# **ENVIRONMENTAL PRODUCT DECLARATION**

as per ISO 14025 and EN 15804+A2

Owner of the Declaration dormakaba International Holding GmbH

Programme holder Institut Bauen und Umwelt e.V. (IBU)

Publisher Institut Bauen und Umwelt e.V. (IBU)

Declaration number EPD-DOR-20210284-CBA1-EN

Issue date 26.11.202

/alid to 25.11.202

# Terminal 97 00 dormakaba



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# **General Information**

#### dormakaba

# Programme holder

IBU – Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany

#### **Declaration number**

EPD-DOR-20210284-CBA1-EN

# This declaration is based on the product category rules:

Electronic and physical Access Control Systems, 07.2019 (PCR checked and approved by the SVR)

Man liken

Issue date

26.11.2021

Valid to

25.11.2026

Dipl. Ing. Hans Peters (chairman of Institut Bauen und Umwelt e.V.)

Dr. Alexander Röder

(Managing Director Institut Bauen und Umwelt e.V.))

# Terminal 97 00

# Owner of the declaration

dormakaba International Holding GmbH DORMA Platz 1 58256 Ennepetal Germany

#### Declared product / declared unit

1 piece of the product: Terminal 97 00

#### Scope:

This EPD refers to a specific product manufactured by dormakaba. The production site is located in Villingen-Schwenningen (Germany).

The data represents the year 2019.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of *EN 15804+A2*. In the following, the standard will be simplified as *EN 15804*.

#### Verification

The standard *EN 15804* serves as the core PCR Independent verification of the declaration and data according to *ISO 14025:2010* 

internally

x externally



Dr.-Ing. Wolfram Trinius (Independent verifier)

#### **Product**

#### Product description/Product definition

Versatile, multi-functional and customizable: the terminal 97 00 is a multi-purpose device. With its modular upgradability it represents modern, easy and secure attendance recording as well as intelligent access management and targeted staff communication. Even multimedia contents like training films and staff info can be integrated easily. The user identification is done via integrated Radio-Frequency Identification (RFID) reader using an RFID medium or smartphone. A biometric fingerprint reader and swipe readers are optional.

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the following legal provisions apply:

- Electromagnetic Compatibility Directive (EMC)
- Low Voltage Directive (LVD)
- Radio Equipment Directive (RED)
- Restriction of Hazardous Substances (RoHS)
- EN 50581:2012

The CE-marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above. For the application and use the respective national provisions apply.

#### **Application**

- Attendance recording
- Door Control
- Staff Communication

#### **Technical Data**

The Terminal 97 00 has the following technical properties:

Name	Value	Unit
Operating Temperature	-5 - 45	°C
Operating Humidity	5 - 85	%
Width Dimension	264	mm
Height Dimension	207	mm
Depth Dimension	96	mm
Weight (without packaging)	1,5	kg



Weight (with packaging)	2,1	kg
Power consumption "on mode"	10	W
Power consumption "idle mode"	8	W
Power consumption "standby mode"	5	W

#### **Host Interface**

- Ethernet 10/100/1000BASE-T IEEE802.3 compatible
- Optional WLAN IEEE802.11 a/b/g/n (2,4/5 GHz)

#### **User Interface**

- 7" illuminated touch display
- · Loudspeaker, Microphone
- · Camera (optional)
- · RFID reader
  - MRD (LEGIC / MIFARE)
  - HID (iClass SE Prox)
- · Biometric fingerprint reader
- MAG stripe/ barcode reader
- · Booking via smartphone
  - NFC (Android)
  - BLE (Android+iOS)
- · CardLink to integrate offline door components

#### **Peripherals Interface**

- · 4 digital inputs / 2 relay outputs
- USB 2.0, RS232

#### **Power supply**

- PoE IEEE802.3at, Power class 0/4
- 24V DC
- 100-240V AC 50/60 Hz
- · UPS (optional)

#### Installation

- Wall mounting
- · Class of protection: IP20/IP54

The product is not harmonised in accordance with the Construction Product Regulations (CPR) but in accordance with other provisions for harmonisation of the EU. Compliance with the European Union Directive and technical specifications:

- EN 62368-1:2014
- EN 55032:2015
- EN 55024:2010 + A1:2015
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- EN 62471:2008
- EN 60529:1991 + A1:2000 + A2:2013
- EN 301489-1 V1.9.2

- EN 301489-3 V1.6.1
- EN 300330 V2.1.1
- EN 50364:2010
- EN 300328 V2.1.1
- EN 62311:2008

The product is subject to CE marking according to the relevant harmonization legislation.

In addition, the product also conforms to the following standards:

- UL 62368-1:2014
- CAN/CSA-22.2 No. 62368-1:2014
- FCC Part 15 Class C

#### Base materials/Ancillary materials

The major material compositions including the packaging of the product are listed below:

Name	Value	Unit
Paper	31	%
Glass	26	%
Plastics	26	%
Electronics	15	%
Aluminium	1	%
Others	<1	%

The product includes partial articles which contain substances listed in the *Candidate List* of *REACH* Regulation 1907/2006/EC (date: 08.07.2021) exceeding 0.1 percentage by mass: yes

 Lead (Pb): 7439-92-1 (CAS-No.) is included in some of the alloys used. The concentration of lead in each individual alloy does not exceed 4.0% (by mass).

The *Candidate List* can be found on the *ECHA* website address: https:echa.europa.eu/de/home.

#### Reference service life

The reference service life of the dormakaba Terminal 97 00 is estimated to be 10 years. This number is based on the support and service life and is not an estimated lifetime.

# LCA: Calculation rules

# **Declared Unit**

The declared unit is 1 piece of the product: Terminal 97 00.

#### **Declared unit**

Name	Value	Unit
Declared unit	1	pce.
Conversion factor to 1 kg (kg per declared unit)	0.476	-
Product weight including	2,1	kg

# System boundary

The type of EPD is: cradle to gate with options, modules C1–C4, and module D (A1–A3 + C + D and additional modules: A4 + A5 + B6)



#### **Production - Module A1-A3**

The product stage includes:

- A1, raw material extraction, processing and mechanical treatments, processing of secondary material input (e.g. recycling processes),
- A2, transport to the manufacturer,
- A3, manufacturing and assembly including provision of all materials, products and energy, as well as waste processing up to the end-of waste state.

# Construction stage - Modules A4-A5

The construction process stage includes:

- A4, transport to the building site;
- A5, installation into the building;

including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the construction process stage.

#### Use stage - Module B6

The use stage related to the operation of the building includes:

- B6, operational energy use

#### End-of-life stage- Modules C1-C4 and D

The end-of-life stage includes:

- C1, de-construction, demolition:
- C2, transport to waste processing;
- C3, waste processing for reuse, recovery and/or recycling;
- C4, disposal;

including provision and all transport, provision of all materials, products and related energy and water use. Module D (Benefits and loads beyond the system boundary) includes:

— D, recycling potentials, expressed as net impacts and benefits.

#### Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

Background database: GaBi, SP40.

# LCA: Scenarios and additional technical information

#### Characteristic product properties Information on biogenic Carbon

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic Carbon Content in product	0.02	kg C
Biogenic Carbon Content in accompanying packaging	0.22	kg C

The following technical scenario information is required for the declared modules.

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel per 1 kg (truck)	0.00276	l/100km
Transport distance (truck)	1620	km
Capacity utilisation (including empty runs)	51	%
Transport distance (ship)	5000	km

Installation into the building (A5)

Name	Value	Unit
Waste Packaging (paper)	0,6	kg

Hours per day in use in "idle mode"	3	h
Power consumption "standy mode"	5	W
Hours per day in use in "standby mode"	20	h
Days per year in use	365	days

Two scenarios are declared:

- B6 is calculated with US and EU electricity grid mix according to dormakaba's market
- B6/1 is calculated with EU-28 electricity grid mix

# End of life (C1-C4)

C1: The product dismantling from the building is done manually without environmental burden.

Name	Value	Unit
Collected separately waste type	1.5	kg
Recycling	0.336	kg
Energy recovery	0.558	kg
Final deposition	0,606	kg
Transportation to Waste Processing Site	50	km

Region for end of life: Global

# Reuse, recovery and/or recycling potentials (D), relevant scenario information

Collection rate is 100%.

#### Reference service life

Name	Value	Unit
Life Span according to the	10	
manufacturer	10	a

Operational energy use (B6)

operational energy use (Bo)		
Name	Value	Unit
Energy consumption for 1 year	48,9	kWh
Power consumption "on mode"	10	W
Hours per day in use in "on mode"	1	h
Power consumption "idle mode"	8	W



# LCA: Results

B6 declares the environmental impact for the use stage (B6: region US/EU and B6/1: region EU).

#### Disclaimer:

EP-freshwater: This indicator has been calculated as "kg P eq" as required in the characterization model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml).

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT
DECLAPED: MNP = MODILLE NOT DELEVANT)

DECLARED, WINK - WODULE NOT RELEVANT)																
PROI	DUCT S	STAGE	CONST ON PRO	OCESS			U	SE STAC	GE			END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
<b>A</b> 1	A2	А3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	С3	C4	D
Х	Х	Х	Х	Х	ND	ND	MNR	MNR	MNR	Х	ND	Х	Х	Х	Х	X

# RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece Terminal 97 00

Core Indicator	Unit	A1-A3	A4	A5	В6	B6/1	C1	C2	СЗ	C4	D
GWP-total	[kg CO <sub>2</sub> -Eq.]	6.02E+1	3.32E-1	8.51E-1	2.29E+2	1.98E+2	0.00E+0	7.00E-3	1.42E+0	9.00E-3	-1.03E+1
GWP-fossil	[kg CO <sub>2</sub> -Eq.]	6.10E+1	3.19E-1	2.10E-2	2.28E+2	1.97E+2	0.00E+0	6.00E-3	1.42E+0	9.00E-3	-1.02E+1
GWP-biogenic	[kg CO <sub>2</sub> -Eq.]	-7.85E-1	1.30E-2	8.29E-1	4.17E-1	6.56E-1	0.00E+0	2.92E-4	3.31E-5	3.14E-5	-1.60E-2
GWP-luluc	[kg CO <sub>2</sub> -Eq.]	5.40E-2	7.48E-6	1.40E-5	2.04E-1	2.85E-1	0.00E+0	1.50E-7	8.02E-5	2.65E-5	-4.00E-3
ODP	[kg CFC11-Eq.]	3.68E-9	3.33E-17	1.53E-16	2.99E-12	4.33E-12	0.00E+0	6.66E-19	7.16E-16	3.41E-17	-1.30E-12
AP	[mol H+-Eq.]	4.08E-1	2.00E-3	2.38E-4	4.39E-1	4.35E-1	0.00E+0	6.31E-6	2.53E-4	6.59E-5	-1.47E-1
EP-freshwater	[kg P-Eq.]	2.36E-4	6.86E-8	3.00E-8	3.76E-4	5.26E-4	0.00E+0	1.35E-9	1.14E-7	1.58E-8	-3.23E-6
EP-marine	[kg N-Eq.]	6.05E-2	4.25E-4	8.60E-5	9.60E-2	9.65E-2	0.00E+0	2.01E-6	5.70E-5	1.70E-5	-1.70E-2
EP-terrestrial	[mol N-Eq.]	6.46E-1	5.00E-3	1.00E-3	1.02E+0	1.01E+0	0.00E+0	2.23E-5	1.00E-3	1.87E-4	-1.90E-1
POCP	[kg NMVOC-Eq.]	1.79E-1	1.00E-3	2.28E-4	2.67E-1	2.64E-1	0.00E+0	5.68E-6	1.58E-4	5.14E-5	-5.30E-2
ADPE	[kg Sb-Eq.]	8.00E-3	9.41E-9	2.42E-9	5.60E-5	5.70E-5	0.00E+0	1.89E-10	9.82E-9	8.25E-10	-7.00E-3
ADPF	[MJ]	8.43E+2	4.45E+0	2.69E-1	3.85E+3	3.46E+3	0.00E+0	8.90E-2	6.58E-1	1.21E-1	-1.14E+2
WDP	[m³ world-Eq deprived]	1.06E+1	6.19E-4	1.05E-1	4.70E+1	4.29E+1	0.00E+0	1.24E-5	1.45E-1	9.63E-4	-1.62E+0

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Caption Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

#### RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 piece Terminal 97 00

Indicator	Unit	A1-A3	A4	A5	В6	B6/1	C1	C2	C3	C4	D
PERE	[MJ]	1.22E+2	1.40E-2	7.25E+0	1.20E+3	1.53E+3	0.00E+0	2.82E-4	8.07E-1	1.60E-2	-1.13E+1
PERM	[MJ]	7.84E+0	0.00E+0	-7.20E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-6.36E-1	0.00E+0	0.00E+0
PERT	[MJ]	1.30E+2	1.40E-2	4.90E-2	1.20E+3	1.53E+3	0.00E+0	2.82E-4	1.71E-1	1.60E-2	-1.13E+1
PENRE	[MJ]	8.25E+2	4.45E+0	2.69E-1	3.86E+3	3.46E+3	0.00E+0	9.00E-2	2.42E+1	1.21E-1	-1.14E+2
PENRM	[MJ]	2.36E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-2.36E+1	0.00E+0	0.00E+0
PENRT	[MJ]	8.49E+2	4.45E+0	2.69E-1	3.86E+3	3.46E+3	0.00E+0	9.00E-2	6.58E-1	1.21E-1	-1.14E+2
SM	[kg]	9.24E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m³]	3.14E-1	2.53E-5	2.00E-3	1.72E+0	1.77E+0	0.00E+0	5.06E-7	3.00E-3	3.04E-5	-4.30E-2

Caption

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh

# RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece Terminal 97 00

Indicator	Unit	A1-A3	A4	A5	В6	B6/1	C1	C2	C3	C4	D
HWD	[kg]	2.94E-5	4.32E-10	3.96E-10	1.54E-6	1.43E-6	0.00E+0	8.68E-12	2.51E-9	1.84E-9	-1.37E-7
NHWD	[kg]	1.46E+0	4.55E-4	2.70E-2	2.03E+0	2.46E+0	0.00E+0	9.15E-6	1.47E-1	6.06E-1	-3.68E-1
RWD	[kg]	3.12E-2	4.80E-6	1.41E-5	4.74E-1	5.25E-1	0.00E+0	9.61E-8	2.44E-5	1.37E-6	-3.00E-3
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.45E-1	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	1.07E-1	0.00E+0	1.29E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	[MJ]	1.95E-1	0.00E+0	2.33E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Caption HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components



for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

# RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece Terminal 97 00

Indicator	Unit	A1-A3	A4	A5	В6	B6/1	C1	C2	C3	C4	D
PM	[Disease Incidence]	4.01E-6	2.31E-8	1.32E-9	3.78E-6	3.65E-6	0.00E+0	3.32E-11	3.22E-9	8.16E-10	-1.23E-6
IRP	[kBq U235- Eq.]	3.00E+0	6.86E-4	2.00E-3	6.48E+1	8.62E+1	0.00E+0	1.37E-5	2.00E-3	1.41E-4	-3.40E-1
ETP-fw	[CTUe]	4.83E+2	3.15E+0	1.27E-1	1.42E+3	1.48E-3	0.00E+0	6.30E-2	2.47E-1	6.90E-2	-2.55E+1
HTP-c	[CTUh]	1.73E-8	5.93E-11	6.74E-12	3.59E-8	4.09E-8	0.00E+0	1.19E-12	2.14E-11	1.02E-11	-1.76E-9
HTP-nc	[CTUh]	1.02E-6	2.56E-9	2.92E-10	1.34E-6	1.51E-6	0.00E+0	5.10E-11	2.16E-9	1.13E-9	-9.73E-8
SQP	[-]	3.01E+2	1.10E-2	7.10E-2	8.24E+2	1.10E+3	0.00E+0	2.30E-4	1.97E-1	2.50E-2	-1.29E+1

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential Caption comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

#### Disclaimer 1 - for the indicator IRP

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.

Disclaimer 2 - for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

# References

#### **Standards**

#### CAN/CSA-22.2 No. 62368-1

CAN/CSA-22.2 No. 62368-1:2014, Audio/video, information and communication technologyequipment — Part 1: Safety requirements.

#### EN 15804+A2

EN 15804:2019+A2 (in press), Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

## EN 300328 V2.1.1

EN 300328 V2.1.1, Wideband transmission systems - Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques - Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU.

#### EN 300330

EN 300330 V2.1.1, Short Range Devices (SRD) - Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz - Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU.

#### EN 301489-1 V1.9.2 + V1.6.1

EN 301489-1 V1.9.2 + V1.6.1, ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 1: Common technical requirements - Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU.

## EN 50364

EN 50364:2010; Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 300 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications.

# EN 50581

EN 50581:2012, Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

#### EN 55024+A1

EN 55024:2010+A1:2015, Information technology equipment - Immunity characteristics - Limits and methods of measurement.

#### EN 55032

EN 55032:2015, Electromagnetic compatibility of multimedia equipment - Emission Requirements.

#### EN 60529+A1+A2

EN 60529:1991 + A1:2000 +A2:2013, Degrees of protection provided by enclosures (IP 20).

#### EN 61000-3-2

EN 61000-3-2:2014, Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase).

#### EN 61000-3-3

EN 61000-3-3:2013, Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.

## EN 62311



EN 62311:2008, Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields.

#### EN 62368-1

EN 62368-1:2014, Audio/video, information and communication technology equipment - Part 1: Safety requirements.

#### EN 62471

EN 62471:2008, Photobiological safety of lamps and lamp systems.

#### **Electromagnetic Compatibility Directive (EMC)**

Directive 2014/30/EU of the European Parliamant and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

#### FCC 47 CFR Part 15: FCC Part 15

The FCC 47 CFR Part 15 from the Federal Communications Commission: rules and regulations for EMC.

# ISO 14025

DIN EN ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

#### Low Voltage Directive (LVD)

Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.

#### Radio Equipment Directive (RED)

Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

#### REACH Regulation 1907/2006/EC

Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

#### **Restriction of Hazardous Substances (RoHS)**

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), Directive (EU) No 2011/65.

#### UL 62368-1

UL 62368-1:2014, Standard for Audio/video, information and communication technology equipment - Part 1: Safety requirements.

#### **Further References**

#### **IBU 2021**

Institut Bauen und Umwelt e.V.: General Instructions for the EPDs programme of Institut Bauen und Umwelt e.V. Version 2.0., Berlin: Institut Bauen und Umwelt e.V., 2021. www.ibu-epd.com

#### GaBi ts software

Sphera Solutions GmbH Gabi Software System and Database for Life Cycle Engineering 1992-2020 Version 10.0.0.71 University of Stuttgart Leinfelden-Echterdingen

#### GaBi ts documentation

GaBi life cycle inventory data documentation (https://www.gabi-software.com/support/gabi/gabi-database-2020-lci-documentation/).

#### LCA-tool dormakaba

LCA tool, version 1.0. Developed by Sphera Solutions GmbH.

#### **PCR Part A**

PCR – Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Re-port according to EN 15804+A2:2019, Version 1.0, Institut Bauen und Umwelt e.V., www.ibu-epd.com.

#### **PCR Part B**

PCR – Part B: Requirements on the EPD for Building Hardware product, version 1.2, Institut Bauen und Umwelt e.V., www.ibu-epd.com, 2017.



#### Publisher

Germany

Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin

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