iPhone 7

iPhone 7 Plus

Apple Recycler Guide

June 2023

Contents

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 iPhone.

Model numbers:
A1660, A1661, A1778, A1779, A1780, A1784, A1785, A1786

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	Main logic board	Follow steps 1–10
External electric cables	Power adapter, charge cable	Follow step 1
Battery	Lithium-ion polymer battery	Follow steps 1–6
Cover glass and liquid crystal display (LCD) cell if the surface is greater than 100 square centimeters	LCD cell	Follow steps 1–5
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/CO_2 fire extinguisher on a thermal runaway battery or a device containing one. Water and ABC/CO_2 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

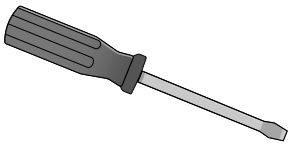

Broken glass hazard


Rechargeable battery hazard

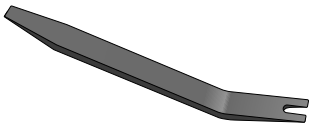

Chemical exposure hazard

Recommended Tools

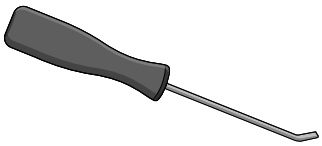
Flat-blade screwdriver



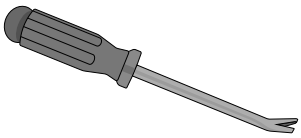
Miniature plastic pry bar



Miniature pry bar



Nail-pulling screwdriver



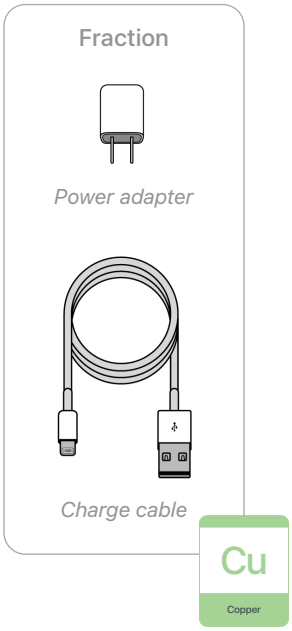
Tweezers

Disassembly Instructions

1. Remove the power adapter and charge cable.

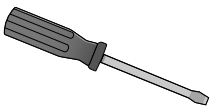
» *Ensure that the iPhone is turned off.*

» *Unplug the power adapter. Disconnect both ends of the charge cable.*



2. Remove the display.

Tools Used

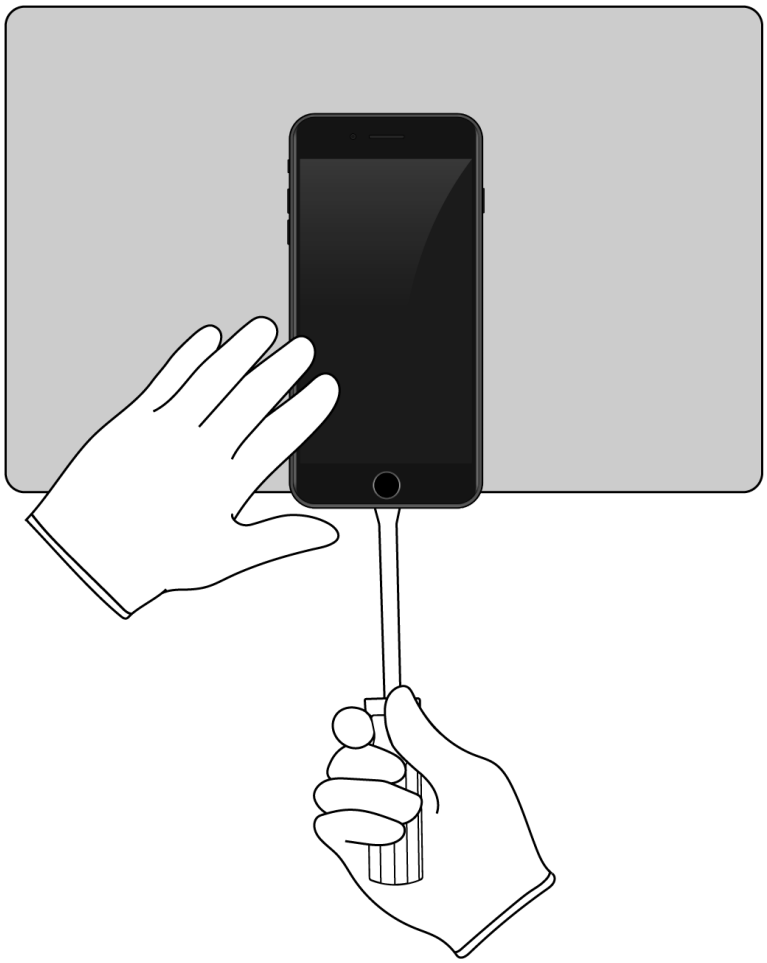


Broken glass hazard

Chemical exposure hazard

» *Hold the iPhone at the edge of a counter with the display faceup and the Lightning connector toward the counter edge.*

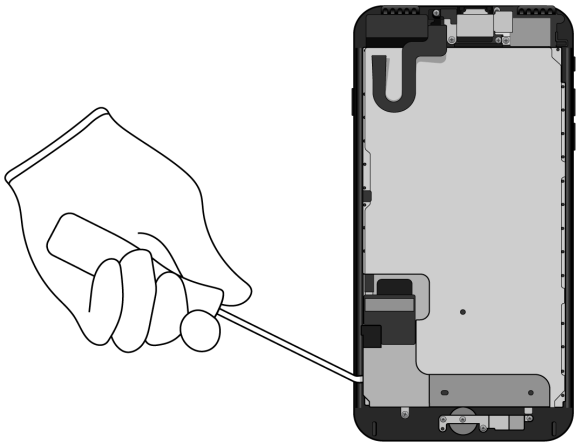
» *Insert the tool tip into the Lightning connector. Push the handle down to pry the display from the enclosure.*



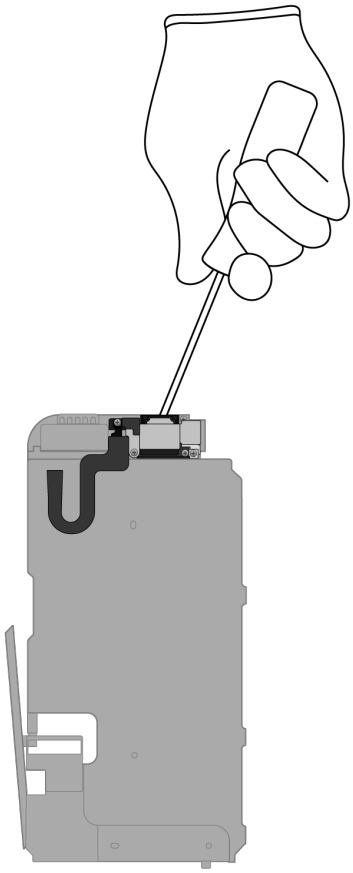
» *Remove the display by hand. Set the enclosure aside.*

3. With the display facedown, pry off the display cover. Set the LCD cell aside.

Tools Used

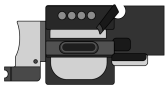


4. Pry the receiver and the front camera off the display cover.



Tools Used

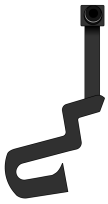
Fraction



Receiver

REE
Rare Earth Elements

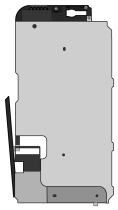
Fraction



Front camera

PMs
Precious Metals

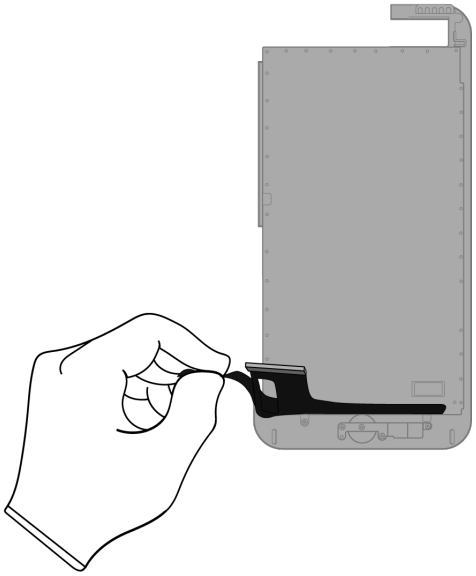
Fraction



Display cover

Fe
Ferrous

5. On the LCD cell, pull off the ribbon cables.



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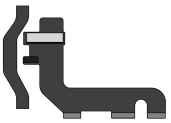
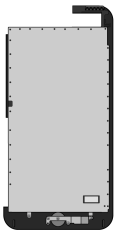


Ribbon cables

Cu

Copper

Fraction



LCD cell

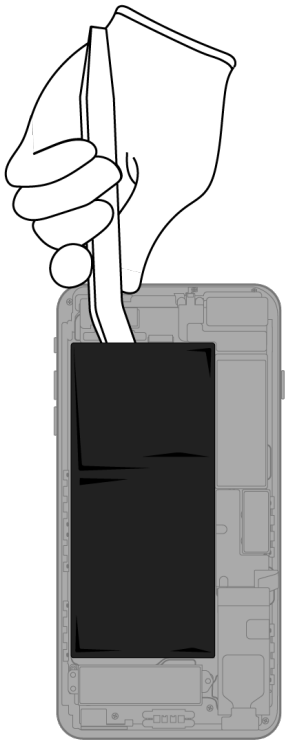
GL

Glass

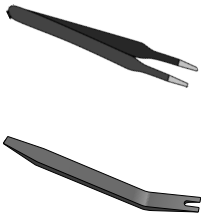
6. Inside the enclosure, carefully remove the lithium-ion polymer battery.

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 miniature plastic pry bar if needed.*



Tools Used

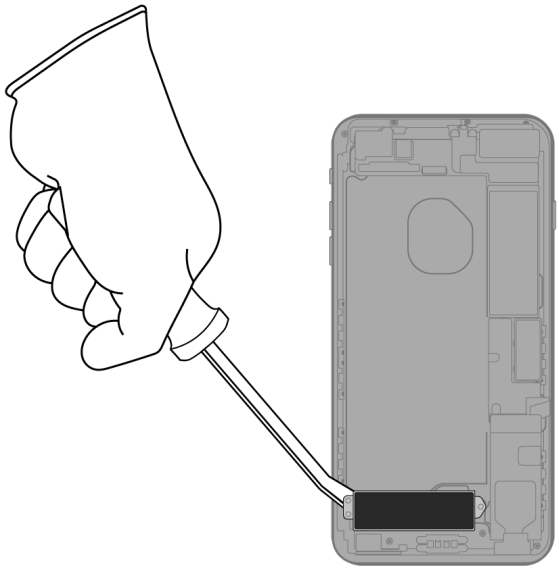


Fraction

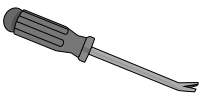
Lithium-ion polymer battery

BT
Battery

7. Pry off the Taptic Engine.



Tools Used

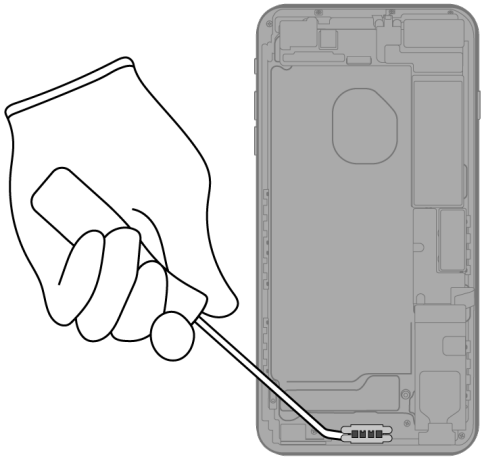


Fraction

Taptic Engine

REE
Rare Earth Elements

8. Pry off the Lightning connector.



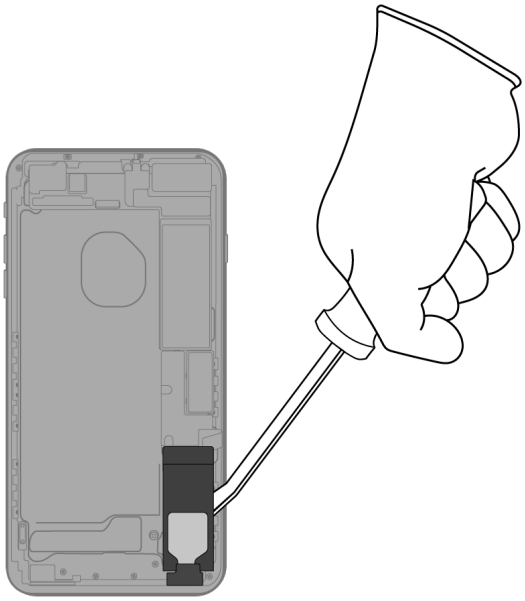
Tools Used

Fraction

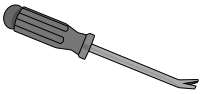
Lightning connector

Cu
Copper

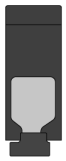
9. Pry off the speaker.



Tools Used



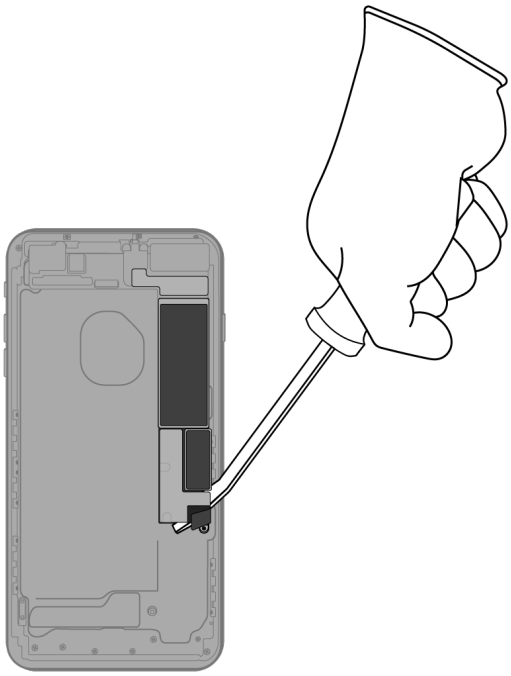
Fraction



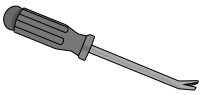
Speaker

REE
Rare Earth Elements

10. Pry off the main logic board.



Tools Used

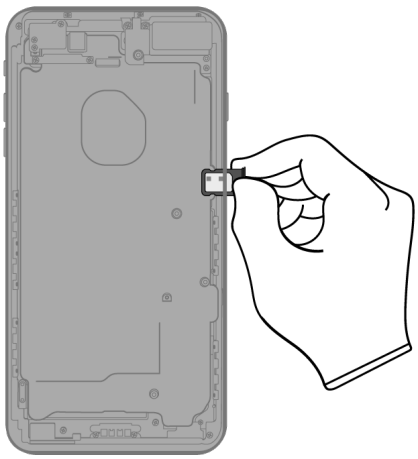


Fraction

Main logic board

PMs
Precious Metals

11. Remove the SIM card and SIM tray. Separate the SIM card from the SIM tray.



Fraction

SIM card

PMs

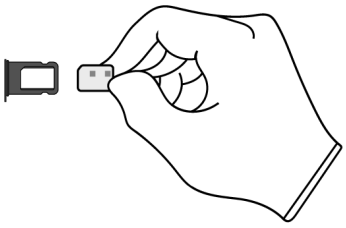
Precious Metals

Fraction

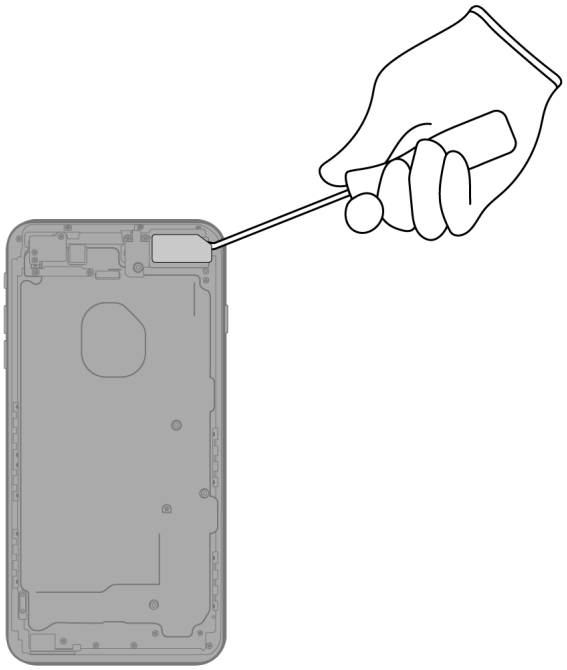
SIM tray

Al

Aluminum



12. Pry off the rear camera cover.



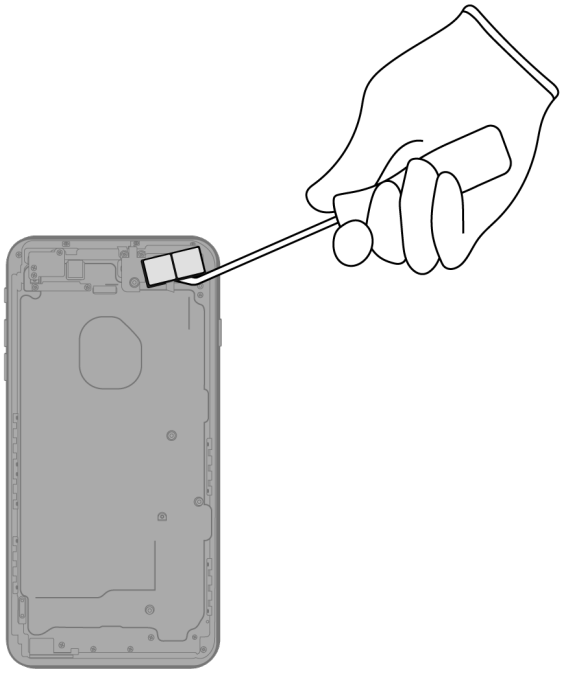
Tools Used

Fraction

Rear camera cover

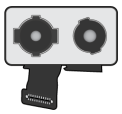
Fe
Ferrous

13. Pry off the rear camera.



Tools Used

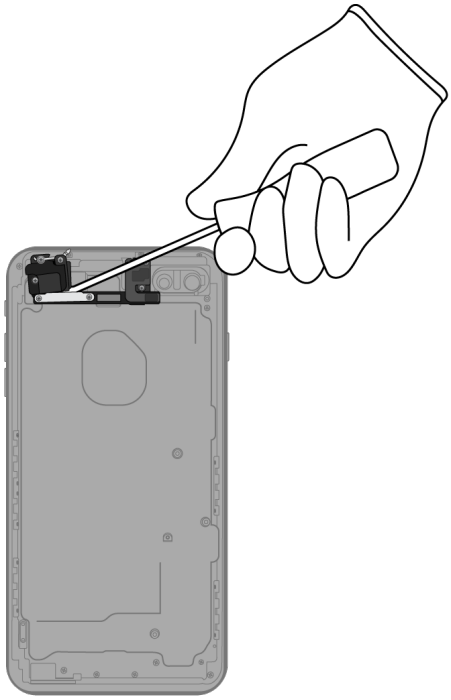
Fraction



Rear camera

PMs
Precious Metals

14. Pry off the Wi-Fi antenna and strobe.



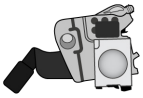
Tools Used

Fraction

Wi-Fi antenna

Cu
Copper

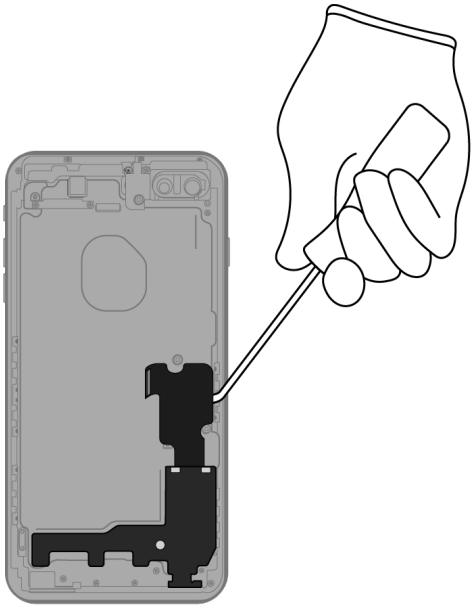
Fraction



Strobe

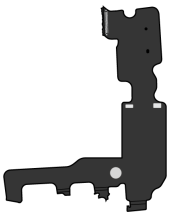
Cu
Copper

15. Pry off the ribbon cable.



Tools Used

Fraction



Ribbon cable

Cu
Copper

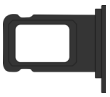
Fraction

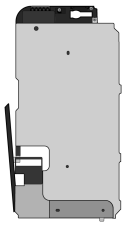
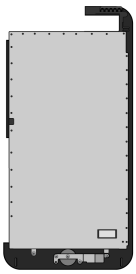
Enclosure

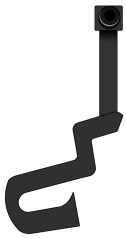
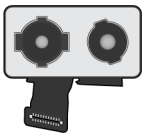
Al
Aluminum

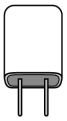
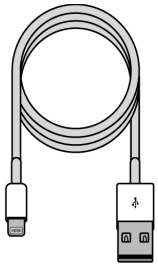
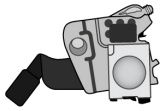
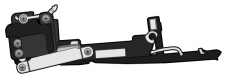
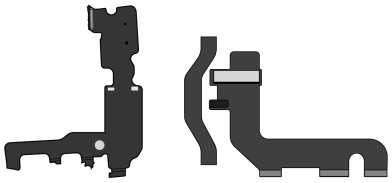
Material Categorization of Output Fractions

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
Aluminum  *SIM tray*  *Enclosure*	**Primary Target Material** Al Aluminum **Potential Additional Materials** Fe Ferrous PL Plastics
Batteries  *Lithium-ion polymer battery*	**Primary Target Material** BT Battery

Fraction	Downstream Processing
Ferrous  *Display cover*  *Rear camera cover*	**Primary Target Material** Fe Ferrous **Potential Additional Materials** PL Plastics
Glass  *LCD cell*	**Primary Target Material** GL Glass **Potential Additional Materials** Fe Ferrous, ITO Indium Tin Oxide, PL Plastics

Fraction	Downstream Processing
Logic Boards  *Front camera*  *Main logic board*  *SIM card*  *Rear camera*	**Primary Target Material** PMs – Precious Metals **Potential Additional Materials** Al – Aluminum Cu – Copper Fe – Ferrous GL – Glass PL – Plastics

Fraction	Downstream Processing
Mixed Electronics	**Primary Target Material**
 *Power adapter*	Cu Copper
 *Charge cable*	**Potential Additional Materials**
 *Lightning connector*	Fe Ferrous PL Plastics PMs Precious Metals
 *Strobe*	
 *Wi-Fi antenna*	
 *Ribbon cables*	

Fraction	Downstream Processing
Rare Earth Magnets  *Receiver*  *Taptic Engine*  *Speaker*	**Primary Target Material** REE Rare Earth Elements **Potential Additional Materials** Cu Copper Fe Ferrous PL Plastics W Tungsten