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Product Carbon Footprint for osvsngxiix

Detailed analysis adhering to GHG Protocol and 2026 LSR Update.

Total Product PCF

48.75 kgCO2e

Total Emissions

48.75 kgCO2e

Primary Emission Source

Use Phase (63.6%)

Primary Emission Scope

Scope 3 (98.1%)

Top Material Hotspot

Aluminum Casing (54.9% of material impact)

Lifecycle Stage Breakdown

Use Phase	31.025 kgCO2e (63.6%)
Downstream Transport	12.467 kgCO2e (25.6%)
Raw Material Acquisition	4.100 kgCO2e (8.4%)
Manufacturing	0.931 kgCO2e (1.9%)
Upstream Transport	0.196 kgCO2e (0.4%)
End-of-Life Treatment	0.029 kgCO2e (0.1%)

GHG Scope Breakdown

Scope 3 (Value Chain)	47.817 kgCO2e (98.1%)
Scope 2 (Purchased Energy)	0.931 kgCO2e (1.9%)
Scope 1 (Direct Emissions)	0.000 kgCO2e (0.0%)

Key Emission Hotspots & Highlights

- **Use Phase Dominance:** The product's operational lifespan accounts for a significant 63.6% of the total carbon footprint, primarily due to energy consumption over 5 years.
- **Last-Mile Logistics Impact:** Downstream transportation, especially last-mile delivery, is a major contributor at 25.6%, indicating inefficiencies or high emissions factors in distribution channels.
- **Material Acquisition Contribution:** Raw material acquisition and processing, notably for the Aluminum Casing and Electronic Board, represent a substantial 8.4% of emissions.
- **Strong Scope 3 Coverage:** Scope 3 emissions comprise an overwhelming 98.1% of the total PCF, demonstrating robust value chain accounting and highlighting the importance of supplier and consumer engagement.

Recommendations for Carbon Reduction

- ✓ **Optimize Use Phase:** Invest in R&D for enhanced energy efficiency during the product's operation and guide users on energy-saving practices.
- ✓ **Enhance Logistics Efficiency:** Explore greener last-mile delivery options, route optimization, electric vehicles, and shipment consolidation.
- ✓ **Sustainable Material Sourcing:** Prioritize recycled content, low-carbon alternatives, and suppliers with verified lower carbon footprints for key components.
- ✓ **Increase Renewable Energy:** Further boost the already commendable 70% renewable electricity usage in manufacturing to near 100%.
- ✓ **Strengthen Circularity:** Leverage the high 80% recyclability and existing take-back programs to minimize virgin material demand and waste.