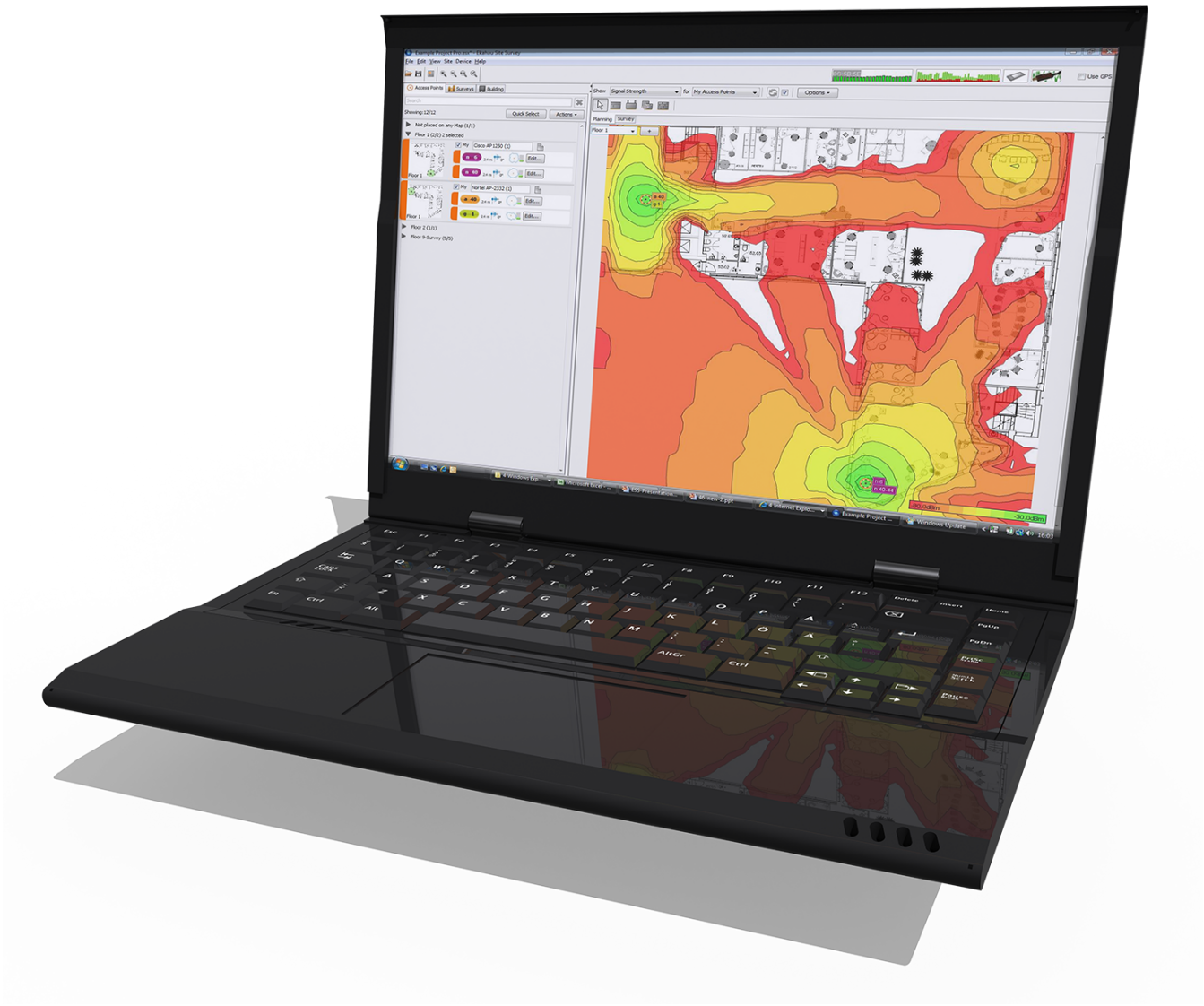
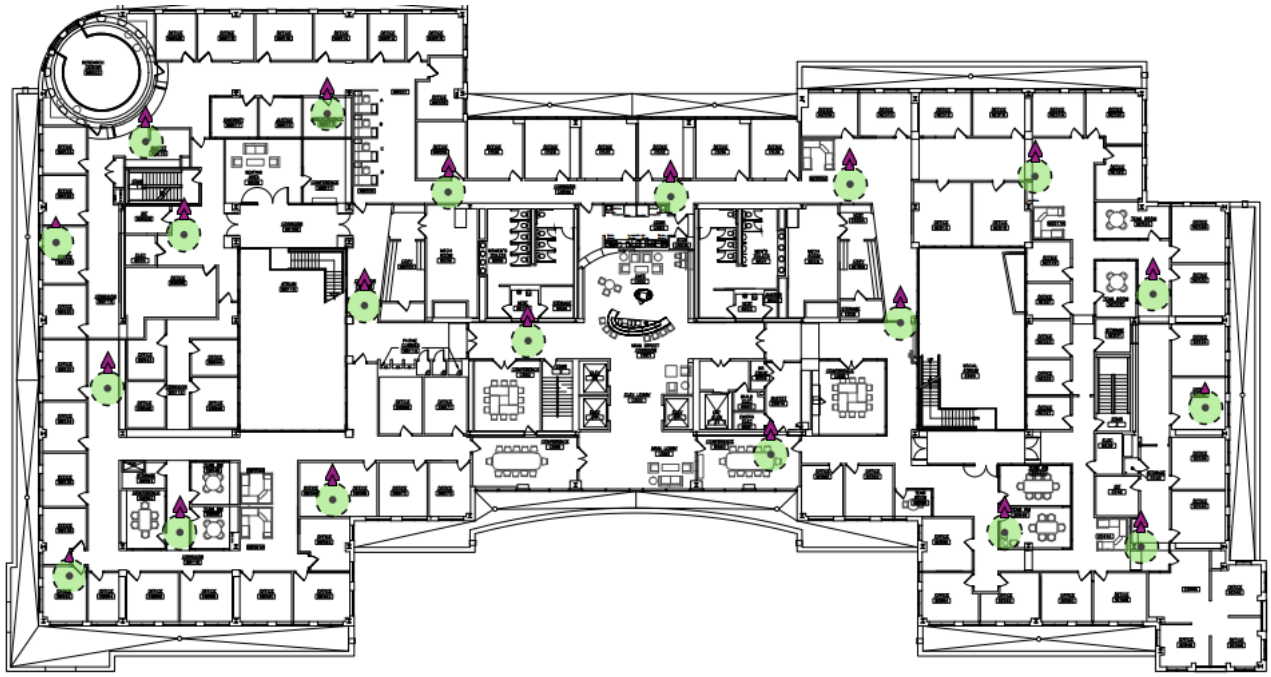
Dual-Band VoIP With Walls



1. 5th Map

Survey routes and Access Points for 5th Map



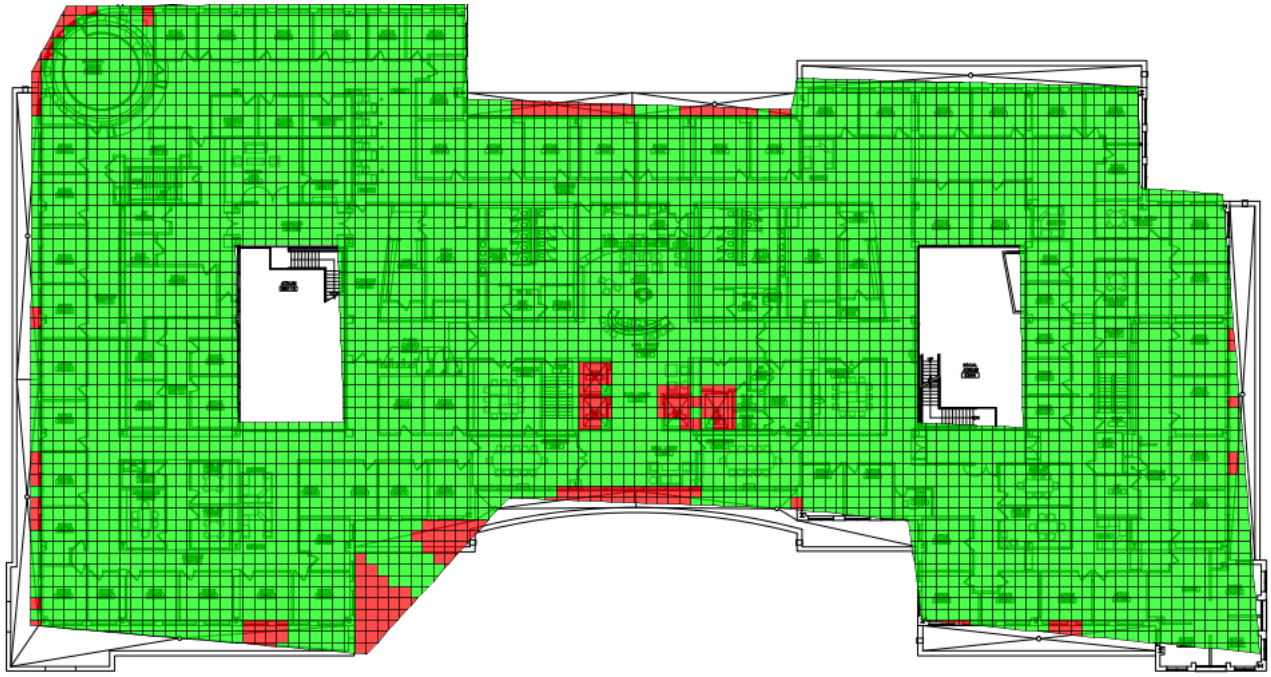
1.1. Requirements - Coverage and Performance

Requirement criteria for **Voice: Cisco 802.11n**

	Signal Strength *Min*	-67.0 dBm	
	Signal-to-noise Ratio *Min*	25.0 dB	
	Data rate *Min*	11 Mbps	
	Number of Access Points *Min*	2	at min. -81.0 dBm
	Channel Overlap *Max*	4	at min. -80.0 dBm
	Round Trip Time (RTT) *Max*	300.0 ms	
	Packet Loss *Max*	2.0 %	

Network Health for 5th Map

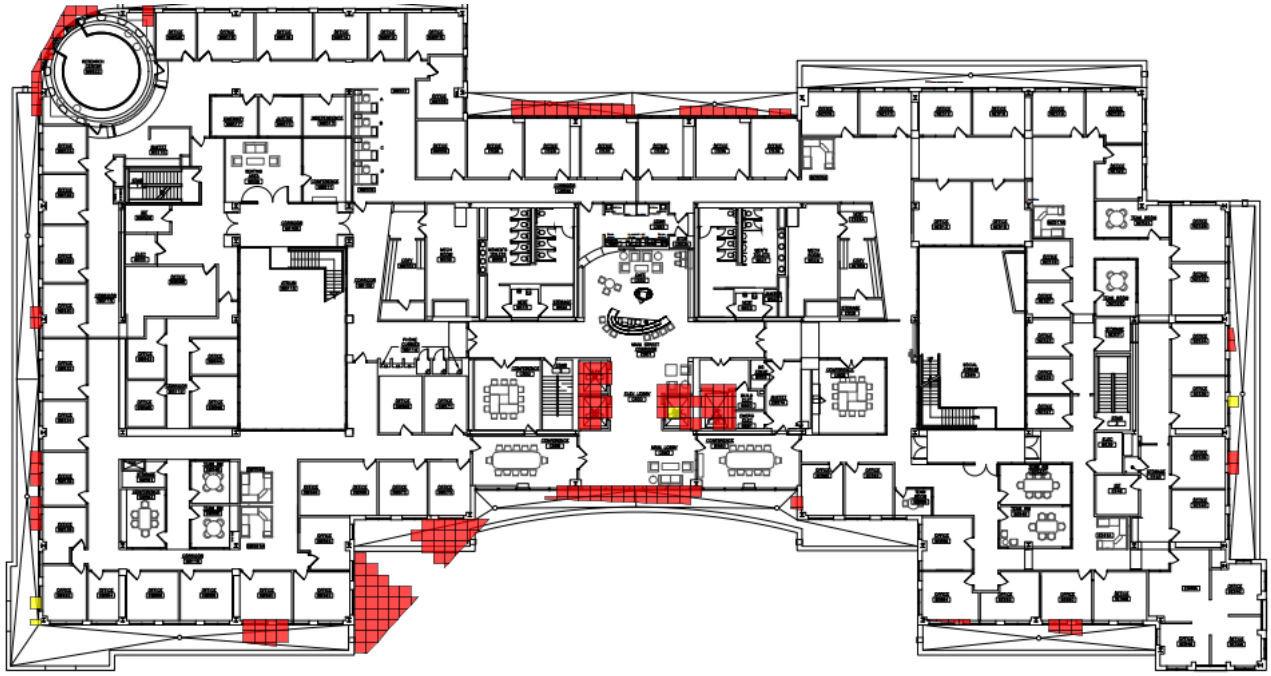
Wi-Fi is typically built for a certain purpose or several purposes, such as VoIP, web browsing, or location tracking. With Network Health, you can, with a single visualization, display whether the network meets your requirements or not.



Fail **Pass**

Network Issues for 5th Map

Network Issues complements Network Health by showing the requirement that is below the threshold level at each location. Whereas Network Health answers the question "Does it work?", Network Issues answers the question "If it doesn't work, why?".



S.Str | #APs | Data | SNR | RTT | Loss | Ch.O

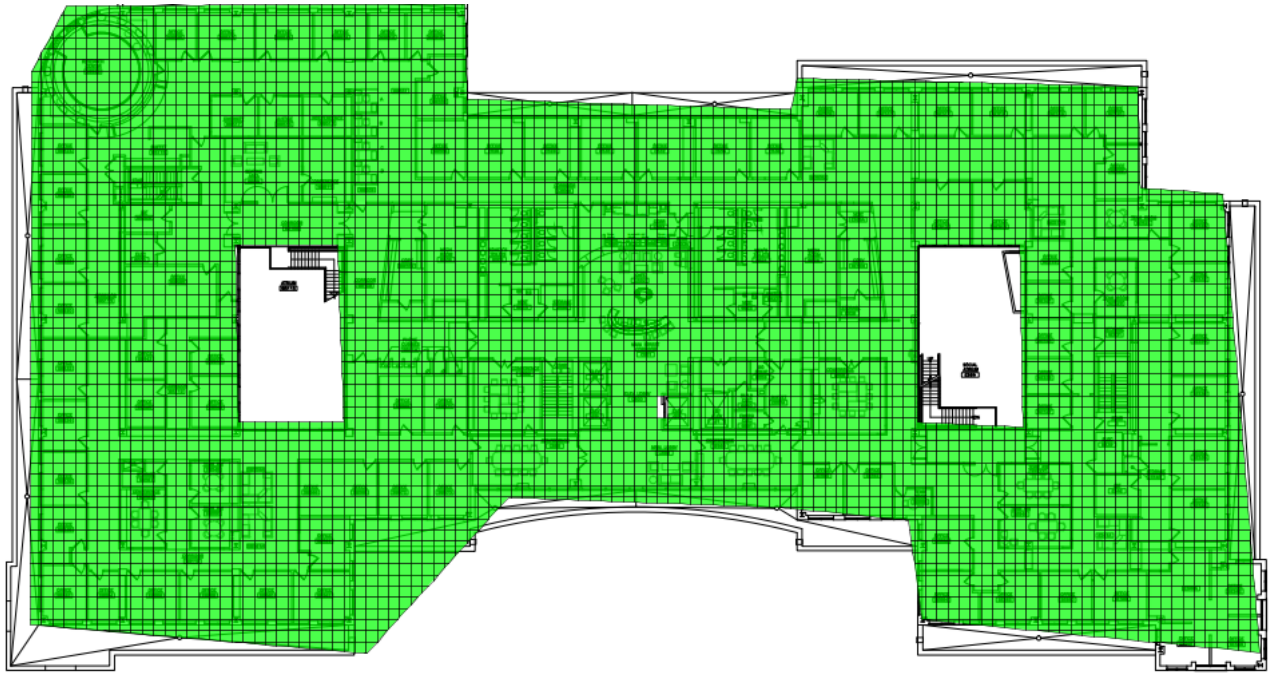
1.2. Requirements - Capacity

WiFi clients:

Amount	Device
50	11ac AC Laptop
50	11n Smartphone with VoIP
50	11n Laptop
25	11ac AC Tablet
25	11n Tablet

Capacity Health for 5th Map

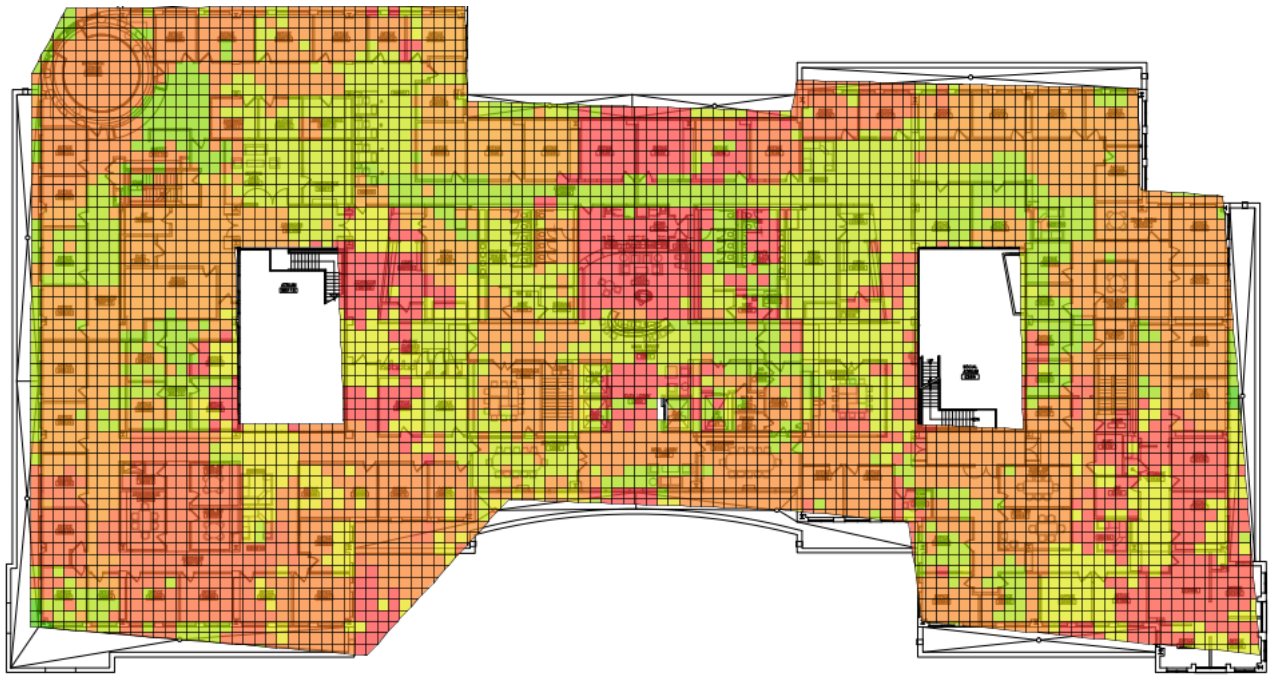
Capacity Health displays if the network can handle the load of the configured Wi-Fi clients



Pass	Capacity	Assoc.	VoIP calls

Capacity: Clients per AP for 5th Map

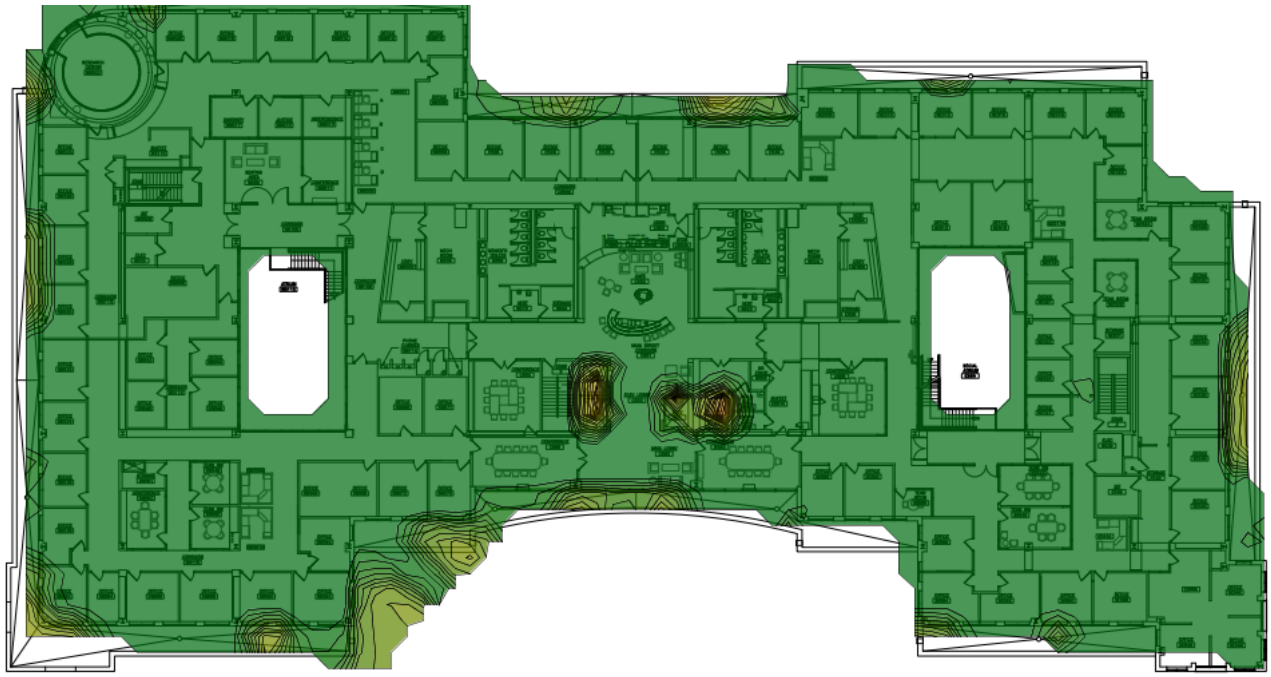
Shows how the Wi-Fi clients configured in your Capacity Requirement are distributed between the access points. The image shows Requested Associations



1.3. Coverage, Overlap and Performance

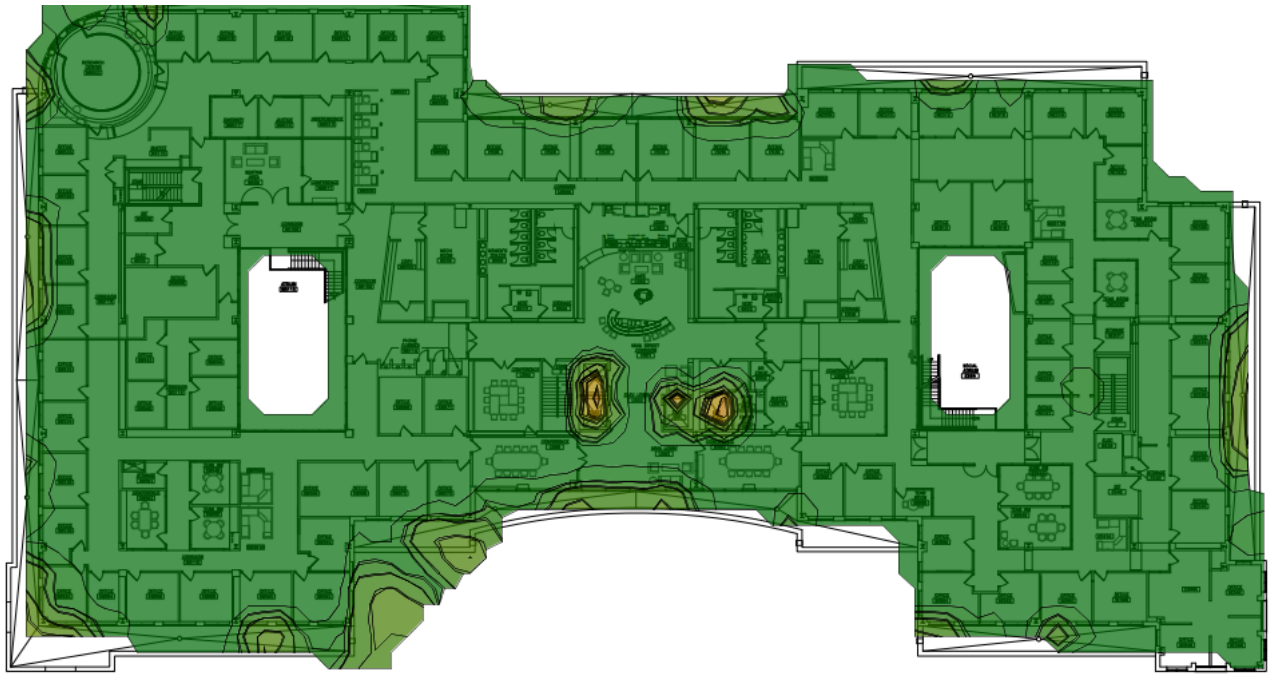
Data Rate for 5th Map

Data Rate is the highest possible speed (measured in megabits per second) at which the wireless devices will be transmitting data. Typically the true data throughput is about half of the data rate or less.



Throughput (Max) for 5th Map

Displays the estimated maximum effective throughput.



12.0Mb/s 182.0Mb/s

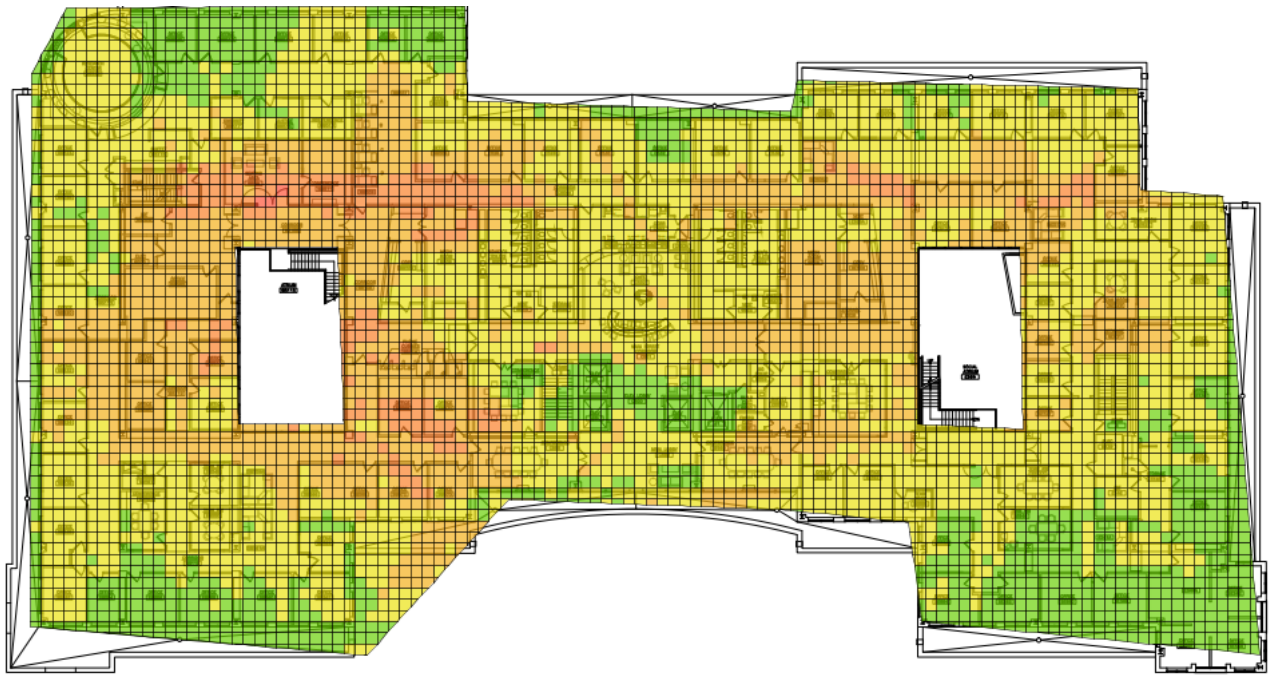
Number of APs for 5th Map

Number of Access Points indicates the number of access points audible at each location.

None 19

Channel Overlap for 5th Map

Channel overlap indicates the number of access points audible at each location in a single channel.



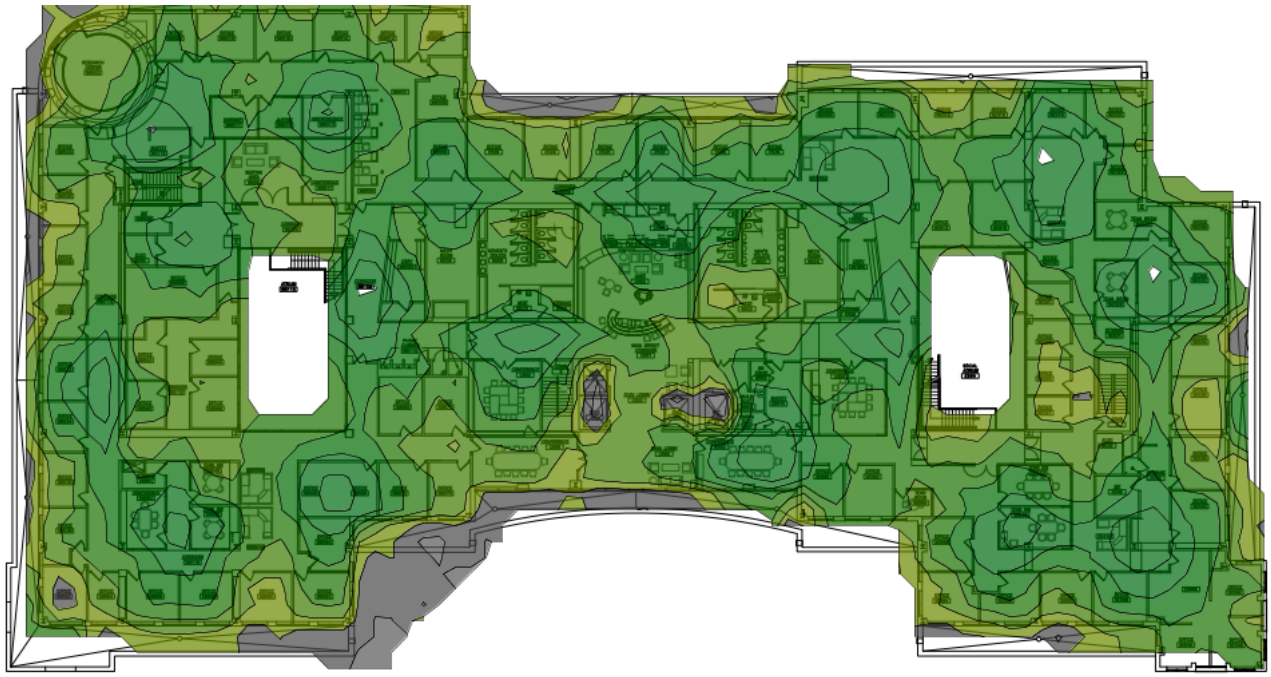
None 19

Signal Strength for 5th Map

Signal Strength - sometimes called coverage - is the most basic requirement for a wireless network. As a general guideline, low signal strength means unreliable connections, and low data throughput.

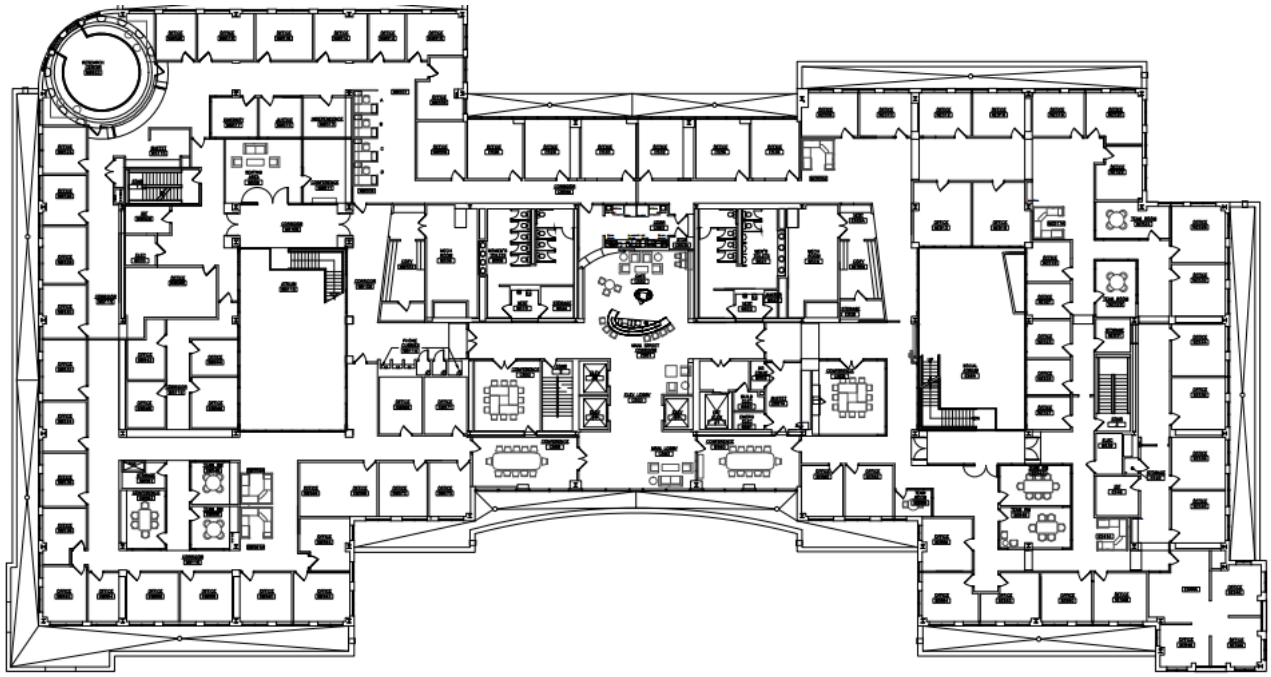
Signal To Noise Ratio (SNR) for 5th Map

Signal-To-Noise Ratio indicates how much the signal strength is stronger than the noise (co-channel interference). Signal must be stronger than noise (SNR greater than zero) for data transfer to be possible. If the signal is only barely stronger than noise, you may encounter occasional connection drop-offs.



Interference/Noise for 5th Map

Displays the calculated co-channel interference level.

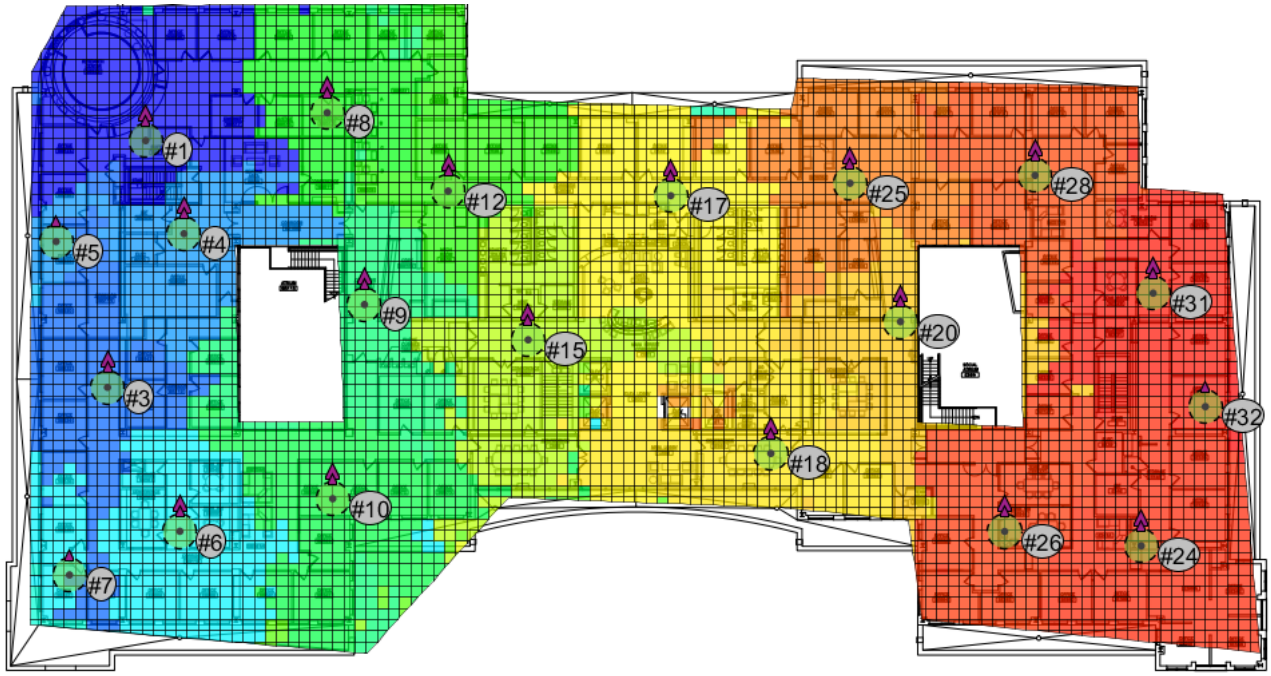


-80.0dBm 0.0dBm

1.4. Connectivity on map 5th Map

Associated Access Point for 5th Map

Displays the access point the client device is associated with.
The image shows Predicted Association - Data Rate



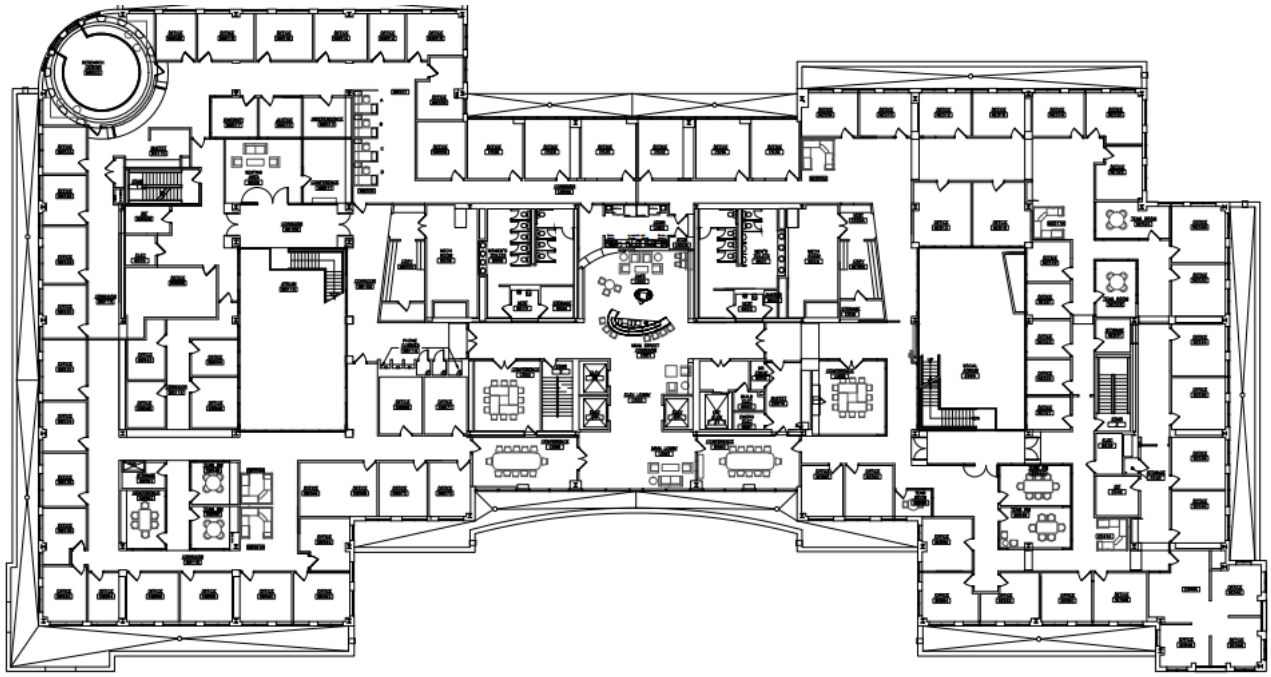
AP #	Access Point			
1	Generic .11n Dual Radio (3)			
	802.11n	1	13 mW	Generic 2.2dBi Omni
	802.11n	157@40 MHz	50 mW	Generic 2.2dBi Omni
3	Generic .11n Dual Radio (2)			
	802.11n	1	25 mW	Generic 2.2dBi Omni
	802.11n	161@40 MHz	25 mW	Generic 2.2dBi Omni
4	Generic .11n Dual Radio (1)			
	802.11n	6	10 mW	Generic 2.2dBi Omni
	802.11n	52@40	30 mW	Generic 2.2dBi Omni

		MHz		
5	Ruckus ZoneFlex 7321 5GHz (3)			
	802.11n	36	25 mW	Ruckus 7321 5GHz
6	Generic .11n Dual Radio (4)			
	802.11n	11	25 mW	Generic 2.2dBi Omni
	802.11n	56@40 MHz	50 mW	Generic 2.2dBi Omni
7	Ruckus ZoneFlex 7321 5GHz (1)			
	802.11n	36	25 mW	Ruckus 7321 5GHz
8	Generic .11n Dual Radio (6)			
	802.11n	11	25 mW	Generic 2.2dBi Omni
	802.11n	60@40 MHz	25 mW	Generic 2.2dBi Omni
9	Generic .11n Dual Radio (5)			
	802.11n	1	25 mW	Generic 2.2dBi Omni
	802.11n	36@40 MHz	50 mW	Generic 2.2dBi Omni
10	Generic .11n Dual Radio (7)			
	802.11n	6	25 mW	Generic 2.2dBi Omni
	802.11n	64@40 MHz	25 mW	Generic 2.2dBi Omni
12	Generic .11n Dual Radio (8)			
	802.11n	6	13 mW	Generic 2.2dBi Omni
	802.11n	44@40 MHz	25 mW	Generic 2.2dBi Omni
15	Generic .11n Dual Radio (9)			
	802.11n	11	25 mW	Generic 2.2dBi Omni
	802.11n	149@40 MHz	25 mW	Generic 2.2dBi Omni
17	Generic .11n Dual Radio (10)			
	802.11n	1	10 mW	Generic 2.2dBi Omni
	802.11n	157@40 MHz	50 mW	Generic 2.2dBi Omni
18	Generic .11n Dual Radio (11)			
	802.11n	6	13 mW	Generic 2.2dBi Omni
	802.11n	52@40 MHz	25 mW	Generic 2.2dBi Omni

20	Generic .11n Dual Radio (13)			
	 802.11n	11	13 mW	Generic 2.2dBi Omni
	 802.11n	36@40 MHz	25 mW	Generic 2.2dBi Omni
24	Generic .11n Dual Radio (17)			
	 802.11n	11	25 mW	Generic 2.2dBi Omni
	 802.11n	48@40 MHz	25 mW	Generic 2.2dBi Omni
25	Generic .11n Dual Radio (12)			
	 802.11n	6	25 mW	Generic 2.2dBi Omni
	 802.11n	60@40 MHz	25 mW	Generic 2.2dBi Omni
26	Generic .11n Dual Radio (15)			
	 802.11n	1	13 mW	Generic 2.2dBi Omni
	 802.11n	64@40 MHz	25 mW	Generic 2.2dBi Omni
28	Generic .11n Dual Radio (14)			
	802.11n	1	25 mW	Generic 2.2dBi Omni
	 802.11n	44@40 MHz	50 mW	Generic 2.2dBi Omni
31	Generic .11n Dual Radio (16)			
	802.11n	6	25 mW	Generic 2.2dBi Omni
	 802.11n	149@40 MHz	50 mW	Generic 2.2dBi Omni
32	Ruckus ZoneFlex 7321 5GHz (2)			
	 802.11n	36	25 mW	Ruckus 7321 5GHz

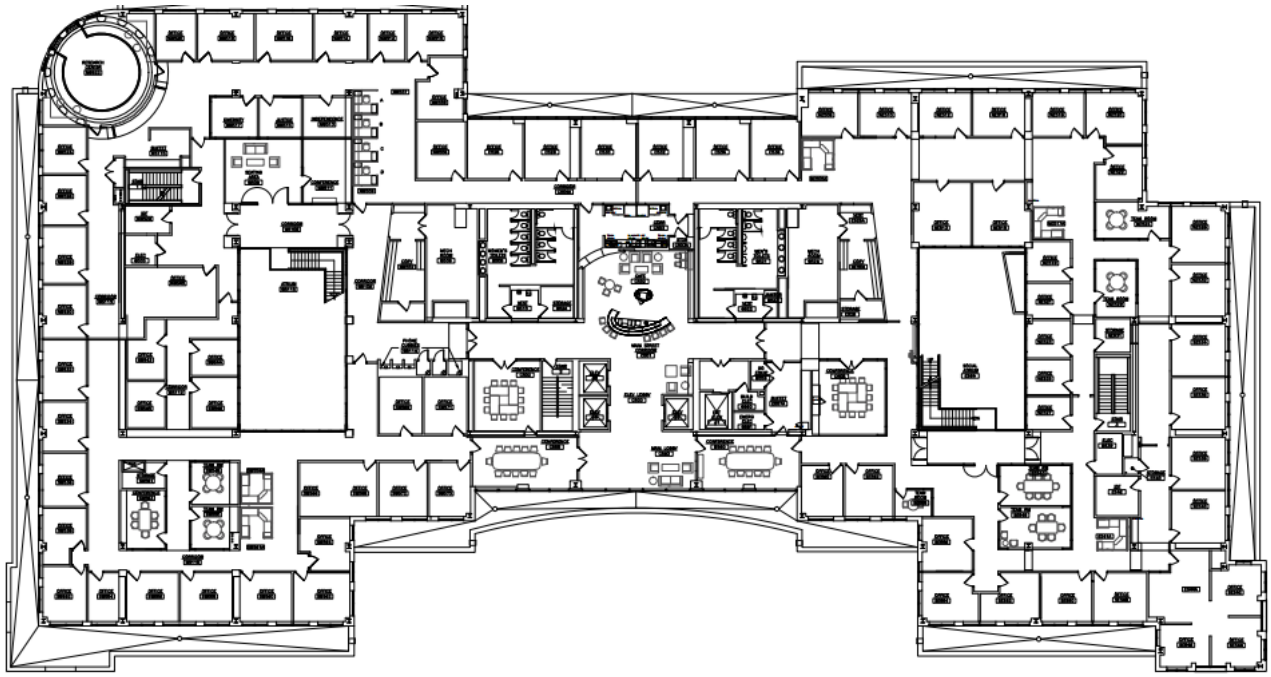
Packet Loss for 5th Map

Displays how many replies did not arrive to a sent packet.

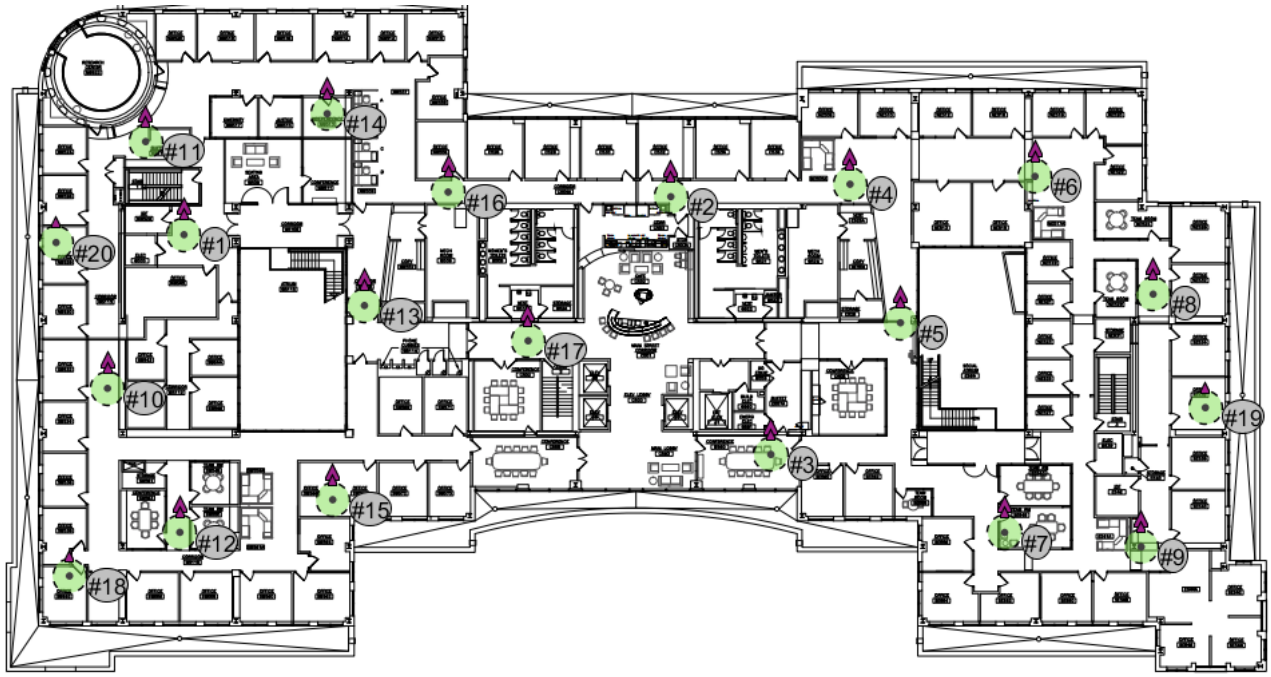


Round-Trip Time for 5th Map

Displays how long it took for a reply to arrive to a sent packet.



1.5. Access Points on 5th Map



1.5.1. My Access Points on 5th Map

Simulated Access Points on 5th Map

#	Access Point			
1	Generic .11n Dual Radio (1)			
	802.11n	6	10 mW	Generic 2.2dBi Omni
	802.11n	52@40 MHz	30 mW	Generic 2.2dBi Omni
2	Generic .11n Dual Radio (10)			
	802.11n	1	10 mW	Generic 2.2dBi Omni
	802.11n	157@40 MHz	50 mW	Generic 2.2dBi Omni
3	Generic .11n Dual Radio (11)			
	802.11n	6	13 mW	Generic 2.2dBi Omni
	802.11n	52@40 MHz	25 mW	Generic 2.2dBi Omni
4	Generic .11n Dual Radio (12)			

	802.11n	6	25 mW	Generic 2.2dBi Omni
	802.11n	60@40 MHz	25 mW	Generic 2.2dBi Omni
5	Generic .11n Dual Radio (13)			
	802.11n	11	13 mW	Generic 2.2dBi Omni
	802.11n	36@40 MHz	25 mW	Generic 2.2dBi Omni
6	Generic .11n Dual Radio (14)			
	802.11n	1	25 mW	Generic 2.2dBi Omni
	802.11n	44@40 MHz	50 mW	Generic 2.2dBi Omni
7	Generic .11n Dual Radio (15)			
	802.11n	1	13 mW	Generic 2.2dBi Omni
	802.11n	64@40 MHz	25 mW	Generic 2.2dBi Omni
8	Generic .11n Dual Radio (16)			
	802.11n	6	25 mW	Generic 2.2dBi Omni
	802.11n	149@40 MHz	50 mW	Generic 2.2dBi Omni
9	Generic .11n Dual Radio (17)			
	802.11n	11	25 mW	Generic 2.2dBi Omni
	802.11n	48@40 MHz	25 mW	Generic 2.2dBi Omni
10	Generic .11n Dual Radio (2)			
	802.11n	1	25 mW	Generic 2.2dBi Omni
	802.11n	161@40 MHz	25 mW	Generic 2.2dBi Omni
11	Generic .11n Dual Radio (3)			
	802.11n	1	13 mW	Generic 2.2dBi Omni
	802.11n	157@40 MHz	50 mW	Generic 2.2dBi Omni
12	Generic .11n Dual Radio (4)			
	802.11n	11	25 mW	Generic 2.2dBi Omni
	802.11n	56@40 MHz	50 mW	Generic 2.2dBi Omni
13	Generic .11n Dual Radio (5)			
	802.11n	1	25 mW	Generic 2.2dBi Omni

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16	Generic .11n Dual Radio (8)			
	802.11n	6	13 mW	Generic 2.2dBi Omni
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18	Ruckus ZoneFlex 7321 5GHz (1)			
	802.11n	36	25 mW	Ruckus 7321 5GHz
19	Ruckus ZoneFlex 7321 5GHz (2)			
	802.11n	36	25 mW	Ruckus 7321 5GHz
20	Ruckus ZoneFlex 7321 5GHz (3)			
	802.11n	36	25 mW	Ruckus 7321 5GHz

Measured Access Points on 5th Map

None.

1.5.2. Other Access Points on 5th Map

Simulated Access Points on 5th Map

None.

Measured Access Points on 5th Map

None.

1.5.3. Channel Bandwidth

Shows the maximum channel bandwidth available in each area.

20MHz	40MHz	80MHz	160MHz

2. Measured Access Points not placed on any map

2.1. My Access Points not placed on any map

None.

2.2. Other Access Points not placed on any map

None.