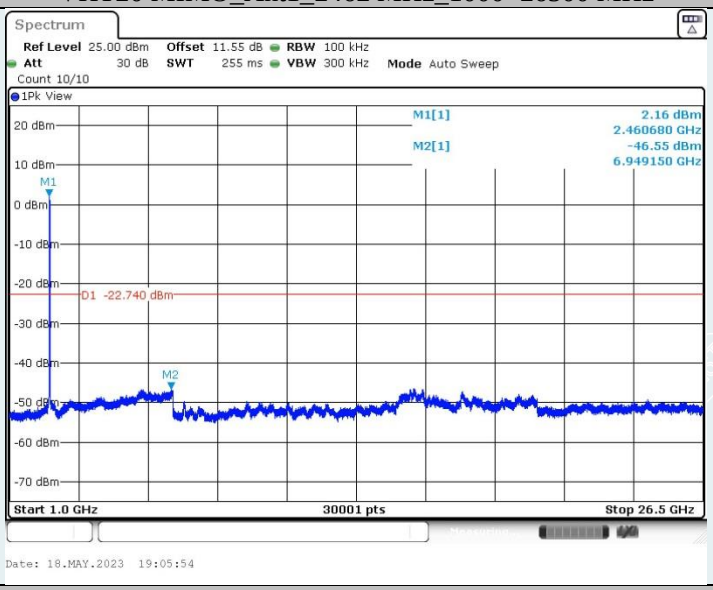
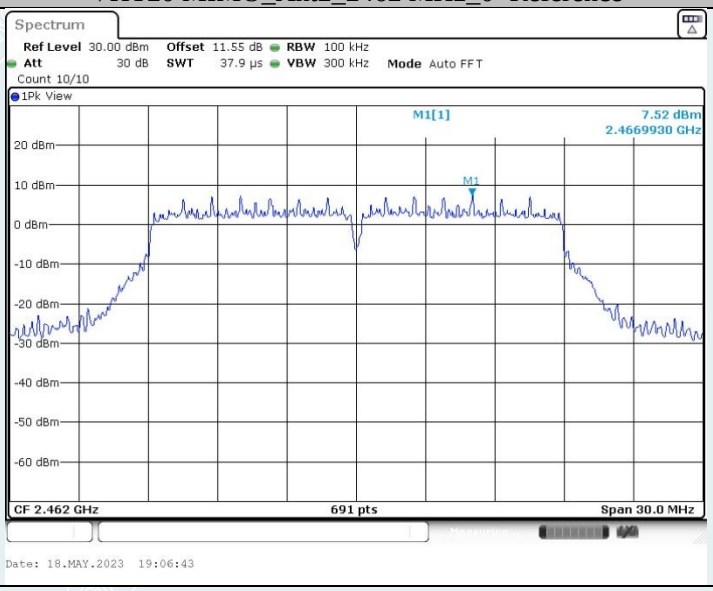
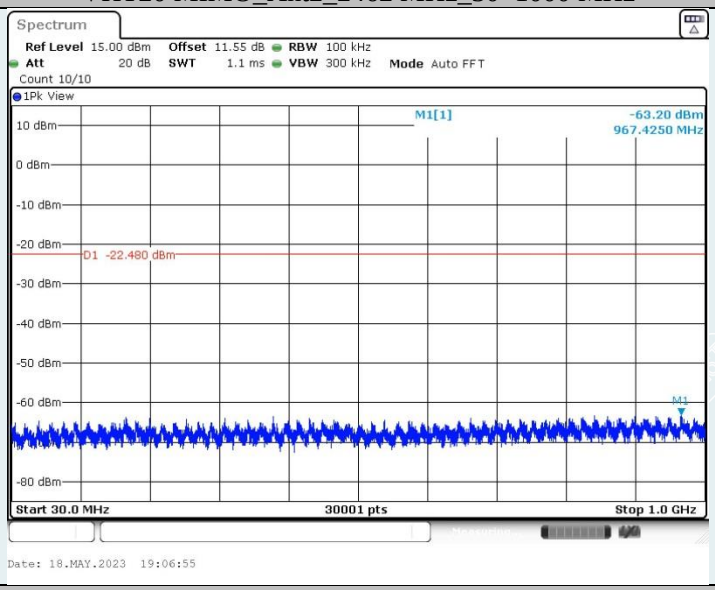
VHT20 MIMO_Ant1_2462 MHz_1000~26500 MHz



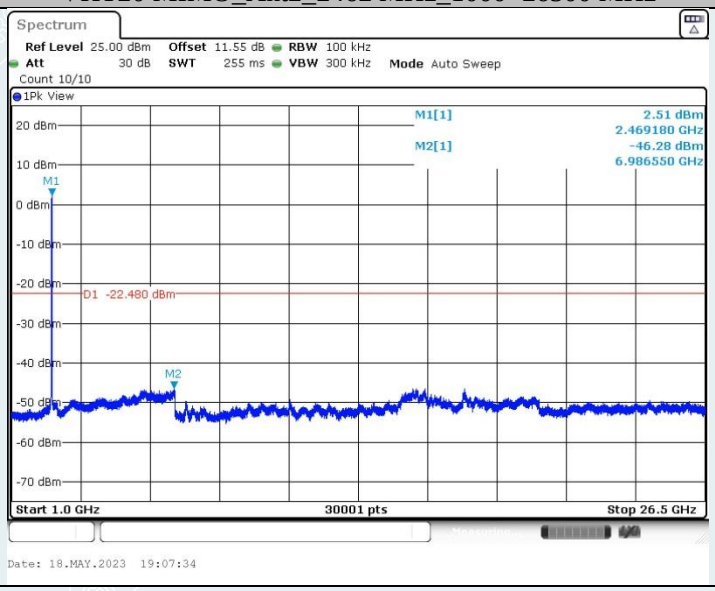
VHT20 MIMO_Ant2_2462 MHz_0~Reference



VHT20 MIMO_Ant2_2462 MHz_30~1000 MHz



VHT20 MIMO_Ant2_2462 MHz_1000~26500 MHz



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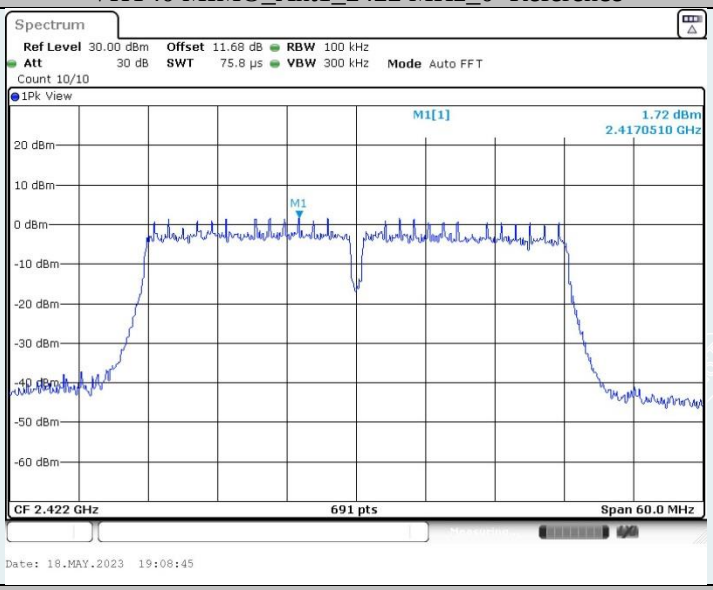
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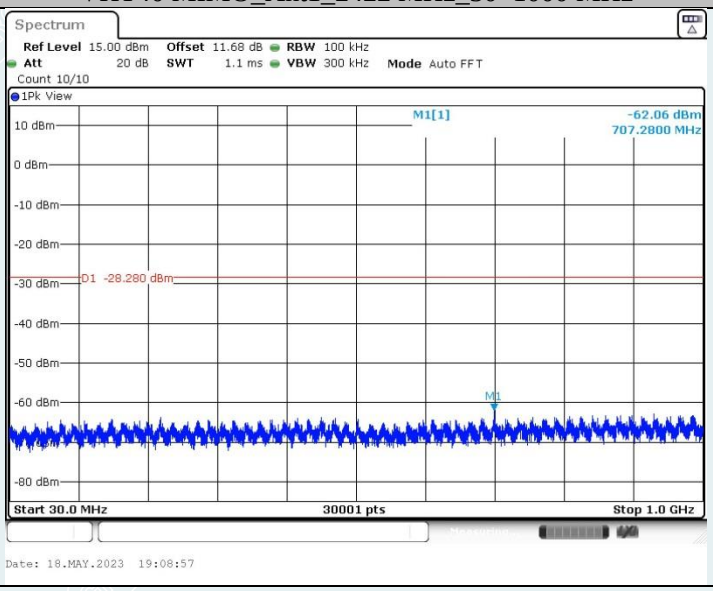
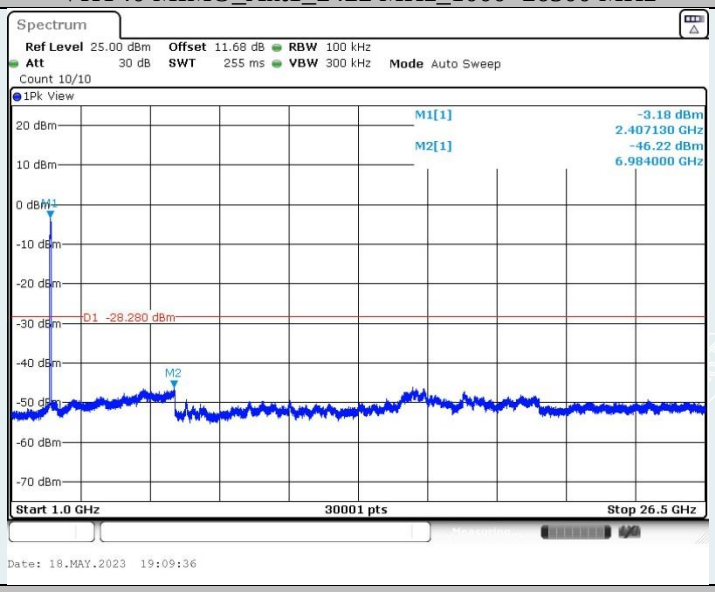
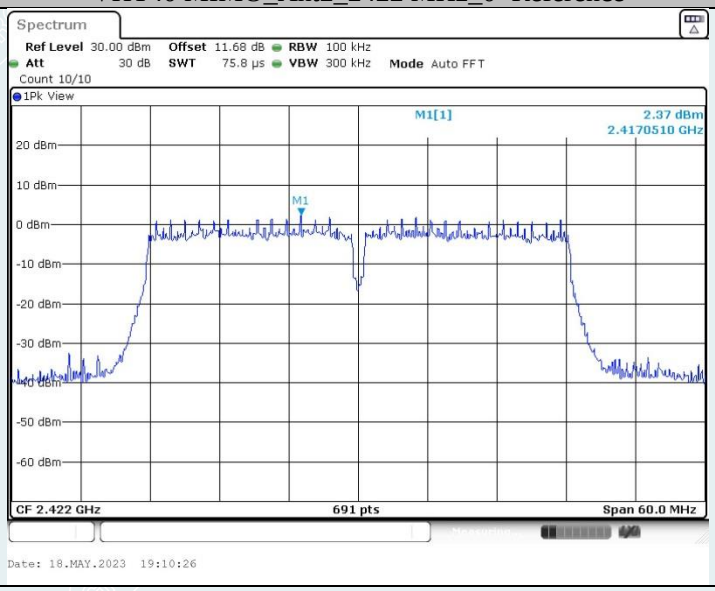


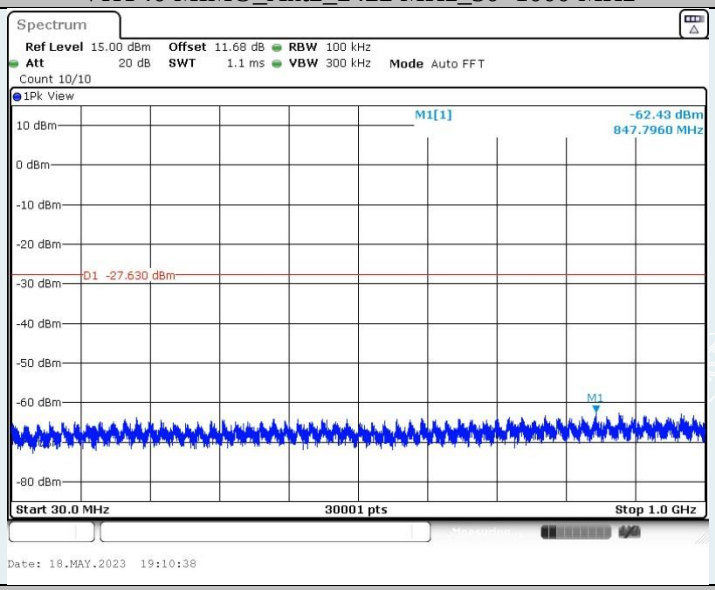
VHT40 MIMO_Ant1_2422 MHz_1000~26500 MHz



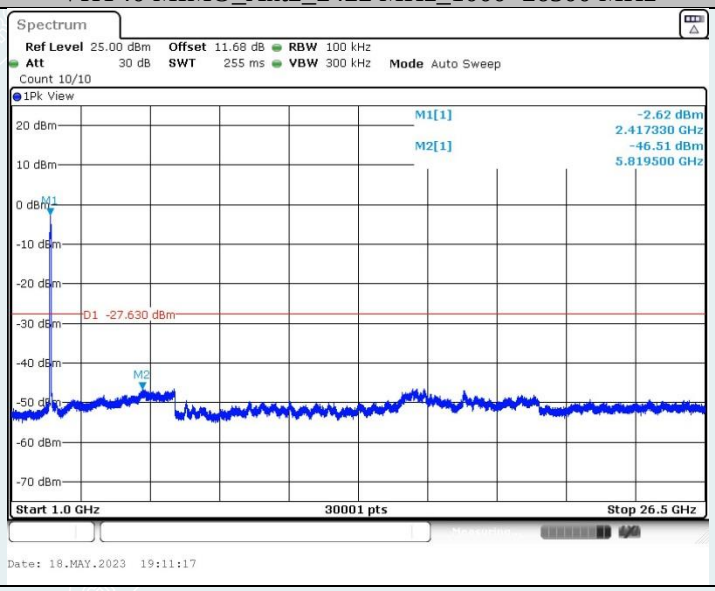
VHT40 MIMO_Ant2_2422 MHz_0~Reference



VHT40 MIMO_Ant2_2422 MHz_30~1000 MHz



VHT40 MIMO_Ant2_2422 MHz_1000~26500 MHz



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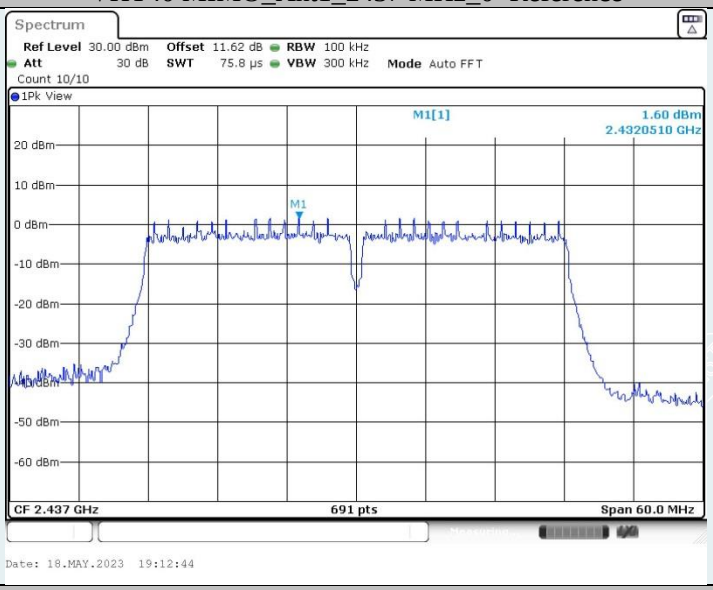
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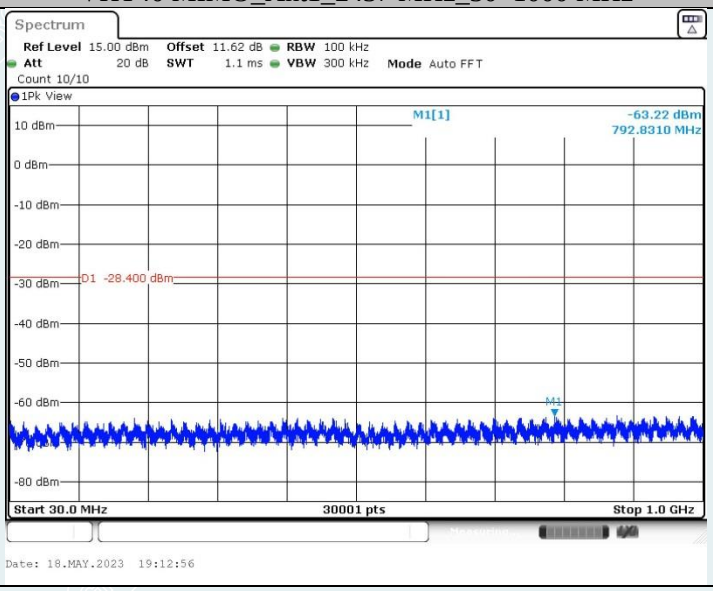
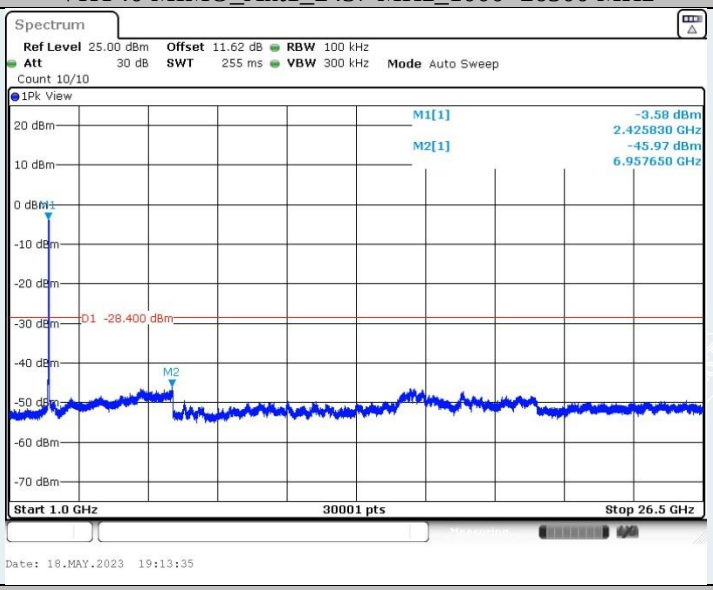


VHT40 MIMO_Ant1_2437 MHz_1000~26500 MHz

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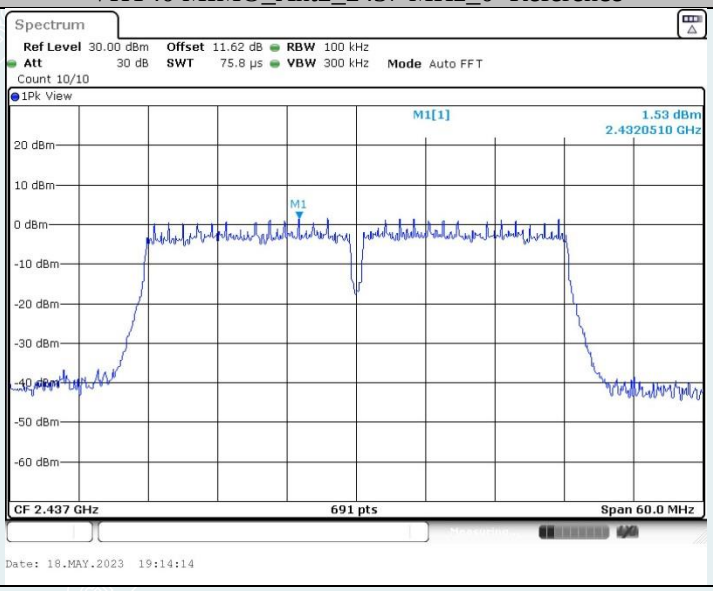
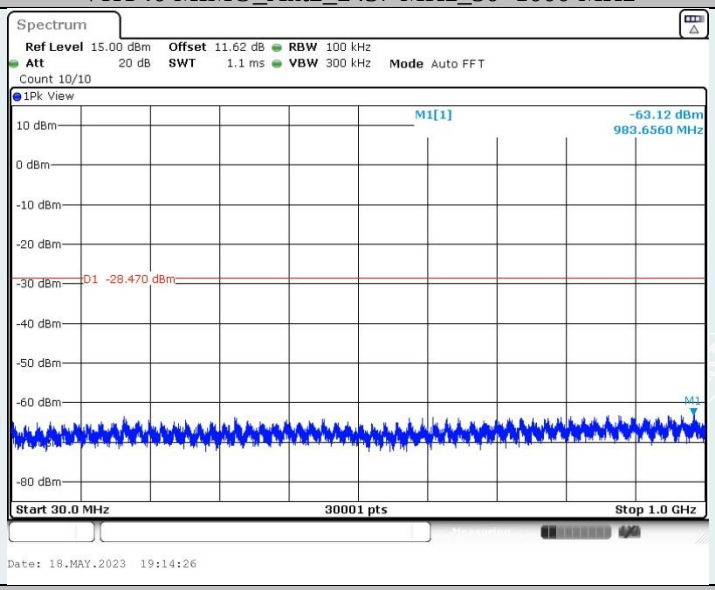
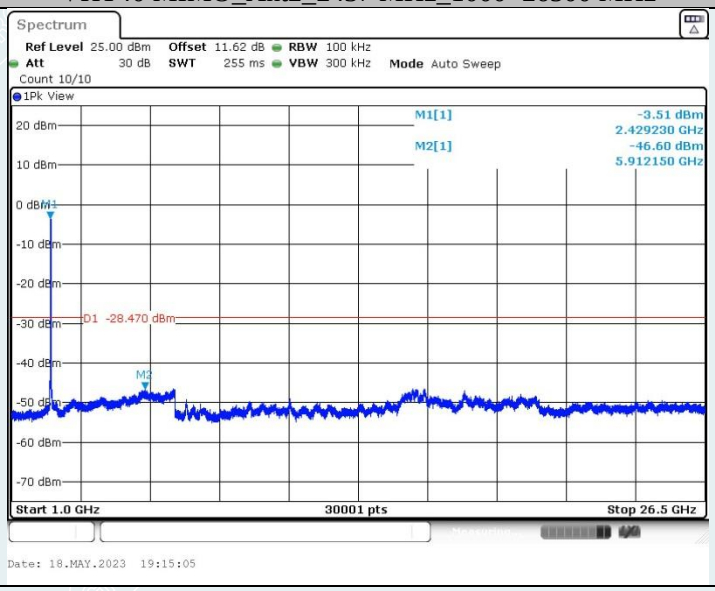
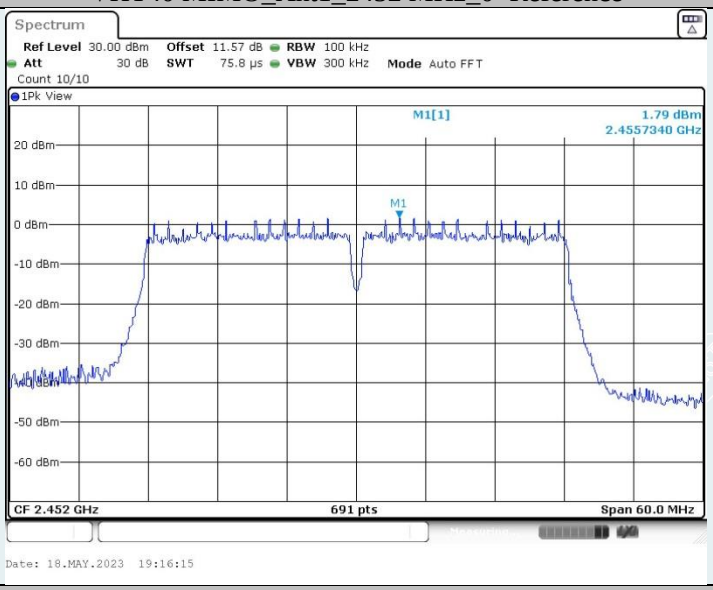
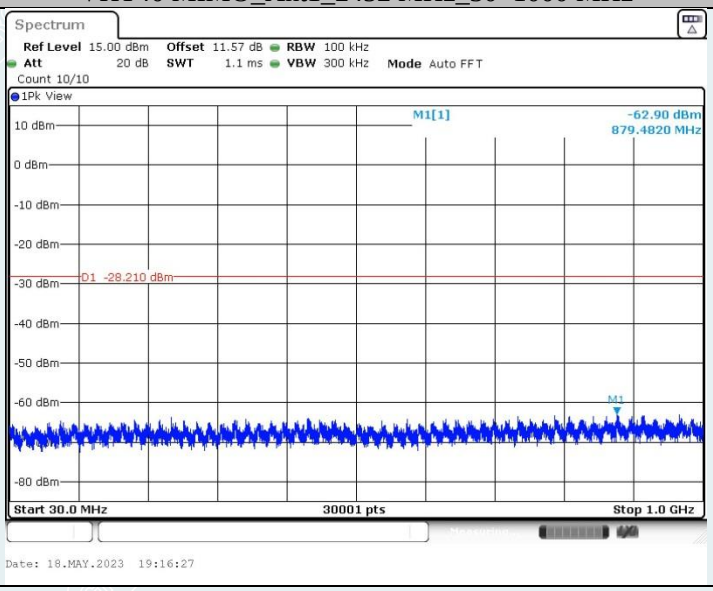


VHT40 MIMO_Ant2_2437 MHz_30~1000 MHz



VHT40 MIMO_Ant2_2437 MHz_1000~26500 MHz



VHT40 MIMO_Ant1_2452 MHz_0~Reference

VHT40 MIMO_Ant1_2452 MHz_30~1000 MHz


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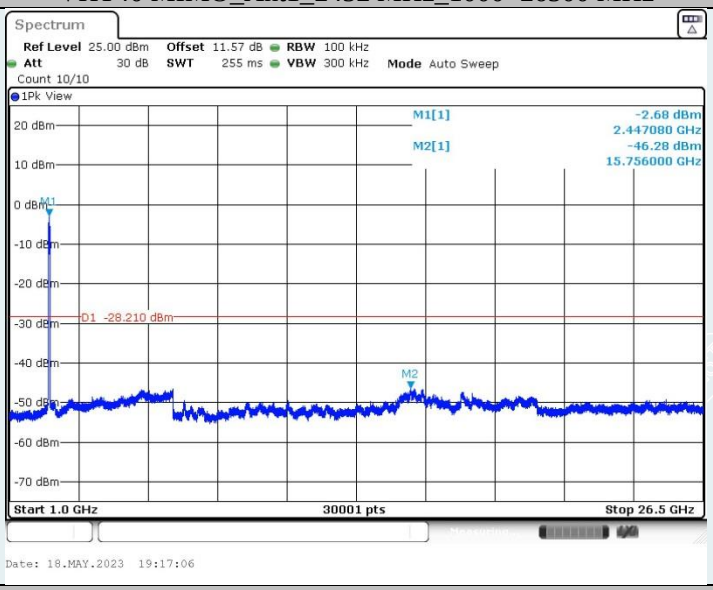
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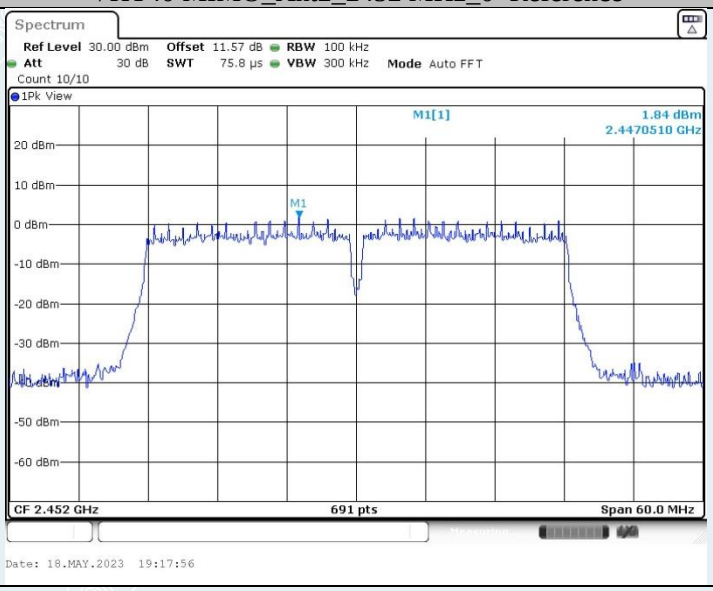
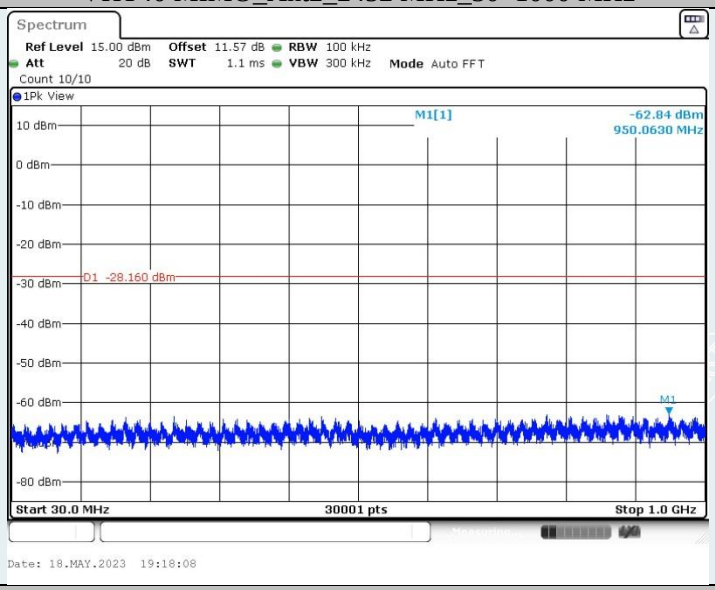
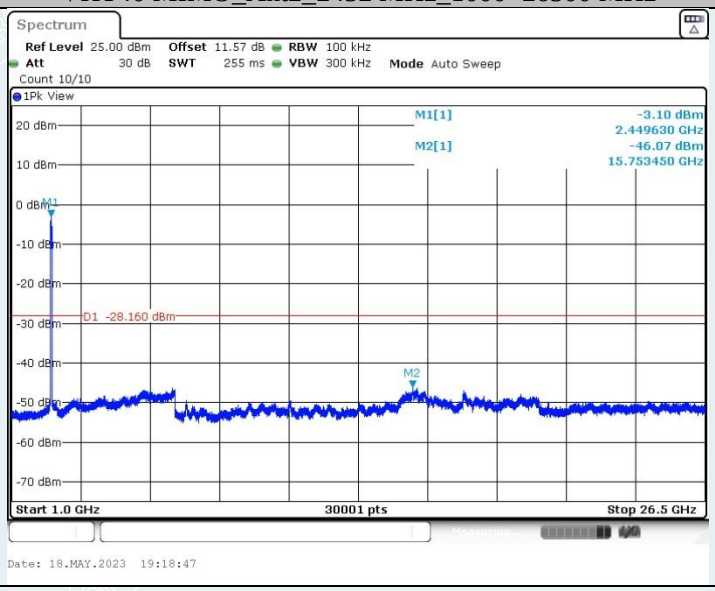


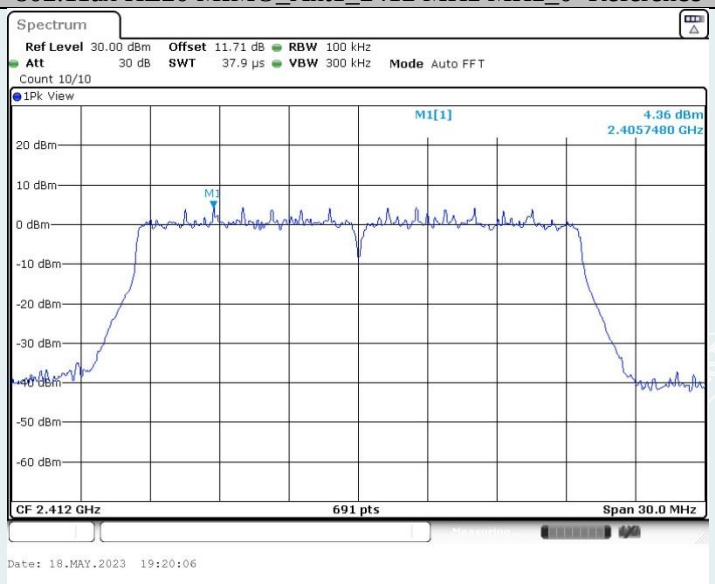
VHT40 MIMO_Ant2_2452 MHz_30~1000 MHz



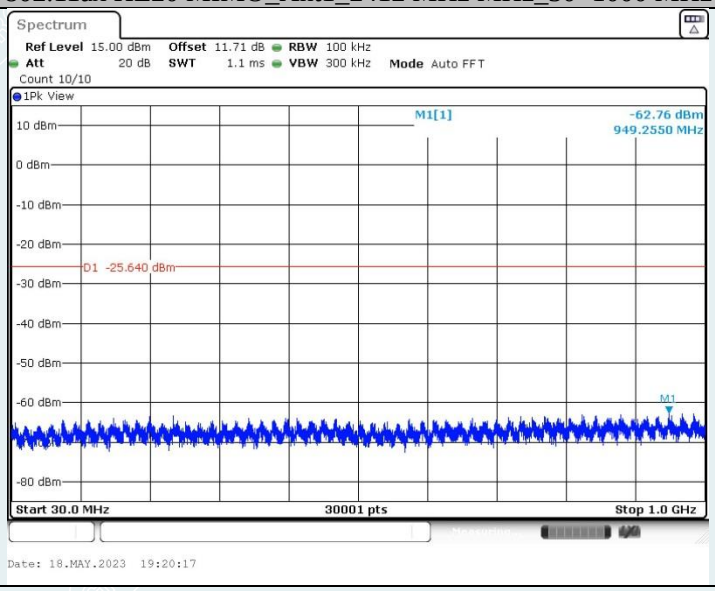
VHT40 MIMO_Ant2_2452 MHz_1000~26500 MHz



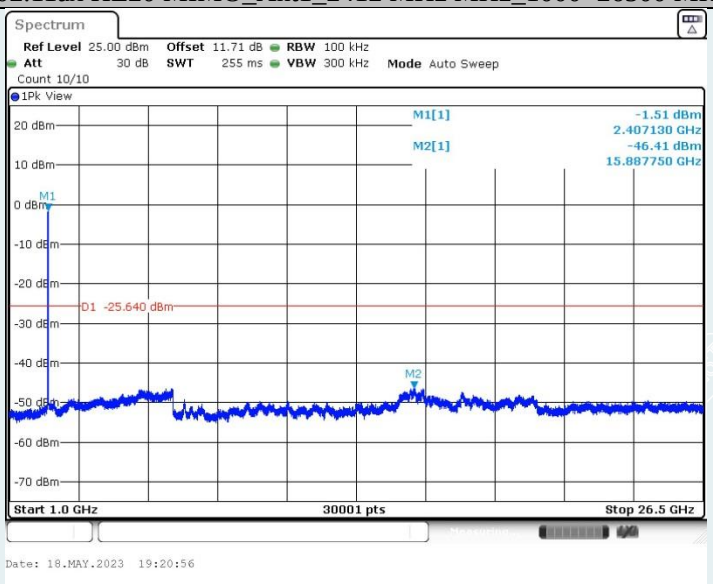
802.11ax HE20 MIMO_Ant1_2412 MHz MHz_0~Reference



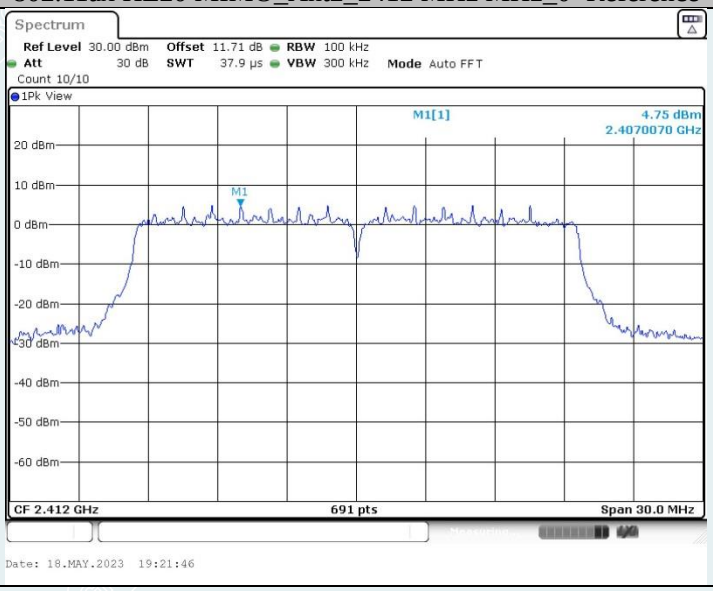
802.11ax HE20 MIMO_Ant1_2412 MHz MHz_30~1000 MHz



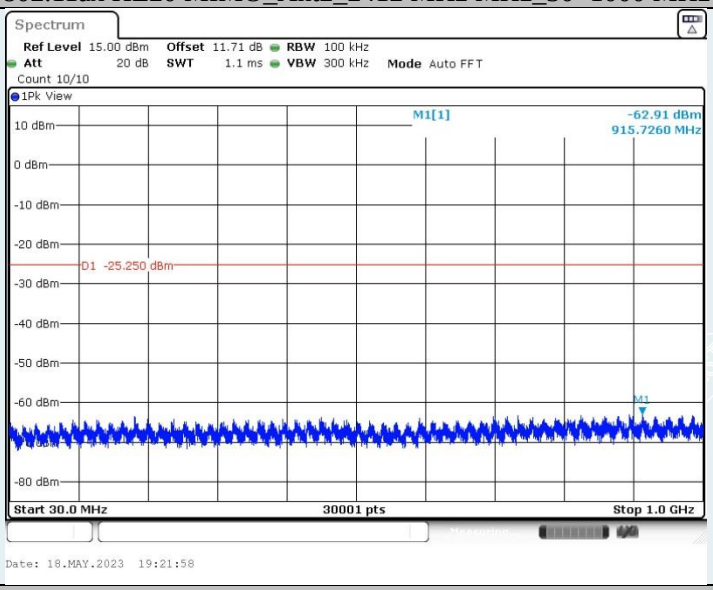
802.11ax HE20 MIMO_Ant1_2412 MHz MHz_1000~26500 MHz



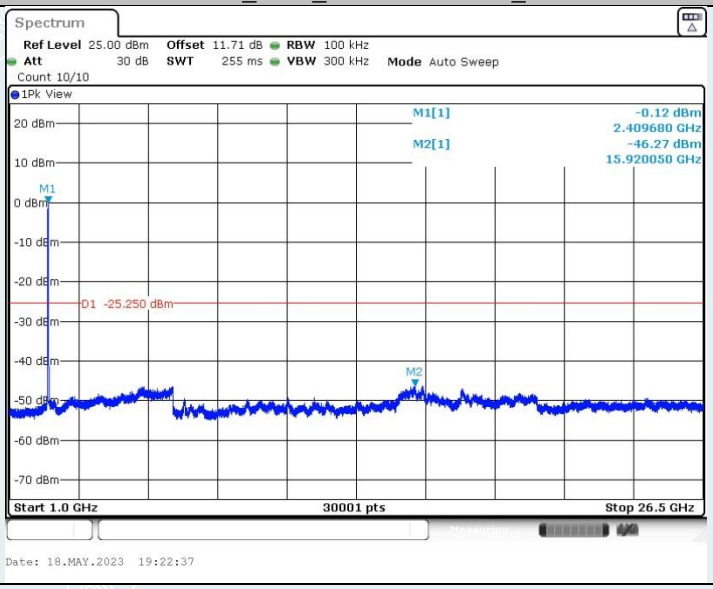
802.11ax HE20 MIMO_Ant2_2412 MHz MHz_0~Reference



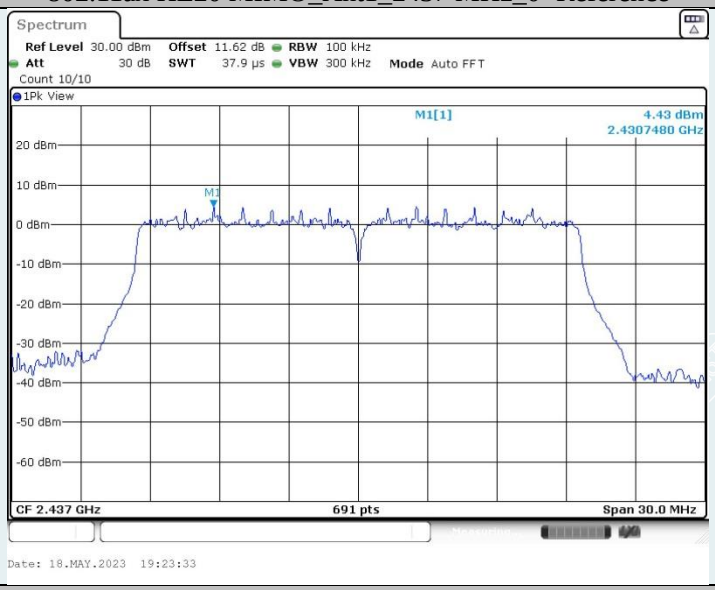
802.11ax HE20 MIMO_Ant2_2412 MHz MHz_30~1000 MHz



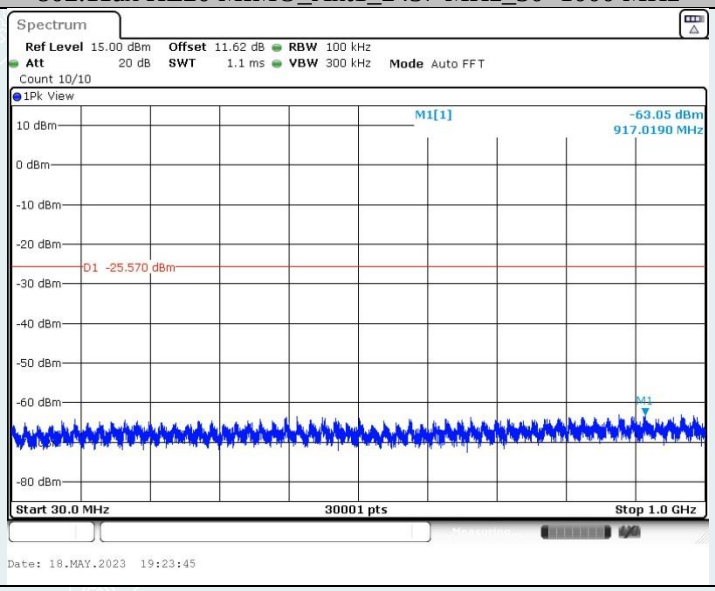
802.11ax HE20 MIMO_Ant2_2412 MHz MHz_1000~26500 MHz



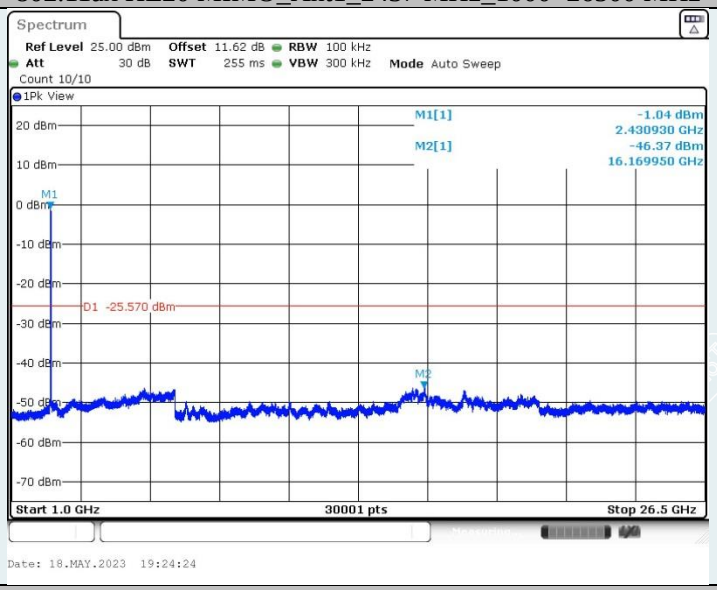
802.11ax HE20 MIMO_Ant1_2437 MHz_0~Reference



802.11ax HE20 MIMO_Ant1_2437 MHz_30~1000 MHz



802.11ax HE20 MIMO_Ant1_2437 MHz_1000~26500 MHz



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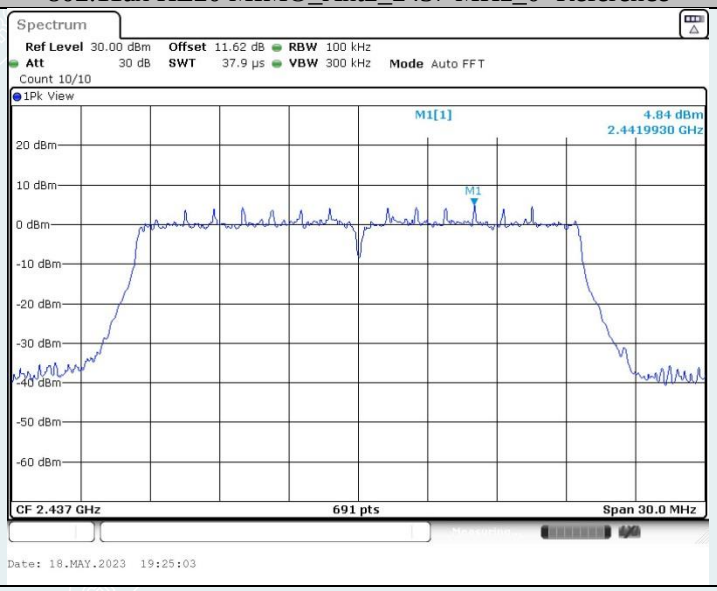
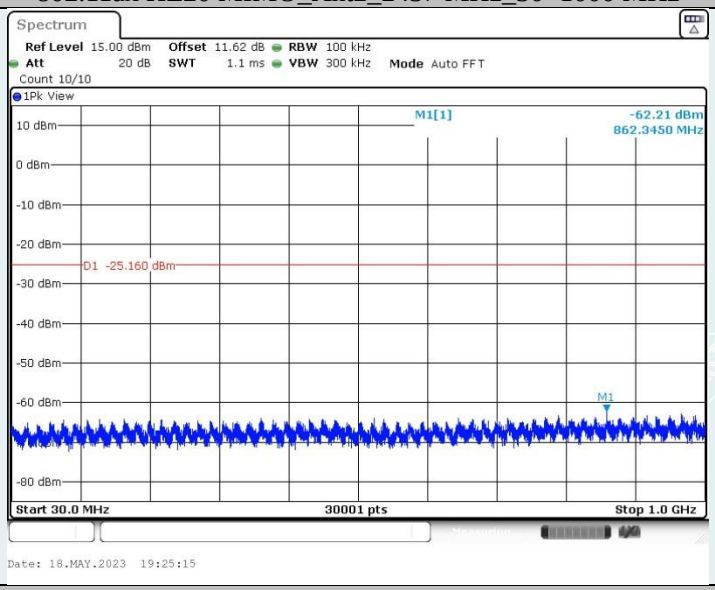
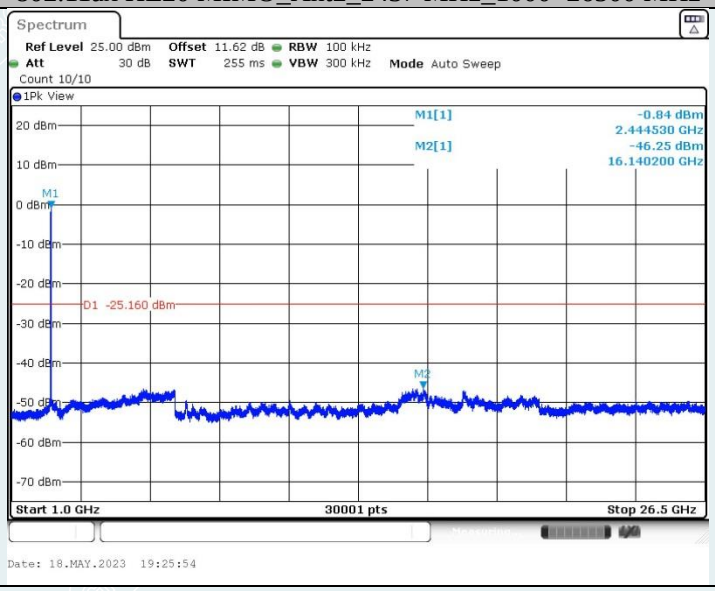


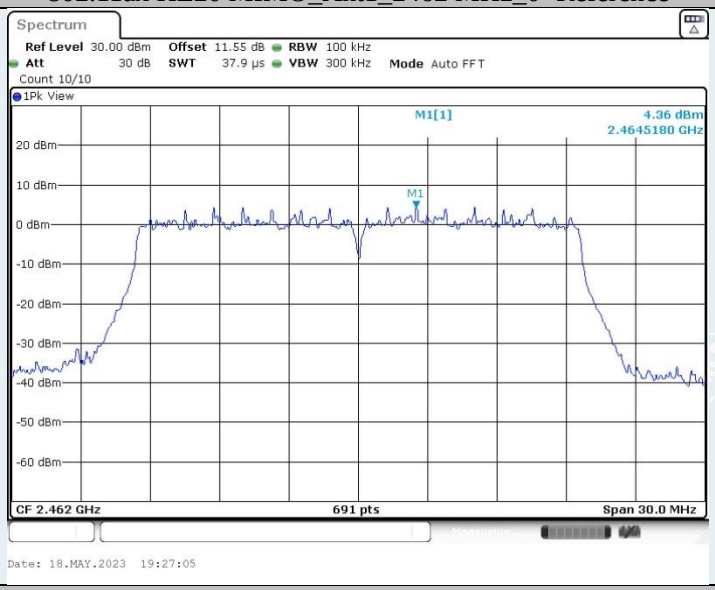
802.11ax HE20 MIMO_Ant2_2437 MHz_30~1000 MHz



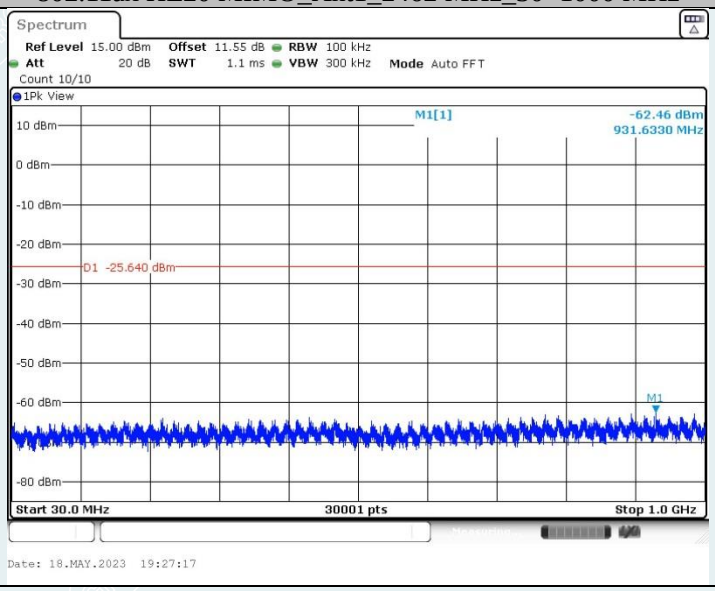
802.11ax HE20 MIMO_Ant2_2437 MHz_1000~26500 MHz



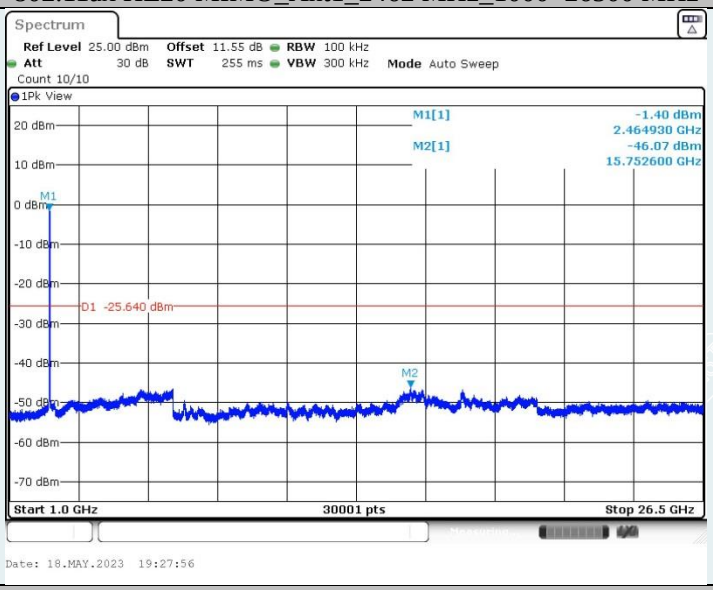
802.11ax HE20 MIMO_Ant1_2462 MHz_0~Reference



802.11ax HE20 MIMO_Ant1_2462 MHz_30~1000 MHz



802.11ax HE20 MIMO_Ant1_2462 MHz_1000~26500 MHz



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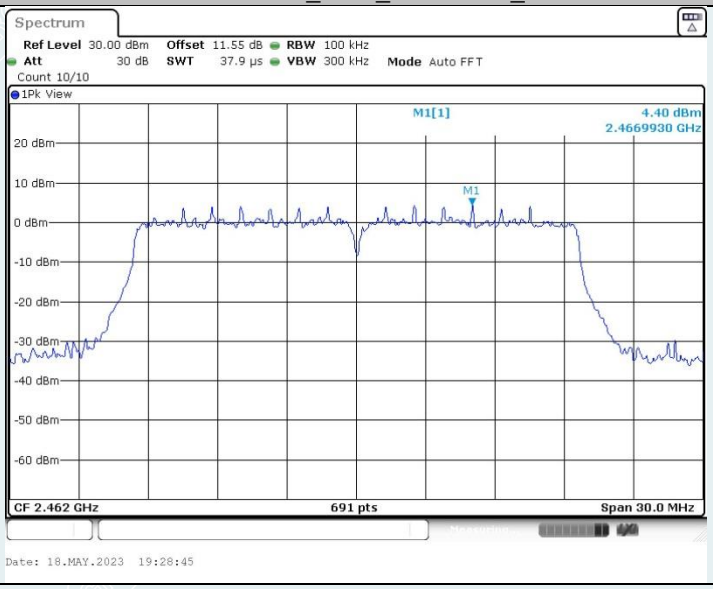
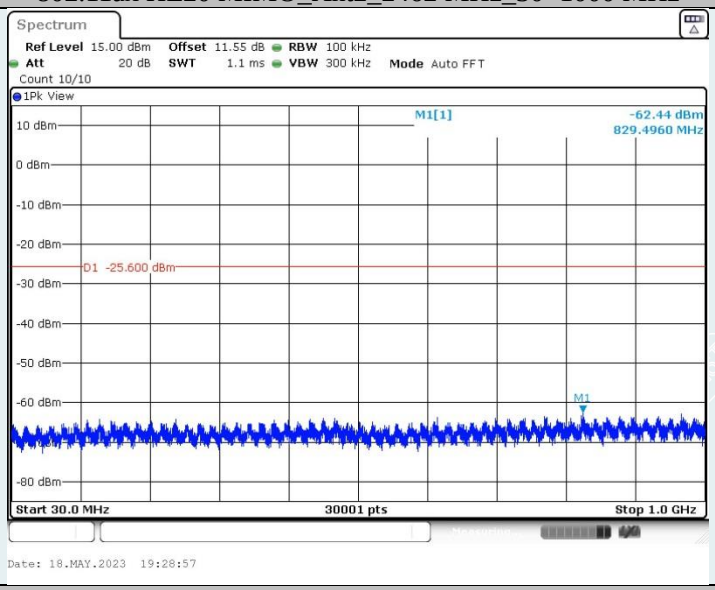
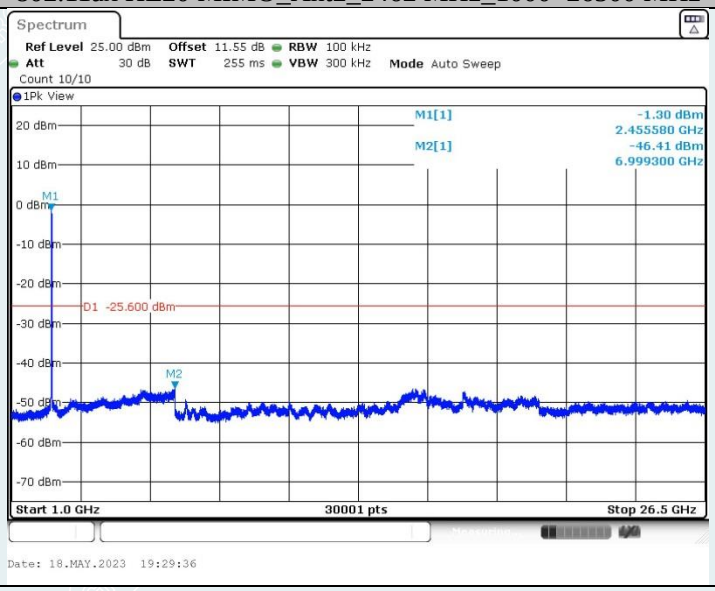


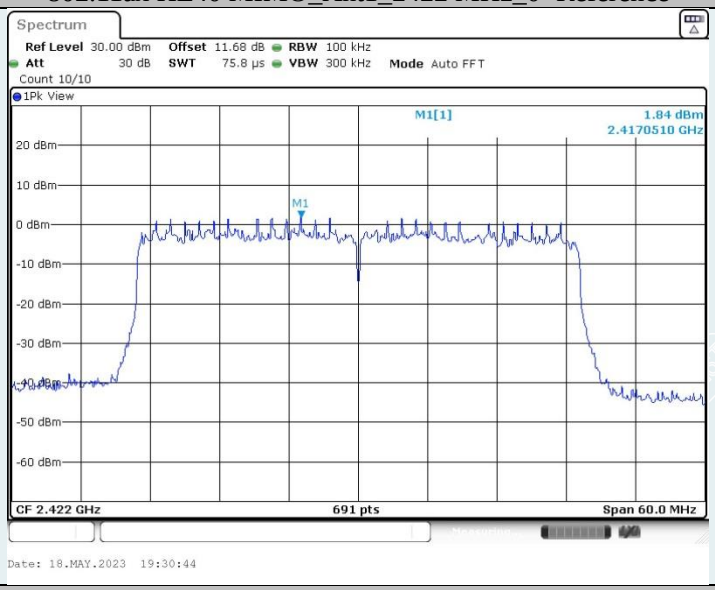
802.11ax HE20 MIMO_Ant2_2462 MHz_30~1000 MHz



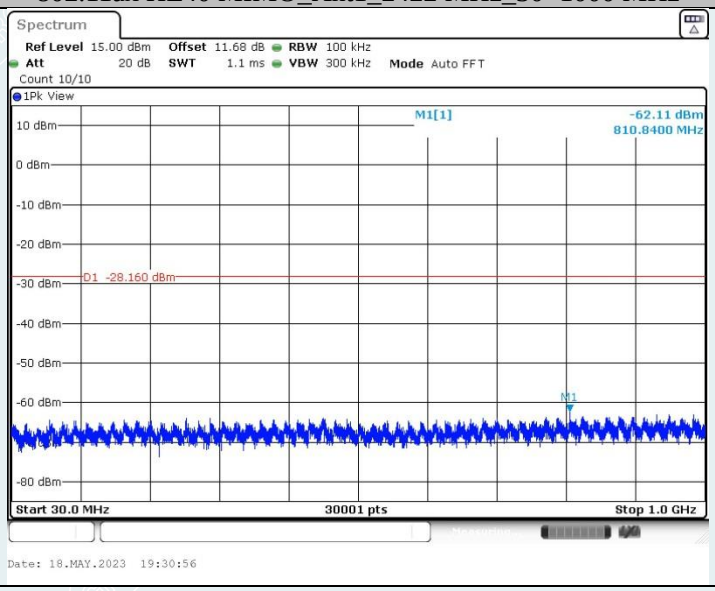
802.11ax HE20 MIMO_Ant2_2462 MHz_1000~26500 MHz



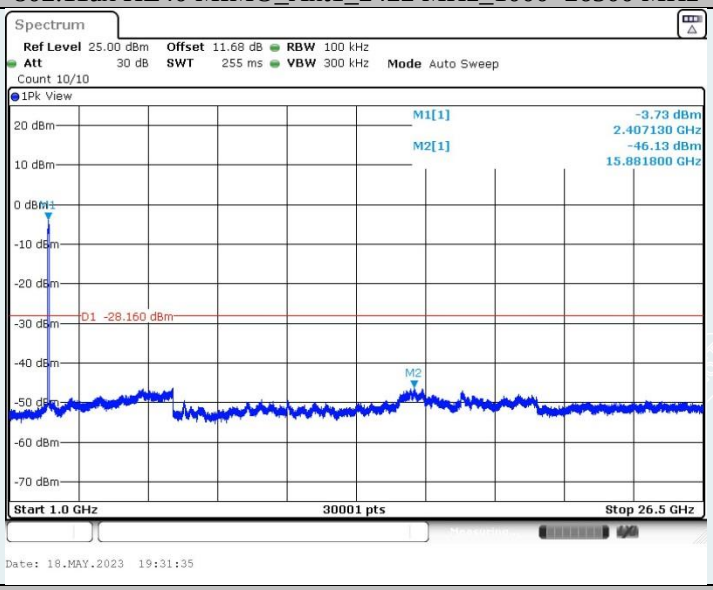
802.11ax HE40 MIMO_Ant1_2422 MHz_0~Reference



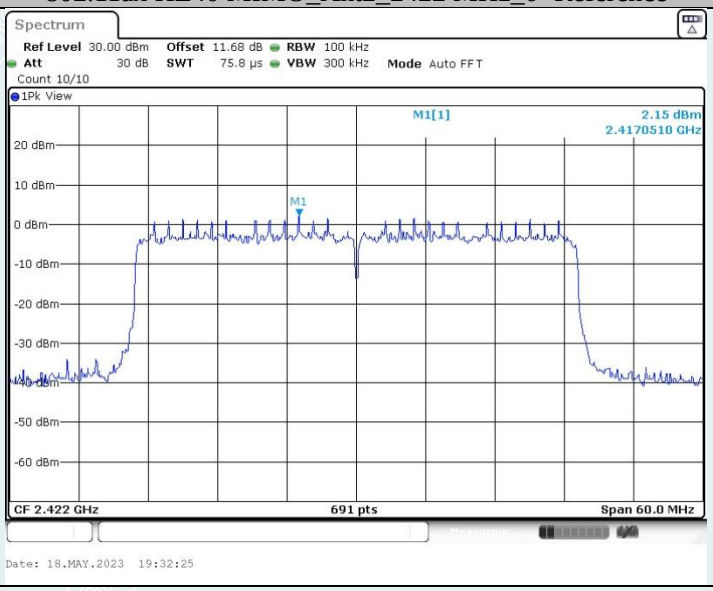
802.11ax HE40 MIMO_Ant1_2422 MHz_30~1000 MHz



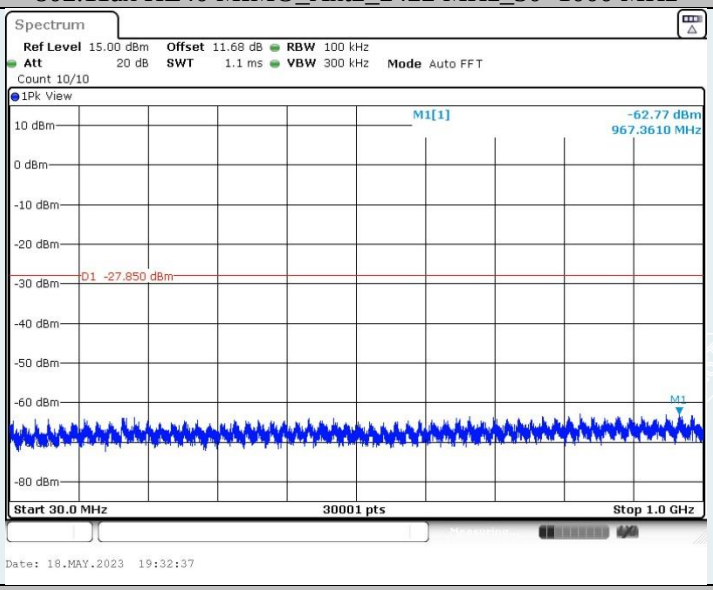
802.11ax HE40 MIMO_Ant1_2422 MHz_1000~26500 MHz



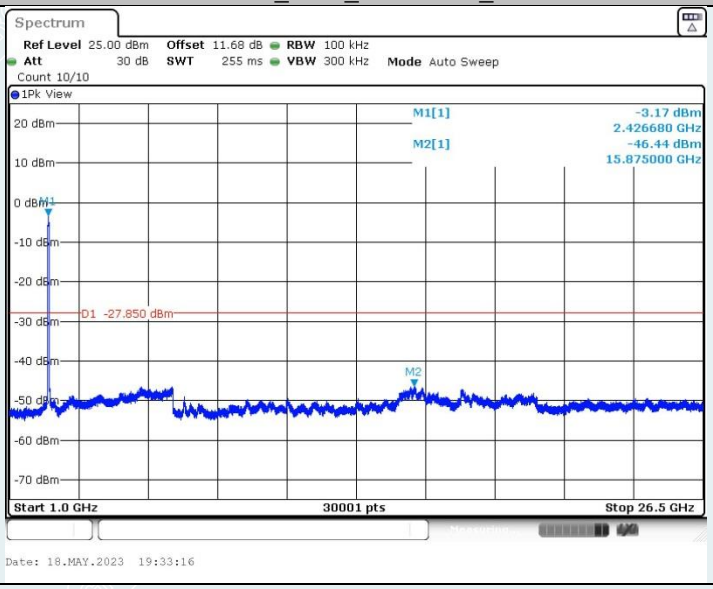
802.11ax HE40 MIMO_Ant2_2422 MHz_0~Reference



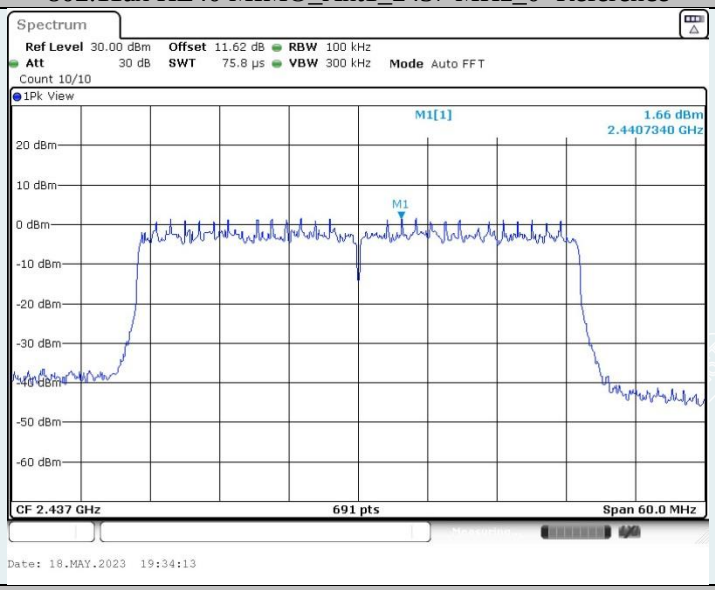
802.11ax HE40 MIMO_Ant2_2422 MHz_30~1000 MHz



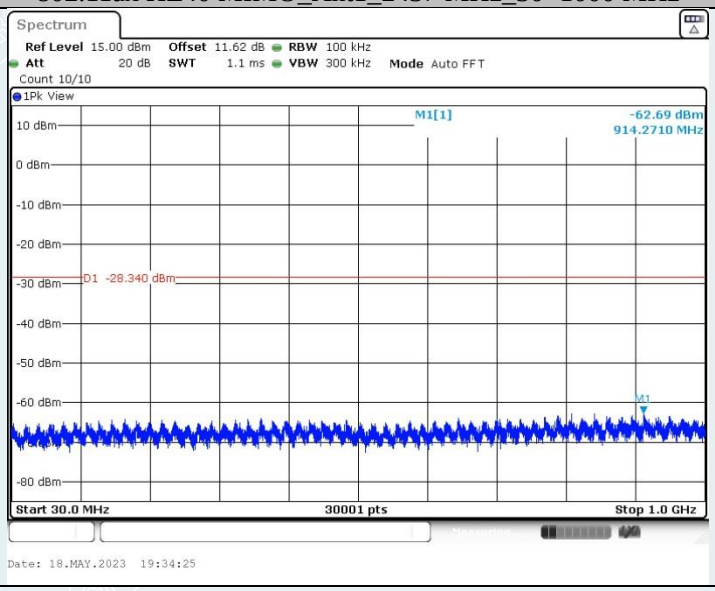
802.11ax HE40 MIMO_Ant2_2422 MHz_1000~26500 MHz



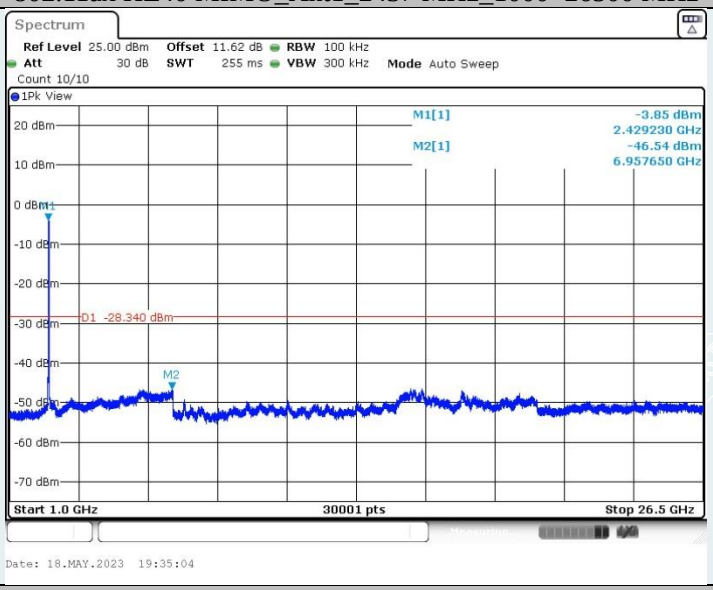
802.11ax HE40 MIMO_Ant1_2437 MHz_0~Reference



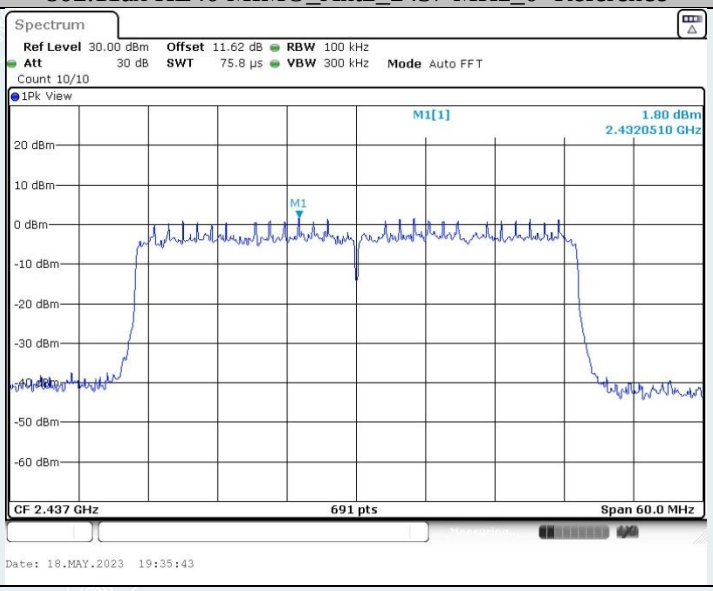
802.11ax HE40 MIMO_Ant1_2437 MHz_30~1000 MHz



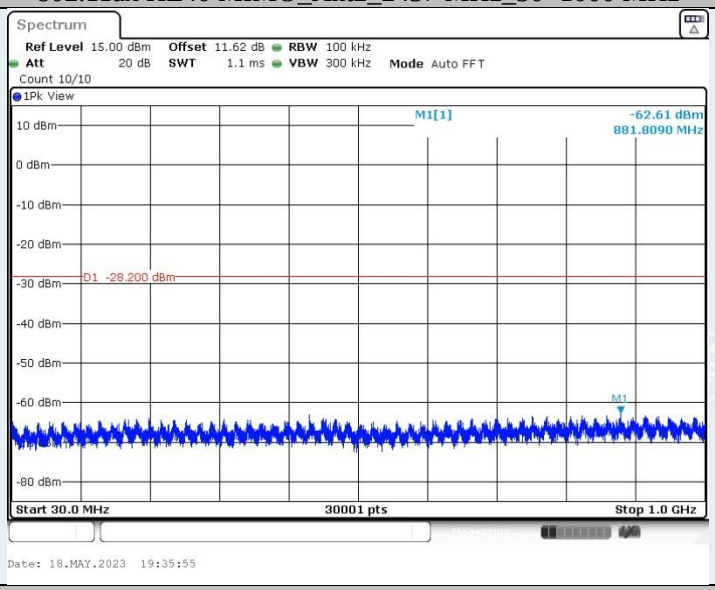
802.11ax HE40 MIMO_Ant1_2437 MHz_1000~26500 MHz



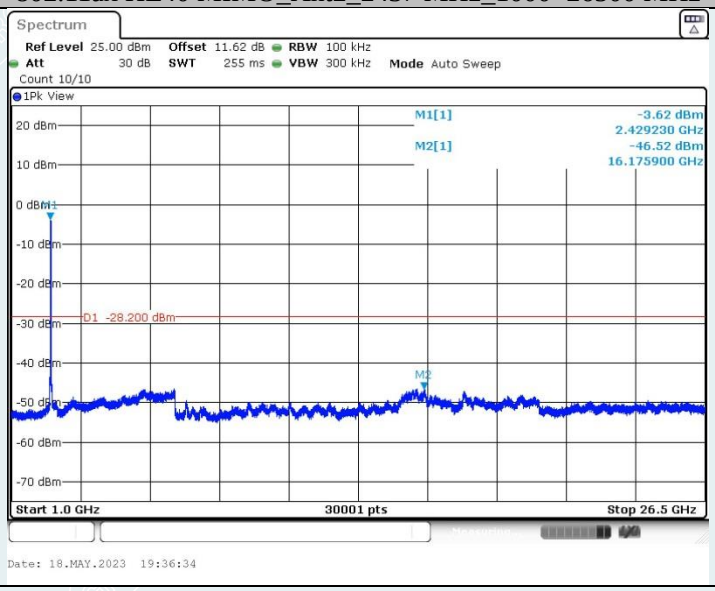
802.11ax HE40 MIMO_Ant2_2437 MHz_0~Reference



802.11ax HE40 MIMO_Ant2_2437 MHz_30~1000 MHz



802.11ax HE40 MIMO_Ant2_2437 MHz_1000~26500 MHz



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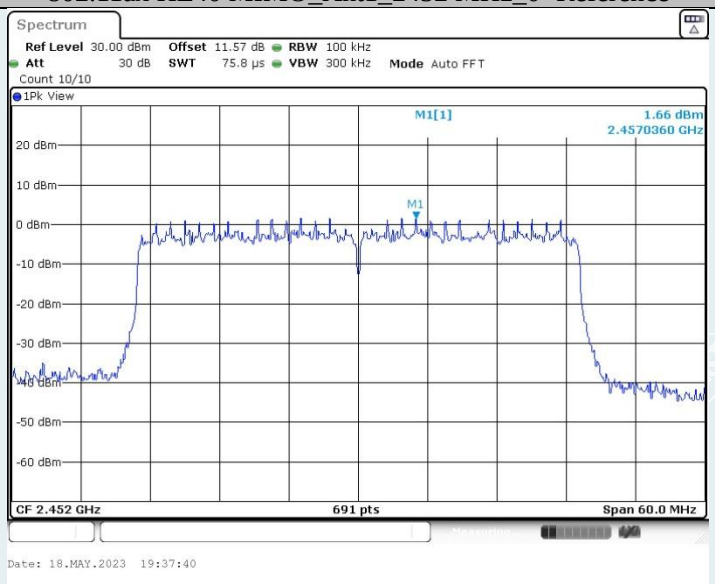
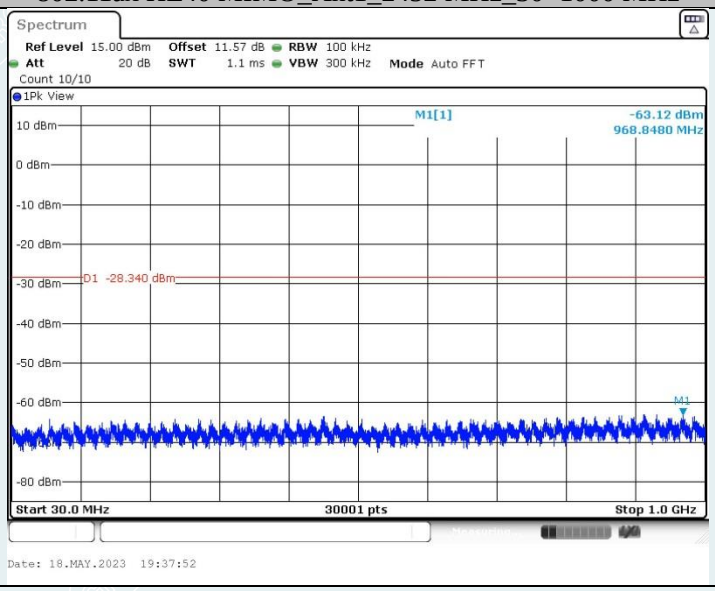
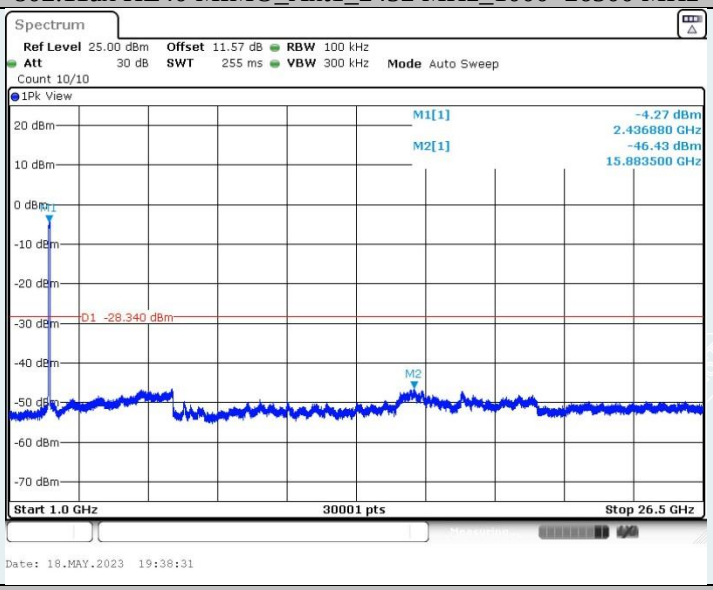


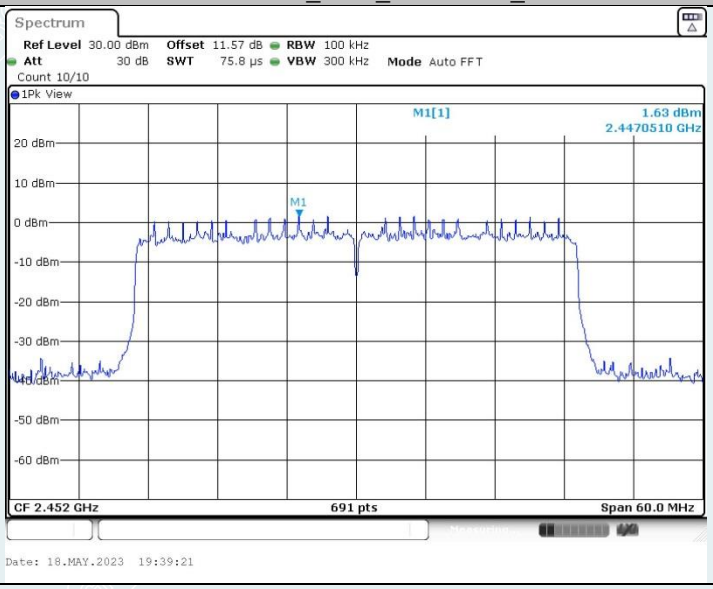
802.11ax HE40 MIMO_Ant1_2452 MHz_30~1000 MHz



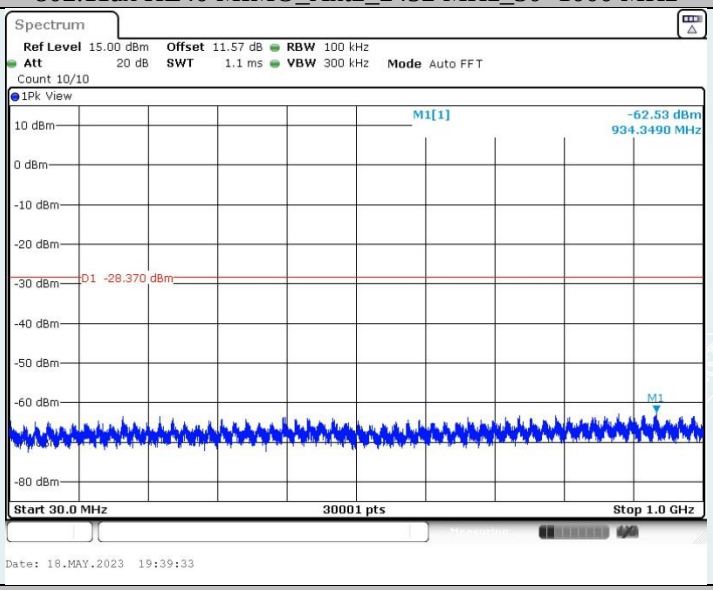
802.11ax HE40 MIMO_Ant1_2452 MHz_1000~26500 MHz



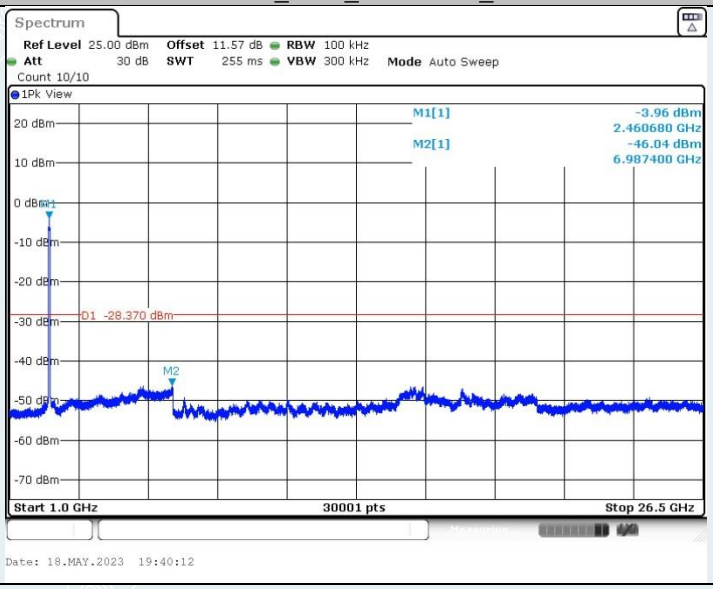
802.11ax HE40 MIMO_Ant2_2452 MHz_0~Reference



802.11ax HE40 MIMO_Ant2_2452 MHz_30~1000 MHz



802.11ax HE40 MIMO_Ant2_2452 MHz_1000~26500 MHz



11. RESTRICTED BANDS OF OPERATION

11.1.LIMITS

Section 15.247(d) In addition, Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

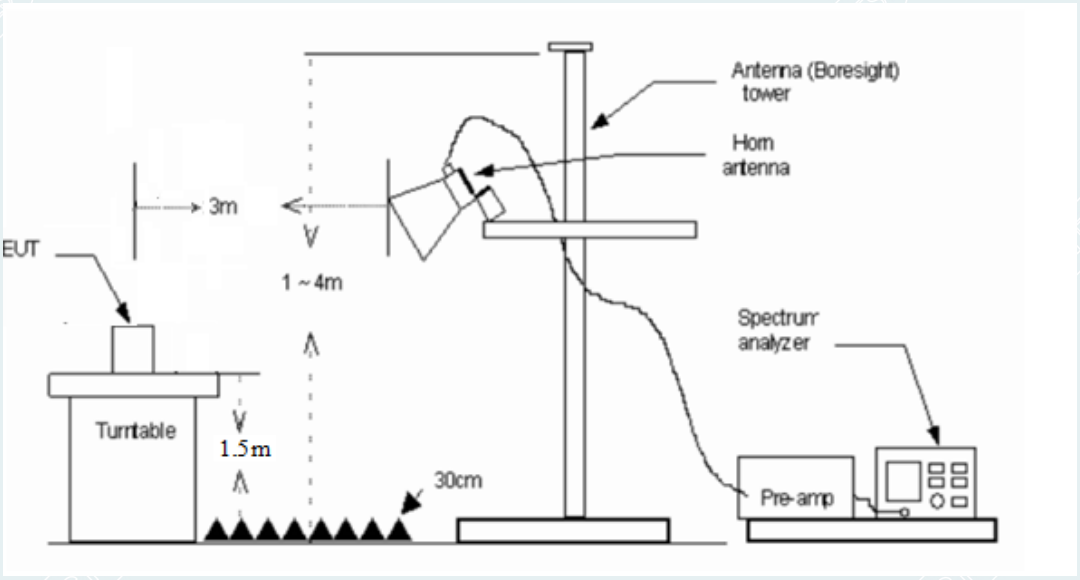
Frequency (MHz)	Quasi-peak(μV/m)	Measurement distance(m)	Quasi-peak(dBμV/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30~88	100	3	40
88~216	150	3	43.5
216~960	200	3	46
Above 960	500	3	54

11.2.TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Measurement Guidance.

1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   a) PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO
   b) AVERAGE: RBW=1MHz / VBW=1/T / Sweep=AUTO
   c) If the EUT is configured to transmit with duty cycle ≥98%，set VBW≤RBW/100 (i.e.,10kHz) but not less than 10 Hz.
   d) If the EUT duty cycle is ＜98%，set VBW≥1/T, Where T is defined in section 2.8.
1) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

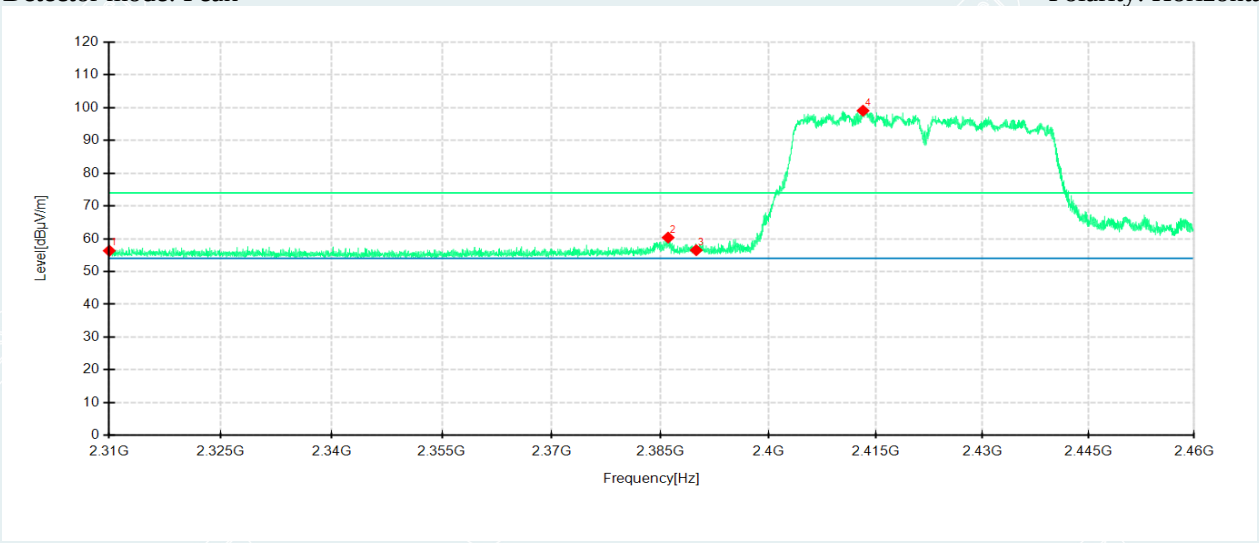
11.3.TEST SETUP



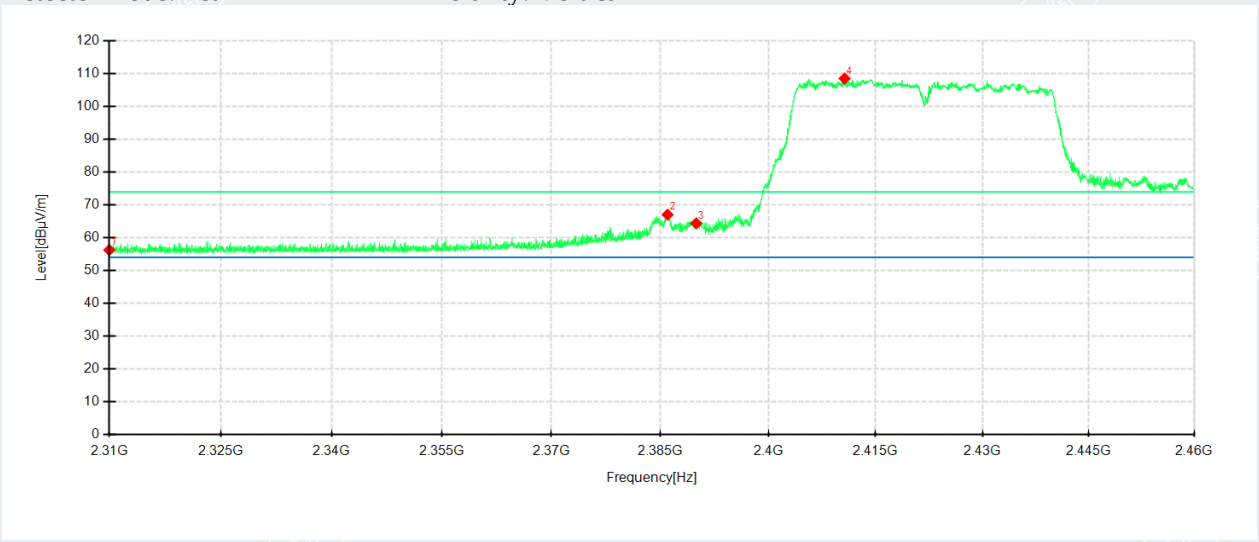
11.4.TEST RESULTS

Pre-scan all SDM modes and recorded the worst case results in this report (mode: IEEE 802.11n40, VHT20)

802.11n HT40 mode
Lowest Channel
Frequency 2422MHz
Environment: 21.8℃/66%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-13
Detector mode: Peak Polarity: Horizontal



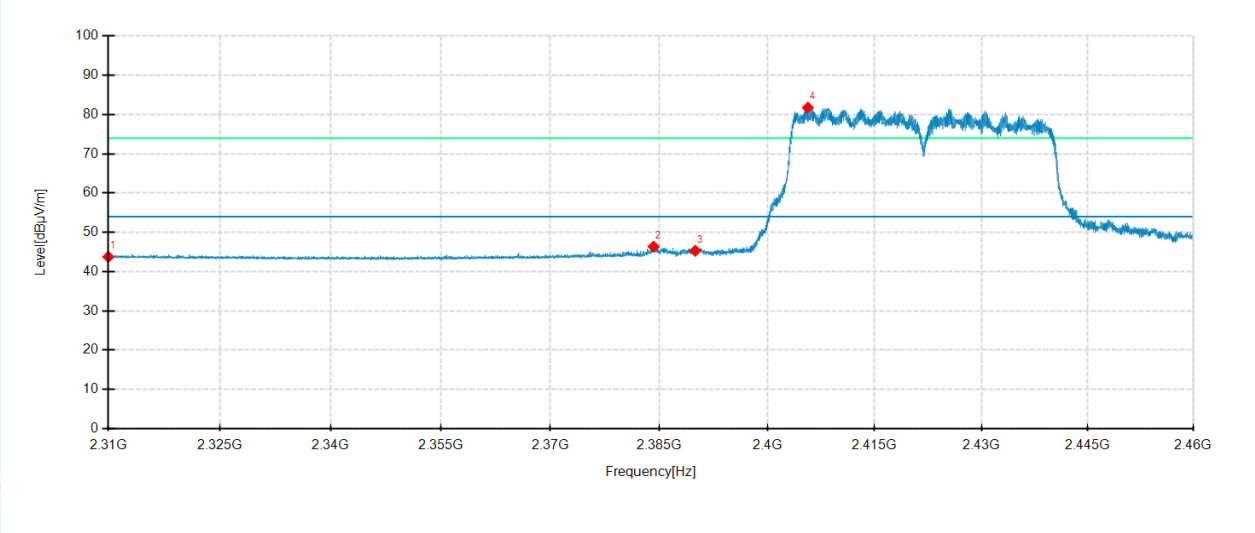
Detector mode: Peak Polarity: Vertical



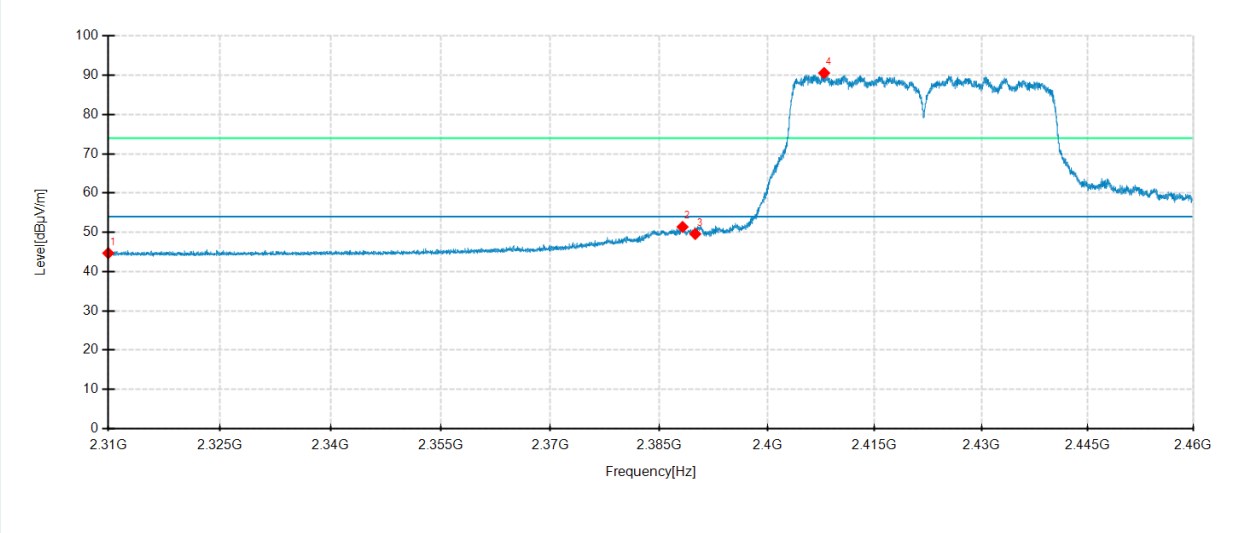
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	46.58	56.35	9.77	74.00	17.65	200	138	Horizontal	/
2	2386.1062	51.26	60.36	9.10	74.00	13.64	200	207	Horizontal	/
3	2390	47.41	56.52	9.11	74.00	17.48	200	207	Horizontal	/
4	2413.2375	89.98	99.06	9.08	74.00	-25.06	100	210	Horizontal	No limit
1	2310	47.20	56.27	9.07	74.00	17.73	100	5	Vertical	/
2	2386.0312	57.56	67.04	9.48	74.00	6.96	100	169	Vertical	/
3	2390	54.85	64.38	9.53	74.00	9.62	100	169	Vertical	/
4	2410.65	98.96	108.57	9.61	74.00	-34.57	200	360	Vertical	No limit

---------- The following blanks ----------

802.11n HT40 mode
Lowest Channel
Frequency 2422MHz
Environment: 21.8℃/66%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-13
Detector mode: Average Polarity: Horizontal

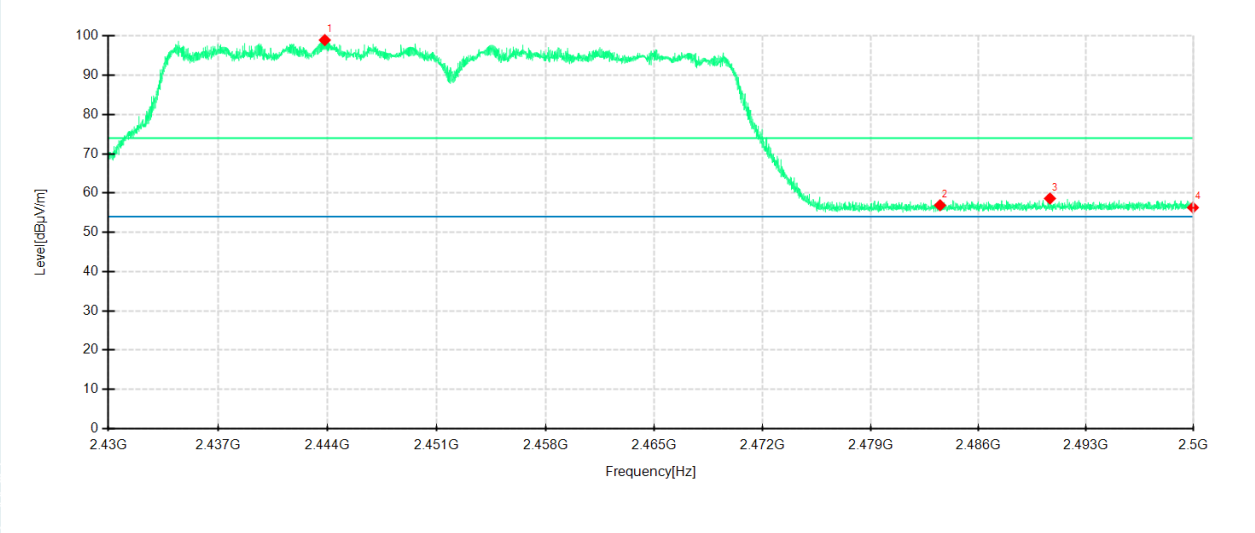


Detector mode: Average Polarity: Vertical

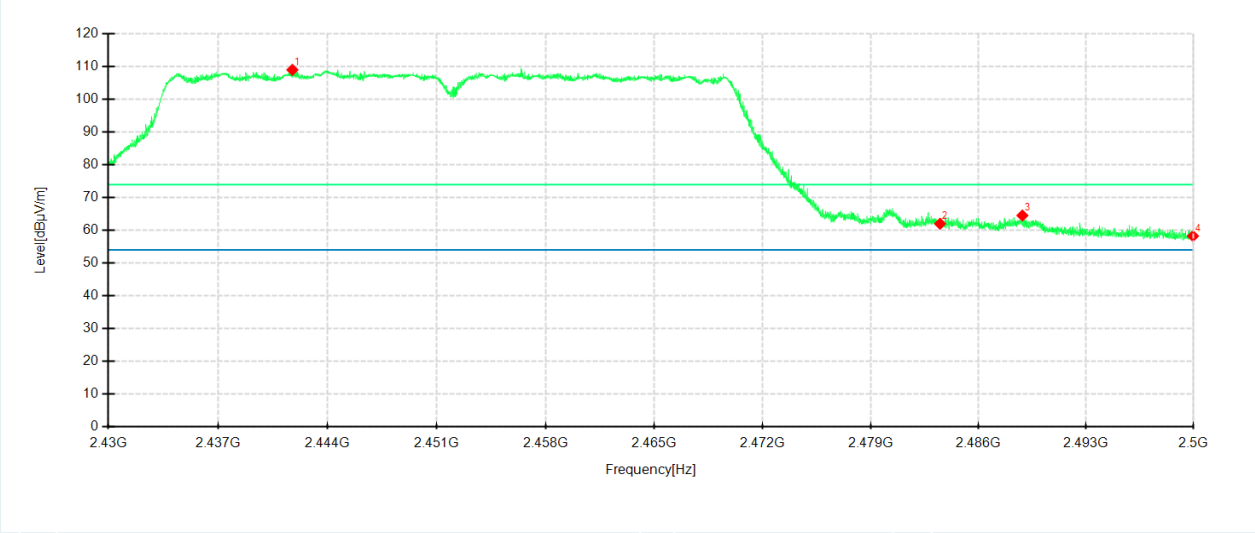


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	33.99	43.76	9.77	54.00	10.24	200	24	Horizontal	/
2	2384.2312	37.26	46.35	9.09	54.00	7.65	200	208	Horizontal	/
3	2390	36.20	45.31	9.11	54.00	8.69	200	197	Horizontal	/
4	2405.6625	72.64	81.75	9.11	54.00	-27.75	100	210	Horizontal	No limit
1	2310	35.63	44.70	9.07	54.00	9.30	200	211	Vertical	/
2	2388.2438	41.87	51.38	9.51	54.00	2.62	200	347	Vertical	/
3	2390	40.05	49.58	9.53	54.00	4.42	200	360	Vertical	/
4	2407.9312	80.95	90.57	9.62	54.00	-36.57	200	347	Vertical	No limit

802.11n HT40 mode
Highest Channel
Frequency 2452MHz
Environment: 21.8℃/66%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-13
Detector mode: Peak Polarity: Horizontal

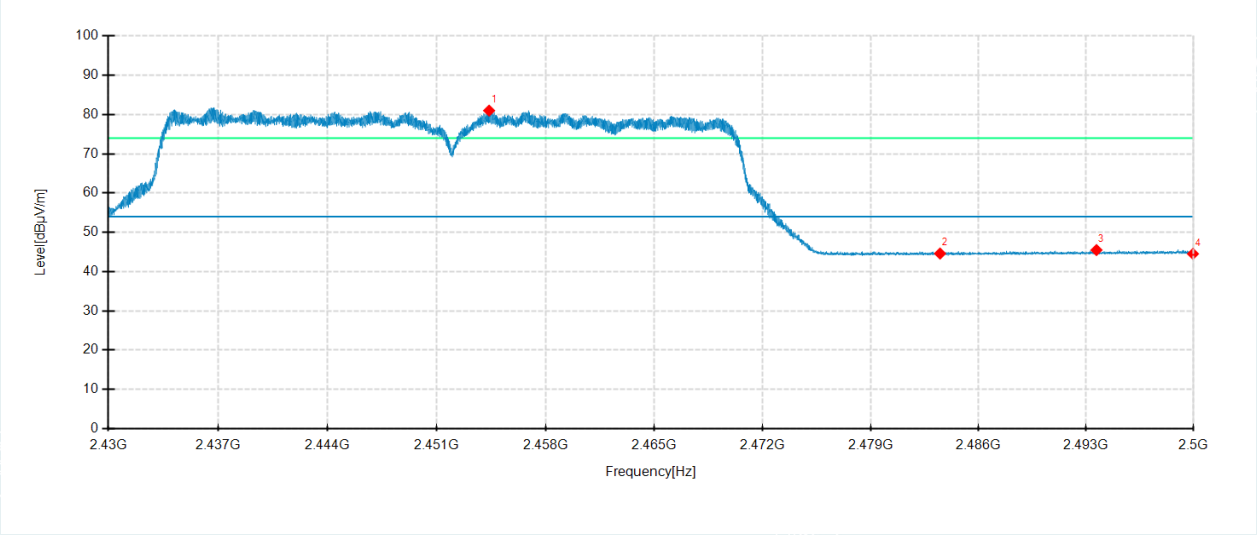


Detector mode: Peak Polarity: Vertical

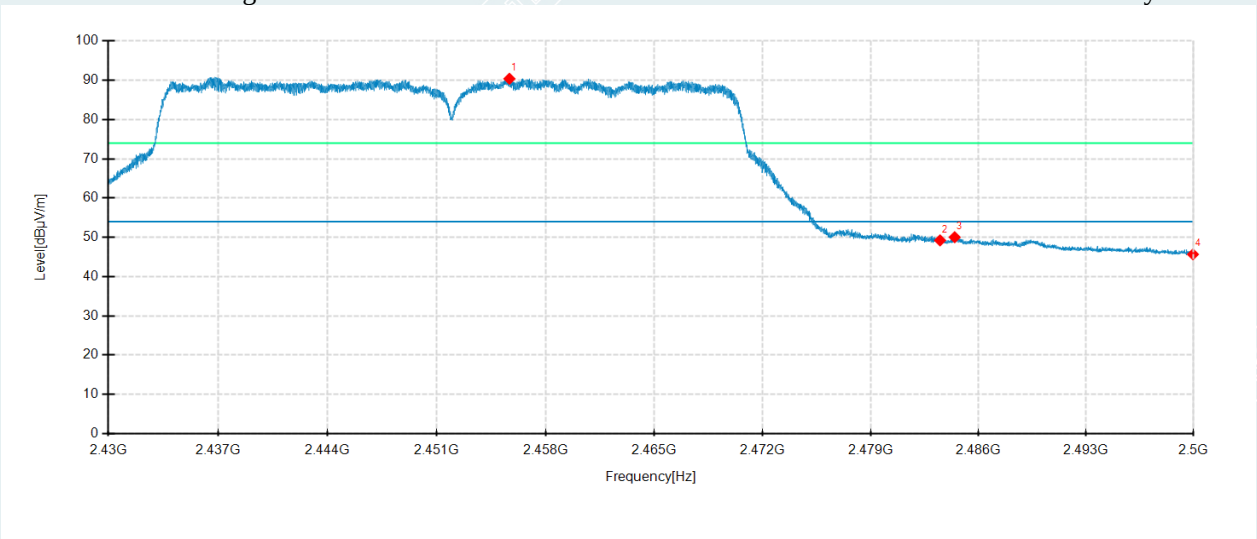


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2443.8162	90.00	98.96	8.96	74.00	-24.96	100	212	Horizontal	No limit
2	2483.5	47.21	56.89	9.68	74.00	17.11	100	339	Horizontal	/
3	2490.655	48.77	58.61	9.84	74.00	15.39	100	153	Horizontal	/
4	2500	46.25	56.30	10.05	74.00	17.70	200	2	Horizontal	/
1	2441.7425	99.48	109.03	9.55	74.00	-35.03	200	16	Vertical	No limit
2	2483.5	52.26	62.01	9.75	74.00	11.99	100	22	Vertical	/
3	2488.8612	54.75	64.53	9.78	74.00	9.47	100	80	Vertical	/
4	2500	48.39	58.24	9.85	74.00	15.76	100	345	Vertical	/

802.11n HT40 mode
Highest Channel
Frequency 2452MHz
Environment: 21.8℃/66%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-13
Detector mode: Average Polarity: Horizontal



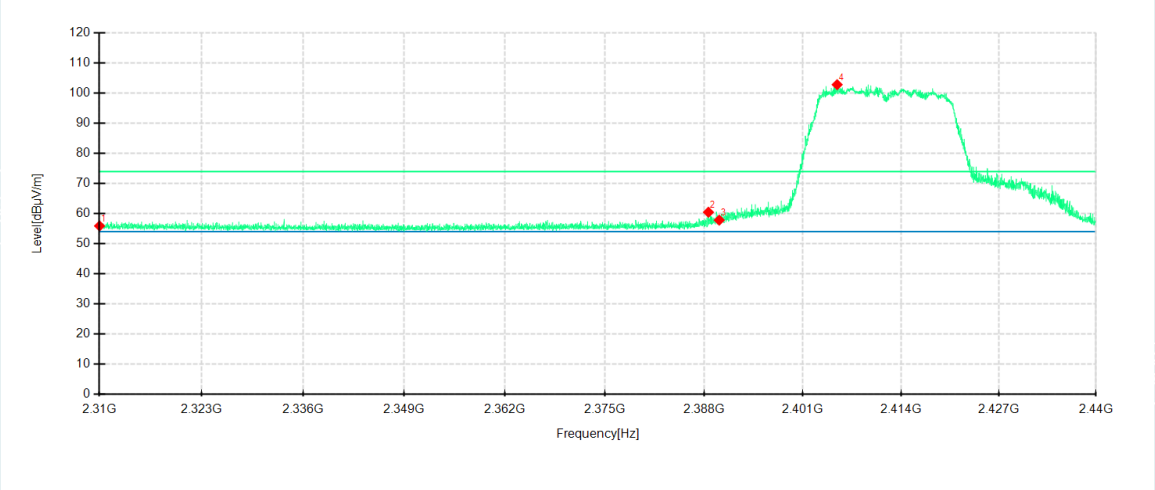
Detector mode: Average Polarity: Vertical



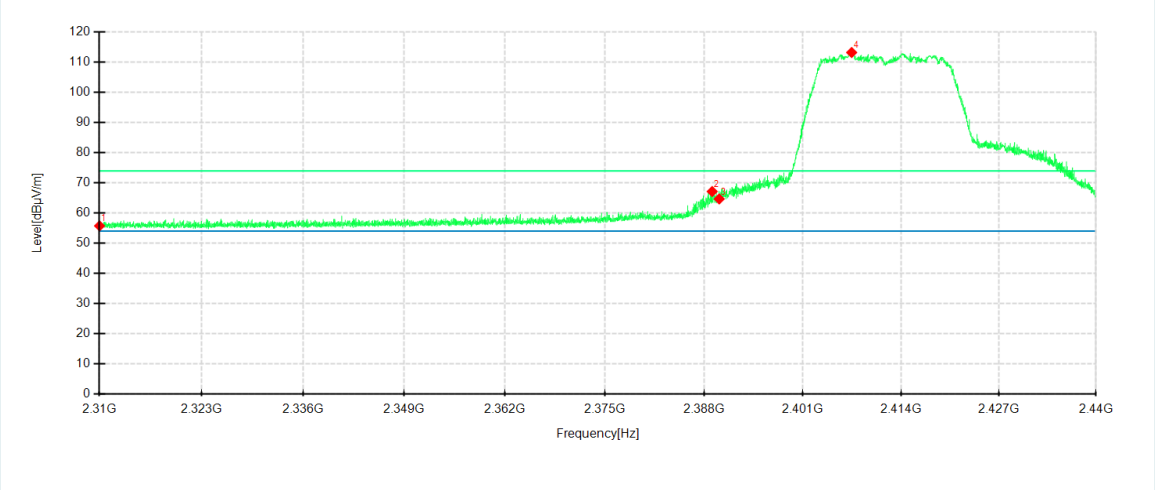
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2454.3512	71.96	81.00	9.04	54.00	-27.00	100	210	Horizontal	No limit
2	2483.5	34.92	44.60	9.68	54.00	9.40	100	318	Horizontal	/
3	2493.6912	35.58	45.49	9.91	54.00	8.51	100	288	Horizontal	/
4	2500	34.47	44.52	10.05	54.00	9.48	200	158	Horizontal	/
1	2455.655	80.81	90.38	9.57	54.00	-36.38	200	337	Vertical	No limit
2	2483.5	39.47	49.22	9.75	54.00	4.78	200	15	Vertical	/
3	2484.4512	40.28	50.03	9.75	54.00	3.97	200	357	Vertical	/

4	2500	35.82	45.67	9.85	54.00	8.33	100	22	Vertical	/

VHT20 mode
Lowest Channel
Frequency 2412 MHzMHz
Environment: 21.7℃/61%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-12
Detector mode: Peak Polarity: Horizontal

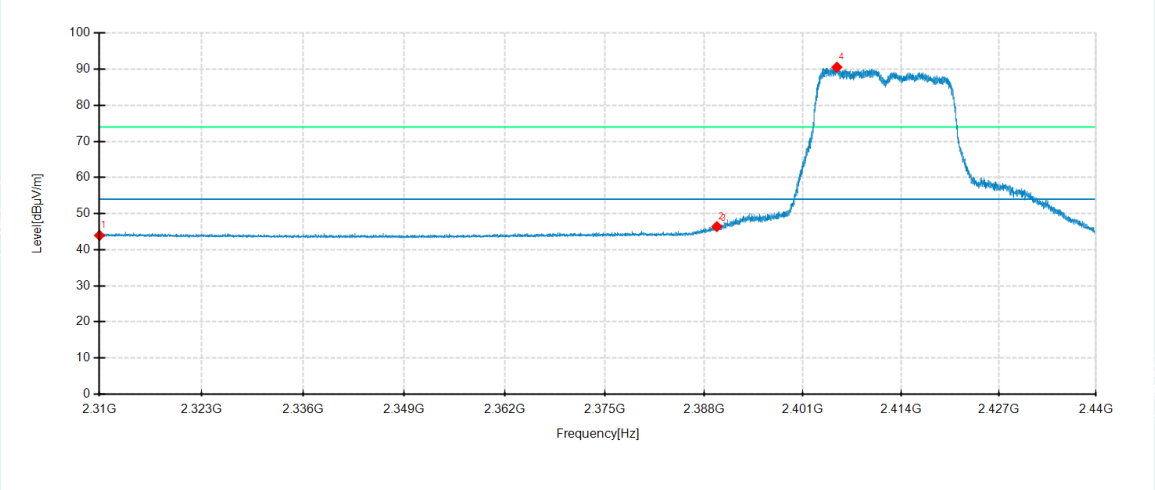


Detector mode: Peak Polarity: Vertical

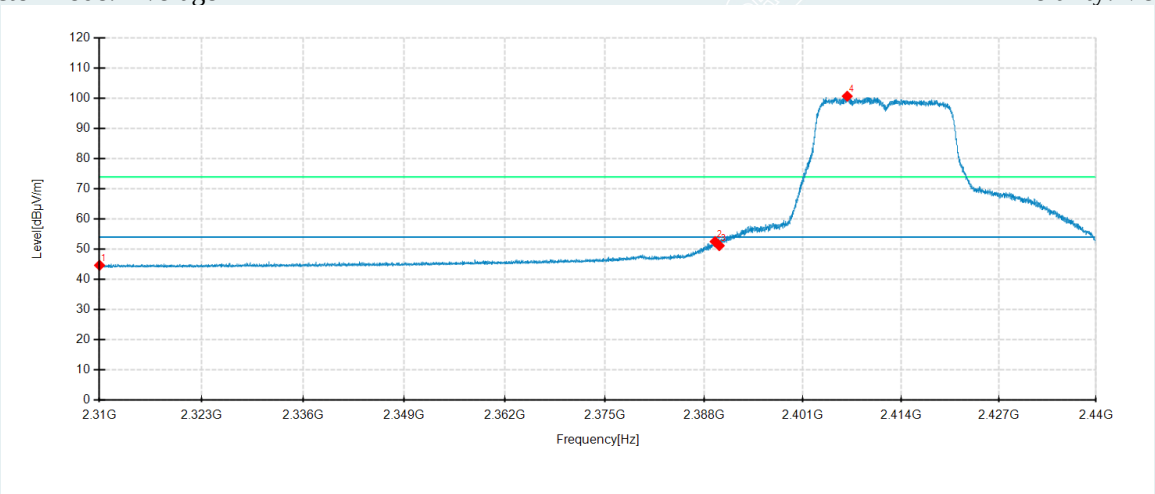


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	46.13	55.90	9.77	74.00	18.10	200	63	Horizontal	/
2	2388.585	51.36	60.47	9.11	74.00	13.53	100	198	Horizontal	/
3	2390	48.73	57.84	9.11	74.00	16.16	200	210	Horizontal	/
4	2405.5338	93.75	102.86	9.11	74.00	-28.86	100	188	Horizontal	No limit
1	2310	46.67	55.74	9.07	74.00	18.26	200	316	Vertical	/
2	2389.0725	57.62	67.14	9.52	74.00	6.86	200	323	Vertical	/
3	2390	55.15	64.68	9.53	74.00	9.32	200	344	Vertical	/
4	2407.4512	103.64	113.25	9.61	74.00	-39.25	200	2	Vertical	No limit

VHT20 mode
Lowest Channel
Frequency 2412MHz
Environment: 21.7℃/61%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-12
Detector mode: Average Polarity: Horizontal

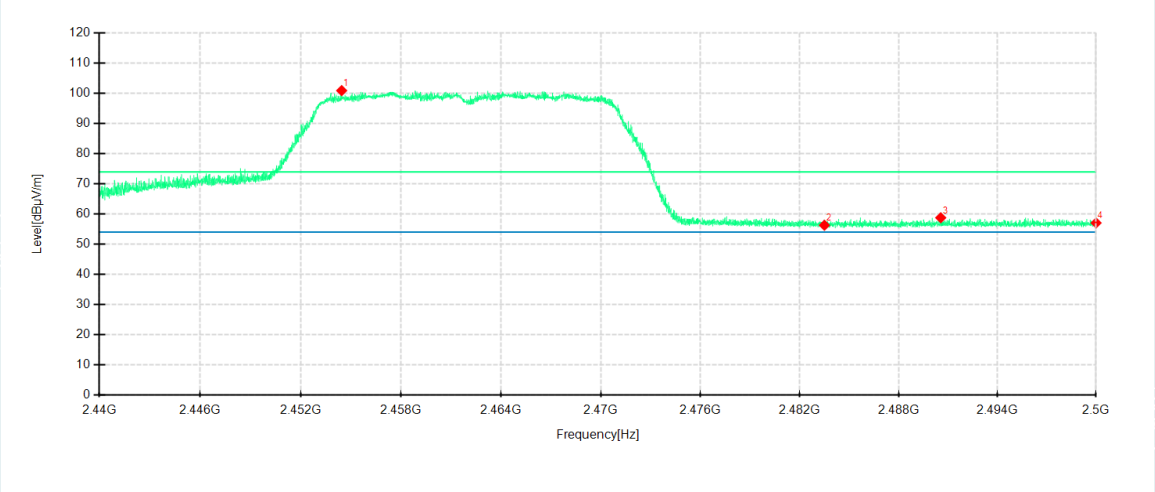


Detector mode: Average Polarity: Vertical

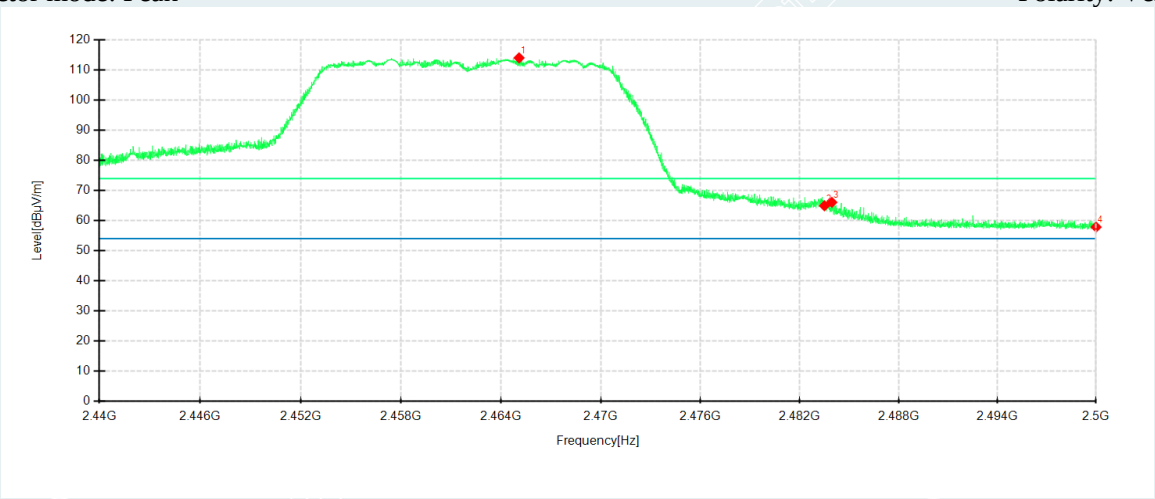


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	34.19	43.96	9.77	54.00	10.04	200	143	Horizontal	/
2	2389.69	37.31	46.42	9.11	54.00	7.58	100	189	Horizontal	/
3	2390	36.75	45.86	9.11	54.00	8.14	100	189	Horizontal	/
4	2405.5012	81.45	90.56	9.11	54.00	-36.56	200	191	Horizontal	No limit
1	2310	35.60	44.67	9.07	54.00	9.33	100	211	Vertical	/
2	2389.4625	43.01	52.53	9.52	54.00	1.47	200	335	Vertical	/
3	2390	41.66	51.19	9.53	54.00	2.81	200	335	Vertical	/
4	2406.8662	91.13	100.74	9.61	54.00	-46.74	200	345	Vertical	No limit

VHT20 mode
Highest Channel
Frequency 2462MHz
Environment: 21.7℃/61%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-12
Detector mode: Peak Polarity: Horizontal

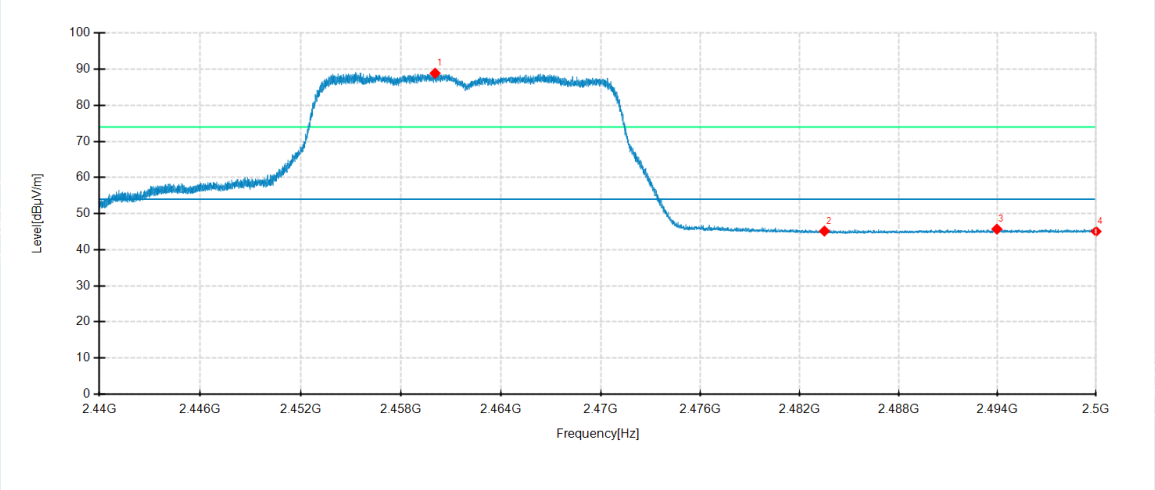


Detector mode: Peak Polarity: Vertical

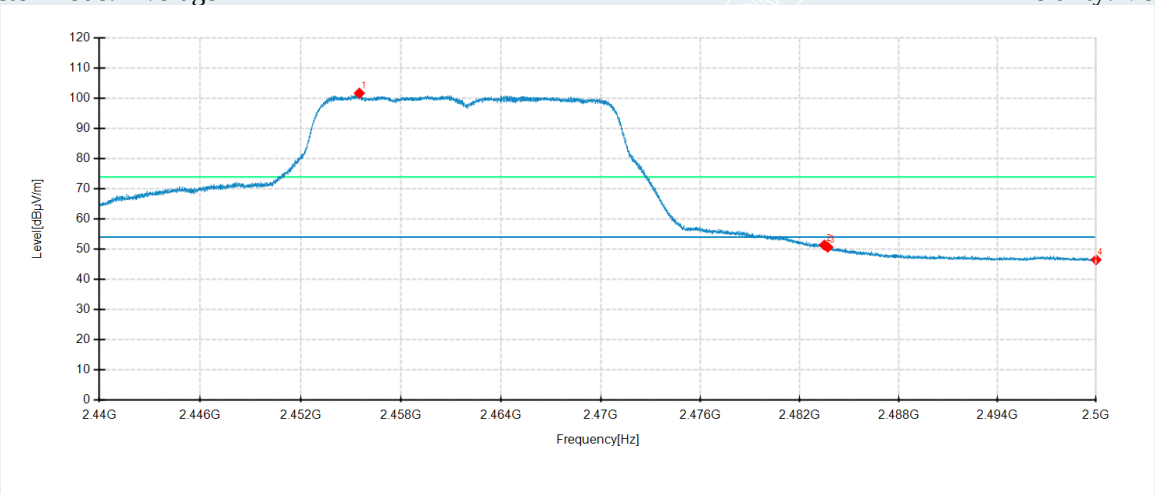


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2454.445	91.91	100.95	9.04	74.00	-26.95	200	183	Horizontal	No limit
2	2483.5	46.61	56.29	9.68	74.00	17.71	200	172	Horizontal	/
3	2490.55	48.94	58.78	9.84	74.00	15.22	100	274	Horizontal	/
4	2500	47.01	57.06	10.05	74.00	16.94	100	176	Horizontal	/
1	2465.08	104.46	114.09	9.63	74.00	-40.09	200	13	Vertical	No limit
2	2483.5	55.19	64.94	9.75	74.00	9.06	200	22	Vertical	/
3	2483.95	56.32	66.07	9.75	74.00	7.93	200	22	Vertical	/
4	2500	48.00	57.85	9.85	74.00	16.15	200	344	Vertical	/

VHT20 mode
Highest Channel
Frequency 2462MHz
Environment: 21.7℃/61%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-12
Detector mode: Average Polarity: Horizontal



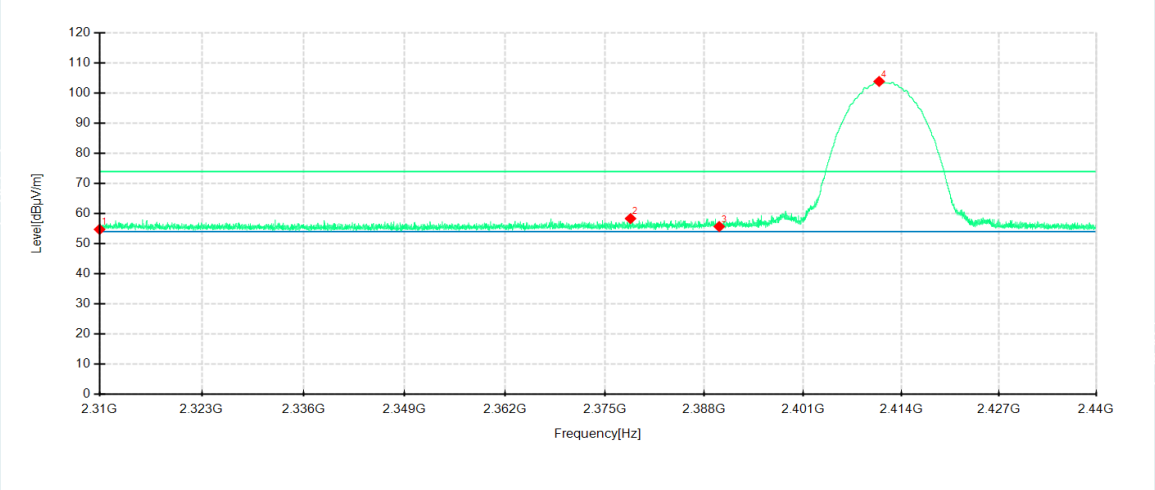
Detector mode: Average Polarity: Vertical



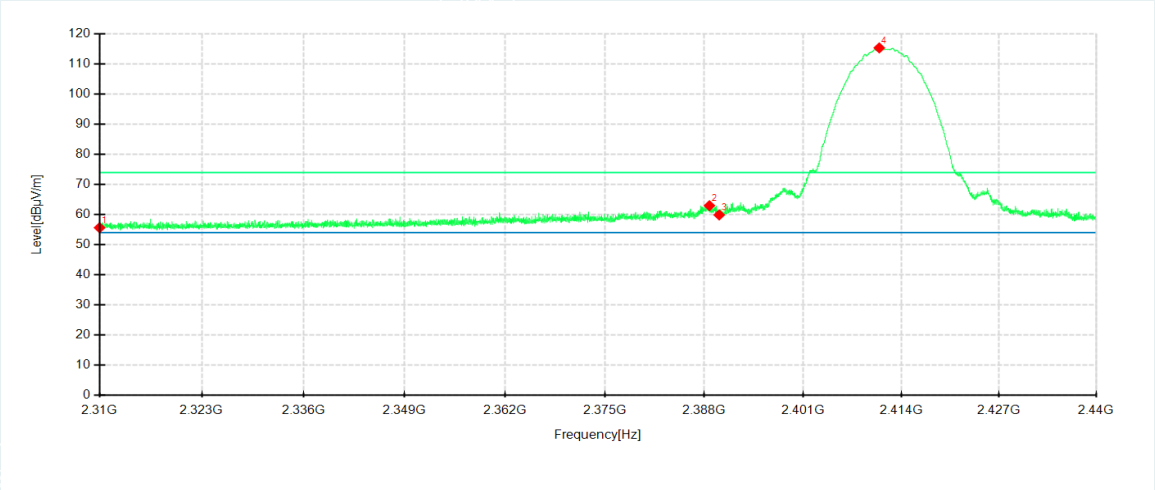
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2460.04	79.72	88.88	9.16	54.00	-34.88	100	3	Horizontal	No limit
2	2483.5	35.49	45.17	9.68	54.00	8.83	100	32	Horizontal	/
3	2493.9625	35.80	45.71	9.91	54.00	8.29	100	61	Horizontal	/
4	2500	35.01	45.06	10.05	54.00	8.94	100	71	Horizontal	/
1	2455.5025	92.18	101.75	9.57	54.00	-47.75	100	17	Vertical	No limit
2	2483.5	41.61	51.36	9.75	54.00	2.64	200	346	Vertical	/
3	2483.7025	40.94	50.69	9.75	54.00	3.31	200	0	Vertical	/
4	2500	36.66	46.51	9.85	54.00	7.49	200	346	Vertical	/

Pre-scan all CDD modes and recorded the worst case results in this report (mode: IEEE 802.11b, 802.11n HT40)

802.11b mode
Lowest Channel
Frequency 2412MHz
Environment: 19.5℃/65%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-17
Detector mode: Peak Polarity: Horizontal

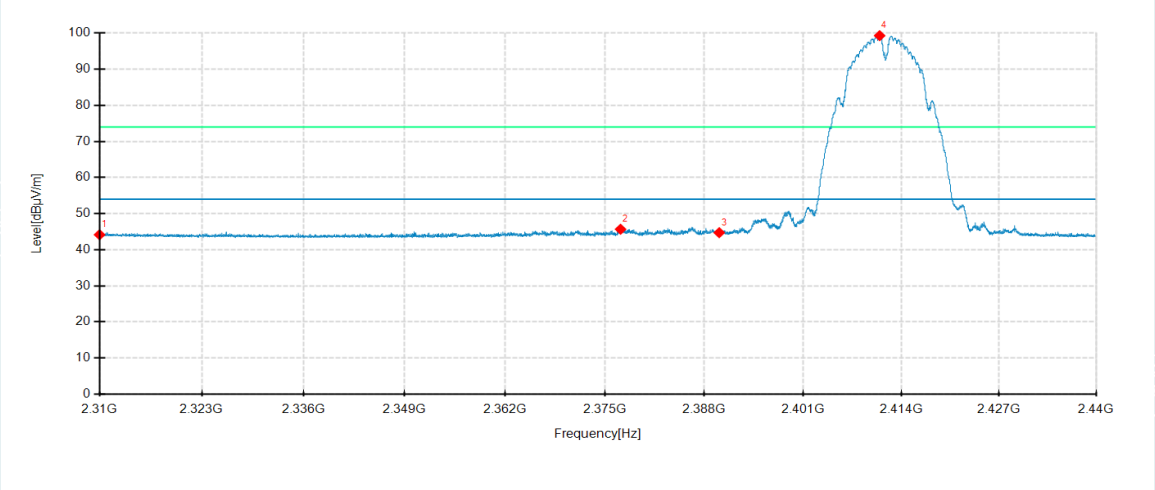


Detector mode: Peak Polarity: Vertical

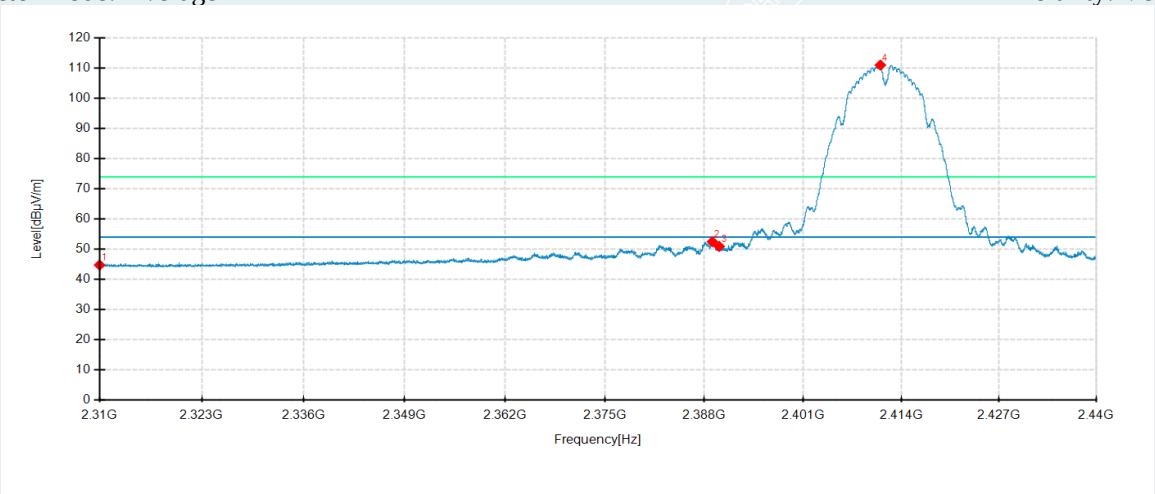


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	44.99	54.76	9.77	74.00	19.24	100	149	Horizontal	/
2	2378.38	49.27	58.36	9.09	74.00	15.64	200	290	Horizontal	/
3	2390	46.60	55.71	9.11	74.00	18.29	200	172	Horizontal	/
4	2411.0912	94.85	103.94	9.09	74.00	-29.94	200	192	Horizontal	No limit
1	2310	46.58	55.65	9.07	74.00	18.35	200	314	Vertical	/
2	2388.715	53.47	62.98	9.51	74.00	11.02	100	181	Vertical	/
3	2390	50.37	59.90	9.53	74.00	14.10	100	16	Vertical	/
4	2411.1075	105.80	115.41	9.61	74.00	-41.41	200	344	Vertical	No limit

802.11b mode
Lowest Channel
Frequency 2412MHz
Environment: 19.5℃/65%RH Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-05-17
Detector mode: Average Polarity: Horizontal



Detector mode: Average Polarity: Vertical



No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	34.39	44.16	9.77	54.00	9.84	100	345	Horizontal	/
2	2377.08	36.59	45.67	9.08	54.00	8.33	200	202	Horizontal	/
3	2390	35.61	44.72	9.11	54.00	9.28	100	317	Horizontal	/
4	2411.1562	90.20	99.29	9.09	54.00	-45.29	100	4	Horizontal	No limit
1	2310	35.68	44.75	9.07	54.00	9.25	200	276	Vertical	/
2	2389.105	42.97	52.49	9.52	54.00	1.51	200	344	Vertical	/
3	2390	41.38	50.91	9.53	54.00	3.09	200	334	Vertical	/
4	2411.2538	101.46	111.07	9.61	54.00	-57.07	200	14	Vertical	No limit