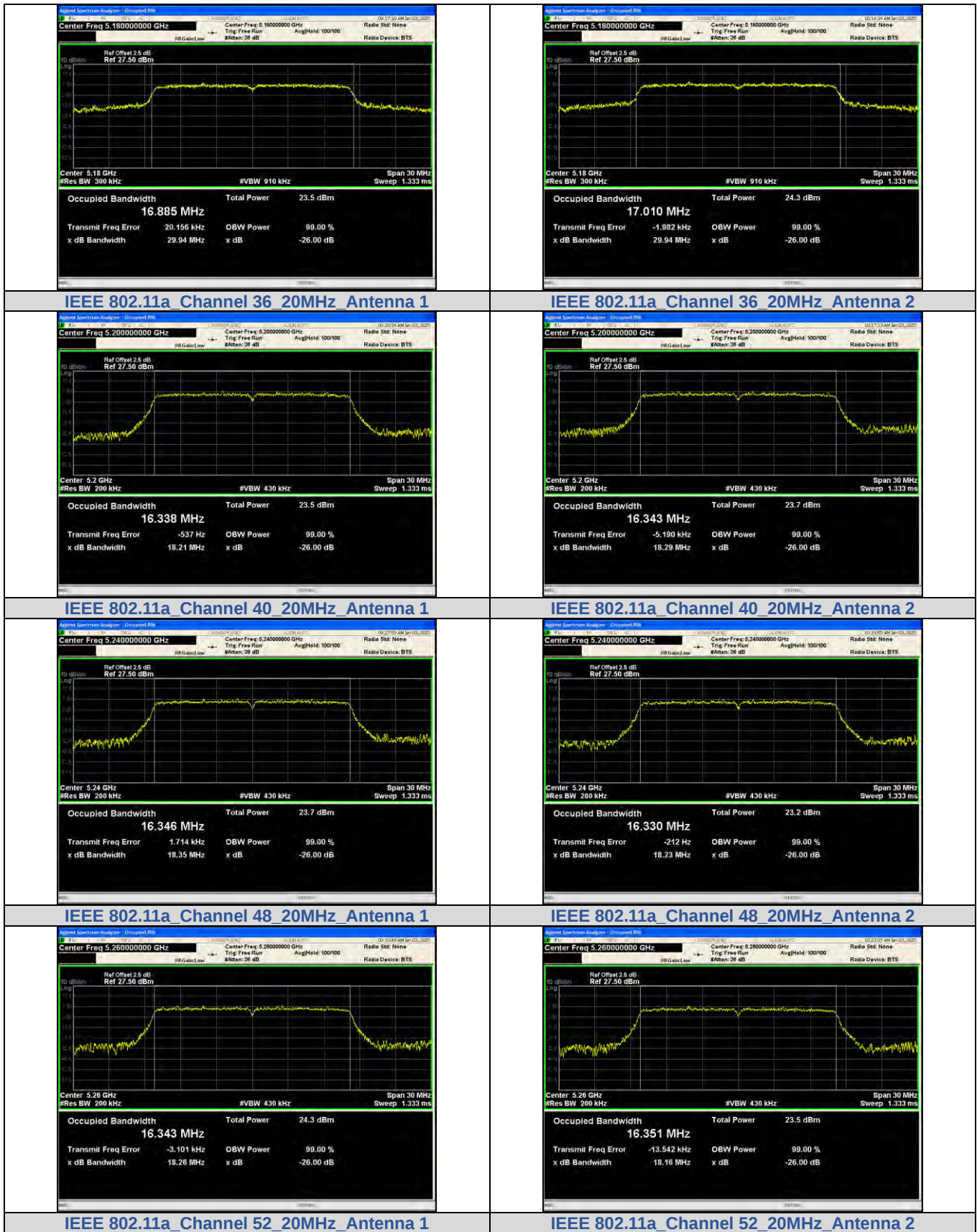




26dB Bandwidth:

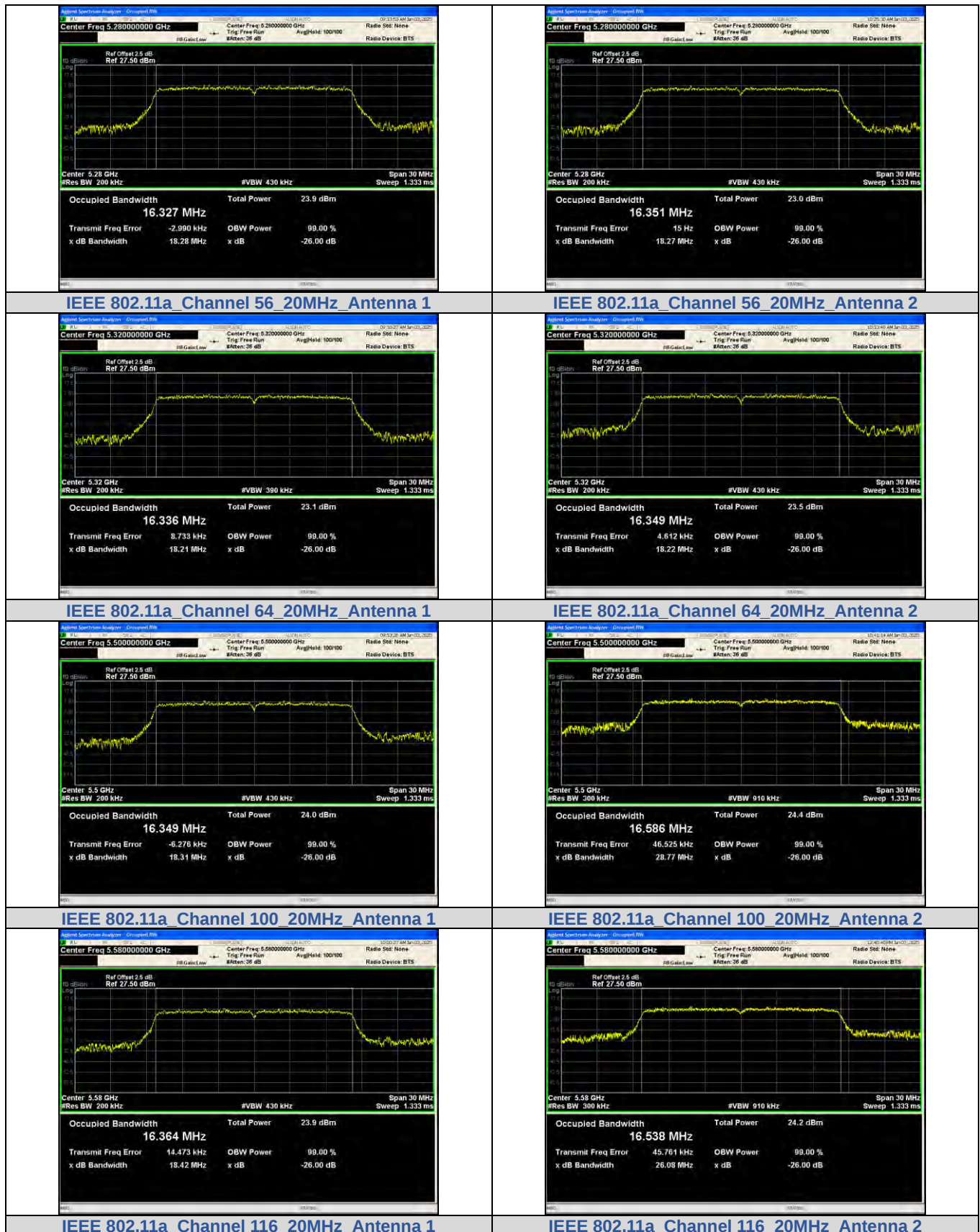


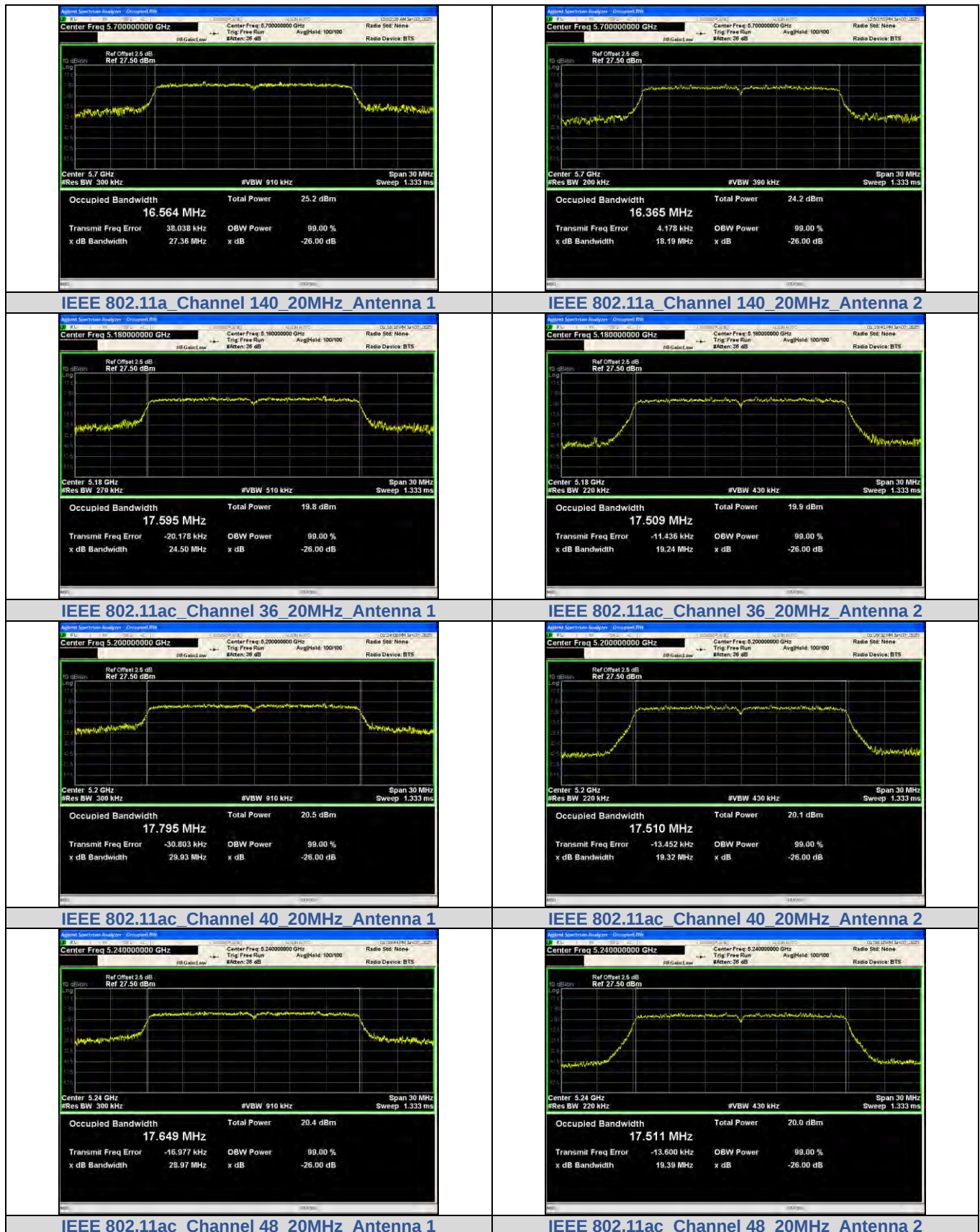
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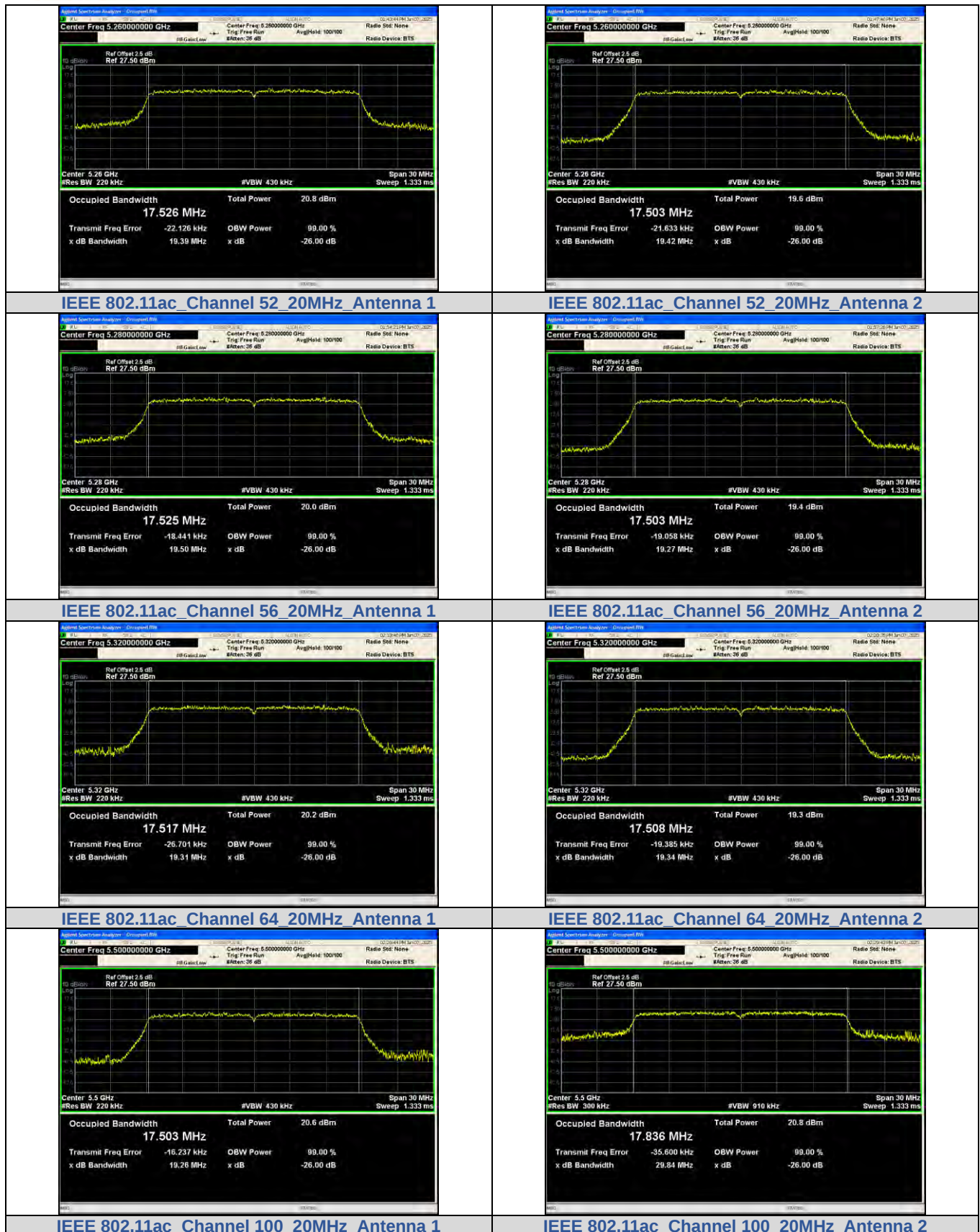
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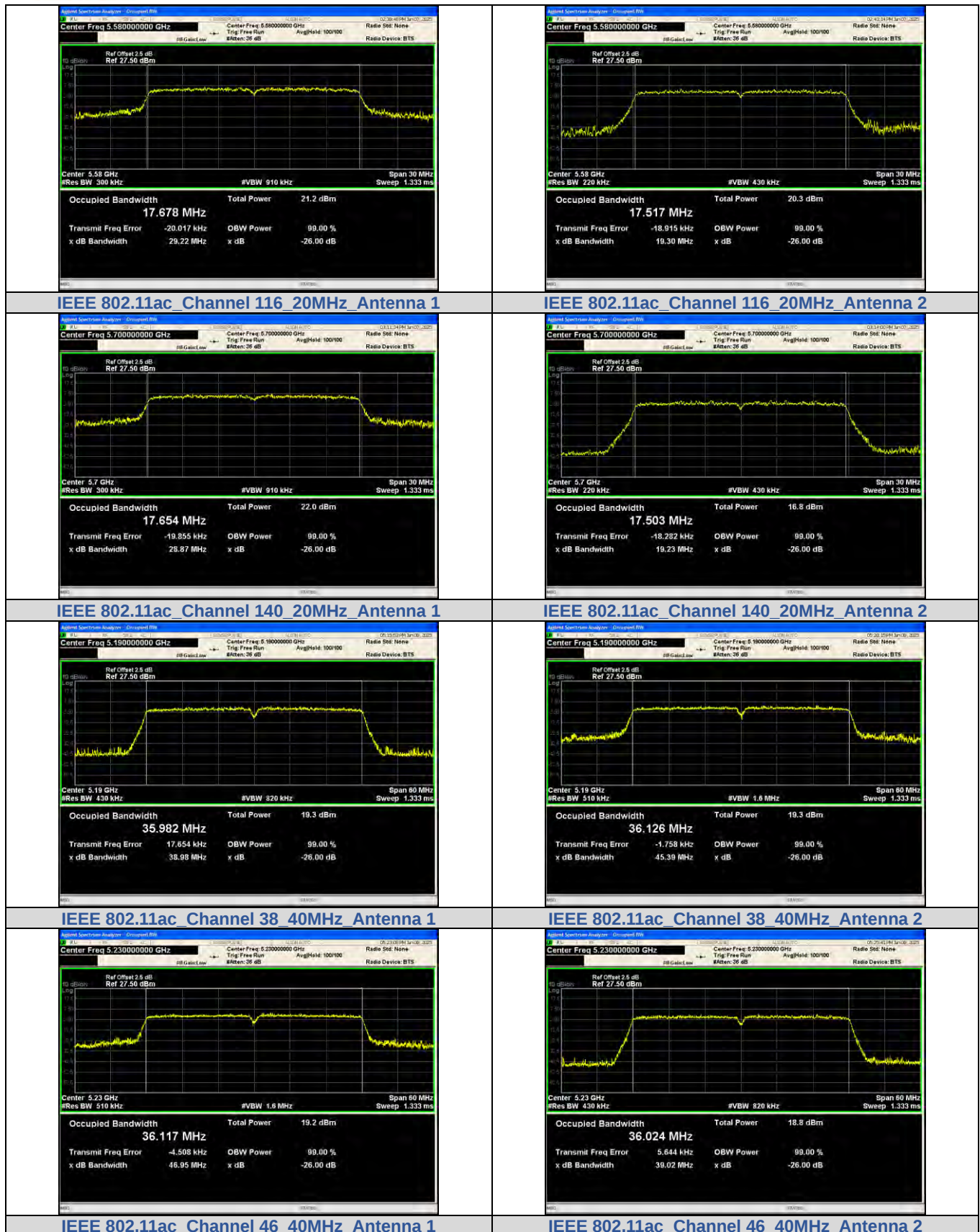
TRF No: CTC-TR-062_A1

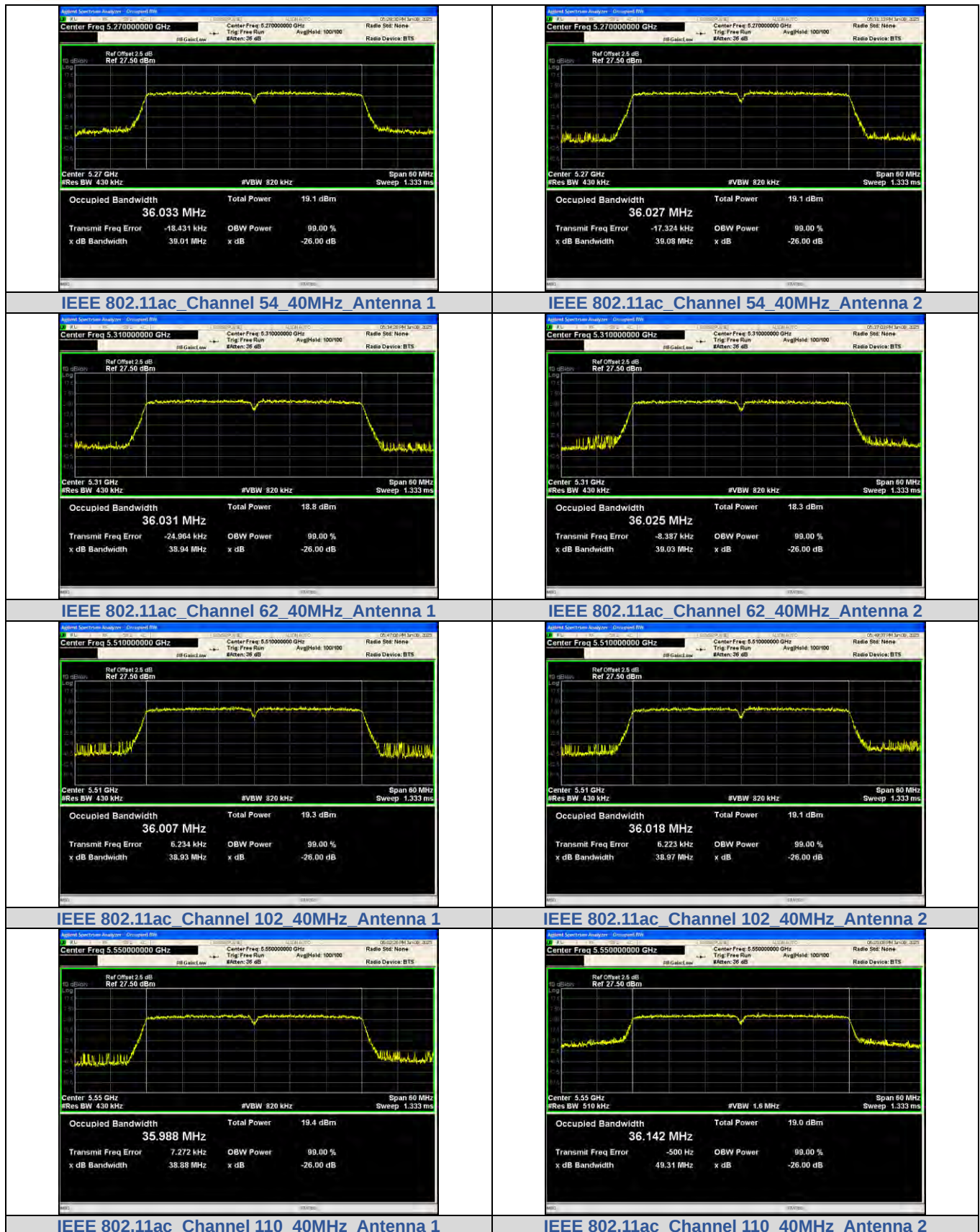
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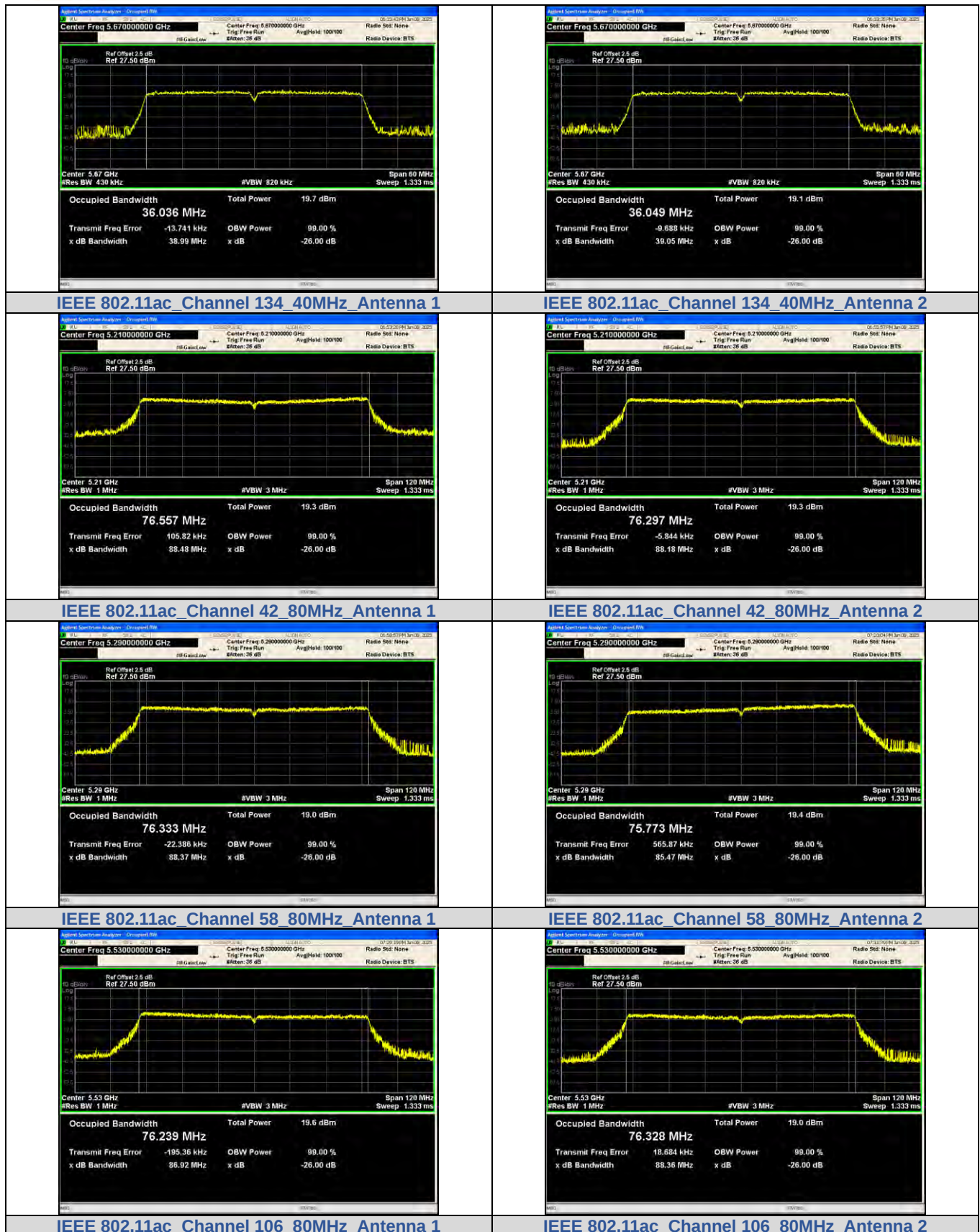


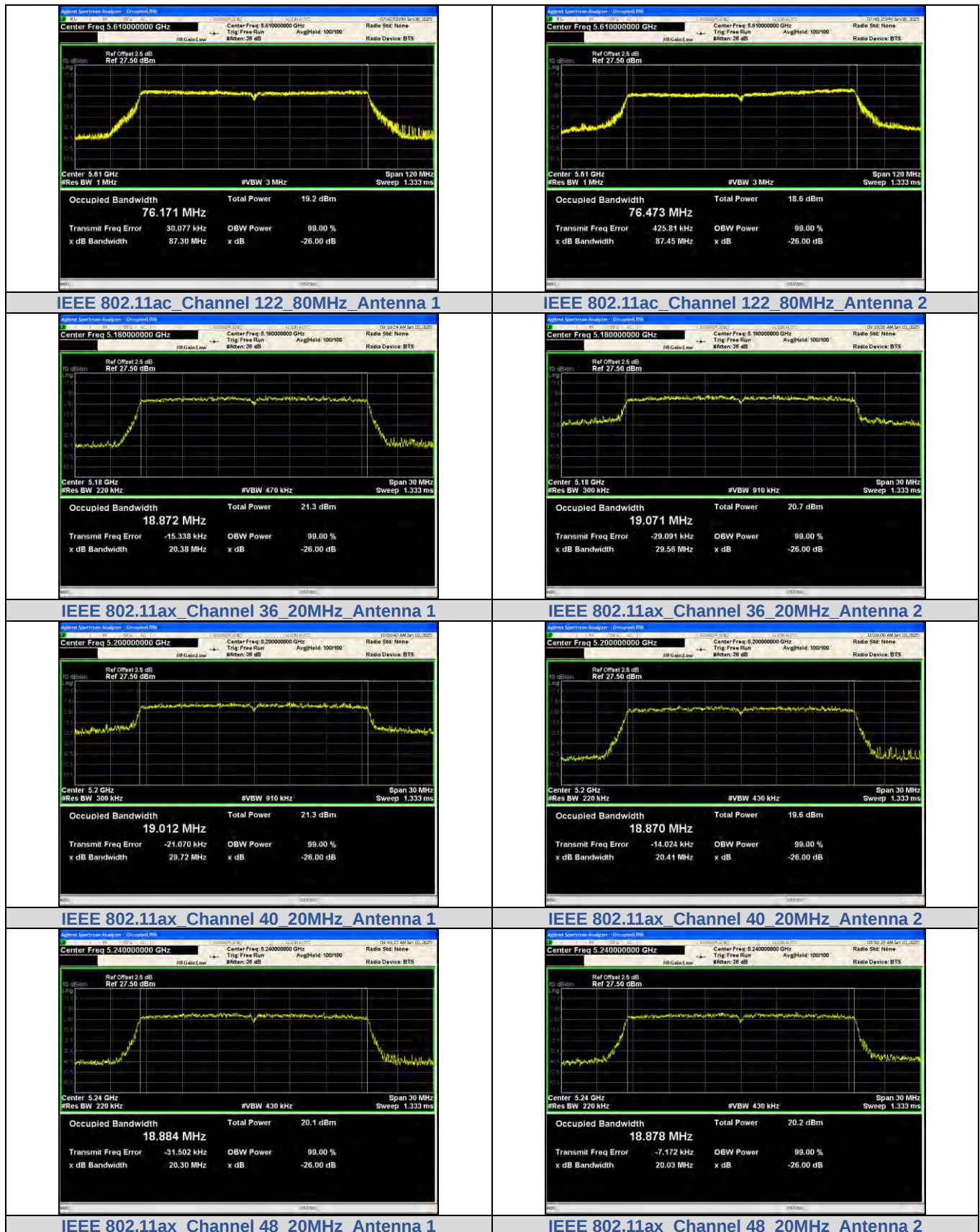


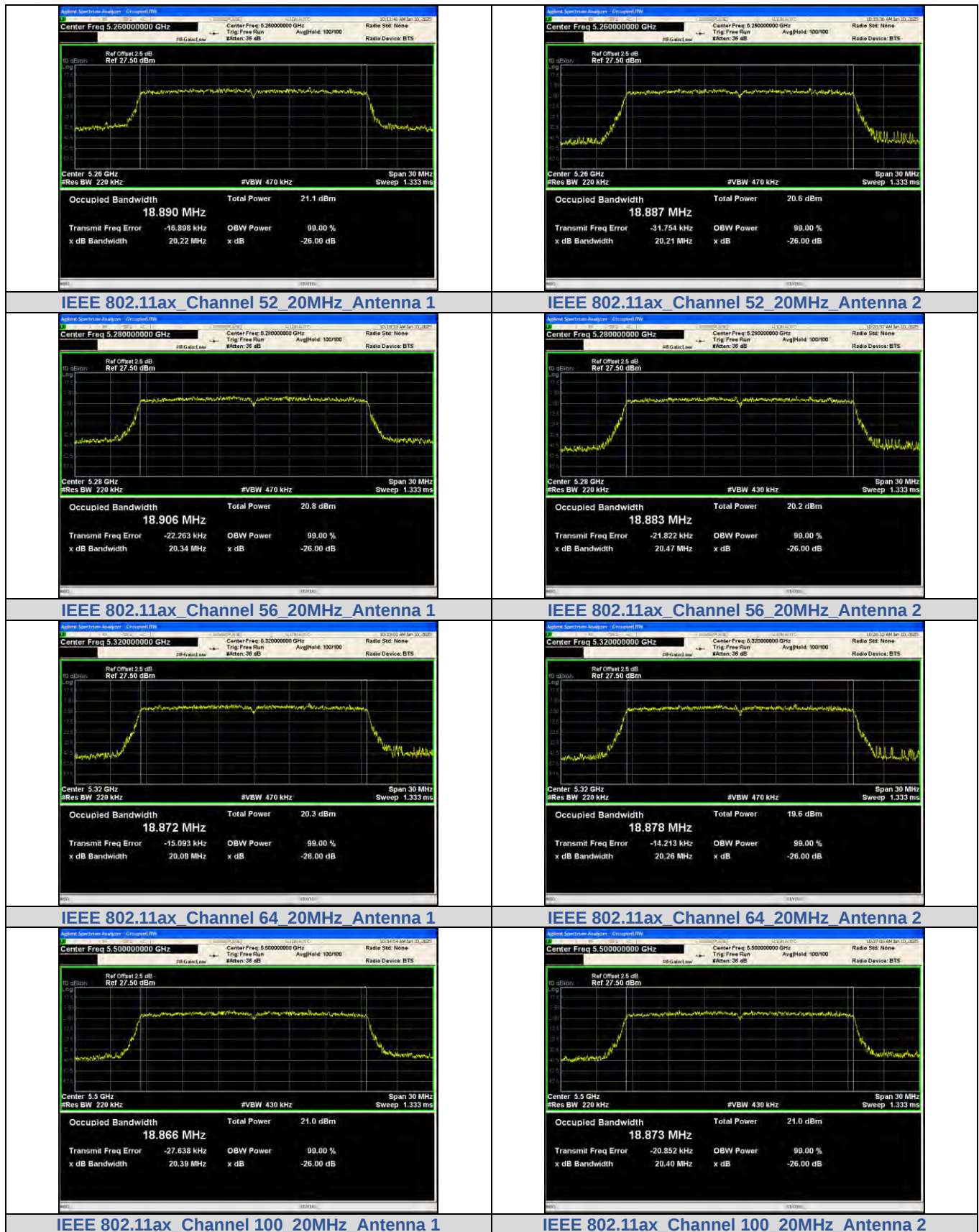


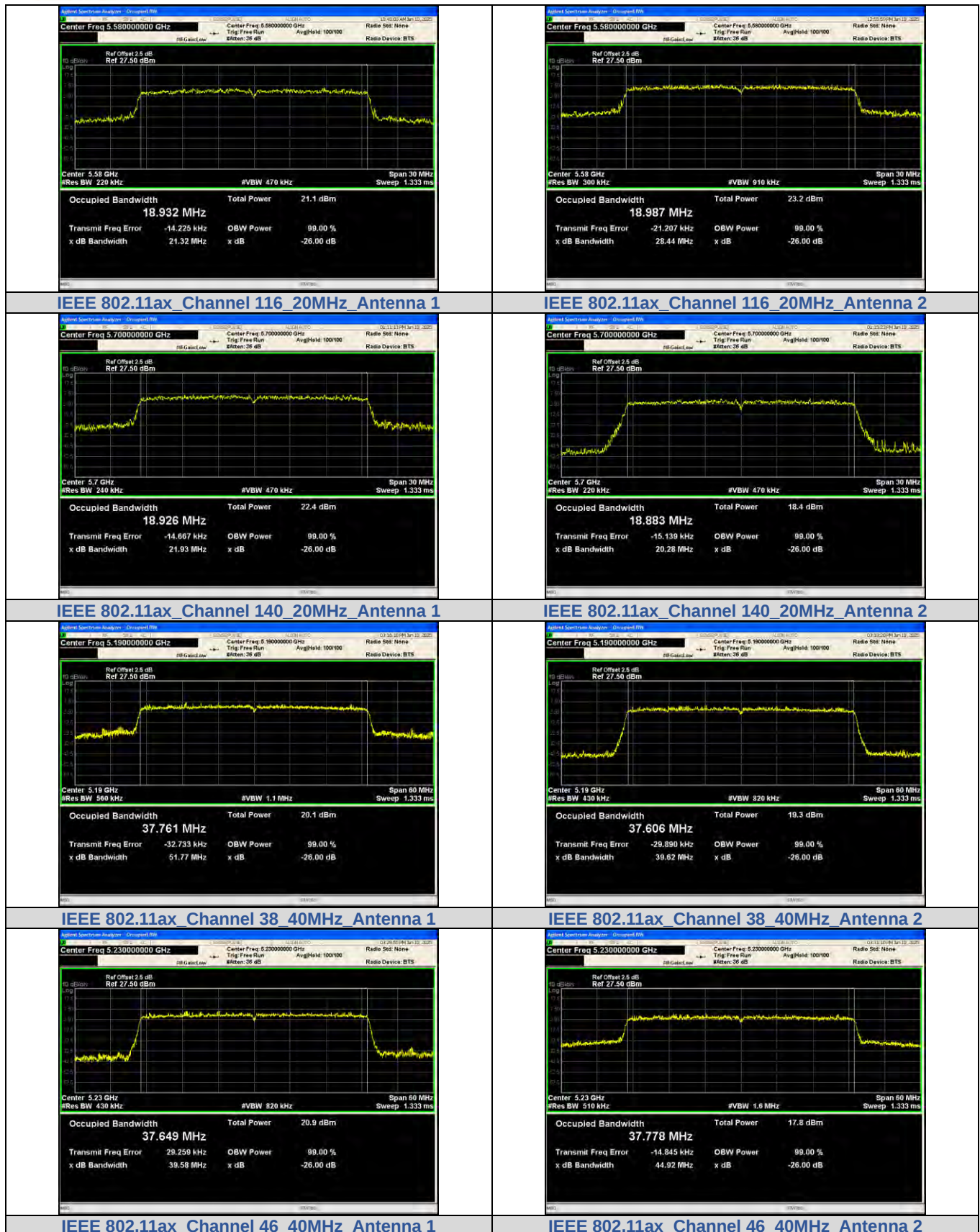


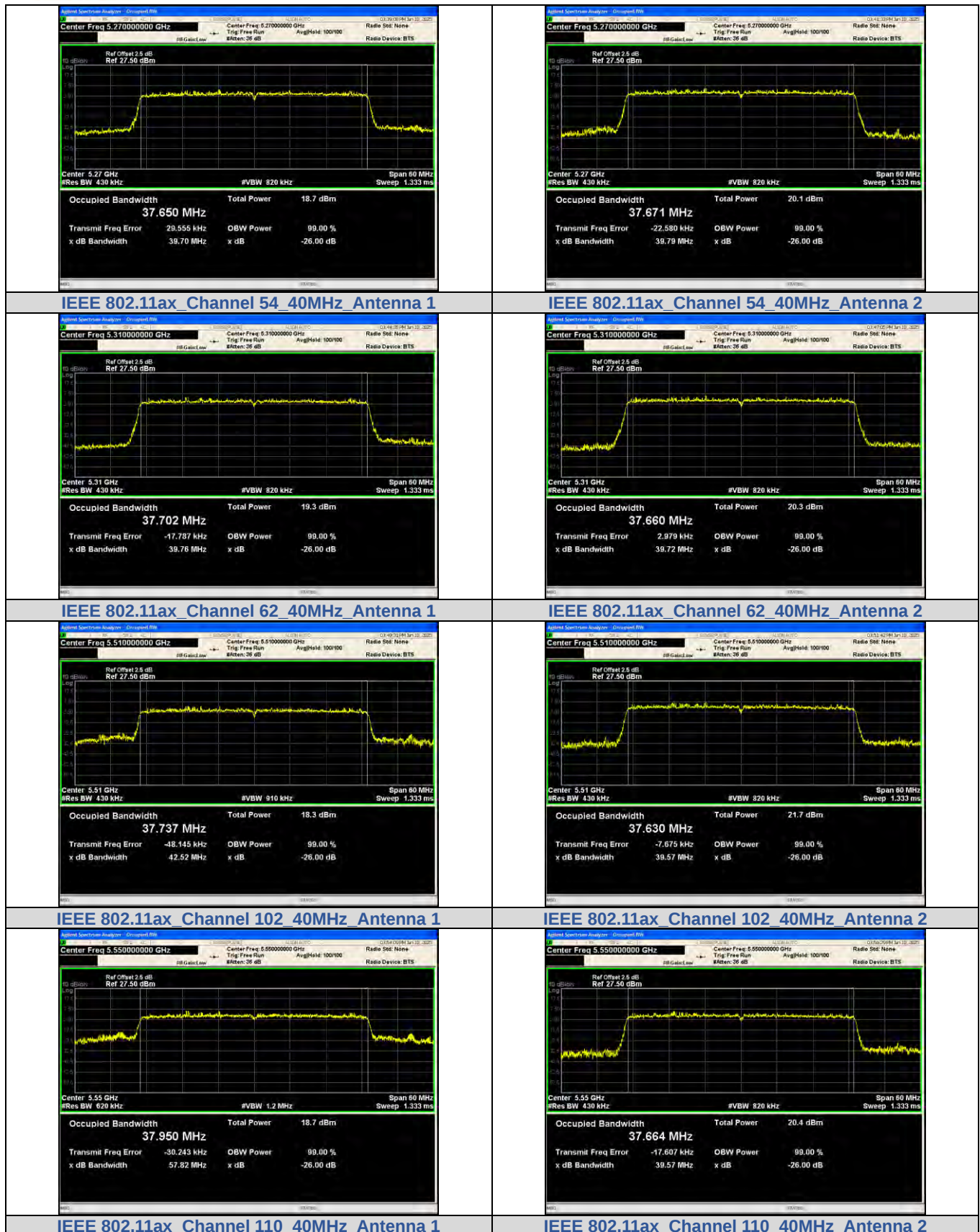


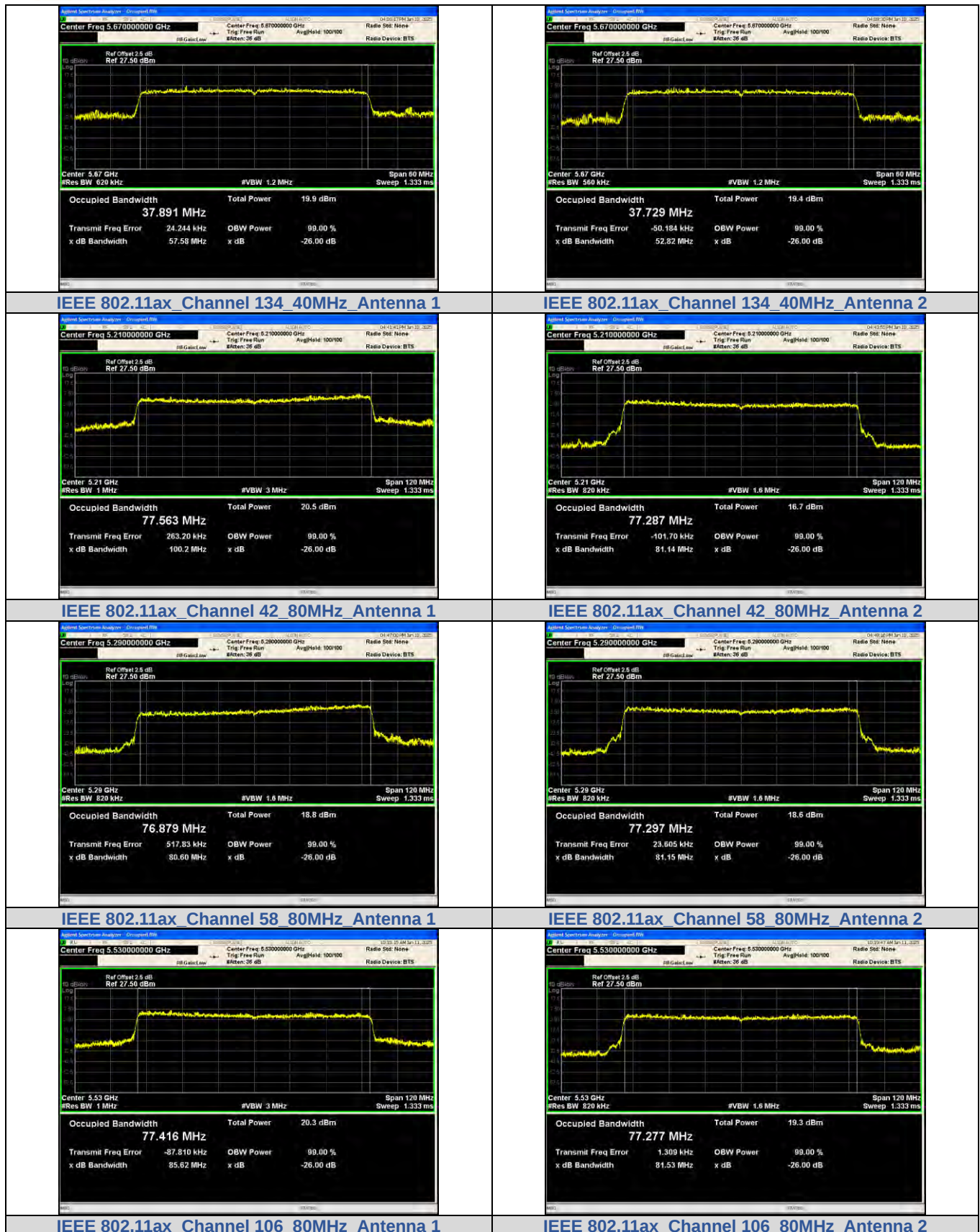


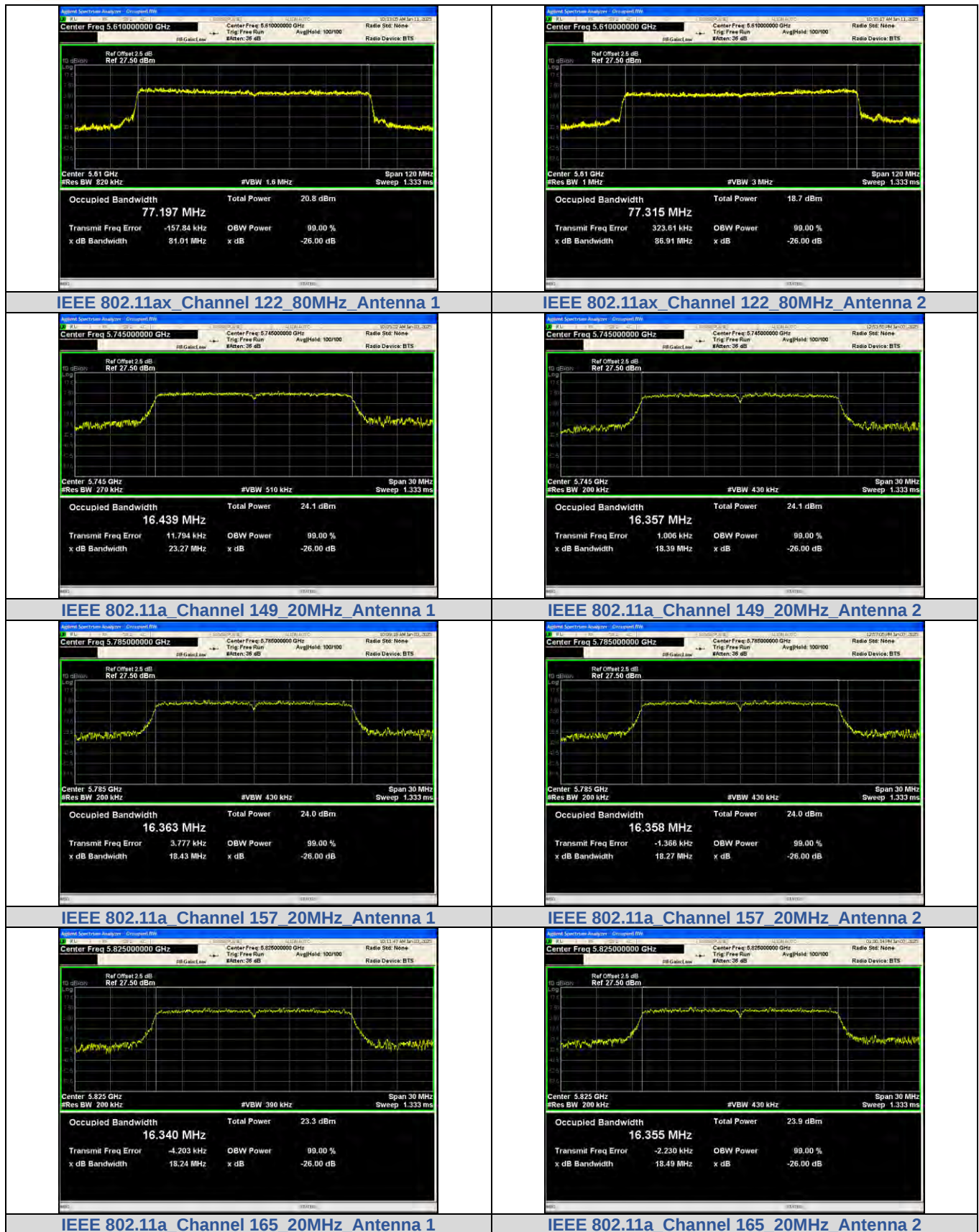


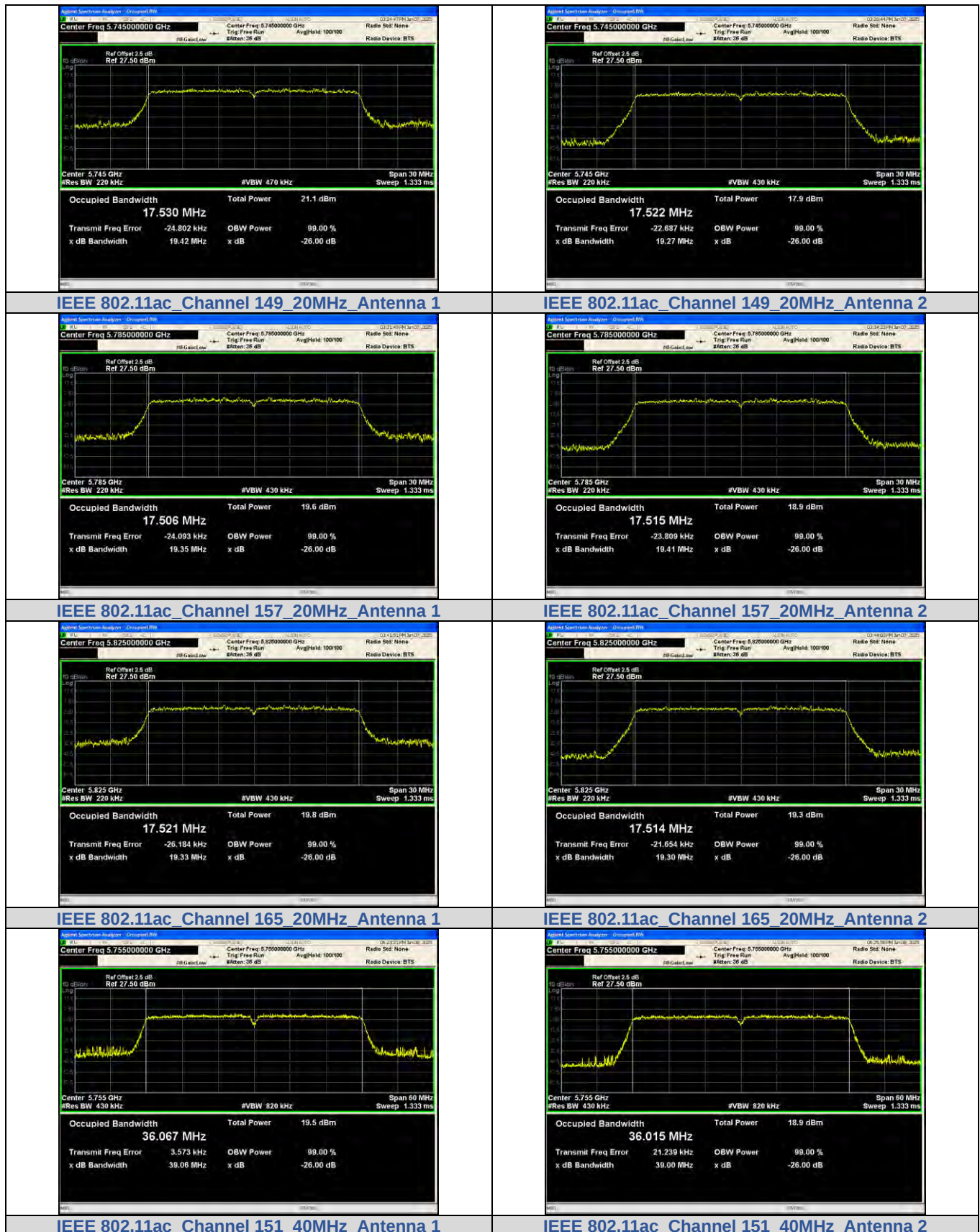


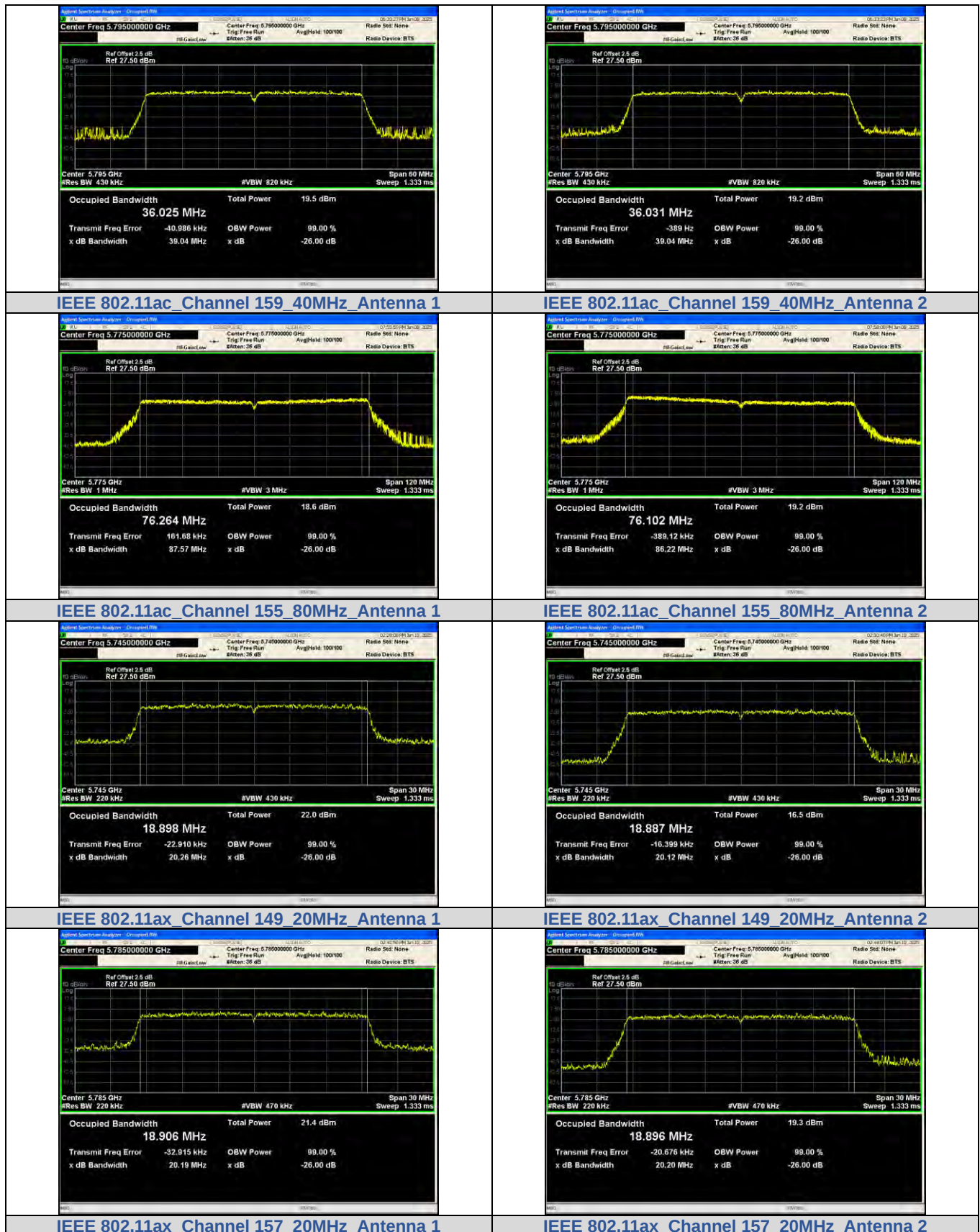


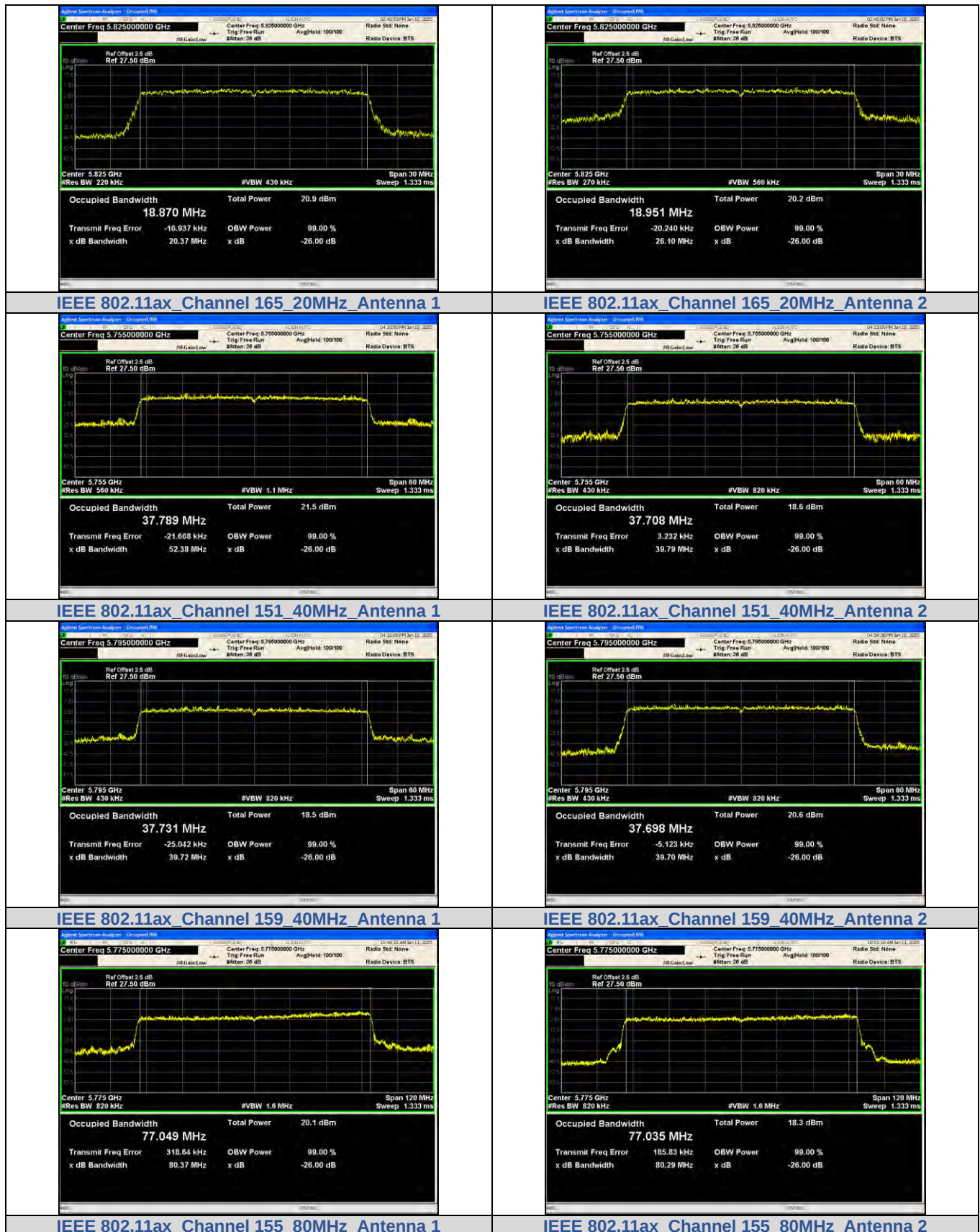






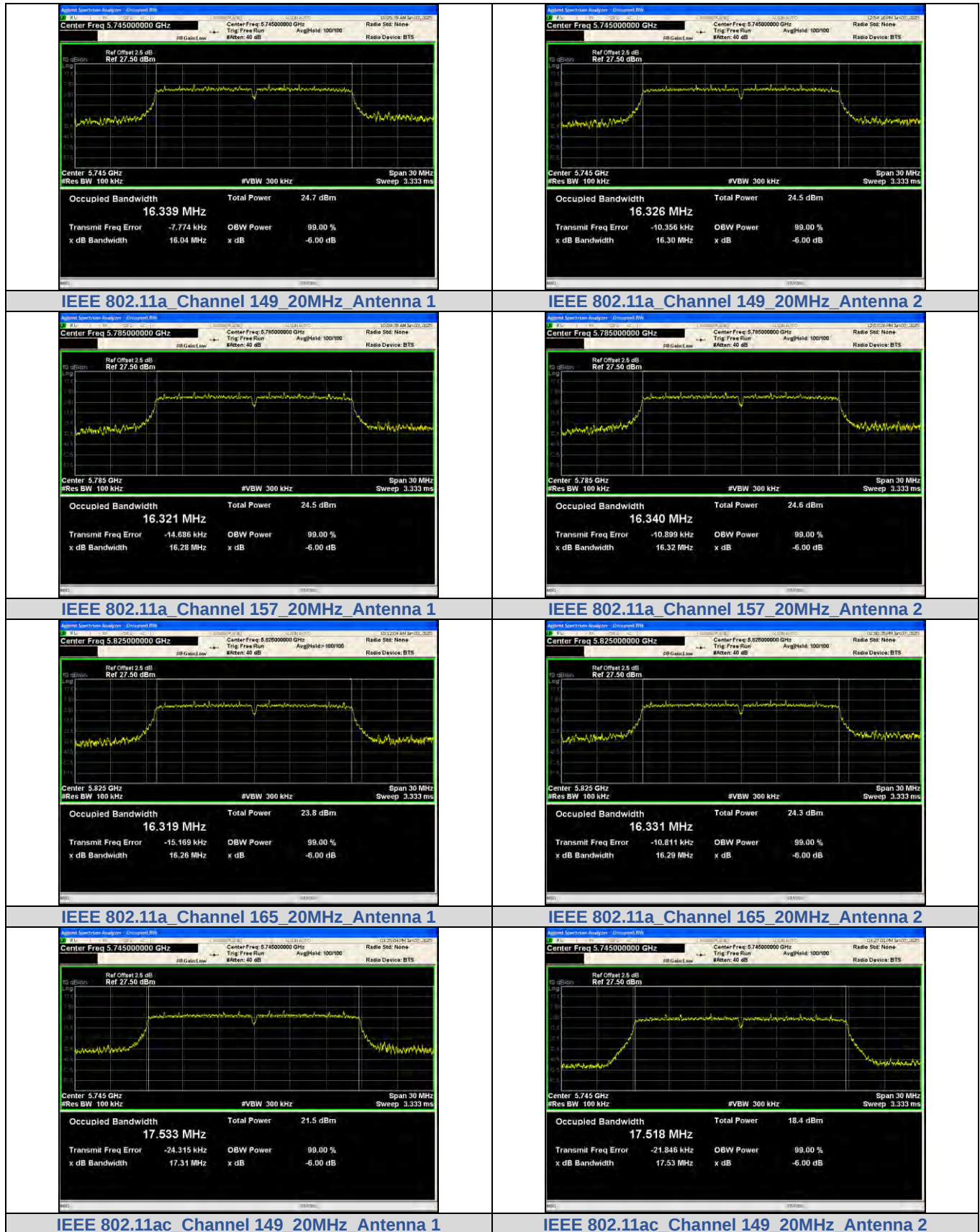








6dB Bandwidth:

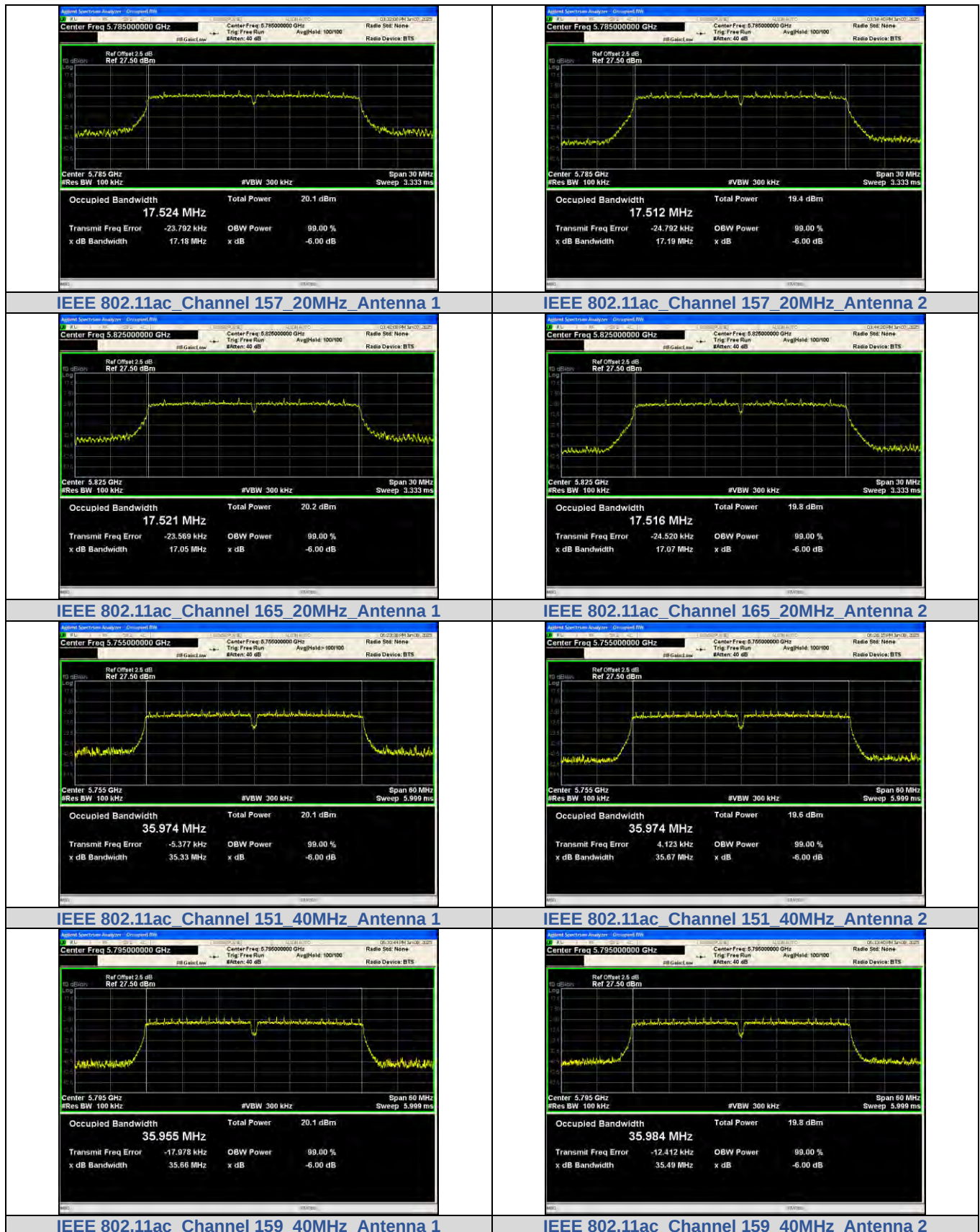


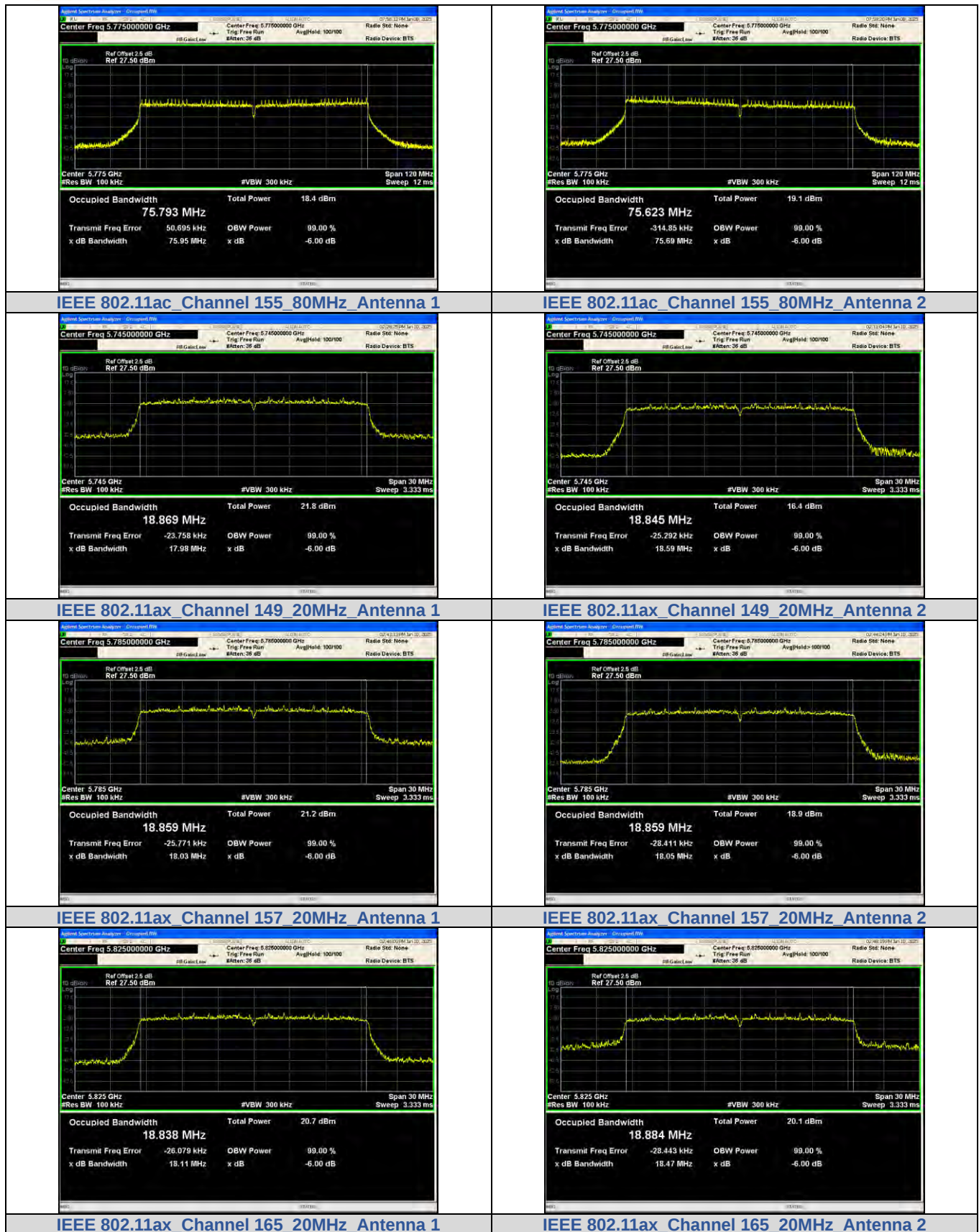
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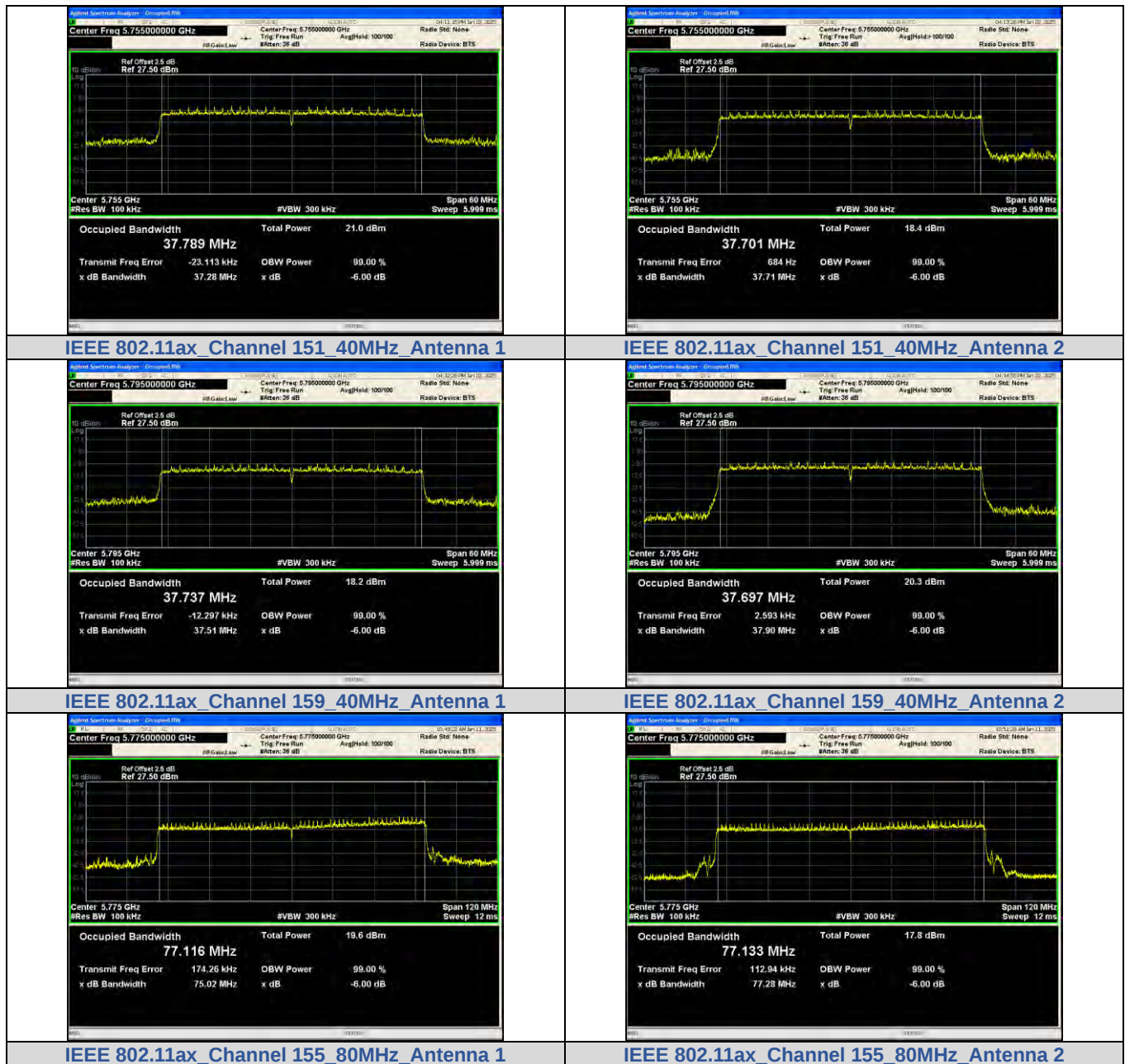
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3.5. Peak Output Power

Limit

FCC CFR Title 47 Part 15 Subpart E Section 15.407(a)

Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	Fixed: 1 Watt (30dBm) Mobile and Portable: 250mW (24dBm)	5150~5250
	250mW (24dBm)	5250~5350
	250mW (24dBm)	5500~5700
	1 Watt (30dBm)	5725~5850

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IC Power&PSD Limit					
Frequency	Type of devices	Maximum Conducted Output Power	EIRP Output Power	Conducted Power Spectral Density	EIRP Power Spectral Density
5150MHz-5250MHz	in vehicles		30mW or $1.76 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)		
	Other Devices		200mW or $10 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)		10dBm/MHz
5250MHz-5350MHz	in vehicles		30mW or $1.76 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)		
	Other Devices	250mW or $11 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	1W or $17 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	11dBm/MHz	
5470MHz-5600MHz 5650MHz-5725MHz	ALL Devices	250mW or $11 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	1W or $17 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	11dBm/MHz	
5725MHz-5850MHz	ALL Devices	1W		30dBm/500KHz	

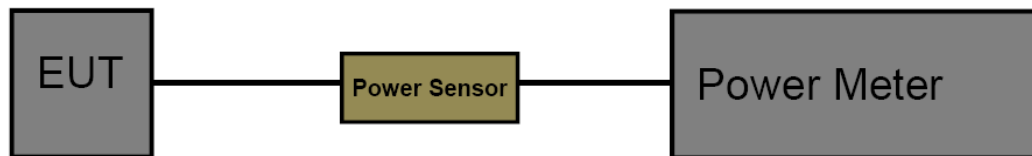
Test Configuration

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**Test Procedure**

The measurement is according to section 3 of KDB 789033 D02 General UNII Test Procedures New Rules V02r01.

Test Mode

Please refer to the clause 2.4.

**Test Result**

Test Mode	Channel	Ant. 1 (dBm)	Ant. 2 (dBm)	Total (dBm)	Limit (dBm)	Result
IEEE 802.11a	36	18.15	18.89	/	≤23.52	PASS
	40	18.17	18.33	/	≤23.52	PASS
	48	18.44	18.30	/	≤23.52	PASS
	52	18.54	18.19	/	≤23.52	PASS
	56	18.53	18.44	/	≤23.52	PASS
	64	18.36	18.15	/	≤23.52	PASS
	100	18.66	18.70	/	≤23.52	PASS
	116	18.47	18.71	/	≤23.52	PASS
	140	18.57	18.88	/	≤23.52	PASS
	149	18.94	18.73	/	≤29.52	PASS
	157	18.61	18.63	/	≤29.52	PASS
IEEE 802.11n_20	165	18.07	18.55	/	≤29.52	PASS
	36	14.21	14.09	17.16	≤23.52	PASS
	40	14.33	14.13	17.24	≤23.52	PASS
	48	14.52	14.20	17.37	≤23.52	PASS
	52	14.43	14.10	17.28	≤23.52	PASS
	56	14.24	13.98	17.12	≤23.52	PASS
	64	14.35	13.90	17.14	≤23.52	PASS
	100	14.27	14.11	17.20	≤23.52	PASS
	116	14.60	14.16	17.40	≤23.52	PASS
	140	14.71	12.32	16.69	≤23.52	PASS
	149	14.80	12.50	16.81	≤29.52	PASS
IEEE 802.11n_40	157	14.44	12.63	16.64	≤29.52	PASS
	165	14.30	13.16	16.78	≤29.52	PASS
	38	13.54	13.49	16.53	≤23.52	PASS
	46	13.45	13.30	16.39	≤23.52	PASS
	54	13.56	13.52	16.55	≤23.52	PASS
	62	13.31	12.93	16.13	≤23.52	PASS
	102	13.77	13.45	16.62	≤23.52	PASS
	110	13.72	13.22	16.49	≤23.52	PASS
	134	13.86	13.43	16.66	≤23.52	PASS
IEEE 802.11ac_20	151	13.89	13.32	16.62	≤29.52	PASS
	159	13.90	13.48	16.71	≤29.52	PASS
	36	14.36	14.39	17.39	≤23.52	PASS
	40	14.92	14.64	17.79	≤23.52	PASS
	48	14.90	14.24	17.59	≤23.52	PASS
	52	14.76	14.11	17.46	≤23.52	PASS
	56	14.64	14.06	17.37	≤23.52	PASS
	64	14.81	13.98	17.43	≤23.52	PASS
	100	14.68	14.82	17.76	≤23.52	PASS
	116	15.17	14.35	17.79	≤23.52	PASS
	140	15.48	12.40	17.22	≤23.52	PASS
IEEE 802.11ac_40	149	15.74	12.59	17.45	≤29.52	PASS
	157	14.57	14.00	17.30	≤29.52	PASS
	165	14.38	13.91	17.16	≤29.52	PASS
	38	13.73	13.64	16.70	≤23.52	PASS
	46	13.54	13.41	16.49	≤23.52	PASS
	54	13.76	13.63	16.71	≤23.52	PASS
	62	13.35	12.94	16.16	≤23.52	PASS
	102	13.81	13.58	16.71	≤23.52	PASS
	110	13.89	13.27	16.60	≤23.52	PASS
IEEE	134	14.20	13.61	16.93	≤23.52	PASS
	151	14.04	13.44	16.76	≤29.52	PASS
	159	14.03	13.73	16.89	≤29.52	PASS
	42	12.89	12.87	15.89	≤23.52	PASS

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802.11ac_80	58	12.68	13.01	15.86	≤23.52	PASS
	106	13.14	12.50	15.84	≤23.52	PASS
	122	12.85	12.16	15.53	≤23.52	PASS
	155	12.15	12.81	15.50	≤29.52	PASS
IEEE 802.11ax_20	36	14.99	14.13	17.59	≤23.52	PASS
	40	14.79	13.31	17.12	≤23.52	PASS
	48	14.93	13.90	17.46	≤23.52	PASS
	52	14.79	14.21	17.52	≤23.52	PASS
	56	14.60	13.95	17.30	≤23.52	PASS
	64	14.55	13.79	17.20	≤23.52	PASS
	100	14.66	14.54	17.61	≤23.52	PASS
	116	13.12	15.44	17.44	≤23.52	PASS
	140	16.13	12.11	17.58	≤23.52	PASS
	149	16.55	11.69	17.78	≤29.52	PASS
	157	15.56	13.57	17.69	≤29.52	PASS
IEEE 802.11ax_40	165	14.62	13.88	17.28	≤29.52	PASS
	38	13.42	12.73	16.10	≤23.52	PASS
	46	14.57	11.03	16.16	≤23.52	PASS
	54	12.42	13.73	16.13	≤23.52	PASS
	62	13.10	13.97	16.57	≤23.52	PASS
	102	11.74	15.16	16.79	≤23.52	PASS
	110	12.00	14.00	16.12	≤23.52	PASS
	134	13.28	13.20	16.25	≤23.52	PASS
	151	14.90	12.25	16.78	≤29.52	PASS
IEEE 802.11ax_80	159	12.08	14.28	16.33	≤29.52	PASS
	42	13.56	9.83	15.09	≤23.52	PASS
	58	12.17	12.02	15.11	≤23.52	PASS
	106	13.35	12.41	15.92	≤23.52	PASS
	122	13.93	11.62	15.94	≤23.52	PASS
	155	13.39	11.58	15.59	≤29.52	PASS



3.6. Power Spectral Density

Limit

FCC CFR Title 47 Part 15 Subpart E Section 15.407(a)

For the 5.15~5.25GHz band:

- Outdoor AP
The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.
If $G_{TX} > 6\text{dBi}$, then $\text{PSD} = 17 - (G_{TX} - 6)$.
- Indoor AP
The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.
If $G_{TX} > 6\text{dBi}$, then $\text{PSD} = 17 - (G_{TX} - 6)$.
- Point-to-point AP
The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.
If $G_{TX} > 23\text{dBi}$, then $\text{PSD} = 17 - (G_{TX} - 23)$.
- Client devices
The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.
If $G_{TX} > 6\text{dBi}$, then $\text{PSD} = 11 - (G_{TX} - 6)$.

For the 5.25~5.35GHz band:

The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.
If $G_{TX} > 6\text{dBi}$, then $\text{PSD} = 11 - (G_{TX} - 6)$.

For the 5.47~5.725GHz band:

The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.
If $G_{TX} > 6\text{dBi}$, then $\text{PSD} = 11 - (G_{TX} - 6)$.

For the 5.725~5.85GHz band:

- Point-to-multipoint systems (P2M)
The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.
If $G_{TX} > 6\text{dBi}$, then $\text{PSD} = 30 - (G_{TX} - 6)$.
- Point-to-point systems (P2P)
The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.

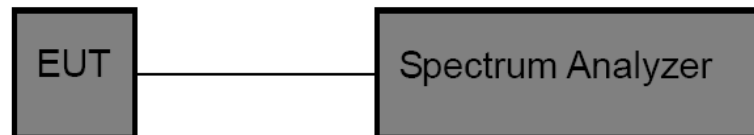
Note: G_{TX} : EUT Antenna gain.

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IC Power&PSD Limit					
Frequency	Type of devices	Maximum Conducted Output Power	EIRP Output Power	Conducted Power Spectral Density	EIRP Power Spectral Density
5150MHz-5250MHz	in vehicles		30mW or $1.76 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)		
	Other Devices		200mW or $10 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)		10dBm/MHz
5250MHz-5350MHz	in vehicles		30mW or $1.76 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)		
	Other Devices	250mW or $11 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	1W or $17 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	11dBm/MHz	
5470MHz-5600MHz 5650MHz-5725MHz	ALL Devices	250mW or $11 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	1W or $17 + 10 \times \log_{10} B$ dBm, whichever is less (B=99% OBW in MHz)	11dBm/MHz	
5725MHz-5850MHz	ALL Devices	1W		30dBm/500KHz	

Test Configuration



Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement is according to KDB 789033 D02 General UNII Test Procedures New Rules V02r01.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyzer center frequency to transmitting frequency.
- (3) Set the span to encompass the entire emissions bandwidth (EBW) (alternatively, the entire 99% OBW) of the signal.
- (4) RBW=1MHz for devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz
RBW=500kHz for devices operating in the band 5.725-5.85 GHz.
- (5) Set the VBW to: ≥ 3 RBW
- (6) Detector: AVG
- (7) Trace: Max Hold and View
- (7) Sweep time: auto
- (8) Trace average at least 100 traces in power averaging.
- (9) User the peak marker function to determine the maximum amplitude level within the RBW. Apply correction to the result if different RBW is used.

NOTE: The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

Test Mode

Please refer to the clause 2.4.

**Test Result**

Mode	Channel	Ant. 1 PSD (dBm/MHz or dBm/0.5MHz)	Ant. 2 PSD (dBm/MHz or dBm/0.5MHz)	Total PSD (dBm/MHz or dBm/0.5MHz)	Limit (dBm/MHz or dBm/0.5MHz)	Result
IEEE 802.11a	36	7.929	8.459	/	≤10.52	PASS
	40	7.807	8.151	/	≤10.52	PASS
	48	7.919	8.071	/	≤10.52	PASS
	52	7.888	7.912	/	≤10.52	PASS
	56	7.861	7.796	/	≤10.52	PASS
	64	7.657	7.715	/	≤10.52	PASS
	100	8.328	8.203	/	≤10.52	PASS
	116	7.868	8.631	/	≤10.52	PASS
	140	8.281	8.763	/	≤10.52	PASS
	149	5.512	5.324	/	≤29.52	PASS
	157	5.091	5.074	/	≤29.52	PASS
IEEE 802.11ac_20	36	3.942	3.727	6.85	≤10.52	PASS
	40	4.236	4.064	7.16	≤10.52	PASS
	48	4.155	3.716	6.95	≤10.52	PASS
	52	4.178	3.773	6.99	≤10.52	PASS
	56	3.961	3.301	6.65	≤10.52	PASS
	64	4.037	3.228	6.66	≤10.52	PASS
	100	3.987	4.143	7.08	≤10.52	PASS
	116	4.507	3.901	7.22	≤10.52	PASS
	140	5.896	0.474	6.99	≤10.52	PASS
	149	1.781	-1.171	3.56	≤29.52	PASS
	157	1.006	0.343	3.70	≤29.52	PASS
IEEE 802.11ac_40	38	0.168	-0.188	3.00	≤10.52	PASS
	46	-0.377	-0.528	2.56	≤10.52	PASS
	54	-0.065	-0.125	2.92	≤10.52	PASS
	62	-0.414	-0.923	2.35	≤10.52	PASS
	102	0.294	-0.194	3.07	≤10.52	PASS
	110	0.160	-0.502	2.85	≤10.52	PASS
	134	0.423	-0.099	3.18	≤10.52	PASS
	151	-2.854	-3.440	-0.13	≤29.52	PASS
	159	-2.733	-2.758	0.26	≤29.52	PASS
IEEE 802.11ac_80	42	-3.046	-3.685	-0.34	≤10.52	PASS
	58	-4.129	-2.063	0.04	≤10.52	PASS
	106	-2.424	-4.071	-0.16	≤10.52	PASS
	122	-3.994	-2.245	-0.02	≤10.52	PASS
	155	-7.030	-4.555	-2.61	≤29.52	PASS
IEEE 802.11ax_20	36	4.312	3.478	6.93	≤10.52	PASS
	40	4.285	2.565	6.52	≤10.52	PASS
	48	3.953	3.249	6.63	≤10.52	PASS
	52	3.998	3.336	6.69	≤10.52	PASS
	56	3.672	2.930	6.33	≤10.52	PASS
	64	3.607	3.075	6.36	≤10.52	PASS
	100	3.902	3.849	6.89	≤10.52	PASS
	116	2.125	4.642	6.57	≤10.52	PASS
	140	5.156	1.303	6.65	≤10.52	PASS
	149	2.713	-2.129	3.94	≤29.52	PASS
	157	1.680	-0.248	3.83	≤29.52	PASS
IEEE 802.11ax_40	165	0.656	0.266	3.48	≤29.52	PASS
	38	-0.181	-1.053	2.42	≤10.52	PASS
	46	0.844	-2.576	2.47	≤10.52	PASS
	54	-1.621	-0.173	2.17	≤10.52	PASS
	62	-0.673	0.114	2.75	≤10.52	PASS

CTC Laboratories, Inc.

Room 101 Building B, No. 7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

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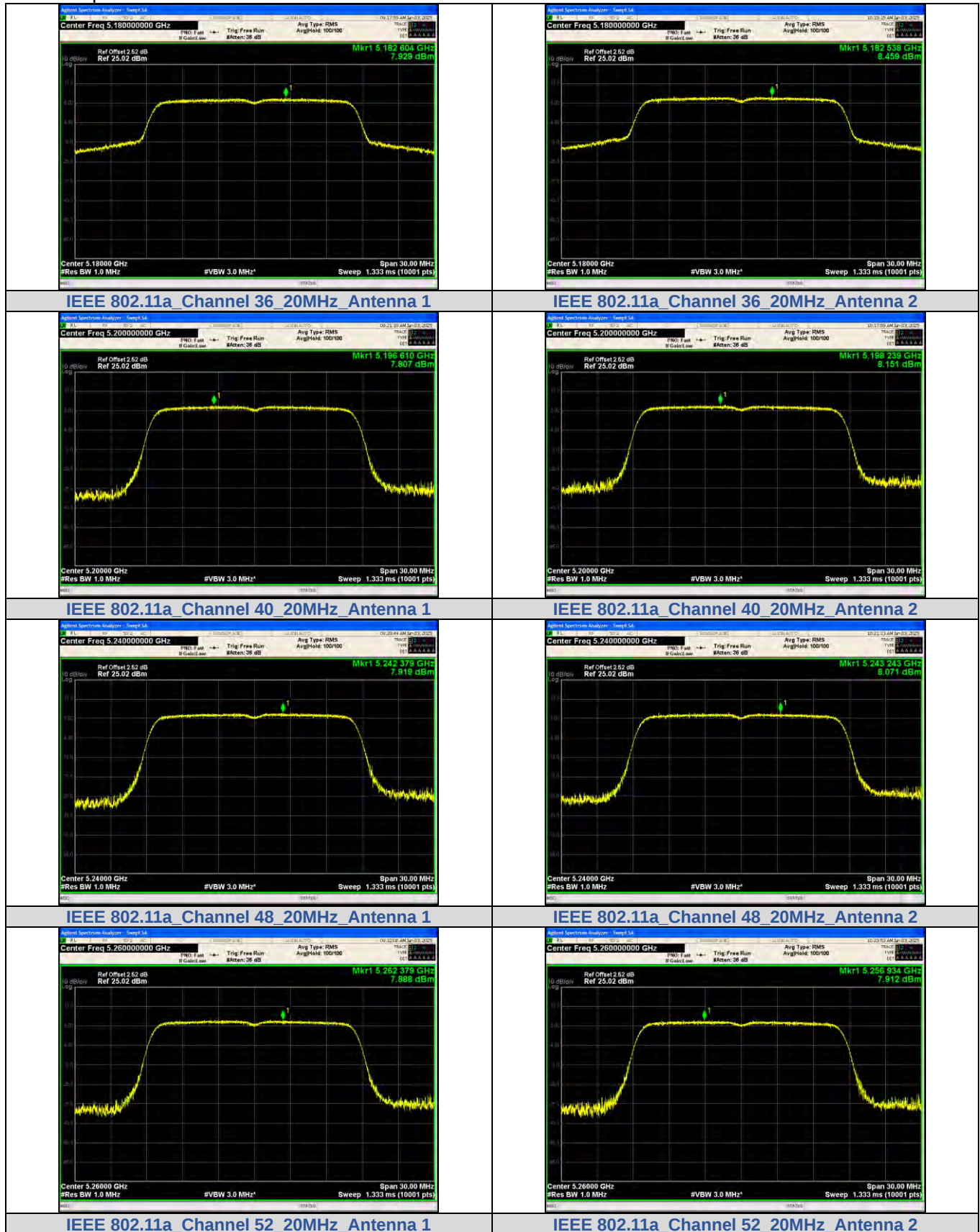
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	102	-2.116	1.406	3.00	≤ 10.52	PASS
	110	-1.986	0.317	2.33	≤ 10.52	PASS
	134	-0.479	-0.526	2.51	≤ 10.52	PASS
	151	-1.957	-4.756	-0.12	≤ 29.52	PASS
	159	-4.653	-2.652	-0.53	≤ 29.52	PASS
IEEE 802.11ax_80	42	-1.382	-5.464	0.05	≤ 10.52	PASS
	58	-1.763	-4.417	0.12	≤ 10.52	PASS
	106	-2.358	-4.122	-0.14	≤ 10.52	PASS
	122	-1.742	-3.405	0.52	≤ 10.52	PASS
	155	-4.250	-7.482	-2.56	≤ 29.52	PASS



Test Graphs

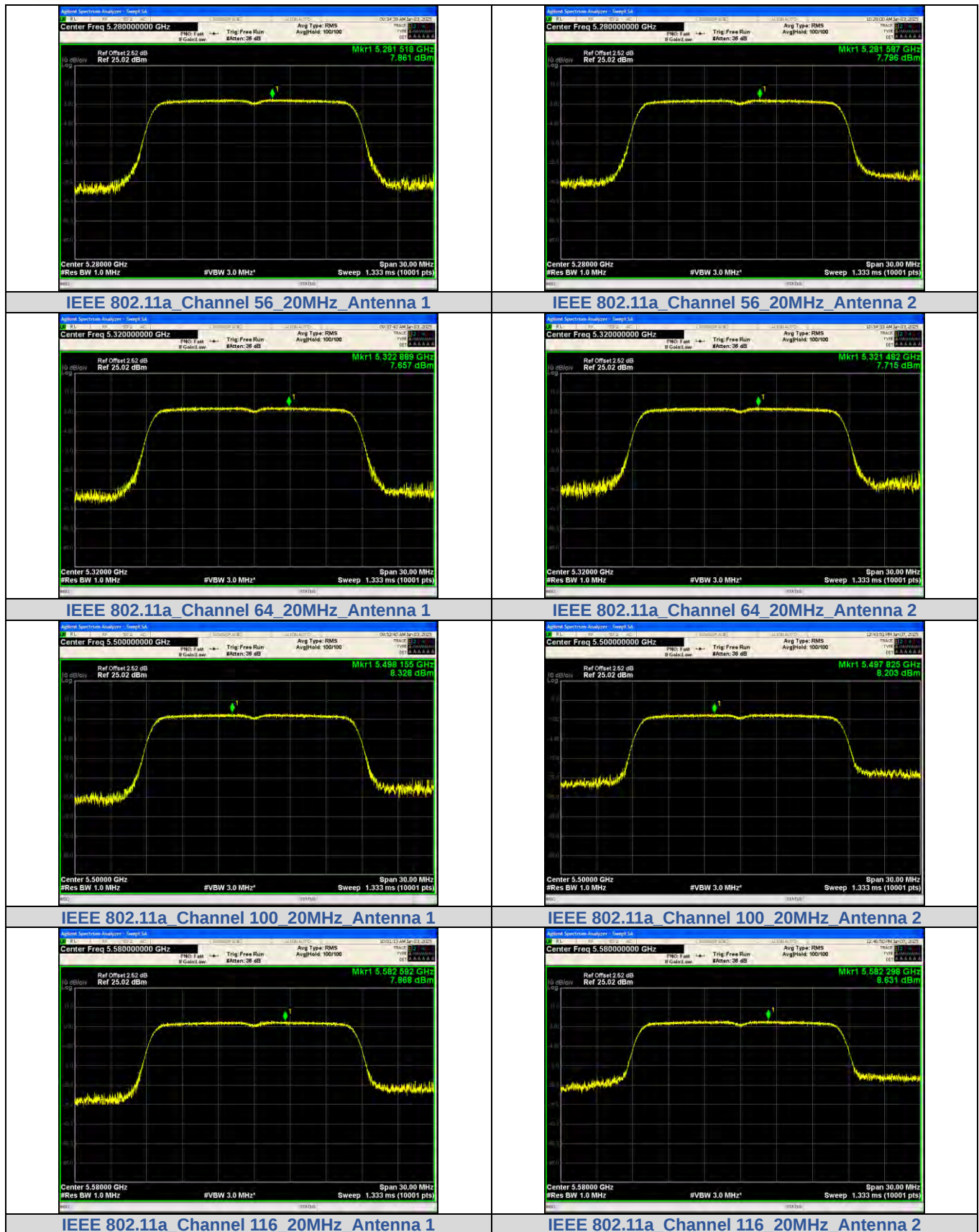


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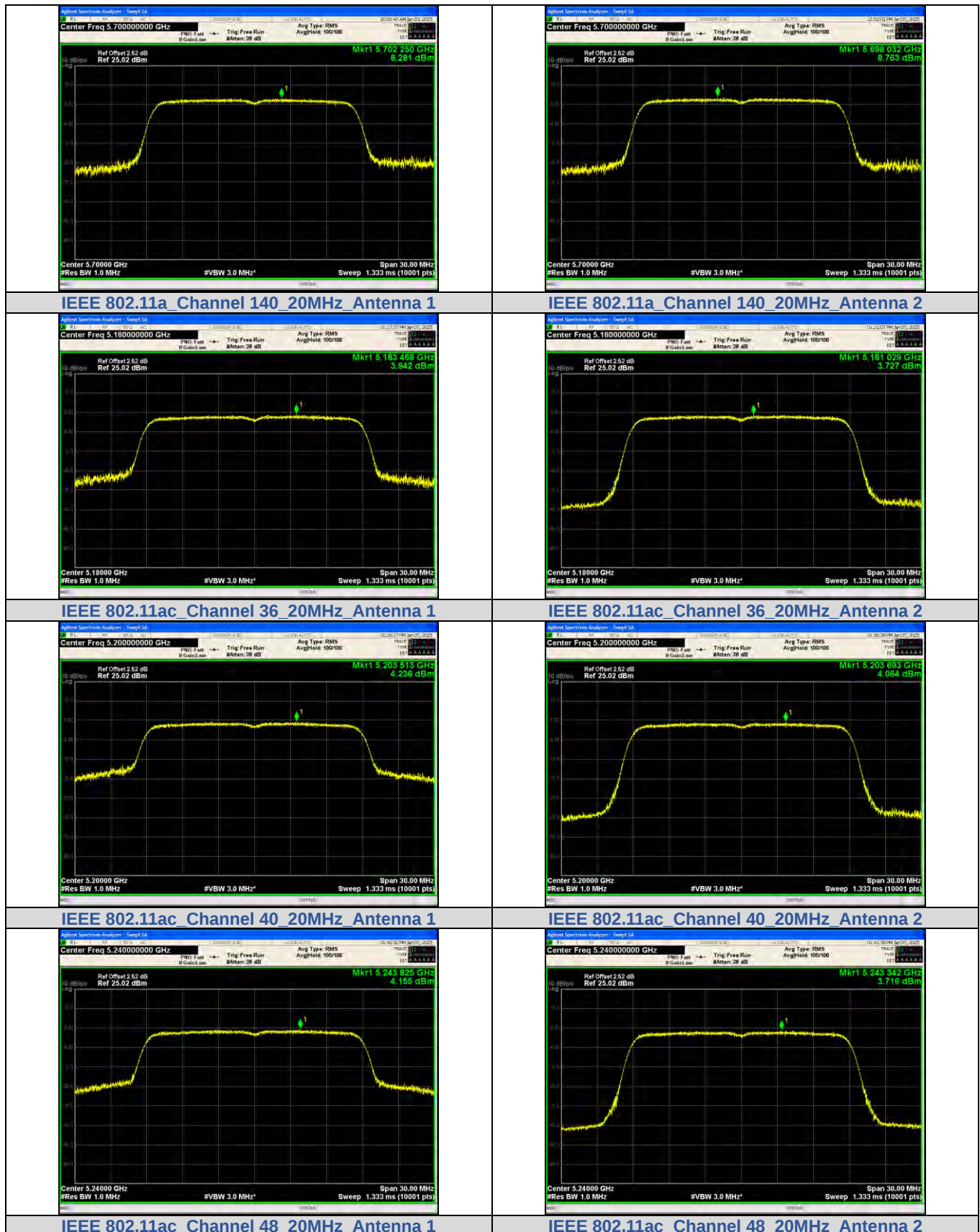


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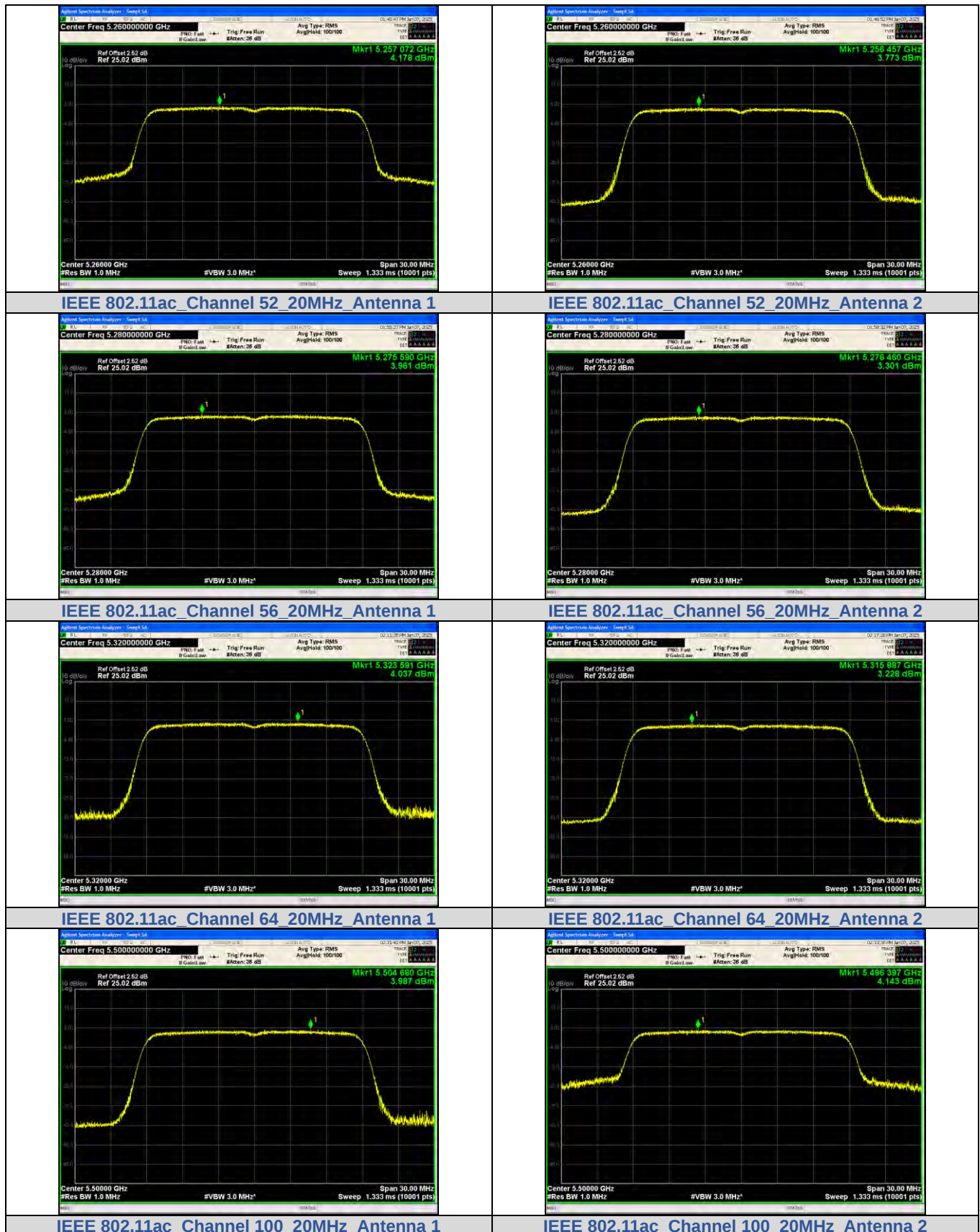


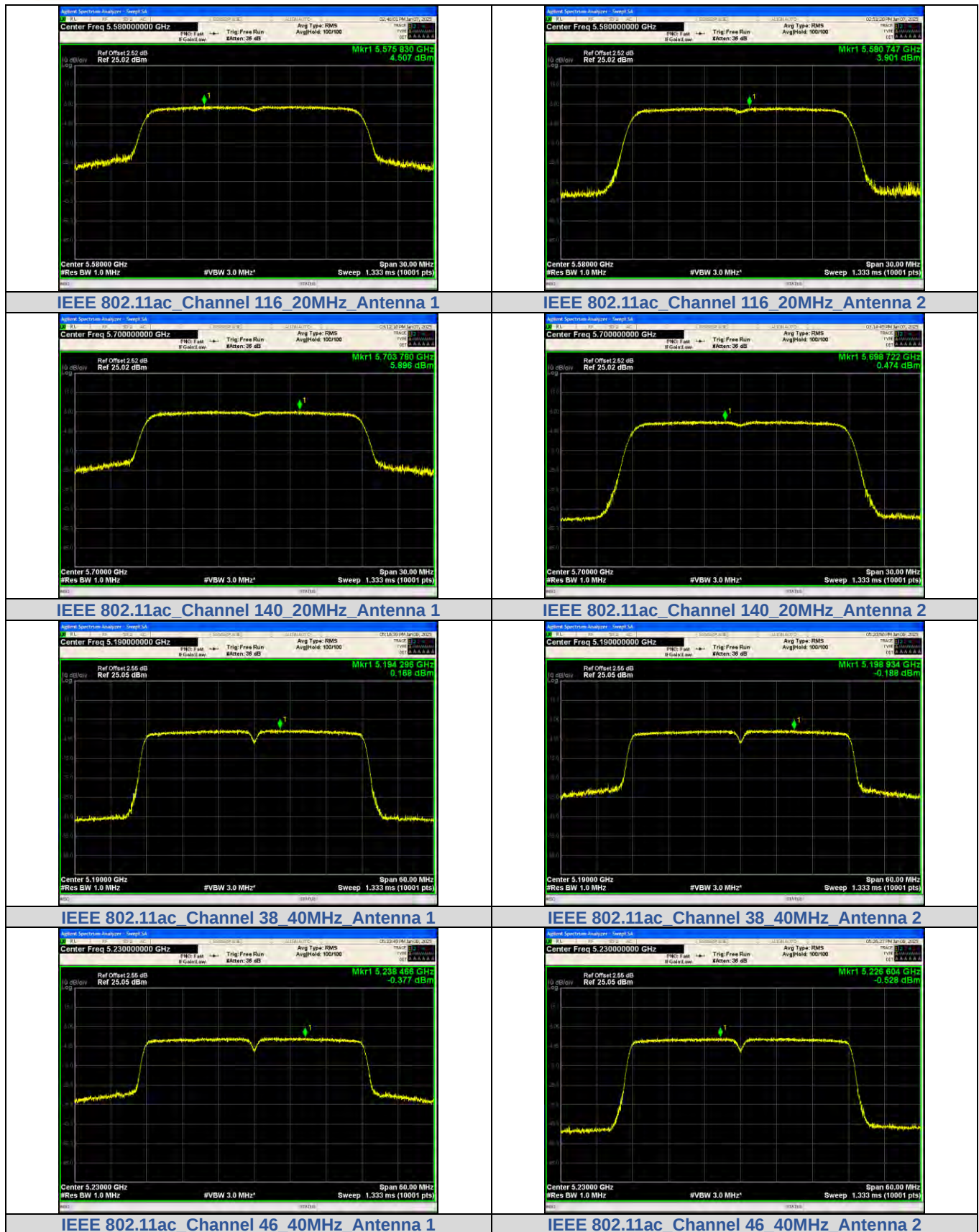
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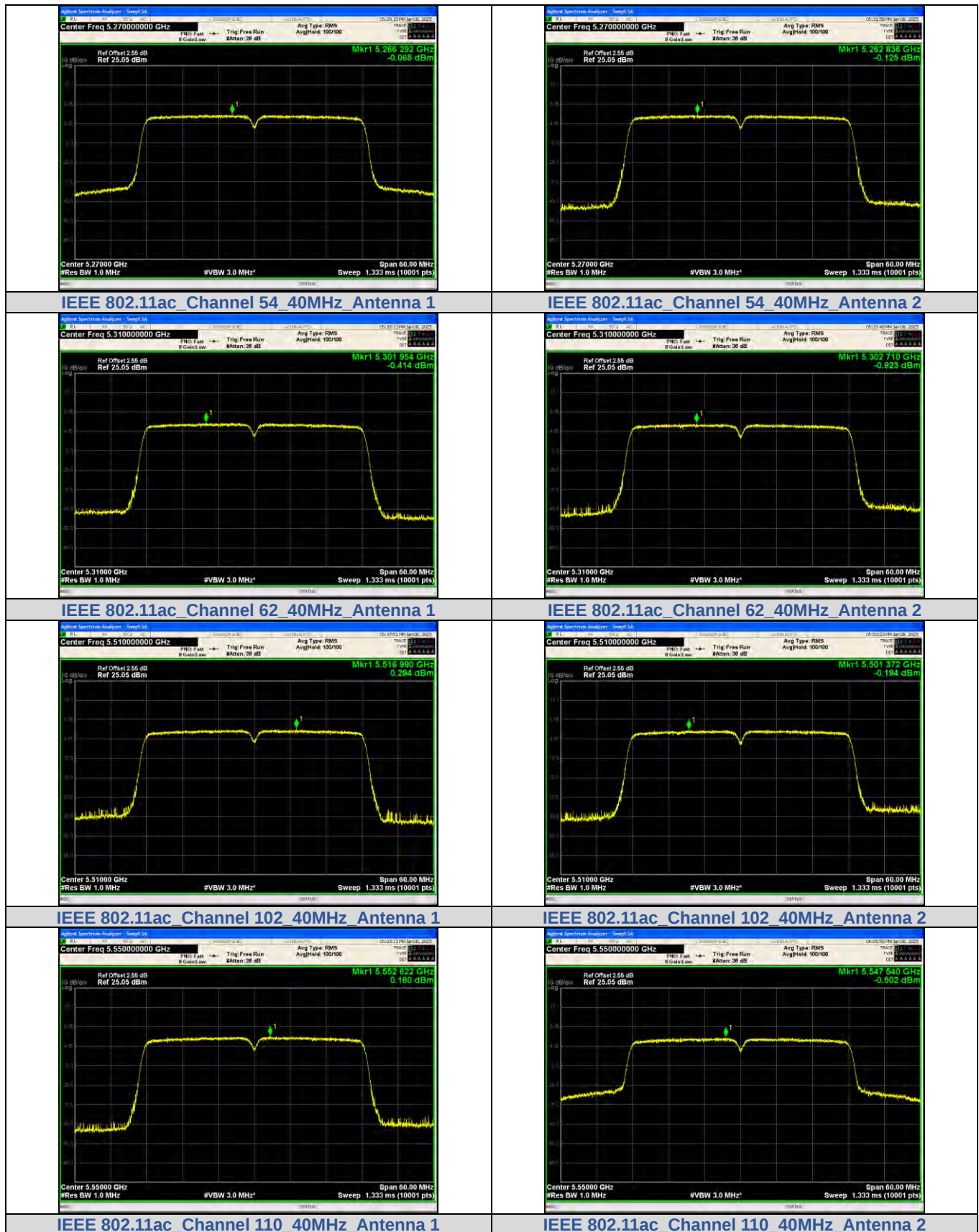
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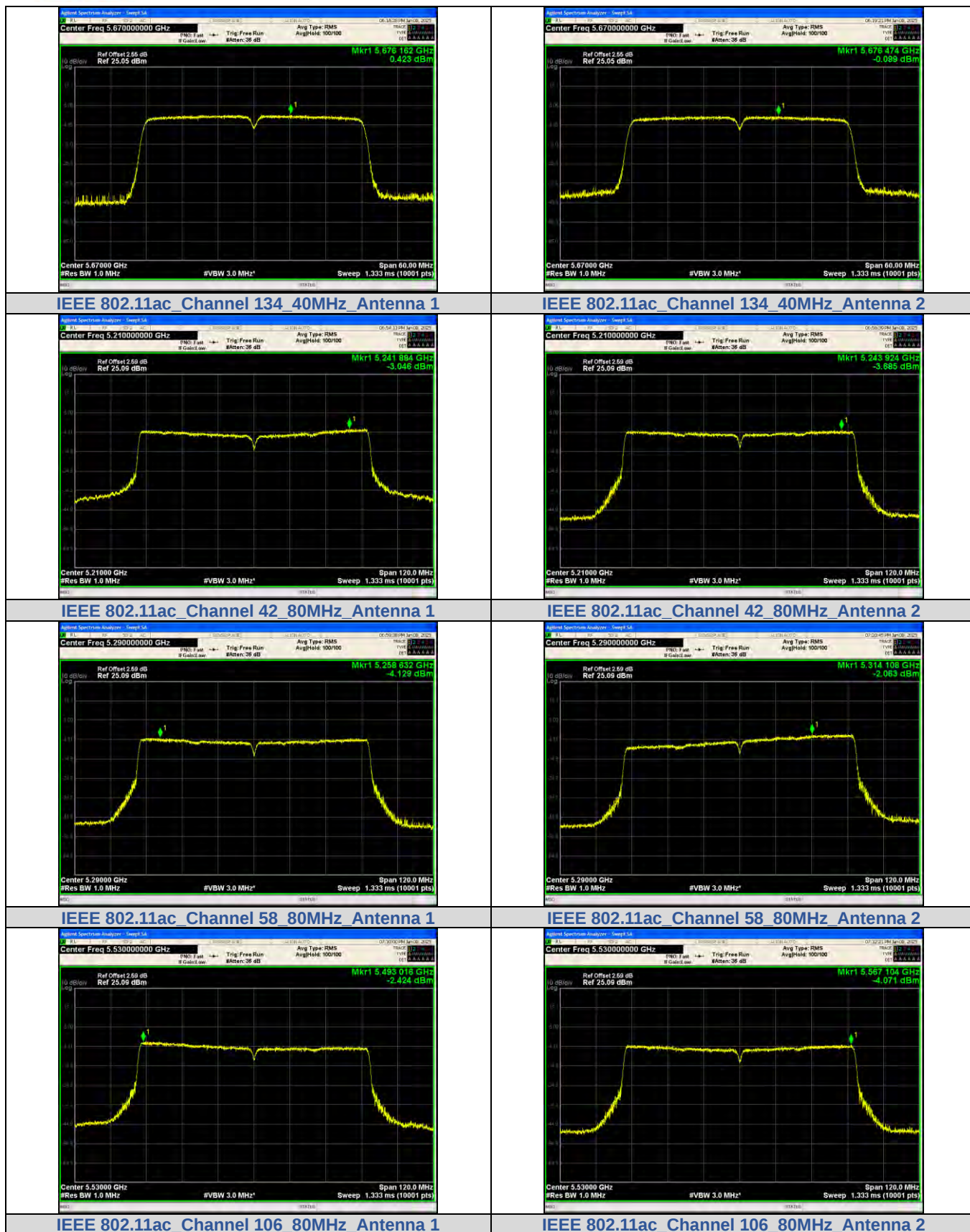


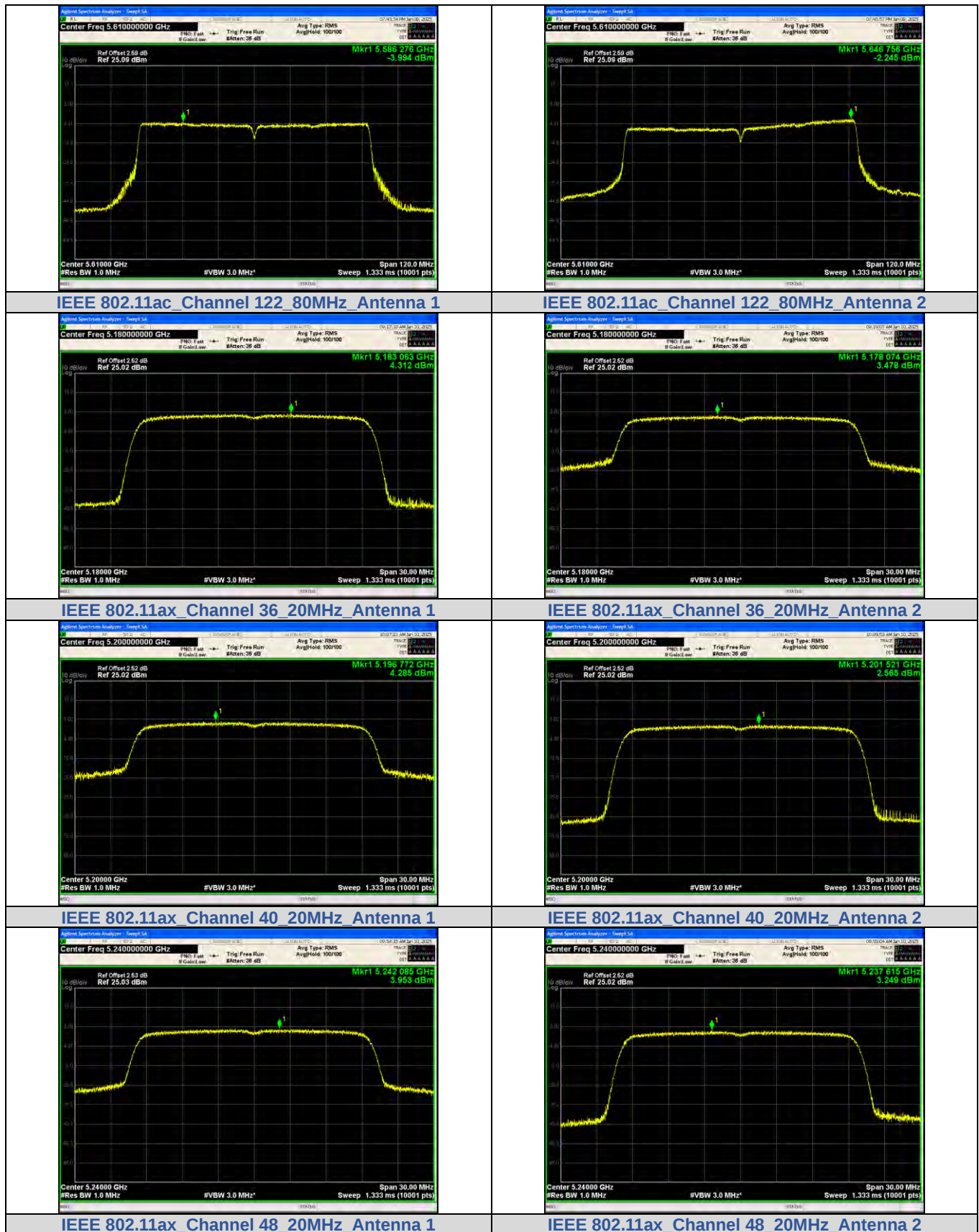
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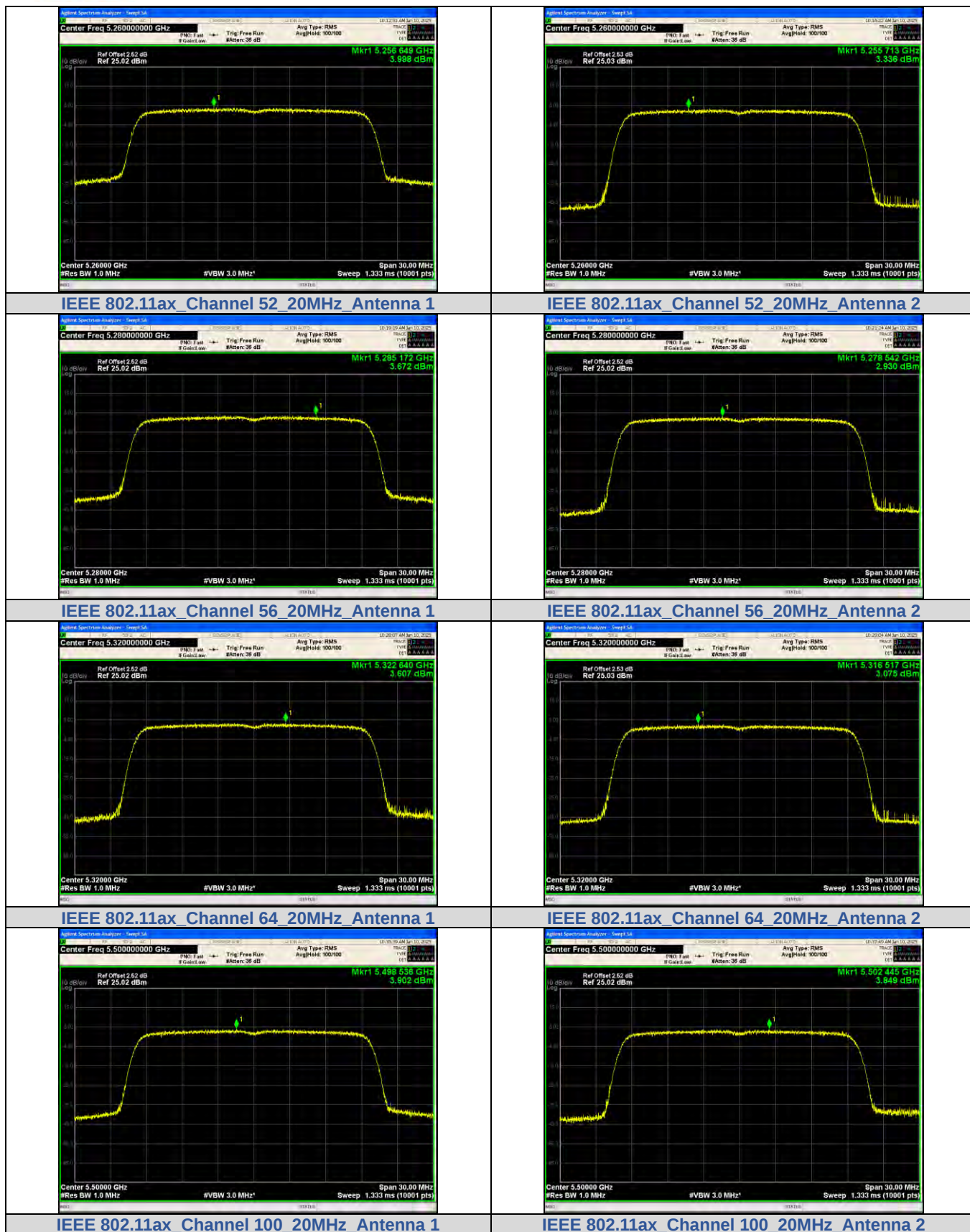


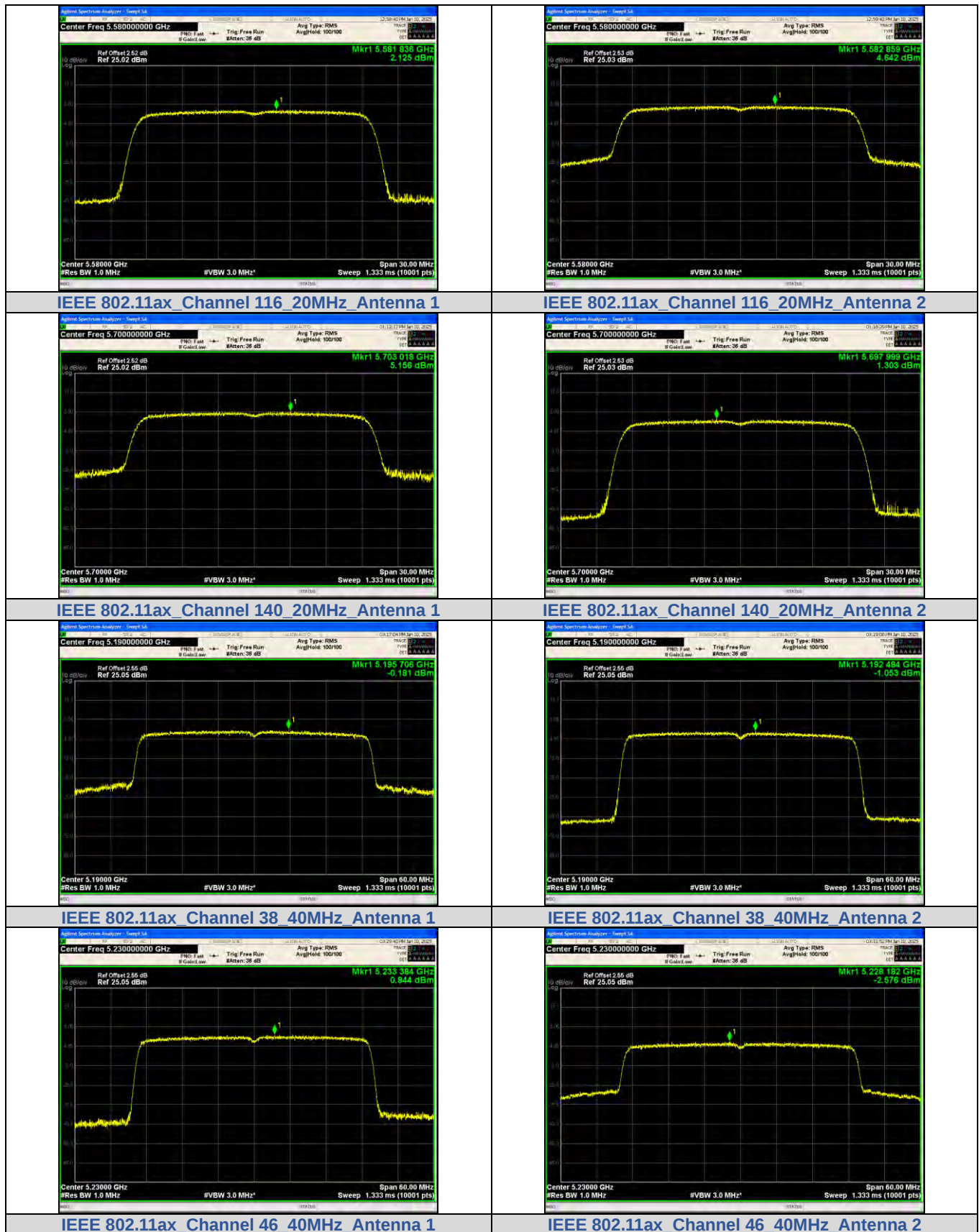
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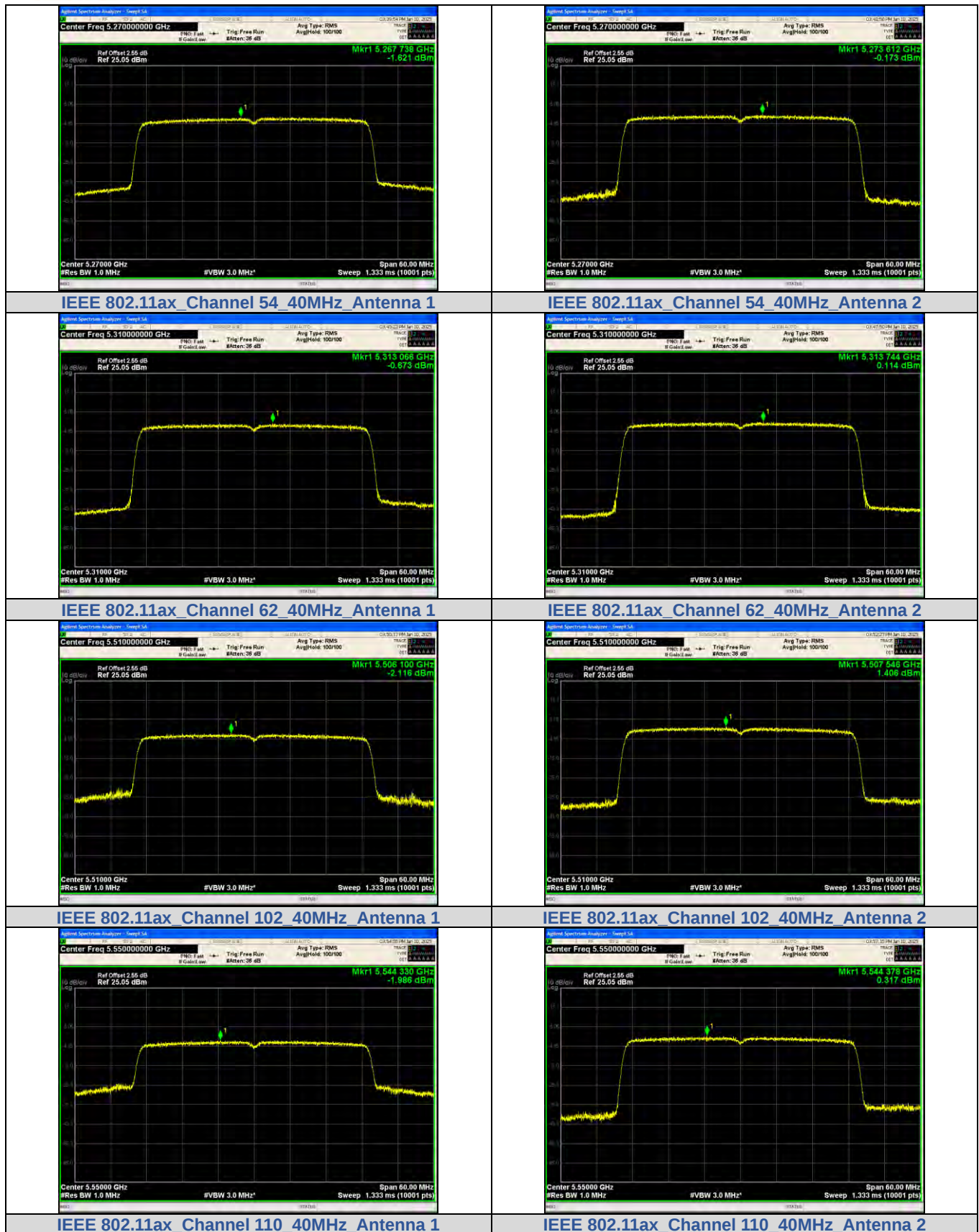
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