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IPP INDUSTRY VOLUNTARY AGREEMENTS

07.02. 2008

Appendix 1 updated 20.10.2008

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1. INTRODUCTION

This document contains a complete package of voluntary agreements resulting from IPP task forces. IPP (Integrated Product Policy) –pilot program was a program led by Nokia and the European Commission. Several key stakeholders participated in the project. More of the pilot program can be found in <http://ec.europa.eu/environment/ipp/mobile.htm>.

The work has been carried out in task forces being led by organizations that have significant influence in the area. The members in the teams are from organizations that play a role in the mobile phone life cycle. The more precise description of the task force work can be found in IPP task force final report (<http://ec.europa.eu/environment/ipp/mobile.htm>).

This has resulted in three voluntary agreements. All three Voluntary Agreements are open for new participants to join.

The precise contents of these voluntary agreements including lists of committed companies are defined in appendices 1-3

The market share of these committed companies is very remarkable. It can be estimated that currently LG, Motorola, Nokia, Samsung Electronics and SonyEricsson form more than 90 % common market share in Europe.

2. SUMMARY OF VOLUNTARY AGREEMENTS

The three parts of this overall IPP Voluntary Agreement -package are:

- Product environmental facts
- Reduce energy consumption by decreasing charger no-load energy consumption
- Mobile phone companies' statement on substances of concern

2.1 PRODUCT ENVIRONMENTAL FACTS

The task force has agreed to introduce an Index - to be made available for the consumer in the point of sale, in product documentation and on internet - with environmental information on the mobile phones. Using the index consumers can easily compare products. Key facts are presented using common criteria. The idea is that the environmental index is very similar to the one used for illustrating the energy efficiency of white goods, so the framework is familiar to the consumers as well. In the first phase the index will give info on the energy consumption on the no-load mode of the charger. The index could be extended later with other kind of environmental information. In addition, the task force team is proposing a target date by which the manufacturers would have adopted the index to use, by October 31st 2008.

The commitment will take the form of a voluntary agreement to be signed early 2008, by LG, Motorola, Nokia, Samsung Electronics and SonyEricsson.

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2.2 REDUCE ENERGY CONSUMPTION BY DECREASING CHARGER NO-LOAD ENERGY CONSUMPTION

The producers joining this initiative agree to add a visual reminder on the screen of their phone to unplug the charger when the phone is loaded in their phone meeting minimum requirements as stated in the voluntary agreement. Participating producers also agree to meet the EU Commission Code of Conduct for External Power Supplies –requirements.

The producers joining this voluntary agreement will commit to add this reminder to their whole product portfolio starting with first products 2008. All new product lines/families shall have this reminder in 2009. However, producers' intention is to introduce first products faster. This has already started in 2007. The participating operators agree to require this from their suppliers.

Participating partners for this voluntary agreement are LG, Motorola, Nokia, Samsung Electronics, SonyEricsson and Swisscom.

2.3 MOBILE PHONE COMPANIES' STATEMENT ON SUBSTANCES OF CONCERN

As an outcome from the "materials of concern" taskforce the following companies are signing this voluntary agreement aimed at further improving the management of materials/chemicals of concern. The signatories have individually committed to the voluntary actions on flame retardants, PVC and phthalates as detailed in the annex.

This voluntary agreement has been developed and agreed by all leading mobile phone manufacturers: LG, Motorola, Nokia, Samsung Electronics and SonyEricsson.

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APPENDIX 1: Note: Section 3. Voluntary Agreement has been updated

Product environmental facts

This initiative aims at focusing on introducing an Index - to be made available for the consumer in the point of sale, in product documentation and on the Internet - with environmental information on the mobile phones. Using the index consumers can easily compare products and key facts are presented using common criteria. The idea is that the environmental index is very similar to the one used for illustrating the energy efficiency of white goods, so the framework is familiar to the consumers as well. In the first phase the index will give information on the energy consumption on the no-load mode of the charger. The index can be extended later with other kind of environmental information. In addition, the task force team is proposing a target date by which the manufacturers would have adopted the index to use, by October 31st 2008. The commitment will take the form of a voluntary agreement signed by LG, Motorola, Nokia, Samsung Electronics and SonyEricsson. It will be reviewed every 3 years.

Measurement setup is according to Test Method for Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies. The power measurement instrument shall have a resolution of 0.001W or better for active power.

The framework can be applied for other types of power supplies, however, product line specific scaling is needed for power consumption and rating. Testing will be based on manufacturer's self declaration. Testing is based on the criteria used in the Energy Star:

http://www.energystar.gov/ia/partners/prod_development/downloads/power_supplies/EPSupplyEffic_TestMethod_0804.pdf

This information will be part of consumer information and preferably be part of product documentation (e.g. User Guide). Also this information will be readily available in point of sales and in additional product documentation e.g. in the Internet.

The Code of Conduct on Efficiency of External Power Supplies is a voluntary agreement and the signatories, electronics manufacturers, commit to developing external power supplies (i.e. chargers) with minimized power consumption and especially minimum no-load power consumption which means that while the charger is not charging though plugged in, it consumes a minimized amount of energy.

1. PRACTICAL SOLUTION

Table 1-1: Attributes of a good scheme for informing consumers on the environmental aspects of products

Consumers' Perspective	Manufacturer's Perspective
Information should be: <ul style="list-style-type: none"> - Easily understandable - Easily accessible - Comparable for products in same category - Provided in a suitable format - Credible - Widely accepted - Verifiable Information scheme should: <ul style="list-style-type: none"> - Cover significant life-cycle environmental aspects 	Information should be: <ul style="list-style-type: none"> - Easy and fast to produce - Format can be updated and modified regularly in line with technological developments - Cost-efficient to produce Information scheme should: <ul style="list-style-type: none"> - Support continuous improvements and innovations - Not increase the time to market products

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2. COMMITTED PARTNERS

The following partners have committed to implement this voluntary agreement:

LG



Motorola



Nokia



Samsung Electronics



SonyEricsson



3. VOLUNTARY AGREEMENT

Energy Efficiency Index will be reviewed against latest applicable criterias.

As part of the framework, review of specifications of Energy Starfor External Power Suppliers and European Commission Code of Conduct on Energy Efficiency of External Power Supplies.

Need for update is reviewed at least in 3 years.



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APPENDIX 2:

Reduce energy consumption by decreasing charger no-load energy consumption

Voluntary agreement to add user guidance in the mobile device

1. BACKGROUND

This initiative aims at reducing the energy consumption of mobile phones during the use phase, especially minimizing charger no-load energy consumption.

Approximately 50% (perhaps more) of the life cycle energy consumption of a mobile phone is wasted as no-load power consumption of the charger (assuming that the in-use life time of a mobile phone is 2 years, charging happens every second day and the charger is left plugged in after the phone is charged). This energy can be saved by a) reducing the no-load power consumption of the charger and b) by unplugging the chargers from the wall after the phone is charged.

In the average home, 40% of all electricity used to power home electronics is consumed while the products are turned off. This reminder may also be very useful in order to raise consumers' general awareness regarding stand-by/no-load energy consumption even though the no-load energy consumption of mobile phone chargers is relatively low compared with the overall energy consumption of the household.

There is a voluntary code of conduct for reducing the no-load power consumption of the chargers. Owing to this code, the no-load energy consumption has gone down from 1.3 watts for 1999 chargers to less than 0.3 watts for present generation of chargers.

This voluntary agreement aims to further reduce the energy lost in no-load power consumption by stimulating consumer action on unplugging the chargers from the wall or switching off the electricity supply to the chargers after the phone is charged.

For phone chargers with no load power consumption less than 0.3 watts approximately 2,6 kWh/year of energy is lost in no-load power consumption depending upon the usage profile.

More background information can be found in the EU Commission IPP web page (http://ec.europa.eu/environment/ipp/pdf/report_02_08_06.pdf).

2. PRACTICAL SOLUTION

The practical solution to inform and guide consumers can be a visual reminder in the phone. This option will require changes in the software but no additional components need to be added, which means that the environmental gains can be maximized. Adding new components would mean also new environmental impacts. Table 1 shows necessary attributes for a good solution.

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Table 1: Attributes of a good solution for adding reminders

Consumers' Perspective	Manufacturer's Perspective
The reminder should : <ul style="list-style-type: none"> - Be easily understandable - Not cause problems with normal phone usage / charging - Acceptable 	The solution should: <ul style="list-style-type: none"> – Be implementable and cost-effective – Compatible with user interface and other design styles and decisions – Cause no/minimal additional environmental impacts – Implementable - possible exemptions should be taken into account (e.g. if a display size in some special type of phones is physically too small)

The visual reminder should meet the following minimum requirements:

1. The text shall advise the consumer to unplug the charger in a correct way (e.g. preferably advice consumers clearly to unplug the charger from the wall). However, it shall also be crisp and clear as it is anticipated that consumers typically do not read long messages well enough. There may also be additional actions; e.g phone may also beep once after charging is completed.
2. The text shall also be formulated in a way that it does not create unnecessary concerns. One example of possible unnecessary concerns may be that user assumes that there is a risk for a safety hazard, if the charger is left plugged in. It is strongly recommended that the reminder contains the reason for this unplugging, e.g text: "save energy".
3. It shall advice the user to unplug the phone from the wall after the phone is fully charged or at a time consistent with the phones' use.
4. Examples of possible messages:
 - "Phone is fully charged. Please unplug your charger from the wall to save energy"
 - "Charging completed, please unplug power supply to save energy".

The message can be tailored, if the display size is limiting the length.

The reminder shall stay visible in the screen for a suitable time, so that users can recognize it.

5. Practical details are left for producers. The important thing is to meet the goal: To advice consumers to unplug the charger in a correct way.

Producers need to tailor this application so that it is integrated in their phone, phone functionality and their phone user interface –design.

6. This feature may be turned off at a carriers' request.

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3. AGREEMENT

The producers joining this initiative agree to add a visual reminder in their phone meeting minimum requirements stated in this agreement. Participating producers also agree to meet the EU Commission Code of Conduct for External Power Supplies –requirements (Code of Conduct on Efficiency of External Power Supplies and Chargers (the latest version)). This CoC is a European agreement. Currently not all phone manufacturers in the market have signed this CoC. This agreement may thus have a positive impact on reduction of no-load energy consumption.

The operators or retailers joining this initiative agree to include this requirement in their supplier requirements.

This agreement is open for participation.

4. PRACTICALITIES

Timing:

The producers joining this agreement will commit to add this reminder to their whole product portfolio starting with first products 2008. All new product lines/families shall have this reminder in 2009. However, producers' intention has been to introduce first products faster, already during 2007 and there are also proofs of it in the market.

The implementation will be followed yearly.

The operators and retailers commit to require this feature according to agreed schedules.

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5. COMMITTED PARTNERS

The following partners have committed to implement this voluntary agreement:

LG



Motorola



Nokia

NOKIA

Samsung Electronics



SonyEricsson



Swisscom



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APPENDIX 3:**Mobile phone companies' statement on substances of concern**

As an outcome from the European pilot project on Integrated Product Policy, "materials of concern" taskforce, the following companies are signing this voluntary agreement aimed at further improving the management of materials/chemicals of concern. The signatories have individually committed to the actions on flame retardants, PVC and phthalates as detailed in the annex.

Signatories:

**NOKIA**

During the development of this voluntary agreement the following stakeholders have been consulted¹:

- Mobile phone component manufactures (Epson and Intel)
- European Flame Retardants Association (EFRA)
- WWF

One of the key elements of IPP is that a whole variety of tools – both voluntary and mandatory – should be used to achieve an overall improvement in the environmental impact of a product. Existing European legislation such as RoHS sets legal requirements restricting the use of certain substances. Setting this

¹ The consulted stakeholders do not necessarily endorse the commitments of this agreement.

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as a baseline, the mobile phone producers listed above have ensured that their new products comply with the European RoHS legislation on a global basis.

Signatories to this statement have also taken additional voluntary action to limit and/or monitor the amount, use and management of certain substances of concern as outlined in the Annex. These substances are identified based on scientific evidence and stakeholder concerns. This kind of voluntary action, elaborated in the Annex, exemplifies how the IPP approach can work in reality to facilitate policy changes in a given sector going above and beyond the legal requirements. With the implementation of the new European chemicals legislation, REACH, much more information on potential hazards as well as exposures and risks of chemicals will become available in a traceable, standardized way. This may prompt further voluntary action or its upgrade.

In the current stage, Signatories commit to:

- Consider if voluntary measures to monitor, restrict or phase out particular substances used in mobile phones are warranted based on scientific evidence, stakeholder concerns and the precautionary principle;
- Provide details of their approach to the identification, management and control of substances of concern on their company website. This will typically take the form of a list of banned, controlled and reportable substances. Current examples from each company are provided in Annex A.
- Conduct ongoing research to assess alternative materials in terms of environmental impact, safety, technical performance and availability;
- Continually review new scientific evidence, particularly in the context of the REACH implementation in the EU (e.g. additional scientific data available, changes in the R-phrases / GHS classification and EU Risk Assessment results) regarding these substances in applications related to mobile phones. In light of new information, voluntary measures will be regularly reviewed to determine where a precautionary measure is justified and the scope changed accordingly (e.g. substances added or removed) to focus on the substances of highest concern;

The voluntary commitment will be reviewed by the signatories at least once a year and areas for future co-operation identified.

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Annex A

The information in this Annex is correct as of 1st November 2007. Please visit the web links provided for updates.

Nokia

Below is a list of flame retardant, PVC and phthalate related restrictions applied for Nokia mobile terminals and accessories. For a full list and details of material and substance restrictions and exemptions, see the Nokia Substance List:

<http://www.nokia.com/substancemanagement>

Phthalates:

- Banned in new products.

PVC:

- Banned in new products.

Flame retardants:

Bromine, Chlorine and their compounds, and Antimony trioxide:

- Banned in polymeric materials of new technologies.

Motorola

http://www.motorola.com/mot/doc/1/1501_MotDoc.pdf

- DecaBDE is removed from polymeric applications [EU- 2005/717/EC] of Mobile Device products
- Brominated Flame Retardants (other than PBBs or PBDEs) are controlled substances, reportable at 100 ppm, under Motorola specifications and targeted for reduction. BFR's are being phased out in some applications and full phase out is under consideration. Motorola has made progress and currently a list of products with no BFR's in the printed wiring boards is posted at <http://www.motorola.com/content.jsp?globalObjectId=8509>
- PVC and vinyl chloride monomer are controlled substances under Motorola specifications and targeted for reduction. PVC and vinyl chloride monomer are being phased out in some applications and full phase out is under consideration.
- Phthalates are targeted for future restriction or control and reportable substances of concern under Motorola specifications at a level of 100 ppm. Further restrictions and full phase out is under consideration
- In addition Motorola has a total of 40 additional substances and categories of substances monitored for possible future restrictions or control.

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Samsung Mobile

http://www.samsung.com/us/aboutsamsung/corporateactivity/corpcitizenship/enviromentsocialreport/CorporateActivity_PolicyOnTargetSubstances.html

The following table lists substances which Samsung Electronics (incorporating Samsung Mobile) is voluntarily phasing out due to potential harm to the environment or human health. These substances are not currently restricted by law, they are selected based on the precautionary principle and stakeholder concerns.

Substance/ Material	Application	Date*
CLASS III		
DecaBDE	All applications	Since 1 st January 2007
TBBP-A	New models of all products	1 st January 2008
All Brominated Flame Retardants (BFRs)	New models of all products	1 st January 2009
	Printed wiring boards in new models of mobile phones	Since 1 st July 2007
PVC	Packaging applications	Since 1 st May 2004
	New models of all products	1 st January 2010
Phthalates		Under consideration
Other chlorinated flame retardants		Under consideration

* The implementation date is the production date from which all applicable products leaving factory will have achieved phase out.

Note: The phase-out plans for the Class III substances listed above are by necessity subject to the successful identification and availability of technically suitable alternatives.

LG Electronics

LG Electronics is phasing out the materials of concerns listed below and has set the target dates for their phase-out from all mobile phone products and accessories.

Substances	Full Phase-out Date*	Progress so far and future plan
Deca BDE	1 st Jan, 2006	Phase-out completed
Brominated Flame Retardants	1 st Jan, 2011	No BFR in battery housing and battery PCB: All models developed after January 2007 No BFR in handset cases: Majority of models developed after January 2006. No BFR in main PCB and FPCB in handsets (except camera and LCD modules): All models developed after July 2007

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PVC	1 st Jan, 2011	Phase-out of PVC from the packaging material to be completed by January 2008 Component-by-component phase-out activities on-going
Phthalate	Under consideration	Substitutes study on-going
Chlorinated Flame Retardants	Under consideration	Substitutes study on-going

* All newly developed products and accessories shall not contain the concerned materials after the phase-out dates.

The detailed hazardous substance management policy of LG Electronics can be found at the link below.

http://www.lge.com/about/environment/images/Regulations_4thEdition_June2007.pd

Sony Ericsson

For a full list of Sony Ericsson Banned & Restricted substances, please refer to;

<http://www.sonyericsson.com/cws/corporate/company/aboutus/socialresponsibility/environment>

Flame Retardants:

All halogenated flame retardants and Sb_2O_3 are banned for all applications, from the 1 January 2008 in products based on new electrical platforms. The maximum concentration value that is tolerated for halogenated flame retardants, calculated on amount of chloride or bromide, is 0.09%.

For products based on electrical platforms launched before 1 January 2008, the following areas are exempted from the ban above:

- Halogenated flame retardants in the epoxy resin of the adhesive dynamic Flexible Printed Circuit Boards under mechanical stress,
- Halogenated flame retardants in the epoxy resin of molds and substrates for electrical components.

PVC:

Chlorinated polymers, including PVC, are banned for use in Sony Ericsson products. Except for some cables in early model chargers, all Sony Ericsson products are PVC free.

Phthalates:

The use of Phthalates is totally banned in Sony Ericsson products from the 1 January 2008. The maximum concentration value that is tolerated for phthalates in Sony Ericsson products is 0.1%.