Uncategorized (yet)

Stuff that I have nowhere else to put.

- T-Mobile Prepaid eSIM - how to set-up from abroad
- Night Shift, f.lux and LCD/OLED display

T-Mobile Prepaid eSIM - how to set-up from abroad

What's my goal with this? I needed an actual U.S. phone number for occasional use **outside the U.S.** that doesn't cost a lot and that I can keep for a long time (so that I can use it, for example, with my U.S. bank).

This is achievable with the U.S. T-Mobile eSIM and can be done completely from abroad (with some caveats).

Requirements

- iPhone with eSIM support (iPhone Xs & up)
- valid payment method (see below)
- VPN provider with U.S. destination (I use TunnelBear, it has 500 MB free each month which is plenty for this)

Valid payment method is a credit/debit card from one of these countries: United States, Canada, Denmark, Germany, United Kingdom (full list to come) etc. You can use your friend's card, too; it's simply needed to fill up the account with credit which is then used to purchase the prepaid plan.

Note: Revolut, Wise, Curve and other prepaid-like cards won't work (I tried).

Set up with T-Mobile

1. Download the **T-Mobile Prepaid eSIM** app (AppStore link), do not open the app yet.
2. Connect to a U.S. VPN (otherwise you won't get past the first step in the app)
3. Open the app and set-up the number:

   - Put in your (real) email.
   - At *Primary place of use*, choose a ZIP that matches the area code you want in your number.
   - Select the cheapest $10 prepaid plan (scroll all the way to the bottom).
   - Enter credit card info for payment.
   - Choose PIN and submit. If they payment goes through, voilà, you are almost set.

4. Install the eSIM in your iPhone as per the instructions.

Connecting to the network

First thing that needs to be set up is enabling **Wi-Fi Calling**. You'll find it in **Settings → Cellular (Mobile) → (tap onto the new eSIM line) → Wi-Fi Calling** → set it from **Off** to **On**. You will be prompted to fill out U.S. adress for e911 purposes. Then make sure that **Data Roaming** in the line's settings is **Off** (which it should be by default).

Once all that is done, follow these steps exactly:

1. Turn off the new eSIM line.
2. Turn on the *Airplane Mode*.
3. Turn off the iPhone.
4. Turn on the iPhone.
5. Make sure the phone is still in the Airplane Mode (but with WiFi turned on).
6. Turn on the new eSIM line.

The phone should now connect to a "cellular" network called "**T-Mobile Wi-Fi**" and you should be able to receive and make calls and texts over Wi-Fi. Turn the line back to **Off** before leaving the Wi-Fi you are on, otherwise you'll need to repeat these six steps. (source for this workaround, relevant reddit discussion and another one)

Setting up the T-Mobile ID

Now I'd recommend setting up the rest of the **T-Mobile ID** account, which will also allow you to test whether receiving of the text messages is working.

1. Go to https://account.t-mobile.com/, select "Sign up" and fill out your stuff: name, email and the new phone number you just got.
2. Confirm with code from email, and then (moment of truth) from the text message.
3. Finally verify with PIN that you chose when you had set up the eSIM earlier.
4. As a last step, I recommend setting up the 2-factor authentication as prompted.

If you'll be making payments through the website from abroad, use VPN again, without it there will be errors again when adding balance to the account ("Unable to process the request due to technical issues at server side processing") despite using a U.S. card.

Switching over to pay-as-you-go plan ($3/month)

The eSIM's fine print mentions: "*If balance is insufficient to renew all lines on your account for 120 days, all lines will be suspended for 30 days. If you have an account balance, all lines will convert to Pay As You Go for 30 day increments with $3/mo. for 30 voice min./SMS messages.*"

- Option 1. If you can go without the number for 120 days, you can just wait. Put some credit onto the account though, so it doesn't get suspended (but less than $10 to not start another month of the prepaid plan). And then just wait.
- Option 2. Contact the care team on 800–937–8997 (recommended on the chat support, where they cannot perfrom the change directly).

Thirty minutes of calling and some text messages is plenty for what I need—access to my American (and Canadian!) accounts, even some wiggle room to call up their phone support of need be.

I have not yet tried either. Will update eventually, maybe.

Night Shift, f.lux and LCD/OLED display

Facts

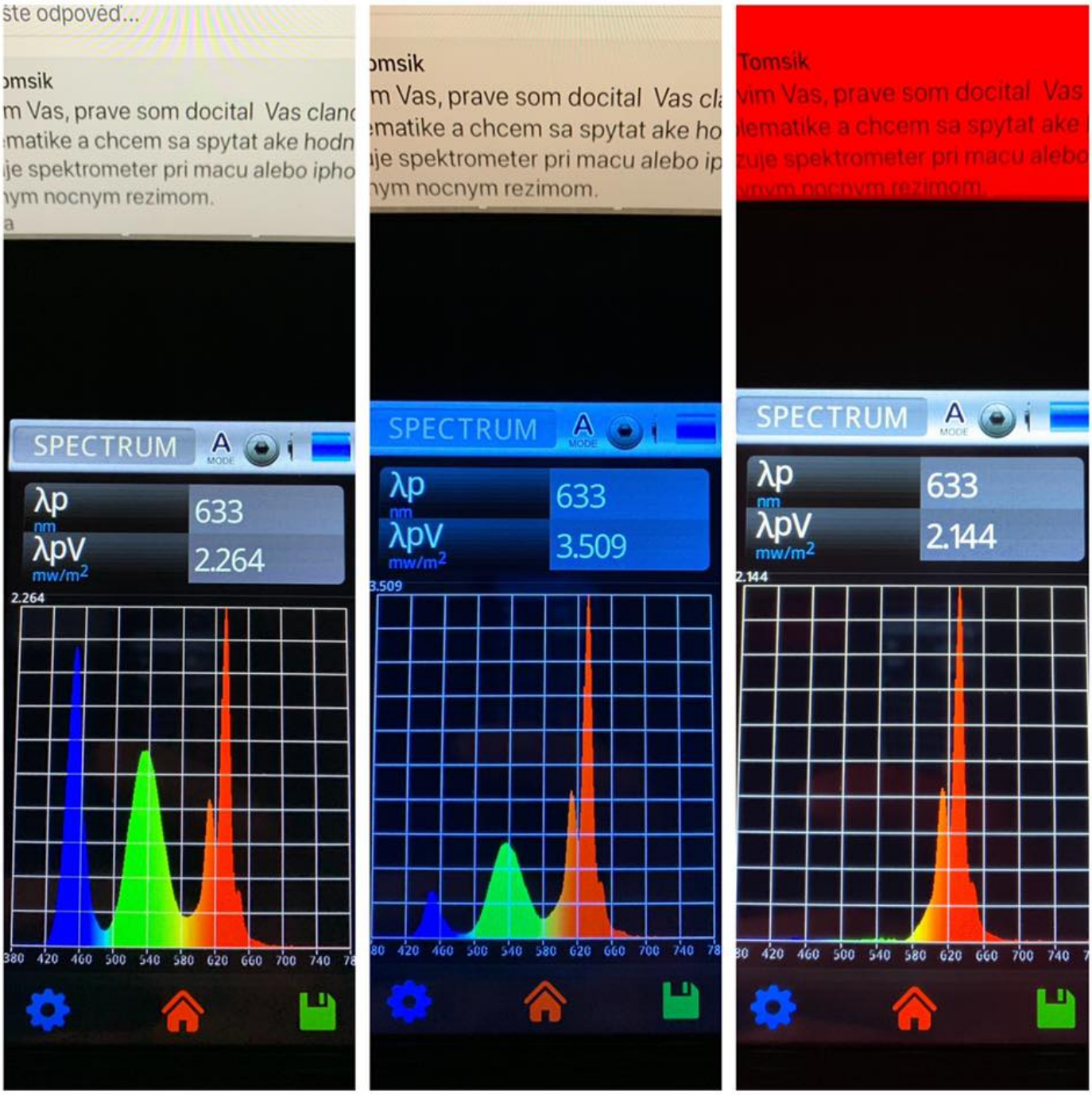
- LCD displays (majority of screens, TVs, monitors) use LED backglight at 5500K – with the color spectrum of a sun at mid day. The only thing that diffuses this light into one not containing blue light spectrums is thick piece of red filter (such as laser safety glasses that block wavelengths roughly from 190 to 550 nm). The display itself is not capable of doing that fully.
- OLED displays are made of individual red, green and blue pixels, that are emitting light from themselves – i.e. if such display displays a color that contains no blue color, there is no blue light, because no blue pixels light up.

What does this mean?

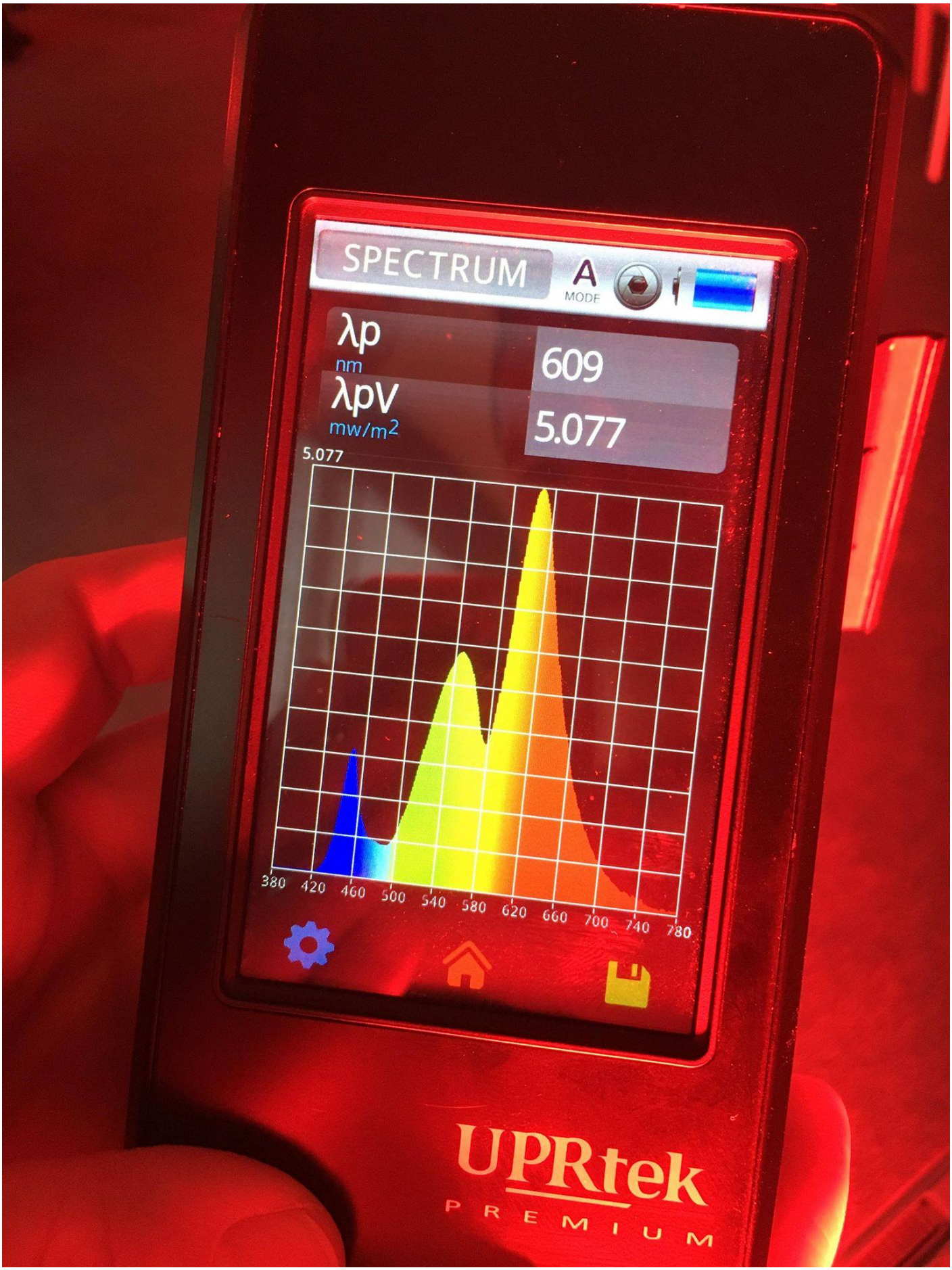
- Night Shift, f.lux etc. only make the image **easier on the eyes in the evening**, but they still **do emit blue spectrum of the light (cca 420-500 nm)**. And that's both on OLED and LED displays by nature.
- **Red filter** – on **OLED displays, it actually blocks the blue color completely**, so that the blue pixels do not light up at all and thus we actually get an image that does not contain blue (420-500 nm) and even (less critical) green wavelength (500-580 nm). Thus, the OLED + red filter combination is **the only one that can be safely used at bedtime** knowing that, at a minimum, the cell phone will not interfere with melatonin secretion. Just beware that 1) if we read an email on that cell phone that we totally screwed up a project at work and I have go explain to the boss in the morning, the quality of sleep is screwed anyway (i.e. in an ideal world, we turn off our cell phones at 7:30pm and go read under a verified light bulb for an hour and a half...)
- **Red filter + LED displays? (pre iPhone X)** – still contains a lots of both blue and green light. See photos below.

Light spectrums

Comparison of iPhone X: normal / Night Shift / Red Fiter:



Red filter on iPhone 8:



References

- spectometer pictures are (c) Hynek Medricky
- take it from the scientists, too: *„Across our full study sample, there were no differences in sleep outcomes attributable to Night Shift. For individuals who regularly obtained adequate sleep, abstaining from screen use resulted in better quality sleep than did phone use with Night Shift enabled.“* (**study:** Does iPhone night shift mitigate negative effects of smartphone use on sleep outcomes in emerging adults?)
- Where to find Red Filter on iOS? --> see here