Greenhouse and Energy Minimum Standards (Incandescent Lamps for General Lighting Services) Determination 2016[1]

Greenhouse and Energy Minimum Standards Act 2012

I, JOSH FRYDENBERG, Minister for Resources, Energy and Northern Australia, make this Determination under sections 23 and 35 of the *Greenhouse and Energy Minimum Standards Act 2012*.

Dated: 3 May 2016

JOSH FRYDENBERG

JOSH FRYDENBERG
Minister for Resources, Energy and Northern Australia

1 Name of Determination

This Determination is the *Greenhouse and Energy Minimum Standards (Incandescent Lamps for General Lighting Services) Determination 2016.*

2 Commencement, Revocation and Replacement

(1) This Determination comes into force on 1 June 2016.

(2) This Determination revokes and replaces the *Greenhouse and Energy Minimum Standards (Incandescent Lamps for General Lighting Services) Determination 2015* (F2015L00303).

Note: The revoked determination ceases to be in force immediately before the replacement determination comes into force (see subsection 35(2) of the Act).

3 Definitions

In this Determination:

Act means the *Greenhouse and Energy Minimum Standards Act 2012*.

AS/NZS 4934.1:2014 means *Australian/New Zealand Standard AS/NZS 4934.1:2014 – Incandescent lamps for general lighting services – Part 1: Test methods – Energy performance*, as it existed on the day this Determination came into force.

Note: AS/NZS 4934.1:2014 is available from Standards Australia Limited.

AS 4934.2-2011 means *Australian Standard 4934.2-2011 – Incandescent lamps for general lighting services – Part 2: Minimum Energy Performance Standards (MEPS) requirements*, as it existed on the day this Determination came into force.

Note: AS 4934.2-2011 is available from Standards Australia Limited.

Australian/New Zealand Standard means a standard that is jointly published by Standards Australia and Standards New Zealand, is applicable in both countries and denoted by the letters "AS/NZS" and identifying numbers and/or letters.

Australian Standard means a standard that is published by Standards Australia Limited denoted by the letters "AS" and identifying numbers and/or letters.

CIE Standard means a standard that is published by, or on behalf of, the International Commission on Illumination.

extra low voltage means a voltage not exceeding 50 volts alternating current r.m.s., 120 volts ripple-free direct current.

Note: This is the same meaning as in subclause 1.3.2 AS/NZS 4934.1:2014.

general lighting means substantially uniform lighting of an area without provision for special local requirements.

Note: This is the same meaning as in clause 845-09-06 of IEC 60050-845 Ed.1.

IEC 60630 Edition 2.5 means *International Electrotechnical Commission - Maximum lamp outlines for incandescent lamps*, as it existed on the day this Determination came into force.

Note 1: IEC 60630 Edition 2.5 is available from Standards Australia Limited.

Note 2: IEC 60630 Edition 2.5 includes all amendments up to and including IEC 60630 Edition 2.5/Amdt 6 Ed 2.0 made on 25 April 2005.

IEC Standard means a standard published by, or on behalf of, the International Electrotechnical Commission with letters "IEC" and a number.

incandescent lamp includes a tungsten filament lamp and a tungsten halogen lamp.

luminaire means an apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply.

Note: This is the same meaning as in section 845-10 of AS 1852.845-1989.

ripple-free means a r.m.s. ripple voltage not more than 10 percent of the direct current component where the maximum peak value does not exceed 140 volts for a nominal 120 volts ripple-free direct current system and 70 volts for a nominal 60 volts ripple-free direct current system.

r.m.s. means root mean square.

standard means an Australian Standard, an Australian/New Zealand Standard, a CIE Standard, an IEC Standard or any other equivalent document.

tungsten filament lamp means a vacuum, or inert gas-filled, lamp containing tungsten filament housed in a glass envelope.

Note: This is the same meaning as in subclause 1.3.13 AS/NZS 4934.1:2014.

tungsten halogen lamp means a gas-filled lamp, containing halogen or a halogen compound and tungsten filament housed in a glass envelope.

Note: This is the same meaning as in subclause 1.3.14 AS/NZS 4934.1:2014.

Note: Several other words and expressions used in this Determination have the meaning given by section 5 of the Act. For example:

- category A product
- covered by
- family of models
- GEMS
- GEMS labelling requirements
- GEMS level requirements
- model
- product classes

4 Interpretation

Applicable definitions of terms or phrases

(1) If there is inconsistency in the definitions of words or expressions, words or expression will be interpreted in the following order of priority to the extent of any inconsistency:

(a) the Act;

(b) this Determination;

(c) the Standards.

(2) A word or expression defined in a standard mentioned specifically in section **Error! Reference source not found.** of this Determination has the meaning given to it in the relevant standard.

Note: Notwithstanding this, for convenience to users, the key terms for ascertaining if a product is covered by this Determination are set out in this Determination.

Applicable version of documents incorporated into standards

(3) For the purposes of this Determination the applicable version of any document, including a standard, that:

(a) is referred to in a standard under the heading 'Referenced Documents', or under an equivalent heading in a standard; and

(b) must be applied to give effect to this Determination or a standard referred to in this Determination,

is the version of the document, including a standard, that existed at the date this Determination came into force.

Example: Subclause 5.2.2 of AS 4934.2-2011 requires that a test report in accordance with AS/NZS 4934.1:2014 be submitted by a manufacturer. The applicable version of AS/NZS 4934.1:2014 is the version that existed at the date this Determination came into force.

5 Specified product classes covered by this Determination

(1) This Determination covers incandescent lamps used in general lighting services in the product classes set out in the following table:

Product class	Products covered by class	Product class characteristics
1	GLS tungsten filament lamps as described at subclause 1.1.2 of AS 4934.2-2011	This product class comprises products with the following characteristics: (a) shape: A50-A65, PS50-PS65, M50-M65, T50-T65 (as described in IEC 60630 Edition 2) or E50-E65; (b) cap: E14, E26, E27, B15 or B22d;

Product class	Products covered by class	Product class characteristics
		(c) nominal voltage: greater than or equal to 220 volts; and (d) nominal wattage: less than 150 watts, except if the product is also a coloured lamp, a reflector lamp, a crown-reflector lamp or a lamp with a halogen gas fill.
2	Extra low voltage halogen non-reflector lamps as described at subclause 1.1.3 of AS 4934.2-2011	This product class comprises products with the following characteristics: (a) tungsten halogen lamp burner; (b) shape: single-ended capsule, non-reflector; (c) cap: bi-pin; and (d) nominal voltage: 5-14 volts inclusive, except if the product is also a coloured lamp, a reflector lamp or a crown-reflector lamp.
3	Candle tungsten filament lamps as described at subclause 1.1.4 of AS 4934.2-2011.	This product class comprises products with the following characteristics: (a) shape: candle or B (as described in IEC 60630 Edition 2.5) including twisted and bent-tip candle; (b) cap: E14, E26, E27, B15 or B22d; (c) nominal voltage: greater than 220 volt; and (d) nominal wattage: greater than 25 watts, except if the product is also a coloured lamp, a reflector lamp, a crown-reflector lamp or a lamp with a halogen gas fill.
4	Fancy round tungsten filament lamps as described at subclause 1.1.5 of AS 4934.2-2011.	This product class comprises products with the following characteristics: (a) shape: round, P (described in IEC 60630 Edition 2.5), G or globe; (b) cap: E14, E26, E27, B15 or B22d; (c) nominal voltage: greater than 220 volts; and (d) nominal wattage: greater than 25 watts except if the product is also a coloured lamp, a reflector lamp, a crown-reflector lamp or a lamp with a halogen gas fill.

Product class	Products covered by class	Product class characteristics
5	Decorative tungsten filament lamps as described at subclause 1.1.6 of AS 4934.2-2011	This product class comprises products with the following characteristics: (a) shape: decorative shapes; (b) cap: E14, E26, E27, B15 or B22d; (c) nominal voltage: greater than 220 volts; and (d) nominal wattage: greater than 25 watts, except if the product is also a coloured lamp, a reflector lamp, a crown-reflector lamp, a pilot lamp, a lamp with a halogen gas fill or a lamp that has the same shape as product classes 1 to 4.
6	Mains voltage halogen non-reflector lamps as described at subclause 1.1.7 of AS 4934.2-2011	This product class comprises products with the following characteristics: (a) tungsten halogen lamp burner, non-reflector; (b) shape: single-ended; (c) cap: E14, E26, E27, B15 or B22d; and (d) nominal voltage: greater than 220 volts, except if the product is also a coloured lamp, a reflector lamp or a crown-reflector lamp.
7	Extra low voltage halogen reflector lamps as described at subclause 1.1.8 of AS 4934.2-2011	This product class comprises products with the following characteristics: (a) tungsten halogen lamp burner, reflector; (b) shape: MR 11-16; (c) cap: bi-pin; and (d) nominal voltage: 5-24 volts inclusive, except if the product is also a coloured lamp.

Note 1: This subsection reflects the scope specified in clause 1.1 of AS 4934.2-2011 and clause 1.1 of AS/NZS 4934.1:2014.

Note 2: This Determination covers products in these classes irrespective of whether they are supplied or used as individual lamps or as part of a luminaire.

Note 3: Products that are not covered by these classes are not covered by this Determination. In addition subsection (2) sets out several specific products that are not covered.

(2) For subsection 23 (2) of the Act, the Determination does not cover:

(a) automotive lamps; and

(b) the following special purpose lamps:

(i) lamps intended for traffic signals as outlined in *AS 4113.1:1993 Traffic signal lamps Part 1: Lamps for 240V a.c. operation*;

(ii) very long life lamps intended for air or sea navigation purposes;

(iii) lamps with a temperature rating greater than 300 degrees Celsius intended for use in ovens;

(iv) infra-red heat lamps; and

(v) reinforced construction (rough use or vibration) lamps, that are not intended for general purpose illumination and have packaging (and accompanying product information) that states clearly and prominently the special purpose of the lamp and that the lamp is not intended for general purpose illumination.

Note 1: The term 'special purpose lamps' has the same meaning as in subclause 3.1 AS 4934.2-2011.

Note 2: This subsection reflects the exclusions in clause 1.2 of AS 4934.2-2011.

6 GEMS level requirements

Energy use and greenhouse gas production

(1) For paragraphs 24 (1) (a) and 25 (a) of the Act, the specified energy use requirements for products in product classes 1 to 5 and product class 7 are the following initial efficacy requirement:

Mean value of $\geq (2.8 \ln (L) - 4.0)$

where:

L = Mean measured initial luminous flux of the lamp in lumens.

Ln (L) = the natural logarithm of L

Flux and wattage values for this requirement appear in Appendix A, Table A1 of AS 4934.2-2011.

Note: The values for *flux* are specified in the column titled 'Min. light output lm' in Table A1 of AS 4934.2-2011.

The minimum sample size is 10 units. The required duration for ageing is 100 hours. Lamps that fail prior to 100 hours must not be included in the calculation of the mean.

Note: No level of testing tolerance is to be claimed or applied to values obtained for use in the calculation of initial efficacy used for product registration.

(2) For paragraphs 24 (1) (a) and 25 (a) of the Act, the specified energy use requirements for products in product class 6 are the following alternative initial efficacy requirement:

Mean value of $\geq 0.95 \times (2.8 \ln (L) - 4.0)$

where:

L = Mean measured initial luminous flux of the lamp in lumens.

Ln (L) = the natural logarithm of L

Flux and wattage values for this alternative requirement appear in Appendix A, Table A2 of AS 4934.2-2011.

Note: The values for *flux* are specified in the column titled 'Min. light output lm' in Table A1 of AS 4934.2-2011.

The minimum sample size is 10 units. The required duration for ageing is 100 hours. Lamps that fail prior to 100 hours must not be included in the calculation of the mean.

Note: *This alternative efficacy requirement applies notwithstanding the date noted in clause 4.3 of AS 4934.2-2011.*

Conducting tests

(3) For paragraphs 24 (1) (a) and 25 (b) of the Act, the specified requirements for conducting tests for products in product classes 1 to 7 are the requirements mentioned in section 2 of AS/NZS 4934.1:2014.

7 GEMS labelling requirements

Labelling information and communication requirements

(1) For paragraphs 24 (1) (b), 26 (1) (a) and 26 (1) (b) of the Act, the specified labelling requirements for products in product classes 1 to 7 are that the following information must be marked on all lamp packaging:

(a) *Light output in lumens*: the marked value must be not more than the mean measured initial value times 1.1 rounded to the nearest 10 lumens;

(b) *Power in watts*: the marked value must be no less than the mean measured initial value times 0.95 rounded to the nearest watt, and no more than the average measured value times 1.05 rounded to the nearest watt;

(c) *Average lamp lifetime*: the marked value must not be more than the median value as calculated from the measured lifetime test value times 1.1 rounded to the nearest 100 h.

Example: For the *light output in lumens* labelling requirement, if the mean measured initial value was 634 lumens, the maximum allowable marked value would be 700 lumens (634 x 1.1 = 697.4, rounded to the nearest 10 lumens = 700). Any marked value equal to or lower than 700 lumens (including 634 lumens) would comply with the requirement in this instance.

Conducting tests

(1) For paragraphs 24 (1) (b) and 26 (1) (c) of the Act, the specified requirements for conducting tests for products in products classes 1 to 7 are the requirements mentioned in section 2 of AS/NZS 4934.1:2014.

Transitional GEMS labelling requirements – product class 1 to 7

(2) For paragraphs 24 (1) (b), 26 (1) (a) and 26 (1) (b) of the Act, for a period of six months from the commencement of this Determination, the specified transitional GEMS labelling requirements for products in product classes 1 to 7 are either:

(a) the marking requirements in clause 4.5 of AS 4934.2-2011; or

(b) the labelling requirements in sections 7 (1) and 7 (2) of this Determination.

(3) The specified transitional GEMS labelling requirements are applicable only to products that were registered under the *Greenhouse and Energy Minimum Standards (Incandescent Lamps for General Lighting Services) Determination 2015* (F2015L00303) and meet the requirements in section 6 of this Determination.

8 Other GEMS requirements

Product performance

(1) For subsection 24 (2) and paragraph 27 (1) (b) of the Act, the specified requirements relating to the performance of products in product classes 1 to 6 are the requirements mentioned in table 1.

Table 1
Product performance requirements

Parameter	Minimum sample size	Requirement
Median life	20	Median equal to or greater than 2000 hours.
Lumen maintenance	10	When measured at 75 per cent of rated median lamp life, the mean lumen maintenance must be equal to or greater than 80 per cent.

		Lamps that fail prior to 75 per cent of rated median lamp life must not be included in the calculation of the mean.

(2) For subsection 24 (2) and paragraph 27 (1) (b) of the Act, the specified requirements relating to the performance of products in product class 7 are:

(a) the requirements mentioned in table 1 of subsection 8 (1); and

(b) the maximum wattage requirements in clause 4.4 of AS 4934.2-2011.

Conducting tests

(3) For subsection 24 (2) and paragraph 27 (1) (e) of the Act, the specified requirements for conducting tests for products in product classes 1 to 7 in relation to paragraph 27 (1) (b), are the requirements mentioned in section 2 of AS/NZS 4934.1:2014.

9 Families of models

(1) Subject to subsection 9 (2) of this Determination, for section 28 of the Act, the specified circumstances in which 2 or more models from a single product class covered by this Determination are in the same family of models, are when the models:

(a) are in the same product class;

(b) are of a single brand;

(c) rely on the same test report that sets out the results of testing conducted in accordance with sections 6, 7 and 8 of this Determination;

(d) have the same physical characteristics that are relevant to complying with sections 6, 7 and 8 of this Determination including, but not limited to, the following:

(i) overall size;

(ii) geometric form factor;

(iii) any other dimensions, components or component arrangements that may affect performance; and

(e) have the same energy performance characteristics that are relevant to complying with sections 6, 7 and 8 of this Determination including, but not limited to, the following:

(i) efficacy; and

(ii) wattage; and

(f) have the same product performance characteristics that are relevant to complying with sections 6, 7 and 8 of this Determination including, but not limited to, the following:

(i) lifetime;

(ii) lumen maintenance; and

(iii) maximum wattage.

(2) For subsection (1), a model cannot be a member of a family of models if its inclusion in that family would lead to the family consisting of more than 4 models.

10 Product Categories

For section 29 of the Act, the products covered by this Determination are category A products.

11 Registrations affected by this Determination

For section 36 of the Act, this Determination does not affect the registration of any model registered against the *Greenhouse and Energy Minimum Standards (Incandescent Lamps for General Lighting Services) Determination 2015* (F2015L00303).

Note: If a model's registration is not affected the model is taken to be registered against this Determination. See section 36 of the Act.

Note

1. All legislative instruments and compilations are registered on the Federal Register of Legislation kept under the *Legislation Act 2003.* See https://www.legislation.gov.au .