

# Environmental Product Declaration



In accordance with ISO 14025 and EN 50693 for:

## ***r2501, Sága Wi-Fi 7 Router***

This is a single product EPD  
from **Icotera A/S**



|                          |   |
|--------------------------|---|
| Programme:               | The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a> |
| Programme operator:      | EPD International AB  |
| EPD registration number: | S-P-EPD-IES-0025574   |
| Publication date:        | 2025-10-15  |
| Valid until:             | 2030-10-14  |

**An EPD should provide current information and may be updated if conditions change.**  
**The stated validity is therefore subject to the continued registration and publication at**  
**[www.environdec.com](http://www.environdec.com)**



## Programme information

|                   |   |
|-------------------|---|
| <b>Programme:</b> | The International EPD® System                                       |
| <b>Address:</b>   | EPD International AB<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden |
| <b>Website:</b>   | <a href="http://www.environdec.com">www.environdec.com</a>          |
| <b>E-mail:</b>    | <a href="mailto:info@.environdec.com">info@.environdec.com</a>      |

### Accountabilities for PCR, LCA and independent, third-party verification

#### Product Category Rules (PCR)

PCR: *PCR 2024:06 Electronic and electric equipment, and electronic components (non-construction) (EN 50693) (1.0.1)> <UN CPC: 47223*

#### Life Cycle Assessment (LCA)

LCA accountability: *Tasos Lizos, Icotera A/S*

#### Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third-party verifier: *Dimitris Velissariou, BQC P.C., jimvelis@hotmail.com*

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third-party verifier:

Yes       No

## Comparability of EPDs, adapted from ISO 14025

EPDs within the same product category but from different programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

## Company information

**Owner of the EPD:** Icotera A/S

**Contact:** Tasos Lizos, +4581912262, [tlizos@icotera.com](mailto:tlizos@icotera.com)

**Description of the organisation:** Icotera A/S is a leading European developer and manufacturer of standard-setting fiber-to-the-home (FTTH) CPE solutions. Our intelligent FTTH gateways, managed ethernet routers, and access points feature high-end Wi-Fi and are optimized with end-to-end real time in-home network and Wi-Fi monitoring. As a technology leader in this field, the company develops and delivers products with unique design and superior quality and performance. Icotera A/S is committed to providing fiber-optic network operators and ISPs with tailor-made, flexible and cost-effective solutions that meet individual requirements.

**Name and location of production site:** MitraStar production site in Taiwan.

### Supply chain

- Manufacturer signature of the Icotera A/S Supplier Code of Conduct on E, S and G.
- ISO14001 certified factory.

### Extended producer responsibility

- Packaging and packaging waste (PPWR): Icotera A/S complies with the Regulation (EU) 2024/1781 as a member of Emballage-retur, ensuring responsible recycling, reuse, and management of packaging waste.
- Waste electrical and electronic equipment (WEEE): Icotera A/S complies with the Directive 2012/19/EU as a member of El-retur, ensuring responsible recycling, reuse, and management of electronic waste. Icotera A/S is registered in the Danish DPA-System.

### Compliance

The product complies with chemical regulations, documented by the manufacturer:

- RoHS: Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
- The Swedish chemical tax: Swedish Constitution, 2016:1067, Amendment through: SFS 2022:1774.

**The EPD owner has the sole ownership, liability, and responsibility of the EPD.**

## Product information

**Product name:** *r2501, Sága Wi-Fi 7 Router*

**Product description:** The Icotera *r2501, Sága Wi-Fi 7 Router* provides superior Wi-Fi 7 connectivity making it an ideal choice for building powerful home mesh systems. Designed with a focus on three main pillars: security, performance, and longevity, the Icotera *r2501, Sága Wi-Fi 7 Router* combines advanced features with a minimalist and beautiful Danish design. Powered by prpLOS, the *r2501, Sága Wi-Fi 7 Router* provides a secure, standardised software platform that supports third-party container applications. Powered by the Dragonwing N7 Platform featuring a powerful CPU and 2 GB RAM, the *r2501, Sága Wi-Fi 7 Router* routers ensure top-level performance. The product lifespan of an *r2501, Sága Wi-Fi 7 Router* is 5 years.

### Gateway Interface Configurations:

|                      |                     |
|----------------------|---------------------|
| Model                | r2501               |
| Uplink               | 2.5 WAN (RJ45)      |
| LAN                  | 1x 2.5G, 2x 1G      |
| Wi-Fi                | Wi-Fi 7             |
| Peak Wi-Fi link rate | 15.1 Gbps (BE15100) |
| Radio chains         | 2 + 4 + 2           |

### Wi-Fi 7

- 802.11be 2x2 2.4 GHz + 4x4 5 GHz + 2x2 6 GHz
- BW support: 320 MHz, 240 MHz, 160 MHz, 40 MHz
- Downlink MU-MIMO and OFDMA
- Up to 4096-QAM modulation with full support for MCS 13 in all modes
- Support for LDPC, STBC
- Support for restricted target wake time (R-TWT)
- Full support for multi-link multi-radio MLO
- Static preamble puncturing

### Features

- Tri-band Wi-Fi 7 networking platform
- Non-blocking 1 Gbps architecture
- Wi-Fi link rate up to 5.99 Gbps
- Up to a GB flash memory
- Up to 2 GB RAM

### Operational Specifications

- DC 12 V input
- Operating temperature: 5°C – 45°C
- Storage temperature: -20°C – 85°C
- Humidity: 5% – 95% (noncondensing)



*r2501 configuration options*

### UN CPC code

47223. Other telephone sets and apparatus for transmission or reception of voice, images or other data, including apparatus for communication in a wired or wireless network (such as a local or wide area network)

### Geographical scope

Europe

## LCA information

### Declared unit

The Declared Unit (DU) is 1 item, specifically "1 r2501, Sága Wi-Fi 7 Router of 1.23 kg weight including packaging and PSU, dimensions 196 x 174 x 55 mm, 12 V DC (2.5 A) rated input, 10.8–20.6 W power consumption, 15.1 Gbps maximum Wi-Fi link rate". The product aligns with the IEEE 802.11be standard.

### Time representativeness

2023

### Database(s) and LCA software used

Ecoinvent 3.10 and SimaPro 10.1

### Description of system boundaries

A full life cycle, cradle to grave approach has been followed, to cover most aspects of the overall environmental impacts of a **r2501, Sága Wi-Fi 7 Router**.

### Allocation and cut-off rules

No allocation nor cut-off rules have been applied.

### Excluded lifecycle modules

The excluded lifecycle modules comprise of A5 – Installation at point of use, B1 – Use, B2 - Maintenance, B3-Repair, B4-Reuse, B5-Refurbishment, B7-Operational water use, C1-De-installation from point of use. For A5 and C1, the installation/ de-installation respectively involves minimal infrastructure or energy use that can't be easily quantified, no resource inputs are needed for these stages. The use phase emissions from router operation are attributed to energy consumption, which is accounted for in module B6, and thus B1 is out of scope. B2, B3 and B4 are not typically performed and thus these are out of scope. With respect to B5 – Refurbishment this has not been assessed in this EPD since it is an additional service, however separate LCAs on the environmental value of refurbishment will be delivered to customers on request. For B7, routers do not use or interact with water during operation, therefore direct water consumption during use is zero.

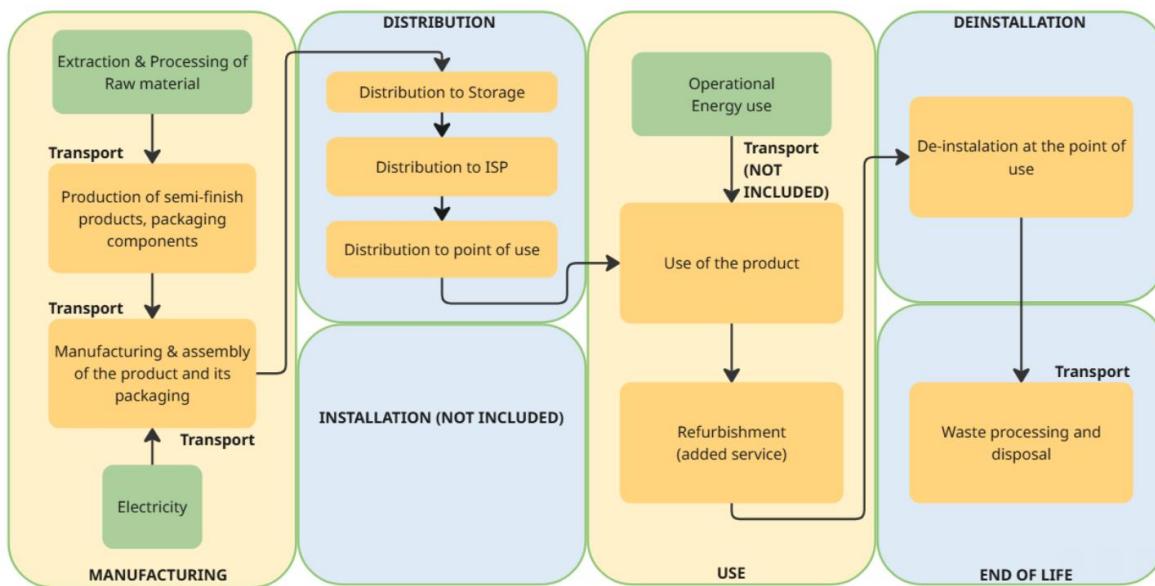
## Data quality declaration

| Data Quality Declaration   |                |                 |      |           |                             |
|--|----------------|-----------------|------|-----------|-----------------------------|
| Process  | Source Type    | Source          | Year | Data Type | Primary data in GWP (A1-A3) |
| Manufacturing of product (including electricity used in manufacturing) | Collected data | Manufacturer    | 2025 | Specific  | 5.6%                        |
| Production of active and passive electronics                           | Collected data | Manufacturer    | 2025 | Specific  | 79.7%                       |
| Production of plastic  | Collected data | Manufacturer    | 2025 | Specific  | 4.1%                        |
| Production of aluminium  | Collected data | Manufacturer    | 2025 | Specific  | 5.7%                        |
| Production of packaging  | Collected data | Manufacturer    | 2025 | Specific  | 1.8%                        |
| Transportation activities prior to product and packaging manufacturing | Database       | Ecoinvent v3.10 | 2021 | Generic   | 1.2%                        |
| Other  | Database       | Ecoinvent v3.10 | 2021 | Generic   | 1.8%                        |
| <b>Total share of primary data, of GWP-GHG results for A1-A3</b>       |                |                 |      |           | >90%                        |

Disclaimer: The share of specific data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more specific data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

## Included lifecycle stages

The environmental impact indicators as well as the resource use indicators have been calculated for the EPD International corresponding modules A1-Material and components supply, A2-Transport, A3-Manufacturing, A4-Transport from gate to site/point of sale, B6-Operational energy use, C2- Transport to end of life handling, C3- Waste Processing, C4-Disposal.



## Chemical safety and content declaration

According to PCR 2024:06 the EPD should declare the presence of substances in the product/packaging that can be found on the European Chemicals Agency (ECA) list of substances of very high concern (SVHC). Icotera A/S products comply with the RoHS Directive (Restriction of Hazardous Substances in Electrical and Electronic Equipment) that currently restricts the use of ten substances: lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP). The product content declaration and the consumer packaging content declaration specify which of these substances can be found on the ECA-SVHC list.

It is declared that **r2501, Sága Wi-Fi 7 Router** and its packaging contain no added bromine or chlorine compound which represents a higher proportion than 0.1% by weight of the homogeneous material of a printed circuit board, with the exception of the components of the card, or a plastic part which weighs more than 25 grams.

The products do not contain:

1. any additive phosphorus compound which constitutes a higher proportion than 0.1% by weight of the homogeneous material in:
  - a) a circuit board, with the exception of the components of the card or
  - b) a plastic part weighing more than 25 grams, or
2. any reactive added bromine or chlorine compound which represents a higher proportion than 0.1% by weight of the homogeneous material of:
  - a) a circuit board, with the exception of the components of the card or
  - b) a plastic part weighing more than 25 grams

| Product Content Declaration                          | Value | Unit  |
|--|-------|-------|
| Product mass   | 0.89  | kg    |
| PCB  | 0.07  | kg    |
| Metals   | 0.27  | kg    |
| Plastics - 90% post-consumer recycled plastic (PCR)* | 0.29  | kg    |
| Passive electronic components                        | 0.097 | kg    |
| Active electronic components                         | 0.13  | kg    |
| Ceramics   | 0.03  | kg    |
| Biogenic content in product mass                     | 0     | % w/w |
| Pb (SVHC)  | <0.1  | % w/w |
| Hg   | <0.1  | % w/w |
| Cr(VI)   | <0.1  | % w/w |
| Cd (SVHC)  | <0.1  | % w/w |
| PBB, PBDE (SVHC)                                     | <0.1  | % w/w |
| DEHP, BBP, DBP, DIBP(SVHC)                           | <0.1  | % w/w |

\*Based on a standard front and back cover, top lid and foot

| Consumer Packaging Content Declaration  | Value   | Unit   |
|---|---------|--------|
| Packaging mass                          | 0.34    | kg     |
| Recycled cardboard box - cellulose pulp | 86 - 92 | % w/w  |
| Starch                                  | 2 - 4   | % w/w  |
| Water                                   | 6 - 10  | % w/w  |
| Pb (SVHC)                               | <0.1    | % w/w  |
| Hg                                      | <0.1    | % w/w  |
| Cr(VI)                                  | <0.1    | % w/w  |
| Cd (SVHC)                               | <0.1    | % w/w  |
| PBB, PBDE (SVHC)                        | <0.1    | % w/w  |
| DEHP, BBP, DBP, DIBP (SVHC)             | <0.1    | % w/w  |
| Share of Biogenic content               | 88      | % w/w  |
| Share of Carbon in Biogenic content     | 44      | % w/w  |
| Total Biogenic Carbon                   | 0.13    | kg C   |
| Total Biogenic CO2                      | 0.48    | Kg CO2 |

Packaging: plastic-free, PE bag-free.

## Cradle-to-Gate (A1-A2-A3)

Cradle-to-gate refers to the A1-Material and components supply, A2-Transportation of materials/components to the manufacturing site and A3-Manufacturing including all assembly and testing. Regarding manufacturing (A3), the energy use is 1.63 kWh per declared unit based on an electricity mix (Taiwan) comprised of natural gas (41.8%), hard coal (28.2%), lignite (10.6%), nuclear (13.3%), other (6.1%).

## Transportation Gate-to-Customer (A4)

Transportation (Gate-to-Customer) is calculated based on sea transportation (21000 km) from manufacturing site to storage facilities and land transportation (via freight lorries), from warehouse to the point of sale (1500 km - Europe). Considering that the total mass of the product including packaging is 1.23 kg, the mass\*distance relation is  $1.23*21000/1000 = 25.8$  tkm for sea transportation and  $1.23*1500/1000 = 1.84$  tkm for land transportation.

## Operational Energy Use (B6)

The power consumption complies with the EU Code of Conduct v9.

The estimation of energy consumption during the use phase of the product has been calculated according to the guidance of PCR 2024:06 as shown below:

$$TEC = (P_{idle} * T_{idle} + P_{active} * T_{active}) * RSL = \\ \left( 10.8 \text{ W} * \frac{12h}{d} + 15.45 \text{ W} * \frac{12h}{d} \right) * 365 \frac{d}{y} * 5y = 576 \text{ kWh}$$

Active state corresponds to 75% of the maximum obtained power based on empirical estimations.

The carbon footprint from operational energy use (B6) is directly related to the Greenhouse Gas Protocol (GHG) category 3.11- use of sold products where CO<sub>2</sub> emissions are calculated for the total number of sold products during the use phase and comprises an integral part of Icotera A/S GHG accounting. While in GHG accounting the carbon intensity of electricity mix (kgCO<sub>2</sub>/kWh) in given geographies is used, however for the scope of the EPD the ecoinvent database has been used to calculate additional environmental indicators. The ecoinvent datasets correspond to electricity mix of 2020.

A weighted electricity mix between different geographies (markets) has been applied to calculate environmental indicators. The primary sources forming the electricity mix are wind (37.5%), natural gas (22.2%), biomass (8.8%), nuclear (8.2%), hard coal (5.4%), hydro (5%), lignite (1.2%), biogas (0.5%), other (11.2%).

It is important to highlight that the impact of the use phase will change depending on the energy production sources and geography.

## Transport to end of life management (C2)

With respect to transportation to end of life management, a realistic scenario has been developed, where the product and packaging are collected and recycled locally. Transportation distance between waste collection site and waste management facilities was assumed to be 14 km. Considering that the total mass of the product including packaging is 1.23 kg, the mass\*distance relation is  $1.23*14/1000 = 0.017$  tkm.

## Waste Processing (C3) & Disposal (C4)

Waste processing of the product and its packaging was assumed to follow a typical WEEE management and cardboard recycling respectively, with sorting residues (10% w/w) directed to hazardous waste and municipal incineration respectively (C4). No avoided emissions due to recycling have been considered.

## Results of the environmental performance indicators

| Environmental impact indicator | Unit (EN)                         | Manufacturing |          |          | Distribution | Installation | Use   |          |          | De-installation | End of life |          |          | Total    |          |
|--------------------------------|-----------------------------------|---------------|----------|----------|--------------|--------------|-------|----------|----------|-----------------|-------------|----------|----------|----------|----------|
|                                |                                   | A1            | A2       | A3       |              |              | B1-B4 | B5       | B6       |                 | C1          | C2       | C3       | C4       |          |
| CATEGORY                       |                                   | A1            | A2       | A3       | A4           | A5           | B1-B4 | B5       | B6       | B7              | C1          | C2       | C3       | C4       |          |
| GWP-total                      | kg CO <sub>2</sub> eq.            | 2.09E+01      | 2.77E-01 | 1.27E+00 | 5.49E-01     | ND           | ND    | 9.90E+01 | ND       | ND              | 9.53E-03    | 6.13E-02 | 7.22E-01 | 1.23E+02 |          |
| GWP-fossil                     | kg CO <sub>2</sub> eq.            | 2.13E+01      | 2.77E-01 | 1.27E+00 | 5.48E-01     | ND           | ND    | 9.87E+01 | ND       | ND              | 9.52E-03    | 6.12E-02 | 2.42E-01 | 1.22E+02 |          |
| GWP-biogenic                   | kg CO <sub>2</sub> eq.            | -4.80E-01     | 0.00E+00 | 0.00E+00 | 0.00E+00     | ND           | ND    | 0.00E+00 | ND       | ND              | 0.00E+00    | 0.00E+00 | 4.80E-01 | 0.00E+00 |          |
| GWP-luluc                      | kg CO <sub>2</sub> eq.            | 3.13E-02      | 0.00E+00 | 1.00E-03 | 1.08E-03     | ND           | ND    | ND       | 3.31E-01 | ND              | ND          | 3.64E-06 | 6.43E-05 | 4.18E-05 | 3.64E-01 |
| GWP-GHG                        | kg CO <sub>2</sub> eq.            | 2.14E+01      | 2.77E-01 | 1.27E+00 | 5.49E-01     | ND           | ND    | ND       | 9.90E+01 | ND              | ND          | 9.53E-03 | 6.13E-02 | 2.42E-01 | 1.23E+02 |
| ODP                            | kg CFC-11 eq.                     | 1.18E-06      | 0.00E+00 | 1.79E-08 | 8.57E-09     | ND           | ND    | 3.00E-06 | ND       | ND              | 1.88E-10    | 5.08E-10 | 3.50E-09 | 4.21E-06 |          |
| AP                             | mol H <sup>+</sup> eq.            | 1.70E-01      | 5.40E-03 | 4.76E-03 | 9.11E-03     | ND           | ND    | ND       | 3.75E-01 | ND              | ND          | 1.93E-05 | 3.24E-04 | 3.24E-04 | 5.65E-01 |
| EP-freshwater                  | kg P eq.                          | 1.89E-02      | 0.00E+00 | 9.11E-04 | 3.14E-05     | ND           | ND    | ND       | 4.46E-02 | ND              | ND          | 7.59E-07 | 2.13E-05 | 6.31E-05 | 6.45E-02 |
| EP-marine                      | kg N eq.                          | 2.48E-02      | 1.95E-03 | 9.92E-04 | 2.44E-03     | ND           | ND    | ND       | 9.19E-02 | ND              | ND          | 4.23E-06 | 8.46E-05 | 7.90E-05 | 1.22E-01 |
| EP-terrestrial                 | mol N eq.                         | 2.60E-01      | 2.10E-02 | 8.84E-03 | 2.69E-02     | ND           | ND    | ND       | 1.09E+00 | ND              | ND          | 4.56E-05 | 8.43E-04 | 7.73E-04 | 1.41E+00 |
| POCP                           | kg NMVOC eq.                      | 9.20E-02      | 5.30E-03 | 2.83E-03 | 7.69E-03     | ND           | ND    | ND       | 2.67E-01 | ND              | ND          | 3.05E-05 | 2.74E-04 | 2.79E-04 | 3.75E-01 |
| ADPE                           | kg Sb eq.                         | 3.81E-03      | 0.00E+00 | 1.16E-06 | 1.14E-06     | ND           | ND    | ND       | 6.85E-04 | ND              | ND          | 4.12E-08 | 4.57E-07 | 3.07E-07 | 4.50E-03 |
| ADPF                           | MJ, net calorific value           | 2.90E+02      | 0.00E+00 | 1.78E+01 | 7.28E+00     | ND           | ND    | ND       | 2.00E+03 | ND              | ND          | 1.33E-01 | 7.44E-01 | 1.09E+00 | 2.32E+03 |
| WDP                            | m <sup>3</sup> world eq. deprived | 5.95E+00      | 0.00E+00 | 1.67E-01 | 2.72E-02     | ND           | ND    | ND       | 1.54E+01 | ND              | ND          | 5.65E-04 | 8.14E-03 | 2.00E-02 | 2.16E+01 |

Abbreviations: 1. GWP-total: Global warming potential – total, 2. GWP-fossil: Global warming potential - fossil fuels, 3. GWP-biogenic Global warming potential – biogenic, 4. GWP-luluc: Global warming potential - land use and land use change, 5. GWP-GHG: Global warming potential, 6. ODP: Depletion potential of the stratospheric ozone layer, 7. AP: Acidification potential, accumulated exceedance, 8. EP-freshwater: Eutrophication potential – freshwater, 9. EP-marine: Eutrophication potential – marine, 10. EP-terrestrial: Eutrophication potential – terrestrial, 11. POCP: Photochemical ozone creation potential, 12. ADPE: Abiotic depletion potential - non-fossil resources, 13. ADPF: Abiotic depletion potential - fossil resources, 14. WDP: Water (user) deprivation potential

## Resource use indicators

| Resource use indicator | Unit (EN)               | Manufacturing |          |          | Distribution | Installation | Use   |    |          | De-installation | End of life |          |          | Total     |          |
|------------------------|-------------------------|---------------|----------|----------|--------------|--------------|-------|----|----------|-----------------|-------------|----------|----------|-----------|----------|
|                        |                         | A1            | A2       | A3       |              |              | B1-B4 | B5 | B6       |                 | C1          | C2       | C3       | C4        |          |
| CATEGORY               |                         | A1            | A2       | A3       | A4           | A5           | B1-B4 | B5 | B6       | B7              | C1          | C2       | C3       | C4        |          |
| PERE                   | MJ, net calorific value | 3.94E+01      | 0.00E+00 | 2.47E-01 | 7.94E-02     | ND           | ND    | ND | 1.84E+03 | ND              | ND          | 0.00E+00 | 7.47E-02 | 1.28E-02  | 1.88E+03 |
| PERM                   | MJ, net calorific value | 4.42E+00      | 0.00E+00 | 0.00E+00 | 0.00E+00     | ND           | ND    | ND | 0.00E+00 | ND              | ND          | 0.00E+00 | 0.00E+00 | -4.42E+00 | 0.00E+00 |
| PERT                   | MJ, net calorific value | 4.38E+01      | 0.00E+00 | 2.47E-01 | 7.94E-02     | ND           | ND    | ND | 1.84E+03 | ND              | ND          | 0.00E+00 | 7.47E-02 | -4.41E+00 | 1.88E+03 |
| PENRE                  | MJ, net calorific value | 2.90E+02      | 0.00E+00 | 1.78E+01 | 7.28E+00     | ND           | ND    | ND | 2.01E+03 | ND              | ND          | 0.00E+00 | 7.40E-01 | 4.67E-01  | 2.32E+03 |
| PENRM                  | MJ, net calorific value | 1.91E+01      | 0.00E+00 | 0.00E+00 | 0.00E+00     | ND           | ND    | ND | 0.00E+00 | ND              | ND          | 0.00E+00 | 0.00E+00 | -1.91E+01 | 0.00E+00 |
| PENRT                  | MJ, net calorific value | 3.09E+02      | 0.00E+00 | 1.78E+01 | 7.28E+00     | ND           | ND    | ND | 2.01E+03 | ND              | ND          | 0.00E+00 | 7.40E-01 | -1.86E+01 | 2.32E+03 |

Abbreviations: 1. PERE: Use of renewable primary energy as energy carrier, 2. PERM: Use of renewable primary energy resources used as raw materials, 3. PERT: Total use of renewable primary energy, 4. PENRE: Use of non-renewable primary energy as energy carrier, 5. PENRM: Use of non-renewable primary energy resources used as raw materials, 6. PENRT: Total use of non-renewable primary energy resource

## GHG emissions (numeric values in kg CO2-eq)

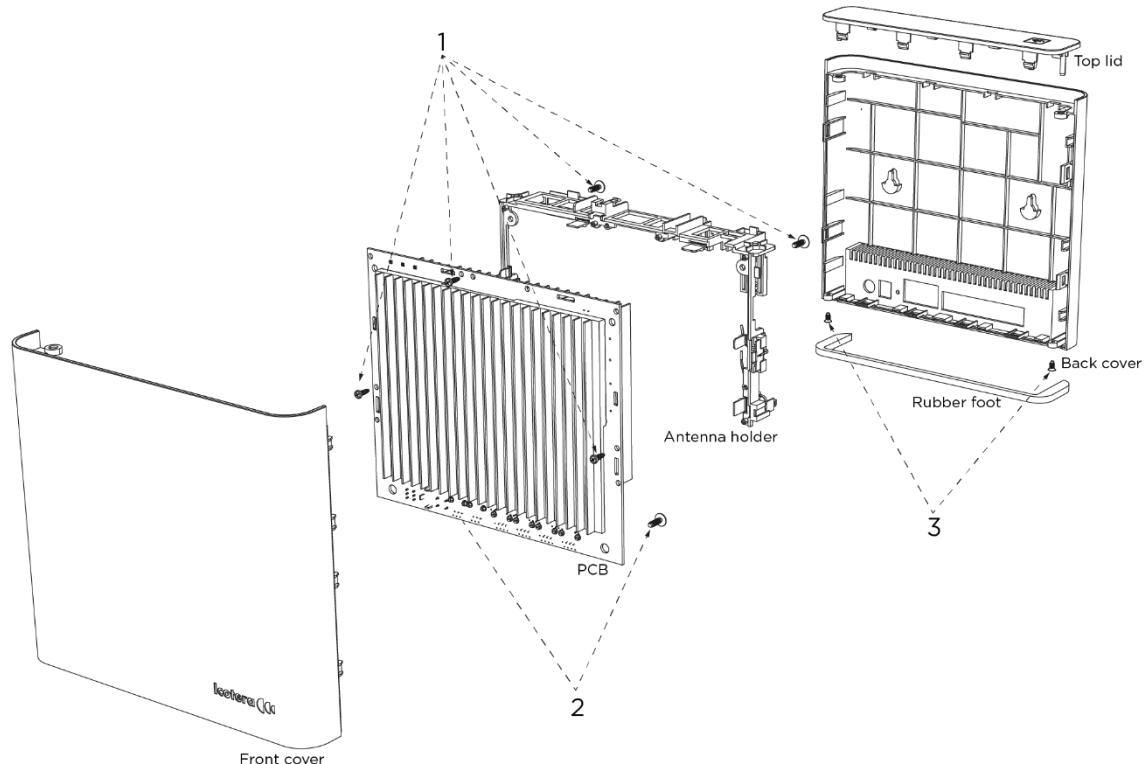
Derived from the environmental performance indicators on GWP total

| Carbon emissions on different stages *      |       | r2501, Sága Wi-Fi 7 Router |            |
|---|-------|----------------------------|------------|
| Total                                       |       | 122.8                      | Percentage |
| Cradle-to-Gate (A1-A2-A3)                   | 22.42 | 18.3%                      |            |
| Transportation Gate-to-Customer (A4)        | 0.55  | 0.45%                      |            |
| Operational energy use (B6)                 | 99.03 | 80.6%                      |            |
| Transportation to End of Life handling (C2) | 0.01  | 0.01%                      |            |
| Waste Processing (C3)                       | 0.06  | 0.05%                      |            |
| Disposal (C4)                               | 0.72  | 0.59%                      |            |

\*The results refer to the modules covered by the EPD, specifically for the indicator GWP-total (in kgCO2-eq).

## Additional environmental information

**A Wi-Fi 7 router designed for minimum power consumption\*, easy refurbishment, repair, and recycling**



\* Complies to the EU Code of Conduct on Energy Consumption of Broadband Equipment version 9.

The r2501, Sága Wi-Fi 7 Router is, due to environmental optimisations in the full lifecycle and a groundbreaking innovative antenna holder design illustrated above, prepared for future EU Ecodesign for Sustainable Products Regulations (ESPR) on electronics, living up to the following standards:

- **Power consumption:** Designed for minimum power consumption, complying to “EU Code of Conduct v9” by choosing hardware and software with multiple power-saving features: Fundamental frequency scaling, adaptive Wi-Fi chain reduction (i.e. for idle periods or forced), EEE, forced Ethernet link speed reduction (i.e. reduce link speed to 1Gbps if the customer is on a <1Gbps service), and extensive power management options via software. Some features can be roadmap and customer dependent.
- **Durability:** Long-lasting product (+5 years), designed with premium components.
- **Extending the life cycle:** Easy refurbishment and repair of front and back cover, with spare parts available.
- **Output circularity:** Easy to disassemble and recycle at end-of-life to recover materials and reduce amounts of e-waste.

Prepared for optional final assembly and packaging in Europe on request.

## Durability

Choice of high-quality components, good thermal design for peak performance and power saving features for normal operations, contribute to a router with an expected product lifetime of +5 years.

## Extending the life cycle with refurbishment (additional service)

Icotera A/S recommends ISPs to systematically reclaim units when they come to an end-of-use and do a refurbishment service before returning to a new user. If the unit returns with cover damaging, the innovative design enables easy repair. Icotera A/S offers a high-quality refurbishment service including a visual inspection, technical tests, firmware update, cleaning, repacking, labeling, and housing repair (if needed). While refurbishment has not been considered as a typical stage of the life cycle of r2501 for the EPD, separate refurbishment – specific LCAs can be delivered to ISPs on request.

## Output circularity

The innovative design makes disassembly easy by the end-of-life, reducing the amount of e-waste. By screwing the cover open and sorting the unit into fractions, the following can be recovered:

- 0.27 kg plastics
- 0.229 kg aluminium
- 0.07 kg PCB and
- 0.12 kg PSU

Disassembly tool: Cross-slot Philip head screwdriver.

## Additional company sustainability information

### ESG vision and reporting

Icotera's ESG vision is to empower ISPs and network operators to differentiate with green offerings and reduce their overall footprint, via long-lasting products that maximise performance and minimise environmental impact. Starting from fiscal year 2025 and following the VSME standard, a full ESG company report will be published every year aligning with the most up to date ESG guidelines. Read more <https://icotera.com/about/esg>.

### SBTi approved CO2 reduction targets

Icotera A/S commits to the Science Based Targets initiative (SBTi) to reduce our absolute Scope 1 and 2 GHG emissions by 42% in 2030 from a 2023 base year, and to measure and reduce our Scope 3 emissions.



## References

1. General Programme Instructions of the International EPD® System Version 5.01.
2. General Programme Instructions of the International EPD® System Version 5.0.
3. General Programme Instructions of the International EPD® System Version 4.0.
4. PCR 2024:06. *Electronic and electric equipment, and electronic components (non-construction) (EN 50693)* Version 1.01
5. ISO 14040: *Environmental Management – Life Cycle Assessment – Principles and Framework*.
6. ISO 14044: *Environmental Management – Life Cycle Assessment – Requirements and Guidelines*.
7. ISO 14025: *Environmental labels and declarations – Type III environmental declarations – Principles and Procedures*.
8. ISO 14020: Environmental statements and programmes for products – Principles and general requirement



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