

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:

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) 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).

7.5 Test Results

PASSED.

All the test results are attached in next pages.

(Test Date: 2023.11.14-12.06 Temperature: 23°C Humidity: 51 %)

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Limit
802.11a	36	5180	21.31	N/A
	40	5200	21.49	N/A
	48	5240	21.39	N/A
	52	5260	21.35	N/A
	60	5300	21.27	N/A
	64	5320	21.52	N/A
	100	5500	21.27	N/A
	120	5600	21.4	N/A
	140	5700	21.62	N/A
	149	5745	21.43	N/A
	157	5785	21.47	N/A
	165	5825	21.53	N/A

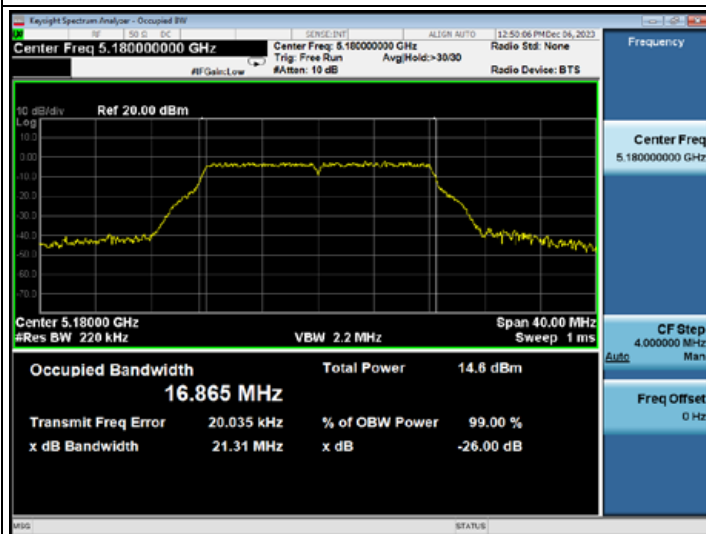
Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Limit
802.11n20	36	5180	21.65	N/A
	40	5200	21.65	N/A
	48	5240	21.67	N/A
	52	5260	21.64	N/A
	60	5300	21.74	N/A
	64	5320	21.69	N/A
	100	5500	21.79	N/A
	120	5600	21.72	N/A
	140	5700	21.73	N/A
	149	5745	21.74	N/A
	157	5785	21.79	N/A
	165	5825	21.95	N/A

Modulation	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	Limit
802.11n40	38	5190	40.06	N/A
	46	5230	40.23	N/A
	54	5270	45.49	N/A
	62	5310	40.06	N/A
	102	5510	39.65	N/A
	118	5590	40.09	N/A
	134	5670	40.03	N/A
	151	5755	40.34	N/A
	159	5795	42.17	N/A

802.11a

Band-UNII-1

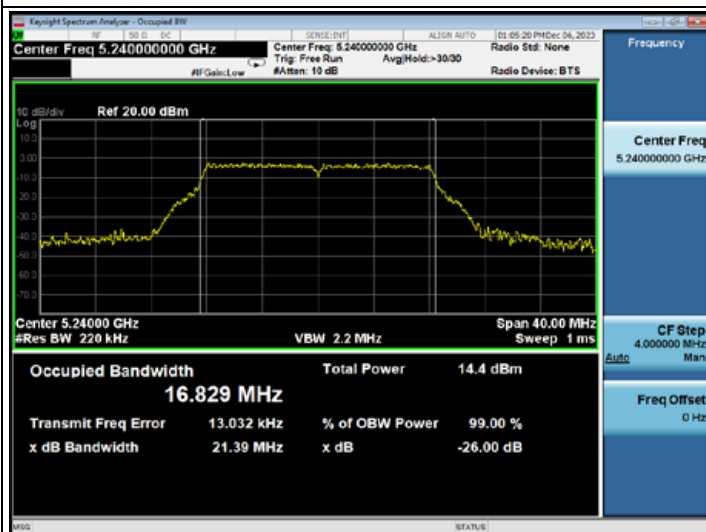
CH5180



CH5200



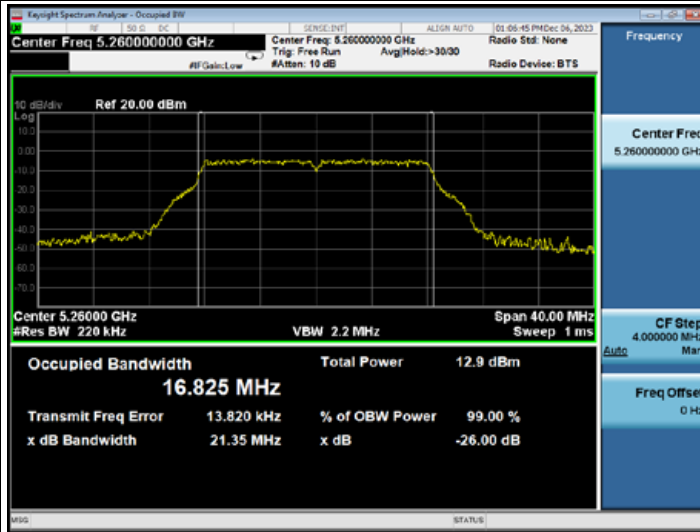
CH5240



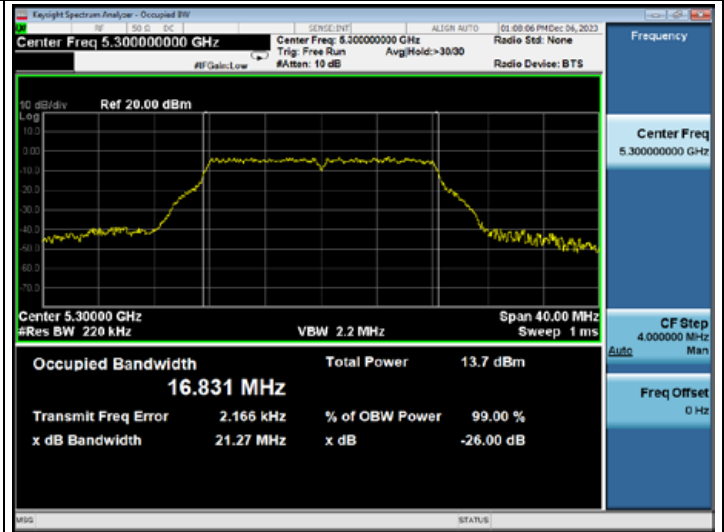
802.11a

Band-UNII-2A

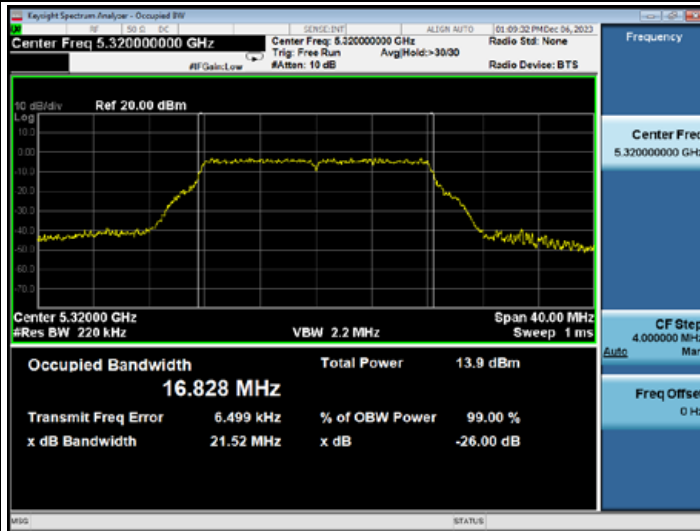
CH5260



CH5300



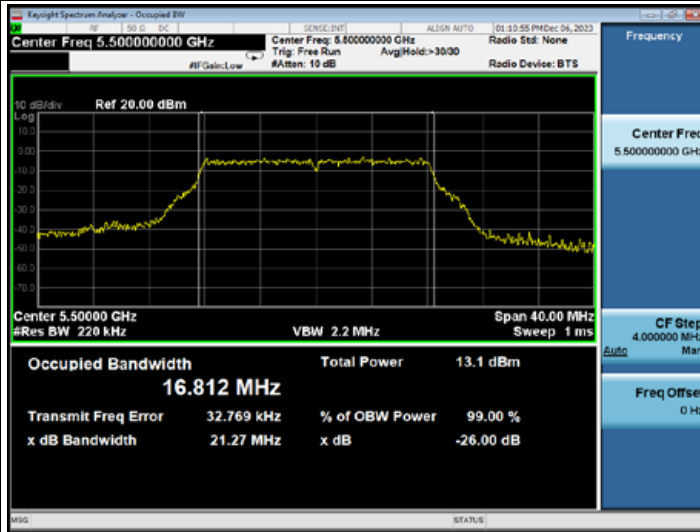
CH5320



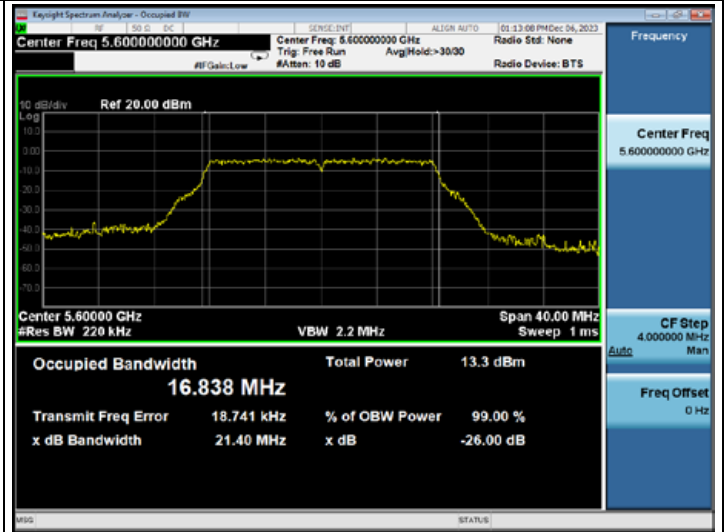
802.11a

Band-UNII-2C

CH5500



CH5600



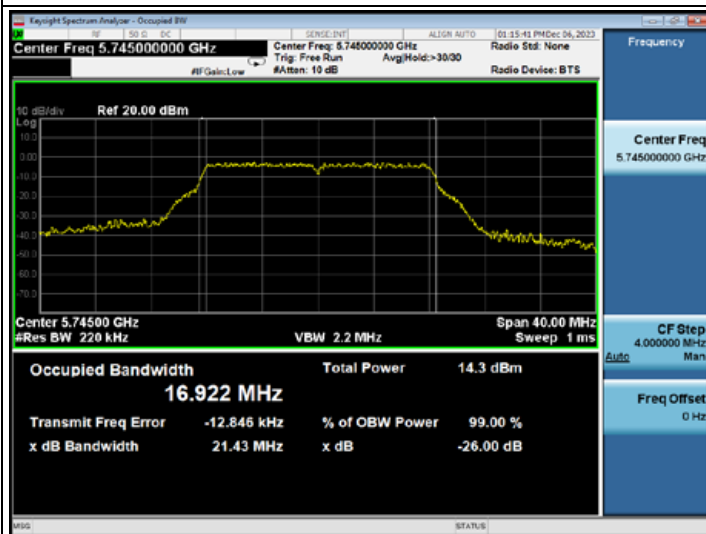
CH5700



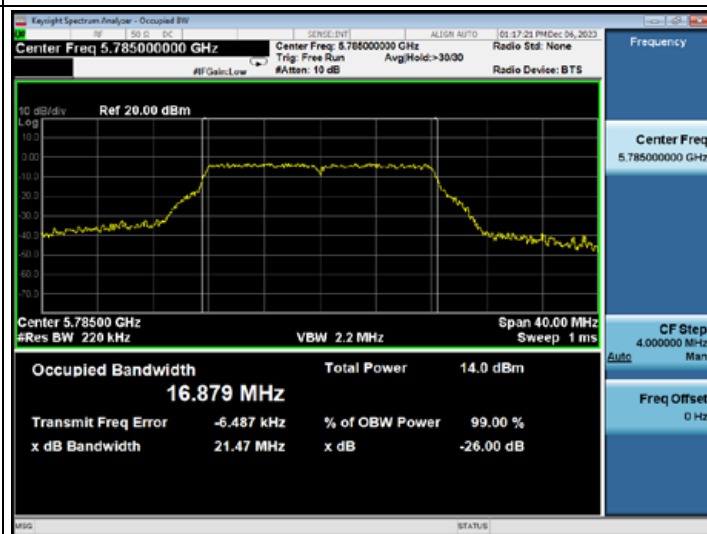
802.11a

Band-UNII-3

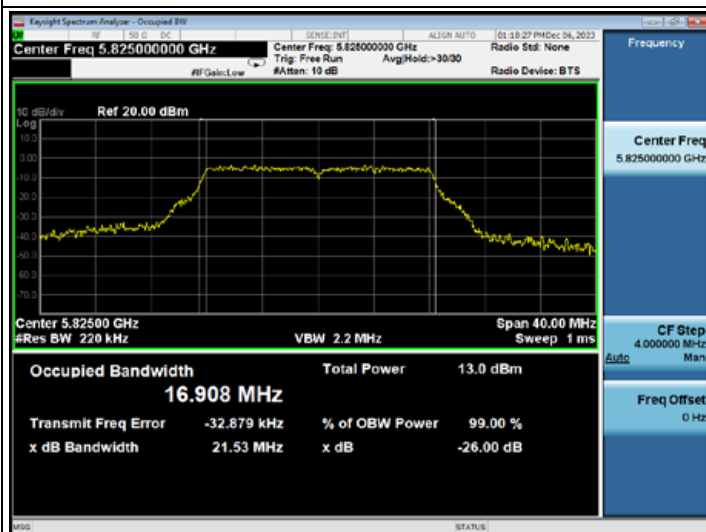
CH5745



CH5785



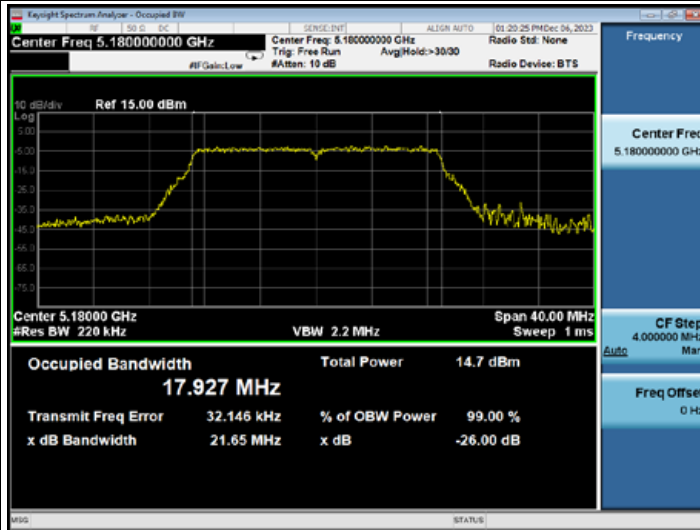
CH5825



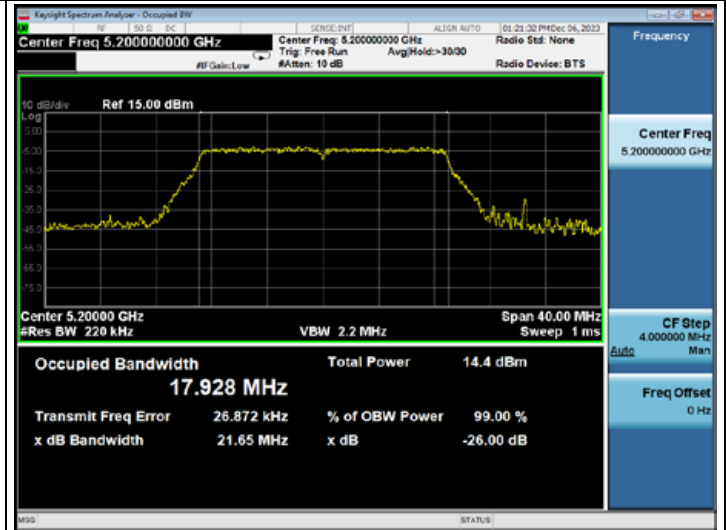
802.11n20

Band-UNII-1

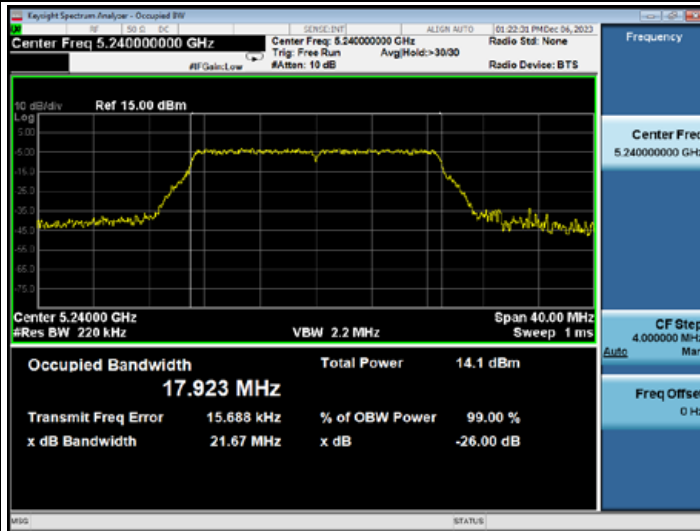
CH5180



CH5200



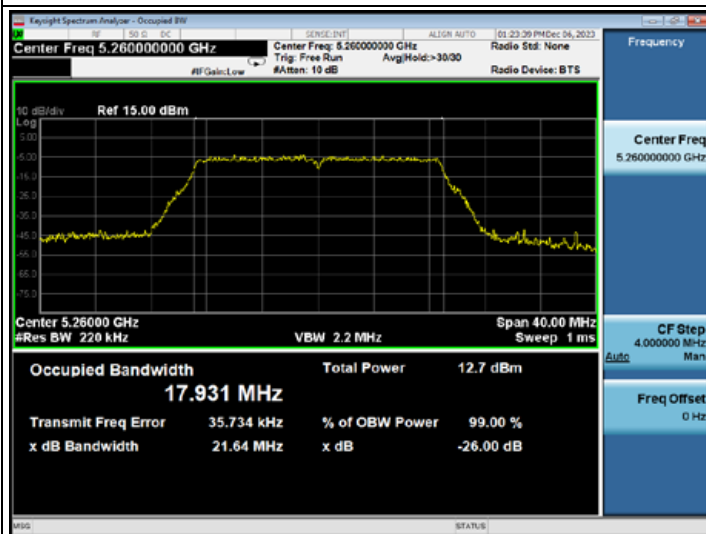
CH5240



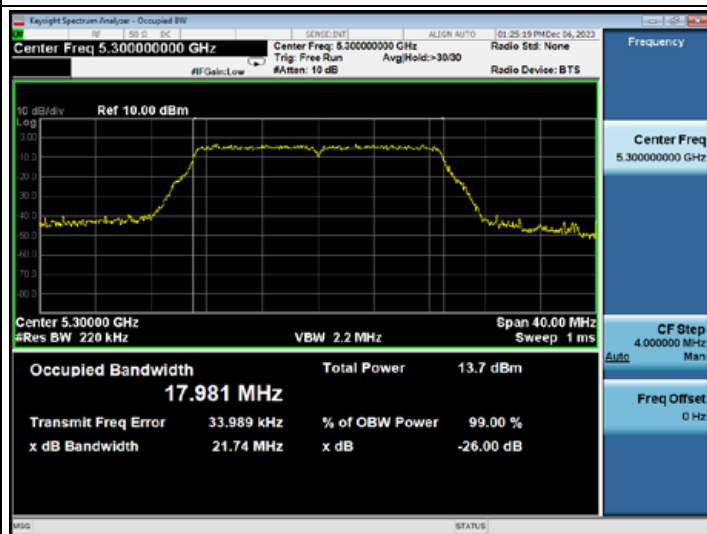
802.11n20

Band-UNII-2A

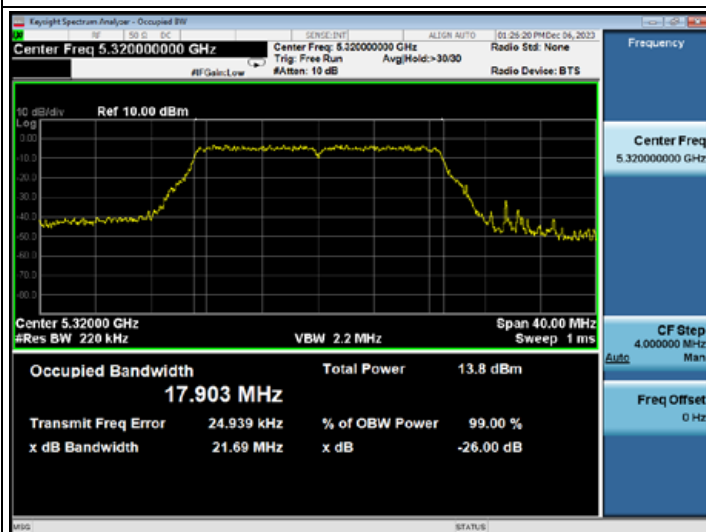
CH5260



CH5300



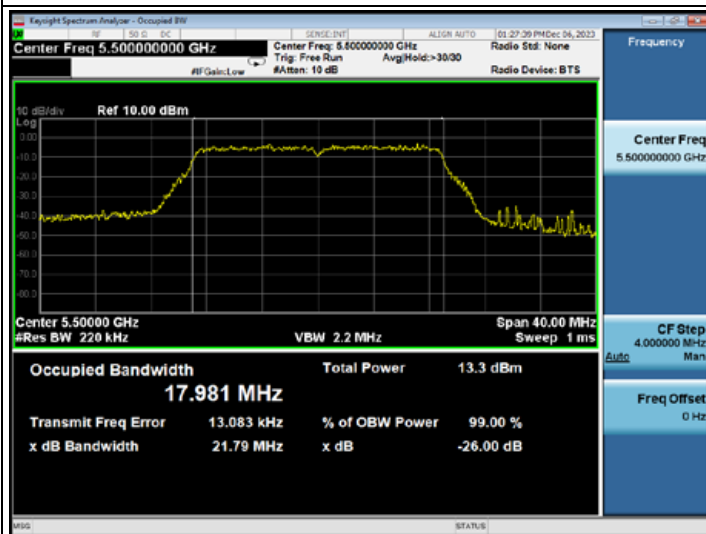
CH5320



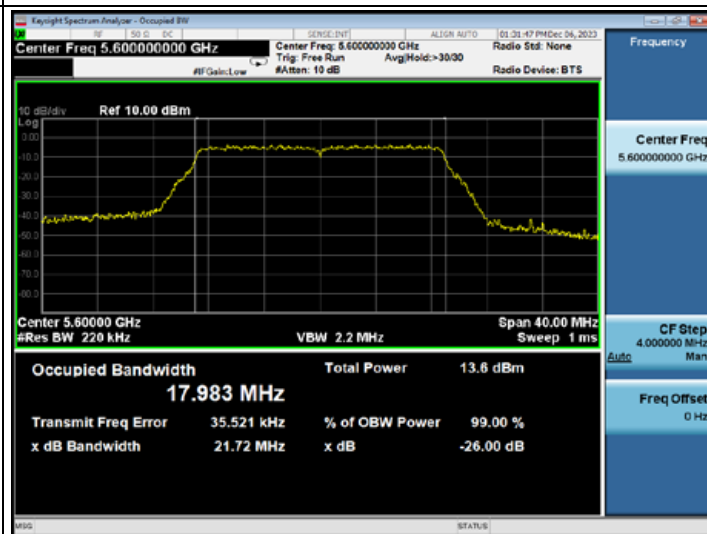
802.11n20

Band-UNII-2C

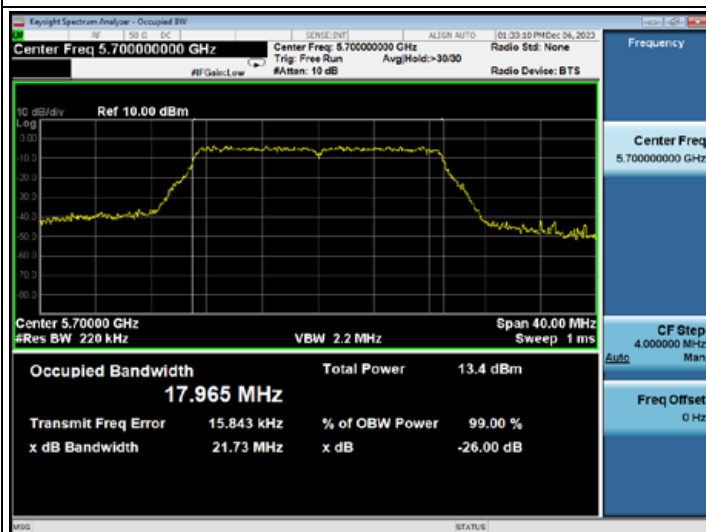
CH5500



CH5600



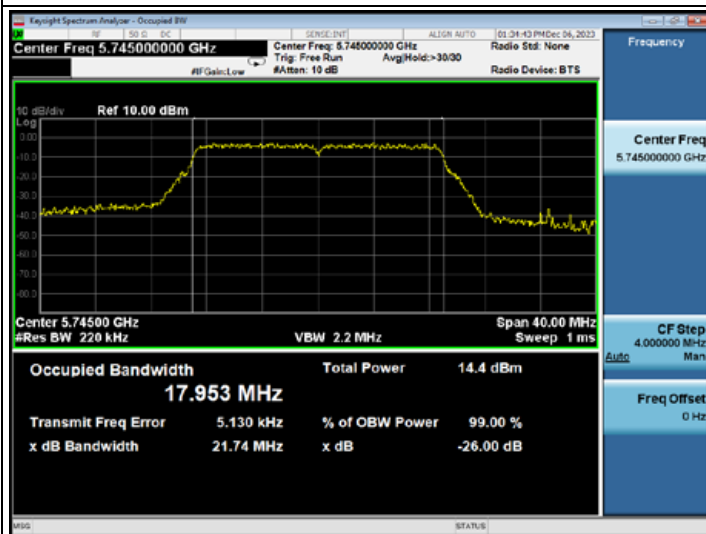
CH5700



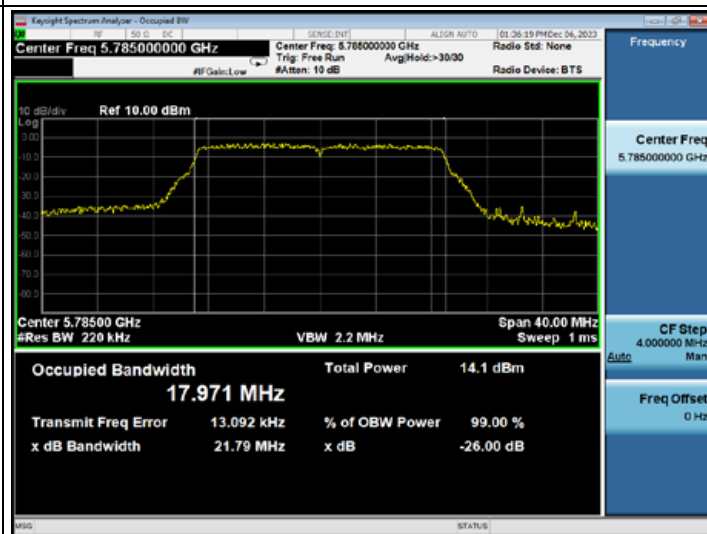
802.11n20

Band-UNII-3

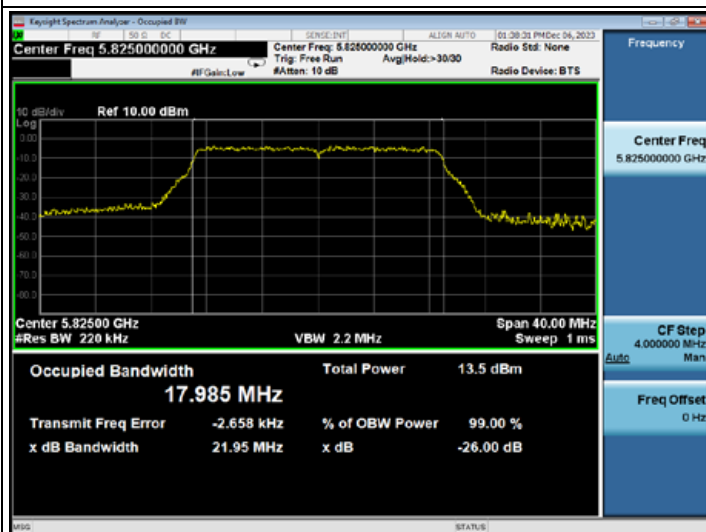
CH5745



CH5785



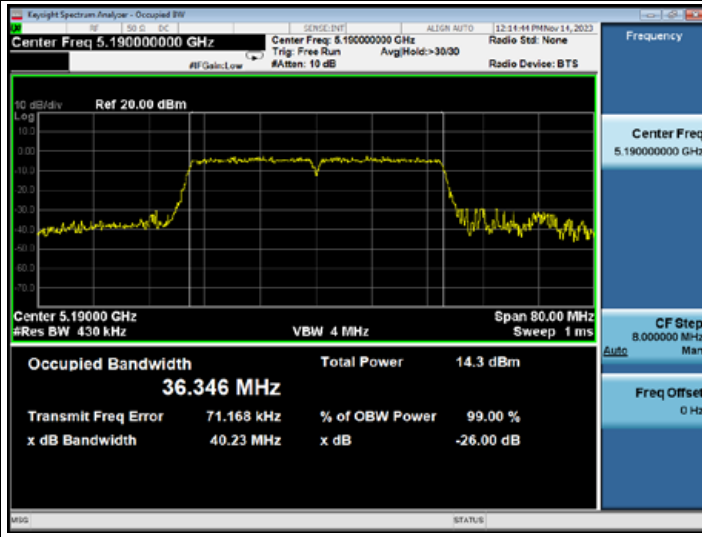
CH5825



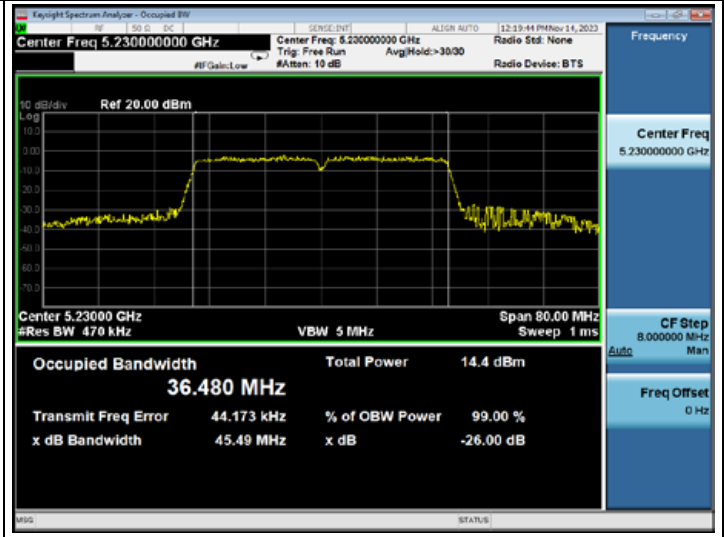
802.11n40

Band-UNII-1

CH5190



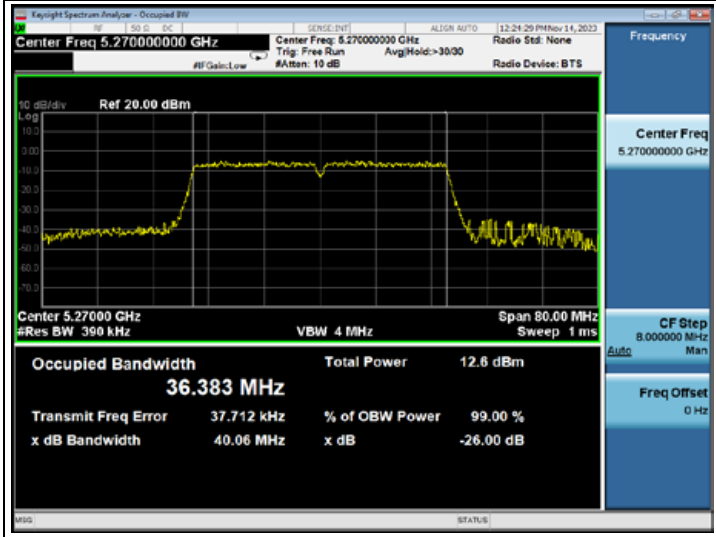
CH5230



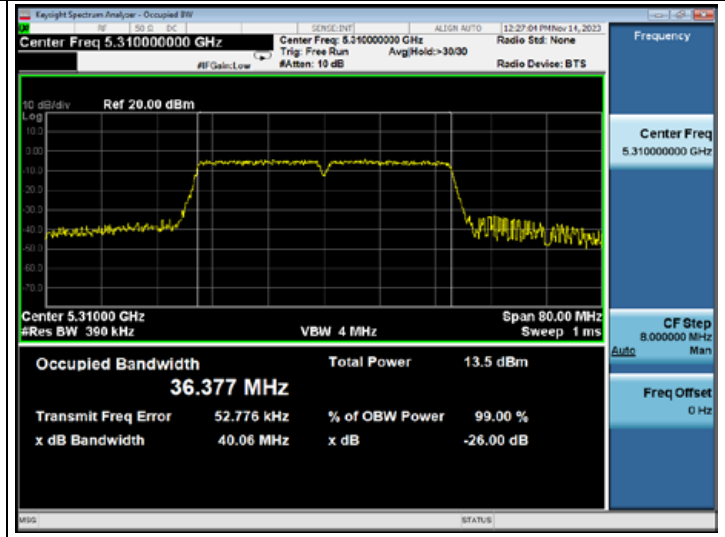
802.11n40

Band-UNII-2A

CH5270



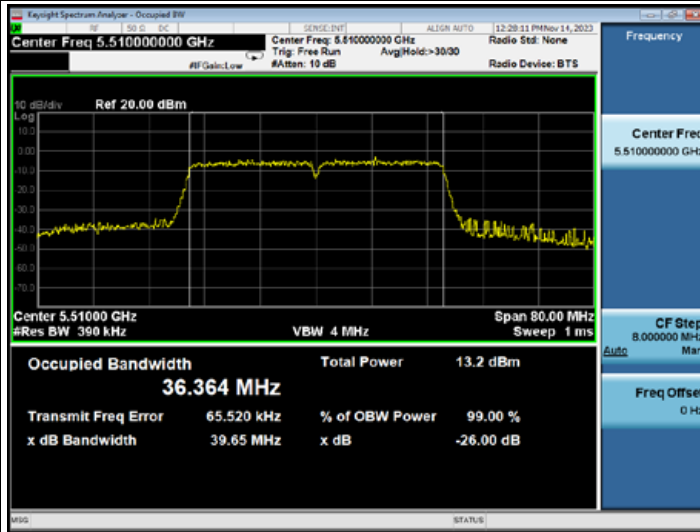
CH5310



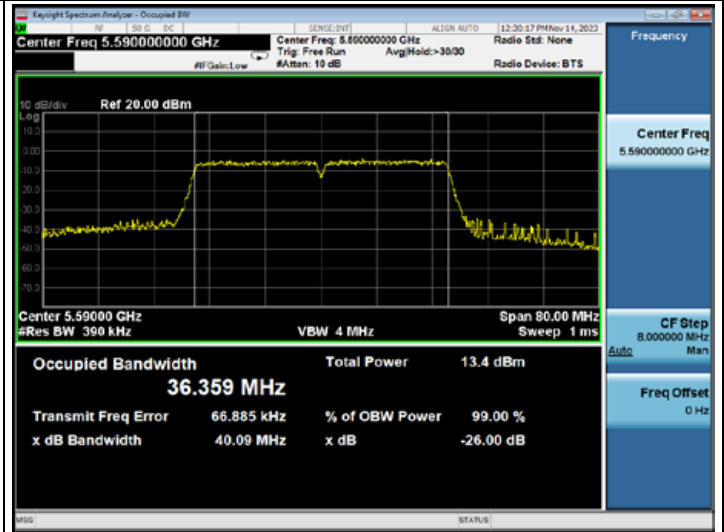
802.11n40

Band-UNII-2C

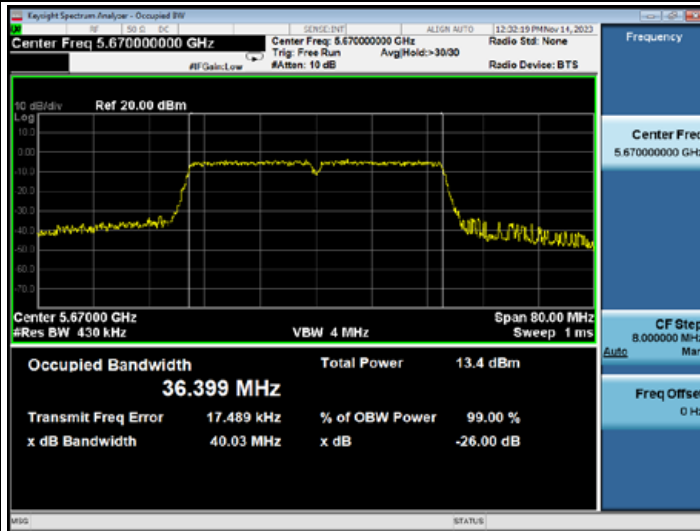
CH5510



CH5590



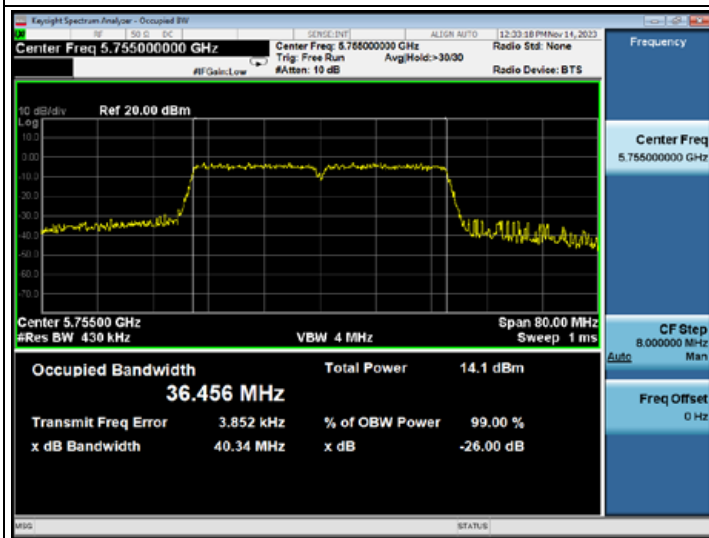
CH5670



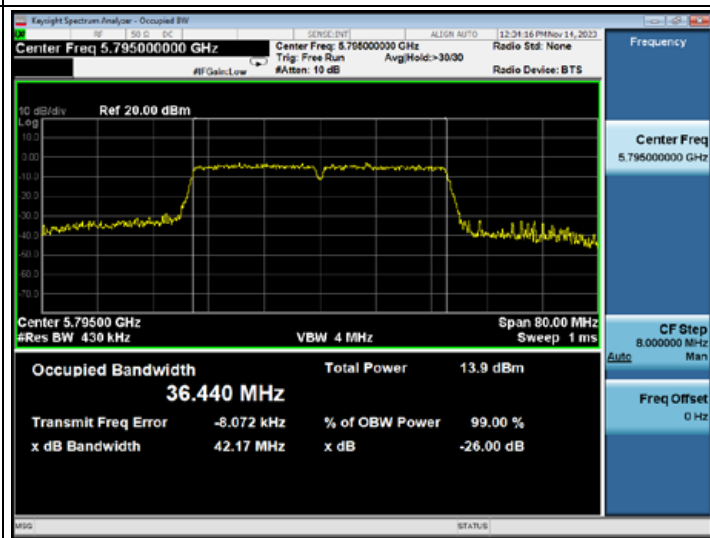
802.11n40

Band-UNII-3

CH5755



CH5795



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).

8.6 Test Results

PASSED.

Note1: Maximum conducted (average) Output Power = 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: 2023.11.13-12.06 Temperature: 23°C Humidity: 51 %)

Modulation	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)	Maximum Conducted Output Power (dBm)	Limit (dBm)
802.11a	36	5180	7.87	7.94	24
	40	5200	7.84	7.91	24
	48	5240	7.69	7.76	24
	52	5260	6.3	6.37	24
	60	5300	7.07	7.14	24
	64	5320	7.15	7.22	24
	100	5500	6.6	6.67	24
	120	5600	6.87	6.94	24
	140	5700	6.83	6.9	24
	149	5745	7.75	7.82	30
	157	5785	7.38	7.45	30
	165	5825	6.66	6.73	30

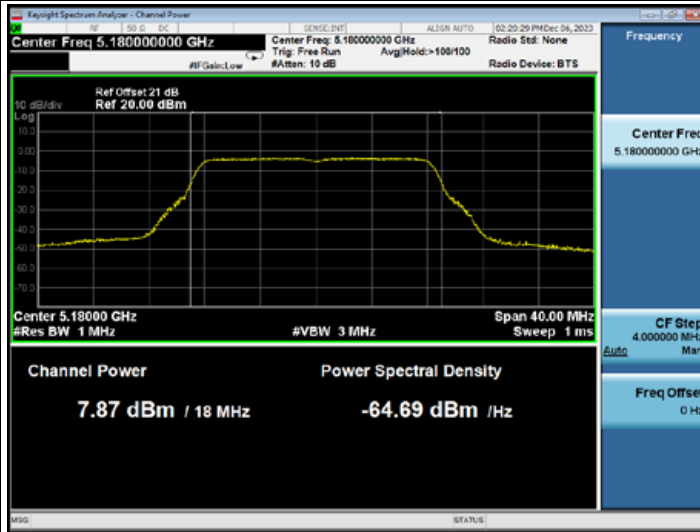
Modulation	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)	Maximum Conducted Output Power (dBm)	Limit (dBm)
802.11n20	36	5180	7.65	7.82	24
	40	5200	7.7	7.87	24
	48	5240	7.37	7.54	24
	52	5260	5.94	6.11	24
	60	5300	6.8	6.97	24
	64	5320	6.89	7.06	24
	100	5500	6.51	6.68	24
	120	5600	6.6	6.77	24
	140	5700	6.37	6.54	24
	149	5745	7.5	7.67	30
	157	5785	7.09	7.26	30
	165	5825	6.4	6.57	30

Modulation	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)	Maximum Conducted Output Power (dBm)	Limit (dBm)
802.11n40	38	5190	7.13	7.46	24
	46	5230	7.18	7.51	24
	54	5270	5.17	5.5	24
	62	5310	5.85	6.18	24
	102	5510	6.08	6.41	24
	118	5590	6.11	6.44	24
	134	5670	6.38	6.71	24
	151	5755	7.33	7.66	30
	159	5795	6.93	7.26	30

802.11a

Band-UNII-1

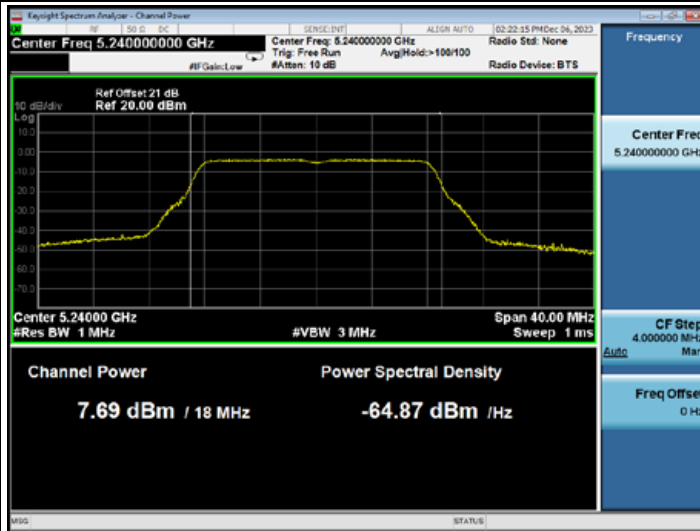
CH5180



CH5200



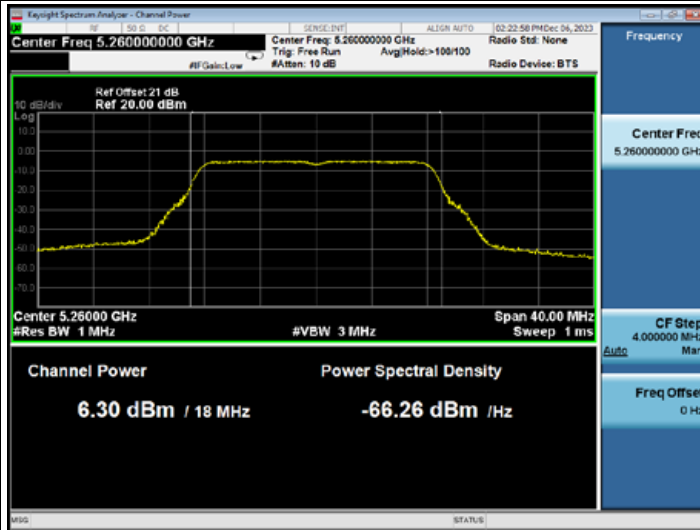
CH5240



802.11a

Band-UNII-2A

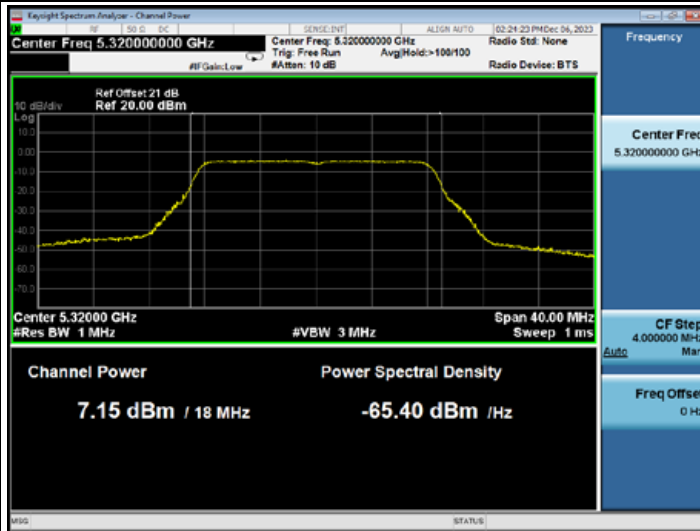
CH5260



CH5300



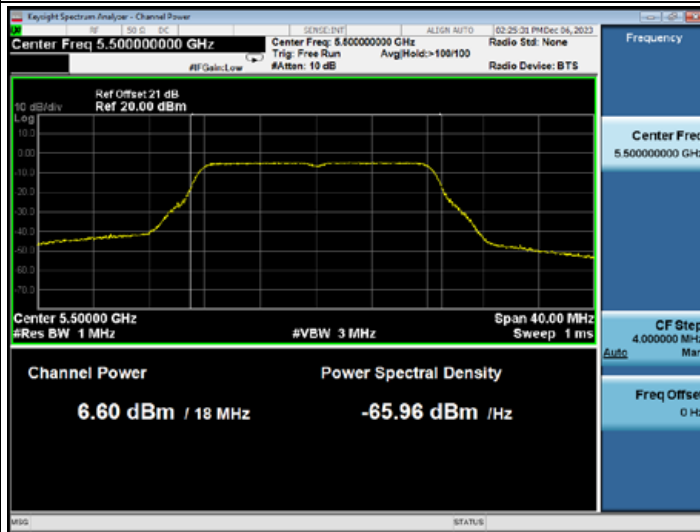
CH5320



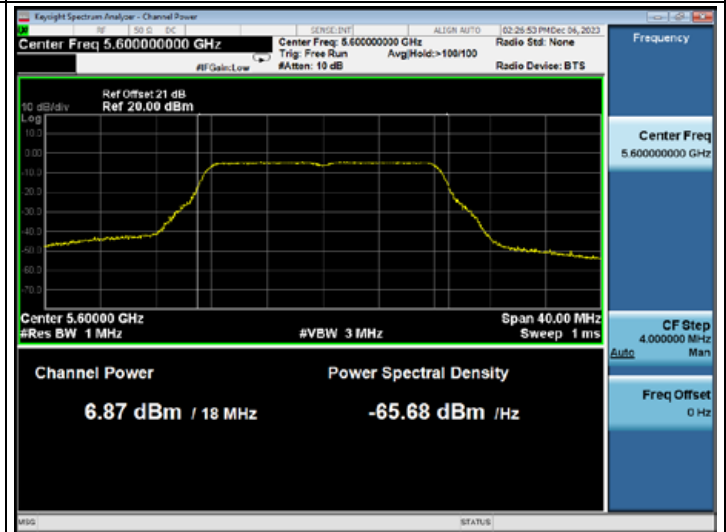
802.11a

Band-UNII-2C

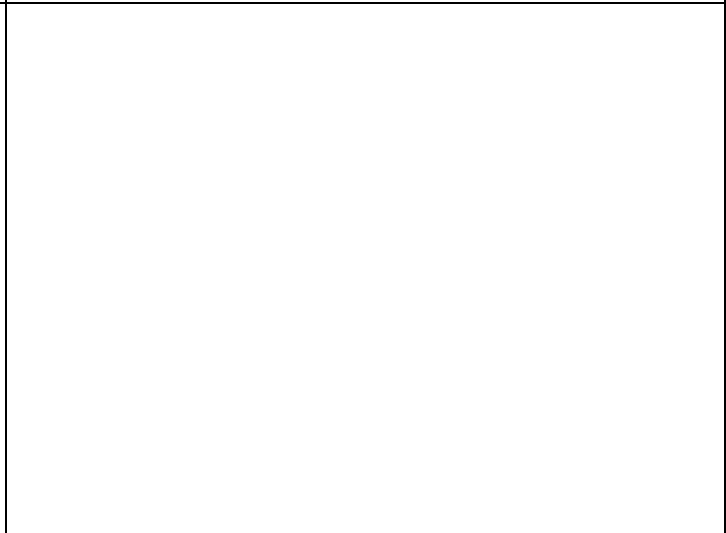
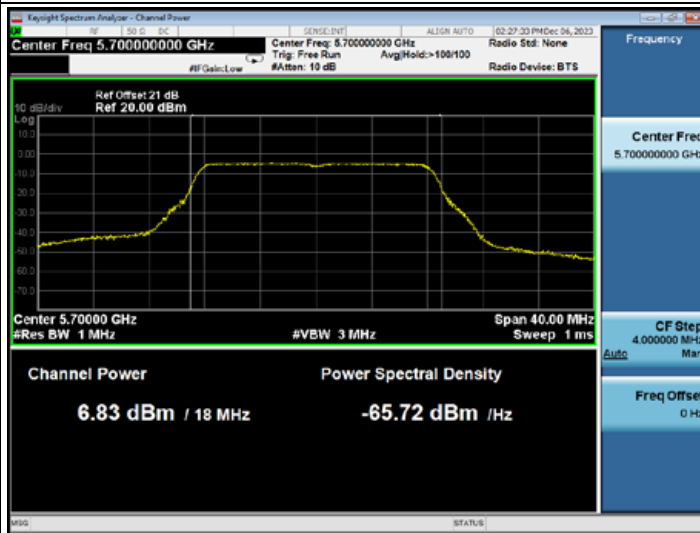
CH5500



CH5600



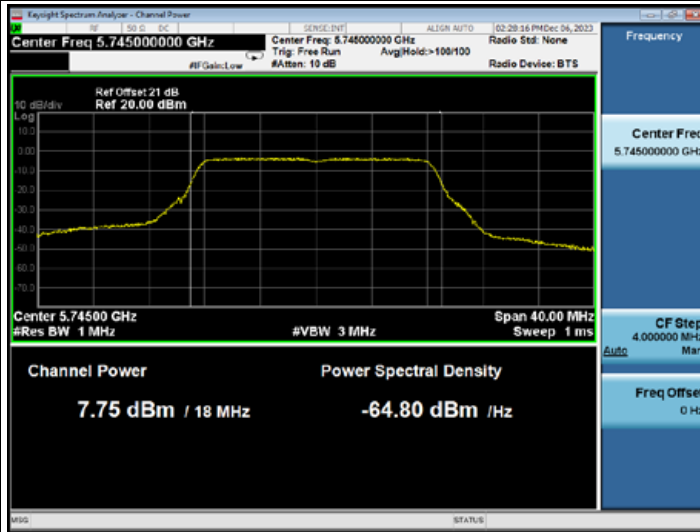
CH5700



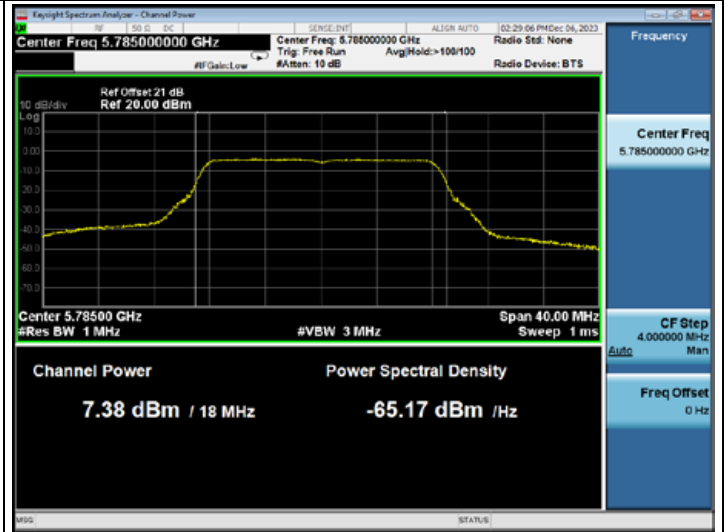
802.11a

Band-UNII-3

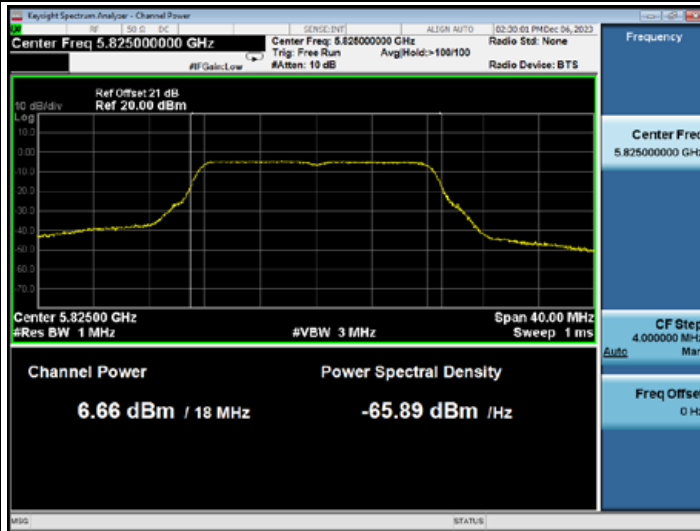
CH5745



CH5785



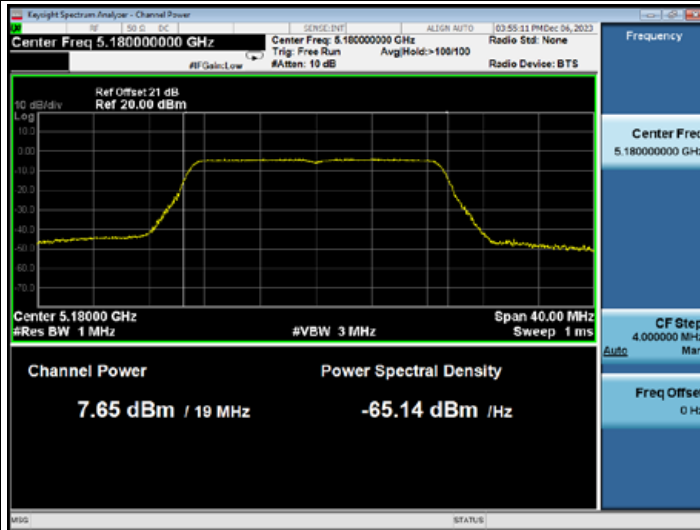
CH5825



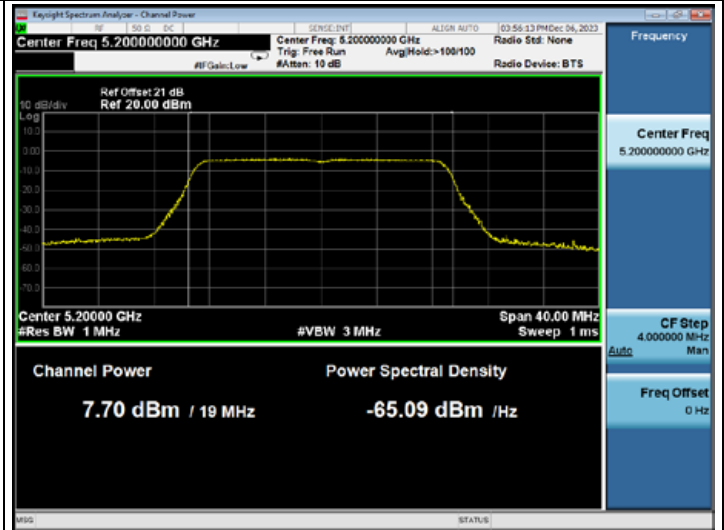
802.11n20

Band-UNII-1

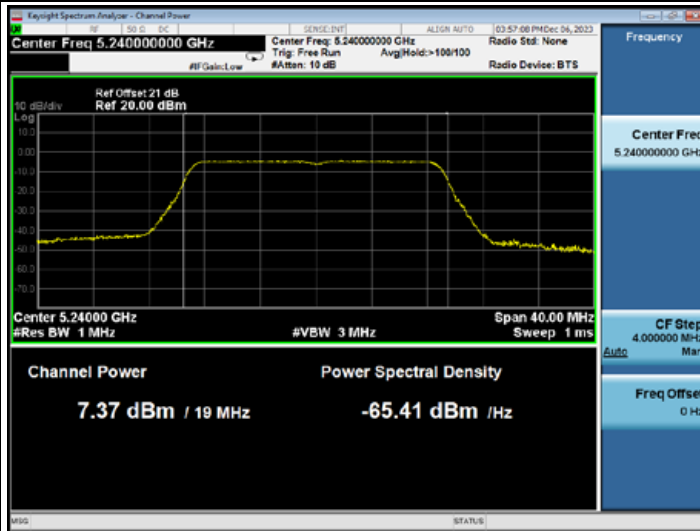
CH5180



CH5200



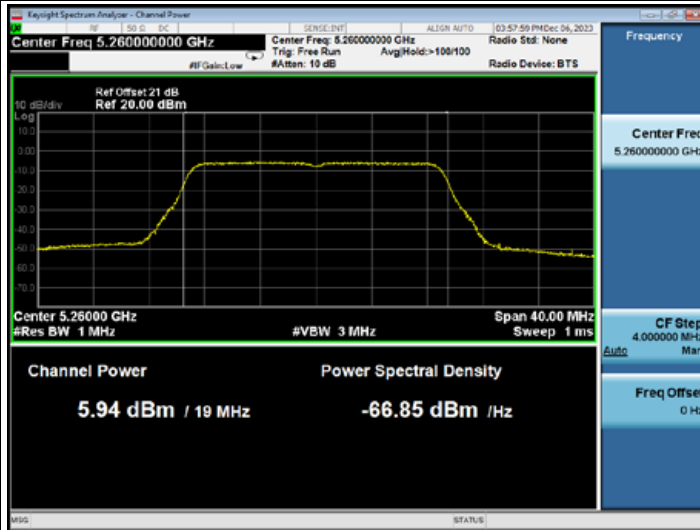
CH5240



802.11n20

Band-UNII-2A

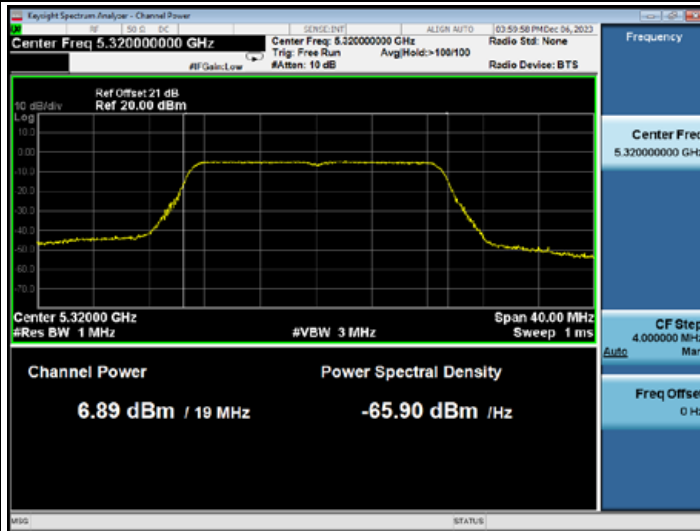
CH5260



CH5300



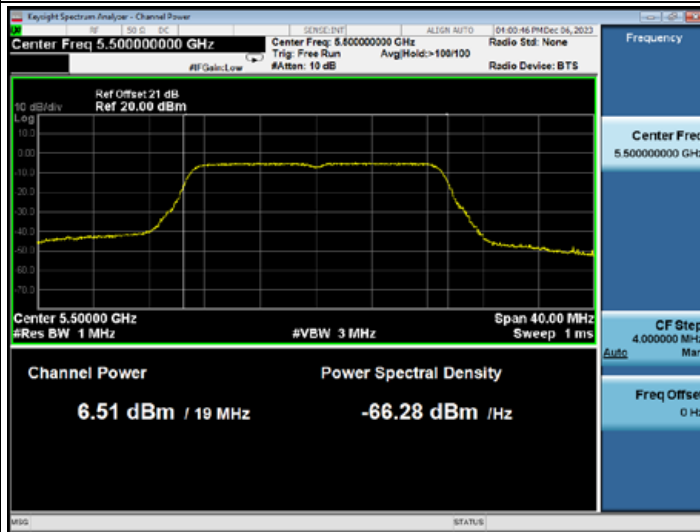
CH5320



802.11n20

Band-UNII-2C

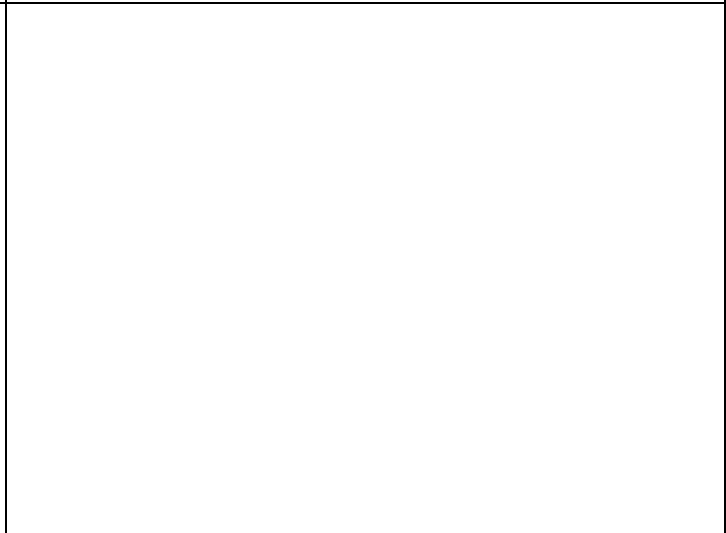
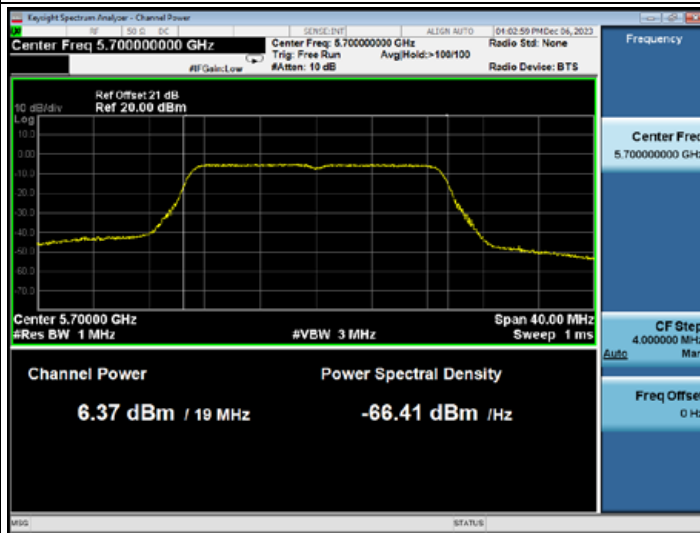
CH5500



CH5600



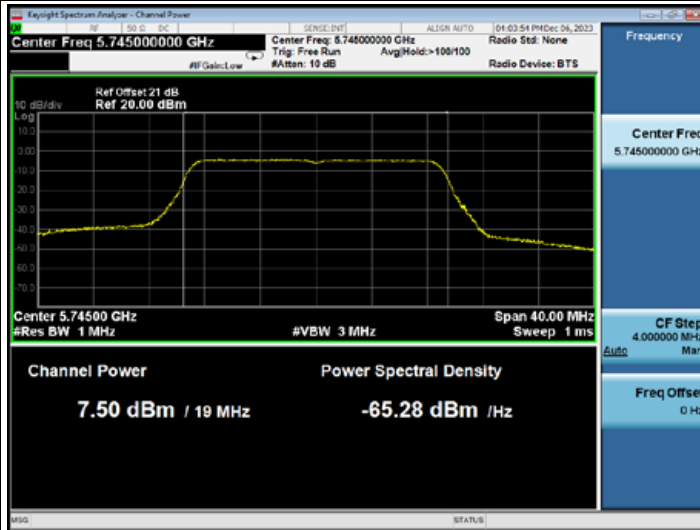
CH5700



802.11n20

Band-UNII-3

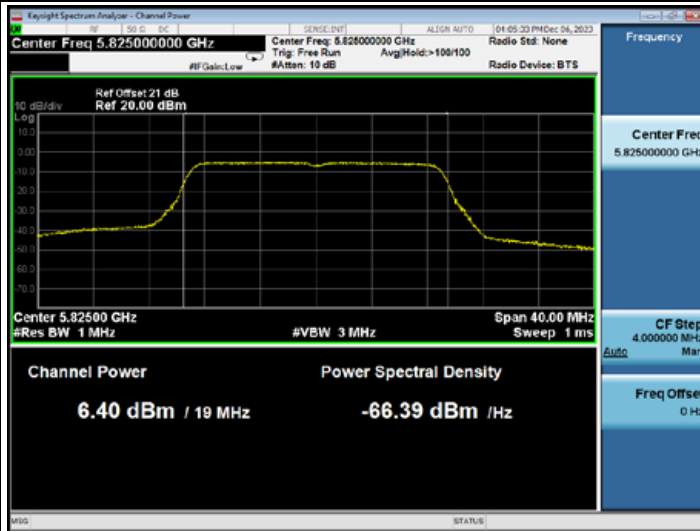
CH5745



CH5785



CH5825



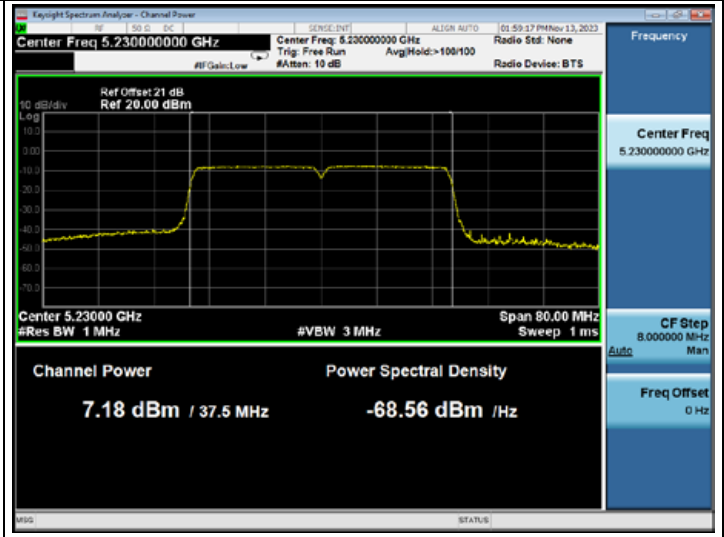
802.11n40

Band-UNII-1

CH5190



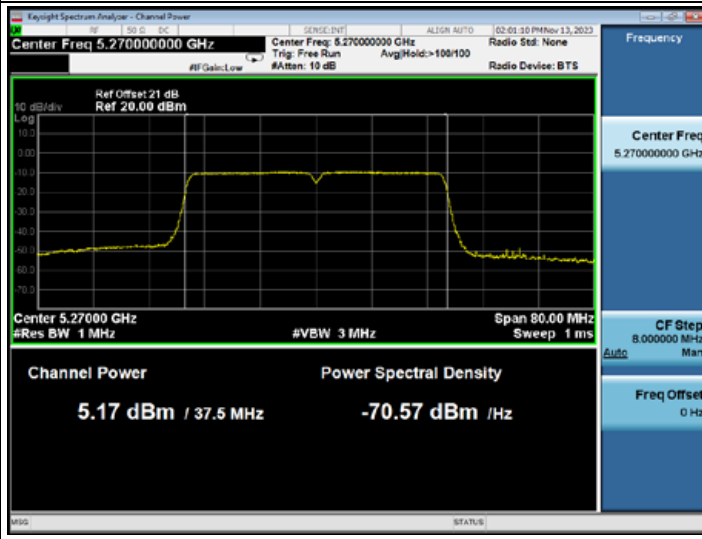
CH5230



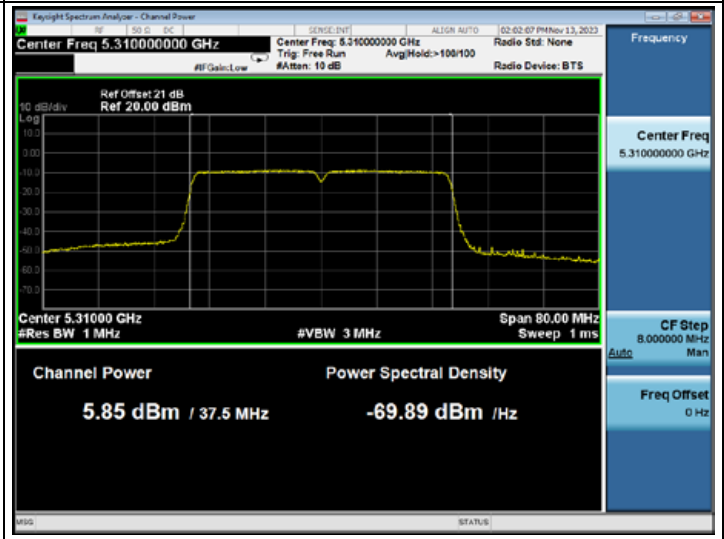
802.11n40

Band-UNII-2A

CH5270



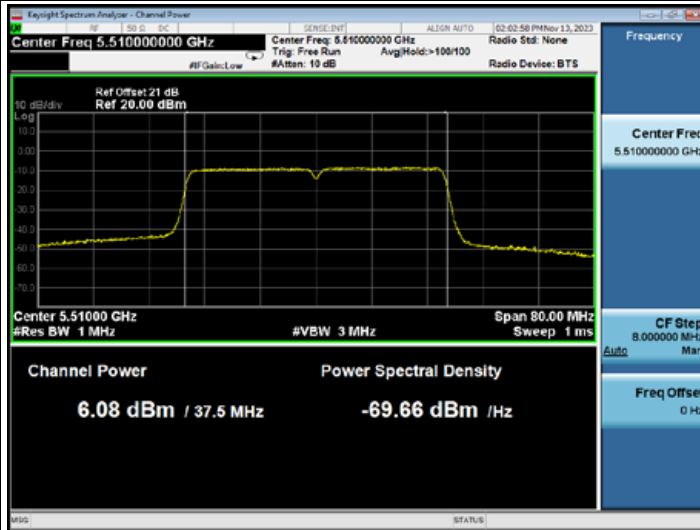
CH5310



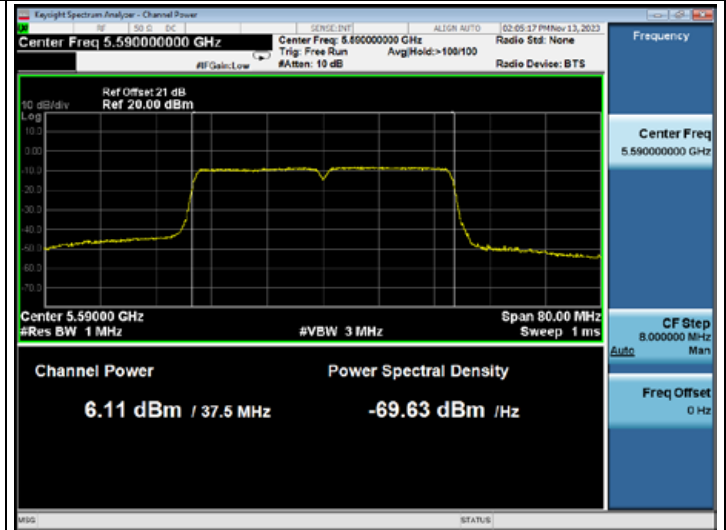
802.11n40

Band-UNII-2C

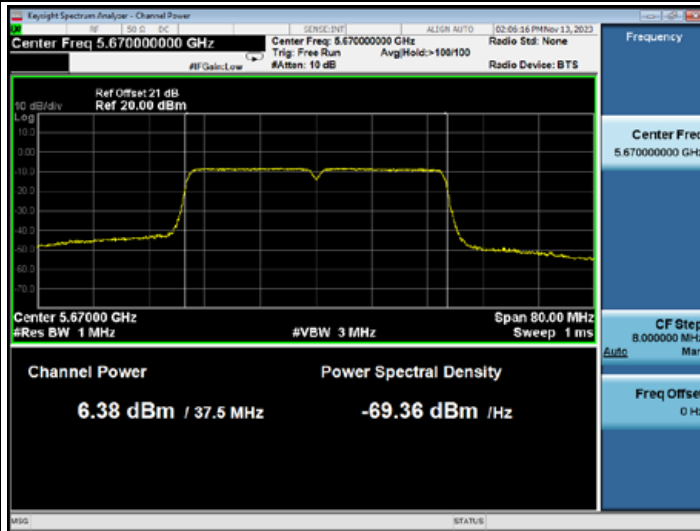
CH5510



CH5590



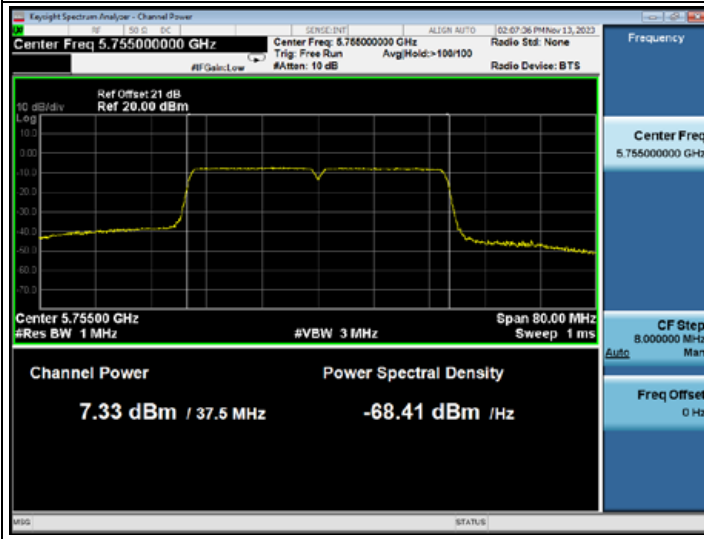
CH5670



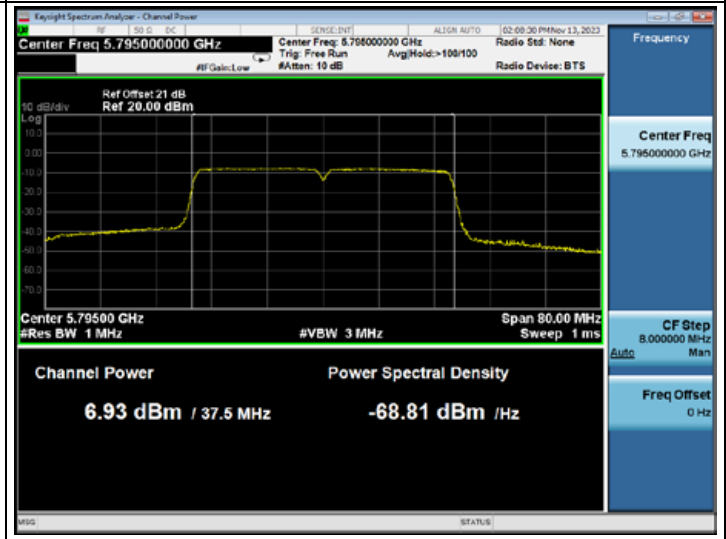
802.11n40

Band-UNII-3

CH5755



CH5795



9 MAXIMUM POWER SPECTRAL DENSITY

MEASUREMENT

9.1 Test Equipment

The following test equipment was used during the power spectral density 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

9.2 Block Diagram of Test Setup

The Same as section 6.2.

9.3 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 power spectral density shall not exceed 11 dBm in any 1 megahertz band.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

9.4 Operating Condition of EUT

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

9.5 Test Procedure

The transmitter output was connected to the spectrum analyzer.

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

(ii) For the 5.15-5.25 GHz, 5.25-5.35 GHz and 5.47-5.725 GHz bands. set $RBW = 1 \text{ MHz}$. For the band 5.725-5.85 GHz set $RBW = 300 \text{ kHz}$.

(iii) Set $VBW \geq 3 \times RBW$.

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

(v) Sweep time = auto.

(vi) Detector = power averaging (rms).

(vii) Allow the sweep to “free run.”

(viii) 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.

(ix) Use the peak search function on the instrument to find the peak of the spectrum.

(x) As the Method SA-2 was used, add $10 \log (1/x)$, where x is the duty cycle, to the peak of the spectrum. The result is the Peak Power Spectral Density.

(xi) For the band 5.725-5.85 GHz, additional add $10 \log (500 \text{ kHz}/300 \text{ kHz}) = 2.22 \text{ dB}$ to the measured result, whereas RBW is set to 300 kHz (<500 kHz) during measurement.

The test procedure is defined in KDB789033 D02 (the clause II.F Measurement Procedure “ Maximum Power Spectral Density (PSD)” was used).

9.6 Test Results

PASSED.

Note1: Power Spectral Density = Average Power Spectral Density + DCCF

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

All the test results are attached in next pages.

(Test Date: 2023.11.13-12.06 Temperature: 23°C Humidity: 51 %)

Modulation	Channel	Frequency (MHz)	Average Power Spectral Density (dBm/MHz)	Maximum Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
802.11a	36	5180	-3.465	-3.395	11
	40	5200	-3.174	-3.104	11
	48	5240	-3.339	-3.269	11
	52	5260	-4.935	-4.865	11
	60	5300	-4.061	-3.991	11
	64	5320	-3.99	-3.92	11
	100	5500	-4.405	-4.335	11
	120	5600	-4.135	-4.065	11
	140	5700	-4.074	-4.004	11

Modulation	Channel	Frequency (MHz)	Average Power Spectral Density (dBm/MHz)	Maximum Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
802.11n20	36	5180	-3.877	-3.707	11
	40	5200	-3.924	-3.754	11
	48	5240	-3.696	-3.526	11
	52	5260	-5.333	-5.163	11
	60	5300	-4.602	-4.432	11
	64	5320	-4.262	-4.092	11
	100	5500	-4.686	-4.516	11
	120	5600	-4.628	-4.458	11
	140	5700	-4.844	-4.674	11

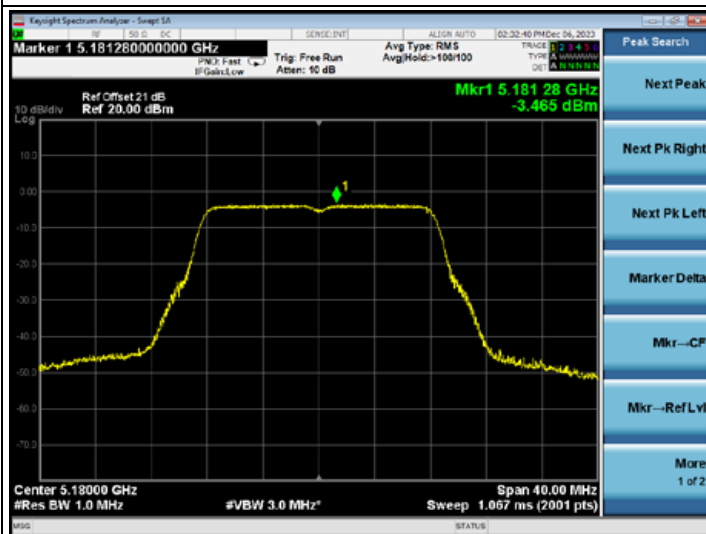
Modulation	Channel	Frequency (MHz)	Average Power Spectral Density (dBm/MHz)	Maximum Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
802.11n40	38	5190	-6.978	-6.648	11
	46	5230	-6.8	-6.47	11
	54	5270	-8.636	-8.306	11
	62	5310	-7.888	-7.558	11
	102	5510	-8.083	-7.753	11
	118	5590	-8.077	-7.747	11
	134	5670	-7.554	-7.224	11

Modulation	Channel	Frequency (MHz)	Average Power Spectral Density (dBm/300kHz)	Maximum Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)
802.11a	149	5745	-8.454	-6.164	30
	157	5785	-8.801	-6.511	30
	165	5825	-9.446	-7.156	30
802.11n20	149	5745	-8.996	-6.606	30
	157	5785	-9.138	-6.748	30
	165	5825	-9.891	-7.501	30
802.11n40	151	5755	-12.245	-9.695	30
	159	5795	-12.492	-9.942	30

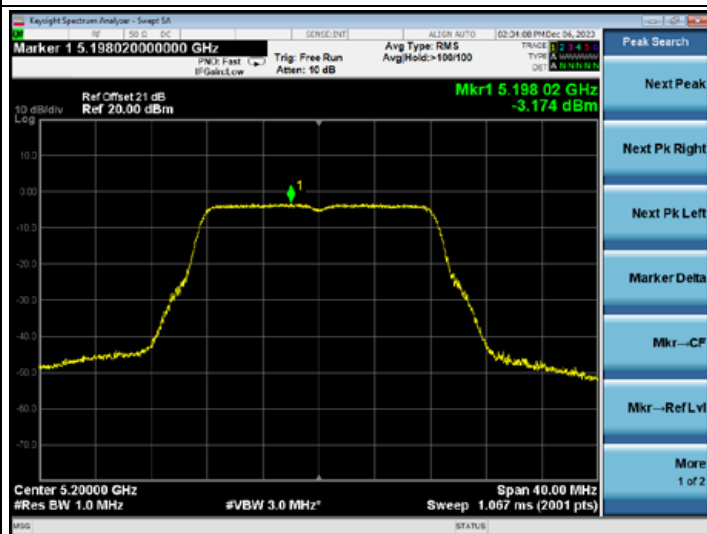
802.11a

Band-UNII-1

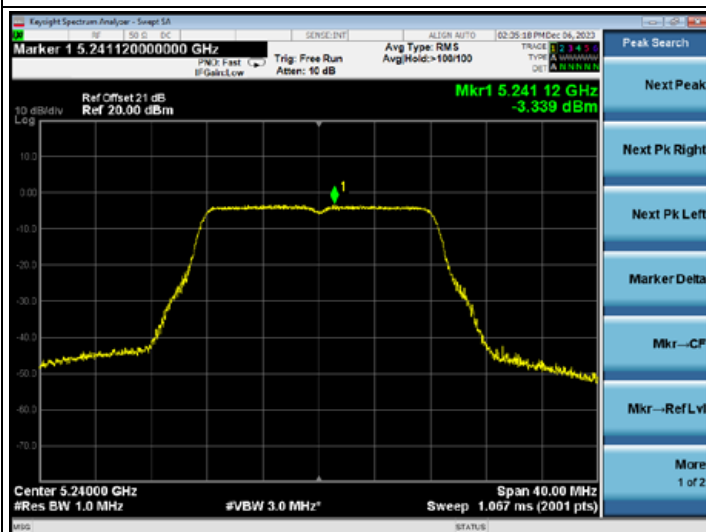
CH5180



CH5200



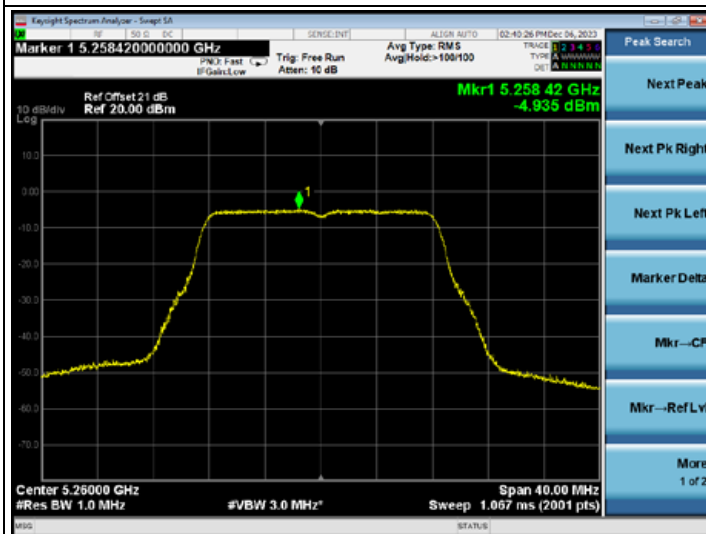
CH5240



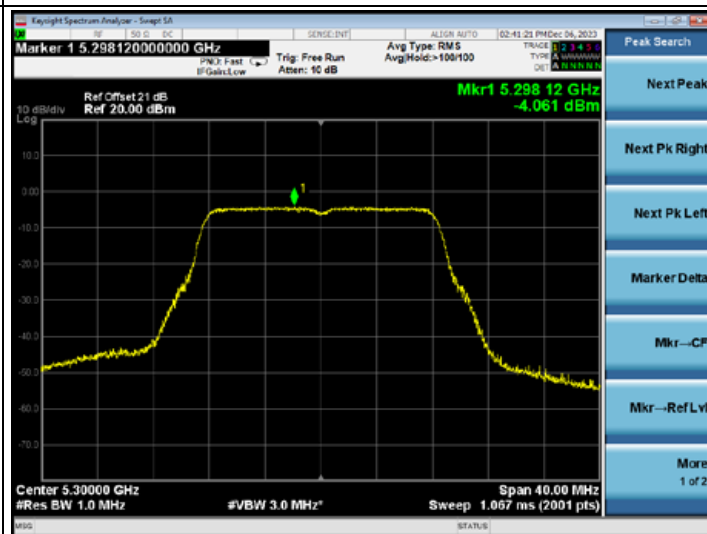
802.11a

Band-UNII-2A

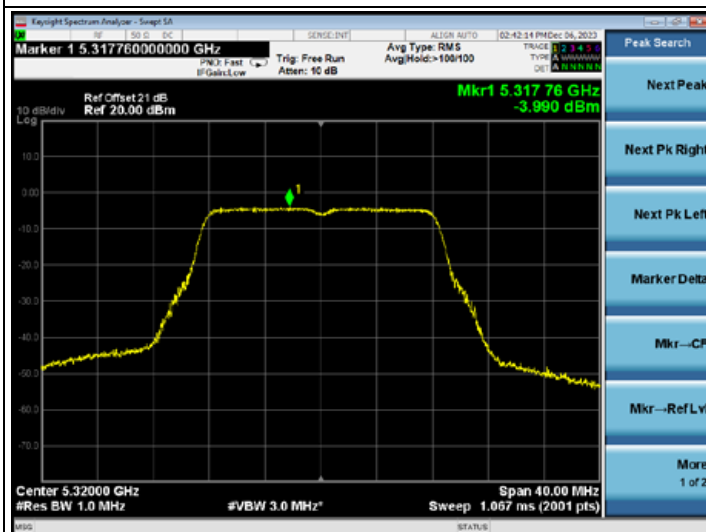
CH5260



CH5300



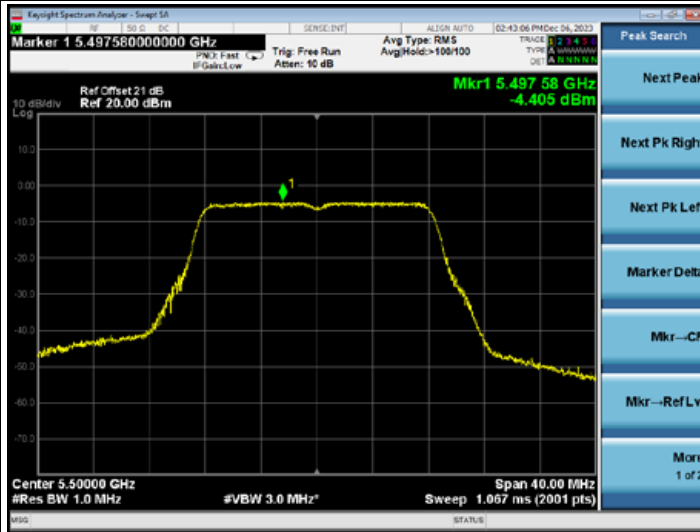
CH5320



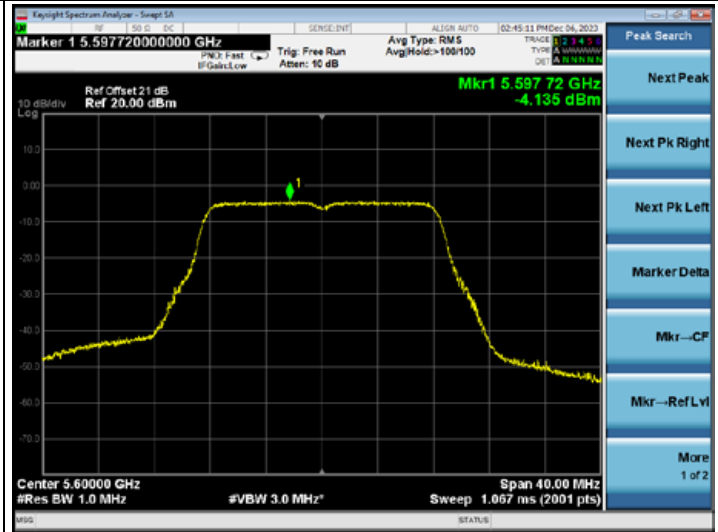
802.11a

Band-UNII-2C

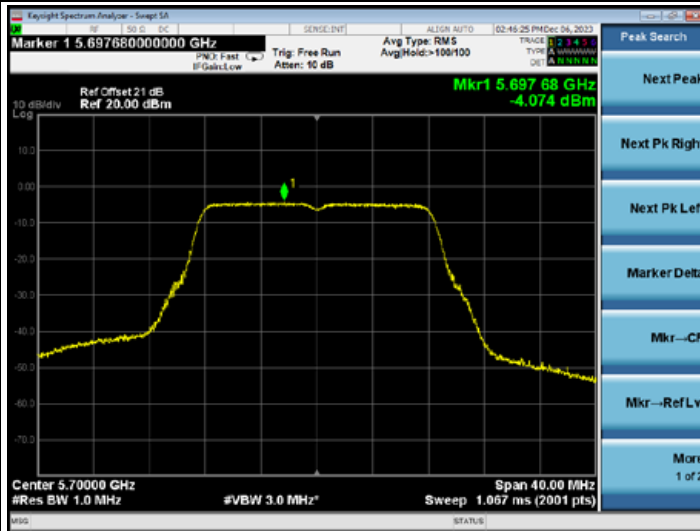
CH5500



CH5600



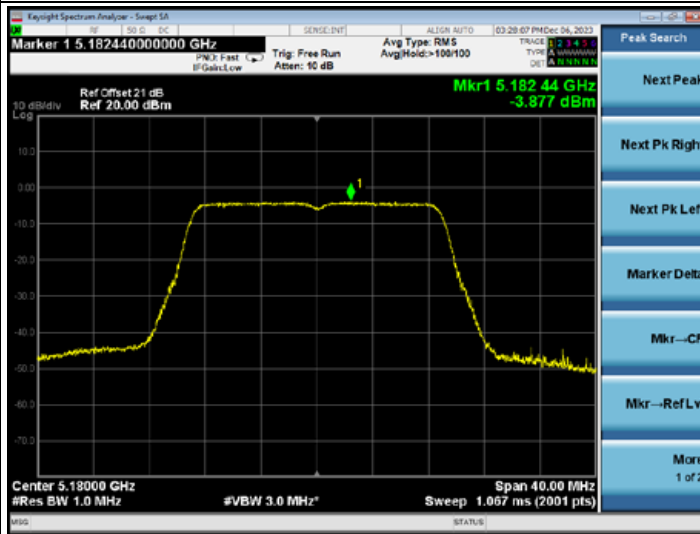
CH5700



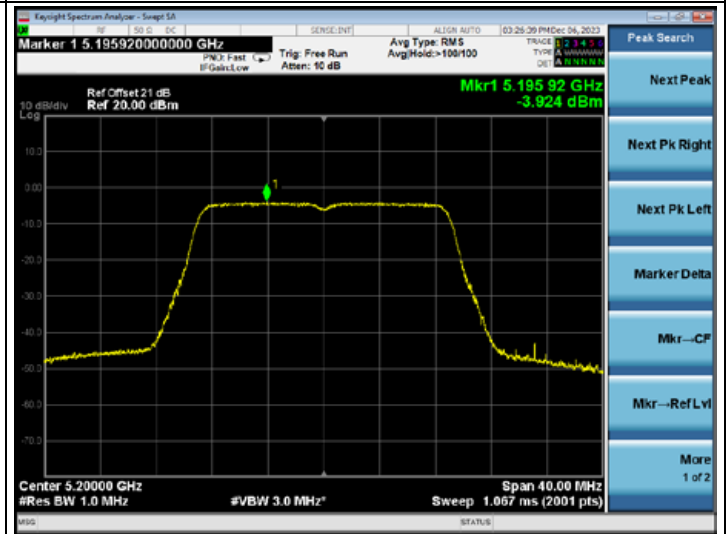
802.11n20

Band-UNII-1

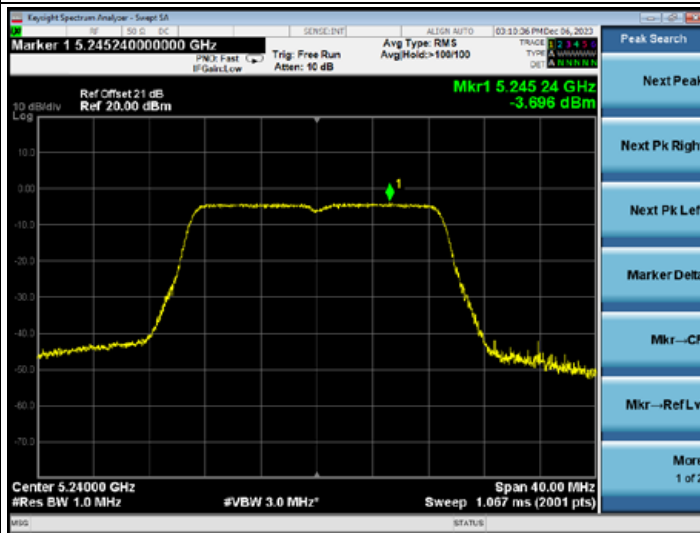
CH5180



CH5200



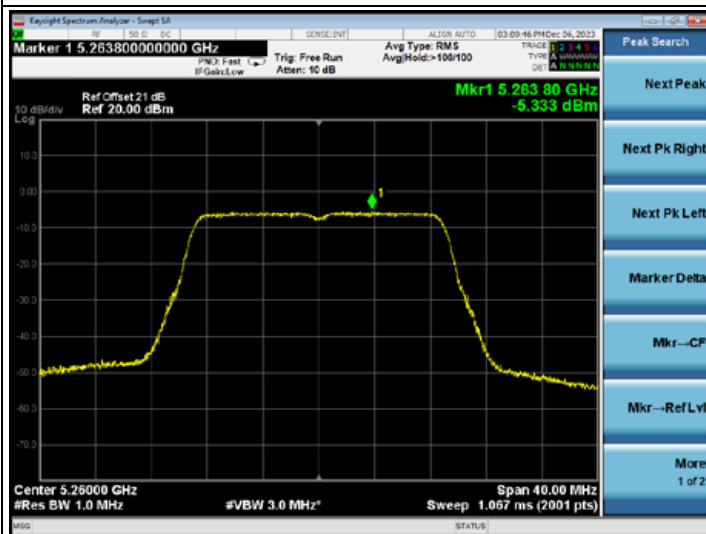
CH5240



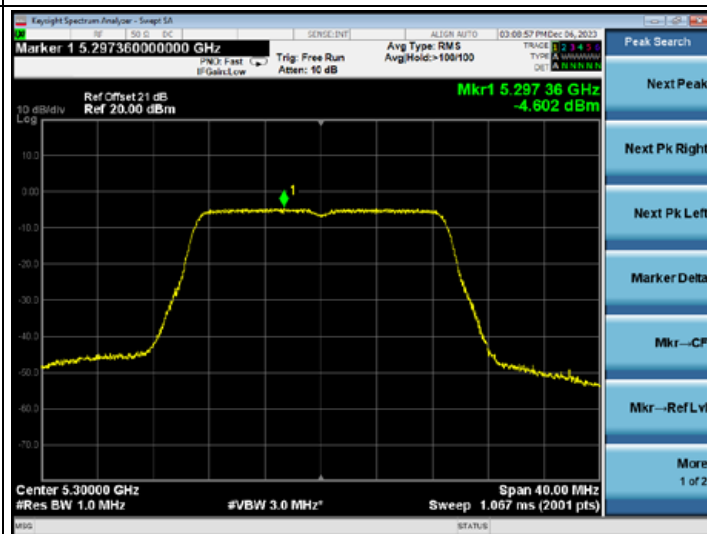
802.11n20

Band-UNII-2A

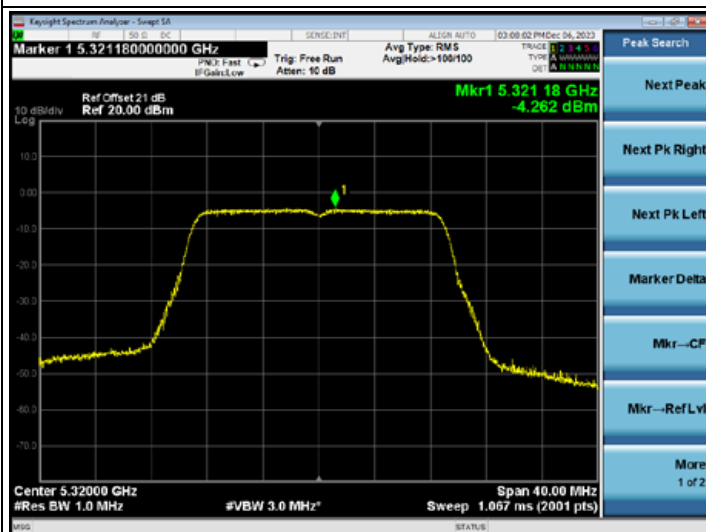
CH5260



CH5300



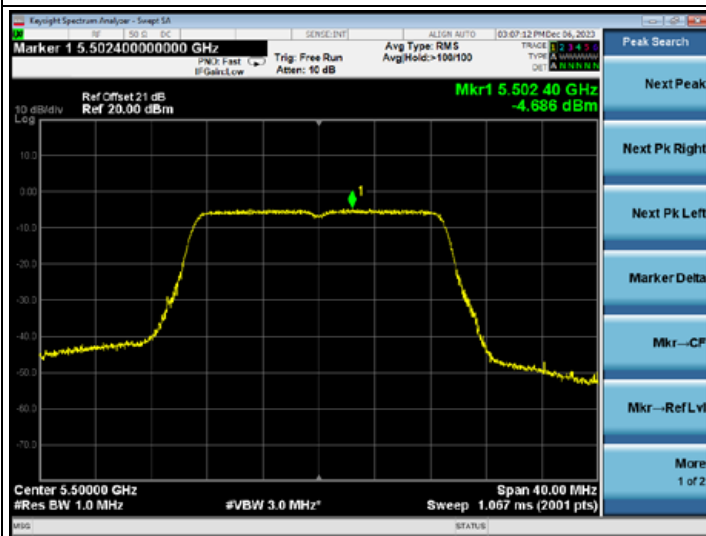
CH5320



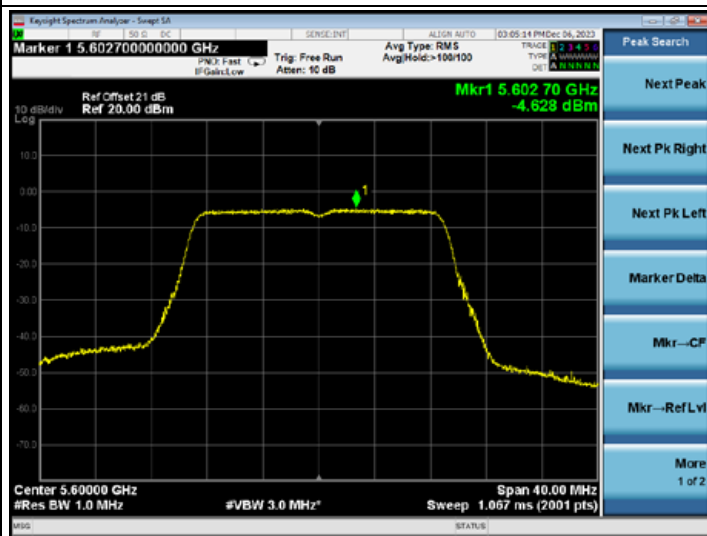
802.11n20

Band-UNII-2C

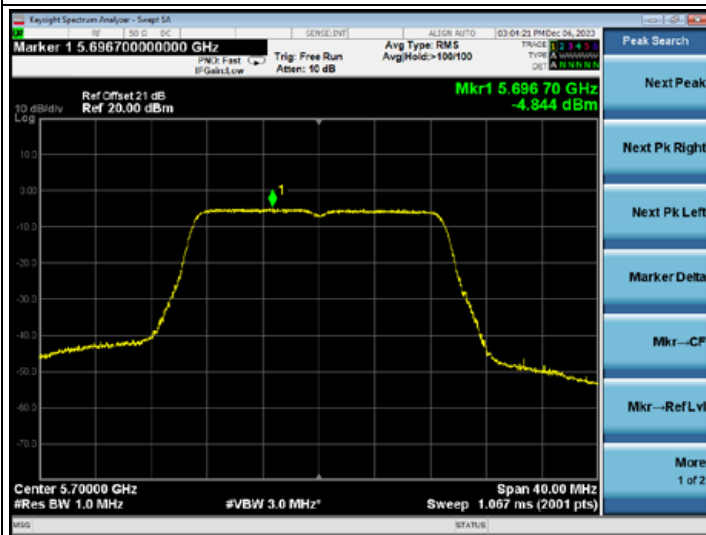
CH5500



CH5600



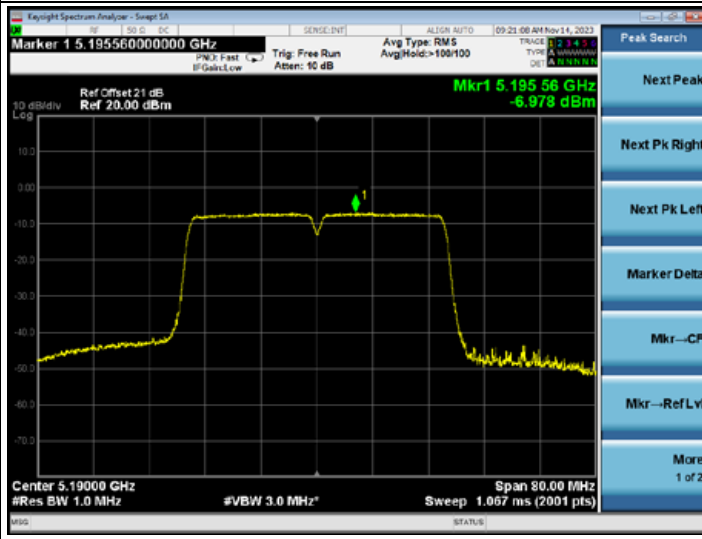
CH5700



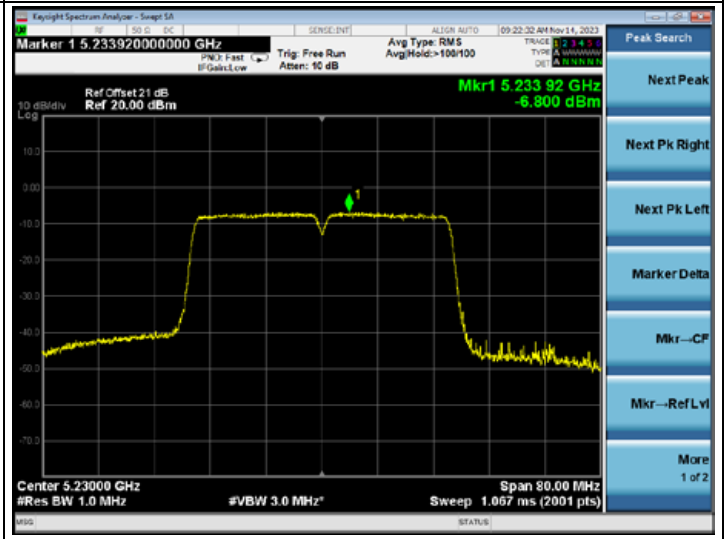
802.11n40

Band-UNII-1

CH5190



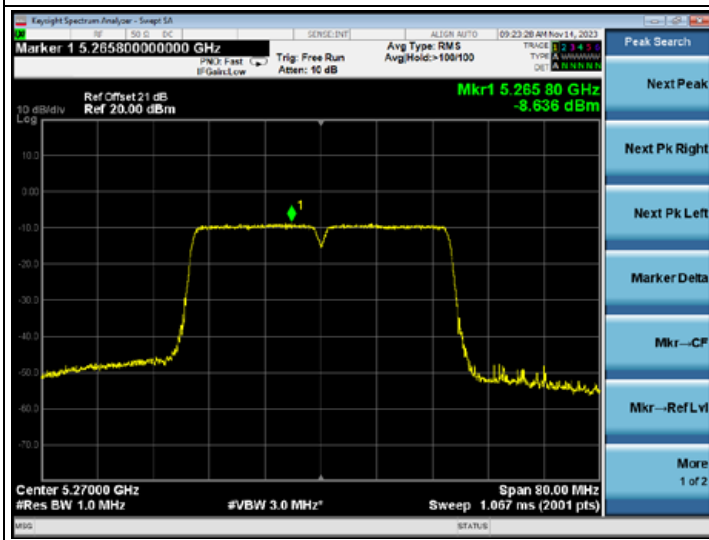
CH5230



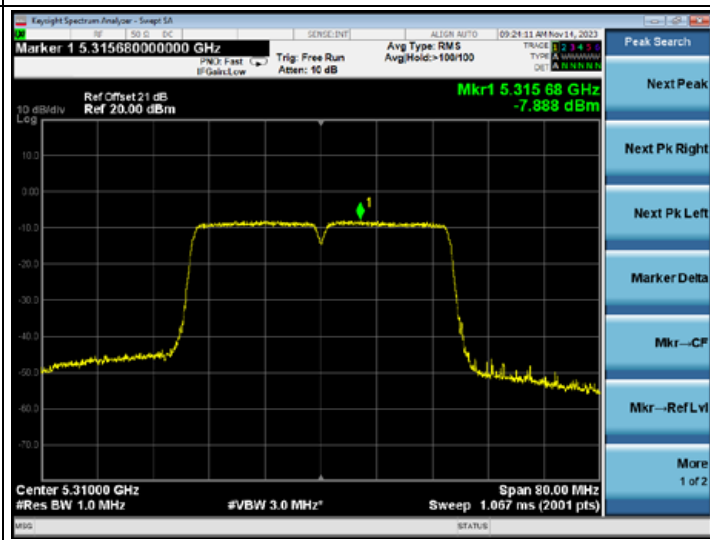
802.11n40

Band-UNII-2A

CH5270



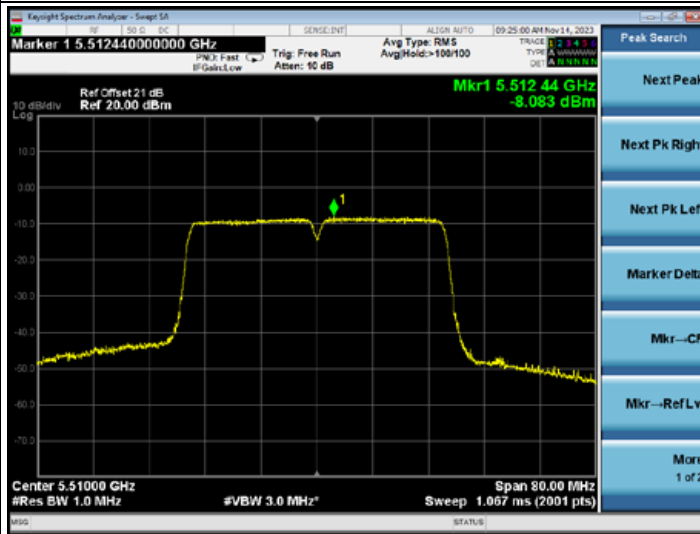
CH5310



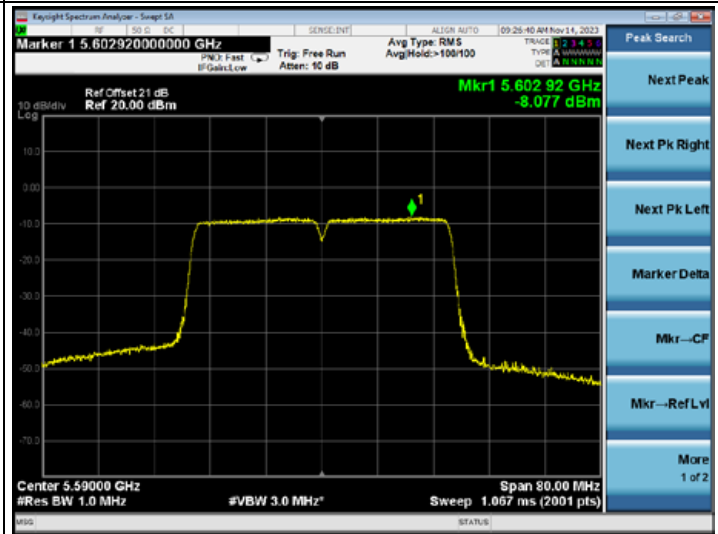
802.11n40

Band-UNII-2C

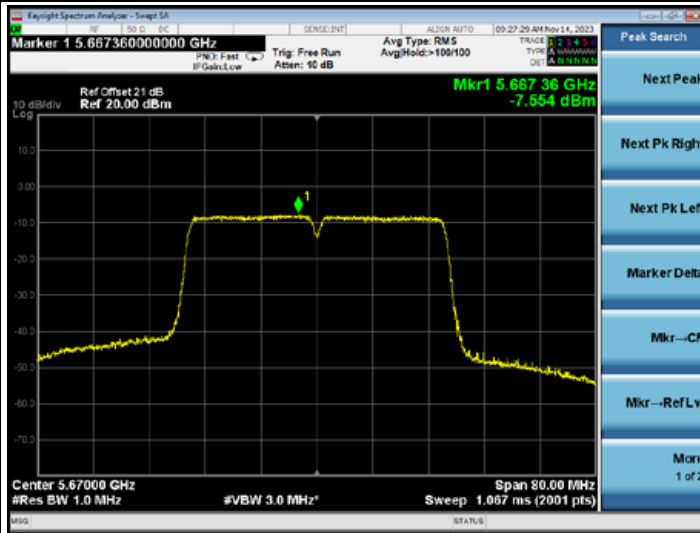
CH5510



CH5590



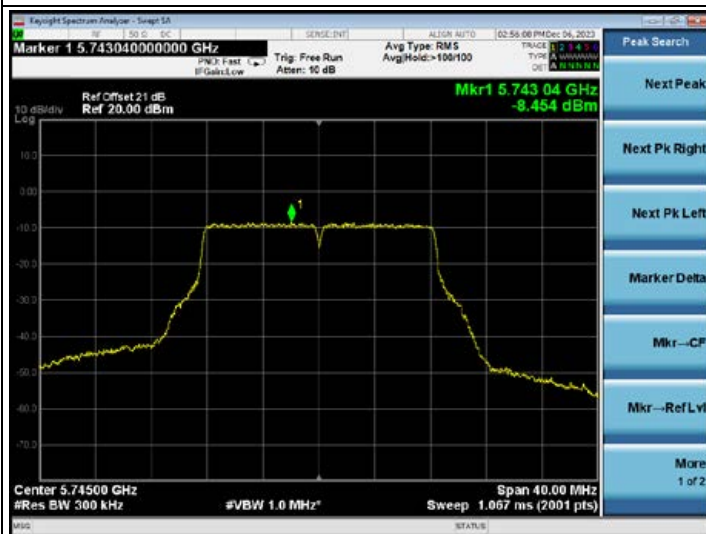
CH5670



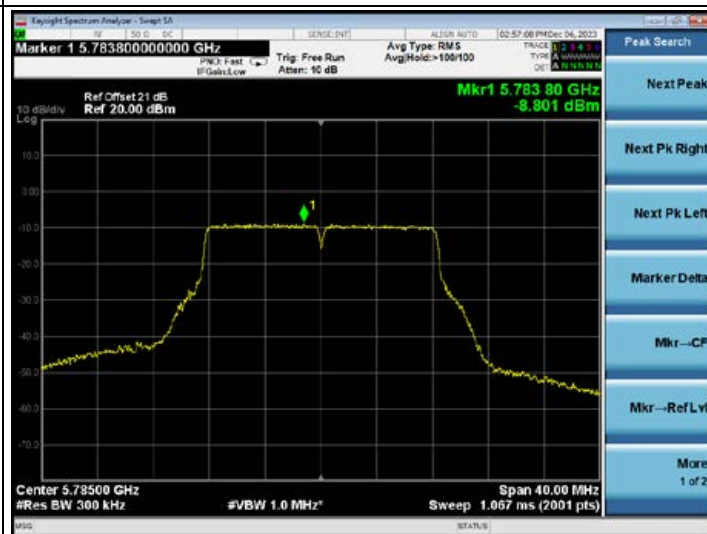
802.11a

Band-UNII-3

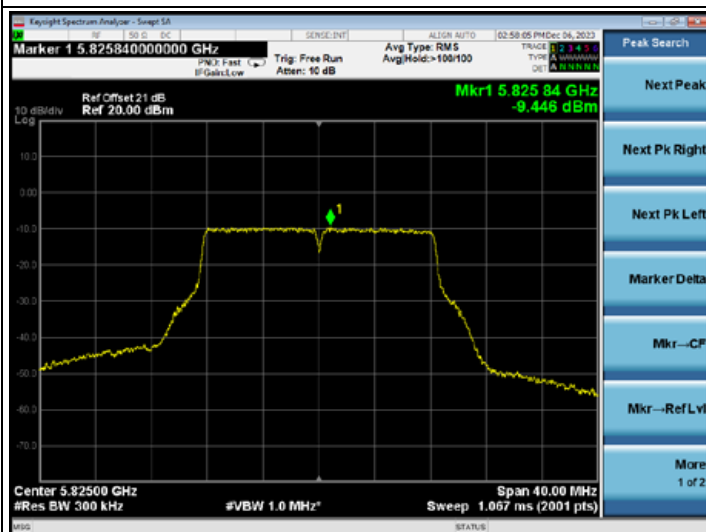
CH5745



CH5785



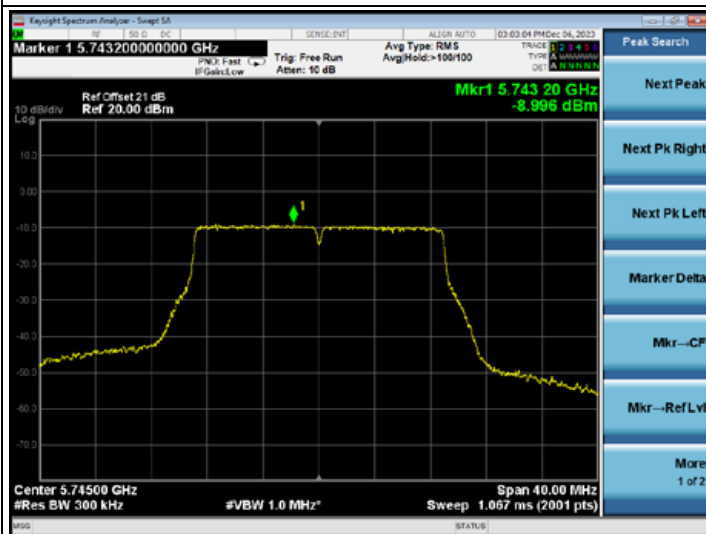
CH5825



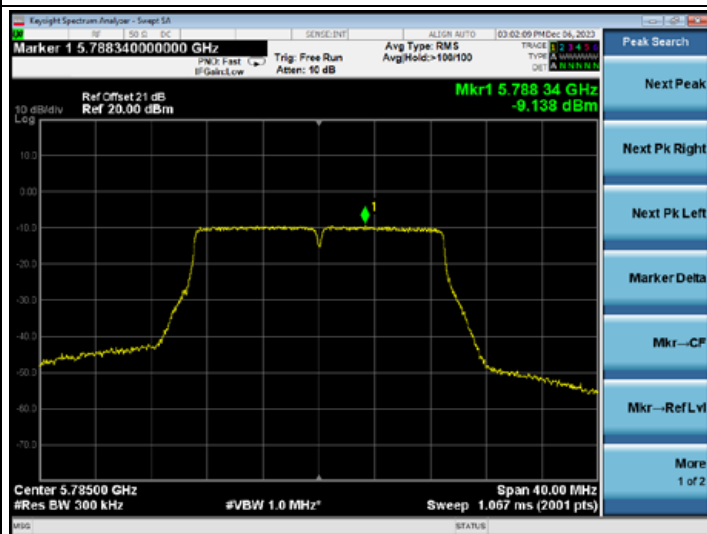
802.11n20

Band-UNII-3

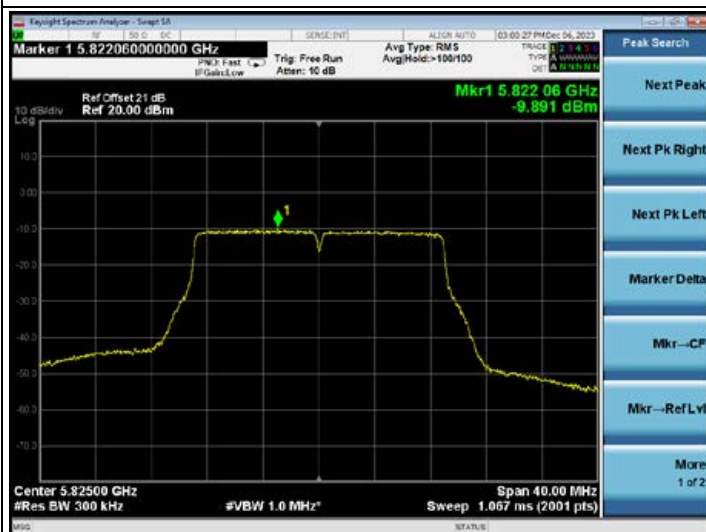
CH5745



CH5785



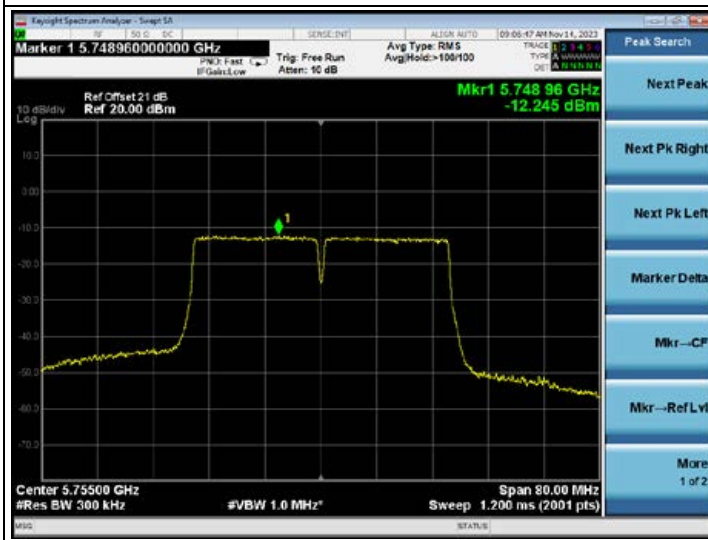
CH5825



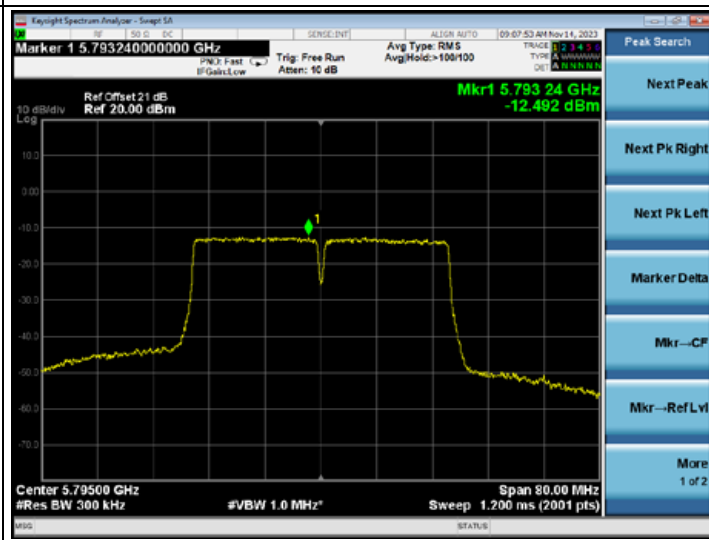
802.11n40

Band-UNII-3

CH5755



CH5795



10 FREQUENCY STABILITY MEASUREMENT

10.1 Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
4.	Spectrum Analyzer	Agilent	N9010A	MY52221182	2023.08.09	1 Year
5.	RF Cable	Mini-Circuits	FLC-3FT-SM SM+	22022838	2023.08.09	1 Year
6.	20 dB Attenuator	Mini-Circuits	BW-S20W2+	001	2023.09.21	1 Year

10.2 Block Diagram of Test Setup

The Same as section 6.2.

10.3 Specification Limits (§15.407(g))

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user’s manual or ± 20 ppm.

10.4 Operating Condition of EUT

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

10.5 Test Procedure

The transmitter output was connected to the spectrum analyzer.

- (i) Set RBW = 10 kHz
- (ii) Set VBW = 10 kHz.
- (iii) Detector = Positive Peak.
- (iv) Trace = Max Hold.
- (v) Use the peak search function of the spectrum analyzer to mark the max peak value. The frequency as f_c .
- (vi) The frequency error is $(f_c-f)/f \times 10^6$ ppm and must less than ± 20 ppm.
- (vii) All condition of normal operation as specified in the user’s manual should be considered.

10.6 Test Results

PASSED.

All the test results are attached in next pages.

(Test Date: 2023.12.06 Temperature: 23°C Humidity: 51 %)

Test Voltage (V)	Temperature (°C)	Channel	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (ppm)	Limit (ppm)
AC 230V	25	36	5180	5180.013	2.4	±20
		40	5200	5200.012	2.4	±20
		44	5220	5220.012	2.4	±20
		48	5240	5240.012	2.4	±20
		52	5260	5260.012	2.4	±20
		56	5280	5280.013	2.4	±20
		60	5300	5300.013	2.4	±20
		64	5320	5320.013	2.4	±20
		100	5500	5500.013	2.4	±20
		104	5520	5520.013	2.4	±20
		108	5540	5540.013	2.4	±20
		112	5560	5560.013	2.4	±20
		116	5580	5580.013	2.4	±20
		120	5600	5600.014	2.4	±20
		124	5620	5620.014	2.4	±20
		128	5640	5640.014	2.4	±20
		132	5660	5660.014	2.4	±20
		136	5680	5680.014	2.4	±20
		140	5700	5700.014	2.4	±20
		149	5745	5745.014	2.4	±20
153	5765	5765.014	2.4	±20		
157	5785	5785.014	2.4	±20		
161	5805	5805.014	2.4	±20		
165	5825	5825.014	2.4	±20		

Test Voltage (V)	Temperature (°C)	Channel	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (ppm)	Limit (ppm)
AC 197V	25	36	5180	5180.014	2.7	±20
		40	5200	5200.014	2.7	±20
		44	5220	5220.014	2.7	±20
		48	5240	5240.014	2.7	±20
		52	5260	5260.015	2.9	±20
		56	5280	5280.015	2.8	±20
		60	5300	5300.015	2.8	±20
		64	5320	5320.015	2.8	±20
		100	5500	5500.015	2.7	±20
		104	5520	5520.015	2.7	±20
		108	5540	5540.015	2.7	±20
		112	5560	5560.016	2.9	±20
		116	5580	5580.016	2.9	±20
		120	5600	5600.016	2.9	±20
		124	5620	5620.016	2.8	±20
		128	5640	5640.016	2.8	±20
		132	5660	5660.016	2.8	±20
		136	5680	5680.016	2.8	±20
		140	5700	5700.016	2.8	±20
		149	5745	5745.016	2.8	±20
153	5765	5765.016	2.8	±20		
157	5785	5785.016	2.8	±20		
161	5805	5805.016	2.8	±20		
165	5825	5825.016	2.7	±20		

Test Voltage (V)	Temperature (°C)	Channel	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (ppm)	Limit (ppm)
AC 253V	25	36	5180	5180.011	2.1	±20
		40	5200	5200.011	2.1	±20
		44	5220	5220.011	2.1	±20
		48	5240	5240.011	2.1	±20
		52	5260	5260.011	2.1	±20
		56	5280	5280.011	2.1	±20
		60	5300	5300.011	2.1	±20
		64	5320	5320.012	2.3	±20
		100	5500	5500.012	2.2	±20
		104	5520	5520.012	2.2	±20
		108	5540	5540.012	2.2	±20
		112	5560	5560.012	2.2	±20
		116	5580	5580.012	2.2	±20
		120	5600	5600.012	2.1	±20
		124	5620	5620.012	2.1	±20
		128	5640	5640.012	2.1	±20
		132	5660	5660.012	2.1	±20
		136	5680	5680.013	2.3	±20
		140	5700	5700.013	2.3	±20
		149	5745	5745.013	2.3	±20
153	5765	5765.013	2.3	±20		
157	5785	5785.013	2.2	±20		
161	5805	5805.013	2.2	±20		
165	5825	5825.013	2.2	±20		

Test Voltage (V)	Temperature (°C)	Channel	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (ppm)	Limit (ppm)
AC 230V	0	36	5180	5180.011	2.1	±20
		40	5200	5200.011	2.1	±20
		44	5220	5220.012	2.3	±20
		48	5240	5240.012	2.3	±20
		52	5260	5260.012	2.3	±20
		56	5280	5280.012	2.3	±20
		60	5300	5300.012	2.3	±20
		64	5320	5320.012	2.3	±20
		100	5500	5500.013	2.4	±20
		104	5520	5520.013	2.4	±20
		108	5540	5540.013	2.3	±20
		112	5560	5560.013	2.3	±20
		116	5580	5580.013	2.3	±20
		120	5600	5600.013	2.3	±20
		124	5620	5620.013	2.3	±20
		128	5640	5640.013	2.3	±20
		132	5660	5660.013	2.3	±20
		136	5680	5680.013	2.3	±20
		140	5700	5700.013	2.3	±20
		149	5745	5745.014	2.4	±20
153	5765	5765.014	2.4	±20		
157	5785	5785.014	2.4	±20		
161	5805	5805.014	2.4	±20		
165	5825	5825.014	2.4	±20		

Test Voltage (V)	Temperature (°C)	Channel	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (ppm)	Limit (ppm)
AC 230V	50	36	5180	5180.013	2.5	±20
		40	5200	5200.013	2.5	±20
		44	5220	5220.013	2.5	±20
		48	5240	5240.013	2.5	±20
		52	5260	5260.014	2.7	±20
		56	5280	5280.013	2.5	±20
		60	5300	5300.013	2.5	±20
		64	5320	5320.014	2.6	±20
		100	5500	5500.014	2.5	±20
		104	5520	5520.014	2.5	±20
		108	5540	5540.014	2.5	±20
		112	5560	5560.014	2.5	±20
		116	5580	5580.014	2.5	±20
		120	5600	5600.015	2.7	±20
		124	5620	5620.015	2.7	±20
		128	5640	5640.015	2.7	±20
		132	5660	5660.015	2.7	±20
		136	5680	5680.015	2.6	±20
		140	5700	5700.015	2.6	±20
		149	5745	5745.015	2.6	±20
153	5765	5765.015	2.6	±20		
157	5785	5785.015	2.6	±20		
161	5805	5805.015	2.6	±20		
165	5825	5825.016	2.7	±20		

11 ANTENNA REQUIREMENT

11.1 Specification Limits (§15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

11.2 Result

According to KDB 353028 D1, the following describes the three ways that can be used to demonstrate compliance to Section 15.203:

- a) Antenna permanently attached.
- b) Unique (non-standard) antenna connector.
- c) Professional installation.

For this product, the antenna is:

- Antenna permanently attached
- Unique (non-standard) antenna connector
- Professional installation
- not meet any of ways list above

that

- compliant
- not compliant

with the requirement of Section 15.203.

12 DEVIATION TO TEST SPECIFICATIONS

None.

13 MEASUREMENT UNCERTAINTY LIST

The measurement uncertainty was estimated for test on the EUT according to CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage of K=2.
The uncertainties value is not used in determining the PASS/FAIL results.

Test Items/Facilities	Frequency/Equipment/Unit	Uncertainty
Conducted Emission No.1 Shielded Room	9kHz~150kHz	±3.1 dB
	150kHz~30MHz	±2.6 dB
Conducted Emission No.3 Shielded Room	9kHz~150kHz	±3.1 dB
	150kHz~30MHz	±2.6 dB
Radiated Emission	30MHz~200MHz, Horizontal	±3.8 dB
	30MHz~200MHz, Vertical	±4.1 dB
	200MHz~1000MHz, Horizontal	±3.6 dB
	200MHz~1000MHz, Vertical	±5.1 dB
	1GHz~6GHz	±5.3 dB
	6GHz~18GHz	±5.3 dB
	18GHz~40GHz	±3.5 dB
Output Power Test	50MHz~18GHz	0.77 dB
Power Density Test	9kHz~6GHz	1.08 dB
RF Frequency Test	9kHz~40GHz	6×10^{-4}
Bandwidth Test	9kHz~6GHz	1.5×10^{-3}
RF Radiated Power Test	30MHz~1000MHz	3.06 dB
Conducted Output Power Test	50MHz~18GHz	0.83 dB
AC Voltage(<10kHz) Test	120V~230V	0.04 %
DC Power Test	0V~30V	0.4 %
Temperature	-40°C~+100°C	0.52 °C
Humidity	30%~95%	2.6 %