

Product : Notebook Computers
 Test Item : Power Density Data
 Test Mode : Mode 15 MIMO: Transmit (802.11ax-20BW_17.2Mbps)

RU config: Other

Channel No.	Frequency (MHz)	RU config	Chain	Measurement Level (dBm)	Duty Factor (dB)	Total (dBm)	Limit (dBm)	Result
1	2412	26/0	A	4.49	0.12	7.62	$\leq 8\text{dBm}$	Pass
			B	3.19	0.12	6.32	$\leq 8\text{dBm}$	Pass
		52/37	A	2.04	0.12	5.17	$\leq 8\text{dBm}$	Pass
			B	3.25	0.12	6.38	$\leq 8\text{dBm}$	Pass
		106/53	A	3.84	0.09	6.94	$\leq 8\text{dBm}$	Pass
			B	2.80	0.09	5.90	$\leq 8\text{dBm}$	Pass
13	2472	26/8	A	-3.76	0.12	-0.63	$\leq 8\text{dBm}$	Pass
			B	-4.08	0.12	-0.95	$\leq 8\text{dBm}$	Pass
		52/40	A	-6.97	0.12	-3.84	$\leq 8\text{dBm}$	Pass
			B	-6.73	0.12	-3.60	$\leq 8\text{dBm}$	Pass
		106/54	A	-10.05	0.09	-6.95	$\leq 8\text{dBm}$	Pass
			B	-9.89	0.09	-6.79	$\leq 8\text{dBm}$	Pass

Note :

The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

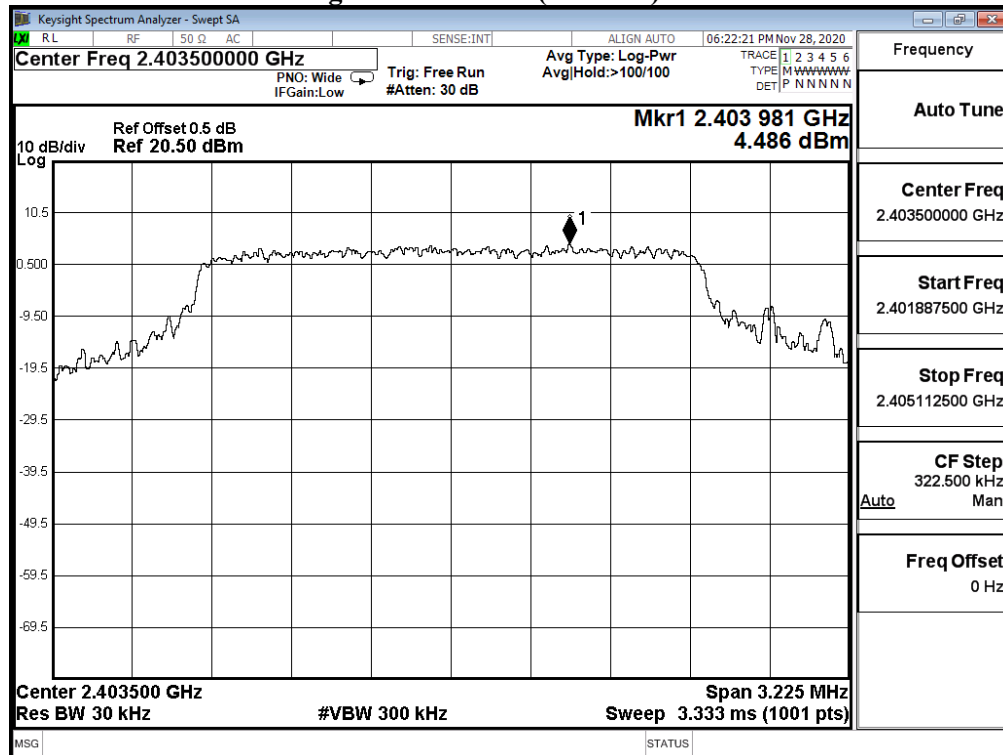
Figure Channel 1: (Chain A) 26/0

Figure Channel 1: (Chain A) 52/37

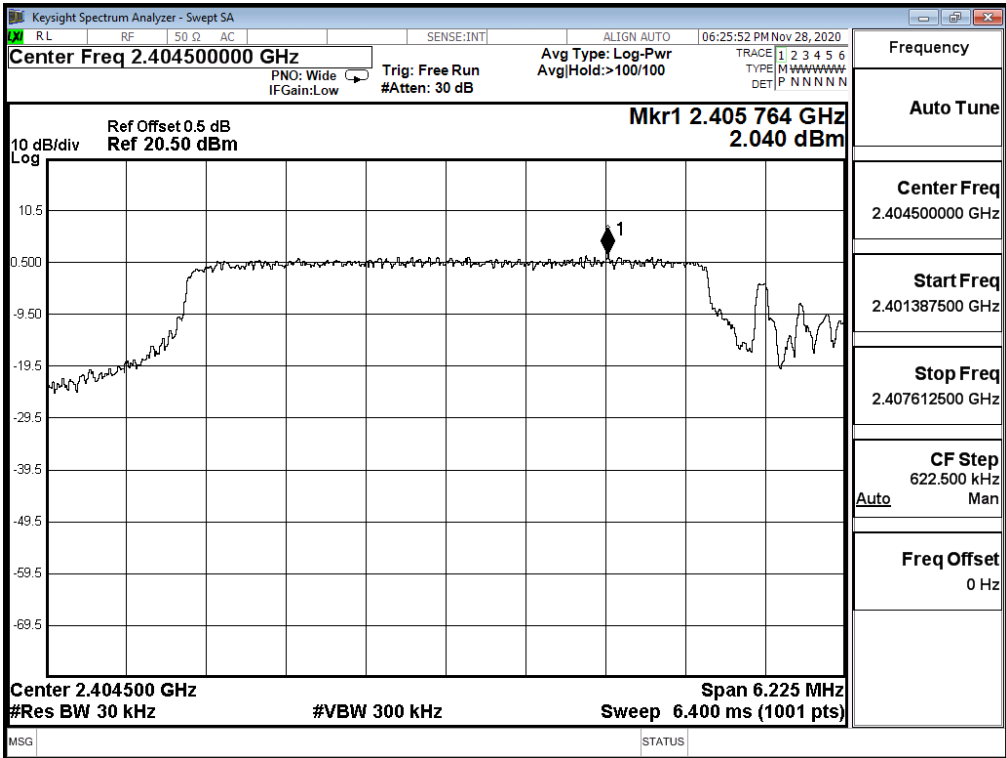


Figure Channel 1: (Chain A) 106/53

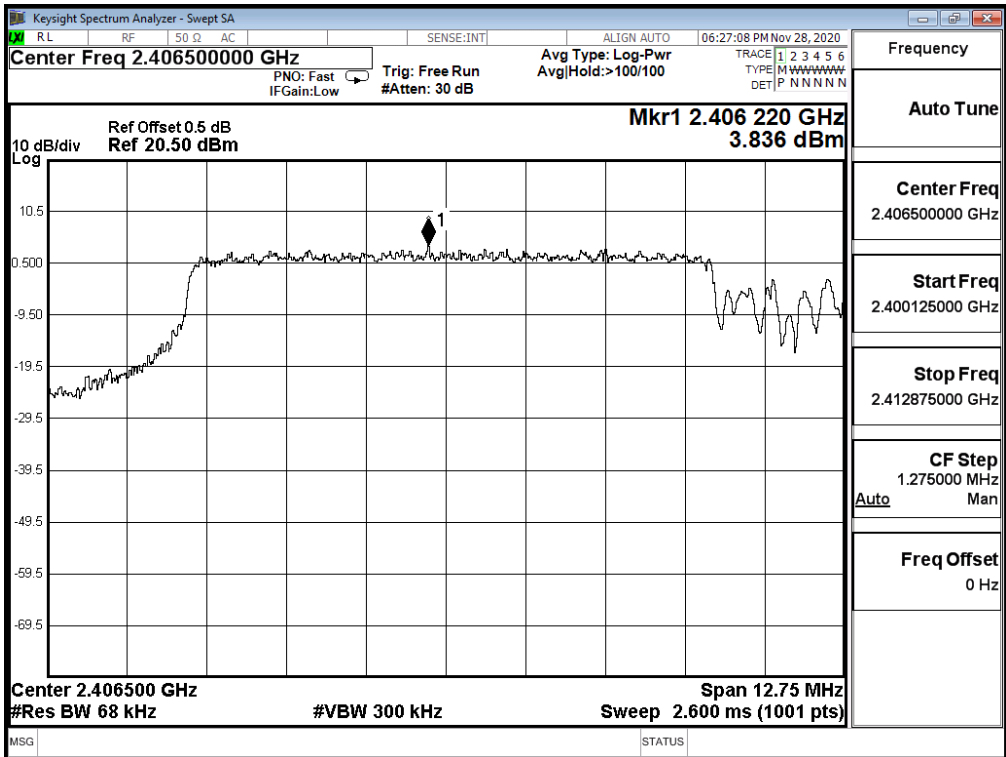


Figure Channel 13: (Chain A) 26/8

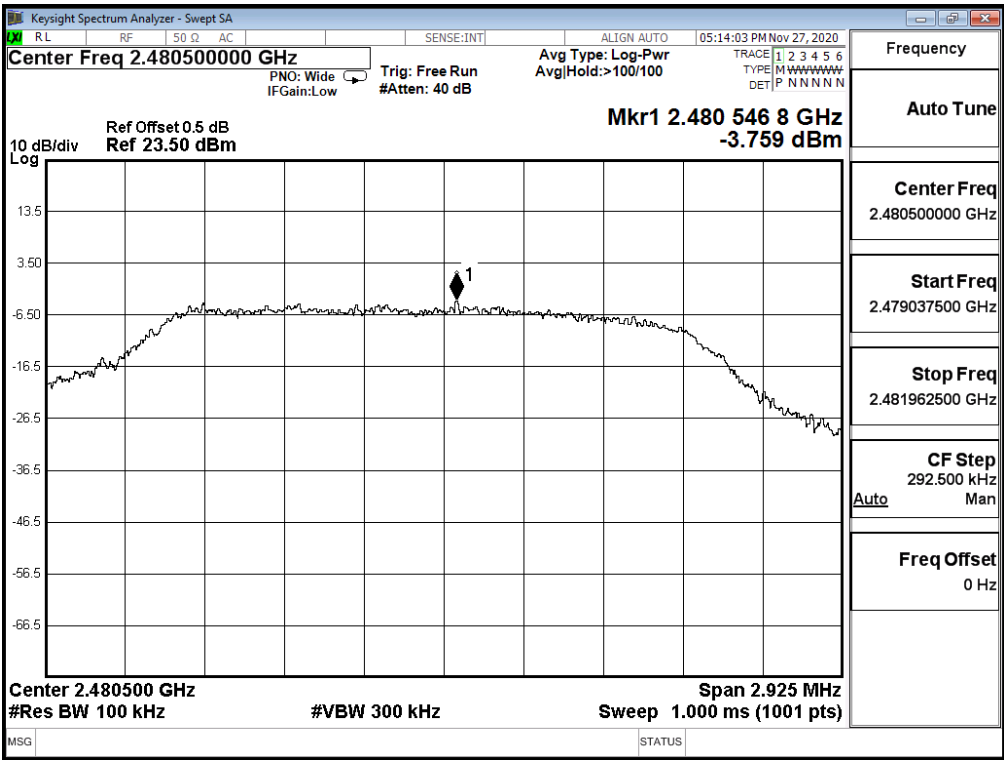


Figure Channel 13: (Chain A) 52/40

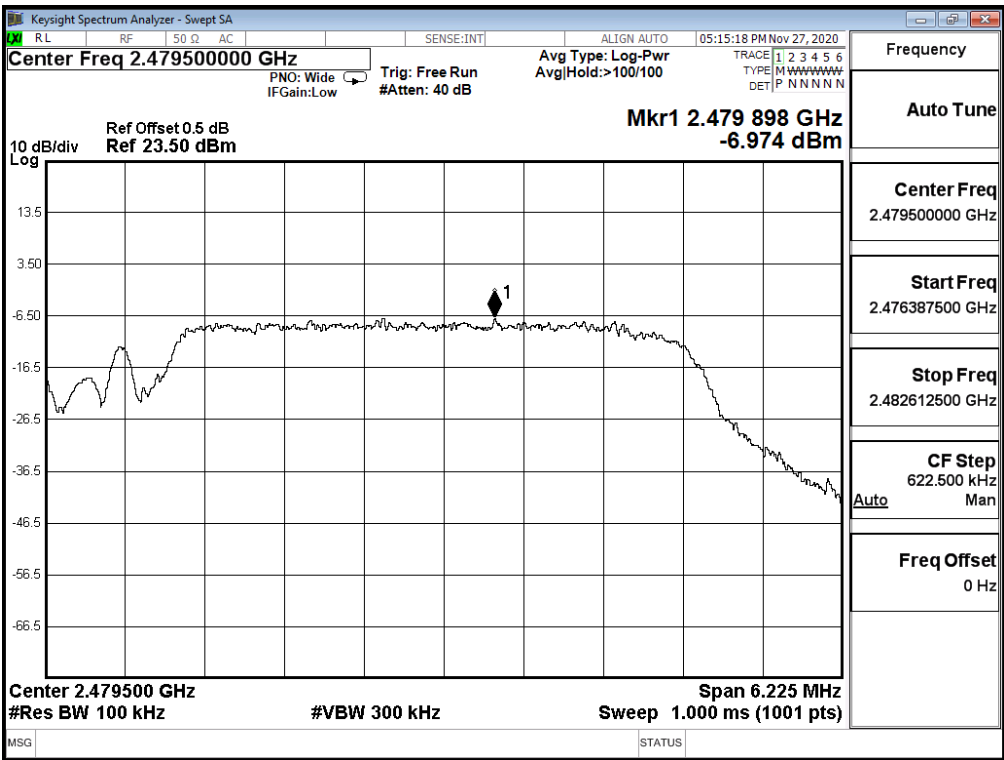


Figure Channel 13: (Chain A) 106/54

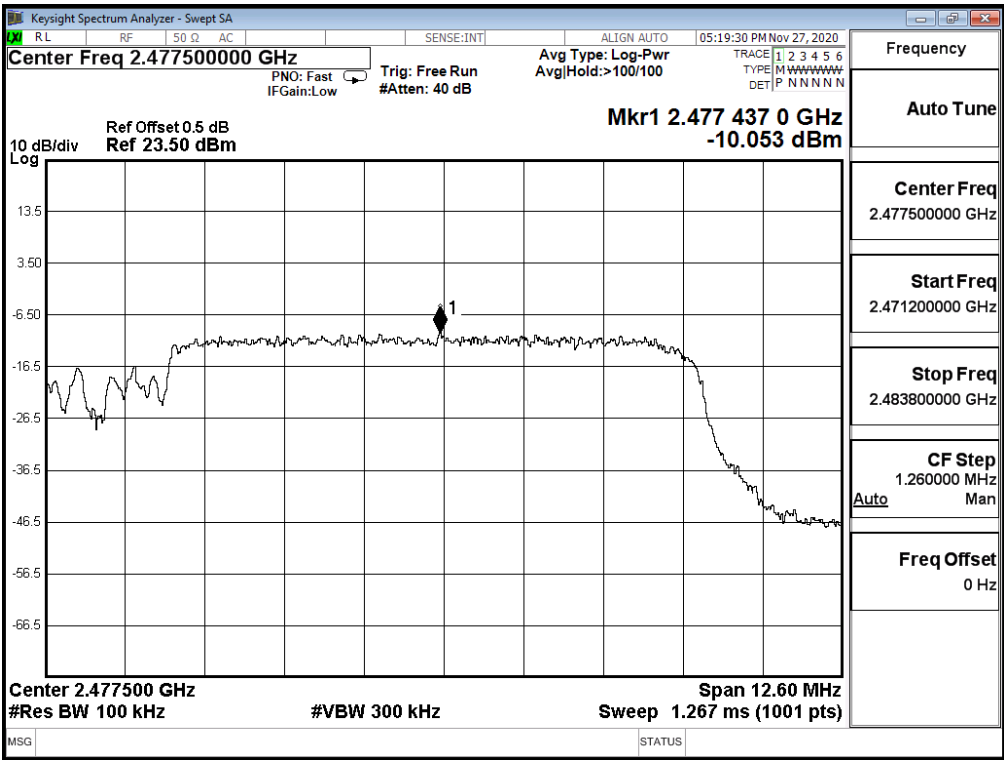


Figure Channel 1: (Chain B) 26/0

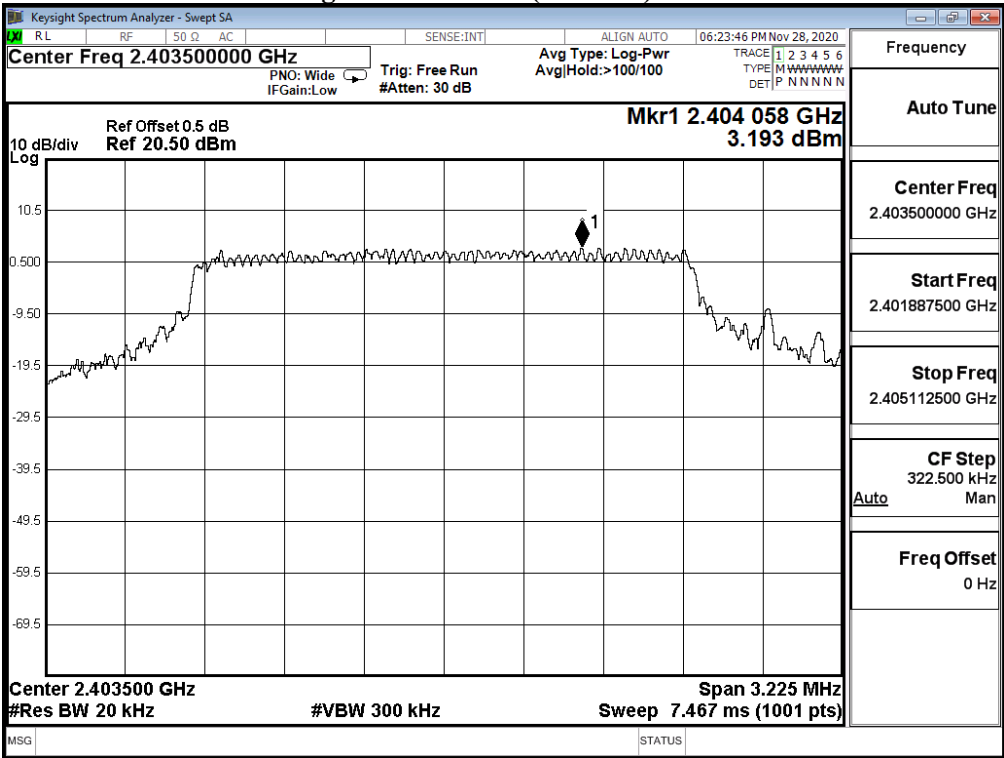


Figure Channel 1: (Chain B) 52/37

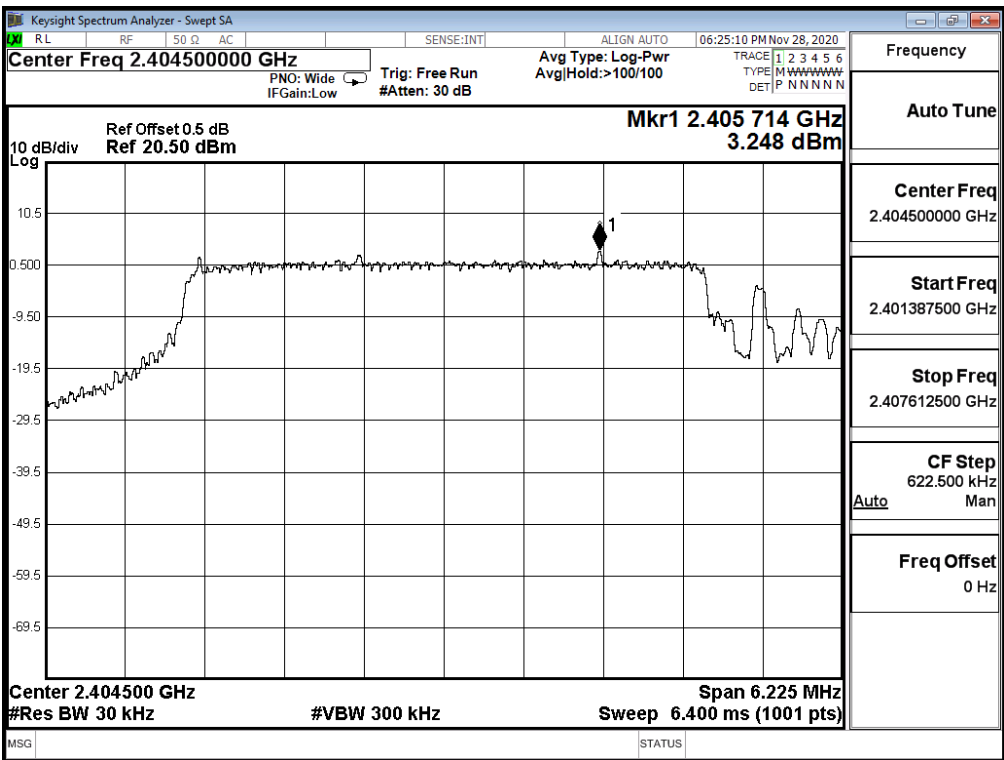


Figure Channel 1: (Chain B) 106/53

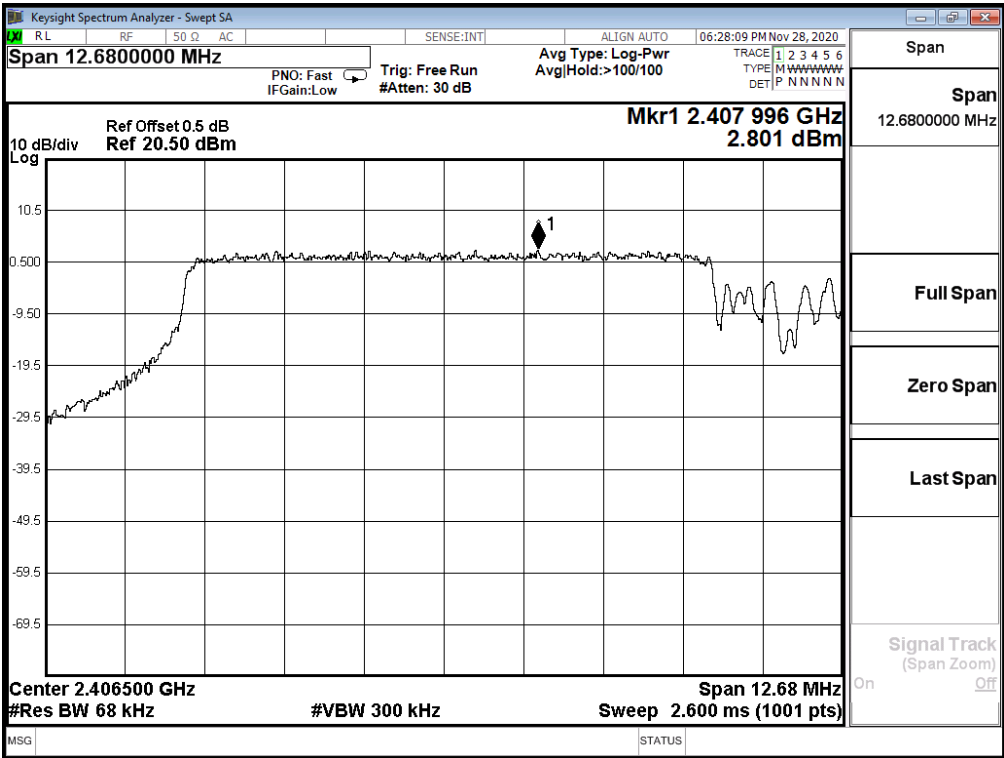


Figure Channel 13: (Chain B) 26/8

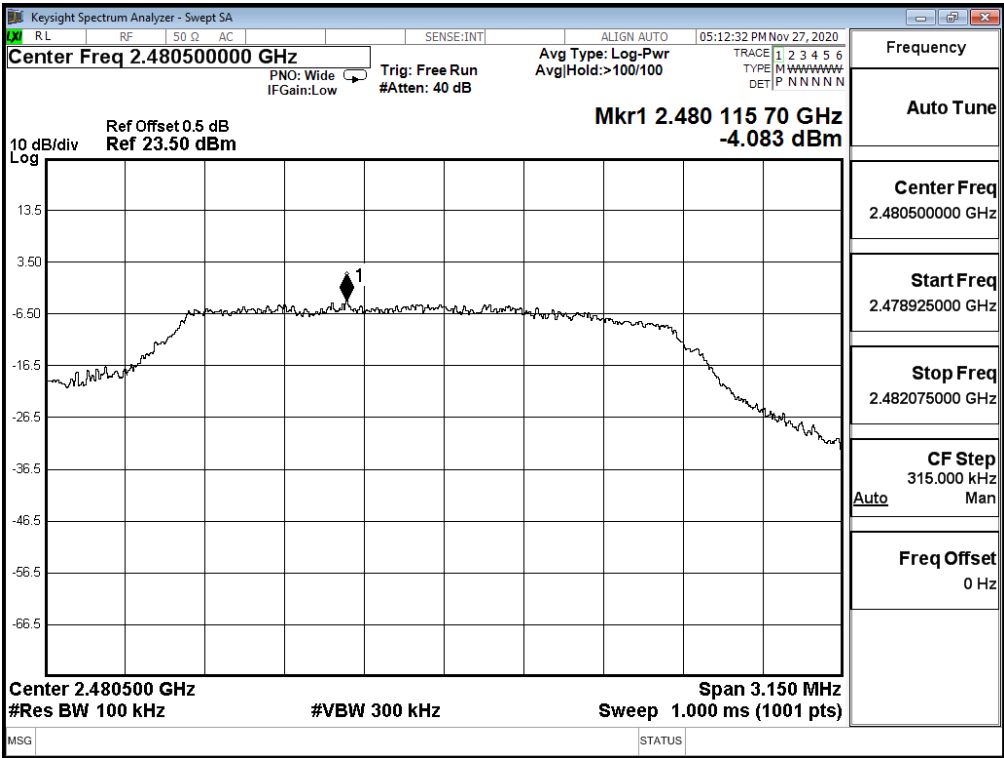


Figure Channel 13: (Chain B) 52/40

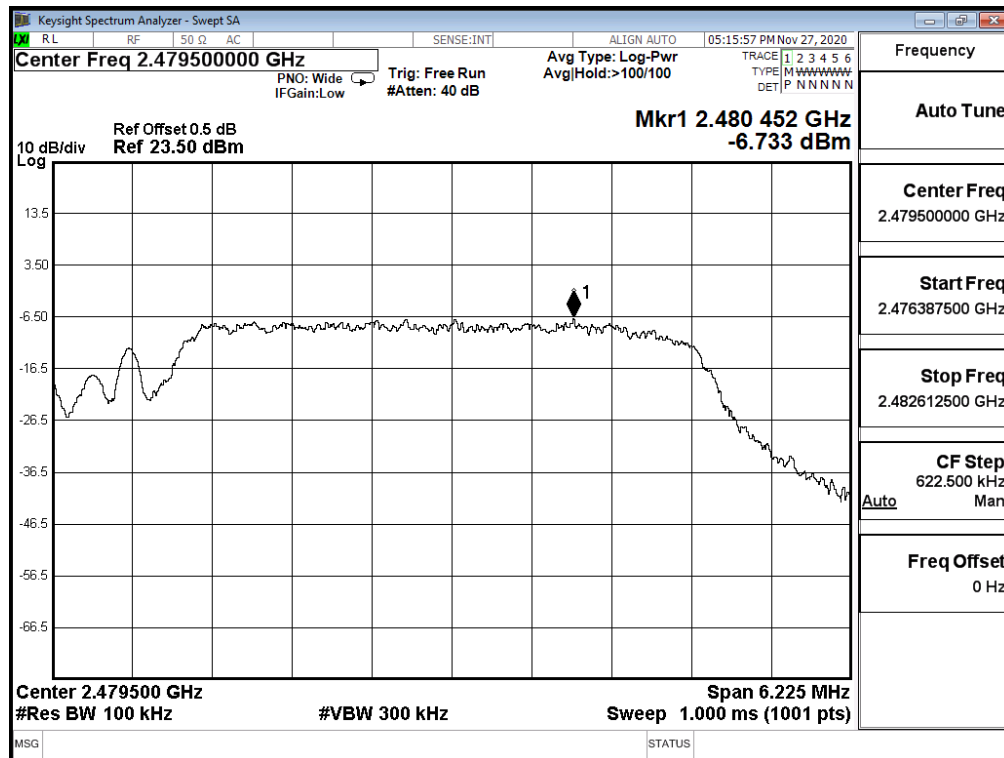
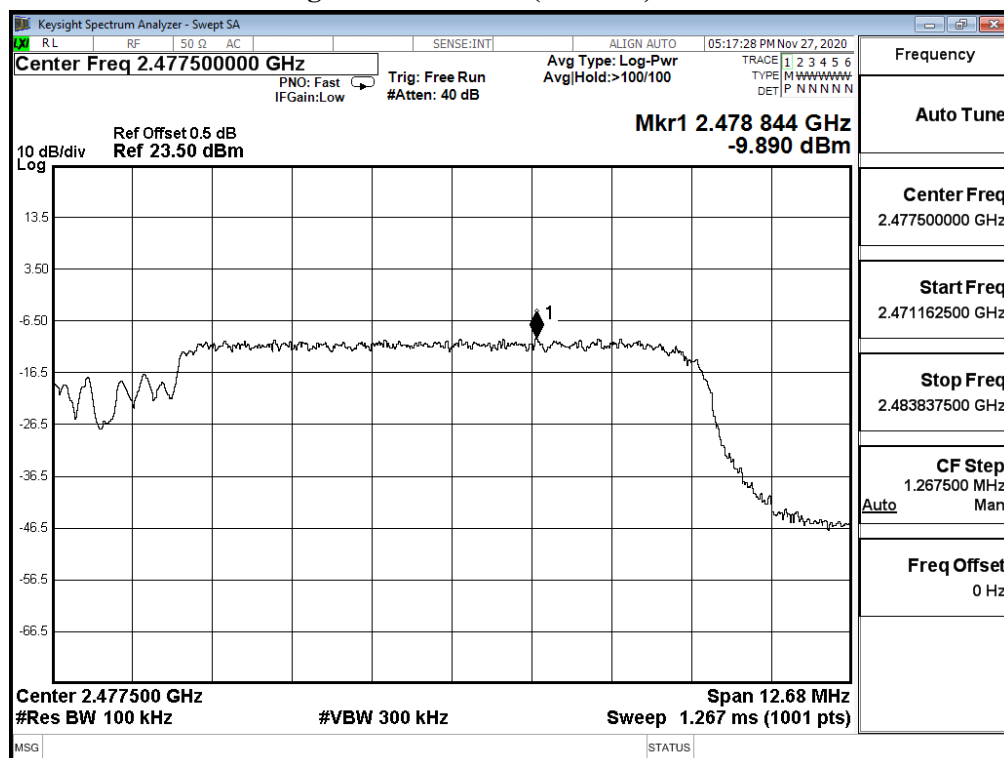


Figure Channel 13: (Chain B) 106/54



Product : Notebook Computers
 Test Item : Power Density Data
 Test Mode : Mode 16 MIMO: Transmit (802.11ax-40BW_34.4Mbps)

RU config: Full

Channel No.	Frequency (MHz)	Chain	Measurement Level (dBm)	Duty Factor (dB)	Total (dBm)	Limit (dBm)	Result
3	2422	A	-0.18	0.21	3.04	$\leq 8\text{dBm}$	Pass
		B	0.24	0.21	3.46	$\leq 8\text{dBm}$	Pass
7	2442	A	-0.44	0.21	2.78	$\leq 8\text{dBm}$	Pass
		B	-0.17	0.21	3.05	$\leq 8\text{dBm}$	Pass
9	2452	A	-0.56	0.21	2.66	$\leq 8\text{dBm}$	Pass
		B	-0.68	0.21	2.54	$\leq 8\text{dBm}$	Pass
10	2457	A	-4.37	0.21	-1.15	$\leq 8\text{dBm}$	Pass
		B	-4.37	0.21	-1.15	$\leq 8\text{dBm}$	Pass
11	2462	A	-11.95	0.21	-8.73	$\leq 8\text{dBm}$	Pass
		B	-12.02	0.21	-8.80	$\leq 8\text{dBm}$	Pass

Note :

The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

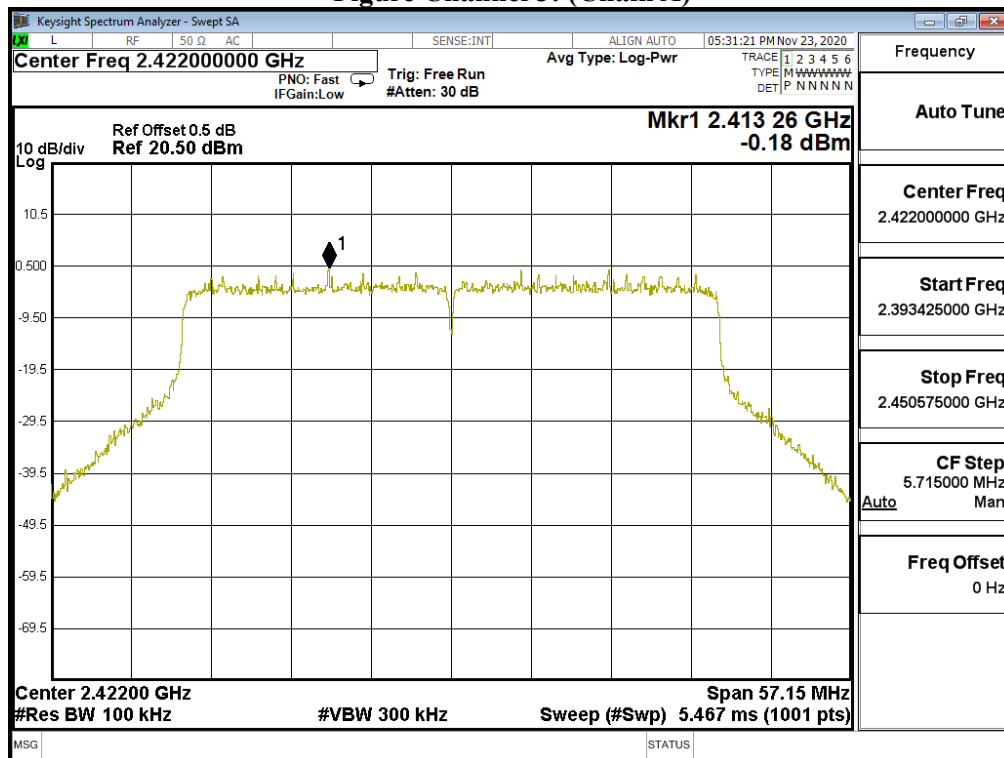
Figure Channel 3: (Chain A)

Figure Channel 7: (Chain A)

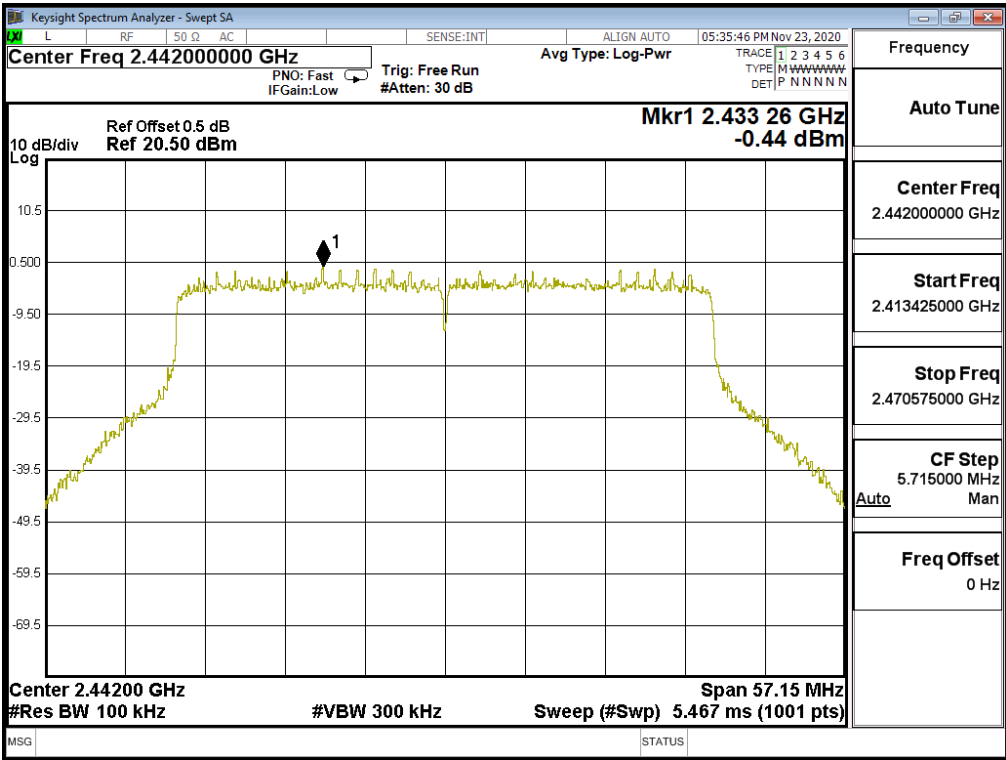


Figure Channel 9: (Chain A)

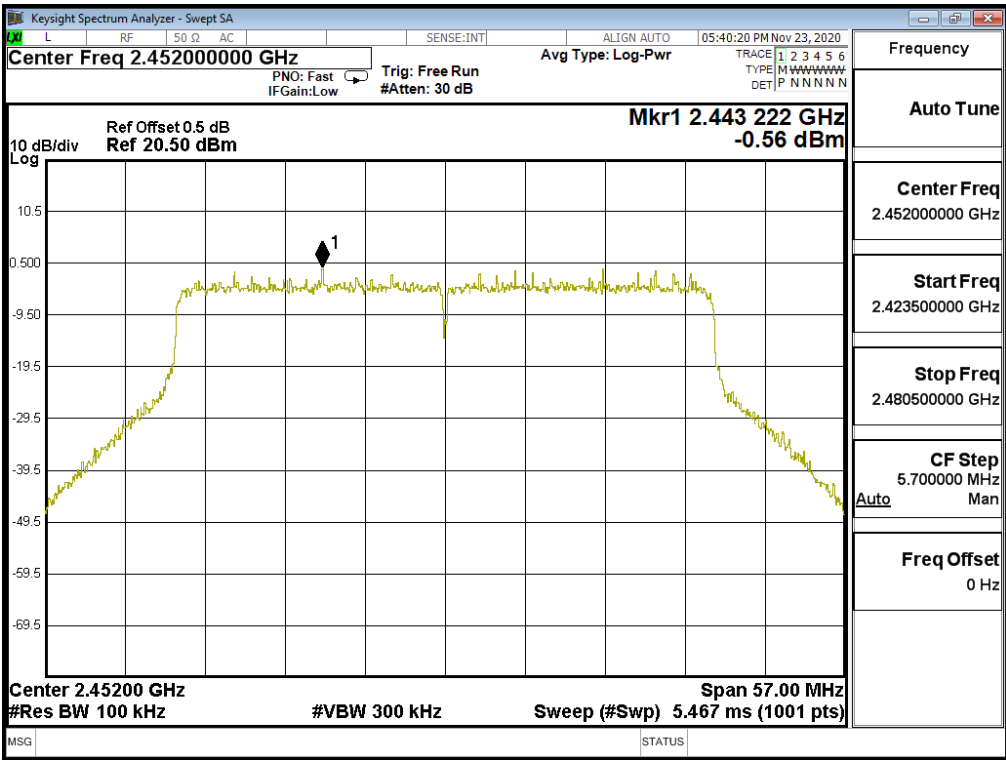


Figure Channel 10: (Chain A)

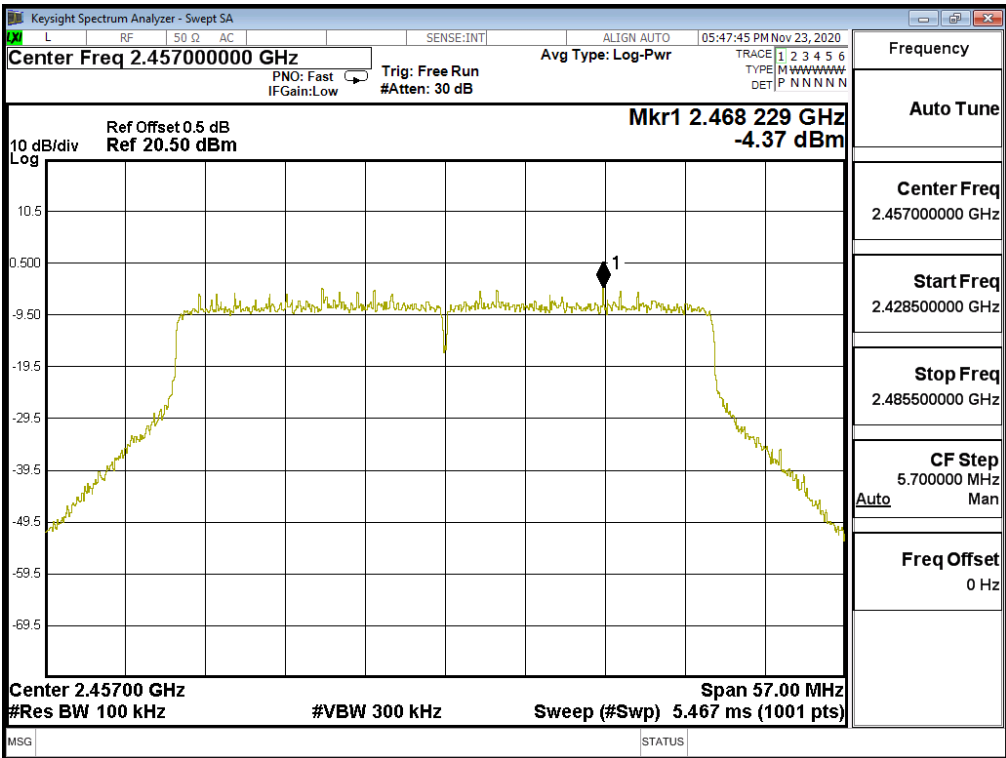


Figure Channel 11: (Chain A)

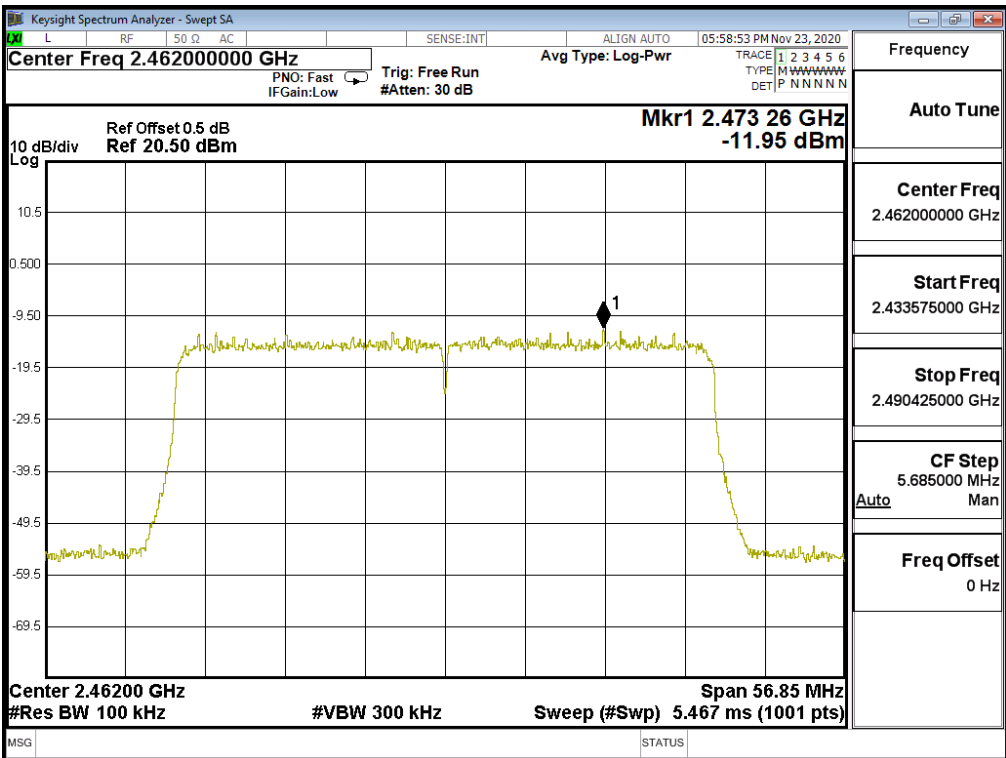


Figure Channel 3: (Chain B)

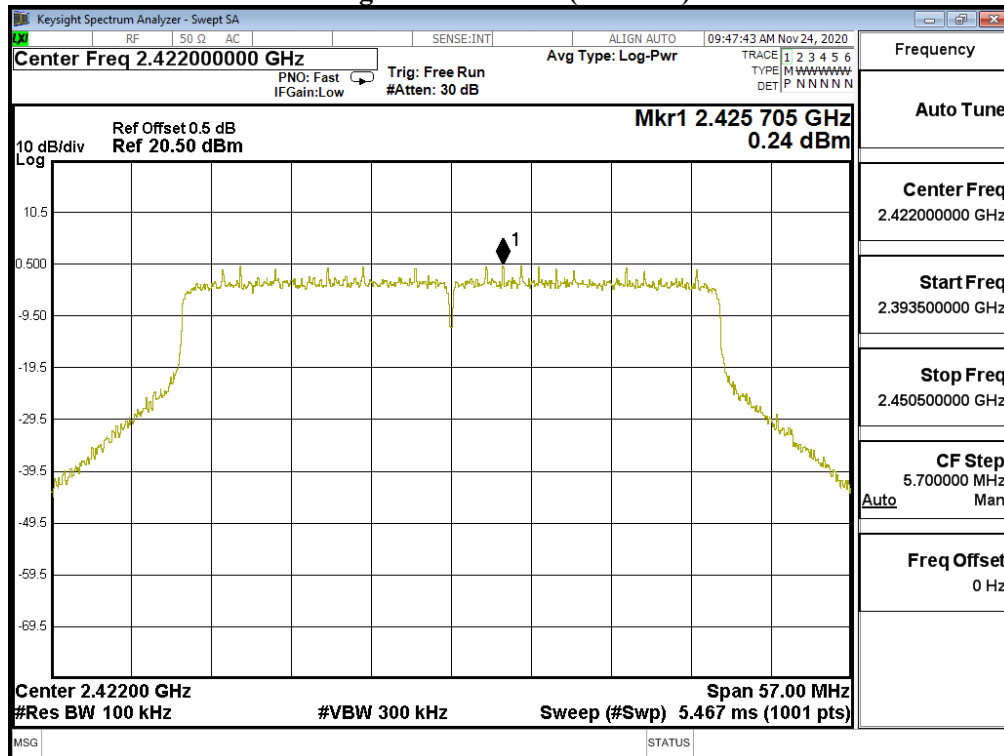


Figure Channel 7: (Chain B)

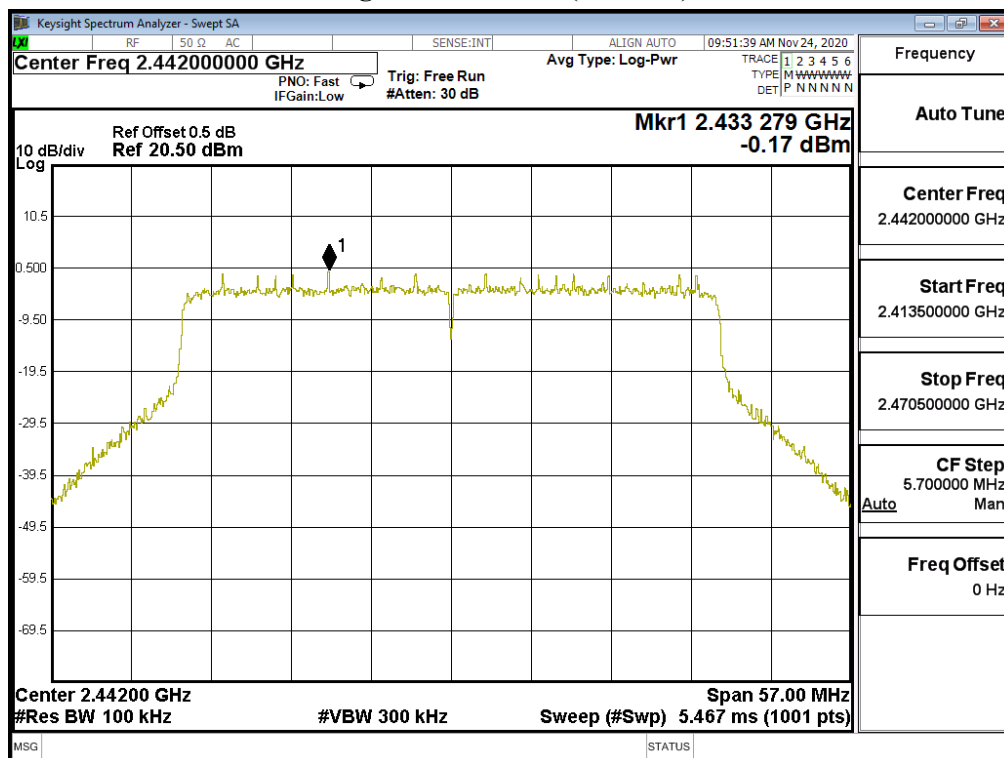


Figure Channel 9: (Chain B)

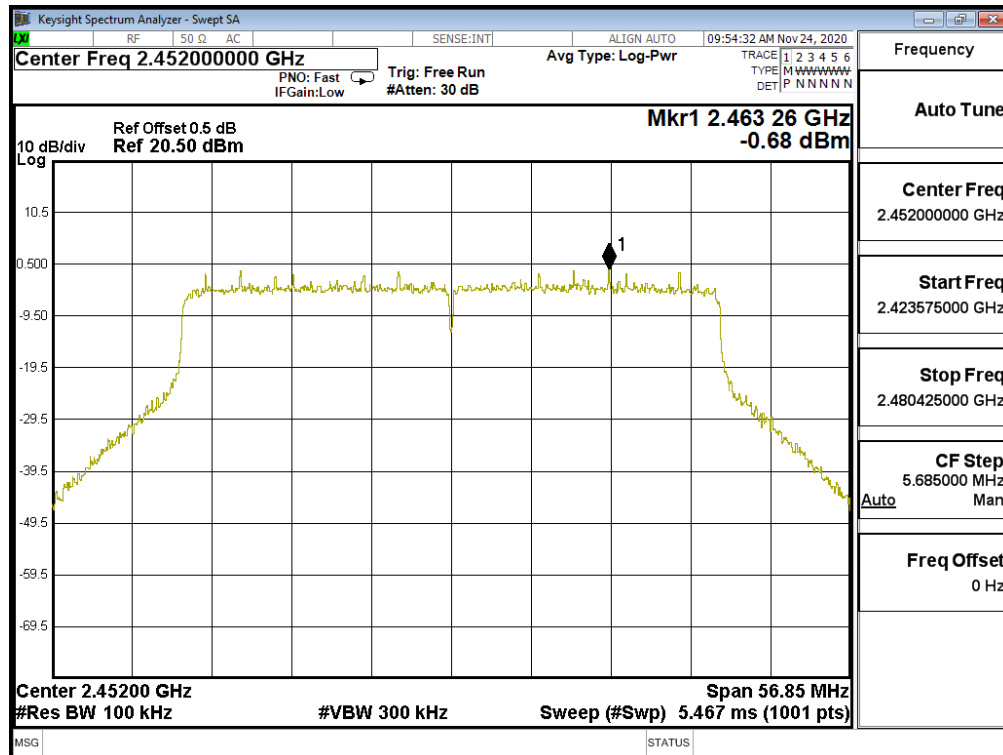


Figure Channel 10: (Chain B)

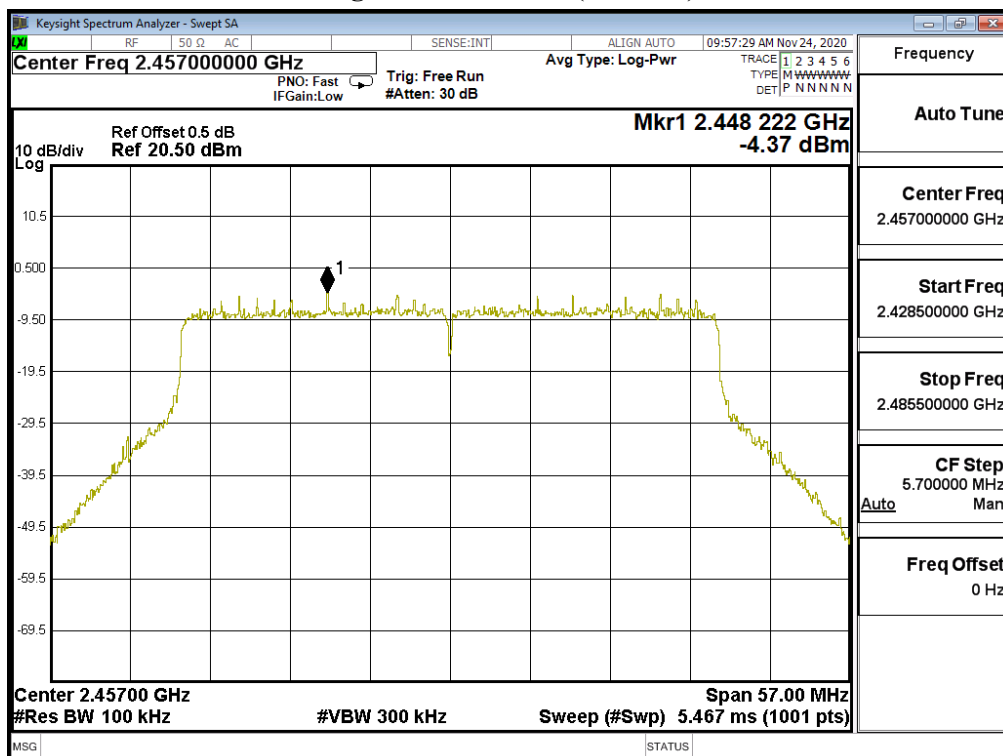
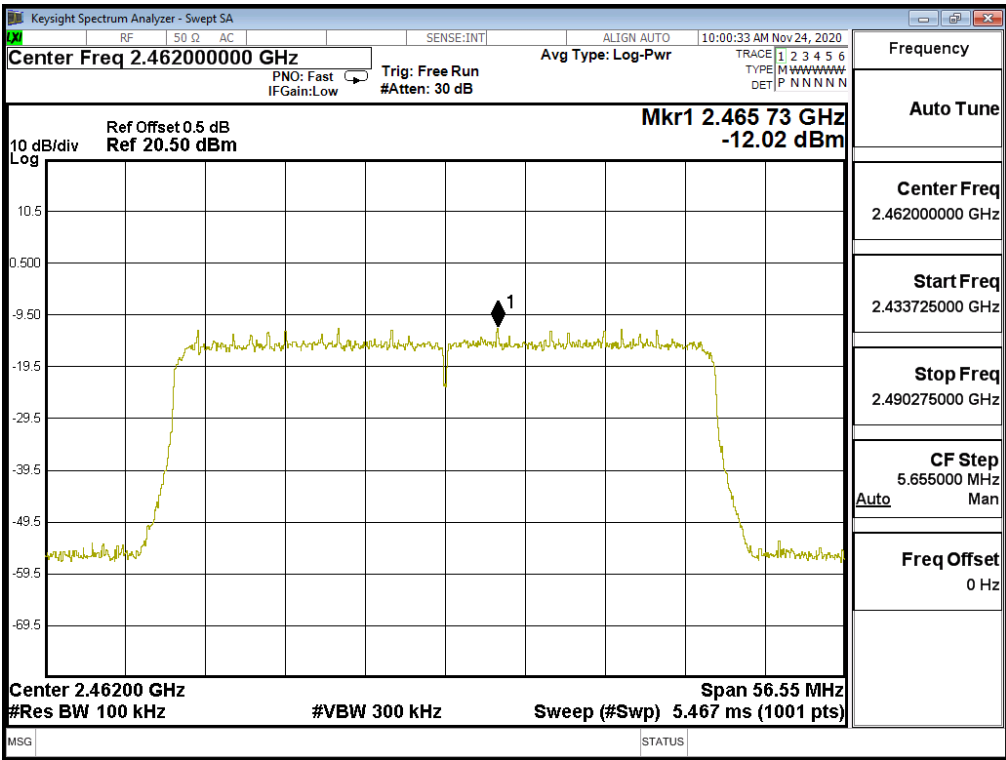


Figure Channel 11: (Chain B)



Product : Notebook Computers
 Test Item : Power Density Data
 Test Mode : Mode 16 MIMO: Transmit (802.11ax-40BW_34.4Mbps)

RU config: Other

Channel No.	Frequency (MHz)	RU config	Chain	Measurement Level (dBm)	Duty Factor (dB)	Total (dBm)	Limit (dBm)	Result
3	2422	242/61	A	4.10	0.12	7.23	$\leq 8\text{dBm}$	Pass
			B	3.89	0.12	7.02	$\leq 8\text{dBm}$	Pass
11	2462	242/62	A	-9.40	0.12	-6.27	$\leq 8\text{dBm}$	Pass
			B	-10.11	0.12	-6.98	$\leq 8\text{dBm}$	Pass

Note :

The quantity $10 \cdot \log 2$ (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 3: (Chain A) 242/61

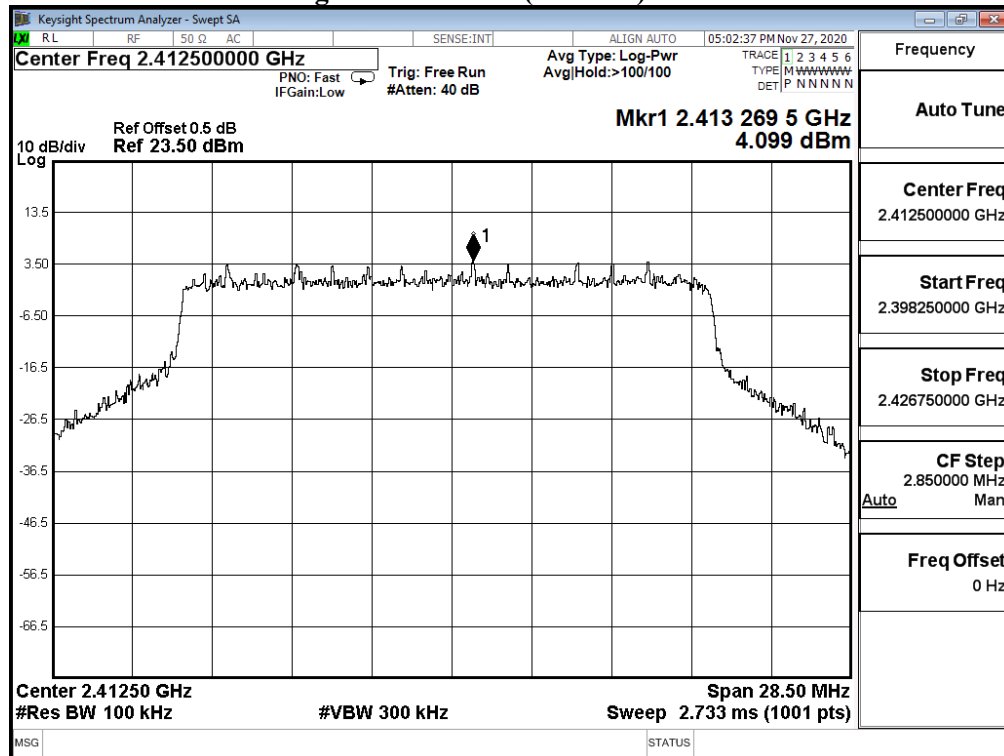


Figure Channel 3: (Chain B) 242/61

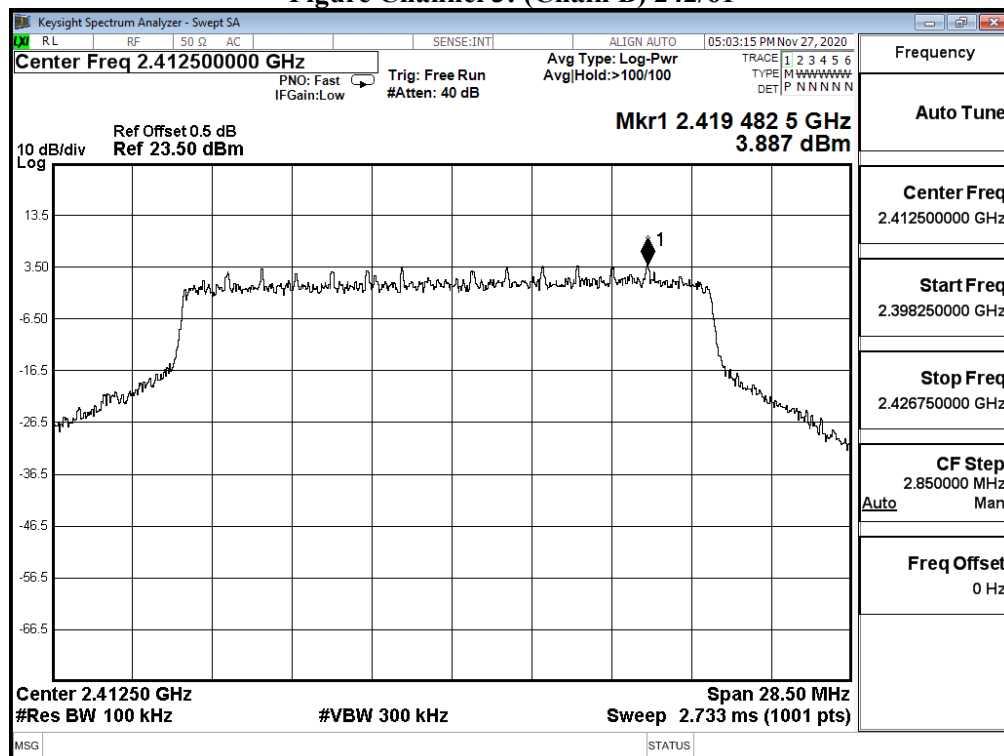


Figure Channel 11: (Chain A) 242/62

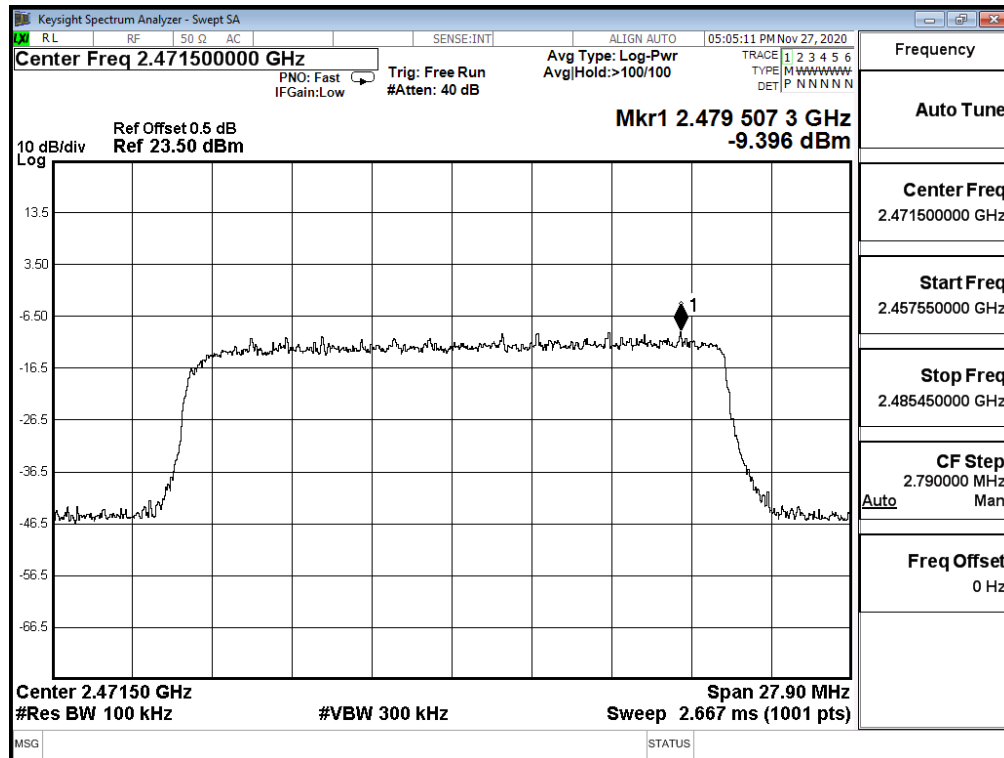
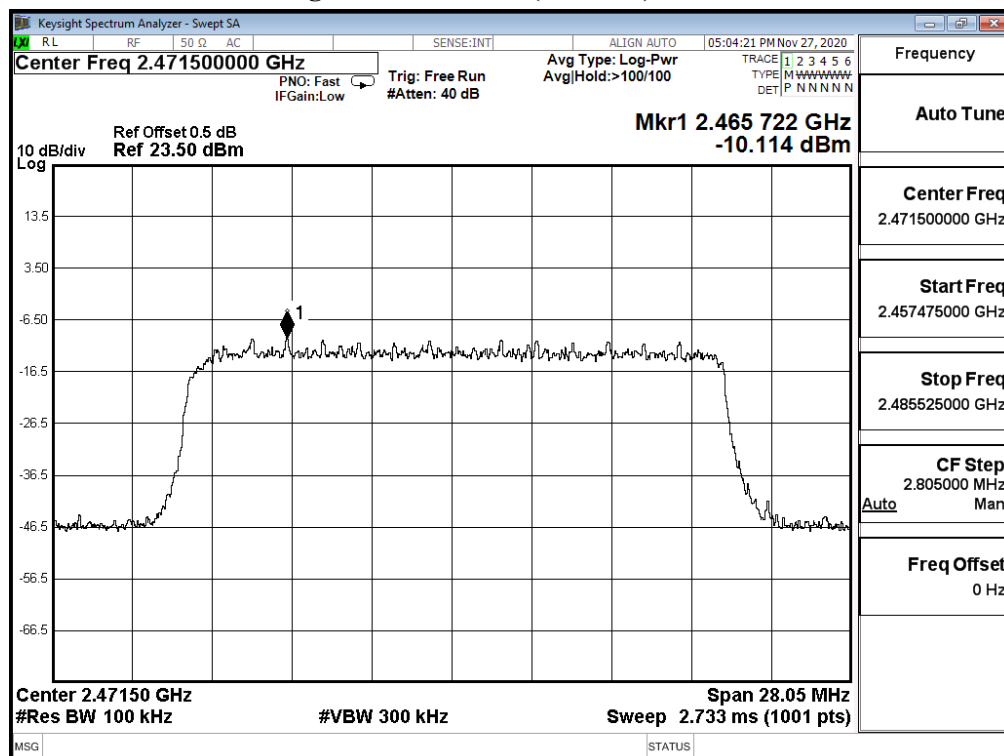
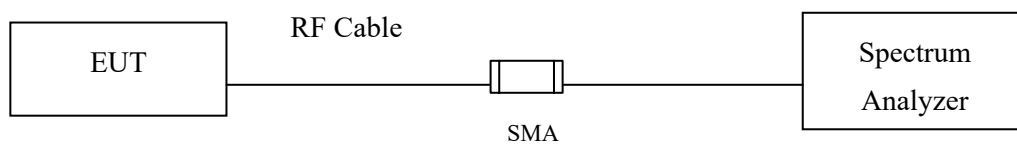


Figure Channel 11: (Chain B) 242/62



9. Duty Cycle

9.1. Test Setup



9.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to ANSI C63.10 2013 for compliance to FCC 47CFR 15.247 requirements.

9.3. Test Result of Duty Cycle

Product : Notebook Computers
 Test Item : Duty Cycle
 Test Mode : Transmit

Duty Cycle Formula:

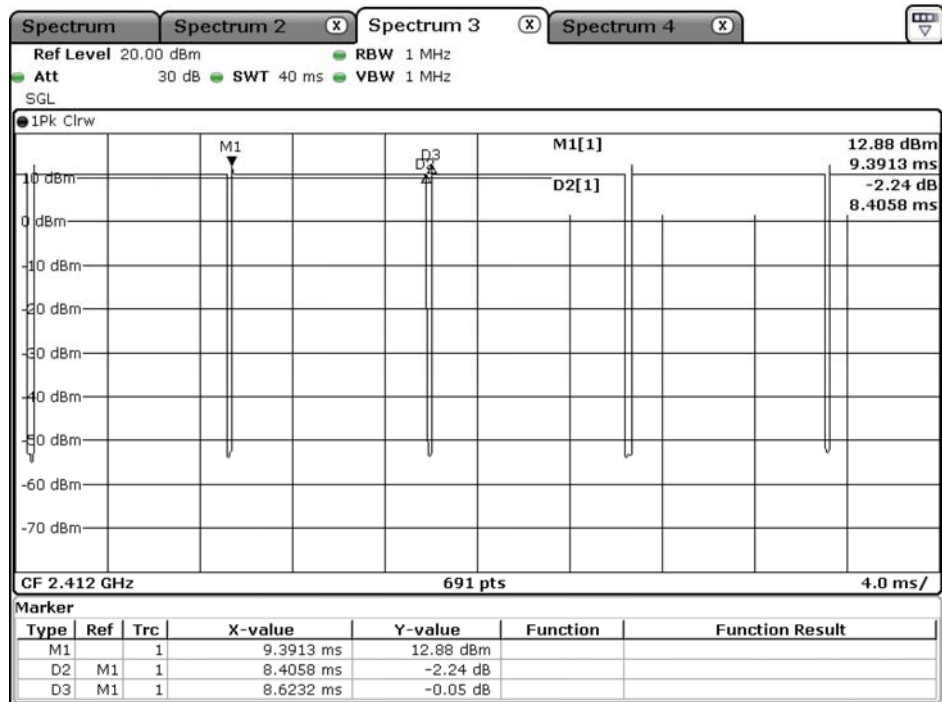
$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$

$\text{Duty Factor} = 10 \text{ Log } (1/\text{Duty Cycle})$

Results: **SISO A**

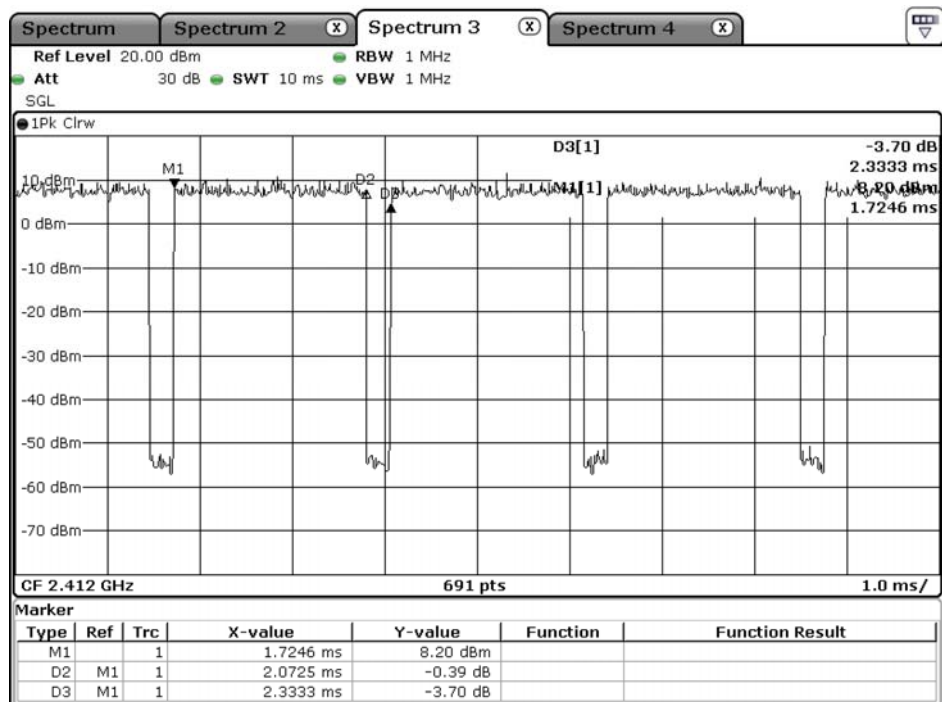
2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11 b	8.4058	8.6232	97.48	0.11
802.11 g	2.0725	2.3333	88.82	0.51
802.11 n20	24.8260	25.0870	98.96	0.05
802.11 n40	17.8260	18.1880	98.01	0.09
802.11ax20	24.6380	25.0000	98.55	0.06
802.11 ax40	18.6230	18.9280	98.39	0.07
802.11 ax20-26/0-RU	3.9348	4.0652	96.79	0.14
802.11 ax20-52/37-RU	3.8913	4.0435	96.24	0.17
802.11 ax20-106/53-RU	3.9130	4.0435	96.77	0.14
802.11 ax40-242/61-RU	3.9565	4.0217	98.38	0.07

802.11b- SISO A



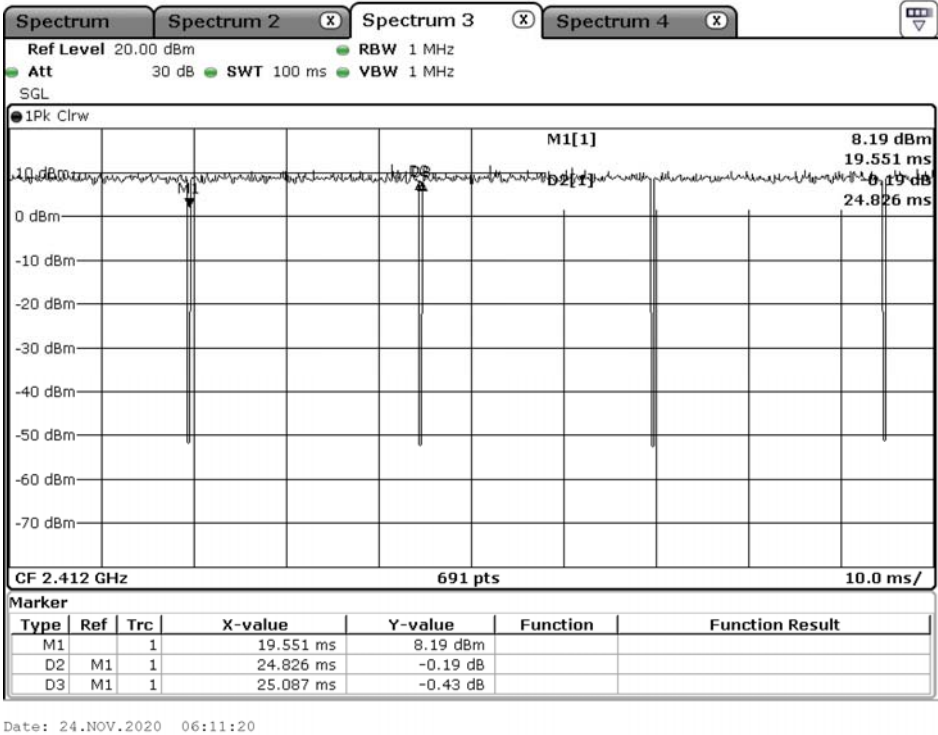
Date: 24.NOV.2020 06:09:34

802.11g- SISO A

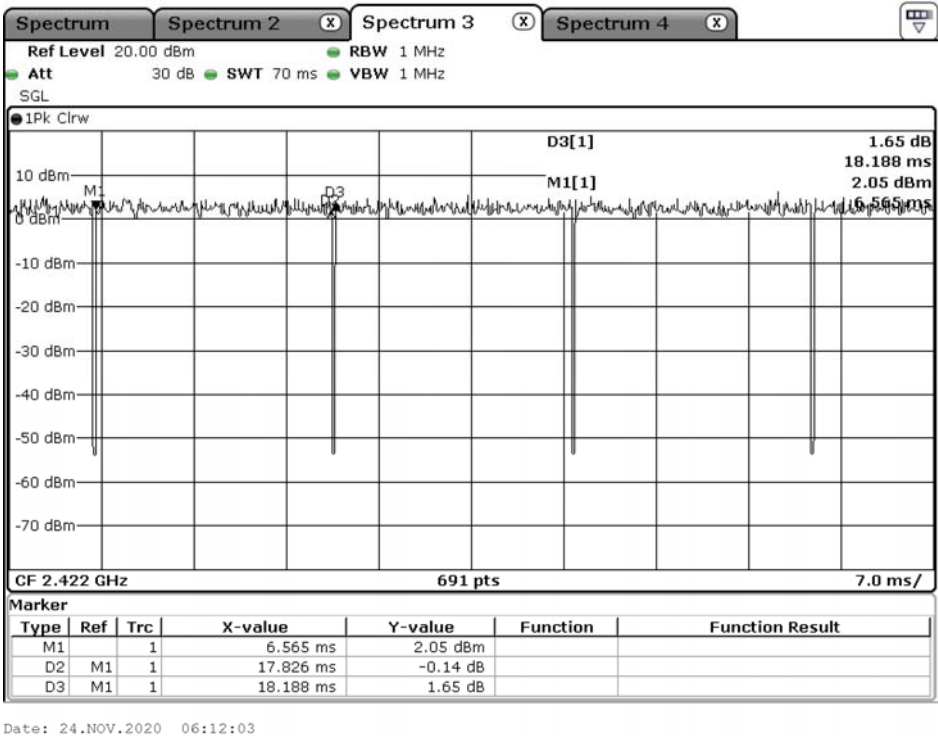


Date: 24.NOV.2020 06:10:28

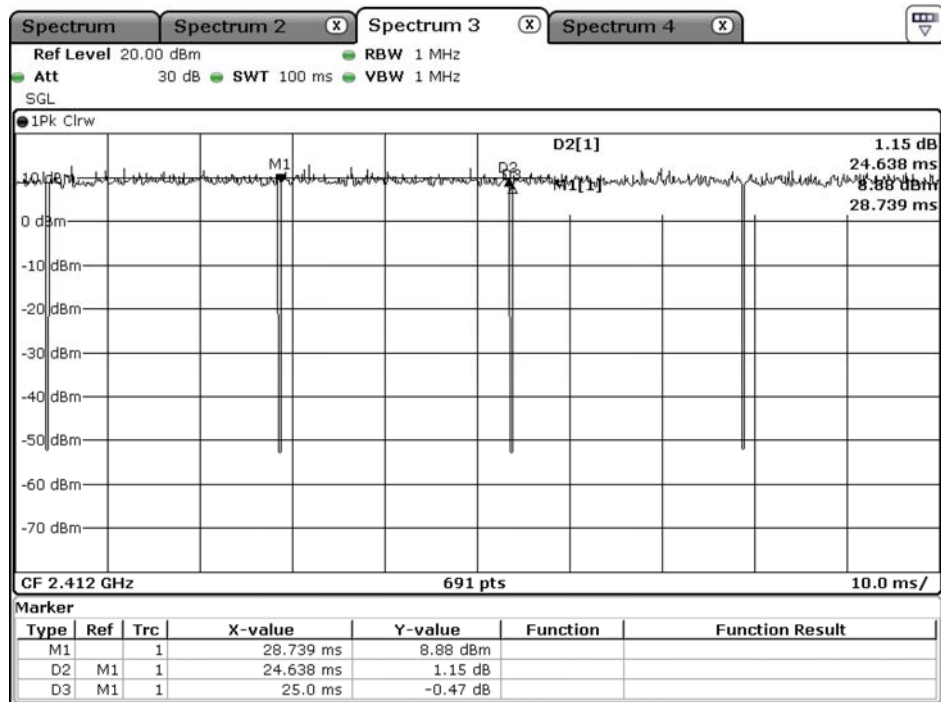
802.11n20-SISO A



802.11n40-SISO A

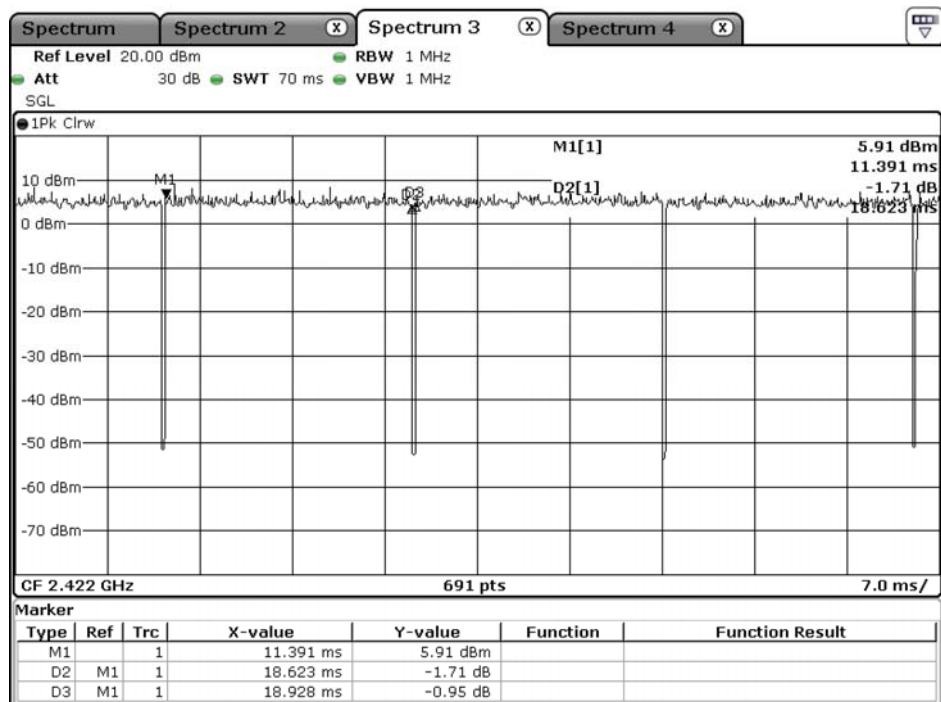


802.11ax20-SISO A



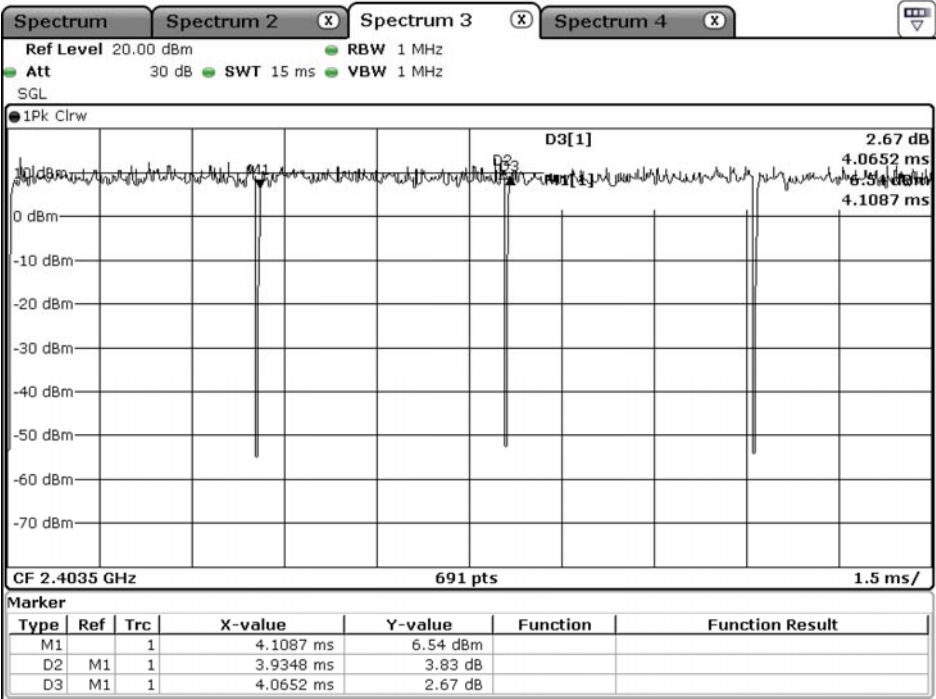
Date: 24.NOV.2020 06:13:00

802.11ax40-SISOA



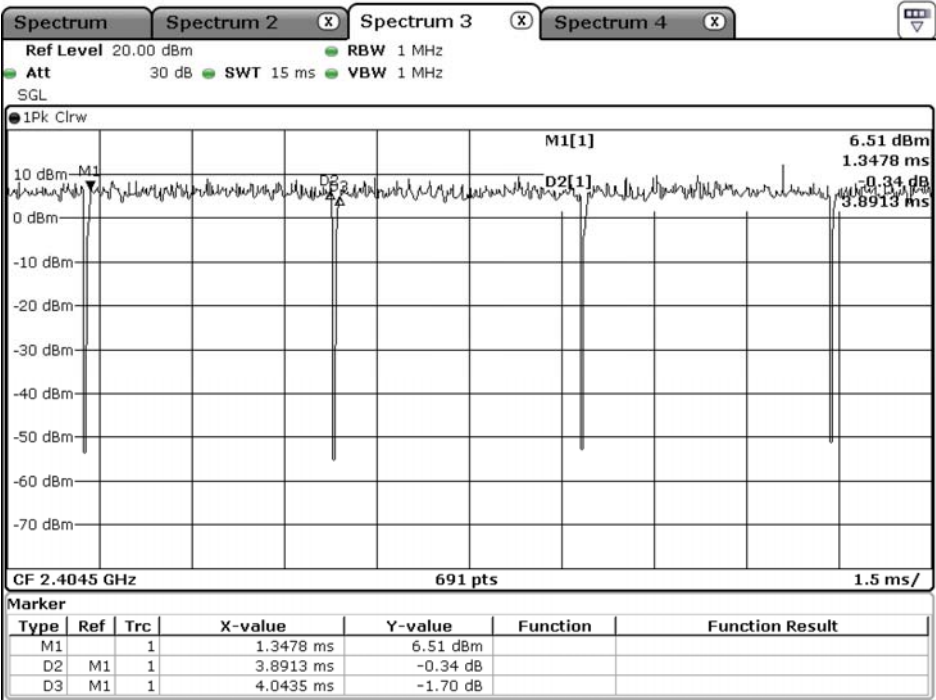
Date: 24.NOV.2020 06:14:01

802.11 ax20-26/0-RU -SISOA



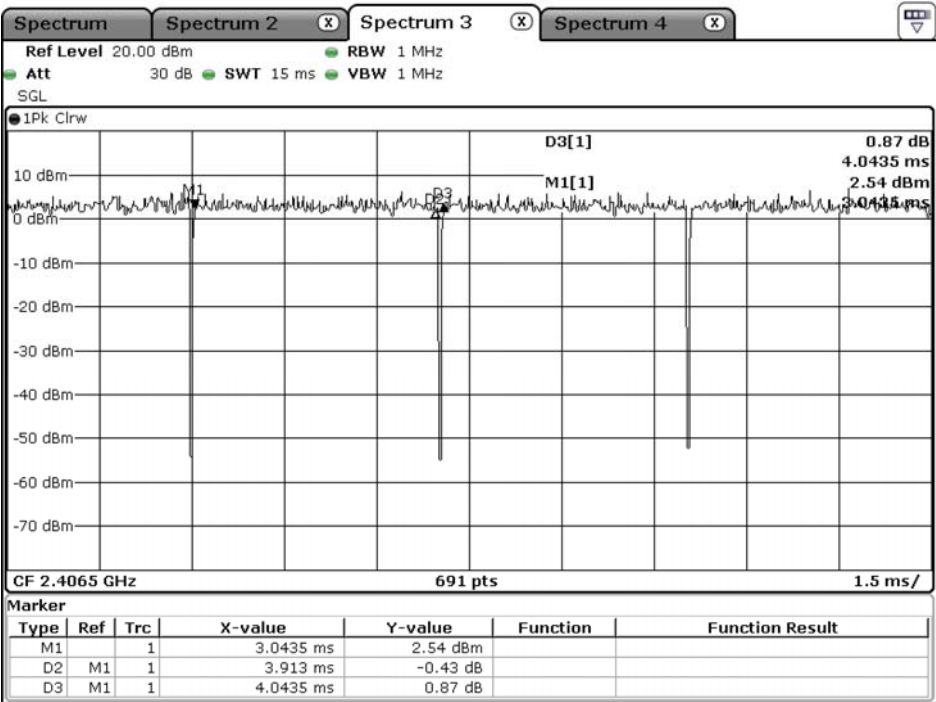
Date: 24.NOV.2020 06:16:04

802.11 ax20-52/37-RU -SISOA



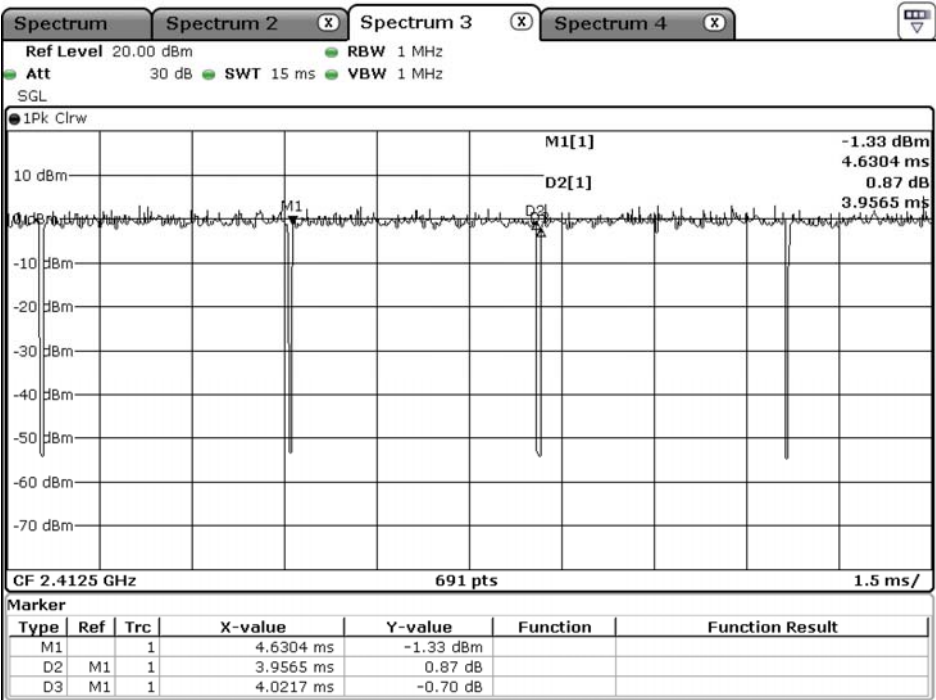
Date: 24.NOV.2020 06:16:57

802.11 ax20-106/53-RU -SISOA



Date: 24.NOV.2020 06:17:45

802.11 ax40-242/61-RU -SISOA



Date: 24.NOV.2020 06:18:27

Product : Notebook Computers
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:

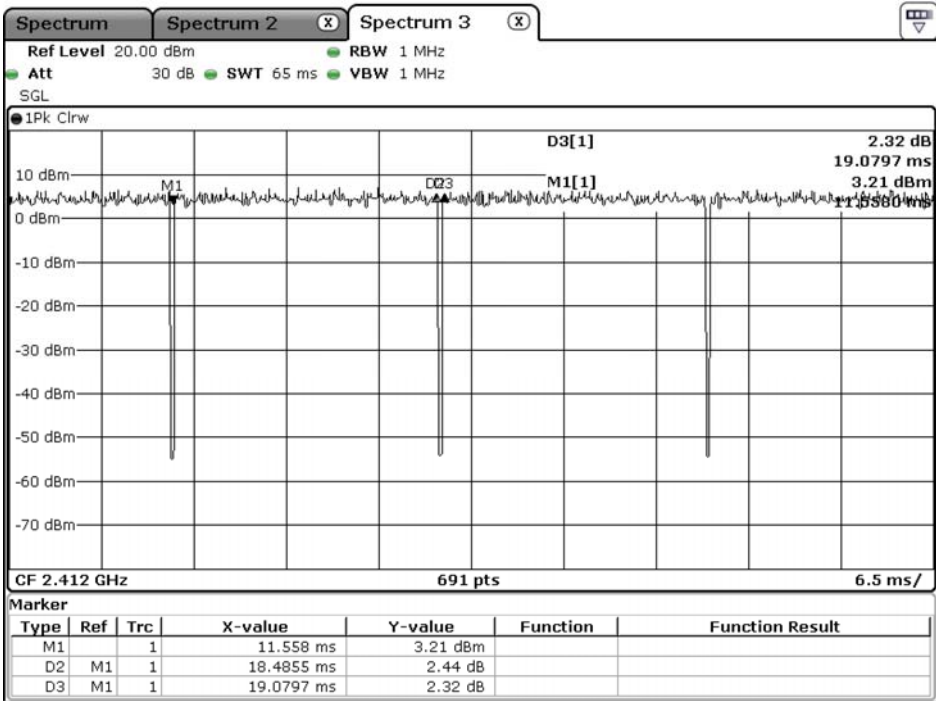
$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$

$\text{Duty Factor} = 10 \text{ Log } (1/\text{Duty Cycle})$

Results: **MIMO**

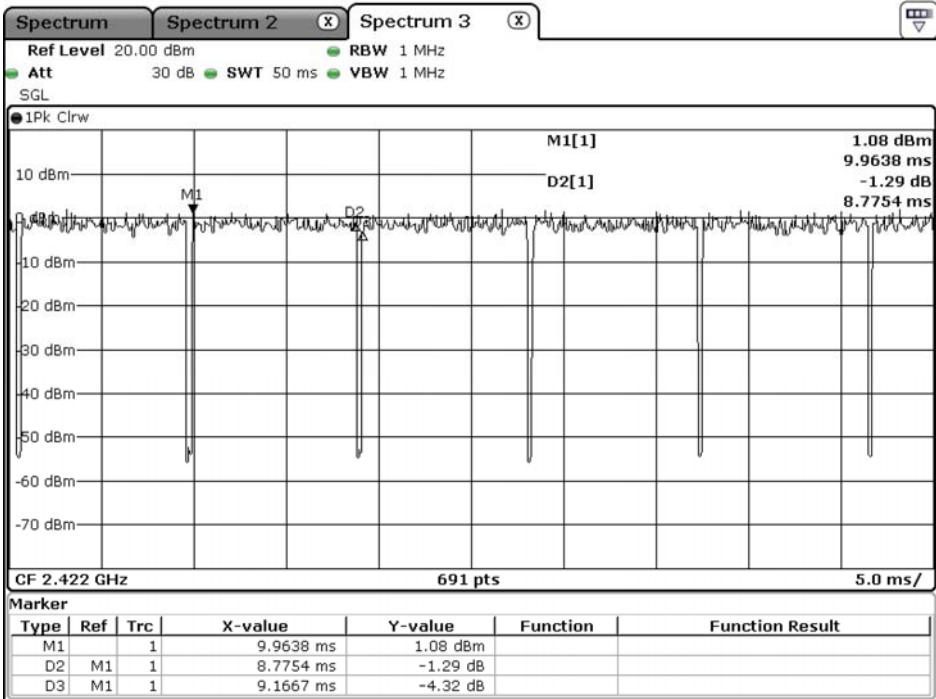
2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11 n20	18.4855	19.0797	96.89	0.14
802.11 n40	8.7754	9.1667	95.73	0.19
802.11ax20	18.6739	18.9855	98.36	0.07
802.11 ax40	9.2101	9.6739	95.21	0.21
802.11 ax20-26/0-RU	3.9348	4.0435	97.31	0.12
802.11 ax20-52/37-RU	3.9348	4.0435	97.31	0.12
802.11 ax20-106/53-RU	3.9348	4.0217	97.84	0.09
802.11 ax40-242/61-RU	3.9565	4.0652	97.33	0.12

802.11n20- MIMO



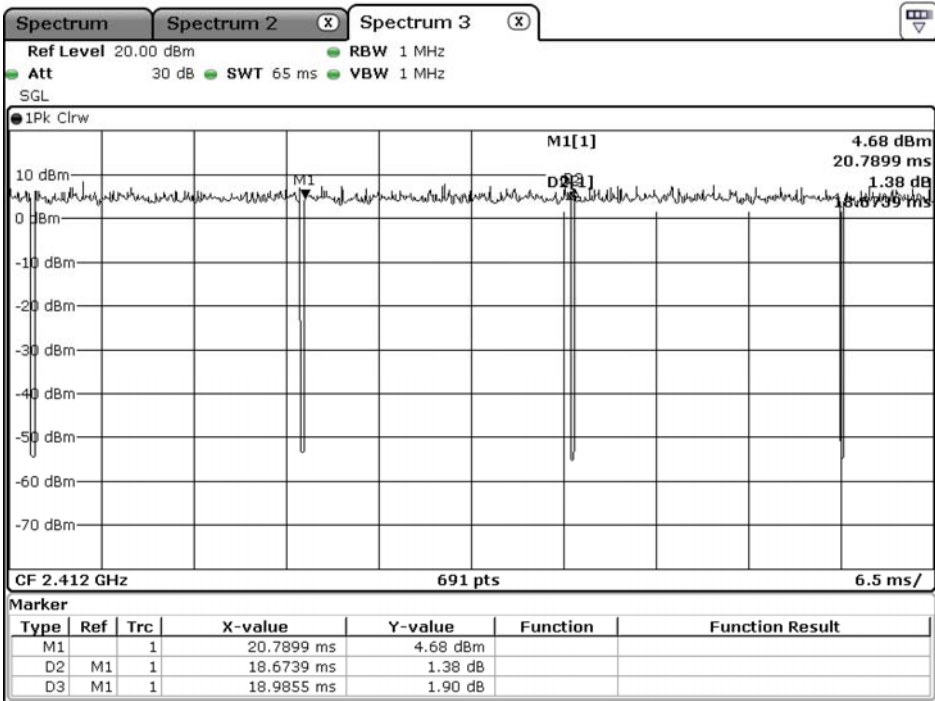
Date: 13.NOV.2020 12:45:25

802.11n40- MIMO



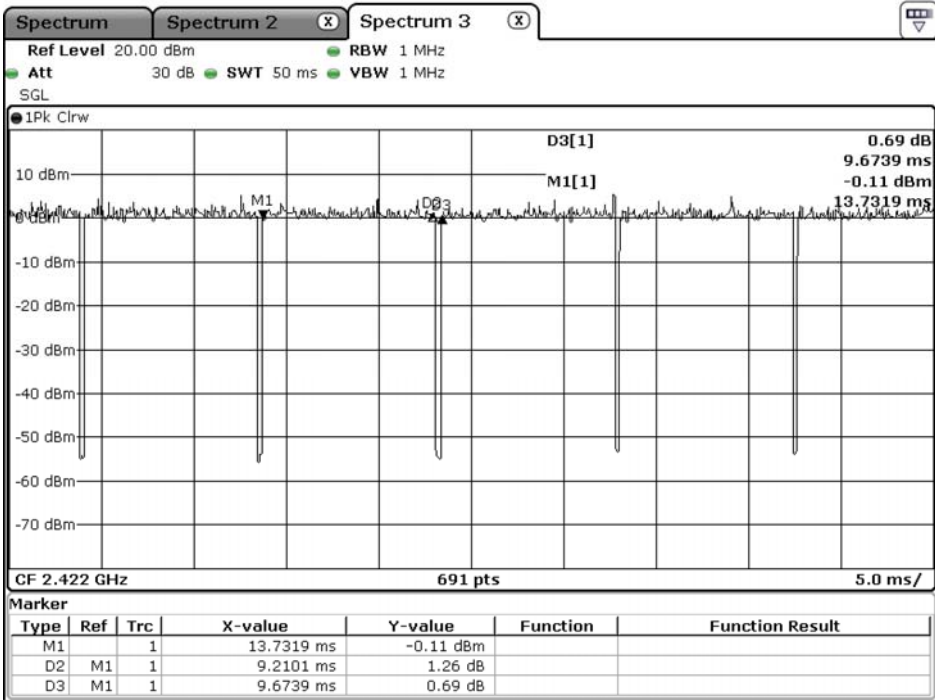
Date: 13.NOV.2020 12:46:43

802.11ax20- MIMO



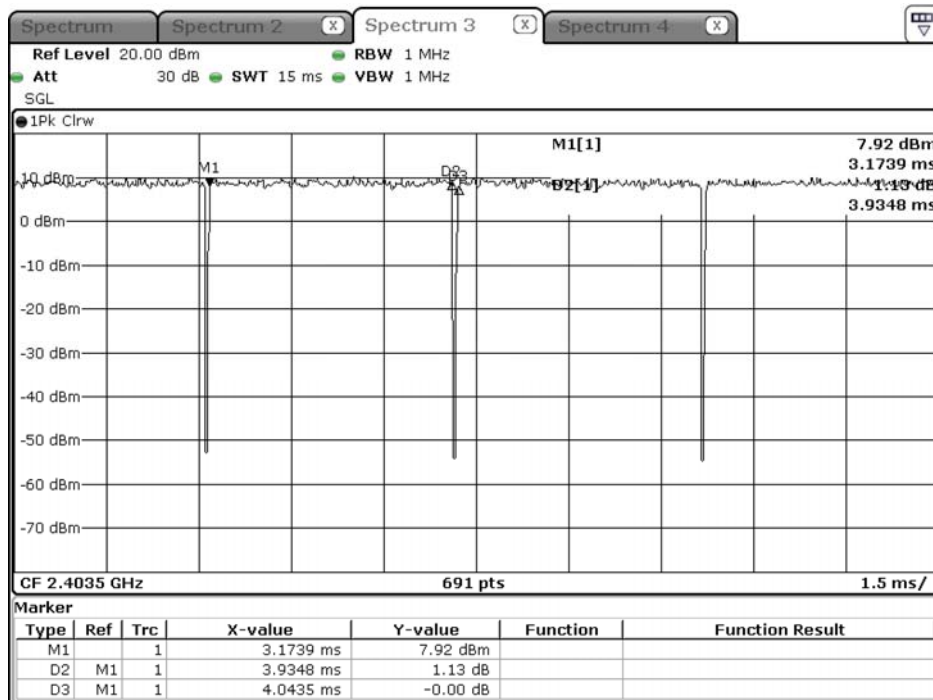
Date: 13.NOV.2020 12:32:03

802.11ax40- MIMO



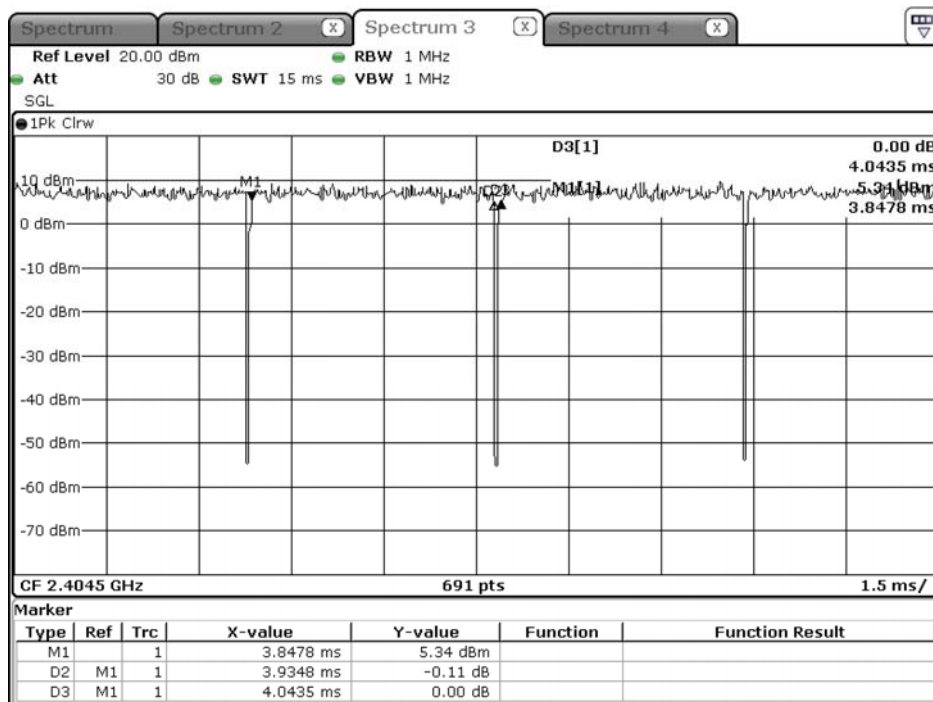
Date: 13.NOV.2020 12:48:21

802.11 ax20-26/0-RU - MIMO



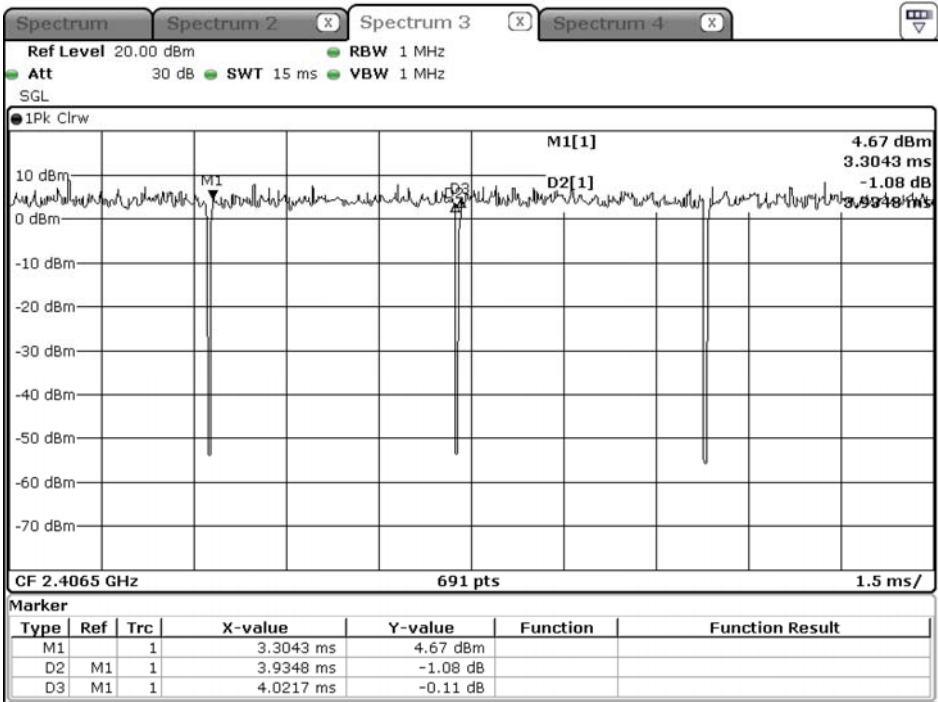
Date: 17.NOV.2020 16:36:59

802.11 ax20-52/37-RU - MIMO



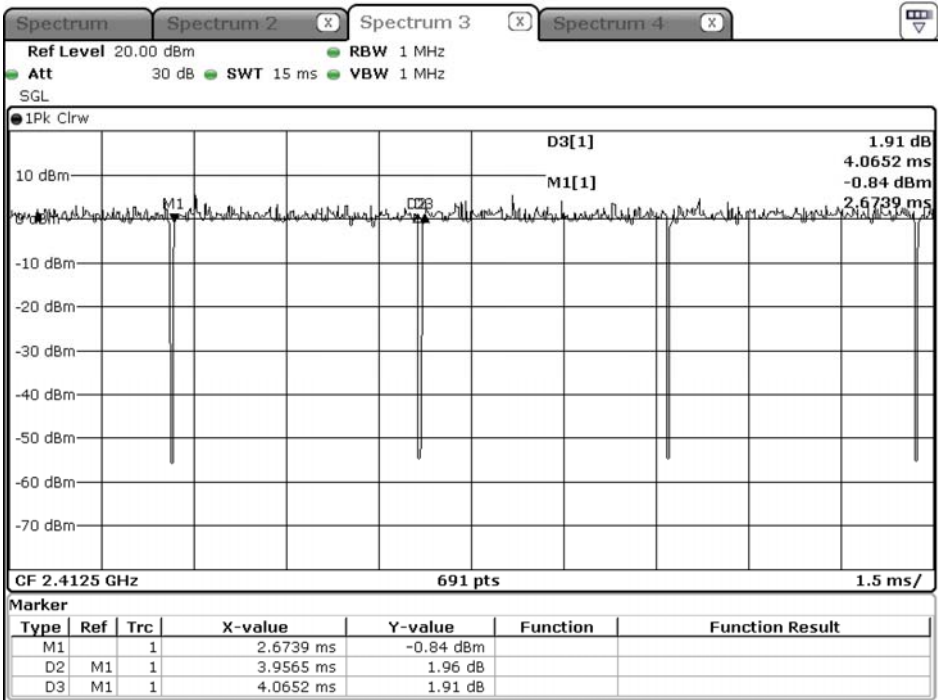
Date: 17.NOV.2020 16:38:42

802.11 ax20-106/53-RU - MIMO



Date: 17.NOV.2020 16:39:17

802.11 ax40-242/61-RU - MIMO



Date: 17.NOV.2020 16:33:15

10. EMI Reduction Method During Compliance Testing

No modification was made during testing.