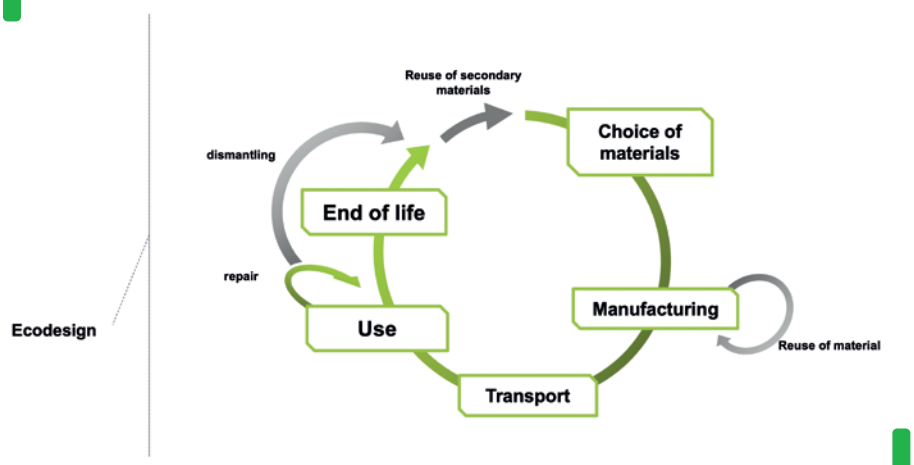
# ECODESIGN

Ecodesign is a process in its own right that is included in Sag
launch, to design, qualification and production start-up, is subje

emcom's project management. Each phase of a project, from
ect to a series of tests that apply to the ecodesign of the product.

**For more than 10 years, Sagemcom has also been developing the capacity to conduct internal life-cycle analyses, in line with the protocols in ISO 14044 and the GHG protocol. Any analyses that have to be released outside the company are verified by an independent third party in order to guarantee that the results are accurate. These measurements allow us, and our customers, to direct our design options for our future product generations.**

In these ways, throughout the product life cycle, Sagemcom undertakes a number of measures.




These ecodesign measures are at the heart of our environmental initiative, because the impact of our products is far greater than the impact of our sites, if we consider their entire life cycle. This gap is illustrated by our carbon footprint: the manufacturing of products accounts for about 33% of our emissions, their use for more than 55% and their end-of-life for around 1%.

## Using alternative materials

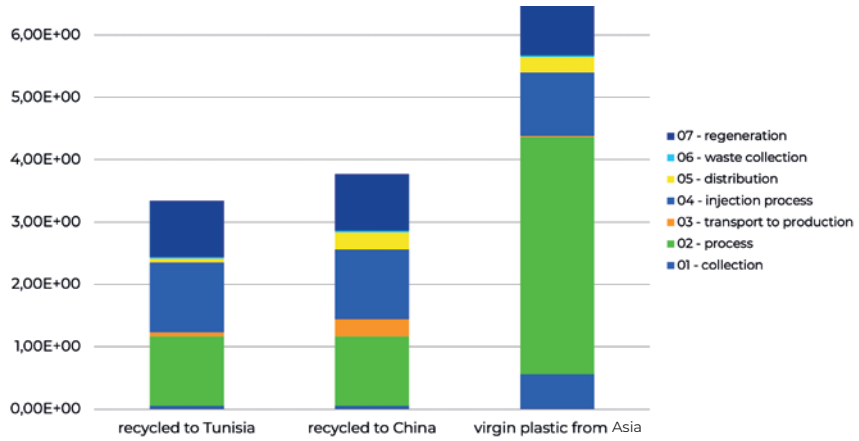
The Sagemcom group considers the use of alternative materials as a permanent source of progress. In the same way that we strive to characterise the environmental impact of our materials, we make sure to qualify our products on the basis of plastics with high potential for recycling (end-of-life management). The materials we use are evaluated according to two criteria: their environmental impact, but also their "technical" practicality. The Group cannot use materials that may have a lower environmental impact, but whose technical properties are insufficient to meet the quality requirements of our customers.

> "The Sagemcom group considers the use of alternative materials as a permanent source of progress."

After several years of studies, in 2018 we introduced a recycled plastic into our plastic parts. The low impact of this secondary material, made in Europe from electronic waste produced on the old continent, also enables us to use it in our partner production plants in Asia. The global impact remains below that of the equivalent virgin plastic. Several hundred tonnes will be used in the years to come, as the initiative is gradually deployed.

Thanks to our industrial command of this type of plastic, we have been able to complete very large-scale series production runs using alternative materials. As a consequence, several hundred units containing alternative materials have been produced in our own plants in Tunisia and in our partners'

production plants all over the world. In the next few years, the Group intends to further increase the proportion of recycled materials in the plastics we purchase.




*Comparison of the impacts of virgin and recycled plastic, according to the location where the finished products are made (kg CO2 eq. / kg of plastic)*

Most of our Internet box and TV set-top box projects are made with recycled plastics.
With the standardization of the use of recycled plastics, the quantity of these materials is increasing: in 2022, more than 2,500 tonnes of recycled plastic were used in Sagemcom's products.

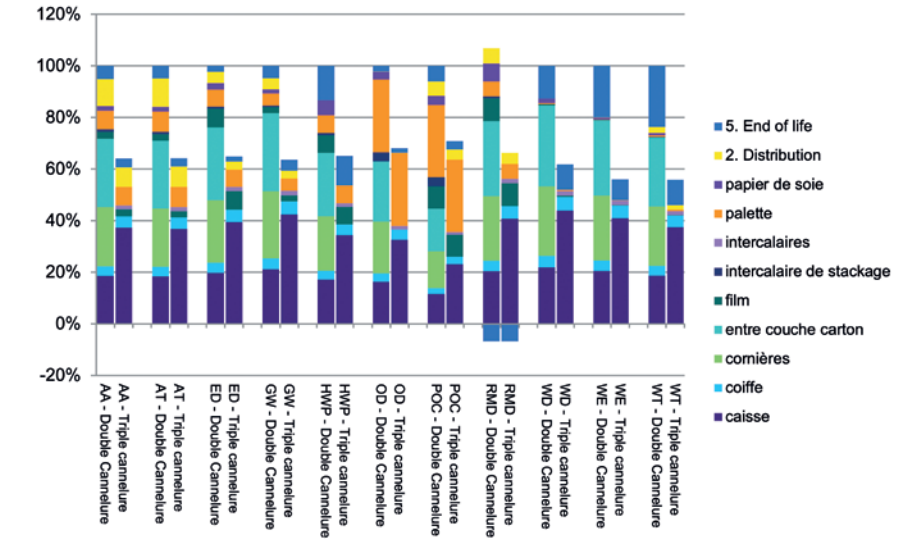
Other alternative materials are also being studied to extend our offer and to break free from oil-based plastics.

## Packaging

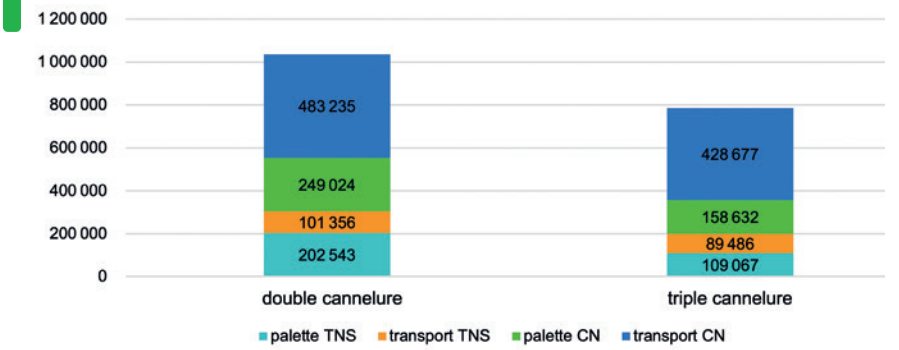
In addition to meeting these obligations, Sagemcom constantly strives to reduce quantities of packaging. Individual packaging is optimised to reduce transportation at equivalent quantities. We also favour packaging made of recycled or FSC cardboard (Forest Stewardship Council), printed with vegetable-based inks. We are also actively working on the use of packaging materials that do not contain any oil-based plastics, by resorting to alternative solutions, such as organic plastic bags made of renewable materials or paper fasteners to attach cables, etc.

> "We are actively working on the use of packaging materials that do not contain any oil-based plastics, by resorting to alternative solutions."

The replacement of our pallets with a lighter structure, guaranteeing the same performance during transportation, has reduced the environmental impact of every pallet by redistributing their mechanical strength to different parts. These measures have significantly reduced the weight of tertiary packaging (by up to 8 kg per pallet), while also increasing the number of products per pallet.
This dual optimisation of both materials and products per pallet has reduced the impact per shipped product by around 24%.
This performance was achieved as part of a manufacturing process, involving the sites in Tunisia and Asia, that transports the products by sea and then by truck to France.




*Reduction of impacts by replacing double flute pallet boxes with triple flute boxes (compared with a double-flute box as a 100% point of reference)*




*Reduction in transport impact thanks to the optimisation of our pallets (kg CO2 eq., for two million products, 50/50 manufacturing split between Tunisia and China)*

## Batteries

Batteries and accumulators can represent a danger to the environment when they are disposed of, due to the hazardous substances they contain. We abide by the European Directive 2006/66/EC, which banned the most polluting batteries (limits on lead, mercury and cadmium).
Batteries are the only possible source of energy for some of our smart meters, and gas meters in particular, which are not connected to any external energy supply. Therefore, the capacity and the robustness of these batteries is vitally important to guaranteeing the lifespan of our products. But at the same time, we take care not to oversize them, in order to avoid any waste of resources.

## Transport

Transport is a major source of greenhouse gas emissions. In particular, for urgent deliveries, shipping our components and finished products by air weighs heavily in our carbon footprint. We try to avoid these situations by improving our forecasting processes and the corresponding manufacturing schedules. We pay close attention to local deliveries using reusable packaging materials. This avoids wasting pallets and cardboard boxes. We also try to optimise the packaging of components in partnership with our suppliers

## Consumption of products

Energy consumption during use is the most significant environmental aspect of our products. Therefore, our strategy consists of making them more efficient in all their operating modes, and especially when in standby mode.
We pay particularly close attention to our broadband products. This equipment is at the heart of domestic networks, and, if we are not careful, they can consume energy needlessly and permanently. Therefore, we design them to operate as dynamically as possible, for example by switching off unused interfaces in order to cut energy consumption.

Our goal is to follow the European code of conduct for broadband products, which is representative of the most efficient products on the market.
All our power supplies comply with the V5 European code of conduct, tier 2.
To go even further, we are introducing new operating modes, with the addition of a deep standby function that can be set up by the user in our latest Internet boxes. Everyone can therefore decide on the times when the box is on stand-by, with an automatic start-up when the standby ends. No more Wi-Fi during these periods, but substantial energy savings!

## Facilitating the refurbishment and recycling of our products right from the design phase

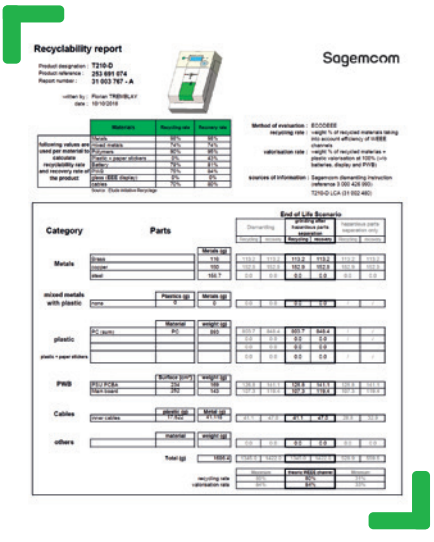
In order to make it easier to refurbish our products, our designs take into consideration the separability of the components, in particular through the tools to be used and the number of steps required for dismantling to reach the critical parts. The different components are therefore easier to access for repair or replacement. In addition, our latest designs offer a modular approach to the boxes, in order to extend their lifespan by updating the Wi-Fi board, for example.
The first step in recycling is the choice of materials. Combinations of different types of materials can impact the capacity of the product to be recycled. We take care to choose materials that are compatible in the recycling phases. Our products are then assembled in a way that facilitates their deconstruction and the separation of the various components.

## Calculating product recyclability

Thanks to our experience in design and our partnerships with recyclers, we have introduced a recyclability evaluation for our products. It evaluates the benefits of our design methods, with a focus on end-of-life.
This evaluation takes account of several parameters:

- The materials used
- The assembly techniques
- The known results of the WEEE processing channels

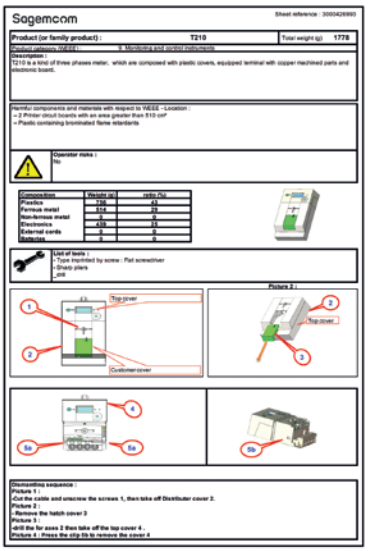
The evaluation attempts to be realistic, with three possible processing scenarios, ranging from refurbishing to direct destruction.



## Dismantling guides for easier recycling

On request, Sagemcom provides recycling operators with dismantling guides in a bid to encourage the recycling of its old products. These guides contain all the information required to optimally recycle and reuse the machines:

- a bill of materials (metals, plastics, electronic circuit boards, etc.)
- the location of the components to be separated (as per the WEEE directive)
- the dismantling steps
- the potential risks for recycling operators (sharp metal edges, etc.)



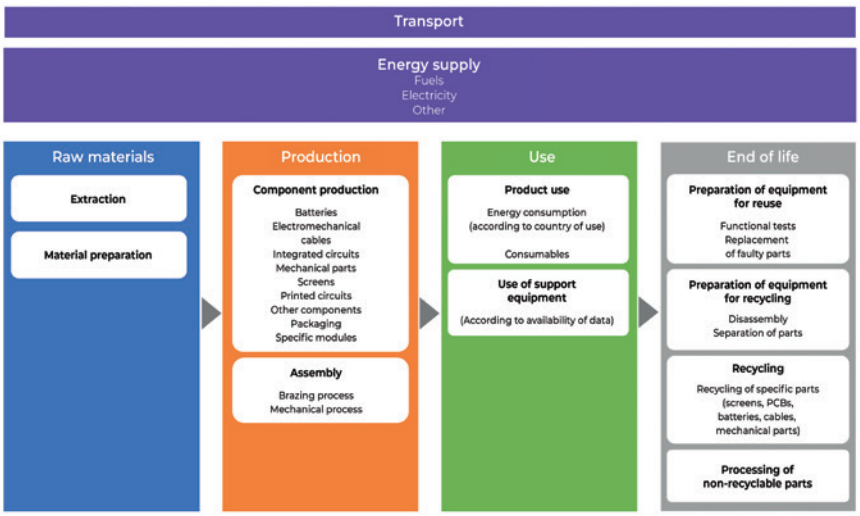

## Life-cycle analysis

To identify opportunities for improvement, we analyse our legacy products from both a qualitative (means of assembly, etc.) and a quantitative perspective, by modelling the product lines with a simplified life-cycle analysis tool: EIME software, developed by CODDE Bureau Veritas. These analyses guide our strategic development options in order to reduce energy consumption, because it is the phase when the product is in use that has the greatest impact on our products' life-cycles, no matter where they are used.

This expert knowledge also enables us to make preliminary life-cycle analyses in an advanced operation conducted during the call for tender phases. The goal is to estimate the environmental impact of a product, in order to help our customers to choose between several possible scenarios, particularly regarding the logistical phase and the choice of materials. It also enables us to decide on the communications mechanisms between products and networks in advance, in order to anticipate cases where one of them would prevent the other one from switching to standby mode.

Major projects are all analysed to assess their impact and the associated gains. Analyses can be customised when requested by customers as of the product design stage. Every product family has a specific approach to reduce its environmental impact.

Our internal life-cycle analyses are conducted in accordance with the ISO 14040 and ISO 14044 standard and within the following boundaries:

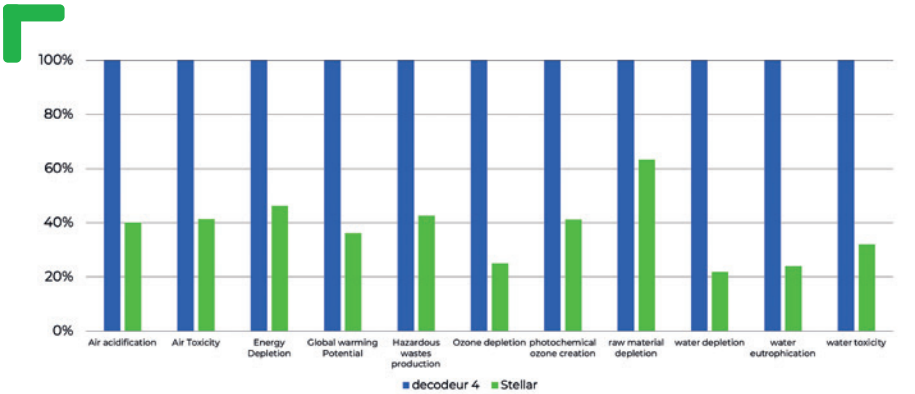


These analyses are described in detail in reports specific to each product model. The reports illustrate the main impacts during the different phases of the product's life-cycle using several indicators:

| | Category of impact | EIME Acronym | Unit | Description |
|---|---|---|---|---|
| Reference indicators | Climate change - total | PEF-GWP | kg CO2 eq. | Greenhouse gases (GHGs) are gas components that absorb the infra-red radiation emitted by the Earth's surface. Increasing their concentration in the Earth's atmosphere contributes to global warming. It is the sum of the three other indicators of potential global warming. |
| | Climate change - fossil fuels | PEF-GWPf | kg CO2 eq. | This impact indicator takes account of the global warming potential (GWP) due to the emission and capture of greenhouse gases from and into any environment, resulting from the oxidation or reduction of fossil fuels or materials containing fossil carbon by their processing or degradation (e.g., combustion, incineration, landfilling, etc.). |
| | Climate change - biogenic | PEF-GWPb | kg CO2 eq. | This indicator covers emissions of carbon into the air, originally captured by biomass of all origins, that are released during processing or degradation (e.g., combustion, digestion, composting, landfilling). It also covers the absorption of CO2 in the atmosphere by photosynthesis during the growth of the biomass. |
| | Climate change - land use and land use transformation | PEF-GWPlu | kg CO2 eq. | The depletion of the ozone layer results from complex reactions between the ozone present in the upper atmosphere and gaseous compounds, which reduce the amount of ozone. The natural filtration of ultraviolet radiation becomes less efficient, resulting in harmful effects on human health, animal health and terrestrial and aquatic ecosystems. |
| | Acidification | PEF-AP | mol H+ eq | Air acidification is related to emissions of nitrogen oxides, sulphur oxides, ammonia and hydrochloric acid. These pollutants turn into acids in the presence of moisture, and their impact can damage ecosystems as well as buildings. |
| | Water eutrophication, freshwater | PEF-Epf | kg P eq | Eutrophication is defined as the enrichment of an environment with minerals or nutrients. Although this is a natural phenomenon that is necessary for the development of flora, human activities (livestock farming, agriculture, manufacturing, etc.) have greatly exacerbated it since the industrial revolution. Eutrophication is assessed in three environments: freshwater, marine and terrestrial. |
| | Aquatic and marine eutrophication | PEF-Epm | kg N eq | |
| | Terrestrial eutrophication | PEF-Ept | mol N eq | |
| | Photochemical ozone formation | PEF-POCP | kg NMVOC eq | Ground-level ozone is formed in the lower atmosphere from volatile organic compounds (VOCs) and nitrogen oxides by the effect of solar radiation. Ozone is a very powerful oxidant known to affect health, because it easily penetrates the airways. |
| | Abiotic resource depletion - minerals and metals | PEF-ADPe | kg Sb eq | Industrial exploitation results in a reduction of the available resources, which have limited reserves. This indicator assesses the quantity of mineral and metal resources taken from nature, as if they were antimony. |
| | Abiotic resource depletion - fossil fuels | PEF-ADPf | MJ | The indicator represents the consumption of primary energy from different non-renewable sources (oil, natural gas, etc.). The calculations are based on the Lower Calorific Value (LCV) of the energy types in question, expressed in MJ/kg. For example, 1 kg of oil will contribute 41.87 MJ to the indicator in question. |
| | Water requirements | PEF-WU | m3 world eq | This indicator represents water consumption multiplied by a factor that takes account of the water stress in the region where the water is consumed. For example, water consumption in the Sahara will have a greater impact than in Scandinavia. |

| | Category of impact | EIME Acronym | Unit | Description |
|---|---|---|---|---|
| Additional indicators | Fine particulate matter emissions | PEF-PM | disease incidence | The presence of small-diameter fine particles in the air, in particular with a diameter of less than 10 microns, is an issue for human health, because inhaling them can cause respiratory and cardiovascular problems. |
| | Ionising radiation, human health | PEF-IR | kBq U235 eq | Radionuclides can be released in a number of human activities. When the radionuclides disintegrate, they release ionising radiation. Human exposure to ionising radiation causes changes in DNA, which can in turn lead to different types of cancer and birth defects. |
| | Ecotoxicity (freshwater) | PEF-CTUe | CTUe | These indicators cover the entire impact chain, from the emission of a chemical component to the final impact on humans and ecosystems. It includes the modelling of distribution and the future environment, the exposure of human populations and ecosystems, and the toxicity-related effects associated with exposure. Three categories of impact are covered, namely, carcinogenic toxicity to humans, non-carcinogenic toxicity to humans and aquatic ecotoxicity in freshwater. |
| | Human toxicity, carcinogenic effects | PEF-CTUh-c | CTUh | |
| | Human toxicity, non-carcinogenic effects | PEF-CTUh-nc | CTUh | |
| | Aquatic and marine eutrophication | PEF-Epm | kg N eq. | |
| | Terrestrial eutrophication | PEF-Ept | mol N eq. | |
| | Impacts related to land use / Soil quality | PEF-LU | Without dimension | The degradation of soil quality is a clear result of the increased pressure on land resources, combined with the intensification and expansion of human activities. Soil preservation is one of the main sustainability goals for food security and the protection of the environment. |

These analyses enable us to demonstrate the progress we make in terms of the environmental impact of our products, from one generation to the next. For example, the impact of our DCIW385 set-top-box platform is 64% lower than that of its predecessor on the market:



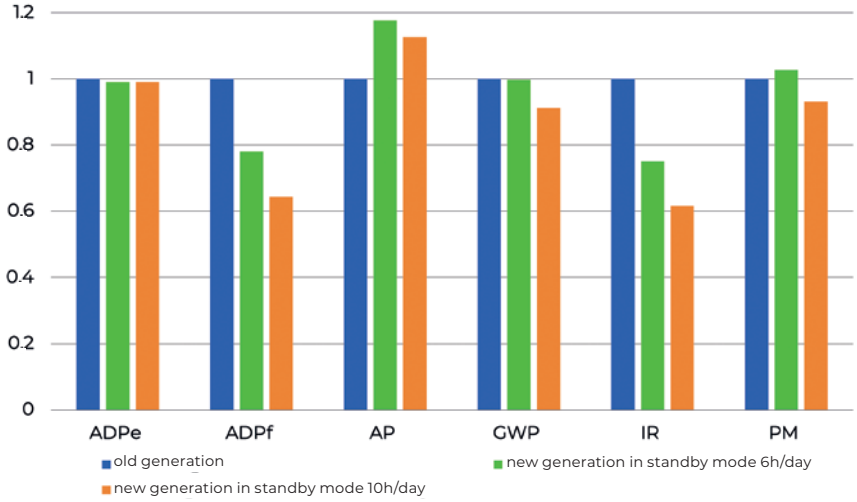

*Comparison of the impact of the DCIW385 and the RTIW383 (in reference impacts at 100%)*

All its impact indicators have been reduced. It also shows that our innovations intended to reduce the carbon impact do not simply produce pollution elsewhere (the Global Warming Potential indicator).

We achieved this performance by miniaturising our products and reducing their energy consumption in standby mode. Unlike their predecessors, which switched to a connected standby mode, our new products feature a deep standby mode.

A lot of work has been done on the residential gateways to reduce their impact, while increasing their power. This has been achieved in particular through setting up user-configurable standby mechanisms, in addition to all the ecodesign initiatives described above.

As a result, users who take advantage of our latest-generation box's ability to be programmed in standby mode will see its environmental impact fall below the previous generation's impact, if they programme their box to be in standby mode for six hours or more per day. While making substantial savings, the box in this state consumes less than 0.5W.

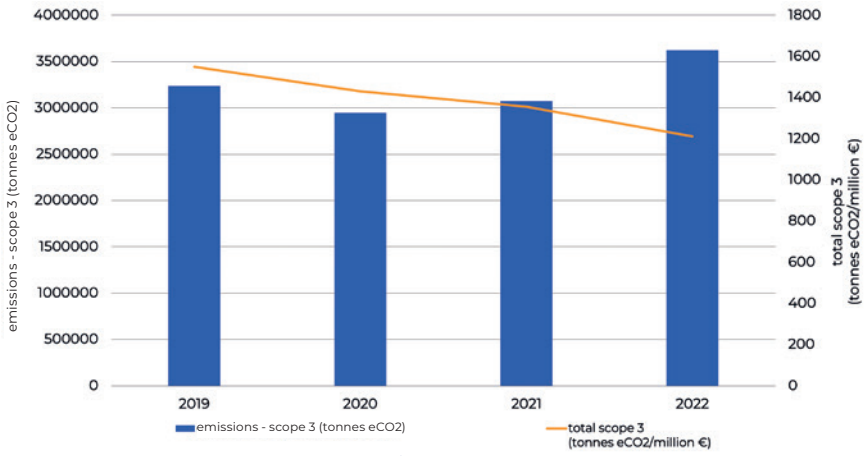



*impacts (% impact)*

This function therefore plays an important role in reducing the environmental impact and actively involves consumers in this reduction.

## Effect on scope 3

All the measures taken reduce the unit impact of our products, and therefore our scope 3. Nevertheless, the increase in our turnover in 2022 resulted in an increase in our net carbon footprint. We are therefore speeding up all our measures with a view to achieving our medium and long-term targets.
The effectiveness of our approach can be illustrated by the ratio between our impact and our turnover, which has fallen steadily since 2019.




*Evolution of scope 3*

# A CLOSER LOOK AT:

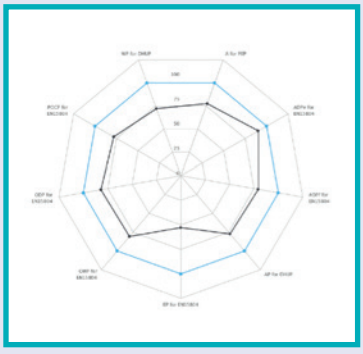
## the Bureau Veritas Footprint progress® certification

The Bureau Veritas Footprint Progress® certification offers any organisation - the possibility to publish information on improvements of the environmental performance of a product thanks to an ecodesign strategy.

Bureau Veritas Footprint Progress® is based on the best ecodesign practices. A description of the life-cycle and a quantification of the environmental impacts of the products / product families are required. Consequently, the certification system is based on the life cycle analysis standards and the environmental management system standards, which include the design and development processes. In its capacity as a certification organisation, Bureau Veritas guarantees that the information provided by customers and stakeholders is true.
The certification audit conducted by LCIE Bureau Veritas in 2020 highlighted the robustness of Sagemcom's ecodesign process.

"Sagemcom has a robust and efficient ecodesign process, which was initiated in 2007. The environmental footprint of the audited product is between 10% and 50% lower than that of the preceding generation," explained the auditor, Damien Prunel.





With the launch of the fibre box of the Swiss operator SALT, Sagemcom succeeded in reducing the environmental impacts according to the nine indicators that were analysed. The average reduction of the impact according to these nine indicators is 23%. By way of example, the product's carbon footprint has been reduced by 21%, which represents 22 kg CO2 eq. of emissions per product.

# A CLOSER LOOK AT:

## WeLight speeds up energy inclusion in rural areas

WeLight deploys the innovative rural electrification solutions proposed by Sagemcom to connect isolated villages in Madagascar and Mali. In addition to installing these electricity production and distribution management infrastructures, WeLight offers a complete range of services for inhabitants to speed up the economic development of their villages. With the help of local partners, the company offers microloans, mobile payments, production equipment for craftsmen, household appliances, training for entrepreneurs and social services for the population.

In 2022, the company published its impact report, which shows the significant benefits for local populations:

- 40 electrified villages
- at least 45,000 direct beneficiaries
- 9,000 connections
- 402 tonnes of CO2 emissions avoided
- 1,200 new companies created
- 700 women who have become entrepreneurs
- 290 small industrial businesses connected to three-phase electricity
- 152 jobs created in Africa
- 400 lampposts for public lighting
- 26 medical centres connected to electricity that resulted in more than 6,000 births at night
- 43 connected state schools.