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**Greenhouse gases — Carbon footprint  
of products — Requirements and  
guidelines for quantification**

*Gaz à effet de serre — Empreinte carbone des produits — Exigences  
et lignes directrices pour la quantification*

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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 7, *Greenhouse gas management and related activities*.

This first edition cancels and replaces ISO/TS 14067:2013, which has been technically revised. It constitutes a reduction in scope as follows:

- principles, requirements and guidance on communication of the carbon footprint of a product (CFP) and the partial CFP are now covered in ISO 14026;
- principles, requirements and guidance on verification are now covered in ISO 14064-3;
- principles, requirements and guidance on PCR are now covered in ISO/TS 14027;
- requirements for the treatment of biogenic carbon and electricity have been revised and clarified;
- the definitions have been aligned within the ISO 14064 series for ease of interpretation.

This document is the generic standard for the quantification of the carbon footprint of products.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Climate change arising from anthropogenic activity has been identified as one of the greatest challenges facing the world and will continue to affect business and citizens over future decades.

Climate change has implications for both human and natural systems and could lead to significant impacts on resource availability, economic activity and human wellbeing. In response, international, regional, national and local initiatives are being developed and implemented by public and private sectors to mitigate greenhouse gas (GHG) concentrations in the Earth's atmosphere as well as to facilitate adaptation to climate change.

There is a need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge. ISO produces documents that support the transformation of scientific knowledge into tools that will help address climate change.

GHG initiatives on mitigation rely on the quantification, monitoring, reporting and verification of GHG emissions and/or removals.

The ISO 14060 family provides clarity and consistency for quantifying, monitoring, reporting and validating or verifying GHG emissions and removals to support sustainable development through a low-carbon economy. It also benefits organizations, project proponents and stakeholders worldwide by providing clarity and consistency on quantifying, monitoring, reporting, and validating or verifying GHG emissions and removals. Specifically, the use of the ISO 14060 family:

- enhances the environmental integrity of GHG quantification;
- enhances the credibility, consistency, and transparency of GHG quantification, monitoring, reporting, validation and verification;
- facilitates the development and implementation of GHG management strategies and plans;
- facilitates the development and implementation of mitigation actions through emission reductions or removal enhancements;
- facilitates the ability to track performance and progress in the reduction of GHG emissions and/or increase in GHG removals.

Applications of the ISO 14060 family include:

- corporate decisions, such as identifying GHG emission reduction opportunities and increasing profitability by reducing energy consumption;
- carbon risk management, such as the identification and management of risks and opportunities;
- voluntary initiatives, such as participation in voluntary GHG registries or sustainability reporting initiatives;
- GHG markets, such as the buying and selling of GHG allowances or credits;
- regulatory/government GHG programmes, such as credit for early action, agreements or national and local reporting initiatives.

ISO 14064-1 details principles and requirements for designing, developing, managing and reporting organization-level GHG inventories.

It includes requirements for determining GHG emission and removal boundaries, quantifying an organization's GHG emissions and removals, and identifying specific company actions or activities aimed at improving GHG management.

It also includes requirements and guidance on inventory quality management, reporting, internal auditing and the organization's responsibilities in verification activities.

ISO 14064-2 details principles and requirements for determining baselines and for the monitoring, quantifying and reporting of project emissions. It focuses on GHG projects or project-based activities specifically designed to reduce GHG emissions and/or enhance GHG removals. It provides the basis for GHG projects to be validated and verified.

ISO 14064-3 details requirements for verifying GHG statements related to GHG inventories, GHG projects, and carbon footprints of products. It describes the process for validation or verification, including validation or verification planning, assessment procedures, and the evaluation of organizational, project and product GHG statements.

ISO 14065 defines requirements for bodies that validate and verify GHG statements. Its requirements cover impartiality, competence, communication, validation and verification processes, appeals, complaints, and the management system of validation and verification bodies. It can be used as a basis for accreditation and other forms of recognition in relation to the impartiality, competence, and consistency of validation and verification bodies.

ISO 14066 specifies competence requirements for validation teams and verification teams. It includes principles and specifies competence requirements based on the tasks that validation teams or verification teams must be able to perform.

This document defines the principles, requirements and guidelines for the quantification of the carbon footprint of products. The aim of this document is to quantify GHG emissions associated with the life cycle stages of a product, beginning with resource extraction and raw material sourcing and extending through the production, use and end-of-life stages of the product.

ISO/TR 14069 assists users in the application of ISO 14064-1, providing guidelines and examples for improving transparency in the quantification of emissions and their reporting. It does not provide additional guidance to ISO 14064-1.

Figure 1 illustrates the relationship among the ISO 14060 family of GHG standards.

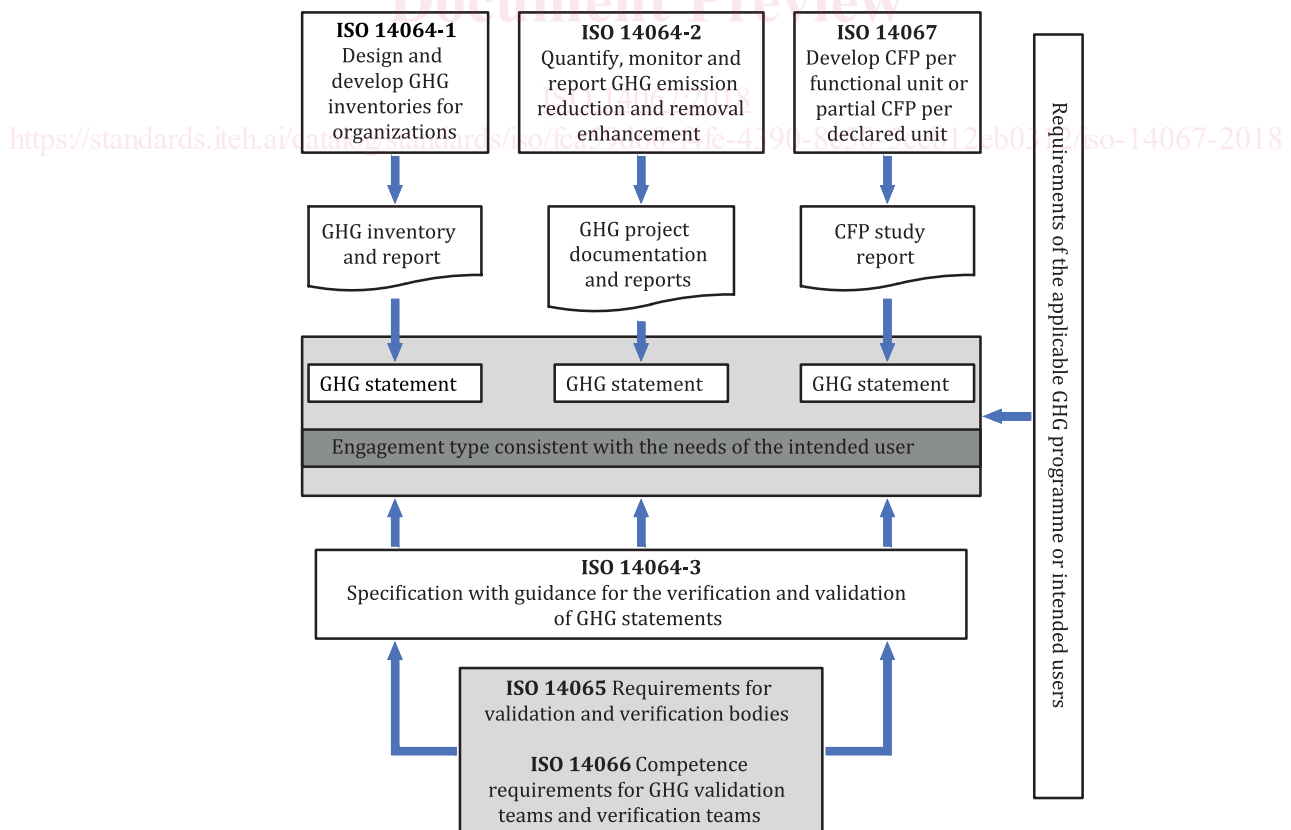


Figure 1 — Relationship among the ISO 14060 family of GHG standards

## ISO 14067:2018(E)

NOTE In this document, GHG statements are the CFP or the partial CFP.

GHGs can be emitted and removed throughout the life cycle of a product which includes acquisition of raw material, design, production, transportation/delivery, use and the end-of-life treatment. Quantification of the carbon footprint of a product (CFP) will assist in the understanding and action to increase GHG removals and reduce GHG emissions throughout the life cycle of a product. This document details principles, requirements and guidelines for the quantification of CFPs, i.e. goods and services, based on GHG emissions and removals over their life cycle. Requirements and guidelines for the quantification of a partial CFP are also provided. Communication related to the CFP or the partial CFP is covered in ISO 14026. The development of product category rules (PCR) is covered in ISO/TS 14027.

This document is based on principles, requirements and guidelines identified in existing International Standards on life cycle assessment (LCA), ISO 14040 and ISO 14044, and aims to set specific requirements for the quantification of a CFP and a partial CFP.

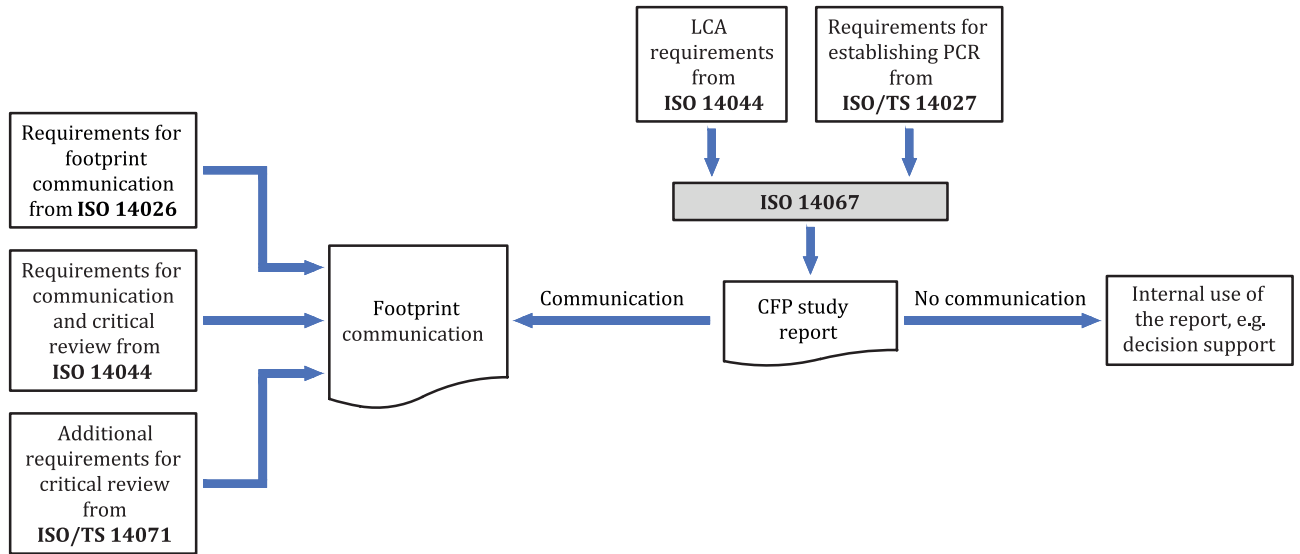
This document is expected to benefit organizations, governments, industry, service providers, communities and other interested parties by providing clarity and consistency in quantifying CFPs. Specifically, using LCA in accordance with this document, with climate change as the single impact category, can offer benefits through:

- avoiding burden-shifting from one stage of a product life cycle to another or between product life cycles;
- providing requirements for the quantification of the CFP;
- facilitating CFP performance tracking in reducing GHG emissions;
- providing a better understanding of the CFP such that potential opportunities for increases in GHG removals and reductions of GHG emissions might be identified;
- helping to promote a sustainable low carbon economy;
- enhancing the credibility, consistency and transparency of the quantification and reporting of the CFP;
- facilitating the evaluation of alternative product design and sourcing options, production and manufacturing methods, raw material choices, transportation, recycling and other end-of-life processes;
- facilitating the development and implementation of GHG management strategies and plans across product life cycles, as well as the detection of additional efficiencies in the supply chain;
- preparing reliable CFP information.

NOTE In respect to the terminology of ISO 14026 regarding footprint communication, climate change is considered as an example of an “area of concern”.

[Figure 2](#) illustrates the connection between this document and standards outside the GHG management family of standards.





**Figure 2 — Relationship between this document and standards beyond the GHG management family of standards**

CFPs prepared in accordance with this document contribute to the objectives of GHG-related policies and/or regimes.

Limitations of CFPs based on this document are described in [Annex A](#).

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# Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification

## 1 Scope

This document specifies principles, requirements and guidelines for the quantification and reporting of the carbon footprint of a product (CFP), in a manner consistent with International Standards on life cycle assessment (LCA) (ISO 14040 and ISO 14044).

Requirements and guidelines for the quantification of a partial CFP are also specified.

This document is applicable to CFP studies, the results of which provide the basis for different applications (see [Clause 4](#)).

This document addresses only a single impact category: climate change. Carbon offsetting and communication of CFP or partial CFP information are outside the scope of this document.

This document does not assess any social or economic aspects or impacts, or any other environmental aspects and related impacts potentially arising from the life cycle of a product.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TS 14027:2017, *Environmental labels and declarations — Development of product category rules*

ISO 14044:2006, *Environmental management — Life cycle assessment — Requirements and guidelines*

ISO/TS 14071, *Environmental management — Life cycle assessment — Critical review processes and reviewer competencies: Additional requirements and guidelines to ISO 14044:2006*

## 3 Terms, definitions and abbreviated terms

### 3.1 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1.1 Quantification of the carbon footprint of a product

#### 3.1.1.1

##### carbon footprint of a product

###### CFP

sum of *GHG emissions* (3.1.2.5) and *GHG removals* (3.1.2.6) in a *product system* (3.1.3.2), expressed as *CO<sub>2</sub> equivalents* (3.1.2.2) and based on a *life cycle assessment* (3.1.4.3) using the single *impact category* (3.1.4.8) of climate change

Note 1 to entry: A CFP can be disaggregated into a set of figures identifying specific GHG emissions and removals (see [Table 1](#)). A CFP can also be disaggregated into the stages of the *life cycle* (3.1.4.2).

Note 2 to entry: The results of the quantification of the CFP are documented in the *CFP study report* (3.1.1.5) expressed in mass of CO<sub>2</sub>e per *functional unit* (3.1.3.7).

#### 3.1.1.2

##### partial carbon footprint of a product

###### partial CFP

sum of *GHG emissions* (3.1.2.5) and *GHG removals* (3.1.2.6) of one or more selected *process(es)* (3.1.3.5) in a *product system* (3.1.3.2), expressed as *CO<sub>2</sub> equivalents* (3.1.2.2) and based on the selected stages or processes within the *life cycle* (3.1.4.2)

Note 1 to entry: A partial CFP is based on or compiled from data related to (a) specific process(es) or footprint information modules, which is (are) part of a product system and can form the basis for quantification of a CFP. More detailed information on information modules is given in ISO 14025:2006, 5.4.

Note 2 to entry: "Footprint information modules" is defined in ISO 14026:2017, 3.1.4.

Note 3 to entry: The results of the quantification of the partial CFP are documented in the *CFP study report* (3.1.3.5) expressed in mass of CO<sub>2</sub>e per *declared unit* (3.1.3.8).

#### 3.1.1.3

##### carbon footprint of a product systematic approach

###### CFP systematic approach

set of procedures to facilitate the *quantification of the CFP* (3.1.1.6) for two or more *products* (3.1.3.1) of the same *organization* (3.1.5.1)

#### 3.1.1.4

##### carbon footprint of a product study

###### CFP study

all activities that are necessary to quantify and report a *CFP* (3.1.1.1) or a *partial CFP* (3.1.1.2)

#### 3.1.1.5

##### carbon footprint of a product study report

###### CFP study report

report that documents the *CFP study* (3.1.1.4), presents the *CFP* (3.1.1.1) or *partial CFP* (3.1.1.2), and shows the decisions taken within the study

Note 1 to entry: The CFP study report demonstrates that the provisions of this document are met.

#### 3.1.1.6

##### quantification of the carbon footprint of a product

###### quantification of the CFP

activities that result in the determination of a *CFP* (3.1.1.1) or a *partial CFP* (3.1.1.2)

Note 1 to entry: Quantification of the CFP or the partial CFP is part of the *CFP study* (3.1.1.4).

**3.1.1.7****carbon offsetting**

mechanism for compensating for all or a part of the *CFP* (3.1.1.1) or the *partial CFP* (3.1.1.2) through the prevention of the release of, reduction in, or removal of an amount of *GHG emissions* (3.1.2.5) in a *process* (3.1.3.5) outside the *product system* (3.1.3.2) under study

EXAMPLE Investment outside the relevant product system, e.g. in renewable energy technologies, energy efficiency measures, afforestation/reforestation.

Note 1 to entry: Carbon offsetting is not allowed in the *quantification of a CFP* (3.1.1.6) or a partial CFP, and communication of carbon offsetting is outside of the scope of this document (see 6.3.4.1).

Note 2 to entry: Footprint communication and relevant claims regarding carbon offsetting and carbon neutrality are covered in ISO 14026 and ISO 14021.

Note 3 to entry: Adapted from the definition of “offsetting” in ISO 14021:2016, 3.1.12.

**3.1.1.8****product category**

group of *products* (3.1.3.1) that can fulfil equivalent functions

[SOURCE: ISO 14025:2006, 3.12]

**3.1.1.9****product category rules****PCR**

set of specific rules, requirements and guidelines for developing Type III environmental declarations and footprint communications for one or more *product categories* (3.1.1.8)

Note 1 to entry: PCR include quantification rules conforming to ISO 14044.

Note 2 to entry: ISO/TS 14027 describes the development of PCR applicable to this document.

Note 3 to entry: “Footprint communication” is defined in ISO 14026:2017, 3.1.1.

[SOURCE: ISO/TS 14027:2017, 3.1, modified — Notes 1, 2 and 3 to entry have replaced the original Note 1 to entry.]

**3.1.1.10****carbon footprint of a product – product category rules****CFP-PCR**

set of specific rules, requirements and guidelines for *CFP* (3.1.1.1) or *partial CFP* (3.1.1.2) quantification and communication for one or more *product categories* (3.1.1.8)

Note 1 to entry: CFP-PCR include quantification rules conforming to ISO 14044.

Note 2 to entry: ISO/TS 14027 describes the development of *PCR* (3.1.1.9) applicable to this document.

**3.1.1.11****carbon footprint of a product performance tracking****CFP performance tracking**

comparing the *CFP* (3.1.1.1) or the *partial CFP* (3.1.1.2) of one specific *product* (3.1.3.1) of the same *organization* (3.1.5.1) over time

Note 1 to entry: It includes calculating the change to the CFP for one specific product, or between superseding products with the same *functional unit* (3.1.3.7) or *declared unit* (3.1.3.8) over time.

### 3.1.2 Greenhouse gases

#### 3.1.2.1

##### greenhouse gas

##### GHG

gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds

Note 1 to entry: For a list of GHGs, see the latest IPCC Assessment Report<sup>[16]</sup>.

Note 2 to entry: Water vapour and ozone, which are anthropogenic as well as natural GHGs, are not included in the *CFP* (3.1.1.1) and *partial CFP* (3.1.1.2).

Note 3 to entry: The focus of this document is limited to long-lived GHGs and it therefore excludes climate effects due to changes in surface reflectivity (albedo) and short-lived radiative forcing agents (e.g. black carbon and aerosols).

[SOURCE: ISO 14064-1:2006, 2.1, modified — Notes 1, 2 and 3 to entry have replaced the original Note 1 to entry, which listed examples of GHGs.]

#### 3.1.2.2

##### carbon dioxide equivalent

##### CO<sub>2</sub> equivalent

##### CO<sub>2</sub>e

unit for comparing the radiative forcing of a *GHG* (3.1.2.1) to that of carbon dioxide

Note 1 to entry: Mass of a GHG is converted into CO<sub>2</sub> equivalents by multiplying the mass of the GHG by the corresponding *GWP* (3.1.2.4) or *GTP* (3.1.2.3) of that gas.

Note 2 to entry: In the case of *GTP*, CO<sub>2</sub> equivalent is the unit for comparing the change in global mean surface temperature caused by a GHG to the temperature change caused by CO<sub>2</sub>.

[SOURCE: ISO 14064-1:2006, 2.19, modified — An additional preferred term has been included, Note 1 to entry has been reworded to provide clarification, and Note 2 has been replaced with a new Note 2 to entry.]

#### 3.1.2.3

##### global temperature change potential

##### GTP

index measuring the change in global mean surface temperature at a chosen point in time in response to a *GHG* (3.1.2.1) emission pulse, relative to the change in temperature attributed to carbon dioxide (CO<sub>2</sub>)

Note 1 to entry: "Index" as used this document is a "characterization factor" as defined in ISO 14040:2006, 3.37.

Note 2 to entry: The *GTP* is based on temperature change for a selected year.

Note 3 to entry: Derived from the Working Group 1 IPCC Fifth Assessment Report (AR5), Climate Change 2013: The Physical Science Basis.

[SOURCE: IPCC (2013)<sup>[16]</sup>.]

#### 3.1.2.4

##### global warming potential

##### GWP

index, based on radiative properties of *GHGs* (3.1.2.1), measuring the radiative forcing following a pulse emission of a unit mass of a given GHG in the present-day atmosphere integrated over a chosen time horizon, relative to that of carbon dioxide (CO<sub>2</sub>)

Note 1 to entry: "Index" as used in this document is a "characterization factor" as defined in ISO 14040:2006, 3.37.

Note 2 to entry: A "pulse emission" is an emission at one point in time.