

Maximum Conducted Output Power

Test Information:

Sample No.:	301H-1	Test Date:	2025/04/29~2025/05/10
Test Site:	RF	Test Mode:	Transmitting
Tester:	Brian Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6~25.9	Relative Humidity: (%)	38~44	ATM Pressure: (kPa)	101
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Test Data:

Mode	Antenna	Test Frequency (MHz)	Peak Output Power(dBm)	Average Output Power(dBm)	Limit (dBm)	Verdict
802.11b	Chain 0	2412	18.18	15.11	30	Pass
		2437	18.60	15.52	30	Pass
		2462	18.84	15.76	30	Pass
	Chain 1	2412	17.74	14.31	30	Pass
		2437	17.63	14.53	30	Pass
		2462	17.46	14.41	30	Pass
802.11g	Chain 0	2412	21.34	13.94	30	Pass
		2437	21.76	14.41	30	Pass
		2462	21.62	14.03	30	Pass
	Chain 1	2412	19.49	11.65	30	Pass
		2437	19.69	11.88	30	Pass
		2462	18.90	11.54	30	Pass
802.11n20	Chain 0	2412	21.54	14.21	30	Pass
		2437	21.65	13.75	30	Pass
		2462	21.87	14.56	30	Pass
	Chain 1	2412	19.56	11.77	30	Pass
		2437	19.27	11.63	30	Pass
		2462	19.24	11.80	30	Pass
802.11n40	Chain 0	2422	19.52	12.08	30	Pass
		2437	20.03	12.63	30	Pass
		2452	19.52	12.15	30	Pass
	Chain 1	2422	17.82	10.34	30	Pass
		2437	17.31	9.95	30	Pass
		2452	16.92	9.53	30	Pass

Power Spectral Density**Test Information:**

Sample No.:	301H-1	Test Date:	2025/04/29~2025/05/10
Test Site:	RF	Test Mode:	Transmitting
Tester:	Brian Li	Test Result:	Pass

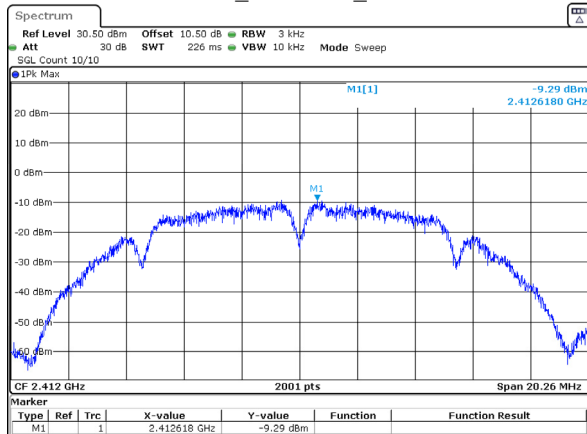
Environmental Conditions:

Temperature: (°C)	24.6-25.9	Relative Humidity: (%)	38-44	ATM Pressure: (kPa)	101
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Test Data:

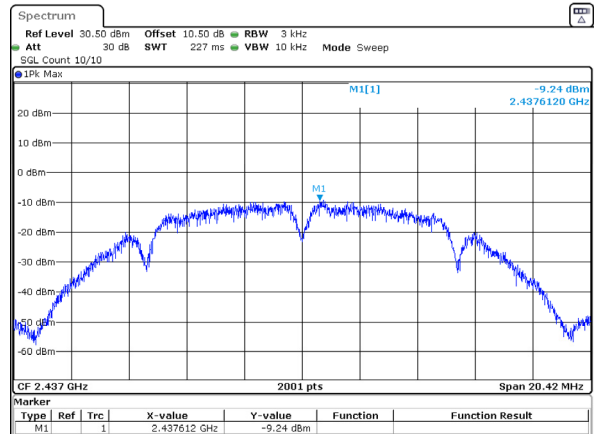
Mode	Antenna	Test Frequency (MHz)	Result (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	Chain 0	2412	-9.29	8	Pass
		2437	-9.24	8	Pass
		2462	-8.84	8	Pass
	Chain 1	2412	-9.90	8	Pass
		2437	-10.03	8	Pass
		2462	-10.30	8	Pass
802.11g	Chain 0	2412	-11.52	8	Pass
		2437	-10.11	8	Pass
		2462	-10.97	8	Pass
	Chain 1	2412	-13.00	8	Pass
		2437	-12.79	8	Pass
		2462	-14.18	8	Pass
802.11n20	Chain 0	2412	-11.85	8	Pass
		2437	-11.41	8	Pass
		2462	-10.85	8	Pass
	Chain 1	2412	-12.66	8	Pass
		2437	-13.23	8	Pass
		2462	-13.48	8	Pass
802.11n40	Chain 0	2422	-15.77	8	Pass
		2437	-15.84	8	Pass
		2452	-15.63	8	Pass
	Chain 1	2422	-17.37	8	Pass
		2437	-17.03	8	Pass
		2452	-17.00	8	Pass

802.11b_2412MHz_Chain 0



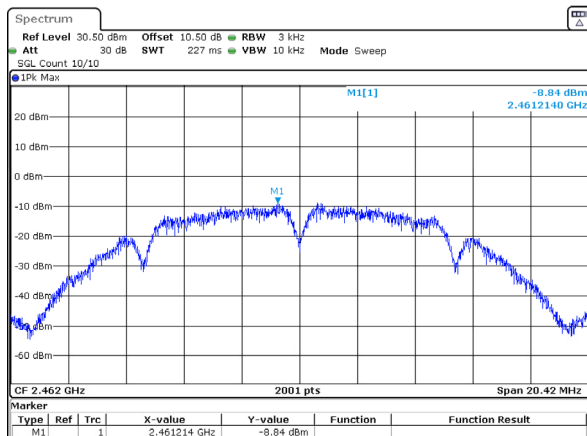
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:18:55

802.11b_2437MHz_Chain 0



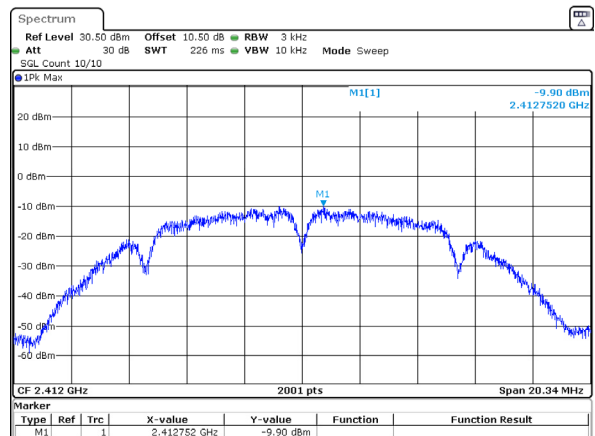
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Date: 29.APR.2025 23:20:55

802.11b_2462MHz_Chain 0



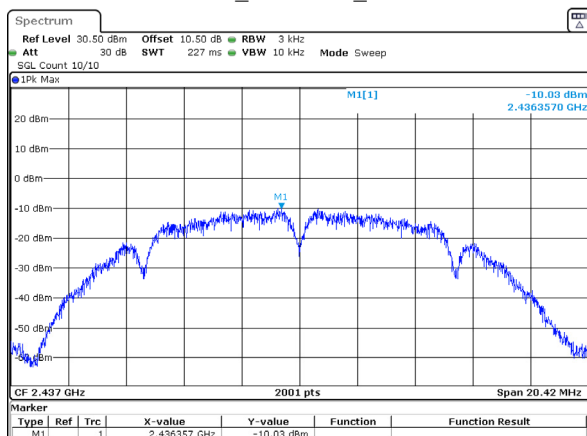
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:23:26

802.11b_2412MHz_Chain 1



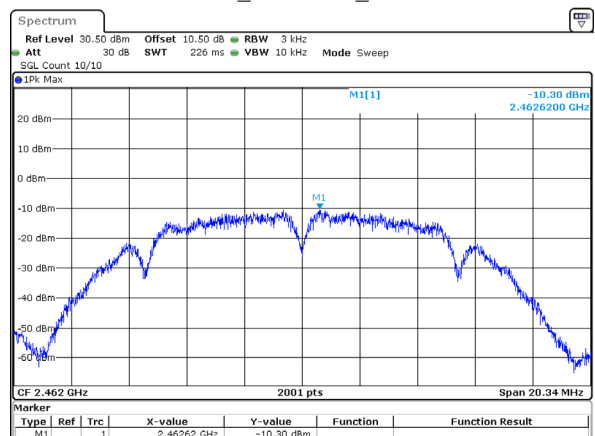
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:28:22

802.11b_2437MHz_Chain 1



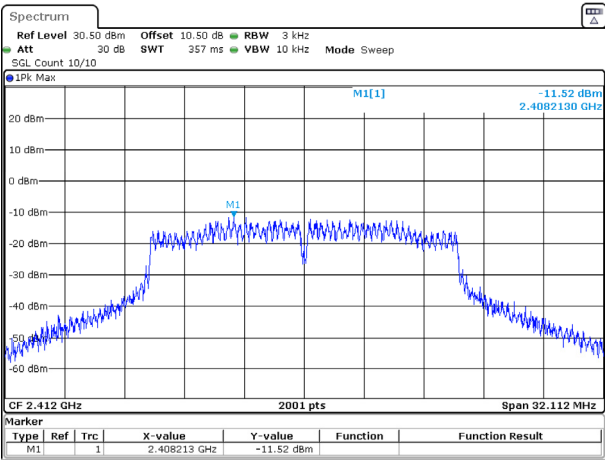
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:30:12

802.11b_2462MHz_Chain 1



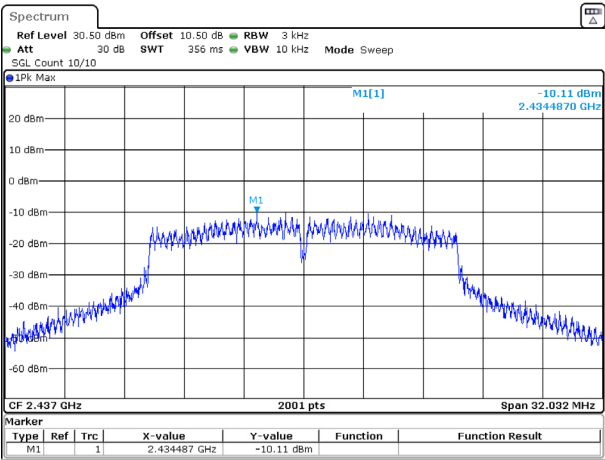
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 10.MAY.2025 21:23:33

802.11g_2412MHz_Chain 0



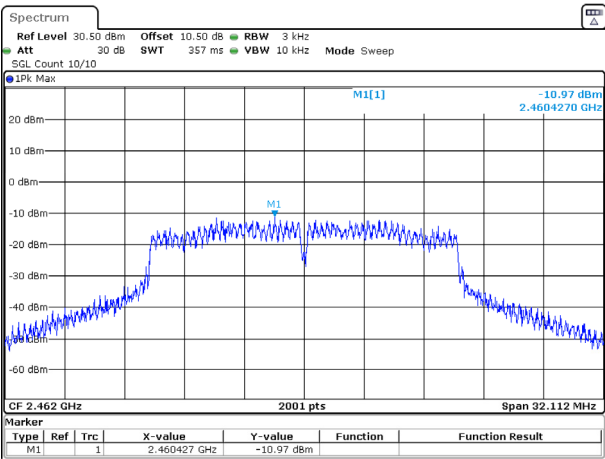
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Date: 29.APR.2025 23:26:18

802.11g_2437MHz_Chain 0



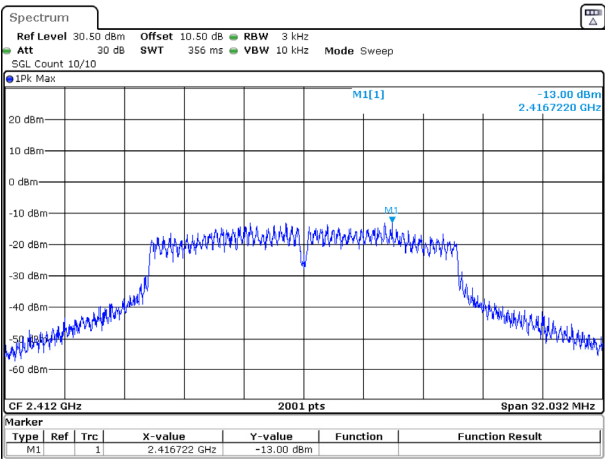
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Date: 29.APR.2025 23:28:22

802.11g_2462MHz_Chain 0



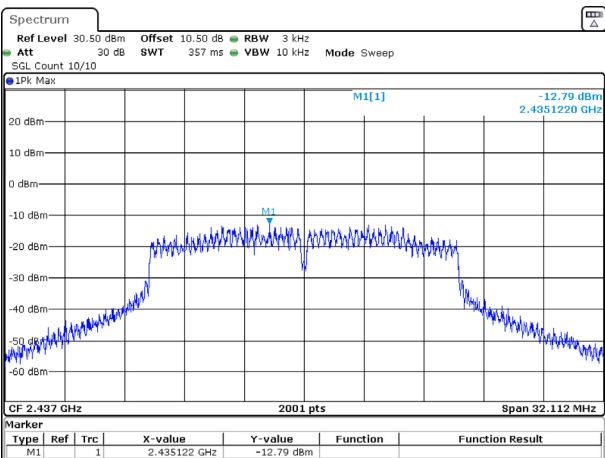
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Date: 29.APR.2025 23:31:15

802.11g_2412MHz_Chain 1



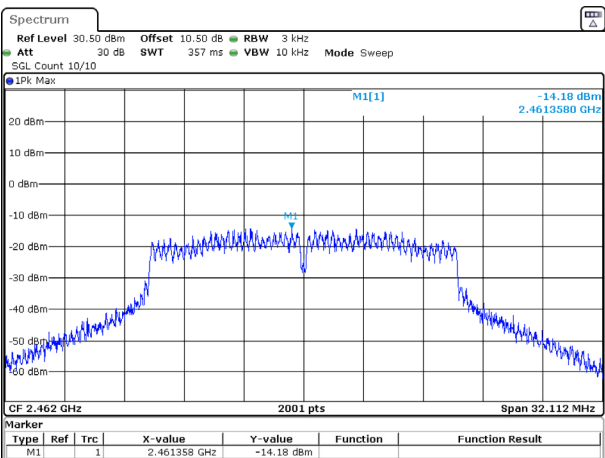
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802.11g_2437MHz_Chain 1



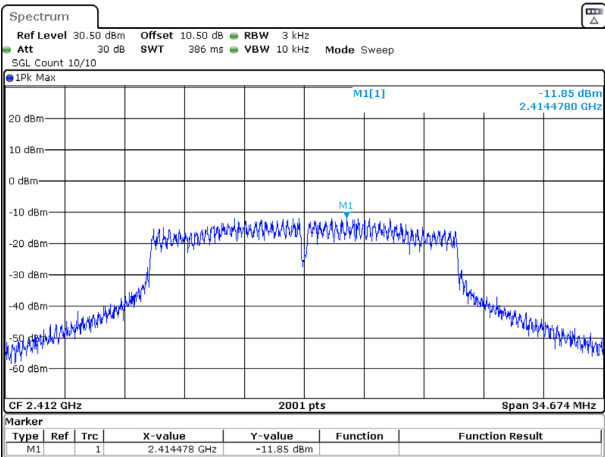
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:35:58

802.11g_2462MHz_Chain 1



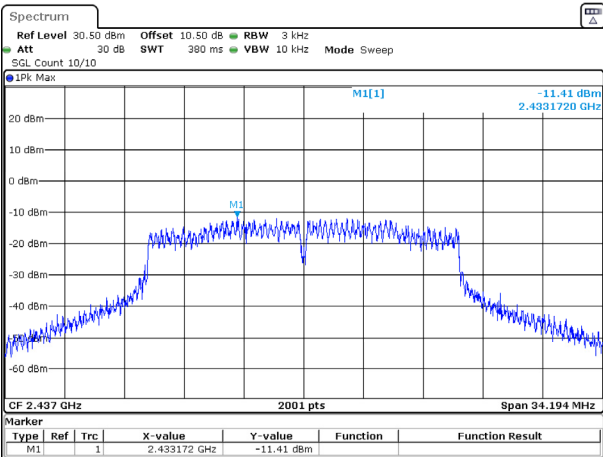
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:38:20

802.11n20_2412MHz_Chain 0



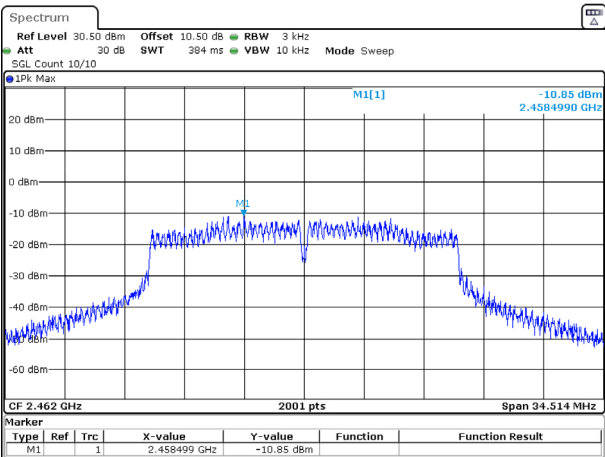
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Date: 29.APR.2025 23:34:00

802.11n20_2437MHz_Chain 0



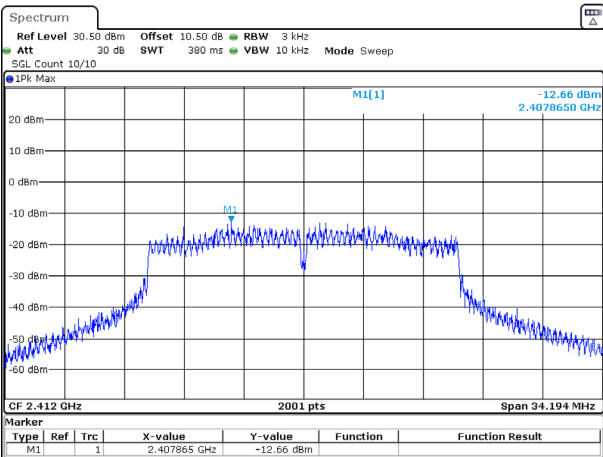
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:37:30

802.11n20_2462MHz_Chain 0



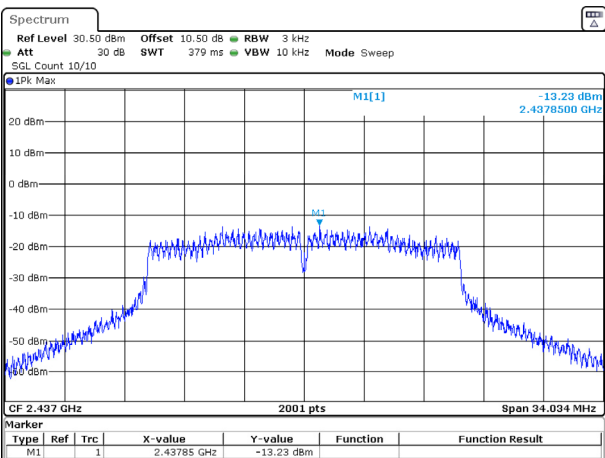
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Date: 29.APR.2025 23:40:26

802.11n20_2412MHz_Chain 1



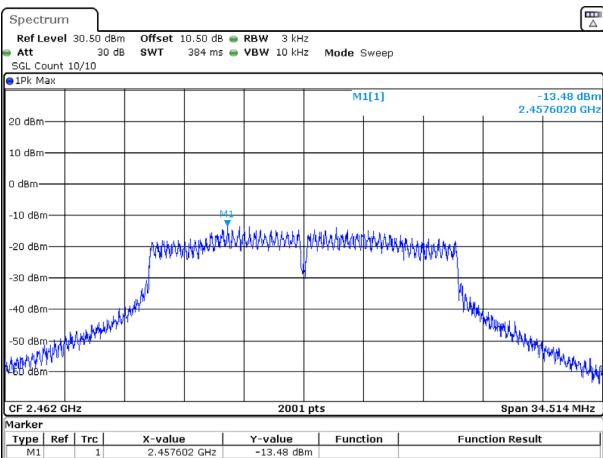
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:41:04

802.11n20_2437MHz_Chain 1



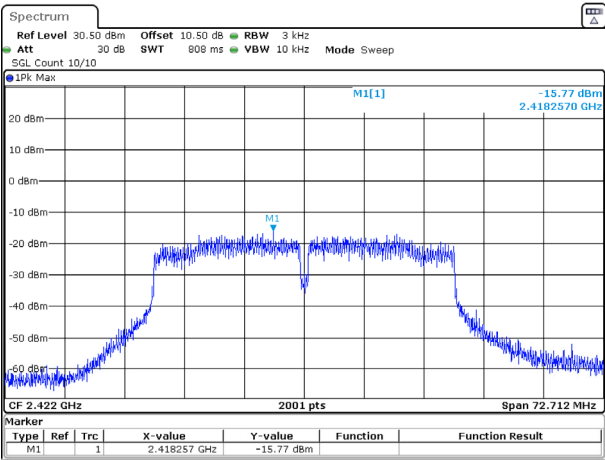
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Date: 30.APR.2025 00:42:58

802.11n20_2462MHz_Chain 1



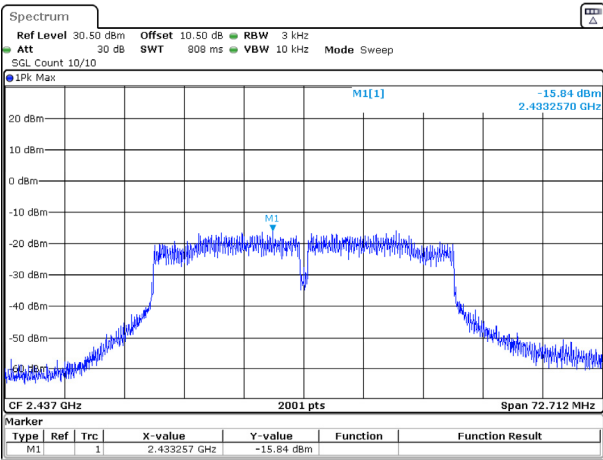
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:46:16

802.11n40_2422MHz_Chain 0



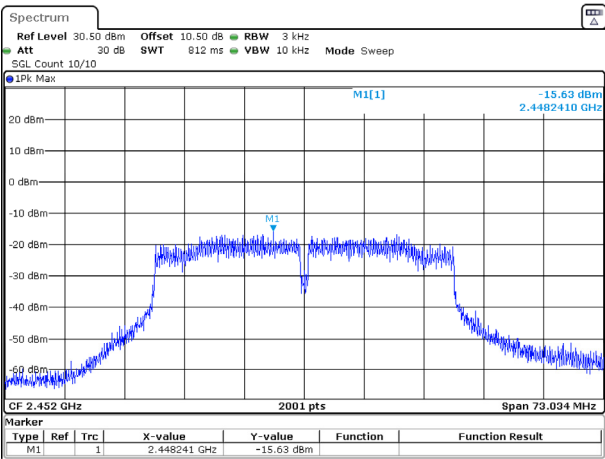
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Date: 29.APR.2025 23:42:12

802.11n40_2437MHz_Chain 0



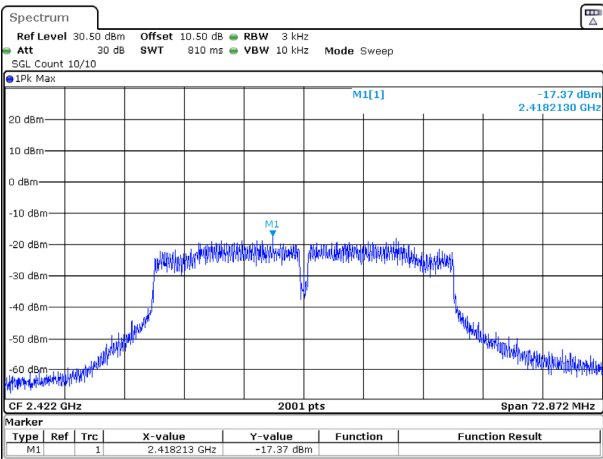
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:43:23

802.11n40_2452MHz_Chain 0



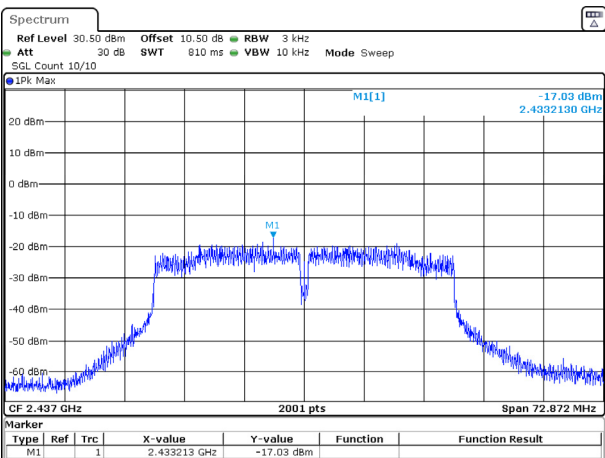
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:45:39

802.11n40_2422MHz_Chain 1



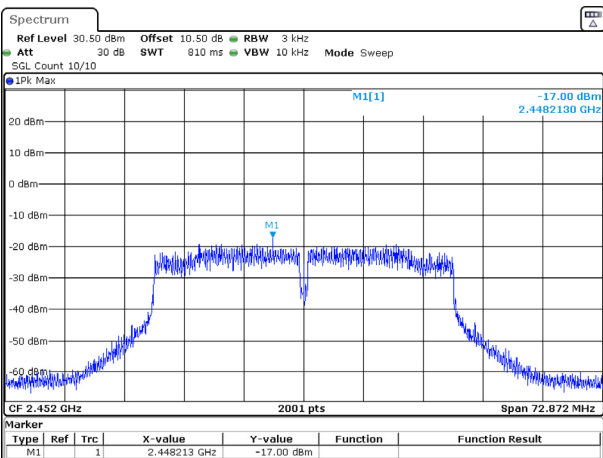
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:49:47

802.11n40_2437MHz_Chain 1



ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:51:03

802.11n40_2452MHz_Chain 1



ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:52:23

100 kHz Bandwidth of Frequency Band Edge**Test Information:**

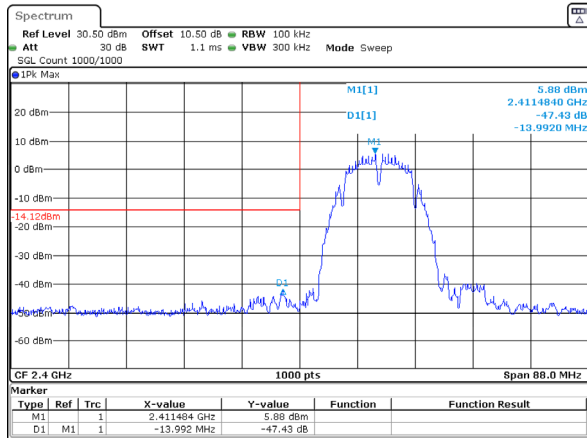
Sample No.:	301H-1	Test Date:	2025/04/29~2025/05/10
Test Site:	RF	Test Mode:	Transmitting
Tester:	Brian Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6-25.9	Relative Humidity: (%)	38-44	ATM Pressure: (kPa)	101
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Test Data:

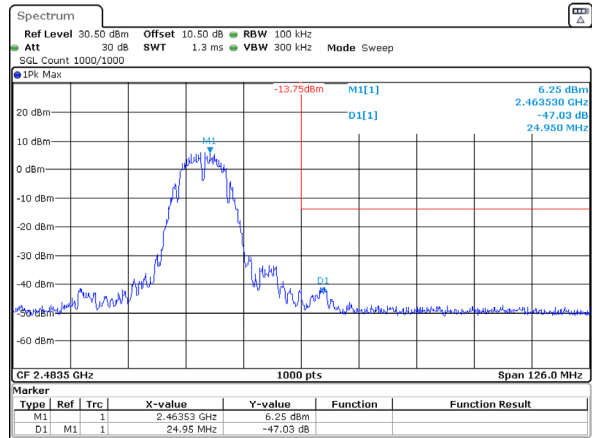
802.11b_2412MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 29.APR.2025 23:18:46

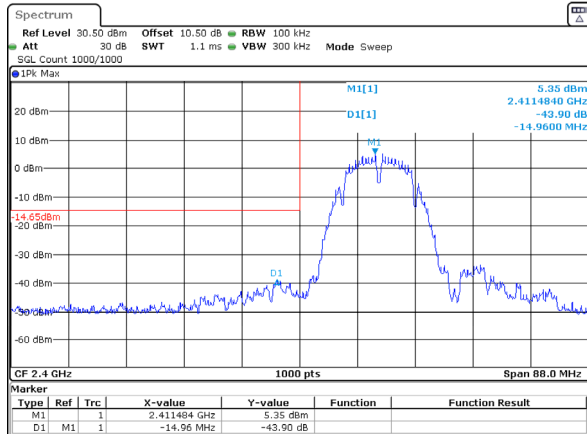
802.11b_2462MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 29.APR.2025 23:23:17

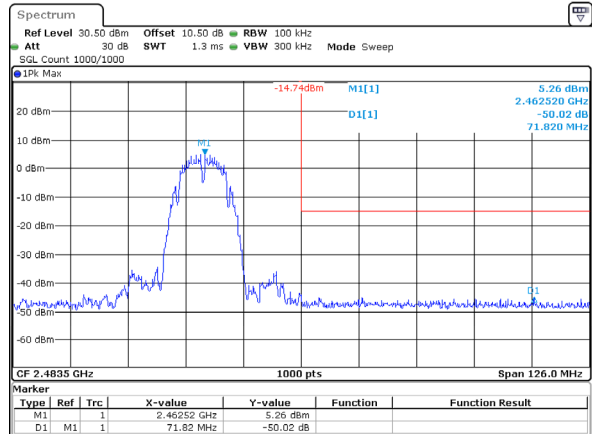
802.11b_2412MHz_Chain 1



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 30.APR.2025 00:28:12

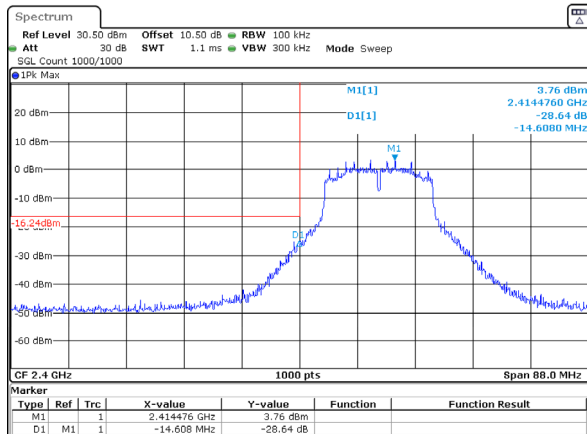
802.11b_2462MHz_Chain 1



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 10.MAY.2025 21:23:28

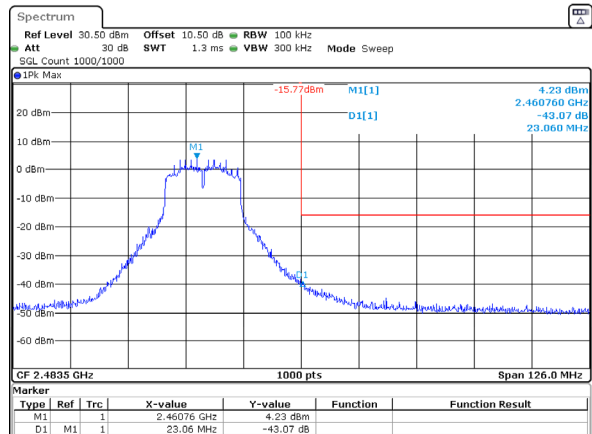
802.11g_2412MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 29.APR.2025 23:26:07

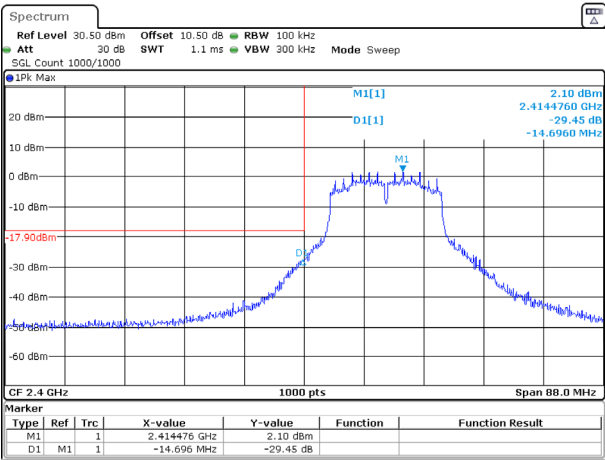
802.11g_2462MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

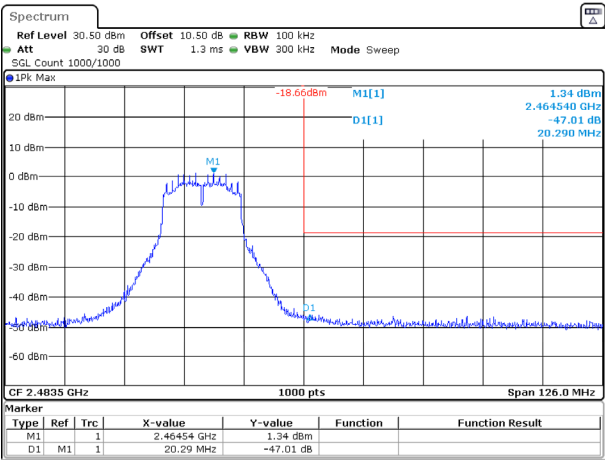
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802.11g_2412MHz_Chain 1



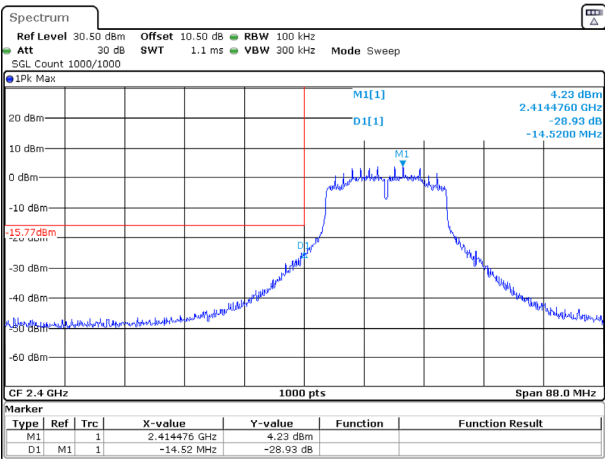
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Date: 30.APR.2025 00:33:50

802.11g_2462MHz_Chain 1



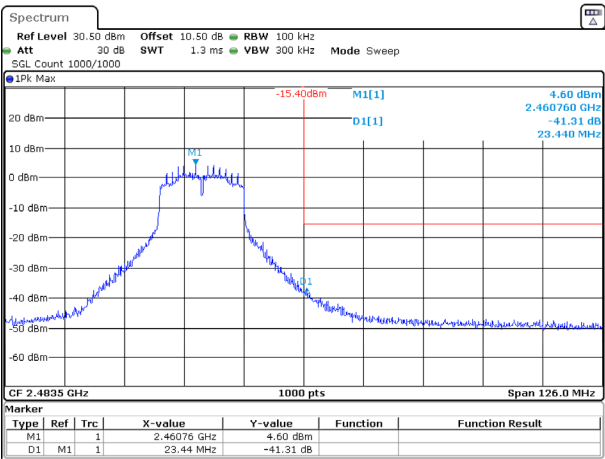
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:38:09

802.11n20_2412MHz_Chain 0



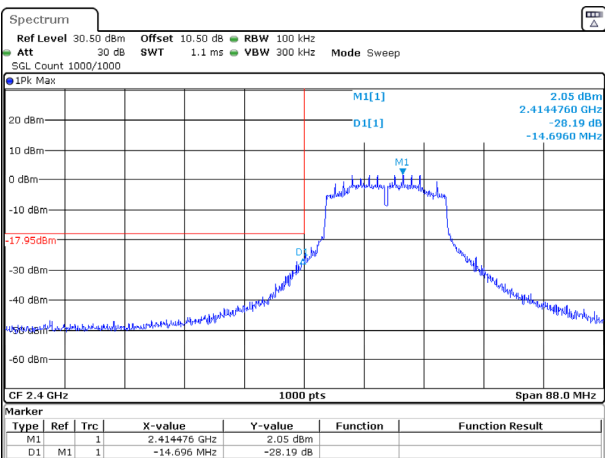
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Date: 29.APR.2025 23:33:49

802.11n20_2462MHz_Chain 0



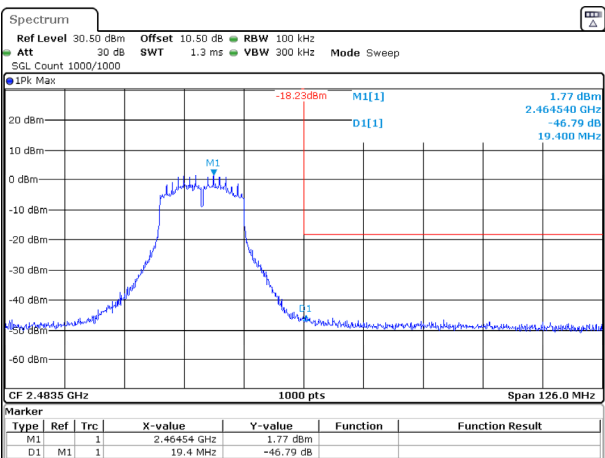
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:40:14

802.11n20_2412MHz_Chain 1



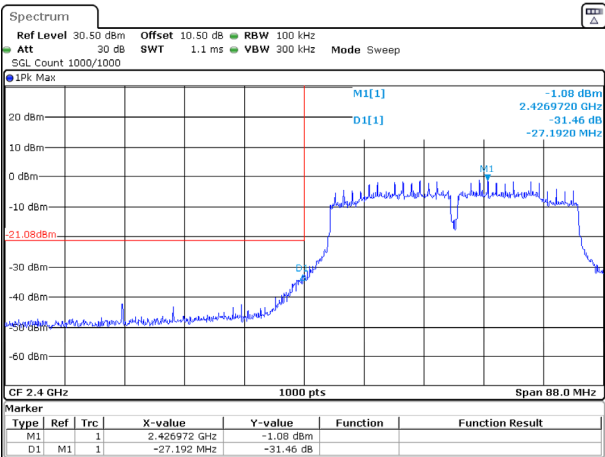
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Date: 30.APR.2025 00:40:52

802.11n20_2462MHz_Chain 1



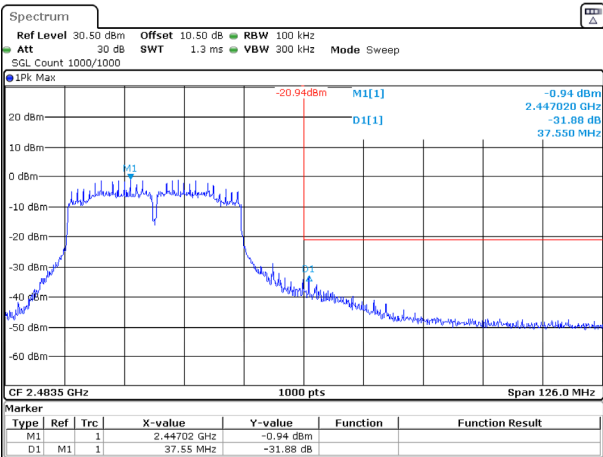
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:46:03

802.11n40_2422MHz_Chain 0



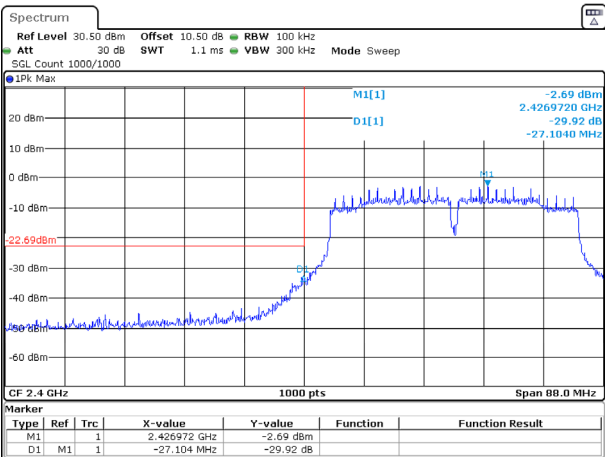
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:41:55

802.11n40_2452MHz_Chain 0



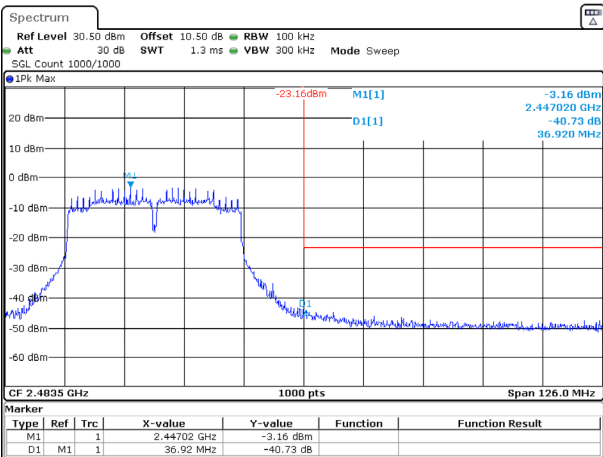
ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 29.APR.2025 23:45:21

802.11n40_2422MHz_Chain 1



ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:49:30

802.11n40_2452MHz_Chain 1



ProjectNo.:2501R29190E-RF Tester:Brian Li
Date: 30.APR.2025 00:52:07

Duty Cycle

Test Information:

Sample No.:	301H-1	Test Date:	2025/04/29
Test Site:	RF	Test Mode:	Transmitting
Tester:	Brian Li	Test Result:	N/A

Environmental Conditions:

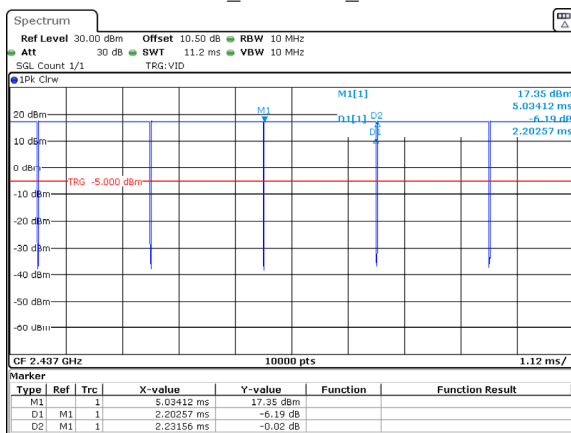
Temperature: (°C)	25.9	Relative Humidity: (%)	38	ATM Pressure: (kPa)	101
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Test Data:

Mode	Antenna	Test Frequency (MHz)	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
802.11b	Chain 0	2437	2.203	2.232	98.70	/	/	0.100
802.11g	Chain 0	2437	2.038	2.066	98.64	/	/	0.100
802.11n20	Chain 0	2437	1.899	1.928	98.50	/	/	0.100
802.11n40	Chain 0	2437	0.927	0.954	97.17	0.12	1079	2

$$\text{Duty Cycle} = \text{Ton}/(\text{Ton}+\text{Toff}) * 100\%$$

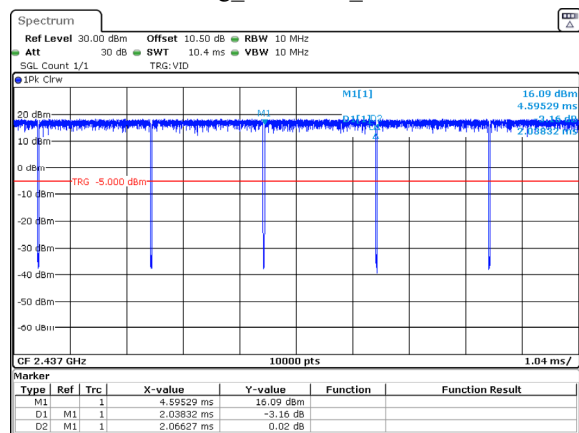
802.11b_2437MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 29.APR.2025 23:12:37

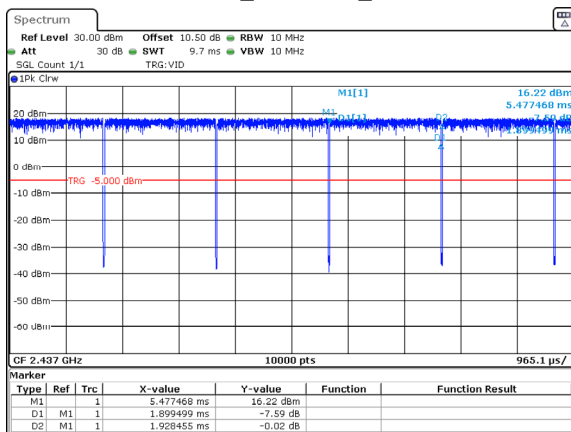
802.11g_2437MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 29.APR.2025 23:13:37

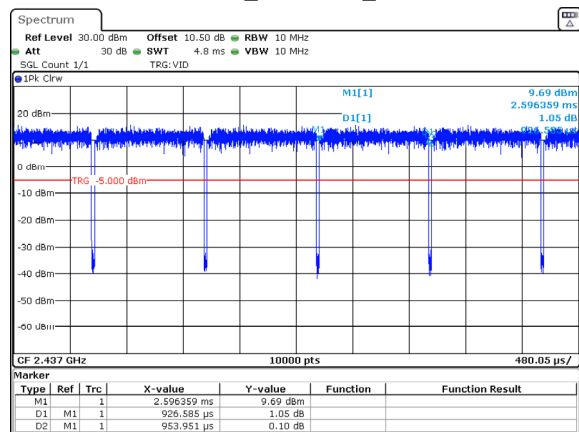
802.11n20_2437MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 29.APR.2025 23:15:15

802.11n40_2437MHz_Chain 0



ProjectNo.:2501R29190E-RF Tester:Brian Li

Date: 29.APR.2025 23:16:07

RF EXPOSURE EVALUATION

MPE-Based Exemption

Applicable Standard

According to subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 v01 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(3)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

R is the minimum separation distance in meters

f = frequency in MHz

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Result

Mode	Frequency (MHz)	Tune up conducted power [#] (dBm)	Antenna Gain [#]		ERP		Evaluation Distance (m)	ERP Limit (mW)
			(dBi)	(dBd)	(dBm)	(mW)		
BT	2402-2480	4.0	3.22	1.07	5.07	3.21	0.2	768
BLE	2402-2480	1.5	3.22	1.07	2.57	1.81	0.2	768
2.4G Wi-Fi	2412-2462	22.0	3.22	1.07	23.07	202.77	0.2	768
5.2G Wi-Fi	5180-5240	15.0	1.59	-0.56	14.44	27.80	0.2	768

Note: 1. The tune up conducted power and antenna gain was declared by the applicant.
 2. 0dBd=2.15dBi
 3. The BT, 2.4G and 5G Wi-Fi cannot transmit at same time.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant

EUT PHOTOGRAPHS

Please refer to the attachment 2501R29190E-RF External photo and 2501R29190E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2501R29190E-RF-00C Test Setup photo.

******* END OF REPORT *******