Apple TV 4K
Environmental Report

Models MQD22, MP7P2

Date introduced
September 12, 2017

Environmental Status Report

Apple TV 4K is designed with the following features to reduce environmental impact:

- Brominated flame retardant-free
- PVC-free[3]
- Beryllium-free
- Arsenic-free glass
- Enclosure made with 20 percent post-consumer recycled plastic
- 100 percent of packaging fibers are sourced from responsibly managed forests or recycled paper

Meets ENERGY STAR® Version 5.1 requirements for set-top boxes

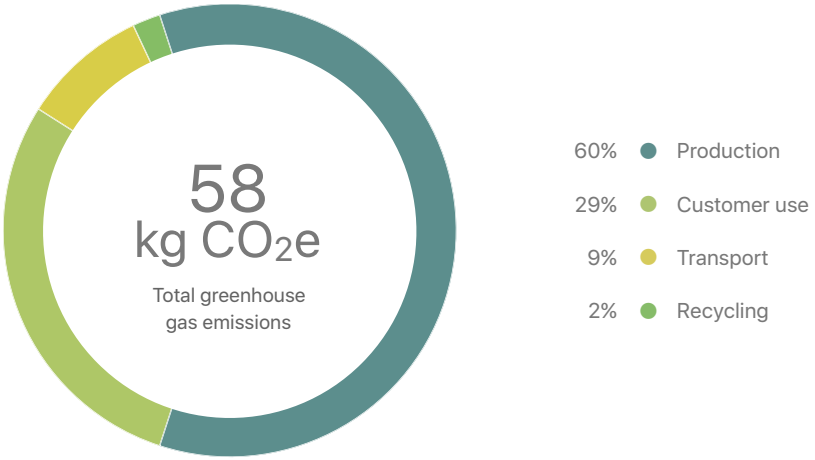
Apple and the Environment

Apple believes that improving the environmental performance of our business starts with our products. The careful environmental management of our products throughout their life cycles includes controlling the quantity and types of materials used in their manufacture, improving their energy efficiency, and designing them for better recyclability. The information below details the environmental performance of Apple TV 4K as it relates to climate change, energy efficiency, material efficiency, and restricted substances.[1]

Climate Change

Greenhouse gas emissions have an impact on the planet's balance of land, ocean, and air temperatures. Most of Apple's greenhouse gas emissions come from the production, transport, use, and recycling of our products. Apple seeks to minimize product-related greenhouse gas emissions by setting stringent design-related goals for material and energy efficiency, and by increasing use of renewable energy in our supply chain. The chart below provides the estimated greenhouse gas emissions for Apple TV 4K over its life cycle.[2]

Greenhouse Gas Emissions for Apple TV 4K and Siri Remote—32GB model



Apple TV 4K consumes 79 percent less energy than the limit for the ENERGY STAR Program Requirements for Set-top Boxes Version 5.1.

Energy Efficiency

A significant portion of product-related greenhouse gas emissions occurs during the customer use phase. Energy efficiency is therefore prioritized throughout the product's design. Apple products use power-efficient components and software that can intelligently power them down during periods of inactivity. The result is that Apple TV 4K is energy efficient right out of the box.

Apple TV 4K outperforms the stringent requirements of the ENERGY STAR® Program Requirements for Set-top Boxes Version 5.1. It has been designed to be significantly more efficient than the original Apple TV, consuming 90 percent less energy. The following table details power consumption in different use modes.

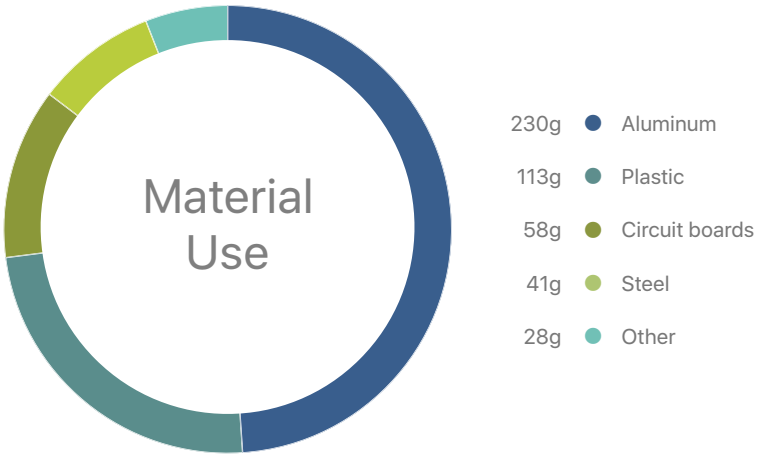
Power Consumption for Apple TV 4K

Mode	100V	115V	230V
Sleep/Network standby	0.30W	0.29W	0.35W
Streaming 4K movies	3.03W	2.86W	3.01W
Streaming 4K HDR movies	5.58W	5.77W	6.07W
Power supply efficiency	87.9%	88.1%	87.2%

Material Efficiency

Apple's ultracompact product and packaging designs lead the industry in material efficiency. Reducing the material footprint of a product helps maximize shipping efficiency. It also helps reduce the energy consumed during production and material waste generated at the end of the product's life. For example, 23 percent of plastics in Apple TV 4K are sourced from post-consumer recycled or bio-based sources, reducing dependence on finite resources. The chart below details the materials used in this model.[4]

Material Use for Apple TV 4K and Siri Remote



The retail packaging of Apple TV 4K is made from a minimum of 35 percent recycled content.

Packaging

The packaging for Apple TV 4K is highly recyclable, and 100 percent of the fiber in its retail box is either recycled or sourced from responsibly managed forests. The following table details the materials used in Apple TV 4K packaging.

Packaging Breakdown for Apple TV 4K

Material	Retail box	Retail and shipping box
Fiber (corrugate, paperboard)	216g	477g
Plastic film	6g	6g

Restricted Substances

Apple has long taken a leadership role in restricting harmful substances from our products and packaging. As part of this strategy, all Apple products comply with the strict European Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, also known as the RoHS Directive. Examples of materials restricted by RoHS include lead, mercury, cadmium, hexavalent chromium, and the brominated flame retardants (BFRs) PBB and PBDE. Apple TV 4K and Siri Remote goes even further than the requirements of the RoHS Directive by incorporating the following more aggressive restrictions:

- Arsenic-free glass (Siri Remote)
- BFR-free
- PVC-free[3]
- Beryllium-free

Recycling

Through ultra-efficient design and the use of highly recyclable materials, Apple has minimized material waste at the product's end of life. In addition, Apple offers and participates in various product take-back and recycling programs in 99 percent of the countries where Apple products are sold, including at all Apple Stores. All products are processed in the country or region in which they are collected. For more information on how to recycle your products at end of life, visit www.apple.com/recycling.

Definitions

Greenhouse gas emissions: Estimated emissions are calculated in accordance with guidelines and requirements as specified by ISO 14040 and ISO 14044. Calculation includes emissions for the following life-cycle phases contributing to Global Warming Potential (GWP 100 years) in CO_2 equivalency factors (CO_2e):

- **Production:** Includes the extraction, production, and transportation of raw materials, as well as the manufacture, transport, and assembly of all parts and product packaging.
- **Transport:** Includes air and sea transportation of the finished product and its associated packaging from manufacturing site to regional distribution hubs. Transport of products from distribution hubs to end customer is modeled using average distances based on regional geography.
- **Customer use:** User power consumption assumes a four-year use period. Consumption patterns are modeled according to the ENERGY STAR Program Requirements for Set-top Boxes Version 5.1 Total Energy Consumption (TEC) assessment tool. Geographic differences in the power grid mix have been accounted for at a regional level.
- **Recycling:** Includes transportation from collection hubs to recycling centers, and the energy used in mechanical separation and shredding of parts.

Energy efficiency terms: The energy values in this report are based in part on the ENERGY STAR Program Requirements for Set-top Boxes Version 5.1. For more information, visit www.energystar.gov. All energy values assume a Wi-Fi connection.

- **Sleep/Network standby:** Low power state that is entered automatically after one hour of inactivity (default), selecting Sleep Now from the Apple TV 4K Settings menu, or by pressing and holding the Siri Remote TV button. To deactivate network ports, remove power.
- **Streaming 4K movies:** Condition in which 4K movies are played on Apple TV 4K from iTunes.
- **Streaming 4K HDR movies:** Condition in which 4K HDR movies are played on Apple TV 4K from iTunes.
- **Power supply efficiency:** Average of the power supply's measured efficiency when tested at 100 percent, 50 percent, and 20 percent of the power supply's rated output current.

Restricted substances: Apple defines a material as BFR-free and PVC-free if it contains less than 900 parts per million (ppm) of bromine and of chlorine. Apple defines a material as beryllium-free if it contains less than 1000 parts per million (ppm) of beryllium. A complete list of Apple's restrictions on hazardous substances is available at www.apple.com/environment/reports.

1. Product evaluations based on U.S. configuration of Model MQD22.
2. Greenhouse gas emissions vary according to the configuration of Apple TV 4K. The following table details the estimated greenhouse gas emissions for U.S. configurations of Apple TV 4K over its life cycle.

Configuration	Greenhouse Gas Emissions
Apple TV 4K 32GB	58 kg CO_2e
Apple TV 4K 64GB	62 kg CO_2e

3. PVC-free worldwide except in India and Thailand where PVC-free AC power cords are not available.
4. Excludes Lightning to USB Cable and AC Cord. Mass will vary by configuration.