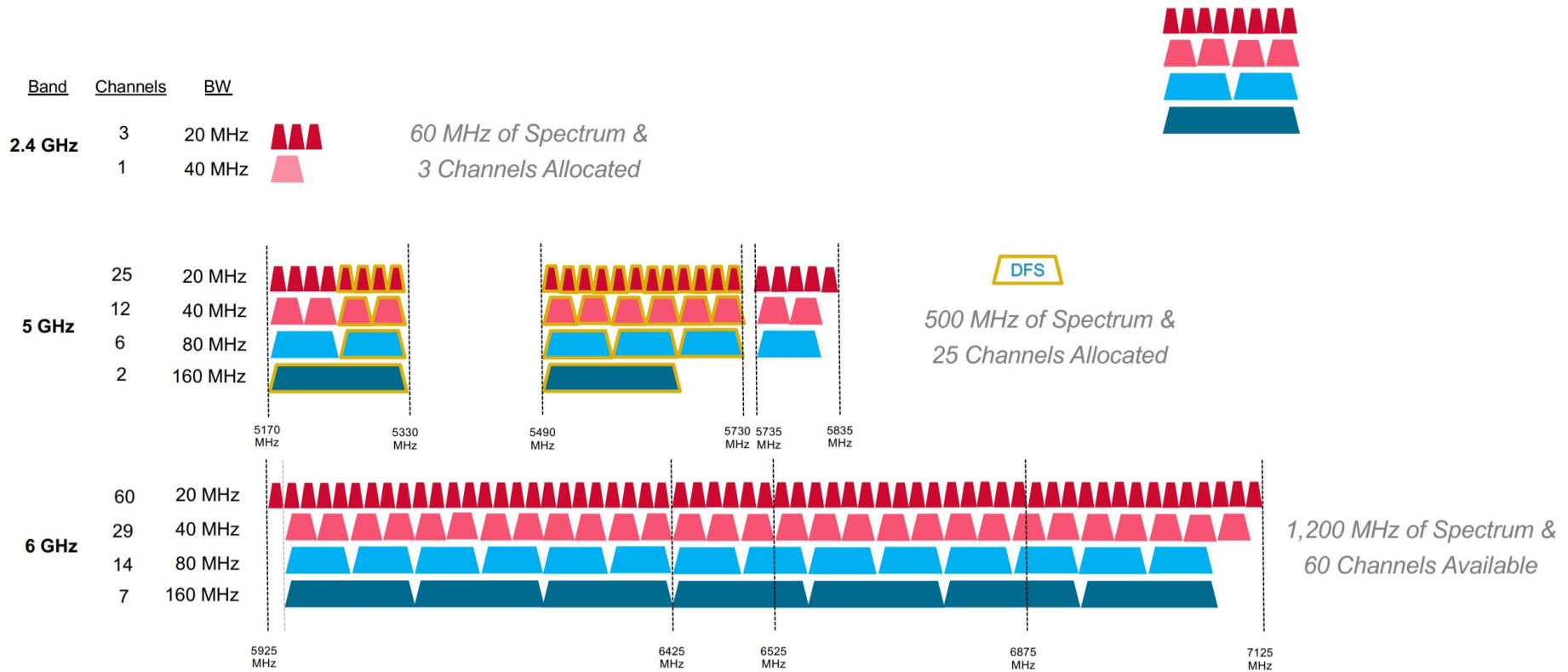


De ce Wi-Fi 6E?

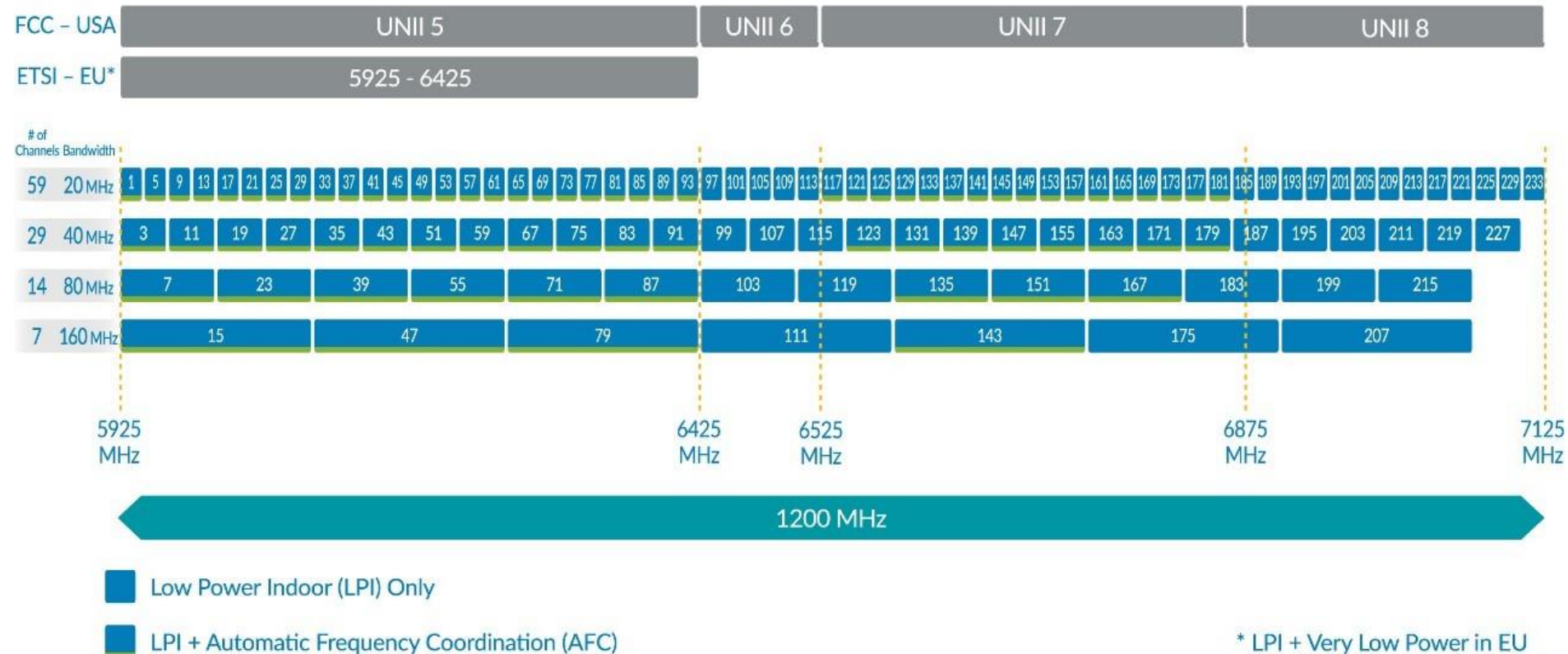
Bogdan Cojocaru
Inginer – Specialist Wi-Fi

Spectru Wi-Fi



Ce este nou la Wi-Fi 6E?

Alocarea canalelor in banda 6 GHz



- Opereaza in banda 6 GHz – 5925-7125 Mhz. In EU doar in banda 5925-6425 MHz.
- Are 3 profile pentru echipamente in functie de puterea emisa.
- Latenta < 1 ms
- Modulatie OFDMA - Orthogonal Frequency Division Multiple Access
- Securitate imbunatatita WPA3
- Functie economie energie pentru echipamente IoT
- Viteza 1200Mbps pe un singur canal de 160MHz

Aplicabilitate

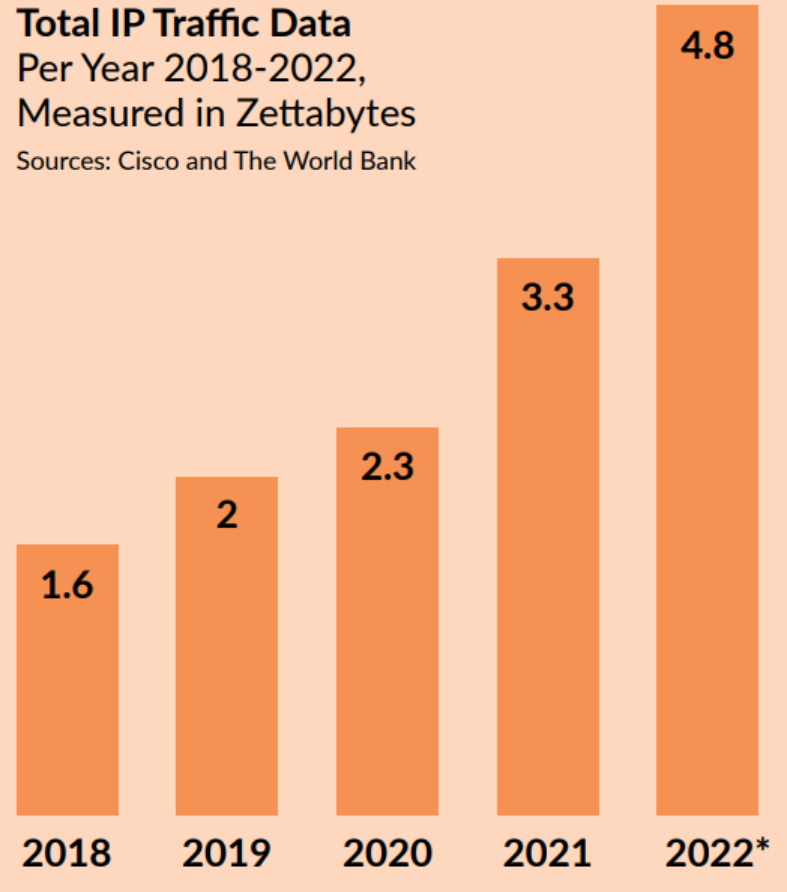
Medii cu densitate mare de dispozitive Wi-Fi:

- Locuinte
- Industrial
- Birouri
- Spitale
- Scolii



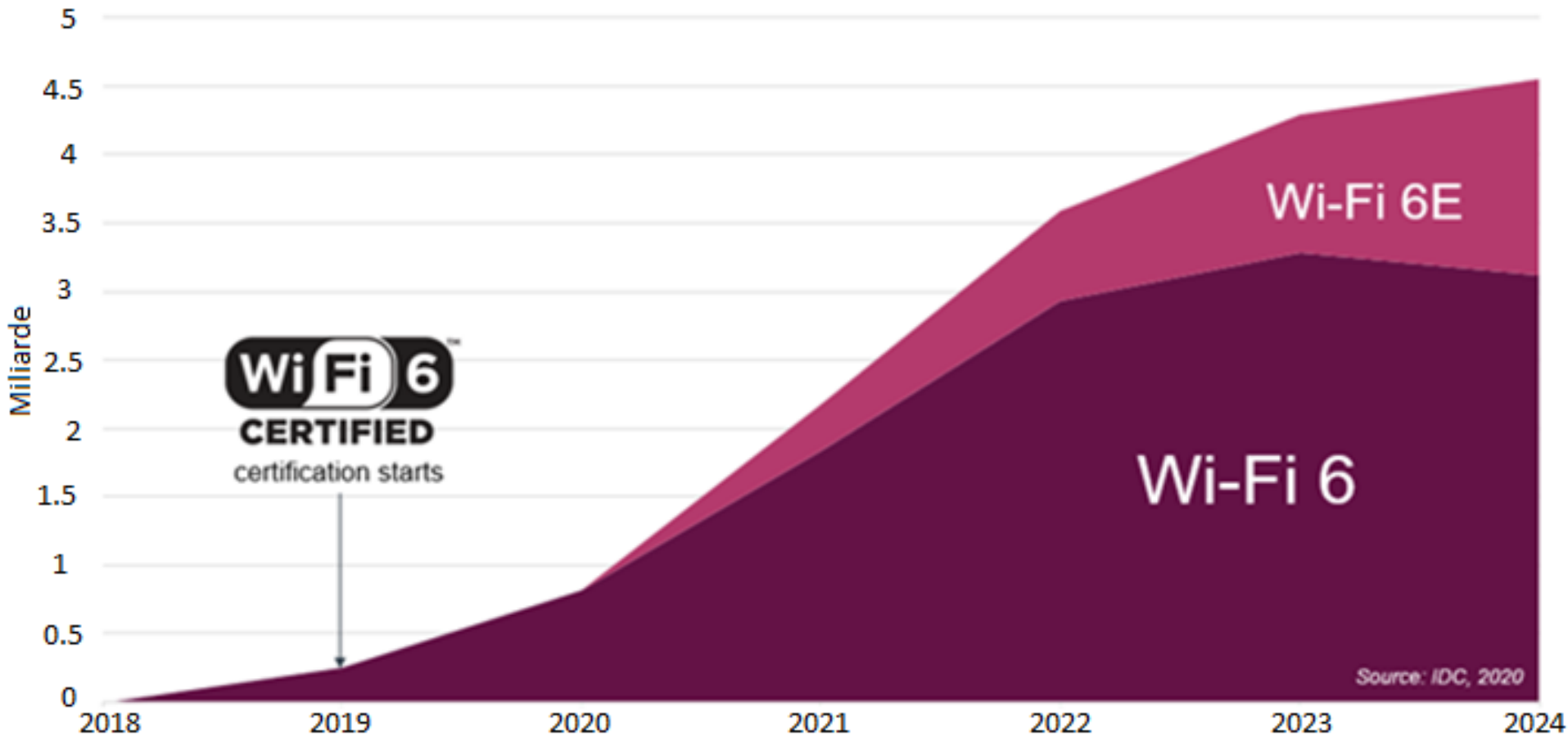
Total IP Traffic Data
Per Year 2018-2022,
Measured in Zettabytes

Sources: Cisco and The World Bank



Aplicabilitate

Forecast livrare echipamente Wi-Fi 6



Source: IDC, 2020

Aplicabilitate

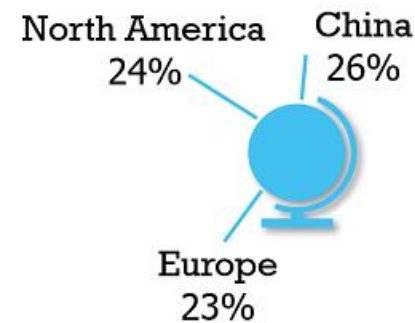
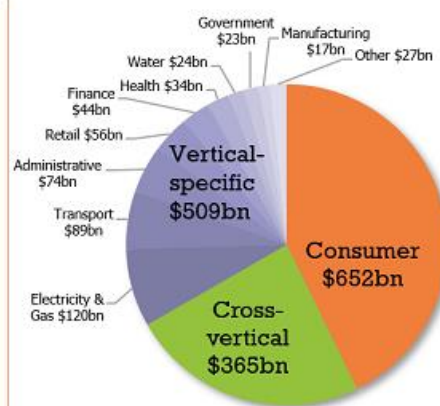
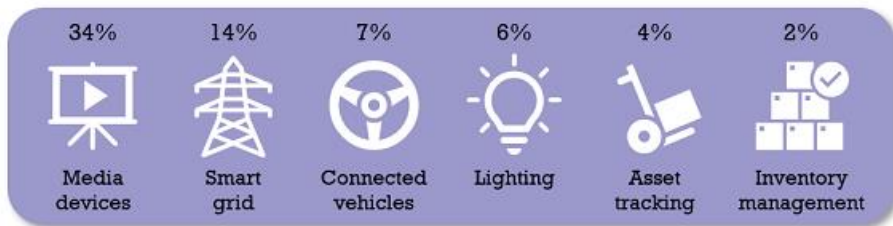
The Internet of Things (IoT) Market 2019-2030

24.1 billion

IoT connected devices in 2030 (7.6bn 2019)

\$1.5 trillion

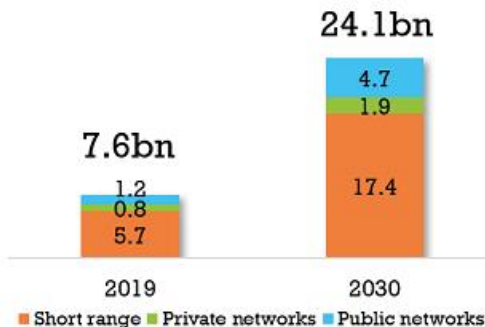
IoT revenue in 2030 (\$465bn 2019)



TRANSFORMA
INSIGHTS

transformainsights.com

[@transformatweet](https://twitter.com/transformatweet)



Particularitati in proiectarea si verificarea Wi-Fi 6E

- ▷ Atenuarea frecventei 6GHz este mai mare decat pe 5GHz.
- ▷ Absortia si reflectanta sunt diferite
- ▷ Exista 3 profile de putere pentru AP-uri si dispozitive.
- ▷ Regiunea in care se implementeaza reseaua Wi-Fi

Instrumente profesionale pentru Wi-Fi

Solutia Ekahau pentru proiectare si depanare retele Wi-Fi 2.4, 5 si 6 GHz



Ekahau AI PRO si Sidekick II cu suita Connect

Instrumente profesionale pentru Wi-Fi

Ekahau AI PRO

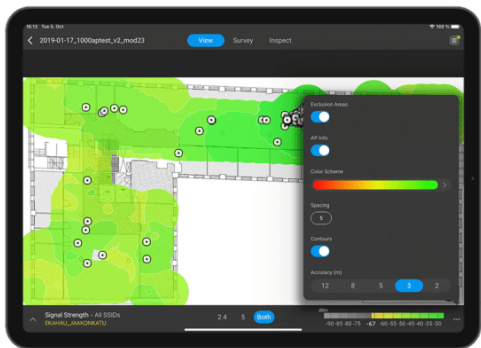


Ekahau AI Pro™ este solutia ideala pentru a proiectarea si verificarea retelelor profesionale Wi-Fi.

- Realizeaza, asistat de AI, modele predictive de retele wireless
- Ruleaza simularii de retea pentru a testat performanata
- Inspecteaza datele in timp real si pe cele colectate
- Genereaza rapoarte personalizate care detaliaza starea de sanatate a performantei retelei dvs

Instrumente profesionale pentru Wi-Fi

Suita Connect



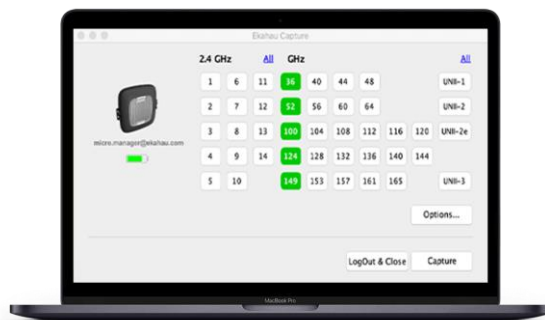
Ekahau Survey



Ekahau Analyzer



Ekahau Insights



Ekahau Capture



Ekahau Cloud

Instrumente profesionale pentru Wi-Fi

Sidekick II

- 4 module radio enterprise cu 3 benzi de frecventa: 2.4, 5 si 6 GHZ
- 9 antene de banda larga special proiectate
- Analizor spectru cu 50 masuratori pe secunda
- Acumulator de capacitate mare: 16 ore autonomie
- Racire activa silentioasa
- Conectivitate USB-C



Retele Wi-Fi in 3 pasi

1. Proiectare



Ekahau AI PRO

2. Validare



Sidekick II si
Ekahau Survey

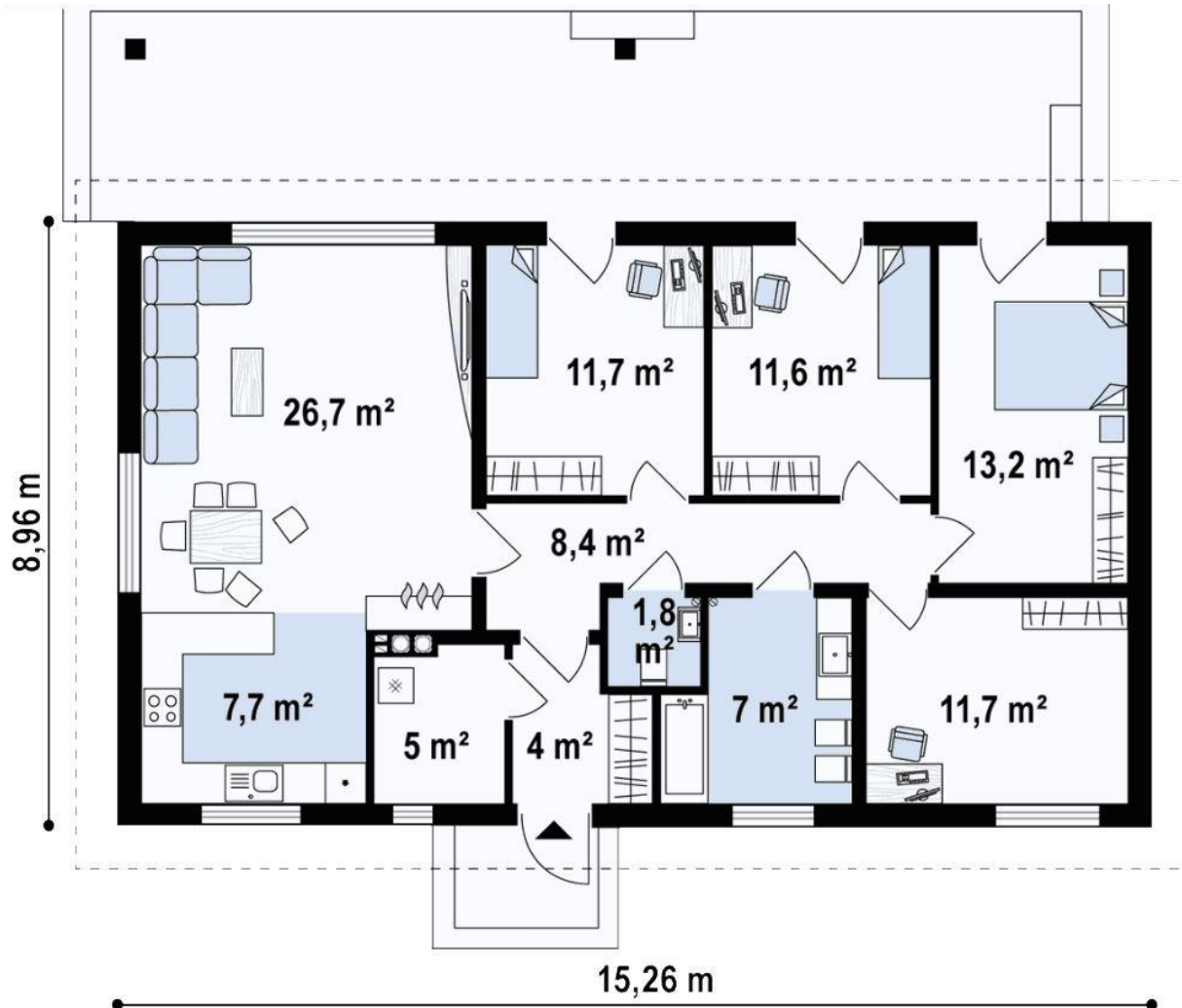
3. Depanare



Sidekick si suita
Connect

Instrumente profesionale pentru Wi-Fi

Exemplu design si survey retele Wi-Fi 2.4, 5 si 6 GHz



Informatii necesare pentru realizarea modelului predictiv

- Acoperirea primară
- Acoperirea secundară (suprapunere)
- Alocarea canalelor de frecventa
- Interferente intercanal
- Identificarea zonelor cu densitate mare
- Viteza de transfer a datelor

Dupa implementare este obligatoriu sa se realizeze verificarea retelei Wi-Fi - site survey.

Instrumente profesionale pentru Wi-Fi

Exemplu design si survey retele Wi-Fi 2.4, 5 si 6 GHz

Capacitatea retelei a fost dimensionata pentru:

- 4 laptop-uri
- 6 telefoane mobile
- 1 frigider
- 4 unitati AC
- 3 TV
- 6 camere Wi-Fi

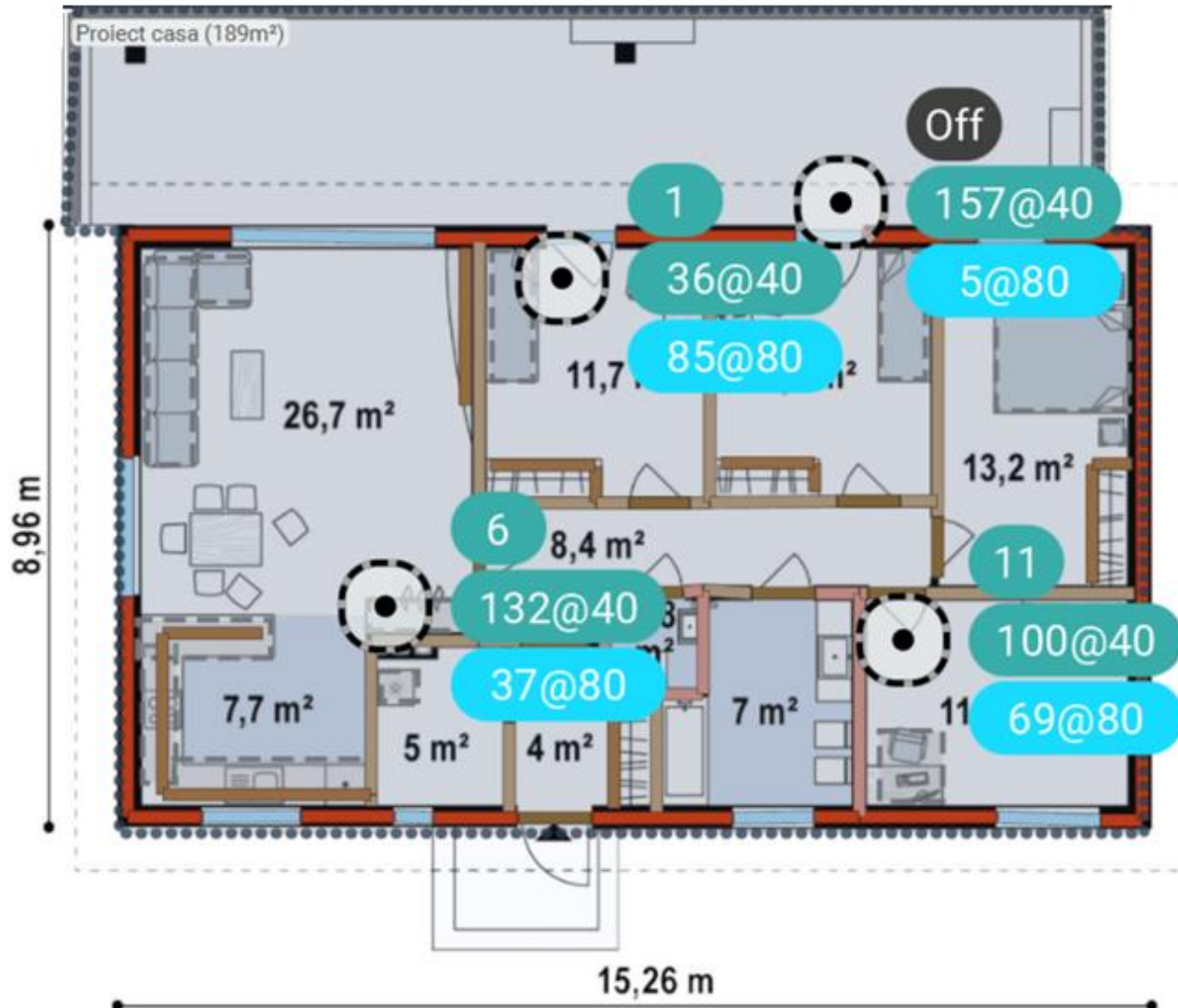
The screenshot displays the 'AREA OPTIONS FOR PROIECT CASA (189M²)' window. It features a dark theme with a blue accent color. At the top, there are tabs for 'Options' and 'Notes (0)'. Below this, the 'Name' field is set to 'Proiect casa' and the 'Coverage profile' is set to 'Ekahau Best Practices'. The 'Devices' section shows a total of 24 devices with a total bitrate of 35.0 Mbps. A list of six device types is shown, each with a quantity, a name, a frequency band, a service type, and a 'Delete' button. The device list is as follows:

Quantity	Device Name	Frequency	Service Type	Action
4	Generic Wi-Fi 6E Laptop	Wi-Fi 6 2x2:2 160MHz	High SLA (4 Mbps)	Delete
6	Generic Wi-Fi 6E Smart...	Wi-Fi 6 2x2:2 160MHz	Normal SLA (2 Mbps)	Delete
1	Frigider	Wi-Fi 6 2x2:2 80MHz	Background Sync	Delete
4	AC	Wi-Fi 6 2x2:2 80MHz	Background Sync	Delete
3	TV	Wi-Fi 6 2x2:2 80MHz	Background Sync	Delete
6	WI-camera	Wi-Fi 6 2x2:2 80MHz	Background Sync	Delete

At the bottom right of the window is a 'Close' button.

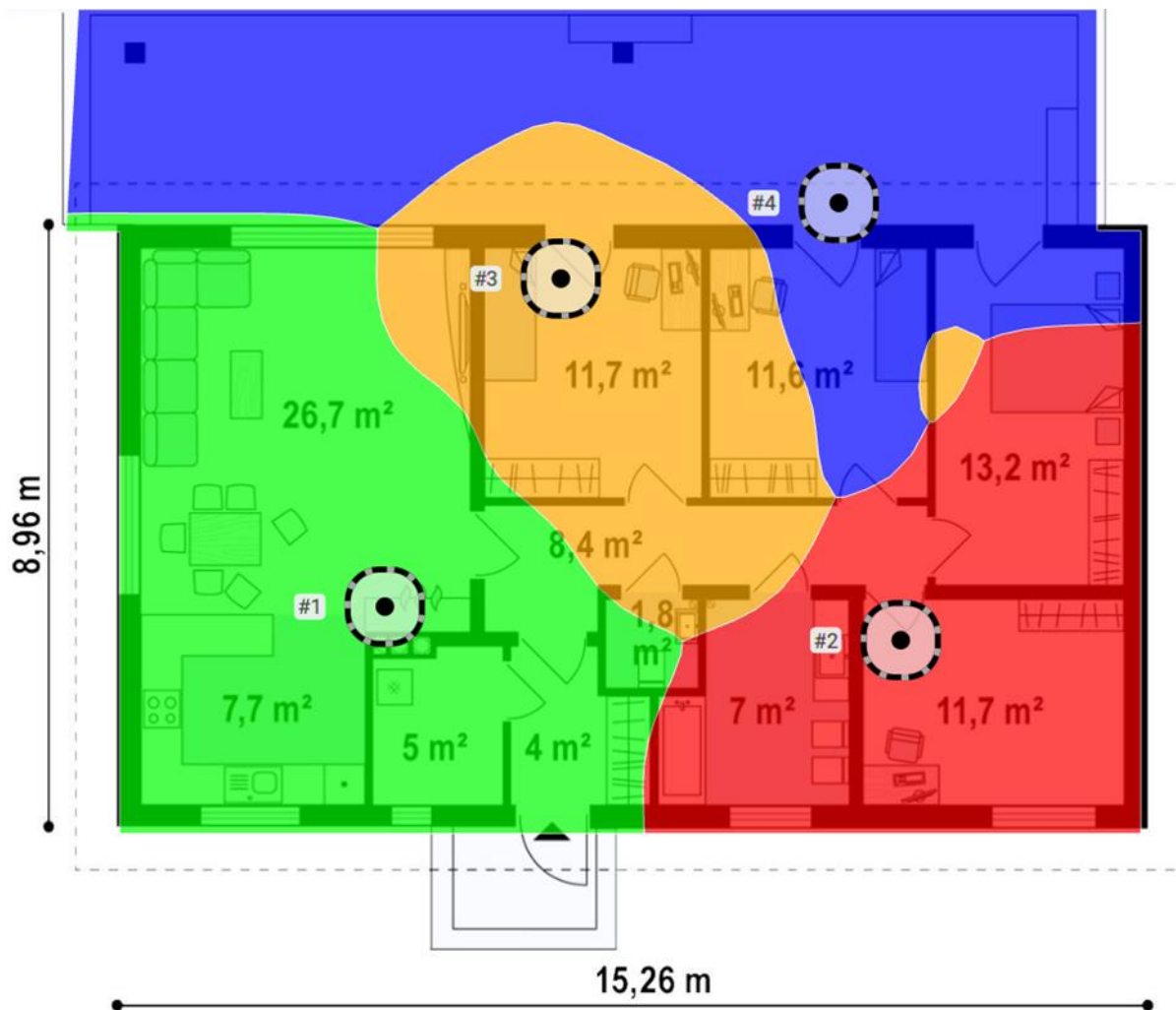
Instrumente profesionale pentru Wi-Fi

Exemplu design si survey retele Wi-Fi 2.4, 5 si 6 GHz



Instrumente profesionale pentru Wi-Fi

Pozitia AP-uri

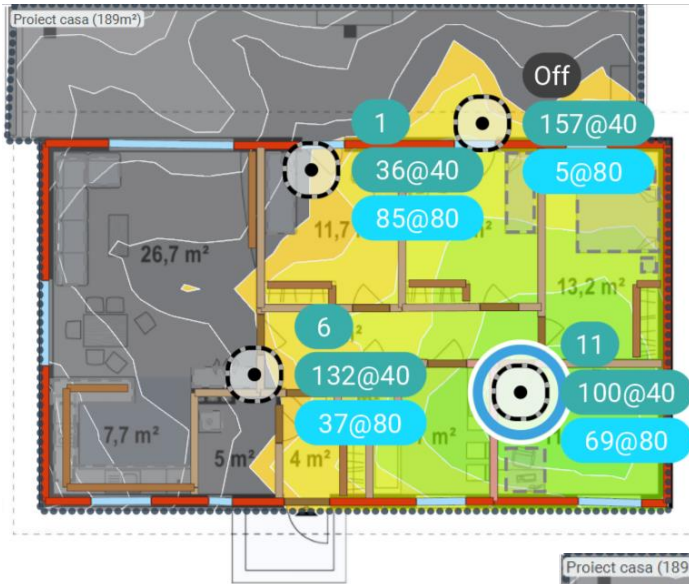


Tip AP utilizat: Cisco Catalyst 9164

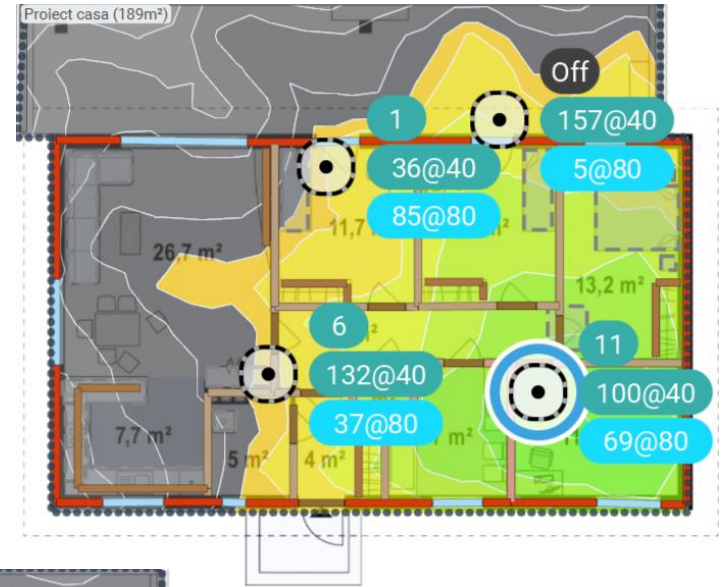
Instrumente profesionale pentru Wi-Fi

Acoperirea unui singur AP

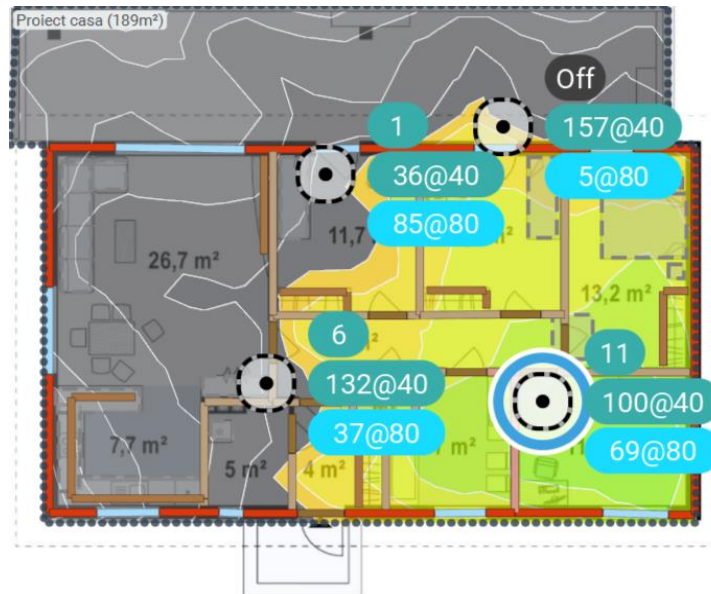
2.4 GHz



5 GHz



6 GHz



Instrumente profesionale pentru Wi-Fi

Harta retea primara

2.4 GHz



5 GHz



6 GHz



≤ -90 dBm -67 ≥ -30 dBm

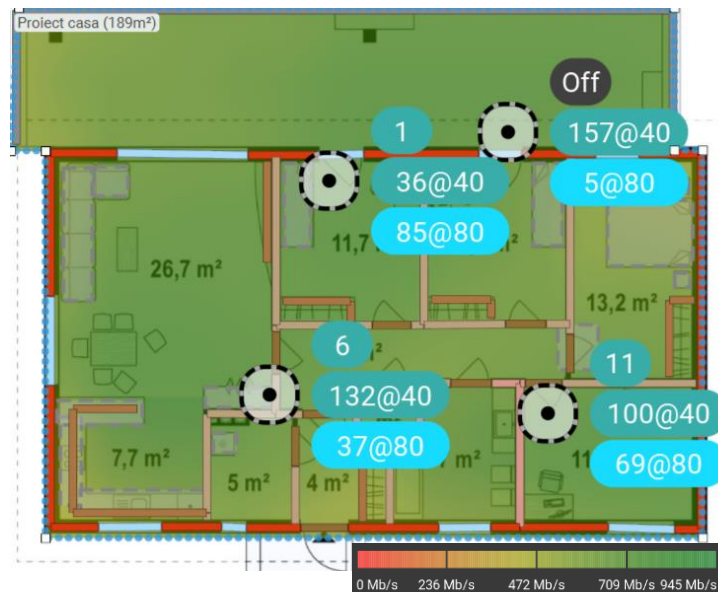
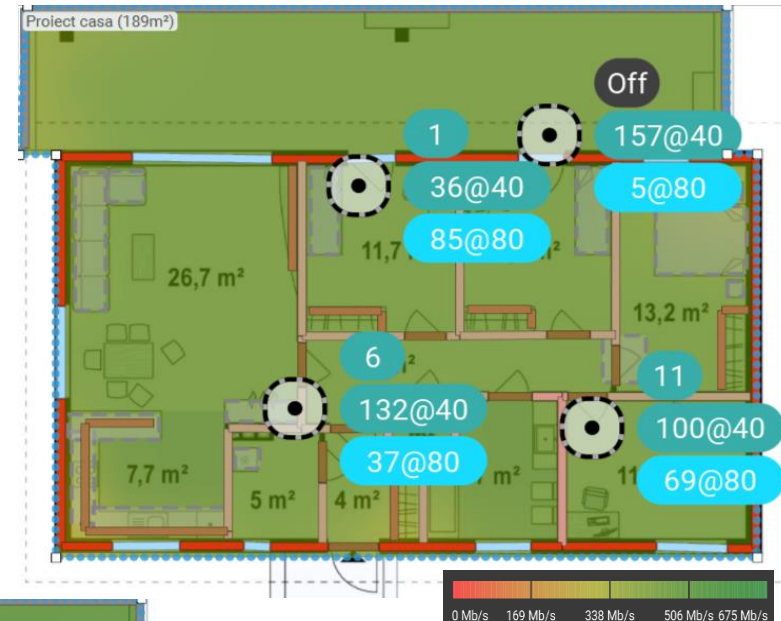
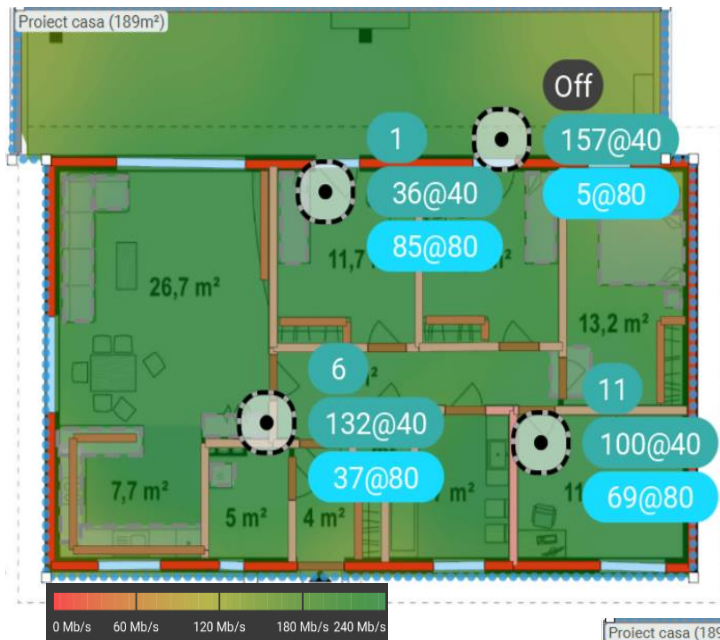
Instrumente profesionale pentru Wi-Fi

2.4 GHz

Rata de transfer

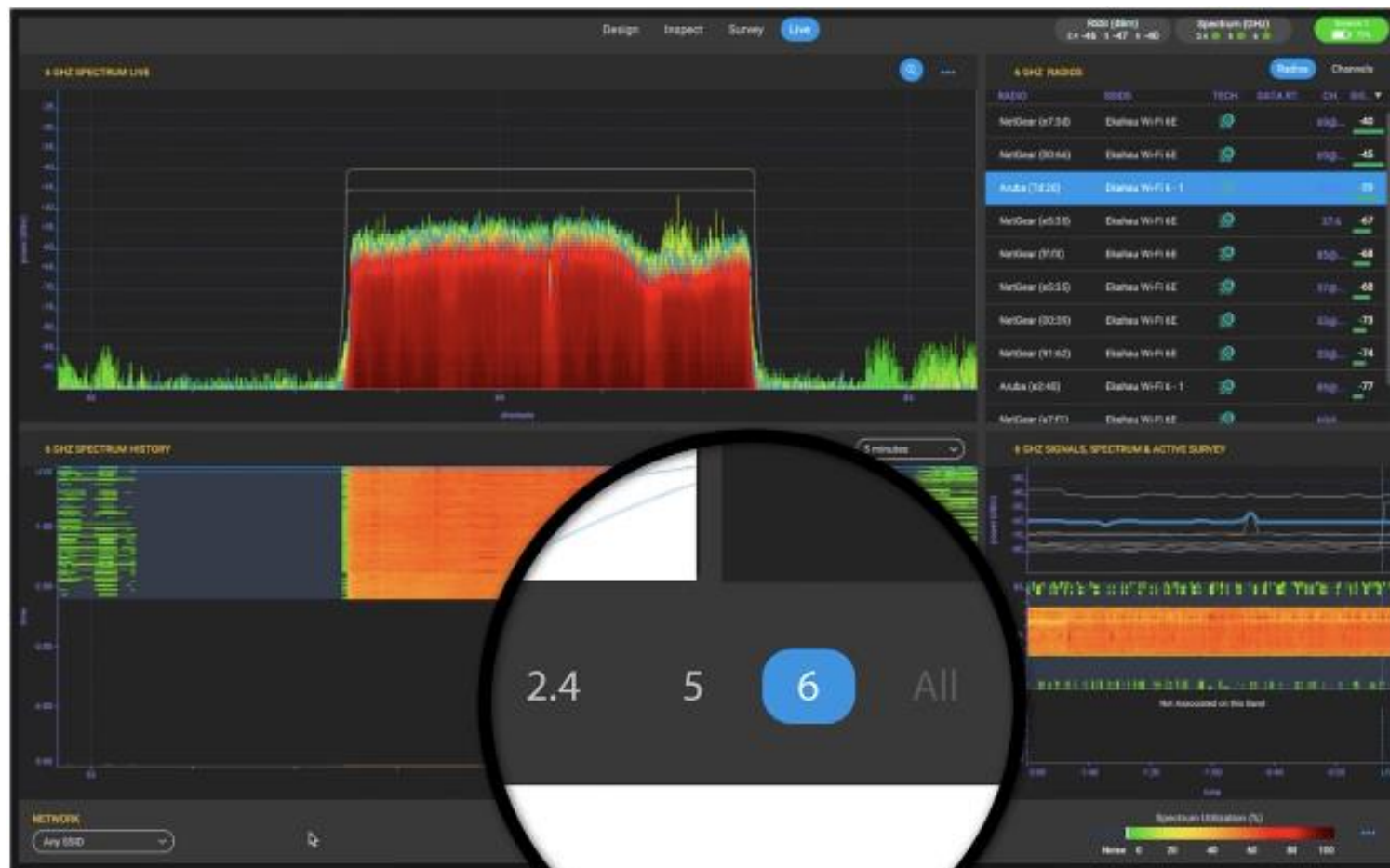
5 GHz

6 GHz



Instrumente profesionale pentru Wi-Fi

Validare retea Wi-Fi cu Sidekick II



Sfârșit

Vă mulțumesc pentru atenție!