

fNIRS Phantom

Troubleshooting tool
for Cortivision fNIRS

(version 2024.1.1)

CORTIVISION

Cortivision sp. z o.o.
al. Warszawska 47,
20-803 Lublin
+48 606 723 359
support@cortivision.com
www.cortivision.com

Phantom - potential diagnostic tool for C20 Photon and C23 Spectrum



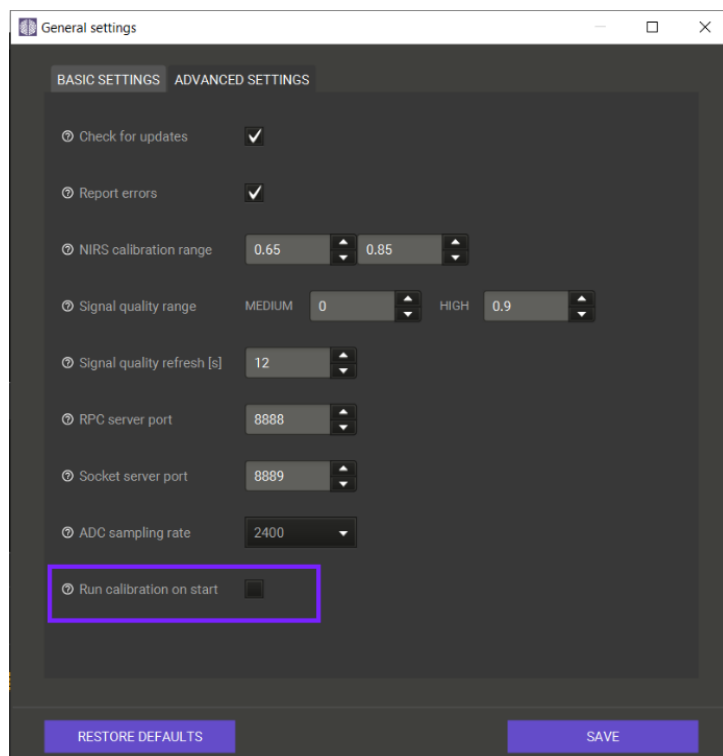
Description of the Phantom and main functionalities

A **phantom** simulates and replicates the optical properties of biological tissues, particularly brain tissue. It absorbs and scatters infrared light under controlled conditions that closely resemble those of brain tissue, making it an essential tool in optical diagnostics.

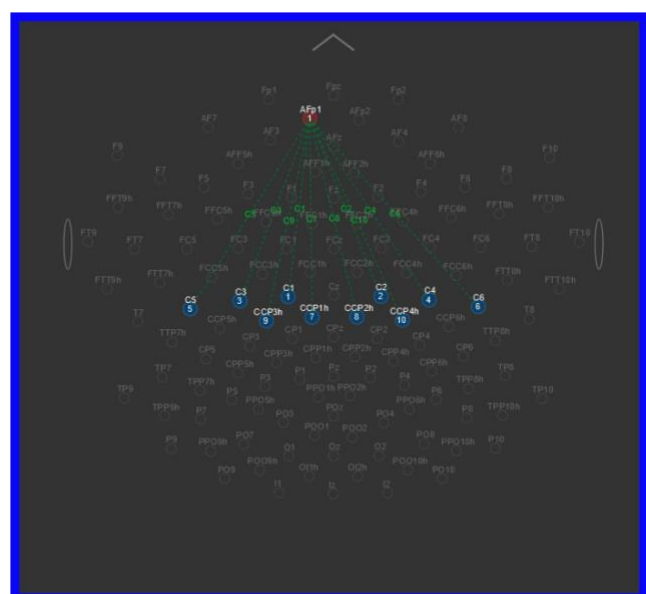
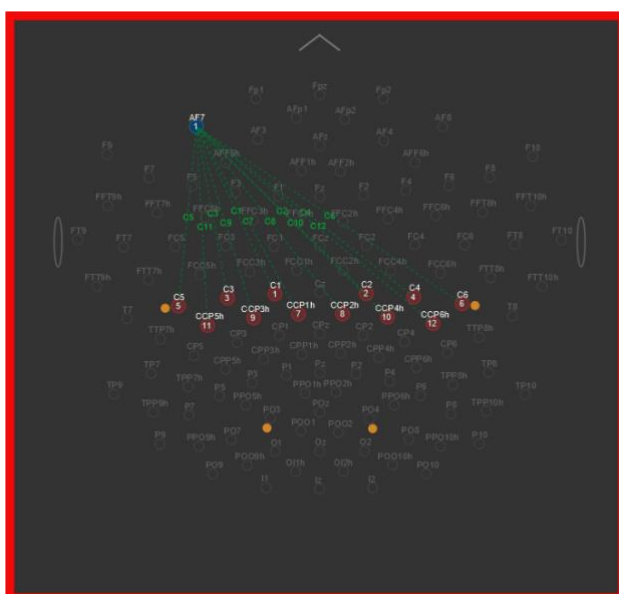
The phantom is made from **light-curing resin** with a special composition, allowing it to simulate tissue behavior effectively. It plays a critical role in testing and diagnosing the performance of **C20** and **C23 optodes**, helping to identify any channels operating outside the optimal range. This ensures the accurate functioning of the optodes during brain activity monitoring.

Diagnostic procedure

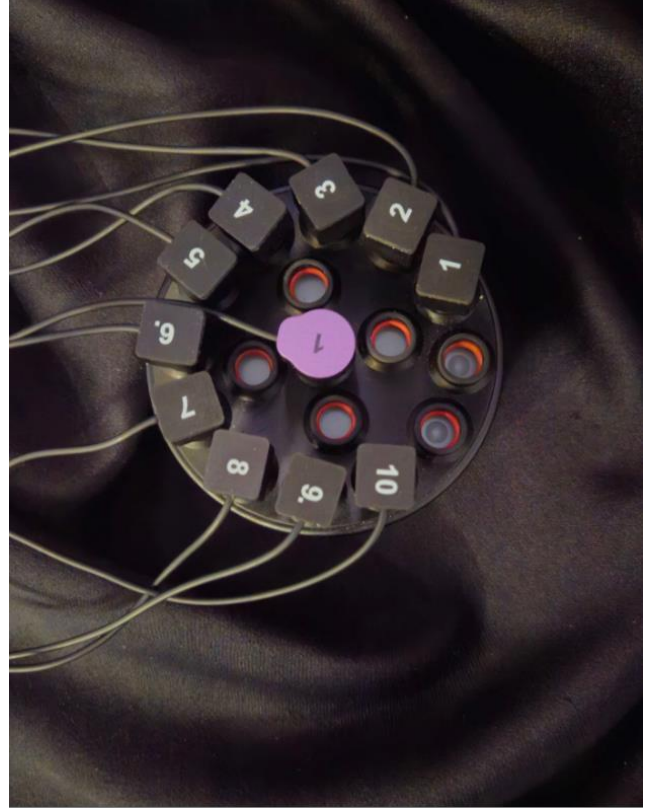
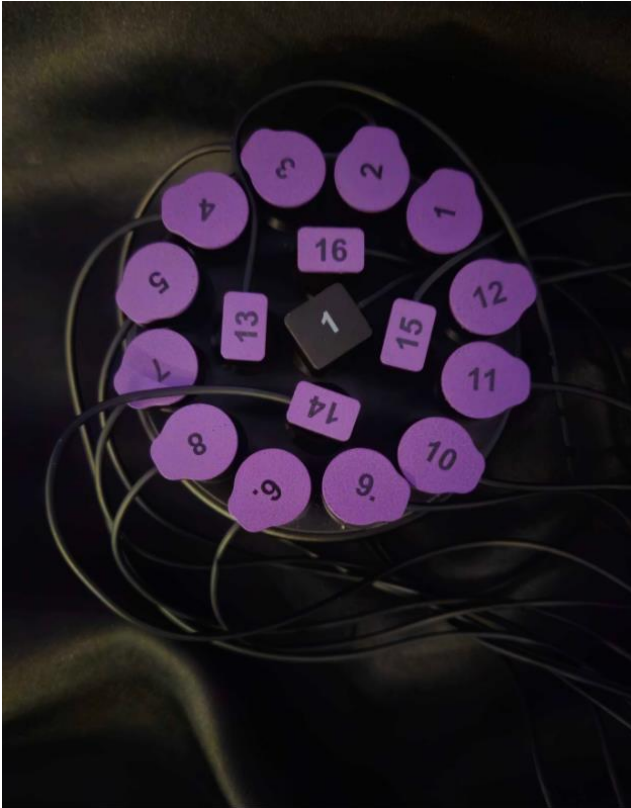
1. Turn on Cortiview.
2. Get to the advanced settings.
3. Turn off the function of automatic calibration.



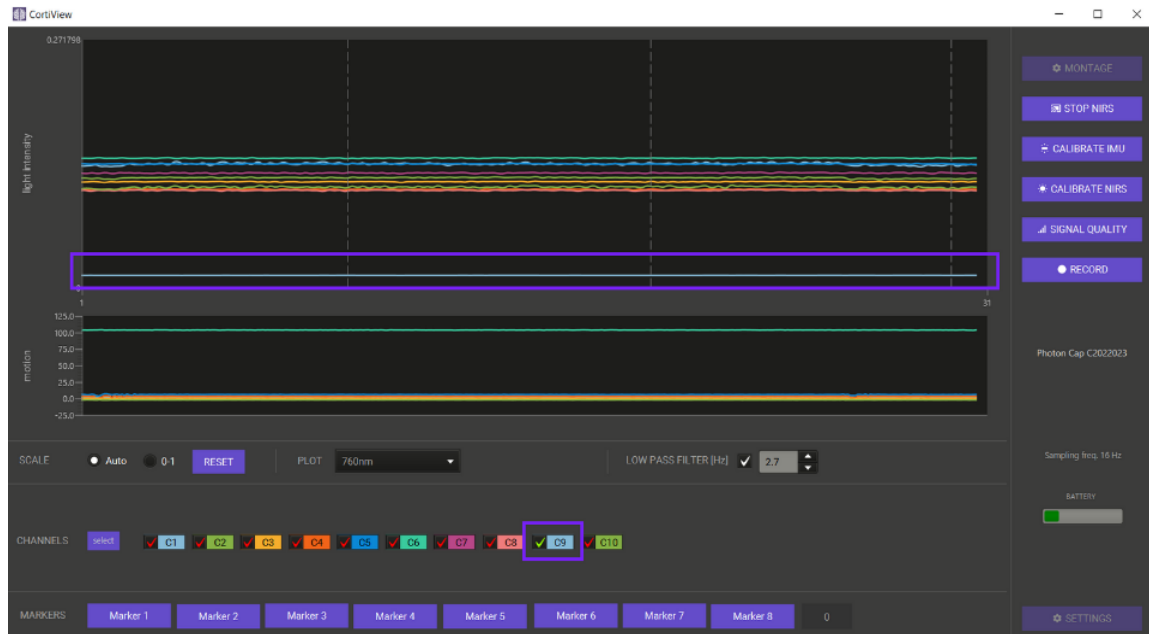
1. Find a montage:
 - a. **test_emitters** (for diagnosing emitters)
 - b. **test_detectors** (for diagnosing detectors)



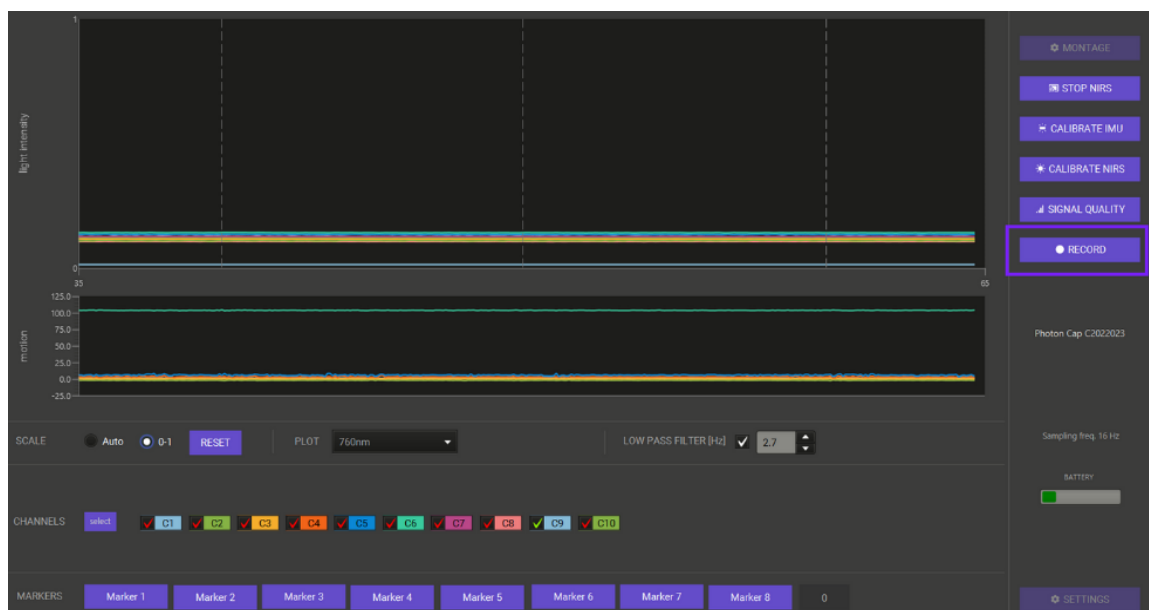
2. Place the optodes in the phantom:
 - a. Detector inside, emitters outside the detector (short emitters, close to the single detector) - test_emitters.
 - b. Emitters inside, detectors outside - test_detectors.
 - c. Cover optodes with a **light blocker**.



3. Click in Cortiview "Start NIRS".
4. Change the scale to "Auto" and view the channels.
5. Verify if any channels show deviations by comparing them with others. To do this, switch between the two wavelengths (760 nm and 850 nm).
6. Select 760 nm wavelength from the dropdown list at PLOT. If you notice that the channel deviates from the norm, identify it and report the problem.
7. Do the same by selecting the 850 nm wavelength from the drop-down list in the plot. If you also notice that a channel deviates from the norm, identify it and report it. A channel showing deviation across both wavelengths might indicate possible damage to the detector.



8. To ensure that the optode you have identified is damaged, look under the light blocker and then:
 - a. Wiggle the cable of the identified optode.
 - b. Remove the optode and reinsert it.
9. If the identified channel still looks like an outlier:
 - a. Press record.
 - b. Send a .snirf and .txt file to support, describing your problem.



ATTENTION!

When checking the emitter configuration, please note that the signal from short emitters will have a stronger intensity than from longer channels. The deviation between different short channels could also be bigger, than for the long channels. That is a normal behavior. Report a short channel as faulty only when the signal is below the long channels.

