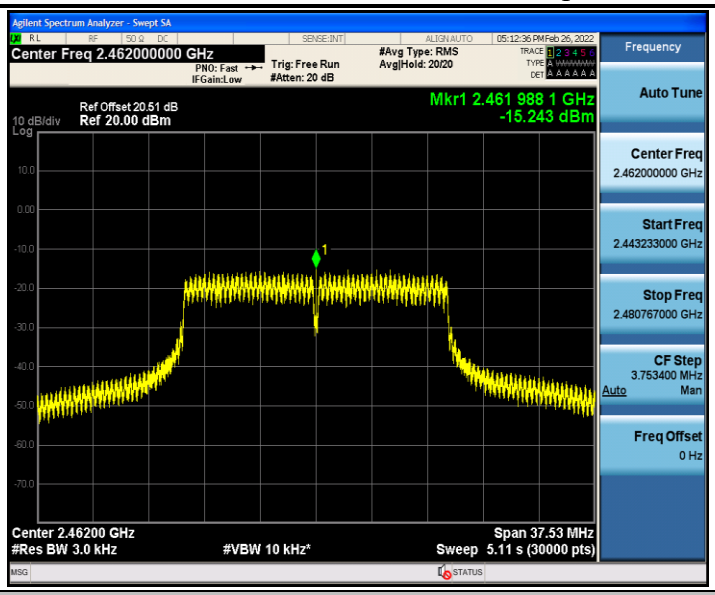
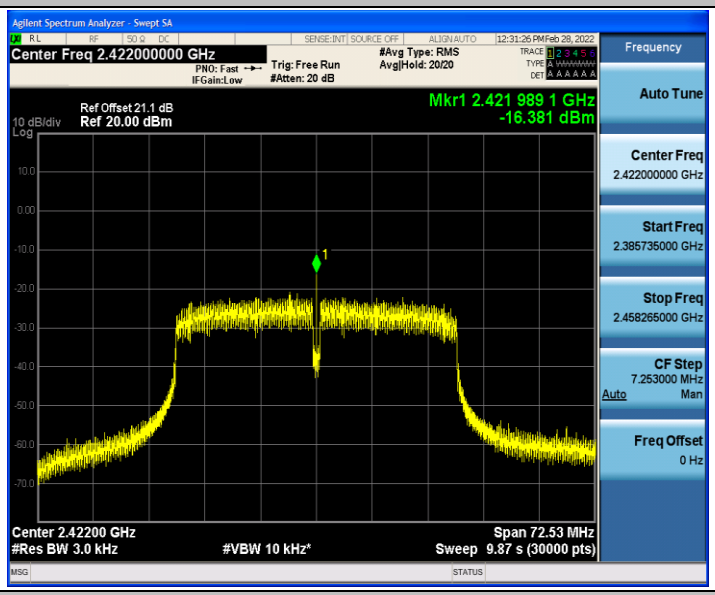


11N40SISO_Ant1_2422



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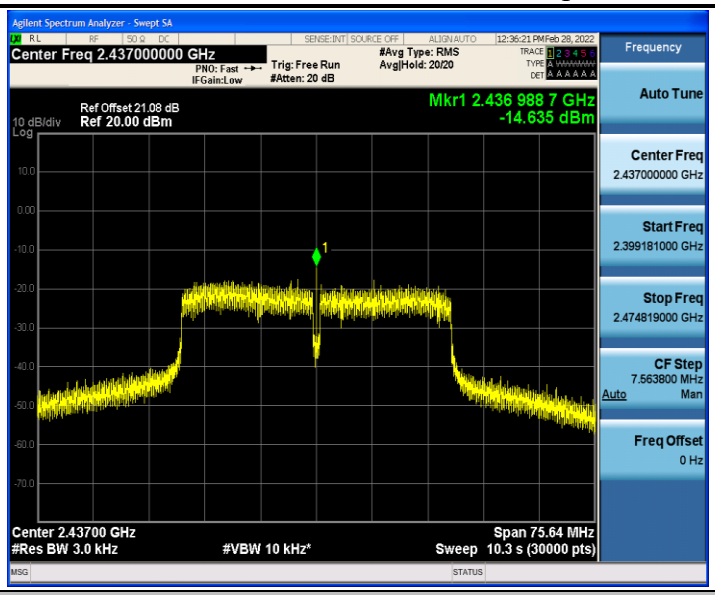

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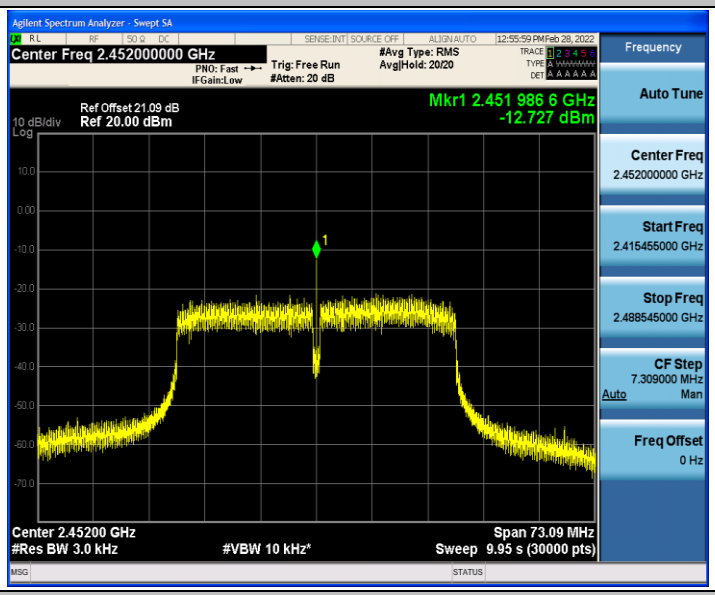

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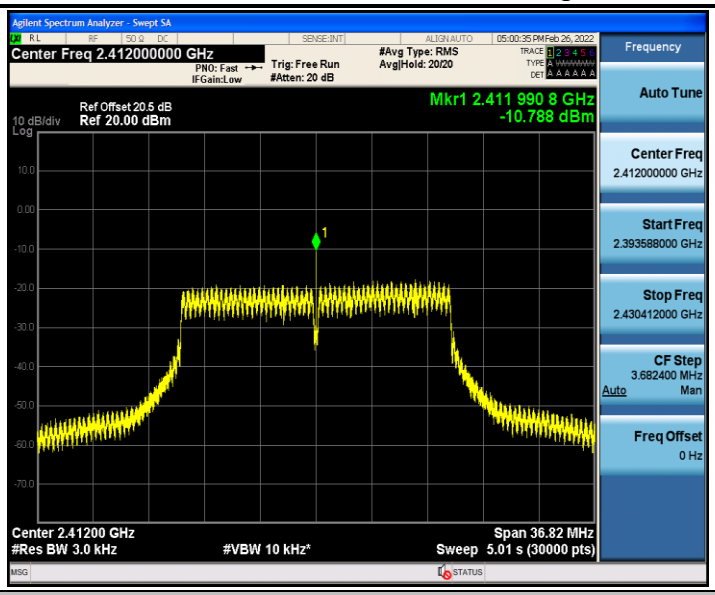

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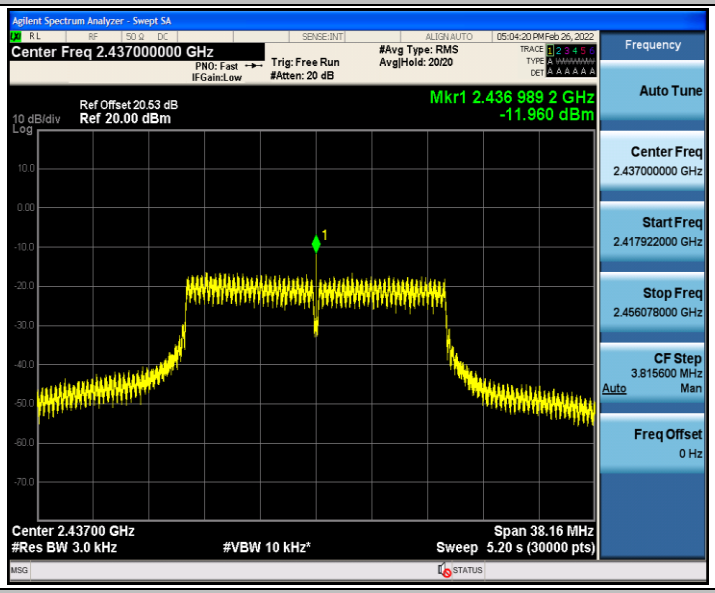

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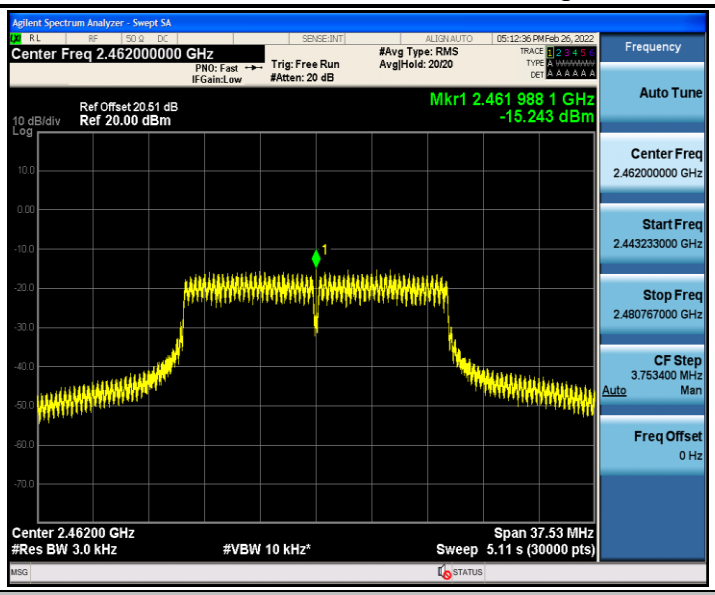

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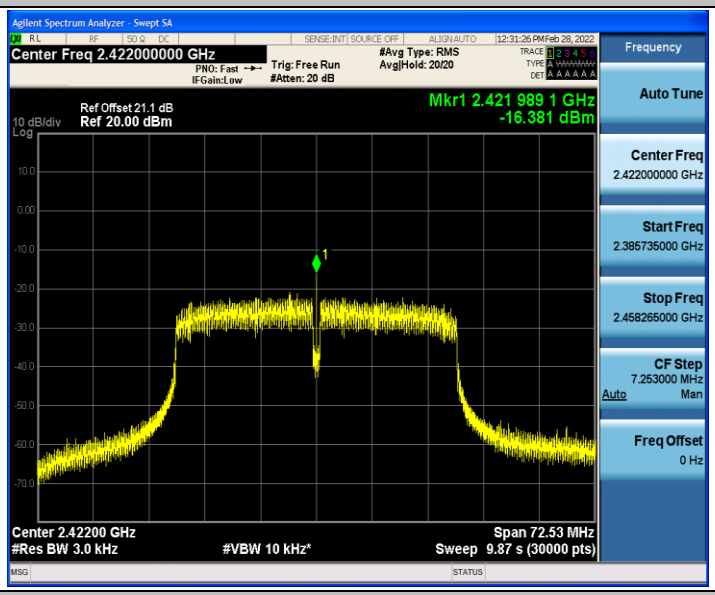

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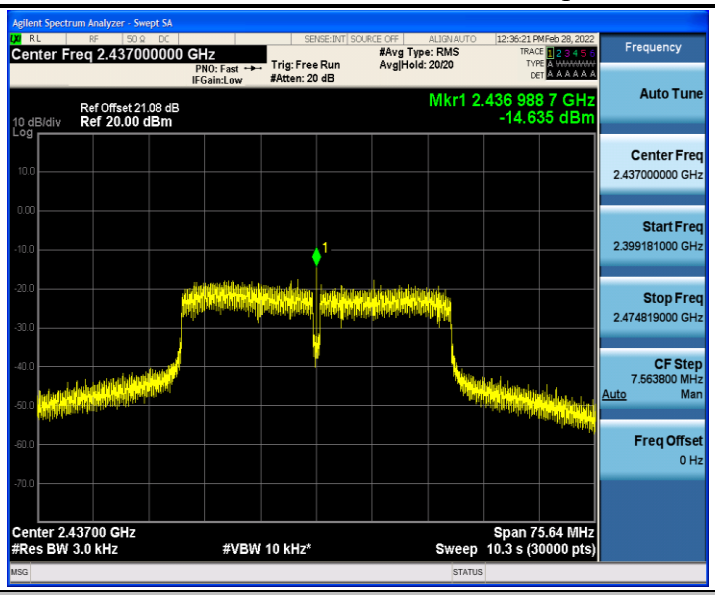

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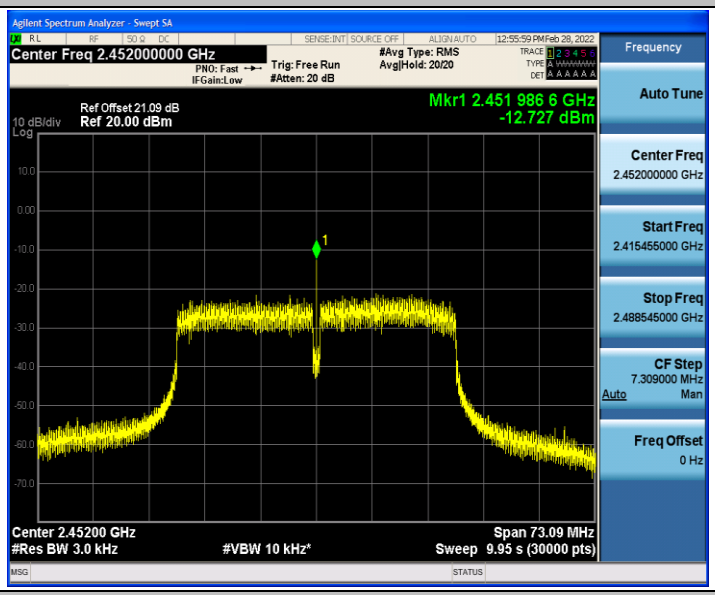
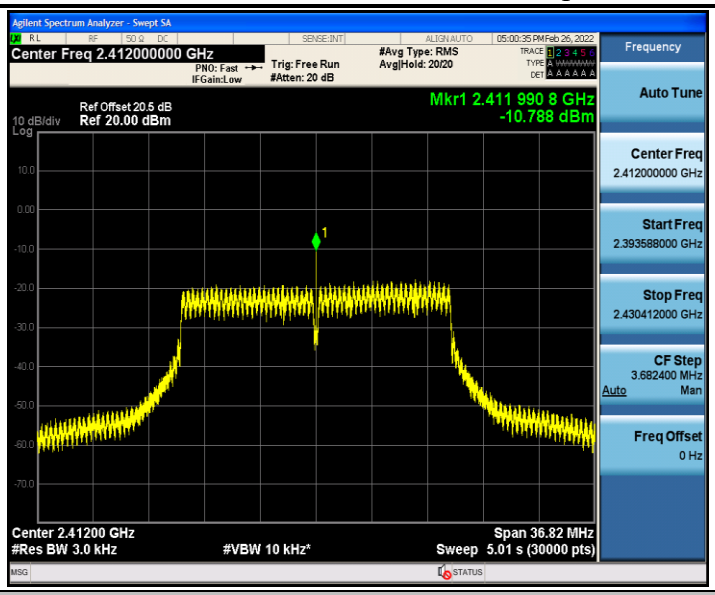


11N20SISO_Ant1_2412



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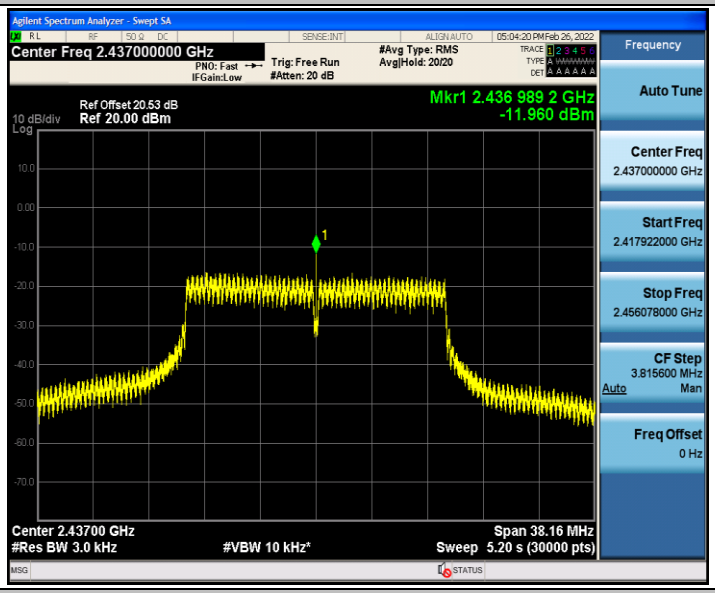

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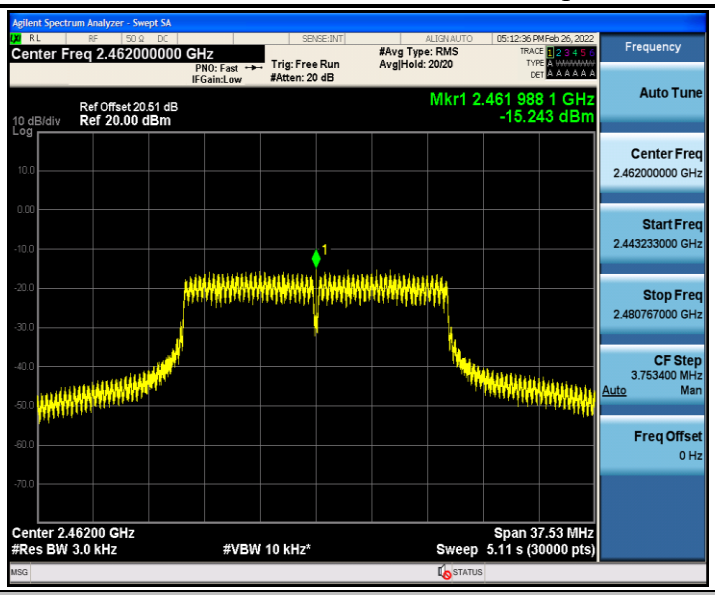

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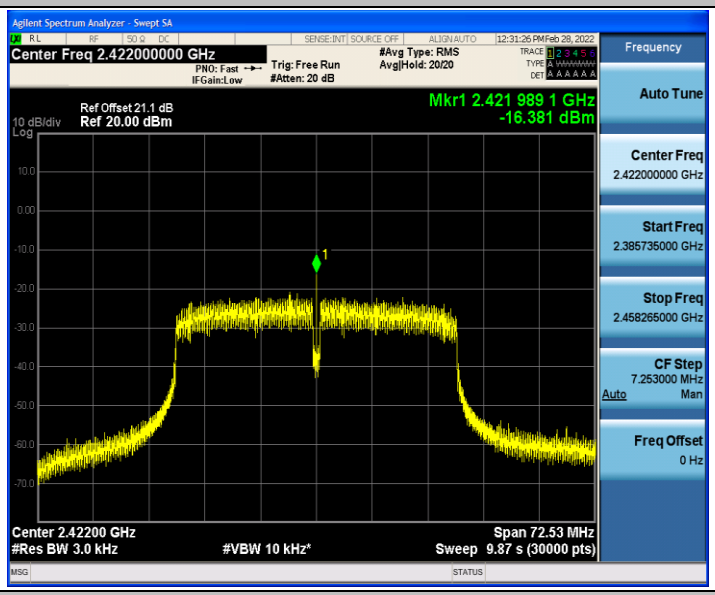

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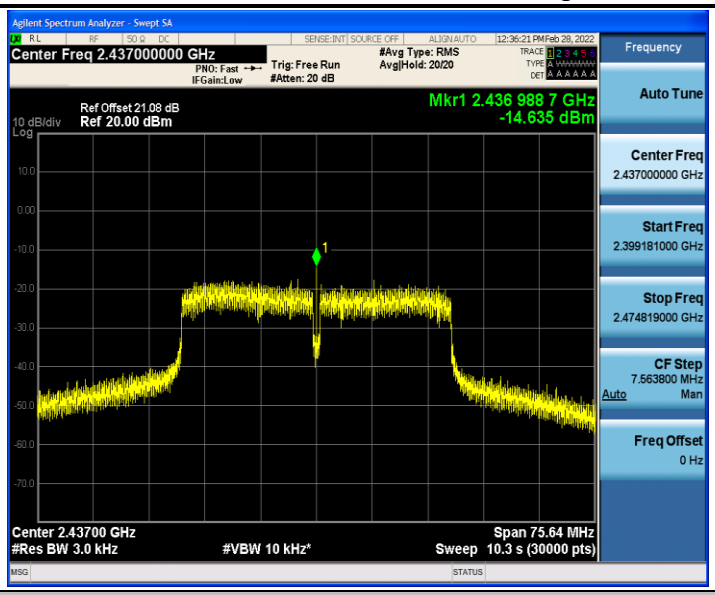

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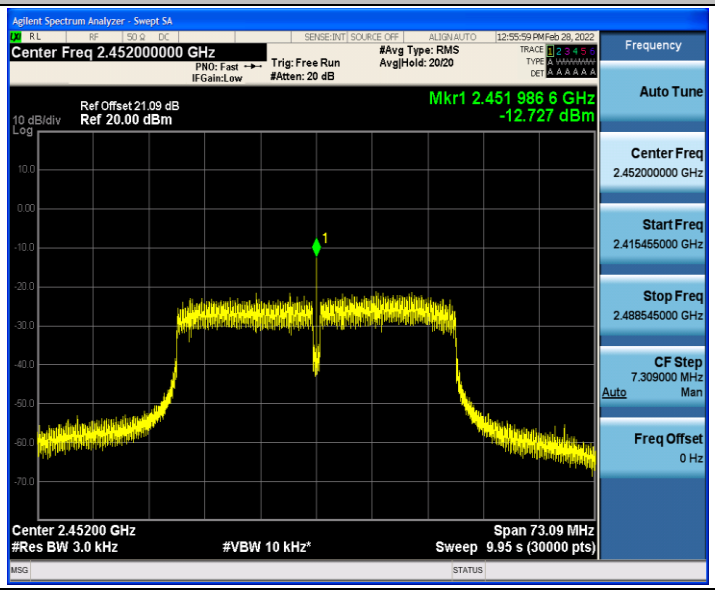
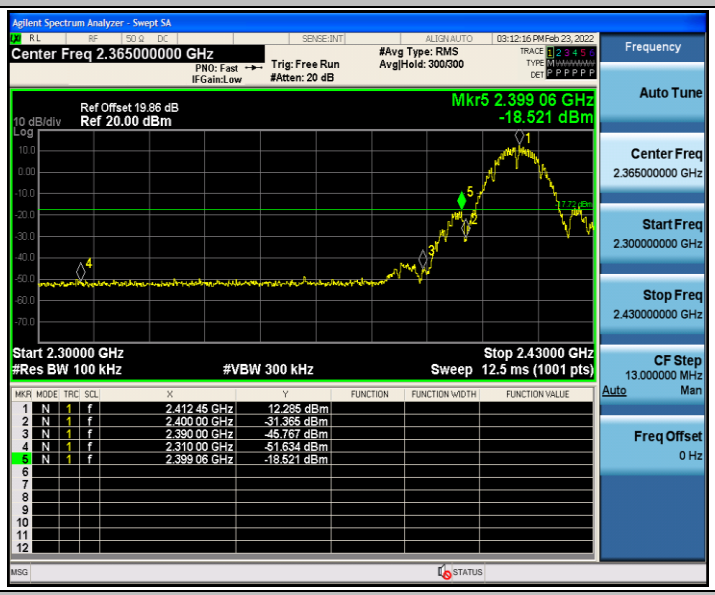


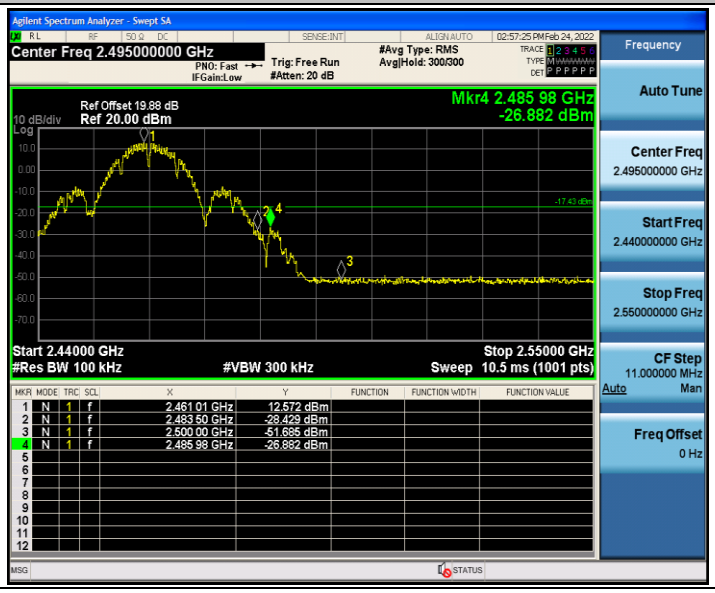
3.3.5.2. Band edge measurements

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	12.29	-18.52	≤-17.72	PASS
		High	2462	12.57	-26.88	≤-17.43	PASS
11G	Ant1	Low	2412	1.71	-30.83	≤-28.29	PASS
		High	2462	6.53	-31.29	≤-23.47	PASS
11N20SISO	Ant1	Low	2412	3.57	-27.05	≤-26.43	PASS
		High	2462	6.47	-26.6	≤-23.54	PASS
11N40SISO	Ant1	Low	2422	-0.15	-31.83	≤-30.15	PASS
		High	2452	-0.02	-33.06	≤-30.02	PASS

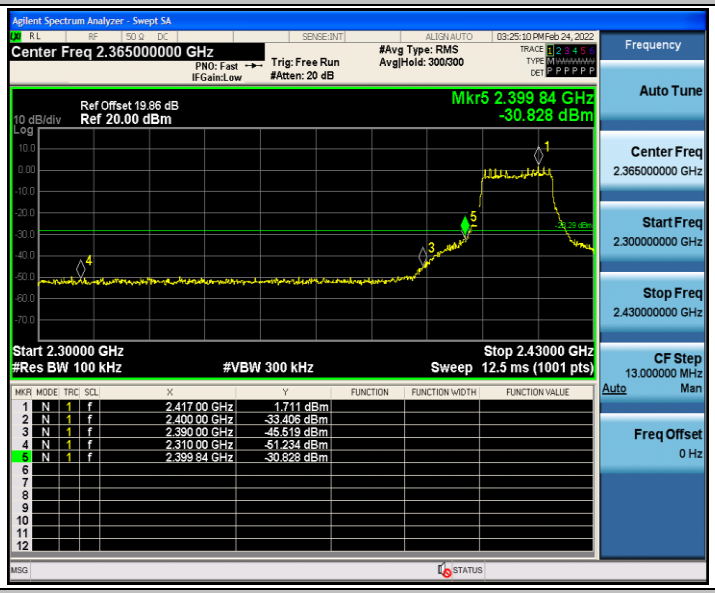
11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412



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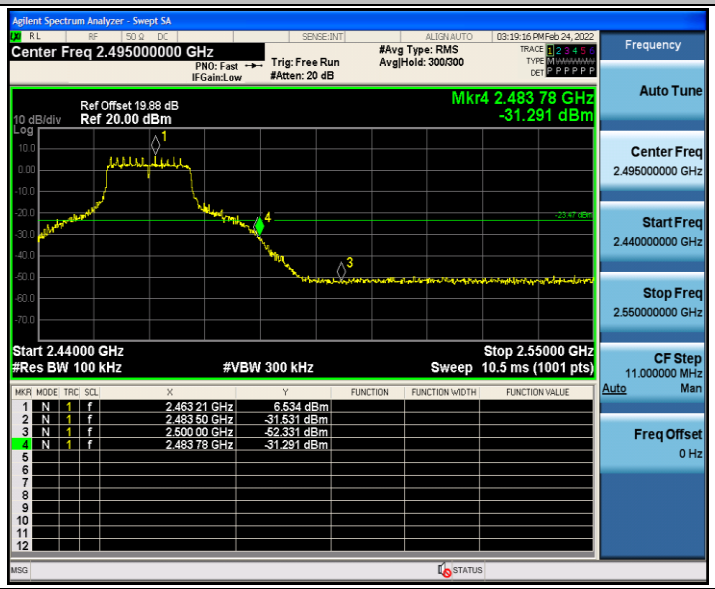

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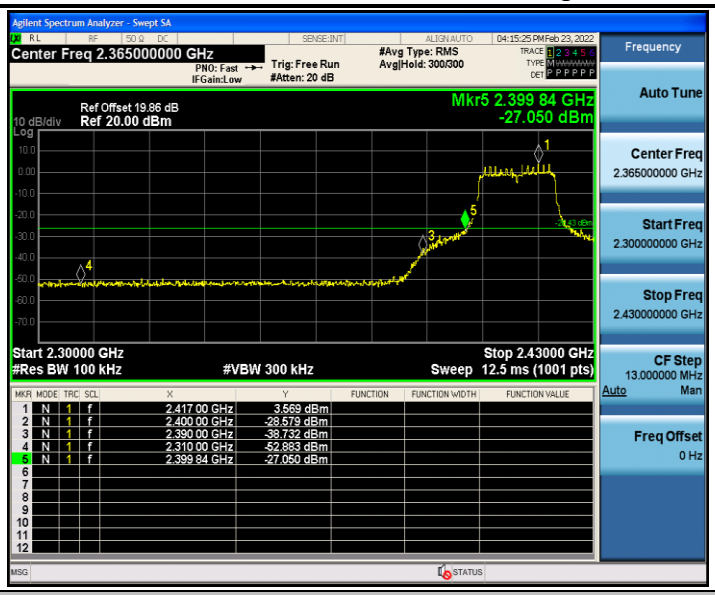

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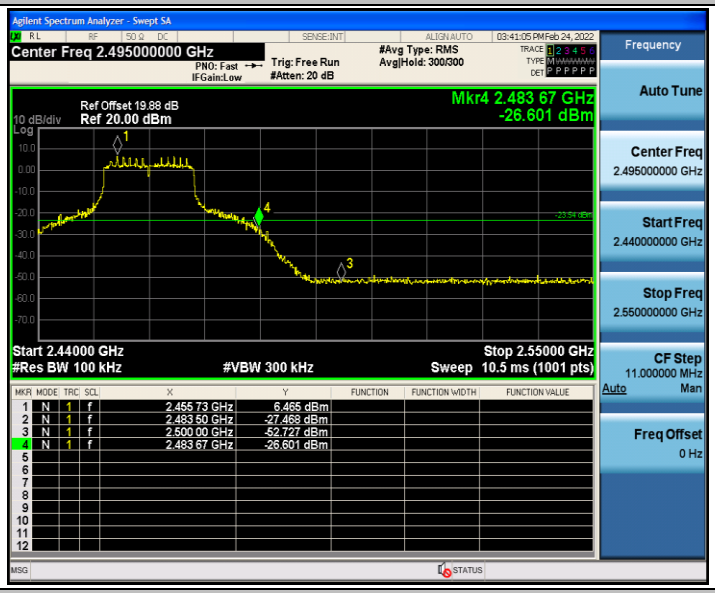
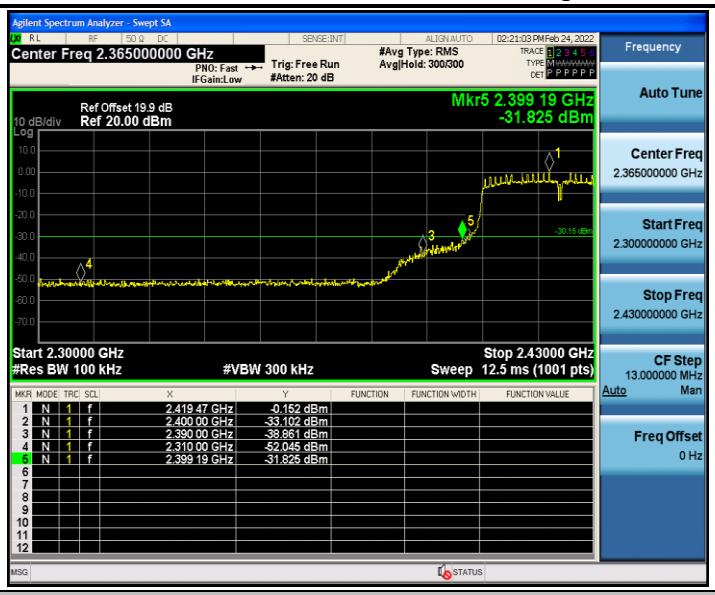
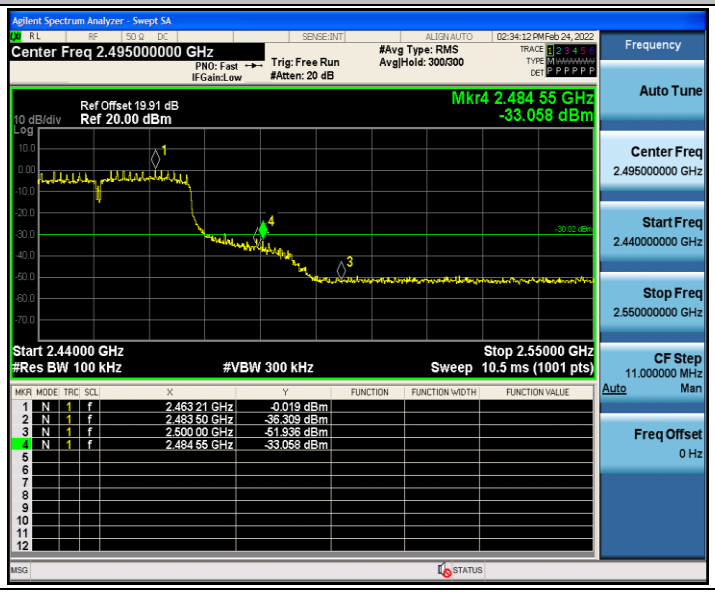


11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452



3.4 6dB Bandwidth

3.4.1 Limit

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

3.4.2 Test Peripherals

Support Equipment				
No.	Equipment	Brand Name	Model Name	Remarks
1	Type-C Cable	AWM	E101344	0.9m,No Shielding
2	Adaptor	FUSHIGANG	AS1201A-0502000 USU	NA
3	Record PC	Lenovo	M4500T	NA
4	Control PC	Lenovo	M4500T	NA

3.4.3 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

a) The EUT shall be connected to the spectrum analyser, and the spectrum analyser is set as follow:

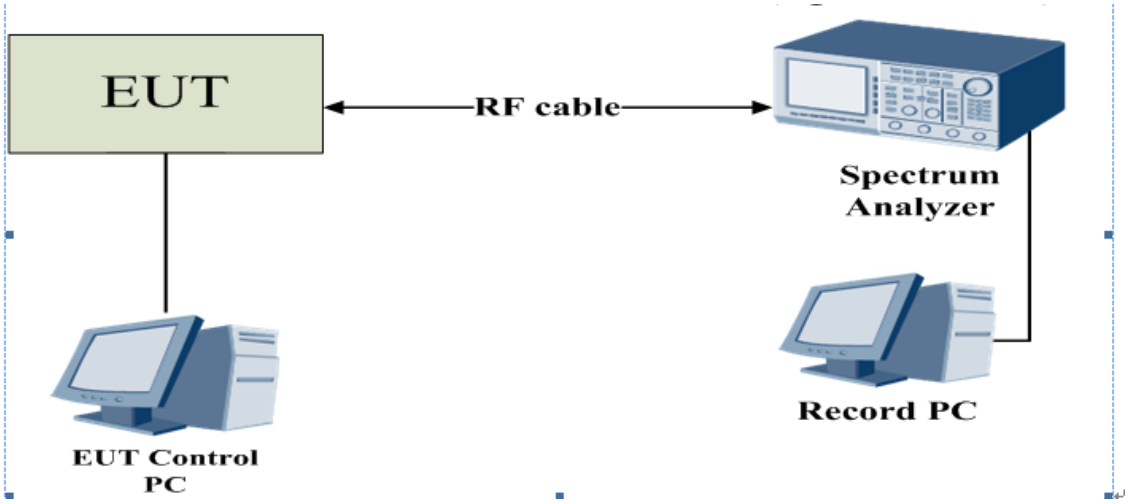
Centre Frequency	The centre frequency of the channel under test
RBW	100kHz
VBW	300kHz
Frequency span	2x Nominal Channel Bandwidth
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

b) Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.

c) Use the -6dB bandwidth function of the spectrum analyser to measure the 6dB Bandwidth of the EUT. This value shall be recorded.

d) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

3.4.4 Test Setup

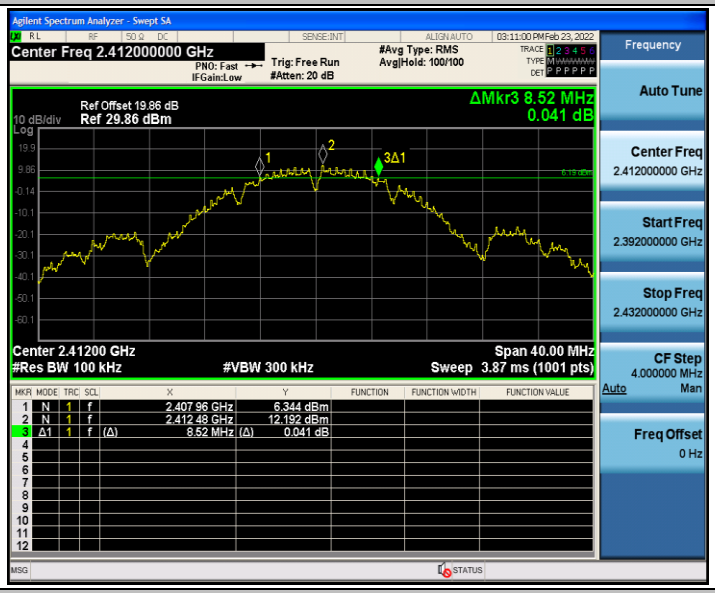


3.4.5 Test Result

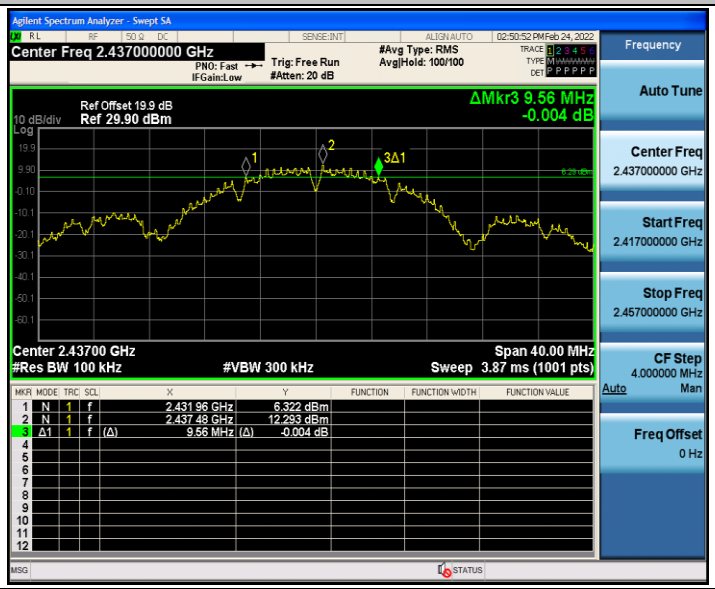
6dB Bandwidth

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.520	2407.960	2416.480	0.5	PASS
		2437	9.560	2431.960	2441.520	0.5	PASS
		2462	10.040	2456.960	2467.000	0.5	PASS
11G	Ant1	2412	16.320	2403.840	2420.160	0.5	PASS
		2437	16.360	2428.800	2445.160	0.5	PASS
		2462	16.320	2453.840	2470.160	0.5	PASS
11N20SISO	Ant1	2412	17.320	2403.480	2420.800	0.5	PASS
		2437	17.560	2428.200	2445.760	0.5	PASS
		2462	17.520	2453.240	2470.760	0.5	PASS
11N40SISO	Ant1	2422	35.040	2404.480	2439.520	0.5	PASS
		2437	35.280	2419.240	2454.520	0.5	PASS
		2452	35.120	2434.400	2469.520	0.5	PASS

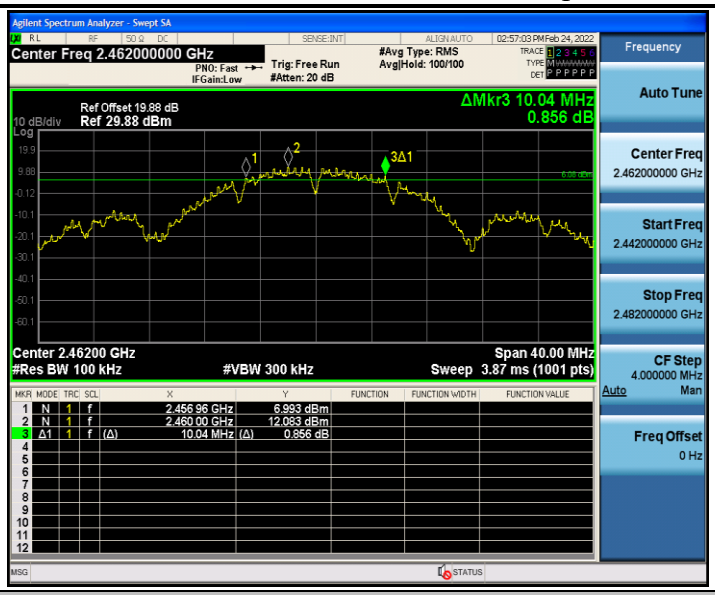
11B_Ant1_2412



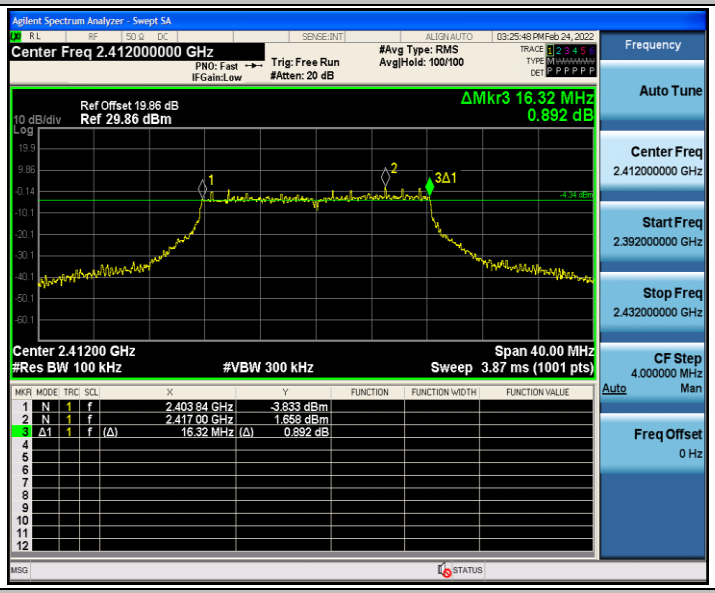
11B_Ant1_2437



11B_Ant1_2462



11G_Ant1_2412



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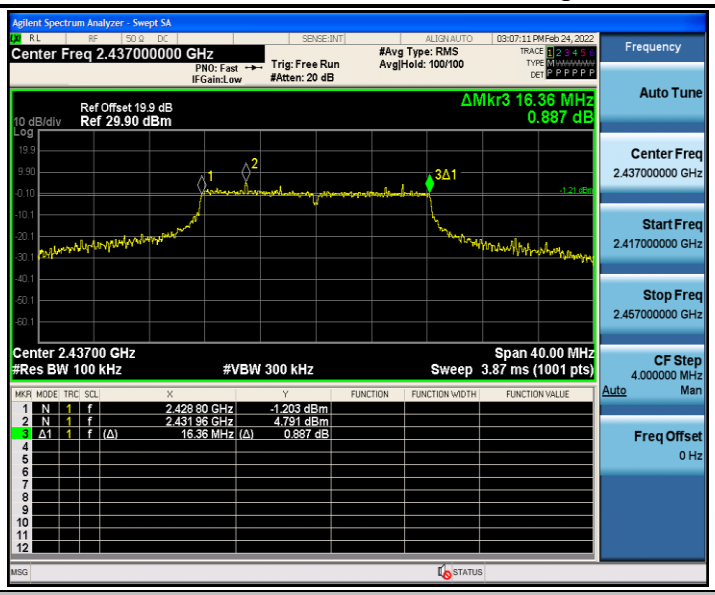

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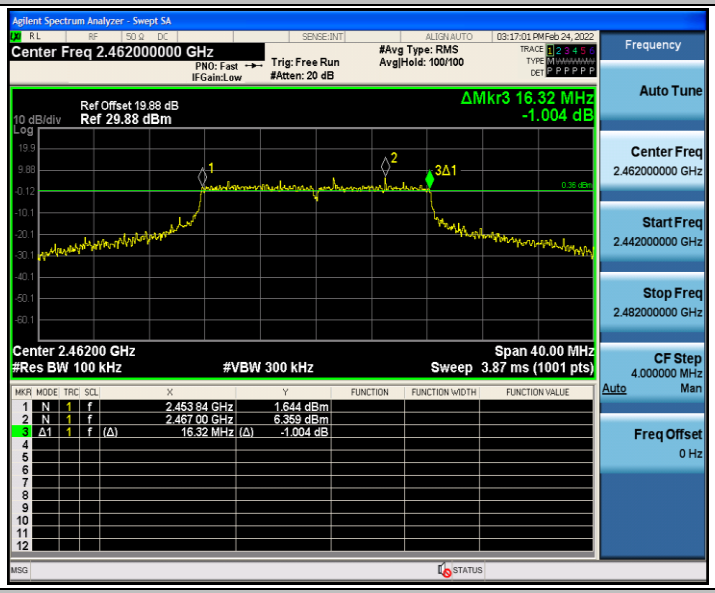
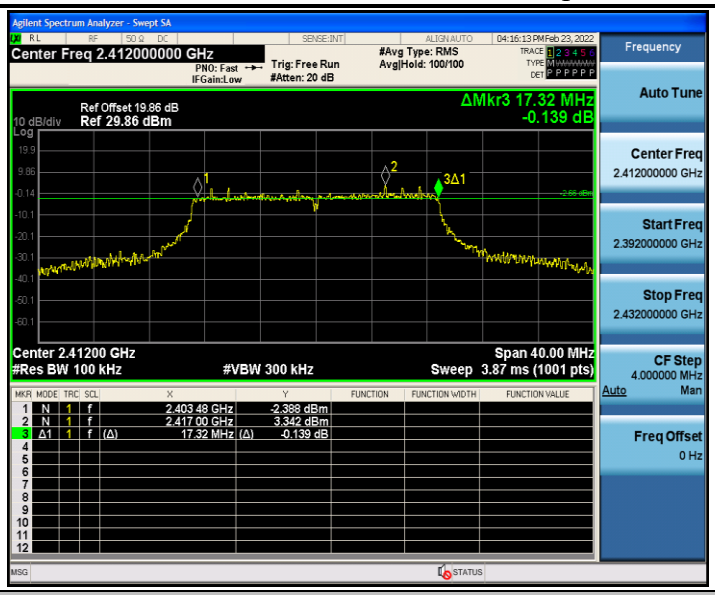


11N20SISO_Ant1_2412



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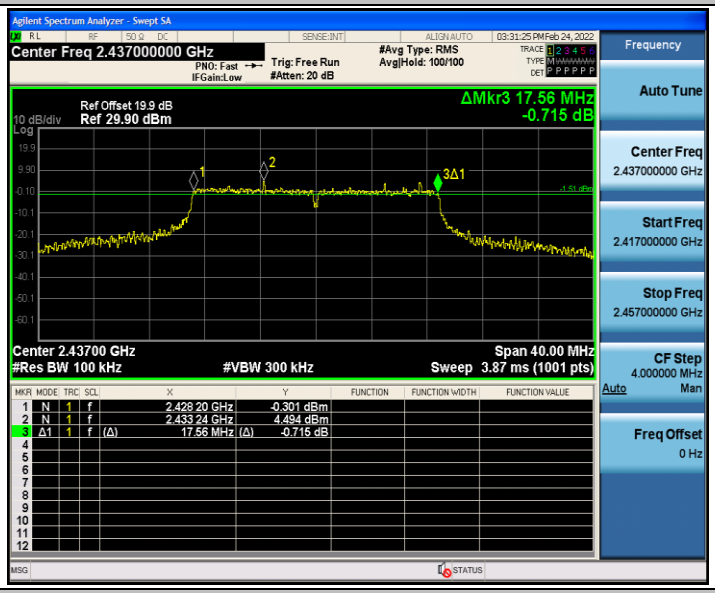

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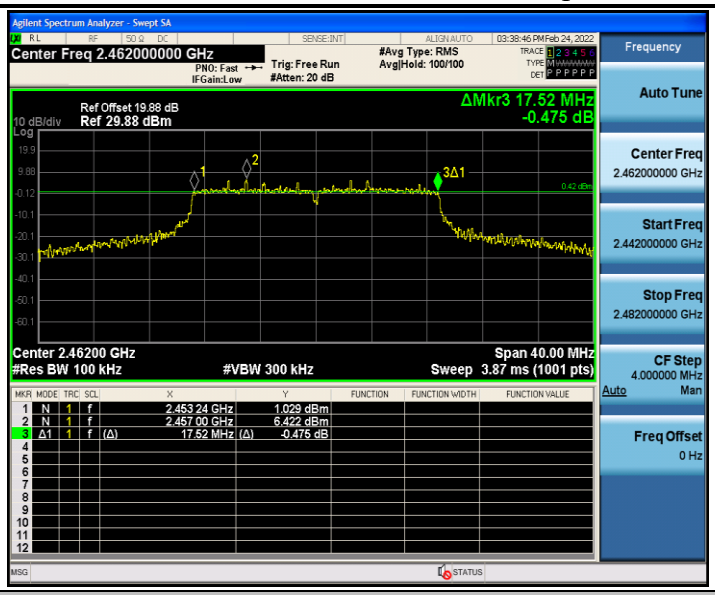

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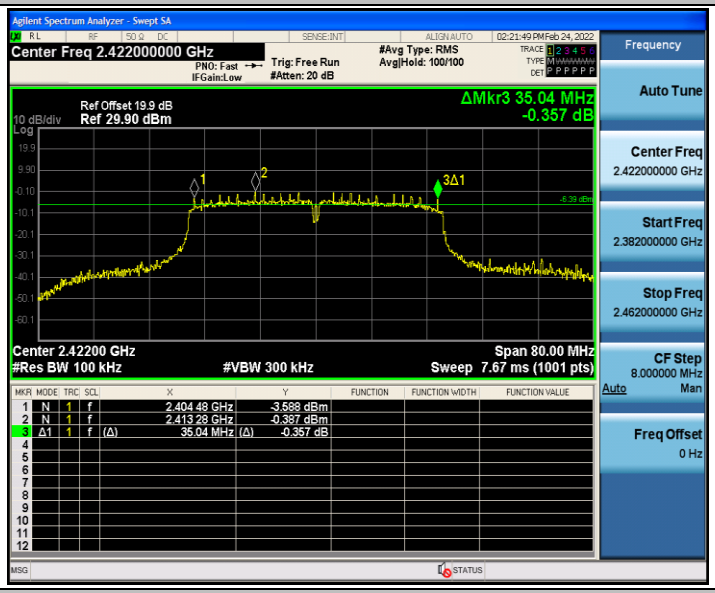

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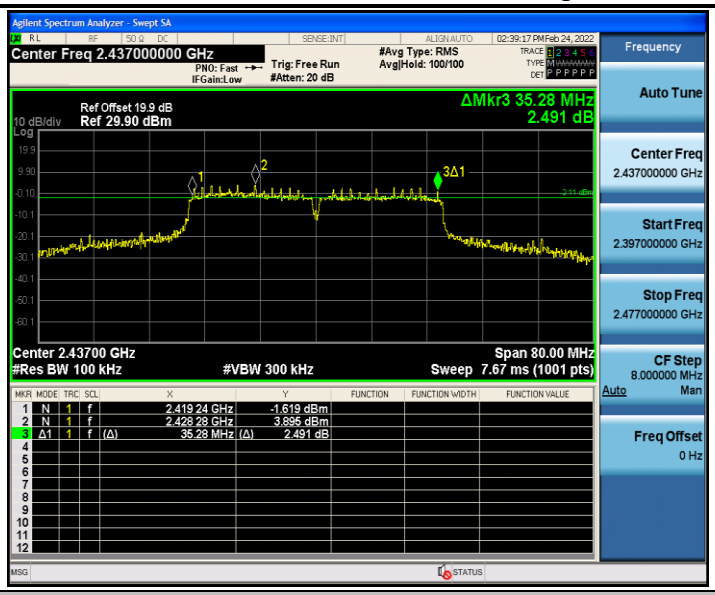

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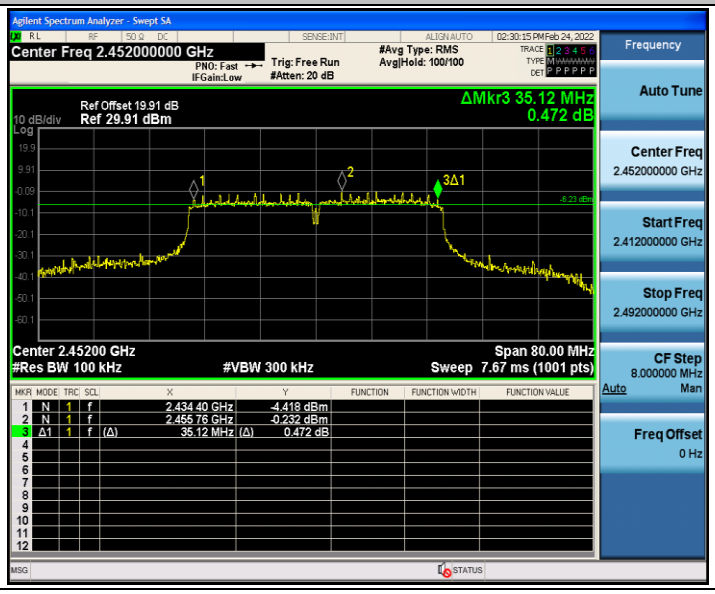
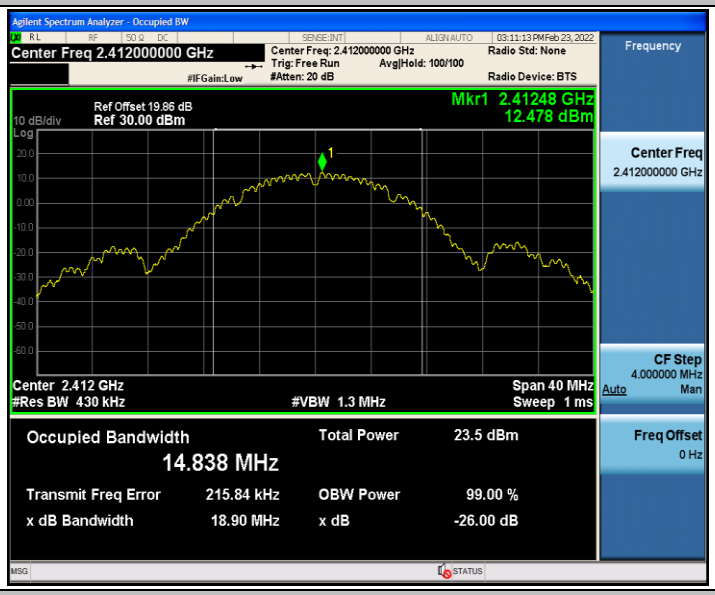


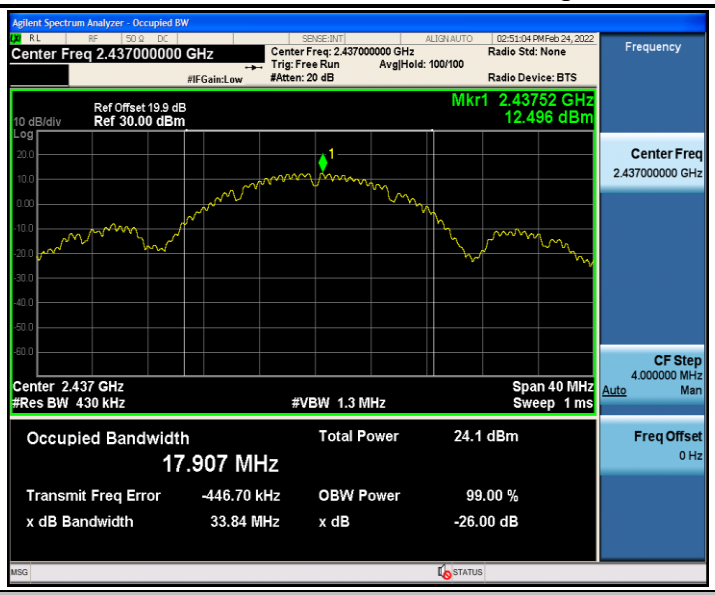
Occupied Channel Bandwidth

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.838	2404.797	2419.635	---	---
		2437	17.907	2427.600	2445.507	---	---
		2462	18.471	2452.792	2471.263	---	---
11G	Ant1	2412	17.320	2403.422	2420.742	---	---
		2437	18.230	2427.615	2445.845	---	---
		2462	17.804	2453.140	2470.944	---	---
11N20SISO	Ant1	2412	18.412	2402.883	2421.295	---	---
		2437	19.078	2427.244	2446.322	---	---
		2462	18.767	2452.621	2471.388	---	---
11N40SISO	Ant1	2422	36.265	2403.809	2440.074	---	---
		2437	37.819	2417.761	2455.580	---	---
		2452	36.545	2433.743	2470.288	---	---

11B_Ant1_2412



11B_Ant1_2437



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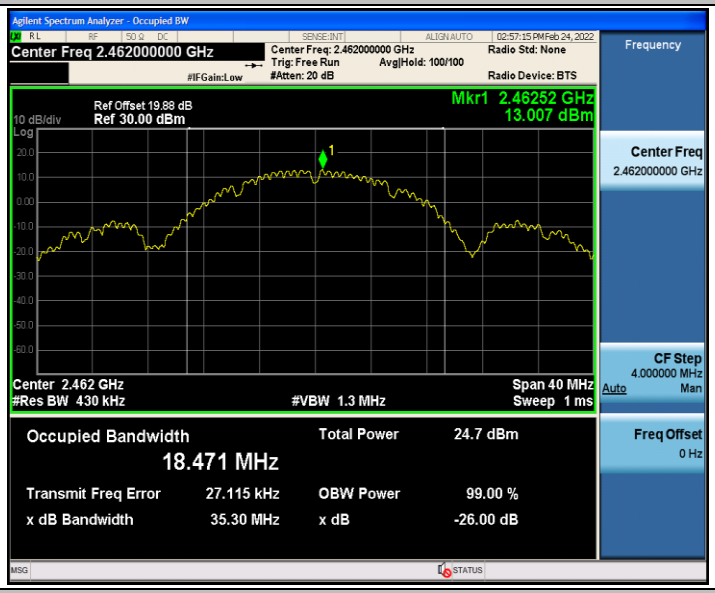

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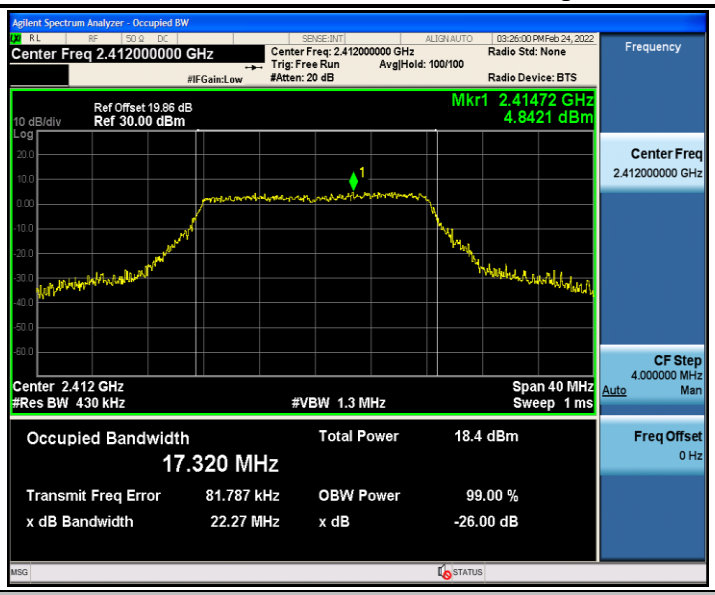

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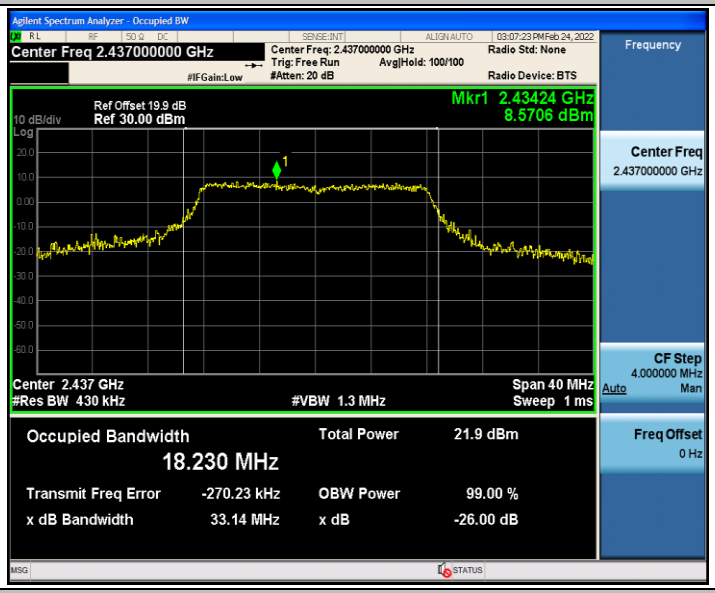

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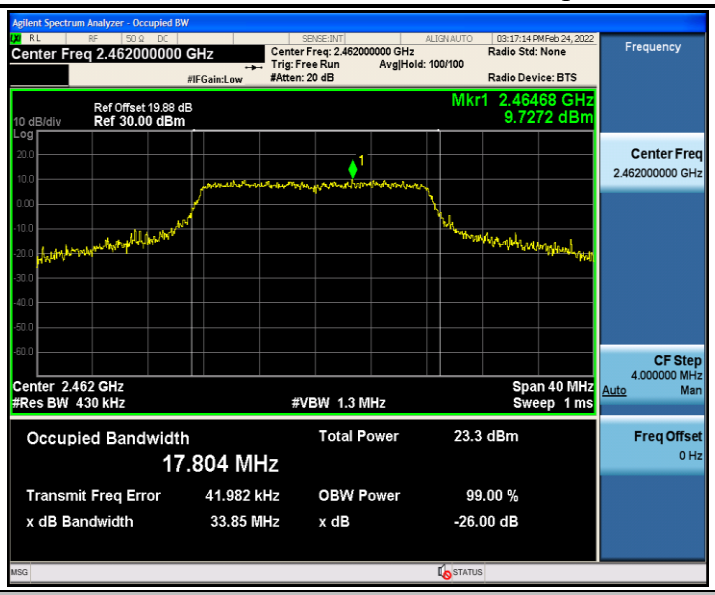
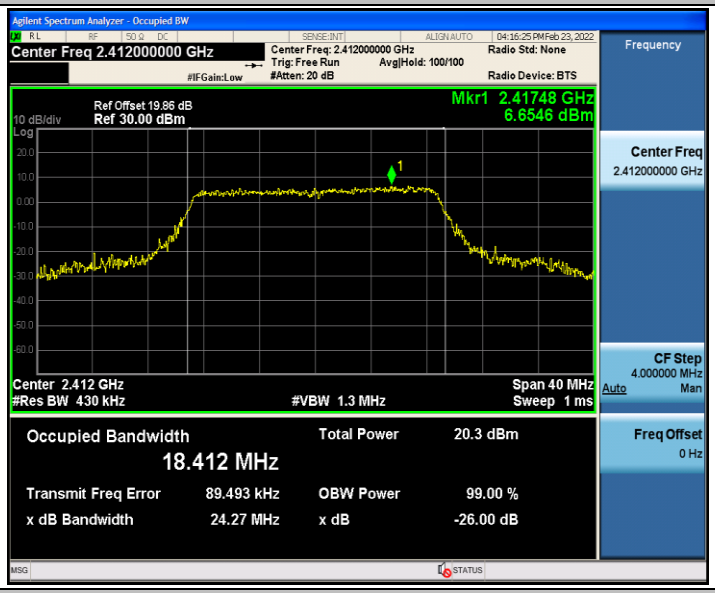


11N20SISO_Ant1_2412



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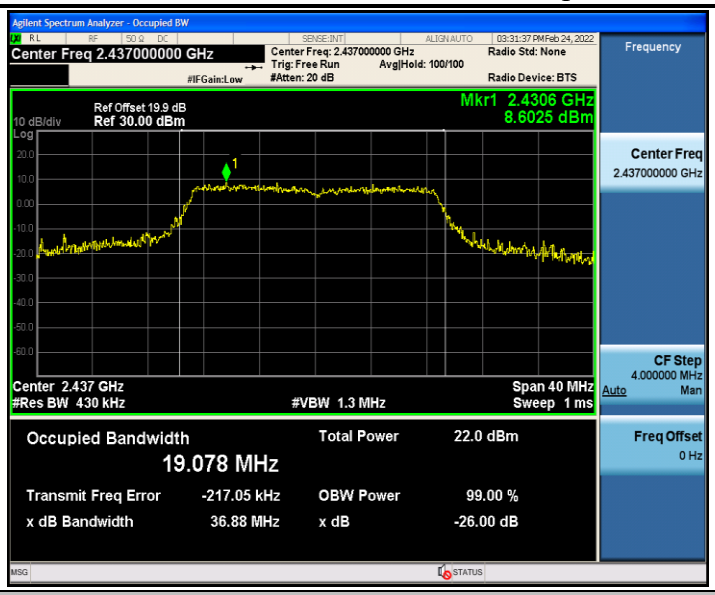

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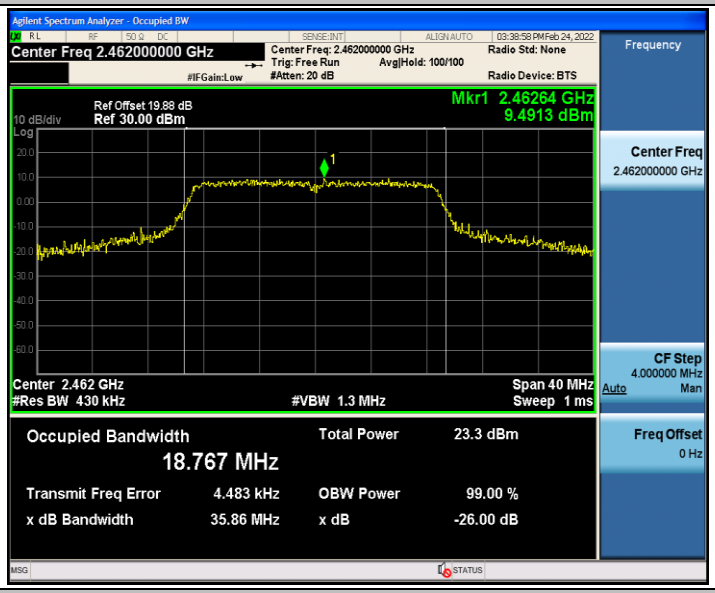
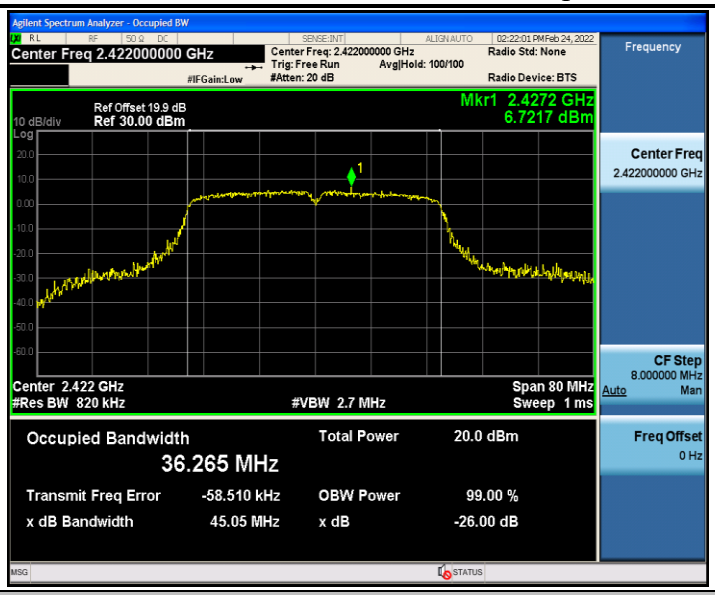


11N40SISO_Ant1_2422



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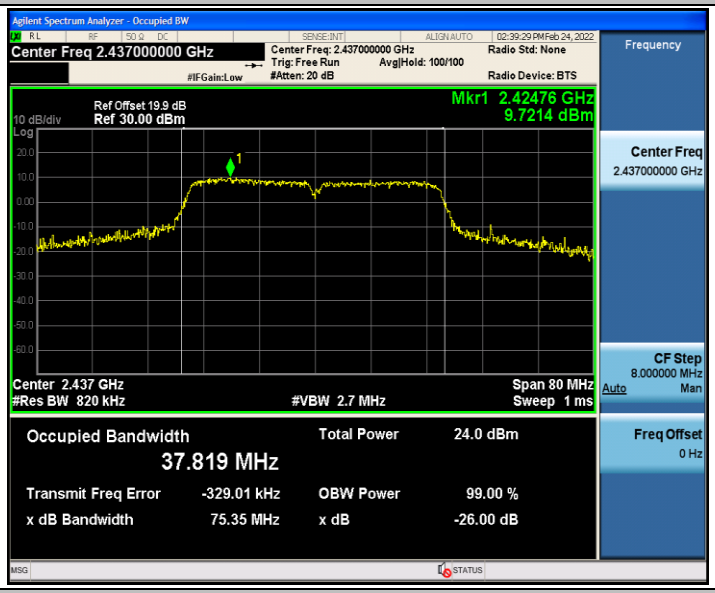


11N40SISO_Ant1_2452

Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.452000000 GHz
Center Freq: 2.452000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 20 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 19.91 dB
10 dB/div
Ref 30.00 dBm
Log
Mkr1 2.45848 GHz
6.4049 dBm
Center Freq
2.452000000 GHz
CF Step
8.000000 MHz
Auto
Man
Center 2.452 GHz
#Res BW 820 kHz
#VBW 2.7 MHz
Span 80 MHz
Sweep 1 ms
Occupied Bandwidth
36.545 MHz
Total Power 20.3 dBm
Transmit Freq Error 15.695 kHz
OBW Power 99.00 %
x dB Bandwidth 46.20 MHz
x dB -26.00 dB
Freq Offset
0 Hz
MSG
STATUS

3.5 Conducted Output Power

3.5.1 Limit

For systems using digital modulation in the 2400~2483.5MHz, The Maximum output Power shall not exceed 1W(30dBm)

3.5.2 Test Peripherals

Support Equipment				
No.	Equipment	Brand Name	Model Name	Remarks
1	Type-C Cable	AWM	E101344	0.9m,No Shielding
2	Adaptor	FUSHIGANG	AS1201A-0502000 USU	NA
3	Record PC	Lenovo	M4500T	NA
4	Control PC	Lenovo	M4500T	NA

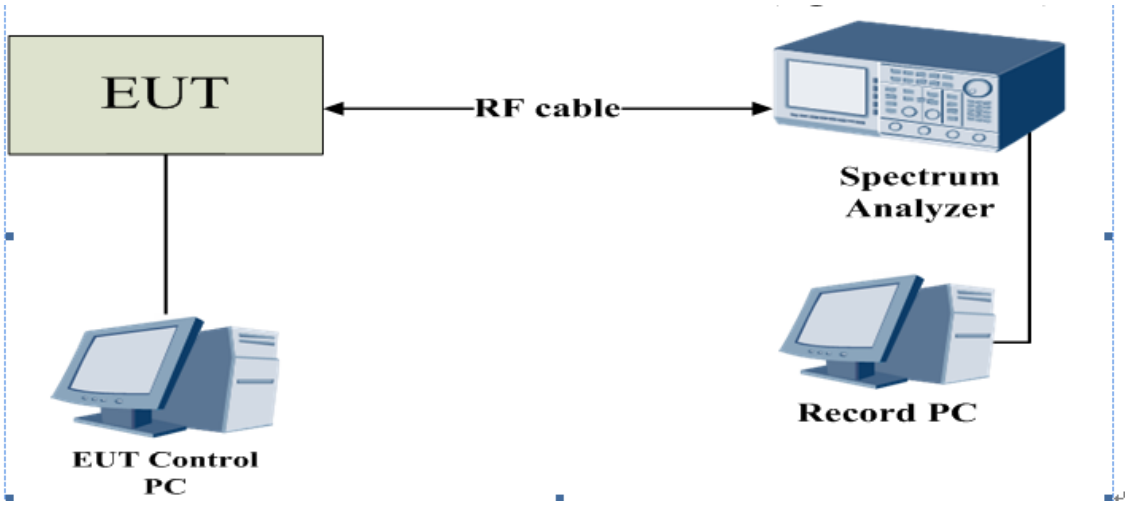
3.5.3 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

a) The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.

b) The maximum output power was performed in accordance with method 11.9.2.3 of ANSI C63.10.

3.5.4 Test Setup



3.5.5 Table of Parameters of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

For Power Setting value

Test Software Version	Command		
Frequency (MHz)	2412	2442	2472
IEEE 802.11b	16	20	18
IEEE 802.11g	6	11	12
IEEE 802.11n (20MHz)	8	11	12
Frequency (MHz)	2422	2442	2462
IEEE 802.11n (40MHz)	7	12	8

3.5.6 The Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	20.57	≤30.00	PASS
		2437	21.06	≤30.00	PASS
		2462	21.15	≤30.00	PASS
11G	Ant1	2412	12.22	≤30.00	PASS
		2437	15.75	≤30.00	PASS
		2462	17.25	≤30.00	PASS
11N20SISO	Ant1	2412	14.27	≤30.00	PASS
		2437	15.88	≤30.00	PASS
		2462	17.34	≤30.00	PASS
11N40SISO	Ant1	2422	13.07	≤30.00	PASS
		2437	17.17	≤30.00	PASS
		2452	13.48	≤30.00	PASS

Note：The Duty Cycle Factor is compensated in the graph.

3.6 Power Spectral Density

3.6.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

3.6.2 Test Peripherals

Support Equipment				
No.	Equipment	Brand Name	Model Name	Remarks
1	Type-C Cable	AWM	E101344	0.9m,No Shielding
2	Adaptor	FUSHIGANG	AS1201A-0502000 USU	NA
3	Record PC	Lenovo	M4500T	NA
4	Control PC	Lenovo	M4500T	NA

3.6.3 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

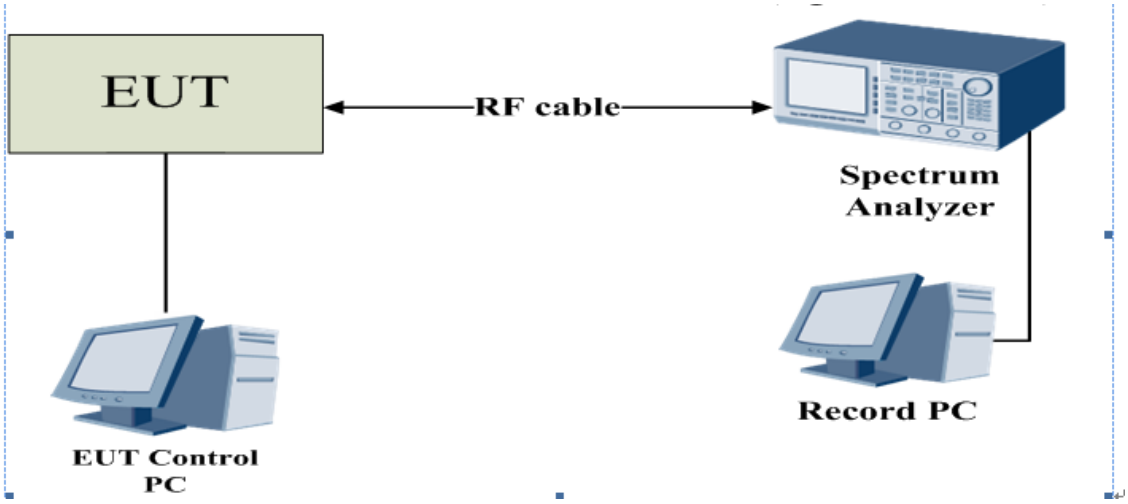
a) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below. Spectrum analyser settings as following:

RBW	3 kHz
VBW	10 kHz
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto

b) Wait for the trace to stabilize. Use the peak marker function to determine the maximum amplitude level within the RBW.

c) The value defined in step b shall be compared to the limits and be recorded .

3.6.4 Test Setup

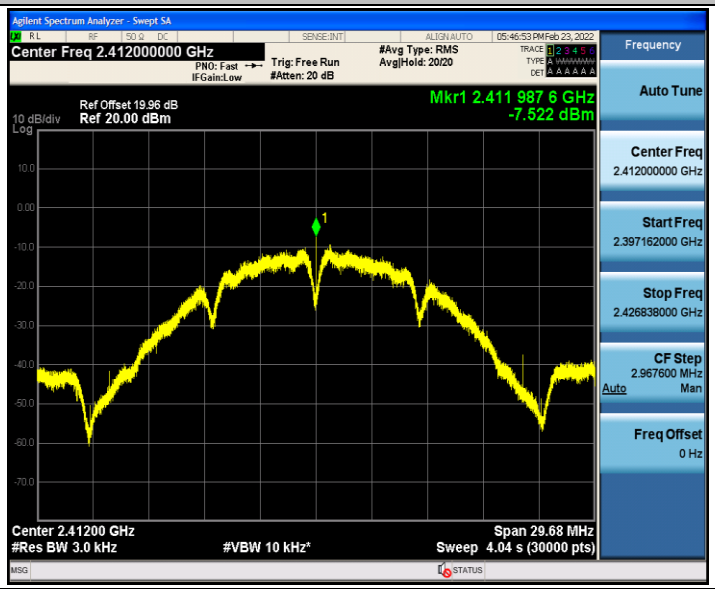


3.6.5 The Result

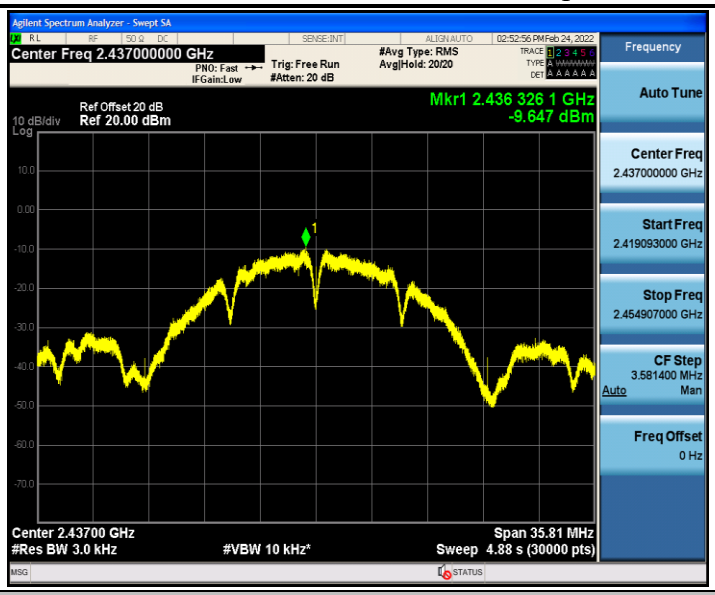
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-7.52	≤8.00	PASS
		2437	-9.65	≤8.00	PASS
		2462	-9.41	≤8.00	PASS
11G	Ant1	2412	-10.85	≤8.00	PASS
		2437	-11.96	≤8.00	PASS
		2462	-12.63	≤8.00	PASS
11N20SISO	Ant1	2412	-10.79	≤8.00	PASS
		2437	-11.96	≤8.00	PASS
		2462	-15.24	≤8.00	PASS
11N40SISO	Ant1	2422	-16.38	≤8.00	PASS
		2437	-14.64	≤8.00	PASS
		2452	-12.73	≤8.00	PASS

Note：The Duty Cycle Factor is compensated in the graph.

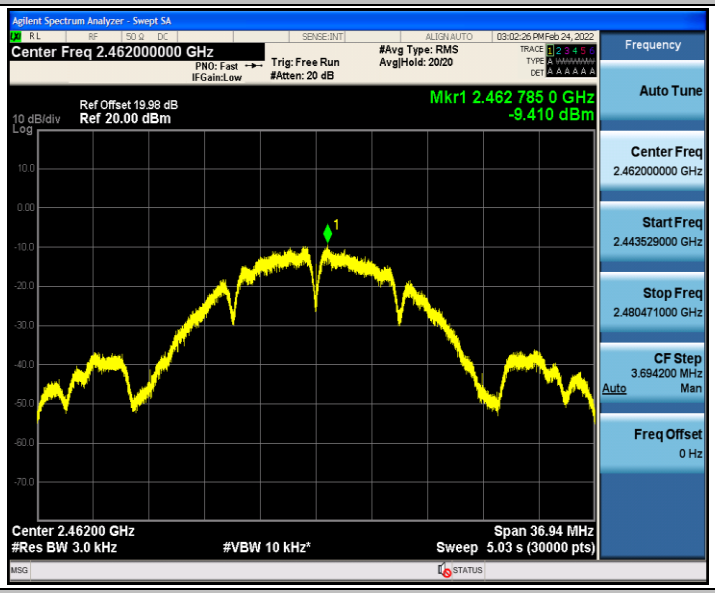
11B_Ant1_2412



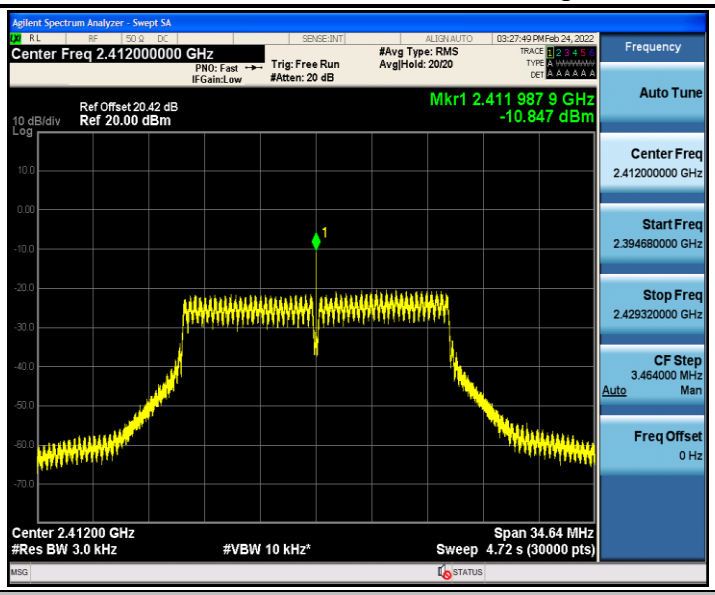
11B_Ant1_2437



11B_Ant1_2462



11G_Ant1_2412



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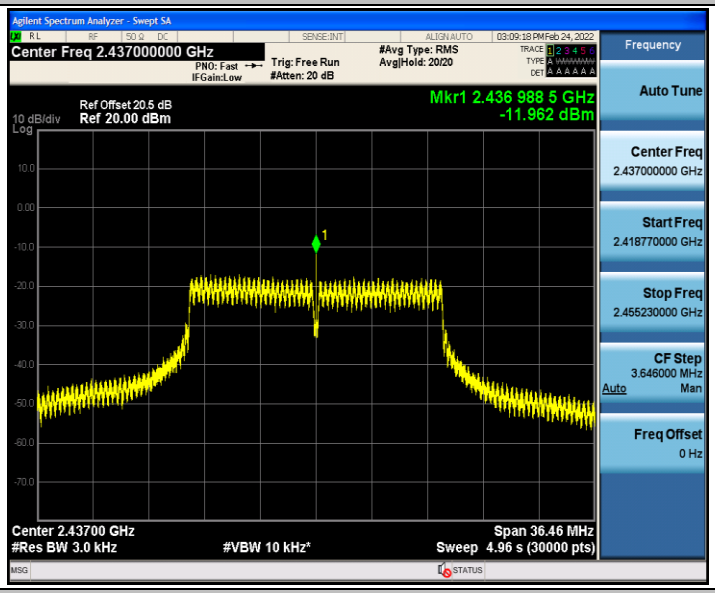

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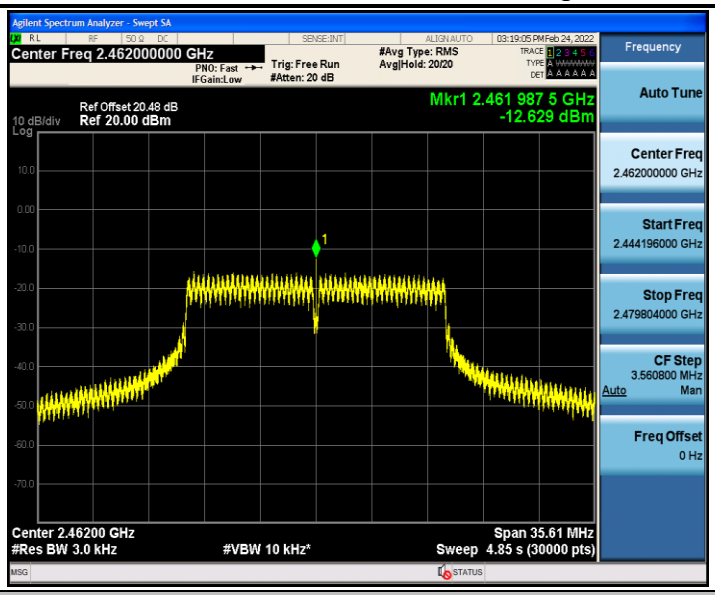

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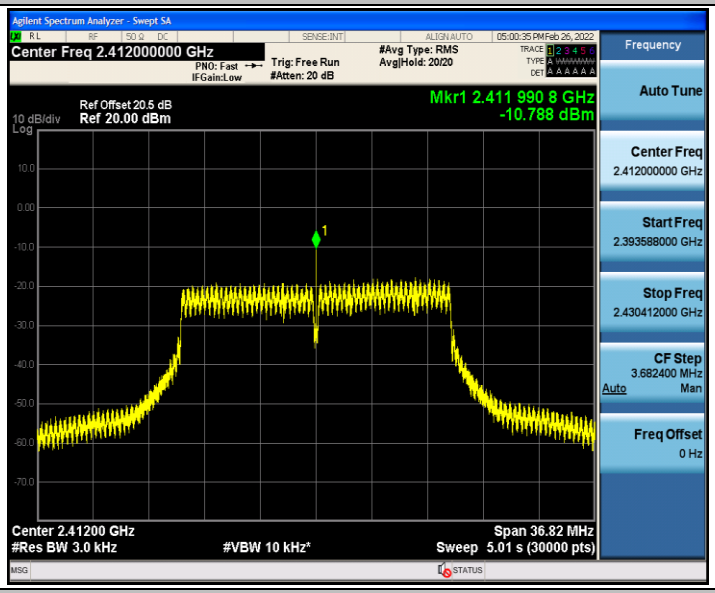

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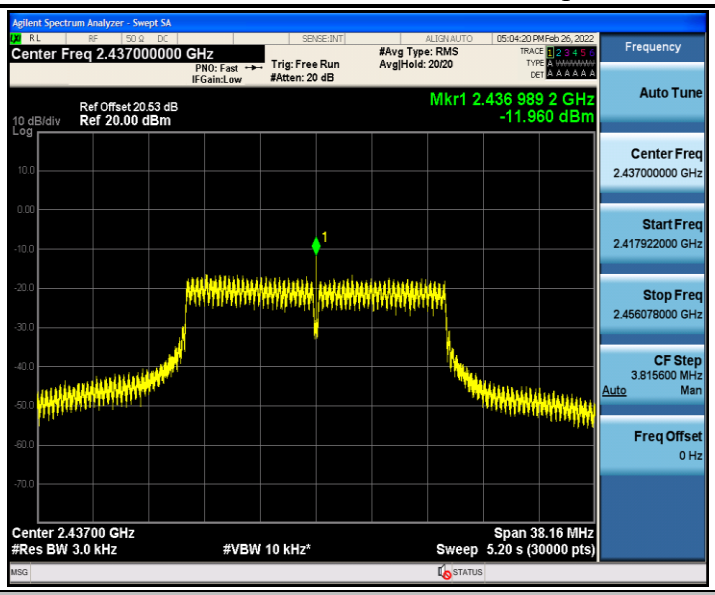

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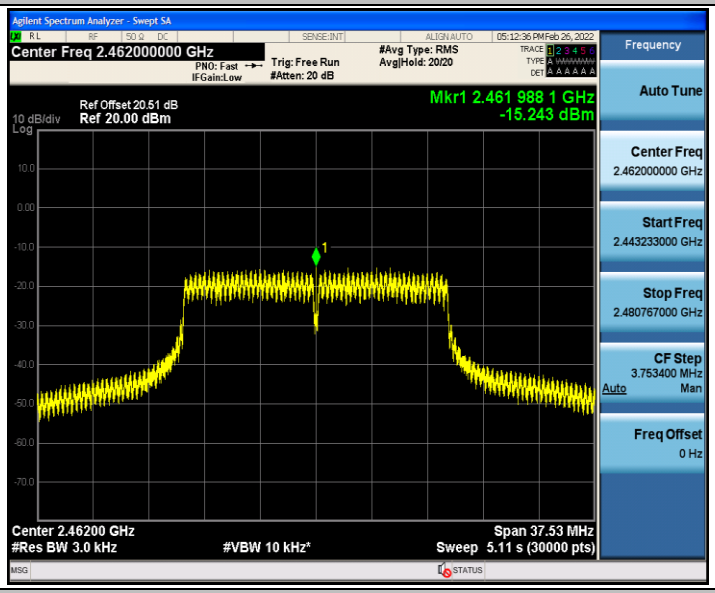
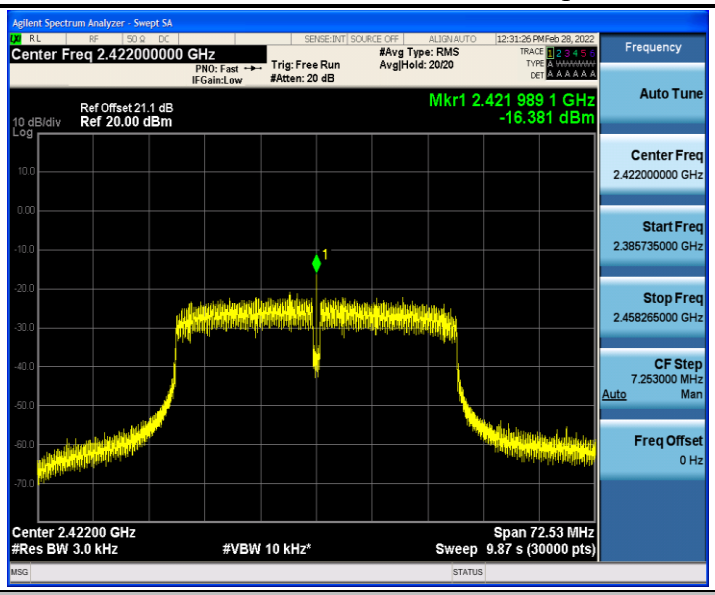


11N40SISO_Ant1_2422



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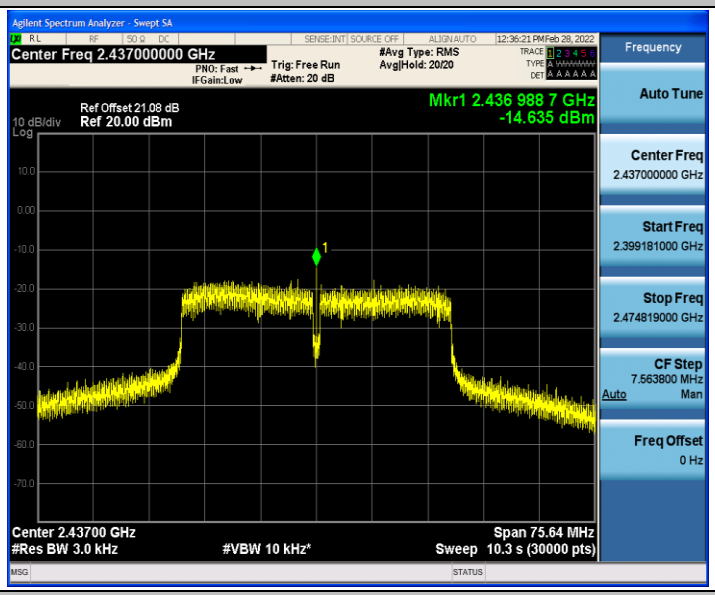

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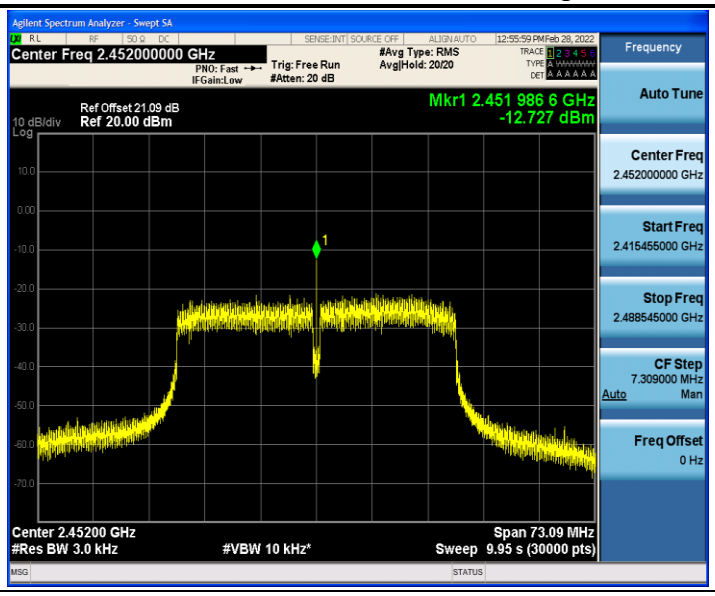

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