



**For Professional Use Only**

**For use under an Emergency Use Authorization (EUA) Only**

**For *In Vitro* Diagnostic Use Only**

**Rx Use Only**

**SPEC-32311 R1 ART-00570 R1 Date of Revision 2020/08**

### **LumiraDx SARS-CoV-2 Ag Test**

The LumiraDx Severe Acute Respiratory Syndrome (SARS) CoV-2 Antigen (Ag) Test Strips (hereafter referred to as Test Strips) are to be used with the LumiraDx Platform. The LumiraDx Platform is a point of care system for professional use which is used for *in vitro* diagnostic tests. It comprises a portable LumiraDx Instrument and a LumiraDx Test Strip for the required test. This test is for **HEALTHCARE PROFESSIONAL USE ONLY** and allows users to perform tests using small sample volumes and to view results quickly on the Instrument touchscreen.

#### **Intended use:**

The LumiraDx SARS-CoV-2 Ag Test is a rapid microfluidic immunofluorescence assay for use with the LumiraDx Platform intended for the qualitative detection of the nucleocapsid protein antigen to SARS-CoV-2 directly from nasal swab specimens collected from individuals suspected of COVID-19 by their healthcare provider within the first twelve days of symptom onset. Testing is limited to laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C 263a, that meet the requirements to perform moderate, high or waived complexity tests. This test is authorized for use at the Point of Care (POC), i.e., in patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation.

The LumiraDx SARS-CoV-2 Ag test does not differentiate between SARS-CoV and SARS-CoV-2.

Results are for the identification of SARS-CoV-2 nucleocapsid protein antigen. Antigen is generally detectable in nasal swab specimens during the acute phase of infection. Positive results indicate the presence of viral antigens, but clinical correlation with patient history and other diagnostic information is necessary to determine infection status. Positive results do not rule out bacterial infection or co-infection with other viruses. The agent detected may not be the definite cause of disease. Laboratories within the

United States and its territories are required to report all positive results to the appropriate public health authorities.

Negative results, from patients with symptoms onset beyond twelve days, should be treated as presumptive and confirmation with a molecular assay, if necessary, for patient management, may be performed. Negative results do not rule out SARS-CoV-2 infection and should not be used as the sole basis for treatment or patient management decisions, including infection control decisions. Negative results should be considered in the context of a patient's recent exposures, history and presence of clinical signs and symptoms consistent with COVID-19.

The LumiraDx SARS-CoV-2 Ag Test is intended for use by trained clinical laboratory personnel and individuals trained in point of care settings, and proficient in performing tests using the LumiraDx Instrument.

The LumiraDx SARS-CoV-2 Ag Test is only for use under the Food and Drug Administration's Emergency Use Authorization.

**Caution:** For *in vitro* diagnostic use.



Before you start testing, if you are new to the LumiraDx Instrument and LumiraDx Platform, you must read the LumiraDx Platform User Manual, the LumiraDx SARS-CoV-2 Ag Test Quick Reference Instructions and this entire Product Insert. Information available here: <https://www.lumiradx.com/us-en/what-we-do/diagnostics/test-technology/antigen-test>

### **Summary and explanation of the Test:**

The World Health Organisation (WHO) have named the disease caused by SARS-CoV-2 virus as coronavirus 2019 or COVID-19<sup>1</sup>. The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion, headache, conjunctivitis, sore throat, diarrhea, loss of taste or smell, or a rash on skin or discoloration of fingers or toes. These symptoms are usually mild and begin gradually. Some people become infected but do not develop any symptoms and do not feel unwell. However, the disease can develop rapidly and have high morbidity in certain populations, especially those with underlying health conditions. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. Most estimates of the incubation period for COVID-19 range from 2-14 days<sup>2</sup>.

The use of a LumiraDx SARS-CoV-2 Ag Test will enable the physician to verify infection quickly, begin proper treatment and to initiate isolation precautions helping prevent further spread of infection.

## **Principle of the assay:**

The LumiraDx SAR-CoV-2 Ag Test is a single use fluorescence immunoassay device designed to detect the presence of the nucleocapsid protein antigen directly from SARS-CoV-2 in nasal swab specimens, without transport media.

The test procedure involves collecting a nasal specimen using a recommended swab which is eluted into a vial containing extraction buffer. A single drop of the specimen in extraction buffer is added to the Test Strip using the vial dropper cap provided. The LumiraDx Instrument is programmed to perform the test protocol using the dried reagents contained within the strip. The test result is determined from the amount of fluorescence the Instrument detects within the measurement zone of the Test Strip. The concentration of the analyte in the specimen is proportional to the fluorescence detected. The results are displayed on the Instrument touchscreen within 12 minutes from the addition of the sample.

## **Materials provided:**

- LumiraDx Test Strips packed individually in sealed desiccant foil pouches.
- LumiraDx Test Product Insert
- RFID (Radio frequency ID) Tag held inside the Test Strip carton
- Extraction Buffer Vials
- Dropper Lids
- LumiraDx SARS-CoV-2 Ag Test Quick Reference Instructions

## **Materials required but not provided with the Test Strip carton:**

- LumiraDx Instrument
- Standard nasal swab collection equipment. Please refer to the Limitations section of this product insert for information on recommended swabs.
- LumiraDx SARS-CoV-2 Ag Quality Controls (as required to meet local and organisational compliance)
- LumiraDx Connect if connectivity required (refer to LumiraDx Connect User Manual)

## **Warnings and precautions**

- For *in vitro* diagnostic use only
- For prescription use only.
- This test has not been FDA cleared or approved; the test has been authorized by FDA under an Emergency Use Authorization (EUA) for use by laboratories certified under the CLIA that meet the

requirements to perform moderate, high or waived complexity tests. This test is authorized for use at the Point of Care (POC), i.e., in patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation.

- This test is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostic tests for detection and/or diagnosis of COVID-19 under Section 564(b)(1) of the Federal Food, Drug and Cosmetic Act, 21 U.S.C. § 360bbb-3(b)(1), unless the authorization is terminated or revoked sooner.
- This test has been authorized only for the detection of proteins from SARS-CoV-2, not for any other viruses or pathogens.
- Do not open the test strip until ready for immediate use.
- Discard and do not use any damaged or dropped Test Strips or other materials.
- Inadequate or inappropriate sample collection, storage, and transport can result in incorrect results.
- The test cannot be visually interpreted; the LumiraDx Instrument must be used to generate results.
- Do not use the kit components beyond the expiration date
- Do not reuse any kit components.
- Specimens must be processed as indicated in the Sample Extraction and Performing a Test sections of this Product Insert. Failure to follow the instructions for use can result in inaccurate results.
- All components of this kit should be discarded as Biohazard waste according to Federal, State and local regulatory requirements.
- Refer to the product safety data sheet for risk and safety phrases and disposal information. The product safety data sheet is available via our website at <https://lumiradx.com/us-en/what-we-do/diagnostics/test-technology/antigen-test>.
- Exercise the normal precautions required for handling all laboratory reagents. Wear protective clothing such as laboratory coats, disposable gloves, and eye protection when specimens are collected and evaluated.
- Proper laboratory safety techniques should be followed at all times when working with SARS-CoV-2 patient samples. Patient swabs, used Test Strips and used extraction buffer vials may be potentially infectious. Proper handling and disposal methods should be established by the laboratory in accordance with local, state and federal regulations.
- Reagents encapsulated within the Test Strip are present in extremely small amounts and where any component is of animal origin, the

source is certified as free from infectious or contagious material – however, should any reagent become exposed it should be treated as potentially infectious.

### **Storing the Test Strips:**

Store the Test Strips in their original carton. You can store the Test Strips at a temperature between 2°C and 30°C (36°F and 86°F). Avoid freezing or storing in any area that could exceed 30°C. When stored properly, the Test Strips can be used until the expiration date printed on the Test Strip foil pouch and the Test Strip carton. Discard the Test Strips if they are passed the expiration date.

### **Handling the Test Strips:**

When you are ready to perform a test, open the Test Strip carton, take out a Test Strip, and remove it from the foil pouch. After removing the Test Strip from the foil pouch, it should be used immediately. Do not use the Test Strip if there are any visible signs of damage to the foil pouch such as tears or holes.

### **Sample material:**

The following samples can be used with the LumiraDx SARS-CoV-2 Ag Test Strip:

- Nasal Swab Specimen (NS)

### **The Test device contains:**

- Rabbit and mouse monoclonal antibodies
- Fluorescent particles
- Magnetic particles
- Buffer and stabilising agents

### **Preparing the Instrument to perform a Test:**

Power on the Instrument by pressing the power button at the rear of the Instrument. You will hear the Instrument powering on, and the display will be a blank black screen for several seconds before starting up. If the screen is just dimmed tap the touch-screen to wake up the Instrument.

Refer to the section on **Performing a Test** in this Product Insert for information on how to test a Patient sample. The LumiraDx Quick Reference Instructions (QRI) provide an illustrated step-by-step procedure on how to run a Test.

The Instrument will prompt to install the Lot Calibration File when inserting a new Test Strip Lot. Once installed, the Instrument will have all the information required to process the test, and any future tests from the same Lot of Test Strips.

## Lot Calibration File installation

Lot Calibration Files are required to provide the Instrument with the information needed to perform diagnostic tests. This only needs to be completed once for each Test Strip Lot. The Instrument will prompt to install the Lot Calibration File when inserting a new Test Strip Lot.

### RFID strip code reader

Locate  symbol on Instrument.



### Installation

Touch back of Test Strip Carton  symbol to install.



The Instrument will sound and a confirmation message will be displayed.

When indicated by the touchscreen, open the foil pouch just before use and insert the LumiraDx Test Strip into the LumiraDx Instrument. The Instrument will indicate when it is ready for the sample to be applied.

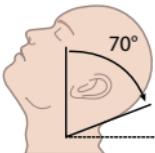
The LumiraDx SARS-CoV-2 Ag Test results should be evaluated by a Healthcare Professional in the context of all available clinical and laboratory data.

### Instructions for sample collection:

When collecting any type of sample, follow universal collection precautions and guidelines according to your organization. For specimen collection of nasal swabs, follow the Centers for Disease Control and Prevention (CDC) Swab Collection Guidelines and swab manufacturers' recommendations.

The steps that follow apply to a nasal swab. For information on recommended swabs to use with the LumiraDx SARS-CoV-2 Ag Test, please refer to the Limitations section of this Product Insert.

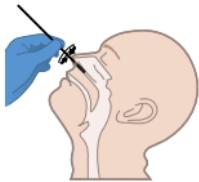
## **Sampling from a nasal swab:**



1. Tilt patient's head back 70°



2. A swab sample is needed from both nostrils, and this is taken using the same swab. While gently rotating the swab, insert swab less than one inch into the first nostril until resistance is met at Turbinates. (Turbinates are the small structures inside the nose).



3. Rotate the swab several times against the nasal wall. Remove and repeat this process by using the same swab into the second nostril. Then place the Swab into the Extraction Vial. See instructions for Sample Extraction.

**After patient swabbing, process the Swab in the Extraction Vial as soon as possible. Do not place the swab back into the swab packaging sleeve after specimen collection.**

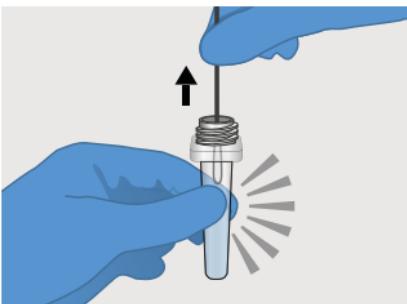
## Instructions for sample extraction:



1. Remove the seal from the top of the Extraction Vial containing the Extraction Buffer.



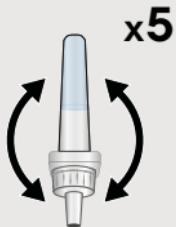
2. Place and soak the Patient Swab in the Extraction Buffer for 10 seconds and then stir well by rotating the swab against the side of the vial 5 times.



3. Squeeze Swab Remove the Patient Swab while squeezing the middle of the Extraction Vial to remove the liquid from the swab. Discard the swab in biohazard waste.



4. Firmly attach Dropper Lid to the top of the Extraction Vial. The extracted sample must be used within 5 hours of preparation when stored at room temperature. Extracted nasal specimens may be frozen at -80°C and used up to 5 days after freezing.



5. Gently invert the Extraction Vial five times just before applying the sample to the Test Strip.

**Performing a Test (refer to the Quick Reference Instructions to make sure that your Instrument has been prepared before starting this step).** If using a frozen sample, the sample must be at room temperature before testing.

1. **Gently invert** the Extraction Vial five times (5x) just before applying the sample to the Test Strip.
2. **Apply the extracted sample from the Extraction Vial** onto the Sample Application Area of the inserted Test Strip. To do this gently press the sides of the extraction vial until **one whole drop** is visible and allow it to touch the Sample Application Area of the Test Strip. The sample will then be drawn by capillary action into the Test Strip. When the sample is detected the Instrument will sound (if sounds are enabled) and a confirmation message will be displayed. The touchscreen of the LumiraDx Instrument will request the user to **immediately close the door** (**Note: you have 10 seconds only to close the door**).

3. **Do not add more than one drop of sample.** Do not open the door while the test is in progress. The touchscreen will indicate test progress.
4. **The result** will appear on the Instrument touchscreen within 12 minutes of applying the sample and starting the test. The results will be displayed as a **positive or negative result SARS-CoV-2-Ag** on the Instrument screen. (see Fig 1 and Fig 2).
5. **Dispose** of the swab, Extraction Vial and Test Strip in the appropriate biohazard waste.
6. **Disinfect** the Instrument between each patient test using either the LumiraDx approved wipes such as TECCare CONTROL wipes, or Virkon or Clorox wipes. Use the wipe until the surface of the Instrument is visibly wet. Allow the surface to remain wet for **5 minutes** and let air dry.
7. **If you need to retest,** you will use a new Test Strip. Use the same extraction vial and repeat the test. The extracted sample must be used within 5 hours of preparation when stored at room temperature. Extracted nasal specimens may be frozen at -80°C and used up to 5 days after freezing.

### **Result interpretation:**

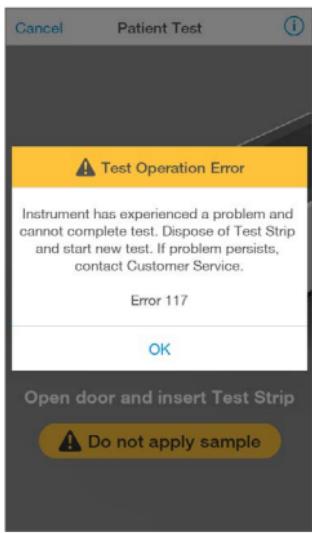
The results will be displayed on the Instrument screen - **examples of result screen display:**



**Fig 1: Negative result for SAR-CoV-2 Ag**



**Fig 2: Positive result for SAR-CoV-2 Ag**



**NOTE:** A negative result, from patients with symptoms onset beyond twelve days, should be treated as presumptive and confirmation with a molecular assay, if necessary, for patient management, may be performed.

### Invalid test results

If an issue occurs, a message will be displayed on the Instrument touch-screen. Alert messages include useful information and are highlighted by an orange banner. Error messages also include a symbol. All messages will contain a description of the Instrument status or error and an instruction. Error messages contain an identifying code that may be used for further troubleshooting purposes. Refer to the LumiraDx Platform User Manual if an error message is displayed on the LumiraDx Instrument touch-screen and contact LumiraDx Customer Services on telephone number 1-888-586-4721.

**Example of an error screen:** If the On Board Control (OBC) fails, an error message will be shown and no test result will be returned. Follow the on screen instructions to dispose of the Test Strip and start a new test. If the problem persists, contact Customer Services.

### Built-in controls:

The instrument reads the 2D bar code on each Test Strip and can identify if the strip has exceeded the expiry date for use, and if the strip Lot Calibration file has not yet been loaded, at which point it will request it.

The LumiraDx Instrument and LumiraDx SARS-CoV-2 Ag Test Strips have several quality control functions integrated to ensure validity of each test run. These checks ensure that the volume of sample added is sufficient and the assay sequence of the Test Strip is as expected. The checks also ensure that the Test Strip has not been damaged or used previously. If these checks are not verified, the test run will be rejected and an error message displayed on the Instrument touchscreen.

The LumiraDx Instrument ensures the quality of test results obtained through the following features:

- Automated checks of the correct functioning of the Instrument at power on and during operation.

- This includes electrical component operation, heater operation, battery charge state, mechanical actuators and sensors and optical system performance.
- Monitoring of Test Strip performance and controls during test runtime.
- Ability to perform Quality Control Tests using LumiraDx Quality Control solutions to meet regulatory compliance requirements.

### **Quality controls:**

Liquid Controls for SARS-CoV-2 Ag are available from LumiraDx. Details can be found via the website ([lumiradx.com](http://lumiradx.com)) or at the Customer Services telephone number 1-888-586-4721. Quality Control testing policy is at the discretion of your organization. Good laboratory practice recommends the use of control materials. Follow the appropriate federal, state and local guidelines concerning the frequency of testing quality control material. To complete Quality Control assessment of the LumiraDx Instrument and SARS-CoV-2 Ag Test Strips, you must use the LumiraDx SARS-CoV-2 Ag Quality Control Pack. The Quality Controls come as Positive and Negative controls.

LumiraDx recommends controls be run once for:

- each new kit lot
- each new operator
- as required by internal quality control procedures and in accordance with local, state and federal regulations or accreditation requirements.

If the LumiraDx Antigen Quality Controls do not perform as expected, repeat the QC Test and if the problems persists, do not report patient results and contact LumiraDx Customer Services on telephone number 1-888-586-4721.

### **Cleaning and Disinfection:**

Always clean the Instrument after each patient use. Wipe the external surfaces of the LumiraDx Instrument with a soft, slightly damp cloth when it appears visibly dirty. Disinfect the Instrument between each patient test using either the LumiraDx approved wipes such as TECCare CONTROL wipes or Virkon or Clorox Wipes. Use the wipe until the surface of the Instrument is visibly wet. Allow the surface to remain wet for **5 minutes** and let air dry. **Avoid USB ports and power inlet. Do not spray or pour solution directly onto the Instrument. Do not put any objects or cleaning materials into the Test Strip slot.**

## **Limitations**

- This test detects both viable (live) and non-viable, SARS-CoV and SARS-CoV-2. Test performance depends on the amount of virus (antigen) in the sample and may or may not correlate with viral culture results performed on the same sample.
- Failure to follow the instructions for use may adversely affect test performance and/or invalidate the test result.
- Test results should be considered in the context of all available clinical and diagnostic information, including patient history and other test results.
- Positive test results do not differentiate between SARS-CoV and SARS-CoV-2.
- Negative test results are not intended to rule in other non-SARS viral or bacterial infections.
- Negative results, from patients with symptom onset beyond twelve days, should be treated as presumptive and confirmation with a molecular assay, if necessary for patient management, may be performed.
- If the differentiation of specific SARS viruses and strains is needed, additional testing, in consultation with state or local public health departments, is required.
- Clinical performance was established on frozen specimens and performance may be different with fresh clinical specimens.
- Users should test specimens as quickly as possible after specimen collection.
- Extracted nasal specimens may be frozen at -80°C and used up to 5 days after freezing.
- Specimens and Extraction buffer must be at room temperature before testing.
- Positive test results do not rule out co-infection with other pathogens
- A false negative result may occur if the level of viral antigen in a sample is below the detection limit of the test or if the sample was collected inappropriately, therefore a negative test result does not rule out the possibility of SARS-CoV-2 infection.
- The amount of antigen in a sample may decrease as the duration of illness increases. Specimens collected after 12 days are more likely to be negative compared to RT-PCR.
- The contents of this kit are for qualitative detection of SARS-CoV-2 antigens from nasal swab specimens only.
- The following swabs have been validated for use with the LumiraDx SARS-CoV-2 Ag Test: Nasal FLOQswab, Medline Disposable Sampler and Puritan HydraFlock and performance with other swabs may be different.

## **Conditions of Authorization for the Laboratory.**

The LumiraDx SARS-CoV-2 Ag Test Letter of Authorization, along with the authorized Fact Sheet for Healthcare Providers, the authorized Fact Sheet for Patients, and authorized labeling are available on the FDA website:  
<https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/vitro-diagnostics-euas>

However, to assist clinical laboratories using the LumiraDx SARS-CoV-2 Ag Test ("your product" in the conditions below), the relevant Conditions of Authorization are listed below:

- Authorized laboratories<sup>1</sup> using your product will include with test result reports, all authorized Fact Sheets. Under exigent circumstances, other appropriate methods for disseminating these Fact Sheets may be used, which may include mass media.
- Authorized laboratories using your product will use the product as outlined in the authorized labelling. Deviations from the authorized procedures, including the authorized instruments, authorized clinical specimen types, authorized control materials, authorized other ancillary reagents and authorized materials required to use your product are not permitted.
- Authorized laboratories that receive your product will notify the relevant public health authorities of their intent to run your product prior to initiating testing.
- Authorized laboratories using your product will have a process in place for reporting test results to healthcare providers and relevant public health authorities, as appropriate.
- Authorized laboratories will collect information on the performance of your product and report to DMD/OHT7-OIR/OPEQ/CDRH (via email: CDRH-EUA-Reporting@fda.hhs.gov) and you (via email: [customerservices.US@lumiradx.com](mailto:customerservices.US@lumiradx.com)) any suspected occurrence of false positive or false negative results and significant deviations from the established performance characteristics of your product of which they become aware.
- All operators using your product must be appropriately trained in performing and interpreting the results of your product, use appropriate personal protective equipment when handling this kit, and use your product in accordance with the authorized labeling.
- Authorized distributors, and authorized laboratories using your product will ensure that any records associated with this EUA are maintained until otherwise notified by FDA. Such records will be made available to FDA for inspection upon request.

<sup>1</sup>The letter of authorization refers to, "Laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C. §263a, that meet the requirements to perform moderate, high or waived complexity tests. This test is authorized for use at the Point of Care (POC), i.e., in patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation." as "authorized laboratories."

## Clinical Performance

### Patient Demographics

Patient demographics (gender, age, time elapsed since onset of symptoms) are available for the 257 samples used in the study. The table below shows the positive results broken down by age of the patient:

Age	LumiraDx SARS-CoV-2 Ag (n = 81)		
	Total #	Positive	Prevalence
≤ 5 years	13	0	N/A
6 to 21 years	29	6	20.7%
22 to 59 years	200	70	35.0%
≥ 60 years	15	5	33.3%

Positive results broken down by days since symptom onset:

Days Since Symptom Onset	Cumulative RT-PCR Positive(+)	Cumulative LumiraDx Positive(+)	PPA	95% Confidence Interval	
0	6	6	100.0%	61.0%	100.0%
1	12	12	100.0%	75.8%	100.0%
2	28	28	100.0%	87.9%	100.0%
3	37	37	100.0%	90.6%	100.0%
4	55	54	98.2%	90.4%	99.7%
5	61	60	98.4%	91.3%	99.7%
6	67	66	98.5%	92.0%	99.7%
7	73	72	98.6%	92.6%	99.8%
8	75	74	98.7%	92.8%	99.8%
10	77	76	98.7%	93.0%	99.8%
11	80	79	98.8%	93.3%	99.8%
12	83	81	97.6%	91.6%	99.3%

The performance of the LumiraDx SARS-CoV-2 Ag Test was established with 257 direct nasal swabs prospectively collected from individual subjects during the 2020 COVID-19 pandemic. Specimens were collected from sequentially enrolled subjects who presented with symptoms of COVID-19 (159) or key workers (98) at increased risk of infection. No positive results were observed from patients without symptoms or beyond 12 days of symptom onset. Dual nasal swabs were simultaneously collected and then randomly allocated to testing with the LumiraDx test or an EUA RT-PCR assay. Samples were collected from 6 sites across the United States (5) and United Kingdom (1), including four sites in which minimally trained operators collected and tested fresh specimens. Swabs were collected and extracted into the LumiraDx extraction buffer without transport media. Specimens were tested fresh or frozen within 1h of collection and stored until tested. Samples were thawed and sequentially tested according to the Product Insert, with operators blinded to the PCR result. The performance of the LumiraDx SARS-CoV-2 Ag Test was compared to the results from nasal swabs collected into 3ml universal transport medium (UTM) and tested with an EUA PCR method.

Final data analysis is presented below:

Reference RT-PCR Assay							95% Wilson Score CI	
LumiraDx SARS-CoV-2 Ag Test		POS	NEG	Total	PPA	97.6%	91.6%	99.3%
	POS	81	6	87	NPA	96.6%	92.7%	98.4%
	NEG	2	168	170	PPV	93.1%	85.8%	96.8%
	TOTAL	83	174	257	NPV	98.8%	95.8%	99.7%
					Prevalence	32.3%	26.9%	38.2%
					OPA	96.9%	94.0%	98.4%

**PPA** - Positive Percent Agreement (Sensitivity)

**NPA** - Negative Percent Agreement (Specificity)

**PPV** - Positive Predictive Value

**NPV** - Negative Predictive Value

**OPA** - Overall Percent Agreement

**CI** - Confidence Interval

**LCI** - Lower Confidence Interval

**UCI** - Upper Confidence Interval

## Analytical Performance

### Limit of Detection - LOD (Analytical Sensitivity):

Limit of Detection (LoD) studies determined the lowest detectable concentration of SARS-CoV-2 at which 100% of all (true positive) replicates test positive. The LoD for the LumiraDx SARS-CoV-2 Ag Test was established using limiting dilutions of gamma-irradiated SARS-CoV-2 (BEIResources NR-52287). The NR-52287 is a preparation of SARS-Related Coronavirus 2 (SARS-CoV2), isolate USA WA1 /2020, that has been inactivated by gamma-irradiation at  $5 \times 10^6$  RADs. The material was supplied frozen at a concentration of  $2.8 \times 10^5$  TCID<sub>50</sub>/mL.

### Limit of Detection (LoD) Screening

An initial LoD screening study was performed using a 5-fold serial dilutions (six dilutions in total) of the gamma-irradiated virus made in pooled negative human nasal matrix starting at a test concentration of  $2 \times 10^4$  TCID<sub>50</sub>/mL (as shown in table below) and processed for each study as

described above. These dilutions were tested in triplicate. The lowest concentration at which all (3 out of 3 replicates) were positive was chosen for LoD Range finding. This was 32 TCID<sub>50</sub>/mL.

SARS-CoV-2 tested (TCID <sub>50</sub> /mL)	Test Result
20000	3/3 positive
4000	3/3 positive
800	3/3 positive
160	3/3 positive
32	3/3 positive
6.2	0/3 positive

### **Limit of Detection Range Finding**

Using the 32 TCID<sub>50</sub>/mL concentration, the LoD was further refined using a 2-fold dilution series (four dilutions in total) of the gamma-irradiated SARS-CoV-2 virus made in pooled negative human nasal matrix. These dilutions were tested in triplicate. The lowest concentration at which all (3 out of 3 replicates) were positive was treated as the tentative LoD for the LumiraDx SARS-CoV-2 Ag Test. This was 32 TCID<sub>50</sub>/mL.

SARS-CoV-2 tested (TCID <sub>50</sub> /mL)	Test Result
32	3/3 positive
16	0/3 positive
8	1/3 positive
4	0/3 positive

### **Limit of Detection (LoD) Confirmation**

The LoD of the LumiraDx SARS-CoV-2 Ag Test was then confirmed by testing 20 replicates with concentrations at the tentative Limit of Detection. The final LoD of the LumiraDx SARS-CoV-2 Ag Test was determined to be the lowest concentration resulting in positive detection of twenty (20) out of twenty (20) replicates. Based on this testing the LoD for nasal swab specimens was confirmed as: 32 TCID<sub>50</sub>/mL.

Starting Material Concentration	Estimated LOD	No. Positive/Total	% Positive
2.8 x 10 <sup>5</sup> TCID <sub>50</sub> /mL	32 TCID <sub>50</sub> /mL	20/20	100

### Cross-Reactivity (Analytical Specificity)

Cross-reactivity of the LumiraDx SARS-CoV-2 Ag Test was evaluated by testing a panel of related pathogens, high prevalence disease agents and normal or pathogenic flora that are reasonably likely to be encountered in the clinical specimen and could potentially cross-react with the LumiraDx SARS CoV-2 Ag Test including various microorganisms, viruses and negative matrix. Each organism and virus were tested in the absence or presence of heat inactivated SARS-CoV-2 at 3 x LoD. The final concentration of the organisms and viruses are documented in the Table below (the concentrations of 10<sup>6</sup> CFU/mL or higher for bacteria and 10<sup>5</sup> PFU/mL or higher for viruses is recommended). For a number of microorganisms, the stock concentration was lower than or equal to the recommended testing concentration. In these cases, it was only possible to test these microorganisms at the stock concentration.

Microorganism	Source	Concentration	Cross-Reactivity (Yes/No)
Human coronavirus 229E	Zeptometrix	1 x 10 <sup>5</sup> PFU/mL	No (3/3 negative)
Human coronavirus OC43	Zeptometrix	1 x 10 <sup>5</sup> PFU/mL	No (3/3 negative)
Human coronavirus NL63	Zeptometrix	9.87 x 10 <sup>3</sup> PFU/mL	No (3/3 negative)
MERS coronavirus	Zeptometrix	7930 PFU/mL	No (2/2 negative)
Adenovirus (e.g. C1 Ad. 71)	Zeptometrix	1 x 10 <sup>5</sup> PFU/mL	No (3/3 negative)
Human Metapneumovirus (hMPV)	Zeptometrix	1 x 10 <sup>5</sup> PFU/mL	No (3/3 negative)
Parainfluenza virus Type 1	Zeptometrix	1 x 10 <sup>5</sup> PFU/mL	No (3/3 negative)
Parainfluenza virus Type 2	Zeptometrix	1 x 10 <sup>5</sup> PFU/mL	No (3/3 negative)

Microorganism	Source	Concentration	Cross-Reactivity (Yes/No)
Parainfluenza virus Type 3	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 negative)
Parainfluenza virus Type 4a	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 negative)
Influenza A H3N2 (Wisconsin/67/05)	Zeptometrix	$8.82 \times 10^4$ PFU/mL	No (3/3 negative)
Influenza A H1N1	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 negative)
Influenza B (Malaysia/2506/04)	Zeptometrix	$2.92 \times 10^4$ PFU/mL	No (3/3 negative)
Enterovirus	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 negative)
Respiratory syncytial virus	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 negative)
Rhinovirus	Zeptometrix	$4.17 \times 10^5$ PFU/mL	No (3/3 negative)
Haemophilus influenzae	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
Streptococcus pneumoniae	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
Streptococcus pyogenes	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
Candida albicans	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
Pooled human nasal wash	LumiraDx	14% v/v	No (3/3 negative)
Bordetella pertussis	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
Mycoplasma pneumoniae	ATCC	$1 \times 10^6$ CFU/mL	No (3/3 negative)
Chlamydia pneumoniae	ATCC	$1 \times 10^6$ CFU/mL	No (3/3 negative)

Microorganism	Source	Concentration	Cross-Reactivity (Yes/No)
<i>Legionella pneumophila</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
<i>Mycobacterium tuberculosis</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
<i>Pneumocystis jirovecii</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
<i>Pseudomonas Aeruginosa</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
<i>Staphylococcus Epidermidis</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)
<i>Streptococcus Salivarius</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 negative)

To estimate the likelihood of cross-reactivity with SARS-CoV-2 of organisms that were not available for wet testing, *in silico* analysis using the Basic Local Alignment Search Tool (BLAST) managed by the National Center for Biotechnology Information (NCBI) was used to assess the degree of protein sequence homology.

- For Human Coronavirus HKU1, homology exists between the SARS-CoV-2 nucleocapsid protein and Human Coronavirus HKU1. BLAST results showed 30 sequence IDs, all nucleocapsid protein, showing homology. Sequence ID AGW27840.1 had the highest alignment score and was found to be 39.1% homologous across 76% of the sequences, this is relatively low but cross-reactivity cannot be fully ruled out.
- For SARS-CoV-2, high homology exists between the SARS-CoV-2 nucleocapsid protein and SARS-CoV-2. BLAST results showed 68 sequence IDs, mostly nucleocapsid protein, showing homology. Sequence ID AAR87518.1, had the highest alignment score isolated from a human patient and was found to be 90.76% homologous across 100% of the sequence. This is high and cross-reactivity is likely.
- For MERS-CoV, high homology exists between the SARS-CoV-2 nucleocapsid protein and MERS-CoV. BLAST results showed at least 114 sequence IDs, mostly nucleocapsid protein, showing homology. Sequence IDs AHY61344.1 and AWH65950.1, had the highest alignment scores isolated from a human patient and were found to be 49.4% and 50.3% homologous across 88% of the sequence. Whilst this potentially represents moderate cross-reactivity testing of the MERS virus at 7930 PFU/mL showed no reactivity (see table above).

## **Microbial Interference Studies**

Microbial interference in the LumiraDx SARS-CoV-2 Ag Test was evaluated by testing a panel of related pathogens, high prevalence disease agents and normal or pathogenic flora to demonstrate that false negatives do not occur when SARS-CoV-2 is present in a specimen with other microorganisms including various microorganisms, viruses and negative matrix. Each organism and virus were tested in the absence or presence of heat inactivated SARS-CoV-2 at 3 x LoD. The final concentration of the organisms and viruses are documented in the Table below (the concentrations of  $10^6$  CFU/mL or higher for bacteria and  $10^5$  PFU/mL or higher for viruses is recommended). For a number of microorganisms, the stock concentration was lower than or equal to the recommended testing concentration. In these cases, it was only possible to test these microorganisms at the stock concentration.

<b>Microorganism</b>	<b>Source</b>	<b>Concentration</b>	<b>Interference (Yes/No)</b>
Human coronavirus 229E	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Human coronavirus OC43	Zeptometrix	$1 \times 10^5$ PFU/mL	No (19/20 positive)
Human coronavirus NL63	Zeptometrix	$9.87 \times 10^3$ PFU/mL	No (3/3 positive)
MERS coronavirus	Zeptometrix	7930 PFU/mL	No (3/3 positive)
Adenovirus (e.g. C1 Ad. 71)	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Human Metapneumovirus (hMPV)	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Parainfluenza virus Type 1	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Parainfluenza virus Type 2	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Parainfluenza virus Type 3	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Parainfluenza virus Type 4a	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Influenza A H3N2 (Wisconsin/67/05)	Zeptometrix	$8.82 \times 10^4$ PFU/mL	No (3/3 positive)
Influenza A H1N1	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)

Microorganism	Source	Concentration	Interference (Yes/No)
Influenza B (Malaysia/2506/04)	Zeptometrix	$2.92 \times 10^4$ PFU/mL	No (19/20 positive)
Enterovirus	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Respiratory syncytial virus	Zeptometrix	$1 \times 10^5$ PFU/mL	No (3/3 positive)
Rhinovirus	Zeptometrix	$4.17 \times 10^5$ PFU/mL	No (3/3 positive)
<i>Haemophilus influenzae</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No(3/3 positive)
<i>Streptococcus pneumoniae</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Streptococcus pyogenes</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Candida albicans</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
Pooled human nasal wash	LumiraDx	14% v/v	No (3/3 positive)
<i>Bordetella pertussis</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Mycoplasma pneumoniae</i>	ATCC	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Chlamydia pneumoniae</i>	ATCC	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Legionella pneumophila</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Mycobacterium tuberculosis</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Pneumocystis jirovecii</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Pseudomonas Aeruginosa</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Staphylococcus Epidermidis</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)
<i>Streptococcus Salivarius</i>	Zeptometrix	$1 \times 10^6$ CFU/mL	No (3/3 positive)

## **Endogenous Interference Studies**

A study was performed to demonstrate that potentially interfering substances that may be found in the upper respiratory tract in symptomatic subjects (including over the counter medications) do not cross-react or interfere with the detection of SARS-CoV-2 in the LumiraDx SARS-CoV-2 Ag Test. Each substance was tested in triplicate in the absence or presence of SARS-CoV-2 at 3 x LoD. Substances for testing were selected based on the respiratory specimens guidance in [http://www.accessdata.fda.gov/cdrh\\_docs/reviews/K112177.pdf](http://www.accessdata.fda.gov/cdrh_docs/reviews/K112177.pdf). The final concentration of the substances tested are documented in the Table below.

Interfering Substance	Concentration	Interference (Yes/No)
Benzocaine	150 mg/dL	No (3/3 Negative, 3/3 Positive)
Blood (human)	5%	No (3/3 Negative, 3/3 Positive)
Mucin	5 mg/mL	No (3/3 Negative, 3/3 Positive)
Naso GEL (NeilMed)	5% v/v	No (3/3 Negative, 3/3 Positive)
CVS Nasal Drops (phenylephrine)	15% v/v	No (3/3 Negative, 3/3 Positive)
Afrin (Oxymetazoline)	15% v/v	No (3/3 Negative, 3/3 Positive)
CVS Nasal Spray (Cromolyn)	15% v/v	No (3/3 Negative, 3/3 Positive)
Zicam Cold Remedy	5% v/v	No (3/3 Negative, 3/3 Positive)
Homeopathic (Alkalol)	10 % v/v	No (3/3 Negative, 3/3 Positive)
Sore Throat Phenol Spray	15% v/v	No (3/3 Negative, 3/3 Positive)
Tobramycin	3.3 mg/dL	No (3/3 Negative, 3/3 Positive)
Mupirocin	0.15 mg/dL	No (3/3 Negative, 3/3 Positive)

Interfering Substance	Concentration	Interference (Yes/No)
Fluticasone	0.000126 mg/dL	No (5/5 Negative, 4/4 Positive)
Tamiflu (Oseltamivir phosphate)	500 mg/dL	No (3/3 Negative, 3/3 Positive)
Budenoside	0.00063 mg/dL	No (3/3 Negative, 3/3 Positive)
Biotin	0.35 mg/dL	No (3/3 Negative, 3/3 Positive)
Methanol	150 mg/dL	No (19/20 Negative, 3/3 Positive)
Acetylsalicylic Acid	3 mg/dL	No (3/3 Negative, 3/3 Positive)
Diphenhydramine	0.0774 mg/dL	No (3/3 Negative, 3/3 Positive)
Dextromethorphan	0.00156 mg/dL	No (19/20 Negative, 3/3 Positive)
Dexamethasone	1.2 mg/dL	No (3/3 Negative, 3/3 Positive)
Mucinex	5%	No (3/3 Negative, 3/3 Positive)

## High Dose Hook Effect

High Dose Hook Effect studies determine the level at which false negative results can be seen when very high levels of target are present in a tested sample. To determine if the LumiraDx SARS-CoV-2 Ag Test suffers from any high dose hook effect, increasing concentrations of gamma-irradiated SARS-CoV-2 virus (BEI Resources NR-52287) were tested up to a concentration of  $1.4 \times 10^5$  TCID<sub>50</sub>/mL. In this study, the starting material was spiked into a volume of pooled human nasal matrix obtained from healthy donors and confirmed negative for SARS-CoV-2. At each dilution, 50 µL samples were added to swabs and the swabs processed for testing on the LumiraDx SARS-CoV-2 Ag Test as per the Product Insert using the procedure appropriate for patient nasal swab specimens.

No impact on test performance or high dose hook effect was observed up to  $1.4 \times 10^5$  TCID<sub>50</sub>/mL of gamma-irradiated SARS-CoV-2 with the LumiraDx SARS-CoV-2 Ag Test.

Test Dilution	Concentration (TCID <sub>50</sub> /mL)	Mean Signal (ADC Units)
1	0	495
2	62.5	26100.6
3	250	63013.8
4	1000	83451.8
5	1.4 x 10 <sup>5</sup>	86220

### Point of Care Use

The LumiraDx SARS-CoV-2 Ag Test was used by 8 untrained users in 4 sites across the United States. Untrained users tested 132 patients and ran 148 tests.

### References:

1. World Health Organisation [www.who.int](http://www.who.int)
2. Centers for Disease Control and Prevention [www.cdc.gov](http://www.cdc.gov)

### Symbols glossary:

Symbol	Meaning
	Temperature limitation
	Manufacturer
	<i>In vitro</i> diagnostic medical device
	Catalogue number
	Contains sufficient for 12 or 24 or 48
	Use by
	Consult Instructions for Use
	Do not Re-use
	Prescription Use Only
	Batch code/Lot Number

## **LumiraDx customer services:**

For product inquiries and technical support please contact LumiraDx Customer Services by

email: [customerservices.US@lumiradx.com](mailto:customerservices.US@lumiradx.com), telephone **1-888-586-4721** or [Lumiradx.com](http://Lumiradx.com)

## **For return policy**

If there is a problem with the **LumiraDx SARS-CoV-2 Ag Test Strips** you may be asked to return them. Before returning tests please obtain a return authorization number from LumiraDx Customer Services. This return authorization number must be on the shipping carton for return. For ordinary returns following purchase, please contact LumiraDx Customer Services for terms and conditions: [customerservices.US@lumiradx.com](mailto:customerservices.US@lumiradx.com)

## **Limited warranty**

**LumiraDx SARS-CoV-2 Ag Test Strips** – As per shelf life.

Unused strips must be stored according to the required storage conditions as printed in this product insert and they can be used only up to the expiry date printed on the Test Strip pouch and Test Strip box. For the applicable warranty period, LumiraDx warrants that each product shall be (i) of good quality and free of material defects, (ii) function in accordance with the material specifications referenced in the product insert, and (iii) approved by the proper governmental agencies required for the sale of products for their intended use (the "limited warranty"). If the product fails to meet the requirements of the limited warranty, then as customer's sole remedy, LumiraDx shall either repair or replace, at LumiraDx's discretion, the Test Strips. Except for the limited warranty stated in this section, LumiraDx disclaims any and all warranties, express or implied, including but not limited to, any warranty of merchantability, fitness for a particular purpose and non-infringement regarding the product. LumiraDx's maximum liability with any customer claim shall not exceed the net product price paid by the customer. Neither party shall be liable to the other party for special, incidental or consequential damages, including, without limitation, loss of business, profits, data or revenue, even if a party receives notice in advance that these kinds of damages might result. The Limited Warranty above shall not apply if the customer has subjected the LumiraDx SARS-CoV-2 Ag Test to physical abuse, misuse, abnormal use, use inconsistent with the LumiraDx Platform User Manual or Product Insert, fraud, tampering, unusual physical stress, negligence or accidents. Any warranty claim by Customer pursuant to the Limited Warranty shall be made in writing within the applicable Limited Warranty period.

**Intellectual property:**

The LumiraDx Instrument, Test Strips and all provided LumiraDx documentation ('Products') are protected by law. The Intellectual Property of the LumiraDx Products remains at LumiraDx. Details of relevant Intellectual Property regarding our products can be found at [lumiradx.com/IP](http://lumiradx.com/IP).

**Legal notices:**

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**Manufacturer information:**

LumiraDx UK Ltd, Dumyat Business Park, Alloa, FK10 2PB, UK. Company

Number 09206123.

**LumiraDx US Office:**

221 Crescent St, Suite 502, Waltham, MA 02453. Telephone: 1-888-586-4721

# lumiraDx™ SARS-CoV-2 Ag Test

## Quick Reference Instructions

For Emergency Use Authorization Only (EUA). For *in vitro* Diagnostic Use. Rx Only.

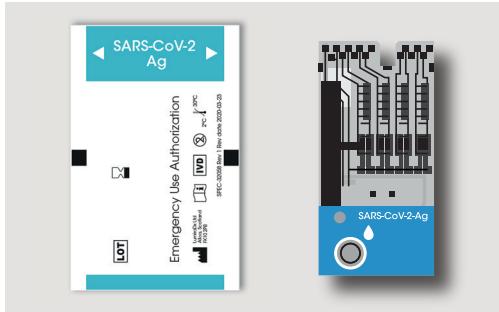
SPEC-32757 R1 S-COM-ART-00406 R3 Date of Rev 2020/08

### Warning and Precautions:

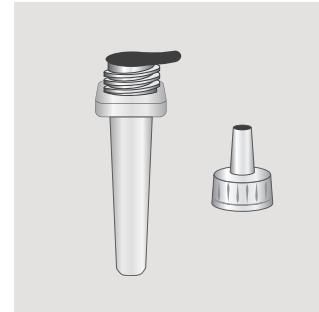
All kit components can be discarded as Biohazard waste according to local guidelines. Refer to the product safety data sheet for risk and safety phrases and disposal information. The product safety data sheet is available at <https://lumiradx.com/us-en/what-we-do/diagnostics/test-technology/antigen-test>. Exercise the normal precautions required for handling all laboratory reagents. Proper laboratory safety techniques should be followed at all times when working with SARS-CoV-2 patient samples. Patient swabs, used Test Strips and used extraction buffer vials may be potentially infectious. Proper handling and disposal methods should be established by the laboratory in accordance with local, state and federal regulations. Reagents encapsulated within the Test Strip are present in extremely small amounts and where any component is of animal origin, the source is certified as free from infectious or contagious material – however, should any reagent become exposed it should be treated as potentially infectious.

## LumiraDx SARS-CoV-2 Ag Test Kit Components

### Test Strip



### Extraction Vial and Dropper Lid



The LumiraDx SARS-CoV-2 Ag Test is a rapid microfluidic immunofluorescence assay for use with the LumiraDx Platform. Intended for the qualitative detection of the nucleocapsid protein antigen to SARS-CoV-2 directly from nasal swab specimens collected from individuals who are suspected of COVID-19 by their healthcare provider within twelve days of the onset of symptoms.

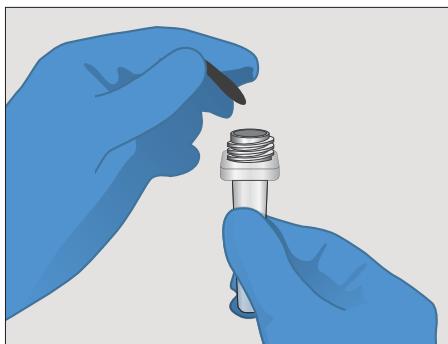
Study the LumiraDx Platform User Manual and LumiraDx SARS-CoV-2 Ag Test Strip Product Insert thoroughly before using these Quick Reference Instructions or performing a test. This is not a complete product insert.

Operate the LumiraDx Platform at room temperature between 15°C and 30°C (59°F and 86°F) and 10% - 90% relative humidity. The extracted sample must be used within 5 hours of preparation when stored at room temperature. Extracted nasal specimens may be frozen at -80°C and used up to 5 days after freezing. Specimens and extraction buffer must be at room temperature before testing. Check expiration date on outer test kit carton and each individual test package before using. Do not use any test components beyond its expiration date. Refer to the LumiraDx SARS-CoV-2 Ag Test Strip Product Insert for Specimen Collection, Warning and Precautions, and Limitations.

## Preparing the sample

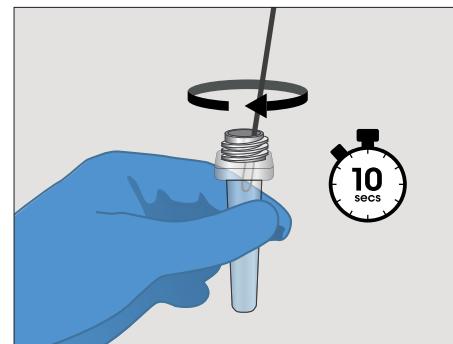
Collect a patient swab sample before following steps 1 – 4 of **Running the Test**.

**Specimen Collection and Handling:** Proper specimen collection and handling of nasal swabs is required to ensure accurate results (refer to product insert). Additional training or guidance is recommended if operators are not experienced with specimen collection and handling procedures.



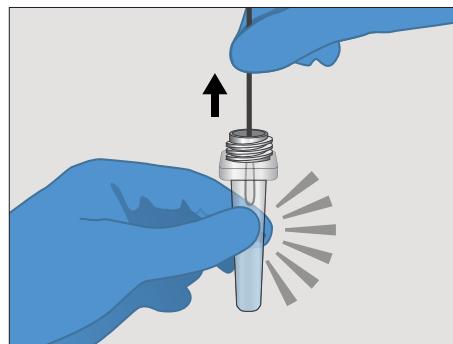
### Remove seal

Remove the seal from the top of the **Extraction Vial** containing the **Extraction Buffer**.



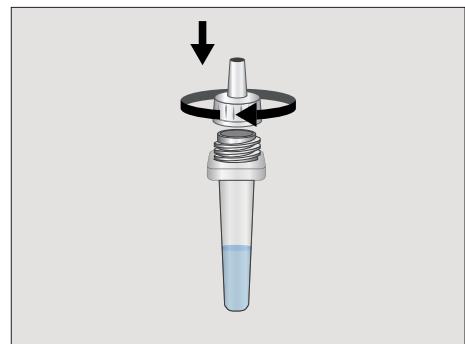
### Soak Swab

Place and soak the **Patient Swab** in the **Extraction Buffer** for 10 seconds then stir well by rotating the swab against the side of the vial 5 times.



### Squeeze Swab

Remove the **Patient Swab** while squeezing the **Extraction Vial** to remove the liquid from the swab. Discard the swab in biohazard waste.



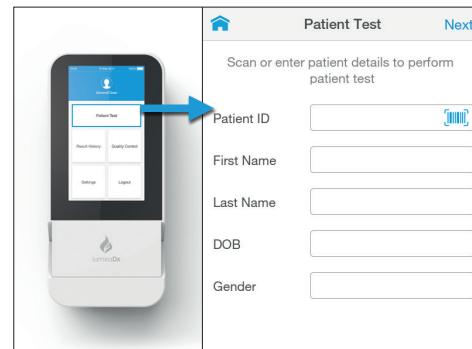
### Attach Dropper Lid

Firmly attach the **Dropper Lid** to the top of the **Extraction Vial**. The extracted sample must be used (see Step 5 and 6) within 5h of preparation when stored at room temperature.

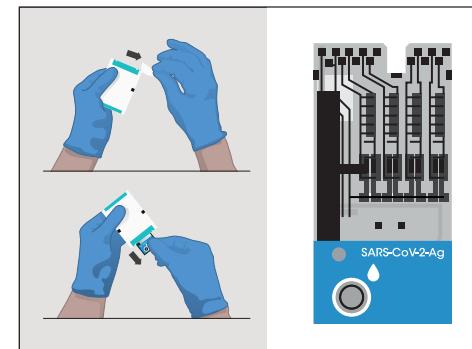
## Cleaning and Disinfecting

Wipe the external surfaces of the LumiraDx Instrument with a soft, slightly damp cloth when it appears visibly dirty. Disinfect the Instrument between each patient test using LumiraDx approved wipes such as TECcare CONTROL wipes. Use the wipe until the surface of the Instrument is visibly wet. Allow the surface to remain wet for **5 minutes** and let air dry. **Avoid USB ports and power inlet. Do not spray or pour solution directly onto the Instrument. Do not put any objects or cleaning materials into the Test Strip slot.**

## Running the Test



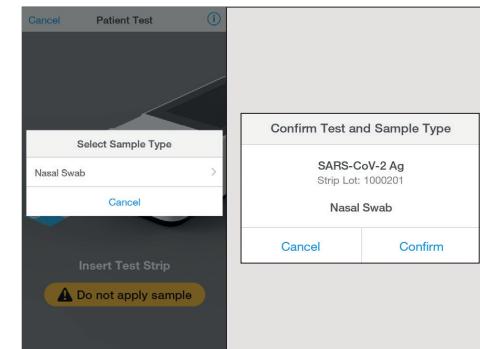
- Select Patient Test from the **Instrument Home Screen** and enter patient details using the **Keyboard** or **Barcode Scanner**. See section 10 of the **Platform User Manual** for instructions on using the **Barcode Scanner**.



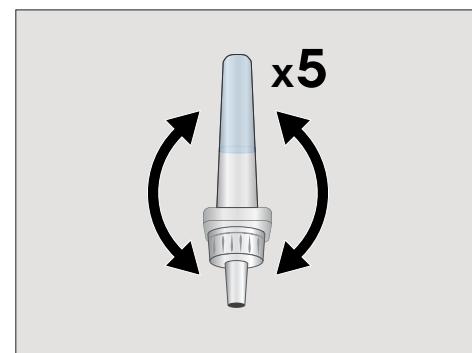
- Remove the **Test Strip** from its pouch and hold by gripping only the blue portion. **Do not bend the Test Strip or touch any part other than the blue portion.**



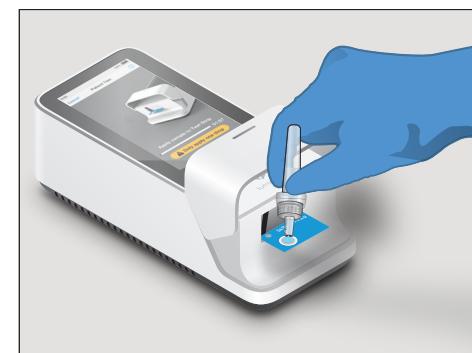
- When prompted, open the **Instrument** door and gently insert the **Test Strip** as far as it will go. The thick black alignment rib on the **Test Strip** should be on the left and line up with the black line on the **Instrument**. **Do not apply the sample until prompted.** Install the Lot Calibration file if using a new **Test Strip Lot** for the first time. See section 2.8 of the **Platform User Manual**.



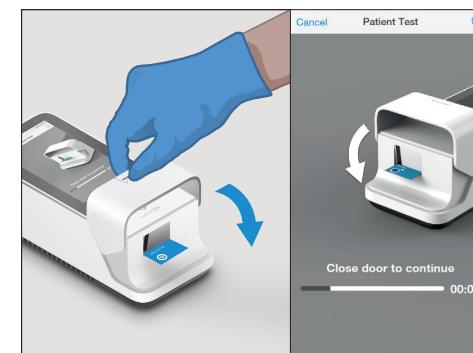
- Select the appropriate sample type and confirm the test type.



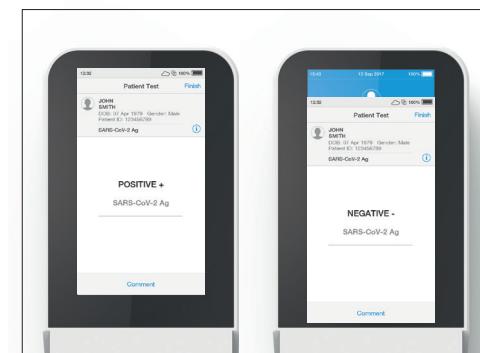
- Gently invert the **Extraction Vial** five times just before applying the sample to the **Test Strip**.



- Apply **one whole drop** of the sample onto the **Test Strip Sample Application Area** when prompted by the **Instrument**.



- Close the door when prompted to continue the test.



- Results are displayed within 12 minutes of applying the sample. The left-hand image here shows a positive result for SARS-CoV-2 Ag and the right-hand image shows a negative result for SARS-CoV-2 Ag. Tap **Finish** to complete testing or tap **Comment** to leave a comment or to reject the Test, then follow prompts to return to the **Home Screen**. All test results must be read using the LumiraDx Instrument.

## INTERPRETATION OF RESULTS

### Positive Test Results:

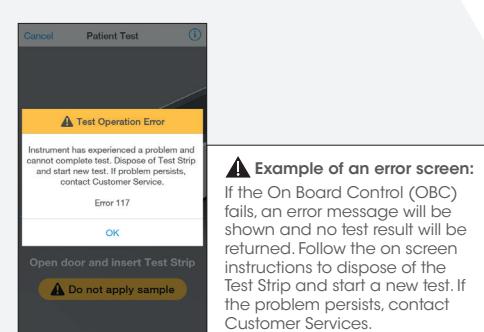
SARS-CoV-2 antigen present; does not rule out coinfection with other pathogens.

### Negative Test Results:

Negative results are presumptive for patients with symptom onset beyond 12 days. Negative test results do not preclude infection and should not be used as the sole basis for treatment or other patient management decisions, including infection control decisions, particularly in the presence of clinical signs and symptoms consistent with COVID-19, or in those who have been in contact with the virus. It is recommended that these results be confirmed by a molecular testing method, if necessary for patient management.

### Invalid Results:

If an issue occurs, a message will be displayed on the Instrument touch-screen. Alert messages include useful information and are highlighted by an orange banner. Error messages also include a symbol. All messages will contain a description of the Instrument status or error and an instruction. Error messages contain an identifying code that may be used for further troubleshooting purposes.



### Quality Controls

To complete Quality Control assessment of the LumiraDx Instrument and SARS-CoV-2 Ag Test Strips, you must use the LumiraDx SARS-CoV-2 Ag Quality Control Pack which are available separately. If the LumiraDx Antigen Quality Controls do not perform as expected, do not report patient results. Retest using a new Test Strip – if problems persist contact LumiraDx Customer Services on telephone number **1-888-586-4721**.

In the USA, this test has not been FDA cleared or approved; this test has been authorized by FDA under an EUA for use by authorized laboratories; use by laboratories certified under the CLIA, 42 U.S.C., §263a, that meet requirements to perform moderate, high or waived complexity tests. This test is authorized for use at the Point of Care (POC), i.e., in patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation. This test has been authorized only for the detection of proteins from SARS-CoV-2, not for any other viruses or pathogens. In the USA, this test is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of the virus that causes COVID-19 under Section 564(b)(1) of the Federal Food, Drug and Cosmetic Act, 21 U.S.C. § 360bbb-3(b)(1), unless the authorization is terminated or revoked sooner.

### Customer Service

If the **LumiraDx SARS-CoV-2 Ag Test** or the **LumiraDx Instrument** do not perform as expected, contact LumiraDx Customer Services **1-888-586-4721** or [customerservices.us@lumiradx.com](mailto:customerservices.us@lumiradx.com)

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### Manufacturer Information

LumiraDx UK Ltd, Dumyat Business Park, Alloa, FK10 2PB, UK. Registration Number: 09206123

# lumiraDx™ SARS-CoV-2 Ag Quality Controls

For use with the LumiraDx Platform

For Professional Use Only

For Use under Emergency Use Authorization (EUA) only

For In Vitro Diagnostic Use

Rx Use only

SPEC-32441 Rev1

ART-00620 Rev1 Rev Date 2020-08

The LumiraDx SARS-CoV-2 Ag Quality Controls (hereafter referred to as Quality Controls) are liquid quality controls to be used with the LumiraDx Instrument (hereafter referred to as the Instrument) and the LumiraDx SARS-CoV-2 Ag Test (hereafter referred to as SARS-CoV-2 Ag Test).

Read these instructions thoroughly before using the Quality Controls.

Inspect the Quality Controls packaging and contents for damage before use. Report any damage to LumiraDx Customer Services and do not use the kit if any damage is observed to the contents.

To ensure that you are using the Instrument, the SARS-CoV-2 Ag Test and the Quality Controls correctly, read the appropriate Platform User Manual, SARS-CoV-2 Ag Test Product Insert and this entire pack insert. In addition, please watch the LumiraDx Platform Training video available at [lumiradx.com](http://lumiradx.com). The Quality Controls are intended for healthcare professional use only.

## Intended use

The LumiraDx SARS-CoV-2 Quality Controls are intended for liquid quality control testing performed on the LumiraDx Instrument when used with the LumiraDx SARS-CoV-2 Ag Test Strip. The Quality Controls provide users with assurance that the device is performing within specification.

## Summary and explanation of the test

The LumiraDx SARS-CoV-2 Ag Quality Controls are liquid quality controls. The controls are specifically formulated and manufactured to ensure performance of the test and are used to verify the user's ability to properly perform the test and interpret the results.

It is the responsibility of each laboratory or healthcare setting using the LumiraDx SARS-CoV-2 Ag Test to establish an adequate quality assurance program to ensure the performance of the device under its specific locations and conditions of use. Quality control requirements should be followed in conformance with local, state, and federal regulations or accreditation requirements and the user laboratory's standard quality control procedures.

## Warnings and Precautions

- For *in vitro* diagnostic use.
- This control contains human source material and as with all human based specimens, should be treated as potentially infectious and handled with proper laboratory safety procedures to minimize the risk of transmission of infectious disease.
- All components of this kit can be discarded as biohazard waste according to the local guidelines.
- Refer to the product safety data sheet for risk and safety phrases and disposal information. The product safety data sheet is available for users upon request.
- Requirements of the appropriate licensing or accrediting body should be incorporated into your quality control program.
- Exercise the normal precautions required for handling all laboratory reagents.

## Storage and stability

- Store controls between 2°C and 8°C (36 - 46°F).
- Unopened controls that are stored between 2°C and 8°C (36 and 46°F) can be used until the expiration date. Do not use kits or components beyond the expiration date given on the label.
- Once opened, the vial has a 30 day expiry.
- Open the Control Vials only when you are performing tests.
- Recap and store the Control Vials in their original container at 2°C and 8°C (36 and 46°F) after use.

## Carton contents

- 2 x 0.5ml vial SARS-CoV-2 Ag Positive Control
- 2 x 0.5ml vial SARS-CoV-2 Ag Negative Control
- 24 Transfer pipettes (20µl)
- LumiraDx SARS-CoV-2 Ag Quality Control Pack Insert

## Materials required but not provided with the Control Carton:

- LumiraDx Instrument
- LumiraDx SARS-CoV-2 Ag Test Strips
- LumiraDx Connect- if connectivity required (refer to LumiraDx Connect User Manual)

## Getting ready to test

You will need the LumiraDx Instrument and the following supplies:

- LumiraDx SARS-CoV-2 Ag Test strip(s)
- LumiraDx SARS-CoV-2 Ag Positive or Negative Quality Controls
- Transfer pipette

## Preparing the Quality Controls

The liquid controls are supplied ready to use.

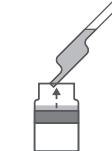
## Handling the LumiraDx SARS-CoV-2 Ag Test Strips:

To ensure that you are using the SARS-CoV-2 Ag Test and the Instrument correctly, read the appropriate SARS-CoV-2 Ag Test Strip Product Insert and Platform User Manual.

## Procedure/performing a test

Consult the LumiraDx Platform User Manual for instructions on how to analyse a Quality Control sample. Open the foil pouch of the SARS-CoV-2 Ag Test Strip just before use and insert the Test Strip into the LumiraDx Instrument. The Instrument will indicate when ready for the sample to be applied.

- Draw up the **Quality Control solution** into the **Transfer pipette**.



- Apply the **Quality Control solution** to the **already inserted SARS-CoV-2 Ag Test Strip**. Hold the pipette over the Sample Application Area of the Test Strip and dispense the Quality Control solution. The LumiraDx Instrument will indicate sample is detected with an audible alert (if the Instrument sounds are enabled). The screen of the LumiraDx Instrument will request the user to close the door. Dispose of pipette.
- Do not open the door while the test is in progress.** The touch-screen will indicate test progress.
- The Result** will appear on the touch-screen within 12 minutes of applying the Quality Control solution and starting the test. The results will be displayed as a **PASS** or **FAIL** QC result for SARS-CoV-2 Ag on the instrument screen.
- NOTE:** If you need to repeat a test, use a new Test Strip.



## Expected results

The Instrument displays the result as Pass or Fail. The result is automatically saved in the memory of the Instrument. The system is working properly and all handling has been done correctly when the test results obtained are displayed as PASS.

## Symbols glossary:



Temperature limitation



Manufacturer



For *In Vitro* Diagnostic Use Only



Catalogue number



Lot number



Use-by date - indicates the date after which the unopened IVD/Quality Control material can not be used.



Indicates a control material that is intended to verify the performance characteristics of the LumiraDx Instrument. An indication of the level of control is shown in the box, e.g. 1 or 2



Indicates that potential biological risks are associated with the Quality Control material.



Refer to instructions for use.



Indicates a negative control



Indicates a positive control

## LumiraDx customer services:

For product inquiries please contact LumiraDx Customer Services by email: [customerservices.US@lumiradx.com](mailto:customerservices.US@lumiradx.com) or telephone 1-888-586-4721

Any adverse results experienced with the use of this product, and/or quality problems should also be reported to LumiraDx Customer Services by email: [customerservices.US@lumiradx.com](mailto:customerservices.US@lumiradx.com) or at [lumiradx.com](http://lumiradx.com).

## For return policy

If there is a problem with the LumiraDx SARS-CoV-2 Ag Quality Controls Pack you may be asked to return them. Before returning tests please obtain a return authorization number from LumiraDx Customer Services. This return authorization number must be on the shipping carton for return. For ordinary returns following purchase, please contact LumiraDx Customer Services for terms and conditions.

## Limited warranty

LumiraDx SARS-CoV-2 Ag Quality Controls Pack – As per shelf life.

For the applicable warranty period, LumiraDx warrants that each product shall be (i) of good quality and free of material defects, (ii) function in accordance with the material specifications referenced in the pack insert, and (iii) approved by the proper governmental agencies required for the sale of products for their intended use (the "limited warranty"). If the product fails to meet the requirements of the limited warranty, then as the customer's sole remedy, LumiraDx shall either repair or replace, at LumiraDx's discretion, the LumiraDx SARS-CoV-2 Ag Quality Controls Pack. Except for the limited warranty stated in this section, LumiraDx disclaims any and all warranties, express or implied, including but not limited to, any warranty of merchantability, fitness for a particular purpose and non-infringement regarding the product. LumiraDx's maximum liability with any customer claim shall not exceed the net product price paid by the customer. Neither party shall be liable to the other party for special, incidental or consequential damages, including, without limitation, loss of business, profits, data or revenue, even if a party receives notice in advance that these kinds of damages might result.

The Limited Warranty above shall not apply if the customer has subjected the LumiraDx SARS-CoV-2 Ag Test Strips and Controls Pack to physical abuse, misuse, abnormal use, use inconsistent with the LumiraDx Platform User Manual, SARS-CoV-2 Ag Test Product Insert or SARS-CoV-2 Ag Quality Controls Pack Insert, fraud, tampering, unusual physical stress, negligence or accidents. Any warranty claim by Customer pursuant to the Limited Warranty shall be made in writing within the applicable Limited Warranty period.

## Intellectual property:

The LumiraDx Instrument, Test Strips and all provided LumiraDx documentation ('Products') are protected by law. The Intellectual Property of the LumiraDx Products remains at LumiraDx. Details of relevant Intellectual Property regarding our products can be found at [lumiradx.com/IP](http://lumiradx.com/IP).

## Legal notices:

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## Manufacturer information

LumiraDx UK Ltd, Dumyat Business Park, Alloa, FK10 2PB, UK.

Registration Number: 09206123

## LumiraDx US Office

221 Crescent St, Suite 502, Waltham, MA 02453.

Telephone: (617) 621-9775

In the USA, this test has not been FDA cleared or approved; this test has been authorized by FDA under an EUA for use by authorized laboratories; use by laboratories certified under the CLIA, 42 U.S.C. §263a, that meet requirements to perform moderate, high or waived complexity tests. This test is authorized for use at the Point of Care (POC), i.e., in patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation. This test has been authorized only for the detection of proteins from SARS-CoV-2, not for any other viruses or pathogens. In the USA, this test is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of the virus that causes COVID-19 under Section 564(b)(1) of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 360bbb-3(b)(1), unless the authorization is terminated or revoked sooner.



For Emergency Use Authorization Only

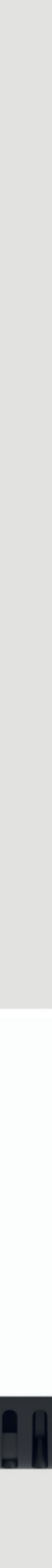
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Dumyat Business Park  
Alton GU10 2PB, UK

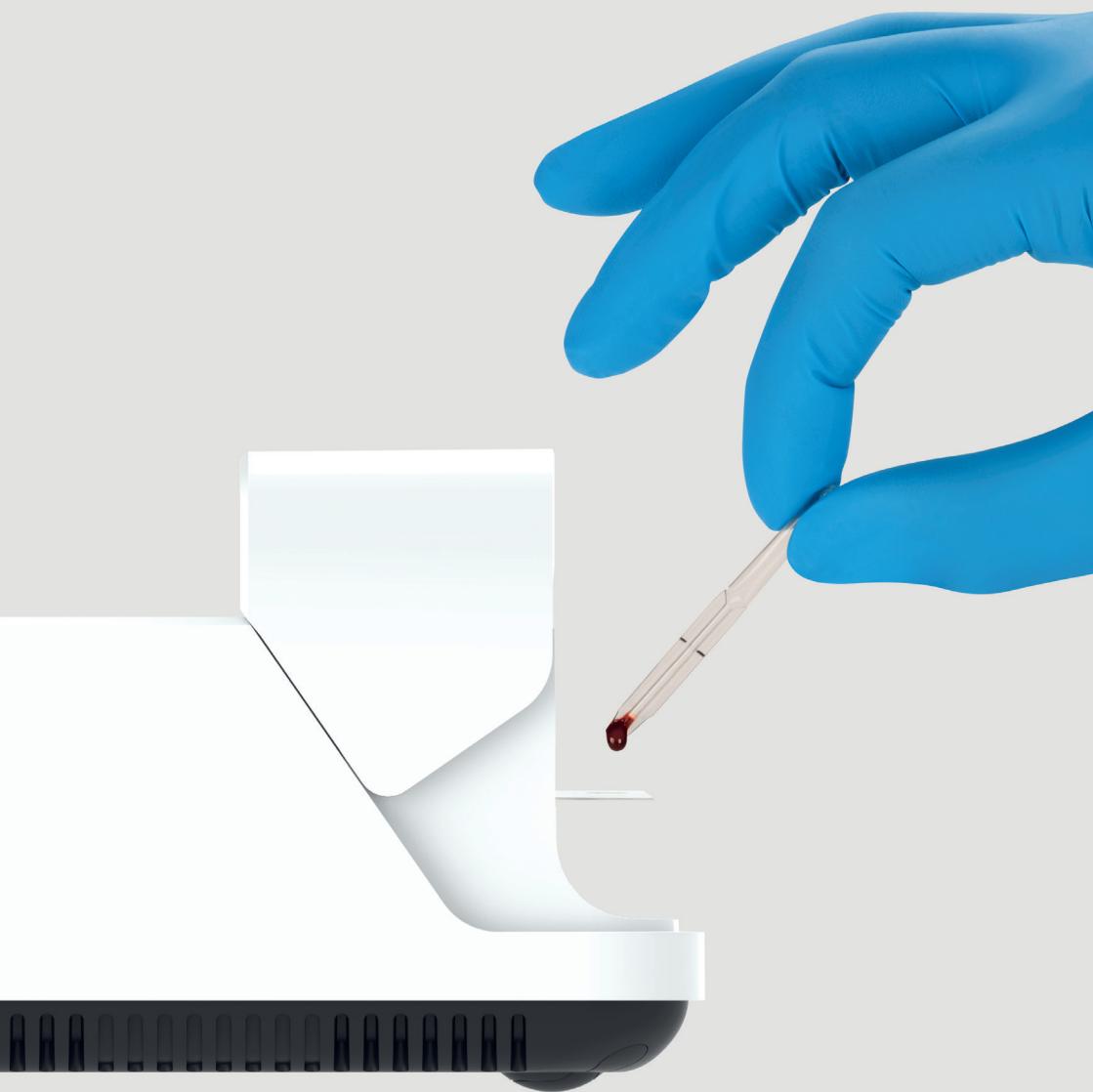
SPEC-32180 Rev1  
ART-00410 Rev1  
Rev Date 2020/06

For product inquiries and technical support please contact  
LumiraDx Customer Services by email: [customerservices.US@lumiradx.com](mailto:customerservices.US@lumiradx.com), telephone +1 (617) 621-9775 or at [lumiradx.com](http://lumiradx.com).





lumiraDx™ Platform User Manual





# Platform User Manual

- The LumiraDx Platform is for use with SARS-CoV-2 Ab Test Strips and SARS-CoV-2 Ag Test Strips, under the Food and Drug Administration's Emergency Use Authorization only.
- For *In Vitro* Diagnostic Use
- Rx Only



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# Symbols

On the packaging and on the identification plate of the Instrument you may encounter the following symbols, shown here with their meaning:

	Temperature limitation
	Manufacturer
<b>IVD</b>	<i>In vitro</i> diagnostic medical device
	This product contains electrical and electronic components that may contain materials which, if disposed with general waste, could be damaging to the environment. Residents of the European Union must follow specific disposal or recycling instructions for this product. Residents outside the European Union must dispose or recycle this product in accordance with local laws or regulations that apply.
<b>REF</b>	Catalogue Number
<b>SN</b>	Serial Number
	Caution - Consult Instructions for Use. Refer to safety-related warnings and precaution notes in the Instructions for Use accompanying this product, e.g. Platform User Manual, Test Strip Product Insert or Quality Control Pack Insert.
	Indicates that the Instrument can be potentially infectious due to the samples or reagents used.
	Direct current - Indicates that the Instrument is suitable for direct current only and to identify relevant terminals.
	Universal Serial Bus (USB) Port
	Near Field Connectivity (NFC) - Indicates the presence of the Radio Frequency (RFID) reader.
	Identifies the power button to power on or power off the Instrument.
	Consult Instructions for Use

# Instrument icons and buttons

The icons and buttons that appear on the touch-screen during normal operation of the LumiraDx Instrument are shown here, along with their respective meanings.

	Indicates the patient's biological sample.
	Return to the home screen.
	Info button - used to reveal additional information, such as test or patient information.
	Indicates which fields barcode scanning is available as a means of data input. When pressed as a button, displays barcode scanning instructions.
	Indicates when the Instrument is connected to Connect Manager.
	Indicates that the Instrument has an active connection to an Electronic Health Record (EHR).
	Indicates that the Instrument connection to an Electronic Health Record (EHR) is not active.
	Notification - Highlights an area which requires attention.
	Caution - Highlights an error or precautionary statement which requires attention. Refer to safety-related warnings and precaution notes in the Instructions for Use accompanying this product, e.g. Platform User Manual, Test Strip Product Insert or Quality Control Pack Insert.
	Indicates the status of the battery.
	Displayed when the battery is in a charging state.
	Icon which acts as a button - clears the text input field of all data.
	Indicates the high end of the touch-screen brightness slider.
	Indicates the low end of the touch-screen brightness slider.
	Volume (high)
	Volume (low)
	Indicates a text field which can perform a search function.
	Indicates confirmation of a completed action.

## Abbreviations

CDC	Centers for Disease Control and Prevention
EHR	Electronic Health Record
HCP	Health Care Professional
ID	Identification
QC	Quality Control
RFID	Radio-Frequency Identification
UK	United Kingdom
USB	Universal Serial Bus
WHO	World Health Organization
HIS	Hospital Information System
LIS	Laboratory Information System
DOB	Date of Birth

# Important safety information

Healthcare professionals need to adhere to standard precautions when using the LumiraDx Platform<sup>1,2,3</sup>. All parts of the LumiraDx Instrument and LumiraDx Test Strips should be considered potentially infectious after use and are capable of transmitting pathogens between patients and healthcare professionals<sup>4</sup>.

The Instrument should be disinfected after use with each patient<sup>4</sup>. The Instrument may only be used for testing multiple patients when standard precautions and the manufacturer's disinfection procedures are followed. Full cleaning and disinfecting procedures are described in the "Cleaning and Disinfecting" chapter in this Platform User Manual.

A clean pair of gloves should be worn before testing each patient.



Wash hands thoroughly with soap and water before putting on a new pair of gloves and performing the next patient test.

Only use auto-disabling, single use lancing devices.

Dispose of all Test Strips used for patient or Quality Control testing safely in accordance with local regulations and procedures.

The LumiraDx Instrument contains 2 USB ports that are for use with approved & supported LumiraDx USB devices only. DO NOT connect any unsupported devices into the USB ports.

The LumiraDx Instrument contains a neodymium magnet.

Although the risk of interference with implanted devices such as pacemakers is minimal, we recommend that patients with an implanted device should maintain a distance of at least 15 cm between the LumiraDx Instrument and their heart device.



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# Overview of the LumiraDx Platform

The LumiraDx Platform is a point of care system which is used for *in vitro* diagnostic tests. It comprises a portable LumiraDx Instrument and a LumiraDx Test Strip for the required test. This allows healthcare professionals to perform tests using small sample volumes and to view results quickly on the Instrument touch-screen. Information about test duration and test performance can be found in the LumiraDx Test Strip Product Inserts.

The LumiraDx Instrument is intended to be for multi patient use and should be disinfected after use on each patient.

The LumiraDx Instrument can be used in Standalone mode, providing test results on the touch-screen. Single or multiple Instruments can be connected to the LumiraDx Connect Manager for extended functionality and configuration. LumiraDx EHR Connect can enable the transfer of patient test results to the Electronic Health Record (EHR).

The LumiraDx Platform comprises:

- LumiraDx Instrument
- LumiraDx Test Strips (Available separately)
- LumiraDx Quality Controls (Available separately)
- LumiraDx Barcode Scanner (Available separately)
- LumiraDx Printer (Available separately)

LumiraDx Connect diagnostic connectivity solution:

- LumiraDx Connect Manager
  - LumiraDx Connect App (for iOS and Android)
  - LumiraDx Connect Hub
- LumiraDx EHR Connect

The mode of operation and selection of Platform components is dependent on the following requirements of the organization:

- Types of tests to be performed
- Number of testing sites and users
- System administration, integration, and data transfer to the EHR

# About this Platform User Manual

Read this LumiraDx Platform User Manual and the LumiraDx Test Strip Product Inserts carefully and completely before testing for the first time.

This Platform User Manual provides the information required to operate and care for the LumiraDx Instrument.

If error messages appear on the Instrument touch-screen, follow the instructions displayed or refer to the "Troubleshooting" chapter. For questions not answered in the LumiraDx Platform User Manual or Product Inserts, please contact Customer Services. Refer to the "Customer Services" chapter of this Platform User Manual for contact information.

**Please note:** Instructions are combined with example screenshots. Some screens may look different on the Instrument depending on the test or mode of operation. All screens, test names and results displayed in this Platform User Manual are intended only as examples.

This Platform User Manual highlights cautions and important information:

**This symbol** indicates a caution. Refer to safety-related warnings and precaution notes in the Instructions for Use accompanying this product, e.g. Platform User Manual, Test Strip Product Insert or Quality Control Pack Insert.



# 1 Introduction

## 1.1 Intended use

The LumiraDx Instrument (hereafter referred to as Instrument) is intended for use with the LumiraDx family of Test Strips (hereafter referred to as Test Strips) for the *in vitro* measurement of various analytes in a range of biological samples by trained healthcare professionals.

## 1.2 Important information

Read this LumiraDx Platform User Manual and the LumiraDx Test Strip Product Inserts carefully and completely before testing. Pay attention to the “Important safety information” at the start of this Platform User Manual before operating the Instrument. In addition, please watch the LumiraDx Platform Training Video available at [kc.lumiradx.com](http://kc.lumiradx.com).

## 1.3 Summary of the test procedure

To perform a patient test, the user is required to insert a Test Strip, apply a small sample volume of one drop, and close the Instrument door. Patient ID can be entered using the touch-screen keyboard or LumiraDx Barcode Scanner.

When the test process is complete, the result is displayed on the touch-screen and the user can optionally add a comment. Upon completion of the test, the Instrument stores the test result.

The Instrument provides visual and audible prompts throughout the test process.

## 1.4 Principles of operation

The Instrument automatically processes the Test Strip including sample movement, reagent mixing, thermal control and fluorescent reading of the reaction product and provides a calibrated, quantitative or qualitative result. Each Lot of Test Strips requires a LumiraDx Lot Calibration File, which provides the Instrument with the information required to process the test. The Lot Calibration File is installed by placing the RFID tag in the Test Strip Carton against the RFID reader in the Instrument.

### **Quality Assurance**

The LumiraDx Instrument ensures the quality of test results obtained through the following features:

- Automated checks of the correct functioning of the Instrument at power on and during operation.
  - This includes electrical component operation, heater operation, battery charge state, mechanical actuators and sensors and optical system performance.
- Monitoring of Test Strip performance and controls during test runtime.
- Onboard Quality Control (OBC) assay.
- Ability to perform Quality Control Tests using LumiraDx Quality Controls to meet regulatory compliance requirements.

## 1.5 Storage and operating conditions

### 1.5.1 LumiraDx Test Strips

For specific information on Test Strip storage and operating conditions, refer to the relevant LumiraDx Test Strip Product Inserts.

### 1.5.2 LumiraDx Instrument

The Instrument is portable and can be used across a range of settings, such as care homes, primary care clinics, hospital wards and departments, pharmacy and laboratories. The Instrument is not intended for hand-held operation.

The Instrument can be stored or transported at a temperature between -10°C and 50°C (14°F and 122°F).

To power on and access the Instrument result history, operate the LumiraDx Instrument at a temperature between 15°C and 30°C (59°F and 86°F), and at a relative humidity between 10 % and 90 % (non-condensing). Specific test operating conditions may be more restrictive. Allow time for the Instrument to acclimatize to operating temperatures if it has been stored in a cold environment. Allow time for the Instrument to acclimatise to operating temperatures if it has been stored in a cold environment.

Always place the Instrument on a level, stable surface when powering up or starting a test. Testing should be performed in a location where the air vents located in the back of the Instrument will not be blocked, i.e. on a table top away from soft surfaces. The Instrument will display an error message if these operating conditions are not met.

Avoid placing the Instrument in direct sunlight. This may interfere with proper functioning of the Instrument.

Refer to the "Instrument Specifications" chapter of this Platform User Manual for additional information on operating conditions and complete Instrument specifications.

## 1.6 Warnings

### Inserting Test Strips

- **Do NOT** touch Test Strip Sample Application Area.
- **Do NOT** bend or fold the Test Strip.
- **Do NOT** touch Test Strip contacts.
- **Do NOT** apply sample until prompted.



### Performing a patient test

- Wear a clean pair of gloves before performing a patient test.
- Place the Instrument on a level, stable surface before starting a test.
- Apply sample **AFTER** inserting the Test Strip and the Instrument prompt.
- **Do NOT** apply more than one drop of sample.
- Close the Instrument door after applying the sample and the Instrument prompt.
- **Do NOT** touch the Test Strip until the test has finished and the result is displayed.
- **Do NOT** open the door or move the Instrument during the test or an error will occur and the test result will not be saved.
- Dispose of all Test Strips used for patient testing safely in accordance with local regulations and procedures.
- Follow the test operating conditions in the LumiraDx Test Strip Product Insert.
- Follow the information on correct handling of Test Strips in the LumiraDx Test Strip Product Insert.



## Performing a Quality Control test



- Place the Instrument on a level, stable surface before starting a test.
- Use only LumiraDx Quality Controls.
- Apply Quality Control solution **AFTER** inserting the Test Strip and the Instrument prompt.
- **Do NOT** apply more than one drop of Quality Control solution.
- Close the Instrument door after applying the Quality Control solution and the Instrument prompt.
- **Do NOT** touch the Test Strip until the test has finished and the result is displayed.
- **Do NOT** open the door or move the Instrument during the test or an error will occur and the test result will not be saved.
- Dispose of all Test Strips used for Quality Control testing safely in accordance with local regulations and procedures.
- Follow the test operating conditions in the LumiraDx Test Strip Product Insert.
- Follow the information on correct handling of Test Strips in the LumiraDx Test Strip Product Insert.

## Cleaning and disinfecting



- **Do NOT** attempt to put any objects or cleaning materials inside the Test Strip slot.
- Always wear gloves whilst cleaning and disinfecting the Instrument.
- Only use LumiraDx recommended cleaning and disinfecting materials on the Instrument surfaces.
- Only use a damp and not wet swab or cloth for cleaning. Excess liquid may damage the Instrument.
- Always use LumiraDx approved wipes to disinfect the Instrument. Details of LumiraDx approved wipes can be found at [lumiradx.com](http://lumiradx.com).
- **Do NOT** spray or pour solution directly onto the Instrument.
- Following cleaning and disinfection, and before performing a patient test, change gloves and wash hands.

### **Instrument disposal**



- **Do NOT** attempt to replace or reinstate the battery.

### **FCC Radiation Exposure**



This Instrument Complies with FCC's RF radiation exposure limits set forth for an uncontrolled environment. To maintain compliance follow the instructions below:

- The transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- Avoid direct contact to the antenna, or keep contact to a minimum while using the Instrument.

## 1.7 Precautions

Only operate the LumiraDx Instrument for its intended purpose and in accordance with this Platform User Manual and warnings. If the Instrument is used in a manner not specified in the Platform User Manual, protection provided by the equipment will be impaired. The LumiraDx Instrument (including power supply unit) is designed to operate within the manufacturer specifications. Do not exceed the manufacturer specifications when in use.

### Avoidance of electrical shock, fire and explosions

- Use only the power supply unit that is provided with the Instrument. Use the appropriate power blade for the region. The correct power supply unit and adapter is required to maintain the safety and electromagnetic compatibility of the system.
- Always operate this Instrument on a clean, level and stable surface. Do not drop the Instrument. Ensure that air flow to the ventilation openings located on the back of the Instrument are not restricted.
- Risk of electrical shock. Do not operate the Instrument or the power supply unit if it has been opened, damaged or exposed to moisture, condensation or rain.
- Overheating can cause the battery pack to catch fire or explode.



### Safe disposal

- Follow proper infection control guidelines for handling all specimens and related items. Properly dispose of all contaminated waste according to local regulations.
- The LumiraDx Instrument and its components must be treated as potentially biohazardous waste. Decontamination (i.e. a combination of processes including cleaning, disinfection and/or sterilization) is required before reuse, recycling, or disposal.
- Dispose of the system or its components according to the appropriate local regulations.



### **Electromagnetic interference**



- Do not use the Instrument near strong electromagnetic fields, which could interfere with the proper operation of the Instrument.

### **Electromagnetic compatibility**



- The Instrument has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The Instrument generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this Instrument does cause harmful interference to radio or television reception, which can be determined by turning the Instrument off and on, the user is encouraged to try to correct the interference by one of the following measures:
  - a. Reorient or relocate the receiving antenna.
  - b. Increase the separation between the Instrument and receiver
  - c. Connect the Instrument into an outlet on a circuit different from that to which the receiver is connected.
  - d. Consult the dealer or an experienced radio/TV technician for help

## 1.8 Help and support

Information about using the LumiraDx Instrument can be found in this Platform User Manual. Information about the Test Strips and test performance can be found in the LumiraDx Test Strip Product Inserts and Quality Control Pack Inserts. Information about LumiraDx Connect Manager and LumiraDx EHR Connect can be found in the LumiraDx Connect User Manual.

The documents can also be found at [kc.lumiradx.com](http://kc.lumiradx.com).

If error messages appear on the screen, refer to the “Troubleshooting” chapter in this Platform User Manual. For questions not answered in the LumiraDx User Manuals or Product Inserts, please contact Customer Services. Refer to the “Customer Services” chapter of this Platform User Manual for contact information.

## **2 Getting Started**

### **2.1 Unpacking**

The LumiraDx Instrument package includes the following contents:

1. LumiraDx Instrument
2. LumiraDx Power Supply Unit
3. Platform User Manual
4. Platform Quick Reference Guide (including passwords for Standalone operation)

Inspect the Instrument and packaging for damage before use. Report any damage to Customer Services. Refer to the "Customer Services" chapter of this Platform User Manual for contact information.

### **2.2 Powering the Instrument on and off**

The Instrument must be fully charged before first use. It will take approximately 2 hours to fully charge the battery using the power supply unit provided.

Place the Instrument on a level, stable surface. Power on by briefly pressing the power button at the rear of the Instrument. You will hear the Instrument powering on and the display will be blank for several seconds. When prompted enter user ID and/or password to login.

The Instrument touch-screen will dim after 2 minutes of inactivity. Tap the touch-screen to restore the touch-screen brightness.

To power the Instrument off after use, press the power button at the rear of the Instrument for 2 seconds, and tap the screen message to confirm power off. The Instrument should be powered off for transportation and when not in use.

### **2.3 Instrument self-check**

The Instrument will perform a self-check when starting up. Ensure that the Instrument is on a level, stable surface during this process. If the Instrument door is open, the Instrument will prompt to close the door before performing the self-check. If a Test Strip is inserted at this time, the Instrument will prompt to remove the Test Strip and close the door. The self-check will not proceed until the door is closed.

## 2.4 User ID

There are two types of identification used with the Instrument:

### **General user**

Allows general users to use the Instrument to perform patient and Quality Control tests, view result history, and adjust preferences including screen brightness and sounds.

### **Administrator**

The administrator has additional rights to Instrument settings including language, time and date if the Instrument is being operated in standalone mode. If the Instrument is being managed in a connected mode then these settings will be downloaded from Connect Manager.

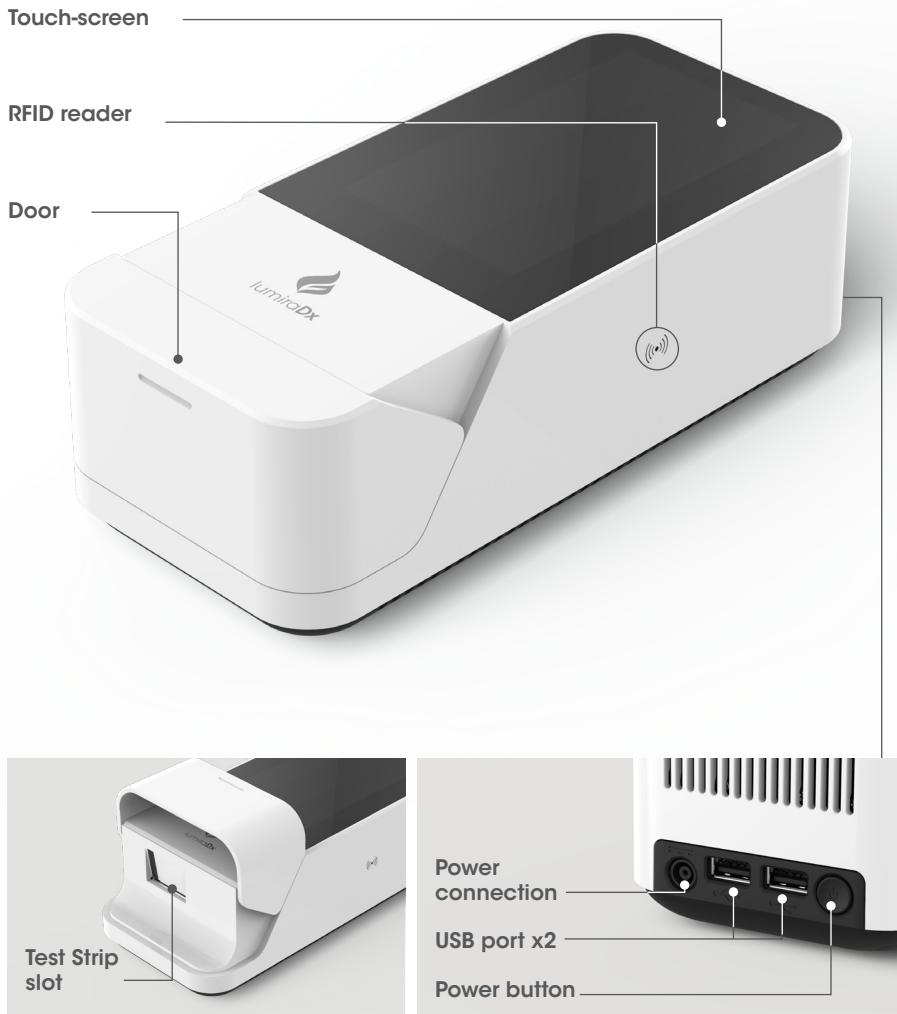
## 2.5 Operating mode and first time setup

The language and current date and time will need to be set by the administrator prior to performing a patient test. Other sound and display preferences can be set by any user.

Settings will automatically be downloaded to the Instrument if connecting to LumiraDx Connect Manager. Refer to the “Instrument operation” chapter of this Platform User Manual for more information on first time setup.

## 2.6 The LumiraDx Instrument

The Instrument is used in conjunction with the LumiraDx family of Test Strips for the *in vitro* quantification of various analytes in a range of biological samples.



## 2.7 Power supply

The LumiraDx Instrument contains a rechargeable non-removable battery. If the battery is critically low, the Instrument will prompt to connect the power supply unit. It will take approximately 2 hours to fully charge the battery. The Instrument can be operated while charging the battery.



During operation, the Instrument touch-screen always displays the battery power level and provides an alert when the battery level is low. To save power when battery operated, the Instrument will automatically power off after 55 minutes, unless the touch-screen is tapped. When the Instrument powers off, all result records will remain in the Instrument memory and any Instrument settings will be maintained.

Refer to the "Instrument Specifications" chapter of this Platform User Manual for additional information on operating conditions and complete Instrument specifications.

## 2.8 LumiraDx Lot Calibration File installation

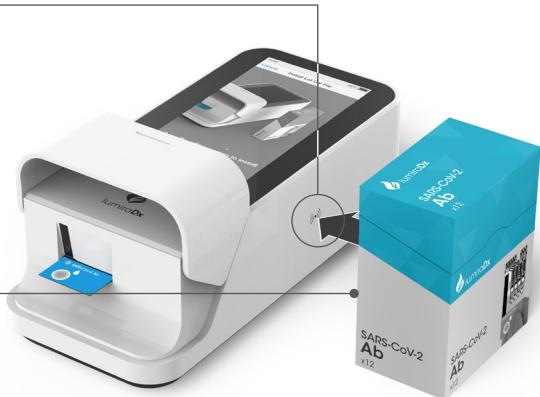
LumiraDx Lot Calibration Files are required to provide the Instrument with the information needed to perform diagnostic tests. Every manufactured Lot of Test Strips has a unique Lot Calibration File. This contains information about the test method, the Lot number, the calibration data and expiration date.

Lot Calibration File installation is performed manually. Locate the RFID reader by looking for the  symbol on the side of the Instrument. To install a new Lot Calibration File, touch the back of the Test Strip Carton to the  symbol to install. When the Lot Calibration File is installed the Instrument will sound and a confirmation message will be displayed.

The Instrument will prompt to install the Lot Calibration File when inserting a new Test Strip Lot. Once installed, the Instrument will have all the information required to process the test, and any future tests from the same Lot of Test Strips.

### RFID reader

Locate  symbol on Instrument.



### Installation

Touch back of Test Strip Carton  symbol to install.

### Confirmation

The Instrument will sound and a confirmation message will be displayed.



## 2.9 Extended functionality and operating modes

The LumiraDx Instrument can be used in Standalone mode, or two Connected modes: "Managed" and "EHR Connected" (meaning connected to the organization's electronic health record). Refer to the LumiraDx Connect User Manual for further information.

### Standalone

Run patient tests and quality control tests.

Store test results together with time, date and patient ID.



LumiraDx Instrument

### Managed

Configure single or multiple Instruments.

Create WorkGroups and user login credentials.

Manage compliance and governance functions.



LumiraDx Instrument  
& LumiraDx Connect Hub  
or LumiraDx Connect App



LumiraDx Connect Manager

### EHR Connected

Integrate with Electronic Health Record for transfer of patient test results.

View patient results in your LIS or HIS.



LumiraDx Instrument  
& LumiraDx Connect Hub  
or LumiraDx Connect App



LumiraDx Connect Manager



Electronic Health Record

## 3 Preparation for Testing

All samples are potentially infectious and are capable of transmitting pathogens between patients and healthcare professionals.

### 3.1 Handling Test Strips

When you are ready to perform a test, select a Test Strip and check the expiry date. Discard the Test Strips if they are past the expiration date. If within the expiry date open the Test Strip Carton, take out one Test Strip, and remove it from the foil pouch from the end indicated by the tear triangles. Refer to the LumiraDx Test Strip Product Insert for further information on handling and stability.



### 3.2 Inserting and removing Test Strips

Hold the Test Strip by gripping the blue label end with the label facing upward.

Line up the black alignment rib on the Test Strip with the black line on the Instrument. Insert the Test Strip gently as far as it will go. The Instrument will sound when the Test Strip is detected if sounds are turned on in the Instrument settings (see section 4.5).

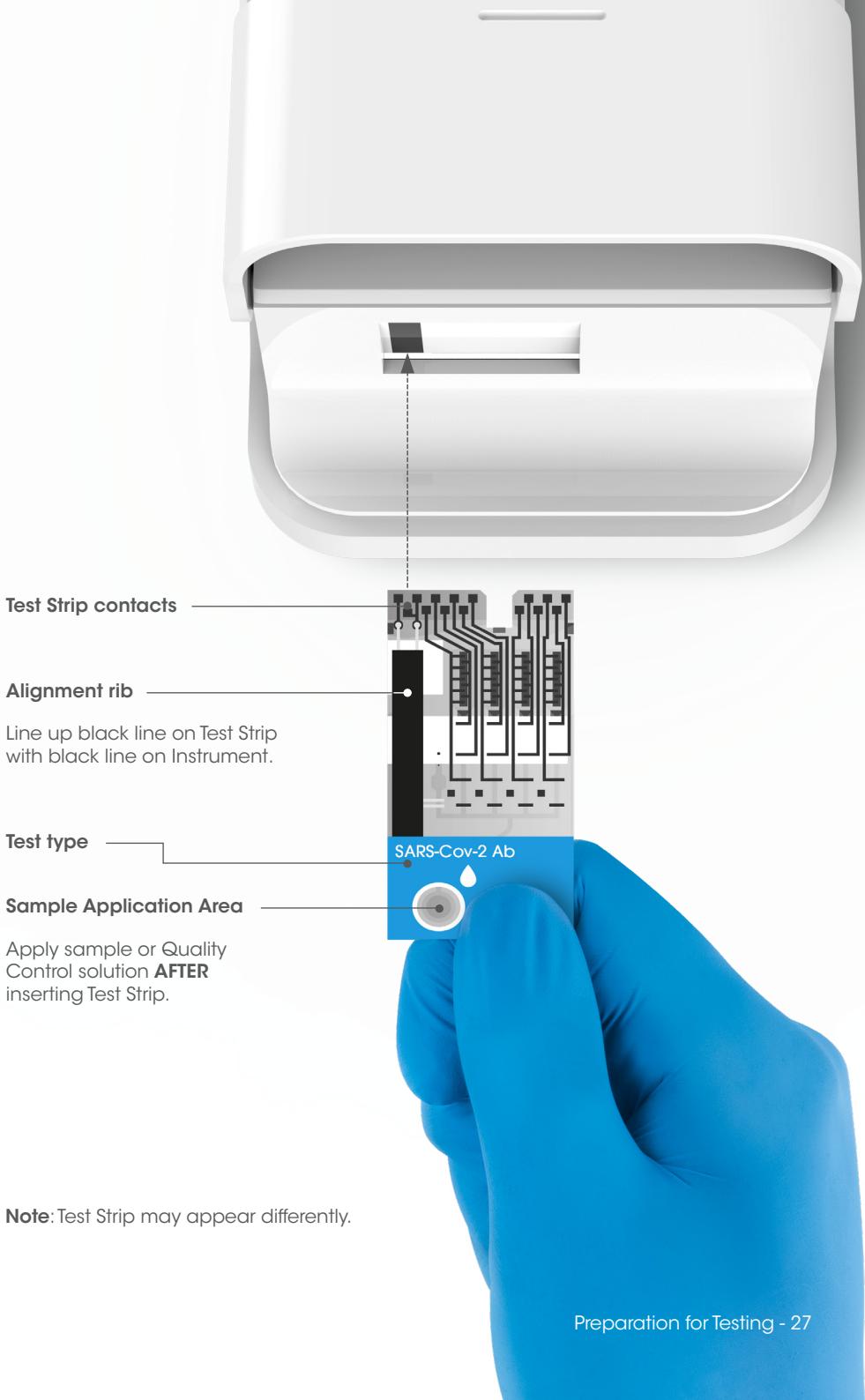
To remove a Test Strip from the Instrument, gently pull the blue label and pull straight out.

**Do NOT** touch Test Strip Sample Application Area.



**Do NOT** bend or fold the Test Strip.

**Do NOT** touch Test Strip contacts.



### 3.3 Capillary sample collection and application

When collecting any type of sample, follow universal blood collection precautions and guidelines according to your organization. Refer to Test Strip Product Insert for information on sample types and collection. Samples can be applied directly from a finger stick or a transfer tube can be used.

Details of LumiraDx recommended transfer tubes are available at [lumiradx.com](http://lumiradx.com) and sample application training videos are available at [kc.lumiradx.com](http://kc.lumiradx.com).

#### Collecting a capillary blood sample from a finger stick

Use a lancet near the finger tip on the side which faces down.

Before lancing ask the patient to rinse their hands in warm water and dry them. This is good practice to remove any residue and to increase the blood flow in the finger. Holding their arm straight down at their side, or massaging the finger from its base also increases blood flow to produce a sufficiently large hanging blood drop.



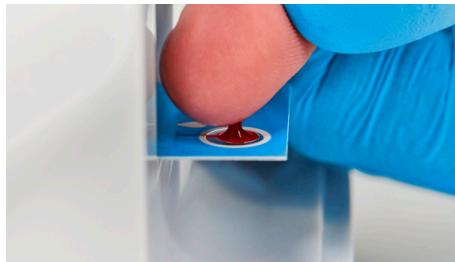
#### Applying a finger stick sample to the Test Strip

Allow the hanging blood drop to just touch the centre of the sample application area of the Test Strip.

Ensure that the sample is applied centrally and completely fills the sample application area in one clean drop.

Do not allow the finger to touch the Test Strip to avoid smearing the sample.

When the sample is detected, the Instrument will sound and a confirmation message will be displayed.

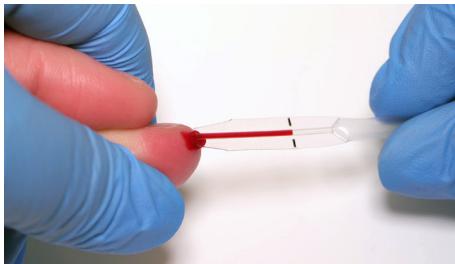


## Collecting a capillary blood sample using a transfer tube

To use a transfer tube to collect a blood sample follow the steps described previously to increase the blood flow to the selected finger and use a lancet to produce a blood droplet on the end of the finger.

Holding the transfer tube horizontally, touch the tip to the blood sample. Capillary action will automatically draw the sample into the tube.

- **Do NOT** squeeze the bulb of the transfer tube before or during sample collection.
- **Do NOT** allow the transfer tube to touch the finger.
- Ensure the transfer tube is filled to the black fill line or to the end of the collection tube depending on what type of transfer tube is being used.
- If air bubbles are seen discard the transfer tube and start again.



Touch the tip of the transfer tube to the blood drop. Do not squeeze the bulb.



Touch the tip of the transfer tube to the blood drop. Capillary action will automatically draw the sample into the tube.

### Applying a transfer tube sample to the Test Strip

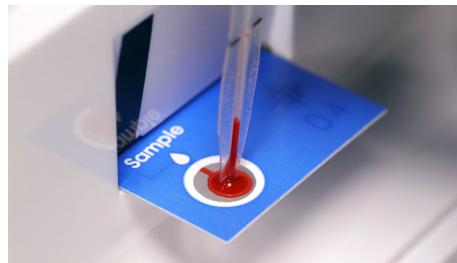
Hold the filled transfer tube vertically over the Sample Application Area and gently squeeze the bulb or depress the plunger to move the sample to the tip of the transfer tube.

Allow the blood drop to touch the sample application area without releasing the pressure on the bulb to apply the sample.

When the sample is detected, the Instrument will sound, and a confirmation message will be displayed.

Dispose of the lancet in the appropriate clinical waste. Clean the patient's finger with a clean tissue and apply slight pressure.

If you need to retest, use a new Test Strip and lancet, and a different finger.



Hold the transfer tube vertically and gently squeeze the bulb to apply the blood drop to the Sample Application Area.



Hold the transfer tube vertically and gently depress the plunger to apply the blood drop to the Sample Application Area.

**Do NOT** apply more than one drop of sample.

**Do NOT** touch the Test Strip until the test has finished and the result is displayed.



## 3.4 Sample application using other sample types

Refer to LumiraDx Test Strip Product Inserts for information on available sample types per test, and procedures to transfer other sample types to the Sample Application Area of the Test Strip. Use the recommended transfer procedure to dispense a small sample of one drop onto the circular Sample Application Area on top of the inserted Test Strip.

## 3.5 Quality Control solution application

Refer to LumiraDx Quality Control Pack Inserts for information on testing with LumiraDx Quality Controls.

## 4 Instrument Operation

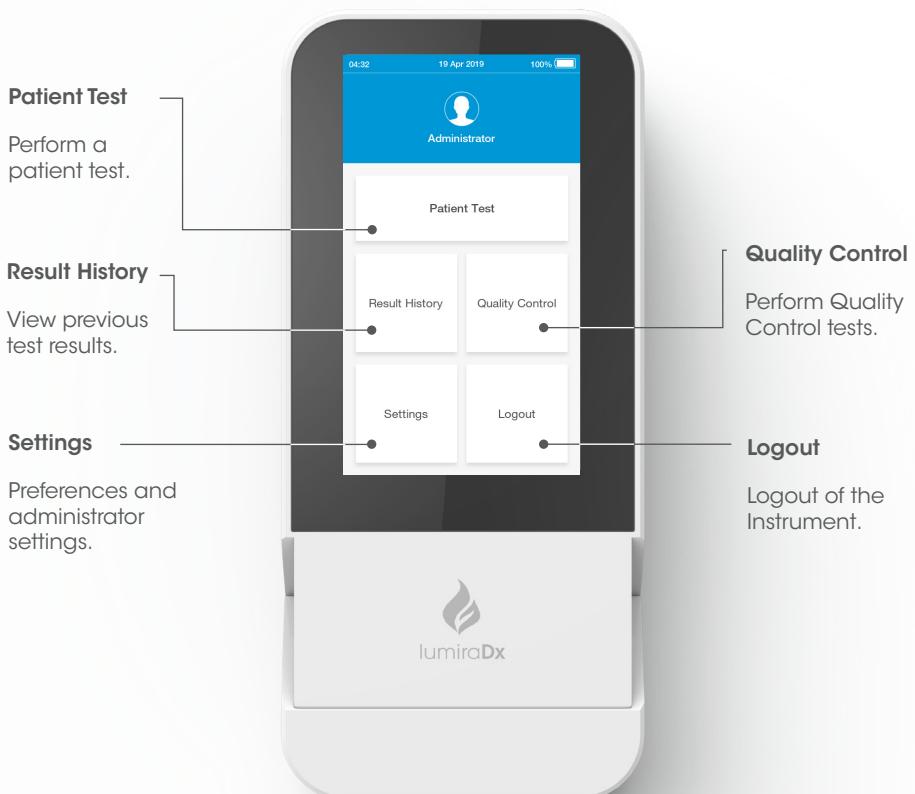
The LumiraDx Instrument can be used in three modes; Standalone, Managed or EHR Connected.

This chapter describes how to perform first time setup, set preferences, perform patient and Quality Control tests, and view result history. Extended functionality for Connected Instruments is also described.

Please note:

- Instructions are combined with example screenshots. Some screens may appear differently depending on the test or mode of operation. All screens, test names and results displayed in this Platform User Manual are intended only as examples.
- You can only hear the sounds on the LumiraDx Instrument when they are turned on. This Platform User Manual presumes that the sounds are turned on.

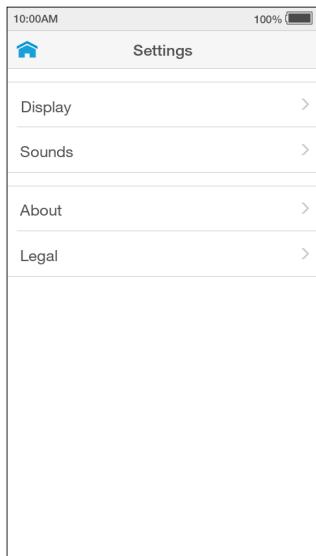
### 4.1 Home Screen



## 4.2 Settings Menu

### General user settings menu

All users can set display and sound preferences in the Settings menu. Refer to the “Instrument Operation” chapter in this Platform User Manual for instructions.

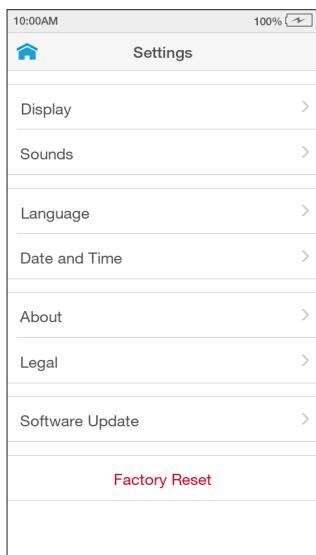


### Administrator settings menu

The administrator can set date and time. Refer to the “Instrument Operation” chapter in this Platform User Manual for instructions.

The About screen provides information on Instrument software and hardware versions, and serial number. For Connected Instruments the screen will also display the Organization, Instrument and WorkGroup names.

Factory Reset can be used to delete all data currently stored on the Instrument, including result history and settings.



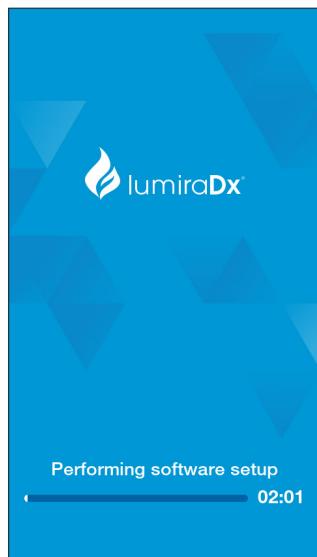
## 4.3 Standalone Instrument First Time Setup

For Standalone mode Instruments the language and current date and time will need to be set by the administrator prior to performing a patient test. Other sound and display preferences can be set by any user.

Administrator and general user passwords for Standalone operation are provided on a tear out sheet in the Platform Quick Reference Guide.

### 1. Power on

Power on the Instrument by pressing the power button at the rear of the Instrument. You will hear the Instrument powering on, and the display will be a blank black screen for several seconds before starting up. If the screen is just dimmed tap the touch-screen to wake up the Instrument.



### 2. Enter Password

Tap the password field to display the keyboard.

Enter password (using administrator password supplied) and tap 'Login' to complete the login.

**Note:** Administrator password is provided on a tear out sheet in the Platform Quick Reference Guide.

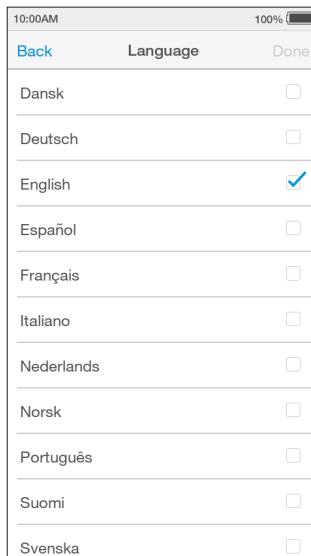


### 3. Set language

The language is set to English by default. To set a different language go to 'Settings' and tap 'Language'.

Choose a language from the list for the text appearing on the display. The currently set language is ticked.

Tap 'Done' to save and return to the Settings menu.



### 4. Set date and time

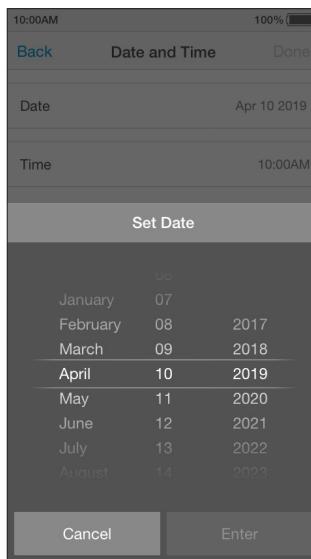
Go to 'Settings' and tap 'Date and Time'.

Tap the date field and use the selection wheel to set the current date. Tap 'Enter'.

Tap the time field and use the selection wheel to set the current time. Tap 'Enter'.

Tap 'Done', then check the date and time are correct and tap 'Confirm' to save.

Return to the home screen and tap 'Logout'.



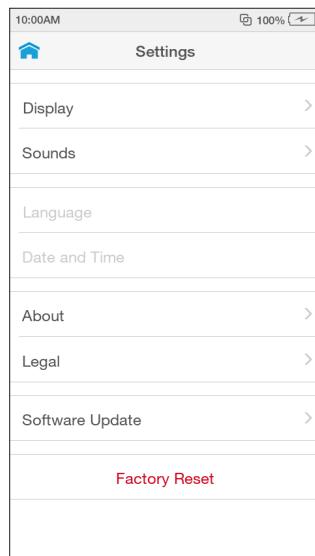
## 4.4 Connected Instrument First Time Setup

Connected system setup should be completed by the administrator on Connect Manager. Refer to the LumiraDx Connect User Manual for further information.

Power on by pressing the power button at the rear of the Instrument. You will hear the Instrument powering on and the display will be blank for several seconds before starting up. Follow the steps for Standalone first-time setup to set the language.

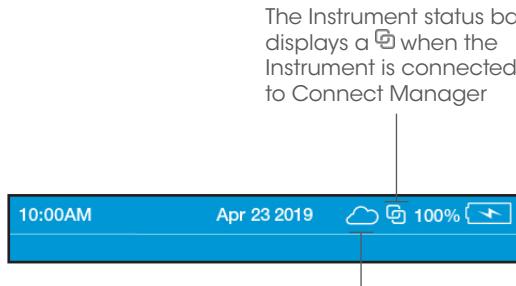
To download other Instrument settings, ensure the Instrument is within range of a LumiraDx Connect Hub or a device running the LumiraDx Connect App (within approximately 10 metres). If  appears at the top of the screen, the Instrument is connected to Connect Manager and the Instrument settings will download and install automatically.

Time, date, and language settings will be set automatically if the Instrument is in range of a LumiraDx Connect Hub and these settings will be greyed out in the settings menu.



Downloading settings for first time setup will take up to 4 minutes.

A  will appear at the top of the screen for EHR Connected Instruments. This integrates the LumiraDx Instrument with the existing Electronic Health Record for transfer of patient test results. Patient test results can then be viewed within the LIS or HIS.



The Instrument status bar displays a  when the Instrument is connected to Connect Manager

The Instrument status bar displays a  when the Instrument is connected to the Electronic Health Record

## 4.5 Display and Sound Preferences

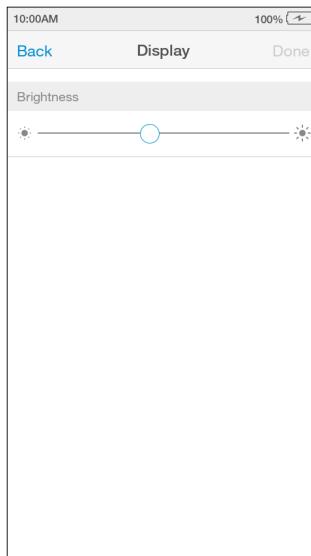
All users can set display and sound preferences in the Settings menu.

### Display

In the Display menu the brightness of the display can be set.

Go to 'Settings' and tap 'Display'. Use the slider to adjust the brightness.

Tap 'Done' to save and return to the Settings menu.

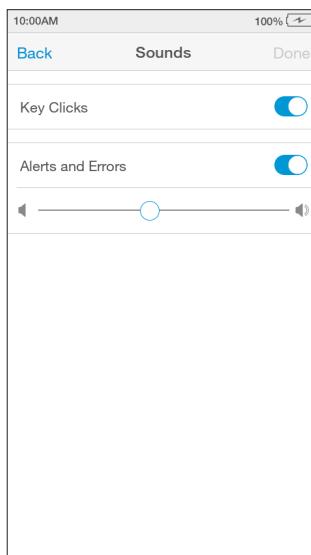


### Sounds

In the Sounds menu the key clicks and audible alerts can be turned on or off.

Go to 'Settings' and tap 'Sounds'. Set sounds on or off, or to set the volume using the slider.

Tap 'Done' to save and return to the Settings menu.



## 4.6 Performing a Patient Test

This Platform User Manual describes the basic patient test method for the LumiraDx Instrument. If there are differences in the test method for a particular diagnostic test, the Instrument will prompt at each step of the process. Please refer to the LumiraDx Test Strip Product Insert before performing a new test for specific test information.

### Important Notes

#### ALWAYS

- Place the Instrument on a level, stable surface before starting a test.
- Apply sample **AFTER** inserting the Test Strip and the Instrument prompt.
- Follow the test operating conditions in the LumiraDx Test Strip Product Insert.
- Follow the information on correct handling of Test Strips in the LumiraDx Test Strip Product Insert.



To view test information during a patient test, or on the test result screen, tap the **(i)** at the top of the touch-screen.



To cancel a patient test tap 'Cancel' at the top of the touch-screen and follow the Instrument prompts.

## 1. Power on and login

Power on the Instrument by pressing the power button at the rear of the Instrument. You will hear the Instrument powering on and the display will be a blank black screen for several seconds before starting up. If the display is dimmed tap the touch-screen to wake up the Instrument.

If using a Standalone Instrument with just a password field, tap the password field to display the keyboard.

Enter password and tap 'Login' to complete the login.



If using a Connected Instrument, tap the User ID field to use the keyboard to enter User ID. Alternatively, scan User ID using the Barcode Scanner. Refer to the "Ancillary devices" chapter in this Platform User Manual for scanning instructions.

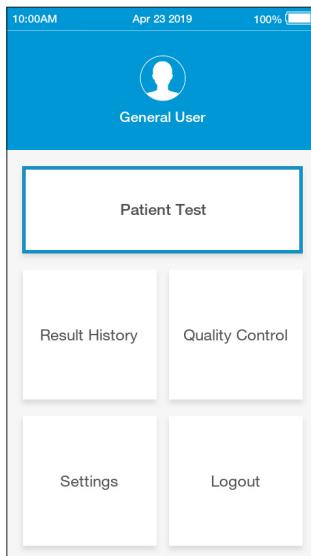
Tap the password field to display the keyboard.

Enter password and tap 'Login' to complete the login.



## 2. Check date and time

Check that the date and time are correct. If not correct, the current date and time will need to be set by the administrator. Refer to "First time setup" in this chapter for more information.



## 3. Tap Patient Test

Tap the 'Patient Test' button on the home screen.

Patient ID	<input type="text"/>	
First Name	<input type="text"/>	
Last Name	<input type="text"/>	
DOB	<input type="text"/>	
Gender	<input type="text"/>	

## 4. Enter patient details

Tap any field to use the keyboard to enter patient details, or scan the patient ID using the Barcode Scanner. Refer to the "Ancillary devices" chapter in this Platform User Manual for scanning instructions.

Use the 'Enter' button on the keyboard to move from field to field, or tap a field to enter additional details.

Complete all available patient details, then tap 'Next' to continue.

**Note:** Tap 'Next' if no patient details are available.

## 5. Using the Instrument in EHR Connected mode

If the Instrument has an active connection to the EHR, scan the Patient ID using the Barcode Scanner or search for the patient in the HIS or LIS by entering patient details, then tap 'Search'

**Note:** If no patient details are available, tap 'Search' without adding any details. To search for a patient either the full Patient ID or Last Name must be entered.

The screenshot shows a mobile application interface titled 'Patient Test'. At the top, there is a search bar with the placeholder text 'Scan or enter patient details to search for patient'. Below the search bar are five input fields: 'Patient ID' (with a barcode icon), 'First Name', 'Last Name', 'DOB', and 'Gender'. Each field has a clear button (an 'X' icon) to its right. The entire screen is framed by a thick black border.

### EHR Connect patient search

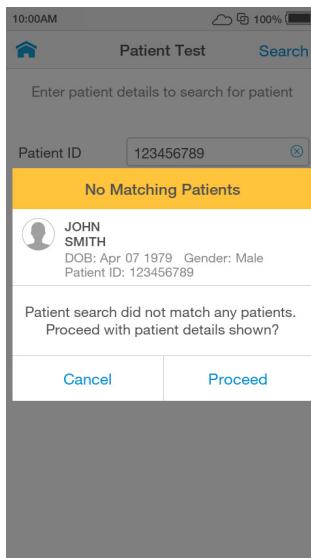
If only one patient matches the details entered, the Instrument will show the 'Confirm Patient Details' screen. If between 2 and 5 patients match the search details entered, the list of matches will be shown. Select the correct patient from the search list.

**Note:** Tap 'Skip' to proceed without selecting one of the patients available in the search list.

Back	Patient Search Matches	Skip
	HANS HOLGERSON DOB: Mar 01 1940 Gender: Male Patient ID: 1234567890123456	
	JENNIFER ANDERSON DOB: Jul 11 1980 Gender: Female Patient ID: 1234567890123456	
	OLAF OUZO DOB: Apr 31 2000 Gender: Male Patient ID: 1234567890123456	
	HANS HOLGERSON DOB: Mar 01 1940 Gender: Male Patient ID: 1234567890123456	
	JENNIFER ANDERSON DOB: Jul 11 1980 Gender: Female Patient ID: 1234567890123456	

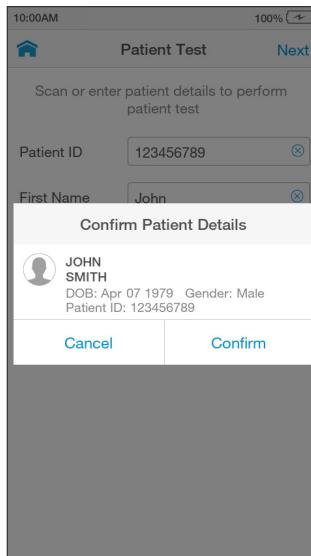
## No patient match

If the search times out, no patient matches are found, or more than 5 patients matches are found a message will display. Tap 'proceed' to proceed with the test without verifying the patient details or tap 'cancel' to go back and try a new search.



## 6. Confirm patient details

Check patient details are correct and tap 'Confirm' to proceed.



## 7. Open door and Insert Test Strip

The Instrument display will prompt to open the door and insert a Test Strip.

Remove a Test Strip from its packaging and hold with the blue label side facing upward.

Line up the black alignment rib on the Test Strip with the black line on the Instrument. Insert the Test Strip gently as far as it will go.

The Instrument will sound when the Test Strip is detected.

- Do NOT** touch Test Strip Sample Application Area.
- Do NOT** touch Test Strip contacts.
- Do NOT** apply sample until prompted



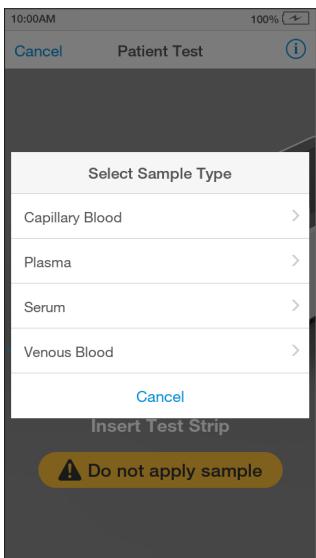
## 8. Select sample type

Select the intended sample type from the list displayed.

Sample type is test type dependent (refer to the LumiraDx Test Strip Product Insert for more information).

**Note:** The Instrument will prompt to install the Lot Calibration File when inserting a new Test Strip Lot.

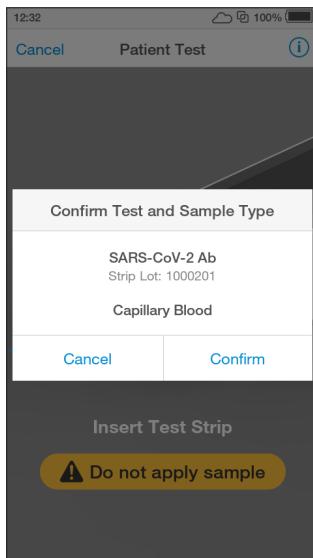
**Note:** Capillary Blood refers to both finger stick and transfer tube applications.



## 9. Confirm test and sample type

Check the test and sample type is correct and tap 'Confirm' to proceed.

**Note:** A progress bar will indicate if the Instrument is heating the Test Strip.



## 10. Apply sample

The Instrument display will prompt when to apply the sample.

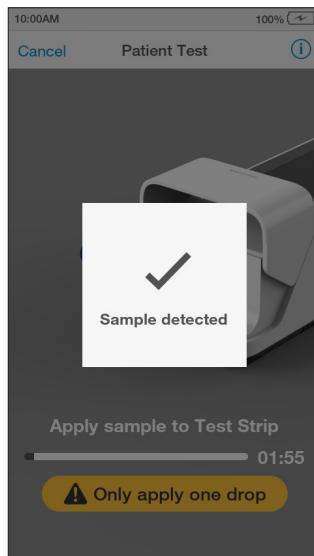
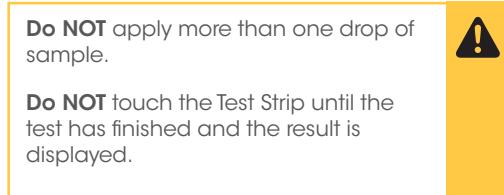
Apply the sample directly to the circular Sample Application Area on top of the Test Strip. The sample must cover the entire Sample Application Area. Refer to the "Handling Test Strips" chapter in this Platform User Manual for sample application instructions.

The Test Strip draws up the sample by capillary action.

**Note:** Pay attention to the countdown for sample application to avoid test errors. This will be displayed as a countdown bar, and the Instrument will sound with 10 seconds remaining. If the sample is not applied by the end of the countdown the Instrument will display an error message.



When the sample is detected the Instrument will sound and a confirmation message will be displayed.



## 11. Immediately close door to continue

The Instrument display will prompt to close the door.

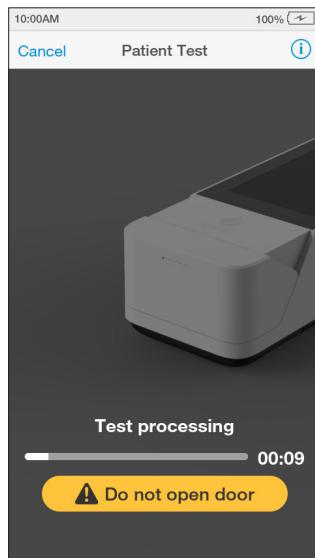
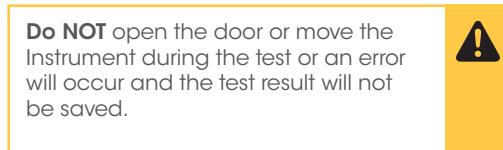
**Note:** The countdown bar is only displayed for a few seconds. It is important to close the door quickly when prompted to avoid test errors. If the door is not closed by the end of the countdown the Instrument will sound and display an error message.



## 12. Test processing

The test will start and a progress bar will be displayed whilst the test is processing.

**Note:** Each test type has a different processing time.



### 13. Review result

When the test is complete the result will be displayed on the screen (an example result is shown here).

If a LumiraDx Printer is connected to the Instrument, a 'Print' option will be available. Tap 'Print' to print the test result.

Review the result then tap 'Finish' or tap 'Comment' to add a comment, if required. A comment may be up to 50 characters in length.

To reject a test result, go to 'Comment' and tap 'Reject result'. A comment must be added if a test result is rejected.

Once the desired comment(s) are entered tap 'Done' to return the result screen.

Tap 'Finish' to save the test result to Result History and complete the test

**Note:** If operating the Instrument in a connected mode, you must tap 'Finish' for the result and any comments to be sent to the EHR.



## 14. Remove and dispose of Test Strip

The Instrument will prompt to remove the Test Strip.

Gently pull the blue label end of the Test Strip to remove and dispose.

Disinfect the Instrument between patient tests. Refer to the "Cleaning and Disinfecting" chapter in this Platform User Manual for further information.

Close the Instrument door.

Dispose of all Test Strips used for patient testing safely in accordance with local regulations and procedures.



## 4.7 Quality Control

The LumiraDx Instrument has a number of built-in QC functions. In addition to these, LumiraDx Quality Controls can be used to meet compliance requirements as required.

To perform QC testing with LumiraDx Quality Controls, you will need:

- LumiraDx Instrument
- LumiraDx Test Strips
- LumiraDx Quality Controls

Preparing for a QC test requires the same steps as preparing to perform a patient test. The only difference in the test method is the use of Quality Controls instead of patient samples.

Instruments being managed in a Connected mode may have the Quality Control policy set to 'Mandatory' by in the Connect Manager settings. This means that users and administrators are not able to perform a patient test when a Quality Control test for that particular test is due. The timing and frequency of mandatory Quality Control tests are configurable in Connect Manager.

For information on LumiraDx Quality Controls refer to the LumiraDx Quality Control Pack Inserts.



## 4.8 Performing a Quality Control test

This Platform User Manual describes the basic Quality Control test method for the LumiraDx platform. If there are differences in the test method for a particular QC test, the Instrument will prompt at each step of the process. Please refer to the LumiraDx Test Strip Product Insert before performing a new QC test for specific information.

### Important Notes

#### ALWAYS

- Wear a clean pair of gloves before performing a QC test.
- Place the Instrument on a level, stable surface before starting a test.
- Use only LumiraDx Quality Controls.
- Apply Quality Control **AFTER** inserting the Test Strip and the Instrument prompt.
- Follow the test operating conditions in the LumiraDx Test Strip Product Insert.
- Follow the information on correct handling of Test Strips in the LumiraDx Test Strip Product Insert.



To view test information during a QC test, or on the test result screen, tap the at the top of the touch-screen.



To cancel a QC test tap 'Cancel' at the top of the touch-screen and follow the Instrument prompts.

## **1. Power on and login**

## **2. Check date and time**

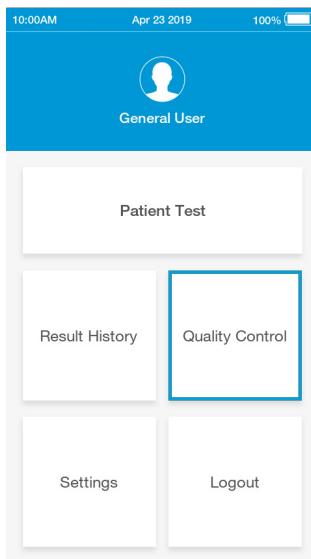
Check that the date and time are correct. If not correct, the current date and time will need to be set by the administrator. (Refer to "First time setup" in this chapter for more information).

## **3. Prepare Quality Control**

Prepare the Quality Control according to the LumiraDx Quality Control Pack Insert.

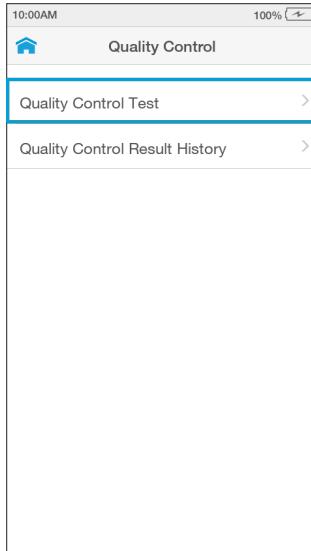
## **4. Tap Quality Control**

Tap the 'Quality Control' button on the home screen.



## **5. Select Quality Control Test**

Tap 'Quality Control Test' from the Quality Control menu.



## 6. Open door and Insert Test Strip

The Instrument display will prompt to open the door and insert a Test Strip.

Remove a Test Strip from its packaging and hold with the blue label side facing upward.

Line up the black alignment rib on the Test Strip with the black line on the Instrument. Insert the Test Strip gently as far as it will go.

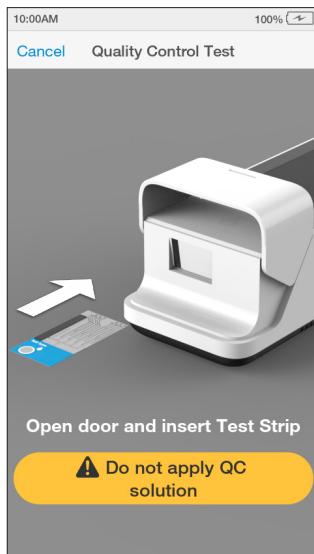
The Instrument will sound when the Test Strip is detected.

**Do NOT** touch Test Strip Sample Application Area.



**Do NOT** touch Test Strip contacts.

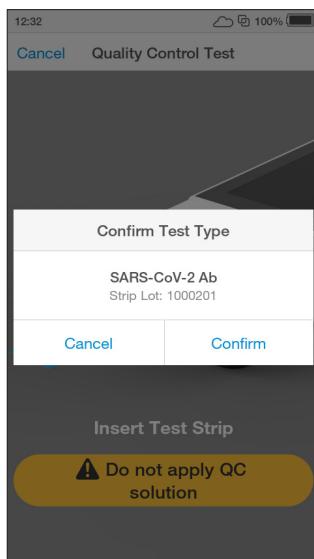
**Do NOT** apply Quality Control until prompted.



## 7. Confirm test type

Check the test type is correct and tap 'Confirm' to proceed.

**Note:** The Instrument will prompt to install the Lot Calibration File when inserting a new Test Strip Lot.

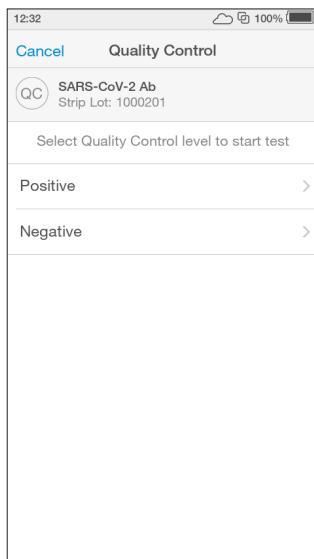


## 8. Select Quality Control level

Select the intended Quality Control from the list displayed.

Please refer to the LumiraDx Quality Control Pack Insert for more information.

**Note:** The Instrument will prompt when to apply the Quality Control solution to the Test Strip.



## 9. Enter Quality Control Lot number

Tap the input field to use the keyboard to enter the 16 digit Quality Control Lot number, and tap 'Next' to continue.

Alternatively scan the Quality Control barcode using the Barcode Scanner. Refer to the "Ancillary devices" chapter in this Platform User Manual for scanning instructions.

**Note:** If the barcode from a different QC level or test from the one selected on the previous screen is entered an error message will display.



## 10. Apply Quality Control solution

The Instrument display will prompt to apply the Quality Control sample.

Apply the Quality Control sample directly to the circular Sample Application Area on top of the Test Strip. The solution must cover the entire application area. Refer to LumiraDx Quality Control Pack Inserts for additional information on testing with LumiraDx Quality Controls.

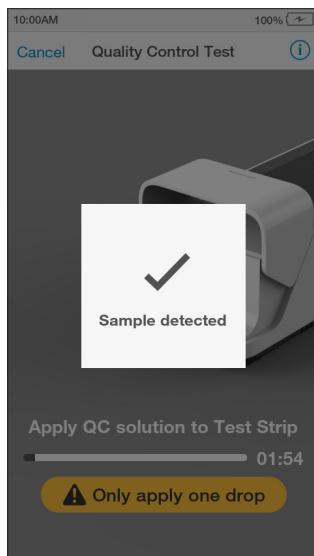
**Note:** Pay attention to the countdown for sample application to avoid test errors. This will be displayed as a countdown bar. If the sample is not applied by the end of the countdown the Instrument will sound and display an error message.



When the Quality Control sample is detected the Instrument will sound and a confirmation message will be displayed.

**Do NOT** apply more than one drop of Quality Control sample.

**Do NOT** touch the Test Strip until the test has finished and the result is displayed.



## 11. Immediately close door to continue

The Instrument display will display a prompt to close the door.

The test will start and a progress bar will be displayed whilst the test is processing.

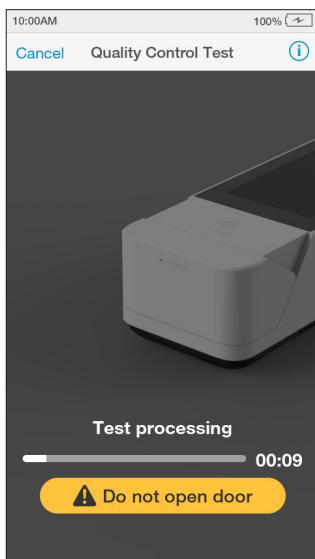
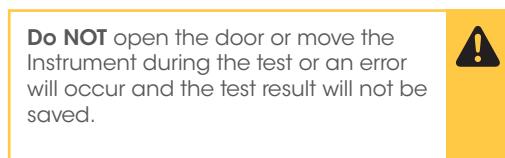
**Note:** Pay attention to the countdown for closing the door to avoid test errors. This will be displayed as a countdown bar for only a few seconds. If the door is not closed by the end of the countdown the Instrument will sound and display an error message.



## 12. QC test processing

The QC test will start and a progress bar will be displayed whilst the test is processing.

**Note:** Each test type has a different processing time.



### 13. Review QC result

When the QC test is complete the result will be displayed on the screen. An example result is shown here, which shows that the correct result has been obtained for all assays for this QC level.

Review the result then tap 'Finish' or tap 'Comment' to add a comment, if required. A comment may be up to 50 characters in length.

Once the desired comment(s) are entered tap 'Done' to return the result screen.

Tap 'Finish' to save the test result to Result History and complete the test.



### 14. Remove and dispose of Test Strip

The Instrument will prompt to remove the Test Strip.

Gently pull the blue label end of the Test Strip to remove and dispose.

Close the Instrument door.

Dispose of all Test Strips used for Quality Control testing safely in accordance with local regulations and procedures.

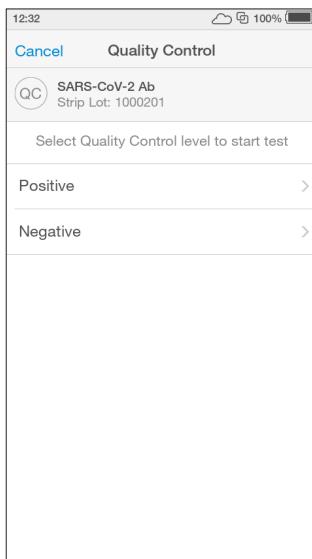


## 15. Complete remaining QC levels

Multiple QC levels may be required depending on test type.

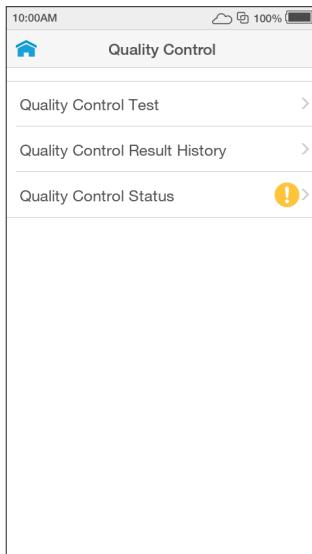
Refer to the LumiraDx Quality Control Pack Insert for more information on QC levels.

Repeat steps in "Performing a Quality Control test" to test any additional QC levels.



## 16. Mandatory Quality Control Policy

Connected Instruments with the Quality Control policy set to 'mandatory' will have an additional menu item of 'Quality Control Status'.



Quality Control test statuses are sorted by 'Recent Tests' meaning test lots for which patient tests or Quality Control tests have been performed recently. 'Other Tests' are test lots which have not had a patient test or QC test performed for more than 90 days.

**Note:** QC statuses can also be filtered by test type.

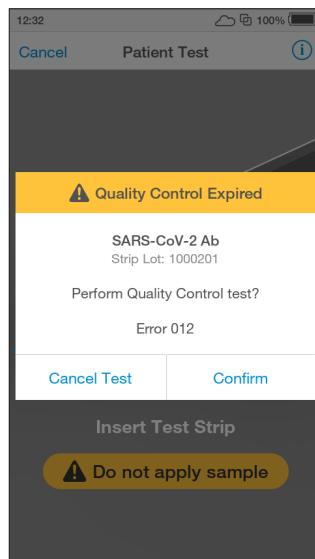
12:32		
Back      Quality Control Status		
All ▾		
Recent Tests		
SARS-CoV-2 Ab	Due	!
Strip Lot: 1000201		>
SARS-CoV-2 Ab	Due	!
Strip Lot: 1000201		>
SARS-CoV-2 Ab	Due	!
Strip Lot: 1000201		>
SARS-CoV-2 Ab	Due	!
Strip Lot: 1000201		>
SARS-CoV-2 Ab	Due	!
Strip Lot: 1000201		>
SARS-CoV-2 Ab	QC Due (Days): 14	>
Strip Lot: 1000201		
SARS-CoV-2 Ab	QC Due (Days): 16	>
Strip Lot: 1000201		
Other Tests		
SARS-CoV-2 Ab	Due	!
Strip Lot: 1000201		>
SARS-CoV-2 Ab	Due	!
Strip Lot: 1000201		>

The Quality Control level selection screen will also show the status of each QC level as well as the date of any recently performed QC tests.

After completing a QC test level, the Instrument will return to the QC level selection page until all QC levels have been completed.

12:32		
Back      Quality Control		
(QC)	SARS-CoV-2 Ab	
	Strip Lot: 1000201	
Select Quality Control level to start test		
Positive	Expired	!
Negative	03 Jun 2020	PASS >

If a user attempts to perform a patient test using a lot for which a mandatory Quality Control test is due, the instrument will display an alert message and prompt the user to perform a Quality Control test.



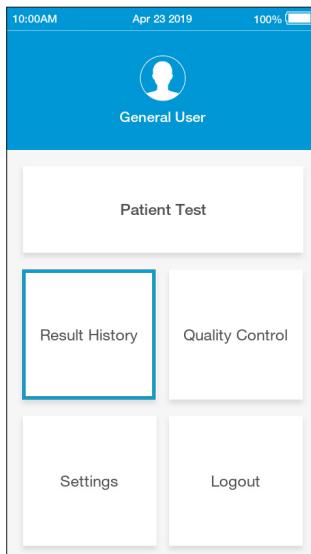
## 4.9 Result History

The LumiraDx Instrument can save 1000 patient or QC test results, together with respective time, date and comments. If the Instrument memory is full, the oldest result is automatically deleted.

### 1. Power on and login

### 2. Tap Result History

To view Patient or QC test results, tap 'Result History'.



### 3. Review test results

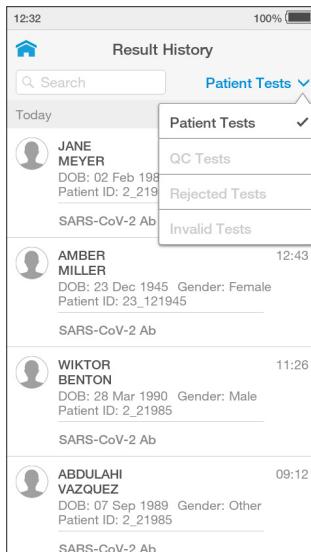
All entries are shown in date order, with the newest at the top. Test results can be filtered by selecting Patient Tests, QC Tests, Rejected Tests or Invalid Tests.

Test results are marked as Invalid if a system error occurs during test processing. Refer to the "Troubleshooting" chapter of this Platform User Manual for information on errors.

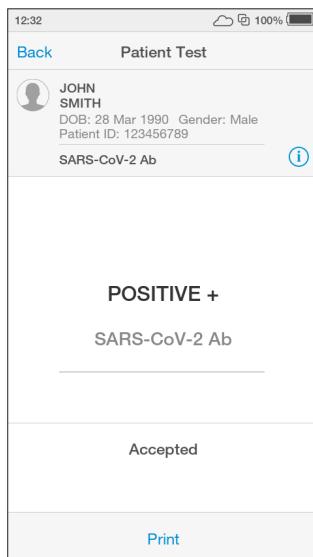
Scroll through the list and tap any entry to view the test result in full.

Search for a patient test result by entering the Patient ID, First Name or Last Name in the search bar from either the Patient Tests, Rejected Tests or Invalid Tests screen.

**Note:** A search for a partial Patient ID, First Name or Last Name will only work for the start of the search term.

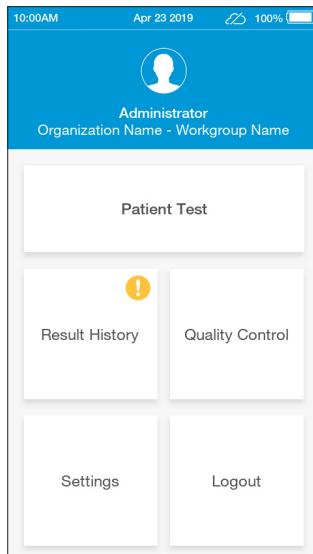


Any patient or QC test result can be printed from the test result details screen by tapping 'Print' when a LumiraDx Printer is connected to an Instrument USB port.



EHR Connected Instruments will indicate whether a test result has been sent to the electronic health record.

A ! symbol on the home screen indicates that one or more test results have not yet been sent to the EHR.



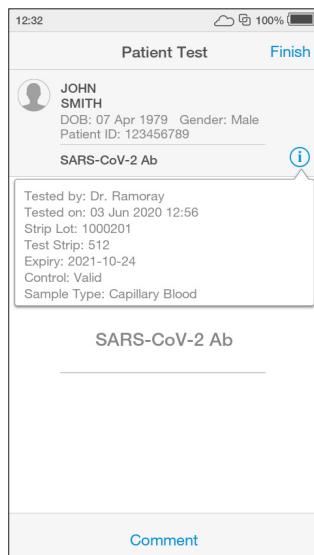
The Result History list will indicate whether test results have been sent to the EHR or not with 'sent' and 'not sent'.

Result History	
Search	Patient Tests
Today	
 JANE MEYER	12:49
DOB: 02 Feb 1985 Gender: Female Patient ID: 2_21985	
SARS-CoV-2 Ab	Not Sent 
 AMBER MILLER	12:43
DOB: 23 Dec 1945 Gender: Female Patient ID: 23_121945	
SARS-CoV-2 Ab	Sent
 WIKTOR BENTON	11:26
DOB: 28 Mar 1990 Gender: Male Patient ID: 2_21985	
SARS-CoV-2 Ab	Not Sent 
 ABDULAHI VAZQUEZ	09:12
DOB: 07 Sep 1989 Gender: Other Patient ID: 2_21985	
SARS-CoV-2 Ab	Not Sent 

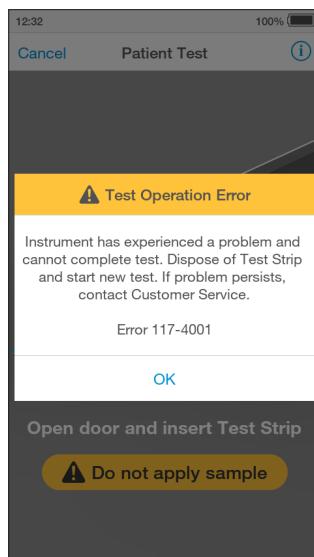
## 4.10 Onboard Quality Control

In addition to the system checks performed by the Instrument during start up and within the test procedure, some LumiraDx Tests also run an onboard quality control assay alongside the patient test.

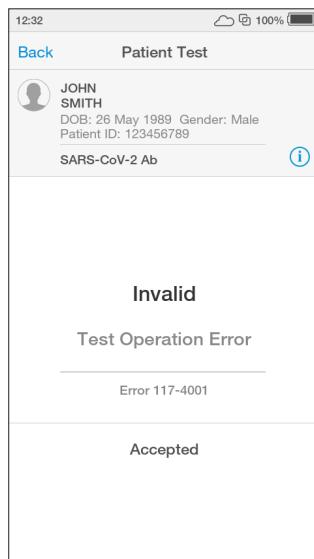
When a test has completed and the OBC test has passed, the test result will be displayed as normal. Tapping on the **i** on the result screen at the end of the test or from the Result History view shows additional details about the test, including 'Control: Valid' which confirms that the OBC has passed.



If the OBC fails, then an error message will be displayed and no test result will be returned. Follow the on screen instructions to dispose of the Test Strip and start a new test. If the problem persists, contact Customer Services.



A test which fails the OBC will appear in the 'Invalid' filter of the Results History.



# 5 Cleaning and Disinfecting

It is important to observe the disinfection guidelines of your organization. Below are procedures for cleaning and disinfecting the Instrument. Failure to follow these procedures may cause Instrument malfunction.

## The difference between cleaning and disinfecting:

**Cleaning** is the physical removal of dirt or other foreign material from the Instrument surface.

**Disinfecting** is the chemical removal of harmful microorganisms (pathogens) from the Instrument.

## When should the Instrument be cleaned and disinfected?

The Instrument should be cleaned whenever it is visibly dirty. The Instrument should be disinfected after each patient use and anytime you believe the Instrument may be contaminated with a patient sample or Quality Control solution.

## What should be cleaned and disinfected?

The following parts of the Instrument can be cleaned and/or disinfected:

- The area around the Test Strip slot
- The entire Instrument housing
- The Instrument touch-screen
- All surfaces of the Instrument door

**Do NOT** attempt to put any objects or cleaning materials inside the Test Strip slot.



Always use LumiraDx approved wipes to disinfect the Instrument. Details of LumiraDx approved wipes can be found at [lumiradx.com](http://lumiradx.com).

Avoid USB ports and power inlet.



Cleaning Instrument touch-screen



Cleaning the area around the Test Strip slot

## Cleaning procedure

Always wear gloves to clean the Instrument.

Wipe the external surfaces of the Instrument with a soft cloth slightly dampened, not wet. Excess liquid may damage the Instrument.

## Disinfection procedure

This procedure should be followed to prevent the risk of blood-borne pathogen transmission after use on each patient and is recommended by the CDC<sup>3</sup>.

Always wear gloves to disinfect the Instrument.

Always use LumiraDx approved wipes to disinfect the Instrument. Alcohol wipes alone are not sufficient to disinfect the Instrument.

Use the wipe until the surface of the Instrument is visibly wet. Allow surface to remain wet for **5 minutes**. Let air dry.

Dispose of the wipes in accordance with local procedures.

The Instrument is now ready to perform another test.

For technical assistance or questions and information about LumiraDx approved wipes go to [lumiradx.com](http://lumiradx.com).

Only use LumiraDx recommended cleaning and disinfecting materials on the Instrument surfaces. Details of LumiraDx approved wipes can be found at [lumiradx.com](http://lumiradx.com).



Always wear gloves whilst cleaning and disinfecting the Instrument.

Only use a damp and not wet swab or cloth for cleaning. Excess liquid may damage the Instrument.

**Do NOT** spray or pour solution directly onto the Instrument.

**Do NOT** attempt to put any objects or cleaning materials inside the Test Strip slot.

Following cleaning and disinfection, and before performing a patient test, change gloves and wash hands.

## 6 Software Updates

LumiraDx will contact administrators when software updates are available. Software updates will be provided on USB memory sticks and should be installed on each Instrument by the administrator. Installing the latest updates will help ensure that the LumiraDx Instrument operates with optimum performance and that the latest features are available. This section describes the steps required to complete the software update.

**Note:** Ensure that the Instrument is connected to a power supply before performing a software update.

### 1. Insert USB Memory Stick whilst the Instrument is switched off

Remove the USB Memory Stick from its packaging. Looking at the rear of the Instrument, insert into the right side USB port, nearest the power button.



### 2. Power on

Power on the Instrument by pressing the power button at the rear of the Instrument.

A progress bar on the Instrument display will indicate installation.

Once installation is completed the Instrument will power on as usual.

Remove the USB memory stick from the Instrument once completed.



## 7 Troubleshooting

The LumiraDx Instrument regularly performs internal checks for unexpected and unwanted conditions. These may arise for technical reasons or due to handling errors.

If an issue occurs, a message will be displayed on the Instrument touch-screen. Alert messages include useful information and are highlighted by an orange banner. Error messages also include a  symbol. All messages will contain a description of the Instrument status or error and an instruction. Error messages contain an identifying code that may be used for further troubleshooting purposes.

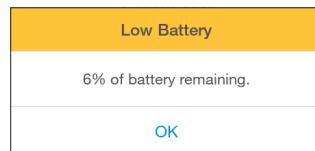
Follow the instruction to resolve the issue. If the issue is resolved, continue using the Instrument as required.

If errors occur frequently or the error persists, please note the error code and contact Customer Services. If the Instrument has been dropped, do not proceed with use. In this case, also contact Customer Services for advice. Refer to the "Customer Services" chapter of this Platform User Manual for contact information.

### **Example alert message:**

#### **Description and instruction**

Tap 'OK' to proceed. Connect the power supply unit before the battery runs out.

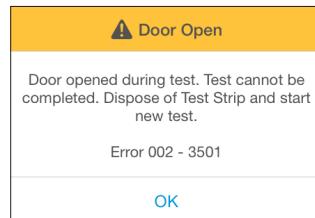


### **Example error message: Error 002**

#### **Description and instruction**

The Instrument door has been opened while running a test so the test cannot be completed.

Dispose of Test Strip, start a new test and follow the instructions on the display.

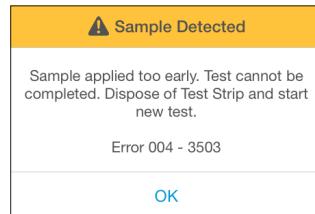


### **Example error message: Error 004**

#### **Description and instruction**

Sample has been applied too early so the test cannot be completed.

Dispose of Test Strip, start a new test and follow the instructions on the display.

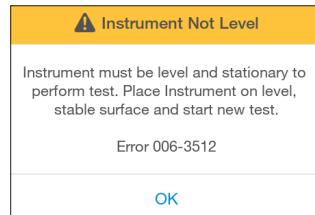


### **Example error message: Error 006**

#### **Description and instruction**

When a test is performed the Instrument must be level and stationary.

Place the Instrument on a level, stable surface and start a new test.

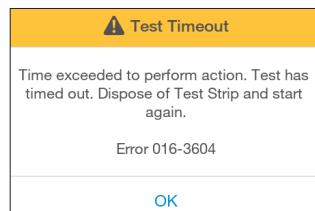


## Example error message: Error 016

### Description and instruction

An action (for example closing the Instrument door) has not been completed within a set time period so the test cannot be completed.

Dispose of Test Strip, start a new test and follow the instructions on the display.

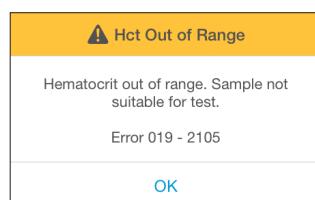


## Example error message: Error 019

### Description and instruction

The Hct value of the sample was detected to be out of range.

Check the allowed Hct range for the test type in the Test Strip Product Insert.

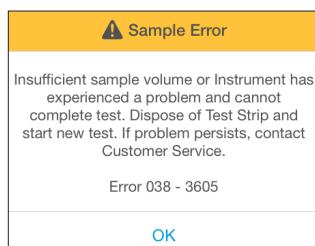


## Example error message: Error 038

### Description and instruction

Insufficient sample volume or Instrument has experienced a problem and cannot complete a test.

Dispose of the Test Strip, start a new test and follow the instructions on the application of samples in this User Manual. If the problem persists, contact Customer Services.

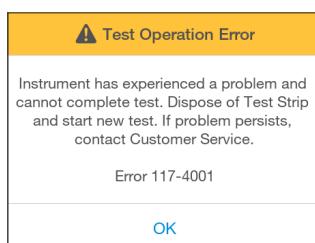


## Example error message: Error 117

### Description and instruction

Onboard control has failed so the Instrument will not display a result.

Power the Instrument off and try again. Contact Customer Services if the problem persists.



## **Errors and unusual behavior without error alerts**

Some conditions may occur that do not result in an error or alert message. If the troubleshooting steps below do not resolve the issue or the problem reoccurs contact Customer Services.

### **Instrument does not power on**

#### **If pressing the power button does not power on the Instrument:**

1. Connect the power supply unit. Wait 15 minutes and press the power button.

### **Cannot login**

#### **Do not have or know where to find the correct password:**

1. Check tear out sheet in the Platform Quick Reference Guide for the login password, or contact the administrator.
2. Tap the password field to bring up the keyboard and enter the password. Tap 'Login' to proceed

### **Cannot connect Instrument**

#### **The Instrument is not displaying symbol:**

1. Check that the Instrument is within range of the LumiraDx Connect Hub or the device running the LumiraDx Connect App.
2. Ensure the LumiraDx Connect Hub is powered on and the green Connect light is on.

### **Lot Calibration File is not installed**

#### **Lot Calibration File is not installed:**

1. Refer to the "Getting Started" chapter of this Platform User Manual for instructions on how to install the Lot Calibration File.
2. Ensure that the back of the Test Strip Carton is touching the  symbol on the side of the Instrument continually until the Instrument sounds and a confirmation message is displayed.

## **Instrument does not detect the Test Strip**

---

**If the Test Strip is not detected and no message is displayed on the touch-screen:**

1. Check that the Test Strip is fully inserted.
2. Check for damage to the Test Strip. If damaged discard and insert a new Test Strip.

## **The Instrument will not start the test**

---

**If the Instrument will not start the test after applying the sample or Quality Control solution:**

Check the Instrument door is fully closed.

## **Incorrect date or time**

---

**If the date and time is incorrect:**

Contact the administrator for "Connected" Instruments, or refer to the "First time setup" section of this Platform User Manual for instructions on setting date and time.

## **Patient test result is red**

---

**If the patient test result is displayed in red:**

Test results that are above or below the analytic range are displayed in red and indicated by the symbols > (above) or < (below).

## **QC test failure**

---

**If the Quality Control test fails unexpectedly:**

1. Check the Quality Control solution type and level matches the test type and QC range information.
2. Check the expiry date of the Quality Control solution.
3. Refer to the Quality Control Pack Insert to ensure correct procedure is followed.

Retest using a new Test Strip. Ensure the Test Strip and Quality Control solution are handled carefully to prevent any contamination.

## **8 Maintenance and Disposal**

The LumiraDx Instrument does not require user maintenance and has no serviceable parts. No attempt should be made to open the Instrument.

Changes or modifications not expressly approved by LumiraDx UK Ltd could void the user's authority to operate the Instrument.

In case of Instrument failure or damage, or to arrange collection/disposal contact LumiraDx Customer Services.

## 9 Instrument Specifications

<b>Operating temperature</b>	15 °C to 30 °C (59 °F to 86 °F)
<b>Storage temperature</b>	-10 °C to 50 °C (14 °F to 122 °F)
<b>Relative humidity</b>	10 % to 90 % rh (non-condensing)
<b>Maximum altitude</b>	3,000 m (9,840 feet) operating
<b>Data storage</b>	1000 test results with date, time and comments Lot calibration files
<b>Communications</b>	2 x USB ports RFID Reader 13.56MHz, 0 dBi (EIRP) Bluetooth Low Energy 2.4GHz ISM band, 2400MHz to 2483.5 MHz, 0.5dBm (ERP)
<b>Power supply unit</b>	Input 100-240V / 50-60 Hz / 1.0 – 0.5A Output 12V / 3A
<b>Battery</b>	Lithium Ion Polymer 7.4V 5000 mAh Approx. 20 tests per charge cycle
<b>Dimensions</b>	210 x 97 x 73 mm
<b>Weight</b>	1,100 g

# 10 Ancillary Devices

## 10.1 LumiraDx Barcode Scanner

In order to configure the LumiraDx Barcode Scanner please contact LumiraDx Customer Services.

The LumiraDx Barcode Scanner can be used to scan patient ID details when performing a patient test. It can also be used to scan Quality Control Lot numbers. If using a Connected Instrument, the Barcode Scanner can be used to scan User ID for login.

**Note:** The same User ID must be assigned to the user in Connect Manager.

 *Barcode symbol on screen indicates that you can scan for data entry. Tap symbol for Barcode Scanner instructions.*

**Scanning distance** —————

Hold scanner approximately 15 cm from barcode.

**Scanner lights** —————

**Scan button** —————  
Press button to scan. A successful scan will be indicated by a beep sound and green light.



Insert USB connector into one of the USB ports at the rear of the Instrument.



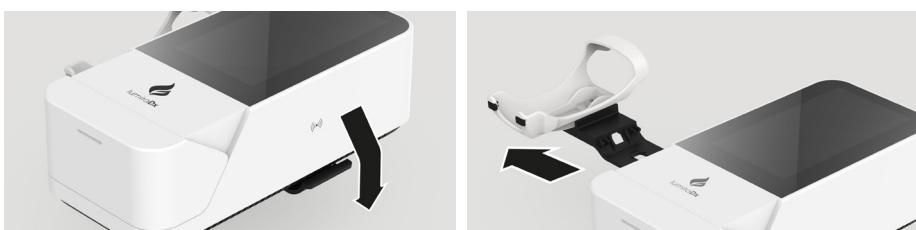
## LumiraDx Barcode Scanner Cradle



### Attaching LumiraDx Barcode Scanner cradle to Instrument



### Detaching LumiraDx Barcode Scanner cradle from Instrument



**Note:** Correct orientation of Barcode Scanner cradle

**LumiraDx Desktop Stand**



## 10.2 LumiraDx Printer

The LumiraDx Printer can be used to print a patient or Quality Control test result onto an adhesive label.

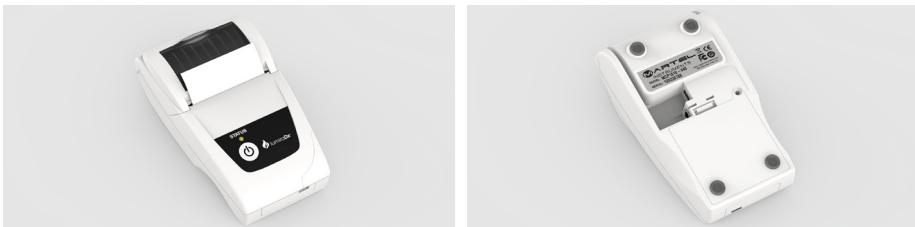
Patient and QC tests result can be printed from the Instrument result page following a test, or from the test details page in the Instrument Result History.

The Printer comes with a roll of adhesive paper already installed. Open the paper cup lid and then close ensuring that the paper passes through the paper exit slot. Replacement label rolls can be purchased from LumiraDx.

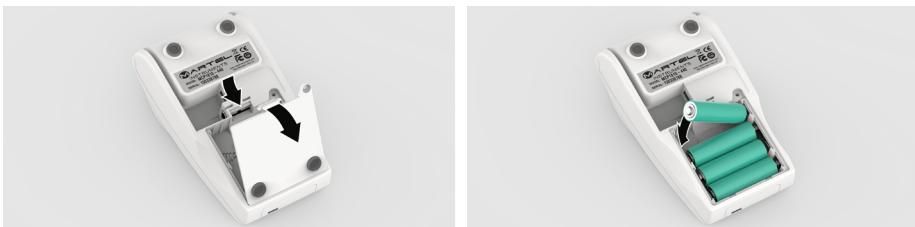
Insert the rechargeable batteries into the Printer followed by the USB cable and power cable. Fully charge the batteries for 16 hours before first use by connecting the Printer to a power source.

To use the Printer insert the USB connector into one of the USB ports at the rear of the Instrument and press the Printer power button.

### LumiraDx Printer



### Replacing the batteries



## Connecting the printer



## Printer status light

LED Indication	Condition	Solution
On	Printer On	-
Off	Printer Off	-
* * *	Paper Out	Fit new paper
** ** **	Thermal head too hot	Allow head to cool
*** *** ***	Battery cut-out (no charge remaining)	Recharge batteries
**** **** ****	Battery low (approx. 20% charge remaining)	Recharge batteries

## 10.3 LumiraDx USB Memory Stick



LumiraDx USB Memory Stick used for Instrument software updates.

**Note:** Right side USB port nearest the power button at the rear of the Instrument must be used.

## 10.4 LumiraDx Connect Hub



Refer to LumiraDx Connect User Manual and Connect Hub Pack Insert for information and setup instructions

## 10.5 LumiraDx Connect App



Refer to LumiraDx Connect User Manual for information and setup instructions.

# 11 Customer Services

For product inquiries and technical support please contact LumiraDx Customer Services by email: [customerservices.US@lumiradx.com](mailto:customerservices.US@lumiradx.com), telephone +1 (617) 621-9775 or at [lumiradx.com](http://lumiradx.com).

## 11.1 Warranty

Warranty – Limited Warranty.

LumiraDx Instrument – 2 Year Warranty from date of purchase.

LumiraDx Test Strips – As per shelf life.

For the applicable warranty period, LumiraDx warrants, to the original purchaser only, that each product shall be (i) of good quality and free of material defects, (ii) function in accordance with the material specifications referenced in the Product Insert or Platform User Manual, and (iii) approved by the proper governmental agencies required for the sale of products for their intended use (the "limited warranty"). If the product fails to meet the requirements of the limited warranty, then as customer's sole remedy, LumiraDx shall either repair or replace, at LumiraDx's discretion, the Instrument or Test Strips, as applicable. Except for the limited warranty stated in this section, LumiraDx disclaims any and all warranties, express or implied, including but not limited to, any warranty of merchantability, fitness for a particular purpose and non-infringement regarding the product. LumiraDx's maximum liability with any customer claim shall not exceed the net product price paid by customer. Neither party shall be liable to the other party for special, incidental or consequential damages, including, without limitation, loss of business, profits, data or revenue, even if a party receives notice in advance that these kinds of damages might result.

The limited warranty above shall not apply if the customer has subjected the LumiraDx Instrument or Test Strips to physical abuse, misuse, abnormal use, use inconsistent with the LumiraDx Platform User Manual or Product Insert, fraud, tampering, unusual physical stress, negligence or accidents. Any warranty claim by customer pursuant to the limited warranty shall be made in writing within the applicable limited warranty period.

Details of relevant Intellectual Property regarding this product can be found at [lumiradx.com/IP](http://lumiradx.com/IP).

Please contact Customer Services for further information about the LumiraDx Instrument third party copyright, privacy notice and general legal statements.

## 12 References

1. World Health Organization (2009) Guidelines on hand hygiene in healthcare. <http://who.int/gpsc/5may/tools/9789241597906/en/>
2. World Health Organization (2016) Guidelines on core components of infection prevention programs at the national and acute healthcare facility level. <http://who.int/gpsc/ipc-components-guidelines/en/>
3. CDC Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007. <https://cdc.gov/infectioncontrol/guidelines/isolation/index.html>
4. CDC Clinical Reminder: Use of Fingerstick Devices on More than One Person Poses Risk for Transmitting Bloodborne Pathogens. <https://cdc.gov/injectionsafety/fingerstick-devicesbgm.html>

# **13 Compliance**

## **13.1 Environmental Practices**

LumiraDx complies with all environmental legislation in each country where the product is sold. Please refer to [lumiradx.com](http://lumiradx.com) for further information.

## **13.2 Compliance**

The LumiraDx Platform is for use with SARS-CoV-2 Ab Test Strips and SARS-CoV-2 Ag Test Strips, under the Food and Drug Administration's Emergency Use Authorization only.

The LumiraDx Instrument has been tested and is compliant with:

CAN/CSA-C22.2 No. 61010-1-12 - Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements.

CAN/CSA-C22.2 No. 61010-2-101:15 - Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-101: Particular requirements for *in vitro* diagnostic (IVD) medical equipment.

UL 61010-1 (Third Edition) - Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements.

UL 61010-2-101 (Second Edition) - Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-101: Particular requirements for *in vitro* diagnostic (IVD) medical equipment.



