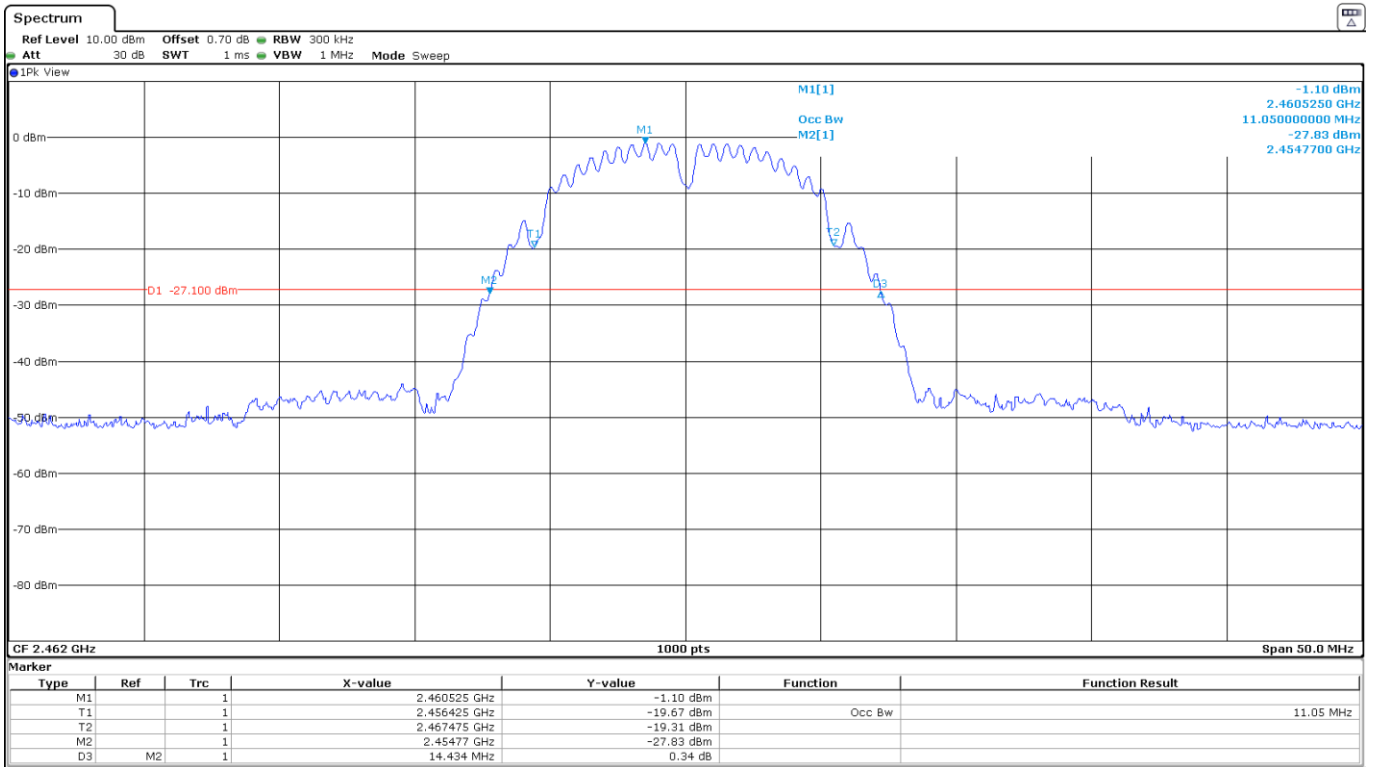
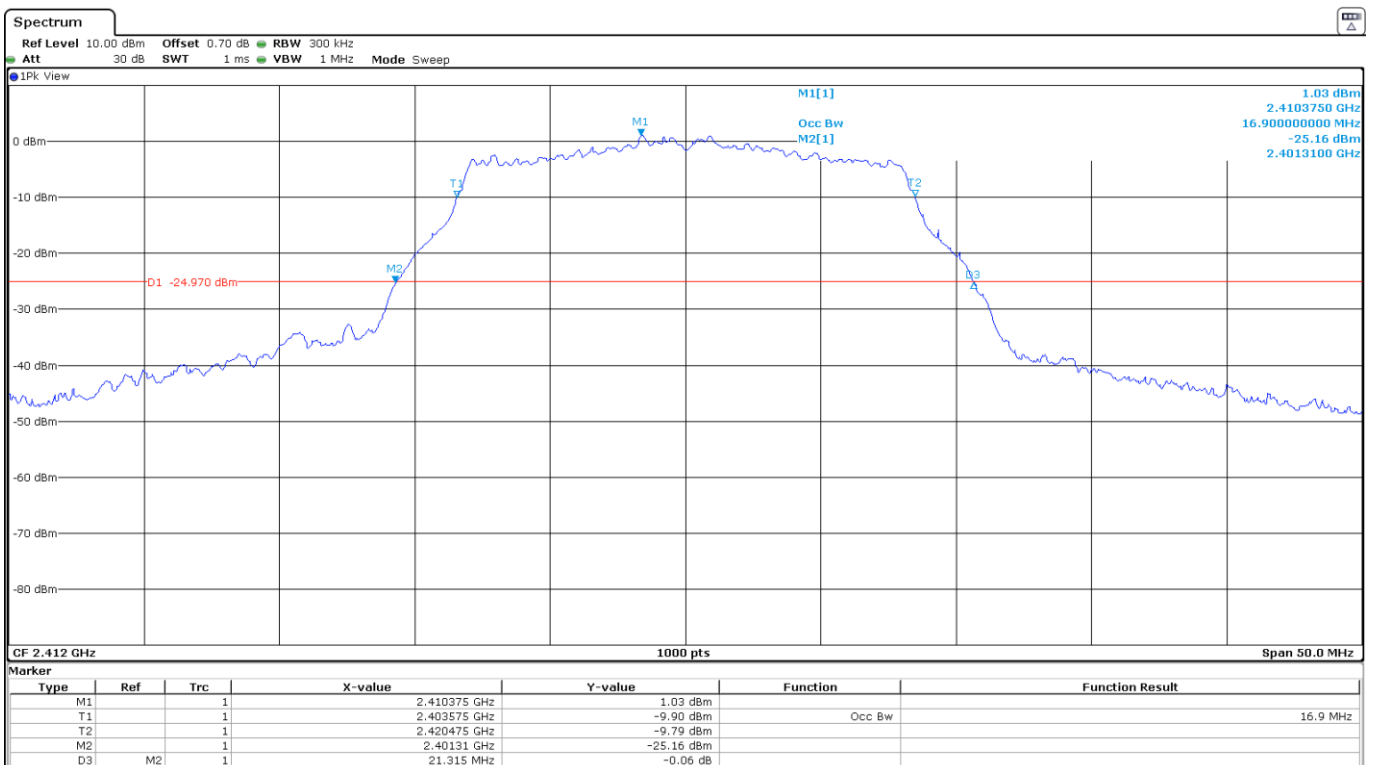


- High Channel:

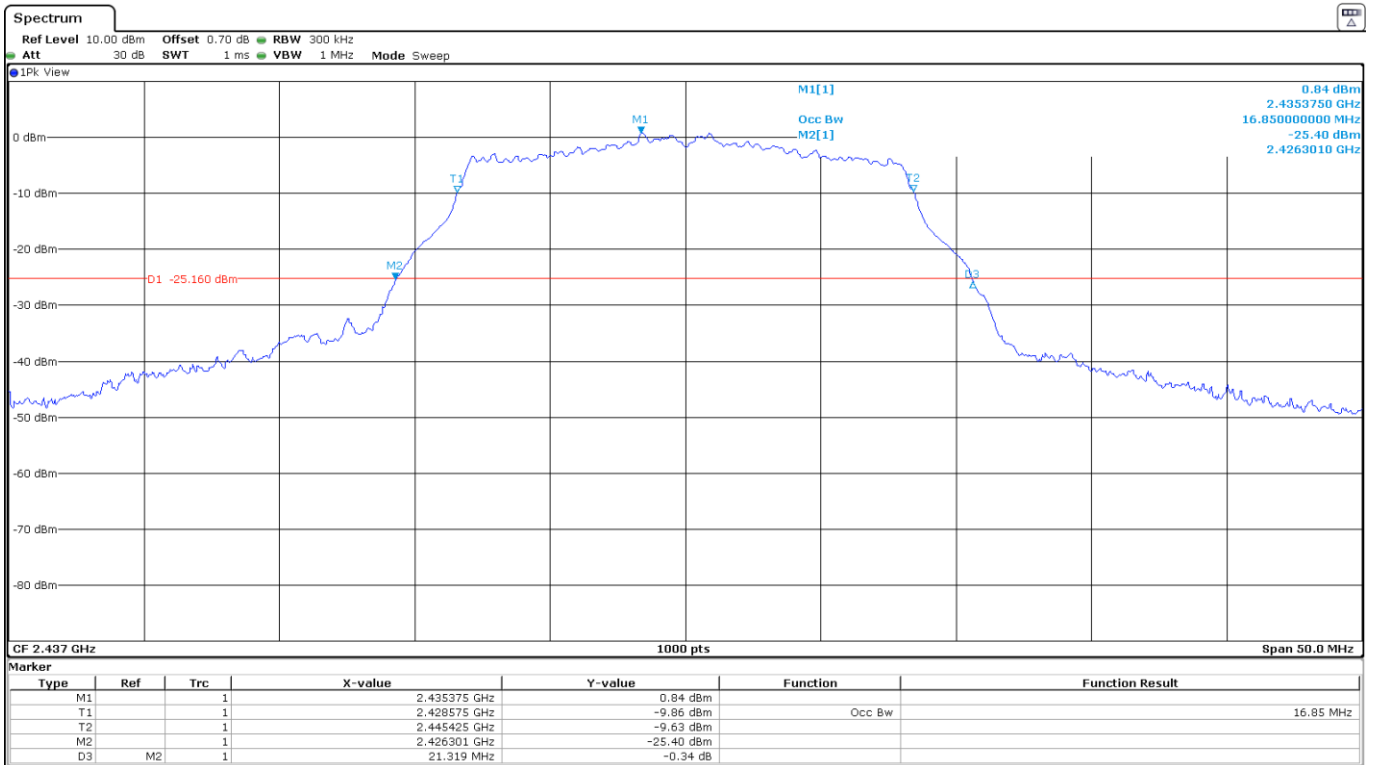


- Mode 802.11 g – Occupied Bandwidth

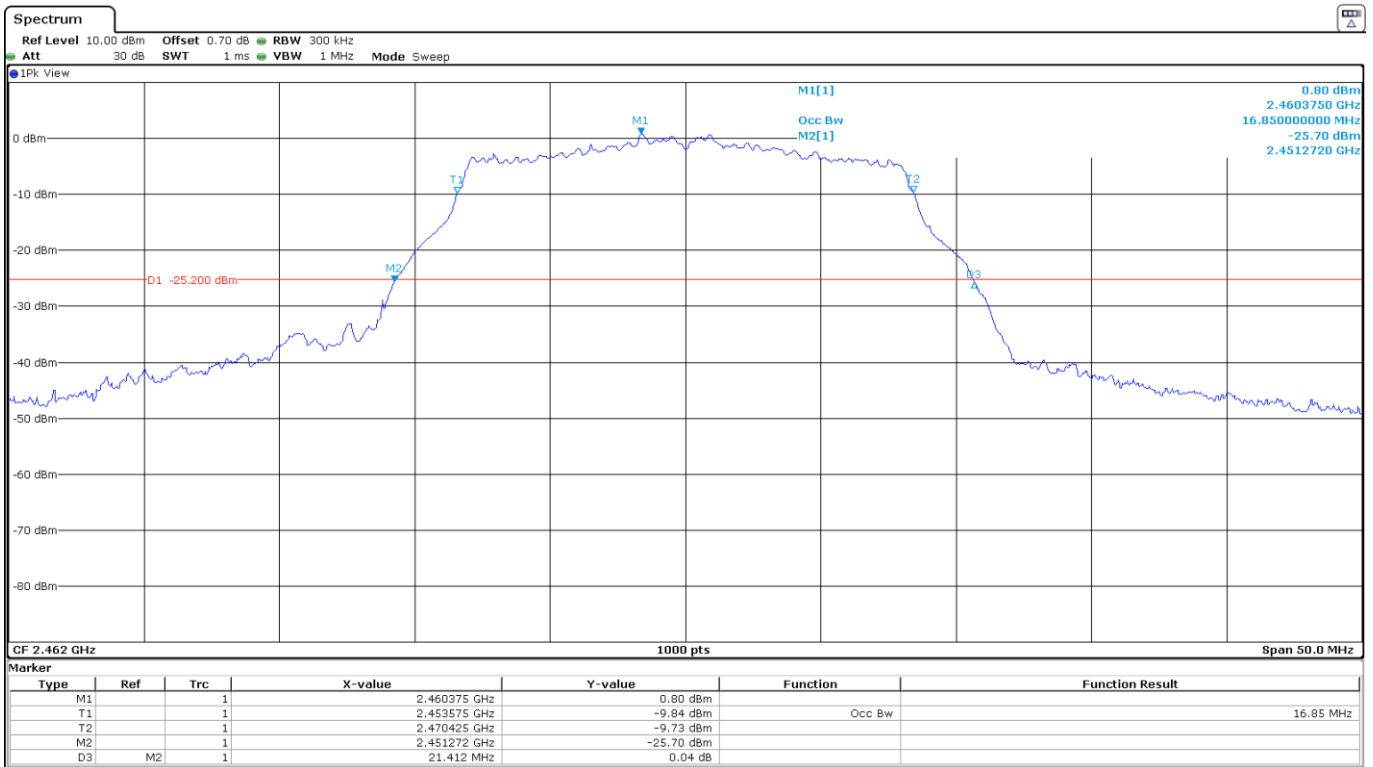
- Low Channel:



- Middle Channel:

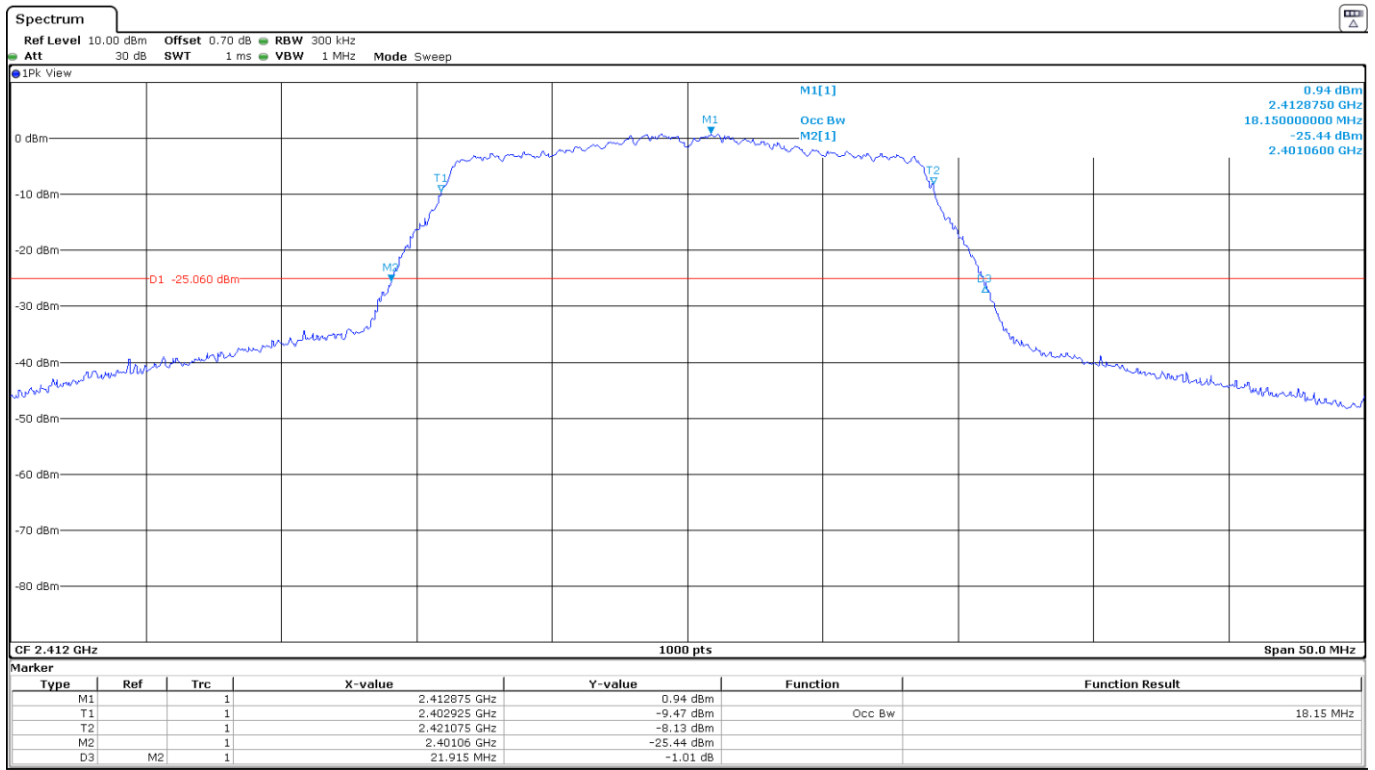


- High Channel:

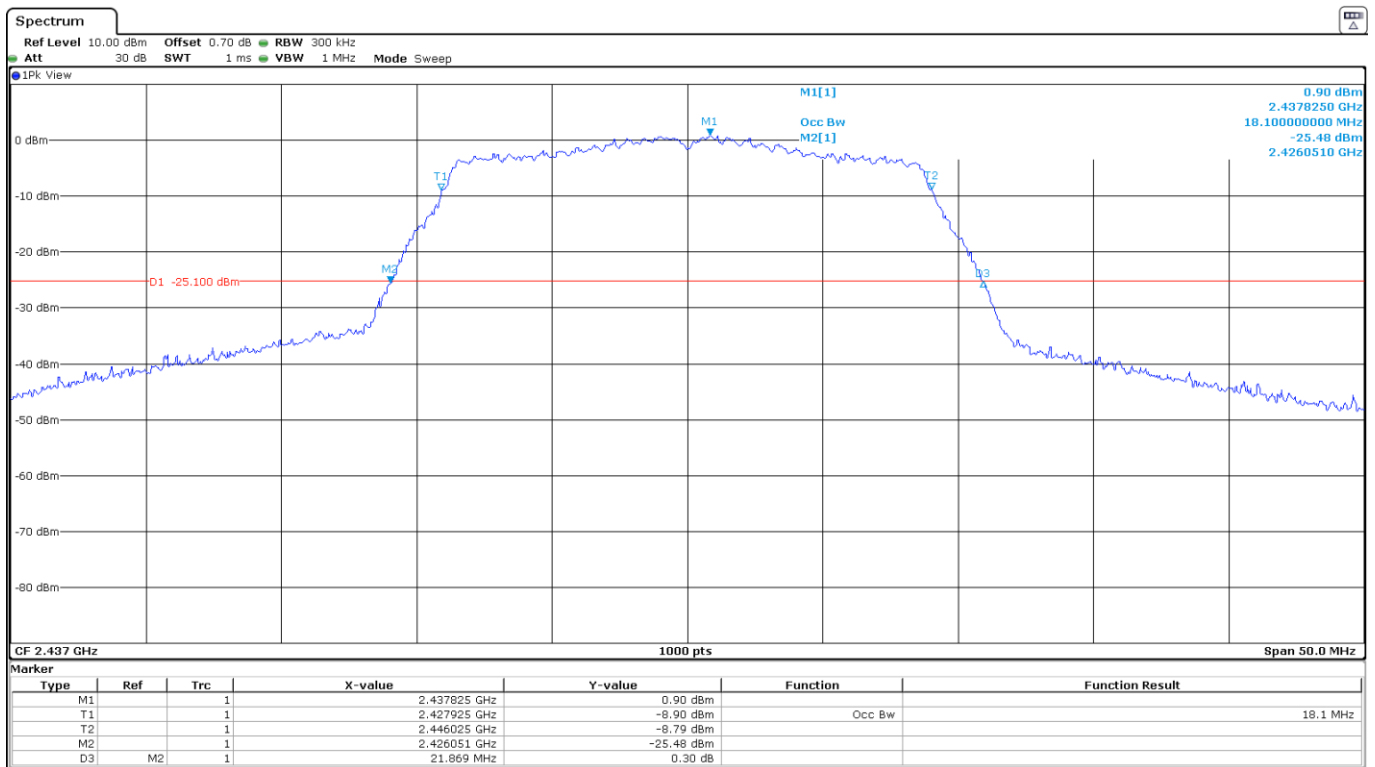


- **Mode 802.11 n20 – Occupied Bandwidth**

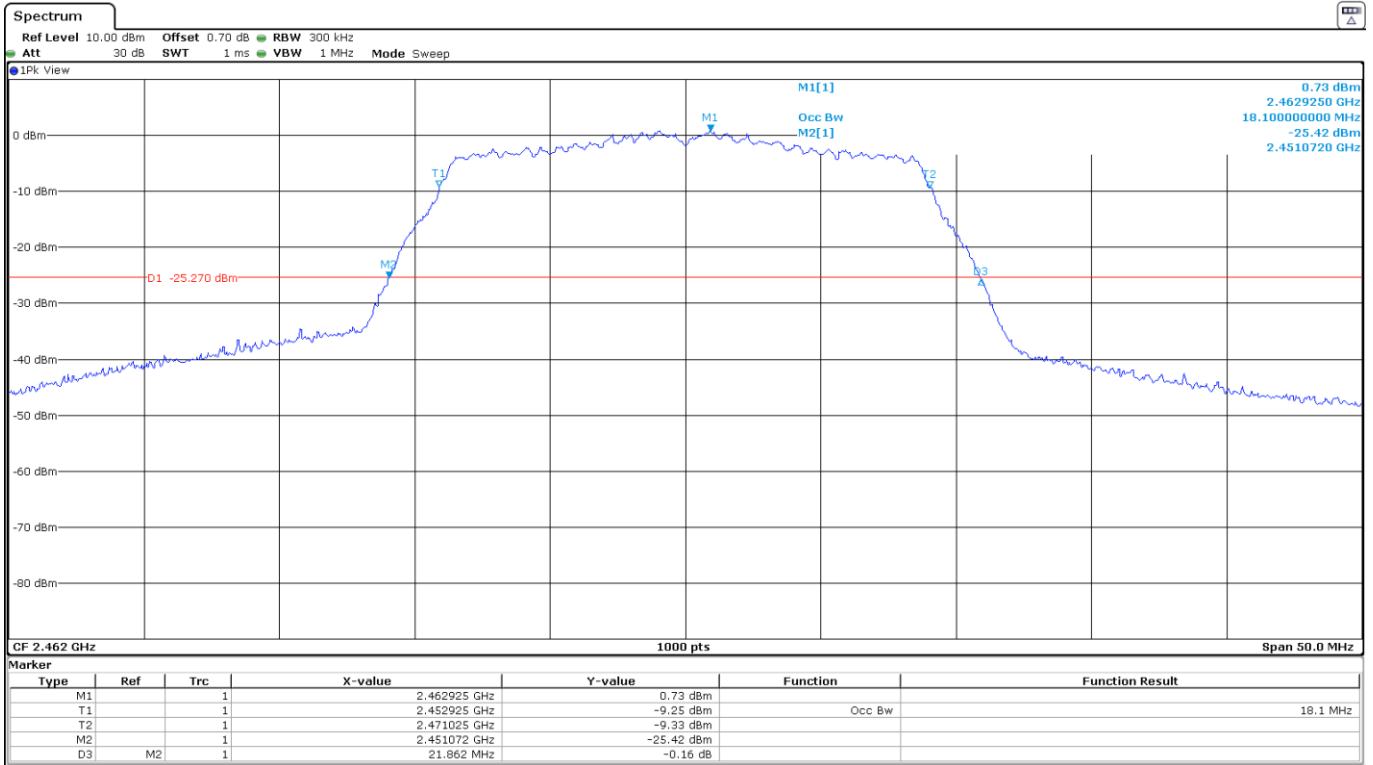
- Low Channel:



- Middle Channel:



- High Channel:

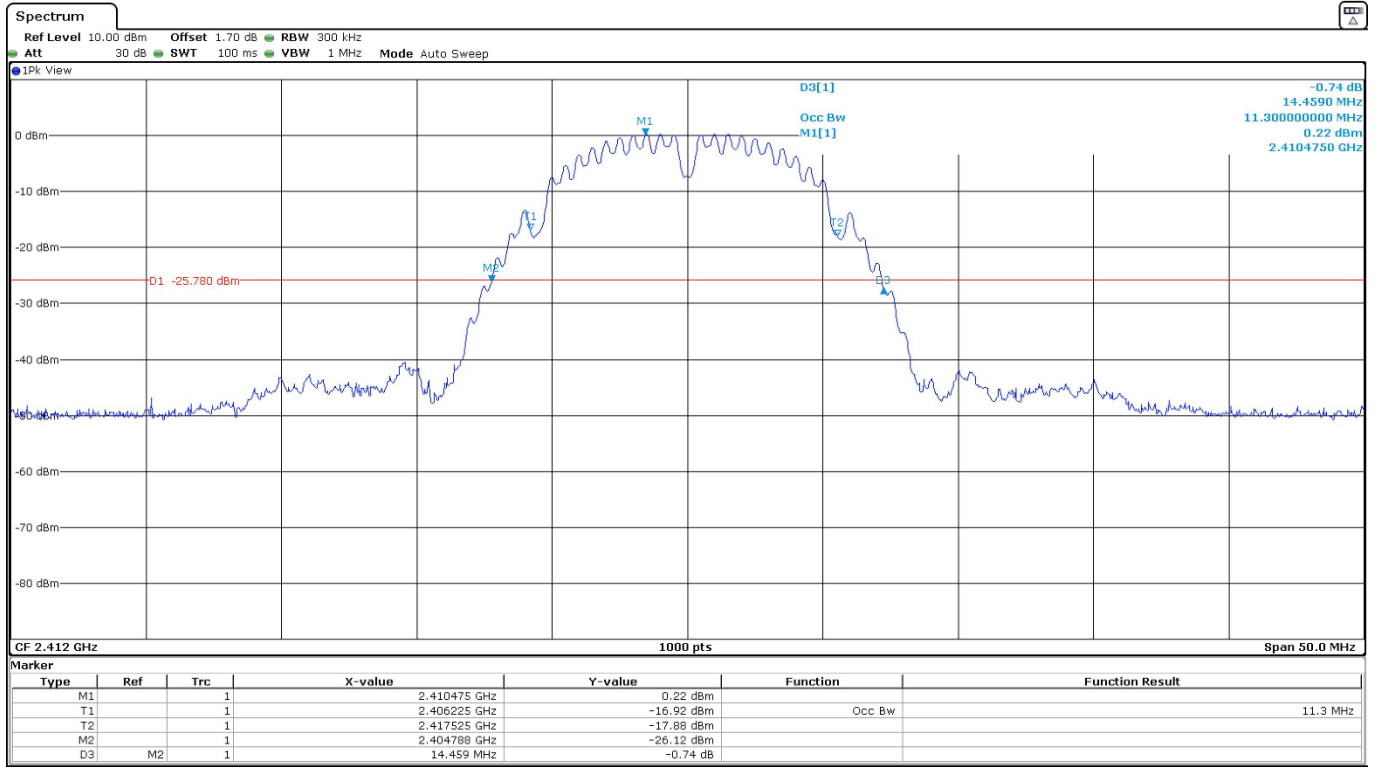


MIMO – CORE1\_Port4 Antenna & CORE1\_Port1 Antenna:

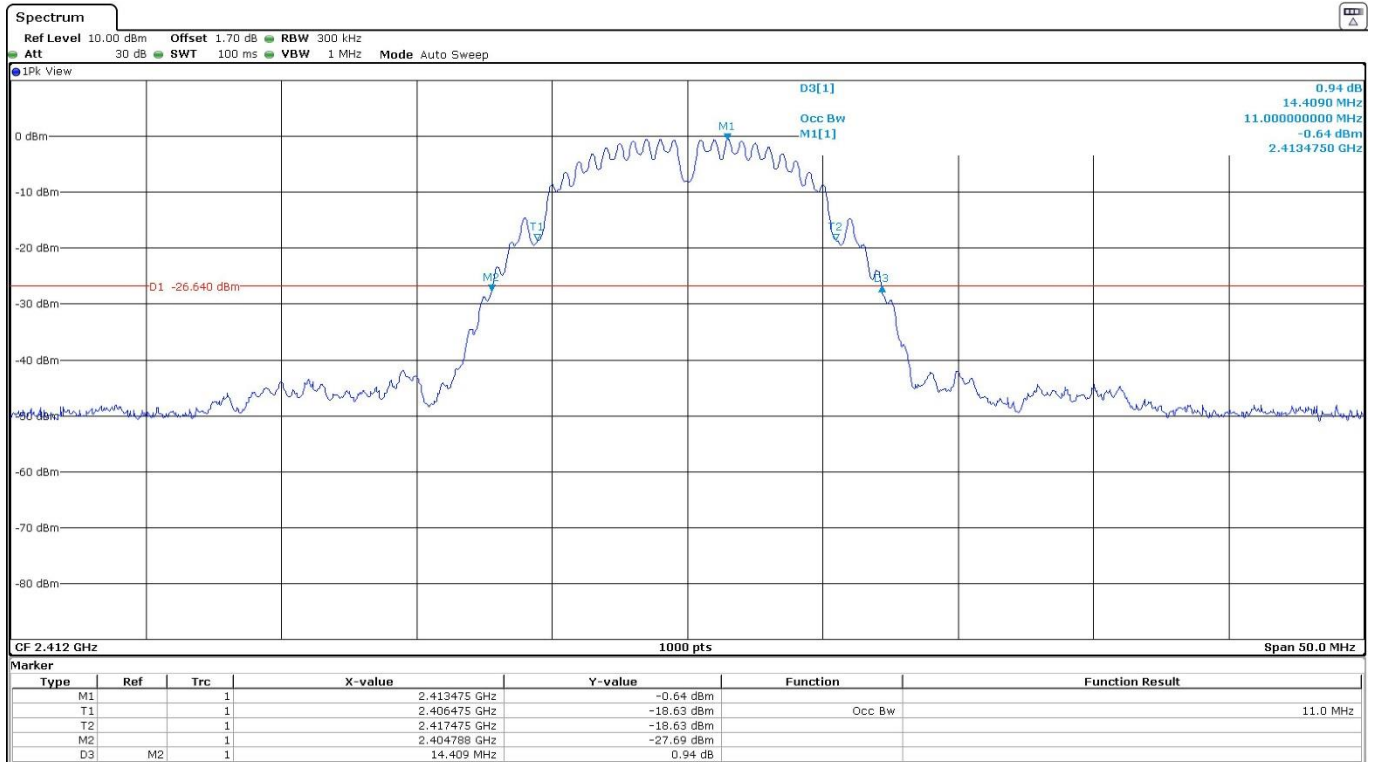
- Mode 802.11 b – Occupied Bandwidth

- Low Channel:

CORE1\_Port4

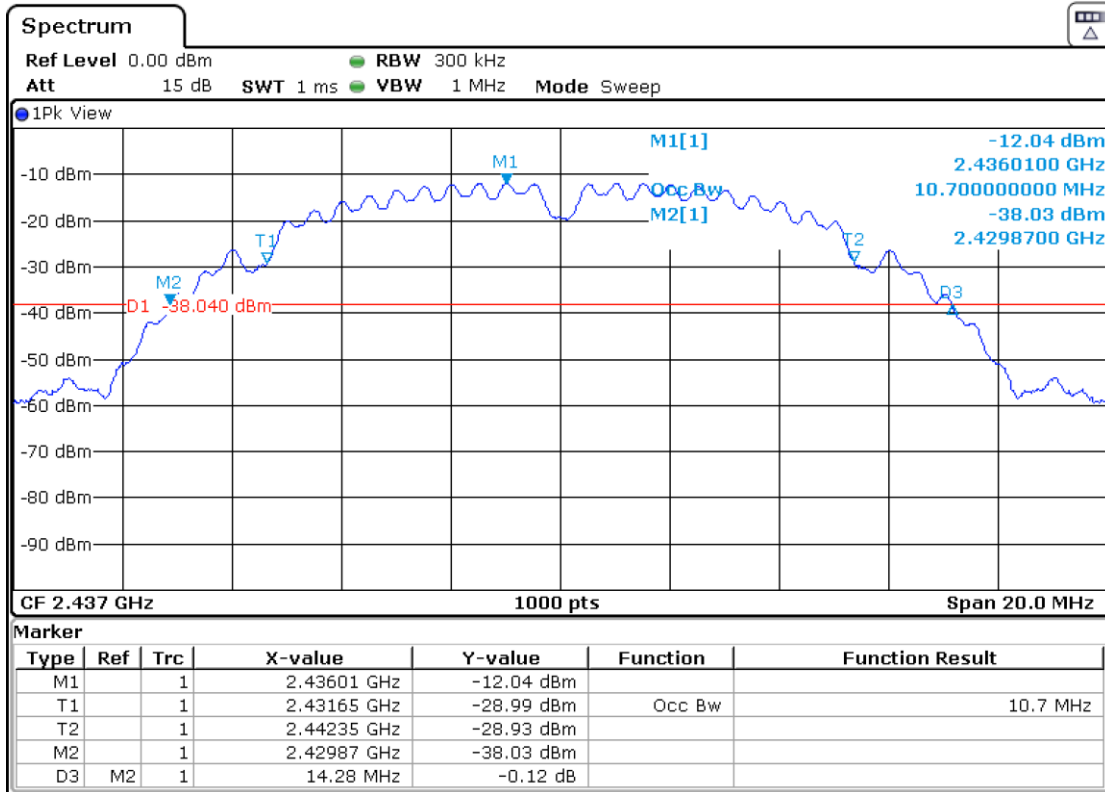


CORE1\_Port1

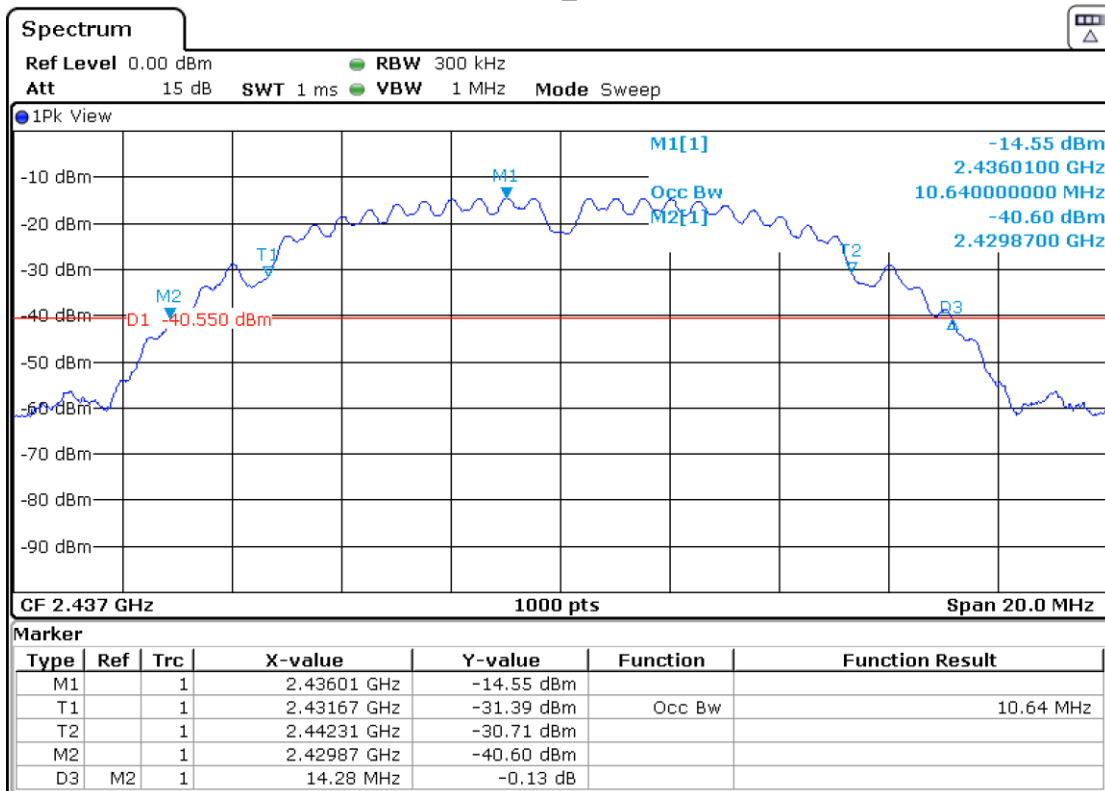


- Middle Channel:

CORE1\_Port4

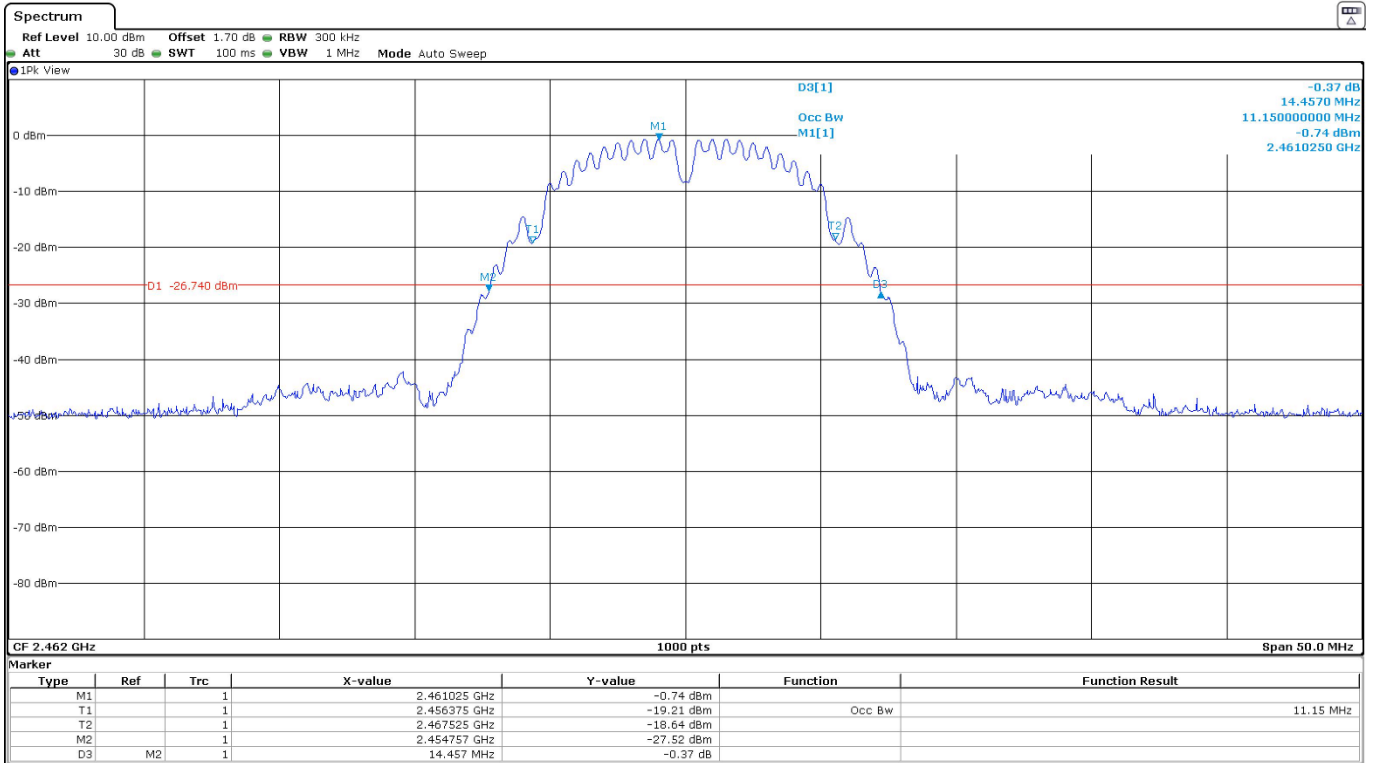


CORE1\_Port1

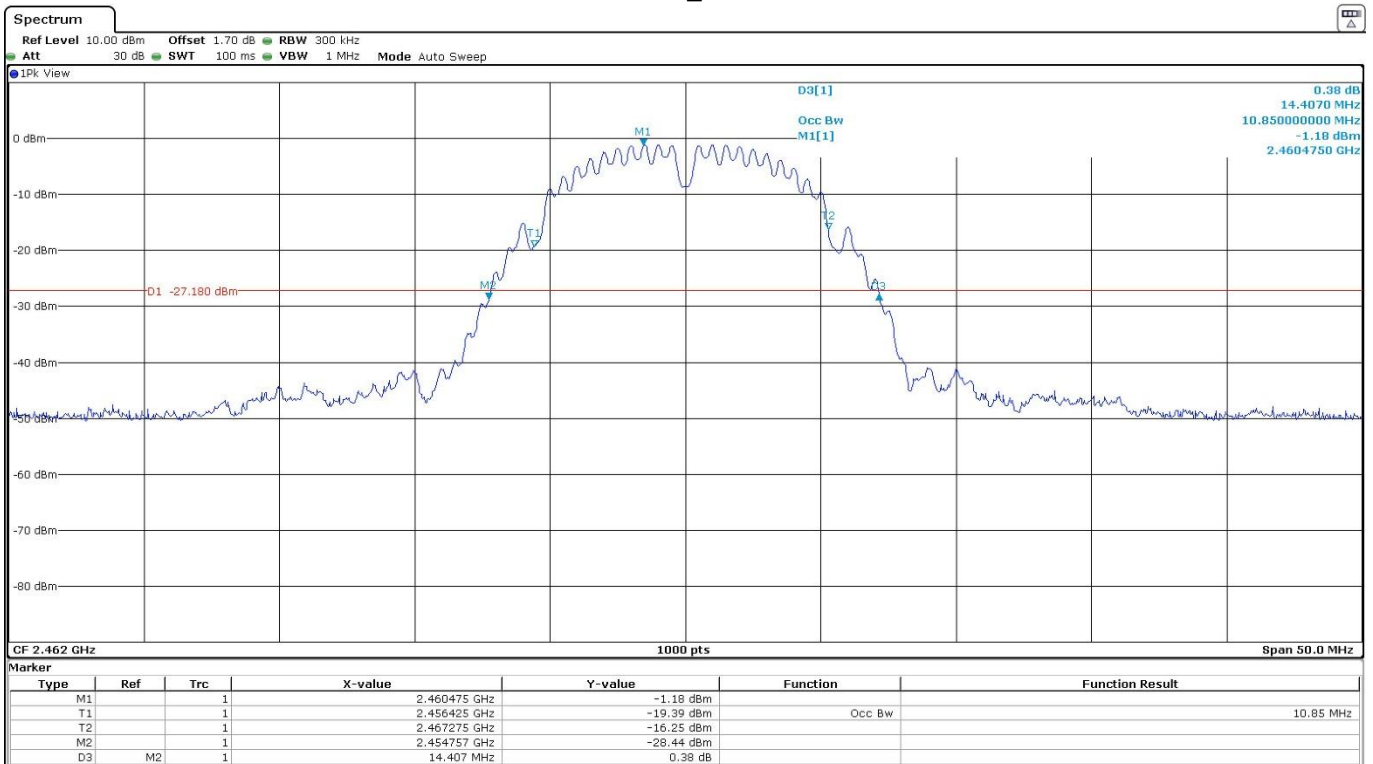


- High Channel:

CORE1\_Port4

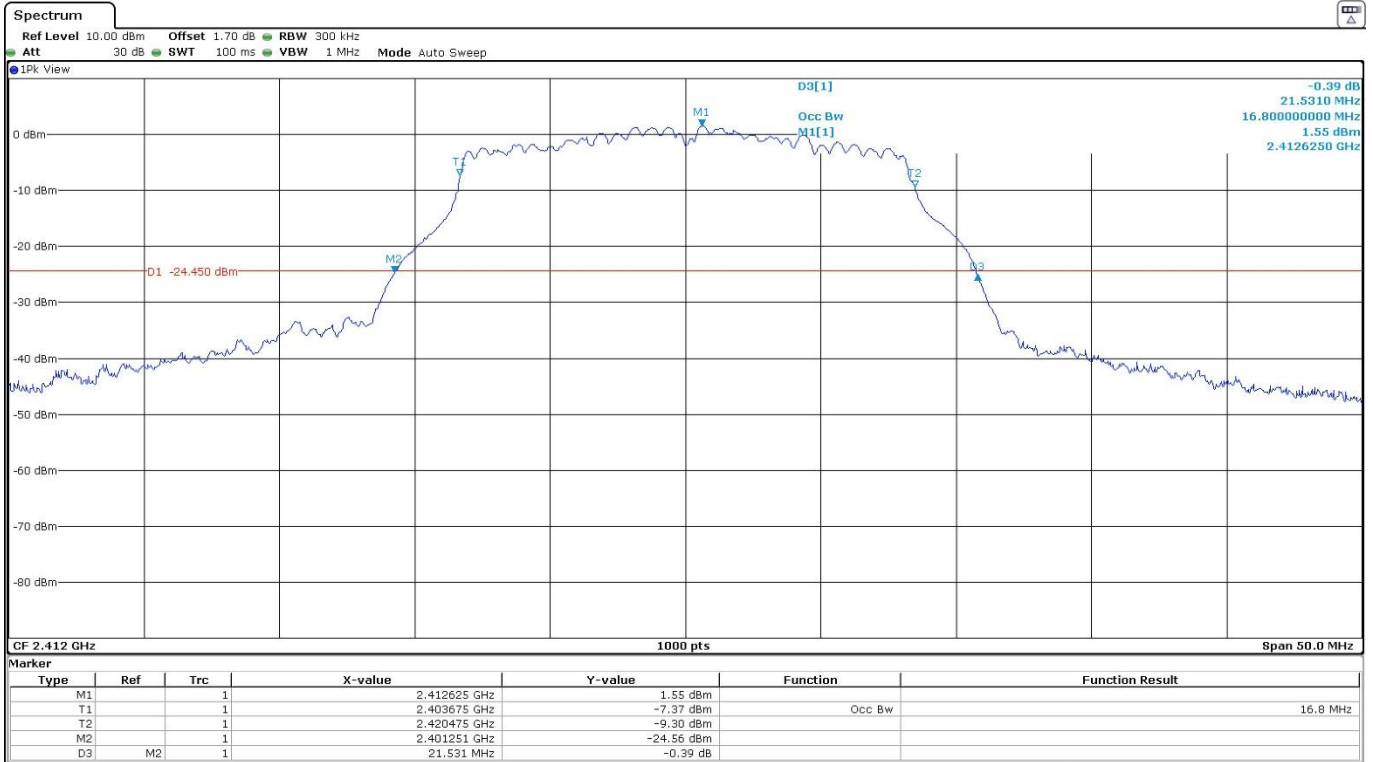


CORE1\_Port1

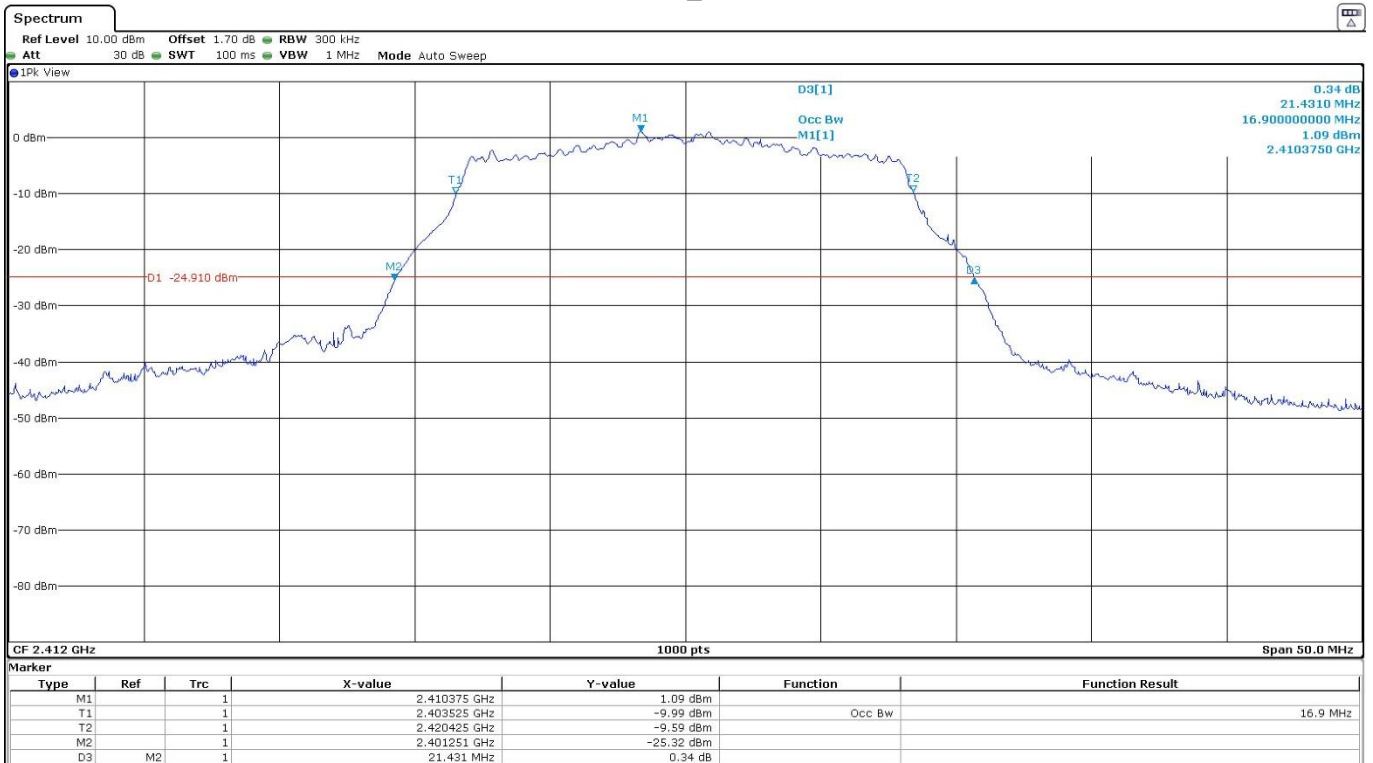


- **Mode 802.11 g – Occupied Bandwidth**
- Low Channel:

### CORE1\_Port4



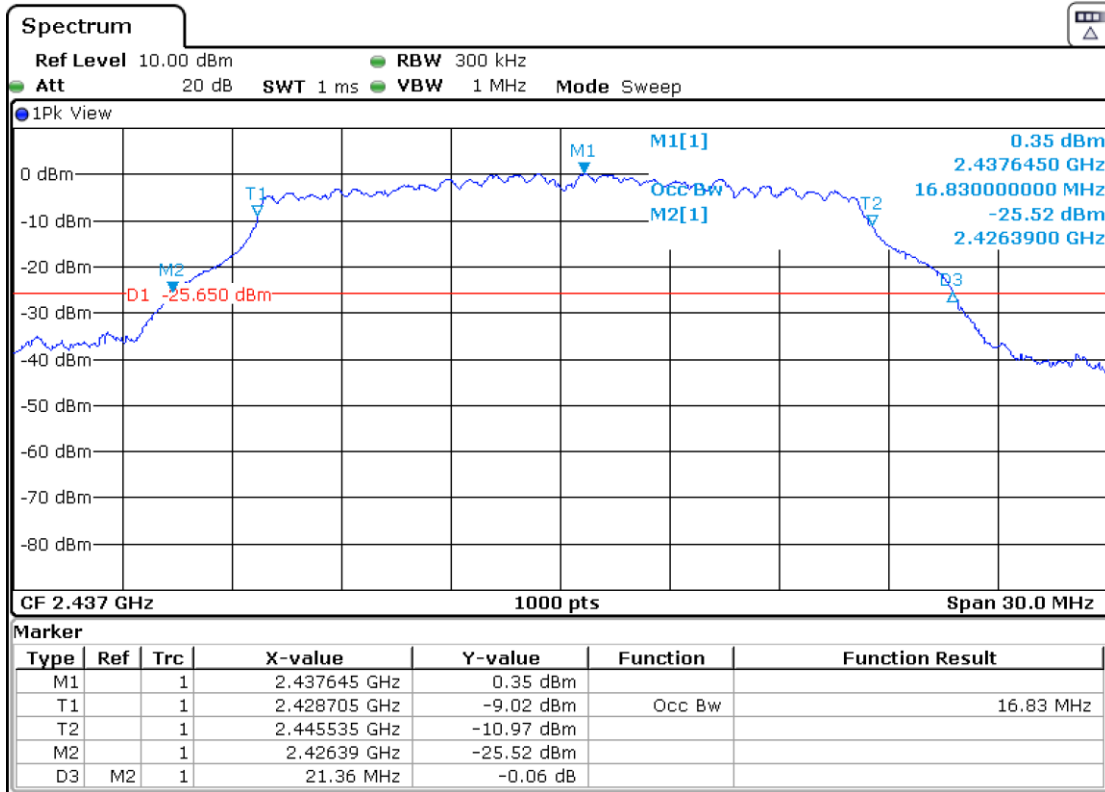
### CORE1\_Port1



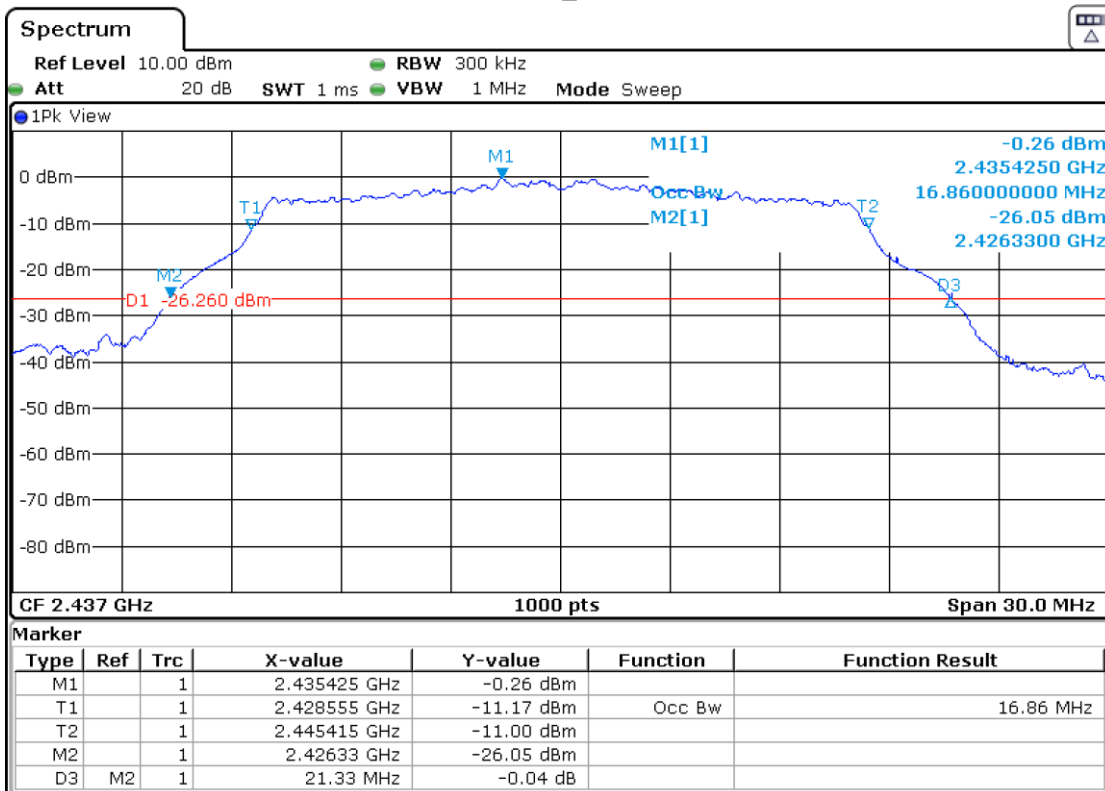


- Middle Channel:

CORE1\_Port4

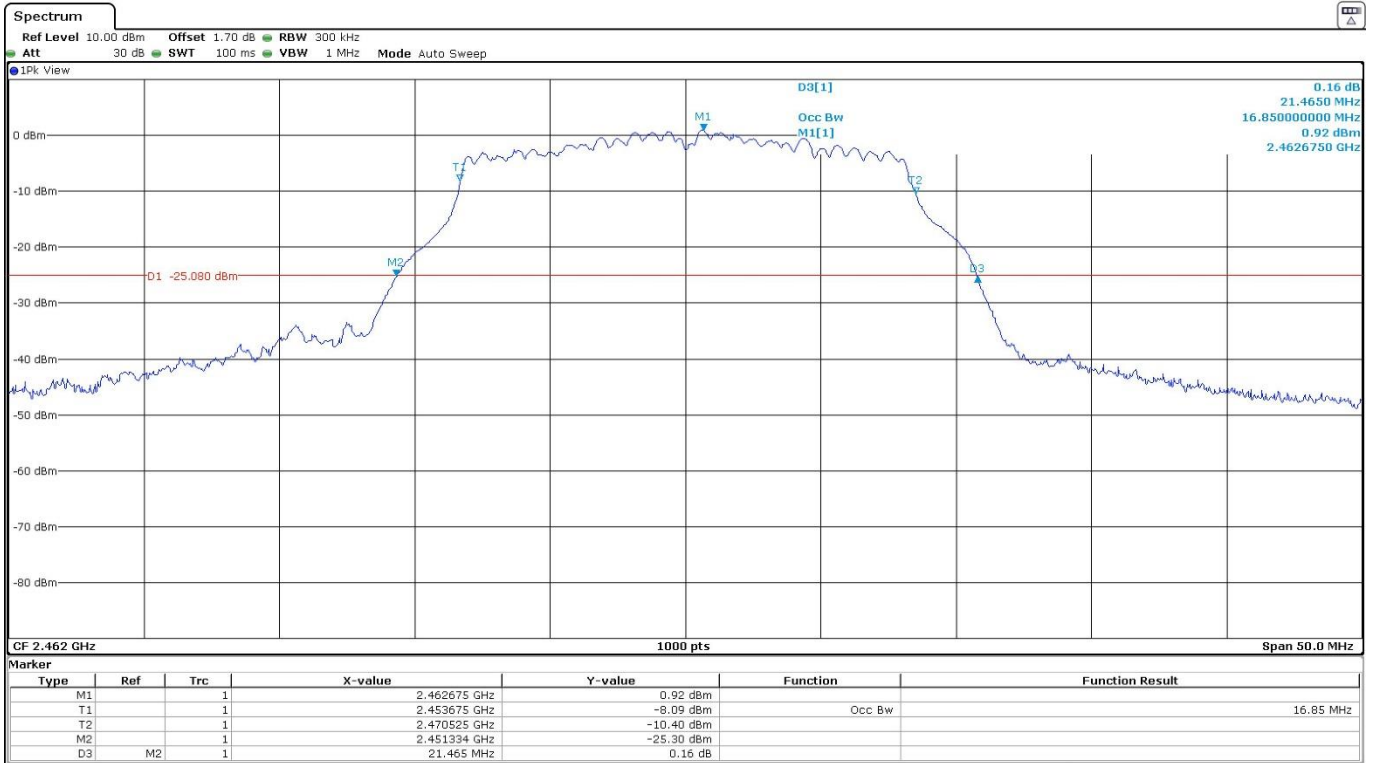


CORE1\_Port1

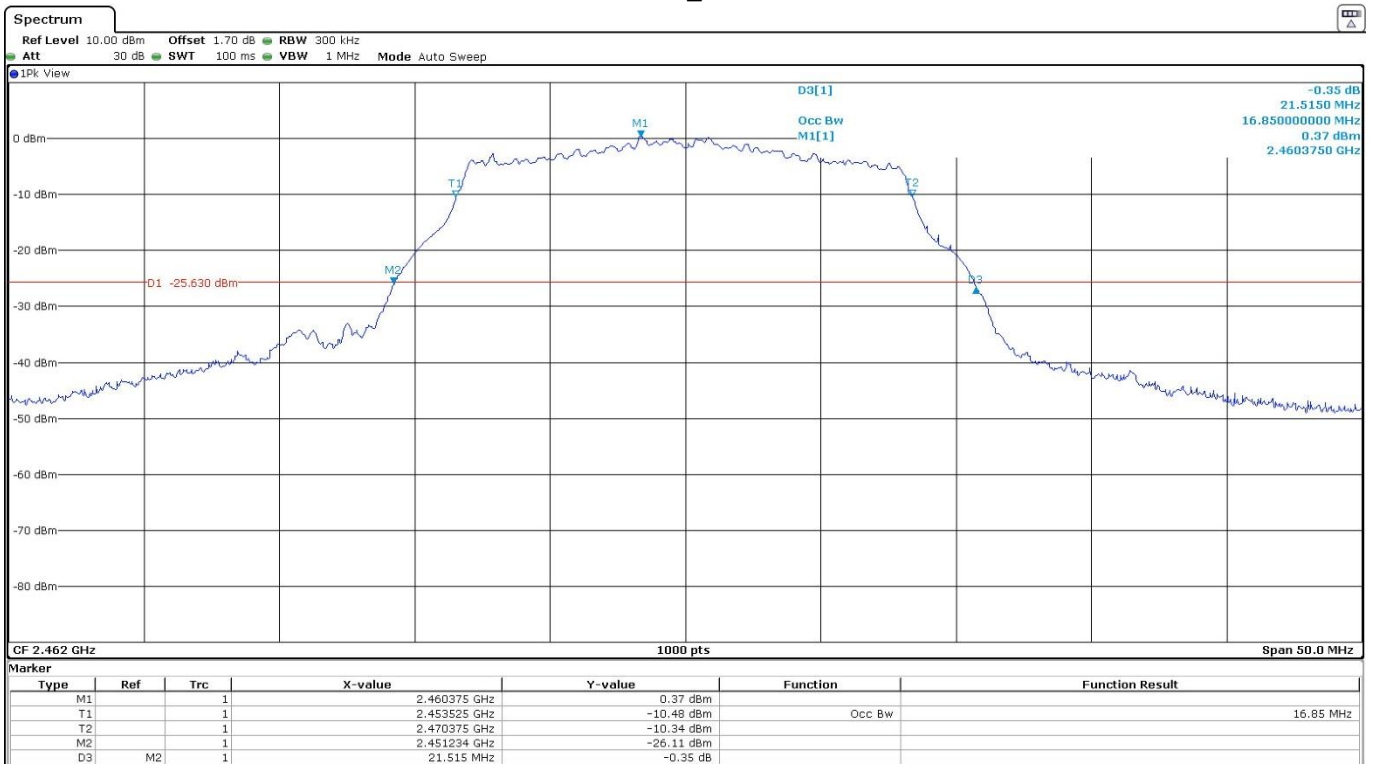


- High Channel:

CORE1\_Port4

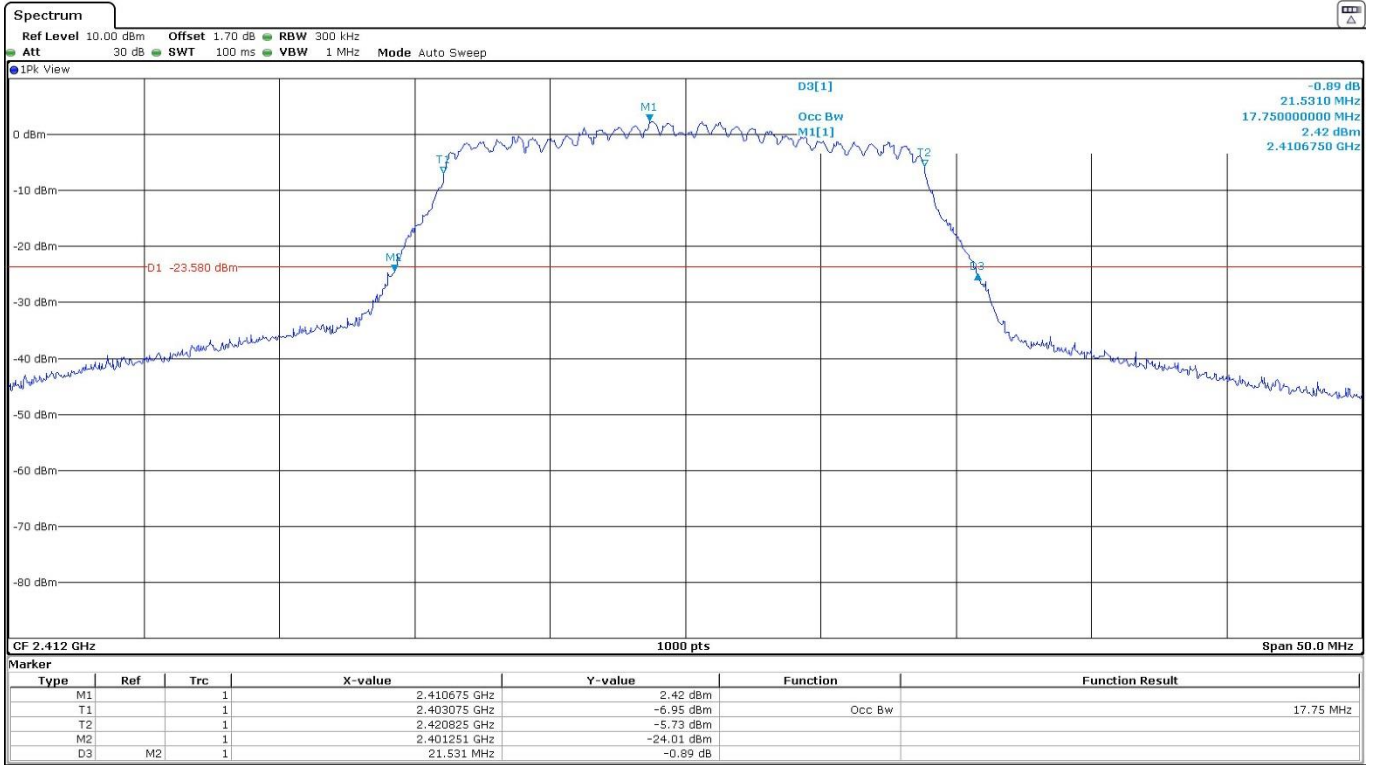


CORE1\_Port1

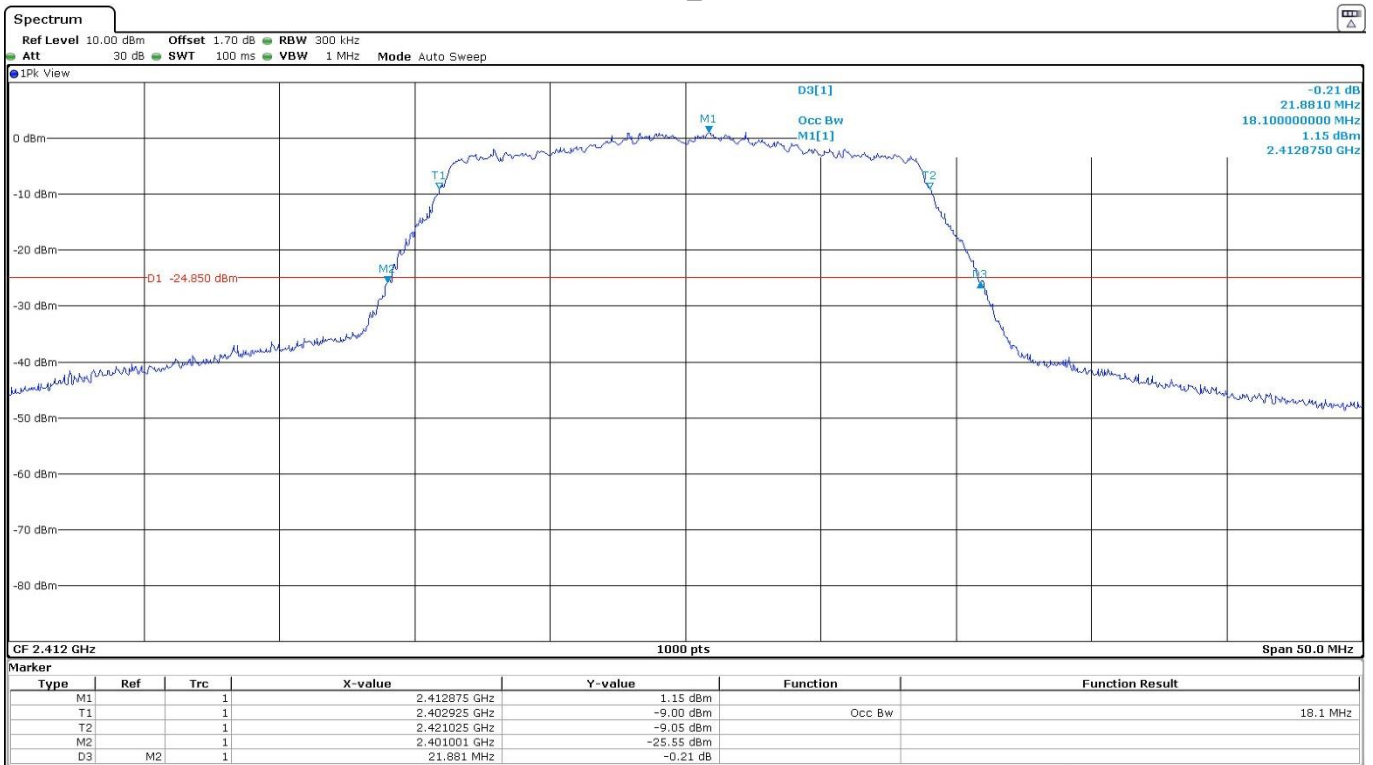


- **Mode 802.11 n20 – Occupied Bandwidth**
- Low Channel:

### CORE1\_Port4

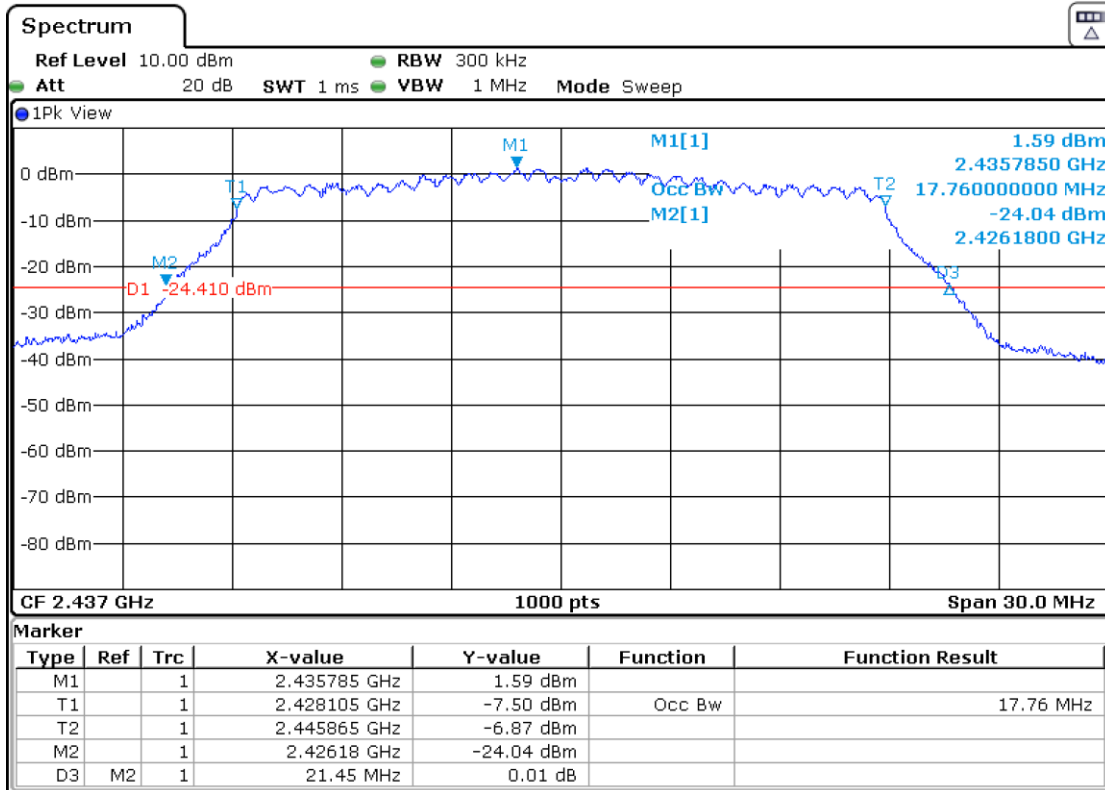


### CORE1\_Port1

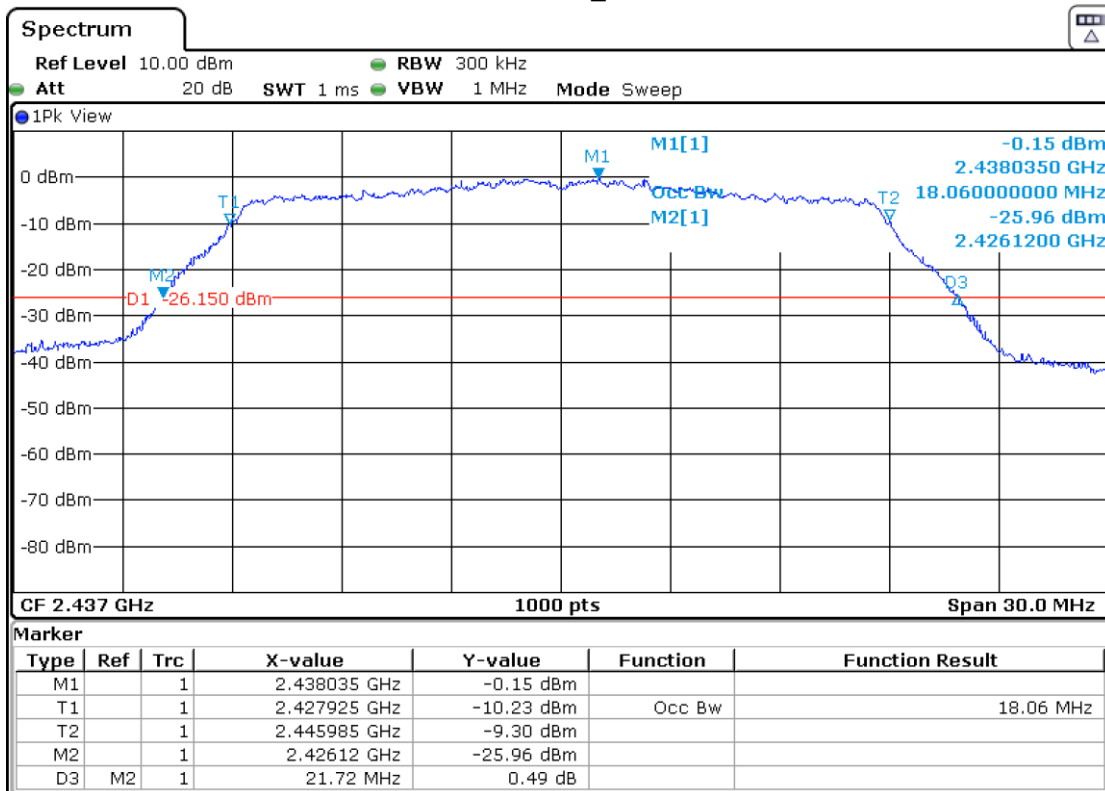


- Middle Channel:

CORE1\_Port4

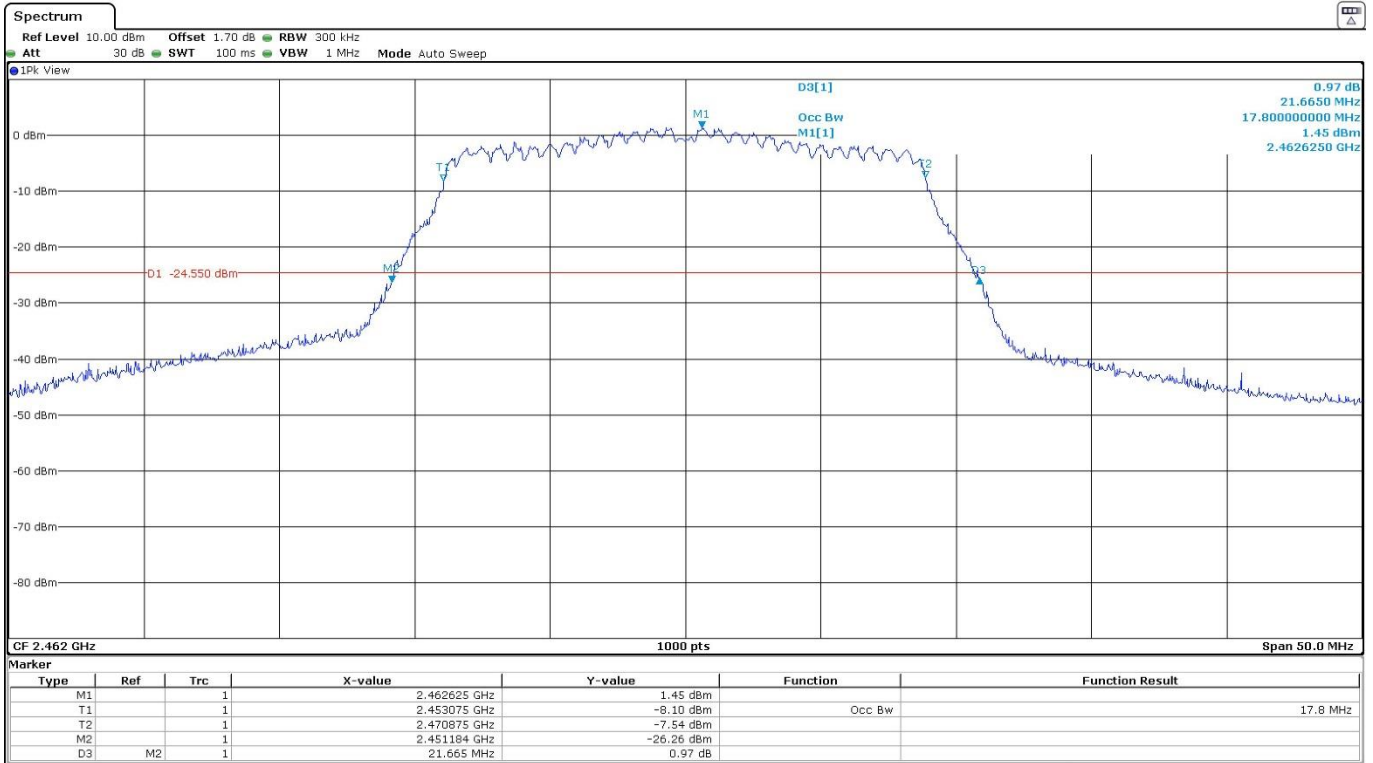


CORE1\_Port1

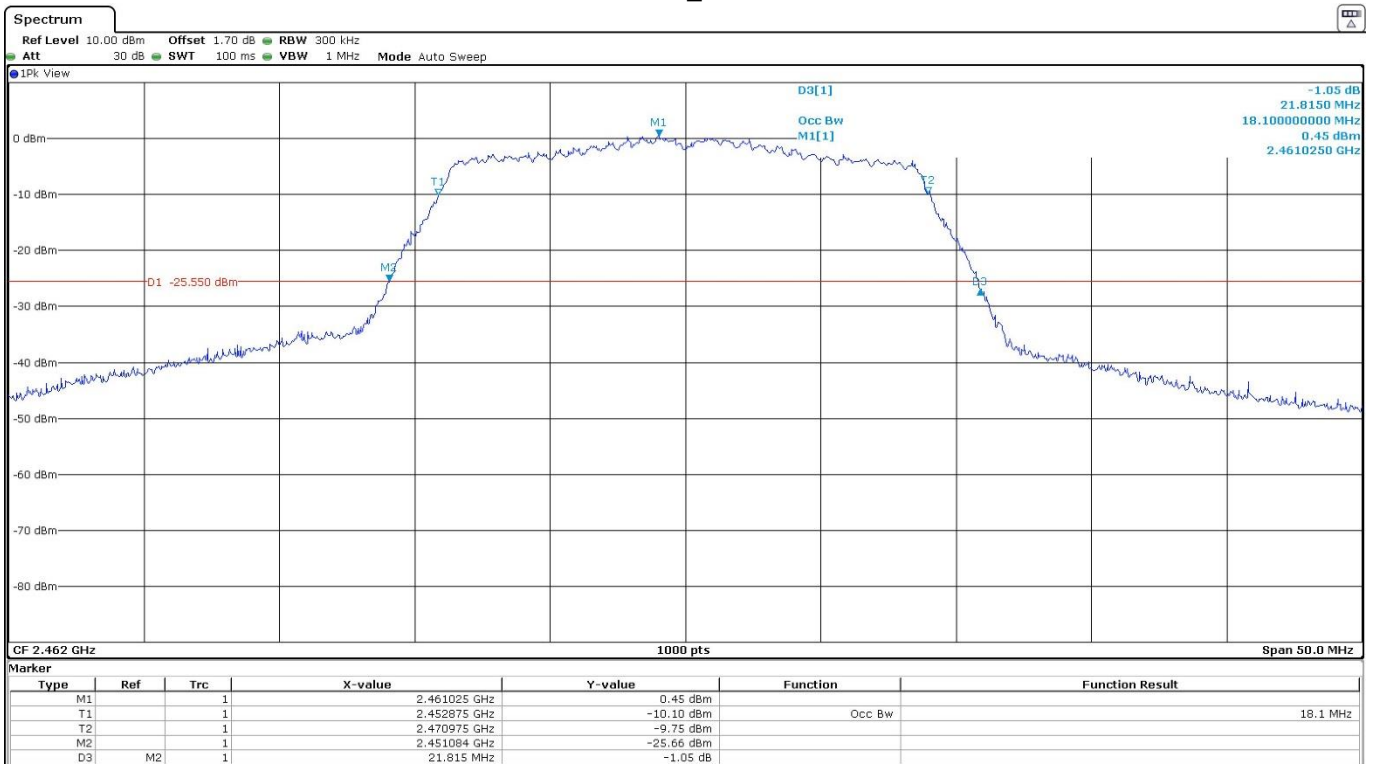


- High Channel:

CORE1\_Port4



CORE1\_Port1



FCC Section 15.247 Subclause (a) (2) / RSS-247 Clause 5.2 (a) 6 dB Bandwidth.

SPECIFICATION:

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS:

**SISO CORE1\_Port4 Antenna:**

- **Mode 802.11 b**

|                               | Low Channel<br>2412 MHz | Middle Channel<br>2437 MHz | High Channel<br>2462 MHz |
|-------------------------------|-------------------------|----------------------------|--------------------------|
| 6 dB Spectrum Bandwidth (kHz) | 9014                    | 9071                       | 9081                     |
| Measurement uncertainty (kHz) | <±11.01                 |                            |                          |

- **Mode 802.11 g**

|                               | Low Channel<br>2412 MHz | Middle Channel<br>2437 MHz | High Channel<br>2462 MHz |
|-------------------------------|-------------------------|----------------------------|--------------------------|
| 6 dB Spectrum Bandwidth (kHz) | 16334                   | 16334                      | 16343                    |
| Measurement uncertainty (kHz) | <±1.80                  |                            |                          |

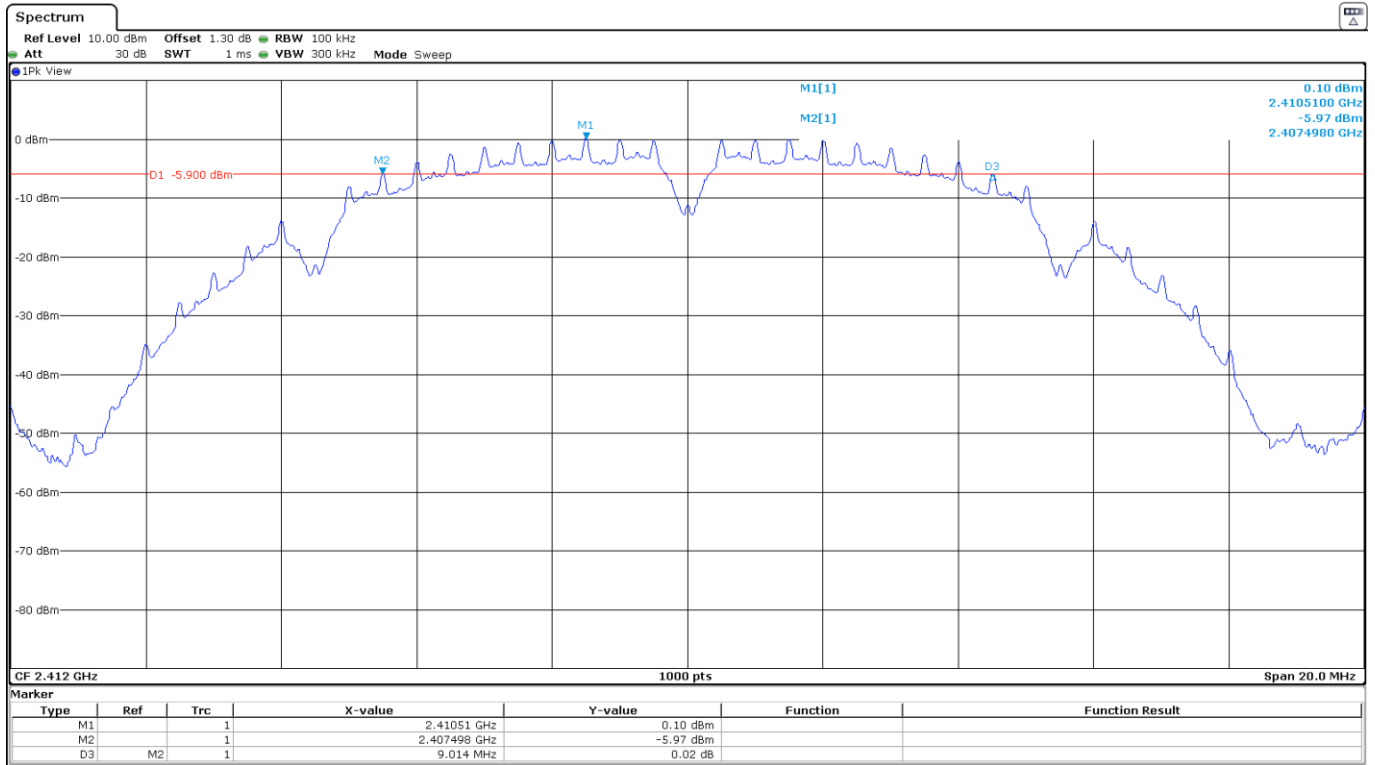
- **Mode 802.11 n20**

|                               | Low Channel<br>2412 MHz | Middle Channel<br>2437 MHz | High Channel<br>2462 MHz |
|-------------------------------|-------------------------|----------------------------|--------------------------|
| 6 dB Spectrum Bandwidth (kHz) | 17574                   | 17294                      | 17563                    |
| Measurement uncertainty (kHz) | <±1.80                  |                            |                          |

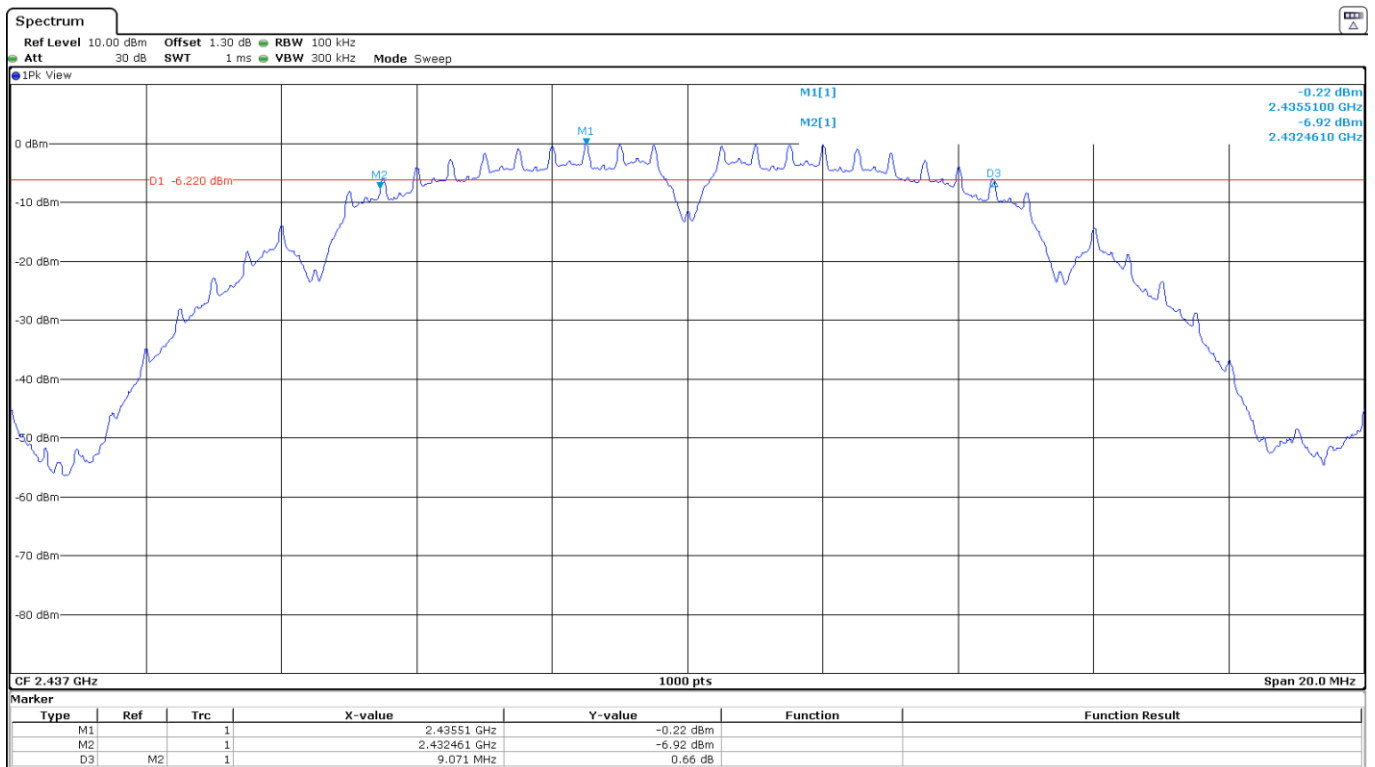
Verdict: PASS

**SISO CORE1\_Port4 Antenna:**

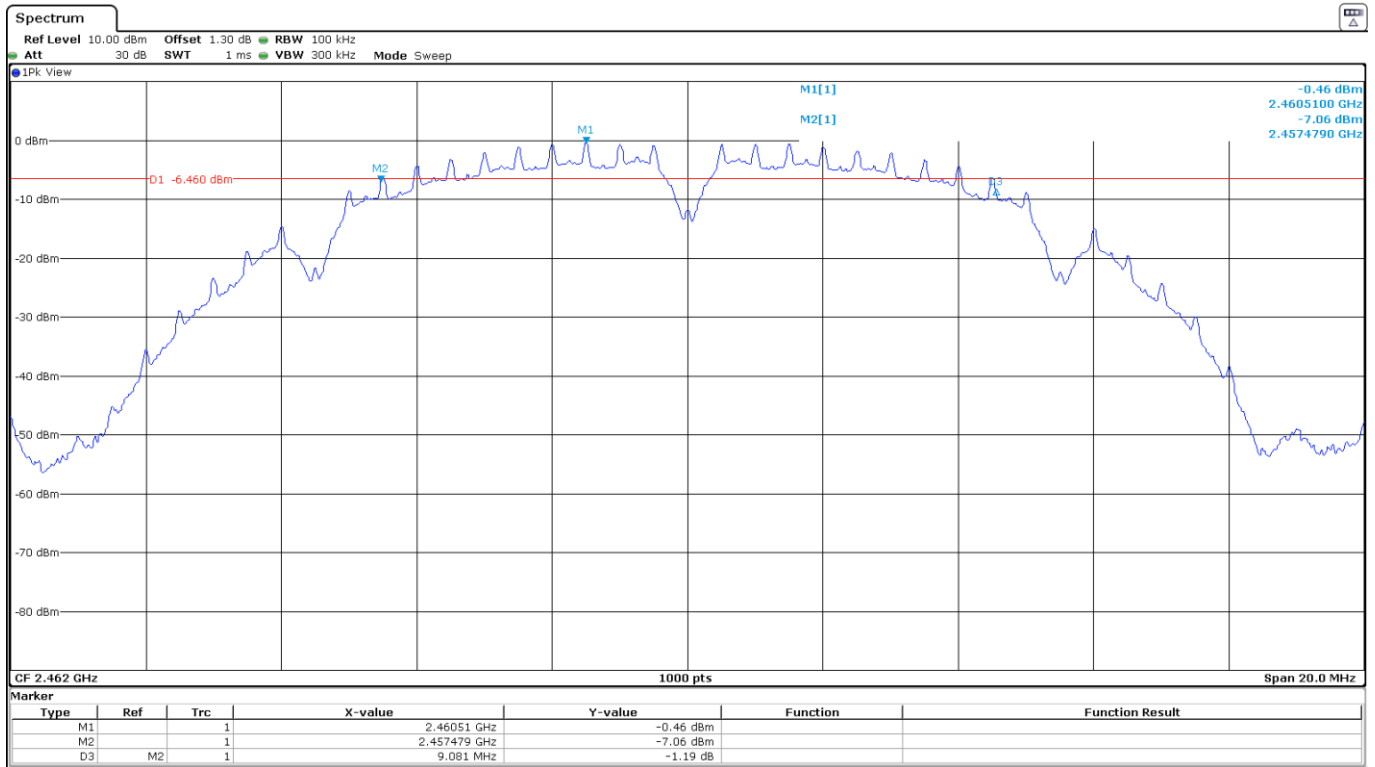
- **Mode 802.11 b – 6 dB Bandwidth**
- Low Channel:



- Middle Channel:

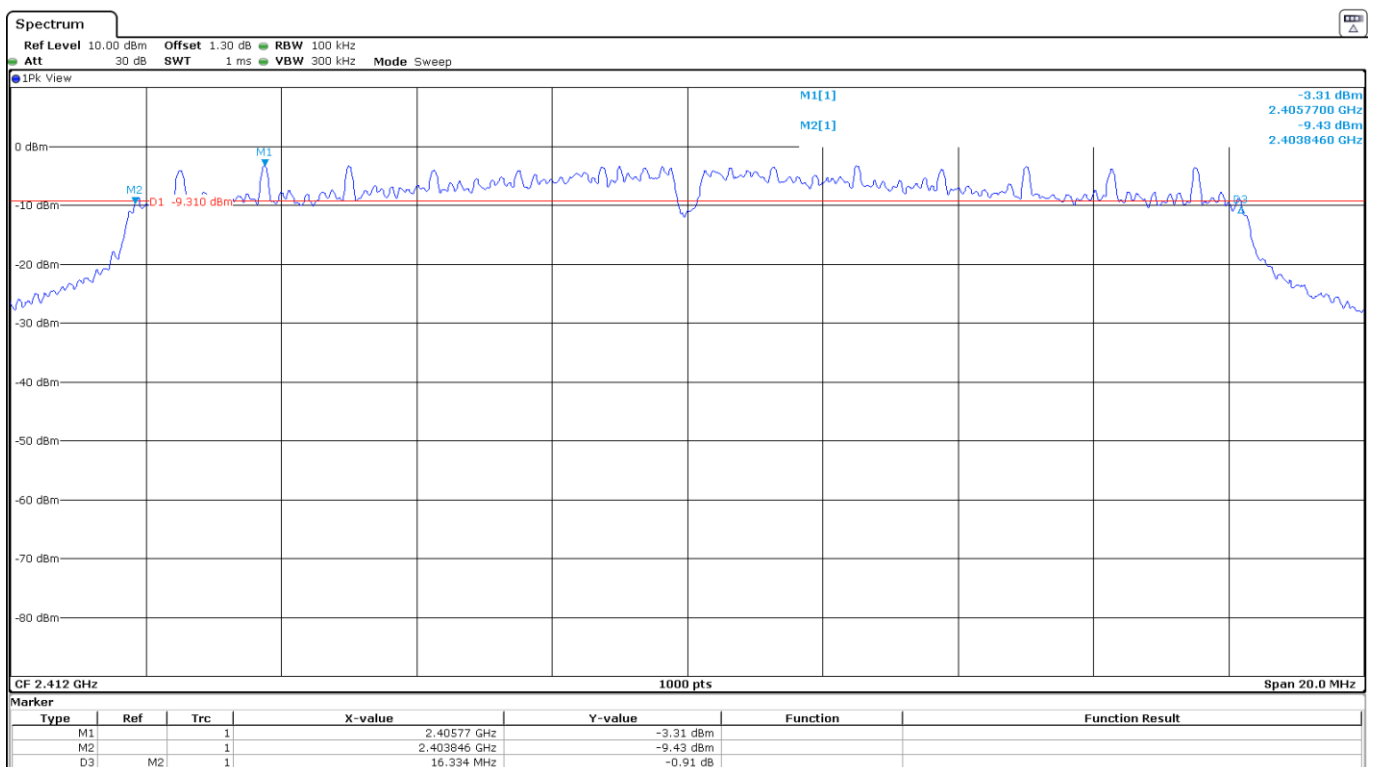


- High Channel:



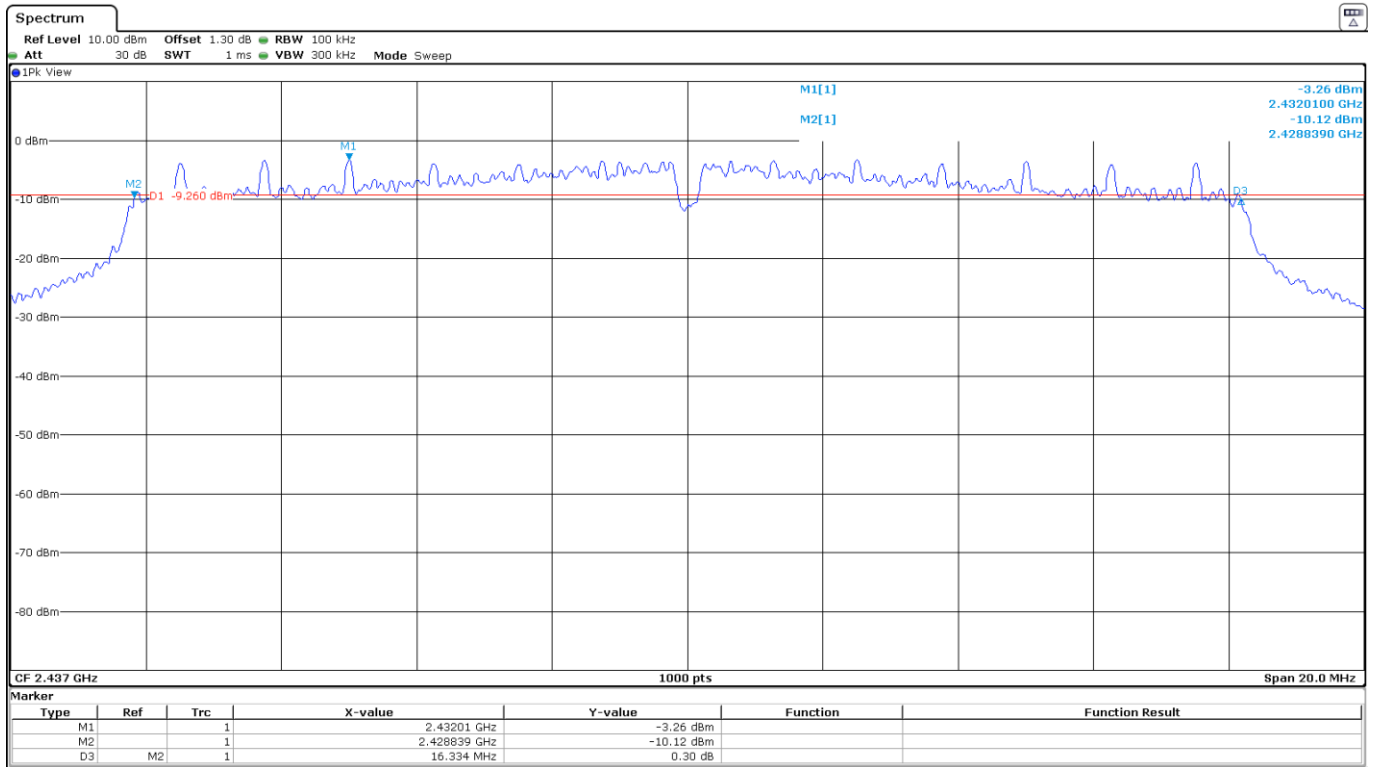
- Mode 802.11 g – 6 dB Bandwidth

- Low Channel:

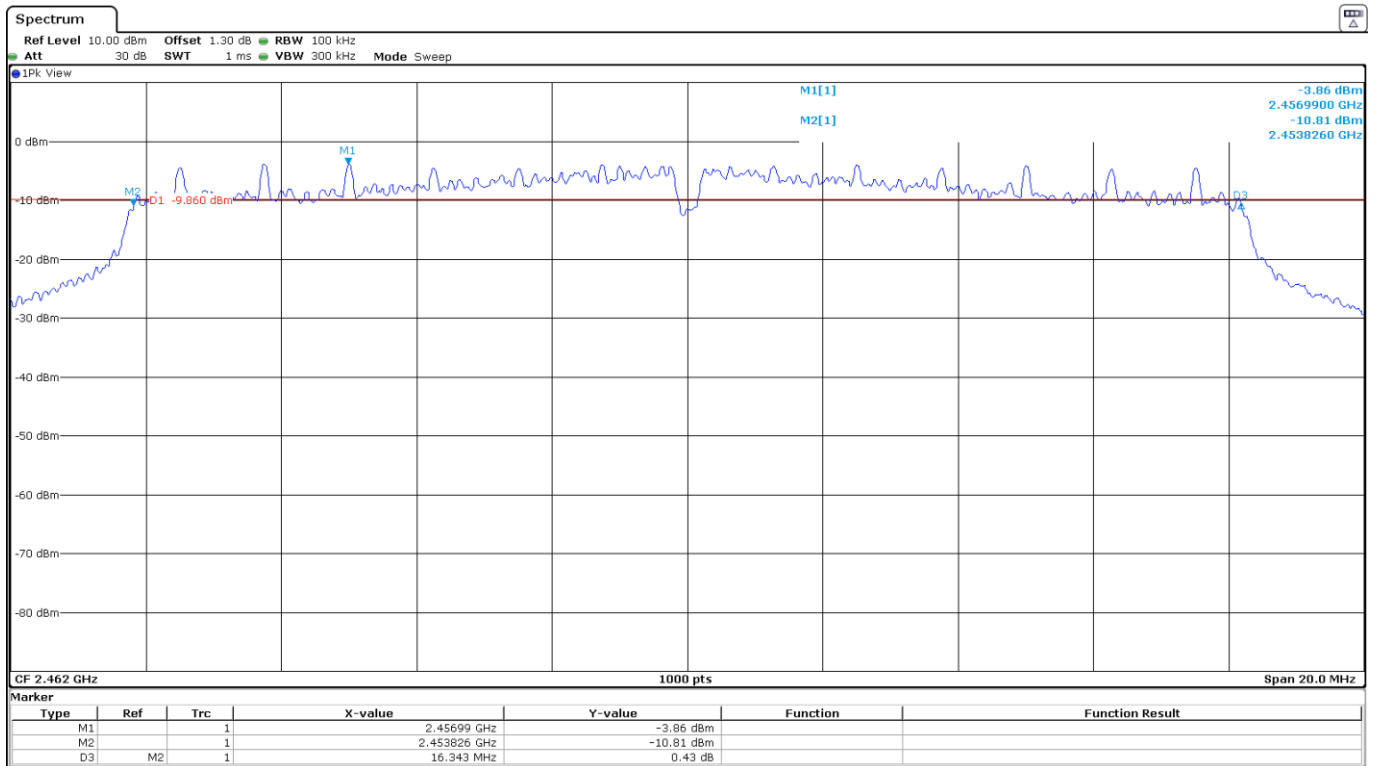




- Middle Channel:

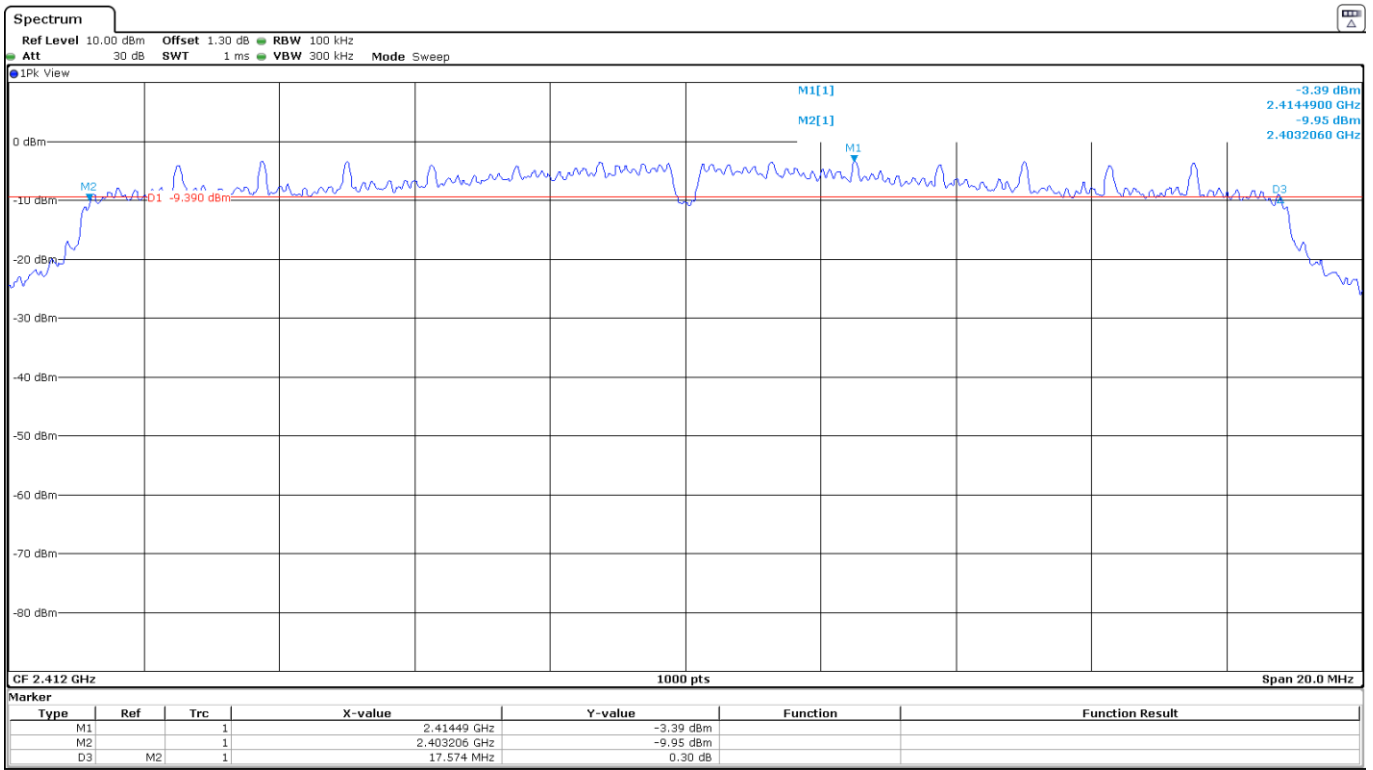


- High Channel:

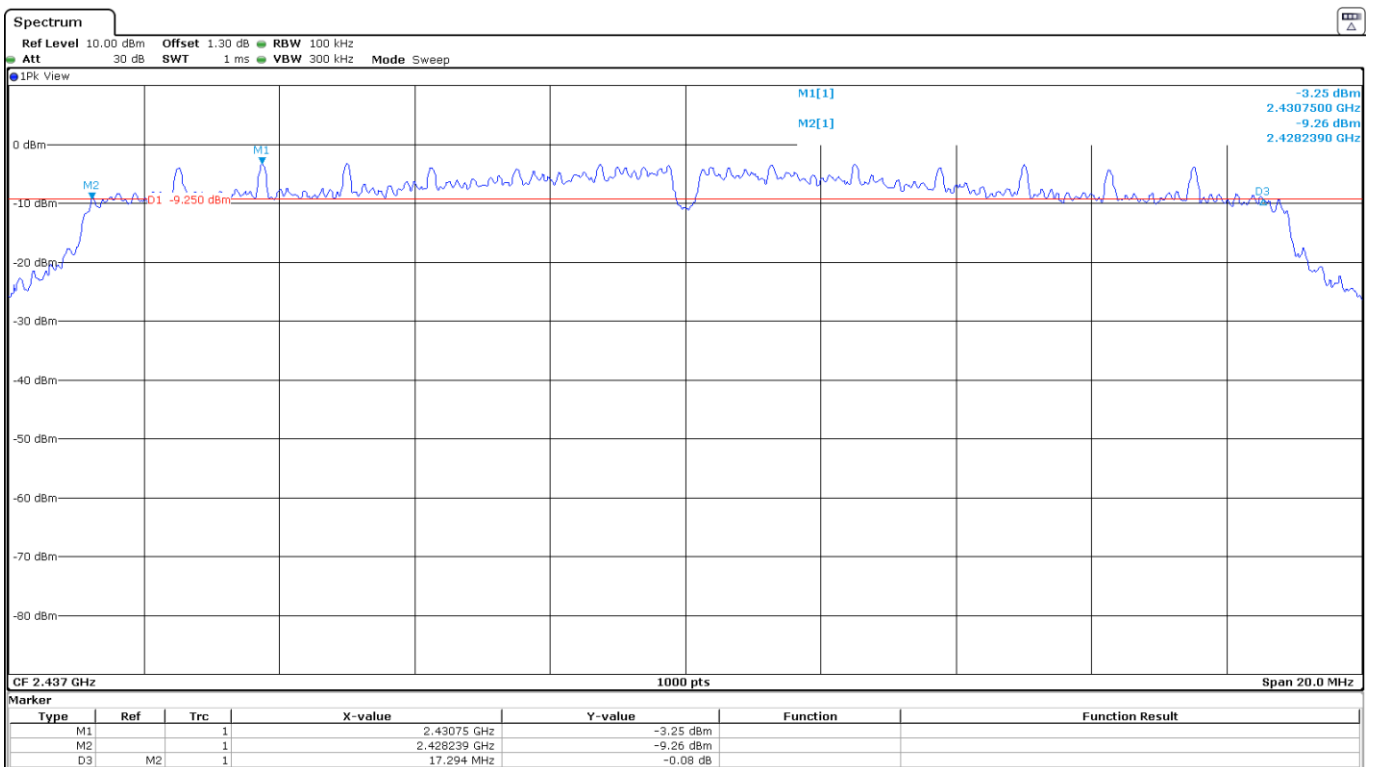


- **Mode 802.11 n20 – 6 dB Bandwidth**

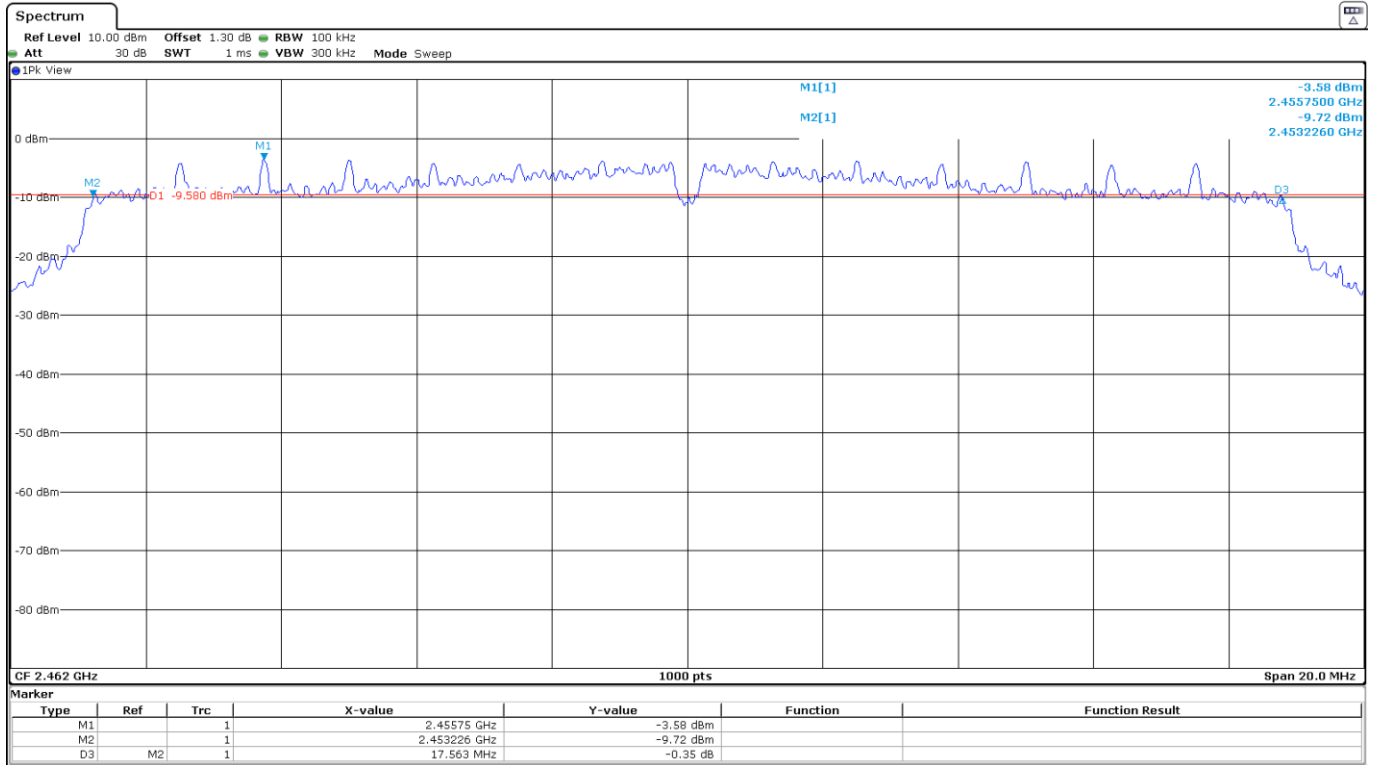
- Low Channel:



- Middle Channel:



- High Channel:



## FCC Section 15.35 Subclause (c) / RSS-Gen 6.10. Transmitter Duty Cycle.

### SPECIFICATION:

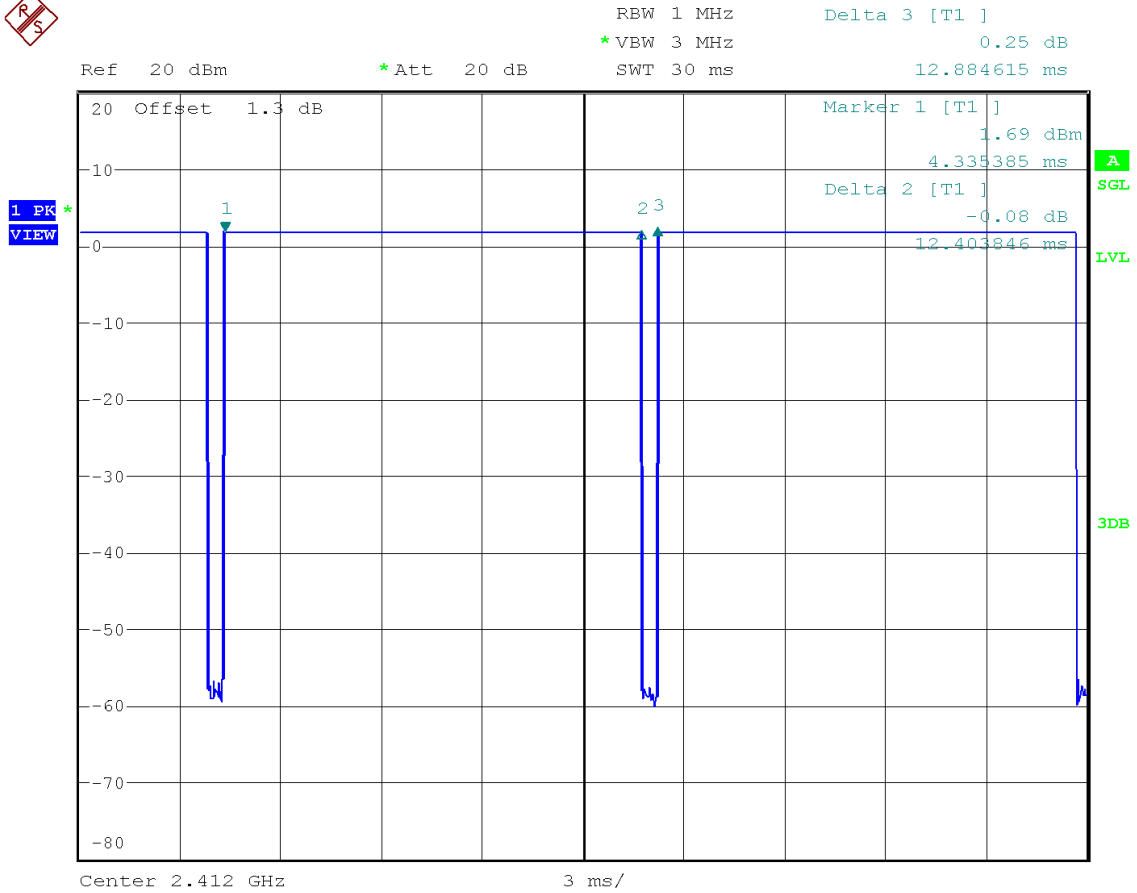
When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

### RESULTS:

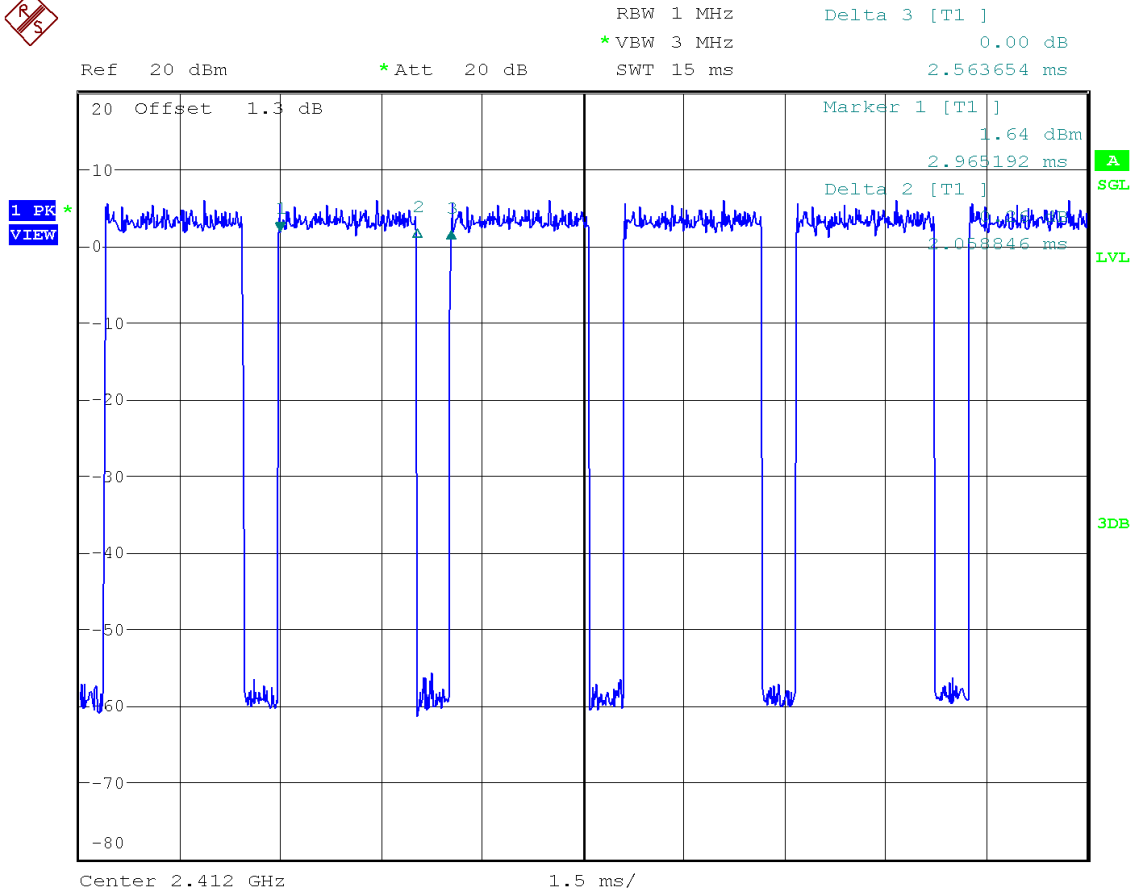
The results below are for data rates with a duty cycle less than 98%. The results for all rest of modes having a value > 98%.

| Technique | Mode       | Antenna Port | Pulse Duration (ms) | Period (ms) | Duty Cycle Correction (dB) |
|-----------|------------|--------------|---------------------|-------------|----------------------------|
| SISO      | 802.11 b   | CORE1_Port4  | 12.403846           | 12.884615   | 0.165                      |
| SISO      | 802.11 g   | CORE1_Port4  | 2.058846            | 2.563654    | 0.952                      |
| SISO      | 802.11 n20 | CORE1_Port4  | 1.914615            | 2.419423    | 1.016                      |
| MIMO      | 802.11 b   | CORE1_Port4  | 12.4184             | 12.9412     | 0.179                      |
| MIMO      | 802.11 b   | CORE1_Port1  | 12.4525             | 12.9037     | 0.154                      |
| MIMO      | 802.11 g   | CORE1_Port4  | 2.0605              | 2.5702      | 0.956                      |
| MIMO      | 802.11 g   | CORE1_Port1  | 2.0562              | 2.5687      | 0.966                      |
| MIMO      | 802.11 n20 | CORE1_Port4  | 1.9205              | 2.4249      | 1.013                      |
| MIMO      | 802.11 n20 | CORE1_Port1  | 1.9229              | 2.4311      | 1.018                      |

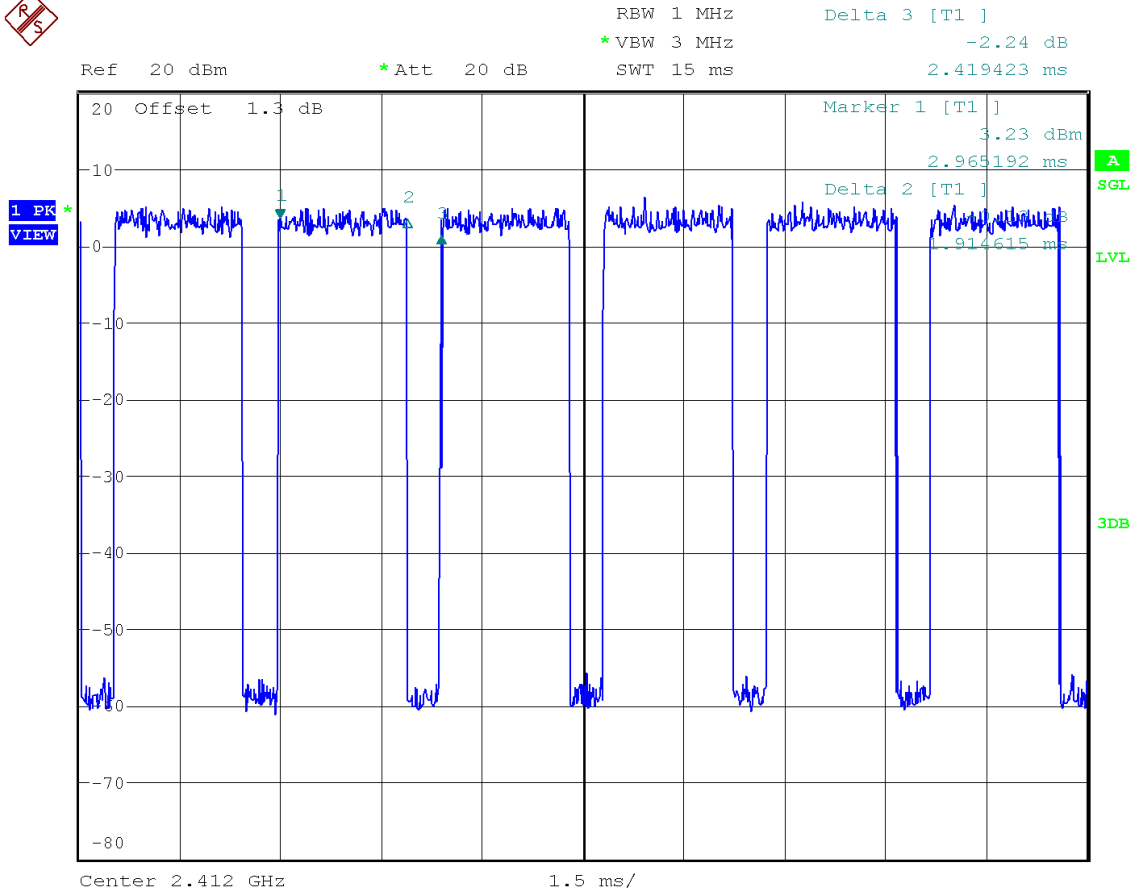
SISO 802.11 b: CORE1\_Port4



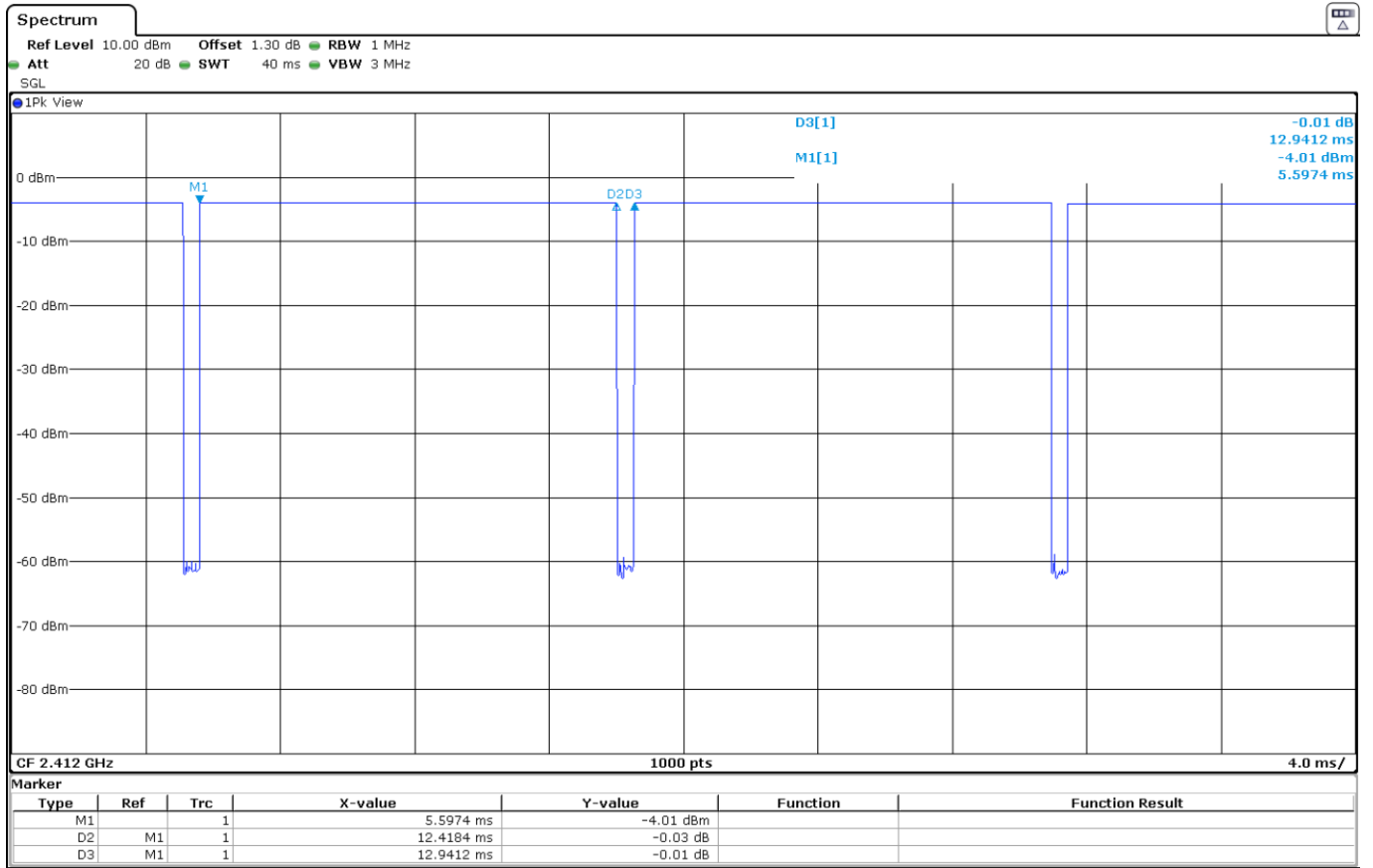
### SISO 802.11 g: CORE1\_Port4



SISO 802.11 n20: CORE1\_Port4

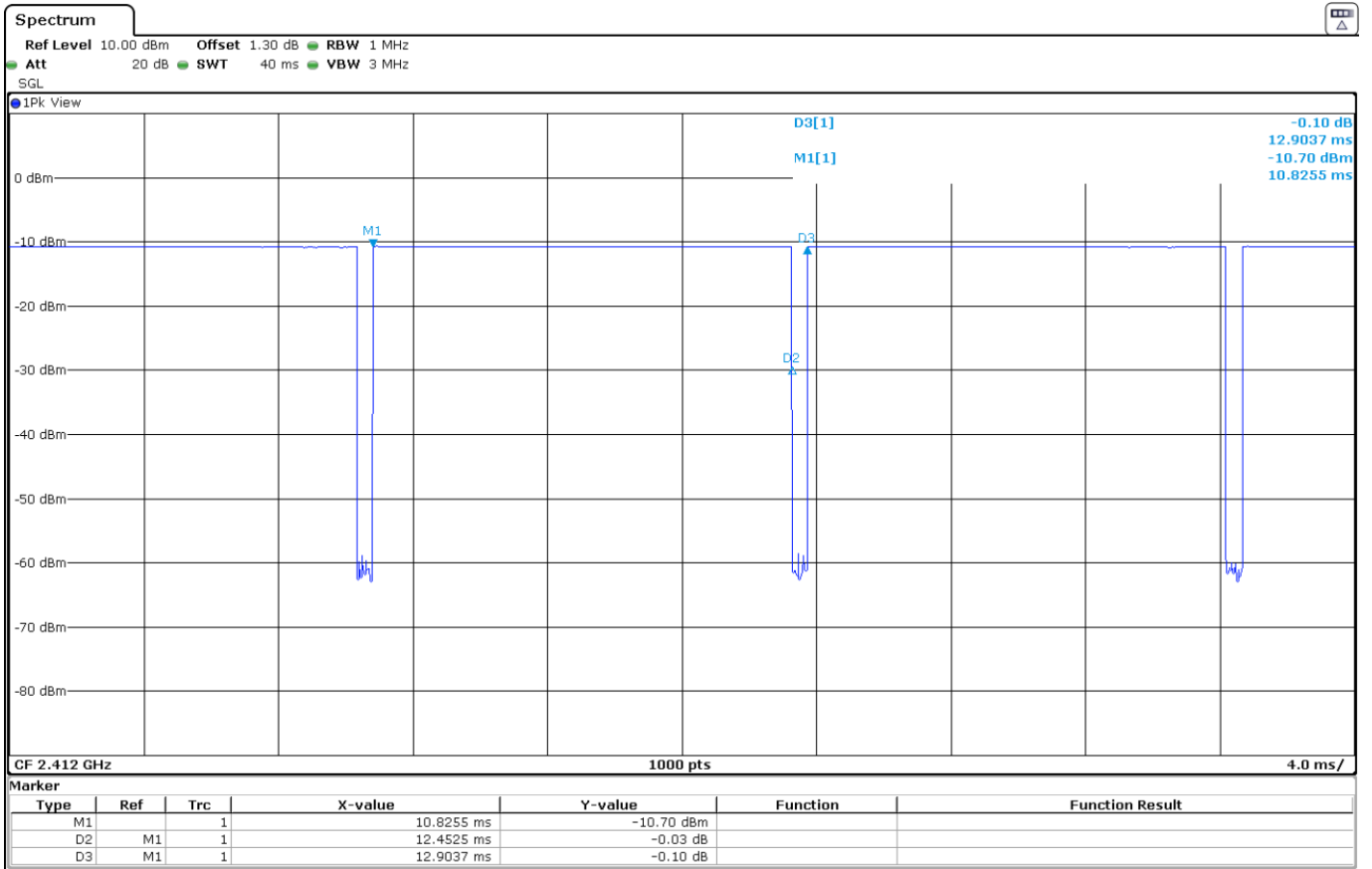


### MIMO 802.11 b: CORE1\_Port4

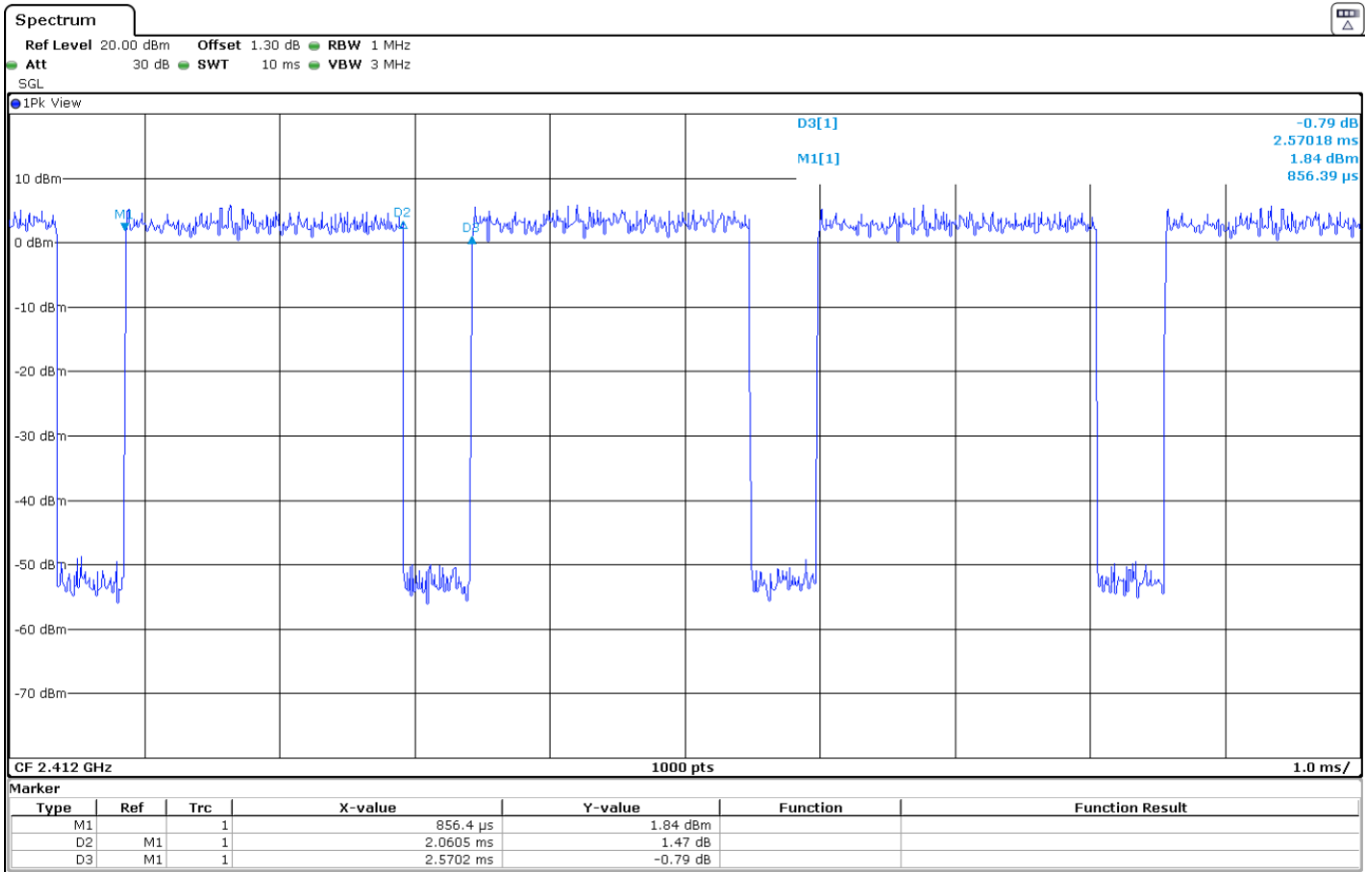




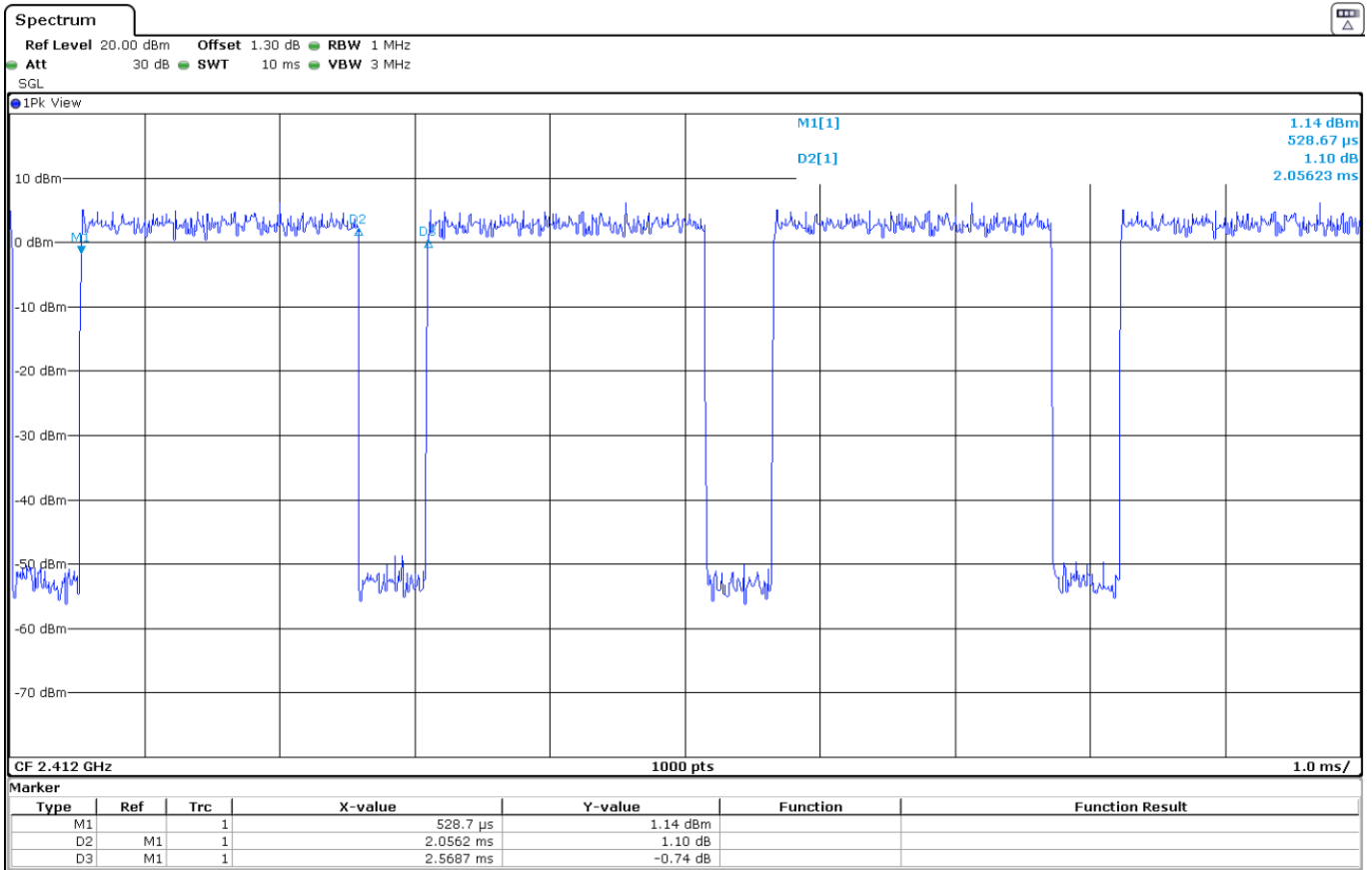
### MIMO 802.11 b: CORE1\_Port1



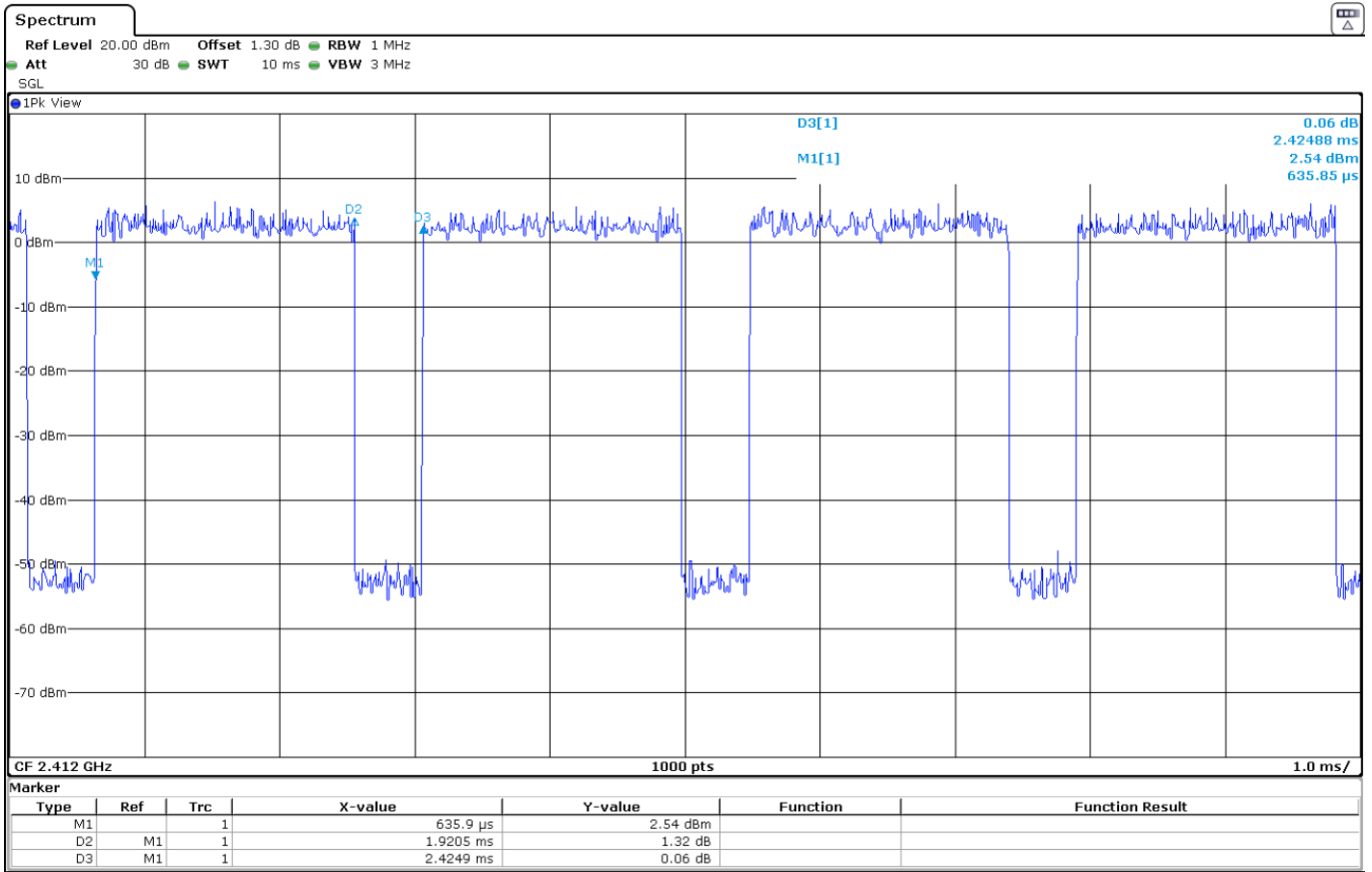
### MIMO 802.11 g: CORE1\_Port4



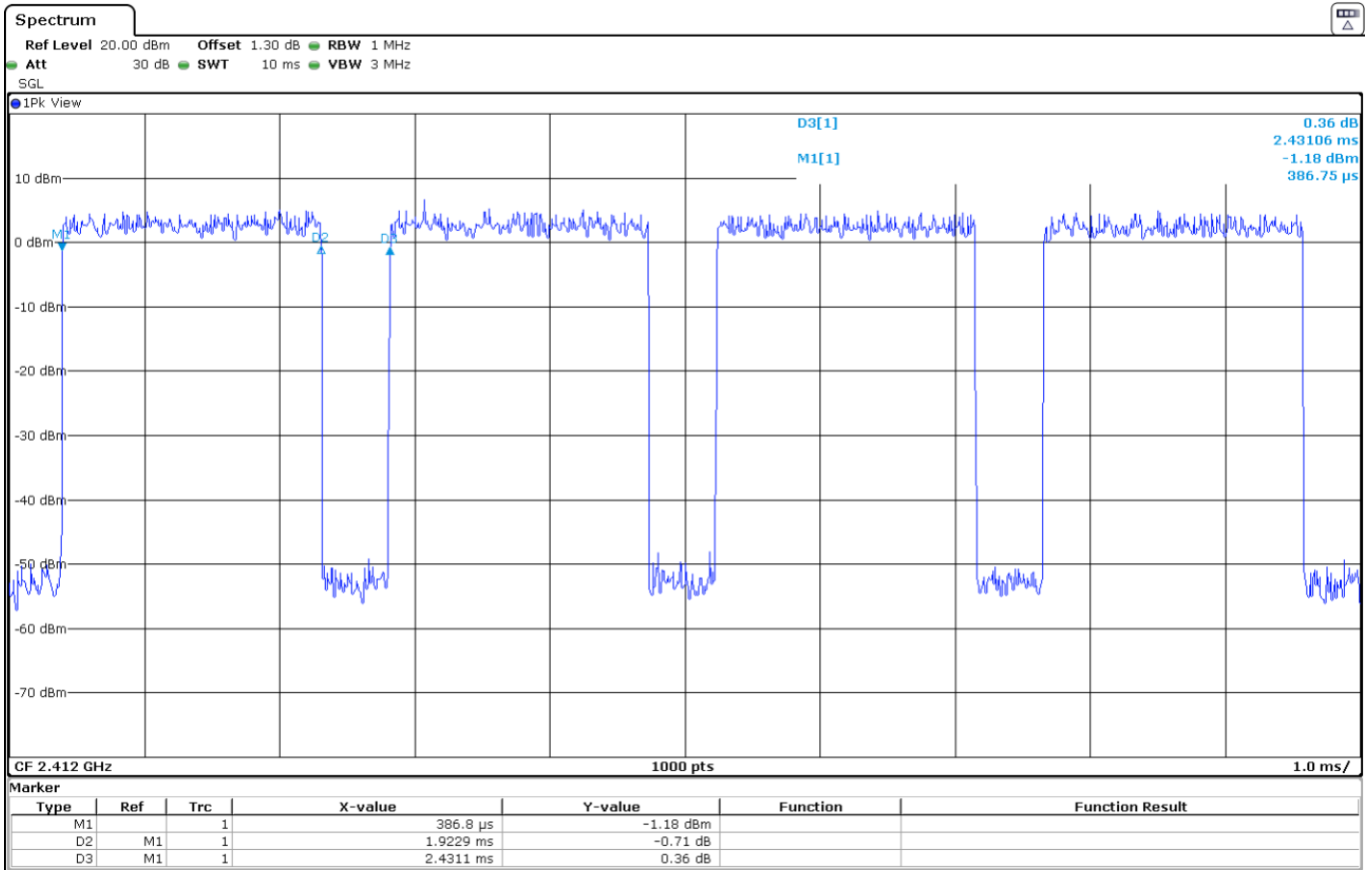
### MIMO 802.11 g: CORE1\_Port1



### MIMO 802.11 n20: CORE1\_Port4



### MIMO 802.11 n20: CORE1\_Port1



## FCC Section 15.247 Subclause (b) / RSS-247 Clause 5.4 (d) Maximum output power and antenna gain

### SPECIFICATION:

For systems using digital modulation in the 2400-2483.5 MHz band: 1 watt (30 dBm).  
 The e.i.r.p. shall not exceed 4 W (36 dBm) (Canada).

### RESULTS:

Preliminary tests determined the SISO worst case is CORE1\_Port4 Antenna.  
 Preliminary tests determined the MIMO worst case is CORE1\_Port4 Antenna & CORE1\_Port1 Antenna.

- SISO – CORE1\_Port4 – Declared Maximum Antenna Gain: +2.4 dBi
- MIMO – CORE1\_Port4 Antenna & CORE1\_Port1 Antenna – Declared Maximum Antenna Gain: +3 dBi

For SISO modes b, g and n20, the maximum conducted output power was measured using the method according to point 11.9.2.3.1 “Method AVGPM” of ANSI C.63.10-2013.

For MIMO modes b, g and n20, the maximum conducted output power was measured using the method according to point 11.9.2.2.4 “Method AVGSA-2” of ANSI C.63.10-2013.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power.

#### SISO – CORE1\_Port4 Antenna:

- **Mode 802.11 b**

|   | Low Channel<br>2412 MHz | Middle Channel<br>2437 MHz | High Channel<br>2462 MHz |
|---|-------------------------|----------------------------|--------------------------|
| Maximum Average Conducted Power (dBm)               | 7.39                    | 7.35                       | 7.21                     |
| Maximum EIRP Power (dBm)                            | 9.79                    | 9.75                       | 9.61                     |
| Duty Cycle Correction (dB)                          | 0.165                   |                            |                          |
| Maximum EIRP Power with Duty Cycle Correction (dBm) | 9.955                   | 9.915                      | 9.775                    |
| Measurement uncertainty (dB)                        | <±0.79                  |                            |                          |

- **Mode 802.11 g**

|   | Low Channel<br>2412 MHz | Middle Channel<br>2437 MHz | High Channel<br>2462 MHz |
|---|-------------------------|----------------------------|--------------------------|
| Maximum Average Conducted Power (dBm)               | 7.06                    | 6.87                       | 6.52                     |
| Maximum EIRP Power (dBm)                            | 9.46                    | 9.27                       | 8.92                     |
| Duty Cycle Correction (dB)                          | 0.952                   |                            |                          |
| Maximum EIRP Power with Duty Cycle Correction (dBm) | 10.412                  | 10.222                     | 9.872                    |
| Measurement uncertainty (dB)                        | <±0.79                  |                            |                          |

- **Mode 802.11 n20**

|   | Low Channel<br>2412 MHz | Middle Channel<br>2437 MHz | High Channel<br>2462 MHz |
|---|-------------------------|----------------------------|--------------------------|
| Maximum Average Conducted Power (dBm)               | 6.67                    | 6.68                       | 6.30                     |
| Maximum EIRP Power (dBm)                            | 9.07                    | 9.08                       | 8.70                     |
| Duty Cycle Correction (dB)                          | 1.016                   |                            |                          |
| Maximum EIRP Power with Duty Cycle Correction (dBm) | 10.086                  | 10.096                     | 9.716                    |
| Measurement uncertainty (dB)                        | <±0.79                  |                            |                          |

Verdict: PASS

**MIMO – CORE1\_Port4 Antenna & CORE1\_Port1 Antenna:**

- **Mode 802.11 b**

|   | Low Channel<br>2412 MHz         |                 | Middle Channel<br>2437 MHz      |                 | High Channel<br>2462 MHz        |                 |
|---|---------------------------------|-----------------|---------------------------------|-----------------|---------------------------------|-----------------|
|   | CORE1_<br>Port4                 | CORE1_<br>Port1 | CORE1_<br>Port4                 | CORE1_<br>Port1 | CORE1_<br>Port4                 | CORE1_<br>Port1 |
| Maximum Average Conducted Power (dBm)           | 8.10                            | 7.77            | 8.17                            | 7.34            | 7.82                            | 6.77            |
| Maximum Average Conducted Power corrected (dBm) | 8.28                            | 7.92            | 8.35                            | 7.49            | 8.00                            | 6.92            |
|   | CORE1_Port4<br>+<br>CORE1_Port1 |                 | CORE1_Port4<br>+<br>CORE1_Port1 |                 | CORE1_Port4<br>+<br>CORE1_Port1 |                 |
| Maximum Conducted Power (dBm)                   | 11.12                           |                 | 10.95                           |                 | 10.51                           |                 |
| Maximum EIRP Power (dBm)                        | 14.12                           |                 | 13.95                           |                 | 13.51                           |                 |
| Measurement uncertainty (dB)                    | <±1.20                          |                 |                                 |                 |                                 |                 |

- **Mode 802.11 g**

|   | Low Channel<br>2412 MHz         |                 | Middle Channel<br>2437 MHz      |                 | High Channel<br>2462 MHz        |                 |
|---|---------------------------------|-----------------|---------------------------------|-----------------|---------------------------------|-----------------|
|   | CORE1_<br>Port4                 | CORE1_<br>Port1 | CORE1_<br>Port4                 | CORE1_<br>Port1 | CORE1_<br>Port4                 | CORE1_<br>Port1 |
| Maximum Average Conducted Power (dBm)           | 7.99                            | 7.72            | 7.86                            | 7.07            | 7.62                            | 6.87            |
| Maximum Average Conducted Power corrected (dBm) | 8.95                            | 8.69            | 8.82                            | 8.04            | 8.58                            | 7.84            |
|   | CORE1_Port4<br>+<br>CORE1_Port1 |                 | CORE1_Port4<br>+<br>CORE1_Port1 |                 | CORE1_Port4<br>+<br>CORE1_Port1 |                 |
| Maximum Conducted Power (dBm)                   | 11.83                           |                 | 11.46                           |                 | 11.23                           |                 |
| Maximum EIRP Power (dBm)                        | 14.83                           |                 | 14.46                           |                 | 14.23                           |                 |
| Measurement uncertainty (dB)                    | <±1.20                          |                 |                                 |                 |                                 |                 |

- **Mode 802.11 n20**

|   | Low Channel<br>2412 MHz         |                 | Middle Channel<br>2437 MHz      |                 | High Channel<br>2462 MHz        |                 |
|---|---------------------------------|-----------------|---------------------------------|-----------------|---------------------------------|-----------------|
|   | CORE1_<br>Port4                 | CORE1_<br>Port1 | CORE1_<br>Port4                 | CORE1_<br>Port1 | CORE1_<br>Port4                 | CORE1_<br>Port1 |
| Maximum Average Conducted Power (dBm)           | 8.28                            | 7.58            | 7.68                            | 6.65            | 7.51                            | 6.61            |
| Maximum Average Conducted Power corrected (dBm) | 9.29                            | 8.60            | 8.69                            | 7.67            | 8.52                            | 7.63            |
|   | CORE1_Port4<br>+<br>CORE1_Port1 |                 | CORE1_Port4<br>+<br>CORE1_Port1 |                 | CORE1_Port4<br>+<br>CORE1_Port1 |                 |
| Maximum Conducted Power (dBm)                   | 11.97                           |                 | 11.22                           |                 | 11.11                           |                 |
| Maximum EIRP Power (dBm)                        | 14.97                           |                 | 14.22                           |                 | 14.11                           |                 |
| Measurement uncertainty (dB)                    | <±1.20                          |                 |                                 |                 |                                 |                 |

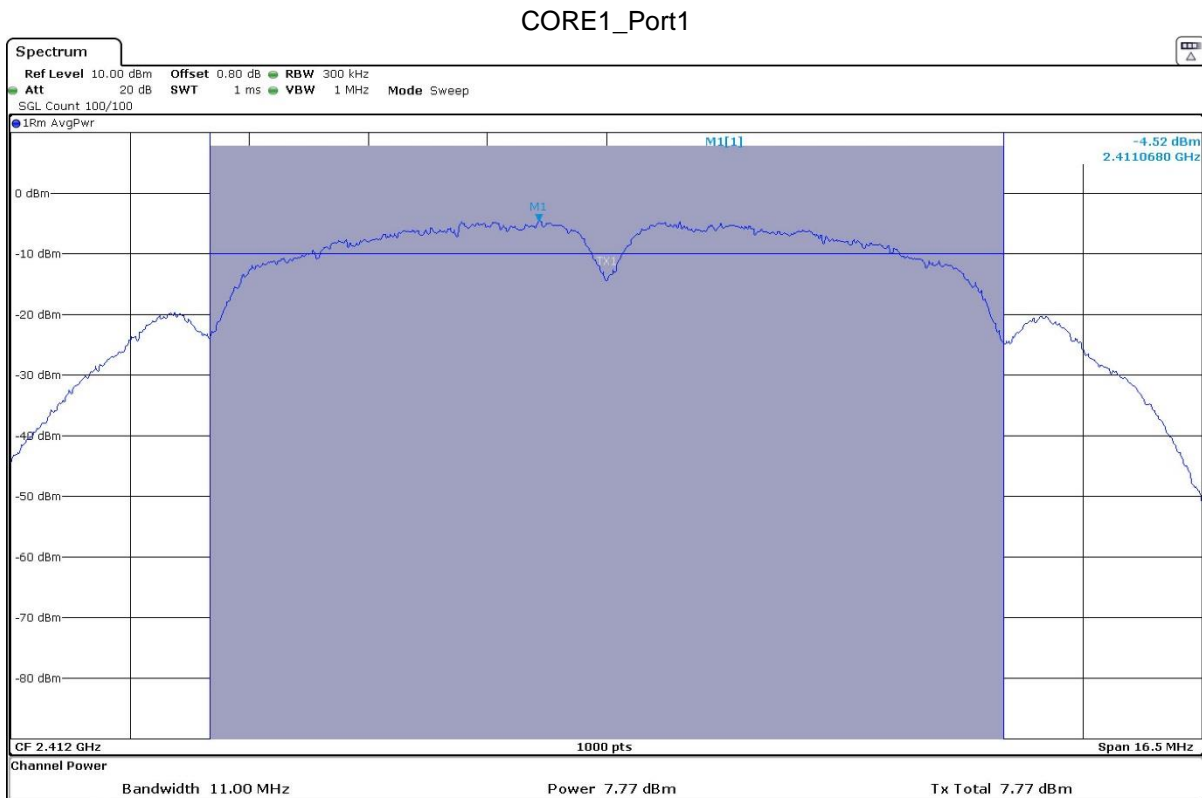
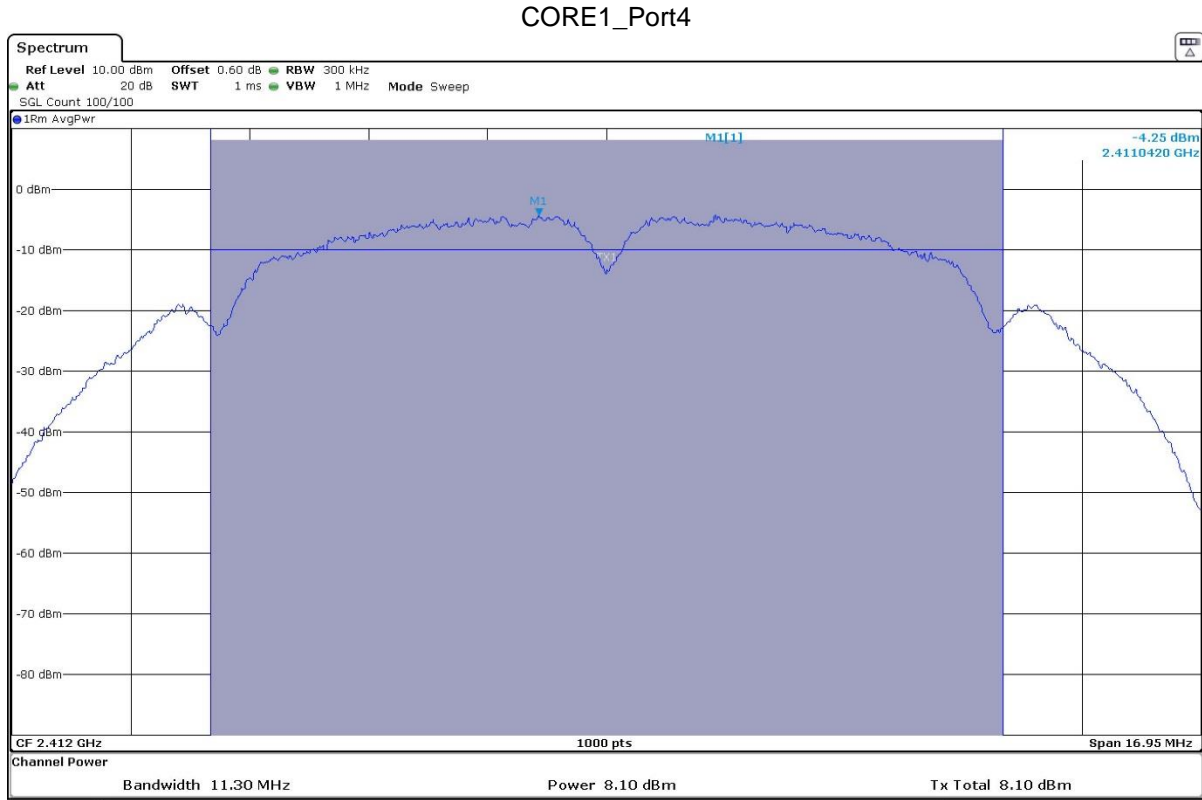
Verdict: PASS



### MIMO – CORE1\_Port4 Antenna & CORE1\_Port1 Antenna:

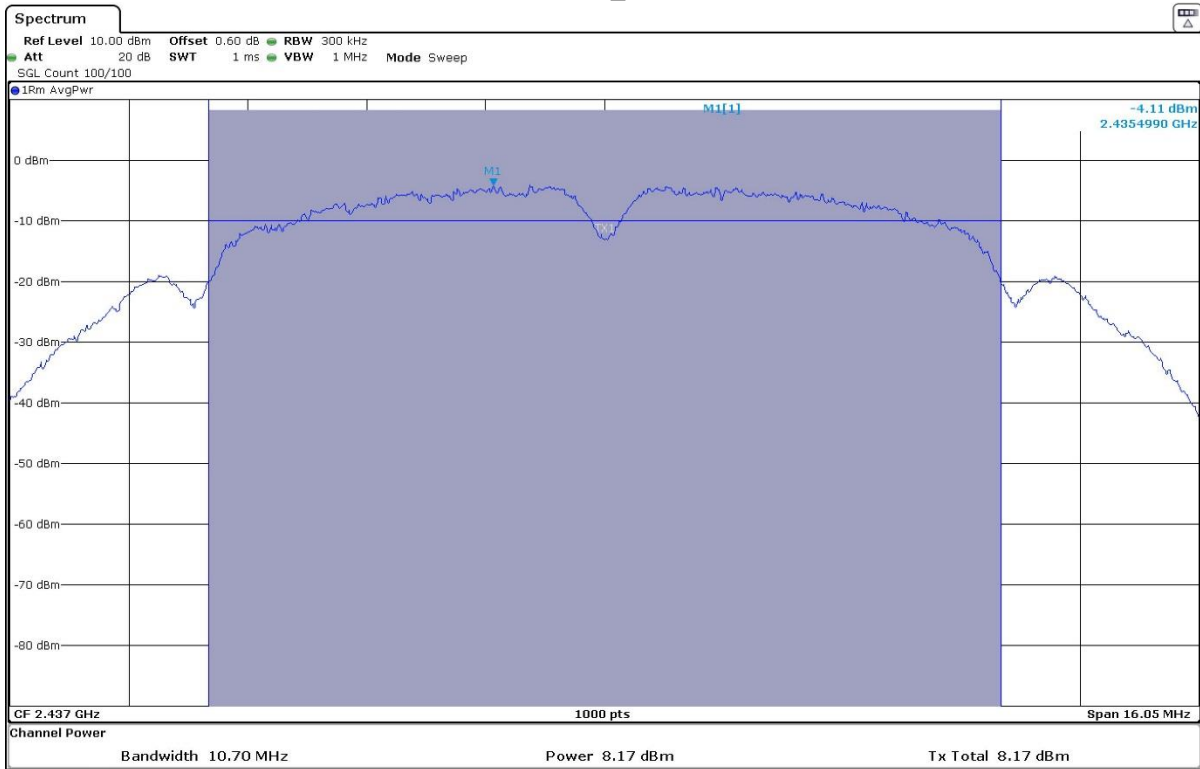
- **Mode 802.11 b**

- Low Channel:

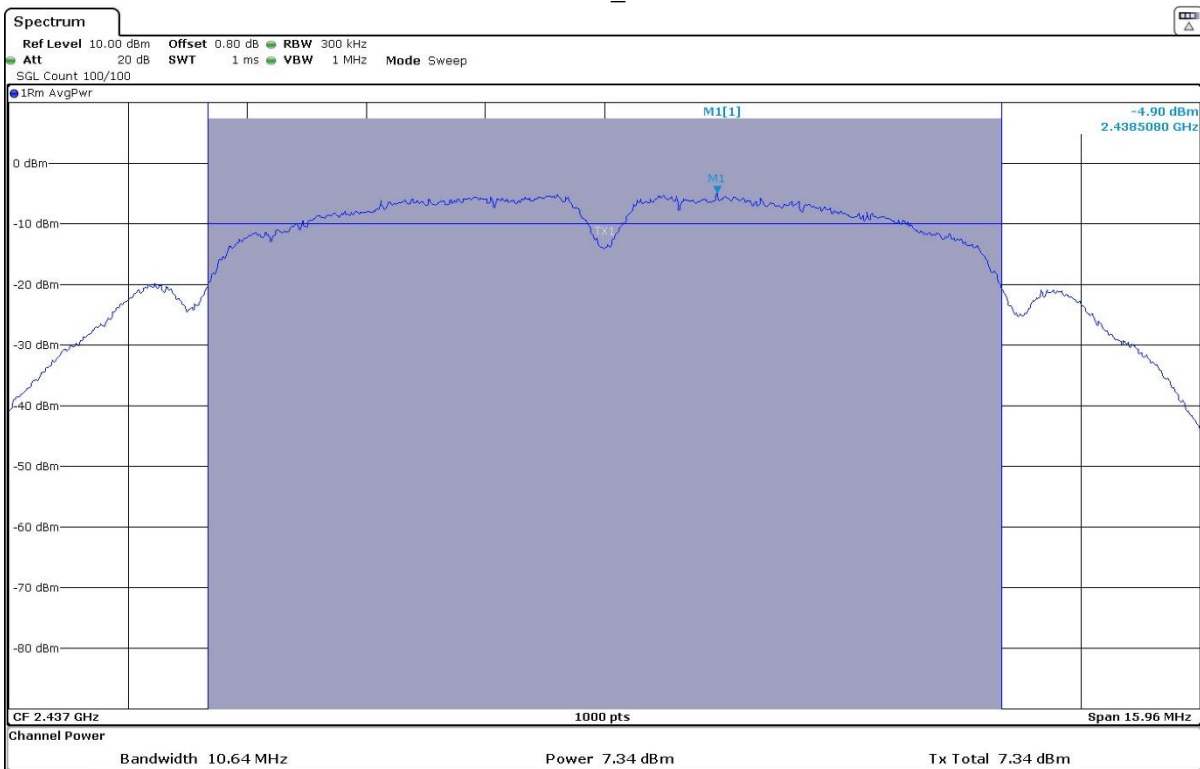


- Middle Channel:

CORE1\_Port4

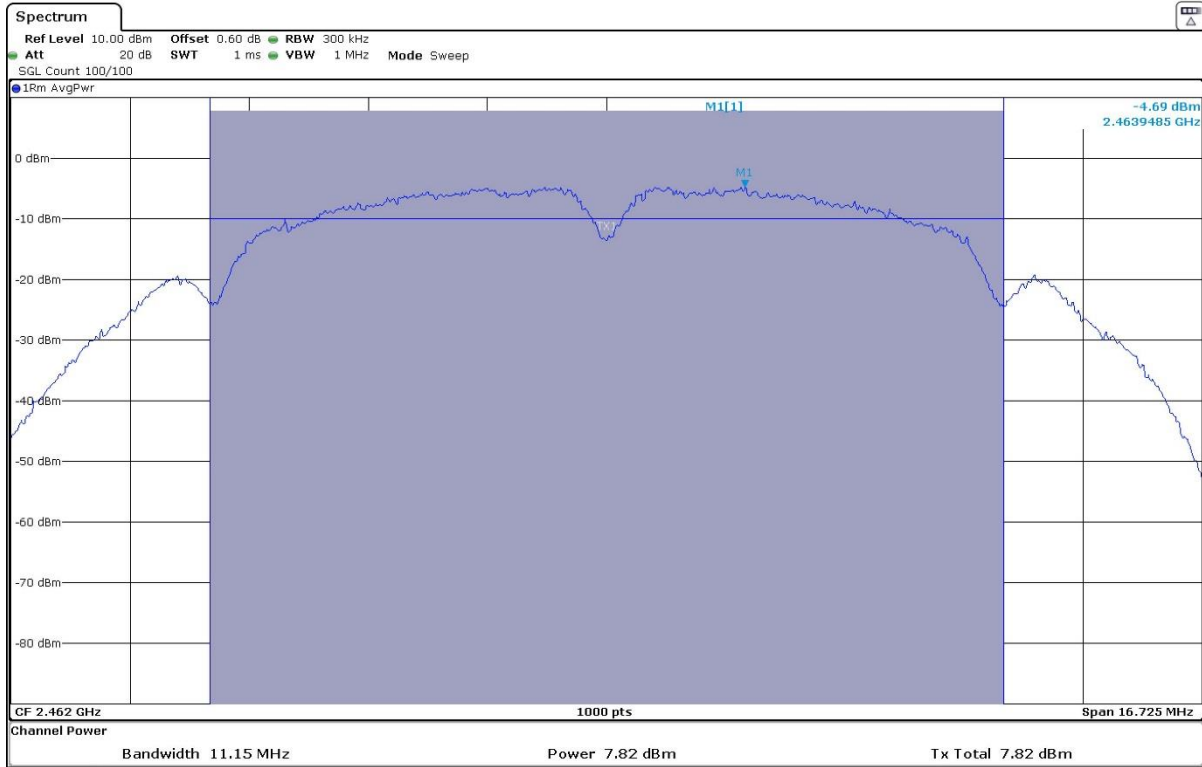


CORE1\_Port1

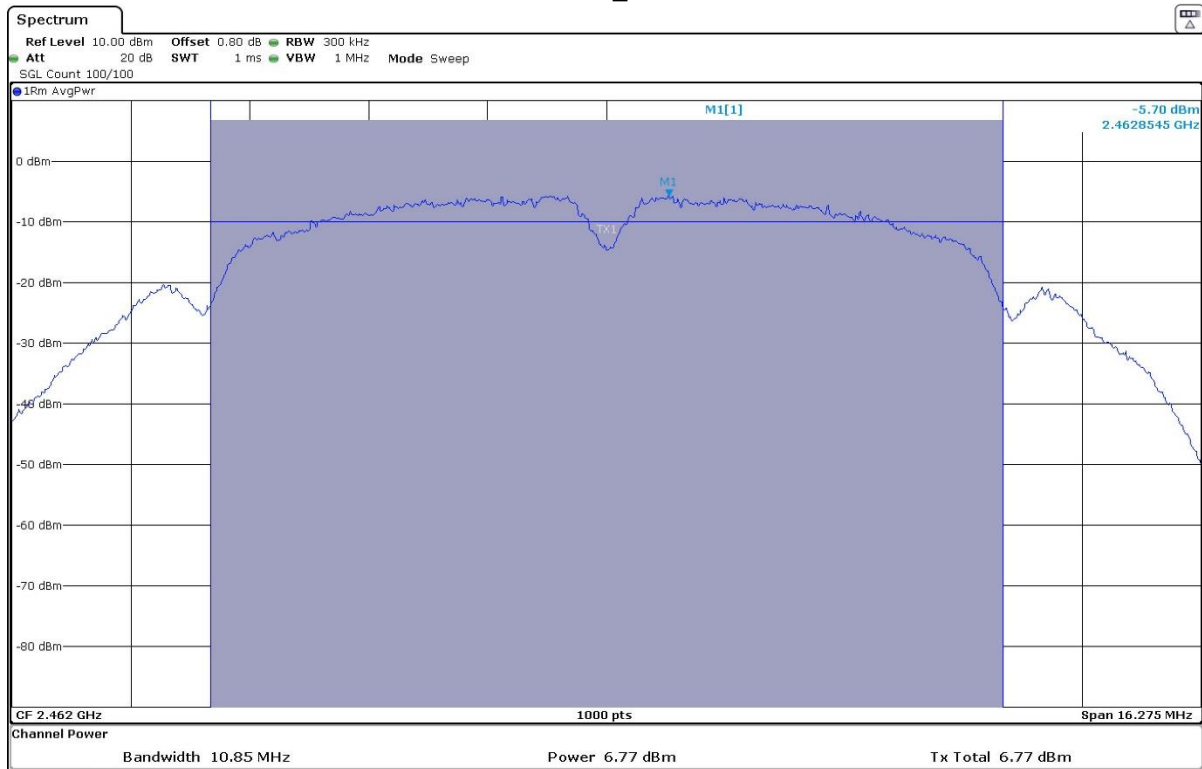


- High Channel:

CORE1\_Port4



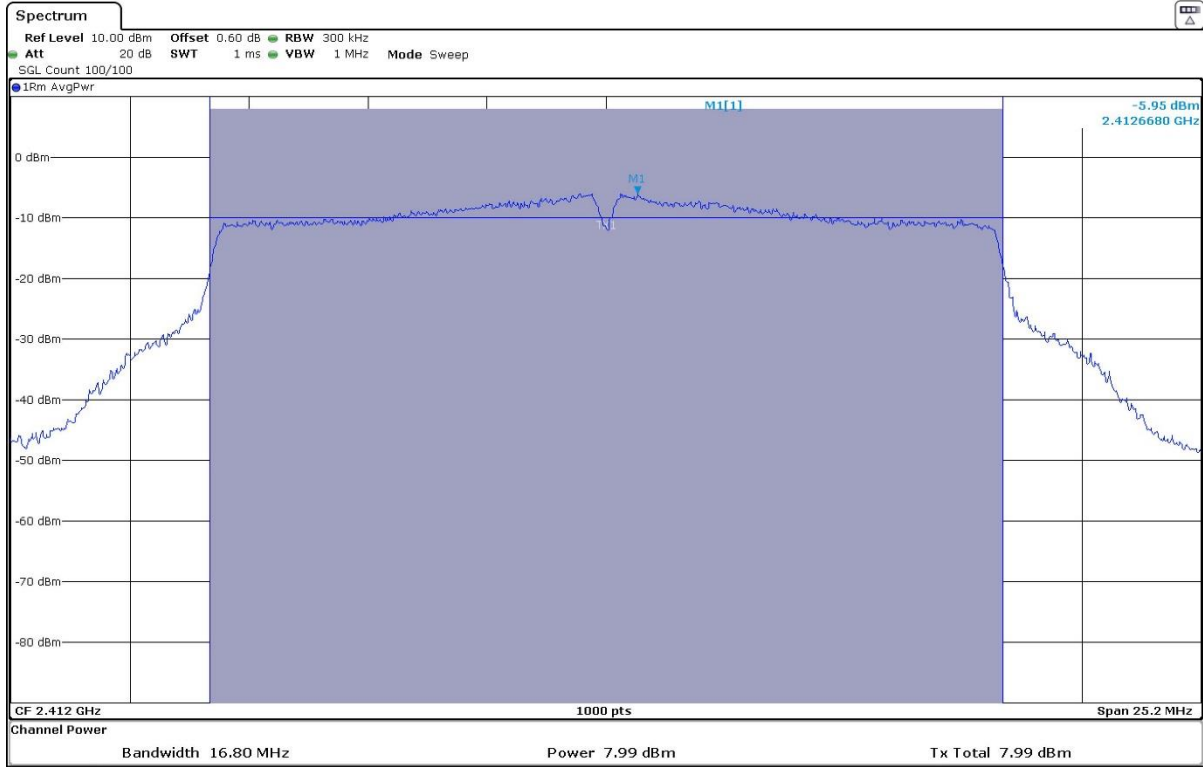
CORE1\_Port1



- **Mode 802.11 g**

- Low Channel:

CORE1\_Port4



CORE1\_Port1

