

SIGNALTEST

Measure and optimise your fixed wireless device performance

Revision history

Revision	Date	Description of changes	Author
1.0	July 5, 2019	Document created	Kevin Lu
1.1	Jan 5, 2022	Added interpreting results	Ken Knapp

How to use SignalTest, summary:

Using your Smart Phone:

The SignalTest software does not use your smart phone to conduct the test. You are logging into a web site using a standard browser to initiate the test and view the test results. It does not matter what cellular provider your smart phone connects to or if it is using a Wi-Fi connection. All testing is conducted directly between SignalTest Server and the Cellular CPE over the Cellular Carrier network.

Open your camera application and point it at the QR-Code printed on the top of the modem. A web site will open and allow you to run / view tests.

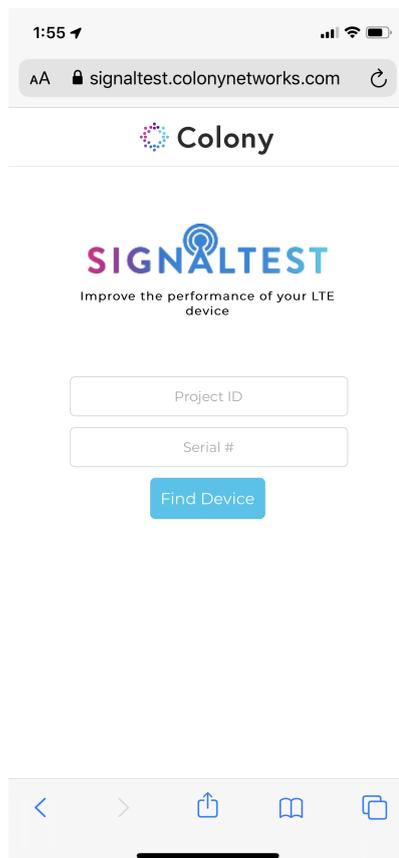
The web portal can be accessed using any standard browser, provide the project id and device code that is used to uniquely identify the Cellular CPE you are testing.

Before running a SignalTest:

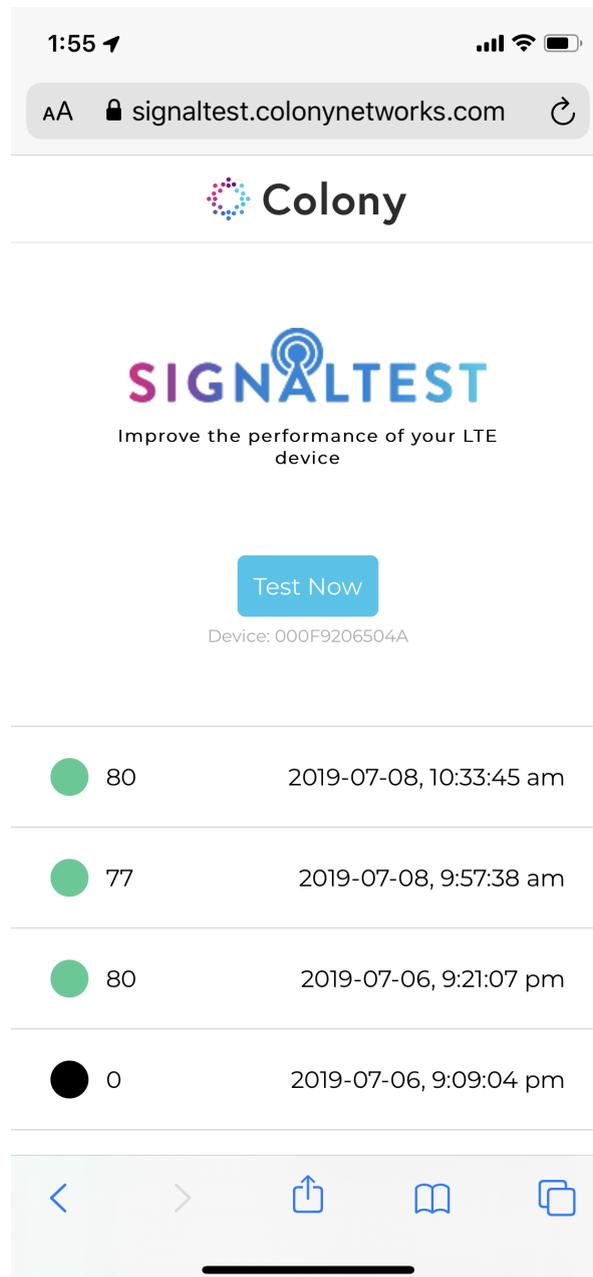
1. Ensure SIM card is installed inside the device.
2. Ensure device is powered on and signal strength status LED is lit to show that the device is online.

To begin a SignalTest:

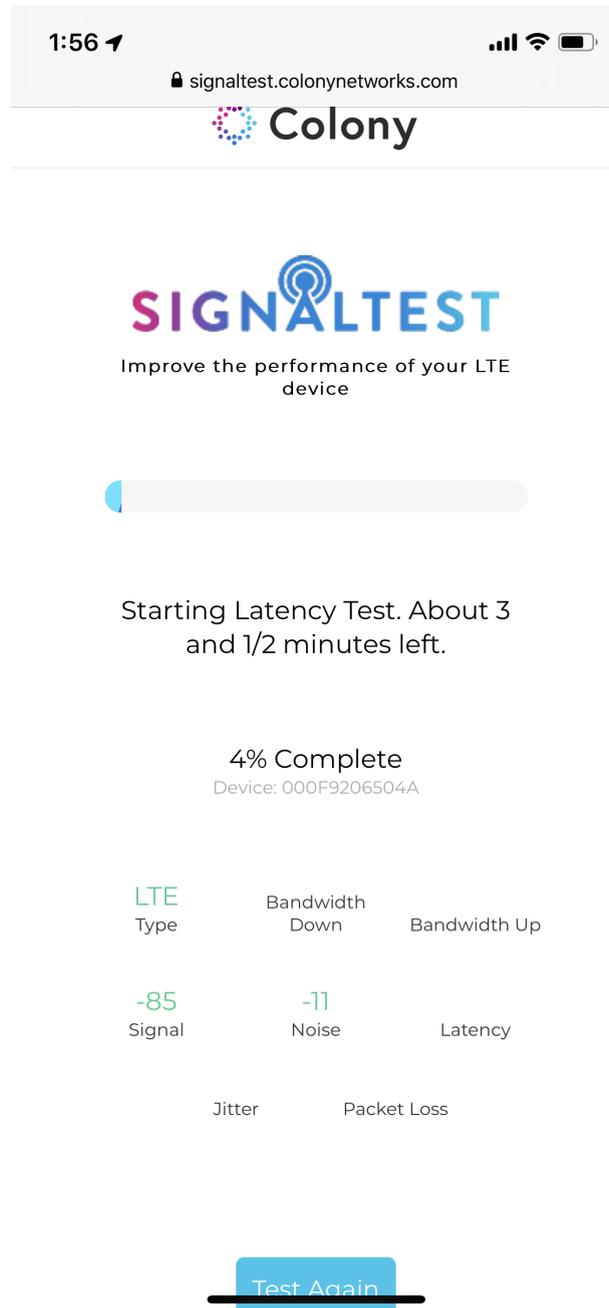
1. Scan QR code attached to the device.
2. This should take you directly to the URL for that specific device.
 - a. If there are any errors with the QR code or if you would like to perform a SignalTest remotely, you can also manually go to <https://signaltest.colonynetworks.com> and type in the Project ID and the serial number of the device (including any special characters such as a dash).



- Once you login, you should see the main page for the device. It will show a list of historical SignalTest results for this device. You can tap/click on any of the results to view more details for that SignalTest.



4. Press test now to begin a new SignalTest. The test will take approximately 4-5 minutes to complete. You do not have to remain on the page for the test to run.



The screenshot shows the mobile application interface for SignalTest. At the top, the status bar displays the time 1:56, signal strength, Wi-Fi, and battery icons. Below the status bar, the URL 'signaltest.colonynetworks.com' is shown. The Colony logo is prominently displayed. The main heading is 'SIGNALTEST' with a radio tower icon, followed by the tagline 'Improve the performance of your LTE device'. A progress bar indicates 4% completion. The text 'Starting Latency Test. About 3 and 1/2 minutes left.' is shown. Below this, the progress is summarized as '4% Complete' for 'Device: 000F9206504A'. A table of test metrics is displayed:

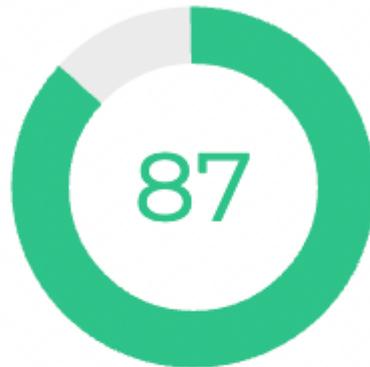
LTE Type	Bandwidth Down	Bandwidth Up
-85 Signal	-11 Noise	Latency
Jitter	Packet Loss	

A 'Test Again' button is visible at the bottom, which is currently disabled and crossed out with a black line.

- Once the test completes, you will see the detailed results and have the option to run another SignalTest or go back to a previous page.

SIGNALTEST

Improve the performance of your LTE device



Site Name: 01023 - GRAND BEND
Device: 000F920AB736

LTE
Type

29.46
Bandwidth Down

39.74
Bandwidth Up

-90
Signal

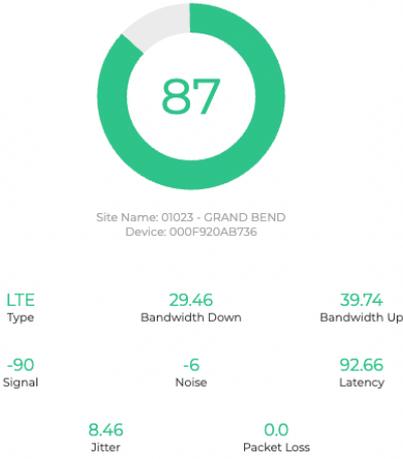
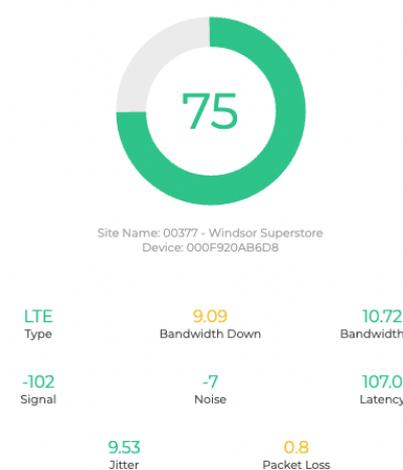
-6
Noise

92.66
Latency

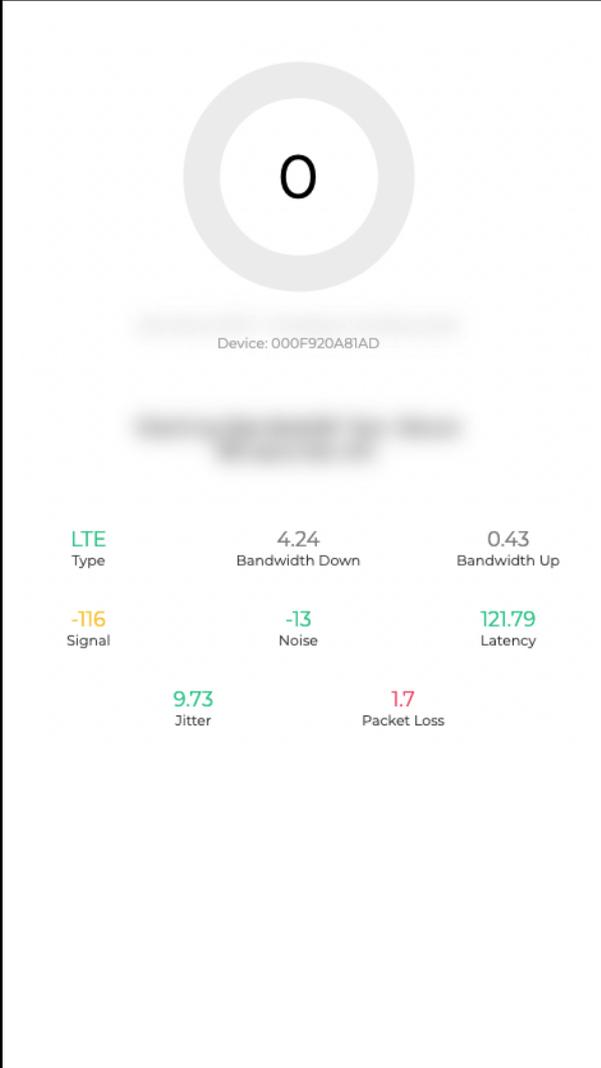
8.46
Jitter

0.0
Packet Loss

6. **Interpreting the results:** SignalTest will return a result in the form of a circle with a colour coded number in the centre. Each customer has provided their own set of cellular parameters that must be achieved in order to result in a pass.

 <p>Site Name: 01023 - GRAND BEND Device: 000F920AB736</p> <p>LTE Type 29.46 Bandwidth Down 39.74 Bandwidth Up -90 Signal -6 Noise 92.66 Latency 8.46 Jitter 0.0 Packet Loss</p>	<p>Observe the colour of the number inside the circle.</p> <p>number is green = pass</p> <p>all small numbers are green</p> <p><u>This site is a pass</u></p>
 <p>Site Name: 00377 - Windsor Superstore Device: 000F920AB6D8</p> <p>LTE Type 9.09 Bandwidth Down 10.72 Bandwidth Up -102 Signal -7 Noise 107.0 Latency 9.53 Jitter 0.8 Packet Loss</p>	<p>Observe the values below the large circle, some of them may be coloured yellow</p> <p>large number is green = pass yellow values = warning</p> <p><u>In this case the site is a pass</u></p> <p>But a certain value is at or near the threshold set by the customer and there may be special instructions to follow.</p> <p>In this instance the customer wants to pass at over 6mpbs but would prefer 25mbps, so cellular remediation steps should be taken to improve the signal, but if you can't get anything better it is still a pass.</p>

 <p>Site Name: 06717 - Wholesale Club Bonnyville Device: 000F920A81AD</p> <p>LTE Type</p> <p>10.72 Bandwidth Down</p> <p>1.71 Bandwidth Up</p> <p>-120 Signal</p> <p>-13 Noise</p> <p>124.69 Latency</p> <p>16.25 Jitter</p> <p>3.3 Packet Loss</p>	<p>Observe the colour of the number inside the circle.</p> <p>large number is yellow = problem</p> <p>Observe the values below the large circle, some of them may be coloured red. Look at the value in red for more insight as to what the issue is.</p> <p><u>In this case the site is not a pass you must resolve the issue and contact the carrier if you cannot</u></p> <p>In this instance the value highlighted in RED is "PACKET LOSS". When you contact the cellular carrier, provide this value. Also observe that the other values are yellow, so the site can be passed if the packet loss issue can be resolved or the carrier indicates the site is ok to proceed with this level of packet loss.</p> <p>Also notice the Signal is highlighted in yellow (-120) this indicates the cellular signal is borderline therefore cellular remediation steps should be followed which may also eliminate packet loss.</p>
<p>LTE Type</p> <p>17.45 Bandwidth Down</p> <p>3.12 Bandwidth Up</p> <p>-110 Signal</p> <p>-17 Noise</p> <p>87.2 Latency</p> <p>14.63 Jitter</p> <p>4.2 Packet Loss</p>	<p>In this example notice packet loss is red, signal is green, but noise is yellow (-17). This indicates the cellular noise is borderline therefore cellular remediation steps should be followed which may also eliminate packet loss.</p>
<p>Note about packet loss: Sometimes packet loss is an indication of network congestion even when Signal, Noise and throughput all pass. When contacting the cellular carrier, bring all values to their attention. They can also view the SignalTest result via the portal and may decide to pass the site if all cellular parameters are ok, but packet loss is the only issue.</p>	

 <p>Device: 000F920A81AD</p> <p>LTE Type</p> <p>4.24 Bandwidth Down</p> <p>0.43 Bandwidth Up</p> <p>-116 Signal</p> <p>-13 Noise</p> <p>121.79 Latency</p> <p>9.73 Jitter</p> <p>1.7 Packet Loss</p>	<p>Observe the colour of the number inside the circle.</p> <p>large number is black/red = FAIL</p> <p>Observe the values below the large circle, some of them will be coloured black. Look at the value in black for more insight as to why the site failed</p> <p><u>In this case the site is a FAIL you must resolve the issue and contact the carrier if you cannot</u></p> <p>In this example the site failed because the download throughput (4.24mbps) did not meet the customer minimum of 6mbps. The upload throughput also did not meet the customer specified minimum.</p> <p>Signal is yellow, but noise is green, therefore cellular remediation steps should be followed to improve signal strength which will result in better throughput.</p>
<p>Note about Signal and Noise: Signal strength and noise affect the throughput that can be achieved over the cellular network. If throughput is low, always check these values and follow cellular remediation steps to resolve a weak signal. In most cases resolving the signal issue will result in better throughput and the site passing. Weak cellular signal can also be resolved using a high gain antenna in place of the factory supplied antennas. Ensure you are familiar with cellular remediation steps (aka move the modem to a better spot, such as a window) and have an understanding of the materials such as metal, concrete and water that will have a negative effect on cellular performance.</p>	