



Technology: The (nearly) perfect USB cable tester does exist

POSTS

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As probably everyone reading this blog, I have a lot of USB cables. I want to sort and categorize them. What the cable can and cannot do is an important factor. But how do I really find out what a cable supports? As I found out during this quest, your cable may successfully lie to your PC.

Previous attempts

I always thought: The perfect USB cable tester doesn't exist. Until now I used a cable tester that used LEDs that show the status of a USB cable.



This came with one major annoyance: every time I had to retrieve the manual what that specific pattern implies.

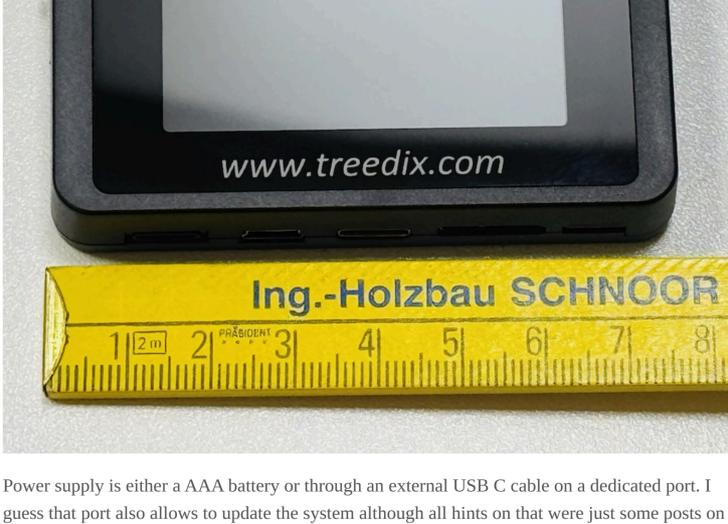
At least for USB C cables I thought I had found a very clever way to determine what speed was supported:

- I used it to connect a device that supported 20gbps (e.g. a SSD)
- Then I looked up what `system_profiler SPUSBDataType` on macOS told me about the connection speed.

At that point I discovered: my cables keep lying to my PC. The cable tester showed that a speed above USB 2.0 was physically impossible, but macOS still was happily reporting to have that disk connected with 10gbps. Some tests reading/writing that disk confirmed that "something is rotten in the state of Denmark USB."

The Treedix USB Cable Tester with 2.4" Color Screen

Then one day I stumbled over the [Treedix USB Cable Tester with 2.4" Color Screen](#). It pressed all my buttons: wide range of supported plug types, clear and easy to parse information and a real deep dive what your cable says it does.



Power supply is either a AAA battery or through an external USB C cable on a dedicated port. I guess that port also allows to update the system although all hints on that were just some posts on Reddit.

What kind of cables can it check?

- Side A: USB-A or USB-C

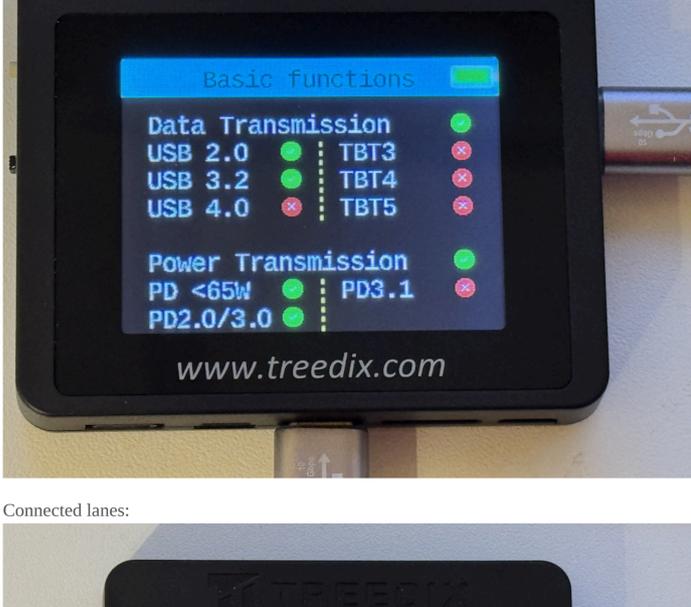


- Side B: USB-C, Mini, Micro, Micro-B



The device has a mode button with which you can cycle through different modes:

- Data and Power modes:



- Connected lanes:



- Resistance values:



- Cable eMarker

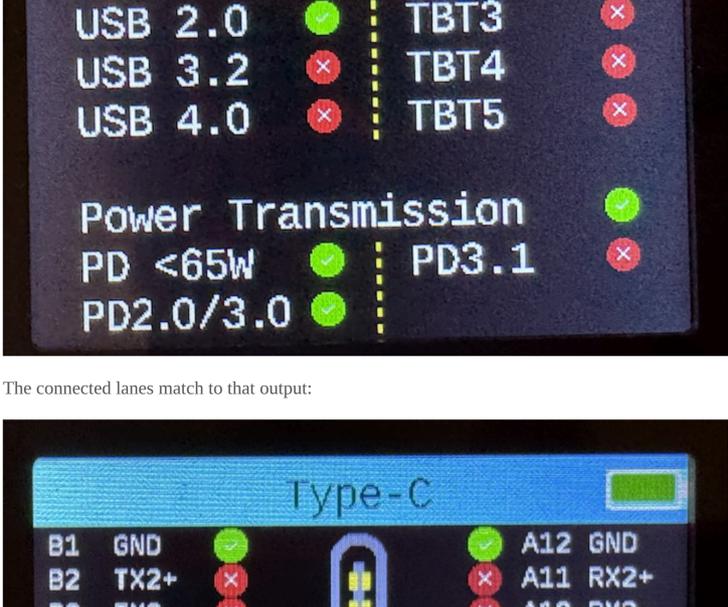


This is pretty easy to understand... or so it seemed.

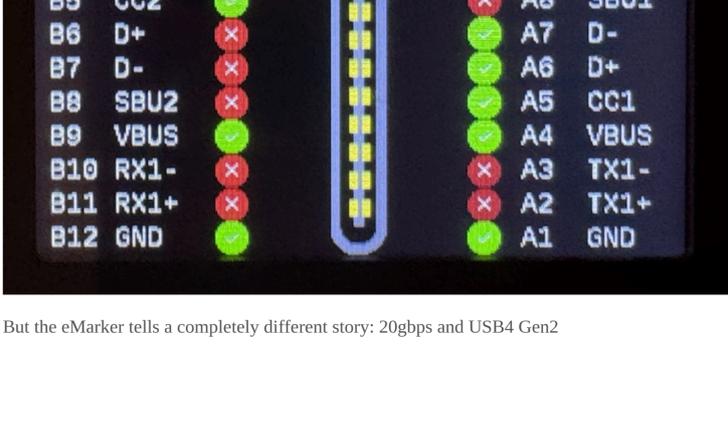
My experience

Then I started rating my cables. One of the cables that I expected to be rated quite high showed a contradictory output:

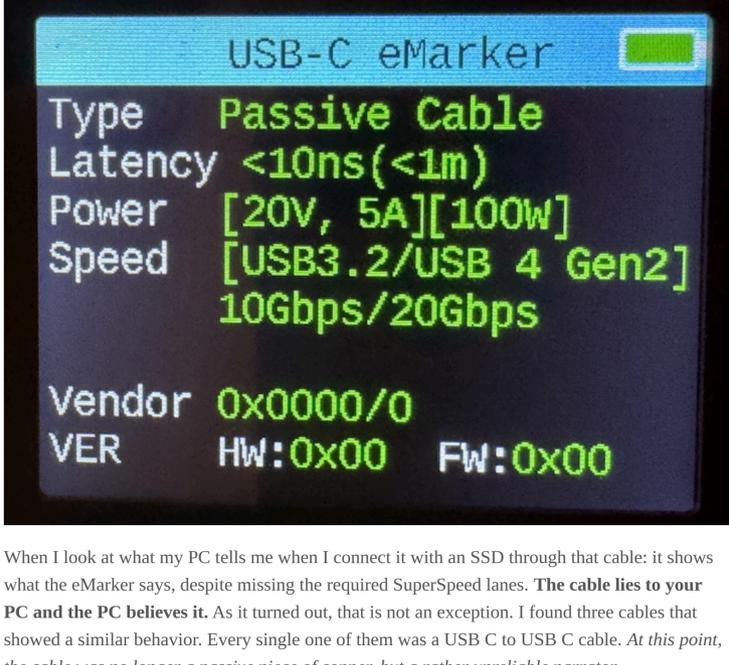
Data and Power modes are USB 2.0 and PD 3.0:



The connected lanes match to that output:



But the eMarker tells a completely different story: 20gbps and USB4 Gen2



When I look at what my PC tells me when I connect it with an SSD through that cable: it shows what the eMarker says, despite missing the required SuperSpeed lanes. **The cable lies to your PC and the PC believes it.** As it turned out, that is not an exception. I found three cables that showed a similar behavior. Every single one of them was a USB C to USB C cable. *At this point, the cable was no longer a passive piece of copper, but a rather unreliable narrator.*

Identifying those cables already paid for the USB cable tester. I had a lot less “high quality” cables than I previously believed.

I developed based on the result a marking standard for my cables and a method to sort them. But that is a story for another post.

The only downside of the USB cable tester is that I would love to support more plugs on the B side: USB-A (for my Frankencables) and USB B (which everyone but seems to think extinct).

Overall I am very, very happy with this USB cable tester and can only recommend it. It costs about 45 US\$.

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