



# The Opportunity for Spectrum Sharing in 6GHz

ACMA RadComms 2022

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Principal Wireless Architect  
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# Wi-Fi has succeeded **despite** little bandwidth

2.4 GHz Channels		80 MHz					
ISM Band	2407 + 5 X Ch. Number			Wavelength	12.5cm - 4.9" to 12.0cm - 4.7"		
Channel	1	6	11	Qty			
Center Freq	2,412	2,437	2,462	3			

5 GHz Channels		500 MHz																								
Frequency	5000 + 5 X Ch. Number			Wavelength	5.8cm - 2.3" to 5.1cm - 2.0"																					
Radio Band	DFS Channels														Qty											
	U-NII-1				U-NII-2a				U-NII-2c (Extended)				U-NII-3													
Center Freq	5.180	5.200	5.220	5.240	5.260	5.280	5.300	5.320	5.500	5.520	5.540	5.560	5.580	5.600	5.620	5.640	5.660	5.680	5.700	5.720	5.745	5.765	5.785	5.805	5.825	Qty
20 MHz	36	40	44	48	52	56	60	64	100	104	108	112	116	120	124	128	132	136	140	144	149	153	157	161	165	25
40 MHz	38		46		54		62		102		110		118		126		134		142		151		159		11	
80 MHz	42				58				106				122				138				155				5	
160 MHz	50								114								165 was ISM, now U-NII-3								2	

*“Unlicensed devices ... have become **indispensable for providing low-cost wireless connectivity** in countless products....”*  
 – United States Federal Communications Commission

# 6GHz will provide Wi-Fi room to **grow**

“...the 6 GHz band [is] an opportunity to begin considering... **spectrum sharing techniques** in order to provide access for new services in the band while maintaining access and protection for existing services.”  
 – Innovation, Science and Economic Development Canada

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6 GHz Channels		1,200 MHz	
FCC - USA		5950 + 5 X Ch. Number	
		Wavelength 5.1cm - 2.0" to 4.2cm - 1.6"	

Radio Band	UNII-5															UNII-6					UNII-7										UNII-8																																	
	Center Freq	5.955	5.975	5.995	6.015	6.035	6.055	6.075	6.095	6.115	6.135	6.155	6.175	6.195	6.215	6.235	6.255	6.275	6.295	6.315	6.335	6.355	6.375	6.395	6.415	6.435	6.455	6.475	6.495	6.515	6.535	6.555	6.575	6.595	6.615	6.635	6.655	6.675	6.695	6.715	6.735	6.755	6.775	6.795	6.815	6.835	6.855	6.875	6.895	6.915	6.935	6.955	6.975	6.995	7.015	7.035	7.055	7.075	7.095	7.115				
20 MHz	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	201	205	209	213	217	221	225	229	233					
40 MHz	3		11		19		27		35		43		51		59		67		75		83		91		99		107		115		123		131		139		147		155		163		171		179		187		195		203		211		219		227							
80 MHz	7				23				39				55				71				87				103					119					135					151					167					183					199					215				
160 MHz	15					47					79					111					143					175					207																																	

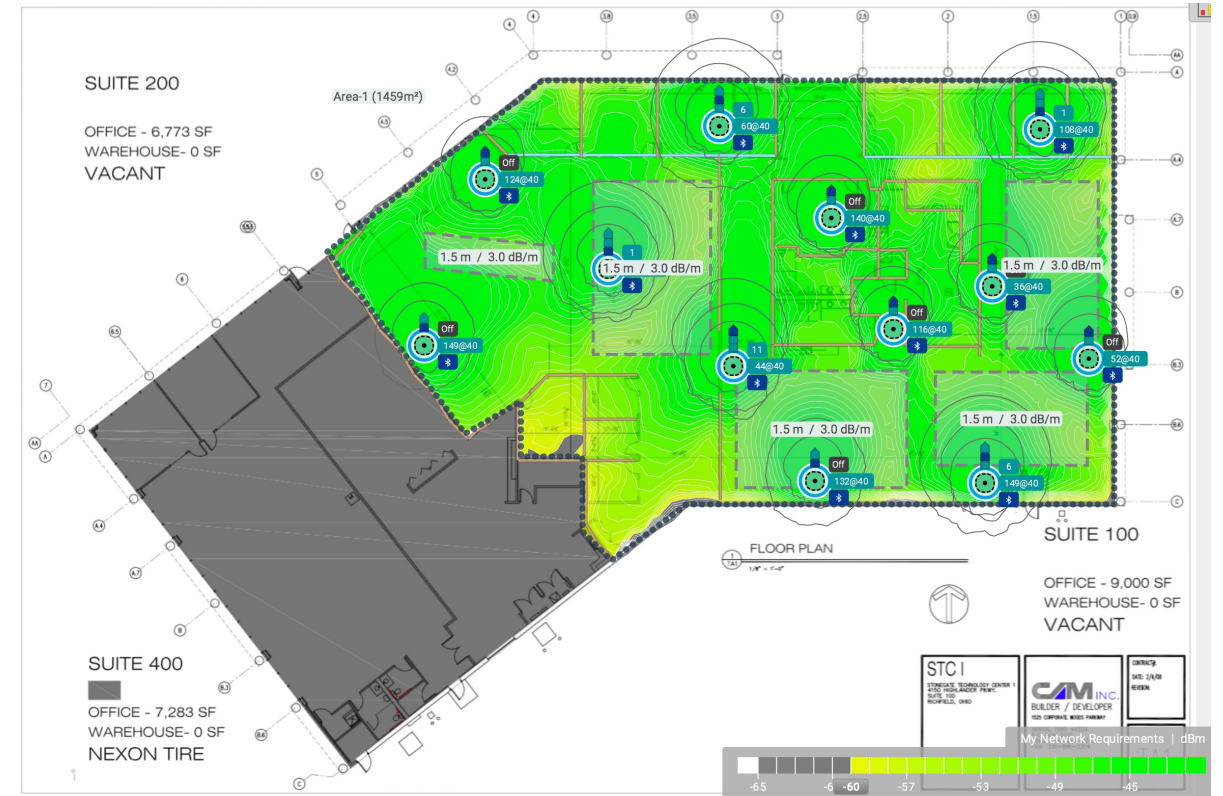
Radio Band	UNII-5															UNII-6					UNII-7										UNII-8																																	
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Standard Power AP		36dBm with Automated Frequency Coordination (AFC)																																																														
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# The **Need** for 1200MHz

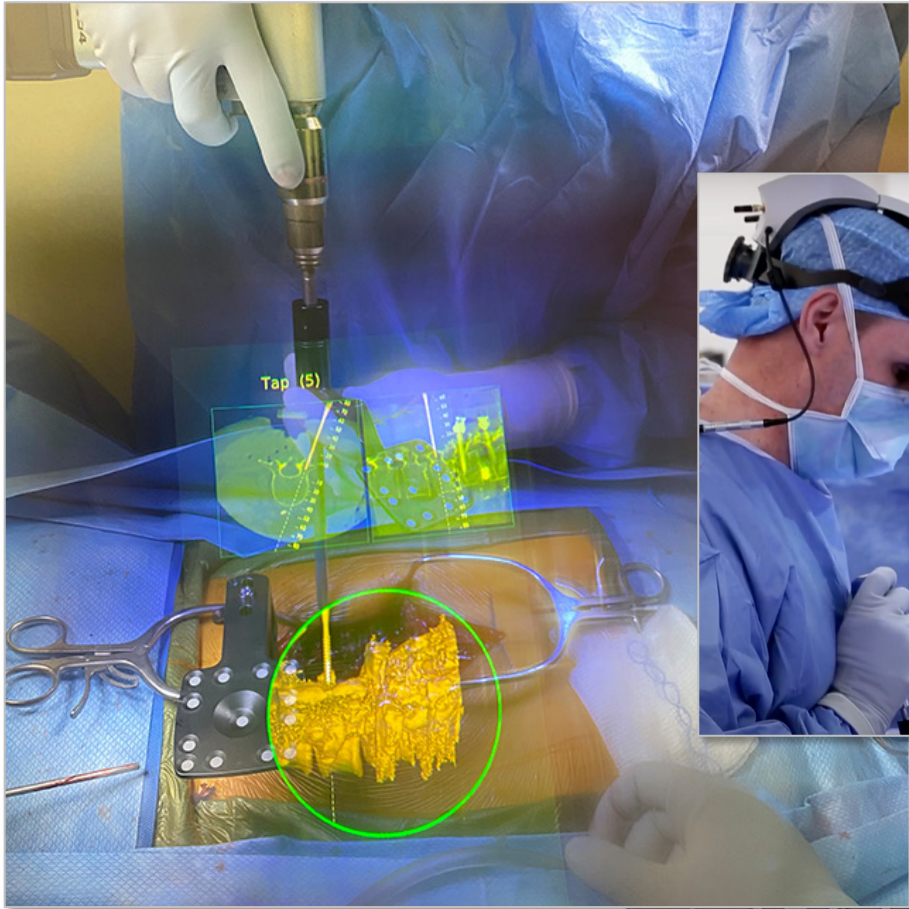
- In the 5GHz band, 40MHz is the sweet spot for high density designs at a 12m spacing minimum
- Real-time voice and video requires 100ms latency
- Augmented and virtual reality requires 10ms latency



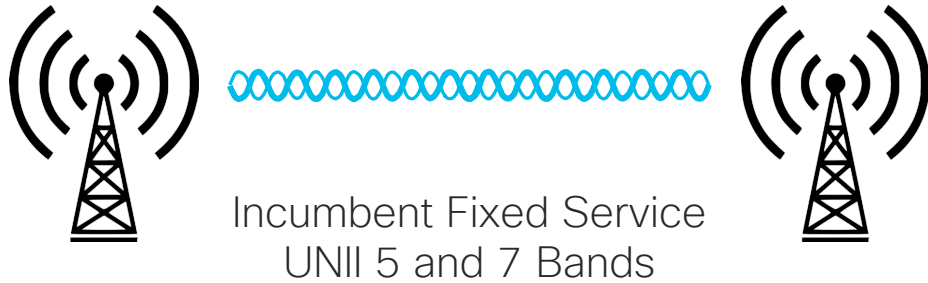
Area	1K ft <sup>2</sup> / 93 m <sup>2</sup>		1.2K ft <sup>2</sup> / 111 m <sup>2</sup>	1.5K ft <sup>2</sup> / 130 m <sup>2</sup>
BW	80 MHz	40 MHz	40 MHz	40 MHz
Pass/Fail	●	●	●	●







# Automated Frequency Coordination



ID	Frequency	Emission Designator	Authorisation Date	T/R	Client	Licence	Site/Area
8274101	6.72 GHz	73MSD7WET	14/Apr/2022	R	Telstra Corporation Limited (39310)	11015100/2	Telstra Site DJAMBIDJIMBANT 0872
8274100	6.72 GHz	73MSD7WET	14/Apr/2022	T	Telstra Corporation Limited (39310)	11015100/2	Telstra Radio Site Coonega, 24 km WSW of Mount Eclipse NT
8274065	6.019325 GHz	56MOG7W	05/Aug/2021	R	Optus Mobile Pty Limited (20017363)	11309311/1	Wellington Shire Council Site Mount Bodangora Near WELLINGTON NSW 2820
8274064	6.019325 GHz	56MOG7W	05/Aug/2021	T	Optus Mobile Pty Limited (20017363)	11309311/1	Optus Site Lulworth Park off Mitchell Hwy GEURIE NSW 2830
8274063	6.271365 GHz	56MOG7W	05/Aug/2021	R	Optus Mobile Pty Limited (20017363)	11309311/1	Optus Site Lulworth Park off Mitchell Hwy GEURIE NSW 2830
8274062	6.271365 GHz	56MOG7W	05/Aug/2021	T	Optus Mobile Pty Limited (20017363)	11309311/1	Wellington Shire Council Site Mount Bodangora Near WELLINGTON NSW 2820

ACMA Register of Radiocommunications Licences







# SoFi Stadium by the numbers

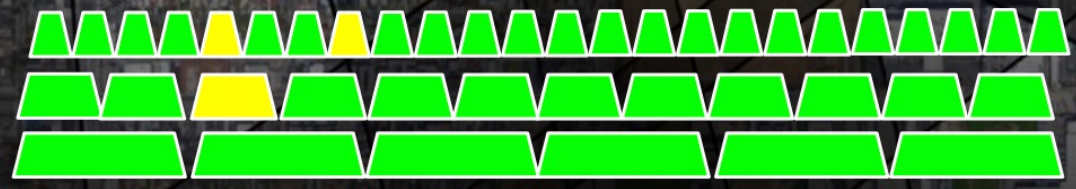
- 53 petabytes of traffic traversed the IP Fabric for Media network
- 31.7 TB of traffic to the internet
- Over 33k concurrent clients on the Wi-Fi network
- Peak traffic to internet: 14.2Gbps up / 5.4Gbps down



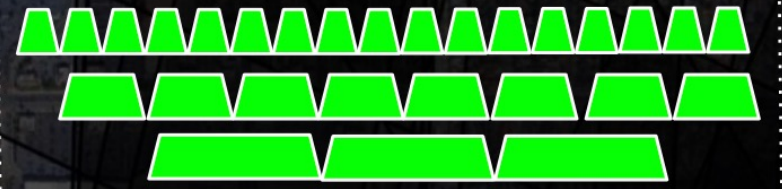


UNII-5

41 x 20 MHz  
20 x 40 MHz  
9 x 80 MHz



UNII-7





# ACMA 6 GHz 220722

Rx green points, P2P white lines,  
[https://web.acma.gov.au/rf/assignment\\_range\\_search](https://web.acma.gov.au/rf/assignment_range_search)  
4925-7125 MHz shows 16332 licensed nodes; >4000 links

**Legend**

- Feature 1
- Feature 2
- Jakarta
- T

