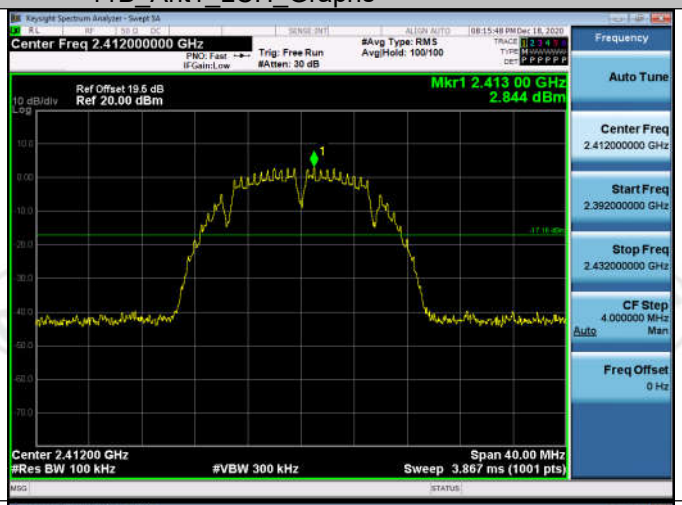
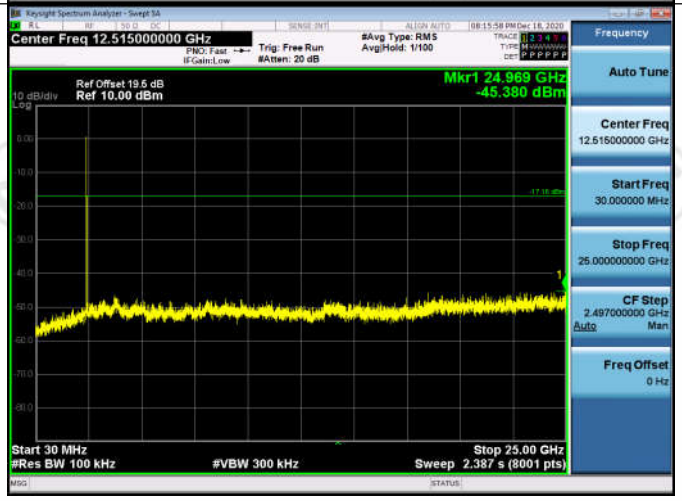
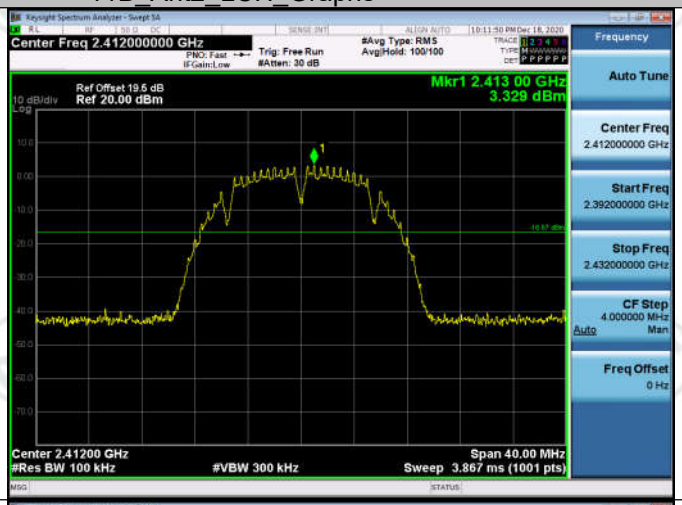
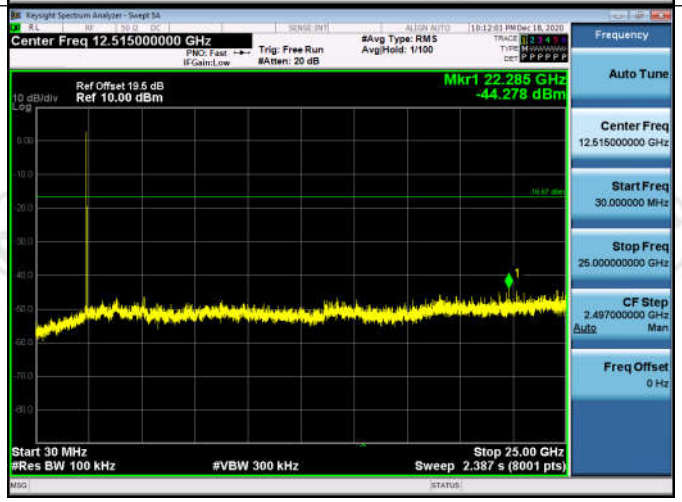
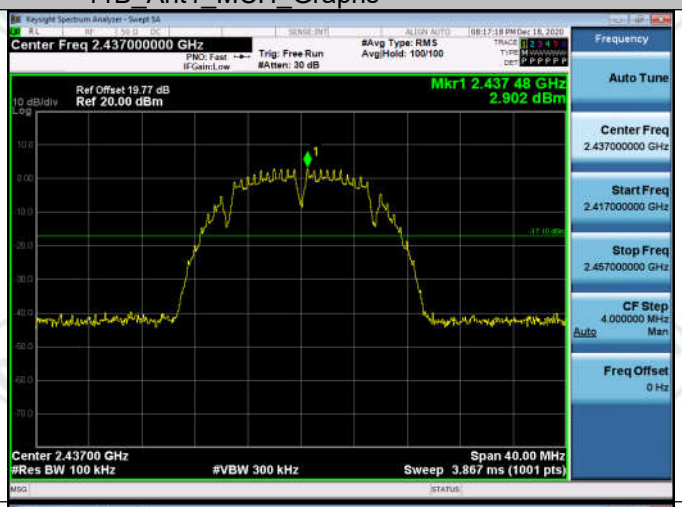
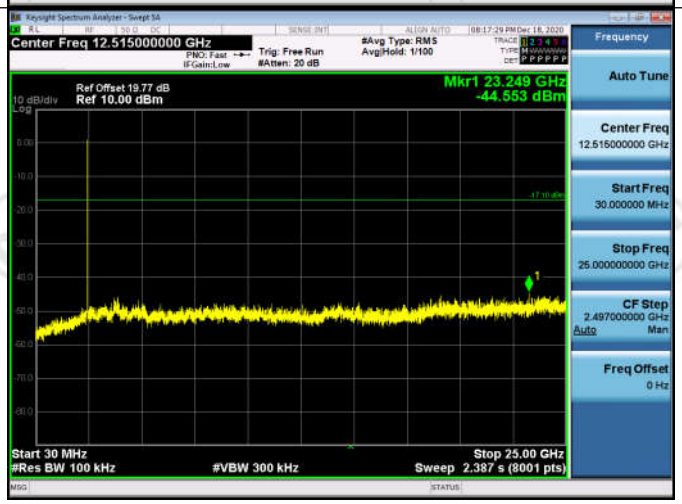
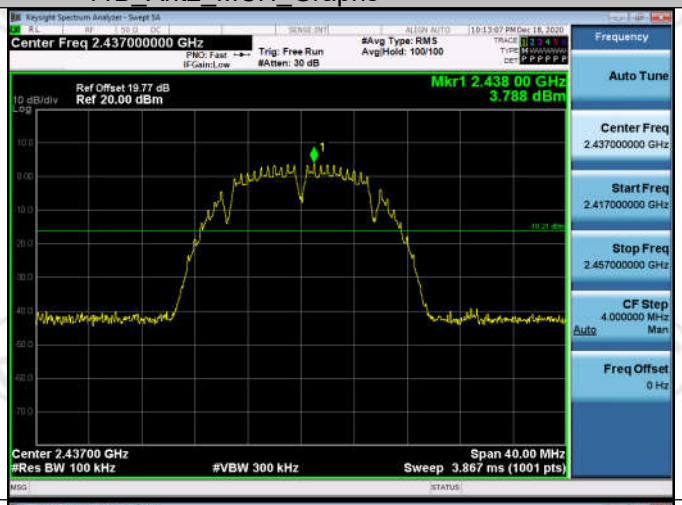
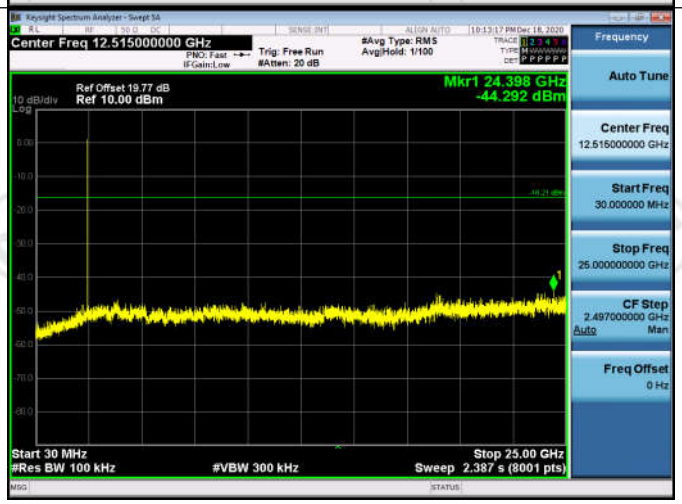
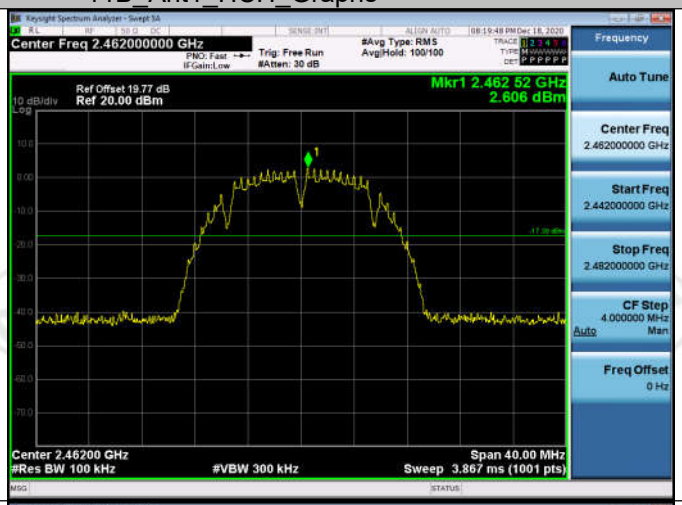
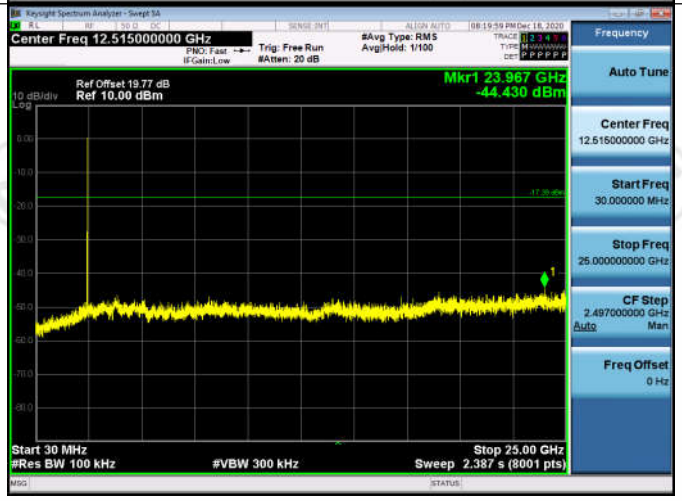
Test Graph

11B_Ant1_LCH_Graphs	
Pref/11B/LCH	
Puw/11B/LCH	

11B_Ant2_LCH_Graphs	
Pref/11B/LCH	
Puw/11B/LCH	

11B_Ant1_MCH_Graphs	
Pref/11B/MCH	
Puw/11B/MCH	

11B_Ant2_MCH_Graphs		
Pref/11B/MCH		
Puw/11B/MCH		

11B_Ant1_HCH_Graphs	
Pref/11B/HCH	
Puw/11B/HCH	

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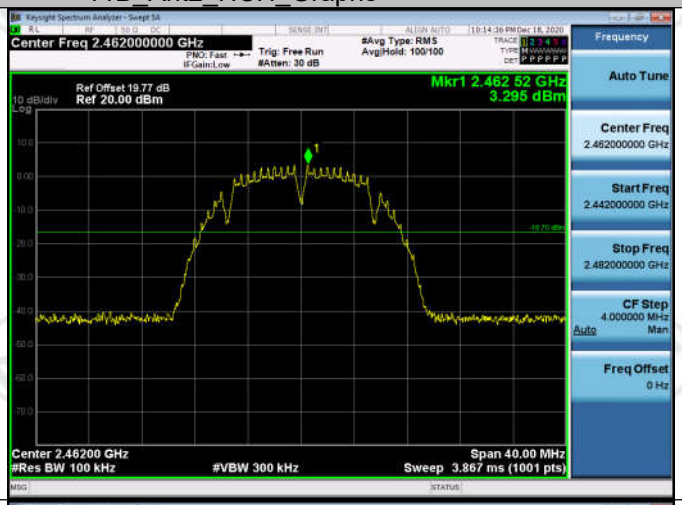
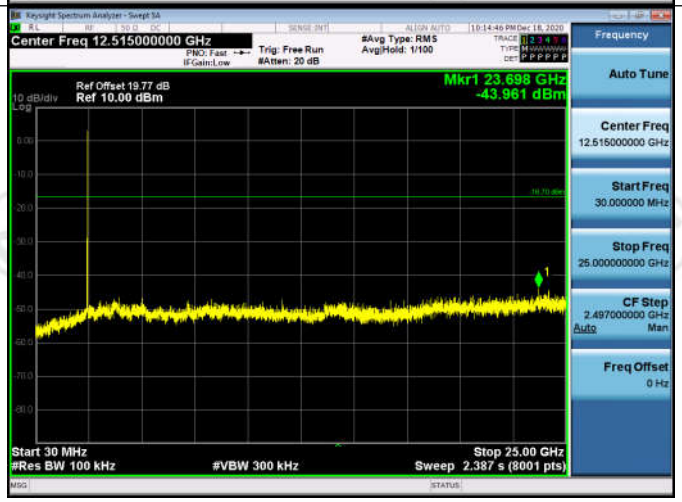
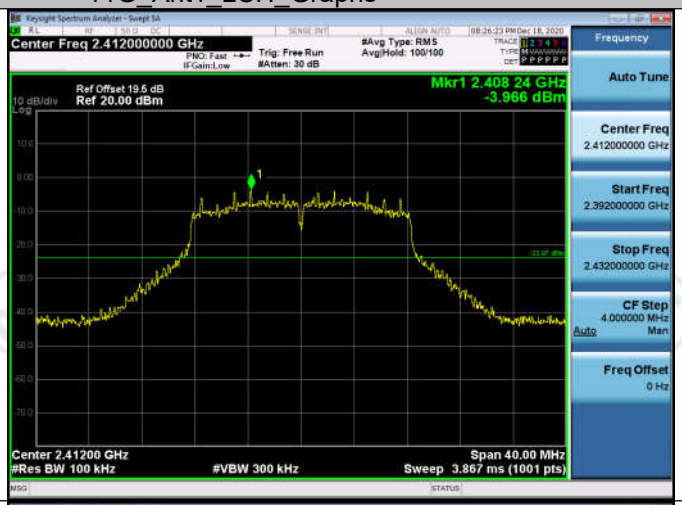
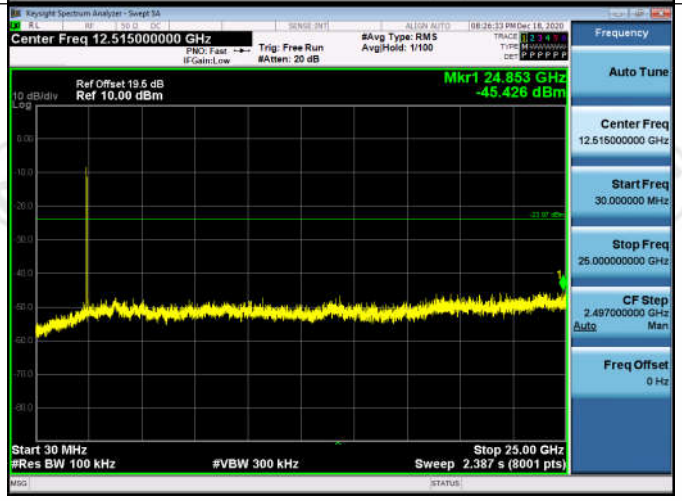
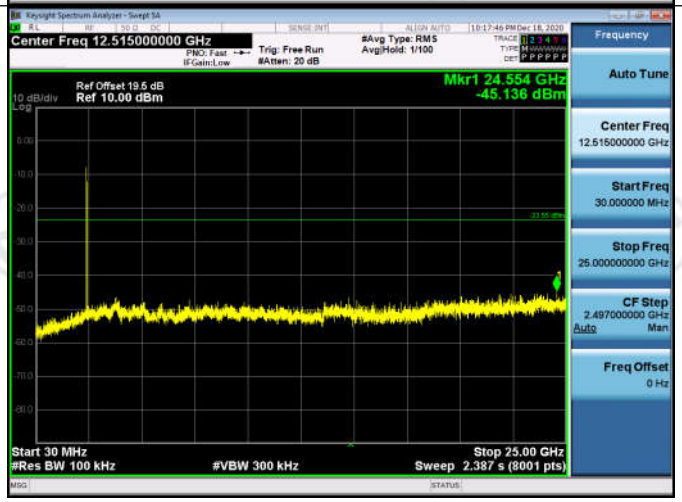
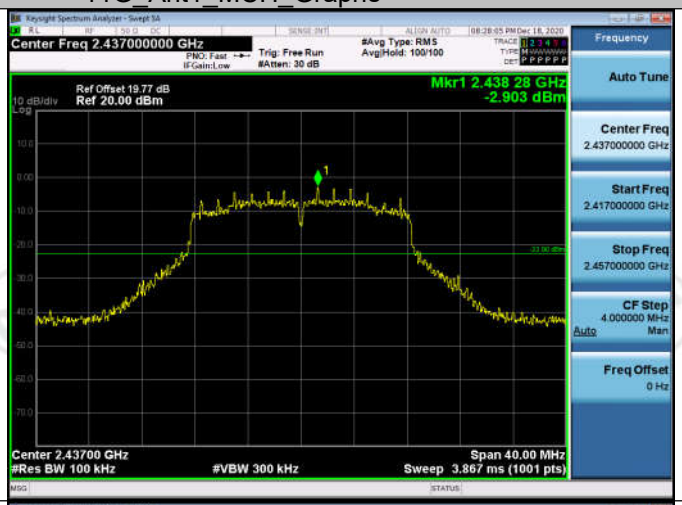
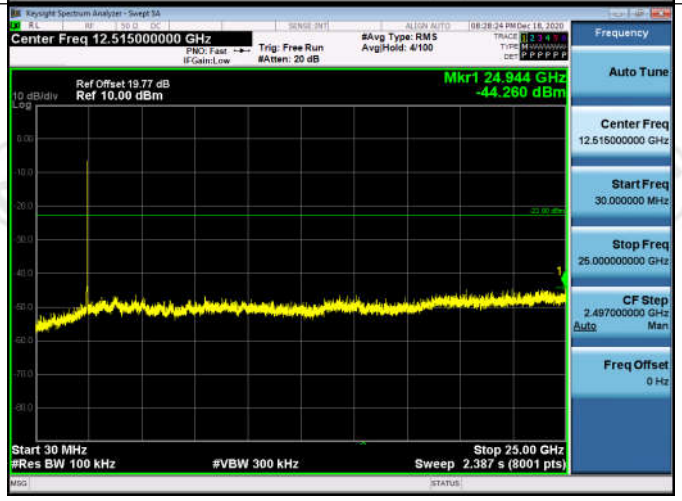
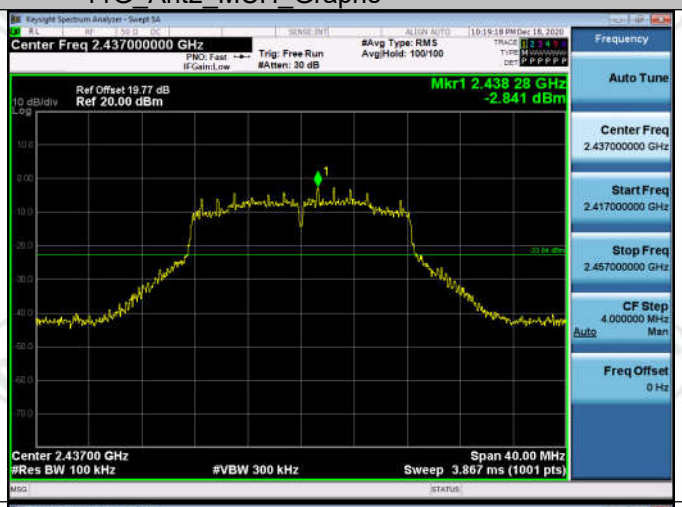
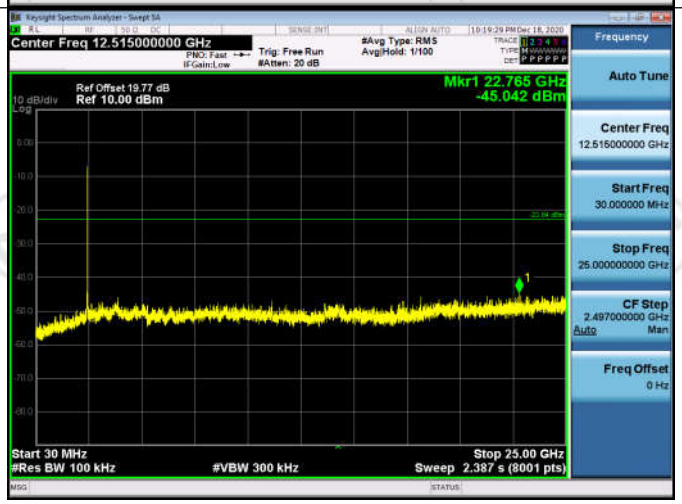
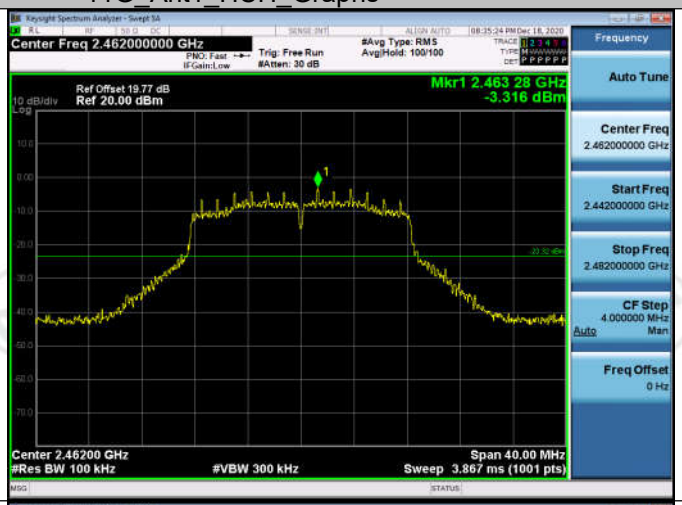
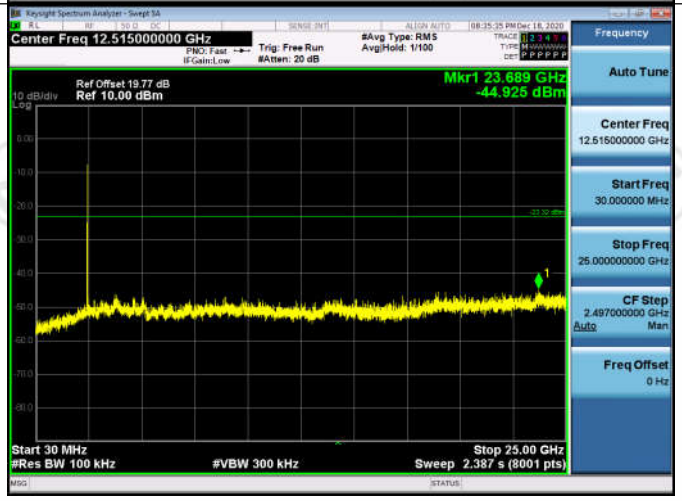
Pref/11B/HCH		
Puw/11B/HCH		

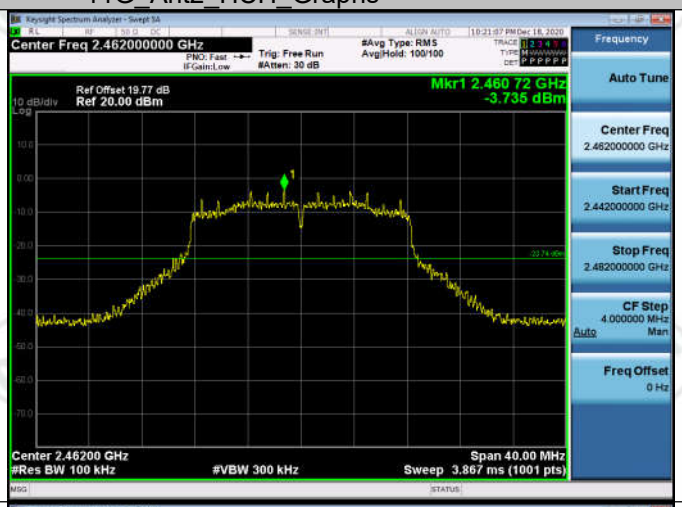
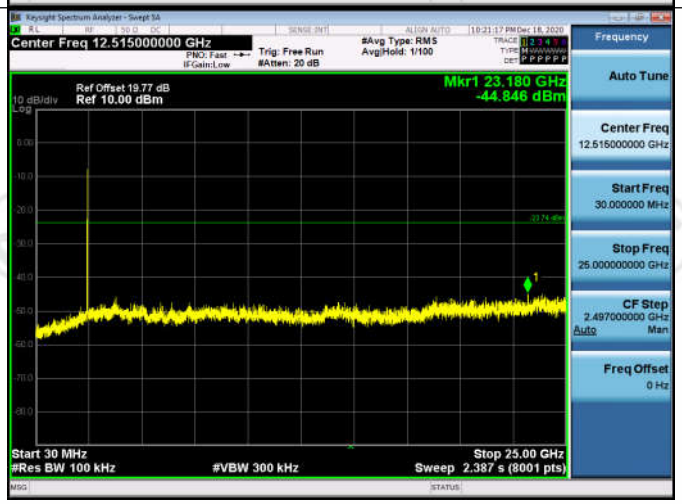
11G_Ant1_LCH_Graphs		
Pref/11G/LCH		
Puw/11G/LCH		

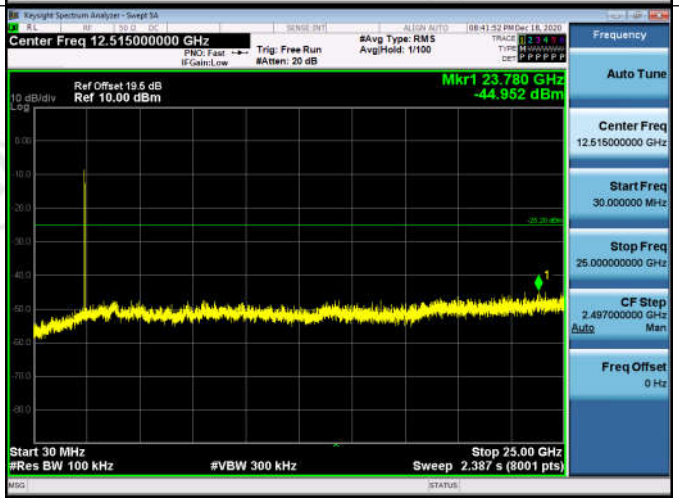
11G_Ant2_LCH_Graphs		
Pref/11G/LCH		
Puw/11G/LCH		

11G_Ant1_MCH_Graphs		
Pref/11G/MCH		
Puw/11G/MCH		

11G_Ant2_MCH_Graphs		
Pref/11G/MCH		
Puw/11G/MCH		

11G_Ant1_HCH_Graphs	
Pref/11G/HCH	
Puw/11G/HCH	

11G_Ant2_HCH_Graphs		
Pref/11G/HCH		
Puw/11G/HCH		

11N20SISO_Ant1_LCH_Graphs	
Pref/11N20SISO/LCH	
Puw/11N20SISO/LCH	

11N20SISO_Ant2_LCH_Graphs	
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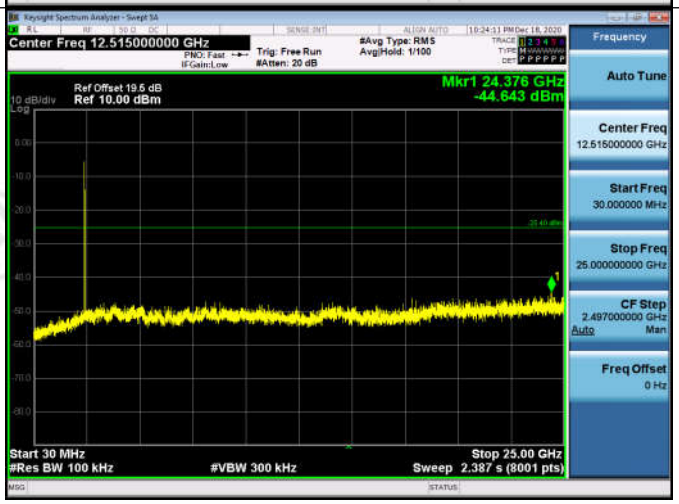
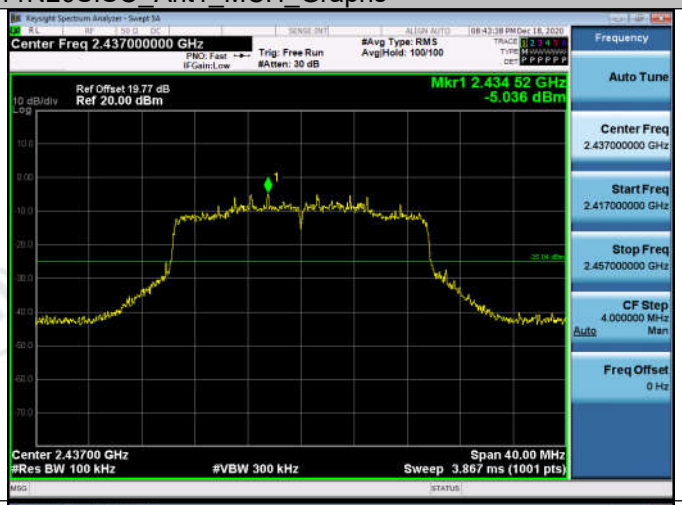
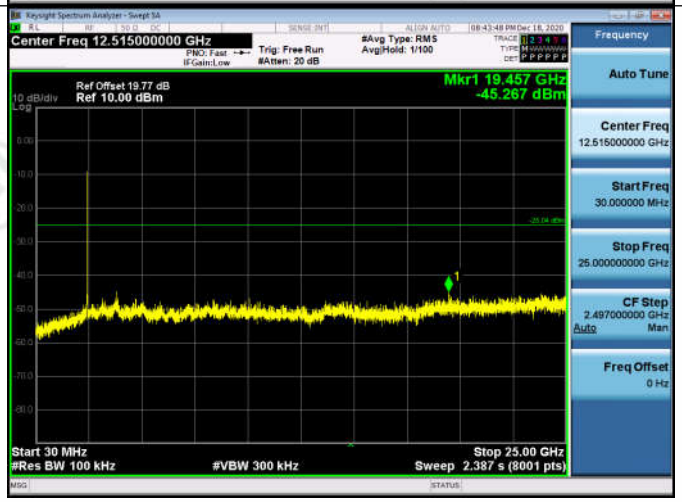
Puw/11N20SISO/LCH	

11N20SISO_Ant1_MCH_Graphs		
Pref/11N20SISO/MCH		
Puw/11N20SISO/MCH		

11N20SISO_Ant2_MCH_Graphs		
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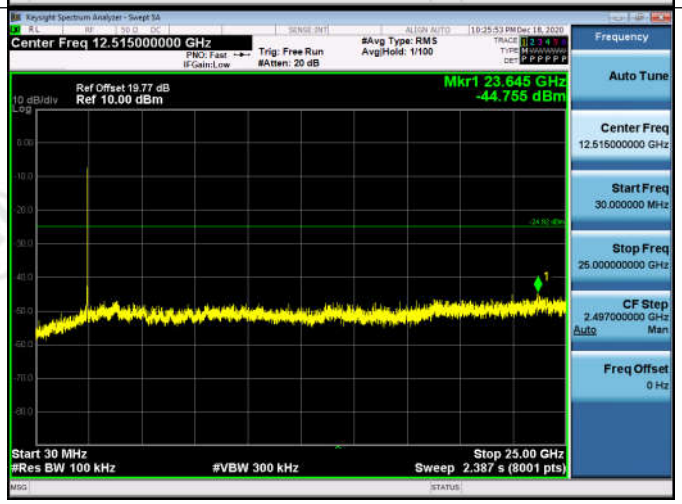
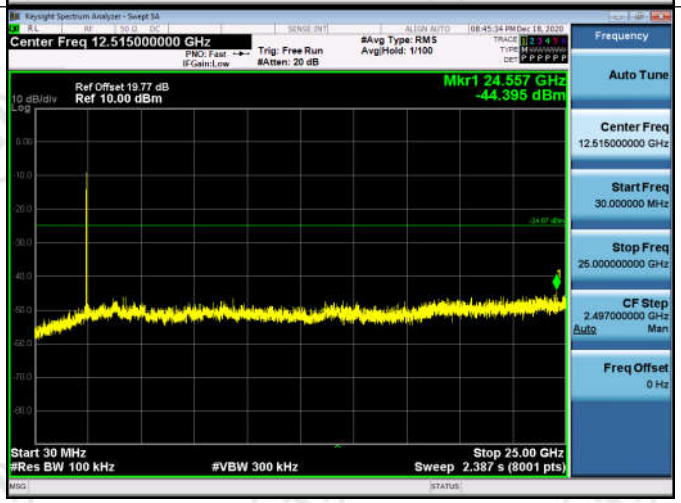
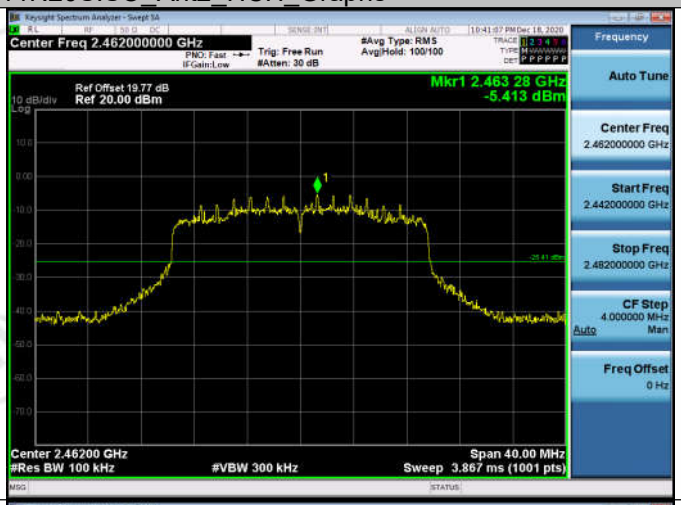
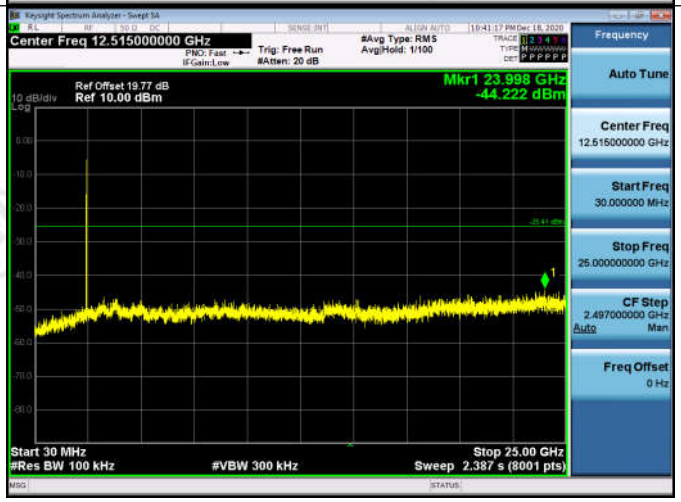
Puw/11N20SISO/MCH		

11N20SISO_Ant1_HCH_Graphs	
Pref/11N20SISO/HCH	
Puw/11N20SISO/HCH	

11N20SISO_Ant2_HCH_Graphs		
Pref/11N20SISO/HCH		
Puw/11N20SISO/HCH		

11N20MIMO_Ant1_LCH_Graphs	
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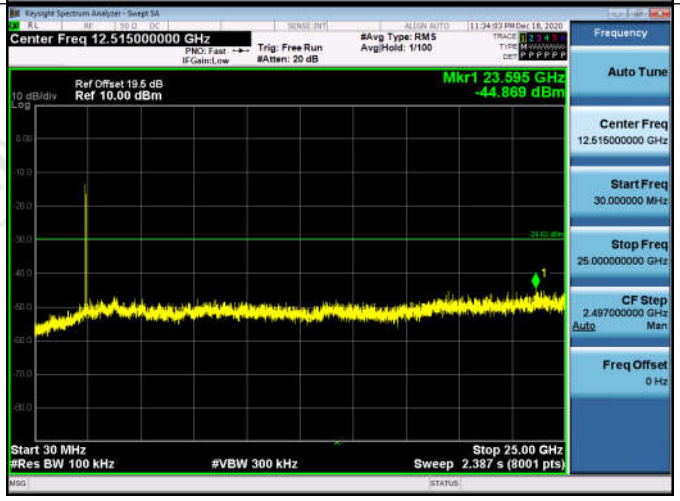
Puw/11N20MIMO/LCH	

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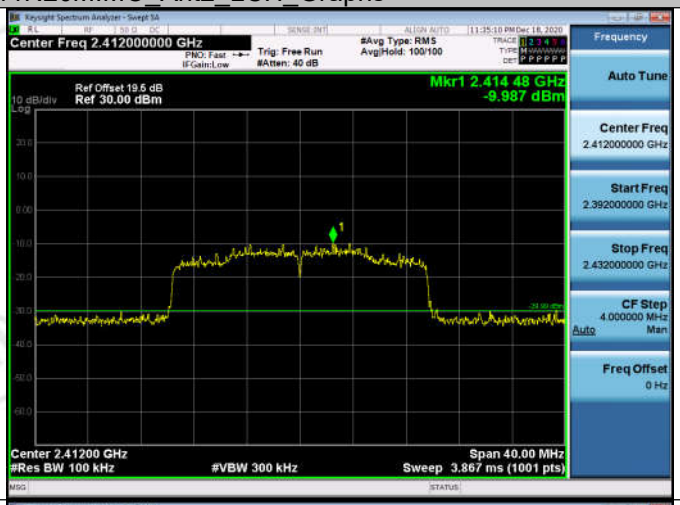
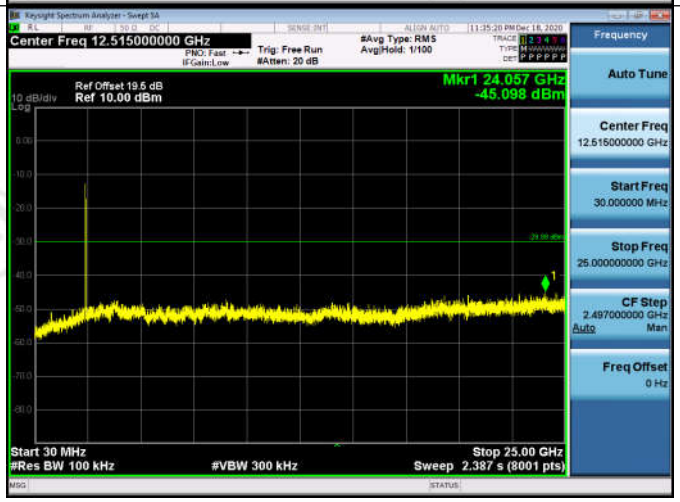
Pref/11N20MIMO/LCH	
Puw/11N20MIMO/LCH	

11N20MIMO_Ant1_MCH_Graphs	
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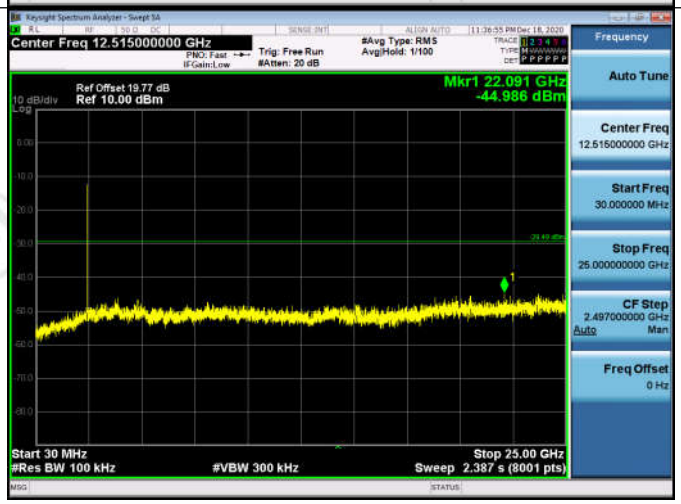
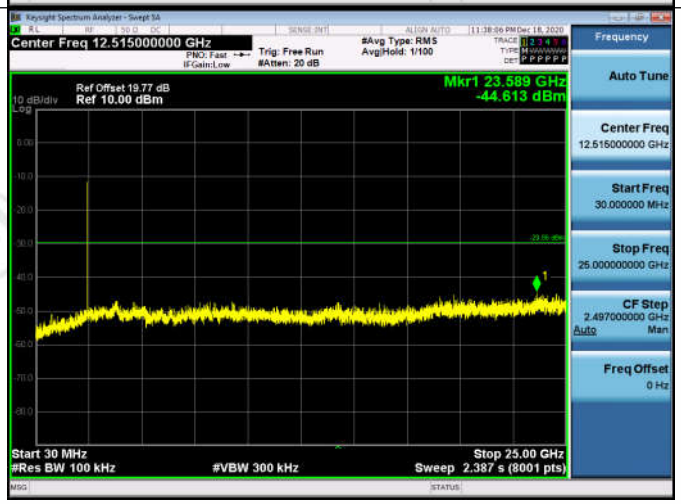
Puw/11N20MIMO/MCH	

11N20MIMO_Ant2_MCH_Graphs	
Pref/11N20MIMO/MCH	
Puw/11N20MIMO/MCH	

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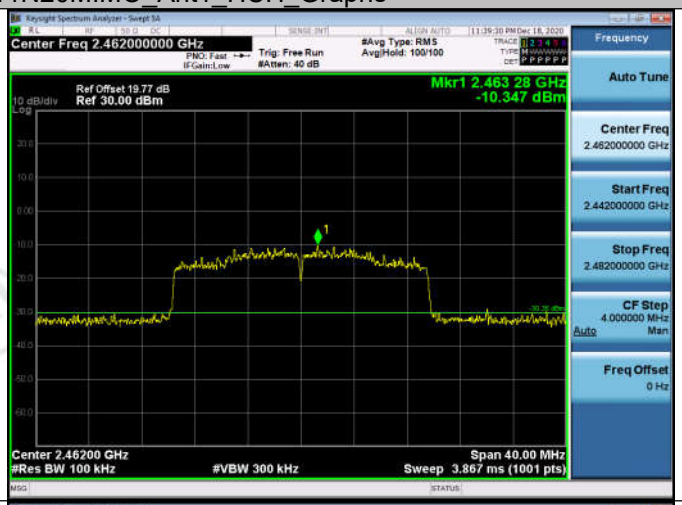
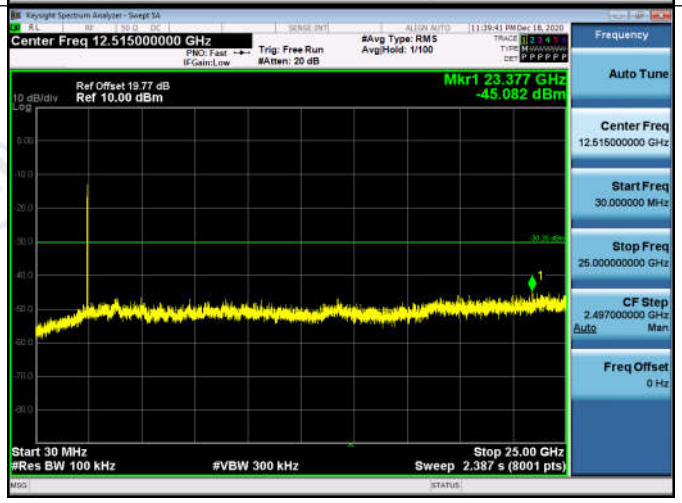
Pref/11N20MIMO/HCH	
Puw/11N20MIMO/HCH	

11N20MIMO_Ant2_HCH_Graphs	
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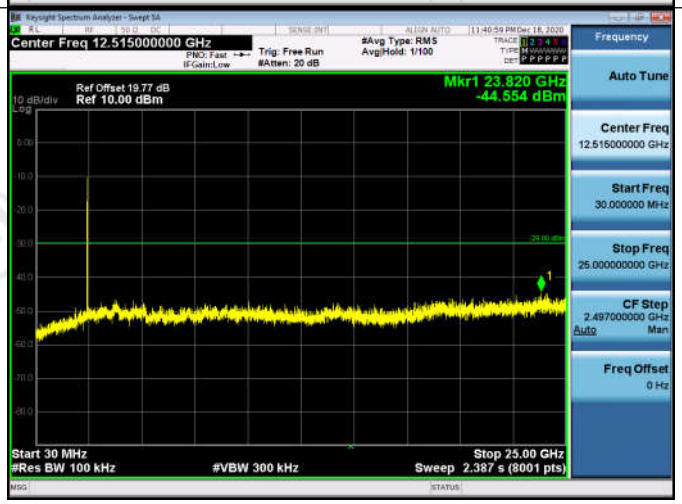
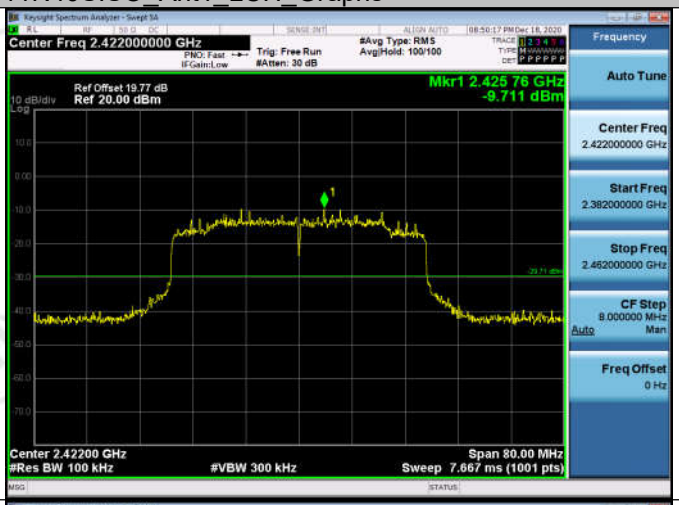
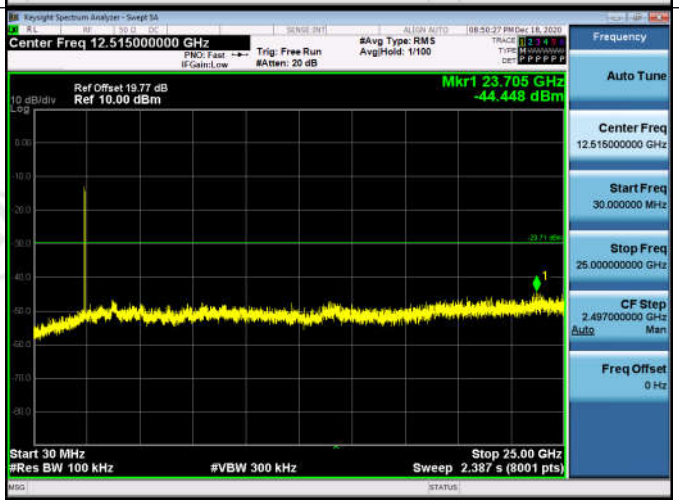
Puw/11N20MIMO/HCH	

11N40SISO_Ant1_LCH_Graphs	
Pref/11N40SISO/LCH	
Puw/11N40SISO/LCH	

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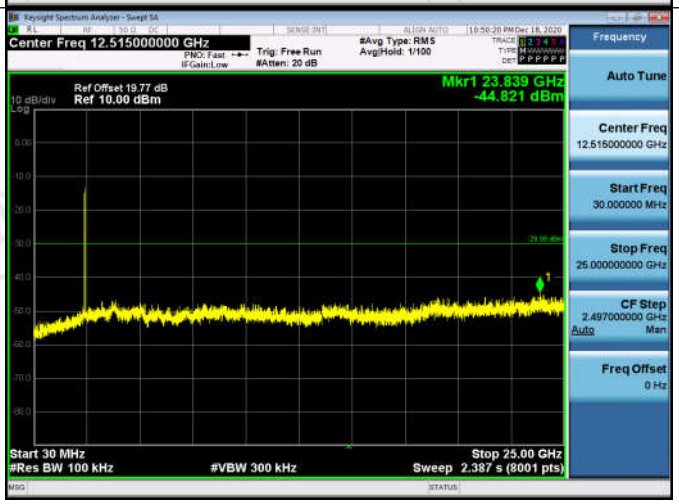
Puw/11N40SISO/LCH	

11N40SISO_Ant1_MCH_Graphs		
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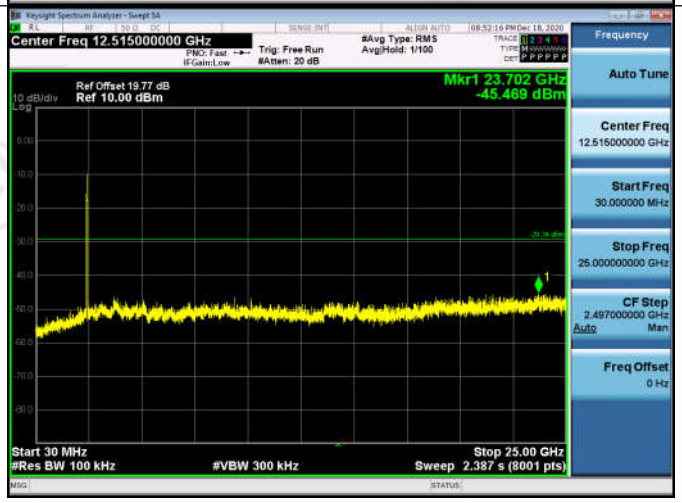
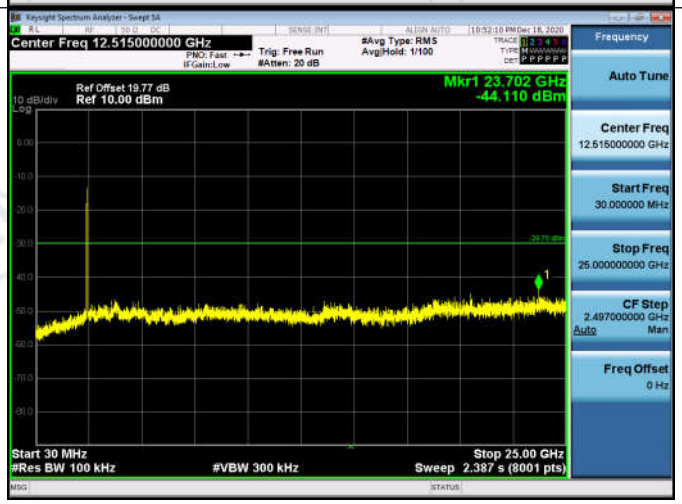
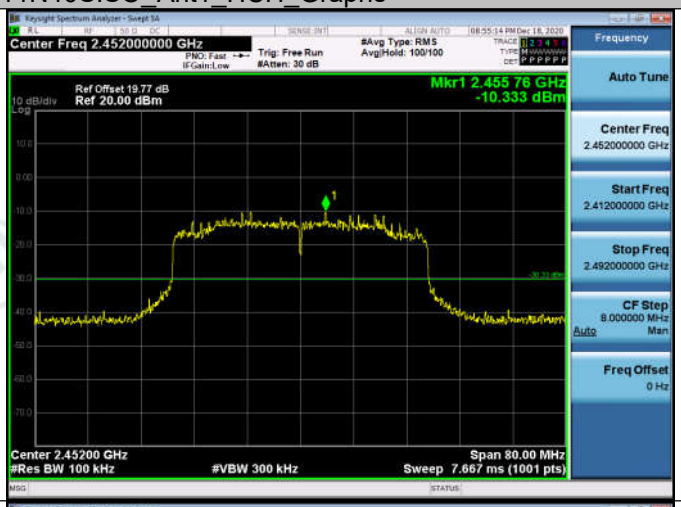
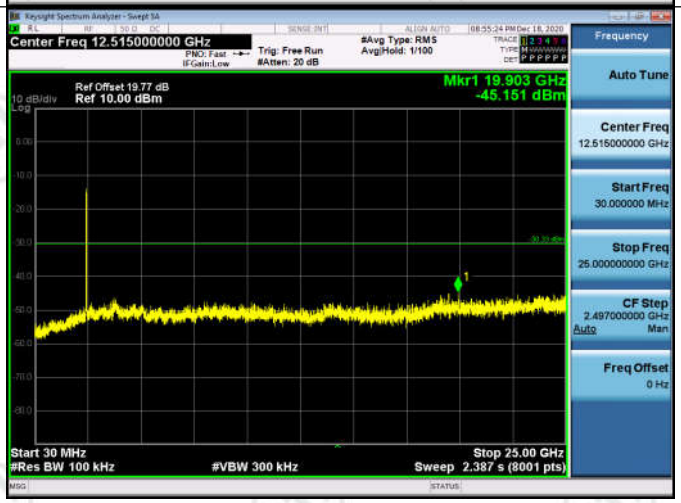
Puw/11N40SISO/MCH		

11N40SISO_Ant2_MCH_Graphs		
Pref/11N40SISO/MCH		
Puw/11N40SISO/MCH		

11N40SISO_Ant1_HCH_Graphs		
Pref/11N40SISO/HCH		
Puw/11N40SISO/HCH		

11N40SISO_Ant2_HCH_Graphs		
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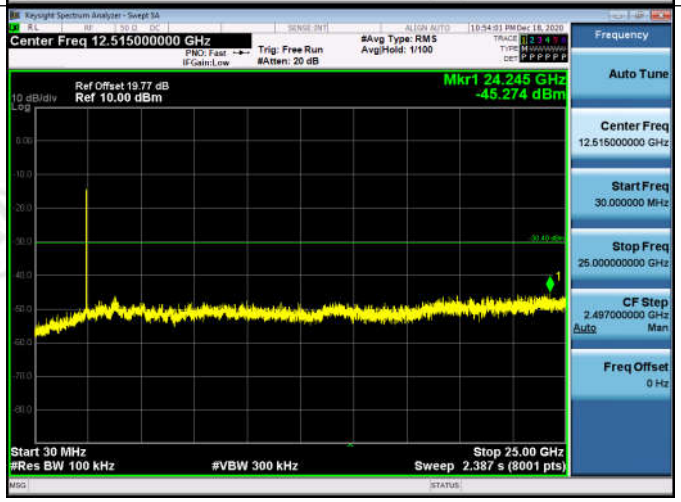
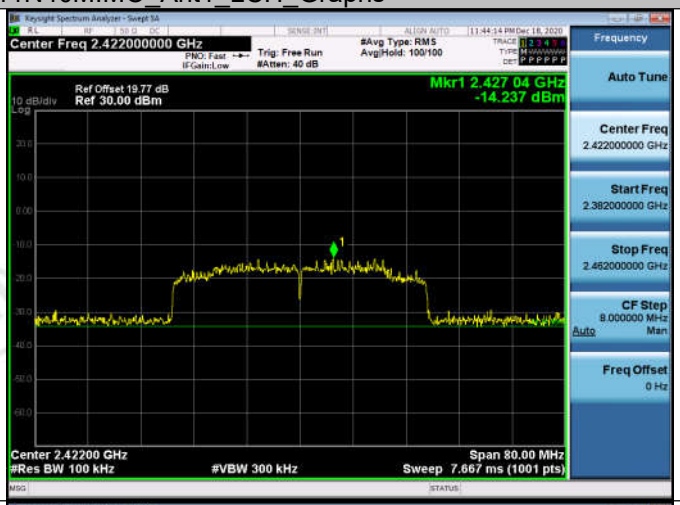
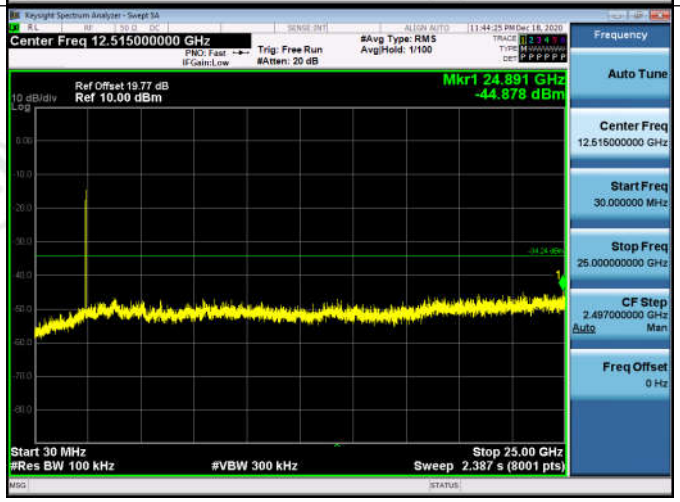
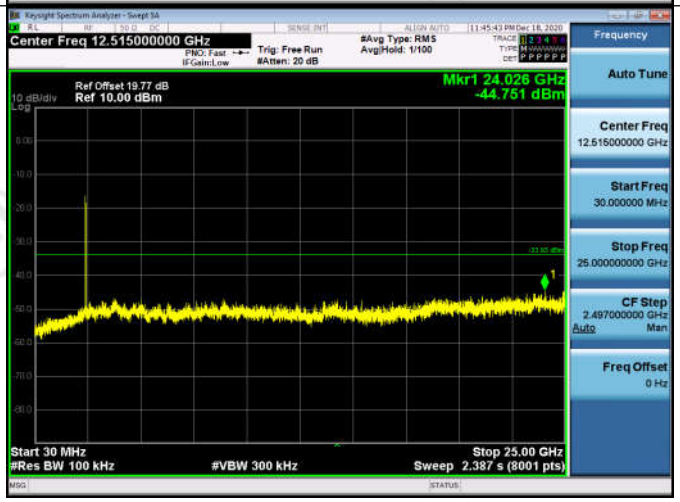
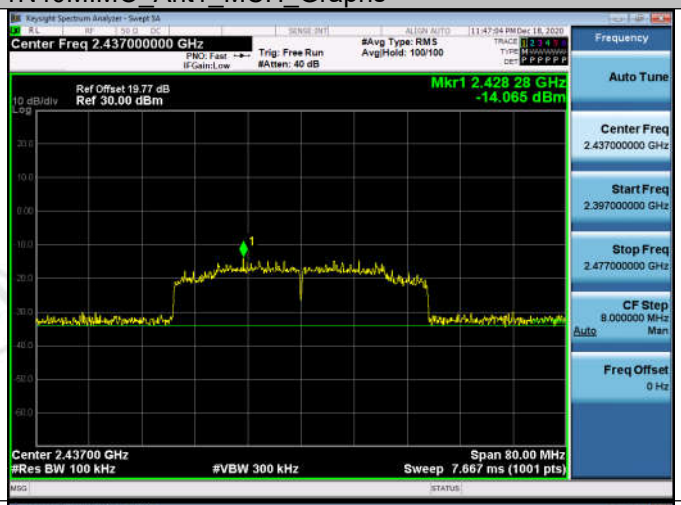
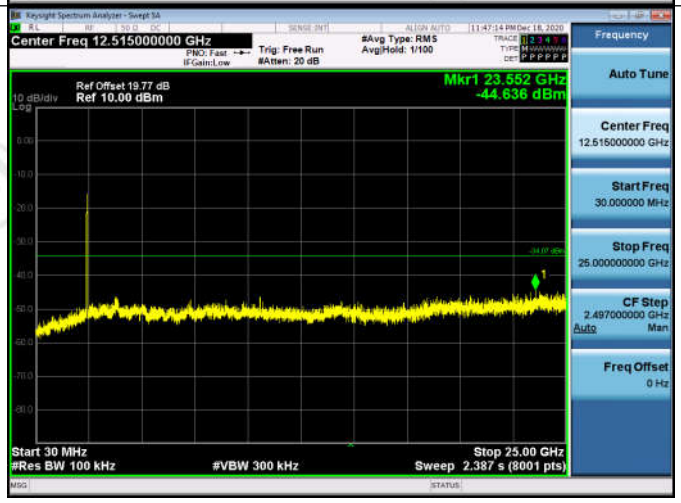
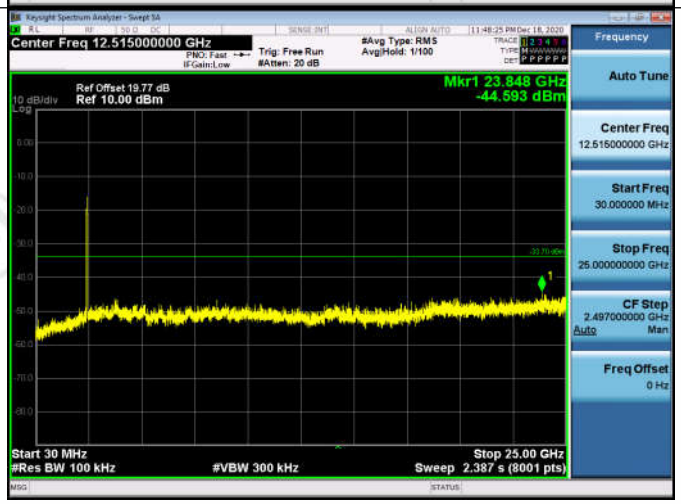
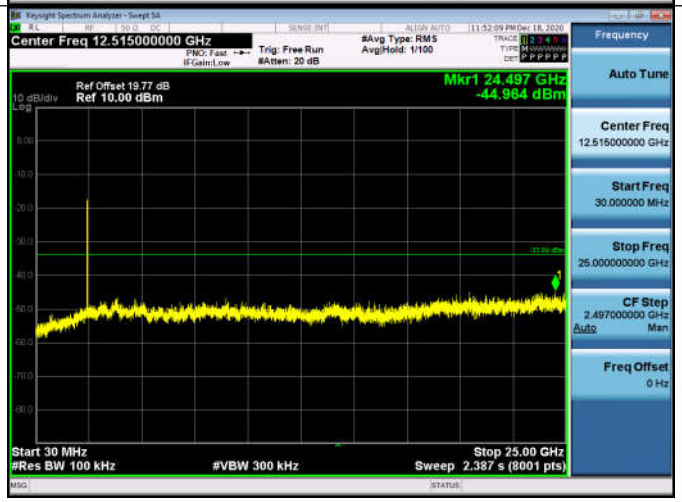
Puw/11N40SISO/HCH		

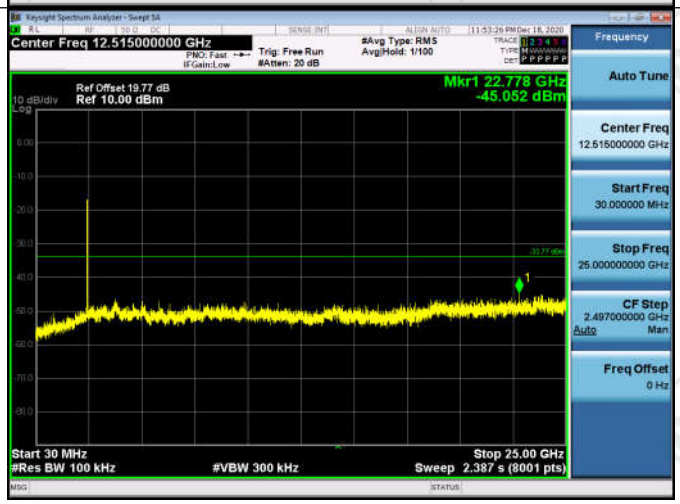
11N40MIMO_Ant1_LCH_Graphs	
Pref/11N40MIMO/LCH	
Puw/11N40MIMO/LCH	

11N40MIMO_Ant2_LCH_Graphs	
Pref/11N40MIMO/LCH	
Puw/11N40MIMO/LCH	

11N40MIMO_Ant1_MCH_Graphs	
Pref/11N40MIMO/MCH	
Puw/11N40MIMO/MCH	

11N40MIMO_Ant2_MCH_Graphs	
Pref/11N40MIMO/MCH	
Puw/11N40MIMO/MCH	

11N40MIMO_Ant1_HCH_Graphs	
Pref/11N40MIMO/HCH	
Puw/11N40MIMO/HCH	

11N40MIMO_Ant2_HCH_Graphs	
Pref/11N40MIMO/HCH	
Puw/11N40MIMO/HCH	

Appendix E): Power Spectral Density

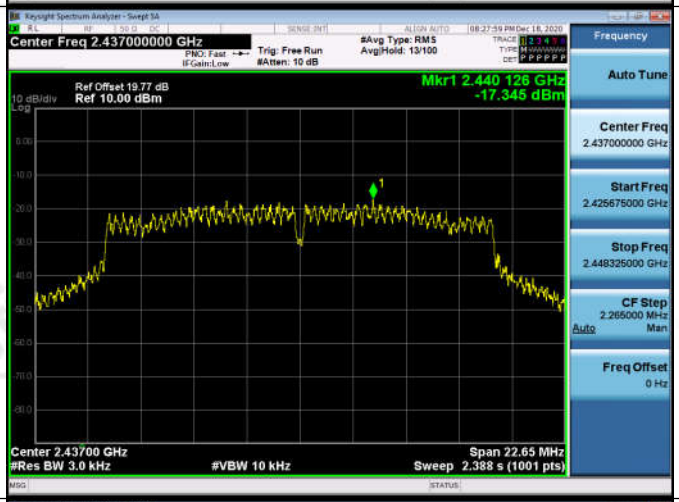
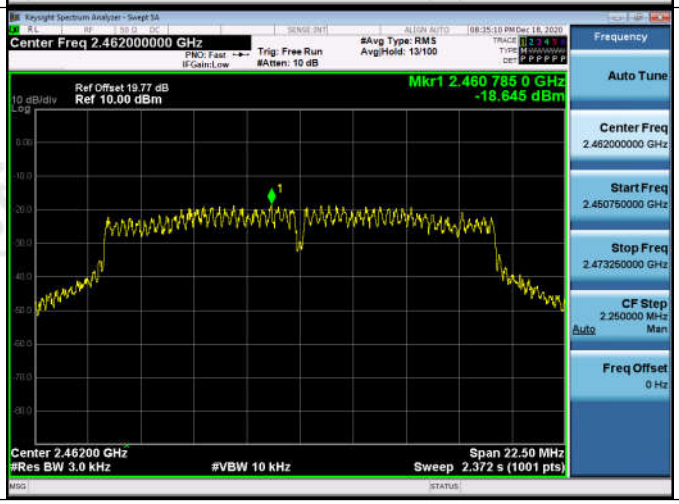
Result Table

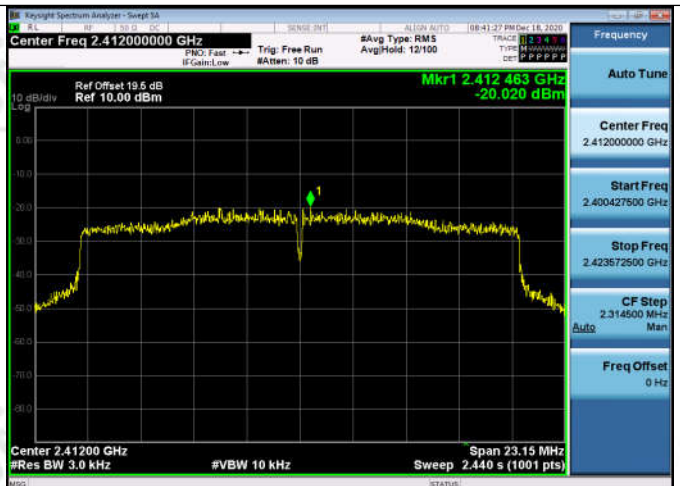
Mode	Antenna	Channel	Power Spectral Density [dBm]	Verdict
11B	Ant1	LCH	-11.630	PASS
11B	Ant2	LCH	-11.248	PASS
11B	Ant1	MCH	-10.951	PASS
11B	Ant2	MCH	-11.473	PASS
11B	Ant1	HCH	-10.740	PASS
11B	Ant2	HCH	-11.118	PASS
11G	Ant1	LCH	-17.587	PASS
11G	Ant2	LCH	-16.749	PASS
11G	Ant1	MCH	-17.345	PASS
11G	Ant2	MCH	-16.876	PASS
11G	Ant1	HCH	-18.645	PASS
11G	Ant2	HCH	-16.953	PASS
11N20SISO	Ant1	LCH	-20.020	PASS
11N20SISO	Ant2	LCH	-20.567	PASS
11N20SISO	Ant1	MCH	-20.573	PASS
11N20SISO	Ant2	MCH	-20.321	PASS
11N20SISO	Ant1	HCH	-20.654	PASS
11N20SISO	Ant2	HCH	-21.277	PASS
11N20MIMO	Ant1	LCH	-25.597	PASS
11N20MIMO	Ant2	LCH	-24.785	PASS
11N20MIMO	Ant1+2	LCH	-22.16	PASS
11N20MIMO	Ant1	MCH	-24.389	PASS
11N20MIMO	Ant2	MCH	-24.136	PASS
11N20MIMO	Ant1+2	MCH	-21.25	PASS
11N20MIMO	Ant1	HCH	-25.500	PASS
11N20MIMO	Ant2	HCH	-24.925	PASS
11N20MIMO	Ant1+2	HCH	-22.19	PASS
11N40SISO	Ant1	LCH	-23.790	PASS
11N40SISO	Ant2	LCH	-25.562	PASS
11N40SISO	Ant1	MCH	-24.808	PASS
11N40SISO	Ant2	MCH	-26.088	PASS

11N40SISO	Ant1	HCH	-24.372	PASS
11N40SISO	Ant2	HCH	-24.701	PASS
11N40MIMO	Ant1	LCH	-29.804	PASS
11N40MIMO	Ant2	LCH	-29.293	PASS
11N40MIMO	Ant1+2	LCH	-26.53	PASS
11N40MIMO	Ant1	MCH	-29.817	PASS
11N40MIMO	Ant2	MCH	-28.954	PASS
11N40MIMO	Ant1+2	MCH	-26.35	PASS
11N40MIMO	Ant1	HCH	-29.804	PASS
11N40MIMO	Ant2	HCH	-29.425	PASS
11N40MIMO	Ant1+2	HCH	-26.60	PASS

Test Graph

Graphs_Ant1		
11B/LCH		
11B/MCH		
11B/HCH		

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

11N20SISO/LCH			
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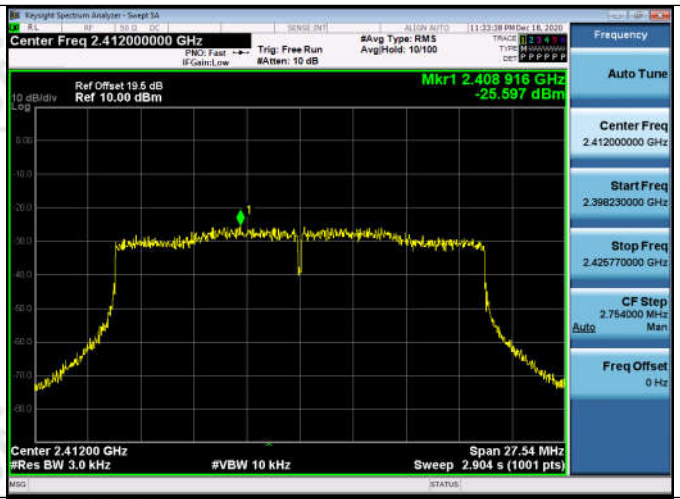
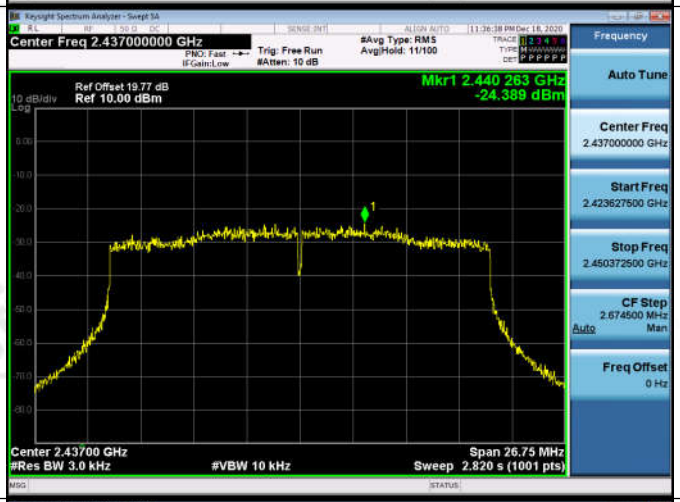
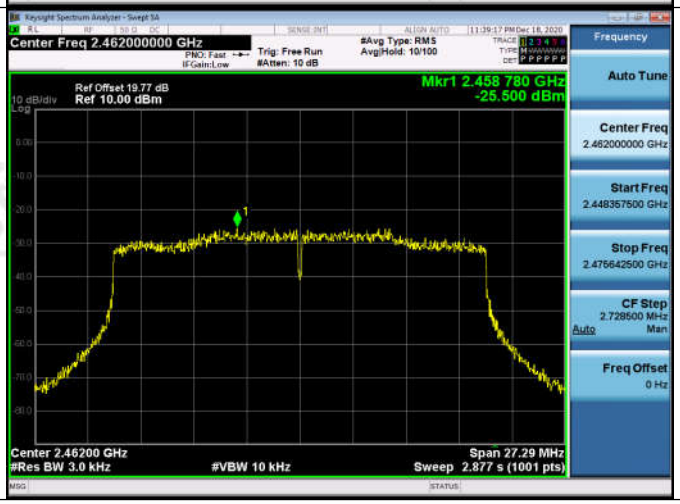
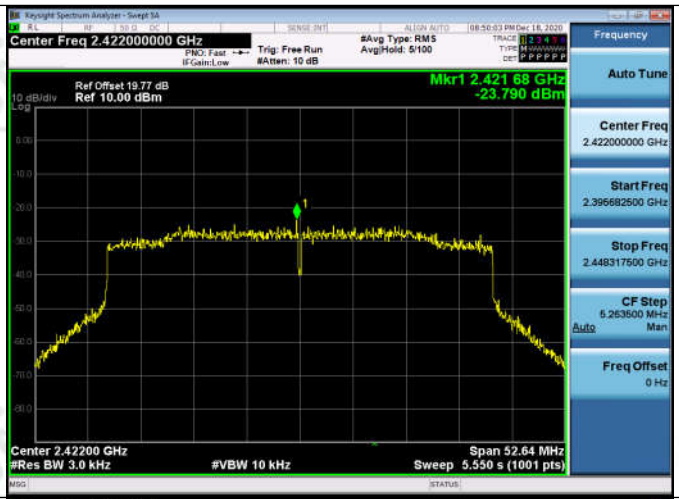
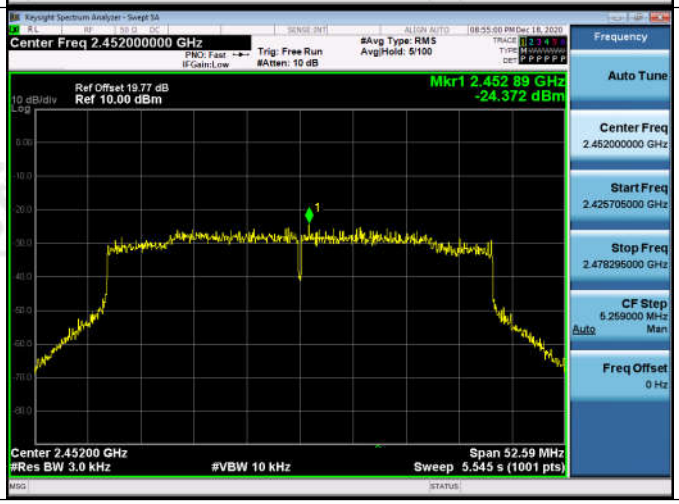
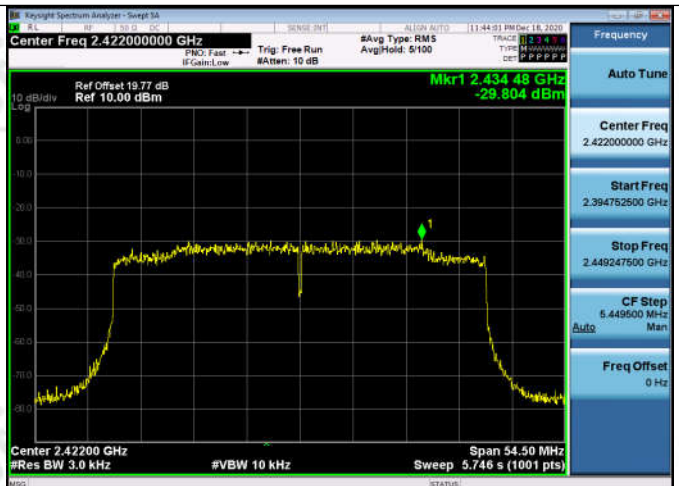
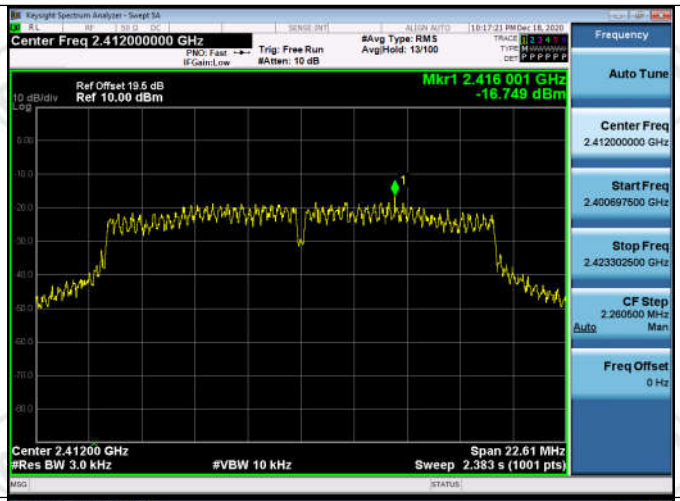
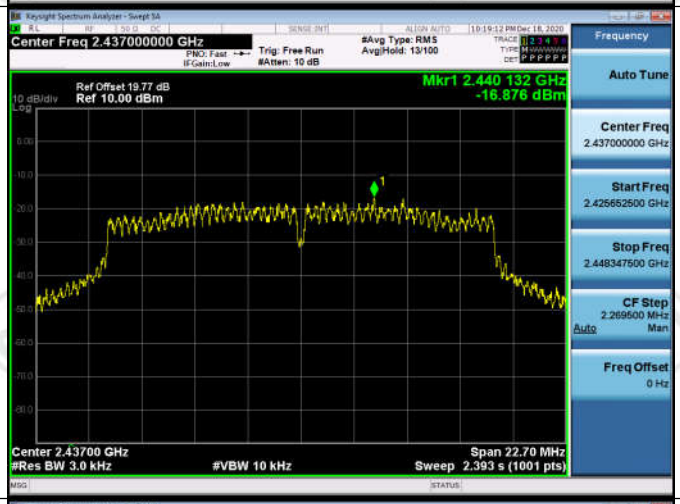
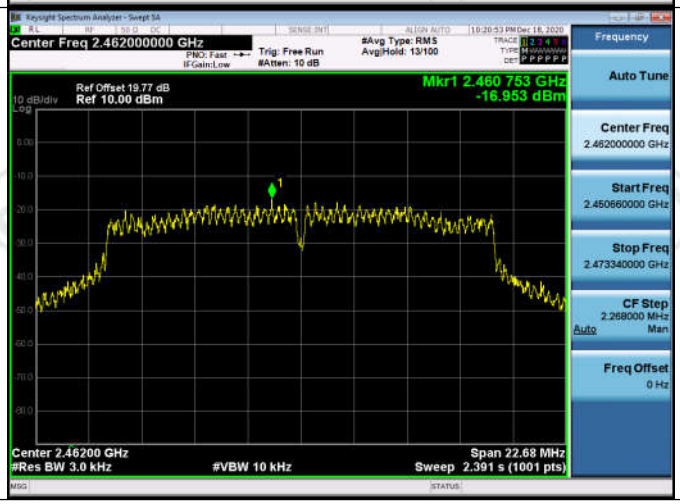
11N20SISO/HCH			

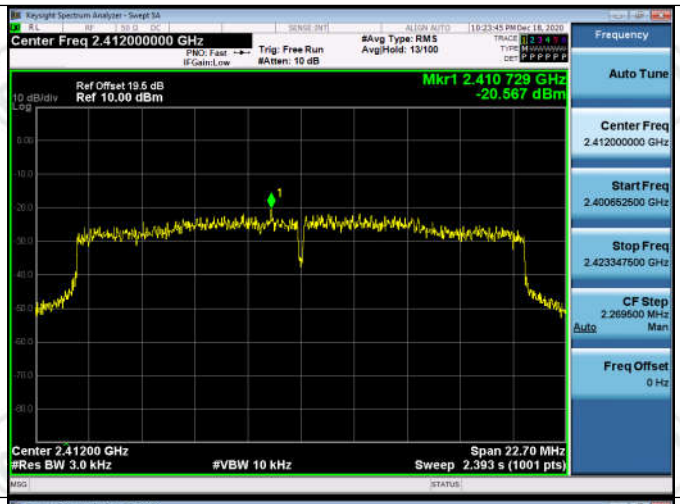
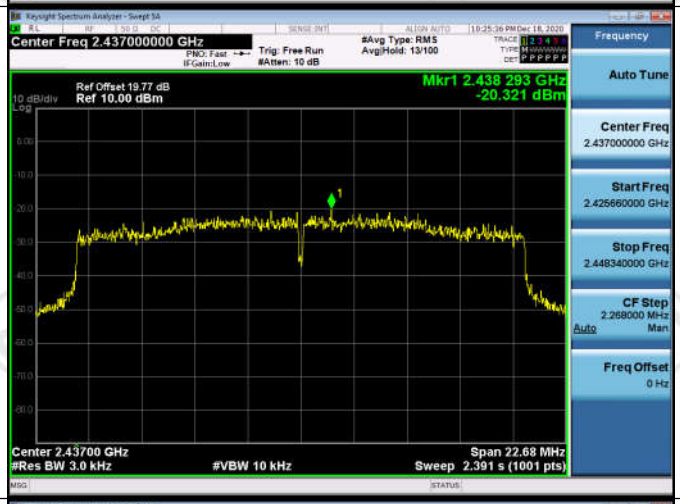
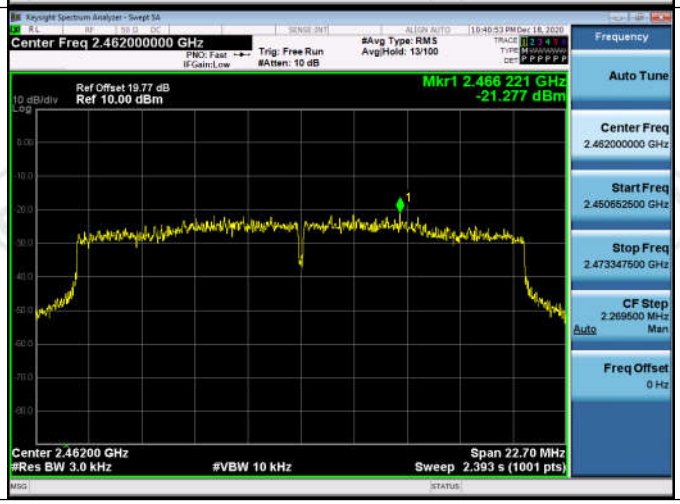
11N20MIMO/LCH			
11N20MIMO/MCH			
11N20MIMO/HCH			

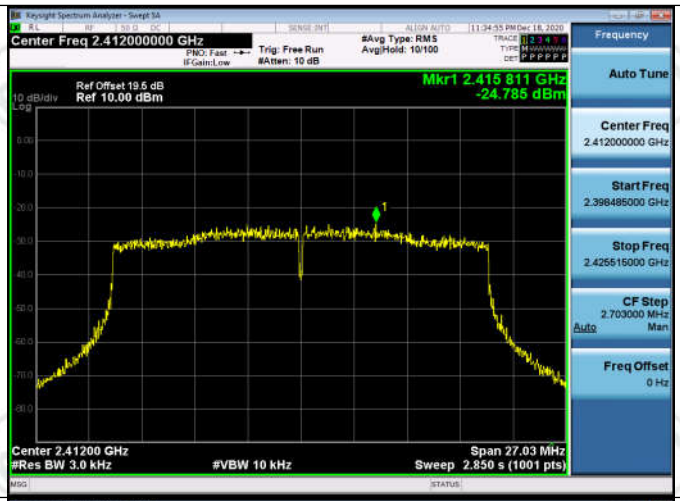
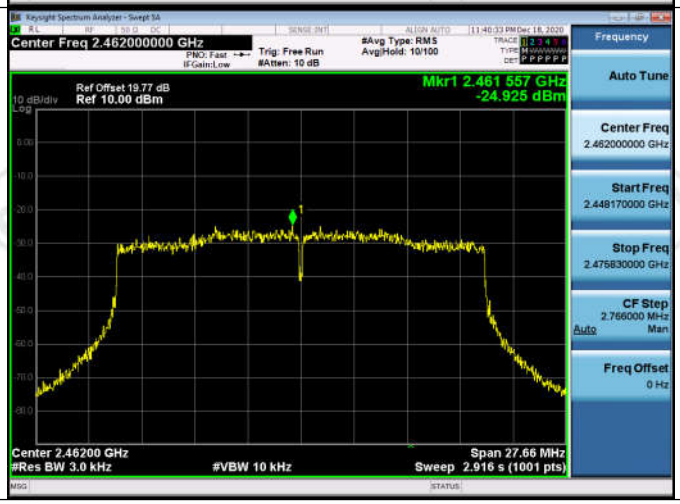
11N40SISO/LCH			
11N40SISO/MCH			
11N40SISO/HCH			

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

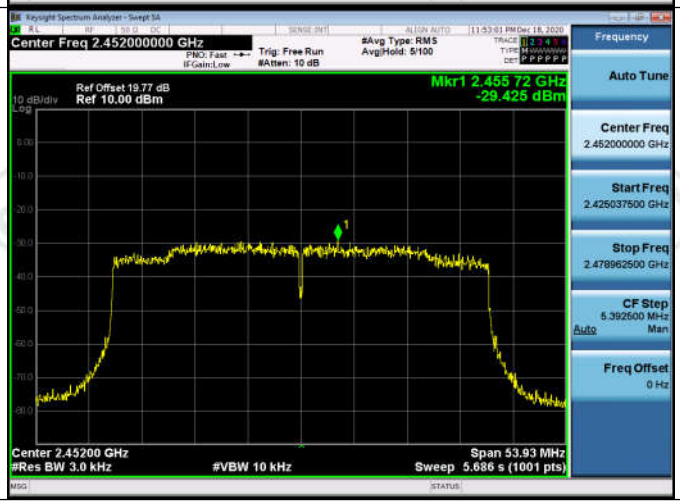
Graphs_Ant2		
11B/LCH		
11B/MCH		
11B/HCH		

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

11N20SISO/LCH			
11N20SISO/MCH			
11N20SISO/HCH			

11N20MIMO/L CH			
11N20MIMO/M CH			
11N20MIMO/H CH			

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

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:	Please see Internal photos

The antenna is FPC antenna. The best case gain of the antenna is 1.5dBi.

Appendix G): AC Power Line Conducted Emission

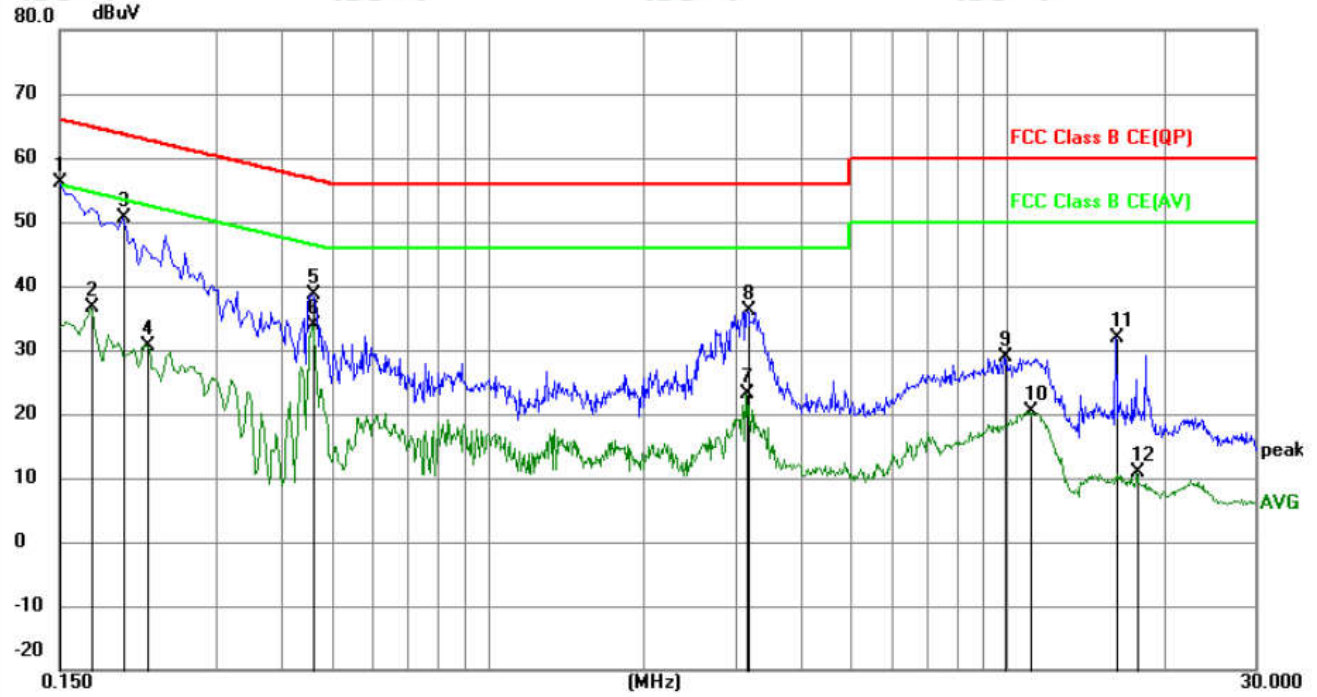
<table>
<tr><td>Test Procedure:</td><td>Test frequency range :150KHz-30MHz
1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. 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.</td></tr>
<tr><td>Limit:</td><td>
<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</td></tr>
</table>

Measurement Data

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

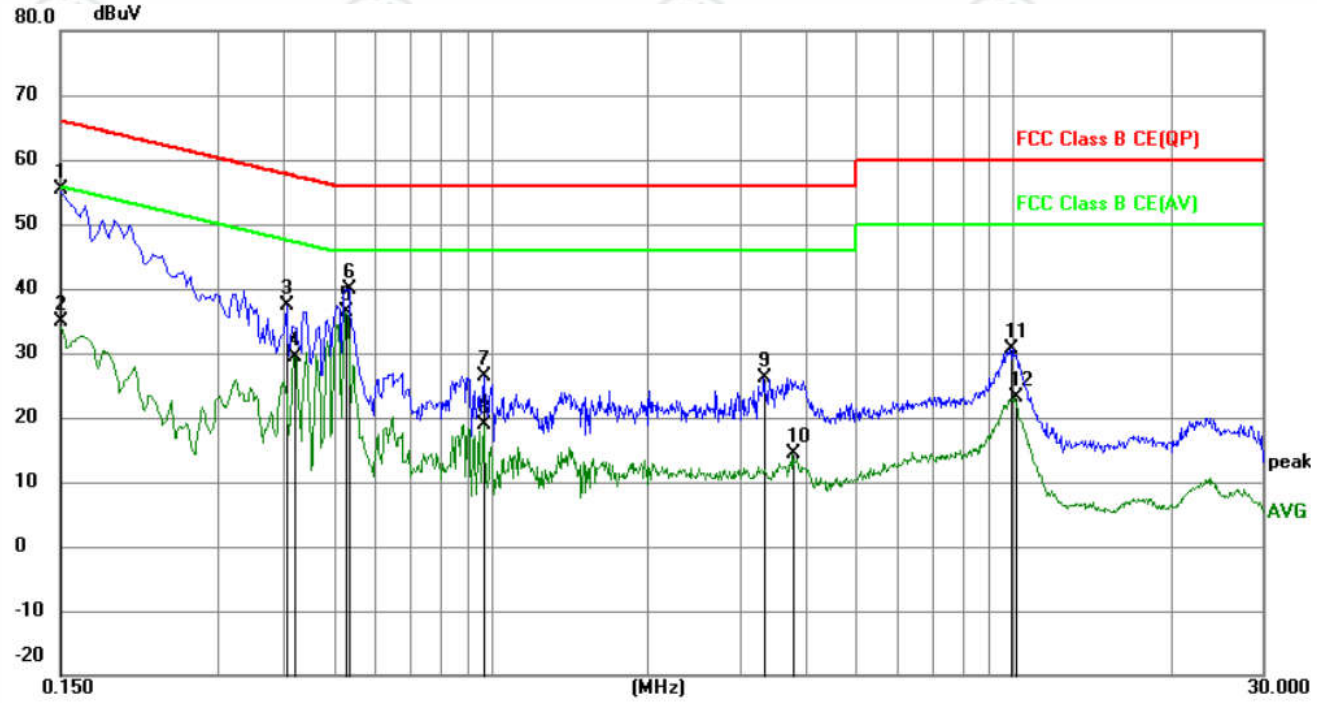
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	46.31	9.87	56.18	66.00	-9.82	QP	
2		0.1725	26.66	9.87	36.53	54.84	-18.31	AVG	
3		0.1995	40.83	9.87	50.70	63.63	-12.93	QP	
4		0.2220	20.75	9.91	30.66	52.74	-22.08	AVG	
5		0.4605	28.58	9.96	38.54	56.68	-18.14	QP	
6		0.4605	23.86	9.96	33.82	46.68	-12.86	AVG	
7		3.1560	13.33	9.79	23.12	46.00	-22.88	AVG	
8		3.1695	26.35	9.79	36.14	56.00	-19.86	QP	
9		9.8925	19.18	9.78	28.96	60.00	-31.04	QP	
10		11.0400	10.62	9.81	20.43	50.00	-29.57	AVG	
11		16.1835	22.01	9.94	31.95	60.00	-28.05	QP	
12		17.8035	0.82	9.95	10.77	50.00	-39.23	AVG	

Neutral line:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1725	44.57	9.87	54.44	64.84	-10.40	QP	
2		0.1725	27.19	9.87	37.06	54.84	-17.78	AVG	
3		0.2490	19.23	9.97	29.20	51.79	-22.59	AVG	
4		0.2850	33.49	10.04	43.53	60.67	-17.14	QP	
5		0.4605	19.81	9.96	29.77	46.68	-16.91	AVG	
6		0.5144	28.72	9.97	38.69	56.00	-17.31	QP	
7		3.1785	28.94	9.79	38.73	56.00	-17.27	QP	
8		3.2775	17.26	9.79	27.05	46.00	-18.95	AVG	
9		5.7255	11.90	9.78	21.68	50.00	-28.32	AVG	
10		5.8740	25.31	9.78	35.09	60.00	-24.91	QP	
11		10.2975	31.92	9.79	41.71	60.00	-18.29	QP	
12		11.6295	19.07	9.83	28.90	50.00	-21.10	AVG	

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:

Test method Refer as KDB 558074 D01

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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:

g. 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).
h. Test the EUT in the lowest channel , the Highest channel
i. 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.
j. Repeat above procedures until all frequencies measured was complete.

Limit:

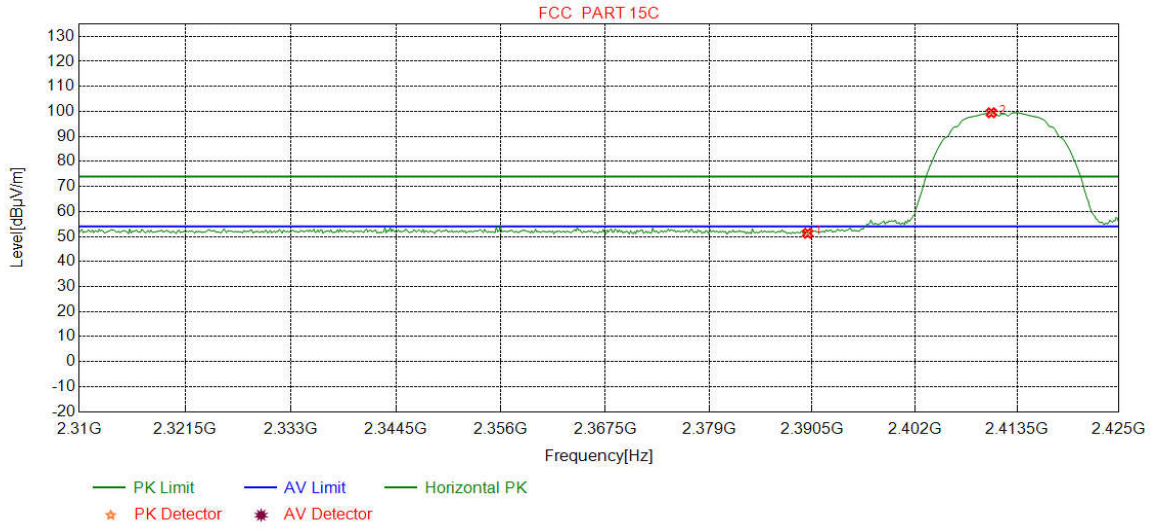
Frequency	Limit (dBμV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test plot as follows:

Ant1:

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2412
Remark:	PK		

Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Preamp gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	48.79	51.29	74.00	22.71	Pass	Horizontal
2	2410.6070	32.27	13.35	-43.11	96.96	99.47	74.00	-25.47	Pass	Horizontal