

RF Test Data for 2.4G Wi-Fi (Conducted Measurements)

| General Description of EUT | |
|---|-----------------------|
| Product Name: | Heltec Indoor Hotspot |
| Test Model: | HT-M2808 |
| Sample ID: | 20210603-15-2# |
| Environmental Conditions | |
| Temperature: | 24.3°C |
| Relative Humidity: | 52% |
| Test Voltage: | DC 12V |
| Test Engineer: | Huang jianping |
| Note: For a more detailed features description, please refer to the report TB-RF183069. | |

Contents

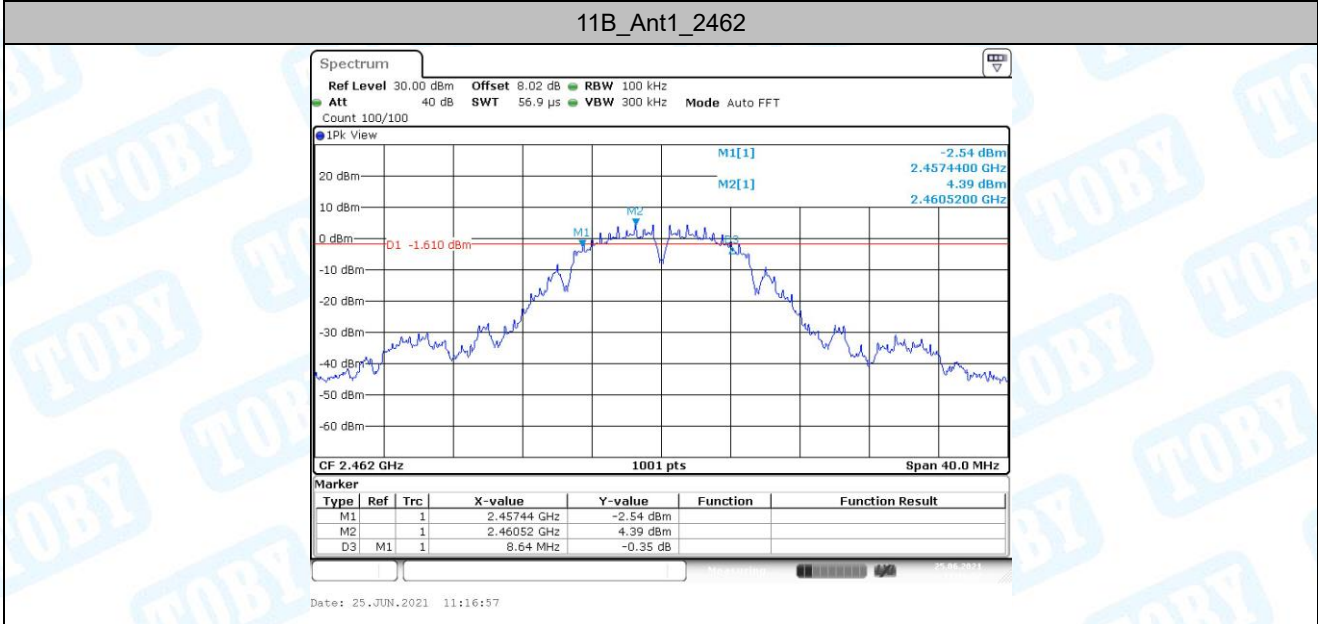
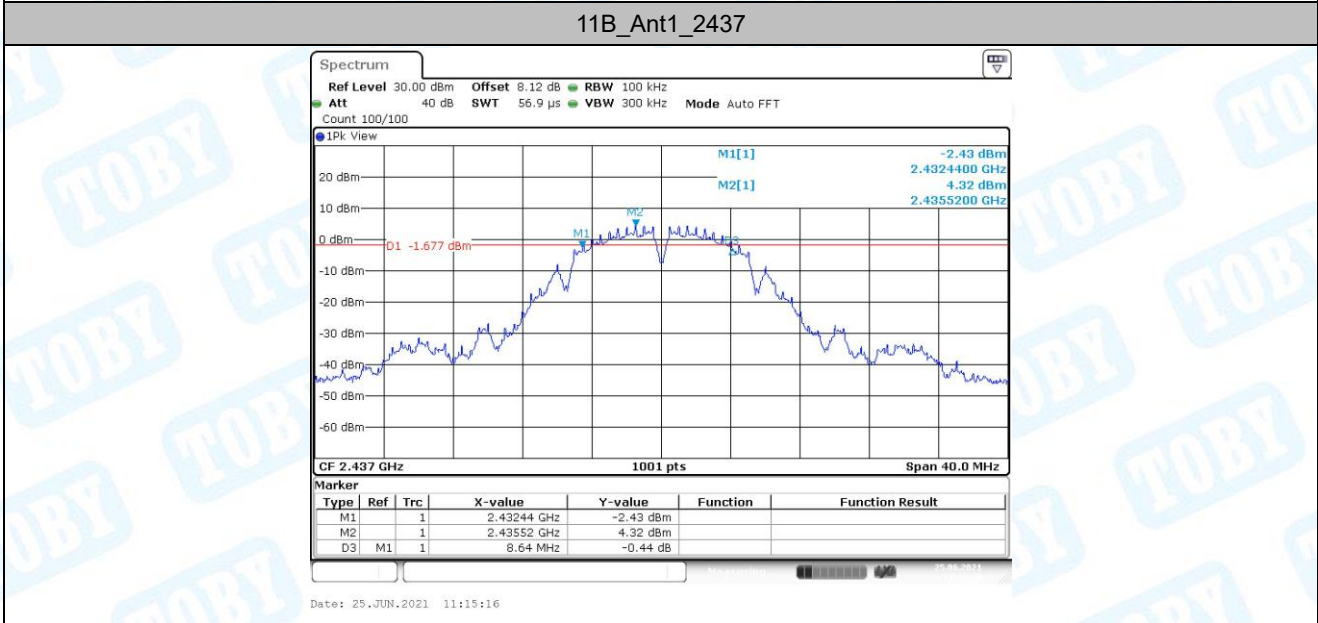
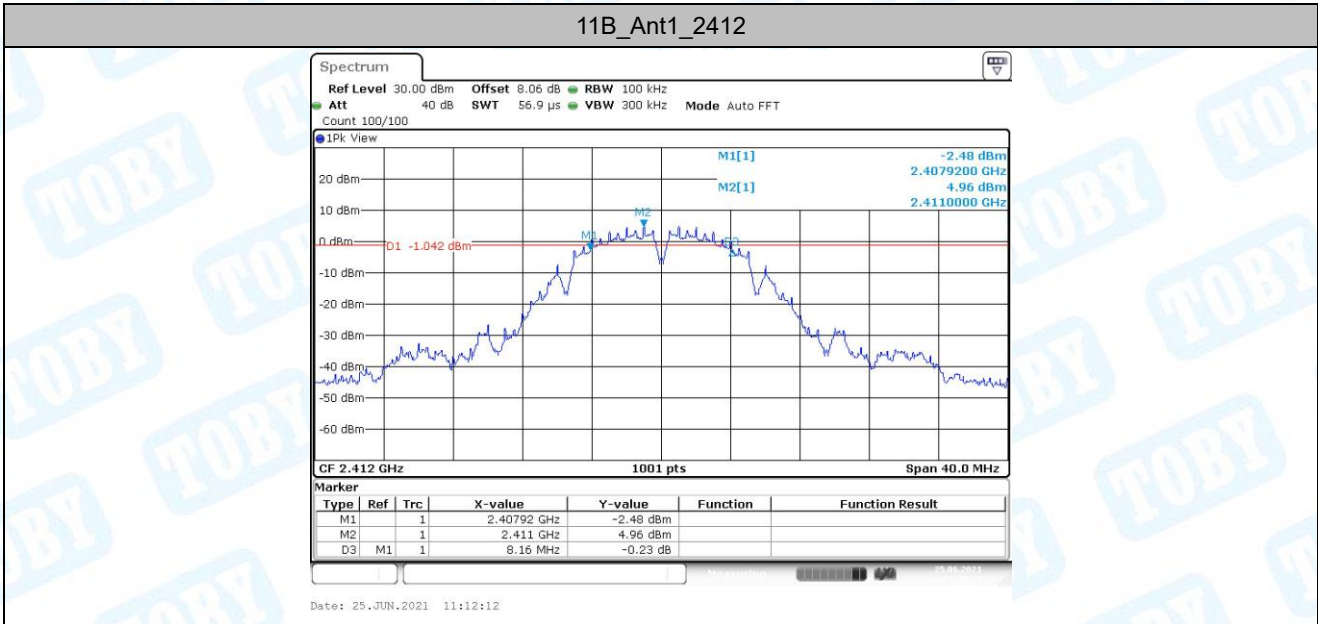
| | |
|---|----|
| 1. DTS Bandwidth..... | 3 |
| 1.1. Test Result..... | 3 |
| 1.2. Test Graphs | 4 |
| 2. Occupied Channel Bandwidth..... | 8 |
| 2.1. Test Result..... | 8 |
| 2.2. Test Graphs | 9 |
| 3. Maximum conducted output power..... | 13 |
| 3.1. Test Result..... | 13 |
| 4. Maximum power spectral density | 14 |
| 4.1. Test Result..... | 14 |
| 4.2. Test Graphs | 15 |
| 5. Band edge measurements | 19 |
| 5.1. Test Result..... | 19 |
| 5.2. Test Graphs | 20 |
| 6. Conducted Spurious Emission..... | 23 |
| 6.1. Test Result..... | 23 |
| 6.2. Test Graphs | 24 |
| 7. Duty Cycle | 36 |
| 7.1. Test Result..... | 36 |
| 7.2. Test Graphs | 37 |
| 8. Emissions in Restricted Bands..... | 41 |
| 8.1. Test Result..... | 41 |
| 8.2. Test Graphs | 43 |

1. DTS Bandwidth

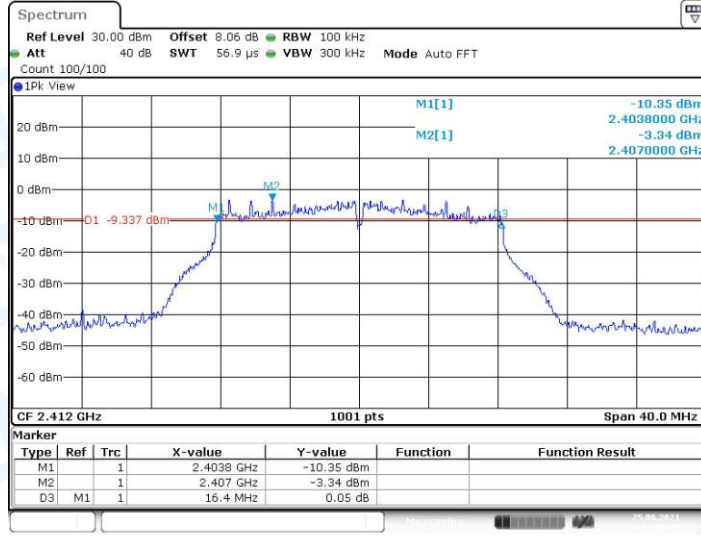
1.1. Test Result

| TestMode | Antenna | Channel | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|---------|--------------|----------|----------|------------|---------|
| 11B | Ant1 | 2412 | 8.160 | 2407.920 | 2416.080 | 0.5 | PASS |
| | | 2437 | 8.640 | 2432.440 | 2441.080 | 0.5 | PASS |
| | | 2462 | 8.640 | 2457.440 | 2466.080 | 0.5 | PASS |
| 11G | Ant1 | 2412 | 16.400 | 2403.800 | 2420.200 | 0.5 | PASS |
| | | 2437 | 16.400 | 2428.800 | 2445.200 | 0.5 | PASS |
| | | 2462 | 16.400 | 2453.800 | 2470.200 | 0.5 | PASS |
| 11N20SISO | Ant1 | 2412 | 17.640 | 2403.160 | 2420.800 | 0.5 | PASS |
| | | 2437 | 17.600 | 2428.200 | 2445.800 | 0.5 | PASS |
| | | 2462 | 17.240 | 2453.200 | 2470.440 | 0.5 | PASS |
| 11N40SISO | Ant1 | 2422 | 35.520 | 2404.160 | 2439.680 | 0.5 | PASS |
| | | 2437 | 35.680 | 2419.000 | 2454.680 | 0.5 | PASS |
| | | 2452 | 35.600 | 2434.000 | 2469.600 | 0.5 | PASS |

1.2. Test Graphs

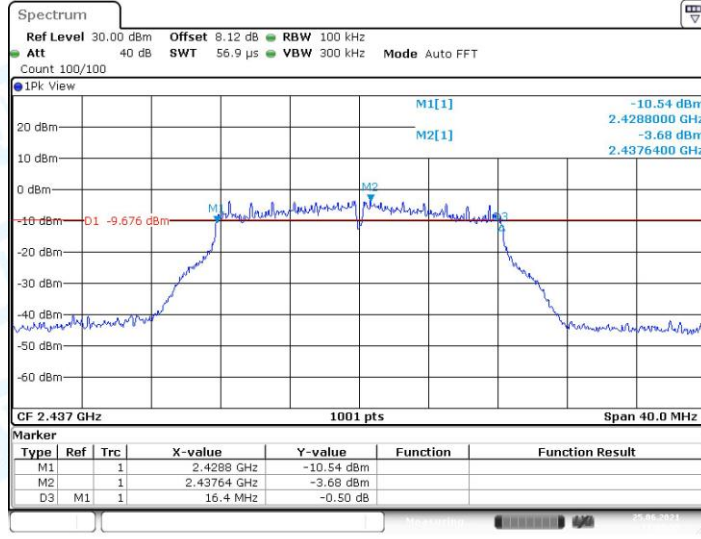


11G_Ant1_2412



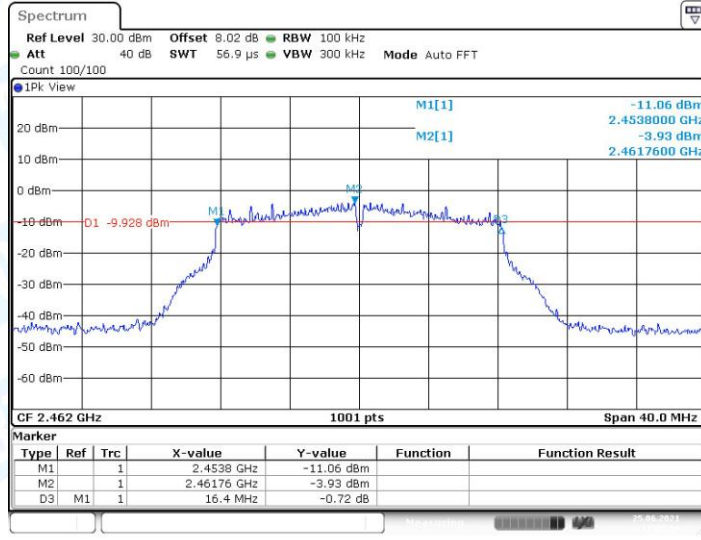
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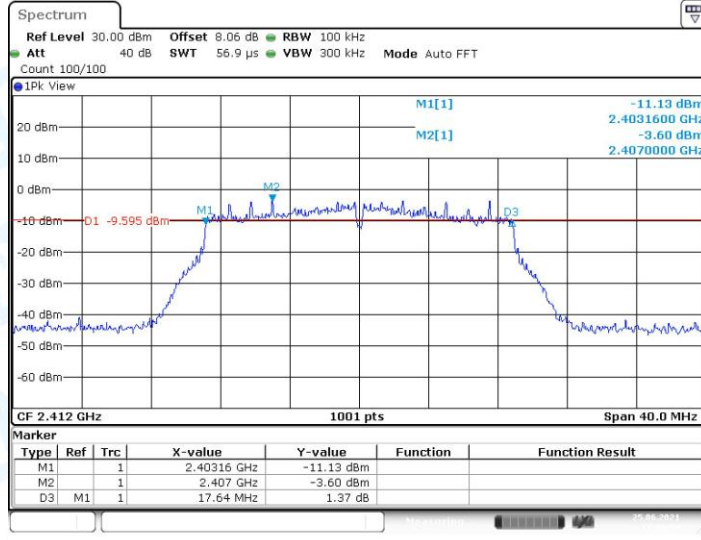
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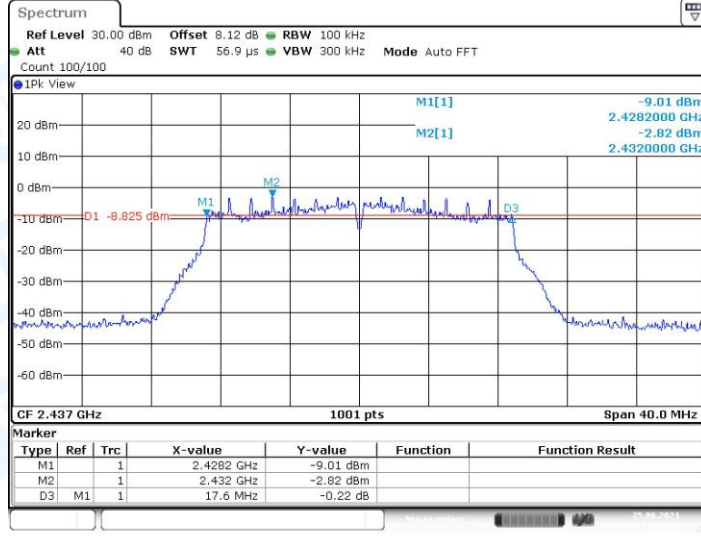


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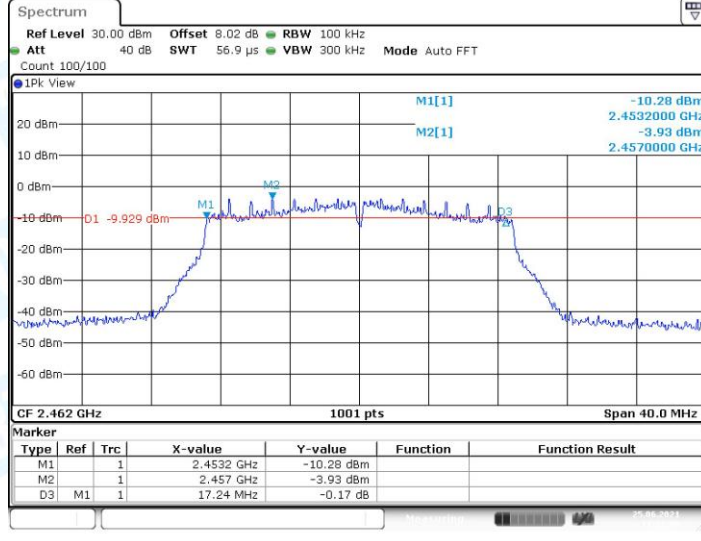
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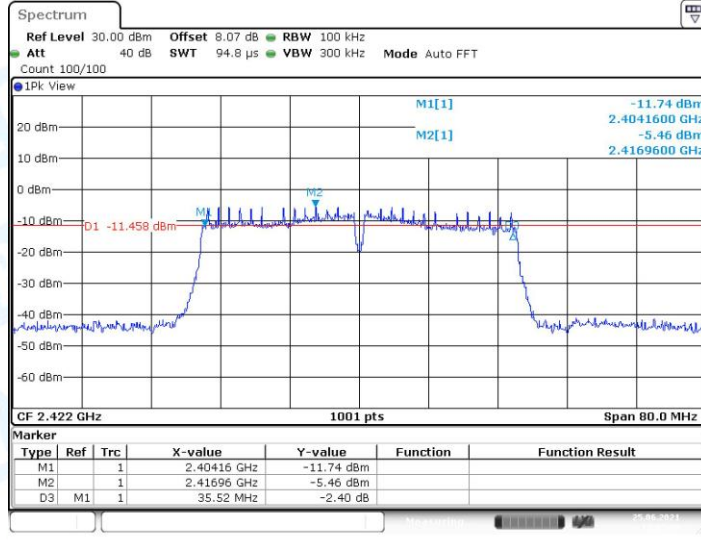
11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

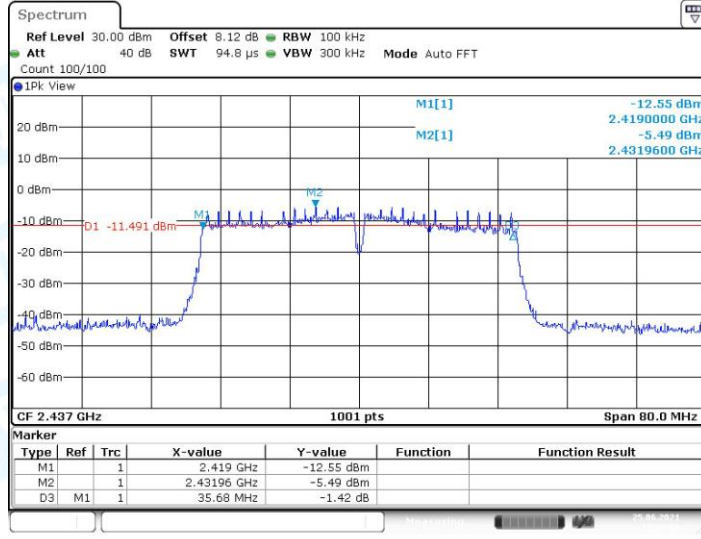


11N40SISO_Ant1_2422



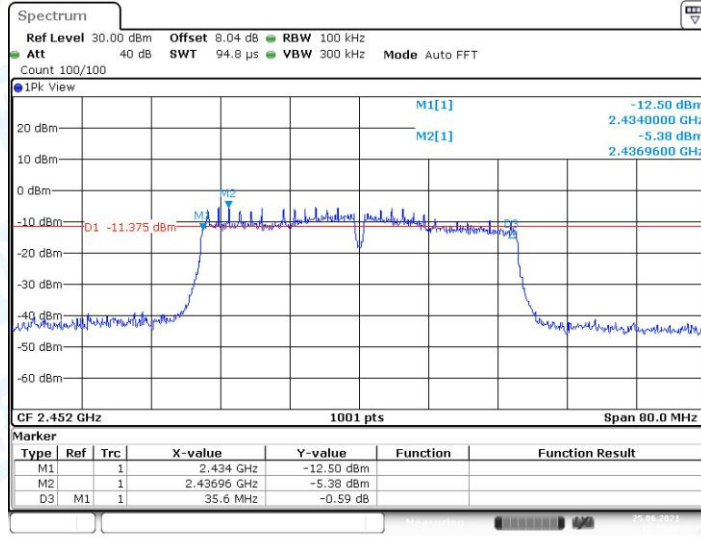
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11N40SISO_Ant1_2437



Date: 25 JUN 2021 12:07:06

11N40SISO_Ant1_2452



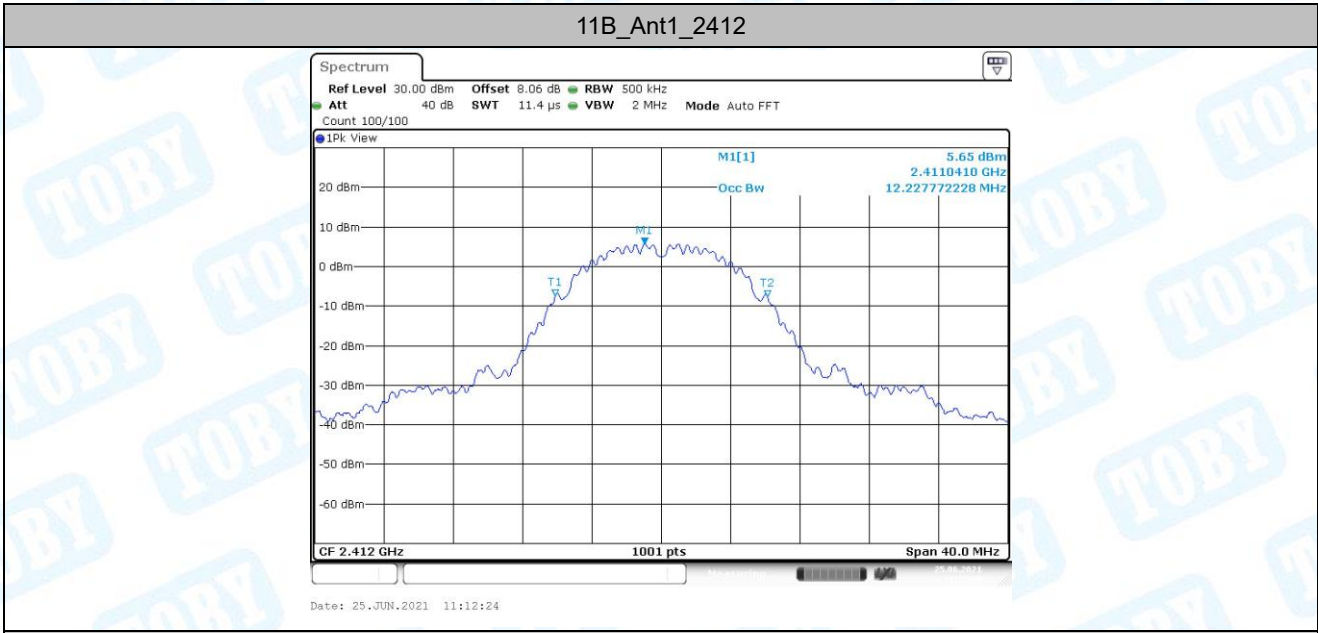
Date: 25 JUN 2021 12:10:32

2. Occupied Channel Bandwidth

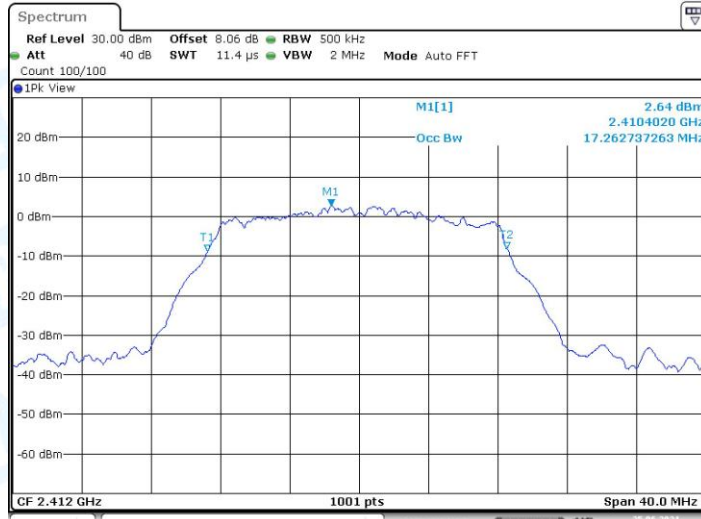
2.1. Test Result

| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|---------|-----------|----------|----------|------------|---------|
| 11B | Ant1 | 2412 | 12.228 | 2405.886 | 2418.114 | --- | PASS |
| | | 2437 | 12.228 | 2430.846 | 2443.074 | --- | PASS |
| | | 2462 | 12.388 | 2455.726 | 2468.114 | --- | PASS |
| 11G | Ant1 | 2412 | 17.263 | 2403.249 | 2420.511 | --- | PASS |
| | | 2437 | 17.542 | 2428.169 | 2445.711 | --- | PASS |
| | | 2462 | 17.263 | 2453.289 | 2470.551 | --- | PASS |
| 11N20SISO | Ant1 | 2412 | 18.262 | 2402.769 | 2421.031 | --- | PASS |
| | | 2437 | 18.501 | 2427.609 | 2446.111 | --- | PASS |
| | | 2462 | 18.102 | 2452.849 | 2470.951 | --- | PASS |
| 11N40SISO | Ant1 | 2422 | 36.523 | 2403.538 | 2440.062 | --- | PASS |
| | | 2437 | 36.444 | 2418.459 | 2454.902 | --- | PASS |
| | | 2452 | 36.204 | 2433.778 | 2469.982 | --- | PASS |

2.2. Test Graphs



11G_Ant1_2412



Date: 25 JUN 2021 11:27:58

11G_Ant1_2437



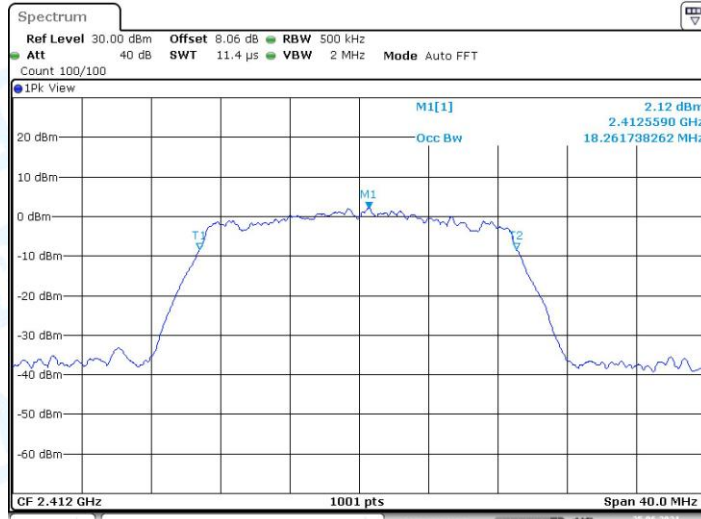
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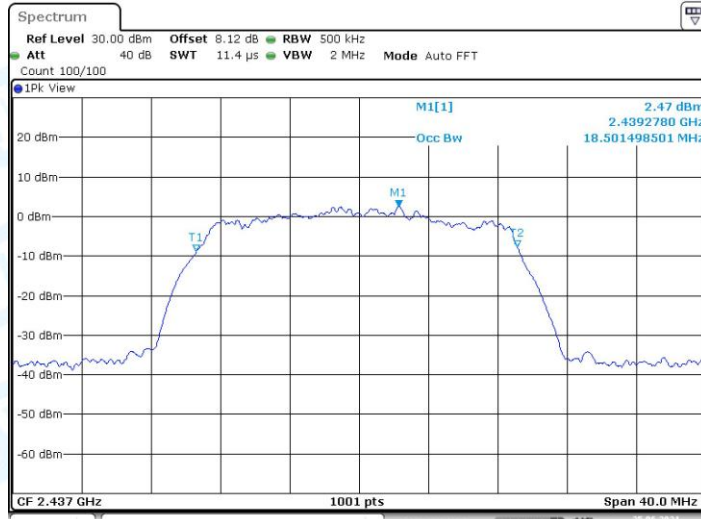
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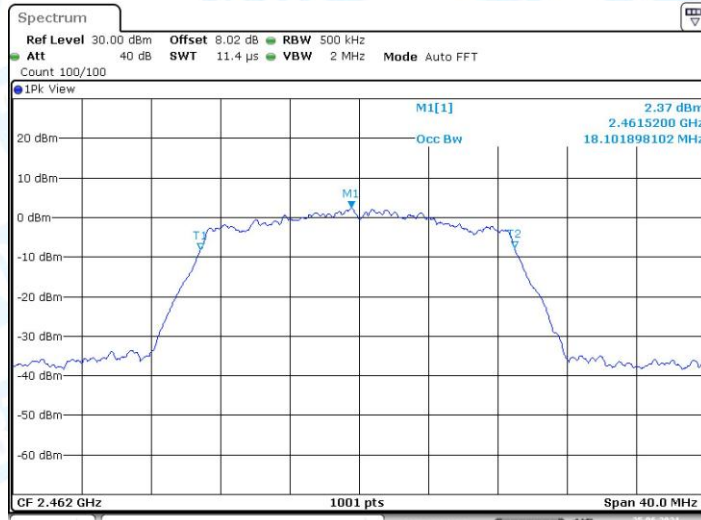
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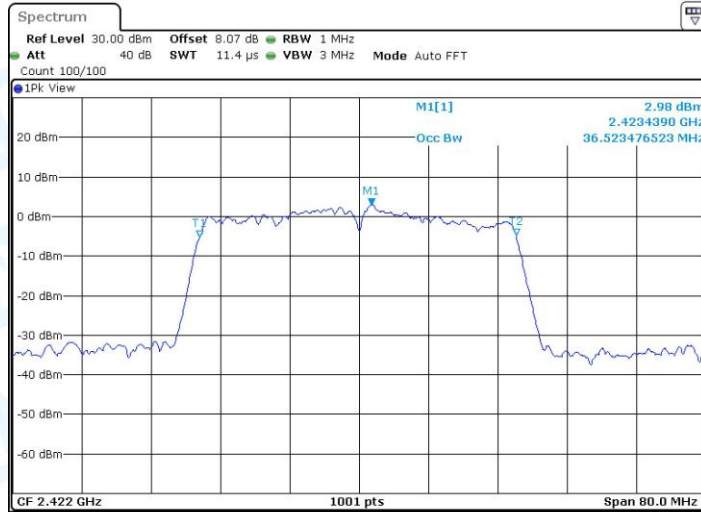
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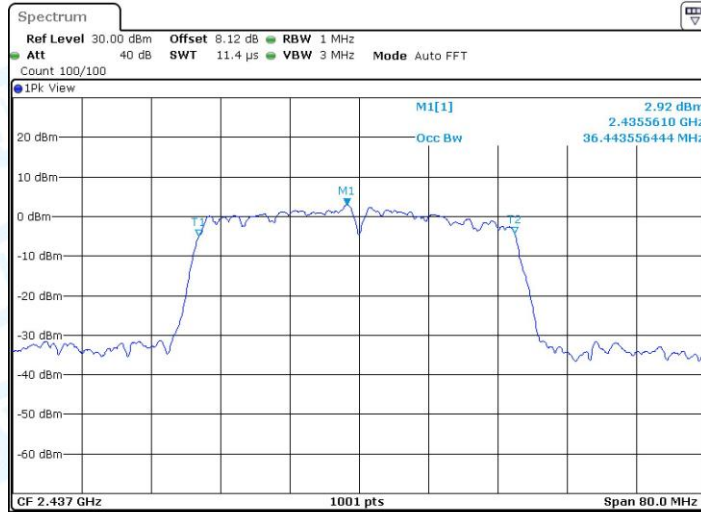
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11N40SISO_Ant1_2422



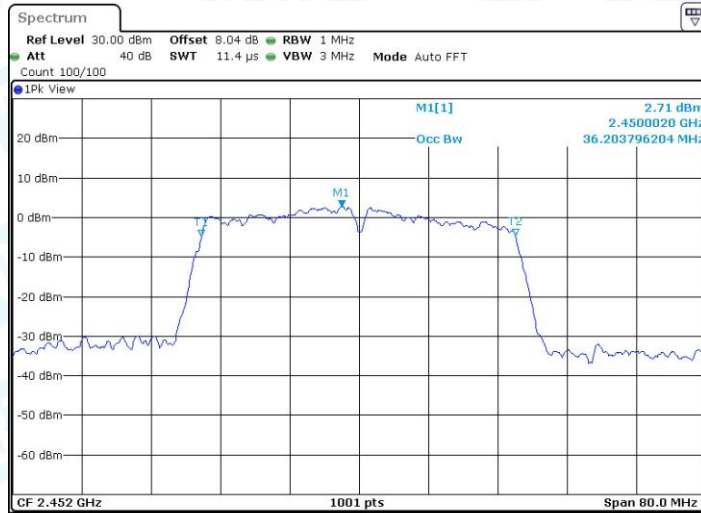
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11N40SISO_Ant1_2437



Date: 25.JUN.2021 12:07:17

11N40SISO_Ant1_2452



Date: 25.JUN.2021 12:10:44

3. Maximum conducted output power

3.1. Test Result

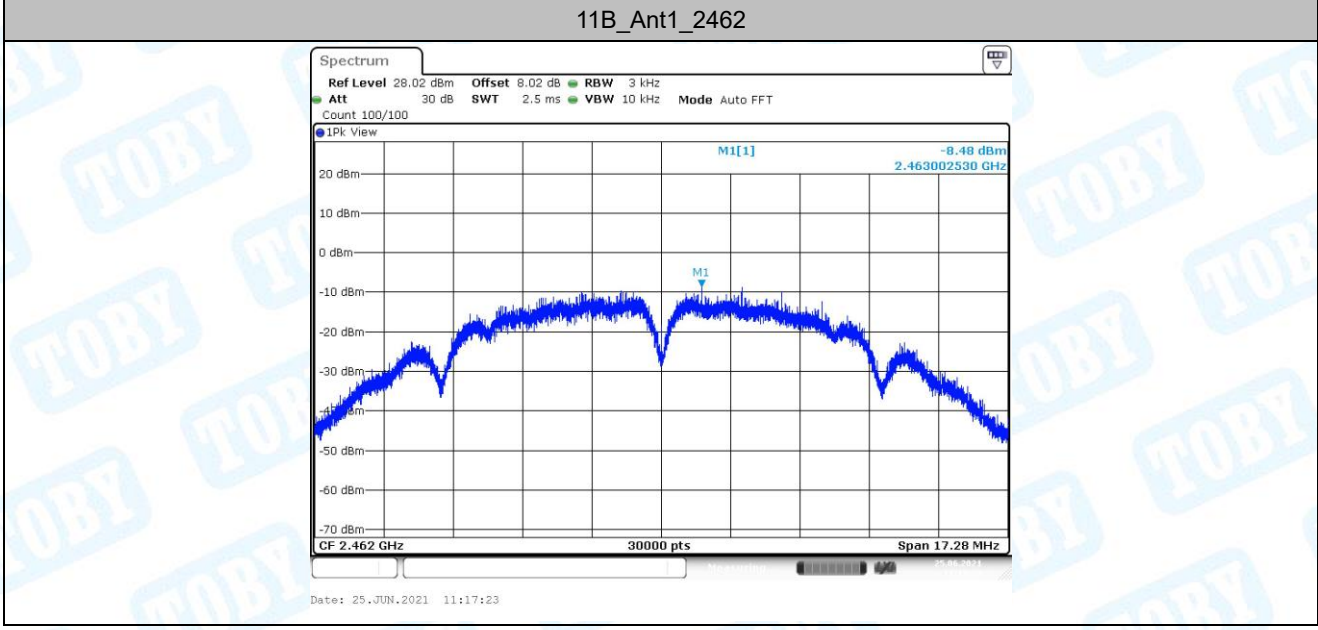
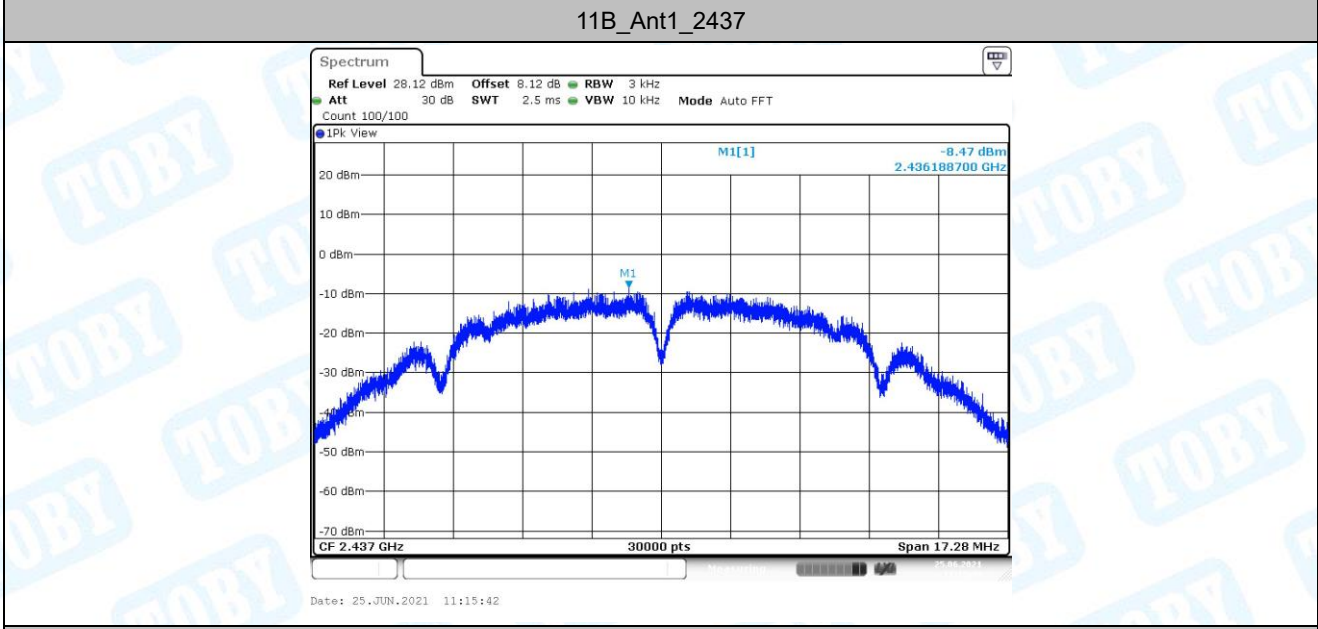
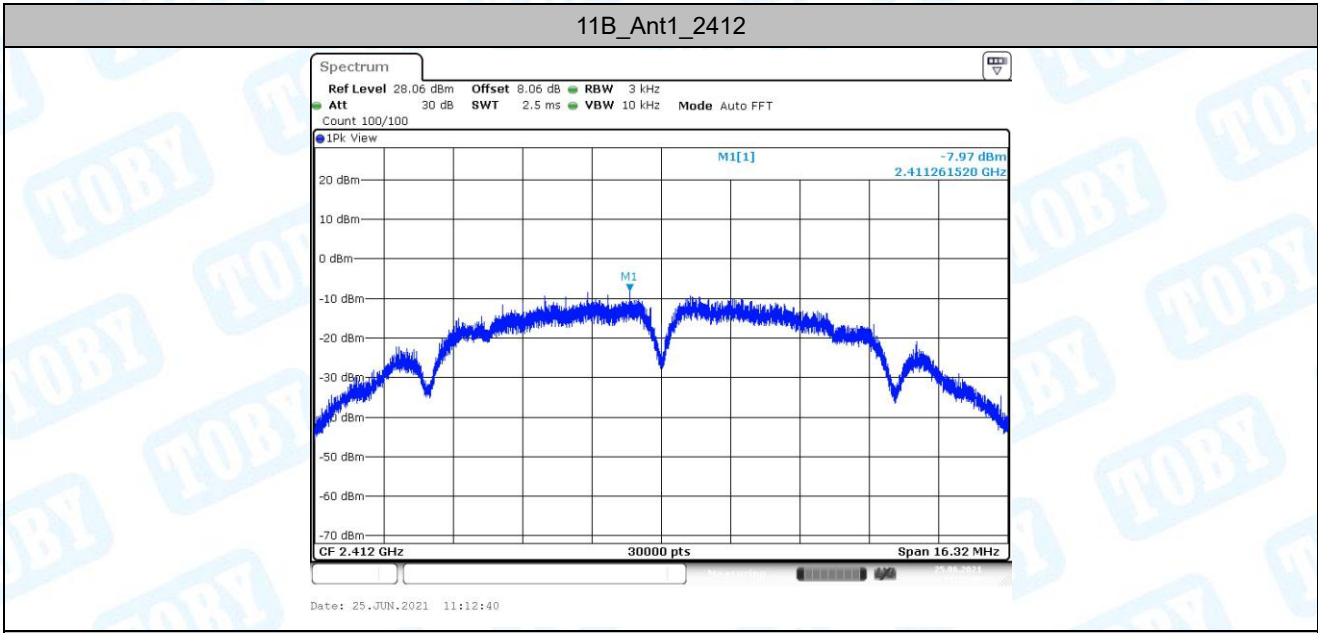
| TestMode | Antenna | Channel | Power [dBm] | Limit [dBm] | EIRP [dBm] | Limit [dBm] | Verdict |
|-----------|---------|---------|-------------|-------------|------------|-------------|---------|
| 11B | Ant1 | 2412 | 16.73 | <=30 | 16.73 | <=36 | PASS |
| | | 2437 | 16.62 | <=30 | 16.62 | <=36 | PASS |
| | | 2462 | 16.13 | <=30 | 16.13 | <=36 | PASS |
| 11G | Ant1 | 2412 | 16.06 | <=30 | 16.06 | <=36 | PASS |
| | | 2437 | 16.01 | <=30 | 16.01 | <=36 | PASS |
| | | 2462 | 15.73 | <=30 | 15.73 | <=36 | PASS |
| 11N20SISO | Ant1 | 2412 | 15.44 | <=30 | 15.44 | <=36 | PASS |
| | | 2437 | 15.67 | <=30 | 15.67 | <=36 | PASS |
| | | 2462 | 15.27 | <=30 | 15.27 | <=36 | PASS |
| 11N40SISO | Ant1 | 2422 | 15.57 | <=30 | 15.57 | <=36 | PASS |
| | | 2437 | 15.54 | <=30 | 15.54 | <=36 | PASS |
| | | 2452 | 15.58 | <=30 | 15.58 | <=36 | PASS |

4. Maximum power spectral density

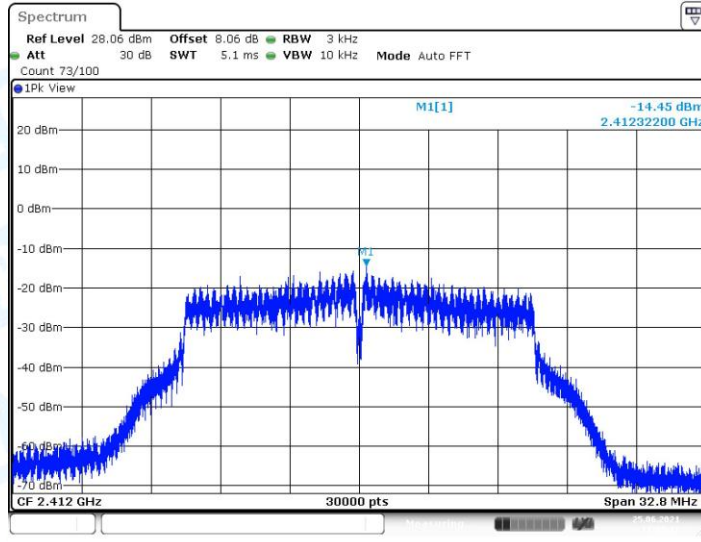
4.1. Test Result

| TestMode | Antenna | Channel | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|-----------|---------|---------|------------------|-----------------|---------|
| 11B | Ant1 | 2412 | -7.97 | <=8 | PASS |
| | | 2437 | -8.47 | <=8 | PASS |
| | | 2462 | -8.48 | <=8 | PASS |
| 11G | Ant1 | 2412 | -14.45 | <=8 | PASS |
| | | 2437 | -14.98 | <=8 | PASS |
| | | 2462 | -15.64 | <=8 | PASS |
| 11N20SISO | Ant1 | 2412 | -15.9 | <=8 | PASS |
| | | 2437 | -15.56 | <=8 | PASS |
| | | 2462 | -15.7 | <=8 | PASS |
| 11N40SISO | Ant1 | 2422 | -17.84 | <=8 | PASS |
| | | 2437 | -17.32 | <=8 | PASS |
| | | 2452 | -18.58 | <=8 | PASS |

4.2. Test Graphs

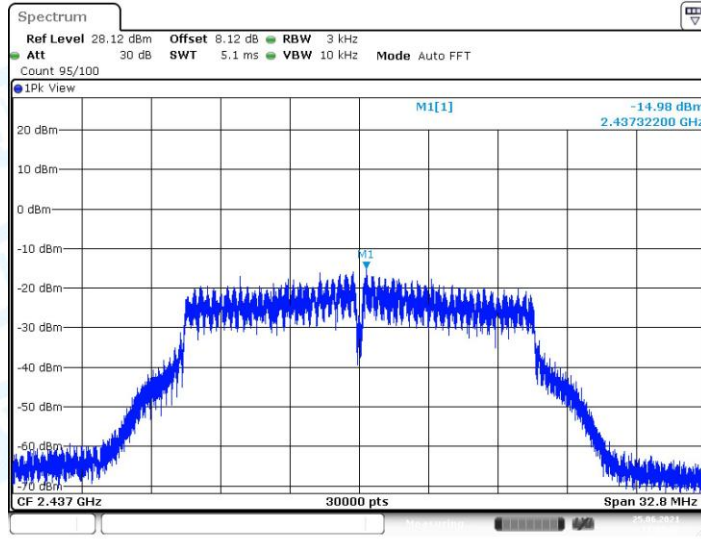


11G_Ant1_2412



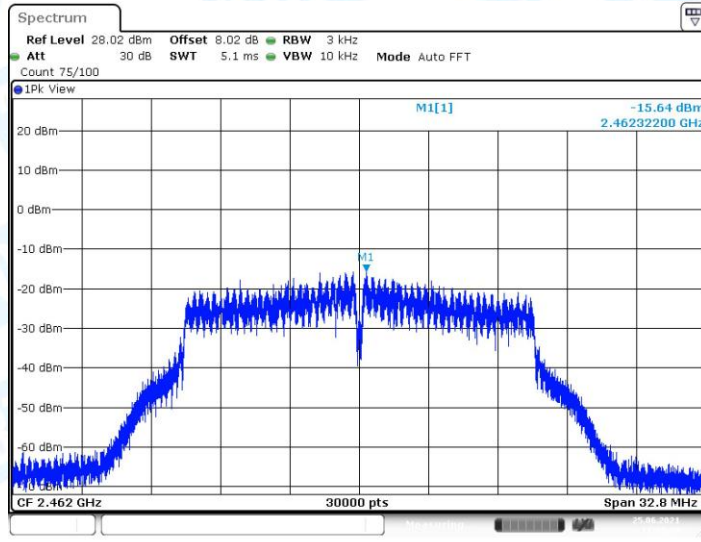
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11G_Ant1_2437



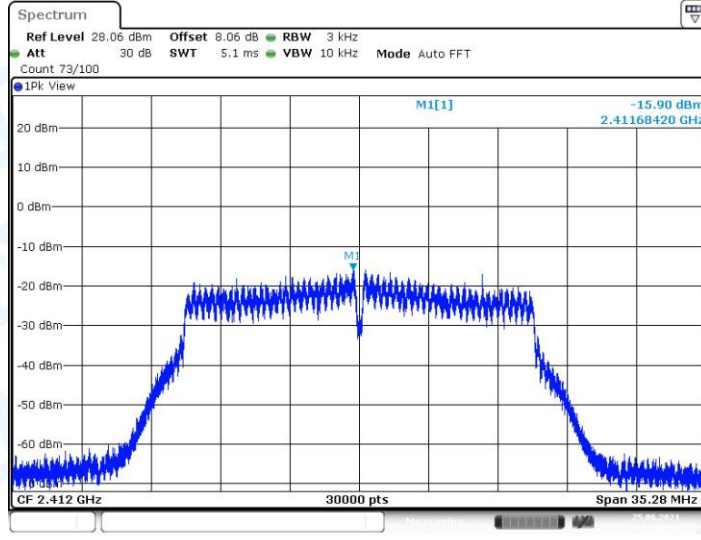
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11G_Ant1_2462



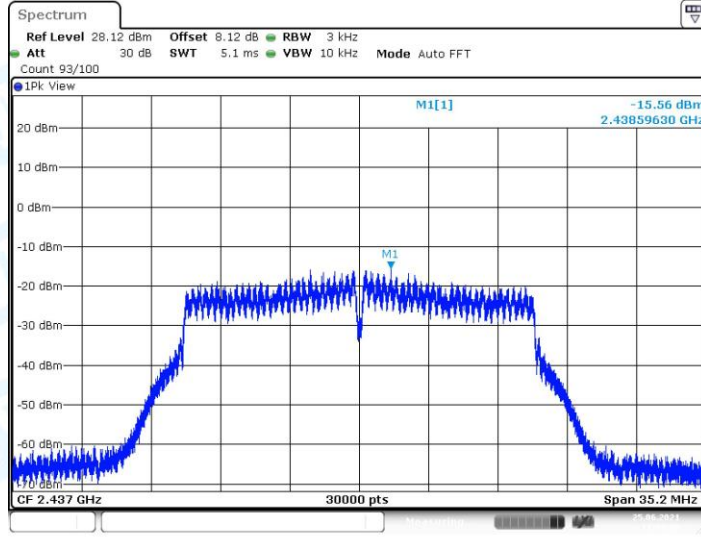
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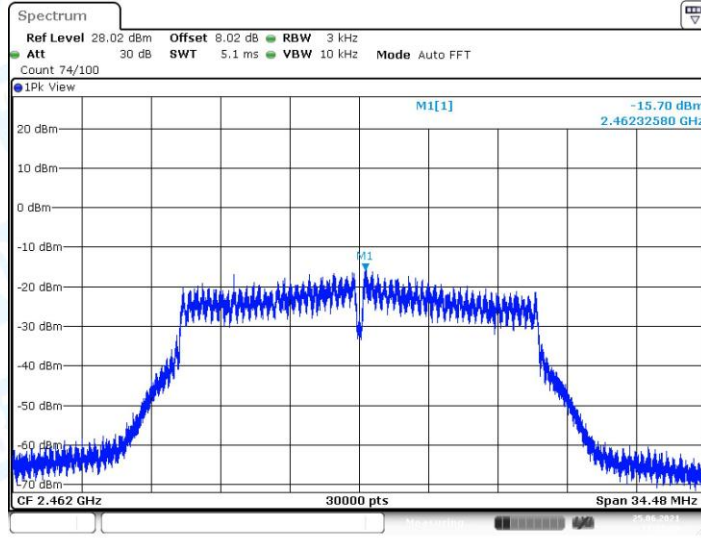
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11N20SISO_Ant1_2437



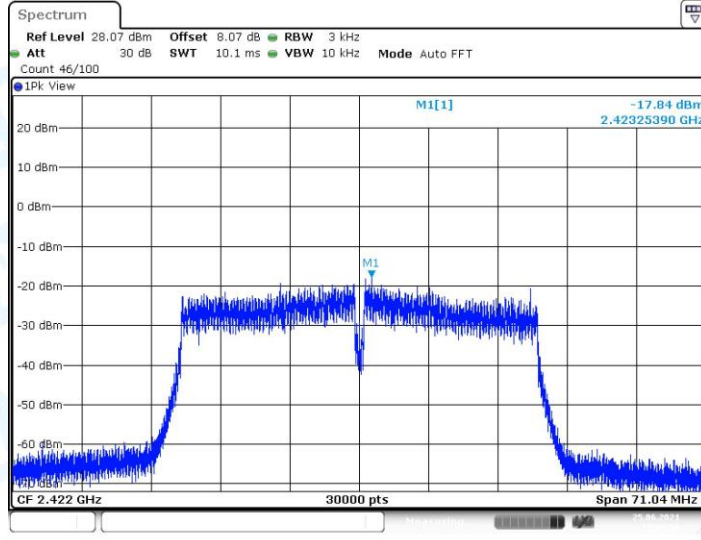
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11N20SISO_Ant1_2462



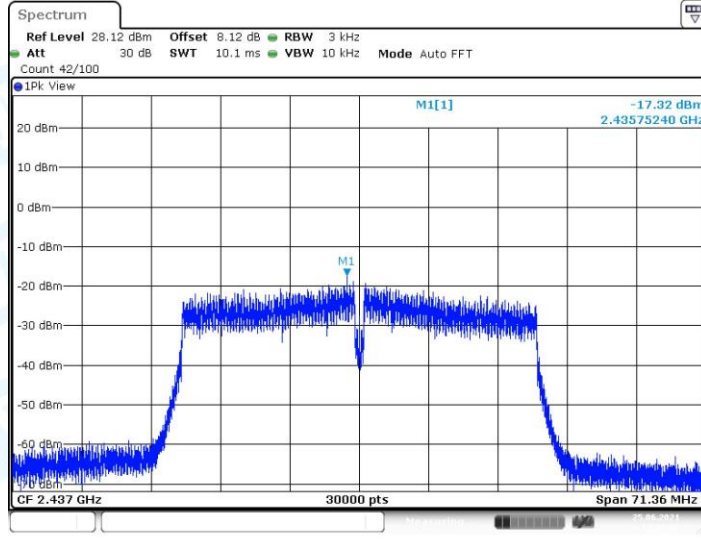
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11N40SISO_Ant1_2422



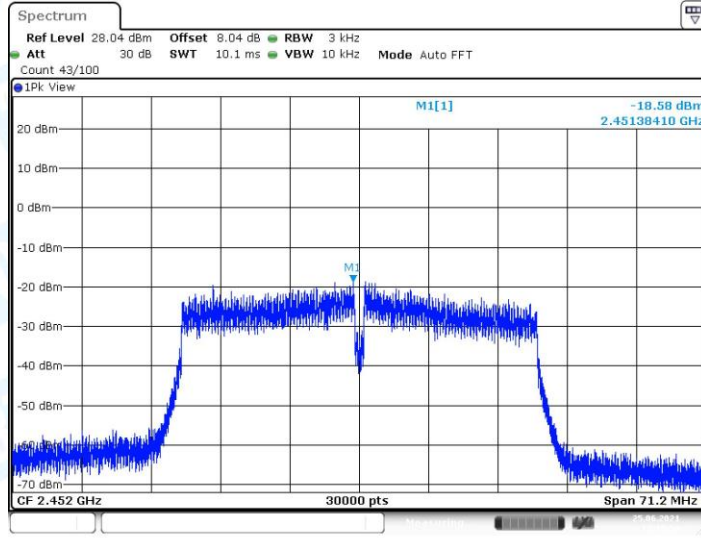
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11N40SISO_Ant1_2437



Date: 25 JUN 2021 12:07:32

11N40SISO_Ant1_2452



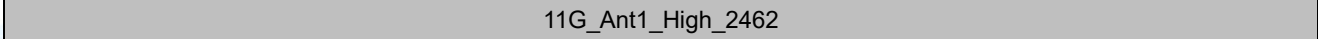
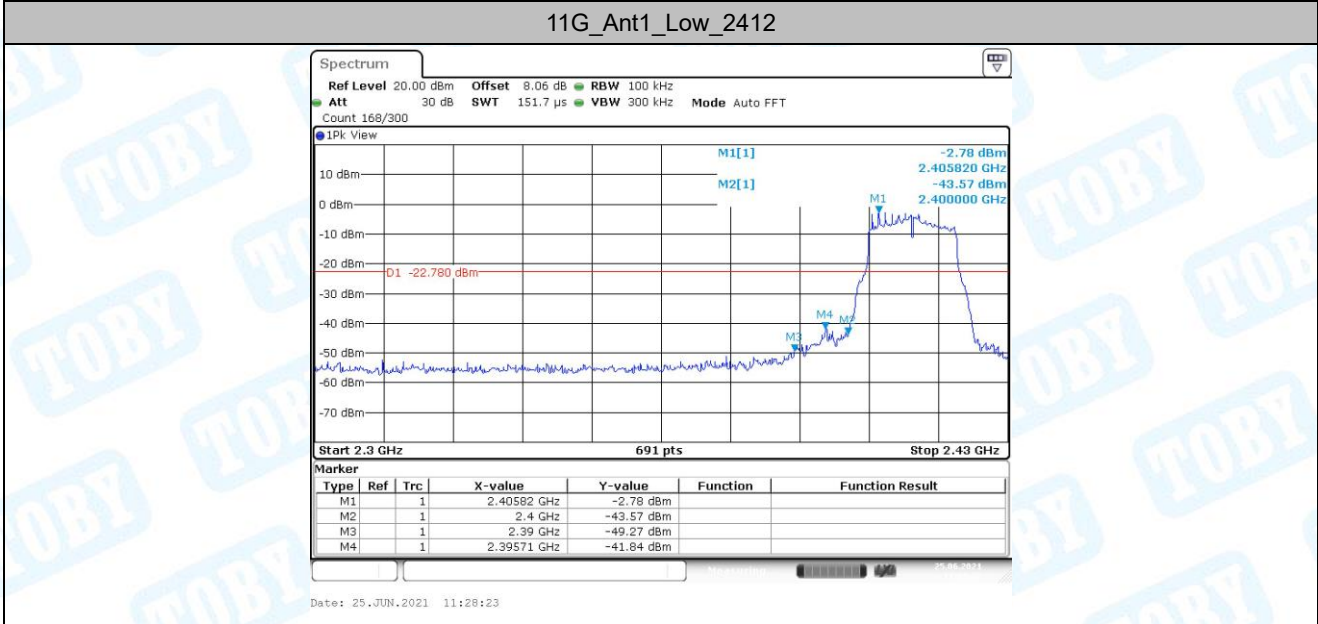
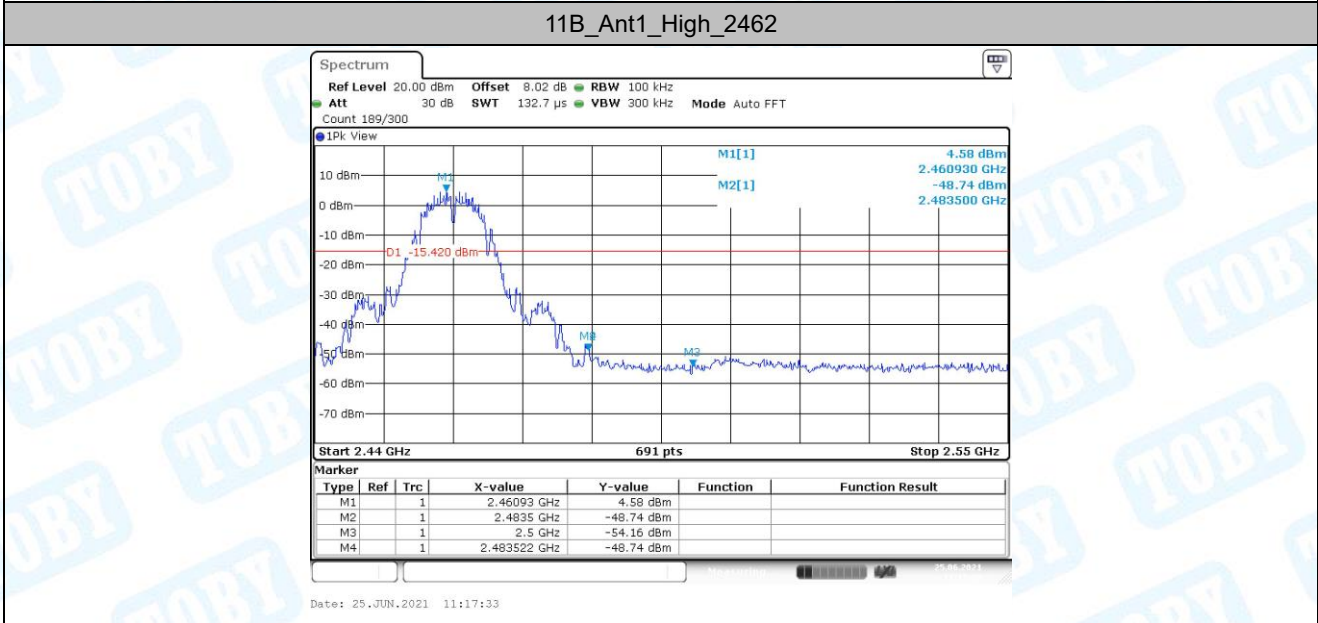
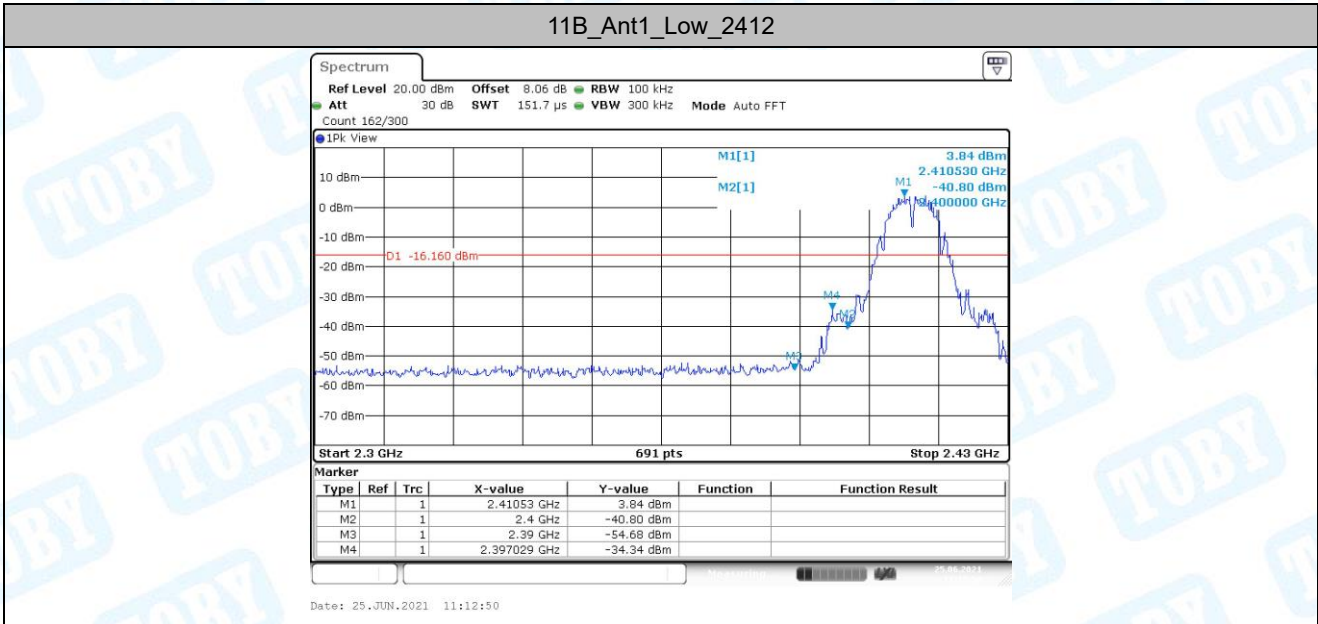
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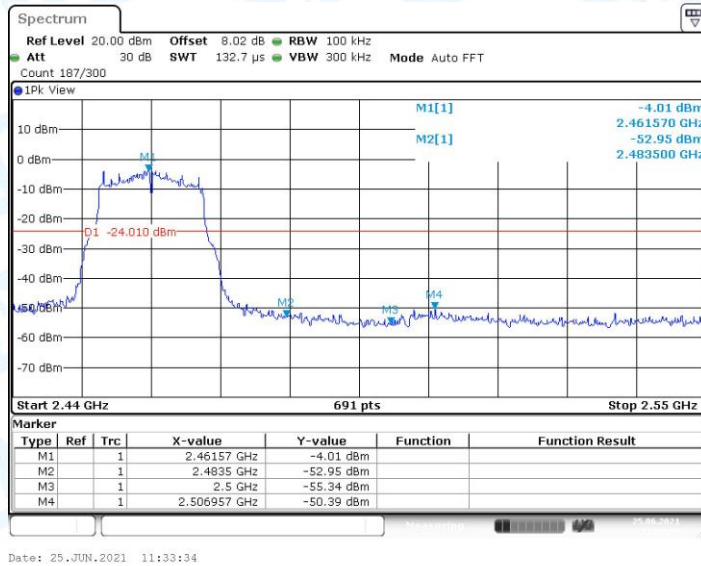
5. Band edge measurements

5.1. Test Result

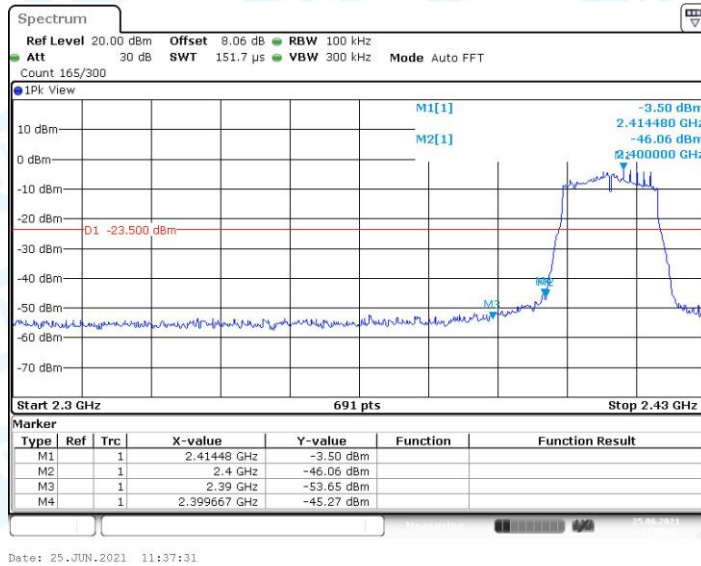
| TestMode | Antenna | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|-----------|---------|--------|---------|---------------|-------------|------------|---------|
| 11B | Ant1 | Low | 2412 | 3.84 | -34.34 | <=-16.16 | PASS |
| | | High | 2462 | 4.58 | -48.74 | <=-15.42 | PASS |
| 11G | Ant1 | Low | 2412 | -2.78 | -41.84 | <=-22.78 | PASS |
| | | High | 2462 | -4.01 | -50.39 | <=-24.01 | PASS |
| 11N20SISO | Ant1 | Low | 2412 | -3.50 | -45.27 | <=-23.5 | PASS |
| | | High | 2462 | -4.53 | -50.58 | <=-24.53 | PASS |
| 11N40SISO | Ant1 | Low | 2422 | -5.42 | -42.81 | <=-25.42 | PASS |
| | | High | 2452 | -5.44 | -44.54 | <=-25.44 | PASS |

5.2. Test Graphs

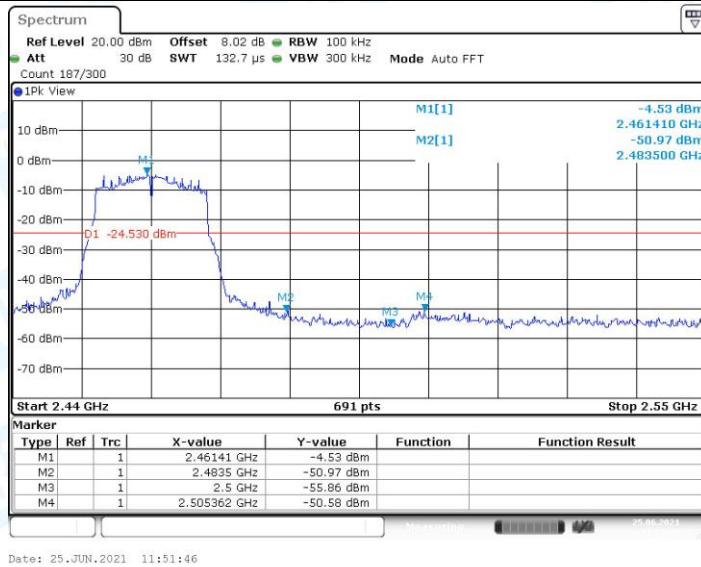




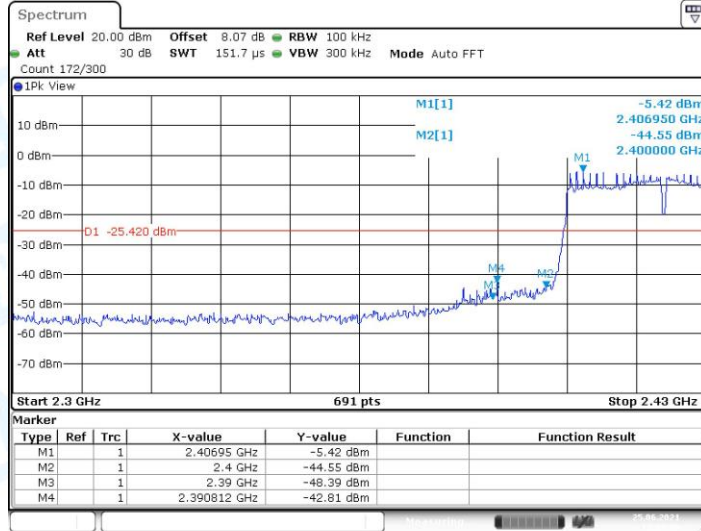
11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462

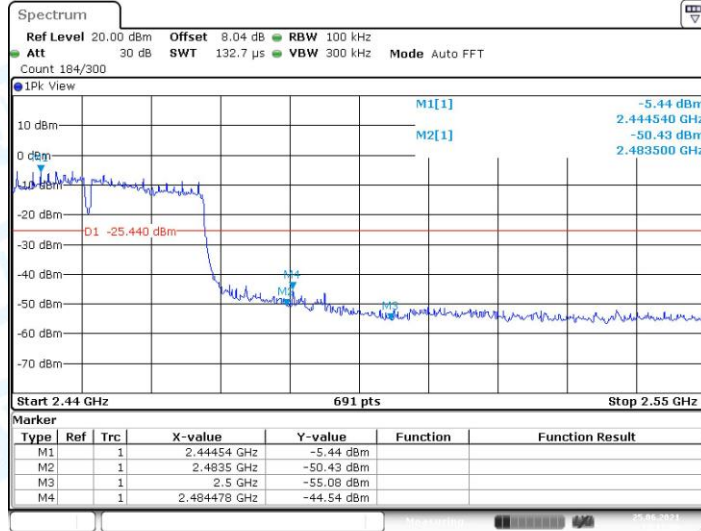


11N40SISO_Ant1_Low_2422



Date: 25.JUN.2021 12:03:06

11N40SISO_Ant1_High_2452



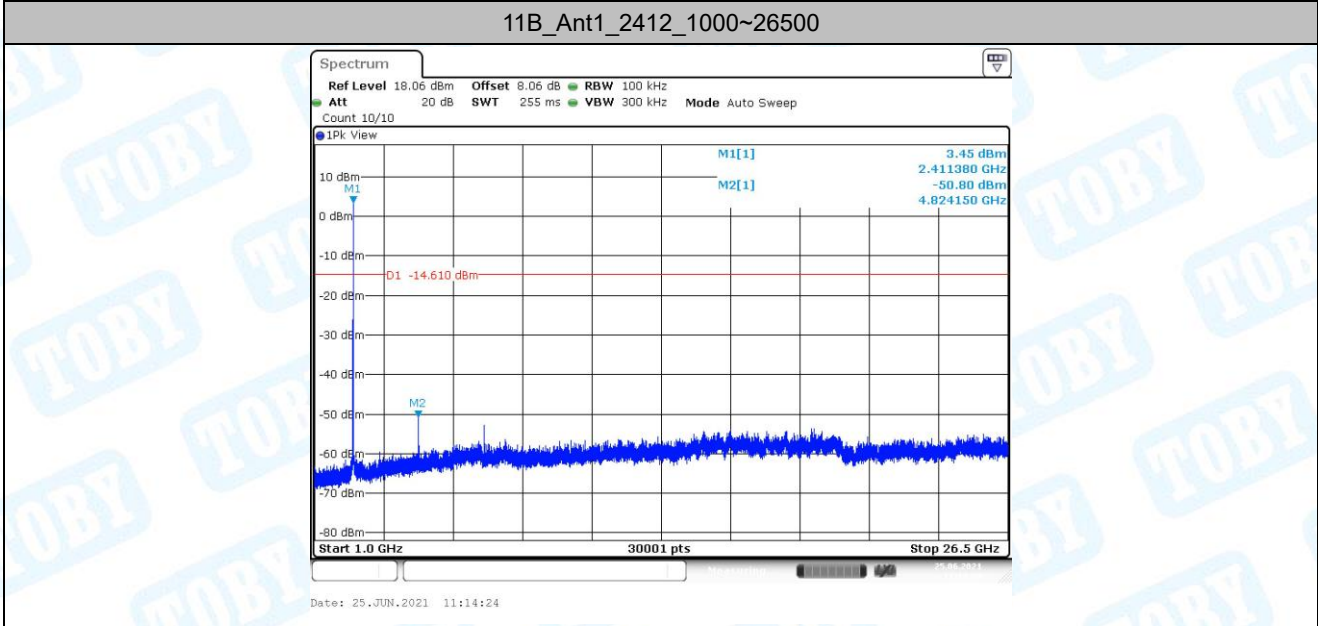
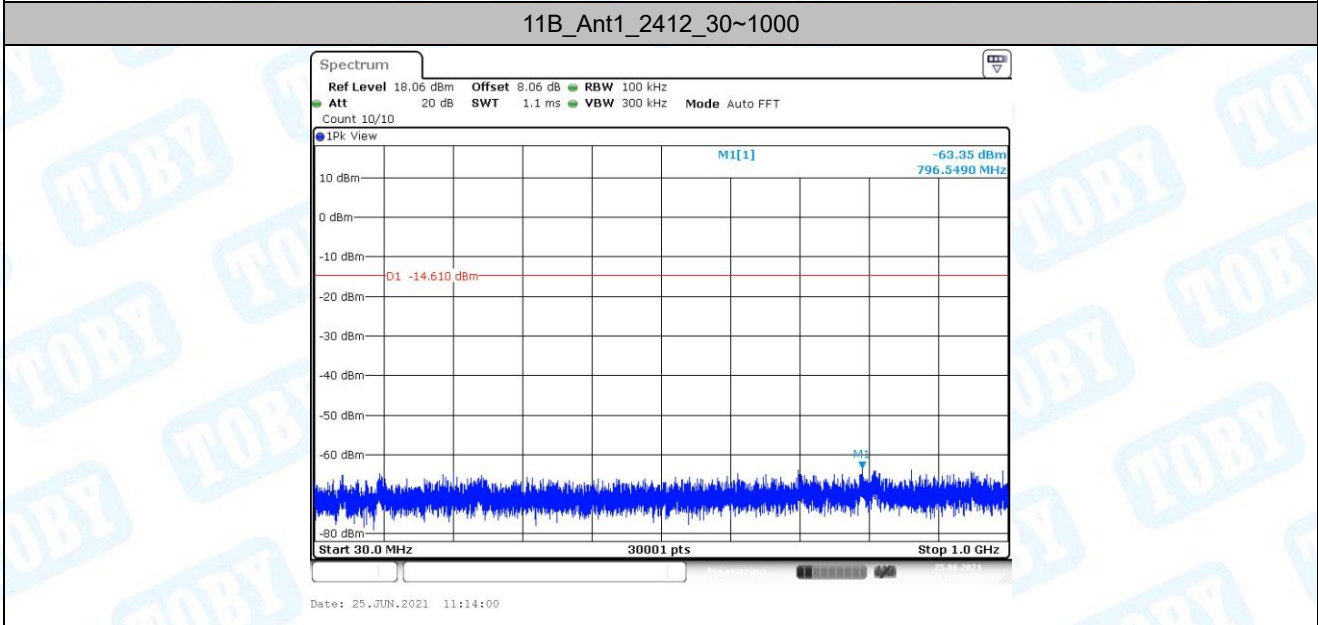
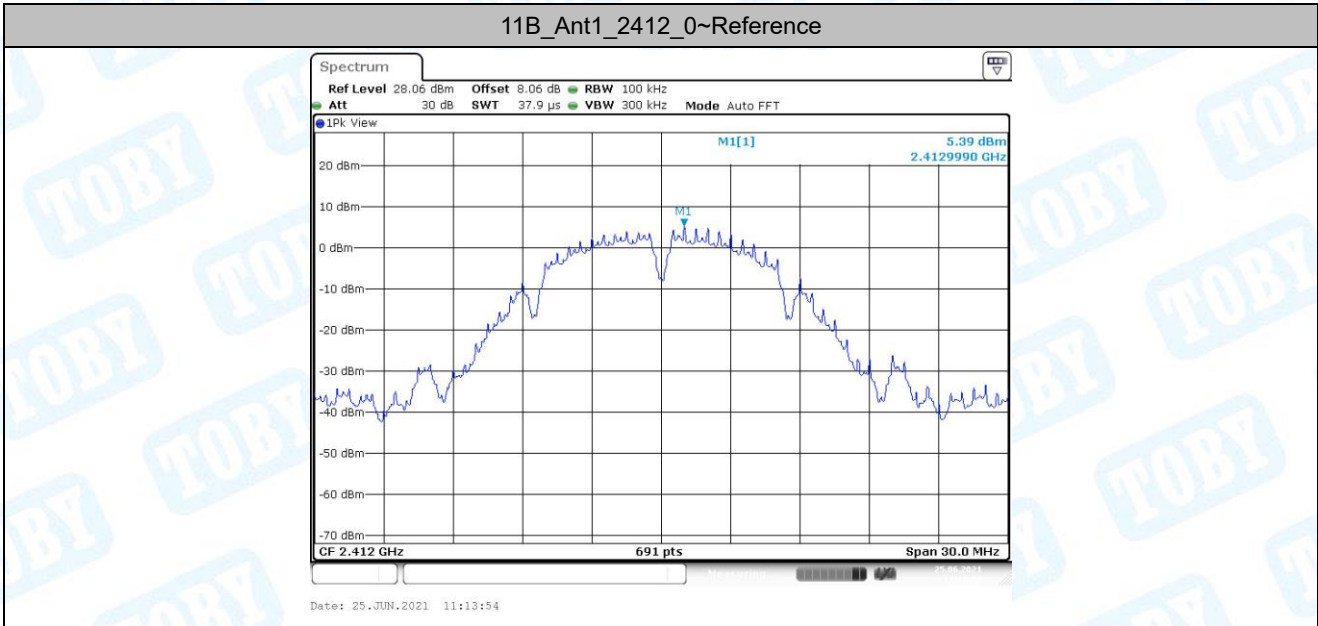
Date: 25.JUN.2021 12:11:09

6. Conducted Spurious Emission

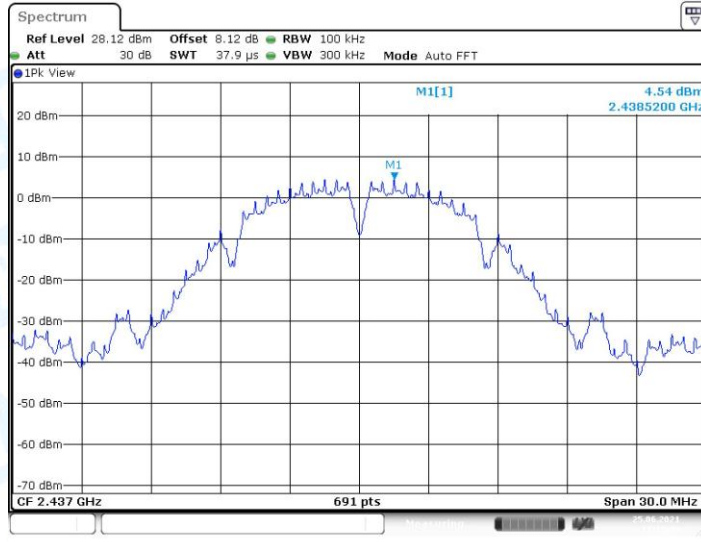
6.1. Test Result

| TestMode | Antenna | Channel | FreqRange [Mhz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|---------|-----------------|----------------|--------------|-------------|---------|
| 11B | Ant1 | 2412 | Reference | 5.39 | 5.39 | --- | PASS |
| | | | 30~1000 | 5.39 | -63.35 | <=-14.61 | PASS |
| | | | 1000~26500 | 5.39 | -50.8 | <=-14.61 | PASS |
| | | 2437 | Reference | 4.54 | 4.54 | --- | PASS |
| | | | 30~1000 | 4.54 | -60.53 | <=-15.46 | PASS |
| | | | 1000~26500 | 4.54 | -50.65 | <=-15.46 | PASS |
| | | 2462 | Reference | 4.42 | 4.42 | --- | PASS |
| | | | 30~1000 | 4.42 | -63.41 | <=-15.58 | PASS |
| | | | 1000~26500 | 4.42 | -49.44 | <=-15.58 | PASS |
| 11G | Ant1 | 2412 | Reference | -2.68 | -2.68 | --- | PASS |
| | | | 30~1000 | -2.68 | -63.45 | <=-22.68 | PASS |
| | | | 1000~26500 | -2.68 | -53.5 | <=-22.68 | PASS |
| | | 2437 | Reference | -3.24 | -3.24 | --- | PASS |
| | | | 30~1000 | -3.24 | -63.02 | <=-23.24 | PASS |
| | | | 1000~26500 | -3.24 | -53.25 | <=-23.24 | PASS |
| | | 2462 | Reference | -4.08 | -4.08 | --- | PASS |
| | | | 30~1000 | -4.08 | -63.72 | <=-24.08 | PASS |
| | | | 1000~26500 | -4.08 | -52.8 | <=-24.08 | PASS |
| 11N20SISO | Ant1 | 2412 | Reference | -3.06 | -3.06 | --- | PASS |
| | | | 30~1000 | -3.06 | -64.02 | <=-23.06 | PASS |
| | | | 1000~26500 | -3.06 | -53.72 | <=-23.06 | PASS |
| | | 2437 | Reference | -2.97 | -2.97 | --- | PASS |
| | | | 30~1000 | -2.97 | -63.15 | <=-22.97 | PASS |
| | | | 1000~26500 | -2.97 | -53.79 | <=-22.97 | PASS |
| | | 2462 | Reference | -3.11 | -3.11 | --- | PASS |
| | | | 30~1000 | -3.11 | -63.28 | <=-23.11 | PASS |
| | | | 1000~26500 | -3.11 | -52.08 | <=-23.11 | PASS |
| 11N40SISO | Ant1 | 2422 | Reference | -5.41 | -5.41 | --- | PASS |
| | | | 30~1000 | -5.41 | -63.56 | <=-25.41 | PASS |
| | | | 1000~26500 | -5.41 | -53.48 | <=-25.41 | PASS |
| | | 2437 | Reference | -5.60 | -5.60 | --- | PASS |
| | | | 30~1000 | -5.60 | -62.16 | <=-25.6 | PASS |
| | | | 1000~26500 | -5.60 | -53.37 | <=-25.6 | PASS |
| | | 2452 | Reference | -5.42 | -5.42 | --- | PASS |
| | | | 30~1000 | -5.42 | -62.69 | <=-25.42 | PASS |
| | | | 1000~26500 | -5.42 | -53.63 | <=-25.42 | PASS |

6.2. Test Graphs

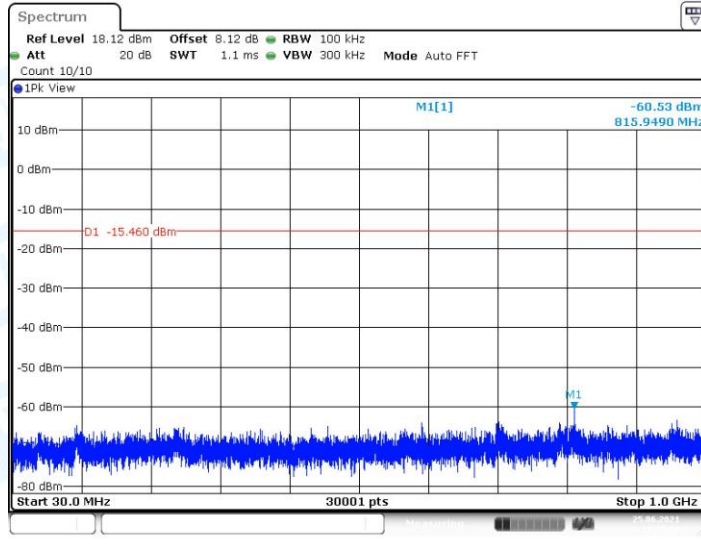


11B_Ant1_2437_0~Reference



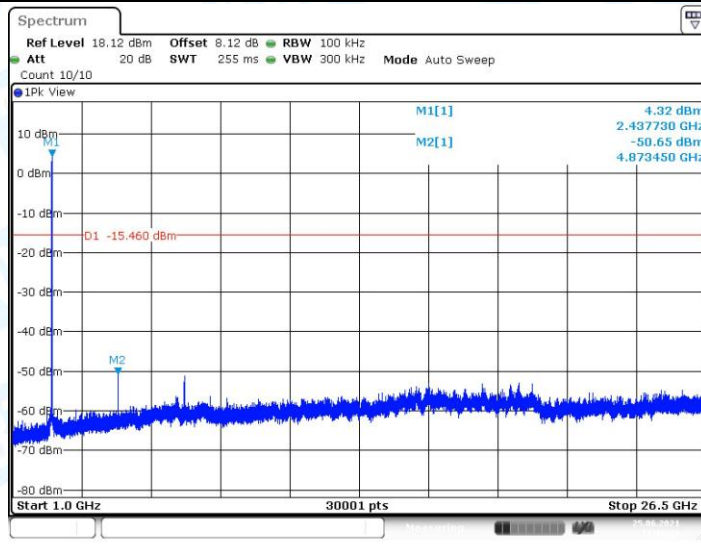
Date: 25.JUN.2021 11:15:49

11B_Ant1_2437_30~1000



Date: 25.JUN.2021 11:15:54

11B_Ant1_2437_1000~26500



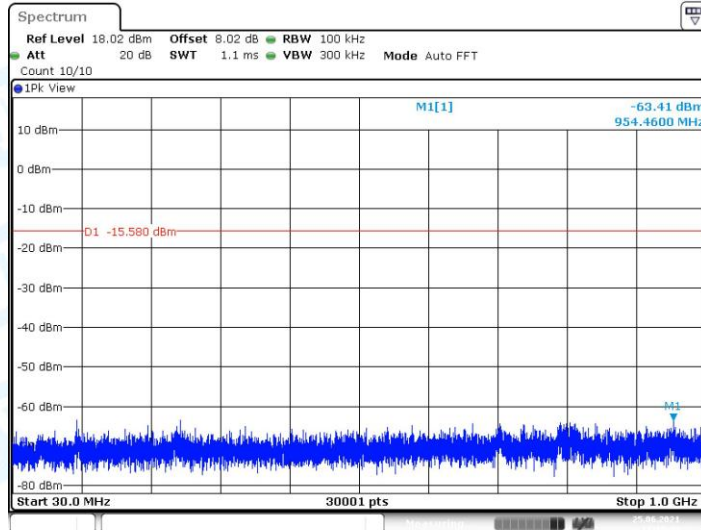
Date: 25.JUN.2021 11:16:19

11B_Ant1_2462_0~Reference



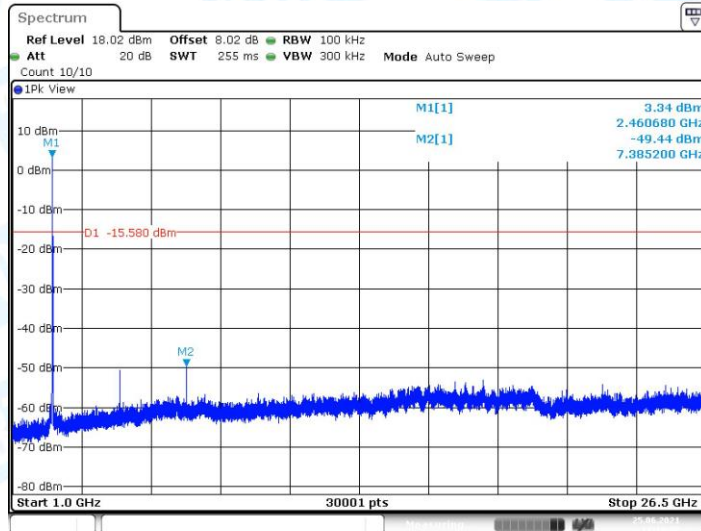
Date: 25.JUN.2021 11:18:37

11B_Ant1_2462_30~1000



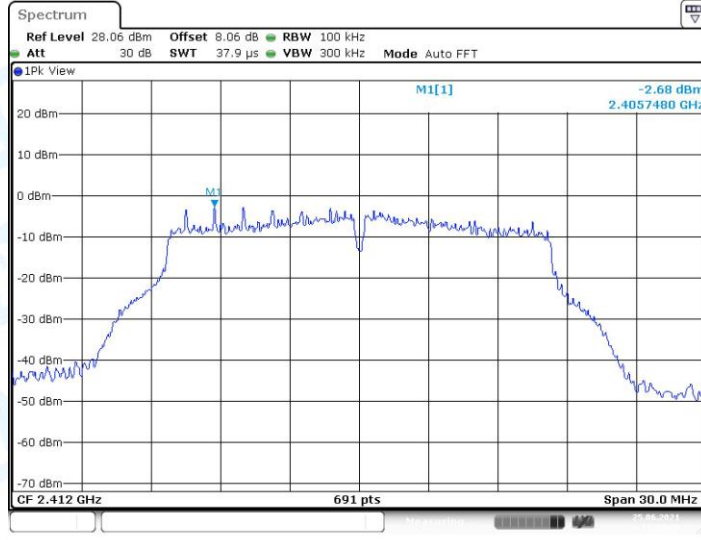
Date: 25.JUN.2021 11:18:43

11B_Ant1_2462_1000~26500



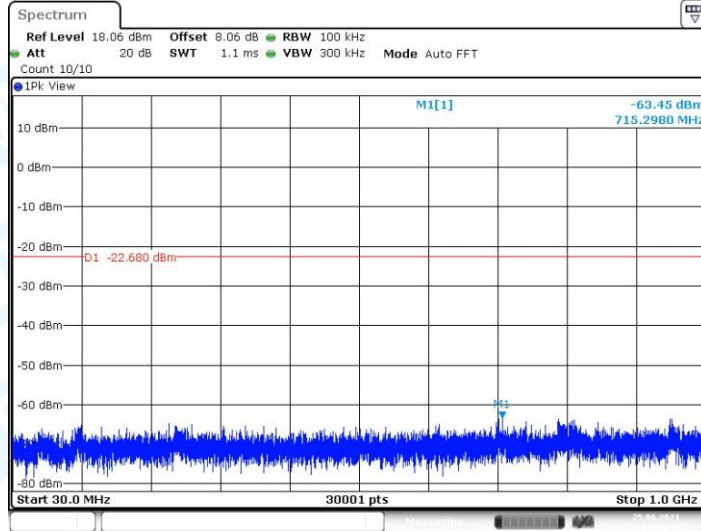
Date: 25.JUN.2021 11:19:08

11G_Ant1_2412_0~Reference



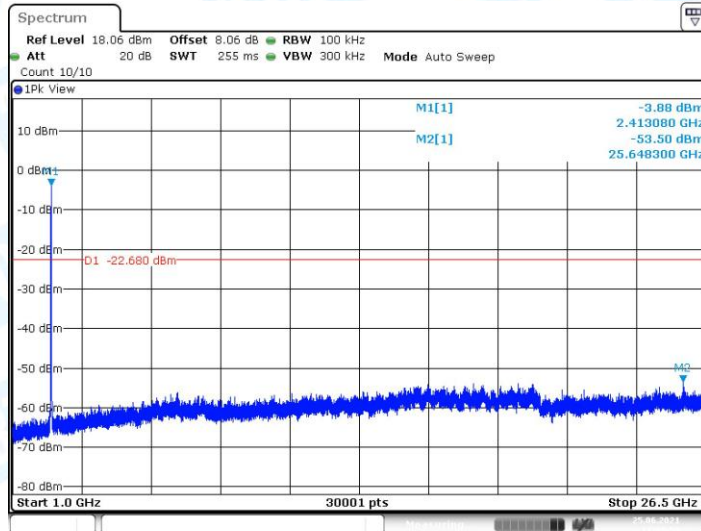
Date: 25 JUN 2021 11:28:29

11G_Ant1_2412_30~1000



Date: 25 JUN 2021 11:28:35

11G_Ant1_2412_1000~26500



Date: 25 JUN 2021 11:29:00