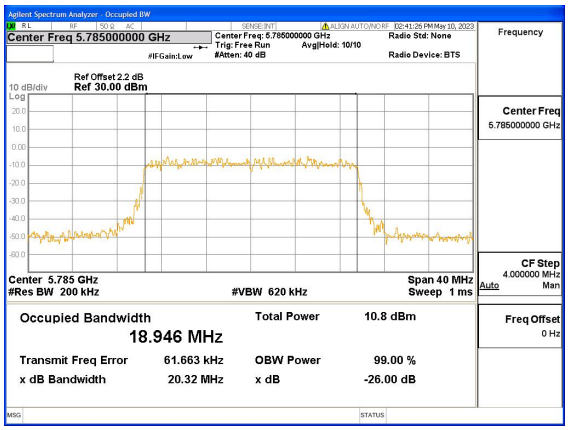
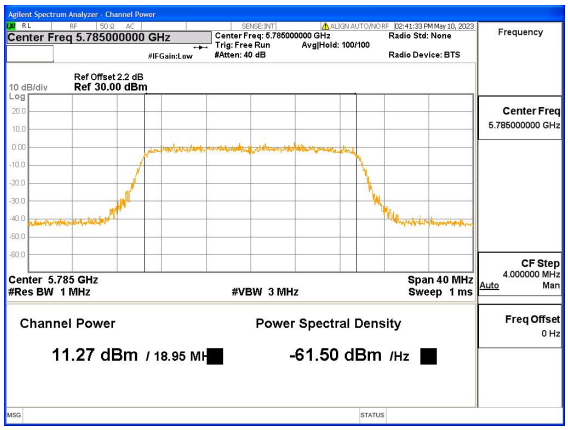
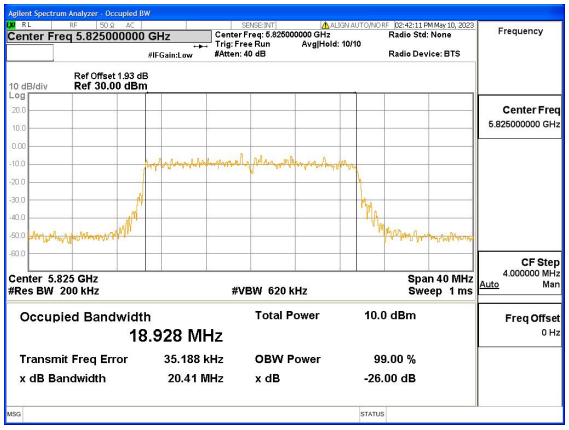
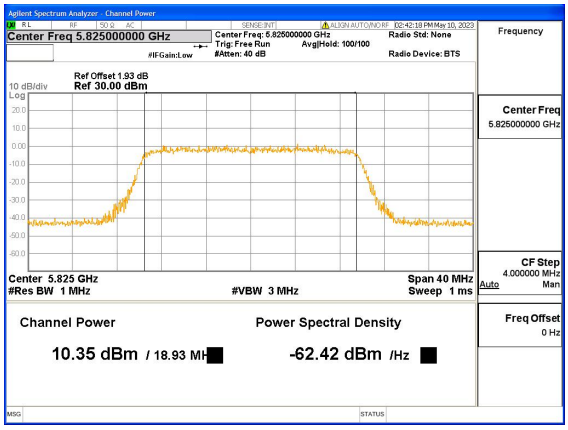
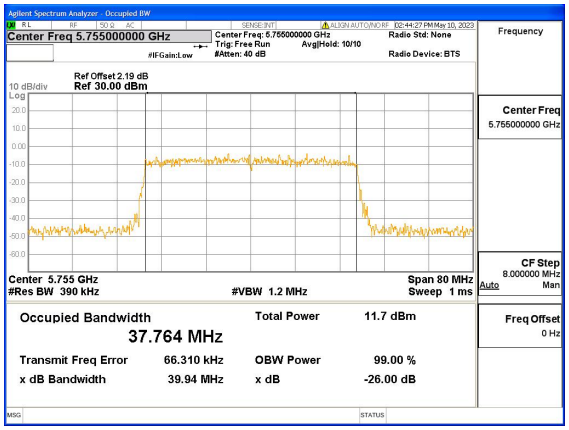
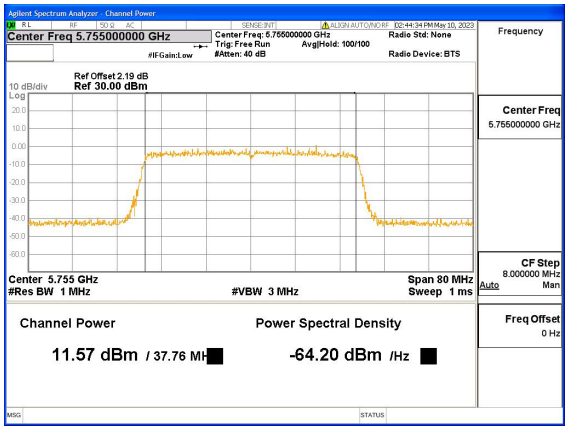
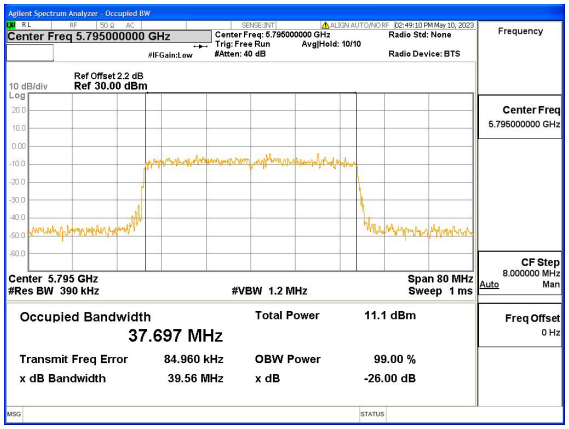
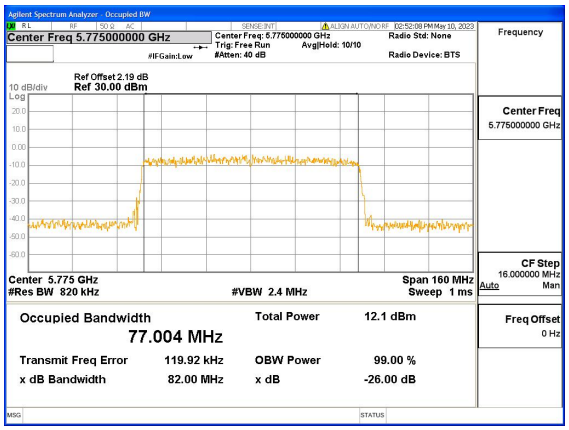
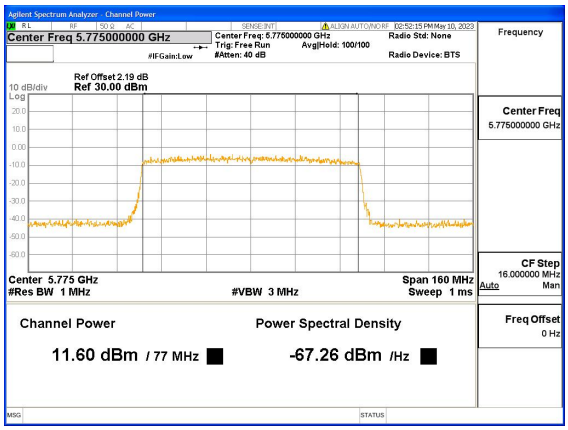
pic2_Obw	pic2_Rms
	
pic3_Obw	pic3_Rms
	

11ax-HE40：

pic1_Obw	pic1_Rms
	
pic2_Obw	pic2_Rms



11ax-HE80：

pic1_Obw	pic1_Rms
	

6.4. Power Spectral Density

Specifications:	FCC Part 15.407 (a)
DUT Serial Number:	S1
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Frequency (MHz)	Limit (dBm)
FCC Part 15.407 (a)	5725MHz~5850MHz	In addition, the maximum power spectral density shall not exceed 30 dBm in any

		500–kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note：Directional gain according to section 3.2 of this report

Band	802.11a Directional gain（dBi）	802.11n/ac/ax Directional gain（dBi）
UNII 3	3.52	6.53

UNII 3：802.11a limit=30dBm/500kHz;

802.11n/ac/ax limit=30dBm/500kHz-(DG-6)=29.47dBm/500kHz

Measurement Uncertainty:

Measurement Uncertainty	±0.98dBm/500kHz

Test Procedure

The measurement is according to KDB 789033 D02 clause II.F

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power….” (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
3. Make the following adjustments to the peak value of the spectrum, if applicable:

a) If Method SA-2 or SA-2 Alternative was used, add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum.

b) If Method SA-3 Alternative was used and the linear mode was used in II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.

4. The result is the Maximum PSD over 1 MHz reference bandwidth.
5. For devices operating in the bands 5.15−5.25 GHz, 5.25−5.35 GHz, and 5.47−5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725−5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or

500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in II.B.l.a).

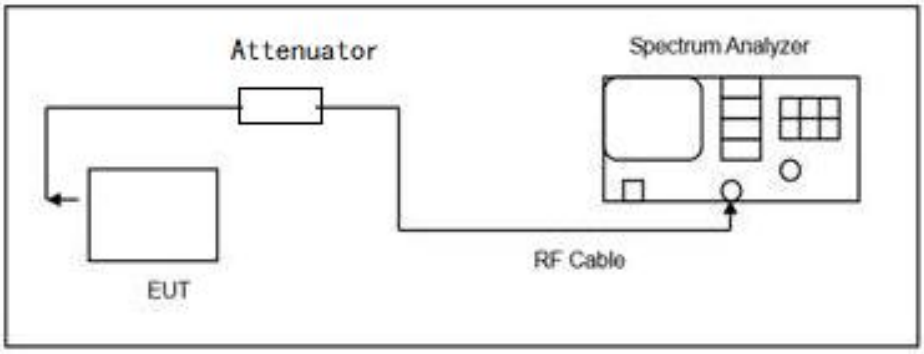
b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Test block diagram:



Measurement Results:

Chain.0

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11a	149	Fig.1	-8.84	PASS
	157	Fig.2	-9.95	PASS
	165	Fig.3	-10.03	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11n-HT20	149	Fig.1	-9.73	PASS
	157	Fig.2	-10.57	PASS
	165	Fig.3	-10.52	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11n-HT40	151	Fig.1	-12.84	PASS
	159	Fig.2	-13.27	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ac-VHT20	149	Fig.1	-9.96	PASS
	157	Fig.2	-10.49	PASS
	165	Fig.3	-10.30	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ac-VHT40	151	Fig.1	-12.84	PASS
	159	Fig.2	-13.38	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ac-VHT80	155	Fig.1	-16.43	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ax-HE20	149	Fig.1	-9.96	PASS
	157	Fig.2	-10.73	PASS
	165	Fig.3	-10.16	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ax-HE40	151	Fig.1	-13.19	PASS
	159	Fig.2	-13.04	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ax-HE80	155	Fig.1	-16.01	PASS

Chain.1

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11a	149	Fig.1	-7.38	PASS
	157	Fig.2	-7.90	PASS
	165	Fig.3	-8.29	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11n-HT20	149	Fig.1	-7.58	PASS
	157	Fig.2	-7.87	PASS

	165	Fig.3	-8.57	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11n-HT40	151	Fig.1	-10.35	PASS
	159	Fig.2	-11.06	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ac-VHT20	149	Fig.1	-7.62	PASS
	157	Fig.2	-8.01	PASS
	165	Fig.3	-8.36	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ac-VHT40	151	Fig.1	-10.43	PASS
	159	Fig.2	-10.96	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ac-VHT80	155	Fig.1	-14.03	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ax-HE20	149	Fig.1	-7.88	PASS
	157	Fig.2	-8.23	PASS
	165	Fig.3	-8.75	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ax-HE40	151	Fig.1	-10.61	PASS
	159	Fig.2	-11.28	PASS

Mode	Channel	Power Spectral Density(dBm/500kHz)		Conclusion
802.11ax-HE80	155	Fig.1	-14.52	PASS

MIMO

Mode	Power Spectral Density(dBm/500kHz)			Conclusion
	Ch149	Ch157	Ch169	
802.11n-HT20	-5.51	-6.00	-6.43	PASS
802.11ac-VHT20	-5.62	-6.07	-6.21	PASS
802.11ax-HE20	-5.79	-6.29	-6.39	PASS

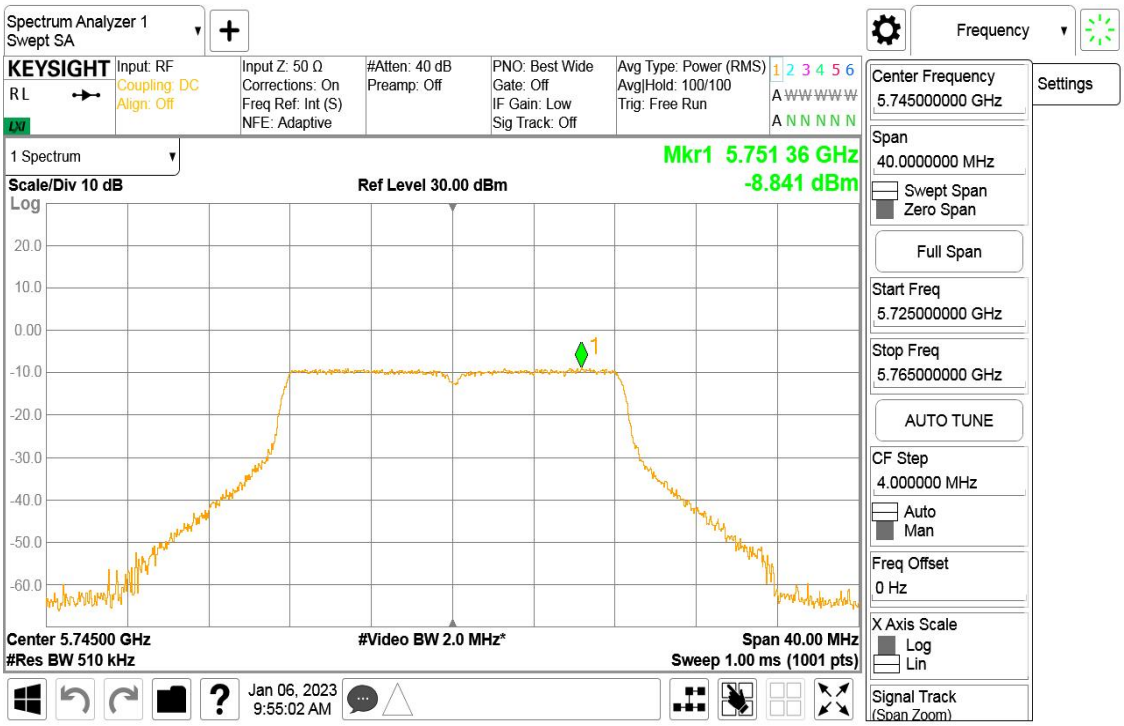
Mode	Power Spectral Density(dBm/500kHz)		Conclusion
	Ch151	Ch159	

802.11n-HT40	-8.41	-9.02	PASS
802.11ac-VHT40	-8.46	-8.99	PASS
802.11ax-HE40	-8.70	-9.06	PASS

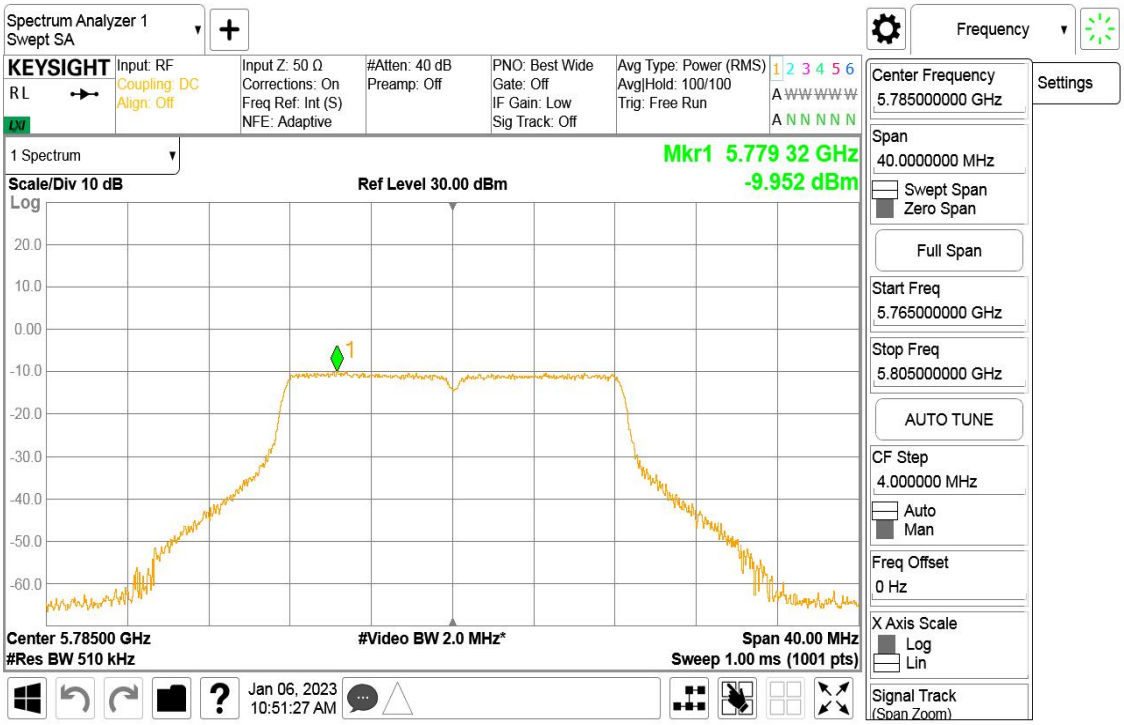
Mode	Power Spectral Density(dBm/500kHz)	Conclusion
	Ch155	
802.11ac-VHT80	-12.06	PASS
802.11ax-HE80	-12.19	PASS

Test figure as below:

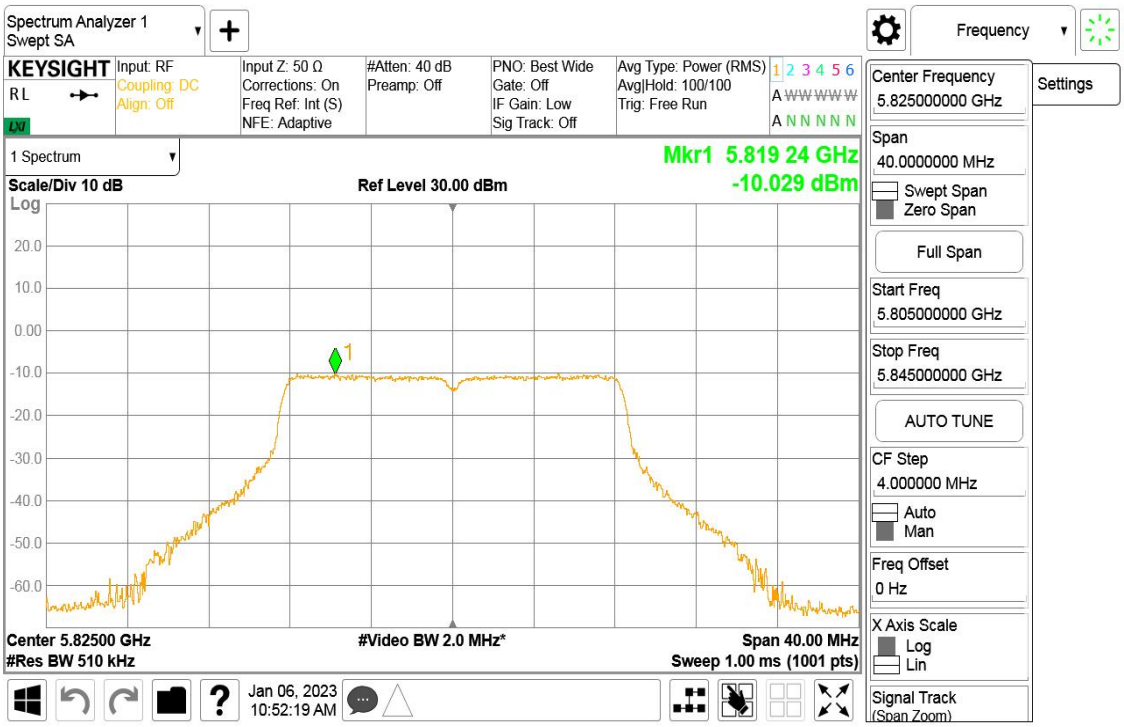
Chain.0



11a Fig1

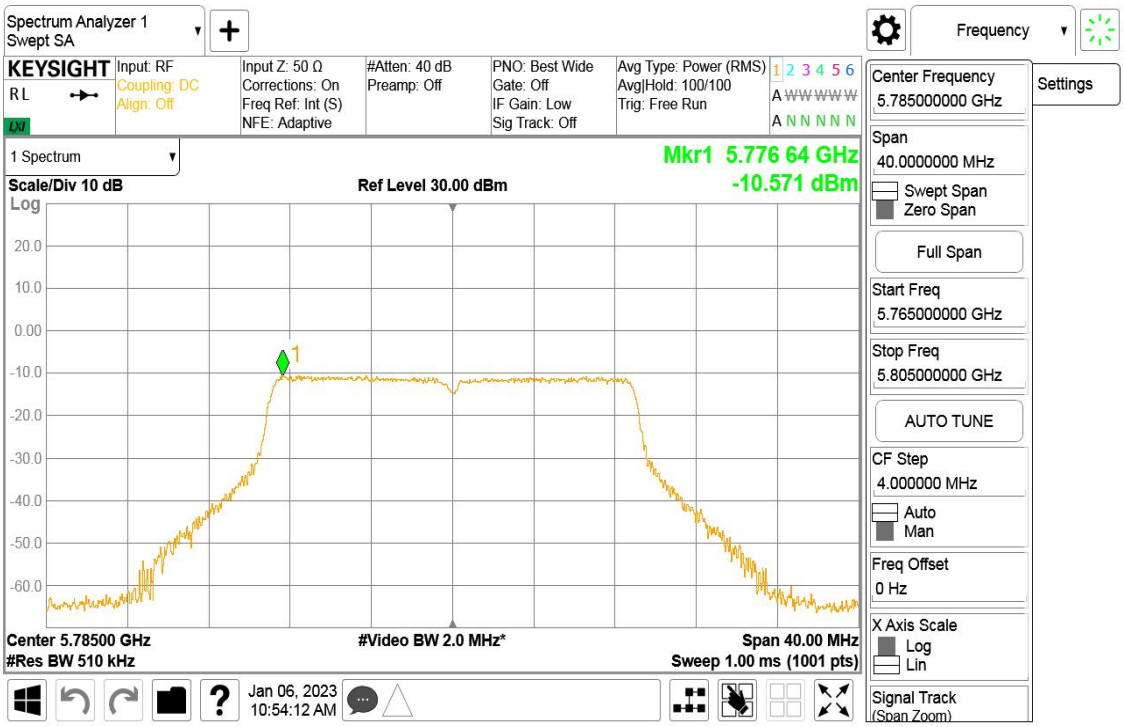


11a Fig2

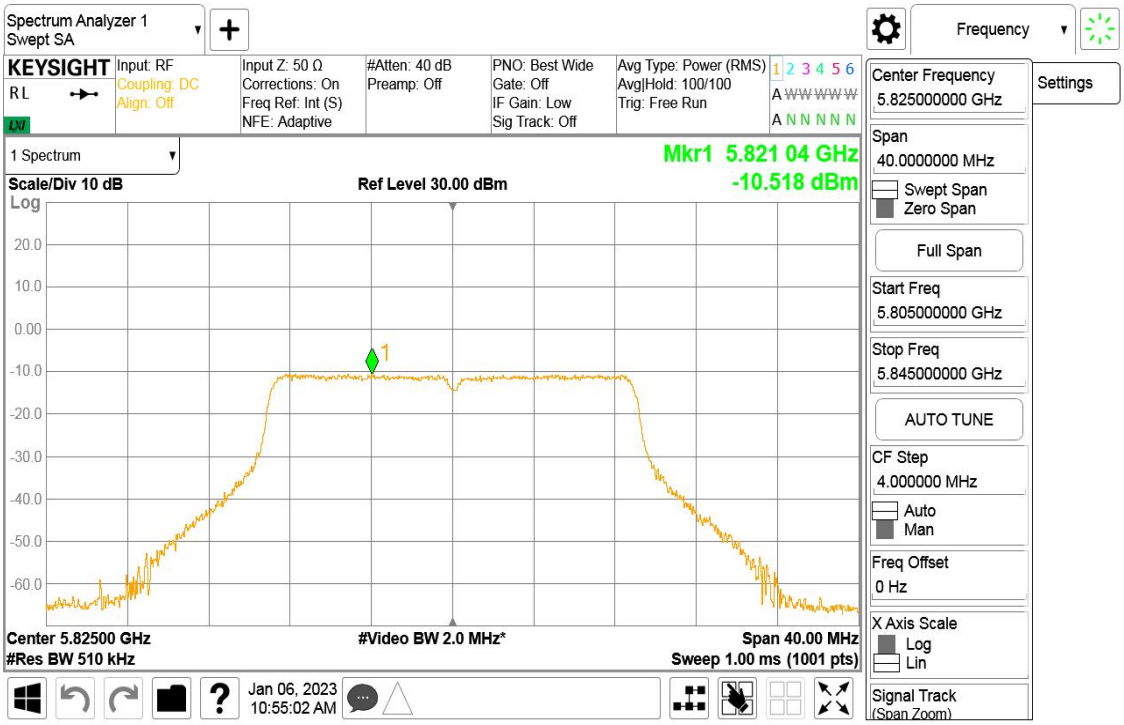


11a Fig3

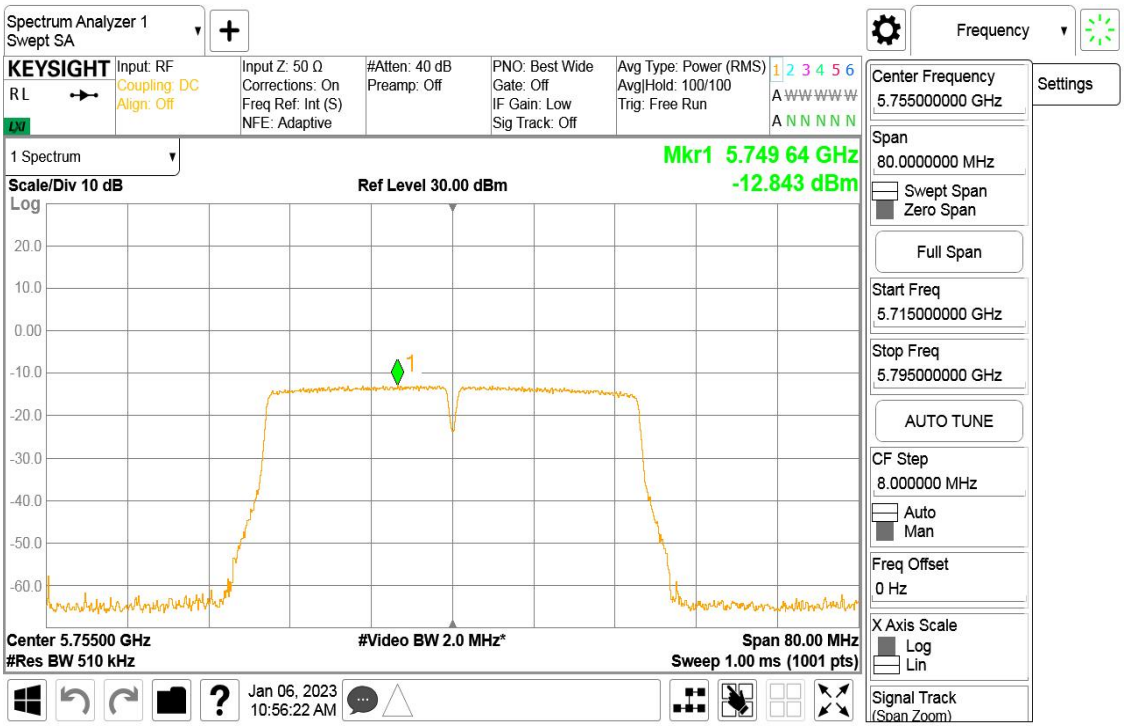
11n-20 Fig1



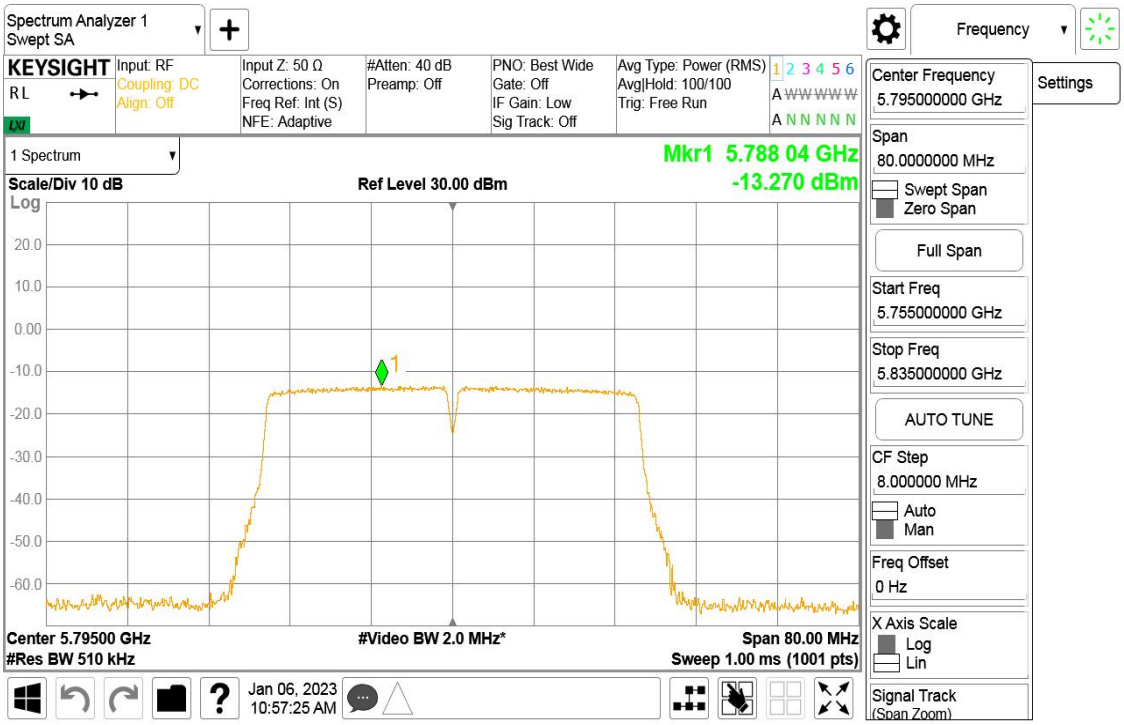
11n-20 Fig2



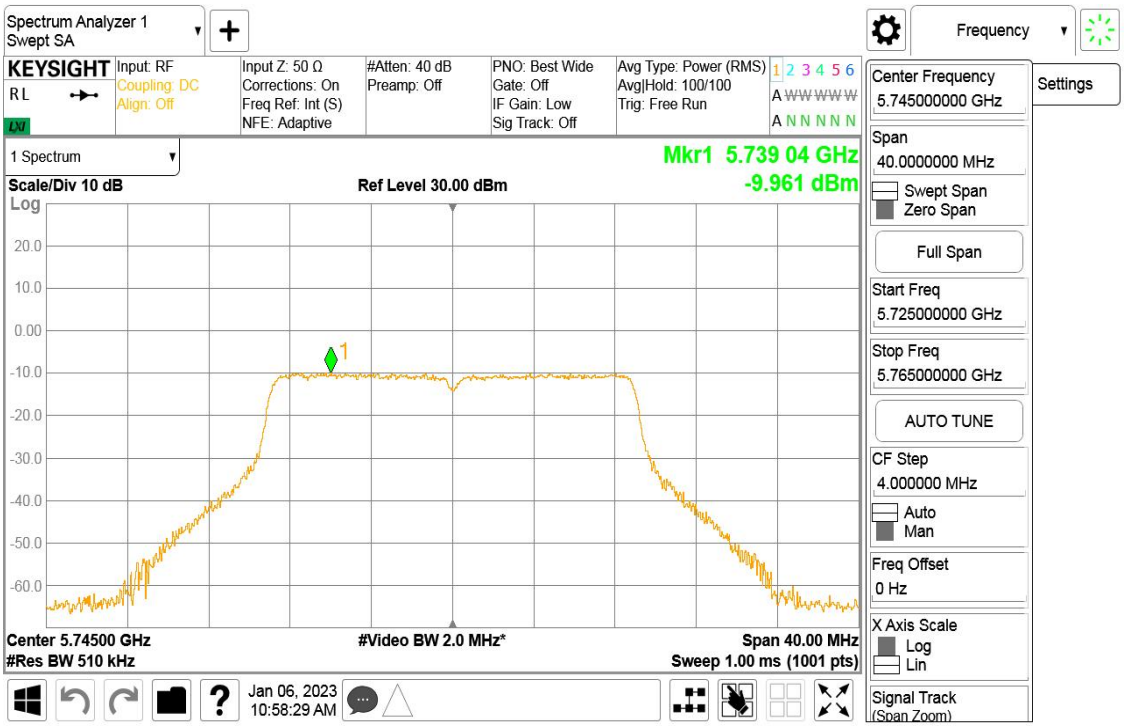
11n-20 Fig3



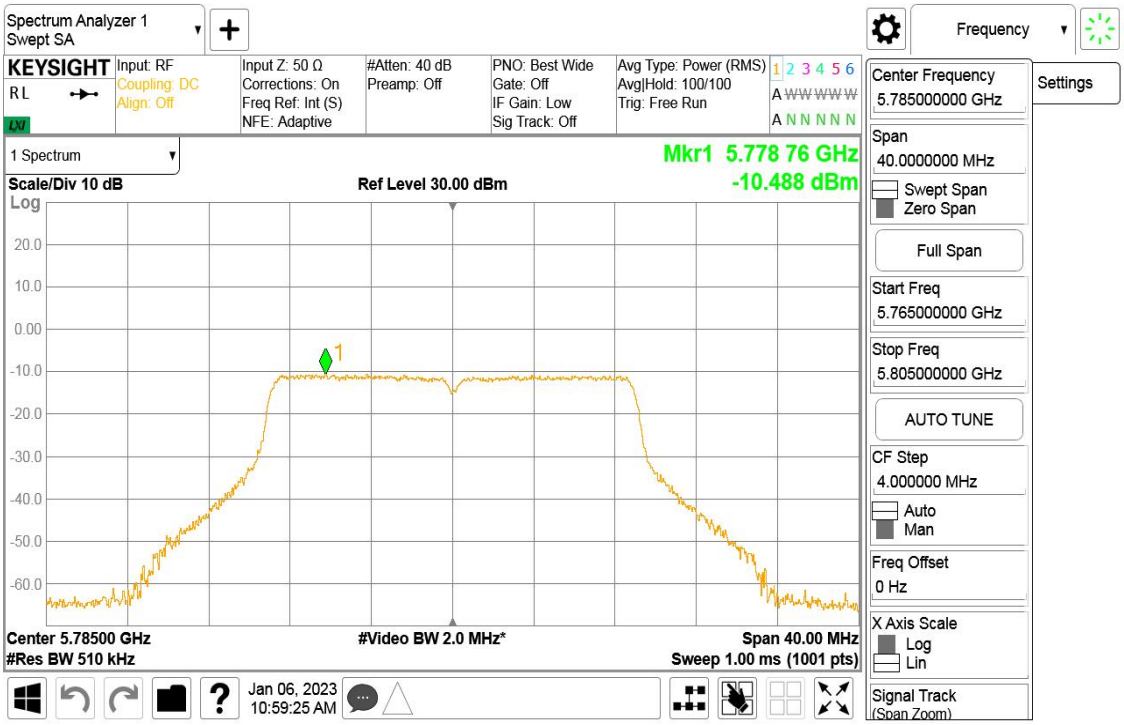
11n-40 Fig1



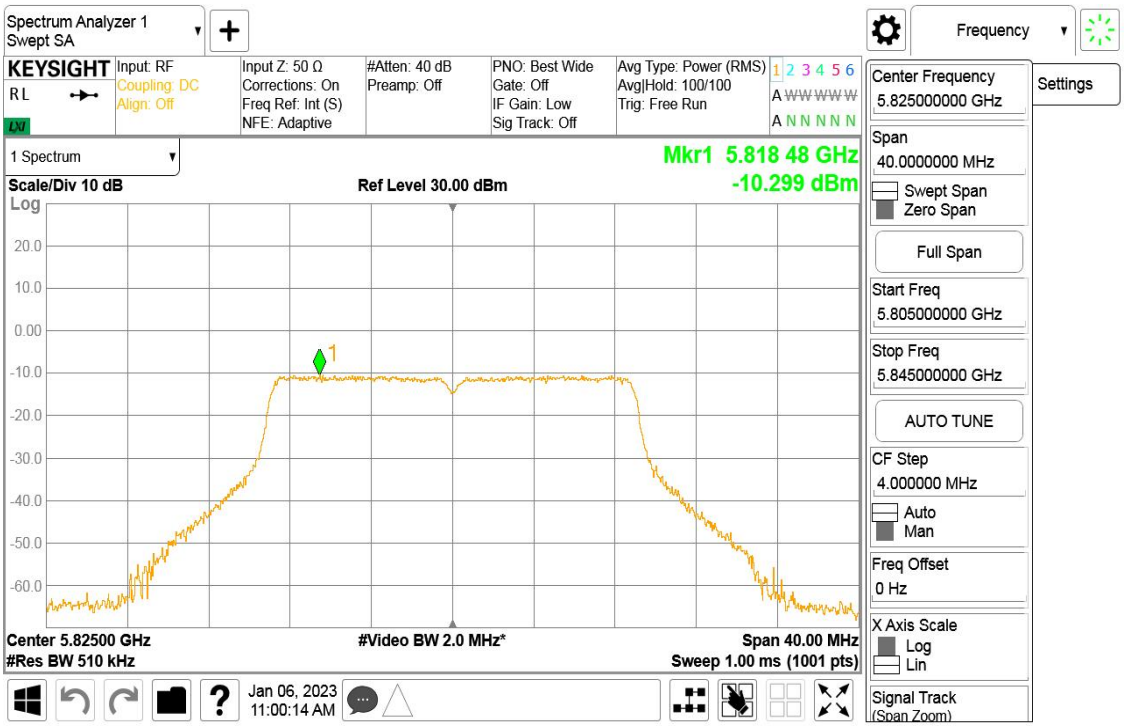
11n-40 Fig2



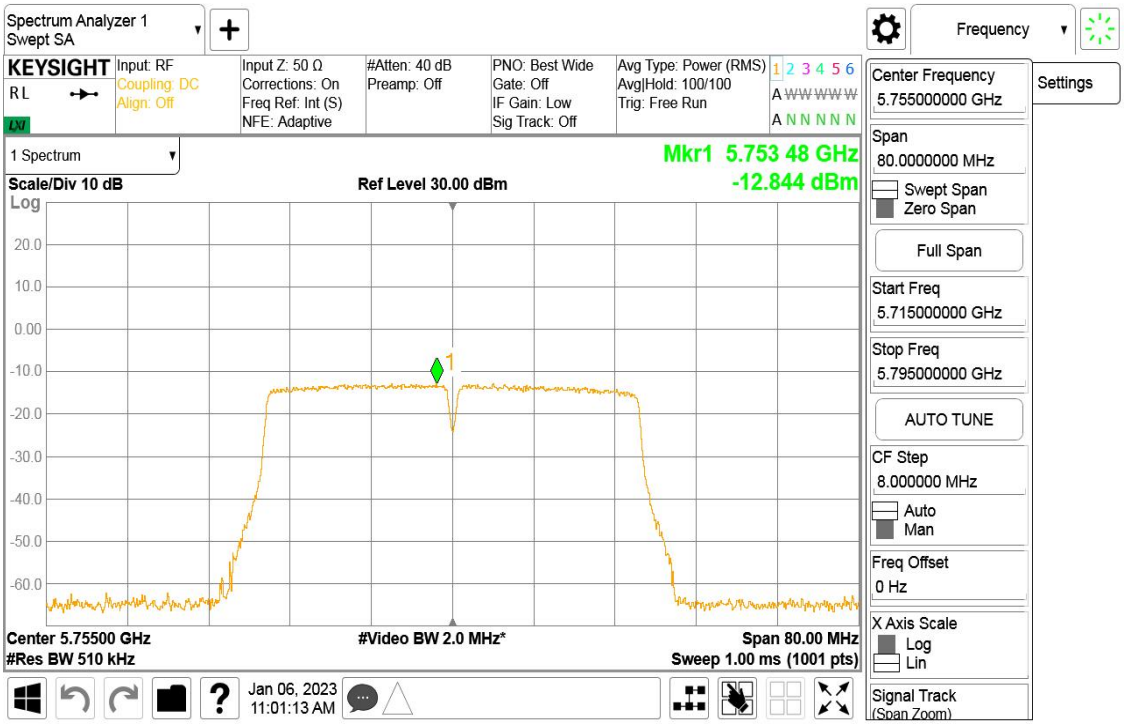
11ac-20 Fig1



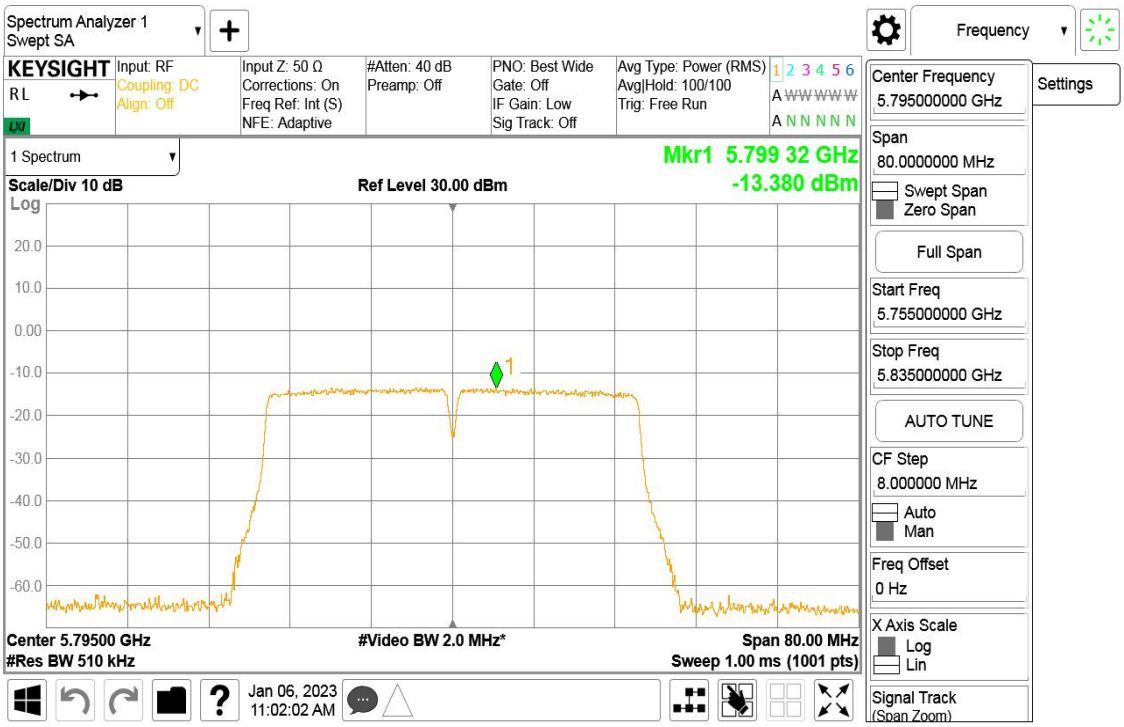
11ac-20 Fig2



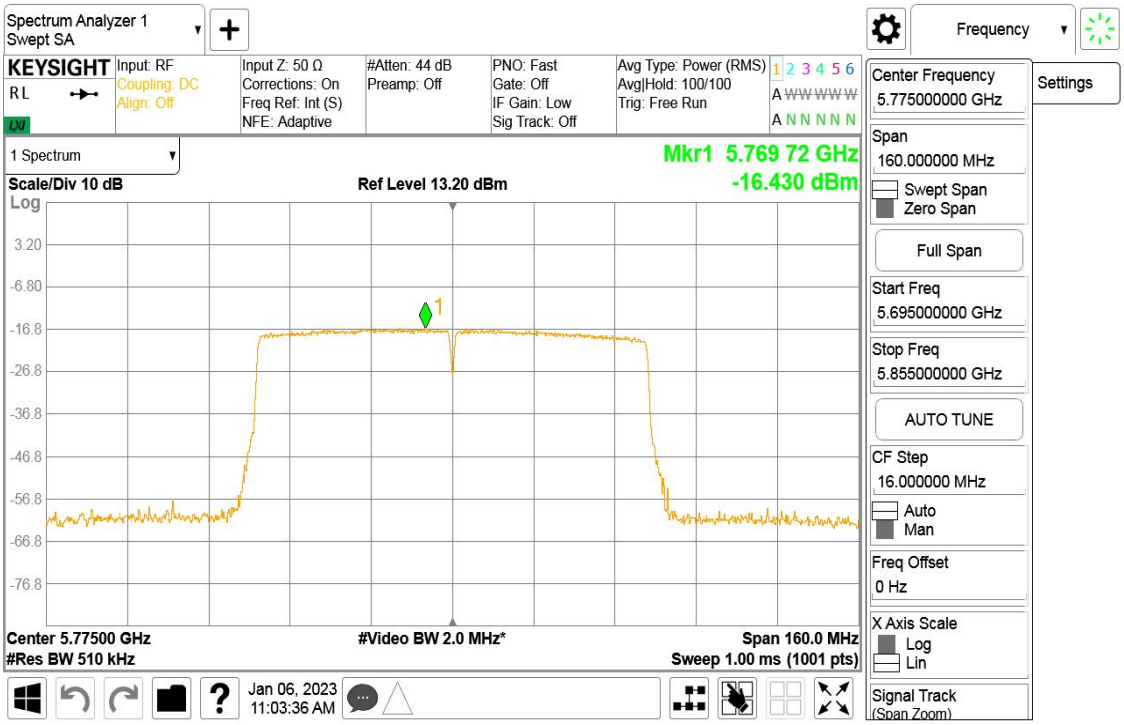
11ac-20 Fig3



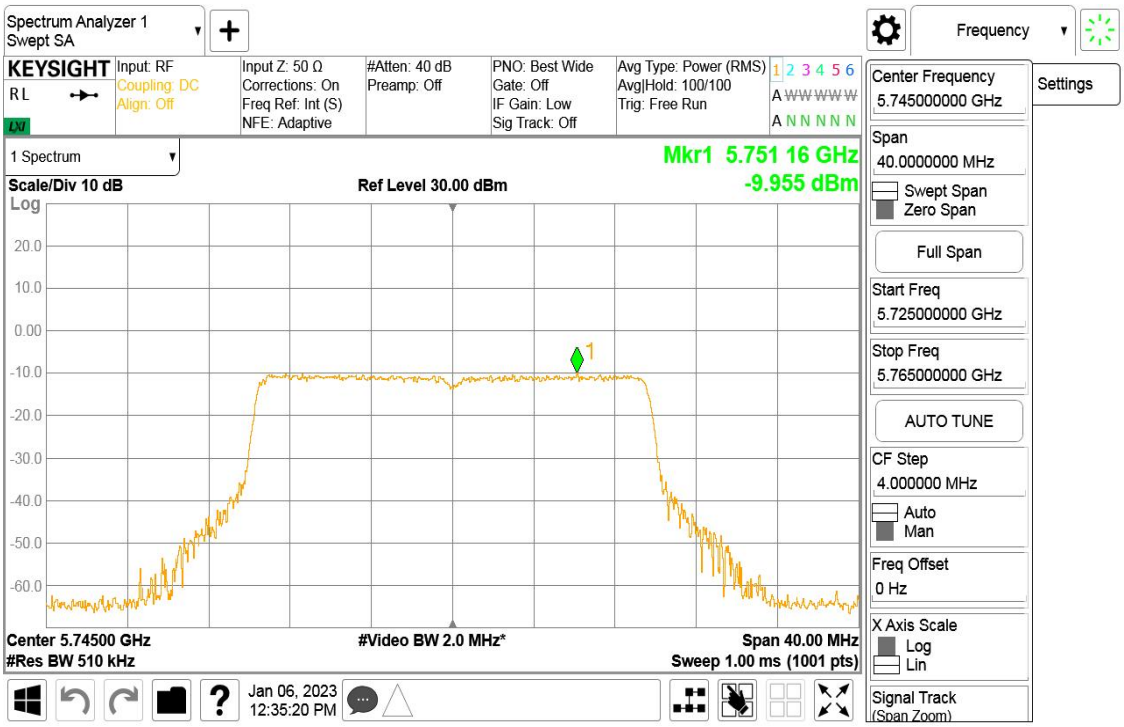
11ac-40 Fig1



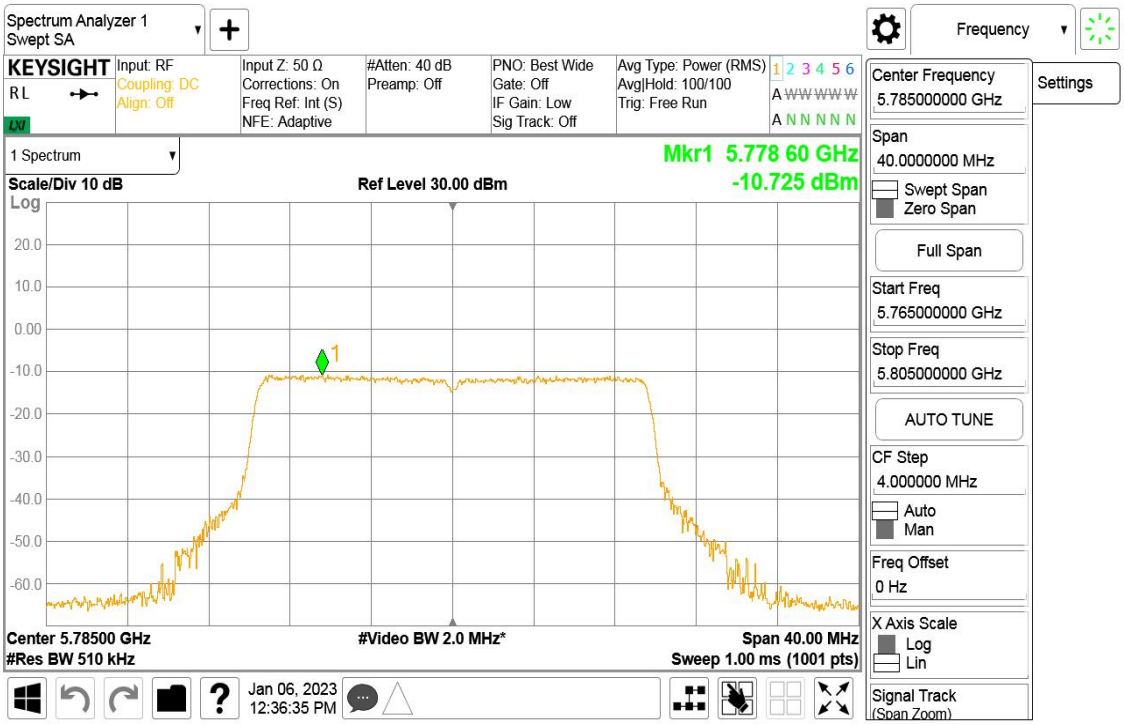
11ac-40 Fig2



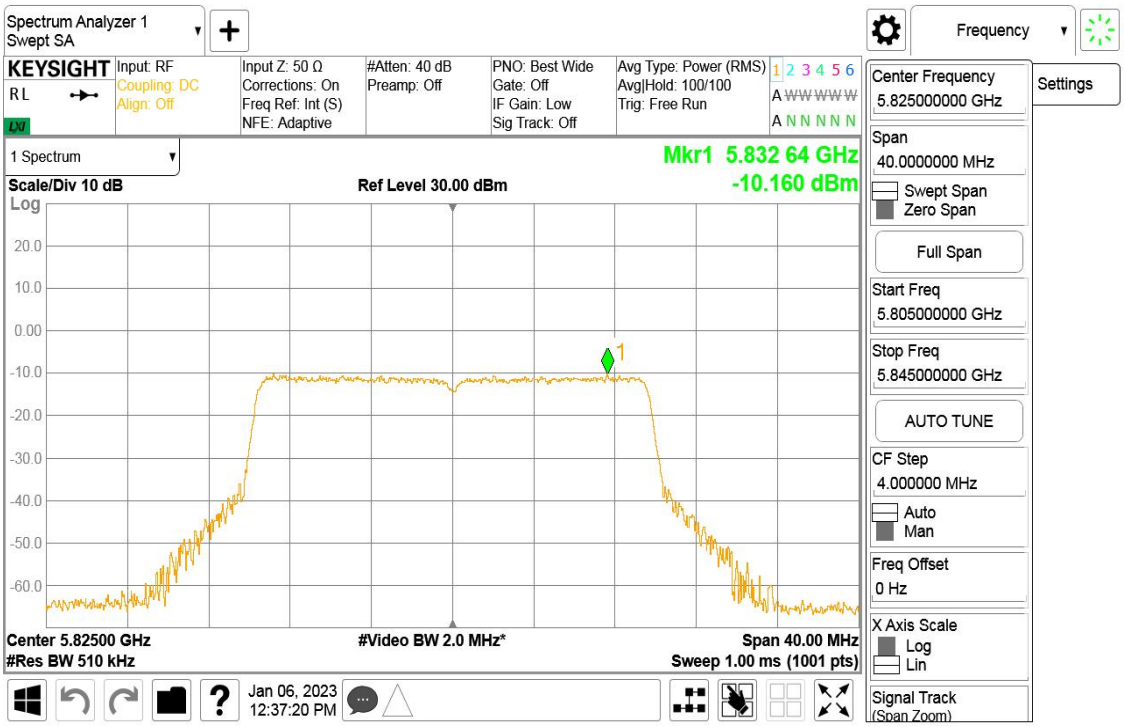
11ac-80 Fig1



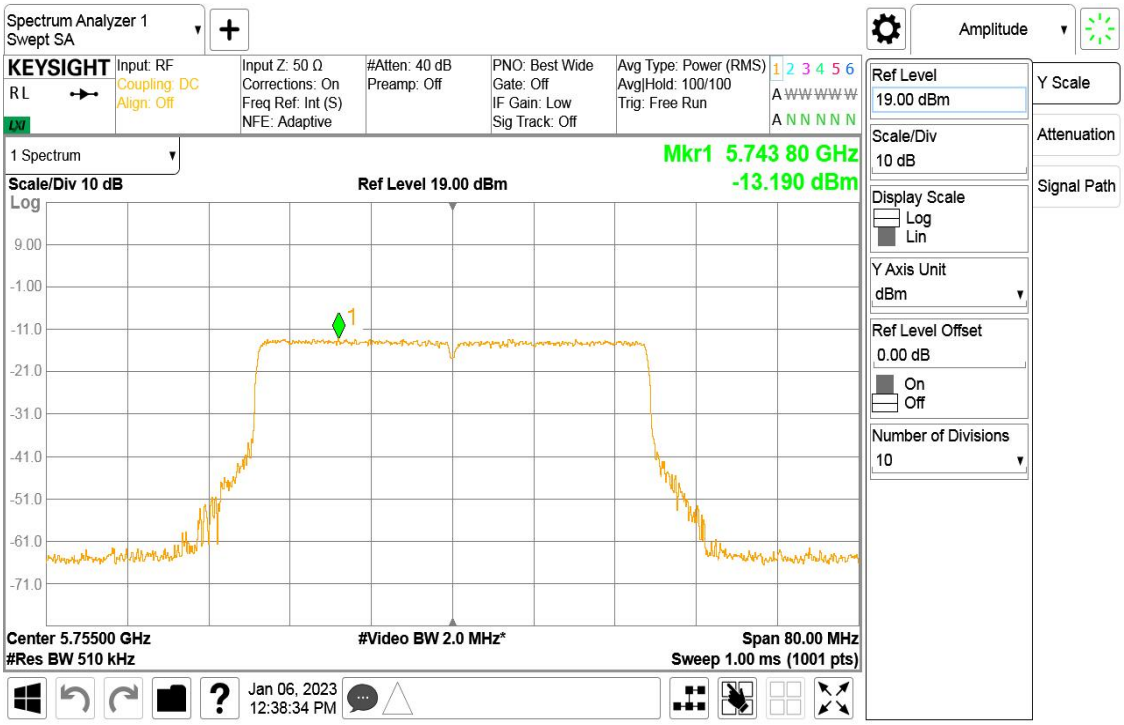
11ax-20 Fig1



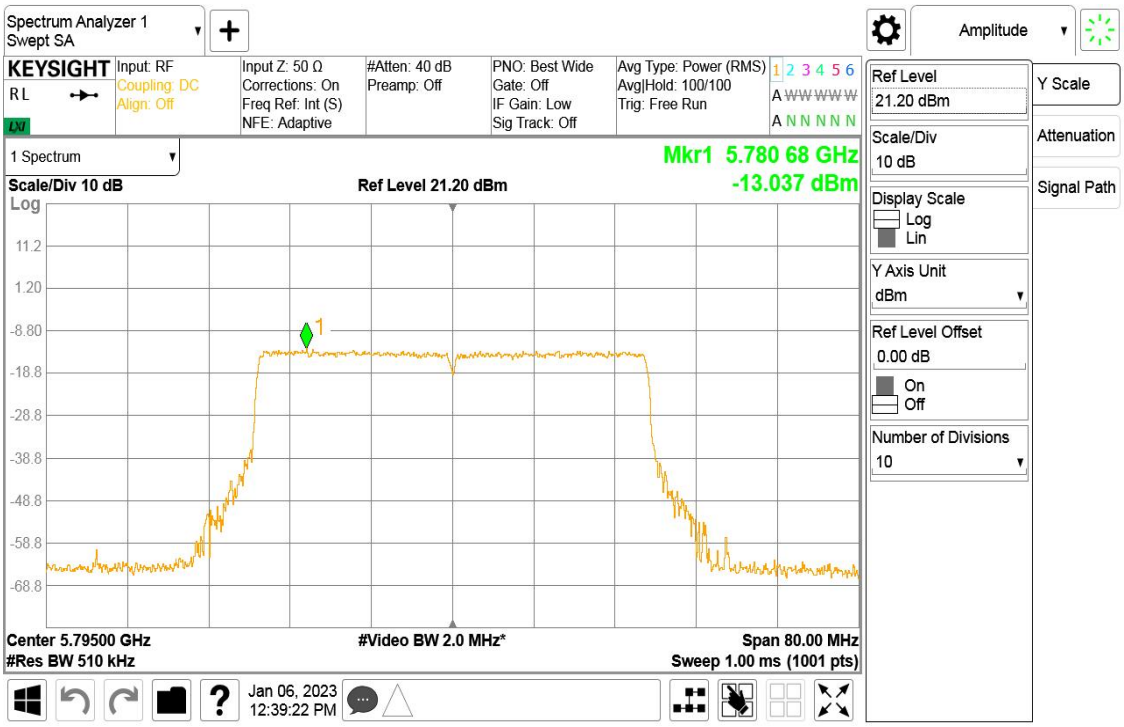
11ax-20 Fig2



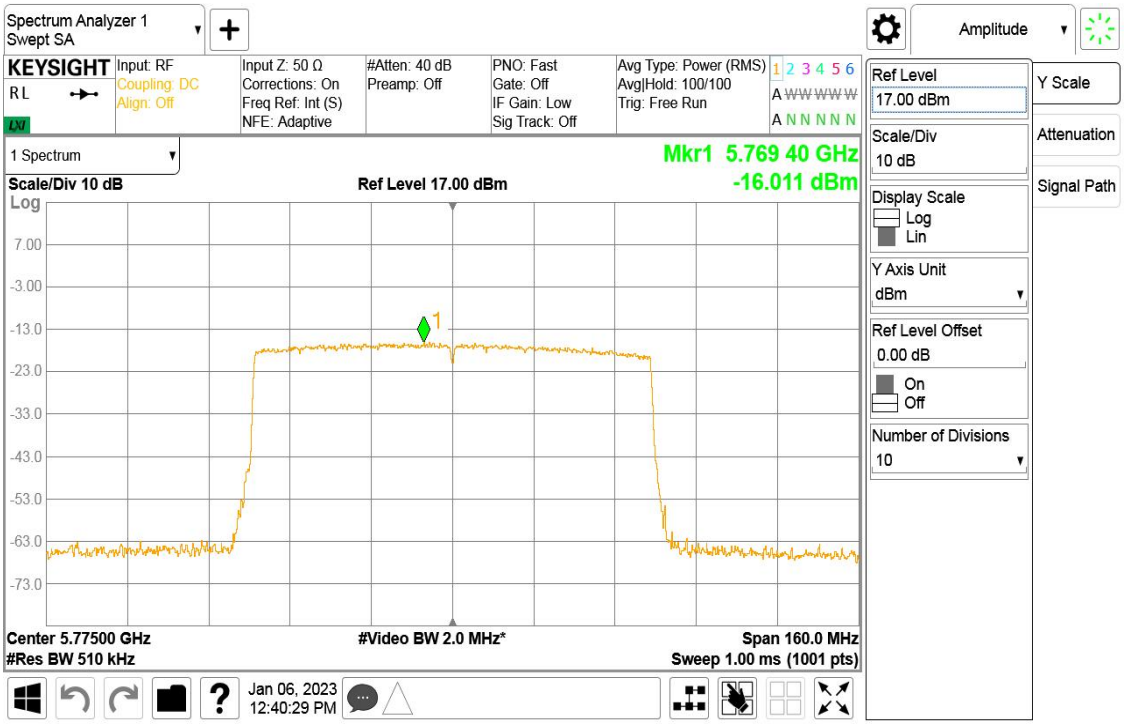
11ax-20 Fig3



11ax-40 Fig1

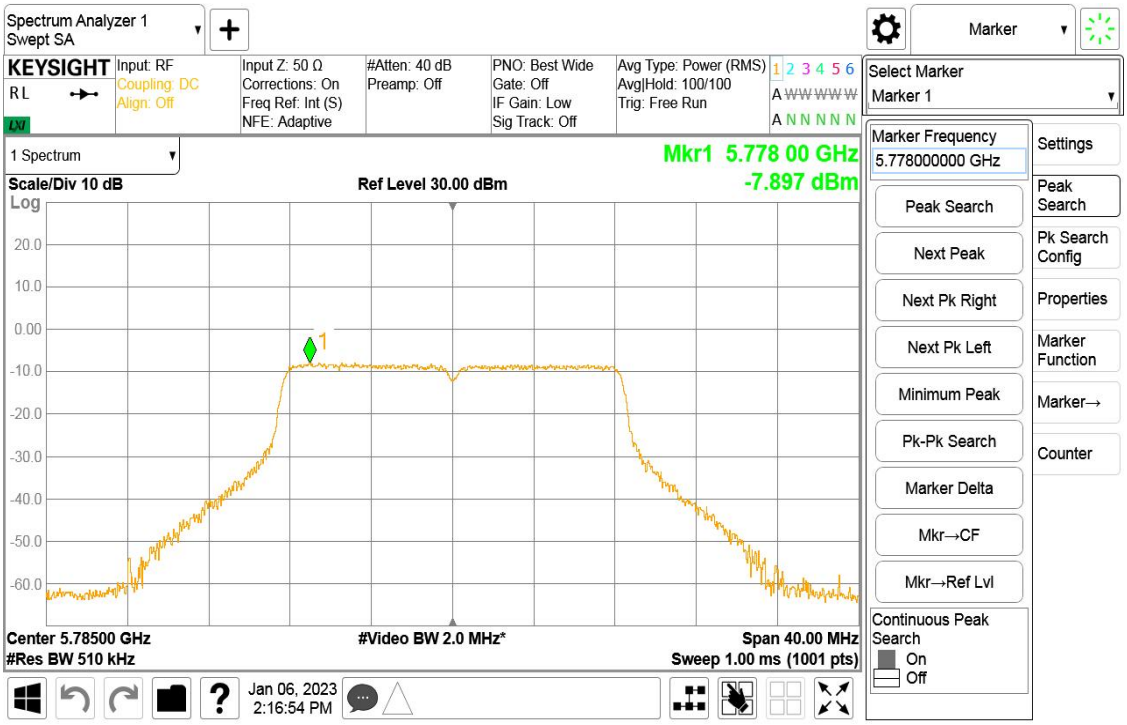


11ax-40 Fig2

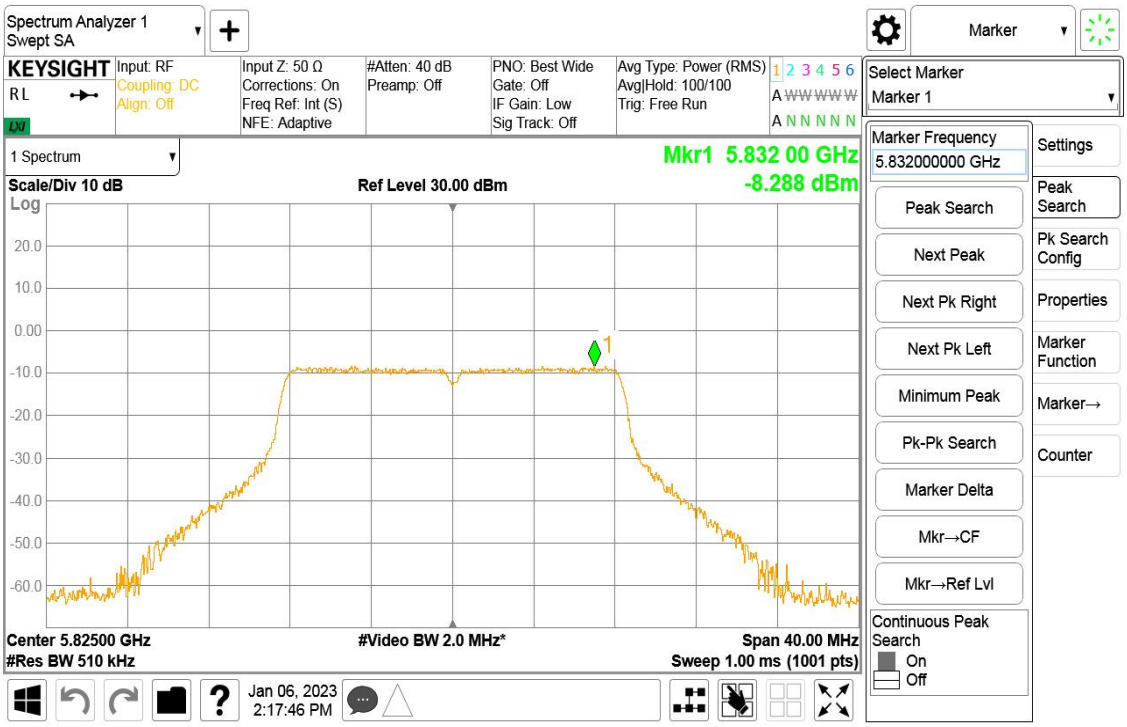


Chain.1

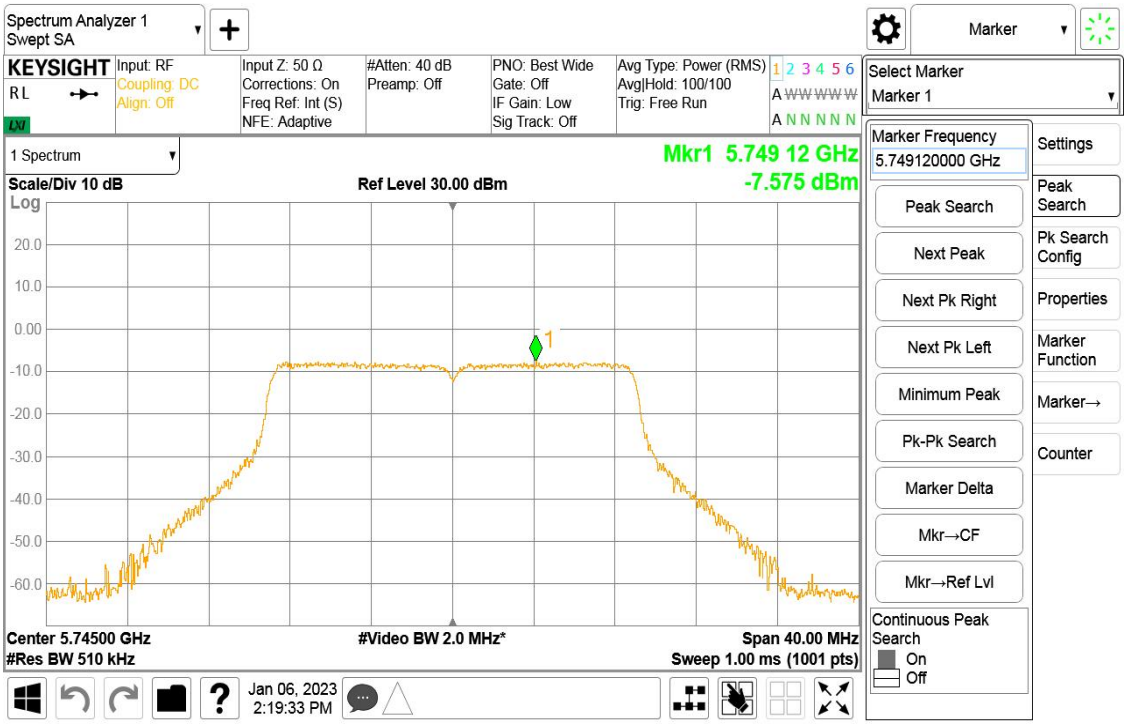
11a Fig1



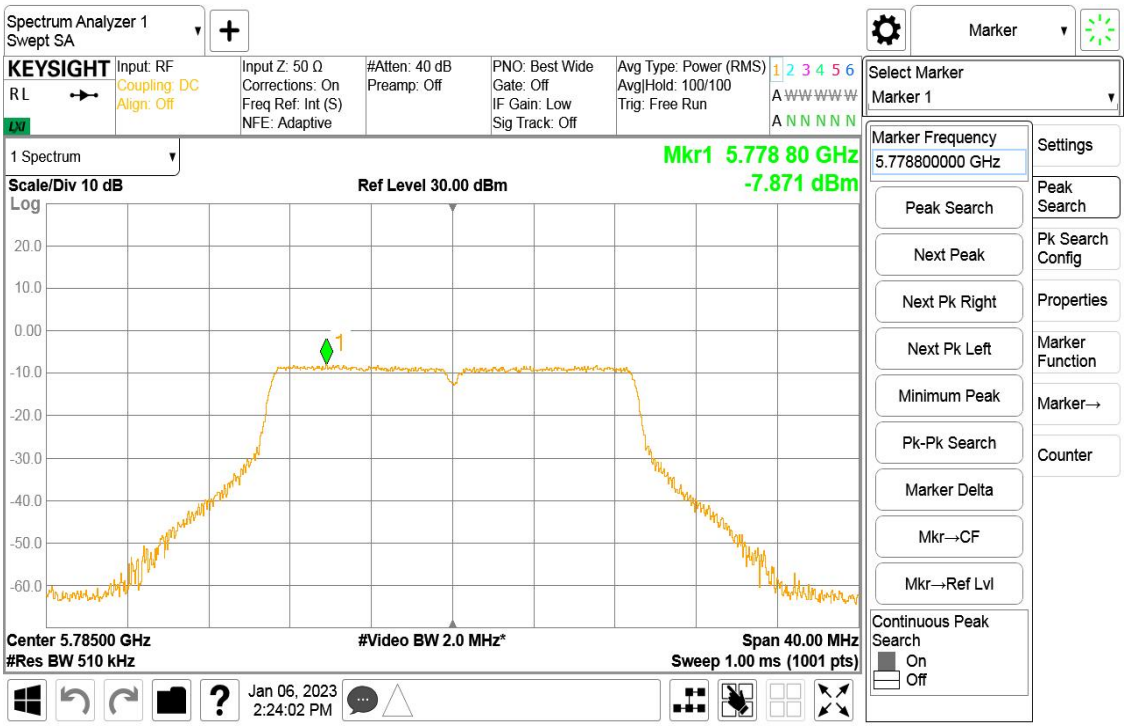
11a Fig2



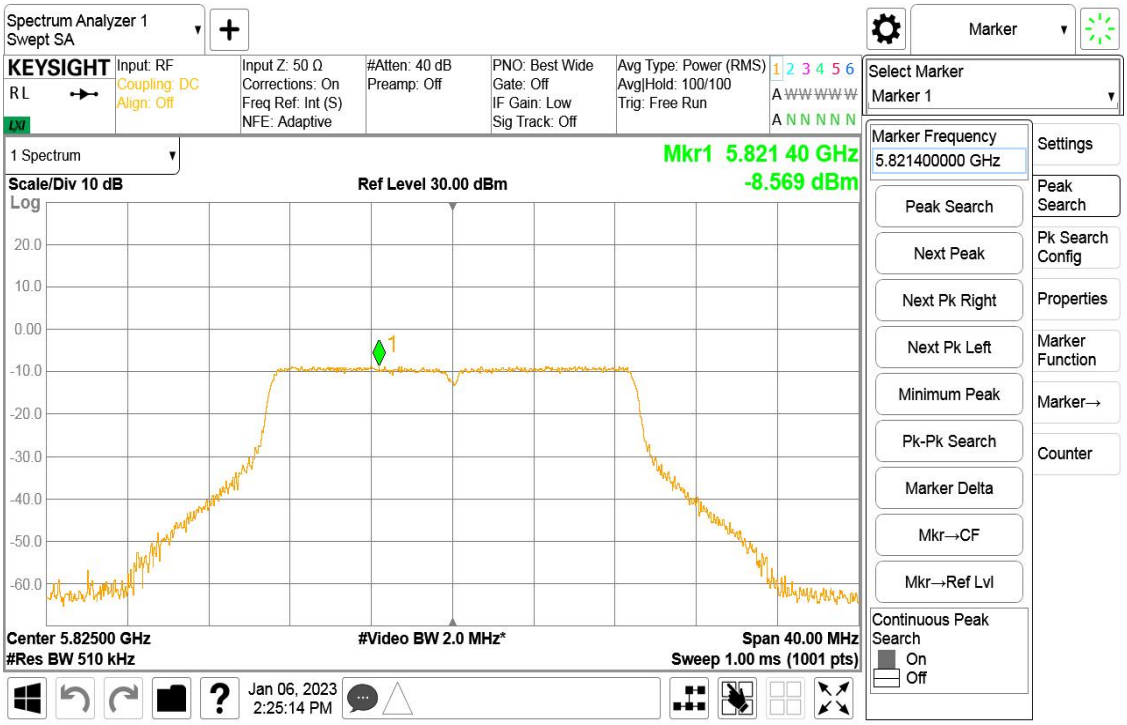
11a Fig3



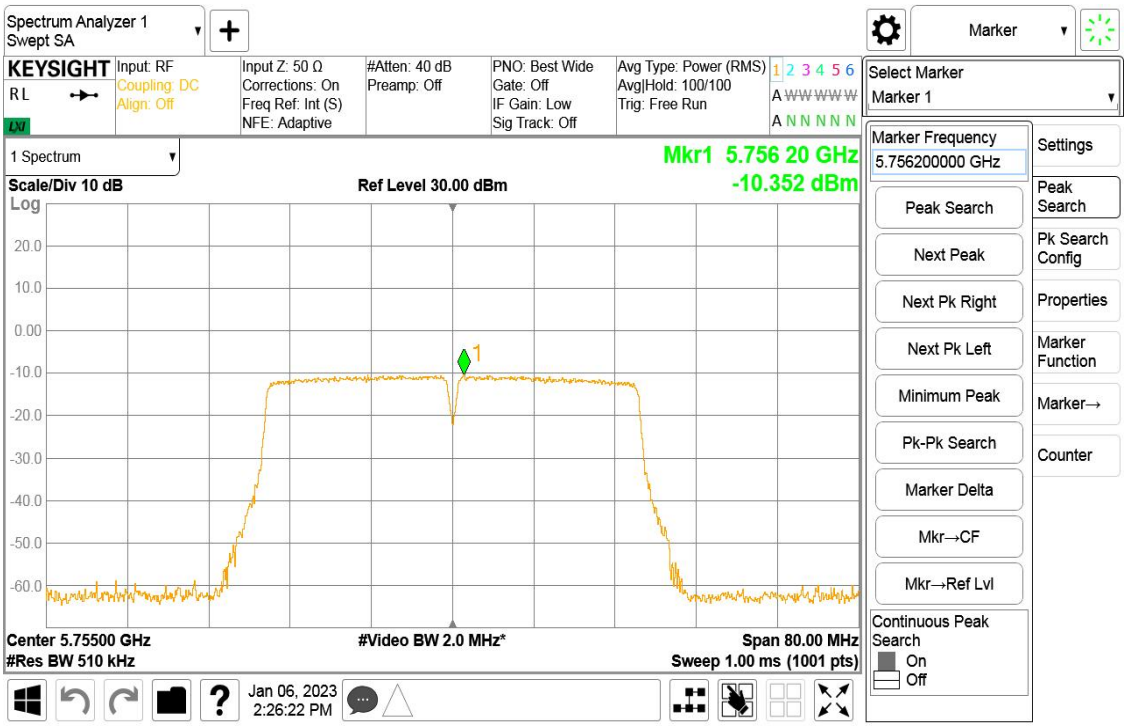
11n-20 Fig1



11n-20 Fig2



11n-20 Fig3



11n-40 Fig1