



WIFI DESIGN REPORT

Demo office

2026-10-14

100 %

coverage 2.4 GHz

99 %

coverage 5 GHz

4

access points

17

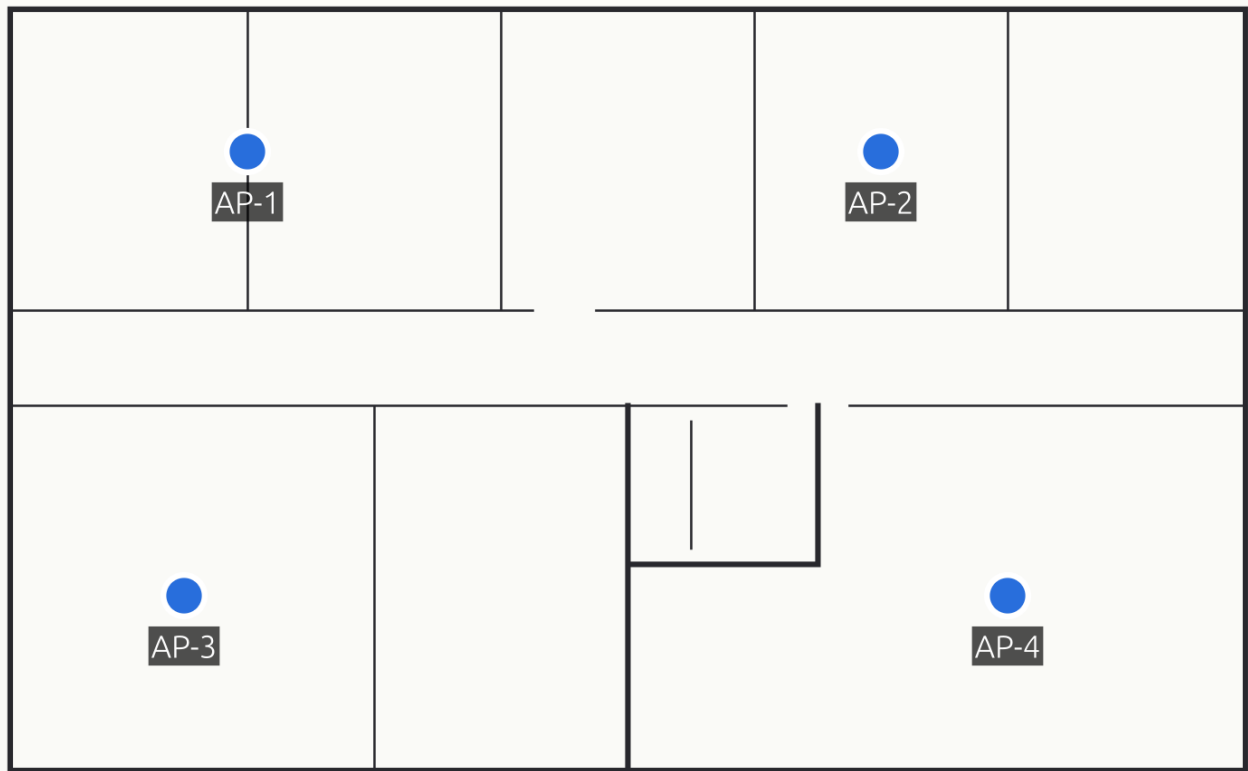
walls

936 m²

analysed area

Access point placement

Location of the 4 access points on the floor plan.





SUMMARY

Project data

Parameters used for the prediction and results per band.

Date	2026-10-14
Floor plan	40.0 × 25.0 m (1600 × 1000 px, 40.0 px/m)
Access points	4
Walls	17
Requirements	signal $\geq$ -67 dBm, SNR $\geq$ 25 dB, CCA -82 dBm
Propagation model	log-distance, n = 2.0 / 2.0 / 2.0 (2.4 / 5 / 6 GHz), client height 1.0 m

Results by band

Band	Radios	Coverage	Coverage gaps	Overlap $\geq$ 2
2.4 GHz	4	100.0 %	0	0.0 %
5 GHz	4	99.5 %	1	0.0 %

BAND 2.4 GHZ

Heat maps · 2.4 GHz

Analysed area: inside the outline of the walls (936 m²).

100.0 %

meets the requirements

0

coverage gaps

0.0 %

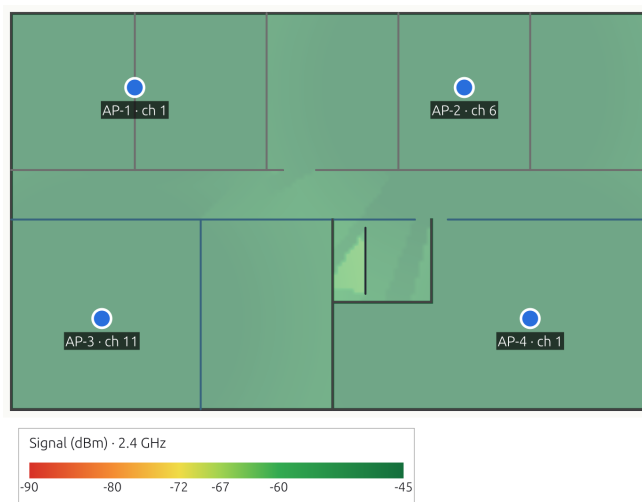
with 2+ overlapping
radios

4

enabled radios

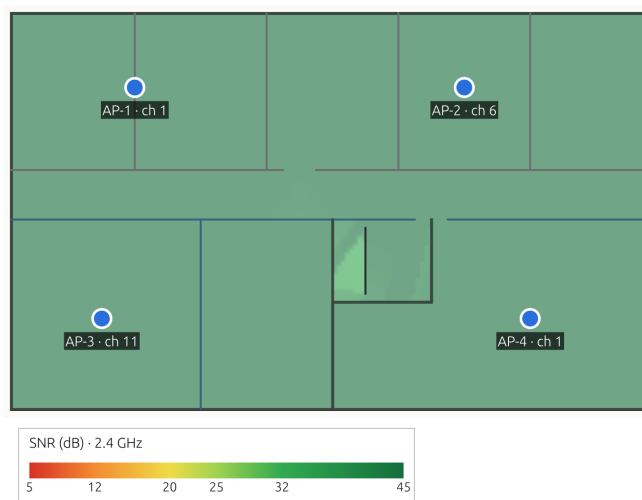
Signal strength

Power of the strongest AP at each point, in dBm. Closer to 0 is better; -67 dBm is typical for voice and video.



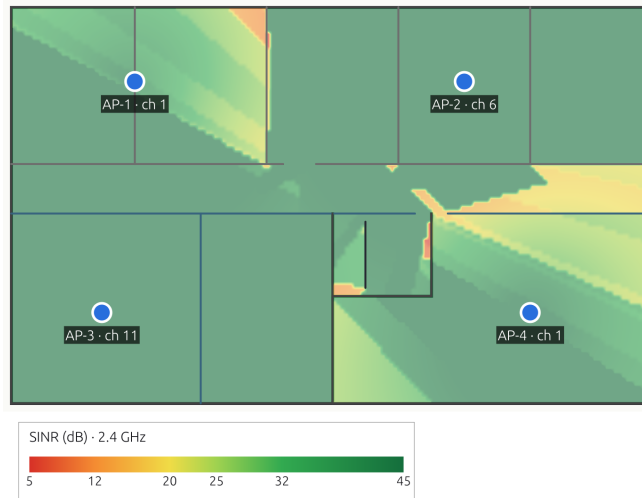
Signal-to-noise ratio (SNR)

How far the signal is above the noise floor, in dB. 25 dB or more allows fast, stable links.



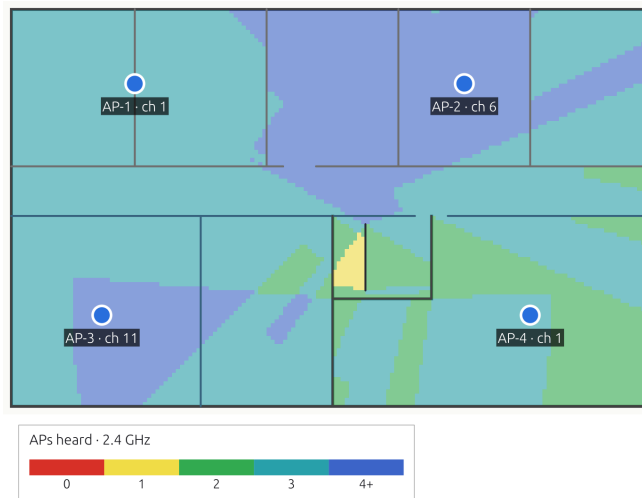
Signal-to-interference (SINR)

Like SNR, but also subtracting other APs on the same channel or on channels sharing spectrum. APs on different channels do not interfere.



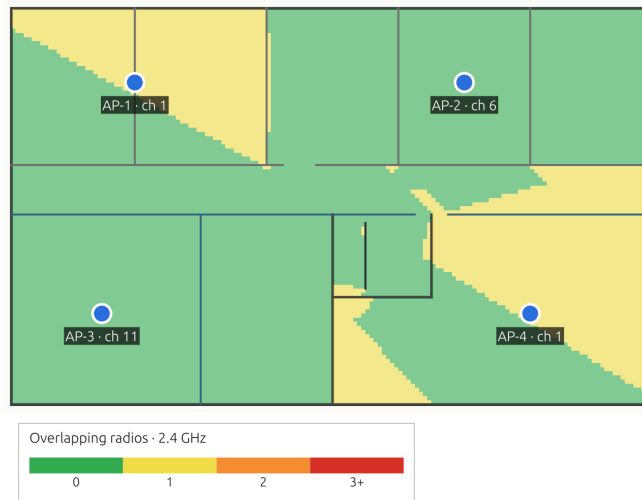
Number of APs heard

APs received at -67 dBm. or more. 2 or more give redundancy and smooth roaming.



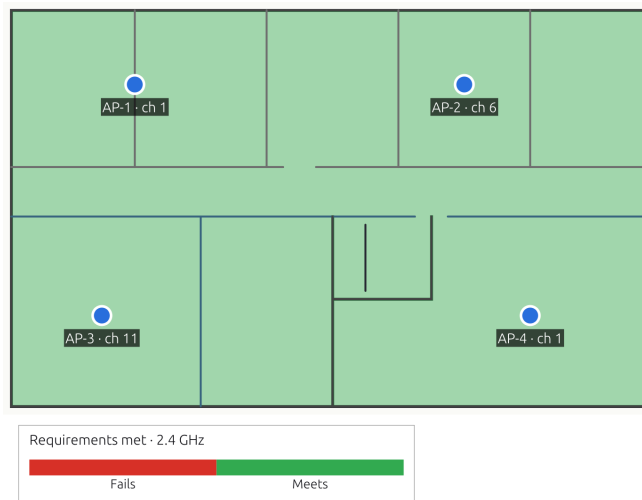
Channel overlap

Other radios on overlapping channels heard above -82 dBm. They share airtime; ideally 0 or 1.



Requirements met

Green where signal ≥ -67 dBm and SNR ≥ 25 dB. Areas that fail are numbered.



Recommendations

AP-1 and AP-4 hear each other on channel 1 (-76 dBm). Assign different channels if possible.

BAND 5 GHZ

Heat maps · 5 GHz

Analysed area: inside the outline of the walls (936 m²).

99.5 %

meets the requirements

1

coverage gaps

0.0 %

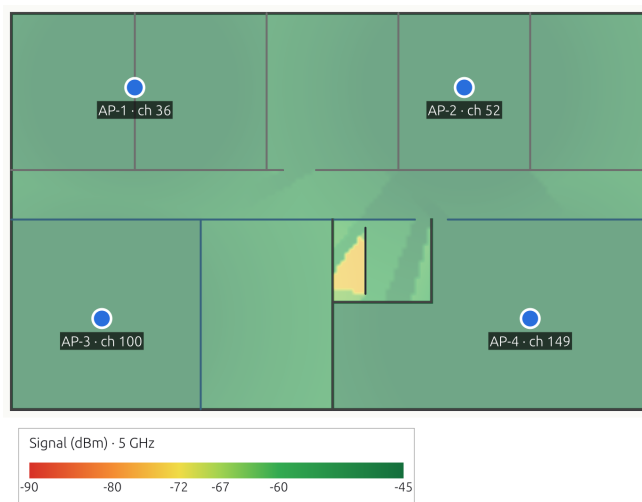
with 2+ overlapping
radios

4

enabled radios

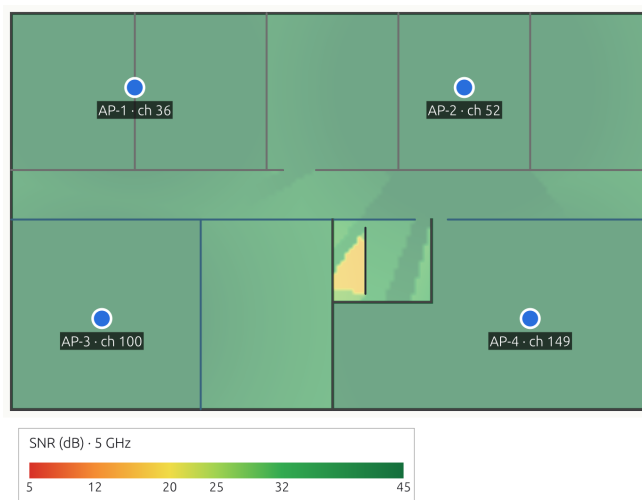
Signal strength

Power of the strongest AP at each point, in dBm. Closer to 0 is better; -67 dBm is typical for voice and video.



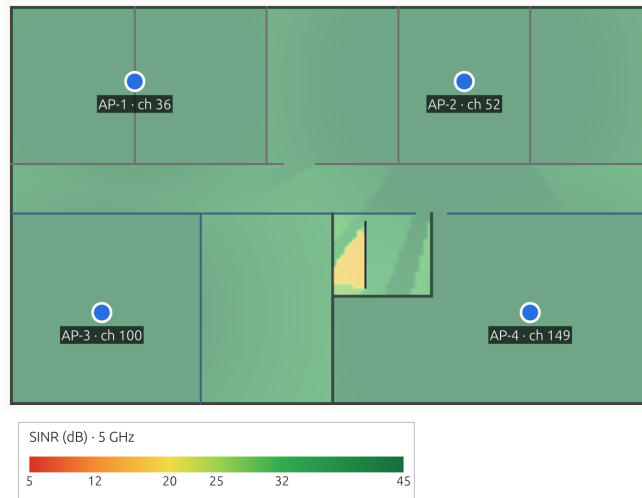
Signal-to-noise ratio (SNR)

How far the signal is above the noise floor, in dB. 25 dB or more allows fast, stable links.



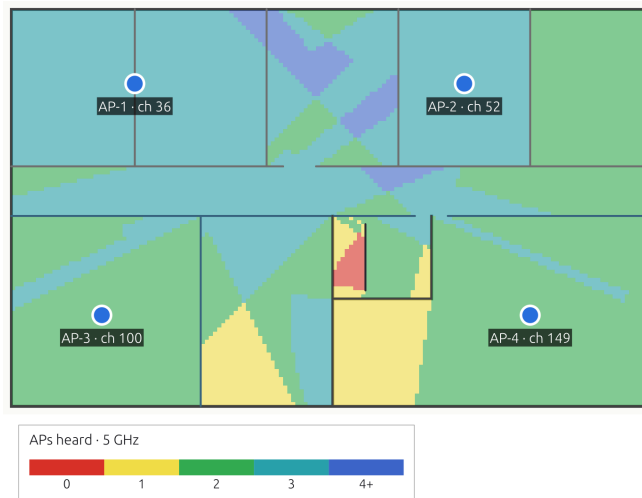
Signal-to-interference (SINR)

Like SNR, but also subtracting other APs on the same channel or on channels sharing spectrum. APs on different channels do not interfere.



Number of APs heard

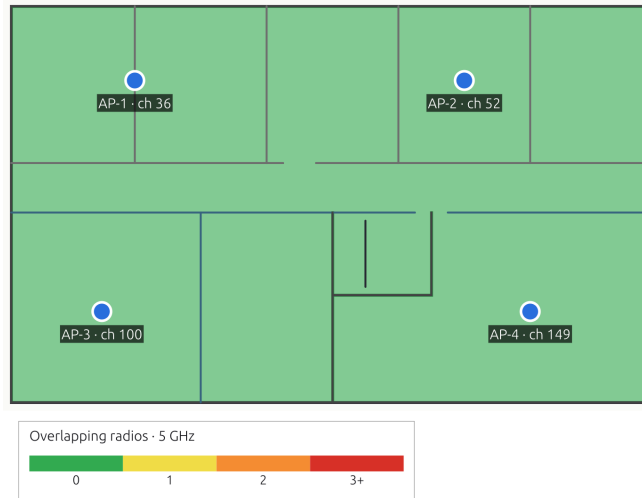
APs received at -67 dBm. or more. 2 or more give redundancy and smooth roaming.





Channel overlap

Other radios on overlapping channels heard above -82 dBm. They share airtime; ideally 0 or 1.



Requirements met

Green where signal ≥ -67 dBm and SNR ≥ 25 dB. Areas that fail are numbered.



Areas with poor coverage

#	Area	Center (x, y)	Best signal
1	4.7 m ²	21.2, 16.1 m	-73 dBm

Recommendations

Coverage meets the target, but 1 small area(s) (4.7 m²) do not meet the requirements; see the table of areas.

INVENTORY

Access points

4 access points with their model, mounting and radios.

Name	Model	Position	Mounting	Radios (channel/width, Tx + gain = EIRP)
AP-1	Generic dual-band	8.0, 5.0 m	Ceiling 3.0 m	2.4 GHz ch 1/20: 14+3.0=17.0 dBm 5 GHz ch 36/40: 17+5.0=22.0 dBm
AP-2	Generic dual-band	28.0, 5.0 m	Ceiling 3.0 m	2.4 GHz ch 6/20: 14+3.0=17.0 dBm 5 GHz ch 52/40: 17+5.0=22.0 dBm
AP-3	Generic dual-band	6.0, 19.0 m	Ceiling 3.0 m	2.4 GHz ch 11/20: 14+3.0=17.0 dBm 5 GHz ch 100/40: 17+5.0=22.0 dBm
AP-4	Generic dual-band	32.0, 19.0 m	Ceiling 3.0 m	2.4 GHz ch 1/20: 14+3.0=17.0 dBm 5 GHz ch 149/40: 17+5.0=22.0 dBm

METHOD

How it was computed

Prediction with log-distance or free-space path loss plus the loss of every wall crossed by the straight path between the AP and each point (2D, single floor). Reflection and diffraction are not modelled. Ceiling APs are treated as omnidirectional; wall APs use a simplified horizontal pattern (beamwidth and front-to-back loss) along their pointing direction. Interference (SINR) only counts radios on the same channel or on channels sharing spectrum, by their overlapping fraction; APs on different channels do not interfere. Power and gain of catalog models come from vendor datasheets; local regulatory limits may be lower. Field measurements, when included, allow calibrating the model.