Executive Summary

Background

The existing EU Ecolabel criteria for Televisions (Commission Decision 2002/255/EC, March 2002) were developed at a time when the EU TV market was dominated by Cathode Ray Tube (CRT) technology. Today however, the market has changed markedly such that new technologies including Liquid Crystal Display (LCD) and Plasma Display Panel (PDP) technologies account for an increasing market share driven by consumer preference for larger screen sizes. Other developments are important drivers for change too including the development of High Definition and Digital television.
These developments mean that the existing criteria’s applicability in the rapidly changing market place is becoming increasingly marginalised. Indeed the existing criteria’s relevance to non-CRT technology is questionable. Consequently, the TV criteria are in urgent need of an update if they are to keep pace with the market.

AEA was pleased to work with the Commission in undertaking the revision exercise over the period Spring 2006 to Spring 2008. We were assisted by the ad-hoc working group (AHWG) that met twice during the period to discuss and inform the revision. AHWG members and others also lent advice to the project via email and individual meetings that were immensely helpful.

In parallel with our work, other important work in support of product policy was underway that helped inform the ecolabel revision, namely:

1. The revision of the TV energy testing methodology. The importance of this work is that it is being undertaken in recognition of the fact that the TV products have changed markedly and that as a result the existing test method is inadequate for non-CRT technology. A new test method is therefore necessary that more completely captures the features and benefits of new technology. For the ecolabel, the energy proposals put forward in support of the revision incorporate the new test protocol.

2. Energy Using Products Directive (EuP) support work. The final report from the EuP Lot 5 (TVs) study was completed in Winter 2007/08. It devised an evidence base describing the EU TV market for use in informing the development of possible implementing measures. The final report is now under consideration by the Commission.

The relationship between the ecolabel and EuP remains to be fully realised. Whilst there is considerable opportunity for the two instruments to support one another, the details remain to be formulated and agreed.

Such was the importance of this last point, that the Commission took the decision in summer 2007 to postpone the TV ecolabel vote at the Regulatory Committee until it had had sufficient time to consider the EuP TV work. At the time of writing, the TV vote will not be held until September 2008 at the earliest.

**Remaining Issues**

Draft final proposals have been presented to the Commission and EUEB in September and December 2007. Broadly speaking there is support for the proposals as put forward. Some comments have been made in the later stages however. The Commission may wish to consider these further before the vote. In outline the issues are:

**Mercury** – Mercury is used in the CFL backlights of LCD TVs. An alternative system using Light Emitting Diodes (LEDs) has been identified in support of which R&D efforts are continuing to enhance system performance in terms of the colour of the light produced and the efficacy of the LEDs. Presently, the life cycle impacts of Light Emitting Diodes (LEDs) are not at the point where they have overtaken CFLs. Whilst an LED equipped TV was launched on the market place in 2007, anecdotal evidence suggests it may use as much as 40% more energy compared to a CFL illuminated equivalent. Consequently for the present at least, the ecolabel revision needs to consider mercury containing CFLs.

Commenting on the mercury proposals, a TV producer remarked that the proposed limits whilst acceptable for small to medium screen sizes, require modification for larger screen sizes (approximately
The counter proposals are for the mercury limit to be increased to 4.5mg in individual lamps (slightly less than the RoHS limit of 5mg) with the absolute mercury limit per screen as detailed below.

<table>
<thead>
<tr>
<th>Inch Size</th>
<th>Mercury /lamp</th>
<th>Max. Q'ty of mercury/TV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smaller than 40</td>
<td>3.5mg</td>
<td>75.0mg</td>
</tr>
<tr>
<td>40~46</td>
<td>4.5mg</td>
<td>99.0mg</td>
</tr>
<tr>
<td>46~52</td>
<td>4.5mg</td>
<td>108.0mg</td>
</tr>
<tr>
<td>52~57</td>
<td>4.5mg</td>
<td>144.0mg</td>
</tr>
<tr>
<td>57~65</td>
<td>4.5mg</td>
<td>162.0mg</td>
</tr>
<tr>
<td>Larger than 66</td>
<td>4.5mg</td>
<td>No limitation</td>
</tr>
</tbody>
</table>

**Flame Retardants** – In common with other electrical equipment product groups, there has been much discussion in the AHWG and EUEB regarding FRs. The particular issue concerns deca-BDE, the RoHS Directive and subsequent amendments to RoHS.

During spring 2008 AEA brokered what we believe to be a workable solution between the various parties that would preclude DBDE use from an ecolabelled product without excluding the FR explicitly. However, very recent events reported in ENDS (‘Commission accepts deca-BDE defeat’, ENDS Europe DAILY 2519, 09/04/08) suggests that the situation has subsequently been resolved by the European Court of Justice. In essence the ECJ judgement means that electrical and electronic products placed on the market after 30 June 2008 are not to use DBDE.

**Applications for the Ecolabel** – Several TV producers have recently enquired about the ecolabel suggesting that interest in the TV ecolabel is increasing. An application is, we understand, under development (April 2008) for a range of LCD TVs up to 52” screen size.

This poses a dilemma for the ecolabel. We know the criteria are not well suited to newer technologies, for example, the criteria do not include a mercury requirement, yet until the revised criteria become available, producers and Competent Bodies alike will seek to work with the existing criteria.

Further, the market is now characterised by large screen sizes. Not all TVs sold are large screens of course, but nonetheless a point the ad-hoc working group debated at length was whether a large screen TV should be ecolabelled. Generally the view was that the ecolabel should have a cut-off and above a certain size, the ecolabel should set more demanding requirements such that producers would need to innovate to meet the ecolabel standard.

So whether a 52” TV should be ecolabelled is a mute point. Hopefully the Commission will make its plans clear during the summer of 2008 regarding its TV EuP work which will enable the Regulatory Committee to vote on the TV proposals. In the meantime, the Commission may wish to consider securing
an agreement with CBs that ecolabel applications are only considered for CRT TVs and smaller examples of non-CRT technology.

**Marketing Strategy**

Until such time that new ecolabel criteria are published, we suggest that the Commission and EUEB members do not to promote the TV ecolabel. Rather, because of the possible negative feedback that may arise if very large screen TVs were ecolabelled, it would be appropriate to consider developing an agreement amongst Competent Bodies (CBs) that producers of such products be guided to withhold applications.

Once new criteria are published, the following activities should be considered:

1. announcing the new criteria via the Commission’s website,
2. announcing the new criteria via the Ecolabel Newsletter,
3. circulating a press announcement, via the Ecolabel Helpdesk, to the consumer electronics press,
4. encouraging ecolabel CBs to announce the criteria via their websites and their networks.

A significant marketing opportunity to present itself, is the EuP Directive. Amongst its requirements, the Directive says that a product bearing the ecolabel is deemed to be compliant with EuP’s requirements. Consequently producers may respond to the message that if they apply for the ecolabel, they would also have a mechanism for demonstrating compliance with EuP – ‘two for the price of one’.

This opportunity seems attractive for the ecolabel scheme warranting further exploration and discussion with those responsible for EuP with a view to gauging how the two instruments could be promoted together at events, in the press etc.

Phil Dolley
14 April 2008
Annexes

<table>
<thead>
<tr>
<th>Annex</th>
<th>Document Title</th>
<th>Copy date</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>First Discussion Document</td>
<td>May 2006</td>
</tr>
<tr>
<td>2</td>
<td>Summary of First AHWG</td>
<td>June 2006</td>
</tr>
<tr>
<td>3</td>
<td>Second Discussion Document</td>
<td>October 2006</td>
</tr>
<tr>
<td>4</td>
<td>Summary of Second AHWG</td>
<td>December 2006</td>
</tr>
<tr>
<td>5</td>
<td>Third Discussion Document</td>
<td>June 2007</td>
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<td>6</td>
<td>Draft Proposals</td>
<td>June 2007</td>
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<tr>
<td>7</td>
<td>Fourth Discussion Document</td>
<td>October 2007</td>
</tr>
<tr>
<td>8</td>
<td>Final Draft Proposals</td>
<td>November 2007</td>
</tr>
</tbody>
</table>

Annex 1

Revising the Criteria for Televisions
Discussion Paper to the First AHWG, Brussels, 17 May 2006

This initial discussion document presents and discusses options for arrange of criteria for the revision of the Television Ecolabel.

As well as discussive text, the paper poses a number of questions regarding the revision. As a major component of the revision involves stakeholder consultation, we welcome your views on:

• 1 whether the existing criteria should be revised,
• 2 and if so, what revisions should be made.

This document and the responses received will form the basis for discussion at the first ad-hoc working group (AHWG) meeting on 17 May in Brussels.

The paper has been circulated widely to members of the European Union Ecolabelling Board (EUEB), the Commission, trade associations and NGOs. However, if you are aware that other organisations within your Member State should receive a copy, please distribute this paper to them – we welcome their input.

May 2006

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1 Introduction ................................................................................................................................. 2
2 Related Policy .......................................................................................................................... 3
Introduction
The ecolabel criteria for televisions were developed in 2001 and published in 2002. This is the first revision. When the criteria were discussed and agreed in 2001/02 they were devised to be applicable to all TV technologies. However, since that time market and policy developments mean the existing criteria should be scrutinised and the case for a revision determined by the ad-hoc working group (AHWG).
This discussion document has been developed from our research and following conversations with stakeholders. The purpose of the paper is to provide update information and to put forward suggestions for changes to the criteria. We hope it provides readers with appropriate information and ideas to inform discussions at the forthcoming ad-hoc working group. We look forward to the feedback generated.

Looking ahead, after the May 2006 AHWG meeting, and assuming a decision is made to revise the criteria rather than retain them as they are, further discussion papers and proposals will be circulated. Hence consultees will have other opportunities to make their views and opinions known throughout the work’s development.

We envisage the second AHWG being held in the early autumn. Announcements will be made in due course.
Related Policy

Mandatory Policies

The WEEE Directive (Waste Electrical and Electronic Equipment)
This Directive aims to improve the recycling and recovery rates of any WEEE produced. It also aims to improve the environmental performance of the product at the design and manufacture stages to facilitate disassembly and parts recovery. Subsequent users and waste operators are encouraged to improve their performance too. Member states and producers have to put measures in place by 31st December 2006 to facilitate the separation and treatment of WEEE to facilitate reuse, recycling and recovery. Producers must meet the following recovery rates (TVs come under category 4, Consumer Equipment)

“For WEEE falling under categories 3 and 4 of Annex IA, the rate of recovery shall be increased to a minimum of 75% by an average weight per appliance; component, material and substance reuse and recycling shall be increased to a minimum of 65% by an average weight per appliance.

Producers must also treat and remove a given list of specific substances and components (Annex II), such as batteries, mercury containing lamps, PCBs, and cathode ray tubes.

The RoHS Directive (Restriction of Hazardous Substances)
The aim of this Directive, which applies to TVs, is to restrict the use of certain substances in electrical and electronic equipment (EEE) in order to reduce the impact on human health and the environment and facilitate the implementation of the WEEE Directive for safe and environmentally sound recovery and disposal of WEEE.

“From 1st July 2006, new electrical and electronic equipment put on the market [will] not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).”

There are exemptions given in the Annex however, namely:

1. Mercury in other lamps not specifically mentioned in this Annex. This would include Hg lamps in LCD displays
2. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.

In recent developments, the Commission has published (October 2005) an exemption to RoHS for deca-BDE used in polymeric applications. This is discussed further under the ‘Take-back and Recycling’ criterion.

The EuP Directive
The aim of this Directive, as part of the Integrated Product Policy, is a preventative approach to ensure environmental considerations such as resource use, emissions and waste are taken into account in the design stage of energy–using products in order to reduce their impact on the environment in the use and disposal phases of their life cycle. Ecolabelled products are deemed to be compliant with EuP requirements.

“EuPs which have been awarded the Community eco-label pursuant to Regulation (EC) No 1980/2000 shall be presumed to comply with the ecodesign requirements of the applicable implementing measure insofar as those requirements are met by the eco-label.”
Voluntary Agreements

EICTA TV Self-commitment

This is an industry led initiative from the European Industry Association for Information Systems, Communication Technologies and Consumer Electronics (EICTA) to reduce the power consumption of energy using devices. Part of the self-commitment is for manufacturers to provide power consumption and energy efficiency data to EICTA for their models in all modes. Specifically, participating manufacturers agree to set maximum power consumption in the passive standby mode for CRT and flat panel TVs to 1W by 2007.

IEA 1-Watt Plan

The International Energy Agency (IEA) initiated the 1-Watt Plan in 1999 starting a process whereby products with a standby energy requirement are to achieve a limit of 1-Watt by 2010 in all participating nations.

The International Electro-technical Commission (IEC) has developed and agreed a standard test method for standby power consumption - IEC62301.

Since 1999 the European Code of Conduct, below, has existed as a voluntary programme with industry to promote energy-efficiency in appliances with standby capability. Further afield Australia and Korea have formally adopted the 1-watt plan, whilst in the USA all federal agencies have to buy low-standby products, aiming to reach one-watt or less.

The European Code of Conduct on Energy Efficiency of Digital TV Service Systems

The European Code of Conduct (CoC) is tasked with reducing standby and on-mode energy consumption of TVs (as well as set-top boxes) and

“a special voluntary agreement between the European Union and individual manufacturers and other stakeholders, establishing minimum energy efficiency levels and power management guidelines to minimize the overall energy consumption for various products to be followed by the signing companies (note a voluntary agreement is signed by all the manufacturers and the trade association)”
Background Information

This section provides information regarding; an update of TV technology, market data, life-cycle considerations.

TV Technologies

General remarks
There is a firm belief that the TV industry is in the stages of the next wave of growth in broadcast services owing to the emergence of new services and new technologies. This is a dynamic industry within which there has been much change since the EU Ecolabel devised its original criteria.

The current dominant technology across the EU is cathode ray tube (CRT). This one technology is estimated to make up some 95% of the TV stock in use today. However the sales profile of TVs is rather different. Consumer preference is driving the market towards ever larger screen sizes - a development which means that, because at screen sizes much above 30" (76cm) CRTs are very bulky and heavy, their dominance is now waning in favour of new technologies - Liquid Crystal Display (LCD), Plasma Display Panel (PDP) and Micro-Electro Mechanical (MEM).

Driven by sheer investment volume, LCD is predicted to become the new dominant technology through the present decade. Meanwhile, PDPs are generally considered an interim large-screen technology that will in time be phased out, reflecting in part comparatively higher manufacturing costs, in favour of the next generation of large screens.

Beyond 2010, the dominant display technologies will be those based on low cost but high precision manufacture capable of providing very high resolution, bright images with low energy consumption. Printable emitter Field Effect Displays (FED) and most MEM technology will meet these requirements as will a new upcoming technology called Organic Light Emitting Diode (OLED). These latter technologies are anticipated to come to market in several years time.

Arguably another potentially important technology trend is for TV and computer technology to converge. Whether and to what extent this will occur remains to be seen. Some commentators point to recent attempts to introduce an internet enabled TV that failed to secure market presence as indicating a lack of market acceptance.

Digital TV

Digital switchover is the process of changing the EU’s television broadcasting to digital and the target date for EU countries to achieve this change is 2012, although many countries aim to commence the adoption of digital technology before this date, as early as 2008. Digital switchover will involve converting the current television broadcasting network, as well as encouraging consumers to convert or upgrade their TV and recording equipment to receive digital television. A large proportion of consumers in the EU have already opted for digital television.

Integrated Digital Television (IDTV)
This is a TV with a built in digital receiver, providing viewing of free-to-air channels and services.

High-Definition (HD) Televisions

Broadcasters plan in the future to switch to producing programmes in high definition. In preparation for this change, manufacturers are producing HD-ready television systems, which provide images of motion picture quality and high-quality surround sound. A widescreen is required for HD transmissions and programmes have three times as much picture information (pixels) as a standard programme. For this reason the energy consumption associated with the transmission of HD programmes will be higher than for programmes transmitted using analogue methods.

Plasma Display Panels
The main attraction of plasma screens is that they are capable of producing very high definition pictures (almost rivalling CRT in the best cases) with a large screen size – typically around 107cm (42 inches) but as large as 152cm (60 inches). The absence of any ‘tube’ means that they can be housed in a case as slim as 12-15cm width. Plasma screens may have a shorter lifespan then other screen types due to ‘screen burn’. Typically they have a high energy consumption than most other technologies for a given screen size.

**Liquid Crystal Displays (LCD)**

LCDs have a lower energy consumption than a CRT of a similar size. However as the screen size of LCD TVs continues to grow so does their energy consumption. Although similar in size to plasma displays they are generally lighter weight.

**Projection Televisions**

Consumers can now opt to buy a television projector which projects an image across a room onto a pull-down or foldout screen. The commonest of these projectors are based on LCD or DLP (Digital Light Projection) technologies and are capable of displaying images of several feet in width. The quality of television picture that projectors are able to display has improved significantly in recent years and manufacturers are beginning to introduce a range of projectors specifically for use in the home.

Rear-projection TVs use a small CRT projector to develop the image enabling the unit to have a slimmer profile than a conventional CRT system with a comparable screen size. However, despite its use of CRT technology, rear-projection televisions do not generally provide the clarity of image as either LCD or Plasma.

There are two other important technology trends:

1. that the functionality of TVs and computers is converging.
2. that the analogue broadcast signal will be turned off by 2012 across the EU to be replaced by digital transmission. Some Member States aim to commence the adoption of digital transmission before this date, as early as 2008.

**Market Data**

AEA Technology in association with EICTA and Mr Robert Harrison (International Expert Television Consultant) undertook a study in 2005 on behalf of the European Commission Joint Research Centre regarding TV eco-design. The report provides market data for 2003 by Member State – extracts are provided below.
Figure 1: 2003 TV Sales in EU (25+) Member States
Sales of televisions continue to grow with estimates suggesting growth of around 10% in the five years from 2003 through to 2008.
The gradual decline from CRT’s 100% market share up to 1999 to the estimated 2006 share of 74% is shown in Figure 3. Forward projections informed by manufacturers’ estimates suggest CRT will continue to decline in the years ahead such that for example, in 2008 the sales of CRT will account for little more than half of TVs sold. LCD and to a much smaller extent, PDP will fill the gap.

Speaking with experts, our understanding of the more up to date market situation is that the estimated data shown in Figure 3 (slightly) underestimates the take up of flat panel technologies – in other words, CRT technology has experienced a more rapid decline than predicted.

**Life cycle Considerations**

Despite the fact that there are various TV display technologies, they share similar life cycle attributes:

1. They have in-service life times measurable in years (several years)
2. They are used frequently (daily for perhaps several hours)
3. They use electricity

In broad terms this overview assessment would suggest that the key life cycle issues are associated with energy consumption in the use phase rather than production or disposal. Perhaps unsurprisingly this life cycle profile is common to other long-lived, electricity consuming, frequently used products such as lamps and computers.

Reviewing life cycle issues, the JRC TV eco-design project undertook a review of available public domain life cycle assessments (LCA) for TVs. In summary terms, the review found that:

1. Life cycle impacts are dominated by energy use in the in-use phase which itself accounts for 80% of energy consumption,
2. Market demand for more sophisticated products incorporating larger screens and additional features (e.g. hi-fi sound and digital processing) mean that energy consumption typically rises with the introduction of new technology,
3. Use of copper and lead were deemed important. Lead use is anticipated to decrease in time as a consequence of the market shift to non-CRT displays (it is used to shield radiation) and the phase out of lead-tin solders.
4. That the waste stream from end of life TVs will alter markedly in the long term from glass rich CRT displays to the new plastic rich displays.
This is not to say that there are not other important issues to consider in the context of ecolabelling. Whilst energy consumption in use is important the EU Ecolabel considers various other aspects. These are also discussed in the next section.

**Energy consumption**

The main environmental impact identified through life-cycle considerations is energy consumption during use. There are a number of different modes of energy consumption for a television:

- Passive stand-by – the television is connected to a power source, produces neither sound or vision, and is waiting to be switched into the modes “off”, or “on” on receipt of a direct or indirect signal, e.g. from the remote control.
- Active stand-by – the television is connected to a power source, produces neither sound or vision, and is exchanging/receiving data with/from an external source.
- On mode - the television is connected to a power source, and produces sound and vision.
Wider Issues

Other Ecolabel Schemes

Given that many of today’s goods are traded internationally, an ambition exists within the ecolabel community to harmonise criteria across ecolabel schemes. Within the EU ecolabel, the Cooperation and Coordination Management Group leads this work.

As part of our research we looked at other EU national labelling schemes to review the criteria they have for TVs to establish whether these could or should be used to inform the EU ecolabel. Of the three schemes reviewed, The Nordic Swan has criteria for TVs. The German Blaue Engel and the Dutch Milieukeur do not.

Starting with the existing criteria for the Flower we compared each one in turn to see where the similarities and differences lay (see Table 1 below). More detail on this is given in Appendix 1.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Flower</th>
<th>Swan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Group Definition</strong></td>
<td>Mains powered electronic equipment which is designed to receive, decode and display TV transmission signals, whether analogue or digital, broadcast via satellite, cable or antenna signals and has a screen size of ten inches (25 cm) or more.</td>
<td>Televisions, TV-sets in combination with other equipment such as VHS/DVD or PC, Appliances solely battery powered are excluded.</td>
</tr>
<tr>
<td>Validity</td>
<td>25.03.02 - 31.03.07</td>
<td>19.03.03 – 31.03.2009</td>
</tr>
<tr>
<td><strong>Assessment and verification</strong></td>
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<td></td>
</tr>
<tr>
<td>Test methods other than those stated can be used if approved equivalent by a Competent Body</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Test laboratories should be accredited EN ISO 17025 where possible</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Competent Bodies can carry out independent verifications</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Competent Bodies recommended to take environmental management systems into account, e.g. EMAS, ISO14,001</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Manufacturer complies with HSE requirements in production transport and recycling</td>
<td></td>
<td>√</td>
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<td><strong>Energy</strong></td>
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<td>On-off switch</td>
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<tr>
<td>Maximum passive standby (1W)</td>
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<td>√</td>
</tr>
<tr>
<td>Maximum active standby for TVs with Integrated Digital Receiver (9W)</td>
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<td>√</td>
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<td>Energy efficiency Index x% lower than average, base case</td>
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<td>√</td>
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<tr>
<td><strong>Lifetime extension</strong></td>
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<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Guarantee TV will work for at least 2 years</td>
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<td>√</td>
</tr>
<tr>
<td>Spares available for 7 years</td>
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<table>
<thead>
<tr>
<th><strong>Take Back and Recycling</strong></th>
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<tbody>
<tr>
<td>Free take back by manufacturer</td>
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</tr>
<tr>
<td>Disassembly report, showing easy to disassemble with standard tools and standard fittings</td>
<td>√</td>
</tr>
<tr>
<td>Hazardous and incompatible materials shall be separable</td>
<td>√</td>
</tr>
<tr>
<td>% of materials shall be recyclable</td>
<td>√</td>
</tr>
<tr>
<td>Labels shall separable</td>
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</tr>
<tr>
<td>Plastics parts shall not contain Pb or Cd</td>
<td>√</td>
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<tr>
<td>Plastics parts shall be of one polymer or compatible polymers</td>
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<tr>
<td>Plastic parts shall not contain inseparable metal inlays</td>
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<tr>
<td>Plastic parts &gt;25g shall not contain certain halogenated flame retardants</td>
<td>√</td>
</tr>
<tr>
<td>Plastic parts &gt;25g shall not contain flame-retardants or other preparations that are R45, R46, R50, R51, R52, R53, R60, R61.</td>
<td>√</td>
</tr>
<tr>
<td>Plastic parts &gt;25g will be marked with polymer type (ISO11469)</td>
<td>√</td>
</tr>
<tr>
<td>Chlorinated-plastics not allowed except in electrical components in circuit boards</td>
<td>√</td>
</tr>
<tr>
<td>Plastic parts &gt;25g shall not be painted with varnishes that reduce recyclability</td>
<td>√</td>
</tr>
<tr>
<td>CRT displays shall not contain Cd</td>
<td>√</td>
</tr>
<tr>
<td>LCD displays shall have maximum of 1mg Hg per bulb</td>
<td>√</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>User Instructions</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Product sold with relevant user information, advice on how to use the TV in an environmentally friendly way</td>
<td>√</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Environmental Declaration</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Environmental declaration in accordance with ECMAs Technical Report 70</td>
<td>√</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Information appearing on the Ecolabel</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Ecolabel shall state that the TV is energy efficient and designed to facilitate recycling</td>
<td>√</td>
</tr>
</tbody>
</table>

It can be seen that there are a lot of similarities; in fact they are identical on the energy efficiency settings for standby consumption, although the Flower is stricter in the energy efficiency index.
The key differences in the criteria are for plastics where the Swan takes a more stringent line on the presence of halogens, either in the polymer or as additives to the plastic in flame retardants. The Swan also has criteria for cadmium in CRTs and mercury in LCD displays that the Flower does not. On the other hand the Flower criteria are stricter on recyclability.
Revising the Criteria

Product Group Definition

The function of a television is to receive broadcast transmissions (from cable, terrestrial or satellite sources), process these received transmissions, and display the resulting image while reproducing the accompanying sound. The types of television in use can range from small hand-held units incorporated in a mobile phone to large High Definition units with widescreens.

At the time of the development of the existing criteria most televisions had a cathode ray tube (CRT). These are still used today in smaller televisions but sales of flatscreen plasma and LCD TVs have increased significantly since 2001; their growth is forecast to continue to increase reflecting consumer preference.

Televisions are ordinarily mains operated, but portable televisions powered by batteries are available. Television broadcasts can also be received and displayed through other equipment, such as a computer, which has been fitted with a tuner card.

The current definition adopted for the EU ecolabel is:

“Mains powered electronic equipment which is designed to receive, decode and display TV transmission signals, whether analogue or digital, broadcast via satellite, cable or antenna signals and has a screen size of ten inches (25cm) or more”.

As the criteria development was based on available information for mains powered televisions with a minimum screen size of 10 inches (25 cm), the definition excluded small televisions from applying for the EU ecolabel.

It is proposed that the current definition should continue to be used. In the eventuality that computer and TV technology ‘converges’ into a new product, the definition would remain applicable.

Do you agree with the proposal to retain the existing criterion?

A) Yes
B) No, in which case why not?

Criterion 1: Energy Savings

The current criterion for energy consumption is similar to that for the Nordic Swan. It covers the main elements of energy use in a TV, namely, on-mode, active standby, passive standby as well as the provision of an off switch. There is scope to update these requirements.

A) Criterion 1a – Off switch
Feedback we have suggests the requirement to have an on-off switch may compromise the development and delivery of new services. In the near future, services are likely to be offered to consumers whereby their TV (and other components) will be able to receive and record programmes and films overnight for viewing on another occasion. A TV that is switched off will not be able to provide this service. Perhaps a better option for the ecolabel is to require a very low stand-by energy consumption in the sense that this option is more robust in offering performance improvement. The provision of an on-off switch does not mean that users will actually make use of it whereas a low stand-by energy consumption is impervious to consumer behaviour.

Commentators have also remarked that whilst providing an on-off switch on the front of a CRT TV is a possibility, the dimensions of a flat panel TV make this problematic.
Reflecting on these practicalities, but being aware of the desire to keep non-active energy consumption at a low level, we suggest the existing requirement is deleted and the emphasis is on the stand-by energy criterion (discussed in the next section).

Do you agree with this or not?
C) Yes
D) No, in which case why not?

B) Criterion 1b – Passive standby consumption
Speaking with TV technology experts, we understand that TVs of various technologies can achieve a passive standby consumption of 1W whether they have an integrated digital receiver (IRD) or not. We therefore suggest expanding the wording of criterion 1b so that it includes TVs with an IRD. Such a requirement would bring the ecolabel in line with the IEA’s proposal to the G8.

Our suggestion is:

*The passive standby consumption of the television, including those with an integrated digital receiver (IRD), shall be ≤1W.*

Do you agree with this change or not?
A) Yes
B) No, in which case why not?

C) Criterion 1c – Active standby consumption
We have conflicting advice regarding the up to date situation regarding active standby that warrants further discussion with experts and the AHWG. We remain in discussion with the industry investigating the issues and options. We hope to be able to provide more detailed information to the AHWG in May but in the meantime welcome any feedback regarding this point.

D) Criterion 1d – On-mode energy efficiency
As it stands the criterion includes a formula that is, strictly speaking, only applicable to CRT TVs in the on-mode. Whilst this was acceptable when the criteria were devised four years ago (considering CRT’s market dominance), a revision is appropriate for flat panel displays (FPDs).

Recognising the problem, the industry association, EICTA, has devised a self-commitment that includes separate formulae for calculating the energy efficiency index (EEI) of CRTs and FPDs.

We recommend the Ecolabel refers to the EICTA self-commitment with a reference to a percentage of the base case as being the cut-off for compliance – in other words a similar requirement to that which exists at the present time but with different requirements for CRT and FPD.

We are in discussion with EICTA regarding these issues and hope to be able to put forward a more complete proposal, including EEIs, at the May AHWG.

Do you agree with this or not?
A) Yes
B) No, in which case why not?

Assessment and Verification – Energy Consumption
Currently EN 50301 is quoted as the test standard for power consumption in all power modes. However, its suitability is limited to testing CRTs in the on-mode. It is unsuitable for FPDs because the test does not support consistent screen luminance – known to be a significant measurement error source. There is also the fact that the test’s screen luminance requirement is significantly less than normal viewing luminance. These error sources mean that the continued reliance on EN 50301 is not recommended.
There is another international standard for testing power consumption, IEC 62087, but again its applicability to technologies other than CRT is suspect and the luminance level specified is above that typical of a domestic environment. A new international standard is under development but is unlikely to be available to inform the ecolabel revision.

We welcome people’s views and opinions regarding these issues. Our suggestion is that the on-mode power consumption for FPs is taken as the manufacturer’s declared value at the time of shipping the product.

For standby consumption, IEC 62301 should be used for all TV technologies.

Our recommendation is to state the following:

1. Use IEC 62087 for testing on-mode power consumption of CRTs
2. Use manufacturer’s own power declaration for flat panel TVs
3. Use IEC 62301 for testing standby power in all technologies.

**Do you agree with this or not?**

A) Yes
B) No, in which case why not?

**Criterion 2: Life-time Extension**

We do not propose any change to the criterion for a guarantee to be offered for two years. Feedback we have suggests that the requirement to provide spare parts for up to seven years from production ceasing is onerous and of dubious environmental benefit. TV technology changes so quickly it might be better for a new replacement TV to be purchased rather than repairing the old model. One suggestion we have is for the requirement to be changed from seven to five years. We welcome feedback.

**Do you agree to retain the two year guarantee?**

C) Yes
D) No, in which case why not?

**Do you agree with to change spare part availability to five years instead of seven?**

E) Yes
F) No, in which case why not?

**Criterion 3: Take Back and Recycling**

The existing criterion shares many elements with other EU ecolabelled electrical products and as a consequence has evolved over time with the development of new or revised criteria sets.

In the 2004 revision to the Computer ecolabel, the Take Back and Recycling Criterion was subject to an overhaul reflecting AHWG and EUEB comment as well as policy development in the form of the Restriction of Hazardous Substances Directive (RoHS). It is appropriate to consider updating the TV criterion in the light of these developments.

A) **Criterion Title**

The criterion requires products to be designed and constructed to facilitate recycling. Part of this requirement is to ensure that certain types of hazardous substances are either not used or where they are, that such materials can be readily separated.

We suggest therefore the criterion’s title is altered to reflect this aspect to:

1. ‘Take-Back, Recycling and Hazardous Substances’
B) Criterion 3a - Disassembly
The current TV criterion does not mention mercury lamps used to illuminate LCD screens – an amendment introduced for the Computer criteria. We suggest an update is appropriate such that a fourth bullet point is included;

The manufacturer shall check the disassembly of the product and provide a disassembly report that shall be made available to third parties on request. Amongst other items, the report shall confirm that;

- Connections are easy to find and accessible
- Connections are as standardised as possible
- Connections are accessible with commonly available tools
- The mercury containing lamps of LCD screens are easily separable.

C) Criterion 3b - ‘Incompatible’
The use of the word ‘incompatible’ in the existing Criterion, common to other Ecolabelled product groups, has been queried on various occasions. It is not clear what the definition of ‘incompatible’ is or should be.

Given that there is another requirements in criterion 3f, which states that ‘plastic parts shall... be of one polymer or compatible polymers...’ we suggest that ‘incompatible’ can be deleted from 3b without detriment to the criterion’s objectives.

D) Criterion 3c and 3d – Recyclable Content
The two existing criteria state:

1. 90% (by volume) of plastic and metal materials in the housing and chassis shall be technically recyclable, and
2. 90% (by weight) of the glass used in a cathode ray tube shall be technically recyclable.

From feedback and from our own assessment, these requirements pose a number of questions regarding their practicality:

1. What does ‘technically recyclable’ mean?
2. How should applicants and awarding CBs alike interpret the phrase ‘technically recyclable’?
3. Are different people likely to interpret the requirement differently and apply it differently?
4. How should compliance with the requirement be demonstrated?

TVs of course come under the remit of the WEEE Directive that requires TVs to be recovered and recycled to a high degree at end of life (achieving 75% and 65% respectively). We suggest the ecolabel’s criteria are not practical to work with and suggest they can be deleted without detriment to the ecolabel’s standing.

Do you agree with the proposal to delete the two criteria?
E) Criterion 3e - Labels
The current criterion states that:

1. If labels are required, they shall be easily separable and inherent

We propose to retain the requirement.

F) Criterion 3f – Plastic Parts
We propose to update the present criterion to reflect changes made to the Computer ecolabel in 2005. At that time, the changes made reflecting AHWG comments, were:

2. That plastic parts should be uncoated. Members of the AHWG were concerned that coated plastic parts may be less recyclable than uncoated parts. They argued that if it were necessary to have coloured parts then the colour pigment could be incorporated within the plastic itself.

3. To clarify that metal inlays, where used, should be separable by a single person using simple tools.

Consequently we propose the following subtly altered criterion:

Plastic parts shall:

4. have no lead or cadmium added,

5. be of one polymer or compatible polymers, except for the cover, which shall consist of no more than two types of polymer which are separable and uncoated with, for example, paint,

6. contain no metal inlays that cannot be separated by a single person using simple tools.

G) Criterion 3g - Flame Retardants
Issues surrounding the use of flame retardants (FRs) have been discussed at considerable length during AHWG and EUEB meetings for various electrical and electronic ecolabel product groups. The most recent discussion was during the development of criteria for Computers. A brief overview is presented here. An updated criterion is proposed.

Historically the ecolabel criterion was devised in two parts. The first prohibits the use in ecolabelled products of certain named brominated FRs (BFRs). The second part prohibits the use of FRs with certain identified risk phrases. With the BFR exclusion, the ecolabel was acting ahead of developing legislation (RoHS – Directive 2002/95/EC) and the ongoing Risk Assessment of penta-, octa- and deca-bromodiphenyl ethers (known collectively as PBDEs).

The risk assessments of penta- and octa-BDEs led to marketing and use restrictions being applied to them. Work on deca-BDE took longer to conclude; one of the recommendations from the initial work was for further study. Before this work was complete, the RoHS Directive was published (February 2003) a key aspect of which is the exclusion from products placed on the EU market after 1 July 2006 of PBB and PBDE. The RoHS exclusion covered all the FRs the ecolabel identifies and more.
In June 2004 Member States signed off the risk assessment for deca-BDE with the proviso that environmental monitoring was undertaken. In essence the risk assessment concluded that prohibiting the use of deca-BDE was not warranted. This was followed by an official amendment to RoHS being published in the Official Journal dated 15 October 2005 stating that:

‘Since the risk assessment of deca-BDE, under Council Regulation (EEC) No 793/93 of 23 March 1993 on the evaluation and control of the risks of existing substances, has concluded that there is at present no need for measures to reduce the risks of for consumers beyond those which are being applied already but additional studies are required under the risk assessment, deca-BDE can be exempted until further notice from the requirements of Article 4(1) of Directive 2002/95/EC.

Consequently RoHS now includes a new exemption for the use of ‘Deca-BDE in polymeric applications’.

Related aspects were discussed during the revision of the Computer ecolabel and appropriate changes made and agreed with the EUEB. Given that the existing TV criterion does not reflect the up to date situation, it is appropriate to update it in line with that agreed for computers (which was for a clear link to be made to the RoHS Directive).

The proposed criterion is:

Plastic parts shall not contain poly-brominated biphenyl (PBB) or poly-brominated diphenyl ether (PBDE) flame retardants as listed in Article 4 to Directive 2002/95/EC. This requirement shall take account of the amendments made to the Directive regarding the use of Deca-BDE published 15 October 2005.

Plastic parts shall not contain chloroparaffin flame retardants with chain length 10-17 carbon atoms and chlorine content greater than 50% by weight (CAS no. 85535-84-8 and CAS no. 85535-85-9). The applicant shall declare compliance with this requirement.

Do you agree the criterion should be altered as outlined?

C) Yes
D) No, in which case why not?

The second part of the FR requirement, that excludes the use of FRs with certain risk phrases, we propose to retain unchanged.

Do you agree the criterion should be retained as is?

E) Yes
F) No, in which case why not?

Criterion 4: User Instructions

At the time of writing we are reviewing the criterion. Our initial thoughts are that some rewording is appropriate to the sub-criteria. Examples where changes are appropriate are:

4c) – Changing screen illuminance to reduce energy consumption, whilst adjusting the illuminance of a CRT screen does benefit energy consumption, the same is not true for LCD screens (the mechanism for altering illuminance is very different). A subtle edit of the text is warranted.
4e) – Advice regarding disposal of unwanted products. This paragraph needs rewording to emphasise WEEE Directive requirements and the options available to consumers.

We would like to discuss these issues with the AHWG.

**Criteria 5 and 6: Environmental Declaration / Information appearing on the ecolabel**

We are presently reviewing these criteria and would like to discuss them with the AHWG as to whether changes are appropriate.
Potential New Criteria

Part of the revision exercise is to consider whether it is appropriate to introduce new criteria into the ecolabel.

One that we think is appropriate to consider is the mercury content of lamps used to illuminate LCD screens. Introduction of such a criterion would bring the TV ecolabel into line with that for Portable Computers.

Mercury content of lamps in LCD screens

As already mentioned the market for TVs has shifted considerably and there are now many more FPDs being purchased, with the decline of CRT of purchases. We should therefore consider the inclusion of criteria for backlit lamps for LCD displays.

The EU Ecolabel for computers includes a criterion on the mercury content of backlamps used in LCDs,

*The background lighting of the LCD monitor shall not contain more than 3 mg of mercury on average per lamp.*

The Nordic Swan criteria currently set this limit at 1mg Hg per lamp on average. Is this an appropriate limit for a robust product – i.e. one that has a long lifetime? There are suggestions that such a low limit could impair product lifetime and thus will not benefit the overall environmental performance of the product.

We recommend introducing a criterion in line with the current EU Ecolabel for Computers, as given above:

*‘The background lighting of the LCD display shall not contain more than 3 mg of mercury on average per lamp’.*

**Do you agree with this or not?**

A) Yes
B) No, in which case why not?

Appendices

CONTENTS
## Appendix 1

### CONTENTS

Comparison of the Flower and Swan Criteria

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### Comparing Flower and Nordic Swan Ecolabel Criteria for TVs

<table>
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<th>Comment</th>
<th>Swan Criteria</th>
<th>Comment</th>
</tr>
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<tr>
<td><strong>Product Group Definition</strong></td>
<td>-</td>
<td>Televisions, TV-sets in combination with other equipment such as VHS/DVD or PC, Appliances solely battery powered are excluded.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Idiity</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>03.2002 - 31.03.2007</strong></td>
<td>Extended after 31.03.2006</td>
<td>19.03.2003 – 31.03.2009</td>
<td>-</td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- TV to have clearly visible off-switch at set of set</td>
<td>-</td>
<td>TV to have off-switch, clearly visible</td>
<td>Ref in manual that TV can be switched off</td>
</tr>
<tr>
<td>- Maximum passive standby energy use no more than 1W</td>
<td>-</td>
<td>-</td>
<td>Test report stating energy use following standard EN 50301</td>
</tr>
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<td>- Test report stating energy use following standard EN 50301</td>
<td>-</td>
<td>-</td>
<td>Test report stating energy use following standard EN 50301</td>
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<tr>
<td>with integrated digital receiver</td>
<td>Test report stating energy use following standard EN 50301</td>
<td>TV with integrated digital receiver have max active standby energy use of 9W</td>
<td>Test report stating energy use following standard EN 50301</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>max active standby energy use of TV</td>
<td>On-mode energy efficiency index (EEI) &lt;65% of base case for that TV format</td>
<td>Test report stating energy use following standard EN 50301. EEI = P_{on} / P_{on, bc}. P_{on} = the energy use of the TV (kWh) in on-mode. P_{on, bc} is the reference energy use for an average base case TV of the same format in on-mode.</td>
<td>Test report stating energy use following standard EN 50301. E_{r} = E / E_{r, bc}. E = the energy use of the TV in kWh. E_{r, bc} is the reference energy use for an average TV of the same format</td>
</tr>
</tbody>
</table>

### Mode energy efficiency index

- **EEI**: On-mode energy efficiency index
- **EEI = P_{on} / P_{on, bc}**: 
  - \( P_{on} \): Energy use of the TV (kWh) in on-mode.
  - \( P_{on, bc} \): Reference energy use for an average base case TV of the same format in on-mode.

### Test report following standard EN 50301

- **EEI <65% of base case for that TV format**

### Guarantee that product will work for at least two years from date of delivery

- **Declaration from the manufacturer**

### Spare parts available for at least seven years from when production stops for that model

- **Declaration from the manufacturer**

### Disassembly report as proof

- **Max dismantling time of ten minutes**

### Max dismantling time of ten minutes

- **15 minutes for TV/VCR combinations.**

### Avoidance of hazardous materials

- **If this is not possible, then they will be easily removable.**

### Avoidance of hazardous materials

- **Following WEEE Directive. Report from independent organisation for proof based on practical disassembly.**

### Pb, Cd and phthalates not to be added to plastics

- **Except for the cover which may be of no more than two, separable polymers**

### Plastic parts shall not have inseparable inlays

- **Listed by CAS number**

### Plastic parts >25g shall not contain any one of 12 excluded HFRs (DEs, given by CAS nr)

- **Listed by CAS number**

### Plastic parts >25g to be marked with polymer type

- **In accordance with ISO 11469. Extruded plastics and those for light-**

### Plastic parts >25g to be marked with polymer type

- **In accordance with ISO 11469**

### Plastic parts >25g shall not contain any one of 12 excluded HFRs

- **Listed by CAS number**

### Plastic parts >25g shall not contain any one of 12 excluded HFRs

- **Listed by CAS number**

### Other FRs in plastics to be noted by CAS number and if in parts >25g shall not be classified as R45, R46, R60, R61

- **Excludes plastics in circuit boards (CBs), or electronic parts attached CBs. Declaration by manufacturer.**
<table>
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<th>Environmental Declaration</th>
<th>Information appearing on the label</th>
<th>Assessment and Verification</th>
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</thead>
<tbody>
<tr>
<td>Environmental declaration with the product, available to the user</td>
<td>Label</td>
<td>Other test methods are allowed if they are validated as equivalent by an impartial competent body.</td>
</tr>
<tr>
<td>Information provided in user manual on how to use TV efficiently and environmentally sensitively</td>
<td>Directions on the use of the label</td>
<td>Competent Bodies may undertake independent verifications for compliance</td>
</tr>
<tr>
<td>Information on switching off TV when not in use, minimising standby use, guarantee and availability of spare parts and take back schemes etc.</td>
<td>Test labs and organisations must be independent and fulfil EN45001/DS/EN/ISO/IEC 17025</td>
<td>Manufacturer can use their own labs if monitored by the authorities, or is registered to ISO9001 or 9002 for sampling and analysis</td>
</tr>
<tr>
<td>Information provided in user manual on how to use TV efficiently and environmentally sensitively</td>
<td>Random checks for compliance with products available on the market</td>
<td>EMS not obligatory</td>
</tr>
<tr>
<td>Information on switching off TV when not in use, minimising standby use, guarantee and availability of spare parts and take back schemes etc.</td>
<td>Manufacturers must have QA systems that show that criteria are fulfilled and verifiable</td>
<td>German Blauer Engel, Dutch Milieukeur and Swedish Bra Miljöval do not have criteria for TVs. Energy Star does have criteria, but only for standby energy consumption, set at &lt;1W, see <a href="http://www.energystar.gov/ia/partners/product_specs/eligibility/tv_vcr_elig.pdf">http://www.energystar.gov/ia/partners/product_specs/eligibility/tv_vcr_elig.pdf</a>. The Swan criteria covers audiovisual equipment, of which TVs make up one part (They also cover VHS and DVD players, set top boxes, TVs combined with a VHS or DVD and stereos) but it excludes systems that are solely battery powered. ‘Passive’ standby means TV is connected to power but has no sound or picture, waiting for signal. ‘Active’ standby means TV is connected to power but has no sound or picture, but is exchanging data with external source.</td>
</tr>
</tbody>
</table>
Annex 2

TV Ecolabel Revision

Meeting Summary of the 1st AHWG, Brussels, 17th May 2006

Attendees:
Ben Caspar, DG Environment (BC)
Marleen van den Brande, Belgian CB (MvdB)
Huw Walters, Sony/EICTA (HWa)
Doreen Federigo, EEB/BEUC, (DF)
Jakob Waitlow, Danish CB (JW)
Hans Wendischlag, Hewlett Packard, (HWe)
Conrad Luttropp Stockholm University, representing the EEB
Salvador Samitier Catalan CB
Anna Estele Catalan CB
Gianluca Cesarei Italian CB
Sharon Heymann Sharp (SH)
Leena Nyqvist-Kuusola, Finnish CB, (LNK)
Charles Cox, UK CB (CC)
Phil Dolley, AEAT (PD)
James Cadman, AEAT (JC)

1. Introduction
PD gave an introduction to the meeting outlining the purpose of the study, the methods to be used and the schedule.
He indicated that the AHWG would be asked to make recommendation today whether the criteria should be revised or not.

Regarding the schedule he indicated that following today’s meeting:

1. A meeting summary would be circulated for comment
3. A second AHWG would follow in Oct/Nov
4. A third paper and proposals would be circulated in Feb/Mar

Depending on the Commission’s EU Regulatory Committee schedule, it may be possible to hold in vote next spring or summer.

Attention then shifted to a) discussing the ecolabel and links to other instruments and b) possible areas for setting revised criteria via a presentation given by JC.

The consultants were encouraged to review the GEEA (Group for Energy Efficient Appliances) criteria as well as the Swan and Energy Star. (The GEEA criteria are referenced in the Swan).

2. Product Group Definition
A number of points were made:

1. The definition should be in cm, not in inches.
2. Why is the definition limited to TVs >25cm in size? Does the size of screen matter? Some people thought the ecolabel should not be awarded to very large screen TVs and that the ecolabel should discourage their
purchase. Others argued that it isn’t appropriate for the ecolabel to discriminate in this way and that the ecolabel should define criteria such that consumers can select the best performing models. Others added that large screens are relevant to commercial users; they wanted the ecolabel to be relevant to this group too. Broadly speaking the AHWG did not want to discriminate against screen size.

3 A suggestion was made to merge the TV criteria with those for computers to reflect the fact that the two technologies themselves are merging.

4 Is it necessary someone asked, to mention the broadcast route (cable, antennae etc)? Are there going to be completely new routes the ecolabel could miss? What of internet and wireless? Some thought it was appropriate to keep the definition similar to current arguing that it is necessary to avoid confusion with new and emerging products for which receiving TV is not that product’s primary function.

3. On-off Switch

There was much discussion regarding this aspect.

Industry representatives said that requiring a switch to be located on the TV’s front is OK for CRT TVs but more problematic in design terms for flat panel displays (FPDs).

Turning a TV completely off such that no power is available to it conflicts with new designs and the functionality these offer. New TV technology allows consumers to download TV programmes when not watching the TV. However to do so requires the TV to be in a passive stand-by state – were it draws a low current but can be ‘woken up’ to perform a function. Typically a TV might draw 200 to 300 mW in this state.

A number of people objected to this saying that the ecolabel should be encouraging zero energy consumption when the product’s not being used. Could there be a message popped up on screen when the TVs put into stand-by mode encouraging people to unplug the TV?

Others argued the ecolabel needs to be pragmatic. The product has changed and will continue to do so. The ecolabel should accept this and specify an appropriate requirement.

The consultants will investigate further and asked if the industry representatives have data they are willing to share.

4. Energy – Passive Standby (PS)

A number of people commented that 1W is too high although it was recognised that this is dependent on a TV’s chassis type and age. Not all new sets can meet tougher requirements.

Various views were expressed in the ensuing discussion. One was that passive standby is not a big issue – there are more important things for the ecolabel to deal with (e.g. on-mode power consumption). Another comment regarded measuring PS energy consumption in terms of the required sample size (statistics) and problems with test methods. Regarding the latter point there is an issue with respect to being able to measure such low power levels accurately – it is a difficult and specialised task requiring dedicated equipment and personnel. The measurements are open to significant errors.

The consultants will ask EICTA for data to help inform the revision.

5. Energy – active standby (AS)

Different views were expressed including those of industry. Some thought there was little need for AS in today’s products, others thought it was important, may be above the current 9W requirement but needed for a very short time.

One query regarded the use of hard-drives in TVs. Do these mean the TV has even higher AS? The point needs clarifying.

In general the AHWG thought keeping the requirement was appropriate asking the consultants to find further information from industry and GEEA to help clarify the situation, to clearly define AS and PS modes for TVs and the situation regarding services such as Sky+. 
6. Energy – on-mode
JC explained that the current criterion, in strict terms, is only applicable to CRT and not FPD TVs.

Industry confirmed the situation adding that the test and formula currently adopted by the EU ecolabel can be applied to FPDs but the measurement errors can be as high as 50%.

HWs asked how the 65% energy efficiency index was derived – it is a very difficult target. The consultants will revisit and clarify. He also confirmed that the current ecolabel requirement is based on an EICTA agreed formula. There is ongoing work to develop a measurement method for FPDs, but this is not due to be released until October 2007.

Other points raised included:
1. whether the AHWG should limit the size of TV an ecolabel can be awarded to. The ecolabel should be advising consumers to limit their energy consumption via the choices they make.
2. Others argued that the ecolabel should not discriminate but it should provide information to consumers regarding the most efficient products whatever size those products are.
3. Can we harmonise the ecolabel with other schemes e.g. Energy Star?

7. Energy – Assessment and Verification Requirements
The AHWG did not think accepting manufacturers’ declarations was appropriate.

There was greater consensus for using the current test method and accepting its limitations rather than trying to do devise a new method.

8. Life-time Extension
We need to keep a balance between repairing older, less energy efficient (EE) models as opposed to replacing them with newer more efficient versions, i.e. energy versus waste impacts.

DF argued the ability to repair is key to reducing waste which we need to communicate with consumers – they should not just go out and buy a new TV when the existing one can be repaired in order to maximise the TV's lifetime (a general message for all products). Repairs should be easy to do and economical – TV designers should be using design for environment to achieve this. Furthermore the Ecolabel is the best policy tool for the whole life cycle of products.

BC asked whether this requirement is necessary - does it add significantly to the ecolabel? He encouraged the consultants to be more challenging in their approach. The Commission is keen to see ecolabel criteria simplified and trimmed down to key requirements rather than incorporating all conceivable issues.

9. Take-back and recycling - title
AHWG agreed the criterion’s title should be amended to be ‘Take Back, Recycling and Hazardous Substances’.

10. Take-back and recycling: disassembly
A number of queries were raised:
1. Is a disassembly report necessary? Recycling generally involves breaking the product up and sorting the fractions by machine and/or hand. Recyclers are not going to dismantle the product – too costly. Industry remarked they had never been asked for a disassembly report.
2. Recyclers need specialised tools for their job and thus we should not be stating ‘commonly available tools’, i.e. remove this phrase form the criterion. Furthermore we should be saying that connections are easy to identify, rather than find, as this is more relevant to the recycler.
3. Are mercury free lamps available for LCDs? Answer provided was not as yet in a form that makes their use acceptable. Those that exist use twice as much energy and cost more. WEEE Directive requires mercury containing lamps to be clearly identified as such.
4. The Commission proposed deleting the criterion or parts of it – it clearly does not reflect practice. EEB argued to retain it in some form.

11. Take-back and recycling: incompatible
Few people could say what ‘incompatible’ in this context meant.

JW provided comment and remarked he would be content for the criterion to be deleted if the ‘percentage recycling’ criterion is retained.

The consultants will consider further.

12. Take-back and recycling: recyclable content.
As for 11 above, the practicality of ‘technically recyclable’ was challenged. Few people knew how to interpret. There were concerns that different CBs and applicants will interpret the requirement differently too. Anyway, how can an applicant prove compliance? The requirement is not measurable someone remarked. What is recycled is governed by technology and markets.

There was agreement that the current criterion is aspirational and that an alternative should be found, if possible, reflecting the WEEE Directive requirements.

13. Take-back and recycling: labels
The requirement exists to enhance recycling. Labels that peel off pose fewer problems for recycling activities.

Participants who expressed a view said the requirement is obsolete. Recyclers do not peel labels off products.

It was argued the requirement can be deleted without impacting the ecolabel unduly.

14. Take-back and recycling: plastic parts
General agreement was reached that the ‘no intentional use of lead and cadmium’ requirement should be deleted – it is a RoHS Directive requirement. The AHWG was in general not in favour of repeating legislative requirements in ecolabel criteria.

The suggested requirement to not paint plastic parts was deemed inappropriate for TVs – consumers desire good aesthetics. Further, paint allows lower grade plastics to be used – it is a benefit.

15. Take-back and recycling: flame retardants
Introducing the criterion, PD said the requirements need overhauling to reflect RoHS in a similar manner to the recent revision to the computer ecolabel.

Producers find the paragraph on risk phrases hard to comply with, namely the part that says “…or maybe assigned…” due to the uncertainty of whether or not a compound will be ever be assigned a given R phrase. Lawyers would never accept such woolly phraseology. Responding, JW said the text is not meant to predict the future but to include similarly structured compounds with known R phrase(s). The onus is on the FR manufacturer to produce a risk report for their compounds.

JW was unhappy for the ecolabel to reflect changes to the RoHS Directive that permit the use of deca-BDE in plastics.

Responding HWe remarked there are very practical problems with the criterion:

1. How to demonstrate compliance?
2. What of plastic mixes imported into the EU that already incorporate flame retardants? Who knows exactly what is in them?
3. Very few FRs are tested
4. Why are we looking to prohibit deca-BDE when the risk assessment has suggested otherwise? Why is it the ecolabel looks to prohibit substances that have had a risk assessment performed on them but does not get to grips with substances that are not tested?
5. We should look at the USEPA document on ecotox data for non-halogenated FRs. The problem with the risk phrase process is that it is very costly. An alternative would be to do simpler, cheaper tests, such as
OECD tests which are verifiable (HWe said he would provide information on actual tests, their costs and limits).

There then followed a discussion about FRs in the environment. A remark was made that the source is due to FRs use with textiles and not consumer electronics – it washes off textiles. Can we design for FR free? People thought not – there is also the problem of a TV being fuel for an external fire.

BC was in favour of deleting the criterion as it simply reiterates legislation. Others objected.

EEB and industry representatives agreed they would like to meet to talk through FR issues more thoroughly.

BC mentioned the Commission is thinking of having a FR meeting with stakeholders in the autumn.

16. User Instructions
Broad agreement was reached for consumer information to be more visible.

Criterion 4a) We should quantify the energy and money savings from turning the TV off. But SH/HWa added – they do not want too much extra text as user manuals are already very large and in several languages.

4b) EEB would like energy figures presented for each mode (on, PS, AS), so that the user can compare them. SH. This is usually given in user manuals anyway. BC. Could we make this information more obvious, at the front, on a separate page etc.

4c) We could highlight the energy savings made with FPDs by adjusting the brightness level.

4d) HWe. We should focus on energy savings, but still cover the availability of spares.

4e) SH. User manuals already state that the consumer should dispose of the TV responsibly at the end of life, following the WEEE Directive.

4f) Keep as is, but how do we do it, via WEEE?

4g) This should left to the manufacturer’s discretion as to what information they give, but we can explain what kinds of information they should provide.

17. Environmental Declaration
ECMA TR70 and ITECO have been combined into a new declaration ECMA 370. On the 28th June ECMA will vote on worldwide acceptance of this standard. It allows the consumer to compare the attributes of products and compliance etc. It includes RoHS and WEEE and its scope covers IT, electronics and telecommunications.

The suggestion is to adopt ECMA 370.

18. Information appearing on the ecolabel
AHWG agreed the current wording needs reconsidering – are TVs really designed for recycling?

19. Potential New Criteria
Some ideas were put forward for consideration. The need for these should be gauged against the potential benefits – if they are insignificant they may be unhelpful.

Mercury
The AHWG thought this was an issue worthy of a new criterion. However, people thought that setting a requirement to mimic that for the computer ecolabel was ill advised. TVs are much larger products, longer lived and used more frequently and a higher mercury content was required to provide good life time and performance.
HWa. Sony specify their lamps to 5mg Hg, and get an average content range from 3.5 – 4.5mg, depending on the size of lamp. HWe added that HP’s products have a similar range.

There was a suggestion that the requirement should be related to screen size. The consultants will explore further and asked industry for information and data.

DF said the EEB would consult and get back with information from its ‘zero mercury’ expert.

Packaging and TV support stands
A member of the AHWG suggested incorporating criteria for packaging and the (largely) metal mounting stands that TVs sit upon. The idea was not universally accepted. People were not clear what the ecolabel could sensibly do. For example, cardboard packaging is to a very large extent made of recycled materials. How would the ecolabel seek to differentiate between other forms of packaging such as foams with due regard to mechanical (shock absorbing) properties too? Is this a really important life cycle issue for TVs they asked?

Similarly with TV stands people were not convinced the criteria need to go into this level of detail.

20. Closing remarks
The chair asked if the AHWG thought a revision to the TV criteria was warranted based upon today’s discussions. Without exception, every member responded affirmative. Therefore the revision exercise will continue towards devising revised proposals.

A meeting summary will be circulated in draft for feedback before wider circulation.

PD thanked participants for their input.

Phil Dolley
James Cadman
25 May 2006

ANNEX 3

Revising the Criteria for Televisions

Discussion Paper to the Second AHWG, Brussels 13 November 2006

This second discussion document proposes draft revised criteria for the EU ecolabel for televisions and discusses how these proposals were developed.

The proposals build on the earlier discussion document and ad-hoc working group (AHWG) discussions of May 2006. A summary of those discussions has been circulated previously. The proposals also capture data, views and opinions of stakeholders expressed in the time since the AHWG.

Two important themes emerged from the AHWG:

1. There was recognition that the ecolabel needs to reflect technical developments – this is a rapidly developing product group,

2. That the ecolabel ought to focus on the area where it can make a difference and be influential. There was broad agreement this lies principally with the ‘information to consumers’ requirements.

The AHWG concluded these two themes warrant a revision to the existing criteria.

In the document, the existing criterion is stated first, a discussion on the relevant issues follows and finally the proposed revised criterion is presented. We welcome your views on the proposed criteria and the background issues
which have led to their development. For clarity, Appendix 2 presents the revised proposals as they would appear in a Commission Decision document.

This document and the responses received will form the basis for discussion at the second ad-hoc working group meeting on 13 November in Brussels.

The paper has been circulated widely to members of the European Union Ecolabelling Board (EUEB), the Commission, trade associations and NGOs. However, if you are aware that other organisations within your Member State should receive a copy, please distribute this paper to them – we welcome their input too.

Acknowledgments

We wish to thank the members of the AHWG and other stakeholders for their assistance lent in helping us to develop the draft proposals discussed herein.

Stop Press:

The market for televisions is fast moving. Product innovation occurs far more quickly than for most other ecolabelled products (with the exception perhaps, of computers). As an example, literally the day before this discussion paper was due for circulation to stakeholders, we learnt about a new type of LCD TV – one illuminated by LEDs rather than CFLs. You can read more about the developments inside.

Yet another issue has also been flagged. The energy consumption data our draft proposals are based upon, relates to a sample of EU televisions on sale in 2004/05. The sample is drawn from publicly available industry sourced information and that from consumer tests. At the time of writing, the sample was the most up to date information available to us.

We have just learnt that another television data set is being finalised. Discussions suggest it could be made available to us in the next two weeks or so. The sample, drawn from consumer testing of products on the EU market late 2005 and 2006, could be an important development.

We understand the significant differences are that:

1. The sample is populated with more up to date products with, for example, 100Hz refresh rates and High Definition screens,
2. A more up to date test method was used (similar to IEC62087, whereas the ecolabel presently uses EN50301) that means the energy consumption data, particularly for FPDs, is more representative of actual in use consumption.

We await the data to see the extent to which these differences influence the draft proposals. We could have delayed circulation of this paper until we have analysed the data but recognise that doing so would restrict the amount of time people have to read the document – and there are many issues in addition to energy to consider of course. We hope this is acceptable. We aim to analyse the data ahead of the November AHWG and present the analysis to the meeting. If time permits we will circulate an Addendum taking account of the new data ahead of the meeting.
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COMMISSION DECISION of (date)
Establishing the ecological criteria for the award of the Community eco-label to televisions (Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,
Having regard to Regulation (EC) No 1980/2000 of the European Parliament and of the Council of 17 July 2000 on a revised Community eco-label award scheme, and in particular the second subparagraph of Article 6 (1) thereof and the sixth paragraph of point 2 of Annex V thereof,
Whereas:

(1) Under Regulation (EC) No 1980/2000 the Community eco-label may be awarded to a product possessing characteristics which enable it to contribute significantly to improvements in relation to key environmental aspects.

(2) Regulation (EC) No 1980/2000 provides that specific eco-label criteria are to be established according to product groups.

(3) As regards the related fees, reductions should be made as provided for by Regulation (EC) 1980/2000 and Article 5 of Commission Decision 2000/728/EC of 10 November 2000 establishing the application and annual fees of the Community eco-label.

(4) The measures provided for in this Decision are based on the draft criteria developed by the European Union Eco-labelling Board established under Article 13 of Regulation (EC) No 1980/2000.

(5) The measures provided for in this Decision are in accordance with the opinion of the Committee instituted by Article 17 of Regulation (EC) No 1980/2000,

Whereas in accordance with Article 6 of Regulation (EEC) No 880/92 the Commission has consulted the principal interest groups within a consultation forum;
Whereas the measures provided for in this Decision are in accordance with the opinion of the Committee set up pursuant to Article 7 of Regulation (EEC) No 880/92,

HAS ADOPTED THIS DECISION:

Article 1

The product group ‘televisions’ (hereinafter referred to as ‘the product group’) shall mean:
'Mains powered electronic equipment, the primary purpose and function of which is as a device that receives, decodes and displays TV transmission signals.' (Derivation of this definition is provided on page 8). Appliances that may also use other energy sources, such as batteries, are excluded.

**Article 2**

The environmental performance and the fitness for use of the product group shall be assessed by reference to the criteria set out in the Annex.

**Article 3**

The product group definition and the criteria for the product group shall be valid from the date of notification of this Decision until 1 March 2010. If, however, on 1 March 2010 a new Decision establishing the product group definition and the criteria for this product group has not yet been adopted, this period of validity shall instead end either on XXXX or on the date of adoption of the new Decision, whichever is sooner.

**Discussion:** Agreement regarding the revised proposals is anticipated during 2007. However, continued rapid technical developments are expected to continue which suggests that a 4- or 5-year lifetime for the criteria is too long; the criteria are likely to become obsolete over this timeframe. A lifetime of 2-years is impractical for the ecolabel scheme hence we recommend 3-years for the criteria lifetime.

**Article 4**

For administrative purposes the product group code number assigned to this product group shall be '022'.

**Article 5**

This Decision is addressed to the Member States.

Done at Brussels, […]

For the Commission
Margot WALLSTRÖM
Member of the Commission

**ANNEX**

**ECOLOGICAL CRITERIA FRAMEWORK**

In order to be awarded an eco-label, the product shall comply with the criteria of this Annex, which are aimed at promoting:
• reduction of environmental damage or risks related to the use of energy (global warming, acidification, depletion of non-renewable energy sources) by reducing energy consumption,
• reduction of environmental damage or risks related to the use of natural resources by encouraging the minimal use of disparate plastic materials.

Additionally, the criteria encourage the implementation of best practice (optimal environmental use) and enhance consumers’ environmental awareness.

The Competent Bodies are recommended to take into account the implementation of recognised environmental management schemes, such as EMAS or ISO 14001, when assessing applications and monitoring compliance with the criteria in this Annex (note: it is not required to implement such management schemes).

KEY CRITERIA

1 Product Group Definition

1.2 Current criterion

The current criterion defines the product group TVs as

“The product group ‘televisions’ shall comprise: ‘Mains powered electronic equipment which is designed to receive, decode and display TV transmission signals, whether analogue or digital, broadcast via satellite, cable or antenna signals and has a screen size of ten inches (25 cm) or more.’

1.3 Discussion

The first AHWG raised a number of issues regarding the product group definition. Three key points emerged:

1. Screen size
2. Broadcasting route
3. Merging of TV and computer technologies

Screen Size

Size limits were discussed at the AHWG, and although some argued that the Ecolabel should not be awarded to larger screen sizes as they generally consume more energy, the general consensus was that the Product Group definition should not exclude any televisions based on their size. It was deemed appropriate for the ecolabel to provide guidance to consumers for all TVs irrespective of screen size.

To explain this and set it in context, the current Flower criteria have a minimum size limit of 25 cm. In comparison, the Swan has no such limit, whilst the GEEA criteria set the size minimum to 20 cm. None of the labelling schemes set an upper size limit.

If an upper limit were set, the immediate question is at what point would one set the cut off, 80 cm (32”) or larger? This was deemed to be a contentious issue by the AHWG as there are commercial and institutional applications where large screen sizes are used, in hospitals and offices for example. It would be preferable to offer the label and guidance for all television products and thus drive change by allowing people to choose the more environmentally preferable option from the market place for the specific application they need.

The proposal is therefore to remove the part of the Product Group Definition that mentions screen size.

Since the AHWG however, we have received comments from stakeholders, including those from the September EU Ecolabelling Board (EUEB), that question the ecolabel’s role particularly with respect to energy consumption of televisions. Commentators are asking for some of the issues nominally ‘agreed’ at the AHWG to be reappraised – notably the ‘off switch’ and whether the ecolabel should not be awarded to large screens.
Taking a pragmatic line, we are keen to discuss these issues further with the AHWG. In terms of this discussion paper, we are proposing not to use the product definition to limit the applicability of the ecolabel. Doing so could mean that the potential for product innovation that delivers good energy efficiency for large screen sizes would not be recognised. Rather we are offering options as to how energy efficiency could be tackled within the criteria themselves. The issues and possible options (solutions) are discussed in more detail later in this document.

Broadcasting routes
Broadcasting routes were discussed at some length with some AHWG participants suggesting that the current definition is too restrictive, and might exclude new developments such as broadcasts over the internet and wireless capability. Others hinted at technology developments that the market place has yet to be exposed to. Consequently we propose to remove mention of the broadcasting route from the definition.

Another point concerned ‘merging technologies’ whereby products with different purposes are evolving to share functionality. Mobile telephones were discussed in this context. The AHWG remained keen to draw a distinction between products whose main design function was that of a TV and others that arguably have a secondary function to act as a device to receive and display TV signals.

 Provision for these AHWG comments has been made by:

1. Retaining the phrase ‘mains powered…’ thus excluding devices powered solely by batteries,
2. Retaining the phrase ‘… the primary purpose and function of which is as a device to receive, decode and display TV signals’.

The proposal is thus to alter the wording as suggested above permitting any broadcast route whilst keeping the product group limited to mains powered products.

A suggestion was made at the AHWG that the criteria for computers and TVs be combined – the two technologies are merging in some areas – for greater simplicity and harmonisation of criteria and products. There was a suggestion this would make the ecolabel more appealing to potential applicants. However, experience has shown that such products have not been a success in the market place.

We therefore suggest that this development is held in abeyance until such time that there is a clear market signal calling for such products.

| Our recommendation for the product group definition is thus as follows; | 
| "The product group ‘televisions’ shall comprise: ‘Mains powered electronic equipment, the primary purpose and function of which is as a device that receives, decodes and displays TV transmission signals.’" |

2. Energy savings

2.1 Background

From a life cycle perspective, the significant environmental impact of a television is its energy consumption in use. It is no surprise therefore that this consideration figures highly in the existing ecolabel’s requirements.

As outlined in the first discussion paper (and by the first AHWG), the original criteria were established at a time when the market was dominated by CRT technology. Today, whilst CRT still accounts for around a half of sales, new flat panel displays are becoming increasingly important to the point that by 2008, CRT will have fallen to <25% of sales whilst FPDs will account for 75%.

There is another dimension to this market dynamic whereby the typical screen size is becoming larger with a concomitant increase in energy consumption. In general terms, bigger screens consume more energy. The Table below, taken from the Interim Task Report for EuP Preparatory Study Lot 5: TV illustrates the point regarding the EU market take-up of larger screen sizes.
This poses the ecolabel with a dilemma:

1. Should criteria proposals be devised that mean the ecolabel is applicable to all products on the market, or,
2. Should such proposals discriminate on the basis of size (whether directly or indirectly via energy consumption) such that large screen TVs cannot be awarded the ecolabel?

This is not a straightforward point – there are many overlapping considerations and ancillary questions such as ‘what is the ecolabel for?’, ‘what does it represent?’, ‘what do we want to communicate to consumers?’ and ‘what consumers do we want to reach out to?’.

We would like the AHWG to discuss these points with a view to lending the revision a clear steer. The following list of pros and cons will hopefully help with the discussion.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Pro</th>
<th>Con</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecolabel should not be given to big screen TVs (say TVs &gt;60cm)</td>
<td>Provides signalling that modest screen sizes are environmentally preferable</td>
<td>May mean the ecolabel’s applicability to green public procurement (GPP) is affected.</td>
</tr>
<tr>
<td></td>
<td>Fits well with the ethos the population at large would expect of the ecolabel Might appeal to niche, green market</td>
<td>Product innovation may lead to more efficient, new-to-market technologies meaning the ecolabel misses an opportunity to support innovators Consumers are choosing larger screen sizes – the ecolabel could become obsolete appealing to a micro-niche market Impact upon linkage between EuP and the ecolabel unclear. Lesser degree of synergy anticipated The ecolabel has not adopted this ethos for other products. It does not for example, try to persuade people to buy ‘the right sized refrigerator’ for their needs</td>
</tr>
<tr>
<td>EEI remains as per existing criterion (EEI&lt;0.65)</td>
<td>Some TVs can achieve criterion Fits well with the ethos the population at large would expect of the ecolabel</td>
<td>Few large screens would comply (say &gt;70cm) Criterion would favour CRT (declining market) and small FPDs</td>
</tr>
<tr>
<td>A new EEI criterion set at higher level</td>
<td>Some larger screen TVs would meet requirement Enhances ecolabel’s relevance to GPP</td>
<td>Possible scenario of consumer seeing a large TV with ecolabel next to a small TV without – not intuitive</td>
</tr>
<tr>
<td>New requirement completely such that no TV using more than X watt can achieve ecolabel</td>
<td>Simpler message to communicate Application process simpler to work with Would reward innovators</td>
<td>Possible scenario of a consumer seeing a large TV with the ecolabel next to a small TV without it – not intuitive</td>
</tr>
</tbody>
</table>

Clearly decisions need to be taken as to how to position the ecolabel for which we welcome discussion with the AHWG. To this end we are not at this time proposing a new criterion but are offering options for consideration. These are presented in the Energy Efficiency Index section.
2.2 On-off switch

2.2.1 Current criterion

*The television (hereinafter also referred to as ‘the product’) shall have an off-switch that is placed at the front of the television and is clearly visible.*

2.2.2 Discussion

AHWG comments regarding this criterion focused on two issues:

1. That from an environmental point of view, the provision of an off switch ensures the product consumes no energy when not in use and is therefore deemed to be desirable for the ecolabel (that is assuming consumers remember to use the switch),

2. That the provision of an off switch goes against market developments.

The former point is perhaps obvious and is the reason why the requirement was developed for the ecolabel originally. However, there is now a body of evidence suggesting that the ecolabel’s continued insistence for such a requirement places the ecolabel out of step with the mass-market product. Clearly this will impact the ecolabel’s market applicability.

For some time producers have argued that the provision of an on-off switch on flat panel TVs is problematic:

1. Space for a switch was not an issue with Cathode Ray Tube technology (the screen surround tends to be larger) but the newer Flat Panel Displays (FPD) have little room for a switch,

2. That product aesthetics is an important consideration for consumers; switches and buttons etc detract from this, and

3. Arguably the more important issue is that developments with product functionality and the service this provides consumers with, means that the product needs to draw a (small) amount of energy when not being viewed.

The latter point relates to the development of new digital TV technology allowing consumers to download TV programmes when not watching the TV, for example, overnight. However to do so requires the TV to be in a passive stand-by state – whereby it can be ‘woken up’ to perform a function such as recording a programme. The AHWG heard that this might typically involve a power consumption of 200 to 300 mW. It is not possible for a TV to offer this functionality if it is switched off such that its energy consumption is zero.

The practicalities of a potential solution have been discussed with manufacturers; could a TV display a message, when put into stand-by mode, encouraging consumers to unplug the appliance? Those manufacturers we have spoken with are keen to reduce energy consumption but are not keen on this idea. They stated that it would require another switch to activate the message, and considered it was likely to irritate consumers. Broadly speaking manufacturers are keen to minimise the number of switches on TVs for reasons of reliability.

Trying to set a trend that goes counter to market developments is not a healthy approach for the ecolabel; it will simply mean that the ecolabel is ignored and perhaps worse, it might gain a reputation for being irrelevant. This in itself is unhelpful at a time when the EUEB and others are looking to use the ecolabel to inform public procurement specifications etc.

As some AHWG members concluded, a better option for the Ecolabel is to set a low stand-by energy consumption criterion in the sense that this option is more robust to consumer behaviour. The provision of an on-off switch does not mean that consumers will actually use it whereas a low stand-by energy consumption is impervious to consumer behaviour.

(Note: At the time of writing further information has come to light that provides more information regarding the on-off switch debate. It is digitally enabled TVs – ones that contain a digital tuner – that are constructed without an on-
off switch. It is the digital tuner that draws a small amount of power. Such digital TVs are selling in large volumes (perhaps as high as 80% of sales in the UK for example) their attraction being that consumers do not have to purchase a separate digital tuner. Analogue TVs are thus expected to retain on-off switches. This being the case, an option for the ecolabel for discussion at the AHWG, would be to retain the requirement for an on-off switch for analogue TVs).

<table>
<thead>
<tr>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We propose the existing requirement is retained for analogue TVs.</td>
</tr>
</tbody>
</table>

2.3 Passive Standby

2.3.1 Current criterion

*The passive stand-by consumption of the television shall be \( \leq 1.0 \text{ watt.} \)*

2.3.2 Discussion

As mentioned in earlier sections, the AHWG is keen for the ecolabel to consider the case for tightening up the stand-by energy requirement. To help in this regard, we have acquired datasets for a sample of some 90 TVs.

Figure 1 below shows the variation in stand-by energy consumption, by screen display type, of the tested products. What is noticeable is that the proportion of CRT TVs achieving \( \leq 1W \) is very much lower (22%) than that for plasma (62%) and LCD displays (43%). At first sight this appears to suggest there is scope for modifying the existing requirement.

---

**Figure 1: Passive Standby Power By TV Technology**
Delving a little deeper into the dataset what we find is that there is just one product with a stand-by consumption <0.5W (ironically a CRT). All plasma TVs and all but two LCDs have stand-by energy consumption >0.6W – in other words the measured data are compressed into the range 0.6<X<1.0 watts.

The consequence for the ecolabel is that setting a limit ≤0.6W is impractical. On the basis of the dataset we have, this one criterion alone would exclude nearly 99% of TVs (put another way, only 1% of TVs would comply with such a requirement). The impact for the ecolabel in terms of its attractiveness to potential applicants is obvious – there would be very few. Further there are concerns regarding power management systems the operation of which is reliant on interaction between products to achieve power down to stand-by functionality. Setting stand-by at too low a level will interfere with this functionality and the ability of products to power down.

The table below shows the percentage of products in our sample with passive stand-by consumption of ≤0.7, ≤0.8 and ≤0.9 W.

<table>
<thead>
<tr>
<th>Screen Type</th>
<th>≤0.7</th>
<th>≤0.8</th>
<th>≤0.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT</td>
<td>9%</td>
<td>12%</td>
<td>15%</td>
</tr>
<tr>
<td>PDP</td>
<td>25%</td>
<td>49%</td>
<td>63%</td>
</tr>
<tr>
<td>LCD</td>
<td>9%</td>
<td>32%</td>
<td>44%</td>
</tr>
</tbody>
</table>

Clearly a balance needs to be struck between the AHWG’s desire to set a stricter limit and the practicality of achieving it. Further there are other criteria that need to be satisfied, notably the Energy Efficiency criterion, which in combination will further limit the numbers of products that can satisfy the set of requirements.

On this basis we suggest there is scope for modifying the existing requirement and that a new limit of ≤0.8W strikes a good balance. The limit would be met by 12% of CRTs, 49% of plasma and 32% of LCDs. The proposed limit goes beyond EICTA’s (the TV industry body) one watt voluntary agreement to be achieved by the end of 2007. It is interesting to note too that not all companies offer for sale products achieving this requirement. For the dataset we have, fewer that half of the 12 companies represented offer compliant products. This may change in time of course.

Our recommendation is thus as follows;

“The passive stand-by consumption of the television shall be ≤0.8 watt”.

### 2.4 Active Standby

#### 2.4.1 Current Criterion

_For televisions which have an integrated digital receiver/decoder (IRD), the active stand-by consumption of the television shall be ≤9.0 watts._

#### 2.4.2 Discussion

Active stand-by mode is where a TV is connected to a power source and is exchanging/receiving data with/from an external source whilst producing neither sound nor vision.

In comparison to daily on-mode energy consumption, the energy consumed in active standby mode is much less. The table and graph below, based on certain assumptions regarding a consumer’s operation of a TV, illustrates this point.
1 Assumption 1. Annual energy consumption has been calculated assuming TV is in active standby mode for
0.17 hours (ten minutes) per day, in passive standby mode for 19.83 hours per day and in the on-mode for 4
hours per day.

2 Assumption 2. Annual energy consumption has been calculated assuming TV is in active standby mode for
2 hours per day, in passive standby mode for 18 hours per day and in the on-mode for 4 hours per day.

So, even assuming a TV is in active stand-by mode for 2 hours/day (the AHWG heard the reality is more likely to be
several minutes a day) active stand-by for an ecolabelled TV comprises a small fraction of the TV’s energy
consumption.

The AHWG had various views about the limit active stand-by should be set at. Some thought a lower limit is
appropriate others thought a higher limit to reflect the requirements of new technology and service provision. We
have uncovered little information to inform the debate one way or the other – it was not a measurement parameter
captured in the dataset we have.

Table 1: 32 inch (ca. 80cm) LCD TV energy consumption using data for a typical
LCD TV.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Energy Consumption W</th>
<th>Annual Energy Consumption in kWh using assumption 1</th>
<th>%</th>
<th>Annual Energy Consumption in kWh using assumption 2</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive</td>
<td>0.8</td>
<td>5.8</td>
<td>2.5%</td>
<td>5.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Active</td>
<td>9</td>
<td>0.6</td>
<td>0.3</td>
<td>6.6</td>
<td>2.7</td>
</tr>
<tr>
<td>On</td>
<td>156</td>
<td>228</td>
<td>97.3</td>
<td>228</td>
<td>95.0</td>
</tr>
<tr>
<td>Total</td>
<td>234</td>
<td>100</td>
<td>100</td>
<td>240</td>
<td>100</td>
</tr>
</tbody>
</table>

In 2005, GEEA set new requirements for active stand-by (i.e. for TVs with an integrated digital receiver) dependent
upon whether the TV receives digital signal from terrestrial, cable or satellite connection (see Appendix 1). Rather
than retain the ecolabel’s existing requirement we suggest adopting GEEA’s limits. We welcome stakeholder views
on this.

We have been asked if and how this requirement would be applicable to internet-connected TVs. In the absence of
any test data for such products such that we could devise a separate requirement, we propose that the requirement is
applicable to internet TVs too. In other words, so long as the internet TV can achieve ≤9W, it would satisfy the
requirement.

Our recommendation is thus as follows:

To adopt the limits devised by GEEA:

“For televisions that have an integrated digital receiver/decoder (IRD), the active stand-by consumption of the
television shall be:

- Terrestrial connected TV ≤ 8W
- Cable connected TV ≤ 7W
- Satellite connected TV ≤ 9W”.

Assessment: the producer shall declare compliance with this requirement.
2.5 Energy Efficiency Index EEI

2.5.1 General Remarks

Issues regarding the applicability of the existing EEI formula (see below) to screen types other than CRT were discussed by the AHWG. Strictly speaking, the formula was devised for use with CRTs and not FPDs. This is something the industry has been looking at with a view to devising and agreeing a new formula. Our understanding is that the new version has been agreed, however, there remains an issue with the test standard (IEC62087) that requires further development work. Sources suggest the revised test method will be available for early Summer 2007, will better reflect actual TV use and be more representative of FPD performance.

2.5.2 Current Criterion for the EEI for CRT TVs

The television shall have an on-mode energy efficiency index \( EEI_{on} \) which is lower than 65% of the base-case consumption for a television of that format. The on-mode energy efficiency index \( EEI_{on} \) shall be derived from the equation:

\[
EEI_{on} = \frac{P_{on}}{P_{on, bc}}
\]

where:

\( P_{on} \) is the measured energy consumption of the television in the on mode;
\( P_{on, bc} \) is the base-case energy consumption of the television in the on mode. This is calculated using the following formula:

\[
P_{on, bc} = 16 + 16 \times idd + \frac{0.75 \times \text{format} \times \text{scrnsize} + \text{digit} \times 33 + 0.38 \times \text{scrnarea}}{0.825}
\]

where:

— **digit** is equal to 1 if the television has digital processing for picture scanning, 0 if it does not have such processing,
— **format** is equal to 0.80 for a standard screen (4:3 aspect ratio), and 0.87 for a wide screen (16:9 aspect ratio),
— **screen size** is the screen diagonal in cm,
— **screen area** is the area of the screen in dm\(^2\), i.e. it is equal to screen size \( \times \) screen size \( \times 0.48/100 \) for a standard screen (4:3 aspect ratio), and screen size \( \times \) screen size \( \times 0.427/100 \) for a wide screen (16:9 aspect ratio),
— **idd** is equal to 1 if the TV has an integrated digital decoder for digital broadcast signals, otherwise it is equal to 0.

2.5.3 Market Developments

The ‘Development of the EU Ecolabel criteria for televisions’ report outlines the development of the EEI requirement. It states that in 2002 over 20% of some types of televisions could meet an energy efficiency index of <75%. Feedback from consultation asked for a stricter requirement. Investigation suggested that a 55% requirement would be too strict – the new range of wide screen TVs that was becoming increasingly popular with consumers, would be unable to meet such a challenging target. There was also a concern that the new flat panel displays (plasma and LCD) would not satisfy the criterion too. However, there was little data available to draw firm conclusions and at that time. Because CRT was the market dominant technology and predicted to be such for the immediate future,
the view was taken that the 65% EEI should apply to all TVs whilst a body of evidence could be built up regarding FPDs. Ultimately a compromise was agreed by the AHWG and EUEB between the upper and lower values – 65% was chosen as the EEI for all TV display types.

Since 2002 however, the TV market has changed significantly. There has been a reduction in CRT TV sales matched by an increase in FPDs. According to industry contacts the sales of the new FPD TV types is exceeding their predictions. The 2005 market share was as follows:

1. CRT TVs 74%,
2. LCD TVs 22%,
3. PDP TVs 4%.

The attraction of LCD and PDP TVs over CRT is that they allow larger screen sizes to be used without the product becoming bulky as is the case with CRT. However, in general terms, flat panel displays, for a given screen size, have a higher energy consumption than their CRT equivalent. Considering the fact that FPD TVs are supplanting CRT in the market place (see Section 2.1), it is appropriate to ask whether a different EEI requirement should be set for them. This is not a question we feel able to answer at the present time. We need to consult with stakeholders and will raise the point with the AHWG.

To help stimulate discussion we are putting forward three options. We welcome feedback regarding these. One option is based on the EEI parameter, the others refer to on-mode energy consumption (watts consumed). Please note as in the Stop-Press paragraph, the data discussed below may need to be updated in the weeks ahead if and when a more up to date dataset becomes available. Consequently the draft proposals suggested here are illustrative. We hope to be able to present an updated analysis at the November AHWG meeting.

2.5.4 On-Mode Energy Consumption

**Option 1 – New EEI Requirement for FPDs**

This option retains the existing requirement for CRT TVs but develops a new requirement for FPDs. Figure 2 shows the relationship between screen size and EEI for non-CRT TVs. In general terms, the EEI increases with screen size. The data suggests that achieving a low EEI is possible for flat panel displays for small screen sizes up to say 50cm (20”). For larger screen sizes, the products that consumers are buying in greater numbers, the data suggests achieving a low EEI is, at best, extremely difficult. This is shown more clearly in Figure 3 where it is observable that the best 80+cm TVs (32”+) achieve EEIs of 0.77 (LCD) and 0.96 (PDP) – both well above the existing ecolabel requirement of 0.65.
If the ecolabel were to set the same requirement for FPDs as for CRTs, the consequence is that few if any, large screen (80+cm) TVs would meet the requirement. Thus the ecolabel would be limiting potential applications to those for small screens (say <50cm).

There also appears to be an influence of TV technology type upon the achievable EEI. Figure 3 below is a plot of the number of FPD products in specific EEI bands. Note that the sample used to derive the chart is a sub-set of that illustrated in Figure 2. For the purpose of drawing meaningful comparisons it shows data for products >81cm (32”) screen size only – reflecting the fact that there are no PDP TVs in the sample <81cm (32”). In broad terms PDP TVs tend to have higher EEI values than similar sized LCD TVs.

Figure 2: EEI distribution by screen size for FPDs
If the ecolabel is to be applicable to larger screen sizes it will not help to set the same limit for FPDs as for CRTs; a slightly higher limit is appropriate. If this approach is not taken, the ecolabel will have its market appeal limited to CRTs and small screen FPDs. Clearly though, a limit needs to be set that is commensurate with the ecolabel’s ethos of rewarding good environmental practice. Ideally it should avoid discrimination based on product size (as the first AHWG discussed and agreed).

This is particularly relevant in light of the Ecodesign of Energy Using Products Directive (EuP). EuP says that products meeting the ecolabel’s requirements will be deemed compliant with those of EuP. If the ecolabel does not set requirements applicable to large screen FPD TVs then this route to proving compliance with EuP will be lost. Further public procurers, such as hospitals and schools, will lack the guidance the ecolabel could afford them when selecting products with good performance.

We suggest that different requirements need to be set for ‘small’ and ‘large’ screen FPDs.

An EEI requirement of <0.65 for FPD screens ≤76cm (30”) is evidently achievable. For the data sample we have, half of the products comply with this requirement although it should be stressed that this limit is very challenging for products >50cm (20”). Considering screens >76cm (30”) an EEI requirement of 0.85 would be very strict in the sense that none of the PDPs in the data sample meet the requirement and less than half of LCDs can comply.

Our recommendation is thus in two parts for non-CRT TVs (FPDs) as follows:
a) “Non-CRT televisions with screen size ≤76cm, including LCD and PDP types, shall have an on-mode energy efficiency index (EEI_{on}) that is lower than 65% of the base-case consumption for a television of that format”.
b) “Non-CRT televisions with screen size >76cm, including LCD and PDP types, shall have an on-mode energy efficiency index (EEI_{on}) that is lower than 85% of the base-case consumption for a television of that format”.

Assessment and verification: the applicant shall provide a test report stating that the level of power consumption in each of these modes have been measured using the procedures shown in EN 50301 (methods of measurement on receivers for TV broadcast transmission). The report shall state the measured power consumption in each mode, the calculated base-case on-mode consumption, and the calculated percentage of base-case consumption in the on-mode.
**Option 2: Energy Consumption Limit Applicable to all TV Types**

This option is very simple. It relies neither to screen technology or size for its application. Any television with an on-mode energy consumption greater than X watts would not be able to obtain the ecolabel. The question is 'at what level should X be set?'.

![Diagram showing sample data for CRT, LCD, and Plasma TVs.](image)

The diagram below shows our sample data. As an illustration, if the level is chosen such that only 30% of the television sample can comply, the level would need to be set at 60 watts (represented by the horizontal line). Please note that the dataset includes a number TVs with the same screen size and very similar energy consumptions. Consequently a number of the data points are in effect hidden – where two or more points coincide, they appear as a single point.

In practical terms a 60W limit will restrict the ecolabel to small CRT and LCD screens (<58cm/23”). Medium sized and larger products, particularly PDP screens, are not able to comply. To illustrate this point, the data we have shows the lowest consumption level for a PDP to be in excess of 300W.

If the limit were set such that 40% of TVs could attain the requirement, the limit would be set at <80W. The effect of this change compared to the 30% scenario is that some medium (<81cm/32”) CRT TVs can comply. The limit remains too strict for medium and large LCD and PDP.

If 50% of TVs were able to meet the requirement, the power limit would need to be set at <90W. The profile is as above – it remains too strict for medium and large screen LCD and PDP. Its applicability would be limited to small screen CRT and LCD with a few medium size CRT being able to achieve the limit value.

Clearly a limit set against a simple consideration of on-mode power consumption, when applied in conjunction with the classic ecolabel approach to market coverage, is extremely limiting. The following two options develop the idea further but give due consideration to screen size in doing so.
**Option 3: Energy Consumption Limits set in Respect of TV Size**

This option is a development of Option 2 above. In essence, any television within a given size range would have the same chance of meeting the energy consumption requirement as in any other size range.

Three ranges are defined: small (<56cm/22"), medium (<77cm/30") and large (>77cm/30"). Using the dataset we have, the energy requirement is set such that 30% of televisions in each of the three categories comply. The diagram below illustrates the application of the method.

![Diagram illustrating energy consumption limits for different TV sizes](image)

The horizontal lines indicate the 30% cut-off for each category – in other words it represents the energy consumption value attained by 30% of small, medium and large screen TVs. The limits are 35, 85 and 112 watts respectively – these limits can be met by CRT technology and small screen LCDs. Medium and large LCD and PDP are unable to qualify at this level. Indeed to capture some LCD and PDP TVs, the limit value would need to be nearer 110W for medium-size LCD (130W for large screen) and >300W for large screen PDP (there are no medium sized PDP in our sample).

**Summary**

There is a very noticeable difference in the energy consumption performance of the different TV technologies. The consequence of the ecolabel treating these different technologies similarly is that the lower consumption achieved by CRT will steer the ecolabel towards CRT. At anything above small screen sizes, setting requirements that do not differentiate between technologies will mean that LCD and in particular PDP, will find it very difficult to meet ecolabel requirements.

The AHWG needs to consider this. Do we want to ecolabel the new generation of products consumers are purchasing in increasing numbers? Or perhaps the AHWG thinks doing so is counter to the ecolabel’s ethos?

If we do wish to ecolabel other technologies, then we need to consider setting requirements more in line with Option 1 than Options 2 and 3.
2.5.5 New Criterion – Mercury Content of Fluorescent Lamps

**Developments**

To illuminate the screen of a LCD TV, an internal light source is required. Typically, compact fluorescent lamps (CFLs) are used in this role. They are eminently suitable; as well as having good lighting properties (colour rendition etc) CFLs can be made in such a way that they do not affect a TV design’s dimensions.

CFLs are not without disadvantages however. Their operation relies on a small dose of mercury to maintain the plasma discharge. Typically the dose is measurable in milli-grams (mg).

Those involved in lighting technology discussions, will know that there has been talk for some years now whether a mercury-free technology will become available combining good lighting performance, with good energy efficiency. Various options have been identified including mercury-free CFLs and light emitting diodes (LEDs).

To date the issue with mercury-free CFLs is that the prototype technology under test has twice the energy consumption of a mercury containing equivalent. In life cycle terms, such a lighting technology requires further development before it can be considered an advance.

The area where there have been developments is with LED technology. As recently as September 2006, Samsung launched a new LCD TV lit by LEDs. The 100cm (40") TV won the "Innovation Award" from the EISA (European Image and Sound Association). We have few details regarding the product. Indications are though that this is an expensive product (circa 4500 euros) – in other words a ‘high-end’ product. Sources suggest that the LED illuminated TV has a higher energy consumption (by as much as 40%) than a similar sized CFL illuminated TV. In other words there is a trade off between mercury and energy efficiency. One would hope that in the years ahead LEDs with improved lighting efficacy will come to the market.

It seems reasonable to anticipate that other producers will be offering LED illuminated LCD TVs in the future. Quite what the market penetration will be during the lifetime of the proposed criteria is unclear, so there is a risk in setting a ‘no mercury’ requirement:

1. there may be very few products available so the ecolabel’s applicability may be limited to a handful of mercury-free TVs
2. that this new technology is likely to be applicable to high-end products alone in the first few years (i.e large screen sizes >70cm say). In other words this new technology may not find its way into the more energy efficient, small screen TVs for the next couple of years.
3. that the trade off of mercury against higher energy consumption is not justified for the ecolabel.

We anticipate the AHWG will be able to provide further information and some advice regarding the market situation.

**A Practical Way Forward**

It may be that establishing a mercury-free requirement for the present revision is a step too far – the products have not quite achieved the market penetration needed for the ecolabel. If that’s the case it is appropriate to consider setting an upper limit to the amount of mercury used in CFLs.

Other EU ecolabelled product groups set limiting values for the use of mercury in fluorescent lamps. Examples are Portable Computers (3mg) and Lamps (between 4 and 8mg depending on lamp type and lifetime).

The computer criteria established 3mg in the knowledge that this was a challenging limiting value. If this value were any more strict, it would unfavourably impact lamp lifetime; in other words there would be counterbalancing, negative life cycle impacts.

It has been suggested that a limit of 3mg per lamp could be adopted for the TV Ecolabel. However our consultation has cast doubt regarding the achievability of such a limit value and its desirability in terms of a product ‘quality’. Limiting mercury to such an extent could result in early product failure. TVs are longer lived products than computers; a higher mercury content is warranted to ensure good life time and performance.
However, we recognise ecolabel stakeholders view mercury reduction as important. In this regard, RoHS sets an upper limit of 5mg of mercury for compact fluorescent lamps, so there is little point in the Ecolabel repeating a legal necessity by setting the same limit value. To strike a balance between setting a limit that is stricter than RoHS, but to avoid adopting a value that is so strict that few products would be able to achieve the criterion, we propose a limit of 4.5mg.

**Our recommendation is thus as follows:**

A new criterion should be introduced requiring:
A limit of 4.5 mg mercury on average per lamp.

*Assessment and verification:* the applicant and/or his supplier shall declare compliance of the product with these requirements. The applicant shall provide to the competent body assessing the application a statement of the lamp’s mercury content.

---

**3. Lifetime extension**

**3.1 Current criterion**

*The manufacturer shall offer a commercial guarantee to ensure that the television will function for at least two years. This guarantee shall be valid from the date of delivery to the customer.*

*The availability of compatible electronic replacement parts shall be guaranteed for 7 years from the time that production ceases.*

**3.2 Discussion**

We suggest retaining the criterion as is welcoming views regarding this.

**Our suggestion is thus that the criterion is reworded as follows:**

*The manufacturer shall offer a commercial guarantee to ensure that the television will function for at least two years. This guarantee shall be valid from the date of delivery to the customer.*

*The availability of compatible electronic replacement parts shall be guaranteed for 7 years from the time that production ceases.*

*Assessment and verification:* the applicant shall declare compliance of the product with these requirements.

---

**4. Take-back and recycling**

**4.1 Current criterion**

*The manufacturer shall offer, free of charge, the take-back for recycling of the product, and for any component being replaced, except for items contaminated by users.*

A number of AHWG participants pointed out that the WEEE Directive requirements have now superceded the ecolabel’s requirement for free take back. Most producers have made contractual arrangements to comply with the WEEE Directive so there is little point in the ecolabel requiring a different management operation.

**Our suggestion is thus as follows:**

*The requirement to offer a free-of-charge take-back can be deleted.*

Participants at the first AHWG meeting 17 May will recall there was much discussion regarding the relevance of other aspects of this criterion to product design and product end-of-life waste management. Similar concerns were
expressed regarding the Ecolabel’s requirements for labels and flame retardants (see later). The following notes discuss these points and suggest specific amendments to the criteria. Suggestions are made to withdraw a number of the sub-criteria as befitting the aim of streamlining the criteria document.

4.2 Disassembly

4.2.1 Current criterion

The manufacturer shall check the disassembly of the system unit and provide a disassembly report that shall be made available to third parties on request. Amongst others, the report shall confirm that connections are:
— easy to find and accessible,
— as standardised as possible,
— accessible with commonly available tools;

1) 4.2.2 Discussion

In broad terms, consumer electronic products are not disassembled for the simple reason that EU recycling operations are not configured to dismantle products into component parts. The general approach is to crush products and separate the materials using a mix of physical processes including magnetic fields and air blowers.

Market forces oppose dismantling; costs are high and there is little demand for the separated components. Allied to producer concern regarding the functioning and safety of parts from old TVs for reuse, there is little opportunity for the Ecolabel to secure environmental improvement via this mechanism.

The AHWG in general agreed the Ecolabel ought to be realistic and put its drive into other aspects where it can make a difference. Providing information to consumers as to how they can reduce the energy consumption of their TV, thus saving themselves money on running costs, was one area highlighted as desirable.

Our suggestion is thus;
We suggest the criterion regarding disassembly is deleted.

4.3 Incompatible and Hazardous Materials

1) 4.3.1 Current criterion

‘incompatible and hazardous materials shall be separable’.

1) 4.3.2 Discussion

Few AHWG participants were clear what ‘incompatible’ meant in this context. The discussions indeed suggested that different people interpreted the requirement differently – a message that was of concern to some who could see the complications for the Ecolabel (and applicants) if Competent Bodies apply the criterion in different ways.

Being pragmatic, the AHWG was minded that the requirement could be deleted. We propose to follow the AHWG’s lead.

Our suggestion is thus;
We propose the criterion regarding incompatible and hazardous materials is deleted.

4.4 Recyclability

1) 4.4.1 Current criterion

90% (by volume) of plastic and metal materials in the housing and chassis shall be technically recyclable;
4.4.2 Discussion
The present requirements relate to the technical recyclability of plastic parts and the glass in cathode ray tubes.

The AHWG was unsure how to interpret the phrase ‘technically recyclable’; how ought it to be applied, how should an applicant prove compliance and how can it be measured?

It was argued that in broad terms, all materials can be recycled - the point though is that market dynamics do not facilitate such practice. As an AHWG participant candidly pointed out, if the price paid for recyclates increased, then the materials would be recycled. Further, the Waste Electrical and Electronic Equipment Directive (WEEE) requires TVs to be recycled or recovered to a high degree (65% and 75% respectively). The issue is arguably well covered by existing legislative requirements.

There are implementation issues with the existing requirement that is in essence, aspirational in its intent. We suggest the criterion is deleted.

Our recommendation is thus:
We propose the criterion regarding recyclability is deleted.

4.3 Labels

4.3.1 Current criterion
*If labels are required, they shall be easily separable or inherent.*

4.3.2 Discussion
Current waste management practice is such that labels are not removed from products before they are recycled. Therefore a requirement for labels to be inherently separable was deemed by the AHWG to be inappropriate. The alternative requirement, for labels where used, to be inherent, was considered unnecessary. Hence we suggest the criterion can be withdrawn.

Our suggestion is thus:
We suggest the criterion regarding labels is deleted.

4.4 Plastic Parts

4.4.1 Current criterion
*Plastic parts shall:*
— have no lead or cadmium intentionally added;
— be of one polymer or compatible polymers, except for the cover, which shall consist of no more than two types of polymers which are separable;
— contain no metal inlays that cannot be separated.

4.4.2 Discussion
The existing criterion is in three parts each having been discussed by the AHWG:
1. The AHWG asked for the requirement regarding the addition of lead and cadmium to be withdrawn on the basis that it is a Restriction of Hazardous Substances Directive (RoHS) requirement already. The Ecolabel need not repeat an existing legislative requirements.
2. The requirement regarding compatible polymers was considered by the AHWG to remain relevant. Hence we propose to retain it.
3. The requirement regarding metal inlays was considered by the AHWG to remain relevant. Hence we propose to retain it.
A suggestion that a requirement for plastics not to be painted was not accepted by the AHWG. It was argued that unlike a number of other consumer electronic products, TVs are in essence pieces of furniture purchased not only for their functionality but also their aesthetic appeal. Further, a producer remarked that forbidding painted plastic would work against any initiative producers may adopt to use recycled plastic, where paint would be an appropriate method for achieving a high quality finish on potentially low quality materials. Hence we do not intend to introduce a new requirement.

Our recommendation is thus as follows;
The sub-criterion referring to cadmium and lead can be deleted.

The other two sub-criteria should be retained:

“Plastic parts shall:
— be of one polymer or compatible polymers, except for the cover, which shall consist of no more than two types of polymers which are separable;
— contain no metal inlays that cannot be separated.”

4.5 Plastic Parts

4.5.1 Current criterion
Plastic parts heavier than 25 grams shall:
— not contain the following flame retardants:

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No</th>
</tr>
</thead>
<tbody>
<tr>
<td>decabromodiphenyl</td>
<td>13654-09-6</td>
</tr>
<tr>
<td>monobromodiphenyl ether</td>
<td>101-55-3</td>
</tr>
<tr>
<td>dibromodiphenyl ether</td>
<td>2050-47-7</td>
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<tr>
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<tr>
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<tr>
<td>octabromodiphenyl ether</td>
<td>32536-52-0</td>
</tr>
<tr>
<td>nonabromodiphenyl ether</td>
<td>63936-56-1</td>
</tr>
<tr>
<td>decabromodiphenyl ether</td>
<td>1163-19-5</td>
</tr>
<tr>
<td>chloroparaffins with chain length 10-13 C atoms, chlorine content &gt; 50 % by weight</td>
<td>85535-84-8</td>
</tr>
</tbody>
</table>

— not contain flame retardant substances or preparations containing substances, that are assigned or may be assigned, at the time of application, any of the risk phrases R45 (may cause cancer), R46 (may cause heritable genetic damage), R50 (very toxic to aquatic organisms), R51 (toxic to aquatic organisms), R52 (harmful to aquatic organisms), R53 (may cause long-term adverse effects in the aquatic environment), R60 (may impair fertility) or R61 (may cause harm to the unborn child), as defined in Council Directive 67/548/EEC of 27 June 1967 on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (1) and its subsequent amendments

— have a permanent marking identifying the material, in conformity with ISO 11469. Excluded from this criterion are extruded plastic materials and the light-guide of flat panel displays.

4.5.2 Discussion
Much has been written about FRs in connection with Ecolabel criteria studies. It has attracted considerable debate with the views expressed ranging from those who believe the ecolabel should act to protect the environment from alleged harmful substances to those who say that the fire safety afforded to consumers by FRs is as important.

The roots of the ecolabel’s FR criterion stretch back to a time predating RoHS. In short, the ecolabel was acting ahead of legislation. With RoHS now reflecting the formal risk assessment results of certain brominated FRs, it is questionable whether the ecolabel should continue to state a legislative requirement.

Added to this is the uncertainty associated with working with the Risk Phrase sub-criterion. Given that so few chemicals have been tested, stating a restriction on the use of certain R-Phrases begs the question as to how an applicant can prove compliance. The AHWG heard that this is particularly problematic with respect to plastic/FR mixes imported into the EU.

On balance, it is not clear that the Ecolabel’s inclusion of FR criteria is actually driving a benefit; potentially it could be deleted. As noted at the AHWG, the Commission’s ecolabel unit is looking to organise a workshop to discuss FR issues in the ecolabel scheme per se. It is hoped that such a meeting will form consensus as to how the ecolabel scheme should handle FRs across all product groups taking account of environmental issues as well as consumer fire safety and the practicalities of working with the requirements.

The final sub-criterion for plastic parts regards the marking of such parts in accordance with ISO 11469. This criterion like many of the others for plastic parts, is copied over from other ecolabel product groups. Its intention is to provide those persons dismantling a TV with a means of identifying plastic types thus providing an aid to materials sorting and recycling.

However, as stated earlier, the reality of product end-of-life treatment across the EU is that dismantling into component parts is a rare practice. For this reason it does not make sense for the ecolabel to require producers to undertake an action that will have little if any benefit in reality. Consequently we suggest the criterion is deleted.

Our suggestion is thus;
We suggest that the sub-criteria regarding flame retardants (both named materials and those with certain risk phrases) and marking of plastic parts should be deleted.

In summary, following the AHWG discussions and key points raised, much of the Take Back and Recycling criterion could be deleted without detriment to the ecolabel’s intended purpose. The remaining sub-criterion regarding plastic parts being made of compatible materials and metal-inlays, warrants a change of title to simply ‘Plastic Parts’.

The criterion’s title should be changed to ‘Plastic Parts’ for which the criterion is:

Plastic parts shall:
— be of one polymer or compatible polymers, except for the cover, which shall consist of no more than two types of polymers which are separable;
— contain no metal inlays that cannot be separated.”

Assessment and verification:
‘the applicant and/or his supplier(s) shall declare the compliance of the product with these requirements’.

Note: Perhaps ‘compatible’ could be replaced with ‘polymers with similar physical-chemical properties’ to make the meaning clearer.
5 User Instructions

5.1 Current criterion

The product shall be sold with relevant user information, which provides advice on its proper environmental use and, in particular:

(a) information that the television should be switched off using the off-switch on the television if it will not be watched for some time, as this will reduce energy consumption;
(b) information that the product consumes electricity during stand-by, and how this could be minimised;
(c) information that the energy consumed during use can be significantly reduced if the level of brightness of the picture is reduced, and that this will reduce the overall running cost;
(d) information on the guarantee and the availability of spare parts;
(e) information about the fact that the product has been designed to enable proper recycling and should not be thrown away;
(f) advice on how the consumer can make use of the manufacturer's take-back offer;
(g) information that the product has been awarded the flower (the EU eco-label) with a brief explanation as to what this means together with an indication that more information on the ecolabel can be found at the web-site address: http://europa.eu.int/comm/environment/ecolabel.

5.2 Discussion

This was an area the AHWG thought the ecolabel should focus upon – providing consumers with appropriate information such that they use their TV in an energy efficient manner. Broad agreement was expressed for the idea that there is untapped potential to achieve improvement through the information the ecolabel can provide to consumers via the user manual.

There was a consensus at the AHWG that information on power consumption and environmental issues should be more visible. What information exists in user manuals tends to be in a number of different places and not easy to find and therefore is unlikely to inform consumer behaviour.

Caution was expressed however, that manufacturers do not want to produce large amounts of text; user manuals are already very large and printed in several languages. As with other aspects of the ecolabel, a balance needs to be struck.

Advice was given too that the ecolabel ought to reflect new legislative requirements and that developments in this regard have superseded some of the ecolabel’s requirements. For example, take-back for recycling/recovery is provided for via the WEEE Directive; the ecolabel should reference to this. The ecolabel ought therefore to highlight the key environmental issues concisely for consumers in an accessible, easy to understand manner.

There was a question as to how to provide a persuasive argument to consumers: could energy savings, for example, those attributable to turning a TV off, be presented in terms of money savings? In this regard, experience of the UK Envirowise programme suggests that people and organisations respond more positively to the ‘do this and it saves energy’. Whilst this idea was attractive to some AHWG members, others saw problems in that the money savings information would depend on local tariffs. These can vary even within a Member State depending on the energy provider and vary in time with market fluctuations. An alternative would be to use a European average but not everyone was content with this idea.

To put this discussion into context, the EICTA Industry Self-Commitment to improve the energy performance of Household consumer electronic products sold in the European Union, 2005, requires a similar level of information for the products that its members put on the market:

“For all new models introduced after the 1st of June 2004 manufacturers will provide information on the power consumption of the equipment in the ON, standby modes and an estimated annual energy consumption (kWh) to potential purchasers on, or alongside, the product at the point of sale.”
Subsequent to the AHWG meeting, we have contacted manufacturers and researched existing on-line user manuals to explore further the questions:

1. What environmental information is currently provided in user manuals?
2. Where is environmental information to be found in user manuals?
3. How can the information be displayed?

In answer to the first two questions we found that environmental information is often present but may be dispersed throughout a manual. Generally such information may appear under four topic headings:

1. Safety information, e.g. when not in use disconnect the TV from the mains
2. Correct disposal of old TVs, e.g. advice as required via WEEE Directive
3. Use / recommendations for use, e.g. batteries and their correct disposal, energy saving features of the set.
4. Product technical specifications, e.g. power consumption in the ON and passive standby modes

There are examples of user manuals that do pull the information together in a condensed manner, e.g.

1. Sharp’s ecolabelled TV has a one-page sheet with environmental information.
2. Philips’s manual includes a section on recycling of packaging, battery and TV disposal plus information and advice on energy efficiency.

In general terms producers were in favour of bringing all environmental information together into a single section of a manual.

In response to the third question, ‘how can information be displayed?’, respondents were generally not in favour of the idea of a scrolled message on a TV’s screen to encourage people to reduce energy use; they felt consumers would find it irritating.

Another approach would be to require an information label to be visible on the front of a TV. One firm that does use a label on their product is Philips. The label displays on mode and standby (off) mode power as well as energy consumption over a two year period.

Based on this feedback our suggestion is to have environmental information located in a page or two in the manual. References to more detailed information elsewhere in the manual or on the producer’s website could also be provided. The information would include;

1. Information regarding power consumption in the various operating modes (in Watts for the on-mode, passive standby etc) and an average annual energy consumption following EICTA guidelines of a duty cycle of 20 hours in standby and 4 hours in the on mode.
2. How to reduce energy use by being energy efficient, turning the set off or unplugging it when not in use, turning the brightness level down to suit the ambient conditions, etc.
3. Reducing electricity use reduces operating costs to the consumer
4. Repair information, end-of-life instructions for proper disposal of TVs at civic amenity sites or via the retailer (take-back).

The criterion would be worded to allow producers the flexibility to communicate the information in the manner they consider most suitable for consumers. We have created an example of how the User Information could be presented below. We welcome stakeholder comments regarding this.

Our recommendation is thus as follows:

“The television shall be sold with relevant user information that provides advice on its proper environmental use. The information will be located in an easy-to-find place in the user instructions as well as on the manufacturer’s website. The information will include but not be limited to:

a) The television’s power consumption information in the various modes, on, passive standby and active standby as appropriate
b) Average annual energy consumption, following EICTA guidelines.
c) How to reduce power consumption when the set is not being watched by being energy efficient, covering at least:
   i) By using the on/off-switch on an analogue TV energy use will be reduced to zero
ii) Other TVs should be put in their lowest standby mode to reduce energy use, but that they still draw some power even in this standby state

iii) Furthermore, turning the set off at the wall will reduce energy use to zero for all sets, and is recommended when the TV is not being used for a long time, e.g. when on holiday

iv) Reducing the brightness of the screen will reduce energy use

d) Energy efficiency reduces energy consumption and thus saves money by reducing electricity bills

e) Repair information regarding who is qualified to repair TV sets, including contact details as appropriate

f) End-of-life instructions for the proper disposal of TVs at civic amenity sites or through retailer take-back schemes as applicable to be compliant with the WEEE Directive, rather than simply throwing the set away

g) The product has the ECMA-370 Environmental Declaration, which the consumer can access for further information

h) Information that the product has been awarded the flower (the EU eco-label) with a brief explanation as to what this means together with an indication that more information on the ecolabel can be found at the web-site address [http://europa.eu.int/comm/environment/ecolabel](http://europa.eu.int/comm/environment/ecolabel)

Assessment and verification: The applicant shall declare compliance of the product with these requirements and shall provide a copy of the instruction manual to the Competent Body assessing the application.
The example given below is an illustration of how the User Information could appear in the user manual, on the manufacturer’s website, at point of sale and/or other location. It is there to prompt AHWG discussion as to how environmental information may be best presented to the consumer.

Example TV Ecolabel User Information
For the InterTV 32” LCD TV

This Television has been designed and manufactured to be energy efficient and has been awarded the European Ecolabel, more information about which can be found at [http://ec.europa.eu/environment/colabel/index_en.htm](http://ec.europa.eu/environment/colabel/index_en.htm)

Energy Use

The following information describes the power consumption for this television set in its various modes: on, active standby and passive standby and off. It then shows the likely levels of annual energy consumption using industry agreed usage patterns. Finally it indicates how much it would cost to use per year, firstly if standby modes are used when the set is not being watched and secondly if it is turned off properly, such as at the wall, also known as “hard off”.

<table>
<thead>
<tr>
<th>Power Mode</th>
<th>Power Consumption (W)</th>
<th>EICTA use guidelines (House/day)</th>
<th>Annual Energy Consumption (kWh/year)</th>
<th>Cost per Year (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>150</td>
<td>4</td>
<td>21.9</td>
<td>17.52</td>
</tr>
<tr>
<td>Active Standby</td>
<td>9</td>
<td>0.17</td>
<td>0.6</td>
<td>0.04</td>
</tr>
<tr>
<td>Passive Standby</td>
<td>0.8</td>
<td>19.83</td>
<td>5.8</td>
<td>0.46</td>
</tr>
<tr>
<td>Hard Off (at Wall/Plug)</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

TOTAL annual cost: standby: € 18.03
TOTAL annual cost: hard off: € 17.52

A European average energy cost to the consumer of €0.08 /kWh has been used, but a more appropriate figure for the country or region of use could of course be used instead.

The calculations above can likewise be performed for another television with different power consumption figures in order to show the saving in energy and money that can be achieved, using the equation in the box below.

\[
\text{Annual Energy Consumption (kWh/year)} = \text{Power Consumption (W) x Use (Hours/day) x 365} - 1000
\]

\[
\text{Cost per Year (€)} = \text{Annual Energy Consumption (kWh/year)} x \text{€ 0.08}
\]

For example, another 32” LCD TV with a higher power consumption of 175W in the on mode, 9W in the active standby mode and 3W in the passive standby mode, would have a total annual cost (standby) of €22.22, resulting in a saving of approximately €4.00. This is equivalent to a saving of 52kWh per year, or approximately 23kg CO2 per year, using European averages. With over 30 million sets sold annually in Europe, this could amount to over 680,000 tonnes CO2 across the EU.
Example TV Ecolabel User Information
For the InterTV 32” LCD TV

Energy efficiency

Energy efficiency can be improved by the user applying some simple measures to reduce energy consumption further, thus saving energy and money.

- Putting the television in its lowest standby mode when not in use will save energy and money.
- Turning the television off at the plug when it is not in use, say at night, or when on holiday, will further bring energy use down to zero.
- Reducing the brightness of the television will also reduce energy consumption – set it to an appropriate level for the room it is in.

Repair, maintenance and recycling

If the television becomes faulty then we provide a parts and repair service so that you can keep your televisions – it is generally better environmentally to mend televisions where possible and extend their lifetimes.

When you feel the time has come to get a new television, you can either bring it back to us for recycling, or take it to your local Civic Amenity Site for disposal and recycling. If it still works properly, then you could maybe consider donating it to a charity.

Environmental Declaration

This product has fulfilled the industry standard ECMA 370 which describes the environmental characteristics of both the product and manufacturing company. For more information please go to http://www.ecma-international.org/publications/standards/Ecma-370.htm.
5.3 Environmental Declaration

5.3.1 Current criterion

*The current criteria state that*

‘An environmental declaration shall accompany the product and shall be available to the user. This document shall be in conformity with the recommendations of ECMA’s Technical Report 70 ‘Product-related environmental attributes.’

5.3.2 Discussion

ECMA TR70 covers product parameters related to the environment, such as power consumption, emissions, materials, product packaging, batteries and end of life management. It is applicable to products and components or subassemblies, but not to the manufacturing process or transport issues.

During June 2006, ECMA TR70 was combined with the IT Eco Declaration to create ECMA-370. The new document effectively replaces ECMA TR70. This newer and wider reaching Type II declaration format encompasses the scope of the previous two schemes into the one system and in doing so it incorporates two main areas: the company’s environmental profile and the product’s environmental attributes. Like TR70, it covers neither the manufacturing process nor logistical (transport) issues.

In summary ECMA has parameters comparable with voluntary ecolabels, it is in line with eco-design standards ECMA-341/IEC 62075, is revised every 1 – 2 years, is verified internally and / or externally via self-declaration/environmental report by the applicant company or 3rd party (test) report and has a high (>80%) uptake by industry.

There is one important distinction however and that is that ECMA 370 does not set pass/fail criteria in the way that Ecolabels do – it is a reporting template for manufacturers and producers to declare the environmental credentials of their product.

When completing the declaration there are two sections for the company to supply information regarding:

The Company Environmental Profile (CEP) is split into legal requirements and market requirements as follows:

1. Company participation in recycling schemes or system for products, batteries and packaging.
2. Company use of environmental policy and environmental management systems.

The Environmental Product Attributes (EPA) are likewise split into legal requirements concerning:

1. Hazardous substances;
   - following RoHS and other specific EU Directives concerning hazardous substances such as asbestos, Hg, Cd, Pb, CrVI, certain polybrominated diphenyl ether (PBDE), and ozone-depleting substances (ODS)
2. Batteries;
   - Hg, Cd content, removability
   - If batteries are used in the product they do not contain mercury in concentrations higher than specified in 91/157/EEC
3. Safety and electromagnetism (EM);
   - complies with relevant EU legislation on safety and EM
   - The product meets the EMC Directive regarding electromagnetic compatibility (89/336/EEC)
4. Packaging materials
   - Packaging material is marked according to ISO 11469 or ISO 1043, 1-4. (97/129/EEC)
   - The product packaging material is free from CFC/HCFC.
5 Treatment information
   o Information for recyclers/treatment facilities (e.g. as requested by 2002/96/EC) is available
and market requirements on environmentally conscious design, including:
6 Disassembly and recycling, e.g.
   o Parts that have to be treated separately are easily separable
   o Plastic parts >25g have material codes according to ISO 11469.
7 Product lifetime, e.g.
   o Upgrading can be done e.g. with processor, memory, cards or drives
   o Spare parts are available after end of production for x years
8 Materials used e.g.
   o Chemical specifications of flame retardants in cover / housing plastic parts >25g according ISO 1043-4
   o Weight of recycled material in plastic parts is
9 Batteries
   o Product does not contain batteries defined as hazardous according to 91/157/EEC
   o Batteries meet the requirements of the following voluntary program/s
10 Power consumption in various modes
   o For on (max, normal and idle), save (1 and 2), off (1 and 2) and no load
11 Noise and EM emissions
   o When in idle or operation mode
   o Computer display meets the requirement for low frequency electromagnetic fields of the following voluntary program/s
12 Ergonomics
   o The computer system meets the ergonomic requirements of EN 29241-3, -7, -8 for CRT displays and EN-ISO13406-2 for flat panel displays.
13 Packaging and documentation;
   o Type, weight, recycled content and chlorine-free paper.

ECMA-370 is very comprehensive and covers most of the areas of the EU Ecolabel for TVs. The key difference between it and ECMA TR70 is the inclusion of the Company Environmental Profile, which inherently gives the issuing authority more information on environmental performance and standards that the applicant adheres to. For this reason it is our suggestion that the criteria on Environmental Declarations be revised such that an applicant’s environmental declaration be in conformity with ECMA-370.

Our recommendation is thus as follows:
“An environmental declaration shall accompany the product and shall be available to the user. This document shall be in conformity with the ECMA-370 Standard – The Eco Declaration.
Assessment and verification: The applicant shall declare the compliance of the product with this requirement and shall provide a copy of the environmental declaration to the Competent Body assessing the application.

5.4 Information appearing on the eco-label

The current phrasing appearing on the ecolabel is:
1 High energy efficiency
2 Designed to facilitate recycling

Discussion
‘High energy efficiency’ could be expanded to state that this relates to all operational modes thus informing the consumer that all aspects of energy use have been taken into account. We suggest the phrase ‘high energy efficiency in all operational modes’ achieves this in a concise and clear way.
As mentioned, recycling is rarely by product disassembly, but by crushing and materials separation. It is therefore appropriate either to re-phrase this statement or remove it. Given that the WEEE Directive requires producers to provide collection information and sets recycling/recovery targets, we suggest the ecolabel does not need to cover this issue.

As the AHWG agreed, the ecolabel should provide persuasive information to consumers as to how they can use their product in an energy efficient manner – and that doing so will save them money. Hence we suggest incorporation of a new phrase that highlights the financial savings attributable to energy efficiency, such as 'saves money by being energy efficient.'

<table>
<thead>
<tr>
<th>Our recommendation is thus as follows:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- High energy efficiency in all operational modes</td>
</tr>
<tr>
<td>- Saves money by being energy efficient</td>
</tr>
</tbody>
</table>

Assessment and Verification: The applicant shall declare the compliance of the product with this requirement and shall provide a copy of the ecolabel as it appears on the packaging and/or product and/or accompanying documentation.
Appendix 1: GEEA Criteria for Televisions

Background
Information on the energy efficiency criteria used by the Group for Energy Efficient Appliances (GEEA) is relevant to this study as it provides an international benchmark as to what other schemes and organisations are doing.
GEEA criteria for TV’s were originally based on an Energy Efficiency Index calculation (using a different formula than that used in the current Flower criteria, see section 8.5.2). They are now formulated around standby consumption and the Industry self-commitment - and the two methods are not comparable. GEEA have indicated that they are however considering a return to using the EEI in the future.
As well as the current standby criteria it is worth assessing GEEA’s (lapsed) EEI criterion as a benchmark for the work being undertaken here, and as such information on this older GEEA specification is provided below.
This section therefore describes both specifications, firstly the current criteria using standby, and then the older criteria using EEI.

GEEA Criteria for TVs. Ref: CE01-2005 – Television Sets
The current 2005 GEEA criteria cover standby power and the EICTA self-commitment - the focus of the criteria is on energy use.

1. Standby modes
2. Passive standby must be ≤ 1W.
3. Active standby, which applies to TVs with IRD only must be
   o Terrestrial ≤ 8W
   o Cable ≤ 7W
   o Satellite ≤ 9W
4. Compliance with industry self-commitment. The manufacturer of the TV applying for the GEEA label must have signed the EICTA industry self-commitment to improve energy performance of household consumer electronic products.
5. The IEC 62087:2002 test method is quoted as being the appropriate mechanism for proving compliance.

No other environmental issues, such as hazardous materials, recyclability or ‘design for the environment’ are included in the criteria.

Discussion
These criteria compare well to the existing Flower criteria in that the passive standby criterion is the same whilst the active standby is very similar, currently set at ≤ 9W, but only for TVs with an IRD. Likewise the same test method is used for GEEA, IEC 62087:2002, as is being suggested for the Flower, to update the EN 50301 currently used.

One solution for homogeneity of labels is to mirror the GEEA criteria and break out the Flower criterion by transmission route.

GEEA Criteria for TVs (Duty Cycle); analogue and digital broadcasting, Novem, Utrecht, Holland, 2001

The main equation in the criteria is the energy efficiency index, EEI, in which the energy use of the model being tested (E) is compared to the market average reference (ER)
EEI = E / ER
A more efficient TV than the average (lower energy use) will have an EEI less than 1, whilst a less efficient set has an EEI greater than 1.
All modes are included in the calculation of E and ER for a given standard 24-hour period; ON, passive standby, active standby and off. EU averages are used for the time period the TV is in each mode, e.g. EICTA use pattern of 4 hours on, 20 hours in passive standby, for both E and ER.

Reference values are used for the market average energy consumptions for the three modes of passive and active standby and off. The on mode power consumption is calculated with a formula that includes screen size, area and format, scan rate and whether or not there is an IDR.

The GEEA criterion to attain the label is an EEI \( \leq 0.75 \), i.e. an energy efficiency lower than or equal to 75% of the market average reference case, in other words at least 25% better than the market average.

In verifying the criterion’s applicability, a sample of 102 analogue TV sets, representing more than 70% of the models on sale in the UK were evaluated. Of the TVs tested, 20% complied with the criterion (EEI \( \leq 0.75 \)). The split by TV format showed a compliance range between 11% (wide screen TVs) and 29% (conventional TVs) by set type.

The 0.75 cut off for the criterion was deemed suitable. Indeed when the separate GEEA criterion for standby (\( \leq 1W \)) is taken into account alongside the EEI criterion in the market test it is found that just 16% of tested TVs complied.

Although GEEA does not use a EEI requirement at present, it is useful to assess the previous criterion as it provides a reference point as to what GEEA considered a sensible limit.

Annex 4

Summary of the 2nd AHWG for the Revision of the TV Ecolabel

Present

Ben Caspar, BC
Phil Dolley, PD
James Cadman, JC
Stephan Kolb, SK
George Fullam, GF
Doreen Federigo, DF
Conrad Luttrop, CL
An Verclasteren, AV
Hans Wendschlag, HWe
Jakob Waidtlaw, JW
Thomas Christensen, TC
Marianne Burum-Eskeland, MBE
Huw Waters, HWa
Leena Nyqvist-Kuusola, LNK

Ecolabel Unit, DG Environment
AEA
AEA
EuP, DG TREN
EICTA
EEB/BEUC
University of Stockholm (UoS)/EEB
VITO/BEUC
Hewlett Packard
Danish Competent Body
Danish Competent Body
Norwegian Competent Body
Sony
Finnish Competent Body
Meeting Notes

PD opened with the day’s agenda covering the key points from the 1st AHWG;
1. TV size – should large TVs be awarded the ecolabel?
2. How can the Ecolabel make a difference?
3. And the on-off switch debate.

PD then described the developments since the last AHWG, including the fact that the 2004/05 dataset was said to be obsolete, changes in energy consumption of differing technologies and the screen size issue with regard to the ethos of the Ecolabel and presented EuP data on trends in market % by screen size (see attached presentation from the AHWG).

The data incorporates sales for primary TVs, usually used in the living room, and secondary TVs, often used in bedrooms and kitchens. As much as 50% of all TV sales may be for secondary uses. GF commented however, that the EuP data may be a bit misleading in terms of large screen TVs, 102 – 178cm. One must be careful in interpreting the data for primary sets, as the 7% market share (2005) for TVs with a screen size of 102 – 178cm may underplay the relative sales of larger screens used as primary sets. That is to say if we looked at market data for just primary sets, the share for the larger TVs would be higher.

Each criterion was then discussed in turn, first by describing the existing criterion, then a summary of the earlier AHWG discussion and later feedback from stakeholders, followed by the Consultant’s proposals.

Product Group Definition

GF suggested being careful; mains powered can mean any external power source, e.g. a battery outside of the device.

DF stated that we should deal with screen size in the relevant criterion on energy efficiency, rather than in the Product Group Definition. It is important to reduce the consumption of materials: sustainable production is fairly well developed with manufacturers, but sustainable consumption by the public is less well developed, and this is where the Ecolabel can help by lending a steer.

GF commented that the label needs visibility in the market place; at least 10% of the market-available products should be able to comply. The public want bigger TVs, fridges etc, we can not stop them, therefore we need to work together to create suitable criteria, otherwise the Ecolabel will not have the success it wants, especially if we limit screen size.

CL remarked that the Ecolabel needs to address voltage, not just power consumption, in the Product Group Definition, as there are many devices that work at less than 230 - 240V. The Ecolabel Criteria User Manual should be used to explain ‘mains powered’ more precisely.

JR suggested that the ecolabel should not discriminate on size, adding that the ecolabel ought to try and improve the performance of all TVs.
Energy Savings – On/off switch

Some background to “hard” on-off switches was given.

Until 2002, health and safety legislation required devices, including TVs, consuming >15W, to be fitted with hard-off switches. The requirement was made to reduce potential fire risk. However, the design of the actual switch allows dust to gather, that combined with wear and tear, can create sparks and thus a fire. Changes to Safety Regulations in 2002, mean that manufacturers are no longer required to have such hard on-off switches on their sets. It was further suggested that in broad terms, consumers do not use such switches where they are present.

Manufacturers stated that Flat Panel Displays (FPDs) do not have hard off switches, only CRT TVs do so now. Many FPD sets now have “soft” off switches, which enable a deep sleep mode, whereby power consumption is reduced to a lower level than that for stand-by. In this state the screen and many other functions are off. The user can put the TV into this deep sleep state either by pressing the soft off switch on the set or on the remote, depending on the TV’s design. The set cannot be turned back on from the remote – the user needs to press the switch on the set. The difference however, is that the TV can be brought into a more active state from an external signal, such as downloading programme data. The TV can also be set such that if the user puts it into a conventional (passive) standby mode, of around 1W power use, it may automatically drop into the deep sleep mode after a period of inactivity, such as one or two hours.

AV stated that consumers are now far more aware of the issue of standby energy use. As such the Ecolabel should lead the way and have a criterion for off-switches. The ecolabel still needs to stress the visibility and accessibility of the switch so that it is easy to find and use.

GF stated that consumers do not use off-switches, therefore it would be better to have three modes for the TV: on-mode, standby mode and deep sleep.

Action: The Consultants to revise the criterion proposal about on-off switches, taking comments into account about soft off switches and deep sleep modes and their programmability.

Energy Savings – Passive Standby

HWe stated that we should be careful with statistics when saying that 49% of the sampled plasma (PDP) TVs have a passive standby of <0.8W because of the distribution of the data (statistical distribution). If a TV is designed to be <1W, then all TVs of that design will be <1W in order to meet compliance, but there will be a normal distribution of actual energy use. PD responded that in the ideal world having an extensive dataset that included measured energy consumption for a sample of TVs of a given design would be helpful. However, we do not have access to such data. Further, some producers are declaring passive stand-by energy consumption lower than 1W indicating that they are confident that the measured results are reproducible.

CL recommended keeping the 1W standard; otherwise we face other problems if we go lower, such as ambient temperature affecting readings. Also, the EICTA Code of Conduct is 1W for all TVs so it would be sensible to have compatibility.

DF. EEB are content to keep the current 1W level if we are to gain environmentally with the deep sleep mode. Furthermore we do not want to promote <0.8W if it means more toxic substances are needed to achieve this.

JW agreed we should keep 1W as it agrees with GEEA criteria.

Action: The Consultants to consider keeping the existing PS criterion.
**Energy Savings – Active Standby**

GF ‘Active Standby’ (AS) is a contradiction of terms: a TV is either in standby *waiting* to do something or it is *actively doing* something. What we are calling AS is really an on-mode, albeit with no picture – the set is downloading data.

HWa. Sony do not have a separate AS, they program their TVs to download necessary information and data when the TV is on (and being watched).

There was general agreement amongst the AHWG that we do not need to state AS in the criteria, especially as it accounts for <1% of all energy use in a given 24-hour period of use. We should concentrate on the on-mode, passive standby and deep sleep mode.

*Action: The Consultants to consider deleting the AS criterion.*

**Energy Savings – Energy Efficiency Index**

PD presented a new proposal reflecting a) a new dataset of TVs on sale in Europe in early 2006 b) a new criterion based on energy consumption per unit area of screen (W/cm²). In doing so he said those people who had commented regarding the EEI formula (both the existing one and the updated one under development for IEC) were questioning the formula and its derivation. In short it is not transparent and appears to ‘hide’ things in factors. The proposed approach:

1. uses measured energy consumption, and
2. compares this to screen area

Importantly it is:

1. Independent of screen technology
2. Independent of screen size

Early analysis suggests setting a single cut-off value was possible (0.04 W/cm² was suggested – 30% of the sample meet the requirement). From the data presented, it was noticeable that some large screen LCDs meet the requirement (and some small screen LCDs do not) and that some PDP displays are very close to passing. Given that the existing sample lacks a good population of PDP data, PD hopes to obtain additional data to test the point. Producers were encouraged to submit data for different TV types (with test method declared too).

DF, MBE. EEB and NO were generally content with the power/cm² approach to energy efficiency presented by the Consultants.

BC. DG Environment liked this approach: it is easier to understand and in line with the EuP approach.

SK. DG TREN asked about rear projection TVs. The Consultants answered that there was very little information in the dataset used for the analysis presented, but commented that rear projection TVs generally use less energy than equivalent-sized FPDs. They should be able to comply with the proposed level.

Energy use is affected by brightness, contrast, and the actual picture (whether dark or light). The ideal for testing TVs’ energy use is to have an agreed set of (moving) pictures by which to measure power consumption (this work is in progress within IEC).

DF, AV. EEB/BEUC restated that they are content not to set a specific size limit, but they do not want the Ecolabel to promote large TVs and as such limits should be placed through resource use.

LNK said she had data from a Finnish testing house and would provide it to the consultants.

*Action: The Consultants to gather more data to construct a suitable EE criterion based on power/screen unit area: W/cm².

LNK to provide Finnish data set*
Mercury (Hg) Content of Lamps

JW. There are computer screens with 2.0, 2.2 and 3.5 mg Hg per lamp available, so we should be aiming towards that for TVs. PD asked for clarification regarding source of the information and whether such lamps are suitable for LCD lamps. The Consultants stated that TVs and computers have different usage patterns and lifetimes.

DF. EEB stated that we need a criterion that deals with amount of mercury (Hg) per unit screen area: mg Hg / cm². The Consultants stated that whilst there is information on the amount of mercury in lamps (mg Hg / lamp), there is no data to hand on the number of lamps per screen in order to have a criterion that states mg Hg/cm². A request was made to manufacturers to provide such information.

HWa. Sony said that TVs need more Hg in the lamps than computers as the screens are generally larger, need to be brighter and last longer.

HWe. HP said that TCO have data on mercury and screens.

2.6.2 Action: the Consultants to speak with TCO about accessing Hg lamp and screen data to construct a criterion based on mg Hg / screen unit area

Lifetime Extension

DF. EEB said that we should extend the lifetime, referring to the ‘Which?’ article in their pre-meeting submission.

Industry representatives confirmed that the two-year commercial guarantee is there such that if the machine breaks down within two years of purchase and is un-repairable it will be replaced free-of-charge. TVs generally last far longer though, more than ten years on average.

It was generally agreed to keep the criterion as it stands.

Take-back and recycling

JW. Ecolabelled TVs should be fully recyclable.

DF. The WEEE Directive is not fully implemented across the whole EU25 yet; therefore it is not clear who pays for take-back at present. We need to have a design for environment and recycling with clear user instructions.

It was generally agreed that we could delete this criterion, so long as we have a criterion on design for environment.

Action: To devise suitable and meaningful design for the environment criteria – see comments below

Take-back and recycling – disassembly

LNK said we should have disassembly criteria in the lifetime extension criterion, e.g. parts available for seven years, which are easy to find and replace.

GF. TVs should not be easy for consumers to disassemble as that goes against Health and Safety requirements.

DF. EEB re-stated the need for criteria that encompass repairability and design for the environment.

CL. Repairability needs to be measurable and verifiable, as the current criteria do not allow for that other than a disassembly report, making it hard to verify. Even academia is still researching how you measure and verify repairability. Could we just simplify it to Hg lamps, e.g. Hg lamps are easily removable from the set without tools? In other words they should not be screwed or welded into place.
Action: Consultants to devise suitable and meaningful design for the environment criteria – possibly focussing on Hg lamps and other parts?

Take-back and recycling – incompatible materials

DF. EEB stated that they are content for the criterion on incompatible and hazardous substances to be deleted so long as the criteria for design for the environment are improved and hazardous materials are dealt with horizontally across all Ecolabel product groups. The AHWG was broadly content with the EEB’s point.

Take-back and recycling – technical recyclability

DF. Again EEB were content to delete this criterion if the aspects come under design for the environment criteria. We need to encourage using fewer polymers to enable better recycling.

Take-back and recycling – labels

There were no comments on this criterion and it was agreed that it could be deleted.

Take-back and recycling – plastic parts

HWe stated that the Consultants should look at the ECMA-341 annex C on compatible polymers, see: www.ecma-international.org/publications/standards/Ecma-341.htm

A size (or mass) limit on parts required to comply with the requirement was considered appropriate.

Action: the Consultants to research ECMA information on compatible polymers

HWa stated that many metal inlays are inseparable, such as SCART sockets (metal sockets set in a plastic surround). We should possibly apply this criterion to larger items only, based on mass.

CL. It is better in terms of recyclability to have metal inlays in plastic rather than one plastic polymer inlayed (set) in another kind of polymer: when the TV is recycled the metal can be separated from the plastic more easily, by using magnets to extract it.

JW said the ecolabel ought to retain the FR requirement adding that the situation with respect to RoHS and deca-BDE was not clear. The Ecolabel can go further than the Law (RoHS, Reach), and as such should have criteria on FRs. The Swan criteria have prompted a change for the better in terms of FR use.

MBE asked for the risk phrases to be retained – producers should be obliged to check for R-phrases.

DF. EEB re-iterated the need for horizontal criteria on issues such as FRs. We should translate R-phrases into the Globally Harmonised Standards (GHS) and extend to reprotoxicity. BC. DG Environment will be arranging a FR meeting in early January and that R phrases will change automatically to GHS in Ecolabel criteria.

VS. The FR industry representative stated that RoHS, GHS and Reach will provide more information on FRs, other than those already tested such as BFRs. Current RoHS Directive deals with the restriction of these substances which will be regularly updated. Deca-BDE is exempted from RoHS, based on the performed EU Risk Assessment. Eco labels ought to reflect this status. REACH will deal with problematic substances through Authorisation and Restrictions. Hence ecolabels ought to consider ‘bonus’ criteria rather than restrictions (which are covered by legislation).

HWe made the point that it is very expensive to test substances for risk phrases, e.g. US$1.5 million for R45 (may cause cancer) and the fact that most ‘approved’ flame retardant substitutes in various eco labels, including the EU
Flower, have not been tested for R45 properties (confirmed by US EPA, i.e. lack of ecotoxicity data for non-halogenated FRs). The obvious risk is that substances that have undergone extensive EU risk assessment with no risk reduction measures are banned in eco labels whilst poorly tested substitutes receive the label. TCO have data on 2,500 monitor screens and are now checking for ecotoxicity data for their approved non-halogenated substitutes, to be released in March 2007.

MBE. We should keep the list of BFRs even if covered by legislation to emphasise the issue. Reach is still some time off yet. We should be banning all halogenated FRs and should check RoHS exemptions.

JW. The Swan has worked fine with an FR requirement. It has been difficult to prove but is possible.

In response to the various remarks made, BC suggested the first bullet in criterion 4g) could be reduced to just deca-BDE as all other BFRs are covered by RoHS. The second bullet regarding R phrases perhaps should be retained.

**Action: the Consultants to consider reworking the criterion for FRs**

**User Instructions**

DF. We should have environmental information right at the front of the user manual, perhaps inside the front cover, whilst moving more technical information such as EICTA guidelines (4 hours on, 20 hours standby) further inside the manual. Information should also be available on manufacturers’ websites.

SH stated that criterion 5e), repair information, should be made more flexible as contact details change frequently.

Industry representatives said that, following the Guarantee Directive under which you have to give information on repair and return, you could simply state details on repair are elsewhere in the user manual.

Under criterion 5g), the ECMA 370 Declaration, HWe said we should change the wording to ‘The product has the ECMA-370 Environmental Declaration, which the consumer can access for further information at the following website: www….’

JR reported recent experience saying that producers had put experimented with information labels on products but that retailers had removed these at point of sale.

**Environmental Declaration**

DF. Why make reference to a Type II Label in the EU Ecolabel? What is the benefit? Why not delete this criterion? JW supported.

HWe. The added benefit is in the company and products information for Green Public Procurement (GPP) and supply chain issues.

CL. The information is needed for GPP etc, just not in the Flower, therefore delete the requirement?

**Action: the Consultants to consider the use of the Environmental Declaration criterion**

**Information on the Ecolabel**

The AHWG thought the two items of text are very similar. Change should be made.

DF/AV/JW. As already stated there should be a criterion on ‘design for environment’, which should be echoed in the information on the Ecolabel.

BC suggested saying something about reduced CO2 emissions.
On another issue, can we tackle factory settings to lower them to an ‘eco-mode’ so that TVs are shipped at the most optimal environmental performance level?

**Action:** The Consultants to re-assess the information on the Label and research factory settings.

**Criteria Lifetime**

BC. DG Environment would prefer the criteria lifetime to be four years rather than three as we would then be within the Revised Ecolabel Regulation.

**Next Steps**

1. Discussion at the December EUEB
2. Proposals in February
3. Vote in Spring, dependant on progress of the EuP project.

**Summary of Actions for the Consultants:**

1. To revise the criterion proposal about on-off switches, taking comments into account about soft off switches, deep sleep modes and their programmability.
2. To consider keeping the PS existing criterion.
3. To consider deleting the AS criterion.
4. To gather more data to construct a suitable EE criterion based on power/screen unit area: W/cm².
5. Speak with TCO about accessing Hg lamp and screen data to construct a criterion based on mg Hg / screen unit area
6. Devise suitable and meaningful design for the environment criteria – possibly focusing on Hg lamps and other parts?
7. To research ECMA information on compatible polymers.
8. To consider a new criterion for FRs
9. To consider the use of the Environmental Declaration criterion
10. To re-assess the information on the Label and research factory settings.

**Annex 5**
Revising the Ecolabel Criteria for Televisions – Third Discussion Paper

Overview

Background

Broad agreement for the direction the proposals are developing in has been reached with the AHWG and EUEB. Alterations to the manner in which the ecolabel deals with on mode energy consumption and information to consumers have been warmly received.

Having discussed the second discussion document with stakeholders in late 2006, they advised that two issues warranted further attention: eco-design and mercury.

This discussion paper provides an update regarding the issues. It is divided into three sections.

Section 1 provides a Table summarising the status of proposals and their development since the second discussion paper in Autumn 2006.

Section 2 covers proposals that have largely been agreed through AHWG and EUEB discussions. We provide a summary of discussions and our proposals. If more detail is needed, readers are asked to refer to earlier discussion documents.

Section 3 discusses the main issues that require more attention, namely mercury in lamps, eco-design, also known as design for environment. To this section is included a short discussion regarding flame-retardants.

This paper is to be read in conjunction with the draft proposals dated June 2007 circulated with this paper.

We welcome comment on our proposals. Please feel free to pass these documents onto colleagues if you think they would wish to keep abreast of the work.
Schedule

Our anticipated schedule to completing the revision exercise is:

1 Discussion of these proposals at the September 2007 EUEB
2 Revised proposals circulated in October 2007
3 Final Discussion of the proposals at the December EUEB
4 Vote on the proposals at the December Regulatory Committee

Acknowledgments

We wish to thank the members of the AHWG and other stakeholders from Government, Industry and NGOs for their assistance lent in developing the draft proposals discussed here.
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8.1 Background
8.2 Take-back and recycling
8.3 Disassembly report
8.4 Incompatible and hazardous materials and recycling rates
8.5 Plastic parts

9 Heavy Metals and Flame Retardants

Appendices

Appendix 1 User Instructions example

Section 1 - Summary of proposal development

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Retain for CRT televisions Delete for digital televisions</td>
<td>Retain for CRT televisions For flat panel televisions, require soft-off switch and deep sleep modes (soft off puts television into lower energy state than stand-by)</td>
<td>The new generation of televisions (high definition and digitally enhanced) do not have such a switch because their functionalities that require the television to remain in a deep sleep mode. There was general support for “soft” off switches and the “deep sleep” mode.</td>
</tr>
<tr>
<td>Off switch</td>
<td>&lt;=0.8W</td>
<td>Keep &lt;=1W</td>
<td>AHWG preferred to keep &lt;=1W saying that there are important issues to address. Harmonised with other television criteria.</td>
</tr>
<tr>
<td>Passive stand by &lt;=9W</td>
<td>Adopt limits set by GEEA: Terrestrial connected &lt;=8W Cable connected &lt;=7W Satellite connected &lt;=9W</td>
<td>Active standby uses &lt;1% of total energy. Delete the criterion</td>
<td>Content for requirement to be deleted</td>
</tr>
<tr>
<td>Active stand by &lt;=9W</td>
<td>Approved the change to W/cm². Some concerns whether 0.04W/cm² is too strict or not.</td>
<td>EUEI&lt;=65%</td>
<td>Plasma typically uses more energy than a liquid crystal display. Should limits be set (ie. 0.04W/cm²) which is difficult for plasma machines to achieve?</td>
</tr>
<tr>
<td><strong>method noted. Proposal based on energy efficiency per unit screen area for all television types (proposed 0.04W/cm²)</strong></td>
<td><strong>In principle the European Commission would support more stringent energy requirement of 0.04W/cm². It does not support a maximum screen size. Understood from ad-hoc working groups that energy use per cm² would be a good way ahead and in line with the EuP study.</strong></td>
<td></td>
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<td>---</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Life time extension</strong></td>
<td>Retain as is – 2 year guarantee and 7 year part availability</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Take Back and Recycling</strong></td>
<td>AHWG asked for the existing criterion to be replaced with a new eco-design proposal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Overview (individual criteria are covered in Sections 2 &amp; 3)</strong></td>
<td>Existing criterion is a mix of topics some of which have been superseded by legislation (WEEE and RoHS). In need of an overhaul.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>User Instructions</strong></td>
<td>Redrafted</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environmental Declaration</strong></td>
<td>Retain but reference to new ECMA-370 standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Information on the Ecolabel</strong></td>
<td>1. High energy efficiency in all modes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Saves money by being energy efficient</td>
<td>Include eco-design aspects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Issues (New)</strong></td>
<td>1. high energy efficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mercury in lamps</strong></td>
<td>2. reduced CO₂ emissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;=4.5mg per lamp</td>
<td>3. designed to facilitate recycling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prefer mercury use per unit screen area (Hg/cm²).</td>
<td>Information provided should promote:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agreed Hg/cm² was preferable.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suggested setting a maximum amount of mercury, to the size of screen that could be labelled.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 2 – Issues with Broad Agreement

Product Group Definition and Criteria Lifetime

Proposal

The **product group** ‘televisions’ shall comprise: Mains powered electronic equipment, the primary purpose and function of which is as a device that receives, decodes and displays television transmission signals. Appliances that use other power sources such as batteries are excluded.

The product criteria should have a **three-year lifetime**. Any longer would mean the ecolabel risks its criteria becoming obsolete. Any shorter and the ecolabel would not be able to keep up with the revision schedule.

Energy Savings

On-off Switches

Many FPD televisions now have “soft” on-off switches, which enable a “deep sleep” mode, whereby power consumption is reduced to a lower level than that for passive stand-by, typically around 300mW. In this state the screen and many other functions are off. The difference to a conventional hard on-off switch is that a television can be brought out of this deep sleep mode into a more active state by an external signal, such as to download programme data through the digital tuner. The user can put the television into this deep sleep state either by pressing the soft on-off switch on the television or on the remote control, depending on the television’s design. The television can also be set such that if the user puts it into a conventional (passive) standby mode, of around 1W power use, it automatically drops into the deep sleep mode after a defined period of inactivity.

**Proposed criterion**

Analogue televisions shall have an on-off switch that turns the television to zero energy consumption. The switch shall be clearly visible.

Digitally-enabled flat panel display (FPD) televisions shall have a soft on-off switch that puts the television into passive stand by mode. The switch shall be clearly visible. The television will be programmed to automatically go from passive standby mode to the deep sleep mode after no more than one hour if there is no user interaction and in this mode the energy consumption shall be no more than 300mW.

Information on energy saving and operational modes will be given in the user instructions.

**Assessment and verification.** The applicant shall declare that their television is compliant with the requirements and provide photographic evidence regarding the on-off switch. For FPD televisions, the applicant shall declare that the television automatically goes from passive standby to deep sleep after one hour if there is no user intervention and that the television complies with the 300mW requirement. Clear details shall be provided in the user manual accompanying the television, a copy of which shall be provided to the awarding Competent Body.
Passive Standby

Proposed criterion

Note: That ‘as delivered’ in the Assessment requirements refers to the settings the TV has when literally taken out of its packaging.

The passive standby consumption of the television shall be $\leq 1.0W$.

Assessment and verification: The television will be tested for its passive standby power consumption in its condition as delivered to the customer, according to IEC 62087. A test report will be provided by the applicant to prove that the television meets the requirement.

Active standby

The current criterion states that televisions with an integrated digital receiver/decoder (IRD) shall have an active standby of no more than 9W. This mode is actually only used for a very short time, (a few minutes each day) and only accounts for a small fraction of the total energy used by a television, less than 1% in a 24-hour cycle. The television then drops back into another lower power mode, such as passive standby or deep sleep mode. Some televisions do not have a separate active standby mode; they download data when the television is in the on-mode.

Proposal

Delete the current criterion for active standby.

Energy Efficiency

The current energy efficiency index (EEI) criterion is only applicable to CRT televisions. There are problems trying to apply it to FPDs. With this in mind we devised an alternative requirement drawing on a new dataset. The new approach won the AHWG’s approval. There was some disagreement regarding the level at which the requirement is set at – some people thought that 0.04W/cm² is too strict. It is certainly the case that PDPs would find the requirement difficult to attain.

Figure 2.1 shows power consumption data normalised to power consumed per 1cm² of screen area.
Having agreed with the AHWG the general approach, the question is ‘at what level should the exclusion hurdle be set?’ In considering this we need to remember that typically the whole criteria set for a given product group is typically set such that around 20% of products can comply. We need to bear this in mind so that we are not overly strict with this one criterion alone. If an exclusion hurdle was set at:

1. $0.050 \text{ W/cm}^2$, 48% of the TV sample would comply – arguably this is too high a level.
2. $0.040 \text{ W/cm}^2$, 16% of the TV sample would comply – arguably this is too low a level

We propose to set level whereby 20% of the sample complies – 0.042 W/cm².

In terms of test methods, the standard used in the existing criteria, EN50301, is now obsolete as of 1st July 2006. As such the revised IEC62087 standard shall be used.

The television is to be tested ‘as delivered’ – that is in the same condition as taken out of its delivery box. This is in accordance with the new IEC62087 method. Test laboratories should not make changes to these settings such as altering the brightness of lamps. If the television has an eco-mode, this function can be engaged for testing purposes – so long as clear instructions are provided in the User Manual showing consumers how to adjust their TV into the eco-mode state.

**Proposed criterion**

The television will have an on-mode power efficiency equal to or less than 0.042 W/cm² screen area.

*Assessment and verification:* The television will be tested for its on-mode power consumption in its condition as delivered to the customer, according to IEC62087. A test report will be provided by the applicant to demonstrate that the television meets the requirement.
**Lifetime extension**

Discussions at the AHWG have provided a general consensus that this criterion should be retained as it stands.

**Proposed criterion**

<table>
<thead>
<tr>
<th>The manufacturer shall offer a commercial guarantee to ensure that the television will function for at least two years. This guarantee shall be valid from the date of delivery to the customer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The availability of compatible electronic replacement parts shall be guaranteed for seven years from the time that production ceases.</td>
</tr>
</tbody>
</table>

*Assessment and verification: the applicant shall declare the compliance of the product with these requirements.*

**User instructions**

Consumers can be provided with a lot of useful information through the user instructions. This is important in informing them of the environmental impact of their television’s use and how this can be reduced. Having this information in one place within the manual would help communicate the information clearly.

The AHWG agreed to have the environmental information in one very visible and accessible location in the user manual, including information on:

1. Power consumption in the various modes (on, passive etc) and average annual energy consumption
2. How to reduce energy use through energy efficiency and thus reduce cost
3. Repair, maintenance and proper end-of-life disposal.

Manufacturers would have flexibility in wording, style and layout of the User Instructions.

**Proposed criterion**

<table>
<thead>
<tr>
<th>The television shall be sold with relevant user information that provides advice on its proper environmental use. The information will be located in a single, easy-to-find place in the user instructions as well as on the manufacturer’s website. The information will include but not be limited to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) The television’s power consumption information in the various modes; on, passive standby and deep sleep</td>
</tr>
<tr>
<td>b) Average annual energy consumption, following EICTA guidelines.</td>
</tr>
<tr>
<td>c) How to reduce power consumption when the television is not being watched by being energy efficient, covering at least:</td>
</tr>
<tr>
<td>i) By using the on/off-switch on an analogue television energy use will be reduced to zero</td>
</tr>
<tr>
<td>ii) Other televisions should be put in their lowest standby mode to reduce energy use, but that they still draw some power even in this standby state</td>
</tr>
<tr>
<td>iii) Furthermore, turning the television off at the wall will reduce energy use to zero for all televisions, and is recommended when the television is not being used for a long time, e.g. when on holiday</td>
</tr>
<tr>
<td>iv) Reducing the brightness of the screen will reduce energy use</td>
</tr>
<tr>
<td>d) Energy efficiency reduces energy consumption and thus saves money by reducing electricity bills</td>
</tr>
<tr>
<td>e) Repair information regarding who is qualified to repair televisions, including contact details as appropriate</td>
</tr>
<tr>
<td>f) End-of-life instructions for the proper disposal of televisions at civic amenity sites or through retailer take-back schemes as applicable to be compliant with the WEEE Directive, rather than simply throwing the television away</td>
</tr>
<tr>
<td>g) Information that the product has been awarded the flower (the EU eco-label) with a brief explanation as to what this means together with an indication that more information on the ecolabel can be found at the web-site address <a href="http://europa.eu.int/comm/environment/ecolabel">http://europa.eu.int/comm/environment/ecolabel</a></td>
</tr>
</tbody>
</table>
Assessment and verification: The applicant shall declare compliance of the product with these requirements and shall provide a copy of the instruction manual to the Competent Body assessing the application.

An example is given in Appendix 1 as an illustration of how the User Information could appear in the user manual, on the manufacturer’s website, at point of sale and/or other location. It is there to prompt discussion as to how environmental information may be best presented to the consumer.

Environmental Declaration

The current criterion refers to the ECMA TR70 environmental declaration. This was combined with the IT ECO declaration in June 2006 creating the new ECMA 370 Type II environmental declaration. Unlike the Ecolabel it does not set a pass/fail level; it is a reporting template for manufacturers to declare the environmental characteristics of their company and product.

From discussions with stakeholders the need for a Type II environmental declaration, as well as proof of compliance with the Ecolabel criteria from an applicant, appears superfluous to the needs of the Ecolabel and as such our proposal is to delete this criterion.

Proposal

Delete the current criterion for an environmental declaration.

Information appearing on the Ecolabel

It was generally agreed at the AHWG and EUEB that the key issues to communicate to the consumer through ‘Box 2’ are that the television:

1. is energy efficient and therefore has reduced CO₂ emissions compared to a similar non-labelled televisions.
2. has been designed with the environment in mind so that it can be repaired or recycled easily.

Proposed criterion

- High energy efficiency
- Reduced CO₂ emissions
- Designed to facilitate repair and recycling

Assessment and Verification: The applicant shall declare the compliance of the product with this requirement and shall provide a copy of the ecolabel as it appears on the packaging and/or product and/or accompanying documentation.
Section 3 – Update on Other Issues

Mercury in Lamps

Background

The AHWG agreed that the ecolabel needs a criterion that deals with mercury in backlighting lamps of LCD TVs. We have spoken with manufacturers and others to gather information on the amount of mercury per lamp and the number of lamps per screen (based on size). Whilst data is scarce, what we have is nonetheless helpful to informing a proposal.

Two options have been considered:
1. The AHWG favoured mercury efficiency option that would set a limit for the amount of Hg per unit screen area,
2. A limit on the amount of Hg per lamp and an upper limit restricting the total amount of Hg per screen.

Discussion

a) Amount of Mercury per Unit Screen Area

Our investigations have revealed information suggesting the mercury content of lamps in LCDs can range from 2.5mg per lamp to 5mg (RoHS maximum limit). We have used this information and other data provided by business regarding the number of lamps by screen size to devise a proposal. In doing so we have assumed a ‘typical’ mercury content per lamp of 3.5 mg.

Achieving compliance with the criterion requires producers to find a balance between the number of lamps used and their mercury content for a given screen size. This approach will enable televisions of various sizes, to attain the Ecolabel.

We have constructed the following graphs.
1. Figure 7.1 shows the amount of mercury against screen area (cm²), and
2. Figure 7.2 shows the amount of mercury per cm² against screen area (cm²)

As expected, Figure 7.1 shows an increase in the total amount of mercury, for larger screen sizes. This is not surprising as more lamps are required for large screens. This has a direct impact to on energy consumption as a significant proportion of energy consumed in an LCD television is due to the lamps (as much as 70%).

However, Figure 7.2 shows a trend for less mercury (fewer lamps) per unit screen area in larger televisions. The graph shows that the amount of mercury per cm² of screen gets noticeably less for larger screen sizes. This is due to larger televisions making better use of reflected light within the LCD panel.
There is problem with the approach though. The analysis shows an undesirable outcome in that large LCD screens actually do rather better than small ones in terms of Hg per cm². In other words a requirement based on this approach would favour large screens. Having discussed the issue with some of the AHWG members, we came to the conclusion that the approach is unhelpful and further enquiry along these lines is not warranted.

**b) Limit Mercury per Lamp**

The RoHS Directive sets a maximum limit of 5mg Hg per lamp. At the 2nd AHWG we proposed a criterion of 4.5mg Hg per lamp. Whilst we were hopeful that the EuP TV study would be helpful in this regard, the recently published EuP reports for TVs do not contain data. Indications are that the amount of Hg per lamp varies between 2.5mg to 5mg.
Recognising that the absence of data is less than helpful, but that nonetheless the AHWG is keen to set a requirement, we propose a limit of 3.5mg per lamp. Further we propose an upper limit to the absolute amount of Hg contained in a screen of 75mg. This in effect will limit the ecolabel to LCD TVs of screen size approximately <116cm (<46”).

**Proposed criterion**

<table>
<thead>
<tr>
<th>Proposed criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>The mercury content of the lamps used to illuminate screens shall be $\leq 3.5$mg.</td>
</tr>
<tr>
<td>Taken together, the lamps will contain no more than 75mg Hg in total.</td>
</tr>
</tbody>
</table>

*Assessment and verification. The applicant shall provide a signed declaration that their television complies with these requirements. This shall include documentation on the mercury content of lamps from suppliers.*

1)

**Design for the Environment**

**Background**

The two AHWGs agreed that the existing criteria are somewhat ambiguous and hard to verify in many places, even if their sentiment is good in terms of reducing material use and encouraging increasing recycling rates.

Since the first set of criteria were adopted in 2002 the WEEE and RoHS Directives have come into force which capture some of the recycling and hazardous substance elements of the existing television criteria. For example, under the WEEE Directive one has to remove mercury-containing lamps and other components from the appliance and subsequently treat them. There is still scope however to include design for environment criteria into the proposals and this was encouraged by many of the AHWG participants. In formulating our proposals we have taken the views of stakeholders into account, have referred to the Ten Golden Rules in EcoDesign, the work of the EuP studies, ECMA 341 “Environmental design considerations for electronic products” and ECMA-370 the Eco-declaration and undertaken our own research.

As has been covered previously the key impact from televisions in a life cycle sense is the energy consumed in the use phase, ca. 90%. Reducing this is a key tenet of the Ten Golden Rules (GR3). There are however other eco-design aspects that can be addressed as well. These cover easy disassembly for repair and recycling, materials and fixtures that can be recycled and facilitate recycling and the gathering of more information on substances used within the television. These are discussed below.

**Take-back and recycling**

Under the WEEE Directive manufacturers ultimately have responsibility for the collection and treatment of the products at end-of-life: “It seeks to achieve this by making producers responsible for financing the collection, treatment, and recovery of waste electrical equipment, and by obliging distributors to allow consumers to return their waste equipment free of charge”.

Therefore the first requirement of the Take-back and recycling section in the existing criteria is now covered by legislation. In line with other product groups it was felt unnecessary by the AHWG to repeat in the Ecolabel criteria. There were concerns at the AHWG that newer Member States will not be able to implement the WEEE Directive as quickly as others. We are unable to influence this progress through the Ecolabel however, and as such the best route
to encourage consumers to recycle rather than dispose of their old televisions is via clear user instructions regarding repair and recycling. This is dealt with elsewhere in our discussion paper.

**Disassembly report**

Whilst some stakeholders advised that disassembly reports are not used by recyclers as recycling often involves crushing rather than disassembly, we think there is benefit in retaining a requirement. It is better therefore to ensure that televisions can be dismantled, if so desired, with easy-to-identify connections using the tools usually available to recyclers. Furthermore, information is available from the manufacturer should a recycler require it, in the form of exploded diagrams, for example, labelling the components.

There was concern that a television should not be easy to disassemble by a member of the public due to health and safety issues. Therefore we propose that the requirement asks that a professionally trained technician or recycler is able to undertake the work, as opposed to a member of the public. Further to this, extending the product’s lifetime should be promoted through easy repair. For example, worn out parts such as lamps should be easily accessible and easy to remove and swap by a trained technician.

**Incompatible and hazardous materials and recycling rates**

The AWHG discussed that the phrases “incompatible and hazardous materials shall be separable” and “technically recyclable” are ambiguous or confusing and are certainly hard to verify. The sentiment behind them is now also encapsulated to some extent in the WEEE Directive. It stipulates that 75% of the mass per television is to be recovered (collected, recycled and or incinerated) and 65% re-used or recycled.

What the Ecolabel criteria should encourage is a greater level of recycling than the 65% minimum through eco-design. The focus should therefore be on the ability to dismantle the television to enable recycling, and thus encouraging the recycling market, rather than stating that a certain percentage of the material has to be recyclable. In fact one AHWG stakeholder commented that their products can already meet this.

**Plastic parts**

The AWHG agreed that we no longer need to state the exclusion of lead and cadmium in plastic parts as these are now excluded via the RoHS Directive. Likewise it was generally agreed that we should retain the criteria on compatible polymers and separable metal inlays.

What is proposed is that applicants are to gather information on the nature and amount of hazardous substances within their products, from Material Safety Datasheets for example, in accordance with the Dangerous Substances Directive 67/548/EEC and subsequent amendments and the Globally Harmonised System of Classification and Labelling of Chemicals (GHS). This would then allow for the collection of such data for the Ecolabel in future revisions.

Therefore it may be better to re-word the current criteria 3 (b) to (f) such that all materials can be easily separated to enable recycling; fixings such as screws or snap-fixes shall be used instead of glues where possible. In moving to this kind of wording it would encompass the existing criteria on separability and recyclability by weight, thus clarifying the criteria set. This would allow dismantling for separate material recycling as well as repair and maintenance.

**Proposed criterion**

The manufacturer shall demonstrate that the television can be easily dismantled by professionally trained recyclers, using the tools usually available to them. This is to enable

- The undertaking of repairs and replacements of worn-out parts
- Upgrades to older or obsolete parts and
• Separation of parts and materials, ultimately for recycling.

To facilitate this

• Fixtures within the television shall allow for this disassembly, e.g. screws, snap-fixes, especially of parts containing hazardous substances.
• Plastic parts shall be of one polymer or be of compatible polymers for recycling and have the relevant ISO11469 marking if greater than 25g in mass.
• Metal inlays shall not be used that cannot be separated.
• Data on the nature and amount of hazardous substances in the television will be gathered in accordance with the Dangerous Substances Directive 67/548/EEC and subsequent amendments and the Globally Harmonised System of Classification and Labelling of Chemicals (GHS).

Assessment and verification: A test report will be submitted with the application detailing the dismantling of the television. This shall include an exploded diagram of the television labelling the main components and identifying any hazardous components. This can be in written or audio-visual format. Information regarding hazardous substances shall be provided to the awarding Competent Body.

Heavy Metals and Flame Retardants

Flame retardants (FRs) are a frequent discussion point for the ecolabel attracting a wide range of views from stakeholders. The discussion points are well known so are not reproduced here. Interested readers may wish to refer back to our November 2006 TV discussion paper.

Most recently, FRs were discussed during the criteria finalisation process for Heat Pumps at the April 2007 EU Ecolabelling Board and Regulatory Committee meetings. After much discussion, a form of words was agreed that are now embedded in the Heat Pumps criteria. We propose to adopt the same text.

Proposed criterion

Cadmium, lead, mercury, chromium 6+ or poly-brominated biphenyl (PBB) or poly-brominated diphenyl ether (PBDE) flame retardants, as listed in Article 4 of Directive 2002/95/EC of the European Parliament and Council, may not be used in the television, taking into account the tolerances specified in Commission Decision 2005/618/EC amending Directive 2002/95/EC. This requirement for flame retardants shall take account of subsequent adaptations and amendments made to that Directive regarding the use of deca-BDE.

Assessment and verification: A certificate signed by the television producer declaring compliance with the requirement shall be submitted to the awarding Competent Body.
Appendices

Appendix 1: User Instructions example
Appendix 1 – User Instructions example
Example TV Ecolabel User Information
For the InterTV 32” LCD TV

This Television has been designed and manufactured to be energy efficient and has been awarded the European Ecolabel, more information about which can be found at http://ec.europa.eu/environment/ecolabel/index_en.htm

Energy Use

The following information describes the power consumption for this television set in its various modes: on, passive standby and off. It then shows the likely levels of annual energy consumption using industry agreed usage patterns. Finally it indicates how much it would cost to use per year, firstly if standby modes are used when the set is not being watched and secondly if it is turned off properly, such as at the wall, also known as “hard off”.

<table>
<thead>
<tr>
<th>Power Mode</th>
<th>Power Consumption</th>
<th>EICTA use guidelines</th>
<th>Annual Energy Consumption</th>
<th>Cost per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Watts</td>
<td>Hours / day</td>
<td>kWh / year</td>
<td>0.08 Euros / kWh</td>
</tr>
<tr>
<td>On</td>
<td>100</td>
<td>4</td>
<td>146.0</td>
<td>11.68</td>
</tr>
<tr>
<td>Passive Standby</td>
<td>1</td>
<td>20</td>
<td>7.3</td>
<td>0.58</td>
</tr>
<tr>
<td>Hard Off (at Wall/Plug)</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

TOTAL annual cost : standby € 12.26
TOTAL annual cost : hard off € 11.68

A European average energy cost to the consumer of €0.08 / kWh has been used, but a more appropriate figure for the country or region of use could of course be used instead.

The calculations above can likewise be performed for another television with different power consumption figures in order to show the saving in energy and money that can be achieved, using the equation in the box below.

Annual Energy Consumption (kWh/year) = Power Consumption (W) x Use (Hours/day) x 365 ÷ 1000

Cost per Year (€) = Annual Energy Consumption (kWh/year) x € 0.08

For example, another 32” LCD TV with a higher power consumption of 150W in the on-mode and 3W in the passive standby mode would have a total annual cost (off) of €17.52. Comparing the costs when the TVs are off shows a saving of €5.84. This is equivalent to a saving of 73kWh per year, or approximately 32kg of CO₂ per year, using European averages. With over 30 million televisions sold annually in Europe, this could amount to over 955,000 tonnes of CO₂ saved across the EU.
Example TV Ecolabel User Information
For the InterTV 32” LCD TV

Energy efficiency

Energy efficiency can be improved by the user applying some simple measures to reduce energy consumption further, thus saving energy and money.

- Putting the television in its lowest standby mode when not in use will save energy and money
- Turning the television off at the plug when it is not in use, say at night, or when on holiday, will further bring energy use down to zero.
- Reducing the brightness of the television will also reduce energy consumption – set it to an appropriate level for the room it is in.

Repair, maintenance and recycling

This television has been designed so that it can be easily repaired or upgraded. Likewise this eco-designing allows for the set to be easily recycled when it reaches the end of its useful life.

If the television becomes faulty then we provide a parts and repair service so that you can keep using your television – it is generally better environmentally to mend televisions where possible and extend their lifetimes.

When you feel the time has come to get a new television, you can either bring it back to us for recycling, or take it to your local Civic Amenity Site for disposal and recycling. If it still works properly, then you could maybe consider donating it to a charity.