



## MINUTES

### OF THE THIRD STAKEHOLDER MEETING ON THE IPP PILOT PROJECT ON MOBILE PHONES

BRUSSELS, 7 DECEMBER 2005

The meeting was chaired by **Mr. Timo Mäkelä**, Director of DG Environment's Sustainable Development and Environmental Integration Directorate. Prior to the stakeholder meeting, Nokia had circulated a draft report for the third stage of the pilot project on the evaluation of options to improve the life-cycle environmental performance of mobile phones. The document was not, as previously, published before the meeting on the Commission's IPP website asking for stakeholders to comment. This will be done after the report is agreed on.

#### 1. WELCOME BY THE COMMISSION

After a quick "tour de table" introduction of participants, the **Chairman** welcomed the participants and introduced the meeting. We are at the third stage of the pilot project:

- In the **first stage** we looked at the environmental impact of the mobile phones, and selected three areas the pilot project would concentrate on:
  - energy consumption of the mobile phones;
  - toxicity aspects;
  - methods and tools for assessing the life cycle environmental performance of the mobile phones.
- In the **second stage** the report looked at what are the possible environmental improvement options that exist for different stakeholders, and drew up a list of these.
- In the **third stage** the social and economic impacts of these improvement options were analysed and the viable options to improve the environmental impact of the mobile phones were selected.

The **aim of this meeting** is to discuss the draft report prepared by Nokia on the "evaluation of improvement options". The discussion is important, as the document that is produced in the end should reflect an agreement among stakeholders. Also a preliminary discussion is needed on what improvement options the stakeholders could commit to carry out will be held.

This time the draft report that was produced was not put on the Internet for outside stakeholder comments as we did before. We felt that it would be more efficient to further discuss the draft report with this group and put on the Internet after it was discussed at

the meeting. Therefore the draft **report that will be discussed is still a working document** and it will be further improved after this meeting.

## **2. PRESENTATION ON THE INTEGRATED PRODUCT POLICY PILOT PROJECT STAGE III DRAFT REPORT – BY NOKIA**

The IPP project manager of the Nokia Corporation, **Mr. Pranshu Singhal** presented the Stage III Draft Report “Evaluation of Options to Improve the Life-Cycle Environmental Performance of Mobile Phones”. This report is mainly an analysis of improvement options, in total 53 presented. The options are categorised in three classes, where 10 of them are considered being of high priority, while many others are ongoing or potential for future interest. Only a few of the improvement options have been considered as disqualified. The improvement option preparation has required the development of guidelines and regular consultations with stakeholders in the project. The initial feasibility analysis includes environmental, social and economic impacts. This stage of the project has been challenging as it required contributions from the different stakeholders to analyse the impacts.

The draft report also discusses some available policy options such as voluntary agreements (VA) and standards. For VAs, the issue of raising the status and acknowledgement was discussed in the report, while standards are more to be developed by experts. The report also discusses the use of eco-information for products, and proposes a new hybrid of existing product information schemes.

The stakeholder group will further work on the draft report after this meeting, and stakeholders should agree on this report and the improvements proposed. The **project manager** from Nokia therefore proposed stakeholder written comments on the draft report to be submitted to Nokia, before the report is being published for comments on the EUROPA web site.

## **3. DISCUSSION ON THE REPORT PREPARED BY NOKIA**

The **Chairman** reminded the aim of the project is to demonstrate the practical application of IPP, and suggested to focus this discussion on the greening of the product taking into account the whole life cycle of the product; and rather wait with the discussion on the policy tools. The Chairman also highlighted that the actions to be carried out should be linked to environmental impacts and the project should concentrate on issues that really make a difference in environmental terms. The quantification of environmental impacts is therefore important in the report. This should be the guiding principle on how priorities are set in the project.

The following were the highlights and conclusions from the Q/A session and discussion:

- 1) **DG TREN** asked why the study was limited to energy and base stations, and not includes use of the network. The answer from **Nokia** to this was that it was decided in Stage I of the project to focus on energy consumption during use phase of the base stations only. It was also based on technical feasibility. The **Chairman** asked to **take a note on** this, and link in the report the environmental options or improvements actions making clear what the role of the network is, its volume, magnitude and size, as it is important to give a holistic description for policy makers.

- 2) **Vodafone** asked to clearly define what is included the report, which was supported by the **Chairman**.
- 3) The **Chairman** also raised the issue of innovation – on how to formulate the innovation factor, e.g. maybe new technology will be available in the future, and the evidence for this.
- 4) **DG ENV** highlighted the need for more and relevant information in the report as this is going to be a public report.
- 5) **WWF** congratulated Nokia to a good draft report. They see we are now approaching difficulties in the stakeholder group, as they are not sure the improvement options have been enough analysed, questioning if enough expertise has been used (involved) and if there has been enough independent analysis. Alternatives to options should also be given. **WWF** also see a need for more qualitative data in the project, also in the improvement options, for the purpose of prioritisation. They also urge we should “sell” the report, mainly on i) what has been done by industry, and ii) what is the added value with stakeholder cooperation. **WWF** highlighted that if the report is published on the internet, more improvement options might come up.
- 6) **TeliaSonera** do not see any killing suggestions proposed, but only quite modest improvement options. They suggest using experience and evaluation criteria developed by the ethical funds, they include e.g. sustainability indices. We should also in this project come up with a market share index on environmental impact and on business performance.
- 7) **UMICORE** are involved in the end-of-life business as recyclers. Doing this, they see the work so far has focused on ‘top’ collection and on ‘bottom’ recycling, but not on the way ‘from collection to recycling’. We need to find ways to do real recycling of materials; otherwise we risk losing effect (i.e. how to really close the loop). **Epson** raised the issue of compliance enforcement in waste shipment (Waste Shipment Directive). The **Chairman** agreed this is an important issue and an essential policy improvement option. The Basel Convention topics should be included the discussion (encourage to use recycling in 3<sup>rd</sup> world countries, and return the used material). On this issue, enforcement is important, compliance is weak and reporting complicated.
- 8) **DG ENV** asked if a deposit system on mobile phones would be possible to use. **France Telecom** responded they have an incentive scheme all over Europe in place. **Vodafone** has as well incentives in place. The **Chairman** asked to highlight schemes on take-back in the report.
- 9) **BEUC’s** experience is that local recycling system usually does not work in full in practise. The global capacity to recycle is there, but not the logistics and some countries lack any recycling facilities. **Epson** asked to state in the report that this problem is very product specific. Conclusions should not be put forward as general for WEEE.
- 10) **DEFRA** find the pilot project process very good and systematic. From national policy point of view there is an order of interest to widen IPP into a sectoral approach and EuP; will they face the same problems e.g. on scope. For conclusions and further use, we should focus on few actions, as the final test will be if we can deliver quantified benefits. **DEFRA** suggested agreeing on a package of

improvement options including chargers, product information, take back systems and material related issues. The challenge is to bring it together towards voluntary agreements and policy actions. Also, we should not in the report underestimate the importance of already ongoing actions, because some of these might be further improved. **DG ENTR** commented on the link to EuP, the use of standards through CENELEC and need for communication of information along the supply chain.

11) **SYKE, the Finnish Environmental Institute**, found the report good, but also a need to add improvement options in the production phase as this phase as well has clear environmental aspects. This is also true for the supply-chain. Furthermore, clear targets are missing. Therefore, a benchmark approach on top of legislation and standardisation could or should be developed. **BEUC** added there are options to influence the manufacturer as there are other/more possibilities than influencing consumers. A better manufacturer-consumer balance is needed. **Nokia** responded that they think the report discusses numerous options for manufacturers but the driving force starts from the consumers and the consumers have an essential role in life cycle environmental improvements; “it can never be different in a market economy”.

12) **Nokia** commented the following:

- They are aware that quantified data are missing to a large extent, but finds that some issues are easier to quantify than others. Quantification of all options requires detailed scenario analysis which requires far longer times than the project permits. Moreover the objective of the in stage III analysis was to prioritise the options based on a preliminary analysis. Select options will then be further worked upon in the later stages.
- It takes time to use LCA which may be required for quantification of many options.
- Mobile Phone Partnership Project (MPPI) under Basel Convention, United Nations Environment Programme (UNEP) is already working on end-of-life issues of mobile phones and they do not want to duplicate this work.
- Nokia thinks that consumer awareness is very important as many significant impacts for mobile phones occur during the use and end-of-life phases and depend on consumer behaviour.
- For the development of targets, further work on select options is needed. They will develop this along with stakeholders in the next phase Stage IV.

The **Chairman** concluded the discussion that the third draft report is good but it will require more content and work on the following:

- It is important to define, or at least highlight, the scope again.
- There is a need to explain the links between collect actions (take-back, recycling) and environmental impact, including size and volume, also toxic issues, etc. (important to refer back to the LCA from the 1st report)
- It is important to concentrate and have a consensus on a list of key actions and develop these further.
- Take-back and recycling issues can be reinforced in the project.
- On energy consumption and charging, clarify the role of the base network in the scoping of the project.

- Make a clearer link from production phase to consumers, green public procurement. Develop the discussion on “how to drive the market”, i.e. the balance between production and consumption. Benchmarking figures, targets that can drive the market could be used.
- The project and its reports have a wide interest. This is a test. Therefore, also highlight a few important actions that are an added value by this collective exercise. **Some concrete actions should come out of this project, which has an added value and that is not part of business as usual.**

#### 4. IMPLEMENTING ENVIRONMENTAL REQUIREMENTS IN TECHNOLOGY BUSINESS - CASE EXAMPLE - BY NOKIA

**Mr. Olli-Pekka Makirintala, Nokia**, gave a presentation on how to implement environmental requirements, with the concrete example on how the company has changed to RoHS compliance starting from early research of lead-free technology.

Technology change (transfer) takes normally much longer time than product development. The chain is long and includes several depend activities along the research – technology platform – production – post deployment activity line. Fast technology change is considered to take easily 3-5 years, fundamental changes may need 5-10 years. Material/substance changes (like lead phase out) sometimes require very long time.

Customers have specific but different acceptance criteria on new technology developed, e.g. fitness for use, outlook, regional things, cost, reliability and durability, environmental performance, health and safety etc. All these criteria shall be taken into account when planning and deciding changes.

The RoHS Directive (2003) made a big change for the industry as it covers all electrical compounds that are in use and have been used. A big practical challenge for the industry is communication in the supply-chain as there is a need to verify compliance from supplier for all products. For this, Nokia wants to see Maximum Concentration Values (MCVs) defined on component level. RoHS is a huge investment for Nokia. Therefore, a level playing field among market actors and competitors is very important, and there should be no room at all for free-riders. Also first movers must get the benefit.

Based on positive experience on IPP, the following are some conclusion by Nokia on RoHS:

- Strong and clear environmental goals form an efficient base for operation. For this purpose there is a need for technical guidance. There is also a need to accept different treatment measures for different products.
- Environmental investment should have high environmental pay-back.
- Environmental technology should be integrated in practical technology development. This ensures that all needed aspects and views are taken into account adequately.
- New technology and its' impacts should be analyzed sufficiently (e.g. relation less lead increases the use of energy).
- Need for effective environmental legislation, with challenging targets but also enough room for product innovation, thus fewer details.

The slides from the presentation are **attached** to the meeting minutes as Annex2.

The **Chairman** asked NGO to analyse the situation in order to help with problems with free-riders.

## **5. INITIAL DISCUSSION ON WHAT OPTIONS FOR IMPROVEMENT STAKEHOLDERS ARE READY TO CARRY OUT**

There are several feasible options to improve environmental impact of the mobile phones that are listed in the report. We discussed whether stakeholders and which stakeholders intend to proceed to carry these out. The next report will further investigate this.

The **Chairman** repeated the policy options already discussed at the meeting:

- adopt existing regulatory framework to IPP principles;
- enforce voluntary agreements;
- reinforce standardisation.

The **Chairman** asked the meeting to group policy option using the following categories:

- a) What is already on-going?
- b) What is being recommended to be looked at a later stage?
- c) What will happen immediately?
- d) Process-oriented recommendations (for IPP as a more operational tool)?

On voluntary agreements (VA), the **Chairman** said as COM concerns there is already a system in place but this has not really been used in the environmental area. The European Parliament and Council endorse voluntary agreements giving them higher visibility. The VA's must contain substance, and should not be business as usual that will happen anyway. Several semi-legislative approaches have also been developed. These voluntary agreements can be attached to the EuP Framework Directive.

On standardisation, the **Chairman** said there is already a process for this. The COM gives mandate to CEN/CENELEC in the framework of the EuP. This pilot project could be attached to the standardisation process.

On links to other policy areas, the **Chairman** said there are several links, for example to the EMAS and eco-label revision. The performance target for products with ETAP is another link. This includes a pilot scheme project and a pilot verification system for technologies.

In relation to performance targets for products, the **DG ENV** informed about a new report on **the Top Runner Program in Japan**. The report was produced by IIIIE at Lund University ([www.iiiee.lu.se](http://www.iiiee.lu.se)) and the Swedish Institute for Growth Policy Studies (ITPS office in Japan ([www.itps.se](http://www.itps.se)) for the Swedish Environmental Protection Agency. The report explains how Japan since 1999 has worked on how different products can become more energy efficient in a "top-runner" project, and what potential it can have in Europe. The report can be ordered at <http://www.naturvardsverket.se/bokhandeln/> or downloaded for free at <http://www.naturvardsverket.se/bokhandeln/pdf/620-5515-1.pdf>.

The improvement options that **Nokia** find feasible as the outcome of pilot project:

- Phase out of certain materials.

- Eco-information for consumers.
- Code of Conduct on External Power Supplies to become an EU level agreement (work has been ongoing on this initiative for a while) put it on as an EU level voluntary agreement would be taking it forward. This related to one of the EuP studies that is ongoing at the moment.
- Reminders on the phone for consumers to plug out the charger.

Highlights from the continuing discussion were:

- 1) **TeliaSonera** would in the pilot project like to see more of ‘integrated products’ where technologies replace existing hardware. However, the **Chairman** hesitates, as this approach may not bring any extra value to this pilot. The real added value and politically attractive is the global perspective, as the global regulation scheme is not robust enough, see for example the Basel Convention and WEEE earlier discussed.
- 2) BEUC was concerned if considering developing VAs before the Commission initiated new regulatory requirements would contribute to an even longer regulatory process. Nokia commented that the suggestion for VAs is more on a conceptual level, but it could certainly help if there are many technical details. **Epson** reminded on the need for industry to become a front-runner. The **Chairman** agreed on this need, and stated there is a wish to see more of voluntary agreements as it may be a quicker way to reach environmental improvement than with legislation. **WWF** commented that some VAs have failed; analyses of these failures are needed.
- 3) **WWF** also made a comment on some unsatisfactory phrasings in the report, such as “various stakeholders”. The **Chairman** stressed the importance that we aim at wide consensus on the understanding of this report and pilot. Therefore, some rephrasing is needed as the report should reflect the different stakeholders in a balanced way.
- 4) **France Telecom** asked the European Commission on its perspective on voluntary instruments. The **Chairman** responded that they in short have the same view on VAs as OECD previously has presented in a report. That is in short that they want to see more of VAs, but that a policy mix is needed, including a link to legislation. The **Chairman** also stressed a bit of disappointment that the industry not has come up with alternative VA schemes. **DEFRA** see a need to award the front-runners. However, a VA scheme needs to pass the test of achieving environmental improvement, of competitiveness and also on innovation delivery to stakeholders and society.
- 5) Regarding voluntary agreements, **DG TREN** made a clarification on mobile phones and the EuP directive implementing measures. The Commission is not planning to make implementing measures for mobile phones until 2007, whereas the 2007 working plan (foreseen in article 16 of the EuP framework directive 2005/32/EC) the Commission might examine whether mobile phones would qualify for inclusion in the working plan; and even if they do end up in the working plan (which is not sure), they will only be part of an indicative list of products to be considered for implementing measures in the three years following 2007. To have VAs is a good option to avoid legislation.

The **Chairman** concluded and further stressed:

- What is the role of product declarations? How could the idea be taken further for classification of products and link it to eco-labelling?
- There is a need to look at a regulatory framework and life-cycle thinking. However, and also, there is a cycle of revision of legislation e.g. EMAS, eco-labelling, IPPC, RoHS, WEEE.
- It is important to make cross-references and linkages. Link action to environmental impact/life-cycle analysis that was conducted.
- The policy section in the report should be reflecting the IPP principles. We want to know if you find policies that are contradicting each other (as IPP wants to use these policy tools in coherence with each other) and not criticism for a single policy area. Analyse the regulatory surrounding for the industry sector – there is no need for general issues and statements.

## 6. NEXT STEPS

- Work on the draft report further. More details among other things needed both on understanding the present and ongoing initiatives and the improvement options that have been rejected.
- Complete the written comments on the draft report from stakeholders until 31.12.2005.
- When this report is agreed by the present stakeholders, put it on Internet for outside stakeholder comments at around 10.2.2006.
- Finalise the third report taking outside stakeholder comments into consideration by 28.2.2006.
- The next (fourth) draft report will be a quite small report to be delivered on 28.2.2006, it will include:
  - Improvement options stakeholders will commit to carry out to improve the environmental impacts of the mobile phones.
  - Collection of experiences from stakeholders and conclusions on the process on the IPP Pilot Project on Mobile Phones.
- **The last pilot stakeholder meeting will take place in Brussels on 20.3.2006.** (Now it is postponed to 3 May 2006.) The final meeting will be only confirmed 6 weeks in advance, due to internal European Commission administrative procedure.
- A press release and conference may take place after finalising the project. The format of this will be further discussed and decided at a later stage.
- Follow-up of the pilot will be made one year from the end, e.g. in Q2 2007.

## 7. ANY OTHER BUSINESS

The question on funding possibilities was raised for the actions that WWF, BEUC and SYKE would be carrying out. They need to know what funding possibilities there are before they can commit the organisation and themselves to take part in any specific actions, e.g. research and campaigns. The **Chairman** responded that the Commission will look at this.

**Annex 1 - IPP Pilot Project on Mobile Phones Meeting – Participants second meeting**

<b>Name</b>	<b>Organisation</b>
Vivian Mikalsen	BEUC
Jyri Seppälä	Finnish Environment Institute
Elisabeth Beche	France Telecom
Lone Zubaria	France Telecom/Ornage
Olli-Pekka Makirintala	Nokia
Johanna Jokinen	Nokia
Pranshu Singhal	Nokia
Kirsi Sormunen	Nokia
Outi Mikkonen	Nokia
Sean Paavo Krepp	Nokia
Matthew Wilkinson	WWF
Jonathan Quigley	WWF
Connell Lucy	VF-Group
Kari Vaihia	TeliaSonera
Hagelüken, Christian	Umicore Precious Metals Refining
Eeko Smit	EPSON
Saul Jamieson	Panasonic
Timo Makela (chairman)	DG ENV (EC)
Orsolya Csorba	DG ENV (EC)
Bengt Davidsson	DG ENV (EC)
Anna Passera	DG ENV (EC)
Michalis Papadoyannakis	DG ENTR (EC)

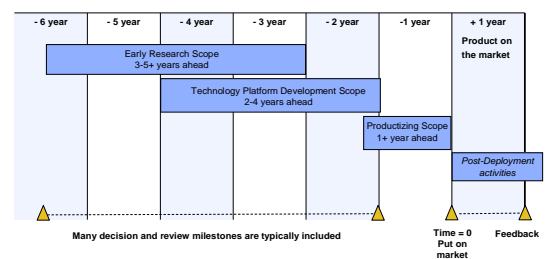
Andras Toth	DG TREN (EC)
-------------	--------------

<b>Missing Organisations</b>	
AMD	
Intel	
Motorola	

## Annex 2 – Presentation by Nokia



### Timeline for Technology Change



3 © 2005 Nokia T.Ja

**NOKIA**  
Connecting People

Material changes are an example of technological changes mobile device manufacturers are facing now.

The purpose of this paper is to describe how a big technology change is implemented in a rapidly changing environment.

The new EU's RoHS directive, which requires phase outs of certain materials, is used as a case example.

This also applies for developments in e.g. IPP -context

2 © 2005 Nokia T.Ja

**NOKIA**  
Connecting People

### Development Phases in Change of Materials

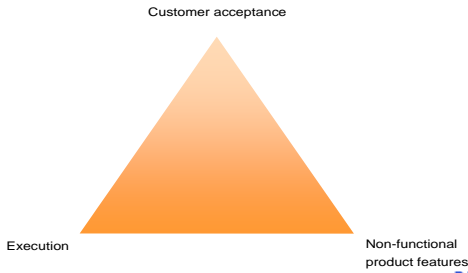
- Early research scope include tasks, such as:
  - Gather information and find alternatives
  - Analyze basic suitability and impacts
  - Carry out first tests including e.g.
    - Fitness for intended purpose
    - Short and long term durability, reliability
    - Environmental, Health and Safety -aspects
- Technology platform development scope
  - Makes commercial use possible
- Productization
  - New technologies reach the market
  - Real feedback received
- Post-deployment activities
  - Possible improvements feedback and experiences

3-5 years is quite fast change, 5-10 years is typical if the substitute is not already widely known and tested

4 © 2005 Nokia T.Ja

**NOKIA**  
Connecting People

## Change Management – Product and Functional View



5 © 2005 Nokia T.Ja

NOKIA  
Connecting People

## Non-functional Product Features

- Legal requirements
  - Environmental
  - Health and Safety
  - Functional
  - Waste
  - Others
- Product safety
- Origin of materials
- Life cycle impacts

8 © 2005 Nokia T.Ja

NOKIA  
Connecting People

## Customer acceptance

- The crucial criteria for any new technology is customer acceptance
- Factors to be considered:
  - Fitness for the use
    - will the new product meet expectations
  - Outlook
    - will the new product look and feel good enough
  - Regional things
    - will the product comply with different regional expectations
  - Cost
    - will the price be correct
  - Reliability and durability
    - will the product meet or exceed customer expectations
  - Environmental performance
  - Compromises
    - will customers be forced to make compromises – do they?
  - What will be the user experience?
- What will other stakeholders say?

6 © 2005 Nokia T.Ja

NOKIA  
Connecting People



Case – Managing the RoHS Deployment

## Execution

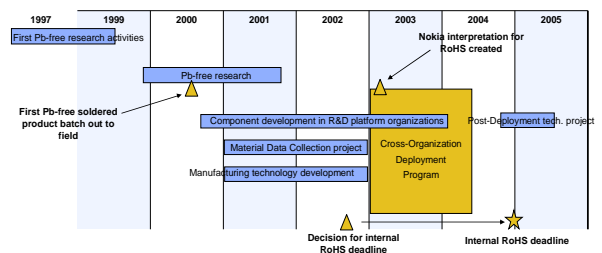
- In case of mobile devices ensuring an efficient execution is a key success criteria
- Covers both product development and needed operations
- Ensuring efficiency:
  - Availability
  - Suitability for mass production
  - Occupational health and safety in production or end-of-life activities
  - Tools, equipment
  - Needed competencies
  - Logistics
  - Manufacturing locations
  - Costs

7 © 2005 Nokia T.Ja

NOKIA  
Connecting People

## Overall RoHS Schedule for Nokia

Started as Pb-free - Transferred into RoHS compliant



10 © 2005 Nokia T.Ja

NOKIA  
Connecting People

## What Did Change in Practice?

- All electrical components, except simple discrete resistors and capacitors
- Soldering paste and paste applying process
- Reflow soldering heating profile 240 -> 260 °C
  - All process windows for manufacturing tightened dramatically
  - Soldering energy increase by 15-20% was estimated.
    - Practical equipment replacements resulted up to 3.5 x increase in soldering energy
  - Factory rework limited to minimum.
    - Risk for more scrapped production if process control fails
  - Accelerated investment plan for ca. 100 reflow soldering equipment
  - Accelerated investment plan for automated soldering quality inspection equipment
- After Sales repairs strongly limited compared to previous
  - New rework equipment invested to After Sales repair shops

11 © 2005 Nokia T.Ja



12 © 2005 Nokia T.Ja



## Change Management Environment

- Large numbers:
  - Products, accessories, development programs, R&D sites, suppliers, factories, production lines etc.
- Biggest single task:
  - COMMUNICATION
  - Each stakeholder in the value chain should have a common understanding

Indicative figures:  
 100 active mobile phone products  
 500 active accessory products  
 20 000 active components  
 100 suppliers  
 10 factories  
 100 production lines  
 1000 repair qualified after sales locations

## High Level Deployment tasks

- Creating the target for organization
  - Translating a living RoHS requirement into technical specs and operative guidelines
- Creating tools
  - 2 material data systems used for material data collection and inspection
- Verifying the key capabilities:
  - Partners' and contract manufacturers' capabilities

Major impact areas:

- Supply chain
- Manufacturing
- Design and repair of products

Key risks identified:

- RoHS component shortage
- Obsolete inventories
- Hardware reliability

13 © 2005 Nokia T.Ja



## The RoHS Requirement – Experiences

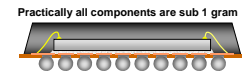
- Nokia wanted
  - A strong RoHS requirement
  - A clear, easy to specify requirement
  - A requirement that fits well into practical supply chain business relations
  - A practically measurable requirement
- Nokia wanted to see the MCV to be defined on component level

### Concerns

- A requirement that has no clear technical content to feed input into technology platform development with practical schedules, is a difficult one.
- A constantly changing requirement is not a requirement
- RoHS limits with MCV<sup>1</sup> defined on homogenous material level can't be measured in real life.  
 -> Practical difficulties are now visible also in measurement standardization by IEC

For RoHS, defining technical implementation by a standard would have been the right way.

- Legislation only for high level targets



<sup>1</sup>MCV = Maximum Concentration Value

13 © 2005 Nokia T.Ja

15 © 2005 Nokia T.Ja



## The RoHS Requirement

- Communication challenge.
  - Manufacturer shall talk about their requirements to their component suppliers.
- Nokia RoHS policies:
  1. A product is compliant when all components and materials used are compliant ones.
  2. Suppliers confirm component and material compliancy
  3. Suppliers give full material declaration for their components.
- Based streamlined supplier-manufacturer relation and efficient material data exchange the natural wish is to see maximum concentration values defined on component level.

14 © 2005 Nokia T.Ja



## Conclusions (Nokia's view)

- Strong and clear environmental goals form efficient base for operation
- Environmental investments should have high environmental pay back - for different products different actions may give the biggest return on investment
- Environmentally motivated technology development should be integrated in practical technology and product development schedules
- New technologies may have positive and negative impacts – these shall be analyzed
- Efficient environmental legislation:
  - Shall set challenging targets
  - Technical and operational details should be left to be handled by voluntary agreements or standards
  - Enough room for innovation shall be ensured
- The EU's strong target setting in environmental development should continue

17 © 2005 Nokia T.Ja

