

# 3: ANALYZING AND RESOLVING Wi-Fi PROBLEMS

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# EXECUTIVE SUMMARY

To analyze and resolve Wi-Fi problems, you can install free software utility programs for your "Windows.." or Mac "OS X" computer.

# TOPICS

- Requirements for Analyzing Your Wi-Fi Environment
- Free Wi-Fi software for your computer and/or cell phone
- Received Signal Strength Indication (RSSI)
- Selecting the right Wi-Fi channel

# REQUIREMENTS FOR ANALYZING YOUR Wi-Fi ENVIRONMENT

- A computer or cell phone that is capable of receiving and connecting to Wi-Fi signals in the 2.45 GHz radio frequency band and/or the 5 radio GHz frequency band and/or the 6 GHz radio frequency band
- A software app that runs in the operating system of the above computer or cell phone

# FREE Wi-Fi SOFTWARE APPS FOR YOUR COMPUTER OR CELL PHONE

- "Acrylic WiFi Home" for a computer
- "NetSpot Free Edition" for a computer or an Android cell phone
- "WiFi Analyzer Lite" for a computer (or an Android cell phone)

# FREE Wi-Fi SOFTWARE APPS FOR YOUR COMPUTER OR CELL PHONE (continued)

- Warning: the Apple company forbids apps that analyze Wi-Fi networks in their computers, iPads, and iPhones:  
If you attempt to obtain a Wi-Fi analysis app from any Apple device, you will end up at an ad that attempts to sell you a spectrum analyzer device.  
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# ACRYLIC WiFi HOME

- To download and install the free "Acrylic WiFi Home" for a "Windows.." computer, use a Web browser to go to <https://www.acrylicwifi.com/descargas-versiones-gratuitas-programas-software-herramientas-wifi/descargar-escaner-wifi-gratis-para-windows/>



## ACRYLIC WiFi HOME (continued)

- Scroll or page down.
- Then click on the "Try it for free" button.

## ACRYLIC WiFi HOME (continued)

- "Acrylic WiFi Home" shows you any 2.45 GHz or 5 GHz or 6 GHz band access points than your wireless adapter is capable of receiving.

## ACRYLIC WiFi HOME (continued)

- "Acrylic WiFi Home" is a product of the "Tarlogic" company which is located in Spain.

# NETSPOT FREE EDITION

- To download and install the free "NetSpot Free Edition" for a Windows.. or macOS computer, use a Web browser to go to <https://www.netspotapp.com/netspotpro.html>  
Then scroll or page-down to get to the free edition of "Netspot Free Edition".

## NETSPOT FREE EDITION (continued)

- "Netspot Free Edition" shows you any 2.45 GHz or 5 GHz or 6 GHz band access points that your wireless adapter is capable of receiving.

## NETSPOT FREE EDITION (continued)

- "Netspot Free Edition" is a product of the Etwok company which is now located in Atlanta, Georgia

## USE BOTH "NETSPOT" AND "ACRYLIC WiFi HOME"

- To avoid paying for the not-free versions of "NetSpot for Windows" and "Acrylic WiFi Home", you can get a more complete picture of your Wi-Fi environment, you can use both "NetSpot Free Edition" and "Acrylic WiFi Home, but do not run them both at the same time:

# USE BOTH "NETSPOT" AND "ACRYLIC WiFi HOME" (continued)

- "Acrylic WiFi Home" shows the maximum nominal speed that an Access Point is capable of running at while the "NetSpot for Windows" program shows you the exact 802.11 mode (a, b, g, n, ac or ak) that a Wireless Access Point is running at a particular point in time.



# "WiFi ANALYZER LITE"

- "WiFi Analyzer Lite" runs in both Android cell phones (and Windows.. computers)
- "Wi-Fi Analyzer Lite" is the only free app that estimates the distance from your Android cell phone to the wireless node or router of the Wi-Fi transmitter/receiver that is being displayed.

# "WiFi ANALYZER LITE" (continued)

- This unique feature is only available in the Android version of "WiFi Analyzer Lite."
- This useful feature not available in the Windows.. version of "Wi-Fi Analyzer Lite".

# "WiFi ANALYZER LITE" (continued)

- To install "WiFi Analyzer" into an Android cell phone, search for it in the "Play Store" of an Android cell phone where it called

WiFi Analyzer  
olgor.com

## "WiFi ANALYZER LITE" (continued)

- When a home has more than the usual amount of foiled backed insulation and fiberboard boards in it's wall, "WiFi Analyzer Lite" will over-estimate the distance from your Android cell phone to the location of the wireless node or router that is being displayed.

## "WiFi ANALYZER LITE" (continued)

- "WiFi Analyzer Lite" often shows different distance measurements for Wi-Fi transmitter/receivers that are located at the same physical Wi-Fi router or mesh device. When this happens, you can take an average of the various distances that are displayed to get a better idea of the actual distance.

# "WiFi ANALYZER LITE" (continued)

- Please do not confuse "WiFi Analyzer Lite" with Solarwind's "Wi-Fi Network Analyzer" which is an unrelated, not-free app which we do not recommend
- "WiFi Analyzer Lite" was developed by Adam Haken of the Czech Republic

# "WiFi ANALYZER LITE" (continued)

- [https://cz.linkedin.com/in/adamhaken/en?trk=people-guest\\_people\\_search-card](https://cz.linkedin.com/in/adamhaken/en?trk=people-guest_people_search-card)
- <https://www.wifianalyzer.info/?s=privacy>

# FREE Wi-Fi SOFTWARE FOR YOUR COMPUTER

- All software programs for analyzing your Wi-Fi environment use up a lot of RAM and CPU cycles so expect your computer to slow down when any of these programs are running.



# RECEIVED SIGNAL STRENGTH INDICATION (RSSI)

- Measured by your Wi-Fi network adapter
- Unit-less value defined by the designer of a Wi-Fi network adapter
- No direct relationship to milliwatts (mW) or decibels per milliwatt (dBm)

## RECEIVED SIGNAL STRENGTH INDICATION (RSSI) (continued)

- If the RSSI of your device is lower than that of your neighbor's wireless routers then your wireless router or wireless extender is probably malfunctioning, especially since the strength of radio signals decline by the square of the distance.

# RECEIVED SIGNAL STRENGTH INDICATION (RSSI) (continued)

- See [https://en.wikipedia.org/wiki/Received\\_signal\\_strength\\_indication](https://en.wikipedia.org/wiki/Received_signal_strength_indication)

# RADIO FREQUENCY CHANNELS USED BY Wi-Fi (continued)

- However, even if your computer or cell phone can detect 6 Gigahertz Wi-Fi signals, most of the previously-mentioned apps will mislabel 6 Gigahertz Wi-Fi signals as 2.45 or 5 Gigahertz Wi-Fi signals operating at the non-existent "Channel 0" or the non-existent "Channel -1"

# ADDITIONAL INFORMATION ON Wi-Fi CHANNELS

- See also [https://en.wikipedia.org/wiki/List\\_of\\_WLAN\\_channels](https://en.wikipedia.org/wiki/List_of_WLAN_channels)