STANDBY PRODUCT PROFILE 2004/01

MARCH 2004

PRODUCT PROFILE

INTEGRATED STEREOS

AUSTRALIA'S STANDBY POWER STRATEGY 2002 - 2012

AN INITIATIVE OF THE MINISTERIAL
COUNCIL ON ENERGY FORMING
PART OF THE NATIONAL
GREENHOUSE STRATEGY

The National Appliance and Equipment Energy Efficiency Committee seeks comment on this proposal from any interested person or organisation.

Please email comments to:

energy.efficiency@greenhouse.gov.au

Alternatively, hard copy comments can be mailed to:

Integrated Stereos Product Profile
Equipment, Appliances & Transport Team
Australian Greenhouse Office
GPO Box 621
CANBERRA ACT 2601

Comments received by 30 June 2004 will assist in determining the final form of the policy proposals taken to government regarding integrated stereos.

An electronic version of this Standby Product Profile and other Profiles released for public discussion can be obtained from www.energyrating.gov.au under standby.

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PRODUCT DESCRIPTION

Integrated stereos are non-portable units that combine various audio components with an internal amplifier. The most common combination on the market at present usually includes compact disc, tape deck, amplifier and tuner. Older models used to have turntable components, while newer models may have a variety of options such as a multi stack CD device, karaoke functions, even a DVD player.

It should be noted that the definition of integrated stereos is somewhat confusing given the multitude of names for this type of home entertainment equipment, such as “hi-fi system”, “mini system”, “micro system”, etc.

CURRENT OWNERSHIP AND TRENDS

Integrated stereos first appeared in the 1950's and consisted of a tuner, amplifier and turntable. Over the decades various components have been added and/or excluded and units have shrunk from a large buffet cabinet style to a compact shelf unit. Very little data is available about integrated stereos, as most research tends to focus on the broad appliance group of audio equipment, neglecting to distinguish the various types of stereo products.

In 2001, NAEEEC commissioned a household telephone survey based on a sample of 801 households. Participants were asked whether their stereo systems were integrated or made up of separate components. The results found that 48% of households have at least one integrated stereo and 11% of homes have two or more units. However, it is important to note that there were no questions in the study that asked respondents to distinguish specifically between integrated and portable stereo units. Therefore, some respondents may have been thinking about their portable stereos when answering questions about their integrated stereos. The penetration and ownership data presented below may consequently be overestimated. A summary of these survey results is shown in Table 1 and Table 2.

TABLE 1: PENETRATION OF INTEGRATED STEREO OWNERSHIP - AUSTRALIA

Year	Penetration	Source
2000	47.5%	NAEEEC

TABLE 2: OWNERSHIP DATA FOR INTEGRATED STEREOS - AUSTRALIA

No. of Integrated Stereos	2000 (NAEEEC) telephone survey
None	52.4%
1	36.5%
2	8.2%
3	2%
4 or more	0.9%
Ownership	0.7603
Saturation	1.5984

The average age of integrated stereos in the stock was found to be 6 years in the 2000 telephone survey. This compares closely with an average age of 7 years in the intrusive survey of households conducted the same year.

The total sales value of integrated stereos in 2002 was more than $207 million. Sales data indicates that sales of integrated stereos are decreasing, most probably due to the increasing home theatre/surround sound system market. Table 3 illustrates the decreasing market.

TABLE 3: SALES AND MARKET VALUE OF INTEGRATED STEREOS

Year	Total Sales	Total Sales Value
2000	485,398	$ 256,905,334
2001	471,805	$ 250,497,968
2002	433,380	$ 207,441,008

RELEVANT MODES FOR THE 'ONE WATT' POWER PLAN

Integrated stereo units available in Australia can have up to four operational modes: on, active standby, passive standby and off. The on mode is not generally relevant for the standby power plan, although the on mode power consumption and the hours of use are critical in determining total energy consumption of integrated stereo units.

Active standby mode applies to all integrated stereos. This mode occurs while the unit is activated and waiting to play. In older units a simple on/off light may indicate this mode, while newer units are likely to have a digital display message reporting the unit's status.

Passive standby mode has been present in integrated stereos since the 1990's. The introduction of remote control function means the stereo units can be put 'to sleep' rather than turned off. Many newer models also have a standby button on the unit and no longer have a 'hard off' switch at all.

Off mode, also known as 'hard' off, in theory, disconnects the mains from all electrical circuits in an appliance. Only a small minority of new integrated stereos on the Australian market have a 'hard' off switch, and many of these still consume power in this mode. For most integrated stereos passive standby is the lowest power state, i.e. the unit can always be activated by a remote control.

The intrusive household survey conducted in late 2000 made a note of the mode that the integrated stereo was in prior to the commencement of power readings. About 34% of units were switched off with the remote, 33% off at the unit and 12% off at the wall. All stereos switched off with the remote can be considered to be in passive standby mode. Additionally, given that the average age of the integrated stereos was only 7 years and that a high proportion of newer models have no 'hard off', some of the models turned off at the unit would also be in passive standby mode. The remaining units were either unplugged or on at the time of the survey.

The telephone survey of appliance usage asked respondents to indicate the current status of their stereo and the normal way that the unit was switched off when not in use. Over a quarter of respondents (29%) turned their integrated stereo off with a remote, 54% at the unit, and 17% at the plug on the wall. The results of both surveys indicate that only a small proportion of users turn their integrated stereos off at the mains. This, in combination with a declining number of units with a 'hard off' switch, would indicate that the passive standby mode of integrated stereos will be of most significance to the 1W power plan.

KNOWN STANDBY DATA FOR NEW PRODUCTS

The NAEEEC store surveys measured integrated stereos in three modes: active standby - ready to play a disc, passive standby - ready to be activated and off where applicable. The vast majority of integrated stereos do not have an on/off function. In use measurements were not taken.

Table 4 below summarises the results for the 2001, 2002 and 2003 NAEEEC store surveys.

In active standby mode there is a large variation in power consumption. In 2003, the average was 17.4W and the maximum was 47.8W with a minimum of 6.1W. Figure 1 indicates that the vast majority of integrated stereos consume more than 10W in active standby mode.

The variation in passive standby measurements for integrated stereos is also significant. In 2003, the average power consumption for passive standby mode was 4.1W with a maximum of 25.2W and a minimum of 0.3W. Figure 2 illustrates the variation in the measurements taken for each of the store surveys, which have found that the average passive standby consumption is trending downwards.

TABLE 4: SUMMARY OF RESULTS FOR 2001, 2002 AND 2003 NAEEEC STORE SURVEYS

	2001 (n=30)	2002 (n=44)	2003 (n=39)
Average Active Standby	19.1W	20.1W	17.4W
Minimum Active Standby	15.2W	5.6W	6.1W
Maximum Active Standby	22.7W	48.1W	47.8W
Average Passive Standby	9.4W	7.8W	4.1W
Minimum Passive Standby	.03W	.03W	.03W
Maximum Passive Standby	34.5W	25.0W	25.2W
Average Off	3.5W	1.1W	1.6W

Note: n is total sample size in survey

FIGURE 1: POWER MEASUREMENTS FOR INTEGRATED STEREOS: ACTIVE STANDBY MODE

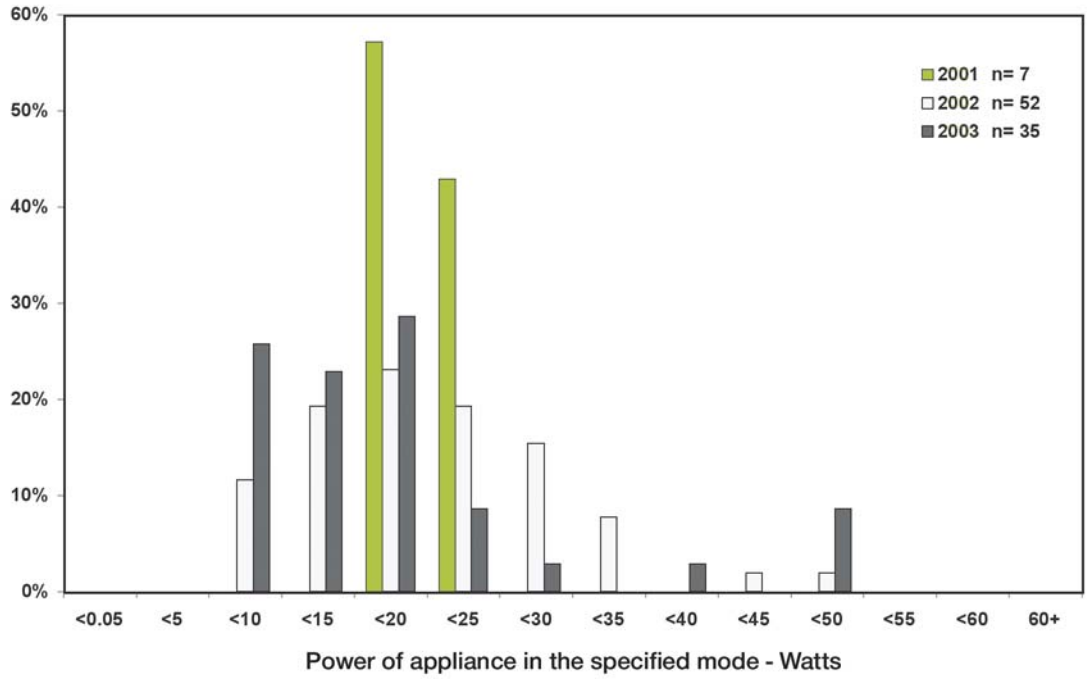
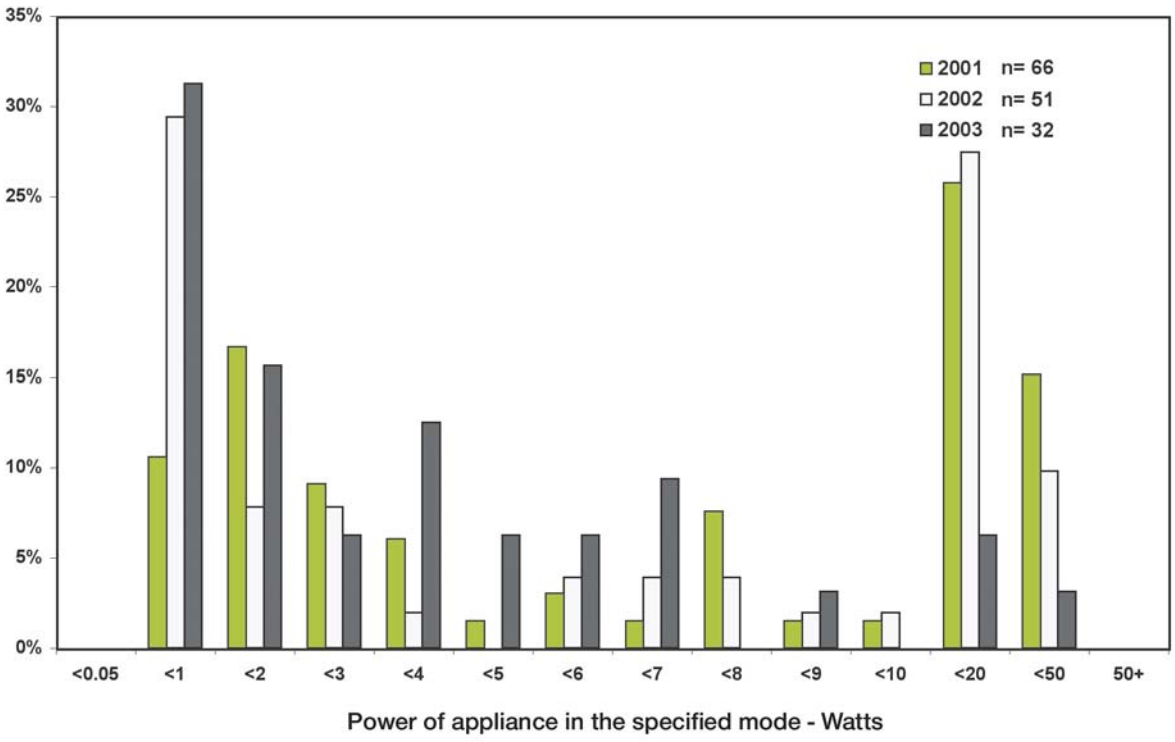


FIGURE 2: POWER MEASUREMENTS FOR INTEGRATED STEREOS: PASSIVE STANDBY MODE



KNOWN STANDBY DATA FOR INSTALLED STOCK

An intrusive household survey in late 2000 measured the off, standby and on mode of some 58 integrated stereos installed in 64 households in Melbourne, Brisbane and Sydney. This survey allowed the off and standby mode power consumption to be measured as a function of the age of the stereo.

The intrusive survey found that almost half of existing integrated stereos (48%) have an off mode, which is a higher proportion than for new stereos. The average consumption in off mode was found to be 2.4 W. Around 16% of units had no consumption in this mode and 31% consumed less than 2 W in off mode.

This intrusive survey found 44 of the integrated stereos surveyed had a passive standby mode, with an average power consumption of 9 W. The average age of the integrated stereo unit(s) was 7 years. Figure 3 below presents the average standby consumption of integrated stereos over time with results pointing to an overall decrease in consumption over the last 5 years.

GREENHOUSE EMISSIONS

For the purposes of estimating greenhouse emissions, it has been assumed that integrated stereos are in-use for 730 hours per year. 60% of the remaining time is spent in passive standby mode, 25% in active standby mode and 15% in off mode. This scenario assumes that active standby time will be minimised with the introduction of a power down cycle during inactive periods.

The greenhouse emissions reduction potential for the proposed passive standby target of 1W with a power down function is shown in Figure 4. This indicates potential reductions of 59 kt CO_2-e pa by 2012 and building to over 146 kt CO_2-e pa by 2020. Note that Figure 4 shows the greenhouse emissions from integrated stereos installed since 2000.

The projected effect on total annual energy consumption by integrated stereos based on the implementation of these targets in Australia is shown in Figure 5.

FIGURE 3: INTRUSIVE SURVEY – DISTRIBUTION OF INTEGRATED STEREOS STANDBY POWER CONSUMPTION BY AGE

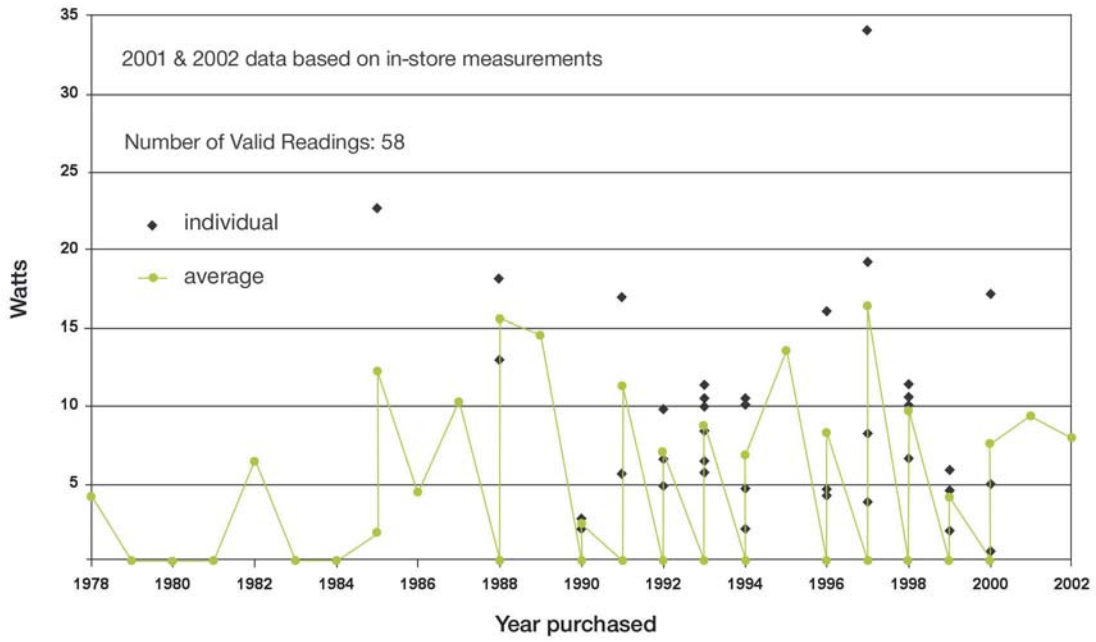


FIGURE 4: BAU VS POLICY TARGET – GREENHOUSE EMISSIONS FROM INTEGRATED STEREOS INSTALLED SINCE 2000

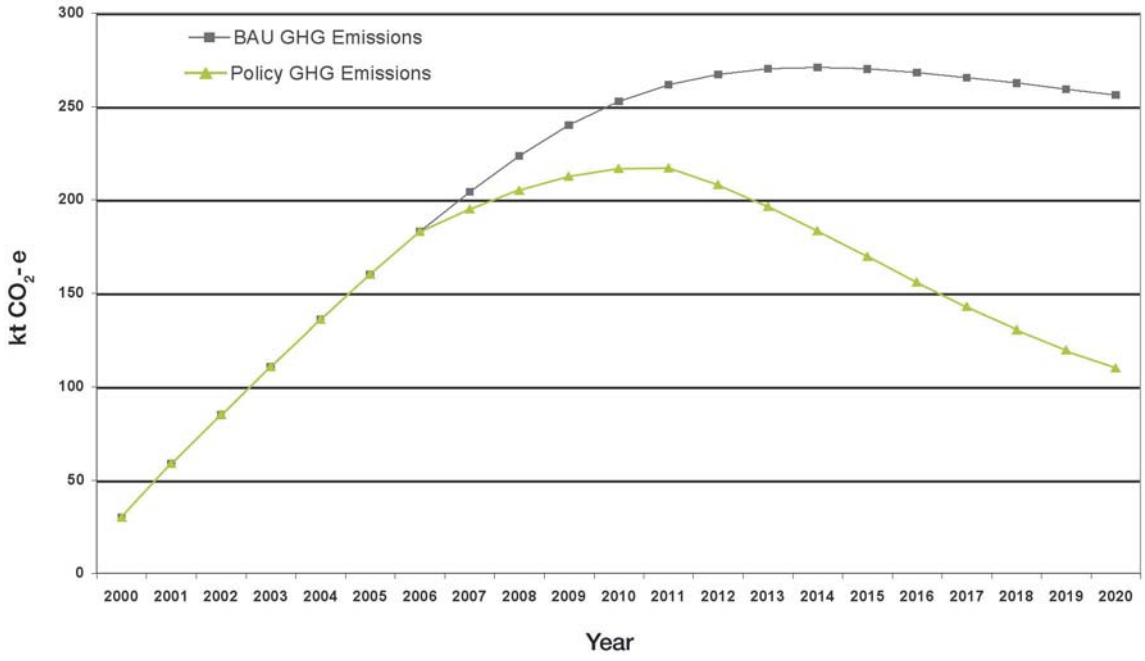
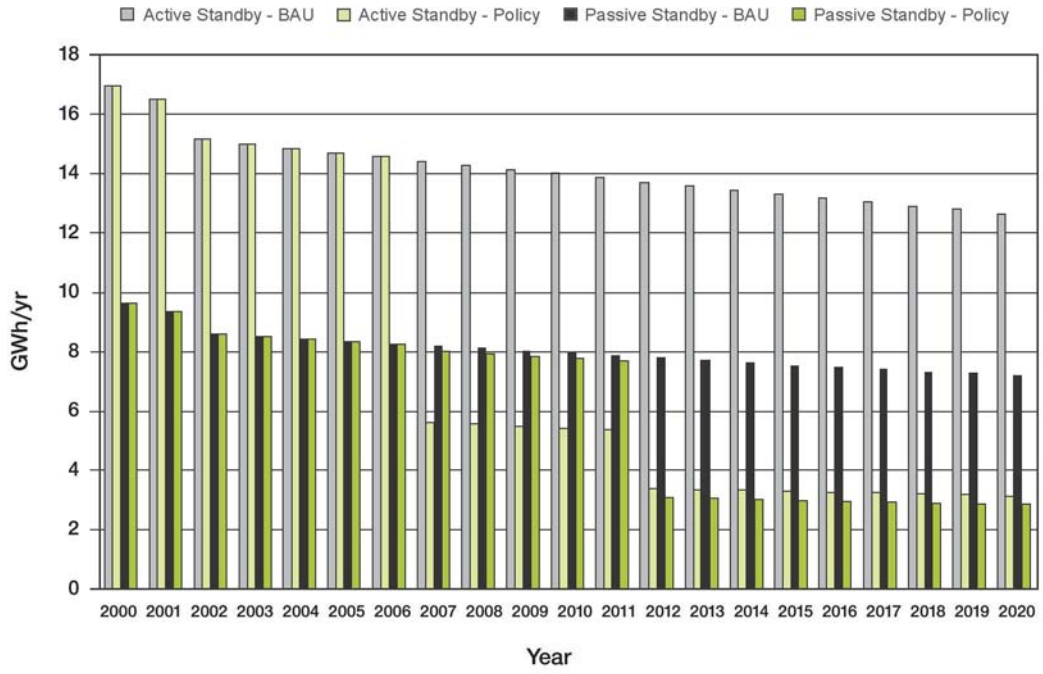


FIGURE 5: ANNUAL EFFECT ON ENERGY CONSUMPTION OF POLICY TARGETS VS. BAU FOR INTEGRATED STEREOS



CURRENT OVERSEAS POLICIES AND TRENDS

Various international voluntary programs that address standby and in-use power consumption are summarised very briefly below. The international ENERGY STAR Program is the only voluntary program that operates in Australia and addresses standby power consumption.

USA AND INTERNATIONAL

The ENERGY STAR program in the US (www.energystar.gov) covers cassette decks, CD players/changers, CD recorders/burners, stereo amplifiers, stereo receivers and tuners under the category Consumer Audio Products. To qualify for an ENERGY STAR label, such consumer audio products must not exceed 1 W in standby mode.

EUROPE

In 2000 the EU negotiated an agreement, receiving a commitment from the consumer electronics industry to reduce the energy consumption of audio products in stand-by mode (http://energyefficiency.jrc.cec.eu.int/html/standby_initiative.htm). The agreement set out a three-phase program with standby targets for newly released models set at 5W from 2001, 3W from 2004 and 1W from 2007.

The Group for Energy Efficient Appliances (GEEA) (www.gealabel.org/home.htm) encourages industry best practice through a voluntary energy labelling scheme. The GEEA Energy Tick label for audio equipment (which is defined as equipment consisting of an amplifier and various (but at least two) functional components (tuner, CD player, cassette player, etc.) integrated in one casing and (at least) two loudspeakers) only covers standby consumption. In order to be able to display the GEEA label, equipment must not exceed 1W in passive standby. In addition, the equipment must automatically power down to passive standby within 30 minutes of ceasing to play a tape or disc.

The Nordic Swan program is a voluntary eco label system used across five northern European countries. It launched eligibility criteria for integrated stereos in 2003. The requirements include a passive standby target of less than 1W, an on mode target of less than 40W and the inclusion of an off switch. For more details see www.svanen.nu.

INTERNATIONAL INITIATIVES

The International Energy Agency (IEA) has been promoting the "One Watt Initiative" energy saving program to cut world-wide electricity losses from appliances in standby. Launched in 1999, this campaign aims to guide government policy-makers and appliance manufacturers towards equipment that consumes no more than 1W when in standby mode. The Australian Government has endorsed the 1W standby target for appliances sold in Australia. More details can be found in the Ministerial Council on Energy standby strategy "Money isn't all you're saving" (MCE 2002).

TABLE 5: SUMMARY OF PROGRAM REQUIREMENTS FOR INTEGRATED STEREO UNITS INTERNATIONALLY

	Mode	Dates	Criteria
Energy Star	Passive standby	Phase II: from 1/01/2003	A1W
EU Negotiated Agreement	Passive standby	Phase II: from 1/01/2004	A3W
	Passive standby	Phase III: from 1/01/2007	A1W
GEEA, Europe	Passive standby	From 1/01/2004	A1W
Nordic Swan	Passive standby	From 19/3/2003	A1W
	On	From 19/3/2003	A40W
	Off	From 19/3/2003	Must have off switch

Note: GEEA criteria are reviewed annually.

GOVERNMENT TARGET

In accordance with the National Standby Strategy, NAEEEC intends to recommend to the Ministerial Council on Energy an 'interim' target. The purpose of this target is to provide governments with confidence that Australian products will meet the ultimate target, of 1W in 2012. If the 'interim' target is not met in the specified year, governments will commence dialogue with industry to explore other options, including the possibility of moving to Stage 2 mandatory measures.

1. INTERIM TARGET - 2007

Product	Off mode power [1]	Passive standby mode power [2]	Power down time [3]
Integrated stereo	Less than 1 Watt	Less than 4 Watts	30 minutes

Notes:

1. *Lowest power when connected to the mains. Limit is applicable to models which have an off mode.*
2. *When switched off using a remote control, where applicable.*
3. *Required to power down to passive standby after a nominated period of inactivity.*

This target applies to all integrated stereos brought into Australia for sale in that year. NAEEEC proposes to monitor the sale of integrated stereos in that year and to move toward regulation should that target not be met by a significant number of suppliers of products. In addition, all integrated stereos will be required to "power down" to passive standby after a period of **thirty** minutes of inactivity.

2. NATIONAL STANDBY STRATEGY TARGET – 2012

Product	Off mode power [1]	Passive standby mode power [2]	Power down time [3]
Integrated stereo	Less than 0.3 Watt	Less than 1 Watt	10 minutes

Notes:

1. *Lowest power when connected to the mains. Limit is applicable to models which have an off mode.*
2. *When switched off using a remote control, where applicable.*
3. *Required to power down to passive standby after a nominated period of inactivity.*

The National Standby Strategy sets out the target of 1W, to be achieved by 2012. This is consistent with international activities, in particular, the IEA "One Watt Initiative" and the current Energy Star requirements. This target should apply to all integrated stereos. In addition, all integrated stereos will be required to "power down" to passive standby after a period of ten minutes inactivity.

The above requirements will be inserted into the relevant Australian Standard.

GOVERNMENT PROPOSALS TO ACHIEVE THIS TARGET

Government agencies intend to take the following actions to assist industry meet the standby targets for integrated stereos:

Voluntary Tool Available	Use for this Product	Rationale/Action	Date
Energy Star	✓	• This Program will continue to be supported and communicated to stakeholders, particularly emphasising the value of investing in Energy Star compliant integrated stereos.	Ongoing
		• MCE are considering creating Government Policy of purchasing Energy Star integrated stereos where available and fit for purpose.	2004
		• NAEEEC will also consider highlighting manufacturers who are not Energy Star partners.	2005
Australian Standard	✓	• To communicate government expectations consistent with Energy Star levels in a new Australian Standard. At this stage, likely to be a part of AS/NZS 62301.	Initiated
Industry Code of Conduct	✗	• Not considered appropriate at this stage.	NA
Procurement database	✓	• MCE are considering creating a high efficiency products database to assist consumers in their purchasing choice. Government agencies may purchase products from this database.	2004
Annual in-store survey	✓	• To collect data on all modes for new integrated stereos and to analyse trends.	Ongoing, at least annually
Publish Statistics	✓	• NAEEEC will highlight the range of performances of integrated stereos in the marketplace through publishing data on a website or other means.	Ongoing, at least annually

Government will announce whether this product should be targeted for stage two intervention under the National Standby Power Strategy (involving possible regulatory intervention) or whether the abovementioned actions together with industry intervention have been successful in meeting the target at the NAEEEC Forum in the year:

2008

REFERENCES

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