

MEASUREMENT REPORT
FCC PART 15.407 / ISED RSS-247 UNII 802.11a/n/ac/ax(SU)

Applicant Name:

Apple Inc.
 One Apple Park Way
 Cupertino, CA 95014

Date of Testing:

11/29/2023-02/03/2024

Test Report Issue Date:

4/4/2024

Test Site/Location:

Element Materials Technology Morgan Hill

Test Report Serial No.:

1C2311270069-11-R2.BCG

FCC ID:	BCGA2925
IC:	579C-A2925
APPLICANT:	Apple Inc.

Application Type:

Certification

Model/HVIN:

A2925

EUT Type:

Tablet Device

Frequency Range:

5180 – 5825MHz

Modulation Type:

OFDM

FCC Classification:

Unlicensed National Information Infrastructure (UNII)

FCC Rule Part(s):

Part 15 Subpart E (15.407)

ISED Specification:

RSS-247 Issue 3

Test Procedure(s):

ANSI C63.10-2013, KDB 789033 D02 v02r01

KDB 662911 D01 v02r01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013 and KDB 789033 D02 v02r01. Test results reported herein relate only to the item(s) tested.

This revised Test Report (S/N:1C2311270069-11-R2.BCG) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose accordingly.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



RJ Ortanez
 Executive Vice President

Prepared by: WKR0000005849

Reviewed by: WKR0000005805




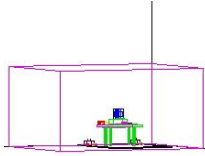
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 1 of 588

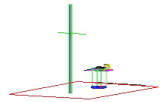
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MEASUREMENT REPORT



UNII Band	Channel Bandwidth (MHz)	Mode	Tx Frequency (MHz)	SISO						CDDSDM Primary						CDDSDM Diversity						
				Antenna WF5b		Antenna WF8		Antenna WF7		Antenna WF5b		Antenna WF8		Summed		Antenna WF8		Antenna WF7		Summed		
				Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	
1A	20	2C	802.11a/n	5180-5240	91.096	19.60	100.000	20.00	81.809	19.13	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.119	17.00	100.231	20.01
			802.11a/n	5260-5320	98.855	19.95	100.000	20.00	99.083	19.96	49.591	16.95	50.119	17.00	99.770	19.99	50.119	17.00	50.119	17.00	100.231	20.01
			802.11a/n	5500-5700	99.770	19.99	96.828	19.86	97.949	19.91	50.119	17.00	49.249	16.92	98.628	19.94	49.556	16.95	50.119	17.00	99.770	19.99
1	40	2C	802.11a/n	5745-5825	97.275	19.88	97.275	19.88	97.724	19.90	98.855	19.95	100.000	20.00	198.153	22.97	100.000	20.00	98.401	19.93	197.242	22.95
			802.11n	5190-5230	96.761	19.86	100.000	20.00	95.499	19.80	89.125	19.50	88.695	19.48	177.828	22.50	88.064	19.45	83.119	19.20	171.002	22.33
			802.11n	5270-5310	96.939	19.87	100.000	20.00	96.828	19.86	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	88.227	19.46	177.419	22.49
2A	80	3	802.11n	5510-5710	95.126	19.78	100.000	20.00	96.828	19.86	89.125	19.50	86.654	19.48	178.198	22.46	87.781	19.43	87.842	19.44	175.388	22.44
			802.11n	5755-5795	94.842	19.77	100.000	20.00	99.083	19.96	97.029	19.87	100.000	20.00	197.242	22.95	100.000	20.00	98.401	19.93	198.609	22.98
			802.11ac	5210	24.558	13.90	24.529	13.97	25.119	14.00	22.264	13.48	22.387	13.50	44.668	16.50	22.387	13.50	22.387	13.50	44.771	16.51
1	160	2C	802.11ac	5290	30.542	14.85	31.623	15.00	31.261	14.95	28.048	14.48	27.549	14.40	55.590	17.45	27.650	14.42	28.184	14.50	55.947	17.47
			802.11ac	5530-5690	96.828	19.86	97.275	19.88	97.499	19.89	98.175	19.92	97.724	19.90	196.884	22.92	97.499	19.89	98.175	19.92	196.884	22.92
			802.11ac	5775	89.125	19.50	87.096	19.40	88.004	19.45	78.307	18.94	77.268	18.88	155.597	21.92	79.433	19.00	79.433	19.00	158.855	22.01
2A	40	3	802.11ac	5250	17.783	12.50	17.783	12.50	17.783	12.50	14.125	11.50	14.080	11.49	28.184	14.50	14.073	11.48	14.125	11.50	28.184	14.50
			802.11ac	5570	19.953	13.00	19.196	12.83	19.011	12.79	15.413	11.88	15.290	11.84	31.261	14.95	15.428	11.88	15.849	12.00	31.261	14.95
			802.11ax (SU)	5180-5240	97.051	19.87	100.000	20.00	84.879	19.29	50.119	17.00	49.957	16.99	100.000	20.00	50.119	17.00	50.119	17.00	100.231	20.01
1	80	2C	802.11ax (SU)	5260-5320	100.000	20.00	100.000	20.00	99.083	19.96	50.119	17.00	50.119	17.00	99.770	19.99	50.119	17.00	49.888	16.95	98.628	19.94
			802.11ax (SU)	5500-5720	94.995	19.78	100.000	20.00	99.083	19.96	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.119	17.00	99.541	19.98
			802.11ax (SU)	5745-5825	96.450	19.84	100.000	20.00	98.401	19.93	97.949	19.91	100.000	20.00	196.336	22.93	100.000	20.00	99.083	19.96	198.609	22.98
2A	160	3	802.11ax (SU)	5190-5230	97.140	19.87	100.000	20.00	97.499	19.89	89.125	19.50	87.197	19.41	176.198	22.46	89.125	19.50	87.418	19.42	176.604	22.47
			802.11ax (SU)	5270-5310	100.000	20.00	100.000	20.00	97.275	19.88	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	83.330	19.21	172.584	22.37
			802.11ax (SU)	5510-5710	94.493	19.75	100.000	20.00	97.051	19.87	89.125	19.50	88.227	19.46	177.419	22.49	87.398	19.42	89.125	19.50	174.985	22.43
1	40	2C	802.11ax (SU)	5755-5795	97.320	19.88	100.000	20.00	97.724	19.90	98.851	19.94	100.000	20.00	196.609	22.98	100.000	20.00	99.541	19.98	198.526	23.00
			802.11ax (SU)	5210	22.387	13.50	22.387	13.50	22.387	13.50	15.849	12.00	15.849	12.00	31.477	14.98	15.849	12.00	15.435	11.89	31.623	13.50
			802.11ax (SU)	5290	27.695	14.42	28.184	14.50	28.184	14.50	24.940	13.97	24.980	13.98	49.888	16.98	23.730	13.75	24.854	13.95	48.529	16.86
2A	80	3	802.11ax (SU)	5530-5690	96.828	19.86	96.828	19.86	97.051	19.87	97.275	19.88	99.586	19.98	196.789	22.94	100.000	20.00	96.828	19.86	196.789	22.94
			802.11ax (SU)	5775	61.150	17.86	61.816	17.91	63.096	18.00	61.108	17.86	61.759	17.91	122.744	20.89	62.575	17.96	63.096	18.00	125.603	20.99
			802.11ax (SU)	5250	16.959	12.29	16.757	12.24	17.783	12.50	12.589	11.00	12.589	11.00	24.717	13.93	12.589	11.00	12.123	10.84	24.717	13.93
1/2A	160	3	802.11ax (SU)	5570	19.440	12.89	19.271	12.85	19.169	12.83	15.849	12.00	15.488	11.90	30.690	14.87	15.346	11.86	15.346	11.86	30.690	14.87

FCC EUT Overview (Low Data Rate)

UNII Band	Channel Bandwidth (MHz)	Mode	Tx Frequency (MHz)	SISO						CDDSDM Primary						CDDSDM Diversity						
				Antenna WF5b		Antenna WF8		Antenna WF7		Antenna WF5b		Antenna WF8		Summed		Antenna WF8		Antenna WF7		Summed		
				Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	
1	20	2C	802.11a/n	5180-5340	39.811	16.00	39.811	16.00	39.811	16.00	21.828	13.41	22.387	13.50	43.853	16.42	22.387	13.50	22.346	13.49	44.668	16.50
			802.11a/n	5260-5320	98.855	19.95	100.000	20.00	99.083	19.96	49.591	16.95	50.119	17.00	99.770	19.99	50.119	17.00	50.119	17.00	100.231	20.01
			802.11a/n	5500-5720	99.770	19.99	96.828	19.86	97.949	19.91	50.119	17.00	49.249	16.92	98.628	19.94	49.556	16.95	50.119	17.00	99.770	19.99
1	40	3	802.11n	5745-5825	97.275	19.88	97.275	19.88	97.724	19.90	98.855	19.95	100.000	20.00	198.153	22.97	100.000	20.00	98.401	19.93	197.242	22.95
			802.11n	5190-5230	96.549	19.86	67.717	18.31	70.795	18.50	38.212	15.82	39.811	16.00	77.983	18.92	39.428	15.96	39.391	15.95	78.886	18.97
			802.11n	5270-5310	96.939	19.87	100.000	20.00	88.247	19.46	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	88.227	19.46	177.419	22.49
2A	80	3	802.11n	5510-5710	95.126	19.78	100.000	20.00	96.828	19.86	89.125	19.50	87.257	19.41	176.198	22.46	87.619	19.43	84.918	19.29	172.584	22.37
			802.11ac	5210	23.616	13.73	24.110	13.82	25.119	14.00	21.857	13.40	22.387	13.50	44.259	16.46	22.095	13.44	21.296	13.29	43.351	16.37
			802.11ac	5290	30.542	14.85	31.623	15.00	31.261	14.95	28.048	14.48	27.549	14.40	55.590	17.45	27.650	14.42	28.184	14.50	55.947	17.47
2A	160	3	802.11ac	5530-5690	96.828	19.86	97.275	19.88	82.604	19.17	98.175	19.92	97.724	19.90	196.884	22.92	97.499	19.89	98.175	19.92	196.884	22.92
			802.11ac	5775	89.125	19.50	87.096	19.40	88.004	19.45	78.307	18.94	77.268	18.88	155.597	21.92	79.433	19.00	79.433	19.00	158.855	22.01
			802.11ac	5250	17.783	12.50	17.783	12.50	17.783	12.50	13.114	11.44	14.125	11.50	28.054	14.48	13.909	11.43	14.125	11.50	28.054	14.48
1	40	2C	802.11ax (SU)	5180-5240	39.428	15.96	39.811	16.00	39.811	16.00	22.387	13.50	22.387	13.50	44.771	16.51	22.387	13.50	22.315	13.49	44.668	16.50
			802.11ax (SU)	5260-5320	100.000	20.00	100.000	20.00	99.083	19.96	50.119	17.00	50.119	17.00	99.770	19.99	50.119	17.00	49.888	16.95	98.628	19.94
			802.11ax (SU)	5500-5720	94.995	19.78	100.000	20.00	99.083	19.96	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.119	17.00	99.541	19.98
2A	80	3	802.11ax (SU)	5745-5825	96.450	19.84	100.000	20.00	98.401	19.93	97.949	19.91	100.000	20.00	196.336	22.93	100.000	2				

UNII Band	Channel Bandwidth (MHz)	Mode	Tx Frequency (MHz)	SISO						CDD/SDM Primary						CDD/SDM Diversity					
				Antenna WF5b		Antenna WF8		Antenna WF7		Antenna WF5b		Antenna WF8		Summed		Antenna WF8		Antenna WF7		Summed	
				Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)
1	20	802.11a/n	5180 - 5240	92.109	19.64	100.000	20.00	82.851	19.18	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.012	16.90	98.175	19.92
2A	802.11a/n	5260 - 5320	97.006	19.87	100.000	20.00	97.499	19.89	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.911	16.98	99.770	19.98	
2C	802.11a/n	5600 - 5700	98.175	19.92	97.972	19.91	99.541	19.98	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.808	16.97	98.175	19.92	
3	802.11a/n	5900 - 5720	98.175	19.92	97.972	19.91	99.541	19.98	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.808	16.97	99.083	19.96	
1	40	802.11a/n	5745 - 5825	97.275	19.88	97.499	19.89	99.770	19.99	100.000	20.00	98.197	19.92	198.153	22.97	99.312	19.97	97.949	19.91	198.789	22.94
2A	802.11n	5190 - 5230	95.280	19.79	100.000	20.00	83.560	19.22	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	83.560	19.22	172.584	22.37	
2C	802.11n	5270 - 5310	98.197	19.92	100.000	20.00	97.275	19.88	89.125	19.50	87.863	19.44	177.011	22.48	87.157	19.40	89.043	19.50	176.198	22.46	
3	802.11n	5510 - 5710	97.724	19.90	100.000	20.00	97.051	19.87	88.125	19.50	89.023	19.50	178.238	22.51	89.125	19.50	88.582	19.47	177.828	22.50	
1	80	802.11ac	5210	21.648	13.33	22.279	13.48	21.533	13.33	19.925	12.99	18.910	12.77	38.815	15.89	19.692	12.94	19.953	13.00	39.628	15.98
2A	802.11ac	5290	28.184	14.50	26.626	14.25	26.687	14.26	25.032	13.99	25.119	14.00	50.119	17.00	25.119	14.00	24.615	13.91	49.774	16.97	
2C	802.11ac	5630 - 5690	97.387	19.89	92.342	19.65	97.499	19.89	97.275	19.88	96.605	19.85	194.089	22.88	97.275	19.88	96.161	19.83	193.642	22.87	
3	802.11ac	5775	79.433	19.00	76.789	18.85	74.834	18.74	68.549	18.36	69.855	18.44	138.357	21.41	69.167	18.40	70.795	18.50	139.959	21.46	
1	160	802.11ax (SU)	5250	13.964	11.45	14.125	11.50	13.459	11.29	11.220	10.50	10.619	10.26	21.827	13.39	11.036	10.43	11.220	10.50	22.233	13.47
2A	802.11ax (SU)	5570	15.778	11.98	15.566	11.92	15.004	11.76	13.852	11.42	14.125	11.50	27.990	14.47	14.125	11.50	13.759	11.39	27.861	14.45	
3	802.11ax (SU)	5190 - 5240	96.405	19.84	100.000	20.00	98.401	19.93	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.119	17.00	100.231	20.01	
2A	802.11ax (SU)	5260 - 5320	100.000	20.00	100.000	20.00	98.401	19.93	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.442	16.94	97.724	19.98	
2C	802.11ax (SU)	5500 - 5720	96.605	19.85	100.000	20.00	96.719	19.81	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.386	16.94	99.541	19.98	
3	802.11ax (SU)	5745 - 5825	99.174	19.96	100.000	20.00	99.541	19.98	98.628	19.94	100.000	20.00	198.153	22.97	100.000	20.00	98.855	19.95	199.067	22.99	
1	40	802.11ax (SU)	5190 - 5230	96.719	19.84	100.000	20.00	86.941	19.34	86.125	19.50	86.278	19.36	176.388	22.44	85.961	19.34	88.961	19.49	174.985	22.43
2A	802.11ax (SU)	5270 - 5310	100.000	20.00	100.000	20.00	96.605	19.85	89.105	19.50	87.599	19.43	176.604	22.47	87.700	19.43	88.816	19.39	174.582	22.42	
2C	802.11ax (SU)	5510 - 5710	97.051	19.87	100.000	20.00	96.719	19.81	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	87.317	19.41	176.604	22.47	
3	802.11ax (SU)	5755 - 5795	98.787	19.95	100.000	20.00	97.275	19.88	100.000	20.00	100.000	20.00	199.986	23.01	100.000	20.00	98.175	19.92	198.153	22.97	
1	80	802.11ax (SU)	5210	17.783	12.50	17.567	12.45	17.783	12.50	15.849	12.00	15.406	11.88	31.261	14.95	15.449	11.89	14.986	11.76	30.409	14.83
2A	802.11ax (SU)	5290	25.084	13.99	24.803	13.95	24.434	13.88	22.208	13.47	22.346	13.49	44.566	16.49	22.387	13.50	22.387	13.50	44.771	16.51	
2C	802.11ax (SU)	5630 - 5690	97.634	19.90	97.566	19.89	97.949	19.91	98.855	19.95	100.000	20.00	199.067	22.99	100.000	20.00	85.803	19.34	188.780	22.89	
3	802.11ax (SU)	5775	59.827	17.77	61.859	17.91	63.096	18.00	49.579	16.95	50.119	17.00	99.770	19.99	50.096	17.00	48.831	16.89	98.855	19.95	
1	160	802.11ax (SU)	5250	14.125	11.50	14.057	11.48	13.782	11.39	10.817	10.34	11.008	10.42	21.827	13.39	11.163	10.48	11.220	10.50	22.387	13.50
2C	802.11ax (SU)	5570	15.849	12.00	15.671	11.95	15.297	11.85	13.964	11.45	13.991	11.27	27.353	14.37	13.836	11.41	13.804	11.40	27.606	14.41	

FCC EUT Overview (Mid Data Rate)

UNII Band	Channel Bandwidth (MHz)	Mode	Tx Frequency (MHz)	SISO						CDD/SDM Primary						CDD/SDM Diversity					
				Antenna WF5b		Antenna WF8		Antenna WF7		Antenna WF5b		Antenna WF8		Summed		Antenna WF8		Antenna WF7		Summed	
				Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)
1	20	802.11a/n	5180 - 5240	39.811	16.00	39.811	16.00	39.811	16.00	22.387	13.50	22.387	13.50	44.463	16.48	22.289	13.48	22.387	13.50	44.668	16.50
2A	802.11a/n	5260 - 5320	97.006	19.87	100.000	20.00	97.499	19.89	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.911	16.98	99.770	19.98	
2C	802.11a/n	5600 - 5720	98.855	19.95	97.972	19.91	99.541	19.98	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.808	16.97	99.083	19.96	
3	802.11a/n	5900 - 5720	98.855	19.95	97.499	19.89	99.770	19.99	100.000	20.00	98.197	19.92	198.153	22.97	99.312	19.97	97.949	19.91	198.789	22.94	
1	40	802.11n	5190 - 5230	70.210	18.46	69.311	18.41	70.795	18.50	38.512	15.86	38.102	15.92	77.625	18.90	39.811	16.00	38.010	15.80	77.804	18.91
2A	802.11n	5270 - 5310	98.197	19.92	100.000	20.00	97.275	19.88	89.125	19.50	87.863	19.44	177.011	22.48	87.157	19.40	89.043	19.50	176.198	22.46	
2C	802.11n	5510 - 5710	97.724	19.90	99.083	19.96	97.051	19.87	88.125	19.50	89.023	19.50	178.238	22.51	89.125	19.50	87.157	19.40	176.198	22.46	
3	802.11n	5755 - 5795	98.855	19.95	100.000	20.00	98.605	19.88	98.401	19.93	100.000	20.00	198.609	22.98	100.000	20.00	98.855	19.95	199.067	22.99	
1	80	802.11ac	5210	21.852	13.40	22.387	13.50	22.182	13.46	19.925	12.99	18.910	12.77	38.815	15.89	19.692	12.94	19.953	13.00	39.628	15.98
2A	802.11ac	5290	28.184	14.50	26.626	14.25	26.687	14.26	25.032	13.99	25.119	14.00	50.119	17.00	25.119	14.00	24.615	13.91	49.774	16.97	
2C	802.11ac	5630 - 5690	97.387	19.89	96.694	19.85	97.499	19.89	97.275	19.88	96.605	19.85	194.089	22.88	97.275	19.88	96.161	19.83	193.642	22.87	
3	802.11ac	5775	79.433	19.00	76.789	18.85	74.834	18.74	68.549	18.36	69.855	18.44	138.357	21.41	69.167	18.40	70.795	18.50	139.959	21.46	
1/2A	160	802.11ax	5250	14.125	11.50	13.539	11.32	11.112	10.46	10.612	10.26	21.528	13.33	10.799	10.33	10.705	10.30	21.528	13.33		
1	802.11ax (SU)	5180 - 5240	39.628	15.98	39.811	16.00	39.811	16.00	22.387	13.50	22.325	13.49	44.259	16.46	22.387	13.50	22.387	13.50	44.771	16.51	
2A	802.11ax (SU)	5260 - 5320	100.000	20.00	100.000	20.00	98.401	19.93	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.442	16.94	97.724	19.98	
2C	802.11ax (SU)	5500 - 5720	97.724	19.90	100.000	20.00	98.401	19.93	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	49.386	16.94	99.541	19.98	
3	802.11ax (SU)	5745 - 5825	99.174	19.96	100.000	20.00	99.541	19.98	98.628	19.94	100.000	20.00	198.153	22.97</							

UNII Band	Channel Bandwidth (MHz)	Mode	Tx Frequency (MHz)	SISO						CDD/SDM Primary						CDD/SDM Diversity					
				Antenna WF5b		Antenna WF8		Antenna WF7		Antenna WF5b		Antenna WF8		Summed		Antenna WF8		Antenna WF7		Summed	
				Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)
1	20	802.11a/n	5180-5240	89.516	19.52	100.000	20.00	73.323	18.89	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.119	17.00	100.231	20.01
			5260-5320	97.949	19.91	100.000	20.00	97.724	19.90	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.073	17.00	100.231	20.01
			5500-5700	98.855	19.95	97.724	19.90	97.949	19.91	50.119	17.00	50.061	17.00	100.231	20.01	50.061	17.00	50.119	17.00	100.231	20.01
2A	40	802.11n	5500-5720	98.855	19.95	97.724	19.90	97.949	19.91	50.119	17.00	50.061	17.00	100.231	20.01	50.061	17.00	50.119	17.00	100.231	20.01
			5745-5825	98.855	19.95	98.401	19.93	98.628	19.94	99.266	19.97	99.541	19.98	197.697	22.96	99.312	19.97	98.401	19.93	195.884	22.92
			5190-5230	92.109	19.64	100.000	20.00	81.696	19.12	84.140	19.25	84.004	19.24	168.267	22.26	82.928	19.19	76.966	18.86	159.956	22.04
2A	80	802.11n	5270-5310	95.433	19.80	100.000	20.00	97.724	19.90	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	87.902	19.44	177.011	22.48
			5510-5710	97.724	19.90	99.426	19.98	97.275	19.88	86.457	19.37	89.125	19.50	178.238	22.44	89.125	19.50	81.133	19.09	170.216	22.31
			5755-5795	97.949	19.91	100.000	20.00	97.949	19.91	97.949	19.91	97.724	19.90	196.884	22.92	97.275	19.88	96.605	19.85	194.089	22.88
1	160	802.11ac	5210	19.963	13.00	19.963	13.00	19.953	13.00	15.805	11.99	15.849	12.00	31.623	15.00	15.849	12.00	15.849	12.00	31.696	15.01
			5290	24.706	13.93	24.227	13.84	25.119	14.00	21.602	13.35	22.274	13.48	43.853	16.42	22.387	13.50	21.702	13.37	44.055	16.44
			5530-5690	97.051	19.87	97.499	19.89	97.051	19.87	97.275	19.88	97.724	19.90	194.984	22.90	95.719	19.81	97.724	19.90	193.642	22.87
2A	40	802.11ac	5775	69.024	18.39	70.795	18.50	70.681	18.49	60.912	17.85	59.951	17.78	120.781	20.82	63.096	18.00	60.381	17.81	123.595	20.92
			5250	13.388	11.27	13.483	11.30	13.709	11.37	9.829	9.84	9.705	9.87	19.320	12.86	9.797	9.91	9.528	9.79	19.320	12.86
			5270-5310	12.337	10.91	12.193	10.86	12.215	10.87	10.742	10.31	11.220	10.50	21.879	13.42	11.018	10.42	10.827	10.35	21.827	13.39
2A	80	802.11ax(SU)	5180-5240	92.045	19.64	100.000	20.00	81.979	19.14	48.428	16.85	50.119	17.00	98.628	19.94	50.119	17.00	50.119	17.00	100.231	20.01
			5260-5320	97.499	19.89	100.000	20.00	86.625	19.33	49.215	16.92	50.119	17.00	99.312	19.97	50.119	17.00	50.119	17.00	100.231	20.01
			5500-5720	98.628	19.94	98.175	19.92	98.401	19.93	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.119	17.00	100.231	20.01
2A	40	802.11ax(SU)	5745-5825	98.175	19.92	97.724	19.90	98.401	19.93	98.628	19.94	97.791	19.90	196.884	22.92	97.051	19.87	97.275	19.88	194.089	22.88
			5190-5230	98.125	19.50	96.596	19.38	82.547	19.17	78.433	19.00	78.632	18.96	158.125	21.99	77.304	18.98	77.500	18.98	156.382	21.90
			5270-5310	98.125	19.50	98.654	19.48	89.736	19.48	76.278	18.92	78.415	18.94	154.525	21.89	77.625	18.90	79.433	19.00	157.036	21.96
2A	80	802.11ax(SU)	5610-5710	98.855	19.95	99.816	19.99	97.275	19.88	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	87.217	19.41	173.380	22.79
			5755-5795	97.275	19.88	100.000	20.00	98.855	19.95	97.499	19.89	98.651	19.94	196.336	22.93	99.060	19.96	98.797	19.48	187.932	22.94
			5210	17.583	12.45	17.543	12.44	17.783	12.50	13.909	11.43	14.096	11.49	27.990	14.47	13.477	11.30	14.125	11.50	27.606	14.41
2A	160	802.11ax(SU)	5290	22.372	13.50	22.172	13.46	22.387	13.50	19.953	13.00	19.847	12.98	39.811	16.00	19.616	12.93	19.320	12.86	38.905	15.90
			5530-5690	96.828	19.86	97.949	19.91	96.828	19.86	98.401	19.93	97.701	19.90	196.884	22.92	97.409	19.89	81.320	19.10	178.649	22.52
			5775	56.234	17.50	54.150	17.34	54.001	17.32	48.428	16.85	48.664	18.82	96.605	19.85	50.119	17.00	50.119	17.00	100.231	20.01
1	40	802.11ax(SU)	5250	14.125	11.50	14.125	11.50	14.018	11.47	9.752	9.89	9.899	9.85	19.409	12.88	9.703	9.87	10.000	10.00	19.724	12.95
			5570	12.034	10.80	12.981	11.13	11.948	10.77	10.975	10.40	10.957	10.40	21.928	13.41	10.965	10.40	11.015	10.42	21.979	13.42

FCC EUT Overview (High Data Rate)

UNII Band	Channel Bandwidth (MHz)	Mode	Tx Frequency (MHz)	SISO						CDD/SDM Primary						CDD/SDM Diversity					
				Antenna WF5b		Antenna WF8		Antenna WF7		Antenna WF5b		Antenna WF8		Summed		Antenna WF8		Antenna WF7		Summed	
				Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)
1	20	802.11a/n	5180-5240	39.811	16.00	39.683	15.99	39.811	16.00	22.387	13.50	22.387	13.50	44.771	16.51	22.387	13.50	22.387	13.50	44.771	16.51
			5260-5320	97.949	19.91	100.000	20.00	97.724	19.90	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.00	50.073	17.00	100.231	20.01
			5500-5720	98.855	19.95	97.724	19.90	97.949	19.91	50.119	17.00	50.061	17.00	100.231	20.01	50.061	17.00	50.119	17.00	100.231	20.01
2A	40	802.11n	5500-5720	98.855	19.95	97.724	19.90	97.949	19.91	50.119	17.00	50.061	17.00	100.231	20.01	50.061	17.00	50.119	17.00	100.231	20.01
			5745-5825	98.855	19.95	98.401	19.93	98.628	19.94	99.266	19.97	99.541	19.98	197.697	22.96	99.312	19.97	98.401	19.93	195.884	22.92
			5190-5230	70.795	18.50	70.795	18.50	70.795	18.50	39.811	16.00	38.521	15.86	78.343	18.94	37.601	15.75	39.811	16.00	77.446	18.89
2A	80	802.11n	5270-5310	95.433	19.80	100.000	20.00	97.724	19.90	89.125	19.50	89.125	19.50	178.238	22.51	89.125	19.50	87.902	19.44	177.011	22.48
			5510-5710	97.724	19.90	99.426	19.98	97.275	19.88	86.457	19.37	89.125	19.50	178.238	22.44	89.125	19.50	81.133	19.09	170.216	22.31
			5755-5795	97.949	19.91	100.000	20.00	97.949	19.91	97.949	19.91	97.724	19.90	196.884	22.92	97.275	19.88	96.605	19.85	194.089	22.88
1	160	802.11ac	5210	19.966	12.97	19.963	13.00	19.953	13.00	15.216	11.82	15.849	12.00	31.046	14.92	15.849	12.00	15.849	12.00	31.696	15.01
			5290	24.706	13.93	24.227	13.84	25.119	14.00	21.602	13.35	22.274	13.48	43.853	16.42	22.387	13.50	21.702	13.37	44.055	16.44
			5530-5690	97.051	19.87	97.499	19.89	97.051	19.87	97.275	19.88	97.724	19.90	194.984	22.90	95.719	19.81	97.724	19.90	193.642	22.87
2A	40	802.11ac	5775	69.024	18.39	70.795	18.50	70.681	18.49	60.912	17.85	59.951	17.78	120.781	20.82	63.096	18.00	60.381	17.81	123.595	20.92
			5250	14.125	11.50	13.505	11.31	13.721	11.37	9.817	9.82	9.954	9.98	19.454	12.89	9.847	9.93	9.623	9.83	19.454	12.89
			5270-5310	98.125	19.50	98.628	19.48	89.736	19.48	76.278	18.92	78.415	18.94	154.525	21.89	77.625	18.90	79.433	19.00	157.036	21.96
2A	80	802.11ax(SU)	5180-5240	39.811	16.00	39.228	15.94	39.811	16.00	22.387	13.50	22.387	13.50	44.771	16.51	22.387	13.50	22.387	13.50	44.771	16.51
			5260-5320	97.499	19.89	100.000	20.00	86.625	19.33	49.215	16.92	50.119	17.00	99.312	19.97	50.119	17.00	50.119	17.00	100.231	20.01
			5500-5720	98.628	19.94	98.175	19.92	98.401	19.93	50.119	17.00	50.119	17.00	100.231	20.01	50.119	17.0				

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 Element Materials Technology Test Location

These measurement tests were conducted at the Element Materials Technology located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

Measurements were performed at Element Materials Technology located in Morgan Hill, CA 95037, U.S.A.

- Element Materials Technology is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Materials Technology facility is a registered (22831) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs).

FCC ID: BCGA2925 IC: 579C-A2925	 MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Tablet Device FCC ID: BCGA2925** and **IC: 579C-A2925**. The test data contained in this report pertains only to the emissions due to the EUT's UNII 802.11a/n/ac/ax(SU) transmitter.

Test Device Serial No.: XMG9RDC496 , FP0XV3X4YN, WPGV45HY5V, DLXH0W000710000636

2.2 Device Capabilities

This device contains the following capabilities:

802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8), 802.11a/ax WIFI 6E, NB UNII (1x, HDR4, HDR8), WPT, 802.15.4

This device supports BT Beamforming

Band 1		Band 2A		Band 2C		Band 3	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
36	5180	52	5260	100	5500	149	5745
:	:	:	:	:	:	:	:
42	5210	56	5280	116	5580	157	5785
:	:	:	:	:	:	:	:
48	5240	64	5320	144	5720	165	5825

Table 2-1. 802.11a / 802.11n / 802.11ac / 802.11ax (20MHz) Frequency / Channel Operations

Band 1		Band 2A		Band 2C		Band 3	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
38	5190	54	5270	102	5510	151	5755
:	:	:	:	:	:	:	:
46	5230	62	5310	110	5550	159	5795
				:	:		
				142	5710		

Table 2-2. 802.11n / 802.11ac / 802.11ax (40MHz BW) Frequency / Channel Operations

Band 1		Band 2A		Band 2C		Band 3	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
42	5210	58	5290	106	5530	155	5775
				:	:		
				138	5690		

Table 2-3. 802.11ac / 802.11ax (80MHz BW) Frequency / Channel Operations

Band 1		Band 2A		Band 2C	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
50	5250	50	5250	114	5570

Table 2-4. 802.11ac / 802.11ax (160MHz BW) Frequency / Channel Operations

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Notes:

- 5GHz NII operation is possible in 20MHz, 40MHz, 80MHz and 160MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) KDB 789033 D02 v02r01 and ANSI C63.10-2013. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Measured Duty Cycles						
802.11 Mode/Band		Duty Cycle [%]				
		Antenna WF5b	Antenna WF8	Antenna WF7	CDD (Primary)	CDD (Diversity)
5GHz	a (Low Rate)	98.4	98.6	98.6	98.4	98.6
	a (Mid Rate)	93.8	94.8	94.4	94.2	94.4
	a (High Rate)	92.7	93.3	93.8	93.1	92.7
	n (HT20) (Low Rate)	96.2	96.8	97.1	93.5	93.8
	n (HT20) (Mid Rate)	93.1	93.8	94.0	89.7	89.9
	n (HT20) (High Rate)	0.0	91.0	91.4	85.9	85.9
	ax(SU) (HT20 Low Rate)	94.8	96.2	95.9	95.9	95.7
	ax(SU) (HT20 Mid Rate)	91.4	93.3	93.1	92.9	92.9
	ax(SU) (HT20 High Rate)	86.3	86.1	87.1	87.1	86.5
	n (HT40 Low Rate)	95.7	96.6	96.4	93.3	94.0
	n (HT40 Mid Rate)	93.3	93.5	94.0	89.7	89.3
	n (HT40 High Rate)	89.9	90.4	90.6	85.1	85.3
	ax(SU) (HT40 Low Rate)	94.8	96.2	96.4	96.4	96.2
	ax(SU) (HT40 Mid Rate)	92.5	92.7	93.3	92.5	93.1
	ax(SU) (HT40 High Rate)	86.1	85.9	86.5	86.5	86.7
	ac (HT80 Low Rate)	95.5	95.9	96.6	93.1	93.5
	ac (HT80 Mid Rate)	92.7	93.1	93.1	88.7	88.9
	ac (HT80 High Rate)	87.1	86.9	87.1	81.1	81.7
	ac (VHT160 Low Rate)	95.1	95.3	95.1	95.3	95.9
	ac (VHT160 Mid Rate)	91.6	92.7	92.0	92.7	92.7
	ac (VHT160 High Rate)	85.1	85.5	84.9	85.3	85.1
	ax(SU) (HT80 Low Rate)	94.2	94.8	94.8	91.6	91.2
	ax(SU) (HT80 Mid Rate)	90.8	91.2	90.4	85.5	85.7
	ax(SU) (HT80 High Rate)	83.8	85.3	85.3	80.7	80.7
ax(SU) (HE160 Low Rate)	93.5	94.4	94.4	94.2	94.2	
ax(SU) (HE160 Mid Rate)	89.7	91.0	91.0	91.0	90.6	
ax(SU) (HE160 High Rate)	82.6	83.4	83.9	83.4	83.4	

Table 2-5. Measured Duty Cycles

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2. The device employs CDD/SDM technology. Below are the possible configurations.

WiFi Configurations	SISO			Primary						Diversity						
	Antenna WF5b	Antenna WF8	Antenna WF7	CDD		SDM		STBC		CDD		SDM		STBC		
				Antenna WF5b	Antenna WF8	Antenna WF5b	Antenna WF8	Antenna WF5b	Antenna WF8	Antenna WF8	Antenna WF7	Antenna WF8	Antenna WF7	Antenna WF8	Antenna WF7	
5GHz	11a	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗
	11n (20MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11ax(SU)(20MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11n (40MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11ax(SU)(40MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11ac (80MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11ax(SU)(80MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11ac (160MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11ax(SU)(160MHz)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 2-6. WIFI Configurations

✓ = Support ; ✗ = NOT Support

SISO = Single Input Single Output

SDM = Spatial Diversity Multiplexing – MIMO CDD function

CDD = Cyclic Delay Diversity - 2Tx Function

STBC = Space-Time Block Coding – 2Tx Function

Data Rate(s) Tested: 6, 9, 12, 18, 24, 36, 48, 54Mbps (802.11a)
 6.5/7.2, 13/14.4, 19.5/21.7, 26/28.9, 39/43.3, 52/57.8, 58.5/65, 65/72.2Mbps (n – 20MHz)
 13.5/15, 27/30, 40.5/45, 54/60, 81/90, 108/120, 121.5/135, 135/150Mbps (n – 40MHz BW)
 29.3/32.5, 58.5/65, 87.8/97.5, 117/130, 175.5/195, 234/260, 263.3/292.5, 292.5/325, 351/390,
 390/433.3Mbps (ac – 80MHz BW)
 13/14.4, 26.28.9, 39/43.3, 52/57.8, 78/86.7, 104/115.6, 117/130, 130/144.4Mbps (MIMO CDD n/ac – 20MHz)
 156/173Mbps (MIMO CDD ac – 20MHz)
 27/30, 54/60, 81/90, 108/120, 162/180, 216/240, 243,270, 270/300Mbps (MIMO CDD n/ac – 40MHz)
 324/360, 360/400Mbps (MIMO CDD ac – 40MHz)
 58.5/65, 117/130, 175.5/195, 234/260, 351/390, 468/520, 526.5/585, 585/650, 702/780, 780/866.7Mbps
 (MIMO CDD ac – 80MHz)
 116/130, 234/260, 351/390, 468/520, 351/390, 468/520, 526.5/585, 585/650, 702/780, 780/866.7Mbps
 (MIMO ac – 160MHz)
 8/8.6, 16/17.2, 24/25.8, 33/34.4, 49/51.6, 65/68.8, 73/77.4, 81/86.0, 98/103.2, 108/114.7, 122/129.0,
 135/143.4Mbps (ax – 20MHz)
 16/17.2, 33/34.4, 49/51.6, 65/68.8, 98/103.2, 130/137.6, 146/154.9, 163/172.1, 195/206.5, 217/229.4,
 244/258.1, 271/286.8Mbps (ax – 40MHz BW)
 34/36.0, 68/72.1, 102/108.1, 136/144.1, 204/216.2, 272/288.2, 306/324.4, 340/360.3, 408/432.4, 453/480.4,
 510/540.4, 567/600.5Mbps (ax – 80MHz BW)
 136.2/144.2, 272/288.2, 408.2/432.4, 544.4, 576.4/816.6864.8, 1088.8/1153, 1225/1297, 1361.2/1441.2,
 1633.4/1729.4, 1814.8/1921.6, 2041.6/2161.8, 2268.6/2402Mbps, (MIMO ax – 160MHz)

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3. This device supports simultaneous transmission operations, which allows for multiple transmitters to transmit simultaneously on the same antenna. The table below shows all configurations possible..

Antenna	Simultaneous Tx Config	Wifi 2GHz	Bluetooth	Thread	Wifi 5GHz	Wifi 6GHz	NB UNII
		802.11 b/g/n/ax	BDR, EDR, HDR4/8, LE1/2M	802.15.4	802.11 a/n/ac/ax	802.11 a/ax	BDR, HDR4/8
WF8	Config 1	✓	✗	✗	✗	✗	✓
WF8	Config 2	✗	✓	✗	✓	✗	✗
WF8	Config 3	✗	✓	✗	✗	✓	✗
WF8	Config 4	✗	✗	✓	✓	✗	✗
WF8	Config 5	✗	✗	✓	✗	✓	✗
WF7	Config 6	✓	✗	✗	✗	✗	✓
WF7	Config 7	✗	✓	✗	✓	✗	✗
WF7	Config 8	✗	✓	✗	✗	✓	✗
WF7	Config 9	✗	✗	✓	✓	✗	✗
WF7	Config 10	✗	✗	✓	✗	✓	✗

Table 2-7. Simultaneous Transmission Configurations

✓ = Support; ✗ = Not Support

Note:

Specific 2.4GHz Wi-Fi antenna that can only transmit simultaneously with 2.4GHz Bluetooth antenna is listed in the SAR test report. For BT (2.4GHz) in connected mode and Wi-Fi (2.4GHz) - Wi-Fi max power will not exceed minimum of (13.5dBm, SAR max cap, Reg max cap) power. For BT (2.4GHz) in disconnected mode and Wi-Fi (2.4GHz) - BT will be using iPA only and Wi-Fi max power will not exceed minimum of (SAR max cap, Reg max cap) power. Bluetooth can simultaneously transmit with IEEE 802.11a/n/ac/ax 5/6 GHz on separate antenna.

TWDR Channels are not supported for ISED.

2.3 Antenna Description

Following antenna gains provided by manufacturer were used for the testing.

Frequency [GHz]	Antenna Gain (dBi)		
	Antenna WF5b	Antenna WF8	Antenna WF7
5.150 - 5.250	1.5	2.3	-2.0
5.250 - 5.350	1.0	2.5	-1.9
5.470 - 5.725	0.6	2.2	1.3
5.725 - 5.850	1.1	2.2	2.0

Table 2-8. Highest Antenna Gain

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2.4 Test Support Equipment

1	Apple MacBook Pro w/AC/DC Adapter	Model: Model:	A2141 A2166	S/N: S/N:	C02H604EQ05D C4H042705ZNP0WA6
2	Apple USB-C Cable	Model:	Spartan	S/N:	GXK1336018XKTR024
3	USB-C Cable w/ AC Adapter	Model: Model:	A246C A2305	S/N: S/N:	DWH80115BK826GV19 C4H95160004PF4F4V
4	Apple Pencil	Model:	A2538	S/N:	KJ26TCFXJW
5	DC Power Supply	Model:	KPS3010D	S/N:	N/A

Table 2-9. Test Support Equipment List

2.5 Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013 and KDB 789033 D02 v02r01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See Sections 3.2 for AC line conducted emissions test setups, 3.3 for radiated emissions test setups, and 7.2, 7.3, 7.4, and 7.5 for antenna port conducted emissions test setups.

There are two vendors of the WiFi/Bluetooth radio modules, variant 1 and variant 2. Both radio modules have the same mechanical outline, same on-board antenna matching circuit, identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances. The worst-case configuration was found between the two variants. The EUT was also investigated with and without charger.

For emissions from 1GHz – 18GHz, low, mid, and high channels were tested with highest power and worst case configuration. The emissions below 1GHz and above 18GHz were tested with the highest transmitting power and the worst case channel.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

For AC line conducted and radiated test below 1GHz, following configuration were investigated and EUT powered by AC/DC was the worst case.

- EUT powered by AC/DC adaptor via USB-C cable with wire charger
- EUT powered by host PC via USB-C cable with wire charger

802.11n HT20/40, 802.11ax(SU) HE20/40/80/160 and 802.11acVHT80/160 2TX CDD/SDM mode test data provided in this report covers 802.11n HT20/40, 802.11ax(SU) HE20/40/80/160 and 802.11acVHT80/160 2TX STBC mode

802.11ac VHT20 and VHT40 mode are different from 802.11n HT20 and HT40 only in control messages and have the same power settings.

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The data rates have been classified into three different groups; low data rate, middle data rate, and high data rate. All three groups of data rate have been investigated and only the worst case data rate per group is reported. The worst case data rate for each group per mode are as follows:

- 802.11a:
 - Low Data Rate: 12Mbps
 - Mid Data Rate: 24Mbps
 - High Data Rate: 54Mbps
- 802.11n HT20/40:
 - Low Data Rate: MCS2/MCS10(SISO/CDD/SDM)
 - Mid Data Rate: MCS4/MCS12(SISO/CDD/SDM)
 - High Data Rate: MCS7/MCS15(SISO/CDD/SDM)
- 802.11ac VHT80/160:
 - Low Data Rate: MCS2(SISO/CDD/SDM)
 - Mid Data Rate: MCS4(SISO/CDD/SDM)
 - High Data Rate: MCS9(SISO/CDD/SDM)
- 802.11ax(SU) HE20/HE40/HE80/HE160
 - Low Data Rate: MCS2(SISO/CDD/SDM)
 - Mid Data Rate: MCS4(SISO/CDD/SDM)
 - High Data Rate: MCS11(SISO/CDD/SDM)

For 802.11ax-RU test result, see separate UNII 802.11ax (OFDMA) report, 1C2311270069-12.BCG

2.6 Software and Firmware

The test was conducted with firmware version 21E8197 installed on the EUT.

2.7 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 789033 D02 v02r01 were used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 7m x 3.66m x 2.7m shielded enclosure. The shielded enclosure is manufactured by AP Americas. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-6. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is EPCOS 2X60A Power Line Filter (100dB Attenuation, 14kHz-18GHz) and the two EPCOs 2X48A filters (100dB Minimum Insertion Loss, 14kHz - 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

Line conducted emissions test results are shown in Section 7.8. Automated test software was used to perform the AC line conducted emissions testing. Automated measurement software utilized is Rohde & Schwarz EMC32, Version 10.50.40.

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3.3 Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

Per KDB 414788, radiated emission test sites other than open-field test sites (e.g., shielded anechoic chambers), may be employed for emission measurements below 30MHz if characterized so that the measurements correspond to those obtained at an open-field test site. To determine test site equivalency, a reference sample transmitting at 149kHz was measured on an open field test site (asphalt with no ground plane) and then measured in the 3m semi-anechoic chamber. A calibrated 60cm loop antenna was used while the reference device was rotated through the X, Y and Z axis in order to capture the worst case level. A maximum deviation of 2.77dB at 149kHz was measured when comparing the 3 meter semi-anechoic chamber to the open field site.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

3.4 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

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4.0 ANTENNA REQUIREMENTS


Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antennas of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

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5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (\pm dB)
Conducted Bench Top Measurements	2.07
Line Conducted Disturbance	1.91
Radiated Disturbance (<30MHz)	4.12
Radiated Disturbance (30MHz - 1GHz)	4.85
Radiated Disturbance (1 - 18GHz)	5.08
Radiated Disturbance (>18GHz)	4.59

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6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	6/21/2023	Annual	6/21/2024	MY49430244
Anritsu	ML2496A	Power Meter	4/4/2023	Annual	4/4/2024	1840005
Anritsu	MA2411B	Pulse Power Sensor	8/22/2023	Annual	8/22/2024	1726262
Anritsu	MA2411B	Pulse Power Sensor	4/5/2023	Annual	4/5/2024	1726261
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	3/30/2023	Annual	3/30/2024	00218555
Keysight Technology	N9040B	UXA Signal Analyzer	3/10/2023	Annual	3/10/2024	MY57212015
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	8/31/2023	Annual	8/31/2024	100052
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	5/11/2023	Annual	5/11/2024	101619
Rohde & Schwarz	ESW44	EMI Test Receiver	6/6/2023	Annual	6/6/2024	101668
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	6/22/2023	Annual	6/22/2024	102356
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	6/2/2023	Annual	6/2/2024	100050
Rohde & Schwarz	HFH2-Z2	Loop Antenna	5/1/2023	Annual	5/1/2024	100519
Rohde & Schwarz	ENV216	Two-Line V-Network	6/8/2023	Annual	6/8/2024	192052
Schwarzbeck	VULB 9162	Bilog Antenna (30MHz - 6GHz)	4/17/2023	Annual	4/17/2024	00304

Table 6-1. Test Equipment List

Note:

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

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7.0 TEST RESULTS

7.1 Summary

Company Name: Apple Inc.
 FCC ID: BCGA2925
 IC: 579C-A2925
 FCC Classification: Unlicensed National Information Infrastructure (UNII)

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407	RSS-Gen [6.7]	26dB Bandwidth	N/A	CONDUCTED	N/A	Section 7.2
15.407(e)	RSS-Gen [6.7]	6dB Bandwidth	>500kHz(5725-5850MHz)		PASS	Section 7.3
2.1049	RSS-Gen [6.7]	Occupied Bandwidth	N/A		PASS	Section 7.2, 7.3
15.407 (a.1.iv), (a.2), (a.3)	RSS-247 [6.2]	Maximum Conducted Output Power	Maximum conducted powers must meet the limits detailed in 15.407 (a) (RSS-247 [6.2])		PASS	Section 7.4
15.407 (a.1.iv), (a.2), (a.3)	RSS-247 [6.2]	Maximum Power Spectral Density	Maximum power spectral density must meet the limits detailed in 15.407 (a) (RSS-247 [6.2])		PASS	Section 7.5
15.407(h)	RSS-247 [6.3]	Dynamic Frequency Selection	See DFS Test Report	RADIATED	PASS	See DFS Test Report (1C23112700 69-10.BCG)
15.407(b.1), (2), (3), (4)	RSS-247 [6.2]	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 15.407(b) (RSS-247 [6.2])		PASS	Section 7.6
15.205, 15.407(b.1), (4), (5), (6)	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9])		PASS	Section 7.6, 7.7
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.207 (RSS-Gen [8.8]) limits	LINE CONDUCTED	PASS	Section 7.8

Table 7-1. Summary of Test Results

Notes:

- 1) All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element “UNII Automation,” Version 7.0.
- 5) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element “Chamber Automation,” Version 3.0.0.
- 6) Per RSS-247 Section 6.2.3, transmission on channels which overlap the 5600-5650 MHz is prohibited. This device operates under these frequencies only under the control of a certified master device and does not support active scanning on these channels. This device does not transmit any beacons or initiate any transmissions in UNII Bands 2A or 2C.

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7.2 26dB & 99% Bandwidth Measurement – 802.11a/n/ac/ax(SU)

§2.1049; §15.407; RSS-Gen [6.7]

Test Overview and Limit

The bandwidth at 26dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26dB bandwidth.

The 26dB bandwidth is used to determine the conducted power limits.

Test Procedure Used

ANSI C63.10-2013 – Section 12.4
KDB 789033 D02 v02r01 – Section C

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth
3. VBW \geq 3 x RBW
4. Detector = Peak
5. Trace mode = max hold

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. All antenna configurations and data rates were investigated and only the worst case are reported.
2. The data rates have been classified into three different groups; low data rate, middle rate, and high data rate. All three data rate groups of data rate have been investigated and only the worst case data rate per group is reported.
3. Low, mid, and high channels were tested and tabular data has been reported. Only mid channel bandwidth plots have been reported.

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V 10.5 12/15/2021

7.2.1 Antenna WF5b 26dB & 99% Bandwidth Measurements

	Frequency [MHz]	Channel	802.11 MODE	Data Rate [Mbps]	Measured 99% Occupied Bandwidth [MHz]	Measured 26dB Bandwidth [MHz]	
Band 1	5180	36	n (20MHz)	19.5/21.7 (MCS2)	17.79	21.25	
	5200	40	n (20MHz)	19.5/21.7 (MCS2)	17.72	20.51	
	5240	48	n (20MHz)	19.5/21.7 (MCS2)	17.72	20.71	
	5180	36	ax (SU) (20MHz)	24/25.8 (MCS2)	19.06	22.15	
	5200	40	ax (SU) (20MHz)	24/25.8 (MCS2)	19.03	21.05	
	5240	48	ax (SU) (20MHz)	24/25.8 (MCS2)	18.98	21.33	
	5190	38	n (40MHz)	40/40.5 (MCS2)	36.37	41.74	
	5230	46	n (40MHz)	40/40.5 (MCS2)	36.28	40.72	
	5190	38	ax (SU) (40MHz)	49/51.6 (MCS2)	37.98	46.26	
	5230	46	ax (SU) (40MHz)	49/51.6 (MCS2)	38.00	41.49	
	5210	42	ac (80MHz)	87.8/97.5 (MCS2)	75.47	81.82	
5210	42	ax (SU) (80MHz)	102/108.1 (MCS2)	77.24	83.62		
Band 1/2	5250	50	ac (160MHz)	87.8/97.5 (MCS2)	154.24	163.05	
	5250	50	ax (SU) (160MHz)	102/108.1 (MCS2)	156.34	164.64	
Band 2A	5260	52	n (20MHz)	19.5/21.7 (MCS2)	17.72	20.64	
	5300	60	n (20MHz)	19.5/21.7 (MCS2)	17.68	20.82	
	5320	64	n (20MHz)	19.5/21.7 (MCS2)	17.78	21.39	
	5260	52	ax (SU) (20MHz)	24/25.8 (MCS2)	19.00	21.22	
	5300	60	ax (SU) (20MHz)	24/25.8 (MCS2)	18.97	21.10	
	5320	64	ax (SU) (20MHz)	24/25.8 (MCS2)	19.06	21.50	
	5270	54	n (40MHz)	40/40.5 (MCS2)	36.26	40.71	
	5310	62	n (40MHz)	40/40.5 (MCS2)	36.44	41.14	
	5270	54	ax (SU) (40MHz)	49/51.6 (MCS2)	37.90	41.05	
	5310	62	ax (SU) (40MHz)	49/51.6 (MCS2)	37.98	44.02	
	5290	58	ac (80MHz)	87.8/97.5 (MCS2)	75.61	83.44	
	5290	58	ax (SU) (80MHz)	102/108.1 (MCS2)	77.37	82.88	
	Band 2C	5500	100	n (20MHz)	19.5/21.7 (MCS2)	17.74	21.21
		5580	116	n (20MHz)	19.5/21.7 (MCS2)	17.70	20.91
*5600		120	n (20MHz)	19.5/21.7 (MCS2)	17.71	20.68	
5700		140	n (20MHz)	19.5/21.7 (MCS2)	17.75	21.11	
5720		144	n (20MHz)	19.5/21.7 (MCS2)	17.72	20.80	
5500		100	ax (SU) (20MHz)	24/25.8 (MCS2)	19.05	21.46	
5580		116	ax (SU) (20MHz)	24/25.8 (MCS2)	18.98	20.96	
*5600		120	ax (SU) (20MHz)	24/25.8 (MCS2)	19.02	21.06	
5700		140	ax (SU) (20MHz)	24/25.8 (MCS2)	19.11	21.78	
5720		144	ax (SU) (20MHz)	24/25.8 (MCS2)	19.03	20.94	
5510		102	n (40MHz)	40/40.5 (MCS2)	36.35	41.43	
5550		110	n (40MHz)	40/40.5 (MCS2)	36.28	41.16	
*5590		118	n (40MHz)	40/40.5 (MCS2)	36.24	40.70	
5670		134	n (40MHz)	40/40.5 (MCS2)	36.38	44.45	
5710		142	n (40MHz)	40/40.5 (MCS2)	36.24	40.88	
5510		102	ax (SU) (40MHz)	49/51.6 (MCS2)	38.07	45.94	
5550		110	ax (SU) (40MHz)	49/51.6 (MCS2)	37.90	40.87	
*5590		118	ax (SU) (40MHz)	49/51.6 (MCS2)	37.93	41.04	
5670		134	ax (SU) (40MHz)	49/51.6 (MCS2)	37.99	44.00	
5710		142	ax (SU) (40MHz)	49/51.6 (MCS2)	37.90	41.11	
5530		106	ac (80MHz)	87.8/97.5 (MCS2)	75.59	82.13	
*5610		122	ac (80MHz)	87.8/97.5 (MCS2)	75.76	82.25	
5690		138	ac (80MHz)	87.8/97.5 (MCS2)	75.44	81.04	
5530		106	ax (SU) (80MHz)	102/108.1 (MCS2)	77.18	84.06	
*5610		122	ax (SU) (80MHz)	102/108.1 (MCS2)	77.26	84.24	
5690		138	ax (SU) (80MHz)	102/108.1 (MCS2)	77.16	81.51	
5570		114	ac (160MHz)	87.8/97.5 (MCS2)	154.19	164.25	
5570		114	ax (SU) (160MHz)	102/108.1 (MCS2)	156.56	165.06	

Table 7-2. Conducted Bandwidth Measurements Antenna WF5b (Low Data Rate)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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	Frequency [MHz]	Channel	802.11 MODE	Data Rate [Mbps]	Measured 99% Occupied Bandwidth [MHz]	Measured 26dB Bandwidth [MHz]	
Band 1	5180	36	n (20MHz)	39/43.3 (MCS4)	17.76	20.87	
	5200	40	n (20MHz)	39/43.3 (MCS4)	17.70	20.58	
	5240	48	n (20MHz)	39/43.3 (MCS4)	17.71	20.80	
	5180	36	ax (SU) (20MHz)	49/51.6 (MCS4)	19.03	21.29	
	5200	40	ax (SU) (20MHz)	49/51.6 (MCS4)	19.02	20.99	
	5240	48	ax (SU) (20MHz)	49/51.6 (MCS4)	18.98	21.07	
	5190	38	n (40MHz)	81/90 (MCS4)	36.26	40.75	
	5230	46	n (40MHz)	81/90 (MCS4)	36.25	40.69	
	5190	38	ax (SU) (40MHz)	98/103.2 (MCS4)	38.14	48.63	
	5230	46	ax (SU) (40MHz)	98/103.2 (MCS4)	38.01	41.58	
Band 1/2	5210	42	ac (80MHz)	175.5/195 (MCS4)	75.47	80.57	
	5210	42	ax (SU) (80MHz)	204/216.2 (MCS4)	77.20	81.58	
Band 2A	5250	50	ac (160MHz)	175.5/195 (MCS4)	154.23	162.97	
	5250	50	ax (SU) (160MHz)	204/216.2 (MCS4)	156.28	163.43	
	5260	52	n (20MHz)	39/43.3 (MCS4)	17.69	20.84	
	5300	60	n (20MHz)	39/43.3 (MCS4)	17.69	20.38	
	5320	64	n (20MHz)	39/43.3 (MCS4)	17.71	20.81	
	5260	52	ax (SU) (20MHz)	49/51.6 (MCS4)	19.03	21.08	
	5300	60	ax (SU) (20MHz)	49/51.6 (MCS4)	18.97	21.10	
	5320	64	ax (SU) (20MHz)	49/51.6 (MCS4)	19.05	23.84	
	5270	54	n (40MHz)	81/90 (MCS4)	36.41	40.92	
	5310	62	n (40MHz)	81/90 (MCS4)	36.31	40.76	
	5270	54	ax (SU) (40MHz)	98/103.2 (MCS4)	37.96	41.02	
	5310	62	ax (SU) (40MHz)	98/103.2 (MCS4)	38.09	45.72	
	5290	58	ac (80MHz)	175.5/195 (MCS4)	75.41	80.56	
	5290	58	ax (SU) (80MHz)	204/216.2 (MCS4)	77.31	81.94	
	Band 2C	5500	100	n (20MHz)	39/43.3 (MCS4)	17.70	20.47
		5580	116	n (20MHz)	39/43.3 (MCS4)	17.70	20.86
*5600		120	n (20MHz)	39/43.3 (MCS4)	17.72	20.90	
5700		140	n (20MHz)	39/43.3 (MCS4)	17.72	20.90	
5720		144	n (20MHz)	39/43.3 (MCS4)	17.68	20.44	
5500		100	ax (SU) (20MHz)	49/51.6 (MCS4)	19.03	20.65	
5580		116	ax (SU) (20MHz)	49/51.6 (MCS4)	19.00	21.12	
*5600		120	ax (SU) (20MHz)	49/51.6 (MCS4)	19.04	21.01	
5700		140	ax (SU) (20MHz)	49/51.6 (MCS4)	19.03	21.67	
5720		144	ax (SU) (20MHz)	49/51.6 (MCS4)	19.00	21.19	
5510		102	n (40MHz)	81/90 (MCS4)	36.24	40.68	
5550		110	n (40MHz)	81/90 (MCS4)	36.24	41.03	
*5590		118	n (40MHz)	81/90 (MCS4)	36.35	40.60	
5670		134	n (40MHz)	81/90 (MCS4)	36.27	40.94	
5710		142	n (40MHz)	81/90 (MCS4)	36.33	40.98	
5510		102	ax (SU) (40MHz)	98/103.2 (MCS4)	38.06	49.14	
5550		110	ax (SU) (40MHz)	98/103.2 (MCS4)	37.90	41.22	
*5590		118	ax (SU) (40MHz)	98/103.2 (MCS4)	37.99	40.77	
5670		134	ax (SU) (40MHz)	98/103.2 (MCS4)	38.23	49.46	
5710		142	ax (SU) (40MHz)	98/103.2 (MCS4)	37.94	40.85	
5530		106	ac (80MHz)	175.5/195 (MCS4)	75.49	80.98	
*5610		122	ac (80MHz)	175.5/195 (MCS4)	75.55	80.93	
5690		138	ac (80MHz)	175.5/195 (MCS4)	75.53	80.99	
5530		106	ax (SU) (80MHz)	204/216.2 (MCS4)	77.38	81.32	
*5610		122	ax (SU) (80MHz)	204/216.2 (MCS4)	77.29	81.23	
5690		138	ax (SU) (80MHz)	204/216.2 (MCS4)	76.99	81.39	
5570		114	ac (160MHz)	175.5/195 (MCS4)	154.09	163.09	
5570		114	ax (SU) (160MHz)	204/216.2 (MCS4)	156.47	164.39	

Table 7-3. Conducted Bandwidth Measurements Antenna WF5b (Mid Data Rate)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

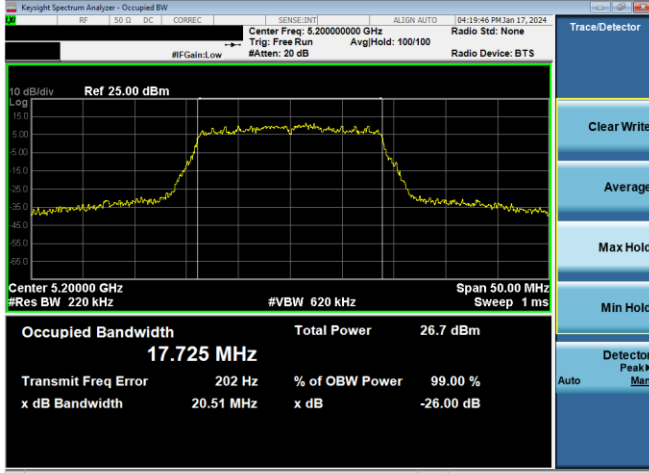
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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	Frequency [MHz]	Channel	802.11 MODE	Data Rate [Mbps]	Measured 99% Occupied Bandwidth [MHz]	Measured 26dB Bandwidth [MHz]
Band 1	5180	36	n (20MHz)	65/72.2 (MCS7)	17.76	21.03
	5200	40	n (20MHz)	65/72.2 (MCS7)	17.79	20.89
	5240	48	n (20MHz)	65/72.2 (MCS7)	17.83	20.85
	5180	36	ax (SU) (20MHz)	135/143.4 (MCS11)	19.00	20.97
	5200	40	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	21.03
	5240	48	ax (SU) (20MHz)	135/143.4 (MCS11)	19.02	20.95
	5190	38	n (40MHz)	135/150 (MCS7)	36.47	41.21
	5230	46	n (40MHz)	135/150 (MCS7)	36.73	41.63
	5190	38	ax (SU) (40MHz)	271/286 (MCS11)	37.85	41.28
	5230	46	ax (SU) (40MHz)	271/286 (MCS11)	38.02	55.62
	5210	42	ac (80MHz)	390/433.3 (MCS9)	75.81	81.19
5210	42	ax (SU) (80MHz)	567/600.5 (MCS11)	77.17	80.95	
Band 1/2	5250	50	ac (160MHz)	390/433.3 (MCS9)	155.04	163.66
	5250	50	ax (SU) (160MHz)	567/600.5 (MCS11)	155.89	164.59
Band 2A	5260	52	n (20MHz)	65/72.2 (MCS7)	17.79	20.58
	5300	60	n (20MHz)	65/72.2 (MCS7)	17.80	21.12
	5320	64	n (20MHz)	65/72.2 (MCS7)	17.80	20.98
	5260	52	ax (SU) (20MHz)	135/143.4 (MCS11)	19.06	20.83
	5300	60	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	21.13
	5320	64	ax (SU) (20MHz)	135/143.4 (MCS11)	18.98	20.89
	5270	54	n (40MHz)	135/150 (MCS7)	36.52	41.13
	5310	62	n (40MHz)	135/150 (MCS7)	36.50	41.13
	5270	54	ax (SU) (40MHz)	271/286 (MCS11)	37.96	44.22
	5310	62	ax (SU) (40MHz)	271/286 (MCS11)	37.89	41.20
	5290	58	ac (80MHz)	390/433.3 (MCS9)	75.83	81.13
5290	58	ax (SU) (80MHz)	567/600.5 (MCS11)	77.04	81.86	
Band 2C	5500	100	n (20MHz)	65/72.2 (MCS7)	17.77	20.84
	5580	116	n (20MHz)	65/72.2 (MCS7)	17.81	21.05
	*5600	120	n (20MHz)	65/72.2 (MCS7)	17.79	20.93
	5700	140	n (20MHz)	65/72.2 (MCS7)	17.78	20.82
	5720	144	n (20MHz)	65/72.2 (MCS7)	17.83	21.00
	5500	100	ax (SU) (20MHz)	135/143.4 (MCS11)	18.98	21.04
	5580	116	ax (SU) (20MHz)	135/143.4 (MCS11)	19.02	20.92
	*5600	120	ax (SU) (20MHz)	135/143.4 (MCS11)	19.00	21.14
	5700	140	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	20.99
	5720	144	ax (SU) (20MHz)	135/143.4 (MCS11)	19.00	21.21
	5510	102	n (40MHz)	135/150 (MCS7)	36.40	41.28
	5550	110	n (40MHz)	135/150 (MCS7)	36.53	41.27
	*5590	118	n (40MHz)	135/150 (MCS7)	36.57	41.12
	5670	134	n (40MHz)	135/150 (MCS7)	36.42	40.83
	5710	142	n (40MHz)	135/150 (MCS7)	36.80	41.56
	5510	102	ax (SU) (40MHz)	271/286 (MCS11)	37.82	41.09
	5550	110	ax (SU) (40MHz)	271/286 (MCS11)	37.92	41.10
	*5590	118	ax (SU) (40MHz)	271/286 (MCS11)	38.04	50.14
	5670	134	ax (SU) (40MHz)	271/286 (MCS11)	37.86	41.03
	5710	142	ax (SU) (40MHz)	271/286 (MCS11)	37.93	55.11
	5530	106	ac (80MHz)	390/433.3 (MCS9)	75.94	81.14
	*5610	122	ac (80MHz)	390/433.3 (MCS9)	75.97	81.28
	5690	138	ac (80MHz)	390/433.3 (MCS9)	76.03	82.71
	5530	106	ax (SU) (80MHz)	567/600.5 (MCS11)	77.10	81.15
	*5610	122	ax (SU) (80MHz)	567/600.5 (MCS11)	77.06	81.14
	5690	138	ax (SU) (80MHz)	567/600.5 (MCS11)	77.17	81.21
	5570	114	ac (160MHz)	390/433.3 (MCS9)	154.97	165.03
	5570	114	ax (SU) (160MHz)	567/600.5 (MCS11)	156.20	165.57

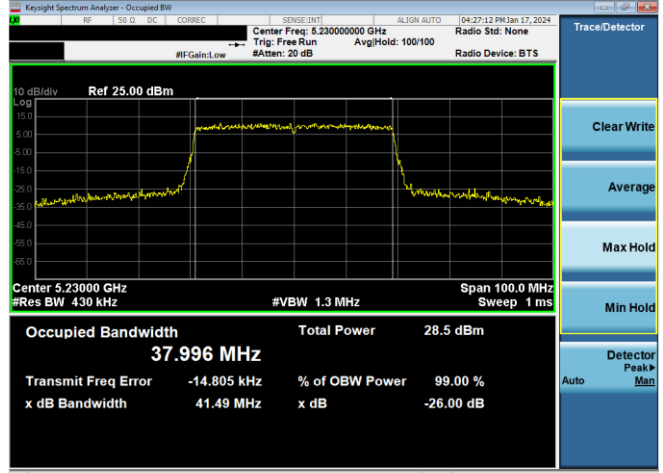
Table 7-4. Conducted Bandwidth Measurements Antenna WF5b (High Data Rate)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

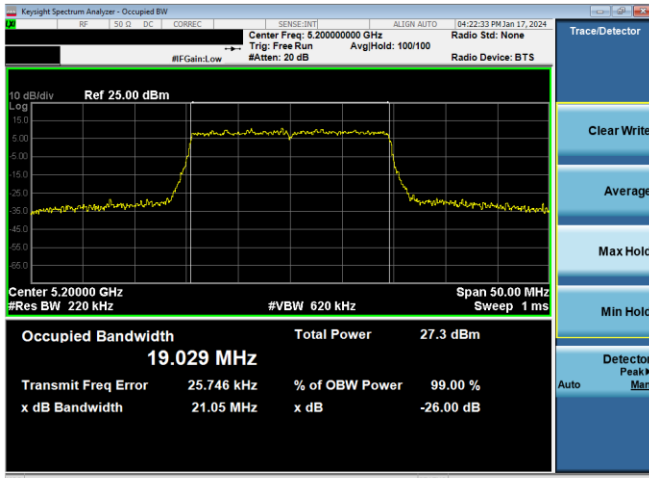
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 22 of 588



Plot 7-1. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 40, MCS2)



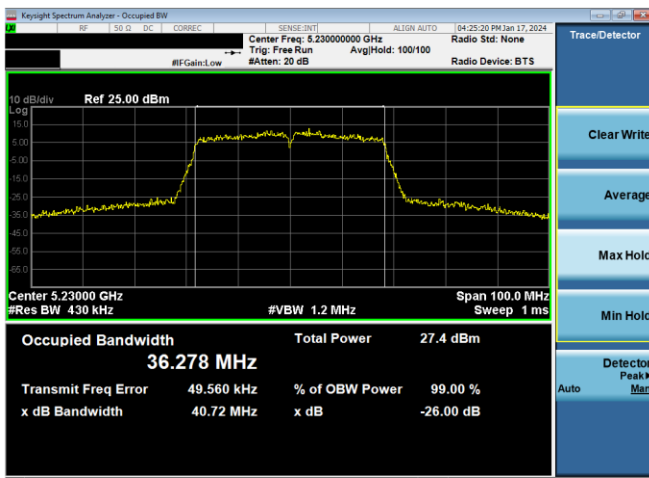
Plot 7-4. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 46, MCS2)



Plot 7-2. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 40, MCS2)



Plot 7-5. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 42, MCS2)

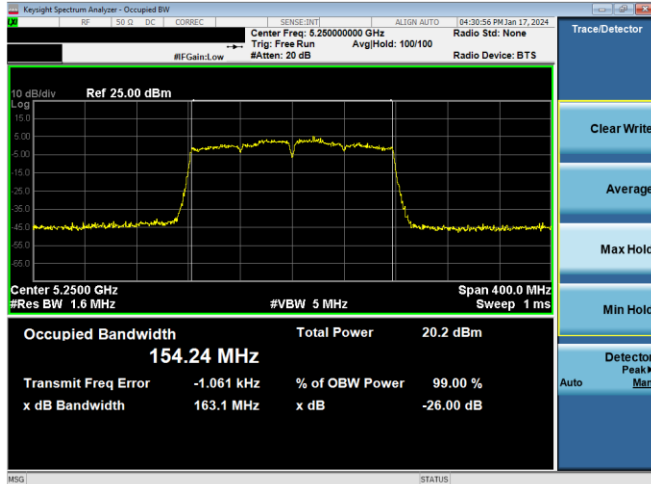


Plot 7-3. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 46, MCS2)

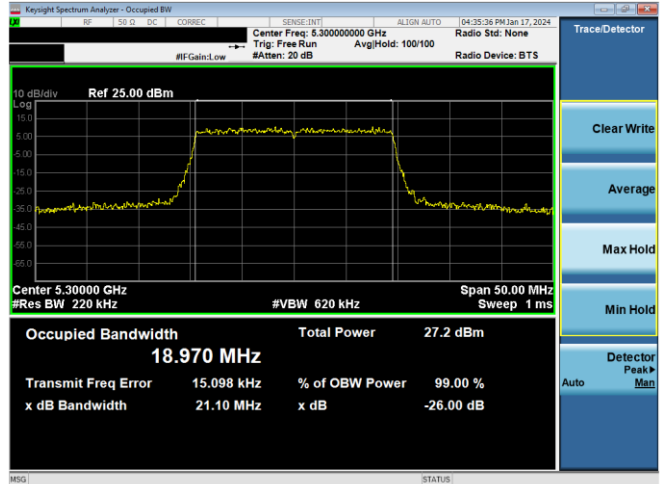


Plot 7-6. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 42, MCS2)

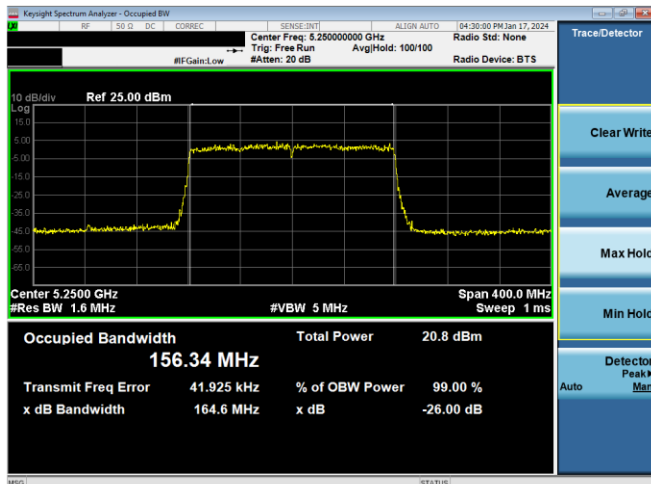
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 23 of 588



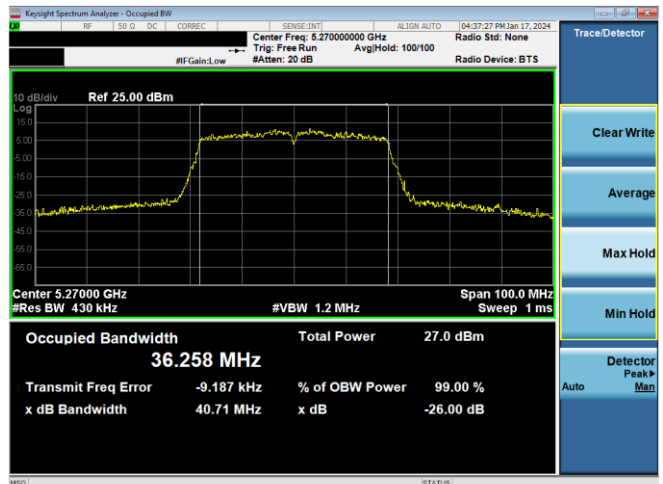
Plot 7-7. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 50, MCS2)



Plot 7-10. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 60, MCS2)



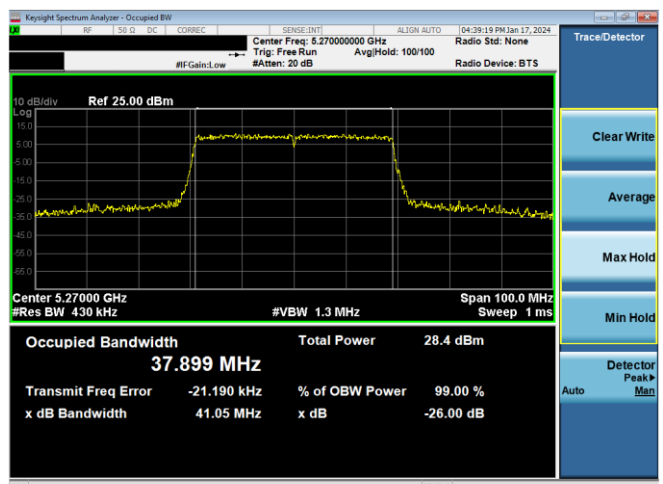
Plot 7-8. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 50, MCS2)



Plot 7-11. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 54, MCS2)



Plot 7-9. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 60, MCS2)

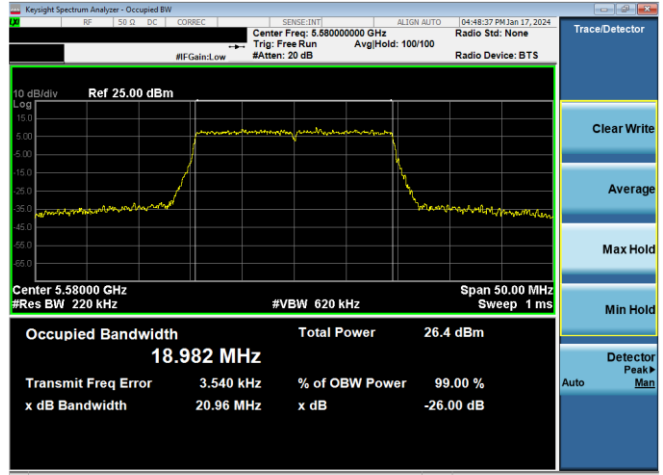


Plot 7-12. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 54, MCS2)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 24 of 588



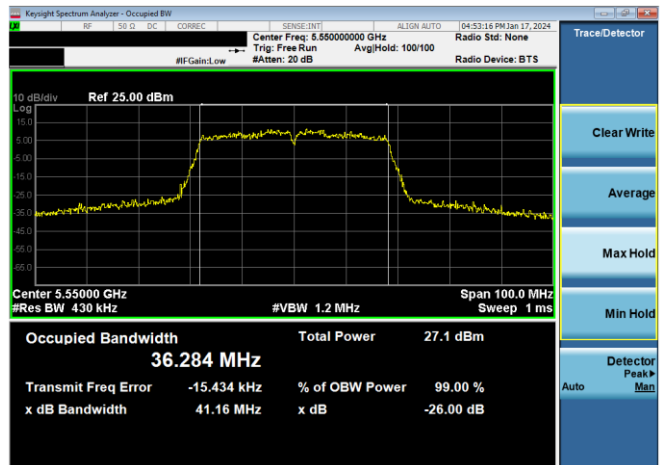
Plot 7-13. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 58, MCS2)



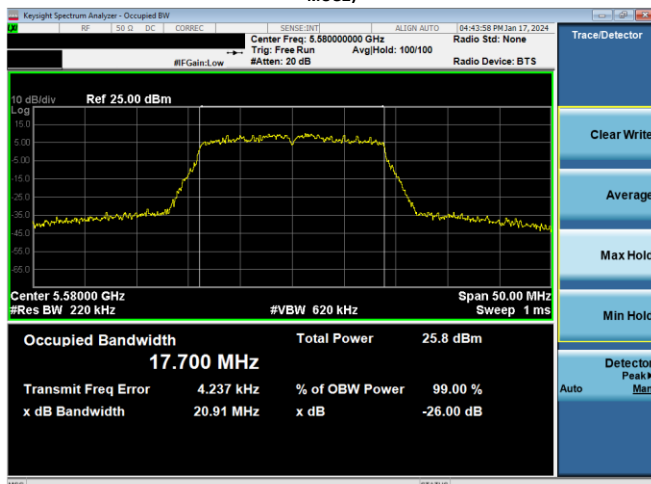
Plot 7-16. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 116, MCS2)



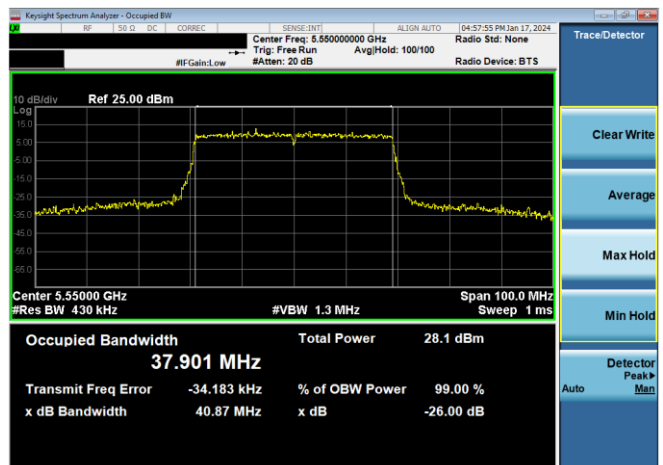
Plot 7-14. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 58, MCS2)



Plot 7-17. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 110, MCS2)

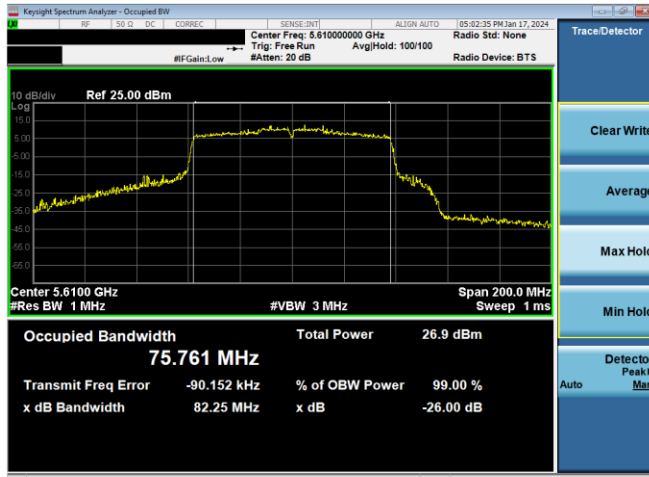


Plot 7-15. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 116, MCS2)

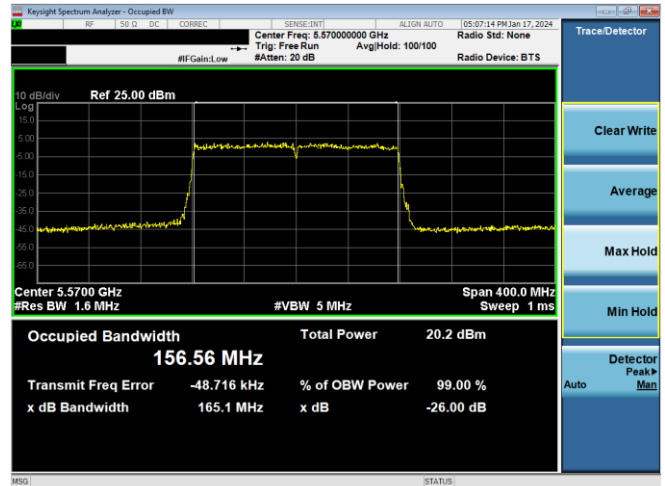


Plot 7-18. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 110, MCS2)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 25 of 588



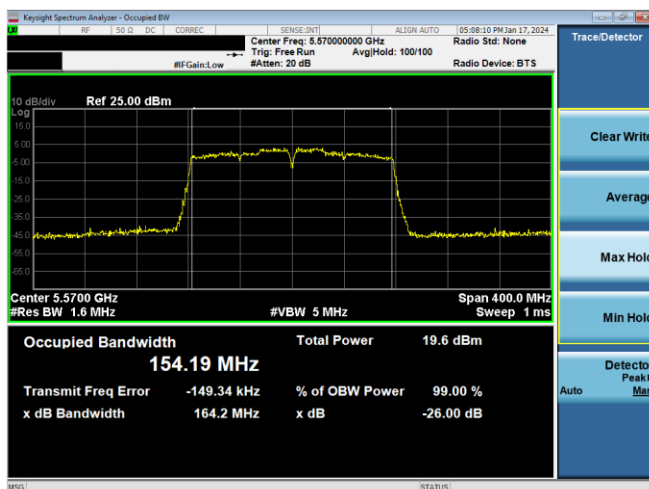
Plot 7-19. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 122, MCS2)



Plot 7-22. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 114, MCS2)

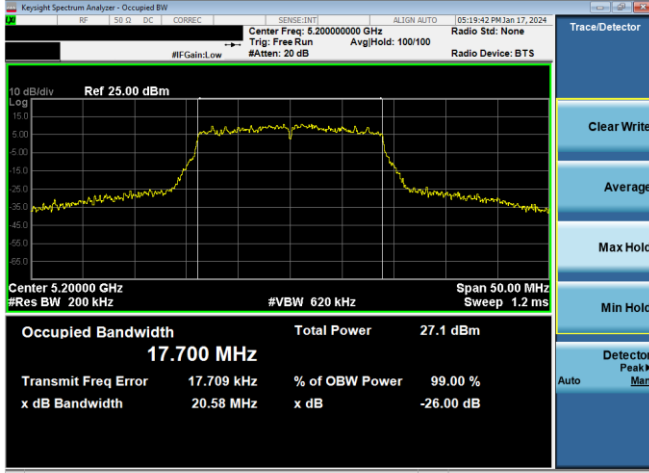


Plot 7-20. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 122, MCS2)

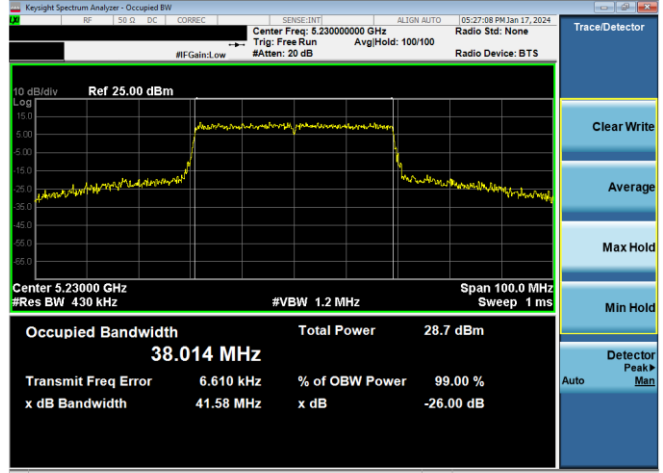


Plot 7-21. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 114, MCS2)

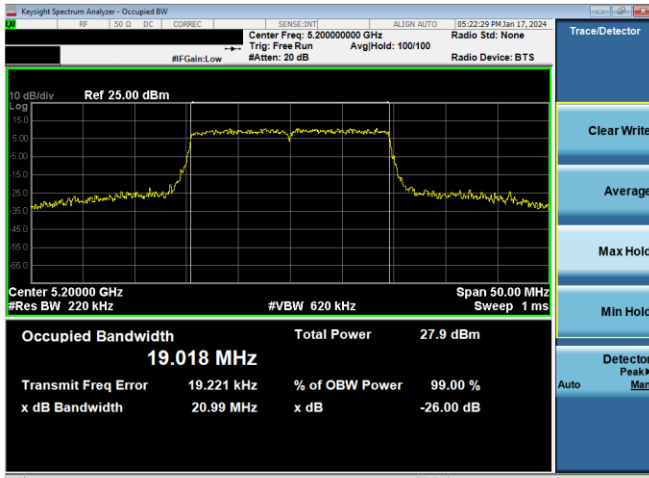
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 26 of 588



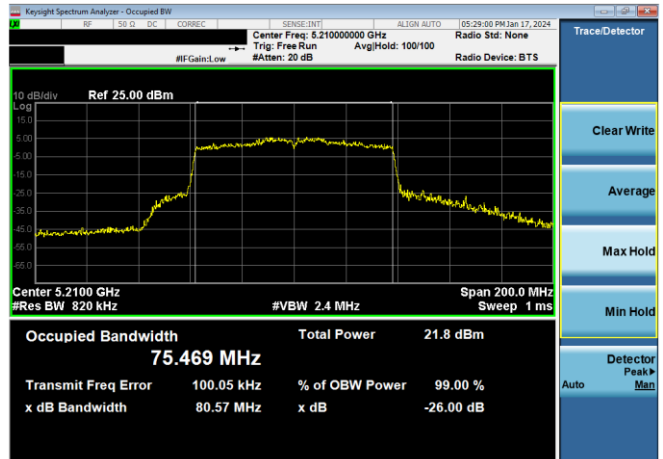
Plot 7-23. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 40, MCS4)



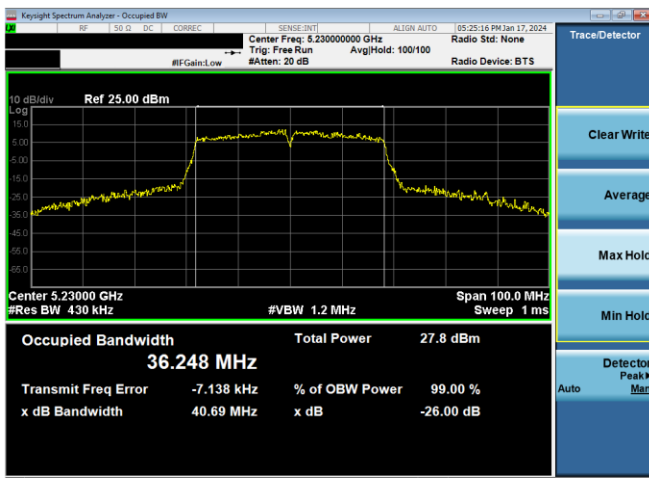
Plot 7-26. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 46, MCS4)



Plot 7-24. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 40, MCS4)



Plot 7-27. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 42, MCS4)

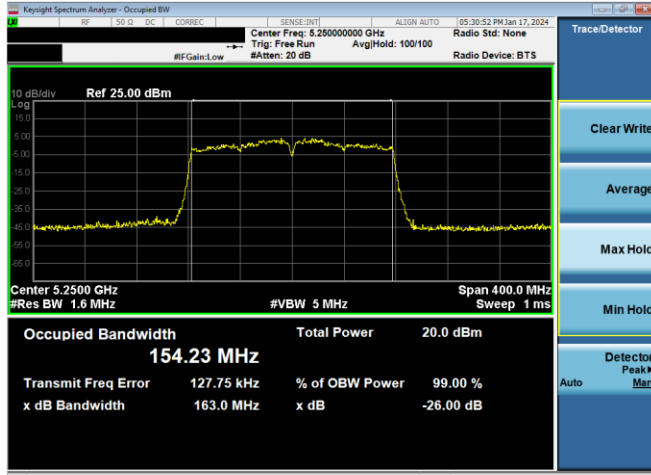


Plot 7-25. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 46, MCS4)

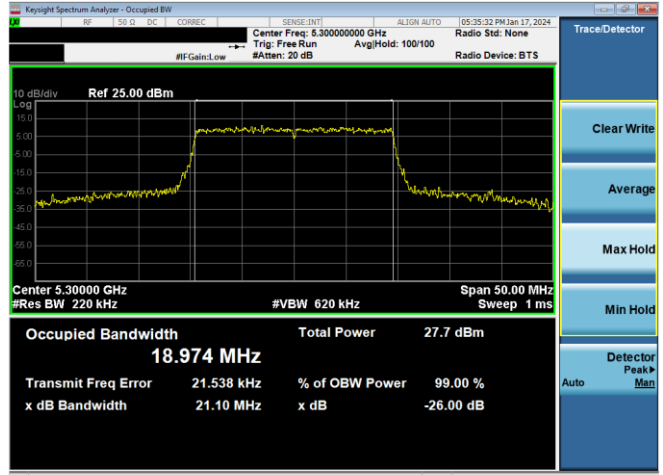


Plot 7-28. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 42, MCS4)

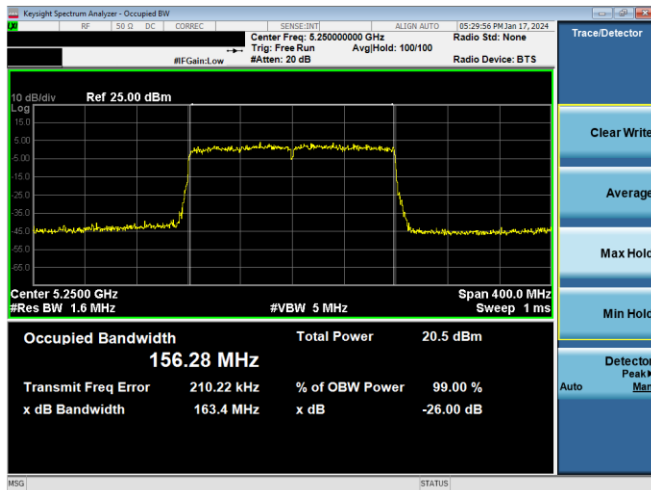
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 27 of 588



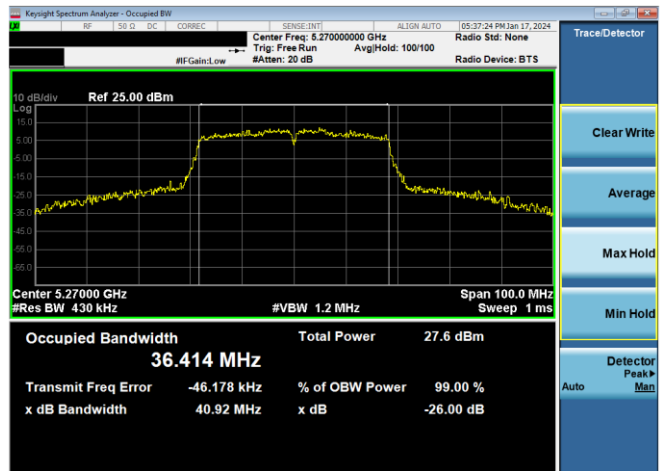
Plot 7-29. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 50, MCS4)



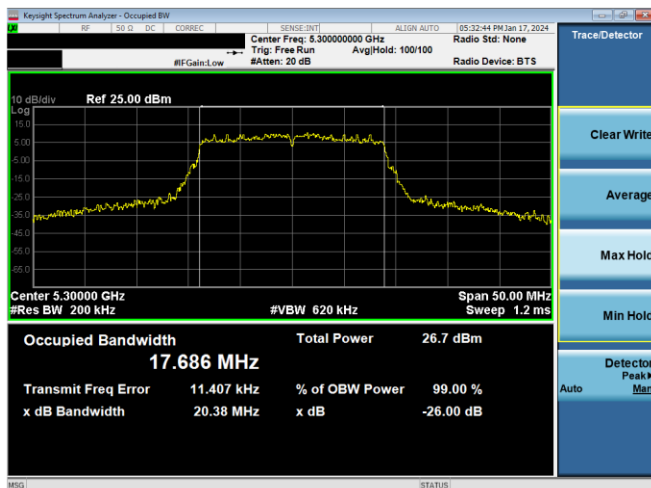
Plot 7-32. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 60, MCS4)



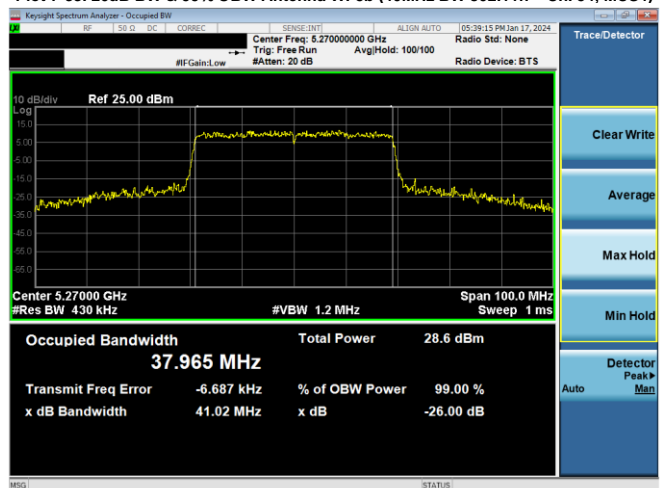
Plot 7-30. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 50, MCS4)



Plot 7-33. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 54, MCS4)

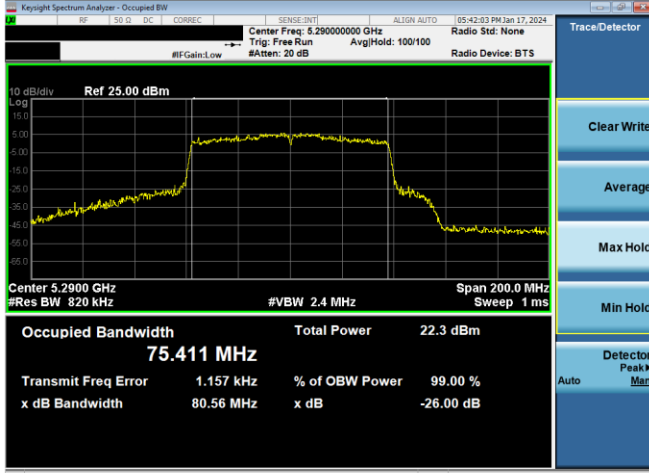


Plot 7-31. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 60, MCS4)

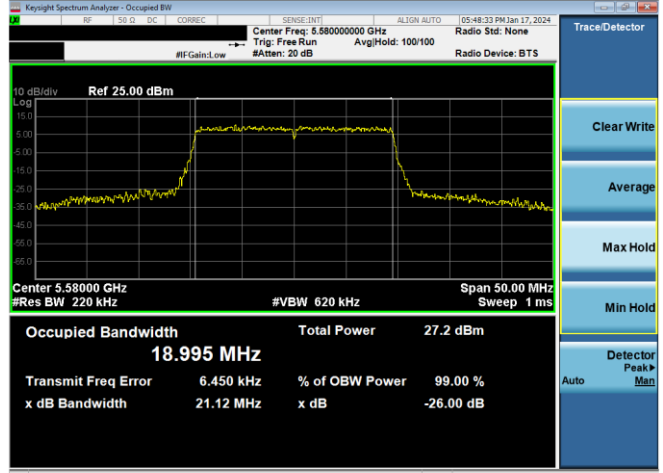


Plot 7-34. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 54, MCS4)

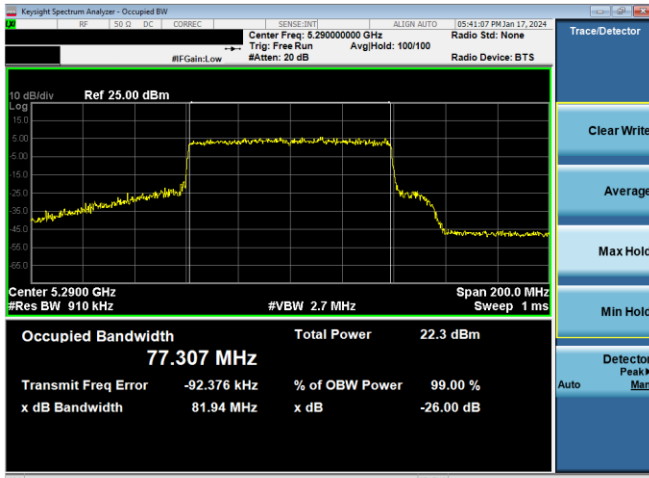
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 28 of 588



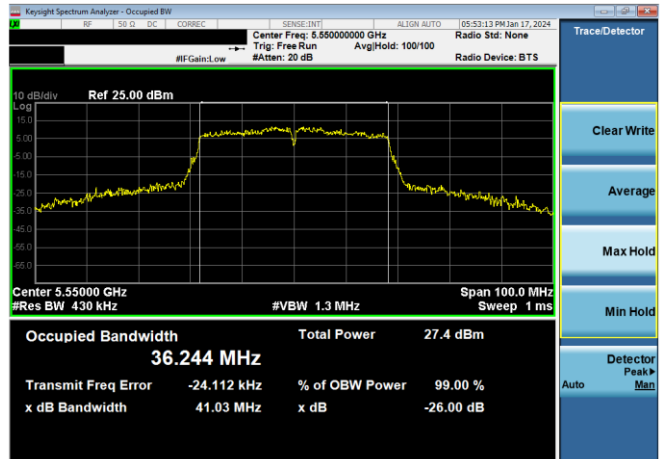
Plot 7-35. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 58, MCS4)



Plot 7-38. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 116, MCS4)



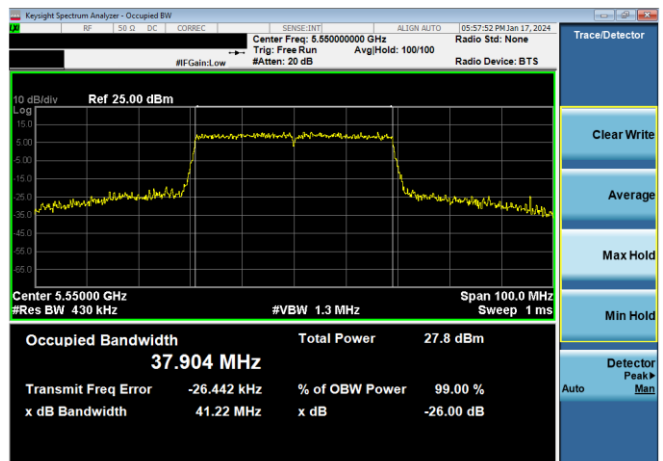
Plot 7-36. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 58, MCS4)



Plot 7-39. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 110, MCS4)



Plot 7-37. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 116, MCS4)

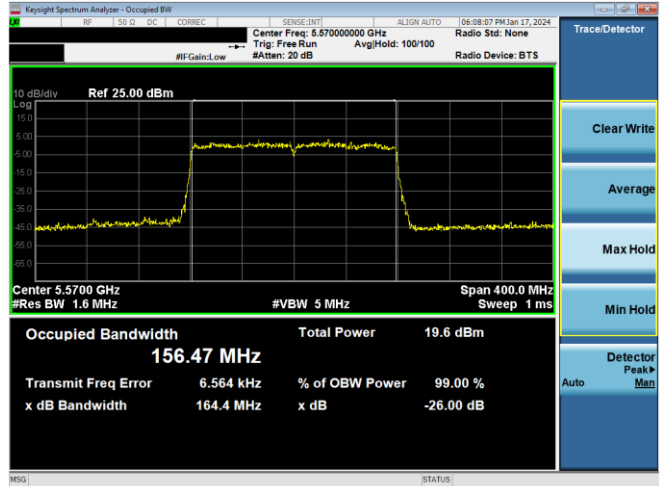


Plot 7-40. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 110, MCS4)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 29 of 588



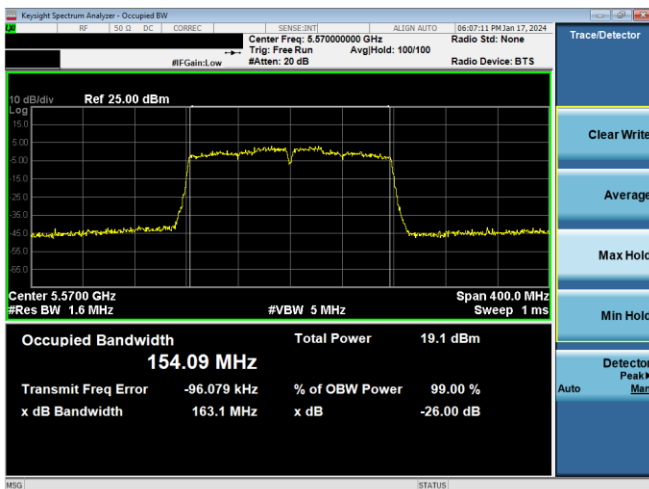
Plot 7-41. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 122, MCS4)



Plot 7-44. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ax – Ch. 114, MCS4)

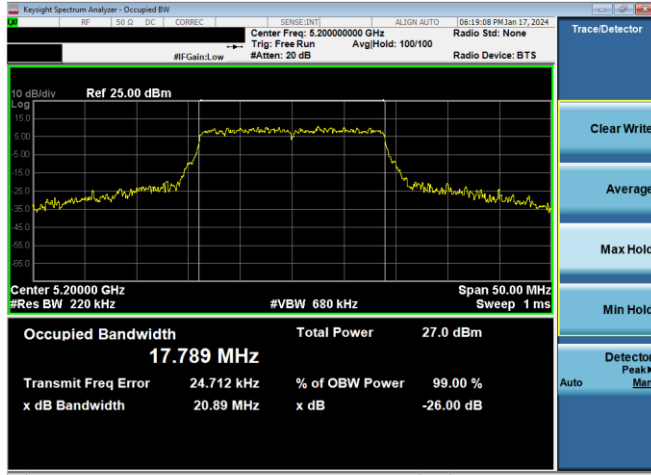


Plot 7-42. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 122, MCS4)

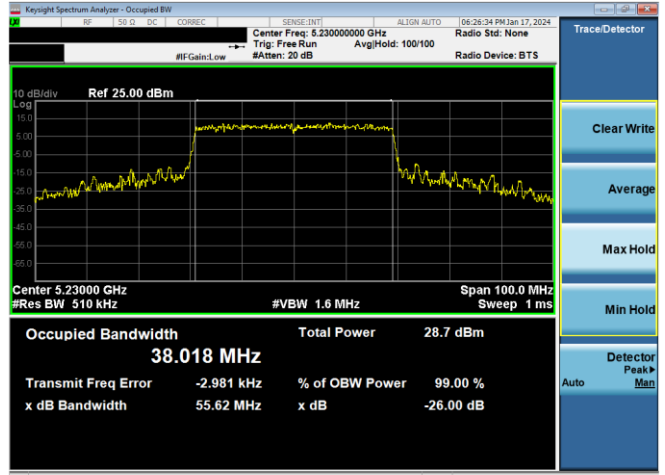


Plot 7-43. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 114, MCS4)

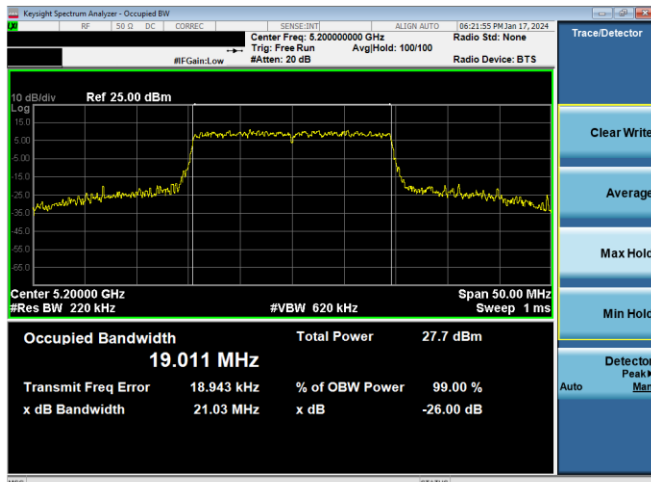
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 30 of 588



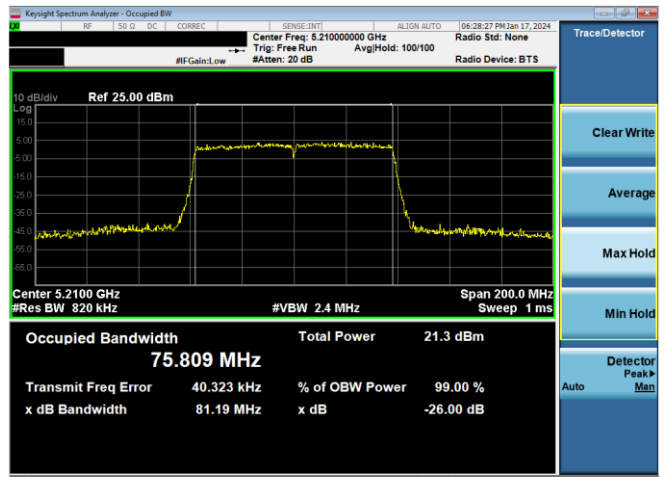
Plot 7-45. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 40, MCS7)



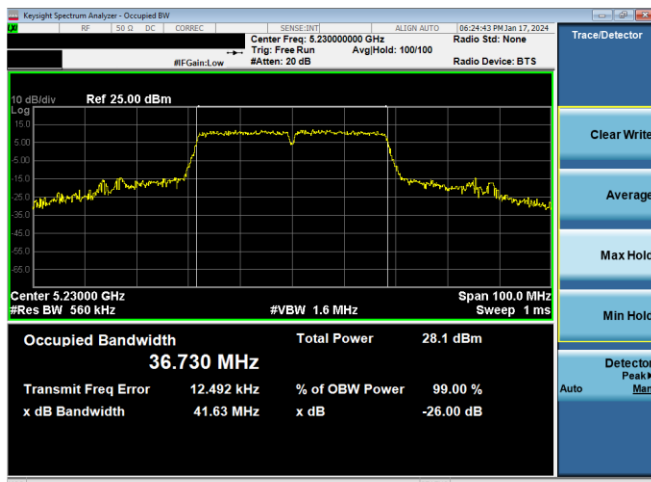
Plot 7-48. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 46, MCS11)



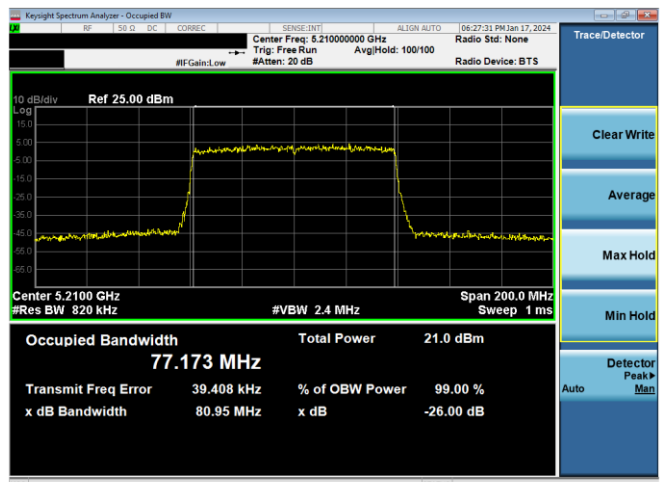
Plot 7-46. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 40, MCS11)



Plot 7-49. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 42, MCS9)

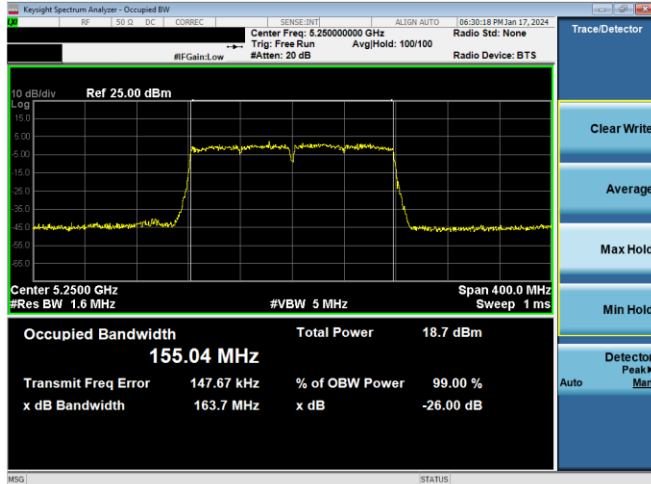


Plot 7-47. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 46, MCS7)

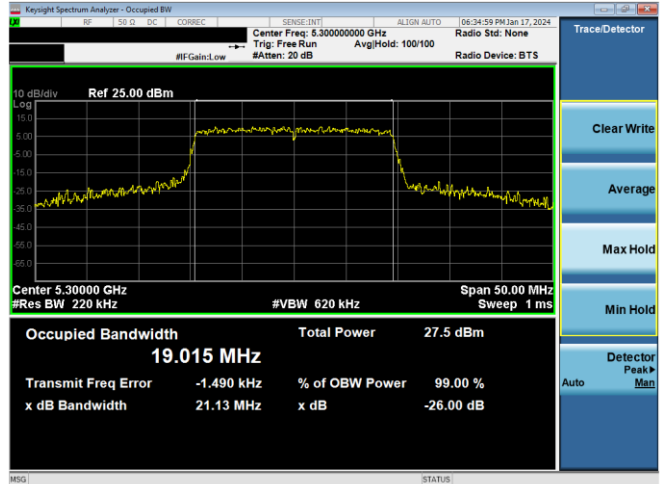


Plot 7-50. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 42, MCS11)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 31 of 588



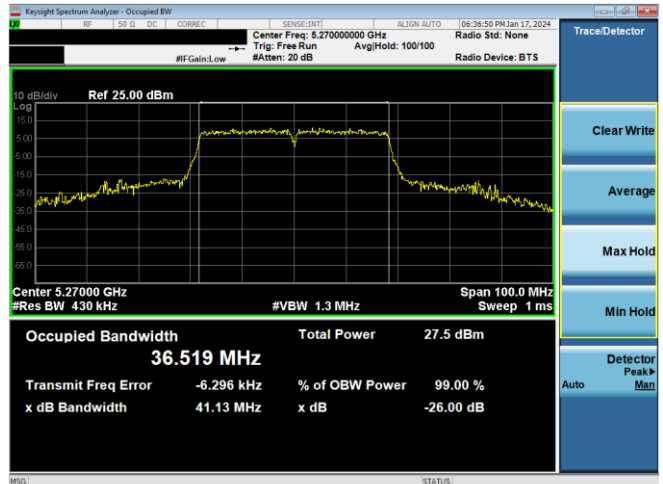
Plot 7-51. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 50, MCS9)



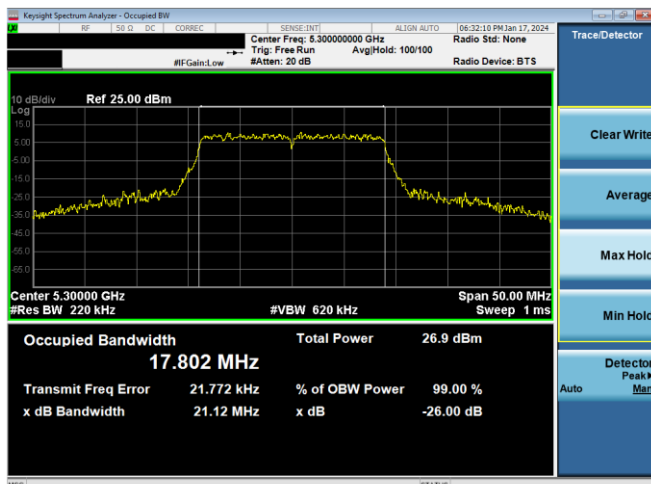
Plot 7-54. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 60, MCS11)



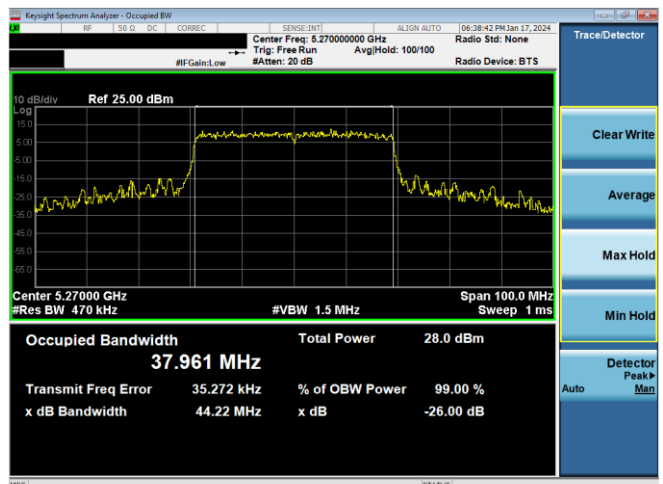
Plot 7-52. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 50, MCS11)



Plot 7-55. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 54, MCS7)

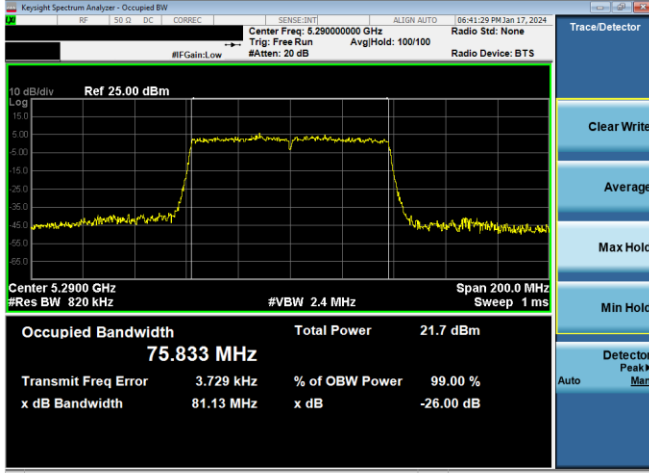


Plot 7-53. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 60, MCS7)

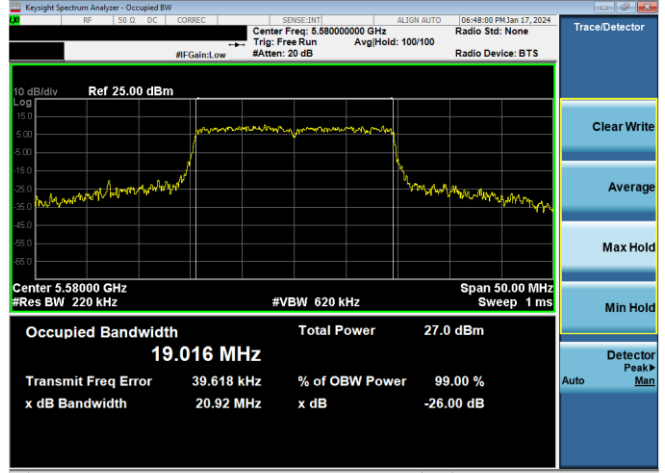


Plot 7-56. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 54, MCS11)

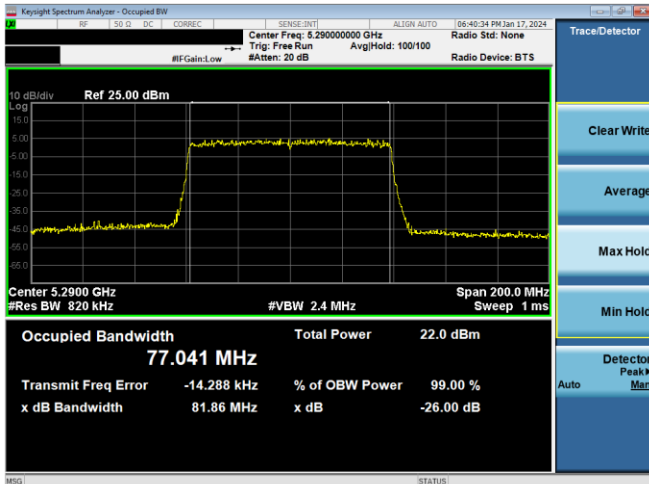
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 32 of 588



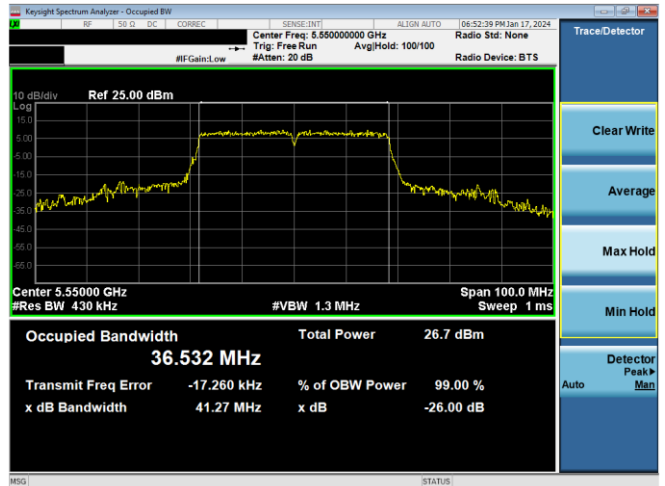
Plot 7-57. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 58, MCS9)



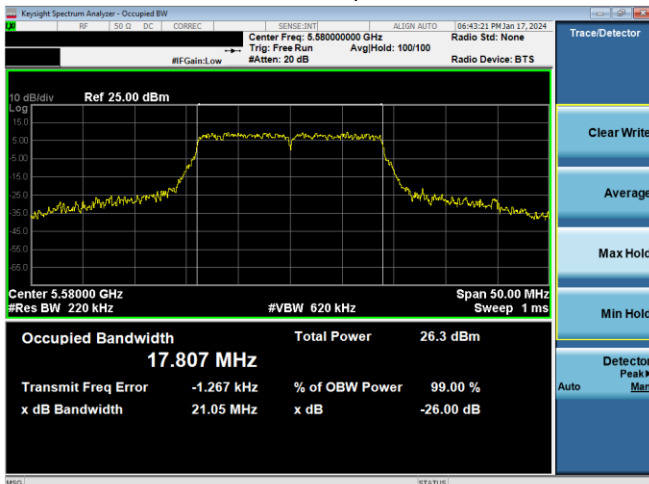
Plot 7-60. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11ax(SU) – Ch. 116, MCS11)



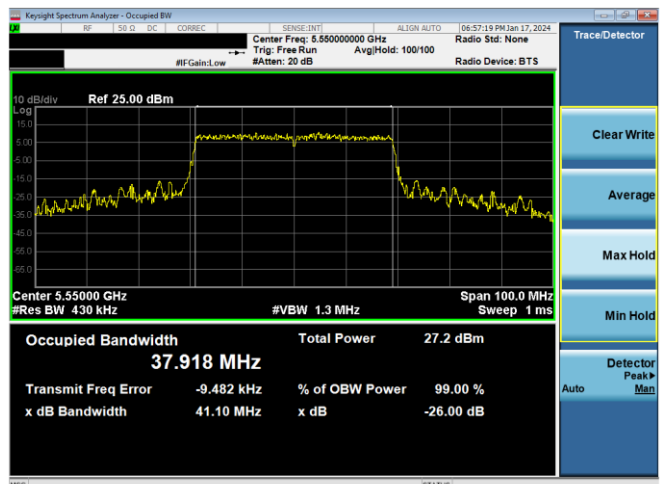
Plot 7-58. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 58, MCS11)



Plot 7-61. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11n – Ch. 110) , MCS7)



Plot 7-59. 26dB BW & 99% OBW Antenna WF5b (20MHz BW 802.11n – Ch. 116, MCS7)

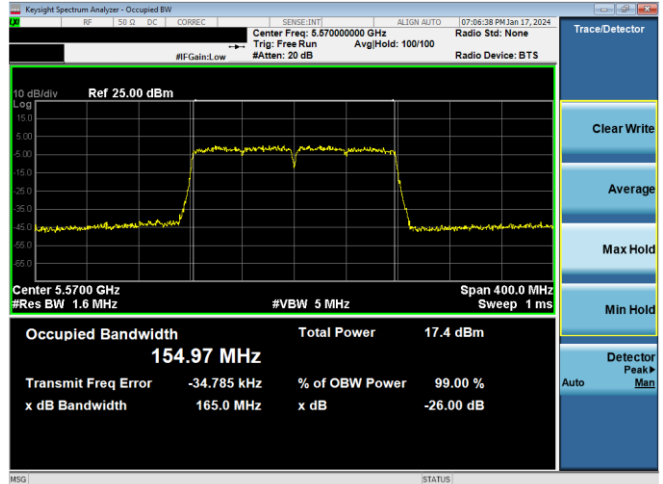


Plot 7-62. 26dB BW & 99% OBW Antenna WF5b (40MHz BW 802.11ax(SU) – Ch. 110, MCS11)

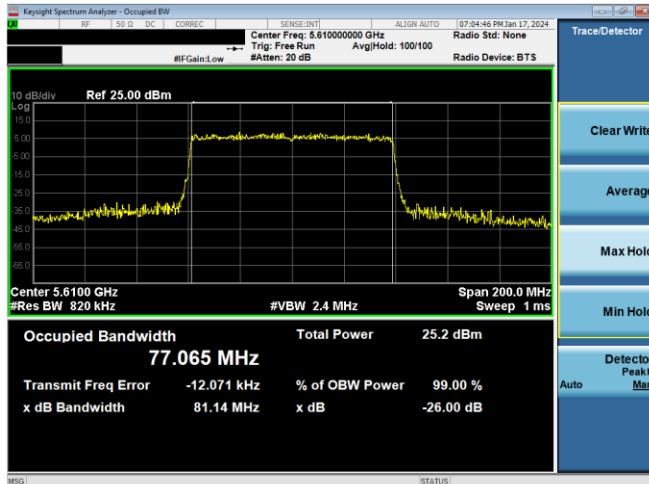
FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 33 of 588



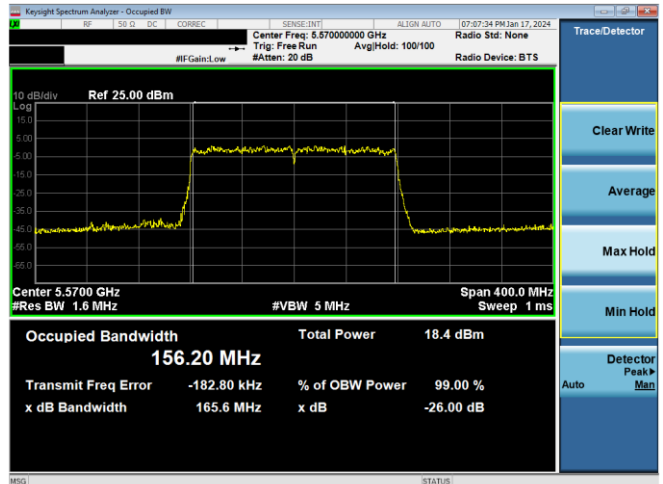
Plot 7-63. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ac – Ch. 122, MCS9)



Plot 7-65. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ac – Ch. 114, MCS9)



Plot 7-64. 26dB BW & 99% OBW Antenna WF5b (80MHz BW 802.11ax(SU) – Ch. 122, MCS11)



Plot 7-66. 26dB BW & 99% OBW Antenna WF5b (160MHz BW 802.11ax(SU) – Ch. 114, MCS11)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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7.2.2 Antenna WF8 26dB & 99% Bandwidth Measurements

	Frequency [MHz]	Channel	802.11 MODE	Data Rate [Mbps]	Measured 99% Occupied Bandwidth [MHz]	Measured 26dB Bandwidth [MHz]	
Band 1	5180	36	n (20MHz)	19.5/21.7 (MCS2)	17.78	21.39	
	5200	40	n (20MHz)	19.5/21.7 (MCS2)	17.69	20.57	
	5240	48	n (20MHz)	19.5/21.7 (MCS2)	17.64	20.80	
	5180	36	ax (SU) (20MHz)	24/25.8 (MCS2)	19.03	21.45	
	5200	40	ax (SU) (20MHz)	24/25.8 (MCS2)	18.98	21.21	
	5240	48	ax (SU) (20MHz)	24/25.8 (MCS2)	19.05	21.07	
	5190	38	n (40MHz)	40/40.5 (MCS2)	36.47	41.61	
	5230	46	n (40MHz)	40/40.5 (MCS2)	36.29	40.47	
	5190	38	ax (SU) (40MHz)	49/51.6 (MCS2)	37.99	47.17	
	5230	46	ax (SU) (40MHz)	49/51.6 (MCS2)	37.87	41.34	
Band 1/2	5210	42	ac (80MHz)	87.8/97.5 (MCS2)	75.57	81.85	
	5210	42	ax (SU) (80MHz)	102/108.1 (MCS2)	77.22	82.39	
Band 2A	5250	50	ac (160MHz)	87.8/97.5 (MCS2)	154.24	163.52	
	5250	50	ax (SU) (160MHz)	102/108.1 (MCS2)	156.44	164.69	
	5260	52	n (20MHz)	19.5/21.7 (MCS2)	17.69	20.84	
	5300	60	n (20MHz)	19.5/21.7 (MCS2)	17.66	20.78	
	5320	64	n (20MHz)	19.5/21.7 (MCS2)	17.74	21.29	
	5260	52	ax (SU) (20MHz)	24/25.8 (MCS2)	19.03	20.96	
	5300	60	ax (SU) (20MHz)	24/25.8 (MCS2)	19.00	21.29	
	5320	64	ax (SU) (20MHz)	24/25.8 (MCS2)	19.08	21.50	
	5270	54	n (40MHz)	40/40.5 (MCS2)	36.28	40.79	
	5310	62	n (40MHz)	40/40.5 (MCS2)	36.35	41.97	
	5270	54	ax (SU) (40MHz)	49/51.6 (MCS2)	37.87	41.42	
	5310	62	ax (SU) (40MHz)	49/51.6 (MCS2)	38.07	42.66	
	5290	58	ac (80MHz)	87.8/97.5 (MCS2)	75.53	82.04	
	5290	58	ax (SU) (80MHz)	102/108.1 (MCS2)	77.28	84.75	
	Band 2C	5500	100	n (20MHz)	19.5/21.7 (MCS2)	17.79	20.96
		5580	116	n (20MHz)	19.5/21.7 (MCS2)	17.74	20.75
*5600		120	n (20MHz)	19.5/21.7 (MCS2)	17.69	20.97	
5700		140	n (20MHz)	19.5/21.7 (MCS2)	17.75	21.37	
5720		144	n (20MHz)	19.5/21.7 (MCS2)	17.70	20.79	
5500		100	ax (SU) (20MHz)	24/25.8 (MCS2)	18.99	22.37	
5580		116	ax (SU) (20MHz)	24/25.8 (MCS2)	19.04	21.15	
*5600		120	ax (SU) (20MHz)	24/25.8 (MCS2)	18.99	21.23	
5700		140	ax (SU) (20MHz)	24/25.8 (MCS2)	19.04	24.42	
5720		144	ax (SU) (20MHz)	24/25.8 (MCS2)	18.98	21.12	
5510		102	n (40MHz)	40/40.5 (MCS2)	36.41	44.57	
5550		110	n (40MHz)	40/40.5 (MCS2)	36.25	41.07	
*5590		118	n (40MHz)	40/40.5 (MCS2)	36.28	40.98	
5670		134	n (40MHz)	40/40.5 (MCS2)	36.38	41.50	
5710		142	n (40MHz)	40/40.5 (MCS2)	36.33	40.92	
5510		102	ax (SU) (40MHz)	49/51.6 (MCS2)	37.96	42.96	
5550		110	ax (SU) (40MHz)	49/51.6 (MCS2)	37.88	41.37	
*5590		118	ax (SU) (40MHz)	49/51.6 (MCS2)	37.93	41.31	
5670		134	ax (SU) (40MHz)	49/51.6 (MCS2)	37.94	43.26	
5710		142	ax (SU) (40MHz)	49/51.6 (MCS2)	37.91	41.16	
5530		106	ac (80MHz)	87.8/97.5 (MCS2)	75.61	81.12	
*5610		122	ac (80MHz)	87.8/97.5 (MCS2)	75.67	81.95	
5690		138	ac (80MHz)	87.8/97.5 (MCS2)	75.44	80.29	
5530		106	ax (SU) (80MHz)	102/108.1 (MCS2)	77.26	82.47	
*5610		122	ax (SU) (80MHz)	102/108.1 (MCS2)	77.34	83.20	
5690		138	ax (SU) (80MHz)	102/108.1 (MCS2)	77.22	81.51	
5570		114	ac (160MHz)	87.8/97.5 (MCS2)	154.41	164.18	
5570		114	ax (SU) (160MHz)	102/108.1 (MCS2)	156.49	164.94	

Table 7-5. Conducted Bandwidth Measurements Antenna WF8 (Low Data Rate)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 35 of 588

	Frequency [MHz]	Channel	802.11 MODE	Data Rate [Mbps]	Measured 99% Occupied Bandwidth [MHz]	Measured 26dB Bandwidth [MHz]
Band 1	5180	36	n (20MHz)	39/43.3 (MCS4)	17.72	21.24
	5200	40	n (20MHz)	39/43.3 (MCS4)	17.68	20.28
	5240	48	n (20MHz)	39/43.3 (MCS4)	17.68	20.51
	5180	36	ax (SU) (20MHz)	49/51.6 (MCS4)	19.04	21.20
	5200	40	ax (SU) (20MHz)	49/51.6 (MCS4)	19.02	20.79
	5240	48	ax (SU) (20MHz)	49/51.6 (MCS4)	19.02	20.93
	5190	38	n (40MHz)	81/90 (MCS4)	36.29	41.03
	5230	46	n (40MHz)	81/90 (MCS4)	36.23	41.03
	5190	38	ax (SU) (40MHz)	98/103.2 (MCS4)	38.15	57.90
	5230	46	ax (SU) (40MHz)	98/103.2 (MCS4)	37.95	41.06
5210	42	ac (80MHz)	175.5/195 (MCS4)	75.47	80.81	
5210	42	ax (SU) (80MHz)	204/216.2 (MCS4)	77.21	81.36	
Band 1/2	5250	50	ac (160MHz)	175.5/195 (MCS4)	154.13	163.27
	5250	50	ax (SU) (160MHz)	204/216.2 (MCS4)	156.30	165.31
Band 2A	5260	52	n (20MHz)	39/43.3 (MCS4)	17.68	20.55
	5300	60	n (20MHz)	39/43.3 (MCS4)	17.72	20.64
	5320	64	n (20MHz)	39/43.3 (MCS4)	17.75	20.92
	5260	52	ax (SU) (20MHz)	49/51.6 (MCS4)	18.98	20.95
	5300	60	ax (SU) (20MHz)	49/51.6 (MCS4)	19.07	20.90
	5320	64	ax (SU) (20MHz)	49/51.6 (MCS4)	19.05	21.28
	5270	54	n (40MHz)	81/90 (MCS4)	36.19	40.61
	5310	62	n (40MHz)	81/90 (MCS4)	36.31	40.56
	5270	54	ax (SU) (40MHz)	98/103.2 (MCS4)	37.92	41.42
	5310	62	ax (SU) (40MHz)	98/103.2 (MCS4)	38.16	59.57
	5290	58	ac (80MHz)	175.5/195 (MCS4)	75.57	80.89
	5290	58	ax (SU) (80MHz)	204/216.2 (MCS4)	77.16	82.17
Band 2C	5500	100	n (20MHz)	39/43.3 (MCS4)	17.71	20.84
	5580	116	n (20MHz)	39/43.3 (MCS4)	17.71	20.54
	*5600	120	n (20MHz)	39/43.3 (MCS4)	17.66	20.70
	5700	140	n (20MHz)	39/43.3 (MCS4)	17.70	20.79
	5720	144	n (20MHz)	39/43.3 (MCS4)	17.69	20.54
	5500	100	ax (SU) (20MHz)	49/51.6 (MCS4)	19.00	21.88
	5580	116	ax (SU) (20MHz)	49/51.6 (MCS4)	19.00	20.88
	*5600	120	ax (SU) (20MHz)	49/51.6 (MCS4)	18.99	21.13
	5700	140	ax (SU) (20MHz)	49/51.6 (MCS4)	19.04	20.87
	5720	144	ax (SU) (20MHz)	49/51.6 (MCS4)	18.99	21.20
	5510	102	n (40MHz)	81/90 (MCS4)	36.34	40.89
	5550	110	n (40MHz)	81/90 (MCS4)	36.36	40.90
	*5590	118	n (40MHz)	81/90 (MCS4)	36.23	40.76
	5670	134	n (40MHz)	81/90 (MCS4)	36.25	40.85
	5710	142	n (40MHz)	81/90 (MCS4)	36.21	40.59
	5510	102	ax (SU) (40MHz)	98/103.2 (MCS4)	37.99	47.54
	5550	110	ax (SU) (40MHz)	98/103.2 (MCS4)	37.95	41.21
	*5590	118	ax (SU) (40MHz)	98/103.2 (MCS4)	37.93	40.92
	5670	134	ax (SU) (40MHz)	98/103.2 (MCS4)	37.99	47.94
	5710	142	ax (SU) (40MHz)	98/103.2 (MCS4)	37.86	41.48
	5530	106	ac (80MHz)	175.5/195 (MCS4)	75.54	80.63
	*5610	122	ac (80MHz)	175.5/195 (MCS4)	75.56	81.30
	5690	138	ac (80MHz)	175.5/195 (MCS4)	75.46	80.76
	5530	106	ax (SU) (80MHz)	204/216.2 (MCS4)	77.08	81.97
	*5610	122	ax (SU) (80MHz)	204/216.2 (MCS4)	77.38	81.61
	5690	138	ax (SU) (80MHz)	204/216.2 (MCS4)	77.00	81.56
	5570	114	ac (160MHz)	175.5/195 (MCS4)	154.41	163.78
	5570	114	ax (SU) (160MHz)	204/216.2 (MCS4)	156.33	165.49

Table 7-6. Conducted Bandwidth Measurements Antenna WF8 (Mid Data Rate)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 36 of 588

	Frequency [MHz]	Channel	802.11 MODE	Data Rate [Mbps]	Measured 99% Occupied Bandwidth [MHz]	Measured 26dB Bandwidth [MHz]	
Band 1	5180	36	n (20MHz)	65/72.2 (MCS7)	17.84	20.83	
	5200	40	n (20MHz)	65/72.2 (MCS7)	17.83	21.01	
	5240	48	n (20MHz)	65/72.2 (MCS7)	17.83	21.11	
	5180	36	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	20.81	
	5200	40	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	21.14	
	5240	48	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	20.88	
	5190	38	n (40MHz)	135/150 (MCS7)	36.43	40.91	
	5230	46	n (40MHz)	135/150 (MCS7)	36.49	41.25	
	5190	38	ax (SU) (40MHz)	271/286 (MCS11)	37.85	41.12	
	5230	46	ax (SU) (40MHz)	271/286 (MCS11)	37.93	44.36	
	5210	42	ac (80MHz)	390/433.3 (MCS9)	75.79	81.58	
	5210	42	ax (SU) (80MHz)	567/600.5 (MCS11)	77.22	81.49	
Band 1/2	5250	50	ac (160MHz)	390/433.3 (MCS9)	154.99	164.32	
	5250	50	ax (SU) (160MHz)	567/600.5 (MCS11)	156.15	164.52	
Band 2A	5260	52	n (20MHz)	65/72.2 (MCS7)	17.78	20.95	
	5300	60	n (20MHz)	65/72.2 (MCS7)	17.80	20.94	
	5320	64	n (20MHz)	65/72.2 (MCS7)	17.83	21.02	
	5260	52	ax (SU) (20MHz)	135/143.4 (MCS11)	19.02	21.06	
	5300	60	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	20.94	
	5320	64	ax (SU) (20MHz)	135/143.4 (MCS11)	19.01	21.22	
	5270	54	n (40MHz)	135/150 (MCS7)	36.54	41.13	
	5310	62	n (40MHz)	135/150 (MCS7)	36.46	41.10	
	5270	54	ax (SU) (40MHz)	271/286 (MCS11)	37.88	41.00	
	5310	62	ax (SU) (40MHz)	271/286 (MCS11)	37.87	40.79	
	5290	58	ac (80MHz)	390/433.3 (MCS9)	75.92	80.85	
	5290	58	ax (SU) (80MHz)	567/600.5 (MCS11)	77.29	81.20	
	Band 2C	5500	100	n (20MHz)	65/72.2 (MCS7)	17.80	20.68
		5580	116	n (20MHz)	65/72.2 (MCS7)	17.80	20.88
*5600		120	n (20MHz)	65/72.2 (MCS7)	17.79	20.89	
5700		140	n (20MHz)	65/72.2 (MCS7)	17.77	21.01	
5720		144	n (20MHz)	65/72.2 (MCS7)	17.79	20.96	
5500		100	ax (SU) (20MHz)	135/143.4 (MCS11)	18.95	20.74	
5580		116	ax (SU) (20MHz)	135/143.4 (MCS11)	19.02	21.00	
*5600		120	ax (SU) (20MHz)	135/143.4 (MCS11)	19.00	21.11	
5700		140	ax (SU) (20MHz)	135/143.4 (MCS11)	19.00	21.00	
5720		144	ax (SU) (20MHz)	135/143.4 (MCS11)	19.00	21.37	
5510		102	n (40MHz)	135/150 (MCS7)	36.37	41.12	
5550		110	n (40MHz)	135/150 (MCS7)	36.45	40.87	
*5590		118	n (40MHz)	135/150 (MCS7)	36.53	41.19	
5670		134	n (40MHz)	135/150 (MCS7)	36.43	41.07	
5710		142	n (40MHz)	135/150 (MCS7)	36.44	41.33	
5510		102	ax (SU) (40MHz)	271/286 (MCS11)	37.87	41.11	
5550		110	ax (SU) (40MHz)	271/286 (MCS11)	37.88	41.04	
*5590		118	ax (SU) (40MHz)	271/286 (MCS11)	37.92	41.16	
5670		134	ax (SU) (40MHz)	271/286 (MCS11)	37.90	41.03	
5710		142	ax (SU) (40MHz)	271/286 (MCS11)	37.84	41.19	
5530		106	ac (80MHz)	390/433.3 (MCS9)	75.92	81.67	
*5610		122	ac (80MHz)	390/433.3 (MCS9)	75.93	81.69	
5690		138	ac (80MHz)	390/433.3 (MCS9)	75.91	81.53	
5530		106	ax (SU) (80MHz)	567/600.5 (MCS11)	77.09	81.33	
*5610		122	ax (SU) (80MHz)	567/600.5 (MCS11)	77.23	81.02	
5690		138	ax (SU) (80MHz)	567/600.5 (MCS11)	77.19	80.86	
5570		114	ac (160MHz)	390/433.3 (MCS9)	155.01	164.46	
5570		114	ax (SU) (160MHz)	567/600.5 (MCS11)	156.01	164.44	

Table 7-7. Conducted Bandwidth Measurements Antenna WF8 (High Data Rate)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

FCC ID: BCGA2925 IC: 579C-A2925		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2311270069-11-R2.BCG	Test Dates: 11/29/2023-02/03/2024	EUT Type: Tablet Device	Page 37 of 588