

# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

**Philips UniStreet/LumiStreet gen2**

**BGP281/291/391**

Signify N.V.



EPD HUB

Publishing date 2024-02-14

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## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Signify N.V.
Address	High Tech Campus 48, 5656 AE Eindhoven, The Netherlands
Contact details	sustainability@signify.com
Website	<a href="https://www.signify.com/global">https://www.signify.com/global</a>

### EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Electrical product
Category of EPD	Pre-verified EPD
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Sustainability Signify
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input checked="" type="checkbox"/> Internal certification <input type="checkbox"/> External verification

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of lighting products may not be comparable if they do not comply with EN 15804 and if they are not compared in a lighting context.

### PRODUCT

Product name	Philips UniStreet/Lumistreet Micro
Additional labels	BGP391 LED64-4S/730 II DN09 DDF2 D24 SRT
Product reference	910770232001
Place of production	Poland
Period for data	2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of 5632 lumens over 100000 hours
Declared unit mass	5.0925 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	5.90E+01
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	5.87E+01
Secondary material, inputs (%)	7.59
Secondary material, outputs (%)	28.4
Total energy use, A1-A3 (kWh)	203.0
Total water use, A1-A3 (m <sup>3</sup> e)	5.06E-01

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Signify is the world leader in lighting for professionals, consumers and lighting for the Internet of Things. Our energy efficient lighting products, systems and services enable our customers to enjoy a superior quality of light, and make people's lives safer and more comfortable, businesses more productive and cities more liveable.

For more information, please visit: <https://www.signify.com/global>

### PRODUCT DESCRIPTION

Designed for large-scale ledification projects, the UniStreet/LumiStreet gen2 is the ideal 1:1 luminaire replacement for municipalities. Thanks to its high efficiency and low initial cost, the UniStreet gen2 luminaire enables a fast payback and significant savings in terms of energy consumption within a short period of time. The ease of installation and maintenance is enabled by the Philips Service tag and the Philips SR (System Ready) socket makes it future-ready and you can pair this luminaire with lighting control and software applications such as Interact City. Available with a number of different optics and lumen packages that can even be tuned further to fit exact project requirements, UniStreet gen2 is a true point-to-point replacement solution for conventional light sources. The compact luminaire, using high-quality materials is also easy to dismantle and recycle at the end of its lifetime.

For more information, please visit  
<https://www.lighting.philips.com/link/BGP281/fam/aa/en>

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	31.62	EU , APAC
Minerals	12.18	EU
Fossil materials	56.19	EU , APAC
Bio-based materials	0	Not applicable

### BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.001

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Product
Mass per declared unit	5.0925 kg
Functional unit	1 unit of 5632 lumens over 100000 hours
Reference service life	100000 hours

### SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).



# PRODUCT LIFE-CYCLE

## SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
x	x	x	x	x	MNR	MNR	MNR	MNR	MNR	x	MNR	MNR	x	x	x	x	
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recycling

Modules not relevant = MNR.

## MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, electricity, and waste formed in the production processes at Signify’s manufacturing facilities are included in this stage.

The product is made of metals, plastics, and electronic components. All components are transported to Signify’s production facility, where the main manufacturing processes primarily are associated with assembly. The finished product is packaged with polyethylene, cardboard, and/or paper as packaging material before being sent to customers. Manufacturing loss, ancillaries and wastes are calculated according to the data that each manufacturing site is sharing with Signify. The total annual amount of waste in kg is allocated to the total annual production in kg at the specific manufacturing site responsible for the production of the studied luminaire.

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Thus, it is possible to allocate it according to the weight of the product analysed in this study. Some of the wastes are due to ancillary materials used during manufacturing while the rest is due to material losses.

## TRANSPORT AND INSTALLATION (A4-A5)

Transport distances were calculated on the base of the supplier location and manufacturing location and then made a cumulative group choosing the conservative scenario. Environmental impacts from installation include waste packaging materials (A5). The impacts of energy consumption and the used ancillary materials during installation are considered negligible.

## PRODUCT USE AND MAINTENANCE (B1-B7)

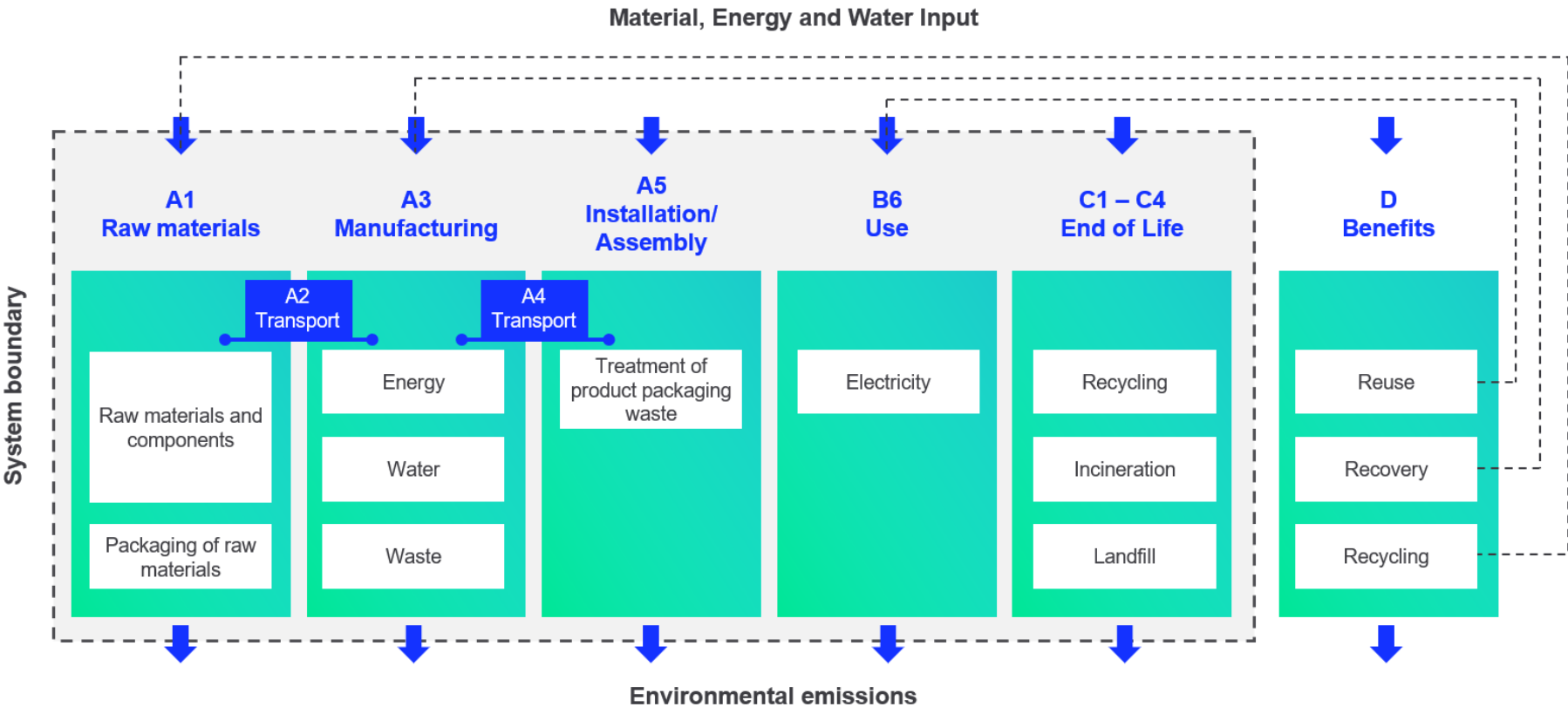
During the use phase, the product consumes electricity from Europe’s electricity grid mix (B6). The total power consumption of the reference product is calculated as follows: Wattage x Reference lifetime = kWh consumed throughout the entire use phase B6.

## PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in demolition process is assumed to be negligible. It is assumed that the waste is collected separately and transported to the waste treatment centre. Transportation distance to treatment is assumed as 150 km and the transportation method is assumed to be lorry (C2). According to EN 50693:2019, the sequence of treatment operations occurring to the product shall include de-pollution, fractions separation and preparation (dismantling, crushing, shredding, sorting), recycling, other material recovery, energy recovery and disposal. In this study, the default values from table G.4 of EN 50693 is used for treating materials in different waste treatment methods. Due to the material and energy recovery potential of parts in the lighting system, the end-of-life product is converted into recycled raw materials, while the energy recovered from incineration displaces electricity and heat

production (D). The benefits and loads of incineration and recycling are included in Module D.

# SYSTEM BOUNDARY



# LIFE-CYCLE ASSESSMENT

## CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

## ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, ancillary materials, energy & water consumption, material loss and waste generation at the manufacturing site are attributed to the bill of materials of the products, therefore, they are allocated by partitioning the quantities on the base of the total production in kg throughout the year. Thus, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

This EPD is created with a most conservative scenario in A1-A3 in terms of material composition.

## AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	Not applicable

This EPD is product and factory specific and does not contain average calculations. It is created with a most conservative scenario in A1-A3 in terms of material composition.

## LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent 3.8 database was used as the source of environmental data.



## ENVIRONMENTAL IMPACT DATA

### CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total <sup>1)</sup>	kg CO <sub>2</sub> e	5.75E+01	9.57E-01	2.18E-01	5.87E+01	9.57E-01	4.17E-03	MNR	MNR	MNR	MNR	MNR	1.60E+03	MNR	MNR	7.44E-02	3.19E+00	1.73E+00	-1.57E+01
GWP – fossil	kg CO <sub>2</sub> e	5.78E+01	9.57E-01	2.21E-01	5.90E+01	9.56E-01	8.56E-04	MNR	MNR	MNR	MNR	MNR	1.60E+03	MNR	MNR	7.44E-02	3.19E+00	1.73E+00	-1.57E+01
GWP – biogenic	kg CO <sub>2</sub> e	-3.64E-01	0.00E+00	-3.24E-03	-3.68E-01	3.70E-04	3.31E-03	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	0.00E+00	0.00E+00	-1.08E-02
GWP – LULUC	kg CO <sub>2</sub> e	7.77E-02	4.65E-04	1.28E-04	7.83E-02	3.53E-04	4.24E-08	MNR	MNR	MNR	MNR	MNR	3.74E+00	MNR	MNR	2.74E-05	9.14E-05	5.12E-05	-4.65E-03
Ozone depletion pot.	kg CFC <sub>11</sub> e	3.07E-05	2.10E-07	4.10E-08	3.09E-05	2.20E-07	1.00E-11	MNR	MNR	MNR	MNR	MNR	8.13E-05	MNR	MNR	1.71E-08	1.06E-08	9.05E-09	-4.46E-07
Acidification potential	mol H <sup>+</sup> e	6.11E-01	1.29E-02	4.89E-04	6.24E-01	4.05E-03	9.67E-07	MNR	MNR	MNR	MNR	MNR	9.14E+00	MNR	MNR	3.15E-04	1.13E-03	5.45E-04	-2.60E-01
EP-freshwater <sup>2)</sup>	kg Pe	3.68E-03	6.39E-06	2.04E-06	3.69E-03	7.83E-06	1.12E-09	MNR	MNR	MNR	MNR	MNR	1.70E-01	MNR	MNR	6.09E-07	2.80E-06	1.02E-06	-1.33E-03
EP-marine	kg Ne	6.80E-02	3.30E-03	1.15E-04	7.14E-02	1.20E-03	4.47E-07	MNR	MNR	MNR	MNR	MNR	1.21E+00	MNR	MNR	9.36E-05	4.22E-04	3.52E-04	-2.08E-02
EP-terrestrial	mol Ne	7.76E-01	3.66E-02	1.14E-03	8.14E-01	1.33E-02	4.56E-06	MNR	MNR	MNR	MNR	MNR	1.38E+01	MNR	MNR	1.03E-03	4.44E-03	2.37E-03	-2.58E-01
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	2.48E-01	1.00E-02	5.13E-04	2.59E-01	4.25E-03	1.13E-06	MNR	MNR	MNR	MNR	MNR	3.78E+00	MNR	MNR	3.30E-04	1.11E-03	6.31E-04	-7.36E-02
ADP-minerals & metals <sup>4)</sup>	kg Sbe	7.13E-03	1.94E-06	9.97E-07	7.13E-03	2.24E-06	3.07E-10	MNR	MNR	MNR	MNR	MNR	1.49E-02	MNR	MNR	1.74E-07	3.66E-06	2.19E-07	-3.26E-03
ADP-fossil resources	MJ	7.17E+02	1.36E+01	3.18E+00	7.34E+02	1.44E+01	9.17E-04	MNR	MNR	MNR	MNR	MNR	3.41E+04	MNR	MNR	1.12E+00	1.11E+00	7.60E-01	-1.56E+02
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	1.98E+01	5.50E-02	2.99E-02	1.99E+01	6.42E-02	1.85E-04	MNR	MNR	MNR	MNR	MNR	9.31E+02	MNR	MNR	5.00E-03	1.34E-01	8.07E-02	-2.13E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO<sub>4</sub>e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

### ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	4.03E-06	8.41E-08	7.92E-09	4.13E-06	1.10E-07	8.21E-12	MNR	MNR	MNR	MNR	MNR	3.00E-05	MNR	MNR	8.57E-09	8.62E-09	5.59E-09	-1.14E-06
Ionizing radiation <sup>6)</sup>	kBq U235e	3.27E+00	6.41E-02	3.94E-03	3.34E+00	6.84E-02	2.78E-06	MNR	MNR	MNR	MNR	MNR	9.22E+02	MNR	MNR	5.32E-03	6.15E-03	3.19E-03	-9.80E-01

Ecotoxicity (freshwater)	CTUe	3.90E+03	1.12E+01	3.42E+00	3.92E+03	1.29E+01	3.68E-03	MNR	MNR	MNR	MNR	MNR	2.32E+04	MNR	MNR	1.01E+00	8.67E+00	9.48E+01	-1.33E+03
Human toxicity, cancer	CTUh	1.02E-07	4.01E-10	1.49E-10	1.02E-07	3.17E-10	3.48E-13	MNR	MNR	MNR	MNR	MNR	7.59E-07	MNR	MNR	2.47E-11	3.37E-10	2.66E-09	-1.69E-08
Human tox. non-cancer	CTUh	3.75E-06	1.02E-08	1.43E-09	3.77E-06	1.28E-08	1.44E-11	MNR	MNR	MNR	MNR	MNR	2.49E-05	MNR	MNR	9.95E-10	1.32E-08	1.73E-07	-1.98E-06
SQP <sup>7)</sup>	-	2.55E+02	1.17E+01	9.62E-01	2.67E+02	1.65E+01	5.69E-04	MNR	MNR	MNR	MNR	MNR	6.16E+03	MNR	MNR	1.29E+00	9.49E-01	1.06E+00	-7.20E+01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy <sup>8)</sup>	MJ	5.76E+01	1.36E-01	3.41E+00	6.11E+01	1.62E-01	2.11E-05	MNR	MNR	MNR	MNR	MNR	6.93E+03	MNR	MNR	1.26E-02	9.83E-02	2.41E-02	-8.20E+00
Renew. PER as material	MJ	3.31E+00	0.00E+00	3.26E-02	3.34E+00	0.00E+00	-3.26E-02	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	0.00E+00	-2.12E-02	0.00E+00
Total use of renew. PER	MJ	6.09E+01	1.36E-01	3.44E+00	6.45E+01	1.62E-01	-3.26E-02	MNR	MNR	MNR	MNR	MNR	6.93E+03	MNR	MNR	1.26E-02	9.83E-02	2.94E-03	-8.20E+00
Non-re. PER as energy	MJ	6.53E+02	1.36E+01	2.96E+00	6.69E+02	1.44E+01	9.17E-04	MNR	MNR	MNR	MNR	MNR	3.40E+04	MNR	MNR	1.12E+00	1.11E+00	7.60E-01	-1.56E+02
Non-re. PER as material	MJ	6.40E+01	0.00E+00	1.61E-02	6.40E+01	0.00E+00	-1.61E-02	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	-2.87E+01	-2.87E+01	0.00E+00
Total use of non-re. PER	MJ	7.17E+02	1.36E+01	2.98E+00	7.33E+02	1.44E+01	-1.52E-02	MNR	MNR	MNR	MNR	MNR	3.40E+04	MNR	MNR	1.12E+00	-2.76E+01	-2.80E+01	-1.56E+02
Secondary materials	kg	3.86E-01	4.48E-03	1.92E-03	3.93E-01	3.99E-03	1.01E-06	MNR	MNR	MNR	MNR	MNR	3.51E+00	MNR	MNR	3.10E-04	9.27E-04	1.24E-03	6.99E-01
Renew. secondary fuels	MJ	6.24E-02	3.19E-05	3.75E-05	6.25E-02	4.02E-05	8.20E-09	MNR	MNR	MNR	MNR	MNR	2.84E-02	MNR	MNR	3.13E-06	4.43E-05	1.71E-05	-1.87E-03
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m³	5.03E-01	1.50E-03	7.20E-04	5.06E-01	1.86E-03	6.56E-07	MNR	MNR	MNR	MNR	MNR	2.93E+01	MNR	MNR	1.45E-04	4.94E-03	2.62E-03	-9.56E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
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Hazardous waste	kg	8.45E+00	1.82E-02	1.02E-02	8.48E+00	1.90E-02	8.37E-05	MNR	MNR	MNR	MNR	MNR	1.22E+02	MNR	MNR	1.48E-03	3.76E-03	1.07E-01	-2.48E+00
Non-hazardous waste	kg	1.34E+02	2.55E-01	7.20E-02	1.34E+02	3.13E-01	6.37E-04	MNR	MNR	MNR	MNR	MNR	7.74E+03	MNR	MNR	2.43E-02	1.47E+00	2.21E+00	-7.48E+01
Radioactive waste	kg	1.30E-03	9.25E-05	3.34E-06	1.40E-03	9.61E-05	2.78E-09	MNR	MNR	MNR	MNR	MNR	2.48E-01	MNR	MNR	7.48E-06	2.21E-06	0.00E+00	-3.60E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	1.45E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	1.74E-01	1.74E-01	0.00E+00	0.00E+00	MNR	MNR	MNR	MNR	MNR	0.00E+00	MNR	MNR	0.00E+00	2.91E+01	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO <sub>2</sub> e	5.59E+01	9.48E-01	2.19E-01	5.71E+01	9.46E-01	8.49E-04	MNR	MNR	MNR	MNR	MNR	1.58E+03	MNR	MNR	7.36E-02	3.19E+00	1.72E+00	-1.54E+01
Ozone depletion Pot.	kg CFC <sub>11</sub> e	2.10E-05	1.67E-07	3.56E-08	2.12E-05	1.74E-07	8.50E-12	MNR	MNR	MNR	MNR	MNR	7.05E-05	MNR	MNR	1.36E-08	9.24E-09	7.56E-09	-3.77E-07
Acidification	kg SO <sub>2</sub> e	5.23E-01	1.02E-02	3.98E-04	5.34E-01	3.14E-03	6.92E-07	MNR	MNR	MNR	MNR	MNR	7.75E+00	MNR	MNR	2.45E-04	8.42E-04	3.99E-04	-2.26E-01
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	1.50E-01	1.39E-03	2.26E-04	1.52E-01	7.16E-04	5.51E-07	MNR	MNR	MNR	MNR	MNR	5.97E+00	MNR	MNR	5.57E-05	4.85E-04	5.71E-03	-6.22E-02

POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	2.91E-02	2.91E-04	3.33E-05	2.94E-02	1.23E-04	1.77E-08	MNR	MNR	MNR	MNR	MNR	3.17E-01	MNR	MNR	9.55E-06	2.38E-05	2.82E-05	-9.94E-03
ADP-elements	kg Sbe	7.11E-03	1.89E-06	9.85E-07	7.11E-03	2.17E-06	2.48E-10	MNR	MNR	MNR	MNR	MNR	1.49E-02	MNR	MNR	1.69E-07	3.59E-06	1.84E-07	-3.25E-03
ADP-fossil	MJ	7.16E+02	1.36E+01	3.18E+00	7.33E+02	1.44E+01	9.17E-04	MNR	MNR	MNR	MNR	MNR	3.40E+04	MNR	MNR	1.12E+00	1.11E+00	7.60E-01	-1.56E+02

## APPENDIX (EPD HUB ALIGNED)

This section represents the scaling method for the **B6 module**, following the PEP EcoPassport PSR for luminaries (PSR-0014-ed2.0-EN-2023 07 13). The GWP results were scaled from a reference variant of a product family, based on various light management scenarios and power inputs of the luminaires within the same product family

To calculate the Scaled Impact (*SI*), we have followed the below methods:

1. Calculate the power scaling factor (PSF), which is the ratio of the power input of the variant in questions  $P_{in}$  and the power input of the base variant  $P_{base}$ .

$$PSF = \frac{P_{in}}{P_{base}}$$

2. Calculate the Total Scaling factor by multiplying the PSF by the control scaling factor (CSF), where the CSF is determined according the relevant control factor scenario (e.g. if the luminaire has a presence detection system). The presented controls factors values in Table A1 are based on BS EN 15193-1:2017. Please refer to this publication or contact Signify directly for more information.

$$TSF = PSF * CSF$$

Table A1: Light management function (PEP EcoPassport aligned)

Scenario	Abbrev.	CSF
No control	NC	1
Daylight dependency factor	DD	0.75
Presence sensing	PS	0.75
Daylight dependency and presence sensing	DD+PS	0.55

3. Lastly, the GWP of the base variant is then scaled by the TSF.

$$\text{Scaled Impact} = GWP_{\text{case}} * TSF$$

**Table A2 Scaled GWP per scaling factor (EPD Hub aligned)**

Configuration	Flux [lm]	Power [W]	Efficacy [lm/W]	PSF	Total Scaling Factor (TSF)				Scaled Impacts (GWP100 B6 - kg CO2eq.)			
					NC	DD	PS	DD+PS	NC	DD	PS	DD+PS
BGP281/291/391 LED10-4S/740	890.0	6.8	130.9	0.164	0.164	0.123	0.123	0.09	262.4	196.8	196.8	144.0
BGP281/291/391 LED10-4S/730	890.0	7.1	125.4	0.171	0.171	0.128	0.128	0.094	273.6	204.8	204.8	150.4
BGP281/291/391 LED10-4S/727	890.0	7.9	112.7	0.19	0.19	0.143	0.143	0.105	304.0	228.8	228.8	168.0
BGP281/291/391 LED10-4S/722	890.0	8.8	101.1	0.212	0.212	0.159	0.159	0.117	339.2	254.4	254.4	187.2
BGP281/291/391 LED10-4S/830	890.0	7.9	112.7	0.19	0.19	0.143	0.143	0.105	304.0	228.8	228.8	168.0
BGP281/291/391 LED14-4S/740	1246.0	9.3	134.0	0.224	0.224	0.168	0.168	0.123	358.4	268.8	268.8	196.8
BGP281/291/391 LED14-4S/730	1246.0	9.9	125.9	0.239	0.239	0.179	0.179	0.131	382.4	286.4	286.4	209.6
BGP281/291/391 LED14-4S/727	1232.0	11.0	112.0	0.265	0.265	0.199	0.199	0.146	424.0	318.4	318.4	233.6
BGP281/291/391 LED14-4S/722	1232.0	12.4	99.4	0.299	0.299	0.224	0.224	0.164	478.4	358.4	358.4	262.4
BGP281/291/391 LED14-4S/830	1246.0	11.0	113.3	0.265	0.265	0.199	0.199	0.146	424.0	318.4	318.4	233.6
BGP281/291/391 LED16-4S/740	1424.0	10.6	134.3	0.255	0.255	0.191	0.191	0.14	408.0	305.6	305.6	224.0
BGP281/291/391 LED16-4S/730	1424.0	11.4	124.9	0.275	0.275	0.206	0.206	0.151	440.0	329.6	329.6	241.6

BGP281/291/391 LED16-4S/727	1408.0	12.8	110.0	0.308	0.308	0.231	0.231	0.169	492.8	369.6	369.6	270.4
BGP281/291/391 LED16-4S/722	1424.0	13.2	107.9	0.318	0.318	0.238	0.238	0.175	508.8	380.8	380.8	280.0
BGP281/291/391 LED16-4S/830	1408.0	12.8	110.0	0.308	0.308	0.231	0.231	0.169	492.8	369.6	369.6	270.4
BGP281/291/391 LED18-4S/740	1602.0	12.0	133.5	0.289	0.289	0.217	0.217	0.159	462.4	347.2	347.2	254.4
BGP281/291/391 LED18-4S/730	1602.0	13.0	123.2	0.313	0.313	0.235	0.235	0.172	500.8	376.0	376.0	275.2
BGP281/291/391 LED18-4S/727	1602.0	13.4	119.6	0.323	0.323	0.242	0.242	0.178	516.8	387.2	387.2	284.8
BGP281/291/391 LED18-4S/722	1602.0	15.0	106.8	0.361	0.361	0.271	0.271	0.199	577.6	433.6	433.6	318.4
BGP281/291/391 LED18-4S/830	1602.0	13.4	119.6	0.323	0.323	0.242	0.242	0.178	516.8	387.2	387.2	284.8
BGP281/291/391 LED20-4S/740	1760.0	13.6	129.4	0.328	0.328	0.246	0.246	0.18	524.8	393.6	393.6	288.0
BGP281/291/391 LED20-4S/730	1780.0	13.2	134.8	0.318	0.318	0.238	0.238	0.175	508.8	380.8	380.8	280.0
BGP281/291/391 LED20-4S/727	1780.0	15.0	118.7	0.361	0.361	0.271	0.271	0.199	577.6	433.6	433.6	318.4
BGP281/291/391 LED20-4S/722	1760.0	16.6	106.0	0.4	0.4	0.3	0.3	0.22	640.0	480.0	480.0	352.0
BGP281/291/391 LED20-4S/830	1760.0	14.8	118.9	0.357	0.357	0.268	0.268	0.196	571.2	428.8	428.8	313.6
BGP281/291/391 LED22-4S/740	1958.0	13.8	141.9	0.333	0.333	0.25	0.25	0.183	532.8	400.0	400.0	292.8
BGP281/291/391 LED22-4S/730	1936.0	14.6	132.6	0.352	0.352	0.264	0.264	0.194	563.2	422.4	422.4	310.4
BGP281/291/391 LED22-4S/727	1936.0	16.4	118.0	0.395	0.395	0.296	0.296	0.217	632.0	473.6	473.6	347.2
BGP281/291/391 LED22-4S/722	1936.0	18.6	104.1	0.448	0.448	0.336	0.336	0.246	716.8	537.6	537.6	393.6
BGP281/291/391 LED22-4S/830	1936.0	16.4	118.0	0.395	0.395	0.296	0.296	0.217	632.0	473.6	473.6	347.2
BGP281/291/391 LED25-4S/740	2200.0	15.8	139.2	0.381	0.381	0.286	0.286	0.21	609.6	457.6	457.6	336.0
BGP281/291/391 LED25-4S/730	2200.0	16.6	132.5	0.4	0.4	0.3	0.3	0.22	640.0	480.0	480.0	352.0
BGP281/291/391 LED25-4S/727	2200.0	19.0	115.8	0.458	0.458	0.344	0.344	0.252	732.8	550.4	550.4	403.2
BGP281/291/391 LED25-4S/722	2225.0	19.8	112.4	0.477	0.477	0.358	0.358	0.262	763.2	572.8	572.8	419.2
BGP281/291/391 LED25-4S/830	2200.0	19.0	115.8	0.458	0.458	0.344	0.344	0.252	732.8	550.4	550.4	403.2
BGP281/291/391 LED27-4S/740	2376.0	17.0	139.8	0.41	0.41	0.307	0.307	0.226	656.0	491.2	491.2	361.6

BGP281/291/391 LED27-4S/730	2376.0	18.2	130.5	0.439	0.439	0.329	0.329	0.241	702.4	526.4	526.4	385.6
BGP281/291/391 LED27-4S/727	2376.0	20.5	115.9	0.494	0.494	0.37	0.37	0.272	790.4	592.0	592.0	435.2
BGP281/291/391 LED27-4S/722	2403.0	21.0	114.4	0.506	0.506	0.38	0.38	0.278	809.6	608.0	608.0	444.8
BGP281/291/391 LED27-4S/830	2376.0	20.5	115.9	0.494	0.494	0.37	0.37	0.272	790.4	592.0	592.0	435.2
BGP281/291/391 LED30-4S/740	2640.0	19.2	137.5	0.463	0.463	0.347	0.347	0.255	740.8	555.2	555.2	408.0
BGP281/291/391 LED30-4S/730	2640.0	20.5	128.8	0.494	0.494	0.37	0.37	0.272	790.4	592.0	592.0	435.2
BGP281/291/391 LED30-4S/727	2670.0	21.0	127.1	0.506	0.506	0.38	0.38	0.278	809.6	608.0	608.0	444.8
BGP281/291/391 LED30-4S/722	2670.0	23.5	113.6	0.566	0.566	0.424	0.424	0.311	905.6	678.4	678.4	497.6
BGP281/291/391 LED30-4S/830	2640.0	21.0	125.7	0.506	0.506	0.38	0.38	0.278	809.6	608.0	608.0	444.8
BGP281/291/391 LED35-4S/740	3080.0	22.5	136.9	0.542	0.542	0.407	0.407	0.298	867.2	651.2	651.2	476.8
BGP281/291/391 LED35-4S/730	3080.0	22.0	140.0	0.53	0.53	0.398	0.398	0.292	848.0	636.8	636.8	467.2
BGP281/291/391 LED35-4S/727	3080.0	24.5	125.7	0.59	0.59	0.443	0.443	0.325	944.0	708.8	708.8	520.0
BGP281/291/391 LED35-4S/722	3080.0	28.0	110.0	0.675	0.675	0.506	0.506	0.371	1080.0	809.6	809.6	593.6
BGP281/291/391 LED35-4S/830	3080.0	24.5	125.7	0.59	0.59	0.443	0.443	0.325	944.0	708.8	708.8	520.0
BGP281/291/391 LED40-4S/740	3520.0	23.5	149.8	0.566	0.566	0.424	0.424	0.311	905.6	678.4	678.4	497.6
BGP281/291/391 LED40-4S/730	3520.0	25.0	140.8	0.602	0.602	0.452	0.452	0.331	963.2	723.2	723.2	529.6
BGP281/291/391 LED40-4S/727	3520.0	28.5	123.5	0.687	0.687	0.515	0.515	0.378	1099.2	824.0	824.0	604.8
BGP281/291/391 LED40-4S/722	3520.0	32.0	110.0	0.771	0.771	0.578	0.578	0.424	1233.6	924.8	924.8	678.4
BGP281/291/391 LED40-4S/830	3520.0	28.5	123.5	0.687	0.687	0.515	0.515	0.378	1099.2	824.0	824.0	604.8
BGP281/291/391 LED45-4S/740	3960.0	27.0	146.7	0.651	0.651	0.488	0.488	0.358	1041.6	780.8	780.8	572.8
BGP281/291/391 LED45-4S/730	3960.0	28.5	138.9	0.687	0.687	0.515	0.515	0.378	1099.2	824.0	824.0	604.8
BGP281/291/391 LED45-4S/727	3960.0	32.5	121.8	0.783	0.783	0.587	0.587	0.431	1252.8	939.2	939.2	689.6
BGP281/291/391 LED45-4S/722	3915.0	36.5	107.3	0.88	0.88	0.66	0.66	0.484	1408.0	1056.0	1056.0	774.4
BGP281/291/391 LED45-4S/830	3915.0	32.0	122.3	0.771	0.771	0.578	0.578	0.424	1233.6	924.8	924.8	678.4



BGP281/291/391 LED50-4S/740	4350.0	30.0	145.0	0.723	0.723	0.542	0.542	0.398	1156.8	867.2	867.2	636.8
BGP281/291/391 LED50-4S/730	4350.0	32.0	135.9	0.771	0.771	0.578	0.578	0.424	1233.6	924.8	924.8	678.4
BGP281/291/391 LED50-4S/727	4350.0	36.5	119.2	0.88	0.88	0.66	0.66	0.484	1408.0	1056.0	1056.0	774.4
BGP281/291/391 LED50-4S/722	4350.0	41.0	106.1	0.988	0.988	0.741	0.741	0.543	1580.8	1185.6	1185.6	868.8
BGP281/291/391 LED50-4S/830	4350.0	36.0	120.8	0.867	0.867	0.65	0.65	0.477	1387.2	1040.0	1040.0	763.2
BGP281/291/391 LED54-4S/740	4698.0	32.5	144.6	0.783	0.783	0.587	0.587	0.431	1252.8	939.2	939.2	689.6
BGP281/291/391 LED54-4S/730	4698.0	34.5	136.2	0.831	0.831	0.623	0.623	0.457	1329.6	996.8	996.8	731.2
BGP281/291/391 LED54-4S/727	4698.0	39.5	118.9	0.952	0.952	0.714	0.714	0.524	1523.2	1142.4	1142.4	838.4
BGP281/291/391 LED54-4S/722	4698.0	44.5	105.6	1.072	1.072	0.804	0.804	0.59	1715.2	1286.4	1286.4	944.0
BGP281/291/391 LED54-4S/830	4644.0	39.5	117.6	0.952	0.952	0.714	0.714	0.524	1523.2	1142.4	1142.4	838.4
BGP281/291/391 LED56-4S/740	4872.0	34.0	143.3	0.819	0.819	0.614	0.614	0.45	1310.4	982.4	982.4	720.0
BGP281/291/391 LED56-4S/730	4872.0	36.0	135.3	0.867	0.867	0.65	0.65	0.477	1387.2	1040.0	1040.0	763.2
BGP281/291/391 LED56-4S/727	4872.0	41.0	118.8	0.988	0.988	0.741	0.741	0.543	1580.8	1185.6	1185.6	868.8
BGP281/291/391 LED56-4S/722	4816.0	46.5	103.6	1.12	1.12	0.84	0.84	0.616	1792.0	1344.0	1344.0	985.6
BGP281/291/391 LED56-4S/830	4816.0	41.0	117.5	0.988	0.988	0.741	0.741	0.543	1580.8	1185.6	1185.6	868.8
BGP281/291/391 LED60-4S/740	5220.0	36.5	143.0	0.88	0.88	0.66	0.66	0.484	1408.0	1056.0	1056.0	774.4
BGP281/291/391 LED60-4S/730	5160.0	39.0	132.3	0.94	0.94	0.705	0.705	0.517	1504.0	1128.0	1128.0	827.2
BGP281/291/391 LED60-4S/727	5220.0	44.5	117.3	1.072	1.072	0.804	0.804	0.59	1715.2	1286.4	1286.4	944.0
BGP281/291/391 LED60-4S/722	5160.0	50.0	103.2	1.205	1.205	0.904	0.904	0.663	1928.0	1446.4	1446.4	1060.8
BGP281/291/391 LED64-4S/740	5504.0	39.0	141.1	0.94	0.94	0.705	0.705	0.517	1504.0	1128.0	1128.0	827.2
BGP391 LED64-4S/730 II DN09 DDF2 D24 SRT	5504.0	41.5	132.6	1.0	1.0	0.75	0.75	0.55	1600.0	1200.0	1200.0	880.0
BGP281/291/391 LED64-4S/727	5504.0	47.5	115.9	1.145	1.145	0.859	0.859	0.63	1832.0	1374.4	1374.4	1008.0
BGP281/291/391 LED64-4S/830	5440.0	47.5	114.5	1.145	1.145	0.859	0.859	0.63	1832.0	1374.4	1374.4	1008.0
BGP281/291/391 LED70-4S/730	5950.0	46.0	129.3	1.108	1.108	0.831	0.831	0.609	1772.8	1329.6	1329.6	974.4

BGP281/291/391 LED70-4S/727	5950.0	53.0	112.3	1.277	1.277	0.958	0.958	0.702	2043.2	1532.8	1532.8	1123.2
BGP281/291/391 LED70-4S/830	5880.0	53.0	110.9	1.277	1.277	0.958	0.958	0.702	2043.2	1532.8	1532.8	1123.2
BGP281/291/391 LED74-4S/740	6290.0	46.0	136.7	1.108	1.108	0.831	0.831	0.609	1772.8	1329.6	1329.6	974.4
BGP281/291/391 LED74-4S/730	6290.0	49.0	128.4	1.181	1.181	0.886	0.886	0.65	1889.6	1417.6	1417.6	1040.0
BGP281/291/391 LED74-4S/727	6290.0	57.0	110.4	1.373	1.373	1.03	1.03	0.755	2196.8	1648.0	1648.0	1208.0
BGP281/291/391 LED74-4S/830	6142.0	56.0	109.7	1.349	1.349	1.012	1.012	0.742	2158.4	1619.2	1619.2	1187.2
BGP281/291/391 LED7-4S/727	623.0	5.8	107.4	0.14	0.14	0.105	0.105	0.077	224.0	168.0	168.0	123.2
BGP281/291/391 LED7-4S/722	623.0	6.4	97.3	0.154	0.154	0.115	0.115	0.085	246.4	184.0	184.0	136.0
BGP281/291/391 LED7-4S/830	623.0	5.8	107.4	0.14	0.14	0.105	0.105	0.077	224.0	168.0	168.0	123.2
BGP281/291/391 LED75-4S/740	6460.0	46.5	138.9	1.12	1.12	0.84	0.84	0.616	1792.0	1344.0	1344.0	985.6
BGP281/291/391 LED75-4S/730	6460.0	50.0	129.2	1.205	1.205	0.904	0.904	0.663	1928.0	1446.4	1446.4	1060.8
BGP281/291/391 LED75-4S/727	6460.0	57.0	113.3	1.373	1.373	1.03	1.03	0.755	2196.8	1648.0	1648.0	1208.0
BGP281/291/391 LED75-4S/830	6308.0	57.0	110.7	1.373	1.373	1.03	1.03	0.755	2196.8	1648.0	1648.0	1208.0
BGP281/291/391 LED80-4S/740	6800.0	50.0	136.0	1.205	1.205	0.904	0.904	0.663	1928.0	1446.4	1446.4	1060.8
BGP281/291/391 LED80-4S/730	6720.0	54.0	124.4	1.301	1.301	0.976	0.976	0.716	2081.6	1561.6	1561.6	1145.6
BGP281/291/391 LED80-4S/830	6480.0	61.0	106.2	1.47	1.47	1.103	1.103	0.808	2352.0	1764.8	1764.8	1292.8
BGP281/291/391 LED85-4S/740	7224.0	54.0	133.8	1.301	1.301	0.976	0.976	0.716	2081.6	1561.6	1561.6	1145.6
BGP281/291/391 LED85-4S/730	7138.0	58.0	123.1	1.398	1.398	1.048	1.048	0.769	2236.8	1676.8	1676.8	1230.4
BGP281/291/391 LED90-4S/740	7470.0	58.0	128.8	1.398	1.398	1.048	1.048	0.769	2236.8	1676.8	1676.8	1230.4
BGP281/291/391 LED93-4S/740	7708.0	60.0	128.5	1.446	1.446	1.085	1.085	0.795	2313.6	1736.0	1736.0	1272.0

\* Note that if the product is non-dimmable, only the values for “NC (No Control)” are valid; if the driver type is PSU, only the values for “NC (No Control)” and “PS (presence sensing)” for are valid.

## APPENDIX (PEP ECOPASSPORT ALIGNED)

This section represents the scaling method for the **B6 module**, following the PEP EcoPassport PSR for luminaries (PSR-0014-ed2.0-EN-2023 07 13). The GWP results were scaled from a reference variant of a product family, based on various light management functions, the lumen output ( $O_{lum}$ ) and reference service life ( $RSL$ ) of each product within the same product family.

To calculate the Scaled Impact ( $SI_{pep}$ ), we have followed the below methods:

1. Calculate the power scaling factor (PSF), which is the ratio of the power input of the variant in questions  $P_{in}$  and the power input of the base variant  $P_{base}$ .

$$PSF = \frac{P_{in}}{P_{base}}$$

2. Using this scaled GWP, we then can apply the PEP Ecopassport method for calculating the environmental impact of the functional unit for a luminary (1000 lumens over 35000 hours), applied to B6, where the Functional Unit application considers the lumen output ( $O_{lum}$ ) and reference service lifetime ( $RSL$ ) of the product to estimate the final environmental impact. The scaled impact ( $SI_{pep}$ ) is presented in Table A4.

$$GSF = \frac{FU_{pep}}{FU_p} = \frac{1,000}{O_{lum}} * \frac{35,000}{RSL}$$

3. Calculate the GWP scaling factor (PGSF), by multiplying the PSF by the GSF.

$$PGSF = PSF * GSF$$

4. Calculate the Total Scaling factor by multiplying the PSF by the control scaling factor (CSF), where the CSF is determined according the relevant control factor scenario (e.g. if the luminaire has a presence detection system), as presented in Table A1.

$$TSF = PGSF * CSF$$

Table A3: Light management functions (PEP EcoPassport aligned)

Scenario	Abbrev.	CSF
No control	NC	1
Daylight dependency factor	DD	0.75
Presence sensing	PS	0.75
Daylight dependency and presence sensing	DD+PS	0.55

5. Lastly, the GWP of the base variant is then scaled by the TSF.

$$Scaled\ GWP = GWP_{case} * TSF$$

As described in the EPD, calculations are made based on dataset describing electricity available on the low voltage level in Europe for year 2022 (source Ecoinvent 3.8 database). This value should be adjusted depending on specific project requirements. Presented controls factors and functional unit conversion values are based on the PEP EcoPassport PSR for luminaries (PSR-0014-ed2.0-EN-2023 07 13). Please refer to this publication or contact Signify directly for more information.

Table A4 Scale impact per scaling factor (PEP EcoPassport aligned)

Configuration	Flux [lm]	Power [W]	Efficacy [lm/W]	PSF	Total Scaling Factor (TSF)				Scaled Impacts (GWP100 B6 - kg CO2eq.)			
					NC	DD	PS	DD+PS	NC	DD	PS	DD+PS
BGP281/291/391 LED10-4S/740	890.0	6.8	130.9	0.164	0.064	0.048	0.048	0.035	102.4	76.8	76.8	56.0
BGP281/291/391 LED10-4S/730	890.0	7.1	125.4	0.171	0.067	0.05	0.05	0.037	107.2	80.0	80.0	59.2
BGP281/291/391 LED10-4S/727	890.0	7.9	112.7	0.19	0.075	0.056	0.056	0.041	120.0	89.6	89.6	65.6
BGP281/291/391 LED10-4S/722	890.0	8.8	101.1	0.212	0.083	0.062	0.062	0.046	132.8	99.2	99.2	73.6
BGP281/291/391 LED10-4S/830	890.0	7.9	112.7	0.19	0.075	0.056	0.056	0.041	120.0	89.6	89.6	65.6
BGP281/291/391 LED14-4S/740	1246.0	9.3	134.0	0.224	0.063	0.047	0.047	0.035	100.8	75.2	75.2	56.0
BGP281/291/391 LED14-4S/730	1246.0	9.9	125.9	0.239	0.067	0.05	0.05	0.037	107.2	80.0	80.0	59.2
BGP281/291/391 LED14-4S/727	1232.0	11.0	112.0	0.265	0.075	0.056	0.056	0.041	120.0	89.6	89.6	65.6
BGP281/291/391 LED14-4S/722	1232.0	12.4	99.4	0.299	0.085	0.064	0.064	0.047	136.0	102.4	102.4	75.2
BGP281/291/391 LED14-4S/830	1246.0	11.0	113.3	0.265	0.074	0.055	0.055	0.041	118.4	88.0	88.0	65.6
BGP281/291/391 LED16-4S/740	1424.0	10.6	134.3	0.255	0.063	0.047	0.047	0.035	100.8	75.2	75.2	56.0
BGP281/291/391 LED16-4S/730	1424.0	11.4	124.9	0.275	0.068	0.051	0.051	0.037	108.8	81.6	81.6	59.2
BGP281/291/391 LED16-4S/727	1408.0	12.8	110.0	0.308	0.077	0.058	0.058	0.042	123.2	92.8	92.8	67.2
BGP281/291/391 LED16-4S/722	1424.0	13.2	107.9	0.318	0.078	0.058	0.058	0.043	124.8	92.8	92.8	68.8
BGP281/291/391 LED16-4S/830	1408.0	12.8	110.0	0.308	0.077	0.058	0.058	0.042	123.2	92.8	92.8	67.2
BGP281/291/391 LED18-4S/740	1602.0	12.0	133.5	0.289	0.063	0.047	0.047	0.035	100.8	75.2	75.2	56.0
BGP281/291/391 LED18-4S/730	1602.0	13.0	123.2	0.313	0.068	0.051	0.051	0.037	108.8	81.6	81.6	59.2
BGP281/291/391 LED18-4S/727	1602.0	13.4	119.6	0.323	0.07	0.053	0.053	0.039	112.0	84.8	84.8	62.4
BGP281/291/391 LED18-4S/722	1602.0	15.0	106.8	0.361	0.079	0.059	0.059	0.043	126.4	94.4	94.4	68.8
BGP281/291/391 LED18-4S/830	1602.0	13.4	119.6	0.323	0.07	0.053	0.053	0.039	112.0	84.8	84.8	62.4

BGP281/291/391 LED20-4S/740	1760.0	13.6	129.4	0.328	0.065	0.049	0.049	0.036	104.0	78.4	78.4	57.6
BGP281/291/391 LED20-4S/730	1780.0	13.2	134.8	0.318	0.063	0.047	0.047	0.035	100.8	75.2	75.2	56.0
BGP281/291/391 LED20-4S/727	1780.0	15.0	118.7	0.361	0.071	0.053	0.053	0.039	113.6	84.8	84.8	62.4
BGP281/291/391 LED20-4S/722	1760.0	16.6	106.0	0.4	0.08	0.06	0.06	0.044	128.0	96.0	96.0	70.4
BGP281/291/391 LED20-4S/830	1760.0	14.8	118.9	0.357	0.071	0.053	0.053	0.039	113.6	84.8	84.8	62.4
BGP281/291/391 LED22-4S/740	1958.0	13.8	141.9	0.333	0.06	0.045	0.045	0.033	96.0	72.0	72.0	52.8
BGP281/291/391 LED22-4S/730	1936.0	14.6	132.6	0.352	0.064	0.048	0.048	0.035	102.4	76.8	76.8	56.0
BGP281/291/391 LED22-4S/727	1936.0	16.4	118.0	0.395	0.071	0.053	0.053	0.039	113.6	84.8	84.8	62.4
BGP281/291/391 LED22-4S/722	1936.0	18.6	104.1	0.448	0.081	0.061	0.061	0.045	129.6	97.6	97.6	72.0
BGP281/291/391 LED22-4S/830	1936.0	16.4	118.0	0.395	0.071	0.053	0.053	0.039	113.6	84.8	84.8	62.4
BGP281/291/391 LED25-4S/740	2200.0	15.8	139.2	0.381	0.061	0.046	0.046	0.034	97.6	73.6	73.6	54.4
BGP281/291/391 LED25-4S/730	2200.0	16.6	132.5	0.4	0.064	0.048	0.048	0.035	102.4	76.8	76.8	56.0
BGP281/291/391 LED25-4S/727	2200.0	19.0	115.8	0.458	0.073	0.055	0.055	0.04	116.8	88.0	88.0	64.0
BGP281/291/391 LED25-4S/722	2225.0	19.8	112.4	0.477	0.075	0.056	0.056	0.041	120.0	89.6	89.6	65.6
BGP281/291/391 LED25-4S/830	2200.0	19.0	115.8	0.458	0.073	0.055	0.055	0.04	116.8	88.0	88.0	64.0
BGP281/291/391 LED27-4S/740	2376.0	17.0	139.8	0.41	0.06	0.045	0.045	0.033	96.0	72.0	72.0	52.8
BGP281/291/391 LED27-4S/730	2376.0	18.2	130.5	0.439	0.065	0.049	0.049	0.036	104.0	78.4	78.4	57.6
BGP281/291/391 LED27-4S/727	2376.0	20.5	115.9	0.494	0.073	0.055	0.055	0.04	116.8	88.0	88.0	64.0
BGP281/291/391 LED27-4S/722	2403.0	21.0	114.4	0.506	0.074	0.055	0.055	0.041	118.4	88.0	88.0	65.6
BGP281/291/391 LED27-4S/830	2376.0	20.5	115.9	0.494	0.073	0.055	0.055	0.04	116.8	88.0	88.0	64.0
BGP281/291/391 LED30-4S/740	2640.0	19.2	137.5	0.463	0.062	0.046	0.046	0.034	99.2	73.6	73.6	54.4
BGP281/291/391 LED30-4S/730	2640.0	20.5	128.8	0.494	0.066	0.05	0.05	0.036	105.6	80.0	80.0	57.6
BGP281/291/391 LED30-4S/727	2670.0	21.0	127.1	0.506	0.066	0.05	0.05	0.036	105.6	80.0	80.0	57.6
BGP281/291/391 LED30-4S/722	2670.0	23.5	113.6	0.566	0.074	0.055	0.055	0.041	118.4	88.0	88.0	65.6

BGP281/291/391 LED30-4S/830	2640.0	21.0	125.7	0.506	0.067	0.05	0.05	0.037	107.2	80.0	80.0	59.2
BGP281/291/391 LED35-4S/740	3080.0	22.5	136.9	0.542	0.062	0.046	0.046	0.034	99.2	73.6	73.6	54.4
BGP281/291/391 LED35-4S/730	3080.0	22.0	140.0	0.53	0.06	0.045	0.045	0.033	96.0	72.0	72.0	52.8
BGP281/291/391 LED35-4S/727	3080.0	24.5	125.7	0.59	0.067	0.05	0.05	0.037	107.2	80.0	80.0	59.2
BGP281/291/391 LED35-4S/722	3080.0	28.0	110.0	0.675	0.077	0.058	0.058	0.042	123.2	92.8	92.8	67.2
BGP281/291/391 LED35-4S/830	3080.0	24.5	125.7	0.59	0.067	0.05	0.05	0.037	107.2	80.0	80.0	59.2
BGP281/291/391 LED40-4S/740	3520.0	23.5	149.8	0.566	0.056	0.042	0.042	0.031	89.6	67.2	67.2	49.6
BGP281/291/391 LED40-4S/730	3520.0	25.0	140.8	0.602	0.06	0.045	0.045	0.033	96.0	72.0	72.0	52.8
BGP281/291/391 LED40-4S/727	3520.0	28.5	123.5	0.687	0.068	0.051	0.051	0.037	108.8	81.6	81.6	59.2
BGP281/291/391 LED40-4S/722	3520.0	32.0	110.0	0.771	0.076	0.057	0.057	0.042	121.6	91.2	91.2	67.2
BGP281/291/391 LED40-4S/830	3520.0	28.5	123.5	0.687	0.068	0.051	0.051	0.037	108.8	81.6	81.6	59.2
BGP281/291/391 LED45-4S/740	3960.0	27.0	146.7	0.651	0.057	0.043	0.043	0.031	91.2	68.8	68.8	49.6
BGP281/291/391 LED45-4S/730	3960.0	28.5	138.9	0.687	0.06	0.045	0.045	0.033	96.0	72.0	72.0	52.8
BGP281/291/391 LED45-4S/727	3960.0	32.5	121.8	0.783	0.069	0.052	0.052	0.038	110.4	83.2	83.2	60.8
BGP281/291/391 LED45-4S/722	3915.0	36.5	107.3	0.88	0.078	0.058	0.058	0.043	124.8	92.8	92.8	68.8
BGP281/291/391 LED45-4S/830	3915.0	32.0	122.3	0.771	0.069	0.052	0.052	0.038	110.4	83.2	83.2	60.8
BGP281/291/391 LED50-4S/740	4350.0	30.0	145.0	0.723	0.058	0.044	0.044	0.032	92.8	70.4	70.4	51.2
BGP281/291/391 LED50-4S/730	4350.0	32.0	135.9	0.771	0.062	0.046	0.046	0.034	99.2	73.6	73.6	54.4
BGP281/291/391 LED50-4S/727	4350.0	36.5	119.2	0.88	0.07	0.053	0.053	0.039	112.0	84.8	84.8	62.4
BGP281/291/391 LED50-4S/722	4350.0	41.0	106.1	0.988	0.079	0.059	0.059	0.043	126.4	94.4	94.4	68.8
BGP281/291/391 LED50-4S/830	4350.0	36.0	120.8	0.867	0.069	0.052	0.052	0.038	110.4	83.2	83.2	60.8
BGP281/291/391 LED54-4S/740	4698.0	32.5	144.6	0.783	0.058	0.044	0.044	0.032	92.8	70.4	70.4	51.2
BGP281/291/391 LED54-4S/730	4698.0	34.5	136.2	0.831	0.061	0.046	0.046	0.034	97.6	73.6	73.6	54.4
BGP281/291/391 LED54-4S/727	4698.0	39.5	118.9	0.952	0.07	0.053	0.053	0.039	112.0	84.8	84.8	62.4

BGP281/291/391 LED54-4S/722	4698.0	44.5	105.6	1.072	0.079	0.059	0.059	0.043	126.4	94.4	94.4	68.8
BGP281/291/391 LED54-4S/830	4644.0	39.5	117.6	0.952	0.071	0.053	0.053	0.039	113.6	84.8	84.8	62.4
BGP281/291/391 LED56-4S/740	4872.0	34.0	143.3	0.819	0.059	0.044	0.044	0.032	94.4	70.4	70.4	51.2
BGP281/291/391 LED56-4S/730	4872.0	36.0	135.3	0.867	0.062	0.046	0.046	0.034	99.2	73.6	73.6	54.4
BGP281/291/391 LED56-4S/727	4872.0	41.0	118.8	0.988	0.071	0.053	0.053	0.039	113.6	84.8	84.8	62.4
BGP281/291/391 LED56-4S/722	4816.0	46.5	103.6	1.12	0.082	0.061	0.061	0.045	131.2	97.6	97.6	72.0
BGP281/291/391 LED56-4S/830	4816.0	41.0	117.5	0.988	0.072	0.054	0.054	0.04	115.2	86.4	86.4	64.0
BGP281/291/391 LED60-4S/740	5220.0	36.5	143.0	0.88	0.059	0.044	0.044	0.032	94.4	70.4	70.4	51.2
BGP281/291/391 LED60-4S/730	5160.0	39.0	132.3	0.94	0.064	0.048	0.048	0.035	102.4	76.8	76.8	56.0
BGP281/291/391 LED60-4S/727	5220.0	44.5	117.3	1.072	0.072	0.054	0.054	0.04	115.2	86.4	86.4	64.0
BGP281/291/391 LED60-4S/722	5160.0	50.0	103.2	1.205	0.082	0.061	0.061	0.045	131.2	97.6	97.6	72.0
BGP281/291/391 LED64-4S/740	5504.0	39.0	141.1	0.94	0.06	0.045	0.045	0.033	96.0	72.0	72.0	52.8
BGP391 LED64-4S/730 II DN09 DDF2 D24 SRT	5504.0	41.5	132.6	1.0	0.064	0.048	0.048	0.035	102.4	76.8	76.8	56.0
BGP281/291/391 LED64-4S/727	5504.0	47.5	115.9	1.145	0.073	0.055	0.055	0.04	116.8	88.0	88.0	64.0
BGP281/291/391 LED64-4S/830	5440.0	47.5	114.5	1.145	0.073	0.055	0.055	0.04	116.8	88.0	88.0	64.0
BGP281/291/391 LED70-4S/730	5950.0	46.0	129.3	1.108	0.065	0.049	0.049	0.036	104.0	78.4	78.4	57.6
BGP281/291/391 LED70-4S/727	5950.0	53.0	112.3	1.277	0.075	0.056	0.056	0.041	120.0	89.6	89.6	65.6
BGP281/291/391 LED70-4S/830	5880.0	53.0	110.9	1.277	0.077	0.058	0.058	0.042	123.2	92.8	92.8	67.2
BGP281/291/391 LED74-4S/740	6290.0	46.0	136.7	1.108	0.062	0.046	0.046	0.034	99.2	73.6	73.6	54.4
BGP281/291/391 LED74-4S/730	6290.0	49.0	128.4	1.181	0.066	0.05	0.05	0.036	105.6	80.0	80.0	57.6
BGP281/291/391 LED74-4S/727	6290.0	57.0	110.4	1.373	0.077	0.058	0.058	0.042	123.2	92.8	92.8	67.2
BGP281/291/391 LED74-4S/830	6142.0	56.0	109.7	1.349	0.077	0.058	0.058	0.042	123.2	92.8	92.8	67.2
BGP281/291/391 LED7-4S/727	623.0	5.8	107.4	0.14	0.079	0.059	0.059	0.043	126.4	94.4	94.4	68.8
BGP281/291/391 LED7-4S/722	623.0	6.4	97.3	0.154	0.087	0.065	0.065	0.048	139.2	104.0	104.0	76.8



BGP281/291/391 LED7-4S/830	623.0	5.8	107.4	0.14	0.079	0.059	0.059	0.043	126.4	94.4	94.4	68.8
BGP281/291/391 LED75-4S/740	6460.0	46.5	138.9	1.12	0.06	0.045	0.045	0.033	96.0	72.0	72.0	52.8
BGP281/291/391 LED75-4S/730	6460.0	50.0	129.2	1.205	0.065	0.049	0.049	0.036	104.0	78.4	78.4	57.6
BGP281/291/391 LED75-4S/727	6460.0	57.0	113.3	1.373	0.074	0.055	0.055	0.041	118.4	88.0	88.0	65.6
BGP281/291/391 LED75-4S/830	6308.0	57.0	110.7	1.373	0.076	0.057	0.057	0.042	121.6	91.2	91.2	67.2
BGP281/291/391 LED80-4S/740	6800.0	50.0	136.0	1.205	0.061	0.046	0.046	0.034	97.6	73.6	73.6	54.4
BGP281/291/391 LED80-4S/730	6720.0	54.0	124.4	1.301	0.068	0.051	0.051	0.037	108.8	81.6	81.6	59.2
BGP281/291/391 LED80-4S/830	6480.0	61.0	106.2	1.47	0.079	0.059	0.059	0.043	126.4	94.4	94.4	68.8
BGP281/291/391 LED85-4S/740	7224.0	54.0	133.8	1.301	0.062	0.046	0.046	0.034	99.2	73.6	73.6	54.4
BGP281/291/391 LED85-4S/730	7138.0	58.0	123.1	1.398	0.069	0.052	0.052	0.038	110.4	83.2	83.2	60.8
BGP281/291/391 LED90-4S/740	7470.0	58.0	128.8	1.398	0.066	0.05	0.05	0.036	105.6	80.0	80.0	57.6
BGP281/291/391 LED93-4S/740	7708.0	60.0	128.5	1.446	0.065	0.049	0.049	0.036	104.0	78.4	78.4	57.6

\* Note that if the product is non-dimmable, only the values for "NC (No Control)" are valid; if the driver type is PSU, only the values for "NC (No Control)" and "PS (presence sensing)" for are valid.

