



iPad Air (5th generation) Wi-Fi

iPad Air (5th generation) Wi-Fi + Cellular

Apple Recycler Guide

July 2023

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About This Guide

Apple Recycler Guides provide guidance for electronics recyclers on how to disassemble products to maximize recovery of resources. The guides provide step-by-step disassembly instructions and information on the material composition to help recyclers direct fractions to the appropriate material recycler.

To conserve important resources, we work to reduce the materials we use and aim to one day source only recycled or renewable materials in our products. A key path to reaching that goal is resource recovery from end-of-life electronics.

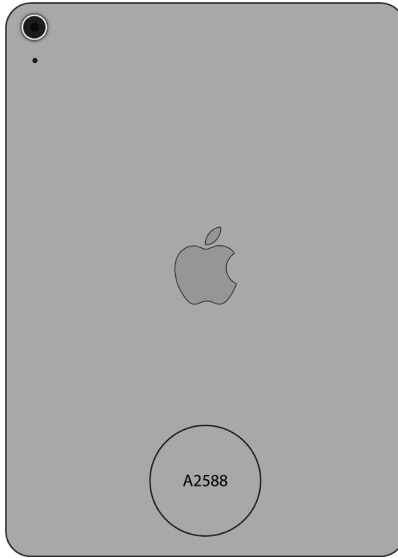
Disassembly procedures are intended to be performed only by trained electronics recycling professionals. The recycler is responsible for independently evaluating and ensuring compliance with all applicable environmental, health, and safety laws related to the work. These include but are not limited to laws relating to the management, handling, shipping, and disposal of the outputs of this work as waste and laws in place to ensure the health and safety of all employees who support this work.

For questions or feedback about this guide, email contactesci@apple.com.

Note: This guide may show images from other similar models, but the procedures are the same.

Identification

You can find the model number on the back of the iPad Air (5th generation).



Model numbers:
(Wi-Fi) A2588
(Wi-Fi + Cellular) A2589, A2591

Directive 2012/19/EU Annex VII Components

Directive 2012/19/EU Annex VII requirements apply to the following substances and components.

Substance/Component	Apple Part Name	Removal Instructions
Printed circuit board if the surface is greater than 10 square centimeters	Display logic board, main logic board	Follow steps 1–8
External electric cables	Charge cable, power adapter	Follow step 1
Battery	Lithium-ion polymer batteries	Follow steps 1–4
Cover glass and liquid crystal display (LCD) cell if the surface is greater than 100 square centimeters	LCD cell	Follow steps 1–3
No further substances or components as listed in Annex VII		

Safety Considerations

The recycler is responsible for independently evaluating all activities undertaken by its employees to perform or support the work and ensuring compliance with all applicable health and safety laws related to the work. These include but are not limited to laws relating to the health and safety of all employees who perform or support this work. The recycler is also responsible for evaluating the workspace and ensuring that the area in which the work is to be undertaken is designed using ergonomic best practices and meets all ergonomic requirements to ensure the protection of its employees.

Personal Protective Equipment

Personal protective equipment should be worn during the entire recycling process.



Wear hand protection



Wear protective clothing



Wear eye protection



Wear foot protection

Battery Safety

This product uses a lithium-ion polymer battery. Before beginning any disassembly work, ensure that a safe working procedure for handling lithium-ion batteries has been established, which could include discharging the batteries so that they can be more safely managed. The following considerations may also be included:

- Remove anything from your person that could conduct energy, such as jewelry and watches, to avoid electric shock to yourself or the logic board.
- To avoid the potential for thermal runaway and the release of potentially noxious fumes, don't puncture, strike, or crush lithium-ion polymer batteries or devices powered by them.
- Don't throw, drop, or bend the battery.
- Don't expose the battery to excessive heat or sunlight.
- Don't use tools that are sharp or conduct electricity.
- Keep your workspace clear of foreign objects and sharp materials.
- Dispose of batteries according to local environmental laws and guidelines.

Workspace safety guidelines

- Use heat-resistant gloves and safety glasses.
- Keep a sand dispenser within arm's reach (2 feet or 0.6 m) on one side of the workstation, not above the workstation. The dispenser should be a wide-mouthed, quick-pour metal container with a flip-top lid or tray that contains 8–10 cups (1.9–2.4 L) of clean, dry, untreated sand.
- Keep the battery at least 2 feet (0.6 m) from paper and other combustible materials.
- Work in an area with adequate ventilation.

Handling a thermal runaway

If you notice any of the following signs, a thermal runaway is likely underway, and you should act immediately:

- The lithium-ion polymer battery or a device containing one begins to smoke or emit sparks or soot.
- The battery pouch suddenly and quickly puffs out.
- You hear hissing or popping sounds.

Don't use water or an ABC/CO₂ fire extinguisher on a thermal runaway battery or a device containing one. Water and ABC/CO₂ fire extinguishers will not stop the reaction.

Do smother the battery or device immediately with plenty of clean, dry sand, dumped all at once. Timing is critical; the faster you pour all the sand, the faster the thermal runaway will stop.

Do leave the room for 30 minutes if the thermal runaway causes any irritation.

Do wait 30 minutes before touching the battery. Wear heat-resistant gloves and safety glasses to remove the battery from the sand, or use a touchless thermometer to measure the battery temperature. Only touch the battery when the event has finished.

Do dispose of the damaged battery or device (including any debris removed from the sand) according to local environmental laws and guidelines.

Hazard Warnings



Broken glass hazard



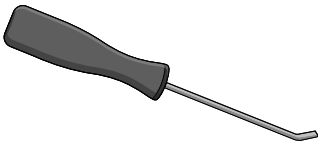
Rechargeable battery hazard



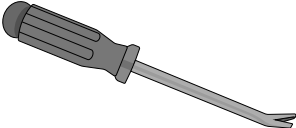
Chemical exposure hazard

Recommended Tools

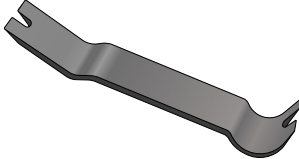
Miniature pry bar



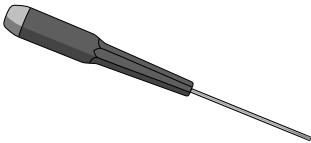
Nail-pulling screwdriver



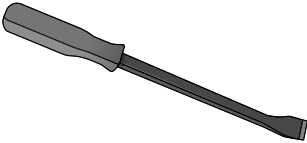
Plastic pry bar



Precision slotted screwdriver



Screwdriver-handle pry bar



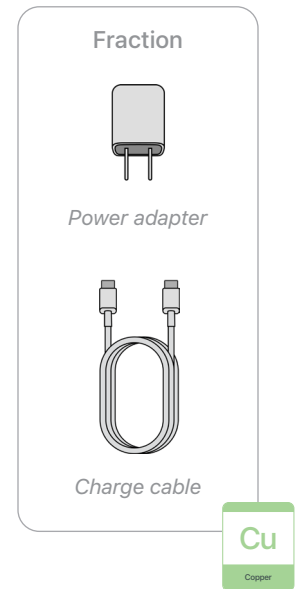
Tweezers



Disassembly Instructions

1. Remove the power adapter and charge cable.

- » *Ensure that the iPad Air is turned off.*
- » *Unplug the power adapter. Disconnect both ends of the charge cable.*



2. Remove the display.

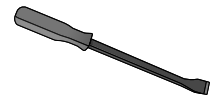


Broken glass hazard

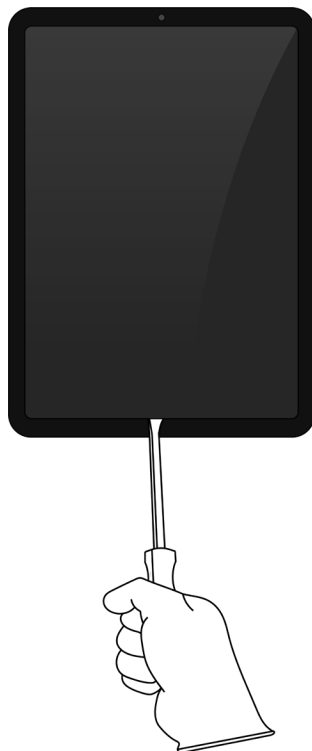


Chemical exposure hazard

Tools Used



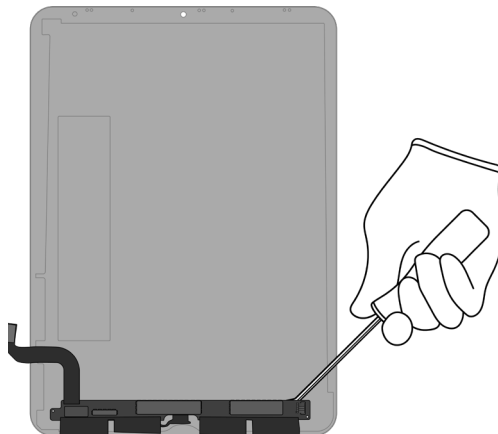
- » *Hold the iPad at the edge of a counter with the display faceup.*
- » *Insert the tool tip into the bottom of the display. Push the handle down to pry the display from the enclosure.*



- » *Remove the display by hand. Set the enclosure aside.*

3. Separate the display logic board from the LCD cell.

- » Lay the display facedown.
- » Pry the display logic board off the LCD cell.



Tools Used



Fraction



Display logic board

PMs
Precious
Metals


Fraction



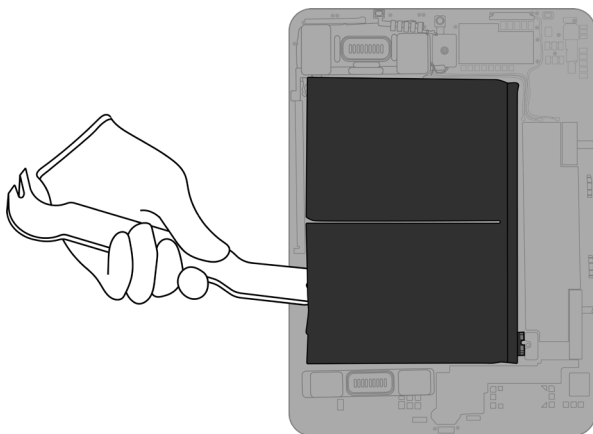
LCD cell

GL
Glass

4. From the enclosure, carefully remove both lithium-ion polymer batteries.

 Rechargeable battery hazard


- » *Using tweezers, gently peel one of the battery adhesive tabs away from the battery.*
- » *Twist the tab around the tweezers until white adhesive appears. Continue twisting until the entire adhesive strip is removed.*
- » *Repeat this process for any remaining battery tabs. Continue with the plastic pry bar if needed.*



Tools Used

An illustration of a pair of tweezers and a plastic pry bar, both shown in a dark gray color.

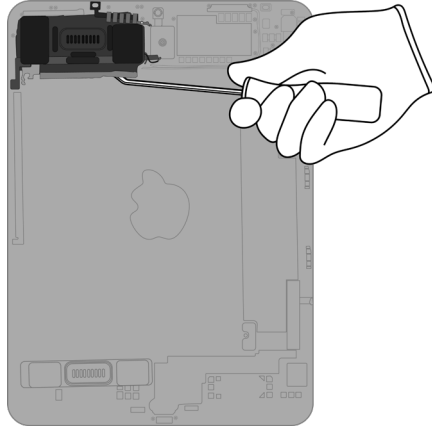
Fraction

An illustration of a single black rectangular lithium-ion polymer battery.

Lithium-ion polymer batteries (x2)

BT
Battery

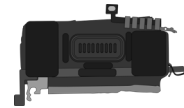
5. Pry off the upper speaker.



Tools Used



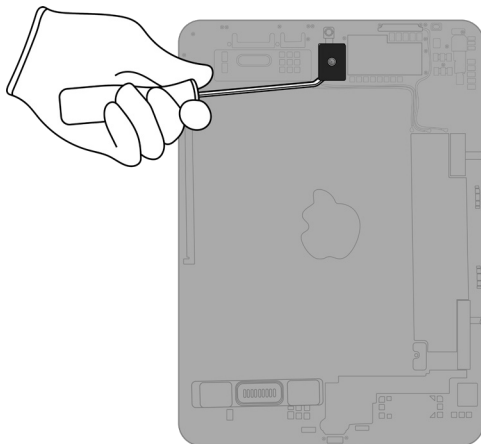
Fraction



Upper speaker

REE
Rare Earth
Elements

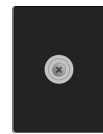
6. Pry off the front camera cover.



Tools Used



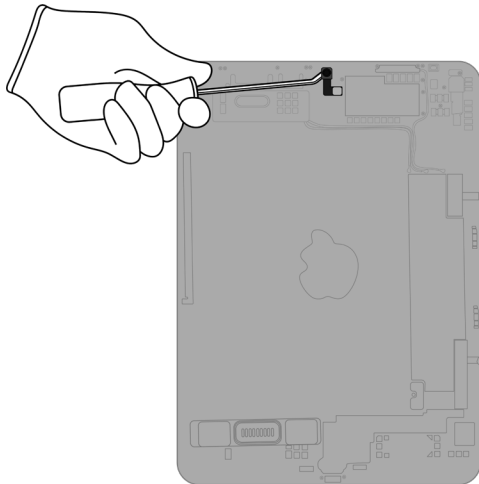
Fraction



Front camera cover

Fe
Ferrous

7. Pry off the front camera.



Tools Used



Fraction

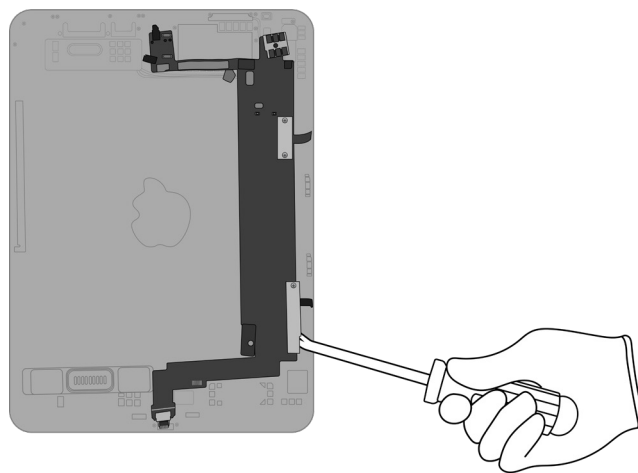


Front camera

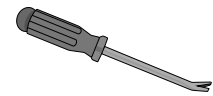
PMs

Precious Metals

8. Pry off the main logic board.



Tools Used



Fraction

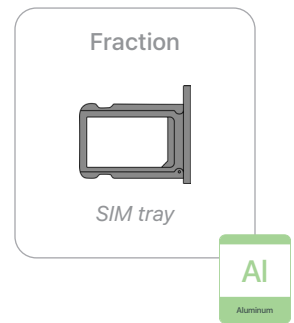
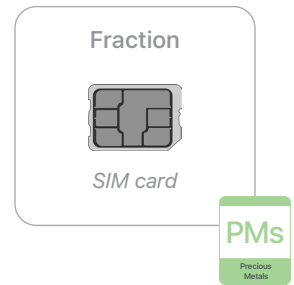
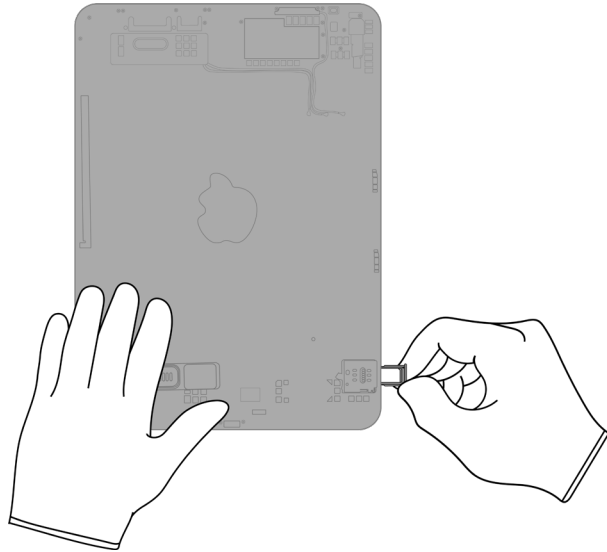


Main logic board

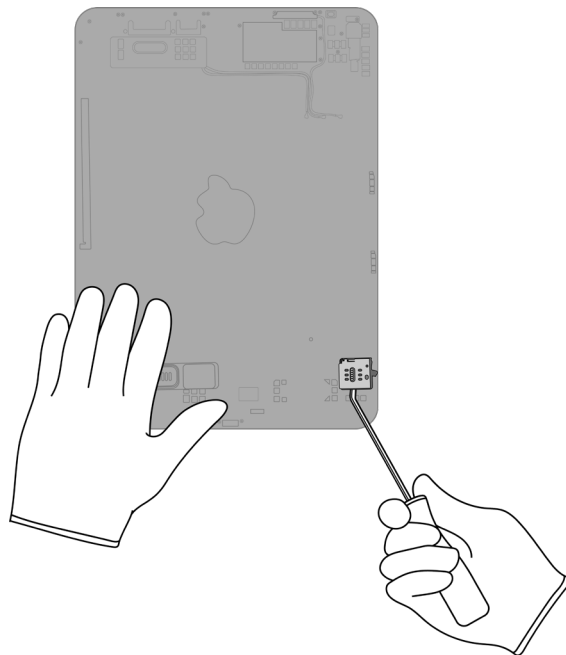
PMs

Precious Metals

9. (Wi-Fi + Cellular models only) Remove the SIM card and SIM tray. Separate the SIM card from the SIM tray.



10. (Wi-Fi + Cellular models only) Pry off the SIM reader.



Tools Used



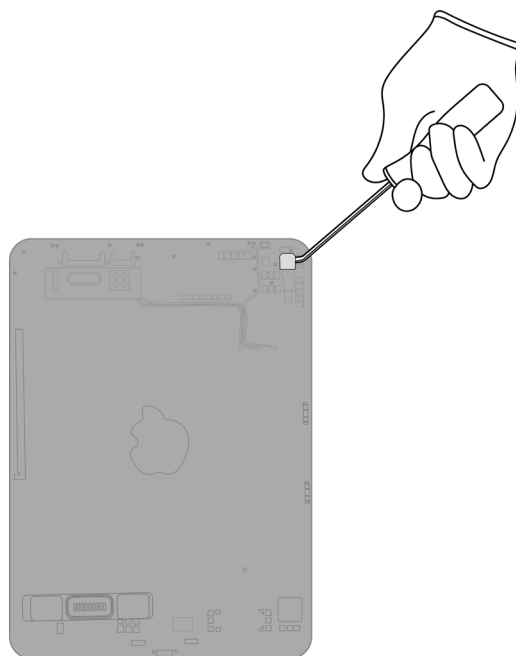
Fraction



SIM reader



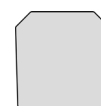
11. Pry off the rear camera cover.



Tools Used



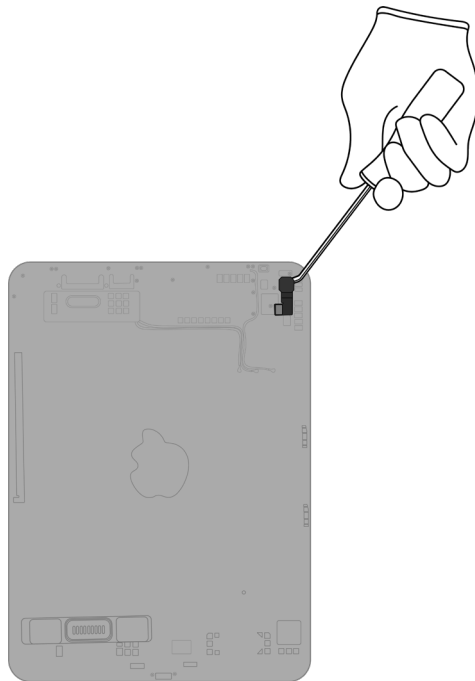
Fraction



Rear camera cover



12. Pry off the rear camera.



Tools Used



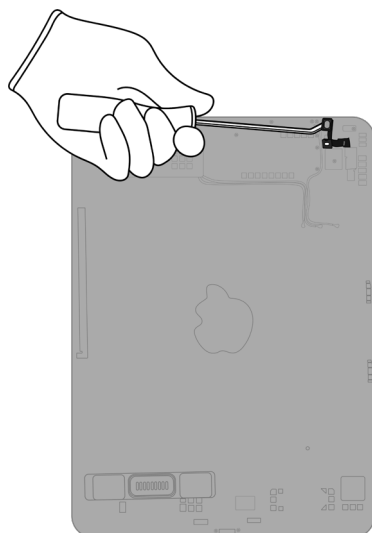
Fraction



Rear camera

PMs
Precious Metals

13. Pry off the light sensor.



Tools Used



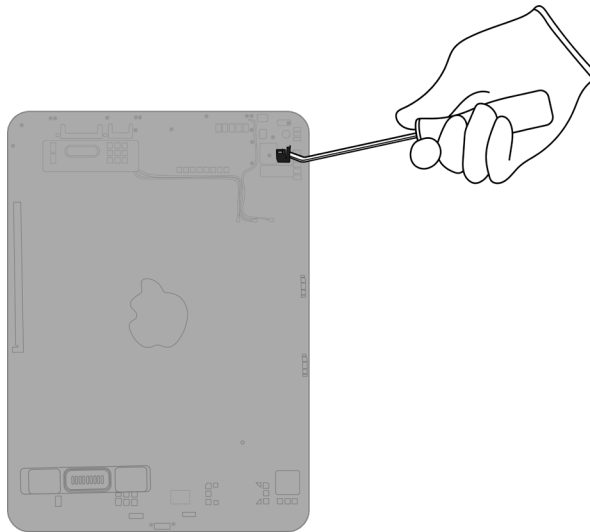
Fraction



Light sensor

Cu
Copper

14. Pry off the microphone.



Tools Used



Fraction

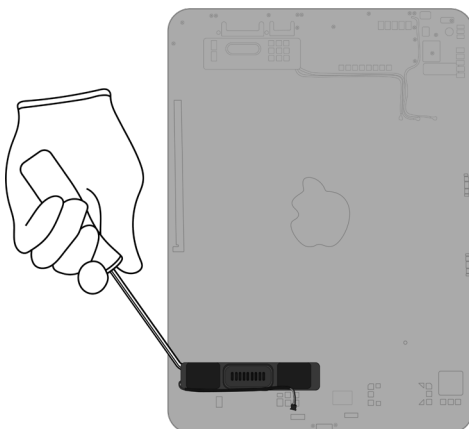


Microphone

Cu

Copper

15. Pry off the lower speaker.



Tools Used



Fraction

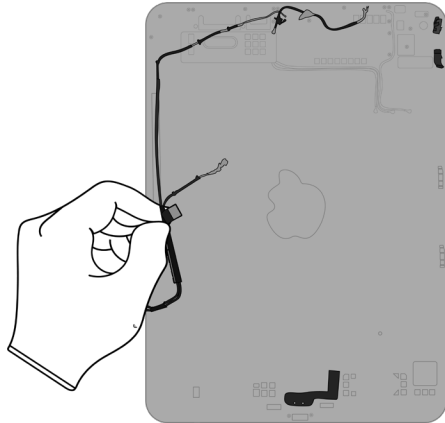


Lower speaker

REE

Rare Earth
Elements

16. Pull off the remaining ribbon cables and wires.



Fraction

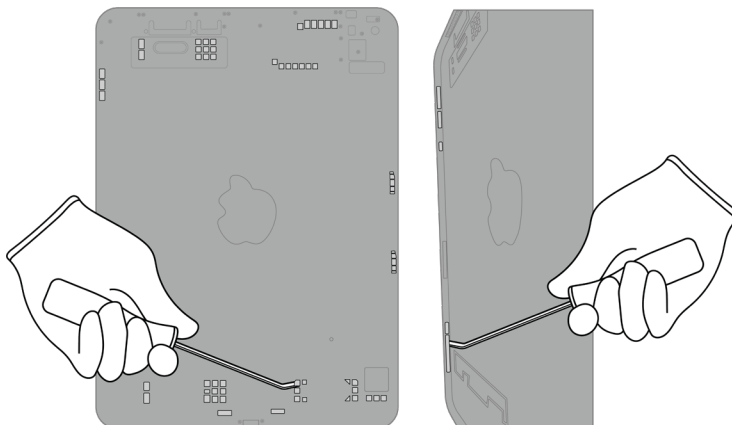


Ribbon cables
and wires

Cu

Copper

17. Pry off the 70 magnets.



Tools Used



Fraction

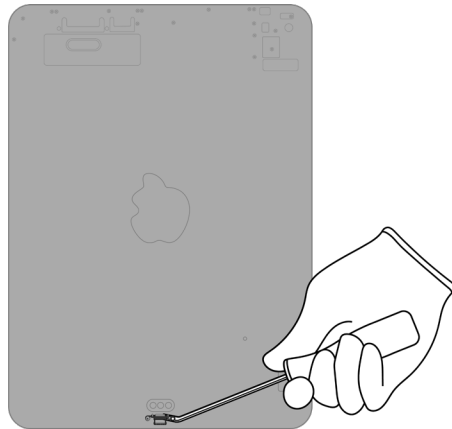


Magnets (x70)

REE

Rare Earth
Elements

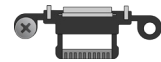
18. Pry off the USB-C port.



Tools Used



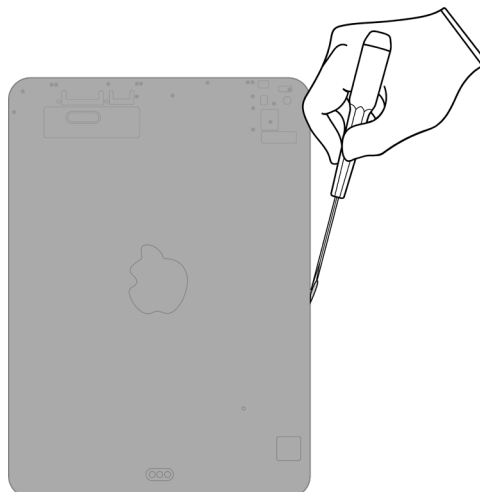
Fraction



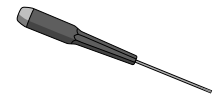
USB-C port



19. Pry off the Apple Pencil charging coil cover.



Tools Used



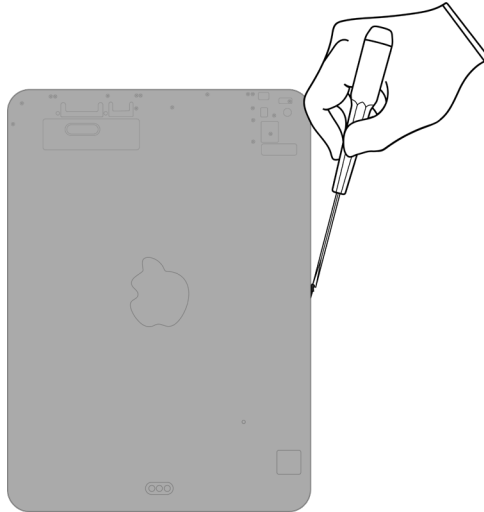
Fraction



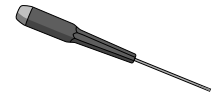
Apple Pencil charging coil cover



20. Pry off the Apple Pencil charging coil.



Tools Used



Fraction



*Apple Pencil
charging coil*

Cu

Copper

Fraction



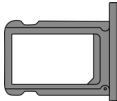




Enclosure



Al

Aluminum

Material Categorization of Output Fractions

All outputs from this process must be managed, handled, and disposed of in accordance with applicable waste laws and regulations, including but not limited to the Waste Framework Directive and its national enactments in Europe.

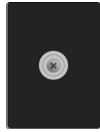
Fraction	Downstream Processing
<p data-bbox="435 554 568 579">Aluminum</p>  <p data-bbox="459 741 540 762"><i>SIM tray</i></p>  <p data-bbox="451 957 548 978"><i>Enclosure</i></p>	<p data-bbox="966 554 1274 579">Primary Target Material</p>  <p data-bbox="925 779 1315 804">Potential Additional Materials</p>  

<p data-bbox="440 1081 561 1106">Batteries</p>  <p data-bbox="402 1297 599 1346"><i>Lithium-ion polymer batteries (x2)</i></p>	<p data-bbox="966 1081 1274 1106">Primary Target Material</p> 
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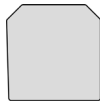
Fraction

Downstream Processing

Ferrous



Front camera cover



Rear camera cover

Primary Target Material



Potential Additional Materials



Glass



LCD cell

Primary Target Material



Potential Additional Materials



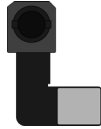
Fraction

Downstream Processing

Logic Boards



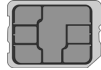
Display logic board



Front camera



Main logic board



SIM card



Rear camera

Primary Target Material



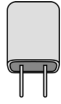
Potential Additional Materials



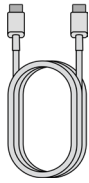
Fraction

Downstream Processing

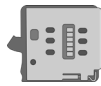
Mixed Electronics



Power adapter



Charge cable



SIM reader



Light sensor



Microphone



*Ribbon cables
and wires*

Primary Target Material



Potential Additional Materials



Fraction

Downstream Processing

Mixed Electronics (cont.)



USB-C port



*Apple Pencil
charging coil*

Mixed Plastics

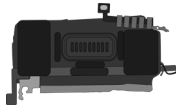


*Apple Pencil charging
coil cover*

Primary Target Material



Rare Earth Magnets



Upper speaker



Lower speaker



Magnets (x70)

Primary Target Material



Potential Additional Materials

