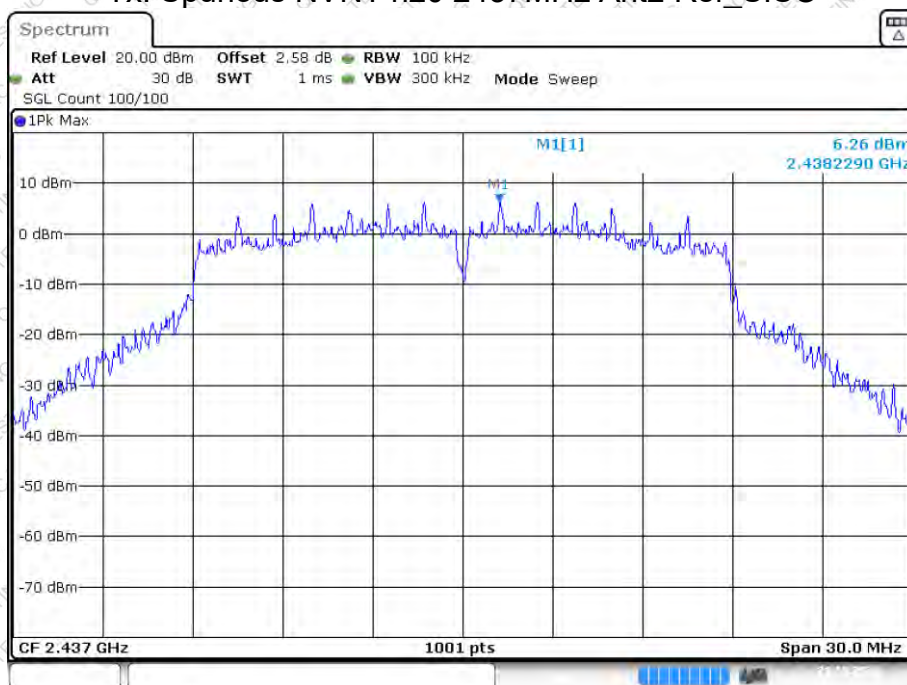


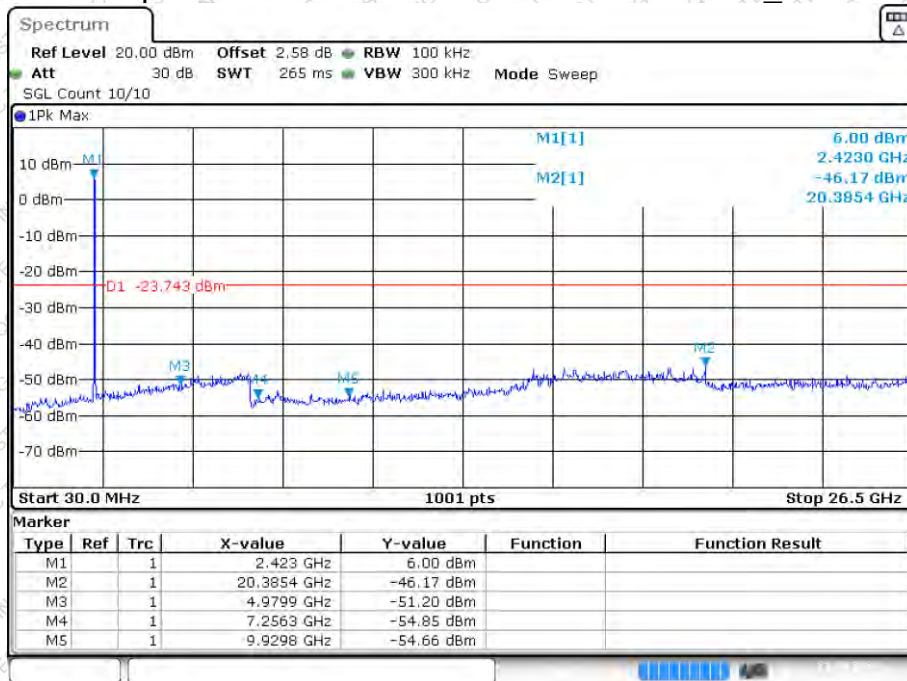


Tx. Spurious NVNT n20 2437MHz Ant2 Ref_SISO



Date: 21. OCT 2024 11:32:29

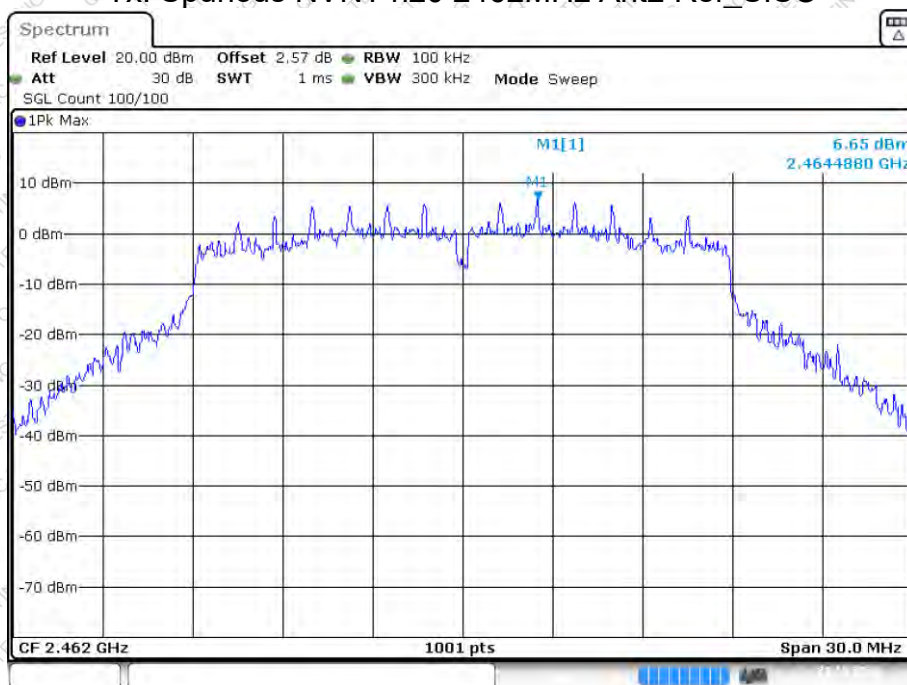
Tx. Spurious NVNT n20 2437MHz Ant2 Emission_SISO



Date: 21. OCT 2024 11:32:42

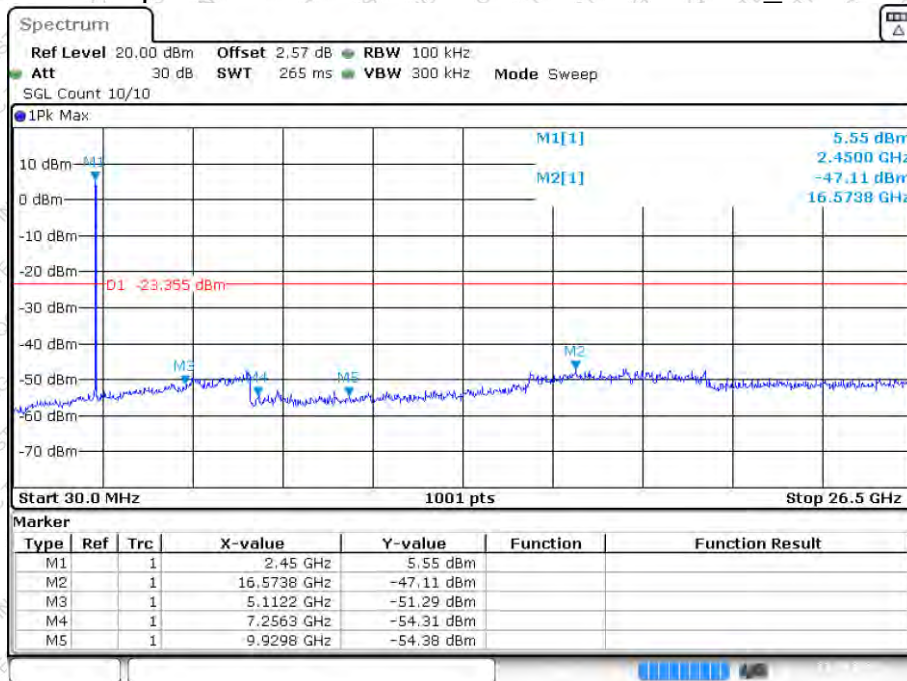


Tx. Spurious NVNT n20 2462MHz Ant2 Ref_SISO



Date: 21.OCT.2024 11:34:15

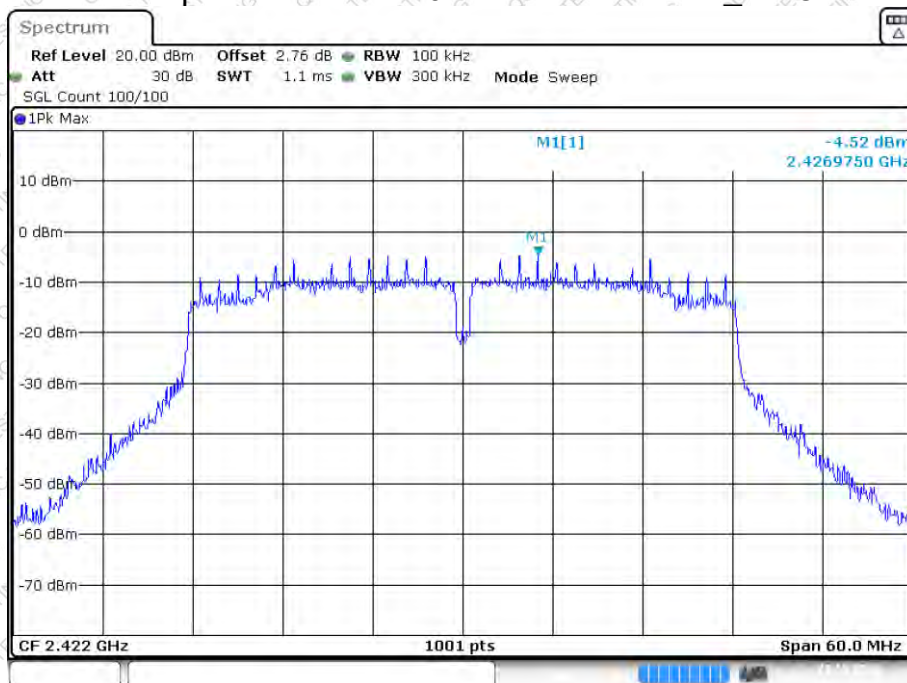
Tx. Spurious NVNT n20 2462MHz Ant2 Emission_SISO



Date: 21.OCT.2024 11:34:27

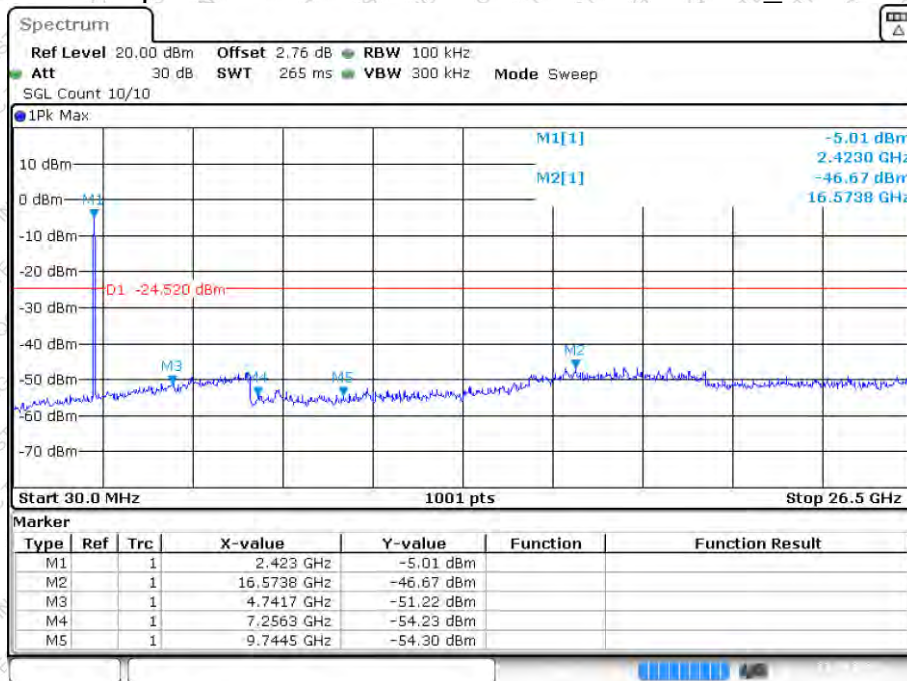


Tx. Spurious NVNT n40 2422MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:22:55

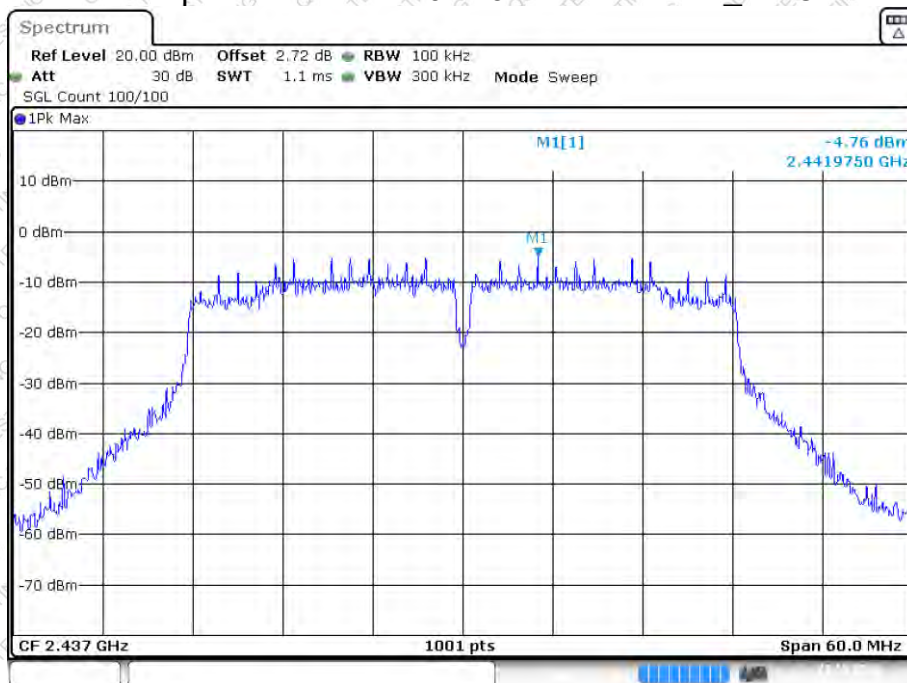
Tx. Spurious NVNT n40 2422MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:23:08

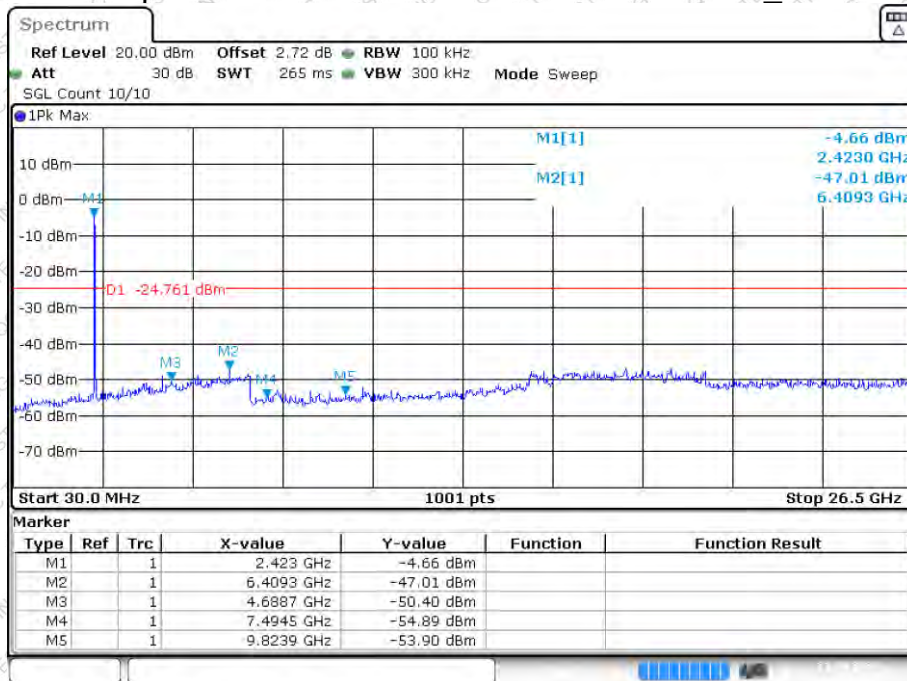


Tx. Spurious NVNT n40 2437MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:26:32

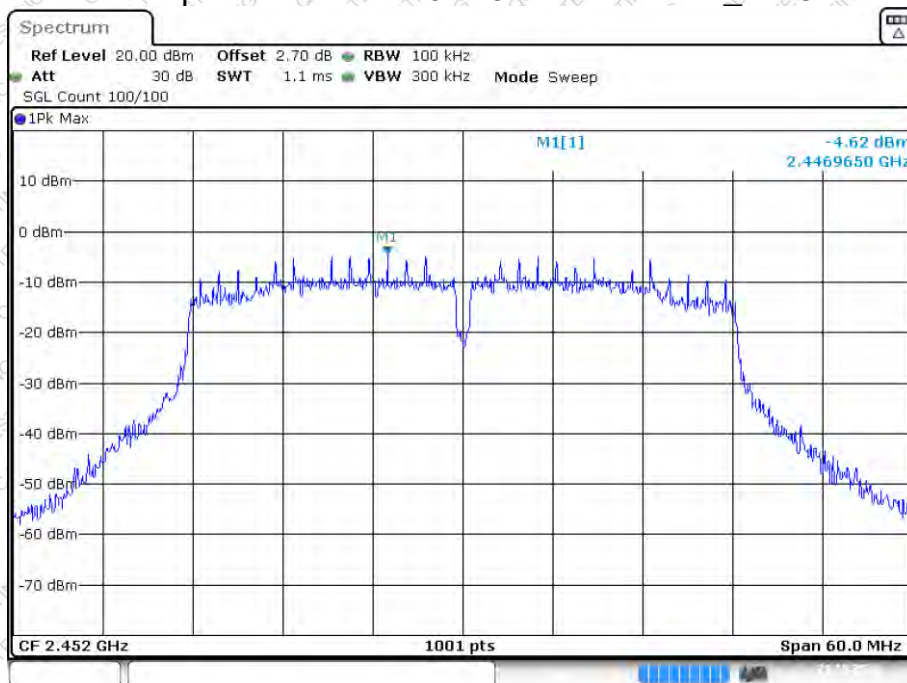
Tx. Spurious NVNT n40 2437MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:26:44

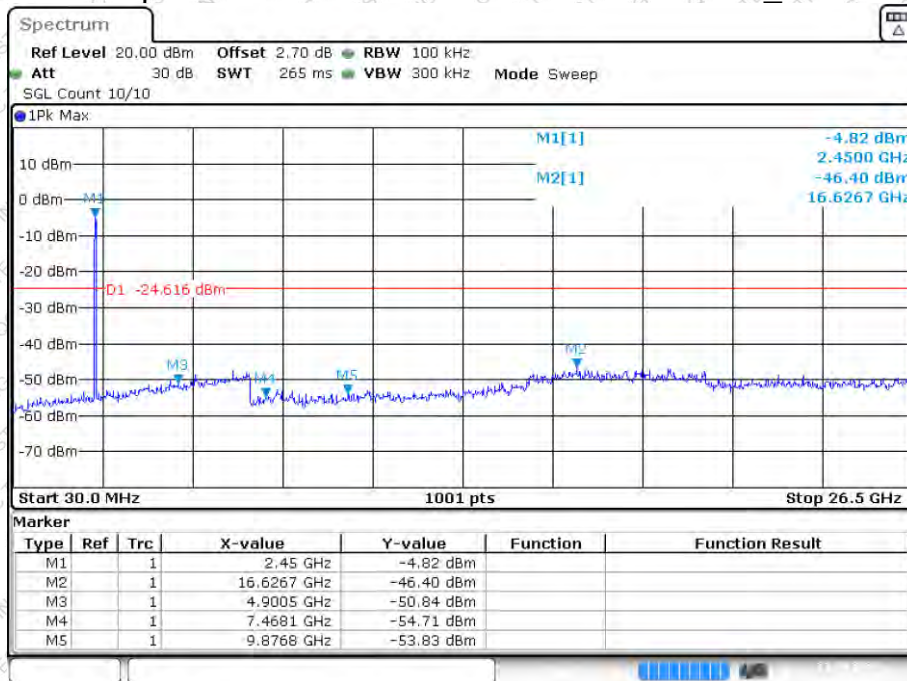


Tx. Spurious NVNT n40 2452MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:30:25

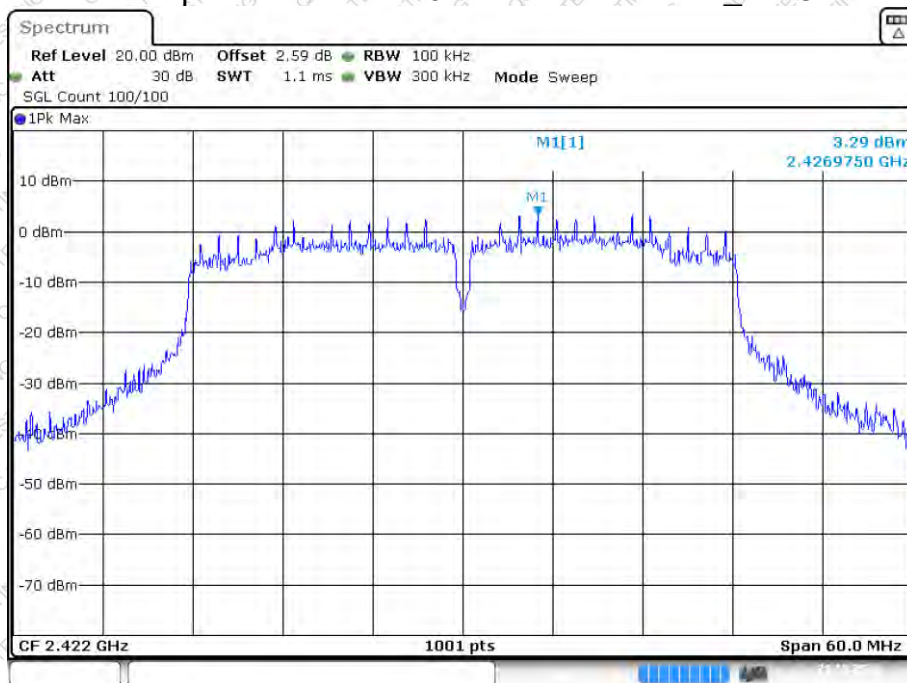
Tx. Spurious NVNT n40 2452MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:30:38

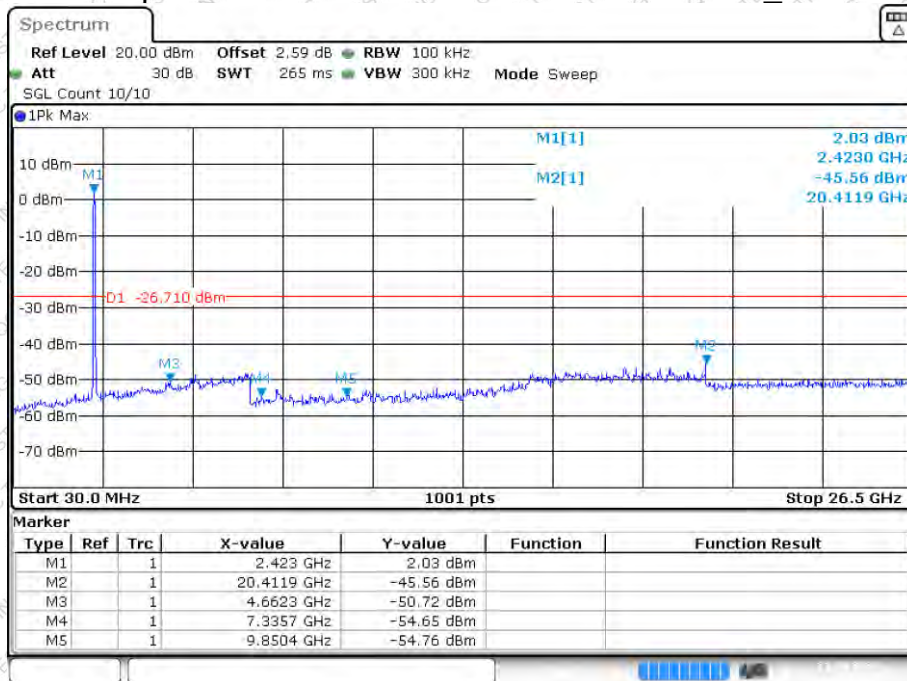


Tx. Spurious NVNT n40 2422MHz Ant2 Ref_SISO



Date: 21.OCT.2024 11:37:05

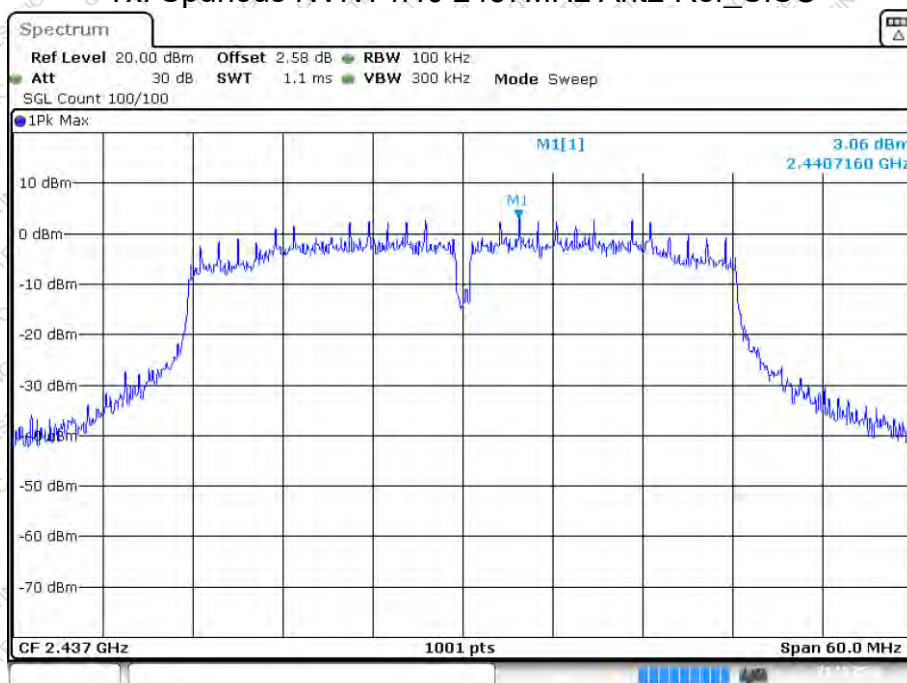
Tx. Spurious NVNT n40 2422MHz Ant2 Emission_SISO



Date: 21.OCT.2024 11:37:17

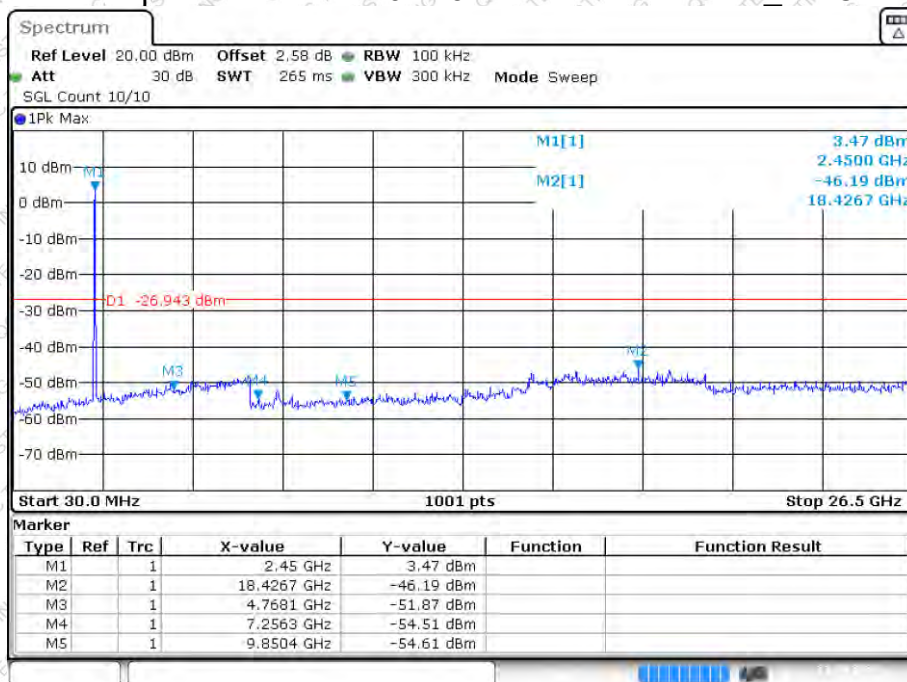


Tx. Spurious NVNT n40 2437MHz Ant2 Ref_SISO



Date: 21.OCT.2024 11:38:25

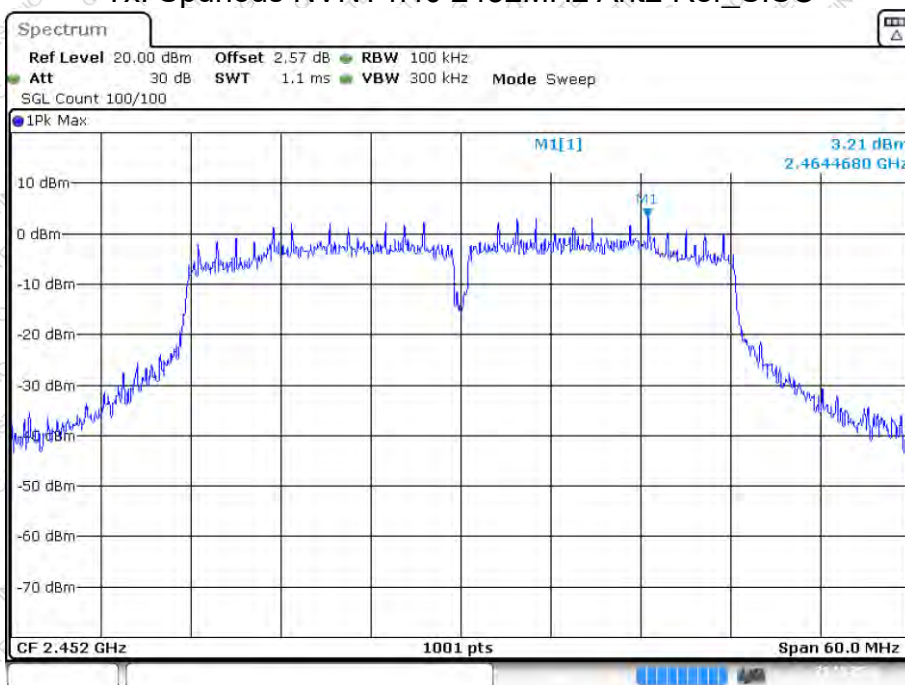
Tx. Spurious NVNT n40 2437MHz Ant2 Emission_SISO



Date: 21.OCT.2024 11:38:37

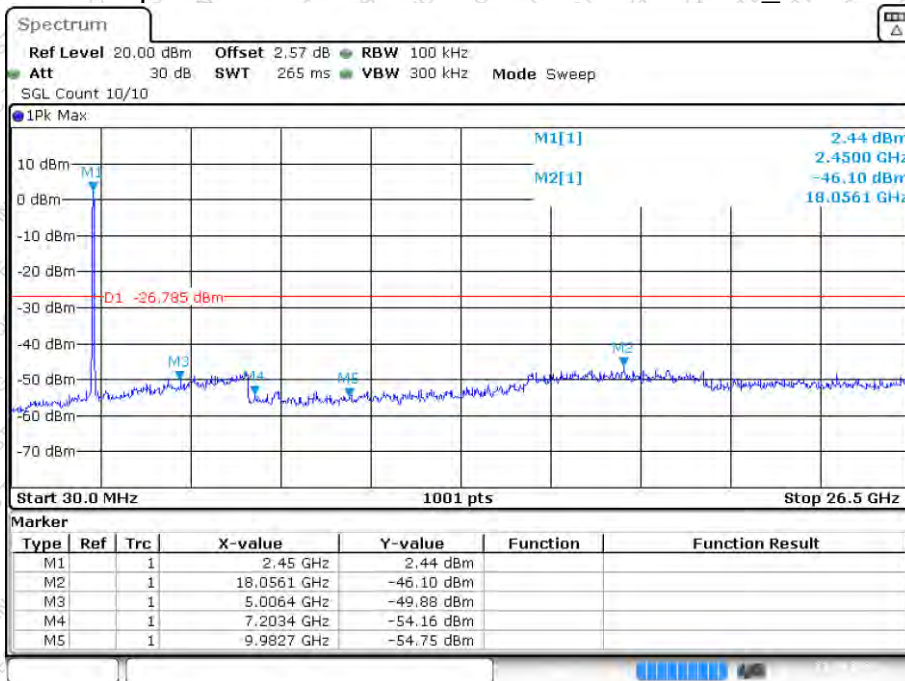


Tx. Spurious NVNT n40 2452MHz Ant2 Ref_SISO



Date: 21.OCT.2024 11:41:30

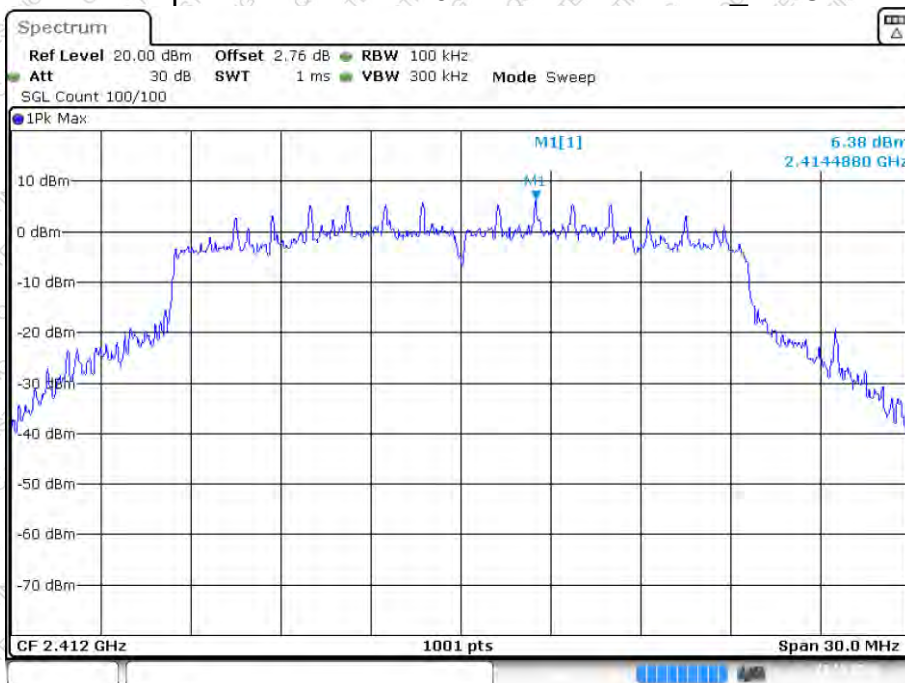
Tx. Spurious NVNT n40 2452MHz Ant2 Emission_SISO



Date: 21.OCT.2024 11:41:42

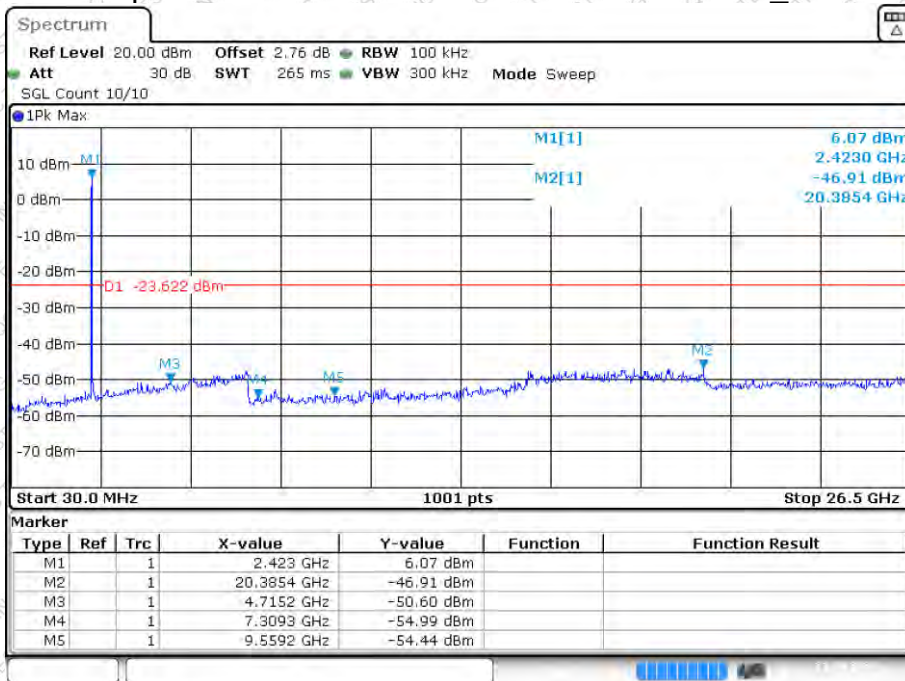


Tx. Spurious NVNT ax20 2412MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:45:50

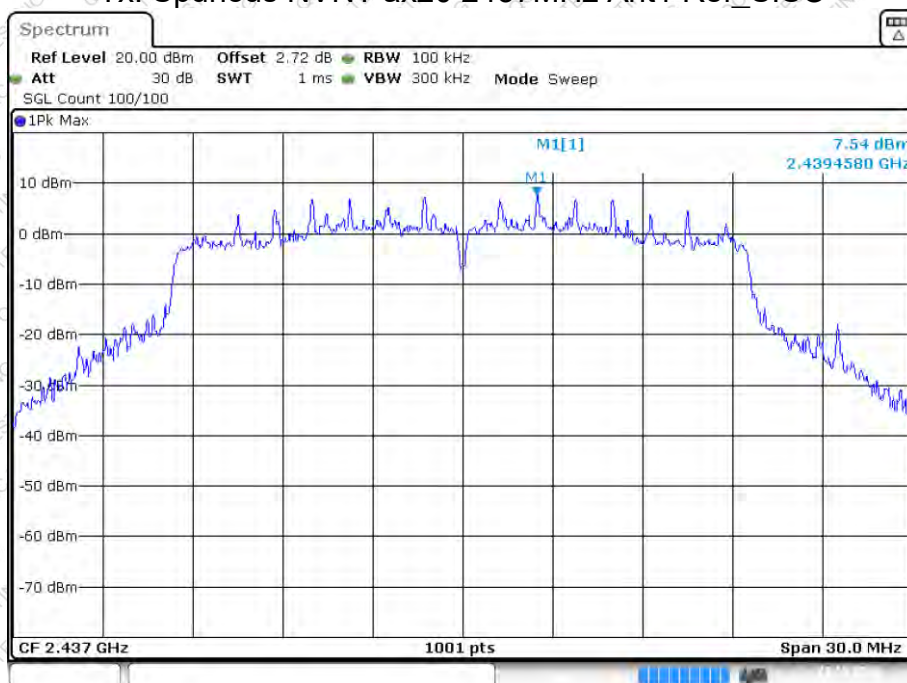
Tx. Spurious NVNT ax20 2412MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:46:02

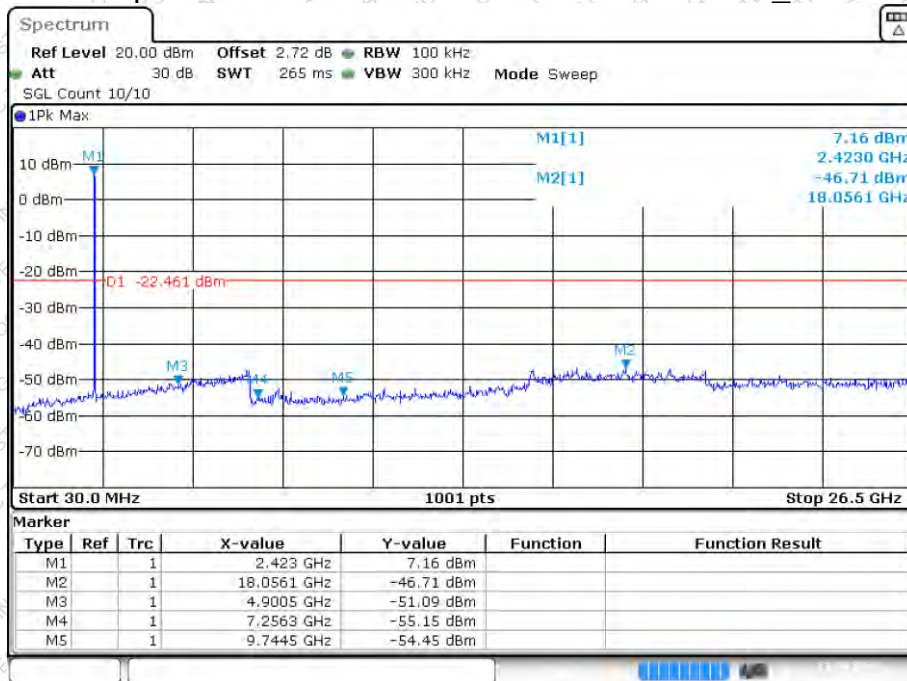


Tx. Spurious NVNT ax20 2437MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:50:28

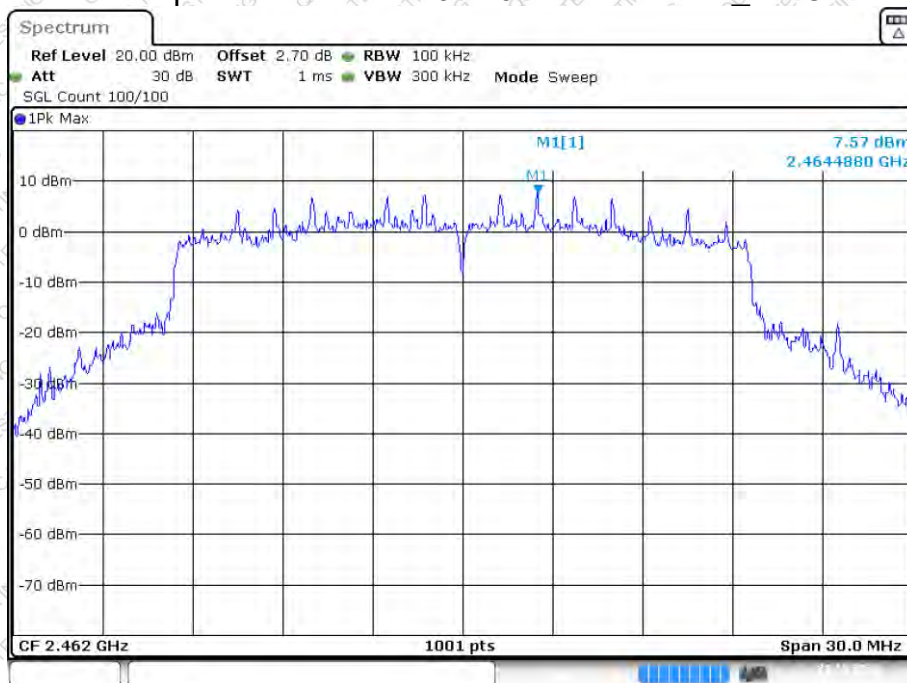
Tx. Spurious NVNT ax20 2437MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:50:41

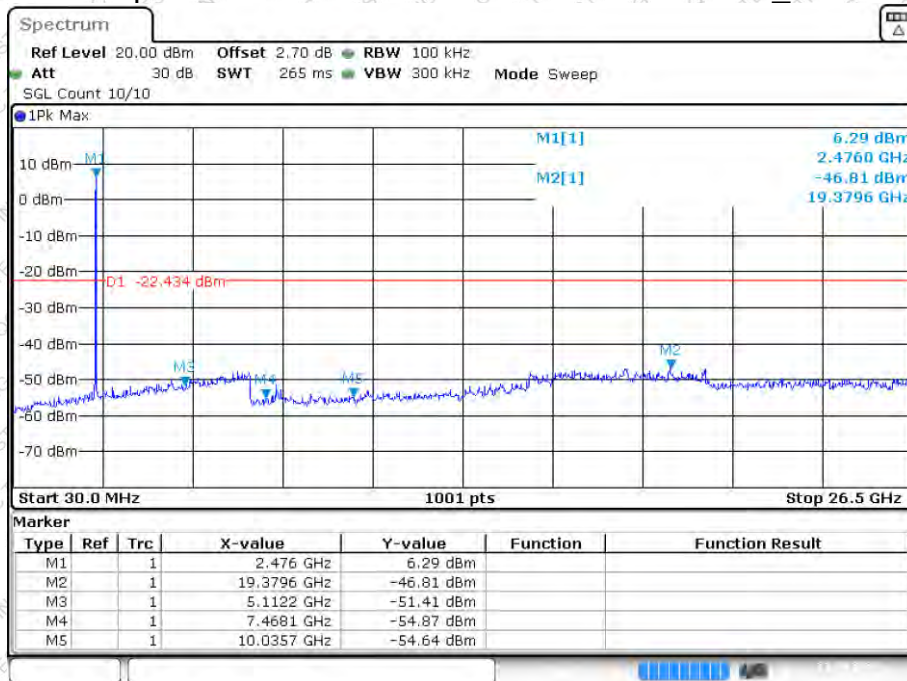


Tx. Spurious NVNT ax20 2462MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:52:00

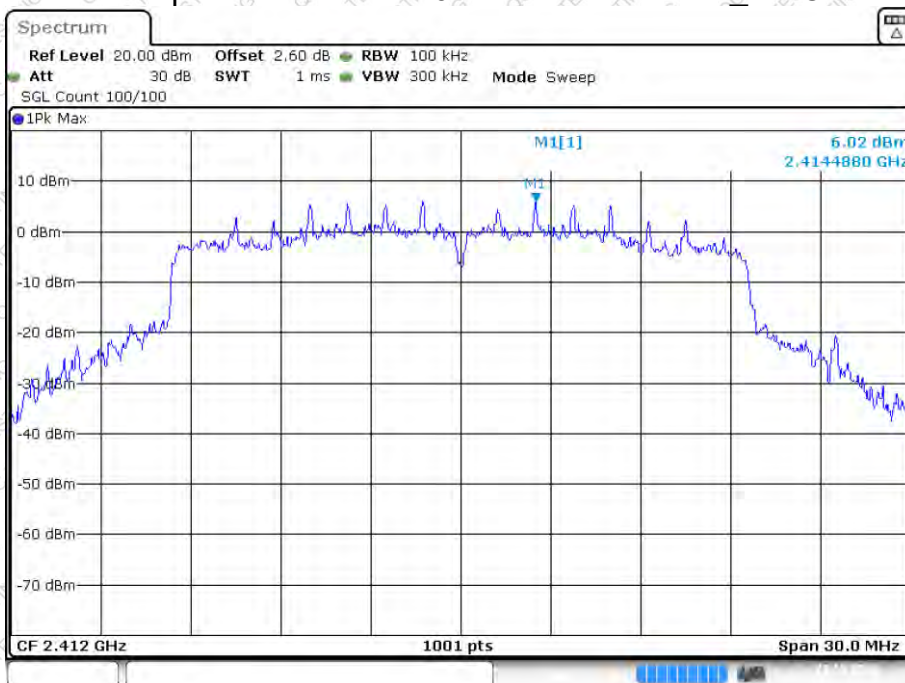
Tx. Spurious NVNT ax20 2462MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:52:12

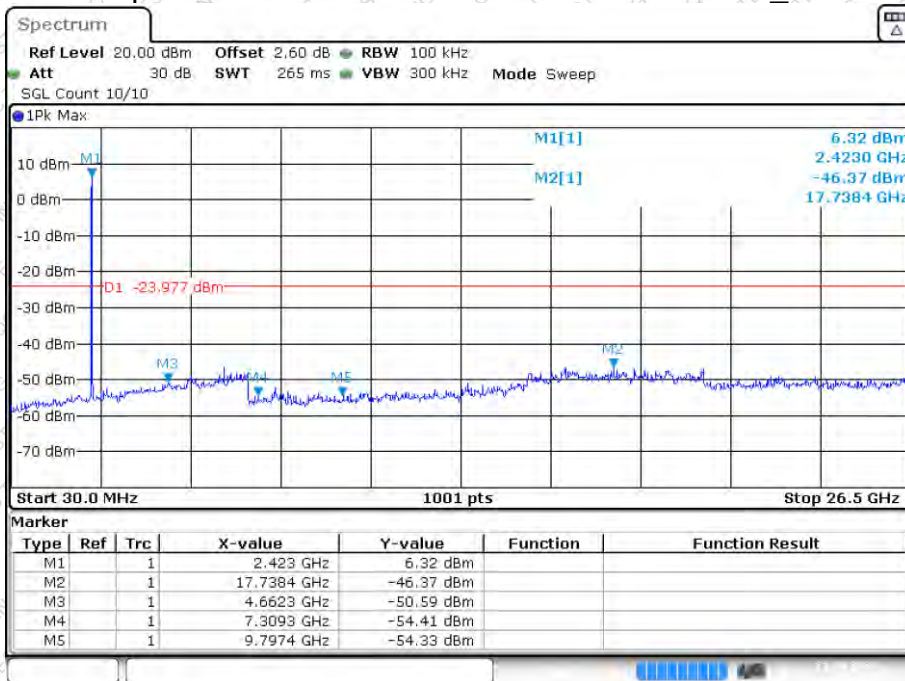


Tx. Spurious NVNT ax20 2412MHz Ant2 Ref_SISO



Date: 21.OCT.2024 13:50:09

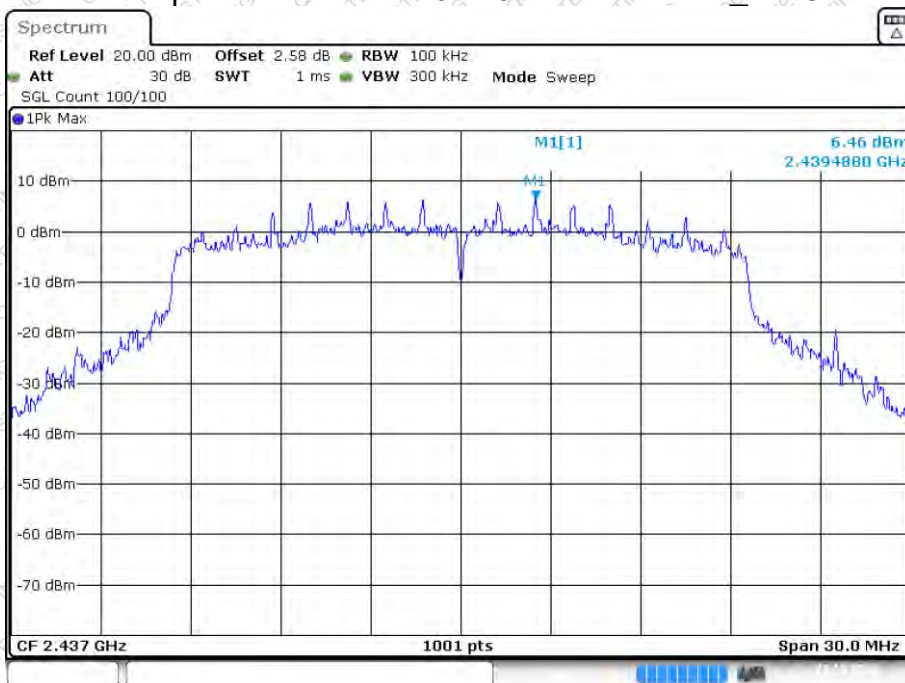
Tx. Spurious NVNT ax20 2412MHz Ant2 Emission_SISO



Date: 21.OCT.2024 13:50:21

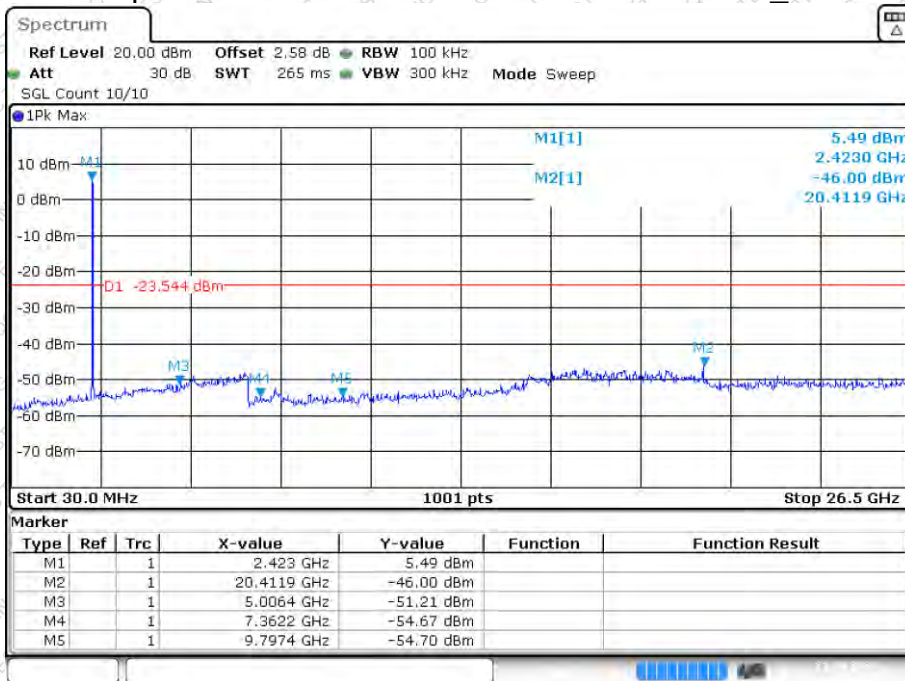


Tx. Spurious NVNT ax20 2437MHz Ant2 Ref_SISO



Date: 21.OCT.2024 13:51:37

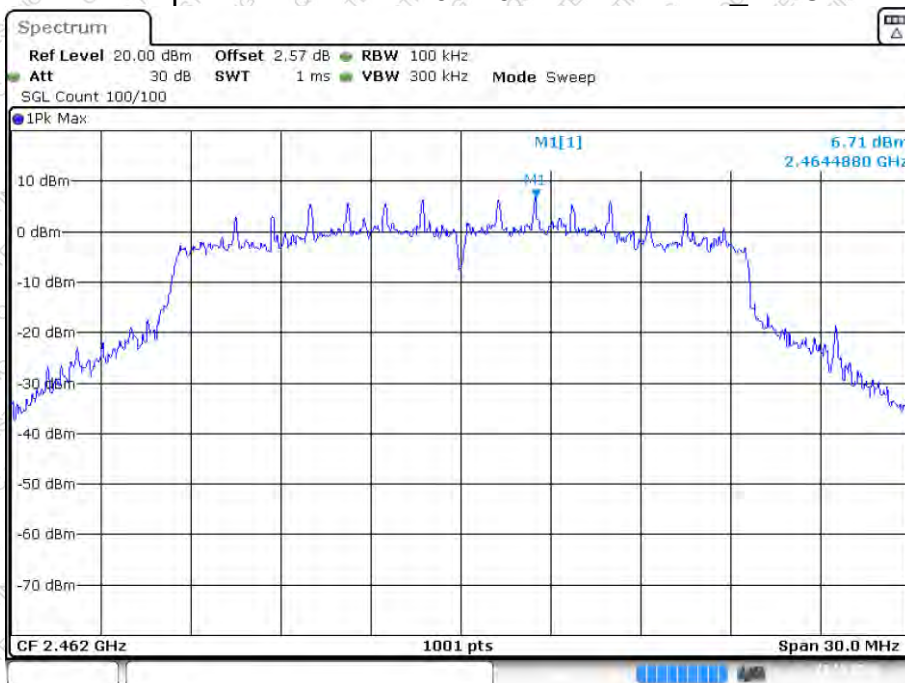
Tx. Spurious NVNT ax20 2437MHz Ant2 Emission_SISO



Date: 21.OCT.2024 13:51:49

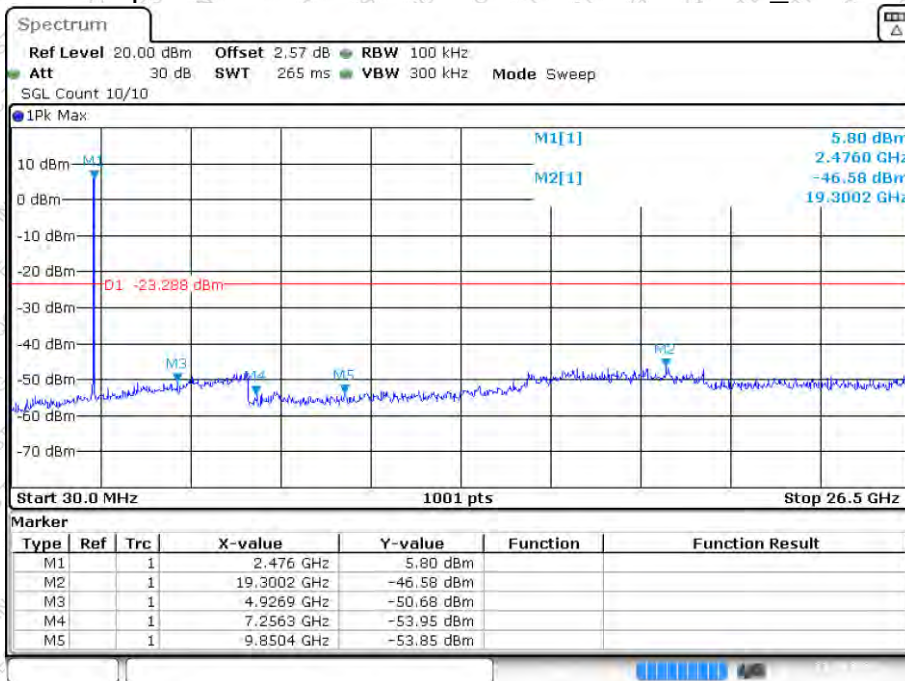


Tx. Spurious NVNT ax20 2462MHz Ant2 Ref_SISO



Date: 21.OCT.2024 13:57:10

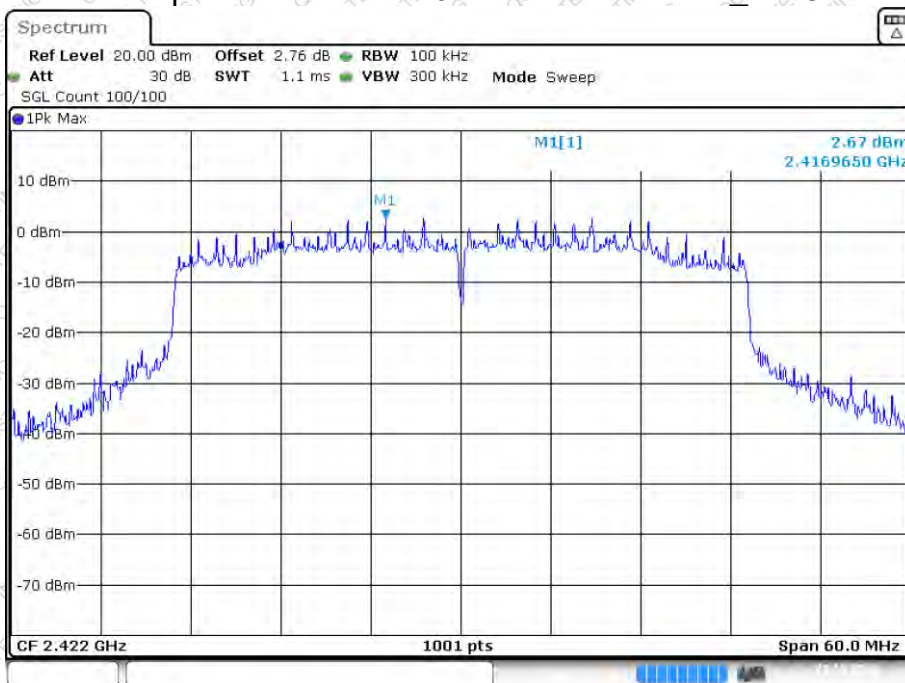
Tx. Spurious NVNT ax20 2462MHz Ant2 Emission_SISO



Date: 21.OCT.2024 13:57:23

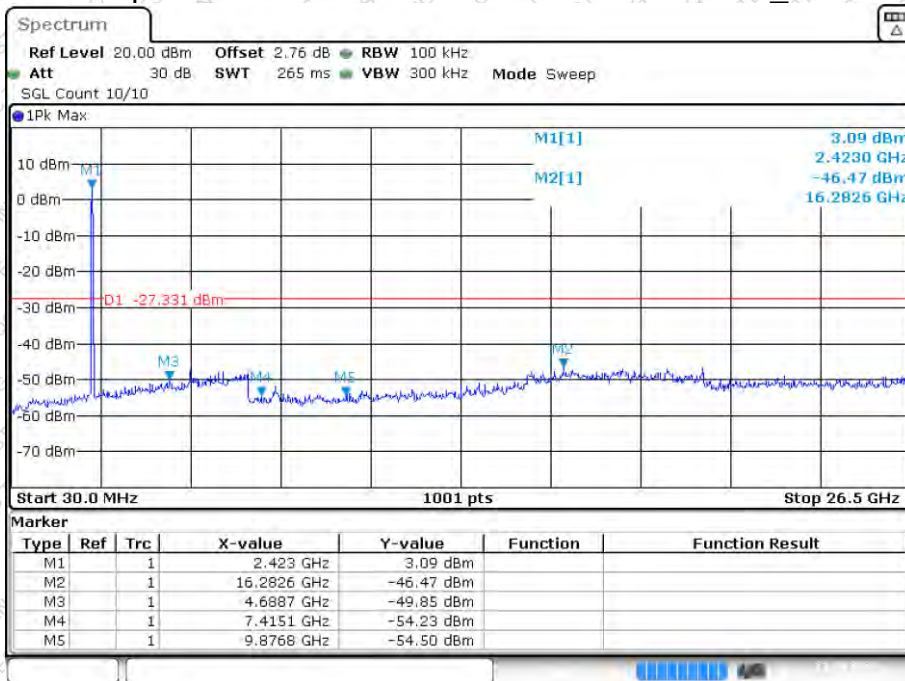


Tx. Spurious NVNT ax40 2422MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:56:47

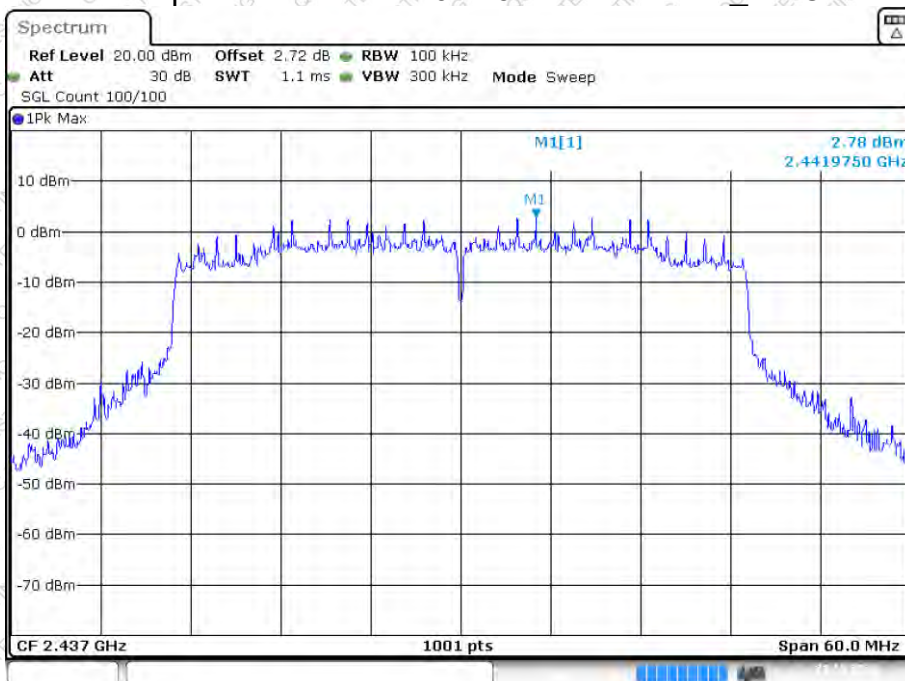
Tx. Spurious NVNT ax40 2422MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:57:00

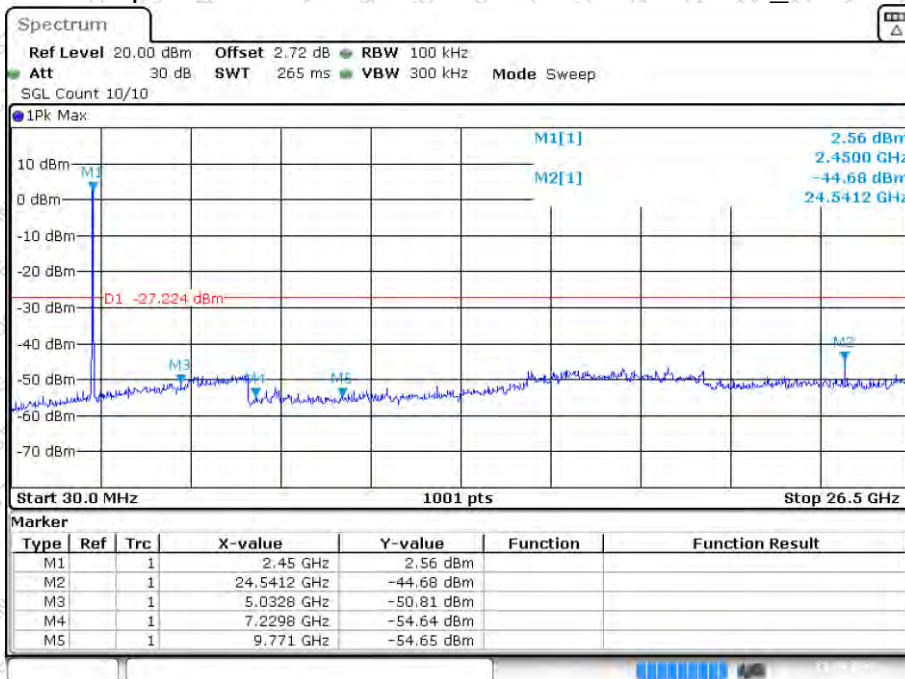


Tx. Spurious NVNT ax40 2437MHz Ant1 Ref_SISO



Date: 21.OCT.2024 10:59:22

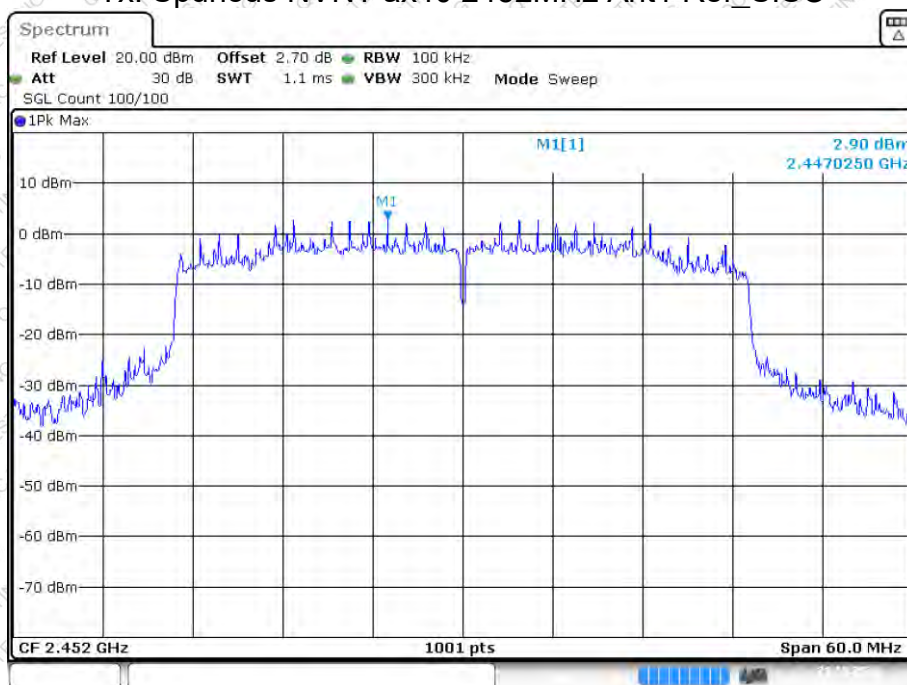
Tx. Spurious NVNT ax40 2437MHz Ant1 Emission_SISO



Date: 21.OCT.2024 10:59:34

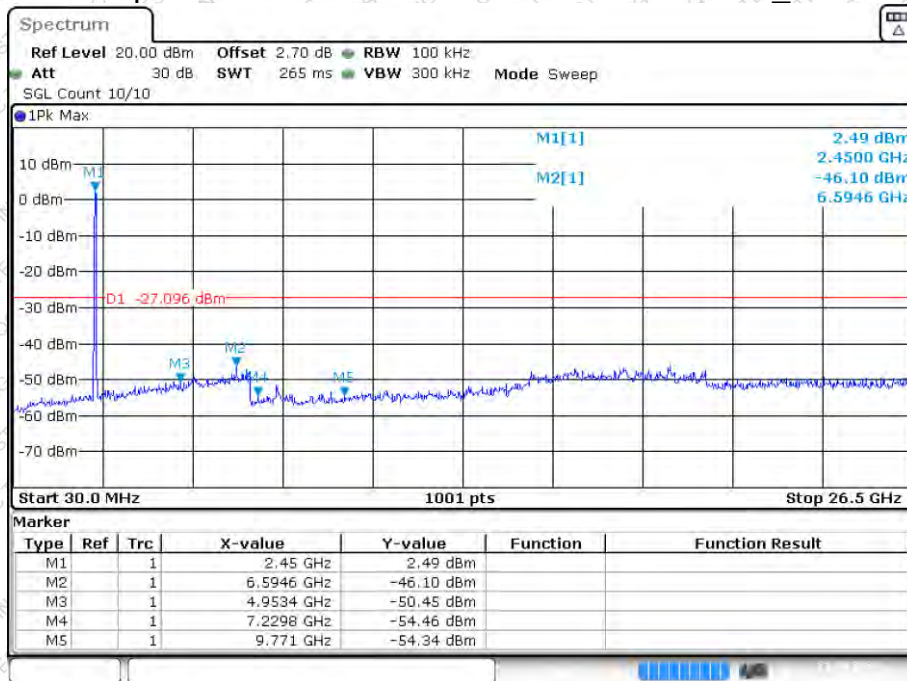


Tx. Spurious NVNT ax40 2452MHz Ant1 Ref_SISO



Date: 21.OCT.2024 11:01:12

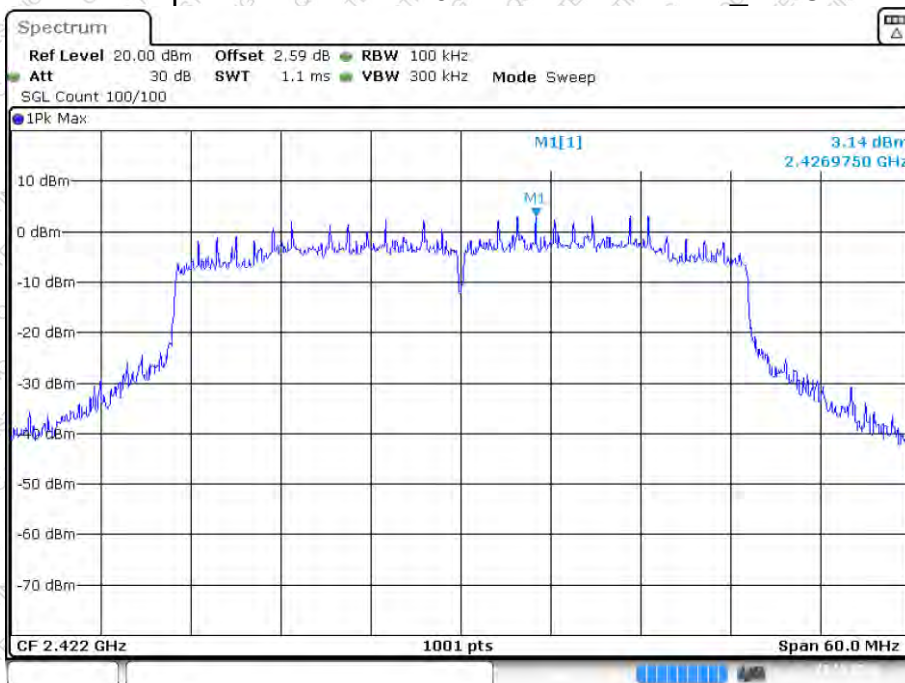
Tx. Spurious NVNT ax40 2452MHz Ant1 Emission_SISO



Date: 21.OCT.2024 11:01:25

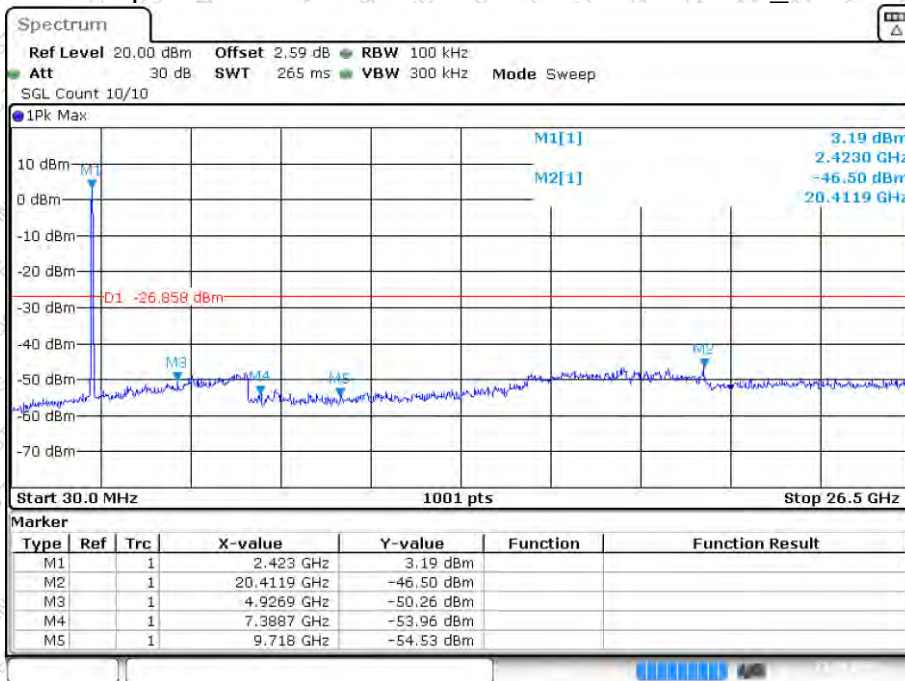


Tx. Spurious NVNT ax40 2422MHz Ant2 Ref_SISO



Date: 21.OCT.2024 14:02:44

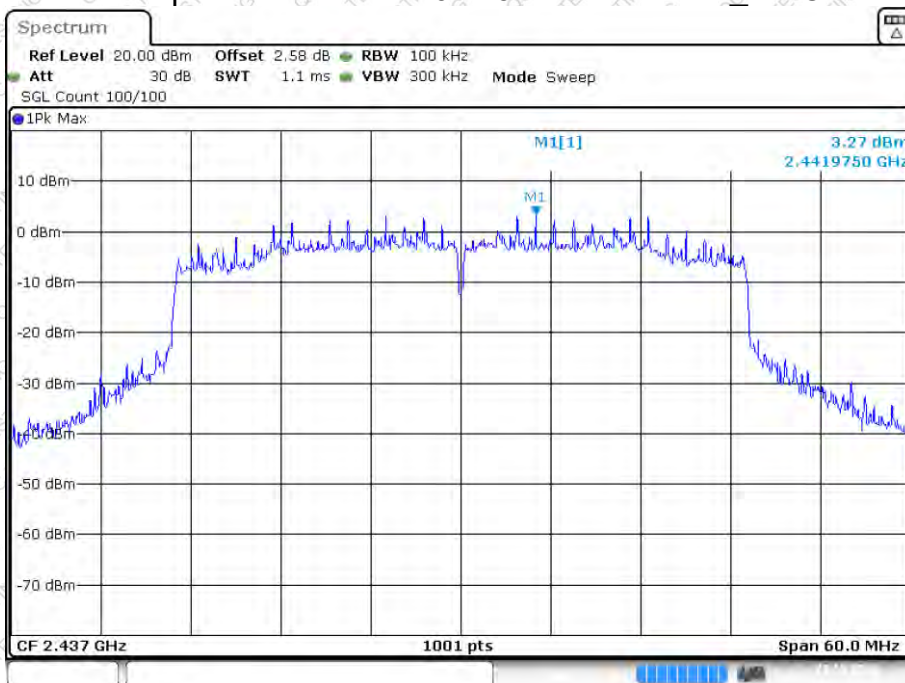
Tx. Spurious NVNT ax40 2422MHz Ant2 Emission_SISO



Date: 21.OCT.2024 14:02:56

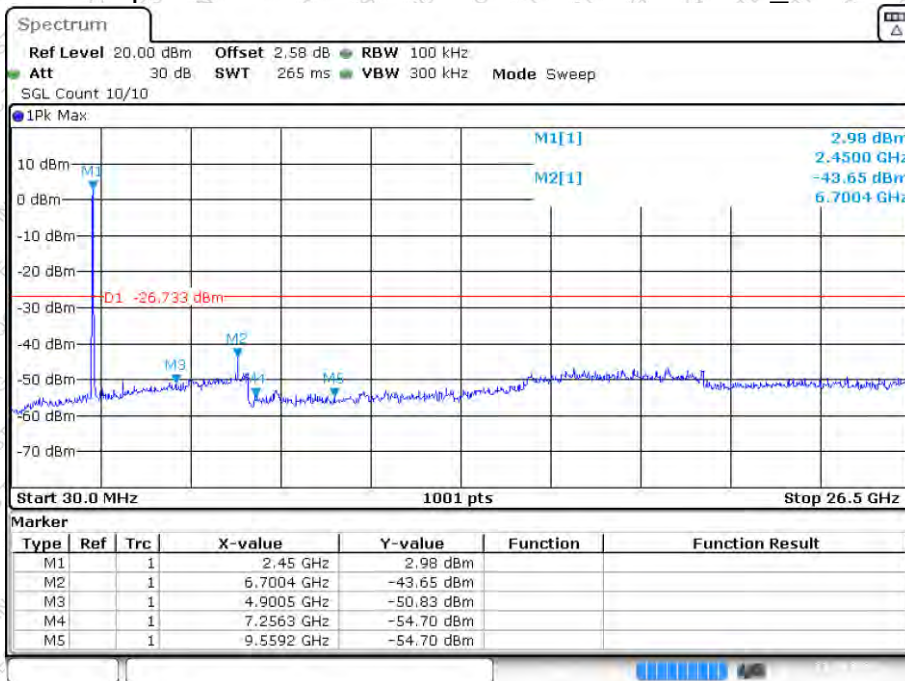


Tx. Spurious NVNT ax40 2437MHz Ant2 Ref_SISO



Date: 21.OCT.2024 14:05:09

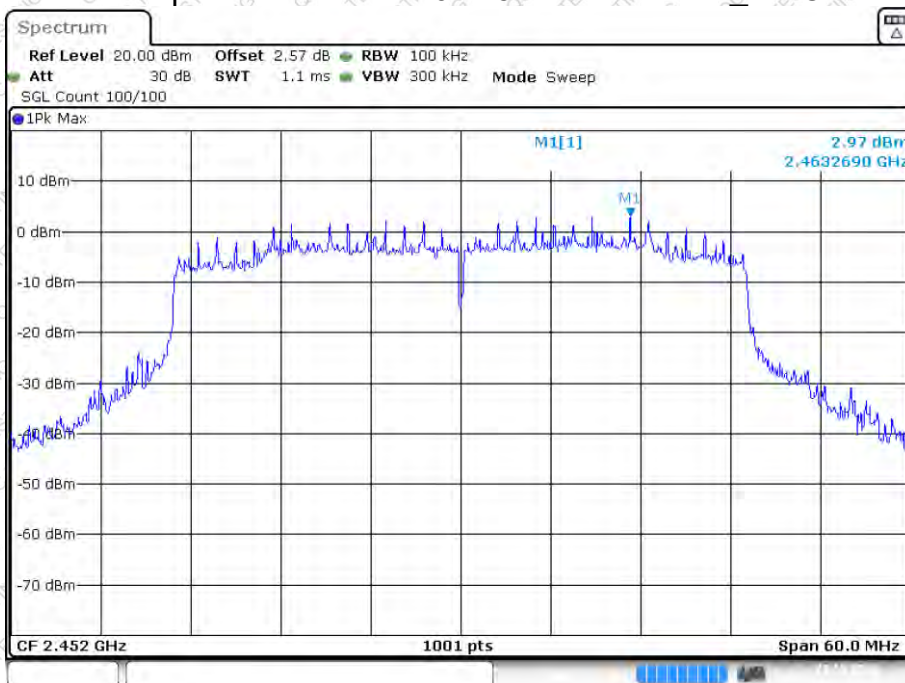
Tx. Spurious NVNT ax40 2437MHz Ant2 Emission_SISO



Date: 21.OCT.2024 14:05:22

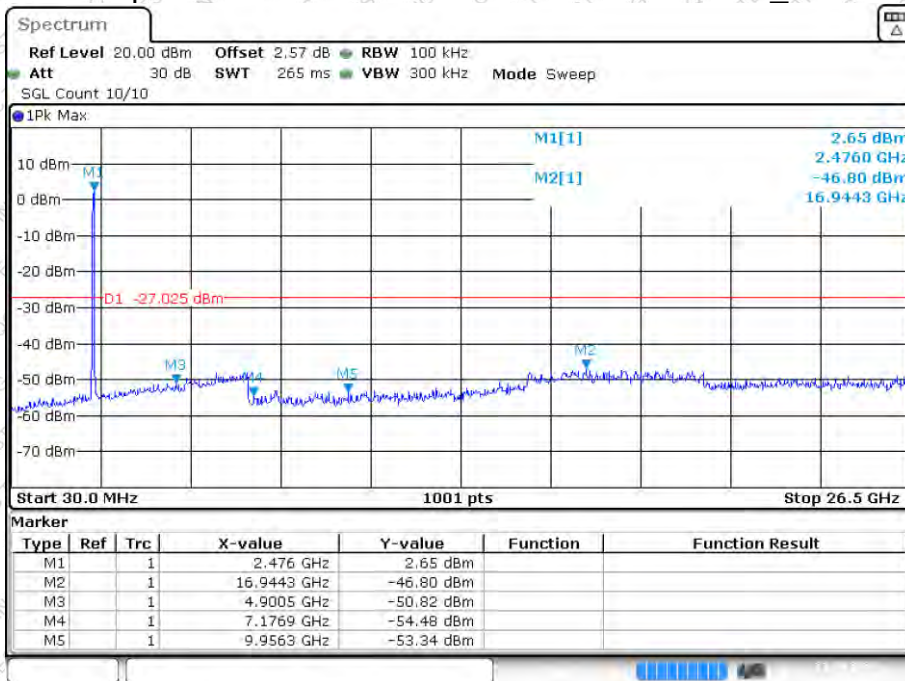


Tx. Spurious NVNT ax40 2452MHz Ant2 Ref_SISO



Date: 21.OCT.2024 14:09:05

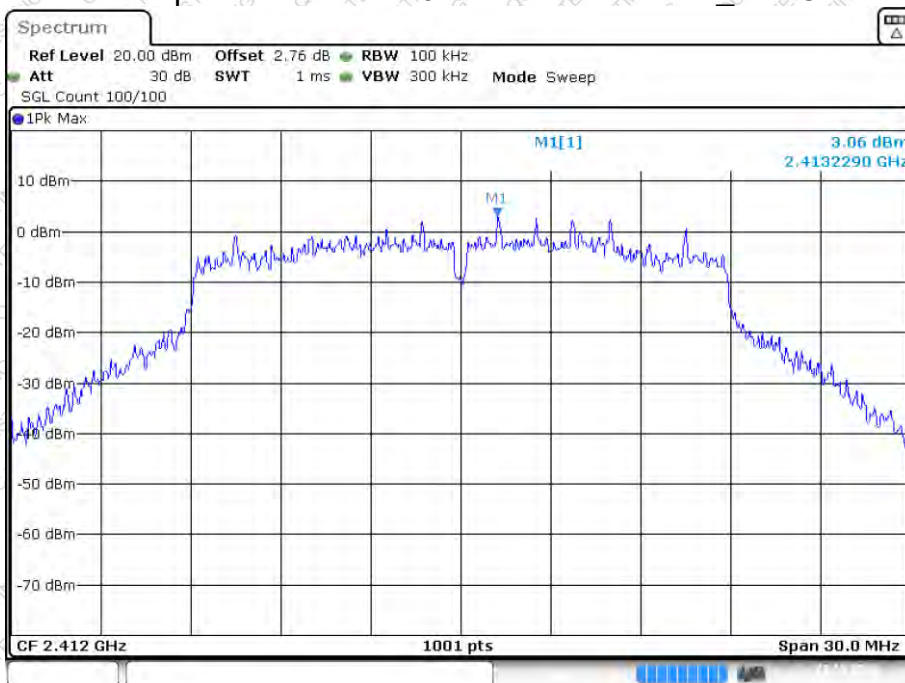
Tx. Spurious NVNT ax40 2452MHz Ant2 Emission_SISO



Date: 21.OCT.2024 14:09:17

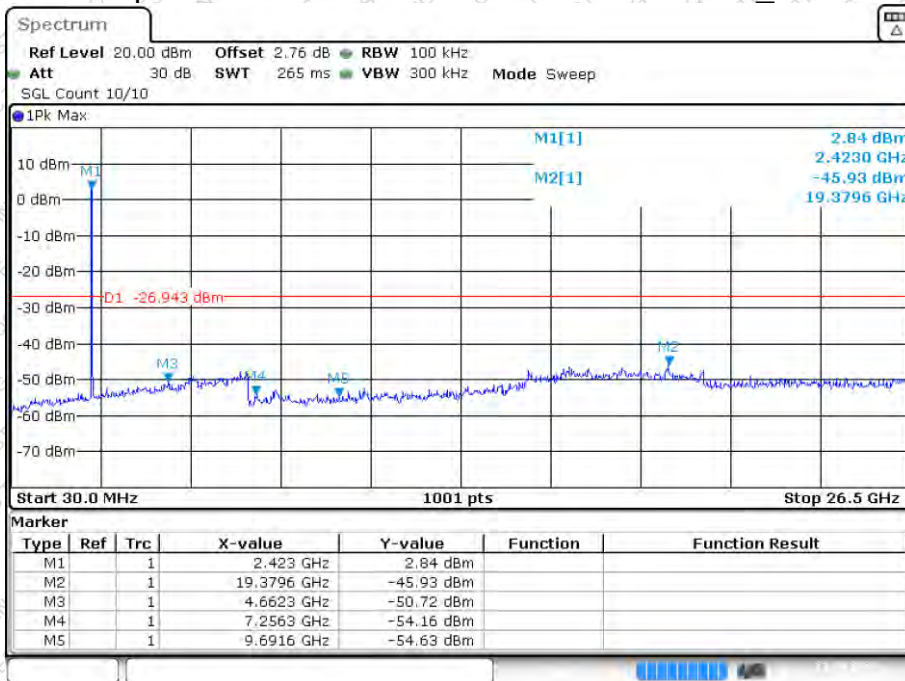


Tx. Spurious NVNT n20 2412MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:00:10

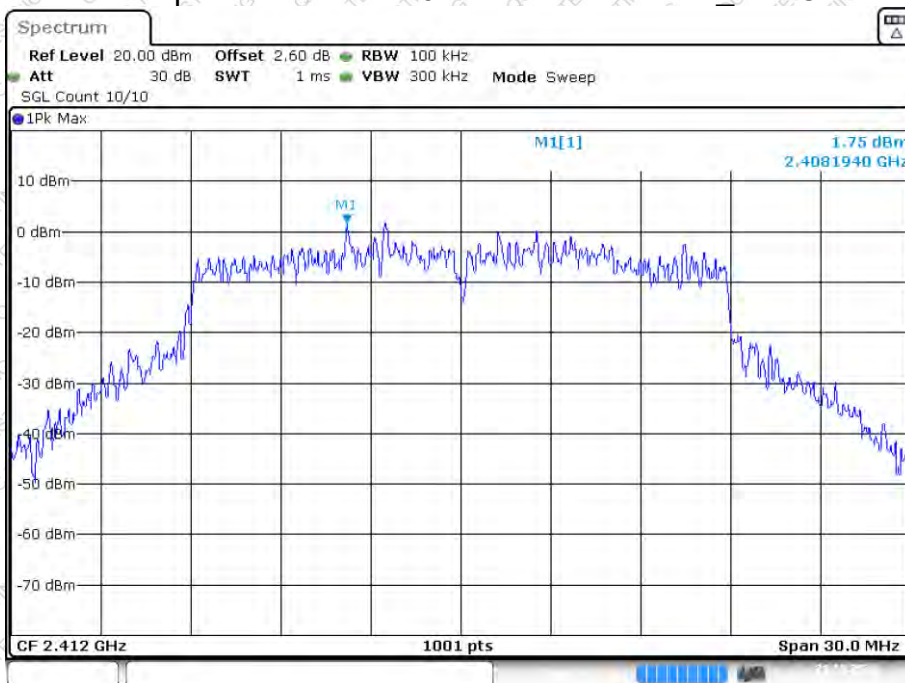
Tx. Spurious NVNT n20 2412MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:00:22

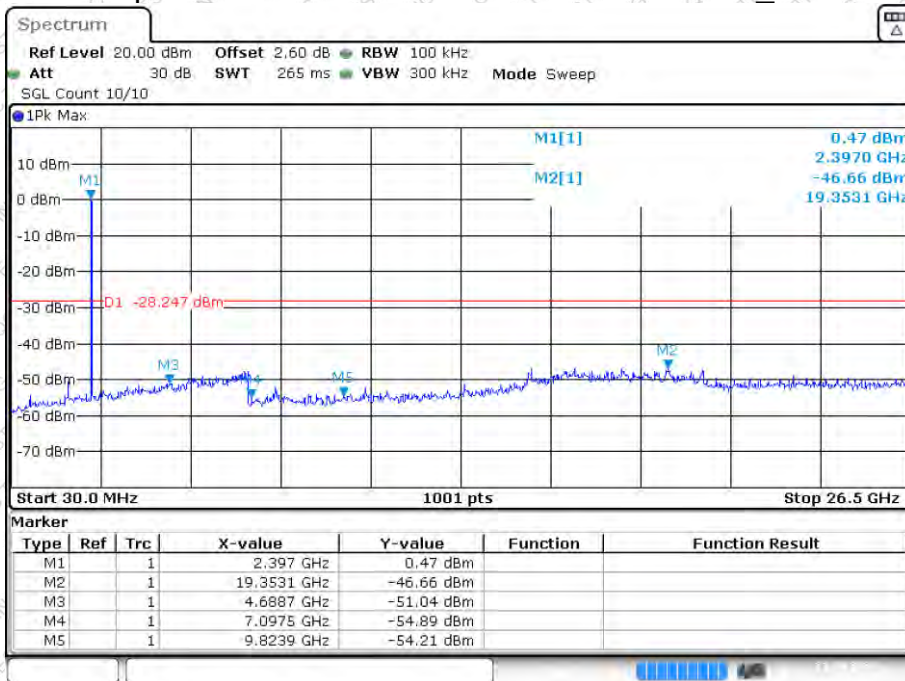


Tx. Spurious NVNT n20 2412MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:00:24

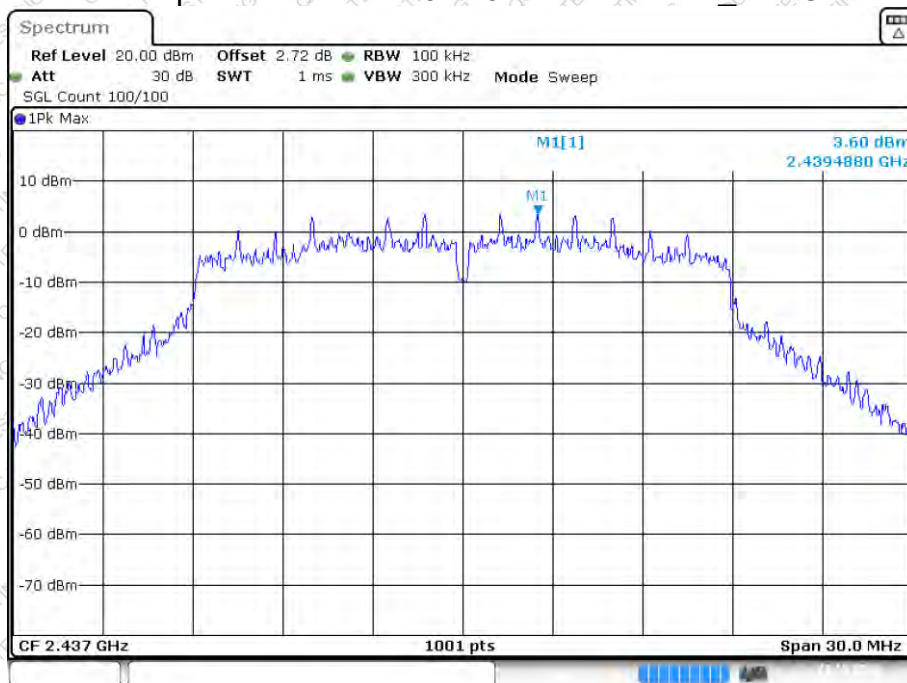
Tx. Spurious NVNT n20 2412MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:00:37

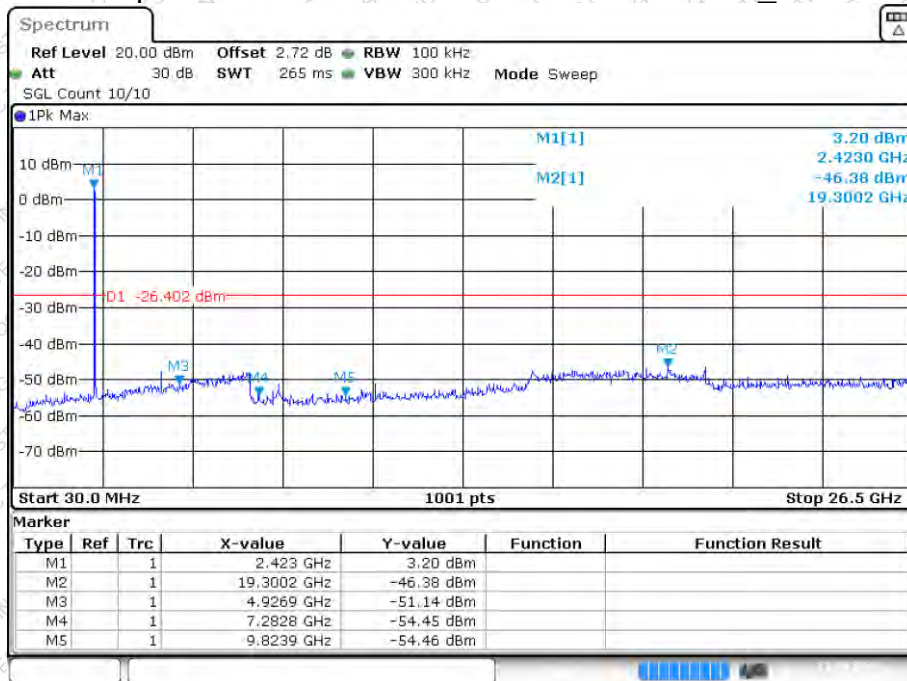


Tx. Spurious NVNT n20 2437MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:06:41

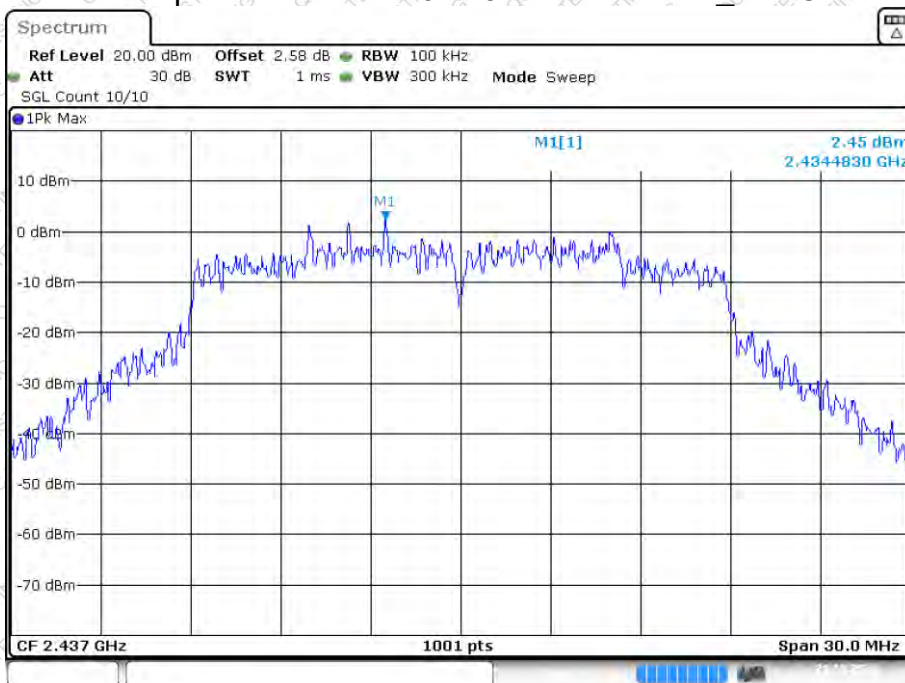
Tx. Spurious NVNT n20 2437MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:06:53

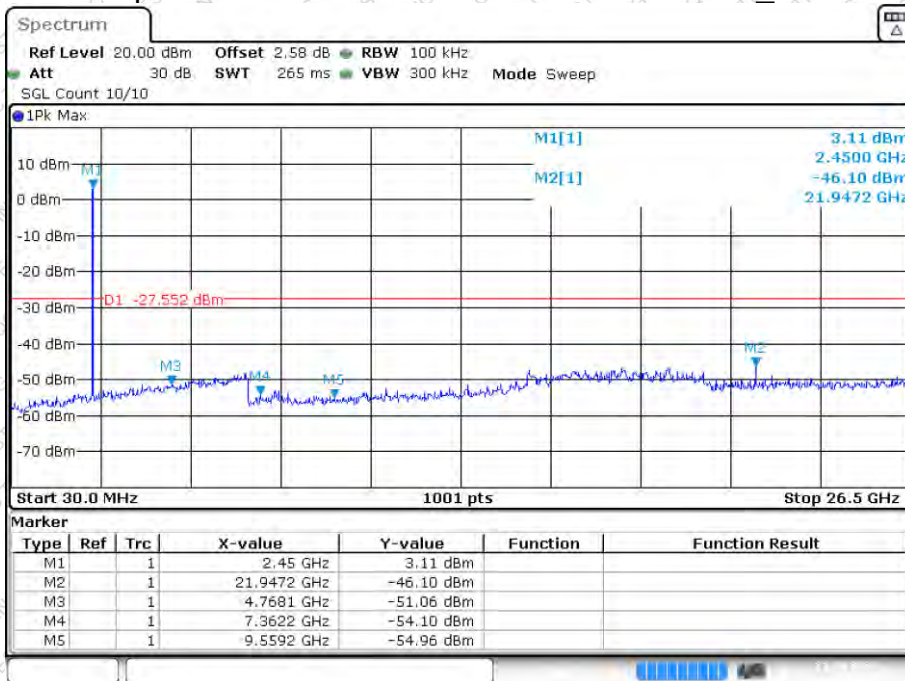


Tx. Spurious NVNT n20 2437MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:06:55

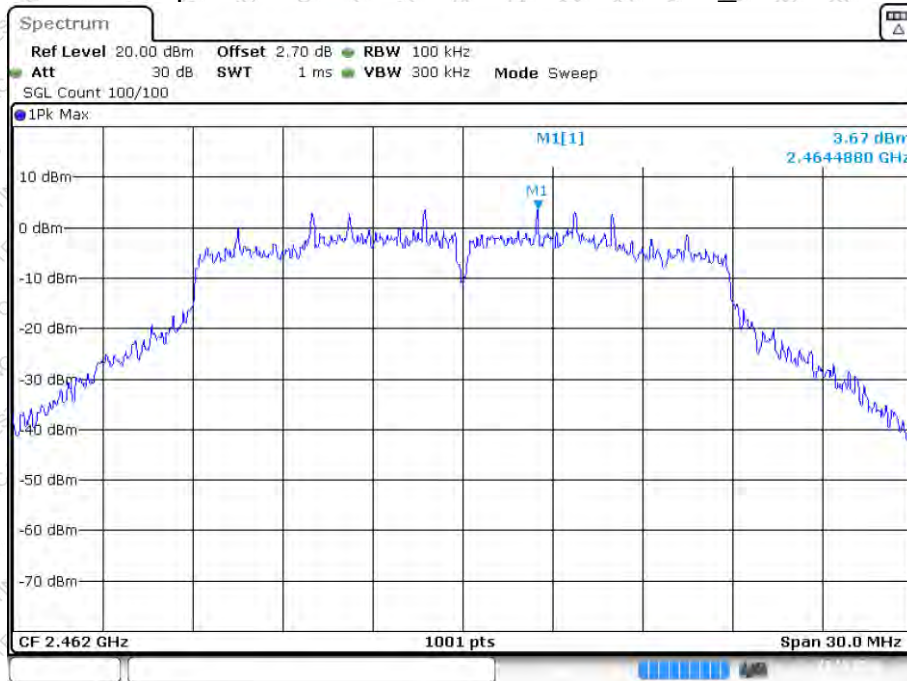
Tx. Spurious NVNT n20 2437MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:07:08

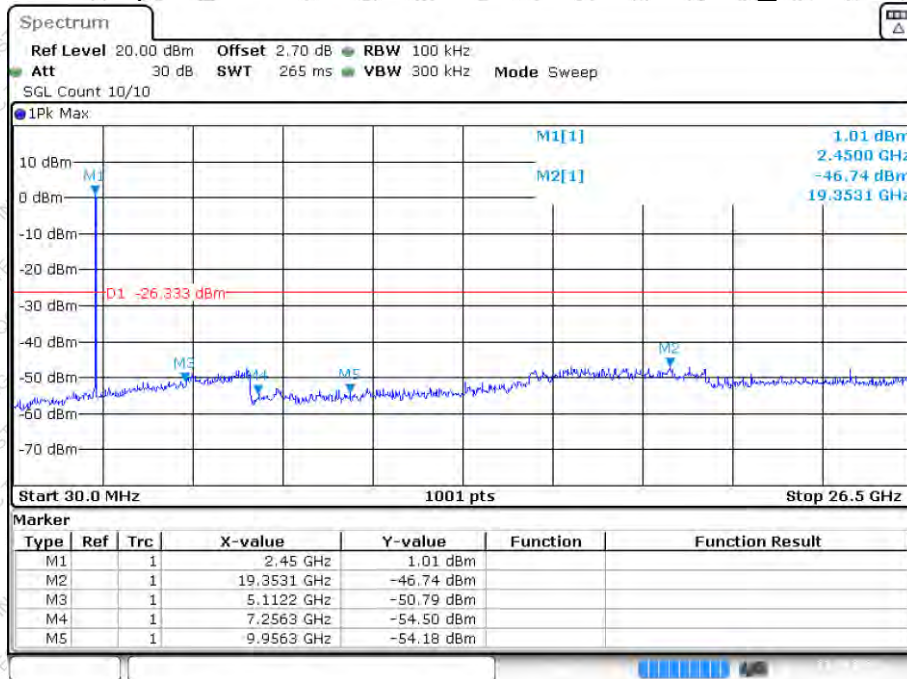


Tx. Spurious NVNT n20 2462MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:09:13

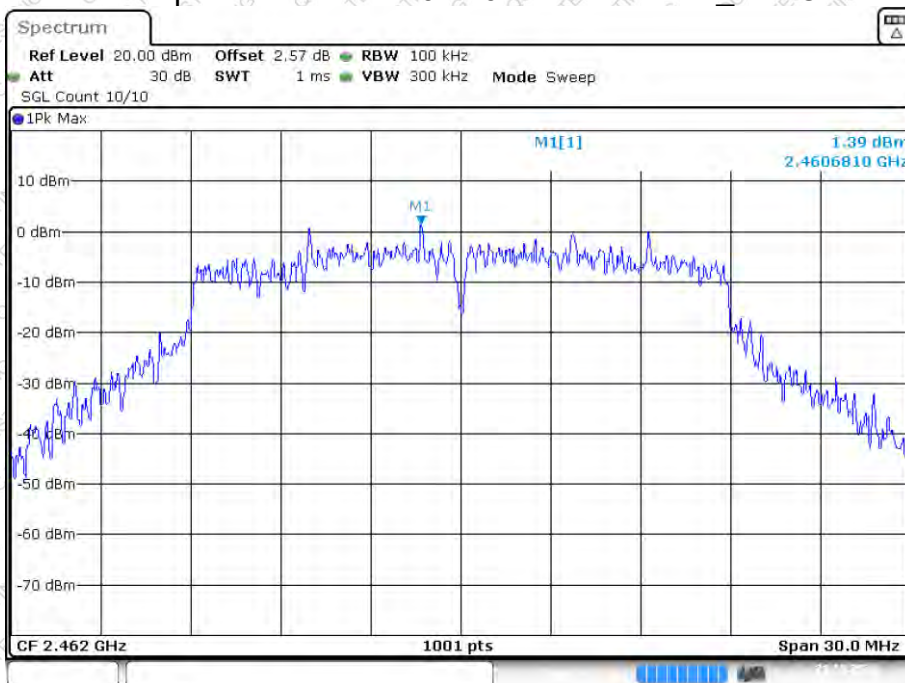
Tx. Spurious NVNT n20 2462MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:09:26

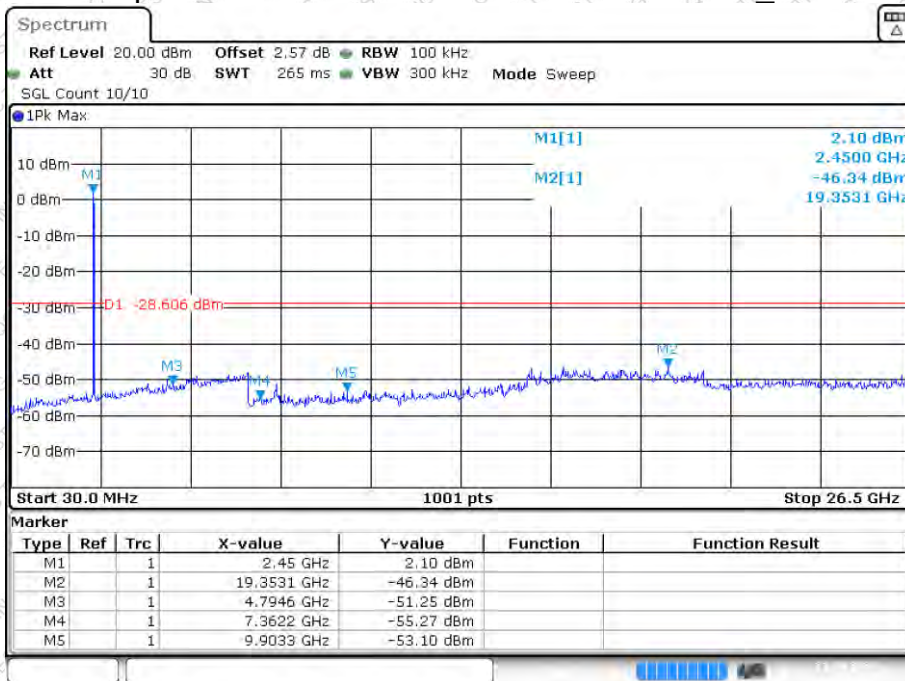


Tx. Spurious NVNT n20 2462MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:09:28

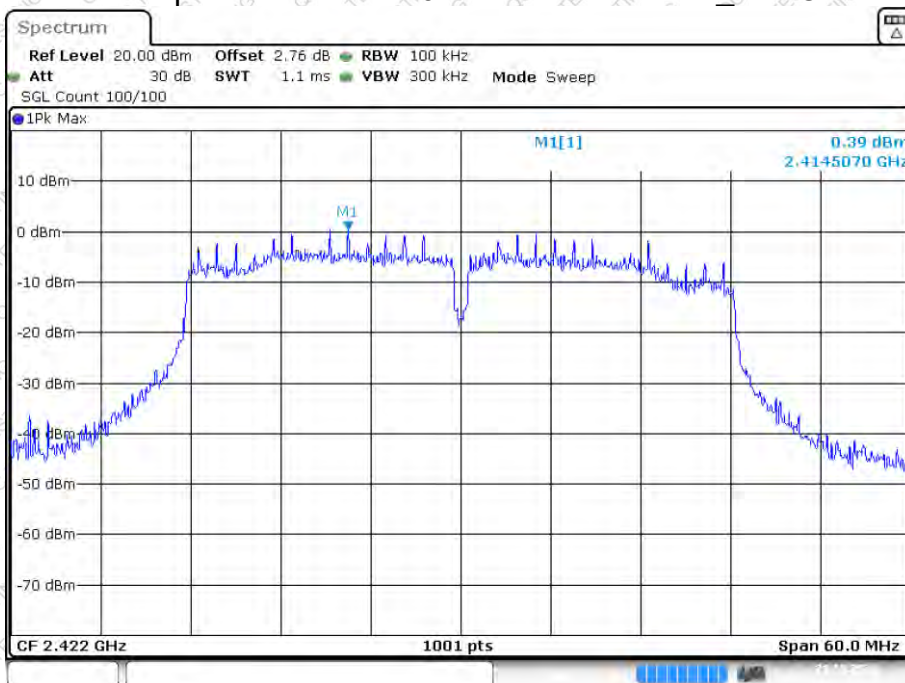
Tx. Spurious NVNT n20 2462MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:09:40

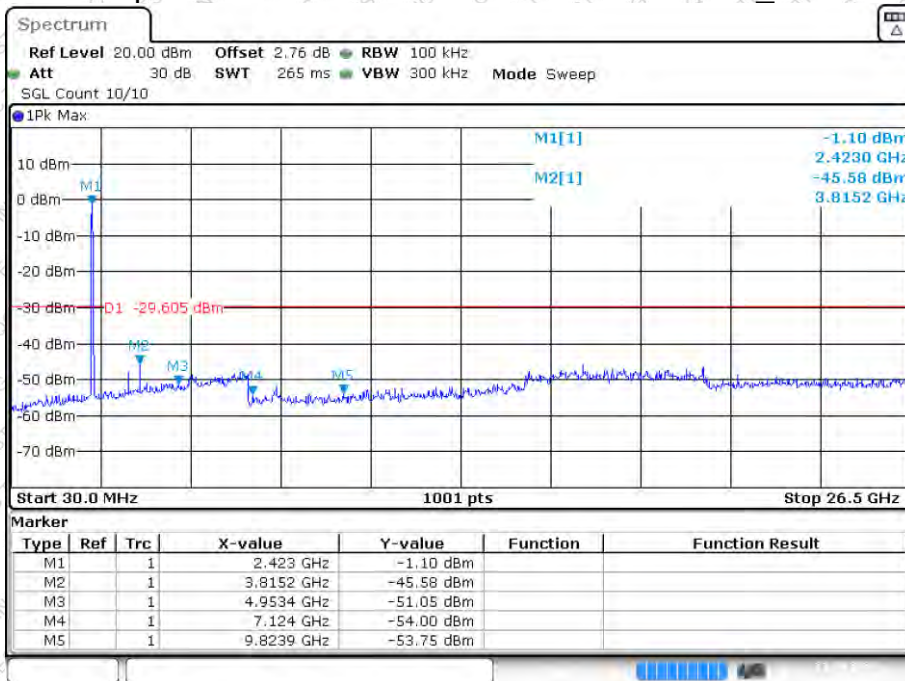


Tx. Spurious NVNT n40 2422MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:14:24

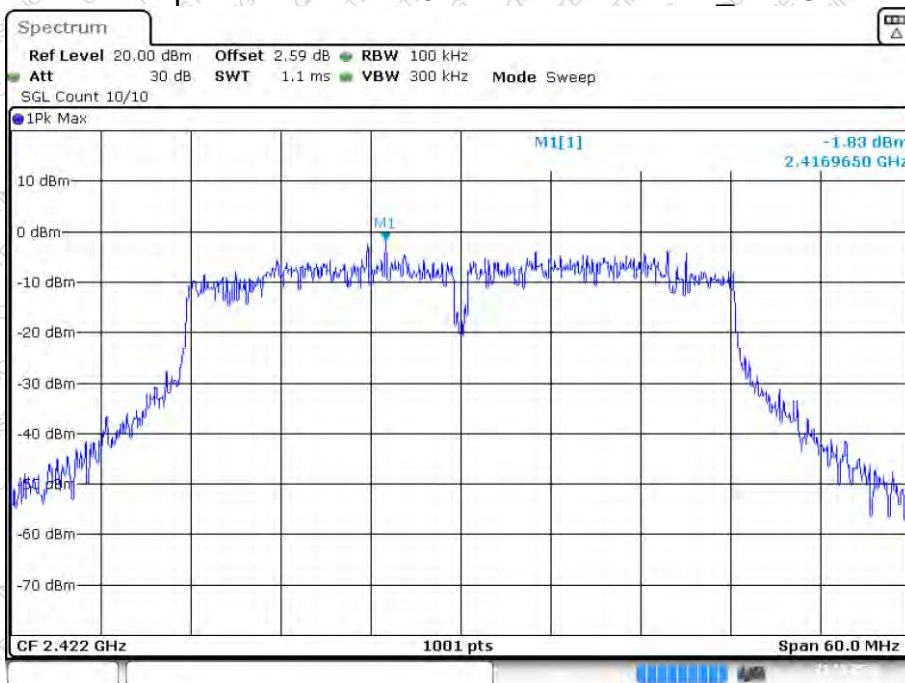
Tx. Spurious NVNT n40 2422MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:14:36

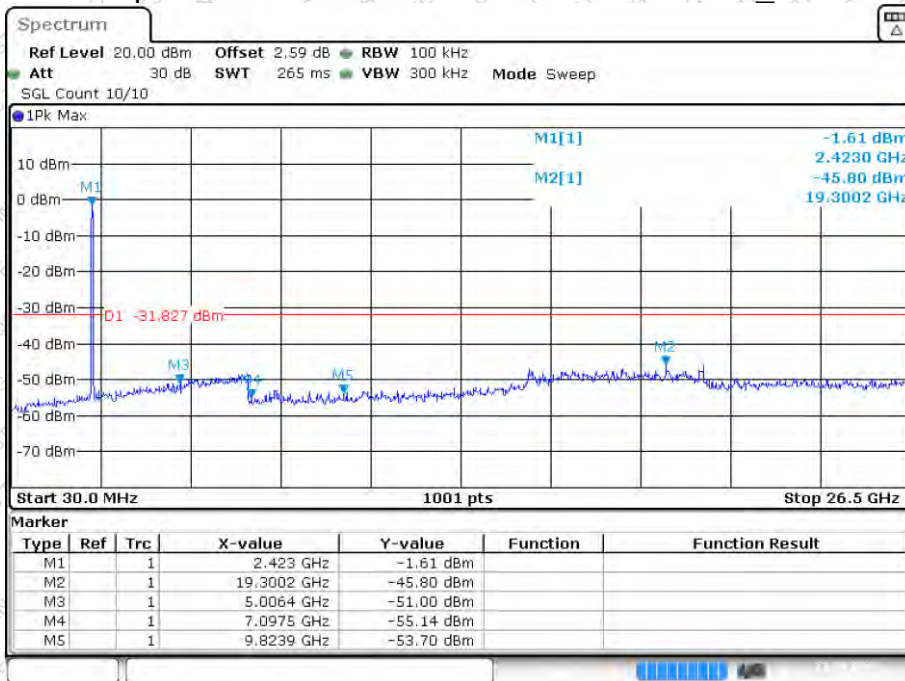


Tx. Spurious NVNT n40 2422MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:14:38

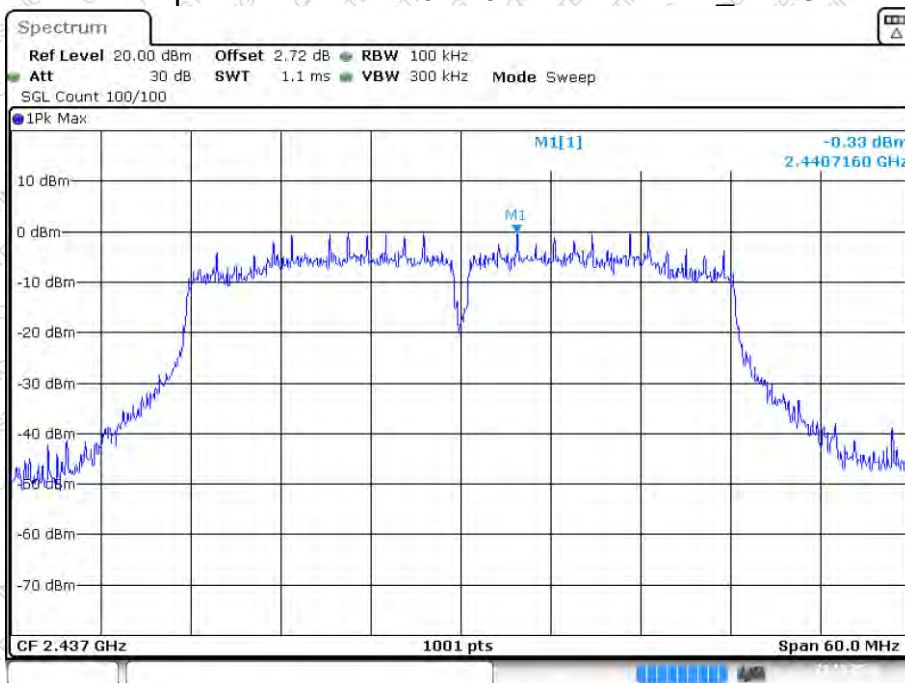
Tx. Spurious NVNT n40 2422MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:14:50

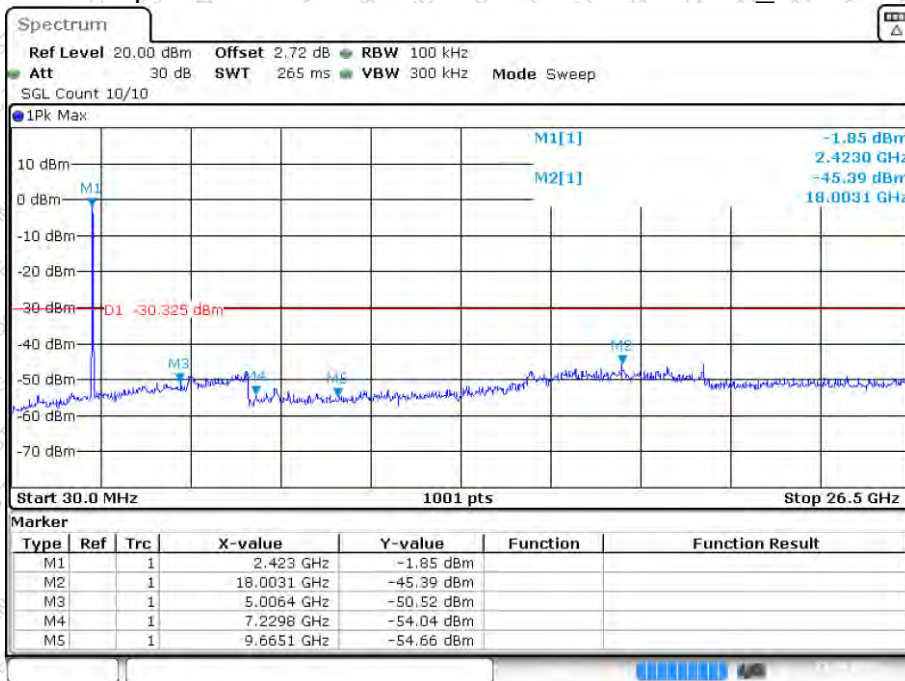


Tx. Spurious NVNT n40 2437MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:16:32

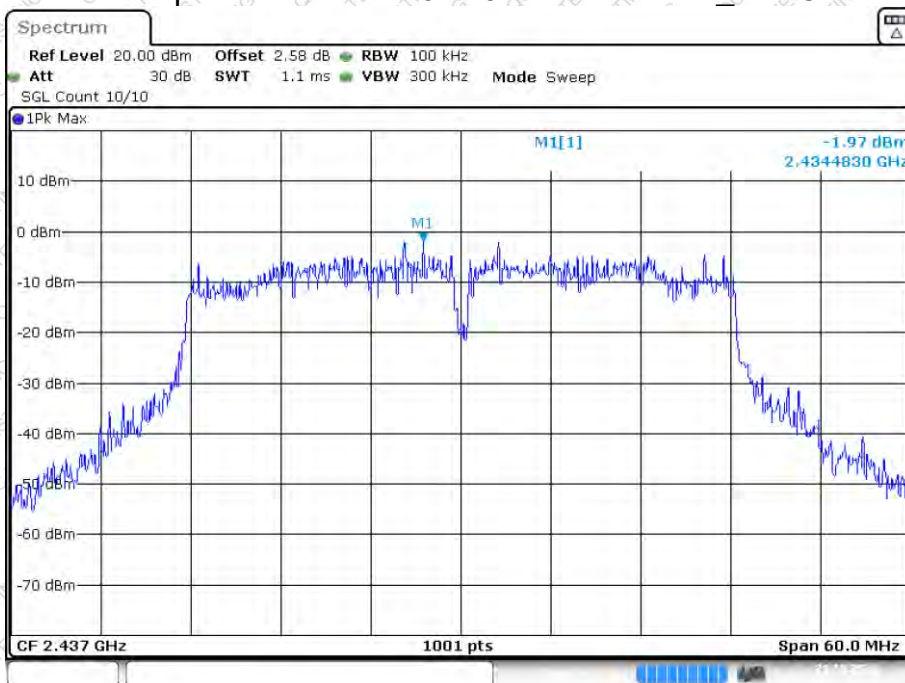
Tx. Spurious NVNT n40 2437MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:16:45

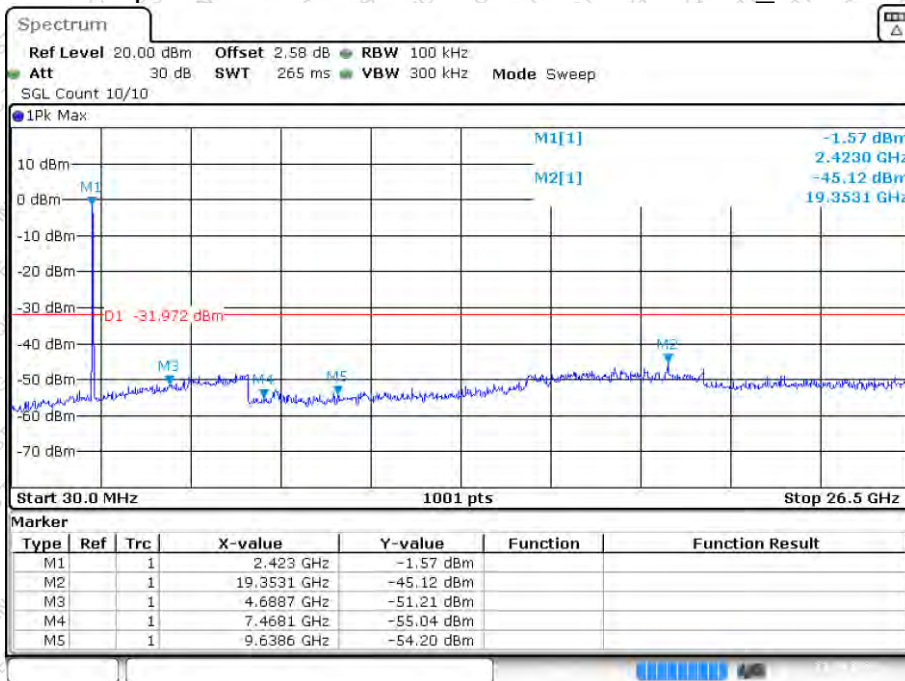


Tx. Spurious NVNT n40 2437MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:16:47

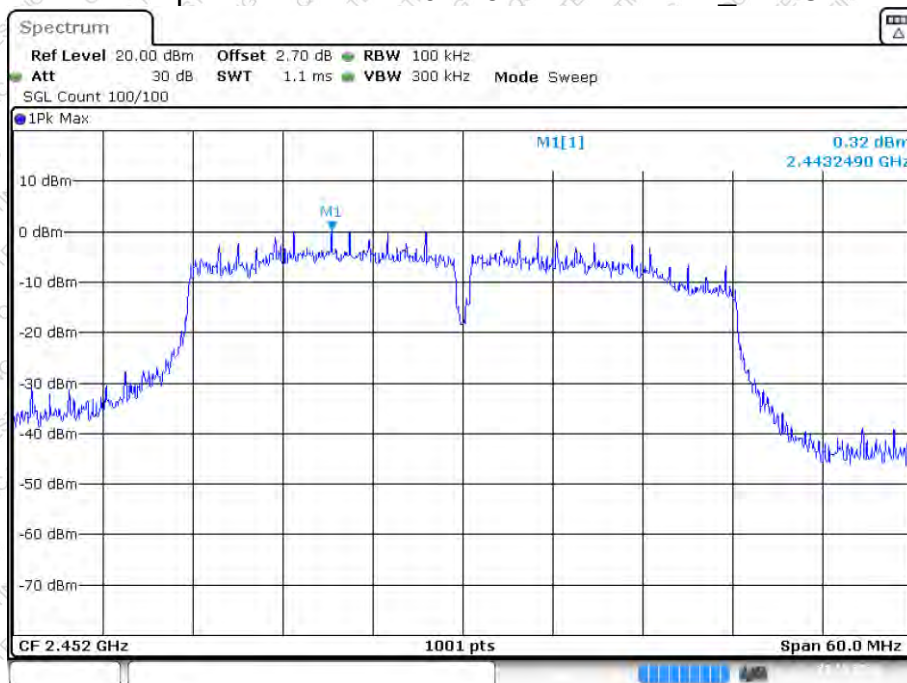
Tx. Spurious NVNT n40 2437MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:16:59

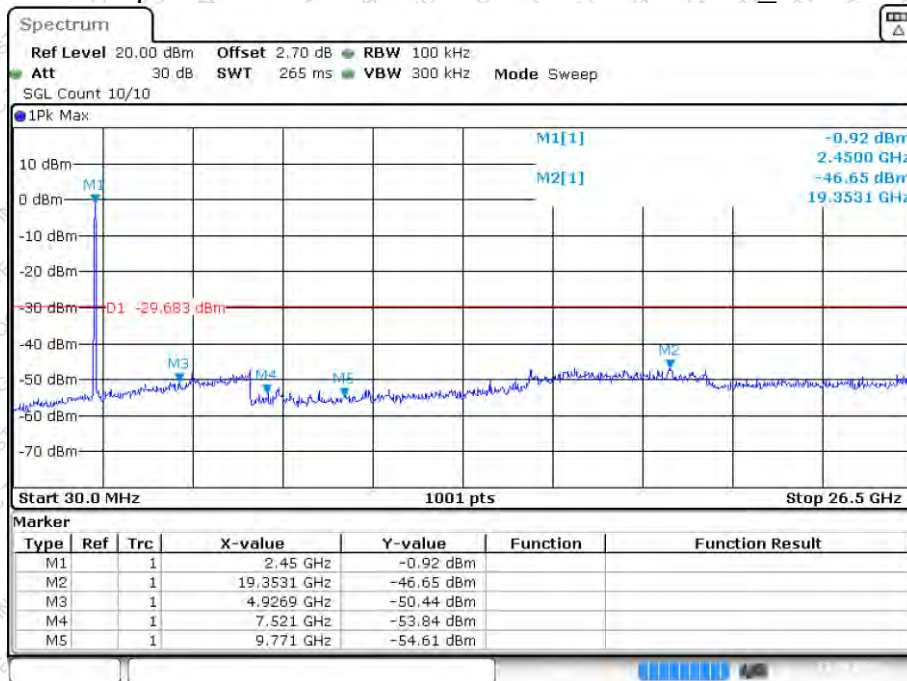


Tx. Spurious NVNT n40 2452MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:18:30

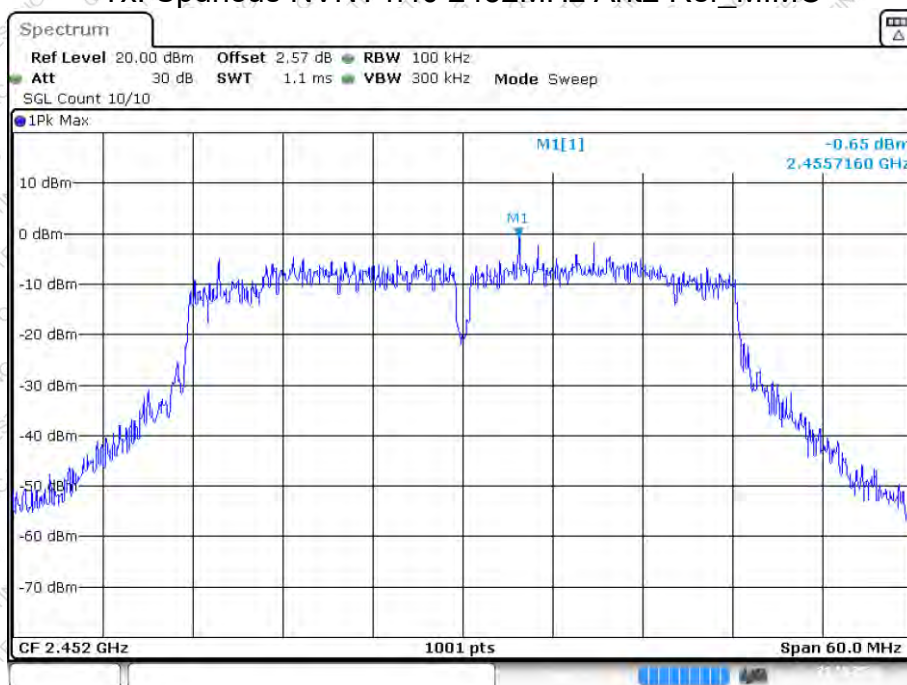
Tx. Spurious NVNT n40 2452MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:18:42

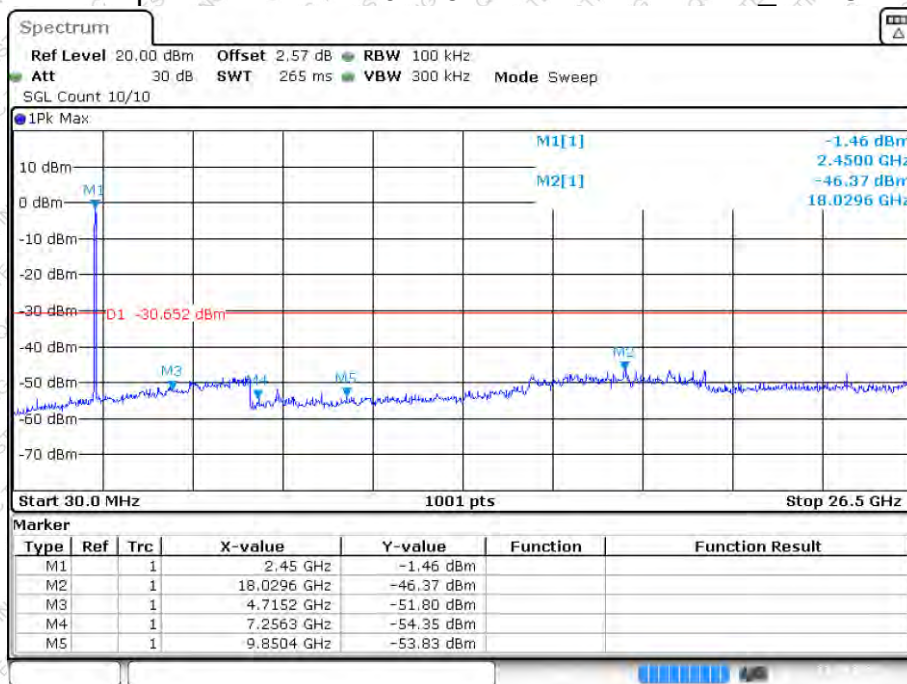


Tx. Spurious NVNT n40 2452MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:18:44

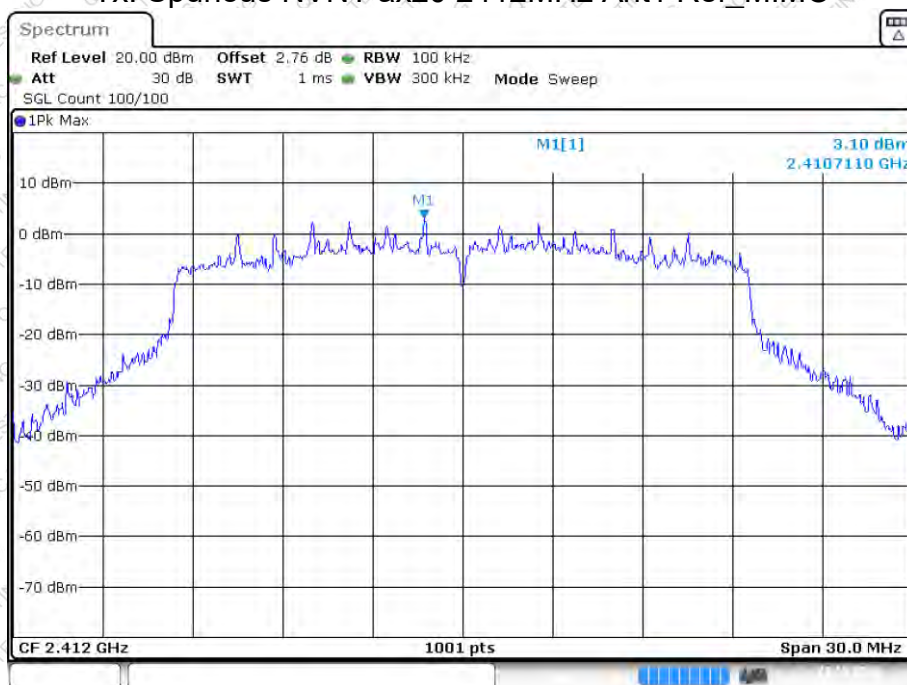
Tx. Spurious NVNT n40 2452MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:18:57

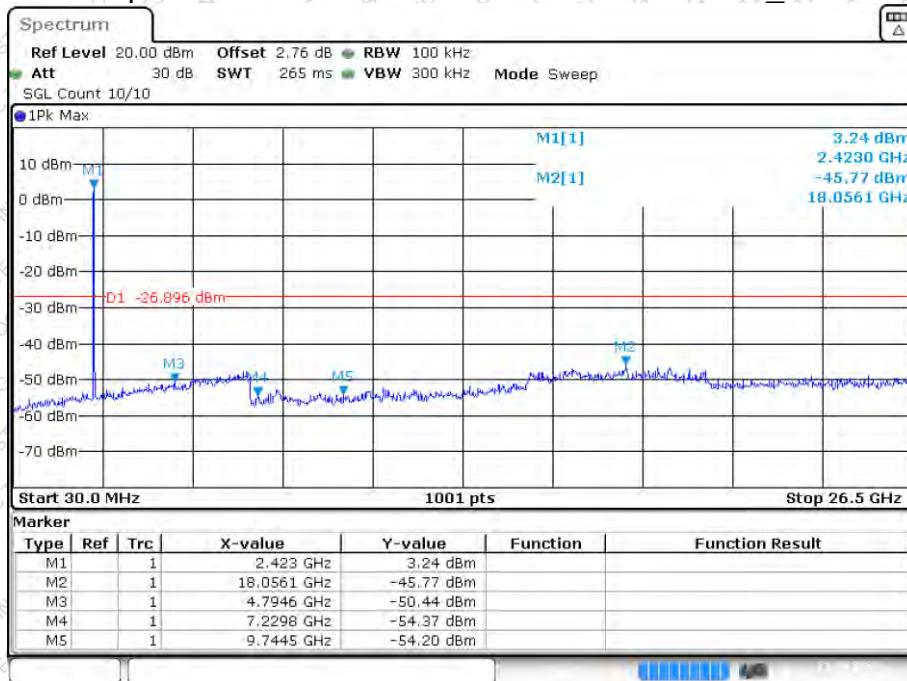


Tx. Spurious NVNT ax20 2412MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:36:15

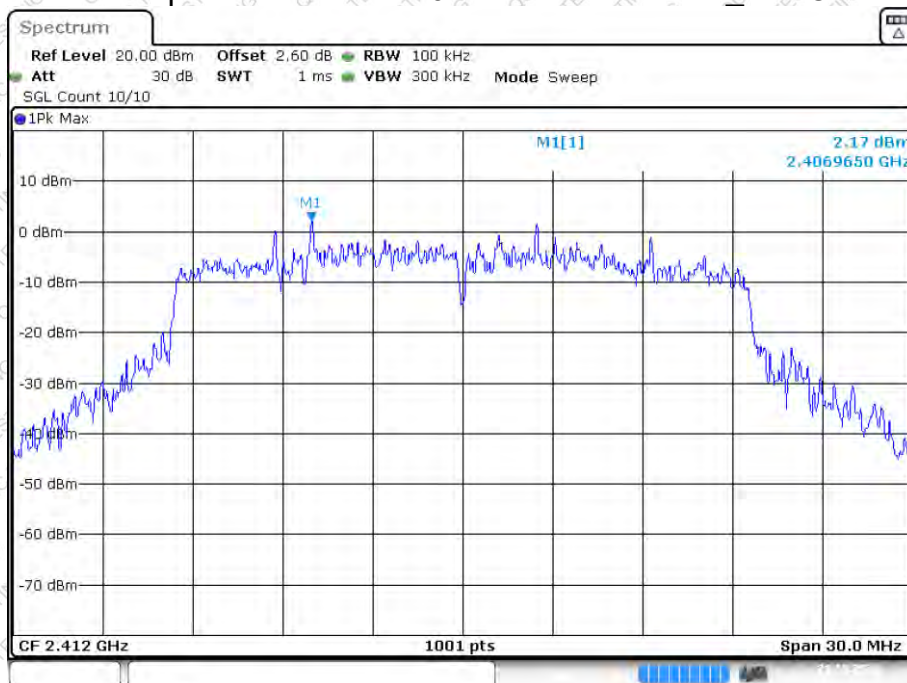
Tx. Spurious NVNT ax20 2412MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:36:27

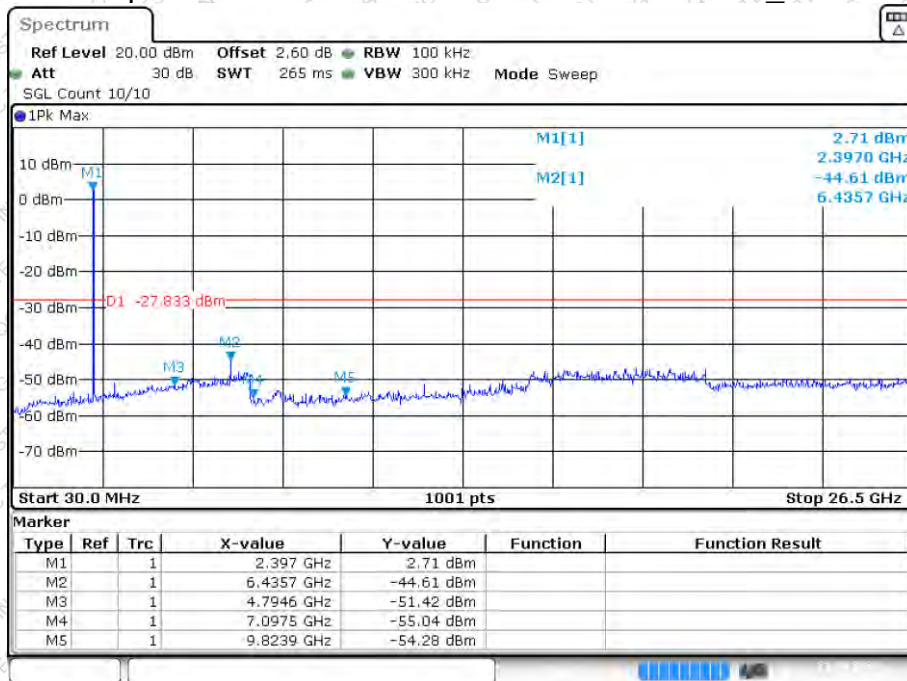


Tx. Spurious NVNT ax20 2412MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:36:30

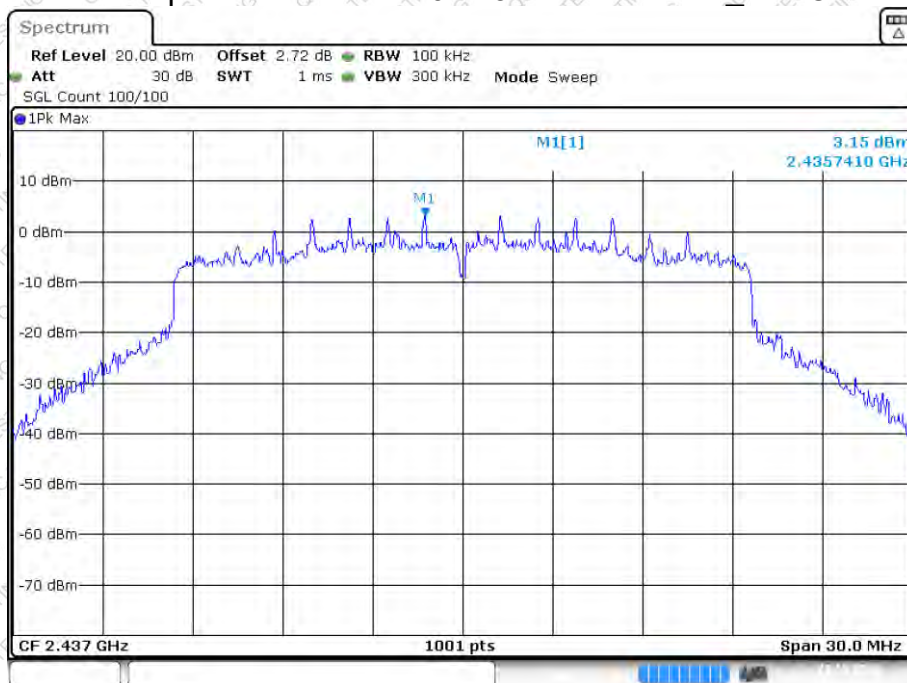
Tx. Spurious NVNT ax20 2412MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:36:42

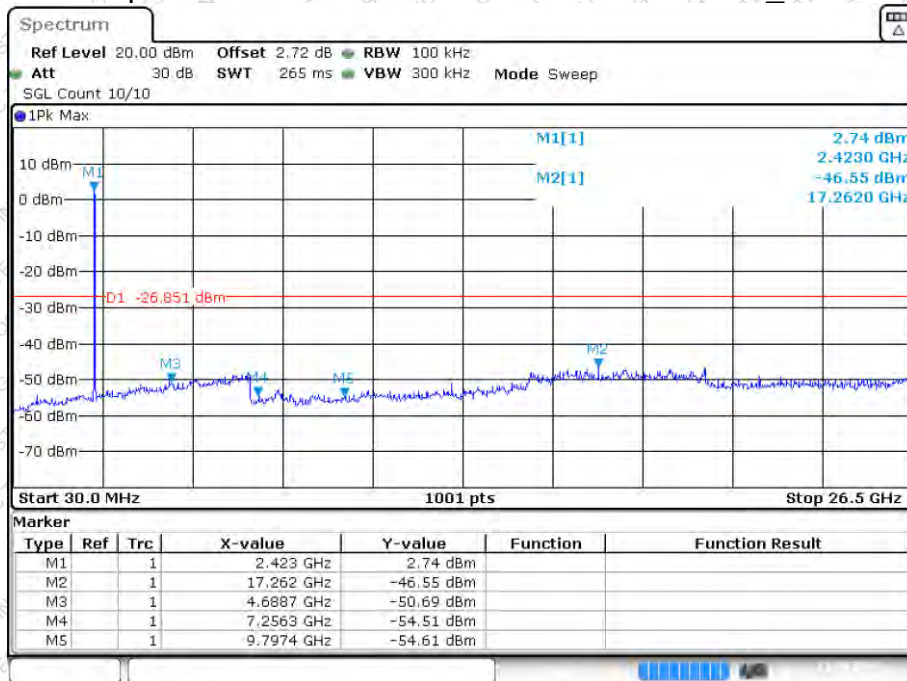


Tx. Spurious NVNT ax20 2437MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:43:59

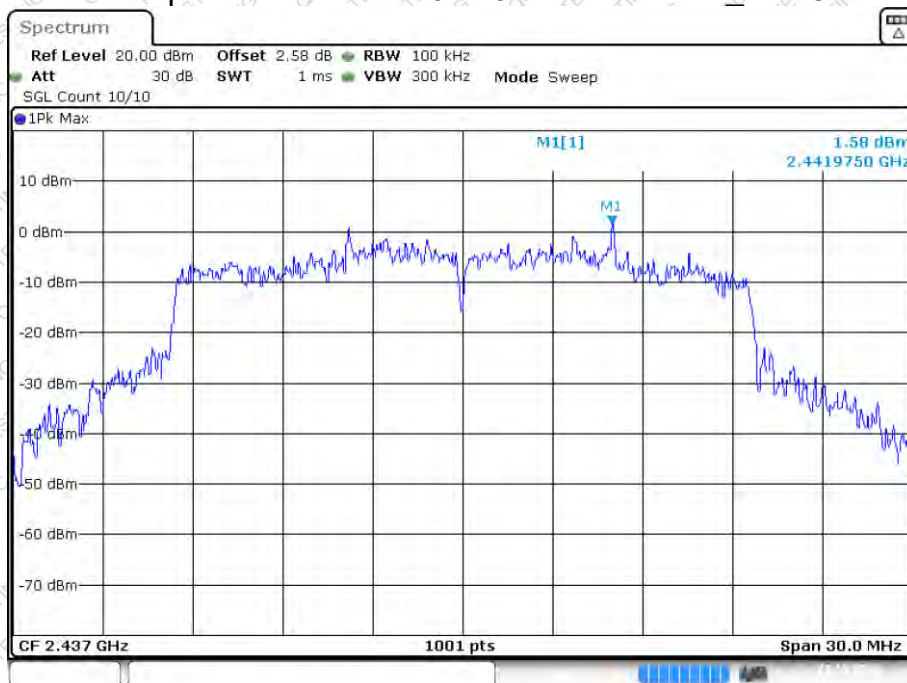
Tx. Spurious NVNT ax20 2437MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:44:11

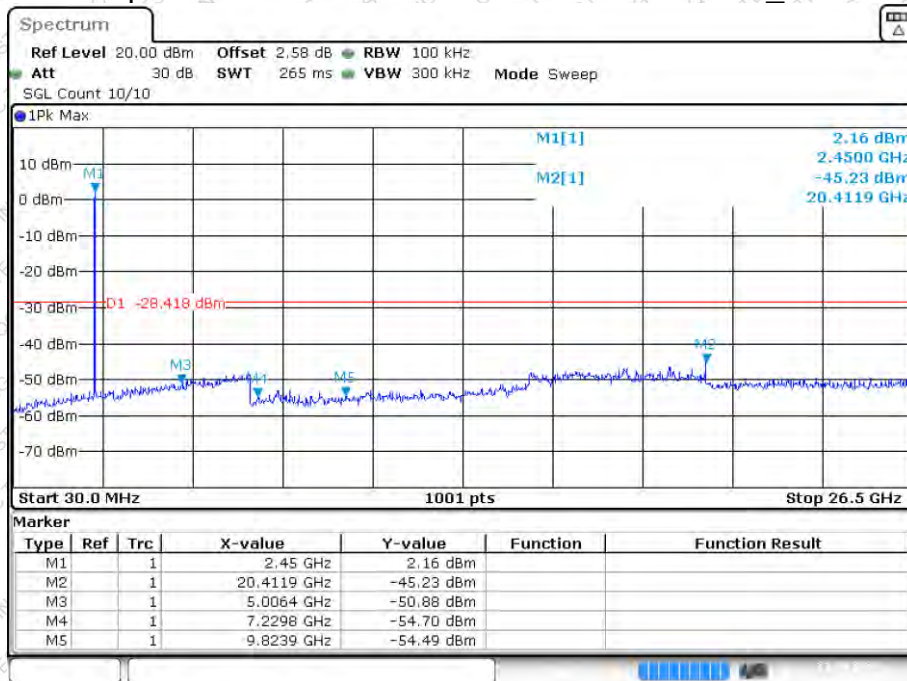


Tx. Spurious NVNT ax20 2437MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:44:13

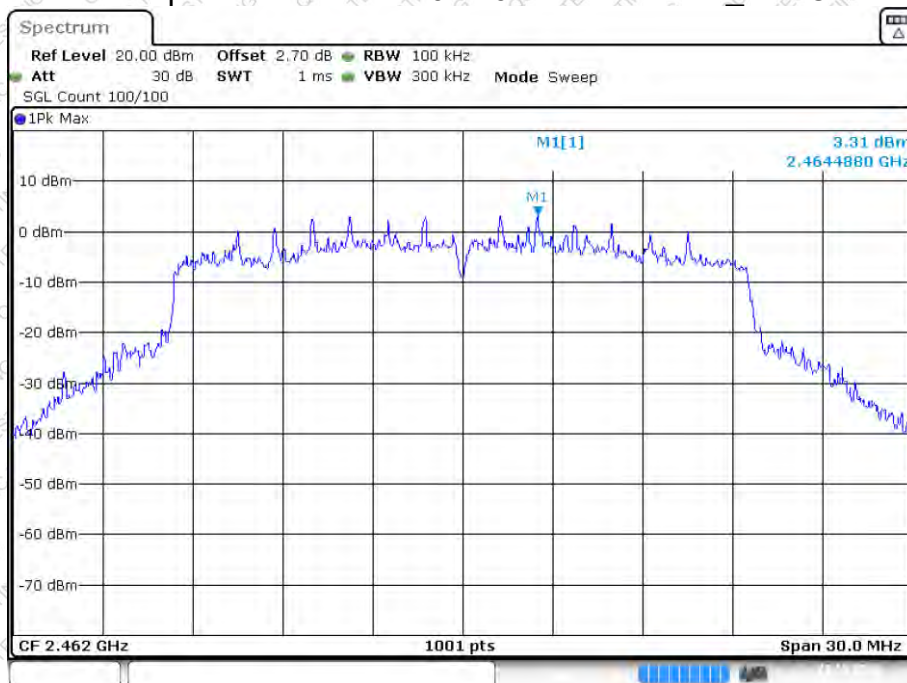
Tx. Spurious NVNT ax20 2437MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:44:26

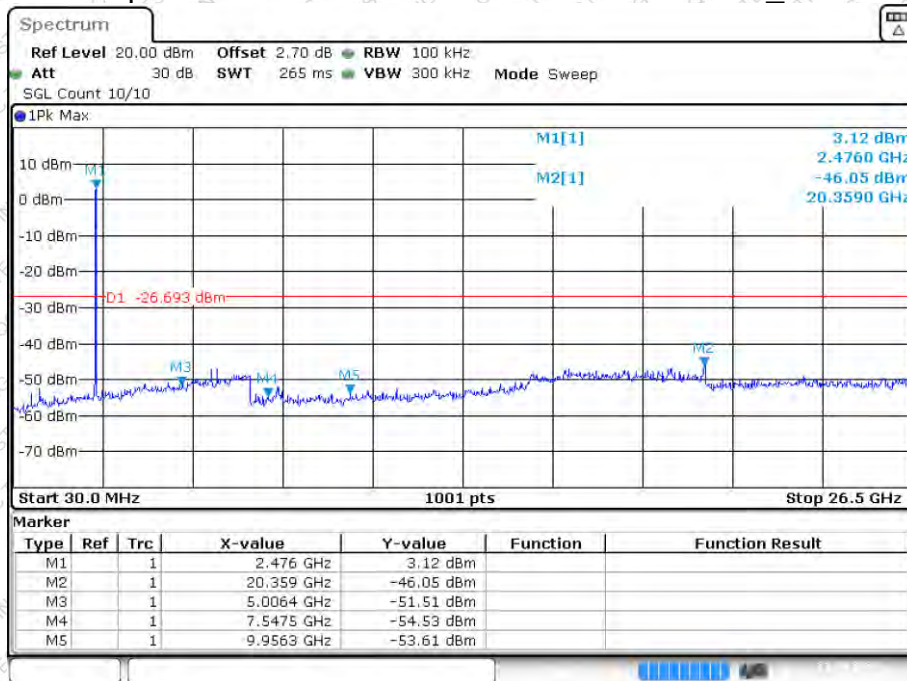


Tx. Spurious NVNT ax20 2462MHz Ant1 Ref_MIMO



Date: 21. OCT 2024 15:45:52

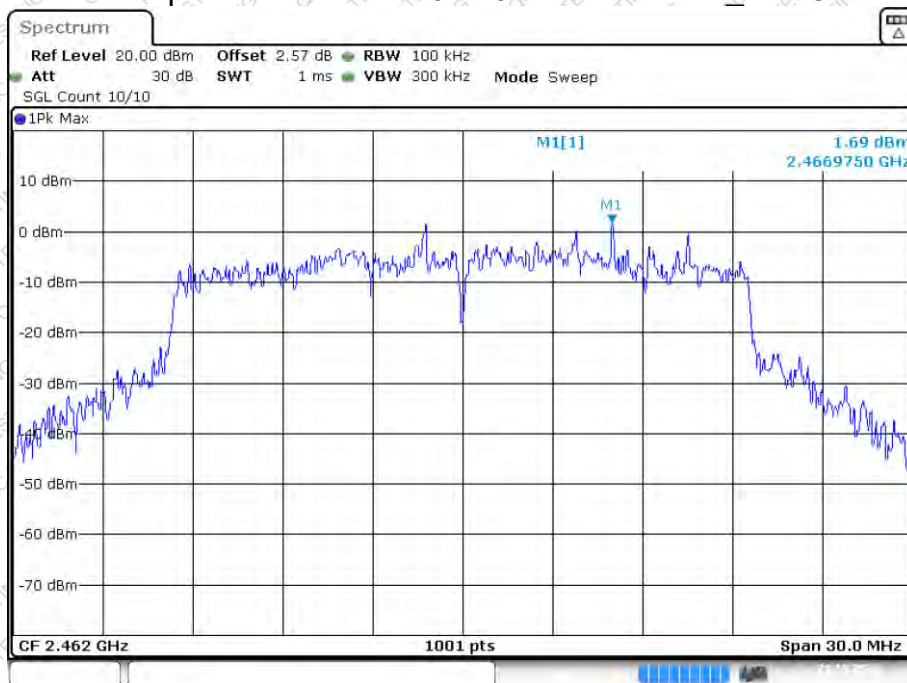
Tx. Spurious NVNT ax20 2462MHz Ant1 Emission_MIMO



Date: 21. OCT 2024 15:46:04

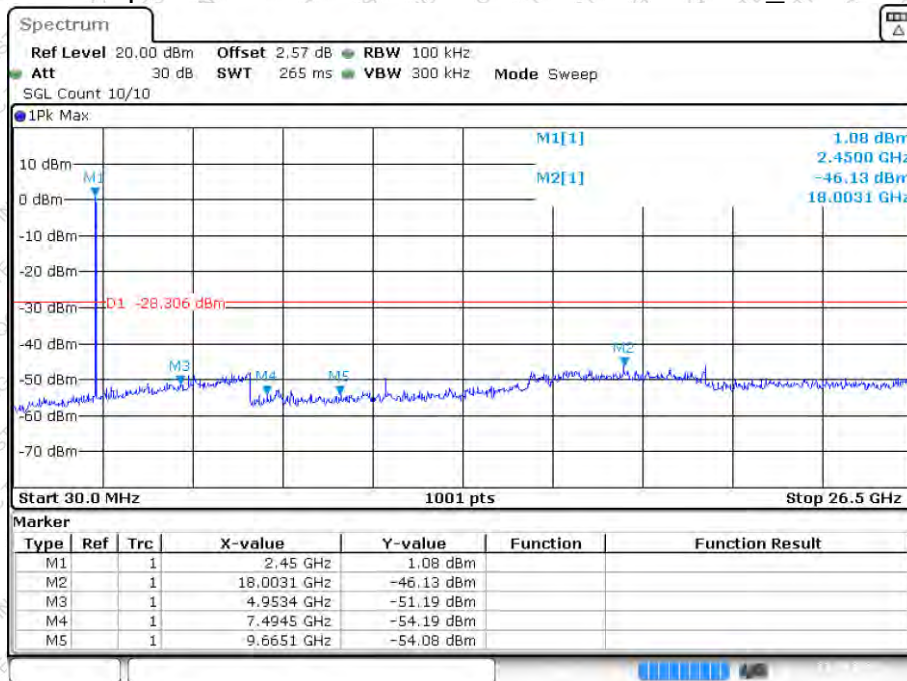


Tx. Spurious NVNT ax20 2462MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:46:06

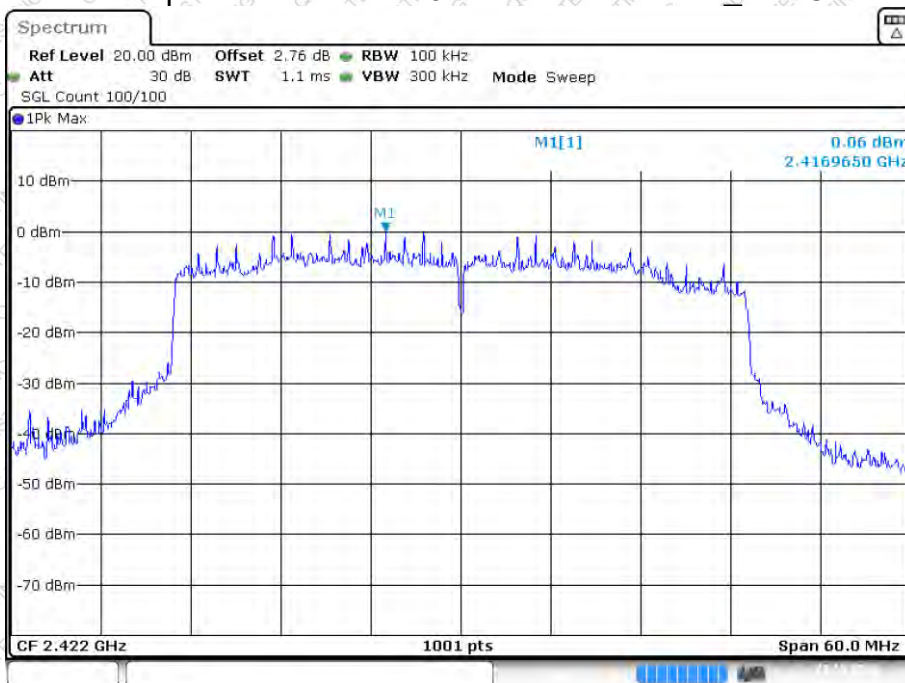
Tx. Spurious NVNT ax20 2462MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:46:18

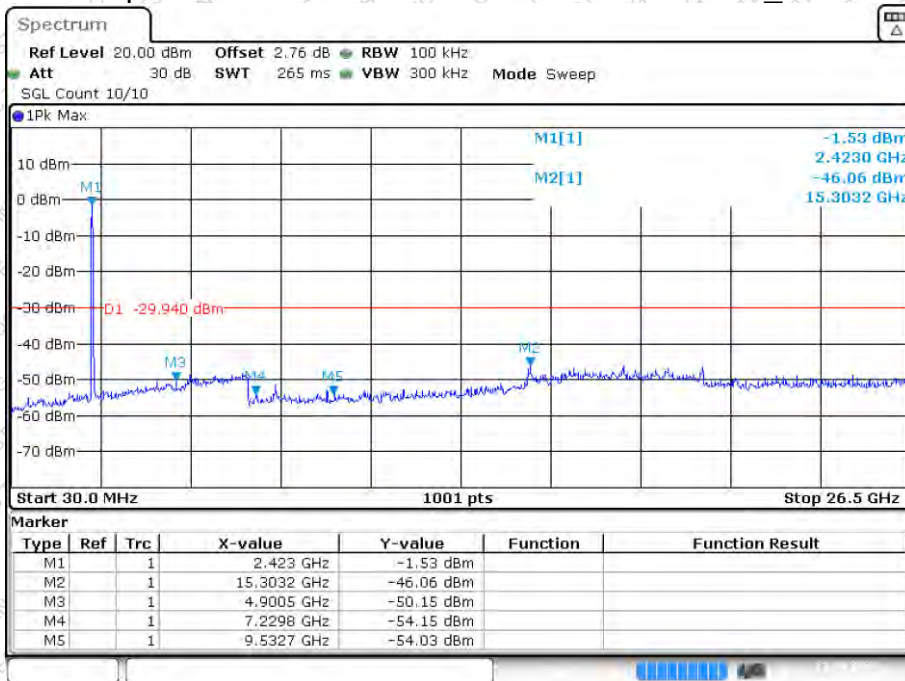


Tx. Spurious NVNT ax40 2422MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:49:00

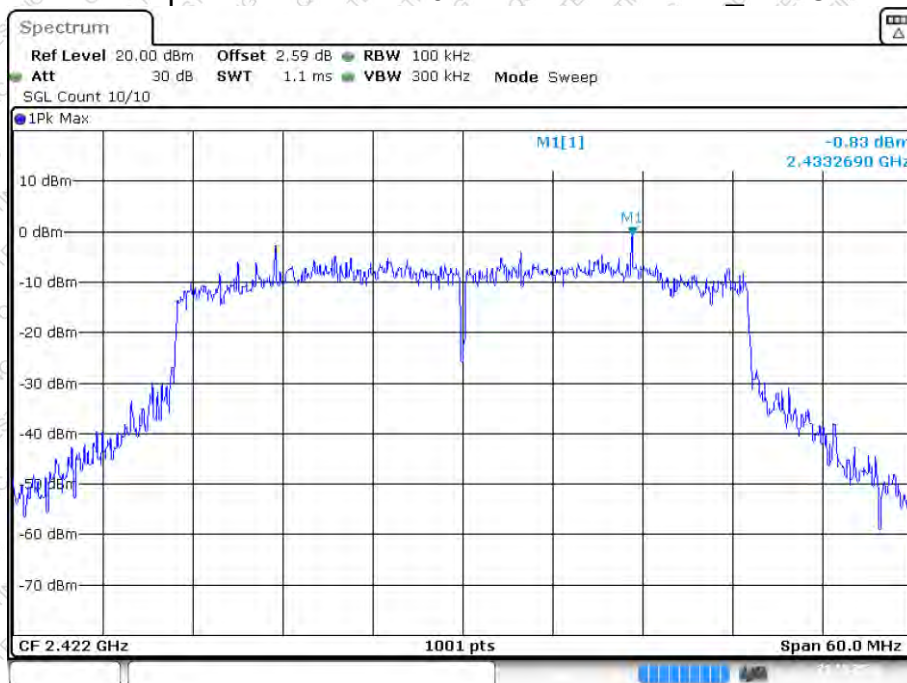
Tx. Spurious NVNT ax40 2422MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:49:12

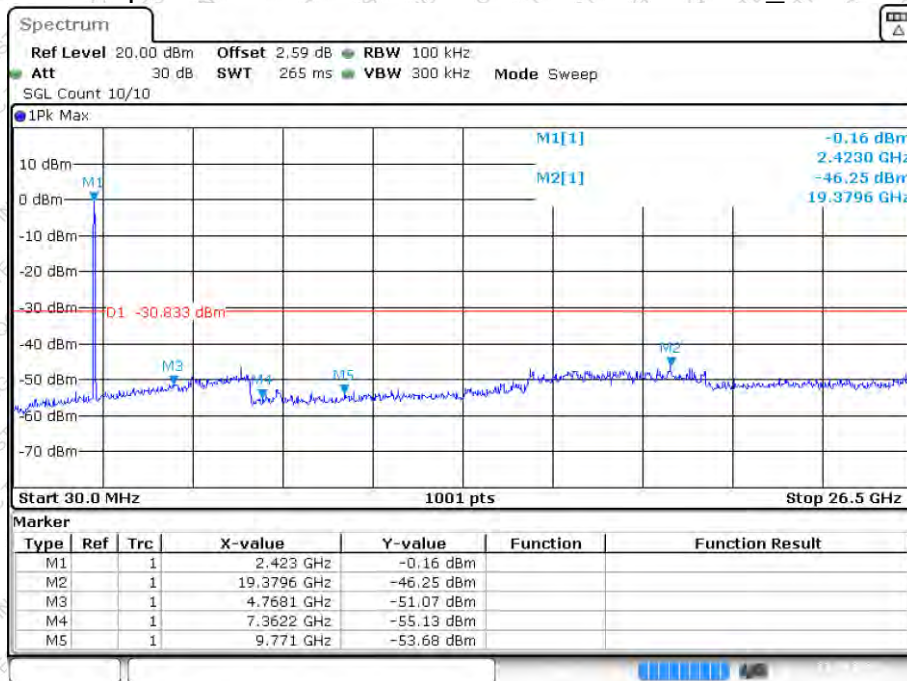


Tx. Spurious NVNT ax40 2422MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:49:14

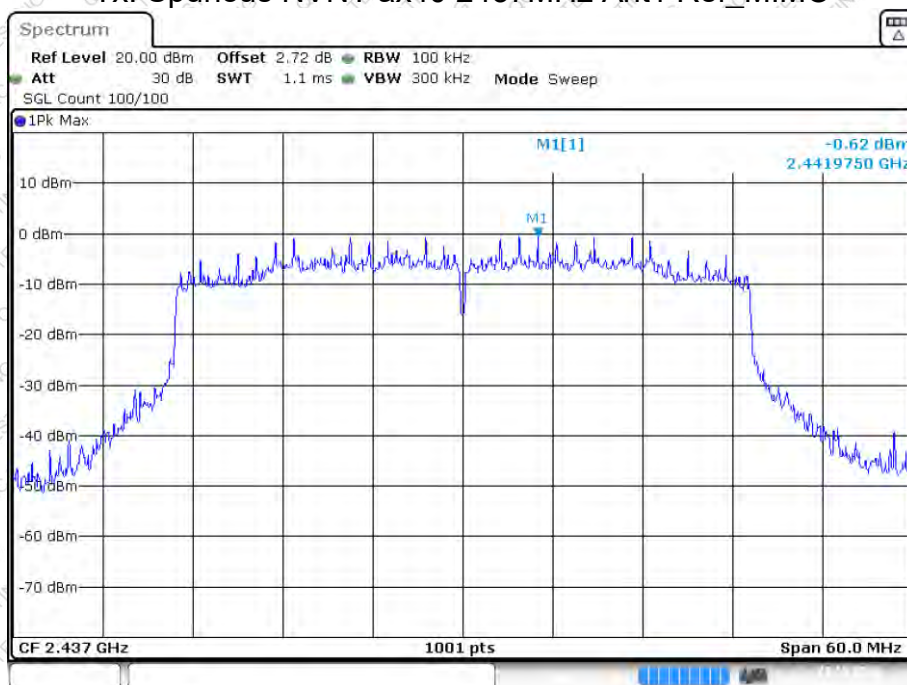
Tx. Spurious NVNT ax40 2422MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:49:26

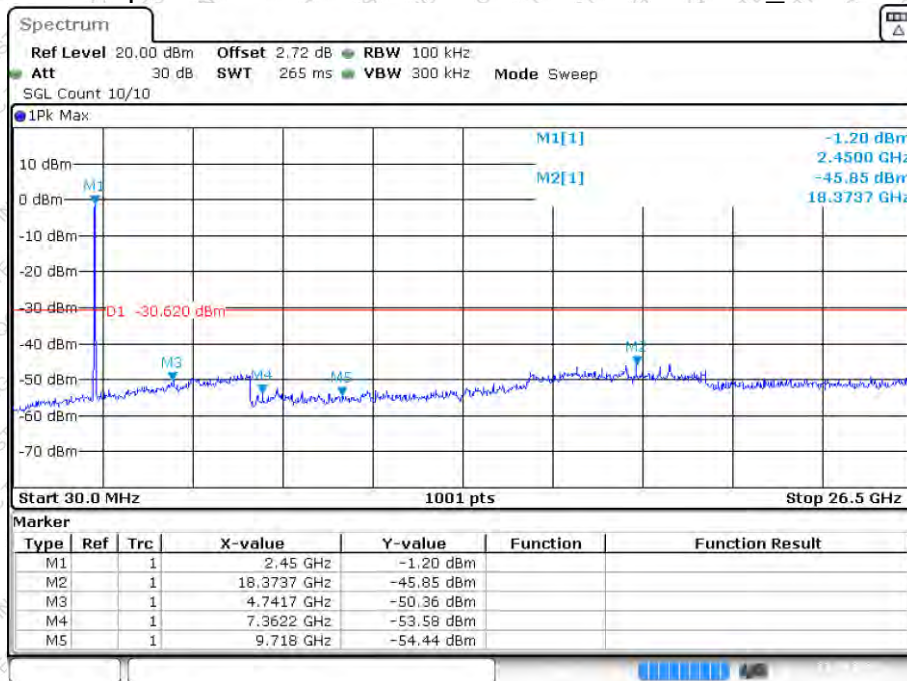


Tx. Spurious NVNT ax40 2437MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:50:50

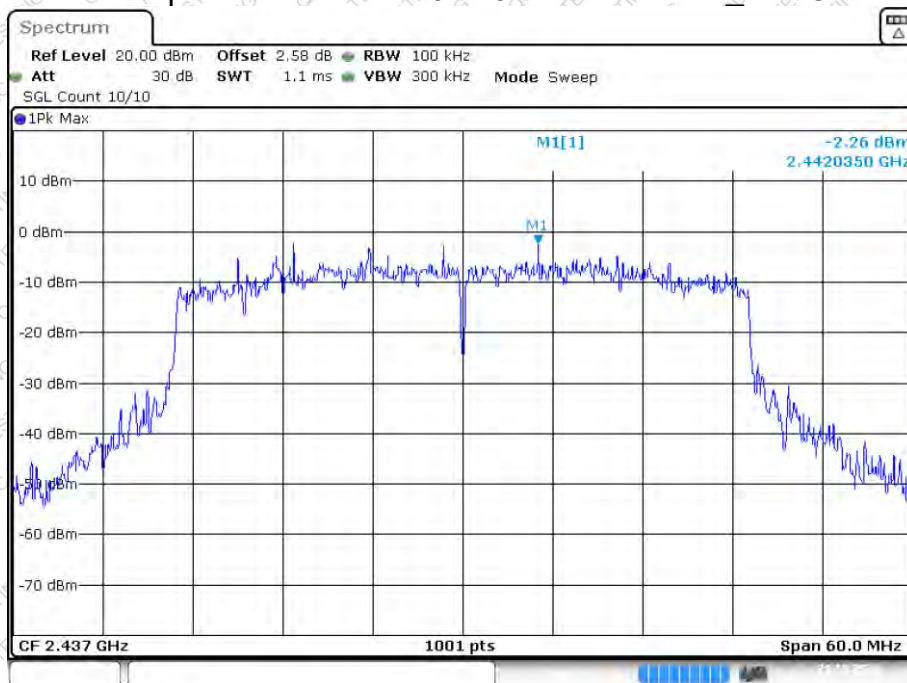
Tx. Spurious NVNT ax40 2437MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:51:02

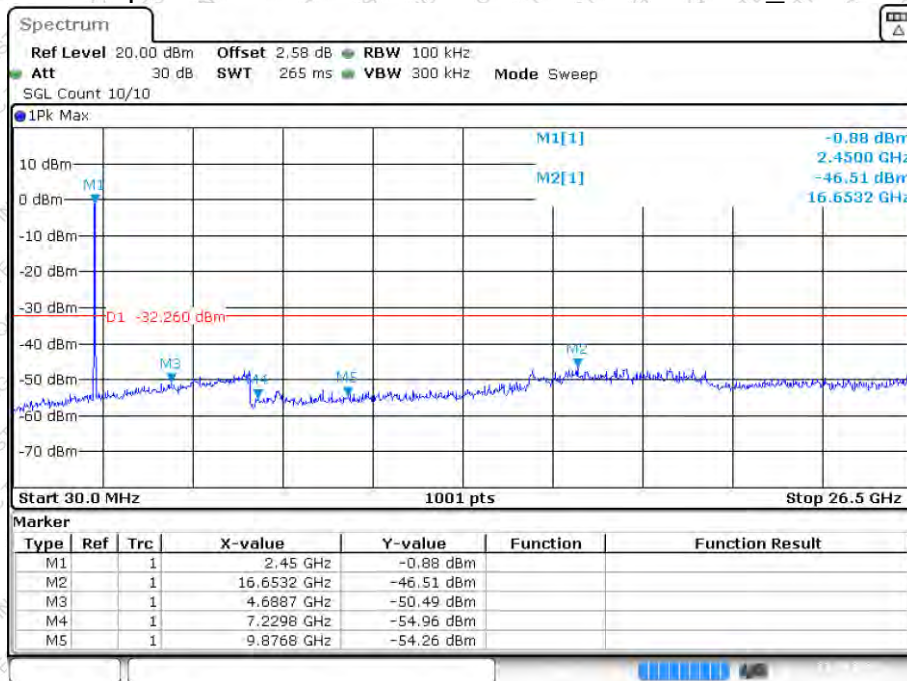


Tx. Spurious NVNT ax40 2437MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:51:04

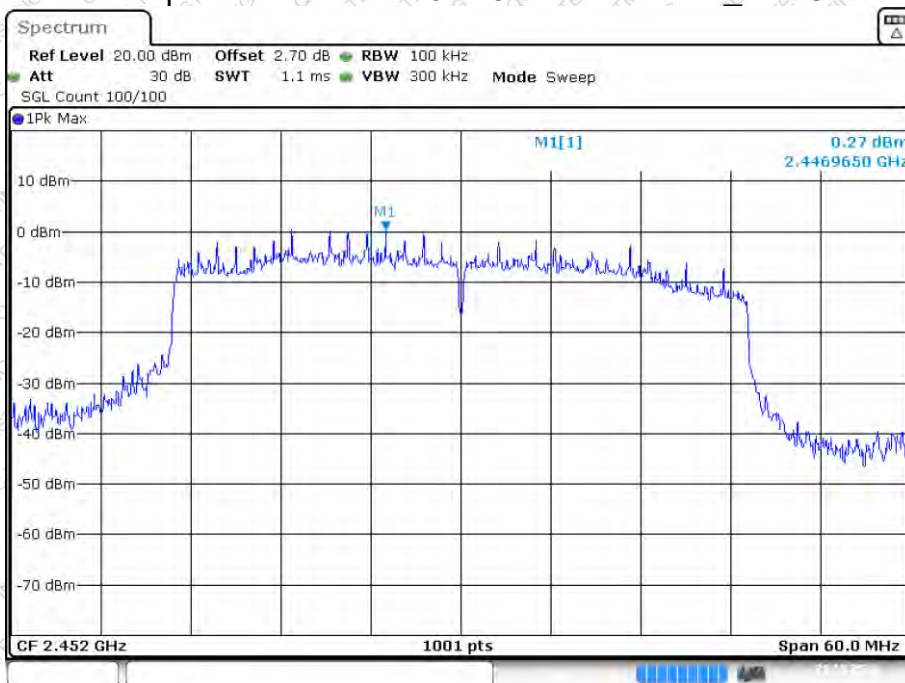
Tx. Spurious NVNT ax40 2437MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:51:16

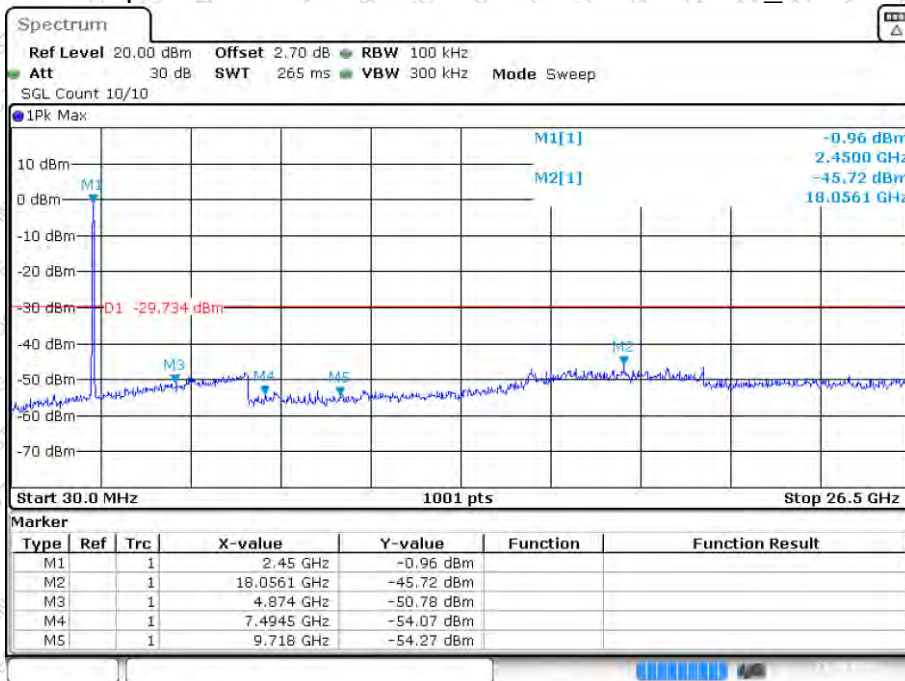


Tx. Spurious NVNT ax40 2452MHz Ant1 Ref_MIMO



Date: 21.OCT.2024 15:57:26

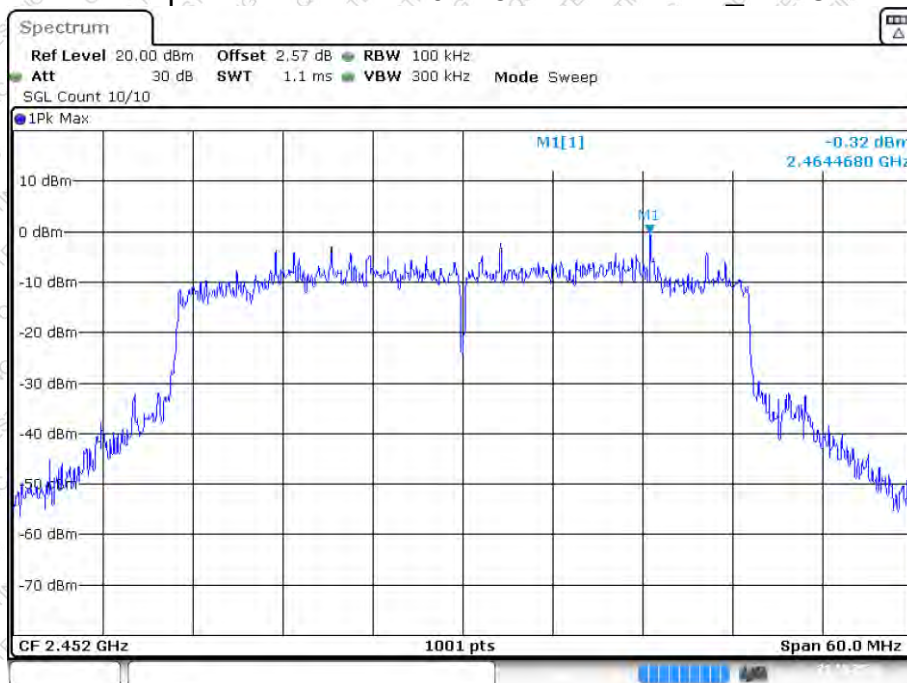
Tx. Spurious NVNT ax40 2452MHz Ant1 Emission_MIMO



Date: 21.OCT.2024 15:57:38

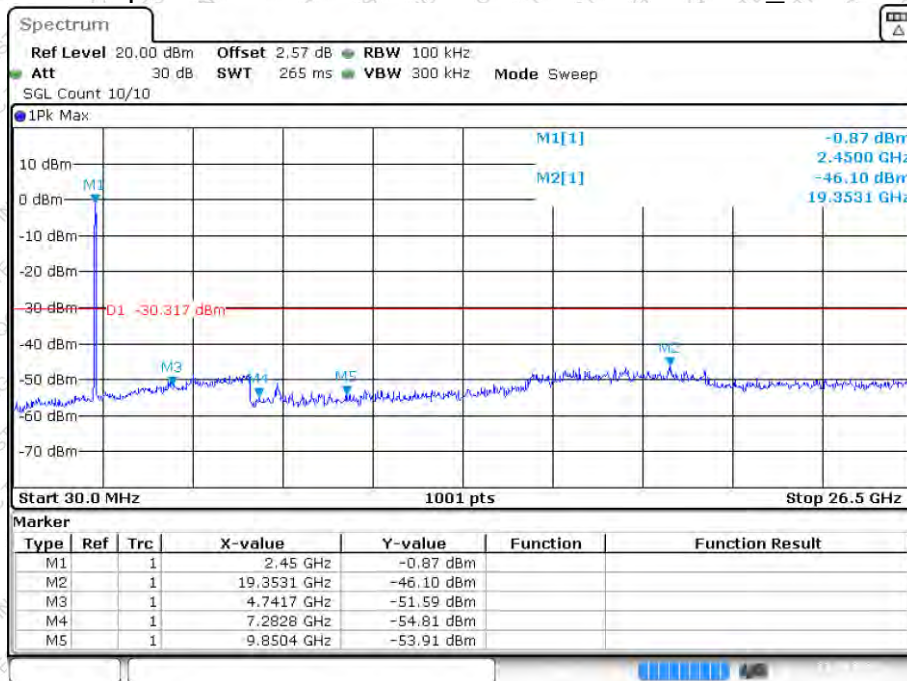


Tx. Spurious NVNT ax40 2452MHz Ant2 Ref_MIMO



Date: 21.OCT.2024 15:57:40

Tx. Spurious NVNT ax40 2452MHz Ant2 Emission_MIMO



Date: 21.OCT.2024 15:57:53

9.2 Radiated Emission Method

9.2.1 Applicable Standard

FCC Part15 C Section 15.209 and 15.205

9.2.2 Limit

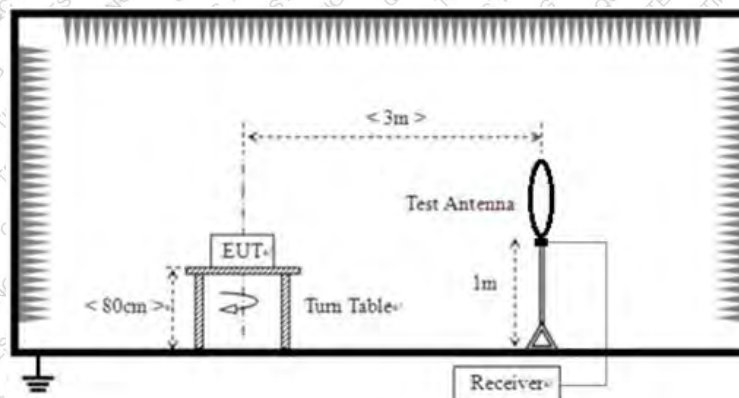
Frequency	Limit (uV/m)	Value	Measurement Distance
0.009MHz-0.490MHz	2400/F(KHz)	QP	300m
0.490MHz-1.705MHz	24000/F(KHz)	QP	30m
1.705MHz-30MHz	30	QP	30m

Frequency	Field Strengths Limits (uV/m at 3 m)	Field Strengths Limits (dBuV/m at 3 m)	Remark
30 – 88	100	40.0	Quasi-peak
88 – 216	150	43.5	Quasi-peak
216 – 960	200	46.0	Quasi-peak
Above 960	500	54.0	Quasi-peak
Above 1GHz	/	74.0	Peak
		54.0	Average

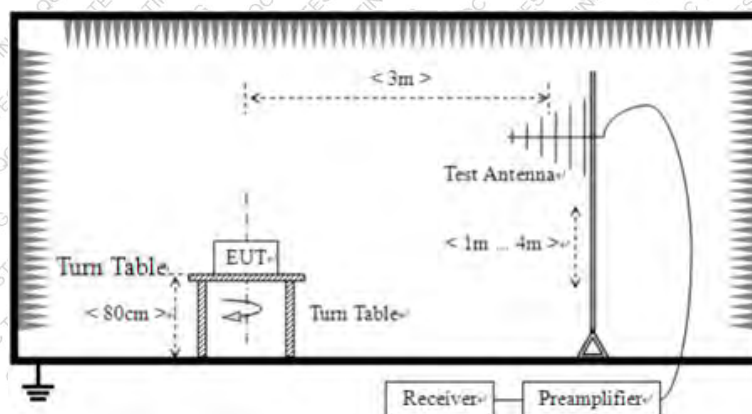
Note: $\text{dBuV/m} = 20 \log(\mu\text{V/m})$

9.2.3 Test setup

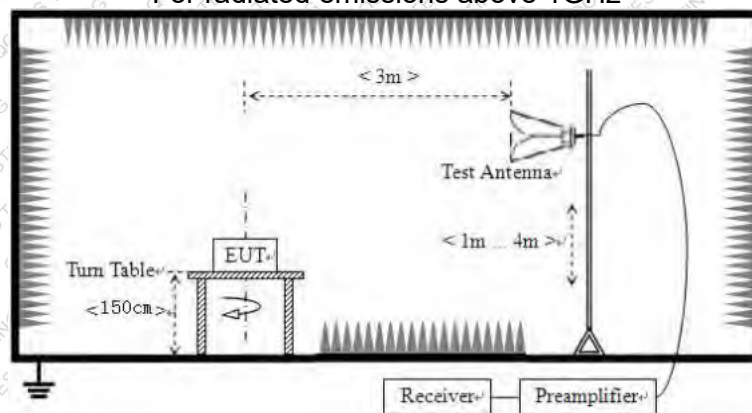
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



9.2.4 EMI Test Receiver Setup

Frequency	RBW	VBW	IF B/W	Measurement
9KHz-150KHz	200Hz	600Hz	/	QP
150KHz-30MHz	9KHz	30KHz	/	QP
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	10 Hz	/	Average

Remark: For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission test in these three bands are based on measurements employing an average detector.

9.2.5 Test procedure

- The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.



- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

9.2.6 Test Data

Temperature	26 °C	Humidity	54 %
ATM Pressure	101.1kPa	Antenna Gain	Ant1: 1.56dBi Ant2: 1.56dBi
Test by	LBi Li	Test result	PASS

Test voltage: AC 120V/60Hz.

Remarks:

1. During the test, pre-scan the all modulation, and found the 802.11n_MIMO modulation which it is worse case.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.
3. Data of measurement within frequency range 9kHz-30MHz, 18-26GHz are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report.

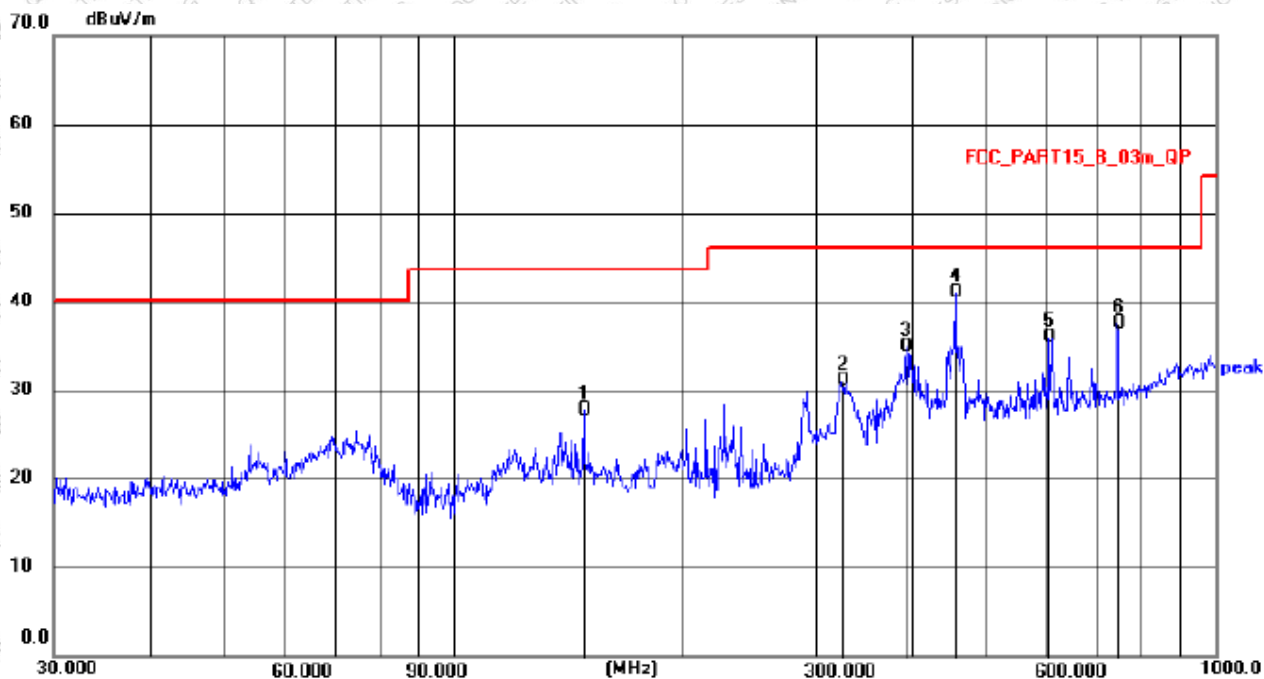


Model:DFR1091

Below 1GHz

Pre-scan all test modes, found worst case at 802.11n_MIMO mode 2412MHz, and so only show the test result of 802.11n_MIMO mode 2412MHz.

Horizontal:

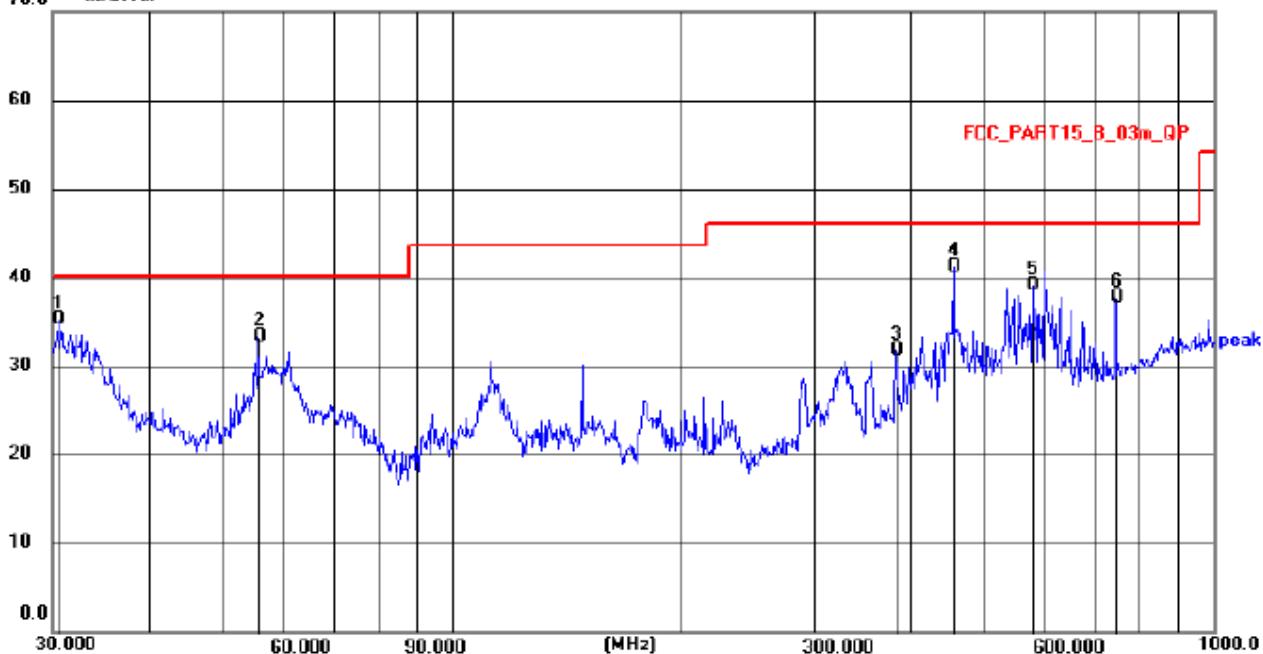


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	148.4410	13.14	14.54	27.68	43.50	15.82	QP
2	323.3204	15.66	15.32	30.98	46.00	15.02	QP
3	393.4723	17.27	17.59	34.86	46.00	11.14	QP
4 *	455.9058	21.91	19.06	40.97	46.00	5.03	QP
5	605.6592	14.71	21.32	36.03	46.00	9.97	QP
6	742.2587	13.96	23.61	37.57	46.00	8.43	QP



Vertical:

70.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	30.4238	22.17	13.09	35.26	40.00	4.74	QP
2	55.8047	19.05	14.21	33.26	40.00	6.74	QP
3	382.5879	14.45	17.24	31.69	46.00	14.31	QP
4	455.9057	22.12	19.06	41.18	46.00	4.82	QP
5	578.6699	18.12	20.97	39.09	46.00	6.91	QP
6	742.2587	14.03	23.61	37.64	46.00	8.36	QP

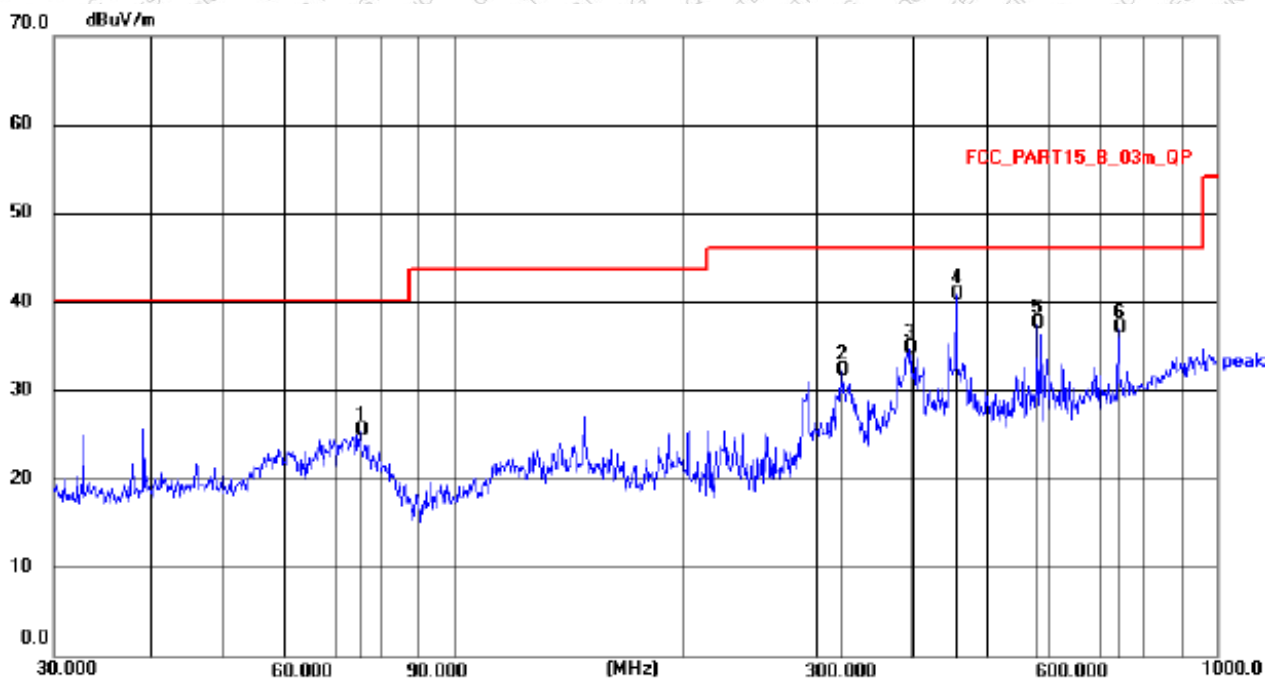


Model:DFR1081

Below 1GHz

Pre-scan all test modes, found worst case at 802.11n_MIMO mode 2412MHz, and so only show the test result of 802.11n_MIMO mode 2412MHz.

Horizontal:

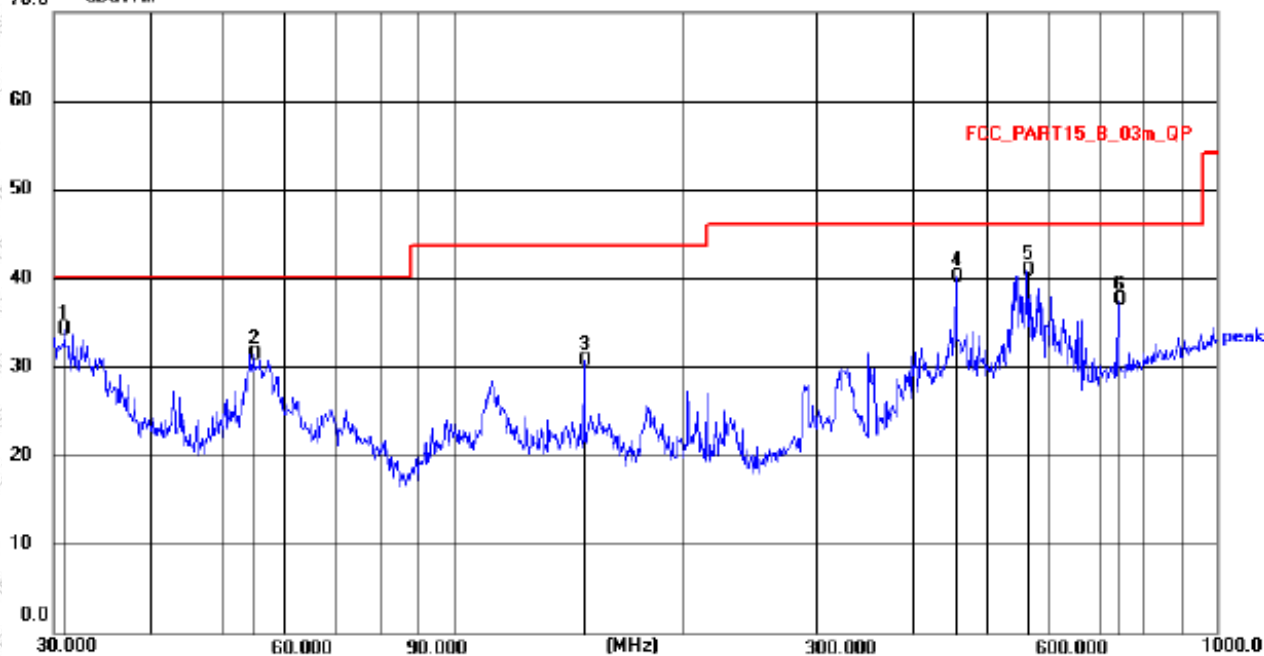


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	75.4464	14.22	11.29	25.51	40.00	14.49	QP
2	322.1886	16.98	15.28	32.26	46.00	13.74	QP
3	394.8545	17.12	17.64	34.76	46.00	11.24	QP
4 *	455.9057	21.75	19.06	40.81	46.00	5.19	QP
5	580.7026	16.61	21.00	37.61	46.00	8.39	QP
6	742.2587	13.45	23.61	37.06	46.00	8.94	QP



Vertical:

70.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.9618	21.55	12.62	34.17	40.00	5.83	QP
2	54.8348	17.44	14.03	31.47	40.00	8.53	QP
3	148.4410	16.33	14.35	30.68	43.50	12.82	QP
4	455.9057	21.45	18.69	40.14	46.00	5.86	QP
5 *	564.6388	20.19	20.69	40.88	46.00	5.12	QP
6	742.2587	13.90	23.62	37.52	46.00	8.48	QP

**Above 1GHz:**

Pre-scan all test modes, found worst case at 802.11n_MIMO mode, and so only show the test result of 802.11n_MIMO mode.

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector
11n20 MIMO Low Channel							
2310	53.09	H	-11.46	41.63	74	32.37	peak
2310	51.24	V	-11.46	39.78	74	34.22	peak
2390	56.07	H	-11.16	44.91	74	29.09	peak
2390	56.12	V	-11.16	44.96	74	29.04	peak
4824	51.45	H	-5.90	45.55	74	28.45	peak
4824	51.68	V	-5.90	45.78	74	28.22	peak
11n20 MIMO Middle Channel							
4874	52.75	H	-5.73	47.02	74	26.98	peak
4874	52.41	V	-5.73	46.68	74	27.32	peak
11n20 MIMO High Channel							
2483.5	55.94	H	-10.81	45.13	74	28.87	peak
2483.5	54.47	V	-10.81	43.66	74	30.34	peak
2500	55.04	H	-10.75	44.29	74	29.71	peak
2500	53.59	V	-10.75	42.84	74	31.16	peak
4924	52.96	H	-5.56	47.40	74	26.60	peak
4924	52.77	V	-5.56	47.21	74	26.79	peak
11n40 MIMO Low Channel							
2310	53.52	H	-11.46	42.06	74	31.94	peak
2310	51.30	V	-11.46	39.84	74	34.16	peak
2390	55.34	H	-11.16	44.18	74	29.82	peak
2390	54.82	V	-11.16	43.66	74	30.34	peak
4844	51.38	H	-5.85	45.53	74	28.47	peak
4844	51.08	V	-5.85	45.23	74	28.77	peak
11n40 MIMO Middle Channel							
4874	52.39	H	-5.73	46.66	74	27.34	peak
4874	51.74	V	-5.73	46.01	74	27.99	peak
11n40 MIMO High Channel							
2483.5	54.61	H	-10.81	43.80	74	30.20	peak
2483.5	53.96	V	-10.81	43.15	74	30.85	peak
2500	55.18	H	-10.75	44.43	74	29.57	peak
2500	53.72	V	-10.75	42.97	74	31.03	peak
4904	52.71	H	-5.64	47.07	74	26.93	peak
4904	52.26	V	-5.64	46.62	74	27.38	peak

Remarks:

1. Level = Receiver Read level + Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. If the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.
4. For MIMO devices refer to KDB Publication 662911 D01.

----- THE END OF TEST REPORT -----