Nest Cam (outdoor or indoor, battery)
Product environmental report

Model G3AL9
Introduced August 2021
Environmental sustainability at Google

At Google, operating in an environmentally sustainable way has been a core value from the beginning. As our business has evolved to include the manufacturing of electronic products, we've continually expanded our efforts to improve each product's environmental performance and minimize Google's impact on the world around us.

This report details the environmental performance of the Nest Cam (outdoor or indoor, battery) over its full life cycle, from design and manufacturing through usage and recycling.

Product highlights

The Nest Cam (outdoor or indoor, battery) is designed with the following key features to help reduce its environmental impact:

- ☑ PVC-free
- ☑ Brominated Flame Retardant (BFR)-free
- ✔ 47% recycled content across its plastic parts
- ✔ 96% plastic-free packaging
- ✊ Power adapter with Level VI efficiency rating
Greenhouse Gas (GHG) emissions

The production, transportation, use, and recycling of electronic products generate GHG emissions that can contribute to rising global temperatures. Google conducted a life cycle assessment on this product to identify materials and processes that contribute to GHG emissions, with the goal of minimizing these emissions.

Estimated GHG emissions for Nest Cam (outdoor or indoor, battery) assuming five years of use: 35 kg CO₂e

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>88%</td>
</tr>
<tr>
<td>Transportation</td>
<td>5%</td>
</tr>
<tr>
<td>Customer Use</td>
<td>5%</td>
</tr>
<tr>
<td>Recycling</td>
<td>2%</td>
</tr>
</tbody>
</table>

Energy efficiency

The Nest Cam (outdoor or indoor, battery) uses an energy efficient DOE Level VI power adapter and incorporates power-management software to maximize battery-charging efficiency and extend battery life during use.

Energy efficiency of Nest Cam (outdoor or indoor, battery)

<table>
<thead>
<tr>
<th>Feature</th>
<th>115 V, 60 Hz</th>
<th>230 V, 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power adapter average efficiency</td>
<td>80.6%</td>
<td>79.8%</td>
</tr>
<tr>
<td>Power adapter no-load power</td>
<td>0.02 W</td>
<td>0.03 W</td>
</tr>
<tr>
<td>Standby mode (battery maintenance mode)</td>
<td>0.25 W</td>
<td>0.25 W</td>
</tr>
<tr>
<td>Annual energy use estimate</td>
<td>1 kWh</td>
<td>1 kWh</td>
</tr>
<tr>
<td>Annual cost of energy estimate</td>
<td>US$0.14</td>
<td>€0.24</td>
</tr>
</tbody>
</table>
**Material use**

Nest Cam (outdoor or indoor, battery) is designed to be light and compact. Minimizing the size and weight of the Nest Cam (outdoor or indoor, battery) allows materials to be used more efficiently, thereby reducing the energy consumed during production and shipping as well as minimizing the amount of packaging.

**Materials used in Nest Cam (outdoor or indoor, battery)**

Total materials: 398 g

<table>
<thead>
<tr>
<th>Material</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>109</td>
</tr>
<tr>
<td>Battery</td>
<td>94</td>
</tr>
<tr>
<td>Steel</td>
<td>69</td>
</tr>
<tr>
<td>Aluminum</td>
<td>30</td>
</tr>
<tr>
<td>Electronics</td>
<td>65</td>
</tr>
<tr>
<td>Magnesium</td>
<td>69</td>
</tr>
<tr>
<td>Magnet</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
</tr>
</tbody>
</table>

**Recycled materials**

- 47% recycled content across its plastic parts

**Battery**

- Lithium-ion polymer

**Restricted substances**

Historically, many electronic devices contained materials such as lead, mercury, cadmium, and brominated flame retardants that pose environmental and health risks. We designed Nest Cam (outdoor or indoor, battery) to meet global regulations that restrict harmful substances, including the following:

- European RoHS Directive restrictions on lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), and four different phthalates (DEHP, BBP, DBP, DIBP)
Voluntary substance restrictions

Nest Cam (outdoor or indoor, battery) also meets the following voluntary substance restrictions:\(^3\)

- PVC-free\(^1\)
- Brominated Flame Retardant (BFR)-free\(^1\)

Packaging

Packaging for the Nest Cam (outdoor or indoor, battery) uses 96% plastic-free materials.\(^3\) The greyboard used in the box base and lid is made with 100% recycled content. We have designed the Nest Cam (outdoor or indoor, battery) packaging to minimize its weight and volume, which helps conserve natural resources and allows more devices to be transported in a single shipping container.

Ethical sourcing

Google and its subsidiaries are committed to ensuring that working conditions in our operations and in our supply chains are safe, that all workers are treated with respect and dignity, and that business operations are environmentally responsible and ethically conducted.

Learn more about our expectations for manufacturing partners in the Google Supplier Code of Conduct, our 2021 Responsible Supply Chain Report, and our Conflict Minerals Policy.

Learn more

For more information about our environmental sustainability initiatives—including case studies, white papers, and blogs—please see our Sustainability website and our 2021 Environmental Report.

Learn how to recycle your used device in the Google Store Help section of our website.
Endnotes


2. Nest Cam (outdoor or indoor, battery) is designed with approximately 47% recycled content across its plastic parts. This does not include plastics in printed circuit boards, labels, cables, connectors, electronic components and modules, optical components, electrostatic discharge (ESD) components, electromagnetic interference (EMI) components, films, coatings and adhesives.

3. Based on U.S. retail packaging weight with adhesive materials excluded.

4. Level VI is the highest available efficiency rating for power adapters as defined in the International Efficiency Marking Protocol for External Power Supplies Version 3.0.

5. GHG emissions estimates are calculated in accordance with ISO 14040 and ISO 14044 requirements and guidelines for conducting life cycle assessments, and include the production, transportation, use, and recycling of the product, in-box accessories, and packaging.

6. Average efficiency of power adapter when input and output power is measured at 25%, 50%, 75%, and 100% of rated output current and averaged and tested at the highest rated output voltage of 5V. Tested in accordance with the U.S. Department of Energy Uniform Test Method for Measuring the Energy Consumption of External Power Supplies.

7. Power measured when the power adapter is plugged into an AC power source without being connected to the product. Tested in accordance with the U.S. DOE Uniform Test Method for Measuring the Energy Consumption of External Power Supplies.

8. Power measured with camera connected to WiFi network in standby mode with fully charged battery and attached to the power adapter. Tested in accordance with the U.S. DOE Uniform Test Method for Measuring the Energy Consumption of Battery Chargers.

9. Estimated energy use based on average time between charges. Actual energy consumption will vary by user.

10. The average residential cost of energy for U.S. households is $0.14 per kWh (source: U.S. Energy Information Agency Jan 2022 report).

11. The average household cost of energy for consumers in the EU-27 was €0.24 per kWh in the second half of 2021 (source: Eurostat Statistics Explained).

12. Product material masses are for the Nest Cam (outdoor or indoor, battery) only, excluding packaging and accessories. For the U.S. configuration, an additional 56 g of electronics accessories can be included in-box.

13. Google continues to restrict arsenic content in glass, mercury in displays, and heavy metals (lead, cadmium, and mercury) in batteries as listed in Google’s Restricted Substances Specification.