Wifi Analyzer Cleveland State University Campus

User Manual

Proposed by

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Introduction

This is user manual for the WIFI Analyzer of Cleveland State University.

We have created "WIFI Analyzer" website, which represent a Wi-Fi access points (APs) coverage heat map in the city of Cleveland at the periphery of the Cleveland State University. With the help of the heat map, we can easily identify the specific position with poor signal reception and determine effective router positions.

We have showed the results for the college campus; highlight the weakest and strongest coverage area through a heat map. Data collection for input was done via measuring WIFI signal strength around the college building including basement, where we have car parking. The smart phone uses application to measure Wi-Fi signal strength at a specific area.
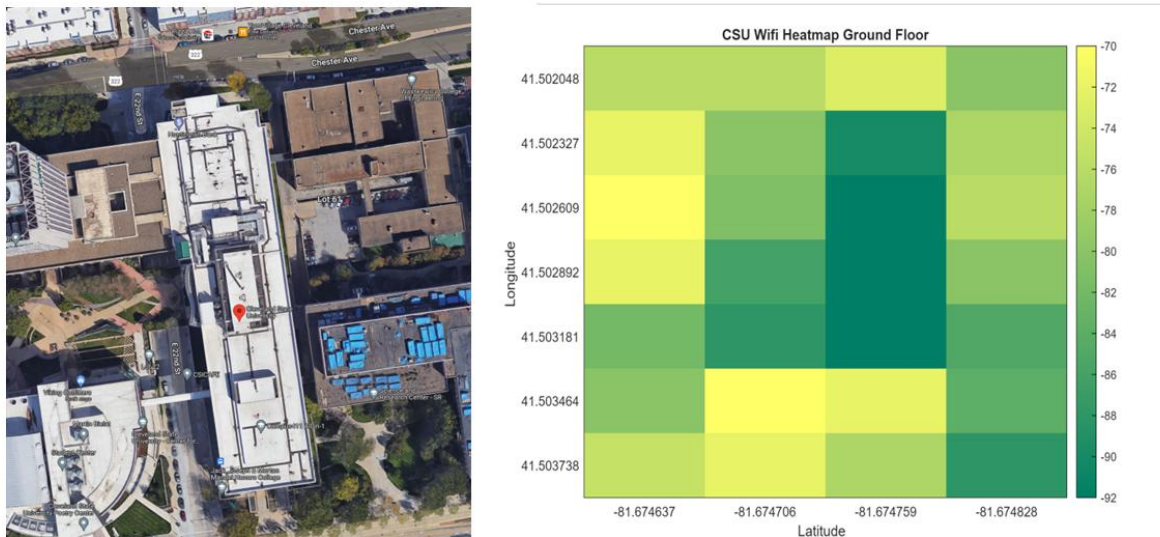

Figure: BH College campus map and Wi-Fi signal strength heat map, deep green showing weakest signal reception zone, light yellow is good signal reception.

Different sections of this User Guide

- How to see WIFI heat map?
- Home Page
- Heat map generation
- Download Functionality

Terms, Acronyms, and Abbreviations

APs - Access points

Wi-Fi – Wireless Fidelity

CSU – Cleveland State University

BH – Berkman Hall (one of the buildings of the Cleveland State university)

Heat map is a color-coded graph, which helps in determining the strength of the signals from high to low at different areas. Visual representation is easy to understand and locate specific area with poor signal strength. Rather than blindly guessing and installing routers at wrong place, heat maps really works efficiently to figure out the specific location.

Ideal Signal Strength

Below table describes the probable values of the WIFI signal strength, to understand the heatmap

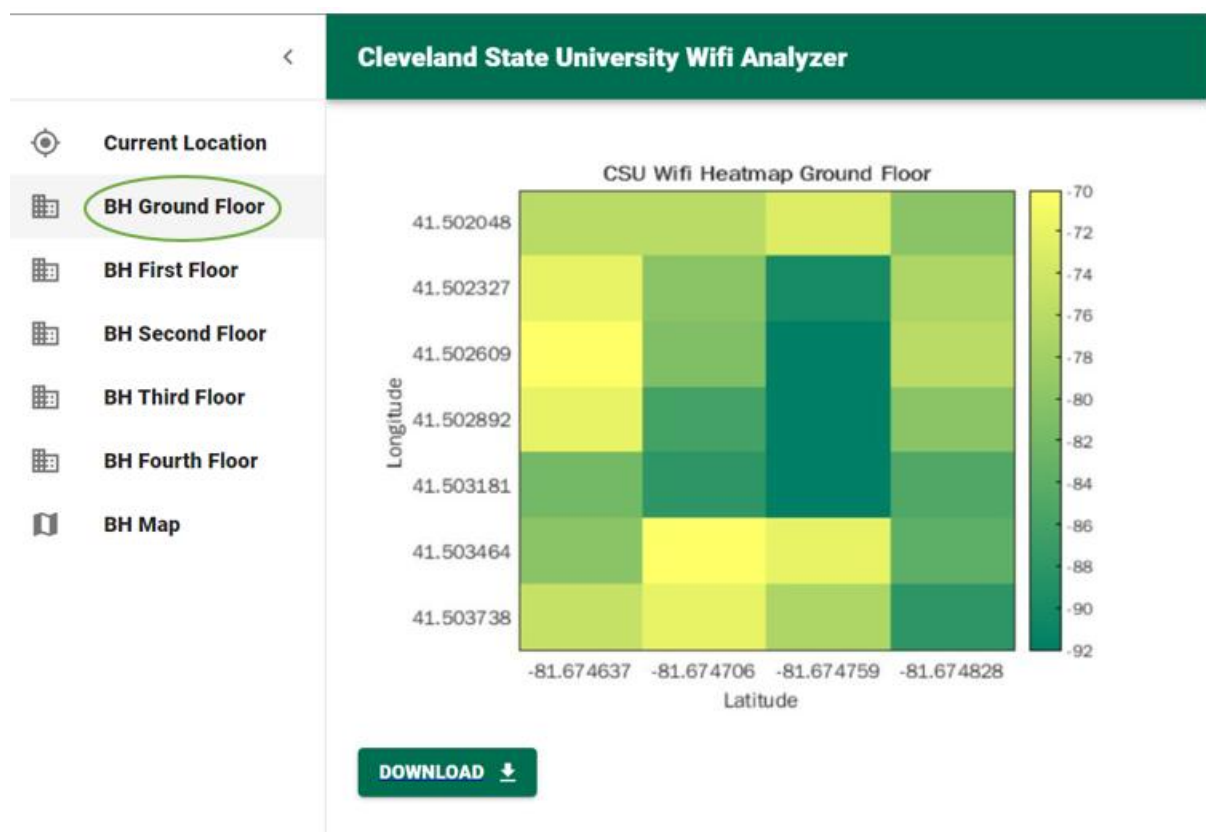| Signal Strength	TL;DR		Required for
-30 dBm	Amazing	Max achievable signal strength. The client can only be a few feet from the AP to achieve this. Not typical or desirable in the real world.	N/A
-67 dBm	Very Good	Minimum signal strength for applications that require very reliable, timely delivery of data packets.	VoIP/VoWi-Fi, streaming video
-70 dBm	Okay	Minimum signal strength for reliable packet delivery.	Email, web
-80 dBm	Not Good	Minimum signal strength for basic connectivity. Packet delivery may be unreliable.	N/A
-90 dBm	Unusable	Approaching or drowning in the noise floor. Any functionality is highly unlikely.	N/A

How to see WIFI heat map?

Home page

On accessing the website link through a browser (e.g. chrome) user will land on the default screen (Current Location), In Current location menu WIFI signal strength of the current signal should show channel, frequency, signal level etc.
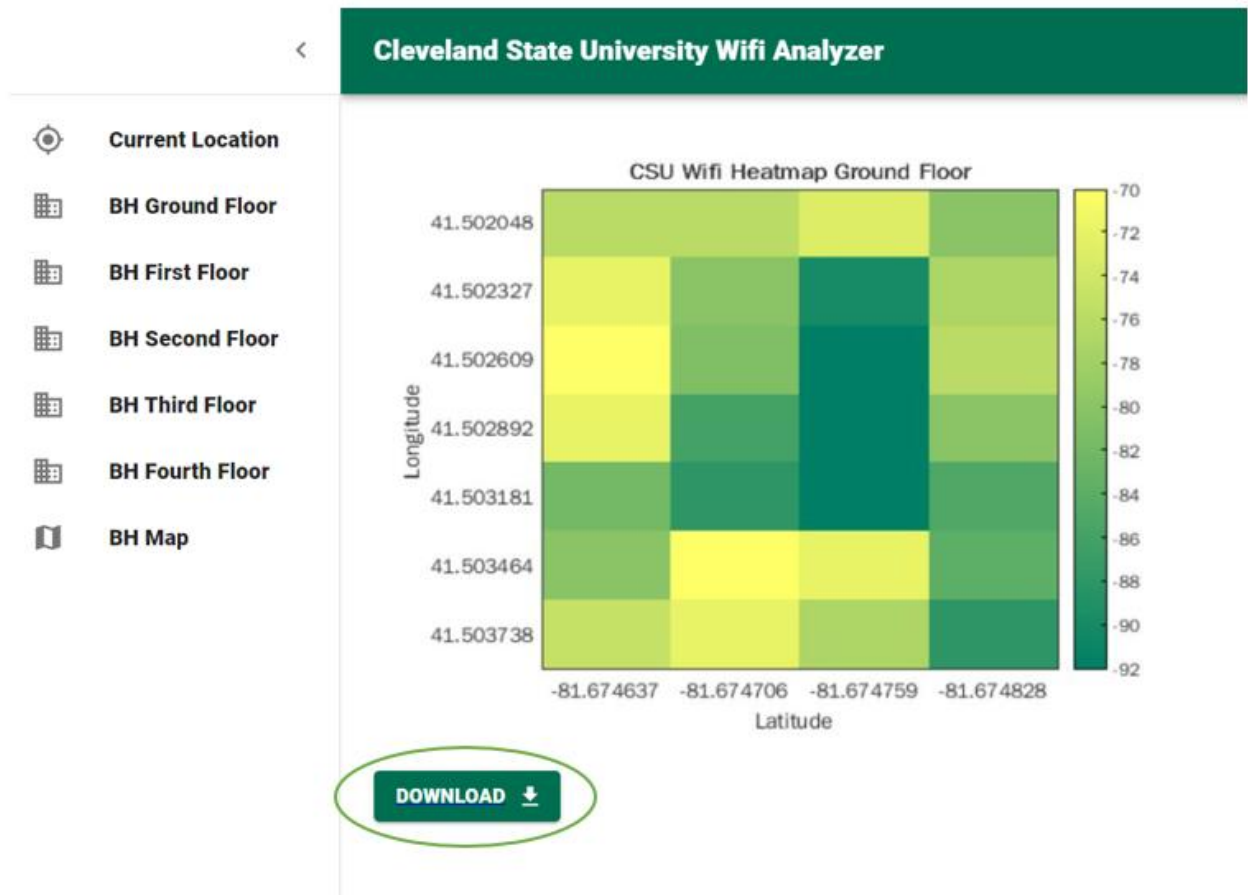

Heat map generation

Clicking on BH Ground Floor from the left menu (highlighted below) will result in appearing the heatmap on the right side of the page , elaborating what the strongest & weakest WIFI reception areas are.

Download Functionality

For downloading the map user can click on download button for downloading the heatmap in an image format on their laptop/computer system. It will be saved in Download folder. You can click and see the map.
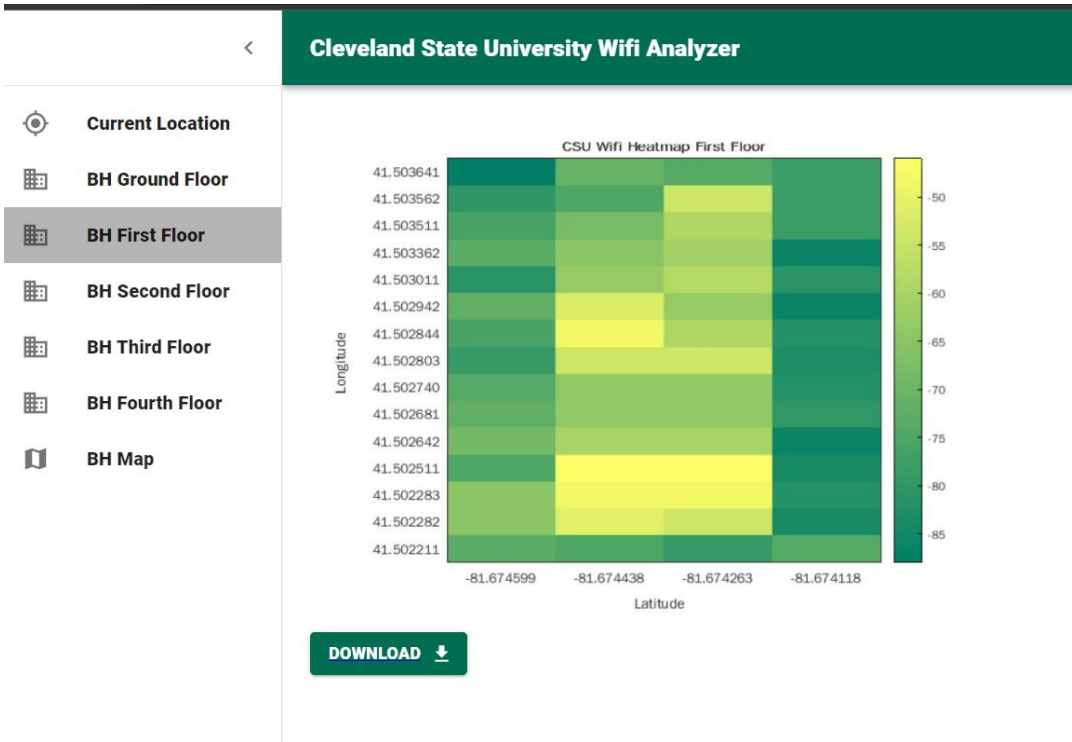

Note: This functionality is common on all the other heatmap from the menus and maps. User can browse the menu to check heatmap of the different floors and download them.
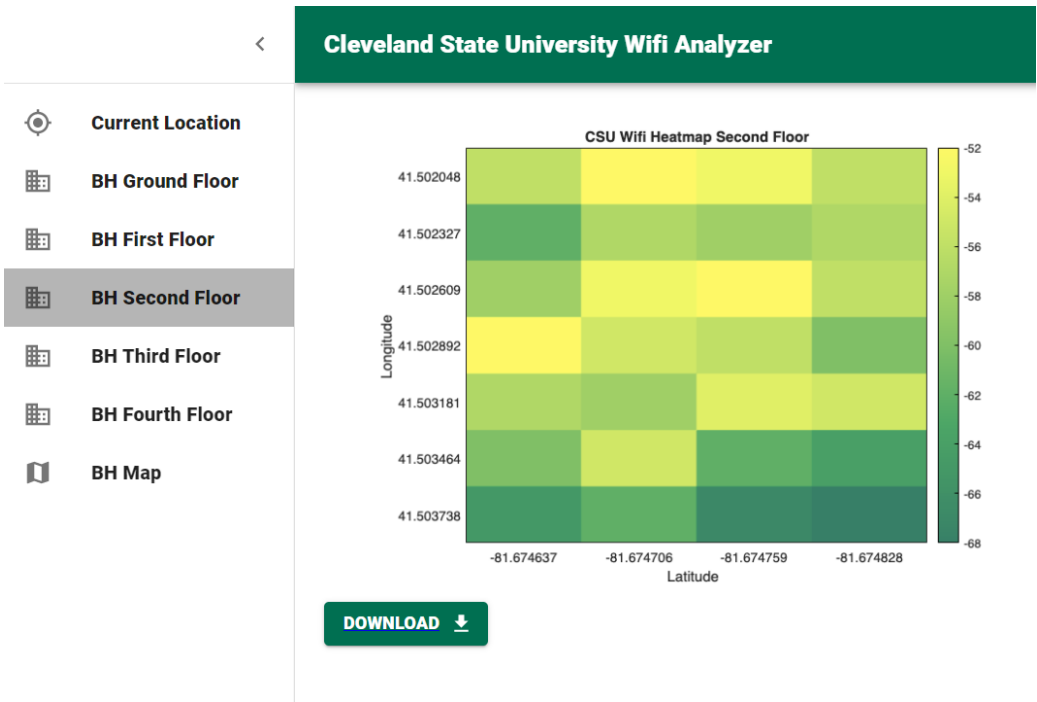
On next pages the screenshots for each of the screens are mentioned.
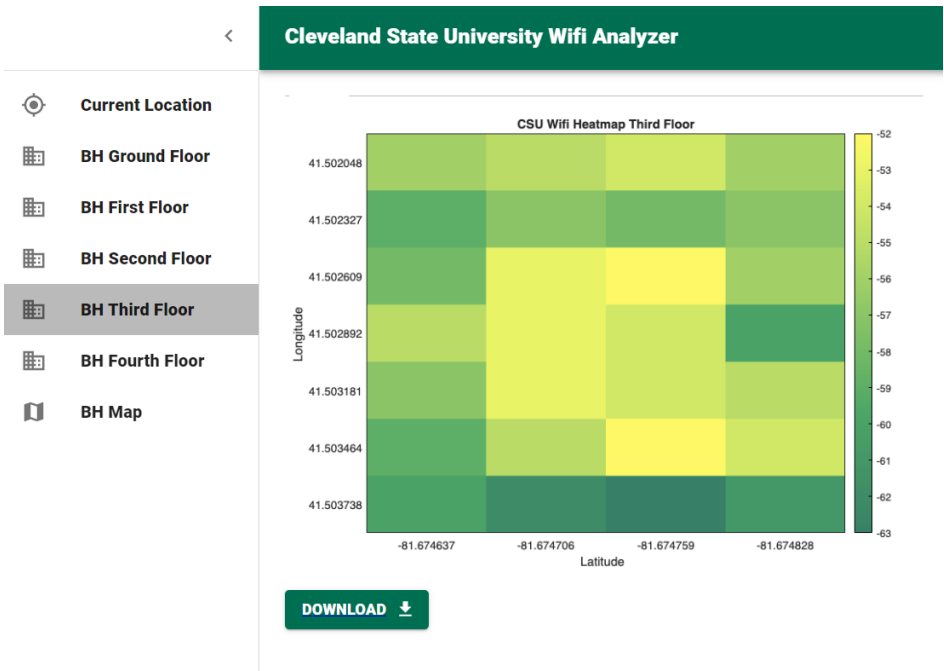
Other Pages of the website

User can click first floor from the left side Menu to see heatmap of the first floor & can download the map as well by clicking download button.
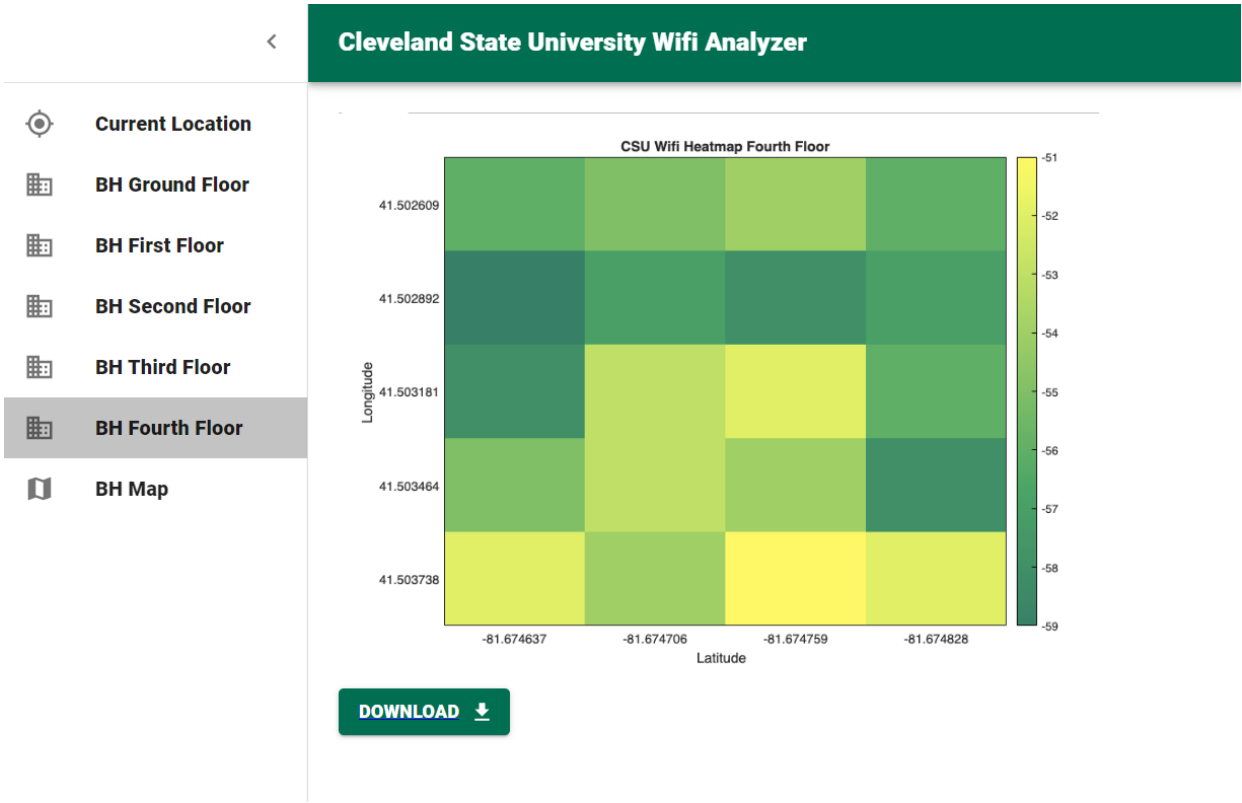

User can click second floor from the left side menu to see heatmap of the second floor & can download the map as well by clicking download button.

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User can click third floor from the left side menu to see heatmap of the third floor & can download the map as well by clicking download button.

User can click fourth floor from the left side menu to see heatmap of the third floor & can download the map as well by clicking download button.

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User can click BH map option from the left side menu to see map of the building (Berkman Hall)