APPENDIX 1

MATERIAL COMPOSITION

The product material composition is illustrated in the table below. The material weight is given in grams and in percentage on total product weight.

Table 1: Material composition

Material	Weight (g)	Weight-%
Copper	6.51	3.02
Other Plastics	83.0	38.52
PCB Alu	0.0	0.0
PCB Copper	26.64	12.36
PCB Iron	14.71	6.82
PCB Non-ferrous metal	0.18	0.08
PCB Support	82.54	38.3
PCB Tin	1.44	0.67
PP / PS-High Impact PS / ABS	0.49	0.23

APPENDIX 2

USE PHASE (B6) VALUES FOR DIFFERENT COUNTRY MIX

In this EPD the B6 impact has been calculated using the energy mix of EU. The table in this appendix is useful for conversion and comparison of B6 values with other energy country mix. The Global Warming Potential Total (GWP tot) value is illustrated for each country. The value refers to 1 kwh.

Example on how to use the table:

If for example this EPD was done according to EU energy mix and you want to see how the GWP total changes according to a Finland country energy mix, you can take the original value in the results table here highlighted in yellow:

ENVIRONMENTAL IMPACT DATA, RESULTS PER DECLARED UNIT

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1]	kg CO_2e	4.44E-01	4.75E-03	2.34E-02	4.72E-01	9.50E-04	8.13E-03	ND	ND	ND	ND	ND	4.06E+02	ND	0.00E+00	5.50E-04	2.23E-03	7.33E-04	-2.82E-02

Divide that value according to the EU value from the following table (EU = 3.30E-01) and then multiplying for the Finland value from the same table (FINLAND = 1.54E-01).

Thus, the calculation of this example would be:

New B6 GWP tot for Finland = (4.06E-02 / 3.30E-01) x 1.54E-01 = 1.89E-02.

Country	GWP tot (kg CO2 eq. per kwh)		
AFRICA	7.30E-01	GERMANY	3.90E-01
APAC	9.50E-01	INDIA	1.50E+00
AUSTRALIA	8.40E-01	ITALY	3.50E-01
AUSTRIA	2.30E-01	LATAM	3.90E-01
BELGIUM	2.00E-01	NAM	4.50E-01
CHINA	1.02E+00	NETHERLANDS	3.90E-01
DENMARK	1.60E-01	NORWAY	4.50E-02
EU	3.30E-01	ROW	7.30E-01
FINLAND	1.54E-01	SPAIN	2.10E-01
FRANCE	8.70E-02	SWEDEN	3.70E-02
		UK	2.60E-01

Source Ecoinvent 3.10.1

APPENDIX 3 - 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 familiy.

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 1: 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.

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

The following list of product configurations is not exhaustive. Please use the formula defined in point 1 above to calculate the exact power scaling factor (PSF) for any specific configuration.

Table 2: GWP per scaling factor (EPD Hub aligned)

	12NC or Product Family Code	Description	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
1	929004121001	LIGHTSTRIPS 5M RGB mixed DISC	300	12.0	25.0	1.0	1.0	0.75	0.75	0.55	79.0	59.2	59.2	43.5
2	929004144307	MyCare Lightstrip 5M RGB 24V GM	300	24.0	12.5	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
3	929004144407	MyCare Lightstrip 10M RGB 24V GM	250	24.0	10.4	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
4	929004144507	MyCare Lightstrip 15M RGB 24V GM	200	24.0	8.3	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
5	929004144607	MyCare Lightstrip 5M WW 24V GM	500	24.0	20.8	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
6	929004144707	MyCare Lightstrip 5M NW 24V GM	2000	24.0	83.3	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
7	929004144807	MyCare Lightstrip 5M CW 24V GM	2000	24.0	83.3	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
8	929004144907	MyCare Lightstrip 10M WW 24V GM	2000	24.0	83.3	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
9	929004145007	MyCare Lightstrip 10M NW 24V GM	2000	24.0	83.3	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
10	929004145107	MyCare Lightstrip 10M CW 24V GM	2000	24.0	83.3	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9

11	929004151027	ACT PH LIGHTSTRIPS 5M RGB TW IC	1500	24.0	62.5	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9
12	929004719731	LIGHTSTRIPS 5M RGB TW IC UK	300	23.5	12.8	1.958	1.958	1.468	1.468	1.077	154.7	116.0	116.0	85.1
13	929004741627	ACT PH LIGHTSTRIPS 5M RGB TW IC OD	1400	24.0	58.3	2.0	2.0	1.5	1.5	1.1	158.0	118.5	118.5	86.9

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 refernce 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 familiy.

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 (Olum) and reference service lifetime (RSL) of the product to estimate the final environmental impact. The scaled impact (SIpep) 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 (P*GSF*), 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 3: 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.

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

Table 4: Impact per scaling factor (PEP EcoPassport aligned)

	12NC or Product Family Code	Description	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
1	929004121001	LIGHTSTRIPS 5M RGB mixed DISC	300	12.0	25.0	1.0	5.833	4.375	4.375	3.208	460.8	345.6	345.6	253.4
2	929004144307	MyCare Lightstrip 5M RGB 24V GM	300	24.0	12.5	2.0	11.666	8.75	8.75	6.416	921.6	691.2	691.2	506.9
3	929004144407	MyCare Lightstrip 10M RGB 24V GM	250	24.0	10.4	2.0	14.0	10.5	10.5	7.7	1106.0	829.5	829.5	608.3
4	929004144507	MyCare Lightstrip 15M RGB 24V GM	200	24.0	8.3	2.0	17.5	13.125	13.125	9.625	1382.5	1036.9	1036.9	760.4
5	929004144607	MyCare Lightstrip 5M WW 24V GM	500	24.0	20.8	2.0	7.0	5.25	5.25	3.85	553.0	414.8	414.8	304.2
6	929004144707	MyCare Lightstrip 5M NW 24V GM	2000	24.0	83.3	2.0	1.75	1.312	1.312	0.963	138.2	103.6	103.6	76.1
7	929004144807	MyCare Lightstrip 5M CW 24V GM	2000	24.0	83.3	2.0	1.75	1.312	1.312	0.963	138.2	103.6	103.6	76.1
8	929004144907	MyCare Lightstrip 10M WW 24V GM	2000	24.0	83.3	2.0	1.75	1.312	1.312	0.963	138.2	103.6	103.6	76.1
9	929004145007	MyCare Lightstrip 10M NW 24V GM	2000	24.0	83.3	2.0	1.75	1.312	1.312	0.963	138.2	103.6	103.6	76.1
10	929004145107	MyCare Lightstrip 10M CW 24V GM	2000	24.0	83.3	2.0	1.75	1.312	1.312	0.963	138.2	103.6	103.6	76.1
11	929004151027	ACT PH LIGHTSTRIPS 5M RGB TW IC	1500	24.0	62.5	2.0	2.334	1.751	1.751	1.284	184.4	138.3	138.3	101.4
12	929004719731	LIGHTSTRIPS 5M RGB TW IC UK	300	23.5	12.8	1.958	11.421	8.566	8.566	6.282	902.3	676.7	676.7	496.3

13	929004741627	ACT PH LIGHTSTRIPS 5M RGB TW IC OD	1400	24.0	58.3	2.0	2.5	1.875	1.875	1.375	197.5	148.1	148.1	108.6