

Discover the invisible world of wireless with spectrum analysis

CISCO Live !

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CCNP, CWAP, CWSP, CWDP,
Product Manager, Cisco Wireless.

Cisco Webex App

Questions?

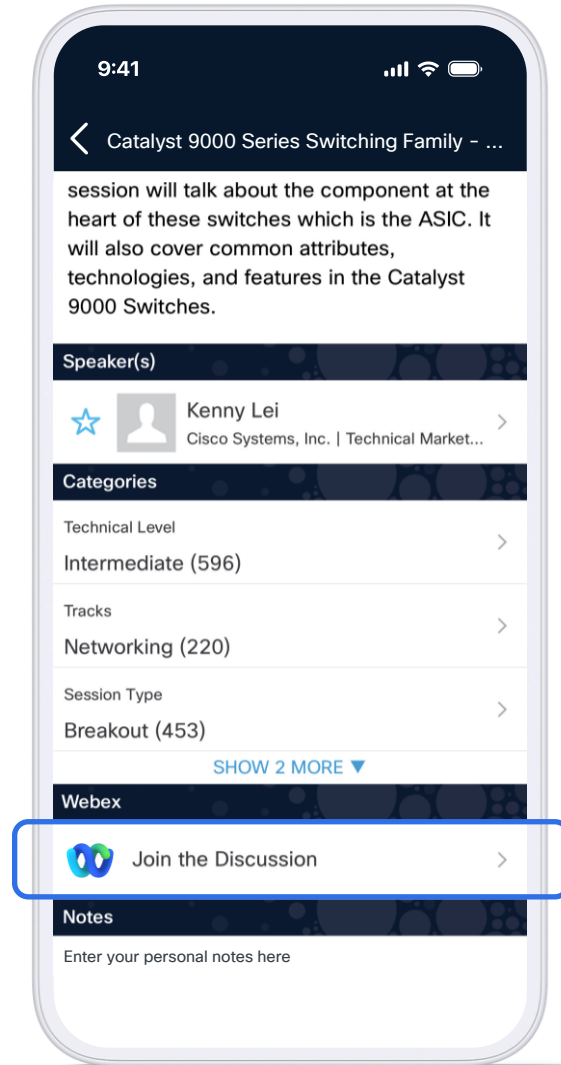
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How

- 1 Find this session (**BRKEWN-1011**) in the Cisco Live Mobile App
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Alternatively: Navigate to **spectrum.wireless.rocks**



Agenda

- 01 Why should you care?
- 02 What is spectrum analysis
- 03 A bit about tools
- 04 Cisco CleanAir Pro
- 05 Putting it into practice
- 06 Wi-Fi 7 seen from a SpecAn
- 07 Q&A



**Every great wireless engineer
knows spectrum analysis**

– Me

Who am I?

Nicholas Swiatecki – Product Manager,
Cisco Wireless

- Product manager in Cisco Wireless; I do APs and Wi-Fi all day long 🥳. Mainly focused on Wi-Fi 7, Global Use AP and CleanAir
- Been with Cisco since 2016, started in sales in Denmark. PM Since 2019
- All round geek! More recent projects: Wireshark contributor, Use AI to code option43.com, Ham radio operator
- Father of two wonderful twins. Golden retriever owner



A small disclaimer..

This is an introductory session, that touches RF, EE, DSP, Wi-Fi, etc. – some topics may be simplified a bit

If you have suggestions: Please @Me in the Webex with your “erhm actually” so I can improve this session ♥



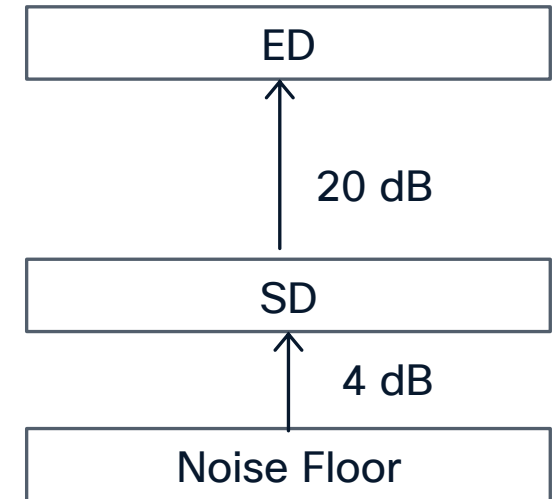
The background of the slide is an abstract composition of numerous thin, flowing lines in shades of blue, yellow, orange, and purple. These lines create a sense of motion and depth, swirling across the frame. A large, semi-transparent white rectangle is positioned on the left side, serving as a backdrop for the main text.

Why should you care?

**All wireless communication is
better without interference!**

Wi-Fi is polite – Clear Channel Assessment

- Wi-Fi operates in unlicensed spectrum, so it has built in “politeness” to make room for everyone: We call this Clear Channel Assessment (CCA)
- Two types: Signal Detect (SD) and Energy Detect (ED).
- SD operates on 802.11 preambles
- ED operates on any form of energy
- If energy is detected above a certain threshold, don't transmit(!)
- See how this might be a challenge?



So, where is the detected energy/noise coming from? 🤔

Noise and SNR

In Wi-Fi, SNR determines the MCS rate at which we communicate.

- Noise can be caused interference, that can't be identified by the Wi-Fi radio

For more capacity you want S/N to be as large as possible, so either

- “Add more” Signal (not always possible, not always a good idea)
- Reduce the Noise

$$C = B * \log_2 \left(1 + \frac{S}{N} \right)$$

Shannon–Hartley theorem describes the **Capacity** of a channel depends on the **Bandwith**, and the **Signal** to **Noise** ratio

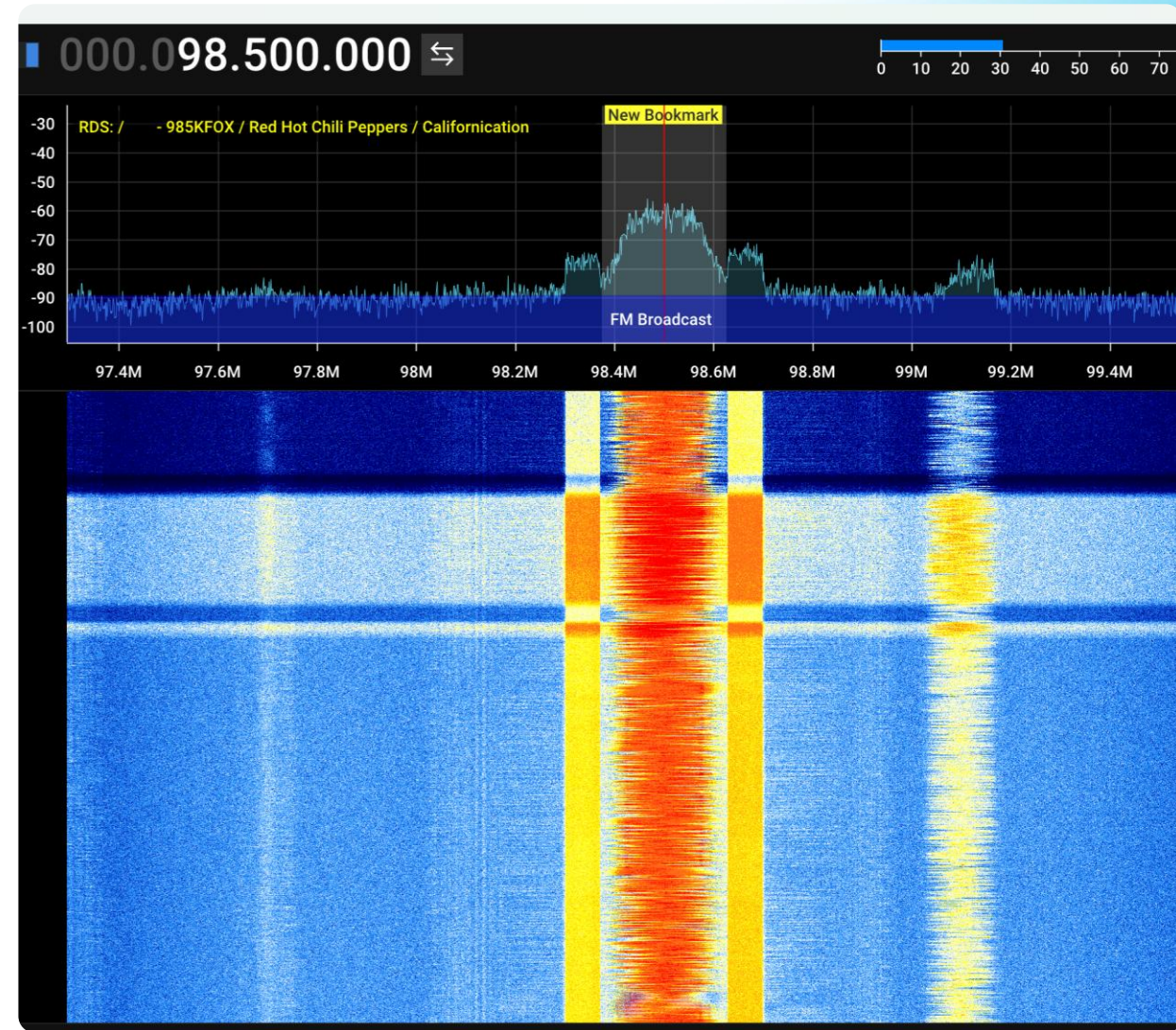
How do you know where the noise is coming from? 🤔

Seeing is believing!

With a spectrum analyzer, you can verify that your communication systems are doing what they say they are!

For Wi-Fi, recent examples are MLO and Puncturing, which we will look at later in the presentation

And for other forms of communication systems as well.

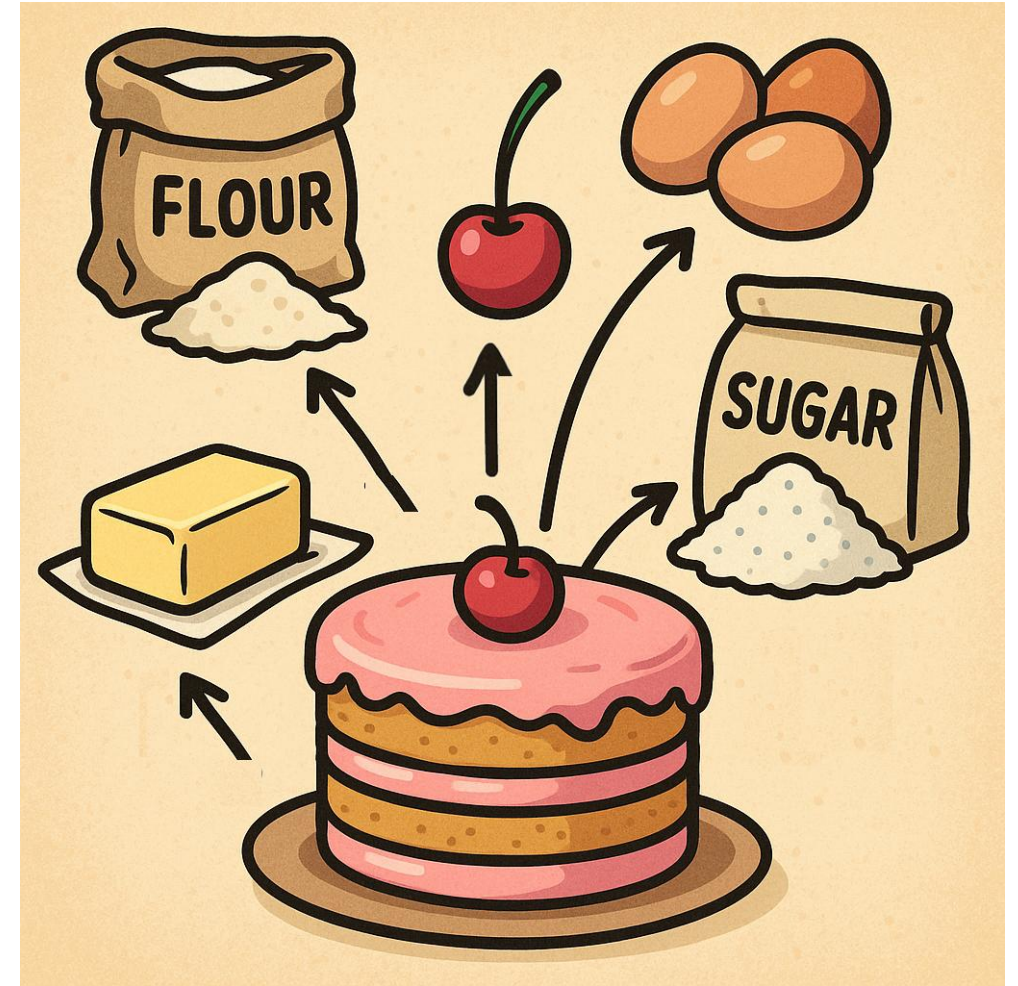


So, what is spectrum analysis?

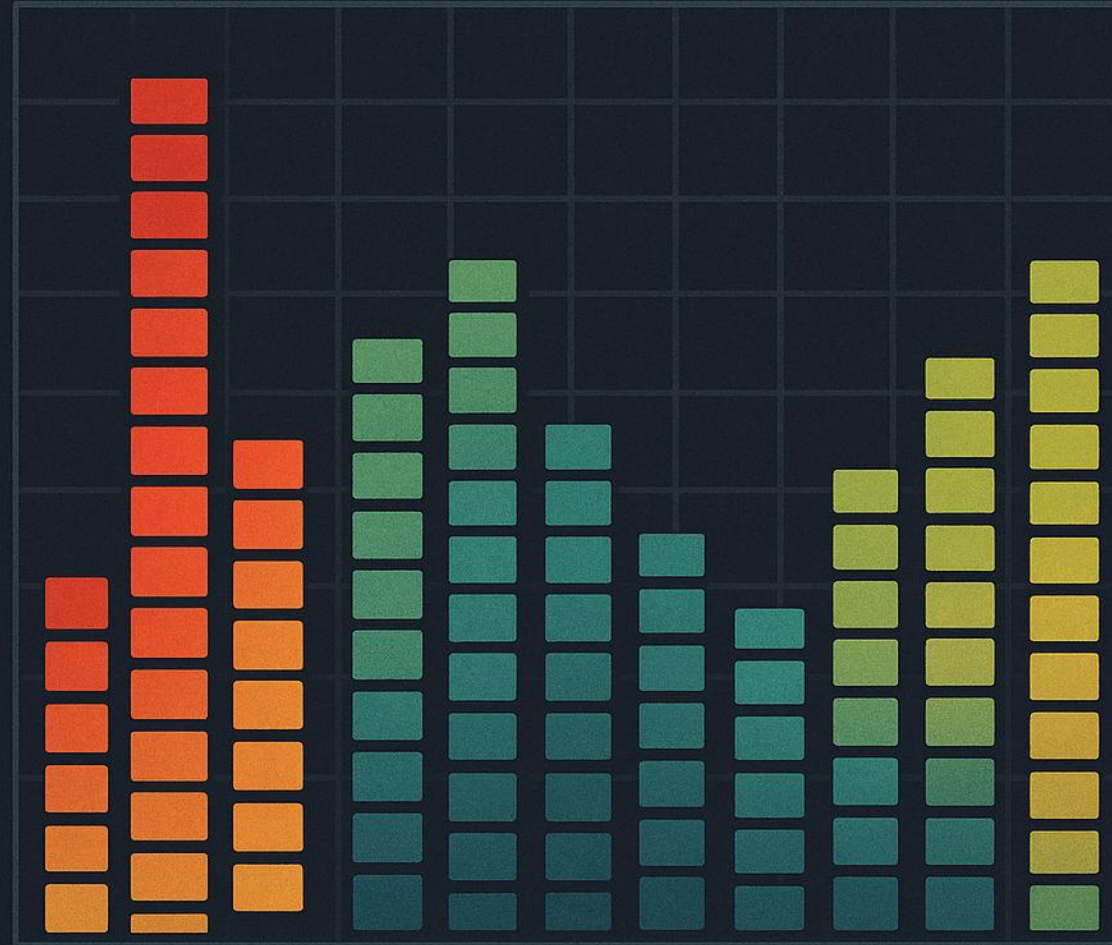
The “TL;DR” of spectrum analysis

Decomposing a RF signal to its constituent frequency components, to understand “what is in the signal”.

I like to think of it “reversing the cake recipe”



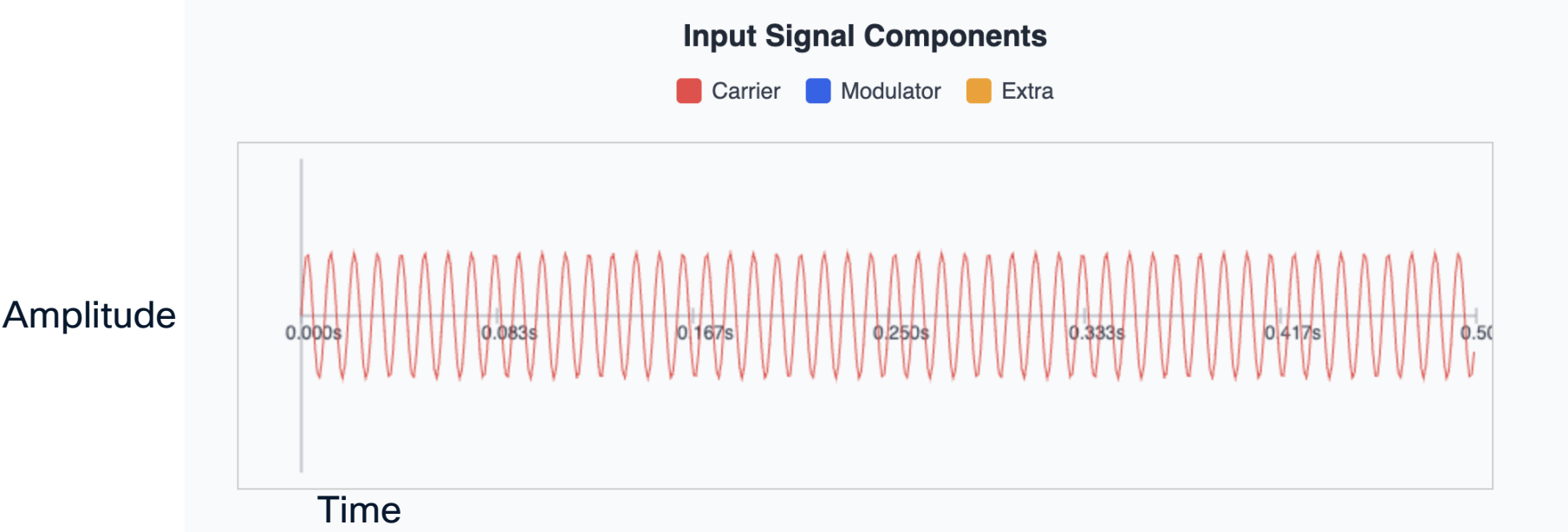
SPECTRUM ANALYZER



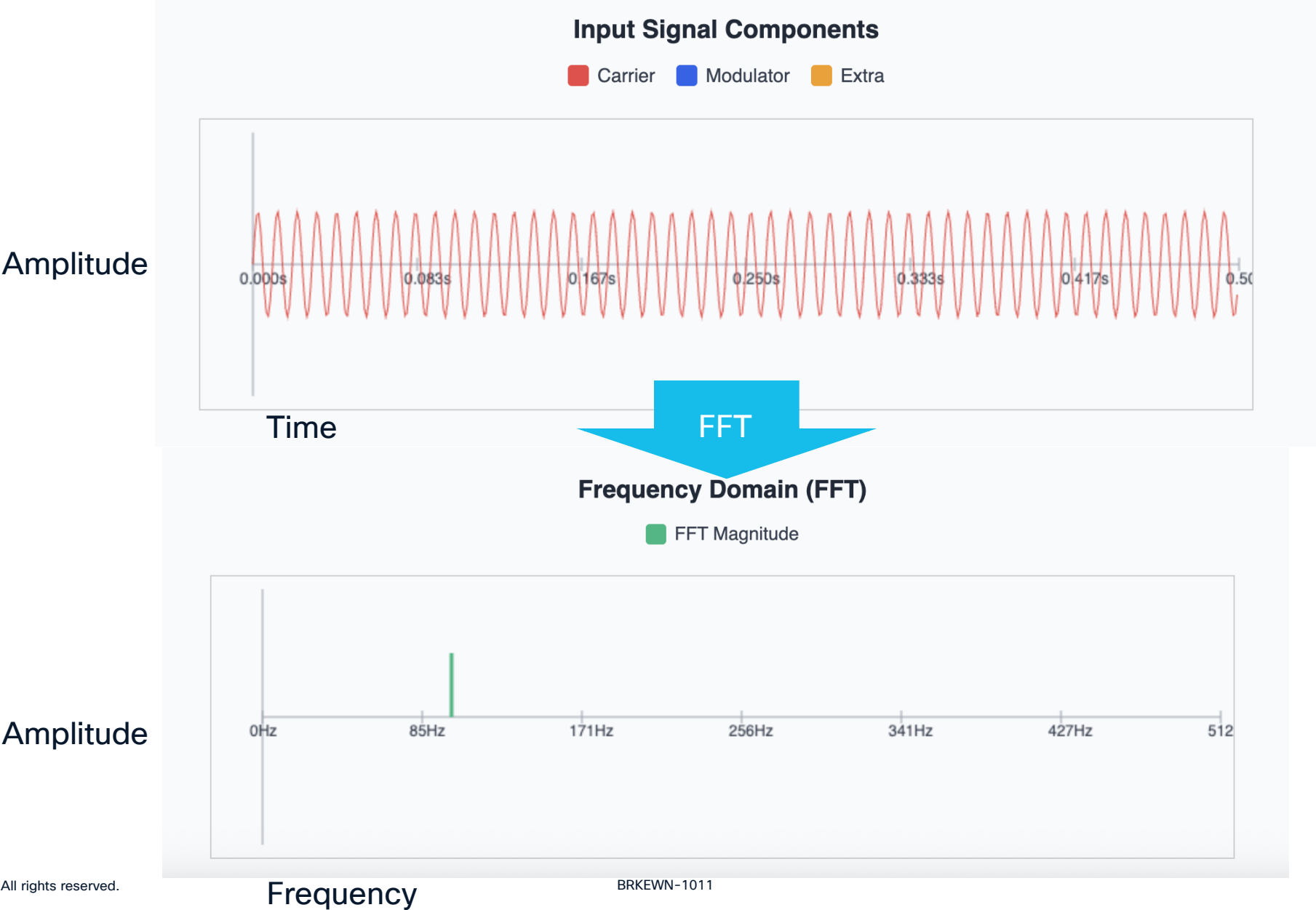
BASS

TREBLE

Time domain is difficult, go to the frequency domain



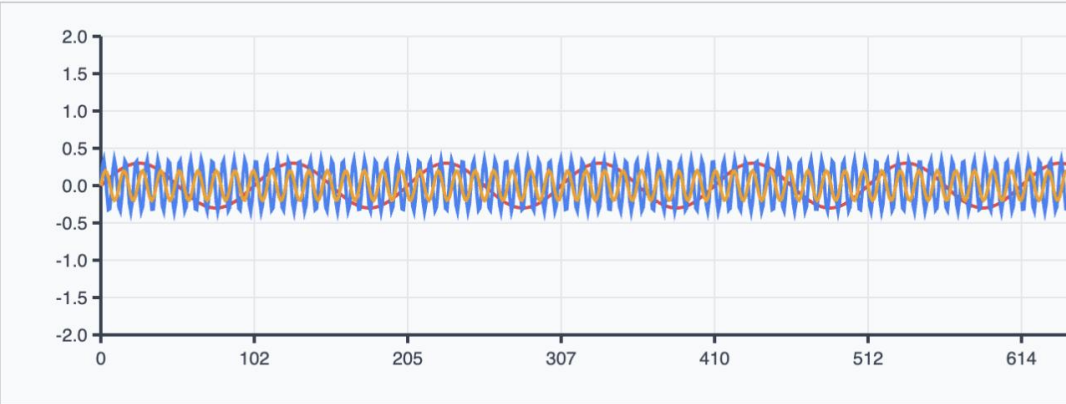
Time domain is difficult, go to the frequency domain



3 sine waves together

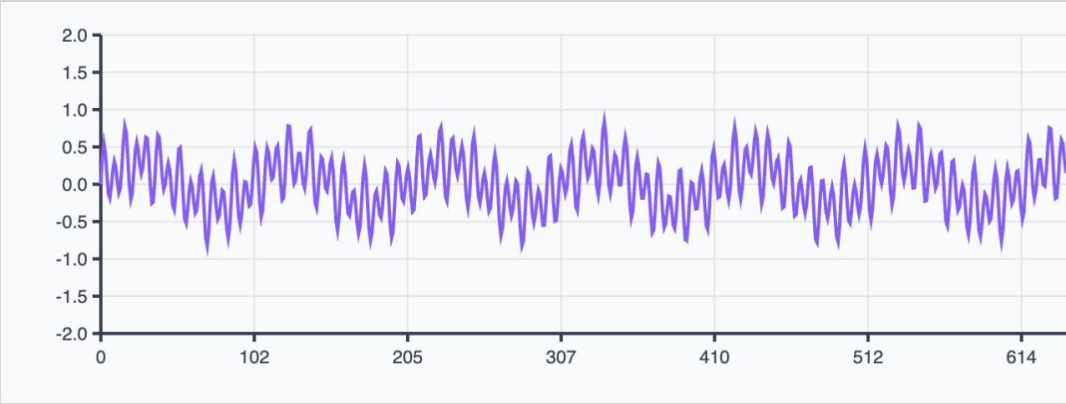
Signal Components

Carrier Modulator Extra



Time Domain

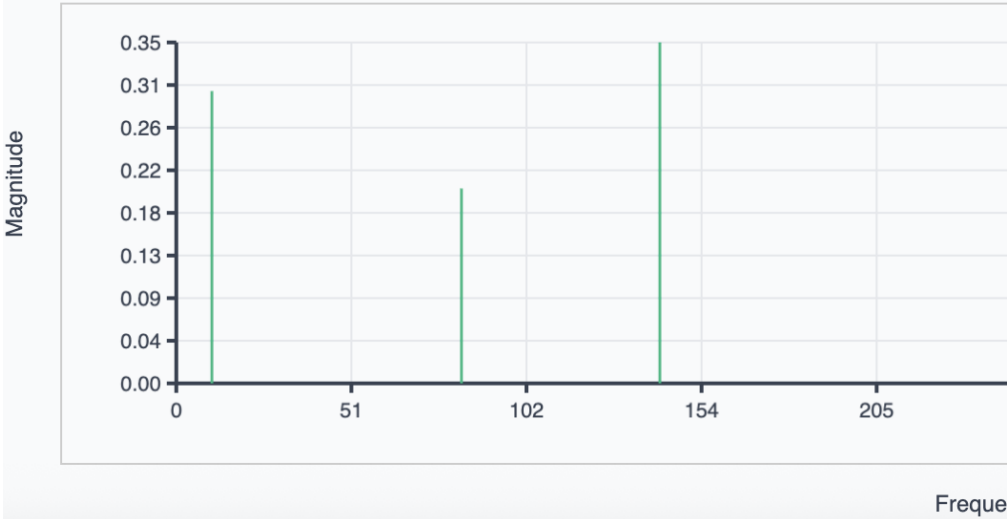
Signal



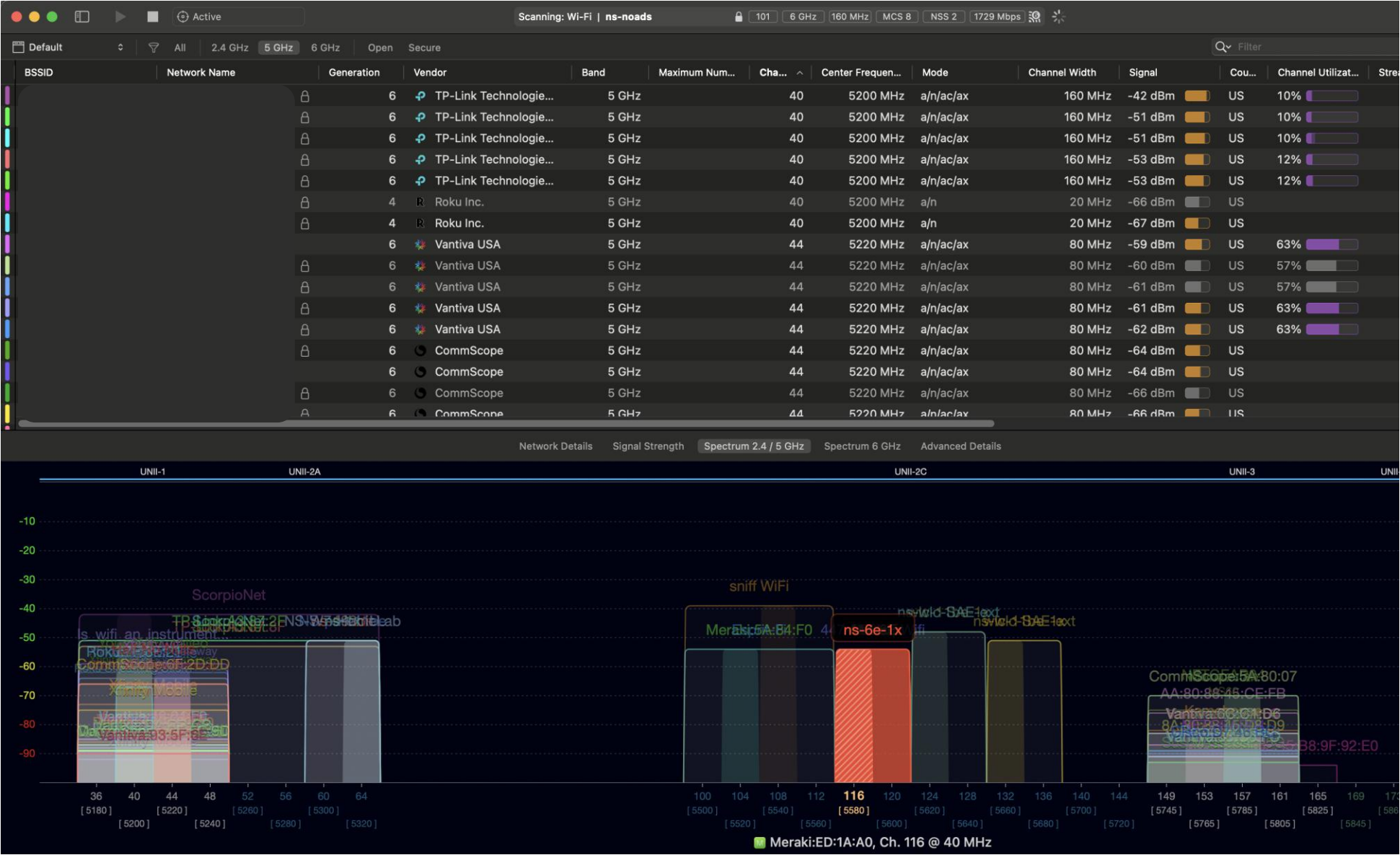
FFT

Frequency Domain

FFT Spectrum



How is this different from “Wi-Fi analyzer”?



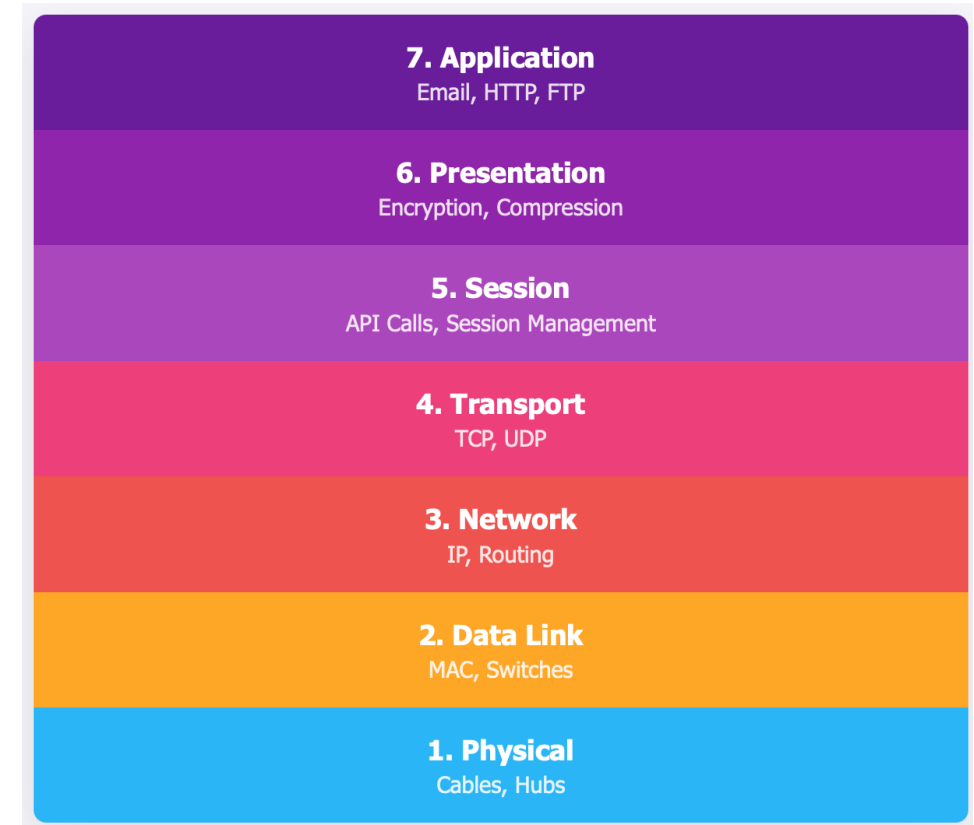
Wi-Fi- vs Spectrum Analyzers

Wi-Fi Analyzers

- Focuses on L2 information
- Demodulates the RF and processes it
- Interprets information in the Wi-Fi frame
- Extracts e.g. "SSID" from Beacon frames
- Wi-Fi only (ish)

Spectrum analyzers

- Focuses on L1, the pure RF
- Does not care what signal it is (Wi-Fi, FM radio, BLE)
- Can optionally do demodulation



Let's look at an example



Frequency vs
Amplitude

"Snapshot"

"Waterfall" aka
Spectrogram

Spectrum analyzers

What differentiates Spectrum Analyzers?

Frequency range:

”what signals can I look at”, how high can I go, how low?

Resolution Bandwidth (RBW) & Real-Time bandwidth (RTBW):

“how far can I zoom in” & “how much can I process at once”

Sweep time/speed

“How long does it take to look at X kHz/MHz of spectrum”

Type

“Old school” swept vs “new cool” Real Time Spectrum Analyzer (RTSA)

Bonus features e.g. demodulation, protocol analysis, form factor

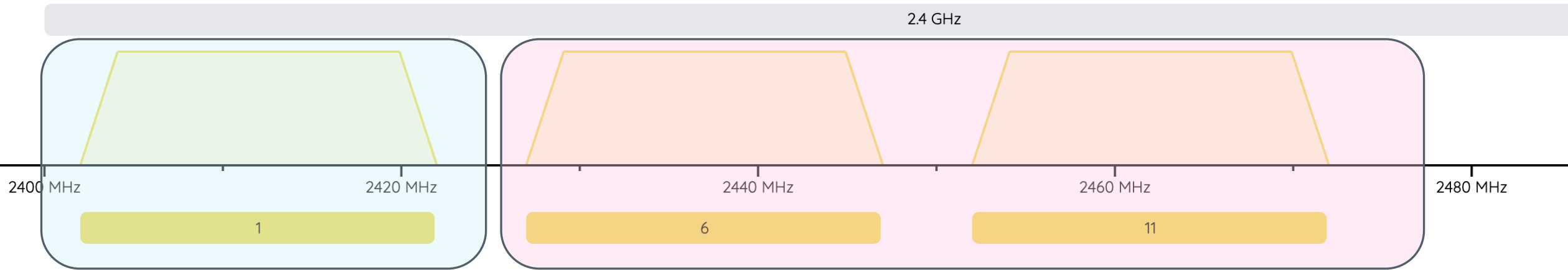
And yes, a bunch of other things omitted for simplicity:

e.g. Displayed Average Noise Level (DANL), Dynamic Range

Price

Rule of thumb: It scales with the bullets above

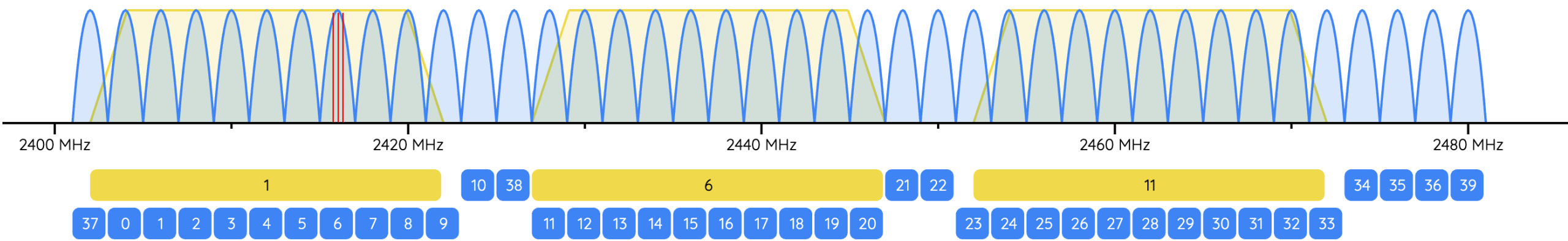
Realtime Bandwidth (RTBW)



How much can you capture at once?
What if you need to capture a wider range?

Screenshot from spectrum.potatofi.com

Resolution Bandwidth (RBW)



Do you need to distinguish individual BLE signals (blue)? (2MHz)
Or Wi-Fi subcarriers? (312.5 kHz for a/g/n/ac, 78.125 kHz for ax/be)

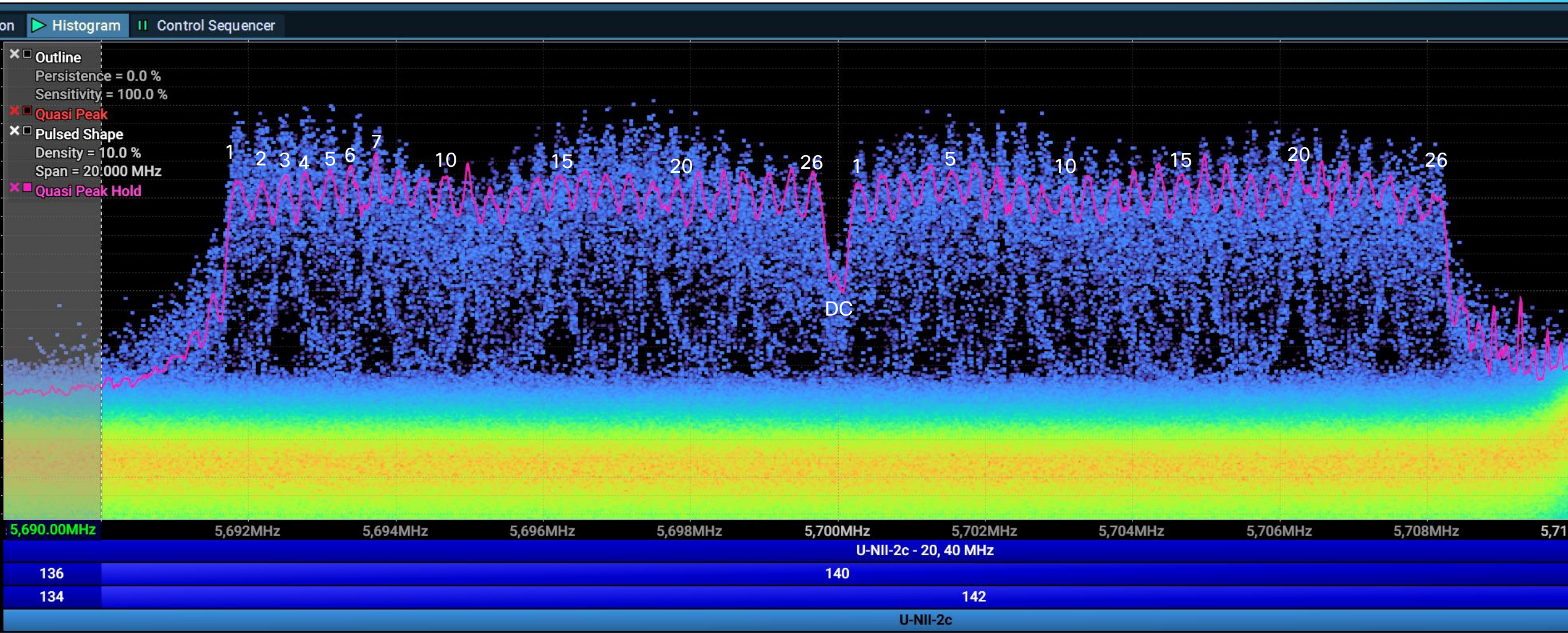
Screenshot from spectrum.potatofi.com

A Wi-Fi engineers toolbox, aka “my toys”

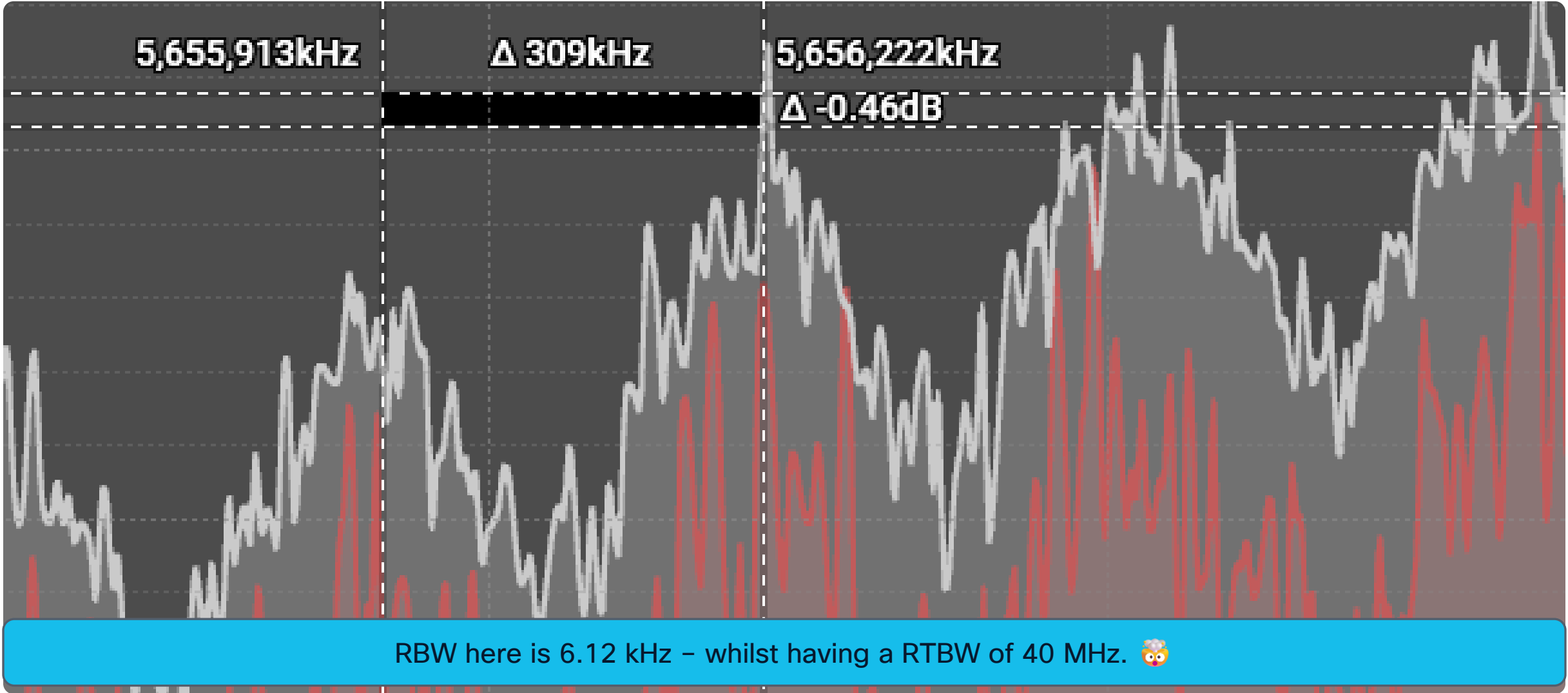
- HackRF + GQRX on Linux
1 MHz to 6 GHz, 2 to 20 Msps (quad) @ 8 bit → 20 MHz bandwidth
- Ekahau Sidekick 1 (2.4/5) and Sidekick 2 (2/5/6)
SK2 captures 80 MHz, 19 kHz RBW, 50 Hz
- Netally G3 + NXT-2000 (now works with Wi-Fi explorer pro!)
54.7 kHz RBW
- Metageek + DBx (2.4/5) or Wi-Spy Lucid (2/5/6)
- Aaronia Spectran V6 Plus (RSA 500X)
10 Mhz to 8 GHz, 80 MHz, gigahertz- terahertz sweep time
2 Gsps @ 16 bit (!)
- A recent addition: Aaronia “v6 ECO” (V6-150XA-6) – this is the sweet spot for (well funded) Wi-Fi professionals
9 kHz - 7.25 GHz, 44 MHz RTBW, up to 3000 GHz/s (= 3 THz/s) sweep 🦉
- Oscium Nomad + Hamina



Zooming into Wi-Fi



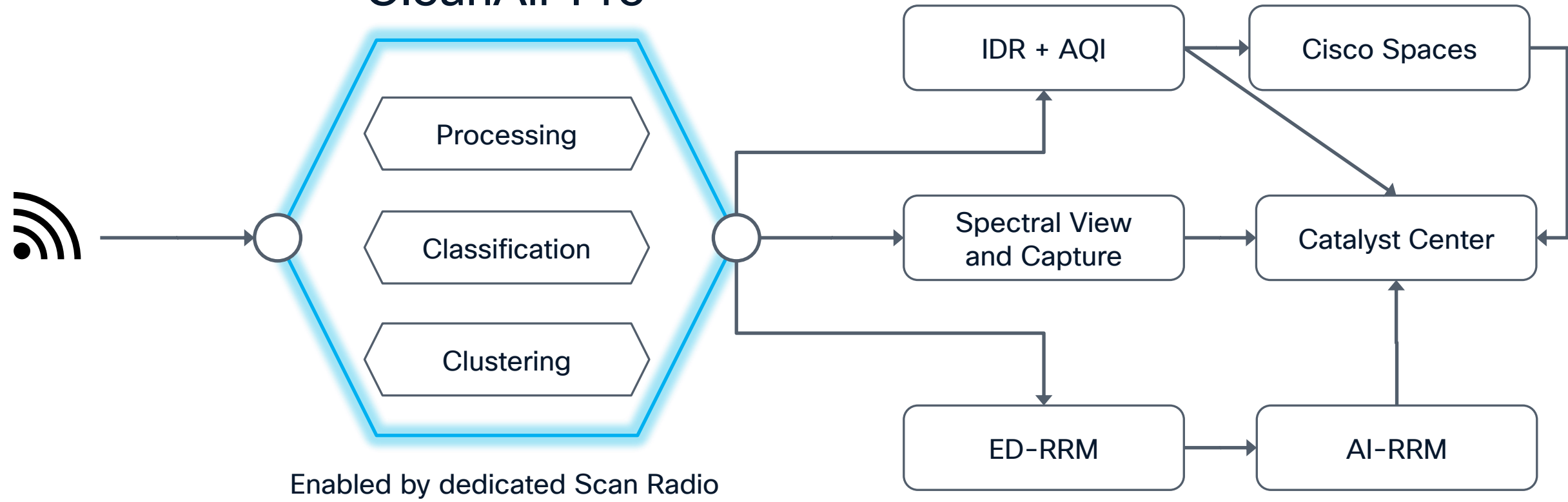
Zooming further into Wi-Fi (2/2)



CleanAir Pro

CleanAir Pro

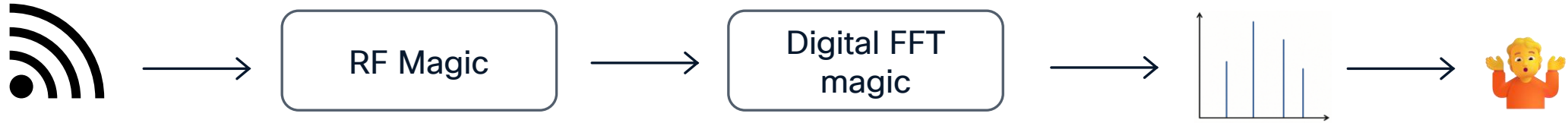
CleanAir Pro



CleanAir Pro extends CleanAir into 6Ghz, whilst adding ML/AI based classifiers

Clean Air

“Just” a Spectrum Analyzer



With CleanAir Pro



“Hey, I can see some interference on channel 52 –I’ll go ahead and change my channel to avoid it.
P.S. it looks like a video camera, go hunt it down(!)”

AQI and IDR

Air Quality Index (AQI)

- “How good/bad is a Wi-Fi channel”
- Score between 1-100 per Wi-Fi channel
- Updated every 15 sec

Interference Device Report (IDR)

- List of interferes
- Severity
- Type
- RSSI
- ClusterID
- Updated instantaneously

Example of IDR

Cisco Catalyst 9800-CL Wireless Controller
17.15.3

Welcome *admin*

Configuration

CleanAir

Monitoring

CleanAir Statistics

Monitoring > Wireless > CleanAir Statistics

6 GHz Band 5 GHz Band 2.4 GHz Band

CleanAir Interference Devices

SI Interference Devices

Air Quality Report

Worst Air Quality Report

Cluster ID	MAC Address	Device ID	Interferer Type	Persistent Device	AP Name	Version	Severity	RSSI (dBm)	Duty Cycle (%)	Affected Channel	Last Time
6100.0000.3ba2	056a.0ba1.a146	0xa146	Continuous TX	No	1540-sniff	CA-Pro	63	-74	100	40, 44	05/06:06:06

10 items per page

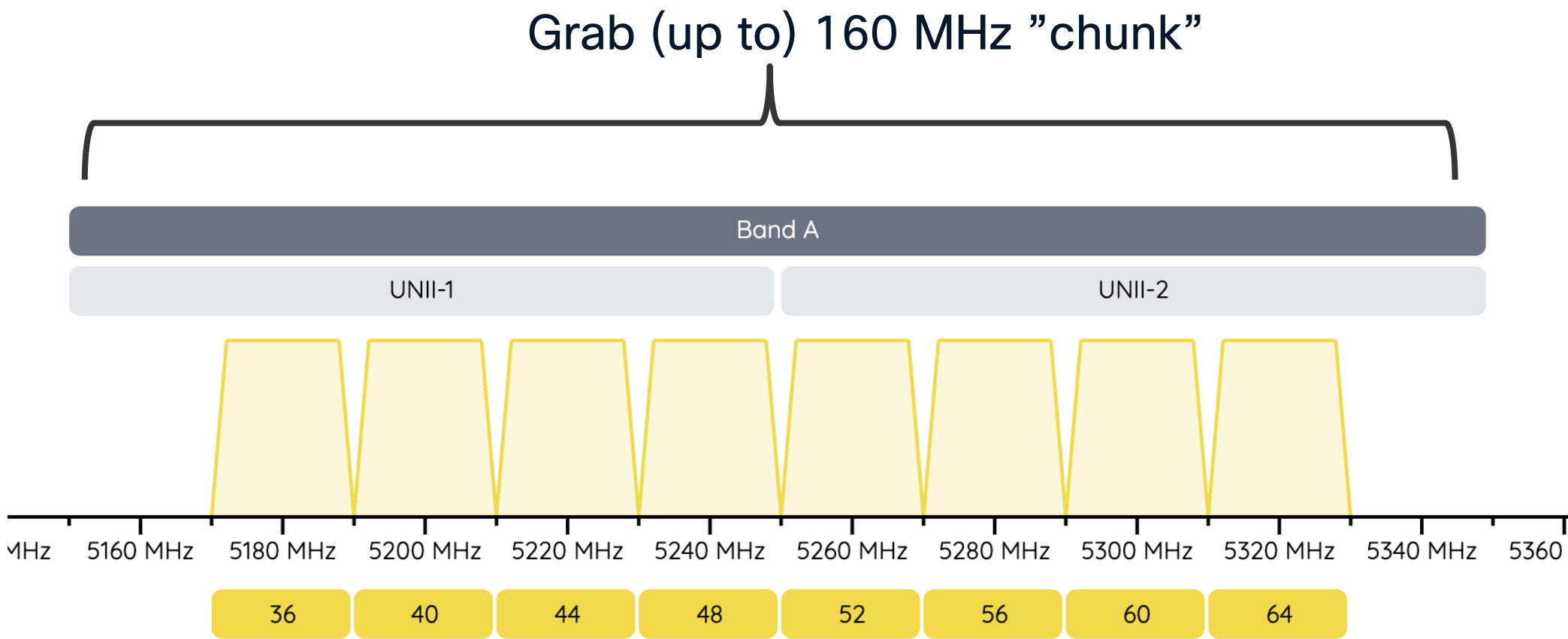
1 - 1 of 1 Items

ED-RRM

Also supported in 6 GHz!

The screenshot displays the Cisco Catalyst 9800-CL Wireless Controller configuration interface. The breadcrumb navigation shows 'Configuration > Radio Configurations > RRM'. The '6 GHz Band' is selected, and the 'DCA' tab is active. Under the 'Dynamic Channel Assignment Algorithm' section, 'Channel Assignment Mode' is set to 'Automatic'. The 'Interval' is 10 minutes, 'Anchortime' is 0, 'Channel Assignment Leader' is c9800-1715 (172.16.1.24), 'Last Auto Channel Assignment' was 586 seconds ago, and 'DCA Channel Sensitivity' is medium. In the 'Event Driven RRM' section, 'EDRRM' is checked and 'Sensitivity Threshold' is set to Medium. A red box highlights the 'EDRRM' checkbox and the 'Sensitivity Threshold' dropdown.

CleanAir Pro in bit more detail



CleanAir Pro can use a variable bandwidth/chunk size and FFT size.
In this case 160Mhz/256 bins ~= 625 KHz RBW

Putting it all together

**“The Wi-Fi is broken”
– now what?**

If you “only” have a WLC – lets look there!

Cisco Catalyst 9800-CL Wireless Controller
17.15.3

Welcome *admin*

Dashboard
Monitoring
Configuration
Administration

Monitoring > Wireless > CleanAir Statistics

6 GHz Band
5 GHz Band
2.4 GHz Band

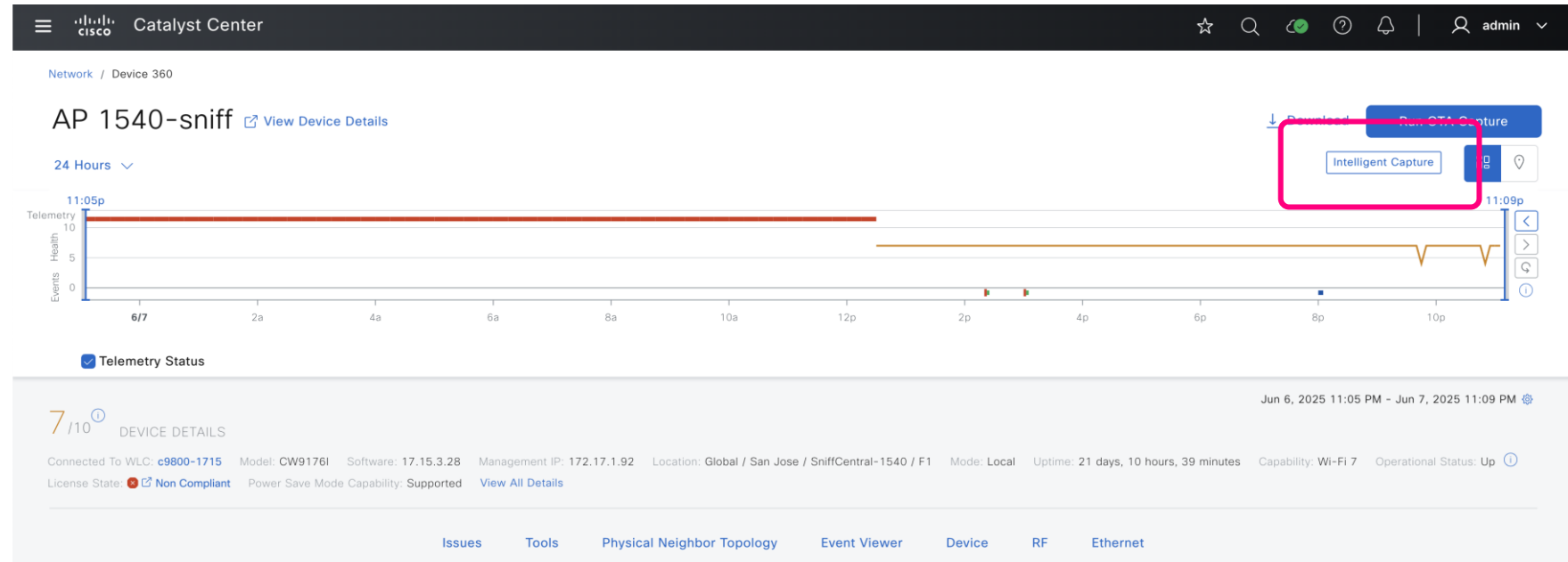
CleanAir Interference Devices
SI Interference Devices
Air Quality Report
Worst Air Quality Report

Cluster ID	MAC Address	Device ID	Interferer Type	Persistent Device	AP Name	Version	Severity	RSSI (dBm)	Duty Cycle (%)	Affected Channel	Last Update Time
e600.0000.1e8b	056a.0ba1.ac05	0xac05	Continuous TX	No	1540-sniff	CA-Pro	100	-47	100	132	06/07/2025 03:59:49 UTC

CatC: Spectrum Analysis

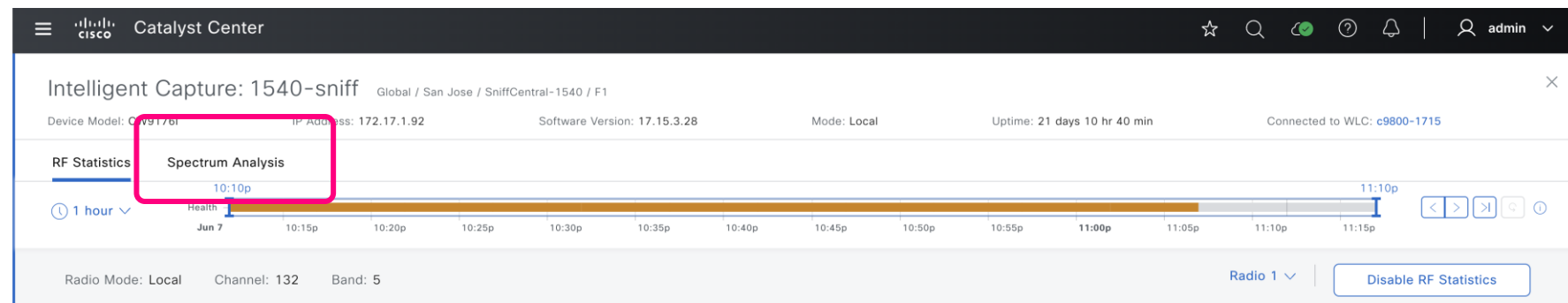
Navigate to the AP360 page for the AP

Click “Intelligent Capture”



Then select the “Spectrum Analysis” tab, and click “Start”.

Follow the workflow to push the config needed

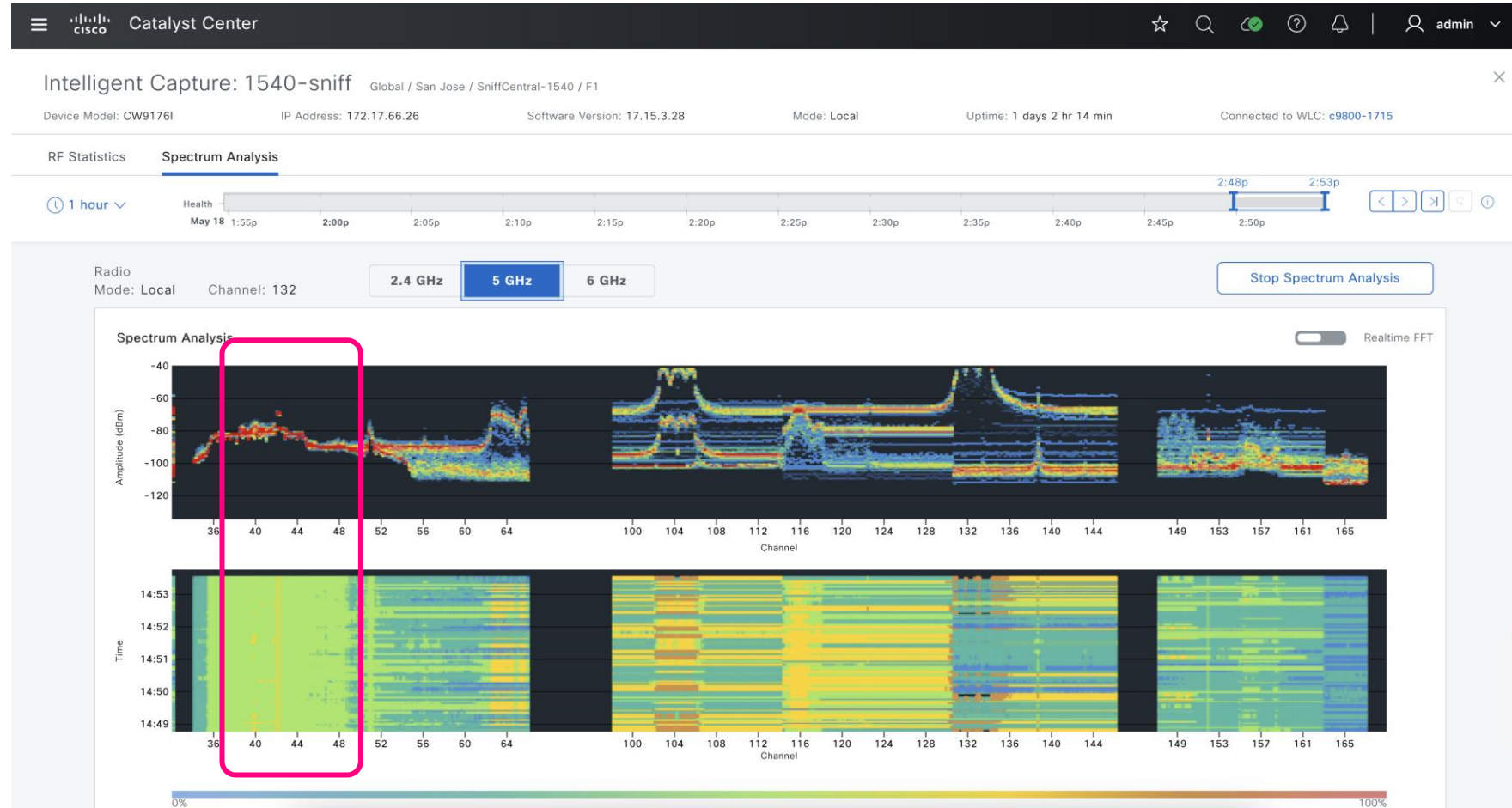


Spectrum View

To provide a faster sweep time, whenever spectrum view is enabled, additional scan time is allocated to the CleanAir process

It is increased from ~30% to ~75%.

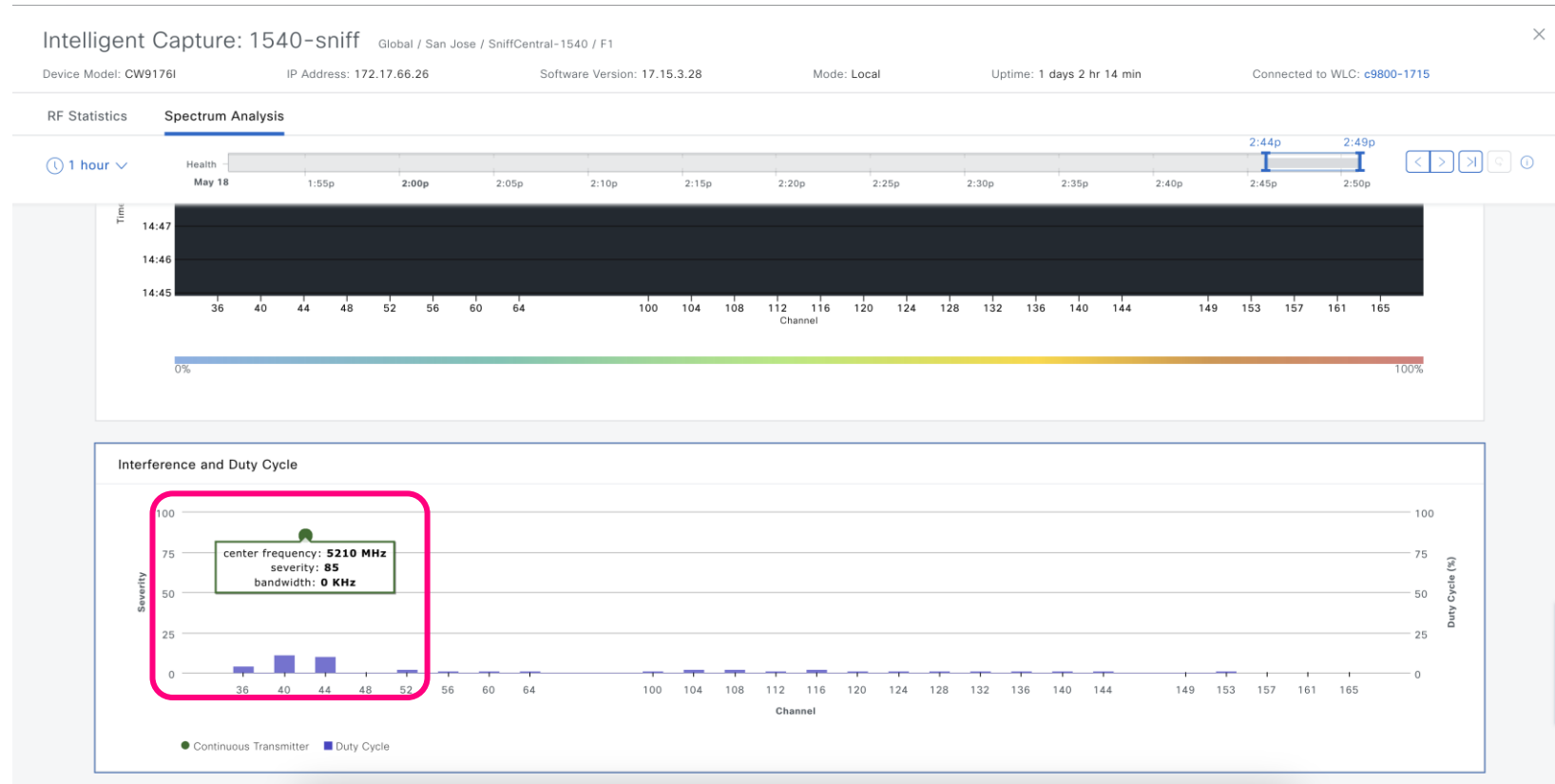
Spectrum Analysis runs for 10 min



Spectrum View, cont.

Also on the Spectrum Analysis page: Interferer list!

Effectively the same as on WLC, but nice for multi WLC deployments



Meraki “AP details” page

 Meraki

Q Search Dashboard



 Global Overview

 Organization
nswiatec-meraki

 Network
sniff

 Network-wide

 Assurance

 Wireless

 Organization

 Access Manager New

 Find in Menu

172.17.66.1

PREFERRED MESH GATEWAY
(Default)

DNS
172.17.1.5

ETHERNET 1
5000 Mbit, full duplex
[1540-ms150 / Port 19](#)

LAN IPV6
VIA AUTOCONF
2601:646:a100:1916:8e88:81ff:fe83:aa50

VLAN
0

GATEWAY
fe80::bedb:9ff:fed1:ccb6

DNS
fd66::2
::

SERIAL NUMBER

TAGS

NOTES

FIRMWARE
Up to date
Current version: MR 31.1.7
[Open source licenses](#)

Utilization on current channels

Channel 1 (2.4 GHz): 52% (Moderate)

Channel 108 (5 GHz): 1% (Acceptable)

Channel 1 (6 GHz): 0% (Acceptable)

All channel utilization

2.4 GHz

5 GHz

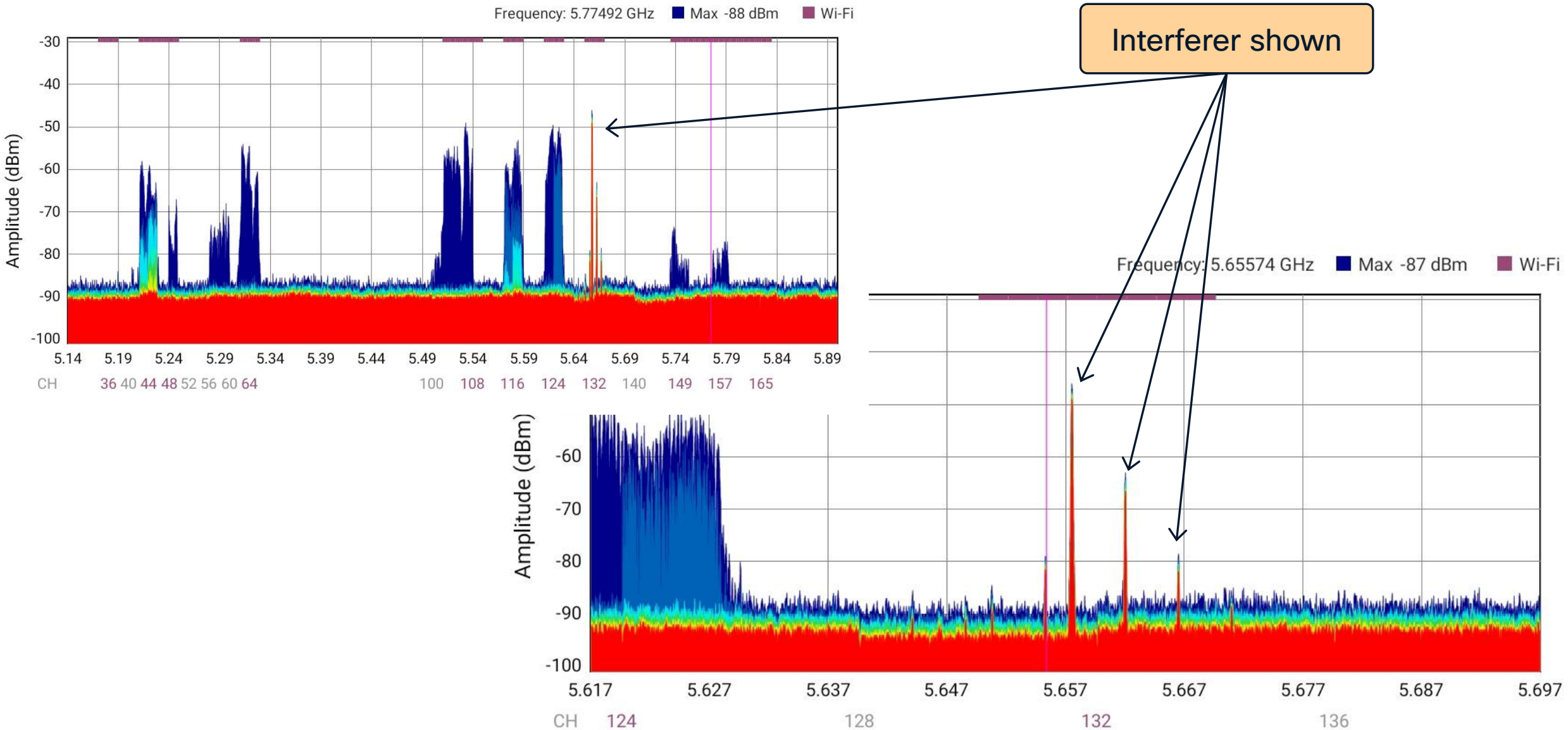
6 GHz

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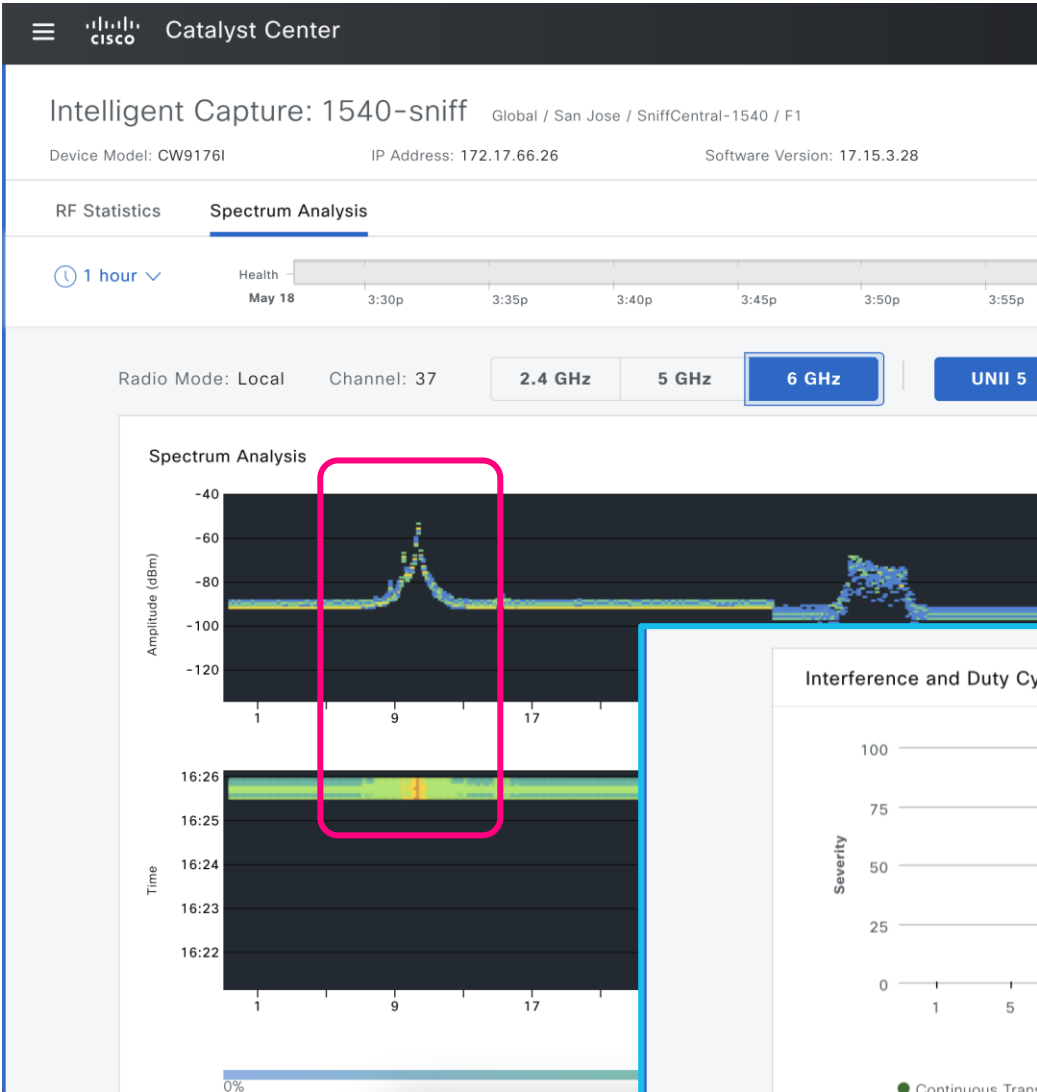
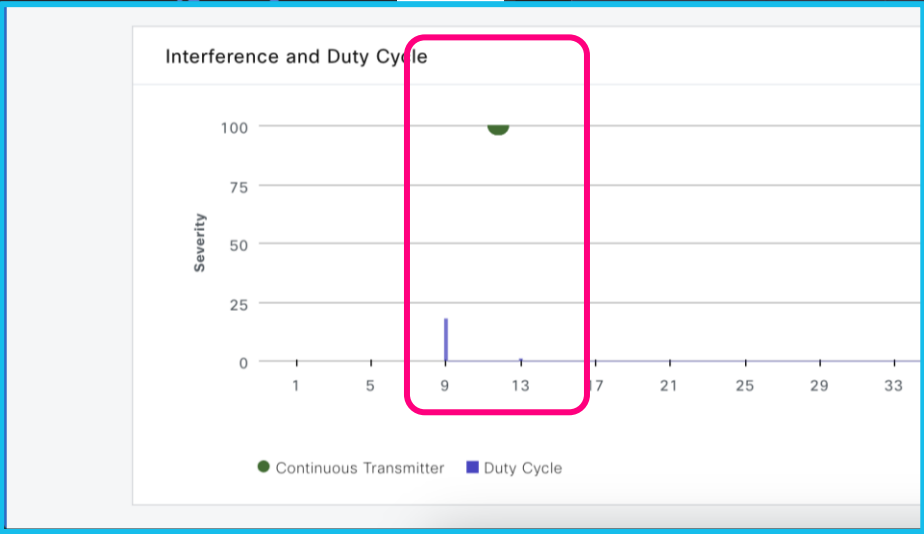
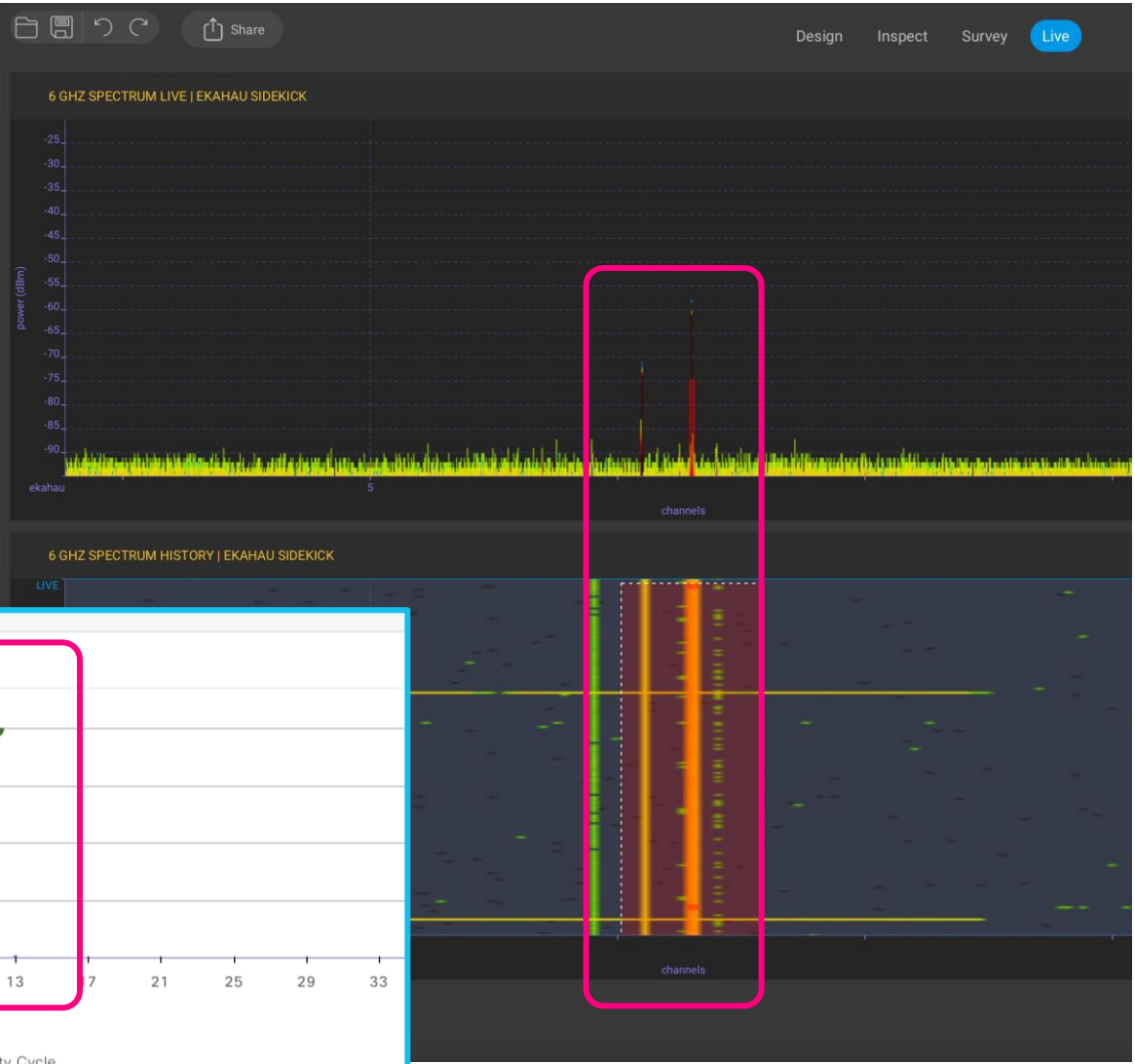
BRKEWN-1011

 CISCO

NetAlly G3 + NXT2000



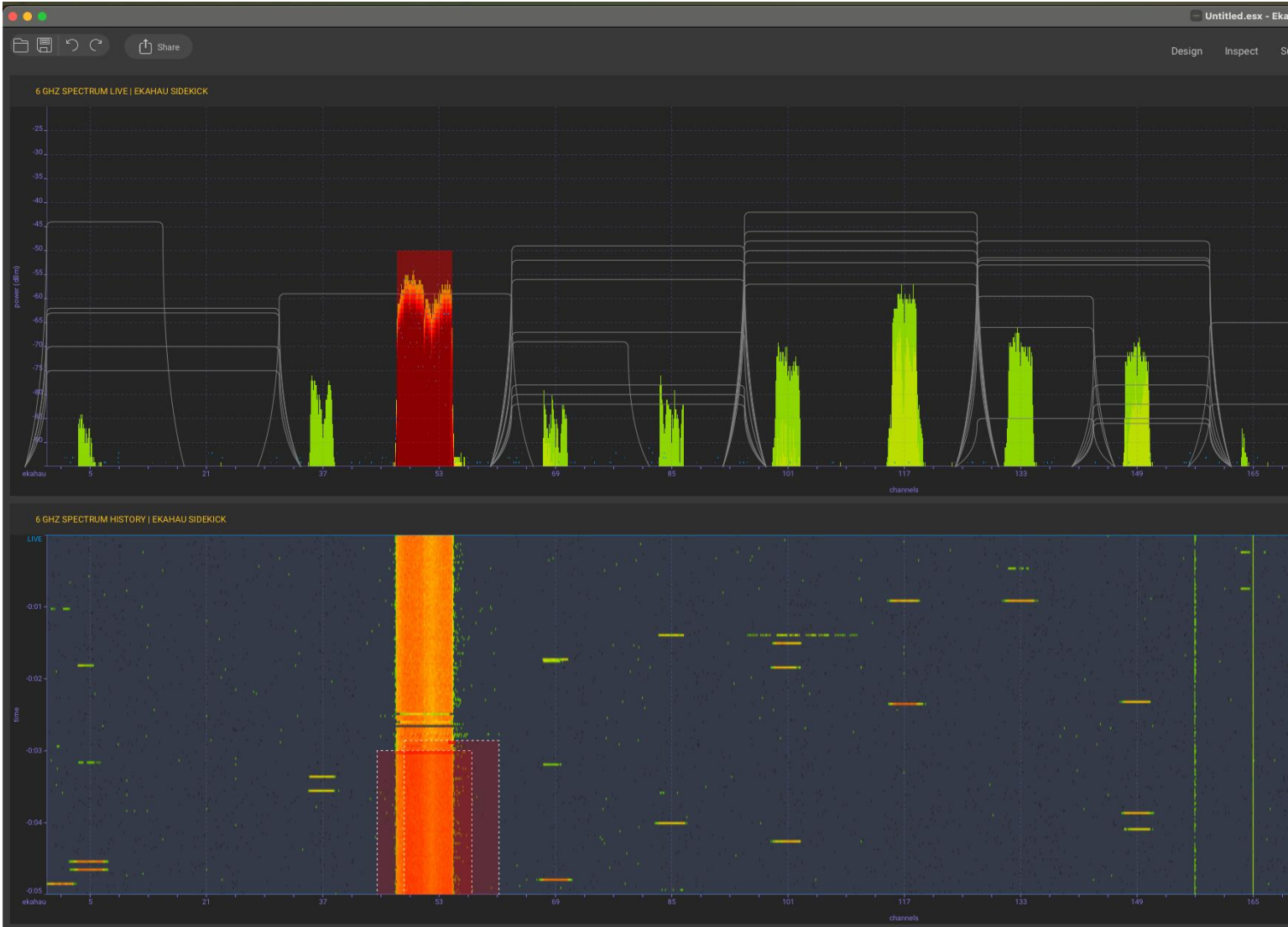
And, what about 6 GHz?



How about 6 GHz?

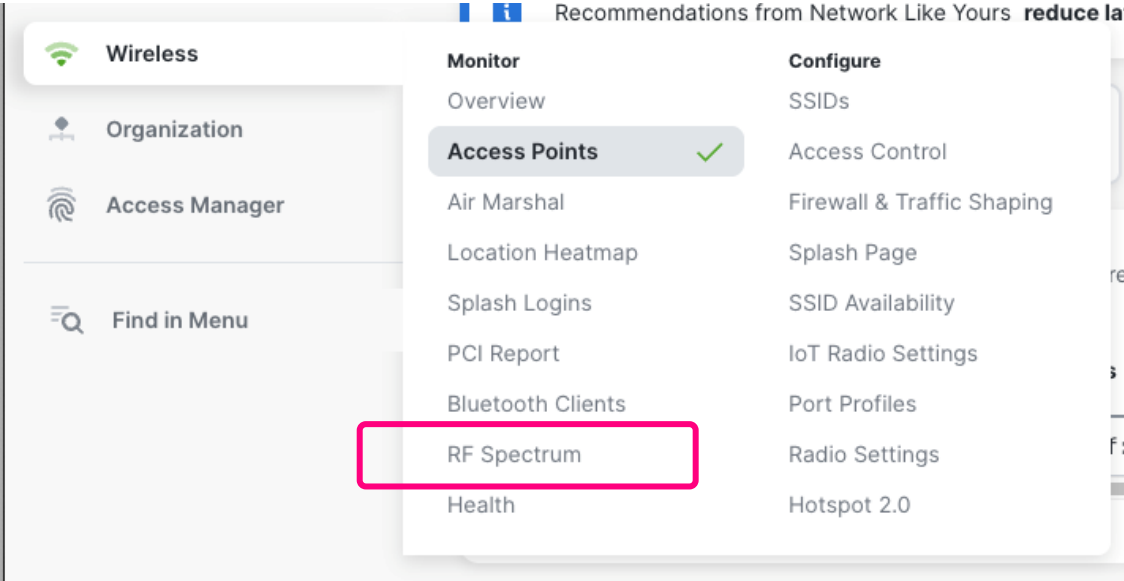
New spectrum, new interferers!

From a Teradeck Wireless HDMI transmitter, that emits a continuous 40 MHz wide signal (!)

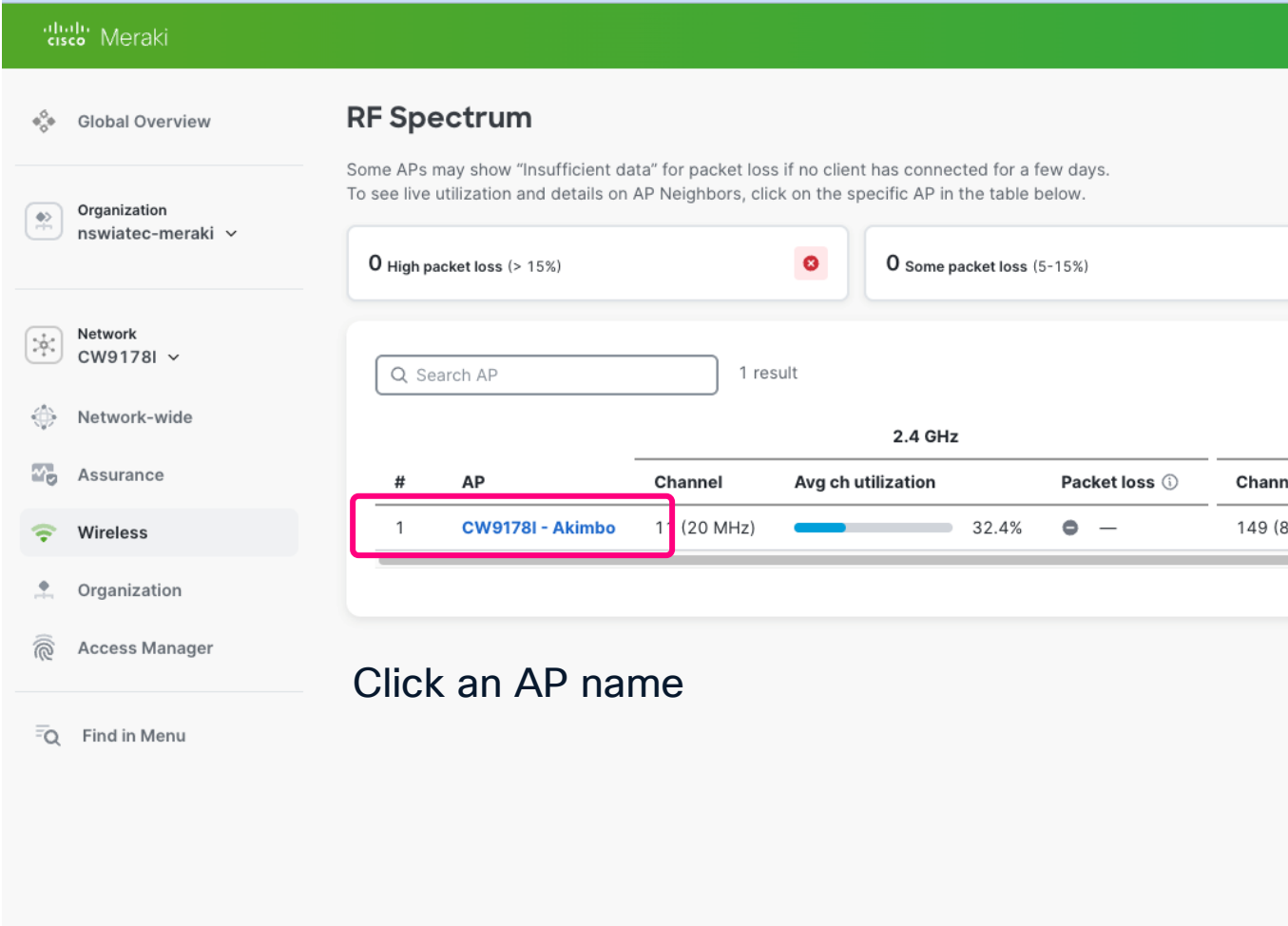


What about Meraki Dashboard?

Spectrum on Dashboard (1/3)

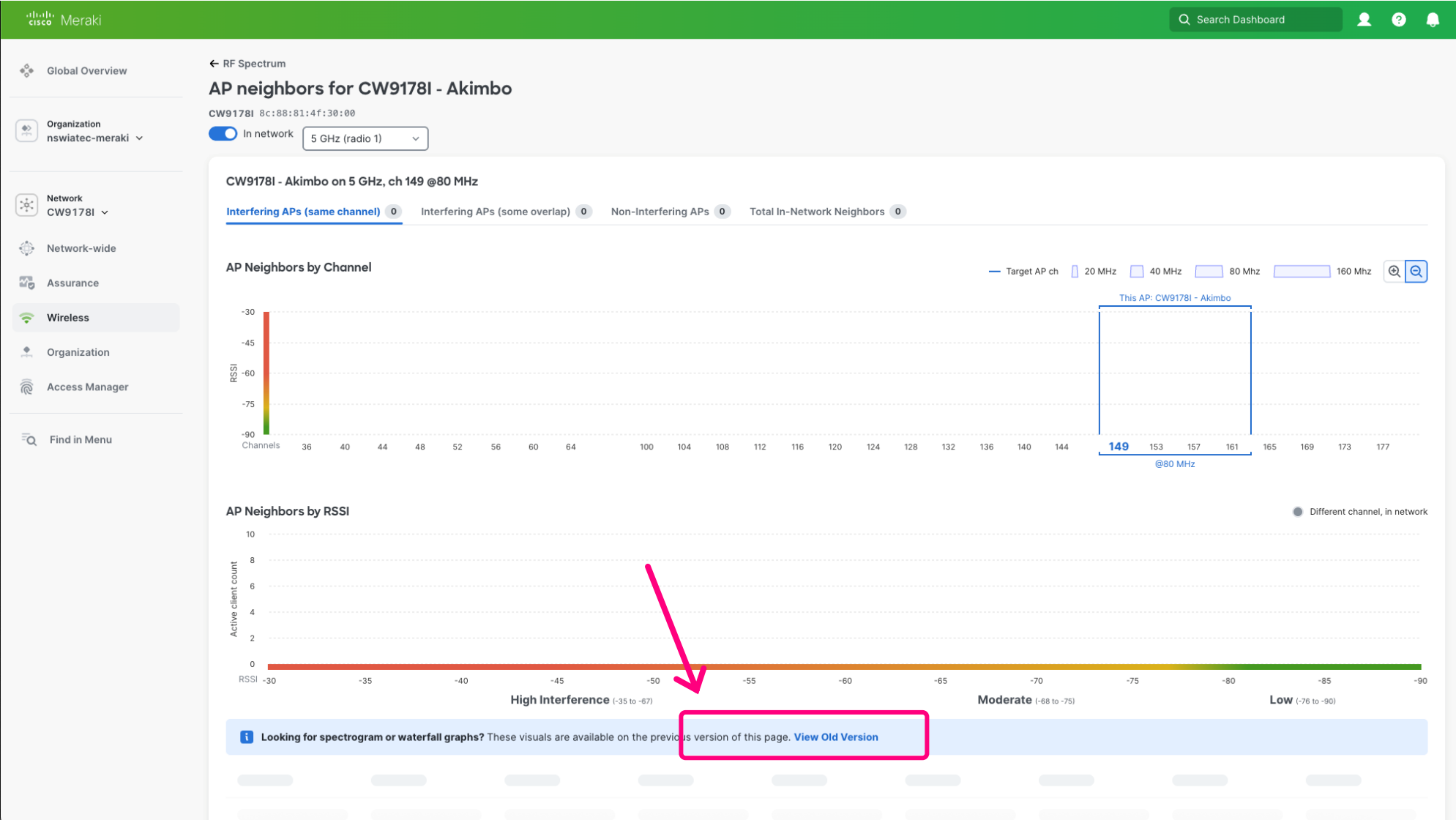


Wireless -> RF Spectrum

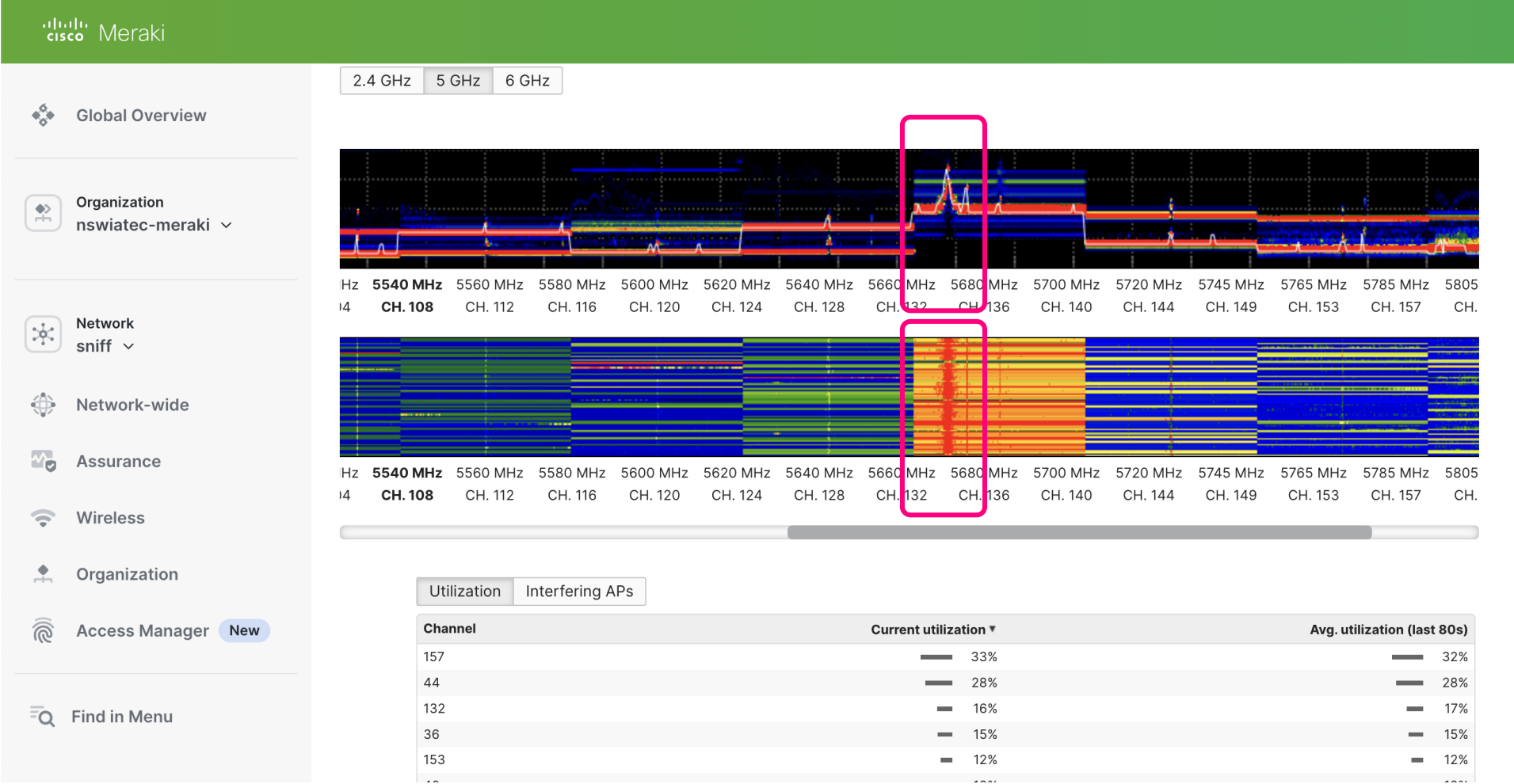


Click an AP name

Spectrum on Dashboard (2/3)



Spectrum on Dashboard (3/3)



A sneak peak 🤔

CleanAir Pro on Meraki 🚨

```
"cleanair_idr_resp": {  
  "idr_data": [  
    {  
      "severity": 5,  
      "band_type": "2G",  
      "event_type": "UP",  
      "rssi_dbm": -63,  
      "duty_cycle": 5,  
      "fc_khz": 2408152,  
      "intf_type": "BLUETOOTH",  
      "bw_khz": 664,  
      "intf_type_id": 1,  
      "seq_num": 3,  
      "first_seen_secs_ago": 0  
    }  
  ]  
},  
"uptime": 1242
```

```
"cleanair_aqi_resp": {  
  "aqi_data": [  
    {  
      "center_freq": 2412,  
      "aqi_value": 95  
    },  
    {  
      "center_freq": 2417,  
      "aqi_value": 95  
    },  
    {  
      "center_freq": 2422,  
      "aqi_value": 100  
    },  
    {  
      "center_freq": 2427,  
      "aqi_value": 100  
    }  
  ]  
}
```

Dashboard UI development in progress

Another sneak peak 🤩

The Teradeck Wireless HDMI transmitter
as classified by CleanAir Pro on Meraki

```
"cleanair_idr_resp": {  
  "idr_data": [  
    {  
      "severity": 98,  
      "band_type": "6G",  
      "event_type": "UP",  
      "rssi_dbm": -44,  
      "duty_cycle": 98,  
      "fc_khz": 6085000,  
      "intf_type": "VIDEO",  
      "bw_khz": 40000,  
      "intf_type_id": 27,  
      "seq_num": 0,  
      "first_seen_secs_ago": 0  
    }  
  ]  
},
```

8	sfo12-3-ap-26	6 (20 MHz)	<div></div>	0.0%	—	—	140 (20 MHz)	<div></div>	2.5%	✓	1.2%	53 (160 MHz)	<div></div>
9	sfo12-3-ap-18	11 (20 MHz)	<div></div>	0.0%	—	—	149 (20 MHz)	<div></div>	7.1%	✓	0.8%	37 (160 MHz)	<div></div>
10	sfo12-3-ap-25	1 (20 MHz)	<div></div>	0.0%	—	—	108 (20 MHz)	<div></div>	8.7%	✓	0.8%	5 (160 MHz)	<div></div>

Rows per page 10 1-10 of 165 1 2 ... 17 >

CleanAir

Identifies non-Wi-Fi interference. *Interferers* are nearby non-Wi-Fi devices that impact Wi-Fi performance. *Air quality* is an overall interference value per channel for each access point. Available on CW916x and CW917x access points with firmware R32.1.1 and above.

Interferers Air quality

High (above 60)

All interferers

All bands

300 results

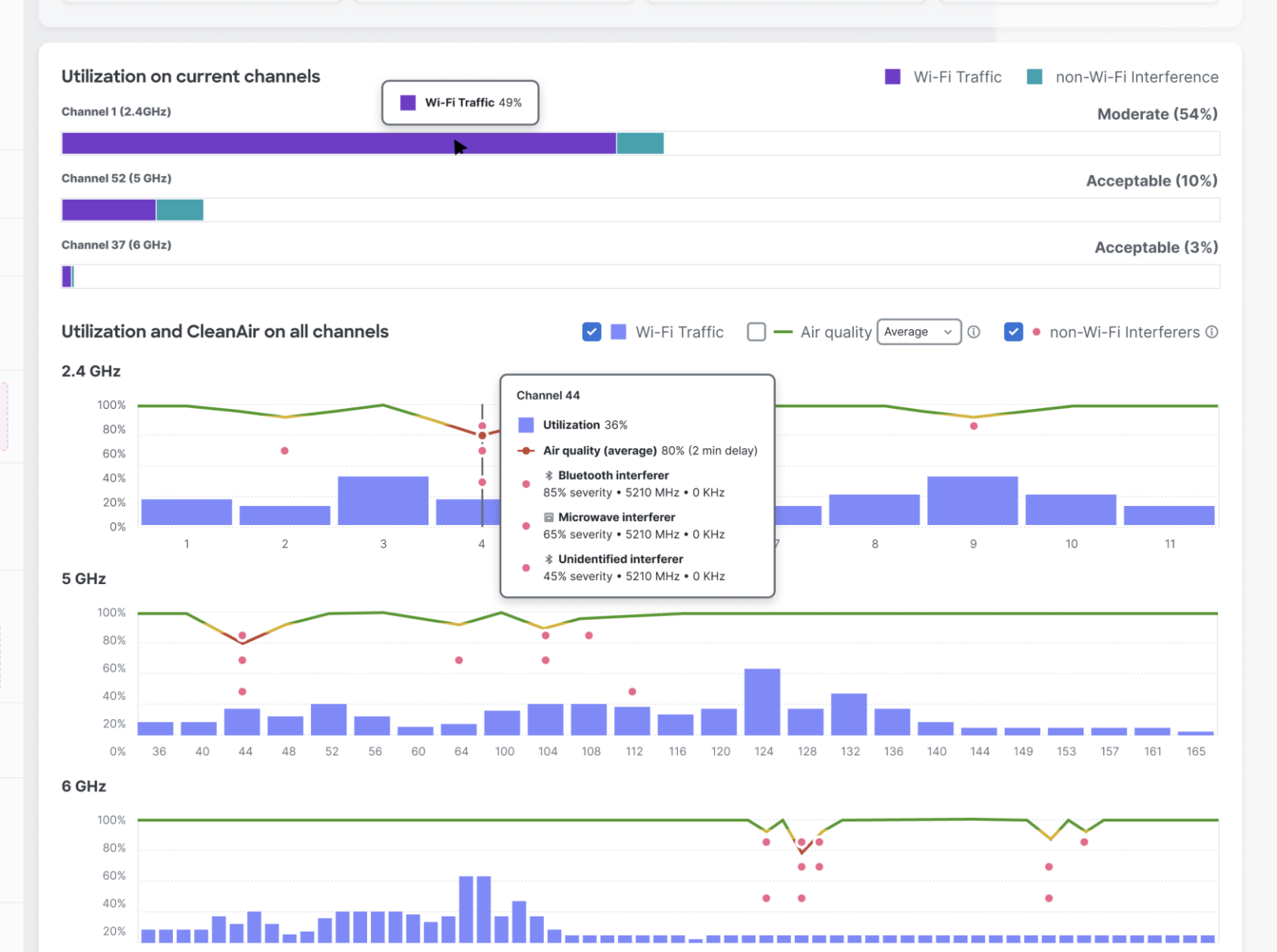
Download

Interferer	Severity	AP	Band	Center frequency	Bandwidth	RSSI (dBm)	Duty cycle	First seen
Continuous Tx/CW	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Video camera	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Jammer	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
2-way radio	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Cordless phone	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Zigbee	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Microwave	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Bluetooth	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Non-std WLAN	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago
Bluetooth 6 GHz	High (85)	sfo12-3-ap-01	2.4 GHz	2408.15 MHz (11)	664 KHz	<div></div> -65	5%	2 hours ago

Rows per page 10 1-10 of 300 1 2 ... 30 >

We are getting close! 🥳
(Yes, this is a mock-up, but you get the idea)

Very soon!



Yes, this is also a mock-up

Examples from the real world



François Vergès • 1st

Owner at SemFio Networks - Spreading Kindness, One Wi-Fi Co...

4d • 🌐

Today I was onsite to perform an audit. We did find something interesting!

Looking at the 5 GHz spectrum, we saw a lot of activity around the UNII3 band.

The entire band was used 100% of the time in large section of the manufacturing plant I was in.



After looking around, we eventually found that these interferences were coming from the LED lights installed under the ceiling.

It tooks us some time (I would say around 40mins) to be sure.

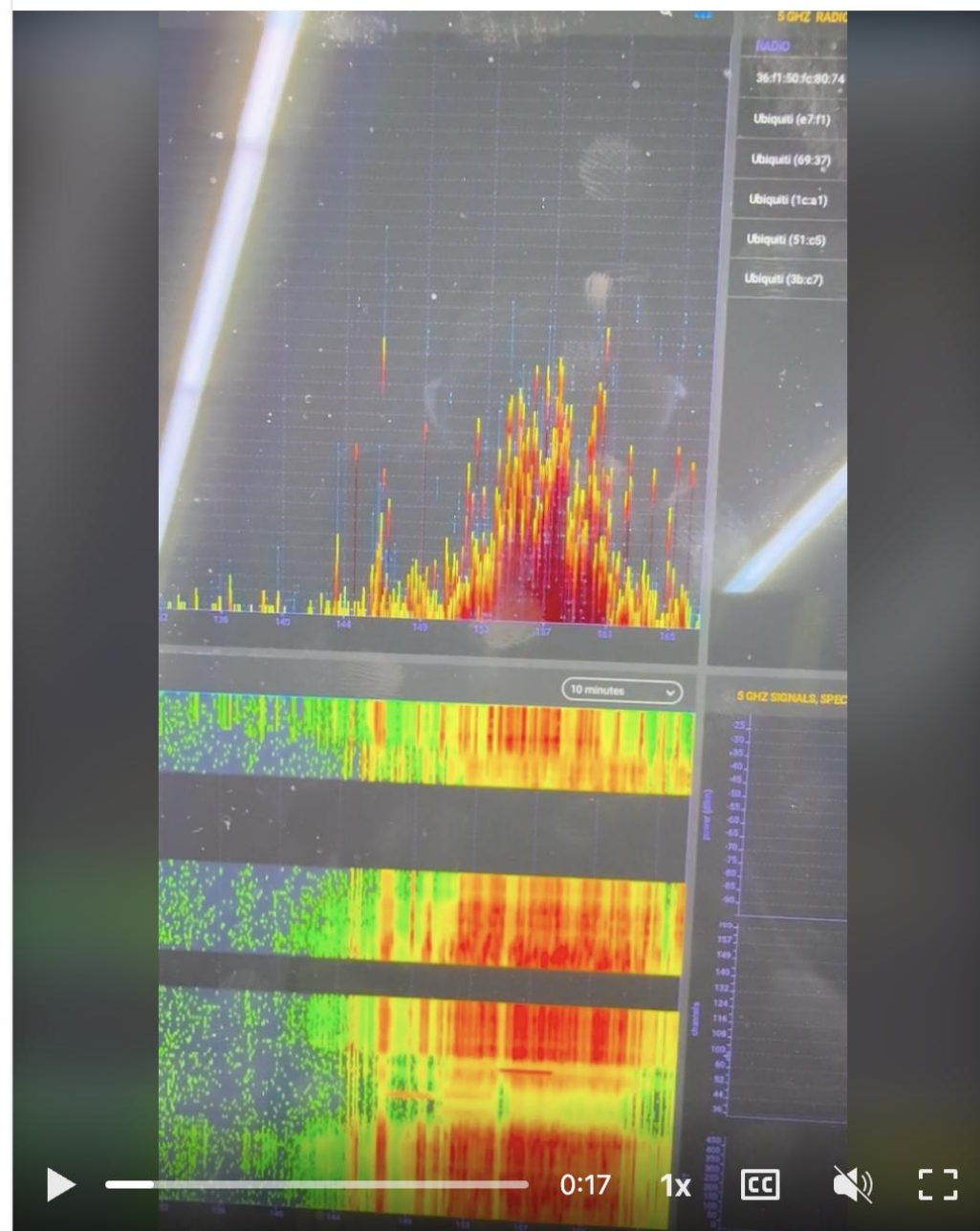
We used a combination of signal tracking and deduction from the survey data to be able to pin point the lights.

We eventually took a lift to get closer to the LED, brought the Sidekick close to one of the light and confirmed that it was the source of what we were seeing.

Now what?

Well, they are not going to change the lights in the plant.
So we will have to work around it and use other 5 GHz channels.

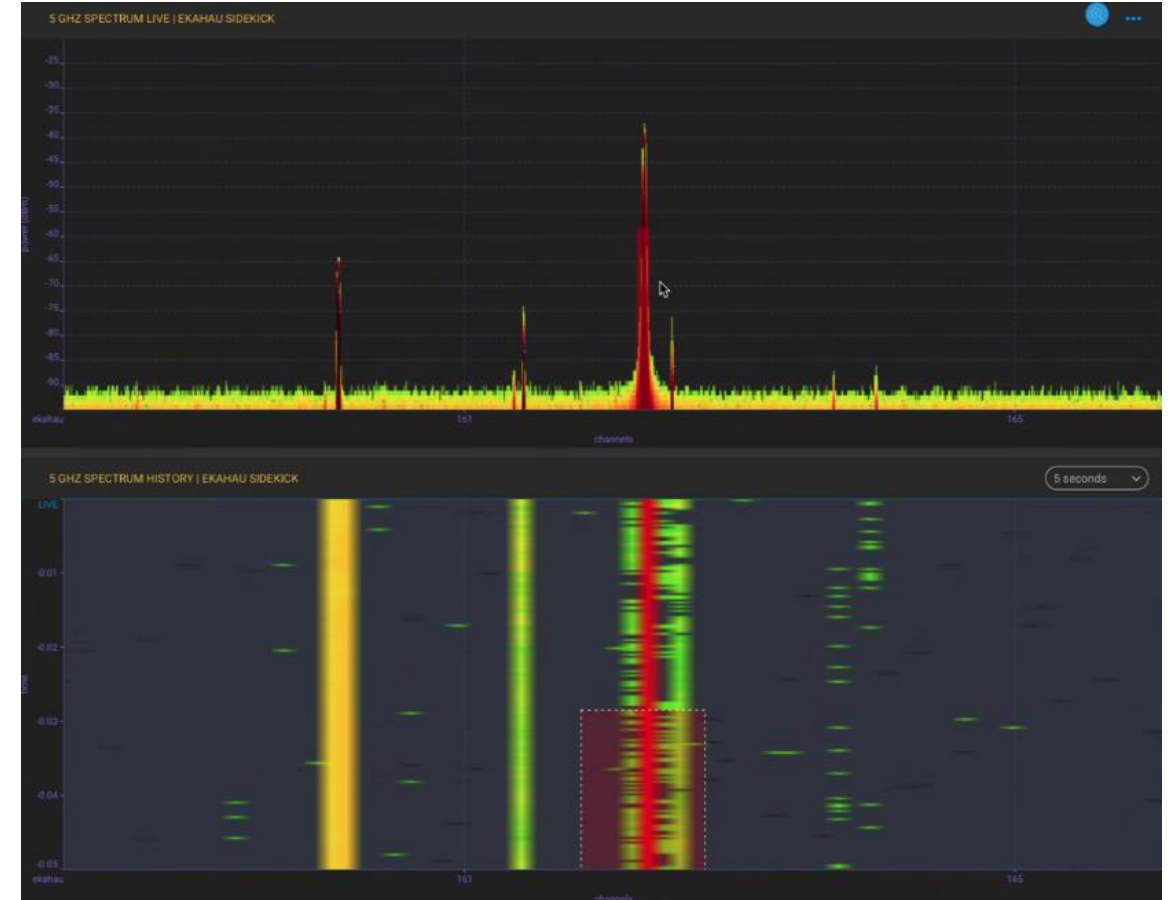
Looking for an interference source is always fun, not always easy. Use all the data you have and don't be afraid to ask for help!



Customer case

From a real CX debrief

- Cisco visited customer campus after hours
- Site survey was performed on all floors. Interference was seen consistently on the west wing of the campus.
- The interference is a **high-power full cycle 1MHz interference** present in rooms with complaints, jamming certain UNII-3 channels.
- The source has been identified as the new motion sensors installed in the west wing.
- Older motion sensors in the other parts of the campus are not interfering the wireless RF spectrum.



So, I went shopping



WiFi Human Presence Sensor: Smart Motion Sensor with 5.8GHz mmWave Radar, Zone Positioning, App Notification Alerts, Real-time Human Occupancy Sensor for Home Automation, Support Alexa

[Visit the SENCKIT Store](#)

3.6 ★★★★★ (52)

-5% \$25⁶⁴

Typical price: \$26.99 ⓘ

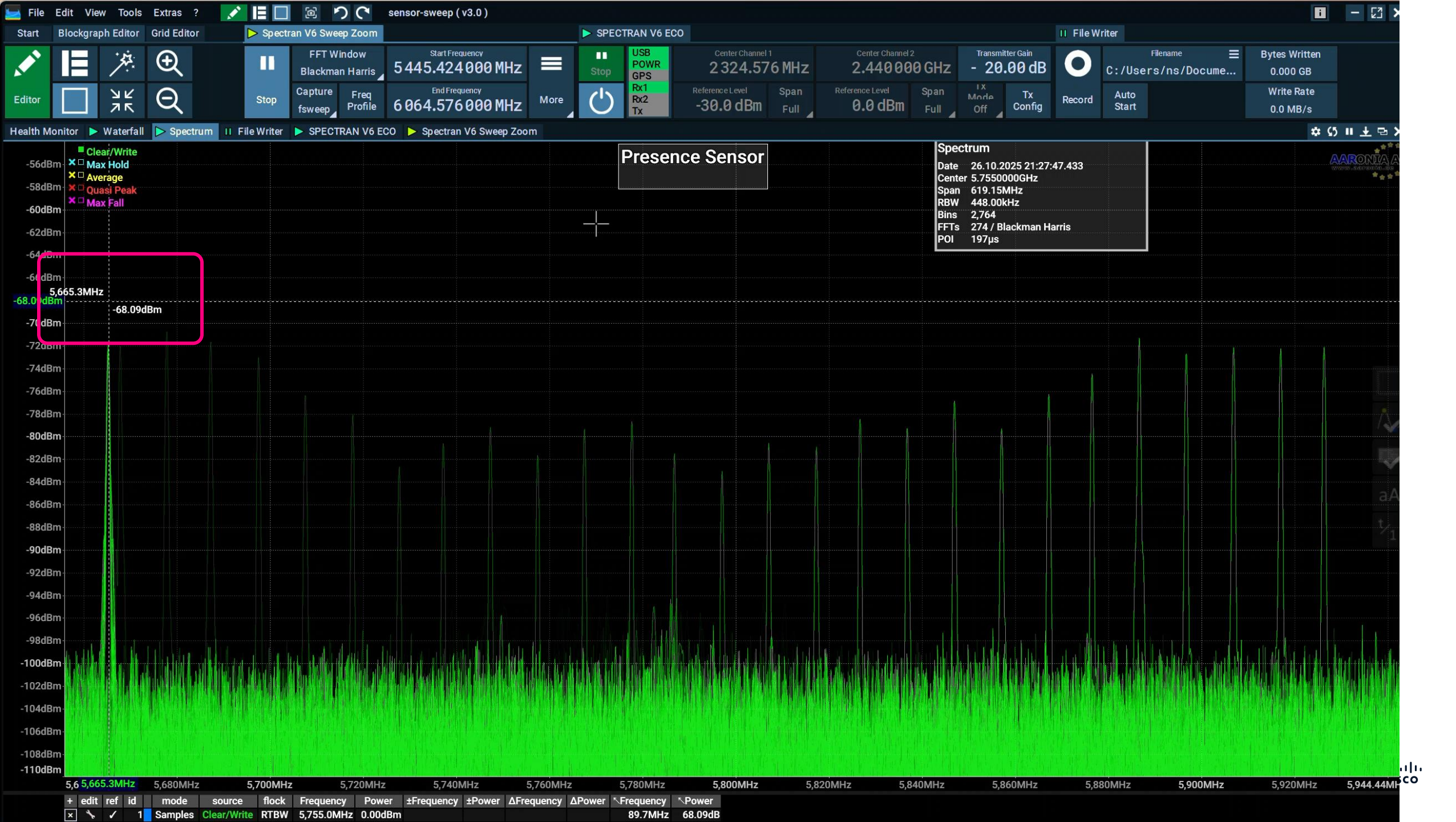
prime

[FREE Returns](#) ▾

Thank you for being a Prime Member. **Pay \$25.64 \$0.00 for this order;** get a \$200 Amazon Gift Card upon approval for the Amazon Business Prime Card. Terms apply. [Learn more](#)

Brand	SENCKIT
Power Source	USB powered
Item Weight	2.24 ounces
Maximum Range	40 Meters
Mounting Type	Wall Mount

Disclaimer: this is not the actual device found on the customer site



What does the WLC see?

🔍 Search Menu Items

Monitoring > Wireless > CleanAir Statistics

6 GHz Band 5 GHz Band 2.4 GHz Band

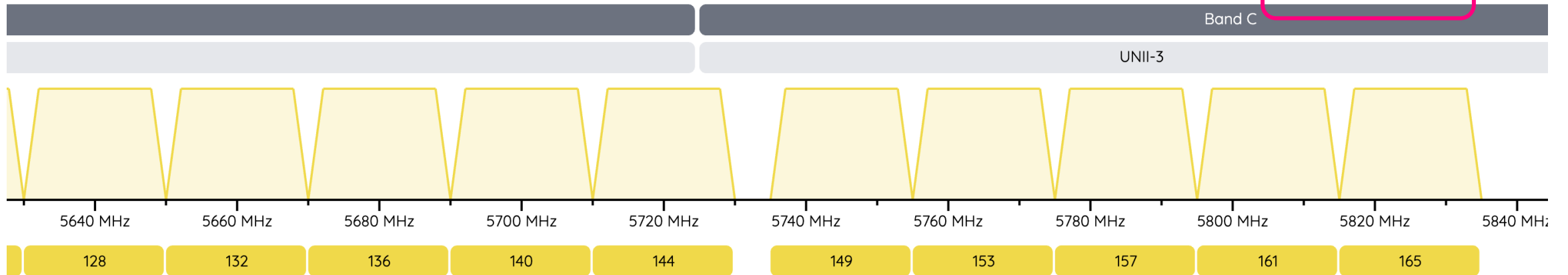
CleanAir Interference Devices

SI Interference Devices

Air Quality Report

Worst Air Quality Report

Cluster ID	MAC Address	Device ID	Interferer Type	Persistent Device	AP Name	Version	Severity	RSSI (dBm)	Duty Cycle (%)	Affected Channel	Last Update Time
3f00.0001.50c2	056a.00e1.0233	0x0233	Video camera	Yes	AP8C88.8183.2400	CA-Pro	48	-75	100	132, 136	10/27/2025 04:30:27 UTC
3f00.0001.50c7	056a.00e1.1234	0x1234	Continuous TX	No	AP8C88.8183.2400	CA-Pro	63	-74	100	132	10/27/2025 04:31:02 UTC



5665 MHz

Intelligent Capture: AP8C88.8183.2400 No assigned site

Device Model: CW9176I

IP Address: 172.17.1.148

Software Version: 17.15.4.18

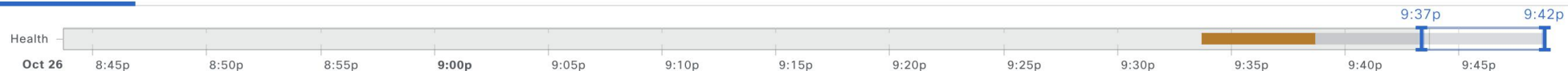
Mode: FlexConnect

Uptime: 22 hr 55 min

Connected to WLC: [c9800-1715](#)

RF Statistics **Spectrum Analysis**

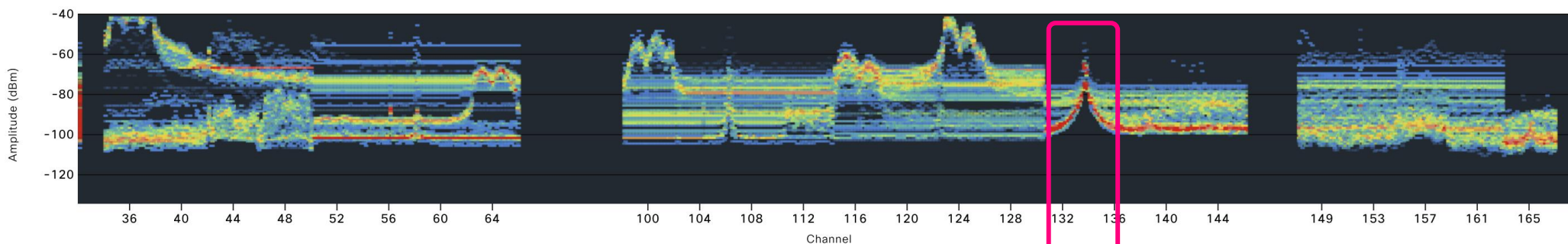
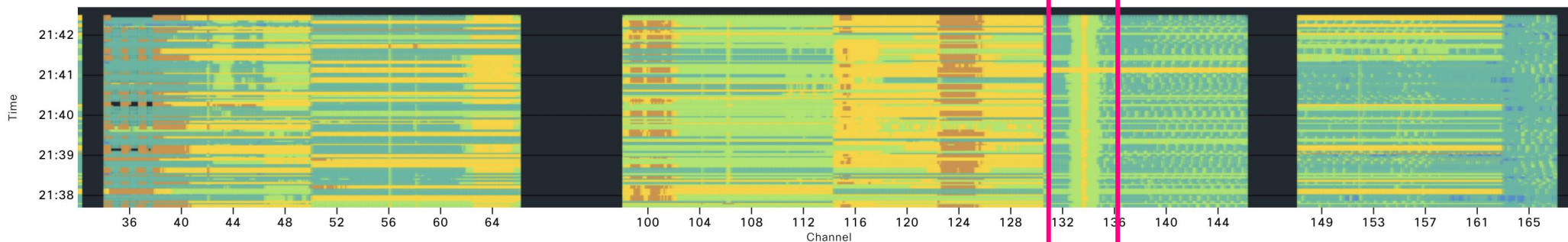
🕒 1 hour ▼



< > >> 🔍 ⓘ

Spectrum Analysis

☐ Realtime FFT



Intelligent Capture: AP8C88.8183.2400

No assigned site

Device Model: CW9176I

IP Address: 172.17.1.148

Software Version: 17.15.4.18

Mode: FlexConnect

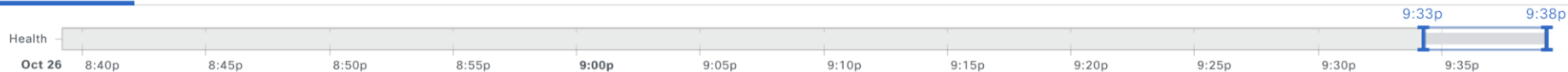
Uptime: 22 hr 55 min

Connected to WLC: [c9800-1715](#)

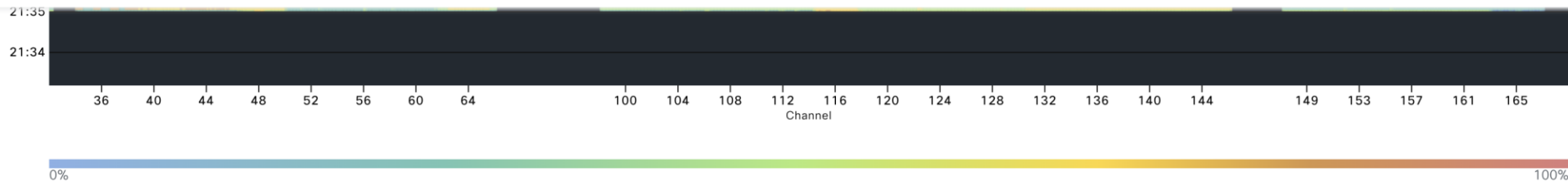
RF Statistics

Spectrum Analysis

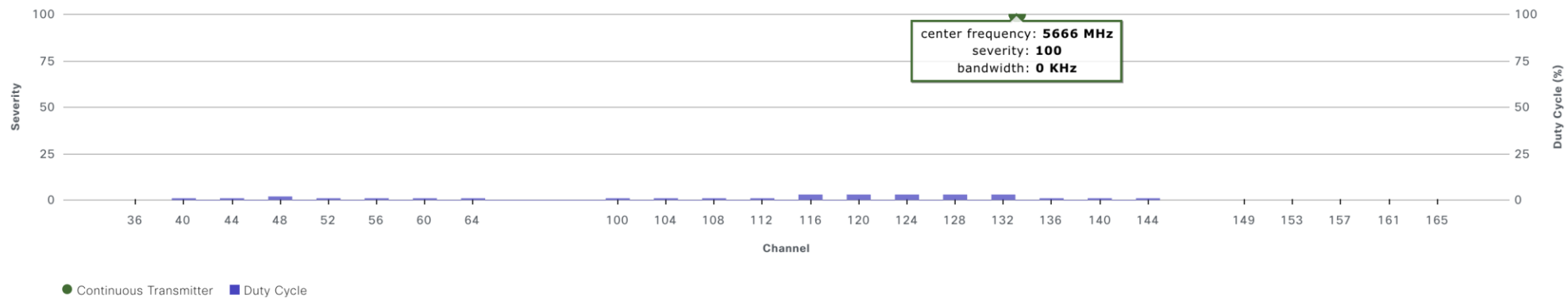
🕒 1 hour ▾



< > >| 🔄 ⓘ



Interference and Duty Cycle



Any musicians? (1/2)



JOYO 5.8GHz Wireless Guitar System Wireless Guitar Transmitter Receiver Rechargeable Audio with 4 Signal Channels for Electric Guitar Bass 20M (JW-02S)

[Visit the JOYO Store](#)

4.3 ★★★★★ (2,386) | [Search this page](#)

Amazon's Choice

200+ bought in past month

-15% \$49⁹⁹

List Price: \$58.99 ⓘ

✓prime Tomorrow

FREE Returns ▾

Exclusive Prime price

Save 5% on 2 select item(s) [Shop items >](#)

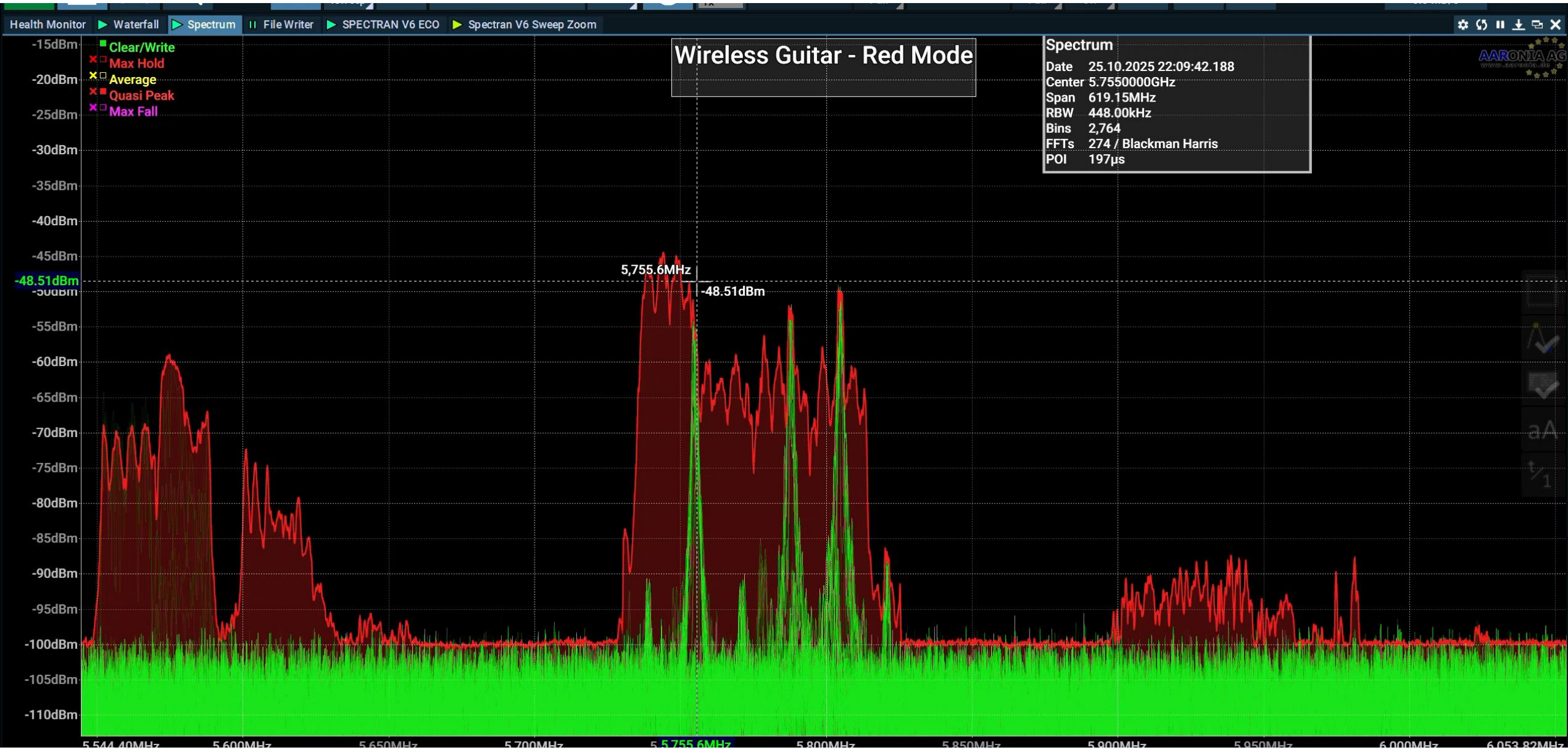
Style: 5.8GHz

2.4GHz	5.8GHz	5.8Ghz with Charging
\$31.99 \$39.99 FREE Delivery Tomorrow	\$49.99 \$58.99 FREE Delivery Tomorrow	\$55.99 \$69.99 FREE Delivery Tomorrow

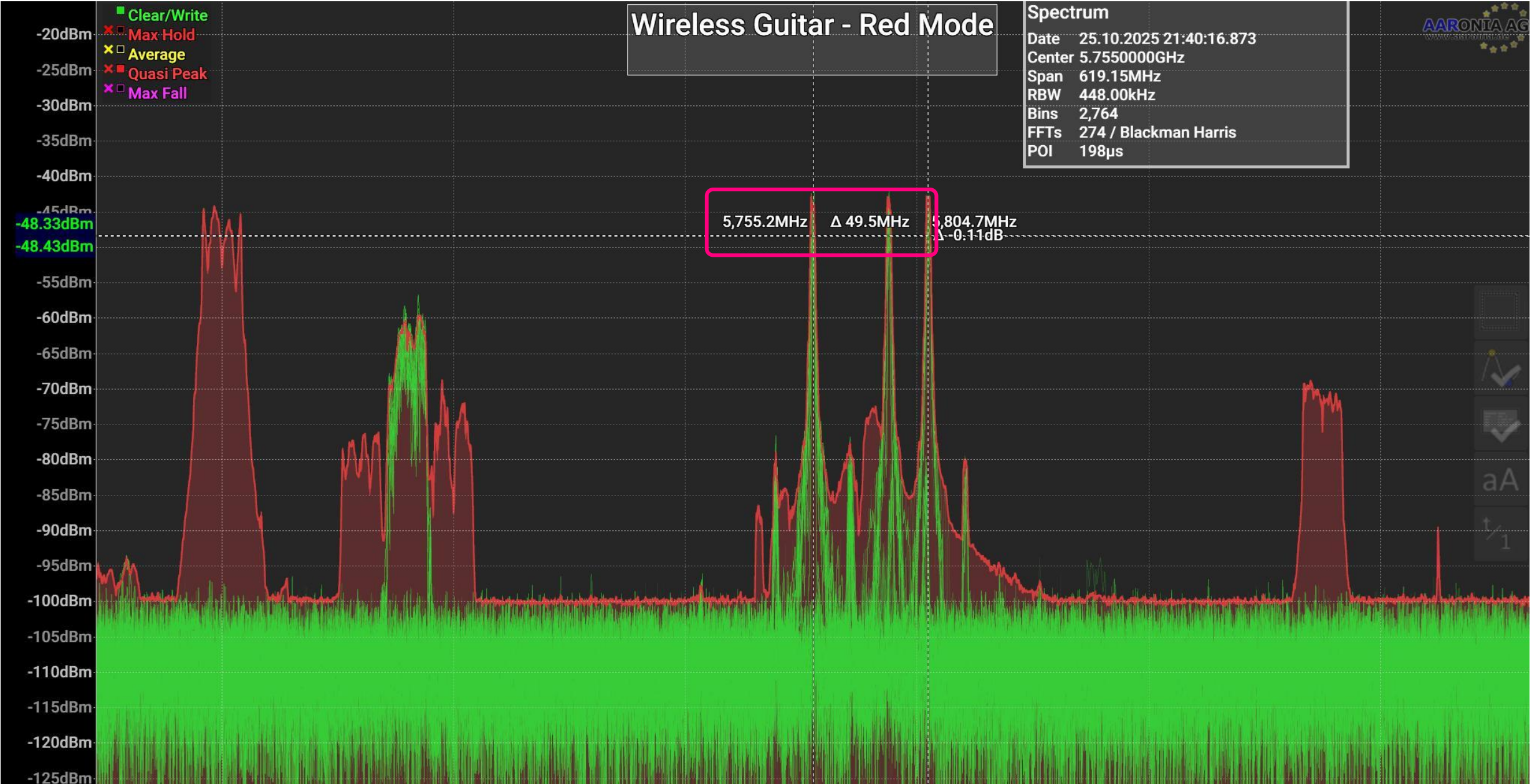
Bundles with this item ▾

- JOYO 5.8GHz Wireless Guitar System delivers much clear and stable quality of original guitar sound with lower noise, lower latency and little interruption than 2.4GHz cordless Guitar

Any musicians? (2/2)



50 MHz “wide”



Wireless Guitar - Red Mode

Spectrum

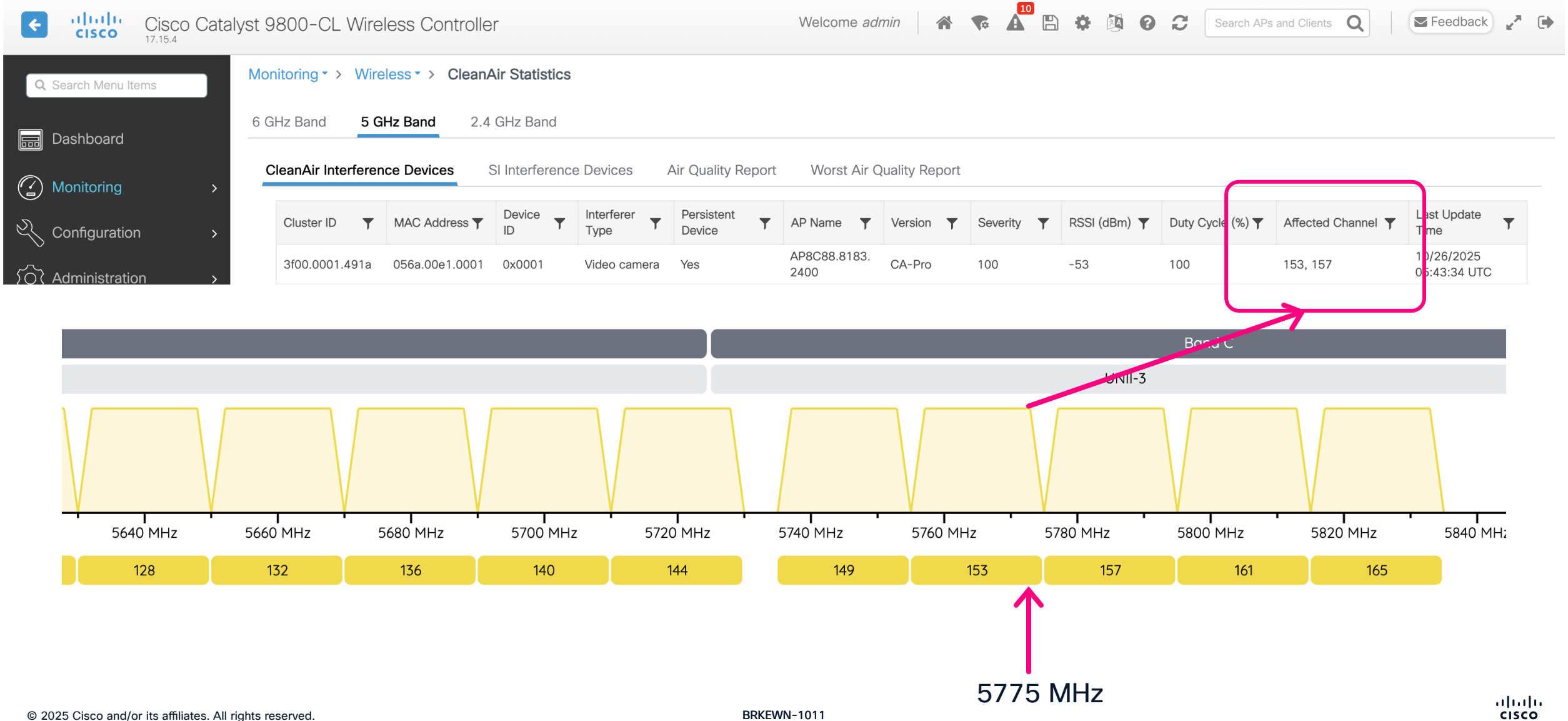
Date 25.10.2025 21:40:42.731
Center 5.7550000GHz
Span 619.15MHz
RBW 448.00kHz
Bins 2,764
FFTs 274 / Blackman Harris
POI 199μs

-47dBm
-48dBm
-49dBm
-50dBm
-51dBm
-52dBm
-53dBm
-54dBm
-55dBm
-56dBm
-57dBm
-58dBm
-59dBm
-60dBm
-61dBm
-62dBm
-63dBm
-64dBm
-65dBm
-66.28dBm
-66.81dBm
-68dBm
-69dBm
-70dBm
-71dBm

■ Clear/Write
✕ □ Max Hold
✕ □ Average
✕ □ Quasi Peak
✕ □ Max Fall

Δ 3.49MHz
5,753.16MHz 5,756.64MHz
Δ -0.53dB

What does the WLC see?



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BRKEWN-1011



New entries in the 5 GHz space..

(Please help me convince my boss that I need a vision pro 😁)

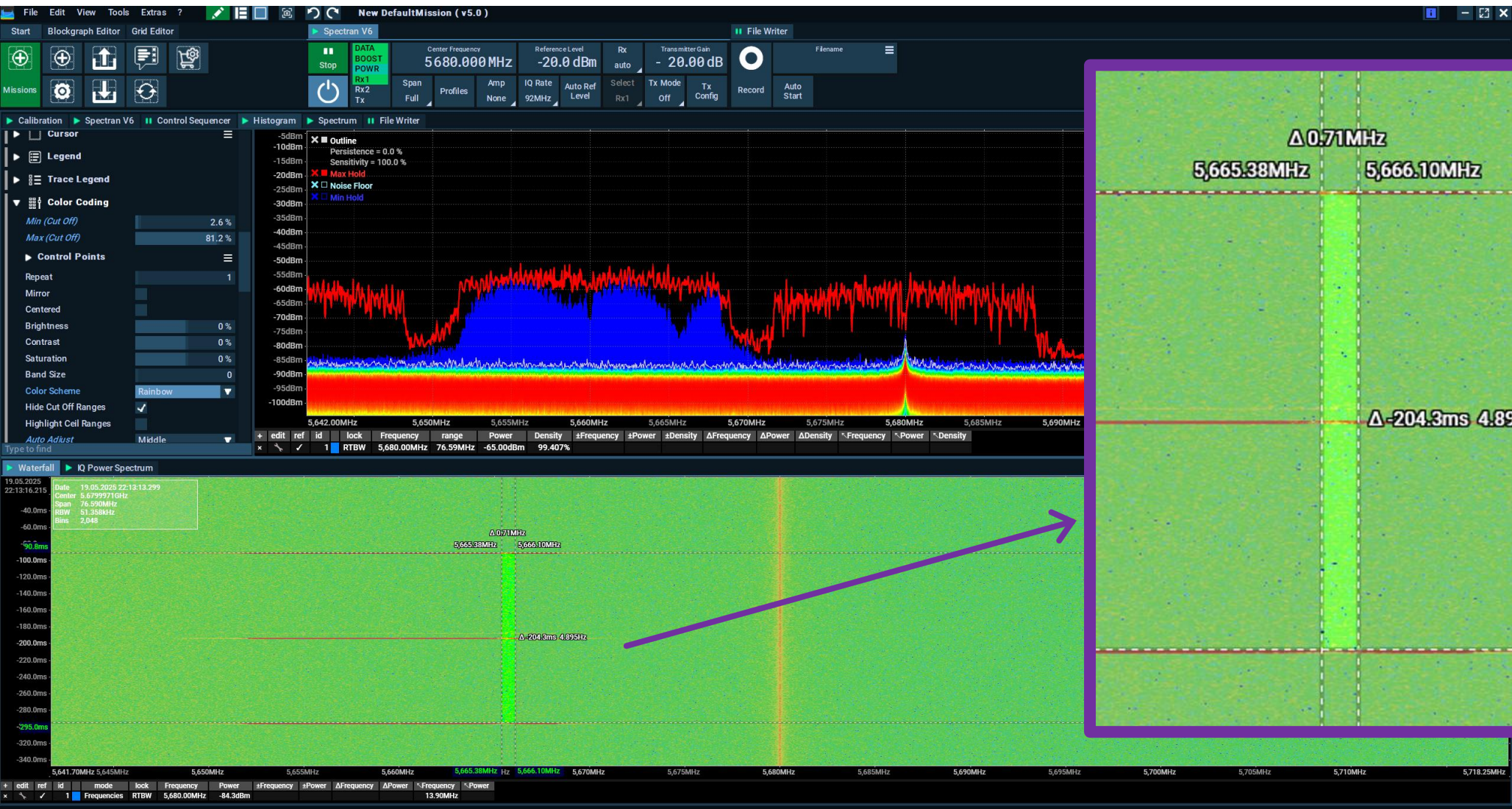
"To bring lossless and ultra-low latency audio to Vision Pro, many things have to work right. **Shorter latency and lossless means bigger bandwidth, so you need a much more pristine wireless pipe to communicate between the two.** And with the new AirPods Pro, we are able to run it at 5 GHz, right? While the Lightning model runs at 2.4 GHz, which is quite a messy and noisy airspace. I take Wi-Fi, for example, all the routers you buy today are dual-band or tri-band because 2.4 is very noisy, but 5 GHz is much cleaner. **And so Apple Vision Pro and AirPods Pro are able to communicate at 5 GHz,** in addition to the H2 chip, allowing us to build a new audio protocol.



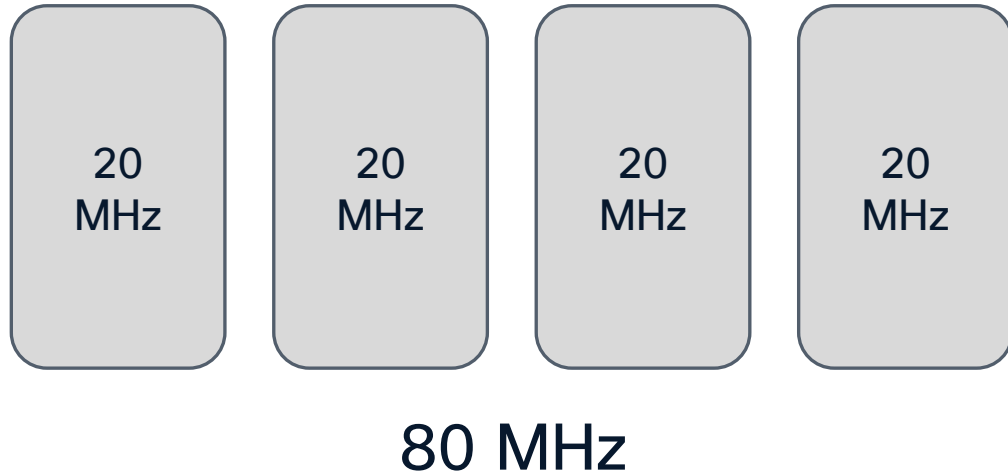
Photo from Apple.com

Wi-Fi 7

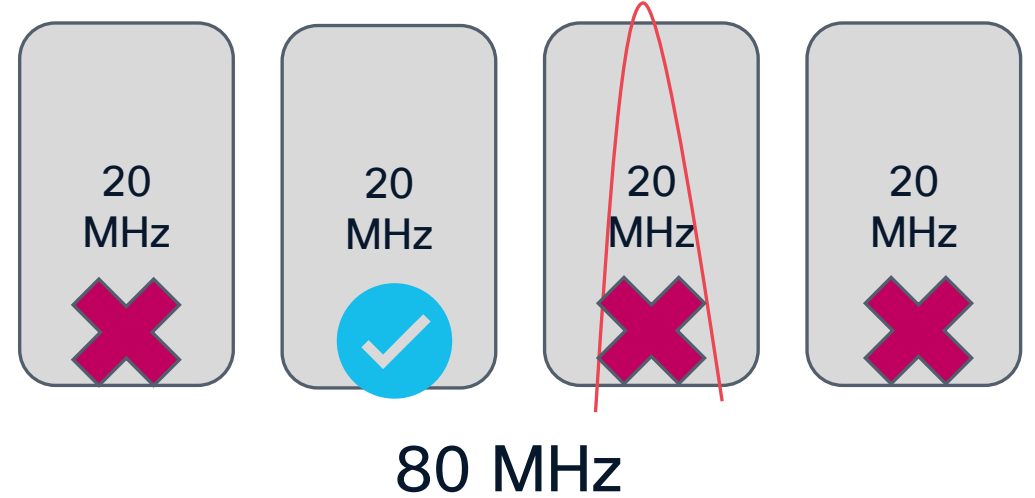
Beacon timing



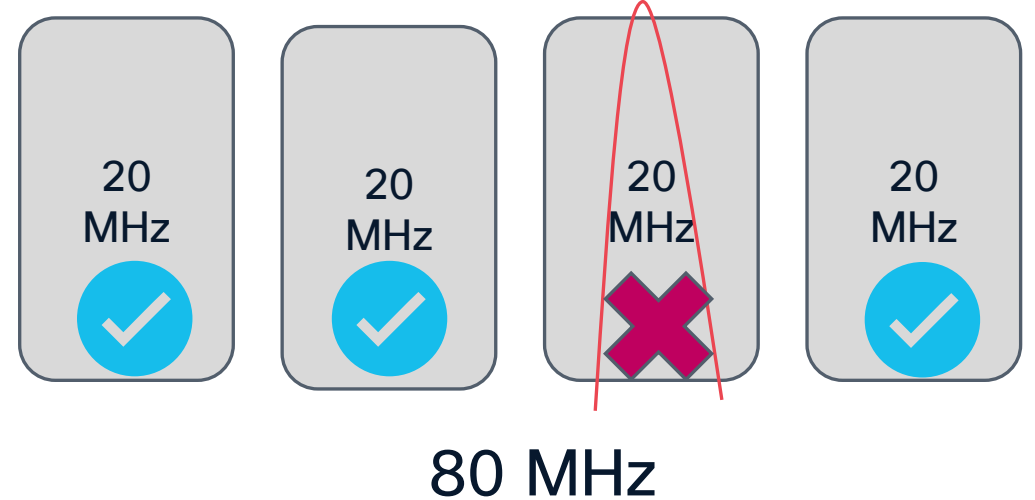
Preamble puncturing



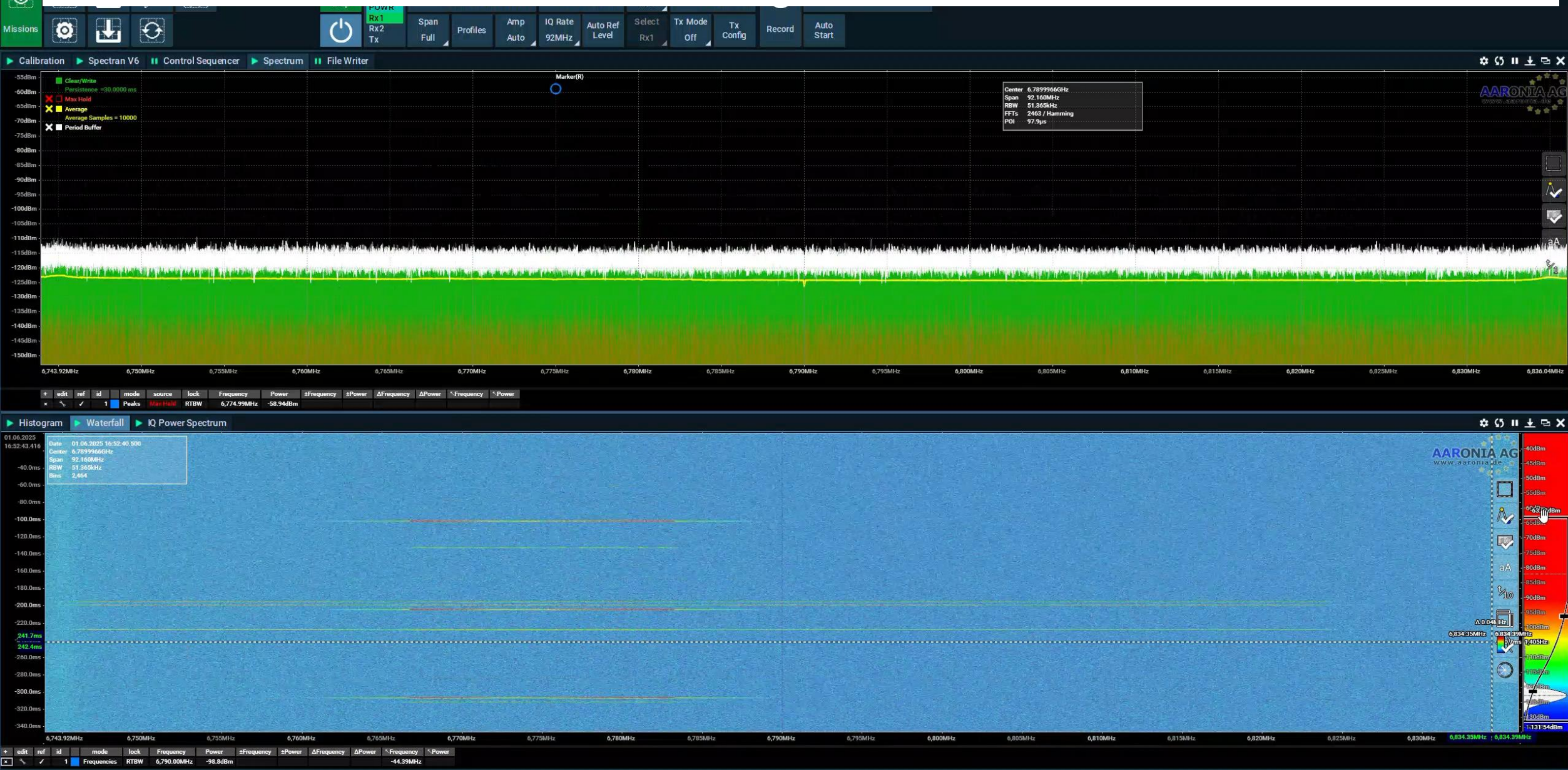
Without puncturing – fall back to 20 MHz



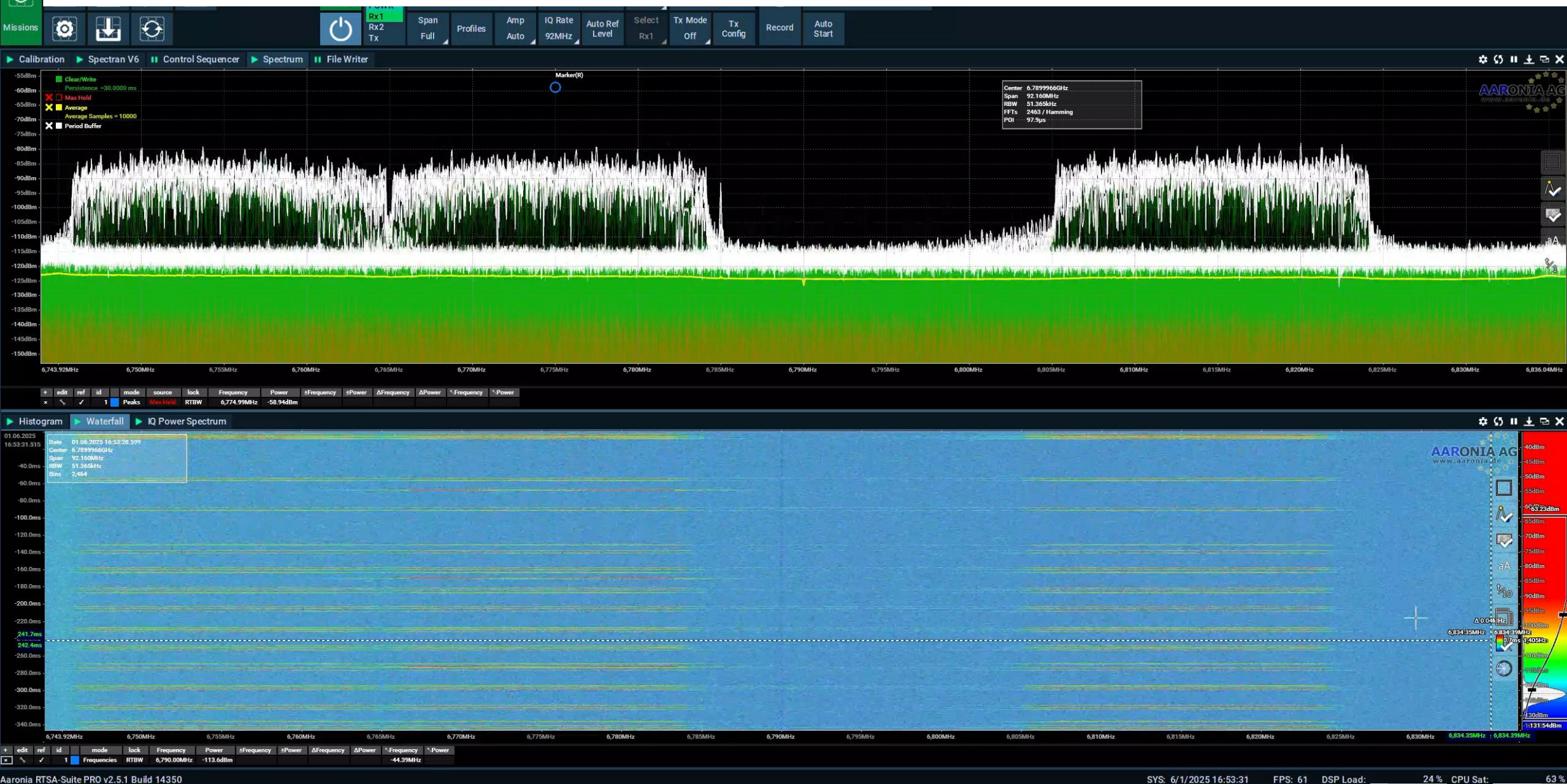
With puncturing – work around, use 60 MHz



Demo - 80 MHz wide 6GHz channel, no puncturing



Demo - 80 MHz wide 6GHz channel, with puncturing



Static puncturing

Cisco Catalyst 9800-CL Wireless Controller
17.15.3

Welcome admin

Dashboard
Monitoring
Configuration
Administration
Licensing
Troubleshooting

Configuration > Tags & Profiles > RF/Radio

RF
Radio

+ Add
- Delete
Clone

	State	RF Profile Name	Band
☐	↑	rfp-puncture	6 GHz
☐	↑	default-rf-profile-6ghz	6 GHz
☐	↑	Low_Client_Density_rf_5gh	5 GHz
☐	↑	High_Client_Density_rf_5gh	5 GHz
☐	↑	Low_Client_Density_rf_24gh	2.4 GHz
☐	↑	High_Client_Density_rf_24gh	2.4 GHz

Edit RF Profile

General
802.11
RRM
Advanced
802.11ax
802.11be

Preamble Puncturing

ENABLED

1. Create RF profile for band = 6 GHz
2. Enable preamble puncturing
3. Use test command (at own risk)

```

c9800-1715#test wireless ap name 1540-sniff dot11 6ghz slot 2 puncture <channel> <bw>
c9800-1715#test wireless > ap name 1540-sniff dot11 6ghz slot 2 puncture 169 20
c9800-1715#test wireless ap name 1540-sniff dot11 6ghz slot 2 puncture clear

```

Dynamic puncturing is in the works!

MLO - Demo

Observe channel **64** in 5 GHz

Observe channel **101** in 6 GHz

What we will see

Client performs speedtest.

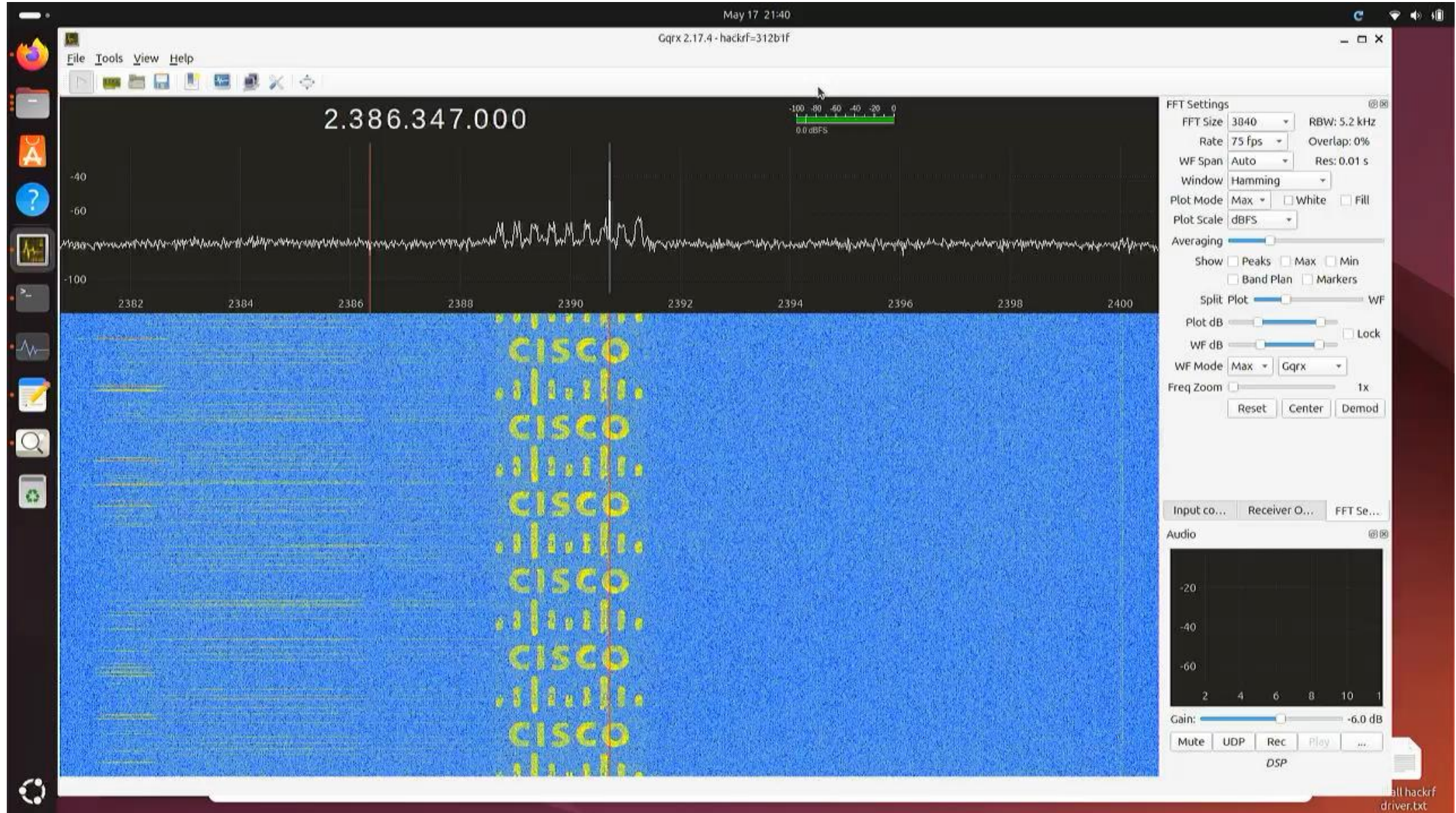
First, downlink speed is tested -
traffic is only observed on 6 GHz

Then, uplink speed is tested - traffic
is seen in both 5 and 6



Bonus: Some fun

This was not actually transmitted over the *air* but via a cable



Questions?



Complete your session evaluations



Complete a minimum of 4 session surveys and the Overall Event Survey to claim a Cisco Live T-Shirt.



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Level up and earn exclusive prizes!



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Contact me: nswiatec@cisco.com or via Webex

Thank you

CISCO Live !

