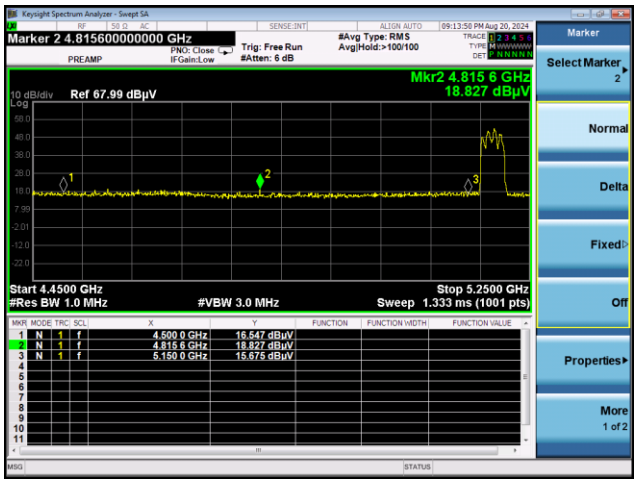
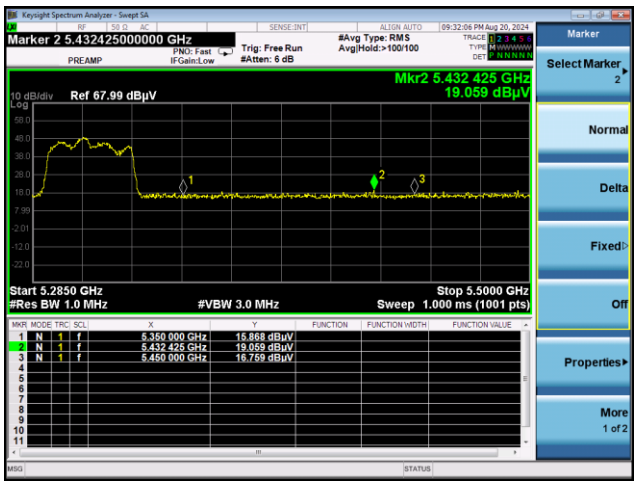
11n_HT40

Low channel Band edge (Peak) - Band 1



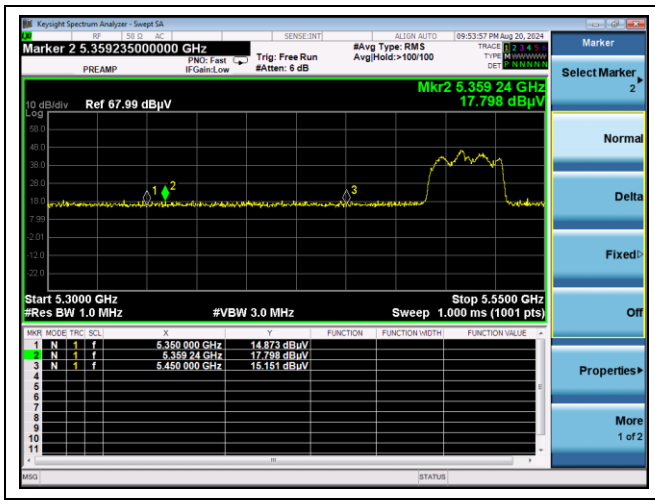
Low channel Band edge (Average) - Band 1

High channel Band edge (Peak) - Band 2A

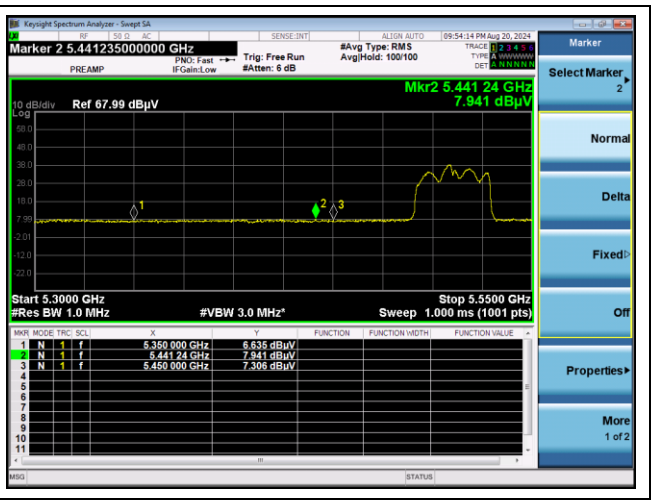


High channel Band edge (Average) - Band 2A

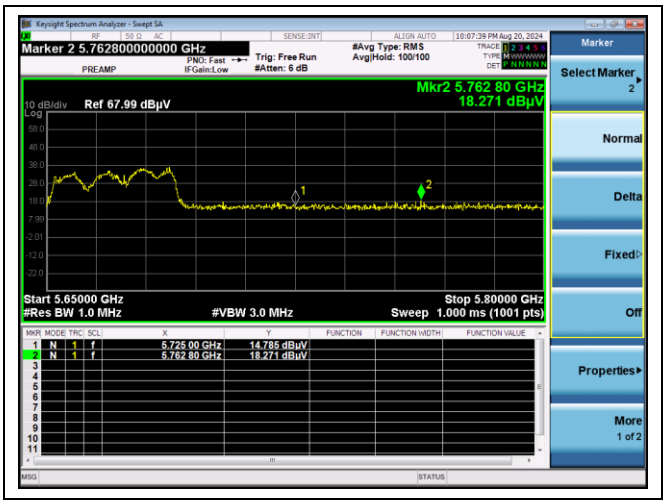
Low channel Band edge (Peak) - Band 2C



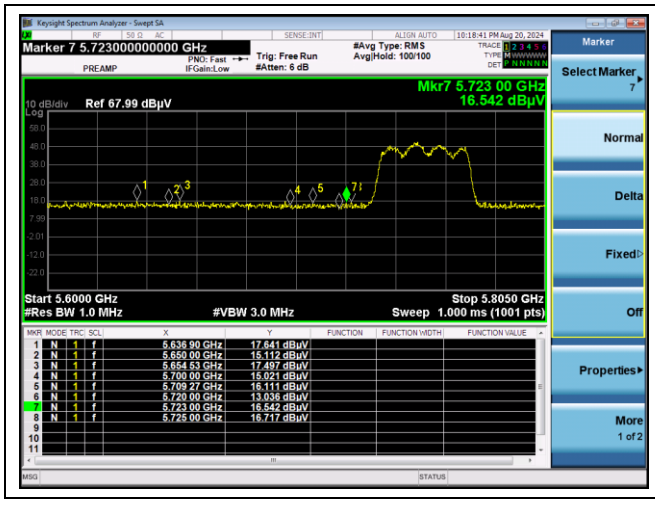
Low channel Band edge (Average) - Band 2C



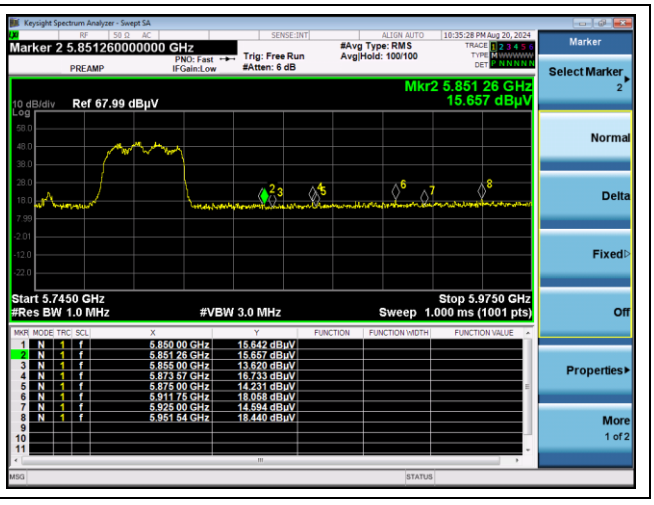
High channel Band edge (Peak) - Band 2C



Low channel Band edge (Peak) - Band 3

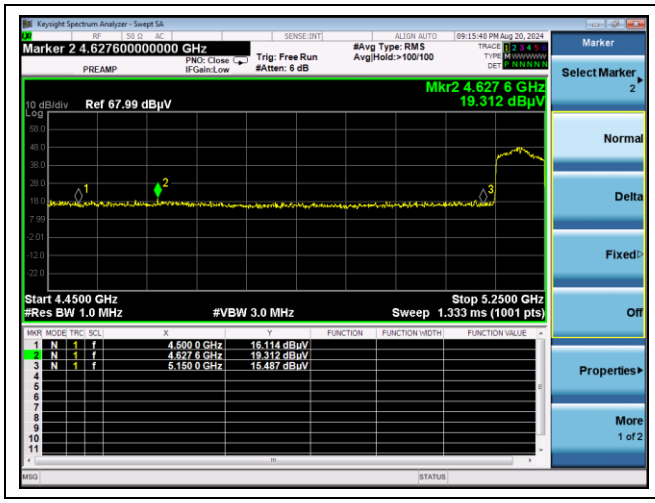


High channel Band edge (Peak) - Band 3

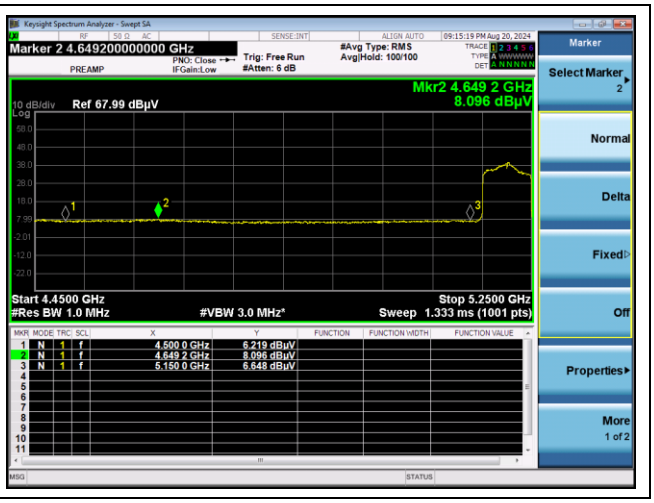


11ac_VHT80

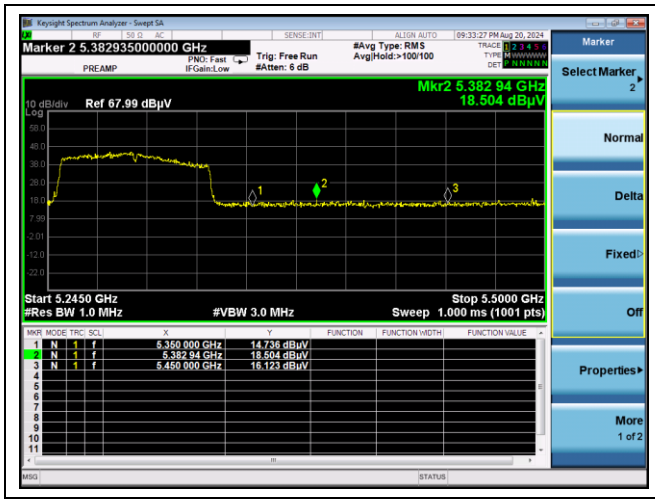
Middle channel Band edge (Peak) - Band 1



Middle channel Band edge (Average) - Band 1

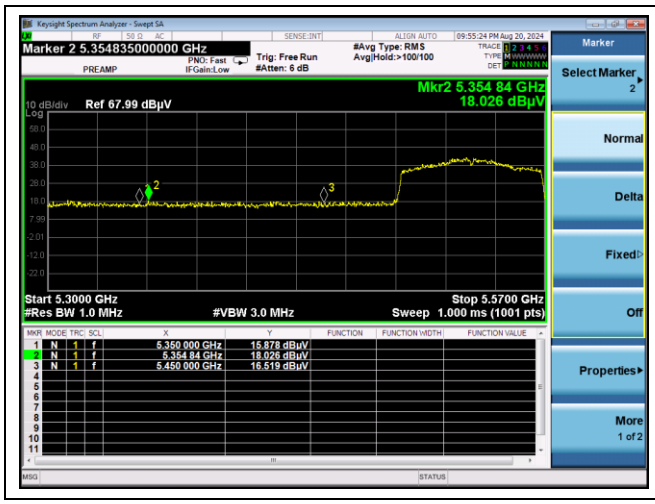


Middle channel Band edge (Peak) - Band 2A

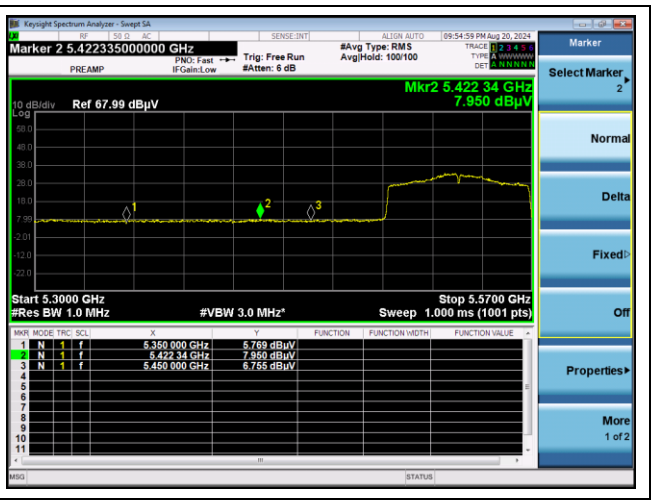


Middle channel Band edge (Average) - Band 2A

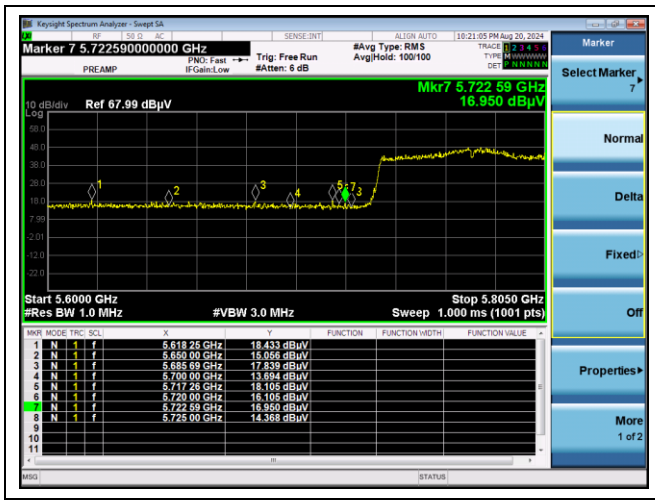
Low channel Band edge (Peak) - Band 2C



Low channel Band edge (Average) - Band 2C



Middle channel Band edge (Peak) - Band 3

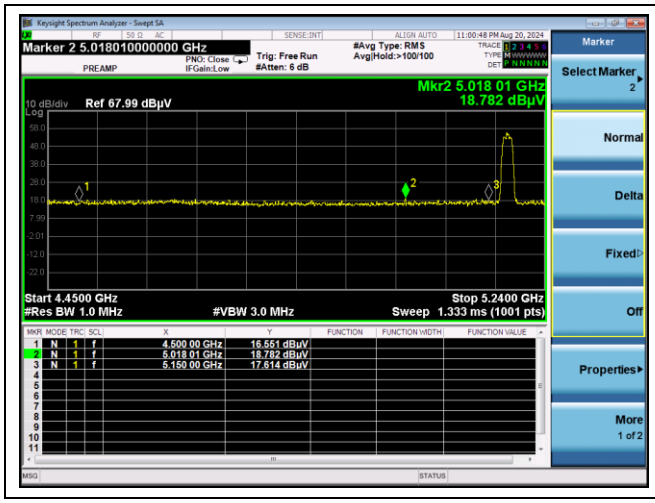


Middle channel Band edge (Peak) - Band 3

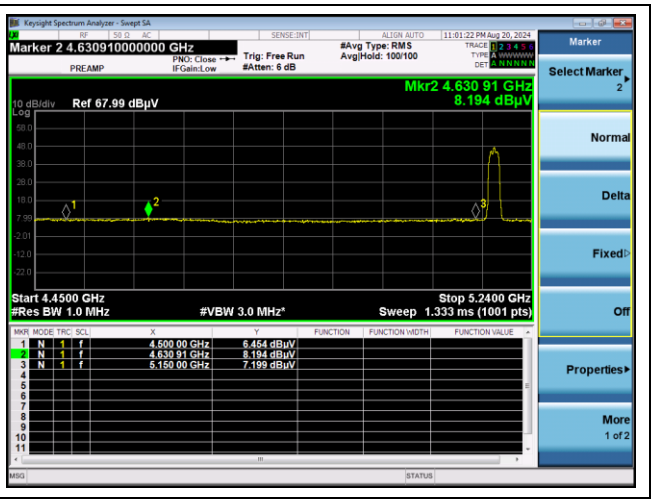
Ant. 1 + Ant. 4

11a

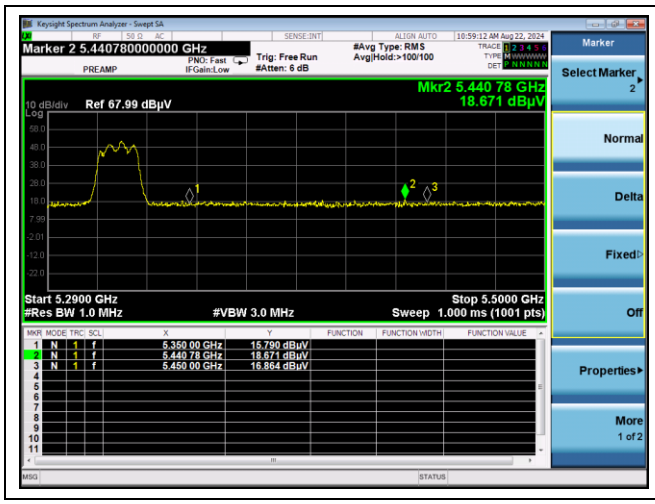
Low channel Band edge (Peak) - Band 1



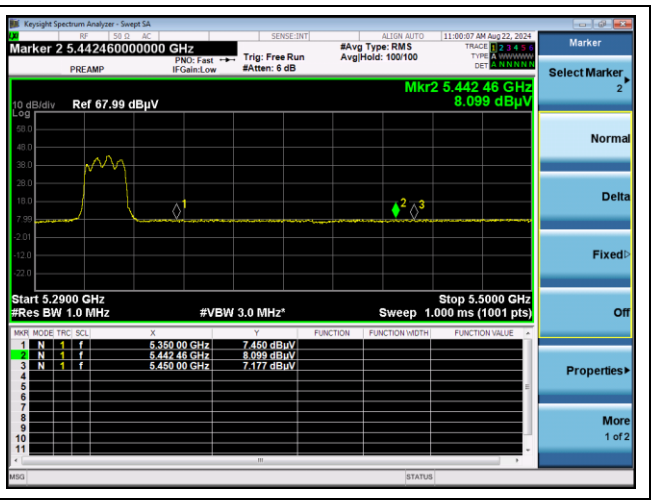
Low channel Band edge (Average) - Band 1



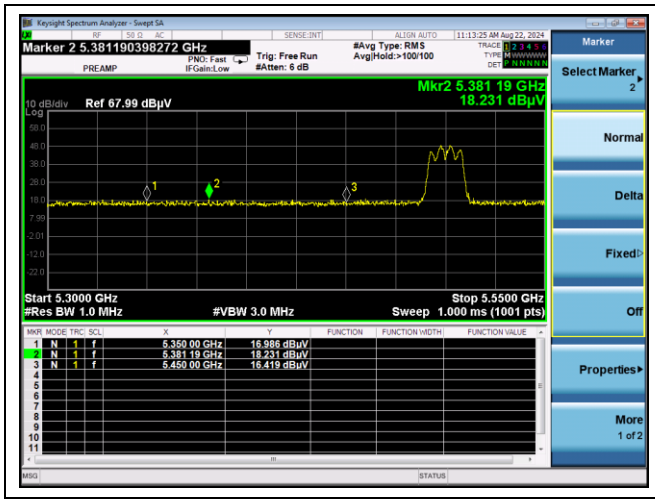
High channel Band edge (Peak) - Band 2A



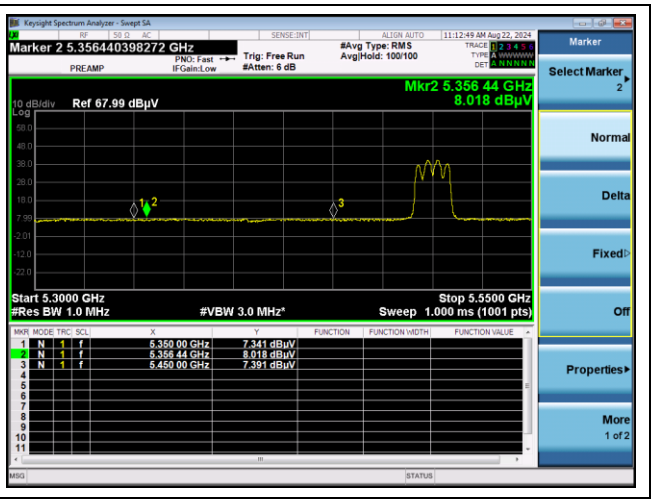
High channel Band edge (Average) - Band 2A



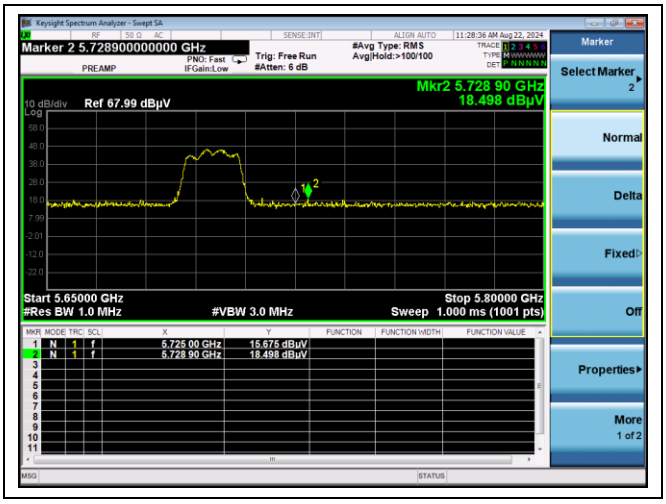
Low channel Band edge (Peak) - Band 2C



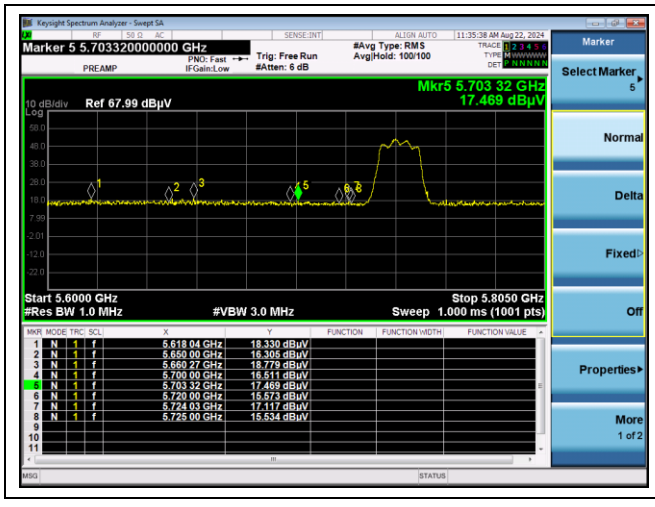
Low channel Band edge (Average) - Band 2C



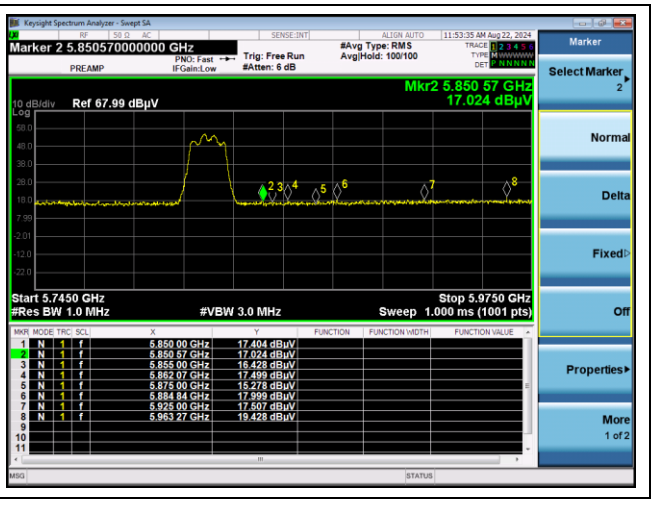
High channel Band edge (Peak) - Band 2C



Low channel Band edge (Peak) - Band 3

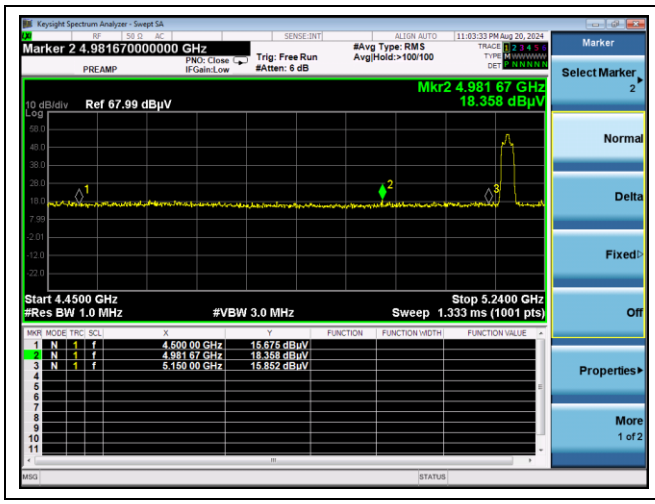


High channel Band edge (Peak) - Band 3

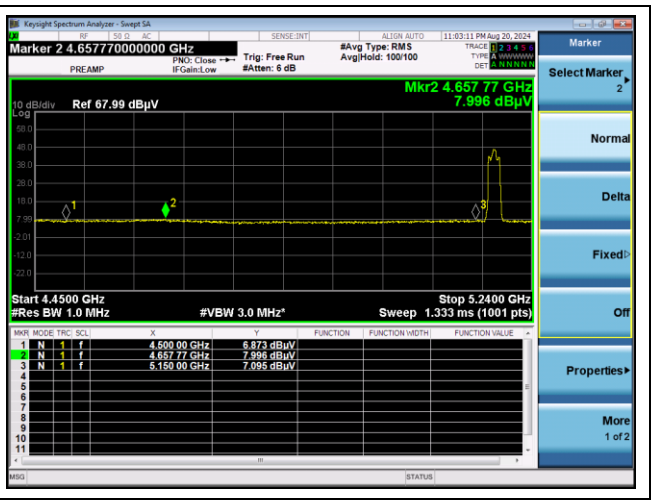


11n_HT20

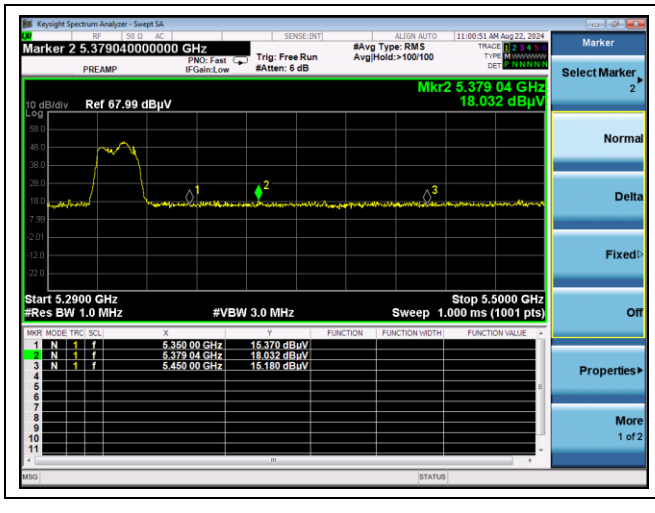
Low channel Band edge (Peak) - Band 1



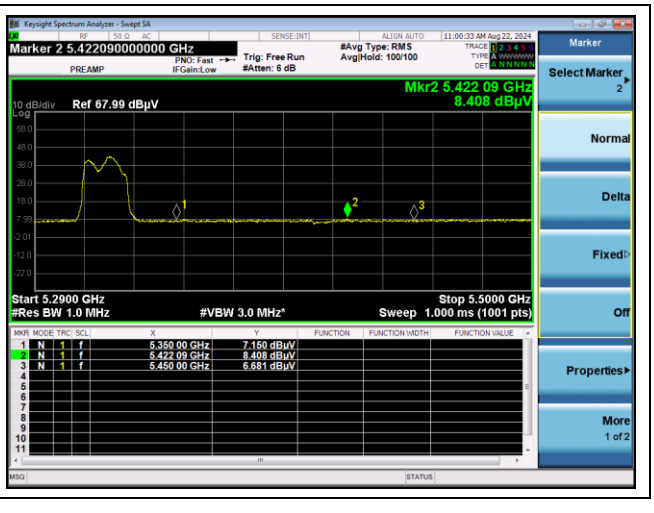
Low channel Band edge (Average) - Band 1



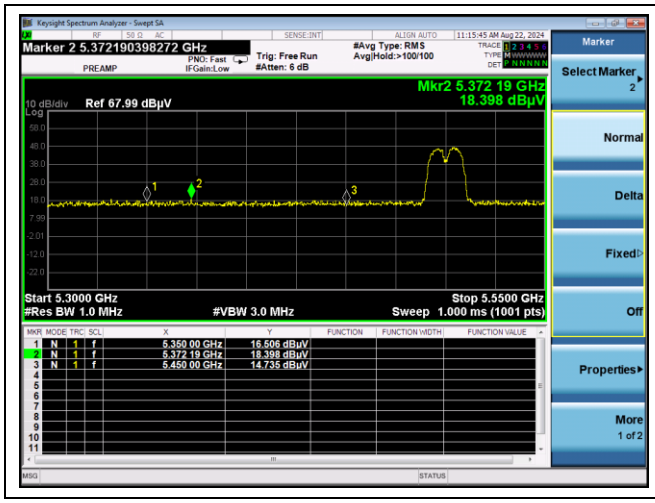
High channel Band edge (Peak) - Band 2A



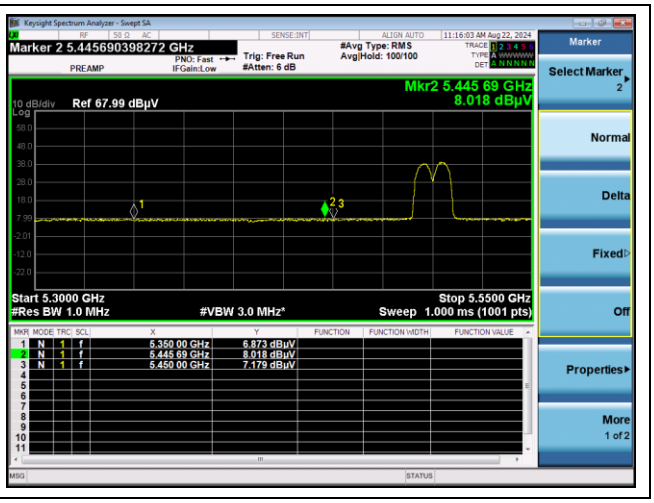
High channel Band edge (Average) - Band 2A



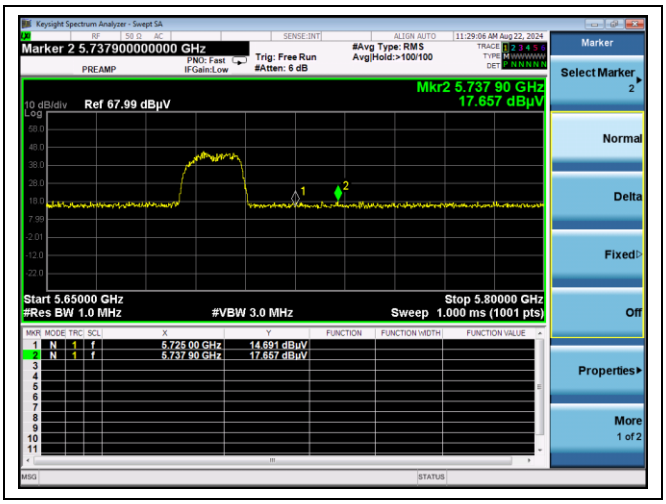
Low channel Band edge (Peak) - Band 2C



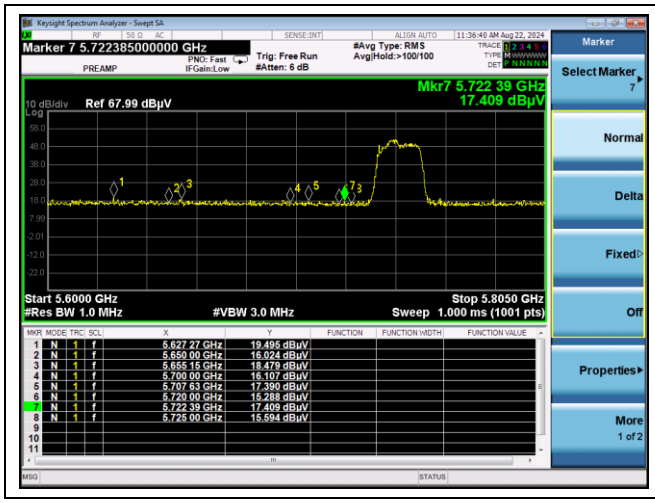
Low channel Band edge (Average) - Band 2C



High channel Band edge (Peak) - Band 2C



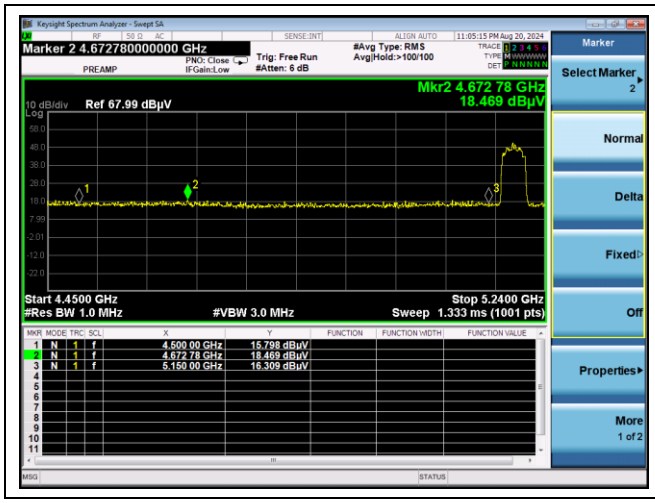
Low channel Band edge (Peak) - Band 3



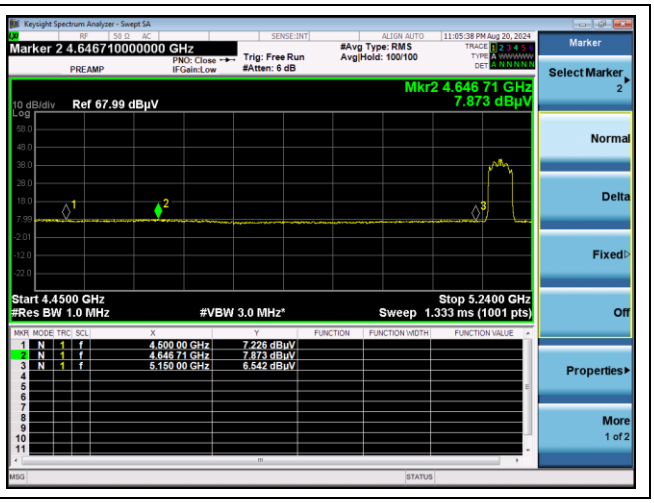
High channel Band edge (Peak) - Band 3

11n_HT40

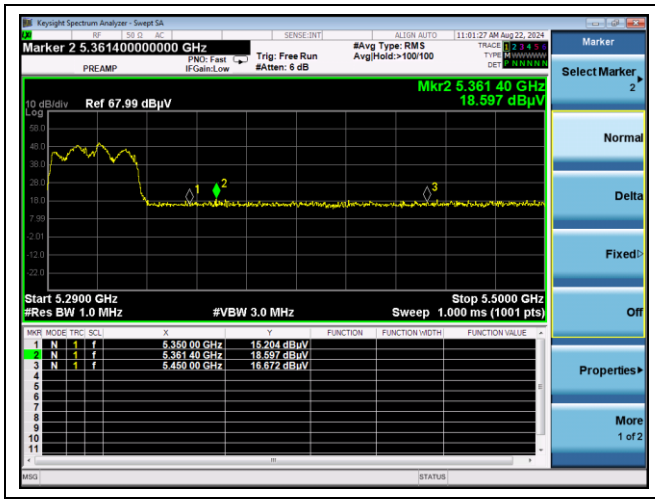
Low channel Band edge (Peak) - Band 1



Low channel Band edge (Average) - Band 1

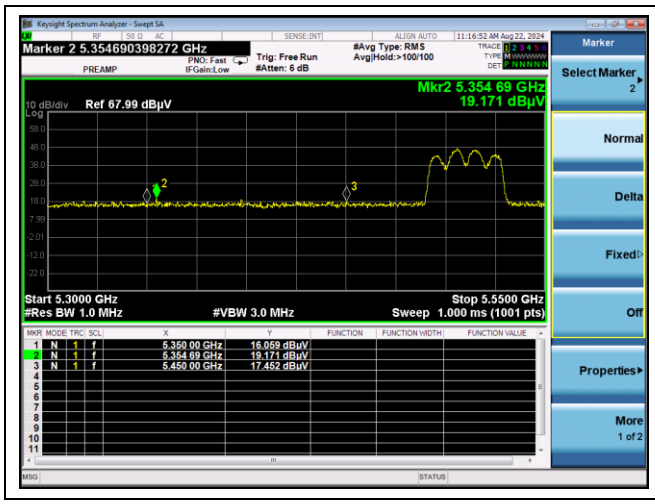


High channel Band edge (Peak) - Band 2A

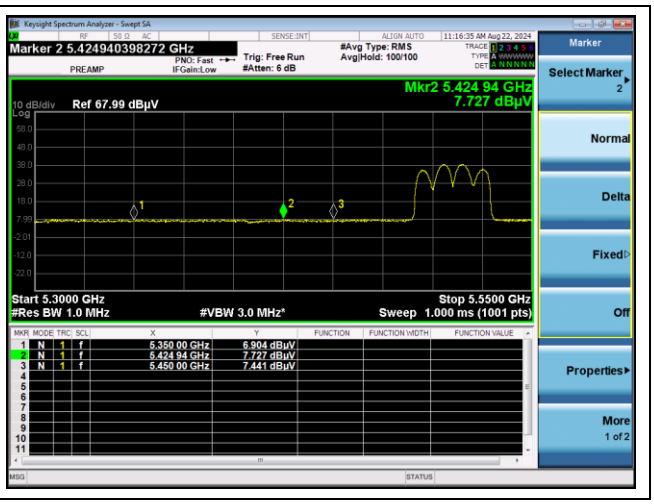


High channel Band edge (Average) - Band 2A

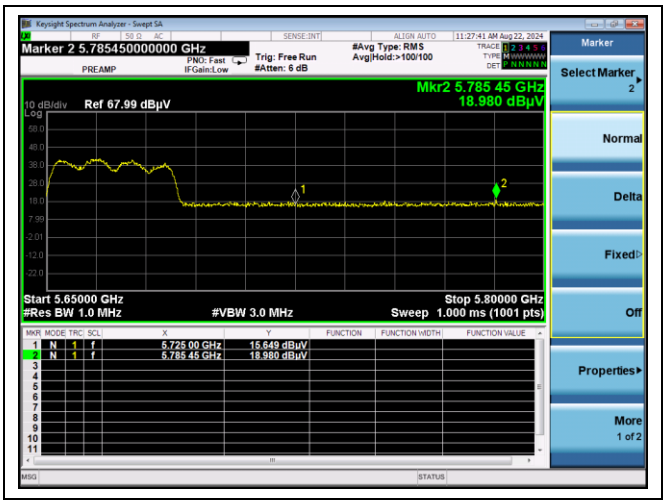
Low channel Band edge (Peak) - Band 2C



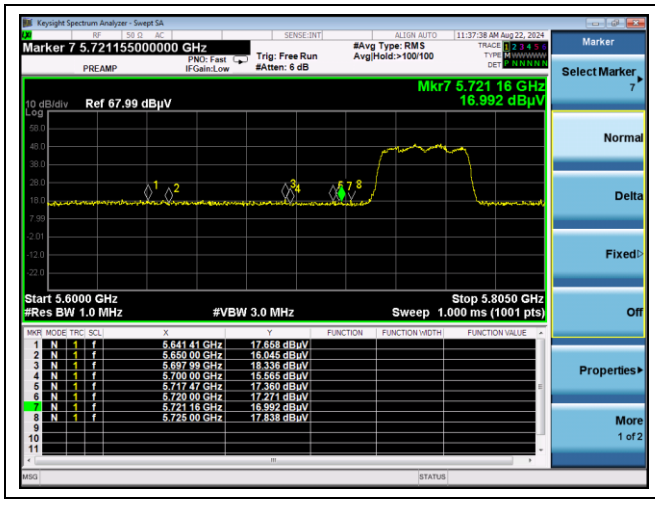
Low channel Band edge (Average) - Band 2C



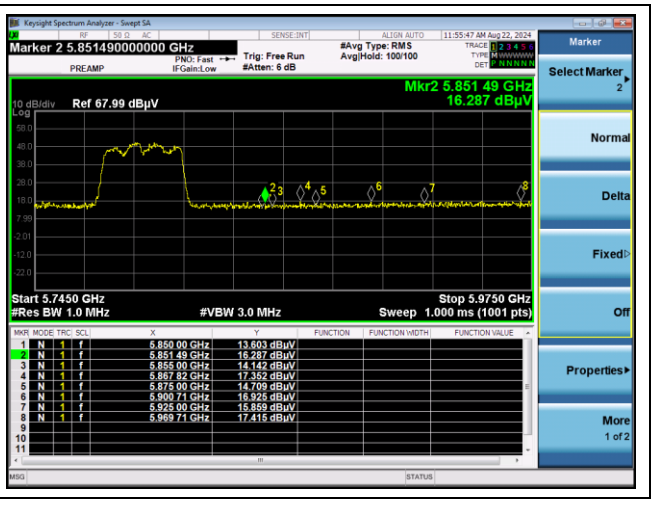
High channel Band edge (Peak) - Band 2C



Low channel Band edge (Peak) - Band 3

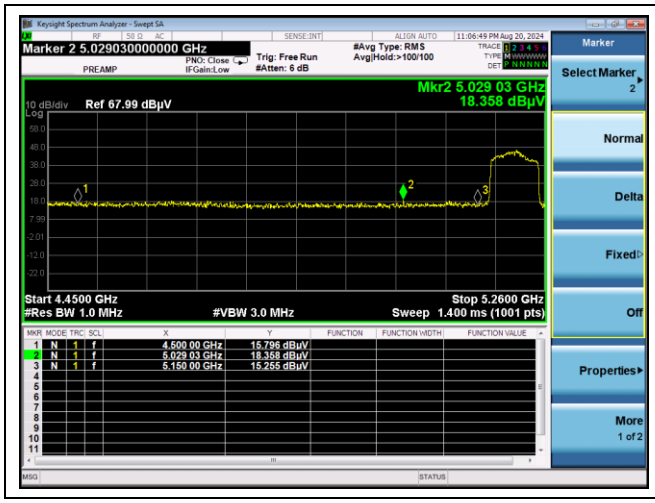


High channel Band edge (Peak) - Band 3

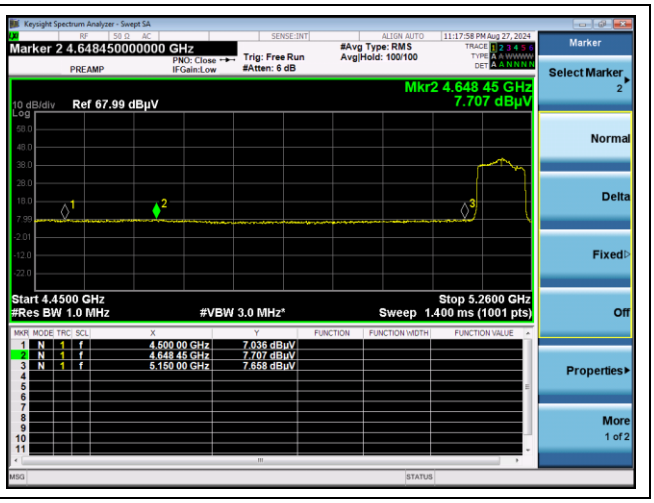


11ac_VHT80

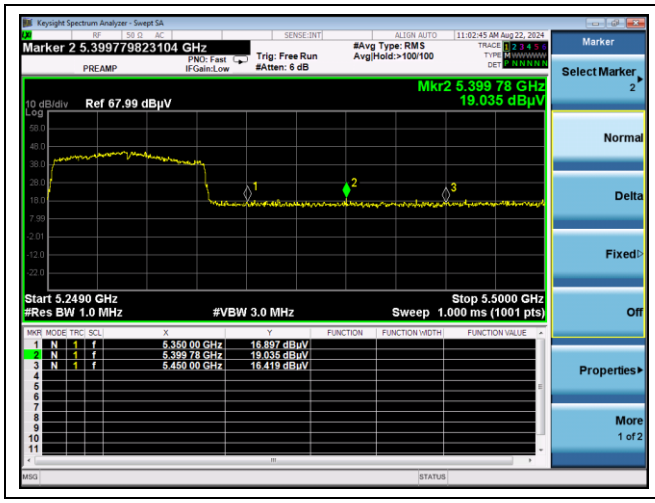
Middle channel Band edge (Peak) - Band 1



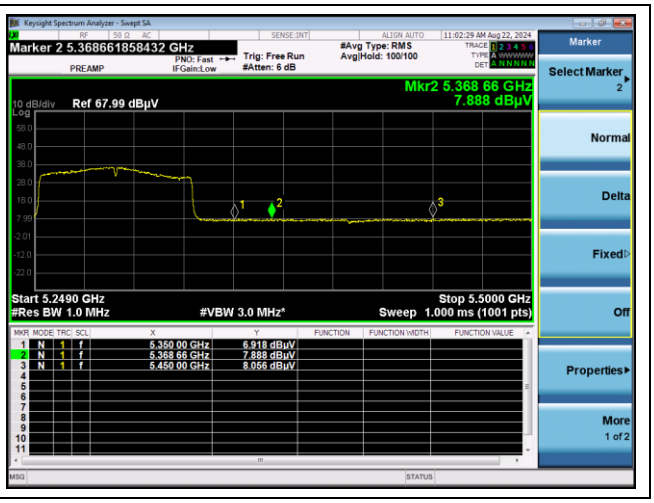
Middle channel Band edge (Average) - Band 1



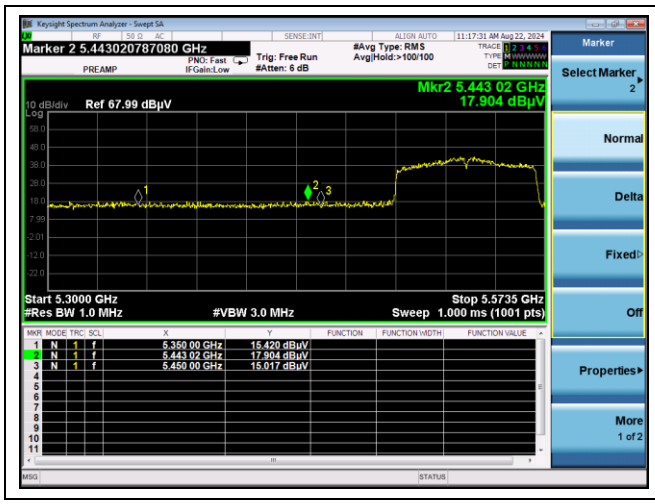
Middle channel Band edge (Peak) - Band 2A



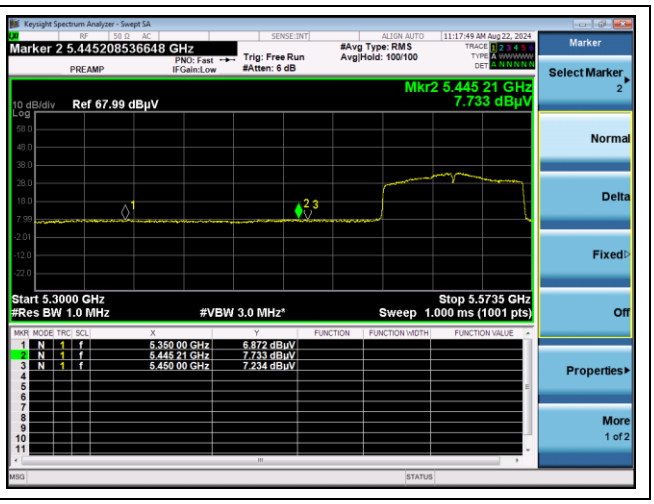
Middle channel Band edge (Average) - Band 2A



Low channel Band edge (Peak) - Band 2C

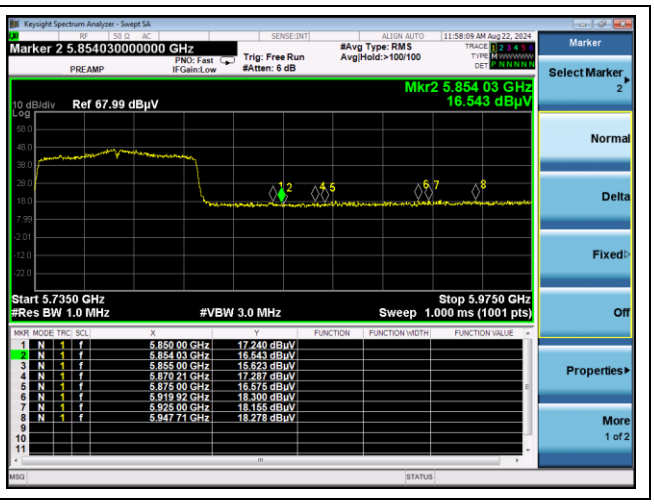


Low channel Band edge (Average) - Band 2C



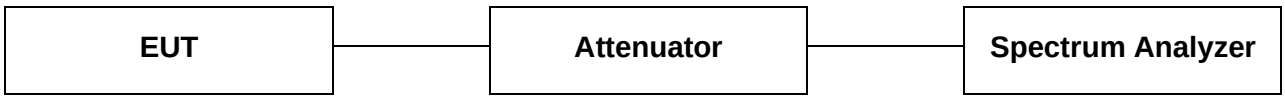
Middle channel Band edge (Peak) - Band 3

Middle channel Band edge (Peak) - Band 3



3. 26 dB Bandwidth & 99 % Bandwidth

3.1. Test Setup



3.2. Limit

None; for reporting purpose only.

3.3. Test Procedure

3.3.1. 26 dB Bandwidth

1. This measurement settings are specified in section Ⅱ.C.1 of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = approximately 1 % of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak 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 %.

Remark;

In case of band crossing channels 138, 142 and 144, the measurement is complied with section Ⅲ.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

3.3.2. 99 % Bandwidth

3.3.2.1 FCC

1. This measurement settings are specified in section Ⅱ.D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set center frequency to the nominal EUT channel center frequency.
3. Set span = 1.5 times to 5.0 times the OBW.
4. Set RBW = 1 % to 5 % of the OBW.
5. Set VBW ≥ 3 x RBW.
6. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
7. Use the 99 % power bandwidth function of the instrument (if available).
8. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % occupied bandwidth is the difference between these two frequencies.

In the result,

- DFS requirements are not applicable in the 5 150 ㎒ ~ 5 250 ㎒.

3.3.2.2 IC

● The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

● The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x ㏈ bandwidth if the device is not transmitting continuously.

● The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the actual occupied / x ㏈ bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99 % emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99 % emission bandwidth).

3.4. Test Result

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

- SISO

Test mode: 11a

Band	Frequency (㎒)	Ch.	Data Rate	26 ㏈ Bandwidth (㎒)	99 % Bandwidth (㎒)
U-NII 1	5 180	36	6 Mbps	18.641	16.384
	5 220	44		18.941	16.384
	5 240	48		18.801	16.384
U-NII 2A	5 260	52		18.821	16.344
	5 300	60		18.841	16.344
	5 320	64		18.721	16.344
U-NII 2C	5 500	100		18.761	16.344
	5 580	116		19.141	16.384
	5 700	140		18.681	16.344
U-NII 3	5 745	149		19.421	16.344
	5 785	157		19.421	16.384
	5 825	165		18.841	15.784

Test mode: 11n_HT20

Band	Frequency (㎒)	Ch.	Data Rate	26 ㏈ Bandwidth (㎒)	99 % Bandwidth (㎒)
U-NII 1	5 180	36	MCS0	20.340	17.582
	5 220	44		20.440	17.582
	5 240	48		20.260	17.582
U-NII 2A	5 260	52		20.260	17.502
	5 300	60		20.420	17.542
	5 320	64		20.340	17.502
U-NII 2C	5 500	100		20.240	17.502
	5 580	116		20.360	17.542
	5 700	140		20.300	17.542
U-NII 3	5 745	149		20.060	17.502
	5 785	157		20.220	17.582
	5 825	165		19.920	16.623

Test mode: 11n_HT40

Band	Frequency (㎒)	Ch.	Data Rate	26 ㏈ Bandwidth (㎒)	99 % Bandwidth (㎒)
U-NII 1	5 190	38	MCS0	40.480	35.964
	5 230	46		40.280	35.884
U-NII 2A	5 270	54		40.599	35.964
	5 310	62		40.559	35.884
U-NII 2C	5 510	102		40.320	35.884
	5 550	110		41.119	35.884
	5 670	134		40.080	35.964
U-NII 3	5 755	151		40.120	35.804
	5 795	159		40.480	36.044

Test mode: 11ac_VHT80

Band	Frequency (㎒)	Ch.	Data Rate	26 ㏈ Bandwidth (㎒)	99 % Bandwidth (㎒)
U-NII 1	5 210	42	MCS0	82.318	75.125
U-NII 2A	5 290	58		83.037	75.125
U-NII 2C	5 530	106		82.717	75.285
U-NII 3	5 775	155		82.238	74.965

Band-crossing channels

Band	Frequency (㎒)	Ch.	Data Rate	26 ㏈ Bandwidth (㎒)
11a	5 720	144	6 Mbps	14.461
11n_HT20	5 720	144	MCS0	15.080
11n_HT40	5 710	142	MCS0	35.160
11ac_VHT80	5 690	138	MCS0	76.279