

RF Test Data for 2.4G Wi-Fi (Conducted Measurements)

General Description of EUT	
Product Name:	AC1600 DOCSIS3.0 24x8 EMTA, AC1600 WiFi Cable Modem Router, EMTA, Cable Modem
Test Model:	NE1611B
Sample ID:	20211124-01-1#
Environmental Conditions	
Temperature:	23.5°C
Relative Humidity:	44%
Test Voltage:	DC 12V
Test Engineer:	Huangjianpin
Note: For a more detailed features description, please refer to the report TB-FCC186356. The report only show the worst case data.	

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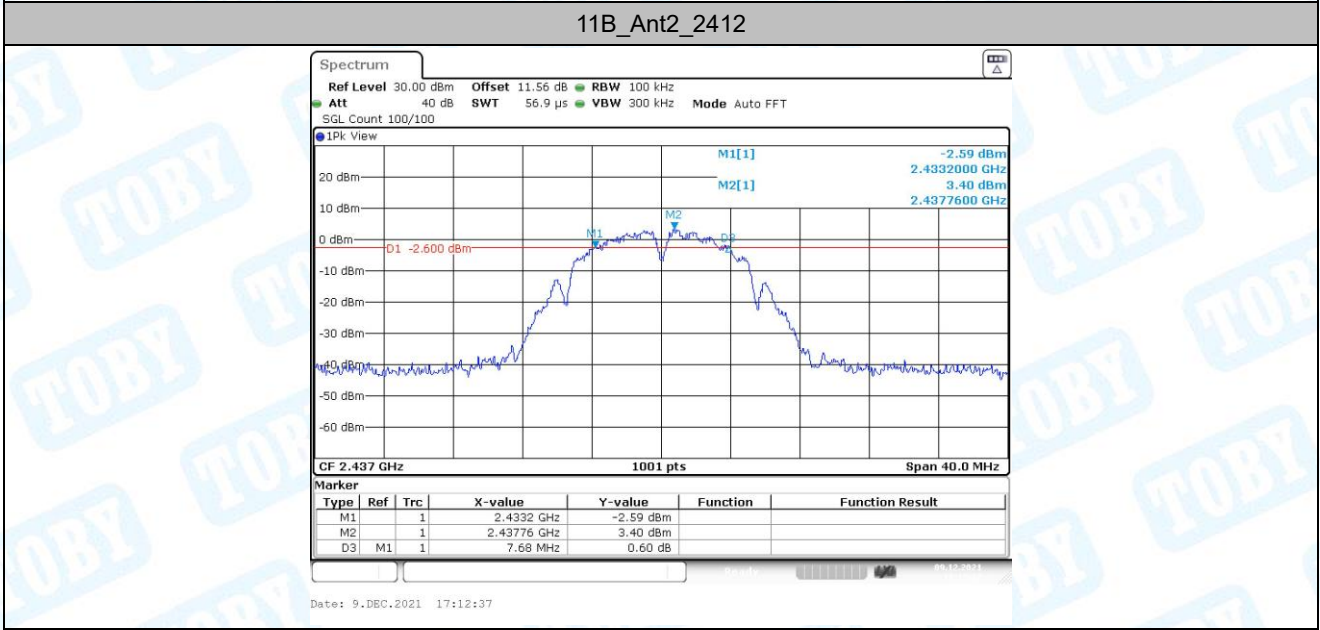
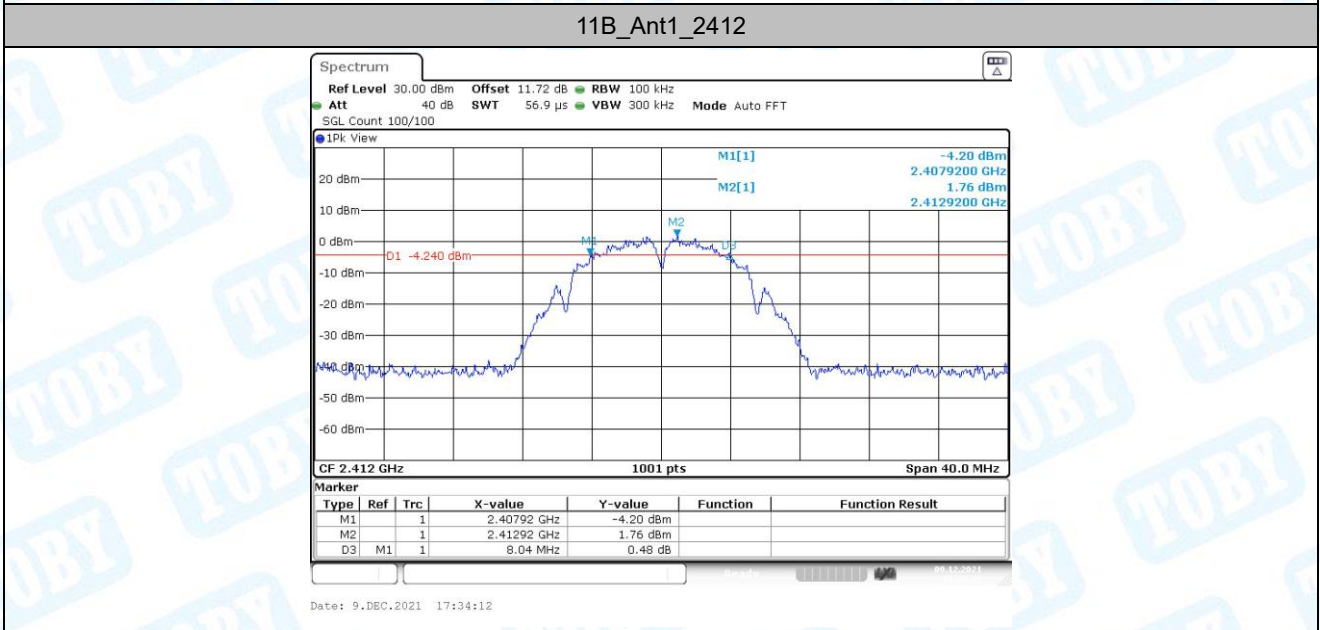
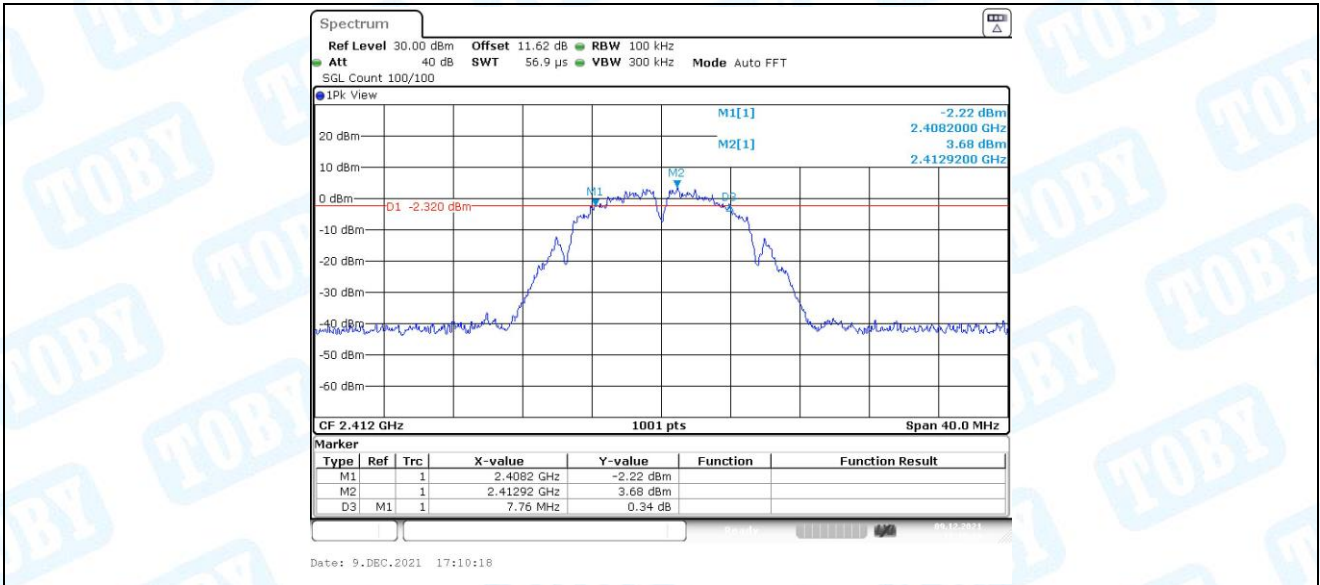
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1. DTS Bandwidth

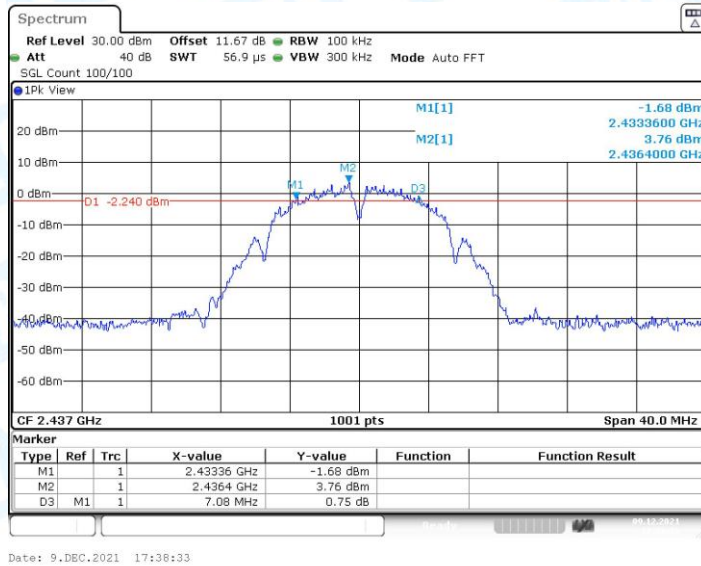
1.1. Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.76	2408.20	2415.96	0.5	PASS
	Ant2	2412	8.04	2407.92	2415.96	0.5	PASS
	Ant1	2437	7.68	2433.20	2440.88	0.5	PASS
	Ant2	2437	7.08	2433.36	2440.44	0.5	PASS
	Ant1	2462	7.56	2458.32	2465.88	0.5	PASS
	Ant2	2462	7.68	2458.28	2465.96	0.5	PASS
11G	Ant1	2412	16.56	2403.72	2420.28	0.5	PASS
	Ant2	2412	16.32	2403.84	2420.16	0.5	PASS
	Ant1	2437	16.48	2428.72	2445.20	0.5	PASS
	Ant2	2437	16.32	2428.84	2445.16	0.5	PASS
	Ant1	2462	16.48	2453.72	2470.20	0.5	PASS
	Ant2	2462	16.36	2453.80	2470.16	0.5	PASS
11N20MIMO	Ant1	2412	17.52	2403.24	2420.76	0.5	PASS
	Ant2	2412	17.60	2403.20	2420.80	0.5	PASS
	Ant1	2437	17.80	2428.08	2445.88	0.5	PASS
	Ant2	2437	17.64	2428.20	2445.84	0.5	PASS
	Ant1	2462	17.68	2453.12	2470.80	0.5	PASS
	Ant2	2462	17.60	2453.20	2470.80	0.5	PASS
11N40MIMO	Ant1	2422	35.36	2404.24	2439.60	0.5	PASS
	Ant2	2422	36.32	2403.84	2440.16	0.5	PASS
	Ant1	2437	35.76	2418.84	2454.60	0.5	PASS
	Ant2	2437	35.92	2419.24	2455.16	0.5	PASS
	Ant1	2452	36.32	2433.84	2470.16	0.5	PASS
	Ant2	2452	35.36	2434.24	2469.60	0.5	PASS

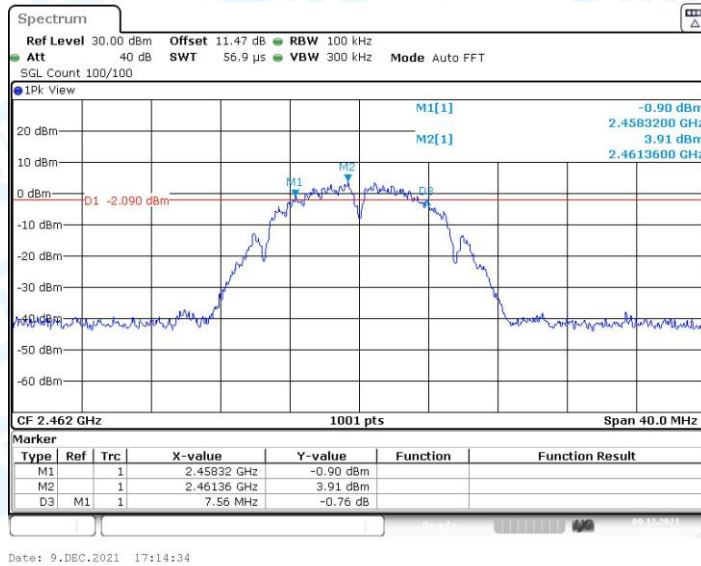
1.2. Test Graphs



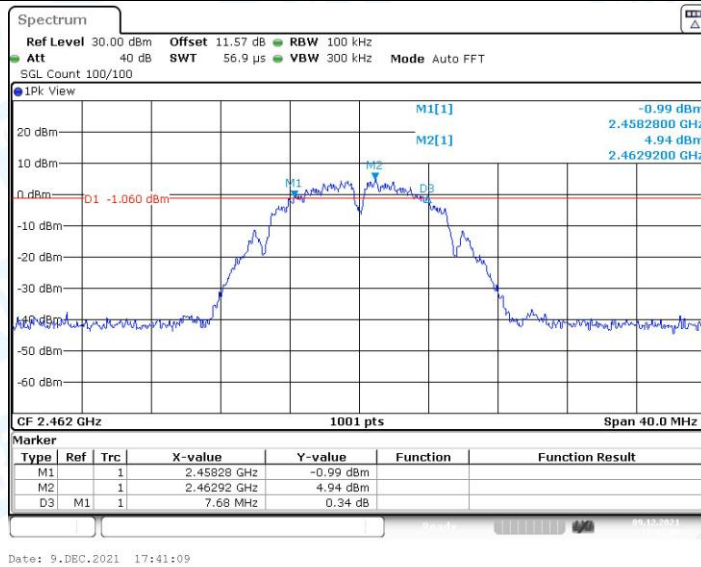
11B_Ant1_2437



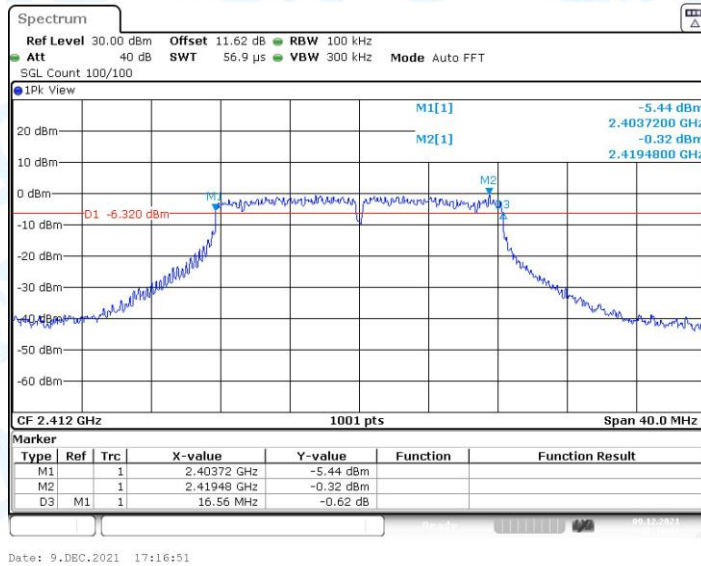
11B_Ant2_2437



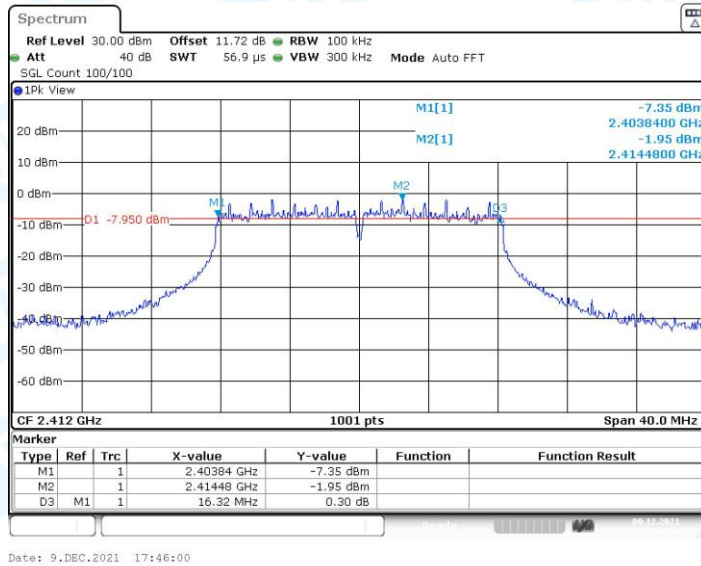
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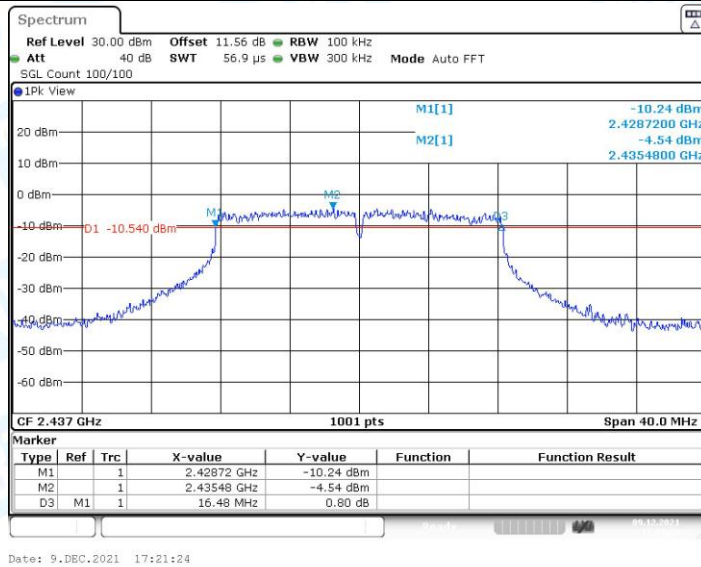
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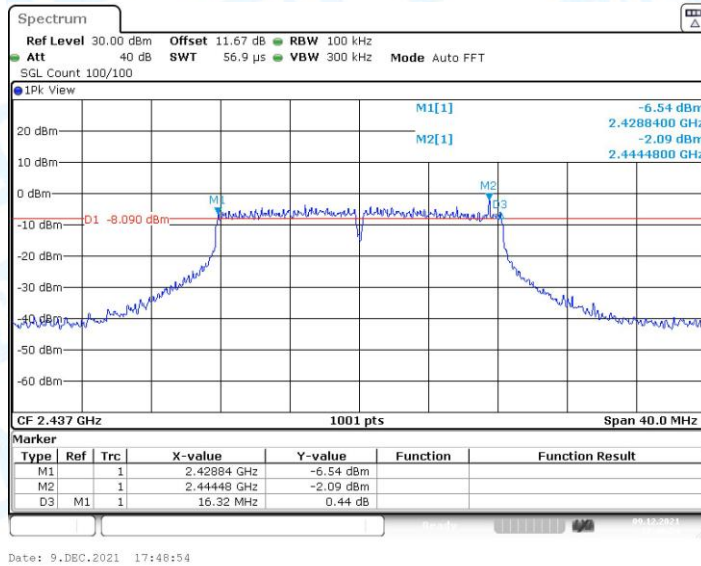
11G_Ant1_2412



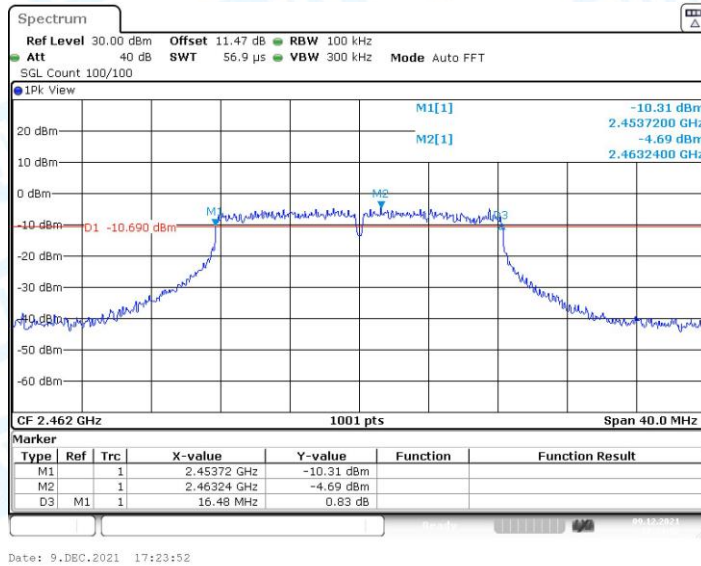
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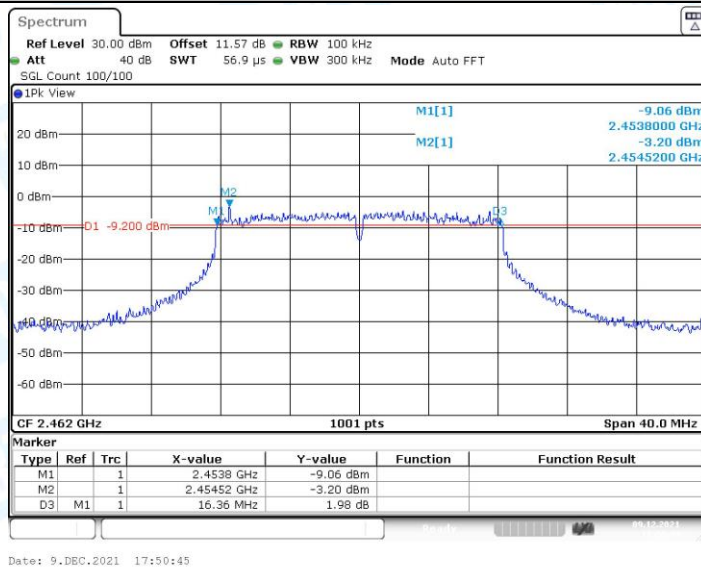
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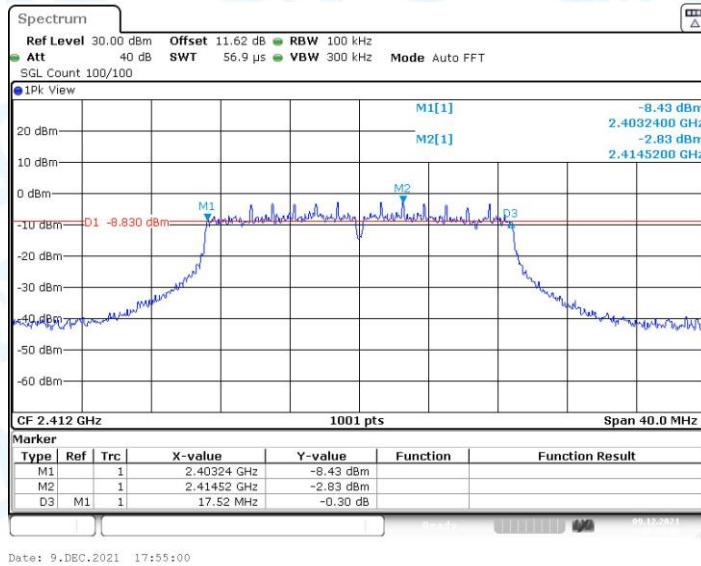
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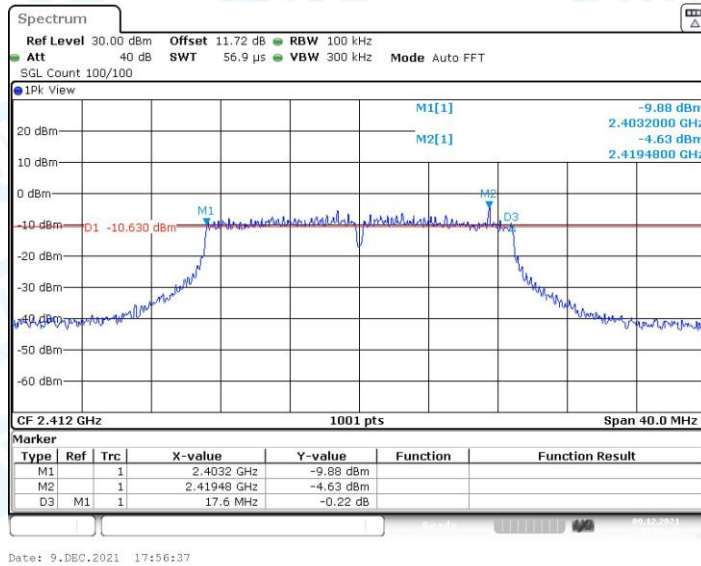
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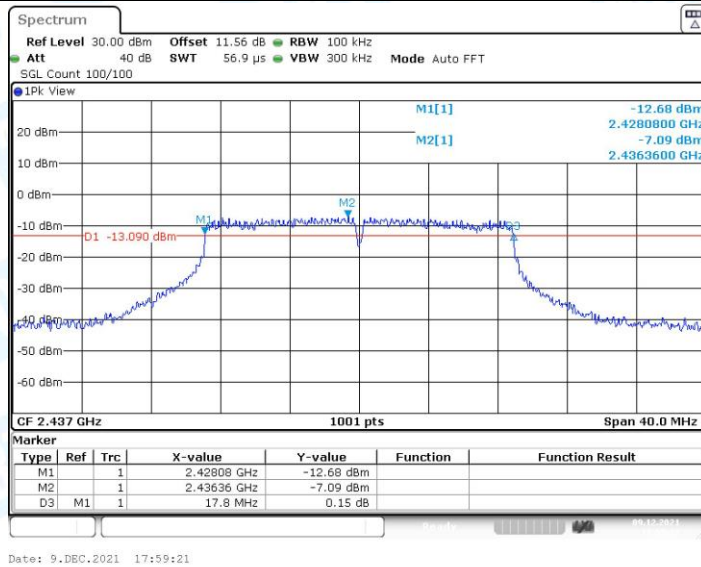
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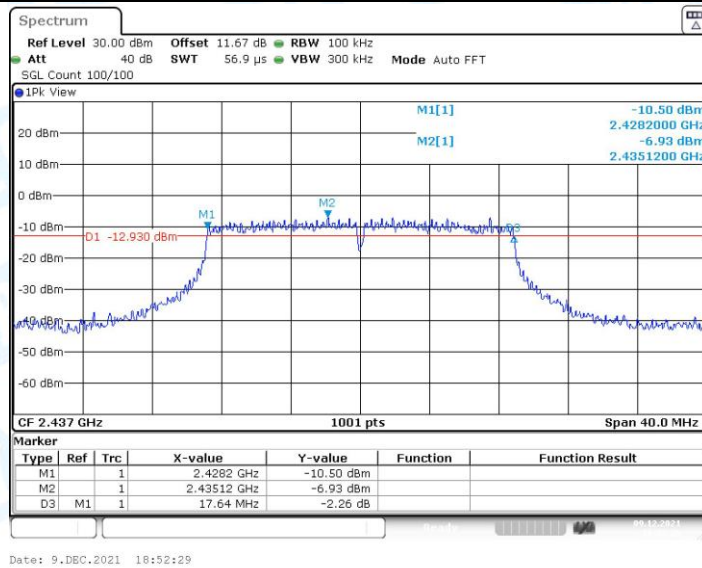
11N20MIMO_Ant1_2412



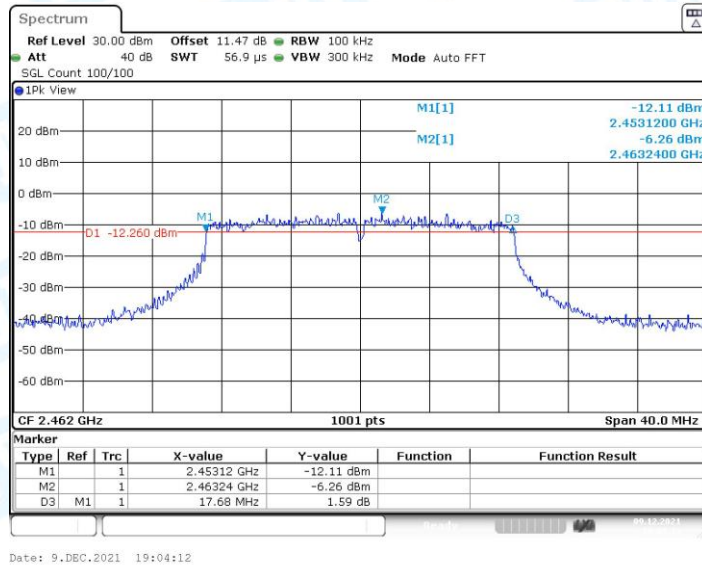
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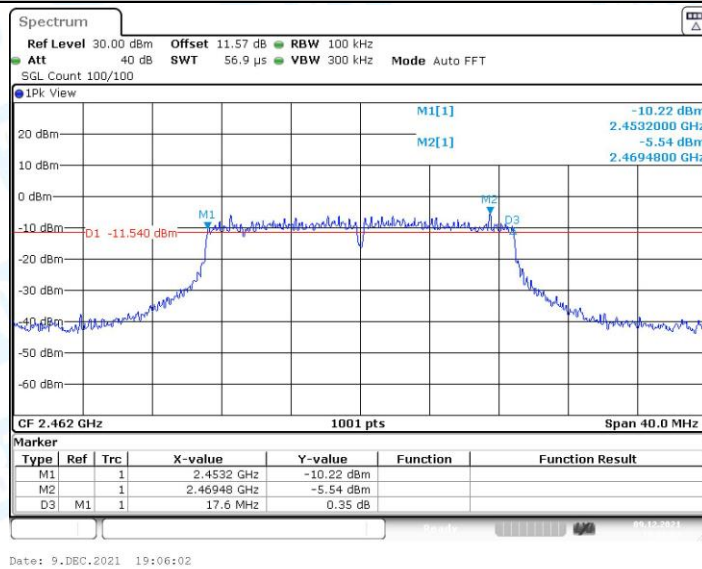
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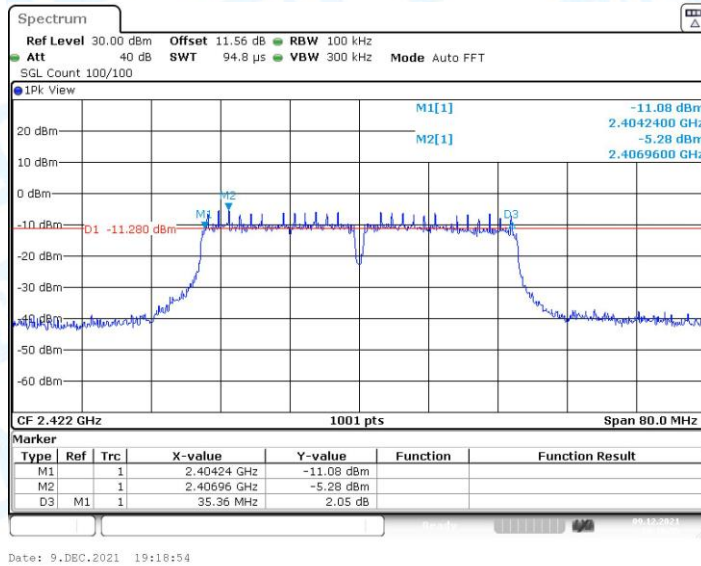
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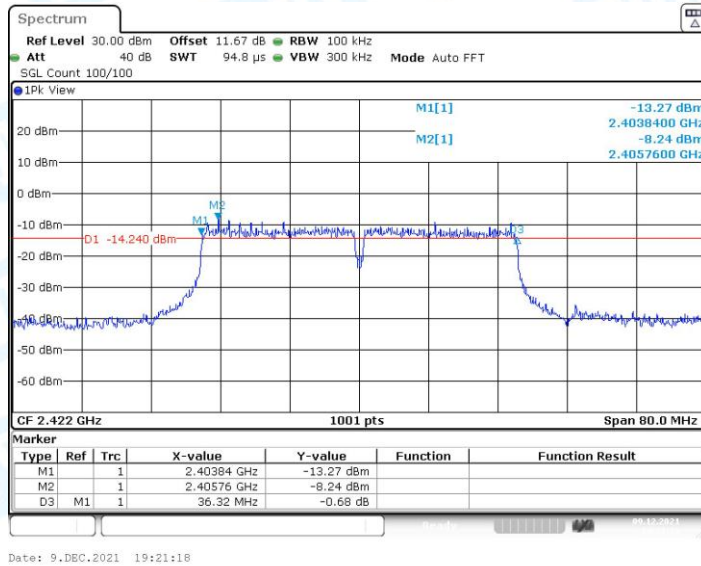
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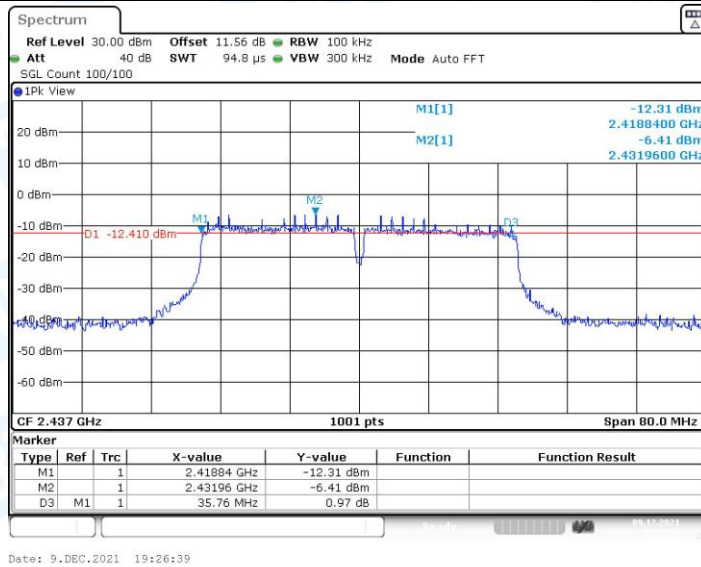
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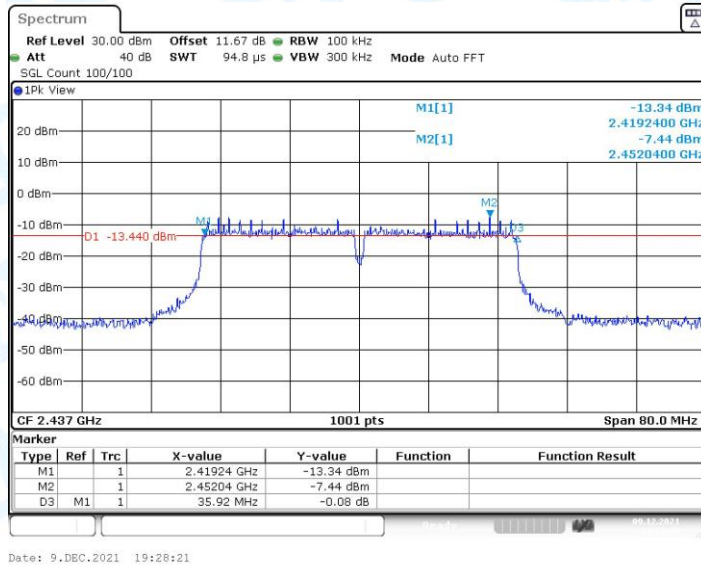
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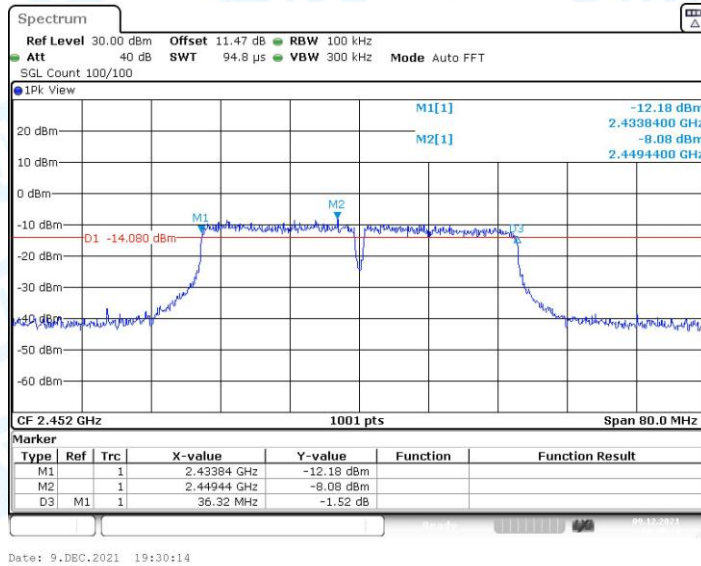
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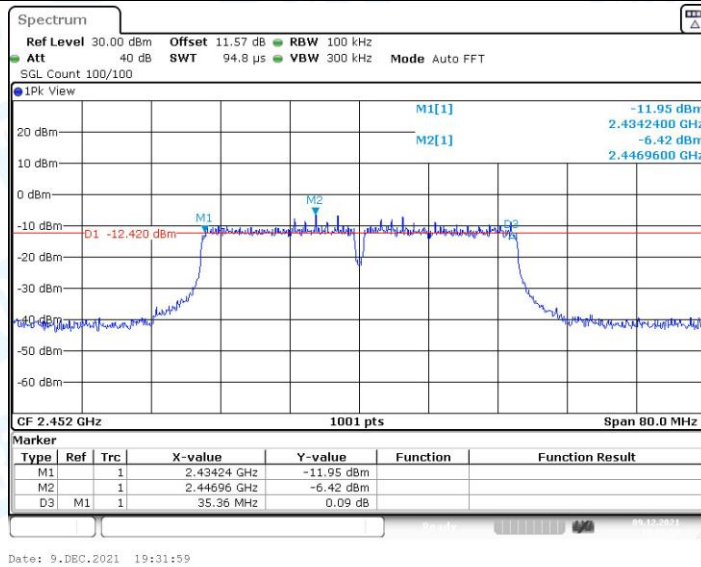
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11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



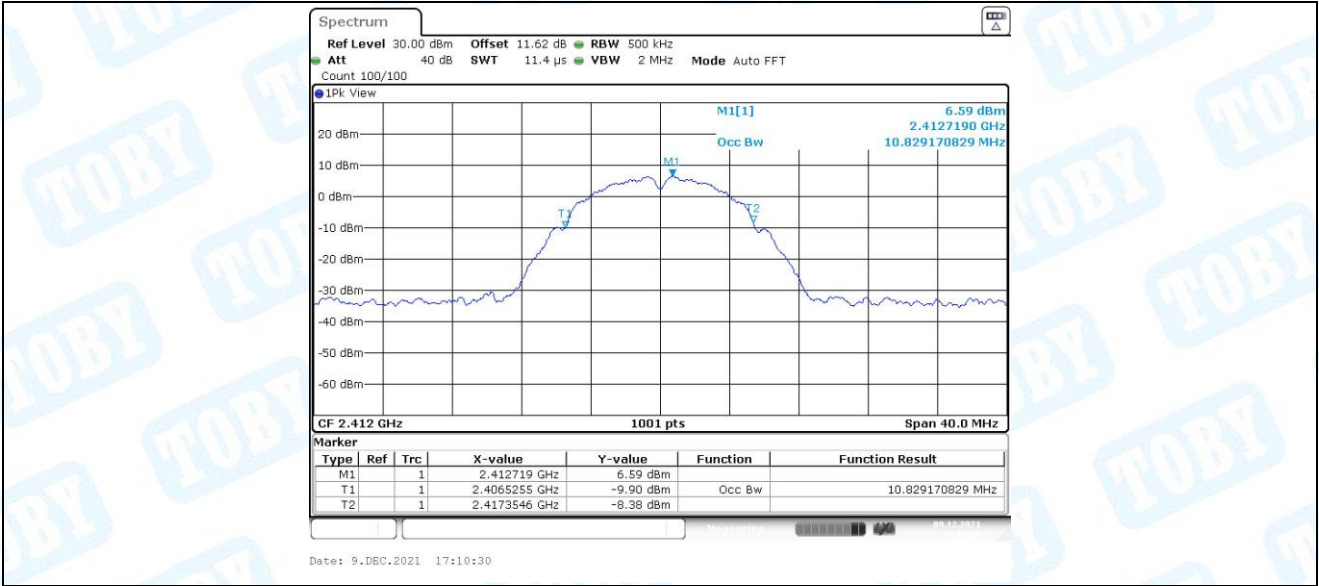
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2. Occupied Channel Bandwidth

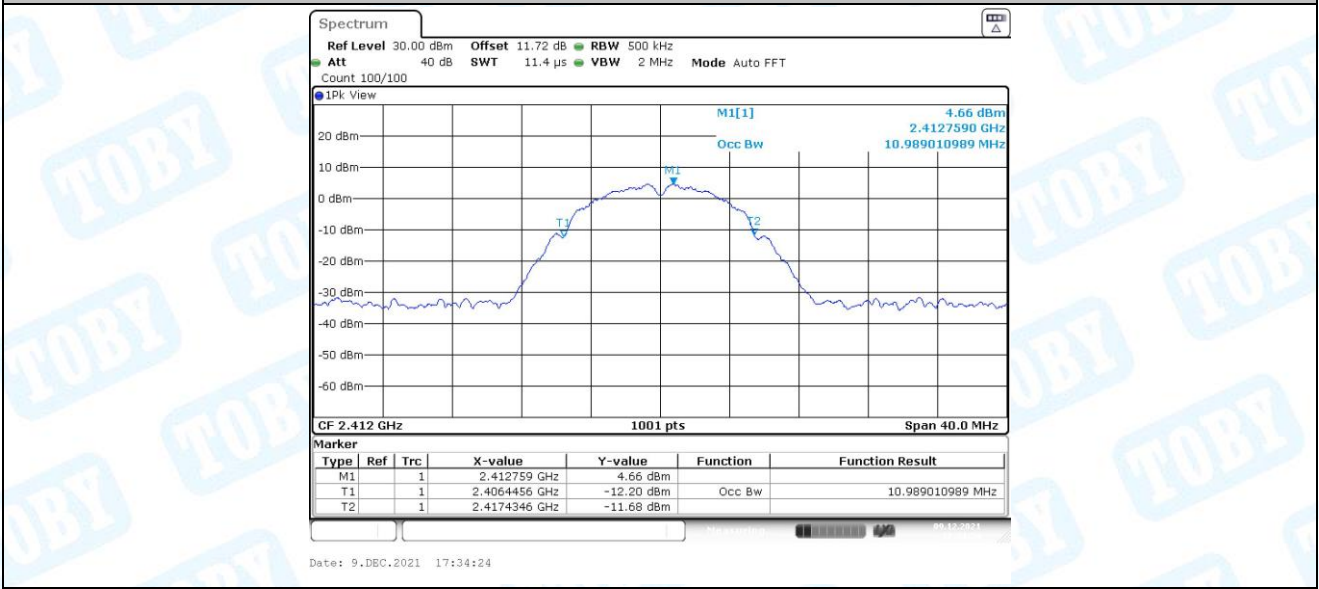
2.1. Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.829	2406.525	2417.355	---	PASS
	Ant2	2412	10.989	2406.446	2417.435	---	PASS
	Ant1	2437	10.869	2431.486	2442.355	---	PASS
	Ant2	2437	10.949	2431.486	2442.435	---	PASS
	Ant1	2462	10.829	2456.525	2467.355	---	PASS
	Ant2	2462	10.829	2456.565	2467.395	---	PASS
11G	Ant1	2412	17.103	2403.369	2420.472	---	PASS
	Ant2	2412	17.183	2403.409	2420.591	---	PASS
	Ant1	2437	17.423	2428.169	2445.591	---	PASS
	Ant2	2437	17.023	2428.489	2445.511	---	PASS
	Ant1	2462	17.782	2452.769	2470.551	---	PASS
	Ant2	2462	16.903	2453.568	2470.472	---	PASS
11N20MIMO	Ant1	2412	18.621	2402.689	2421.311	---	PASS
	Ant2	2412	18.182	2402.849	2421.031	---	PASS
	Ant1	2437	18.541	2427.569	2446.111	---	PASS
	Ant2	2437	18.102	2427.969	2446.071	---	PASS
	Ant1	2462	18.821	2452.450	2471.271	---	PASS
	Ant2	2462	18.222	2452.929	2471.151	---	PASS
11N40MIMO	Ant1	2422	37.163	2403.139	2440.302	---	PASS
	Ant2	2422	37.243	2403.139	2440.382	---	PASS
	Ant1	2437	38.122	2417.579	2455.701	---	PASS
	Ant2	2437	37.003	2418.379	2455.382	---	PASS
	Ant1	2452	37.642	2432.899	2470.541	---	PASS
	Ant2	2452	37.243	2433.459	2470.701	---	PASS

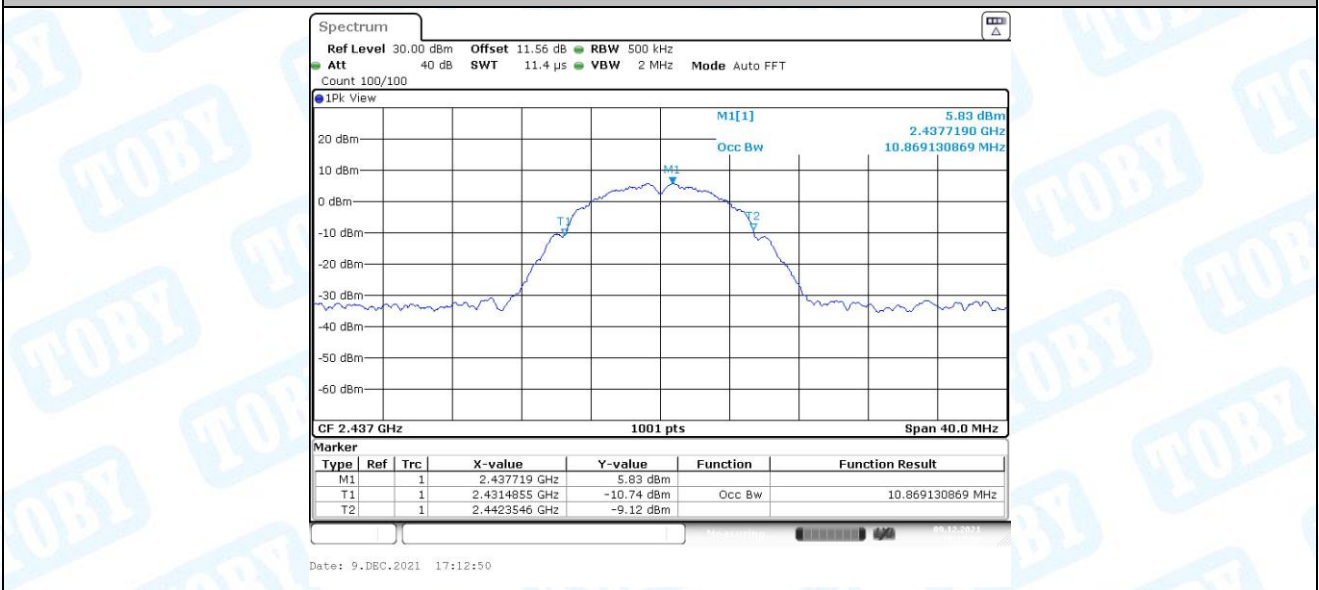
2.2. Test Graphs



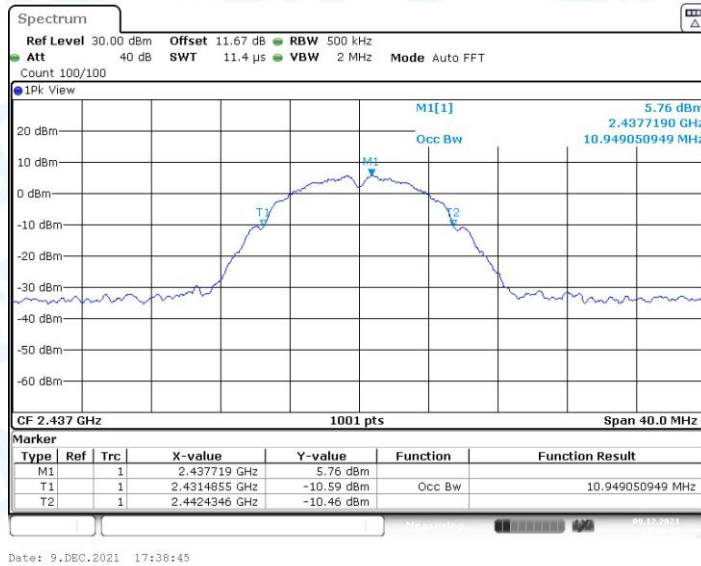
11B_Ant1_2412



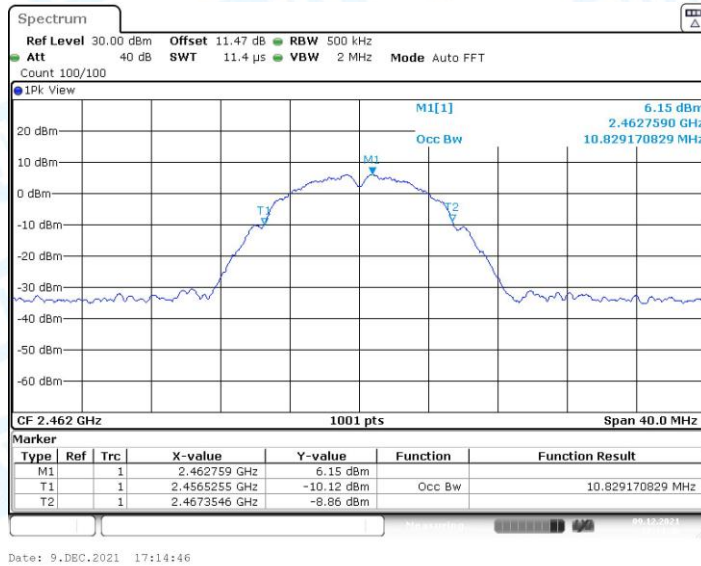
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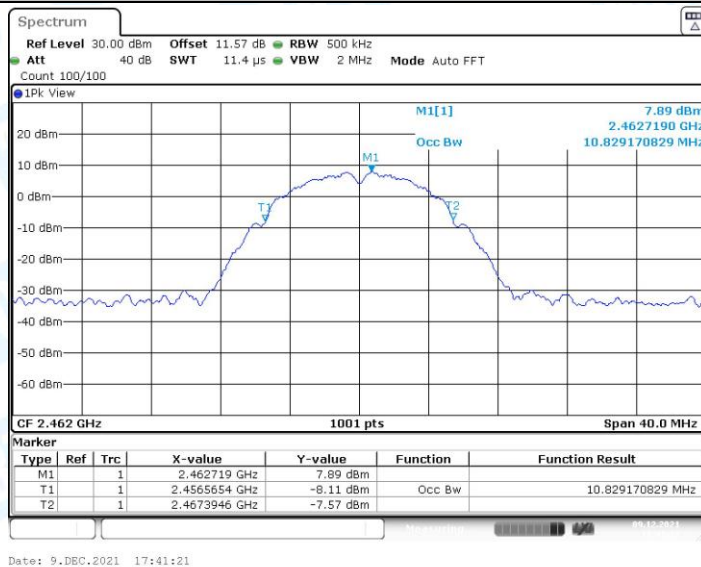
11B_Ant1_2437



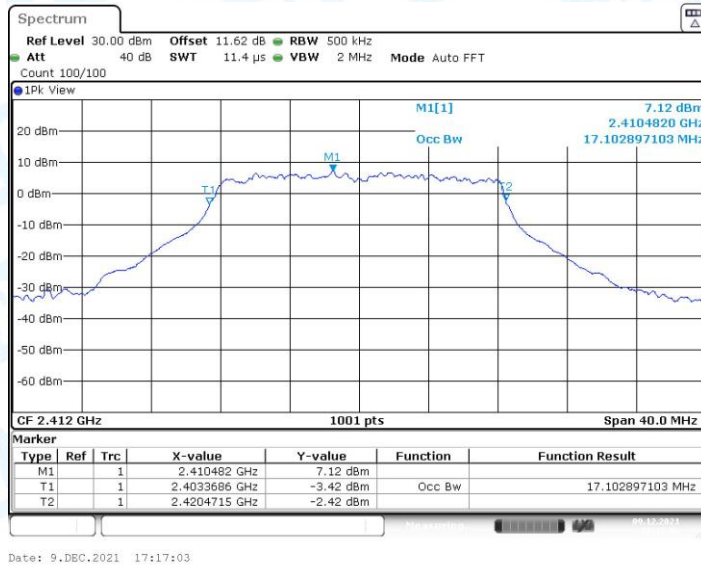
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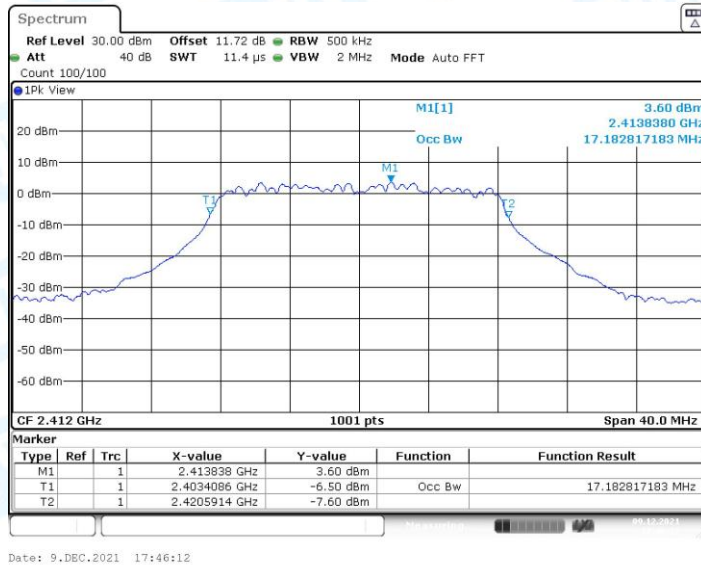
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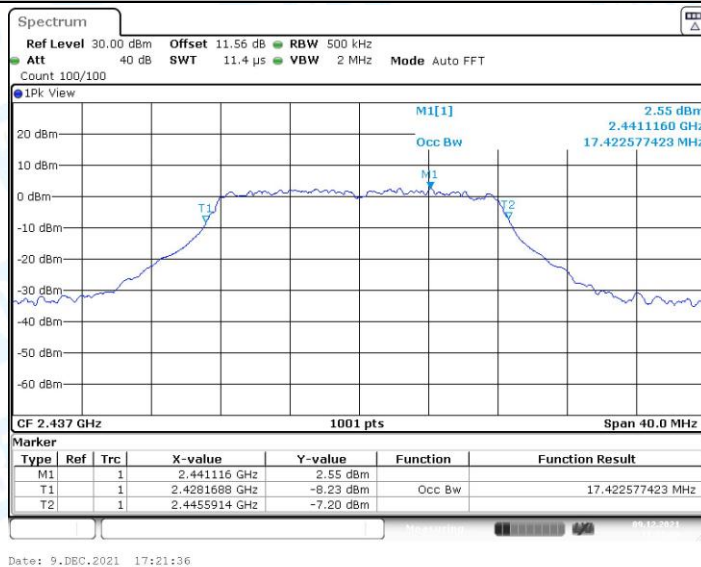
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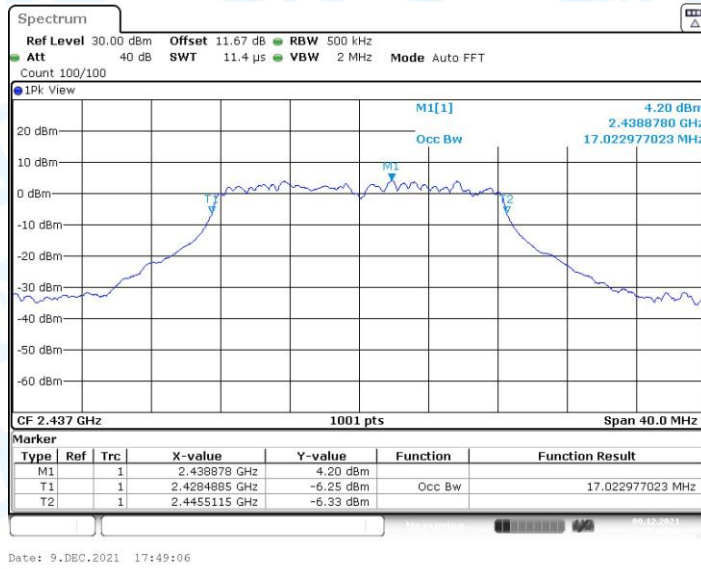
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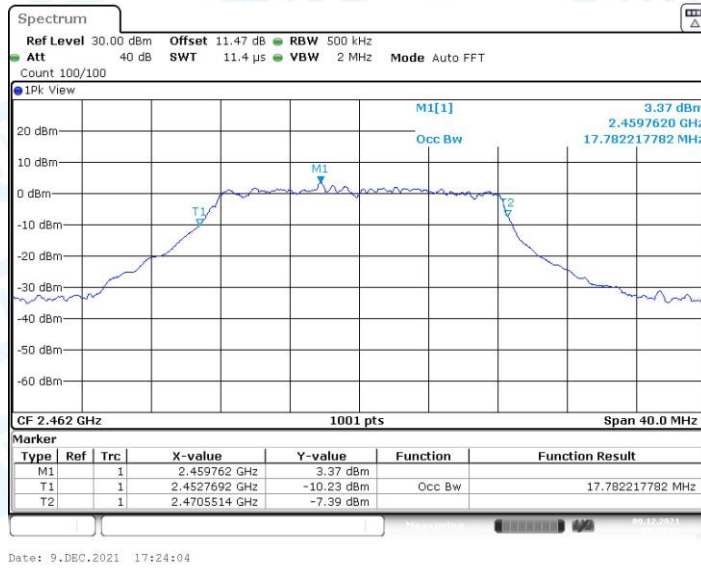
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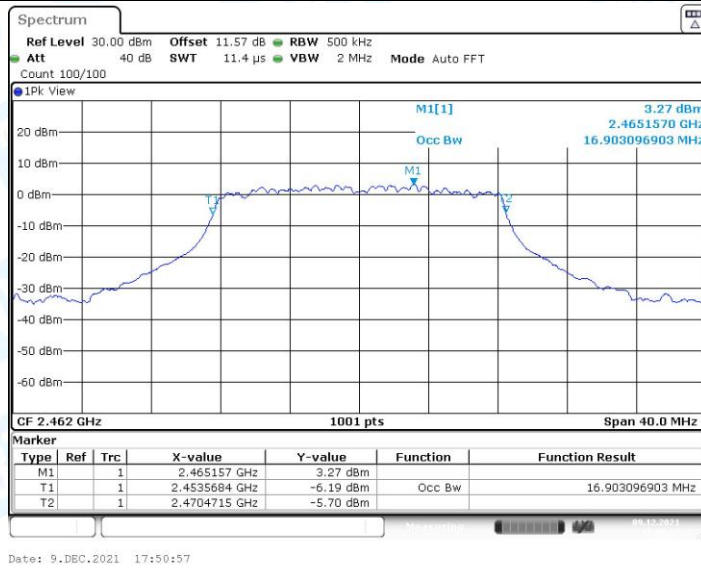
11G_Ant1_2437



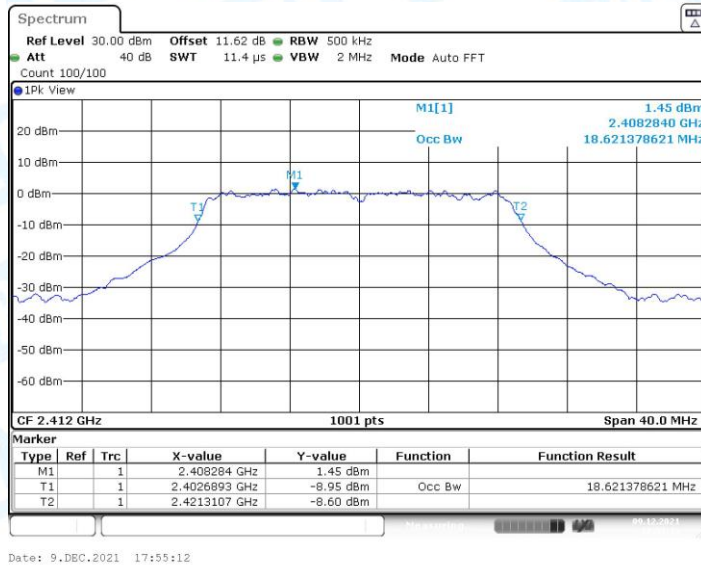
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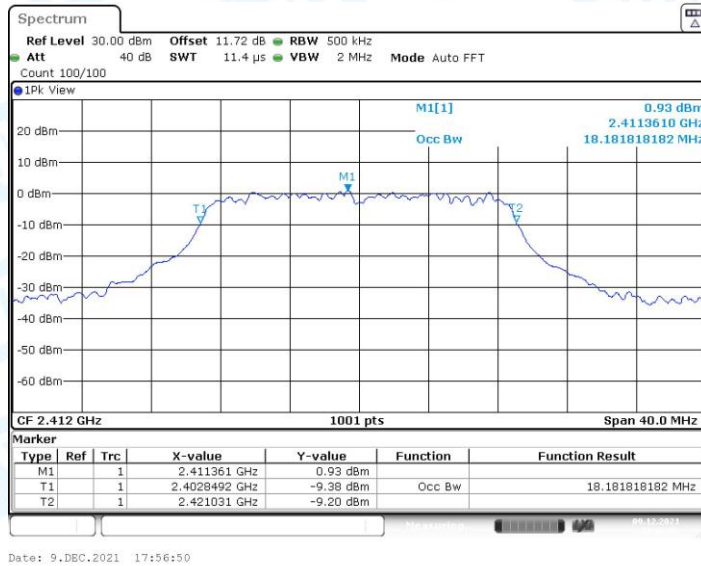
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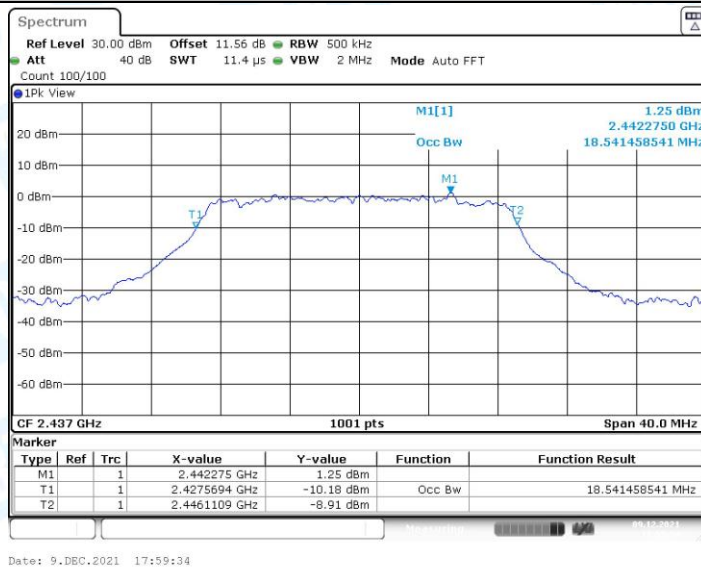
11G_Ant2_2462



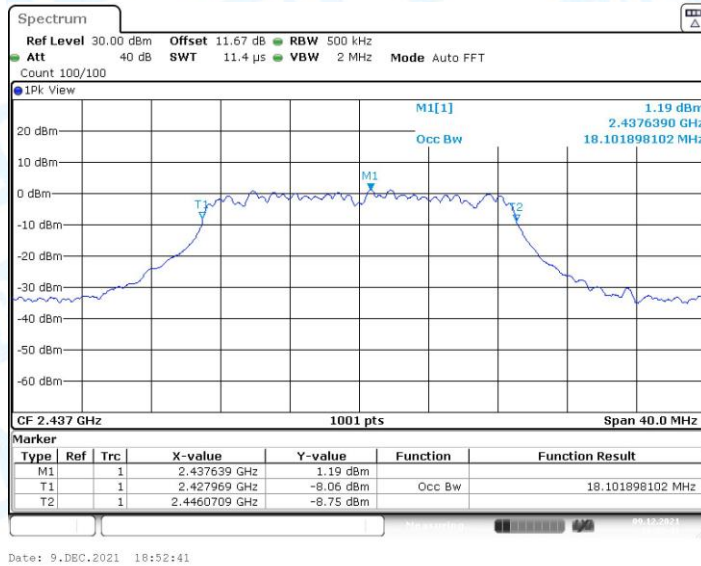
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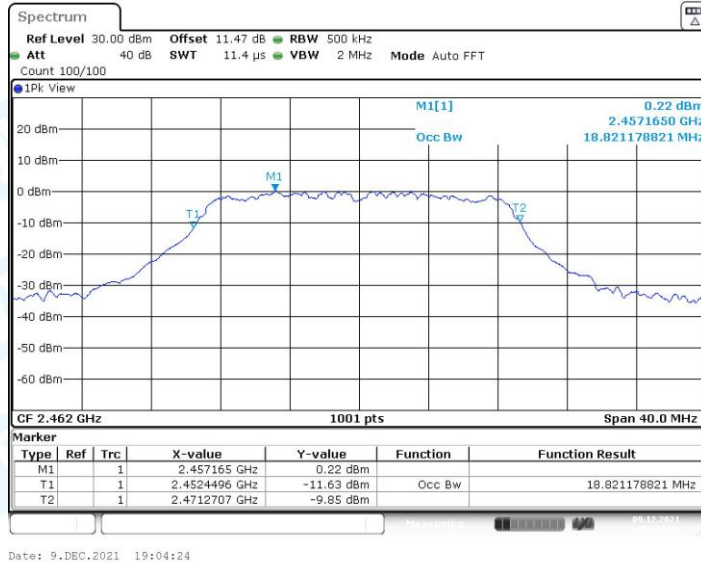
11N20MIMO_Ant2_2412



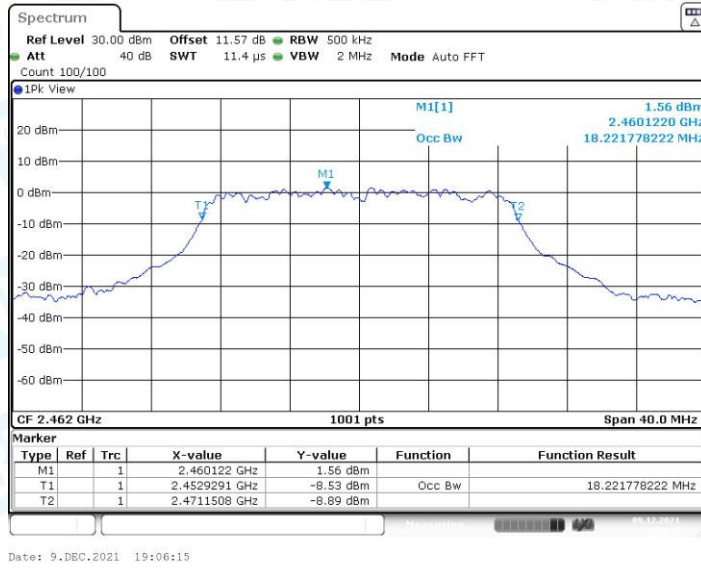
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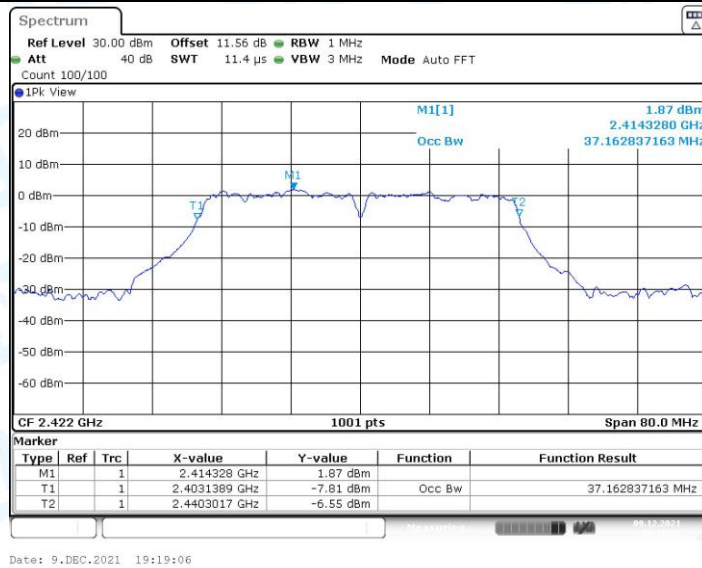
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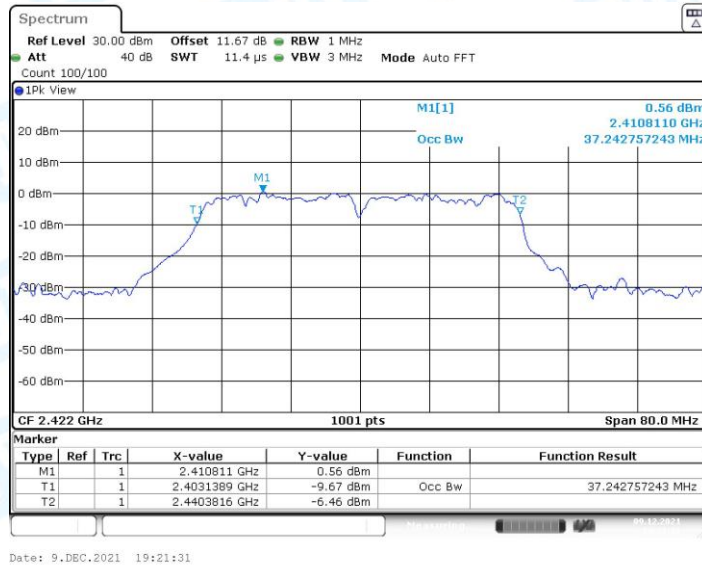
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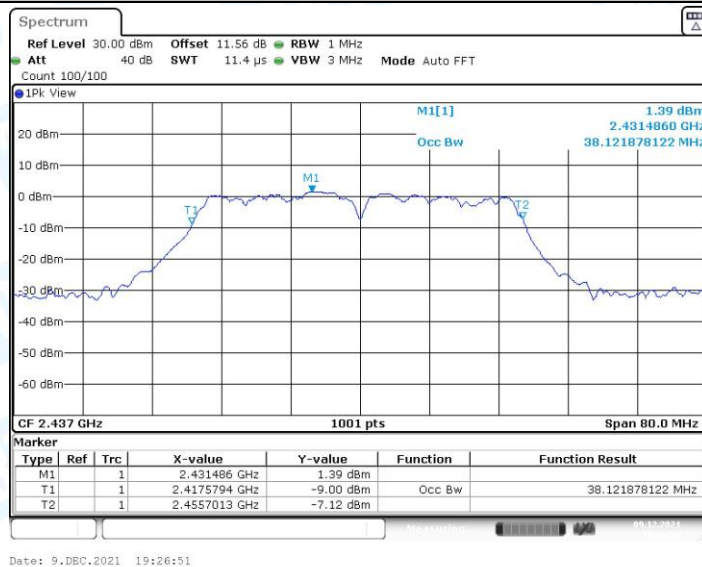
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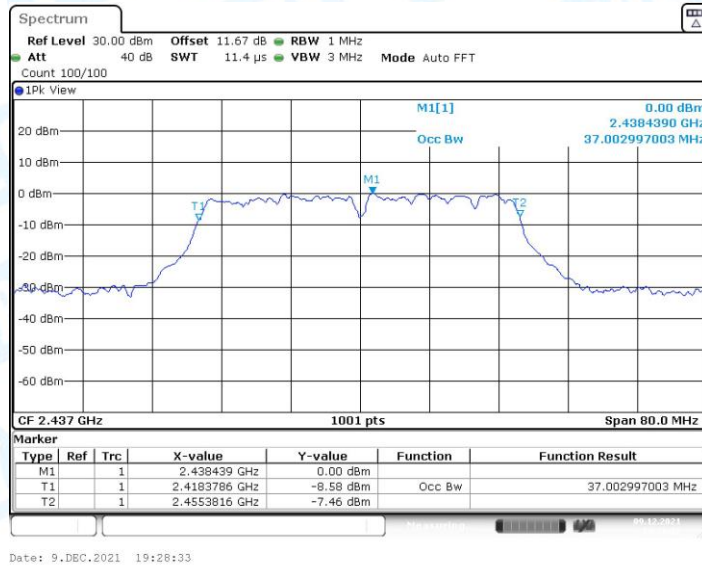
11N40MIMO_Ant1_2422



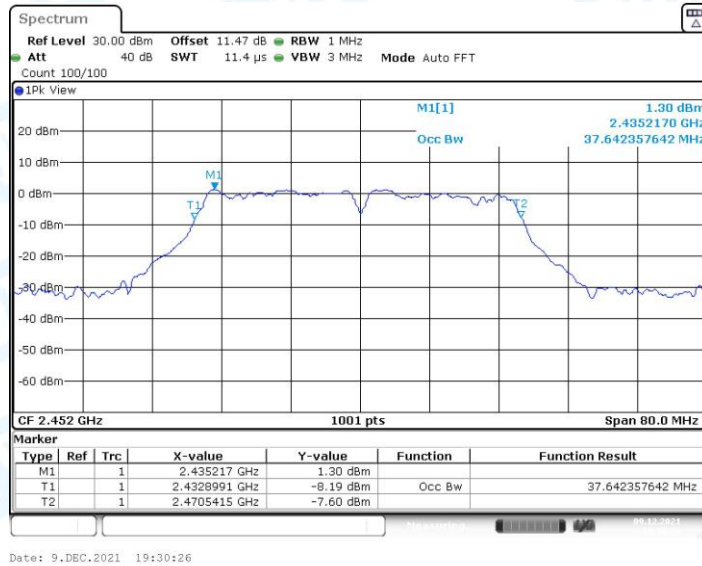
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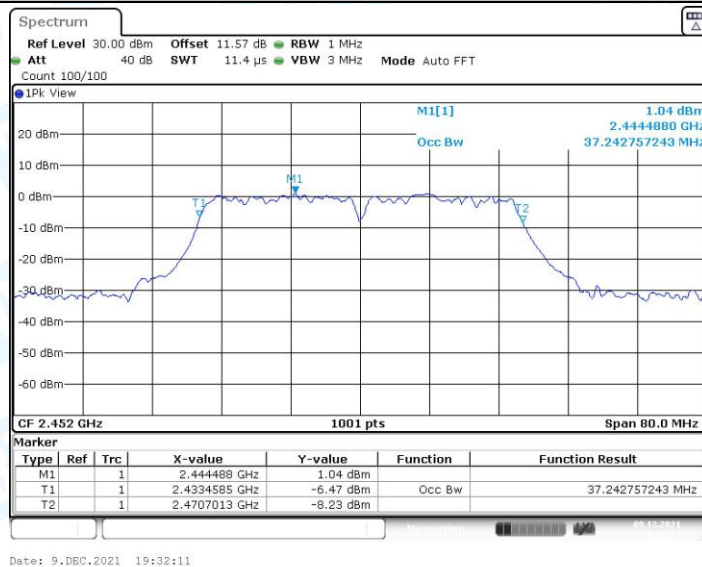
11N40MIMO_Ant1_2437



11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452

3. Maximum conducted output power

3.1. Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	16.71	≤30	PASS
	Ant2	2412	15.71	≤30	PASS
	Ant1	2437	16.07	≤30	PASS
	Ant2	2437	15.96	≤30	PASS
	Ant1	2462	16.33	≤30	PASS
	Ant2	2462	18.07	≤30	PASS
11G	Ant1	2412	17.81	≤30	PASS
	Ant2	2412	16.79	≤30	PASS
	Ant1	2437	16.71	≤30	PASS
	Ant2	2437	17.06	≤30	PASS
	Ant1	2462	16.41	≤30	PASS
	Ant2	2462	16.71	≤30	PASS
11N20MIMO	Ant1	2412	16.19	≤30	PASS
	Ant2	2412	14.92	≤30	PASS
	total	2412	18.6	≤28.81	PASS
	Ant1	2437	15.07	≤30	PASS
	Ant2	2437	14.51	≤30	PASS
	total	2437	17.8	≤28.81	PASS
	Ant1	2462	14.51	≤30	PASS
	Ant2	2462	15.03	≤30	PASS
	total	2462	17.8	≤28.81	PASS
11N40MIMO	Ant1	2422	15.60	≤30	PASS
	Ant2	2422	14.20	≤30	PASS
	total	2422	18.0	≤28.81	PASS
	Ant1	2437	15.02	≤30	PASS
	Ant2	2437	14.06	≤30	PASS
	total	2437	17.6	≤28.81	PASS
	Ant1	2452	15.03	≤30	PASS
	Ant2	2452	14.70	≤30	PASS
	total	2452	17.9	≤28.81	PASS

Note: The EUT incorporates a MIMO function. Physically, the EUT provides three antennas for transmitting and receiving.

When ANT. 1 and ANT. 2 transmitting simultaneously, so the

Directional Gain = $4.18 + 10 \log(N) \text{dBi} = 7.19 \text{dBi} > 6 \text{dBi}$.

So $P_{out} = P_{limit} - (G_{TX} - 6) = (30 - 1.19) \text{dBm} = 28.81 \text{dBm}$

4. Maximum power spectral density

4.1. Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-7.84	≤8	PASS
	Ant2	2412	-9.78	≤8	PASS
	Ant1	2437	-8.7	≤8	PASS
	Ant2	2437	-8.67	≤8	PASS
	Ant1	2462	-8.24	≤8	PASS
	Ant2	2462	-6.65	≤8	PASS
11G	Ant1	2412	-14.9	≤8	PASS
	Ant2	2412	-16.52	≤8	PASS
	Ant1	2437	-16.01	≤8	PASS
	Ant2	2437	-16.46	≤8	PASS
	Ant1	2462	-16.58	≤8	PASS
	Ant2	2462	-16.31	≤8	PASS
11N20MIMO	Ant1	2412	-17.31	≤8	PASS
	Ant2	2412	-18.99	≤8	PASS
	total	2412	-15.06	≤6.81	PASS
	Ant1	2437	-18.24	≤8	PASS
	Ant2	2437	-19.72	≤8	PASS
	total	2437	-15.91	≤6.81	PASS
	Ant1	2462	-18.72	≤8	PASS
	Ant2	2462	-19.1	≤8	PASS
	total	2462	-15.90	≤6.81	PASS
11N40MIMO	Ant1	2422	-20.47	≤8	PASS
	Ant2	2422	-22.37	≤8	PASS
	total	2422	-18.31	≤6.81	PASS
	Ant1	2437	-20.36	≤8	PASS
	Ant2	2437	-22.55	≤8	PASS
	total	2437	-18.31	≤6.81	PASS
	Ant1	2452	-20.75	≤8	PASS
	Ant2	2452	-21.77	≤8	PASS
	total	2452	-18.22	≤6.81	PASS

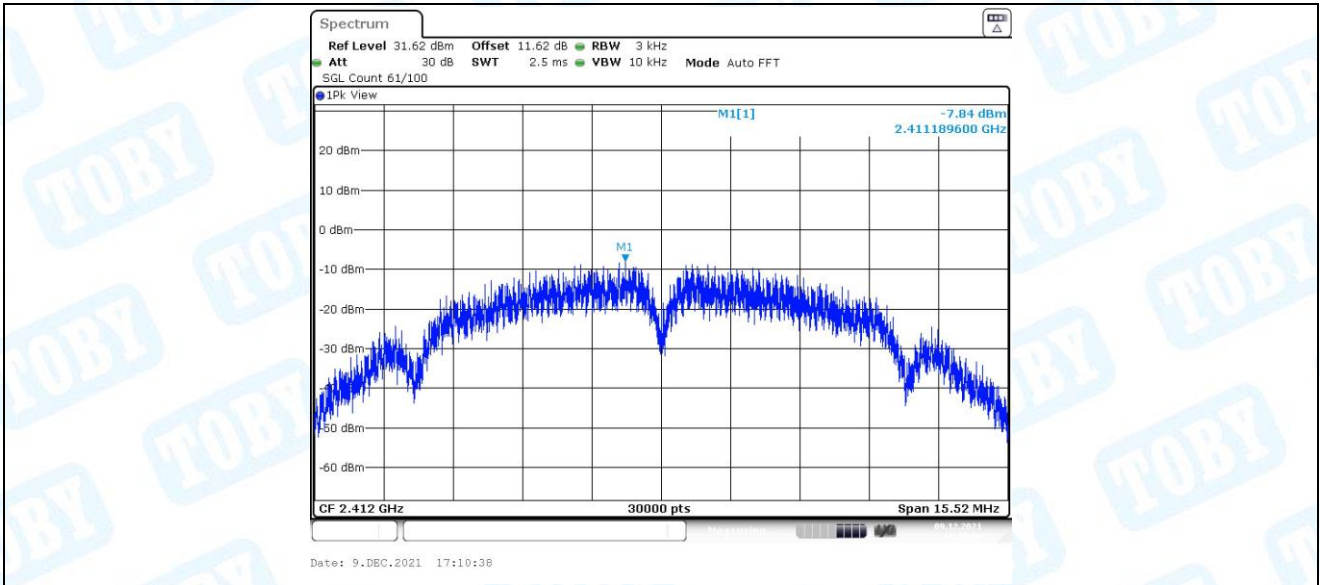
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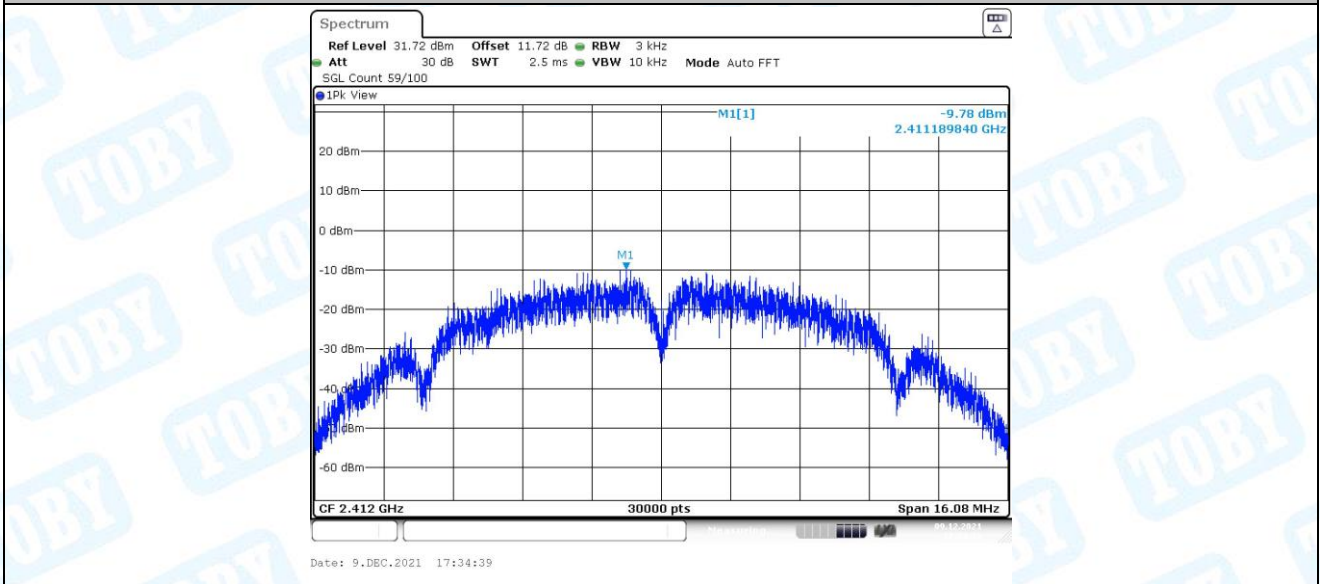
Directional Gain = $4.18 + 10 \log(N) \text{dBi} = 7.19 \text{dBi} > 6 \text{dBi}$.

So PSDout = $\text{PSDlimit} - (G_{\text{Tx}} - 6) = (8 - 1.19) \text{dBm/3KHz} = 6.81 \text{dBm/3KHz}$

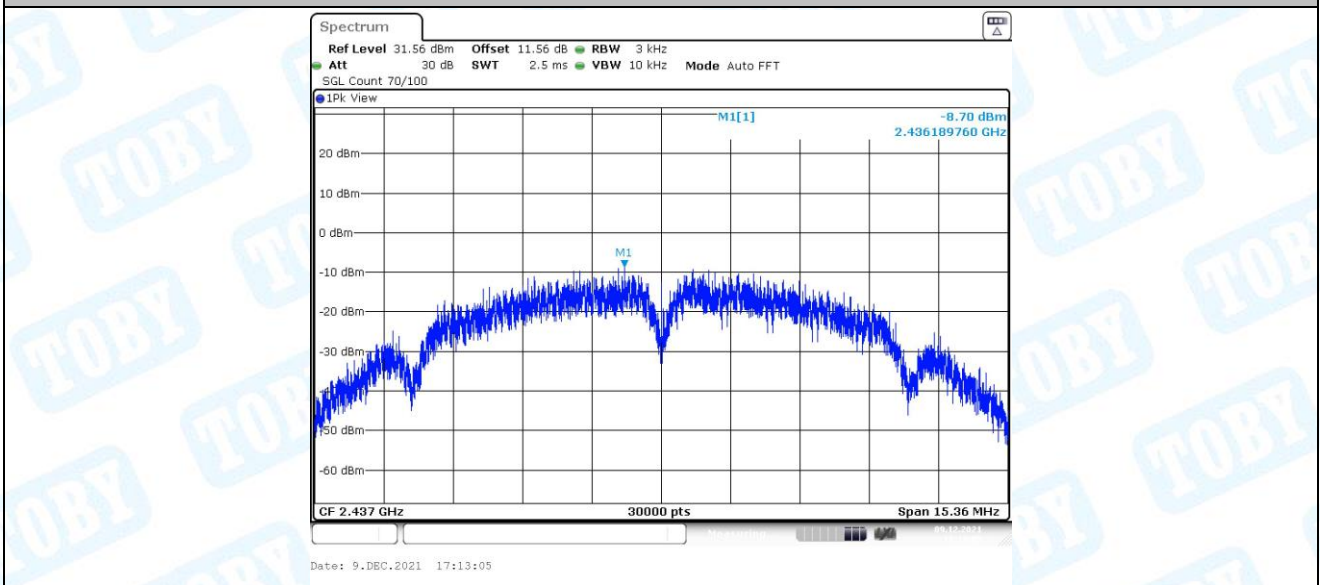
4.2. Test Graphs



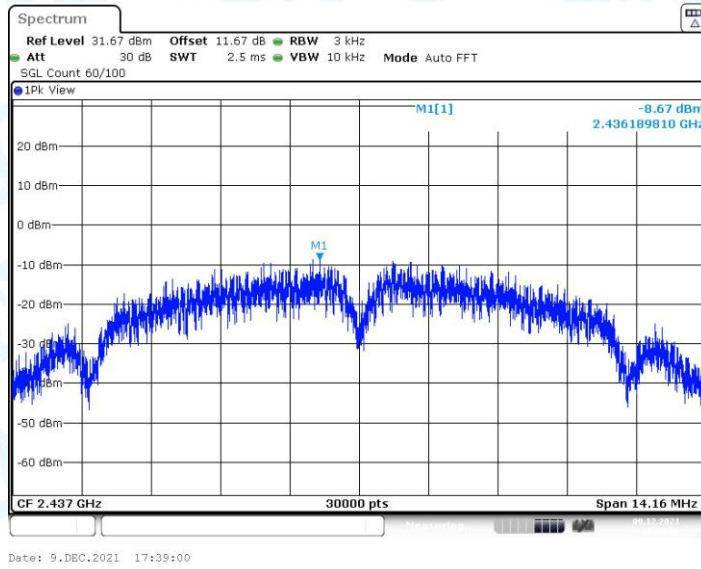
11B_Ant1_2412



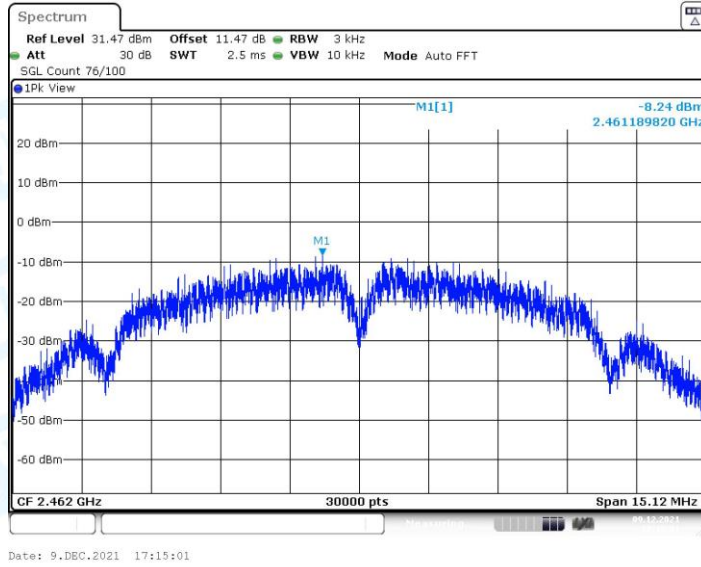
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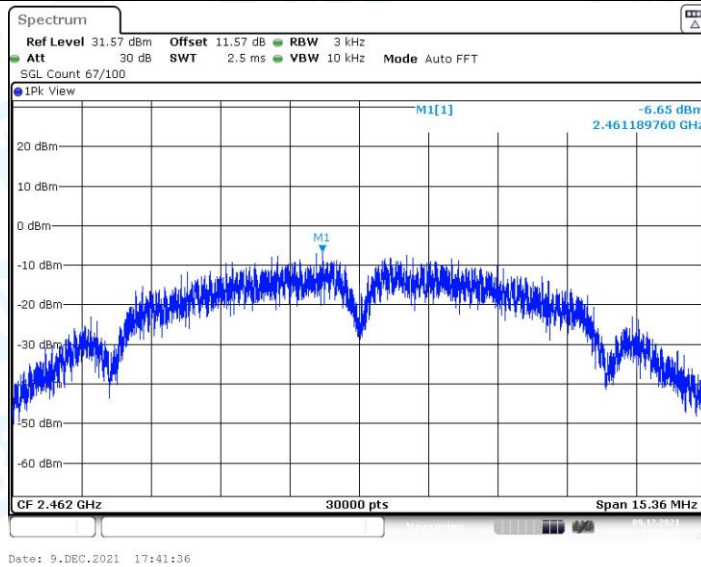
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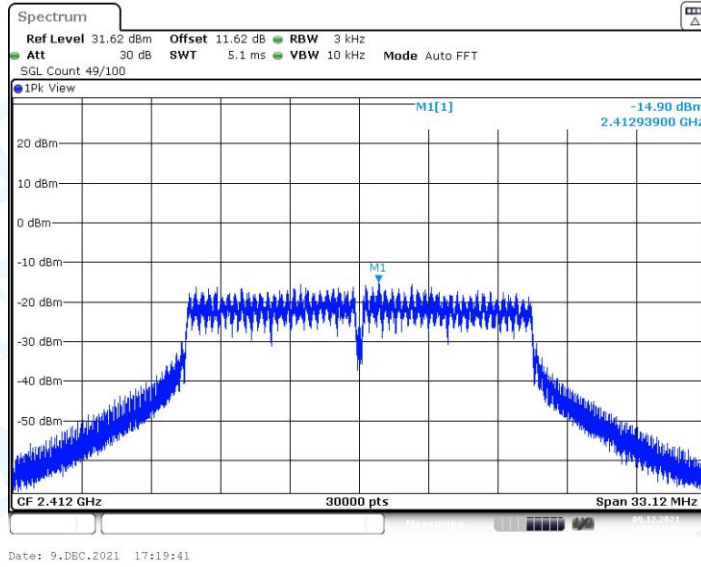
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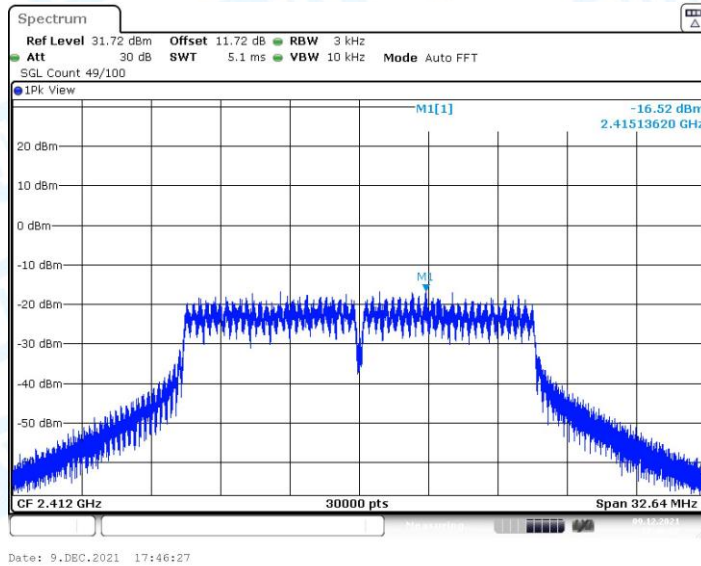
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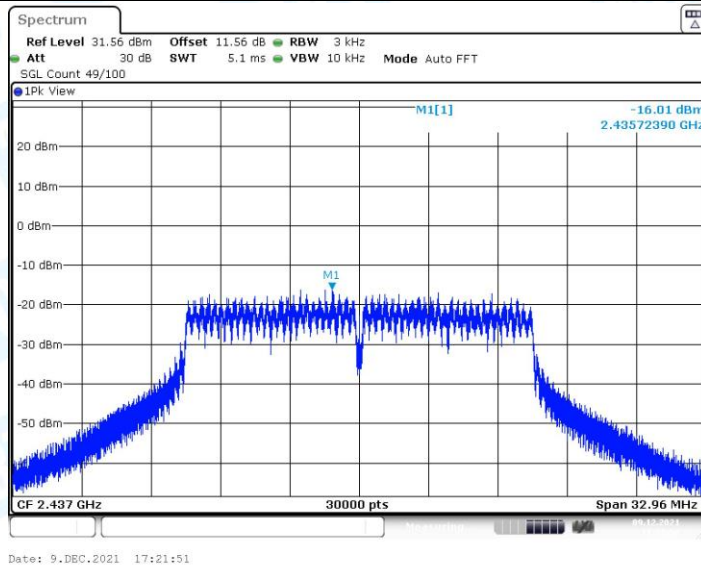
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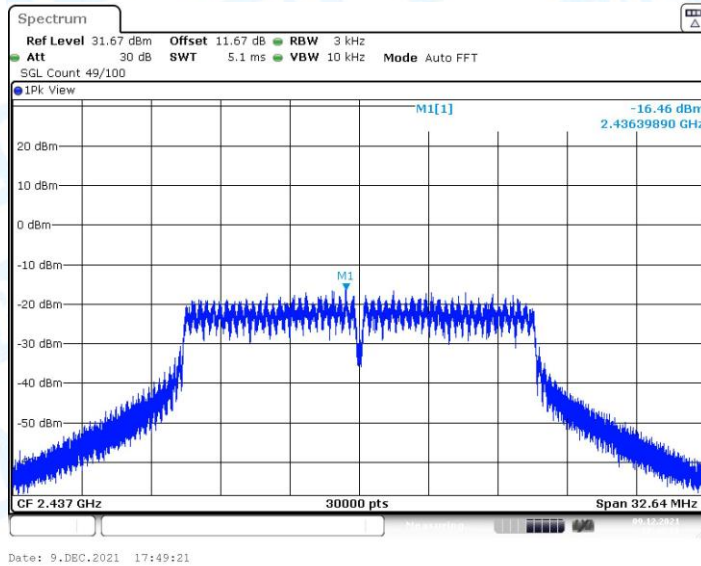
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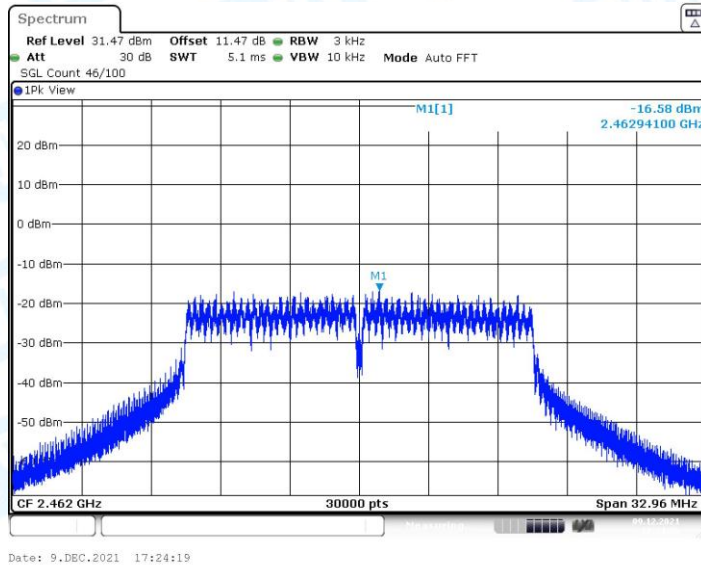
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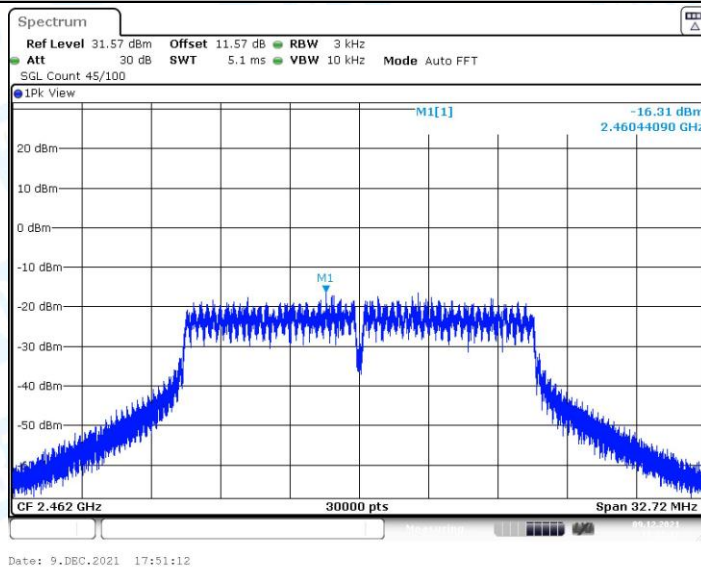
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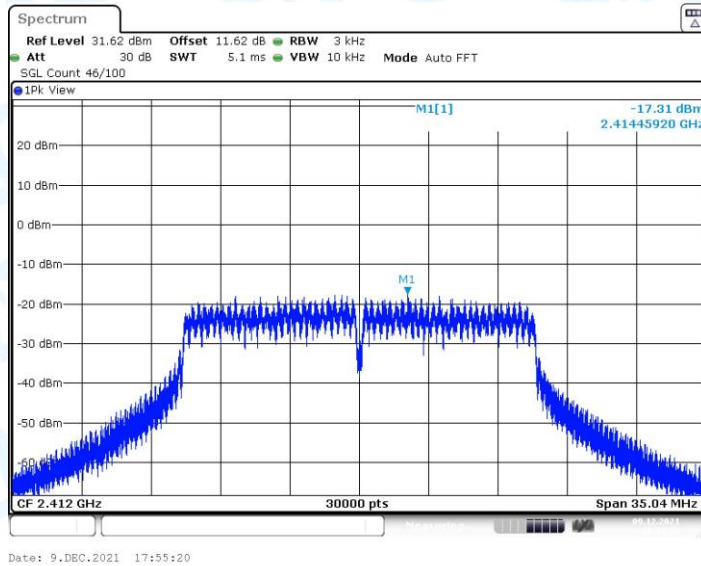
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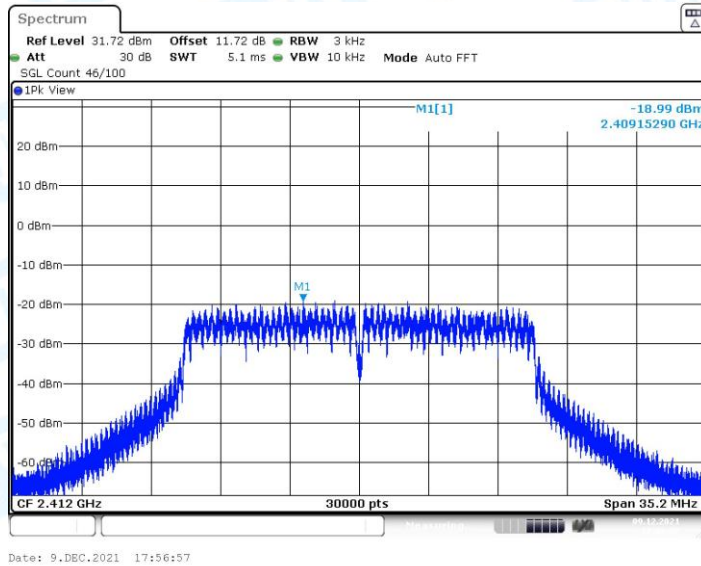
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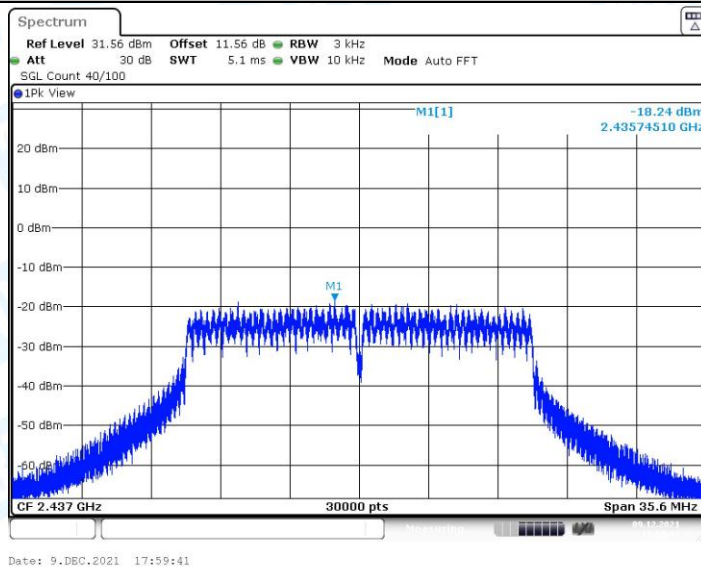
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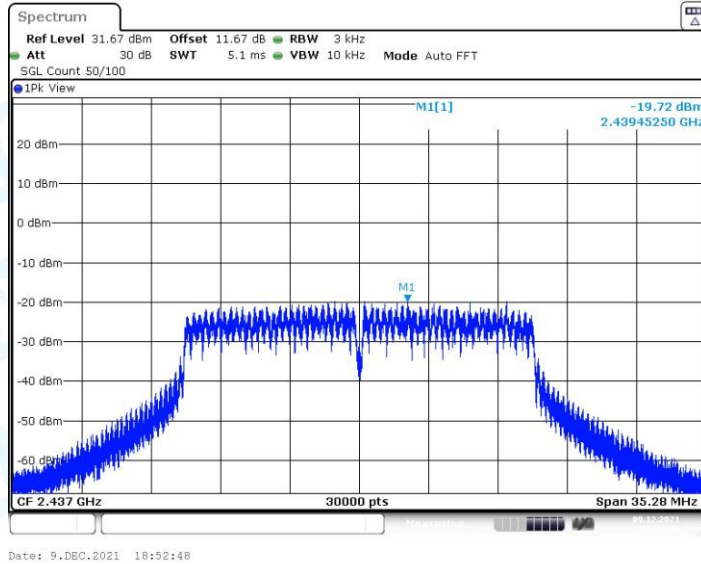
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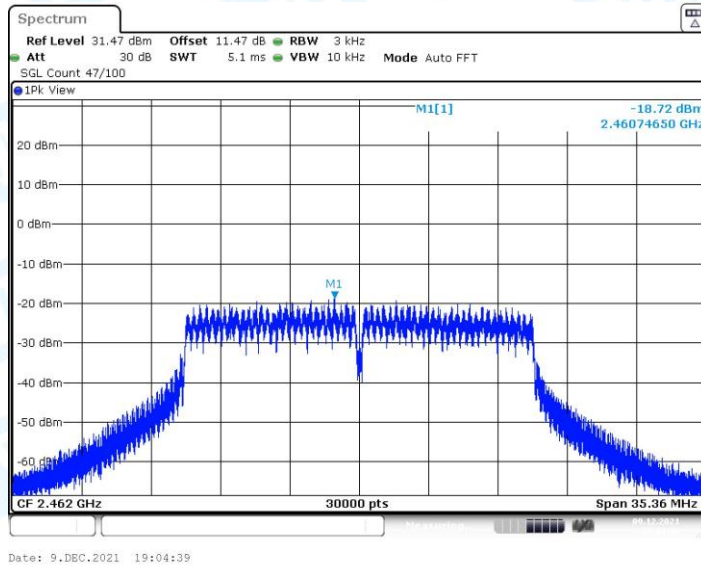
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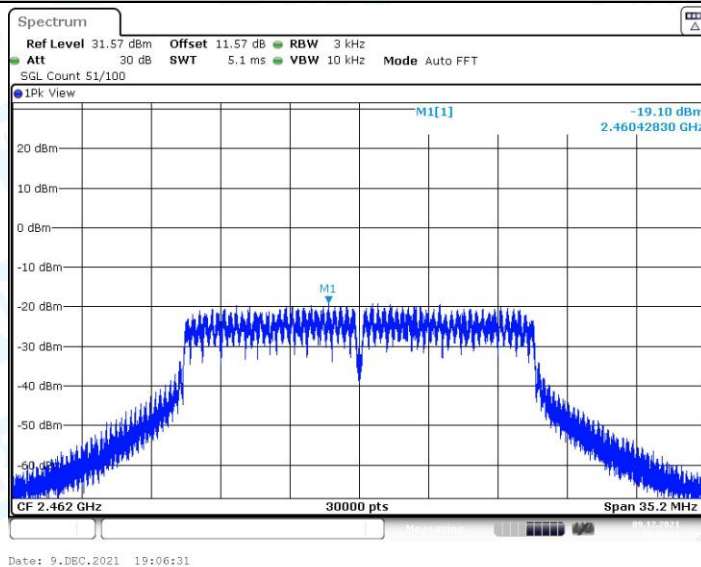
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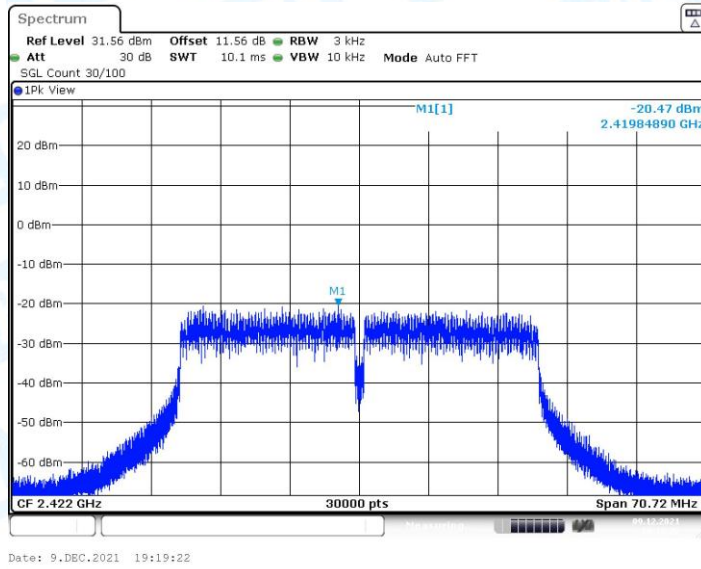
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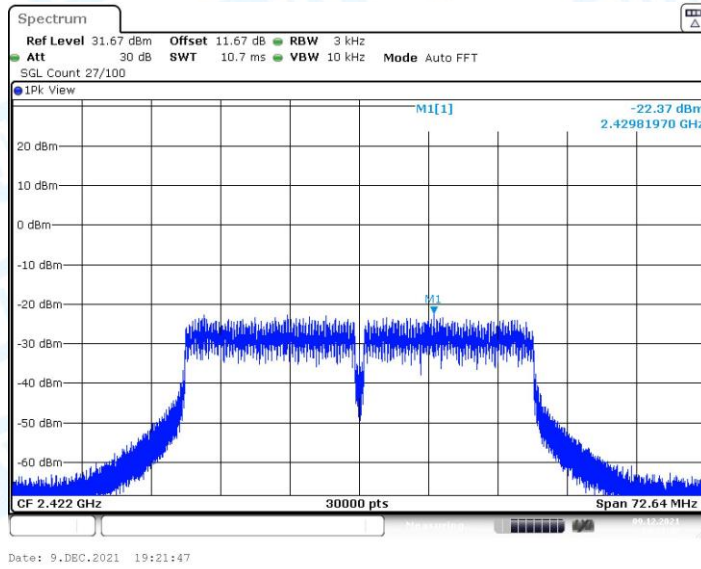
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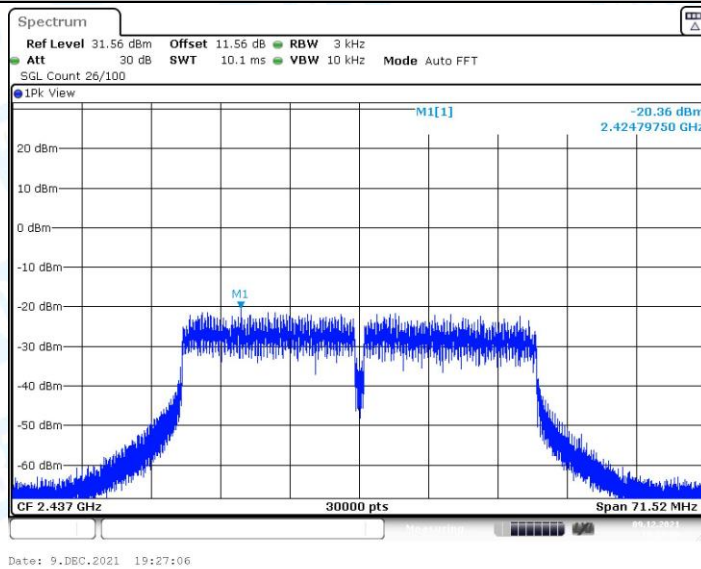
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11N40MIMO_Ant1_2422



11N40MIMO_Ant2_2422



11N40MIMO_Ant1_2437