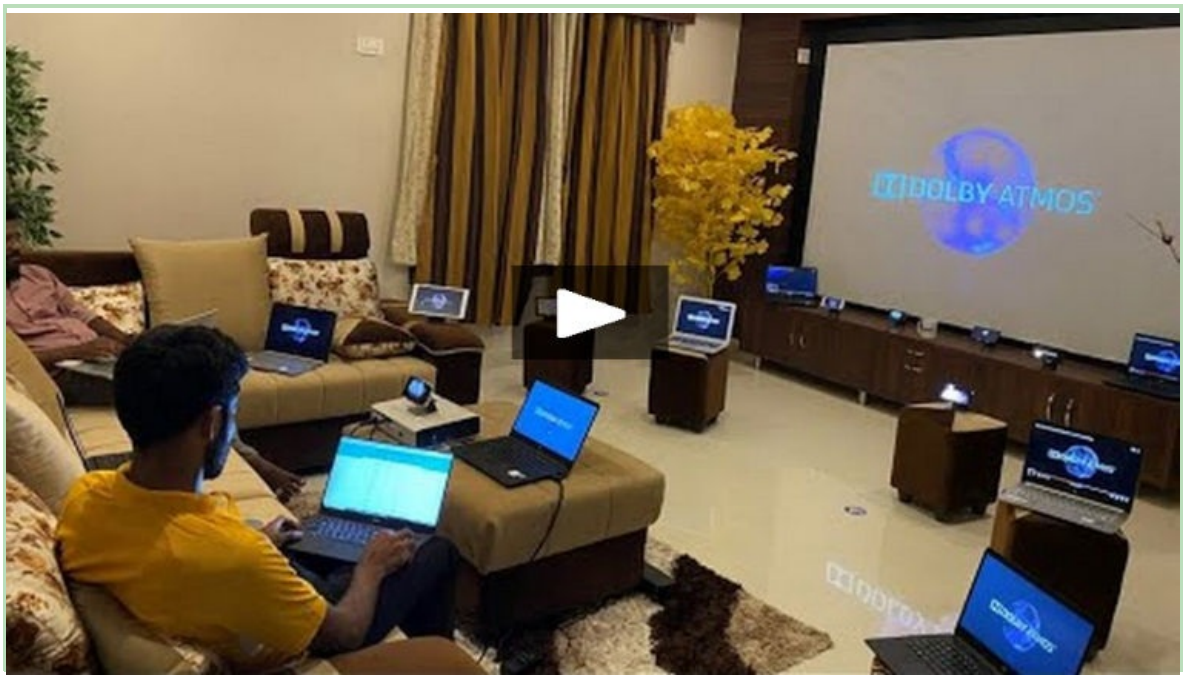
Network Testing and Emulation Solutions

sales@candelatech.com
support@candelatech.com
+1 (360) 380-1618 [PST, GMT -8]

Candela Technologies Wi-Fi Test House

Welcome to the Candela Technologies WiFi Test house. Is your WiFi router able to provide proper coverage to all corners of the house? Is your router able to handle all the devices in the home and stream video without any stalls? Is your mesh system able to handoff, band steer and load balance efficiently when devices are moving all around the house? How are external interferers effecting your WiFi performance? Is your WiFi router able to work well with the latest smartphones? Well, Candela Technologies now offers a very easy and affordable way to answer all these questions. Send us your device under test and we will send you the answers.



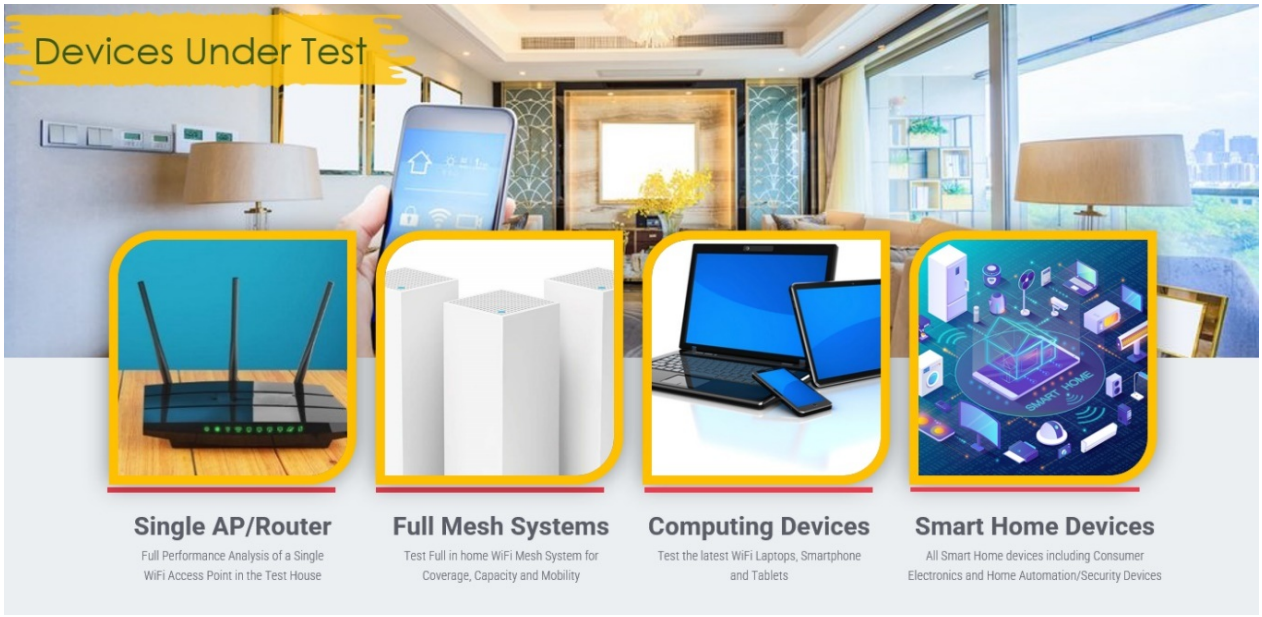
Candela Technologies now offers Residential WiFi testing services in our office in India.

Test House – 3500 Sqft Apartment

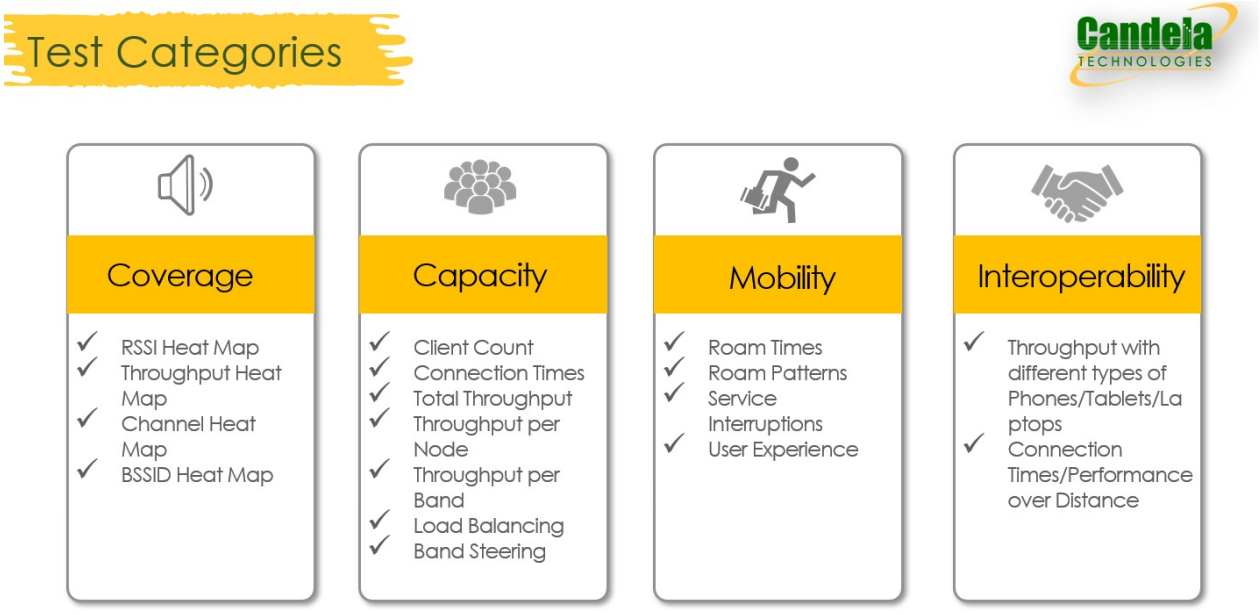
- Brick and Mortar construction
- Tile flooring.
- 10 feet ceilings.
- Standard wooden doors, wooden cupboards and cabinets.
- 4- Bed, 4-Bath, Living, Dining, Kitchen and Media Rooms.
- Independent building with very little or no external WiFi or RF interference
- Fully equipped home with all furniture and furnishings
- Lots of WiFi Devices of various types (Laptops, Smartphones, Tablets, TVs, Cameras, IoT Devices etc...)

The testing services are offered by our expert WiFi test engineers running many different types of tests in a real home environment in a 3500 sqft apartment with all the elements, furniture and furnishings that we can find in a normal house.

The testing facility also is equipped with many different types of WiFi devices which include smart TVs, Laptops, Tablets, Phones, Wireless Cameras, a number of other smart WiFi devices and IoT devices that run on WiFi.



The test house is fully equipped to test stand alone WiFi routers, Full WiFi in-home Mesh systems, WiFi devices like phones/tablets, many different types of Consumer electronics devices like TVs, refrigerators etc. and also many different types of IoT devices like smart sensors, home automation devices and more.



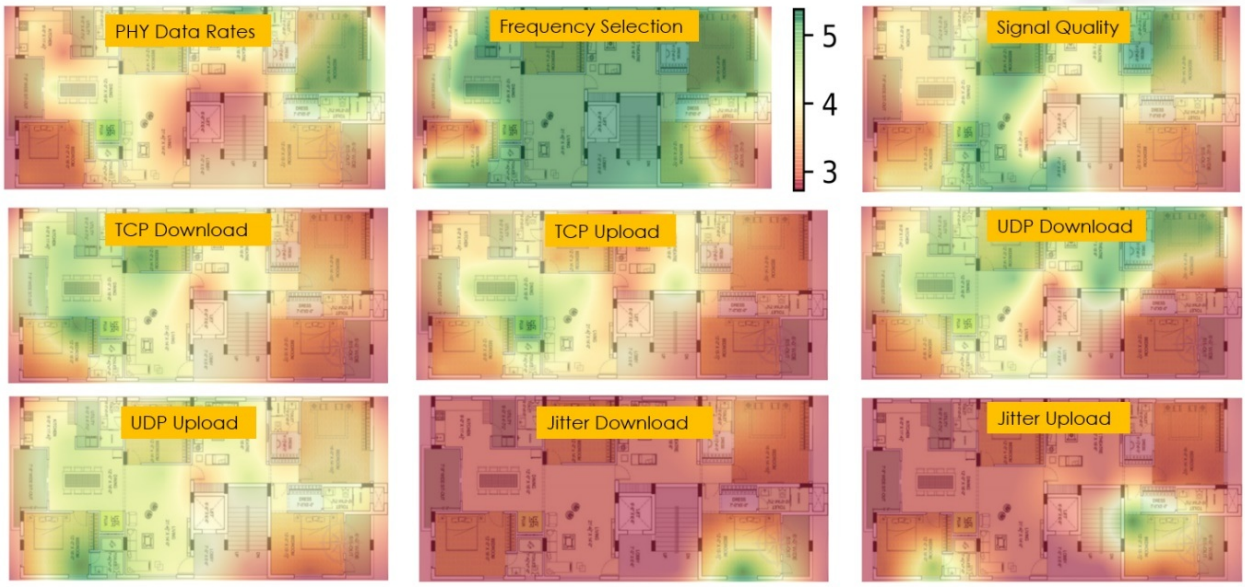
The four main test categories include Coverage, Capacity, Mobility and Interoperability.

Candela has detailed test plans in each of these areas with a clear step by step process to execute these tests in the most methodical and repeatable way possible.

Coverage Testing

For **coverage testing**, the test house comes with a movable cart equipped with batteries, multiple different types of 802.11a/b/g/n/ac/ax test devices to perform coverage testing. The house also has over 90 clearly marked test points for the tester to run the test on and these points are also clearly notes on the floor map of the house.

Coverage Heatmaps



We use an automated heat map software where the tester physically walks to all the test points and click on the map at the specific physical location and the software will automatically make RSSI, SNR, UDP/TCP Upstream/Downstream Throughput, Latency and Jitter measurements at each point and generate heatmaps for all these metrics.

Sample Coverage Test Results

	Signal Strength	PHY Rates	Channel Selection	UDP Downstream	UDP Upstream	TCP Downstream	TCP Upstream	Latency
Living Room	PASS	FAIL	FAIL	FAIL	PASS	FAIL	FAIL	FAIL
Dining Room	FAIL	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Kitchen	FAIL	FAIL	PASS	FAIL	PASS	FAIL	PASS	PASS
Guest Bedroom1	PASS	FAIL	FAIL	PASS	FAIL	PASS	PASS	PASS
Guest Bedroom2	PASS	PASS	FAIL	PASS	FAIL	PASS	FAIL	FAIL
Media Room	PASS	FAIL	PASS	PASS	FAIL	PASS	FAIL	FAIL
Kids Bedroom	FAIL	FAIL	PASS	PASS	PASS	FAIL	PASS	PASS
Master Bedroom	PASS	PASS	FAIL	FAIL	FAIL	PASS	FAIL	FAIL

	Avg Signal Strength	Avg UDP Downstream	Avg UDP Upstream	Avg TCP Downstream	Avg TCP Upstream	Avg Latency
Living Room	-35 dBm	10 Mbps	66 Mbps	10 Mbps	10 Mbps	450 ms
Dining Room	-62 dBm	56 Mbps	59 Mbps	96 Mbps	56 Mbps	32 ms
Kitchen	-75 dBm	12 Mbps	32 Mbps	12 Mbps	12 Mbps	64 ms
Guest Bedroom1	-43 dBm	93 Mbps	13 Mbps	93 Mbps	93 Mbps	92 ms
Guest Bedroom2	-46 dBm	67 Mbps	17 Mbps	74 Mbps	67 Mbps	364 ms
Media Room	-32 dBm	97 Mbps	7 Mbps	67 Mbps	97 Mbps	523 ms
Kids Bedroom	-74 dBm	85 Mbps	85 Mbps	15 Mbps	85 Mbps	45 ms
Master Bedroom	-49 dBm	5 Mbps	5 Mbps	85 Mbps	5 Mbps	423 ms

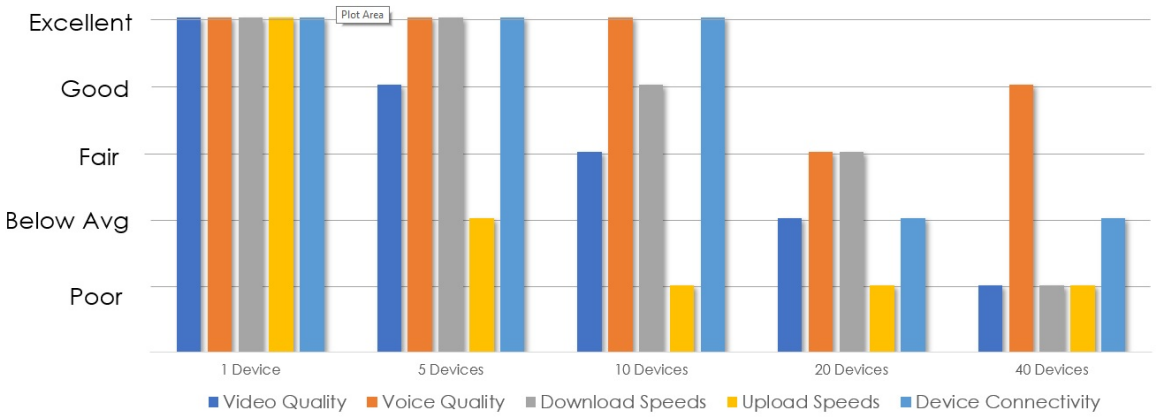
The test report will also include PASS/FAIL results for various performance metrics and overall user experience for various locations in the house.

Capacity testing

Capacity testing is also offered in the test house with several real WiFi devices. The idea is to test how well the APs can handle 30-40 different WiFi devices in the home and still maintain very good voice and video performance at various locations in the house.

These tests are run with many different devices connected to the APs and running iPerf traffic to make objective measurements and also with real video streaming and test engineers watching the video over a period time to provide subjective scoring of the user experience.

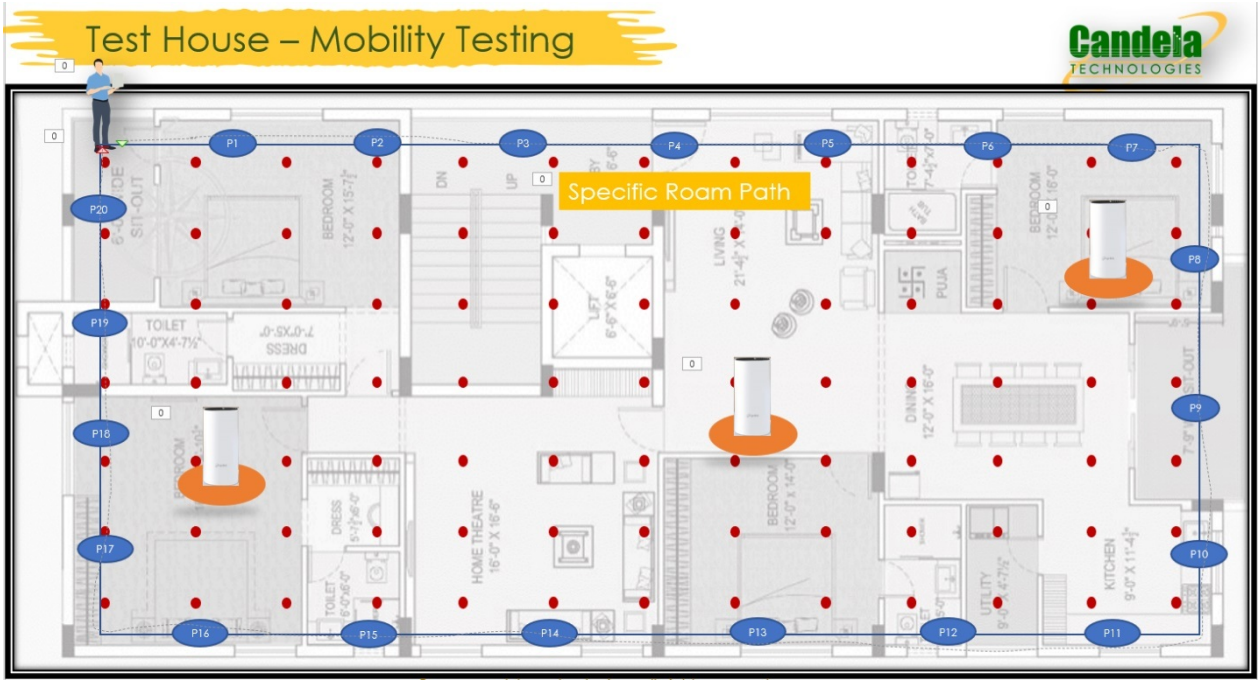
Sample Capacity Test Results



Test results are provided in the form of Throughput per band/SSID/Radio etc.. client connection times and other objective measurements and also test score are provided regarding the user experience.

Mobility Testing

Mobility testing is key for Residential Mesh networks. Its important to test the device are able to find the best possible node in the roam path and the network is also able to assist the device in finding the best node and optimize the performance.



The roam test results will provide various key measurement at different measurement points during the roam path and also indicate any connection failures of delays that can affect end user quality of experience.

Interoperability Testing

Interoperability Testing is another very key test category in the WiFi test house. Its very important to find out if the Device under Test can perform will in all areas when handling the latest and greatest WiFi devices. The Candela test house has a collection of the latest WiFi devices to test the AP against and we interoperability testing can be run in the test house and a nice test report can be produced.

Interoperability Result Summary

Device	Signal Strength(dBm)				Band Picked		Node Picked			Connection Time (ms)	Range (meters)
	Lowest	Highest	Avg	Deviation	2.4GHz	5GHz	Node0	Node1	Node2		
Oppo A5s											
Oppo A37fw											
Vivo Y95											
Oppo F15											
Samsung A50											
Redmi K20Pro											
Redmi Note 3											
Vivo V9 Youth											
Iphone 11											

TP-Link Deco E4 Whole Home Mesh Wi-Fi System, Seamless Roaming and Speedy (AC1200) for Large Home

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Iphone12

Device	Upload Speed (Mbps)				Download Speed(Mbps)			
	Min	Max	Avg	Deviation	Min	Max	Avg	Deviation
Oppo A5s	2	95	32	12	4	156	62	35
Oppo A37fw								
Vivo Y95								
Oppo F15								
Samsung A50								
Redmi K20Pro								
Redmi Note 3								
Vivo V9 Youth								
Iphone 11								

Pricing

Pricing will vary based on what test options are selected. For pricing information, and other details please email testhouse@candelatech.com

For more information, please contact sales@candelatech.com or give us a call at: 1-360-380-1618

Candela Technologies, Inc., 2417 Main Street, Suite 201, Ferndale, WA 98248, USA
www.candelatech.com | sales@candelatech.com | +1.360.380.1618