Environmental Product Declaration

RP8605

INTERACTIVE FLAT PANEL DISPLAY

The RP8605 is a high-performance 86-inch Interactive Flat Panel (IFP) specifically designed to foster collaboration in both modern educational and corporate environments.

BenQ focuses on consumer electronics, enterprise operations, healthcare, and education, aiming to enhance and enrich all aspects of human life with better products, systems, and solutions: a superior digital lifestyle, efficient business competitiveness and productivity, comprehensive healthcare services, medical devices and personal care products, and more flexible educational solutions.

We provide incentives and professional support to foster high-quality patents and promote innovation. By pursuing diversified development, we encourage industry–academia collaboration, expand R&D capabilities, and cultivate outstanding talent for society. Guided by a customer-oriented approach, we address consumer feedback, implement innovative technological processes, enhance products and services, and resolve consumer challenges. In response to societal needs, we continuously improve our products to save energy, reduce carbon emissions, and protect the environment.

CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION
UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

RP8605
INTERACTIVE FLAT PANEL DISPLAY

According to ISO 14025

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL ENVIRONMENT 333 PFINGSTEN ROAD NORTHBROOK, IL 60611 HTTPS://WWW.UL.COM/ HTTPS://SPOT.UL.COM/
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	PROGRAM OPERATOR RULES V2.7 2022
MANUFACTURER NAME AND ADDRESS	BenQ Corporation
DECLARATION NUMBER	4792034103.103.1
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	A RP8605 INTERACTIVE FLAT PANEL DISPLAY
REFERENCE PCR AND VERSION NUMBER	(KEITI) - EPD PCR 019:2024(00):202402 - Monitor
DESCRIPTION OF PRODUCT APPLICATION/USE	The RP8605 is a high-performance 86-inch Interactive Flat Panel (IFP) specifically designed to foster collaboration in both modern educational and corporate environments.
PRODUCT RSL DESCRIPTION (IF APPL.)	4 Years
MARKETS OF APPLICABILITY	Worldwide
DATE OF ISSUE	March 20, 2026
PERIOD OF VALIDITY	5 Years
EPD TYPE	Product-specific
RANGE OF DATASET VARIABILITY	Standard deviation
EPD SCOPE	Cradle to grave
YEAR(S) OF REPORTED PRIMARY DATA	2025
LCA SOFTWARE & VERSION NUMBER	Simapro & 10.2.0.1
LCI DATABASE(S) & VERSION NUMBER	Ecoinvent 3.11
LCIA METHODOLOGY & VERSION NUMBER	CML-IA baseline V3.11 / World 2000

The PCR review was conducted by:	KEITI PCR Review Panel keiti.re.kr
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Ethan Chen, UL Solutions
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	Chang, Chia-Yuan(Leo)
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Kun Chen, UL Solutions

LIMITATIONS

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

1. Product Definition and Information

1.1. Description of Company/Organization

BenQ focuses on consumer electronics, enterprise operations, healthcare, and education, aiming to enhance and enrich all aspects of human life with better products, systems, and solutions: a superior digital lifestyle, efficient business competitiveness and productivity, comprehensive healthcare services, medical devices and personal care products, and more flexible educational solutions.

1.2. Product Description

The RP8605 is a high-performance 86-inch Interactive Flat Panel (IFP) specifically designed to foster collaboration in both modern educational and corporate environments.

1.3. Application

Beyond general-purpose tasks such as document creation and spreadsheet management, it excels as a hub for interactive presentations, digital whiteboarding, and high-definition multimedia playback. Equipped with advanced touch sensitivity and integrated software, it provides an intuitive platform for real-time brainstorming and hybrid meeting scenarios.

1.4. Declaration of Methodological Framework

This assessment employs the CML-IA baseline V3.11 / World 2000 methodology for Life Cycle Impact Assessment (LCIA). To ensure data integrity and technological relevance, the Ecoinvent v3.11 database was used as the primary secondary data source. In alignment with standard EPD practices, this analysis excludes long-term environmental impacts exceeding a 100-year time horizon.

1.5. Technical Requirements

This table outlines technical specifications for the product, covering panel technology, screen dimensions, power consumption, and weight metrics.

Table 1 Product Specifications

Product model	Product Specifications	
RP8605	Applied panel technology	Direct LED
	Diagonal length of visible screen	86 inch
	Power consumption in on mode/sleep mode/off mode	On Mode Power(W) ：88.13 Sleep Mode Power(W) ：0.29 Off Mode Power(W) ：0.00

	Product weight	Net Weight (kg)：55.0 Net Weight (w/o Base)(kg)：73.6

1.6. Properties of Declared Product as Delivered

This table details key product properties, encompassing display quality, performance, connectivity, ergonomic adjustments, eye care features, and physical characteristics.

Table 2 Key Properties of Declared Product

Key Properties as Delivered	
Display	86-inch 4K UHD (3840x2160) D-LED backlight panel with a 16:9 aspect ratio and anti-glare, germ-resistant screen coating.
Performance	8ms (typ.) response time, 450 nits brightness (typ.), and a long-lasting panel life of 50,000 hours.
Touch & Interaction	Ultra (IR) touch technology supporting up to 50-point multi-touch, With < 2.5 ms touch response time.
Color & Viewing	72% NTSC color gamut, 1.07 billion colors (10-bit), 178°/178° wide viewing angles, and a high 1200:1 (native) / 50,000:1 (dynamic) contrast ratio.
Connectivity	Comprehensive I/O including USB-C (Power Delivery 100W, DP Alt Mode, Data), HDMI 2.0 (x3), DisplayPort 1.2, USB 3.0 (x4), and dual LAN ports (RJ45).
Computing Performance	Built-in Android 15.0 OS, Octa-core CPU, 16GB RAM, and 254GB storage, supporting seamless multitasking and interactive whiteboarding.
Eye Care & Health	ClassroomCare® technology featuring Flicker-free, Low Blue Light (Hardware Solution), Germ-Resistant Screen (TÜV & SIAA certified), and Air Quality Sensors (CO2/PM2.5/PM10/TVOC/CH2O/ temperature/humidity).
Audio & Multimedia	Integrated powerful 25W x 2 speaker, 20W subwoofer and an 8-microphone array with echo cancellation and noise reduction for superior audio pick-up.
Power	Typical power consumption of 126.4 W, <0.5 W in standby mode, with a built-in AC 100-240V power supply.
Physical Characteristics	Approx. 55 kg net weight, 800x600 mm VESA wall mountable, with high-strength 9H tempered glass.

1.7. Material Composition

This table summarizes the material composition of the product, detailing weight percentages for panels, frames, and various internal components.

Table 3 Material Composition of Declared Product

Component/Material Name	weight percentage
ASSY.-Back Cover	0.63%
ASSY.-Back Shell	2.49%
ASSY.-Backlight	31.71%
ASSY.-Diffuser Plate	6.38%
ASSY.-DOPP	1.88%
ASSY.-Front frame	1.09%
ASSY.-Left frame	0.54%
ASSY.-Opencell	9.26%
ASSY.-PWB	3.58%
ASSY.-Right frame	0.54%

ASSY.-Speak net	0.86%
ASSY.-Tempered glass	29.41%
ASSY.-TOP Frame	0.95%
ASSY.-Wall-mounted	5.37%
Cable	0.83%
Other	0.03%
Other Metal Parts	1.57%
Other Plastic Parts	2.89%
Total	100%

1.8. Manufacturing

Includes Surface Mount Technology (SMT), modular assembly, burn-in testing, and final packaging procedures.

1.9. Packaging

This table details the packaging composition by weight percentage, including cartons, cushions, packing bags, cables, and various paper materials.

Table 4 Packaging Composition of Declared Product

Component/Material Name	weight percentage
Battery	0.13%
Cable	10.10%
Corrugated board box	71.77%
Cushion	9.75%
Other	1.04%
Other Electrical Component	0.23%
Other Plastic Parts	1.42%
Packing Bag	5.42%
PWB	0.15%
Total	100%

1.10. Transportation

Refers to the process of distributing the finished product from the assembly plant to major global sales markets via sea or road freight. The primary target markets for this product are focused on worldwide.

1.11. Product Installation

Environmental impacts from the installation of the monitor at the end-user site are excluded, as no significant energy or material input is required beyond manual setup.

1.12. Use

- Electricity consumption during the consumer usage phase.
- Given that the product is primarily sold in worldwide, the environmental impact assessment of the Use Stage incorporates variations in regional energy structures.

1.13. Reference Service Life and Estimated Building Service Life

- In accordance with the standard formula of KEITI PCR 019:2024.The lifespan of a monitor (4 years).

1.14. Reuse, Recycling, and Energy Recovery

- Material flow analysis is conducted based on the recycling rate data from the WEEE Assessment Report. The specific recovery metrics for the RP8605 are as follows:

Table 5 Reuse, Recycling, and Recovery information of Declared Product

Subject Product	Rate of Reuse/Recycling (%)	Rate of Recovery (%)	Data Source
RP8605	82.59	93.41	Intertek Assessment Report No. : GZHH00613705

1.15. Disposal

Dismantling, recycling, and final disposal of the product at the end of its lifespan.

2. Life Cycle Assessment Background Information

2.1. Functional or Declared Unit

The functional unit for the products assessed in this study is defined as "1 unit" (1 Pcs). Similarly, the declared unit is established as "1 unit" (1 Pcs).

2.2. System Boundary

The system boundary for this assessment is defined as "Cradle-to-Grave," encompassing all life cycle stages from raw material extraction to final disposal.

In accordance with EPD PCR 019:2024(00):202402, the system boundary of the product life cycle is illustrated in the figure below:

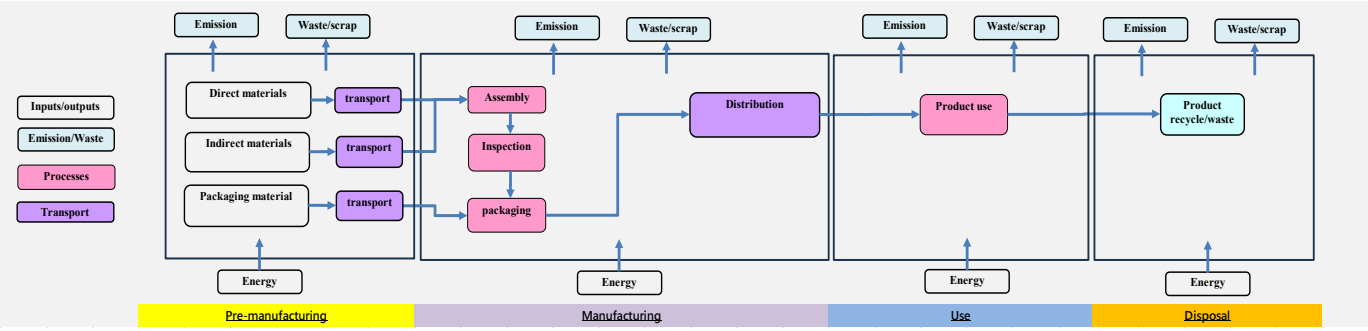

Figure 1 System Boundary of Declared Product

2.3. Estimates and Assumptions

- This study utilizes Ecoinvent v3.11 for secondary data, adopting the China-specific electricity grid mix for geographical accuracy. For logistics, actual nautical routes were retrieved via professional platforms instead of using database defaults. Where primary data was unavailable, conservative transportation coefficients were applied to ensure a comprehensive and accurate carbon footprint.
- Minor electronic components are modeled using global average technology levels. Following the 1% cut-off rule, capital goods and refrigerant leakage are excluded, as maintenance records show no refilling activity and their GWP contribution is negligible. These measures ensure the assessment focuses on core life cycle stages while maintaining compliance with ISO and PCR standards.

2.4. Data Sources

- Methodological Compliance: Data collection was conducted in strict accordance with the guidelines specified in ISO 14044:2006, Section 4.3.2.
- Data Sources: All primary data was obtained through direct measurement, calculation, or estimation based on current manufacturing processes and verified technical documentation.
- Assessment Scope: Furthermore, the LCA model incorporates and evaluates all relevant outputs, including manufacturing waste and co-products, to ensure a comprehensive impact assessment.

2.5. Data Quality

The data quality for this LCA study was evaluated using a systematic approach, with a primary focus on the Global

Warming Potential (GWP) results as a proxy for overall inventory reliability.

Table 5 Data Quality of Declared Product

Data quality level		
Subject Product	DQR Score	Data Quality Level
RP8605	1.05	High quality
DQR Judgment Criteria Explanation	©Data Quality Rating (DQR)	Overall data quality level
	DQR≤ 1.7	High quality
	1.7 < DQR ≤ 3.0	Basic quality
	3.0 < DQR ≤ 5.0	Preliminary quality assessment

2.6. Period under Review

The reference period for the collection of primary activity data in this study is as follows:

Table 7 Data Collection Period of Declared Product

Subject products	Data collection period
RP8605	October 1 , 2025 to November 30 , 2025

The manufacturing model for the subject product follows a "Make-to-Order" (MTO) approach. Due to customer order scheduling, production activities are characterized by batch processing; therefore, this study selects representative mass-production batches as the basis for data collection rather than a traditional consecutive twelve-month period. To ensure data accuracy, all total inputs (electricity, water, raw materials) and total outputs (waste, co-products) within the period have been subjected to Physical Allocation based on the actual production volume of the target product. It has been verified through mass balance audits that all activity data are free from double-counting or omissions, accurately reflecting the environmental footprint of the product under stable manufacturing conditions.

2.7. Allocation

- Manufacturing Stage: During the manufacturing phase, energy consumption and material requirements at the facility level are allocated based on the proportion of "production man-hours" attributable to the subject product.
- Other Life Cycle Stages: For all other life cycle stages, specific primary data or actual consumption values directly associated with the product are used, requiring no further allocation.

2.8. Comparability (Optional)

NA

3. Life Cycle Assessment Scenarios

- Power parameters are derived from the Energy Star test report. Per PCR requirements, the default use scenarios are defined as follows:

Table 8 Default Use Scenarios of Declared Product

Use State	Daily Estimated Hours (T)	Estimated Lifespan
On Mode Power	9.6	4 Years
Sleep Mode Power	10.8	4 Years
Off Mode Power	3.6	4 Years

4. Life Cycle Assessment Results

- This LCA primarily collected data based on the following life cycle stages and utilized SimaPro 10.2.0.1 to construct the calculation models.

Table 9 Life Cycle Stages of Declared Product

System Boundary	LCA Stage		Included
Pre-Manufacturing	Raw Material	(A1)	V
	Transport to Manufacturing	(A2)	Excluded
Manufacturing	Manufacturing	(A3)	V
	Distribution	(A4)	V
	Product Installation	(A5)	Excluded
Use	Use	(B)	V
Disposal	Disposal	(C)	V

- This assessment employs the CML-IA baseline V3.11 / World 2000 methodology for Life Cycle Impact Assessment (LCIA). To ensure data integrity and technological relevance, the Ecoinvent v3.11 database was used as the primary secondary data source.

4.1. Life Cycle Impact Assessment Results

The following table presents the summarized results of all environmental impact categories analyzed in this comprehensive Life Cycle Assessment.

Table 10 Life Cycle Impact Assessment Results of Declared Product

Environment Impact			
Impact Category	unit	A1-C	Characterization Model
Abiotic depletion	kg Sb eq	2.64E-01	Guinee et al. (CML 2002)
Abiotic depletion (fossil fuels)	MJ	2.08E+04	Guinee et al. (CML 2002)
Global warming (GWP100a)	kg CO_2 eq	1.89E+03	IPCC GWP 100

Ozone layer depletion (ODP)	kg CFC-11 eq	1.19E-04	WMO Model
Human toxicity	kg 1,4-DB eq	6.09E+03	Huijbregts (CML-IA)
Fresh water aquatic ecotox.	kg 1,4-DB eq	4.75E+03	Huijbregts (CML-IA)
Marine aquatic ecotoxicity	kg 1,4-DB eq	1.11E+07	Huijbregts (CML-IA)
Terrestrial ecotoxicity	kg 1,4-DB eq	2.14E+01	Huijbregts (CML-IA)
Photochemical oxidation	kg C_2H_4 eq	5.08E-01	Jenkin & Hayman (POCP)
Acidification	kg SO_2 eq	1.21E+01	Average Europe (CML-IA)
Eutrophication	kg PO_4^{3-} eq	6.32E+00	Heijungs et al. (CML-IA)

The following table displays the life cycle assessment results, detailing specific environmental impacts across every individual product life cycle stage.

Table 11 Life Cycle Impact Assessment Results Categorized by Life Cycle Stage

Impact Category	unit	Raw Material (A1)	Manufacturing (A2)	Distribution (A3)	Use Stage (B)	Disposal (C)
Abiotic depletion	kg Sb eq	2.58E-01	6.81E-05	7.79E-05	5.74E-03	6.49E-07
Abiotic depletion (fossil fuels)	MJ	1.15E+04	1.40E+02	9.88E+02	8.16E+03	8.51E+00
Global warming (GWP100a)	kg CO_2 eq	1.01E+03	1.42E+01	8.05E+01	7.78E+02	3.83E+00
Ozone layer depletion (ODP)	kg CFC-11 eq	1.11E-04	4.88E-08	9.15E-07	6.53E-06	1.34E-09
Human toxicity	kg 1,4-DB eq	5.27E+03	1.23E+01	3.48E+01	7.72E+02	2.49E-02
Fresh water aquatic ecotox.	kg 1,4-DB eq	4.06E+03	1.06E+01	1.38E+01	6.65E+02	3.10E-03
Marine aquatic ecotoxicity	kg 1,4-DB eq	9.61E+06	2.86E+04	2.42E+04	1.41E+06	4.06E+01
Terrestrial ecotoxicity	kg 1,4-DB eq	1.75E+01	5.02E-02	5.99E-01	3.22E+00	2.92E-03
Photochemical oxidation	kg C_2H_4 eq	3.34E-01	2.41E-03	5.04E-02	1.21E-01	7.33E-04
Acidification	kg SO_2 eq	6.81E+00	7.15E-02	1.87E+00	3.31E+00	2.34E-03
Eutrophication	kg PO_4^{3-} eq	4.59E+00	2.75E-02	2.14E-01	1.48E+00	3.42E-03

5. LCA Interpretation

The Life Cycle Assessment (LCA) results for the subject product serve as a definitive baseline for understanding its environmental trajectory, revealing that the most significant ecological burdens are heavily concentrated in the Raw Material (Upstream) and Use (Downstream) stages. This spatial distribution of environmental impact across the value chain underscores a fundamental reality in modern manufacturing: the carbon footprint and resource depletion associated with a product are largely determined before it ever reaches the factory floor and after it leaves the shipping dock.

6. Additional Environmental Information

6.1. Environmental Activities and Certifications

- Energy Star 8.0
- Eyesafe Display 3.0
- UL Flicker-free
- UL Low Blue Light (Hardware Solution)
- TÜV Germ-Resistant
- SIAA Germ-Resistant

7. Supporting Documentation

- ENERGY STAR Unique ID：4513888
- WEEE Assessment Report：Intertek Assessment Report No.：GZHH00613705

8. References

- ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures
- Korea Environmental Industry and Technology Institute (KEITI) - EPD PCR 019:2024(00):202402 - Monitor
- ISO 14040:2006/Amd 1:2020 Environmental management — Life cycle assessment — Principles and framework — Amendment 1
- ISO 14044:2006/Amd 2:2020 Environmental management — Life cycle assessment — Requirements and guidelines — Amendment 2
- Ecoinvent, 2025. Swiss Centre for Life Cycle Assessment, v3.11 (www.ecoinvent.ch)。
- PRé Consultants, 2025. Software SimaPro version 10.2.0.1(www.pre.nl)。