EICTA
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EICTA Position Paper on Printer Emissions and possible relation between Imaging Equipment and Indoor Air quality

Executive Summary

The health and safety of customers is always a top priority for EICTA member companies. EICTA is aware that some attempts to link emissions from laser printers and copiers to indoor air quality and health issues have been made. In response, our industry has been instrumental in creating technical standards for testing consumer and professional equipment. Our member companies are also committed to furthering the knowledge of emissions from laser printers and copiers and are committing considerable resources to pursue this knowledge. Current scientific findings and expert knowledge confirm that no health risks specific to device emissions or toners are to be expected from laser printing systems when used as intended. Hence we urge the European Commission and other interested stakeholders to consider all the available data on potential health effects linked to emissions from electronic equipment when looking at this issue. Our members are very keen to have a dialogue with stakeholders on this topic and will continue to share with them the results of future research.

The European Union is currently leading discussions on Indoor Air Quality. Preliminary studies and risk assessments have been conducted by experts to provide a scientific basis for developing and implementing policies on indoor air quality. In their report[1], the Scientific Committee on Health and Environment Risk (SCHER) recommends that all sources emitting particles and chemicals should be evaluated when considering air quality which should include consumer products such as printers.

In July 2007, the Queensland University of Technology published a report on particle number concentrations emitted from laser printing devices[2]. The study raised the issue to an international level leaving a lot of questions unanswered.

Our industry has assessed risks of emissions via voluntary agreements over many years in the design and production of our IT and consumer electronic products. Our industry developed measuring standards such as ECMA 328[3], which subsequently became accepted internationally, to help study these emissions in a controlled scientific manner.

We naturally recognise and support the regulation of indoor air quality related to established and agreed health concerns. However, requirements should be based on established facts and protocols.

EICTA and the printer industry believe that any health risk assessment related to printer emissions should be managed through DG SANCO, not through the EuP Directive. The EuP Directive is predominantly dealing with issues surrounding the energy use of products and we are concerned that introduction of another issue into those discussions will divert attention from the important task at hand.
Below we expand on our view and experience regarding emissions.

1. Emissions from Imaging Equipment

To ensure a high degree of user safety, Imaging Equipment manufacturers are investigating potential emissions from their products. The measurements are based on international and national standards (e.g. ECMA-328, Blue Angel measurement criteria), and the results are checked against indoor air quality guidelines. In addition to design measures taken to minimise emissions, manufacturers provide instructions (e.g. in manuals) regarding workplace conditions to ensure the safety of users even further. If used as intended, no health risks are to be expected from emissions from laser printers and copiers.

Various studies completed by manufacturers and third parties underline this conclusion regarding the effect of equipment operation on indoor air quality and customer health. One study conducted on health hazards caused by emissions of laser printers and copiers concluded that "there have been no scientifically established indications that the operation of modern laser printers and copiers in offices leads to an increased health-relevant exposure caused by toners and VOCs"[4]. EICTA would welcome the SCHER and the European Commission to take this and other studies into consideration to support the risk assessment task.

Furthermore, some eco-labels include emission criteria within their compliance criteria, such as the international recognized Blue Angel[5] for printing devices (RAL-UZ122). Standard ECMA-328 specifies methods to determine chemical emission rate from electronic equipment. Published in June 2007, the third version of Standard ECMA-328 is in line with ISO/IEC 28360 standard. Emission concentrations from imaging equipment are far below German occupational exposure limits (AGW) and emission limits of the US occupational Health and Safety Administration (OSHA). These emission values also comply with the internationally accepted WHO regulations for indoor environments[6] and the indoor air quality guidelines from the US Environmental Protection Agency (USEPA)[7].

A recent dedicated health research study[8], performed by the University Medical Centre of the University of Giessen on behalf of the German Bundesinstitut fuer Risikobewertung[9] (BfR), concluded that "clinical examinations of test personnel at office workplaces does not indicate health problems specific to toner emissions".

2. Measurement of ultra fine particles emitted by laser printers and copiers

Testing of UFPs from laser printers is a very new scientific discipline. In 2006, the German Federal Environment Agency (UBA) found ultra fine particles (UFP $<0.1\mu$m) within the very small amount of particulate matter emitted. The UBA have stated it is currently not possible to comment on the chemical composition or potential health risks which might be posed by these UFPs[10]. The measured quantities of UFP emissions are similar to those generated by other every day activities such as toasting or frying. Recent studies[11] in Germany and Japan indicate that UFPs from laser printing systems are not solid particles but rather condensation products. The German BfR assessment[12] confirms that UFP concentrations do not predominantly contain toner material.

The Queensland report[2] merely confirms the presence of emissions from laser printers. Whilst the industry agrees there can be an increase in UFPs into the indoor air through the operation of a laser printer, independent experts do not see indications of health risks when laser printing systems are operated as intended.

In order to assess the health issue related to ultra fine particles from printing devices and their influence on indoor air quality, it is vital to understand their chemical and physical properties. It is essential to compare those properties with properties from UFPs released by other everyday process in the indoor environment like toasting, hair drying, cooking, etc.

The chemical composition of ultra fine particle releases from printing devices has not been characterized by any study performed so far. More information is needed through research to develop a solid scientific knowledge regarding the nature, quantity and origin of the UFPs in order to be able to determine any necessary action. Industry is investing in this research to further our understanding of this science.

EICTA believes that prior to initiating any form of workplace or equipment risk assessment a test protocol which considers all aspects of testing and evaluation must be agreed and issued as a standard. This is the only way to avoid either overestimation or underestimation of the issues related to UFP-emissions. In line with accepted practice the protocol should be suitable for assessment under accepted methods for test accreditation. EICTA companies have already developed individual test protocols recognised by scientific experts. They believe a standard test protocol should be implemented to ensure a global understanding of the printer emission impact, not only among industry but also by consumers and authorities. Thus, they are active in the development of this standard, drawing on the considerable expertise they have in preparing effective technical product standards.

3. Toner preparations

As mentioned above, ultra fine particles emitted by imaging products do not seem to involve toner predominantly. Additionally, in order to ensure a high degree of user safety, toner for original equipment is tested and classified in accordance with EU criteria governing preparations (supplementing Directive 1999/45/EC). Besides that, manufacturers guarantee the high quality of their products and processes and they will take into consideration human health and environment within product development, as well as international standards such as ISO 9001:2000 (Quality Management System) and ISO 14001:2004 (Environmental Management Systems).

4. Conclusion

When printer and copier systems are developed by manufacturers belonging to EICTA, they undergo rigorous testing in test chambers under extreme operating conditions to measure potential emissions of both particles and chemicals. No health risks specific to device emissions or toners are to be expected from laser printing and copying systems when used as intended.

Industry continues to support further research into UFP emissions from laser printers and copiers. EICTA pledges to update the Commission and other stakeholders regularly on the latest scientific research. For the benefit of consumers, EICTA requests that a close information sharing collaboration is established between industry, the Commission and other stakeholders.

EICTA MEMBERSHIP

About EICTA:

EICTA, founded in 1999 is the voice of the European digital technology industry, which includes large and small companies in the Information and Communications Technology and Consumer Electronics Industry sectors. It is composed of 57 major multinational companies and 39 national associations from 27 European countries. In all, EICTA represents more than 10,000 companies all over Europe with more than 2 million employees and over EUR 1,000 billion in revenues.

The membership of EICTA:

Company Members:
Adobe, Agilent, Alcatel-Lucent, Apple, Bang & Olufsen, Blaupunkt, Brother, Canon, Cisco, Corning, Dell, EADS, Elcoteq, Epson, Ericsson, Fujitsu, Hitachi, HP, IBM, Infineon, Intel, JVC, Kenwood, Kodak, Konica Minolta, Lexmark, LG Electronics, Loewe, Micronas, Microsoft, Motorola, NEC, Nokia, Nokia Siemens Networks, Nortel, NXP, Océ, Oki, Panasonic, Philips, Pioneer, Qualcomm, Research In Motion, Samsung, Sanyo, SAP, Sharp, Siemens, Sony, Sony Ericsson, Sun Microsystems, Symantec, Texas Instruments, Thales, Thomson, Toshiba, Xerox.

National Trade Associations:
Austria: FEEI; **Belgium:** AGORIA; **Bulgaria**: BAIT; **Czech Republic:** ASE, SPIS; **Denmark:** ITEK, IT-Branchen; **Estonia:** ITL; **Finland:** TIF; **France:** ALLIANCE TICS, SIMAVELEC; **Germany:** BITKOM, ZVEI; **Greece:** SEPE; **Hungary:** IVSZ; **Ireland:** ICT Ireland; **Italy:** ANIE, AITech-ASSINFORM; **Latvia:** LIKTA; **Lithuania:** INFOBALT; **Malta:** ITTS; **Netherlands:** ICT-Office, FIAR; **Norway:** ABELIA, IKT Norge; **Poland:** KIGEiT, PIIT; **Slovakia:** ITAS; **Slovenia:** GZS; **Spain:** AETIC, ASIMELEC; **Sweden:** IT Företagen; **Switzerland:** SWICO, SWISSMEM; **Turkey:** ECID, TESID, TÜBISAD; **Ukraine**: IT Ukraine; **United Kingdom**: INTELLECT.

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[1] SCHER's opinion on risk assessment on indoor air quality, published in June 2007.

[2] Morawska L. – Queensland University of Technology in Brisbane – Study published on the American Chemical Society's Environmental Science & Technology (ES&T) - 1 August 2007.

[3] ECMA-328: standard to determine chemical emission rates of Volatile Organic Compounds (VOC), and other aldehydes and ketones, ozone and particulate matter from ICT & CE equipment in using mode in an Emission Test Chamber (ETC).ECMA International: industry association which develop standardization of Information and Communication Technology (ICT) and Consumer Electronics (CE). http://www.ecma-international.org/publications/standards/Standard.htm

[4] Ewers, U and Nowak, D Reinhalt. Luft 66 (2006) no.5 p 203-210 "Health Hazards Caused by Emissions of laser Printers and Copiers"

[5] The Blue Angel (Der Blaue Engel in German): German eco-label, and oldest environmental label in the world. Now, about 3,700 products and services in 80 product categories bear the Blue Angel. http://www.blauer-engel.de/englisch/navigation/body_blauer_engel.htm

[6] World Health Organization (WHO), 2000.

[7] US Environmental protection Agency (US EPA), Reference Concentration (RfC).

[8] Study conducted by the Institute of Indoor- and environmental Toxicology at the University of Giessen. Scope: emissions of laser printers and photocopiers, and health effects in 63 offices with 69 office-workers. Results published in February and March 2007.

[9] German Institute for Risk Assessment.

[10] German Federal Environment Agency, Bake/Moriske, February 2006.

[11] HB 2006 Healthy Buildings – proceedings, Wensing et al, 2006; IAQ for chemical and UFP contaminants from printers, Kagi et al., 2007.

[12] Press release 18 October 2007: http://www.bfr.bund.de/cd/10165