Framework Tablet Assembly Manual

by whatthefilament

Framework-Tablet

This assembly guide is intended to walk through how to assemble the 3D Printable Tablet Case for Framework Laptop.

The ethos for this project being is to make as few changes as possible to convert a Framework Laptop to a tablet form factor. In this case, I've used as many OEM Framework parts as possible.

The whole thing is held together with M3 fasteners and heat set inserts.

Supplies:

Files for printing can be found on the project GitHub:

https://github.com/whatthefilament/Framework-Tablet

To help organize parts for this project, you can also print my free Framework parts tray:
https://www.printables.com/model/253099-framework-parts-tray

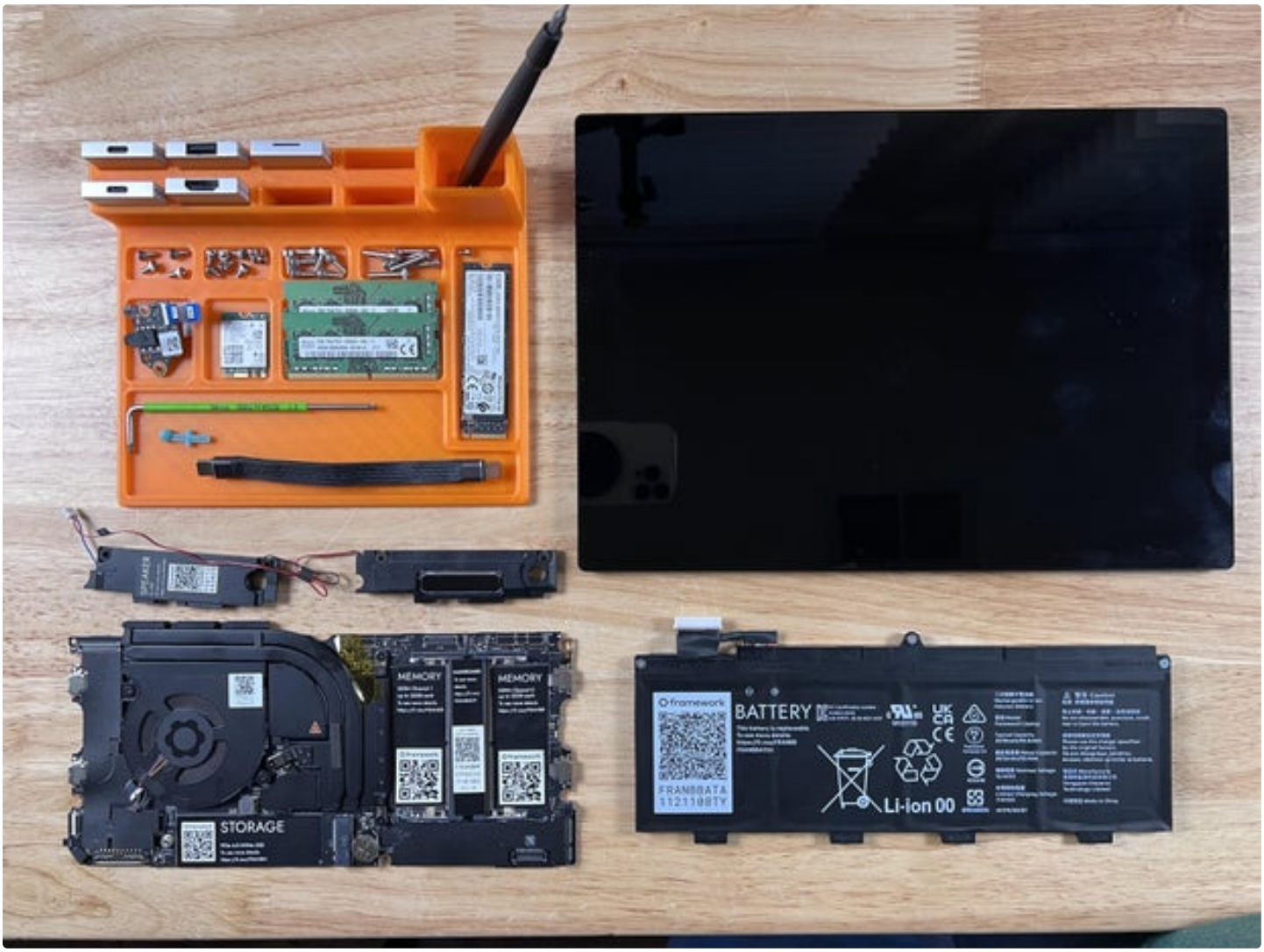
For assembly, you will need the following:

- 25 - M3 heat inserts (short)
- 8 - M3 x 4mm screws
- 7 - M3 x 8mm screws
- 6 - M3 x 16mm screws
- 4 - M3 x 5mm screws

This tablet case is based on a 12.3-inch display (https://www.amazon.com/gp/product/B08P1M54G6/ref=ox_sc_saved_title_4?smid=AA3SELAX5GFYF&psc=1)

To connect the display to the Motherboard, you will need a USB C 3.1. The cable must be able to provide power, data, and input. I used the following:

USB C Cable - https://www.amazon.com/dp/B09PTYKV6N?psc=1&ref=ppx_yo2ov_dt_b_product_details



Step 1: Print Parts

Print Settings:

- I recommend printing all case parts of either ASA or ABS as this provides the best heat resistance.
- This case is designed to be printed at 0.2mm layer height with a 0.4mm nozzle.
- No printed supports are needed. All holes have built-in supports. STLs are properly oriented for correct printing.

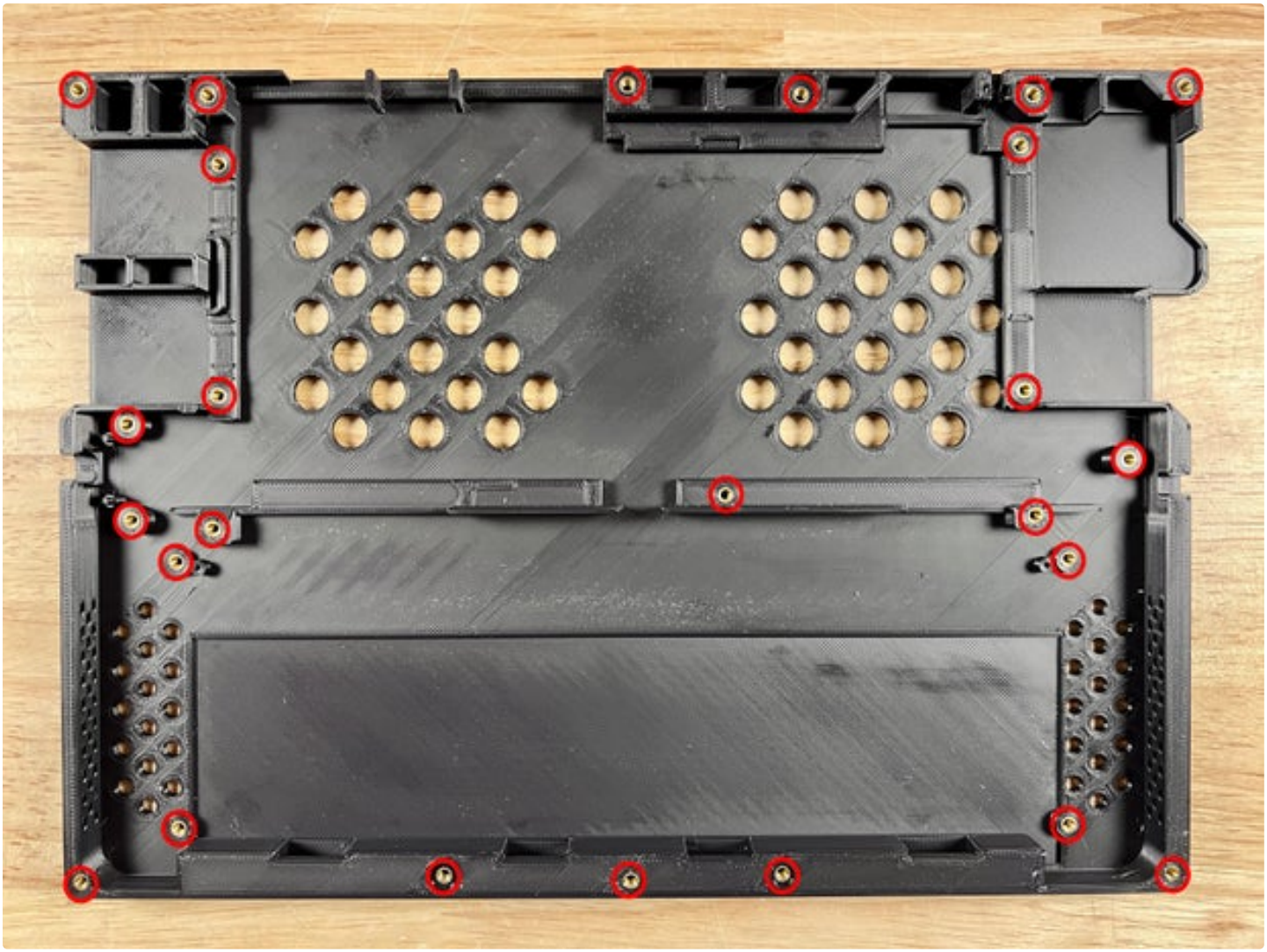
The case is 317.2mm x 224mm x 24.6mm, so you will need a printer that can accommodate that size. I printed mine on a Voron 2.4 350mm.

Step 2: Back Case Heat Set Inserts

In the picture above, you can see the highlighted location of the 25 M3 heat-set inserts in **RED**

Please note the following:

- This case needs short heat-set inserts. The ones I use have a length of 4mm. Any longer, and they will stick out too far.
- The four heat set inserts used for the speakers that are highlighted in yellow have minimal plastic clearance below them, so be careful not to push too far. The plastic melts quickly and can deform the back of the case.
- A soldering iron temperature of 250C is recommended if the part is printed in ASA or ABS.



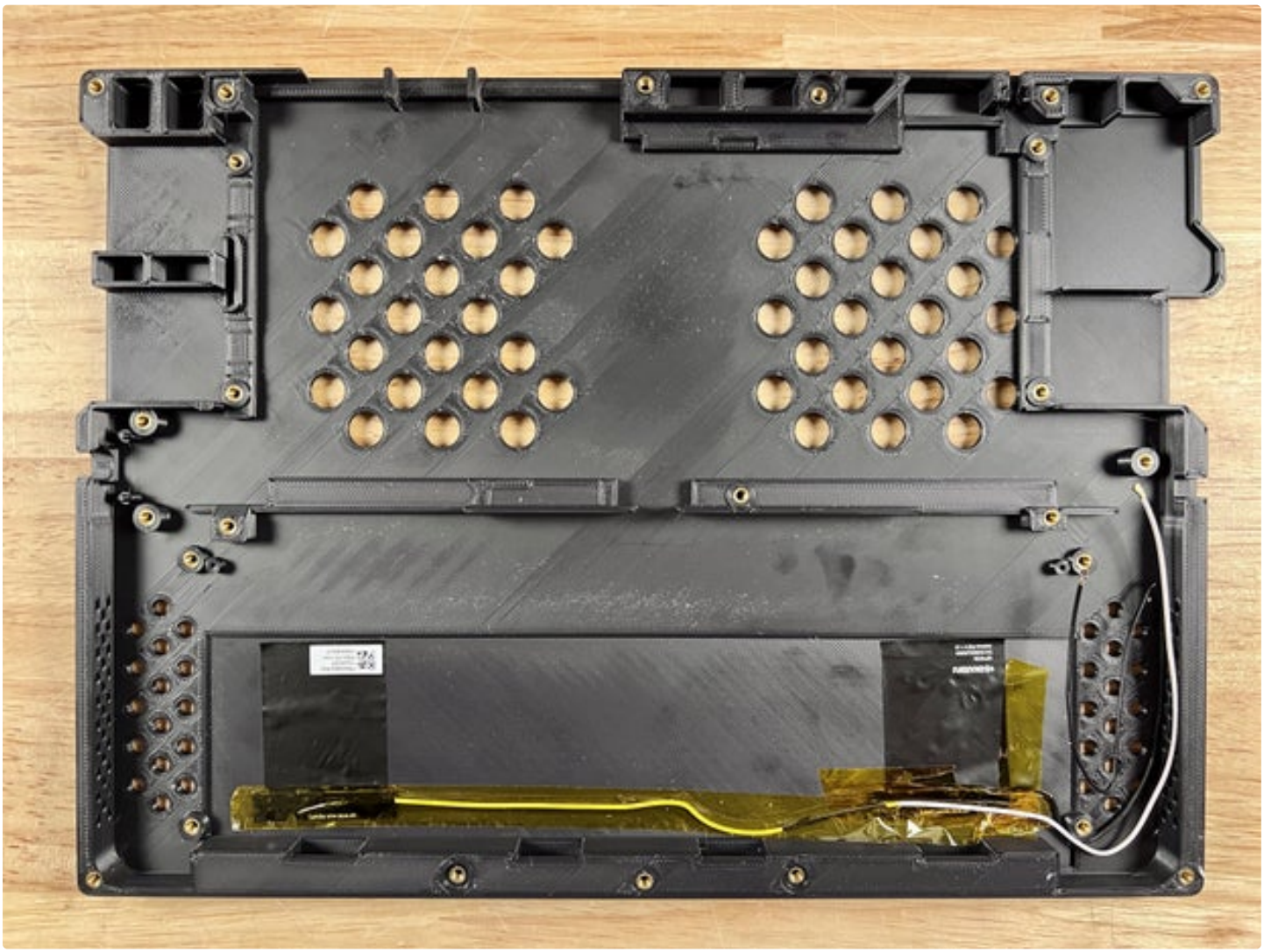
Step 3: Wifi Antenna Installation

To install a wifi antenna in the tablet, you will need to remove the antenna from the OEM antenna bracket.

- This can be done by pealing the adhesive carefully and slowly.
- **Do not** pull the cables out of the bracket before pealing the antennas from the OEM bracket. The wires are held onto each pad with a very small contact patch and can VERY EASILY be ripped off from the antenna pads. The bracket helps hold them in place while pealing the antenna pads from the bracket.
- Once the antennas are pealed from the OEM bracket, you can then cut the bracket to remove the cables easily.

After the antennas have been removed from the OEM bracket, they can be placed in the back case, as seen in the picture above.

- Use the pictures as a reference for routing the wifi antenna wires
- Each antenna pad has adhesive on the back that can be used to place them and hold them in place.
- I recommend using either Kapton tape or electrical tape to secure them a bit more and protect them from rubbing against the battery.

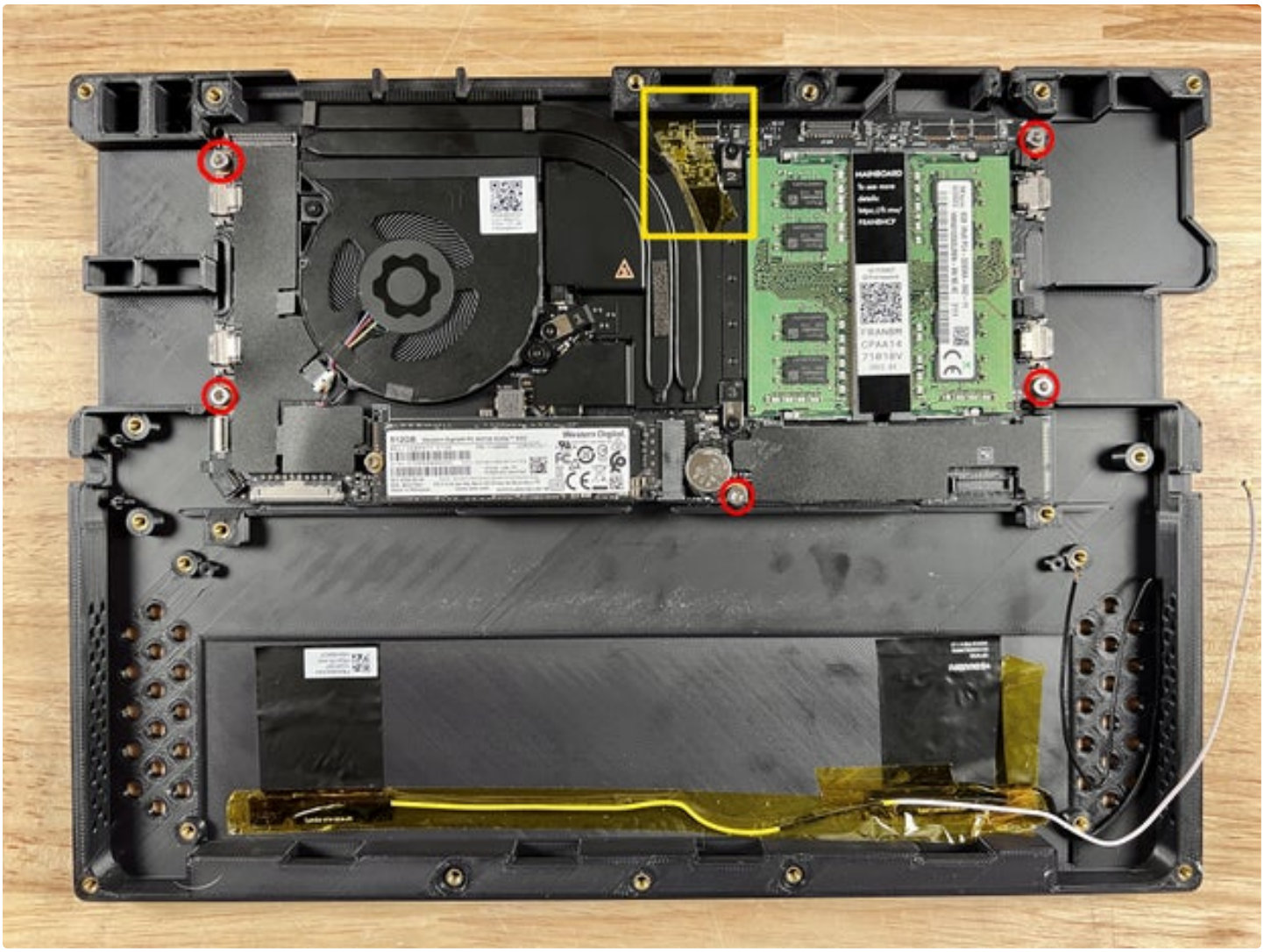


Step 4: Mainboard Installation

The mainboard can now be placed in the case as shown in the picture above.

- The board is held in place by 5 M3 x 4mm screws as highlighted in **RED**.
- Make sure your RAM and SSD are installed at this stage as well.

TIP: While not necessary, it is highly recommended to compress the case detection switch with Kapton tape. You can see this highlighted in **YELLOW** in the picture above. While you can use any tape to compress the switch, it is recommended to use Kapton as the adhesive will not break down due to the heat produced by the mainboard. If you do not compress this switch, the board will flash red whenever it is turned on.



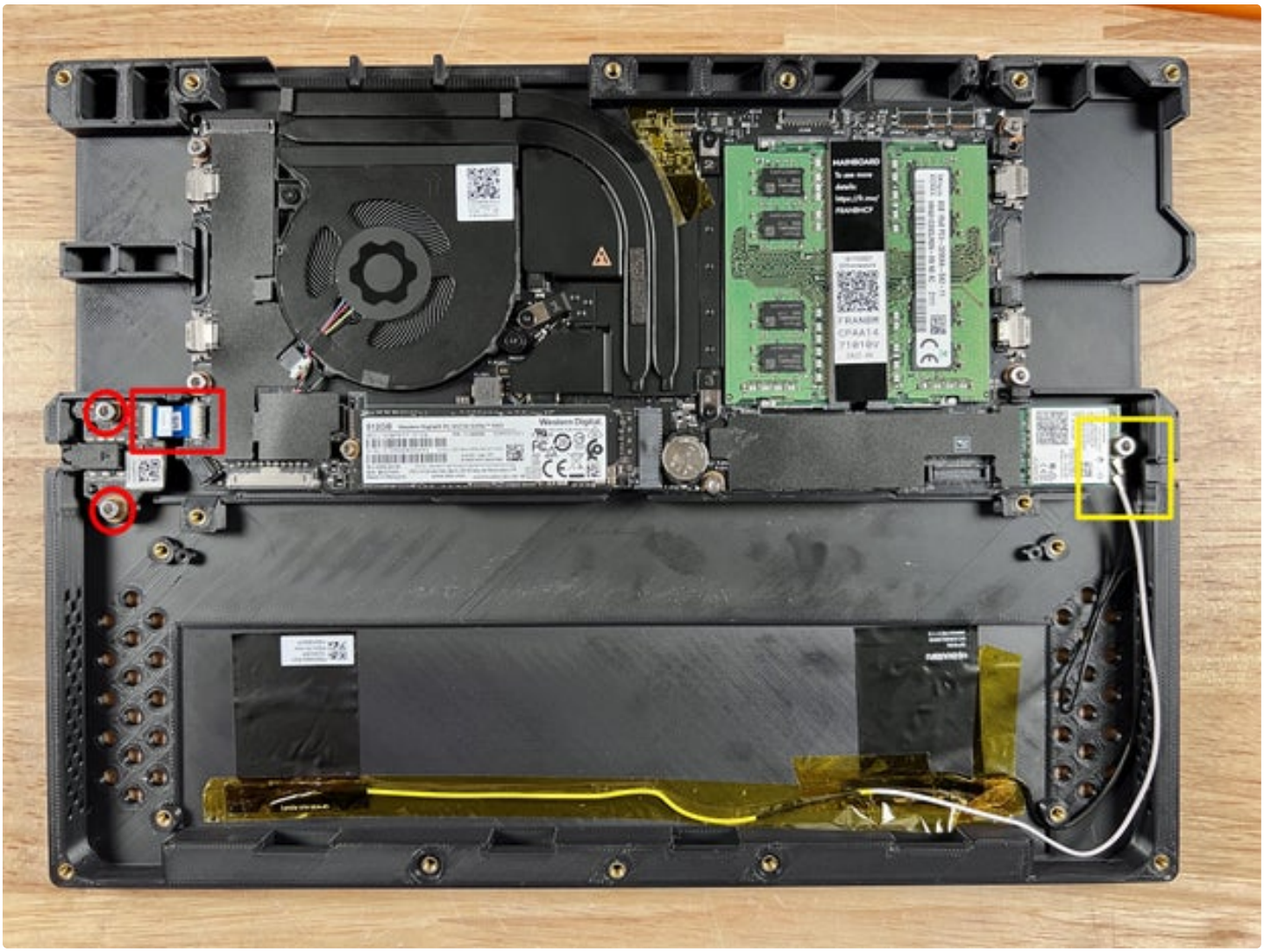
Step 5: Wifi and Audio Board Installation

The audio board is mounted on the left of the mainboard, as highlighted in **RED**; it is secured with 2 M3 x 4mm screws.

- Do not forget to plug in the audio board cable to both the audio board and mainboard at this step.

The wifi board is mounted on the right of the mainboard, as highlighted in **YELLOW**; it is secured with a single M3 x 4mm screw.

- Attach both the black and white antenna cables to the appropriate terminals at this step . This is labeled on the board with a white and black triangle next to each terminal.
- You may also have some spare cable that can be folded and will be tucked behind the speakers in the next step.

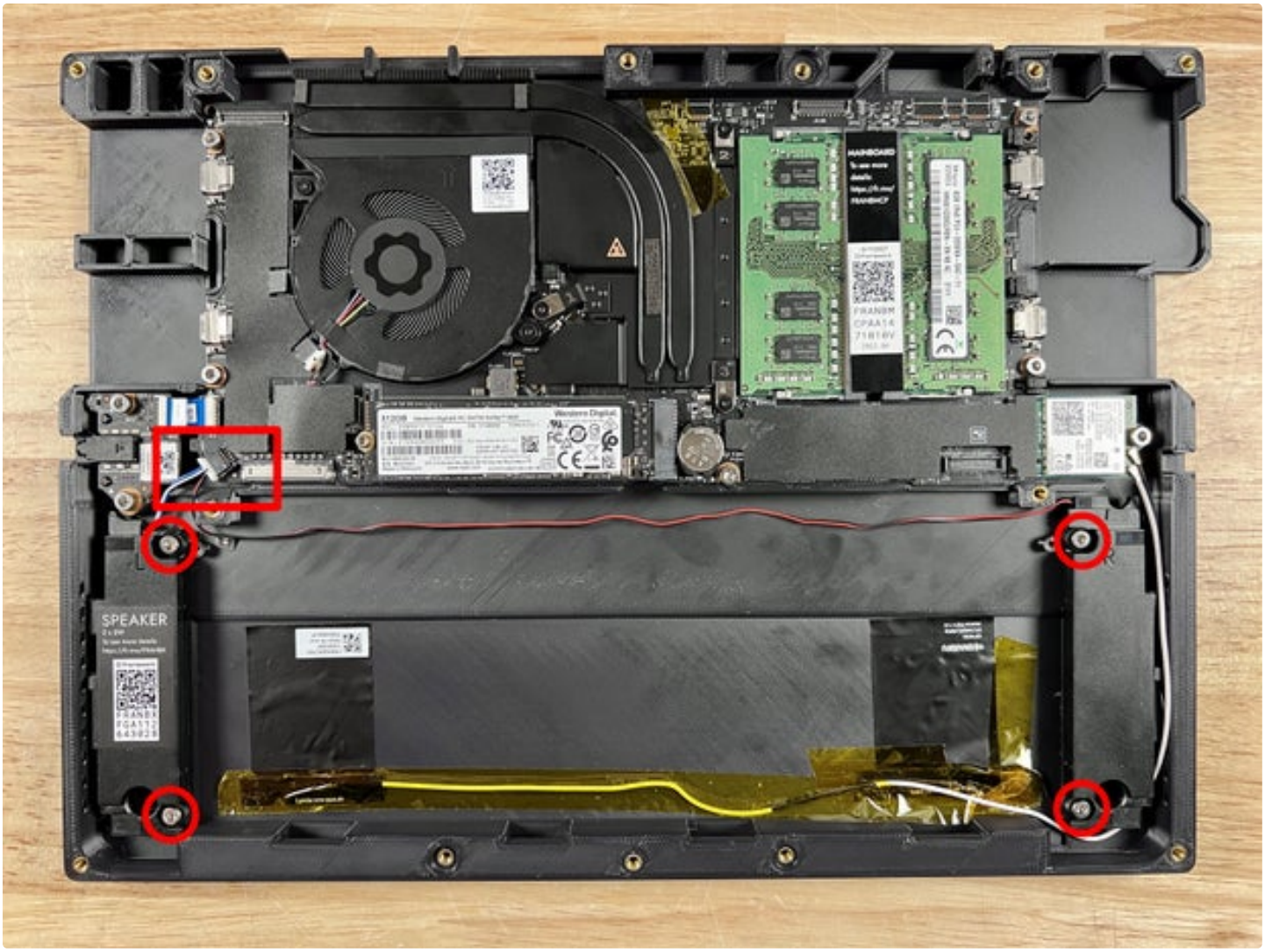


Step 6: Speaker Installation

Each speaker is held in place with 2 M3 x 5mm screws. (4 in total)

- The speakers have markings for left and right, which coincide with the side of the case they are installed on.
- If you do not see these markings, the speaker with the short wire is installed on the left.
- **Do not overtighten the screws,** as the speakers have rubber grommets that allow them to be isolated from the rest of the chassis.

Once secured in the case, connect the speaker wire to the mainboard as highlighted in **RED** in the picture above.

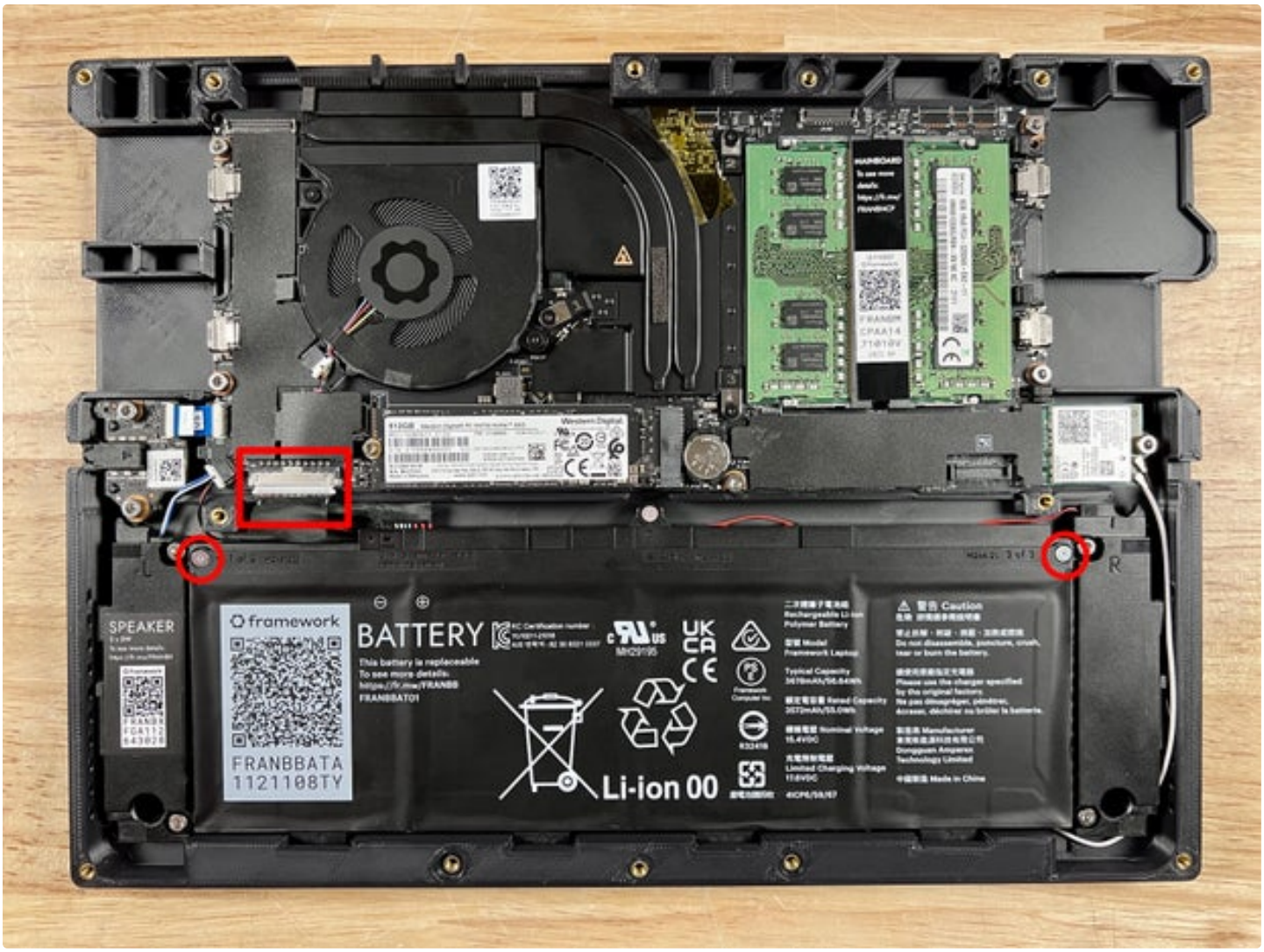


Step 7: Battery Installation

The battery sits in the bottom case exactly as it does in the Framework laptop. You will slide the bottom tabs into the retaining slots on the bottom of the case and secure using the stock screws that are pre-installed in the battery. They will cut their own threads into the plastic.

Do not forget to plug the battery into the mainboard at this step as well.

Please note: Only the two outer screws are used to hold the battery in place. The center screw is not used.

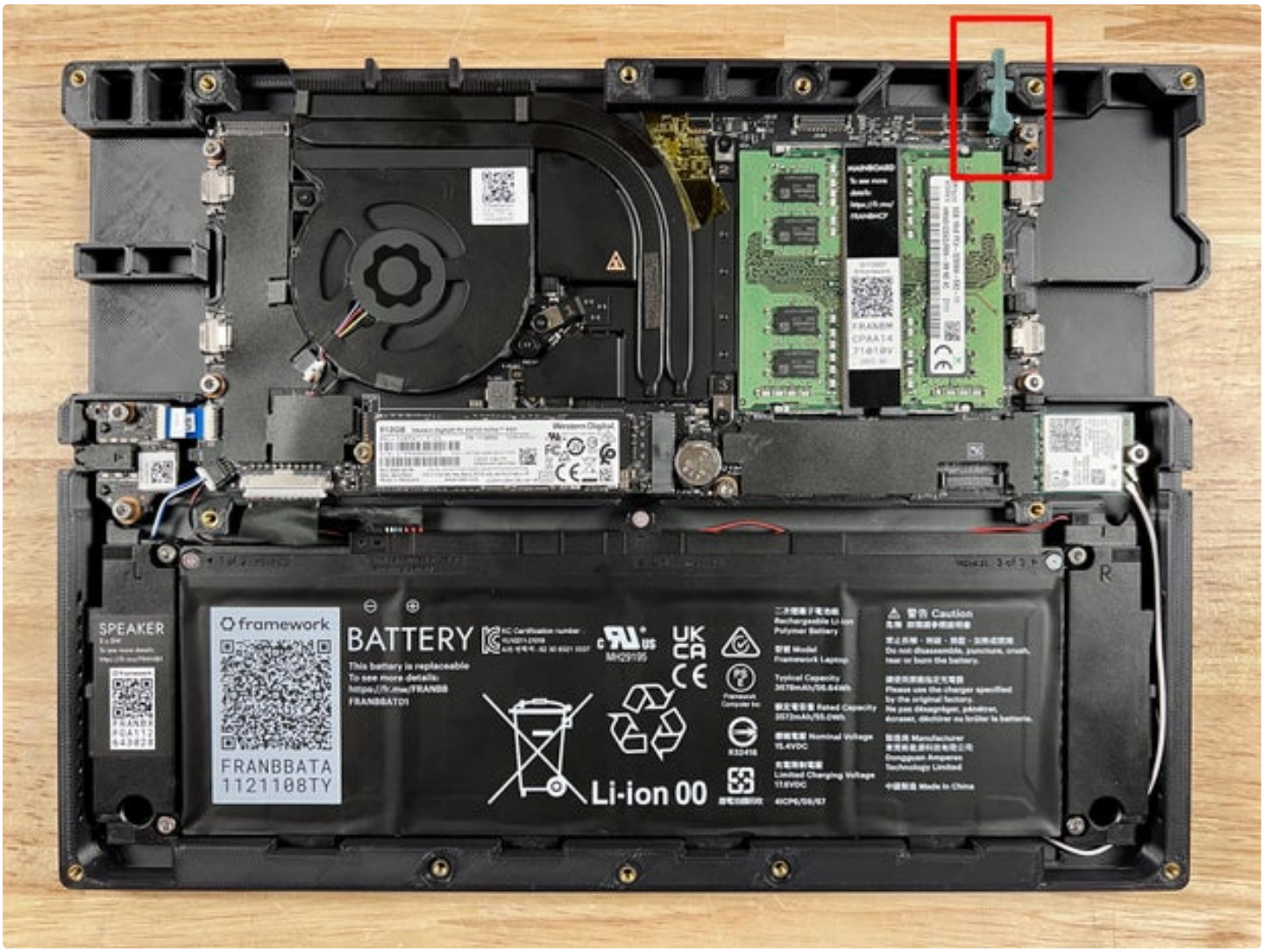


Step 8: Power Switch

The power switch is placed in a small cutout on the top right of the back case. Please make sure to install the switch with the flat side facing up.

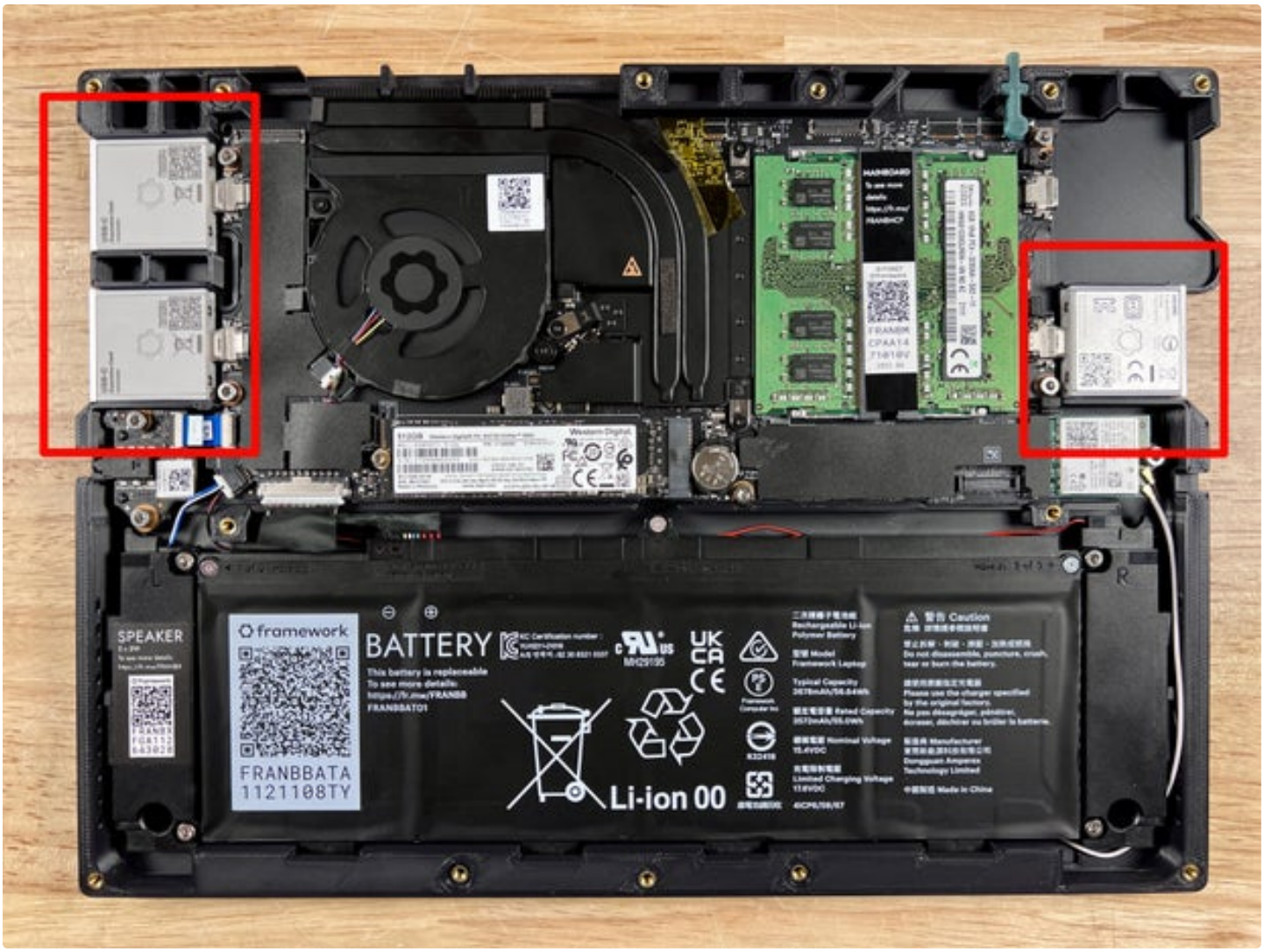
- The round ball on the end of the switch is intended to contact the power switch on the mainboard.

Please note: The switch is held in place with the case divider. The switch can easily fall out if the case is flipped or moved before the case divider is installed.



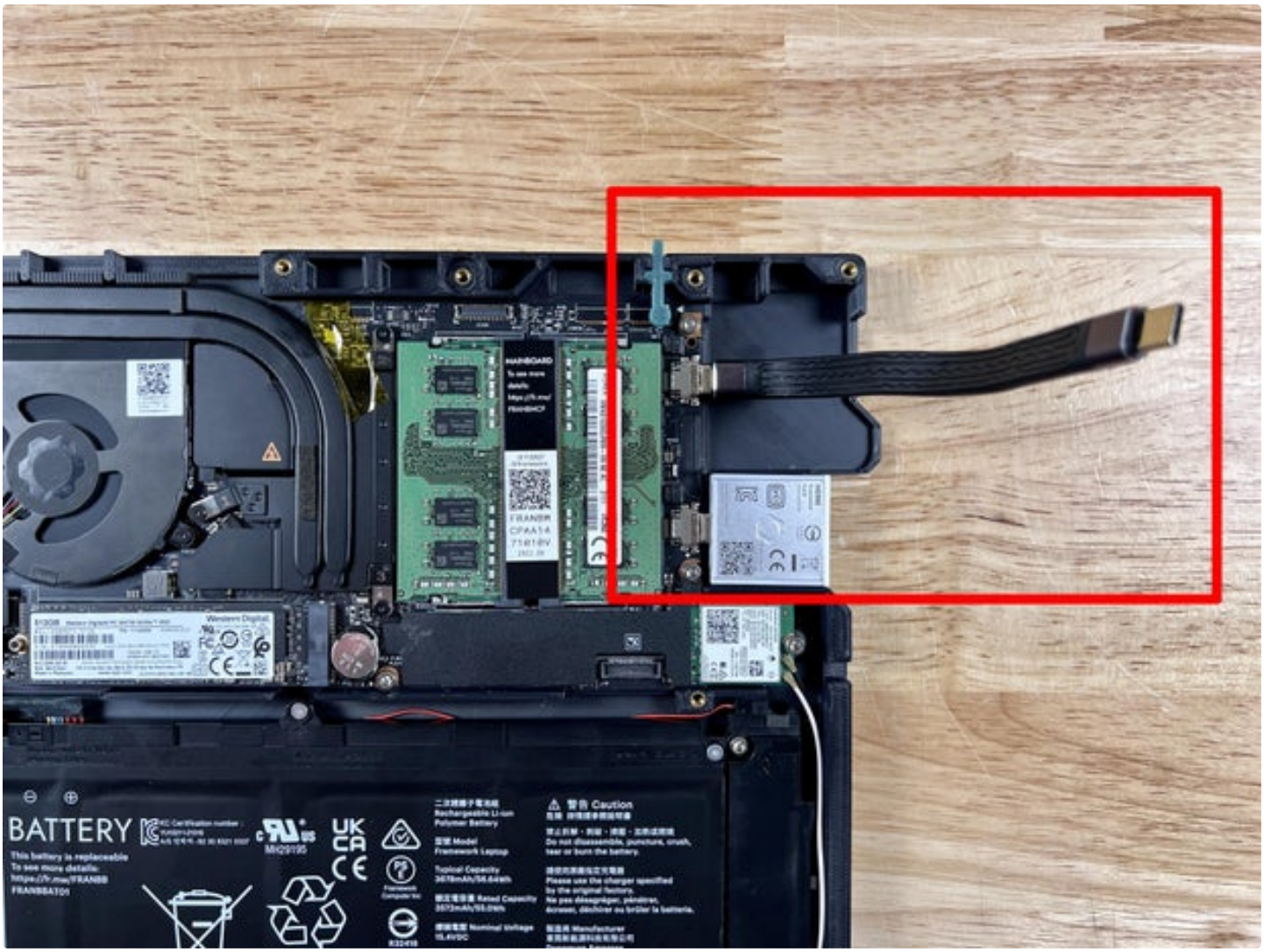
Step 9: Expansion Cards

At this point, you will want to install your three expansion cards of choice.



Step 10: Display Cable

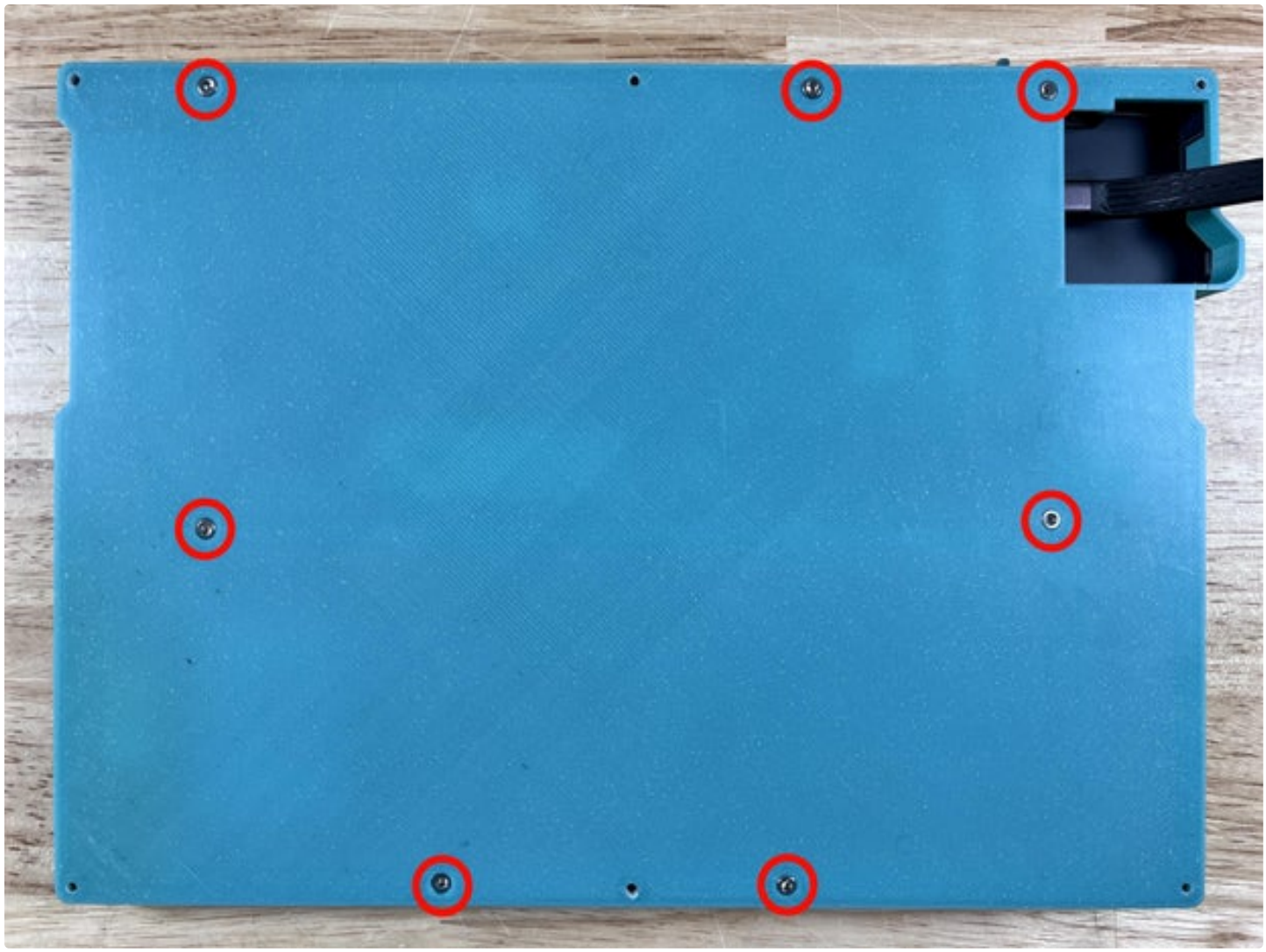
You will now want to connect the flexible USB C cable to the top right expansion port.

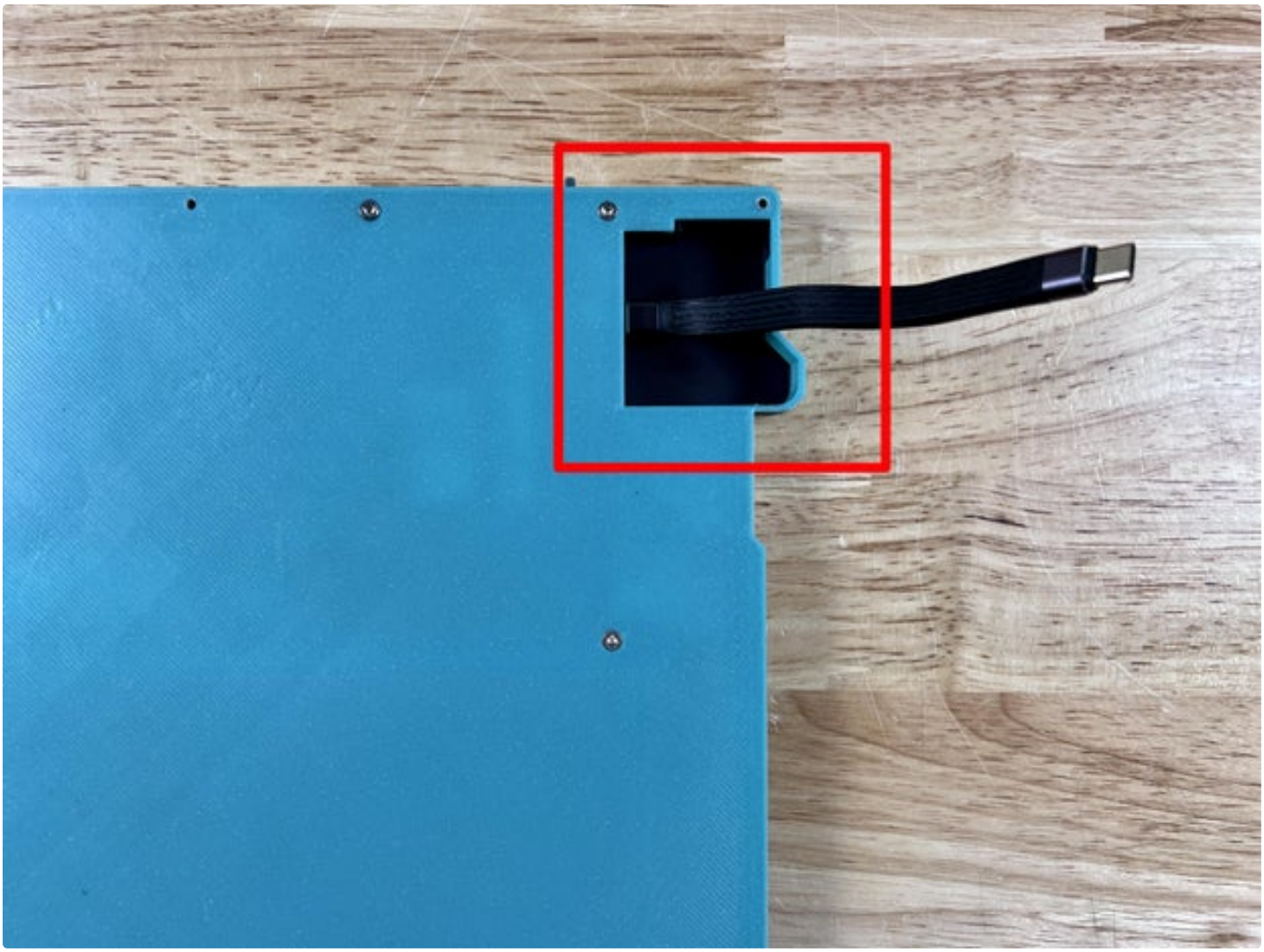


Step 11: Case Divider

With all components installed into the back case, you can install the case divider to protect the internal components from the touch display.

The divider is held in place with 7 M3 x 8mm screws highlighted in **RED**. Ensure when installing the divider that you route the USB C cable through the hole in the divider.





Step 12: Display

Connect the display to the tablet using the USB C cable

Step 13: First Boot

I recommend you boot the tablet at this point using the switch before installing the top case.

- Booting at this step will allow you to ensure everything is working correctly, making it easier to dissemble if something needs to be fixed.
- You may also need to unplug and replug the display to get the board to recognize it on the first boot.

Please note that the display output may be flipped on the first boot If it is needed in the Windows setting menu under display settings, you can rotate the output to display in your preferred orientation.

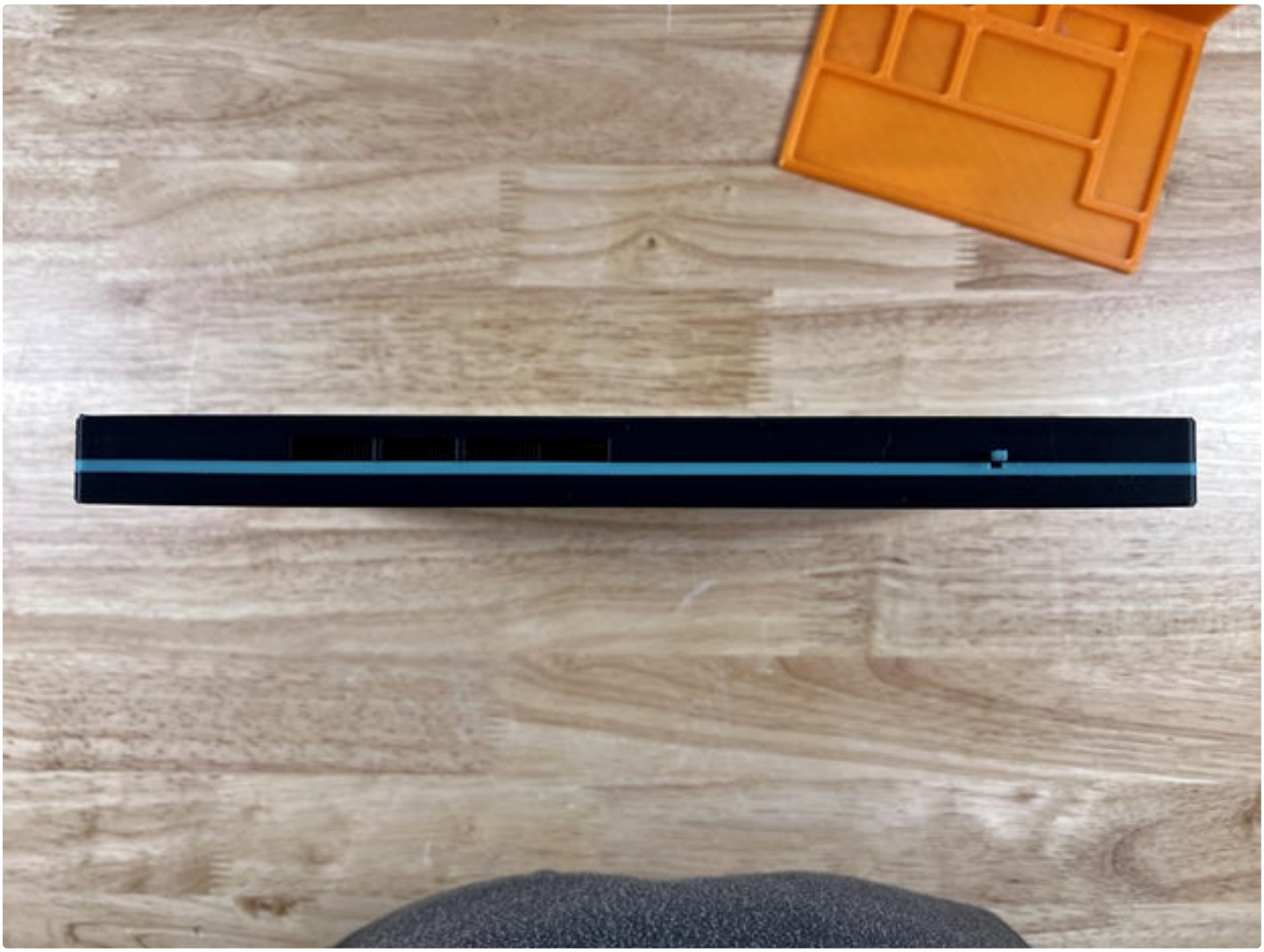
- You may also want to make the touch keyboard available in the taskbar, as this will make it easier to locate the keyboard if it does not load on its own when you are attempting to type

Step 14: Top Case

Once all operations above are completed and you have confirmed all functions are working, you can install the top case/display retainer.

- The top case is held in place with 6 M3 x 16mm screws.
- The USB C cable is flexible and can be folded on top of itself and pushed inside the case opening to align the top case properly.

Step 15: Assembly Complete!

Congratulations! You now have a functional Framework Tablet!

I hope you enjoyed this build. Be sure to let me know if you have any recommendations for improvements to the build.