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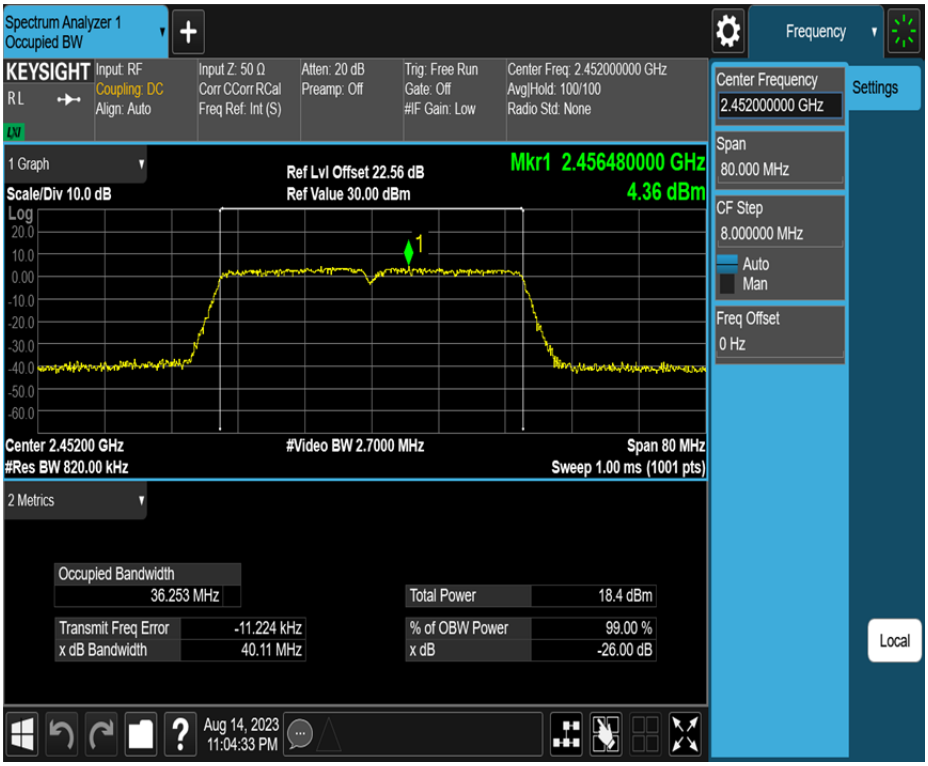

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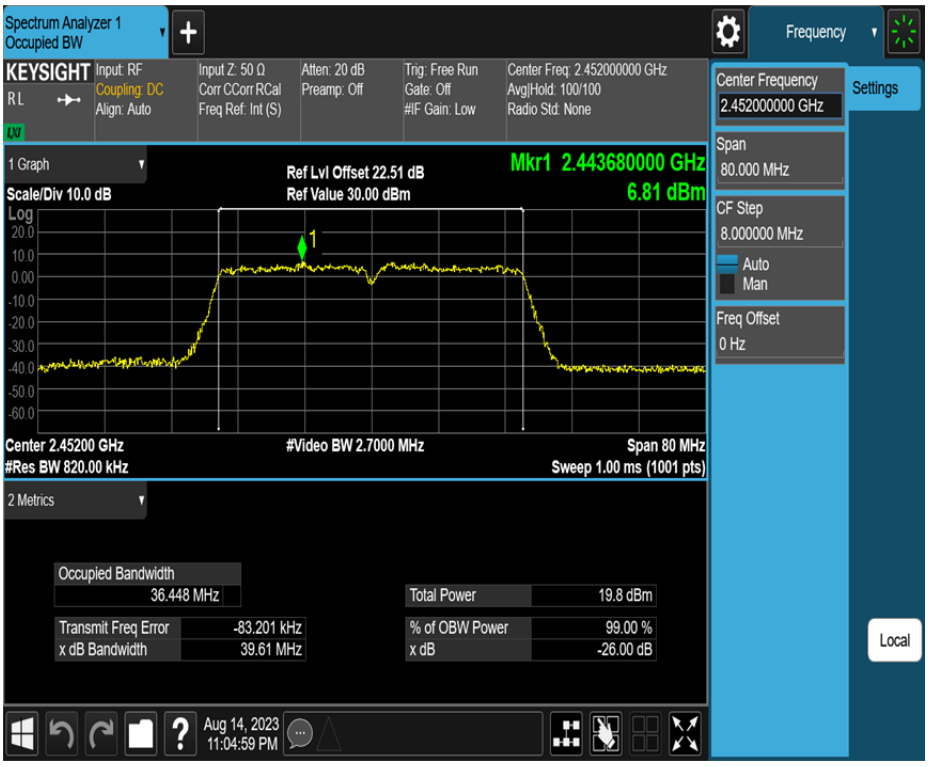

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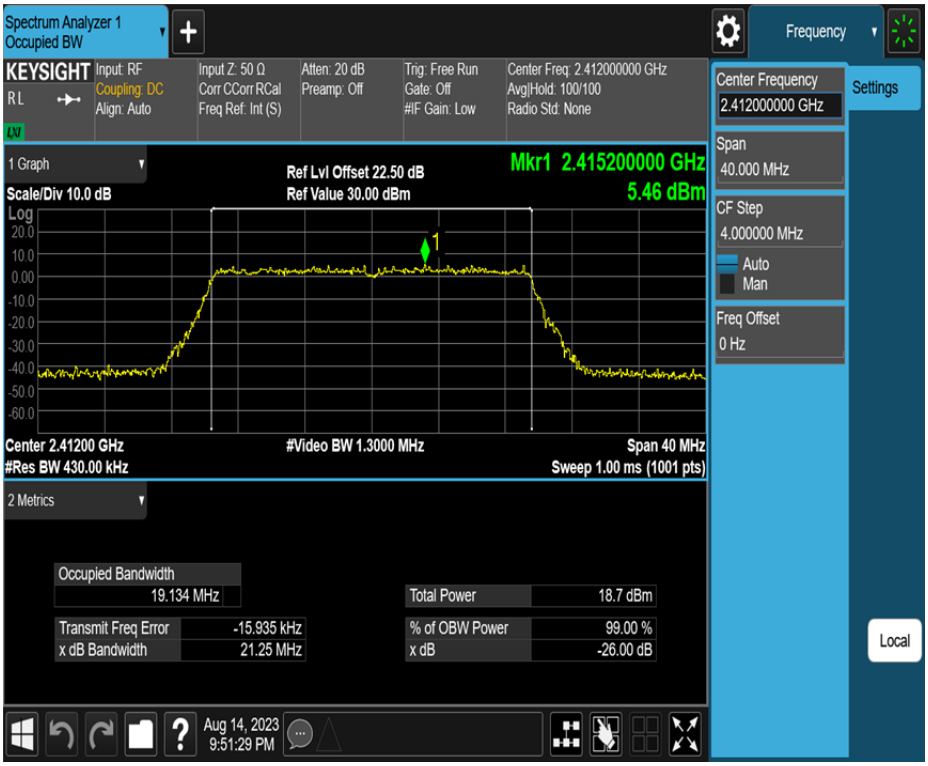

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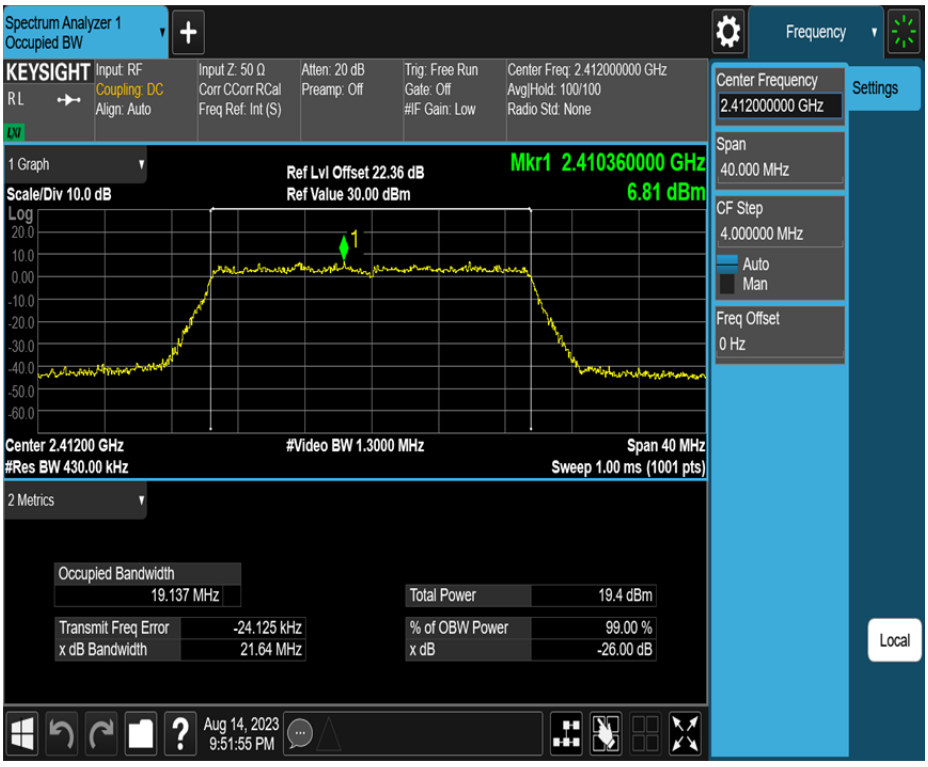

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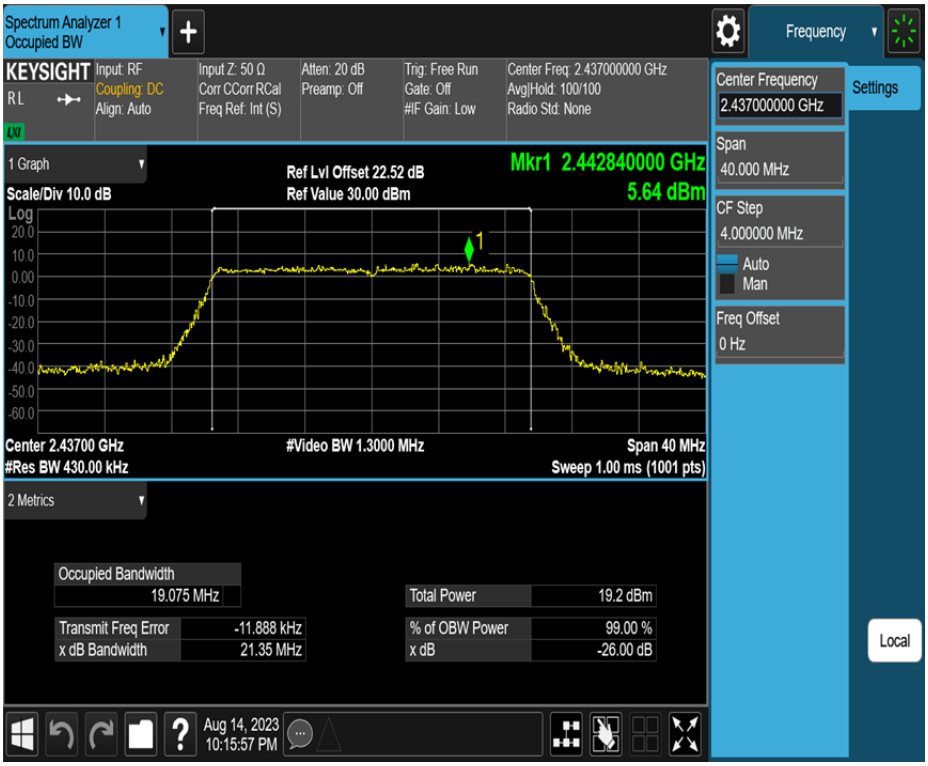

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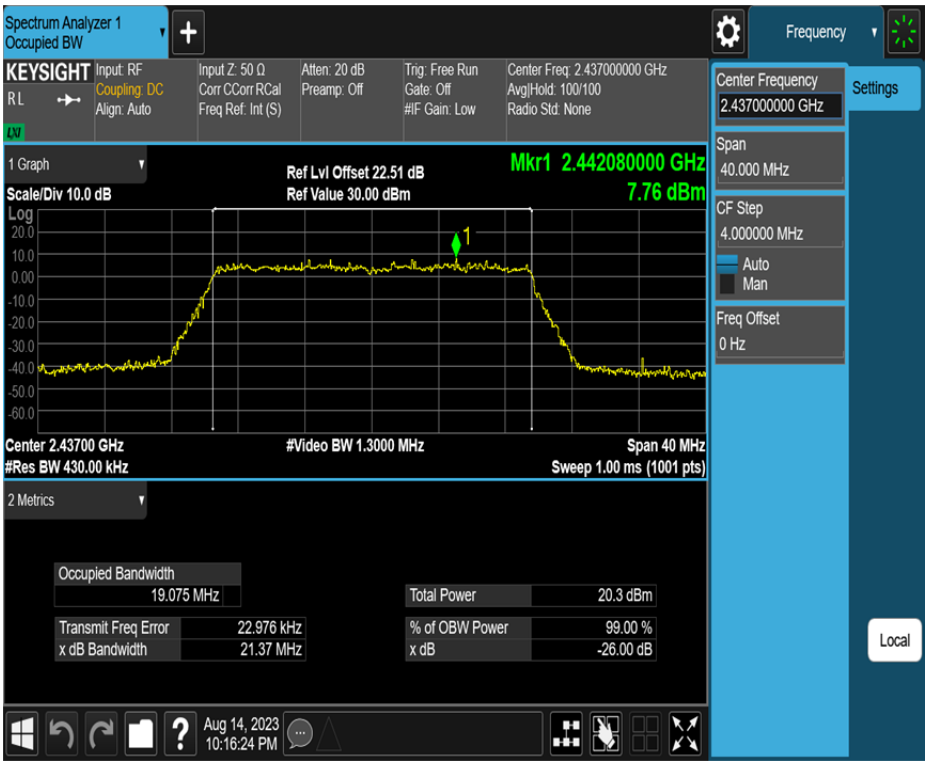

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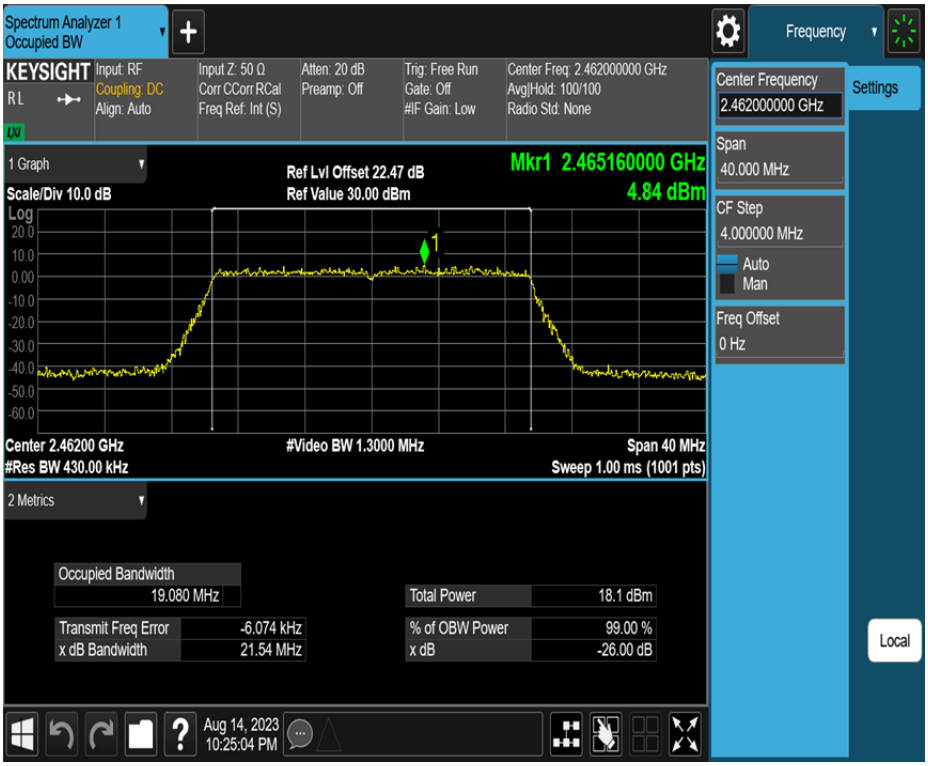

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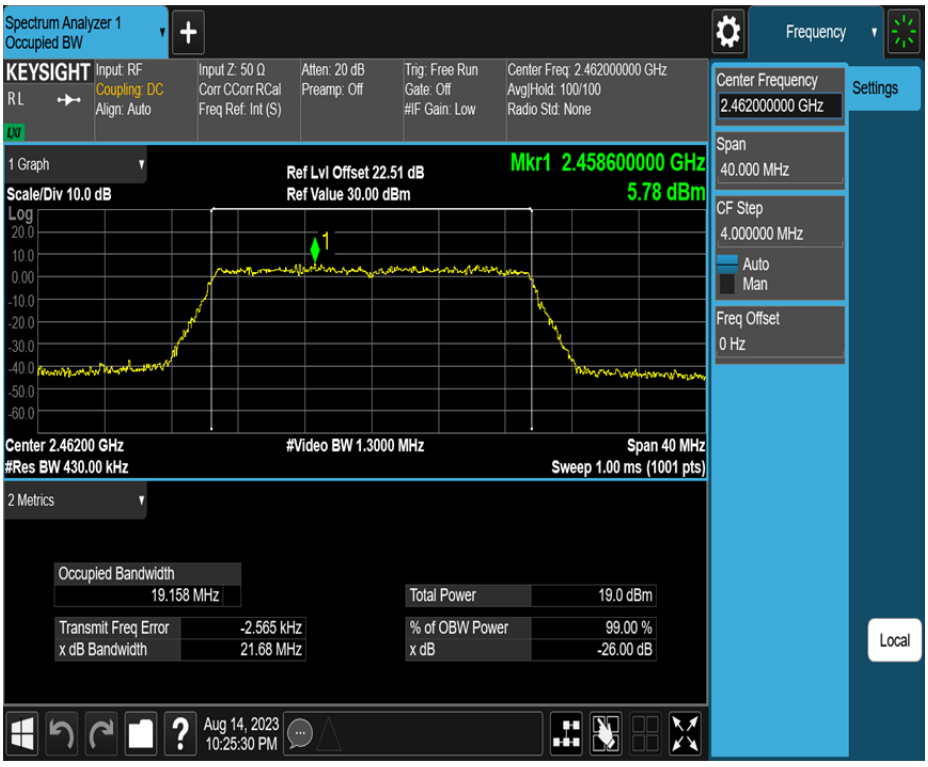

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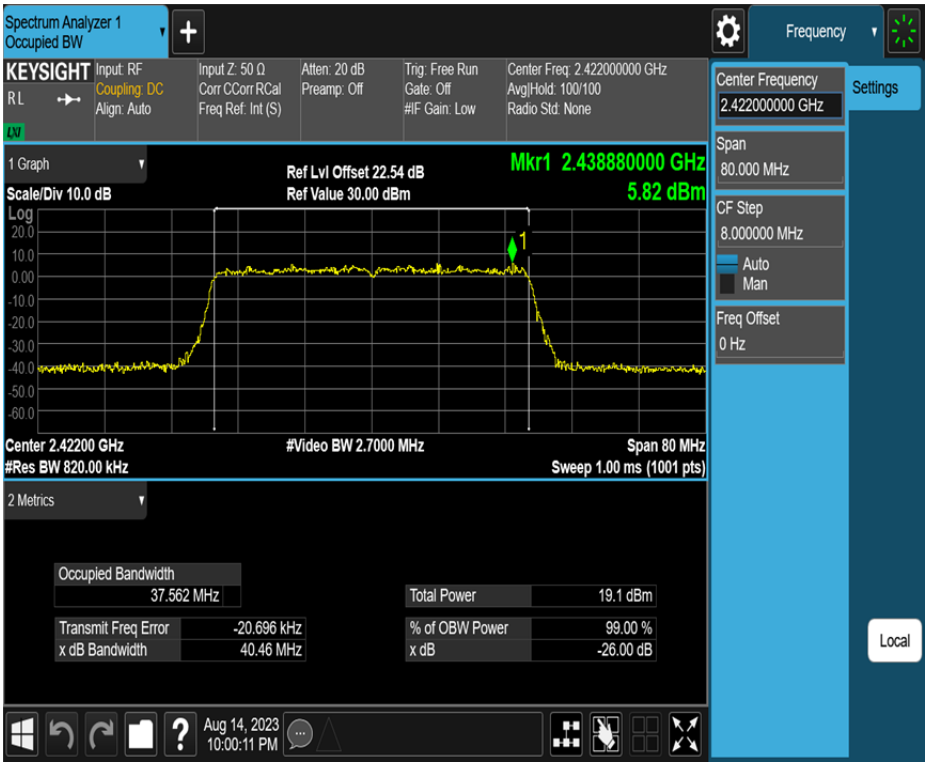

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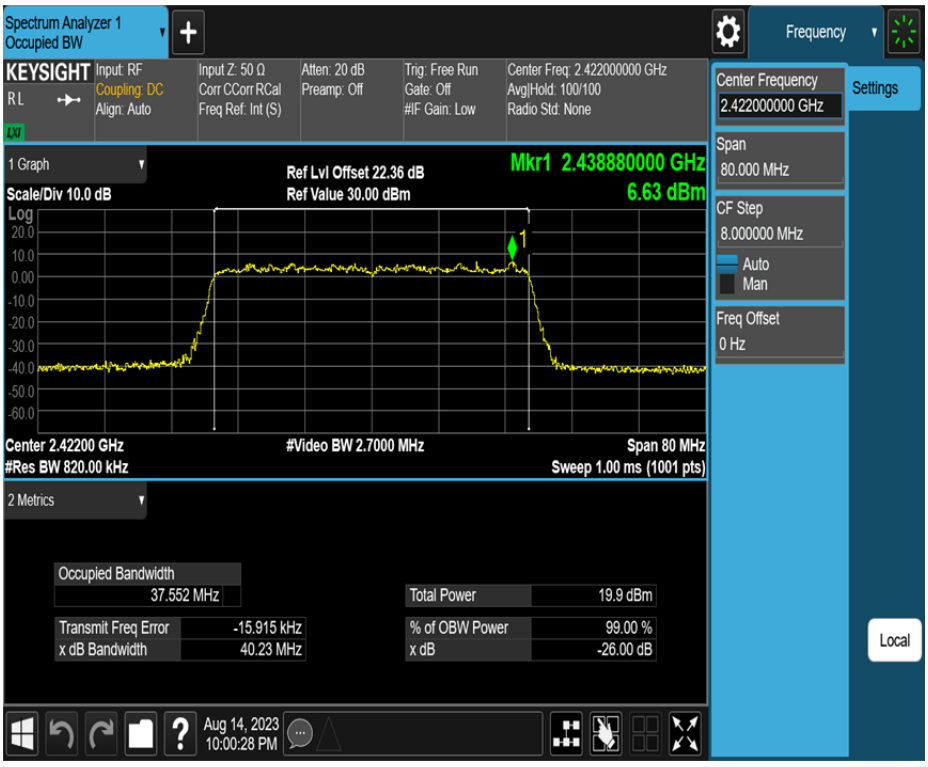

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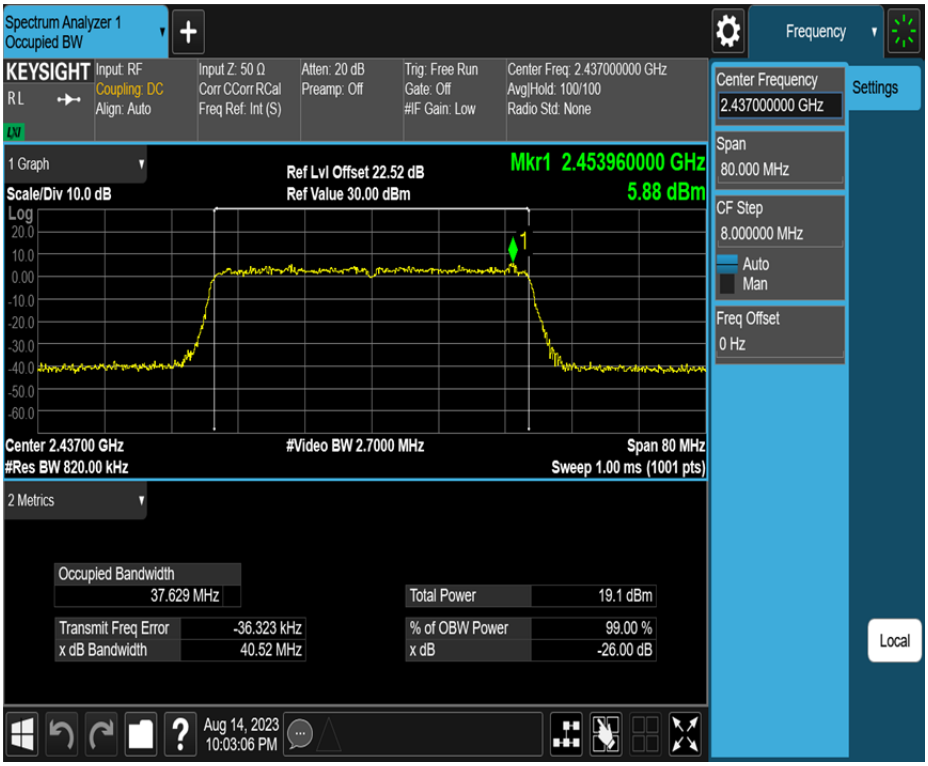
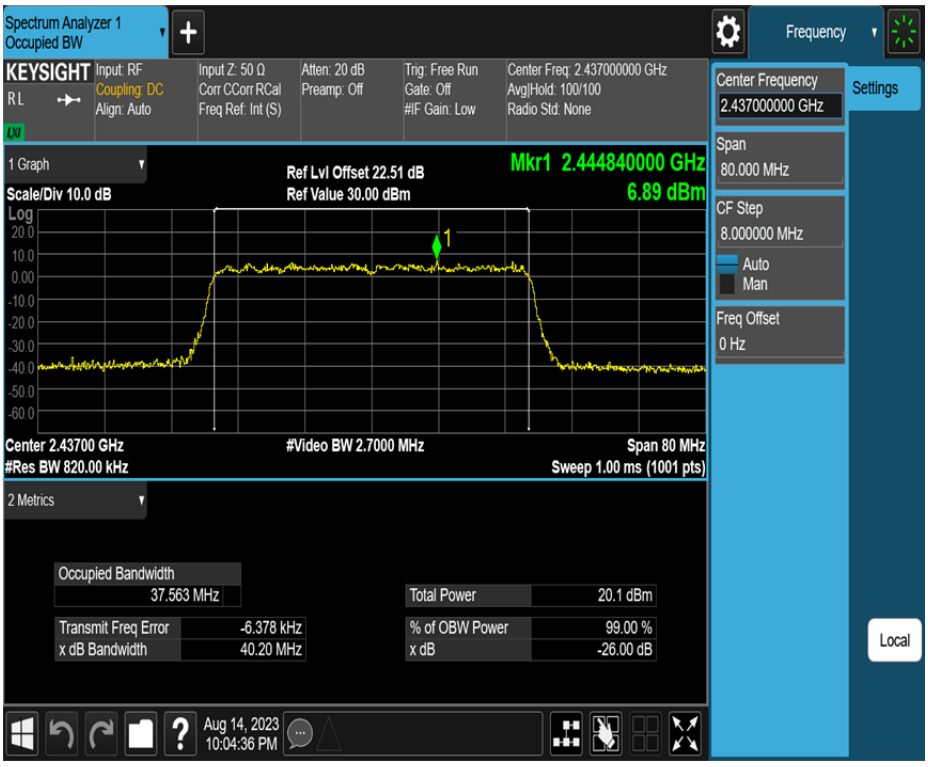


11AX40MIMO_Ant2_2437


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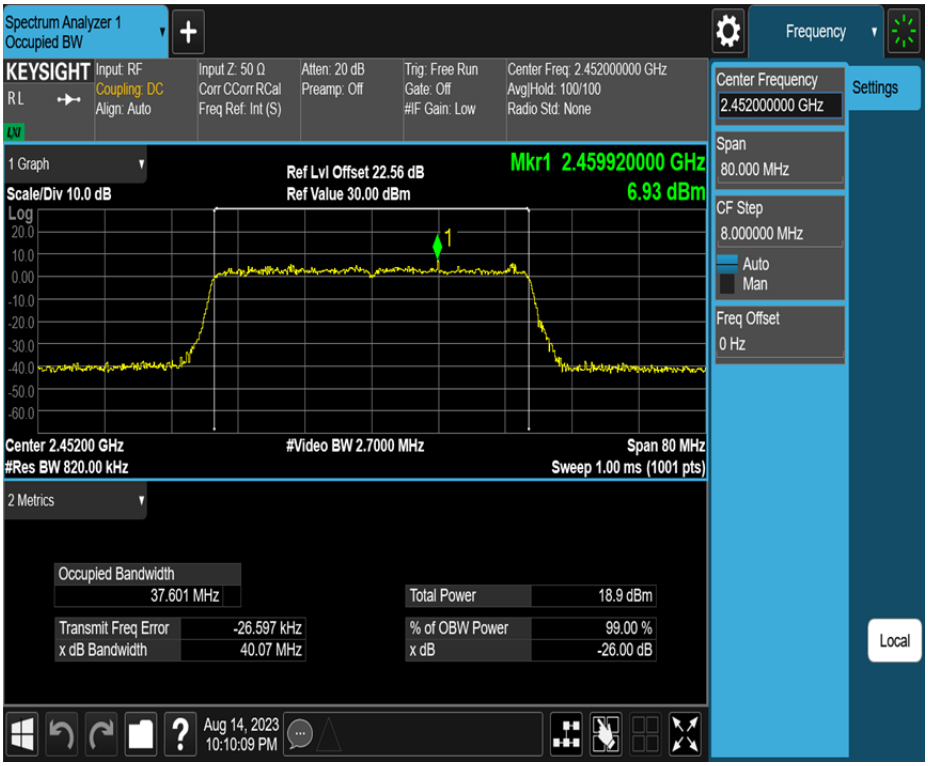

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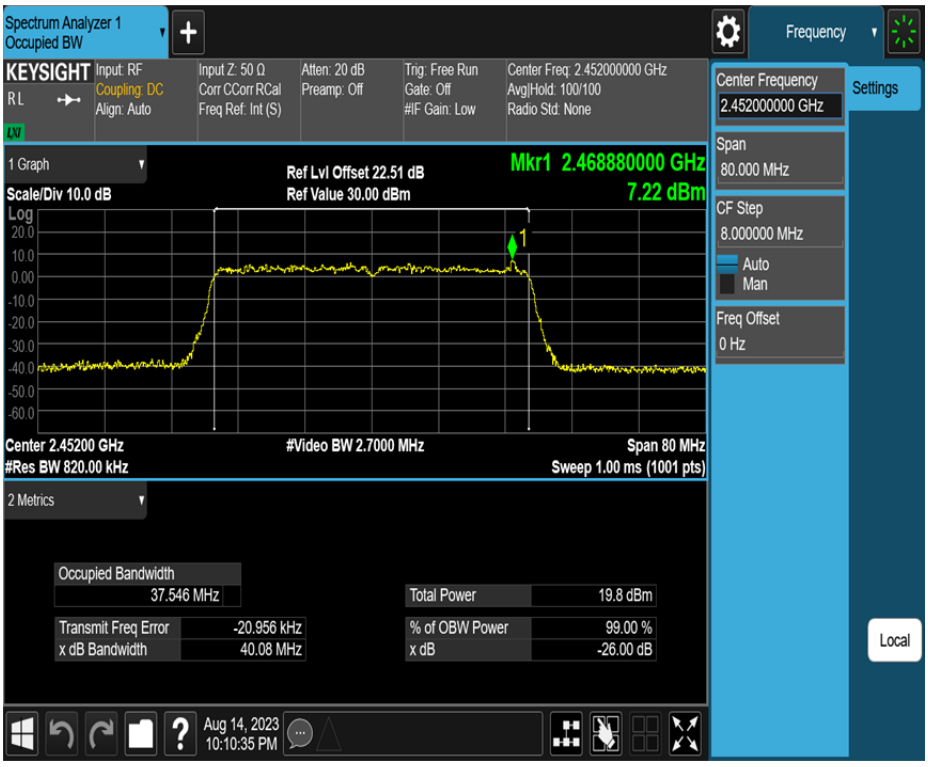


3.5 Maximum conducted output power

3.5.1 Limit

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

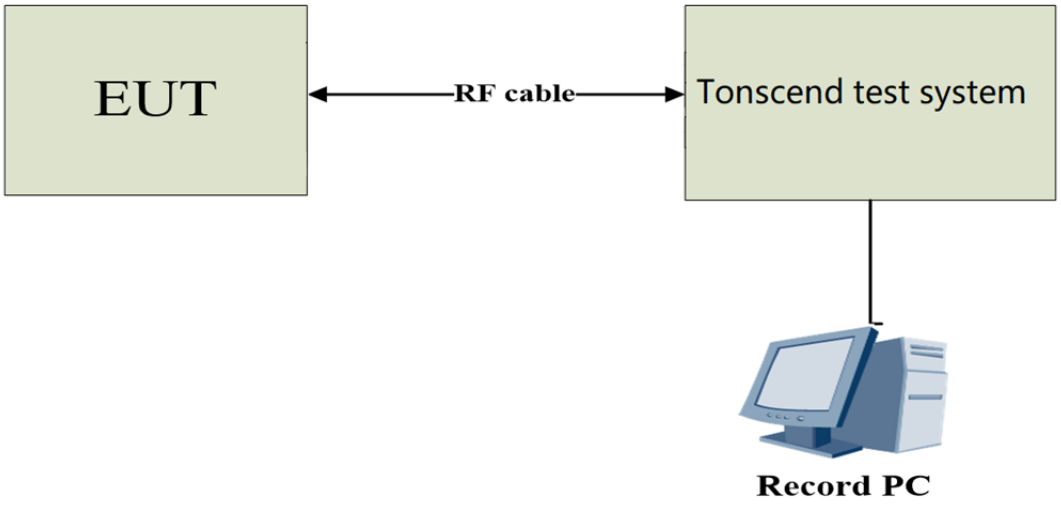
3.5.2 Test Procedure

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 tonscend test system and antenna output port as show in the block diagram below.

b) The maximum conducted output power was performed in accordance with method 11.9.1.3 (for peak power) of ANSI C63.10-2013 and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

3.5.3 Test Setup



3.5.4 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.

No beamforming

Test Software Version	accessMTool_REL_3_3_0_2		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	67	67	67
IEEE 802.11g	55	55	55
IEEE 802.11n(20)	48	52	48
IEEE 802.11ax(20)	53	52	52
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(40)	43	48	43
IEEE 802.11ax(40)	49	48	48

Beamforming

Test Software Version	accessMTool_REL_3_3_0_2		
Frequency (MHz)	2412	2437	2462
IEEE 802.11ax(20)	41	40	40
Frequency (MHz)	2422	2437	2452
IEEE 802.11ax(40)	37	36	36

3.5.5 The Result

No beamforming

Test Mode	Antenna	Frequency [MHz]	Conducted output Power [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	17.65	≤30.00	PASS
	Ant2	2412	18.83	≤30.00	PASS
	Ant1	2437	17.97	≤30.00	PASS
	Ant2	2437	18.62	≤30.00	PASS
	Ant1	2462	17.73	≤30.00	PASS
	Ant2	2462	18.73	≤30.00	PASS
11G	Ant1	2412	19.79	≤30.00	PASS
	Ant2	2412	20.43	≤30.00	PASS
	Ant1	2437	19.71	≤30.00	PASS
	Ant2	2437	20.33	≤30.00	PASS
	Ant1	2462	19.73	≤30.00	PASS
	Ant2	2462	20.48	≤30.00	PASS
11N20MIMO	Ant1	2412	17.45	≤29.73	PASS
	Ant2	2412	18.63	≤29.73	PASS
	total	2412	21.09	≤29.73	PASS
	Ant1	2437	18.51	≤29.73	PASS
	Ant2	2437	19.94	≤29.73	PASS
	total	2437	22.29	≤29.73	PASS
	Ant1	2462	17.31	≤29.73	PASS
	Ant2	2462	18.92	≤29.73	PASS
	total	2462	21.20	≤29.73	PASS
11N40MIMO	Ant1	2422	18.98	≤29.73	PASS
	Ant2	2422	19.94	≤29.73	PASS
	total	2422	22.50	≤29.73	PASS
	Ant1	2437	18.55	≤29.73	PASS
	Ant2	2437	19.79	≤29.73	PASS
	total	2437	22.22	≤29.73	PASS
	Ant1	2452	18.79	≤29.73	PASS
	Ant2	2452	19.85	≤29.73	PASS
	total	2452	22.36	≤29.73	PASS
11AX20MIMO	Ant1	2412	17.37	≤29.73	PASS
	Ant2	2412	18.41	≤29.73	PASS
	total	2412	20.93	≤29.73	PASS
	Ant1	2437	18.90	≤29.73	PASS
	Ant2	2437	19.75	≤29.73	PASS
	total	2437	22.36	≤29.73	PASS
	Ant1	2462	17.48	≤29.73	PASS
	Ant2	2462	18.60	≤29.73	PASS

	total	2462	21.09	≤29.73	PASS
11AX40MIMO	Ant1	2422	19.19	≤29.73	PASS
	Ant2	2422	19.95	≤29.73	PASS
	total	2422	**22.60**	≤29.73	PASS
	Ant1	2437	18.97	≤29.73	PASS
	Ant2	2437	19.85	≤29.73	PASS
	total	2437	22.44	≤29.73	PASS
	Ant1	2452	19.08	≤29.73	PASS
	Ant2	2452	19.84	≤29.73	PASS
	total	2452	22.49	≤29.73	PASS

For MIMO mode

Frequency[MHz]	**ANT 1 Antenna Gain (dBi)**	**ANT 2 Antenna Gain (dBi)**	**Correlated chains directional gain (dBi)**	**Conducted Power Limit (dBm)**
2412-2462	3.24	3.27	6.27	29.73
Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N dBi If transmit signals are correlated, then Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]				
Directional gain = 10log[$(10^{3.24/20} + 10^{3.27/20})^2 / N_{ANT}$] dBi=6.27				

Beamforming

Test Mode	Antenna	Frequency [MHz]	Conducted output Power [dBm]	Limit [dBm]	Verdict
11AX20MIMO	Ant1	2412	14.32	≤26.73	PASS
	Ant2	2412	15.28	≤26.73	PASS
	total	2412	17.84	≤26.73	PASS
	Ant1	2437	15.62	≤26.73	PASS
	Ant2	2437	16.55	≤26.73	PASS
	total	2437	19.12	≤26.73	PASS
	Ant1	2462	14.31	≤26.73	PASS
	Ant2	2462	15.49	≤26.73	PASS
	total	2462	17.95	≤26.73	PASS
11AX40MIMO	Ant1	2422	16.11	≤26.73	PASS
	Ant2	2422	16.87	≤26.73	PASS
	total	2422	19.52	≤26.73	PASS
	Ant1	2437	15.83	≤26.73	PASS
	Ant2	2437	16.79	≤26.73	PASS
	total	2437	19.35	≤26.73	PASS
	Ant1	2452	16.02	≤26.73	PASS
	Ant2	2452	16.76	≤26.73	PASS
	total	2452	19.42	≤26.73	PASS

Frequency [MHz]	ANT 1 Antenna Gain (dBi)	ANT 2 Antenna Gain (dBi)	Beamforming Gain (dB)	Correlated chains directional gain (dBi)	Conducted Power Limit (dBm)
2412-2462	3.24	3.27	3	9.27	26.73
Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N dBi If transmit signals are correlated, then Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]					
Directional gain = 10log[$(10^{3.24/20} + 10^{3.27/20})^2 / N_{ANT}$] dBi=6.27					

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 transmitting.

3.6.2 Test Procedure

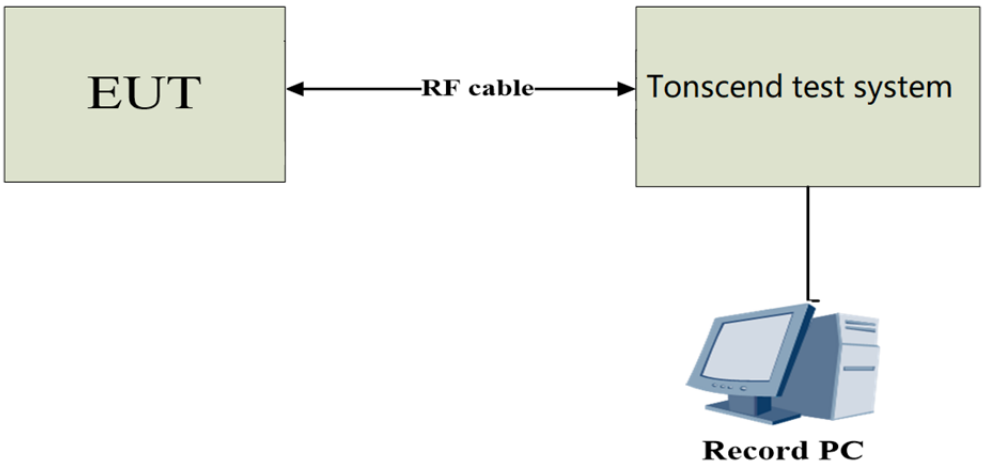
Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

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

b) Spectrum analyser settings as following:

Spectrum Parameters	Setting
Span Frequency	1.5 times the DTS bandwidth
RBW	3 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.6.3 Test Setup



3.6.4 The Result

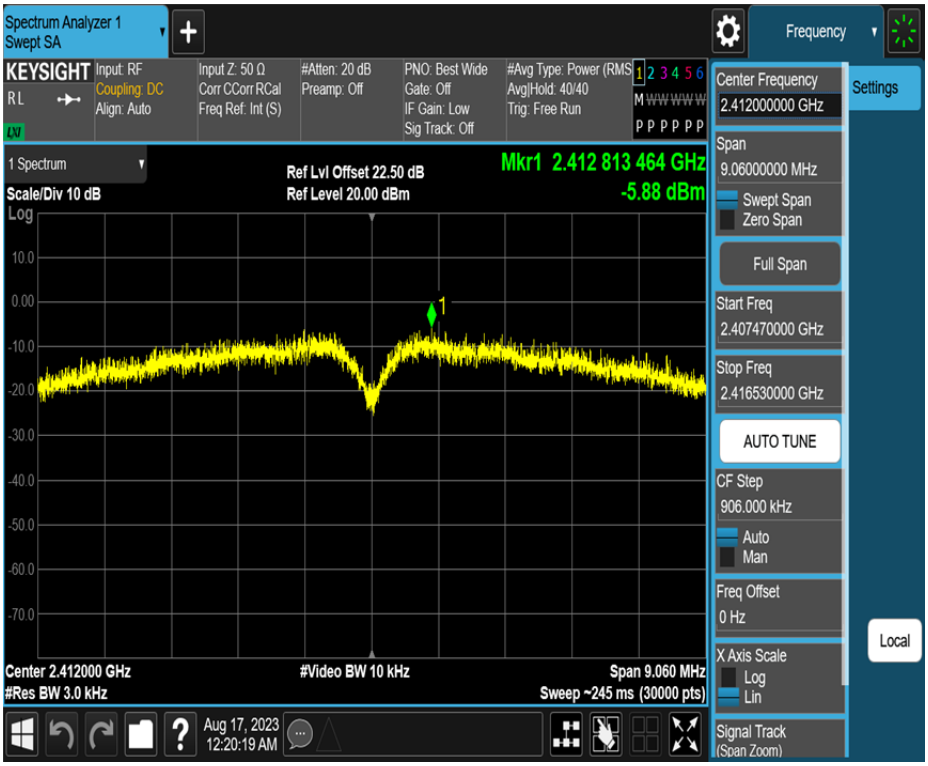
Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-5.88	≤8.00	PASS
	Ant2	2412	-4.81	≤8.00	PASS
	Ant1	2437	-5.73	≤8.00	PASS
	Ant2	2437	-5.38	≤8.00	PASS
	Ant1	2462	-6.13	≤8.00	PASS
	Ant2	2462	-5.39	≤8.00	PASS
11G	Ant1	2412	-13.99	≤8.00	PASS
	Ant2	2412	-13.19	≤8.00	PASS
	Ant1	2437	-13.75	≤8.00	PASS
	Ant2	2437	-12.89	≤8.00	PASS
	Ant1	2462	-13.70	≤8.00	PASS
	Ant2	2462	-12.97	≤8.00	PASS
11N20MIMO	Ant1	2412	-14.31	≤7.73	PASS
	Ant2	2412	-14.39	≤7.73	PASS
	total	2412	-11.34	≤7.73	PASS
	Ant1	2437	-13.41	≤7.73	PASS
	Ant2	2437	-13.35	≤7.73	PASS
	total	2437	-10.37	≤7.73	PASS
	Ant1	2462	-15.21	≤7.73	PASS
	Ant2	2462	-14.36	≤7.73	PASS
	total	2462	-11.75	≤7.73	PASS
11N40MIMO	Ant1	2422	-17.14	≤7.73	PASS
	Ant2	2422	-15.73	≤7.73	PASS
	total	2422	-13.37	≤7.73	PASS
	Ant1	2437	-17.70	≤7.73	PASS
	Ant2	2437	-15.77	≤7.73	PASS
	total	2437	-13.62	≤7.73	PASS
	Ant1	2452	-17.06	≤7.73	PASS
	Ant2	2452	-15.95	≤7.73	PASS
	total	2452	-13.46	≤7.73	PASS
11AX20MIMO	Ant1	2412	-16.43	≤7.73	PASS
	Ant2	2412	-14.53	≤7.73	PASS
	total	2412	-12.37	≤7.73	PASS
	Ant1	2437	-15.55	≤7.73	PASS
	Ant2	2437	-14.68	≤7.73	PASS
	total	2437	-12.08	≤7.73	PASS
	Ant1	2462	-16.97	≤7.73	PASS
	Ant2	2462	-15.11	≤7.73	PASS
	total	2462	-12.93	≤7.73	PASS
11AX40MIMO	Ant1	2422	-17.13	≤7.73	PASS

	Ant2	2422	-16.64	≤7.73	PASS
	total	2422	-13.87	≤7.73	PASS
	Ant1	2437	-17.44	≤7.73	PASS
	Ant2	2437	-16.57	≤7.73	PASS
	total	2437	-13.97	≤7.73	PASS
	Ant1	2452	-17.39	≤7.73	PASS
	Ant2	2452	-16.93	≤7.73	PASS
	total	2452	-14.14	≤7.73	PASS

For MIMO mode

Frequency[MHz]	**ANT 1 Antenna Gain (dBi)**	**ANT 2 Antenna Gain (dBi)**	**Correlated chains directional gain (dBi)**	**Max. PSD Limit (dBm)**
2412-2462	3.24	3.27	6.27	7.73
Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N dBi If transmit signals are correlated, then Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]				
Directional gain =10log[$(10^{3.24/20} + 10^{3.27/20})^2 / N_{ANT}$] dBi=6.27				

Note: Beamforming conducted power less than no beamforming conducted power, so only no beamforming conducted power spectral density was recored.

11B_Ant1_2412


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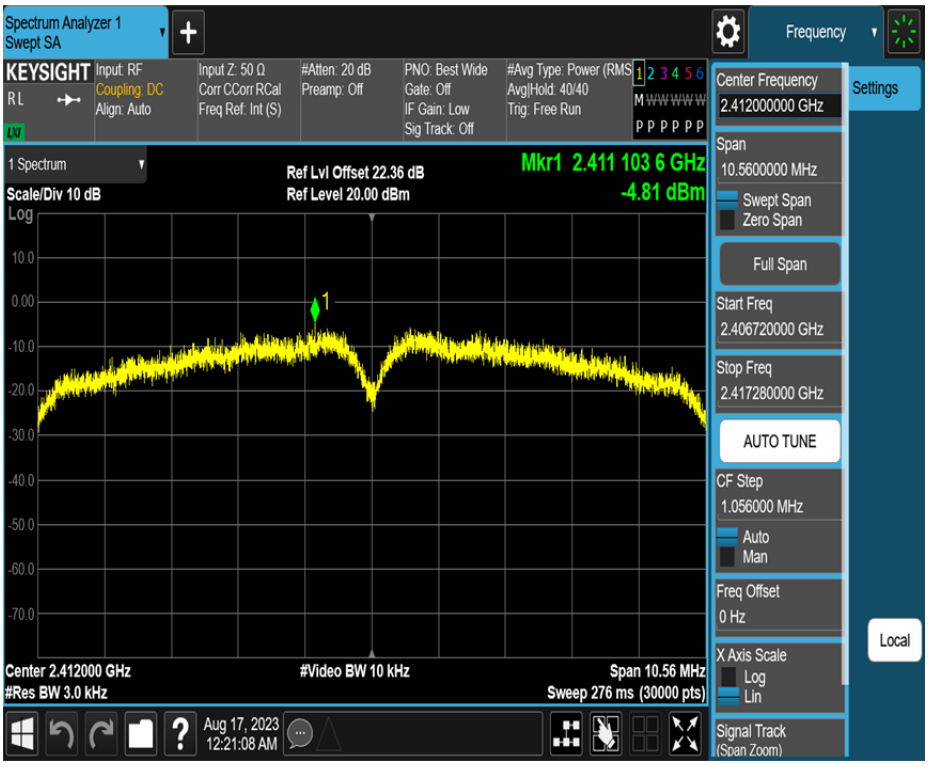

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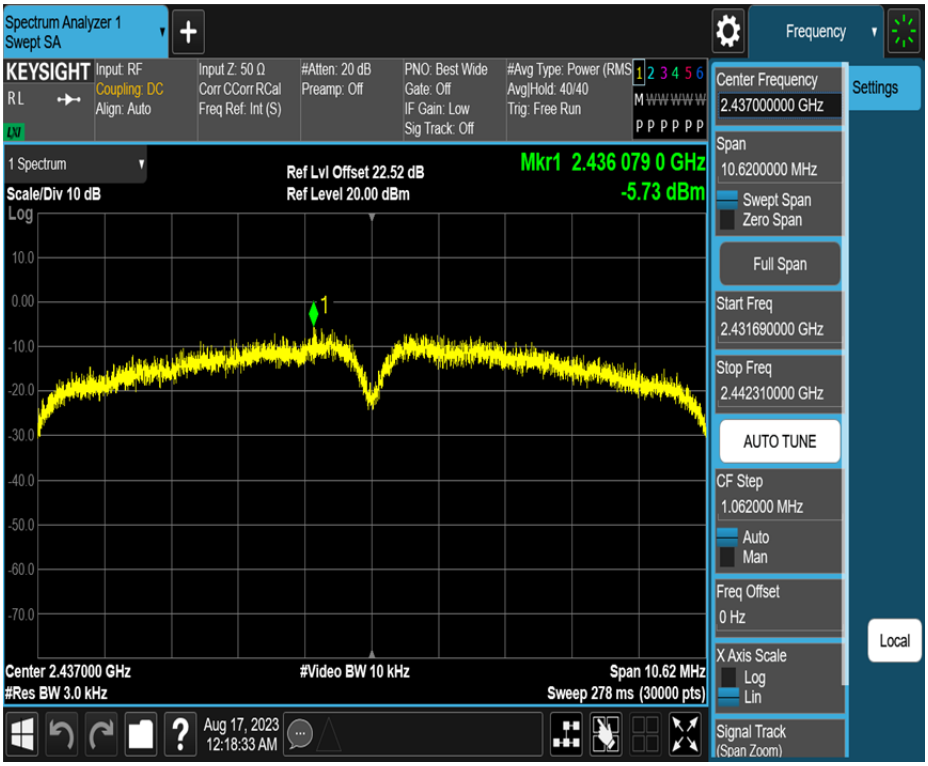

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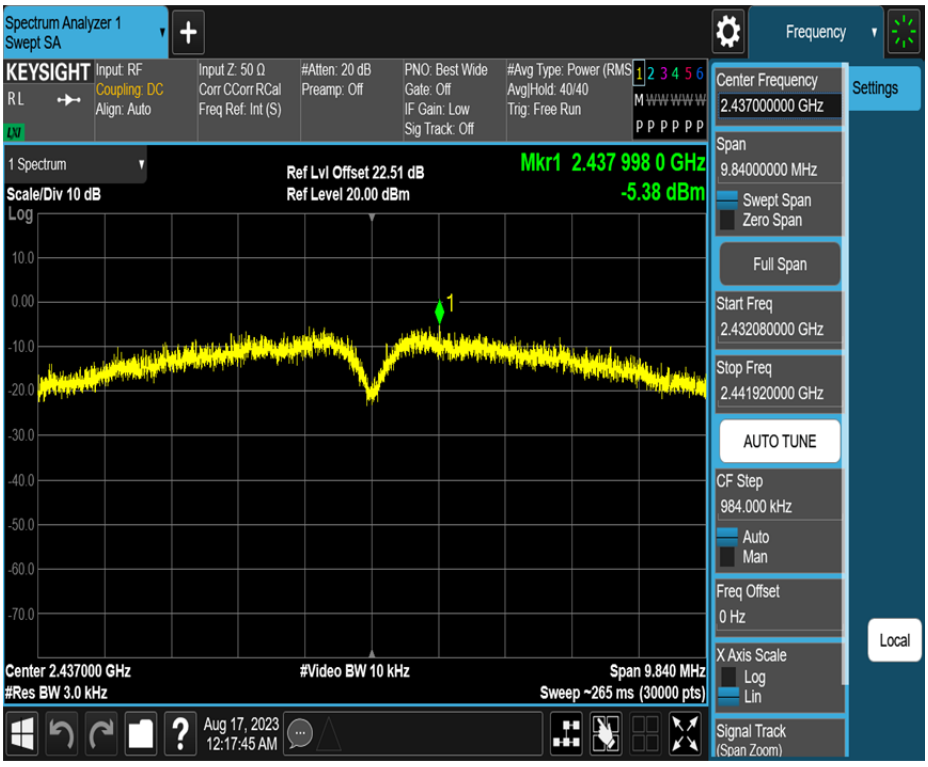

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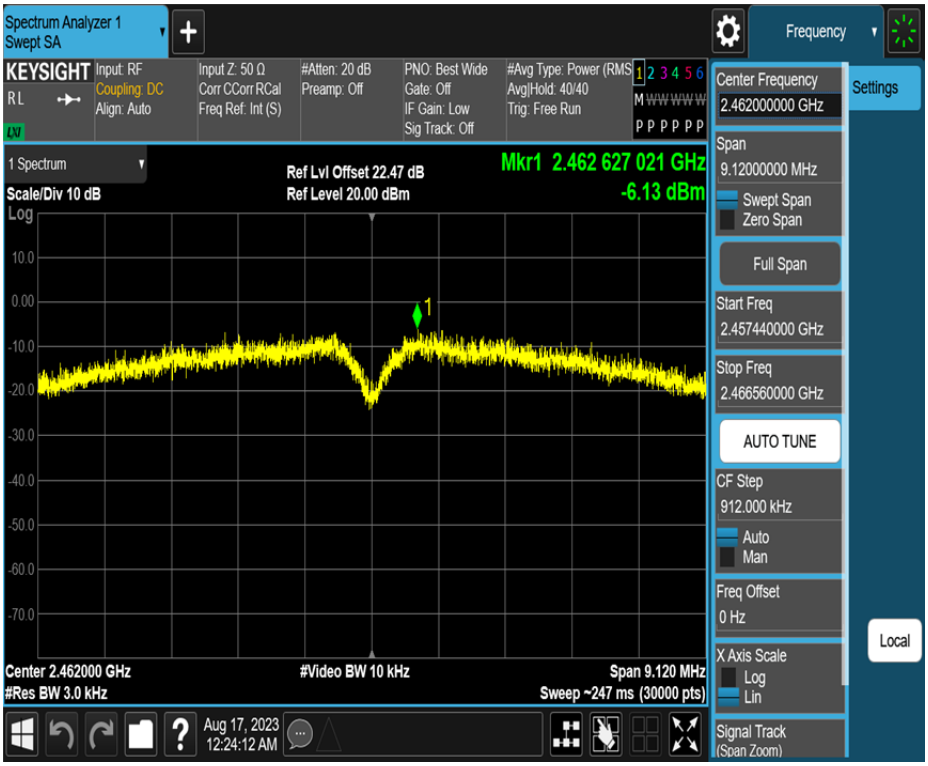
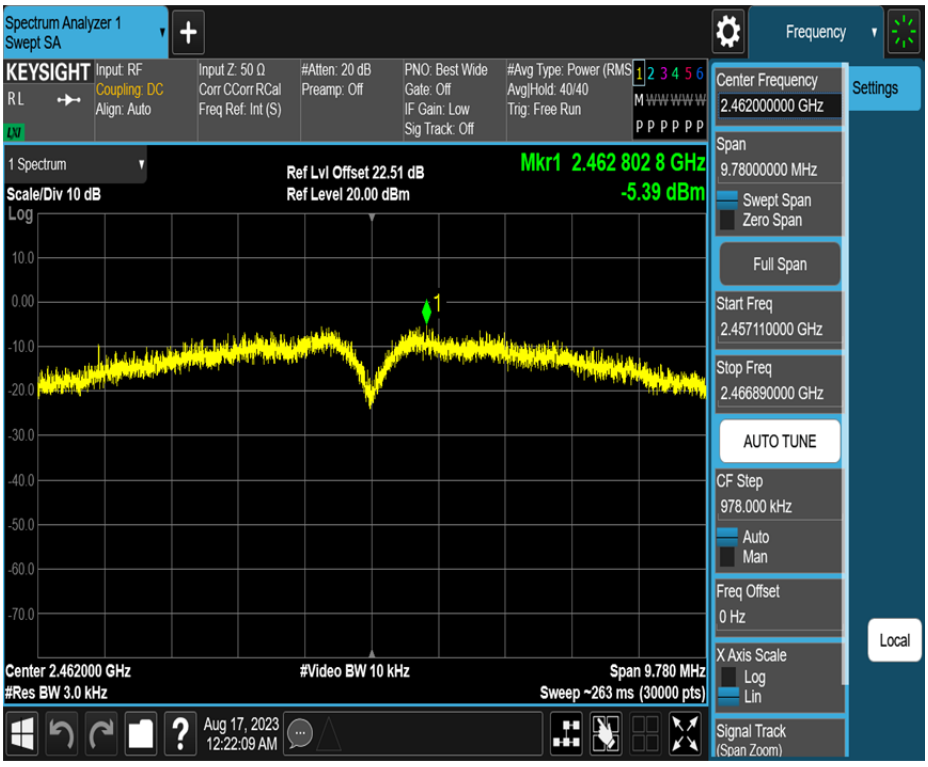
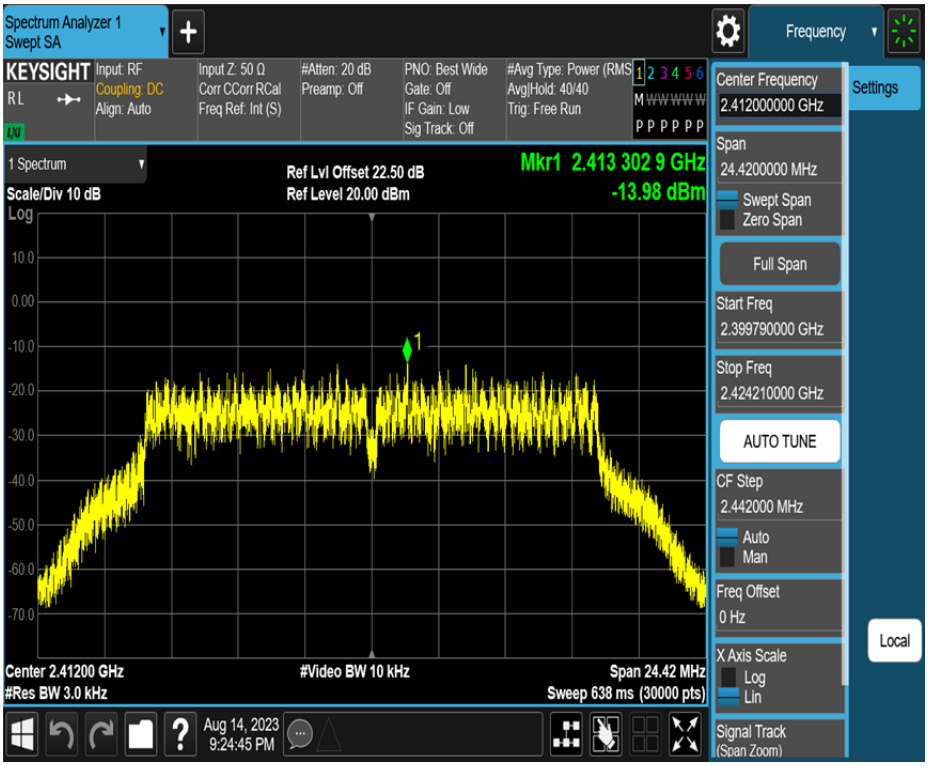


11B_Ant2_2462


11G_Ant1_2412


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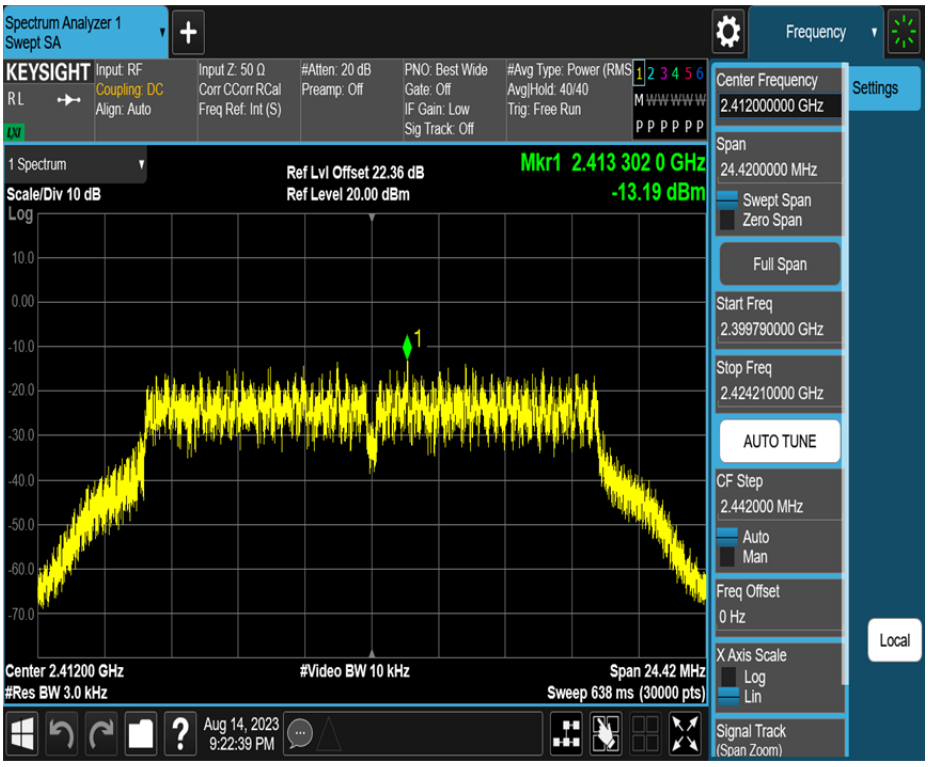
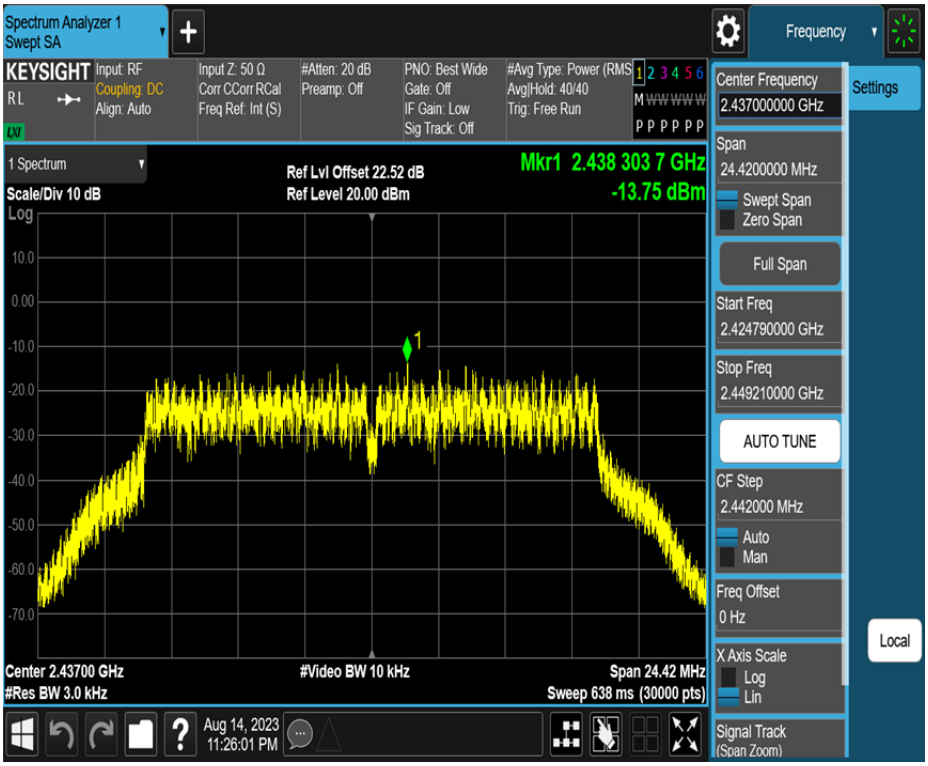


11G_Ant1_2437


11G_Ant2_2437