COMMISSION OF THE EUROPEAN COMMUNITIES

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COMMUNICATION FROM THE COMMISSION
TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

on Policy Instruments to Reduce

Stand-by Losses of Consumer Electronic Equipment

1. Introduction

Energy efficiency is one of the most important policy areas in attaining the Community's objective of reducing CO_2 emissions. The need to promote energy efficiency more vigorously has been recently reaffirmed in the Commission Communication on "Energy efficiency in the European Community – Towards a Strategy for the rational Use of Energy"[1]. The main conclusions of that Communication have been endorsed by the Council in the Resolution on Energy Efficiency in the European Community[2]. This Resolution calls inter alia on the strengthening of the activities in households through the "increased and extended use of labelling, certification and standardization;" and the "increased use of the negotiated agreements on a voluntary basis". Moreover the Resolution invites the Commission to come forward with a prioritized Action Plan.

In particular there is a need to reinforce the action to promote the efficient use of electricity, which is responsible for about 30 % of total CO_2 emissions. In recent years has been brought to the attention of policy makers, that stand-by[3] losses of consumer electronic equipment are responsible for a considerable amount of electricity, that this is rapidly increasing, and that this electricity represent a waste of resources. The present Communication intends to bring to the attention of the Council and Parliament this issue by giving a picture of the present and forecasted stand-by losses consumption. Moreover the present Communication intend to present, discuss and recommend some policies and programmes for reducing stand-by electricity consumption of consumer electronic equipment and thus contributing to the Commission Action Plan for energy efficiency and to the Community goal of reducing CO_2 emissions.

Consumer electronic equipment and other domestic and commercial appliances consume a considerable amount of energy when they are in stand-by. Energy consumption of consumer electronic equipment has steadily increased over recent years, due to the increased penetration rate of existing devices (e.g. Televisions (TVs) and Video Cassette Recorders (VCRs), etc.), the introduction of new entertainment equipment (e.g. Integrated Receiver Decoders (IRDs), Digital Video Disk (DVD) players, etc.), and, last but not least, the use of more battery powered equipment (e.g. portable telephones, portable drills, portable vacuum cleaners, etc.). Recent studies and in situ measurement campaigns have indicated that in the average EU household between 5 to 10% of its total yearly electricity consumption is due to the stand-by mode of consumer electronic equipment and other devices, and this is due to increase in the next decade.

The total EU domestic power consumption of consumer electronic equipment[4] in stand-by mode has been estimated to be around 36 TWh and it is predicted to increase to 62 TWh by year 2010. This represents wasted energy, because the equipment consumes while not performing its main function. Recent technological development has

[1] COM (98) 246 final

[2] O.J. No C 394 of 17.12.1998

[3] From now on the off-mode consumption will be considered included in the definition of stand-by consumption.

[4] For a comprehensive list of domestic consumer electronic equipment see Table1. The energy consumption quoted does not include stand-by losses of conventional white goods (e.g. electric storage water heaters) and office equipment.

demonstrated that is feasible and cost-effective to substantially reduce this wasted electricity without reducing the functionality of consumer electronic equipment[5]. However market, financial and information barriers[6] prevent the widespread adoption of these technologies. Therefore it is important that energy efficiency policies and programmes are implemented without delay, in order to overcome these barriers and stop the associated waste of electricity. If the Community and Member States adopt adequate policies and programmes, it is reasonable to assume that 39 TWh (or about 60% of the forecasted consumption in a "business as usual scenario") and 21 MT CO_2 per year can be saved in the Community by year 2010. This would be facilitated if other international actors and institutions would also adopt similar policies and programmes.

2. Background

Energy consumption of consumer electronic equipment is characterized by several modes of operation. In a simplified analysis three main modes of operation can be identified: the on-mode when the devices is performing its main function (the TV is displaying the picture, the battery charger is charging the battery, etc.), the stand-by mode when the equipment is powered but is not performing its main action (the TV is waiting for a remote control signal to be turned on) and the off-mode when no task is performed (and in principle the equipment shall be disconnected from the AC grid)[7].

The table below gives an overview of the stand-by consumption (and/or off mode) of the main domestic consumer electronic equipment.

Equipment	Off or Standby Power
TV Set	1 to 13 W
VCR	5 to 19 w
Compact Audio	0 to 18 W
IRDs	8 to 20 W
Clock Radio	1 to 3 W
Microwave Oven	2 to 6 W
Battery Charger	2 to 4 W
Answering Machine	2 to 4 W
Cordless and Cellular Phones	2 to 7 W
Hi-fi System	0 to 12 W
Audio Portable	0 to 5 W
Plug-in Power Supply	1 to 3 W

[5] Technical solutions exist to reduce stand-by consumption to less than 1 Watts in power supplies, TVs and other equipment. Equipment with very low power consumption has been introduced into the market at no or very little extra costs.

[6] An example of an information barriers is the lack of knowledge by consumers and retailers on the stand-by consumption of TVs and VCRs

[7] Although it is logical to expect that in the off-mode the electricity consumption is zero, several types of consumer electronic equipment do not have the on-off switch; the equipment is always connected to the grid and few components are always powered, therefore the equipment is consuming a few Watts also when the equipment seems to be off.

In the coming years there will be new types of consumer electronic equipment entering the market, equipment merging and/or becoming multifunctional (for example TVs and IRDs are already being integrated). In fact an extremely fast technology change and very rapid market penetration, once successfully launched on the market (for example digital TV), characterize consumer electronic equipment. Consumer electronic equipment tends to be standardized at least at EU level, and sometime even at worldwide level. Manufacturers tend to be more and more global players. The above considerations have major consequences for energy efficiency policies and programmes. First of all energy efficiency policies and programmes must be able to adapt to quick technological changes and they have to be able to cover newly introduced equipment types and/or technologies (changes both in hardware and software). Secondly energy efficiency policies and programmes tend to be more effective if they are established at Community level, and perhaps even co-ordinated with other commercial partners (e.g. USA, Japan, and other Asian economies).

Another important consideration in designing policies is that the annual energy consumption in stand-by mode of any individual consumer electronic equipment might not be a considerable amount[8] to draw the attention of any "rational" buyer to energy efficiency. There are many features and quality issues that might have a higher priority in the final purchase decision. Last but not least, some types of equipment are not selected by the final user, rather they come in a package with the main equipment (for example battery chargers for portable telephones) or the equipment is needed for receiving a specific service. In this case the technical specifications are set by the service provider (for example IRDs, which are specified by the service providers; IRDs are often provided to users either on loan or at promotional prices).

3. Policies to reduce stand-by consumption of consumer electronic equipment

To enhance the average efficiency of domestic appliances present today on the market, a range of different policies and programmes is needed in order to exploit the full energy efficiency potential of the available technology. Market transformation in terms of energy performance is the goal of any energy efficiency action for appliances. The various instruments (minimum efficiency performance standards (MEPS), voluntary agreements, labelling, quality marks, incentives, tax rebates, procurement etc.) are intended to interact and influence the market. The interaction between the various instruments is illustrated in the figure below.

[8] For example a VCR has a typical stand-by consumption of about 8 W, this results in about 60 KWh per year.

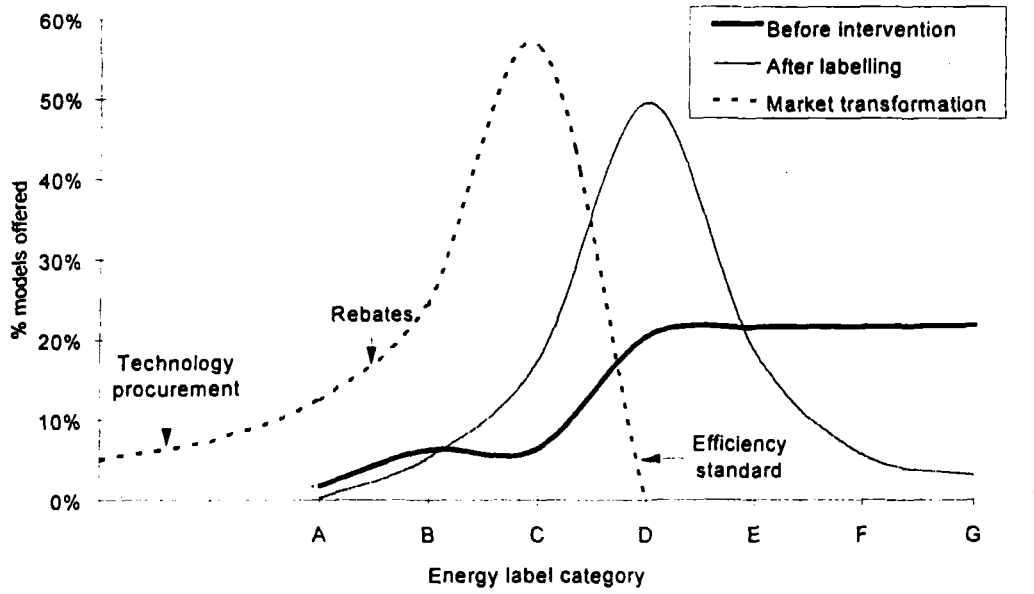

Figure 1

Labelling actions (either through a mandatory energy label in the framework of Directive 92/75, or through a quality mark, e.g. the Energy Star), focus customers' attention on operating costs and other environmental aspects of the equipment, thus enlarging the market share of efficient equipment. To eliminate the "bad" equipment from the market, MEPS, setting the lowest acceptable performance level, are a well known and tried instrument. Recently negotiated agreements have been used in the Community as an alternative to MEPS introduced through legislation (Directives). Technology procurement (i.e. the process of aggregating purchase power in order to specify new highly efficient equipment) acts on the higher end of the market by accelerating and expanding the penetration of new and more efficient products into the market place. Incentives, provided by demand side management DSM activities of utilities or by energy saving trusts, have been successfully used in the past to promote for example efficient lighting (e.g. compact fluorescent lamps), and white goods (e.g. refrigerators). Tax rebates (for example reducing the VAT on efficient products) could also be effective to achieve market transformation.

Moreover common measurement methods must be adopted in order to introduce any of the above polices. To this end the Commission has issued a mandate to the European Standardisation Bodies, CEN/CENELEC, to define the operational modes of the main consumer electronic equipment[9] and the methods to measure the energy consumption in each of the operational modes. The Commission will continue this activity by issuing new mandates to the European Standardisation Bodies, as appropriate to follow technological development and the introduction of new equipment.

[9] TVs, VCRs, Satellite Receivers, Decoders and hi-fi.

At the Community level, the approach followed to achieve market transformation for white goods consists of mandatory energy labelling, carried out in the framework of Directive 92/75 and the subsequent application Directives[10]; and MEPS introduced either through Directives (e.g. for refrigerators and freezers) or through negotiated agreements (e.g. for washing machines). This approach has proved to be effective in achieving market transformation for white goods and in particular for refrigerators and washing machines[11].

However not all the policy instruments described above would be effective in promoting more efficient consumer electronic equipment. As already indicated consumer awareness for stand-by consumption is very low and the stand-by consumption might account for a limited amount of the total life cycle cost. Several other purchase criteria have a higher priority on consumer's choice (product quality, features, brand and price); therefore action directed towards manufacturers will in principle be more effective. To this end establishing maximum power consumption in stand-by mode (and other modes) will certainly have a positive impact on the average consumption. Moreover to avoid creating barriers to trade any such requirements must be adopted at Community level. However as experienced with the "Refrigerators and Freezers" Directive[12], the adoption of a Directive is a rather long process; the same would apply to eventual amendments to follow technological development. In the case of TVs and VCRs the conclusion of a negotiated agreement between public authorities (in this case the Commission) and manufacturers was the preferred solution[13].

Negotiated agreements might offer advantages, in that they can be more flexible and quicker to implement than regulation. In addition, negotiated agreements are easier and quicker to upgrade than legislation allowing them to follow technological evolution and market changes. Since industry has the best knowledge of the technologies required to improve efficiency, it is clear that co-operation between public authorities and industry can facilitate the establishment of ambitious energy efficiency targets. Moreover the extra flexibility can be used to identify cost-effective solutions, which might lead to higher efficiency improvements than a simple cut-off line as in the case of regulation[14].

Consumer electronics manufacturers have expressed their willingness to conclude negotiated agreements to achieve energy savings targets. According to manufacturers, negotiated agreements give them more freedom in reaching the target, by selling more high efficiency products, by having flexibility when to phase out low efficiency units and therefore maximise their profits, while achieving energy efficiency improvements. In addition, manufacturers have highlighted the advantages of having a demand driven process, which would favour cost-effective solutions and which would allow

[10] O.J. No L 297 of 13.10.92. The implementing Directives for refrigerators and freezers, washing machines, driers, washer/driers, dishwashers and lamps have been adopted.

[11] The average efficiency of washing machines in the period 1994 to 1998 has been improved by 20%, while in the case of refrigerators it is expected that with the entry into force of the Directive in September 1999 the average efficiency improvement will be of about 25% compared to 1992 models.

[12] O.J. No L 236/36 of 18.9.1996

[13] A comprehensive description of the TVs and VCRs agreement can be found in the O.J. No C 12/3 of 16.1.1998

[14] In the case of the TVs and VCRs agreement a sales weighted target per company was established.

manufacturers to have a pro-active role in setting quantified criteria, in implementing the measures and achieving the results. This is a clear advantage in a very competitive market as the one for consumer electronic equipment. In addition, by co-operation on energy efficiency improvements, public authorities and industry can share responsibility in setting ambitious targets, which are at the same time realistic and achievable.

The Commission considers that negotiated agreements can be a useful policy instrument to promote energy efficiency , if they include at least the following three elements: i) commitments by manufacturers accounting for most of the appliances sold on the Community market (80% at least); ii) quantified commitments to significant improvements in the energy efficiencies of the appliances they produce over a reasonable timescale; and iii) an effective monitoring scheme with some degree of independence to monitor the energy efficiency improvements achieved. A more extensive list of criteria to be followed by public authorities in concluding agreements with industry can be found in the Commission Communication on Environmental Agreements[15]. With this Communication of the Commission has adopted a policy with regard to Environmental Agreements, having as a point of departure the existence of certain advantages but also certain risks and laying down requirements for the effective use of these agreements. Moreover following the Council European Parliament Resolutions on the above Communication, the Commission is now reflecting on procedures to assure that future negotiated agreements at Community levels are more transparent and involve in the negotiations all the concerned parties including NGOs and the other two Community Institutions.

4. A strategy (policies and programmes) to reduce stand-by consumption of consumer electronic equipment.

4.1. Wider use of negotiated agreements

As already indicated the TVs and VCRs negotiated agreement proved that this instrument can be a serious alternative to MEPS and in particular the first annual report[16] shows that the agreement is on track to meet the target efficiency improvement. Given the need to have flexible policy instruments, negotiated agreements are the preferred policy option for other consumer electronic equipment (e.g. IRDs, power supplies, hi-fi, etc.). To this end the Commission has started negotiation with EACEM (the European Association of Consumer Electronics Manufacturers) for a negotiated agreement for audio equipment (hi-fi, etc.). It is expected that manufacturers during the first part of 1999 will sign this agreement and notify it to the Commission competition authorities. Discussions with manufacturers have also been started for IRDs and power supplies. However for these two types of consumer electronic equipment there are some additional difficulties.

IRDs are produced by manufacturers according to service providers' specifications; the latter have no specific interest or benefit in requiring low stand-by consumption[17].

[15] COM (96) 561 final

[16] The report has been issued by Arthur Andersen on 13 July 1998.

[17] In fact some service providers requires the equipment to be permanently on for remote access of the equipment at any time to download new software and perform other tasks.

Moreover IRDs change rather quickly and new generations with additional features are introduced every year. IRDs have a rather high stand-by consumption and although today they have still a limited market penetration, this is predicted to increase rapidly in the coming years as IRDs are linked to digital TV and to the provision of new services (e.g. tele-shopping, internet, etc.). Therefore it is very important to take action on IRDs before they penetrate further EU households. This would avoid that, as for other appliances, about ten years, i.e. the time to replace the installed stock, would be needed to feel the full effect of the policy action. A pan European organisation Digital Video Broadcasting (DVB) has been set up to define all the requirements and provisions of digital TV and Multimedia Home Platform, including IRDs. DVB groups all the interested parties (hardware, software, equipment manufacturers, service providers, telecom companies, etc.). Recently the Commission Services have prepared a strategy paper to reduce stand-by consumption of IRDs (Annex 1), this paper has already been presented to and discussed by all interested parties, including DVB.

- *The Commission invites all concerned parties (hardware, software, equipment manufacturers, service providers, telecom companies, etc.) to endorse the strategy paper and to commit themselves to implementing the necessary actions to achieve efficiency improvement.*

Power supplies are widely used both inside all consumer electronic equipment and as stand-alone equipment to charge batteries or to provide DC voltage to some consumer electronic equipment. Several power supplies are present in each household. Poor design and the need to limit the power supply cost results in off-mode consumption of a few Watts. As already indicated technical solutions exist to limit the off-mode consumption to less than 1 W. However the implementation of policies is again not straightforward. Power supplies are produced in large quantity and supplied to Original Equipment Manufacturers (OEMs) (for example mobile telephone suppliers). Again OEMs have no interest and incentives to reduce stand-by consumption. Recently the Commission Services have prepared a strategy paper to reduce stand-by consumption of power supplies (Annex 2). This paper has already been presented and discussed with all interested parties. In the case of power supplies the technological change is moderate, moreover since large quantities of power supplies are produced in the Far-east and imported into the Community, there is the need for further investigations about the feasibility of negotiated agreements as a viable policy tools for this equipment.

- *It is proposed that the strategy paper is further discussed with all interested parties to see if proposed targets can be achieved and the possibility of a negotiated agreement is first discussed with producers of power suppliers for battery chargers for mobile telephones, and mobile telephone providers. If on the basis of the subsequent assessment the possibility of a negotiated agreement is not viable the Commission will proceed with legislation.*

If the agreement would be possible for this type of power supplies, then it could be extended to battery chargers for other types of equipment, mainly for kitchen tools and consumer electronic equipment (e.g. walkman).

4.2. Community energy efficiency labelling for consumer electronic equipment

Labelling is certainly a policy option to be seriously considered. However there are a number of issues to be considered before setting up a labelling scheme for consumer electronic equipment. First of all, there are consumer electronic equipment, which do not have a big variation of efficiency to justify an "A to G" type classification scheme (for instance power supplies in off-by mode). In addition, it is desirable (and feasible) that in a reasonably short time all manufacturers would offer products only in the high efficiency range (e.g. less than 1 Watt for all power supplies). Moreover, there are cases where several modes of consumption should be addressed by a label (e.g. for TVs also the on-mode is important); modes can also evolve swiftly (e.g. stand-by consumption is already divided into active and passive modes).

Given the above considerations, for consumer electronic equipment it would more useful to have a voluntary quality mark to indicate the best appliances[18] on the market, rather than an "A to G" scale. For some end-use equipment, the introduction of a quality mark to identify the most efficient products on the market is a policy option to achieve market transformation (for example the US EPA Energy Star Programme for office equipment). The criteria underlying the quality mark can be changed to follow technological development. To this end a voluntary labelling programme would present several advantages.

This could perhaps be complemented by a mandatory energy consumption declaration implemented in the framework of Directive 92/75, to oblige all manufacturers to supply some information on the stand-by (and off-mode) losses of the equipment that they produce.

As for other products, there are already a number of voluntary quality marks[19] for efficient products appearing on the Community market. To avoid sending conflicting messages to industry and creating potential barriers to trade, it is advisable to try to harmonise these initiatives at least at Community level. One solution would be to create a voluntary Community quality mark for energy efficient products, including consumer electronic equipment, which would not be covered by Directive 92/75. The voluntary Community quality mark would avoid creating confusion for consumers who could be confronted by «too many» labels and logos on appliances; moreover this would help to maximise the impact of information campaigns and minimise the manufacturers' compliance costs. One possible solution would be to build on the success of the US Energy Star programme, which covers, inter alia, in the USA also consumer electronic equipment. Pending the successful conclusion of the negotiation between the Community and the USA for the agreement on co-ordination of labelling programmes for office equipment, it is worth exploring the advantages/disadvantages of extending the agreement to cover also consumer electronic equipment. In addition, any Community energy labelling activity has to be co-ordinated and coherent with the existing EU Eco-label, which might soon cover some consumer electronic products such as TVs.

[18] This can be understood as the best xx% on the market.

[19] One good example of a voluntary quality mark in some Member States is the GEA quality mark. In addition, there are also ecolabels that cover, inter alia, energy. In particular the Community Ecolabel scheme has been used for some with goods and it can be in principle extended to consumer electronic equipment.

- *It is proposed to explore the need for and the feasibility of Community energy efficiency labelling for consumer electronic equipment, possibly using the Energy Star mark, and in co-ordination with the EU Eco-label.*

4.3 Other possible policy actions

Technology procurement has been used for promoting highly efficient white goods and electronic ballasts with great success. Some investigations are made to use technology procurement for consumer electronic equipment, e.g. for power supplies procured by OEMs. It is worth pursuing this investigation and pilot test this policy instrument, which can be complementary to the negotiated agreement. Other instruments such as DSM activities and incentives, tax rebates, etc., are also important to achieve market transformation and therefore worth pursuing. Finally, it is worth exploring how best to raise consumer awareness of the issue of stand-by losses and to encourage them to opt for energy-efficient options. Specific steps could include information campaigns and the involvement of consumer organisations in the actions proposed to achieve efficiency improvement.

5. Conclusions

It is important that appropriate policies are implemented to reduce the fast rising energy consumption of consumer electronic equipment in stand-by and off-mode. Among the policy options presented above, the Commission is of the opinion that negotiated agreements with the manufacturers of consumer electronic equipment is a promising instrument that needs to be explored further with a view to covering more types of equipment. The option of regulation should not be excluded if voluntary agreements for some products do not look promising. The introduction of a labelling initiative for energy efficient consumer electronic equipment might help reduce the energy consumption of such equipment, but would, where appropriate, have to be co-ordinated and coherent with the existing EU Eco-label. These policy options will be considered for inclusion in the forthcoming Energy Efficiency Action Plan to be presented by the Commission. Other actions by Member States should also be examined and implemented with a view to complementing initiatives at Community level.

Annex 1

Minimising energy consumption of IRDs

Strategy Paper

This strategy paper has been prepared by the European Commission, following the discussions and decisions of the ad-hoc working group.
This strategy paper is supported by the following organisations:

1. Introduction

Expectations are that Integrated Receiver Decoders (IRDs) and other set-top-boxes will contribute substantially to the electricity consumption of households in Europe in the near future. Depending on the penetration level, the specifications of the IRD and the requirements of the service provider, a total European consumption of up to 15 TWh per year can be estimated for the year 2006. With the general principles and actions resulting of this strategy paper the (maximum) electricity consumption could be limited to 7.5 TWh per year, this is equivalent to total saving of 750 Million EURO per year.

Responsibility for the technical equipment lies primarily with the service providers, who are advised by the equipment and component manufacturers. Furthermore, many of the parties involved work together in DVB. To help all parties to address the issue of energy efficiency whilst avoiding competitive pressures to raise energy consumption of equipment, it is proposed that all service providers, equipment and component manufacturers and standardisation bodies should support this strategy paper.

This strategy paper sets out the basic principles to be followed by all parties involved in digital TV services, operating in the EU in respect of energy efficient equipment.

2. Scope

This strategy paper covers IRDs (integrated receiver decoders) for the reception of digital broadcast signals by satellite, cable and terrestrial.

3. Aim

To minimise energy consumption (kWh) per appliance.

4. Commitment

Signatories of this strategy paper will:

- Abide the General Principles .

- Achieve the power consumption targets within the time schedule indicated in Table 1.

- Encourage their suppliers and other relevant market actors to comply with the provisions of this strategy paper.

- Provide information on power consumption of IRDs to consumers, and facilitate and encourage consumers to adopt energy efficient practices in connection with the use of digital TV services.

- Co-operate with the European Commission and Member States in monitoring the effectiveness of this strategy paper.

5. Monitoring and Review

Signatories agree to provide information directly or indirectly via their authorised representative bodies to enable the European Commission and Member States to evaluate the level of compliance and the effectiveness of this strategy paper in achieving its aims.

Monitoring will be done on a yearly basis. The monitoring results will be discussed with the European Commission and Member States. Besides monitoring results, also developments that influence energy consumption, e.g. IC development or development in Conditional Access systems, and plans to improve efficiency will be discussed.

6. General Principles

Operational

6.1 Digital TV service systems should be designed to minimise energy consumption.

6.2 In particular, operational and control systems should be specified on the presumption that hardware has power management built in, i.e. that hardware will automatically switch to the mode with the lowest possible power consumption.

6.3 The system should be designed on the assumption that the digital TV consumer equipment (IRD) may be physically disconnected from the mains supply by the consumer, from time to time, at his or her discretion, with minimal degradation of the quality of service provided.

Hardware (IRD)

6.4 Succeeding generations of IRDs with similar or incrementally increased functionality should consume less energy than foregoing generations.

6.5 Hardware should be designed to minimise energy consumption, within the constraints of the operational specification.

6.6 In particular, power management should be introduced to ensure that the IRD is always in the mode with the lowest possible power consumption, and that not more components are powered than necessary for the functionality at that moment.

6.7 Components and design should facilitate, not limit, the development and introduction in the future of operational strategies which would reduce energy consumption for consumers.

Table 1 : maximum power levels and time schedule[1]

Mode	**1-1-2000**			**1-1-2003**		
	IRD-C	IRD-T	IRD-S	IRD-C	IRD-T	IRD-S
on	25 W	27.5 W	30 W	25 W	27.5 W	30 W
standby-active	20 W	22.5 W	25 W	10 W	15 W	15 W
standby-passive	10 W	12.5 W	15 W	2,5 W	5 W	7.5 W
off	0 W	0 W	0 W	0 W	0 W	0 W

Power levels are differentiated for the 3 types of IRDs: cable IRDs (IRD-C), terrestrial IRDs (IRD-T), and satellite IRDs (IRD-S), because of the different power requirements of the transmission media (cable, terrestrial, satellite).

Regarding definitions of modes and measurement methods for power consumption, reference is made to work in progress at Cenelec (TC 206) on this subject.

[1] *NB: These power levels are a first draft, to be commented especially by IRD manufacturers and EACEM.*

Annex 2

Maximising Energy Efficiency of Wall Packs and Chargers

Strategy paper

This strategy paper has been prepared by the European Commission in discussion with concerned parties.
This strategy paper is supported by the following organisations:

1. Introduction

Standby losses, including no-load losses, in power supplies contribute substantially to the electricity consumption of households in Europe. The Study on Miscellaneous Standby Power Consumption of Household Equipment (Molinder, 1997) calculated an increase for wall packs and chargers from about 8 TWh in 1996 to about 16 TWh in 2010 (Business as Usual scenario). With actions resulting from this commitment paper this increase can be counterbalanced, resulting in savings of 8 TWh per year in 2010, this is equivalent to a total saving of 800 Million EURO per year.
Further savings can be expected form the application of efficient power supplies in electronics appliances, such as TVs, VCRs, microwave ovens, etc.
When addressing efficiency of power supplies, also power quality should be taken into account. Although applying electronics in power supplies can increase efficiency and lower no load losses, it should not adversely effect the power quality.

2. Scope

Scope of this paper are external power supplies for electronic appliances, for example wall packs and battery chargers, e.g. for mobile phones or universal rechargeable batteries. In most cases these power supplies are specified by the appliance manufacturer; production can be at the appliance manufacturer or at a dedicated manufacturer.
These power supplies and chargers have in common that they mostly do not have an on-off switch and consume electricity in a no-load situation.

3. Aim

To minimise no-load losses of wall packs and chargers.

4. Commitment

Signatories of this strategy paper will to:

4.1 Achieve the following no-load power consumption targets within the time schedule:

	1-1-2001	1-1-2003
no-load power consumption equal or less than	0.5 W	0.1 W

4.2 Encourage their suppliers and other relevant market parties to commit themselves also.

4.3 Co-operate with the European Commission and Member States in monitoring the effectiveness of this strategy paper.

5. Monitoring

Signatories will report to the European Commission and Member States on a yearly basis how many types of the total number of types a manufacturer produces reached the target in that year, starting with the year 1999 (baseline). The monitoring results will be discussed with parties involved and can be published by the European Commission and Member States.

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