



Ellume COVID-19 Home Test

Evaluated for accessibility on February 4, 2022.

Summary of Findings: The Ellume COVID test uses an app to read results via a Bluetooth-enabled reader. The process is similar to other COVID tests that require the user to drip fluid into the reader but is non-visually accessible by a blind user. Unfortunately, the app has some issues, including oddly labeled buttons on both Android and iOS platforms and duplicated text fields and focus issues on iOS. That said, the instructions read well on both apps, and despite the issues listed, all functions can still be used independently by a blind person.

The App

After launching the app, the user is presented with an intro screen, which has the start test button, and an unlabeled button to bring up the menu. When the start test button is pressed, the app walks the user through the process of granting permissions for Bluetooth and then asks for basic information. The back button is unlabeled through this process, but that is the only issue on Android. The iOS app will jump focus randomly back up the screen after clicking past the continue button, and each test field has a phantom unlabeled field after it. If the user ignores the unlabeled fields and just enters the information in the labeled ones, the iOS process is also fairly straightforward.

The Test Kit

The Ellume kit comes with four items: a swab, a fluid capsule, a dropper, and the test reader. Each of these components is easily identifiable by touch. The only potential concern is that the peel tab on the swab's container is positioned over the swab rather than the handle, so it's possible for the user to accidentally touch the swab.

Taking the Test

Prior to taking the test, the app requires the user to watch an info video, which describes the test. After this, the app prompts the user to pair the reader. The button is large and slightly recessed on one end of the reader. The app requests the user to press the button once to turn on the reader, then press and hold it for a few seconds to initiate pairing. Next, assuming the user has previously granted Bluetooth permissions, the app will find and connect to the reader within a couple seconds. The next step is to remove the triangular cap from the fluid capsule and empty it into the dropper canister. The swab has a rubber child adapter which can be removed by pulling it to the side when an adult is using the test. After collecting the sample, the swab is screwed into the dropper container. There is a plastic cap covering the

other end of the swab, which exposes a dropper tip when opened. The last step is to drop five drops into the rectangular hole at the opposite end of the reader from the button. The hole is large enough that the dropper tip can be inserted inside it. For a blind user it might be recommended to squeeze the tube six or seven times to ensure there is enough liquid in the reader. After this, simply leave the phone and reader in close proximity, and an accessible timer will count down the fifteen-minute waiting period, then accessibly display the results.

Accessibility Issues with the App

The apps both have some accessibility issues, with the iOS issues being more significant than the Android ones. Some of the issues were mentioned earlier, but here is the full list.

- The menu button is unlabeled on the main screen.
- iOS: There is a duplicate unlabeled button which starts the test.
- iOS: Flicking past the end of the permissions screen causes focus to jump back to the previous item on the screen resulting in a loop.
- iOS: The patient information text fields have an unlabeled text field next to them which does nothing.
- The back button is unlabeled on Android, and unclear on iOS.
- The button to replay the info video has extra text.
- The next button during the test is labeled "connected."

Fortunately, none of these issues should prevent a user who has some experience with a smartphone, or is made aware of them ahead of time, from successfully completing the test independently and non-visually.