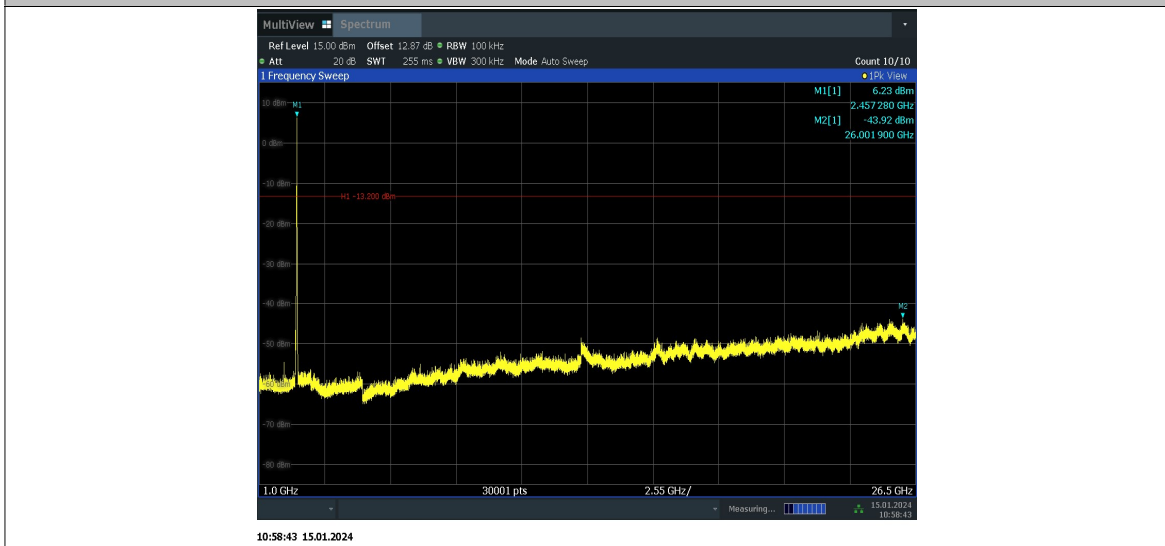


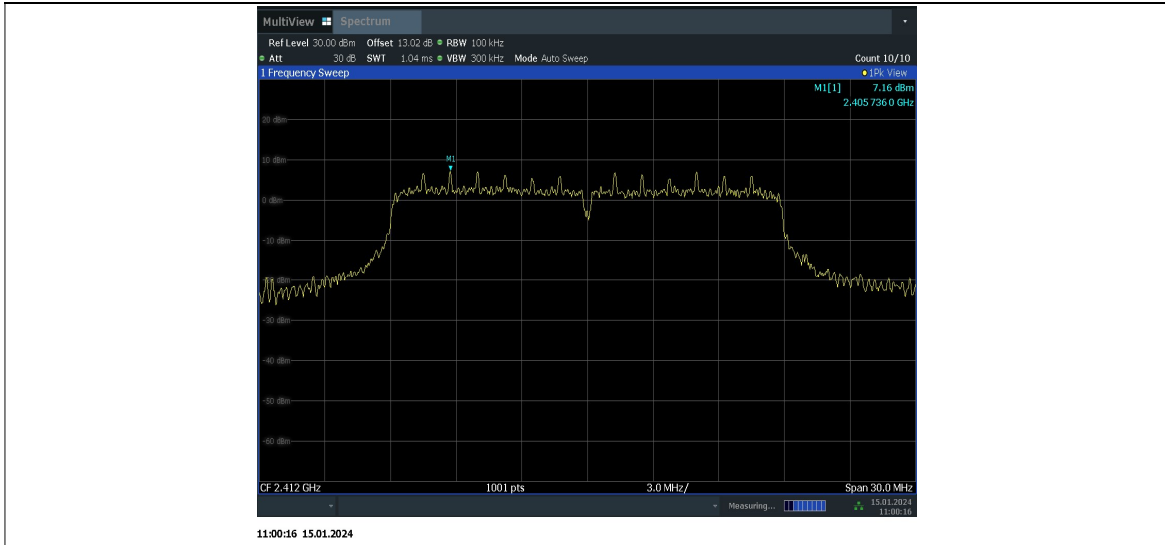
10:58:07 15.01.2024

11G\_Ant1\_2462\_1000~26500

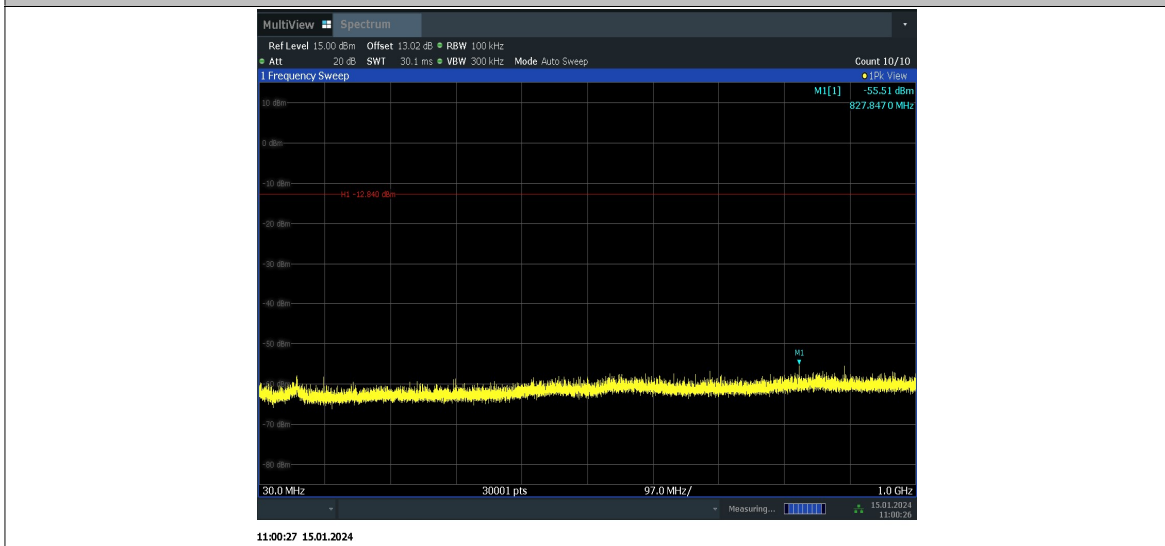


10:58:43 15.01.2024

11N20SISO\_Ant1\_2412\_0~Reference



11N20SISO\_Ant1\_2412\_30~1000

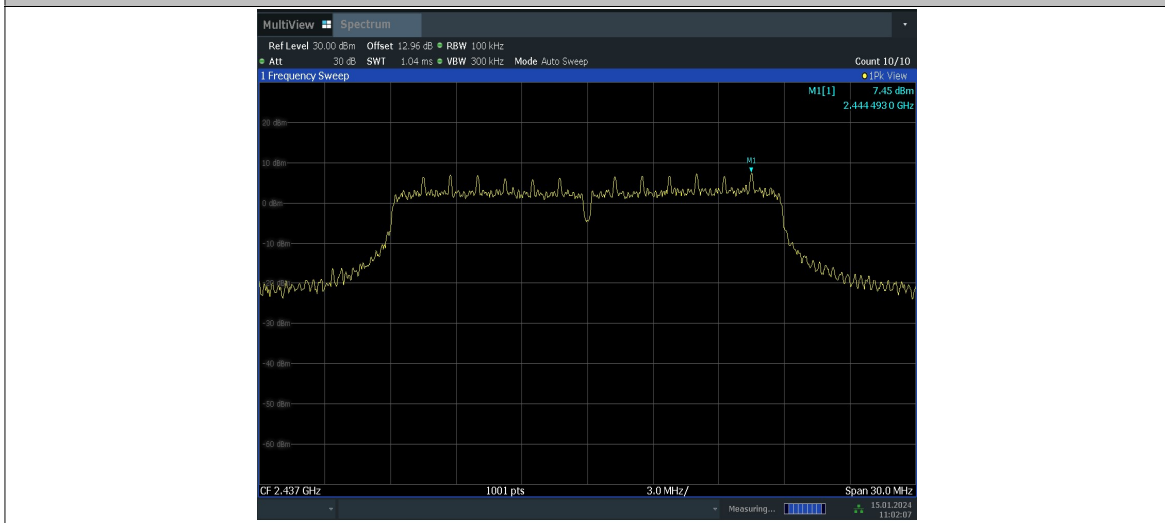


11N20SISO\_Ant1\_2412\_1000~26500



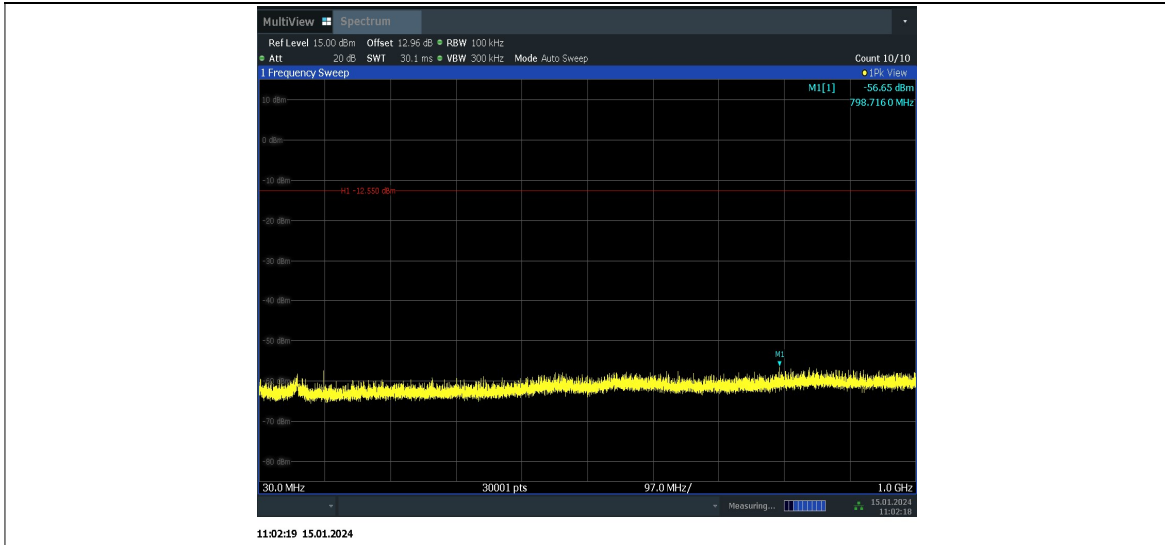
11:01:03 15.01.2024

11N20SISO\_Ant1\_2437\_0~Reference



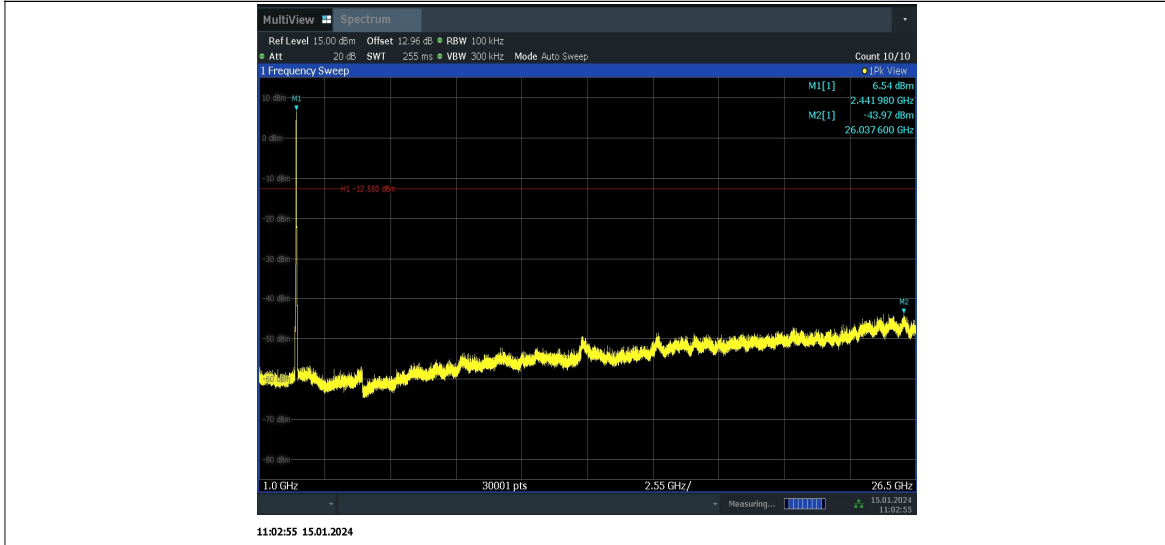
11:02:08 15.01.2024

11N20SISO\_Ant1\_2437\_30~1000



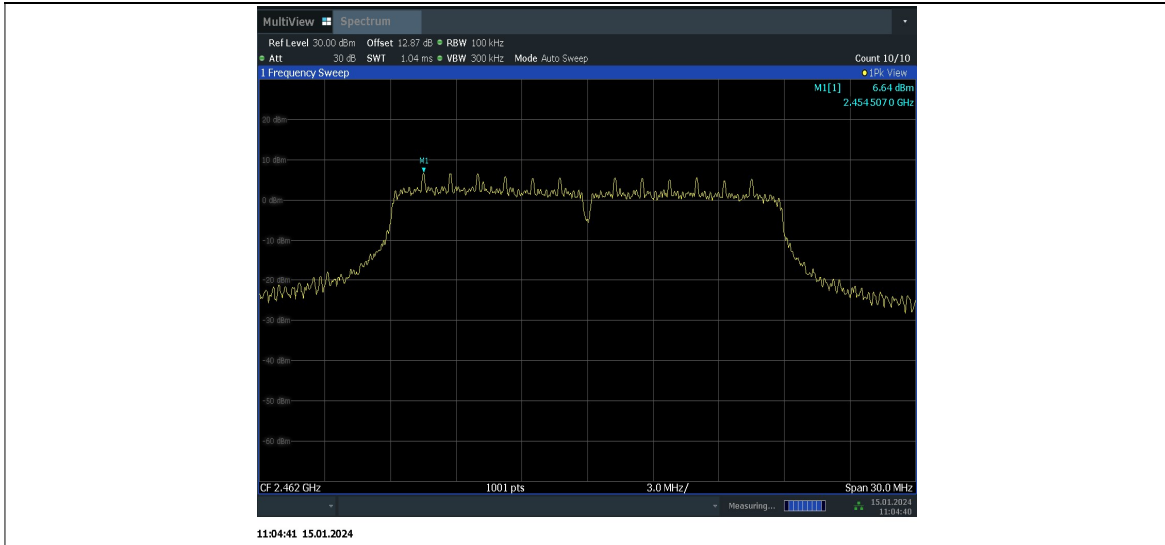
11:02:19 15.01.2024

11N20SISO\_Ant1\_2437\_1000~26500

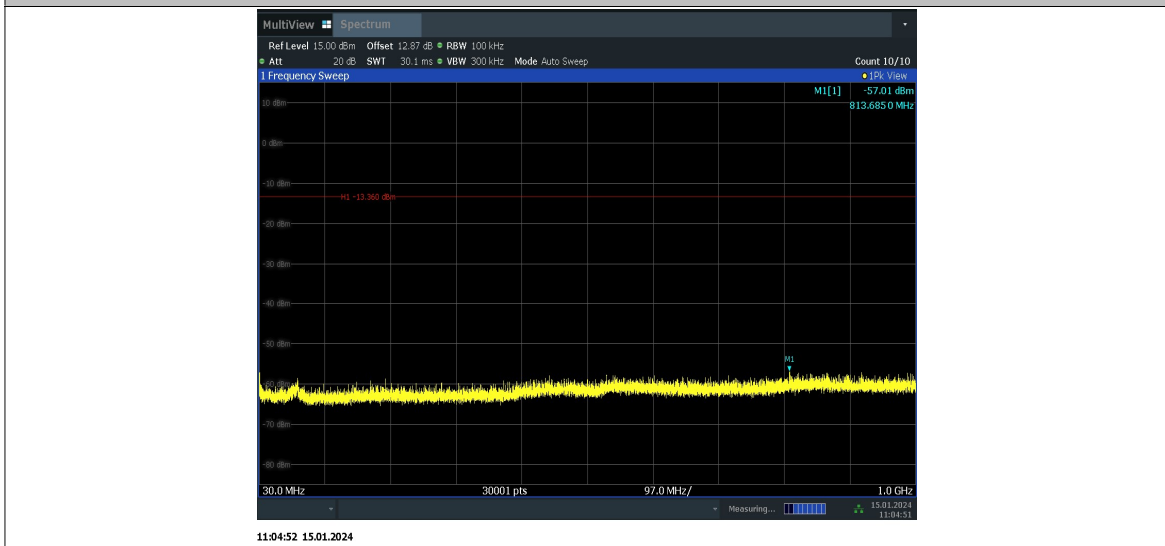


11:02:55 15.01.2024

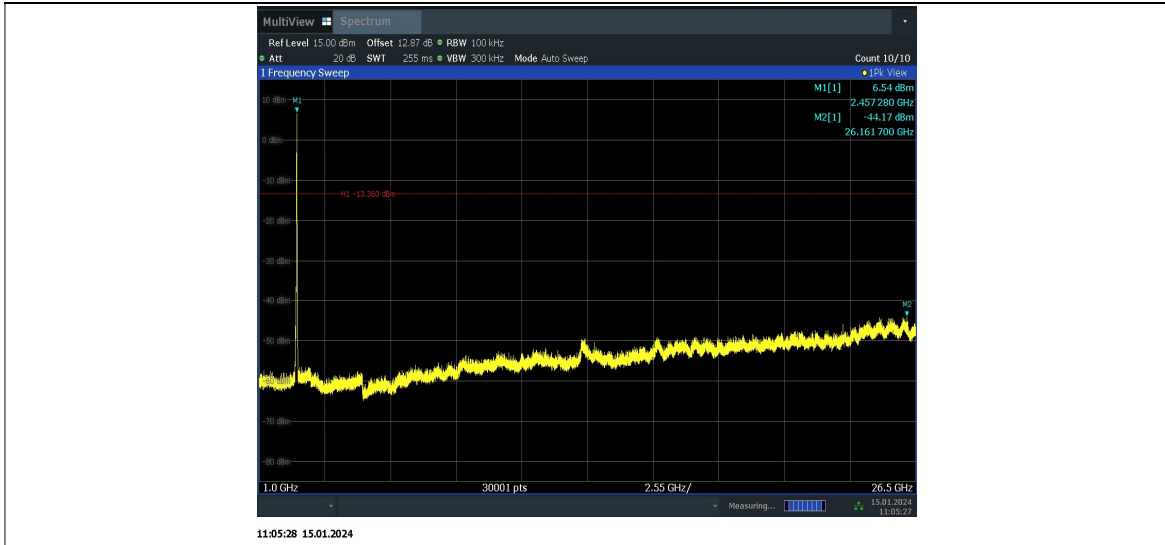
11N20SISO\_Ant1\_2462\_0~Reference



11N20SISO\_Ant1\_2462\_30~1000

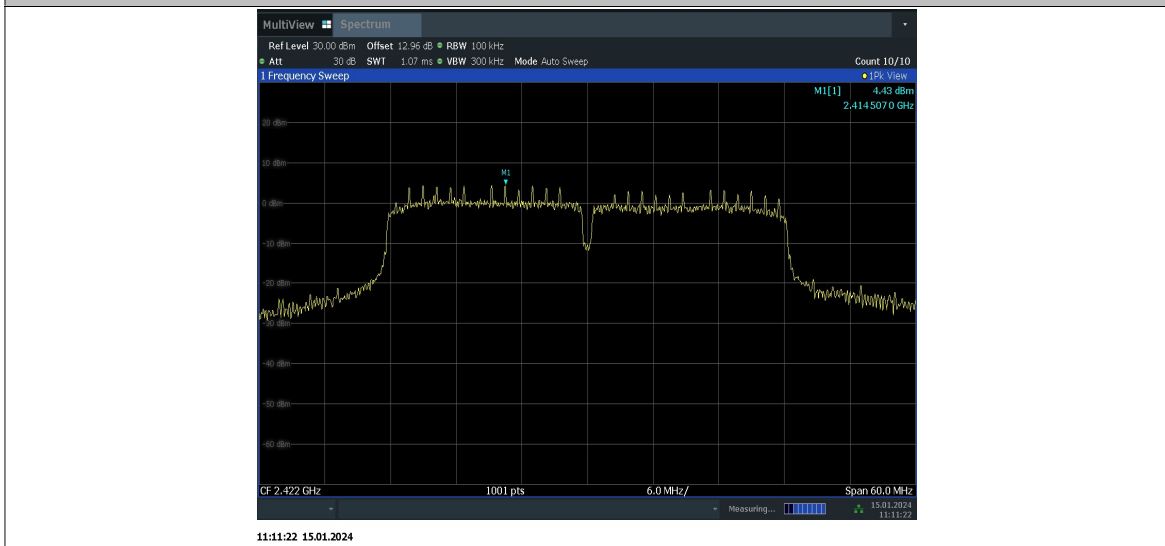


11N20SISO\_Ant1\_2462\_1000~26500



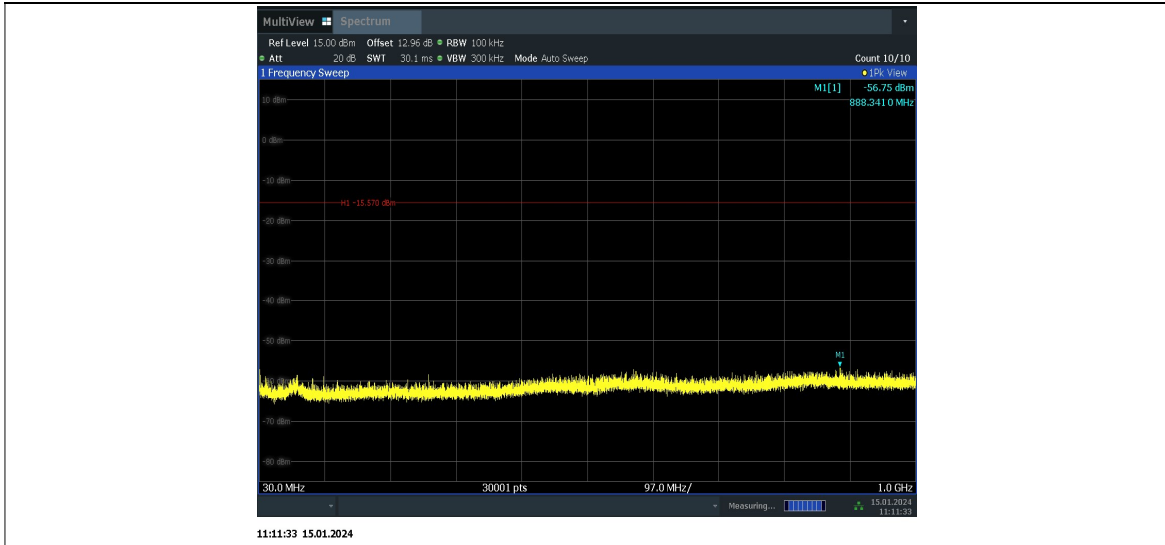
11:05:28 15.01.2024

11N40SISO\_Ant1\_2422\_0~Reference



11:11:22 15.01.2024

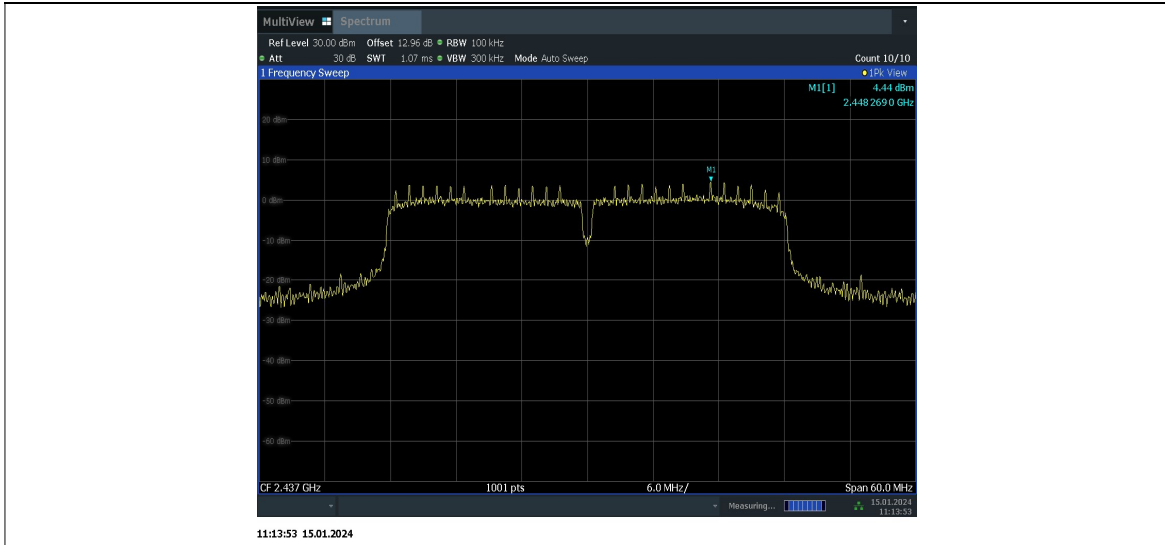
11N40SISO\_Ant1\_2422\_30~1000



11N40SISO\_Ant1\_2422\_1000~26500

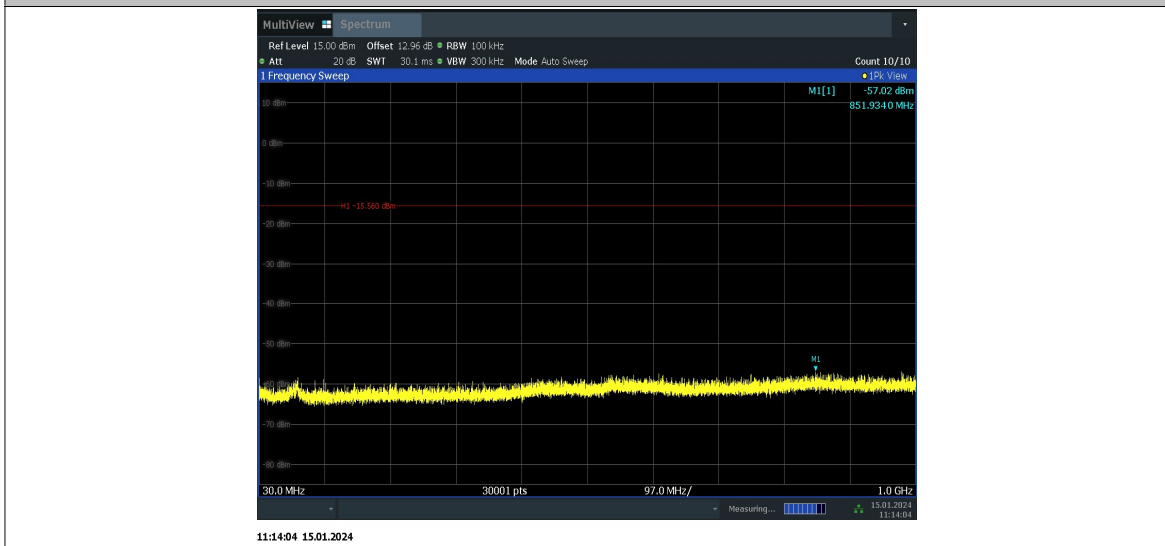


11N40SISO\_Ant1\_2437\_0~Reference



11:13:53 15.01.2024

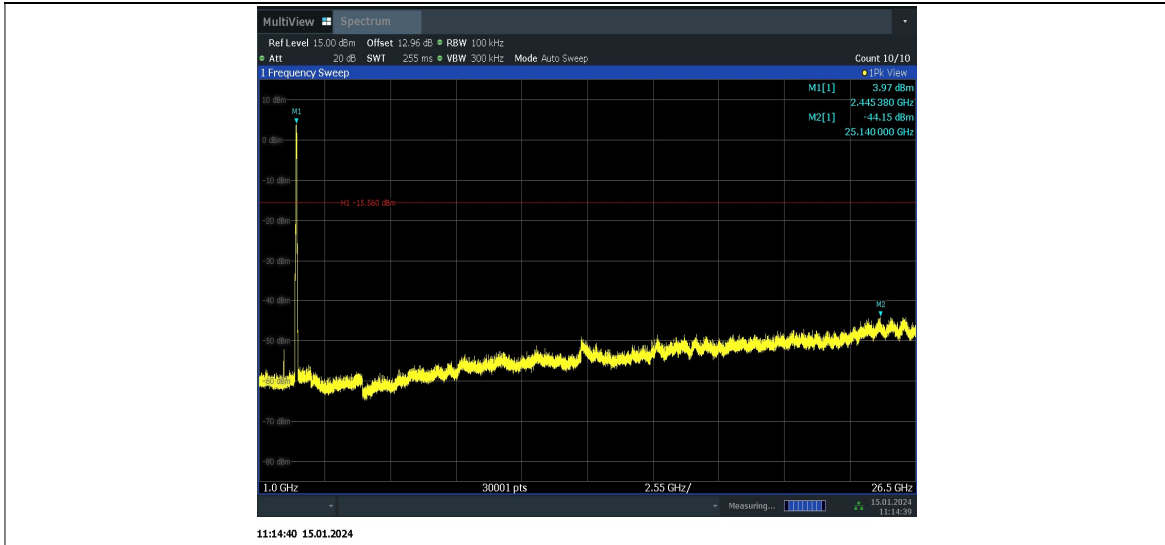
11N40SISO\_Ant1\_2437\_30~1000



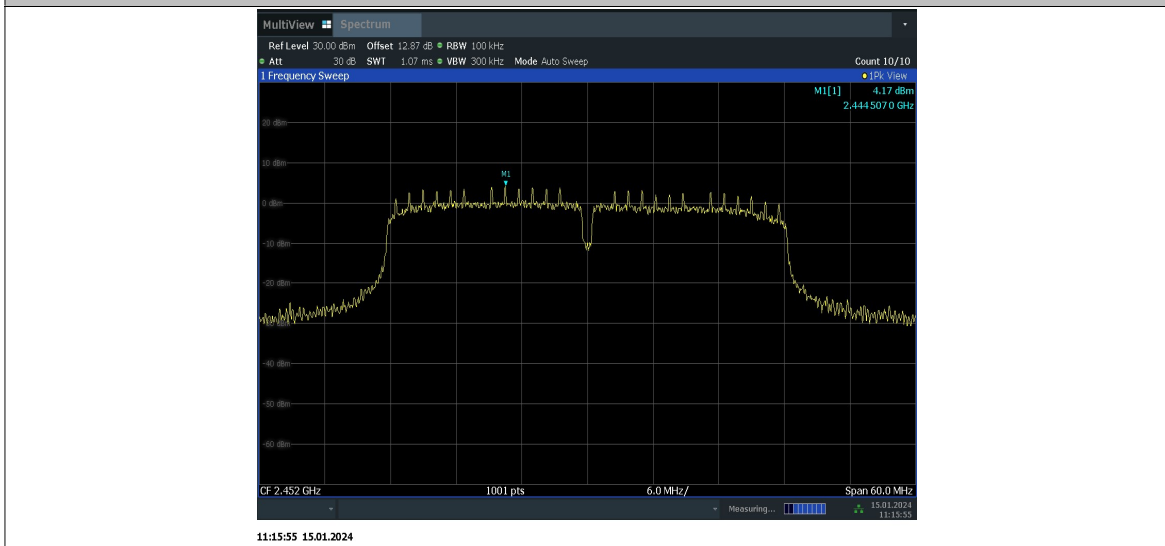
11:14:04 15.01.2024

11N40SISO\_Ant1\_2437\_1000~26500

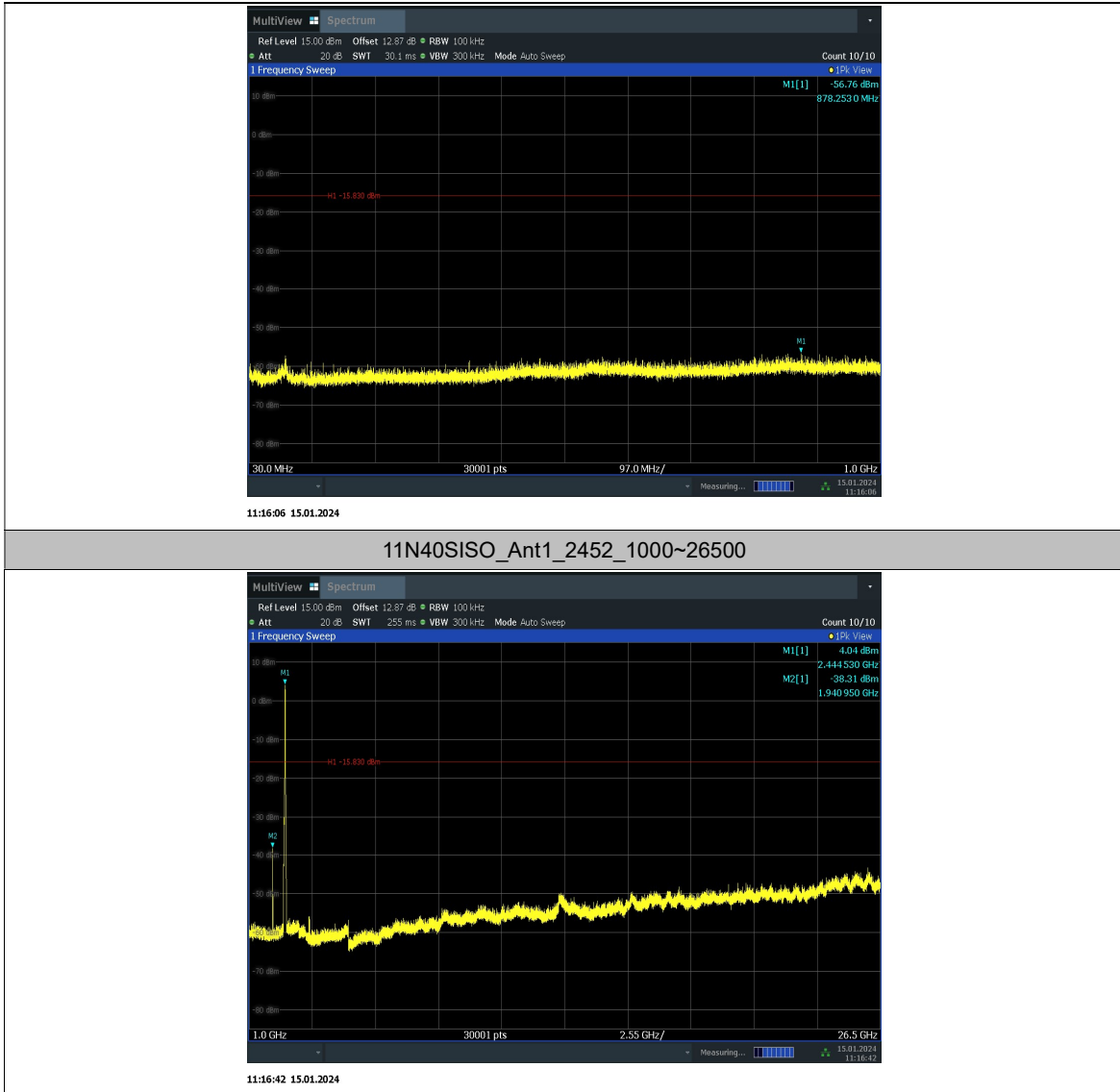




11N40SISO\_Ant1\_2452\_0~Reference



11N40SISO\_Ant1\_2452\_30~1000



11:16:06 15.01.2024

11N40SISO\_Ant1\_2452\_1000~26500

11:16:42 15.01.2024

Conclusion: Pass

## A.7. Radiated Unwanted Emission

### Limits

#### Measurement Limit

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

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)).

#### Limit in restricted band

Frequency (MHz)	Field strength( $\mu\text{V}/\text{m}$ )	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Frequency of emission (MHz)	Field strength ( $\mu\text{V}/\text{m}$ )	Field strength (dB $\mu\text{V}/\text{m}$ )	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Note: When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor.

### Test setup

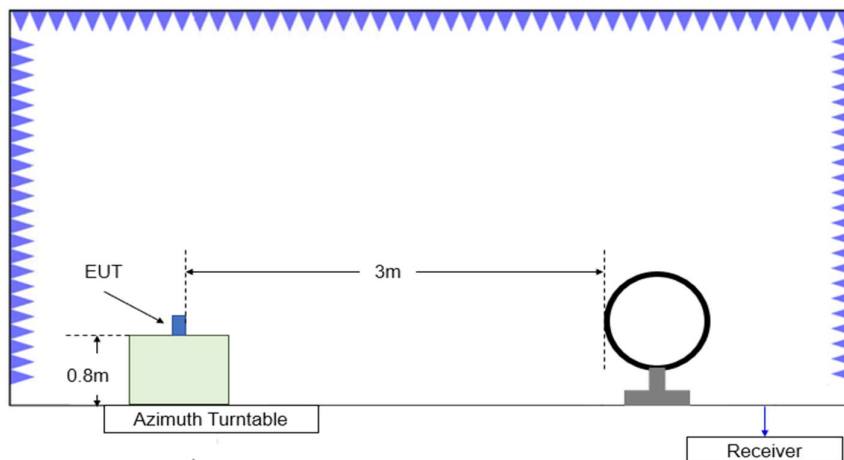
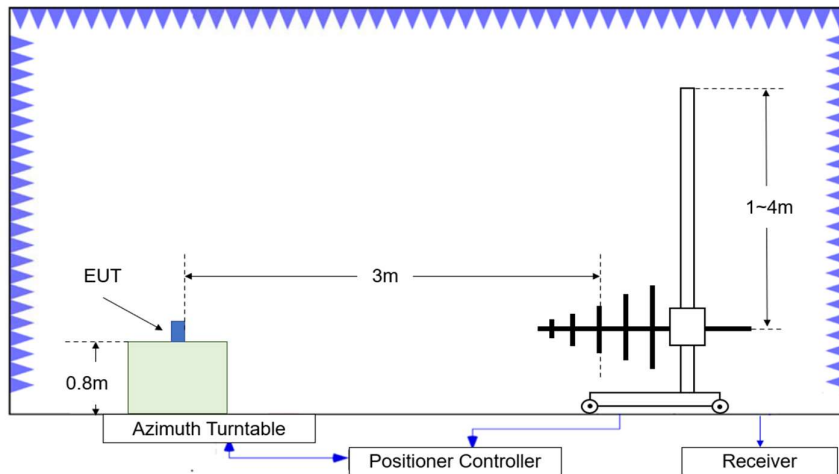
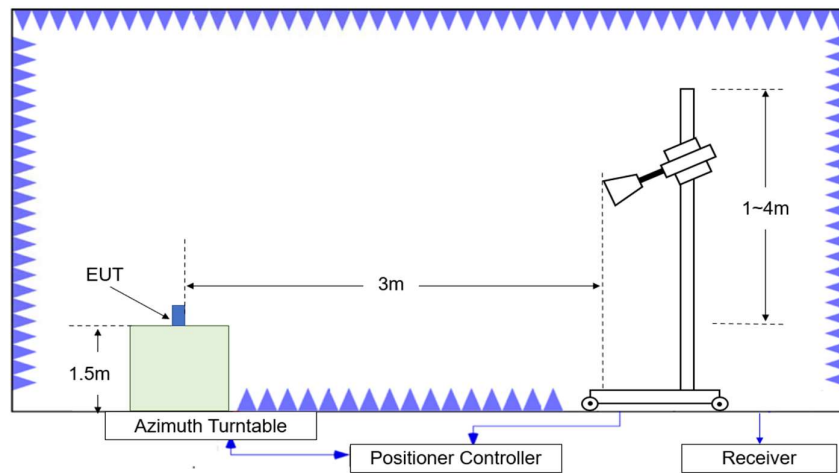


Figure A.7.1.1 Test Site Diagram (9kHz-30MHz)



**Figure A.7.1.2. Test Site Diagram (30MHz-1GHz)**



**Figure A.7.1.3. Test Site Diagram (1GHz-40GHz)**

### **Test Procedures**

Radiated unwanted emissions from the EUT were measured according to ANSI C63.10.

#### Test setting

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-3000	1MHz/3MHz	15
3000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

### **Sample Calculation**

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

$P_{Mea}$  is the field strength recorded from the instrument.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + \text{Cable Loss} + \text{Antenna Factor}$$

### Test note

1. The EUT is operating at its maximum duty cycle and its maximum power control level.
2. Investigation has been done on all modes and modulations/data rates. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.
3. Spurious emissions for all channels were investigated and almost the same below 1GHz. According to FCC 47 CFR §15.31, emission levels are not report much lower than the limit by over 20dB
4. Measurement frequencies were performed from 9 kHz to the 10<sup>th</sup> harmonic of highest fundamental frequency or 40GHz, whichever is lower.

### Test Result

#### Peak

#### 802.11b

##### Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2386.225	55.61	5.7	27.7	22.27	74.0	18.4	H
2389.475	55.39	5.7	27.7	22.03	74.0	18.6	V
4824.000	41.01	-33.8	32.9	41.81	74.0	33.0	V
7236.000	45.14	-32.2	37.5	39.86	74.0	28.9	H
9648.000	45.84	-30.5	38.0	38.34	74.0	28.2	V
12060.000	45.64	-30.2	38.6	37.17	74.0	28.4	V

##### Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2399.500	56.49	5.7	27.7	23.12	74.0	17.5	V
2460.500	56.89	5.7	27.6	23.57	74.0	17.1	V
4874.000	41.39	-33.6	33.0	41.96	74.0	32.6	H
7311.000	45.10	-32.2	37.6	39.65	74.0	28.9	H
9748.000	45.98	-31.0	38.1	38.89	74.0	28.0	V
12185.000	44.98	-30.7	38.7	36.96	74.0	29.0	V

##### Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2484.525	56.87	5.7	27.7	23.42	74.0	17.1	V
2496.325	57.02	5.7	27.8	23.50	74.0	17.0	H



No.23T04Z80397-012

4924.000	40.90	-33.2	33.0	41.13	74.0	33.1	V
7386.000	44.39	-32.4	37.5	39.26	74.0	29.6	V
9848.000	43.71	-31.4	38.2	36.90	74.0	30.3	V
12310.000	45.55	-30.5	38.6	37.49	74.0	28.5	H

**802.11g**

## Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.125	64.83	5.7	27.7	31.48	74.0	9.2	V
2389.450	65.65	5.7	27.7	32.30	74.0	8.4	H
4824.000	40.79	-33.8	32.9	41.60	74.0	33.2	H
7236.000	45.37	-32.2	37.5	40.09	74.0	28.6	H
9648.000	45.75	-30.5	38.0	38.24	74.0	28.3	H
12060.000	46.07	-30.2	38.6	37.60	74.0	27.9	V

## Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2377.000	56.03	5.6	27.7	22.74	74.0	18.0	V
2489.000	56.09	5.7	27.8	22.60	74.0	17.9	H
4874.000	41.59	-33.6	33.0	42.16	74.0	32.4	H
7311.000	44.41	-32.2	37.6	38.96	74.0	29.6	V
9748.000	44.38	-31.0	38.1	37.30	74.0	29.6	V
12185.000	45.33	-30.7	38.7	37.30	74.0	28.7	V

## Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.525	64.28	5.7	27.7	30.84	74.0	9.7	V
2483.976	64.03	5.7	27.7	30.58	74.0	10.0	V
4924.000	41.75	-33.2	33.0	41.97	74.0	32.3	H
7386.000	44.70	-32.4	37.5	39.57	74.0	29.3	V
9848.000	44.87	-31.4	38.2	38.06	74.0	29.1	V
12310.000	45.47	-30.5	38.6	37.41	74.0	28.5	H

**802.11n-HT20**

## Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.963	68.64	5.7	27.7	35.29	74.0	5.4	H
2389.925	69.44	5.7	27.7	36.08	74.0	4.6	H
4824.000	39.84	-33.8	32.9	40.64	74.0	34.2	V
7236.000	45.06	-32.2	37.5	39.78	74.0	28.9	V
9648.000	46.14	-30.5	38.0	38.64	74.0	27.9	V
12060.000	46.22	-30.2	38.6	37.75	74.0	27.8	H

## Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2384.500	55.61	5.7	27.7	22.29	74.0	18.4	V
2483.500	56.00	5.7	27.7	22.56	74.0	18.0	V
4874.000	40.82	-33.6	33.0	41.38	74.0	33.2	V
7311.000	44.77	-32.2	37.6	39.33	74.0	29.2	H
9748.000	44.84	-31.0	38.1	37.76	74.0	29.2	V
12185.000	45.77	-30.7	38.7	37.74	74.0	28.2	H

## Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.500	64.02	5.7	27.7	30.58	74.0	10.0	H
2483.900	61.99	5.7	27.7	28.55	74.0	12.0	H
4924.000	39.94	-33.2	33.0	40.17	74.0	34.1	V
7386.000	44.08	-32.4	37.5	38.95	74.0	29.9	V
9848.000	44.20	-31.4	38.2	37.39	74.0	29.8	V
12310.000	45.06	-30.5	38.6	37.00	74.0	28.9	V



**802.11n-HT40**

## Ch3

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.600	61.70	5.7	27.7	28.35	74.0	12.3	V
2389.875	63.96	5.7	27.7	30.61	74.0	10.0	V
4844.000	39.90	-34.0	33.0	40.87	74.0	34.1	V
7266.000	44.91	-32.0	37.5	39.39	74.0	29.1	V
9688.000	45.57	-30.7	38.1	38.21	74.0	28.4	H
12110.000	45.01	-30.8	38.6	37.19	74.0	29.0	H

## Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2402.500	61.98	5.7	27.7	28.62	74.0	12.0	H
2463.500	61.26	5.7	27.7	27.93	74.0	12.7	V
4874.000	40.58	-33.6	33.0	41.15	74.0	33.4	H
7311.000	45.46	-32.2	37.6	40.02	74.0	28.5	H
9748.000	45.48	-31.0	38.1	38.39	74.0	28.5	V
12185.000	45.32	-30.7	38.7	37.29	74.0	28.7	H

## Ch9

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.825	61.28	5.7	27.7	27.84	74.0	12.7	H
2484.500	60.98	5.7	27.7	27.53	74.0	13.0	H
4904.000	39.83	-33.7	33.0	40.50	74.0	34.2	V
7356.000	43.55	-32.2	37.6	38.13	74.0	30.5	V
9808.000	43.54	-31.4	38.2	36.76	74.0	30.5	V
12260.000	45.80	-30.5	38.6	37.67	74.0	28.2	H

**Average  
802.11b**

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2388.200	41.95	5.7	27.7	8.61	54.0	12.0	V
2389.000	42.15	5.7	27.7	8.80	54.0	11.8	V
4824.000	31.01	-33.8	32.9	31.82	54.0	23.0	H
7236.000	32.96	-32.2	37.5	27.68	54.0	21.0	H
9648.000	34.06	-30.5	38.0	26.56	54.0	19.9	H
12060.000	33.89	-30.2	38.6	25.41	54.0	20.1	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2415.200	44.22	5.7	27.7	10.80	54.0	9.8	V
2456.400	45.55	5.7	27.6	12.23	54.0	8.4	V
4874.000	32.79	-33.6	33.0	33.35	54.0	21.2	V
7311.000	33.18	-32.2	37.6	27.73	54.0	20.8	H
9748.000	33.54	-31.0	38.1	26.46	54.0	20.5	H
12185.000	33.71	-30.7	38.7	25.68	54.0	20.3	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2484.400	44.06	5.7	27.7	10.61	54.0	9.9	V
2486.000	44.04	5.7	27.7	10.57	54.0	10.0	V
4924.000	30.08	-33.2	33.0	30.31	54.0	23.9	H
7386.000	32.62	-32.4	37.5	27.49	54.0	21.4	H
9848.000	32.43	-31.4	38.2	25.62	54.0	21.6	V
12310.000	33.49	-30.5	38.6	25.43	54.0	20.5	V

**802.11g**

## Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.800	45.51	5.7	27.7	12.16	54.0	8.5	V
2390.000	45.84	5.7	27.7	12.48	54.0	8.2	V
4824.000	28.75	-33.8	32.9	29.56	54.0	25.3	H
7236.000	32.85	-32.2	37.5	27.57	54.0	21.2	V
9648.000	34.08	-30.5	38.0	26.58	54.0	19.9	V
12060.000	33.87	-30.2	38.6	25.40	54.0	20.1	V

## Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2412.800	47.30	5.7	27.7	13.90	54.0	6.7	V
2458.000	47.72	5.7	27.6	14.40	54.0	6.3	V
4874.000	28.54	-33.6	33.0	29.10	54.0	25.5	H
7311.000	33.13	-32.2	37.6	27.68	54.0	20.9	H
9748.000	33.60	-31.0	38.1	26.52	54.0	20.4	H
12185.000	33.66	-30.7	38.7	25.64	54.0	20.3	H

## Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.600	44.95	5.7	27.7	11.51	54.0	9.1	V
2484.000	44.71	5.7	27.7	11.27	54.0	9.3	V
4924.000	28.61	-33.2	33.0	28.84	54.0	25.4	V
7386.000	32.67	-32.4	37.5	27.54	54.0	21.3	V
9848.000	32.47	-31.4	38.2	25.66	54.0	21.5	V
12310.000	33.59	-30.5	38.6	25.52	54.0	20.4	H

**802.11n-HT20**

## Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2389.600	49.24	5.7	27.7	15.88	54.0	4.8	V
2390.000	50.01	5.7	27.7	16.65	54.0	4.0	V
4824.000	28.54	-33.8	32.9	29.34	54.0	25.5	H
7236.000	32.98	-32.2	37.5	27.70	54.0	21.0	H
9648.000	34.12	-30.5	38.0	26.62	54.0	19.9	V
12060.000	33.94	-30.2	38.6	25.46	54.0	20.1	V

## Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2409.200	45.03	5.7	27.7	11.65	54.0	9.0	V
2462.400	45.25	5.7	27.6	11.93	54.0	8.7	V
4874.000	28.66	-33.6	33.0	29.22	54.0	25.3	V
7311.000	33.22	-32.2	37.6	27.77	54.0	20.8	H
9748.000	33.61	-31.0	38.1	26.53	54.0	20.4	V
12185.000	33.60	-30.7	38.7	25.58	54.0	20.4	H

## Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.600	44.83	5.7	27.7	11.39	54.0	9.2	V
2484.000	44.69	5.7	27.7	11.25	54.0	9.3	V
4924.000	28.65	-33.2	33.0	28.87	54.0	25.4	V
7386.000	32.78	-32.4	37.5	27.65	54.0	21.2	H
9848.000	32.36	-31.4	38.2	25.55	54.0	21.6	V
12310.000	33.54	-30.5	38.6	25.48	54.0	20.5	H

**802.11n-HT40**

## Ch3

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2390.200	44.58	5.7	27.7	11.23	54.0	9.4	V
2391.000	45.15	5.7	27.7	11.79	54.0	8.8	V
4844.000	27.96	-34.0	33.0	28.93	54.0	26.0	H
7266.000	32.87	-32.0	37.5	27.35	54.0	21.1	H
9688.000	34.13	-30.7	38.1	26.78	54.0	19.9	V
12110.000	32.98	-30.8	38.6	25.16	54.0	21.0	V

## Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2399.000	45.27	5.7	27.7	11.89	54.0	8.7	V
2462.400	45.56	5.7	27.6	12.23	54.0	8.4	V
4874.000	28.54	-33.6	33.0	29.11	54.0	25.5	V
7311.000	33.14	-32.2	37.6	27.69	54.0	20.9	H
9748.000	33.54	-31.0	38.1	26.46	54.0	20.5	V
12185.000	33.63	-30.7	38.7	25.60	54.0	20.4	H

## Ch9

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
2483.800	44.65	5.7	27.7	11.21	54.0	9.3	V
2484.200	44.62	5.7	27.7	11.17	54.0	9.4	V
4904.000	27.95	-33.7	33.0	28.63	54.0	26.0	H
7356.000	32.46	-32.2	37.6	27.04	54.0	21.5	V
9808.000	32.79	-31.4	38.2	26.02	54.0	21.2	V
12260.000	33.76	-30.5	38.6	25.63	54.0	20.2	V

### Band edge compliance

#### 802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.31GHz~2.43GHz---L	Figure A.7.2.1	<b>P</b>
	11	2.45GHz~2.50GHz---H	Figure A.7.2.2	<b>P</b>

#### 802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	2.31GHz~2.43GHz---L	Figure A.7.2.3	<b>P</b>
	11	2.45GHz~2.50GHz---H	Figure A.7.2.4	<b>P</b>

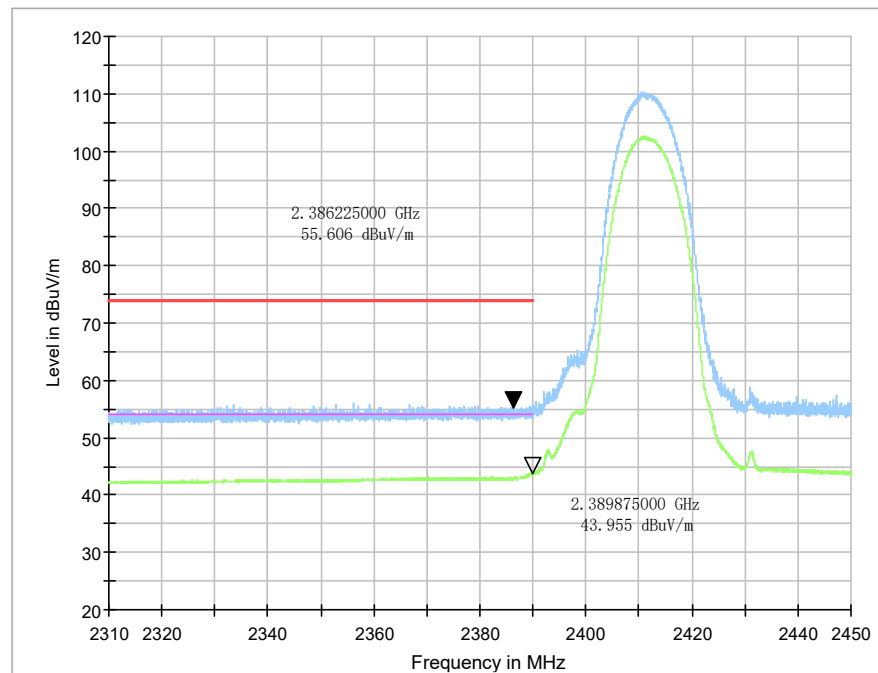
#### 802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.31GHz~2.43GHz---L	Figure A.7.2.5	<b>P</b>
	11	2.45GHz~2.50GHz---H	Figure A.7.2.6	<b>P</b>

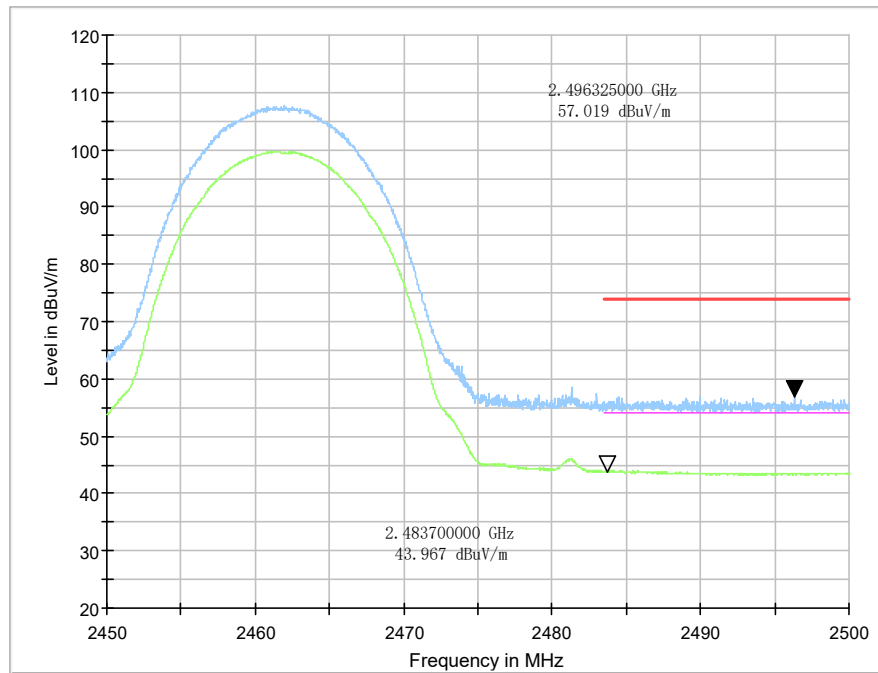
#### 802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	3	2.31GHz~2.43GHz---L	Figure A.7.2.7	<b>P</b>
	9	2.45GHz~2.50GHz---H	Figure A.7.2.8	<b>P</b>

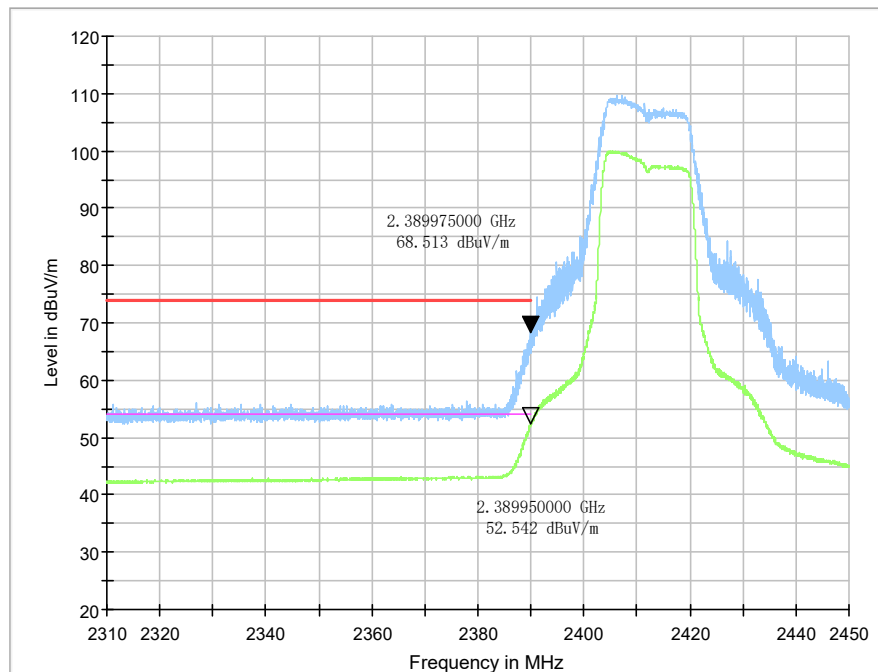
Test graphs as below:



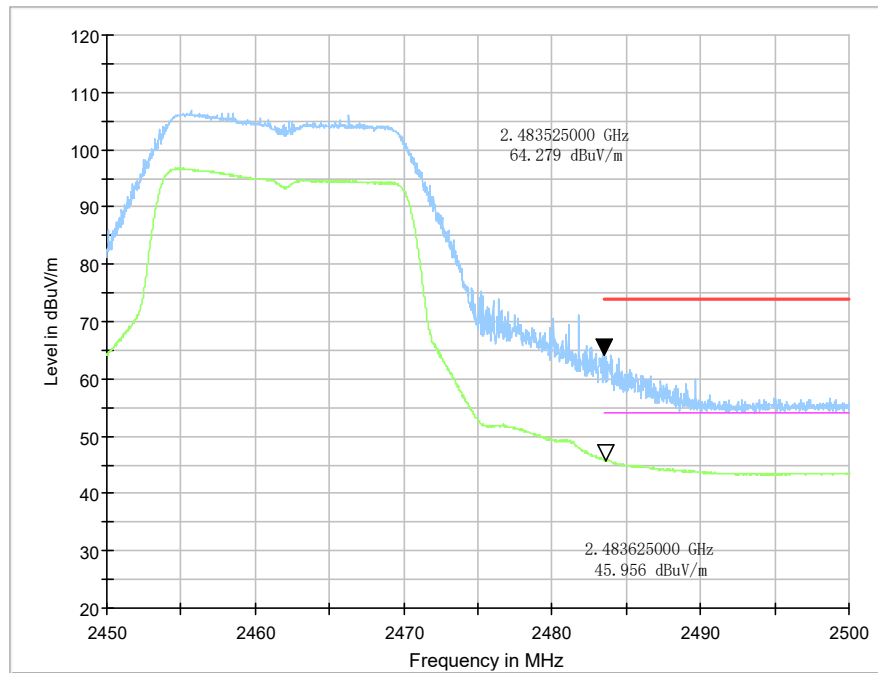
**Figure A.7.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.45GHz**



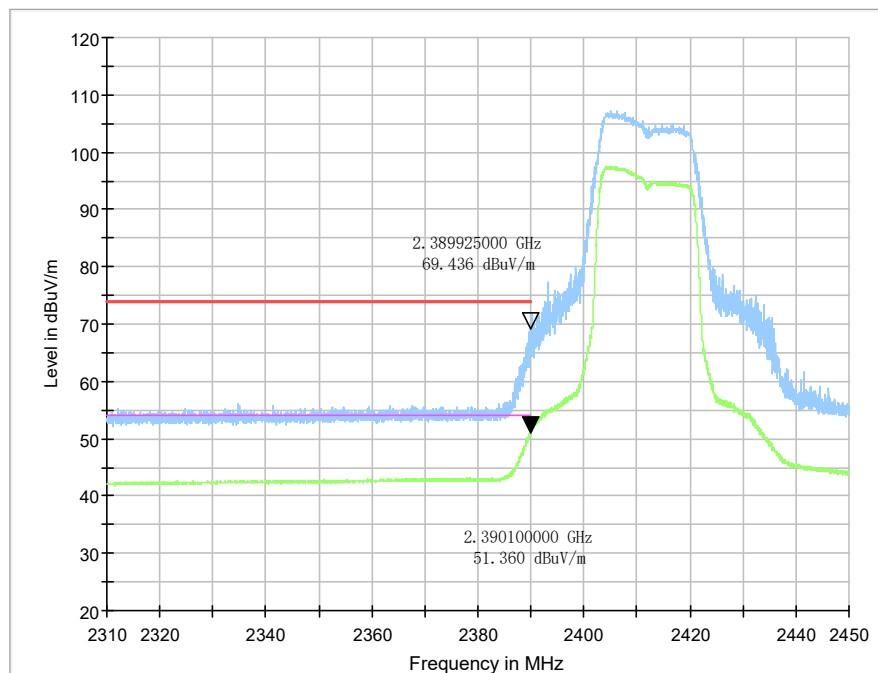
**Figure A.7.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz**



**Figure A.7.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.45GHz**

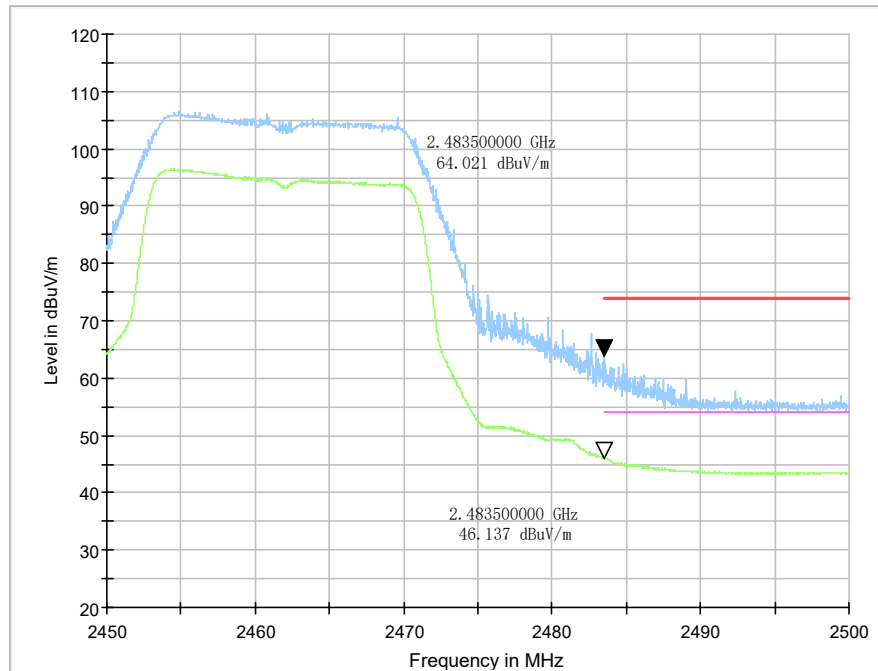


**Figure A.7.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz**

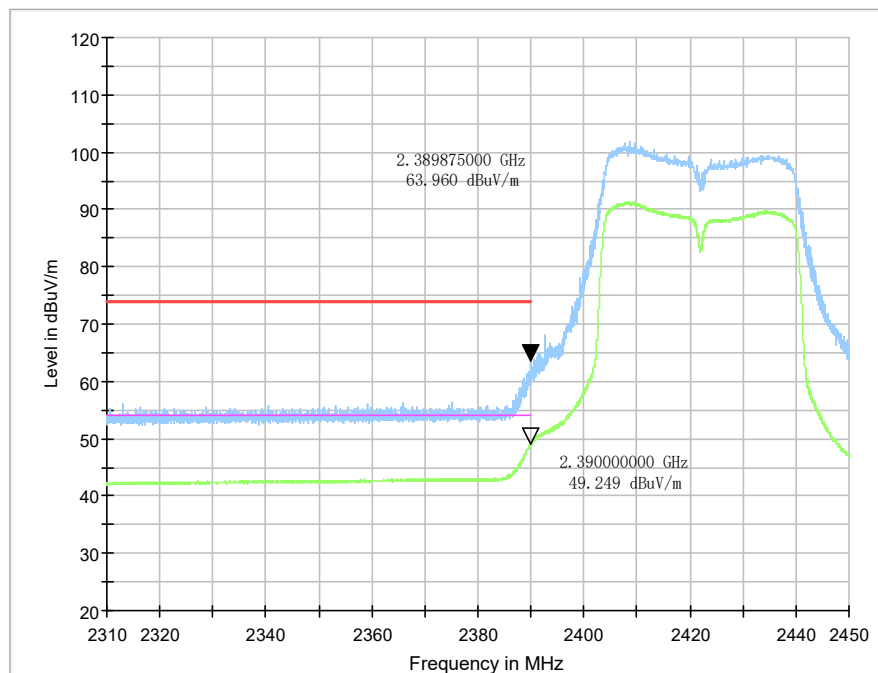


**Figure A.7.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.45GHz**

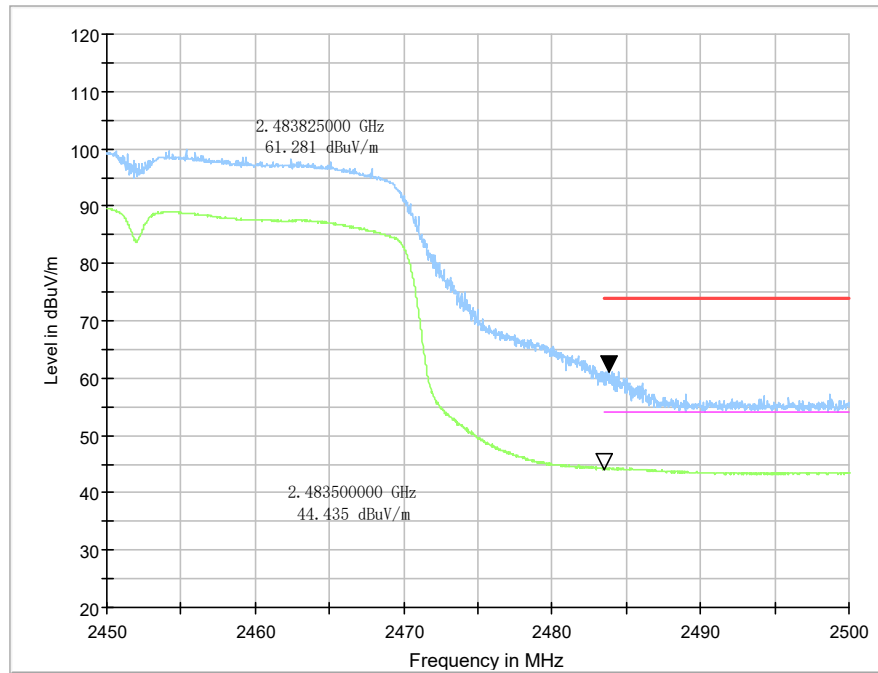




**Figure A.7.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz**



**Figure A.7.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.45GHz**



**Figure A.7.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz**

## **A.8. AC Power-line Conducted Emission**

### **Summary**

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section

### **Method of Measurement:**

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

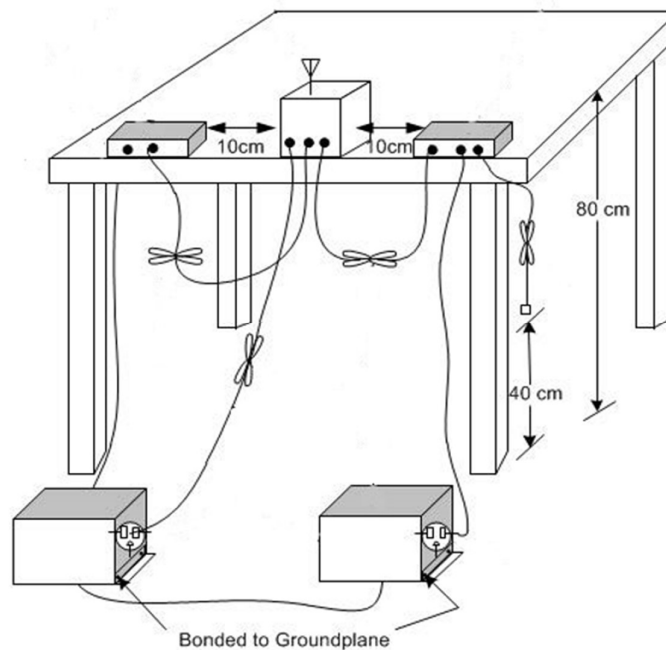
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

### **Test Condition:**

Voltage (V)	Frequency (Hz)
120	60

### **Test setup**



**Measurement Result and limit:**

WLAN (Quasi-peak Limit)

Note: all modes have been tested and the worst results shown here.

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.8.1	Fig.A.8.2	<b>P</b>
0.5 to 5	56			
5 to 30	60			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

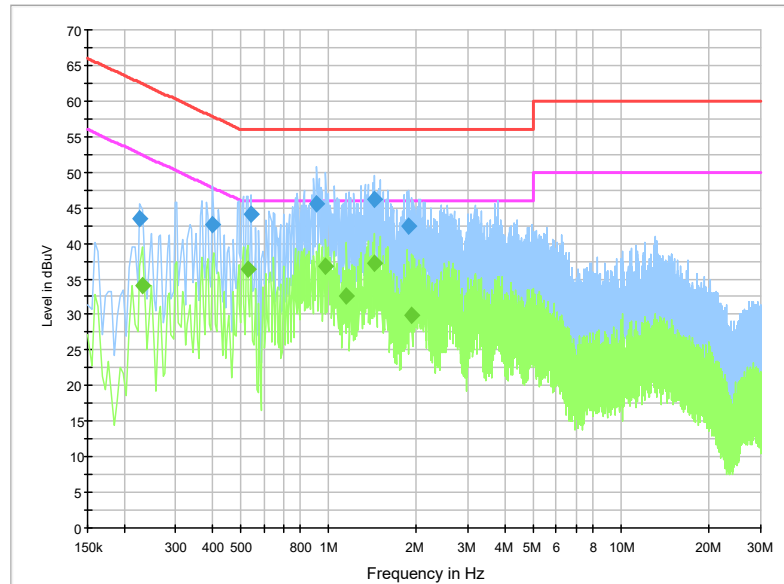
WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.8.1	Fig.A.8.2	<b>P</b>
0.5 to 5	46			
5 to 30	50			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

**Conclusion: Pass**

**Test graphs as below:**



**Fig.A.8.1 AC Powerline Conducted Emission-802.11b**

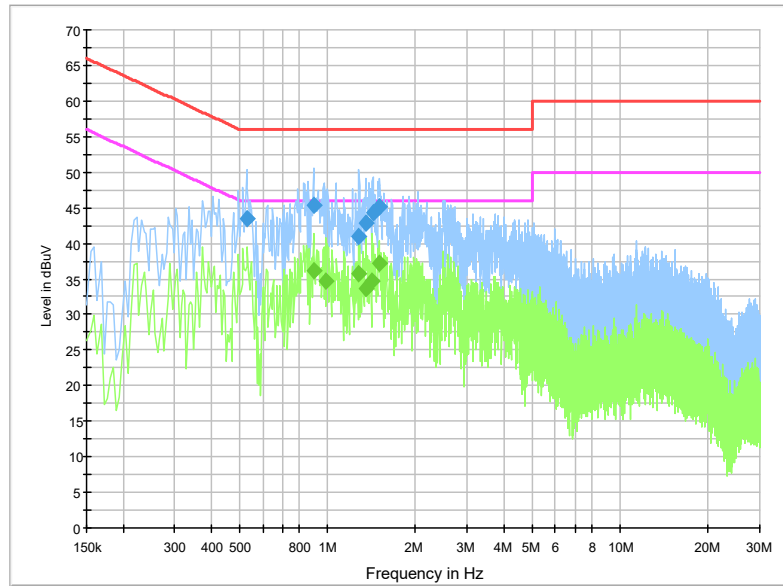
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.226500	43.4	2000.0	9.000	Off	L1	19.7	19.2	62.6	
0.402000	42.5	2000.0	9.000	Off	L1	19.7	15.3	57.8	
0.541500	44.1	2000.0	9.000	Off	L1	19.6	11.9	56.0	
0.910500	45.6	2000.0	9.000	Off	L1	19.6	10.4	56.0	
1.432500	46.2	2000.0	9.000	Off	L1	19.7	9.8	56.0	
1.887000	42.5	2000.0	9.000	Off	L1	19.7	13.5	56.0	

**Final Result 2**

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.231000	34.0	2000.0	9.000	Off	L1	19.7	18.4	52.4	
0.528000	36.3	2000.0	9.000	Off	L1	19.6	9.7	46.0	
0.978000	36.8	2000.0	9.000	Off	L1	19.7	9.2	46.0	
1.153500	32.7	2000.0	9.000	Off	L1	19.7	13.3	46.0	
1.432500	37.3	2000.0	9.000	Off	L1	19.7	8.7	46.0	
1.923000	30.0	2000.0	9.000	Off	N	19.7	16.0	46.0	



**Fig.A.8.2 AC Powerline Conducted Emission-Idle**

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.528000	43.5	2000.0	9.000	Off	N	19.6	12.5	56.0	
0.897000	45.4	2000.0	9.000	Off	L1	19.6	10.6	56.0	
1.279500	40.9	2000.0	9.000	Off	N	19.7	15.1	56.0	
1.351500	42.8	2000.0	9.000	Off	N	19.7	13.2	56.0	
1.428000	44.2	2000.0	9.000	Off	N	19.7	11.8	56.0	
1.509000	45.2	2000.0	9.000	Off	L1	19.7	10.8	56.0	

**Final Result 2**

Frequency (MHz)	Average (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.897000	36.1	2000.0	9.000	Off	L1	19.6	9.9	46.0	
0.987000	34.7	2000.0	9.000	Off	N	19.7	11.3	46.0	
1.279500	35.8	2000.0	9.000	Off	L1	19.7	10.2	46.0	
1.351500	33.7	2000.0	9.000	Off	N	19.7	12.3	46.0	
1.423500	34.7	2000.0	9.000	Off	N	19.7	11.3	46.0	
1.500000	37.1	2000.0	9.000	Off	L1	19.7	8.9	46.0	

## **ANNEX B: EUT parameters**

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

## **ANNEX C: Accreditation Certificate**



**Accredited Laboratory**

A2LA has accredited

**TELECOMMUNICATION TECHNOLOGY LABS, CAICT**  
*Beijing, People's Republic of China*

for technical competence in the field of  
**Electrical Testing**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 26<sup>th</sup> day of June 2023.



Mr. Trace McInturf, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 7049.01  
Valid to July 31, 2024

*For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.*

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