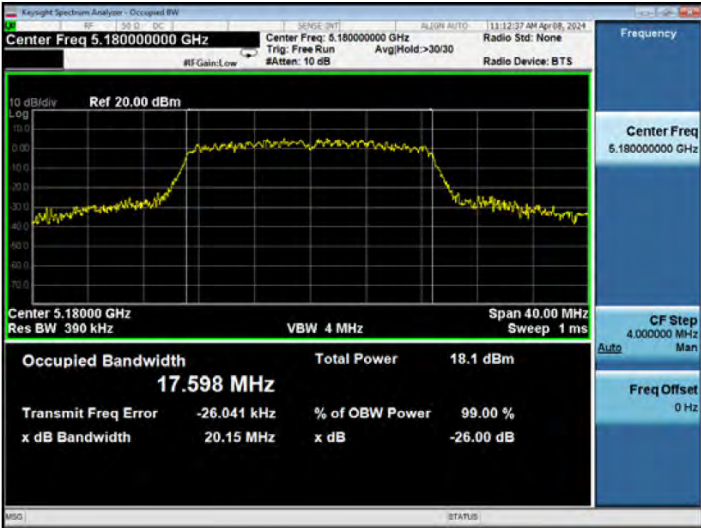


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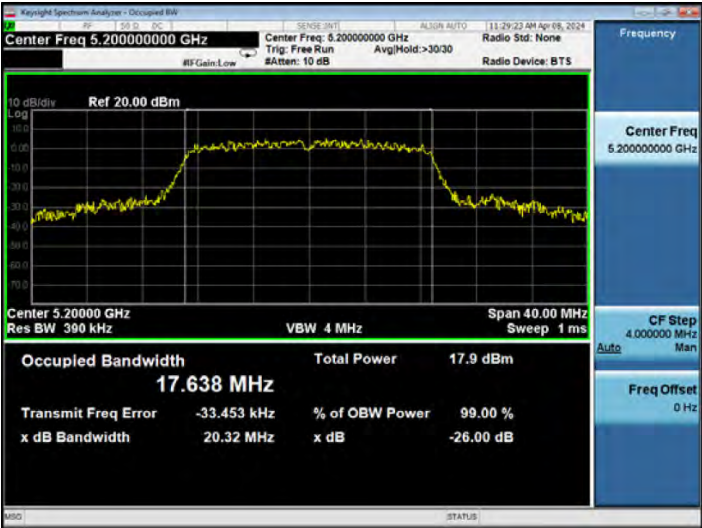
802.11ac20

Band-UNII-1

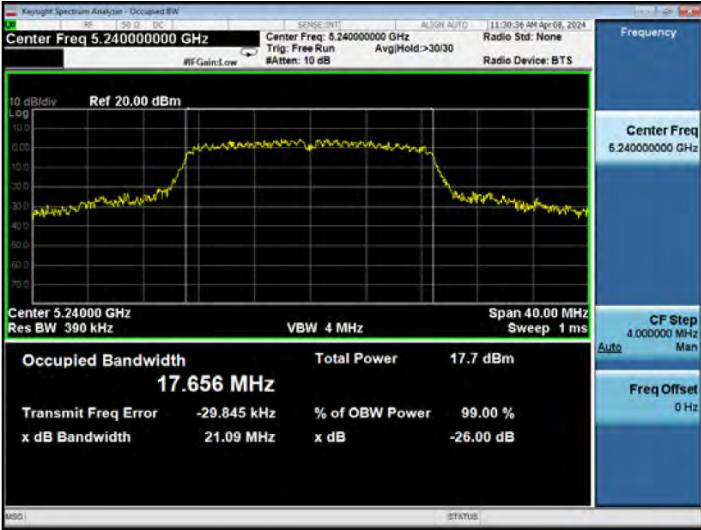
CH5180



CH5200



CH5240



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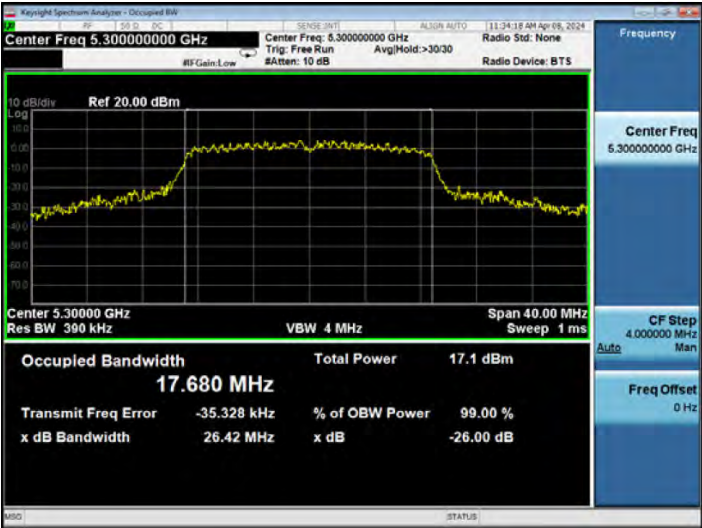
802.11ac20

Band-UNII-2A

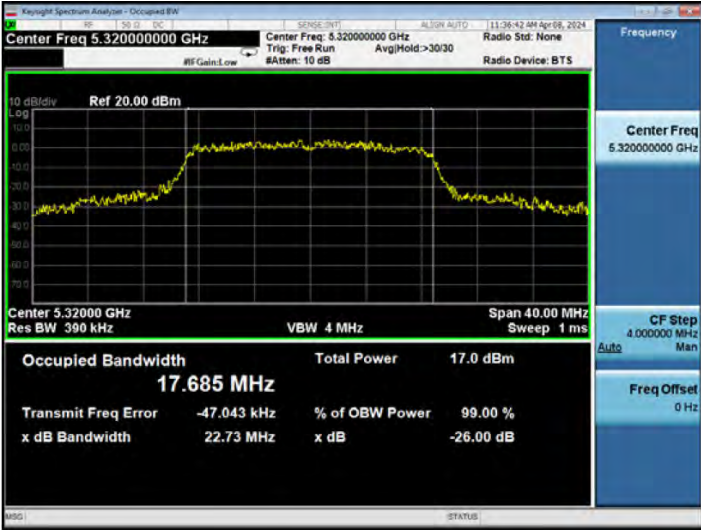
CH5260



CH5300



CH5320

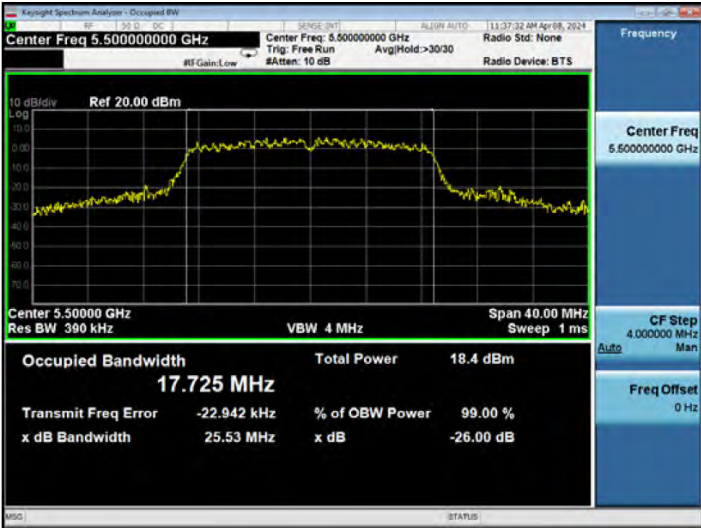


99% Bandwidth:

802.11ac20

Band-UNII-2C

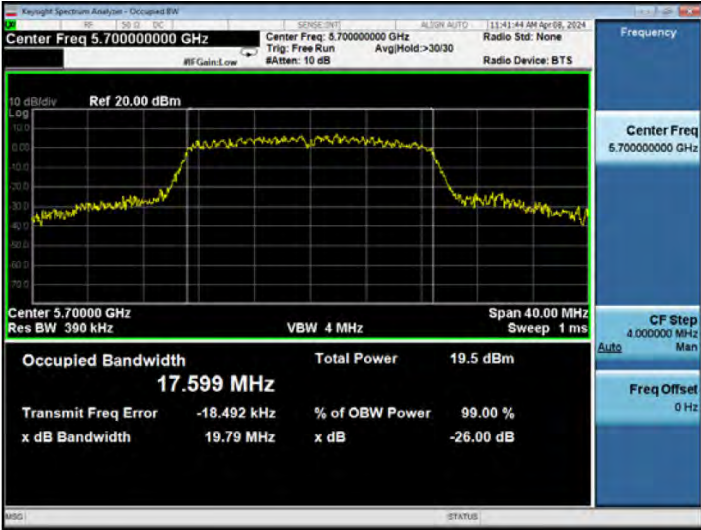
CH5500

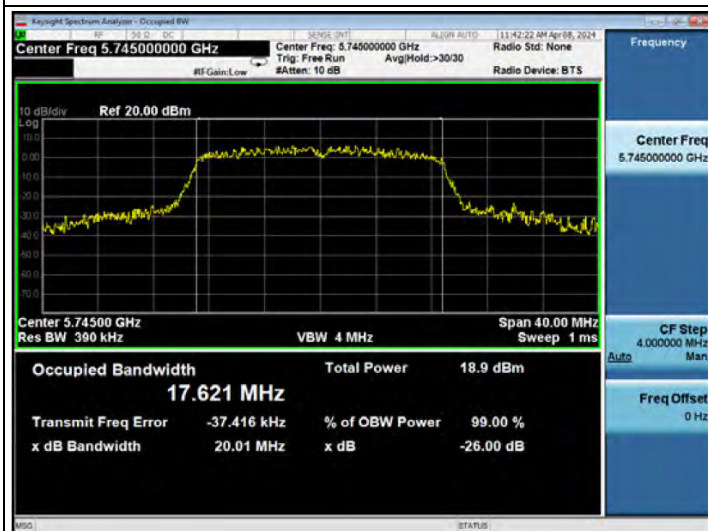


CH5600



CH5700



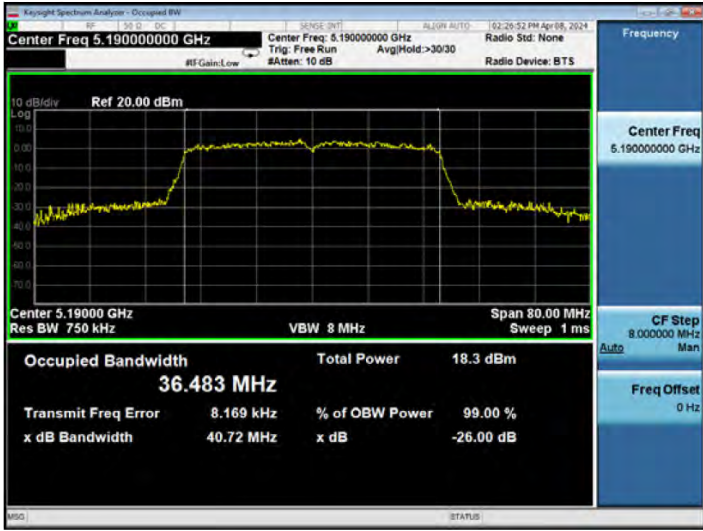
99% Bandwidth:**802.11ac20****Band-UNII-3****CH5745****CH5785****CH5825**

99% Bandwidth:

802.11ac40

Band-UNII-1

CH5190



CH5230

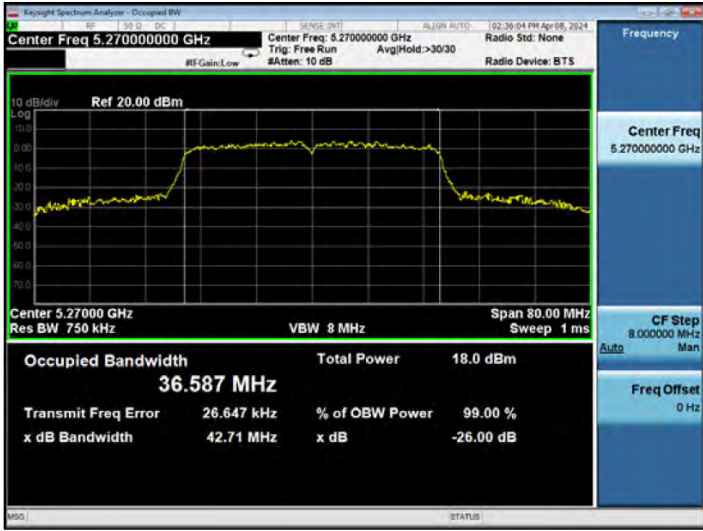


99% Bandwidth:

802.11ac40

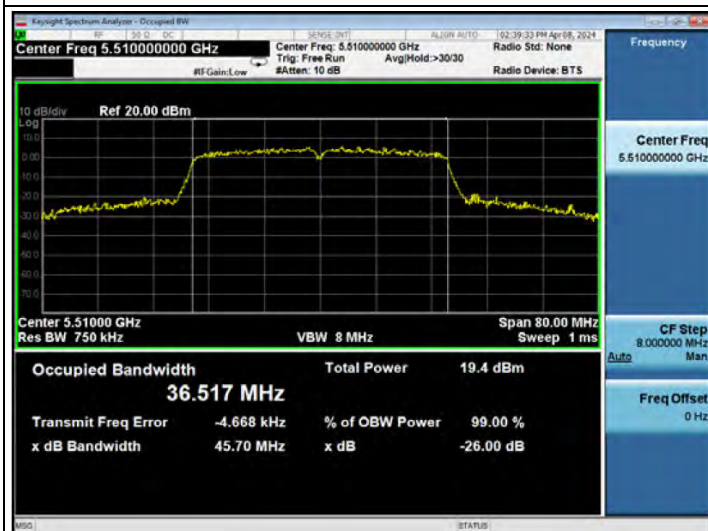
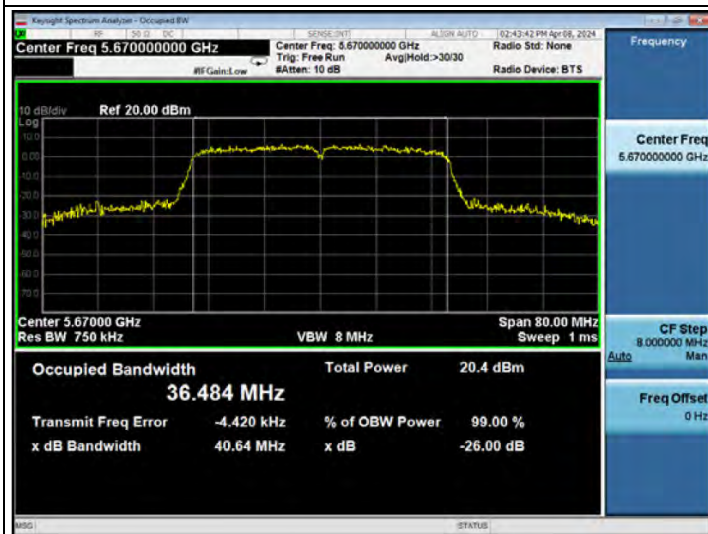
Band-UNII-2A

CH5270



CH5310



99% Bandwidth:**802.11ac40****Band-UNII-2C****CH5510****CH5590****CH5670**

99% Bandwidth:

802.11ac40

Band-UNII-3

CH5755



CH5795

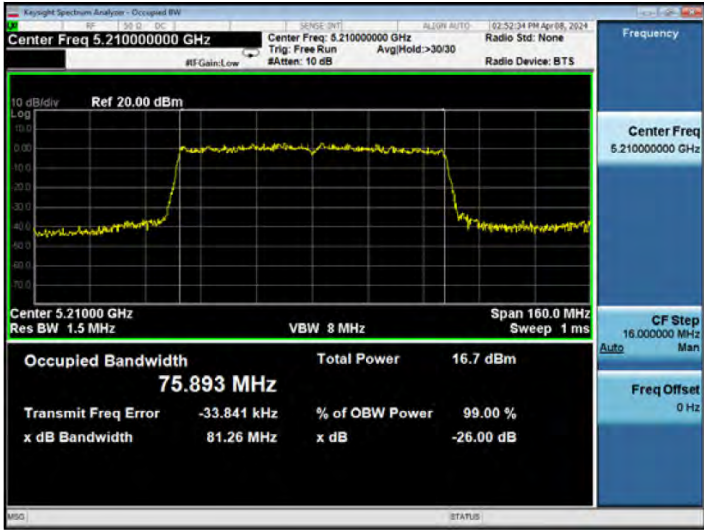


99% Bandwidth:

802.11ac80

Band-UNII-1

CH5210

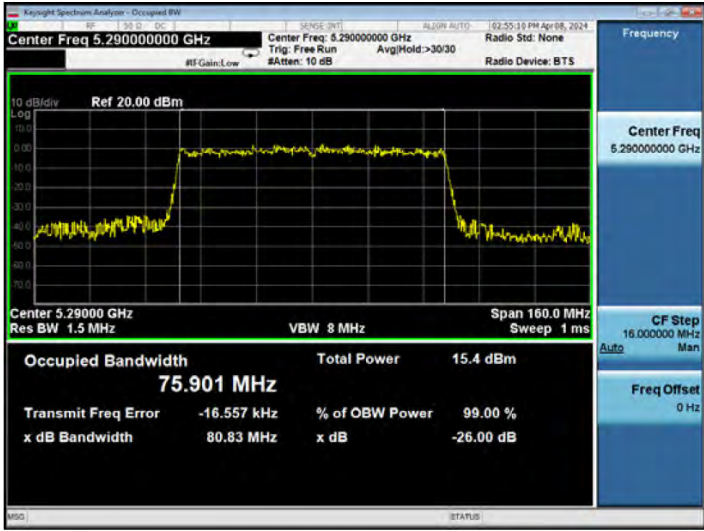


99% Bandwidth:

802.11ac80

Band-UNII-2A

CH5290

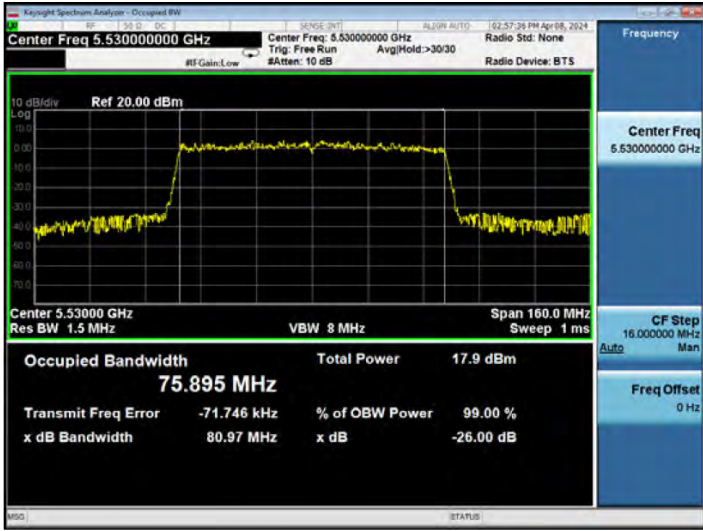


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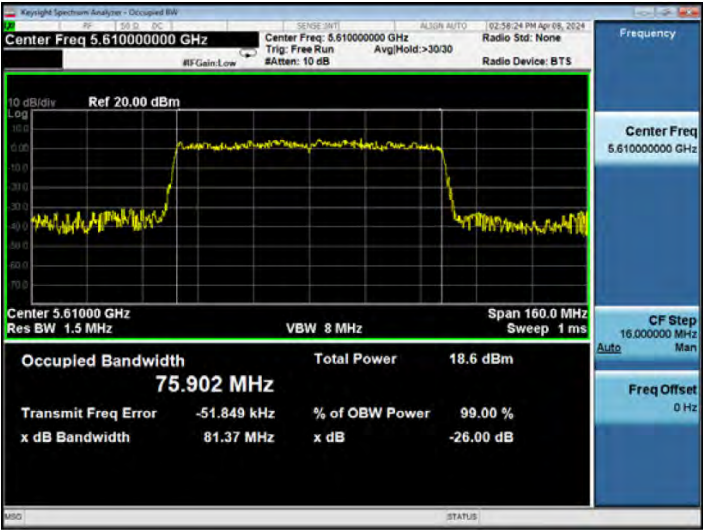
802.11ac80

Band-UNII-2C

CH5530



CH5610

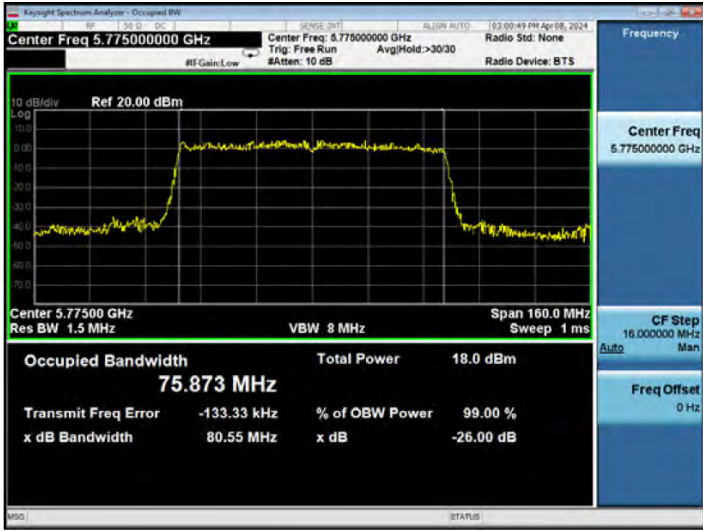


99% Bandwidth:

802.11ac80

Band-UNII-3

CH5775



7 26 dB BANDWIDTH MEASUREMENT

7.1 Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2023.08.09	1 Year
2.	RF Cable	Mini-Circuits	FLC-3FT-SM SM+	22022838	2023.08.09	1 Year
3.	20 dB Attenuator	Mini-Circuits	BW-S20W2+	001	2023.09.21	1 Year

7.2 Block Diagram of Test Setup

The Same as Section. 6.2

7.3 Operating Condition of EUT

The switch ON/OFF was used to enable the EUT to change the channel one by one.

7.4 Test Procedure

The following procedure shall be used for measuring this bandwidth:

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The test procedure is defined in KDB789033 D02 (the clause II.C.1 Measurement Procedure “Emission Bandwidth (EBW)” was used).

The Antenna Port “CNF2” used to measure the 26 dB bandwidth.

7.5 Test Results

PASSED.

All the test results are listed below.

(Test Date: 2024.04.08-09 Temperature: 23°C Humidity: 51 %)

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
802.11a	36	5180	21.41
	40	5200	22.59
	48	5240	24.71
	52	5260	23.25
	60	5300	25.5
	64	5320	25.43
	100	5500	25.6
	120	5600	25.41
	140	5700	20.04
	149	5745	19.64
	157	5785	19.57
	165	5825	19.83

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
802.11n20	36	5180	19.6
	40	5200	19.6
	48	5240	19.63
	52	5260	19.65
	60	5300	19.69
	64	5320	19.66
	100	5500	19.61
	120	5600	19.75
	140	5700	19.79
	149	5745	19.8
	157	5785	19.74
	165	5825	19.79

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
802.11n40	38	5190	40.31
	46	5230	40.18
	54	5270	40.15
	62	5310	40.02
	102	5510	39.99
	118	5590	40.38
	134	5670	40.41
	151	5755	40.45
	159	5795	40.31

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
802.11ac20	36	5180	19.77
	40	5200	19.99
	48	5240	20.6
	52	5260	21.13
	60	5300	25.65
	64	5320	25.14
	100	5500	23.82
	120	5600	20.81
	140	5700	19.95
	149	5745	19.87
	157	5785	19.86
	165	5825	19.99

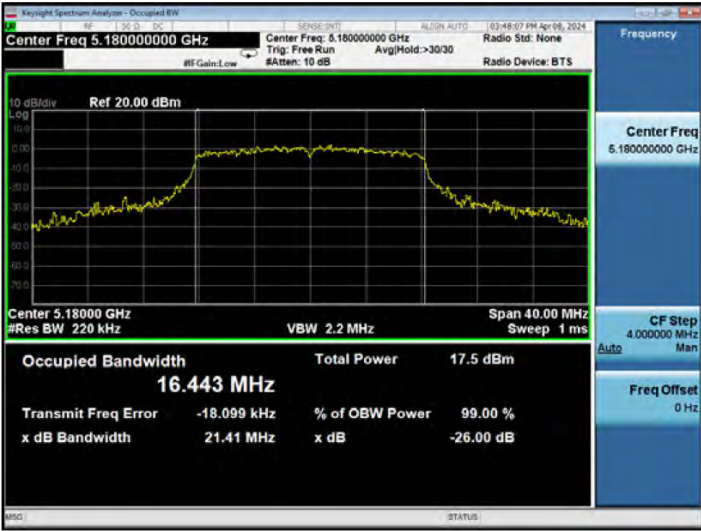
Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
802.11ac40	38	5190	40.14
	46	5230	40.36
	54	5270	39.78
	62	5310	40.04
	102	5510	40.5
	118	5590	39.81
	134	5670	39.71
	151	5755	39.71
	159	5795	39.58

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
802.11ac80	42	5210	79.83
	58	5290	80.81
	106	5530	80.24
	122	5610	80.25
	155	5775	80.13

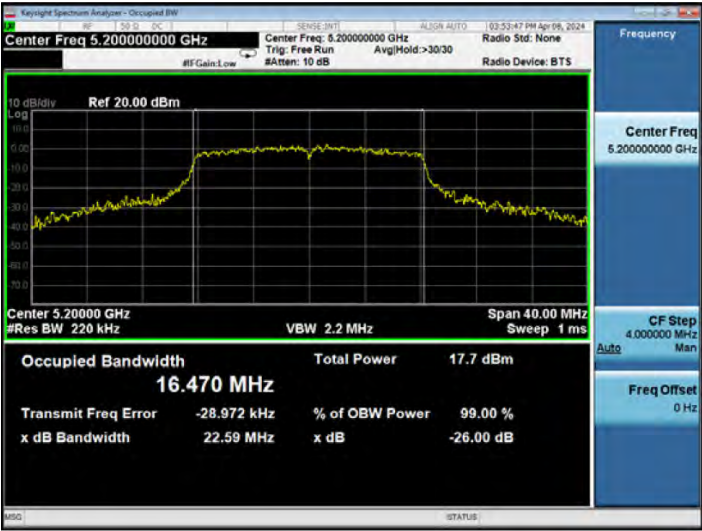
802.11a

Band-UNII-1

CH5180



CH5200



CH5240



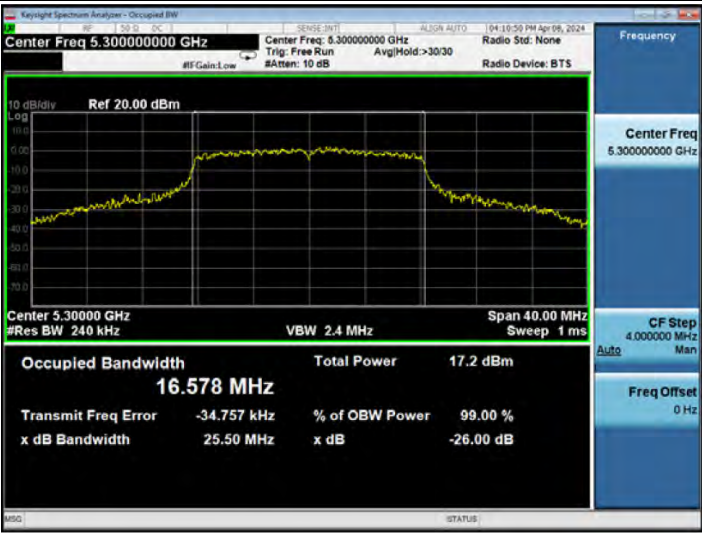
802.11a

Band-UNII-2A

CH5260



CH5300



CH5320



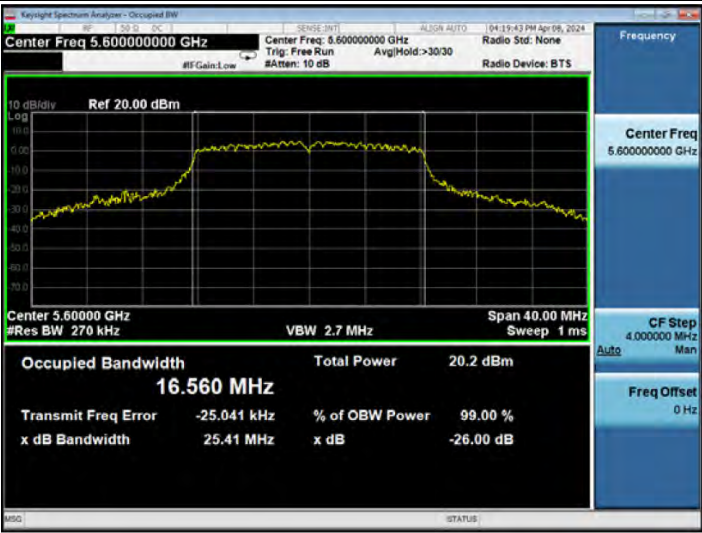
802.11a

Band-UNII-2C

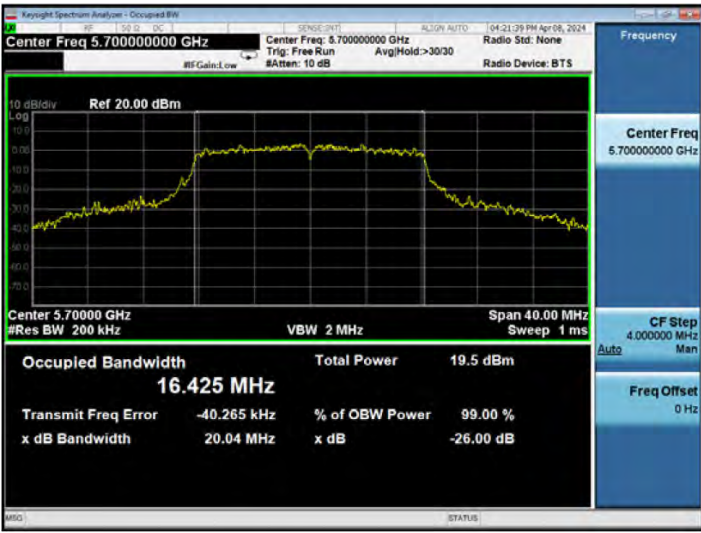
CH5500



CH5600



CH5700



802.11a

Band-UNII-3

CH5745



CH5785



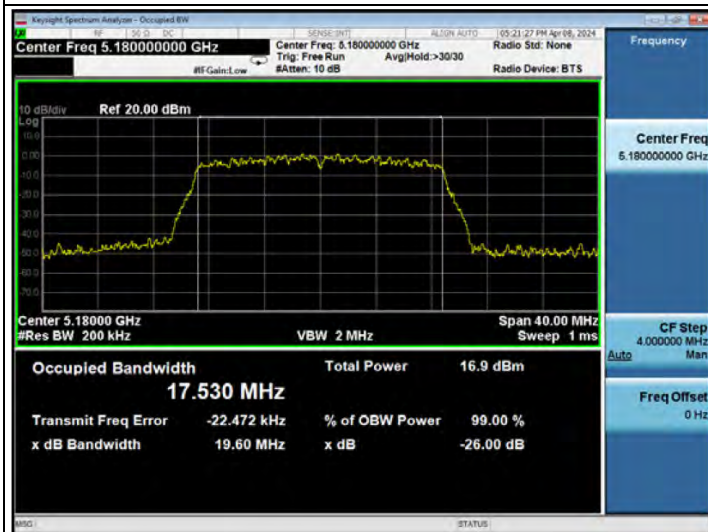
CH5825



802.11n20

Band-UNII-1

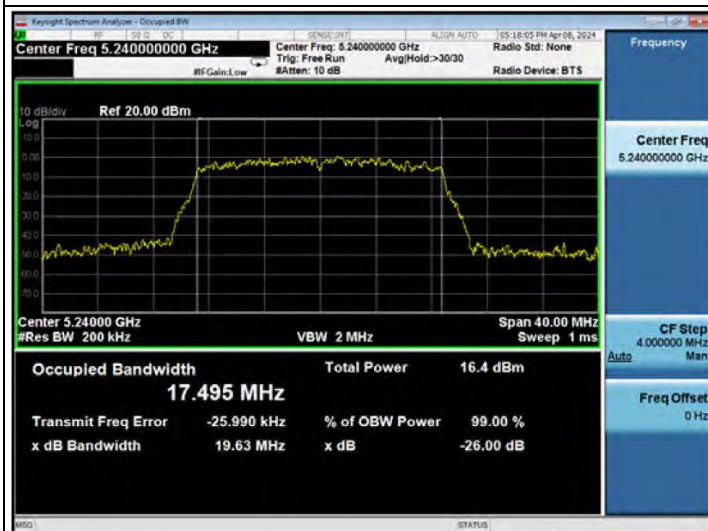
CH5180



CH5200



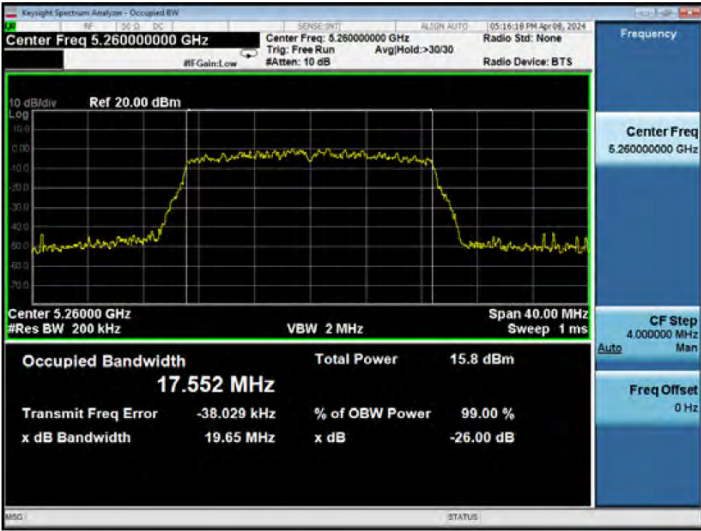
CH5240



802.11n20

Band-UNII-2A

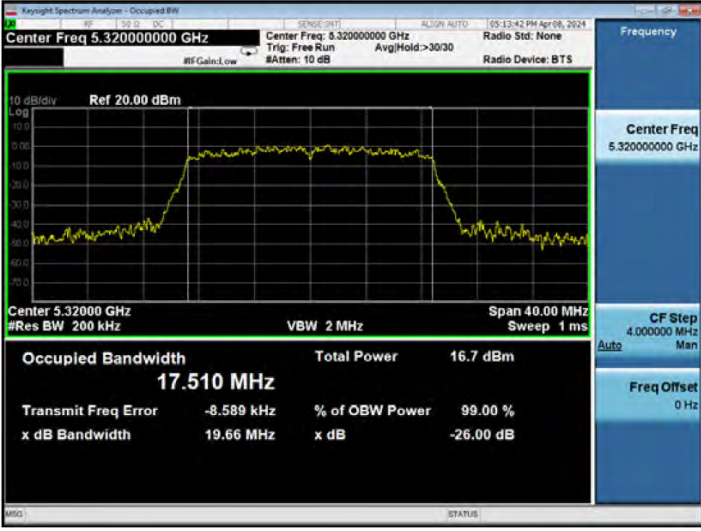
CH5260



CH5300



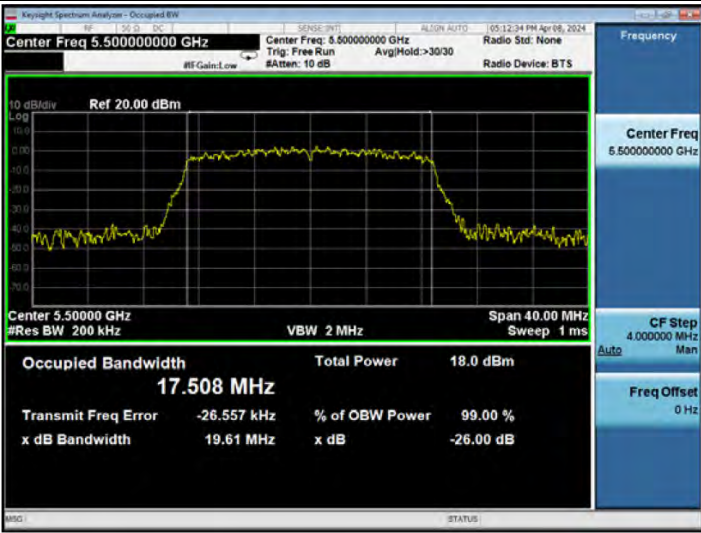
CH5320



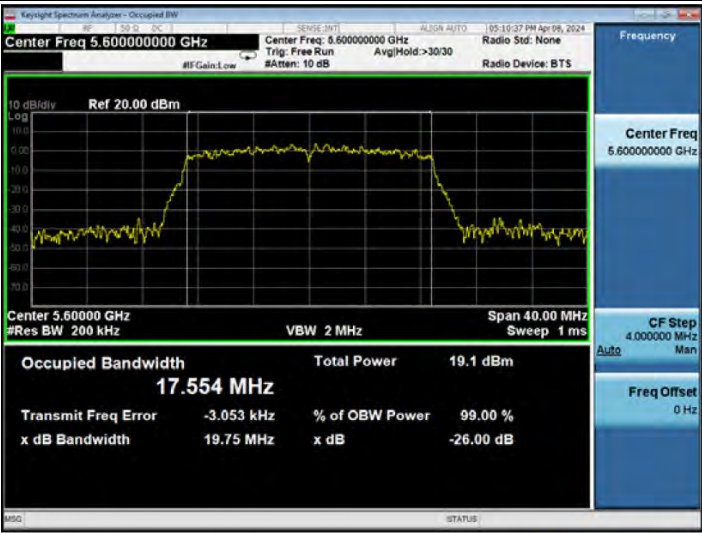
802.11n20

Band-UNII-2C

CH5500



CH5600



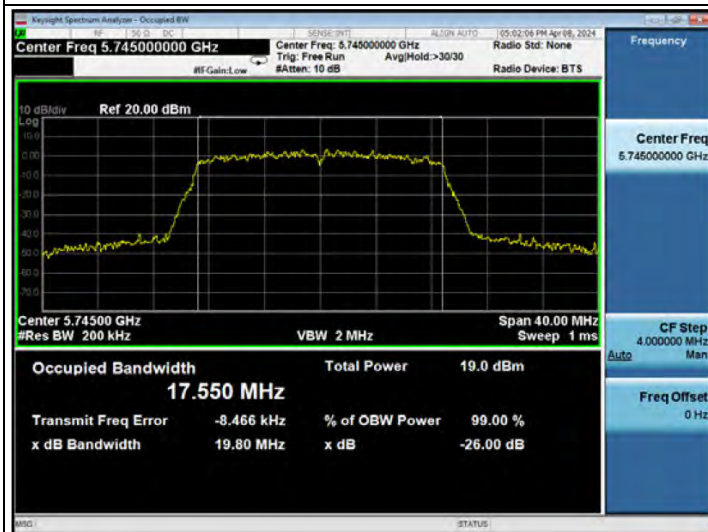
CH5700



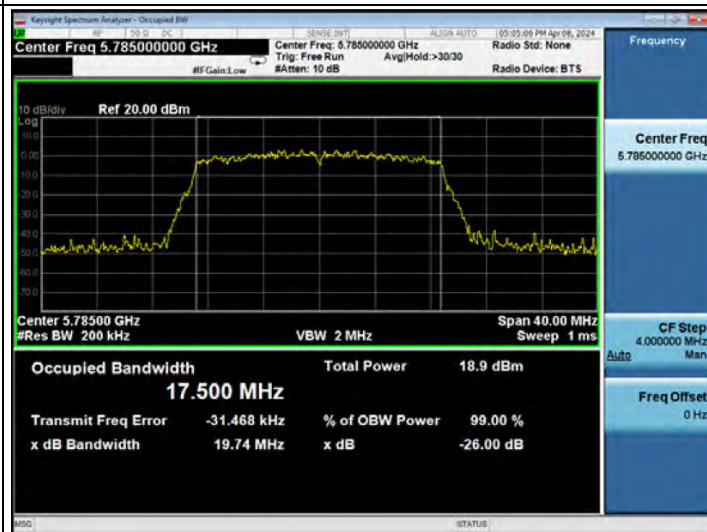
802.11n20

Band-UNII-3

CH5745



CH5785



CH5825



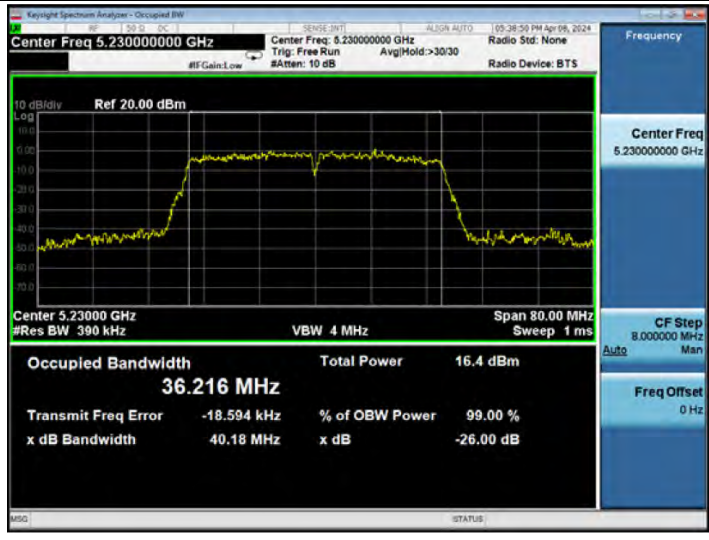
802.11n40

Band-UNII-1

CH5190



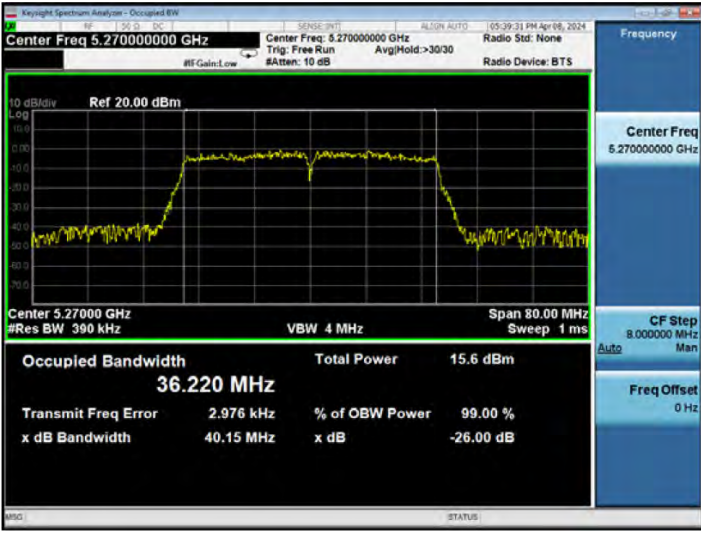
CH5230



802.11n40

Band-UNII-2A

CH5270



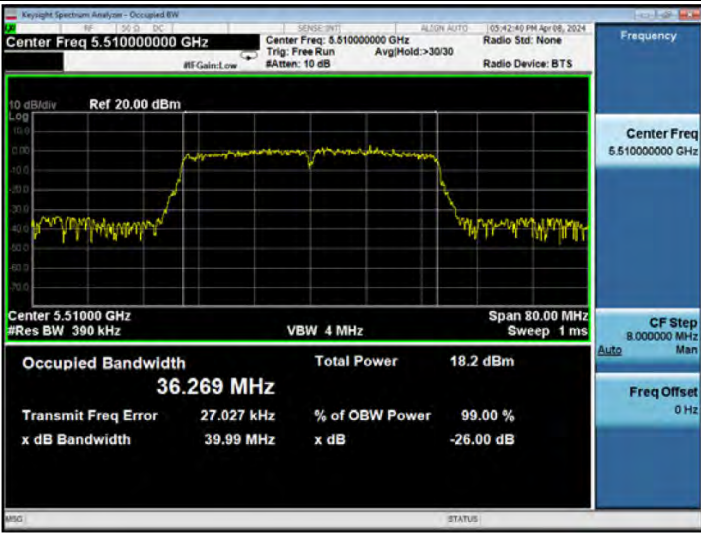
CH5310



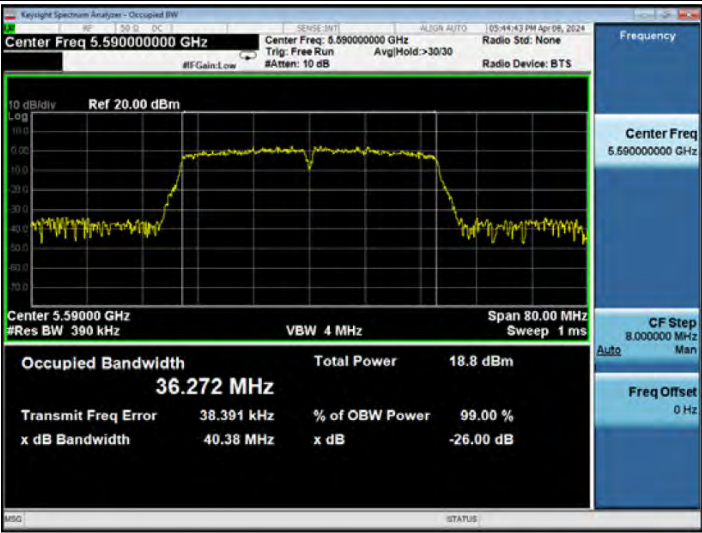
802.11n40

Band-UNII-2C

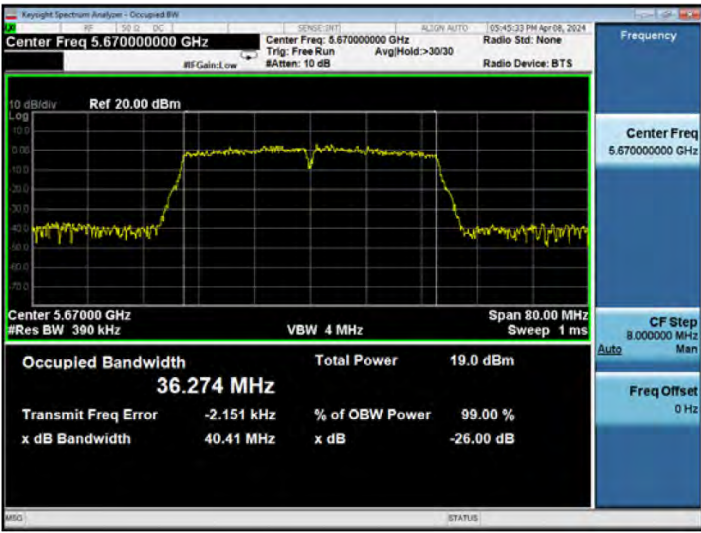
CH5510



CH5590



CH5670



802.11n40

Band-UNII-3

CH5755



CH5795



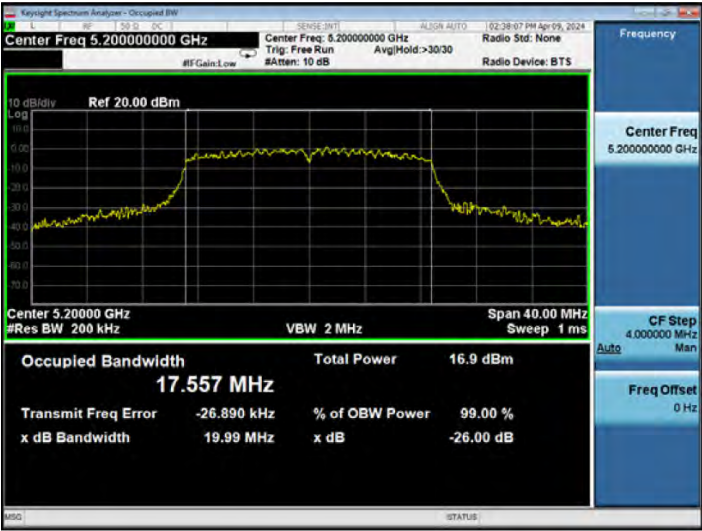
802.11ac20

Band-UNII-1

CH5180



CH5200



CH5240



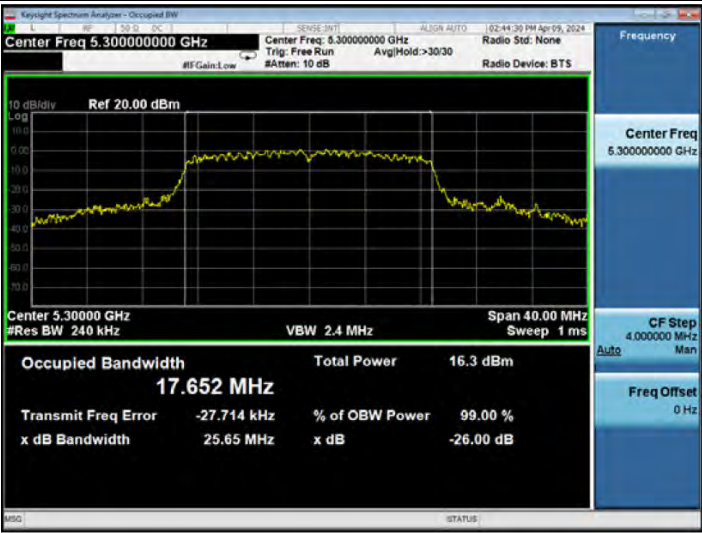
802.11ac20

Band-UNII-2A

CH5260



CH5300



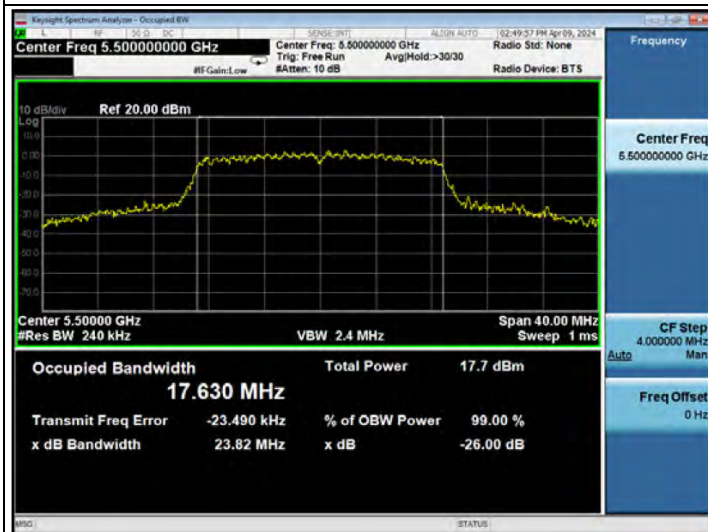
CH5320



802.11ac20

Band-UNII-2C

CH5500



CH5600



CH5700



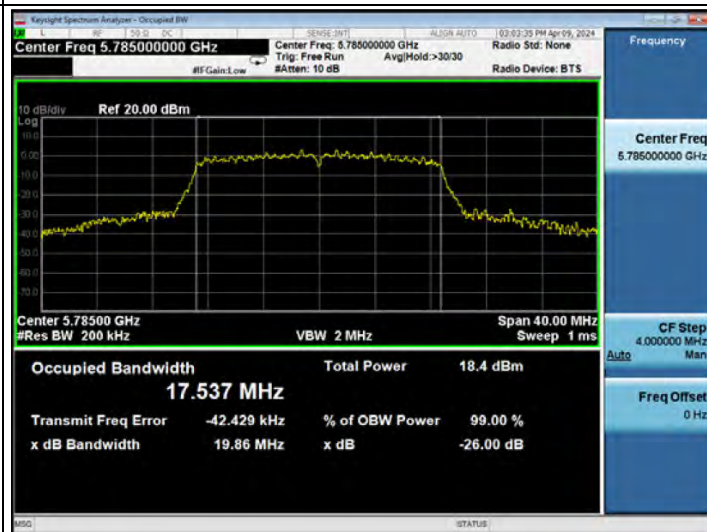
802.11ac20

Band-UNII-3

CH5745



CH5785



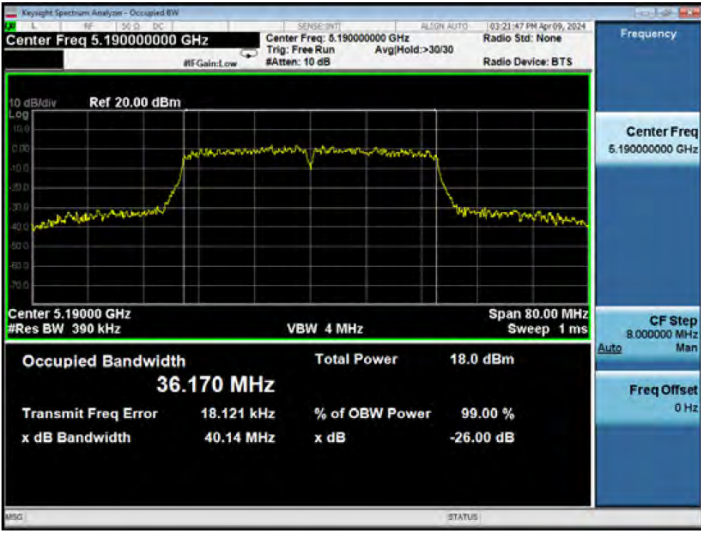
CH5825



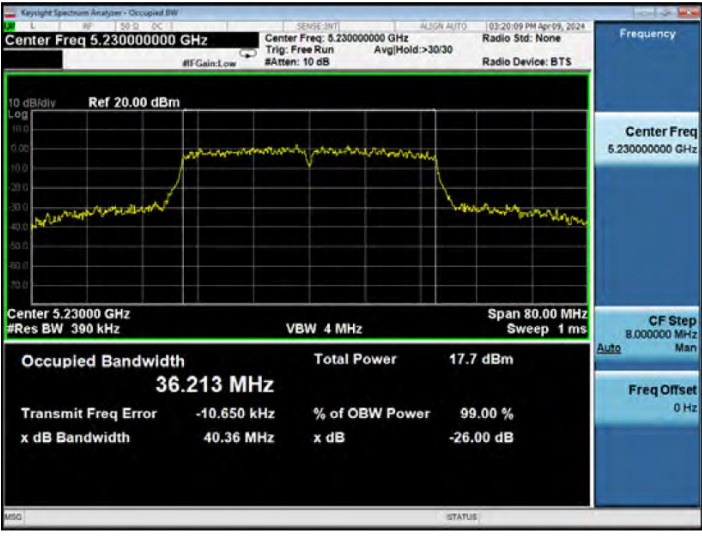
802.11ac40

Band-UNII-1

CH5190



CH5230



802.11ac40

Band-UNII-2A

CH5270



CH5310



802.11ac40

Band-UNII-2C

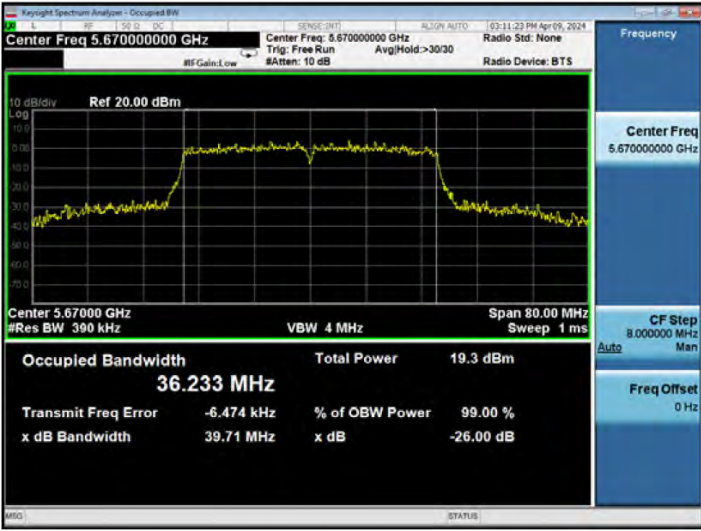
CH5510



CH5590



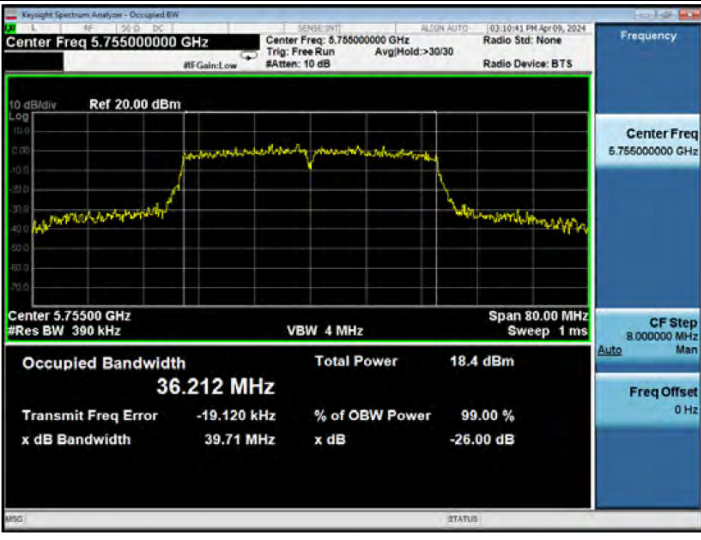
CH5670



802.11ac40

Band-UNII-3

CH5755



CH5795



802.11ac80

Band-UNII-1

CH5210



802.11ac80

Band-UNII-2A

CH5290



802.11ac80

Band-UNII-2C

CH5530



CH5610



802.11ac80

Band-UNII-3

CH5775



8 MAXIMUM CONDUCTED OUTPUT POWER

MEASUREMENT

8.1 Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2023.08.09	1 Year
2.	RF Cable	Mini-Circuits	FLC-3FT-SM SM+	22022838	2023.08.09	1 Year
3.	20 dB Attenuator	Mini-Circuits	BW-S20W2+	001	2023.09.21	1 Year

8.2 Block Diagram of Test Setup

The Same as Section. 6.2.

8.3 Specification Limits ((§15.407(a))

(1) For the band 5.15-5.25 GHz.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

8.4 Operating Condition of EUT

The switch ON/OFF was used to enable the EUT to change the channel one by one.

8.5 Test Procedure

The transmitter output was connected to the spectrum analyzer.

(i) Measure the duty cycle, x, of the transmitter output signal.

(ii) Set span to encompass the 99% occupied bandwidth of the signal.

(iii) Set RBW = 1 MHz.

(iv) Set VBW $\geq$ 3 MHz.

(v) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)

(vi) Sweep time = auto.

(vii) Detector = power averaging (rms).

(viii) Allow the sweep to “free run.”

(ix) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to

ensure that the average accurately represents the true average over the on and off periods of the transmitter.

(x) Compute power by integrating the spectrum across the 99% occupied bandwidth of the signal using the instrument's band power measurement function with band limits set equal to the occupied bandwidth band edges.

(xi) Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \log (1/0.25) = 6$ dB if the duty cycle is 25%.

The test procedure is defined in KDB789033 D02 (the clause II.E.2.d) Measurement Procedure "Method SA-2" was used).

For Emissions Testing of Transmitters with Multiple Outputs in the Same Band: Per KDB 662911 D01 Multiple Transmitter Output v02r01, section E).1), The measure-and sum technique shall be used for measuring in-band transmit power of a device. Total power is the sum of the conducted power levels measured at the various output ports.

8.6 Test Results

PASSED.

Note1: [Maximum conducted (average) Output Power] = Maximum of [Average conducted (average) Output Power] + [DCCF].

Note2: The [DCCF(Duty Cycle Correct Factor)] shows on section 2.4.

All the test results are listed below.

(Test Date: 2024.04.08-14 Temperature: 23°C Humidity: 51 %)

Mode	Channel	Frequency (MHz)	Average conducted (average) Output Power (dBm)			Maximum conducted (average) Output Power (dBm)	Limit (dBm)
			SISO CNF2	SISO CNF3	MIMO (CNF2 + CNF3)		
802.11a	36	5180	11.39	10.45	-	11.59	24
	40	5200	11.34	10.6	-	11.54	24
	48	5240	11	10.27	-	11.20	24
	52	5260	10.57	10.36	-	10.77	24
	60	5300	10.93	10.82	-	11.13	24
	64	5320	10.87	11.06	-	11.26	24
	100	5500	12.42	13.12	-	13.32	24
	120	5600	13.43	13.85	-	14.05	24
	140	5700	13.13	12.65	-	13.33	24
	149	5745	12.99	12.38	-	13.19	30
	157	5785	12.94	12.32	-	13.14	30
	165	5825	12.44	12.11	-	12.64	30

Mode	Channel	Frequency (MHz)	Average conducted (average) Output Power (dBm)			Maximum conducted (average) Output Power (dBm)	Limit (dBm)
			SISO CNF2	SISO CNF3	MIMO (CNF2 + CNF3)		
802.11n20	36	5180	10.34	9.43	12.92	15.73	24
	40	5200	10.39	9.6	13.02	15.83	24
	48	5240	10.04	9.22	12.66	15.47	24
	52	5260	9.67	9.4	12.55	15.36	23.9
	60	5300	10.02	9.84	12.94	15.75	23.9
	64	5320	10.12	10.12	13.13	15.94	23.9
	100	5500	11.21	11.94	14.60	17.41	23.9
	120	5600	12.39	12.83	15.63	18.44	23.9
	140	5700	12.24	11.59	14.94	17.75	23.9
	149	5745	12.13	11.24	14.72	17.53	30
	157	5785	12.13	11.3	14.75	17.56	30
	165	5825	11.68	11.12	14.42	17.23	30

Mode	Channel	Frequency (MHz)	Average conducted (average) Output Power (dBm)			Maximum conducted (average) Output Power (dBm)	Limit (dBm)
			SISO CNF2	SISO CNF3	MIMO (CNF2 + CNF3)		
802.11n40	38	5190	10.29	9.64	12.99	17.20	24
	46	5230	10.18	9.62	12.92	17.13	24
	54	5270	9.52	9.37	12.46	16.67	24
	62	5310	9.97	9.95	12.97	17.18	24
	102	5510	11.5	12.08	14.81	19.02	24
	118	5590	12.23	12.79	15.53	19.74	24
	134	5670	12.49	13.33	15.94	20.15	24
	151	5755	12.12	11.49	14.83	19.04	30
	159	5795	12.05	11.47	14.78	18.99	30

Mode	Channel	Frequency (MHz)	Average conducted (average) Output Power (dBm)			Maximum conducted (average) Output Power (dBm)	Limit (dBm)
			SISO CNF2	SISO CNF3	MIMO (CNF2 + CNF3)		
802.11ac20	36	5180	10.34	9.26	12.84	13.05	24
	40	5200	10.59	9.27	12.99	13.20	24
	48	5240	9.97	9.26	12.64	12.85	24
	52	5260	9.64	9.12	12.40	12.61	24
	60	5300	9.86	9.81	12.85	13.06	24
	64	5320	10	10.1	13.06	13.27	24
	100	5500	11.44	11.97	14.72	14.93	24
	120	5600	12.37	12.75	15.57	15.78	24
	140	5700	12.21	11.6	14.93	15.14	23.9
	149	5745	12.13	11.24	14.72	14.93	30
	157	5785	12.16	11.34	14.78	14.99	30
	165	5825	11.59	11.19	14.40	14.61	30

Mode	Channel	Frequency (MHz)	Average conducted (average) Output Power (dBm)			Maximum conducted (average) Output Power (dBm)	Limit (dBm)
			SISO CNF2	SISO CNF3	MIMO (CNF2 + CNF3)		
802.11ac40	38	5190	10.29	9.59	12.96	13.36	24
	46	5230	10.24	9.69	12.98	13.38	24
	54	5270	9.54	9.47	12.52	12.92	24
	62	5310	9.88	10.07	12.99	13.39	24
	102	5510	11.42	12.11	14.79	15.19	24
	118	5590	12.29	12.81	15.57	15.97	24
	134	5670	12.53	13.19	15.88	16.28	24
	151	5755	12.12	11.52	14.84	15.24	30
	159	5795	12.06	11.28	14.70	15.10	30

Mode	Channel	Frequency (MHz)	Average conducted (average) Output Power (dBm)			Maximum conducted (average) Output Power (dBm)	Limit (dBm)
			SISO CNF2	SISO CNF3	MIMO (CNF2 + CNF3)		
802.11ac80	42	5210	8.77	7.58	11.23	16.34	24
	58	5290	8.31	8.01	11.17	16.28	24
	106	5530	10.2	10.84	13.54	18.65	24
	122	5610	10.96	11.36	14.17	19.28	24
	155	5775	10.57	9.86	13.24	18.35	30

802.11a

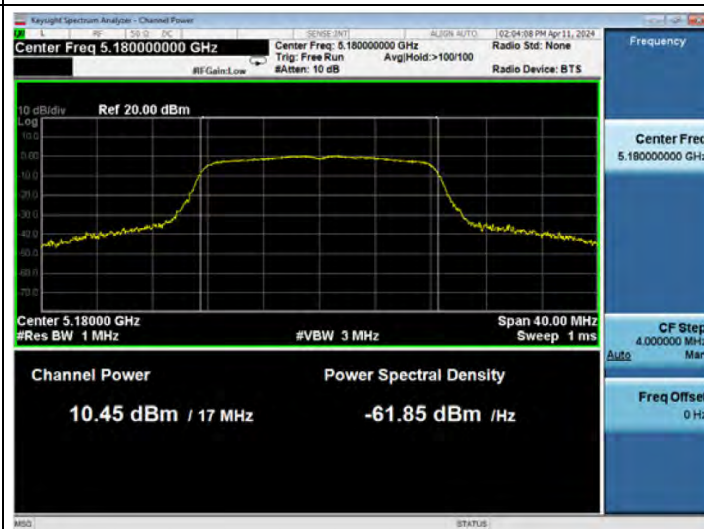
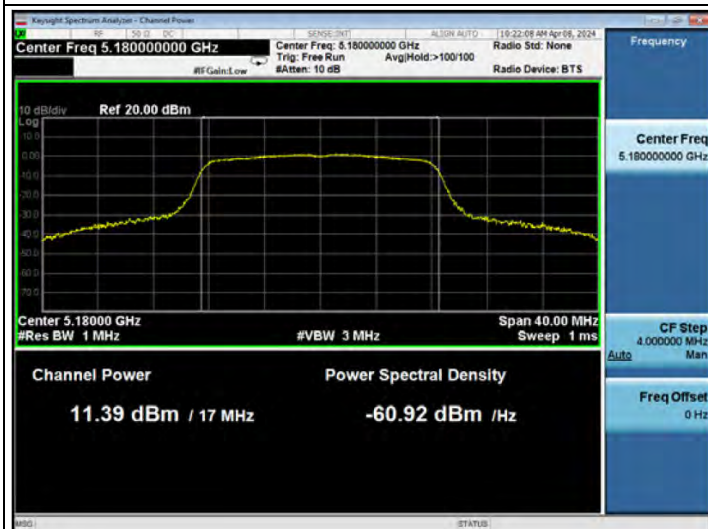
Band-UNII-1

CNF2

CNF3

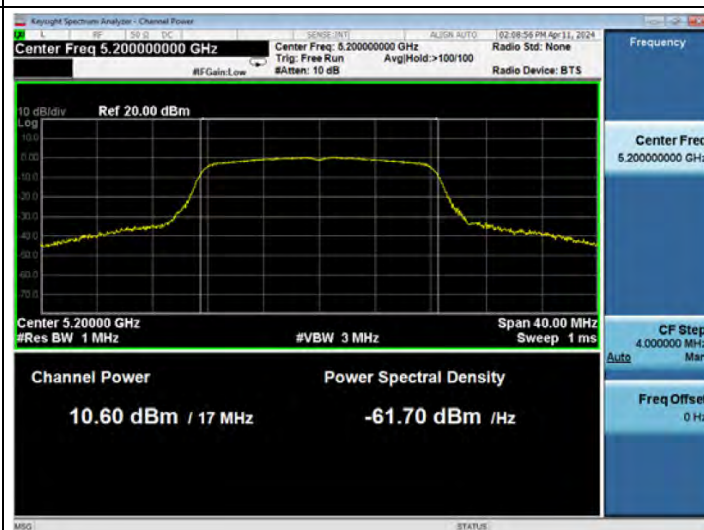
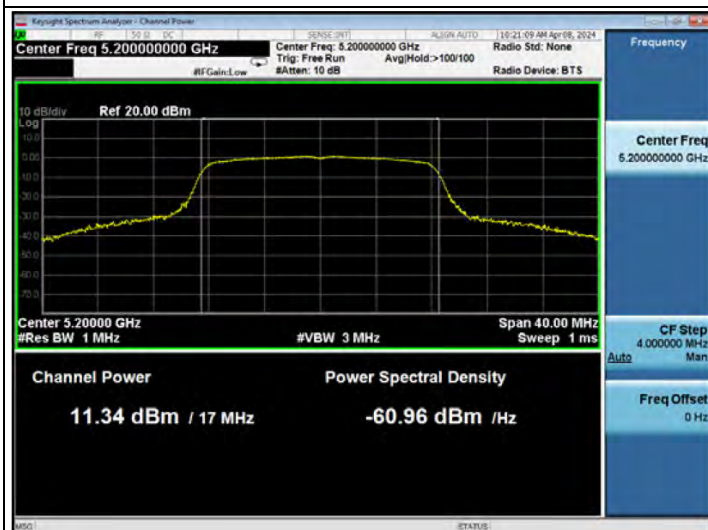
CH5180

CH5180



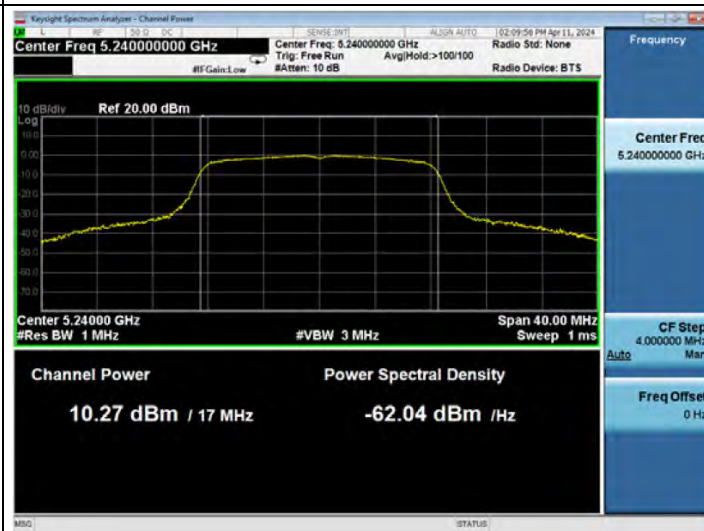
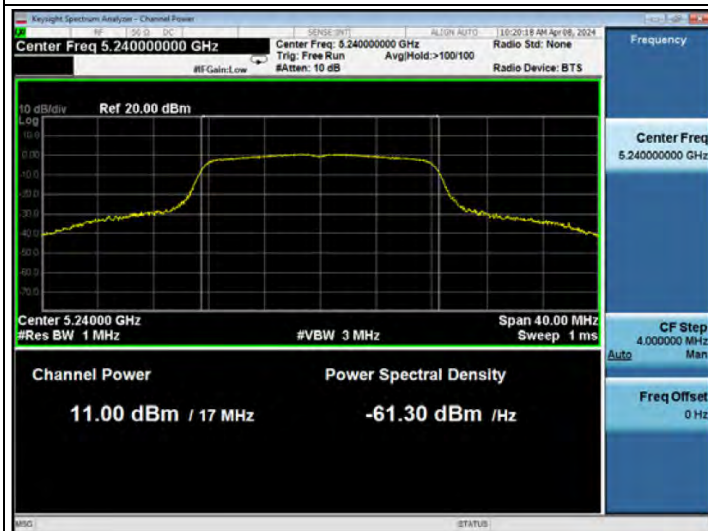
CH5200

CH5200



CH5240

CH5240

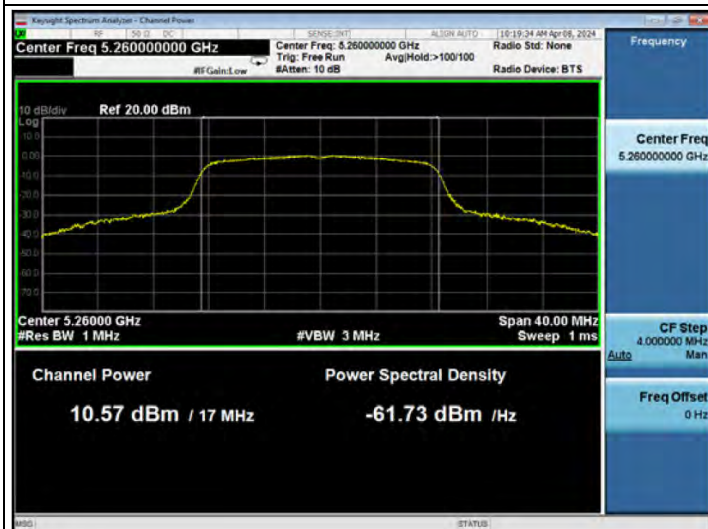


802.11a

Band-UNII-2A

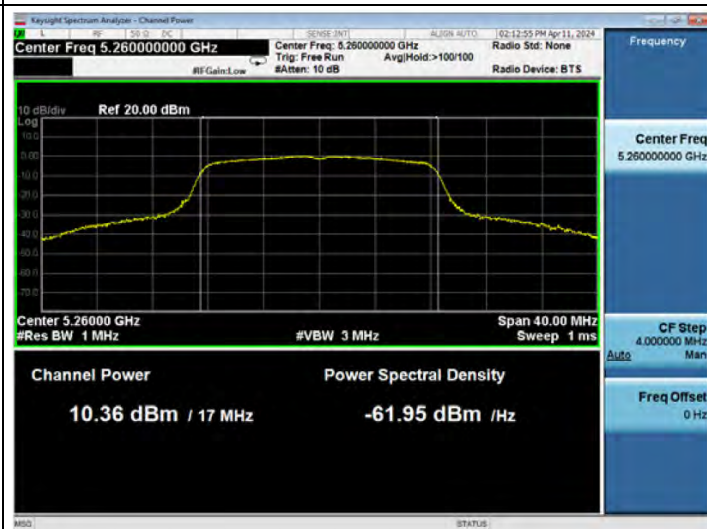
CNF2

CH5260

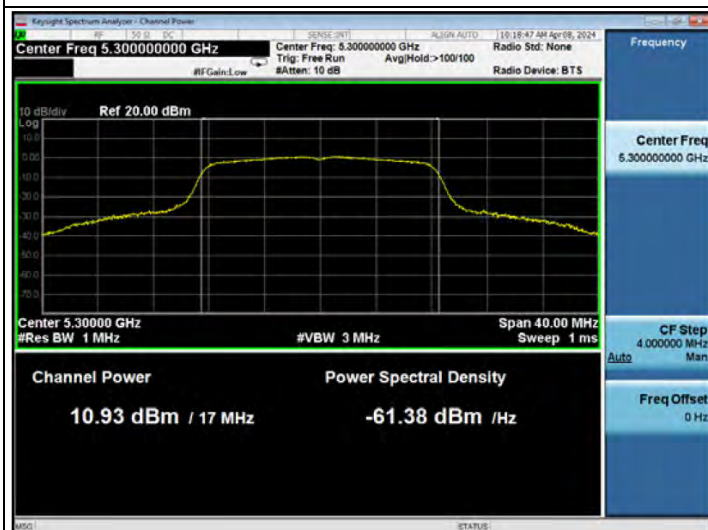


CNF3

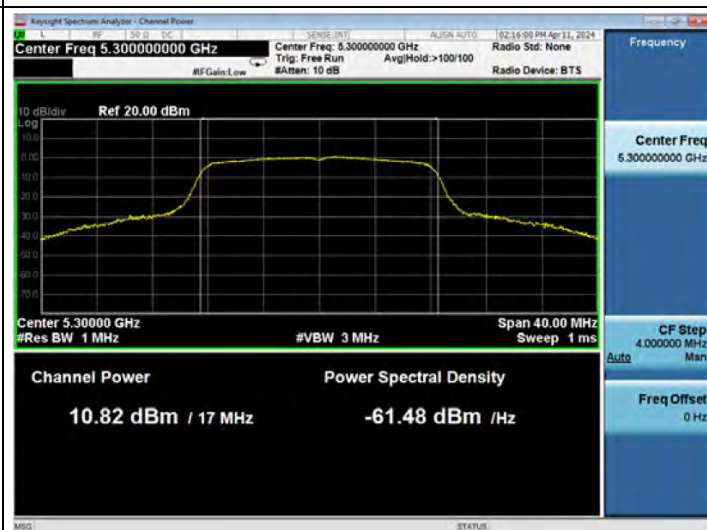
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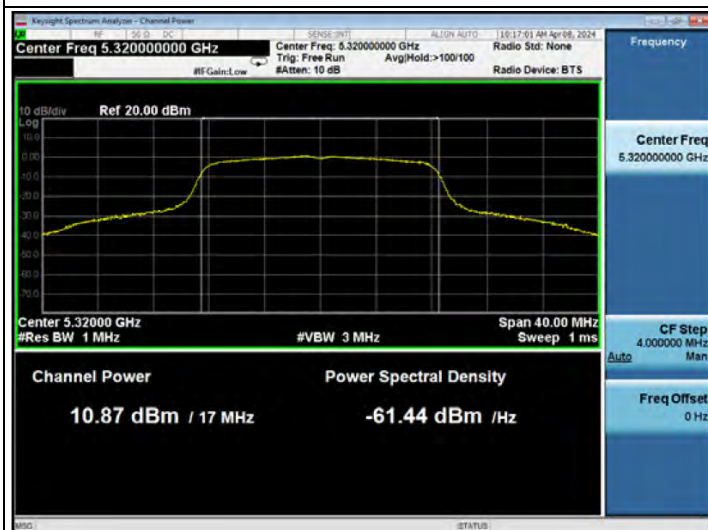
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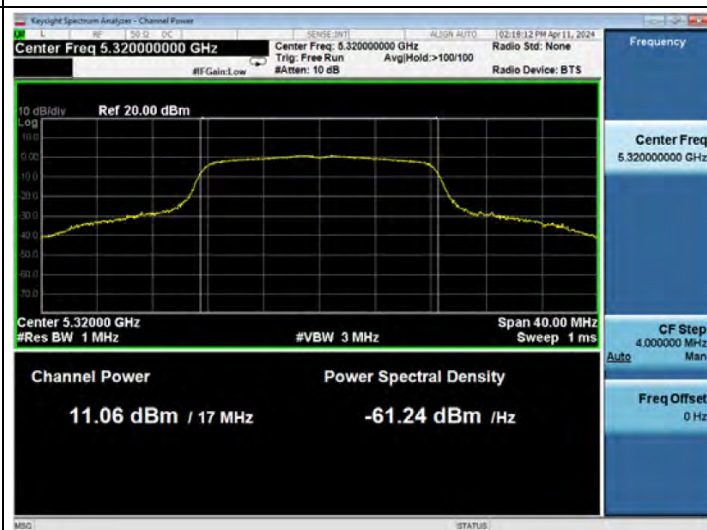
CH5300



CH5320



CH5320



802.11a

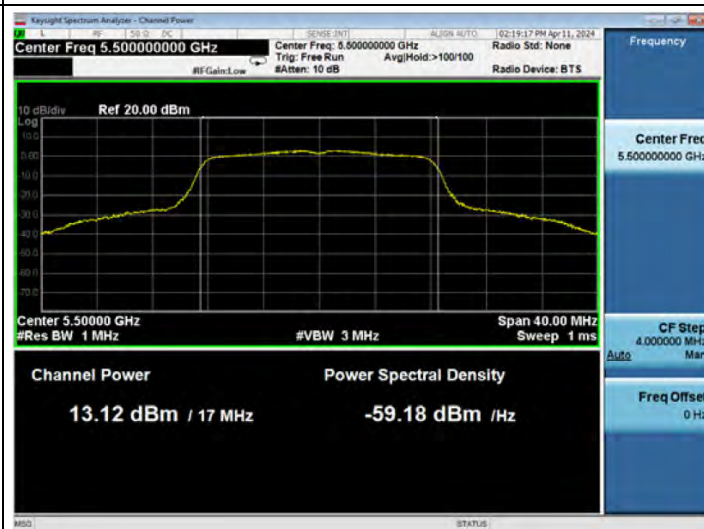
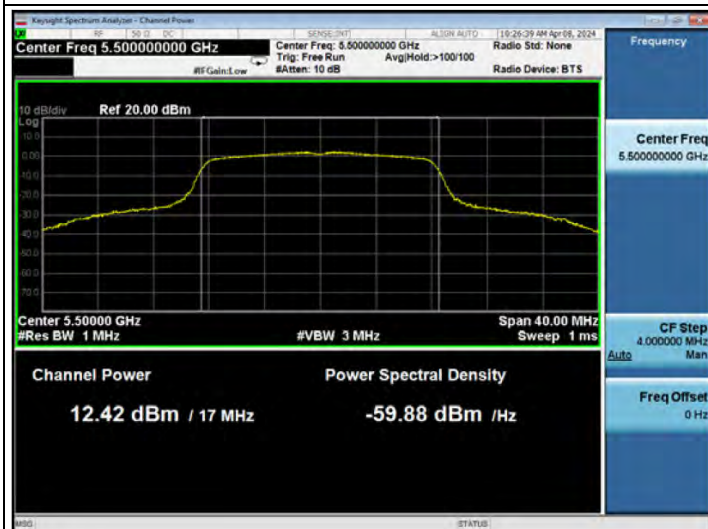
Band-UNII-2C

CNF2

CNF3

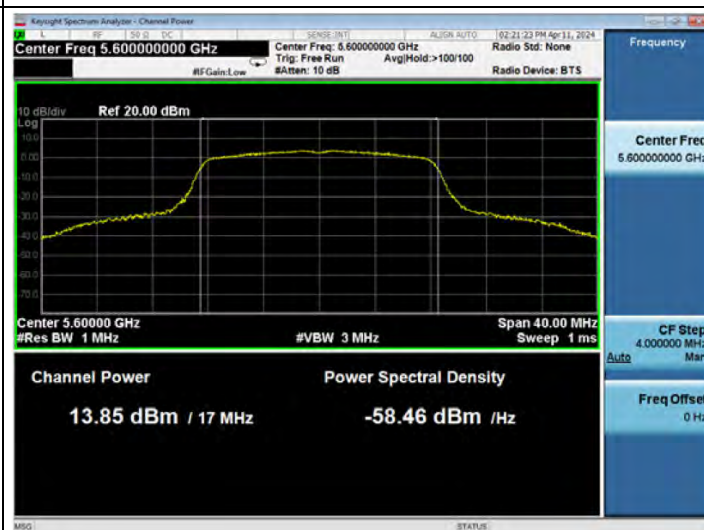
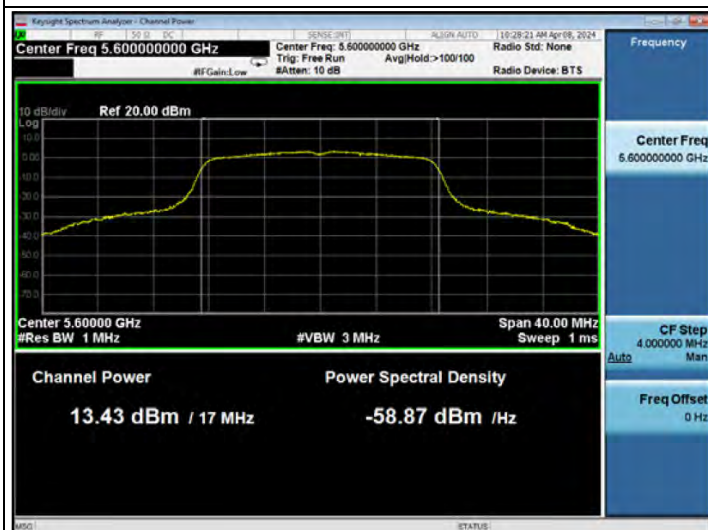
CH5500

CH5500



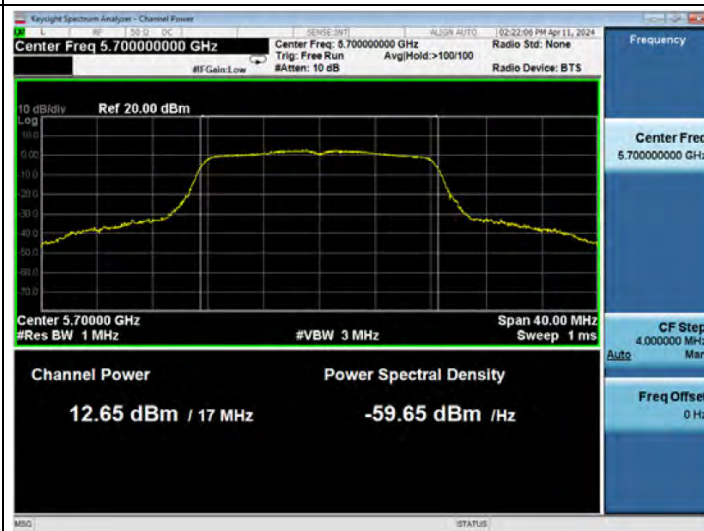
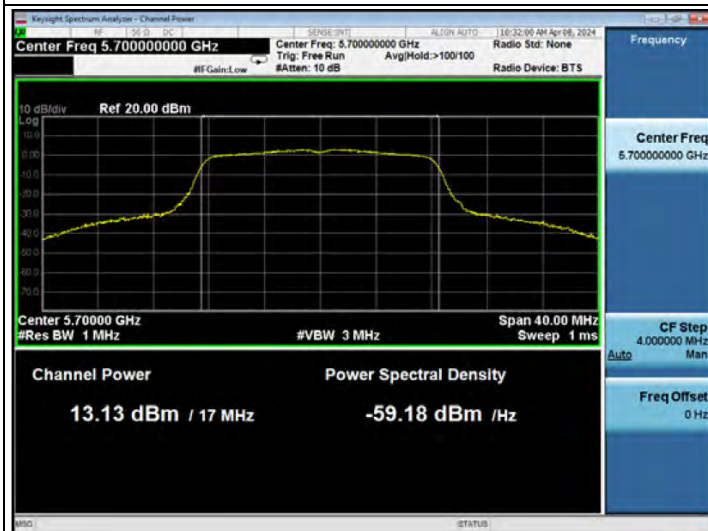
CH5600

CH5600



CH5700

CH5700

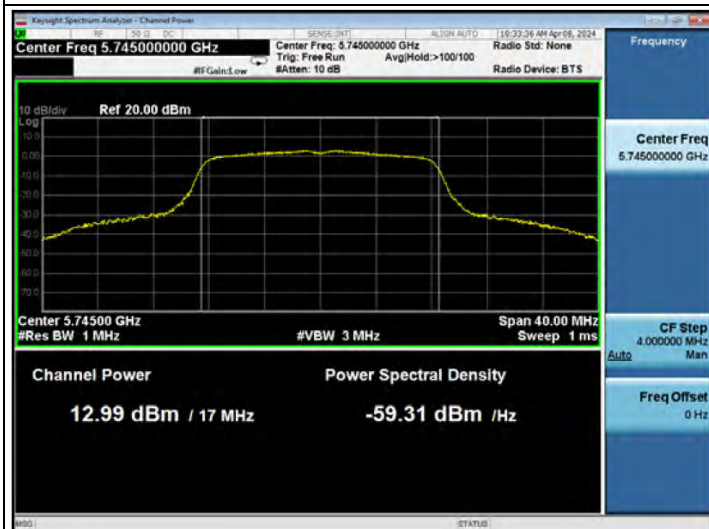


802.11a

Band-UNII-3

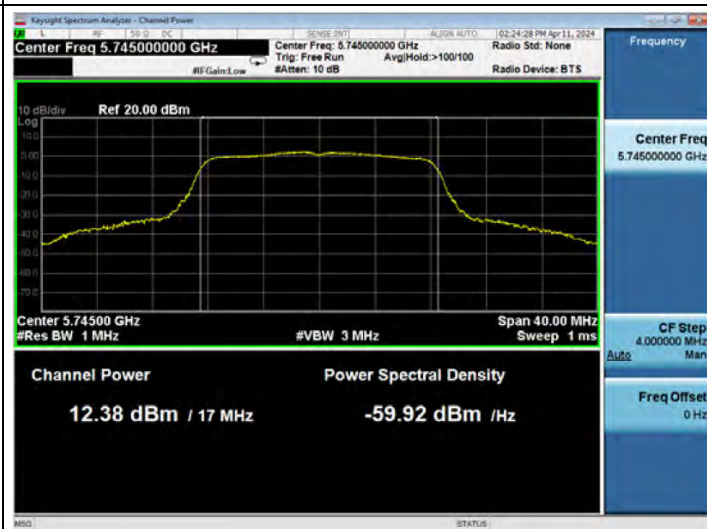
CNF2

CH5745

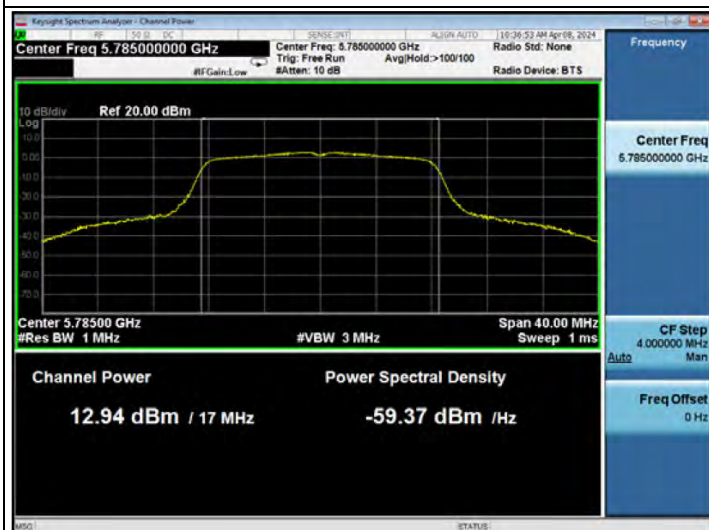


CNF3

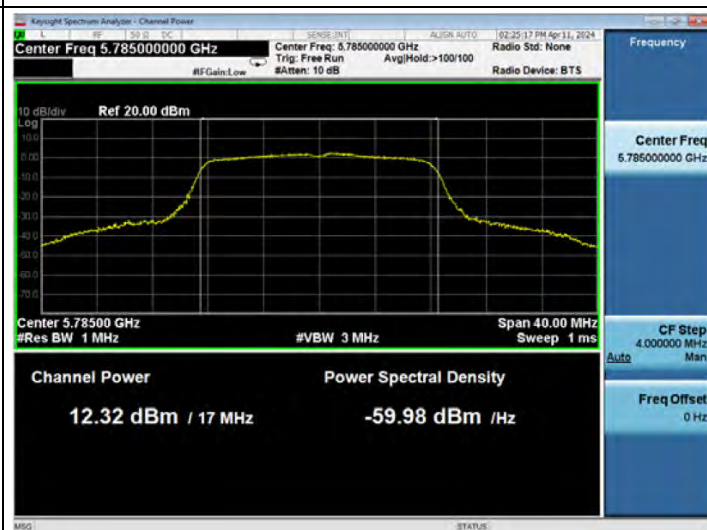
CH5745



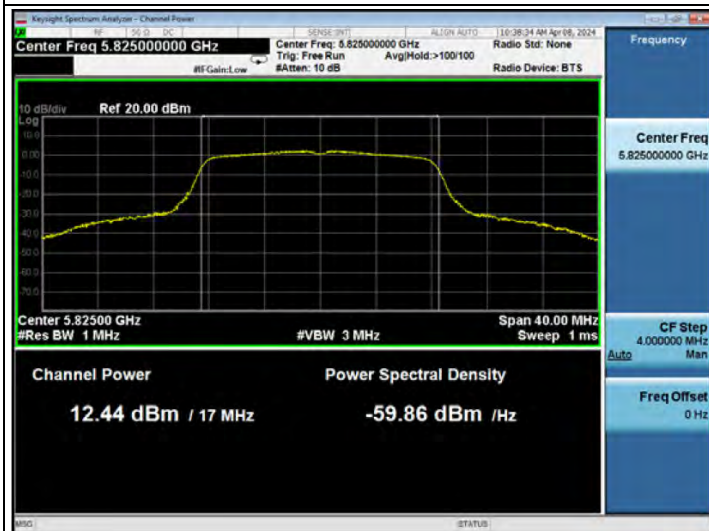
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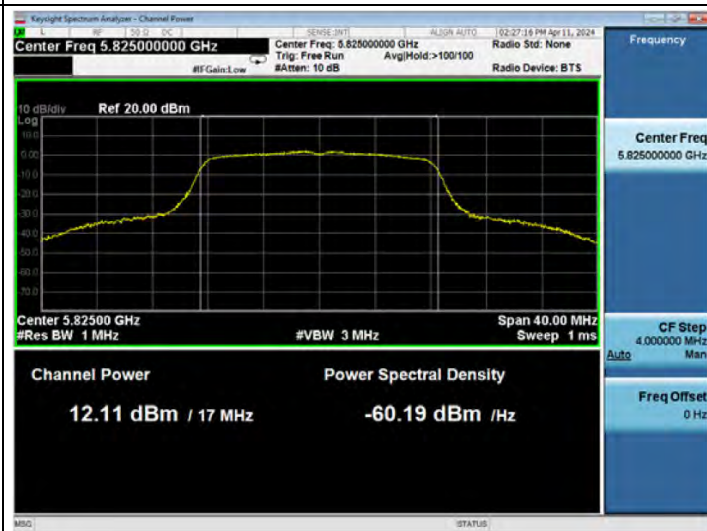
CH5785



CH5825



CH5825

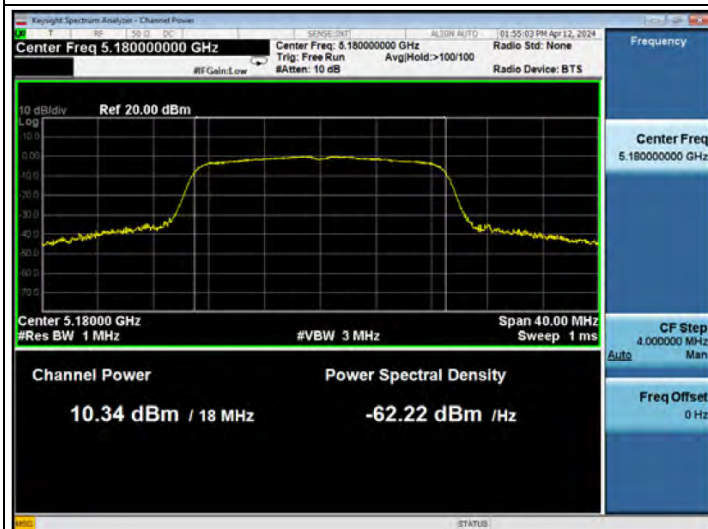


802.11n20

Band-UNII-1

CNF2

CH5180

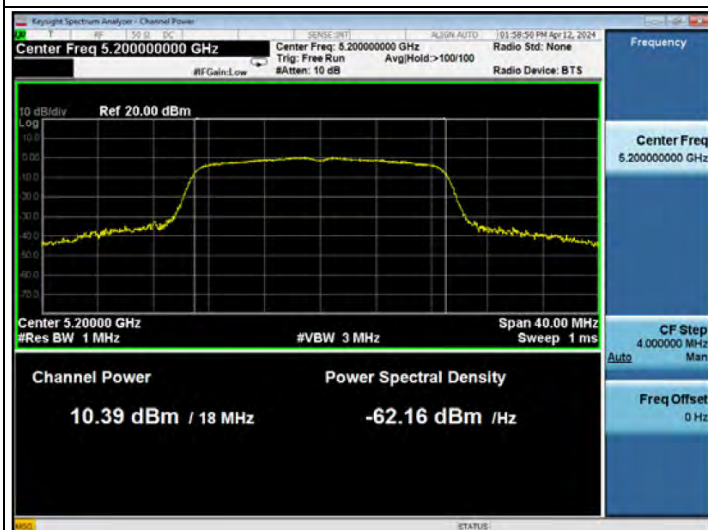


CNF3

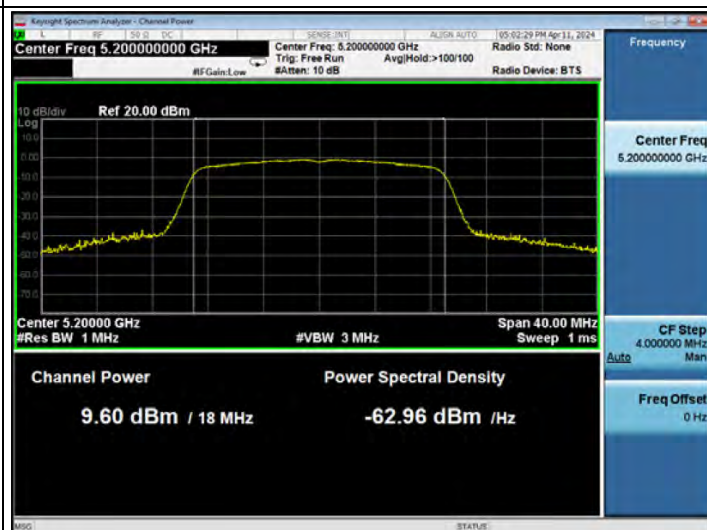
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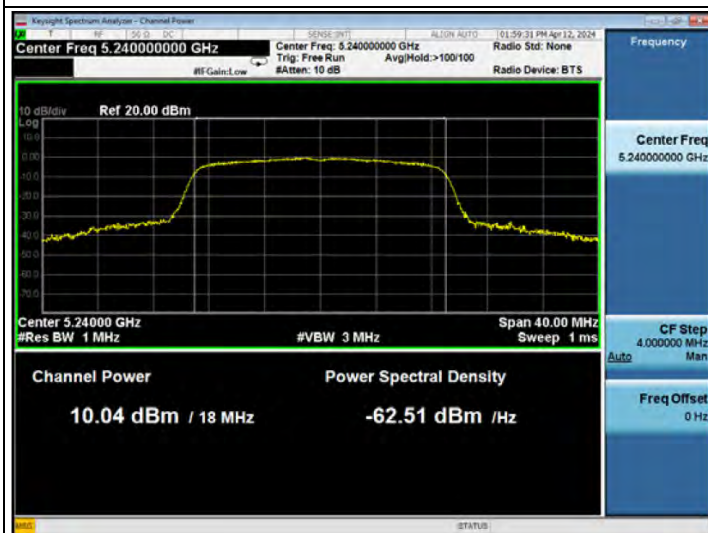
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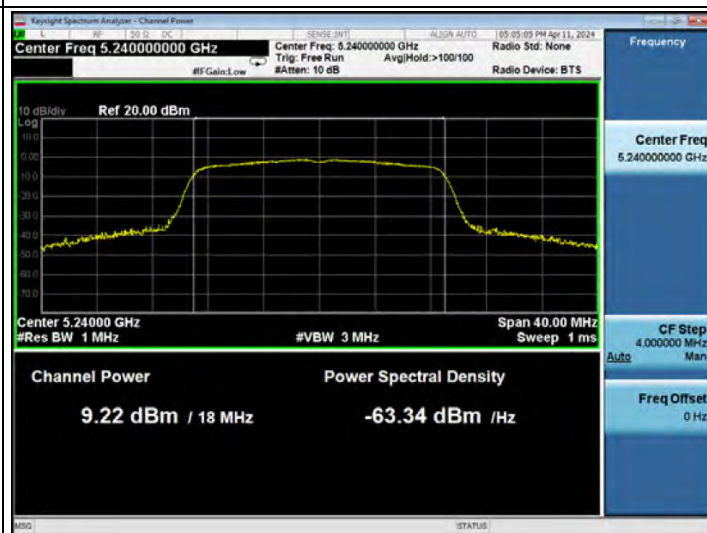
CH5200



CH5240



CH5240



802.11n20

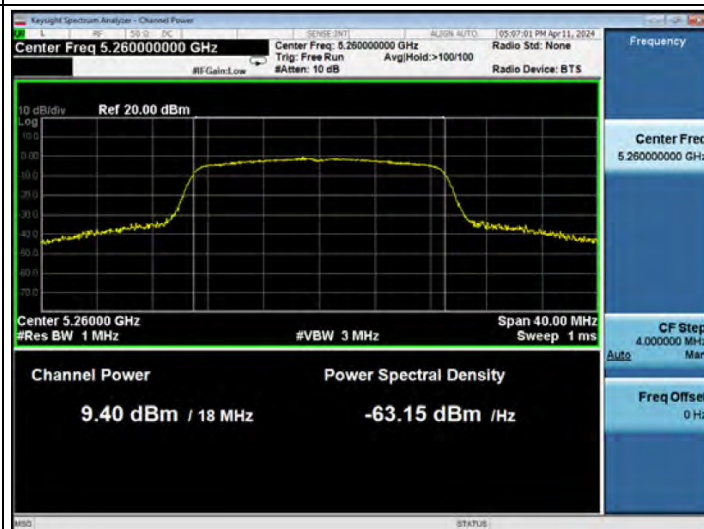
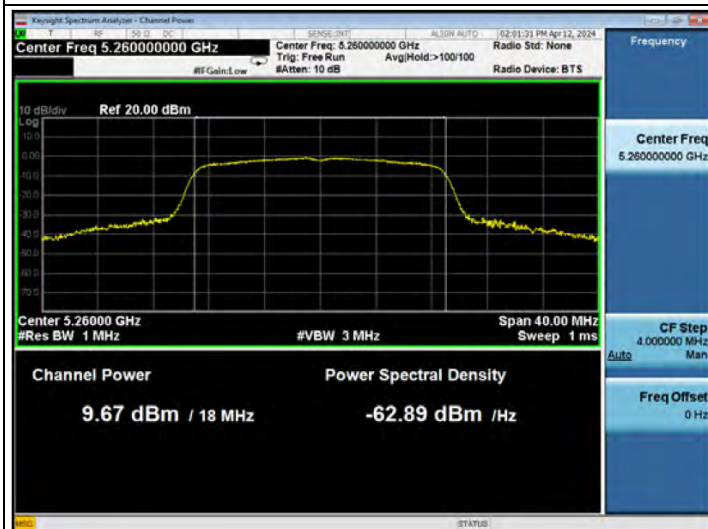
Band-UNII-2A

CNF2

CNF3

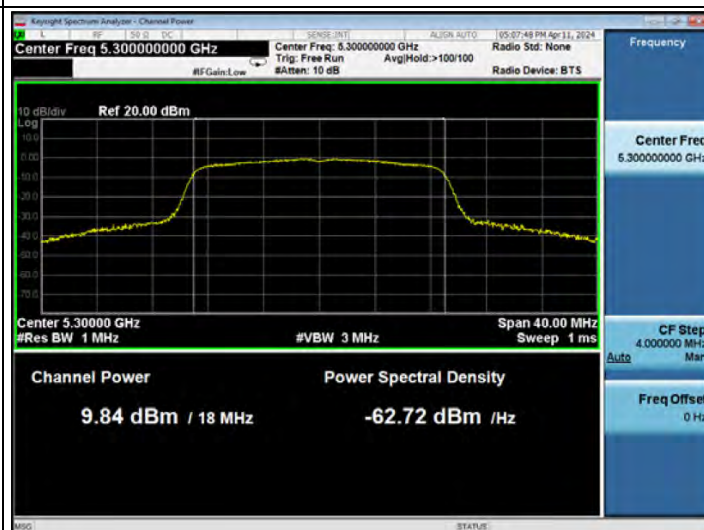
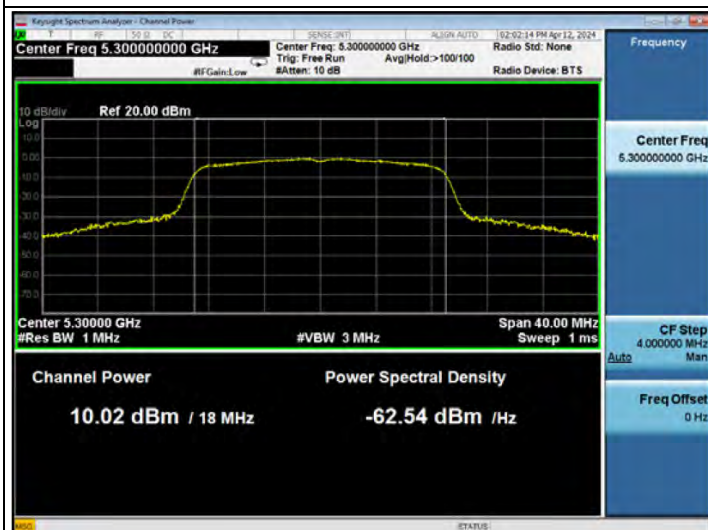
CH5260

CH5260



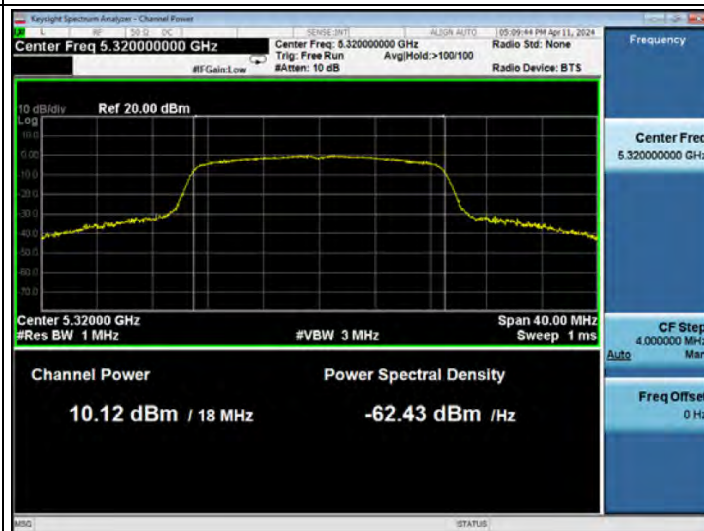
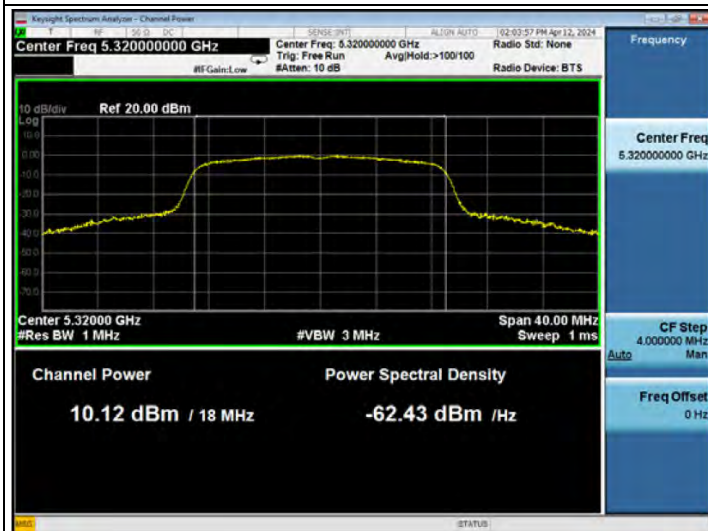
CH5300

CH5300



CH5320

CH5320



802.11n20

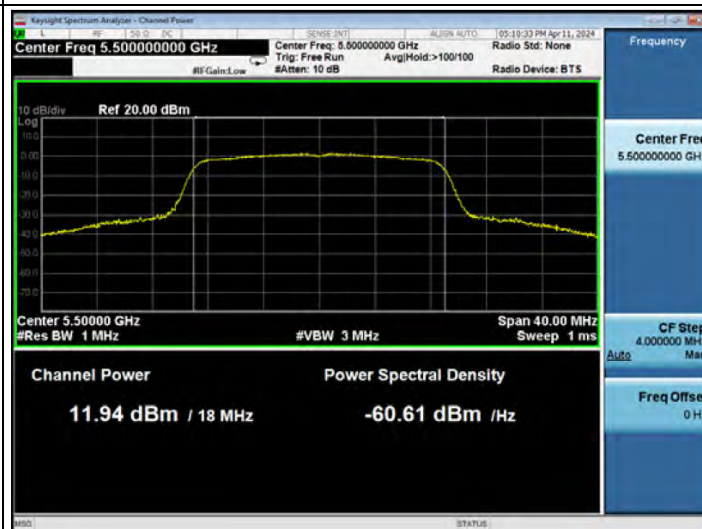
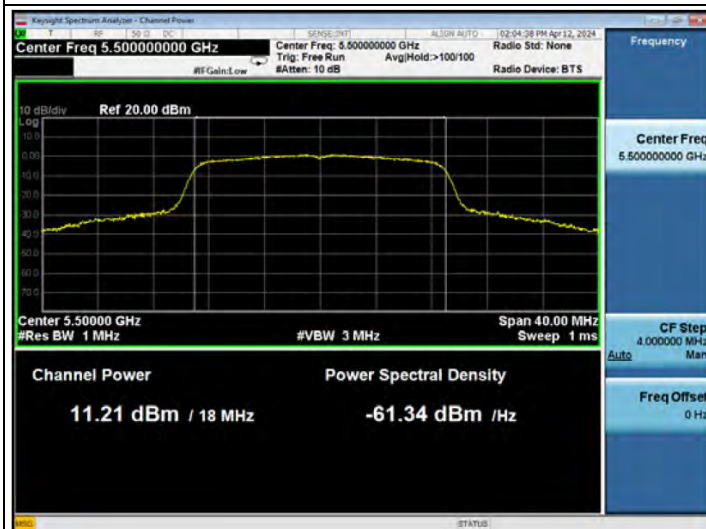
Band-UNII-2C

CNF2

CNF3

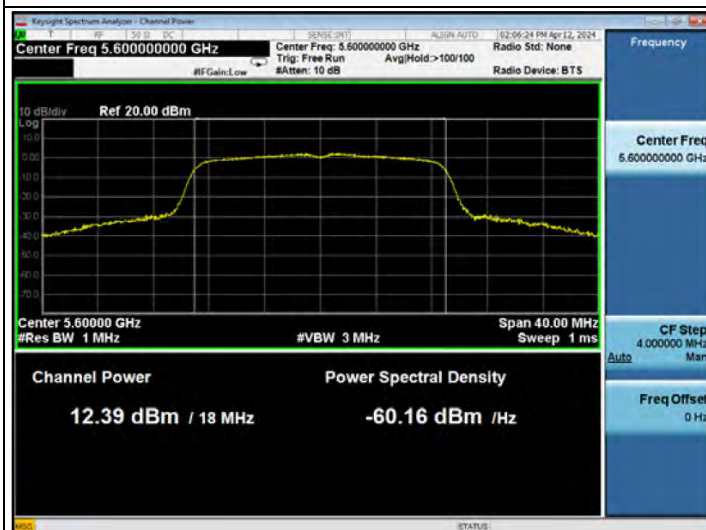
CH5500

CH5500



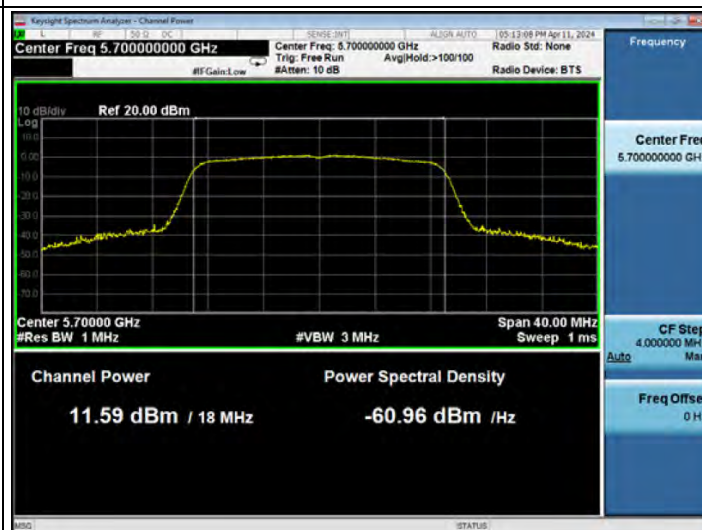
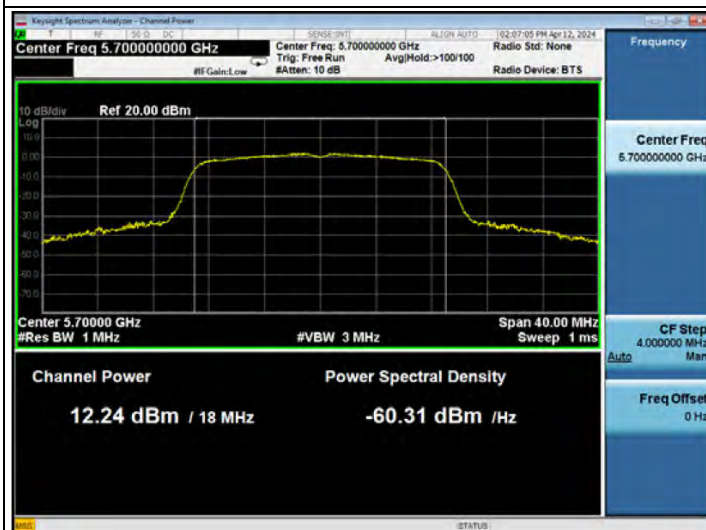
CH5600

CH5600



CH5700

CH5700

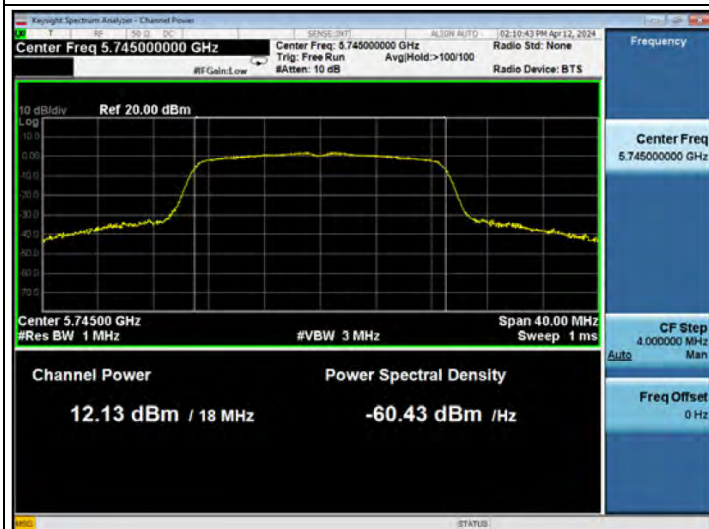


802.11n20

Band-UNII-3

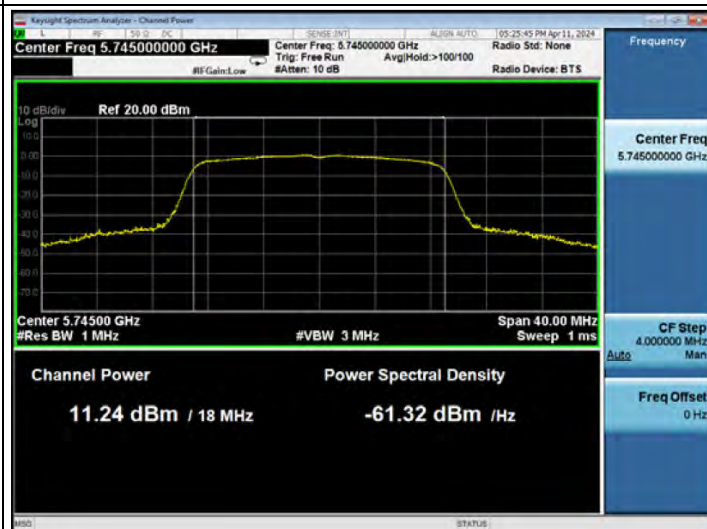
CNF2

CH5745



CNF3

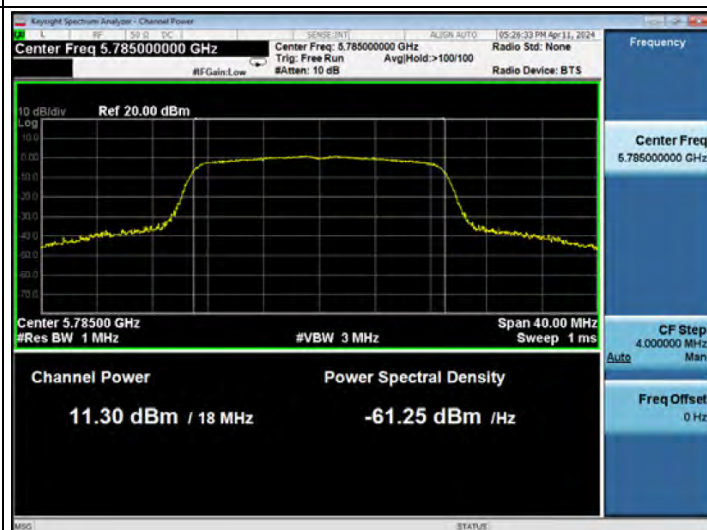
CH5745



CH5785



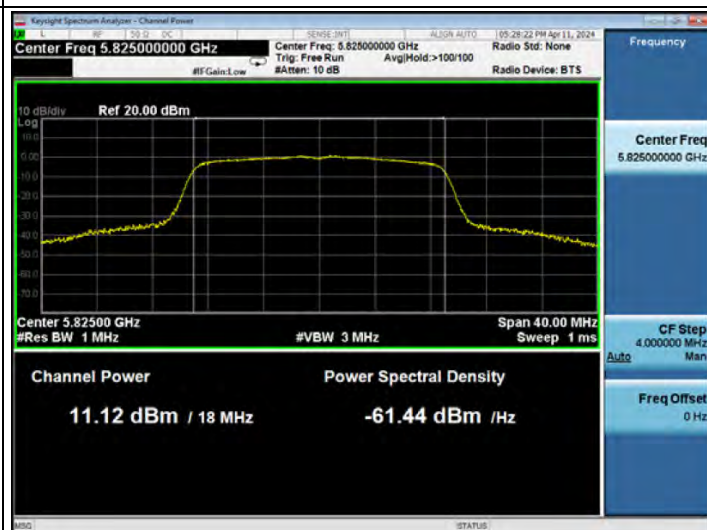
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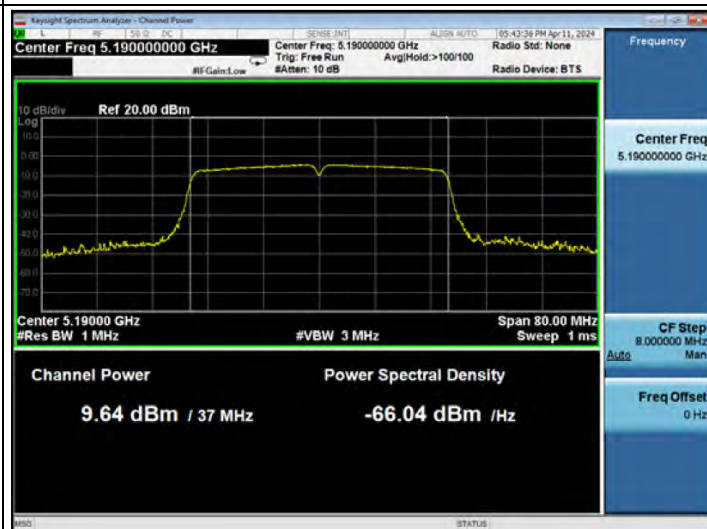
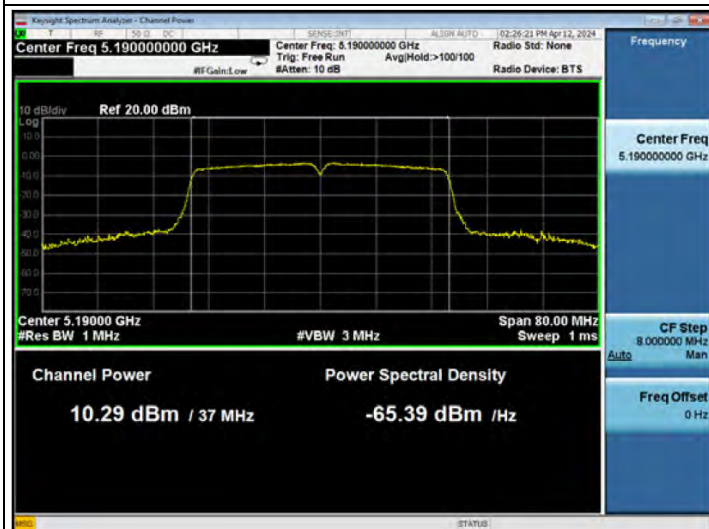
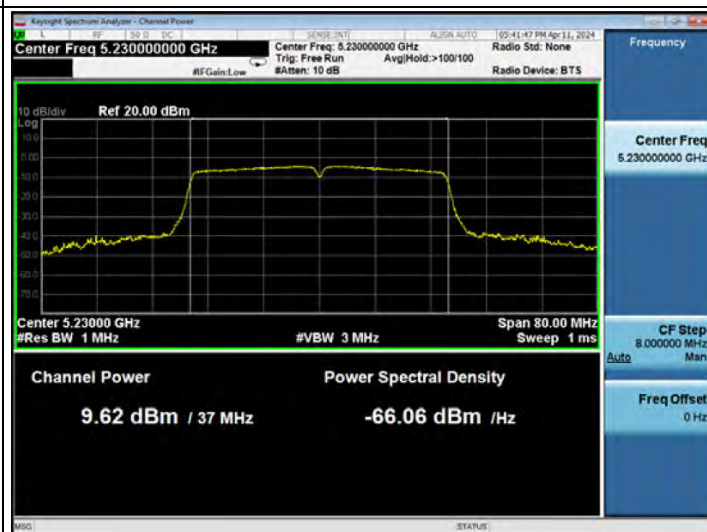
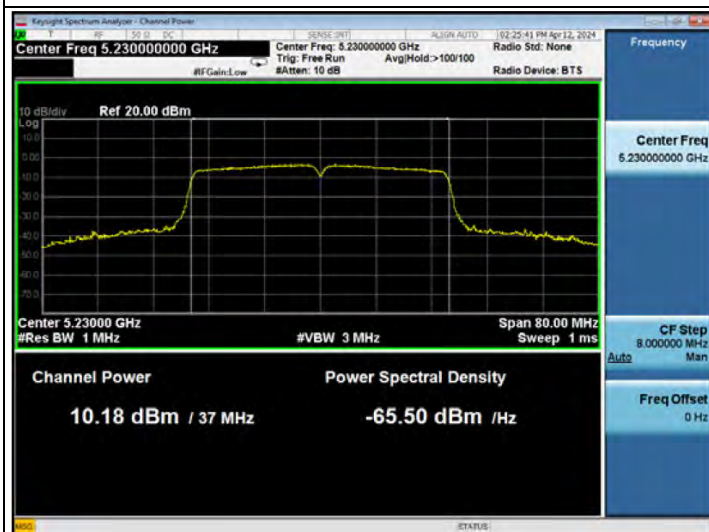


CH5825



CH5825



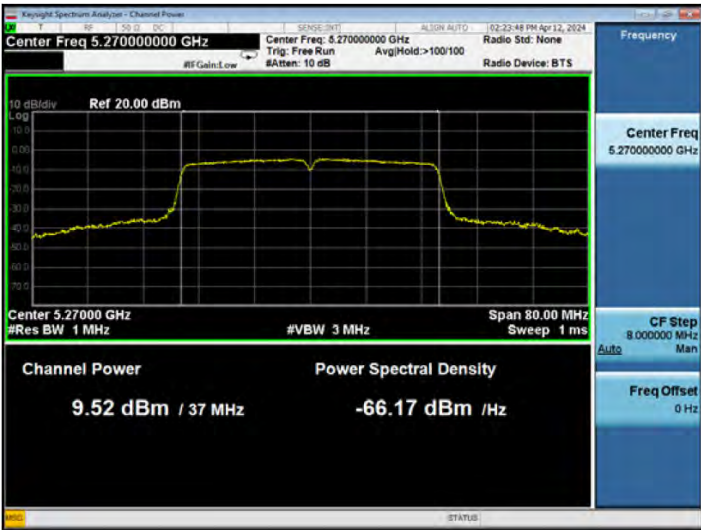
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802.11n40

Band-UNII-2A

CNF2

CH5270

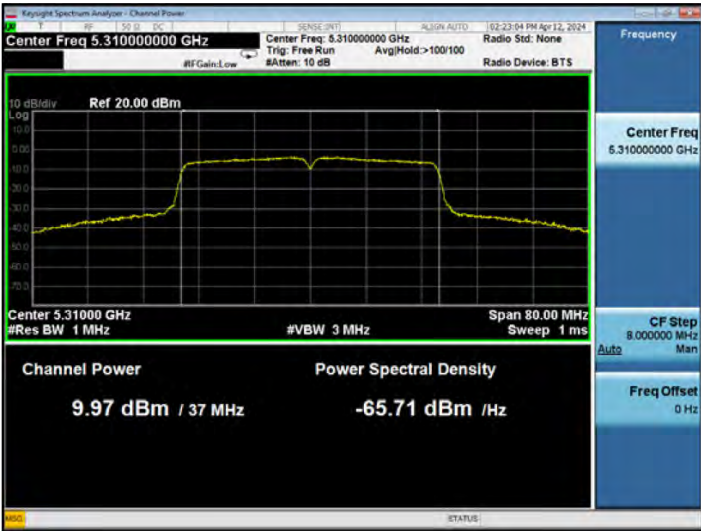


CNF3

CH5270



CH5310



CH5310



802.11n40

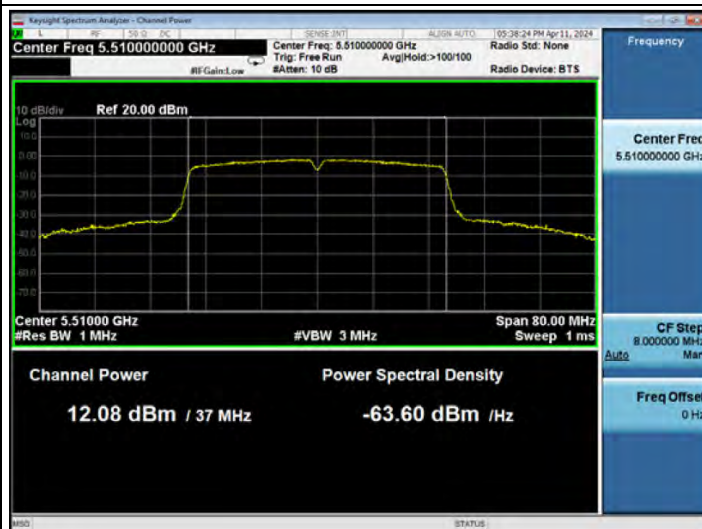
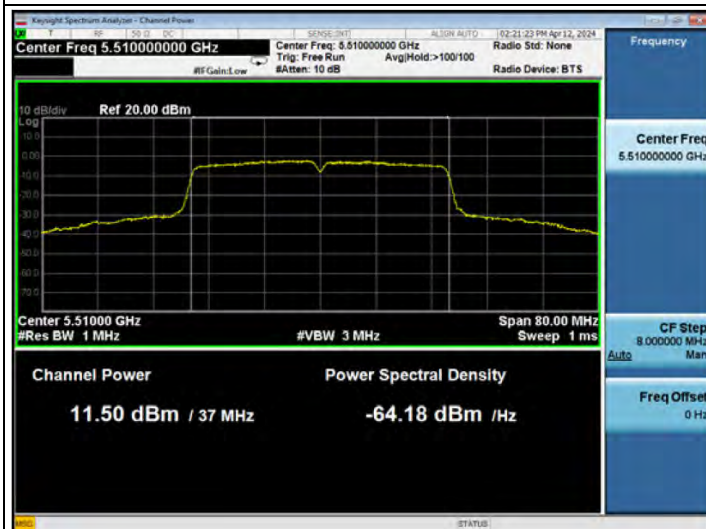
Band-UNII-2C

CNF2

CNF3

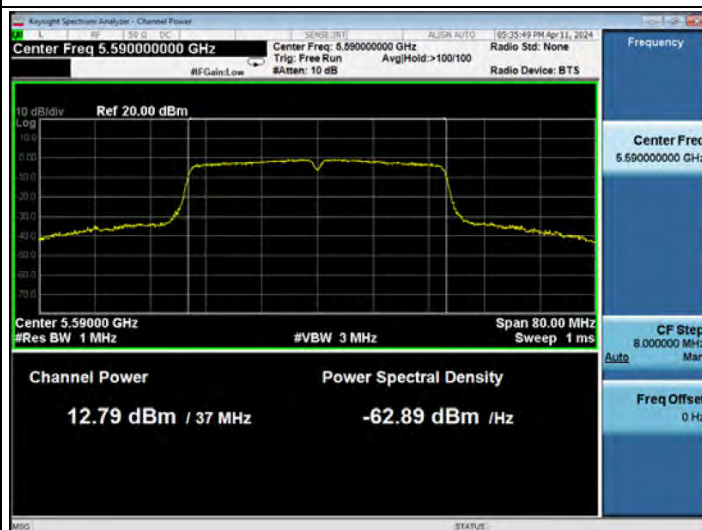
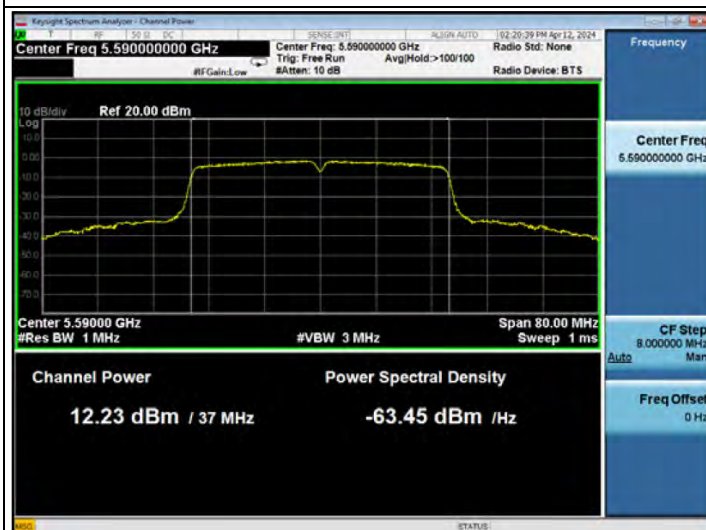
CH5510

CH5510



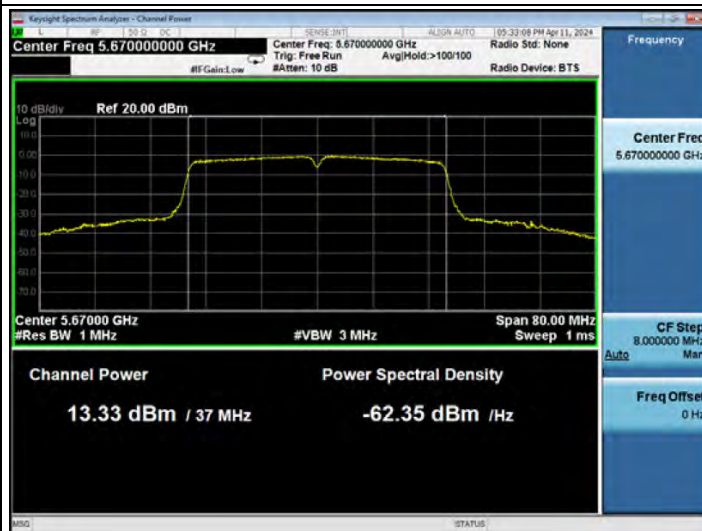
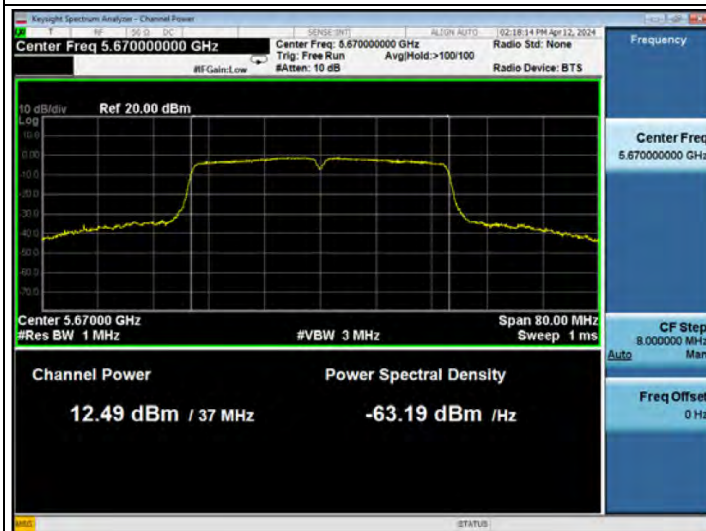
CH5590

CH5590



CH5670

CH5670



802.11n40

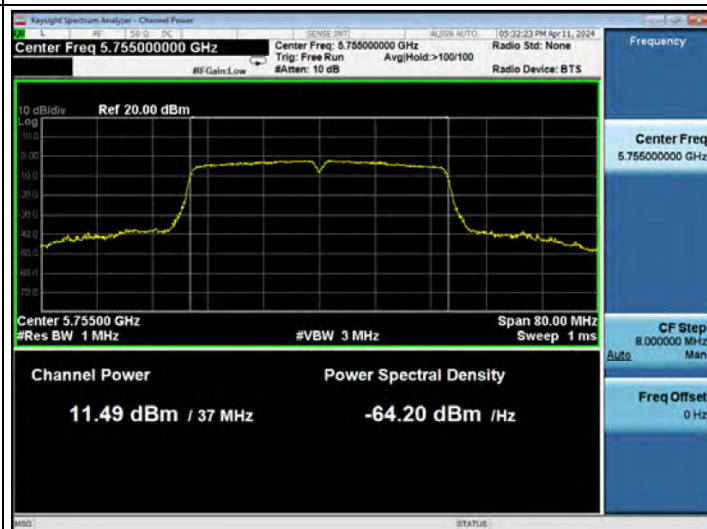
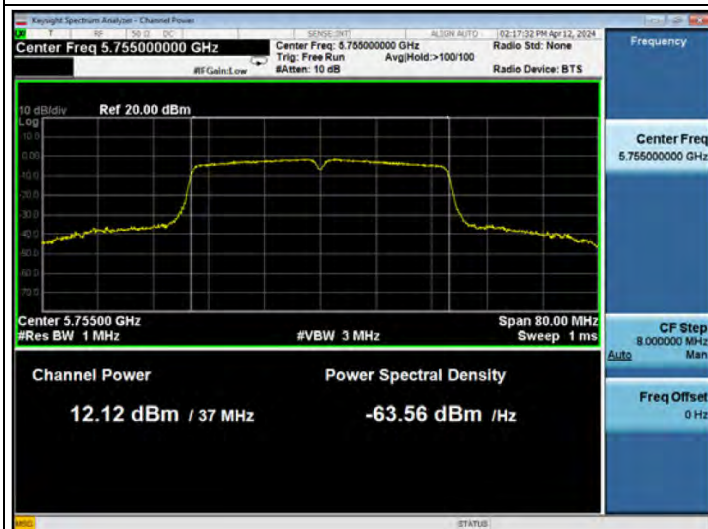
Band-UNII-3

CNF2

CNF3

CH5755

CH5755



CH5795

CH5795

