TCO DEVELOPMENT

Report

Analysis of critique directed at the certification of Samsung Galaxy S4

TCO Development, Stockholm, Sweden, December 9, 2013

Analysis of critique directed at the certification of Samsung Galaxy S4

Background

In June 2013, a group of organizations working with workplace environment, worker rights and environmental issues criticized Samsung's smartphone Galaxy S4 for being certified according to TCO Certified, TCO Development's sustainability certification. TCO Certified is a product certification and includes requirements for social responsibility in manufacturing. The critique focused on previously documented cancer cases and workplace accidents among workers at two of Samsung's factories as well as Samsung's alleged "anti-union" policy.

TCO Development responded to the critique seriously and contacted Samsung immediately to gather the company's viewpoints and to begin a structured process to investigate the criticism. Simultaneously, TCO Development established a dialog with the group of organizations responsible for the criticism.

TCO Development also immediately informed other stakeholders, including the organization's owner, The Swedish Confederation for Professional Employees (TCO) as well as major purchasers of IT-products. Information about the issue was frequently updated and published on TCO Development's website.

TCO Development has since completed an analysis, in accordance with the special procedure established for situations where serious critique is directed at a certified product. The focus of the analysis has been whether any of the issues presented means that the certified product, Samsung Galaxy S4 is not in compliance with the criteria in TCO Certified Smartphones 1 during the current certification period (May 2013 to present date).

Main conclusion from the analysis

The specific concerns presented in the criticism were connected to the requirement A.7.1 in TCO Certified Smartphones 1[1]. The requirement concerns health and safety laws in the country of production. The analysis has focused on the requirement that the manufacturer must have working routines in place to prevent and respond to workplace accidents as well as employee ill-health, as per the social responsibility criteria in the manufacturing of TCO certified products.

The analysis indicates that the criticism presented concerned alleged non-compliances in manufacturing that existed before the current certificate became valid (prior to May 2013)[2]. Even with this knowledge, TCO Development demanded supplementary information and reports on the certified product, the Galaxy S4, from Samsung, as it related to the requirements regarding health and safety legislation in the country of production. The purpose of this measure was to further verify that routines were in place to prevent and respond to workplace accidents as well as ill-health in manufacturing, in accordance with the certification requirements. As TCO Certified is a third party label according to ISO's type 1 environmental labelling, all information from Samsung that has served as the foundation for the analysis has been reviewed and verified by an independent third party and has met set requirements.

The critique also addressed concerns about a lack of freedom of association and collective bargaining at Samsung factories. The investigation has verified that the manufacturing of the certified product fulfills the requirements in TCO Certified Smartphones 1. This conclusion is

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[1] http://tcodevelopment.com/files/2013/05/TCO_Certified_Smartphones_1.0.pdf

[2] See appendix 1

based on the submitted documentation and factory inspections conducted before the certification of the Galaxy S4. The current criteria for socially responsible production in TCO Certified Smartphones 1 are designed to be achievable by 30–50 percent of the IT industry and are therefore set at a basic level. When roughly 50 percent of products on the market in a given product category satisfy the requirements in TCO Certified, the criteria are then successively revised and enhanced to further drive development. It is our aim to drive socially responsible production practices forward from this starting point. In these efforts, trade unions are an important stakeholder of TCO Development.

The following analysis and report is designed and intended only to assess how Samsung fulfills the social requirements in TCO Certified Smartphones 1, in the manufacturing of the certified product specified in this report.

The results of this report cannot be used in other contexts or to show the fulfillment of other requirements.

Main sections of the analysis

The introduction provides a background, describing the challenges that the IT industry faces today. The smartphone requirements included in the TCO Certified sustainability certification are then presented. Finally, five appendices accompany the report:

Appendix 1: An account of TCO Development's analysis and response to the critique.

Appendix 2: An account of the analysis from an independent third party that TCO Development appointed to review the documentation from Samsung including third party inspections. The purpose has been to ensure whether the certified product, the Galaxy S4 fulfills the social responsibility criteria in production, in accordance with TCO Certified Smartphones 1.

Appendix 3: Description of TCO Development's established general process to analyze suspected potential deviations from TCO Certified requirements in certified products.

Appendix 4: An excerpt from the criteria document "TCO Certified Smartphones 1", the section concerning social responsibility in production.

Appendix 5: Description of improvements accomplished in the area of ergonomic, environmental and social sustainability within the IT industry in the last 20 years, as a direct result of TCO Development's work.

Stockholm, December 9, 2013

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About TCO Development
TCO Certified is a certification program for IT products operated by TCO Development, a business owned by the Swedish trade union organization TCO. TCO Development has established requirements as well as approved the reviews conducted by an independent third party organization regarding the Samsung Galaxy S4. The certification applies to specific qualities of each individual product model as well as the conditions surrounding the manufacturing of the product, rather than certifying the entire company or company brand. In this document, the terms "company" and "IT company" are used to describe the economic entity that owns the product brand; in this case, the company brand Samsung.

TCO Development does not have a profit requirement from their owners and the organization's mission is to promote the development of IT products in a more sustainable direction. Our perspective is that we affect change through working with the large actors on the market - Samsung being one of them. Through making demands on their manufacturing and controlling that these demands are met, we are making a difference.

Challenges in the IT industry today

The extremely large market demand for new IT products[3] creates pressure on the manufacturing process. According to the social lifecycle analysis conducted by The Royal Institute of Technology, Stockholm (KTH) that focused on notebook computers, one of the main problem areas is the product assembly process.

The problem must be dealt with on multiple levels. A few initiatives have been presented by the global IT industry, governments, union representatives and non-profit organizations. Despite these initiatives, significant deficiencies in manufacturing remain, both with regards to working conditions as well as the management of dangerous chemicals. The certification of IT products is a way to systematically reduce these problems.

Complex supply chain

IT companies moved much of their manufacturing to low-cost countries relatively late compared to other manufacturing sectors. The issue of responsible IT manufacturing is therefore relatively new for manufacturers, political decision makers, professional purchasers and consumers. A specific challenge exists in that out-sourcing of IT products today is fast-paced. There are often cases where the local laws in the country where the manufacturing takes place, aren't able to ensure workers' rights in a satisfactory way.

A complex supply chain contributes to the difficulties in establishing functional routines for responsible manufacturing. An IT product can have many manufacturing chains. Furthermore, many suppliers along the chain are responsible for assembling hundreds of parts. The supply chain is thereby both long and complex, often comprising of hundreds of suppliers.

Well-known brands such as Samsung often come in at the end of a long chain. Their challenge is to initiate, explain and implement their code of conduct in all stages of the supply chain.

For each step in the manufacturing chain, the company must ensure that their code of conduct is communicated, understood and implemented correctly and consistently by their manufacturers and subcontractors. This is a challenge, involving many actors, languages, work cultures as well as this being a new field for the IT industry.

TCO Development's role is to support companies in communicating and implementing their code of conduct relating to manufacturing. This is done through the certification of IT products, and as part of that process, engaging in a dialog with the large IT companies about how the social responsibility demands will be met. TCO Development continuously develops review and follow-up procedures and systematically expands the scope of this process in dialog with actors within the IT-industry.

Certification as a method of driving the development of sustainable IT

The IT industry still faces significant challenges in relation to social responsibility in manufacturing. TCO Development's aim is to drive sustainable development in IT. To reach these goals, the following principle is followed: when roughly 50 percent of products on the market in a given product category satisfy the requirements in TCO Certified, the criteria in TCO Certified are then successively revised and enhanced to further drive development. The requirements are reviewed every three years with the intention of challenging industry and driving sustainable development in the IT space. Since 1992, TCO Development has formulated requirements for IT companies through certifying IT products in workplace and environmental aspects. TCO Development now has the potential, thanks to many years of working with the IT industry, to also affect the arena of social responsibility in manufacturing. Since 2009, criteria for social

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[3] An estimated 1.4 billion smartphones will be in use globally as of December 2013

responsibility have been included as a central focus in TCO Certified. Appendix 5 describes in detail which concrete improvements for users/consumers, environment and work conditions in manufacturing TCO Certified has contributed to since 1992.

Meeting the requirements for socially responsible manufacturing included in TCO Certified

TCO Certified is a sustainability certification, with a focus on making sure that IT products and their manufacturing are based on, among other things, environmental and social considerations. Products that are TCO Certified fulfill requirements for social responsibility in manufacturing, user safety and good ergonomic design, as well as environmental aspects of both production and the product itself during the entire product life cycle. TCO Certified is a third party program, according to ISO's type 1 environmental labeling. The definition for a type 1 environmental label has been determined by the International Standards Organization (ISO). The guidelines are built upon standard ISO14024 and include a multitude of demands within several fields. This means that the certification must involve an open criteria development process with multiple stakeholders, that compliance with the criteria should be verified by an independent third-party and that the development, selection and levels of criteria should be based on scientific principle. Furthermore, this requires that TCO Development conduct spot-checks on TCO Certified products and the sites where they are manufactured.

All criteria in TCO Certified must be met in order for a product to be certified. If non-conformities are identified for a certified product, a review will be conducted to determine whether the certification should be retracted or not. TCO Certified also further encourages all companies/brand names to go further and take a greater responsibility than what is required in TCO Certified, as the criteria are regularly revised and tightened; those at the forefront of development can potentially gain a competitive advantage.

The requirements for socially responsible manufacturing in TCO Certified require that IT manufacturers make continual improvements in the social conditions in their production facilities. The requirements are based on existing, internationally recognized conventions and reporting tools such as the International Labour Organization's eight core conventions and the UN's International Convention on Child Labour, as well as membership with EICC[4] or SA8000 certification[5].

TCO Development works with a number of testing and verification partners that review all of the audit reports in line with the requirements set in TCO Certified. The social criteria included in TCO Certified mean that the company must have developed and implemented functioning routines at the factories that manufacture the products that are to be certified. The code of conduct, including documents on policy, guidelines and routines must be decided upon and introduced in the organization/production as well as communicated in the supply chain. Functioning routines must be in place to prevent and respond to workplace accidents as well as employee ill-health in the production of TCO Certified products.

TCO Certified also includes a follow-up quality-assurance program for certified products that means compliance with the criteria are independently verified each year via a system of random spot checks. Appendix 4 describes in detail the social demands in manufacturing of TCO Certified Smartphones 1.

Through TCO Development's work, many companies have received guidance and support for how

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[4] EICC: Electronic Industry Citizen Coalition is association of the world's leading electronic- and IT-companies that work to improve the ethical, environmental and social sustainability within the production chain.

[5] SA-8000: The central document by Social Accountability International. It is one of the world's first evaluation-based social certification standards for workplaces, regardless of industry sector.

their work with social responsibility in manufacturing can be more systematic and meet market demands.

In 2009, TCO Certified was the first sustainability certification for IT products to introduce socially responsible manufacturing in its criteria scope. This created a drive which lead about 25 percent of the display industry to start developing socially responsible practices in manufacturing.

In 2012 the social responsibility requirements were enhanced to require a strict code of conduct and annual third party social audits in a production plant where TCO Certified products are made. This has resulted in greater transparency, facilitated the sharing of audit reports, improved working conditions and a more open dialog with industry. Within 6 months, 17 major brands (about 30 percent of the display industry) were carrying out third party audits of their manufacturing operations.

TCO Development emphasizes the importance of establishing routines for systematic work with social responsibility among those directly involved in factory production.

How a product model becomes certified according to the social requirements in manufacturing

When a manufacturer applies for a product to be certified, they must show in a credible way that they have reliable routines in place to manage social responsibility in production, in accordance with requirement A.7.1 in TCO Certified Smartphones 1. The manufacturer must also commit to, during the certification period, following the certification's requirements in factories that manufacture products as well as promoting the code of conduct within their supply chain. In addition to documentation showing reliable routines and commitment to following demands in TCO Certified Smartphones 1, an independent third party audit is conducted at a production facility where final assembly of the certified products takes place. This is with the purpose of confirming that requirements are met. When the review and inspection are completed and approved by a third party, TCO Development issues a certificate for the product.

The certification focuses on conditions at the time of certification and during the certification period. It must be determined that the company at the time the certification is granted meets the social requirements in the manufacturing of the current product. TCO Development influences progress towards more sustainable IT manufacturing starting from where the industry is today – step-by-step, product-by-product.

Comprehensive work is required to review the entire supply chain as a certified product can involve hundreds of manufacturing stages and suppliers. TCO Development has therefore chosen to set criteria so that the manufacturer makes a commitment and demonstrates an ambition to implement the requirements for socially responsible manufacturing throughout the supply chain, beyond the final assembly facility where the inspection is done to ensure compliance with requirement A.7.1 in TCO Certified. In the cases of possible non-conformity of demands in a certified product, specific investigations are made on the manufacturing chain.

Review of critique against the certification of Samsung Galaxy S4

In the beginning of June 2013, a group of organizations focusing on working conditions, worker's rights and environmental issues publicly criticized that Samsung's Galaxy S4 had been certified according to the sustainability certification TCO Certified. In the critique, previously documented cancer cases and workplace accidents in two of Samsung's factories were cited, as well as Samsung's alleged "anti-union" policy.

Background information includes that at the end of May 2013, Samsung Galaxy S4 had been certified according to requirements in TCO Certified Smartphones 1, as the first smartphone on the market. TCO Certified is a product certification that includes requirements for socially responsible manufacturing.

The specific concerns in the critique were connected to requirement A.7.1 in TCO Certified Smartphones 1[6]. This requirement concerns the laws for health and safety in the country of production. The review has focused on the requirement that the manufacturers must have a functioning routine in place for work with social responsibility in their production of TCO-certified products, to prevent and manage accidents and instances of worker illness.

Review process

When a notification or complaint about a certified product is brought to TCO Development's attention, the issue is handled according to a pre-determined process (see appendix 3). For the Samsung Galaxy S4, the review began with TCO Development contacting the responsible decision makers at Samsung that applied for the certification, in order to receive clarification about the accusation. Samsung forwarded documentation and reports from a third party reviewer relevant to the alleged non-compliance, which showed how the company handled the events in question. TCO Development has commissioned an independent expert on socially responsible production to evaluate all the documents and reports from Samsung with regard to the requirements in TCO Certified Smartphones 1.

Conclusions

The specific accusations that the critique presented were connected to the certification requirement A.7.1 in TCO Certified Smartphones 1, and more specifically the criteria that concern health and safety legislation in the country of manufacturing. The analysis has focused on the requirement that manufacturers must have functioning routines in place to work with social responsibility in their manufacturing of TCO Certified products, specifically in order to prevent and respond to workplace accidents and worker illness.

The analysis has shown that the presented critique concerned deficiencies that existed *before* the certificate's period of validity (before May 2013[7]). TCO Development has received supplementary information and reports from Samsung regarding health and safety legislation and the certified product, the Galaxy S4, that shows that functioning routines to prevent and respond to workplace accidents and illness in the manufacturing of Samsung Galaxy S4 are in place, in accordance with the certification requirements. The information from Samsung has been reviewed and verified by independent third parties.

The critique also addressed concerns about a lack of freedom of association and collective bargaining at Samsung factories. The investigation has verified that the production of the certified product fulfills the requirements in TCO Certified Smartphones 1. This conclusion is based on the submitted documentation and factory inspections conducted before the certification of the Galaxy S4. The current criteria for socially responsible manufacturing in TCO Certified Smartphones 1 is designed to be achievable by 30 – 50 percent of the IT industry and are therefore set at a basic level. When roughly 50 percent of products on the market in a given product category satisfy the requirements in TCO Certified, the criteria are then successively revised and enhanced to further drive development. It is our aim to drive socially responsible production forward from this starting point. In these efforts, trade unions are an important stakeholder of TCO Development.

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[6] http://tcodevelopment.com/files/2013/05/TCO_Certified_Smartphones_1.0.pdf

[7] See appendix 1

Appendix 1

An account of TCO Development's analysis and response to the critique

Introduction
This document describes the investigation of alleged violations of TCO Certified Smartphones 1 for the Samsung Galaxy S4. The document summarizes the information that was provided to TCO Development, how this information was interpreted by TCO Development and what actions were taken. The document also describes the conclusions of the investigation.

Investigation of alleged violation
On June 5, 2013, TCO Development received information of an alleged violation of the criteria in TCO Certified Smartphones 1.

Certification in question:
Product: Samsung Galaxy S4
Certificate number(s):   S113050001-7
Validity of certificate: May 2013 -

TCO Development's interpretation of the alleged violations
1. **Factory:** Hwaseong South Korea
   Period for alleged violation: 2013-01-27

   Alleged violation according to the material sent to TCO Development:
   - Hydrofluoric acid leaked at Samsung on January 27-28 2013.
   - Though the sensor in the CCSS was fully functional during the leaks, the alarm may have not worked properly.
   - Samsung and STI workers seemed to have used huge ventilation fans to remove hydrofluoric acid leaks from the central chemical supply system, or the CCSS, where leaks took place.

TCO Development's conclusion
The investigation is based on the material with alleged violations provided to TCO Development. According to the provided material this alleged violation occurred three months before the certificate was issued. However, the criteria in TCO Certified Smartphones 1 require that the brand owner have routines in place to handle future possible incidents. Hence, the investigation has focused on needs to verify that these routines are in place in factories producing TCO-certified products during the validity of the certificate.

Samsung provided documentation from a third party investigation for the alleged violation. The documentation described their view of the situation and how it had been handled. All documents were reviewed by an independent, qualified reviewer appointed by TCO Development (Respect).

The reviewer concluded that Samsung had followed their routine which means they had:
1. Initiated a third party investigation of the incident
2. Where relevant, identified corrective actions
3. Where relevant, developed a realistic corrective action plan
4. Where relevant, started to work on corrective actions within a timely manner

> The reviewer concluded that this is what is considered necessary to keep the TCO Certificate for the relevant product.

2. **Factory:** Giheung South Korea
   Period for alleged violation: 2007 – 2011

   Alleged violation according to the material sent to TCO Development:
   Exposure in the semiconductor industry possibly leading to leukemia or NHL among workers

TCO Development's conclusion

The investigation is based on the material with alleged violations provided to TCO Development. According to the provided material this alleged violation was discovered between 2007 and 2011 and must have occurred prior to the discovery. The last documented discovery provided was January 2011. This is two and a half year before the certificate was issued.

However, the criteria in TCO Certified Smartphones 1 require that the brand owner has routines in place to handle such situations. Hence, the investigation has focused on needs to verify that these routines are in place in factories producing TCO certified products during the validity of the certificate.

Samsung provided documentation from a third party investigation for the alleged violation. The documentation describes how they had handled the situation. All documents were reviewed by an independent, qualified reviewer appointed by TCO Development (Respect).

The reviewer concluded that Samsung's routines to investigate and develop corrective actions for the incident were sufficient according to what was required by the TCO Certified criteria which means they had:
1. Initiated a third party investigation of the incident
2. Where relevant, identified corrective actions
3. Where relevant, developed a realistic corrective action plan
4. Where relevant, started to work on corrective actions

> The reviewer concluded that this is what is considered necessary to keep the TCO Certificate for the relevant product.

Conclusion

For both of the alleged violations Samsung has provided third party documentation that described what they have done to minimize the future risk of similar incidents and how they have handled this according to their EICC code of conduct.

All documentation from Samsung has been reviewed by an independent third party organization, appointed by TCO Development. The documentation by Samsung has been reviewed to comply with the criteria in the certification TCO Certified Smartphones 1.

The third party has concluded that the documentation provided by Samsung is sufficient to show that they fulfill the criteria in TCO Certified Smartphones 1.

Appendix 2

Analysis of third party report

Appendix 2: An account of the analysis from an independent third party that TCO Development appointed to review all documentation provided by Samsung. The purpose has been to ensure whether they fulfill the social responsibility demands in production, in accordance with TCO Certified Smartphones 1.

respect
SUSTAINABLE BUSINESS

Verification of social responsible production according to TCO Certified Smartphones 1.

Background

Respect has been asked by TCO Development to evaluate 2 indications of noncompliance against the criteria in TCO Certified Smartphones 1 for the certified product Samsung Galaxy S4.

Certificate number(s): S113050001-7

The 2 indications of noncompliance consist of:

1. Cases of cancer, or cancer related diseases, as a result of working at Samsung factories in Giheung manufacturing semiconductors (incident 1).

2. A gas leakage accident at a semiconductor facility in Hwaseong (incident 2).

The criteria in TCO Certified Smartphones 1

TCO Certified Smartphone 1 state that the brand owner shall ensure that the social requirements in TCO Certified Smartphones 1 are being met at final assembly plants and with reasonable effort by suppliers throughout the supply chain of the certified product.
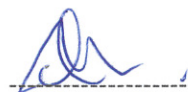
Conclusion

Our conclusion is that, for these 2 specific incidents, Samsung's way to handle these indications of noncompliance fulfills the social criteria (A.7.1) in TCO Certified Smartphones 1.

This verification is a summary based on the investigations and conclusions described in the full report.

Stockholm, December 6, 2013

Respect Sustainable Business

Alexandra Frenander   Claes Hamilton

Appendix 3

Process for investigating alleged violations of TCO Certified criteria

The following is a list of TCO Development's established standard process for investigating potential non-conformities with the criteria in TCO Certified for certified products. Differences from this process may occur based on the circumstances of each different case.

1. **Alleged violation is found**
   Reliable information reached TCO Development that a certified product or its production is in violation of the TCO Certified criteria during the validity of a certificate.

2. **Brand is contacted and the alleged violation is further investigated**
   The alleged violation is discussed with the brand and the factory in question is identified.
   - Did the alleged violation occur in a final assembly plant or part of the supply chain of a TCO Certified product?
   - Did the alleged violation occur during the validity of a certificate?
   TCO Development decides if it is necessary for the brand to provide documentation of compliance.

3. **Documentation of compliance is verified by a third party appointed by TCO Development**
   The documentation of compliance is verified by a third party accepted by TCO Development. The investigation of the documentation should include the following validation steps:

   a) Was the investigation seriously conducted? Some aspects to consider for the judgment:
   - Can the conducting party be considered independent and competent for the investigation?
   - Can the conducting party be considered to have invested enough time to conduct the investigation?
   - Did the conducting party focus on relevant sources of information regarding the specific incident: (e.g. documents, interviews, site inspections)
   - Root causes: How the violation occurred and that it is resolved/being resolved, or confirmed that it did not occur?
   - Timeline: When did the violation occur and how fast did the brand respond (is there a need to update routines?)

   b) Does the documentation cover the factory and/or product in question?

   c) If the third party appointed by TCO Development considers corrective actions necessary to resolve the violation then: Does the documentation show corrective actions being taken that are sufficient/effective to solve the problem within reasonable time?

   d) Based on the above questions and other possible investigations of the documentation, the third party shall write a verification report to TCO Development stating if the

documentation is enough to prove that the manufacturing of the product complies with the criteria in TCO Certified.

4. **TCO Development finalizes the investigation**
   Based on the verification document from the third party, TCO Development will determine if the product in question can still carry the TCO certificate or if the investigation must proceed further.

5. **Option of TCO Certificate withdrawal**
   If no proof of compliance can be verified and approved by the third party appointed by TCO Development then the certificate can be withdrawn.

Appendix 4

Social responsibility criteria in TCO Certified Smartphones 1

The following is an excerpt from the criteria document "TCO Certified Smartphones 1", specifically the section on social responsibility in production. The complete criteria set can be found at http://tcodevelopment.com/files/2013/05/TCO_Certified_Smartphones_1.0.pdf

TCO DEVELOPMENT

A.7 Corporate Social Responsibility

A.7.1 Corporate Social Responsibility

Background

Expectations for Corporate Social Responsibility (CSR) performance are increasing from customers and institutions. As part of the development towards being a true sustainability label, TCO Development is now introducing an extended mandate regarding supply chain responsibility.

TCO Development is supporting the OECD Guidelines for Multinational Enterprises ISO 26000 as references for working with social responsibility.

The CSR component of the TCO standard focuses on working conditions in the production of the TCO certified products.

TCO Development is primarily verifying the Brand owner's procedures for promoting legal and human labour standards in the supply chain as specified in the mandate but reserves the right to conduct supplier audits at production facilities. Also, the Brand owner should demonstrate commitment to corporate social responsibility.

Definitions

Brand owner: The company or organization owning or controlling the *Brand Name*.
Brand Name: The name or sign, including but not limited to a trademark or company name, used to identify, amongst users and customers, the manufacturer or seller of a Product.
1ˢᵗ tier production facility: Manufacturing plant where the final assembly of the TCO certified product is taking place.

Applicability
The Brand owner.

Mandate A.7.1:

The *Brand owner* shall demonstrate the TCO Certified product is manufactured under working practices that promote good labour relations and working conditions by proving accordance with the following:

- ILO:s eight core conventions 29, 87, 98, 100, 105, 111, 138 and 182.
- UN Convention on the Rights of the Child, Article 32.
- the health and safety legislation in force in the country of manufacture, and
- the labour law, including rules on minimum wage and the social security protection in the manufacturing country.

In situations where the right to freedom of association and collective bargaining are restricted under law, workers shall be permitted to freely elect their own representatives.

Reasonable effort shall be made to ensure that the requirements of this standard are being met by suppliers and subcontractors throughout the supply chain.

The brand owner accepts that TCO Development may conduct/commission on-site inspections and receive full audit reports as part of the application to verify that the *Brand owner* is fulfilling its obligations according to this Mandate. For the social audit reports and on-site-inspections, the requirement is limited to the *1st tier production facility*.

The following information shall be submitted to an approved verifier:

1. The requirement is fulfilled by one of the following options (a-d):

a) The *Brand owner* is a member of EICC and provides documented proof of third party audits conducted at production facilities of TCO certified products.

b) The *Brand owner* is SA8000 certified or carrying out the production at SA8000 certified facilities and provides documented proof of third party audits conducted at production facilities of TCO certified products.

c) The *Brand owner* shall complete the Self-documentation according to a questionnaire provided by TCO Development and provide documented proof of third party audits conducted at production facilities of TCO certified products.

2. A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by the responsible person at the *Brand owner* company.

The following information shall be submitted with the application to TCO Development: A copy of a verification report from an approved verifier

Option (to be verified): ☐ a. Member of EICC

☐ b. SA8000 certified

☐ c. Self-documentation/TCO Development questionnaire

We hereby guarantee that the above mandate is fulfilled.

....　　　..
Product brand name　　　　　　　　　　　Model name(s) or "All products"

....　　　..
Signature　　　　　　　　　　　　　　　Name and title in block capitals

....　　　..
Date (Declaration valid 1 year from date)　　Brand Owner Company

Appendix 5

TCO Certified key achievements 1992-2011

1. Contributed to the first energy saving "sleep mode" function in computer displays

In 1992, the first energy efficiency requirements were introduced into the TCO certification. Previously, display energy consumption was always at the "on mode" level, which led to high energy consumption even when the display was not in use. Today TCO Certified contributes to the ongoing effort to reach greater energy efficiency in IT products.
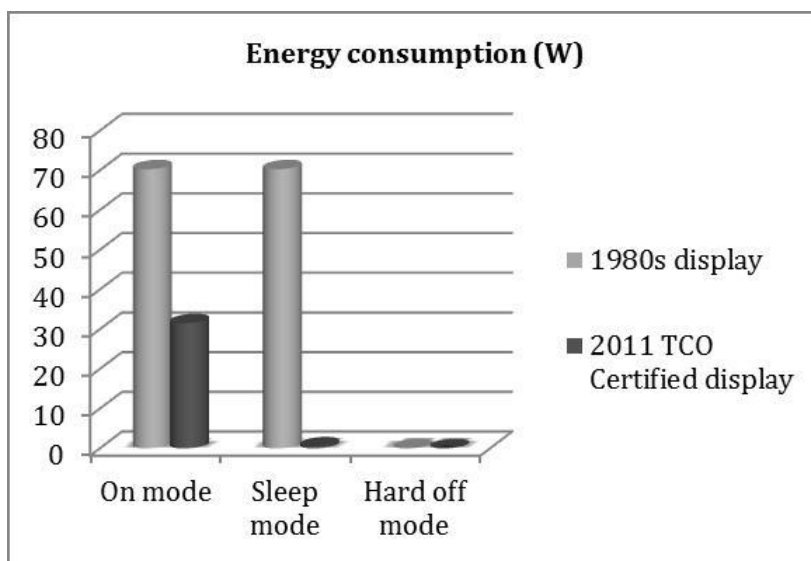
Results of energy efficiency requirements in TCO Certified displays:

1. Reduction of energy consumption to a minimum in sleep mode and
2. Over 50% greater efficiency in on-mode

Source: 2011 study from the University of Lund, comparing the energy efficiency of a 1980s display with a 2011 model TCO Certified Display.

## 2. Minimization of electro-magnetic emissions from displays

TCO Certified was developed in response to increased concern from users about the health and safety risks of computer display use. The first TCO certification focused on reducing the electro-magnetic fields emitted from displays. The results of this effort include the elimination of static electrical emissions and a 24-fold reduction in magnetic emissions from displays. Today all TCO Certified products maintain requirements for low electro-magnetic emissions.

Magnetic emission from displays
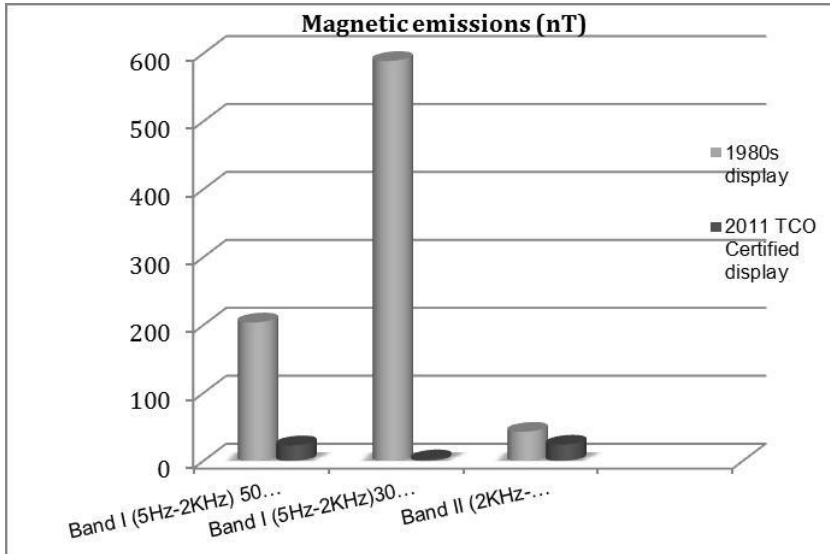
Result: Magnetic emissions reduced 24-fold.

Electrical emissions from displays
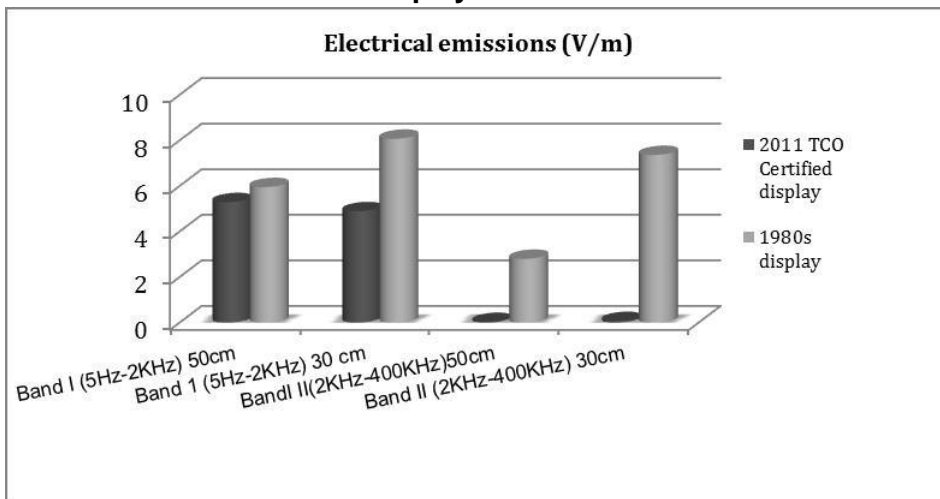
Result: Elimination of static electrical emissions

3. First certification to require a reduction in hazardous material content of IT products

In the early 1990s, years before hazardous substance legislation, TCO Certified led the way in reducing the hazardous material content in IT products. Beginning with limits on chlorinated and brominated flame retardants and expanding to other hazardous substances, TCO Certified has been able to influence industry to design products that minimize the content of these substances that are proven risks for human health and the environment.

Result: Elimination or minimization of the following hazardous substances:
- Heavy metals
- Cadmium (carcinogen, organ toxin)
- Lead, present for example in solder (a nervous system toxin)
- Mercury (toxic for fetus)
- Hexavalent chromium, present for example in plastics (carcinogen, organ toxin)
- Chlorinated and brominated flame retardants (persistence in the natural environment, health risks)
- other substances toxic for human health and the environment

4. Initiated requirements for eliminating ozone-depleting CFCs from IT production

TCO Certified initiated a ban on Chlorofluorocarbons (CFCs) early in the program. CFCs have been identified as a substance that depletes the ozone layer in the upper atmosphere.

5. First certification to combine criteria for low energy consumption and high performance display image

A high quality display image with good visual ergonomic quality is often connected with higher energy consumption.

However, by combining criteria for energy efficiency and visual ergonomics/image quality, TCO Certified has been able to simultaneously bring about lower energy consumption in displays, while increasing the quality of the display image.
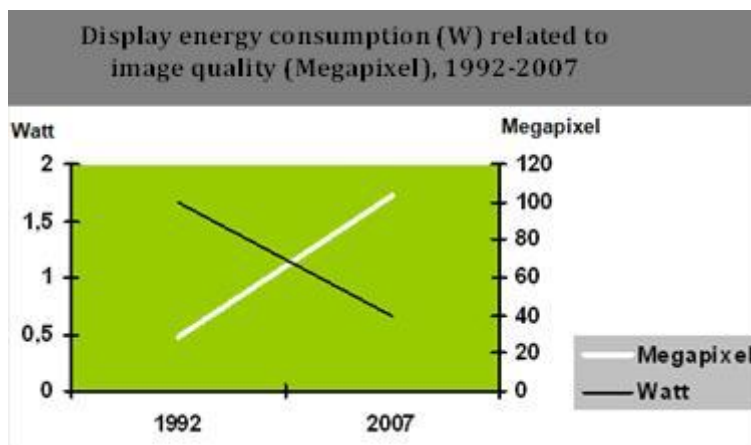
Source: TCO Development.

6. First environmental certification to require that IT manufacturers demonstrate socially responsible production practices

In 2009, TCO Certified added requirements for manufacturers to declare their commitment to socially responsible manufacturing practices. This was an important step in adding a social dimension to TCO Certified and influencing industry to improve conditions in production facilities.

2009: First environmental certification to introduce requirements for socially responsible manufacturing.
Result: 25 percent of display industry began developing socially responsible practices in manufacturing

In 2012, social responsibility requirements were enhanced to require third party social audits and verification of production plants where TCO Certified products are made. The introduction of these requirements has resulted in greater transparency, improved working conditions and a more open dialog with industry.

2012: Enhanced social responsibility requirements requiring third party social audits of production facilities
Result: Within 6 months, 18 major brands (30 percent of industry) were carrying out third party audits of their manufacturing operations.

7. Over 8,700 TCO Certified product models worldwide

Since its beginning, over 8,700 IT products in eight product categories have achieved the TCO Certified labelling. TCO Certified is international and public and private sector purchasers worldwide are able to source TCO Certified products from 60 major IT brands.