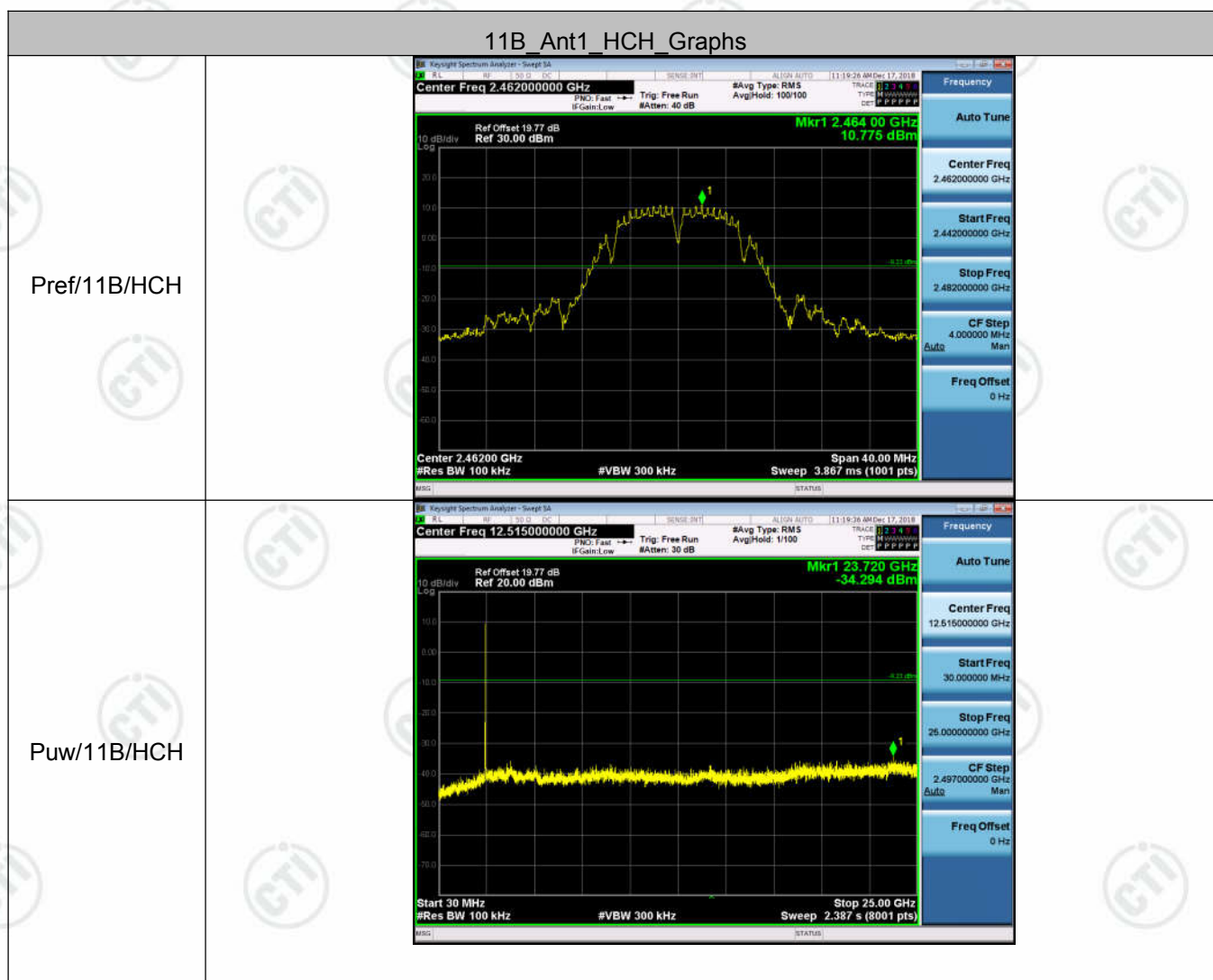
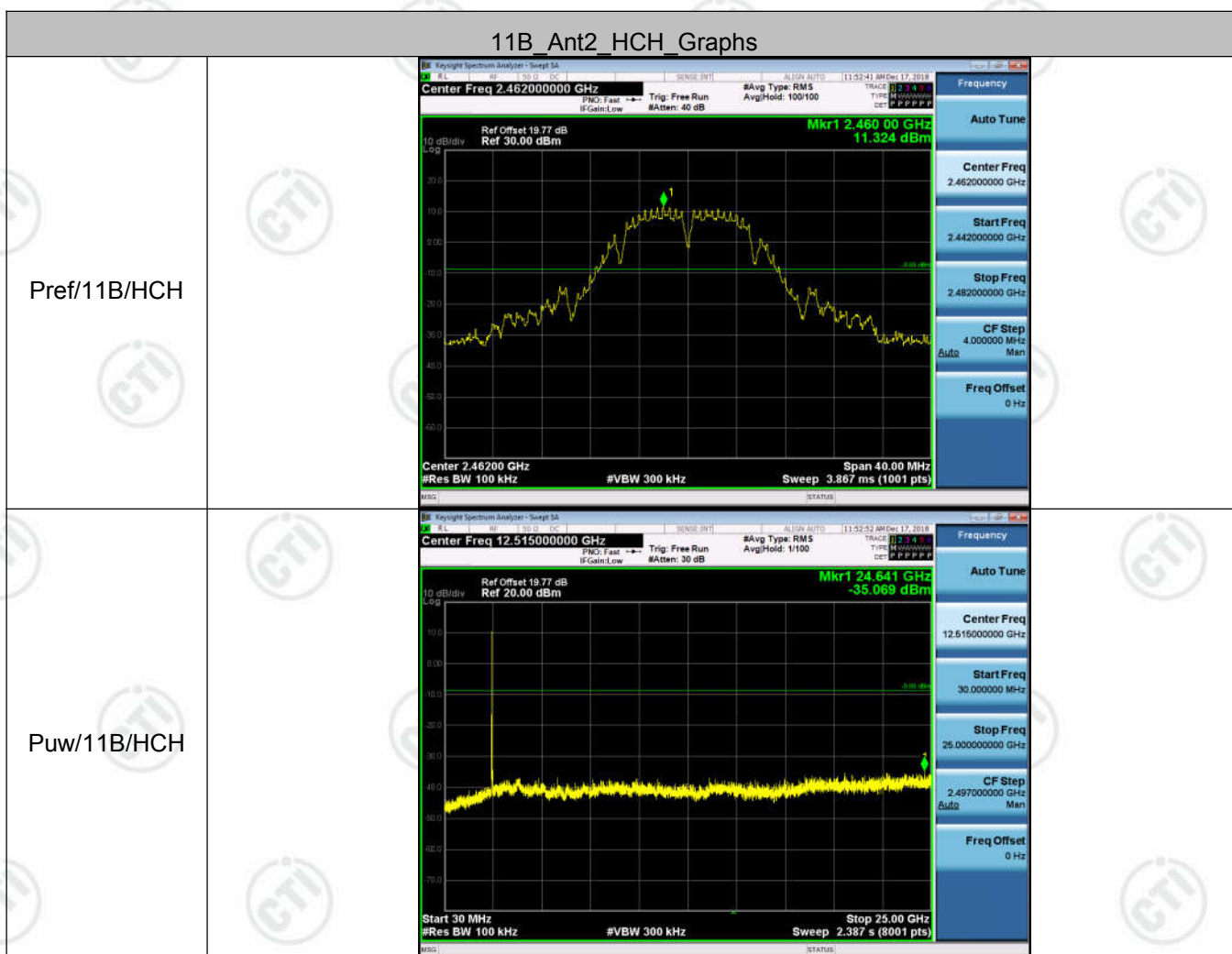
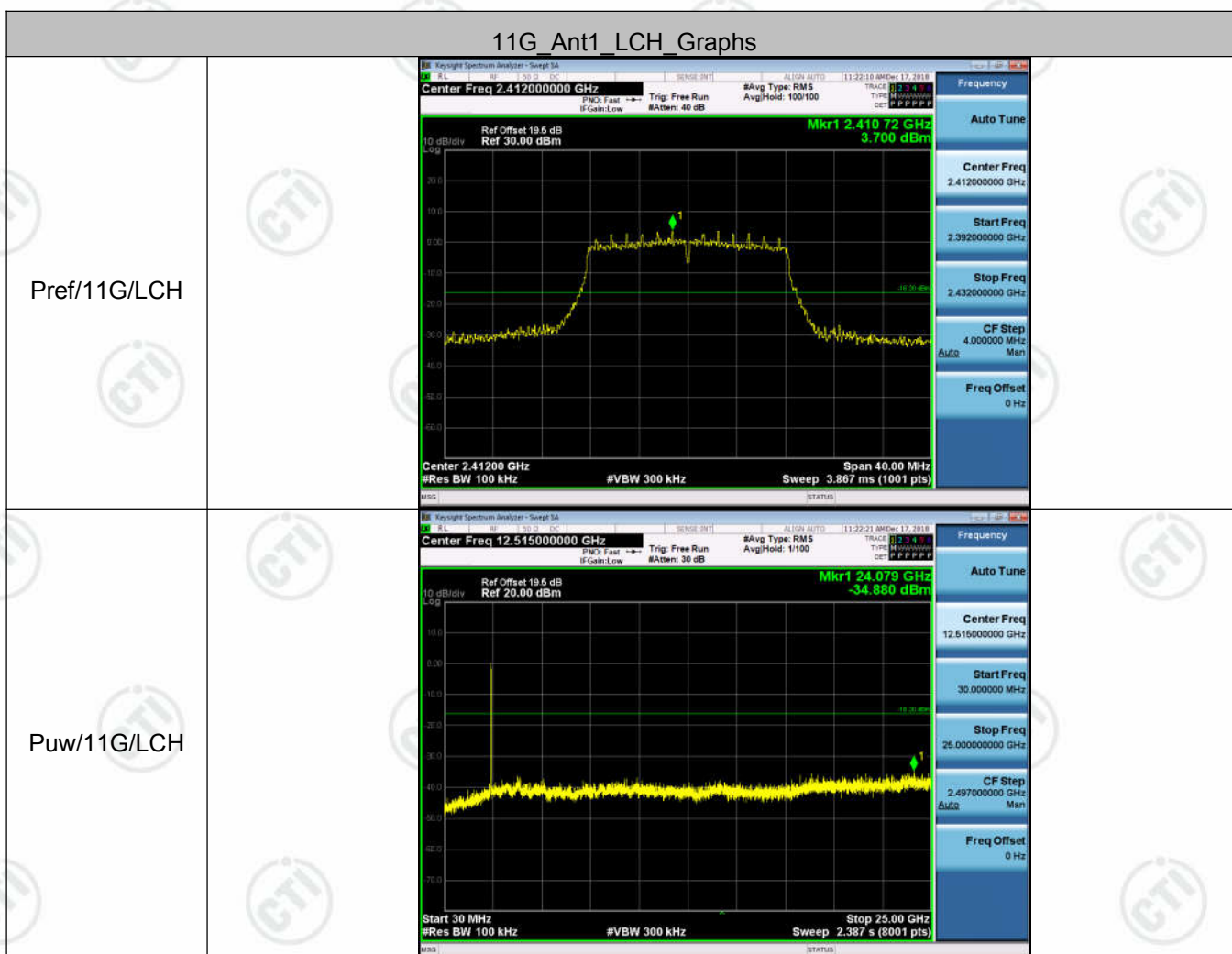
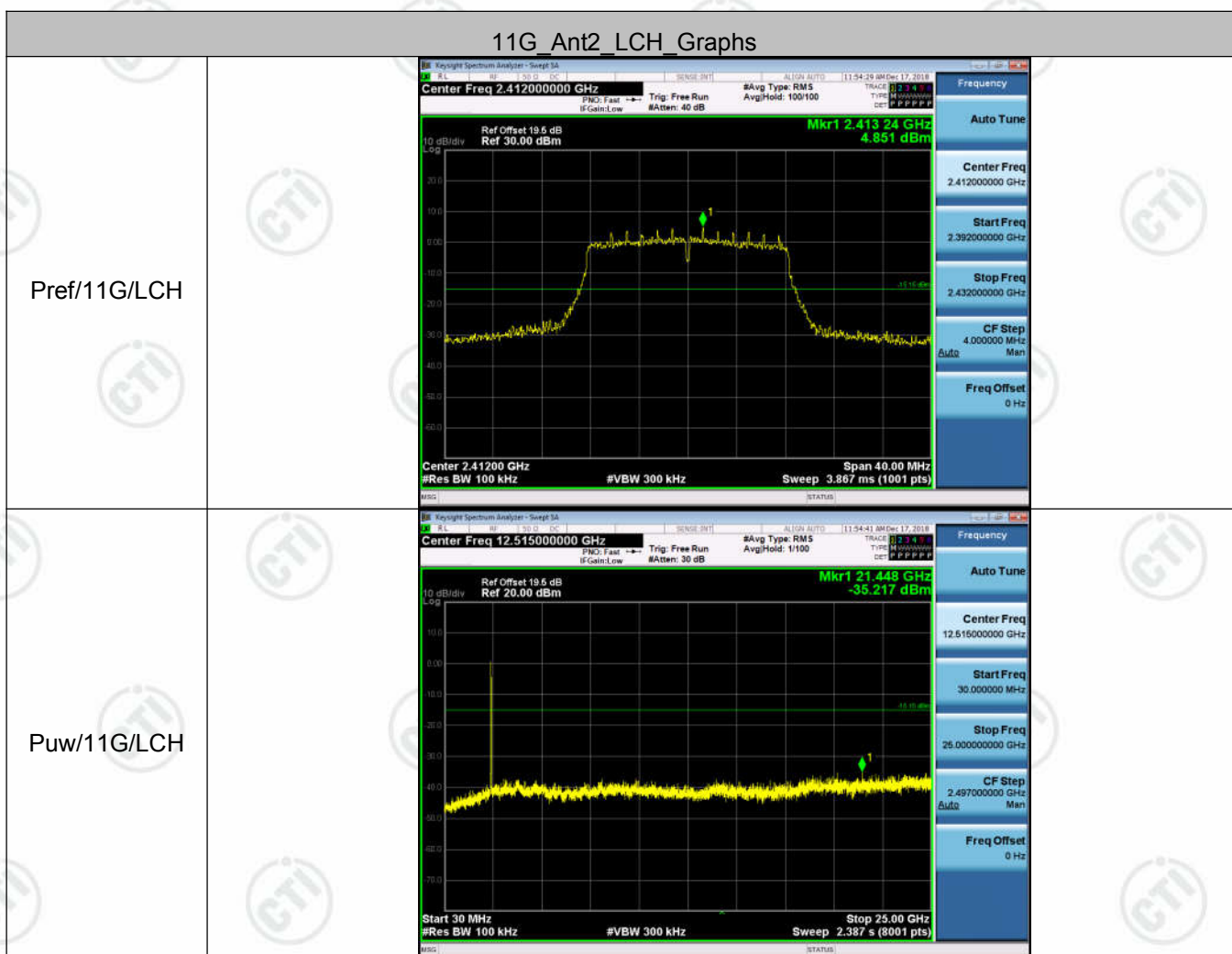
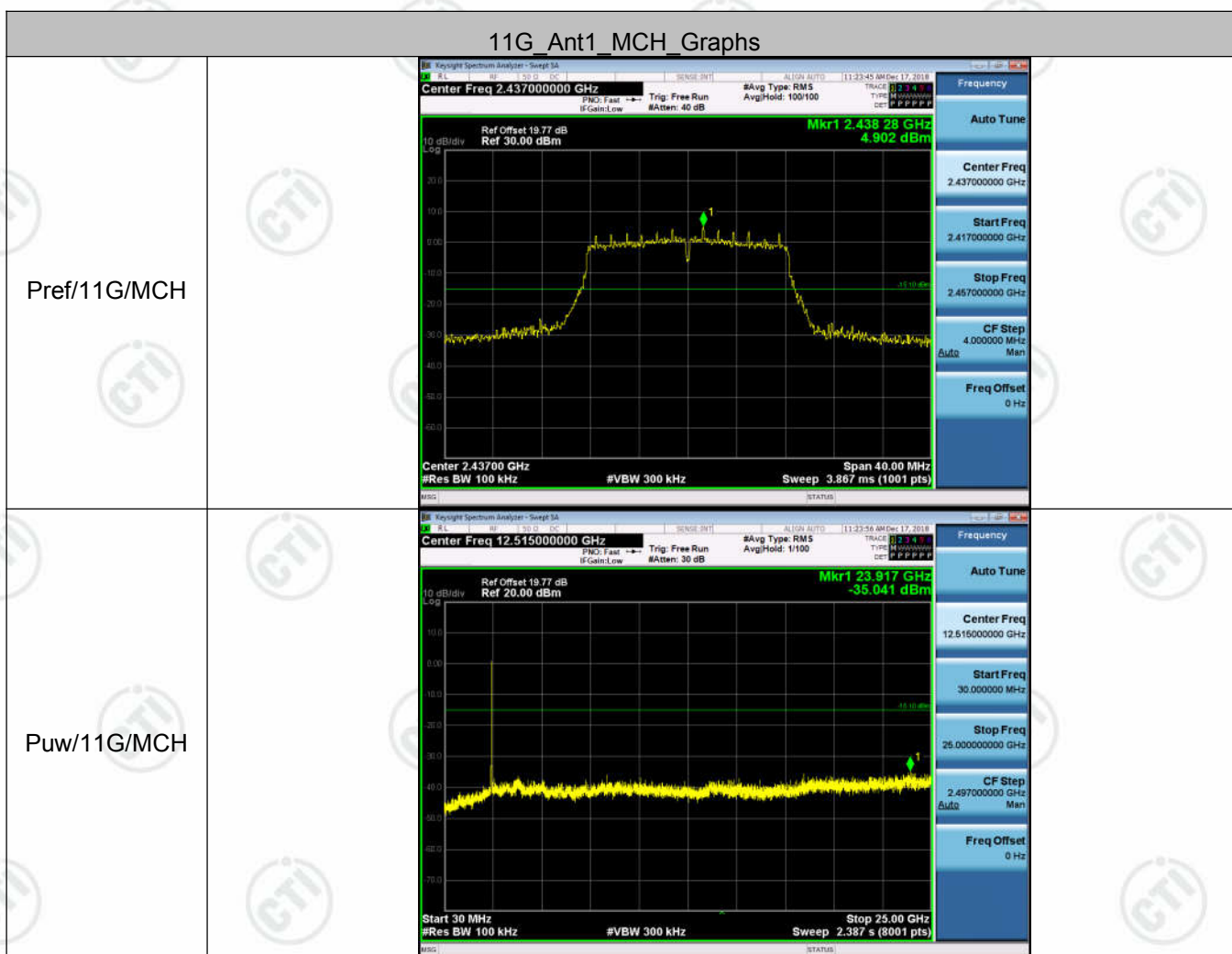


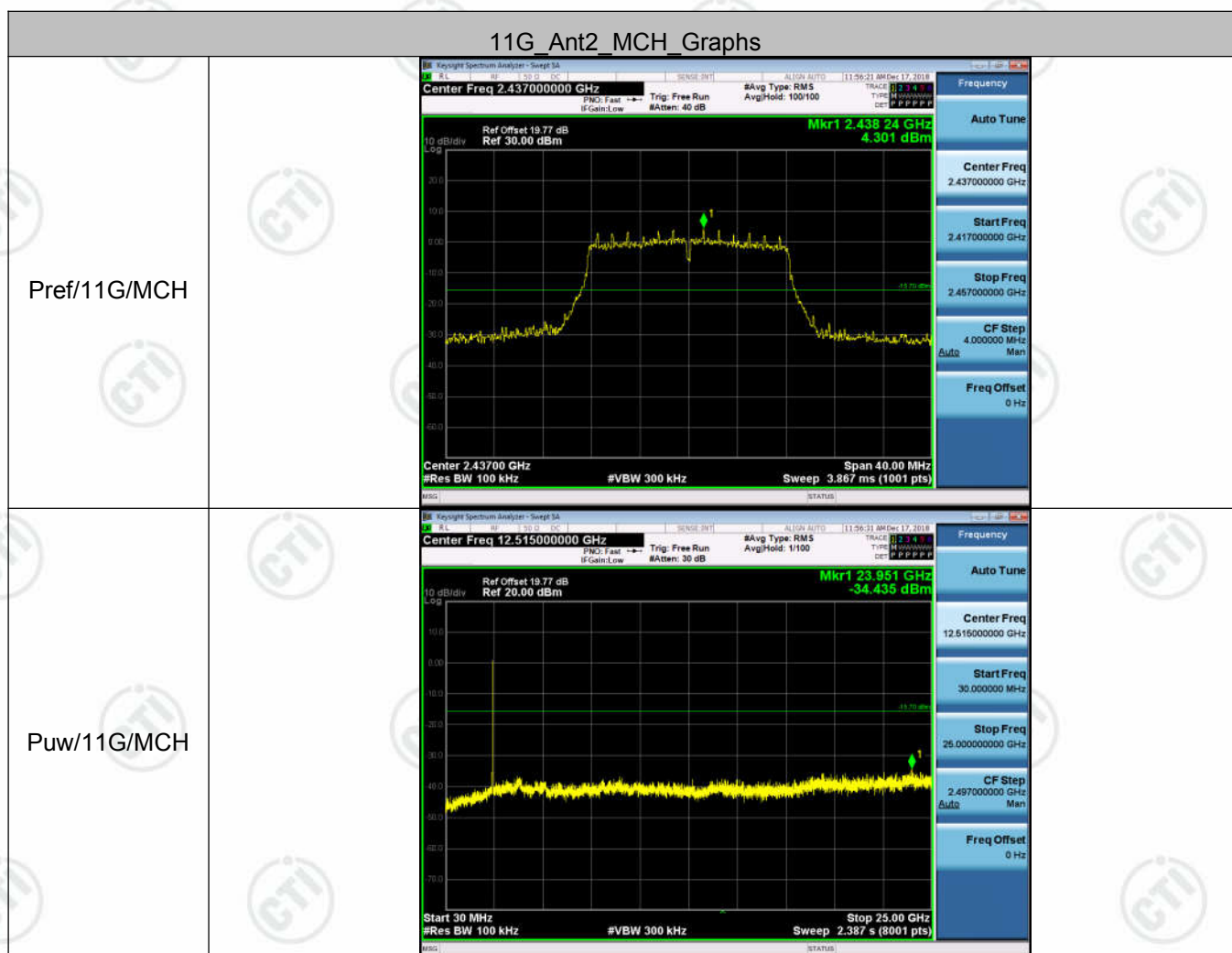


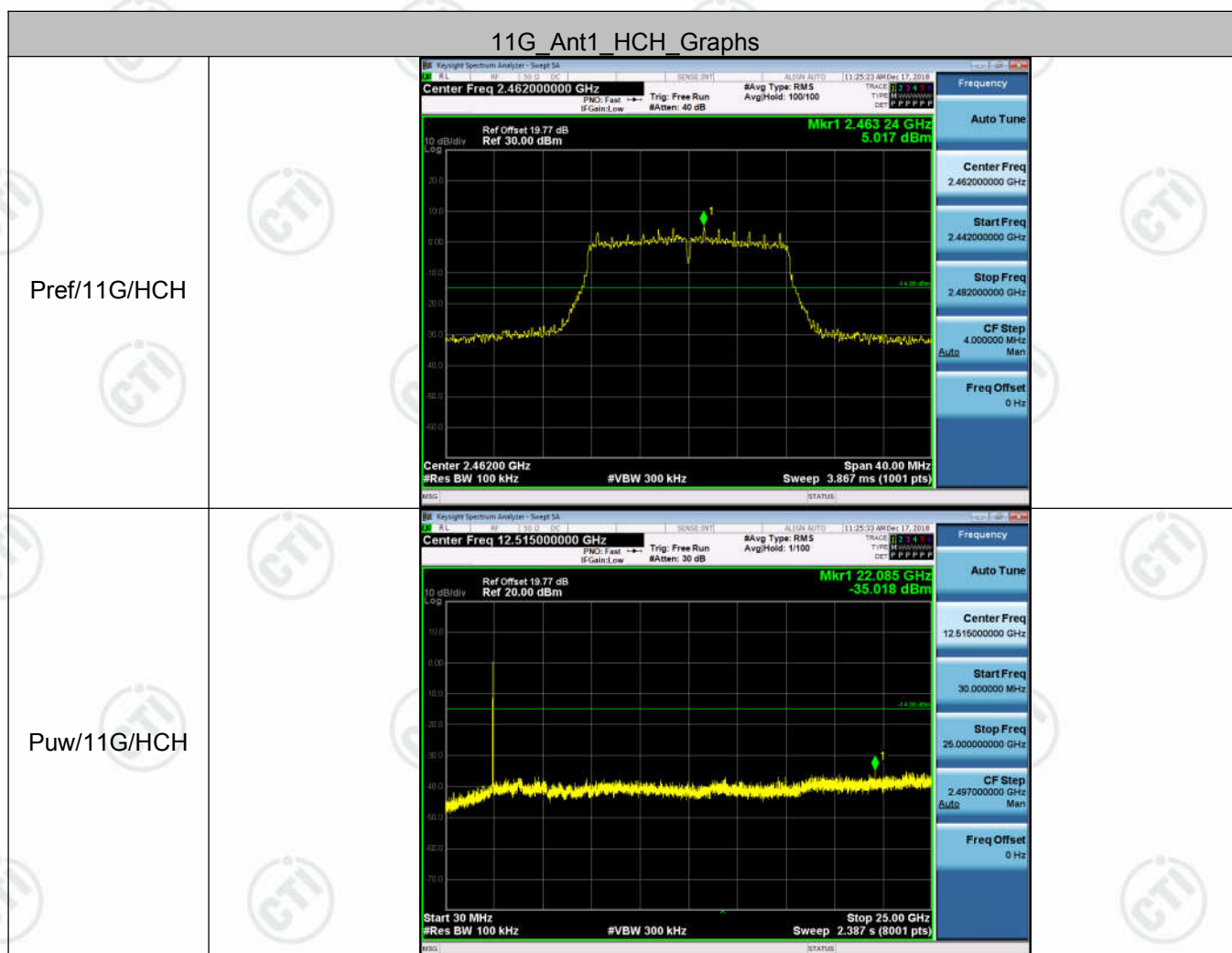


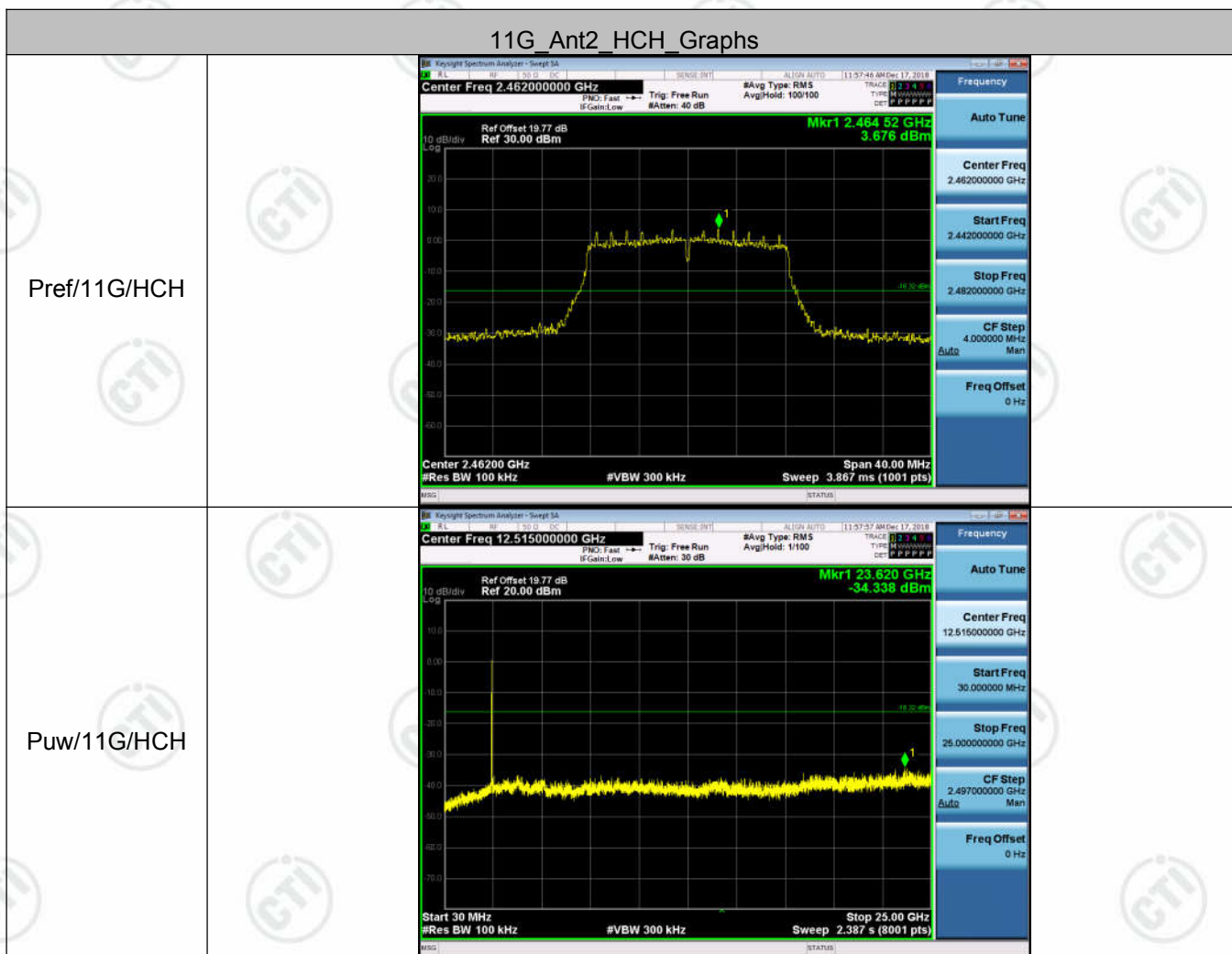


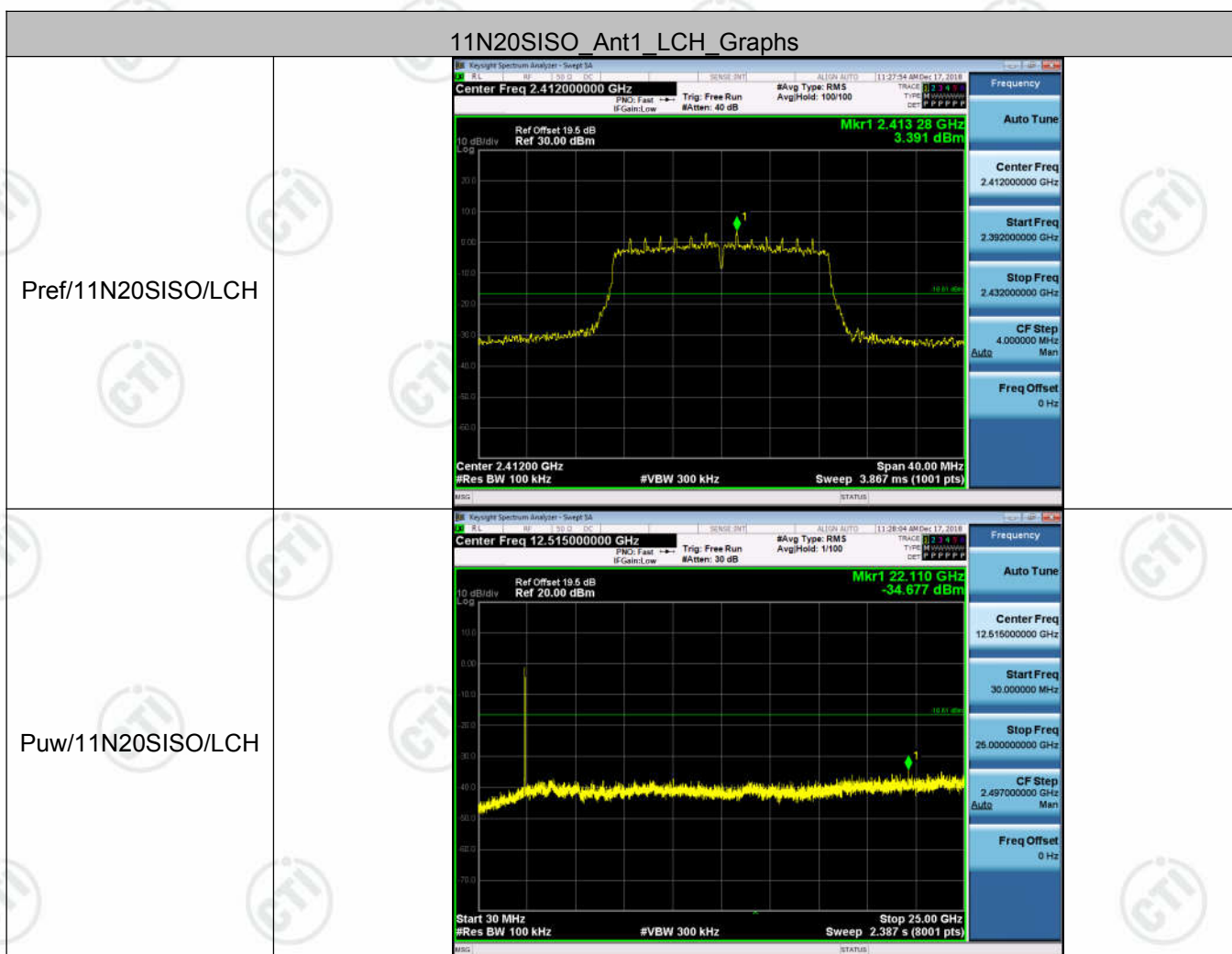


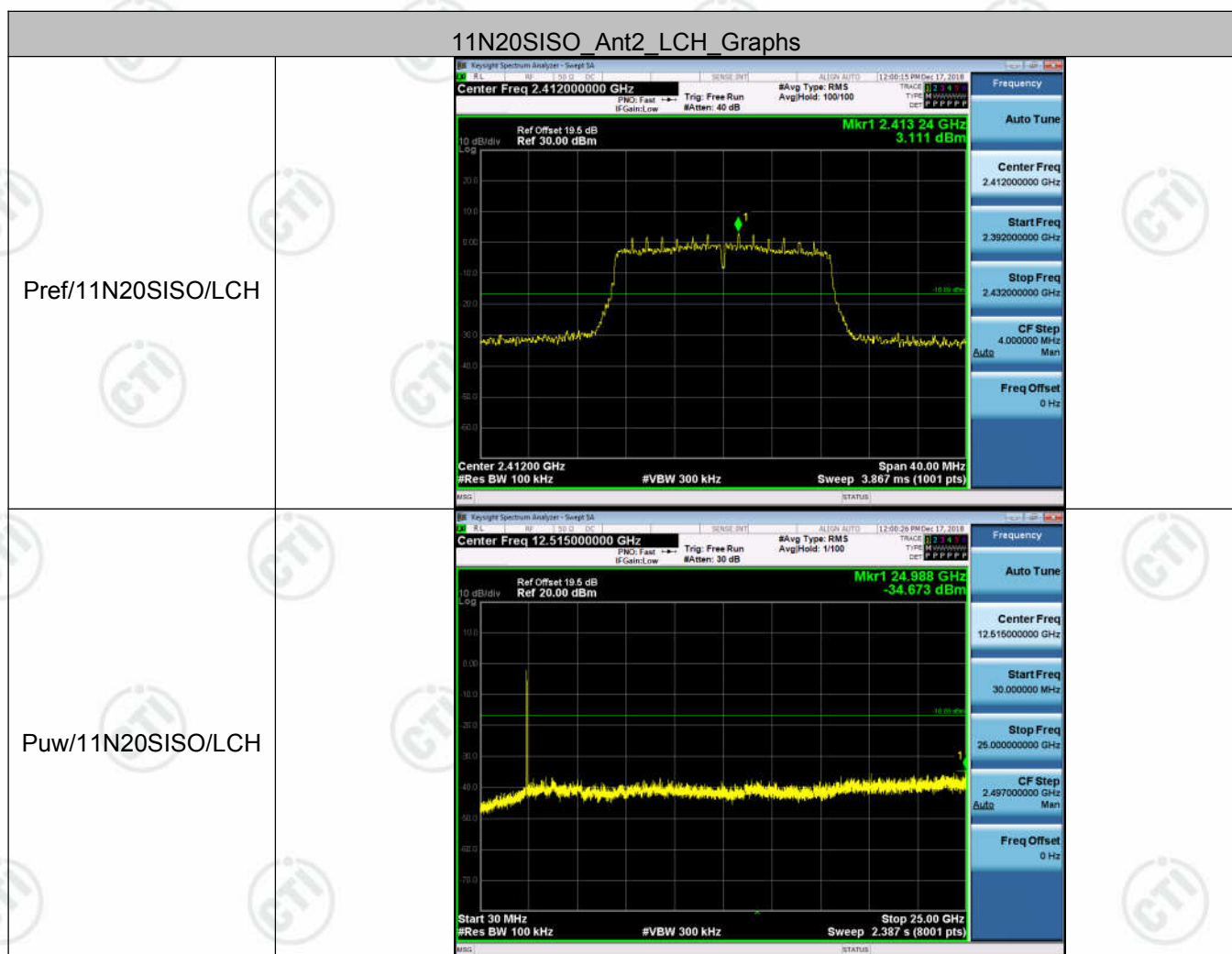


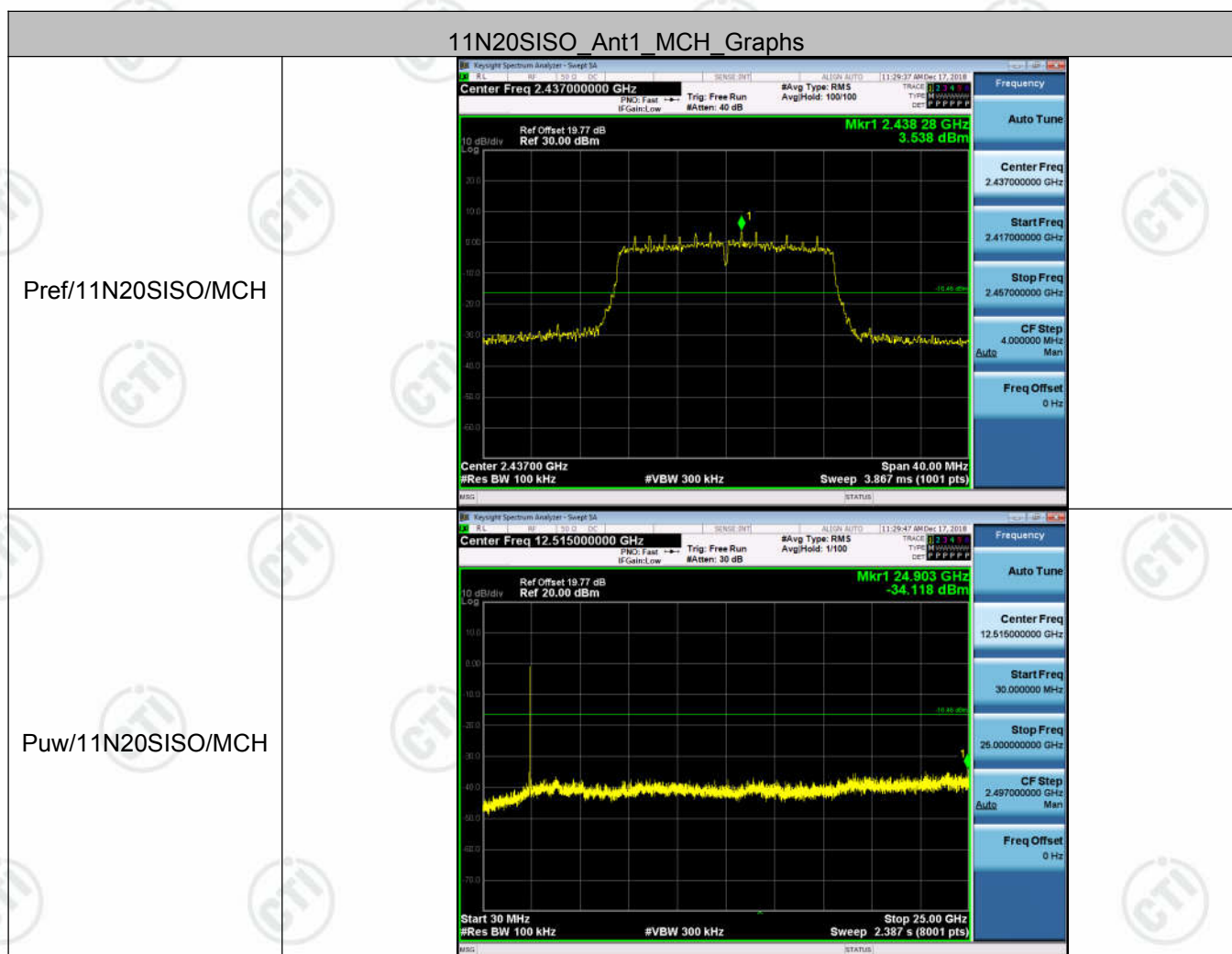


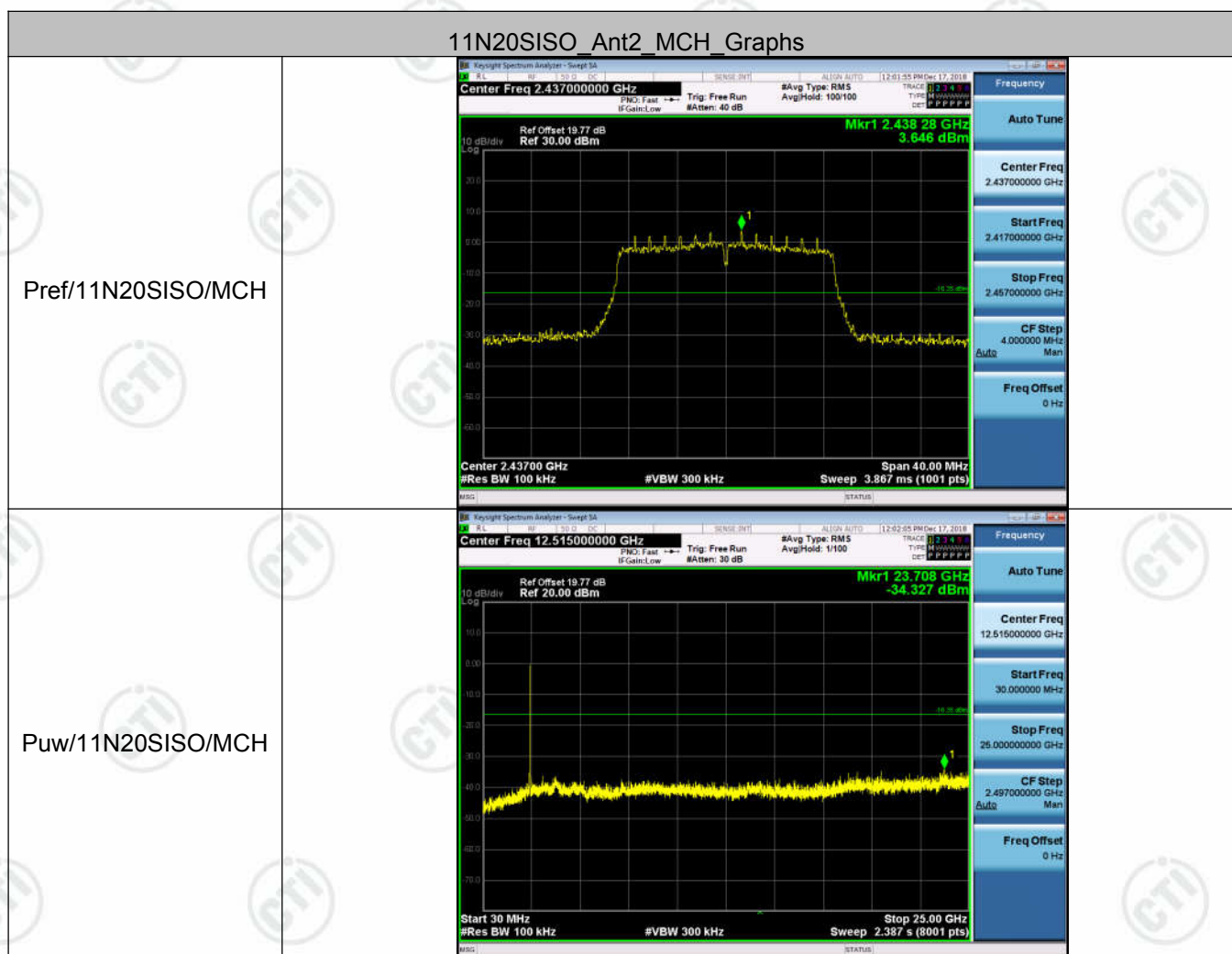


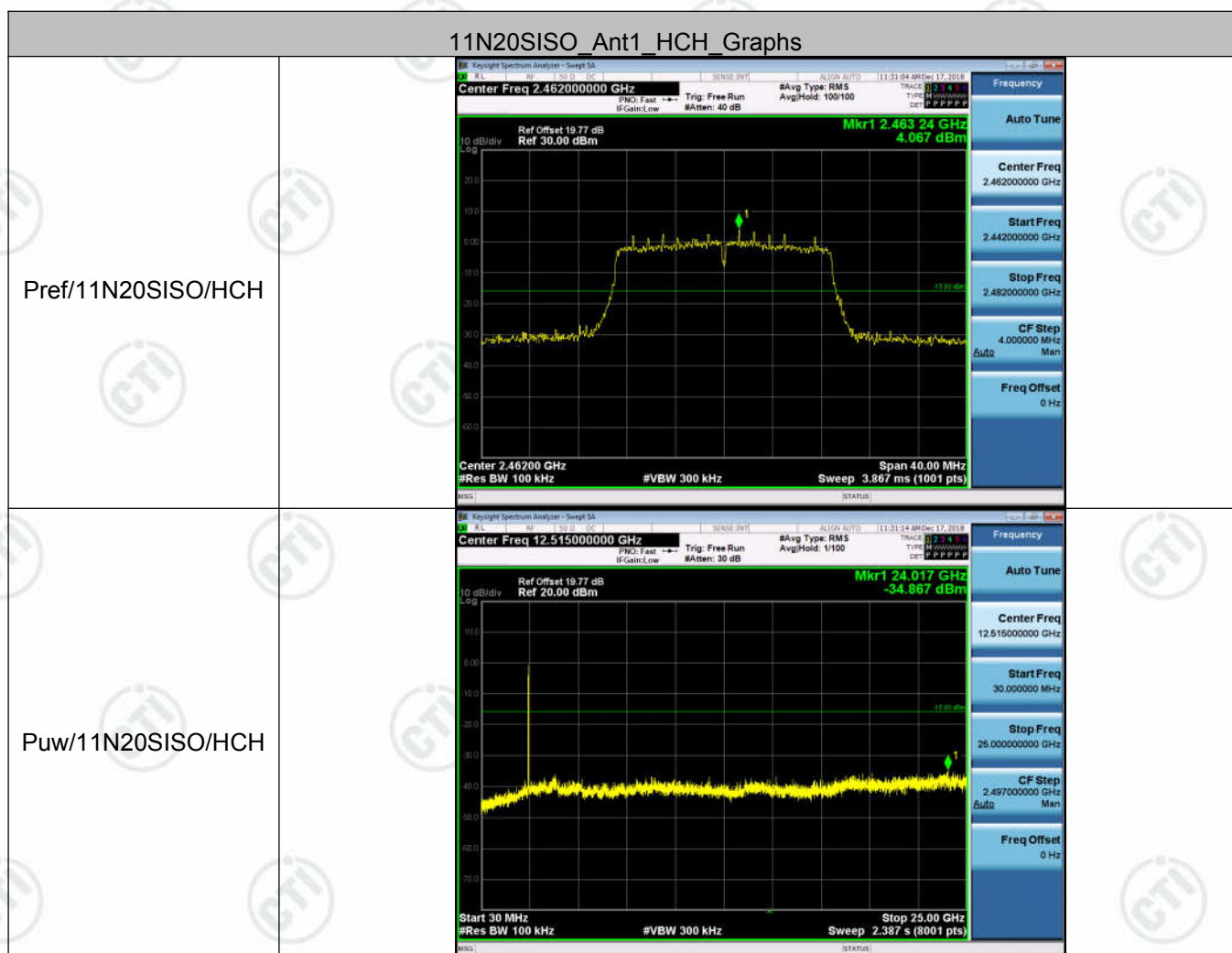


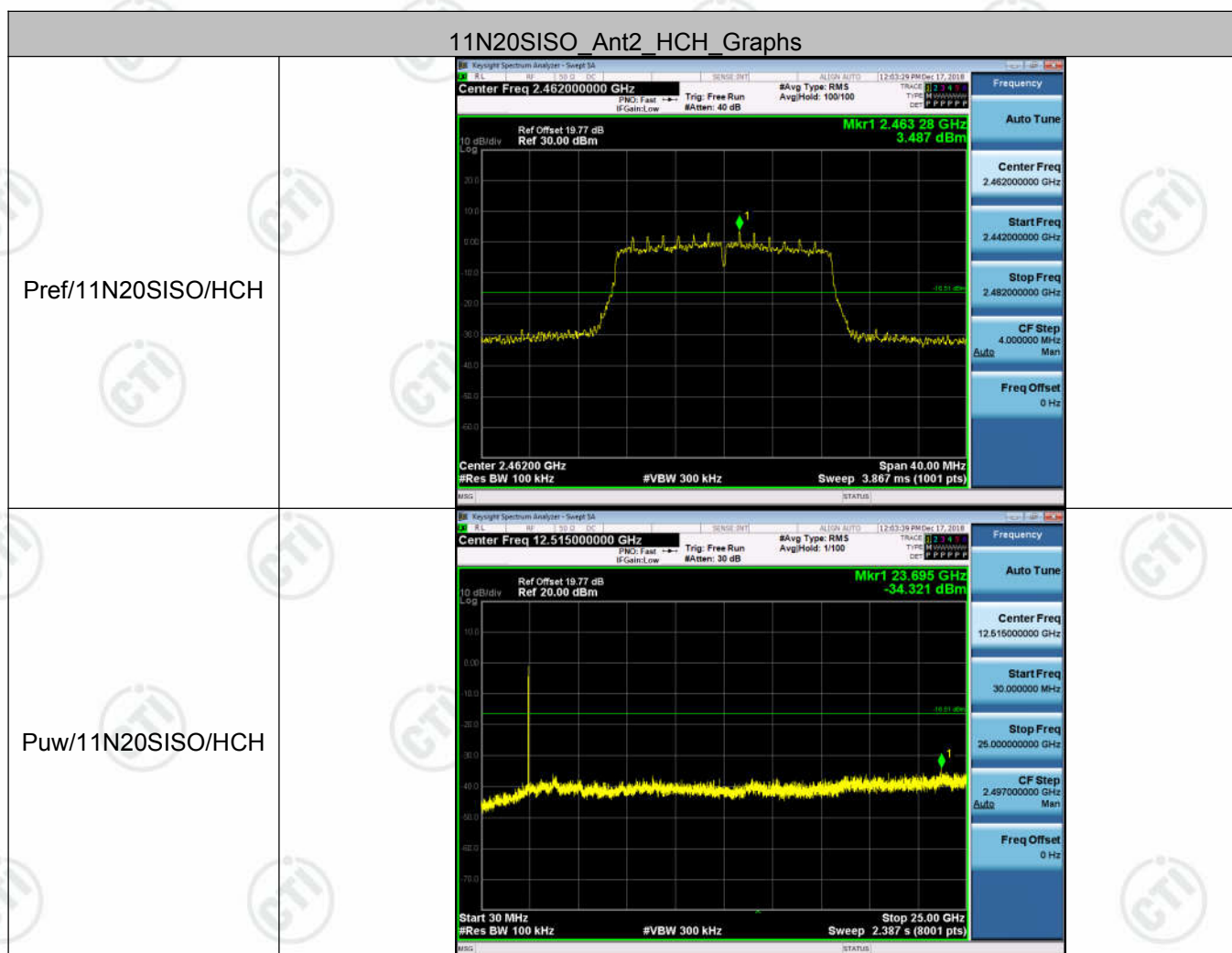


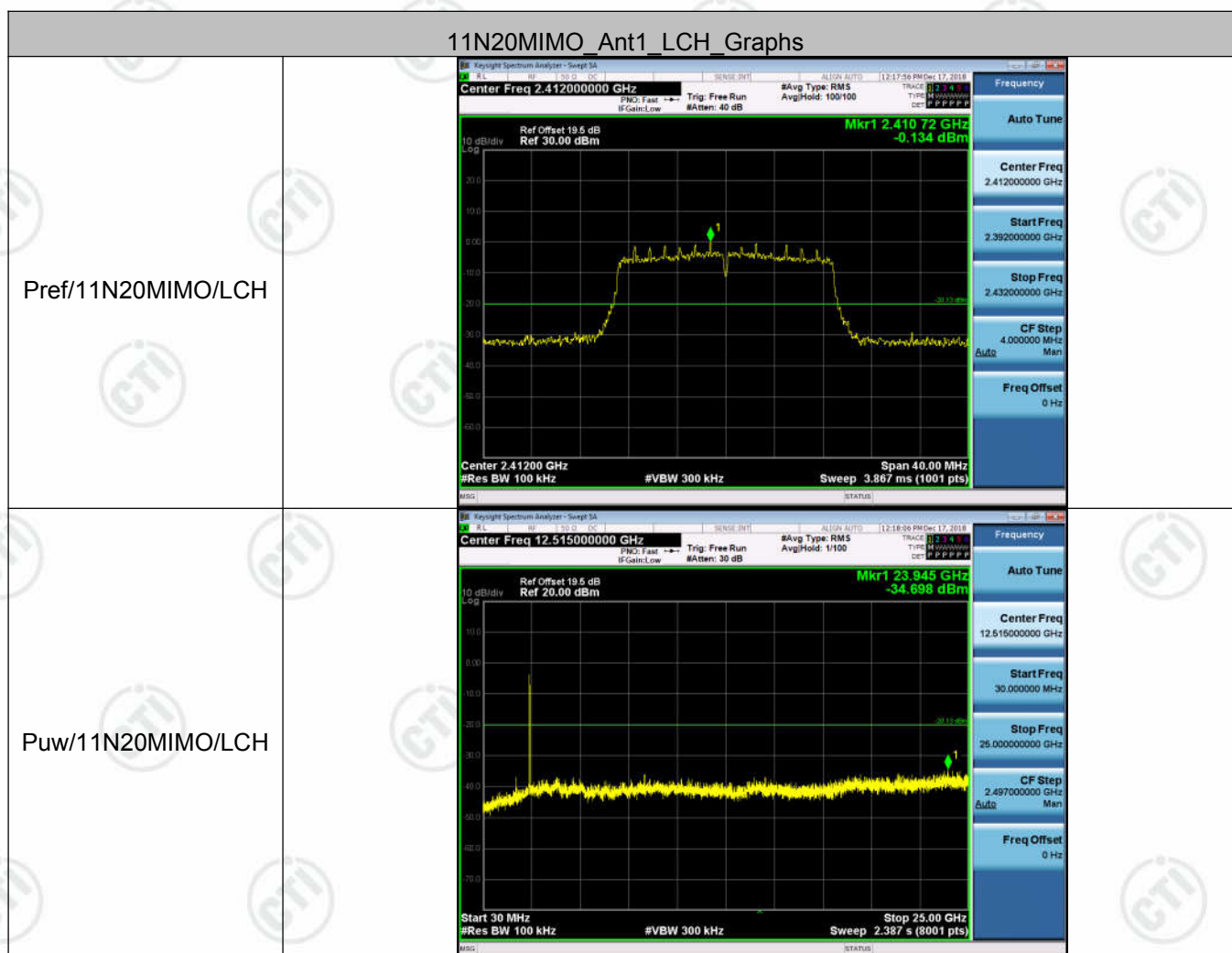


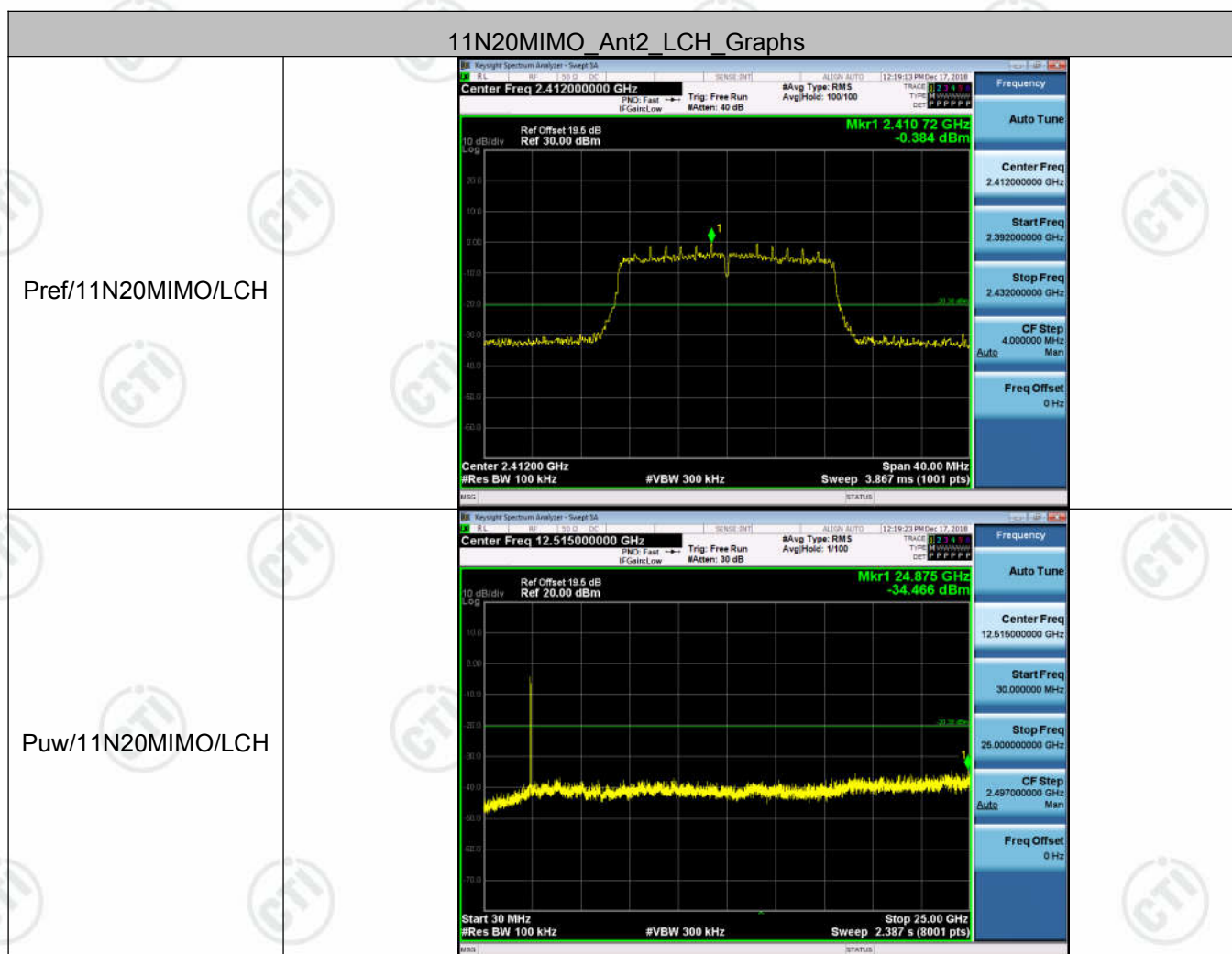


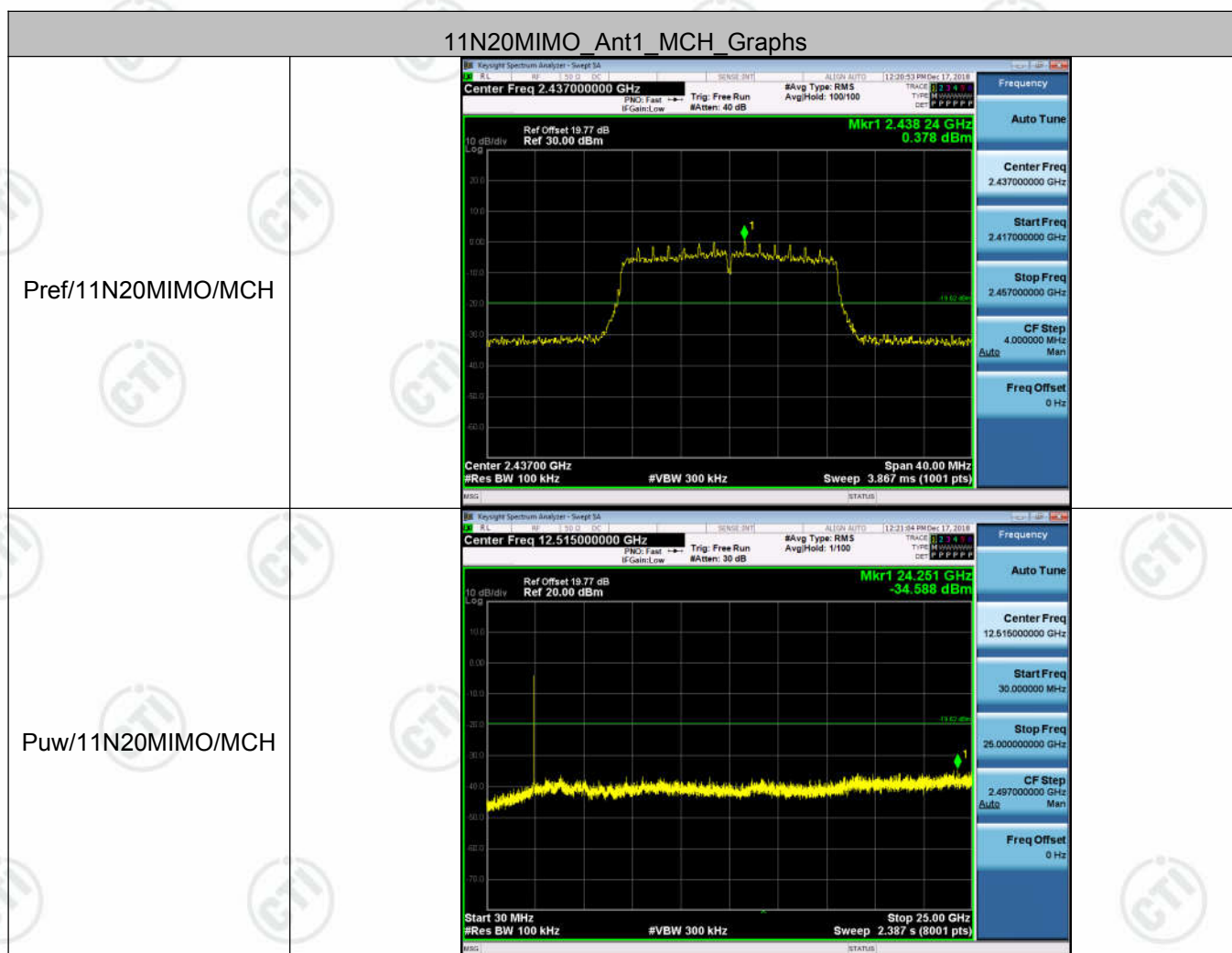


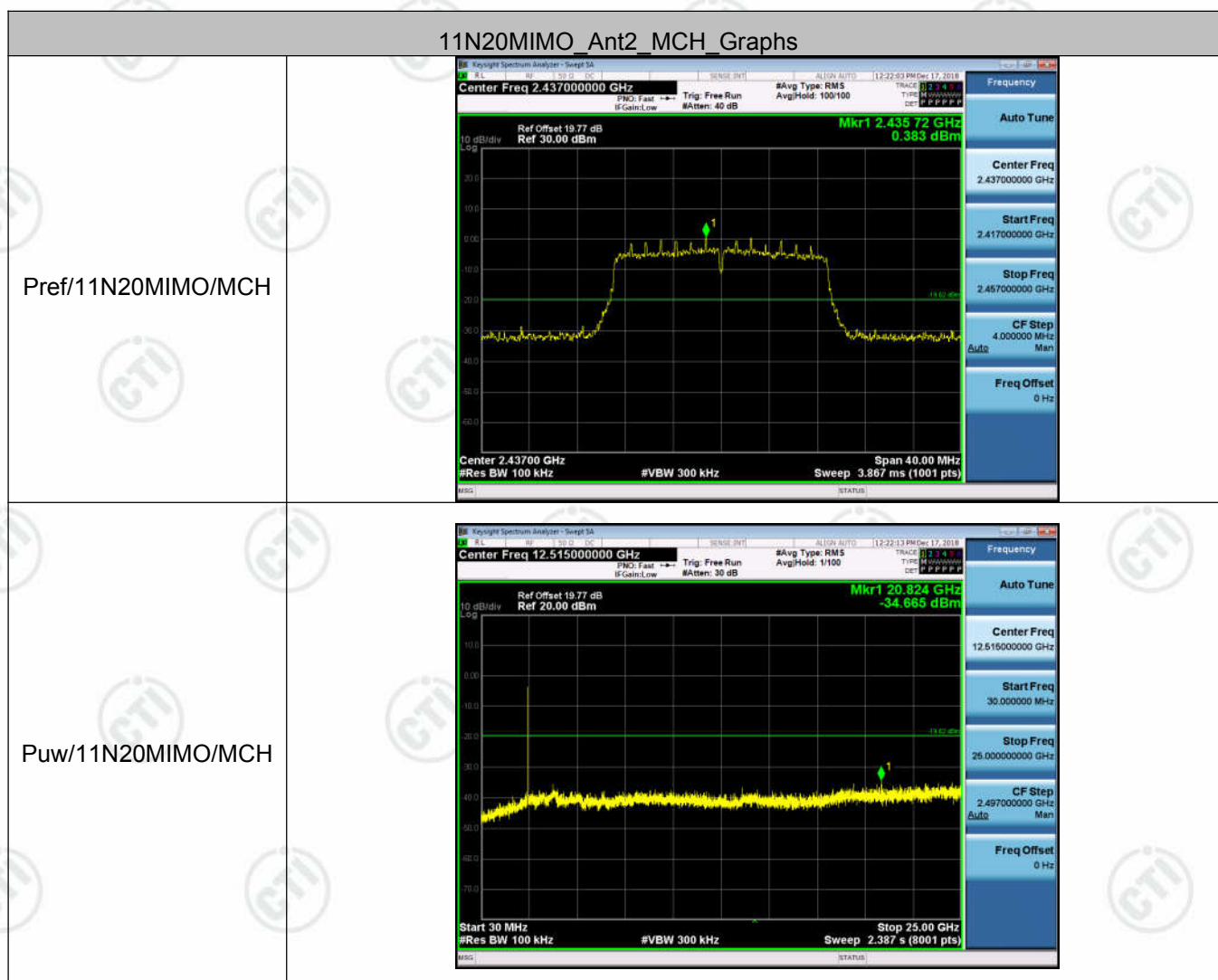


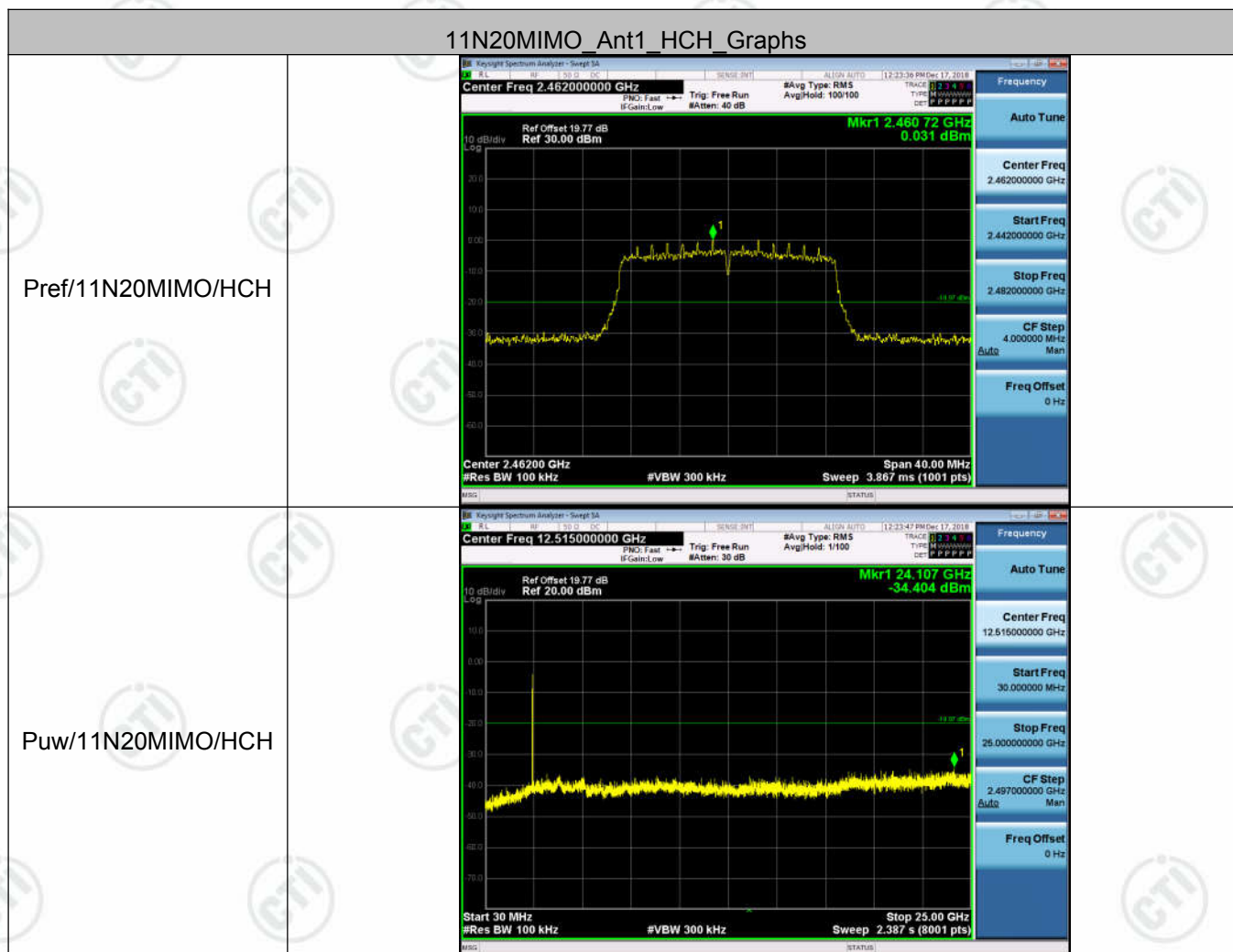


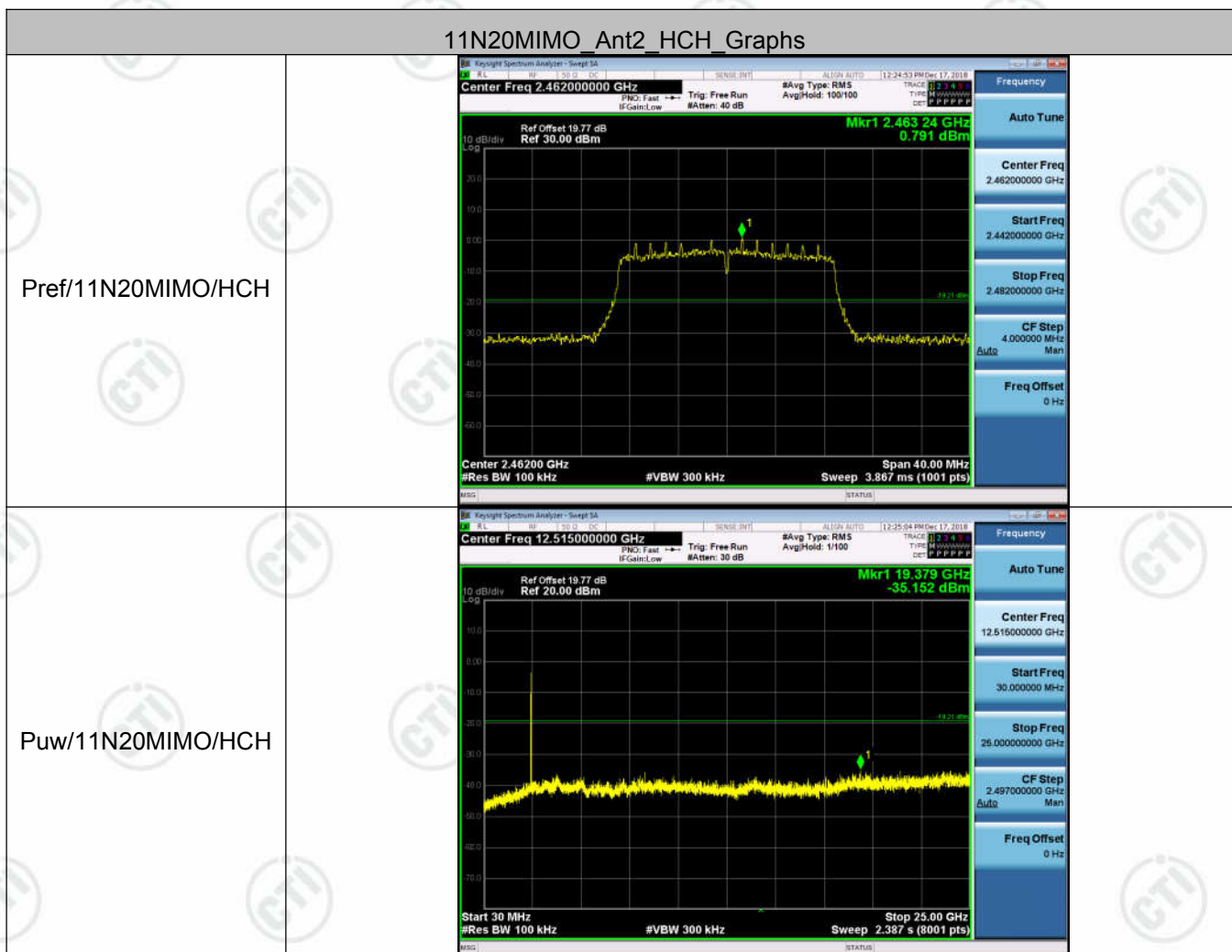


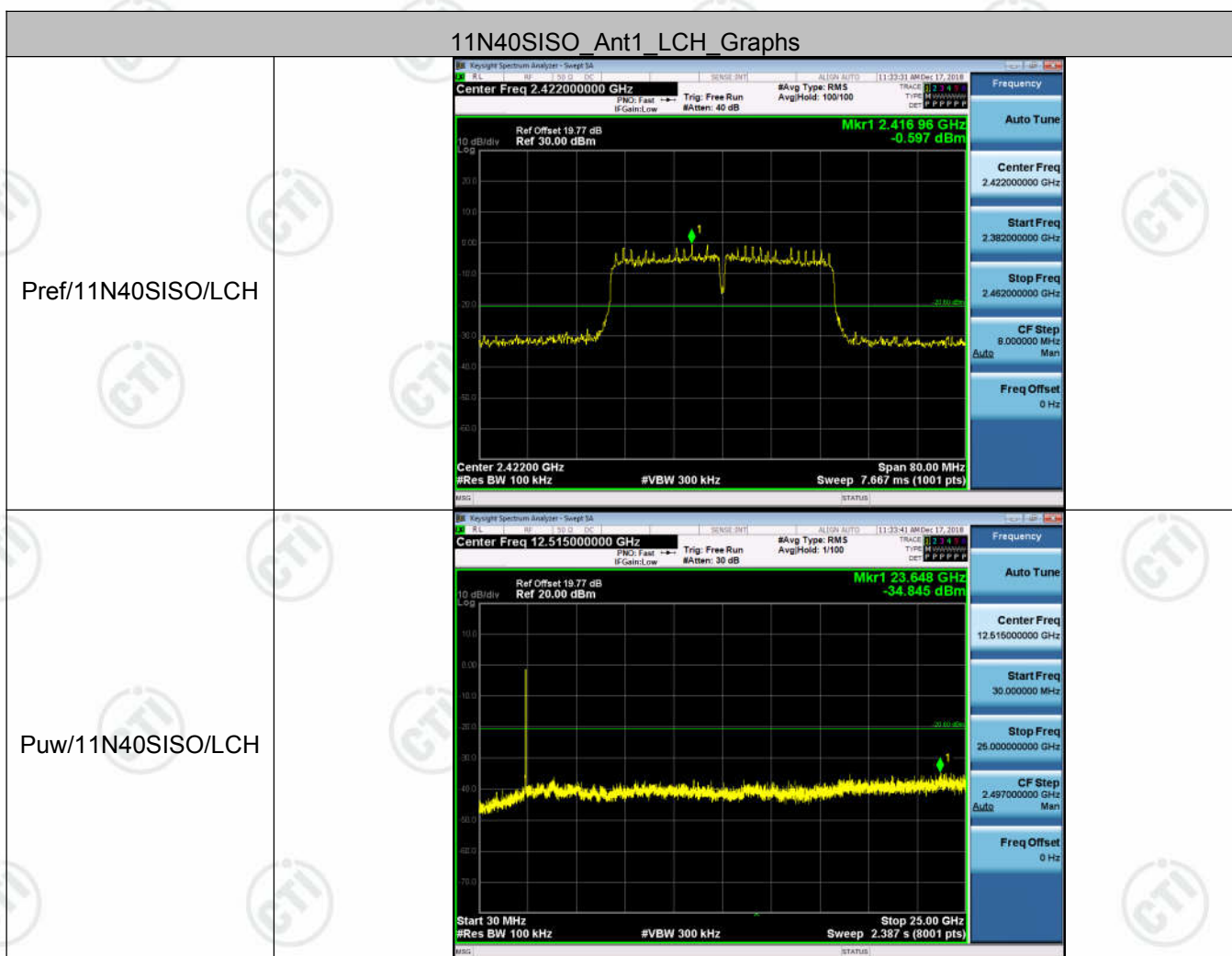


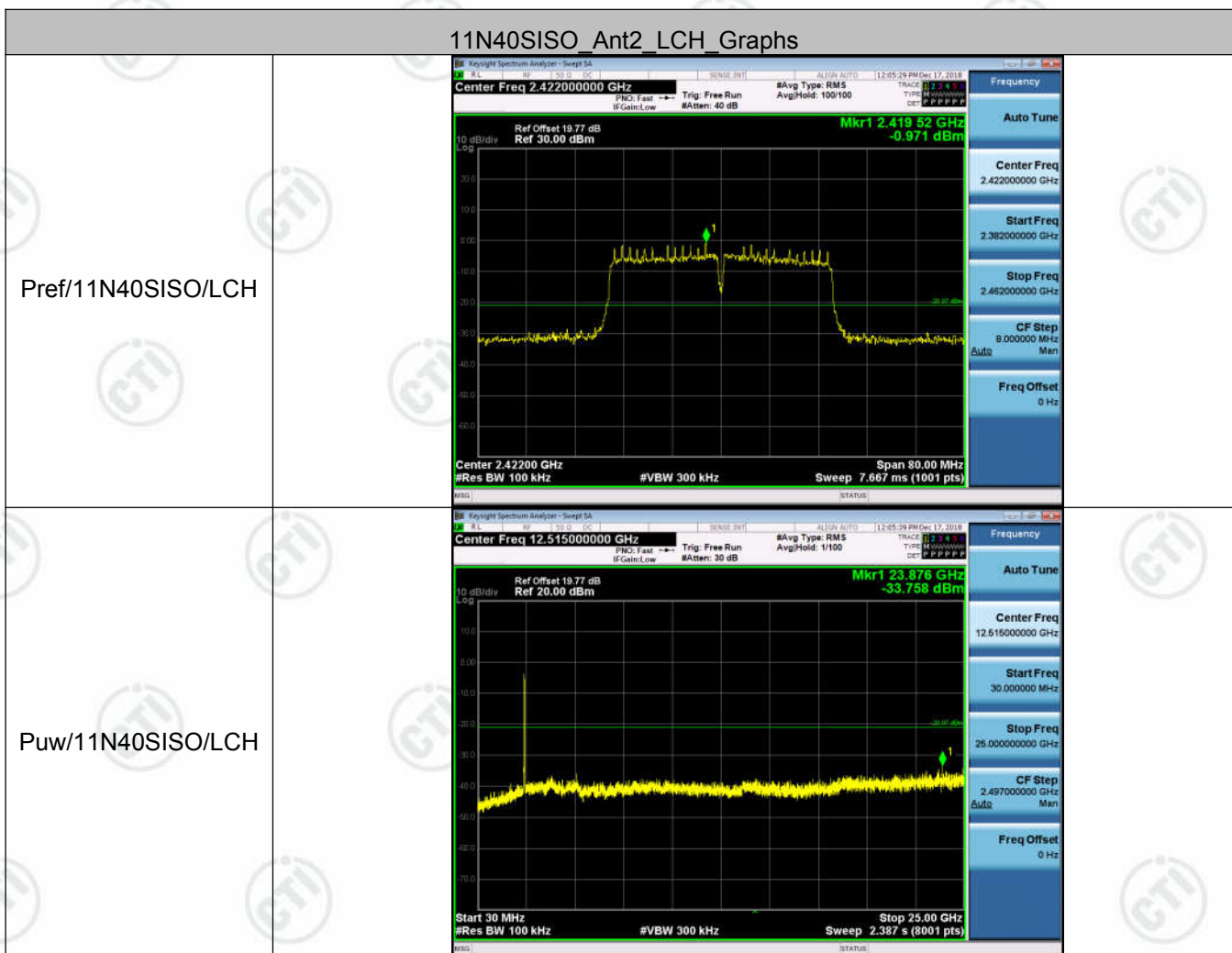


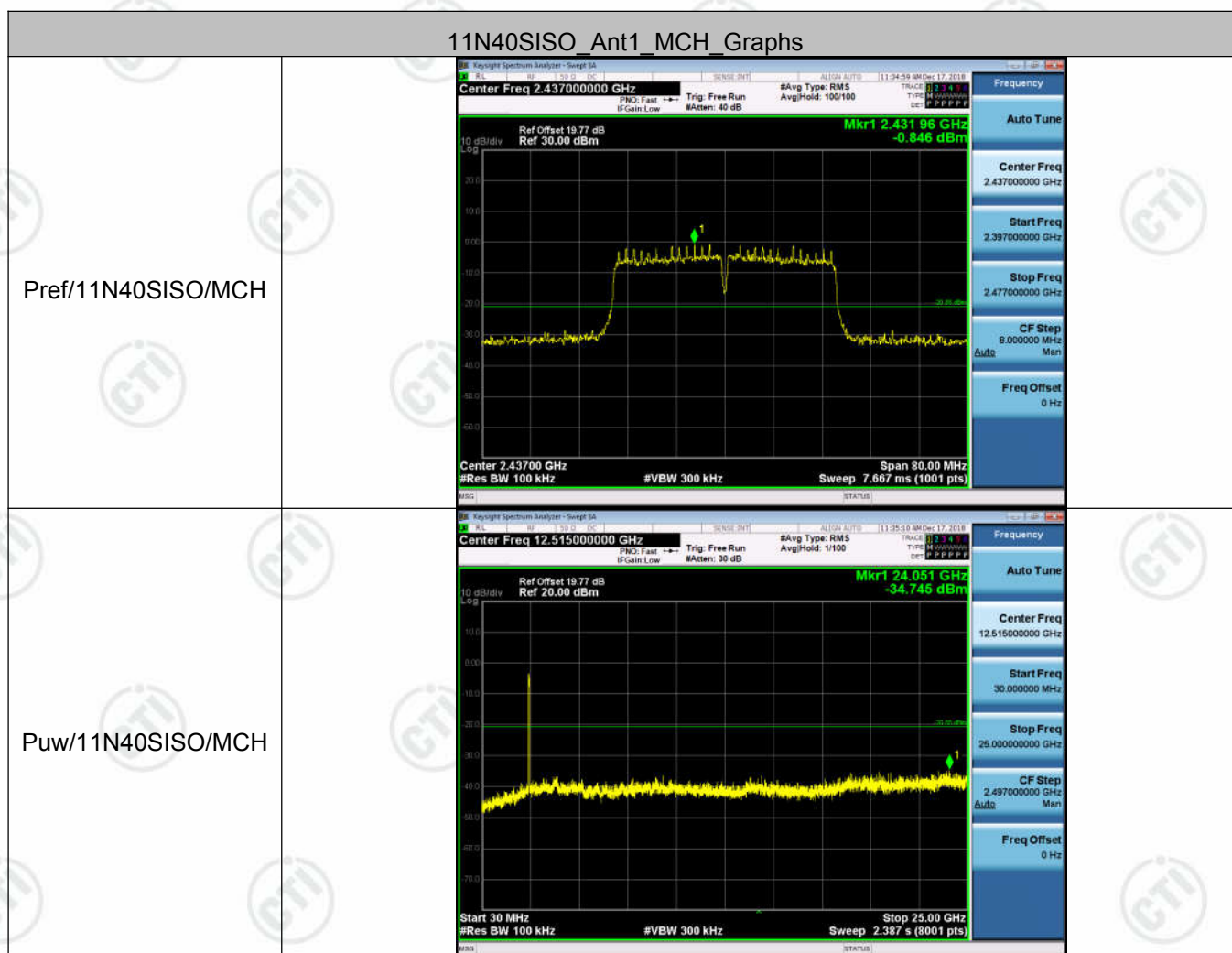


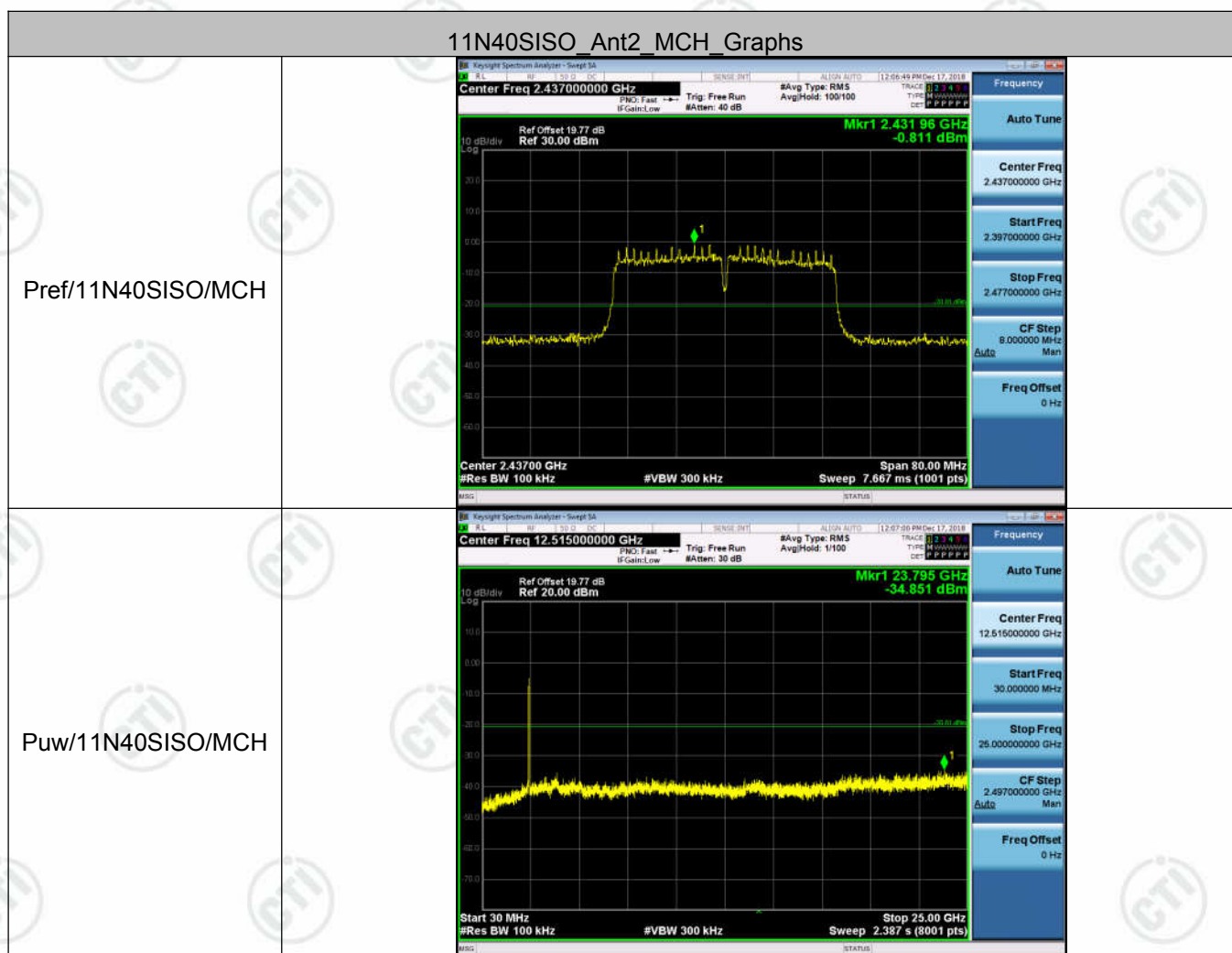






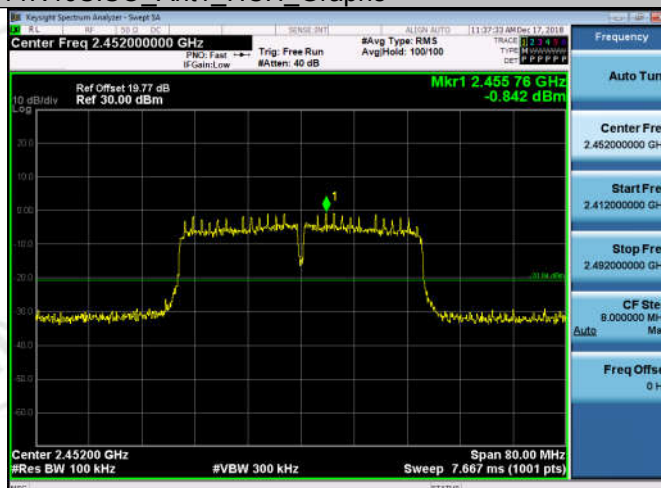




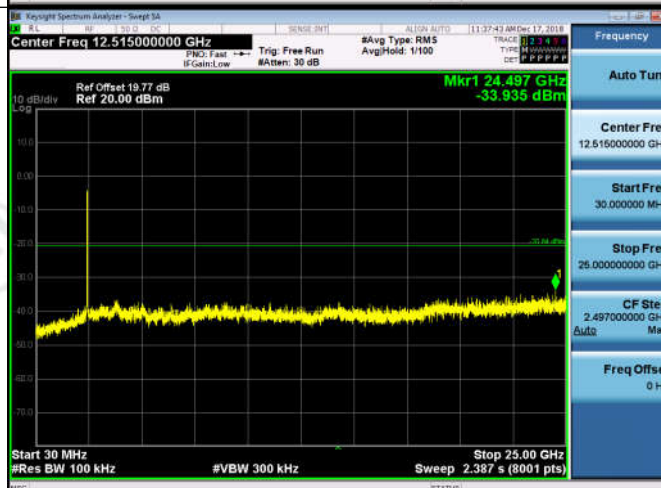


11N40SISO_Ant1_HCH_Graphs

Pref/11N40SISO/HCH

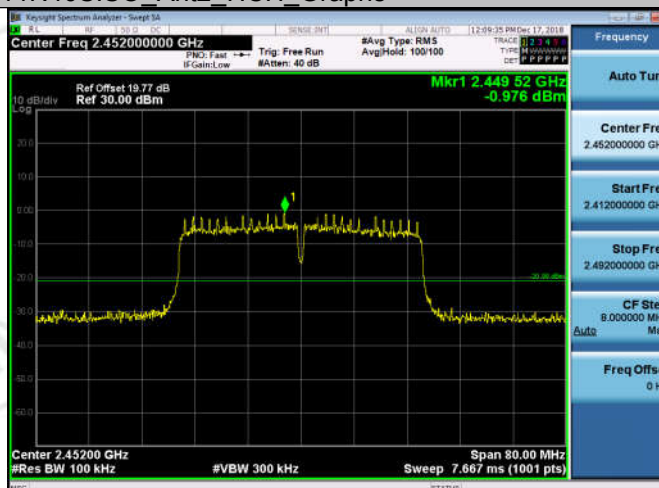


Puw/11N40SISO/HCH

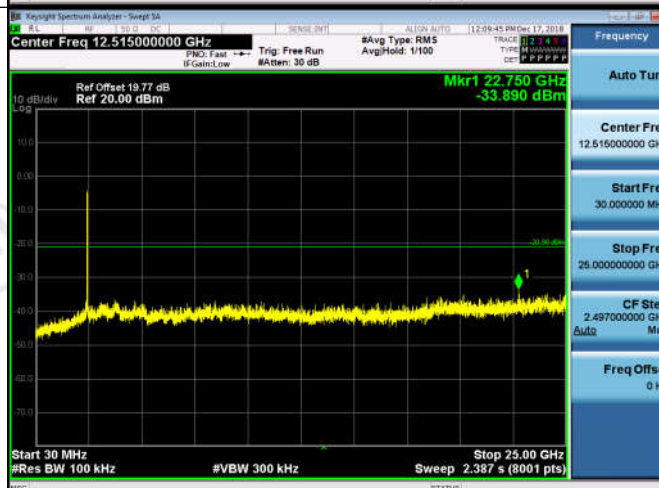


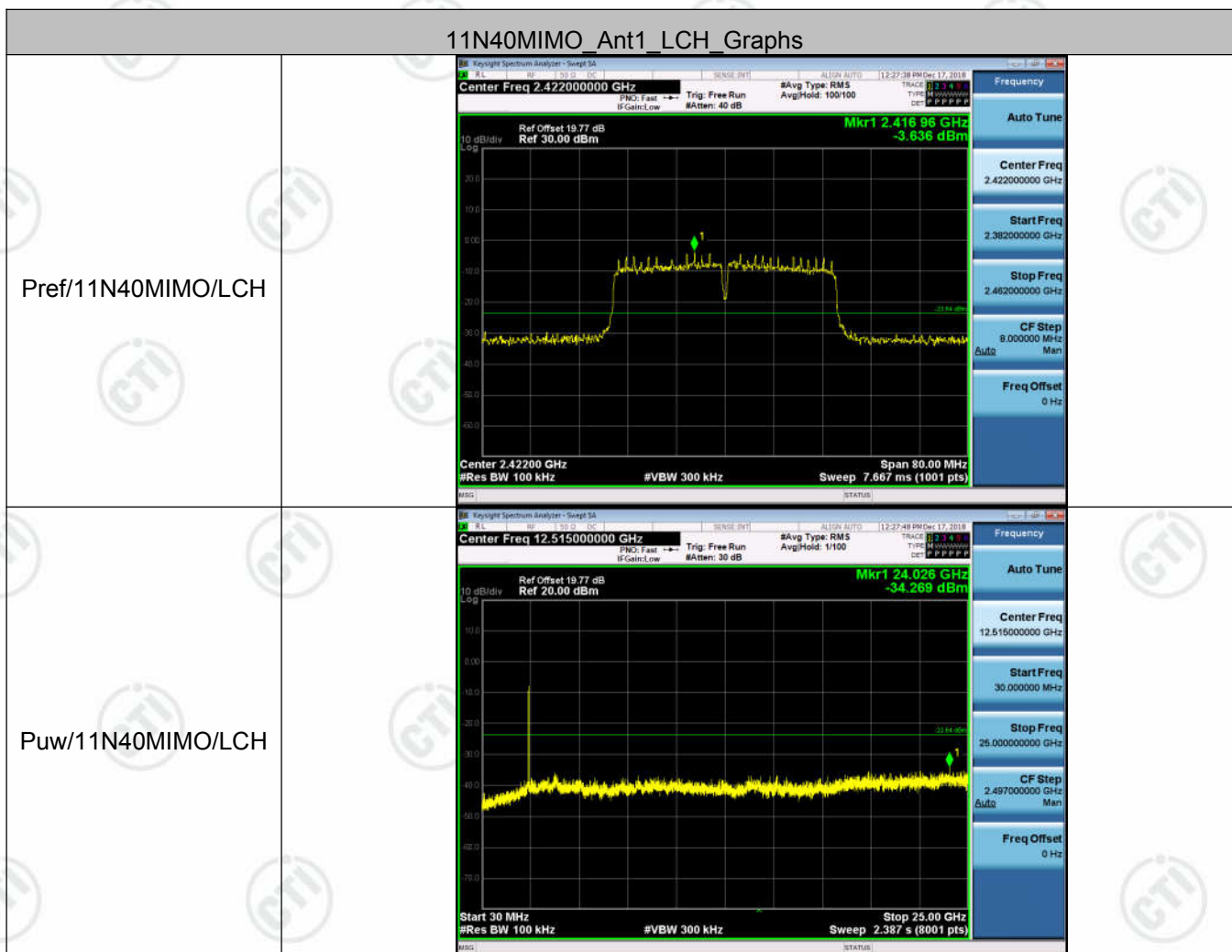
11N40SISO_Ant2_HCH_Graphs

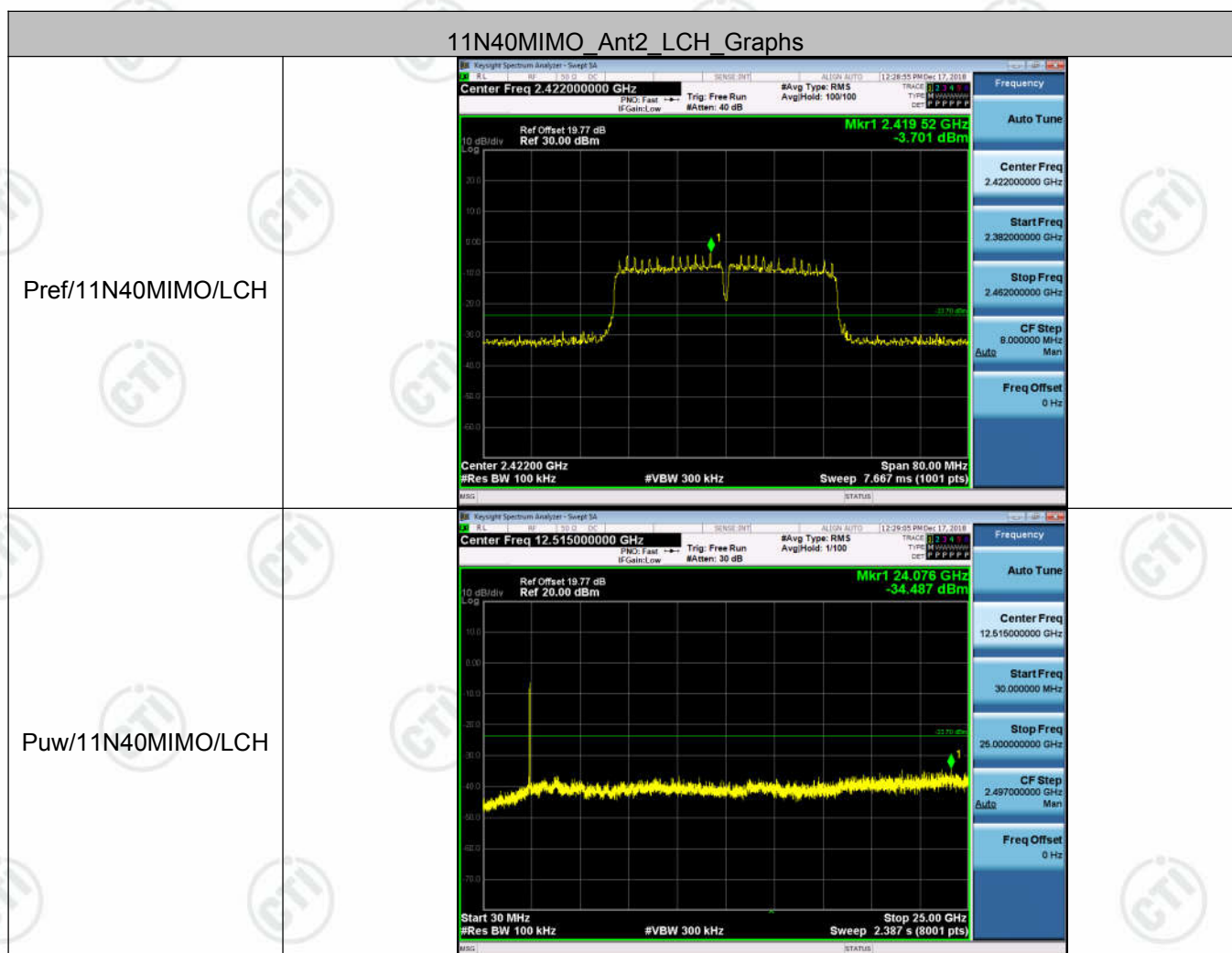
Pref/11N40SISO/HCH

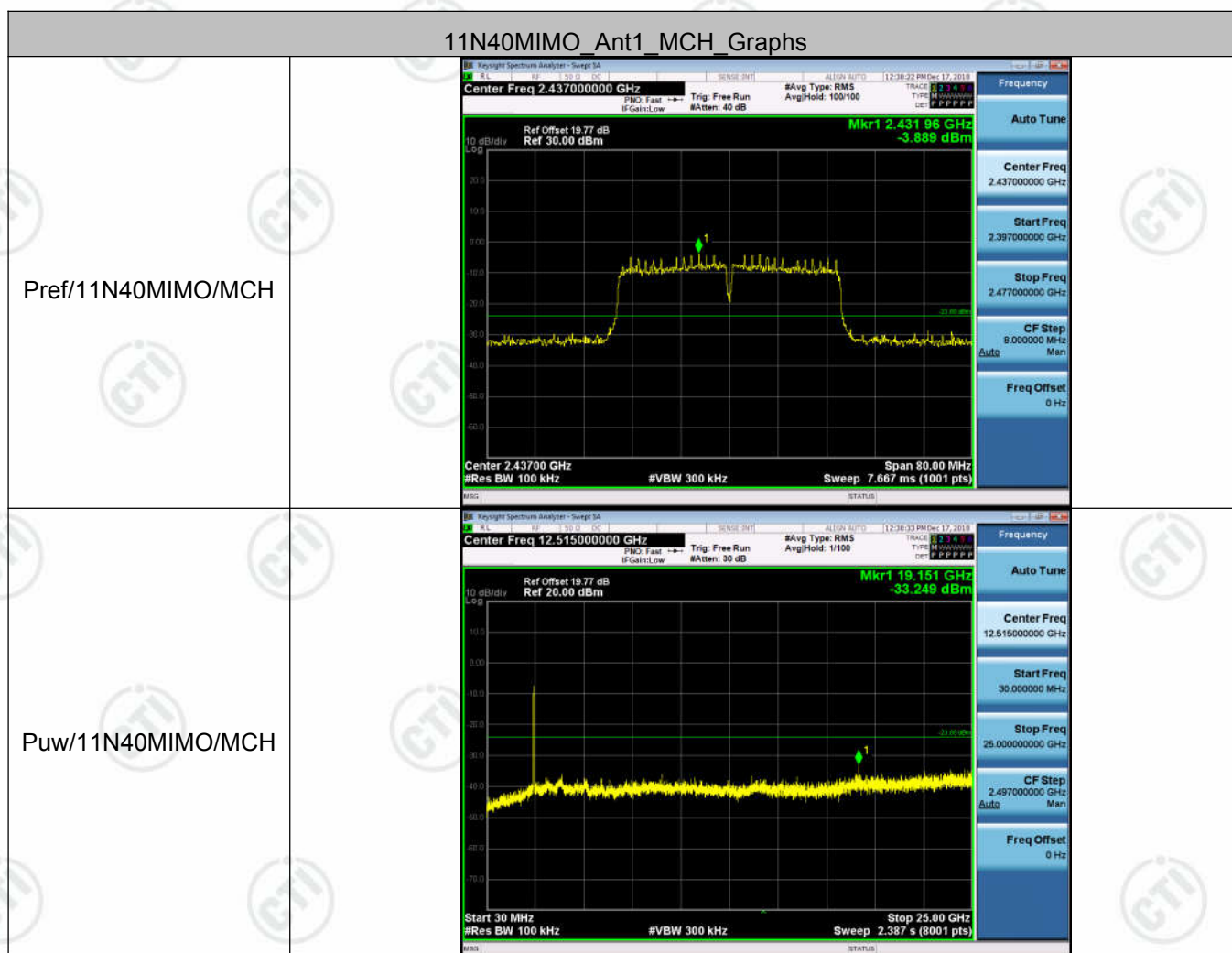


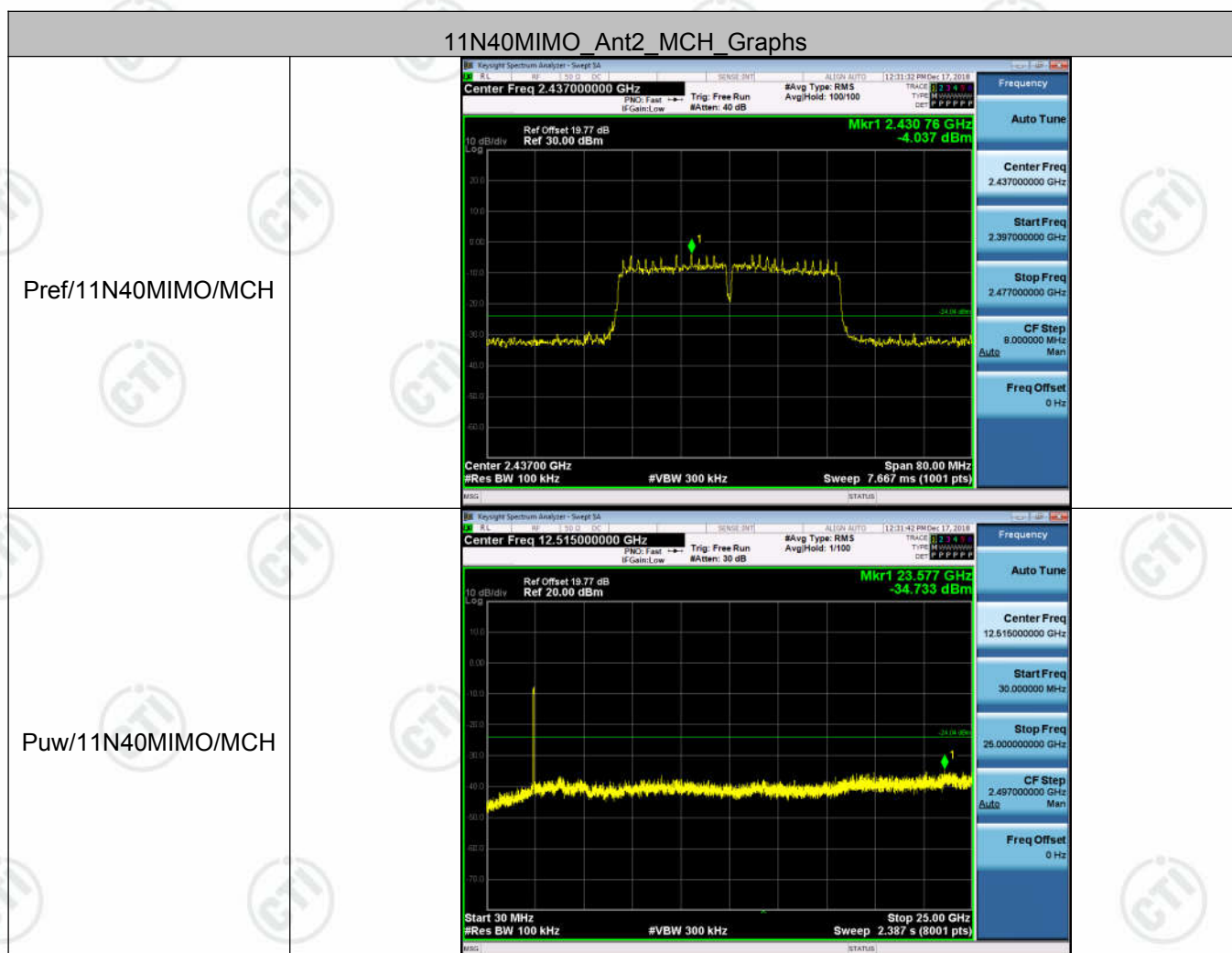
Puw/11N40SISO/HCH

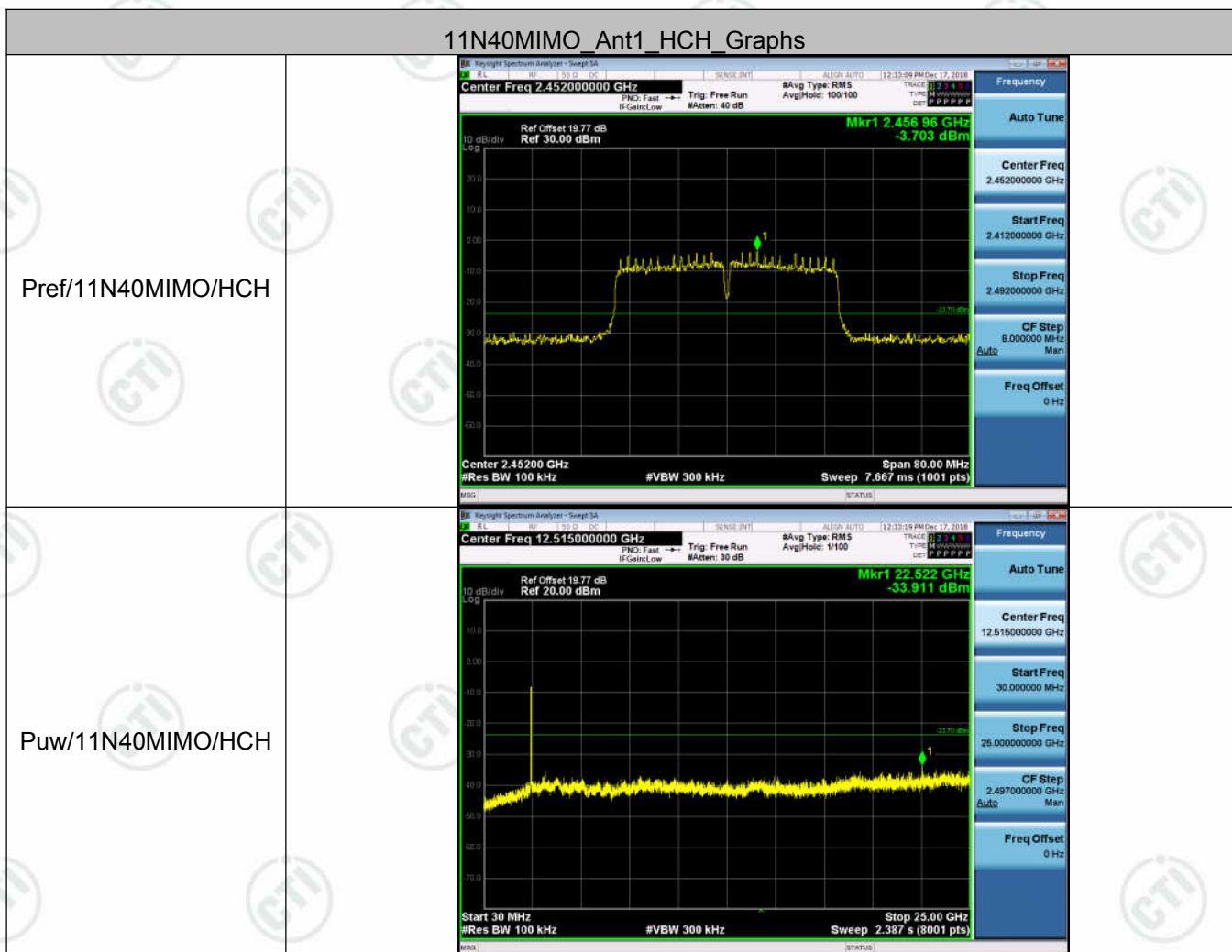


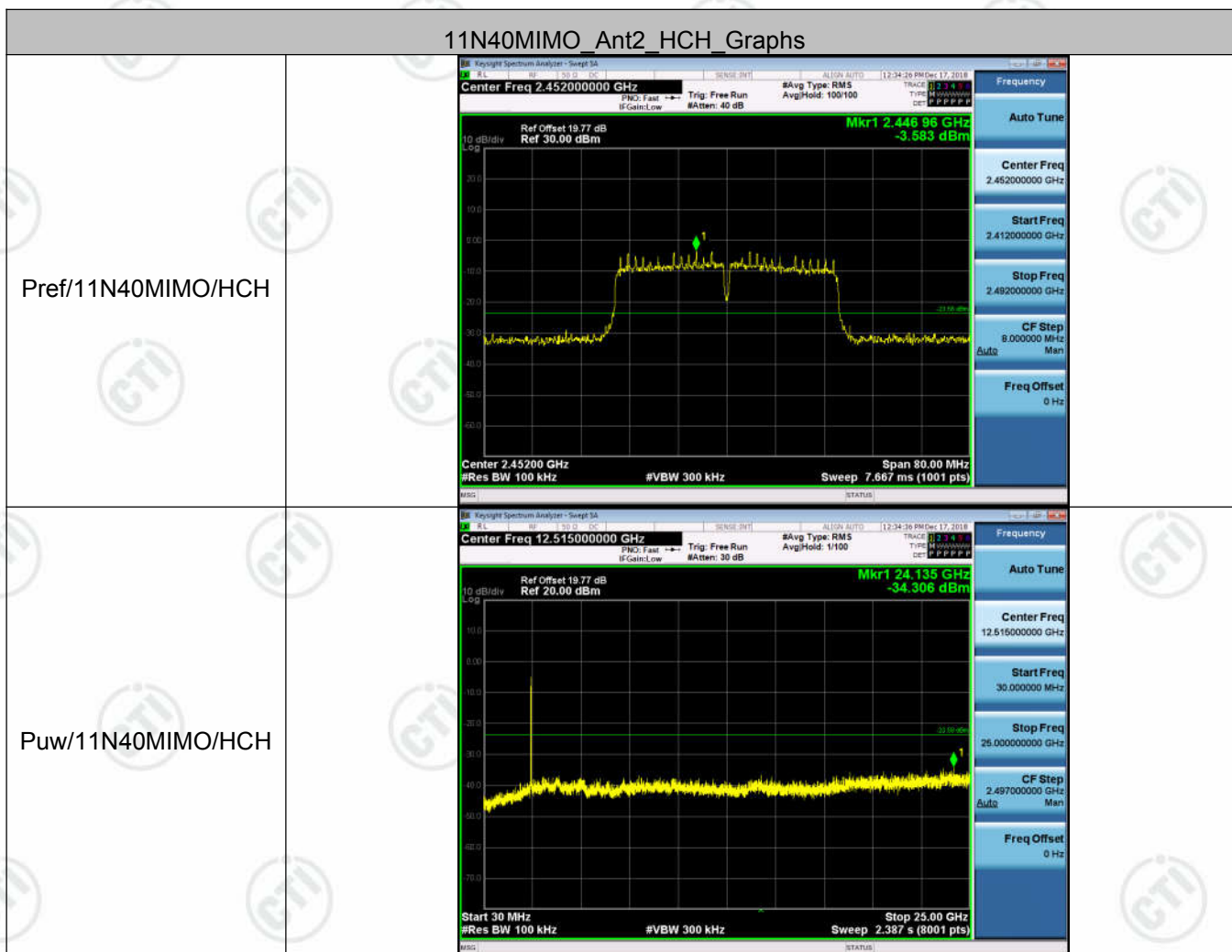










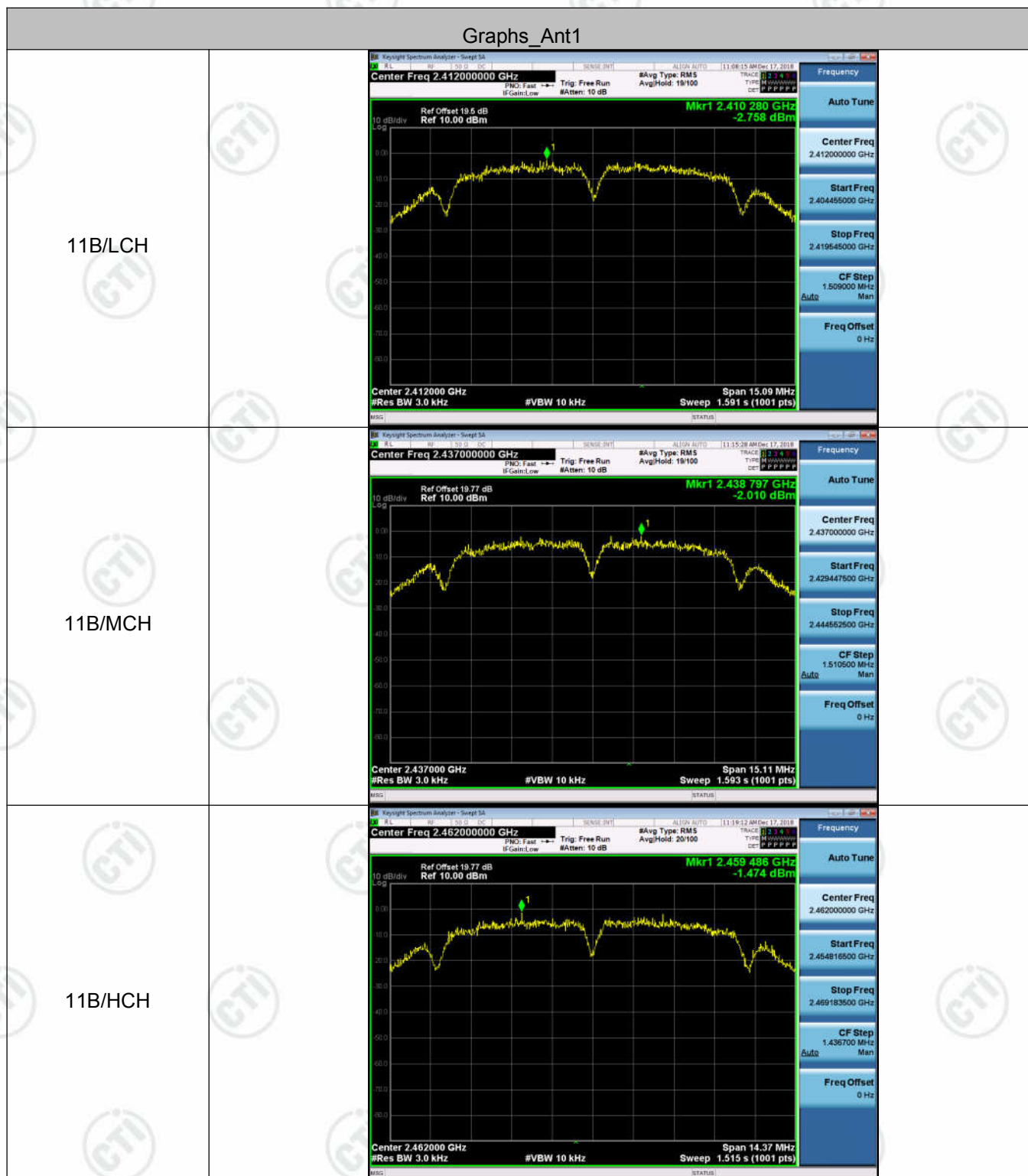


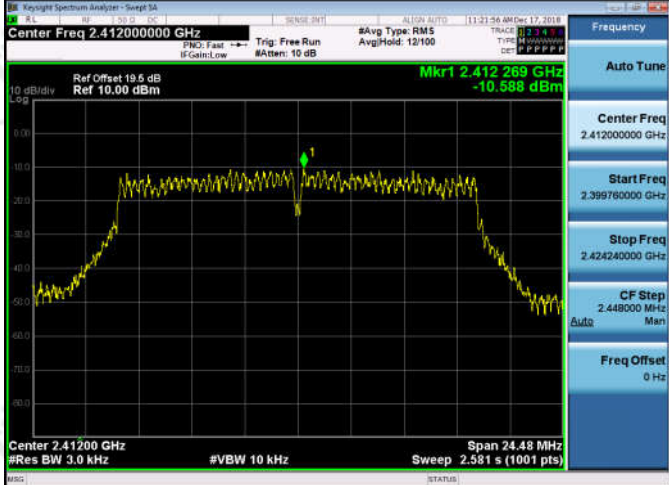
Appendix E): Power Spectral Density

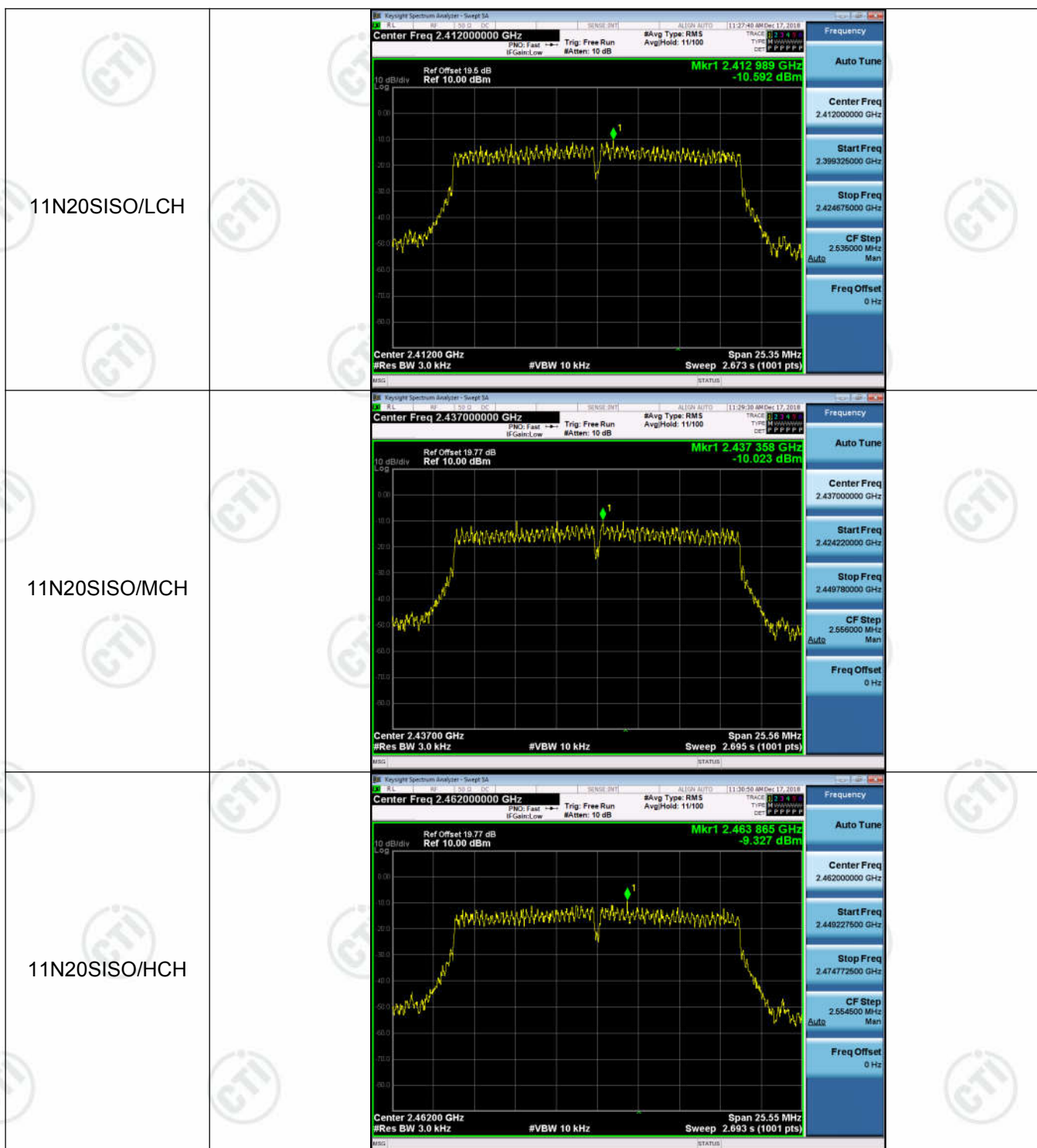
Result Table

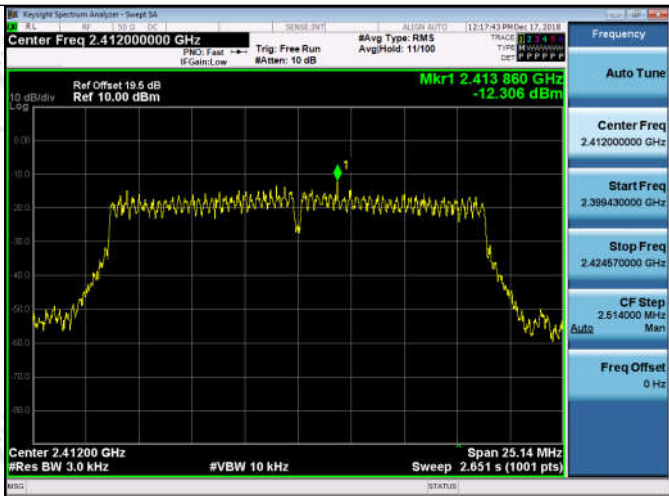
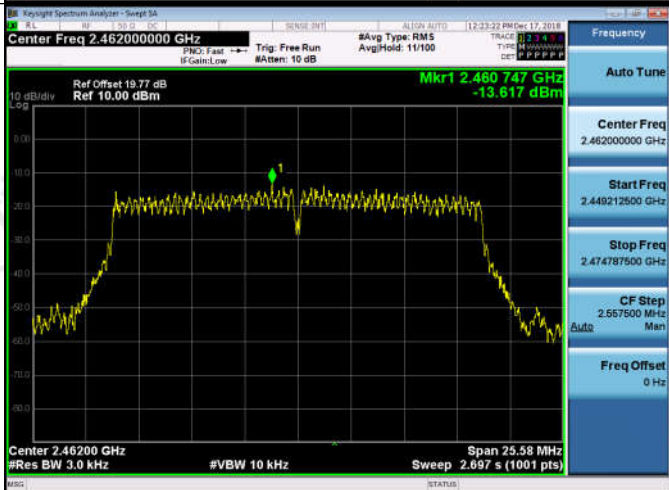
Mode	Antenna	Channel	Power Spectral Density [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	LCH	-2.758	8	PASS
11B	Ant2	LCH	-1.784	8	PASS
11B	Ant1	MCH	-2.010	8	PASS
11B	Ant2	MCH	-2.279	8	PASS
11B	Ant1	HCH	-1.474	8	PASS
11B	Ant2	HCH	-1.985	8	PASS
11G	Ant1	LCH	-10.588	8	PASS
11G	Ant2	LCH	-8.957	8	PASS
11G	Ant1	MCH	-9.360	8	PASS
11G	Ant2	MCH	-9.663	8	PASS
11G	Ant1	HCH	-9.441	8	PASS
11G	Ant2	HCH	-9.230	8	PASS
11N20SISO	Ant1	LCH	-10.592	8	PASS
11N20SISO	Ant2	LCH	-11.368	8	PASS
11N20SISO	Ant1	MCH	-10.023	8	PASS
11N20SISO	Ant2	MCH	-10.855	8	PASS
11N20SISO	Ant1	HCH	-9.327	8	PASS
11N20SISO	Ant2	HCH	-10.403	8	PASS
11N20MIMO	Ant1	LCH	-12.306	8	PASS
11N20MIMO	Ant2	LCH	-14.429	8	PASS
11N20MIMO	Ant1+2	LCH	-10.23	8	PASS
11N20MIMO	Ant1	MCH	-14.148	8	PASS
11N20MIMO	Ant2	MCH	-11.966	8	PASS
11N20MIMO	Ant1+2	MCH	-9.91	8	PASS
11N20MIMO	Ant1	HCH	-13.617	8	PASS
11N20MIMO	Ant2	HCH	-13.677	8	PASS
11N20MIMO	Ant1+2	HCH	-10.64	8	PASS
11N40SISO	Ant1	LCH	-15.022	8	PASS
11N40SISO	Ant2	LCH	-15.198	8	PASS
11N40SISO	Ant1	MCH	-14.754	8	PASS
11N40SISO	Ant2	MCH	-15.140	8	PASS
11N40SISO	Ant1	HCH	-14.806	8	PASS
11N40SISO	Ant2	HCH	-15.653	8	PASS
11N40MIMO	Ant1	LCH	-17.759	8	PASS
11N40MIMO	Ant2	LCH	-17.861	8	PASS
11N40MIMO	Ant1+2	LCH	-14.80	8	PASS
11N40MIMO	Ant1	MCH	-18.069	8	PASS
11N40MIMO	Ant2	MCH	-18.578	8	PASS
11N40MIMO	Ant1+2	MCH	-15.31	8	PASS
11N40MIMO	Ant1	HCH	-17.604	8	PASS
11N40MIMO	Ant2	HCH	-18.412	8	PASS
11N40MIMO	Ant1+2	HCH	-14.98	8	PASS

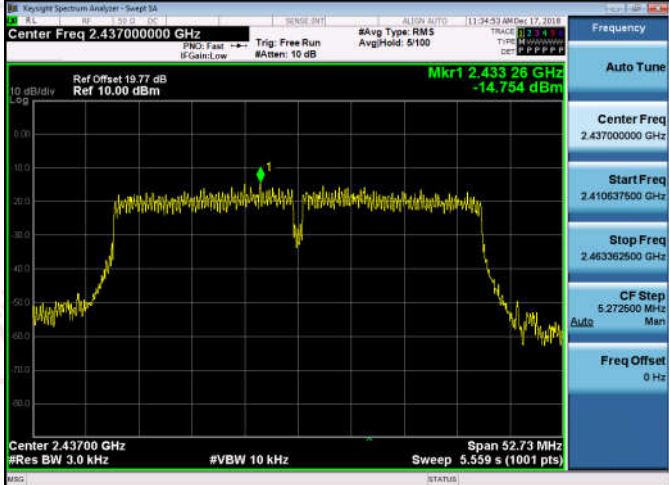
Test Graph

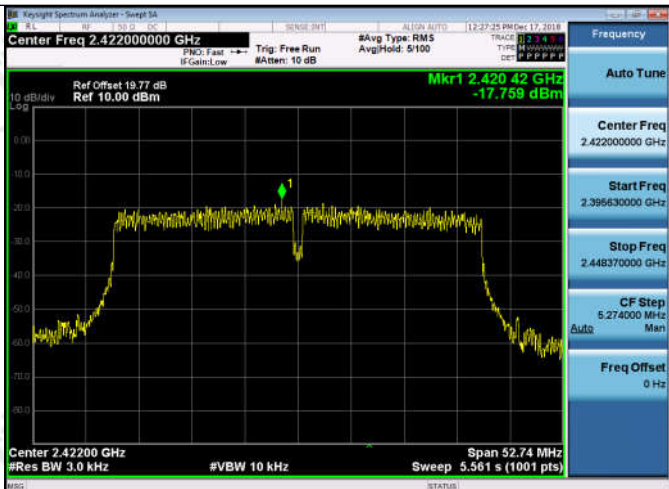
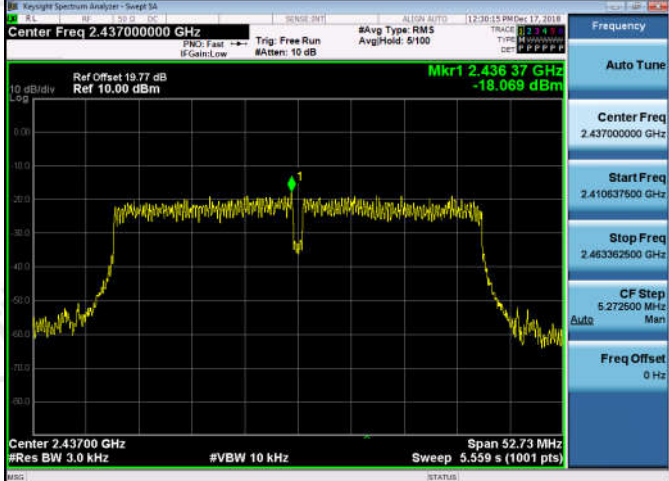
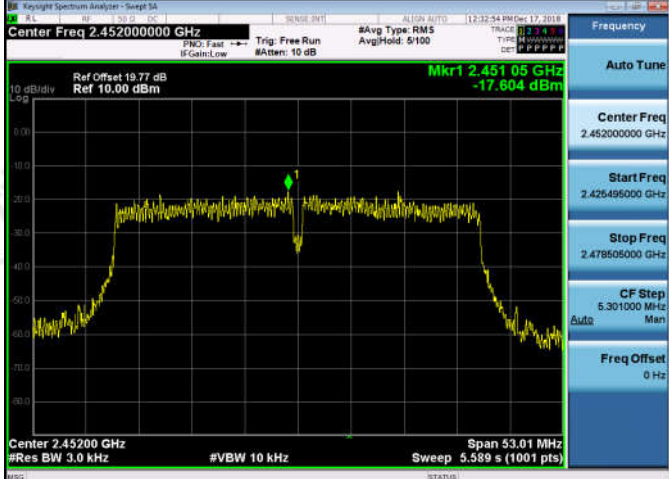


11G/LCH	 Center Freq 2.41200000 GHz Mkr1 2.412 269 GHz -10.588 dBm Ref Offset 19.5 dB Ref 10.00 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 24.48 MHz Sweep 2.561 s (1001 pts)
11G/MCH	 Center Freq 2.43700000 GHz Mkr1 2.437 617 GHz -9.360 dBm Ref Offset 19.77 dB Ref 10.00 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 23.73 MHz Sweep 2.502 s (1001 pts)
11G/HCH	 Center Freq 2.46200000 GHz Mkr1 2.462 293 GHz -9.441 dBm Ref Offset 19.77 dB Ref 10.00 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 24.44 MHz Sweep 2.576 s (1001 pts)

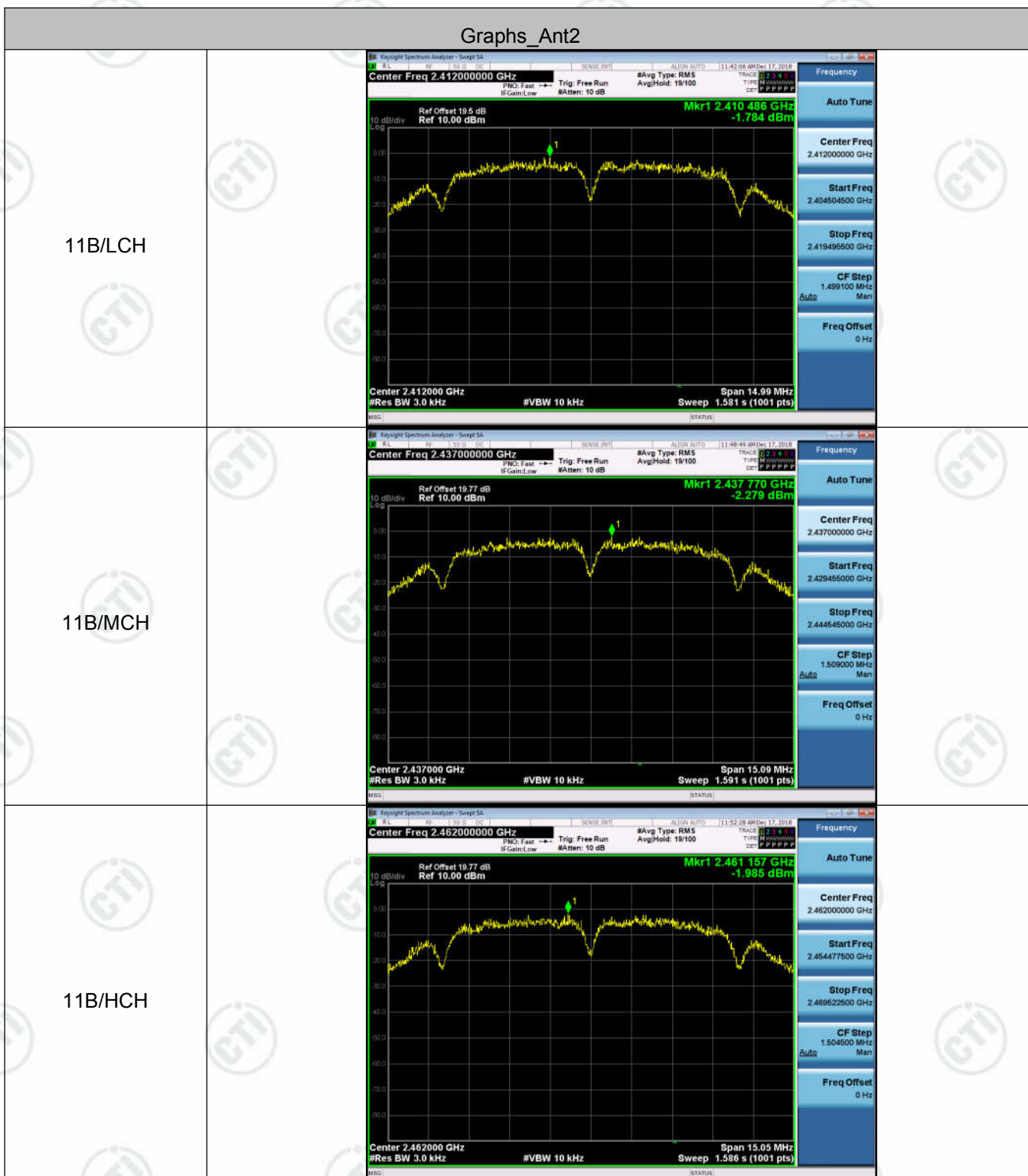


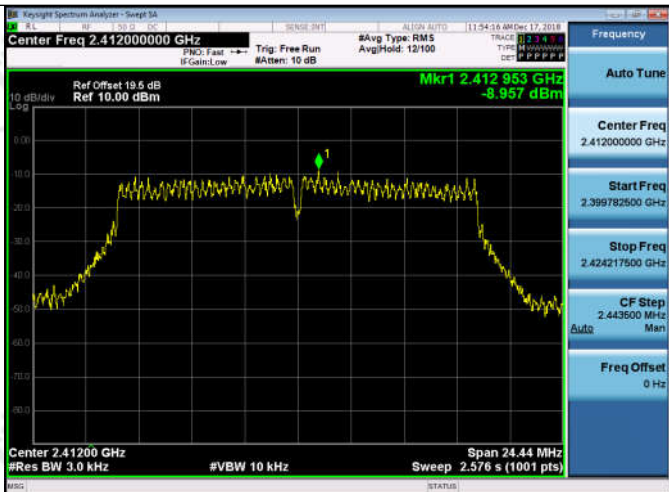
11N20MIMO/LCH	
11N20MIMO/MCH	
11N20MIMO/HCH	

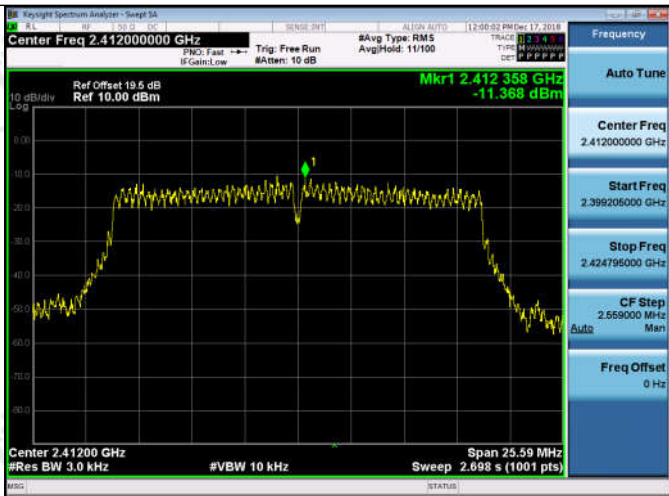
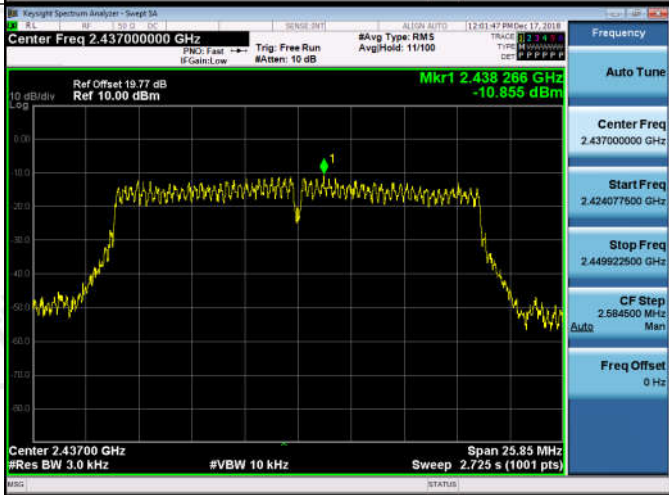
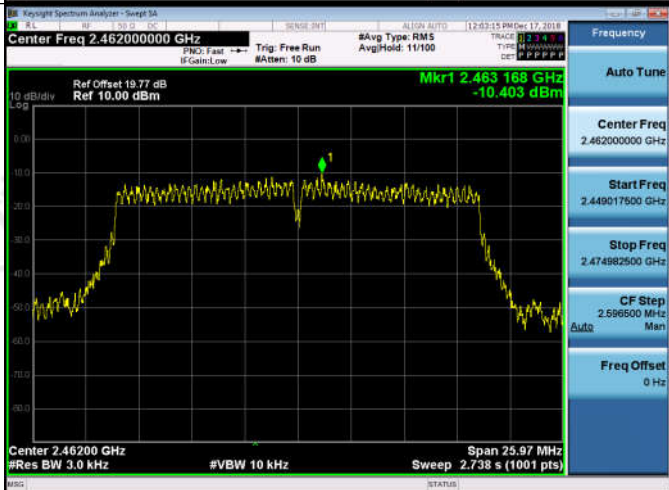
11N40SISO/LCH	
11N40SISO/MCH	
11N40SISO/HCH	

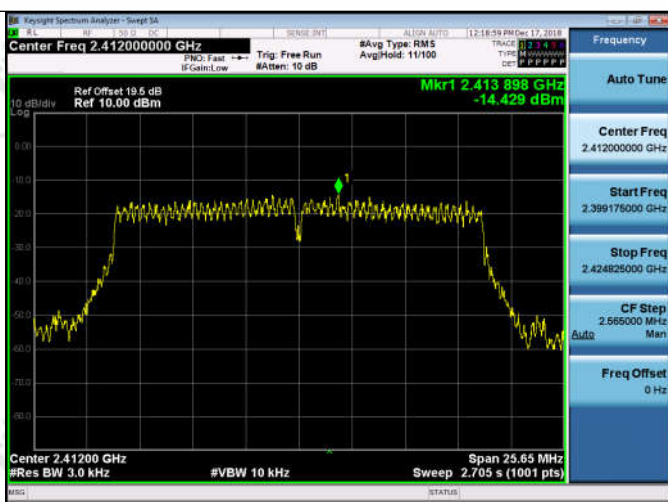
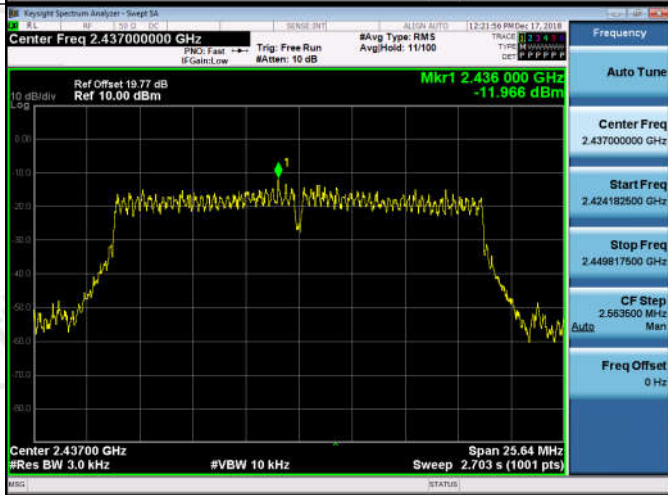
11N40MIMO/LCH	
11N40MIMO/MCH	
11N40MIMO/HCH	

Graphs_Ant2

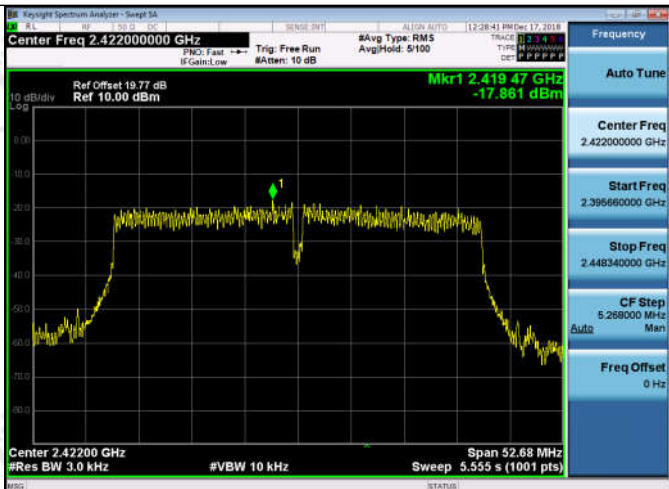


11G/LCH	
11G/MCH	
11G/HCH	

11N20SISO/LCH	 Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 10.00 dBm Mkr1 2.412 358 GHz -11.368 dBm Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.59 MHz Sweep 2.698 s (1001 pts)
11N20SISO/MCH	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.438 266 GHz -10.855 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.85 MHz Sweep 2.725 s (1001 pts)
11N20SISO/HCH	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.463 168 GHz -10.403 dBm Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 25.97 MHz Sweep 2.738 s (1001 pts)

11N20MIMO/LCH	 Key parameters from the screenshot: - Center Freq: 2.41200000 GHz - Span: 25.65 MHz - Mkr1: 2.413 898 GHz, -14.429 dBm - Ref Offset: 19.5 dB, Ref: 10.00 dBm #Res BW: 3.0 kHz #VBW: 10 kHz - Sweep: 2.705 s (1001 pts)
11N20MIMO/MCH	 Key parameters from the screenshot: - Center Freq: 2.43700000 GHz - Span: 25.64 MHz - Mkr1: 2.436 000 GHz, -11.966 dBm - Ref Offset: 19.77 dB, Ref: 10.00 dBm #Res BW: 3.0 kHz #VBW: 10 kHz - Sweep: 2.703 s (1001 pts)
11N20MIMO/HCH	 Key parameters from the screenshot: - Center Freq: 2.46200000 GHz - Span: 25.01 MHz - Mkr1: 2.462 850 GHz, -13.677 dBm - Ref Offset: 19.77 dB, Ref: 10.00 dBm #Res BW: 3.0 kHz #VBW: 10 kHz - Sweep: 2.637 s (1001 pts)

11N40SISO/LCH	Center Freq 2.422000000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.413 25 GHz -15.198 dBm Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 5.591 s (1001 pts)
11N40SISO/MCH	Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.431 99 GHz -15.140 dBm Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 5.559 s (1001 pts)
11N40SISO/HCH	Center Freq 2.452000000 GHz Ref Offset 19.77 dB Ref 10.00 dBm Mkr1 2.450 10 GHz -15.653 dBm Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 5.558 s (1001 pts)

11N40MIMO/LCH	
11N40MIMO/MCH	
11N40MIMO/HCH	

Appendix F): Antenna Requirement

15.203 requirement:

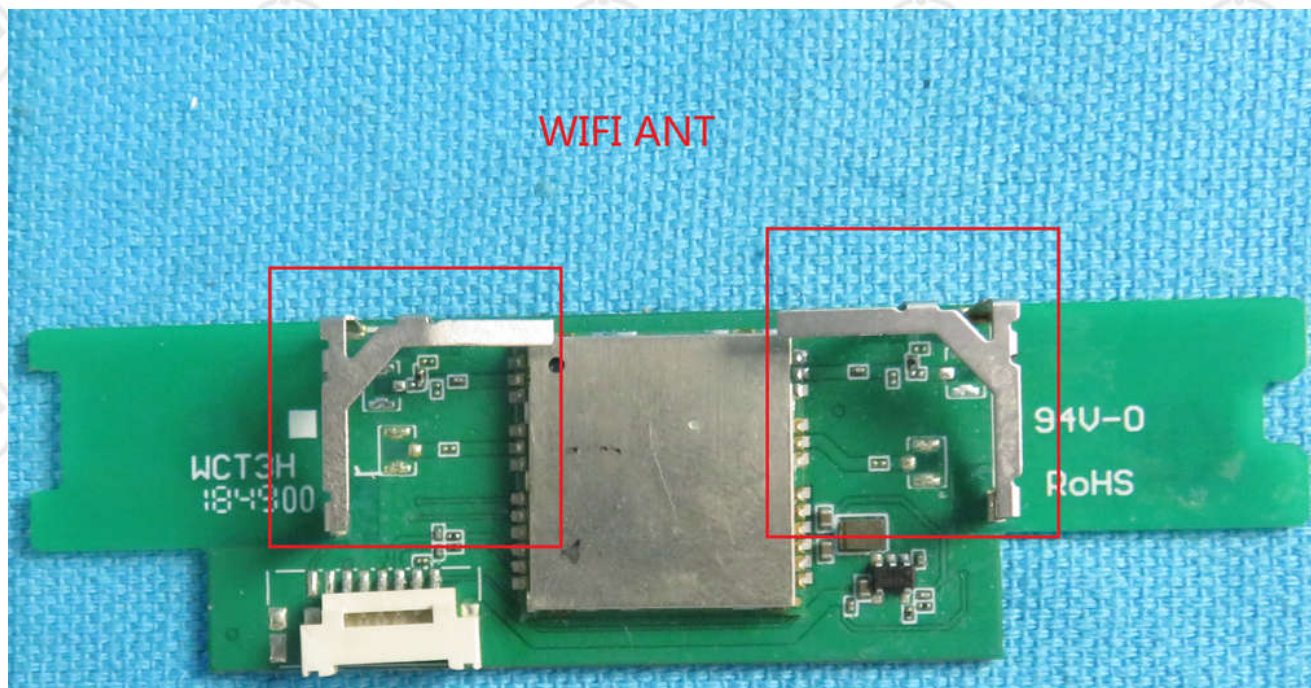
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is PIFA Antenna and no consideration of replacement. The best case gain of the antenna is 2dBi.



Appendix G): AC Power Line Conducted Emission

Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.																
Limit:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table> * The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. NOTE : The lower limit is applicable at the transition frequency			Frequency range (MHz)	Limit (dBμV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBμV)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
5-30	60	50															
Test Ambient:	Temp.: 24°C	Humid.: 55%	Press.: 101kPa														

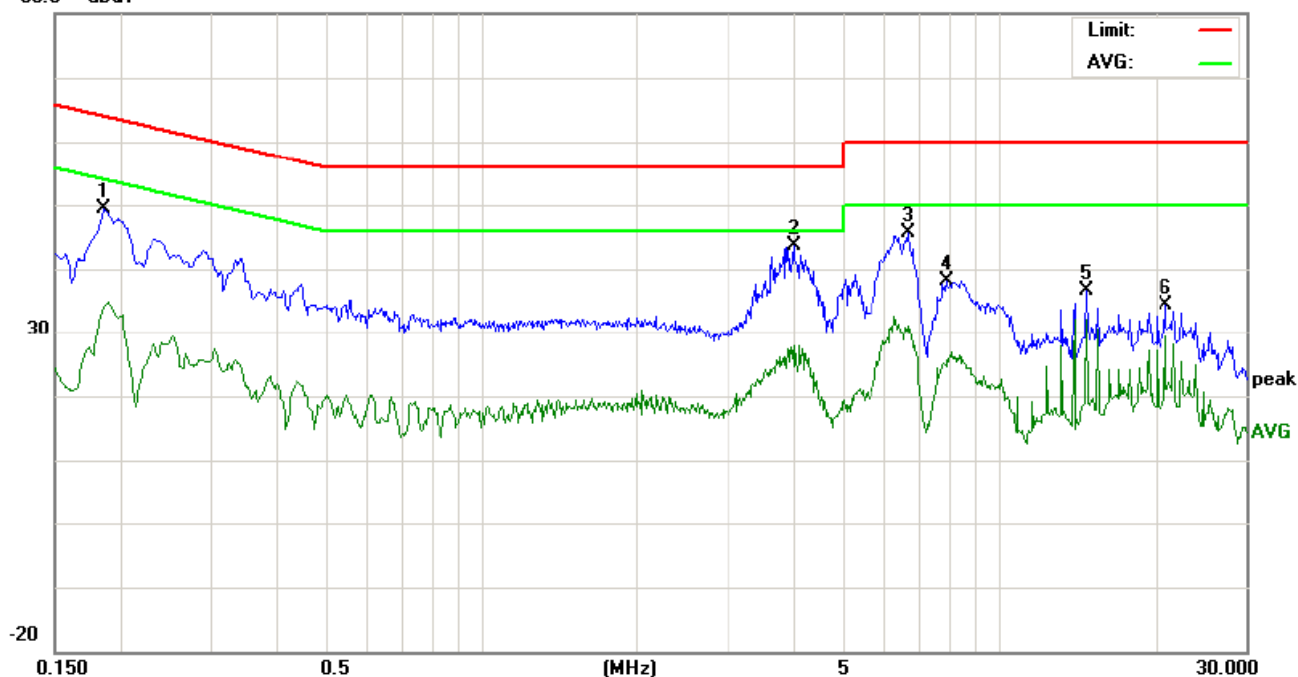
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:

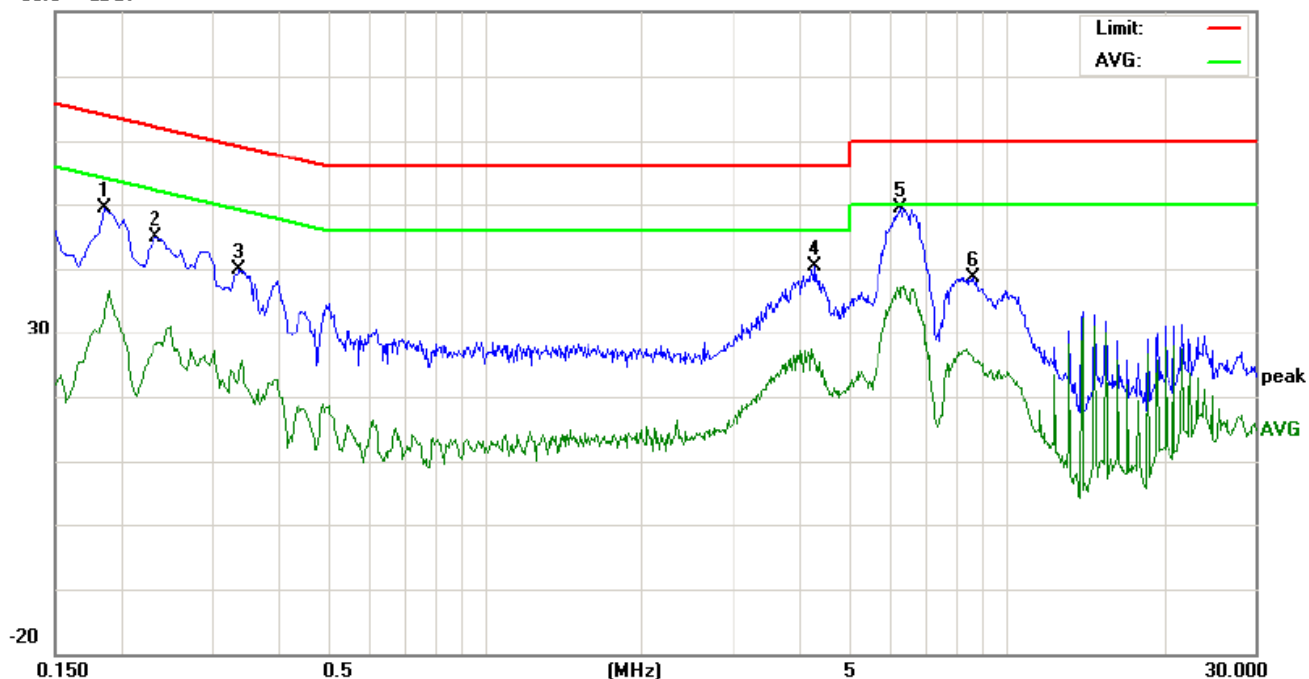
80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1860	39.34	36.15	24.05	9.91	49.25	46.06	33.96	64.21	54.21	-18.15	-20.25	P	
2	4.0220	33.94	30.24	14.96	9.73	43.67	39.97	24.69	56.00	46.00	-16.03	-21.31	P	
3	6.6860	35.77	31.58	21.50	9.74	45.51	41.32	31.24	60.00	50.00	-18.68	-18.76	P	
4	7.9180	28.44	25.23	14.87	9.77	38.21	35.00	24.64	60.00	50.00	-25.00	-25.36	P	
5	14.7700	26.60	23.28	22.12	9.97	36.57	33.25	32.09	60.00	50.00	-26.75	-17.91	P	
6	20.9860	24.38	21.55	19.49	9.91	34.29	31.46	29.40	60.00	50.00	-28.54	-20.60	P	

Neutral line:

80.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1860	39.45	36.15	22.45	9.91	49.36	46.06	32.36	64.21	54.21	-18.15	-21.85	P	
2	0.2340	34.98	31.58	18.15	9.94	44.92	41.52	28.09	62.30	52.30	-20.78	-24.21	P	
3	0.3379	29.79	26.18	13.56	9.96	39.75	36.14	23.52	59.25	49.25	-23.11	-25.73	P	
4	4.3020	30.74	27.26	16.07	9.73	40.47	36.99	25.80	56.00	46.00	-19.01	-20.20	P	
5	6.3020	39.71	36.22	27.40	9.74	49.45	45.96	37.14	60.00	50.00	-14.04	-12.86	P	
6	8.5940	28.89	25.68	16.40	9.80	38.69	35.48	26.20	60.00	50.00	-24.52	-23.80	P	

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

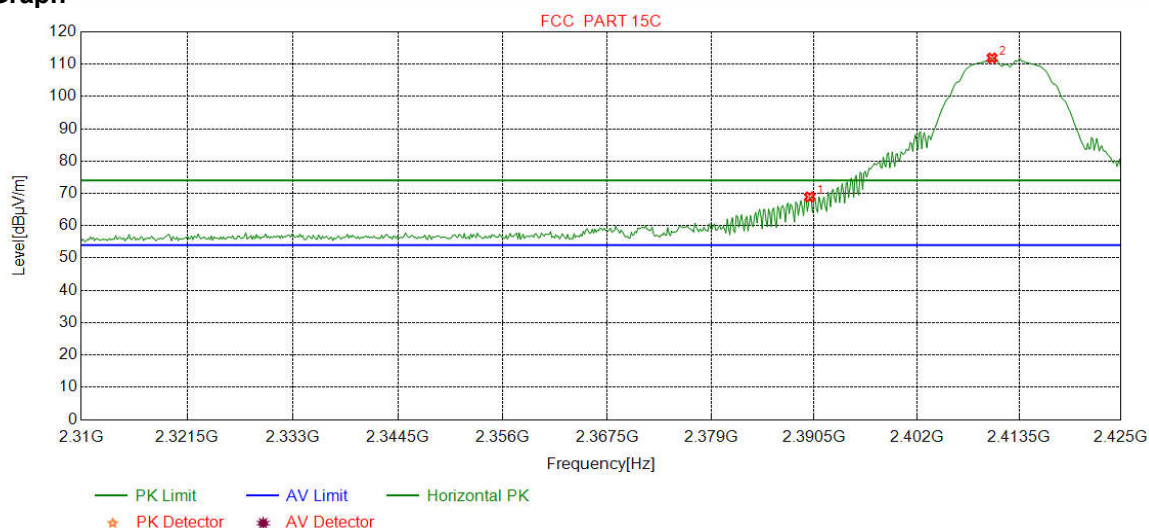
Appendix H): Restricted bands around fundamental frequency (Radiated)

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Test Procedure:	Below 1GHz test procedure as below: - The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. - For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel Above 1GHz test procedure as below: - Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter). - Test the EUT in the lowest channel , the Highest channel - The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. - Repeat above procedures until all frequencies measured was complete.				
Limit:	Frequency	Limit (dBμV/m @3m)		Remark	
	30MHz-88MHz	40.0		Quasi-peak Value	
	88MHz-216MHz	43.5		Quasi-peak Value	
	216MHz-960MHz	46.0		Quasi-peak Value	
	960MHz-1GHz	54.0		Quasi-peak Value	
	Above 1GHz	54.0		Average Value	
		74.0		Peak Value	
Test Ambient:	Temp.: 20°C	Humid.: 59%		Press.: 101kPa	

Test plot as follows:

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	Peak		

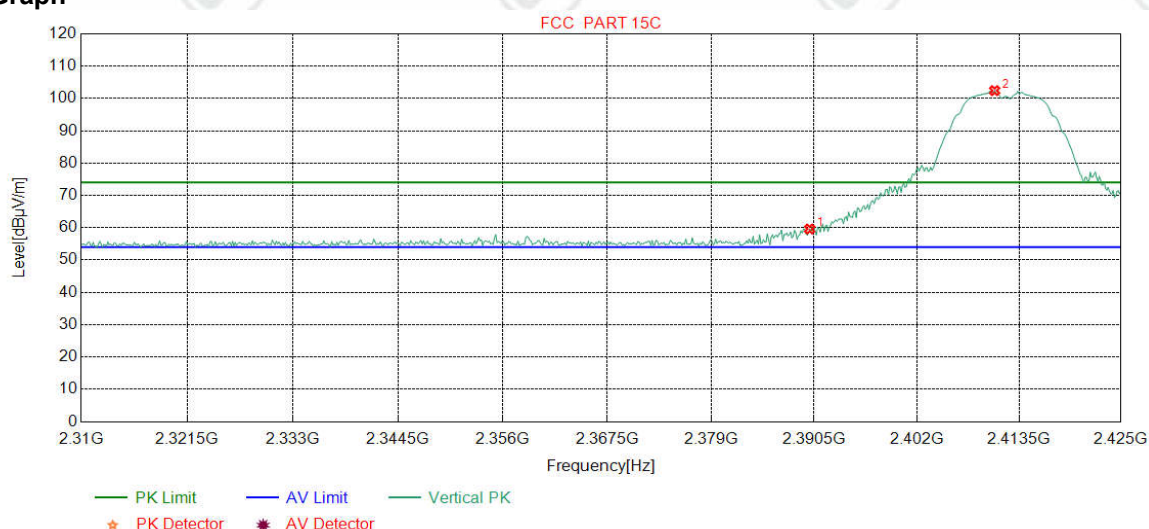
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-42.44	65.73	68.91	74.00	5.09	Pass	Horizontal
2	2410.4631	32.27	13.35	-42.43	108.72	111.91	74.00	-37.91	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	Peak		

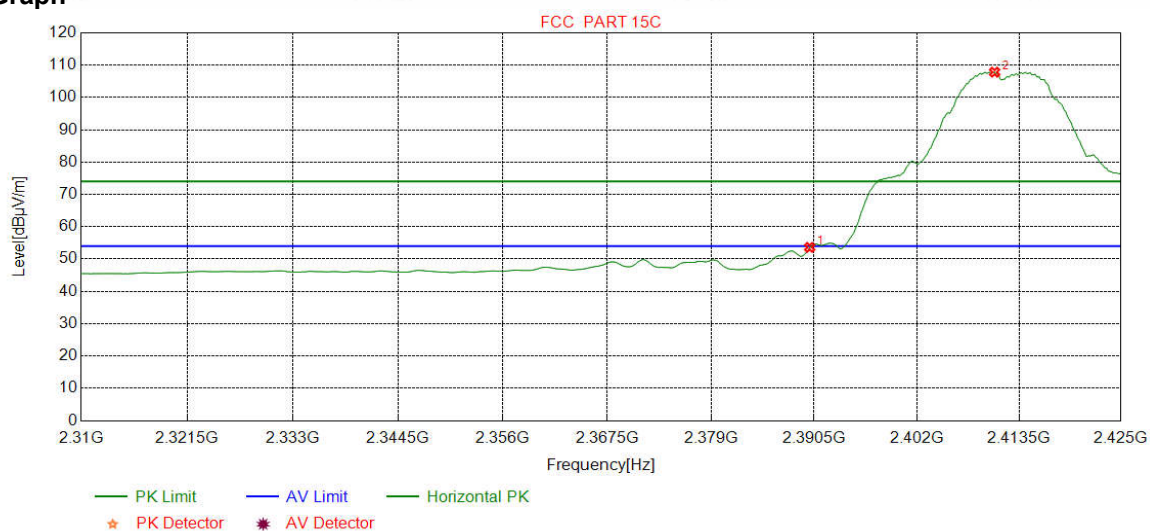
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-42.44	56.42	59.60	74.00	14.40	Pass	Vertical
2	2410.7509	32.28	13.35	-42.43	99.22	102.42	74.00	-28.42	Pass	Vertical

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	Average		

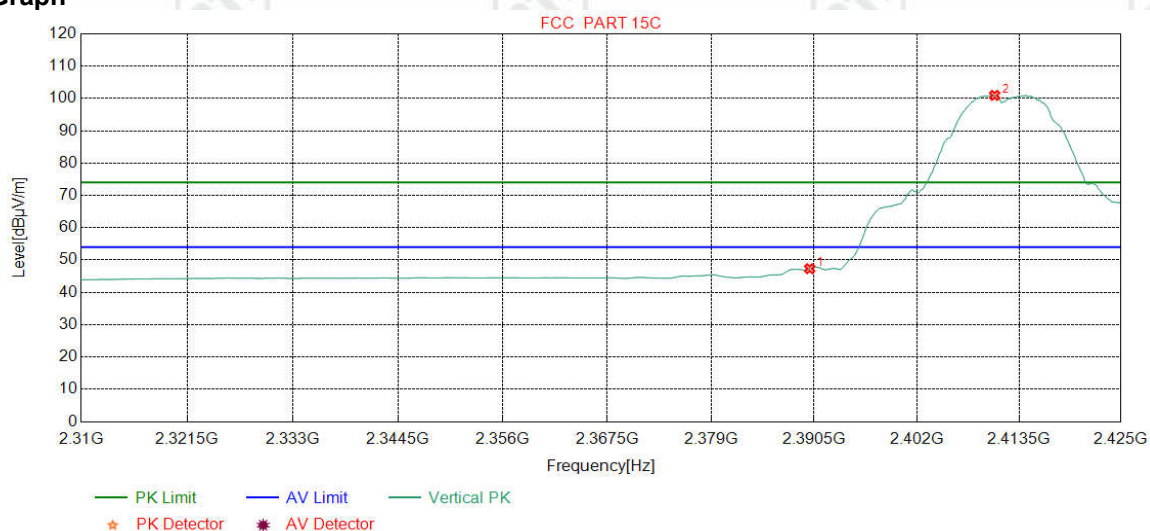
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-42.44	50.44	53.62	54.00	0.38	Pass	Horizontal
2	2410.7509	32.28	13.35	-42.43	104.62	107.82	54.00	-53.82	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	Average		

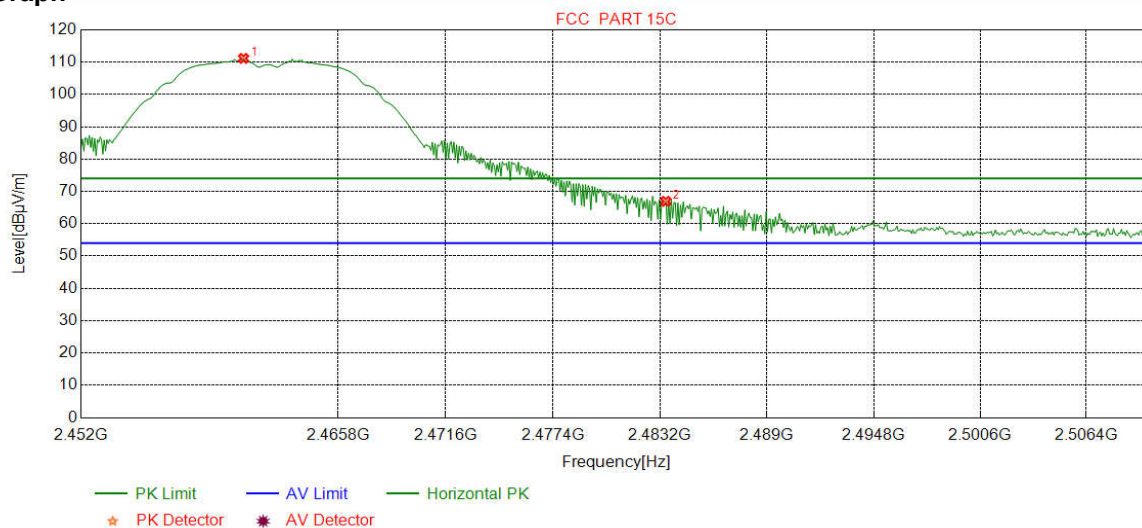
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-42.44	44.16	47.34	54.00	6.66	Pass	Vertical
2	2410.7509	32.28	13.35	-42.43	97.75	100.95	54.00	-46.95	Pass	Vertical

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2462
Remark:	Peak		

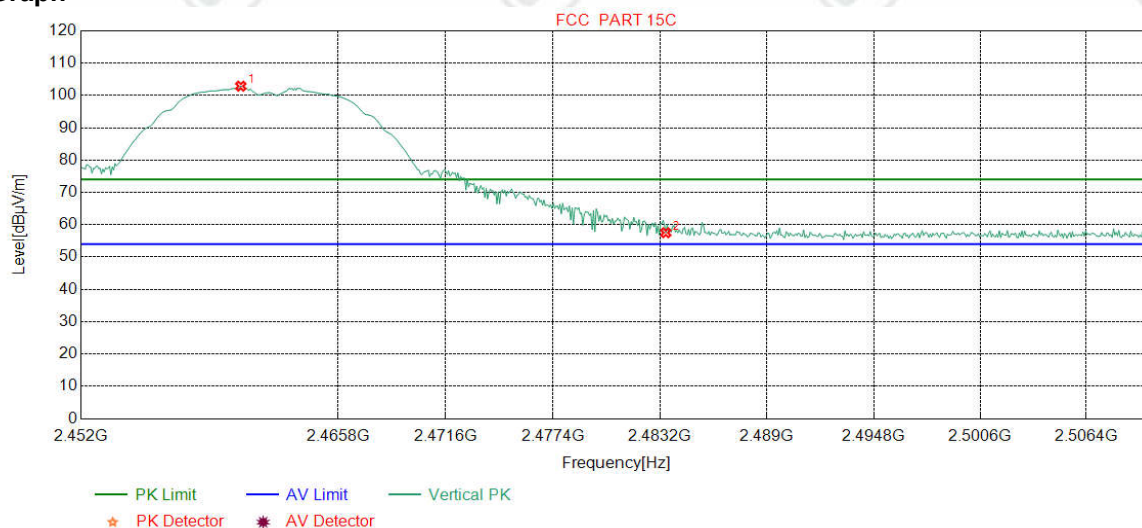
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2460.7109	32.34	13.48	-42.40	107.74	111.16	74.00	-37.16	Pass	Horizontal
2	2483.5000	32.38	13.38	-42.40	63.59	66.95	74.00	7.05	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2462
Remark:	Peak		

Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	2460.5657	32.34	13.48	-42.40	99.46	102.88	74.00	-28.88	Pass	Vertical
2	2483.5000	32.38	13.38	-42.40	54.16	57.52	74.00	16.48	Pass	Vertical