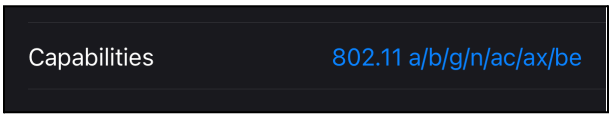
CS 456 - Assignment 2

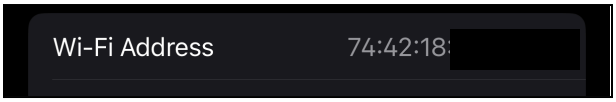
1. For each wifi-capable device provide a screenshot showing Wi-Fi version, Mac address and Wi-Fi card vendor

iPhone 16 Pro

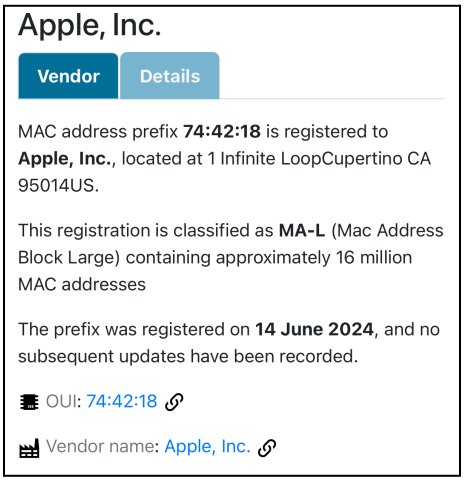
Wi-Fi version (using AIDA64 app)



Mac address

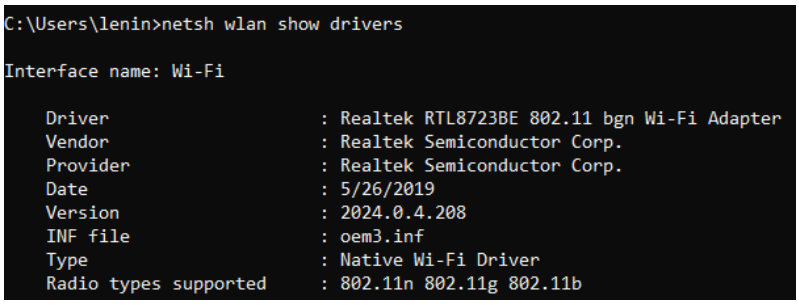


Wi-Fi card vendor (using https://maclookup.app)

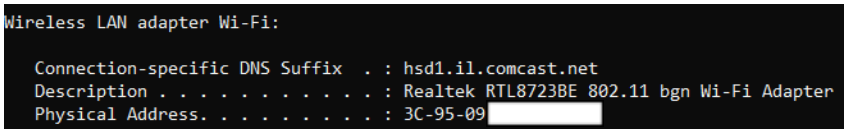


HP Laptop 15-bs0xx

Wi-Fi version



Mac address



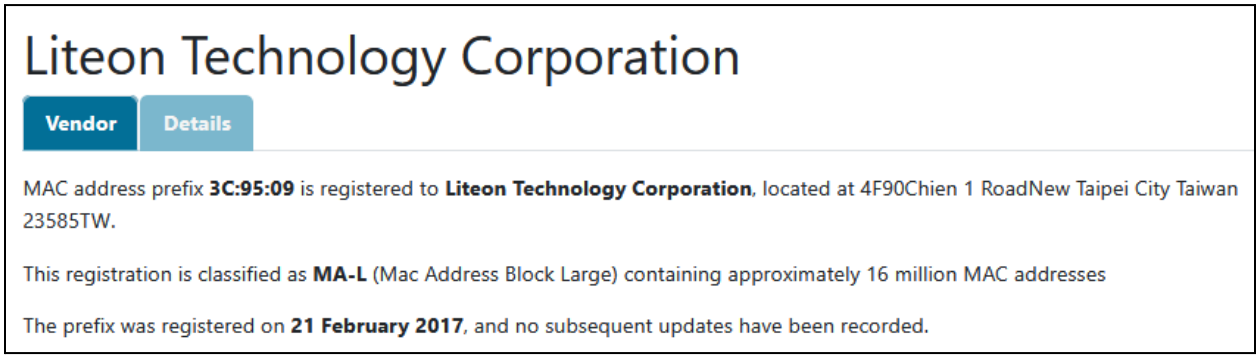
Wifi card vendor

```
C:\Users\lenin>netsh wlan show drivers

Interface name: Wi-Fi

    Driver                  : Realtek RTL8723BE 802.11 bgn Wi-Fi Adapter
    Vendor                  : Realtek Semiconductor Corp.
```

(using https://maclookup.app)



2. Identify and document at least 2 free tools that analyze wifi networks for your device. Document the tools by summarizing the capabilities. Provide a url for each tool. Which of the tools is the best? Why?

iPhone 16 Pro

1. AirPort Utility

URL: https://apps.apple.com/us/app/airport-utility/id427276530

Capabilities:

- Displays all nearby Wi-Fi networks with SSID (network name).
- Shows channel usage to help identify interference.
- Provides signal strength (RSSI) readings.
- Works natively on iPhones.

2. nOversight WiFi Analyzer

URL: https://www.numerousnetworks.co.uk/noversight

Capabilities:

- Displays a live view that shows the details for the current Wi-Fi connection.
- Helps identify poor coverage areas.
- Also shows recent hour history of Wi-Fi connections and performance.
- Creates a custom report for a section of your overall test.

HP Laptop 15-bs0xx

1. NetSpot

URL: https://www.netspotapp.com/
Capabilities:

- Displays all Wi-Fi networks, channels, and bandwidth usage.
- Measures signal strength and noise levels.
- Shows Signal-to-Noise Ratio to assess Wi-Fi quality.
- Provides an interactive heatmap for Wi-Fi coverage. (paid version)

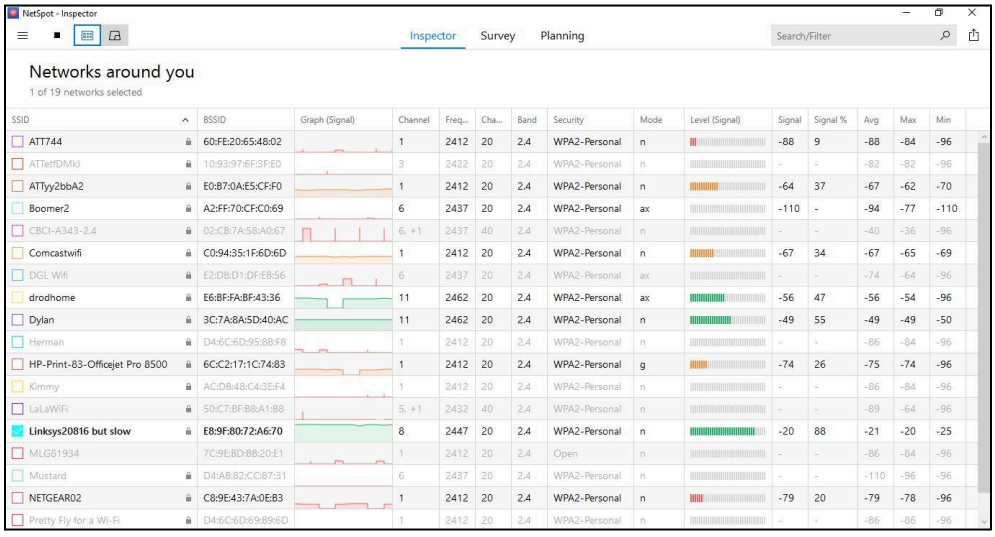
2. Acrylic Wi-Fi Analyzer
URL: https://www.acrylicwifi.com/en/wifi-analyzer/
Capabilities:

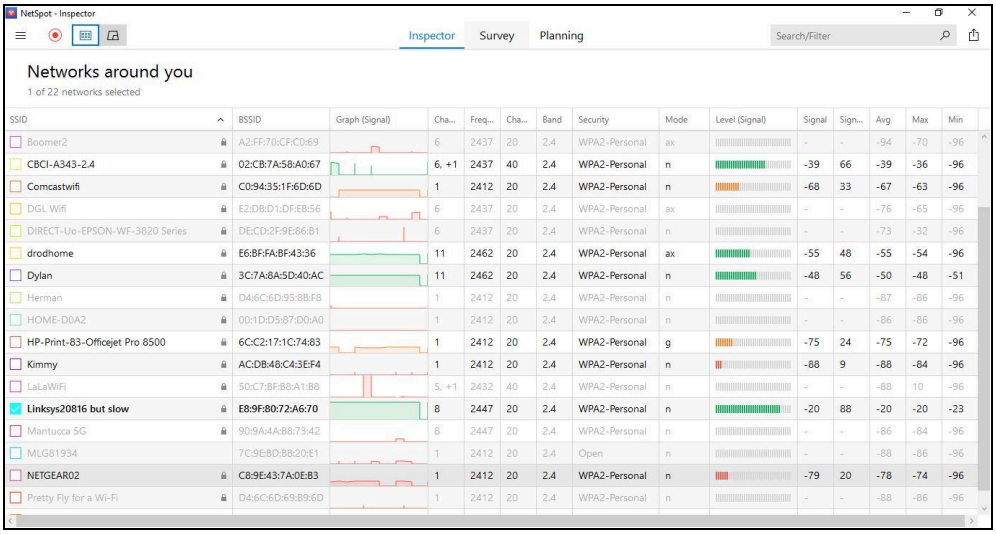
- Displays all Wi-Fi networks, SSID, signal strength, and channels.
- Helps identify the best channel to reduce interference.
- Provides signal graphs to track performance over time.
- Can analyze SNR with the integration of Acrylic Wi-Fi Sniffer.

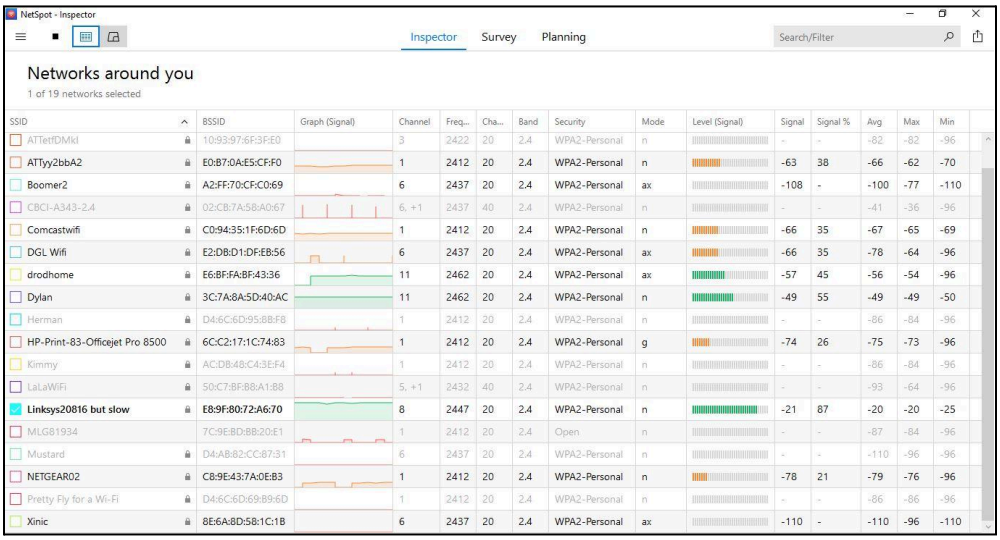
NetSpot on my PC is the best tool among those listed because it provides a comprehensive set of features and allows access to most features free of cost. NetSpot excels in analyzing Wi-Fi networks by displaying all detected networks, their SSIDs, channels, and bandwidth usage. It also measures signal strength and noise levels, allowing users to assess Wi-Fi quality effectively.

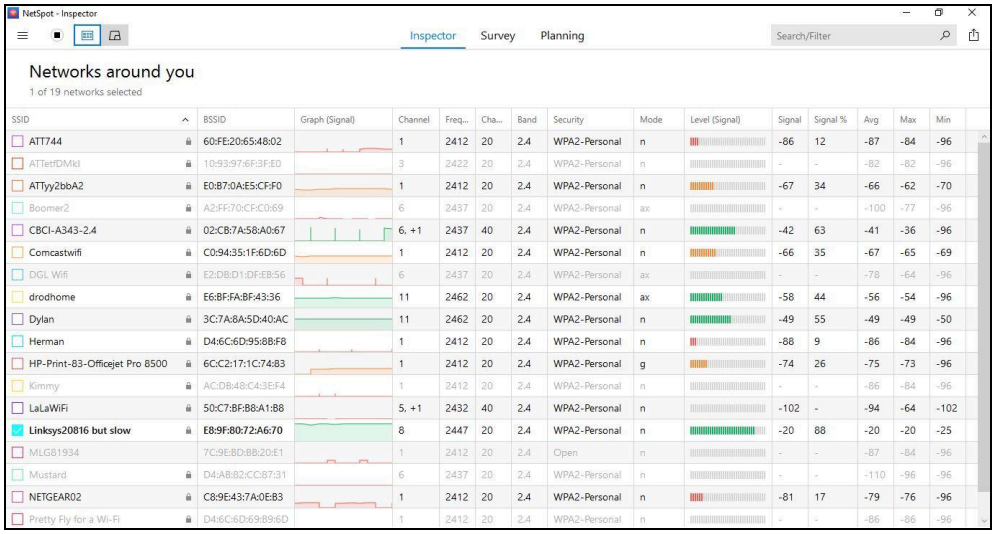
3. Take measurements using one of the tools you have identified. Note that the ability of a tool to save and download collected measurements is very helpful.

a) Take measurements at the same location at 5 different times. The times should be at least 5 minutes apart. Organize and provide the data you collected. What do you notice about the data? How do the measurements change?

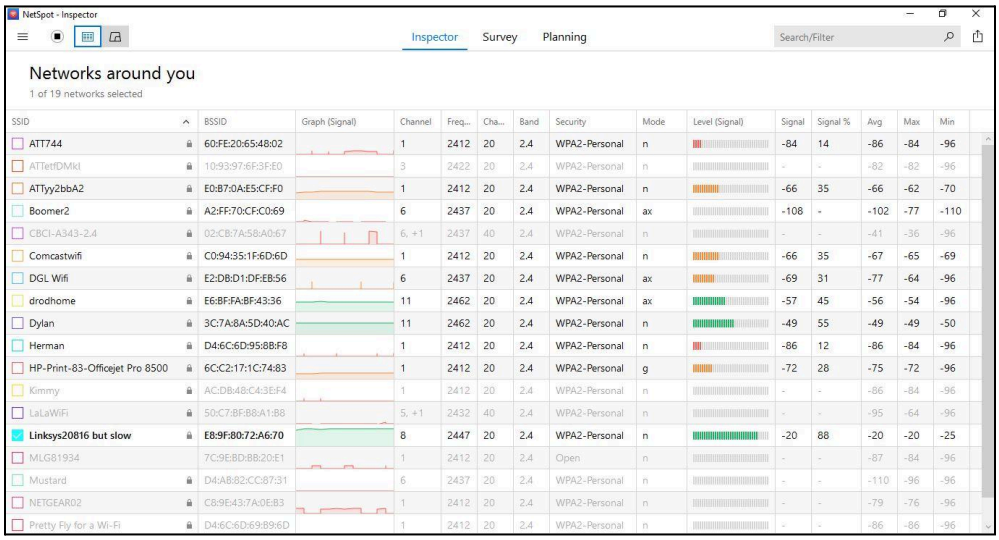



NetSpot - Inspector
Inspector
Survey
Planning
Search/Filter
Networks around you
1 of 22 networks selected
SSID
BSSID
Graph (Signal)
Cha...
Freq...
Cha...
Band
Security
Mode
Level (Signal)
Signal
Sign...
Avg
Max
Min
Boomer2 A2:FF:70:CF:C0:69 6 2437 20 2.4 WPA2-Personal ax - - -94 -70 -96
CBCI-A343-2.4 02:CB:7A:58:A0:67 6, +1 2437 40 2.4 WPA2-Personal n -39 66 -39 -36 -96
Comcastwifi C0:94:35:1F:6D:6D 1 2412 20 2.4 WPA2-Personal n -68 33 -67 -63 -96
DGL Wifi E2:DB:D1:DF:EB:56 6 2437 20 2.4 WPA2-Personal ax - - -76 -65 -96
DIRECT-Uo-EPSON-WF-3820 Series DE:CD:2F:9E:86:B1 6 2437 20 2.4 WPA2-Personal n - - -73 -32 -96
drodhome E6:BF:FA:BF:43:36 11 2462 20 2.4 WPA2-Personal ax -55 48 -55 -54 -96
Dylan 3C:7A:8A:5D:40:AC 11 2462 20 2.4 WPA2-Personal n -48 56 -50 -48 -51
Herman D4:6C:6D:95:8B:F8 1 2412 20 2.4 WPA2-Personal n - - -87 -86 -96
HOME-D0A2 00:1D:D5:87:D0:A0 1 2412 20 2.4 WPA2-Personal n - - -86 -86 -96
HP-Print-83-Officejet Pro 8500 6C:C2:17:1C:74:83 1 2412 20 2.4 WPA2-Personal g -75 24 -75 -72 -96
Kimmy AC:DB:48:C4:3E:F4 1 2412 20 2.4 WPA2-Personal n -88 9 -88 -84 -96
LaLaWiFi 50:C7:BF:B8:A1:B8 5, +1 2432 40 2.4 WPA2-Personal n - - -88 10 -96
Linksys20816 but slow E8:9F:80:72:A6:70 8 2447 20 2.4 WPA2-Personal n -20 88 -20 -20 -23
Mantucca 5G 90:9A:4A:B8:73:42 8 2447 20 2.4 WPA2-Personal n - - -86 -84 -96
MLG81934 7C:9E:BD:BB:20:E1 1 2412 20 2.4 Open n - - -88 -86 -96
NETGEAR02 C8:9E:43:7A:0E:B3 1 2412 20 2.4 WPA2-Personal n -79 20 -78 -74 -96
Pretty Fly for a Wi-Fi D4:6C:6D:69:B9:6D 1 2412 20 2.4 WPA2-Personal n - - -88 -86 -96


NetSpot - Inspector
Inspector
Survey
Planning
Search/Filter
Networks around you
1 of 19 networks selected
SSID
BSSID
Graph (Signal)
Channel
Freq...
Cha...
Band
Security
Mode
Level (Signal)
Signal
Signal %
Avg
Max
Min
ATTetfDMkl 10:93:97:6F:3F:E0 3 2422 20 2.4 WPA2-Personal n - - -82 -82 -96
ATTyy2bbA2 E0:B7:0A:E5:CF:F0 1 2412 20 2.4 WPA2-Personal n -63 38 -66 -62 -70
Boomer2 A2:FF:70:CF:C0:69 6 2437 20 2.4 WPA2-Personal ax -108 - -100 -77 -110
CBCI-A343-2.4 02:CB:7A:58:A0:67 6, +1 2437 40 2.4 WPA2-Personal n - - -41 -36 -96
Comcastwifi C0:94:35:1F:6D:6D 1 2412 20 2.4 WPA2-Personal n -66 35 -67 -65 -69
DGL Wifi E2:DB:D1:DF:EB:56 6 2437 20 2.4 WPA2-Personal ax -66 35 -78 -64 -96
drodhome E6:BF:FA:BF:43:36 11 2462 20 2.4 WPA2-Personal ax -57 45 -56 -54 -96
Dylan 3C:7A:8A:5D:40:AC 11 2462 20 2.4 WPA2-Personal n -49 55 -49 -49 -50
Herman D4:6C:6D:95:8B:F8 1 2412 20 2.4 WPA2-Personal n - - -86 -84 -96
HP-Print-83-Officejet Pro 8500 6C:C2:17:1C:74:83 1 2412 20 2.4 WPA2-Personal g -74 26 -75 -73 -96
Kimmy AC:DB:48:C4:3E:F4 1 2412 20 2.4 WPA2-Personal n - - -86 -84 -96
LaLaWiFi 50:C7:BF:88:A1:88 5, +1 2432 40 2.4 WPA2-Personal n - - -93 -64 -96
Linksys20816 but slow E8:9F:80:72:A6:70 8 2447 20 2.4 WPA2-Personal n -21 87 -20 -20 -25
MLG81934 7C:9E:BD:BB:20:E1 1 2412 20 2.4 Open n - - -87 -84 -96
Mustard D4:AB:82:CC:87:31 6 2437 20 2.4 WPA2-Personal n - - -110 -96 -96
NETGEAR02 C8:9E:43:7A:0E:B3 1 2412 20 2.4 WPA2-Personal n -78 21 -79 -76 -96
Pretty Fly for a Wi-Fi D4:6C:6D:69:B9:6D 1 2412 20 2.4 WPA2-Personal n - - -86 -86 -96
Xinic 8E:6A:8D:58:1C:1B 6 2437 20 2.4 WPA2-Personal ax -110 - -110 -96 -110



SSID	BSSID	Graph (Signal)	Channel	Freq...	Cha...	Band	Security	Mode	Level (Signal)	Signal	Signal %	Avg	Max	Min
ATT744	60:FE:20:65:48:02		1	2412	20	2.4	WPA2-Personal	n		-86	12	-87	-84	-96
ATTetfDMkl	10:93:97:6F:3F:E0		3	2422	20	2.4	WPA2-Personal	n		-	-	-82	-82	-96
ATTyy2bbA2	E0:B7:0A:E5:CF:F0		1	2412	20	2.4	WPA2-Personal	n		-67	34	-66	-62	-70
Boomer2	A2:FF:70:CF:C0:69		6	2437	20	2.4	WPA2-Personal	ax		-	-	-100	-77	-96
CBCI-A343-2.4	02:CB:7A:58:A0:67		6, +1	2437	40	2.4	WPA2-Personal	n		-42	63	-41	-36	-96
Comcastwifi	C0:94:35:1F:6D:6D		1	2412	20	2.4	WPA2-Personal	n		-66	35	-67	-65	-69
DGL Wifi	E2:DB:D1:DF:EB:56		6	2437	20	2.4	WPA2-Personal	ax		-	-	-78	-64	-96
drodhome	E6:BF:FA:BF:43:36		11	2462	20	2.4	WPA2-Personal	ax		-58	44	-56	-54	-96
Dylan	3C:7A:8A:5D:40:AC		11	2462	20	2.4	WPA2-Personal	n		-49	55	-49	-49	-50
Herman	D4:6C:6D:95:8B:F8		1	2412	20	2.4	WPA2-Personal	n		-88	9	-86	-84	-96
HP-Print-83-Officejet Pro 8500	6C:C2:17:1C:74:83		1	2412	20	2.4	WPA2-Personal	g		-74	26	-75	-73	-96
Kimmy	AC:DB:48:C4:3E:F4		1	2412	20	2.4	WPA2-Personal	n		-	-	-86	-84	-96
LaLaWiFi	50:C7:BF:B8:A1:B8		5, +1	2432	40	2.4	WPA2-Personal	n		-102	-	-94	-64	-102
Linksys20816 but slow	**E8:9F:80:72:A6:70**		8	2447	20	2.4	WPA2-Personal	n		-20	88	-20	-20	-25
MLG81934	7C:9E:BD:8B:20:E1		1	2412	20	2.4	Open	n		-	-	-87	-84	-96
Mustard	D4:AB:82:CC:87:31		6	2437	20	2.4	WPA2-Personal	n		-	-	-110	-96	-96
NETGEAR02	C8:9E:43:7A:0E:B3		1	2412	20	2.4	WPA2-Personal	n		-81	17	-79	-76	-96
Pretty Fly for a Wi-Fi	D4:6C:6D:69:B9:6D		1	2412	20	2.4	WPA2-Personal	n		-	-	-86	-86	-96

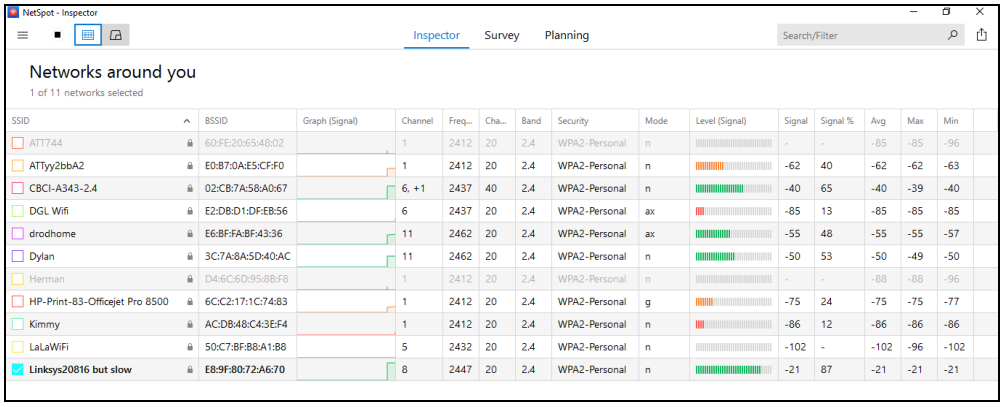


SSID	BSSID	Graph (Signal)	Channel	Freq...	Cha...	Band	Security	Mode	Level (Signal)	Signal	Signal %	Avg	Max	Min
ATT744	60:FE:20:65:48:02		1	2412	20	2.4	WPA2-Personal	n		-84	14	-86	-84	-96
ATTetfDMkl	10:93:97:6F:3F:E0		3	2422	20	2.4	WPA2-Personal	n		-	-	-82	-82	-96
ATTyy2bbA2	E0:B7:0A:E5:CF:F0		1	2412	20	2.4	WPA2-Personal	n		-66	35	-66	-62	-70
Boomer2	A2:FF:70:CF:C0:69		6	2437	20	2.4	WPA2-Personal	ax		-108	-	-102	-77	-110
CBCI-A343-2.4	02:CB:7A:58:A0:67		6, +1	2437	40	2.4	WPA2-Personal	n		-	-	-41	-36	-96
Comcastwifi	C0:94:35:1F:6D:6D		1	2412	20	2.4	WPA2-Personal	n		-66	35	-67	-65	-69
DGL Wifi	E2:DB:D1:DF:EB:56		6	2437	20	2.4	WPA2-Personal	ax		-69	31	-77	-64	-96
drodhome	E6:BF:FA:BF:43:36		11	2462	20	2.4	WPA2-Personal	ax		-57	45	-56	-54	-96
Dylan	3C:7A:8A:5D:40:AC		11	2462	20	2.4	WPA2-Personal	n		-49	55	-49	-49	-50
Herman	D4:6C:6D:95:8B:F8		1	2412	20	2.4	WPA2-Personal	n		-86	12	-86	-84	-96
HP-Print-83-Officejet Pro 8500	6C:C2:17:1C:74:83		1	2412	20	2.4	WPA2-Personal	g		-72	28	-75	-72	-96
Kimmy	AC:DB:48:C4:3E:F4		1	2412	20	2.4	WPA2-Personal	n		-	-	-86	-84	-96
LaLaWiFi	50:C7:BF:B8:A1:B8		5, +1	2432	40	2.4	WPA2-Personal	n		-	-	-95	-64	-96
Linksys20816 but slow	**E8:9F:80:72:A6:70**		8	2447	20	2.4	WPA2-Personal	n		-20	88	-20	-20	-25
MLG81934	7C:9E:BD:8B:20:E1		1	2412	20	2.4	Open	n		-	-	-87	-84	-96
Mustard	D4:AB:82:CC:87:31		6	2437	20	2.4	WPA2-Personal	n		-	-	-110	-96	-96
NETGEAR02	C8:9E:43:7A:0E:B3		1	2412	20	2.4	WPA2-Personal	n		-	-	-79	-76	-96
Pretty Fly for a Wi-Fi	D4:6C:6D:69:B9:6D		1	2412	20	2.4	WPA2-Personal	n		-	-	-86	-86	-96

When taking Wi-Fi measurements at the same location over five different times, we can see some fluctuations in the data due to various environmental and technical factors. We can see that Signal strength (RSSI) and Noise levels varied slightly. This could be caused by other electronic devices, such as microwaves or Bluetooth connections. Wi-Fi channel congestion could also contribute to performance changes if other networks in the vicinity begin operating on the same channel during the test.

b) Take measurements at 5 different locations. The locations should be significantly different. Organize and provide the data you collected. What do you notice about the data? What can you say about the data?

At my Apartment:



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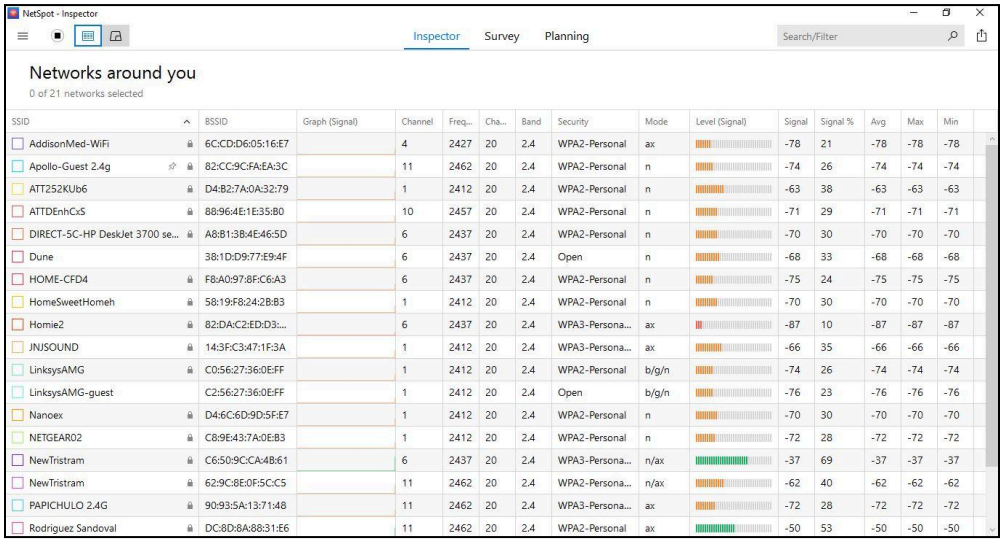
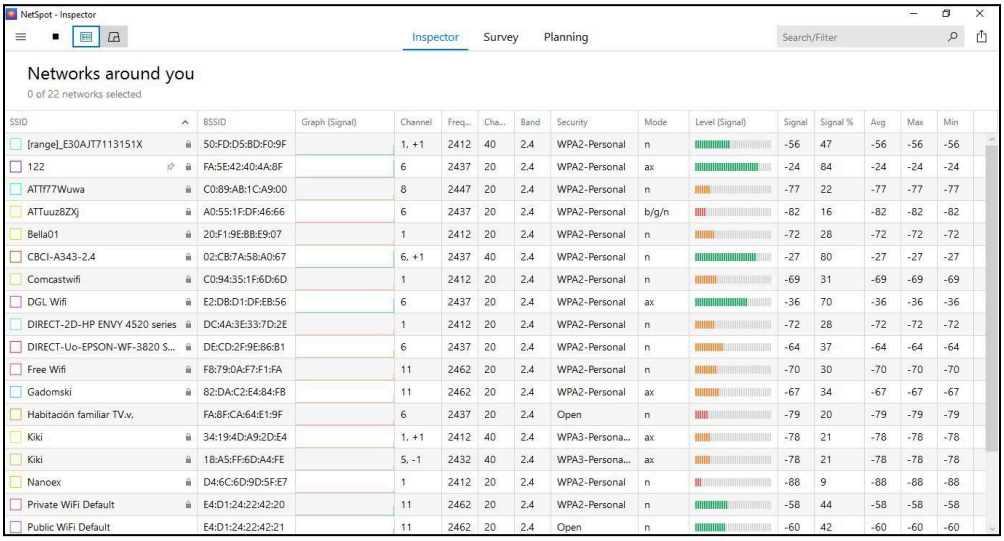
ATT744	60:FE:20:65:48:02		1	2412	20	2.4	WPA2-Personal	n		-	-	-85	-85	-96
ATTyy2bbA2	E0:B7:0A:E5:CF:F0		1	2412	20	2.4	WPA2-Personal	n		-62	40	-62	-62	-63
CBCI-A343-2.4	02:CB:7A:58:A0:67		6, +1	2437	40	2.4	WPA2-Personal	n		-40	65	-40	-39	-40
DGL Wifi	E2:DB:D1:DF:EB:56		6	2437	20	2.4	WPA2-Personal	ax		-85	13	-85	-85	-85
drodhome	E6:BF:FA:BF:43:36		11	2462	20	2.4	WPA2-Personal	ax		-55	48	-55	-55	-57
Dylan	3C:7A:8A:5D:40:AC		11	2462	20	2.4	WPA2-Personal	n		-50	53	-50	-49	-50
Herman	D4:6C:6D:95:8B:F8		1	2412	20	2.4	WPA2-Personal	n		-	-	-88	-88	-96
HP-Print-83-Officejet Pro 8500	6C:C2:17:1C:74:83		1	2412	20	2.4	WPA2-Personal	g		-75	24	-75	-75	-77
Kimmy	AC:DB:48:C4:3E:F4		1	2412	20	2.4	WPA2-Personal	n		-86	12	-86	-86	-86
LaLaWiFi	50:C7:BF:B8:A1:B8		5	2432	20	2.4	WPA2-Personal	n		-102	-	-102	-96	-102
Linksys20816 but slow	**E8:9F:80:72:A6:70**		8	2447	20	2.4	WPA2-Personal	n		-21	87	-21	-21	-21

Outside my Apartment:



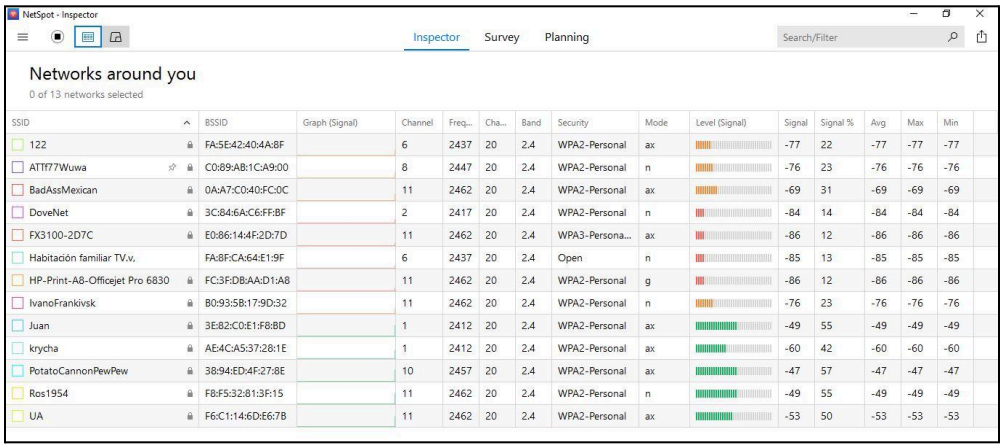
SSID	BSSID	Graph (Signal)	Channel	Freq...	Cha...	Band	Security	Mode	Level (Signal)	Signal	Signal %	Avg	Max	Min
AddisonMed-WiFi	6C:CD:D6:05:16:E7		4	2427	20	2.4	WPA2-Personal	ax		-78	21	-78	-78	-78
Apollo-Guest 2.4g	82:CC:9C:FA:EA:3C		11	2462	20	2.4	WPA2-Personal	n		-74	26	-74	-74	-74
ATT252KUb6	D4:B2:7A:0A:32:79		1	2412	20	2.4	WPA2-Personal	n		-63	38	-63	-63	-63
ATTDEnhCxS	88:96:4E:1E:35:B0		10	2457	20	2.4	WPA2-Personal	n		-71	29	-71	-71	-71
DIRECT-5C-HP DeskJet 3700 se...	A8:B1:3B:4E:46:5D		6	2437	20	2.4	WPA2-Personal	n		-70	30	-70	-70	-70
Dune	38:1D:D9:77:E9:4F		6	2437	20	2.4	Open	n		-68	33	-68	-68	-68
HOME-CFD4	F8:A0:97:8F:C6:A3		6	2437	20	2.4	WPA2-Personal	n		-75	24	-75	-75	-75
HomeSweetHomeh	58:19:F8:24:2B:B3		1	2412	20	2.4	WPA2-Personal	n		-70	30	-70	-70	-70
Homie2	82:DA:C2:ED:D3:...		6	2437	20	2.4	WPA3-Persona...	ax		-87	10	-87	-87	-87
JNJSOUND	14:3F:C3:47:1F:3A		1	2412	20	2.4	WPA3-Persona...	ax		-66	35	-66	-66	-66
LinksysAMG	C0:56:27:36:0E:FF		1	2412	20	2.4	WPA2-Personal	b/g/n		-74	26	-74	-74	-74
LinksysAMG-guest	C2:56:27:36:0E:FF		1	2412	20	2.4	Open	b/g/n		-76	23	-76	-76	-76
Nanoex	D4:6C:6D:9D:5F:E7		1	2412	20	2.4	WPA2-Personal	n		-70	30	-70	-70	-70
NETGEAR02	C8:9E:43:7A:0E:B3		1	2412	20	2.4	WPA2-Personal	n		-72	28	-72	-72	-72
NewTristram	C6:50:9C:CA:4B:61		6	2437	20	2.4	WPA3-Persona...	n/ax		-37	69	-37	-37	-37
NewTristram	62:9C:8E:0F:5C:C5		11	2462	20	2.4	WPA2-Persona...	n/ax		-62	40	-62	-62	-62
PAPICHULO 2.4G	90:93:5A:13:71:48		11	2462	20	2.4	WPA3-Persona...	ax		-72	28	-72	-72	-72
Rodriguez Sandoval	DC:8D:8A:88:31:E6		11	2462	20	2.4	WPA2-Personal	ax		-50	53	-50	-50	-50

At a friend's house:



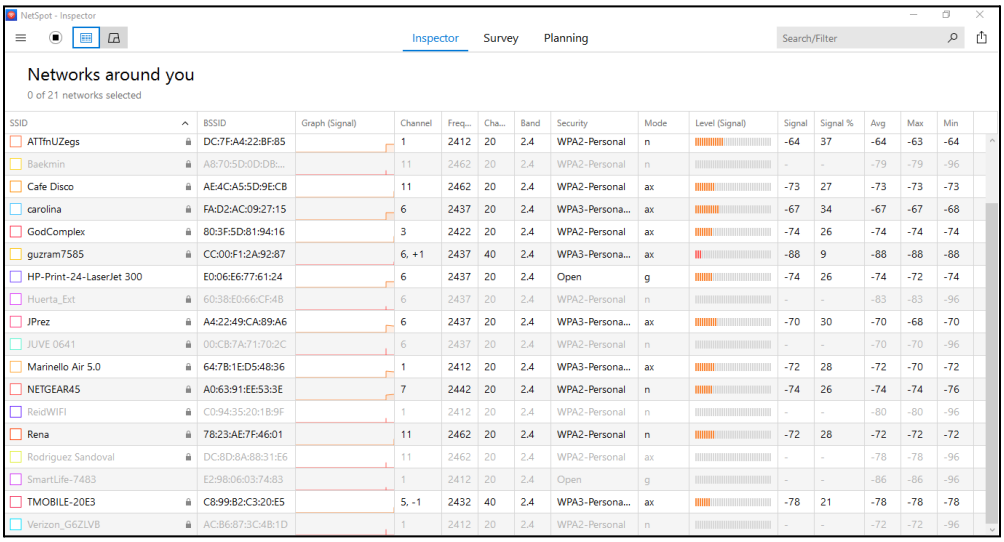
SSID	BSSID	Graph (Signal)	Channel	Freq...	Cha...	Band	Security	Mode	Level (Signal)	Signal	Signal %	Avg	Max	Min
[range]_E30AJT7113151X	50:FD:D5:BD:F0:9F		1, +1	2412	40	2.4	WPA2-Personal	n		-56	47	-56	-56	-56
122	FA:5E:42:40:4A:8F		6	2437	20	2.4	WPA2-Personal	ax		-24	84	-24	-24	-24
ATTf77Wuwa	C0:89:AB:1C:A9:00		8	2447	20	2.4	WPA2-Personal	n		-77	22	-77	-77	-77
ATTuuz8ZXj	A0:55:1F:DF:46:66		6	2437	20	2.4	WPA2-Personal	b/g/n		-82	16	-82	-82	-82
Bella01	20:F1:9E:BB:E9:07		1	2412	20	2.4	WPA2-Personal	n		-72	28	-72	-72	-72
CBCI-A343-2.4	02:CB:7A:58:A0:67		6, +1	2437	40	2.4	WPA2-Personal	n		-27	80	-27	-27	-27
Comcastwifi	C0:94:35:1F:6D:6D		1	2412	20	2.4	WPA2-Personal	n		-69	31	-69	-69	-69
DGL Wifi	E2:DB:D1:DF:EB:56		6	2437	20	2.4	WPA2-Personal	ax		-36	70	-36	-36	-36
DIRECT-2D-HP ENVY 4520 series	DC:4A:3E:33:7D:2E		1	2412	20	2.4	WPA2-Personal	n		-72	28	-72	-72	-72
DIRECT-Uo-EPSON-WF-3820 S...	DE:CD:2F:9E:86:B1		6	2437	20	2.4	WPA2-Personal	n		-64	37	-64	-64	-64
Free Wifi	F8:79:0A:F7:F1:FA		11	2462	20	2.4	WPA2-Personal	n		-70	30	-70	-70	-70
Gadomski	82:DA:C2:E4:84:FB		11	2462	20	2.4	WPA2-Personal	ax		-67	34	-67	-67	-67
Habitación familiar TV.v.	FA:8F:CA:64:E1:9F		6	2437	20	2.4	Open	n		-79	20	-79	-79	-79
Kiki	34:19:4D:A9:2D:E4		1, +1	2412	40	2.4	WPA3-Persona...	ax		-78	21	-78	-78	-78
Kiki	18:A5:FF:6D:A4:FE		5, -1	2432	40	2.4	WPA3-Persona...	ax		-78	21	-78	-78	-78
Nanoex	D4:6C:6D:9D:5F:E7		1	2412	20	2.4	WPA2-Personal	n		-88	9	-88	-88	-88
Private WiFi Default	E4:D1:24:22:42:20		11	2462	20	2.4	WPA2-Personal	n		-58	44	-58	-58	-58
Public WiFi Default	E4:D1:24:22:42:21		11	2462	20	2.4	Open	n		-60	42	-60	-60	-60

At another friend's house:



SSID	BSSID	Graph (Signal)	Channel	Freq...	Cha...	Band	Security	Mode	Level (Signal)	Signal	Signal %	Avg	Max	Min
122	FA:5E:42:40:4A:8F		6	2437	20	2.4	WPA2-Personal	ax		-77	22	-77	-77	-77
ATTf77Wuwa	C0:89:AB:1C:A9:00		8	2447	20	2.4	WPA2-Personal	n		-76	23	-76	-76	-76
BadAssMexican	0A:A7:C0:40:FC:0C		11	2462	20	2.4	WPA2-Personal	ax		-69	31	-69	-69	-69
DoveNet	3C:84:6A:C6:FF:BF		2	2417	20	2.4	WPA2-Personal	n		-84	14	-84	-84	-84
FX3100-2D7C	E0:86:14:4F:2D:7D		11	2462	20	2.4	WPA3-Persona...	ax		-86	12	-86	-86	-86
Habitación familiar TV.v.	FA:8F:CA:64:E1:9F		6	2437	20	2.4	Open	n		-85	13	-85	-85	-85
HP-Print-A8-Officejet Pro 6830	FC:3F:DB:AA:D1:A8		11	2462	20	2.4	WPA2-Personal	g		-86	12	-86	-86	-86
IvanoFrankivsk	B0:93:5B:17:9D:32		11	2462	20	2.4	WPA2-Personal	n		-76	23	-76	-76	-76
Juan	3E:82:C0:E1:F8:BD		1	2412	20	2.4	WPA2-Personal	ax		-49	55	-49	-49	-49
krycha	AE:4C:A5:37:28:1E		1	2412	20	2.4	WPA2-Personal	ax		-60	42	-60	-60	-60
PotatoCannonPewPew	38:94:ED:4F:27:8E		10	2457	20	2.4	WPA2-Personal	ax		-47	57	-47	-47	-47
Ros1954	F8:F5:32:81:3F:15		11	2462	20	2.4	WPA2-Personal	n		-49	55	-49	-49	-49
UA	F6:C1:14:6D:E6:7B		11	2462	20	2.4	WPA2-Personal	ax		-53	50	-53	-53	-53

At a subway:



SSID	BSSID	Graph (Signal)	Channel	Freq...	Cha...	Band	Security	Mode	Level (Signal)	Signal	Signal %	Avg	Max	Min
ATTfnUZegs	DC:7F:A4:22:BF:85		1	2412	20	2.4	WPA2-Personal	n		-64	37	-64	-63	-64
Baekmin	A8:70:5D:0D:DB:...		11	2462	20	2.4	WPA2-Personal	n		-	-	-79	-79	-96
Cafe Disco	AE:4C:A5:5D:9E:CB		11	2462	20	2.4	WPA2-Personal	ax		-73	27	-73	-73	-73
carolina	FA:D2:AC:09:27:15		6	2437	20	2.4	WPA3-Persona...	ax		-67	34	-67	-67	-68
GodComplex	80:3F:5D:81:94:16		3	2422	20	2.4	WPA2-Personal	ax		-74	26	-74	-74	-74
guzram7585	CC:00:F1:2A:92:87		6, +1	2437	40	2.4	WPA3-Persona...	ax		-88	9	-88	-88	-88
HP-Print-24-LaserJet 300	E0:06:E6:77:61:24		6	2437	20	2.4	Open	g		-74	26	-74	-72	-74
Huerta_Ext	60:38:E0:66:CF:4B		6	2437	20	2.4	WPA2-Personal	n		-	-	-83	-83	-96
JPrez	A4:22:49:CA:89:A6		6	2437	20	2.4	WPA3-Persona...	ax		-70	30	-70	-68	-70
JUVE 0641	00:CB:7A:71:70:2C		6	2437	20	2.4	WPA2-Personal	n		-	-	-70	-70	-96
Marinello Air 5.0	64:7B:1E:D5:48:36		1	2412	20	2.4	WPA3-Persona...	ax		-72	28	-72	-70	-72
NETGEAR45	A0:63:91:EE:53:3E		7	2442	20	2.4	WPA2-Personal	n		-74	26	-74	-74	-76
ReidWIFI	C0:94:35:20:1B:9F		1	2412	20	2.4	WPA2-Personal	n		-	-	-80	-80	-96
Rena	78:23:AE:7F:46:01		11	2462	20	2.4	WPA2-Personal	n		-72	28	-72	-72	-72
Rodriguez Sandoval	DC:8D:8A:88:31:E6		11	2462	20	2.4	WPA2-Personal	ax		-	-	-78	-78	-96
SmartLife-7483	E2:98:06:03:74:83		1	2412	20	2.4	Open	g		-	-	-86	-86	-96
TMOBILE-20E3	C8:99:B2:C3:20:E5		5, -1	2432	40	2.4	WPA3-Persona...	ax		-78	21	-78	-78	-78
Verizon_G6ZLVB	AC:B6:87:3C:4B:1D		1	2412	20	2.4	WPA2-Personal	n		-	-	-72	-72	-96

When I took Wi-Fi measurements at five different locations, there were a lot of variations in signal strength (RSSI), noise levels, and Signal-to-Noise Ratio (SNR) as expected due to differences in distance from the router, physical obstructions, and environmental interference. I got better results when I was closer to the router and in contrast when I was farther away obstructed by walls, furniture, or other objects. This caused me to experience weaker signals and increased noise, leading to a lower SNR. Measurements at and around my apartment with multiple overlapping Wi-Fi networks showed more interference, leading to increased fluctuations in connection quality.

The data reflects that Wi-Fi performance is highly dependent on location, with closer, unobstructed areas providing the best connection and more distant or interference-heavy areas experiencing signal degradation.