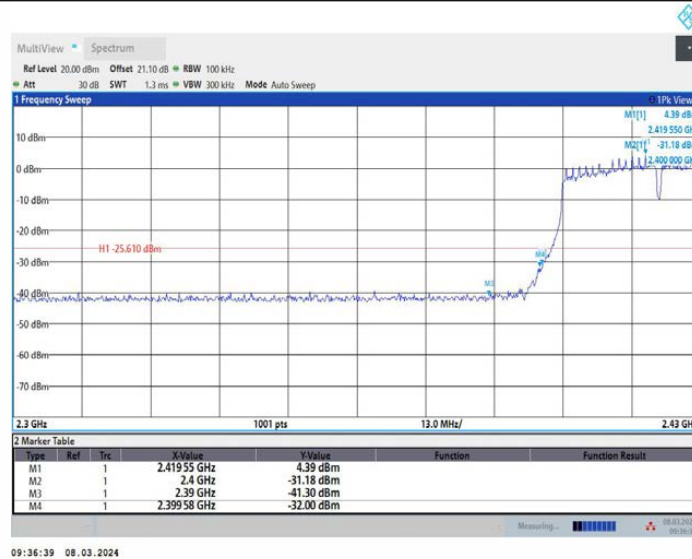


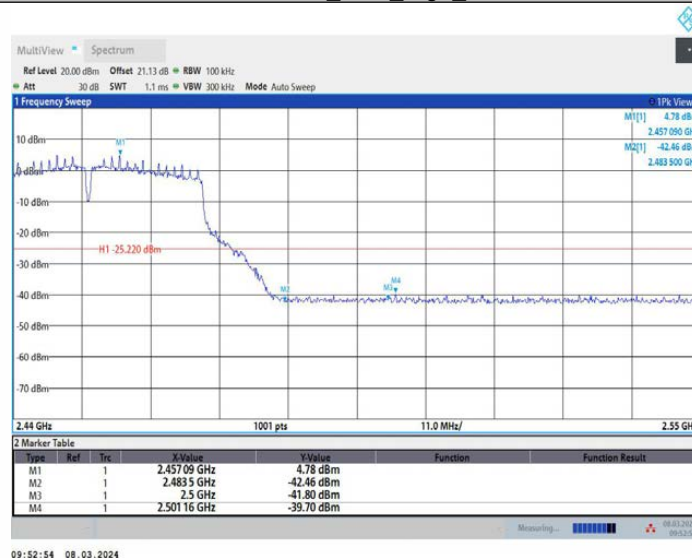
11N40MIMO_Ant1_Low_2422



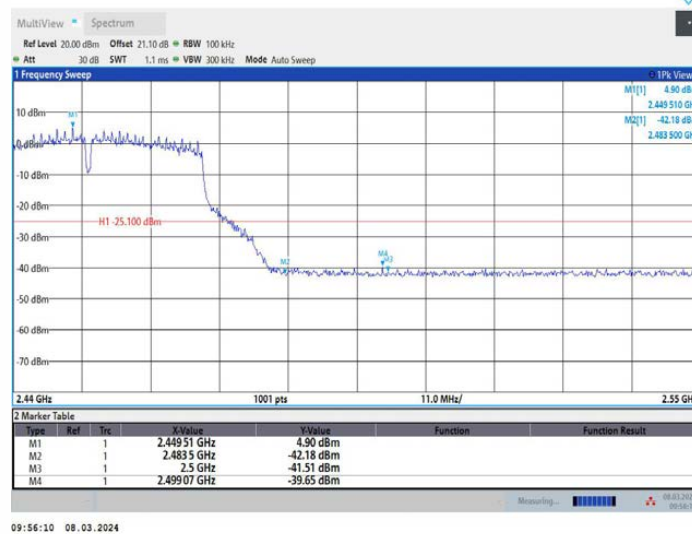
11N40MIMO_Ant2_Low_2422



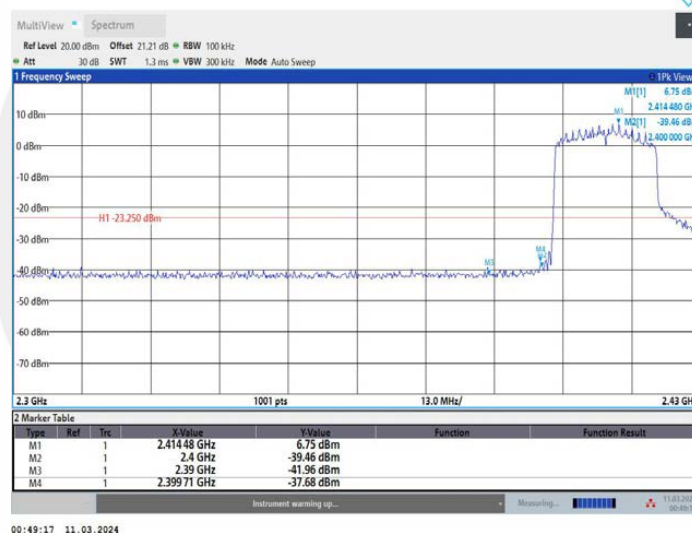
11N40MIMO_Ant1_High_2452



11N40MIMO_Ant2_High_2452



11AX20MIMO_Ant1_Low_2412



11AX20MIMO_Ant2_Low_2412



11AX20MIMO_Ant1_High_2462



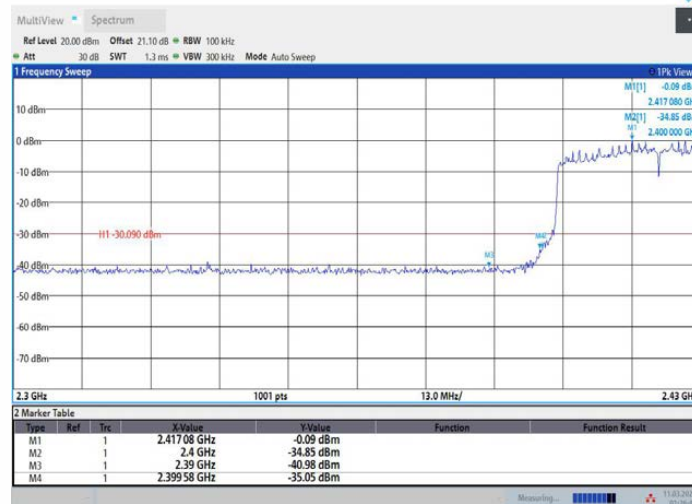
01:05:36 11.03.2024

11AX20MIMO_Ant2_High_2462



01:11:59 11.03.2024

11AX40MIMO_Ant1_Low_2422



01:26:48 11.03.2024

11AX40MIMO_Ant2_Low_2422



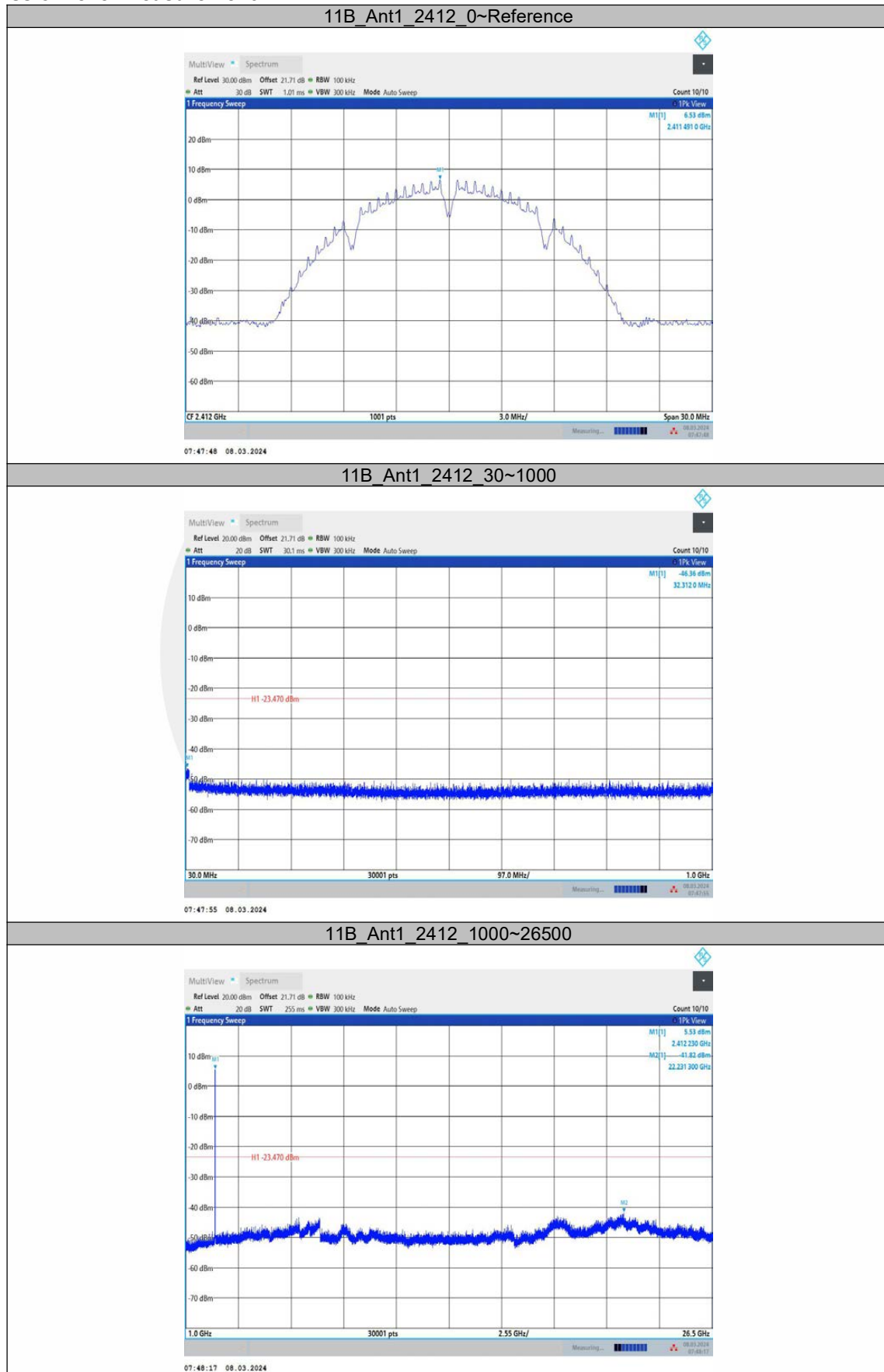
11AX40MIMO_Ant1_High_2452



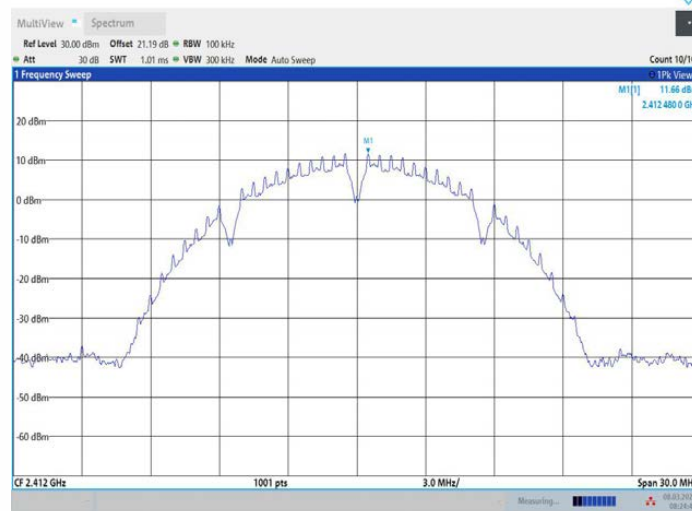
11AX40MIMO_Ant2_High_2452



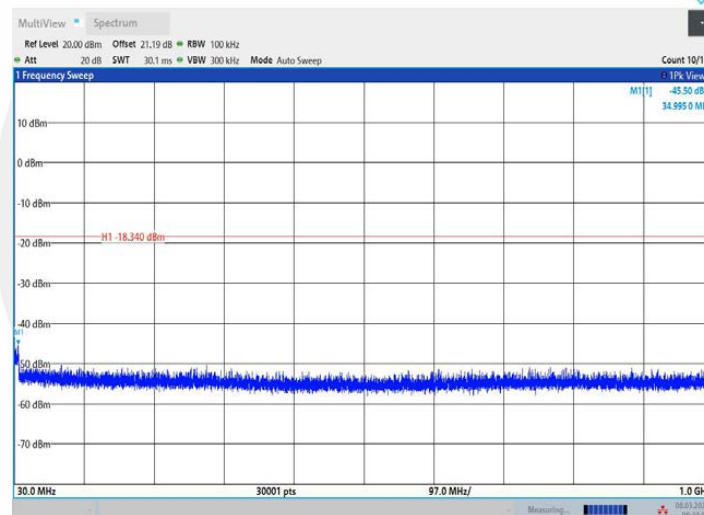
Emission level measurement



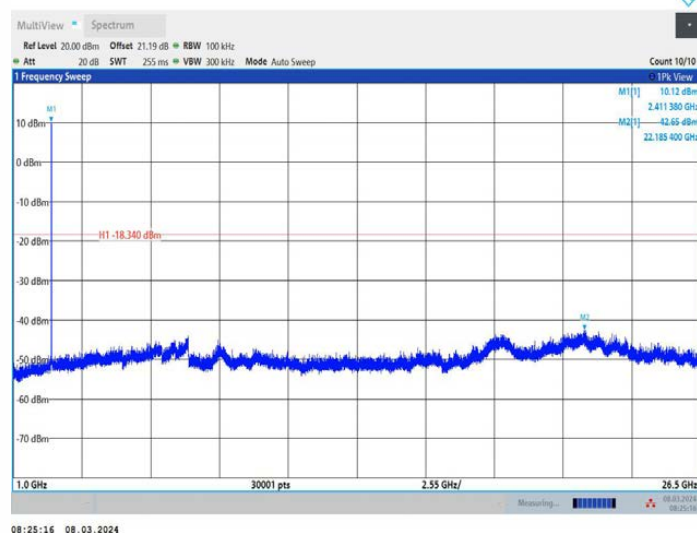
11B_Ant2_2412_0~Reference



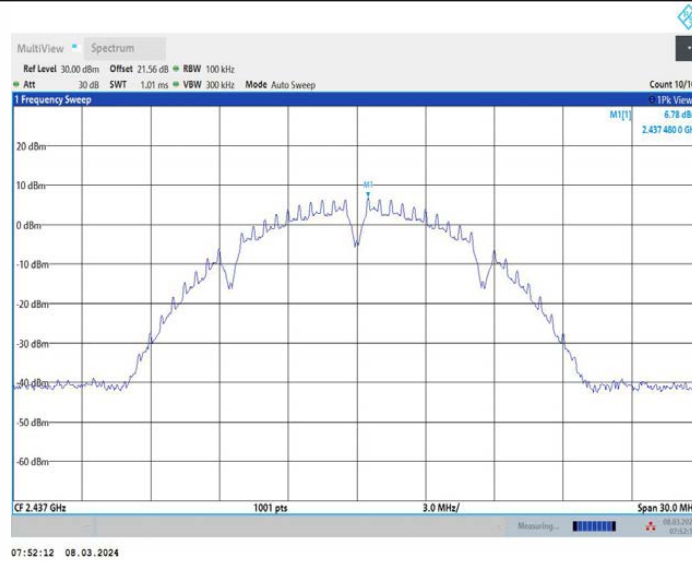
11B_Ant2_2412_30~1000



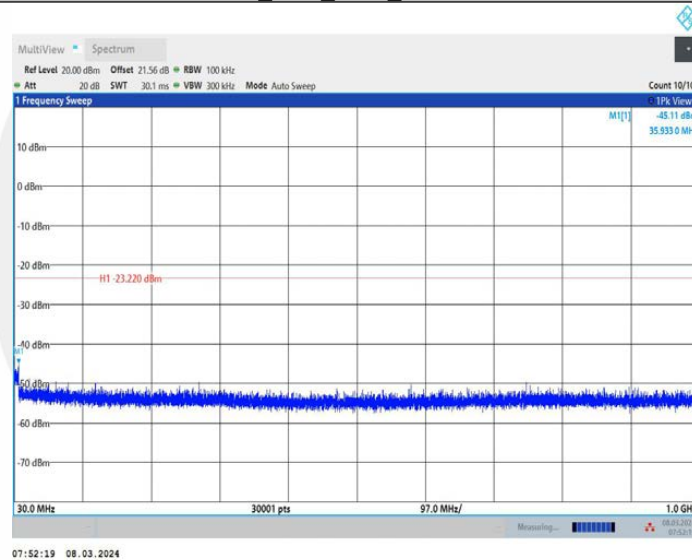
11B_Ant2_2412_1000~26500



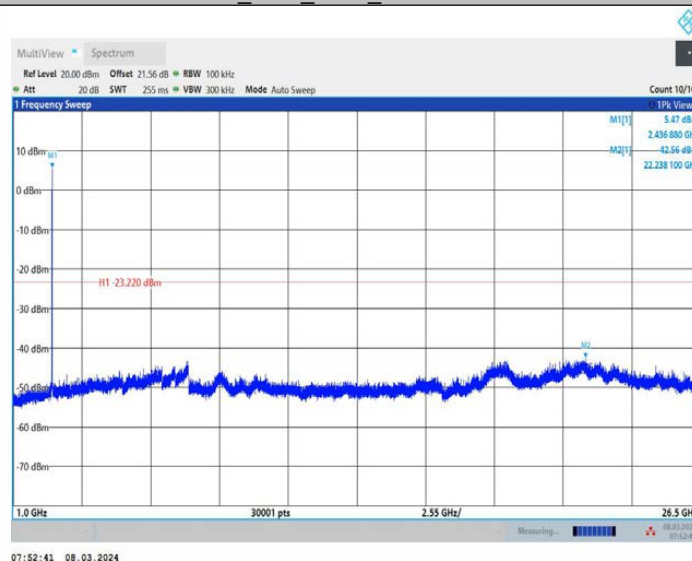
11B_Ant1_2437_0~Reference



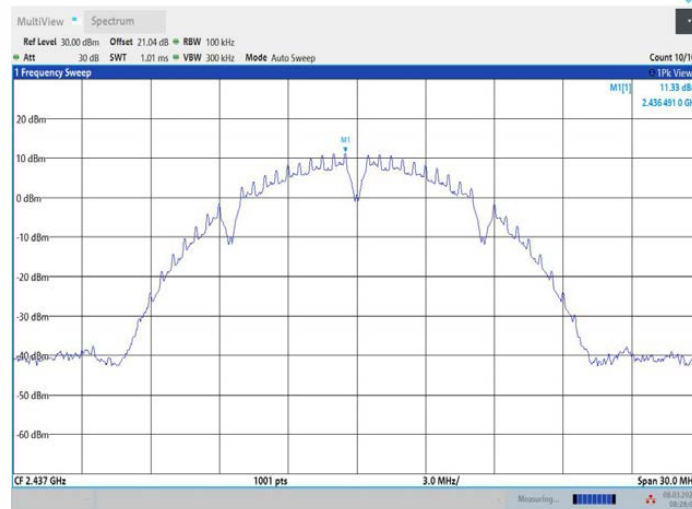
11B_Ant1_2437_30~1000



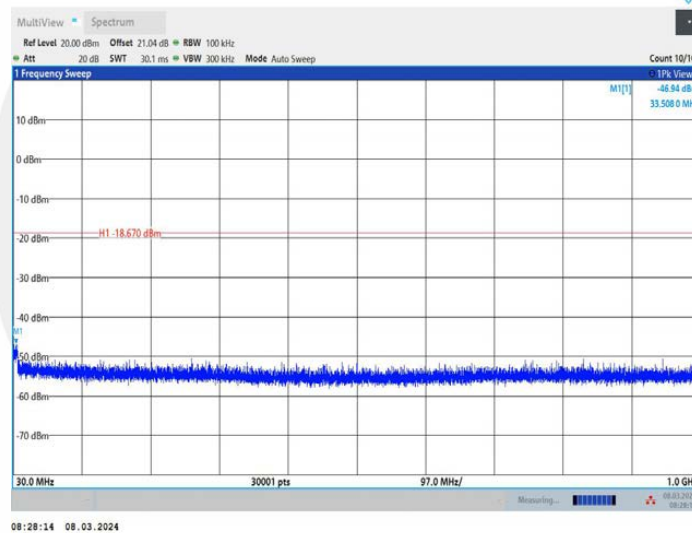
11B_Ant1_2437_1000~26500



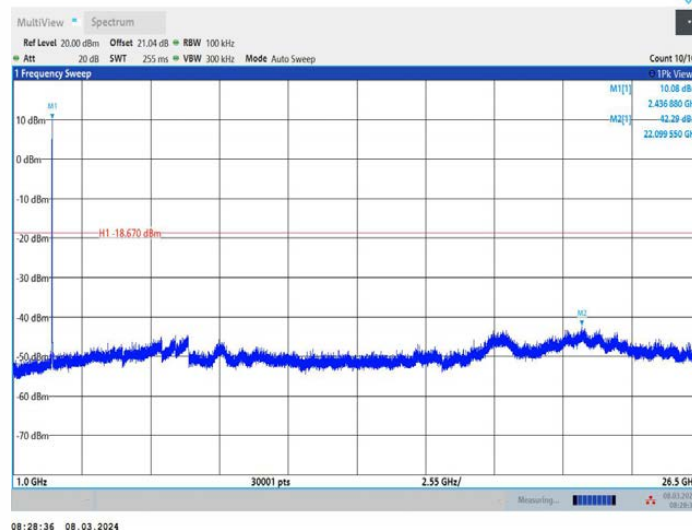
11B_Ant2_2437_0~Reference



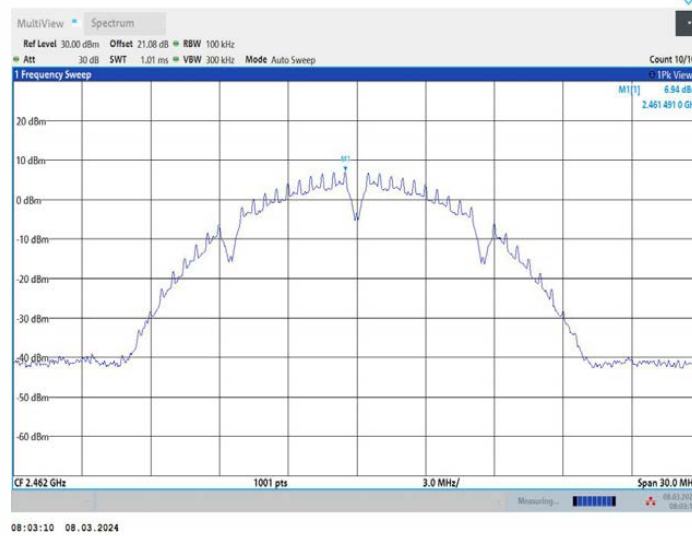
11B_Ant2_2437_30~1000



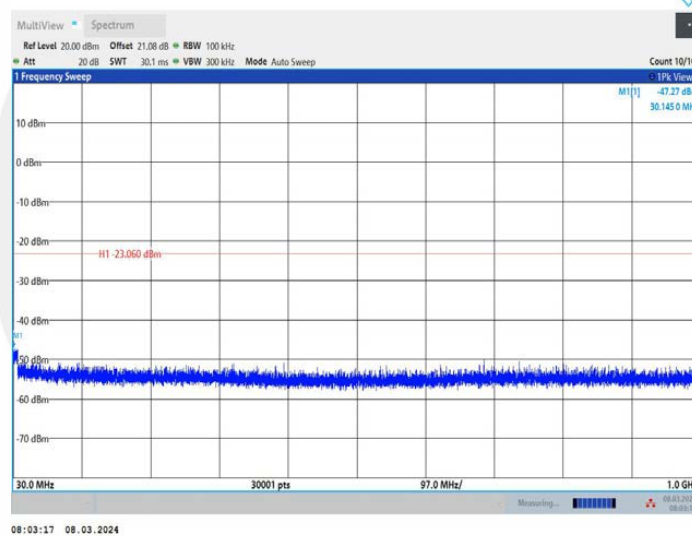
11B_Ant2_2437_1000~26500



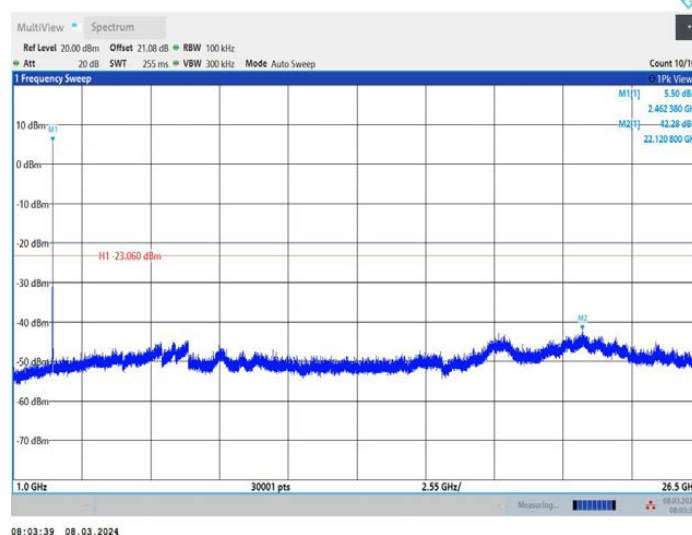
11B_Ant1_2462_0~Reference



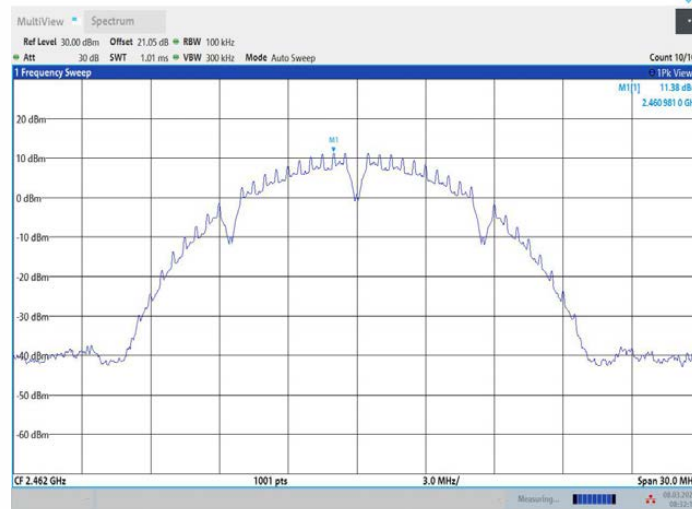
11B_Ant1_2462_30~1000



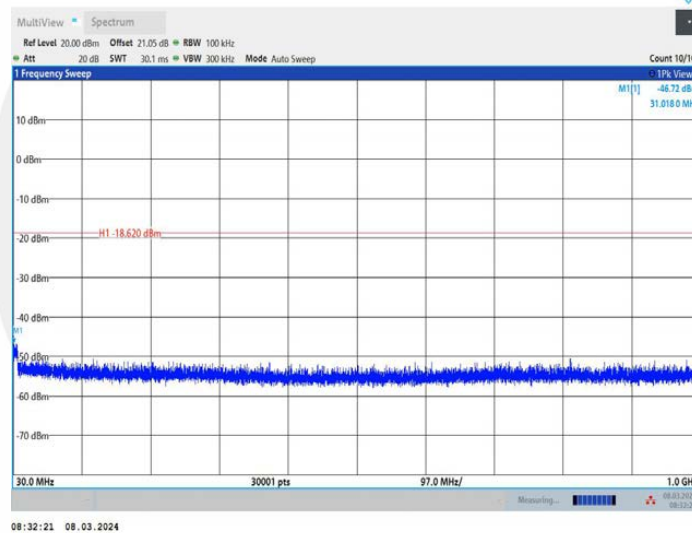
11B_Ant1_2462_1000~26500



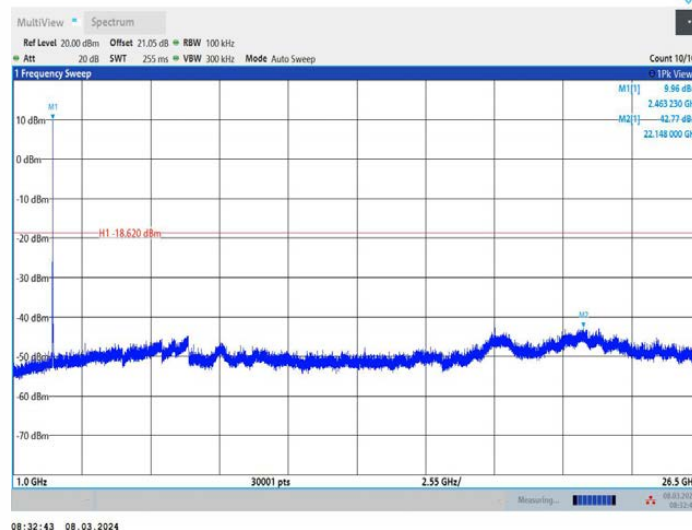
11B_Ant2_2462_0~Reference



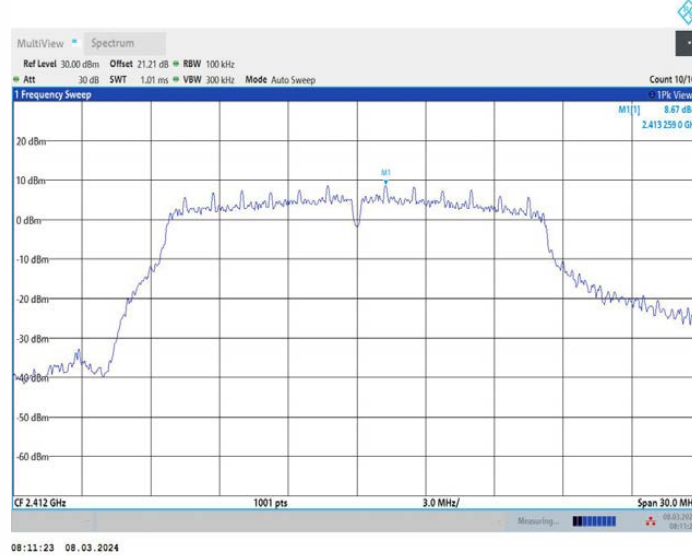
11B_Ant2_2462_30~1000



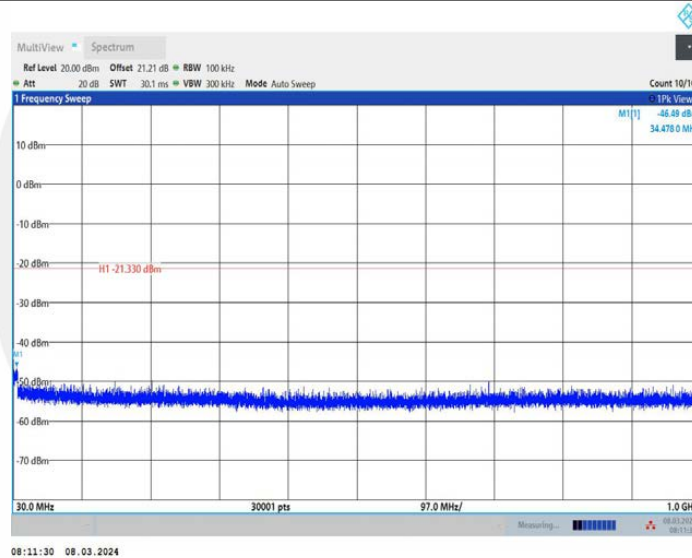
11B_Ant2_2462_1000~26500



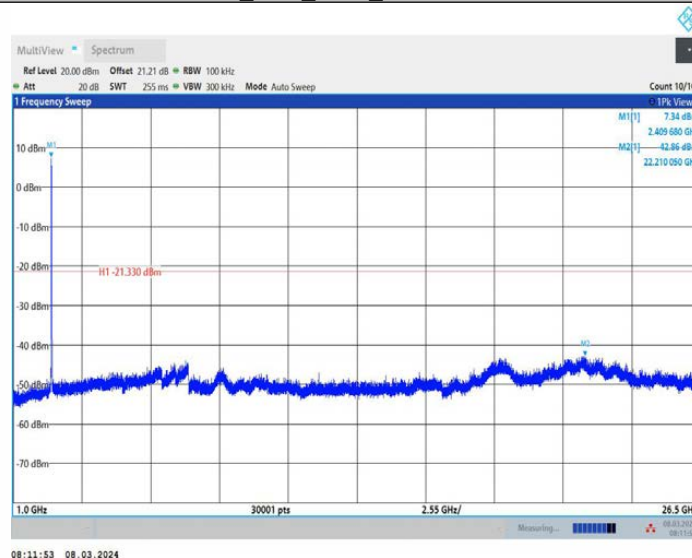
11G_Ant1_2412_0~Reference



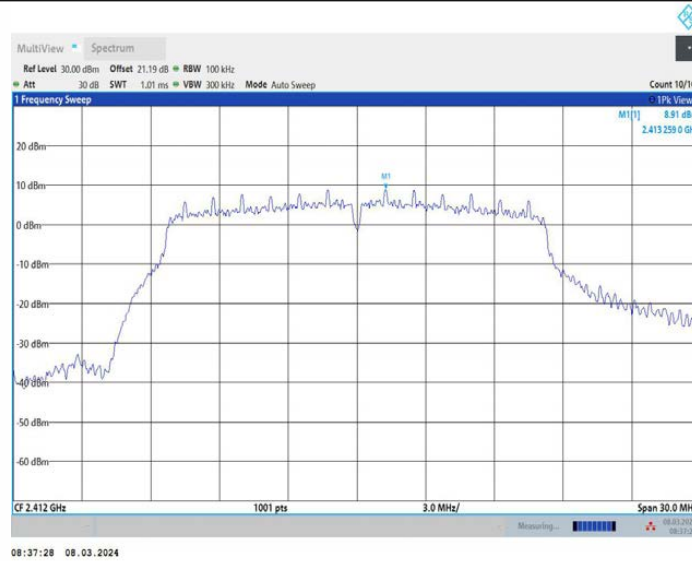
11G_Ant1_2412_30~1000



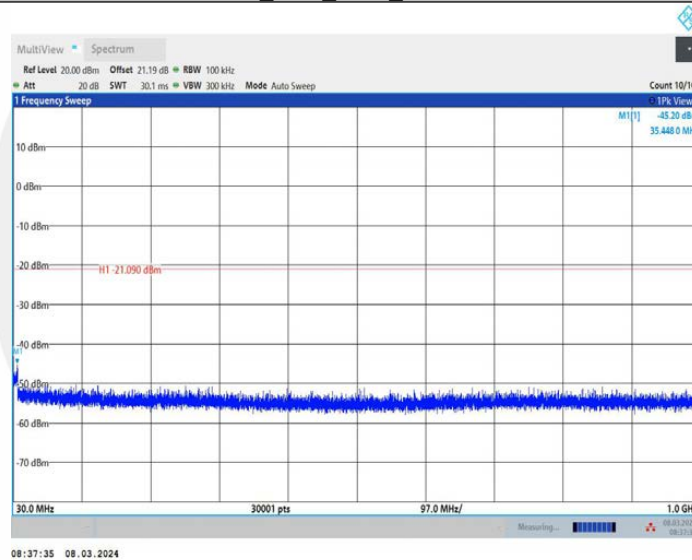
11G_Ant1_2412_1000~26500



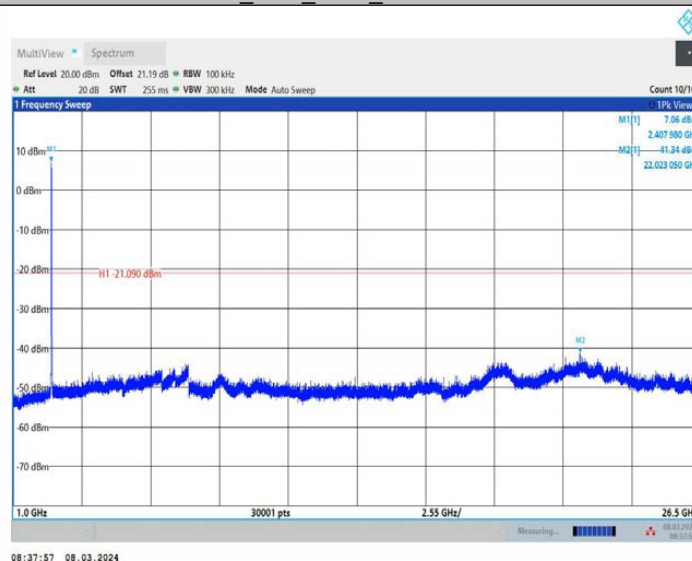
11G_Ant2_2412_0~Reference



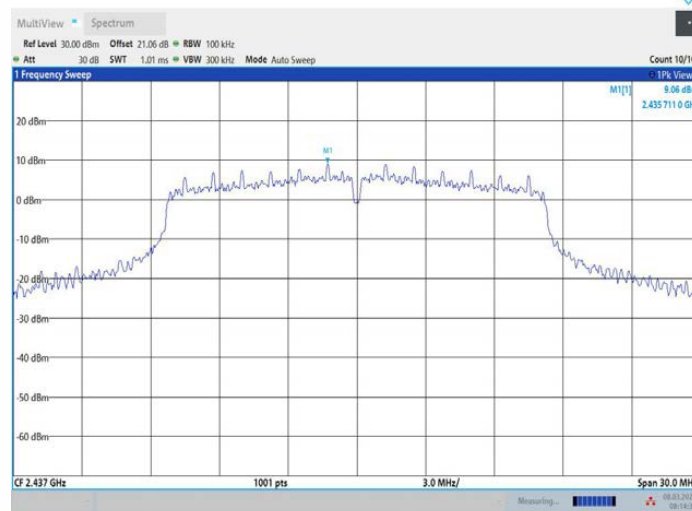
11G_Ant2_2412_30~1000



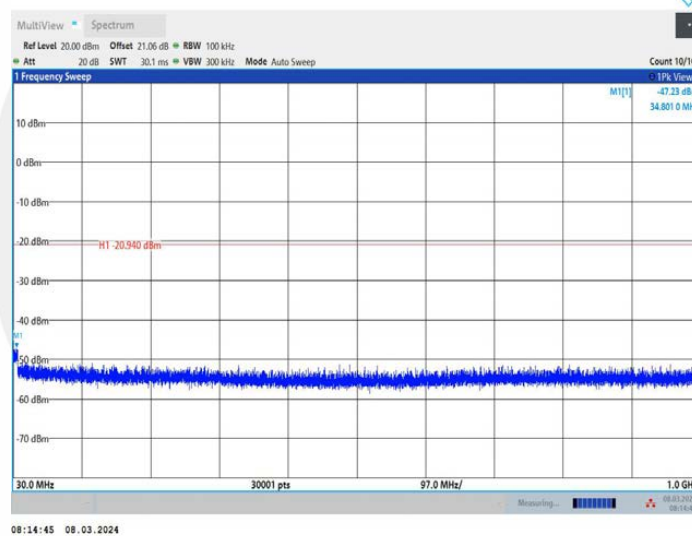
11G_Ant2_2412_1000~26500



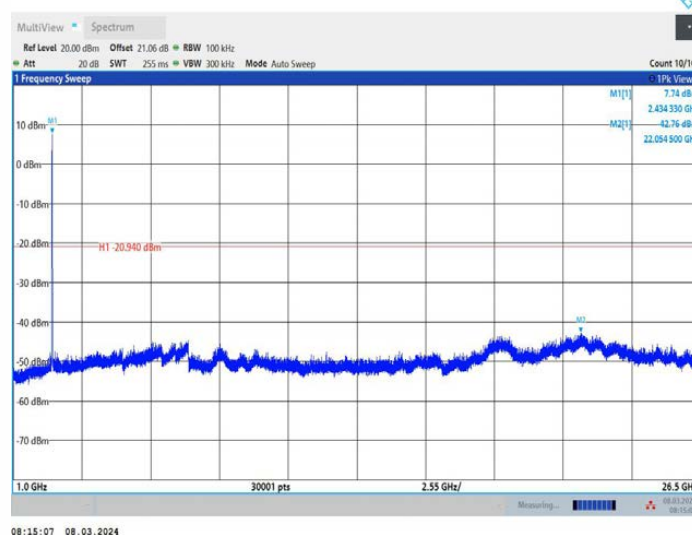
11G_Ant1_2437_0~Reference



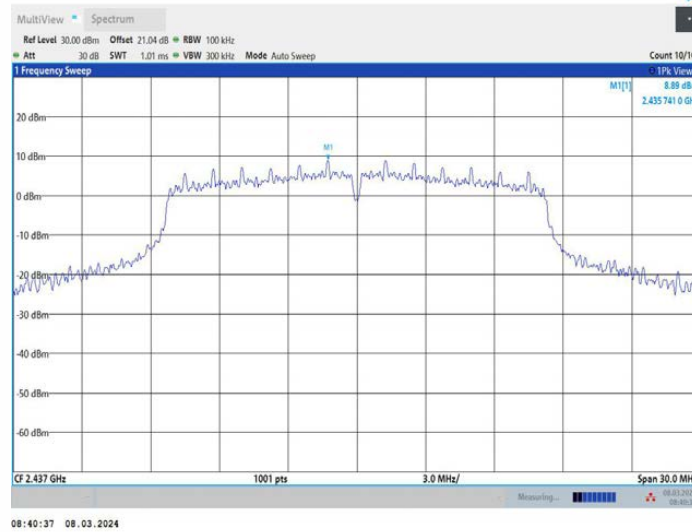
11G_Ant1_2437_30~1000



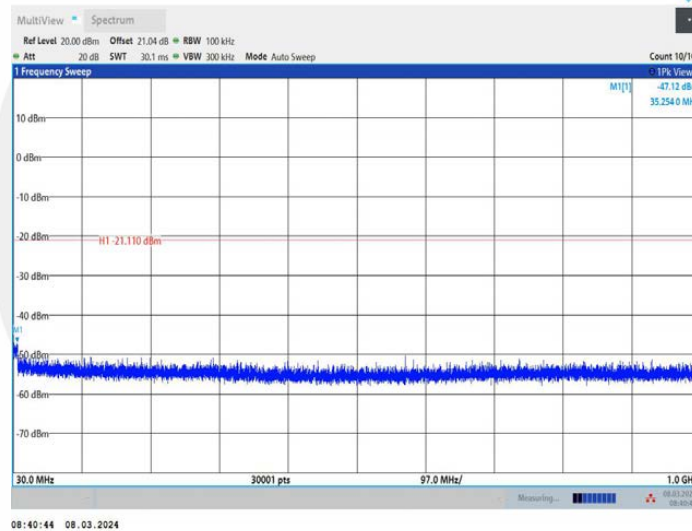
11G_Ant1_2437_1000~26500



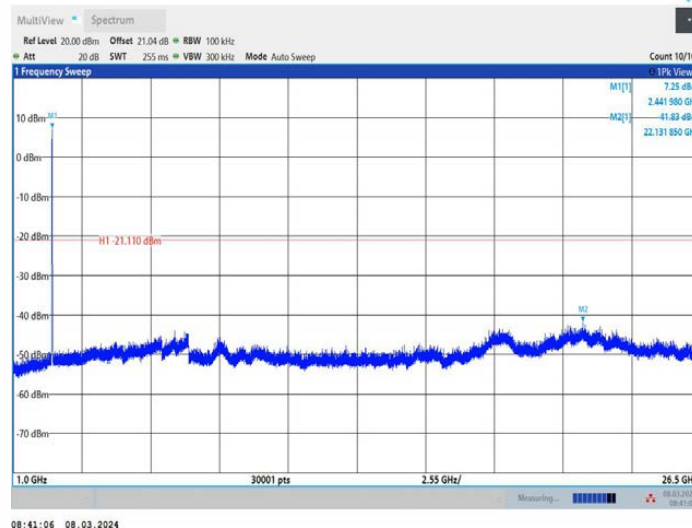
11G_Ant2_2437_0~Reference



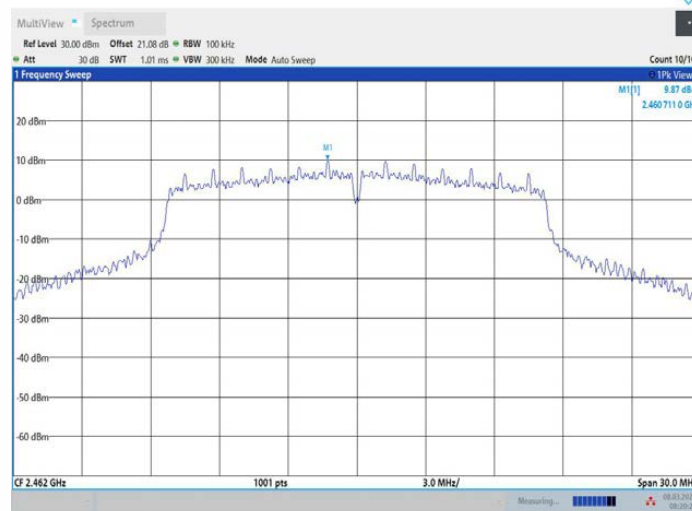
11G_Ant2_2437_30~1000



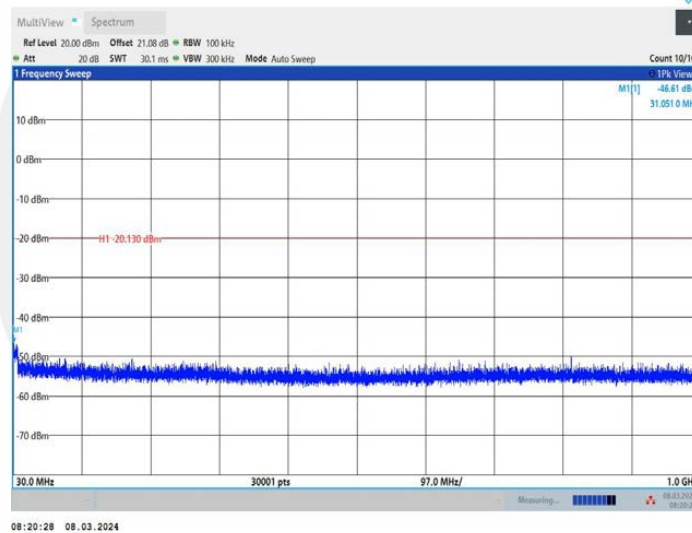
11G_Ant2_2437_1000~26500



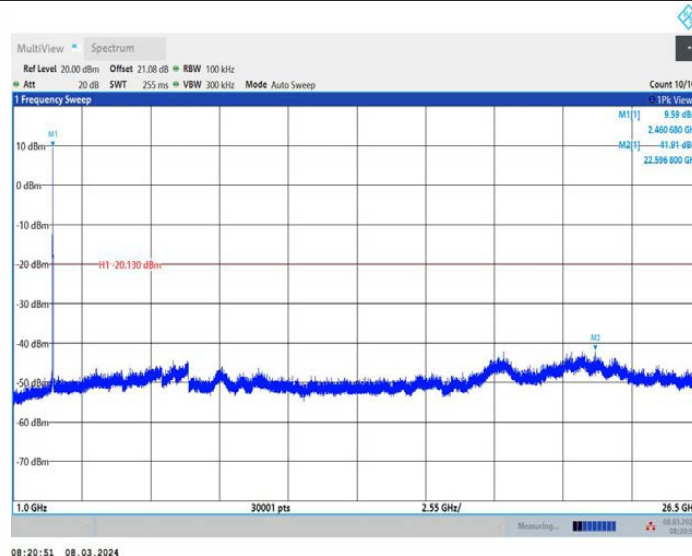
11G_Ant1_2462_0~Reference



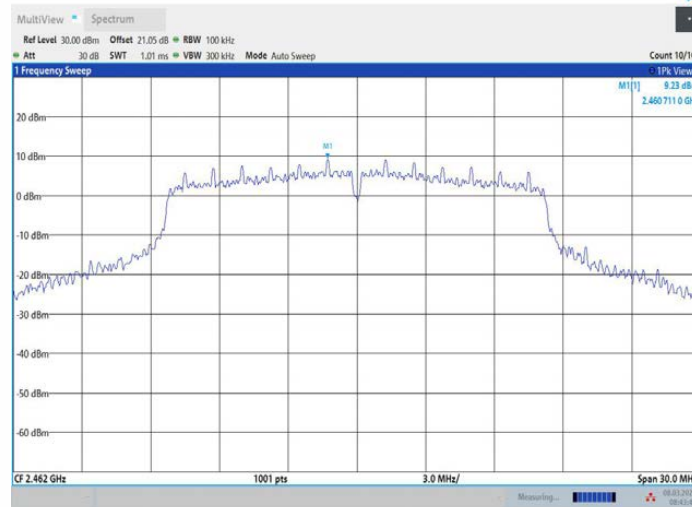
11G_Ant1_2462_30~1000



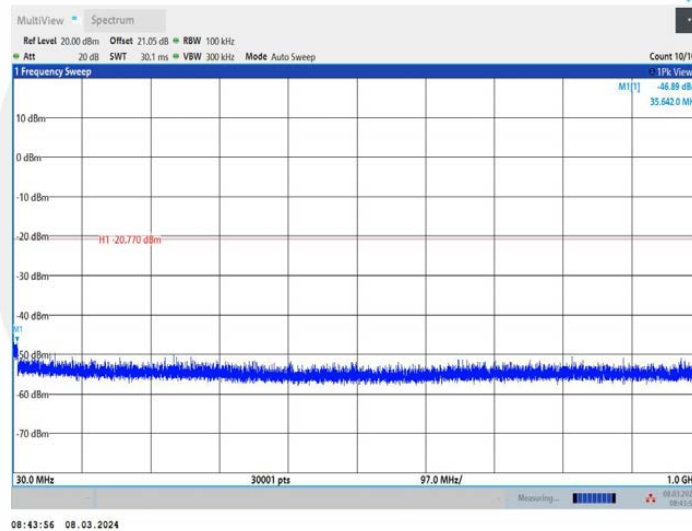
11G_Ant1_2462_1000~26500



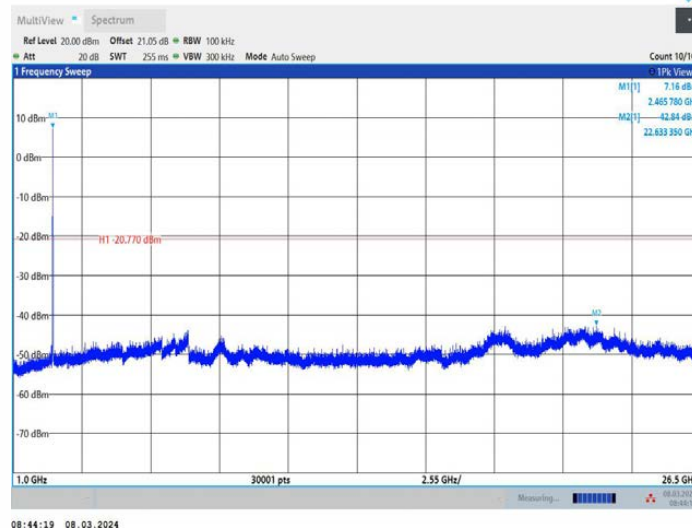
11G_Ant2_2462_0~Reference



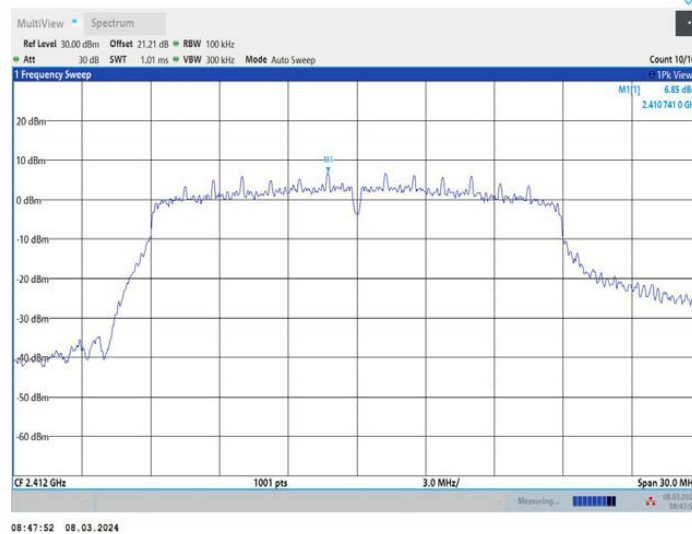
11G_Ant2_2462_30~1000



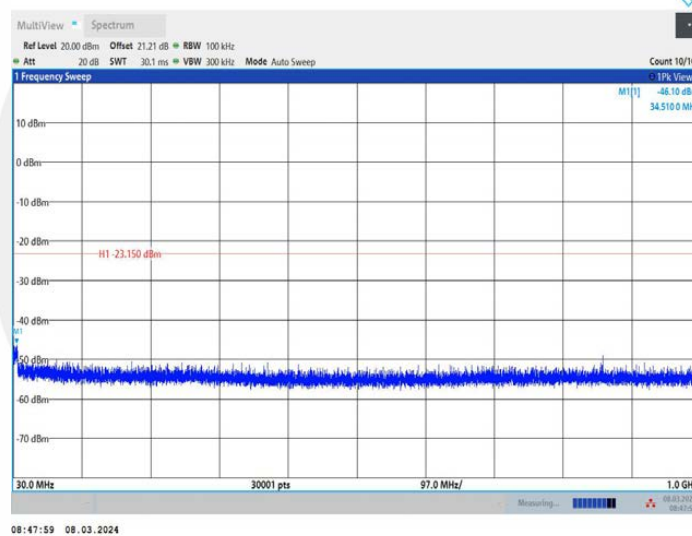
11G_Ant2_2462_1000~26500



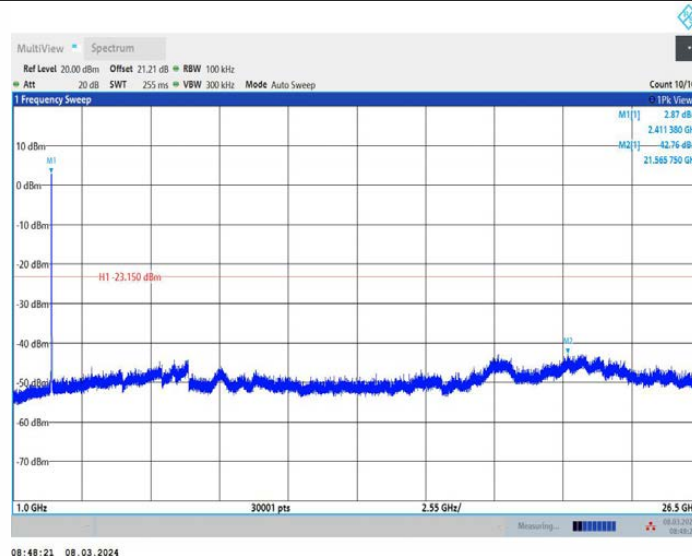
11N20MIMO_Ant1_2412_0~Reference



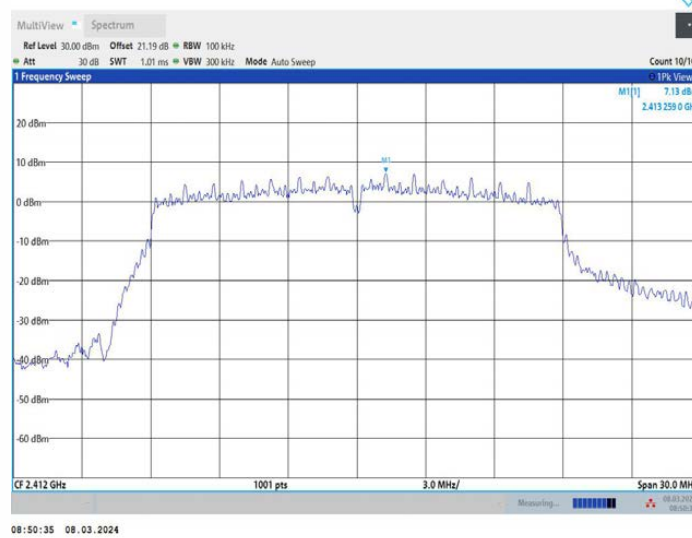
11N20MIMO_Ant1_2412_30~1000



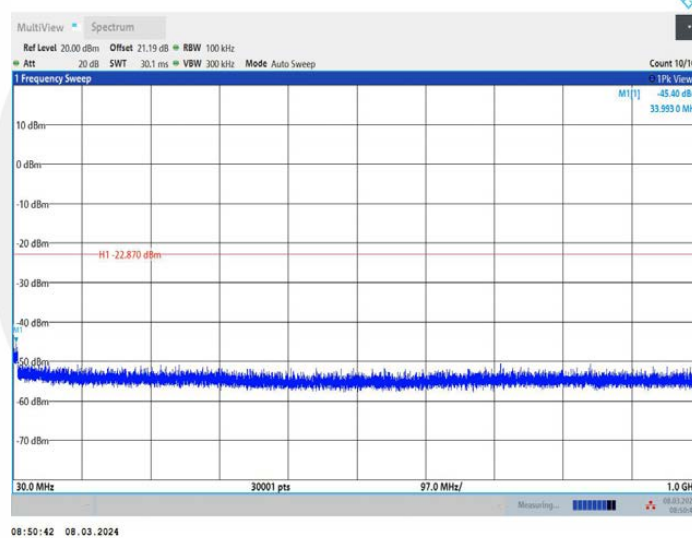
11N20MIMO_Ant1_2412_1000~26500



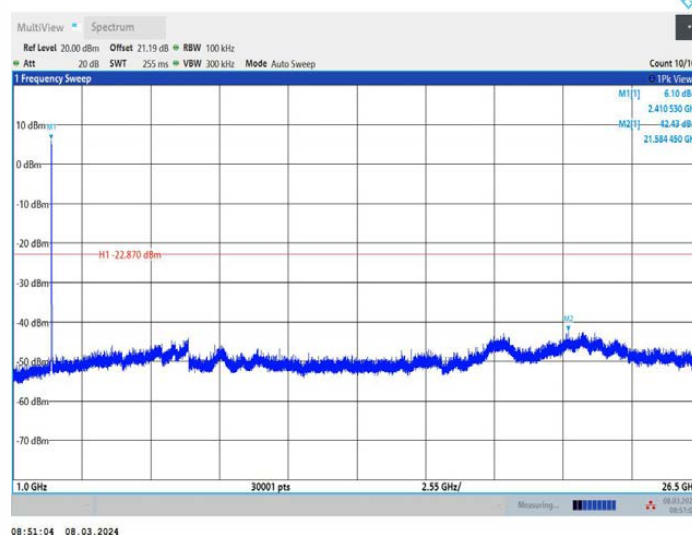
11N20MIMO_Ant2_2412_0~Reference



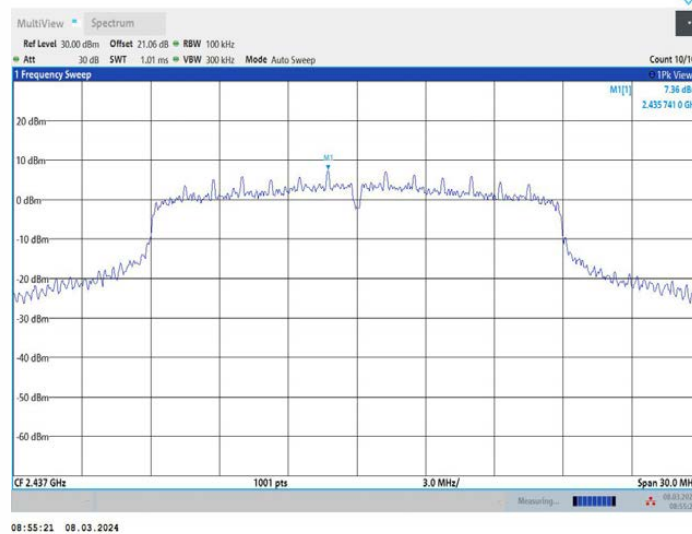
11N20MIMO_Ant2_2412_30~1000



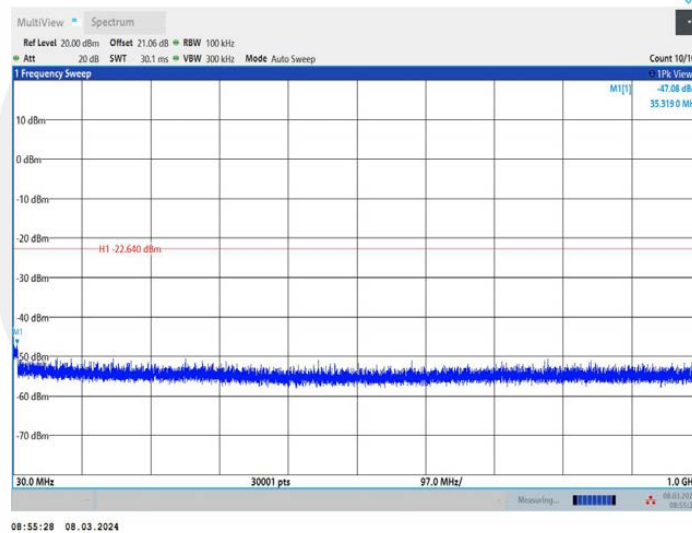
11N20MIMO_Ant2_2412_1000~26500



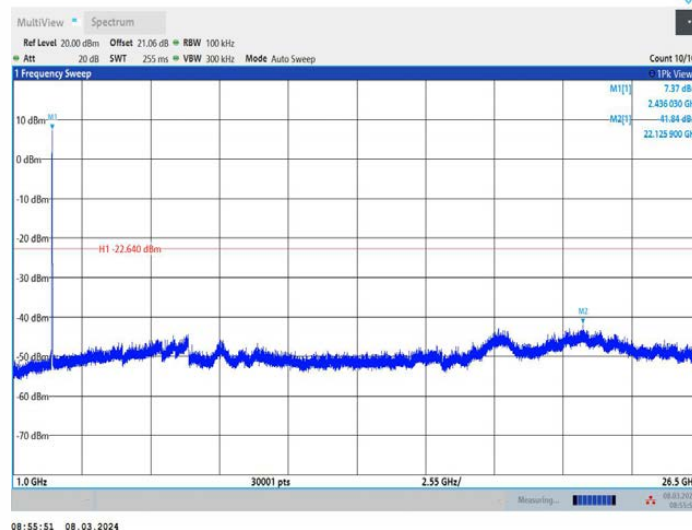
11N20MIMO_Ant1_2437_0~Reference



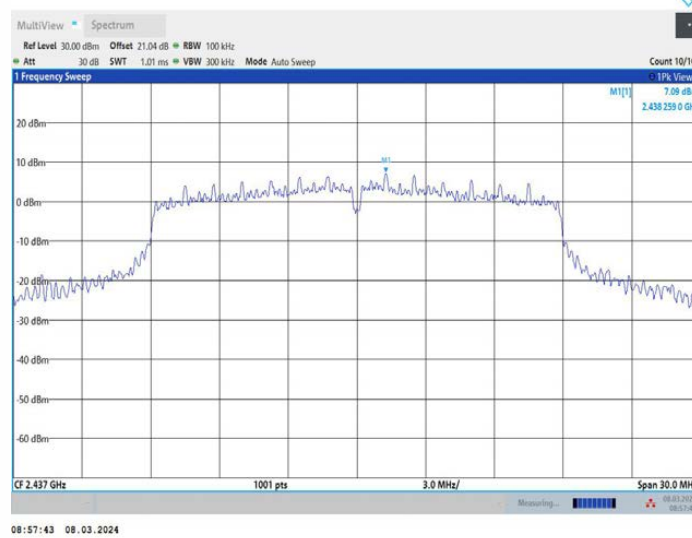
11N20MIMO_Ant1_2437_30~1000



11N20MIMO_Ant1_2437_1000~26500

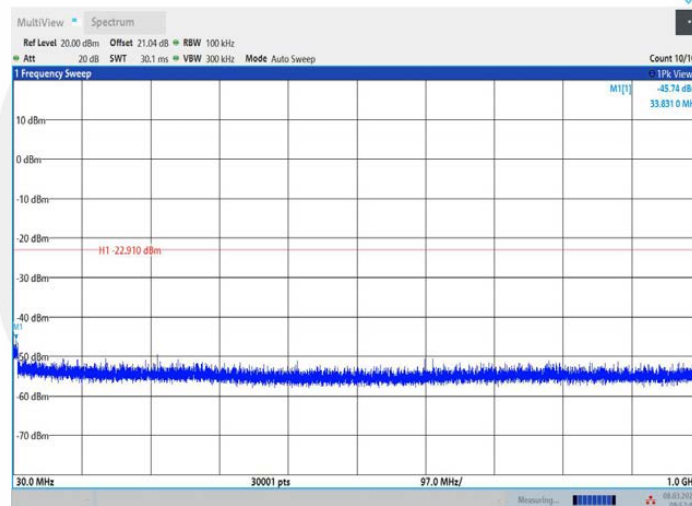


11N20MIMO_Ant2_2437_0~Reference



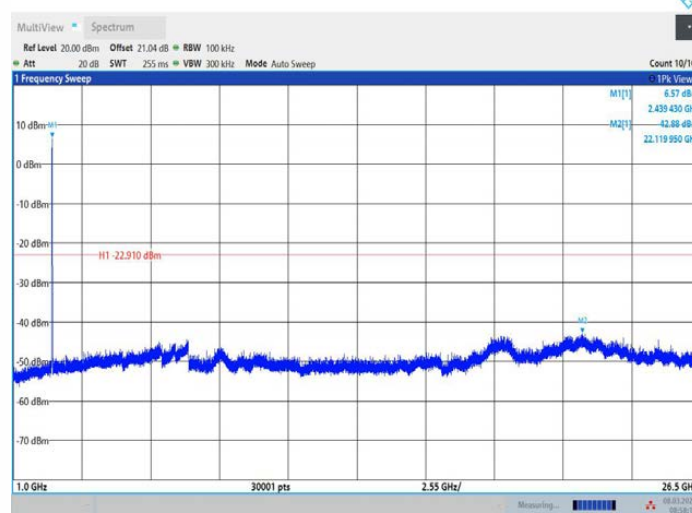
08:57:43 08.03.2024

11N20MIMO_Ant2_2437_30~1000



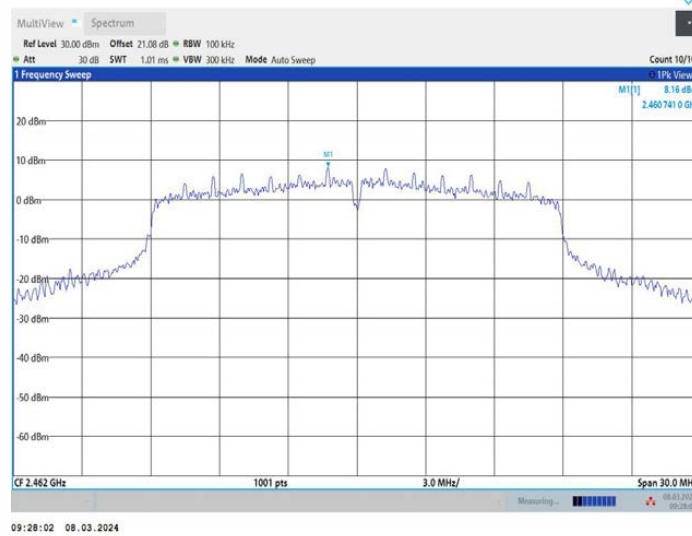
08:57:50 08.03.2024

11N20MIMO_Ant2_2437_1000~26500

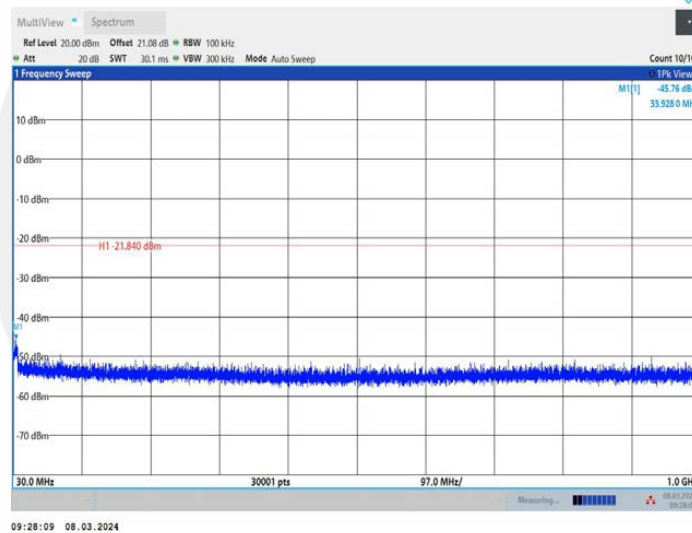


08:58:13 08.03.2024

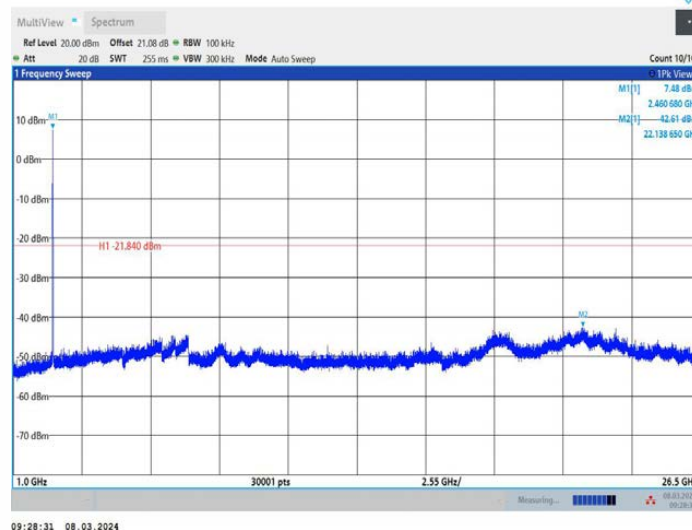
11N20MIMO_Ant1_2462_0~Reference



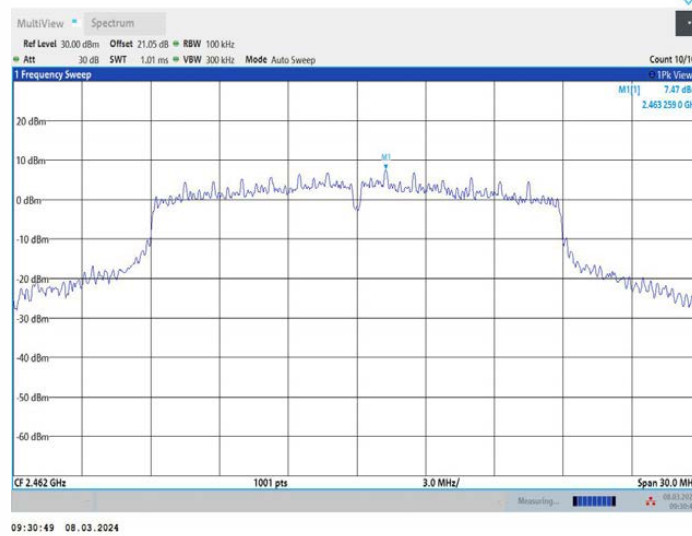
11N20MIMO_Ant1_2462_30~1000



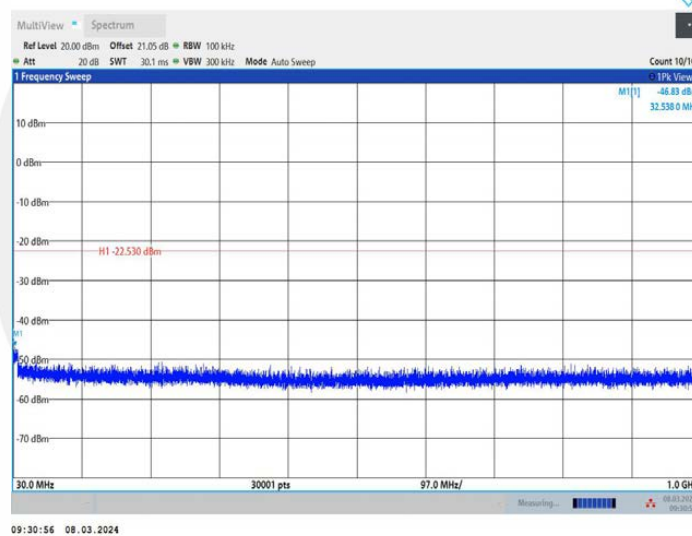
11N20MIMO_Ant1_2462_1000~26500



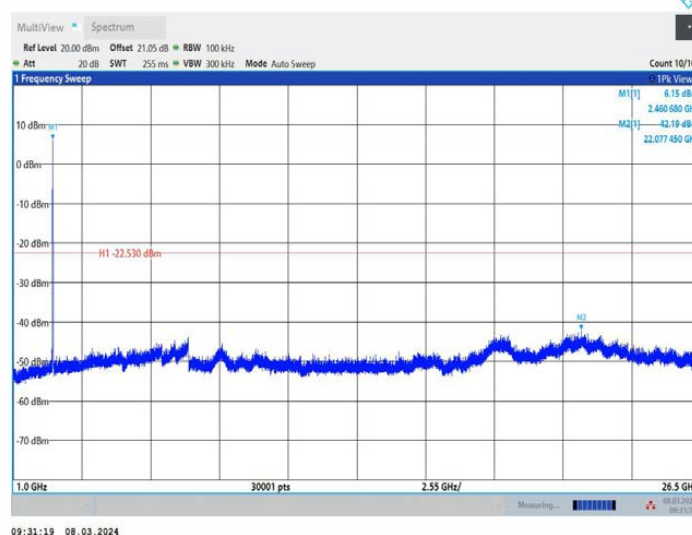
11N20MIMO_Ant2_2462_0~Reference



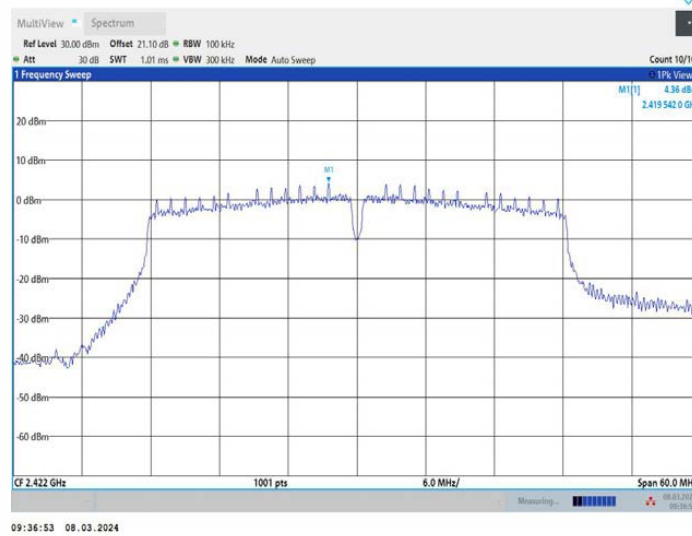
11N20MIMO_Ant2_2462_30~1000



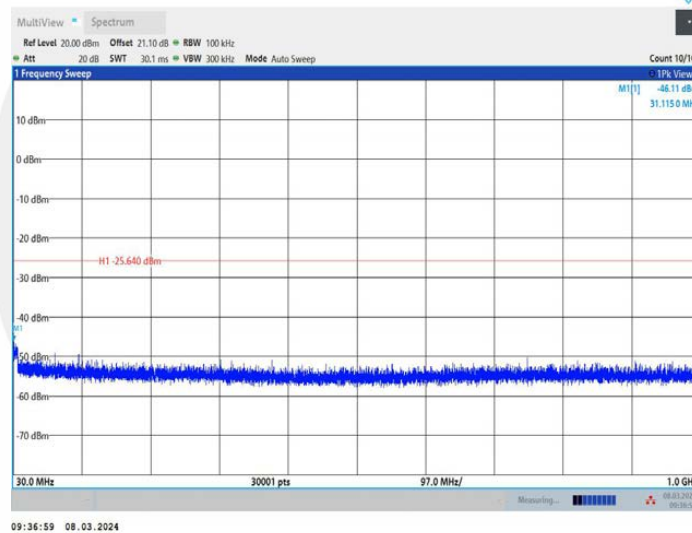
11N20MIMO_Ant2_2462_1000~26500



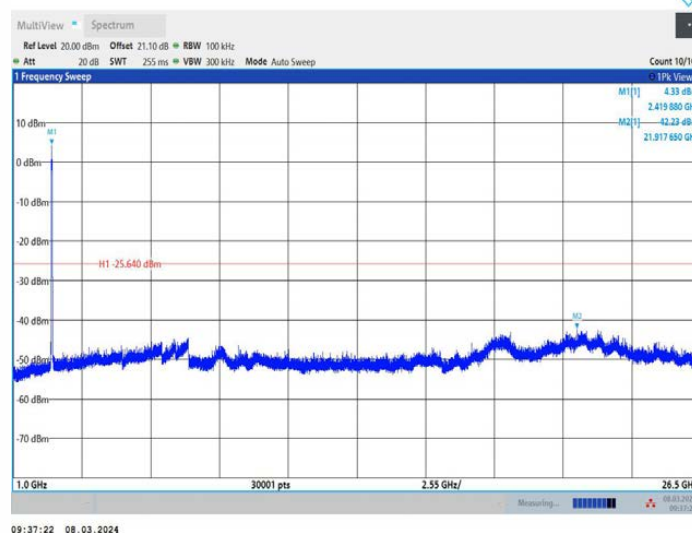
11N40MIMO_Ant1_2422_0~Reference



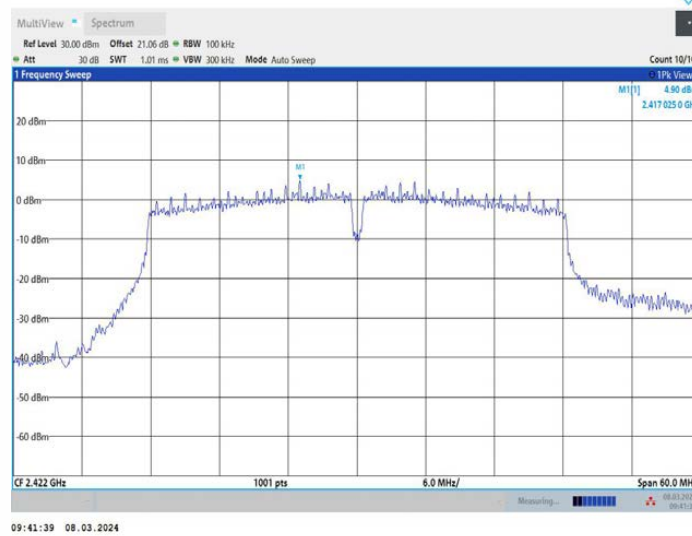
11N40MIMO_Ant1_2422_30~1000



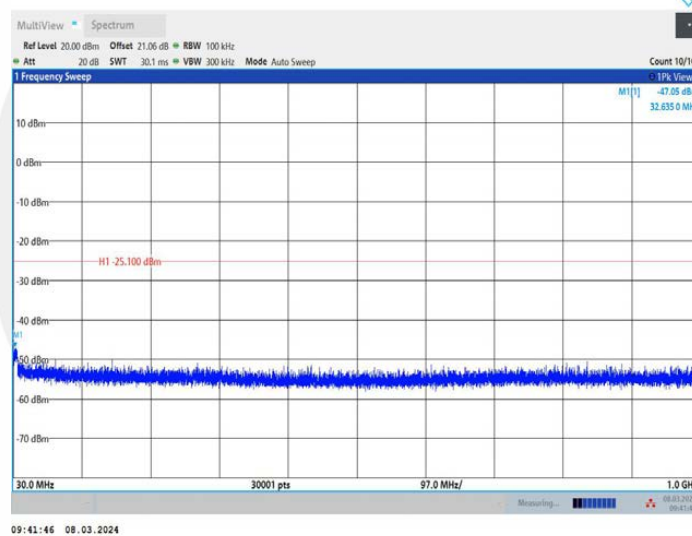
11N40MIMO_Ant1_2422_1000~26500



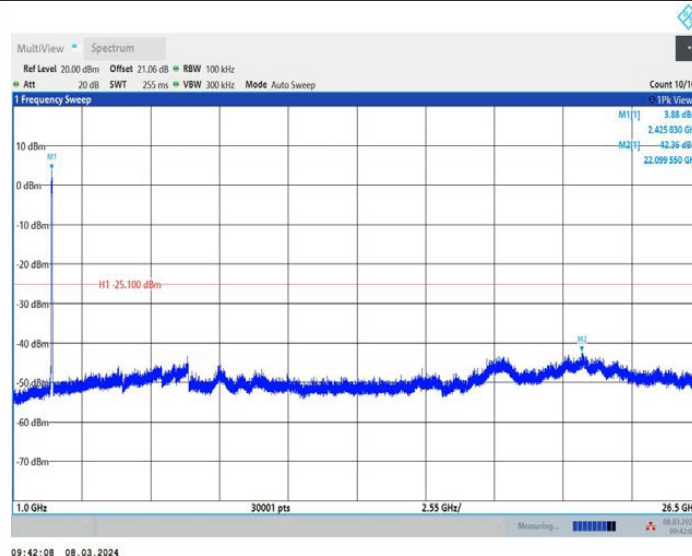
11N40MIMO_Ant2_2422_0~Reference



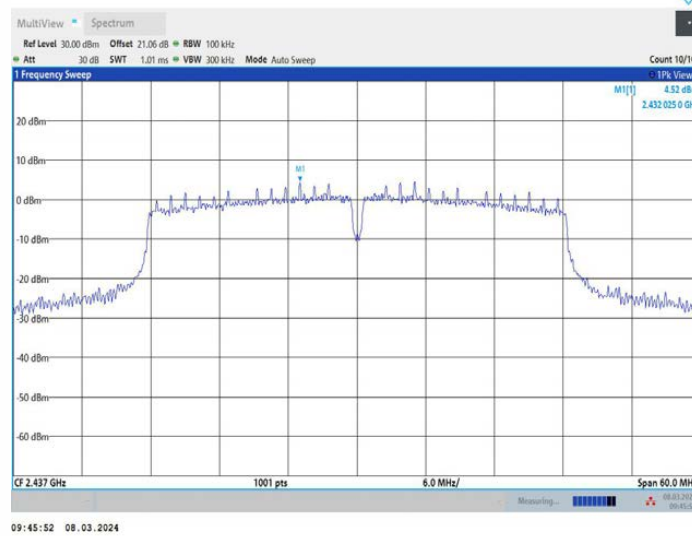
11N40MIMO_Ant2_2422_30~1000



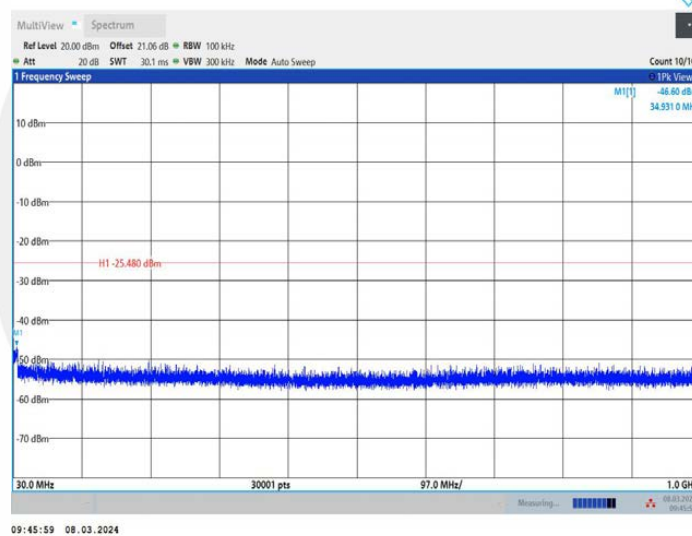
11N40MIMO_Ant2_2422_1000~26500



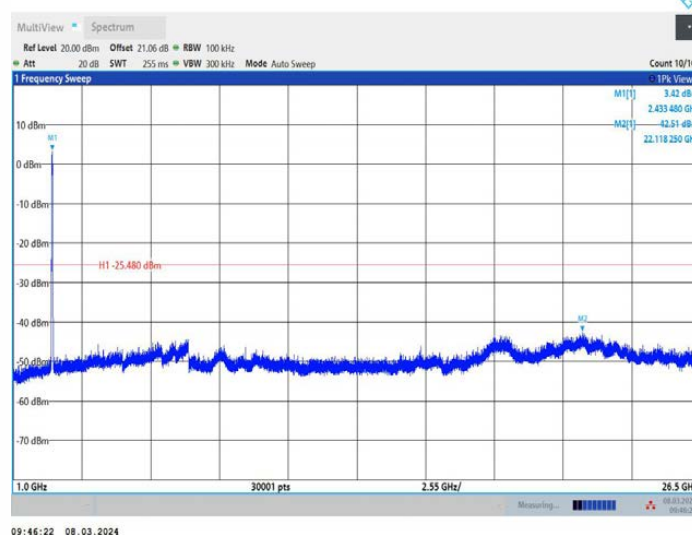
11N40MIMO_Ant1_2437_0~Reference



11N40MIMO_Ant1_2437_30~1000



11N40MIMO_Ant1_2437_1000~26500



MultiView Spectrum

Ref Level 30.00 dBm Offset 21.04 dB RBW 100 kHz

Att 30 dB SWT 1.01 ms VBW 300 kHz Mode Auto Sweep

Count 10/1

TP6 View 4.51 dB

2.4345420 GHz

Frequency Sweep

20 dBm

10 dBm

0 dBm

-10 dBm

-20 dBm

-30 dBm

-40 dBm

-50 dBm

-60 dBm

CF 2.437 GHz

1001 pts

6.0 MHz/

Span 60.0 MHz

Measuring...

09:50:13 08.03.2024

09:50:13 08.03.2024

MultiView Spectrum

Ref Level 20.00 dBm Offset 21.04 dB RBW 100 kHz

Att 20 dB SWT 30.1 ms VSW 300 kHz Mode Auto Sweep

Count 10/1

1 Frequency Sweep

10 dBm

0 dBm

-10 dBm

-20 dBm

-30 dBm

-40 dBm

-50 dBm

-60 dBm

-70 dBm

H1 -25.490 dBm

30.0 MHz

30001 pts

97.0 MHz/

1.0 GHz

Measuring...

09:50:20 08.03.2024

The screenshot shows a Spectrum Analyzer interface with the following details:

- Top Bar:** Contains 'MultiView' and 'Spectrum' tabs.
- Parameters:**
 - Ref Level: 20.00 dBm
 - Offset: 21.04 dB
 - RBW: 100 kHz
 - Att: 20 dB
 - SWT: 255 ms
 - VBW: 300 kHz
 - Mode: Auto Sweep
- Plot Title:** '1 Frequency Sweep'.
- Y-axis:** Labeled 'dBm', ranging from -70 to 10.
- X-axis:** Labeled 'GHz', ranging from 1.0 to 26.5.
- Signal:** A noisy blue line representing the spectrum, mostly between -50 dBm and -70 dBm.
- Reference Line:** A red horizontal line at -25.490 dBm, labeled 'H1 -25.490 dBm'.
- Right Panel:** Shows '10/1' and '10/1 View' with three measurement points:
 - M1[1]: 1.88 dB
 - M2[1]: 2.444 530 GHz
 - M3[1]: 42.77 490 GHz
 - M4[1]: 22.214 800 GHz
- Bottom Bar:** Includes 'Missing...', a signal strength indicator (a bar graph), and a red triangle icon.

09:50:42 08.03.2024

MultiView Spectrum

Ref Level 30.00 dBm Offset 21.13 dB RBW 100 kHz
 Att 30 dB SWT 1.01 ms VBW 300 kHz Mode Auto Sweep

Count 10/10
 1Pk View
 M1[1] 4.75 dBm
 2.457 035 0 GHz

1 Frequency Sweep

20 dBm
 10 dBm
 0 dBm
 -10 dBm
 -20 dBm
 -30 dBm
 -40 dBm
 -50 dBm
 -60 dBm

CF 2.452 GHz 1001 pts 6.0 MHz/ Span 60.0 MHz

Measuring...

09:53:09 08.03.2024

The screenshot displays the Spectrum Analyzer interface of the Keysight N9910A software. The main display area shows a frequency sweep from 30.0 MHz to 1.0 GHz. The vertical axis represents power in dBm, ranging from -80 dBm to 10 dBm. A significant signal is visible at -25.250 dBm. The interface includes various control panels for settings like Reference Level, Offset, Span, and Mode. The top status bar indicates 'MultiView' and 'Spectrum' modes.

Control Panels:

- Top Bar:** MultiView, Spectrum
- Left Panel:**
 - Ref Level: 20.00 dBm
 - Offset: 21.13 dB
 - RBW: 100 kHz
 - Att: 20 dB
 - SWT: 30.1 ms
 - VSW: 300 kHz
 - Mode: Auto Sweep
- Right Panel:**
 - Count: 10/10
 - 1% View
 - 46.58 dBm
 - 31.406 0 MHz

Main Display:

- Title:** 1 Frequency Sweep
- Y-axis:** dBm (ranging from -80 to 10)
- X-axis:** Frequency (ranging from 30.0 MHz to 1.0 GHz)
- Signal:** A significant signal is visible at -25.250 dBm.
- Grid:** The display is overlaid with a grid for frequency and power.

Bottom Status Bar:

- 30.0 MHz
- 30001 pts
- 97.0 MHz/
- 1.0 GHz

09:53:16 08.03.2024

MultiView Spectrum

Ref Level 20.00 dBm Offset 21.13 dB RBW 100 kHz

Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep

Count 10/10

1 Frequency Sweep

1Pk View

M1[1] 3.99 dBm
2.435 580 GHz

M2[1] -62.67 dBm
22.104 850 GHz

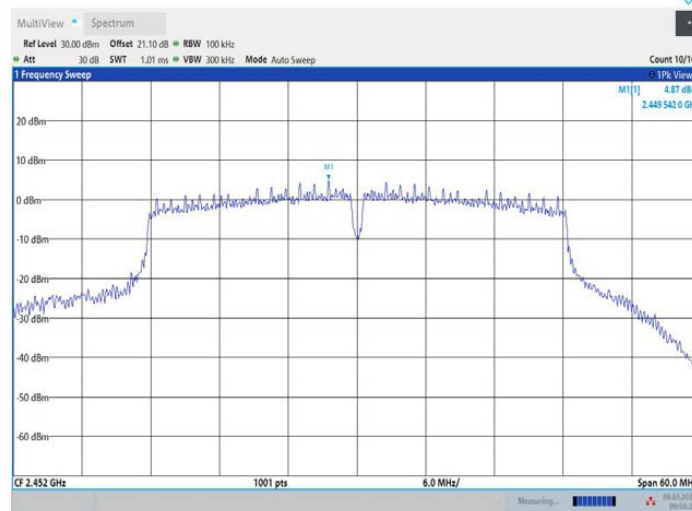
H1 -25.250 dBm

1.0 GHz 30001 pts 2.55 GHz/ 26.5 GHz

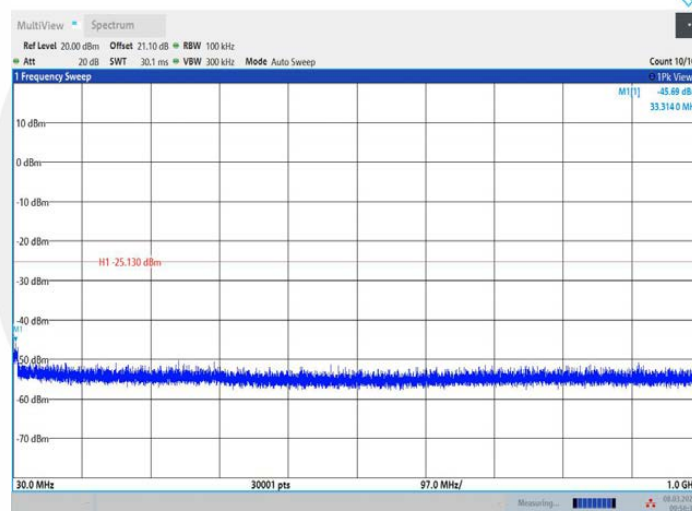
Measuring...

09:53:38 08.03.2024

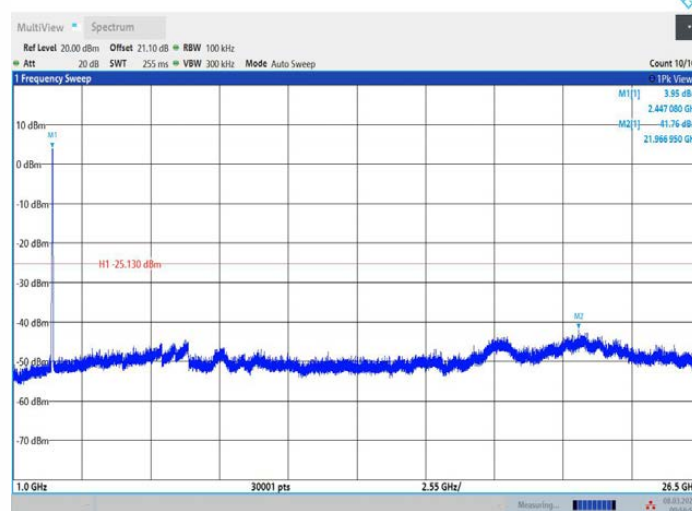
11N40MIMO_Ant2_2452_0~Reference



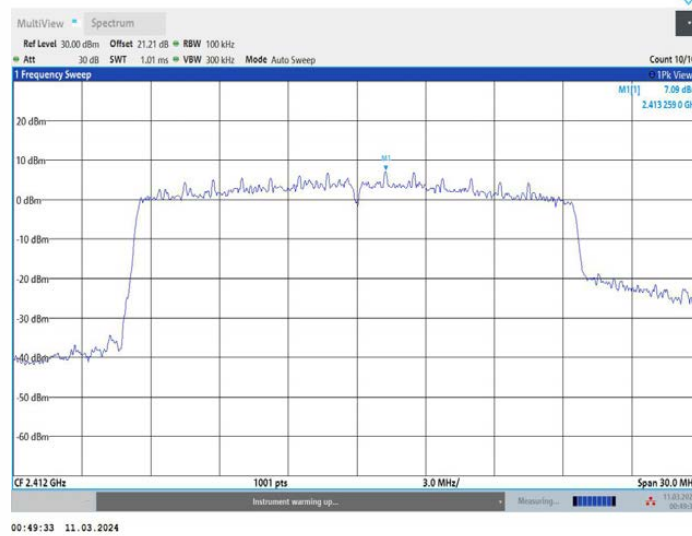
11N40MIMO_Ant2_2452_30~1000



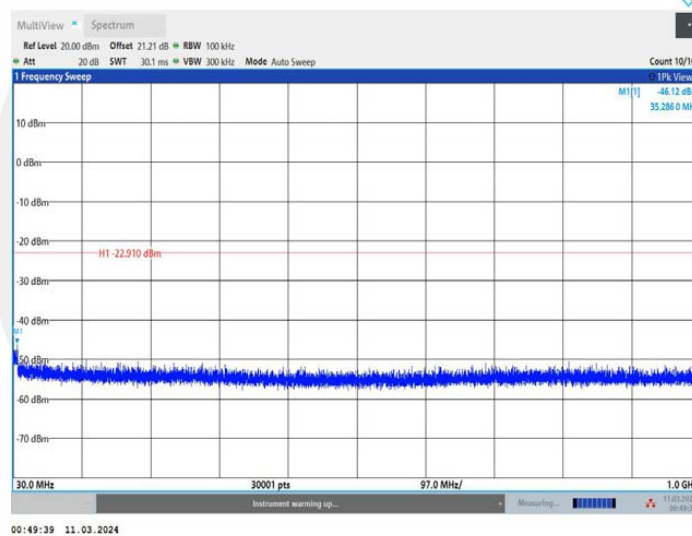
11N40MIMO_Ant2_2452_1000~26500



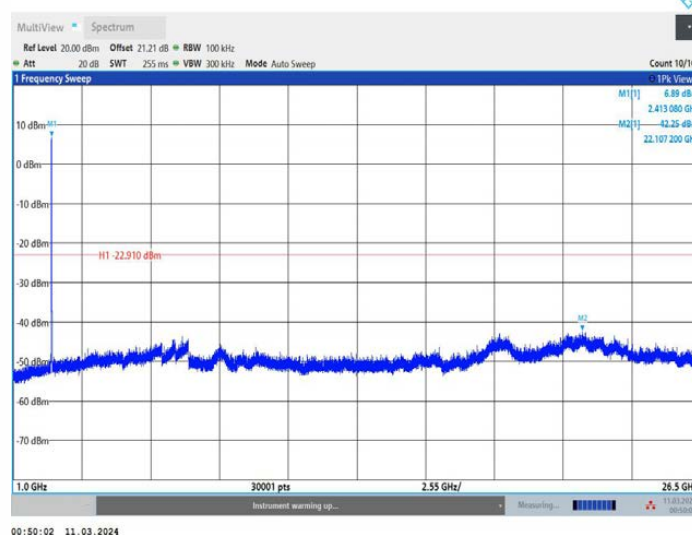
11AX20MIMO_Ant1_2412_0~Reference



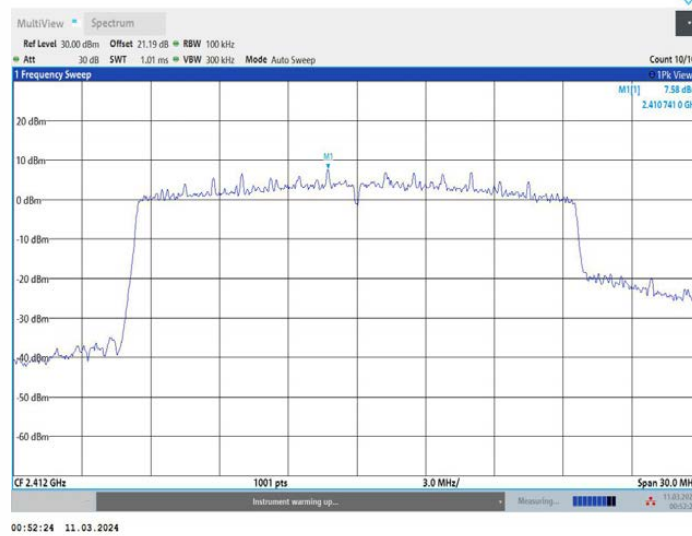
11AX20MIMO_Ant1_2412_30~1000



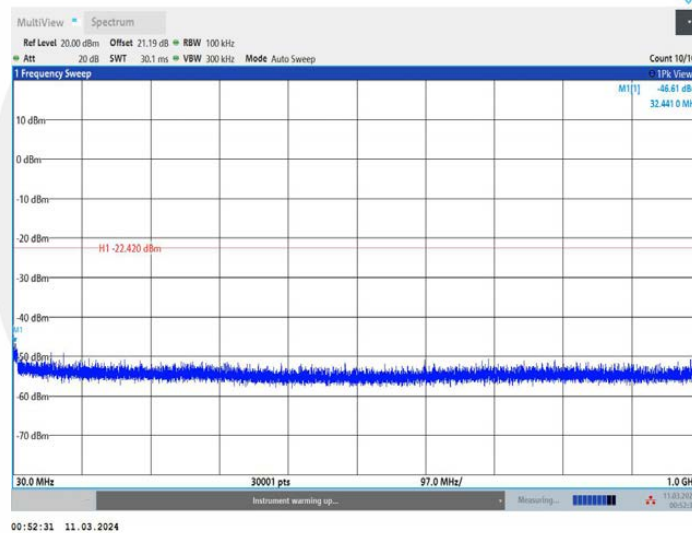
11AX20MIMO_Ant1_2412_1000~26500



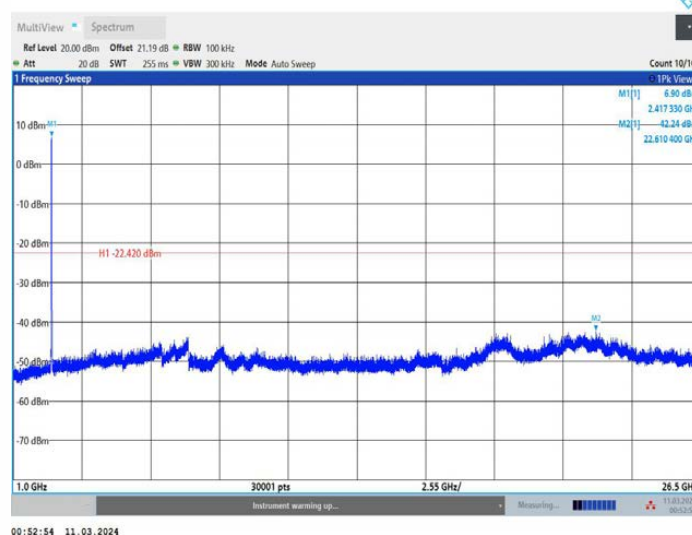
11AX20MIMO_Ant2_2412_0~Reference



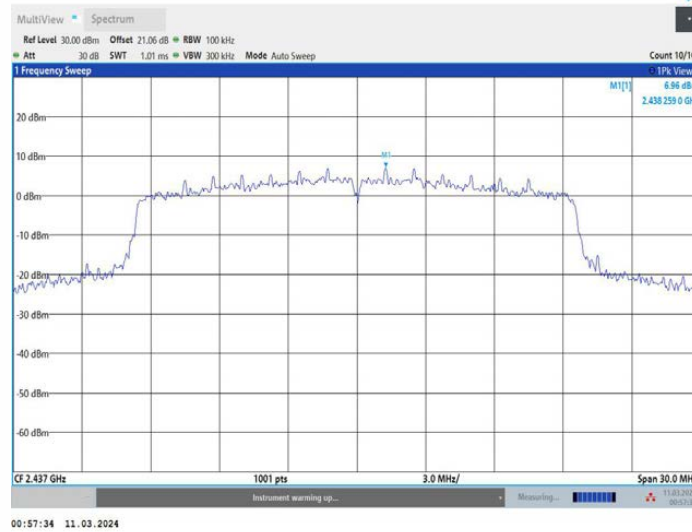
11AX20MIMO_Ant2_2412_30~1000



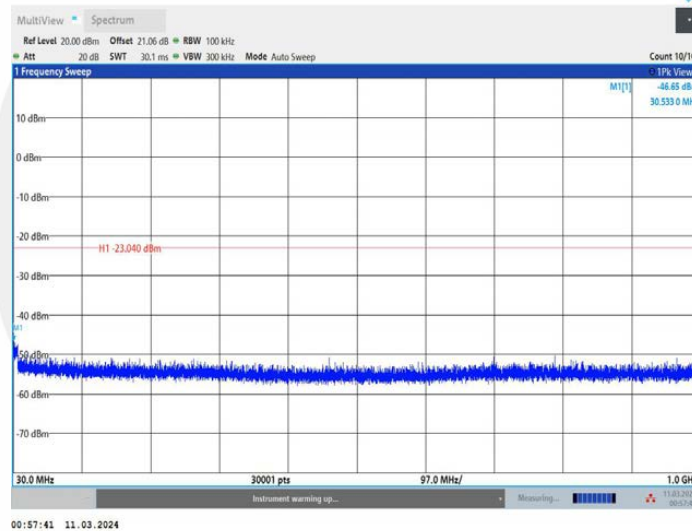
11AX20MIMO_Ant2_2412_1000~26500



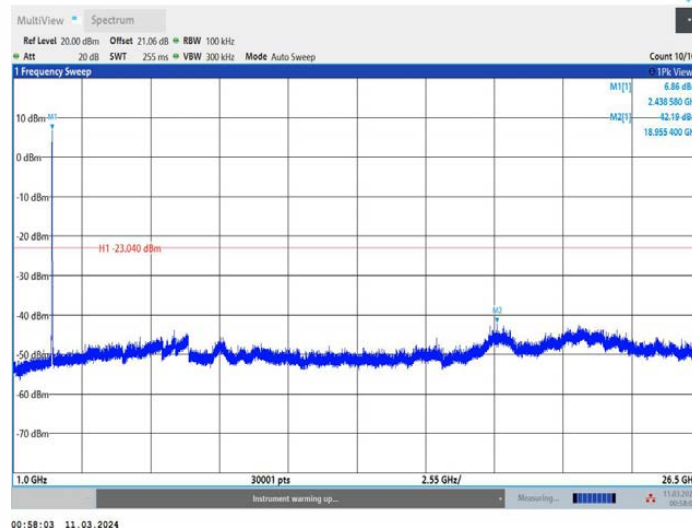
11AX20MIMO_Ant1_2437_0~Reference



11AX20MIMO_Ant1_2437_30~1000



11AX20MIMO_Ant1_2437_1000~26500



MultiView Spectrum

Ref Level 30.00 dBm Offset 21.04 dB RBW 100 kHz
 Att 30 dB SWT 1.01 ms VBW 300 kHz Mode Auto Sweep

Count 10/11 11Pk View
 7.29 dB
 2.4357410 GHz

1 Frequency Sweep

20 dBm
 10 dBm
 0 dBm
 -10 dBm
 -20 dBm
 -30 dBm
 -40 dBm
 -50 dBm
 -60 dBm

CF 2.437 GHz 1001 pts 3.0 MHz/ Span 30.0 MHz

Measuring...

MultiView Spectrum

Ref Level 20.00 dBm Offset 21.04 dB RBW 100 kHz
 Att 20 dB SWT 30.1 ms VBW 300 kHz Mode Auto Sweep

10/1
 1Pk View
 -47.47 dB
 32.7000 MHz

1 Frequency Sweep

10 dBm
 0 dBm
 -10 dBm
 -20 dBm
 -30 dBm
 -40 dBm
 -50 dBm
 -60 dBm
 -70 dBm

H1 -22.710 dBm

30.0 MHz 30001 pts 97.0 MHz/ 1.0 GHz

MultiView Spectrum

Ref Level 20.00 dBm Offset 21.04 dB RBW 100 kHz

Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep

1 Frequency Sweep

Count 10/1

1% View

6.30 dB

2.430 430 GHz

42.01 dB

22.147 150 GHz

H1 -22.710 dBm

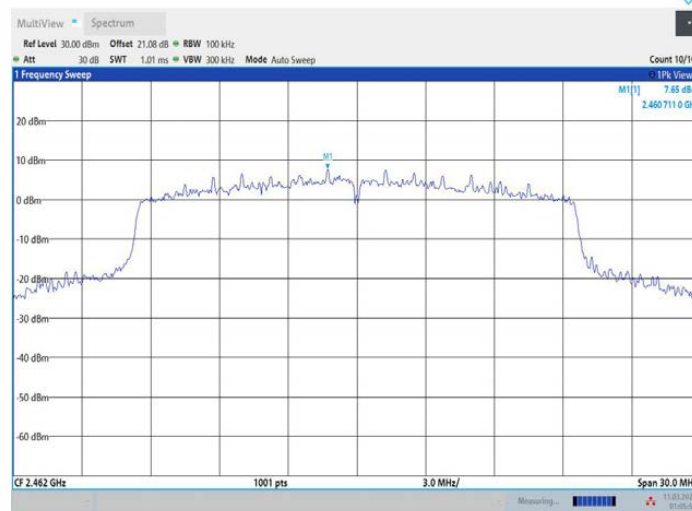
H2

1.0 GHz 30001 pts 2.55 GHz/ 26.5 GHz

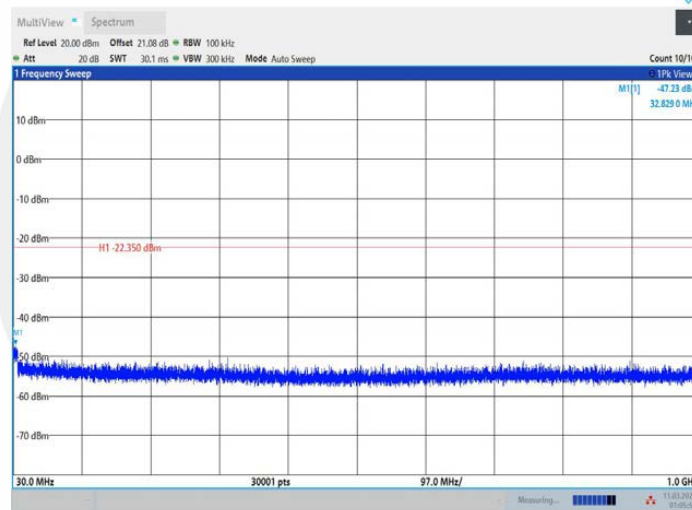
Monitors...

Ver.1.0

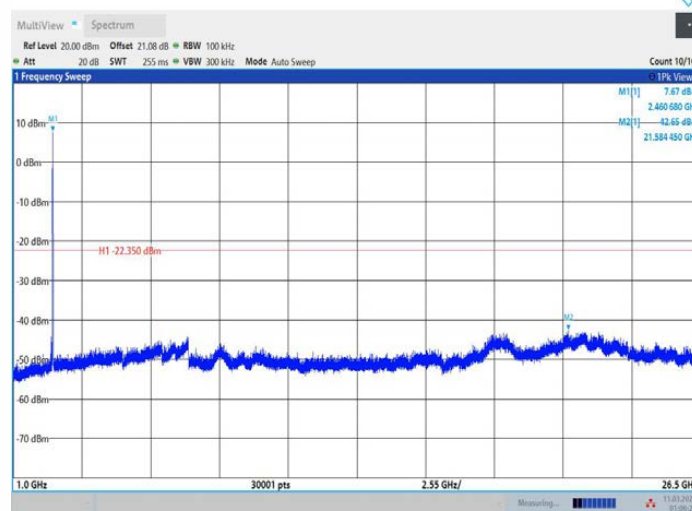
11AX20MIMO_Ant1_2462_0~Reference



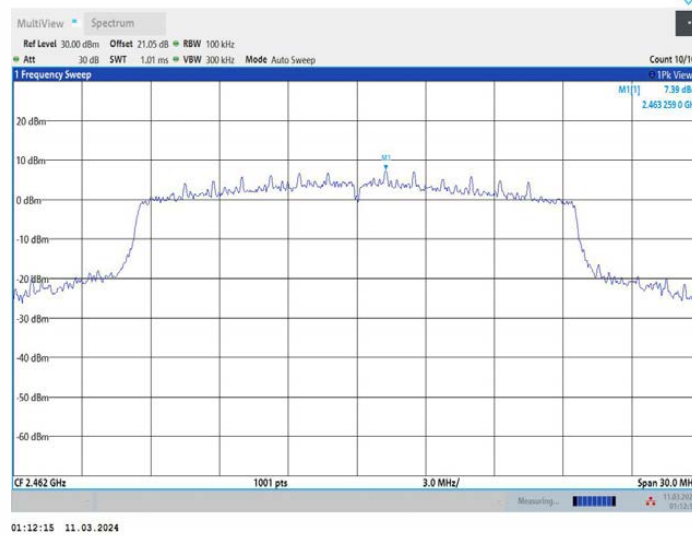
11AX20MIMO_Ant1_2462_30~1000



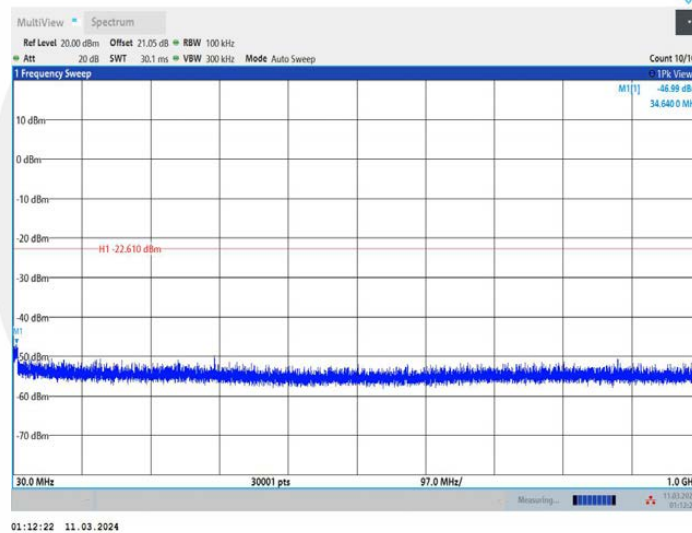
11AX20MIMO_Ant1_2462_1000~26500



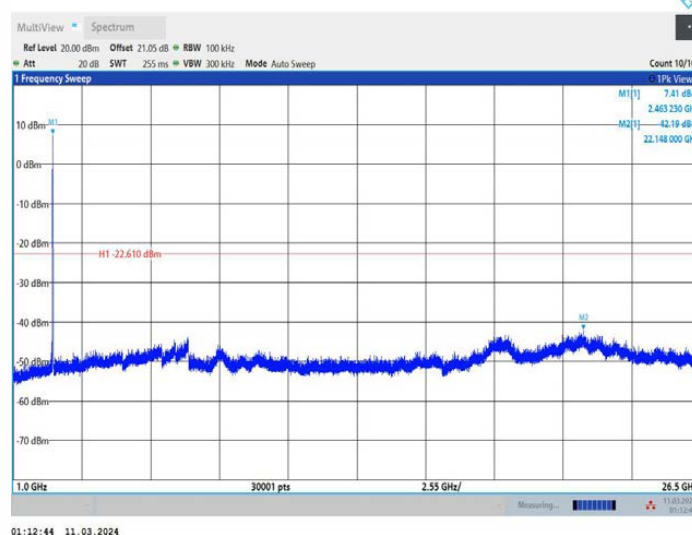
11AX20MIMO_Ant2_2462_0~Reference



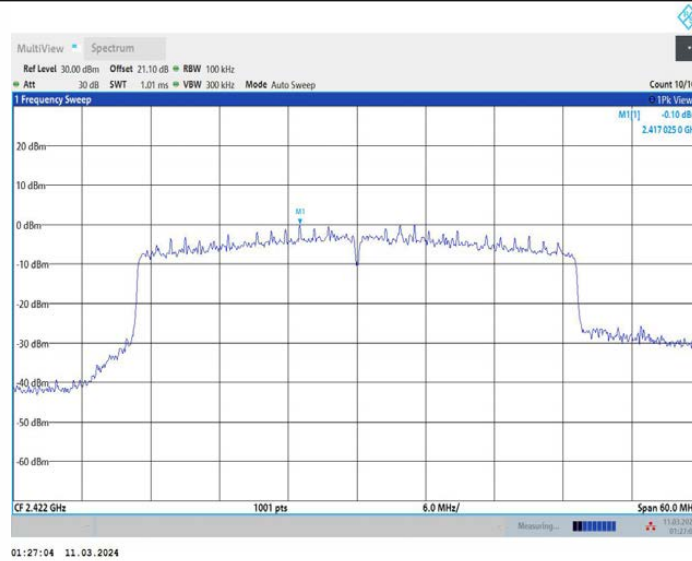
11AX20MIMO_Ant2_2462_30~1000



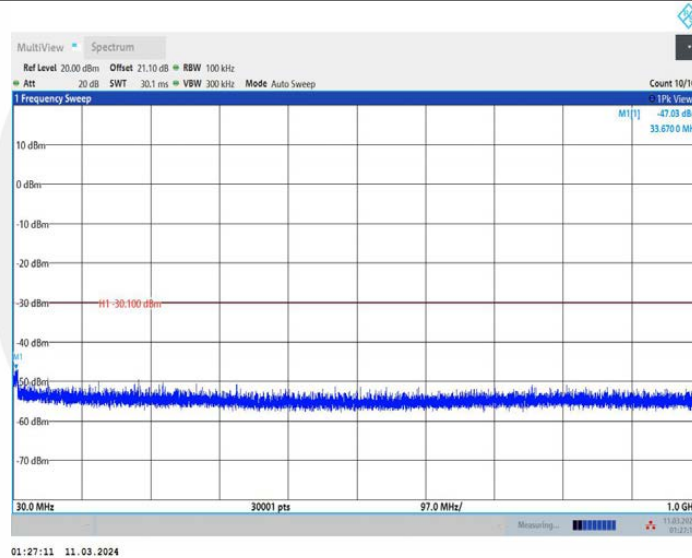
11AX20MIMO_Ant2_2462_1000~26500



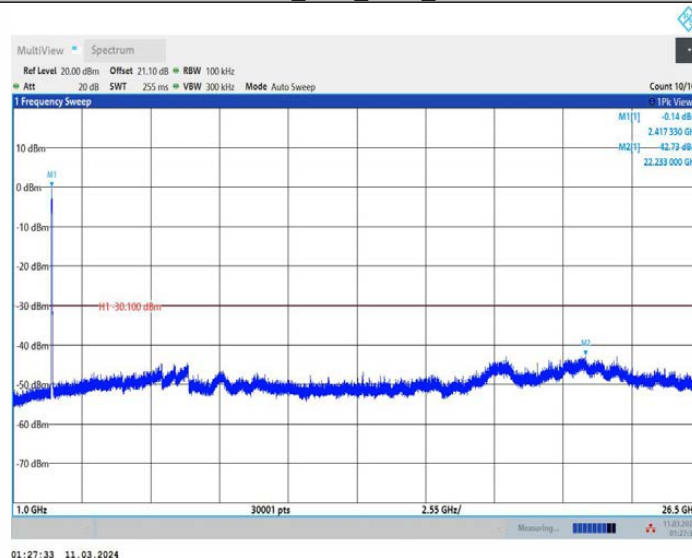
11AX40MIMO_Ant1_2422_0~Reference



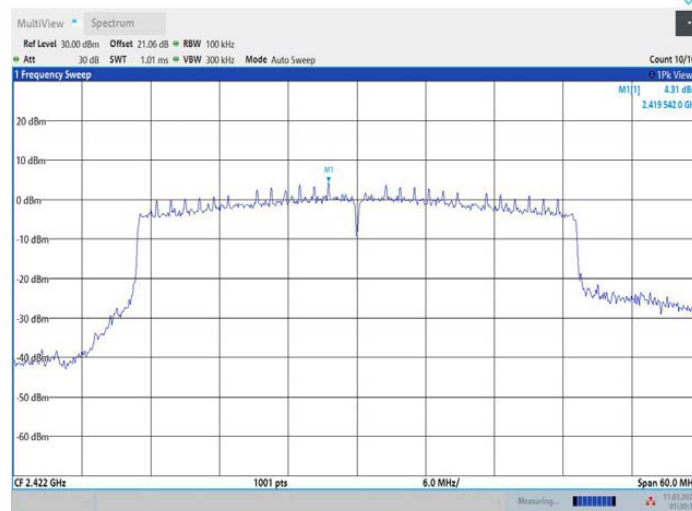
11AX40MIMO_Ant1_2422_30~1000



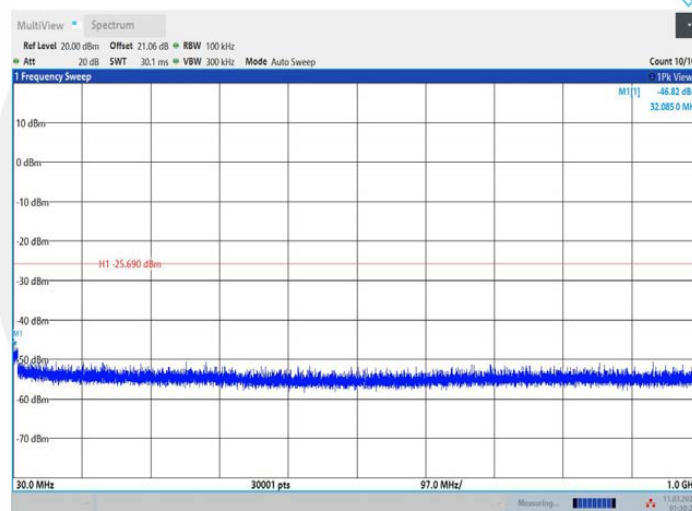
11AX40MIMO_Ant1_2422_1000~26500



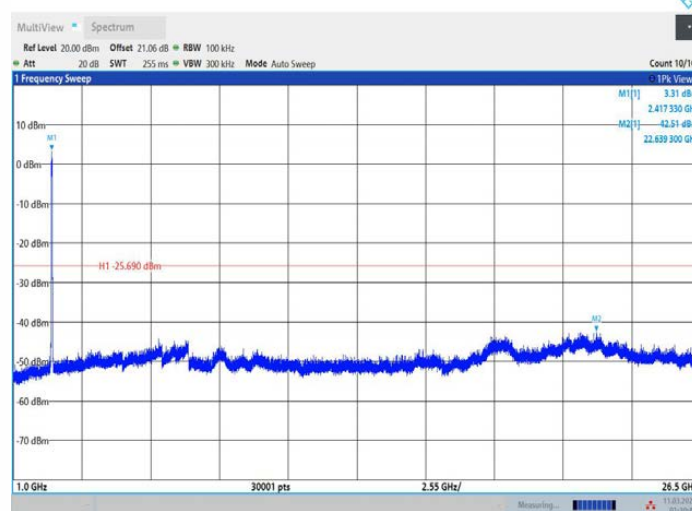
11AX40MIMO_Ant2_2422_0~Reference



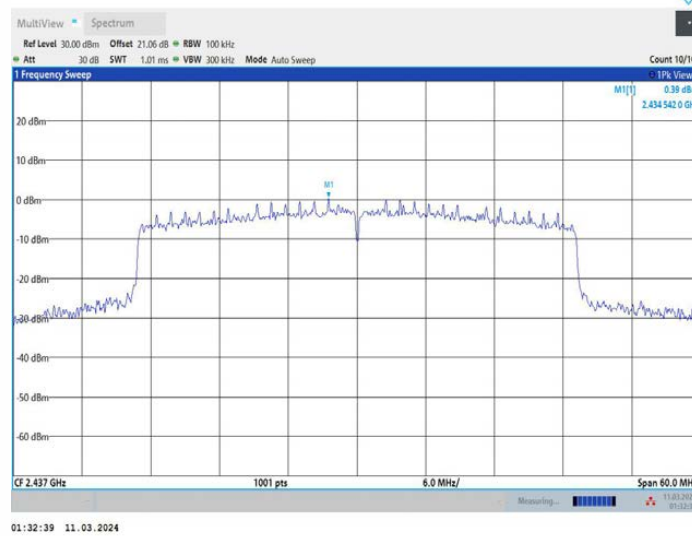
11AX40MIMO_Ant2_2422_30~1000



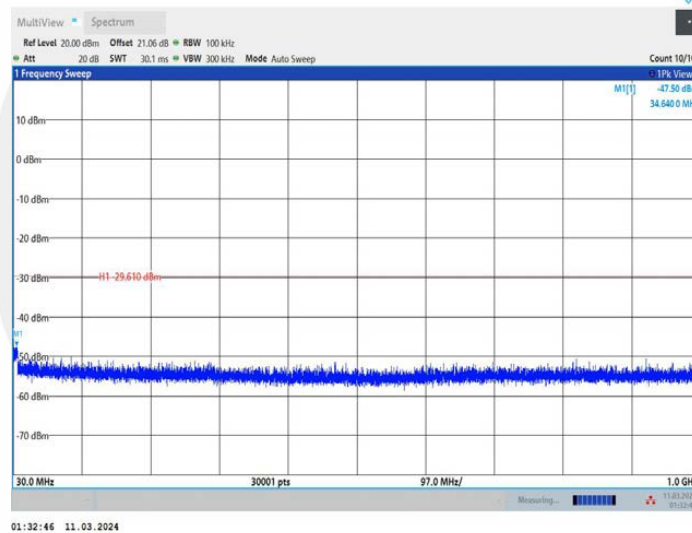
11AX40MIMO_Ant2_2422_1000~26500



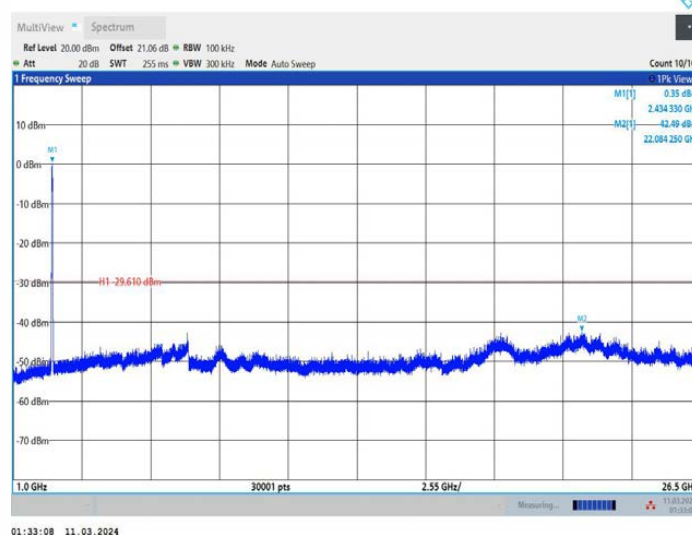
11AX40MIMO_Ant1_2437_0~Reference



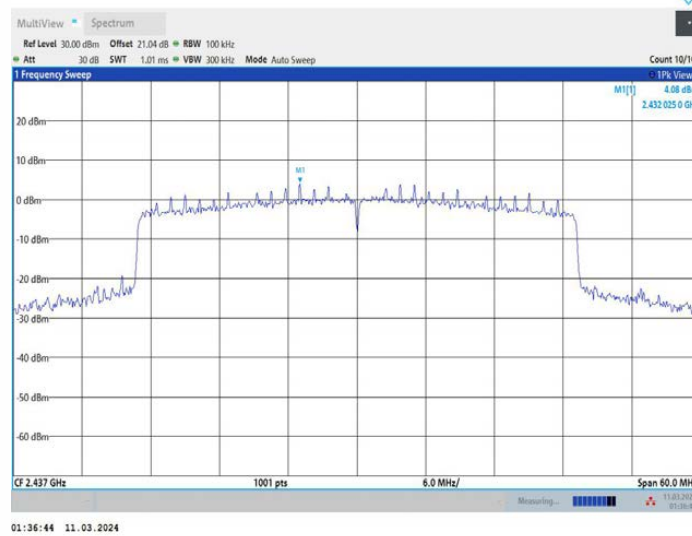
11AX40MIMO_Ant1_2437_30~1000



11AX40MIMO_Ant1_2437_1000~26500

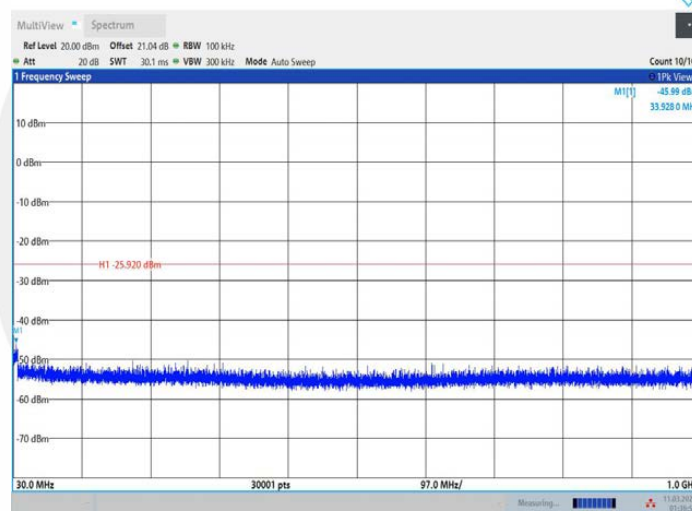


11AX40MIMO_Ant2_2437_0~Reference



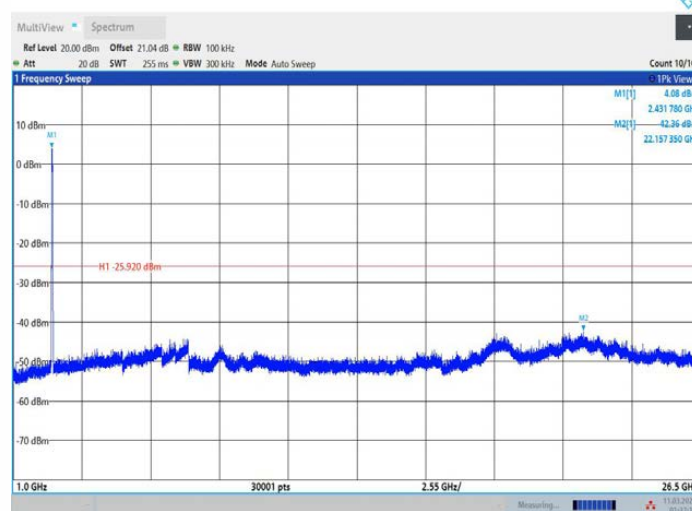
01:36:44 11.03.2024

11AX40MIMO_Ant2_2437_30~1000



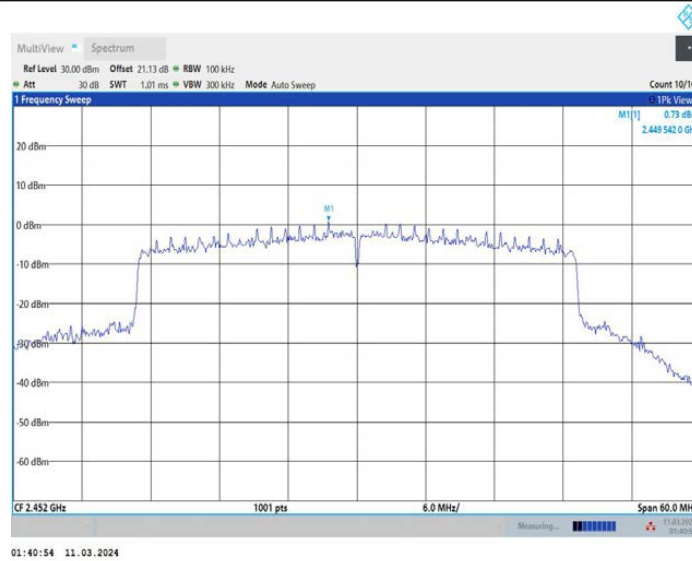
01:36:51 11.03.2024

11AX40MIMO_Ant2_2437_1000~26500

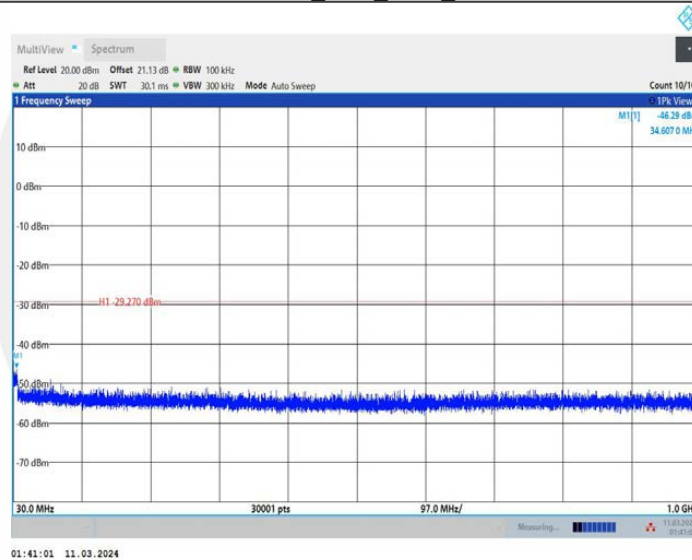


01:37:13 11.03.2024

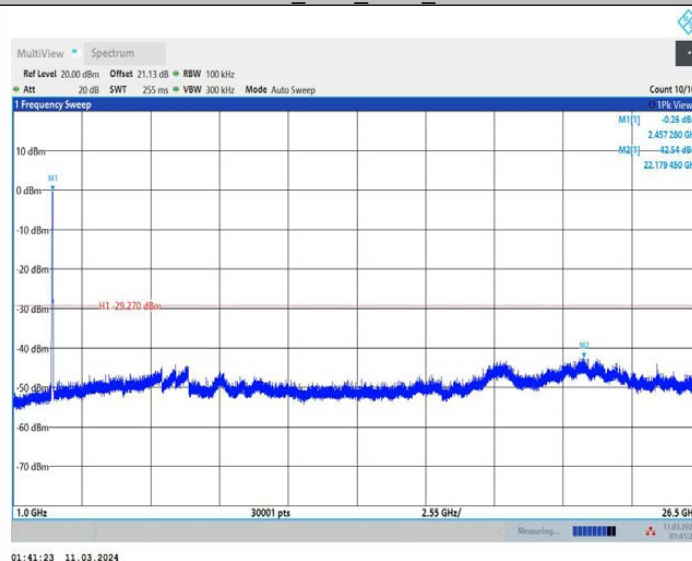
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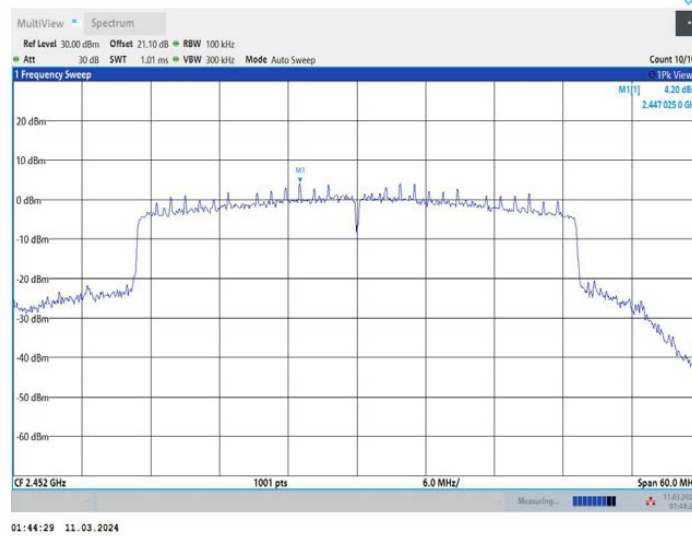
11AX40MIMO_Ant1_2452_30~1000



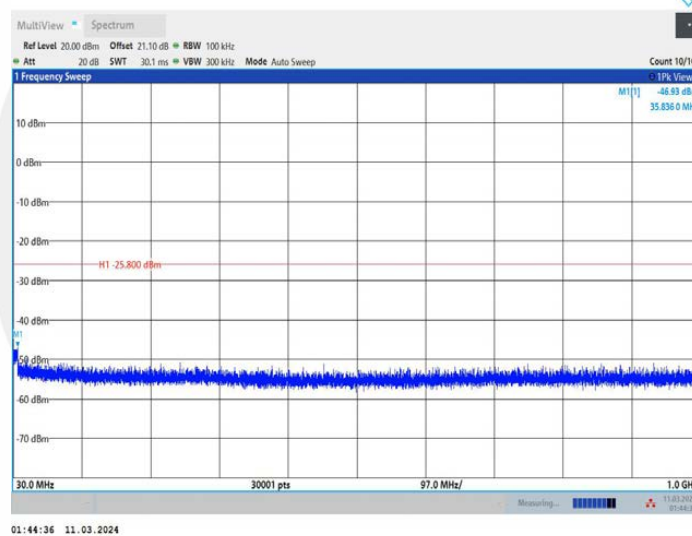
11AX40MIMO_Ant1_2452_1000~26500



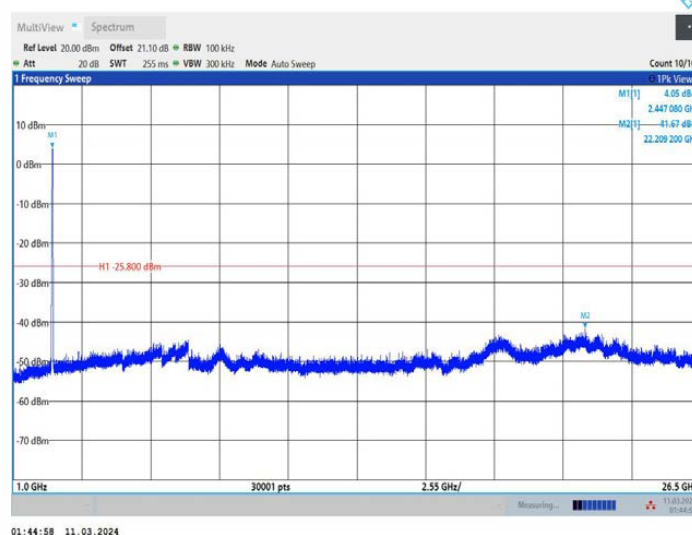
11AX40MIMO_Ant2_2452_0~Reference



11AX40MIMO_Ant2_2452_30~1000



11AX40MIMO_Ant2_2452_1000~26500



7.5 RADIATED EMISSION

7.5.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and KDB 558074 D01 15.247 Meas Guidance v05r02.

7.5.2 Conformance Limit

According to FCC Part 15.247(d): 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)).

According to FCC Part 15.205, Restricted bands:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	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	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	2690-2900	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	(2)
13.36-13.41			

According to FCC Part 15.205 the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	24000/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

7.5.3 Test Configuration

Test according to clause 6.2 radio frequency test setup 2.

7.5.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

For Above 1GHz:

The EUT was placed on a turn table which is 1.5m above ground plane.

Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Span = wide enough to fully capture the emission being measured.

RBW = 1 MHz.

VBW ≥ RBW.

Sweep = auto.

Detector function = peak.
Trace = max hold.

For Below 1GHz:

The EUT was placed on a turn table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured.
RBW = 100 kHz.
VBW $\geq$ RBW.
Sweep = auto.
Detector function = peak.
Trace = max hold.

For Below 30MHz:

The EUT was placed on a turn table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured.
RBW = 9kHz.
VBW $\geq$ RBW.
Sweep = auto.
Detector function = peak.
Trace = max hold.

For Below 150KHz:

The EUT was placed on a turn table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured.
RBW = 200Hz.
VBW $\geq$ RBW.
Sweep = auto.
Detector function = peak.
Trace = max hold.

Follow the guidelines in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit. Submit this data. Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from $20\log(\text{dwell time}/100 \text{ ms})$, in an effort to demonstrate compliance with the limit. Submit this data.
Repeat above procedures until all frequency measured was complete.

7.5.5 Test Results

Temperature :	25°C	ATM Pressure:	1011 mbar
Humidity :	60%	Test Engineer:	CZF

All of the configurations or modes are tested, the data of the worst case is recorded as below.

■ Spurious Emission below 30MHz(9KHz to 30MHz)

Temperature: 25°C Test By: CZF
Humidity: 60%
Test mode: 802.11b

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Spurious Emission Above 1GHz(1GHz to 25GHz)

All antennas and modulation modes are tested, the data of the worst mode is described in the table.
Highest gain of each antenna and highest output power is ANT2 and MIMO as below:

ANT2:

Test mode: 802.11N(20) Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
12399.3	V	60.20	74.00	13.80	peak
14536.8	V	60.77	74.00	13.23	peak
17313.7	V	62.85	74.00	11.15	peak
12399.37	V	44.67	54.00	9.33	AVG
14536.87	V	43.73	54.00	10.27	AVG
17313.75	V	40.87	54.00	13.13	AVG
11572.5	H	59.29	74.00	14.71	peak
15281.2	H	61.43	74.00	12.57	peak
17566.8	H	64.92	74.00	9.08	peak
11572.5	H	40.45	54.00	13.55	AVG
15281.25	H	40.76	54.00	13.24	AVG
17566.87	H	45.76	54.00	8.24	AVG

Test mode: 802.11N(20) Frequency: Channel 6: 2437MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
9849.37	V	57.19	74.00	16.81	peak
13788.7	V	59.55	74.00	14.45	peak
17626.8	V	65.24	74.00	8.76	peak
9849.375	V	38.55	54.00	15.45	AVG
13788.75	V	39.98	54.00	14.02	AVG
17626.87	V	45.91	54.00	8.09	AVG
8625	H	55.46	74.00	18.54	peak
12436.8	H	59.40	74.00	14.60	peak
17977.5	H	65.48	74.00	8.52	peak
8625	H	36.97	54.00	17.03	AVG
12436.87	H	41.74	54.00	12.26	AVG
17977.5	H	43.78	54.00	10.22	AVG

Test mode: 802.11N(20) Frequency: Channel 11: 2472MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10653.7	V	57.24	74.00	16.76	peak
13563.7	V	59.46	74.00	14.54	peak
17602.5	V	67.48	74.00	6.52	peak
10653.75	V	42.35	54.00	11.65	AVG
13563.75	V	42.15	54.00	11.85	AVG
17538.75	V	46.51	54.00	7.49	AVG
10893.7	H	57.91	74.00	16.09	peak
13209.3	H	60.65	74.00	13.35	peak
17988.7	H	64.35	74.00	9.65	peak
10893.75	H	42.20	54.00	11.80	AVG
13209.37	H	42.33	54.00	11.67	AVG
17988.75	H	44.88	54.00	9.12	AVG

MIMO:

Test mode: 802.11N(20) Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
12397.910	V	60.07	74.00	13.93	peak
14535.410	V	60.61	74.00	13.39	peak
17314.980	V	62.82	74.00	11.18	peak
12400.650	V	44.65	54.00	9.35	AVG
14534.620	V	43.47	54.00	10.53	AVG
17311.500	V	40.68	54.00	13.32	AVG
11584.190	H	59.21	74.00	14.79	peak
15292.890	H	61.22	74.00	12.78	peak
17578.490	H	64.76	74.00	9.24	peak
11584.190	H	40.31	54.00	13.69	AVG
15277.940	H	40.58	54.00	13.42	AVG
17563.560	H	45.63	54.00	8.37	AVG

Test mode: 802.11N(20) Frequency: Channel 6: 2437MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
9847.980	V	57.06	74.00	16.94	peak
13787.310	V	59.39	74.00	14.61	peak
17628.080	V	65.21	74.00	8.79	peak
9850.655	V	38.53	54.00	15.47	AVG
13786.500	V	39.72	54.00	14.28	AVG
17624.620	V	45.72	54.00	8.28	AVG
8636.690	H	55.38	74.00	18.62	peak
12448.490	H	59.19	74.00	14.81	peak
17989.190	H	65.32	74.00	8.68	peak
8636.690	H	36.83	54.00	17.17	AVG
12433.560	H	41.56	54.00	12.44	AVG
17974.190	H	43.65	54.00	10.35	AVG

Test mode: 802.11N(20) Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
10652.310	V	57.11	74.00	16.89	peak
13562.310	V	59.3	74.00	14.7	peak
17603.780	V	67.45	74.00	6.55	peak
10655.030	V	42.33	54.00	11.67	AVG
13561.500	V	41.89	54.00	12.11	AVG
17536.500	V	46.32	54.00	7.68	AVG
10905.390	H	57.83	74.00	16.17	peak
13220.990	H	60.44	74.00	13.56	peak
18000.390	H	64.19	74.00	9.81	peak
10905.440	H	42.06	54.00	11.94	AVG
13206.060	H	42.15	54.00	11.85	AVG
17985.440	H	44.75	54.00	9.25	AVG

- Note:** (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

Test mode: 802.11B Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
2389.92	V	52.04	74.00	21.96	peak
2389.92	V	38.90	54.00	15.10	AVG
2389.41	H	58.06	74.00	15.94	peak
2389.41	H	43.40	54.00	10.60	AVG

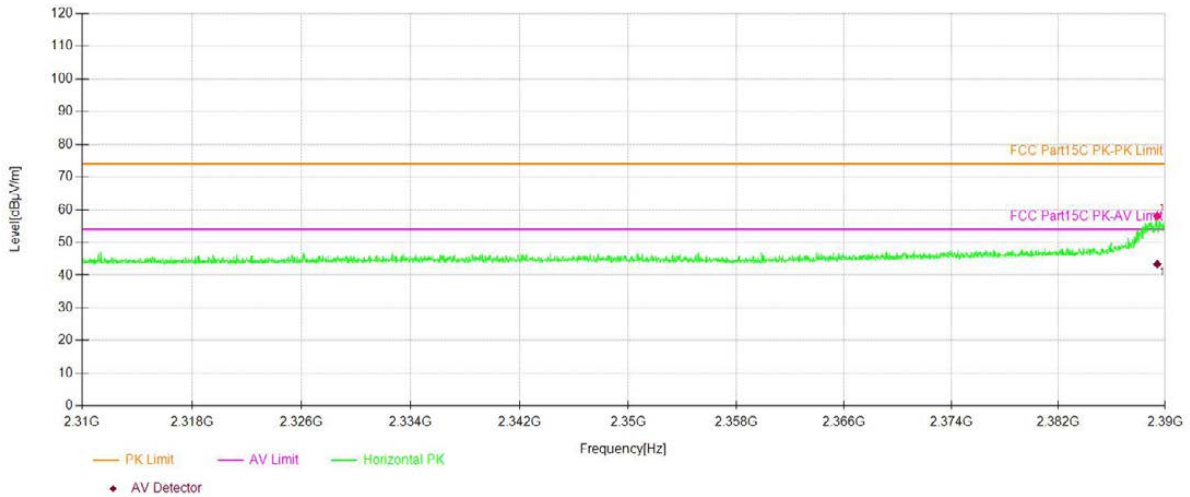
Test mode: 802.11B Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)	Limit 3m(dBuV/m)	Over(dB)	Detector
2484.91	V	51.17	74.00	22.83	peak
2484.91	V	37.20	54.00	16.80	AVG
2484.99	H	55.67	74.00	18.33	peak
2484.99	H	39.67	54.00	14.33	AVG

- Note:** (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 (2) Emission Level= Reading Level+Correct Factor.
 (3) Correct Factor= Ant_F + Cab_L - Preamp
 (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

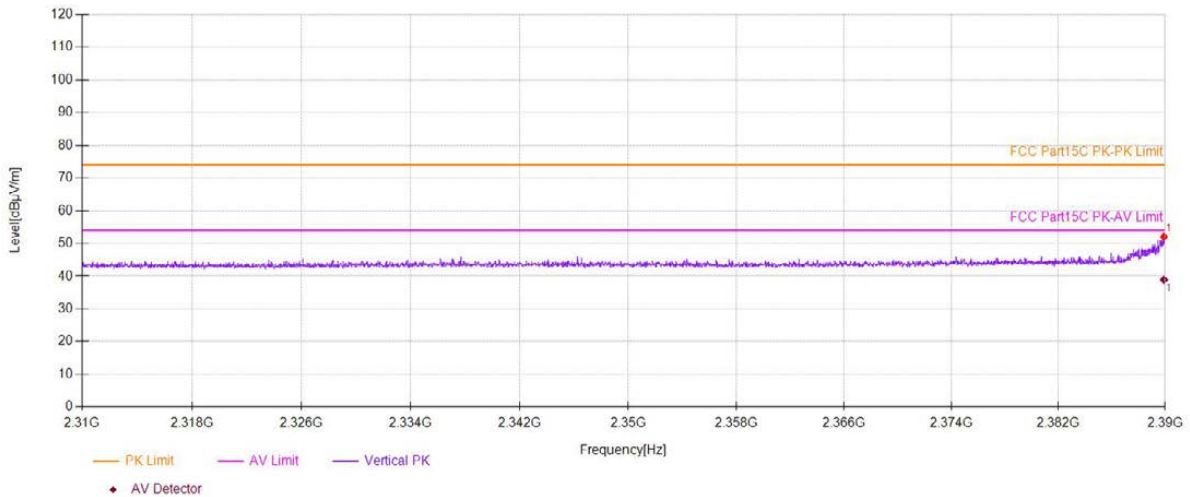
Spurious Emission in Restricted Band 2310-2390MHz

Test Model ☒ 802.11b ☐ 802.11g ☐ 802.11n(HT20) ☐ 802.11n(HT40)
☒ Channel 1:2412MHz ☐ Channel 3: 2422MHz Polarity: H
 VBW=3MHz



Spurious Emission in Restricted Band 2310-2390MHz

Test Model ☒ 802.11b ☐ 802.11g ☐ 802.11n(HT20) ☐ 802.11n(HT40)
☒ Channel 1:2412MHz ☐ Channel 3: 2422MHz Polarity: V
 VBW=3MHz

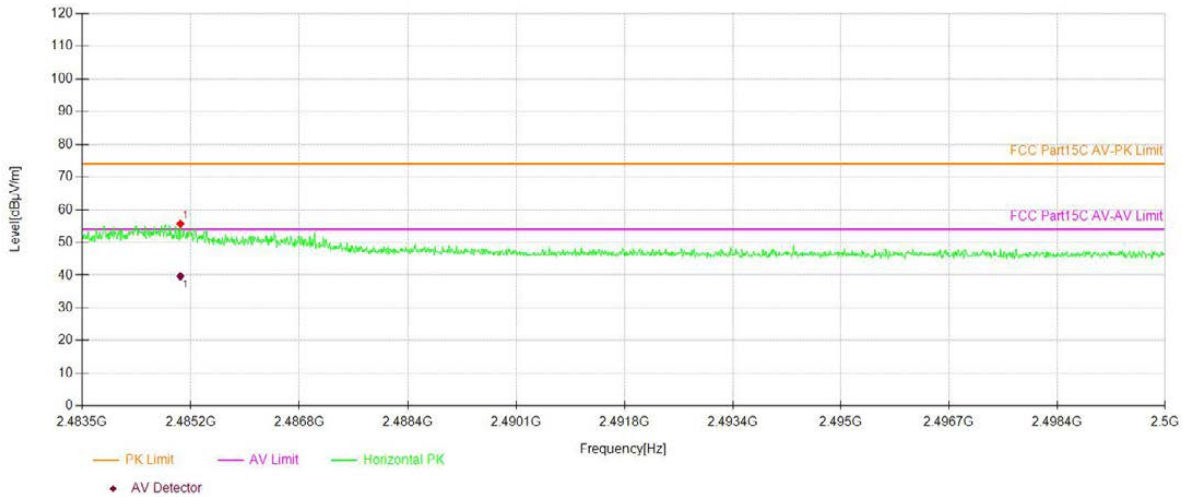


Spurious Emission in Restricted Band 2483.5-2500MHz

Test Model ☒ 802.11b ☐ 802.11g ☐ 802.11n(HT20) ☐ 802.11n(HT40)

☒ Channel 11: 2462MHz ☐ Channel 9: 2452MHz Polarity: H

VBW=3MHz

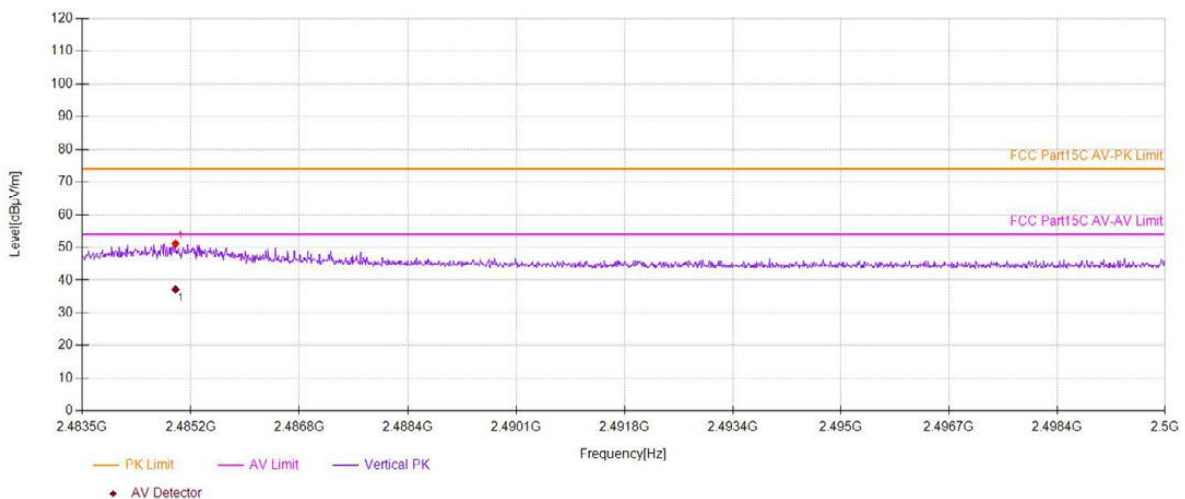


Spurious Emission in Restricted Band 2483.5-2500MHz

Test Model ☒ 802.11b ☐ 802.11g ☐ 802.11n(HT20) ☐ 802.11n(HT40)

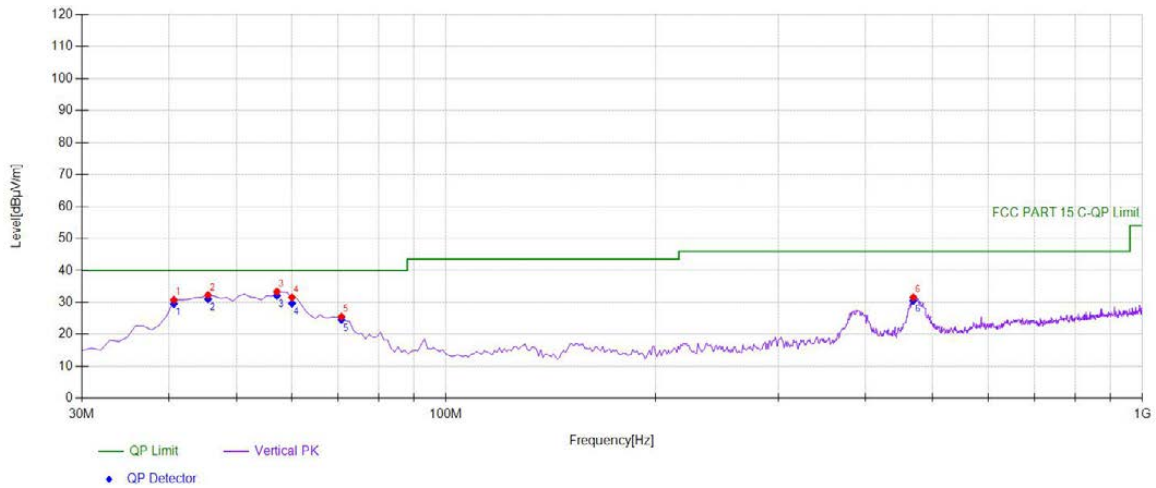
☒ Channel 11: 2462MHz ☐ Channel 9: 2452MHz Polarity: V

VBW=3MHz



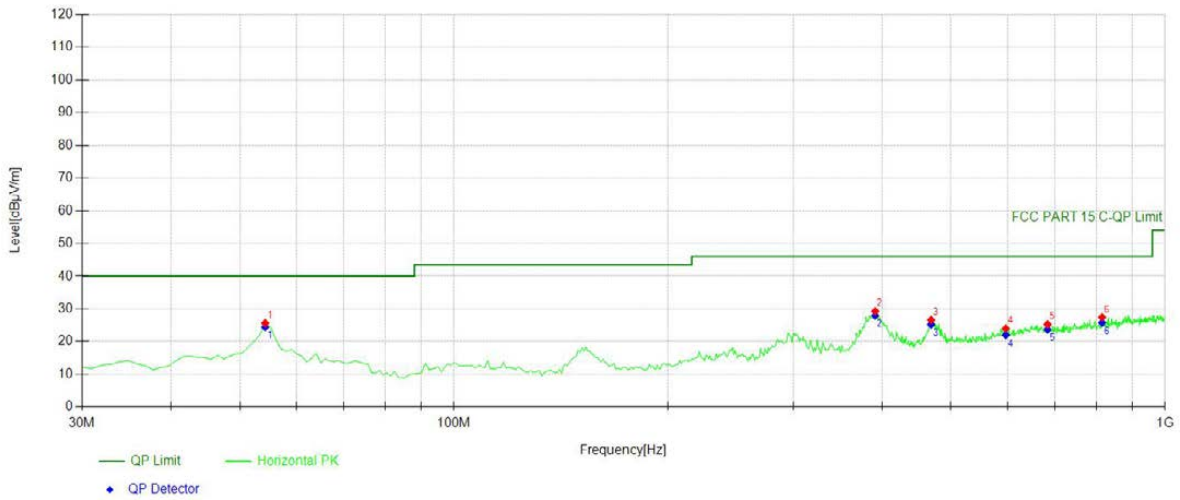
■ Spurious Emission below 1GHz (30MHz to 1GHz)

Test mode: 802.11B Frequency: Channel 1: 2412MHz



Suspected Data List

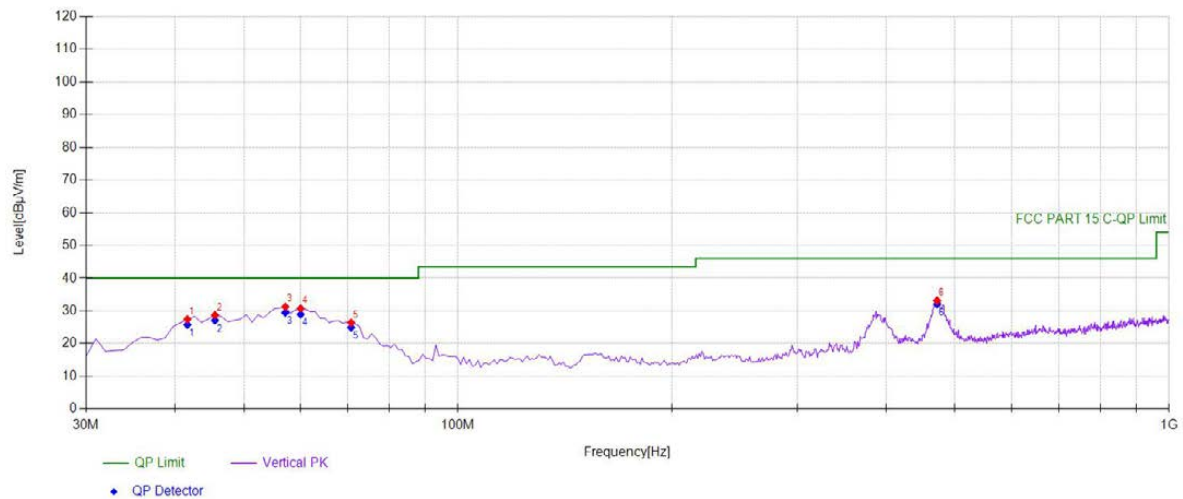
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	40.6807	48.63	-17.86	30.77	PK	40.00	9.23	Vertical
2	45.5355	49.80	-17.53	32.27	PK	40.00	7.73	Vertical
3	57.1872	51.50	-18.16	33.34	PK	40.00	6.66	Vertical
4	60.1001	50.11	-18.56	31.55	PK	40.00	8.45	Vertical
5	70.7808	45.64	-20.08	25.56	PK	40.00	14.44	Vertical
6	468.878	42.04	-10.49	31.55	PK	46.00	14.45	Vertical



Suspected Data List

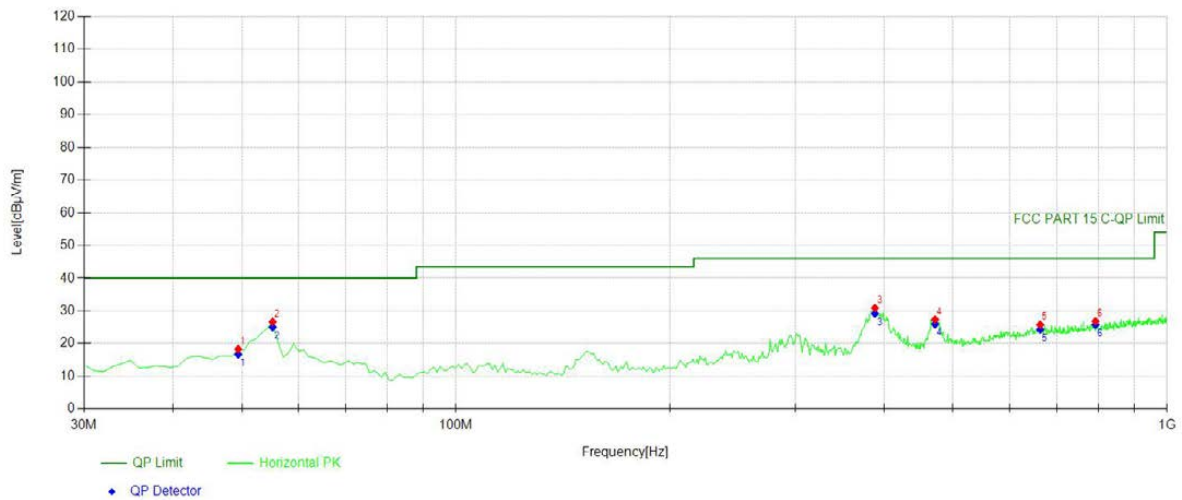
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	54.2743	43.41	-17.78	25.63	PK	40.00	14.37	Horizontal
2	391.201	41.09	-11.83	29.26	PK	46.00	16.74	Horizontal
3	468.878	37.08	-10.49	26.59	PK	46.00	19.41	Horizontal
4	597.047	31.13	-7.14	23.99	PK	46.00	22.01	Horizontal
5	683.463	31.36	-6.08	25.28	PK	46.00	20.72	Horizontal
6	815.515	31.73	-4.31	27.42	PK	46.00	18.58	Horizontal

Test mode: 802.11B Frequency: Channel 6: 2437MHz



Suspected Data List

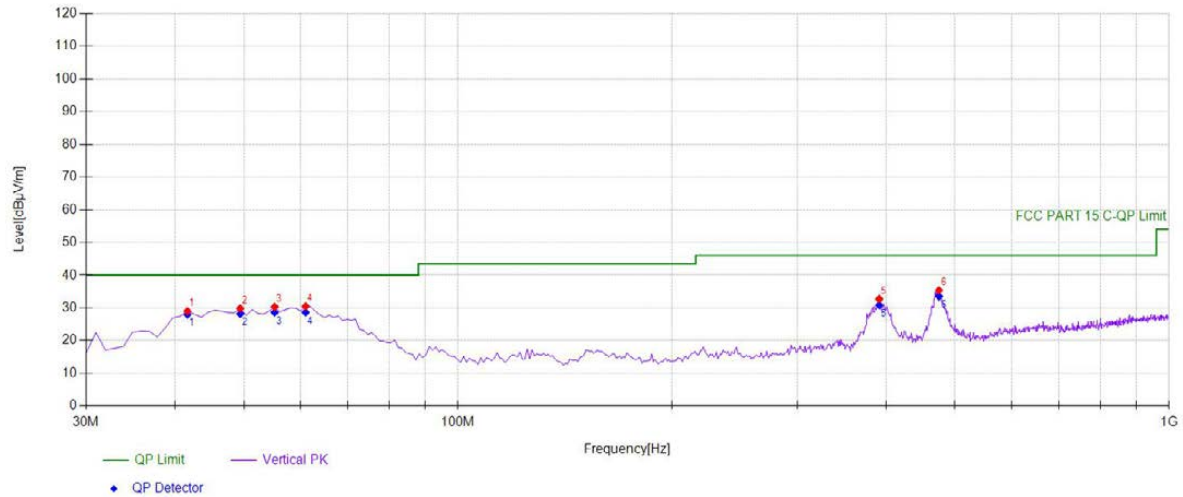
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	41.6517	45.23	-17.80	27.43	PK	40.00	12.57	Vertical
2	45.5355	46.25	-17.53	28.72	PK	40.00	11.28	Vertical
3	57.1872	49.46	-18.16	31.30	PK	40.00	8.70	Vertical
4	60.1001	49.32	-18.56	30.76	PK	40.00	9.24	Vertical
5	70.7808	46.47	-20.08	26.39	PK	40.00	13.61	Vertical
6	471.791	43.45	-10.30	33.15	PK	46.00	12.85	Vertical



Suspected Data List

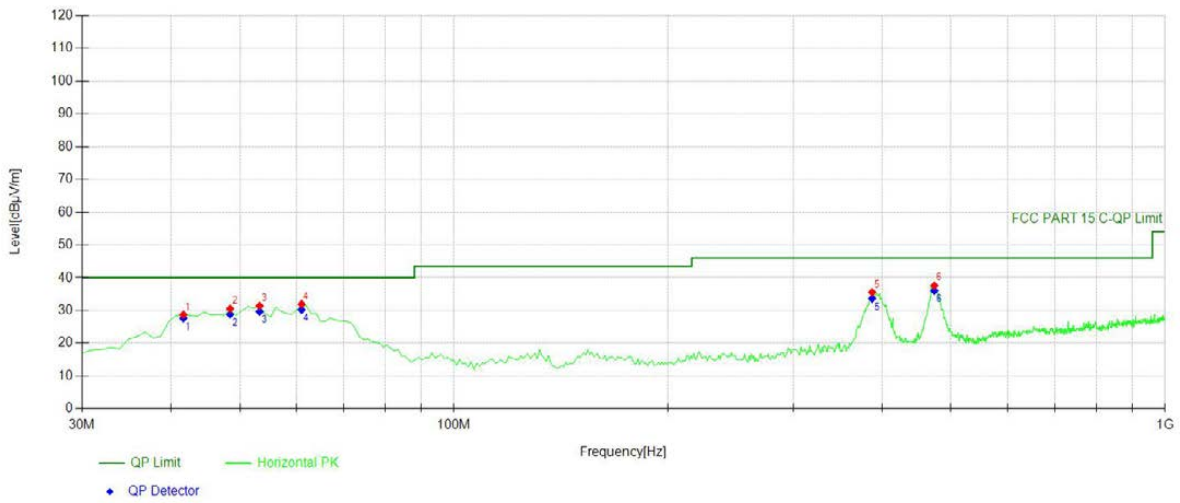
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	49.4194	35.57	-17.25	18.32	PK	40.00	21.68	Horizontal
2	55.2452	44.56	-17.91	26.65	PK	40.00	13.35	Horizontal
3	388.288	42.77	-11.83	30.94	PK	46.00	15.06	Horizontal
4	471.791	37.65	-10.30	27.35	PK	46.00	18.65	Horizontal
5	663.073	31.89	-6.14	25.75	PK	46.00	20.25	Horizontal
6	793.183	31.32	-4.49	26.83	PK	46.00	19.17	Horizontal

Test mode: 802.11B Frequency: Channel 11: 2462MHz



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	41.6517	46.80	-17.80	29.00	PK	40.00	11.00	Vertical
2	49.4194	47.11	-17.25	29.86	PK	40.00	10.14	Vertical
3	55.2452	48.26	-17.91	30.35	PK	40.00	9.65	Vertical
4	61.0711	49.21	-18.70	30.51	PK	40.00	9.49	Vertical
5	391.201	44.57	-11.83	32.74	PK	46.00	13.26	Vertical
6	474.704	45.49	-10.12	35.37	PK	46.00	10.63	Vertical



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	41.6517	46.52	-17.80	28.72	PK	40.00	11.28	Horizontal
2	48.4484	47.89	-17.32	30.57	PK	40.00	9.43	Horizontal
3	53.3033	49.07	-17.65	31.42	PK	40.00	8.58	Horizontal
4	61.0711	50.66	-18.70	31.96	PK	40.00	8.04	Horizontal
5	387.317	47.38	-11.83	35.55	PK	46.00	10.45	Horizontal
6	473.733	47.79	-10.19	37.60	PK	46.00	8.40	Horizontal

7.6 CONDUCTED EMISSION TEST

7.6.1 Applicable Standard

According to IC RSS-Gen 8.8

7.6.2 Conformance Limit

FCC Part 15, Subpart B, Class B

Conducted Emission Limit		
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:
 1. The lower limit shall apply at the transition frequencies
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

7.6.3 Test Configuration

Test according to clause 6.3 conducted emission test setup 3.

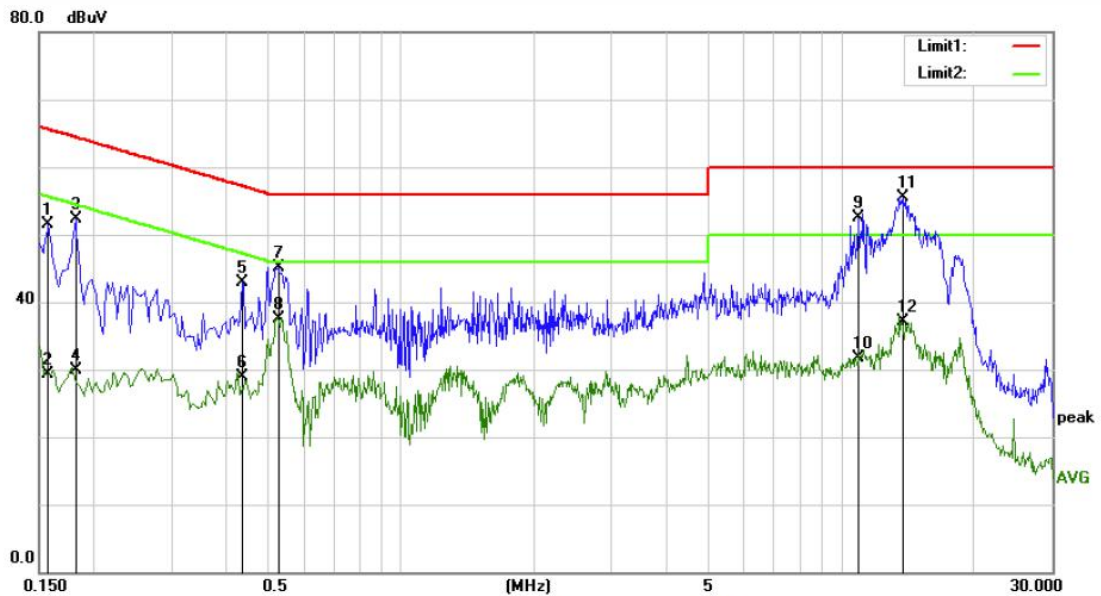
7.6.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
 Maximum procedure was performed on the highest emissions to ensure EUT compliance.
 Repeat above procedures until all frequency measured were complete.

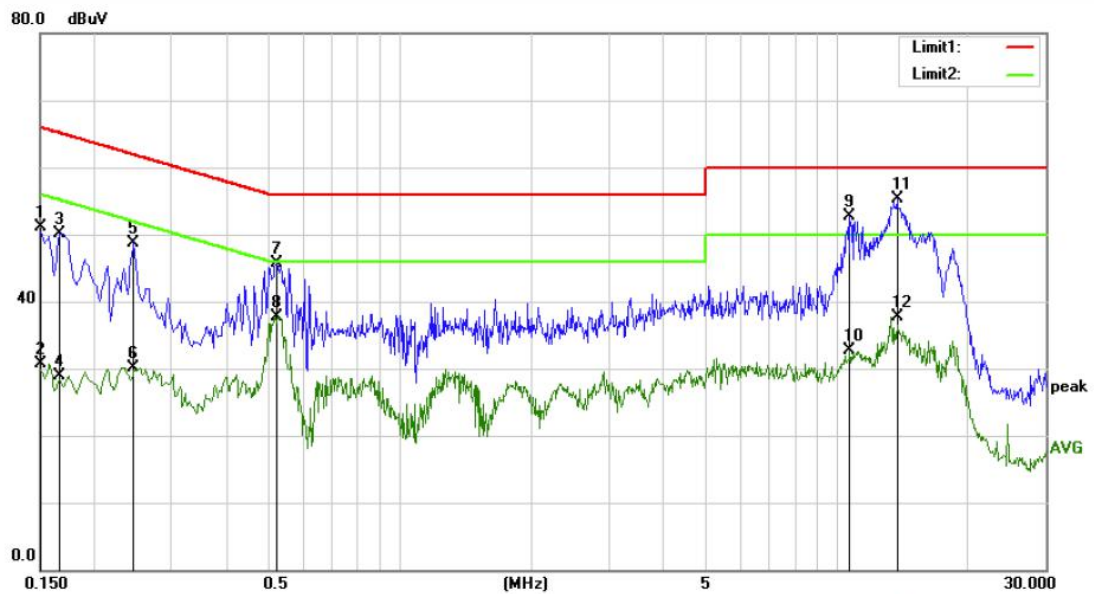
7.6.5 Test Results

Pass

Temperature :	20.8°C	ATM Pressure:	1011 mbar
Humidity :	61%	Test Engineer:	WAP



Site Conduction #1				Phase: L1		Temperature: 20.8		
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector Comment
1		0.1580	41.97	9.60	51.57	65.57	-14.00	QP
2		0.1580	19.65	9.60	29.25	55.57	-26.32	AVG
3		0.1820	42.35	9.89	52.24	64.39	-12.15	QP
4		0.1820	20.09	9.89	29.98	54.39	-24.41	AVG
5		0.4340	33.11	9.77	42.88	57.18	-14.30	QP
6		0.4340	19.17	9.77	28.94	47.18	-18.24	AVG
7		0.5260	35.50	9.67	45.17	56.00	-10.83	QP
8		0.5260	27.93	9.67	37.60	46.00	-8.40	AVG
9		10.9220	42.49	10.02	52.51	60.00	-7.49	QP
10		10.9220	21.70	10.02	31.72	50.00	-18.28	AVG
11	*	13.7300	45.53	9.95	55.48	60.00	-4.52	QP
12		13.7300	27.22	9.95	37.17	50.00	-12.83	AVG



Site Conduction #1 Phase: **N** Temperature: 20.8

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	41.69	9.51	51.20	66.00	-14.80	QP	
2		0.1500	21.13	9.51	30.64	56.00	-25.36	AVG	
3		0.1660	40.50	9.70	50.20	65.16	-14.96	QP	
4		0.1660	19.23	9.70	28.93	55.16	-26.23	AVG	
5		0.2460	38.73	10.07	48.80	61.89	-13.09	QP	
6		0.2460	19.96	10.07	30.03	51.89	-21.86	AVG	
7		0.5220	36.03	9.67	45.70	56.00	-10.30	QP	
8		0.5220	28.11	9.67	37.78	46.00	-8.22	AVG	
9		10.7220	42.66	10.03	52.69	60.00	-7.31	QP	
10		10.7220	22.68	10.03	32.71	50.00	-17.29	AVG	
11	*	13.7540	45.35	9.96	55.31	60.00	-4.69	QP	
12		13.7540	27.72	9.96	37.68	50.00	-12.32	AVG	

7.7 ANTENNA APPLICATION

7.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi..

7.7.2 Result

PASS

Temperature : 25°C ATM Pressure: 1011 mbar
Humidity : 60 % Test Engineer: XXH

The EUT is integrated antenna, antenna1 gain is 3.05 dBi, antenna2 gain is 4.08 dBi.

- ☐ Antenna uses a permanently attached antenna which is not replaceable.
- ☒ Not using a standard antenna jack or electrical connector for antenna replacement.
- ☐ The antenna has to be professionally installed (please provide method of installation).

Which in accordance to section 15.203, please refer to the internal photos.

Detail of factor for radiated emission:

Frequency(MHz)	Ant_F(dB)	Cab_L(dB)	Preamp(dB)	Correct Factor(dB)
0.009	20.6	0.03	\	20.63
0.15	20.7	0.1	\	20.8
1	20.9	0.15	\	21.05
10	20.1	0.28	\	20.38
30	18.8	0.45	\	19.25
30	11.7	0.62	27.9	-15.58
100	12.5	1.02	27.8	-14.28
300	12.9	1.91	27.5	-12.69
600	19.2	2.92	27	-4.88
800	21.1	3.54	26.6	-1.96
1000	22.3	4.17	26.2	0.27
1000	25.6	1.76	41.4	-14.04
3000	28.9	3.27	43.2	-11.03
5000	31.1	4.2	44.6	-9.3
8000	36.2	5.95	44.7	-2.55
10000	38.4	6.3	43.9	0.8
12000	38.5	7.14	42.3	3.34
15000	40.2	8.15	41.4	6.95
18000	45.4	9.02	41.3	13.12
18000	37.9	1.81	47.9	-8.19
21000	37.9	1.95	48.7	-8.85
25000	39.3	2.01	42.8	-1.49
28000	39.6	2.16	46.0	-4.24
31000	41.2	2.24	44.5	-1.06
34000	41.5	2.29	46.6	-2.81
37000	43.8	2.30	46.4	-0.3
40000	43.2	2.50	42.2	3.5

--- End of Report ---

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