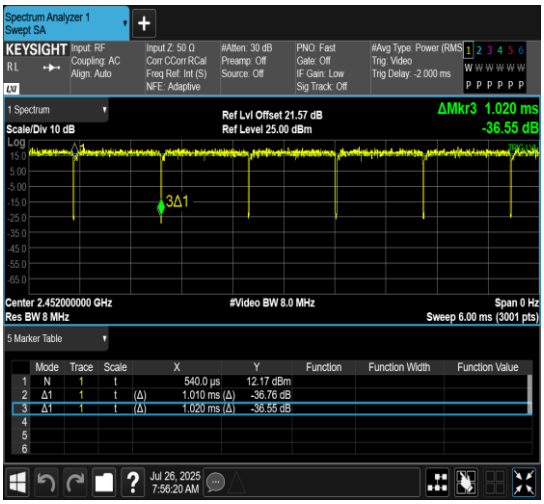

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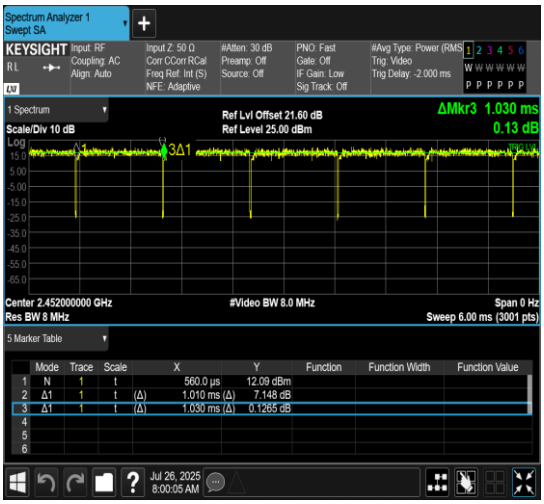

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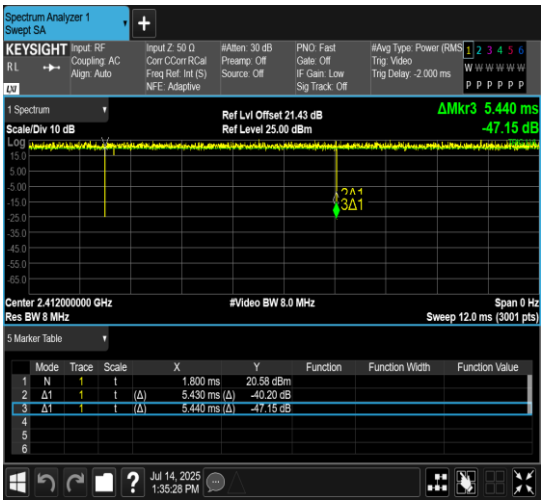

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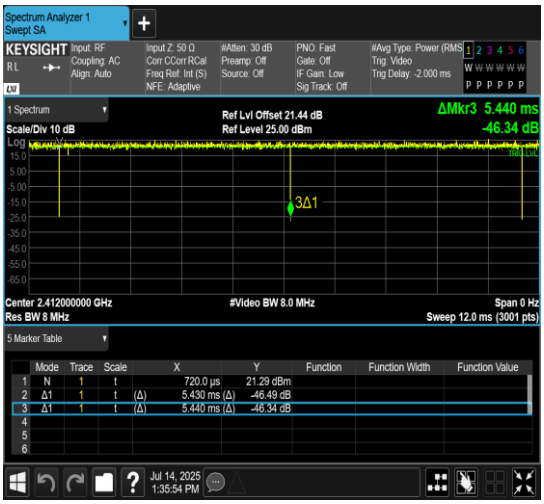

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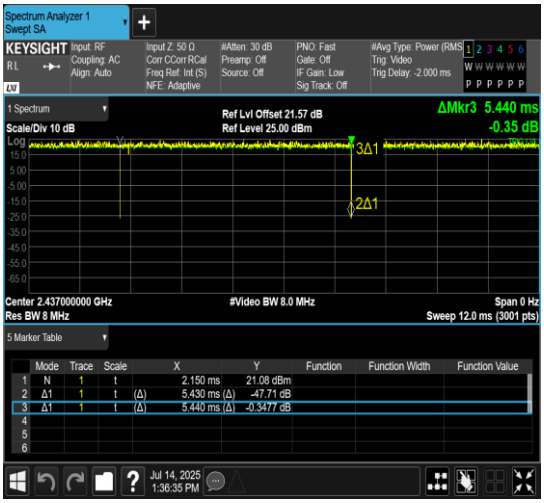

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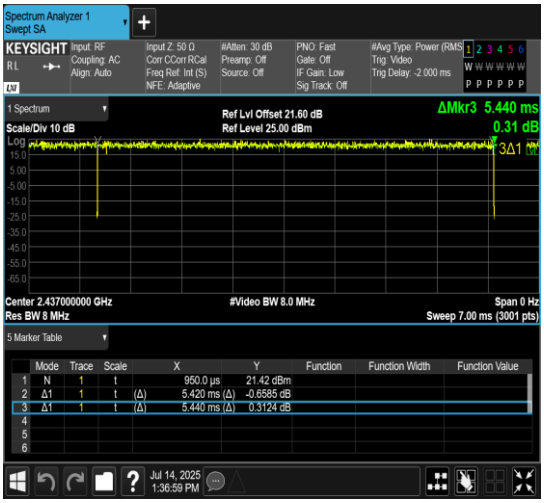

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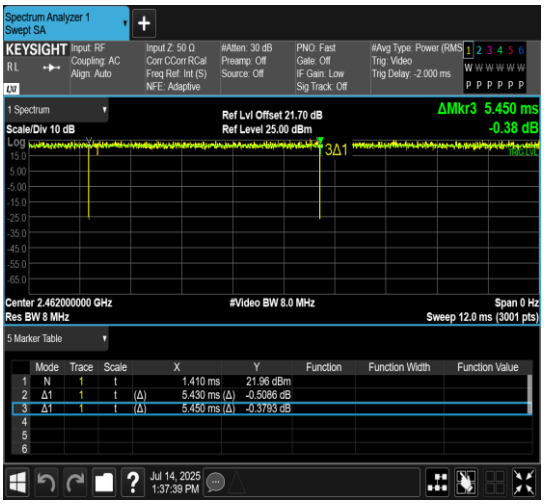

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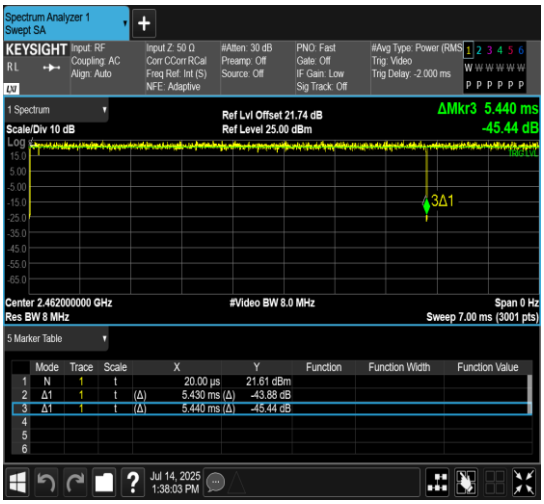

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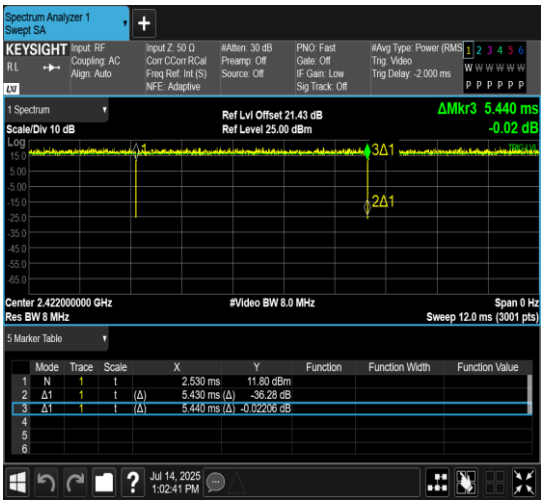

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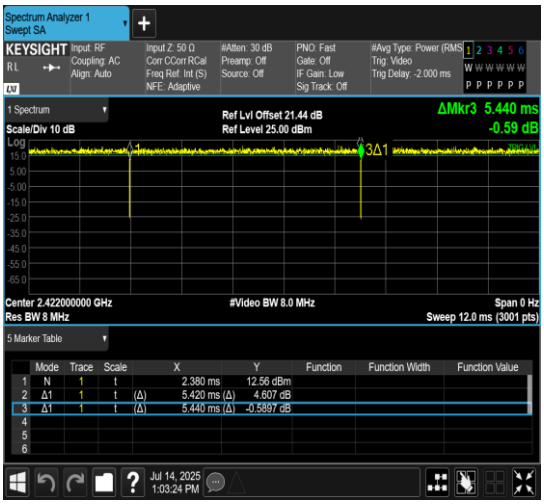

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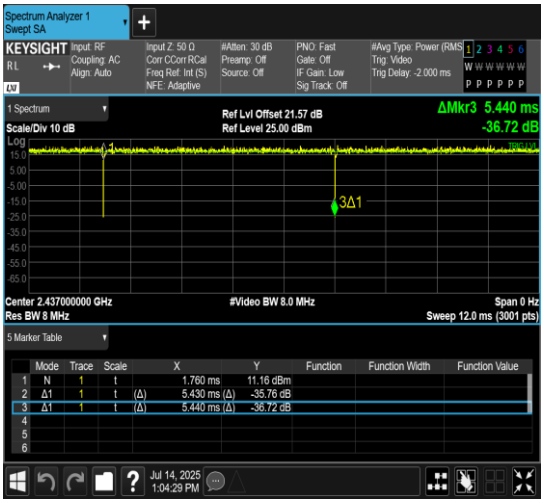

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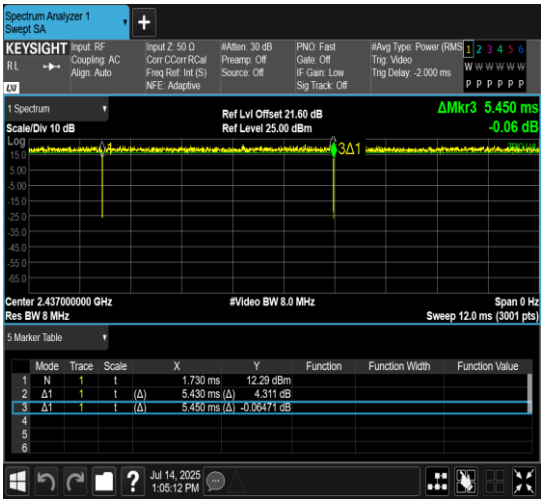

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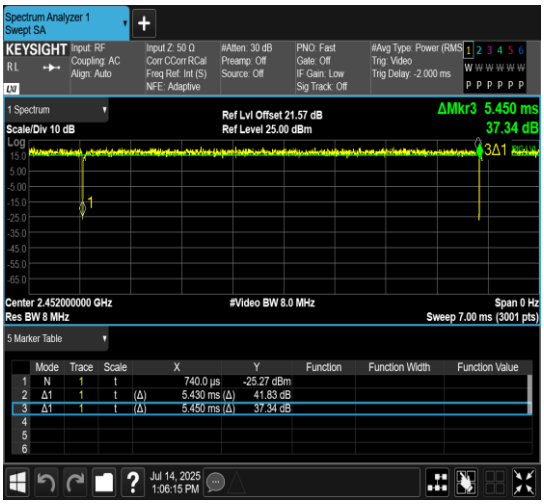

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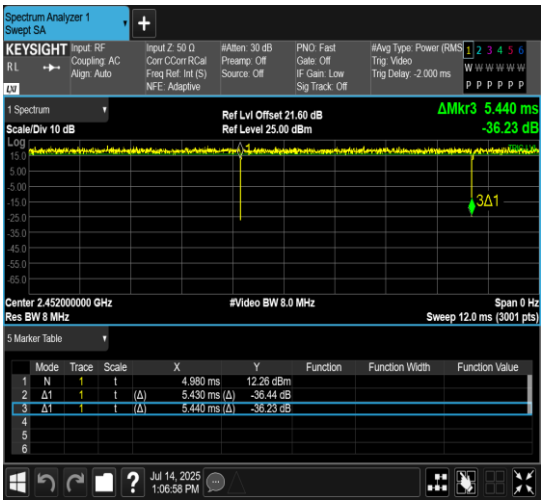

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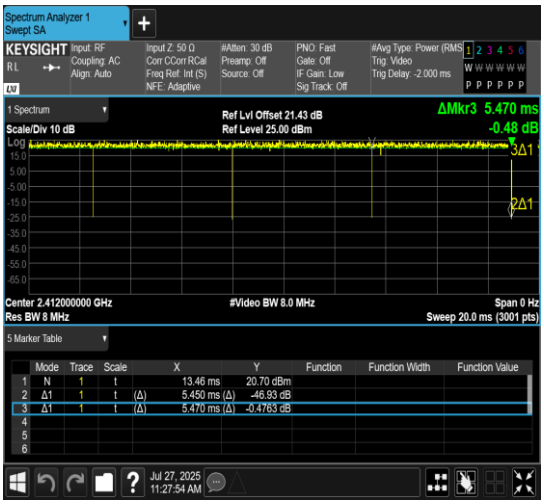

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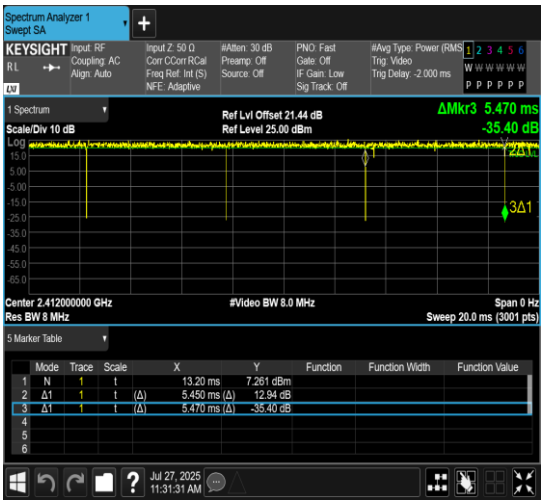

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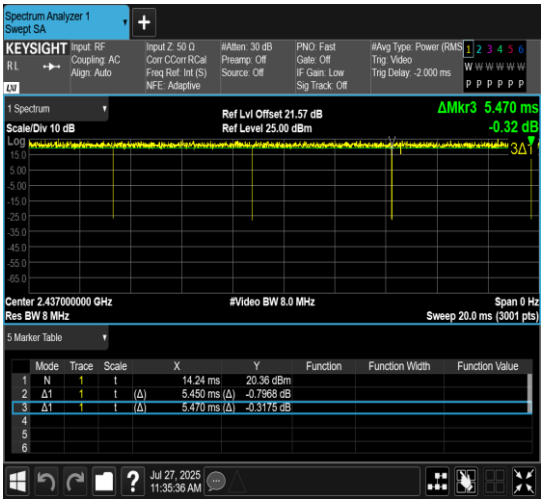

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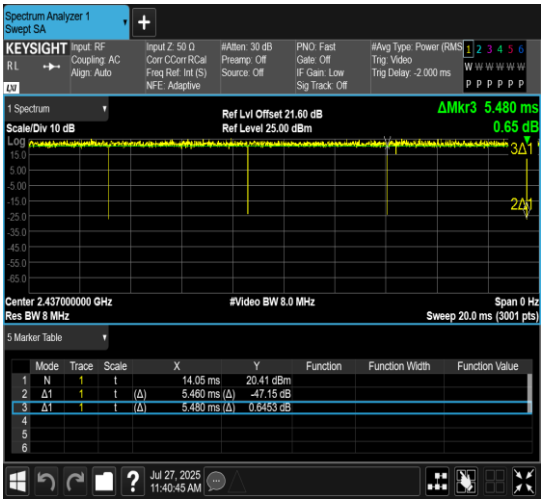

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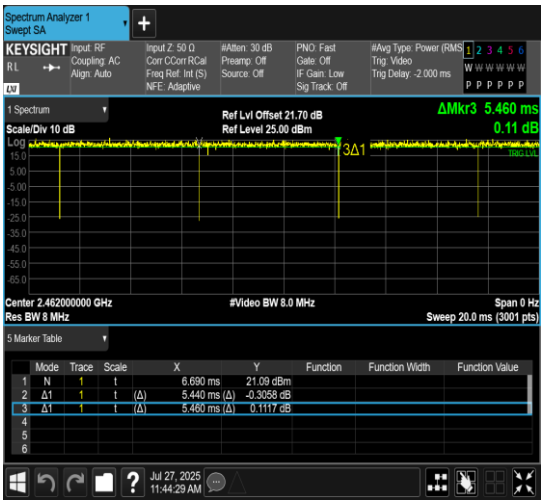

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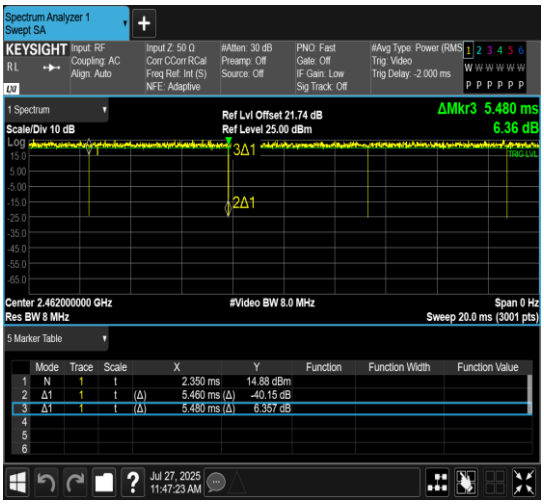

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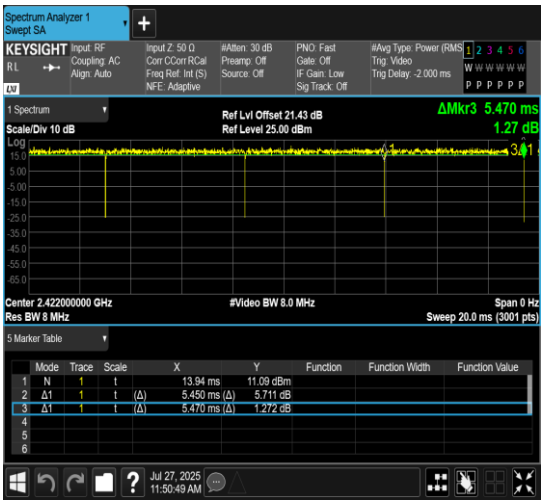

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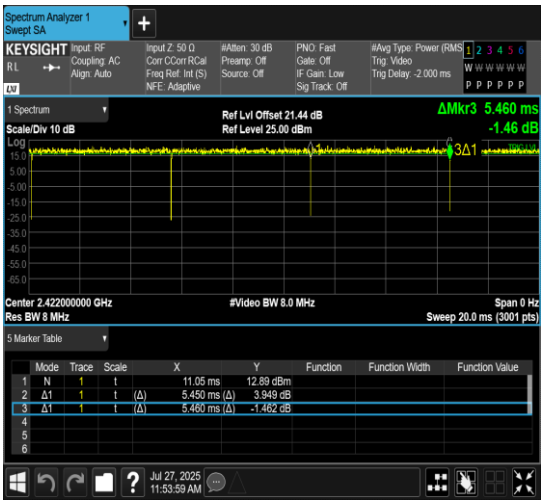

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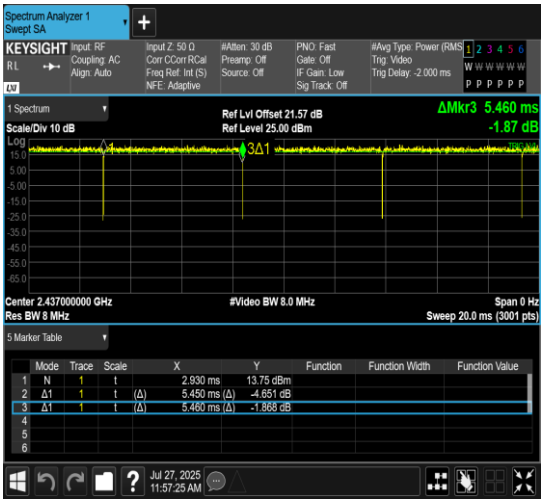

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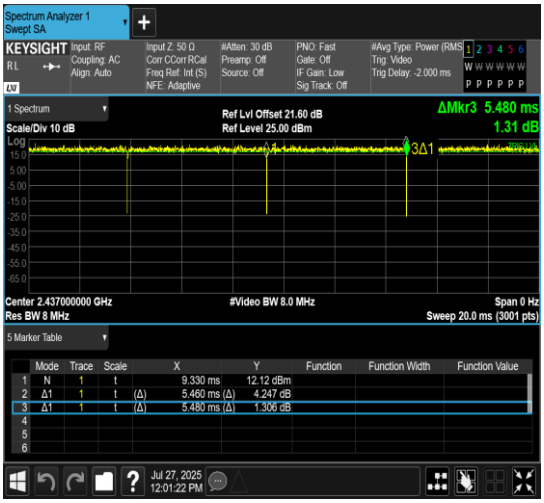

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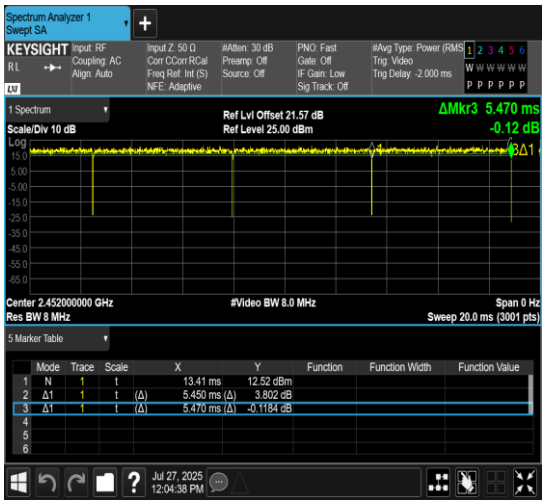
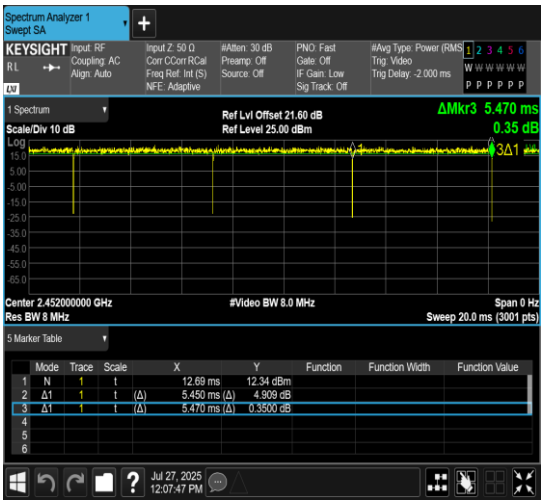

Spectrum Analyzer 1
Swept SA
KEYSIGHT
1 Spectrum
Ref Lvl Offset 21.57 dB
Ref Level 25.00 dBm
ΔMkr3 5.470 ms
-0.12 dB
Scale/Div 10 dB
Center 2.452000000 GHz
#Video BW 8.0 MHz
Span 0 Hz
Res BW 8 MHz
Sweep 20.0 ms (3001 pts)
5 Marker Table
Mode Trace Scale X Y Function Function Width Function Value
1 N 1 t 13.41 ms 12.52 dBm
2 Δ1 1 t (Δ) 5.450 ms (Δ) 3.802 dB
3 Δ1 1 t (Δ) 5.470 ms (Δ) -0.1184 dB
Jul 27, 2025
12:04:38 PM


Spectrum Analyzer 1
Swept SA
KEYSIGHT
1 Spectrum
Ref Lvl Offset 21.60 dB
Ref Level 25.00 dBm
ΔMkr3 5.470 ms
0.35 dB
Scale/Div 10 dB
Center 2.452000000 GHz
#Video BW 8.0 MHz
Span 0 Hz
Res BW 8 MHz
Sweep 20.0 ms (3001 pts)
5 Marker Table
Mode Trace Scale X Y Function Function Width Function Value
1 N 1 t 12.69 ms 12.34 dBm
2 Δ1 1 t (Δ) 5.450 ms (Δ) 4.909 dB
3 Δ1 1 t (Δ) 5.470 ms (Δ) 0.3500 dB
Jul 27, 2025
12:07:47 PM

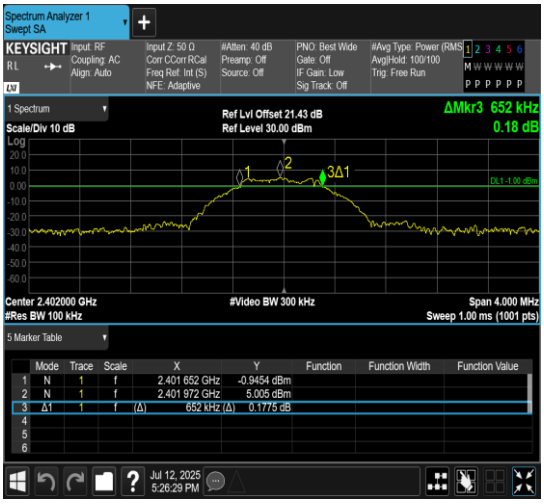
7 APPENDIX B:BLE

DTS BANDWIDTH

TEST RESULT

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant10	2402	0.652	2401.652	2402.304	0.5	PASS
BLE_1M	Ant7	2402	0.700	2401.632	2402.332	0.5	PASS
BLE_1M	Ant10	2440	0.704	2439.624	2440.328	0.5	PASS
BLE_1M	Ant7	2440	0.648	2439.652	2440.300	0.5	PASS
BLE_1M	Ant10	2480	0.672	2479.640	2480.312	0.5	PASS
BLE_1M	Ant7	2480	0.660	2479.644	2480.304	0.5	PASS
BLE_2M	Ant10	2404	1.132	2403.432	2404.564	0.5	PASS
BLE_2M	Ant7	2404	1.148	2403.396	2404.544	0.5	PASS
BLE_2M	Ant10	2440	1.136	2439.416	2440.552	0.5	PASS
BLE_2M	Ant7	2440	1.112	2439.440	2440.552	0.5	PASS
BLE_2M	Ant10	2478	1.128	2477.420	2478.548	0.5	PASS
BLE_2M	Ant7	2478	1.108	2477.412	2478.520	0.5	PASS
BLE_125K	Ant10	2402	0.636	2401.660	2402.296	0.5	PASS
BLE_125K	Ant7	2402	0.640	2401.656	2402.296	0.5	PASS
BLE_125K	Ant10	2440	0.688	2439.632	2440.320	0.5	PASS
BLE_125K	Ant7	2440	0.676	2439.640	2440.316	0.5	PASS
BLE_125K	Ant10	2480	0.688	2479.632	2480.320	0.5	PASS
BLE_125K	Ant7	2480	0.684	2479.640	2480.324	0.5	PASS
BLE_500K	Ant10	2402	0.684	2401.632	2402.316	0.5	PASS
BLE_500K	Ant7	2402	0.648	2401.660	2402.308	0.5	PASS
BLE_500K	Ant10	2440	0.660	2439.664	2440.324	0.5	PASS
BLE_500K	Ant7	2440	0.660	2439.652	2440.312	0.5	PASS
BLE_500K	Ant10	2480	0.664	2479.652	2480.316	0.5	PASS
BLE_500K	Ant7	2480	0.688	2479.636	2480.324	0.5	PASS

TEST GRAPHS

BLE_1M-Ant10-2402-PASS


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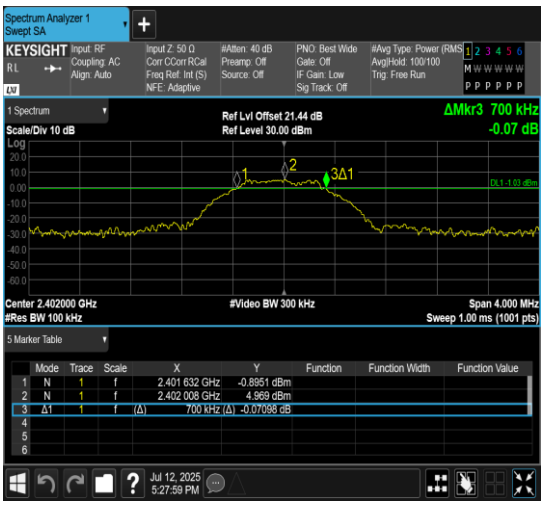

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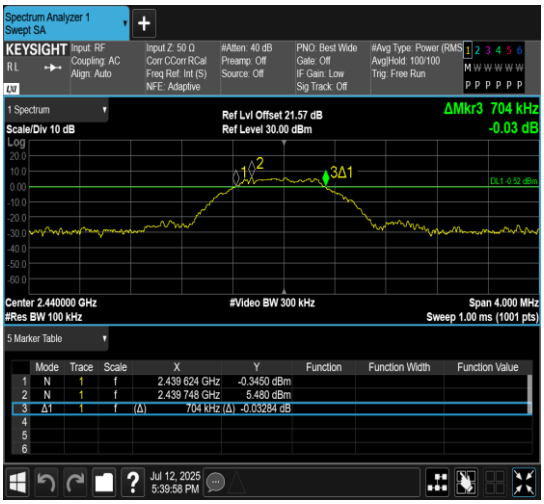

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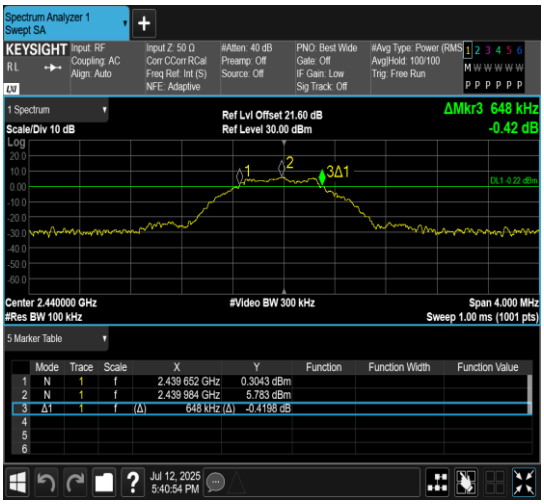

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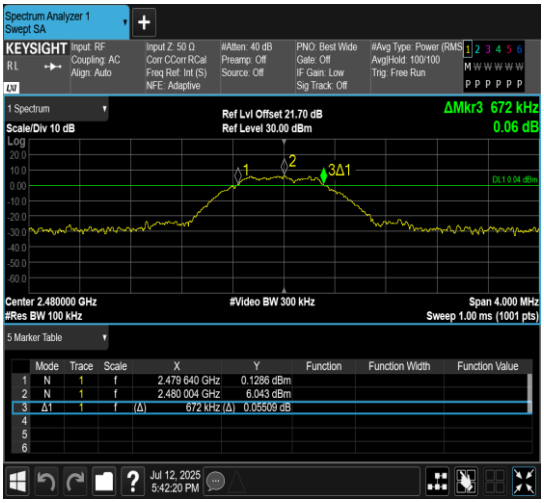

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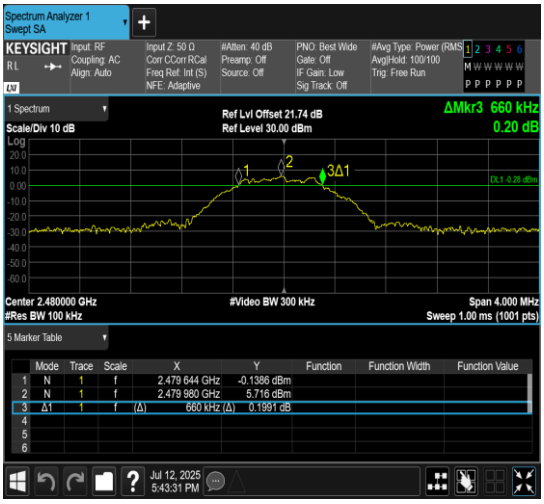

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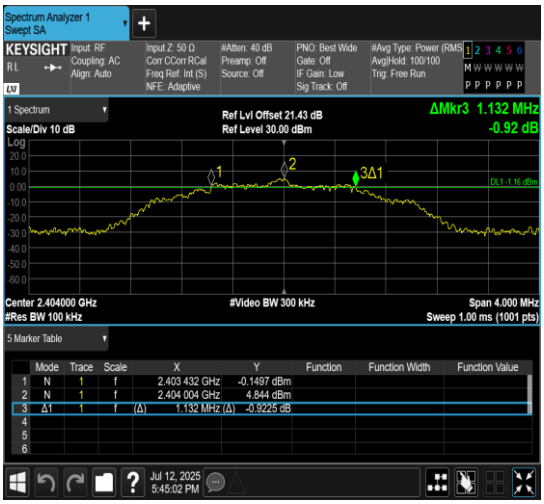

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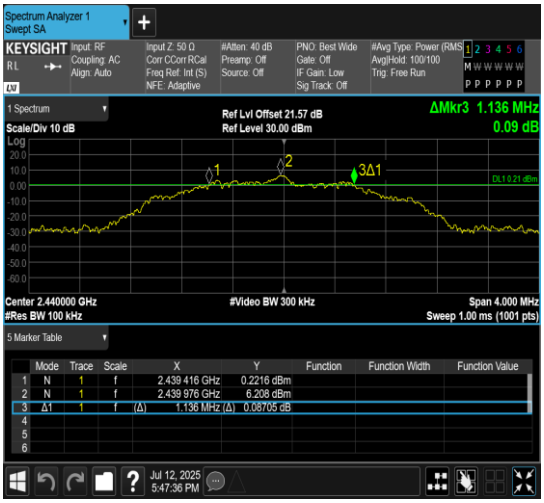

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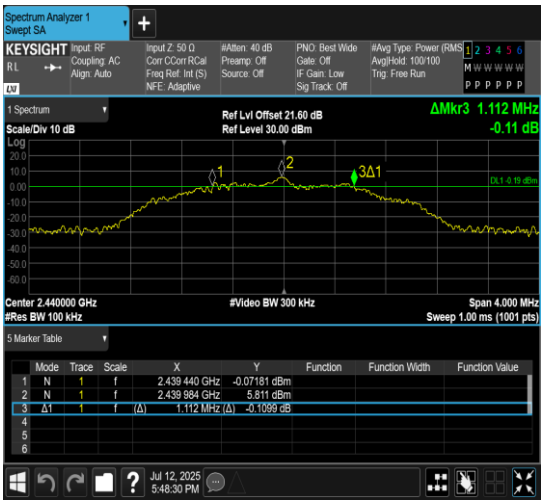

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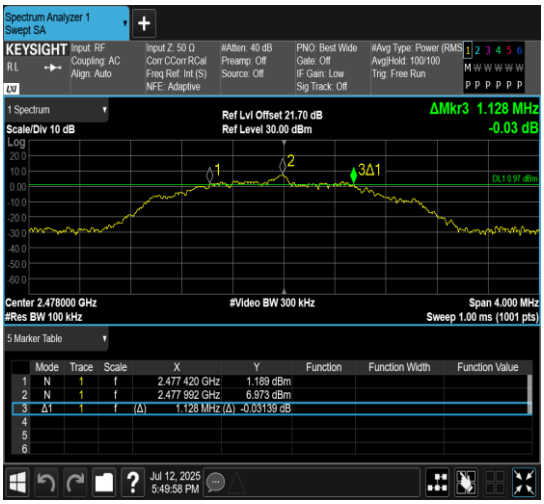

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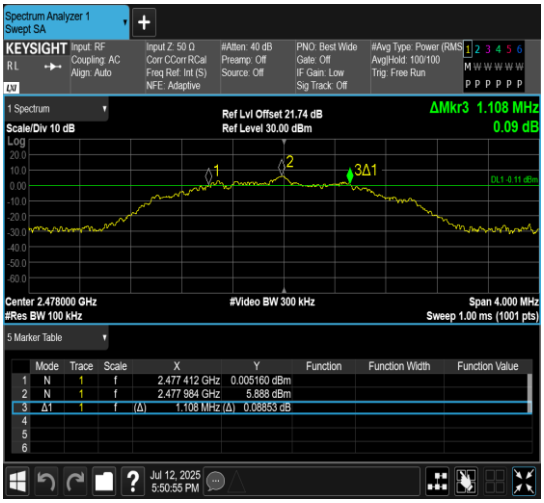

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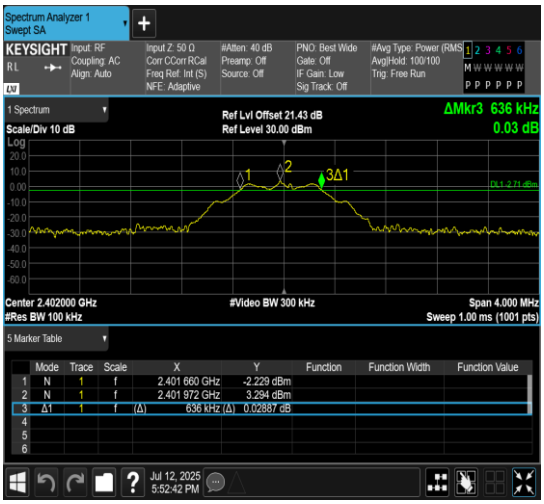

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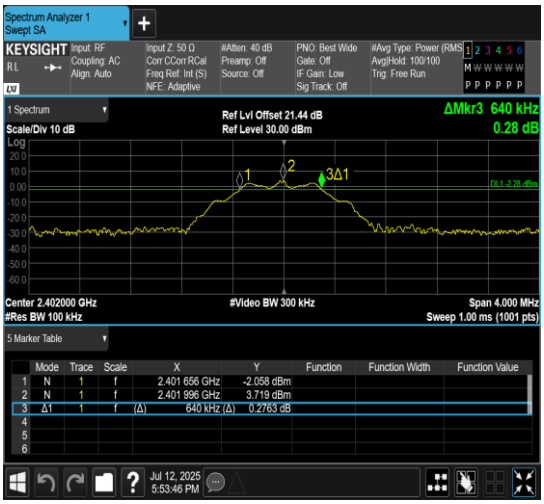

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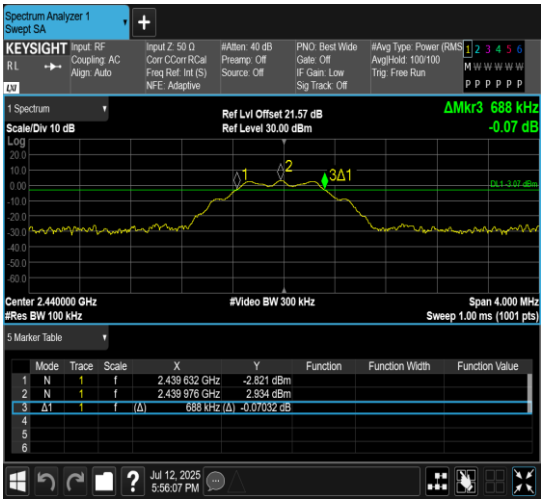

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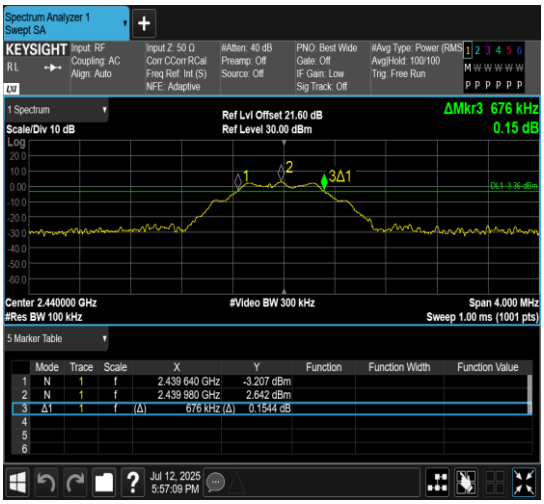

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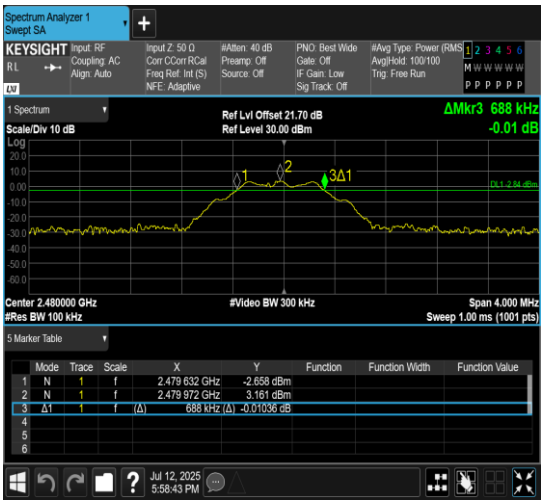

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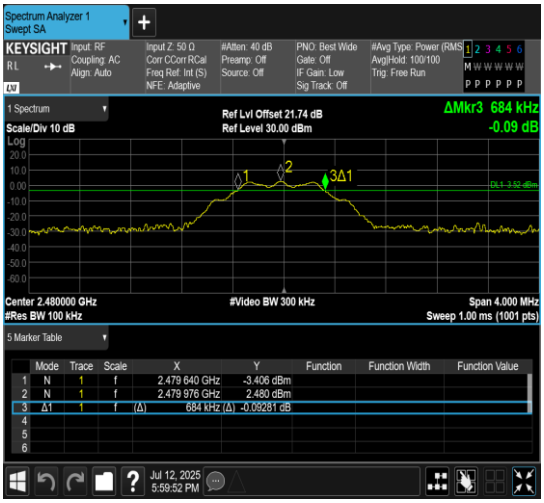

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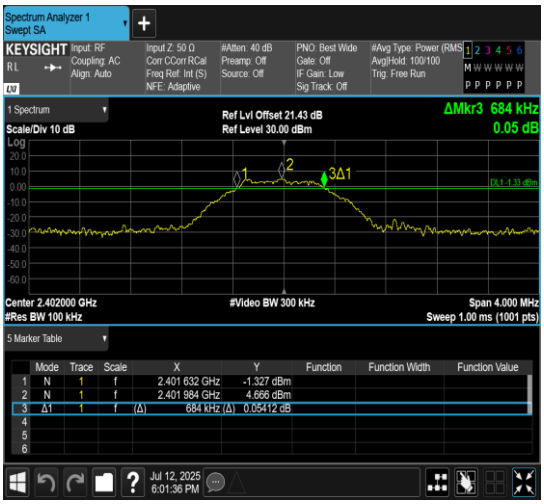
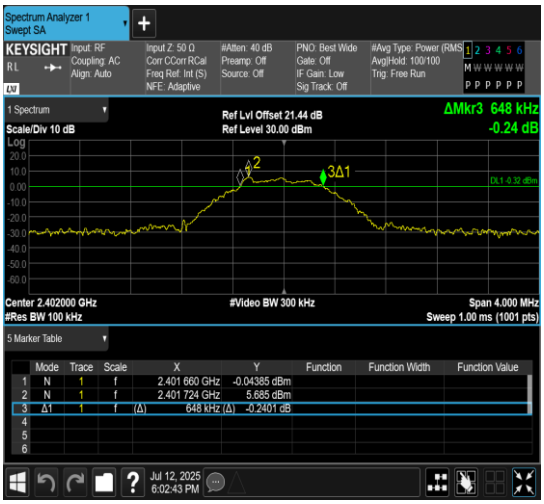
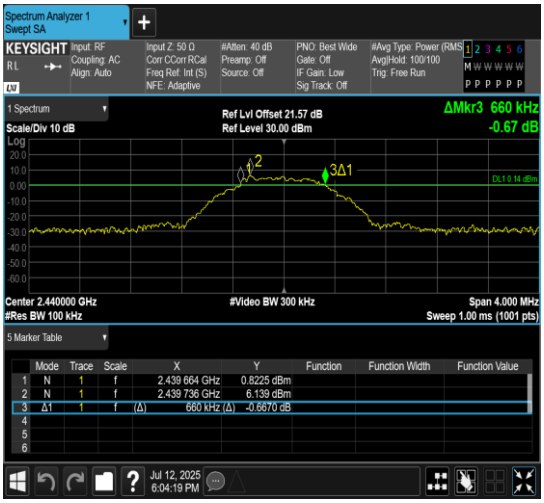


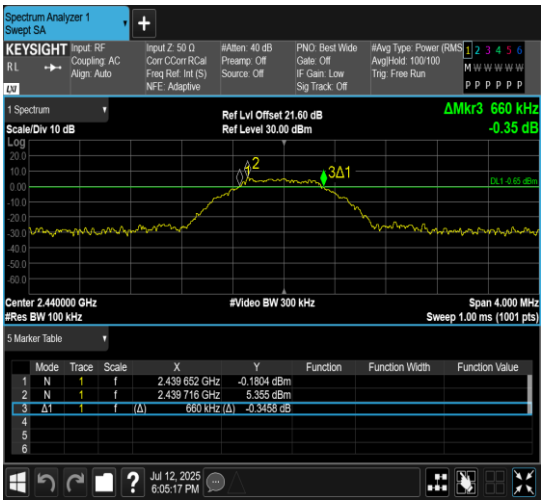
BLE_500K-Ant7-2402-PASS



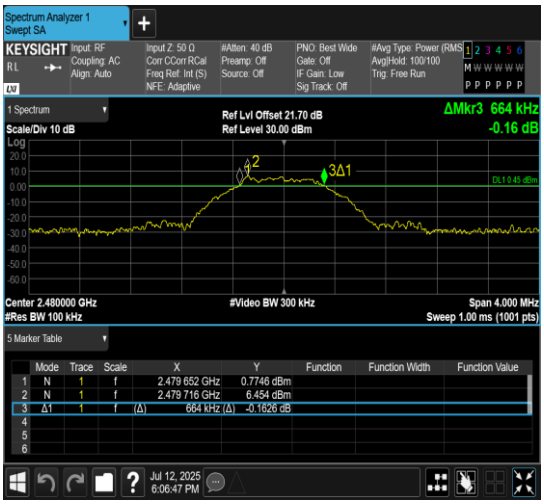
BLE_500K-Ant10-2440-PASS



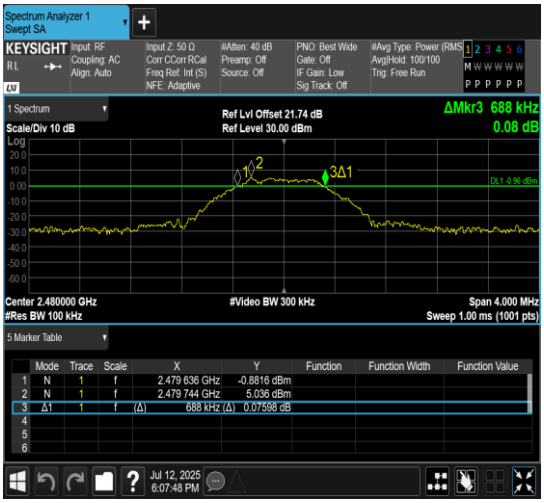
BLE_500K-Ant7-2440-PASS



BLE_500K-Ant10-2480-PASS



BLE_500K-Ant7-2480-PASS



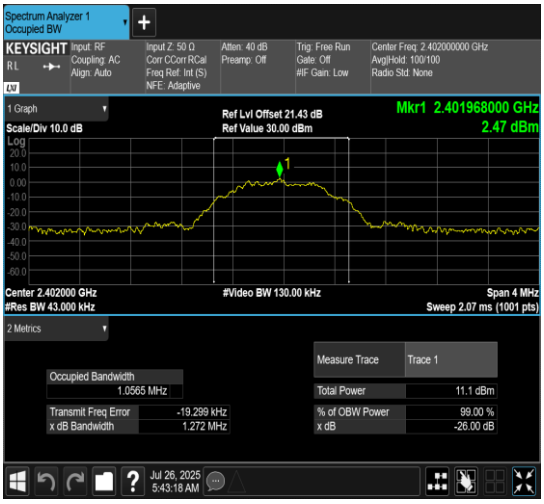
OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

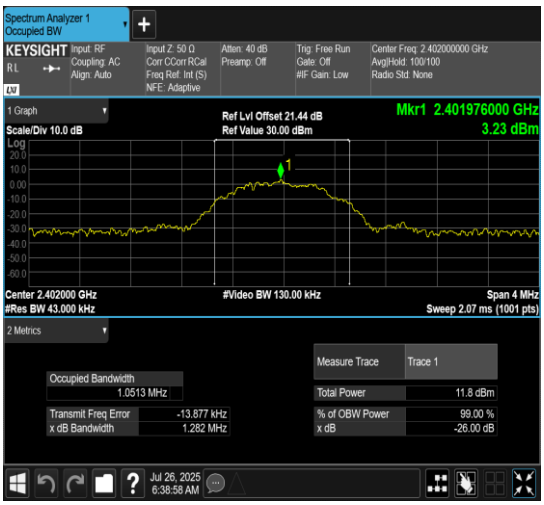
TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant10	2402	1.0565	2401.4525	2402.5090	---	---
BLE_1M	Ant7	2402	1.0513	2401.4605	2402.5118	---	---
BLE_1M	Ant10	2440	1.0396	2439.4582	2440.4978	---	---
BLE_1M	Ant7	2440	1.0442	2439.4620	2440.5062	---	---
BLE_1M	Ant10	2480	1.0460	2479.4565	2480.5025	---	---
BLE_1M	Ant7	2480	1.0569	2479.4535	2480.5104	---	---
BLE_2M	Ant10	2404	2.0569	2402.9634	2405.0203	---	---
BLE_2M	Ant7	2404	2.0398	2402.9722	2405.0120	---	---
BLE_2M	Ant10	2440	2.0423	2438.9739	2441.0162	---	---
BLE_2M	Ant7	2440	2.0362	2438.9733	2441.0095	---	---
BLE_2M	Ant10	2478	2.0405	2476.9722	2479.0127	---	---
BLE_2M	Ant7	2478	2.0434	2476.9713	2479.0147	---	---
BLE_125K	Ant10	2402	1.1139	2401.4167	2402.5306	---	---
BLE_125K	Ant7	2402	1.0983	2401.4255	2402.5238	---	---
BLE_125K	Ant10	2440	1.0928	2439.4256	2440.5184	---	---
BLE_125K	Ant7	2440	1.0933	2439.4301	2440.5234	---	---
BLE_125K	Ant10	2480	1.0937	2479.4299	2480.5236	---	---
BLE_125K	Ant7	2480	1.0932	2479.4288	2480.5220	---	---
BLE_500K	Ant10	2402	1.0569	2401.4472	2402.5041	---	---
BLE_500K	Ant7	2402	1.0375	2401.4592	2402.4967	---	---
BLE_500K	Ant10	2440	1.0348	2439.4583	2440.4931	---	---
BLE_500K	Ant7	2440	1.0408	2439.4529	2440.4937	---	---
BLE_500K	Ant10	2480	1.0376	2479.4567	2480.4943	---	---
BLE_500K	Ant7	2480	1.0605	2479.4430	2480.5035	---	---

TEST GRAPHS

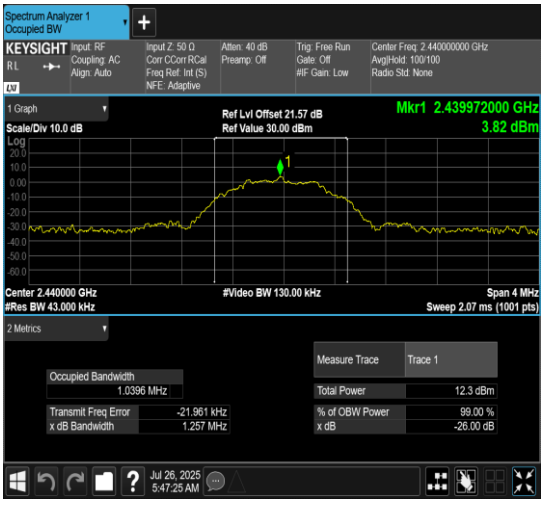
BLE_1M-Ant10-2402



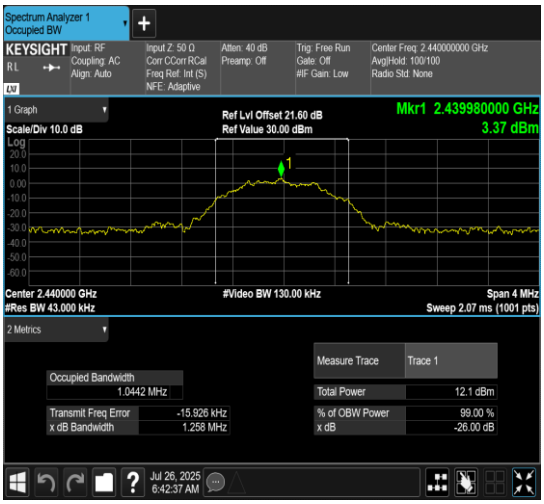
BLE_1M-Ant7-2402



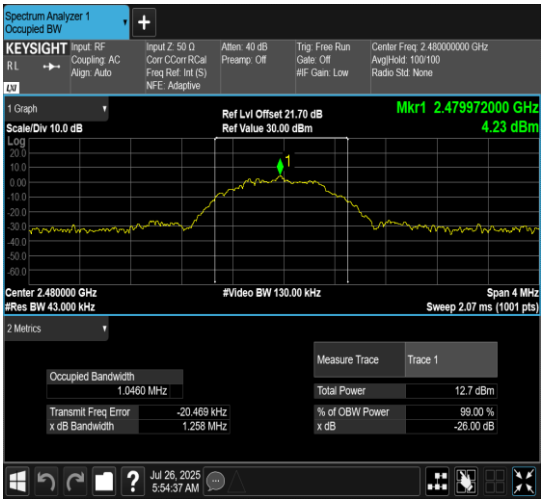
BLE_1M-Ant10-2440



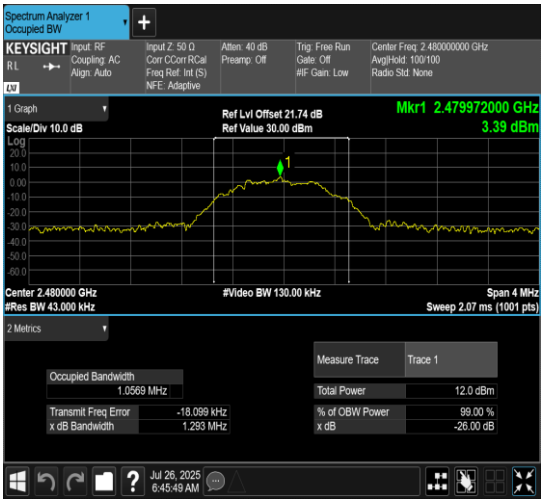
BLE_1M-Ant7-2440



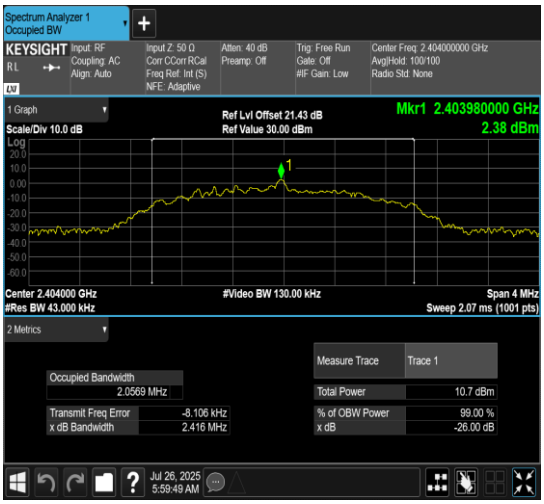
BLE_1M-Ant10-2480



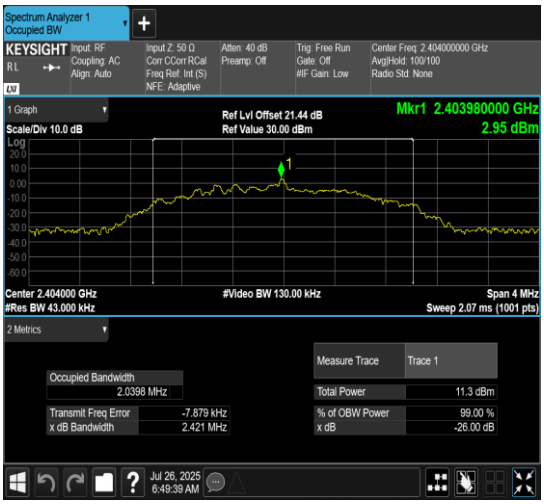
BLE_1M-Ant7-2480



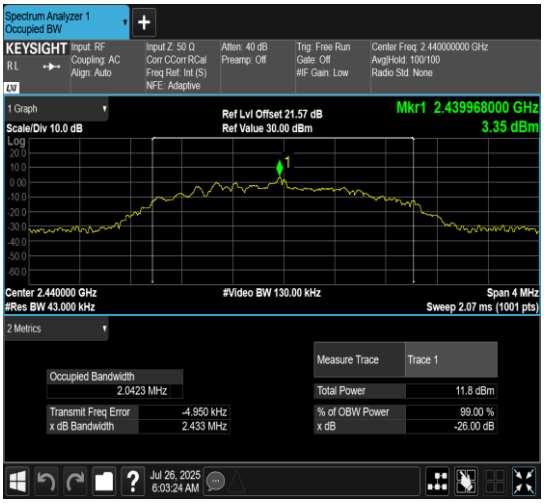
BLE_2M-Ant10-2404



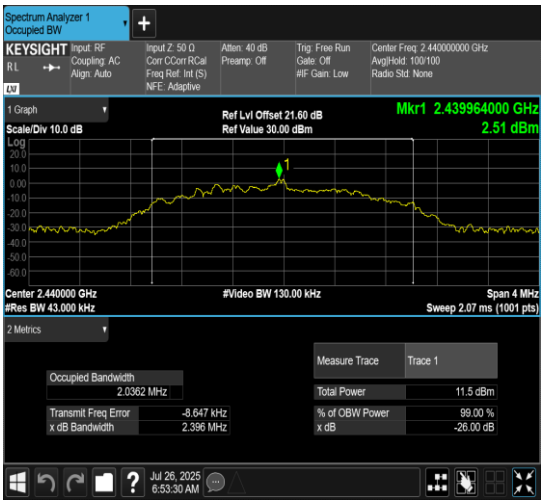
BLE_2M-Ant7-2404



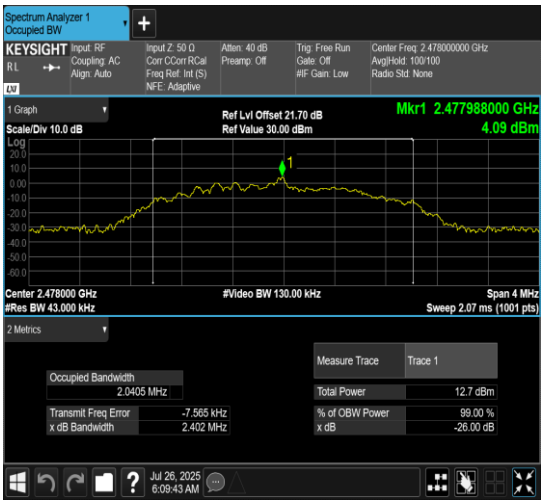
BLE_2M-Ant10-2440



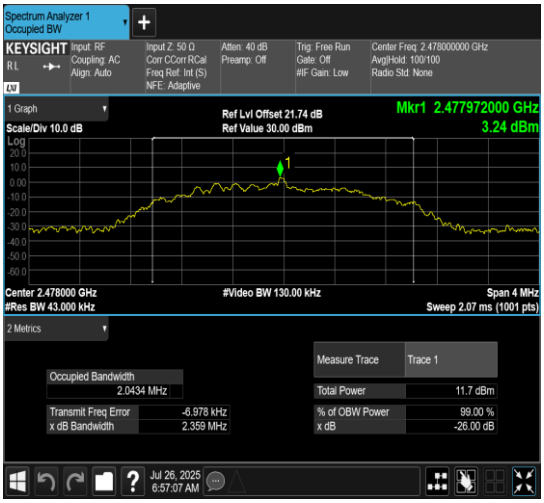
BLE_2M-Ant7-2440



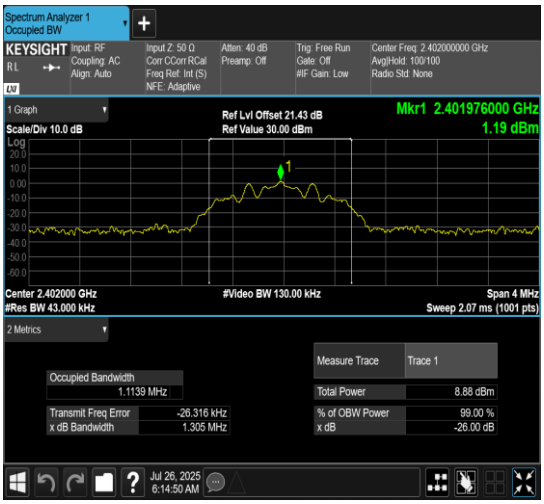
BLE_2M-Ant10-2478



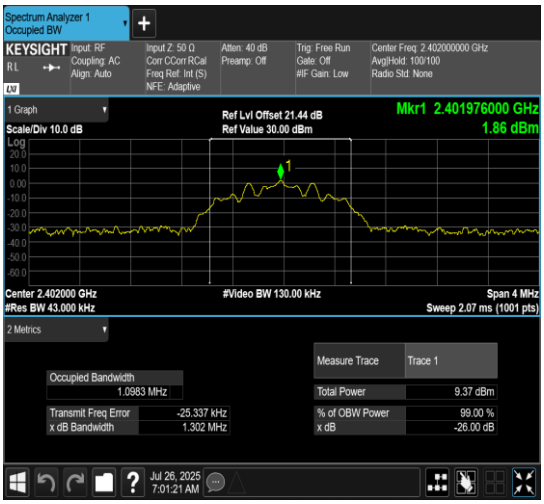
BLE_2M-Ant7-2478



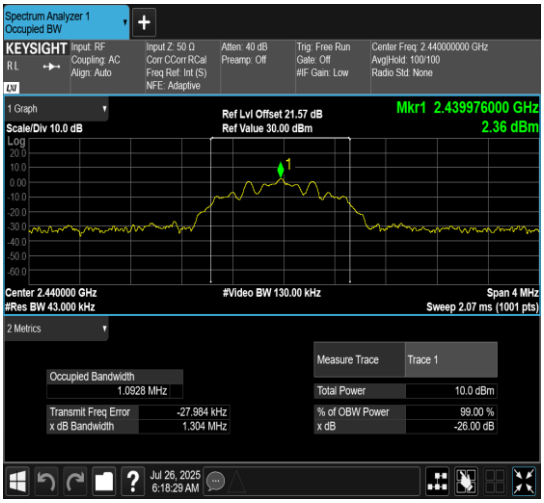
BLE_125K-Ant10-2402



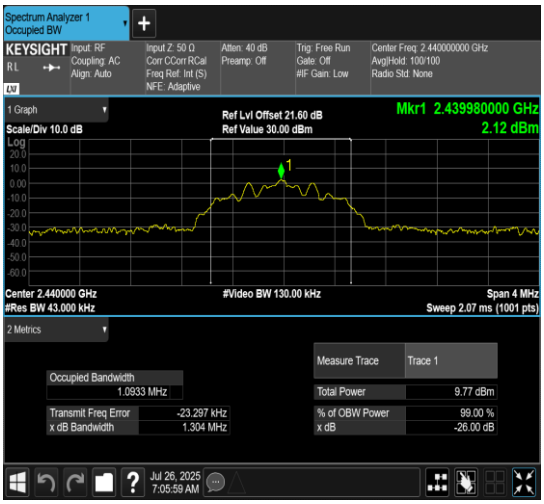
BLE_125K-Ant7-2402



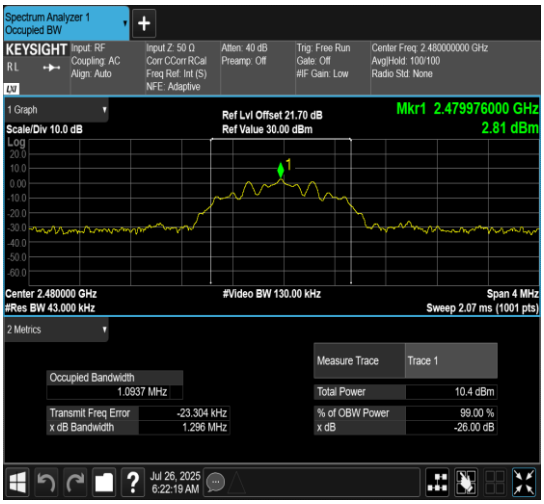
BLE_125K-Ant10-2440



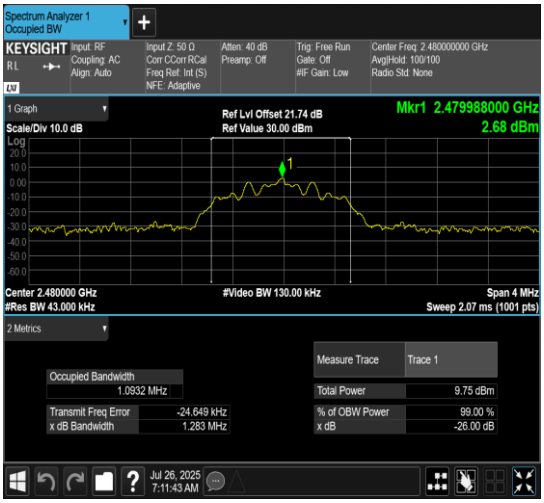
BLE_125K-Ant7-2440



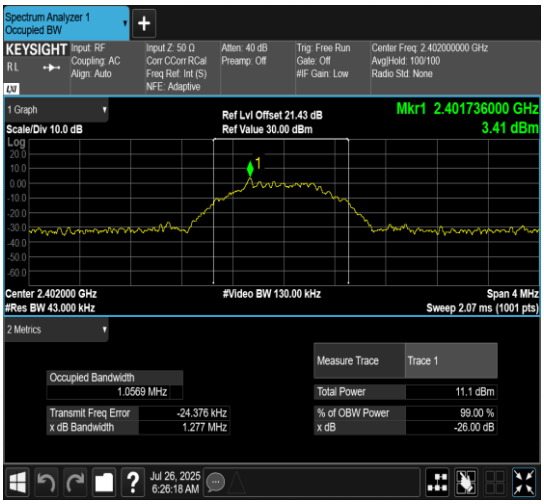
BLE_125K-Ant10-2480



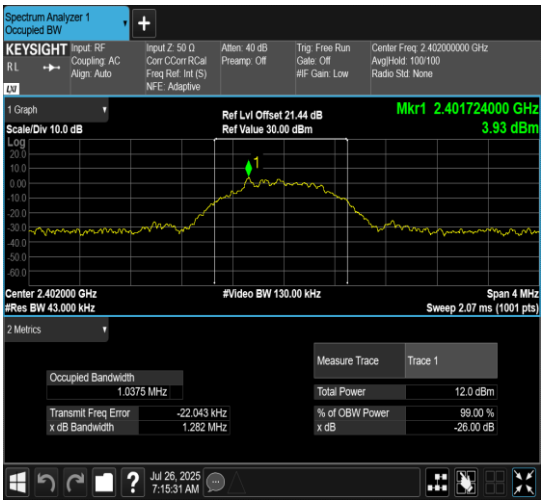
BLE_125K-Ant7-2480



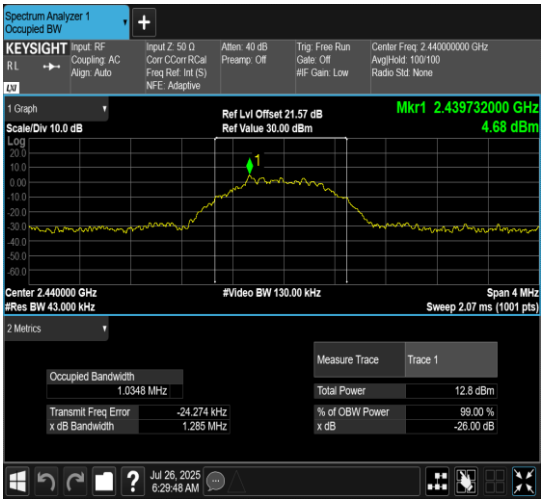
BLE_500K-Ant10-2402



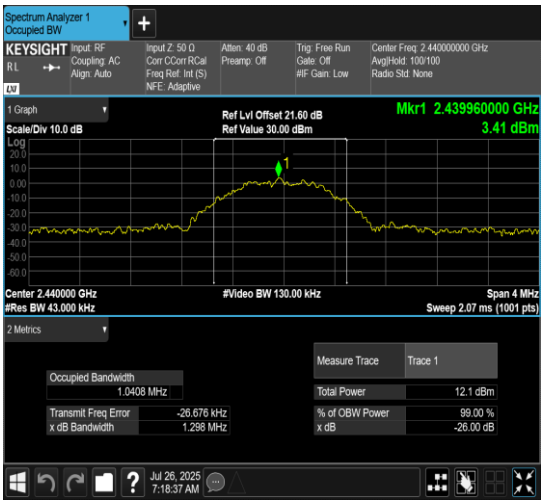
BLE_500K-Ant7-2402



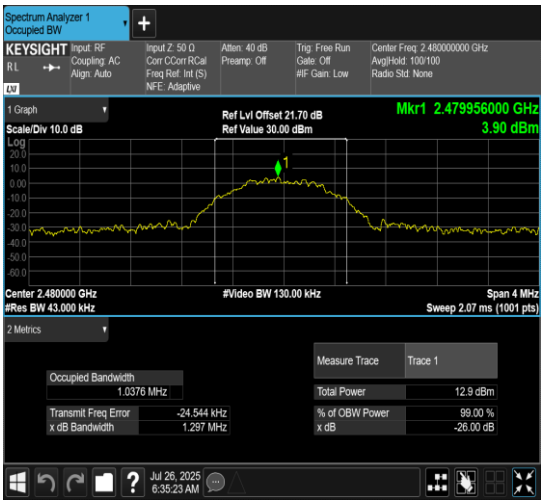
BLE_500K-Ant10-2440



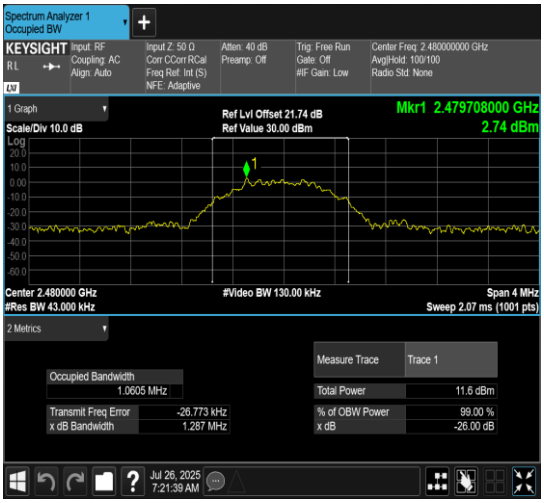
BLE_500K-Ant7-2440



BLE_500K-Ant10-2480



BLE_500K-Ant7-2480



MAXIMUM CONDUCTED OUTPUT POWER

TEST RESULT PEAK

TestMode	Antenna	Frequency[MHz]	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant10	2402	4.39	≤30	5.99	≤36	PASS
BLE_1M	Ant7	2402	5.27	≤30	6.87	≤36	PASS
BLE_1M	Ant10	2440	5.49	≤30	7.09	≤36	PASS
BLE_1M	Ant7	2440	5.90	≤30	7.50	≤36	PASS
BLE_1M	Ant10	2480	6.01	≤30	7.61	≤36	PASS
BLE_1M	Ant7	2480	5.81	≤30	7.41	≤36	PASS
BLE_2M	Ant10	2404	4.40	≤30	6.00	≤36	PASS
BLE_2M	Ant7	2404	5.37	≤30	6.97	≤36	PASS
BLE_2M	Ant10	2440	5.48	≤30	7.08	≤36	PASS
BLE_2M	Ant7	2440	5.77	≤30	7.37	≤36	PASS
BLE_2M	Ant10	2478	6.24	≤30	7.84	≤36	PASS
BLE_2M	Ant7	2478	6.11	≤30	7.71	≤36	PASS
BLE_125K	Ant10	2402	4.38	≤30	5.98	≤36	PASS
BLE_125K	Ant7	2402	5.33	≤30	6.93	≤36	PASS
BLE_125K	Ant10	2440	5.44	≤30	7.04	≤36	PASS
BLE_125K	Ant7	2440	5.81	≤30	7.41	≤36	PASS
BLE_125K	Ant10	2480	5.92	≤30	7.52	≤36	PASS
BLE_125K	Ant7	2480	5.76	≤30	7.36	≤36	PASS
BLE_500K	Ant10	2402	4.37	≤30	5.97	≤36	PASS
BLE_500K	Ant7	2402	5.36	≤30	6.96	≤36	PASS
BLE_500K	Ant10	2440	5.55	≤30	7.15	≤36	PASS
BLE_500K	Ant7	2440	5.79	≤30	7.39	≤36	PASS
BLE_500K	Ant10	2480	6.01	≤30	7.61	≤36	PASS
BLE_500K	Ant7	2480	5.85	≤30	7.45	≤36	PASS

TEST RESULT AVERAGE

Test Mode	Antenna	Frequency [MHz]	Conducted Sensor power[dBm]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
BLE_1M	Ant10	2402	1.23	52.63	2.79	4.02	≤30.00	1.6	5.62	≤36.00	PASS
BLE_1M	Ant7	2402	1.31	52.63	2.79	4.10	≤30.00	1.6	5.70	≤36.00	PASS
BLE_1M	Ant10	2440	1.59	51.32	2.90	4.49	≤30.00	1.6	6.09	≤36.00	PASS
BLE_1M	Ant7	2440	1.82	52.63	2.79	4.61	≤30.00	1.6	6.21	≤36.00	PASS
BLE_1M	Ant10	2480	1.91	51.32	2.90	4.81	≤30.00	1.6	6.41	≤36.00	PASS
BLE_1M	Ant7	2480	1.73	52.63	2.79	4.52	≤30.00	1.6	6.12	≤36.00	PASS
BLE_2M	Ant10	2404	-0.23	37.74	4.23	4.00	≤30.00	1.6	5.60	≤36.00	PASS
BLE_2M	Ant7	2404	0.02	39.62	4.02	4.04	≤30.00	1.6	5.64	≤36.00	PASS
BLE_2M	Ant10	2440	0.37	39.62	4.02	4.39	≤30.00	1.6	5.99	≤36.00	PASS
BLE_2M	Ant7	2440	0.47	39.62	4.02	4.49	≤30.00	1.6	6.09	≤36.00	PASS
BLE_2M	Ant10	2478	0.78	37.74	4.23	5.01	≤30.00	1.6	6.61	≤36.00	PASS
BLE_2M	Ant7	2478	0.64	39.62	4.02	4.66	≤30.00	1.6	6.26	≤36.00	PASS
BLE_125K	Ant10	2402	2.10	75.67	1.21	3.31	≤30.00	1.6	4.91	≤36.00	PASS
BLE_125K	Ant7	2402	2.87	75.67	1.21	4.08	≤30.00	1.6	5.68	≤36.00	PASS
BLE_125K	Ant10	2440	3.26	75.49	1.22	4.48	≤30.00	1.6	6.08	≤36.00	PASS
BLE_125K	Ant7	2440	3.38	75.67	1.21	4.59	≤30.00	1.6	6.19	≤36.00	PASS
BLE_125K	Ant10	2480	3.58	75.67	1.21	4.79	≤30.00	1.6	6.39	≤36.00	PASS
BLE_125K	Ant7	2480	3.27	75.49	1.22	4.49	≤30.00	1.6	6.09	≤36.00	PASS
BLE_500K	Ant10	2402	1.04	58.79	2.31	3.35	≤30.00	1.6	4.95	≤36.00	PASS
BLE_500K	Ant7	2402	1.79	58.79	2.31	4.10	≤30.00	1.6	5.70	≤36.00	PASS
BLE_500K	Ant10	2440	2.21	58.79	2.31	4.52	≤30.00	1.6	6.12	≤36.00	PASS
BLE_500K	Ant7	2440	2.32	58.79	2.31	4.63	≤30.00	1.6	6.23	≤36.00	PASS
BLE_500K	Ant10	2480	2.56	59.12	2.28	4.84	≤30.00	1.6	6.44	≤36.00	PASS
BLE_500K	Ant7	2480	2.22	58.79	2.31	4.53	≤30.00	1.6	6.13	≤36.00	PASS

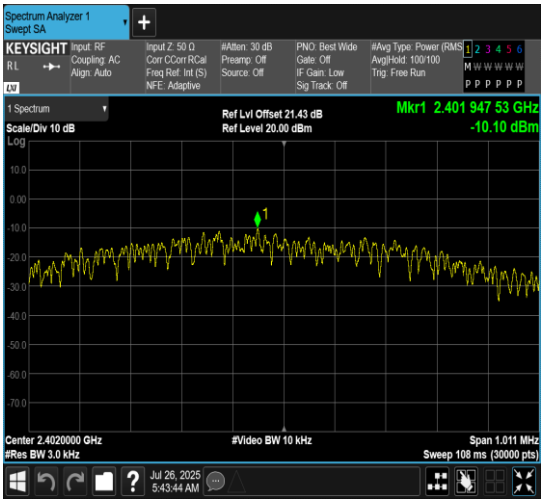
MAXIMUM POWER SPECTRAL DENSITY

TEST RESULT

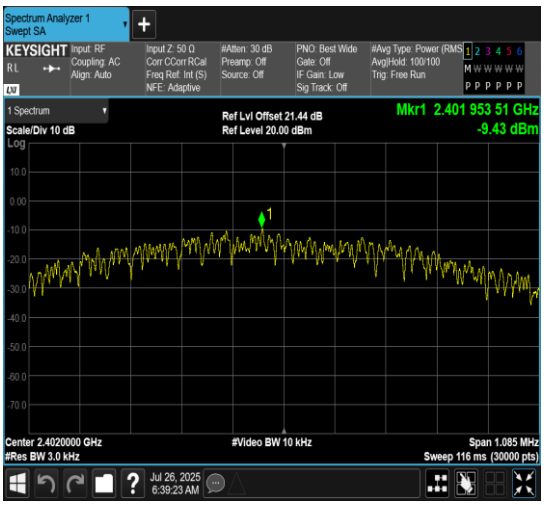
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant10	2402	-10.10	≤8.00	PASS
BLE_1M	Ant7	2402	-9.43	≤8.00	PASS
BLE_1M	Ant10	2440	-8.98	≤8.00	PASS
BLE_1M	Ant7	2440	-9.09	≤8.00	PASS
BLE_1M	Ant10	2480	-8.47	≤8.00	PASS
BLE_1M	Ant7	2480	-9.25	≤8.00	PASS
BLE_2M	Ant10	2404	-12.61	≤8.00	PASS
BLE_2M	Ant7	2404	-12.06	≤8.00	PASS
BLE_2M	Ant10	2440	-11.40	≤8.00	PASS
BLE_2M	Ant7	2440	-11.91	≤8.00	PASS
BLE_2M	Ant10	2478	-10.72	≤8.00	PASS
BLE_2M	Ant7	2478	-11.72	≤8.00	PASS
BLE_125K	Ant10	2402	-1.30	≤8.00	PASS
BLE_125K	Ant7	2402	-0.93	≤8.00	PASS
BLE_125K	Ant10	2440	-0.19	≤8.00	PASS
BLE_125K	Ant7	2440	-0.67	≤8.00	PASS
BLE_125K	Ant10	2480	0.22	≤8.00	PASS
BLE_125K	Ant7	2480	-0.79	≤8.00	PASS
BLE_500K	Ant10	2402	-1.34	≤8.00	PASS
BLE_500K	Ant7	2402	-0.94	≤8.00	PASS
BLE_500K	Ant10	2440	-0.19	≤8.00	PASS
BLE_500K	Ant7	2440	-0.68	≤8.00	PASS
BLE_500K	Ant10	2480	0.15	≤8.00	PASS
BLE_500K	Ant7	2480	-0.79	≤8.00	PASS

TEST GRAPHS

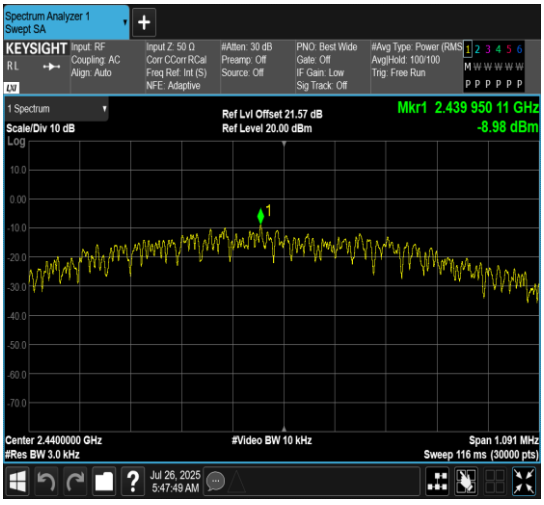
BLE_1M-Ant10-2402-PASS



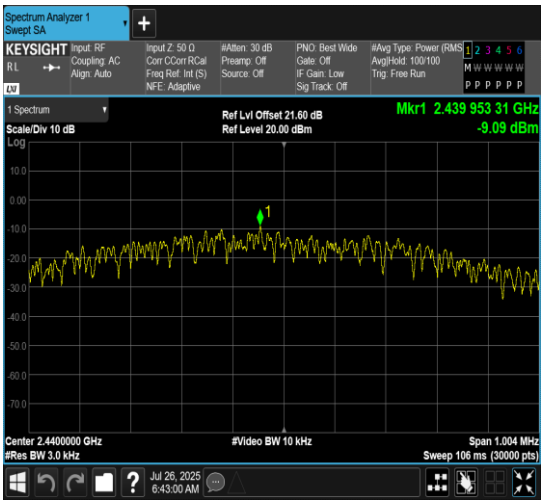
BLE_1M-Ant7-2402-PASS



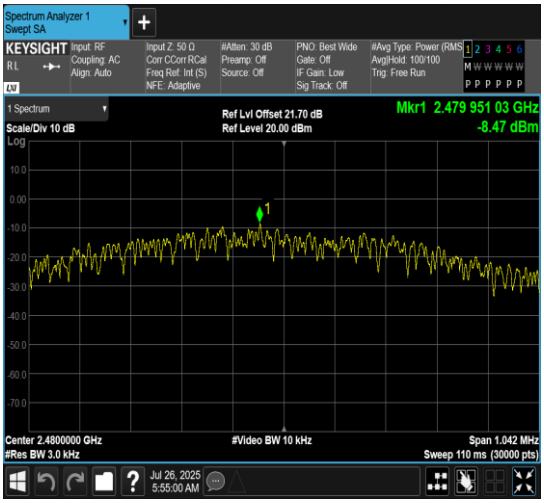
BLE_1M-Ant10-2440-PASS



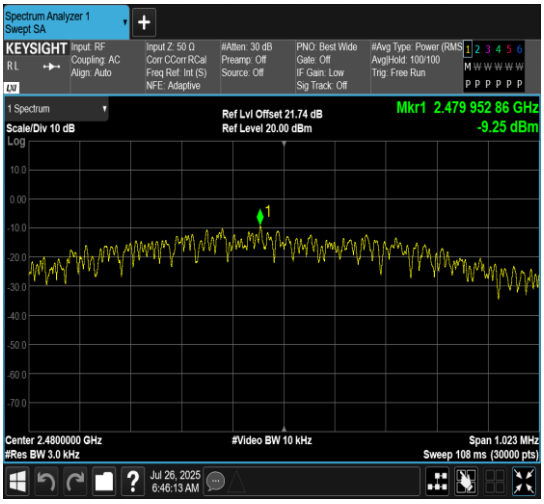
BLE_1M-Ant7-2440-PASS



BLE_1M-Ant10-2480-PASS



BLE_1M-Ant7-2480-PASS



BLE_2M-Ant10-2404-PASS