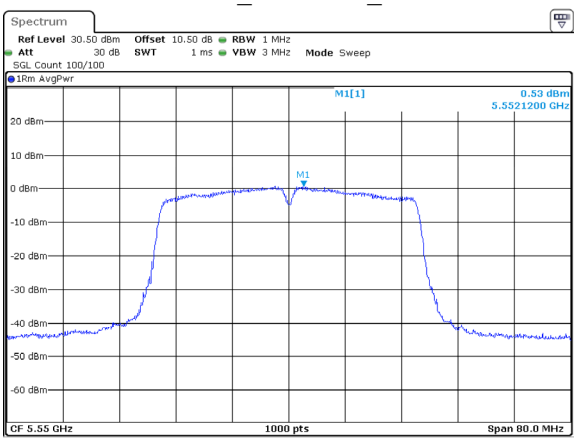
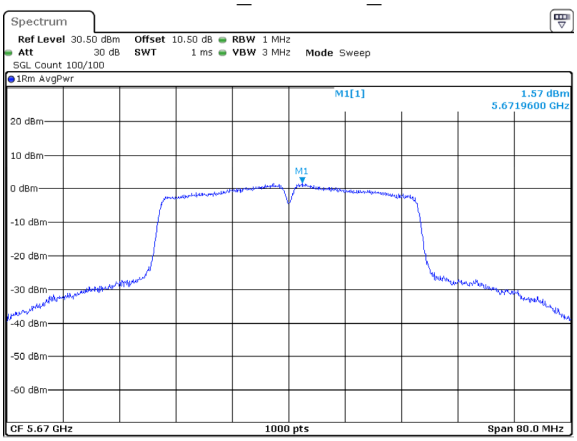
802.11ac40_5550MHz_Chain 2



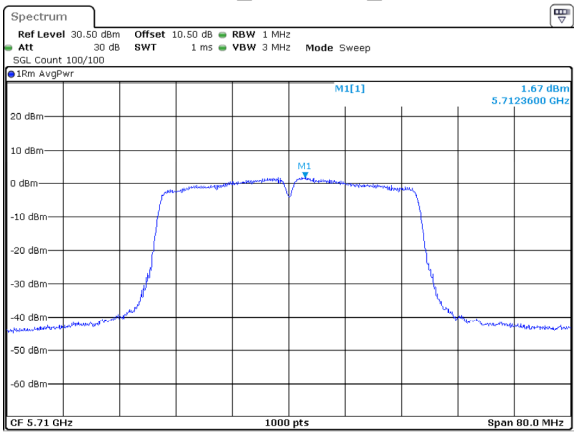
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:29:09

802.11ac40_5670MHz_Chain 2



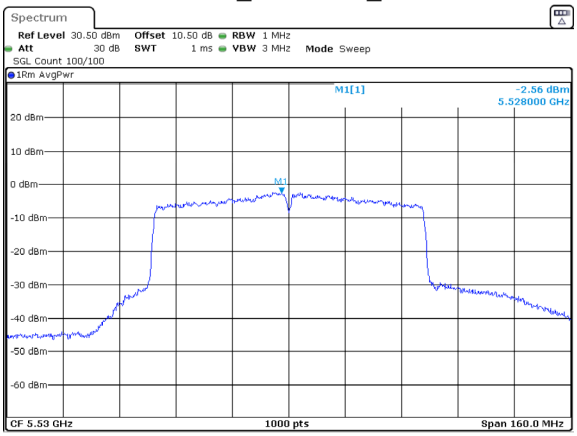
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:30:12

802.11ac40_5710MHz_Chain 2



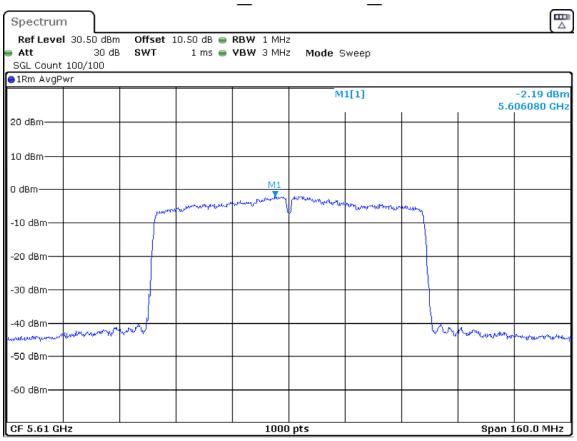
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:31:22

802.11ac80_5530MHz_Chain 0



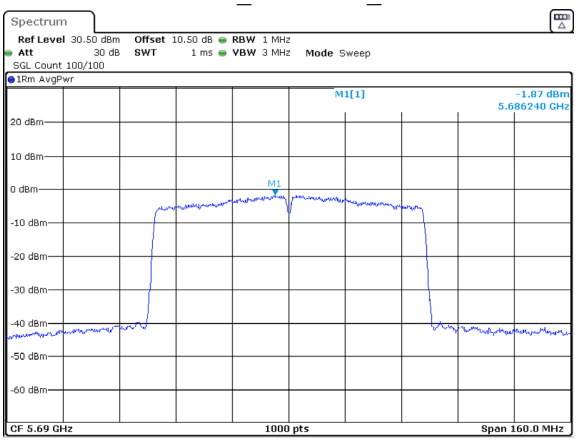
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 15:11:37

802.11ac80_5610MHz_Chain 0



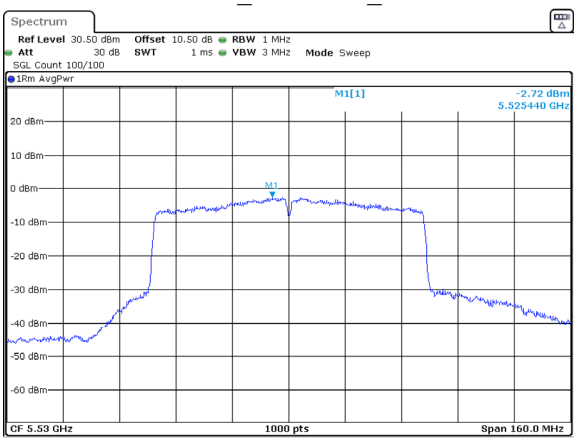
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 15:12:31

802.11ac80_5690MHz_Chain 0



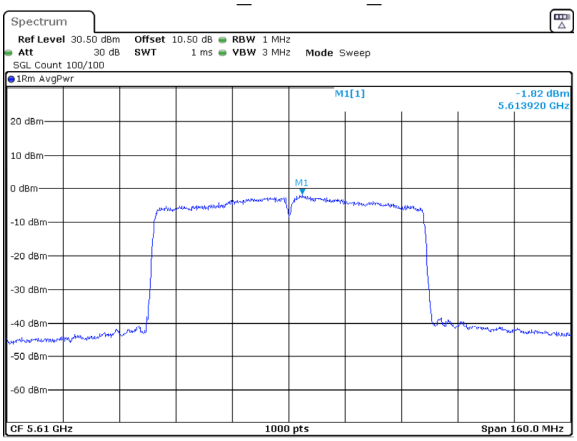
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 15:13:31

802.11ac80_5530MHz_Chain 1



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 16:34:59

802.11ac80_5610MHz_Chain 1



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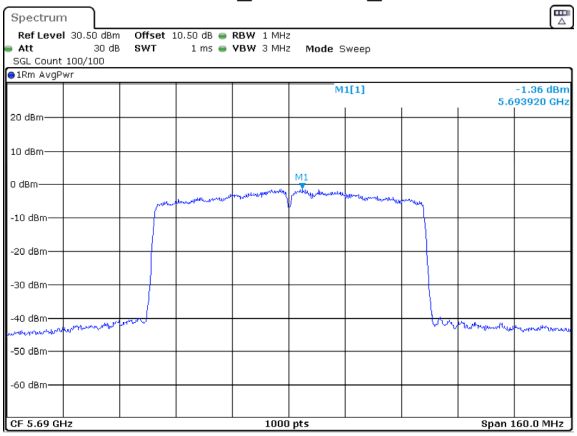
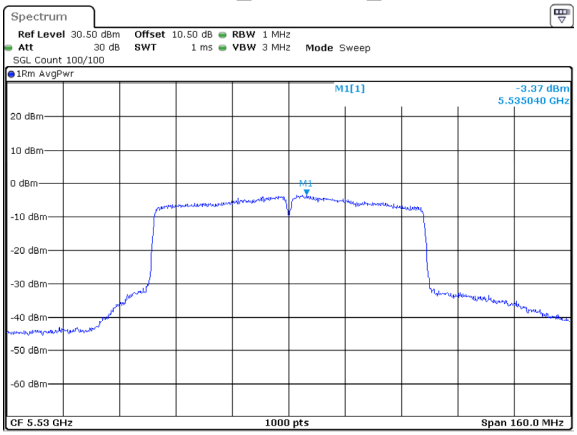
Date: 31.DEC.2024 16:36:32

802.11ac80_5690MHz_Chain 1



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 16:41:44

802.11ac80_5530MHz_Chain 2



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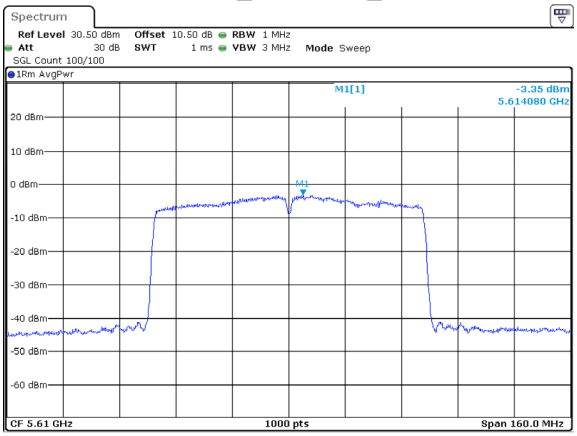
802.11ac80_5610MHz_Chain 2



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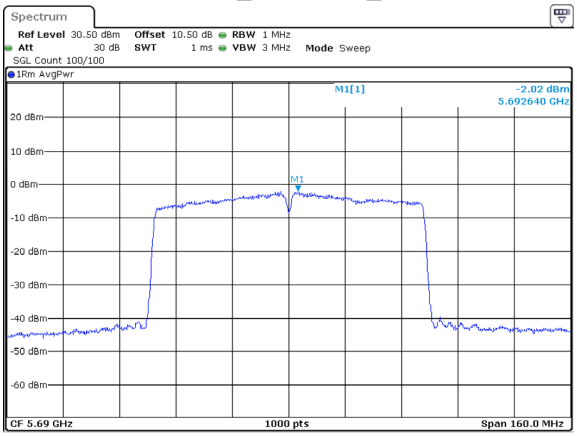
802.11ac80_5690MHz_Chain 2



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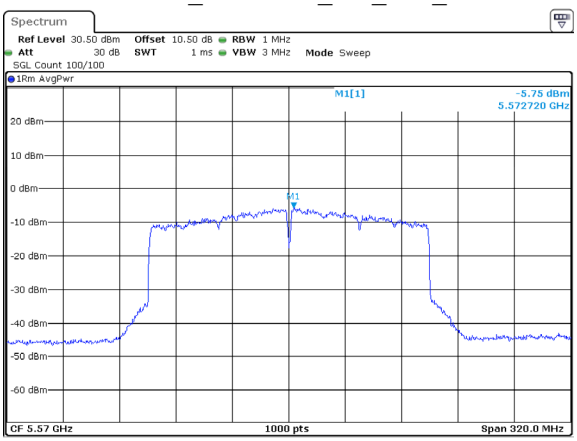
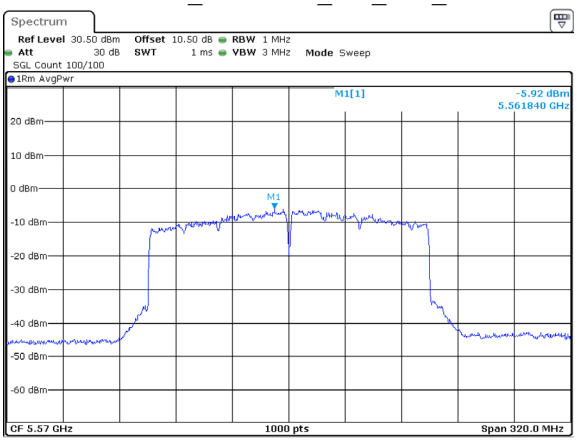
Date: 2.JAN.2025 10:34:44

802.11ax160_5570MHz_RU_Full_Chain 0



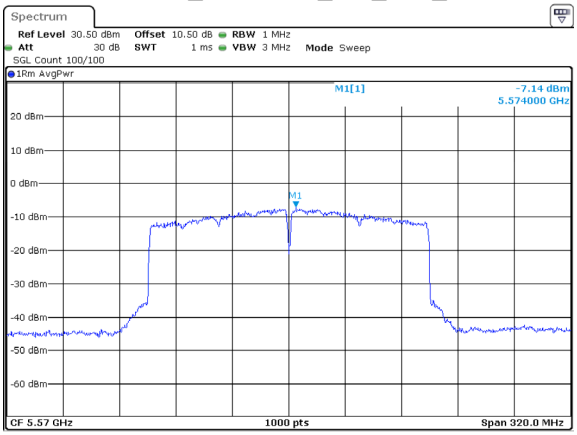
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 13:16:50

802.11ax160_5570MHz_RU_Full_Chain 1



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 14:56:42

802.11ax160_5570MHz_RU_Full_Chain 2



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
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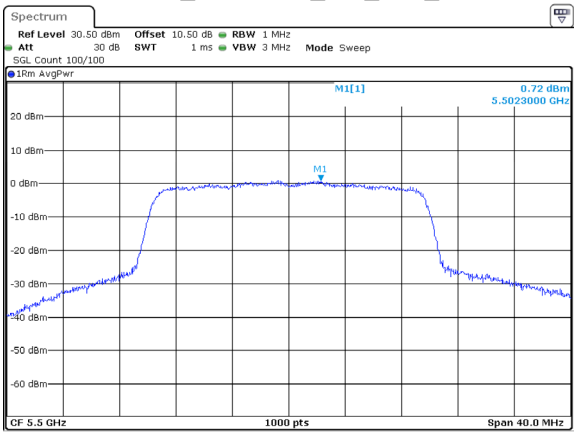
802.11ax20_5500MHz_RU_Full_Chain 0



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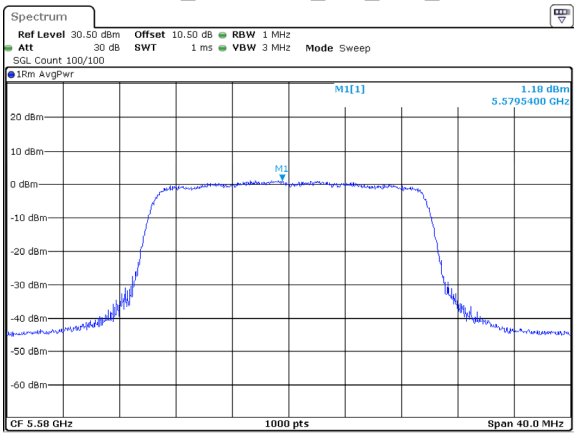
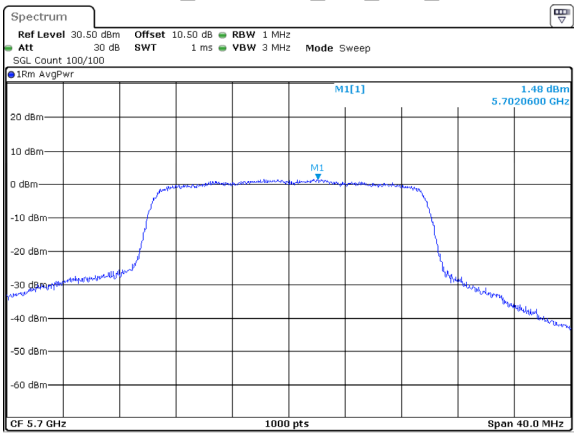
802.11ax20_5580MHz_RU_Full_Chain 0



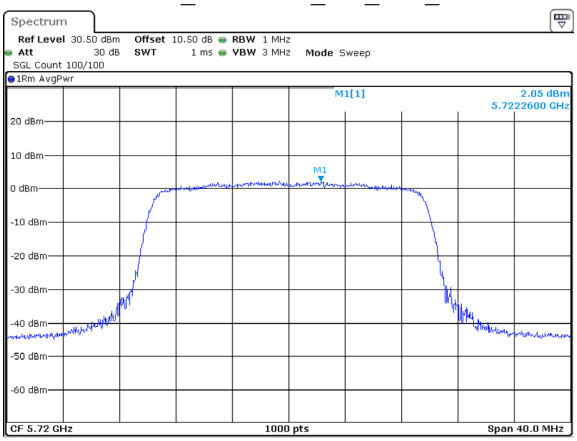
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:39:34

802.11ax20_5700MHz_RU_Full_Chain 0



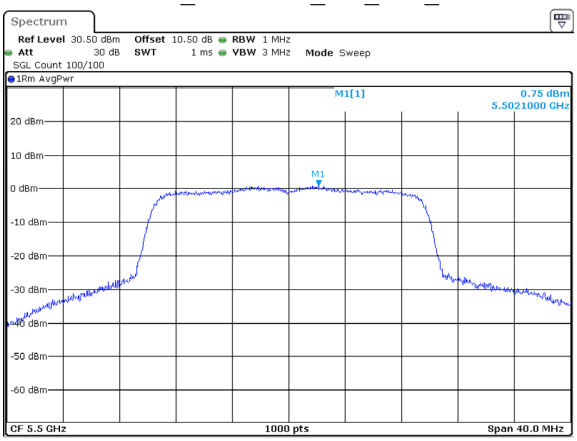
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:41:49

802.11ax20_5720MHz_RU_Full_Chain 0



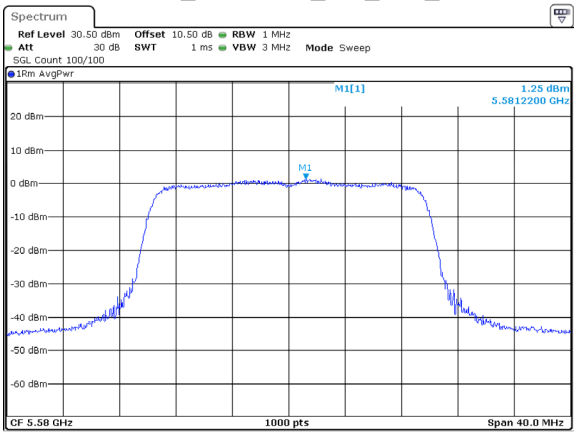
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:43:19

802.11ax20_5500MHz_RU_Full_Chain 1



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 14:41:45

802.11ax20_5580MHz_RU_Full_Chain 1



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
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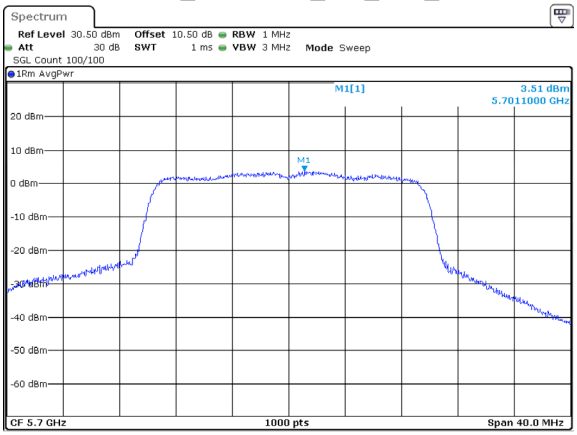
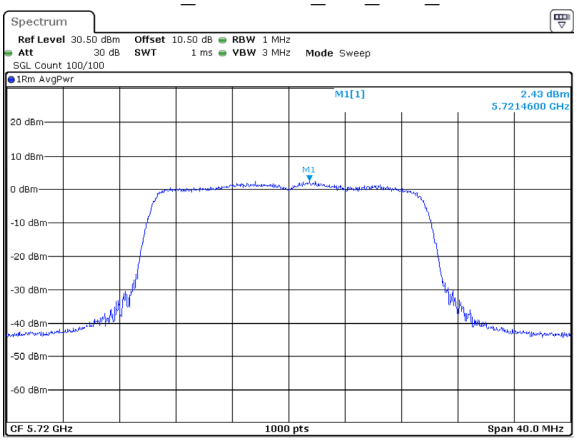
802.11ax20_5700MHz_RU_Full_Chain 1



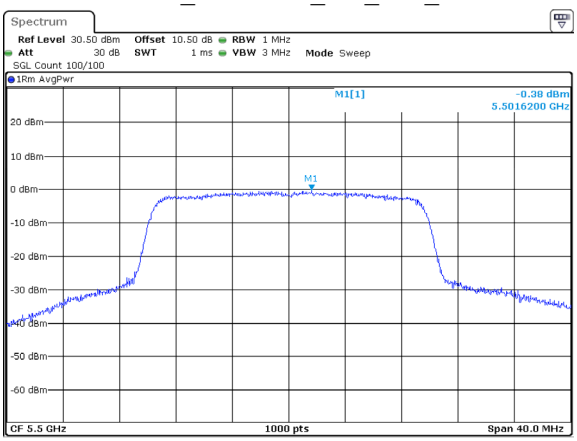
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 14:44:47

802.11ax20_5720MHz_RU_Full_Chain 1



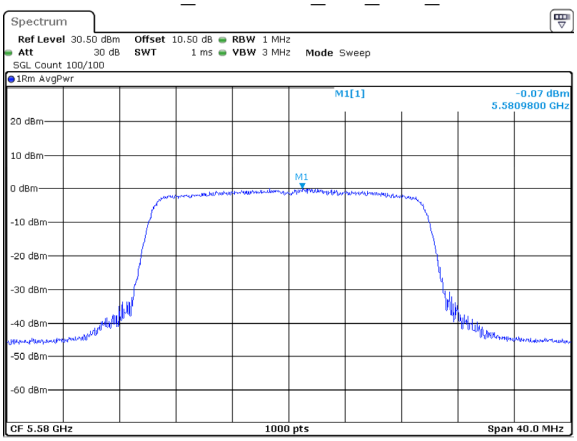
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 14:46:20

802.11ax20_5500MHz_RU_Full_Chain 2



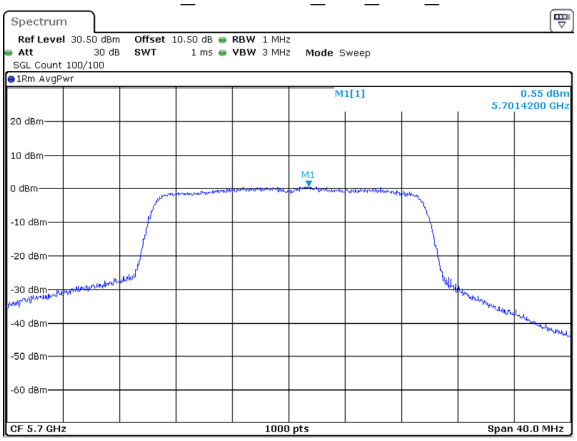
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 15:58:22

802.11ax20_5580MHz_RU_Full_Chain 2



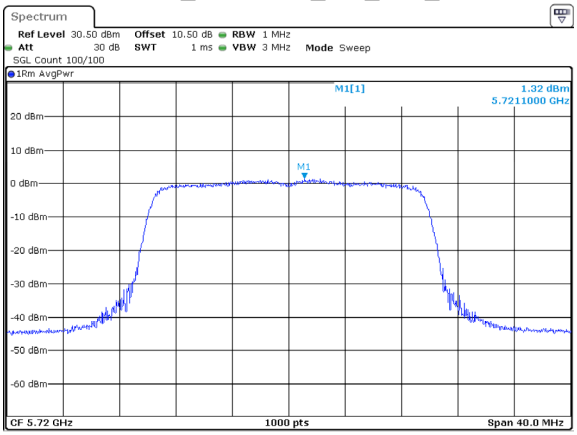
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 15:59:52

802.11ax20_5700MHz_RU_Full_Chain 2



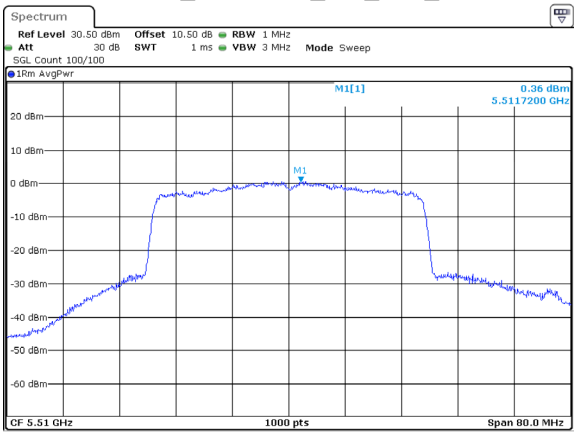
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:01:41

802.11ax20_5720MHz_RU_Full_Chain 2



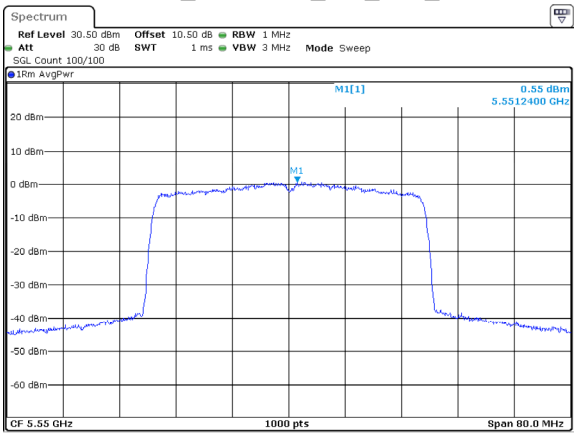
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:03:05

802.11ax40_5510MHz_RU_Full_Chain 0



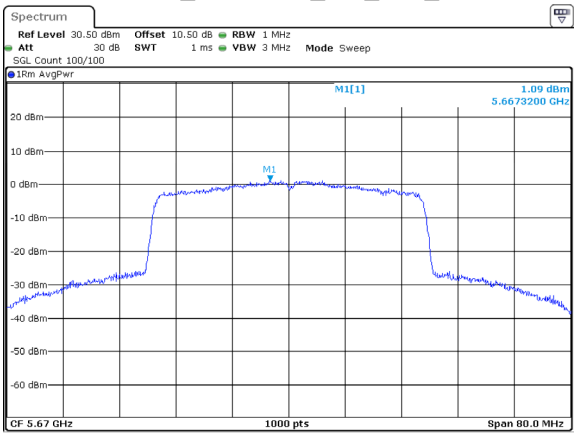
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:45:01

802.11ax40_5550MHz_RU_Full_Chain 0



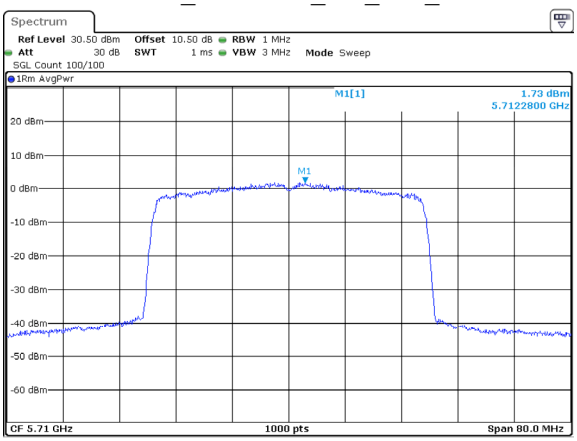
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:45:59

802.11ax40_5670MHz_RU_Full_Chain 0

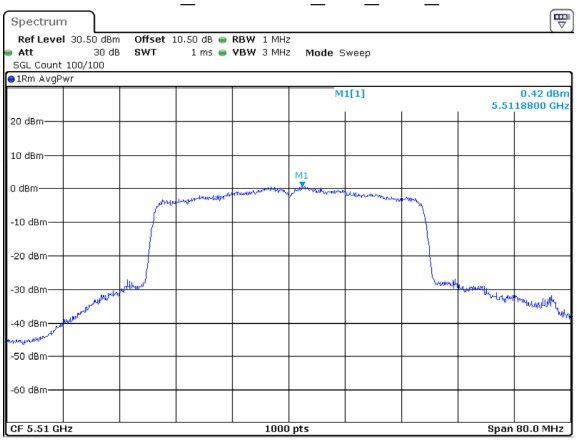


ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:47:09

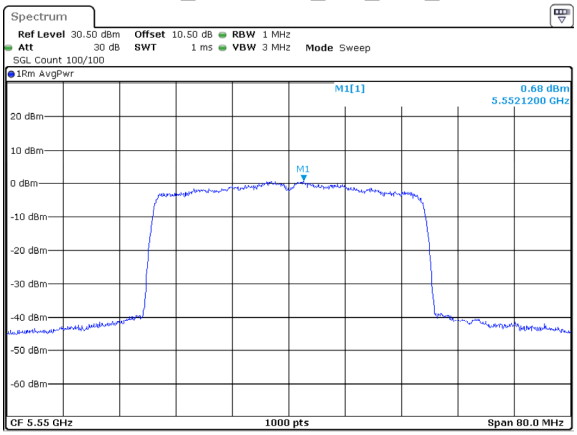
802.11ax40_5710MHz_RU_Full_Chain 0



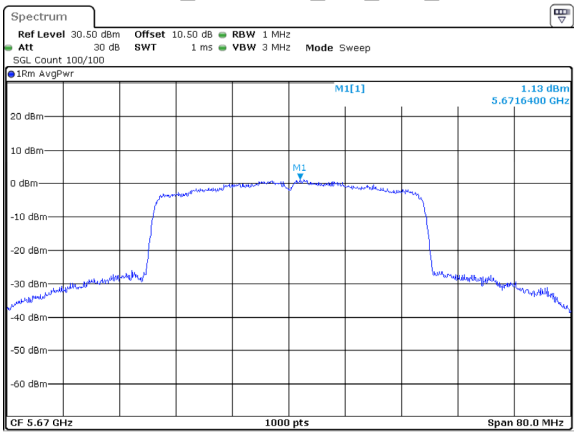
802.11ax40_5510MHz_RU_Full_Chain 1



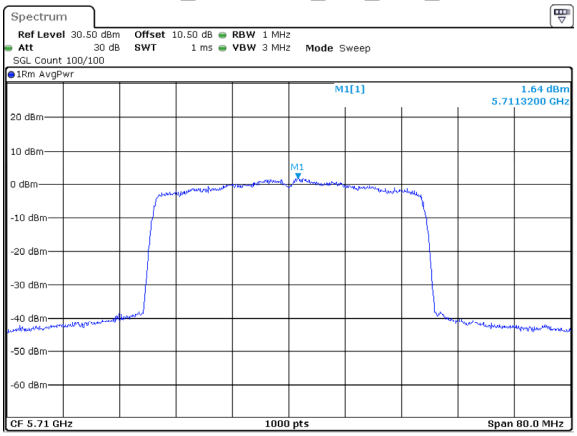
802.11ax40_5550MHz_RU_Full_Chain 1



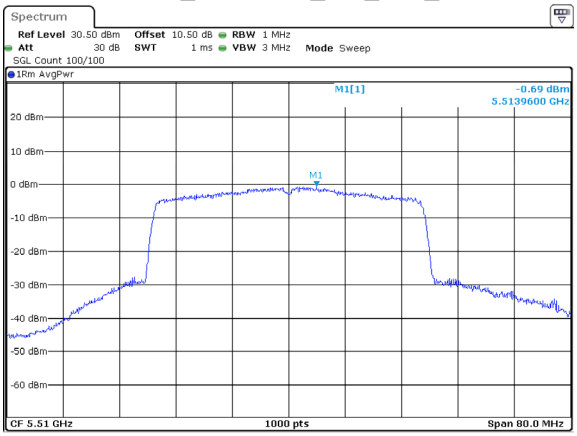
802.11ax40_5670MHz_RU_Full_Chain 1



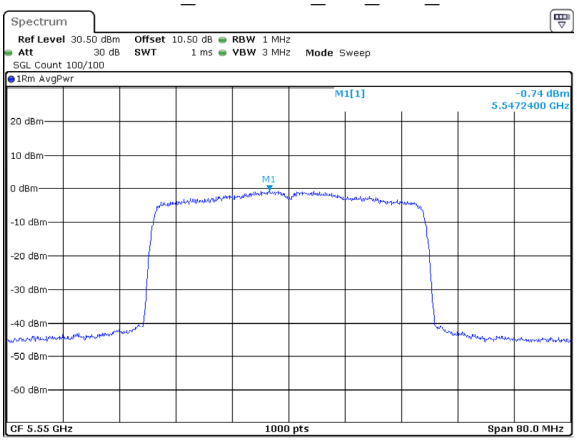
802.11ax40_5710MHz_RU_Full_Chain 1



802.11ax40_5510MHz_RU_Full_Chain 2

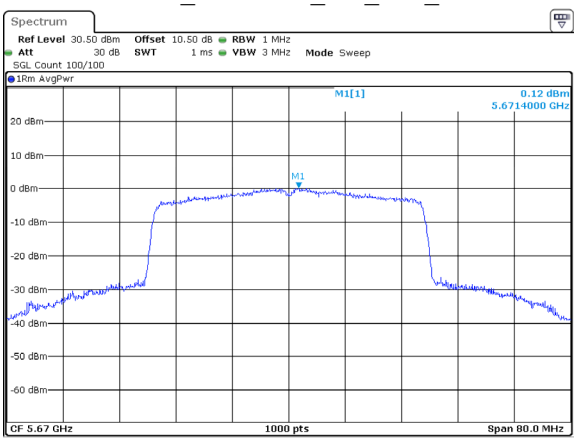


802.11ax40_5550MHz_RU_Full_Chain 2



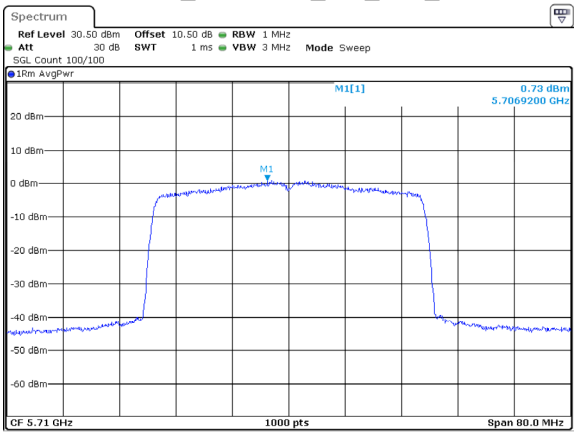
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:05:35

802.11ax40_5670MHz_RU_Full_Chain 2



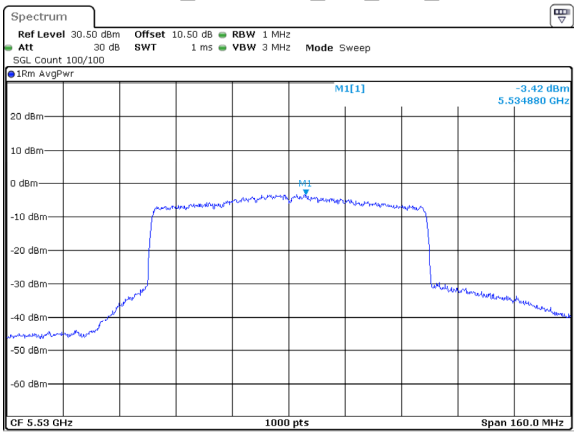
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:06:47

802.11ax40_5710MHz_RU_Full_Chain 2



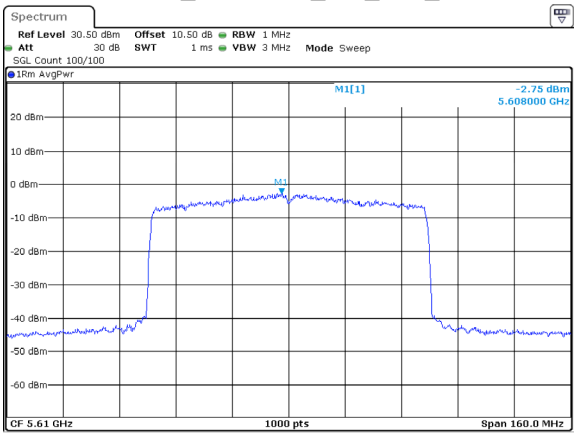
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:07:40

802.11ax80_5530MHz_RU_Full_Chain 0



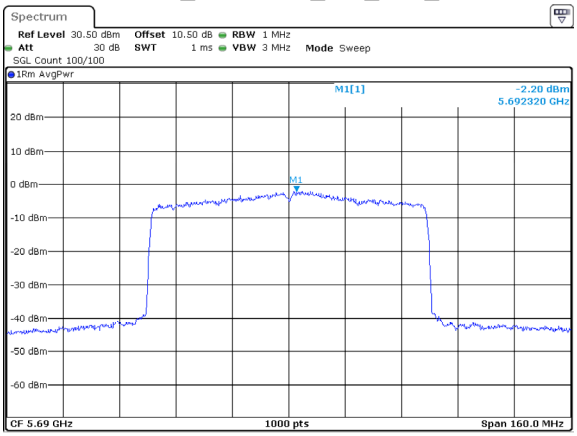
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:50:10

802.11ax80_5610MHz_RU_Full_Chain 0



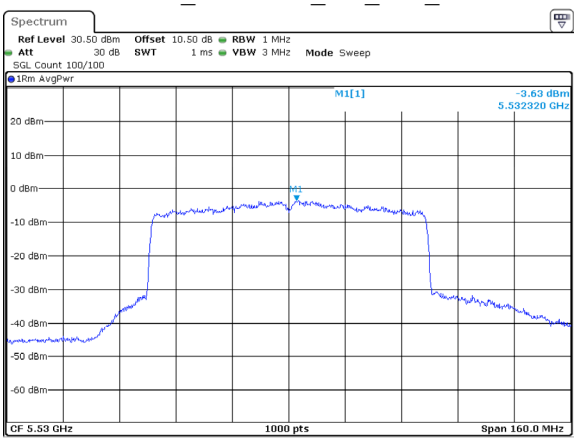
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 11:53:31

802.11ax80_5690MHz_RU_Full_Chain 0



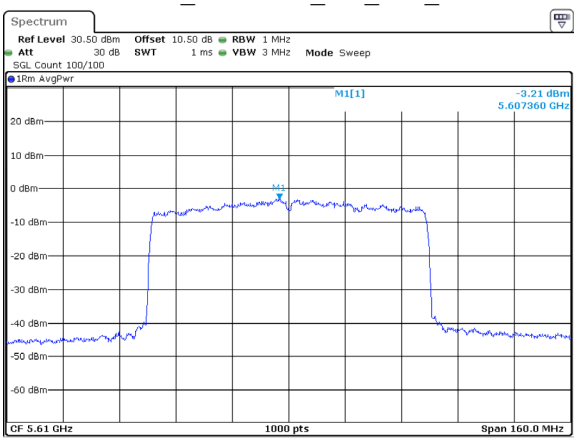
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 13:10:05

802.11ax80_5530MHz_RU_Full_Chain 1



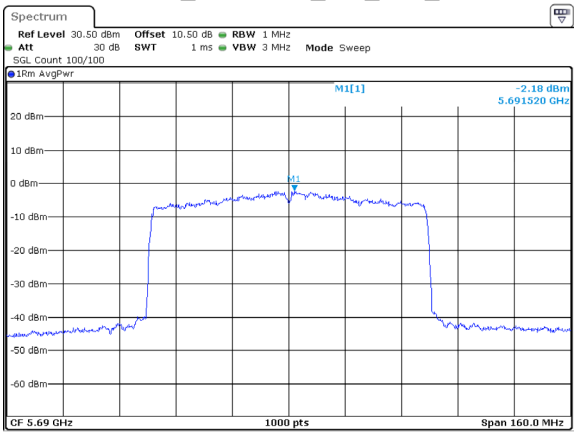
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 14:53:16

802.11ax80_5610MHz_RU_Full_Chain 1



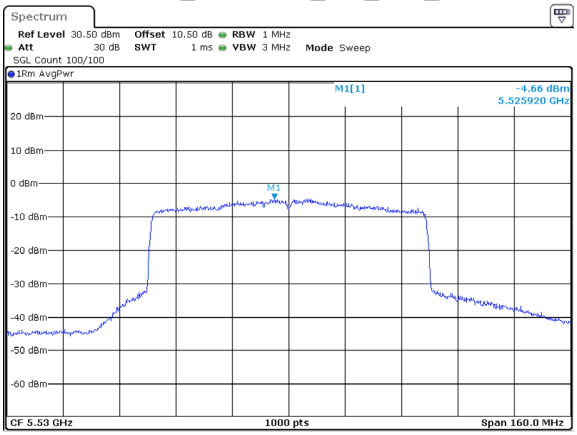
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 14:54:14

802.11ax80_5690MHz_RU_Full_Chain 1



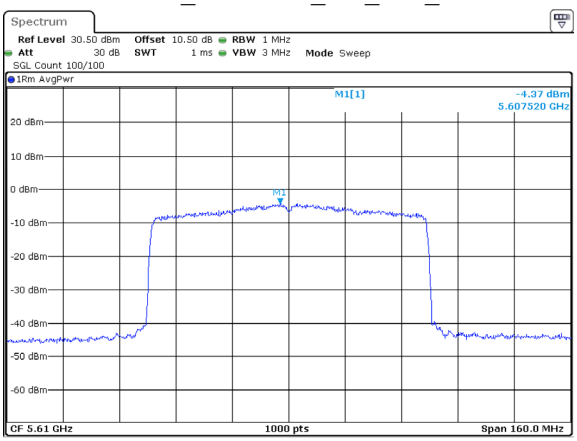
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 14:55:09

802.11ax80_5530MHz_RU_Full_Chain 2



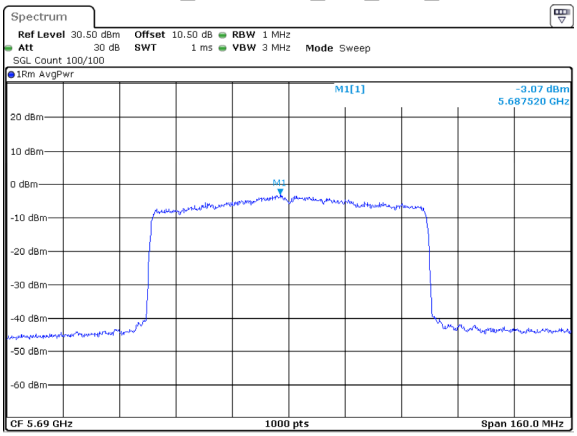
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:08:50

802.11ax80_5610MHz_RU_Full_Chain 2



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:10:18

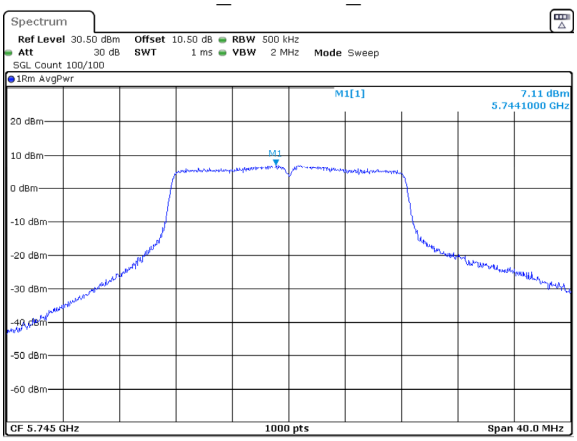
802.11ax80_5690MHz_RU_Full_Chain 2



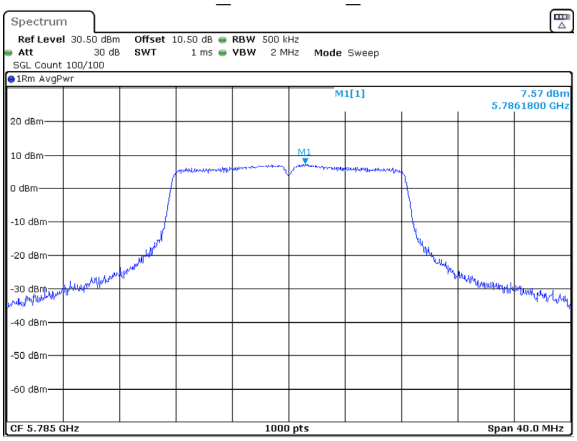
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:11:21

5725-5850MHz

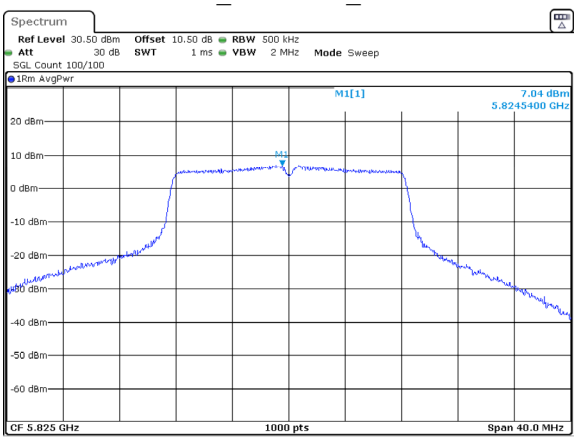
802.11a_5745MHz_Chain 0



802.11a_5785MHz_Chain 0



802.11a_5825MHz_Chain 0



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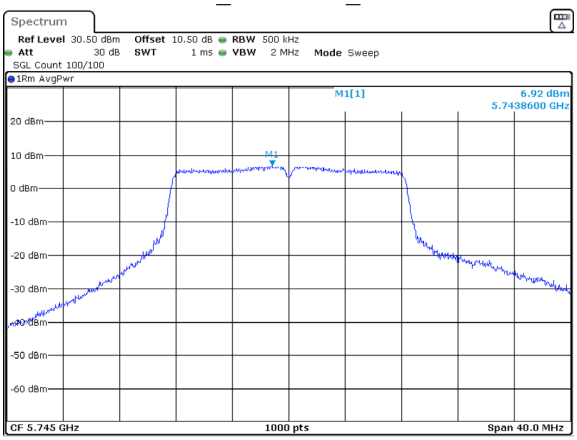

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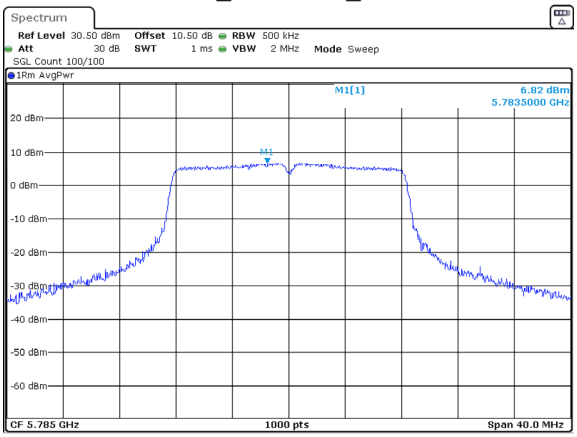

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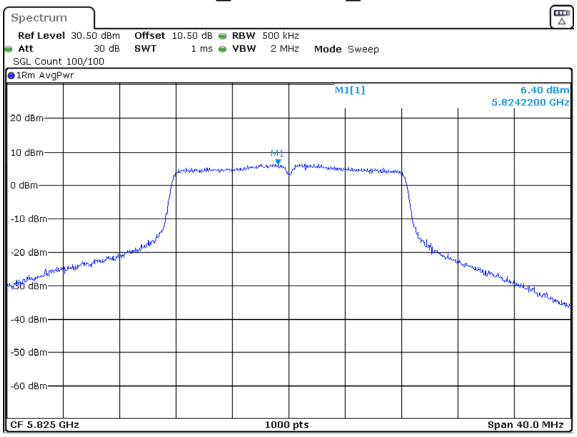
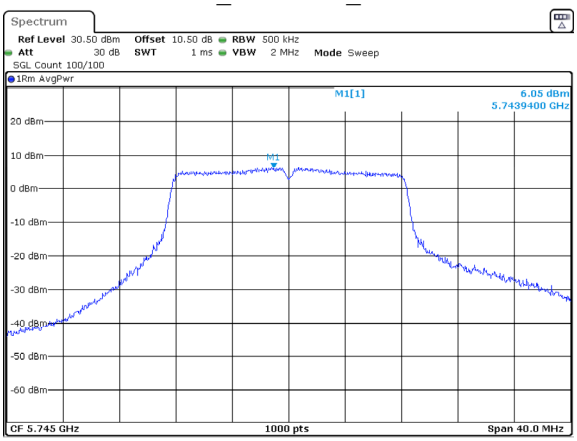
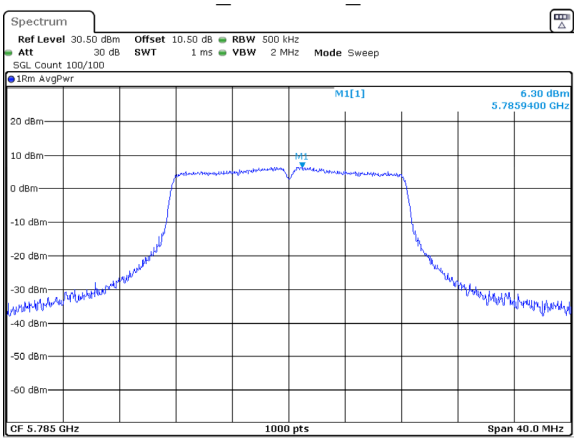


802.11a_5745MHz_Chain 2



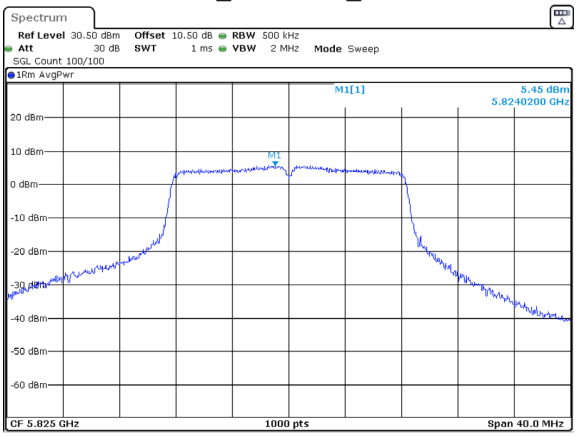
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 14:01:16

802.11a_5785MHz_Chain 2



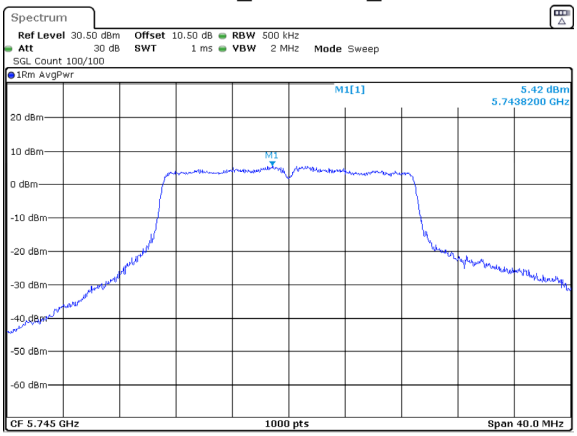
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 14:02:44

802.11a_5825MHz_Chain 2



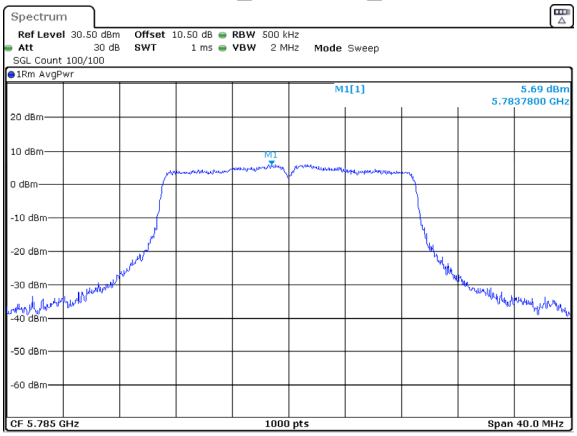
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 14:03:51

802.11ac20_5745MHz_Chain 0



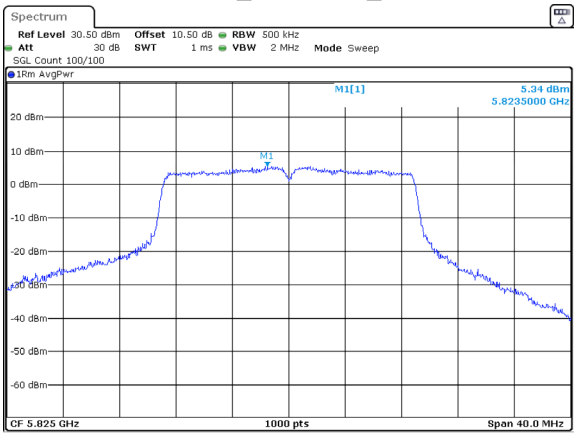
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 15:22:00

802.11ac20_5785MHz_Chain 0



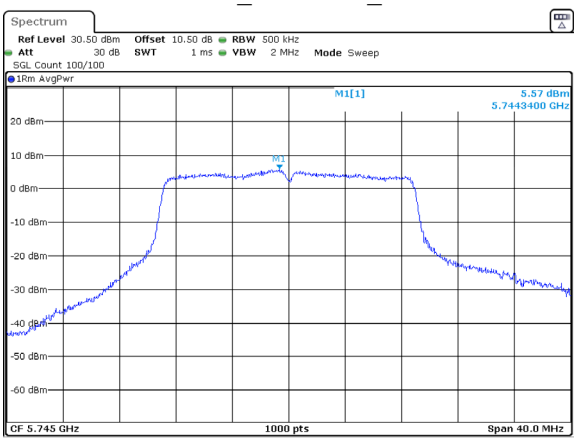
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 15:23:20

802.11ac20_5825MHz_Chain 0



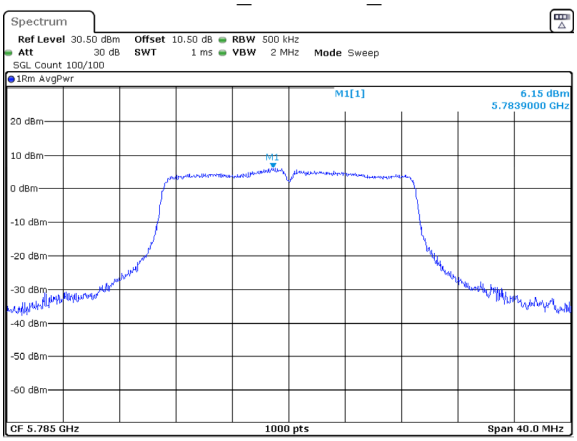
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 15:24:25

802.11ac20_5745MHz_Chain 1



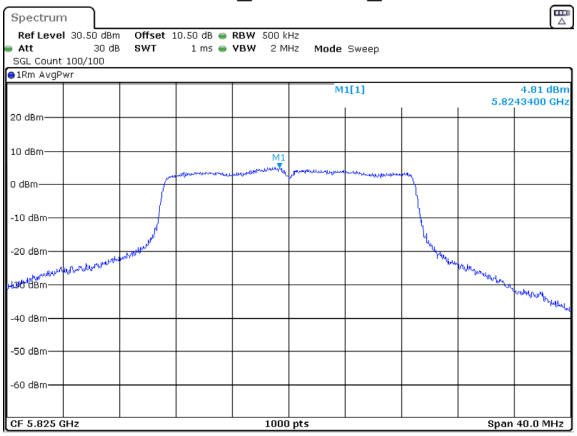
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 16:46:35

802.11ac20_5785MHz_Chain 1



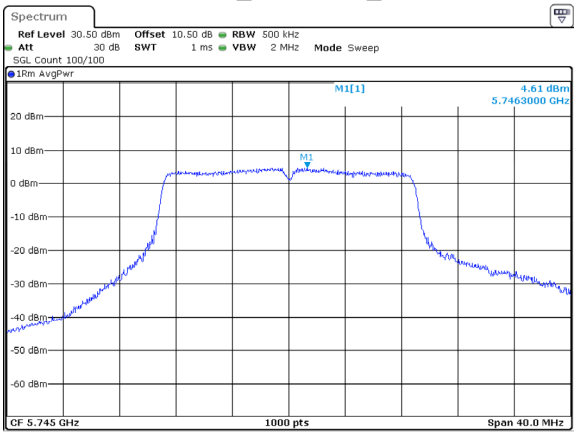
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 16:48:14

802.11ac20_5825MHz_Chain 1



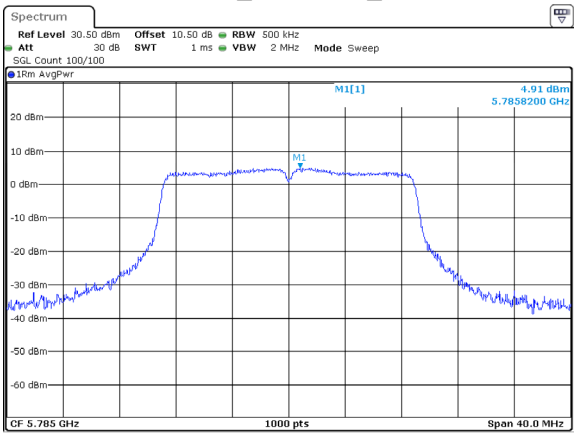
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 16:49:44

802.11ac20_5745MHz_Chain 2



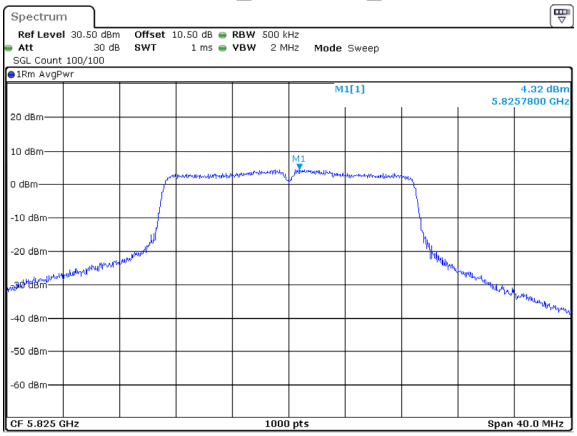
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:38:57

802.11ac20_5785MHz_Chain 2



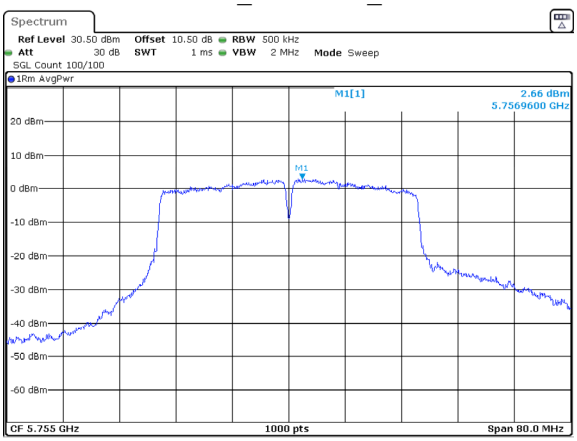
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:40:15

802.11ac20_5825MHz_Chain 2



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:41:19

802.11ac40_5755MHz_Chain 0



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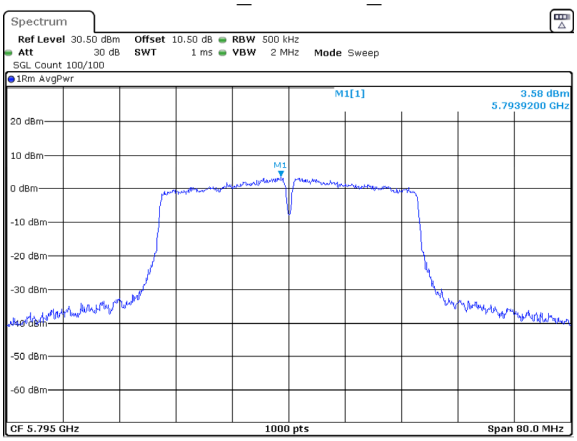
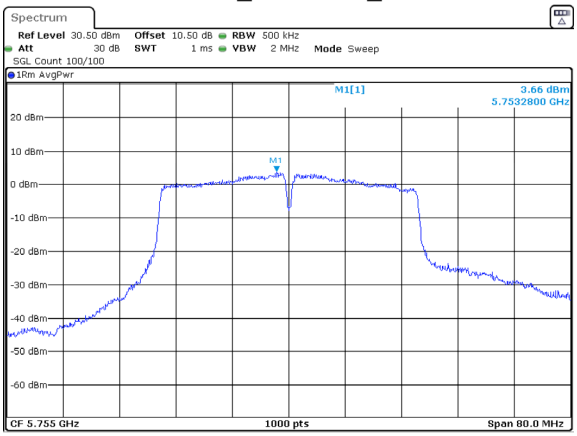
Date: 31.DEC.2024 15:25:21

802.11ac40_5795MHz_Chain 0



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 15:26:06

802.11ac40_5755MHz_Chain 1



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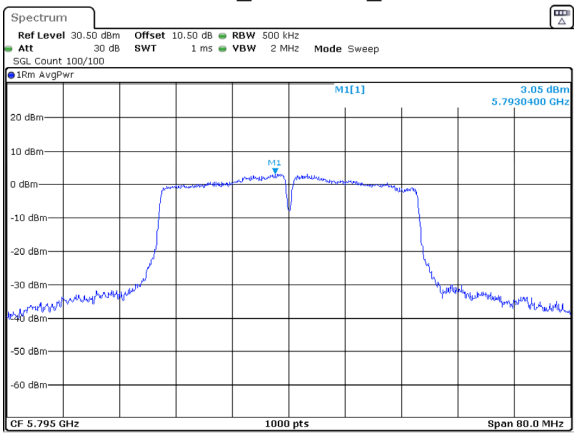
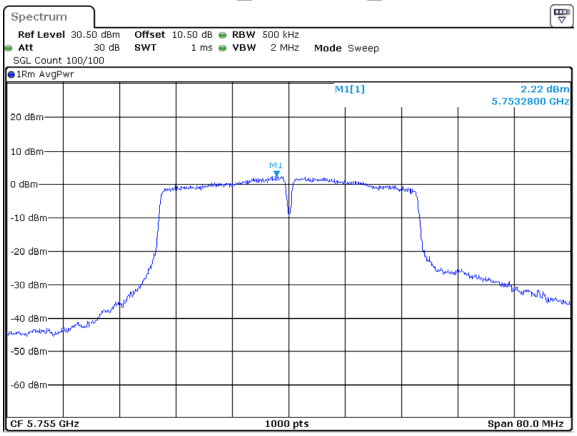
Date: 31.DEC.2024 16:50:53

802.11ac40_5795MHz_Chain 1



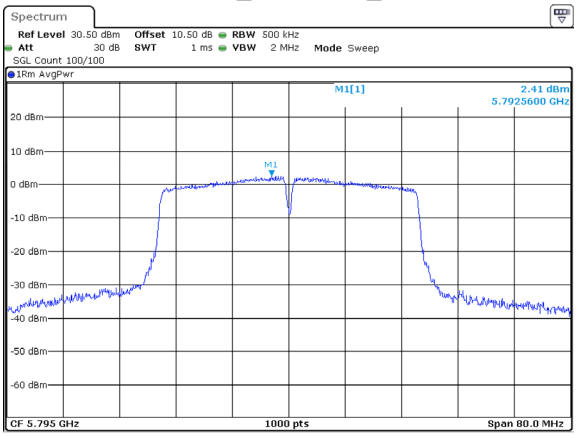
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 16:52:29

802.11ac40_5755MHz_Chain 2



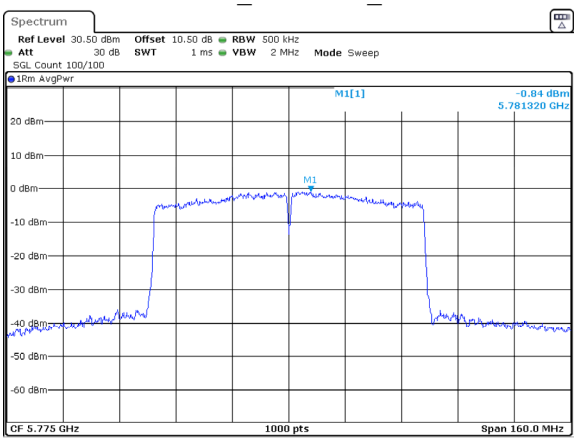
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:45:54

802.11ac40_5795MHz_Chain 2



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:46:41

802.11ac80_5775MHz_Chain 0



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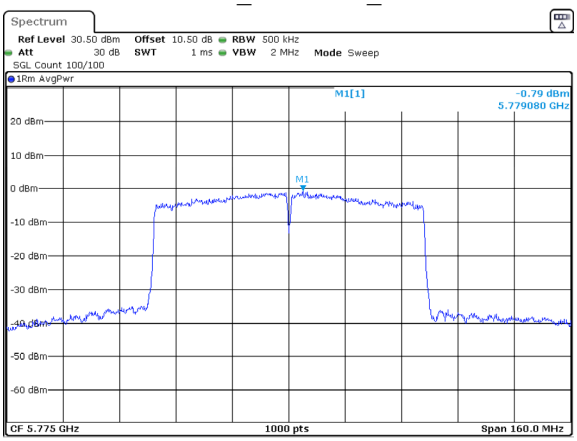
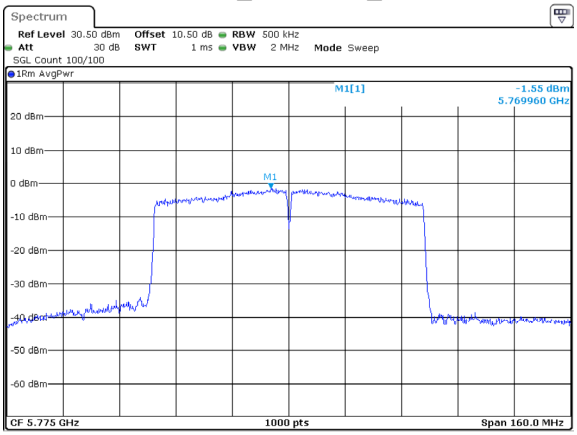
Date: 31.DEC.2024 15:27:43

802.11ac80_5775MHz_Chain 1



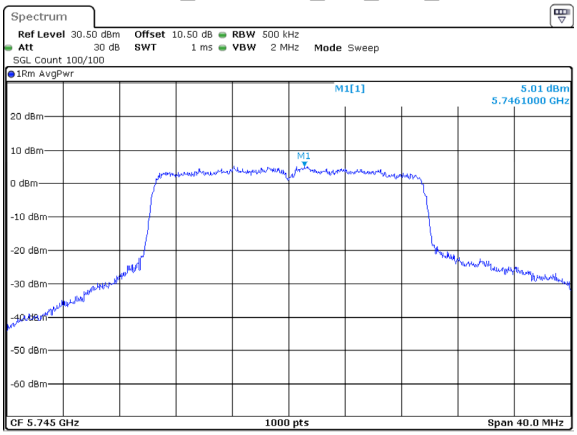
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 16:53:44

802.11ac80_5775MHz_Chain 2



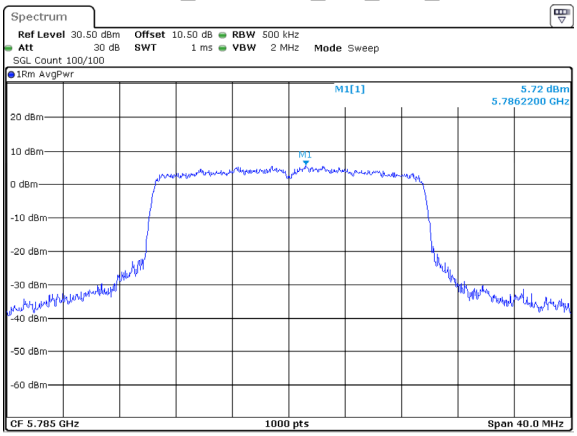
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 10:48:06

802.11ax20_5745MHz_RU_Full_Chain 0



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 13:20:05

802.11ax20_5785MHz_RU_Full_Chain 0



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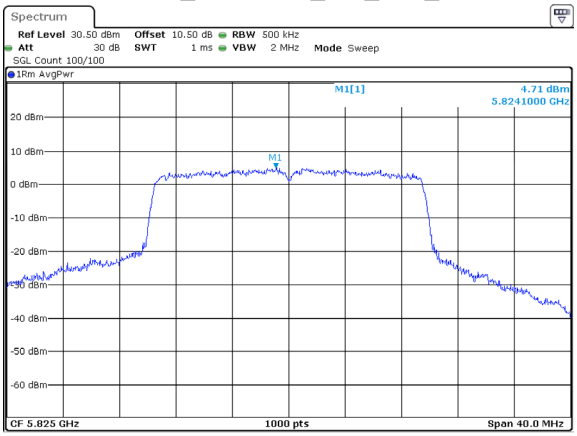
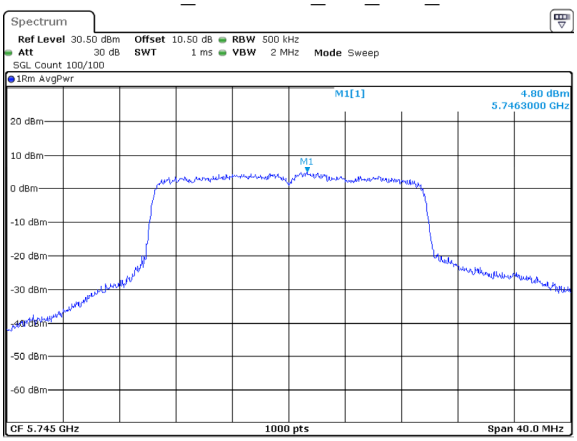
Date: 2.JAN.2025 13:24:03

802.11ax20_5825MHz_RU_Full_Chain 0



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 13:25:36

802.11ax20_5745MHz_RU_Full_Chain 1



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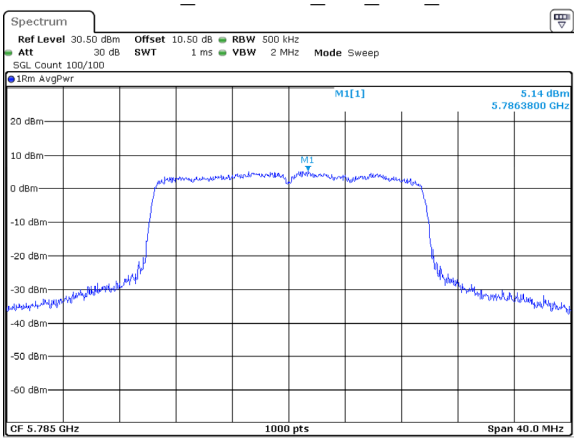
802.11ax20_5785MHz_RU_Full_Chain 1



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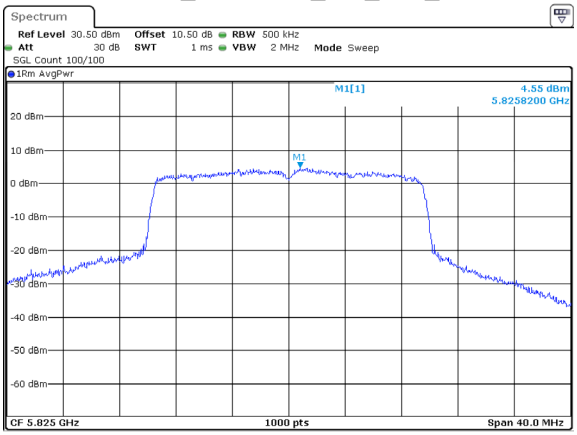
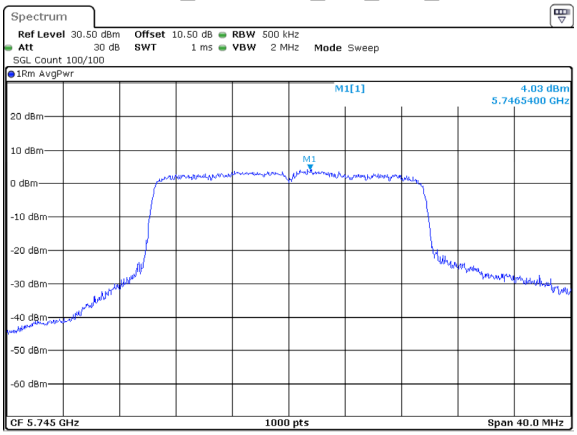
Date: 2.JAN.2025 15:06:42

802.11ax20_5825MHz_RU_Full_Chain 1



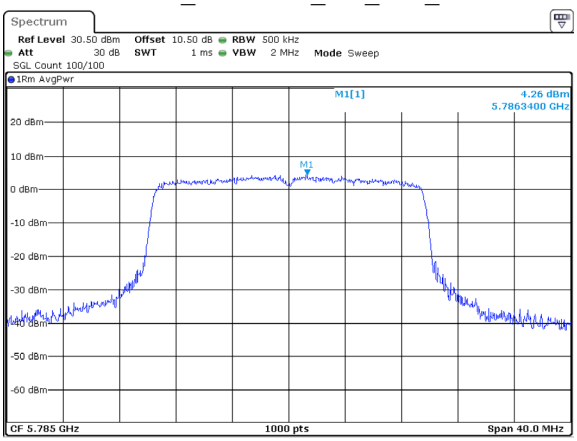
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 15:08:05

802.11ax20_5745MHz_RU_Full_Chain 2



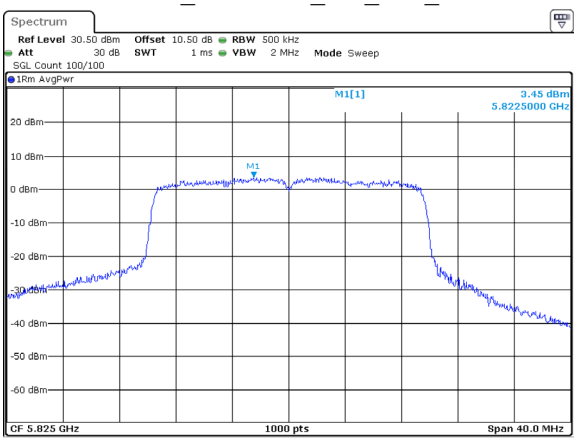
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:17:21

802.11ax20_5785MHz_RU_Full_Chain 2



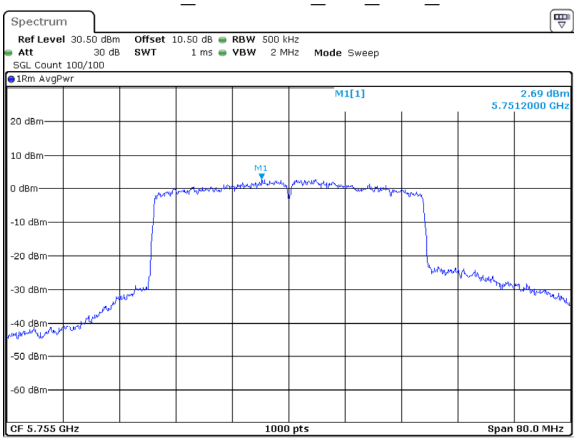
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:18:51

802.11ax20_5825MHz_RU_Full_Chain 2



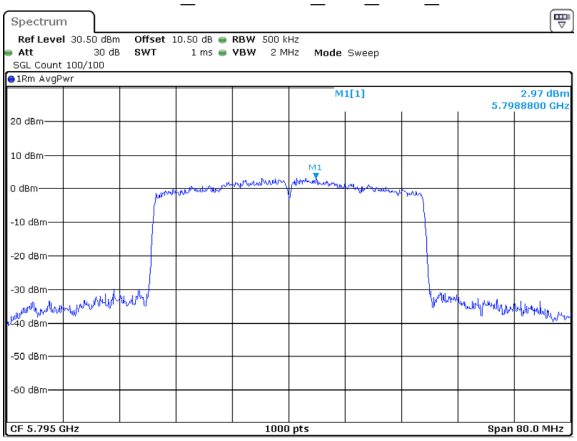
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:20:03

802.11ax40_5755MHz_RU_Full_Chain 0



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 13:26:39

802.11ax40_5795MHz_RU_Full_Chain 0



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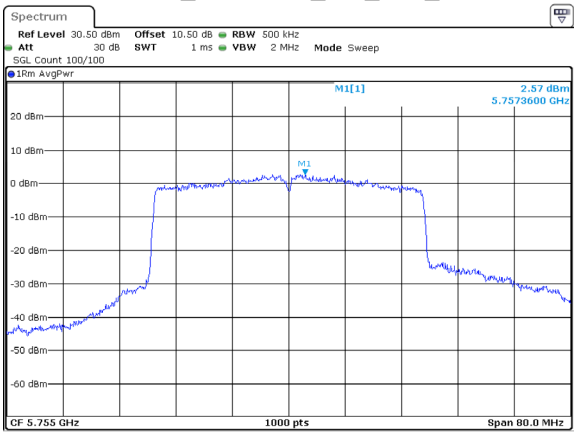
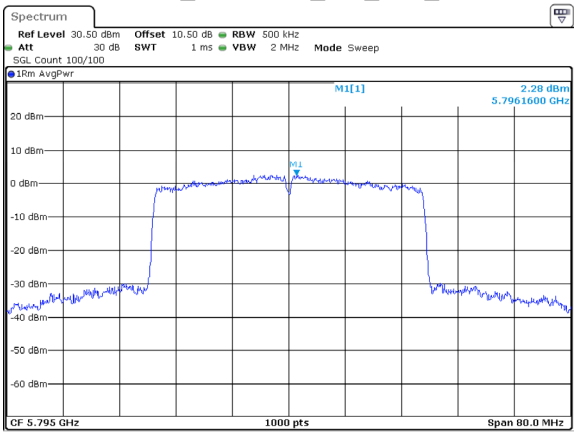
802.11ax40_5755MHz_RU_Full_Chain 1



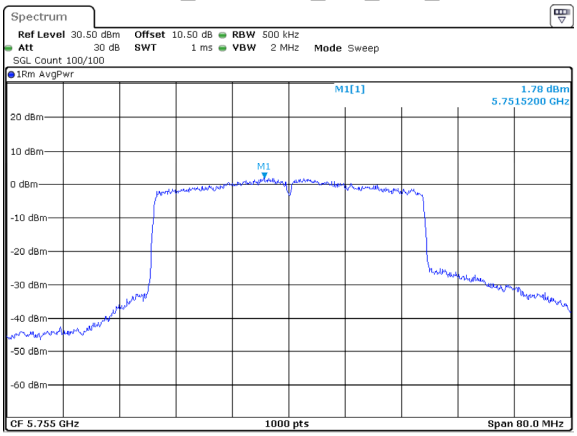
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 15:08:58

802.11ax40_5795MHz_RU_Full_Chain 1



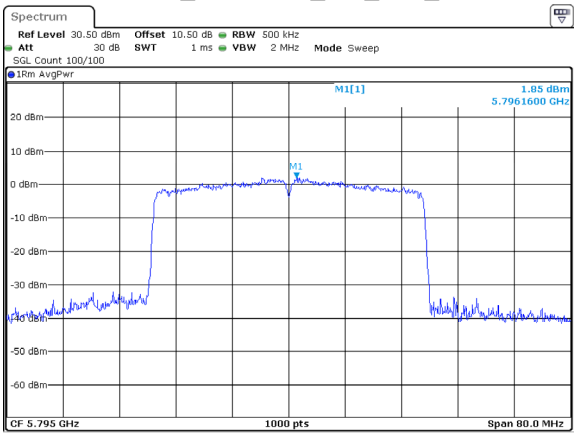
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 15:09:42

802.11ax40_5755MHz_RU_Full_Chain 2



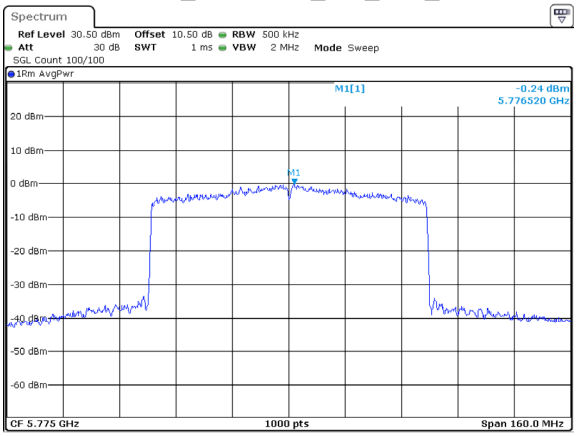
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:21:09

802.11ax40_5795MHz_RU_Full_Chain 2



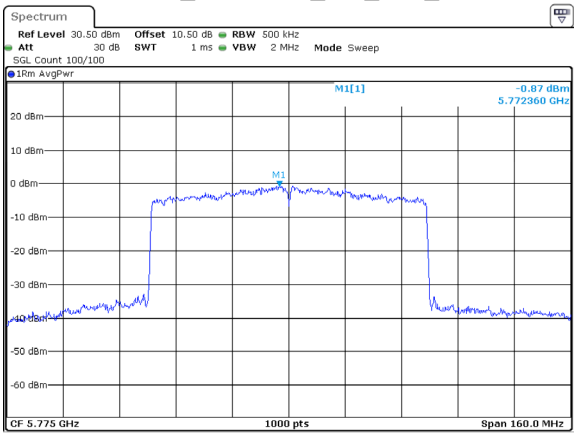
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:21:51

802.11ax80_5775MHz_RU_Full_Chain 0



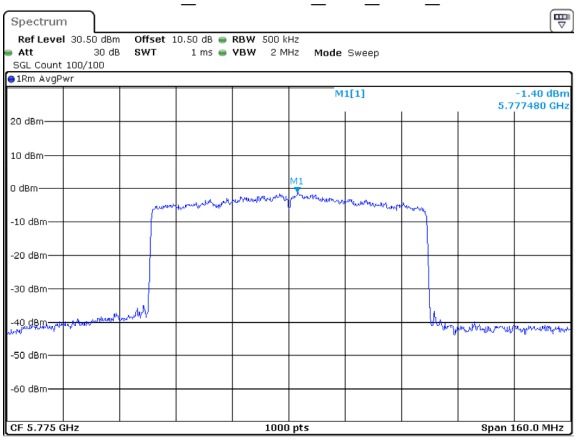
ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 13:29:00

802.11ax80_5775MHz_RU_Full_Chain 1



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 15:10:47

802.11ax80_5775MHz_RU_Full_Chain 2



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 2.JAN.2025 16:22:58

Duty Cycle

Test Information:

Sample No.:	2V3K-1	**Test Date:**	2024/12/31
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Cheeb Huang	**Test Result:**	Pass

Environmental Conditions:

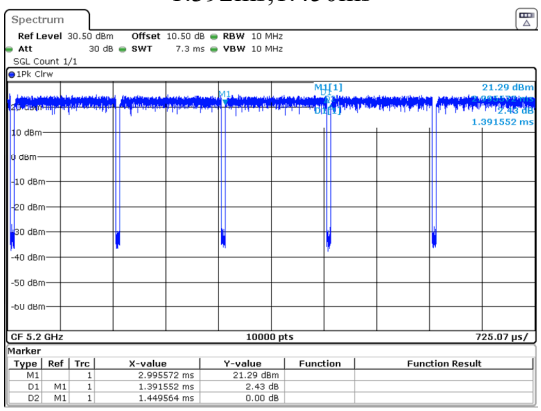
Temperature: (°C):	23.1-24.2	**Relative Humidity: (%)**	37-42	**ATM Pressure: (kPa)**	101.5-101.8

Test Data:

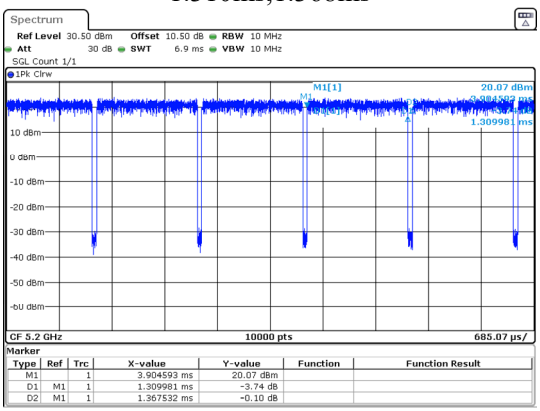
Mode	Antenna	Test Frequency (MHz)	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
802.11a	Chain 0	5200	1.392	1.450	96.00	0.18	718	1
802.11ac20	Chain 0	5200	1.310	1.368	95.76	0.19	763	1
802.11ac40	Chain 0	5190	0.655	0.713	91.87	0.37	1527	2
802.11ac80	Chain 0	5210	0.324	0.381	85.04	0.70	3086	5
802.11ax20_RU_Full	Chain 0	5200	1.014	1.071	94.68	0.24	986	1
802.11ax40_RU_Full	Chain 0	5190	0.547	0.604	90.56	0.43	1828	2
802.11ax80_RU_Full	Chain 0	5210	0.297	0.354	83.90	0.76	3367	5
802.11ac160	Chain 0	5250	0.184	0.241	76.35	1.17	5435	10
802.11ax160_RU_Full	Chain 0	5250	0.297	0.354	83.90	0.76	3367	5

Duty Cycle = Ton/(Ton+Toff)*100%

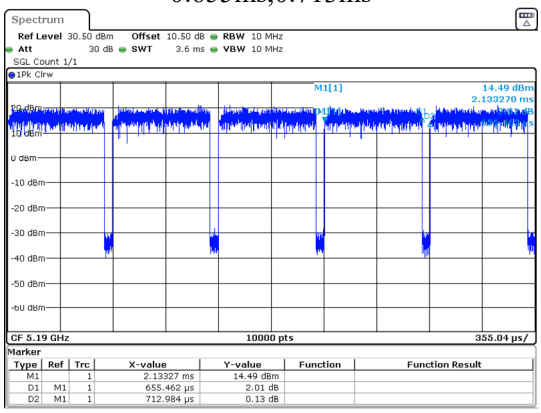
802.11a_5200MHz
1.392ms,1.450ms



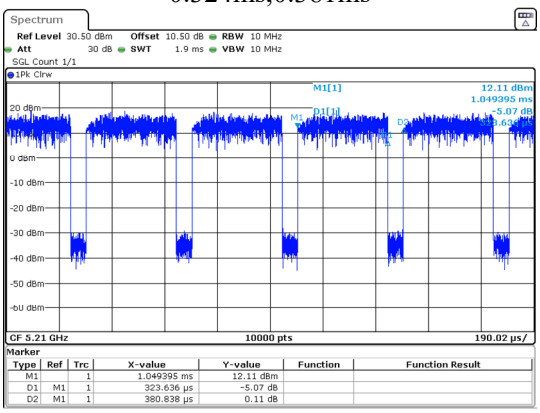
802.11ac20_5200MHz
1.310ms,1.368ms



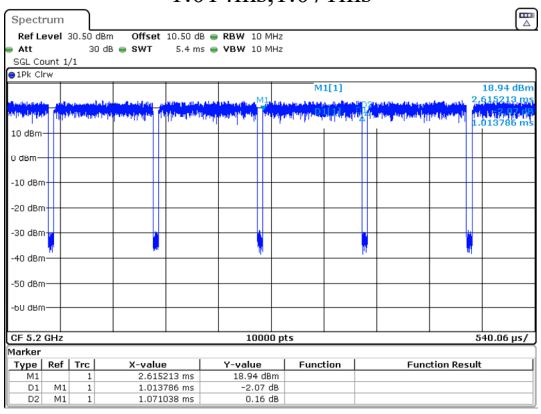
802.11ac40_5190MHz
0.655ms,0.713ms



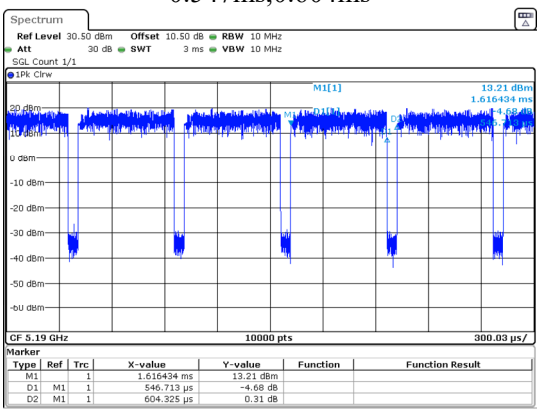
802.11ac80_5210MHz
0.324ms,0.381ms



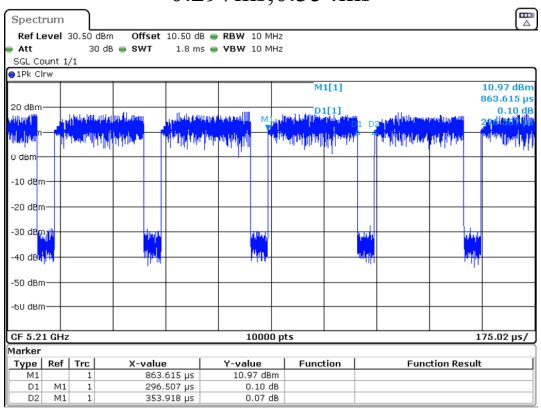
802.11ax20_5200MHz_RU_Full
1.014ms,1.071ms



802.11ax40_5190MHz_RU_Full
0.547ms,0.604ms



802.11ax80_5210MHz_RU_Full
0.297ms,0.354ms



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
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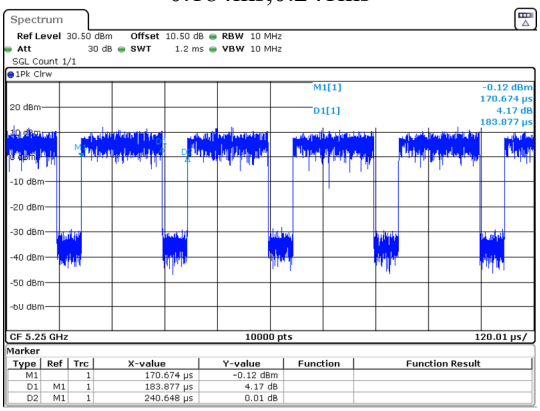
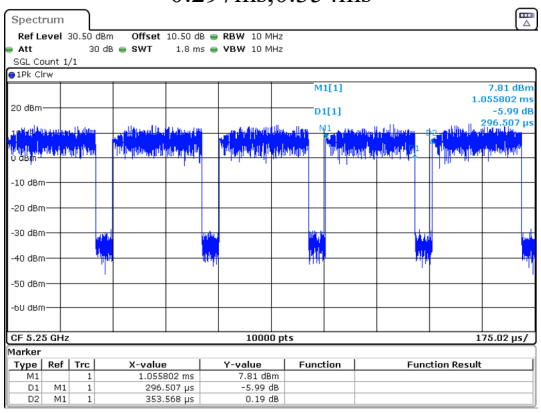
802.11ac160_5250MHz
0.184ms,0.241ms



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 10:48:35

802.11ax160_5250MHz_RU_Full
0.297ms,0.354ms



ProjectNo.:2401Z25490E-RF Tester:Cheeb Huang
Date: 31.DEC.2024 10:52:49

RF EXPOSURE EVALUATION

MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Result

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

For worst case:

Mode	Frequency (MHz)	Antenna Gain#		Max Tune-up Power#		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G Wi-Fi	2412-2462	7.64	5.81	28.5	707.95	30	0.3637	1.0
5G Wi-Fi	5150-5250	8.66	7.35	25.0	316.23	30	0.2055	1.0
	5250-5350	8.66	7.35	21.5	141.25	30	0.0918	1.0
	5470-5725	8.66	7.35	21.0	125.89	30	0.0818	1.0
	5725-5850	8.66	7.35	24.0	251.19	30	0.1632	1.0
	5850-5895	8.66	7.35	24.0	251.19	30	0.1632	1.0

Note:
1) The tune up conducted power and antenna gain was declared by the applicant.
2) The antenna gain should be the directional gain.
3) The 2.4G Wi-Fi and 5G Wi-Fi can simultaneous transmitting.

Simultaneous transmitting consideration (worst case):

The ratio=$MPE_{2.4G\ Wi\text{-}Fi}$/limit+$MPE_{5G\ Wi\text{-}Fi}$/limit = 0.3637/1.0+0.2055/1.0 =0.569<1.0,
so simultaneous exposure is compliant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 30cm from nearby persons.

Result: Compliant.

EUT PHOTOGRAPHS

Please refer to the attachment 2401Z25490E-RF External photo and 2401Z25490E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401Z25490E-RFB Test Setup photo.

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