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Quantification methodology for greenhouse gas emissions for computers and monitors

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National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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Quantification methodology for greenhouse gas emissions for computers and monitors

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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QUANTIFICATION METHODOLOGY FOR GREENHOUSE GAS EMISSIONS FOR COMPUTERS AND MONITORS

FOREWORD

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IEC TR 62921, which is a Technical Report, has been prepared by technical area 13: Environment for AV and multimedia equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition cancels and replaces the first edition published in 2015.

The text of this Technical Report is based on the following documents:

Enquiry draft	Report on voting
100/2598/DTR	100/2717/RVC

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Many organizations are looking to adopt product greenhouse gas emissions reporting mechanisms, including:

- computer and monitor manufacturers, as well as their suppliers and downstream users;
- governmental agencies including France, China, Japan, Korea and the European Commission;
- retailers and non-regulatory agencies.

There have been several international and regional efforts to provide guidance for calculating product greenhouse gas emissions. Some of these efforts include IEC TR 62725, ITU-T L.1410, ETSI TS 103 199, and Greenhouse Gas Protocol ICT Sector Supplement.

Unfortunately, some lack of specificity within these documents allows for variability that can create a significant difference in product greenhouse gas emission results, depending on how a practitioner interprets the information. Throughout the process of developing IEC TR 62725, there was significant discussion regarding the need for further specificity, transparency and pragmatism in methodology guidance for products covered under IEC TC 100, including computers and monitors. There is an urgent need to enable methodologies that offer accurate and defensible estimates of impact in a rapid and effective manner. This Technical Report aims to fill in some of those gaps.

This Technical Report builds upon the structure laid out by IEC TR 62725. Its goal is to support universal streamlined product greenhouse gas methodologies for practitioners, with a further goal of harmonizing the various regional efforts currently in progress.

This Technical Report’s quantification methodology aims to be compliant with, and therefore be used within, a number of these broader standards efforts. It will provide detailed guidance for estimating greenhouse gas emissions for computers and monitors, in order to obtain consistent, accurate results. The benefit of consistent results is that they can assist multiple efforts, including but not limited to:

- supporting customer enquiries;
- instituting sustainable design practices;
- initiating conversations around emissions reduction strategies with suppliers and downstream users;
- targeting data collection within the supply chain in order to address data quality issues.

QUANTIFICATION METHODOLOGY FOR GREENHOUSE GAS EMISSIONS FOR COMPUTERS AND MONITORS

1 Scope

This Technical Report outlines detailed guidance to streamline the quantification of greenhouse gas emissions for computers and monitors. Other audio, video and multimedia products, such as e-readers, phones, and storage equipment, can be included in future revisions of this Technical Report.

For this Technical Report, computers and monitors include notebooks, desktops, integrated desktop computers, tablets, thin clients, workstations and monitors.

This Technical Report provides specific guidance for the use of streamlining techniques that minimize cost and resources needed to complete greenhouse gas emissions quantifications. In addition, the product category rules (PCR) section of this Technical Report recommends “state-of-the-art” process and data assumptions in order to reduce uncertainty. Lastly, this Technical Report provides an example of how a calculation could be performed.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
carbon footprint of a product
CFP
sum of greenhouse gas emissions and removals in a product system, expressed as CO_2 equivalents and based on a life cycle assessment using the single impact category of climate change

Note 1 to entry: The CO_2 equivalent of a specific amount of a greenhouse gas is calculated as the mass of a given greenhouse gas multiplied by its global warming potential.

Note 2 to entry: Results of the quantification of the CFP are documented in the CFP study report expressed in mass of CO_2e per functional unit.

[SOURCE: ISO/TS 14067:2013, 3.1.1.1, modified – Notes 2 and 3 have been removed and Note 4 has been renumbered as Note 2.]

2.2
comprehensive carbon footprint of a product
carbon footprint of a product (2.1) that is product-specific and includes the carbon impacts for every component and process in that product’s life cycle

2.3
computer
device which performs logical operations and processes data

Note 1 to entry: Computers are composed of, at a minimum:

a) a central processing unit (CPU) to perform operations;

b) user input devices such as a keyboard, mouse, digitizer or game controller; and

c) a computer display screen to output information.

[SOURCE: ENERGY STAR® Program Requirements for Computers]