Sage Meetinghouse Heatmap_cw9162 V3

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Reviewed by: Kevin Spencer

Review Date: 01/07/24

Project Description

The AP placement and signal strength predictions are based on assumptions made for signal propagation through interior wall materials.

Based on those assumptions there will be a greater margin of error between the prediction and what may be experienced.

The AP placement was made based on optimizing for 5 GHz signals for both primary and secondary signal strength.

The APs will be assigned a channel for both 2.4 GHz and 5 GHz based on what is detected and reported to the controller. The controller manages channel adjustments as information is reported by each AP.

The Cisco Meraki Catalyst CW9162 access points are represented in this prediction.

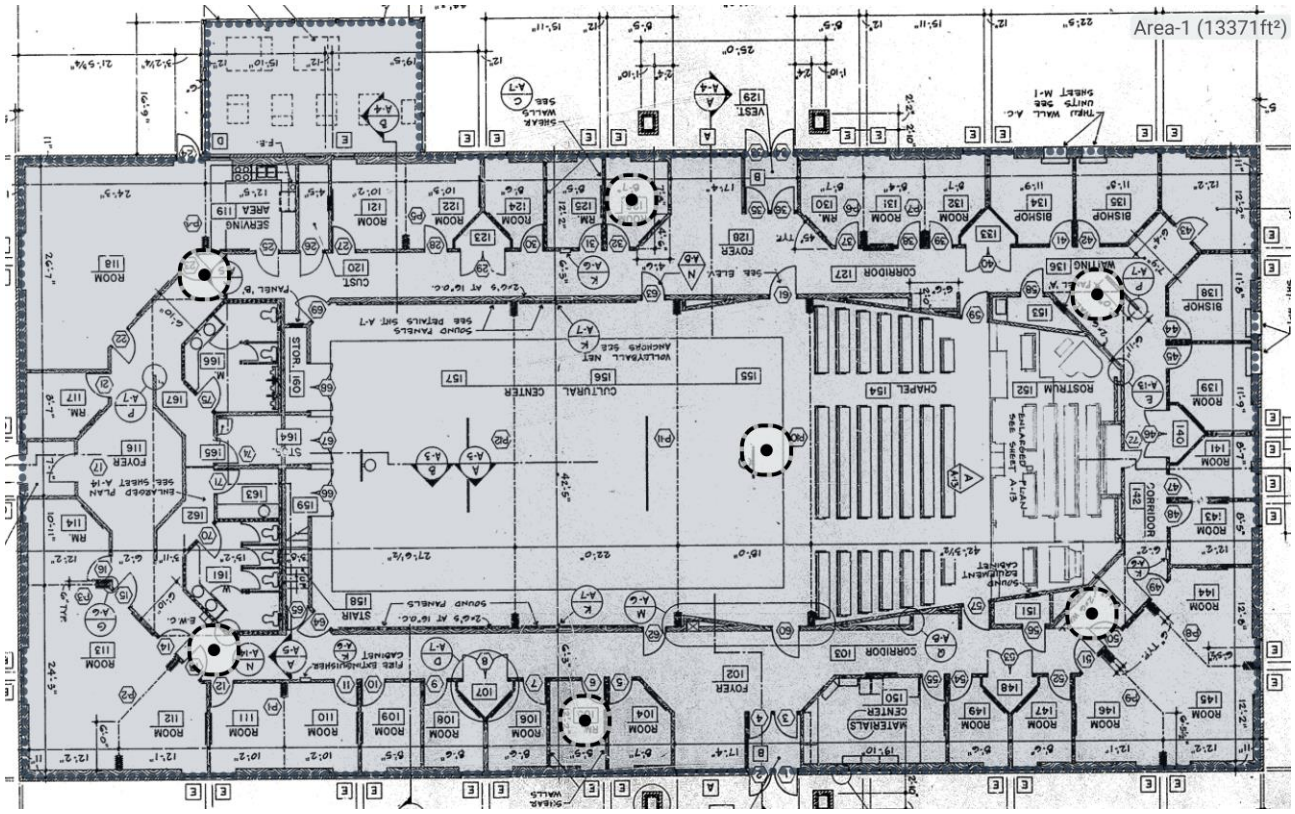
Without measured attenuation and AP signal deviation measurements, the actual signal propagation will vary.

Version 2: AP placement was altered, and one AP was removed that covered the an outdoor area and was unclear if this space is enclosed or just walled in.

Version 3: Changed the coverage rating requirements from -65Db to -75Db and thus reduced the need for 7 additional APs (From 14 to 7 APs). APs were renamed to still be in numerical order. AP in the upper level was also removed. This area still has some coverage from the lower level, but was not required coverage space as it is not a teaching space.

Main Floor

Survey routes and Access Points for Main Floor



View as / Project Offset:	Generic Laptop (-3 dB/-3 dB/-)

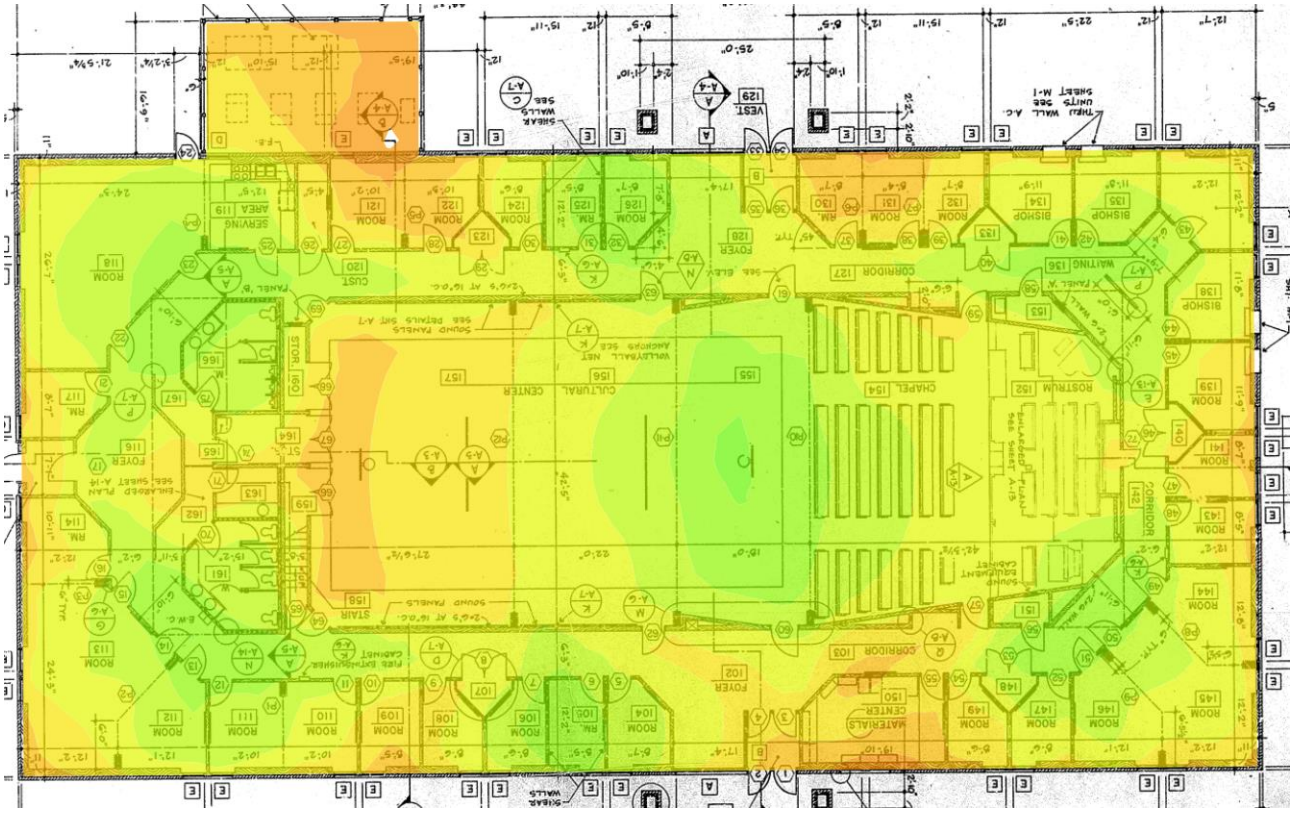
Area-1 (13,371 ft²)

Coverage Requirement: **LDS**		
2.4 GHz	Signal Strength Min	**-75.0 dBm**
	Secondary Signal Strength Min	**-70.0 dBm**
	Signal-to-Noise Ratio Min	**20.0 dB**
	Data Rate Min	**24 Mbps**
	Channel Interference Max	**2 at min. -85.0 dBm**
	Round Trip Time (RTT) Max	**200 ms**
	Packet Loss Max	**0.0 %**
5 GHz	Signal Strength Min	**-75.0 dBm**
	Secondary Signal Strength Min	**-70.0 dBm**

	Signal-to-Noise Ratio Min	**25.0 dB**
	Data Rate Min	**24 Mbps**
	Channel Interference Max	**1 at min. -85.0 dBm**
	Round Trip Time (RTT) Max	**200 ms**
	Packet Loss Max	**0.0 %**
6 GHz	Signal-to-Noise Ratio Min	**25.0 dB**
	Data Rate Min	**24 Mbps**
	Channel Interference Max	**1 at min. -85.0 dBm**
	Round Trip Time (RTT) Max	**200 ms**
	Packet Loss Max	**0.0 %**
Capacity Requirement	No capacity devices for this area	
Notes		

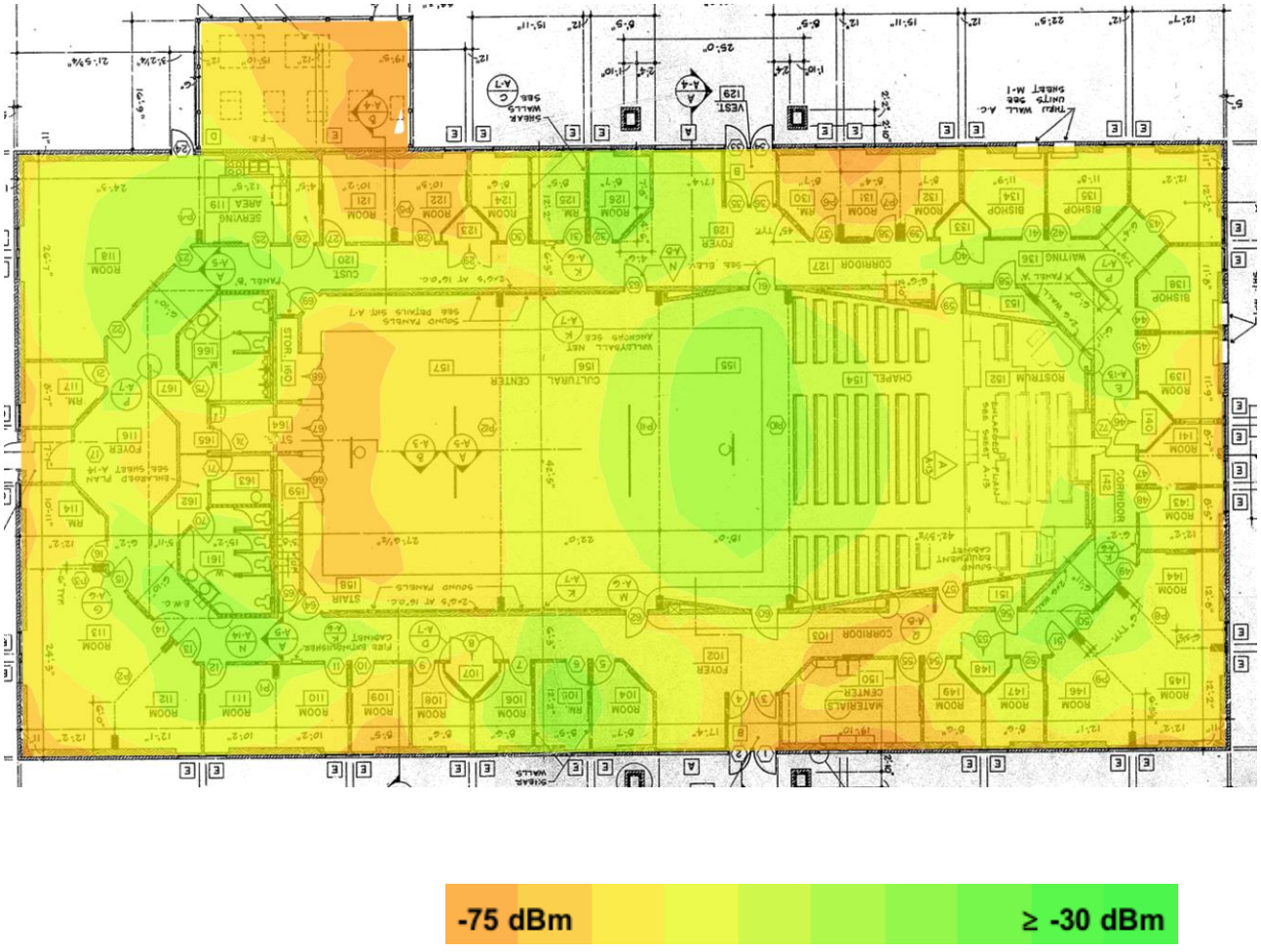
Signal Strength for Main Floor on 2.4 GHz band

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.



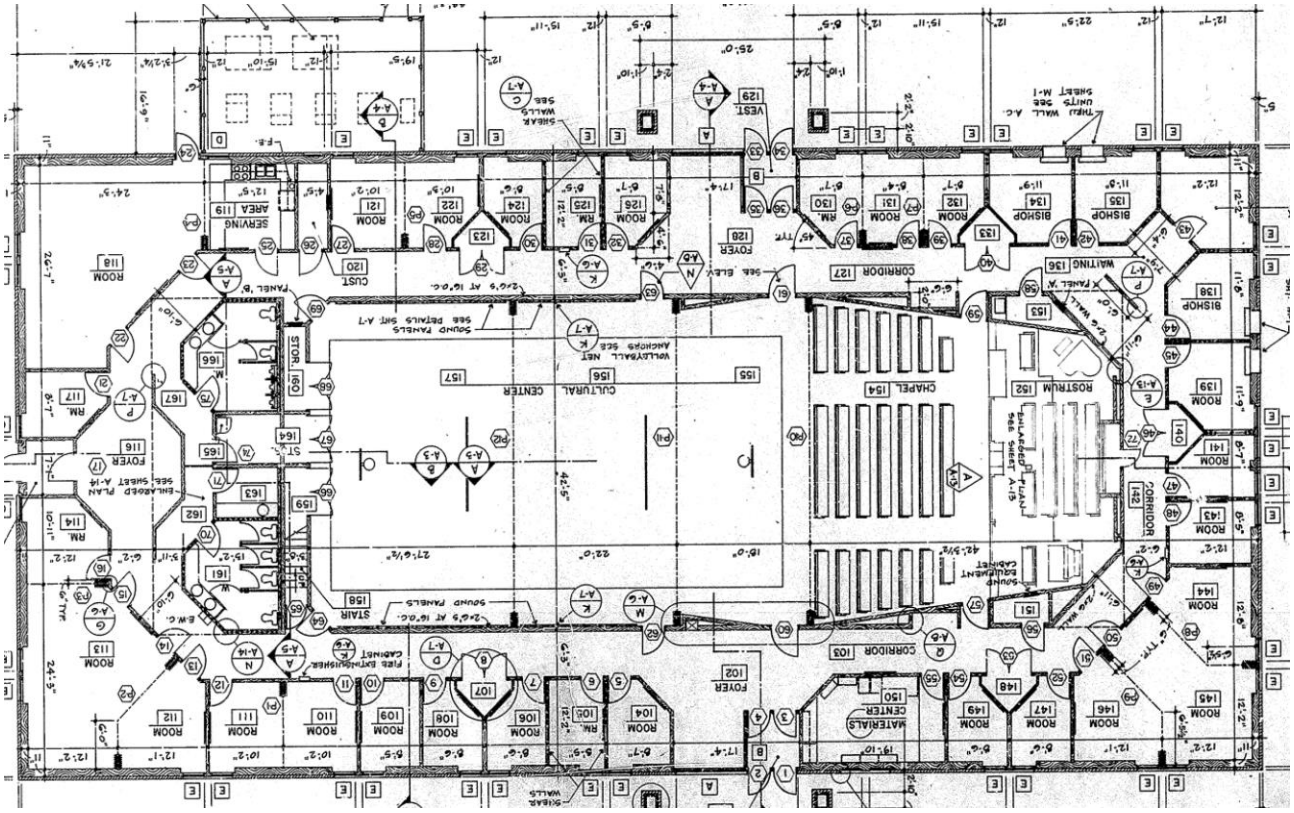
Signal Strength for Main Floor on 5 GHz band

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.

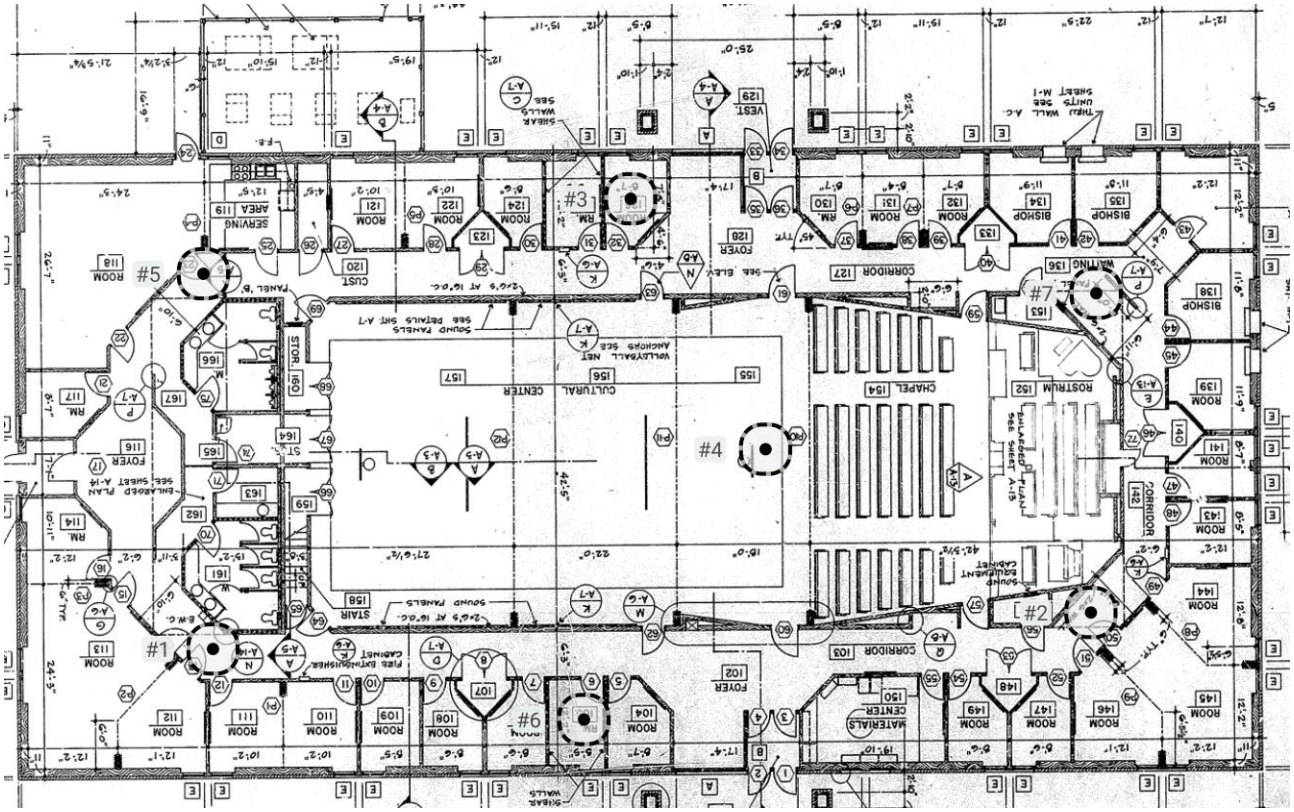


Signal Strength for Main Floor on 6 GHz band

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.



Access Points on Main Floor



Access Points on Main Floor

Simulated Access Points on Main Floor

AP #	Access Point			
1	Simulated AP-001		Cisco Meraki Catalyst 9162	
	Wi-Fi 6	6	6 mW	Cisco Meraki Catalyst 9162 2.4GHz
	Wi-Fi 6	149	25 mW	Cisco Meraki Catalyst 9162 5GHz
	Wi-Fi 6E	181@80 (6 GHz)	25 mW	Cisco Meraki Catalyst 9162 6GHz
	Bluetooth	-	1 mW	Cisco Meraki Catalyst 9162 BLE
2	Simulated AP-002		Cisco Meraki Catalyst 9162	
	Wi-Fi 6	6	6 mW	Cisco Meraki Catalyst 9162 2.4GHz
	Wi-Fi 6	132	25 mW	Cisco Meraki Catalyst 9162 5GHz
	Wi-Fi 6E	165@80 (6 GHz)	25 mW	Cisco Meraki Catalyst 9162 6GHz
	Bluetooth	-	1 mW	Cisco Meraki Catalyst 9162 BLE
3	Simulated AP-003		Cisco Meraki Catalyst 9162	
	Wi-Fi 6	6	6 mW	Cisco Meraki Catalyst 9162 2.4GHz
	Wi-Fi 6	165	25 mW	Cisco Meraki Catalyst 9162 5GHz
	Wi-Fi 6E	69@80 (6 GHz)	25 mW	Cisco Meraki Catalyst 9162 6GHz
	Bluetooth	-	1 mW	Cisco Meraki Catalyst 9162 BLE
4	Simulated AP-004		Cisco Meraki Catalyst 9162	
	Wi-Fi 6	1	6 mW	Cisco Meraki Catalyst 9162 2.4GHz
	Wi-Fi 6	36	25 mW	Cisco Meraki Catalyst 9162 5GHz
	Wi-Fi 6E	213@80 (6 GHz)	25 mW	Cisco Meraki Catalyst 9162 6GHz
	Bluetooth	-	1 mW	Cisco Meraki Catalyst 9162 BLE
5	Simulated AP-005		Cisco Meraki Catalyst 9162	
	Wi-Fi 6	11	6 mW	Cisco Meraki Catalyst 9162 2.4GHz
	Wi-Fi 6	116	25 mW	Cisco Meraki Catalyst 9162 5GHz
	Wi-Fi 6E	37@80 (6 GHz)	25 mW	Cisco Meraki Catalyst 9162 6GHz

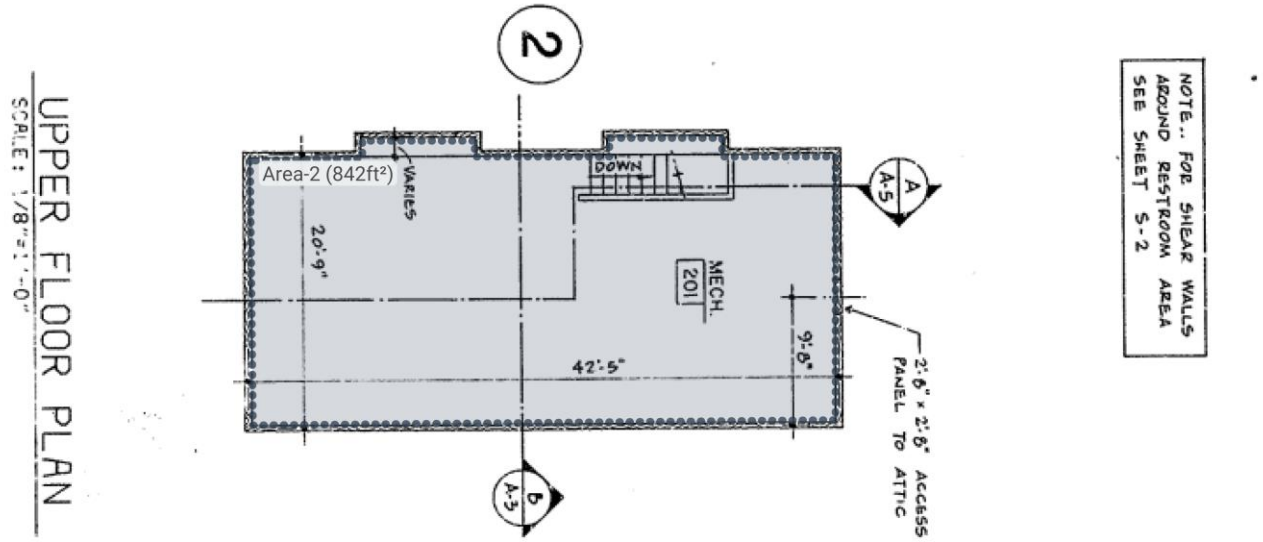
	Bluetooth	-	1 mW	Cisco Meraki Catalyst 9162 BLE
6	Simulated AP-006		Cisco Meraki Catalyst 9162	
	Wi-Fi 6	11	6 mW	Cisco Meraki Catalyst 9162 2.4GHz
	Wi-Fi 6	100	25 mW	Cisco Meraki Catalyst 9162 5GHz
	Wi-Fi 6E	117@80 (6 GHz)	25 mW	Cisco Meraki Catalyst 9162 6GHz
	Bluetooth	-	1 mW	Cisco Meraki Catalyst 9162 BLE
7	Simulated AP-007		Cisco Meraki Catalyst 9162	
	Wi-Fi 6	11	6 mW	Cisco Meraki Catalyst 9162 2.4GHz
	Wi-Fi 6	64	25 mW	Cisco Meraki Catalyst 9162 5GHz
	Wi-Fi 6E	5@80 (6 GHz)	25 mW	Cisco Meraki Catalyst 9162 6GHz
	Bluetooth	-	1 mW	Cisco Meraki Catalyst 9162 BLE

Measured Access Points on Main Floor

None.

Upper Floor

Survey routes and Access Points for Upper Floor



View as / Project Offset:	Generic Laptop (-3 dB/-3 dB/-)

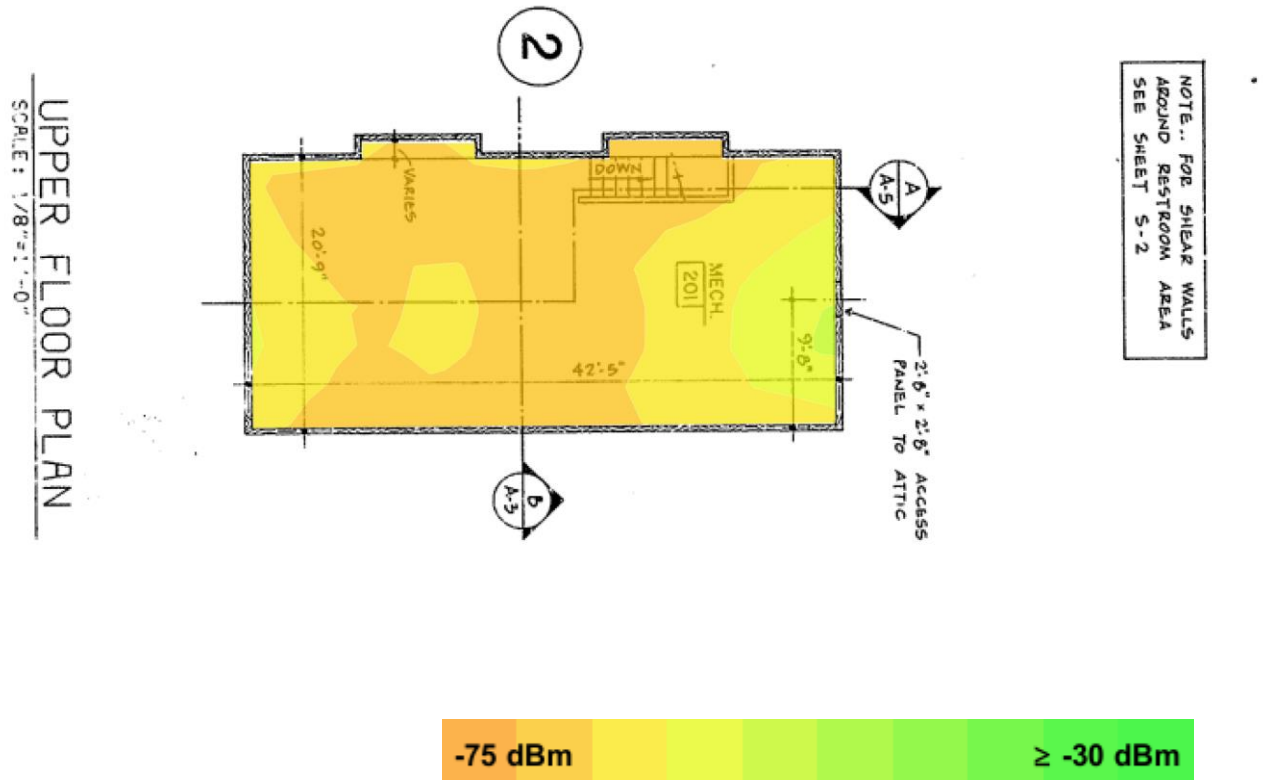
Area-2 (842 ft²)

Coverage Requirement: **LDS**		
2.4 GHz	Signal Strength Min	**-75.0 dBm**
	Secondary Signal Strength Min	**-70.0 dBm**
	Signal-to-Noise Ratio Min	**20.0 dB**
	Data Rate Min	**24 Mbps**
	Channel Interference Max	**2 at min. -85.0 dBm**
	Round Trip Time (RTT) Max	**200 ms**
	Packet Loss Max	**0.0 %**
5 GHz	Signal Strength Min	**-75.0 dBm**
	Secondary Signal Strength Min	**-70.0 dBm**
	Signal-to-Noise Ratio Min	**25.0 dB**
	Data Rate Min	**24 Mbps**
	Channel Interference Max	**1 at min. -85.0 dBm**

	Round Trip Time (RTT) Max	**200 ms**
	Packet Loss Max	**0.0 %**
6 GHz	Signal-to-Noise Ratio Min	**25.0 dB**
	Data Rate Min	**24 Mbps**
	Channel Interference Max	**1 at min. -85.0 dBm**
	Round Trip Time (RTT) Max	**200 ms**
	Packet Loss Max	**0.0 %**
Capacity Requirement	No capacity devices for this area	
Notes		

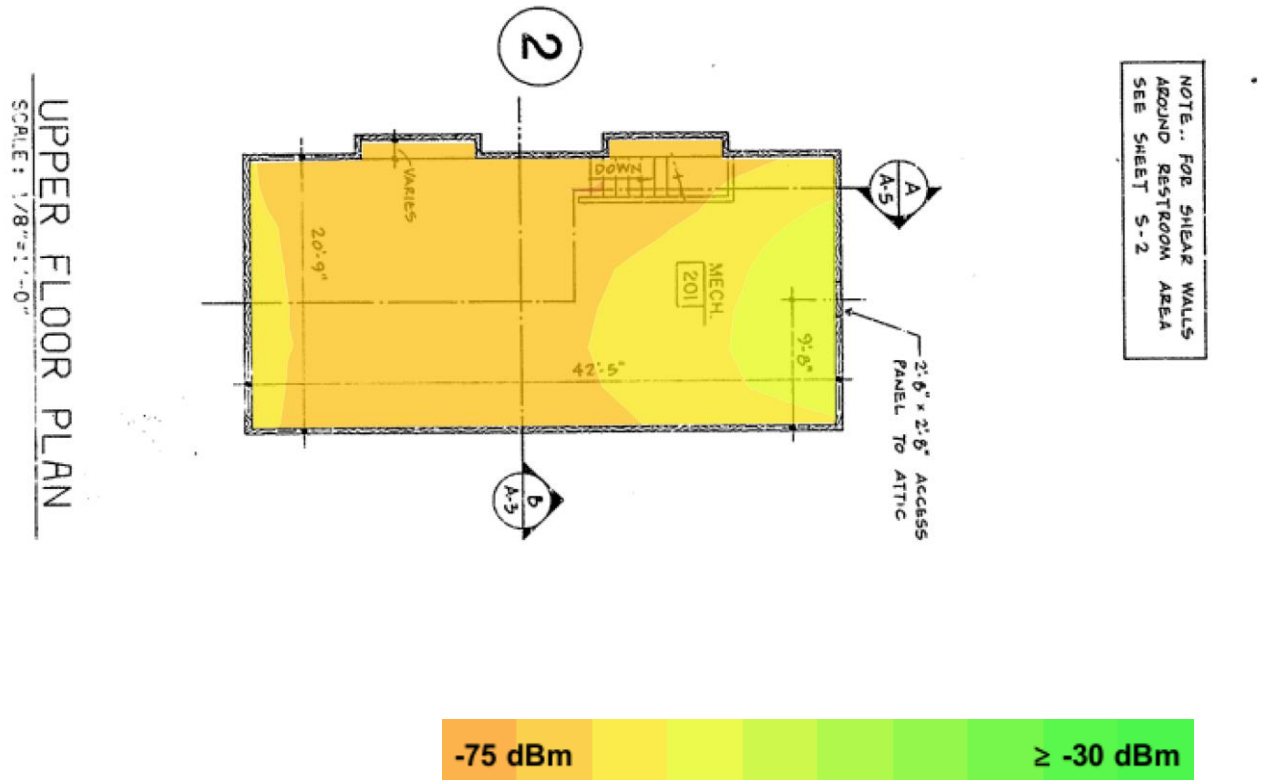
Signal Strength for Upper Floor on 2.4 GHz band

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.



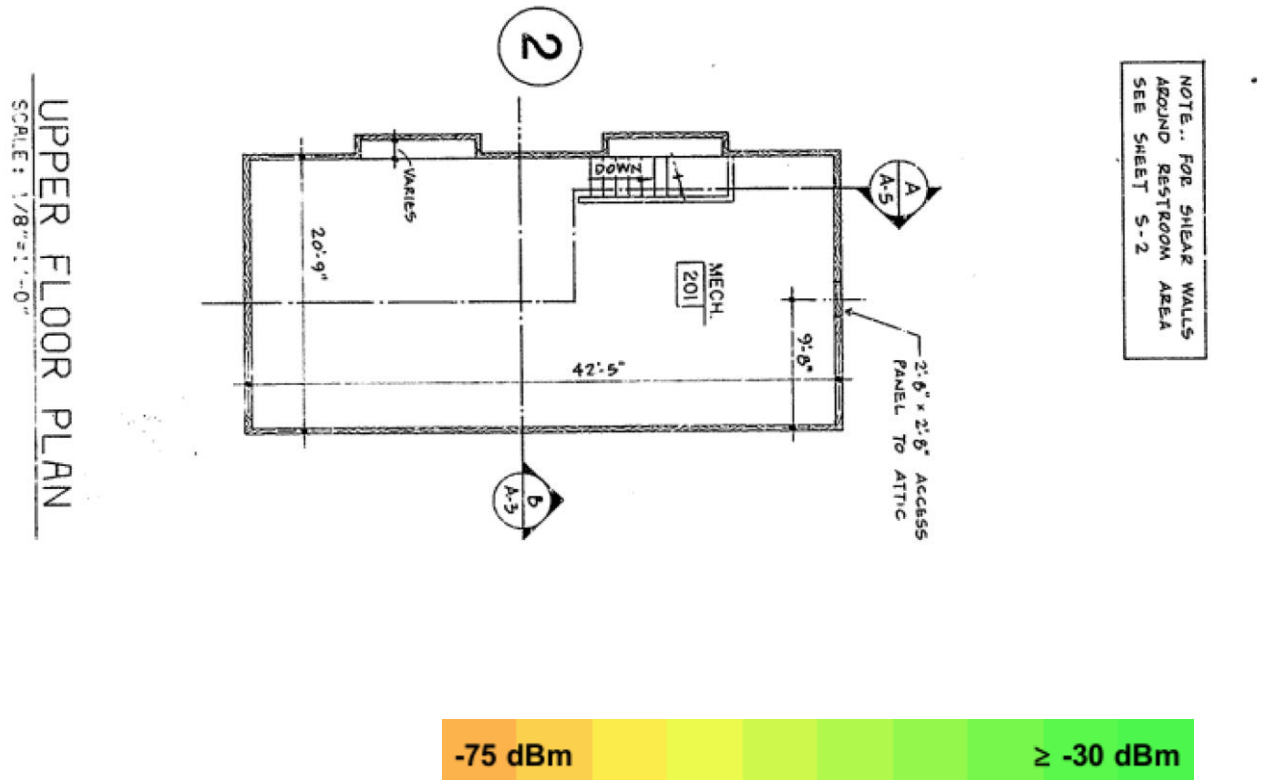
Signal Strength for Upper Floor on 5 GHz band

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.

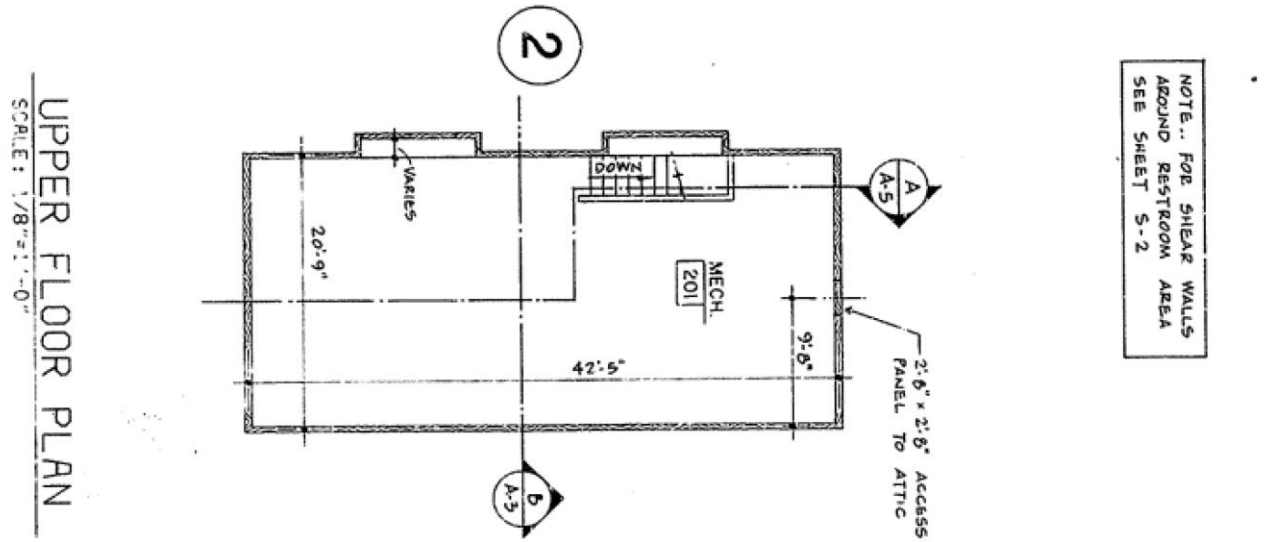


Signal Strength for Upper Floor on 6 GHz band

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.



Access Points on Upper Floor



Access Points on Upper Floor

Simulated Access Points on Upper Floor

None.

Measured Access Points on Upper Floor

None.