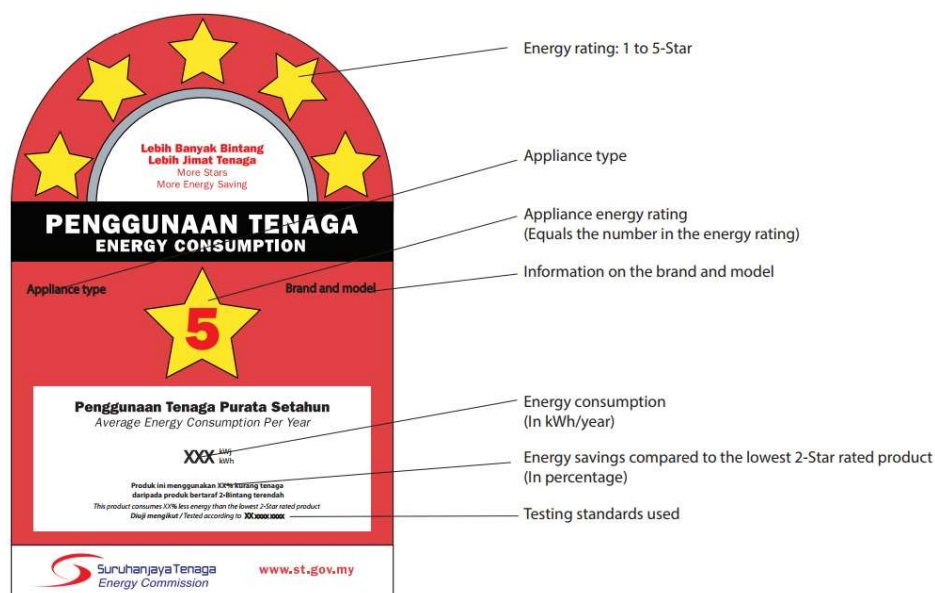


Figure 1

9.3. Calculation Method

In order to obtain the value of “energy savings compared to the lowest 2-Star rated product (in percentage)”, the following formula shall be applied:

$$100 \% - \left[100 \times \left(\frac{EEF_{\text{lowest 2-Stars model}}}{EEF_{\text{tested}}} \right) \right]$$

For the avoidance of doubt, the word “product” on the energy efficient label refers to an equipment as defined in the Energy Laws.

- 9.4. Size Specification : The size of the energy efficiency label is as per Figure 2.



Figure 2

- 9.5. Font Specification : The type and minimum size of the font for the energy efficiency label is as per Figure 3.



Figure 3

- 9.6. Colour Specifications : The energy efficiency label shall be printed according to the colour specifications in Figure 4.



Figure 4

- 9.7. Design Specification : The designs for the energy efficiency label for each star rating is as per Figure 5.



Figure 5

A softcopy of energy efficiency label in AI format can be obtained from the Commission by emailing meps@st.gov.my with a request.