# Product Carbon Footprint Dashboard

**Product:** zfnntoxzwv

Total Cradle-to-Gate PCF: **15.16 kgCO2e**

Report by sjojrwrose for quhkkqedkd · Standard: GHG Protocol · System Boundary: factory_gate

carboncalcpcf.com

**Total Cradle-to-Gate Footprint**

**15.16 kgCO2e/unit**

**Extended Lifecycle Impact**

**12.99 kgCO2e/unit**

**Top Material Hotspot**

**PCBA (2.00 kgCO2e)**

**Primary C2G Emission Scope**

**Manufacturing (Scope 2)**

## Lifecycle Stage Breakdown

| | |
|---|---|
| Raw Materials | 16.20% (4.65 kgCO2e) |
| Manufacturing | 33.89% (9.73 kgCO2e) |
| Logistics (Inbound & Outbound) | 6.37% (1.83 kgCO2e) |
| Use Phase | 43.54% (12.50 kgCO2e) |
| End-of-Life (Net Carbon Credit) | -0.56 kgCO2e |

## Material Carbon Impact Breakdown (Scope 3 Upstream)

| | |
|---|---|
| PCBA | 43.01% |
| Aluminum Casing | 35.48% |
| Plastic Enclosure (ABS) | 15.05% |
| Copper Wiring | 4.30% |
| Packaging (Recycled Cardboard) | 2.15% |

## Highlights & Emission Hotspots

- Manufacturing and the Use Phase are the largest contributors to the product's overall carbon footprint, totaling over 77% of gross lifecycle emissions.
- Raw material acquisition, particularly for PCBA and Aluminum, represents a significant upstream (Scope 3) hotspot.
- The product benefits from a substantial End-of-Life carbon credit (-0.56 kgCO2e) due to 70% recyclability and a comprehensive take-back program, demonstrating strong circularity efforts.

## Recommendations for Carbon Reduction

1. **Manufacturing Decarbonization:** Increase renewable energy usage in the China production facility beyond 30% to significantly reduce Scope 2 emissions.
2. **Product Design for Efficiency:** Optimize product design to lower energy consumption during the 5-year use phase, directly addressing the largest lifecycle impact.
3. **Supply Chain Optimization:** Investigate and switch to lower-carbon material alternatives and optimize inbound/outbound logistics, prioritizing lower-emission transport modes like sea or rail freight.
4. **Enhanced Circularity:** Continue strengthening take-back programs and explore designs for easier disassembly to boost material recovery and recyclability beyond 70%.
5. **Data Refinement:** Implement robust systems for collecting primary data across all supply chain tiers, specifically for emission factors of purchased goods and services, to further enhance the accuracy of Scope 3 reporting.