

#### 5.4.4.1.5. Spurious Radiated Emissions for 802.11n MCS7

| Fundamental Frequency: |                        | 2412 MHz                                            |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------------------------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz                                     |                     |                       |                       |             |           |
| Power Setting:         |                        | 19 (for fundamental)<br>30 (for spurious emissions) |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBµV/m) | RF Avg Level (dBµV/m)                               | Antenna Plane (H/V) | Limit 15.209 (dBµV/m) | Limit 15.247 (dBµV/m) | Margin (dB) | Pass/Fail |
| 2412                   | 104.22                 | --                                                  | V                   | --                    | --                    | --          | --        |
| 2412                   | 105.58                 | --                                                  | H                   | --                    | --                    | --          | --        |
| 4824                   | 48.89                  | 34.45                                               | V                   | 54.0                  | 85.6                  | -19.6       | Pass*     |
| 4824                   | 49.77                  | 35.69                                               | H                   | 54.0                  | 85.6                  | -18.3       | Pass*     |

\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

| Fundamental Frequency: |                        | 2437 MHz                                            |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------------------------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz                                     |                     |                       |                       |             |           |
| Power Setting:         |                        | 30 (for fundamental)<br>30 (for spurious emissions) |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBµV/m) | RF Avg Level (dBµV/m)                               | Antenna Plane (H/V) | Limit 15.209 (dBµV/m) | Limit 15.247 (dBµV/m) | Margin (dB) | Pass/Fail |
| 2437                   | 113.96                 | --                                                  | V                   | --                    | --                    | --          | --        |
| 2437                   | 113.47                 | --                                                  | H                   | --                    | --                    | --          | --        |
| 4874                   | 48.94                  | 35.67                                               | H                   | 54.0                  | 94.0                  | -18.3       | Pass*     |

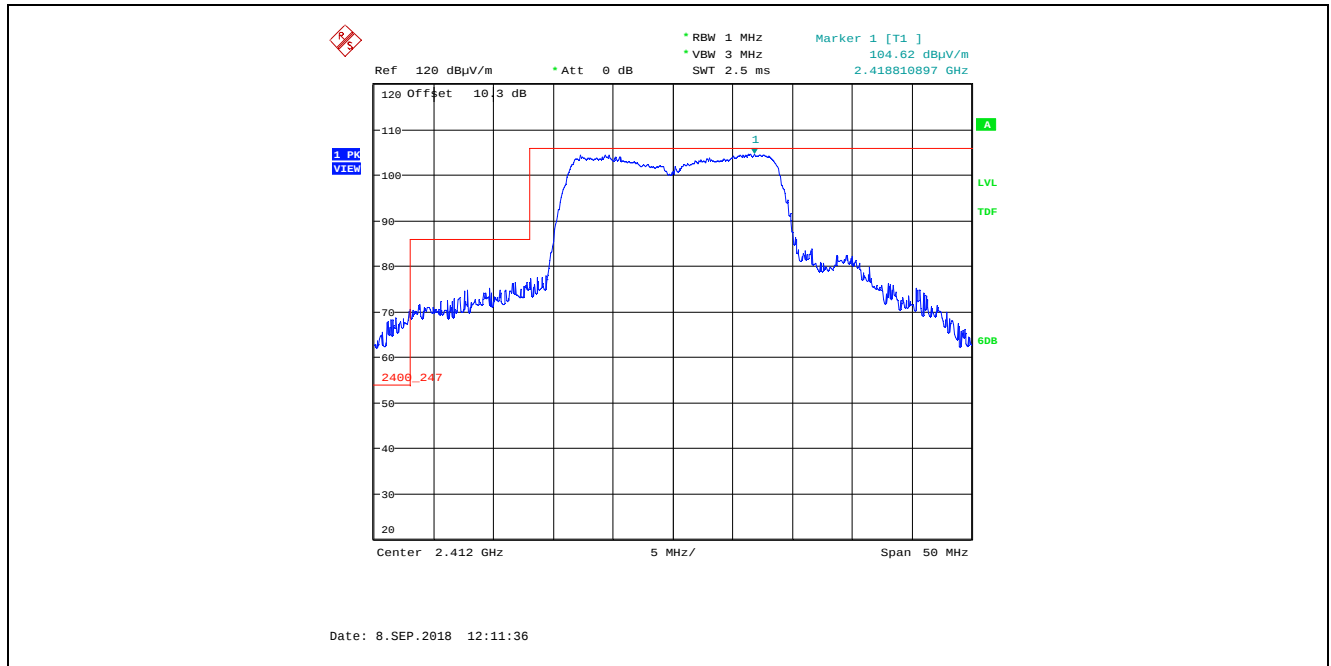
\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

| Fundamental Frequency: |                        | 2462 MHz                                            |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------------------------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz                                     |                     |                       |                       |             |           |
| Power Setting:         |                        | 25 (for fundamental)<br>30 (for spurious emissions) |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBµV/m) | RF Avg Level (dBµV/m)                               | Antenna Plane (H/V) | Limit 15.209 (dBµV/m) | Limit 15.247 (dBµV/m) | Margin (dB) | Pass/Fail |
| 2462                   | 105.22                 | --                                                  | V                   | --                    | --                    | --          | --        |
| 2462                   | 106.30                 | --                                                  | H                   | --                    | --                    | --          | --        |
| *                      | *                      | *                                                   | V/H                 | *                     | *                     | *           | *         |

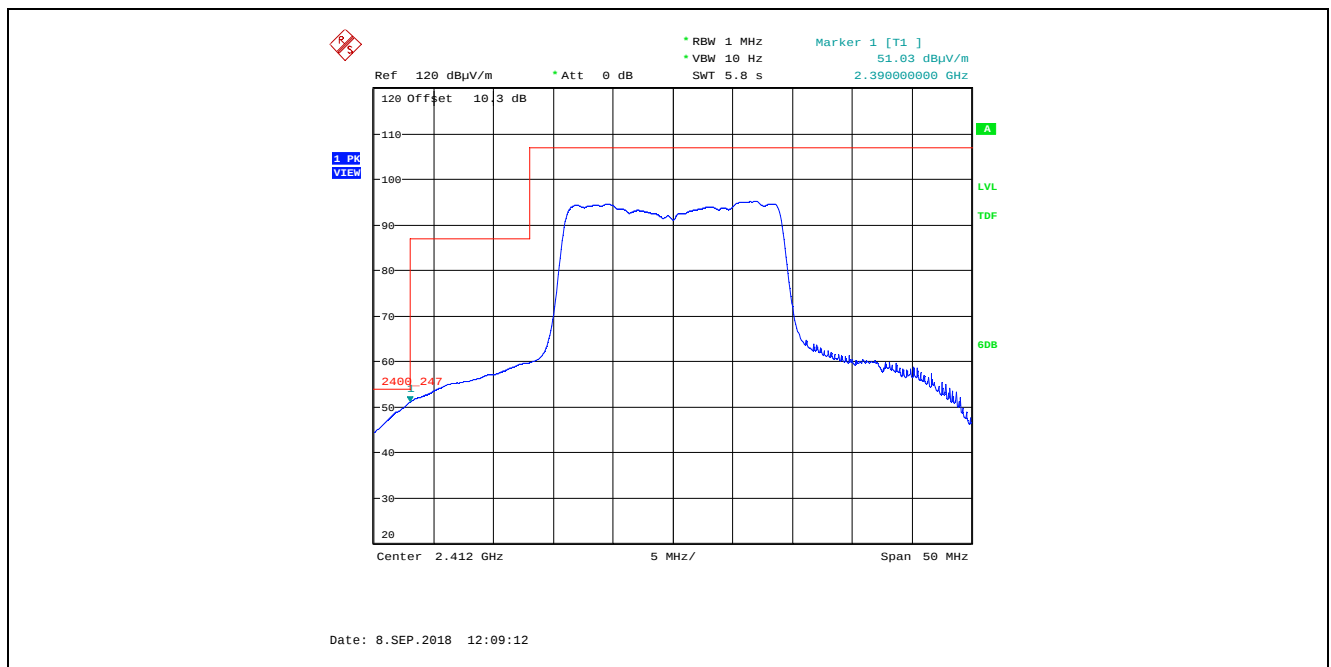
\*Spurious emissions are more than 20 dB below the applicable limit

#### 5.4.4.1.6. Band-Edge RF Radiated Emissions for 802.11n

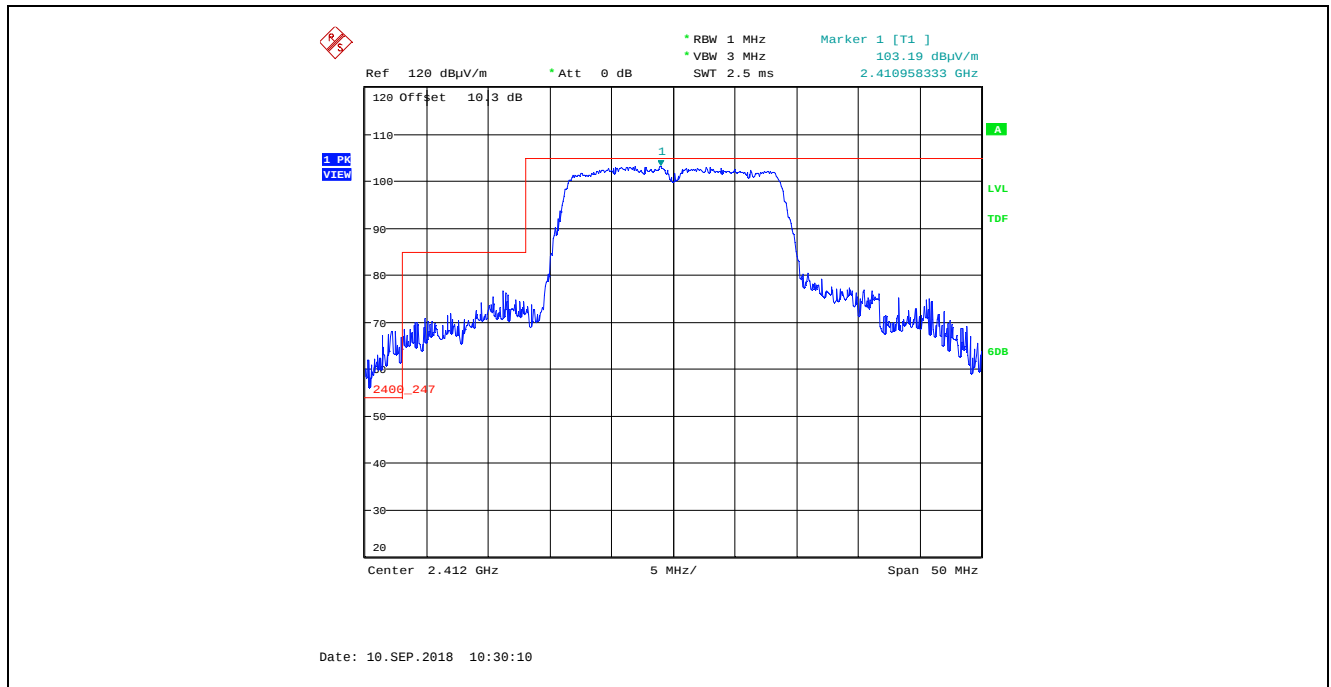
**Plot 5.4.4.1.6.1.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 19, Channel 1, 2412 MHz



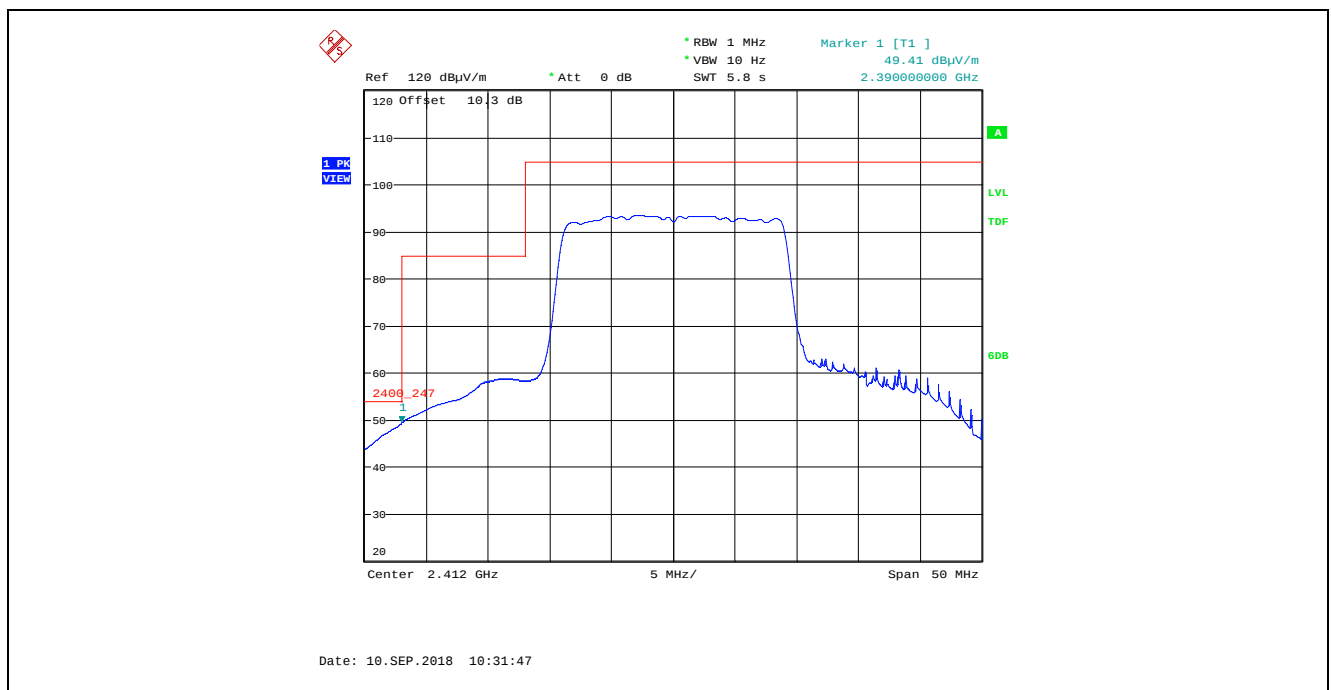
**Plot 5.4.4.1.6.2.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 19, Channel 1, 2412 MHz



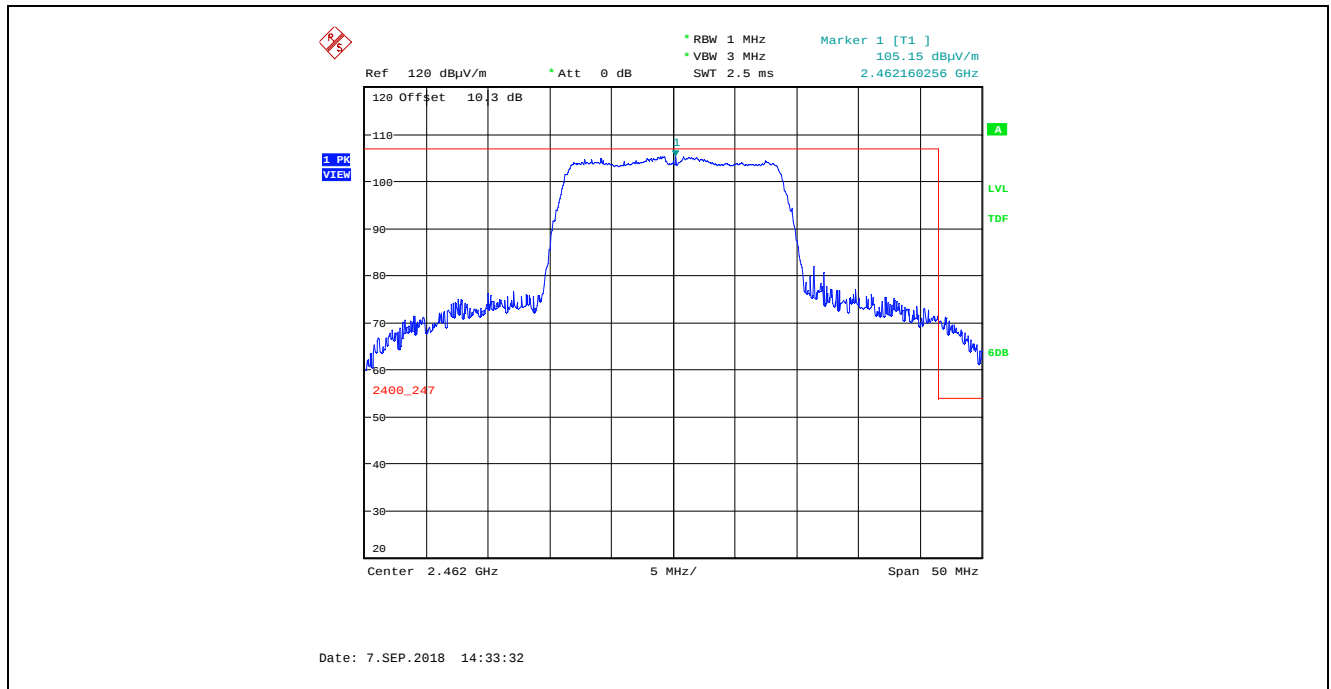
**Plot 5.4.4.1.6.3.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 19, Channel 1, 2412 MHz



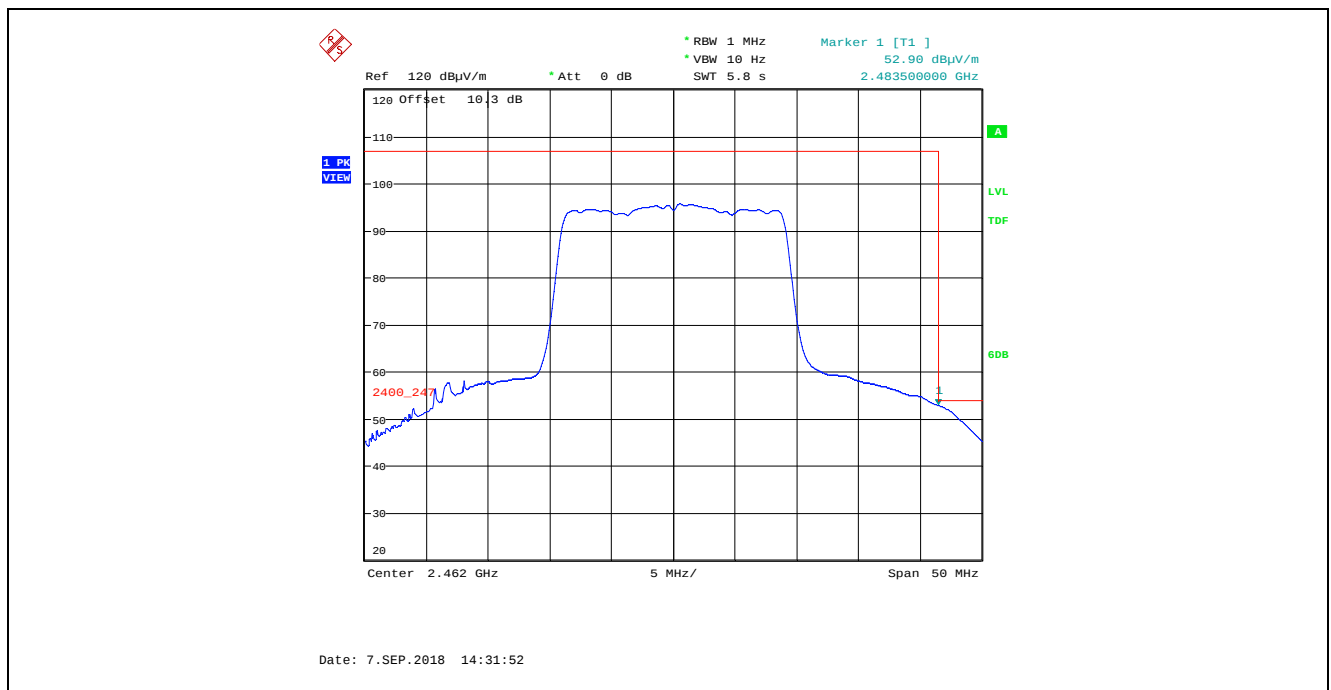
**Plot 5.4.4.1.6.4.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 19, Channel 1, 2412 MHz



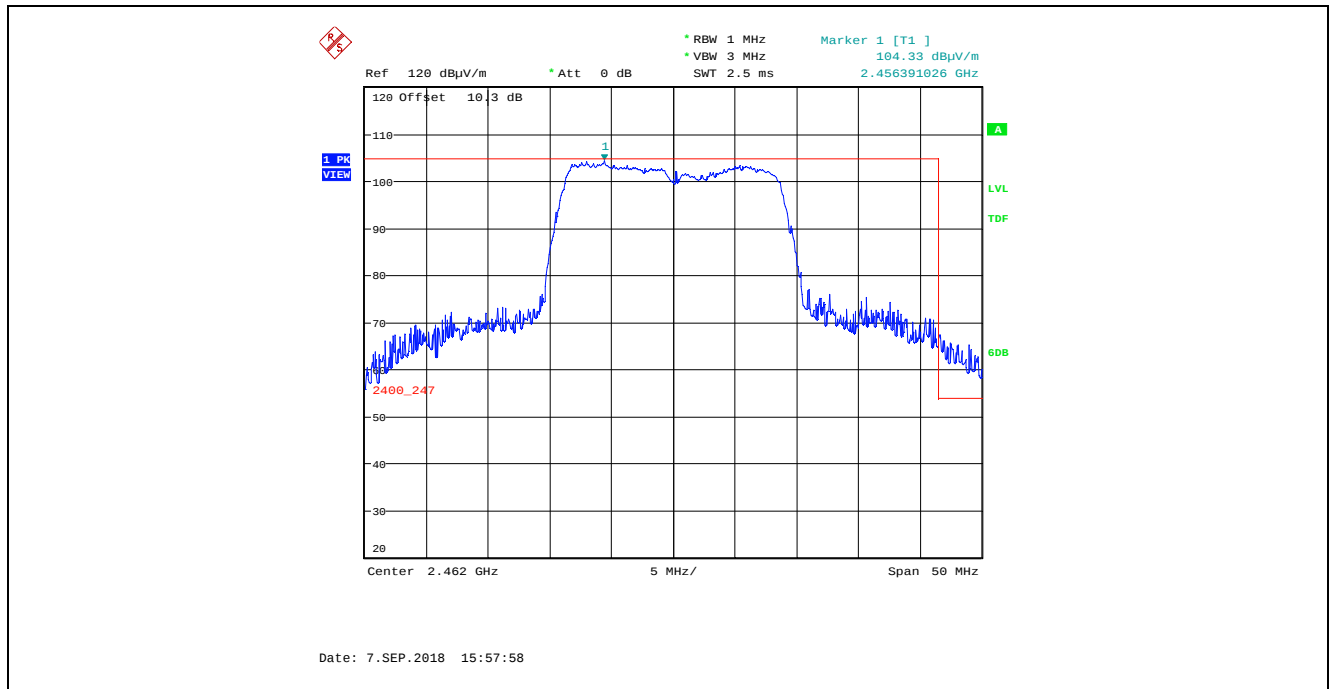
**Plot 5.4.4.1.6.5.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 20, Channel 11, 2462 MHz



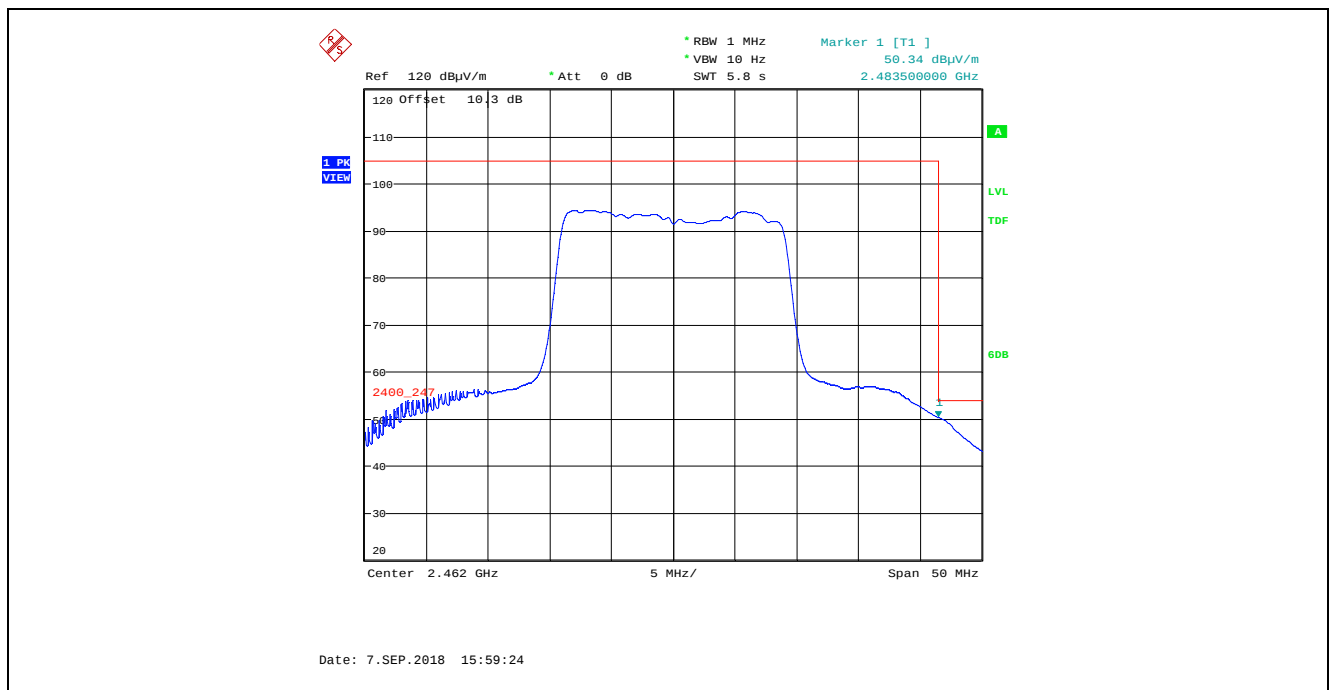
**Plot 5.4.4.1.6.6.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 20, Channel 11, 2462 MHz



**Plot 5.4.4.1.6.7.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 20, Channel 11, 2462 MHz



**Plot 5.4.4.1.6.8.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 20, Channel 11, 2462 MHz



Ref 120 dBuV/m Att 0 dB SWT 2.5 ms

Marker 2 [T1]  
73.24 dBuV/m  
2.390000000 GHz

Marker 1 [T1]  
109.74 dBuV/m  
2.423169872 GHz

1 PK VIEW

2400\_247

60B

Center 2.417 GHz 7 MHz/ Span 70 MHz

Date: 9.SEP.2018 06:24:29

Ref 120 dBμV/m Att 0 dB SWT 8 s

RBW 1 MHz VBW 10 Hz Marker 1 [T1] 53.11 dBμV/m 2.390000000 GHz

120 Offset 103 dB

1 PK VIEW

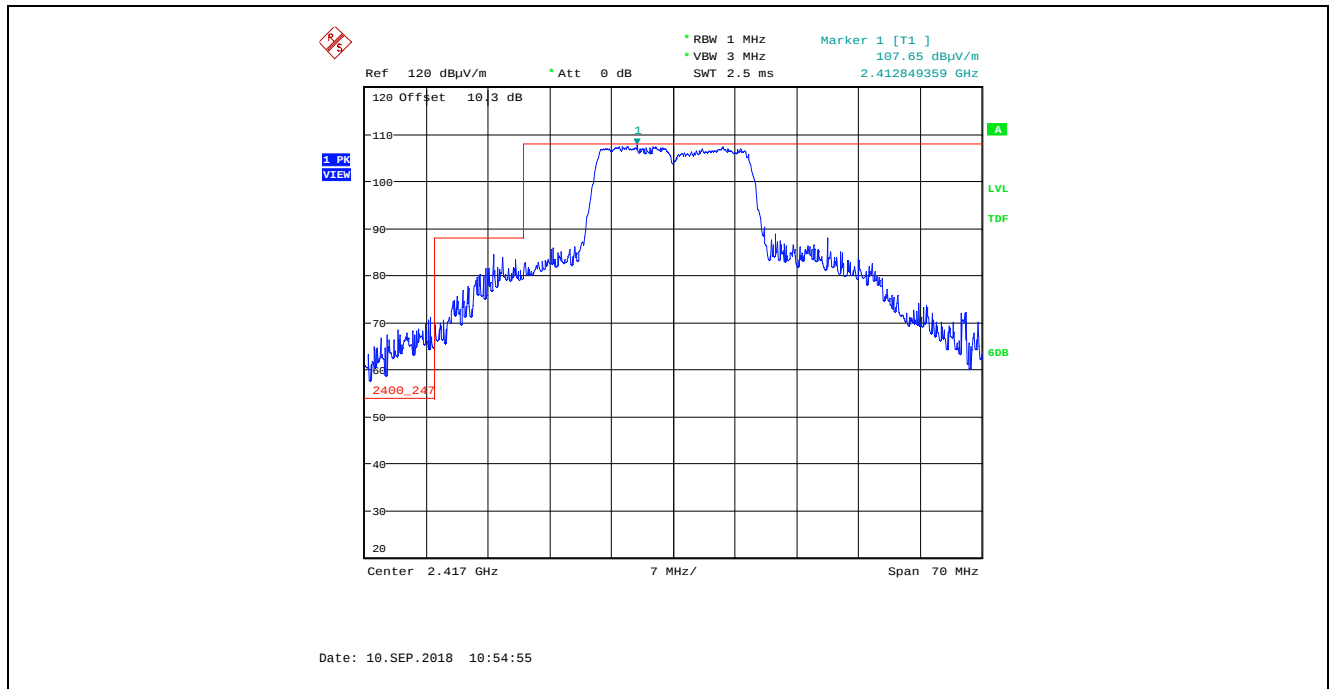
2400.247

LVL TDF 6DB

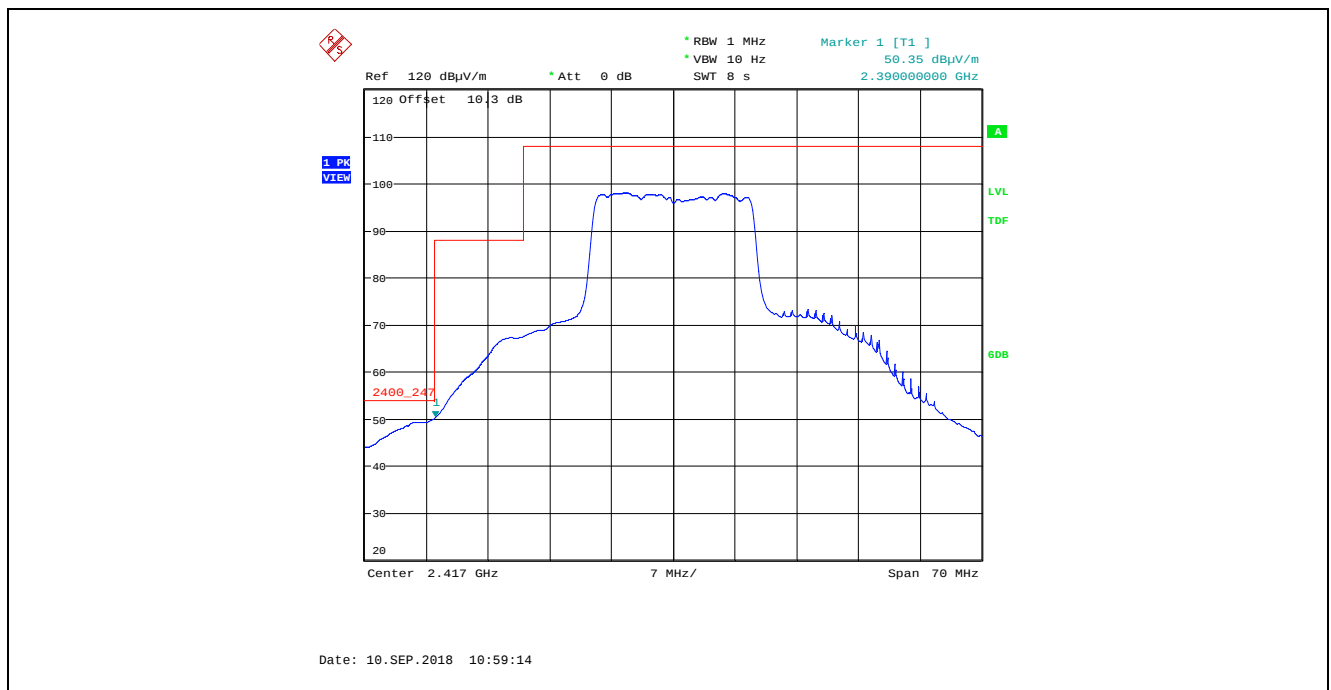
Center 2.417 GHz 7 MHz/ Span 70 MHz

Date: 9.SEP.2018 06:25:56

**Plot 5.4.4.1.6.11.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 25, Channel 2, 2417 MHz



**Plot 5.4.4.1.6.12.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 25, Channel 2, 2417 MHz



Ref 120 dBμV/m    \* Att 0 dB    \* RBW 1 MHz    Marker 1 [T1]    53.24 dBμV/m  
 \* VBW 10 Hz    SWT 6.8 s    2.48350000 GHz

120 Offset 10.3 dB

1 PK VIEW

2400.347

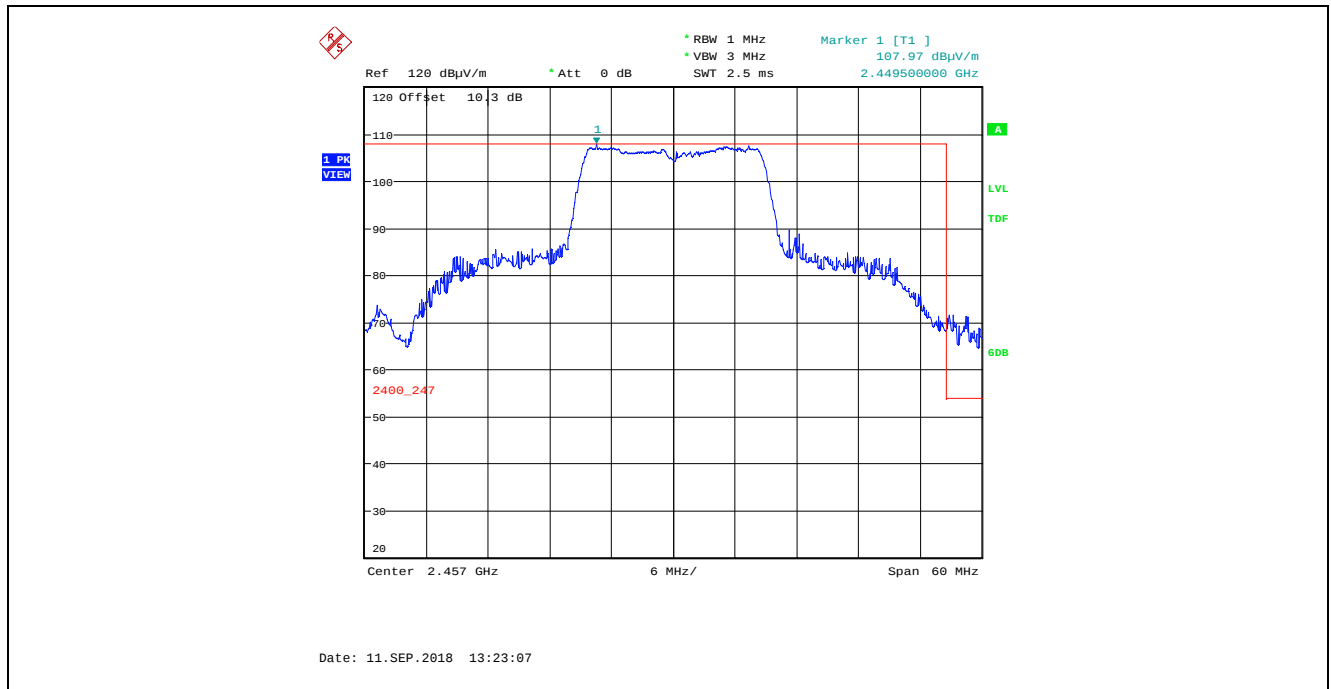
LVL TDF

60dB

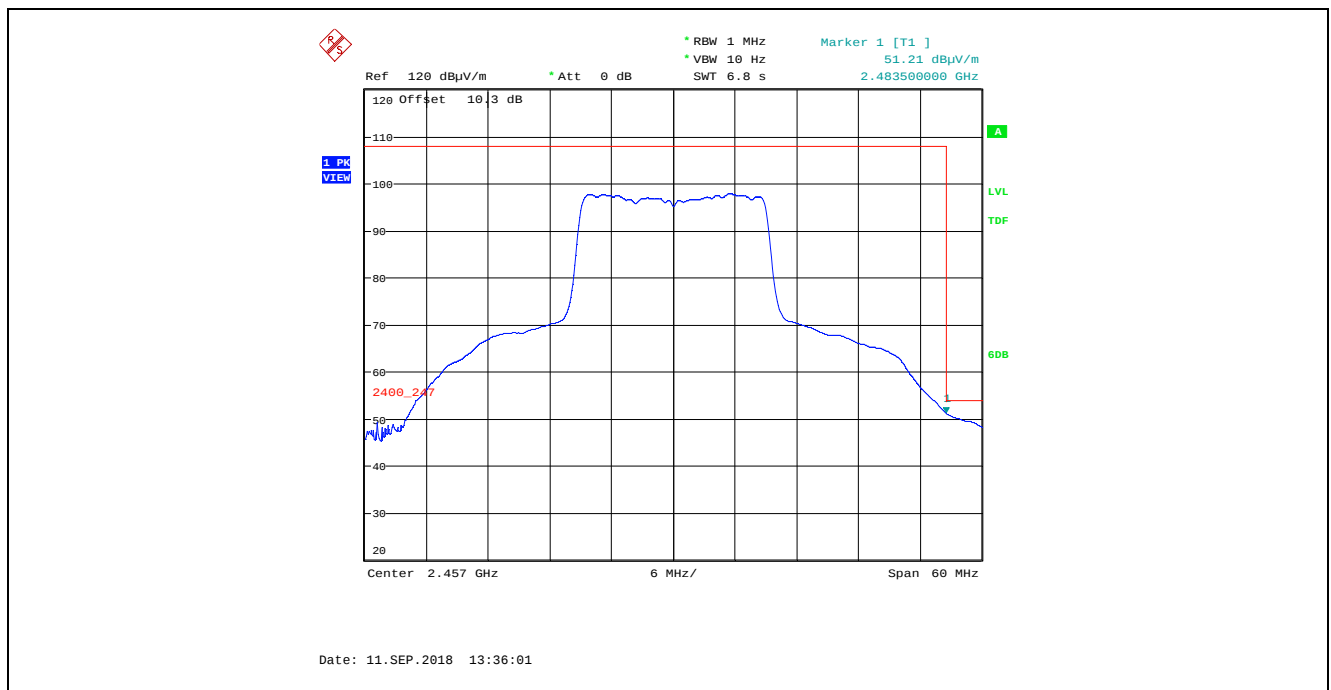
Center 2.457 GHz    6 MHz/    Span 60 MHz

Date: 9.SEP.2018 11:14:44

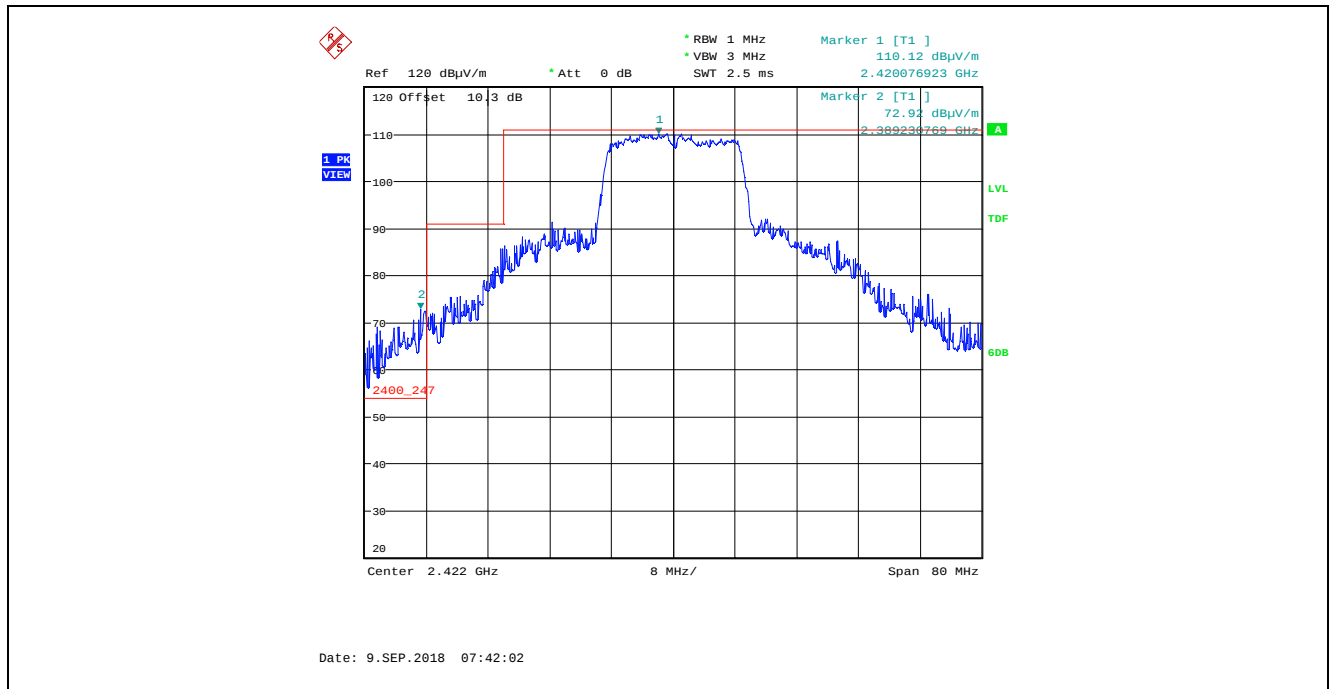
**Plot 5.4.4.1.6.15.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 25, Channel 10, 2457 MHz



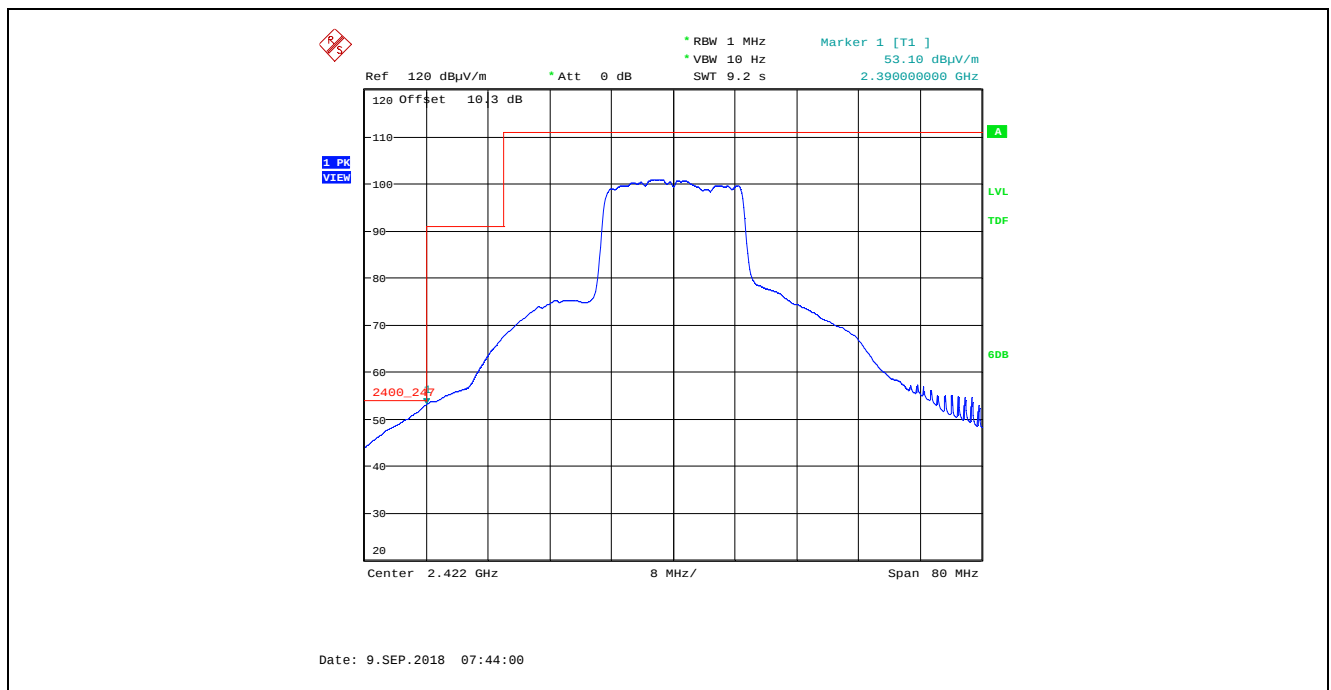
**Plot 5.4.4.1.6.16.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 25, Channel 10, 2457 MHz



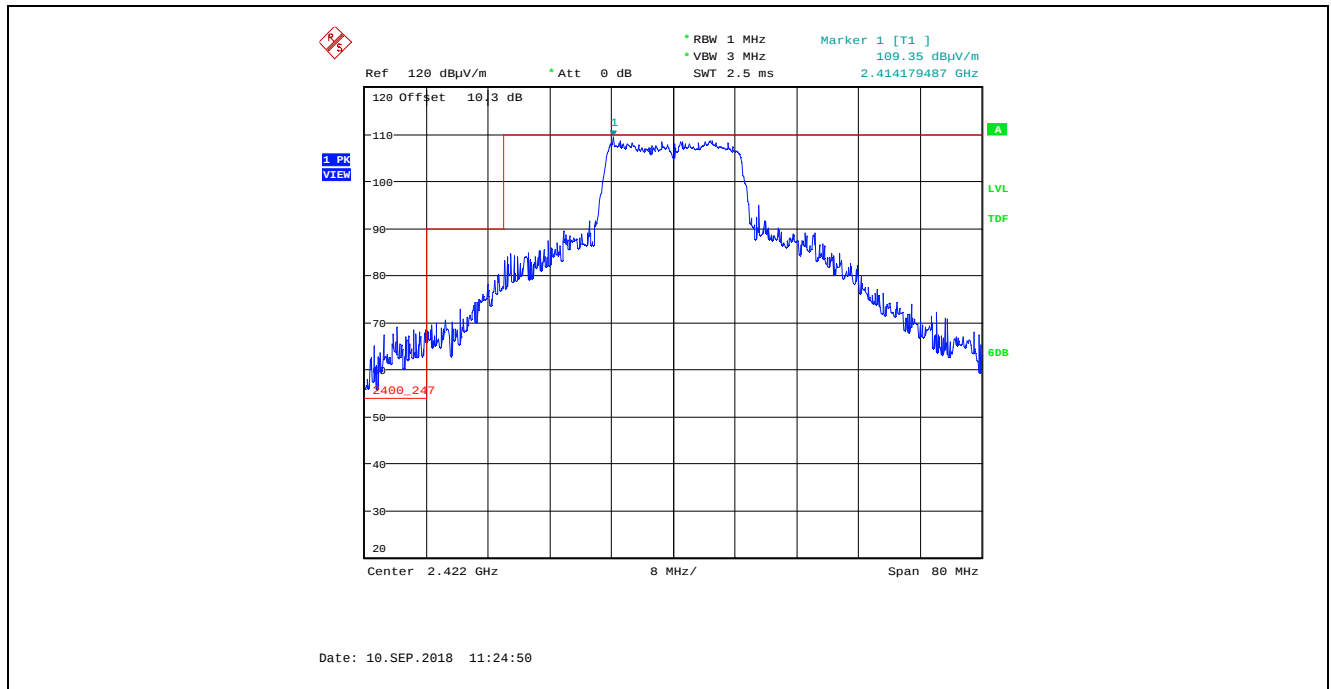
**Plot 5.4.4.1.6.17.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 27, Channel 3, 2422 MHz



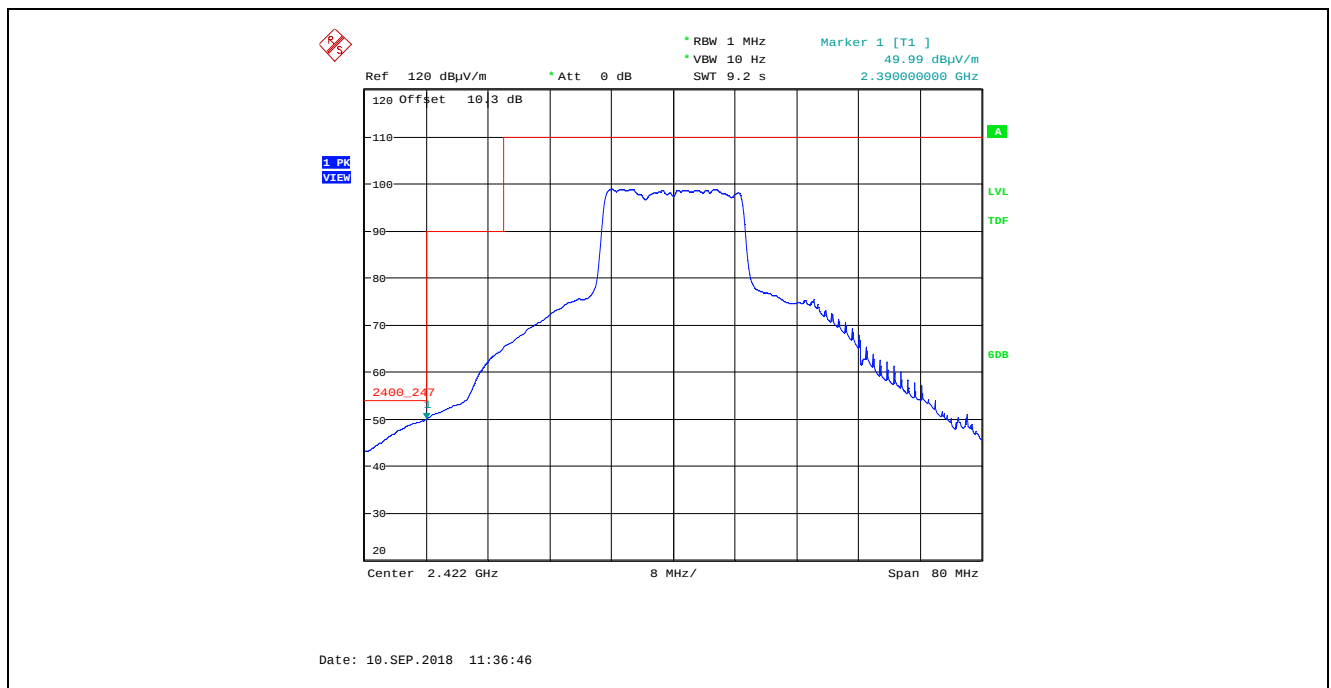
**Plot 5.4.4.1.6.18.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 27, Channel 3, 2422 MHz



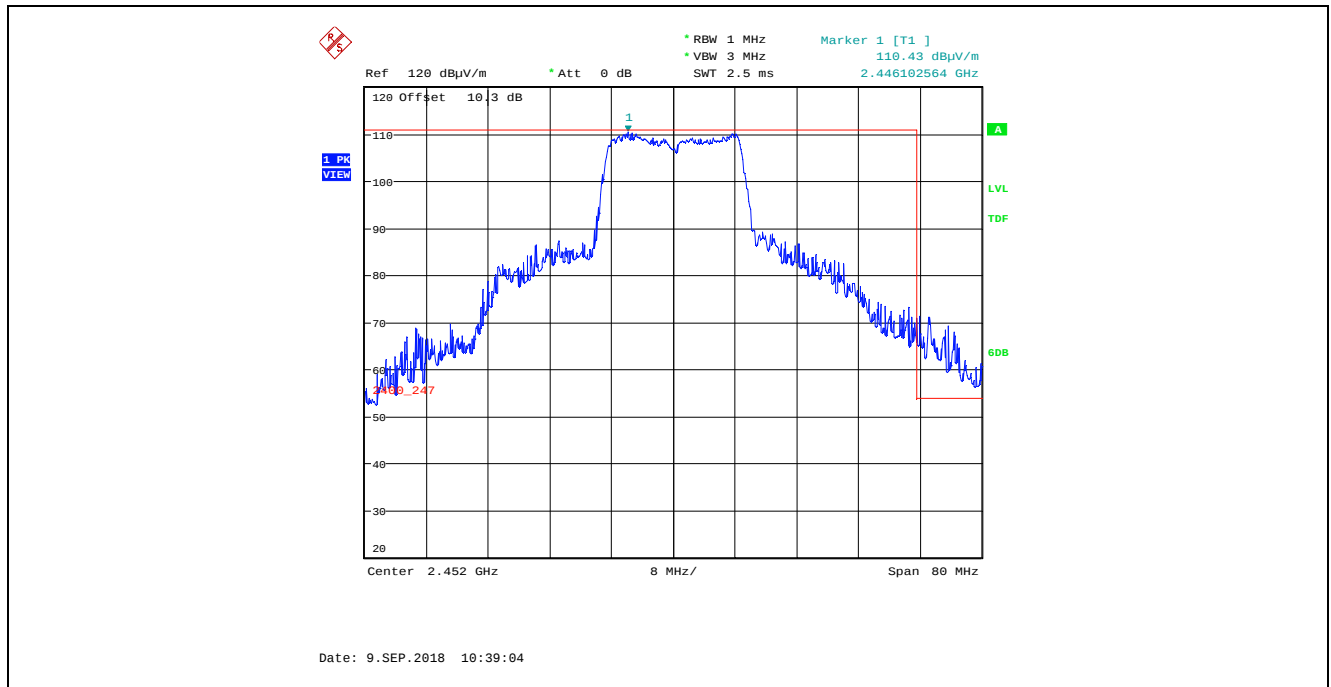
**Plot 5.4.4.1.6.19.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 27, Channel 3, 2422 MHz



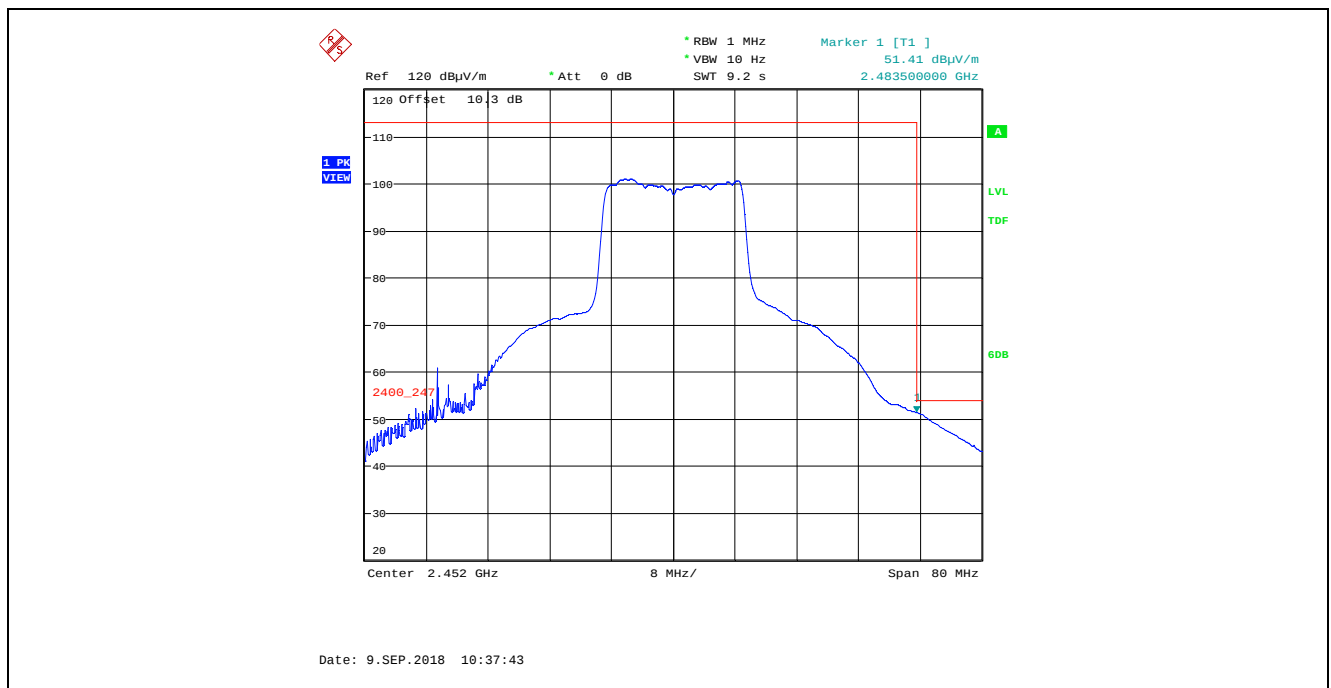
**Plot 5.4.4.1.6.20.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 27, Channel 3, 2422 MHz



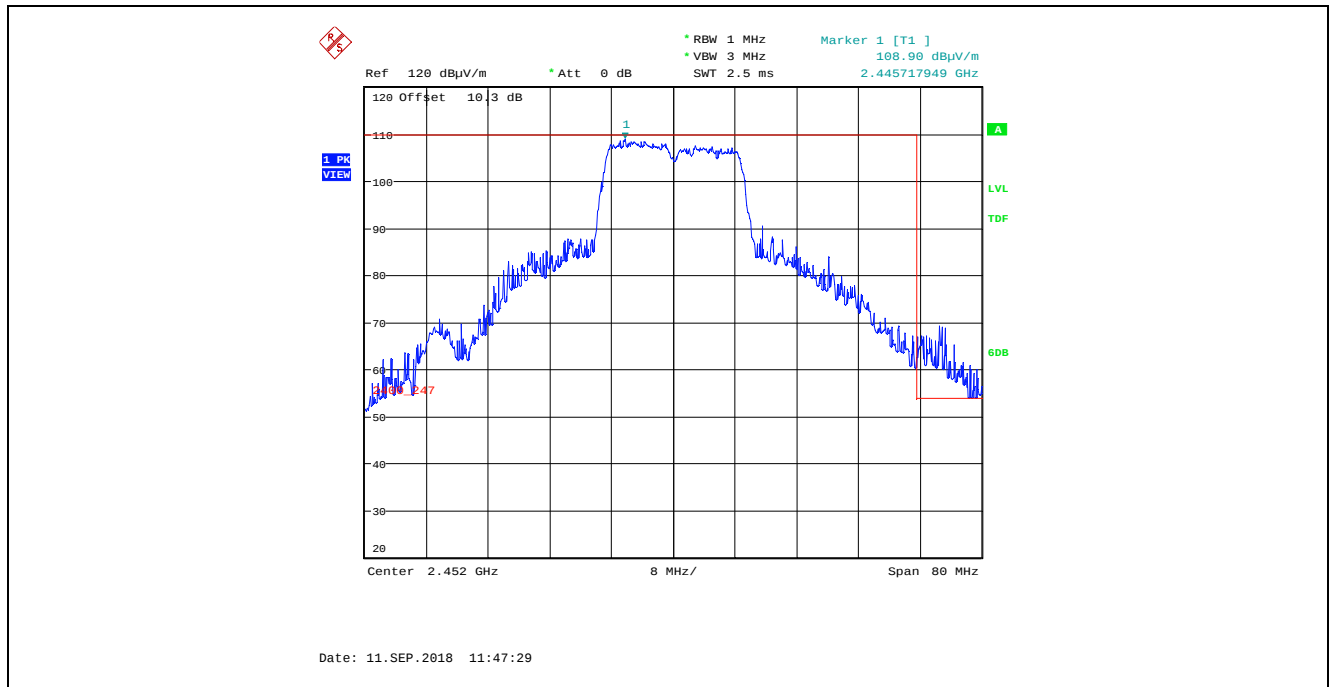
**Plot 5.4.4.1.6.21.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 26, Channel 9, 2452 MHz



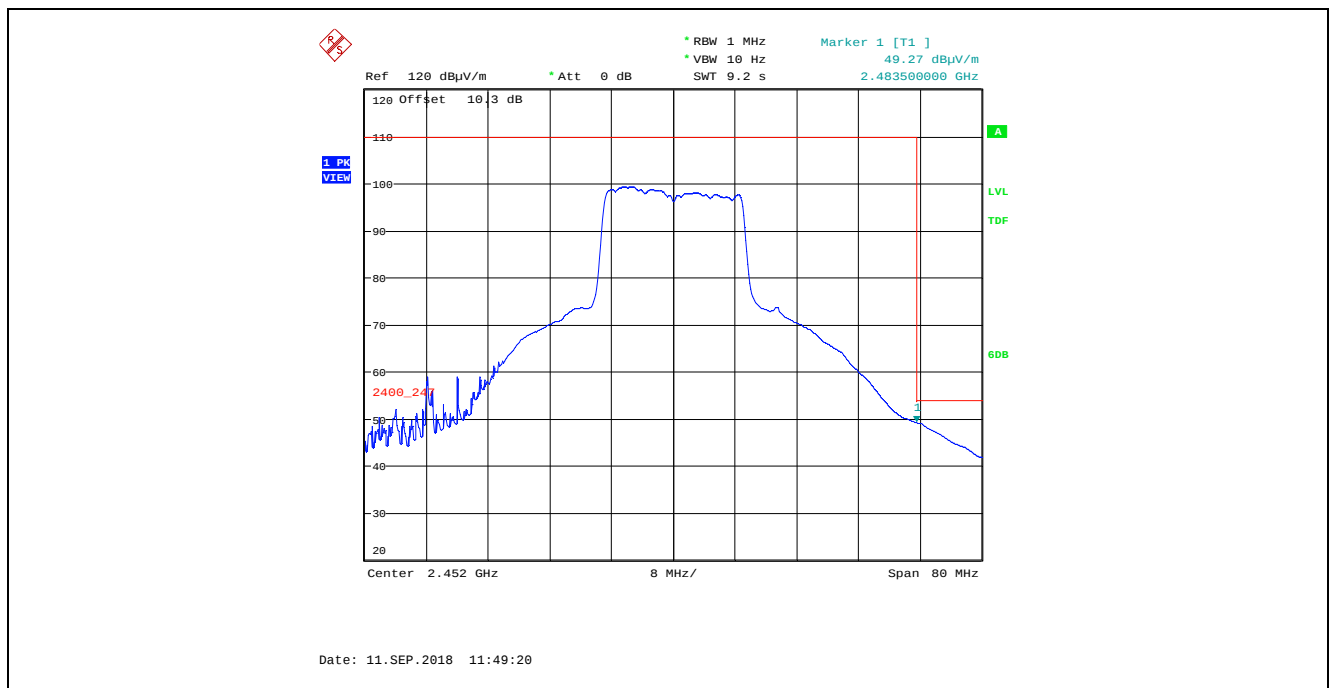
**Plot 5.4.4.1.6.22.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 26, Channel 9, 2452 MHz



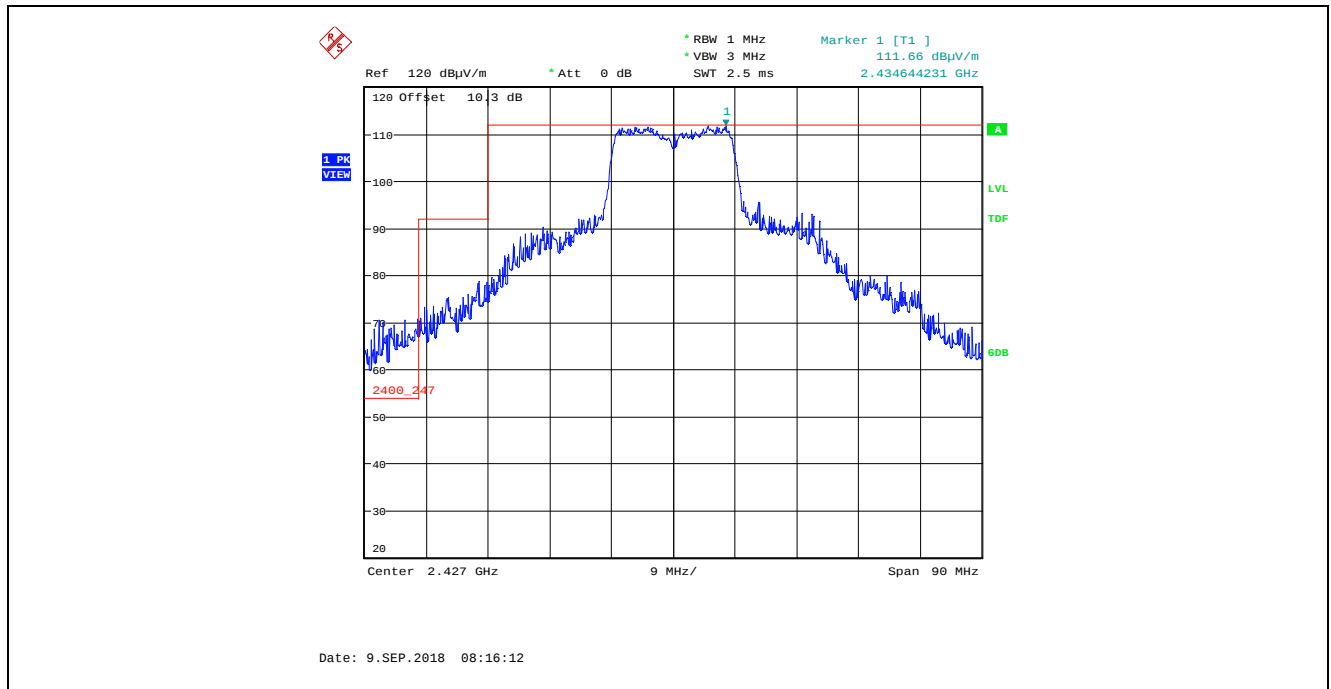
**Plot 5.4.4.1.6.23.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 26, Channel 9, 2452 MHz



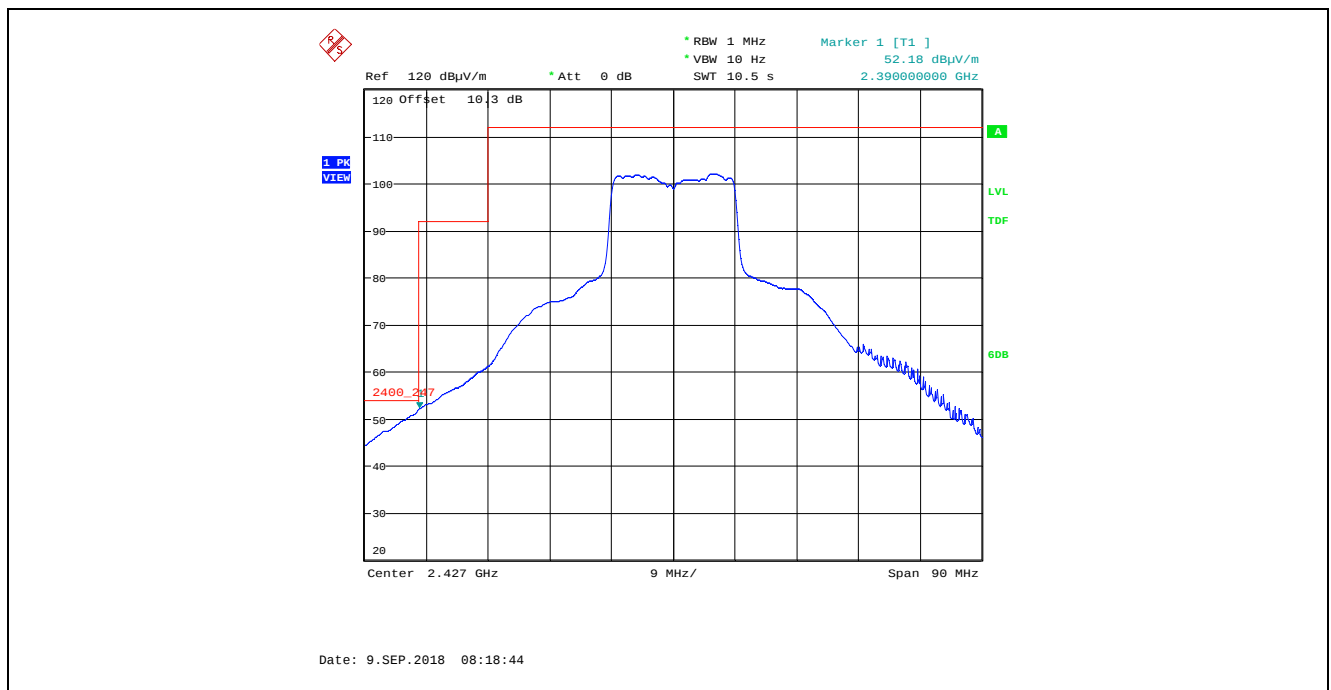
**Plot 5.4.4.1.6.24.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 26, Channel 9, 2452 MHz



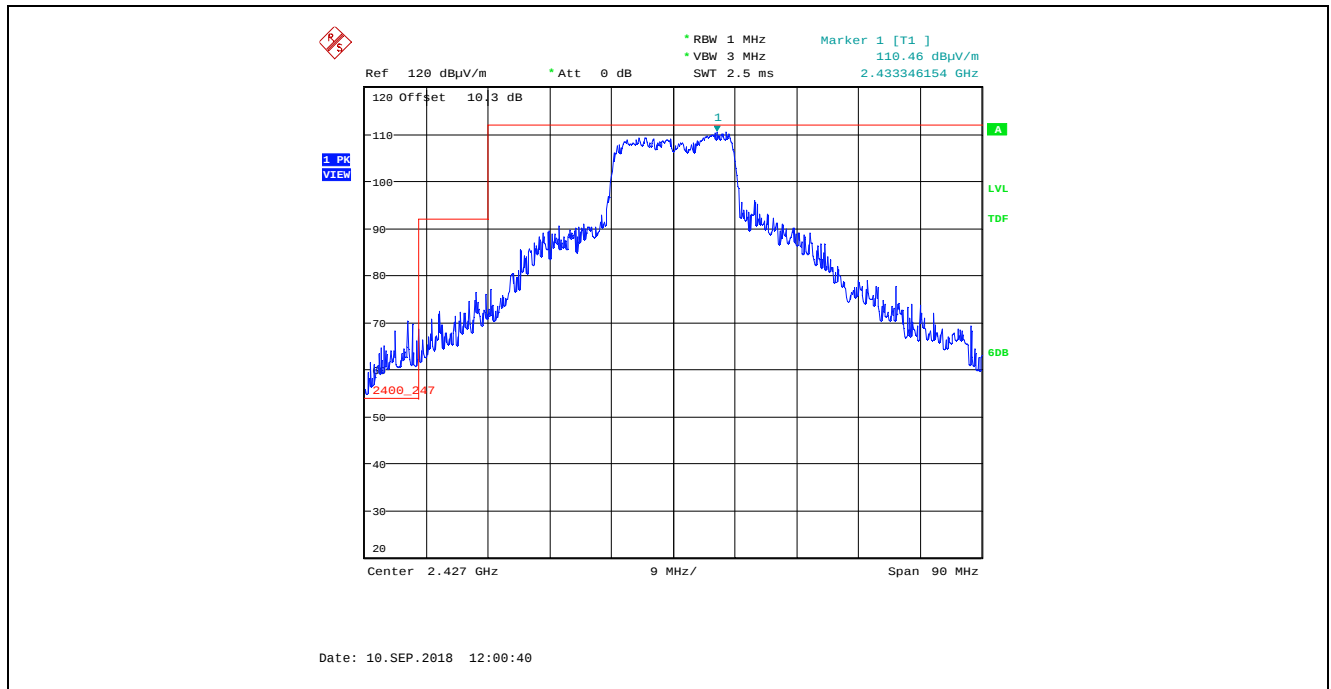
**Plot 5.4.4.1.6.25.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 29, Channel 4, 2427 MHz



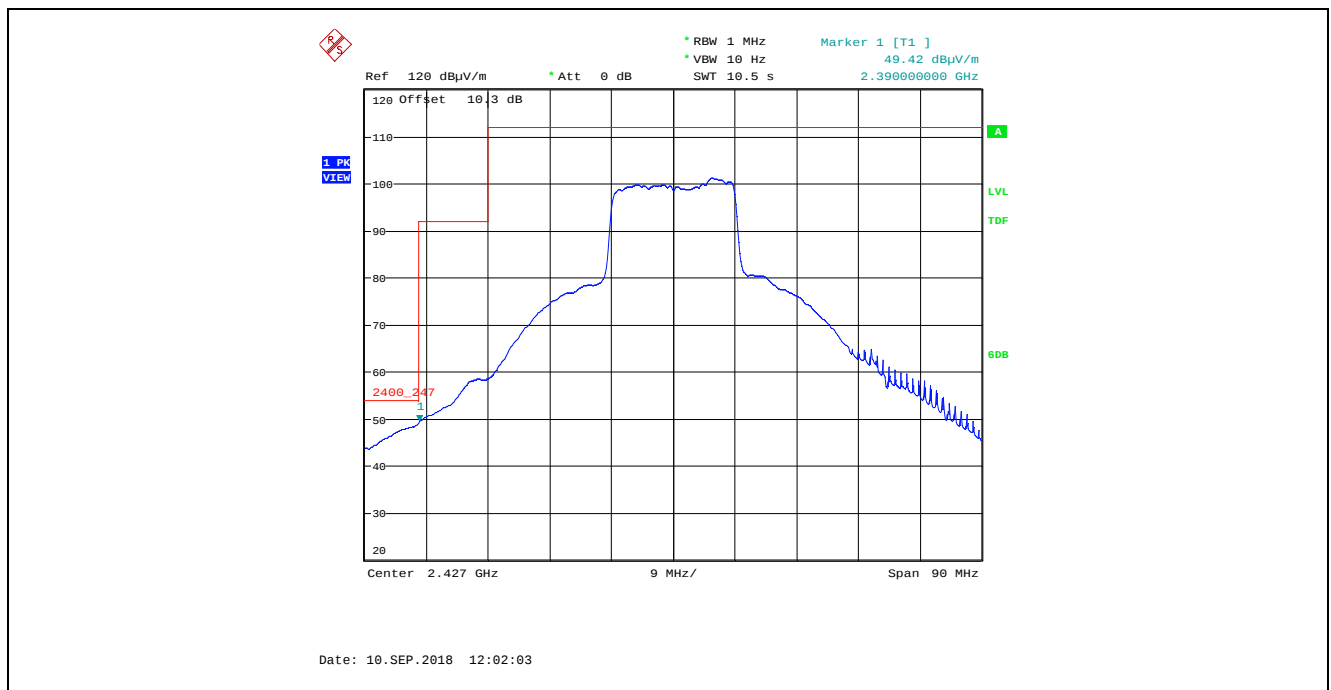
**Plot 5.4.4.1.6.26.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 29, Channel 4, 2427 MHz



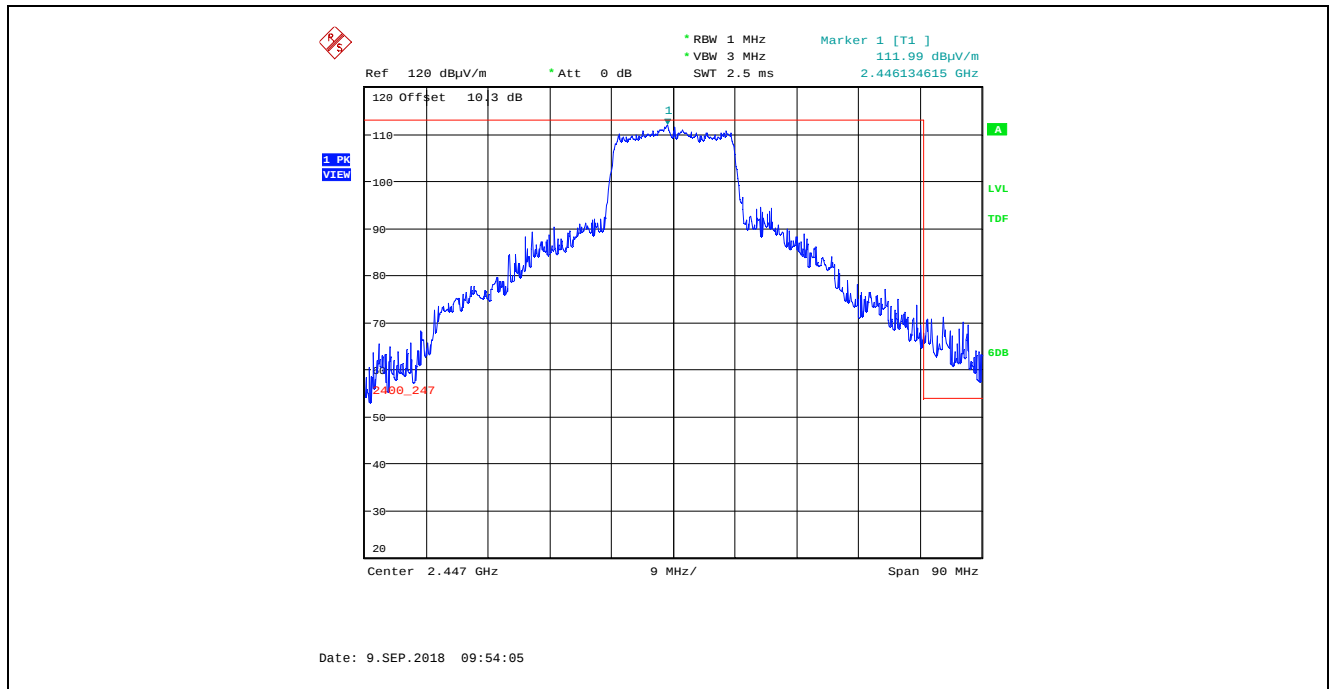
**Plot 5.4.4.1.6.27.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 29, Channel 4, 2427 MHz



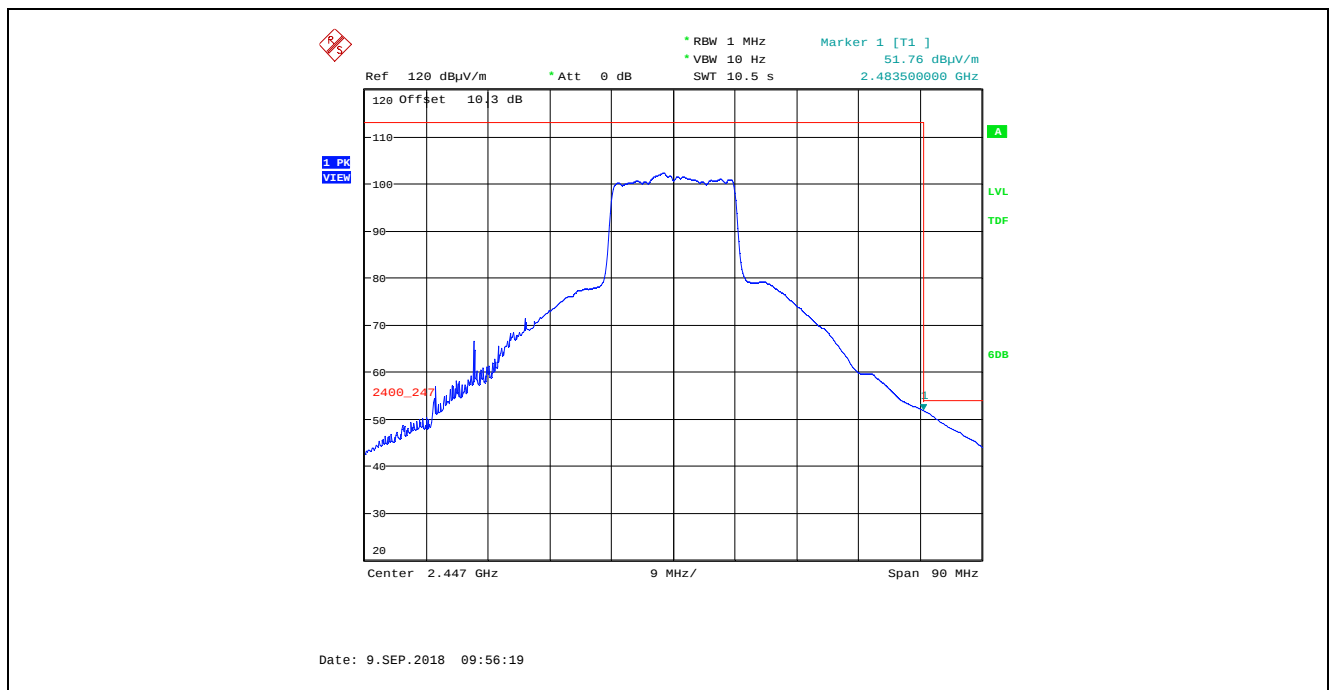
**Plot 5.4.4.1.6.28.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 29, Channel 4, 2427 MHz



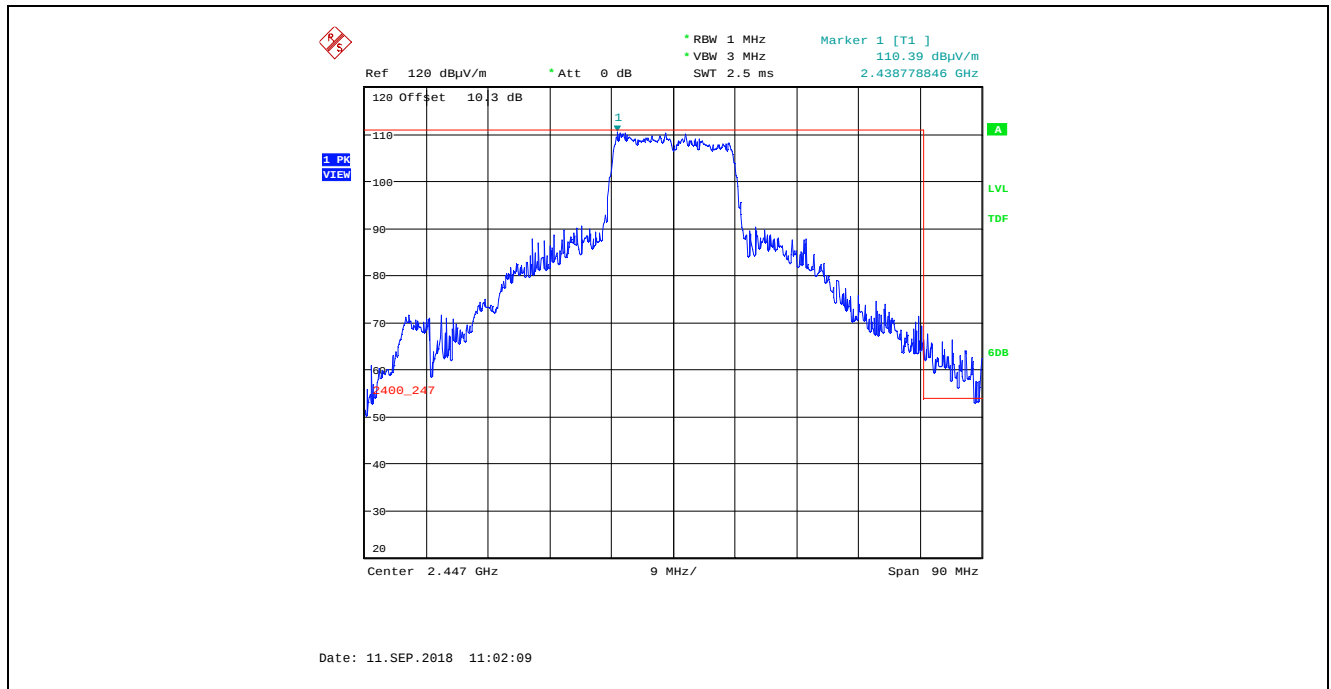
**Plot 5.4.4.1.6.29.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 28, Channel 8, 2447 MHz



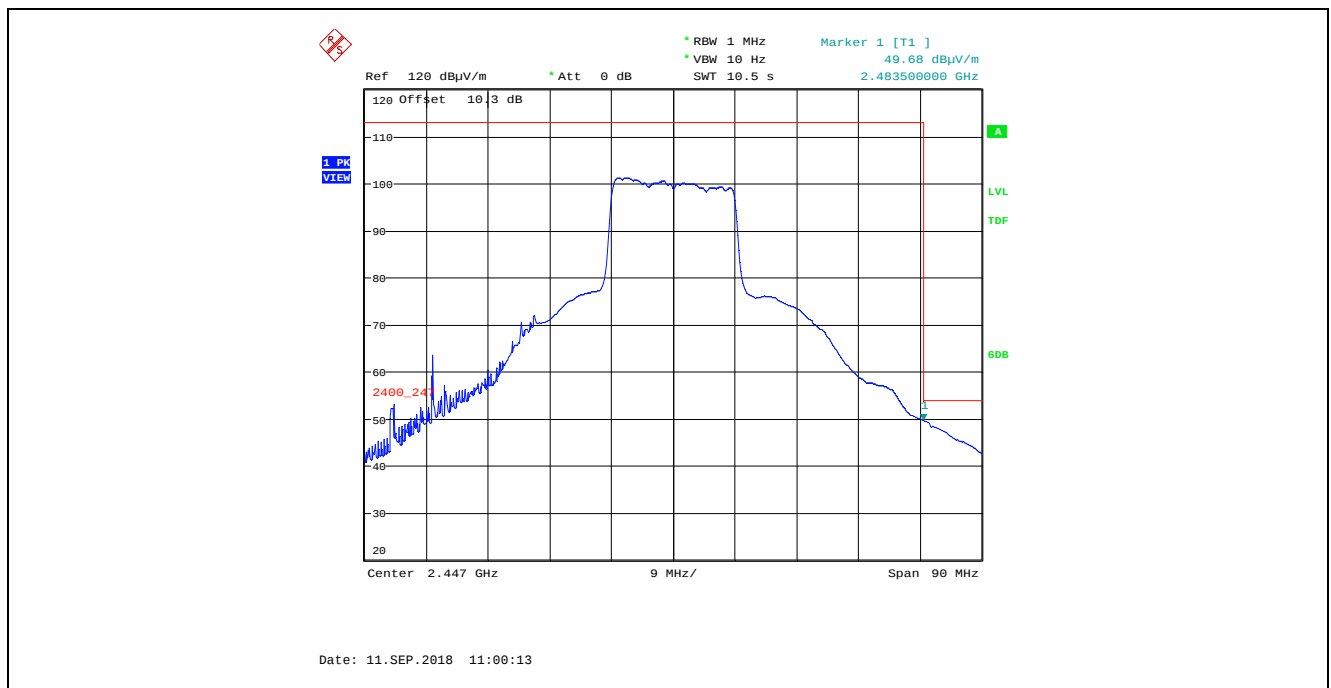
**Plot 5.4.4.1.6.30.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 28, Channel 8, 2447 MHz



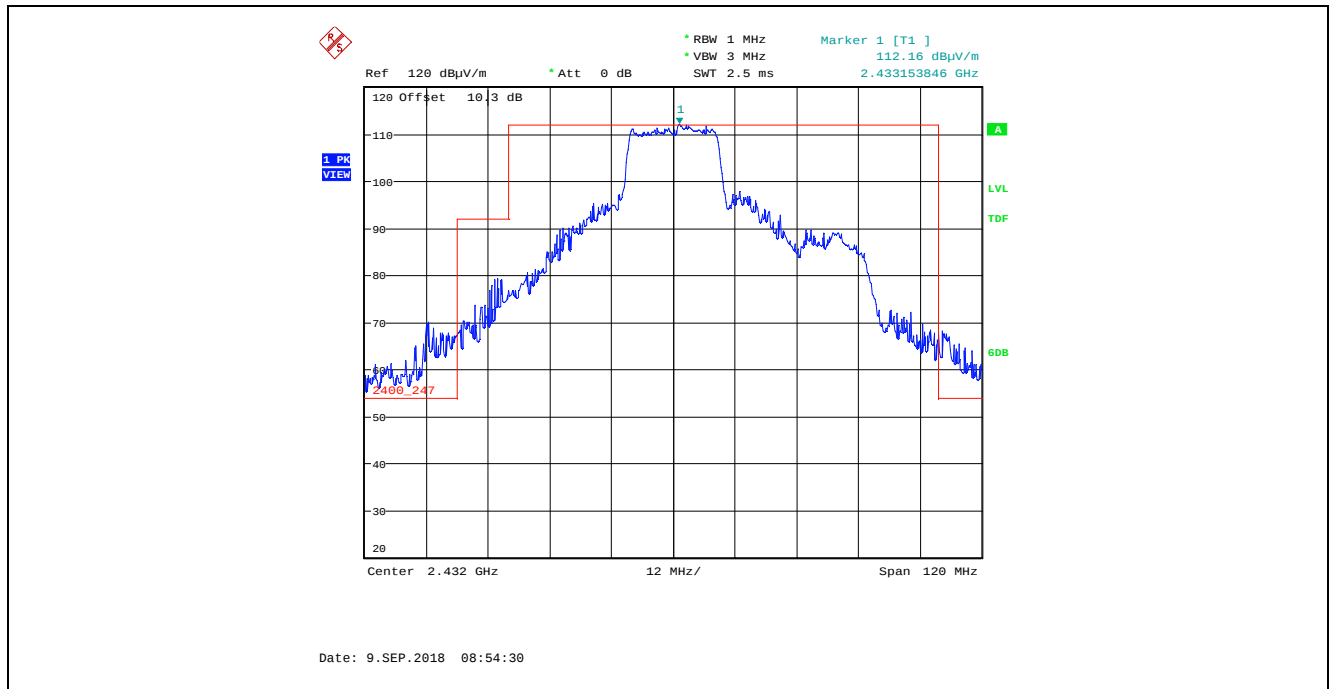
**Plot 5.4.4.1.6.31.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
MCS0, Power Setting 28, Channel 8, 2447 MHz



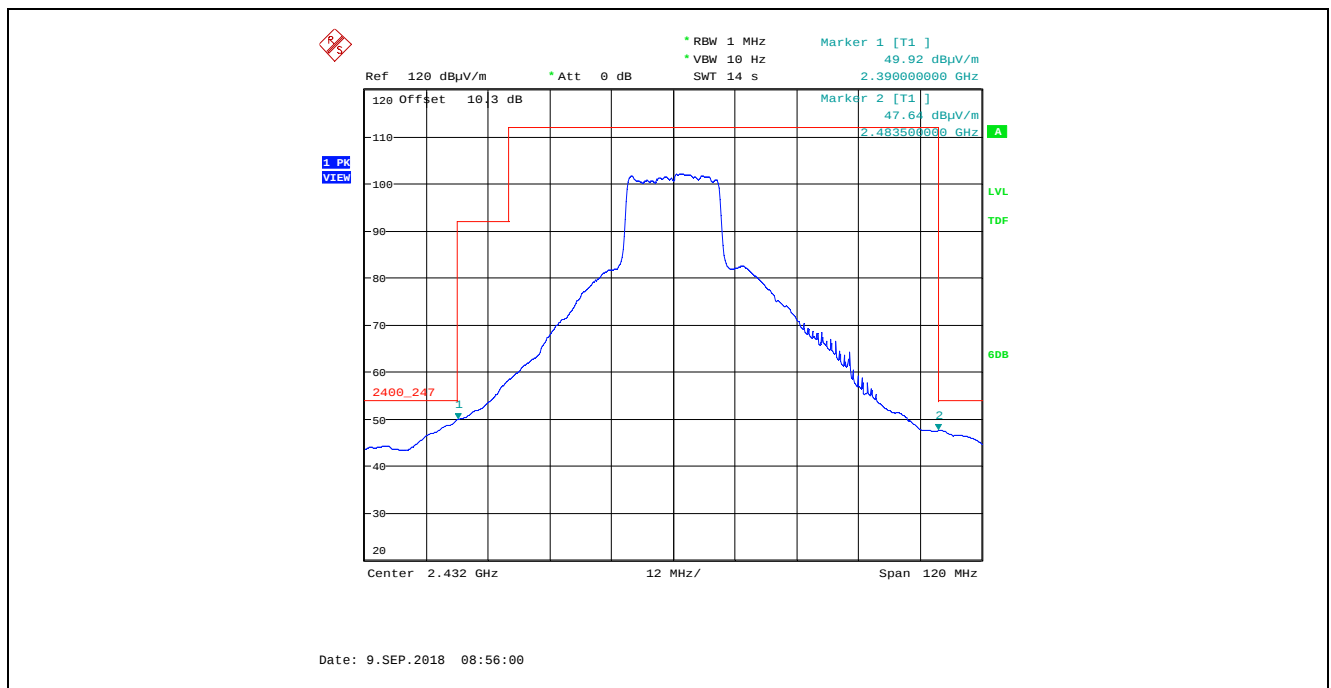
**Plot 5.4.4.1.6.32.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
MCS0, Power Setting 28, Channel 8, 2447 MHz



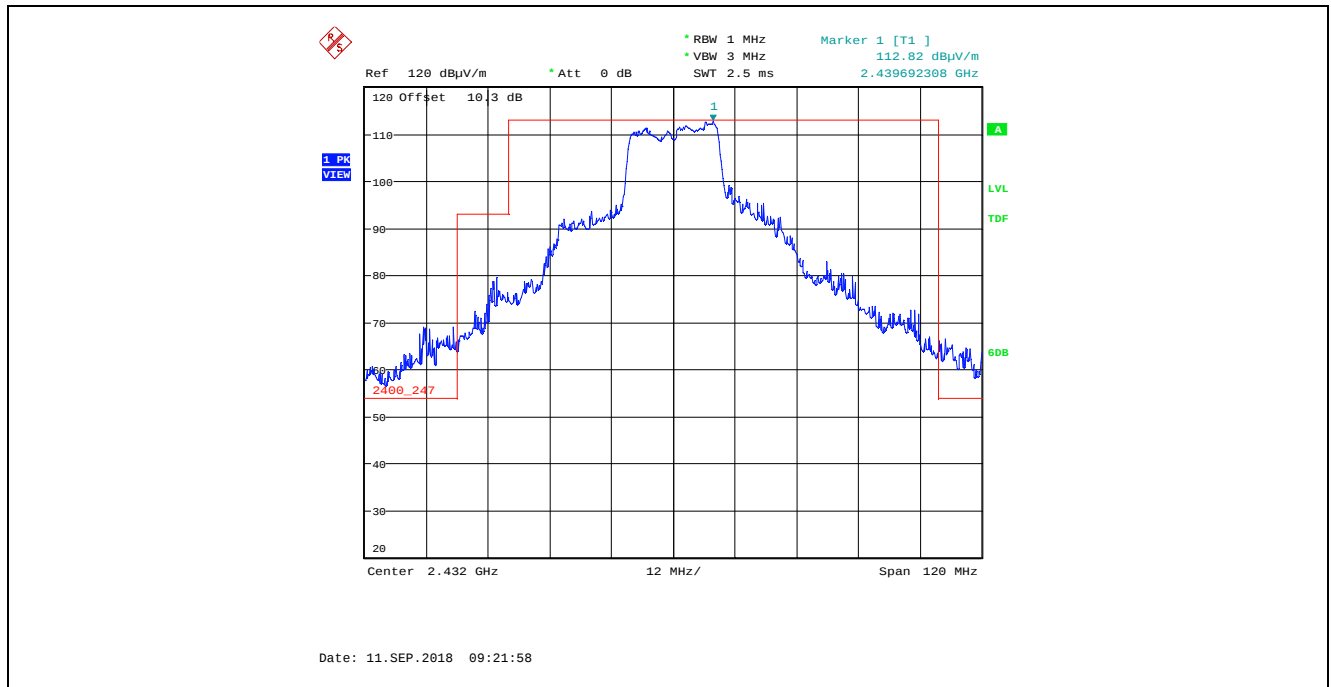
**Plot 5.4.4.1.6.33.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 30, Channel 5, 2432 MHz



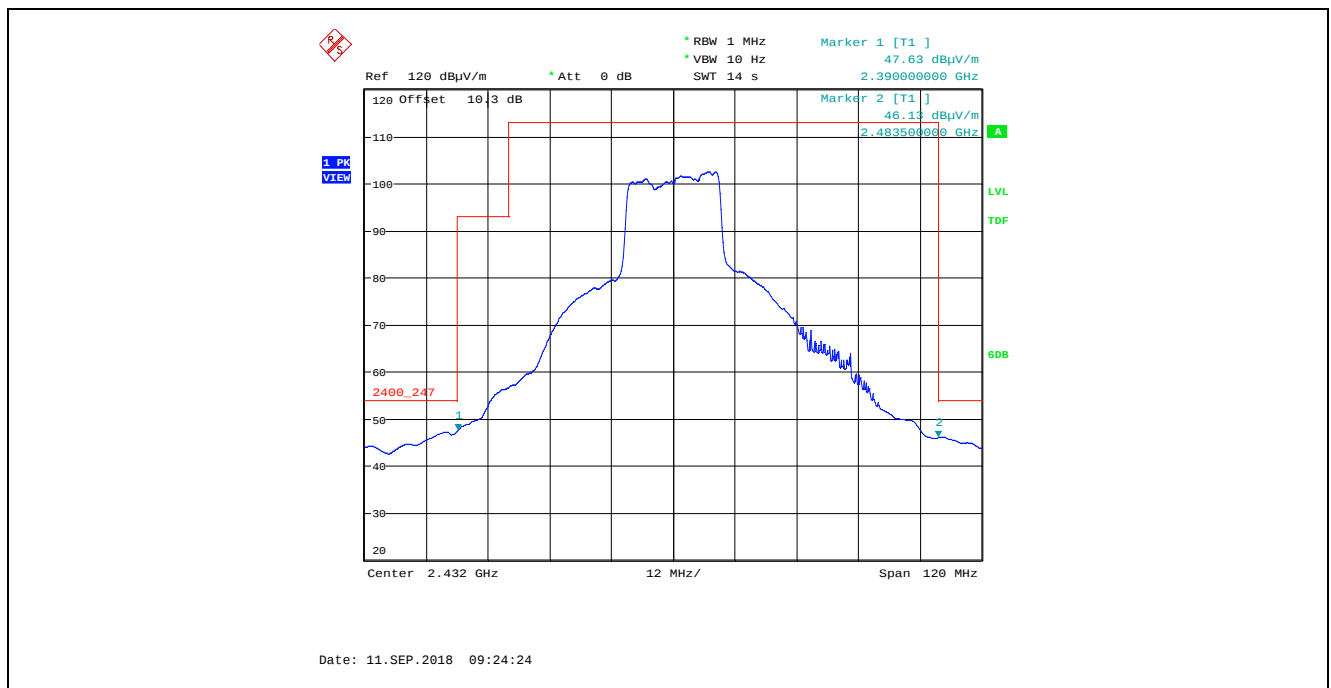
**Plot 5.4.4.1.6.34.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 30, Channel 5, 2432 MHz



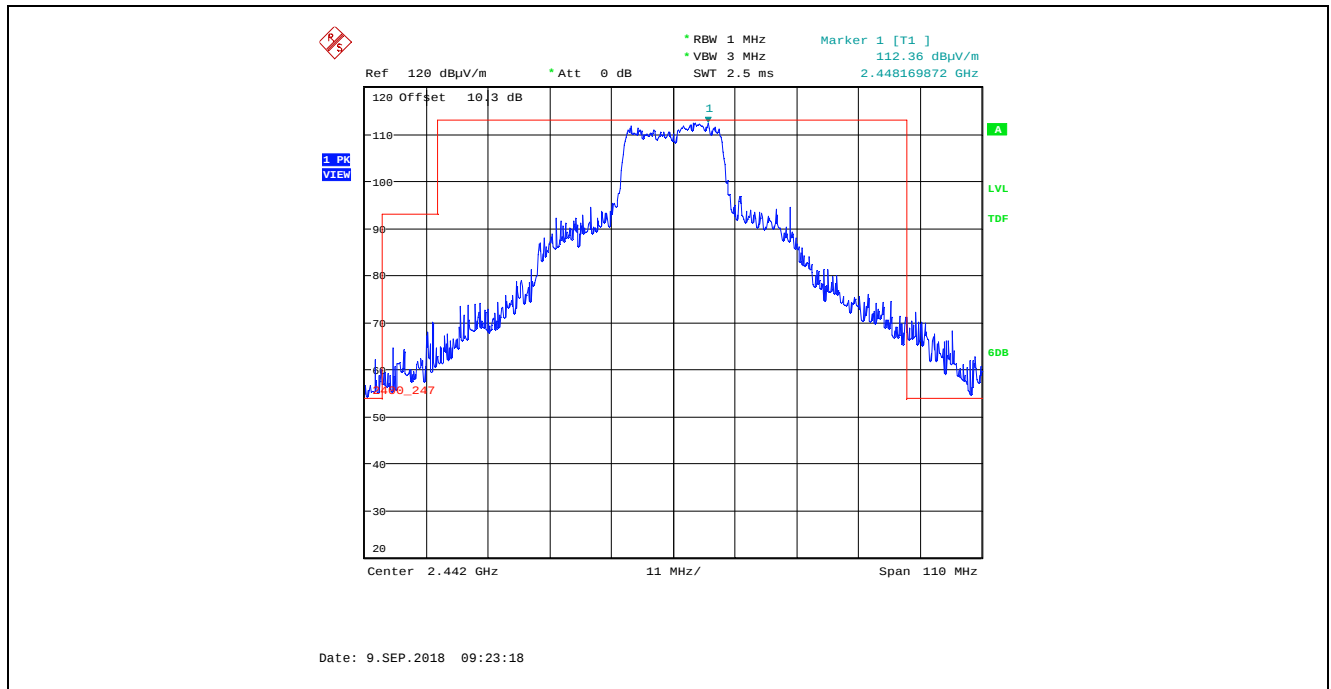
**Plot 5.4.4.1.6.35.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 30, Channel 5, 2432 MHz



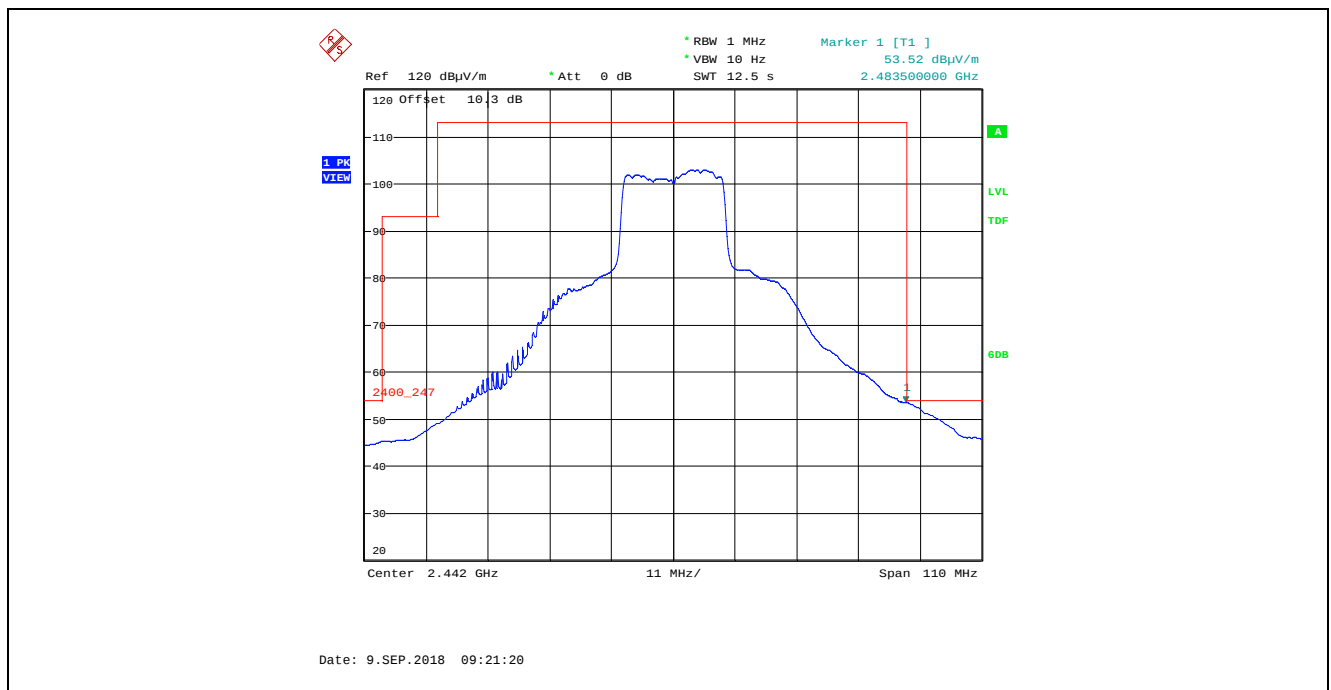
**Plot 5.4.4.1.6.36.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 30, Channel 5, 2432 MHz



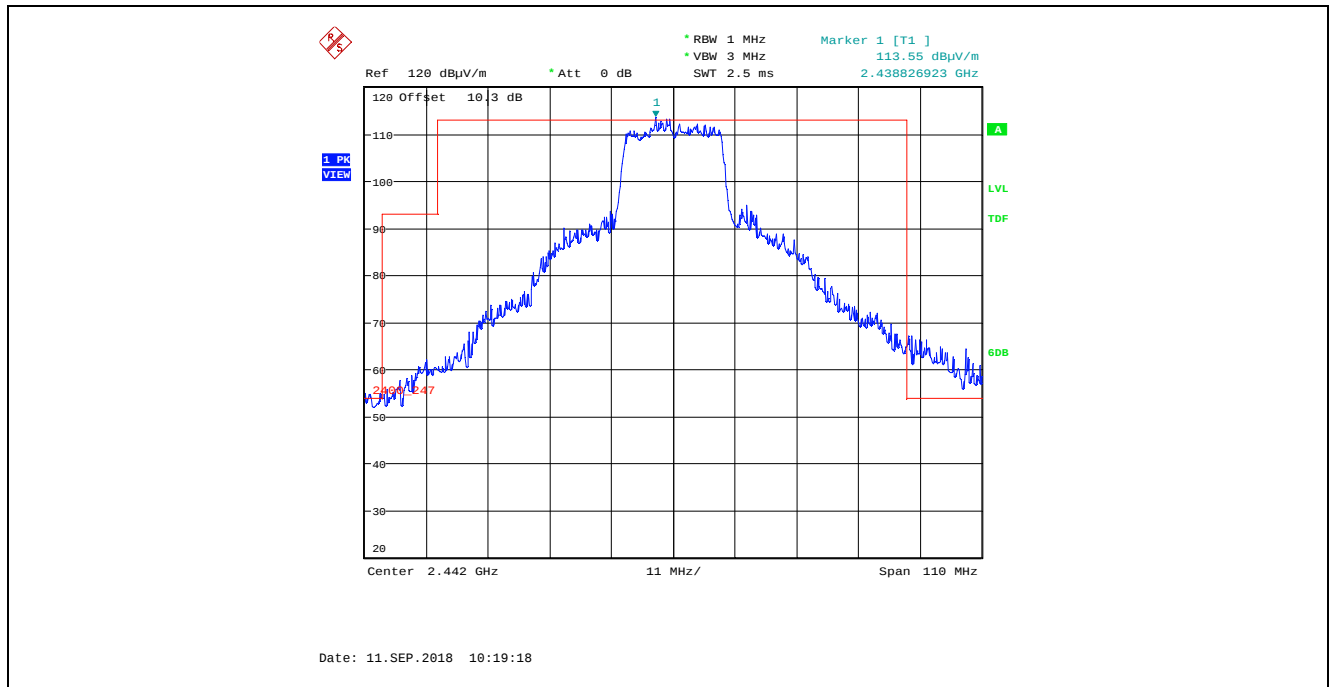
**Plot 5.4.4.1.6.37.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 30, Channel 7, 2442 MHz



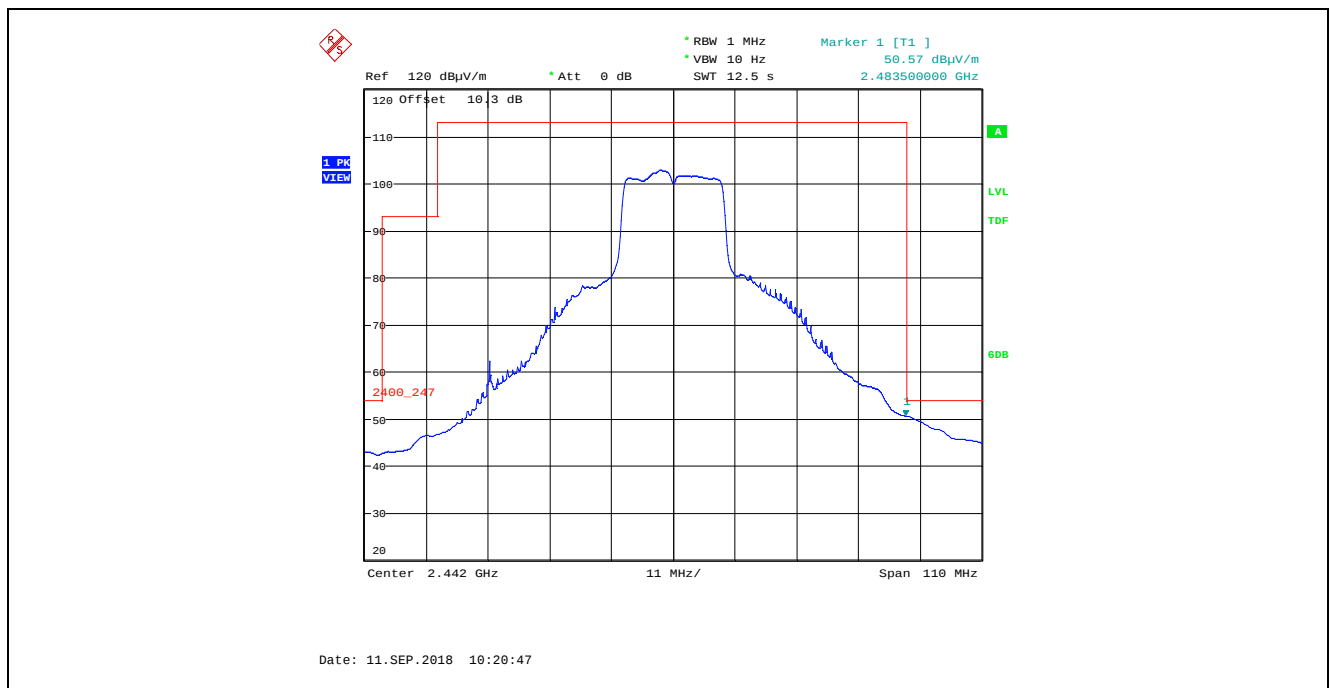
**Plot 5.4.4.1.6.38.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 30, Channel 7, 2442 MHz



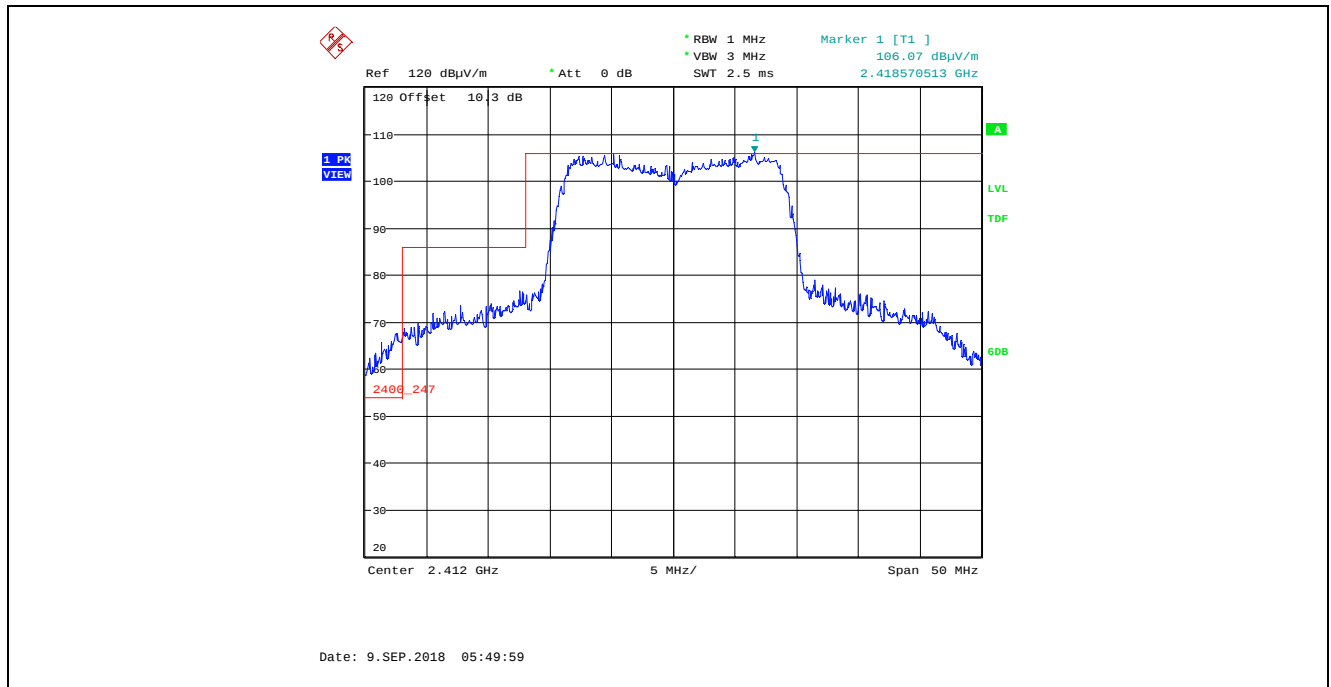
**Plot 5.4.4.1.6.39.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 30, Channel 7, 2442 MHz



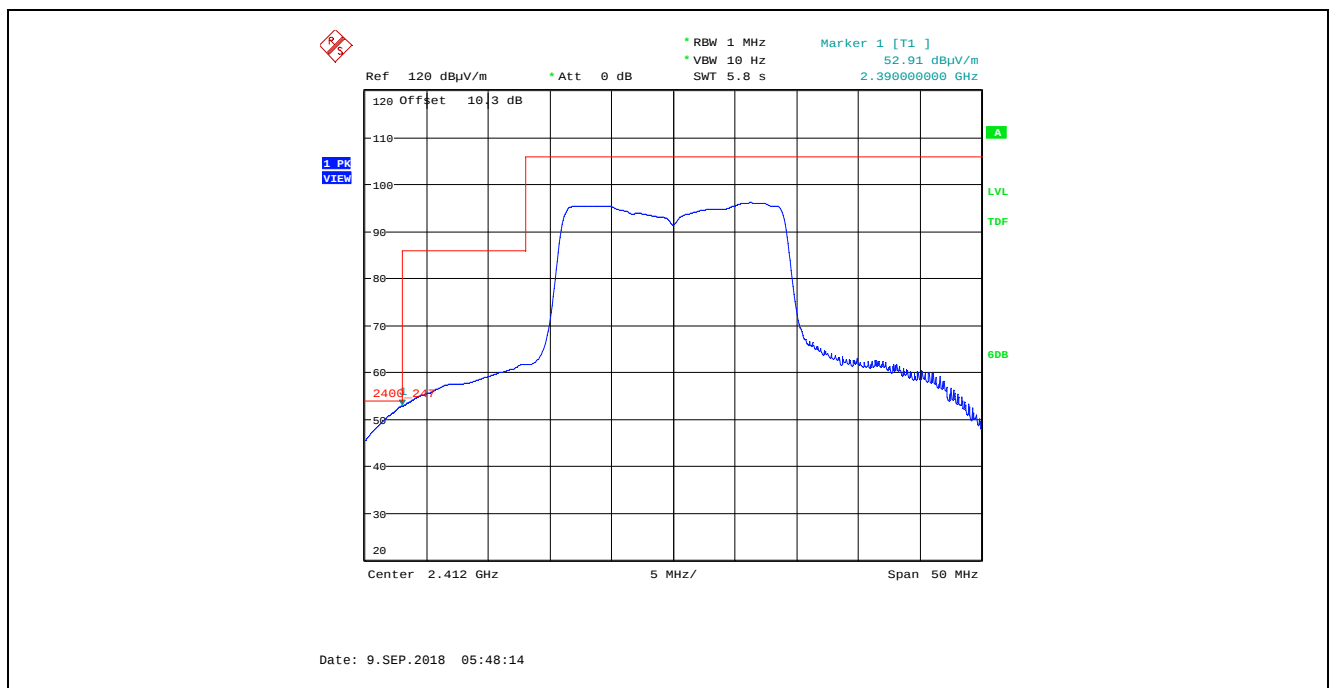
**Plot 5.4.4.1.6.40.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 30, Channel 7, 2442 MHz



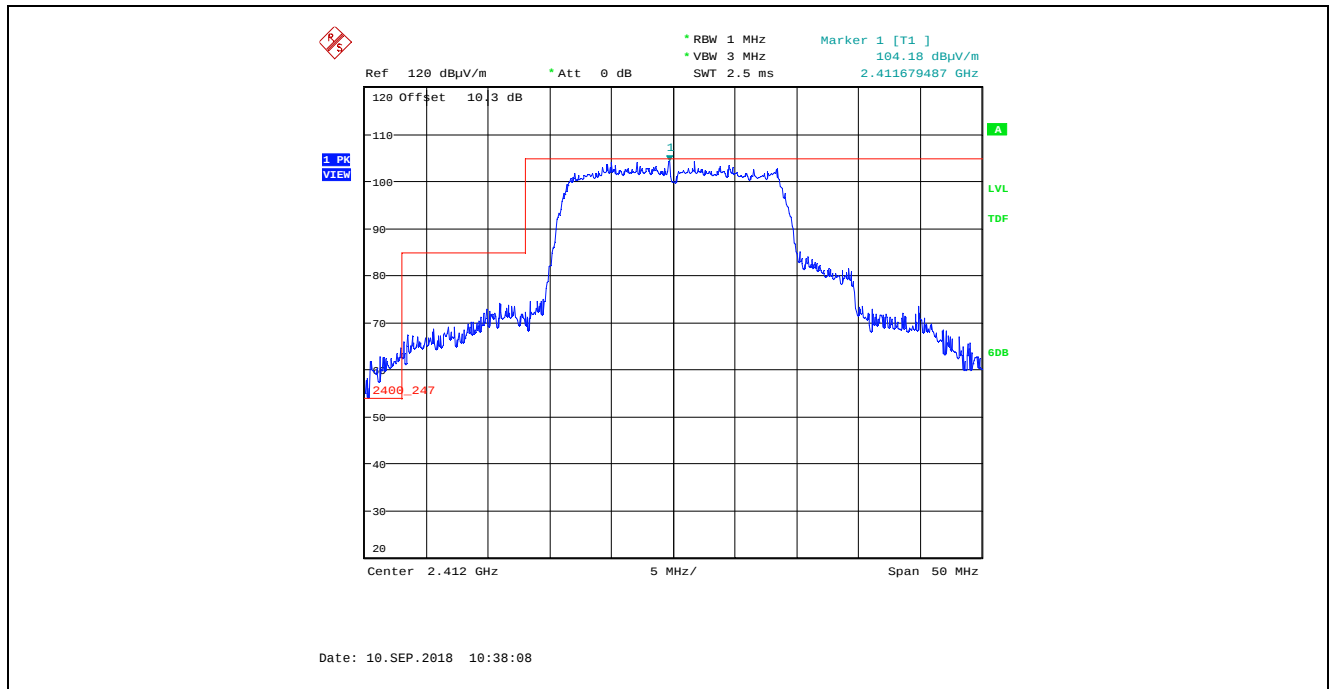
**Plot 5.4.4.1.6.41.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 19, Channel 1, 2412 MHz



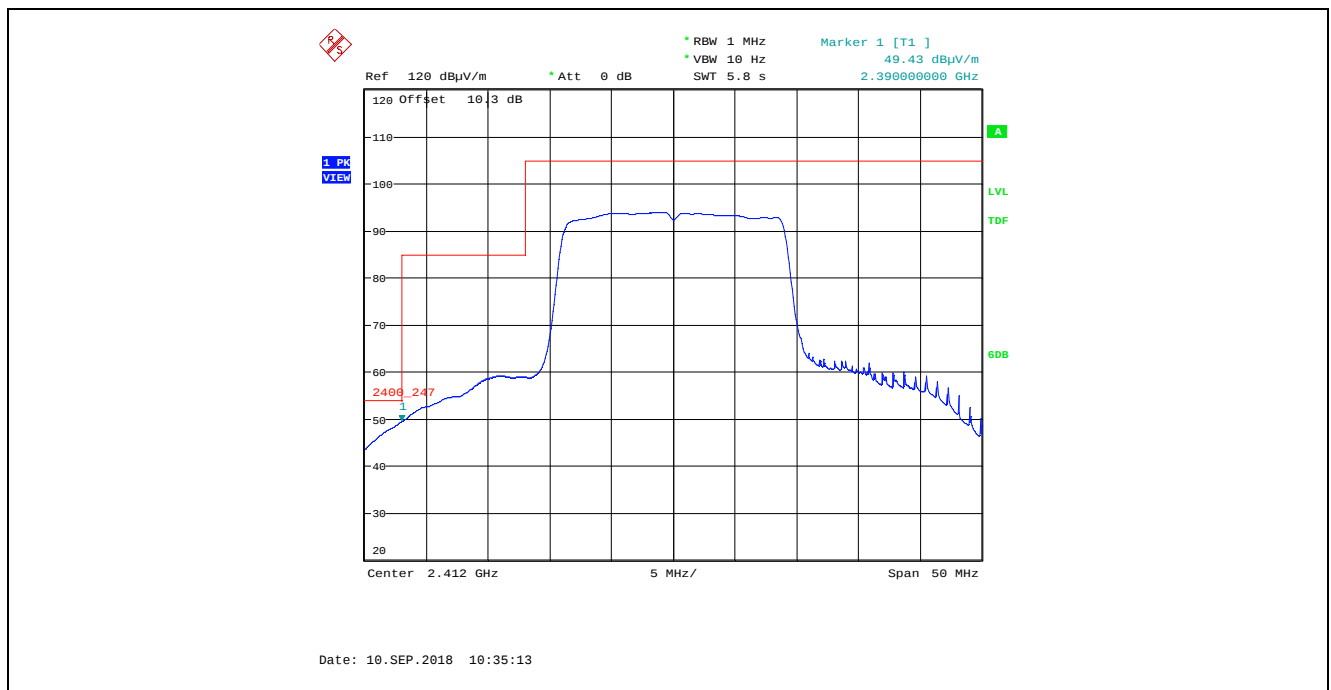
**Plot 5.4.4.1.6.42.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 19, Channel 1, 2412 MHz



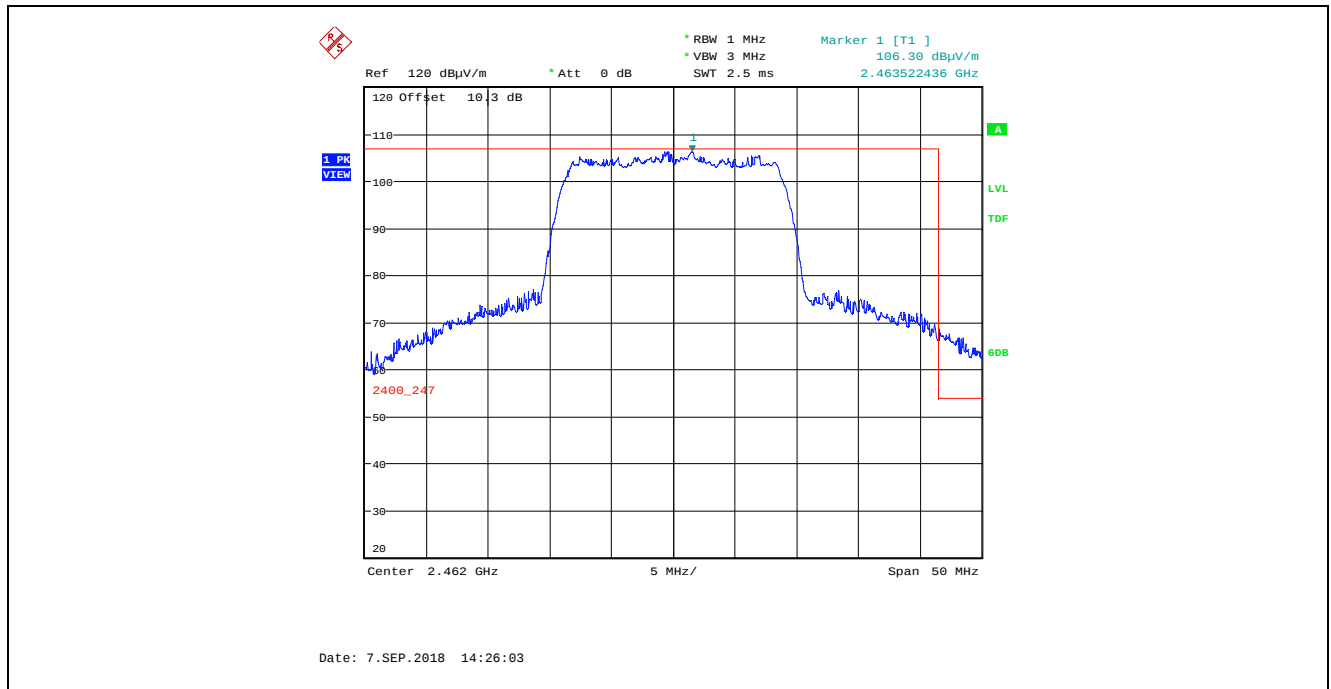
**Plot 5.4.4.1.6.43.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 19, Channel 1, 2412 MHz



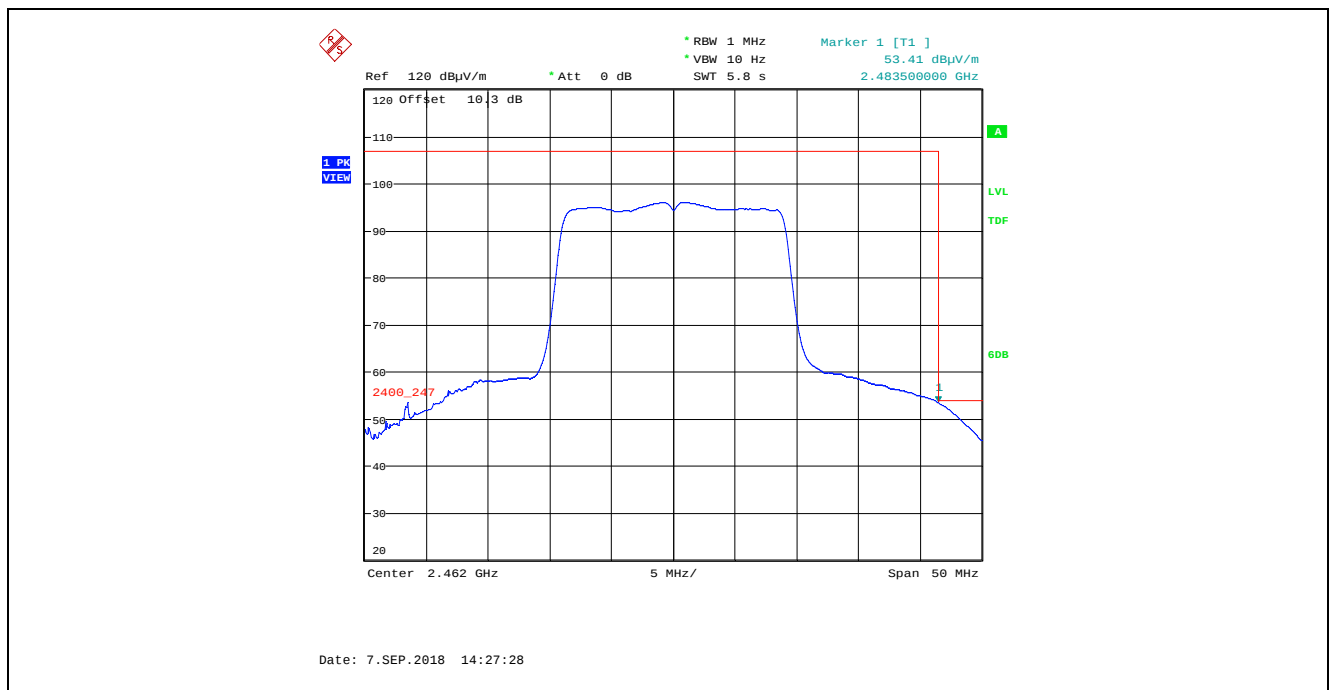
**Plot 5.4.4.1.6.44.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 19, Channel 1, 2412 MHz



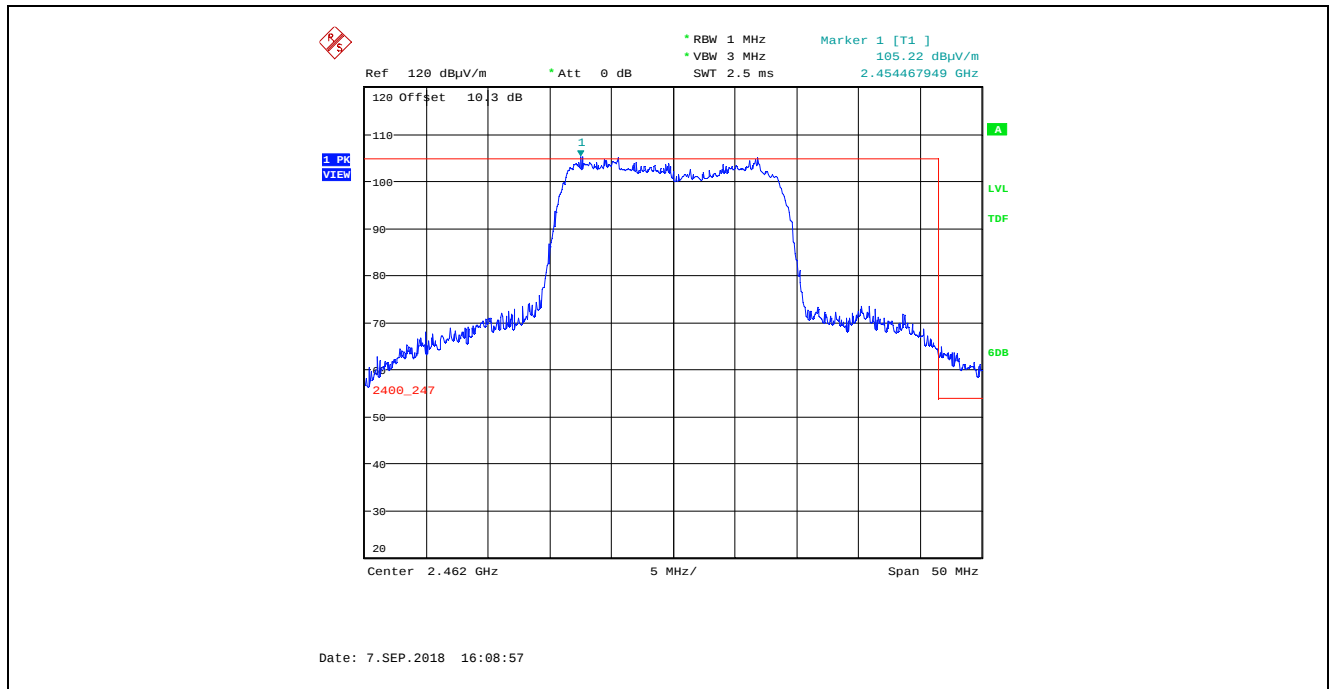
**Plot 5.4.4.1.6.45.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 20, Channel 11, 2462 MHz



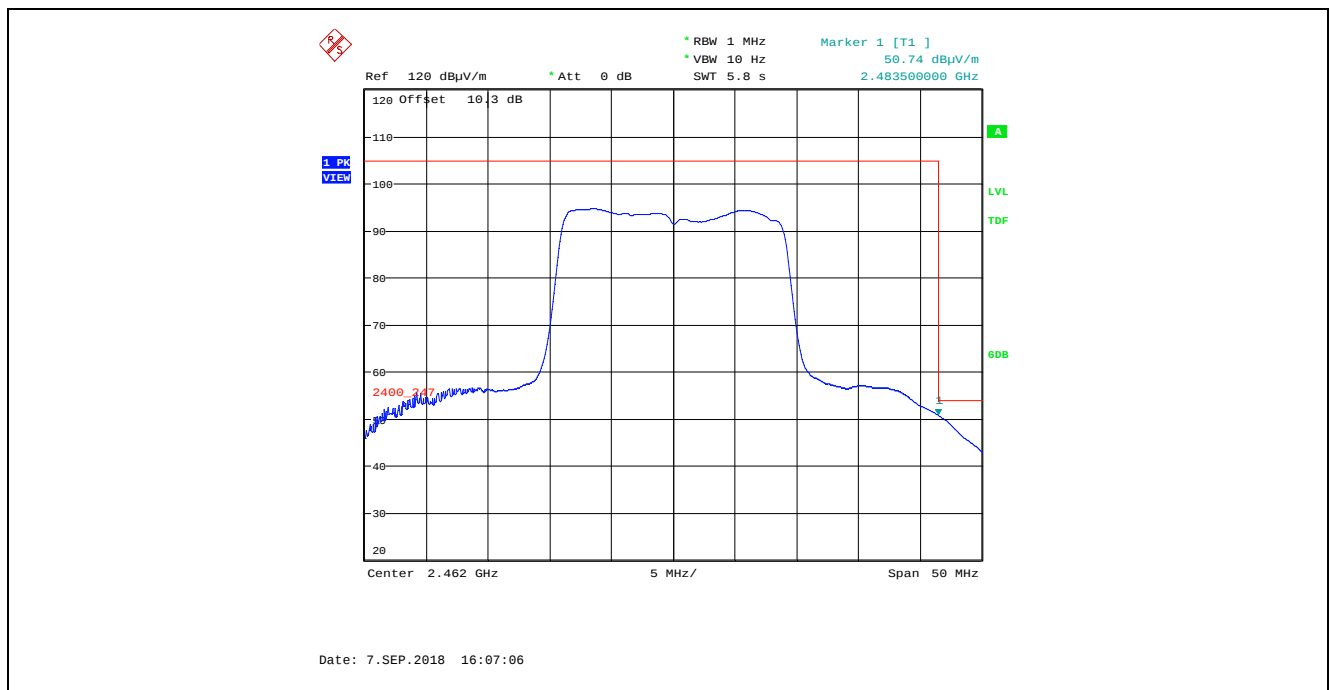
**Plot 5.4.4.1.6.46.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 20, Channel 11, 2462 MHz



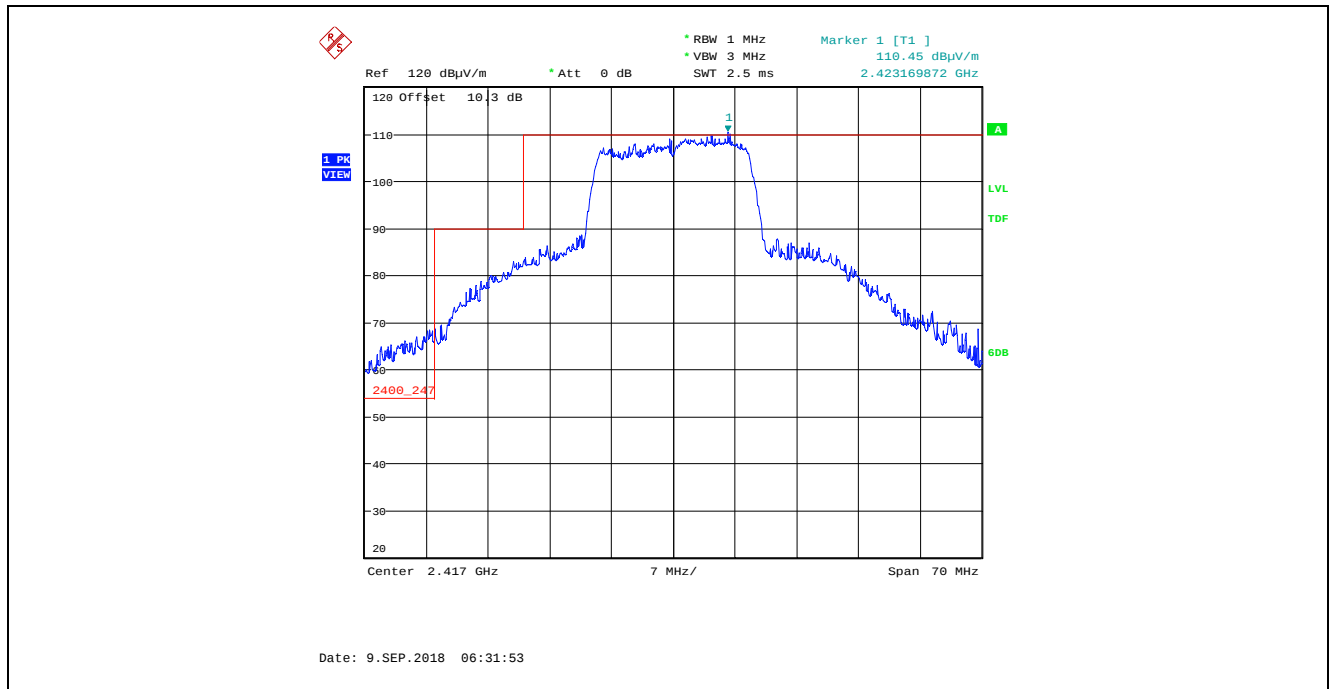
**Plot 5.4.4.1.6.47.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 20, Channel 11, 2462 MHz



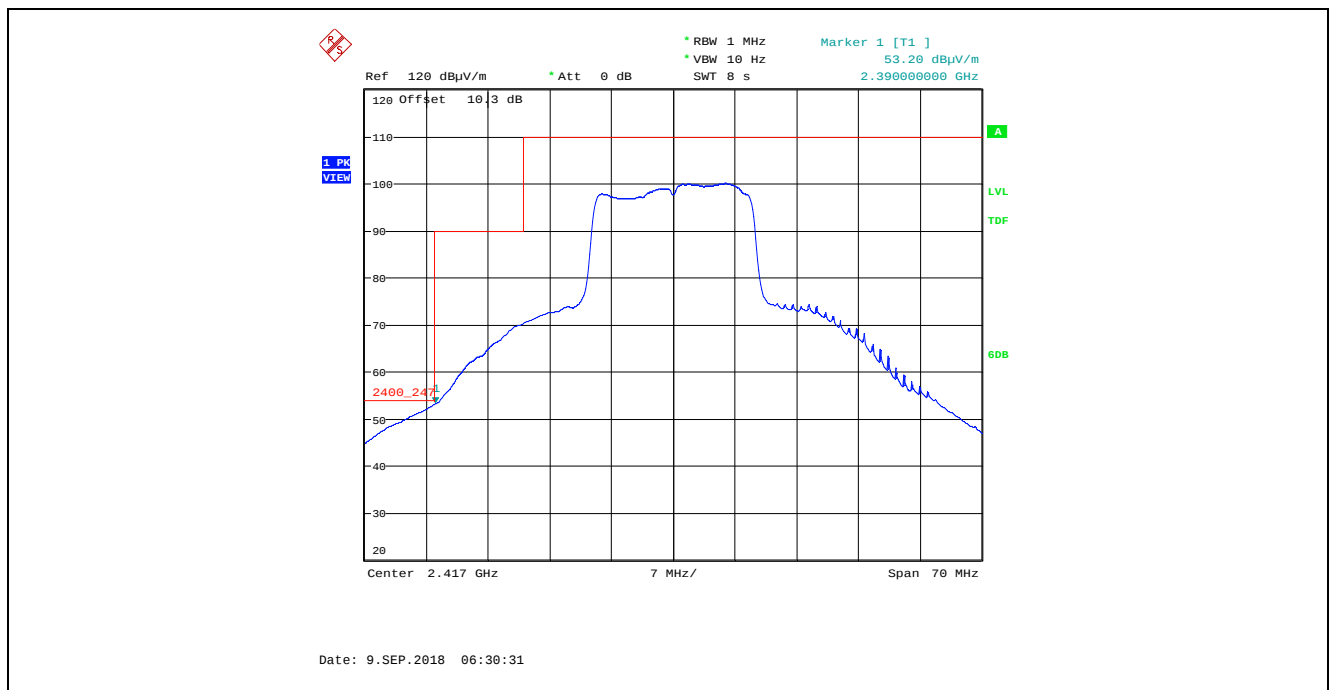
**Plot 5.4.4.1.6.48.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 20, Channel 11, 2462 MHz



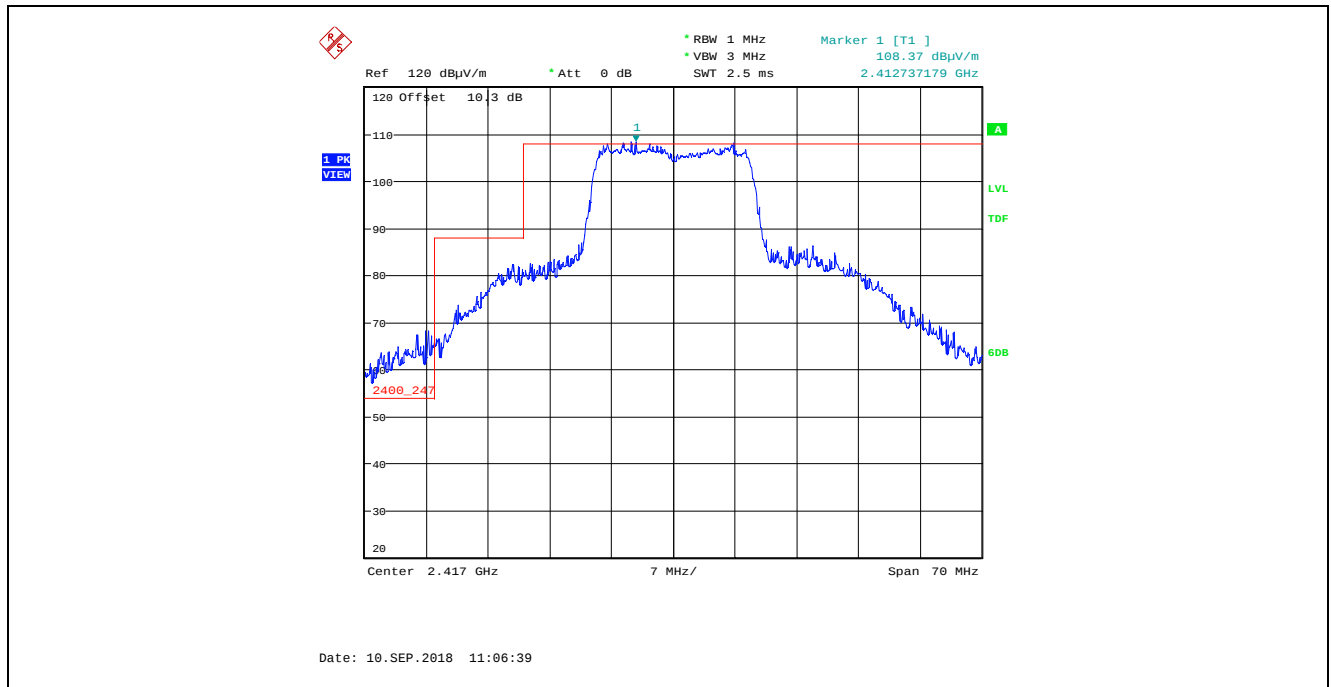
**Plot 5.4.4.1.6.49.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 25, Channel 2, 2417 MHz



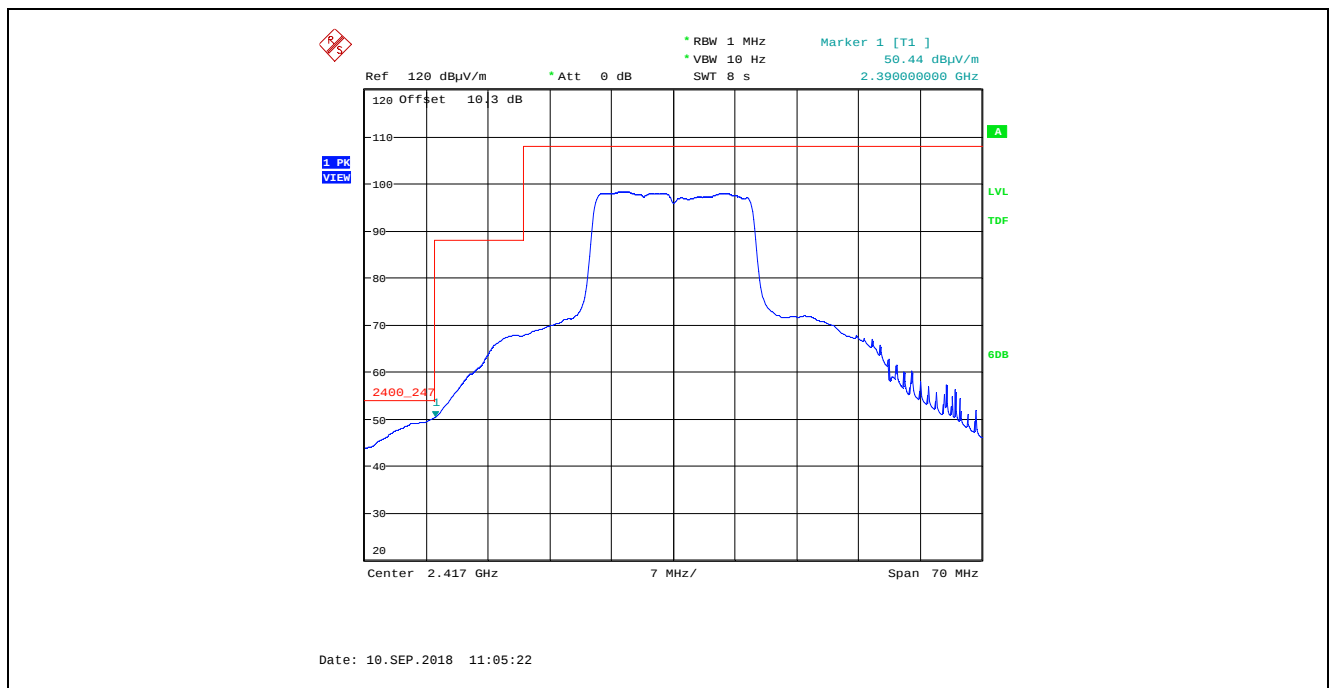
**Plot 5.4.4.1.6.50.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 25, Channel 2, 2417 MHz



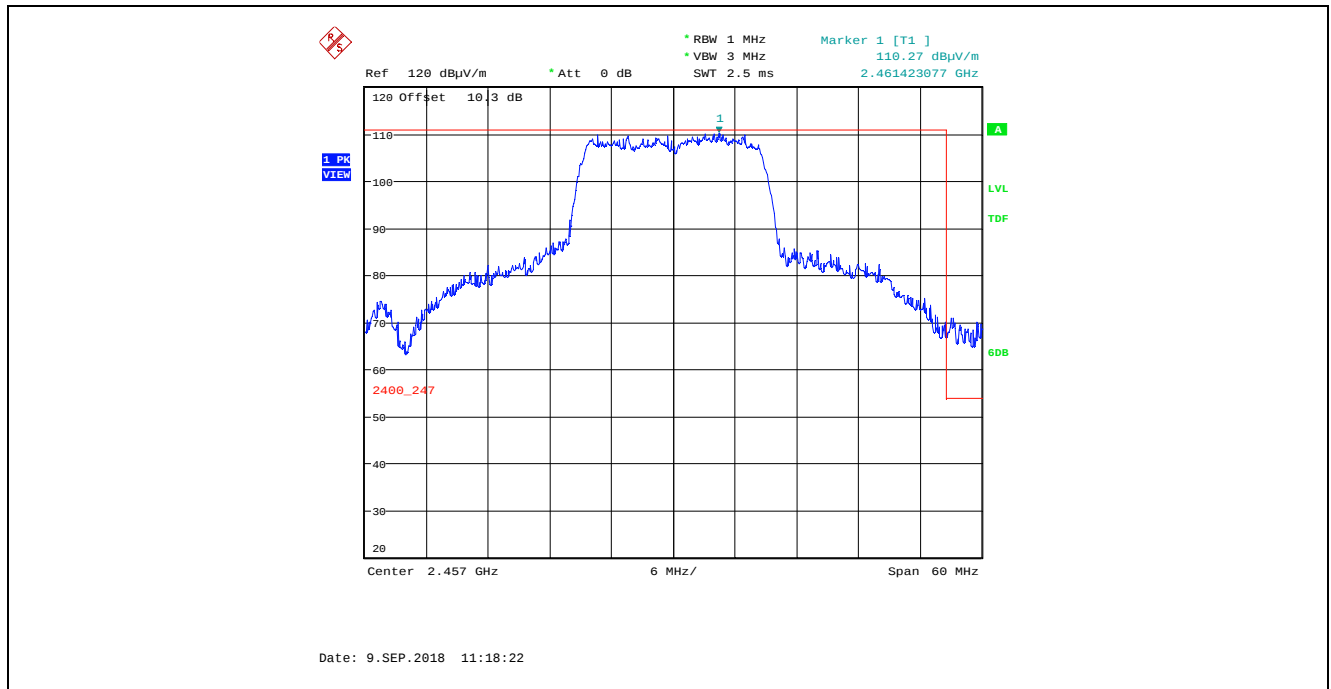
**Plot 5.4.4.1.6.51.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
MCS2, Power Setting 25, Channel 2, 2417 MHz



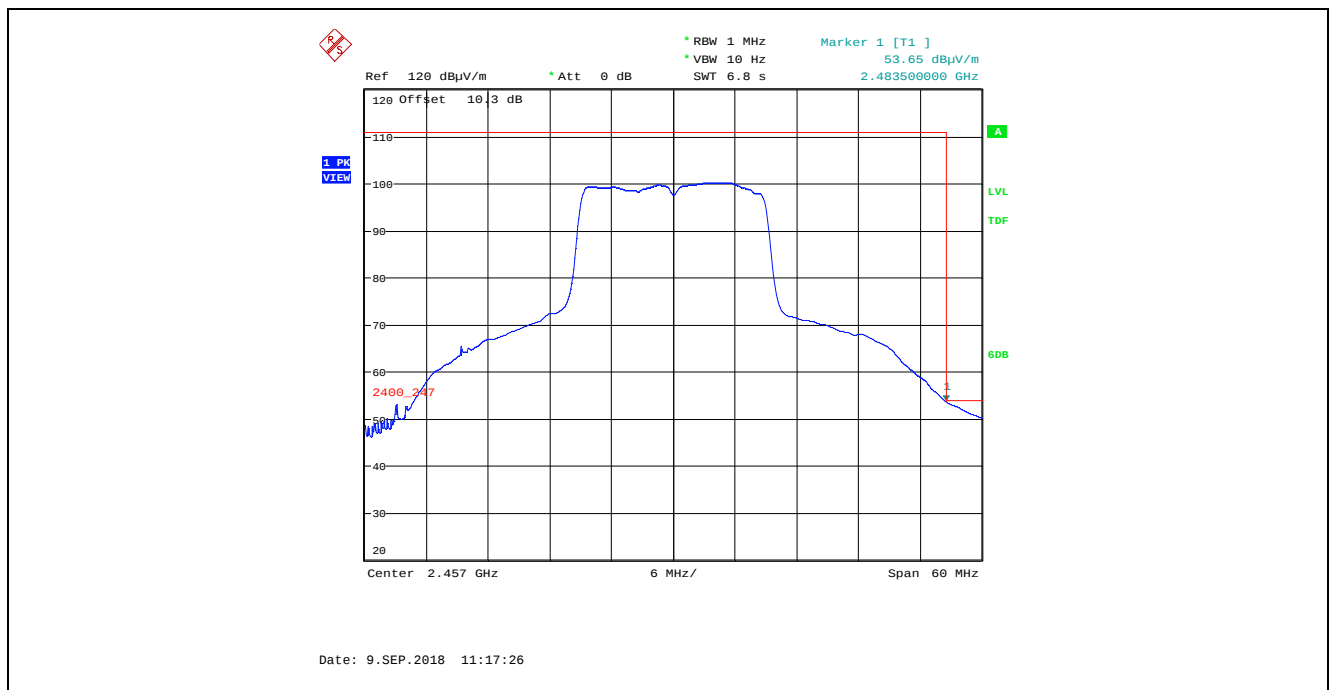
**Plot 5.4.4.1.6.52.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
MCS2, Power Setting 25, Channel 2, 2417 MHz



**Plot 5.4.4.1.6.53.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 25, Channel 10, 2457 MHz



**Plot 5.4.4.1.6.54.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 25, Channel 10, 2457 MHz



1 PK  
VIEW

Ref 120 dBμV/m \* Att 0 dB SWT 2.5 ms

\* RBW 1 MHz \* VBW 3 MHz

Marker 1 [T1] 108.41 dBμV/m 2.463923077 GHz

120 Offset 103 dB

1

A

LVL

TDF

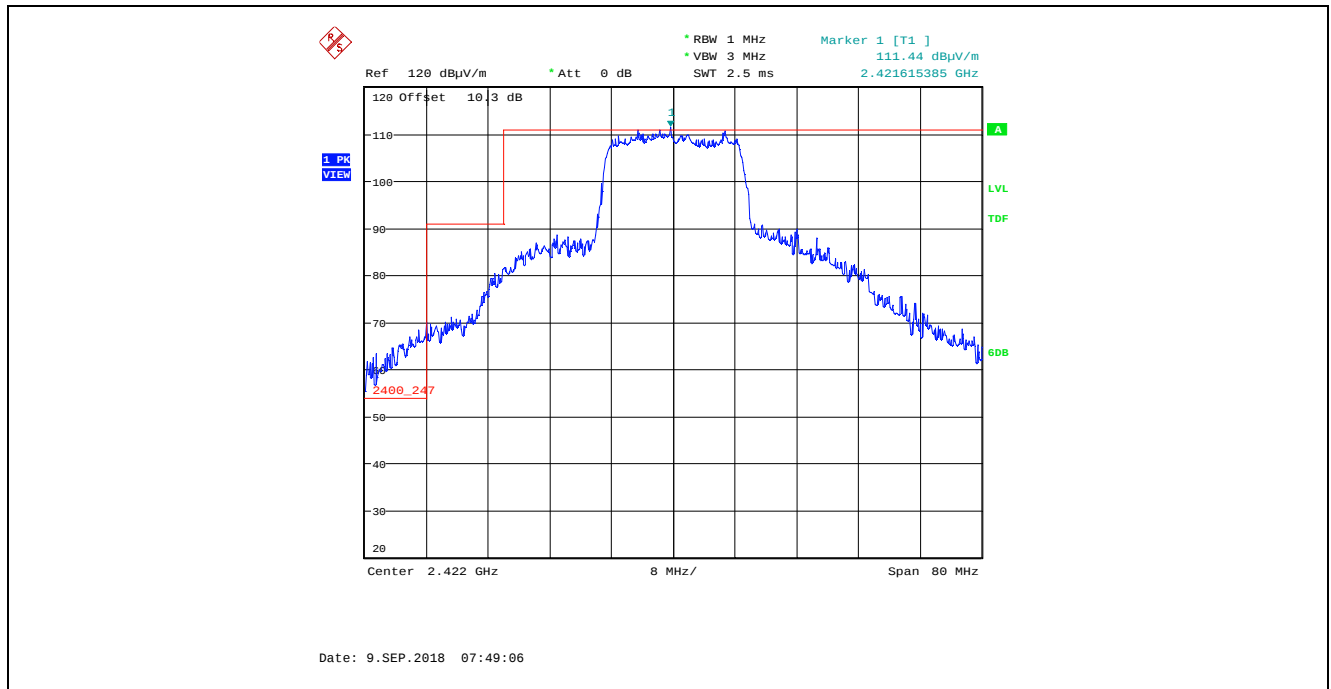
6DB

2490\_247

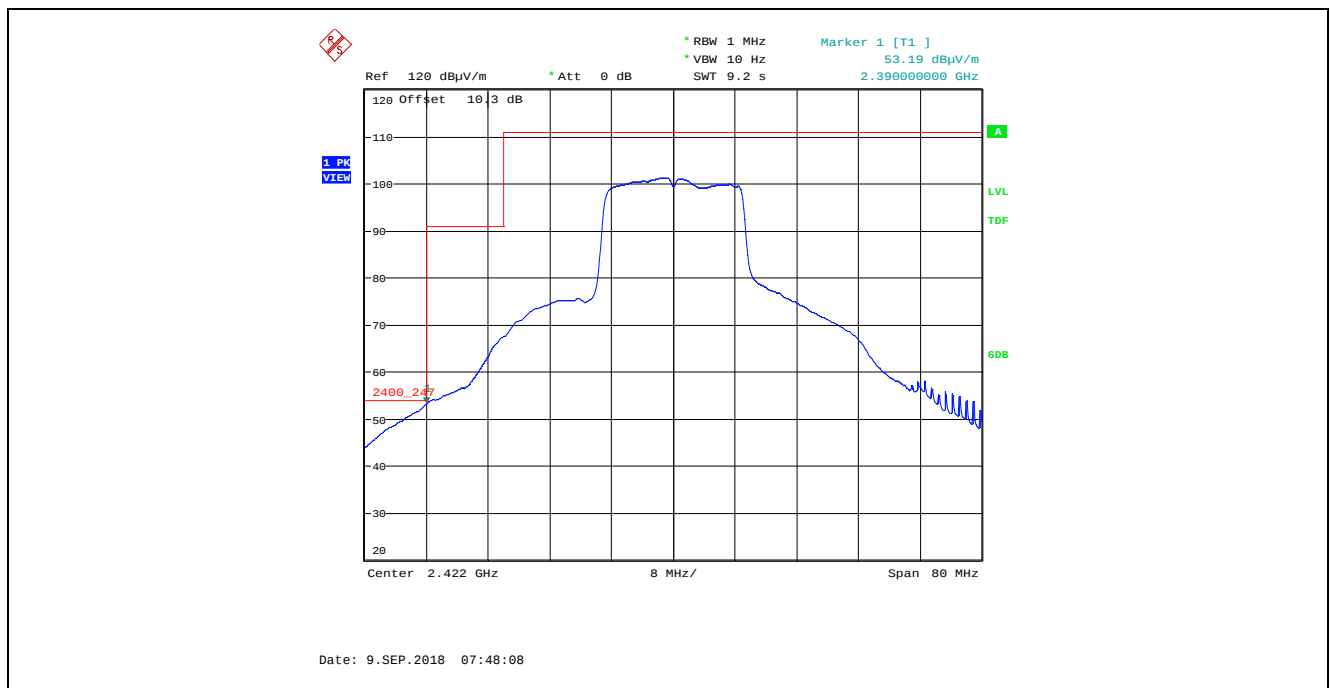
Center 2.457 GHz 6 MHz/ Span 60 MHz

Date: 11.SEP.2018 13:43:09

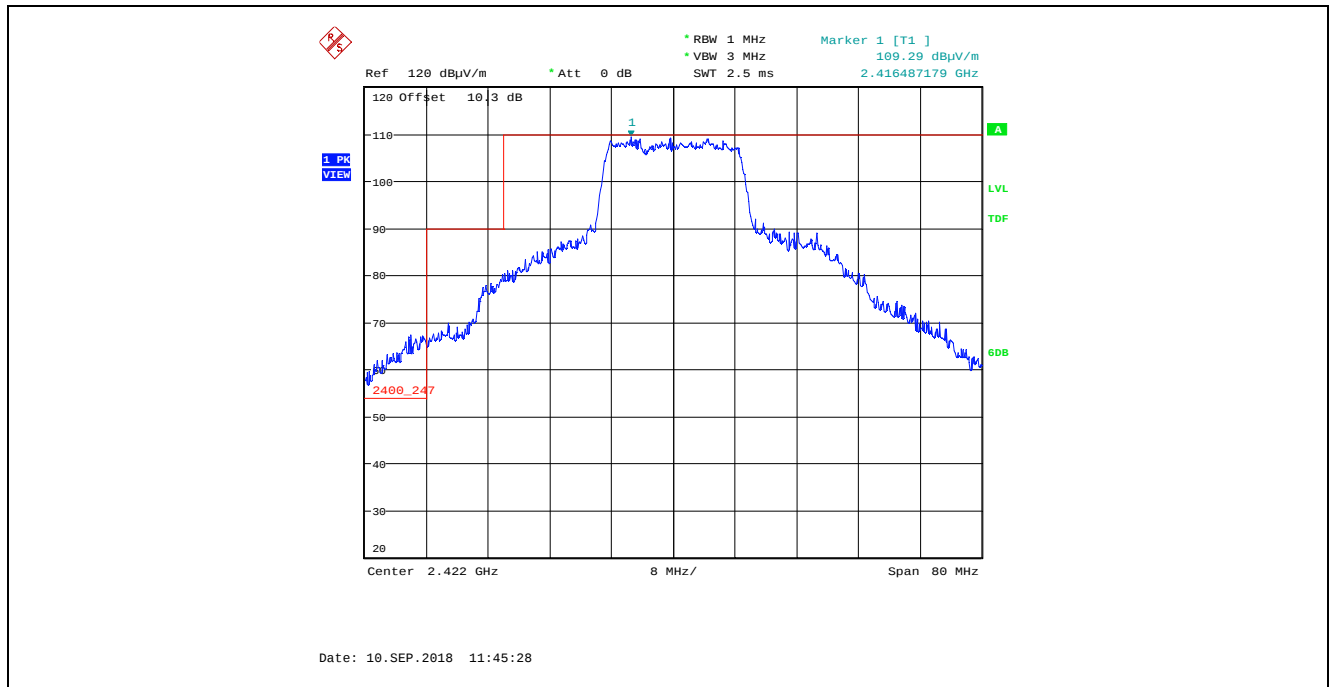
**Plot 5.4.4.1.6.57.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 27, Channel 3, 2422 MHz



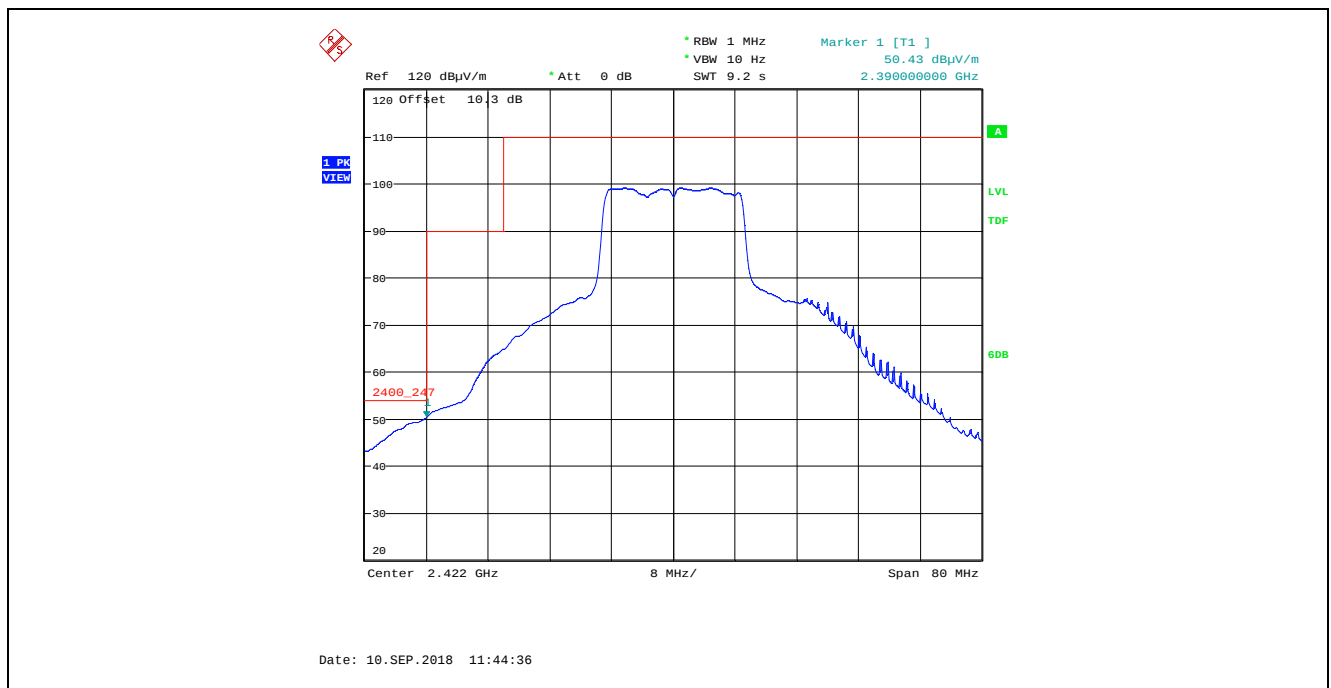
**Plot 5.4.4.1.6.58.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 27, Channel 3, 2422 MHz



**Plot 5.4.4.1.6.59.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 27, Channel 3, 2422 MHz



**Plot 5.4.4.1.6.60.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 27, Channel 3, 2422 MHz



Ref 120 dBμV/m Att 0 dB SWT 2.5 ms

RBW 1 MHz VBW 3 MHz Marker 1 [T1] 111.46 dBμV/m 2.458794872 GHz

120 Offset 10/3 dB

1 PK VIEW

1

A

LVL

TDF

6dB

2458\_247

Center 2.452 GHz 8 MHz/ Span 80 MHz

Date: 9.SEP.2018 10:42:03

Ref 120 dBμV/m Att 0 dB RBW 1 MHz Marker 1 [T1] 51.73 dBμV/m  
 VBW 10 Hz SWT 9.2 s 2.48350000 GHz

1 PK VIEW

120 Offset 10 3 dB

-110 LVL TDF

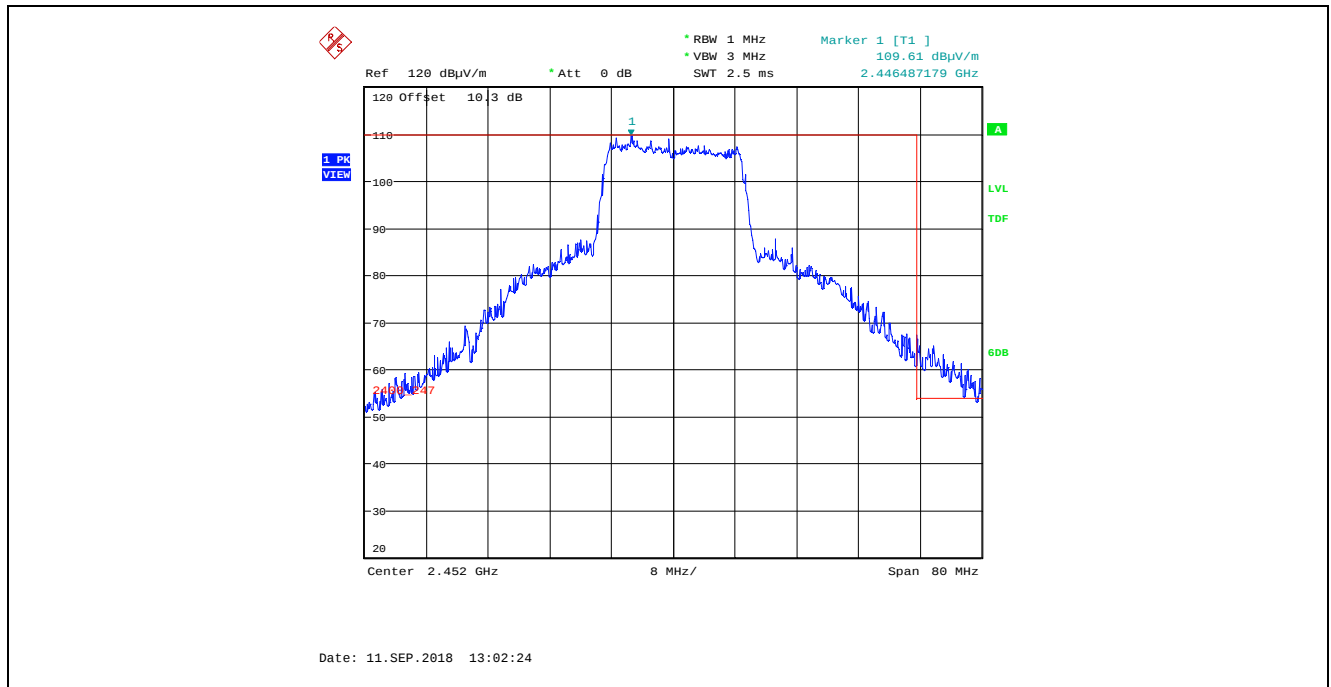
60dB

2400\_211

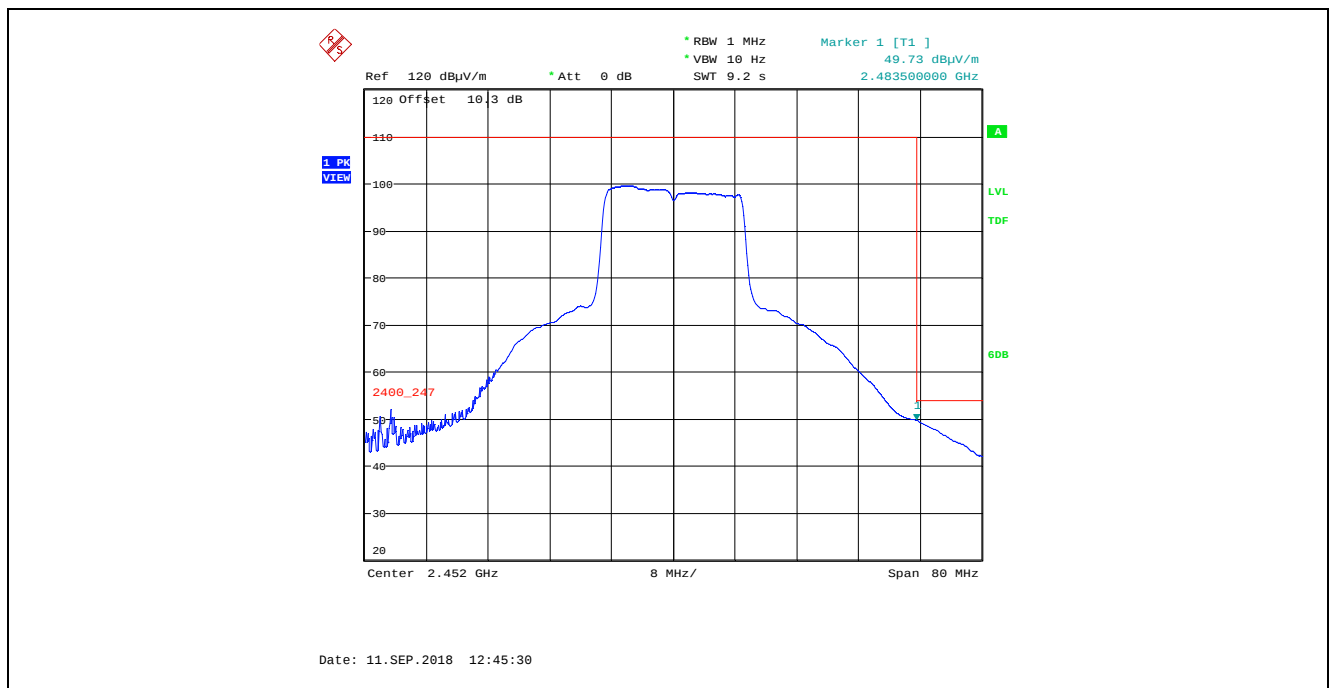
Center 2.452 GHz 8 MHz/ Span 80 MHz

Date: 9.SEP.2018 10:43:02

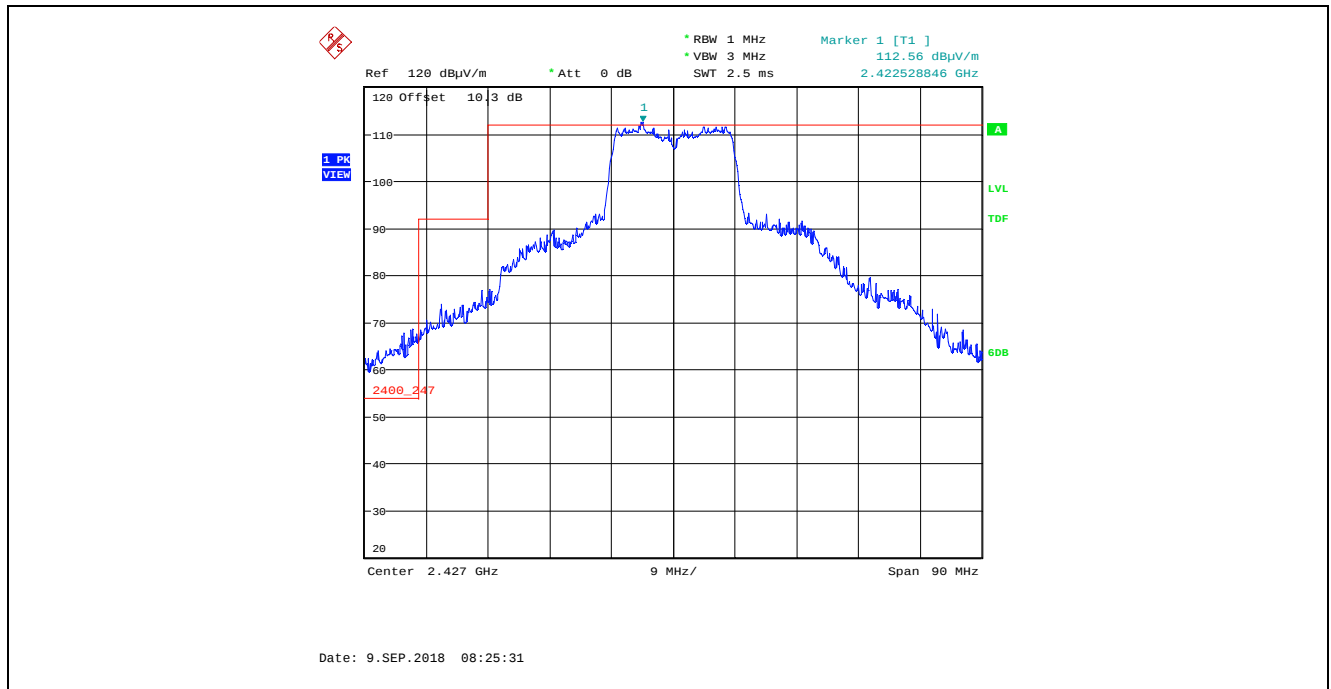
**Plot 5.4.4.1.6.63.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 26, Channel 9, 2452 MHz



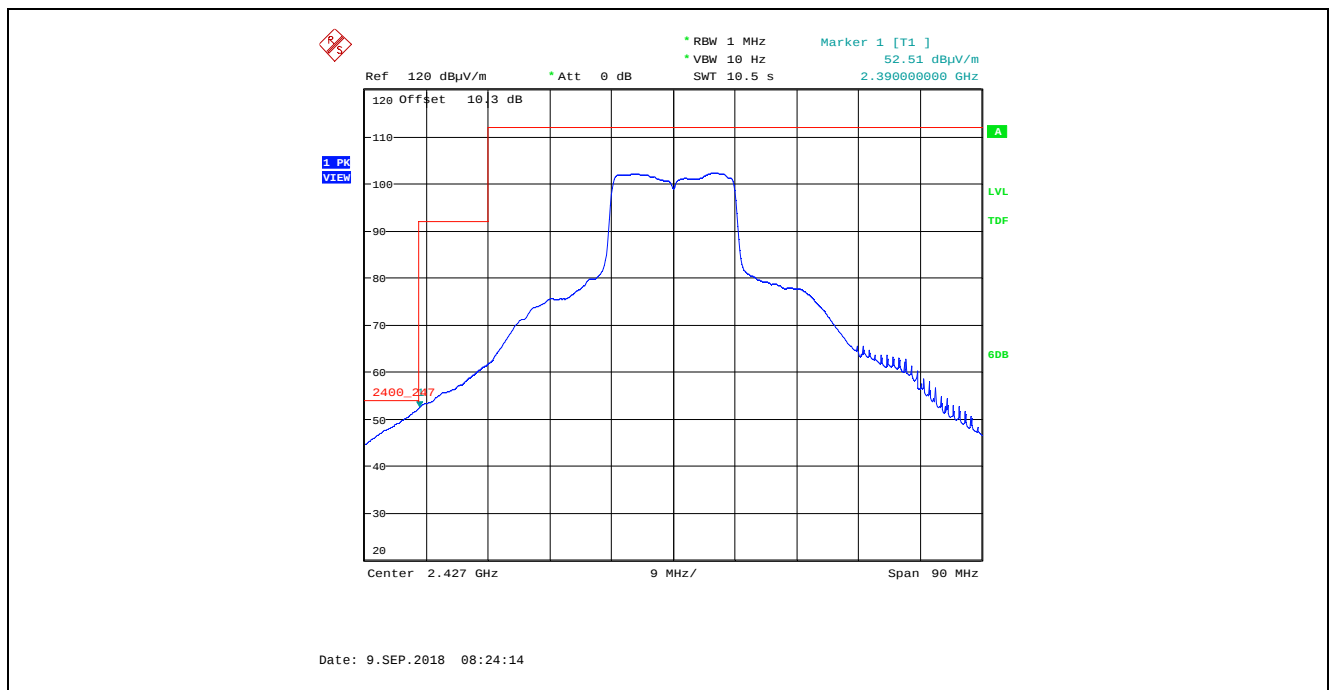
**Plot 5.4.4.1.6.64.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 26, Channel 9, 2452 MHz



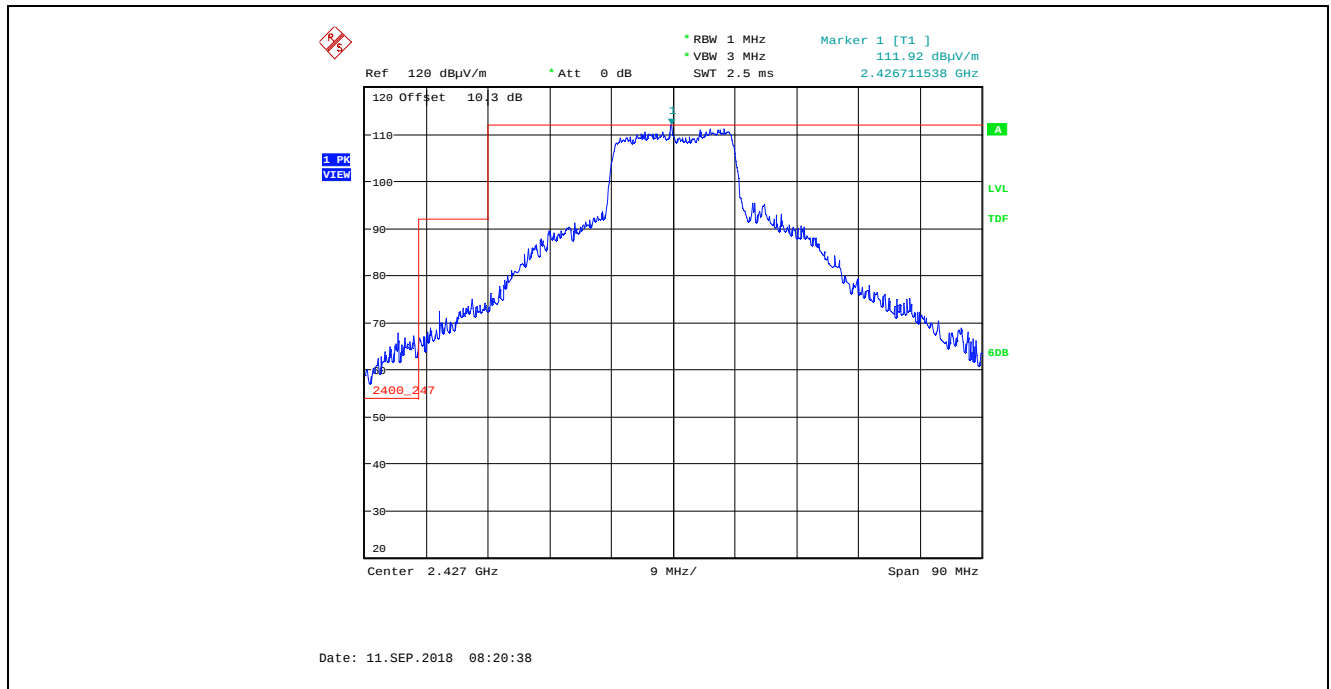
**Plot 5.4.4.1.6.65.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 29, Channel 4, 2427 MHz



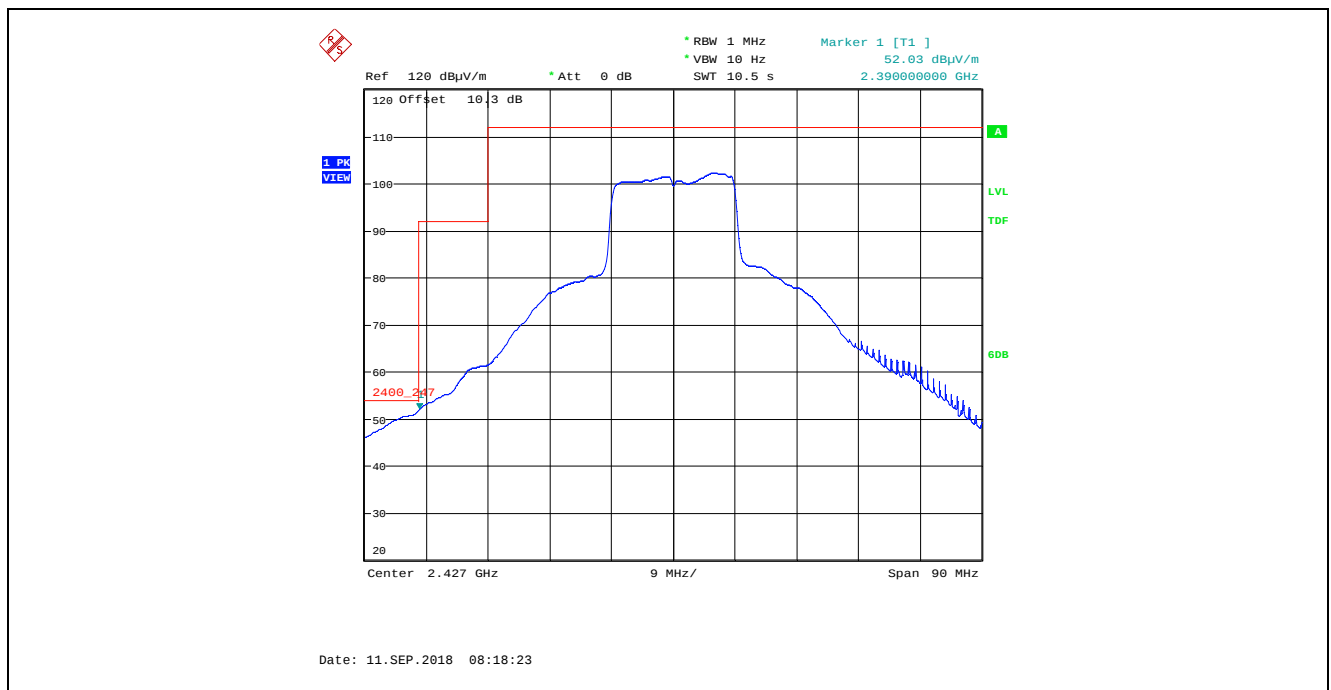
**Plot 5.4.4.1.6.66.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 29, Channel 4, 2427 MHz



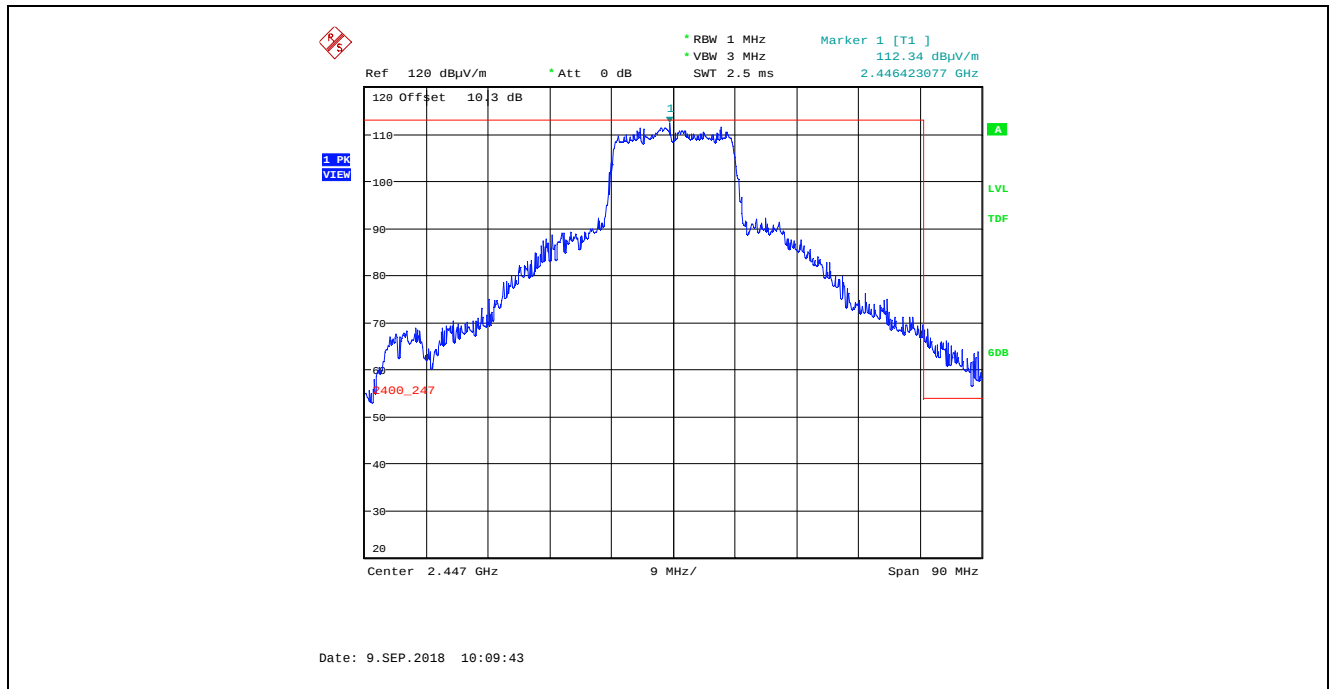
**Plot 5.4.4.1.6.67.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak MCS2, Power Setting 29, Channel 4, 2427 MHz



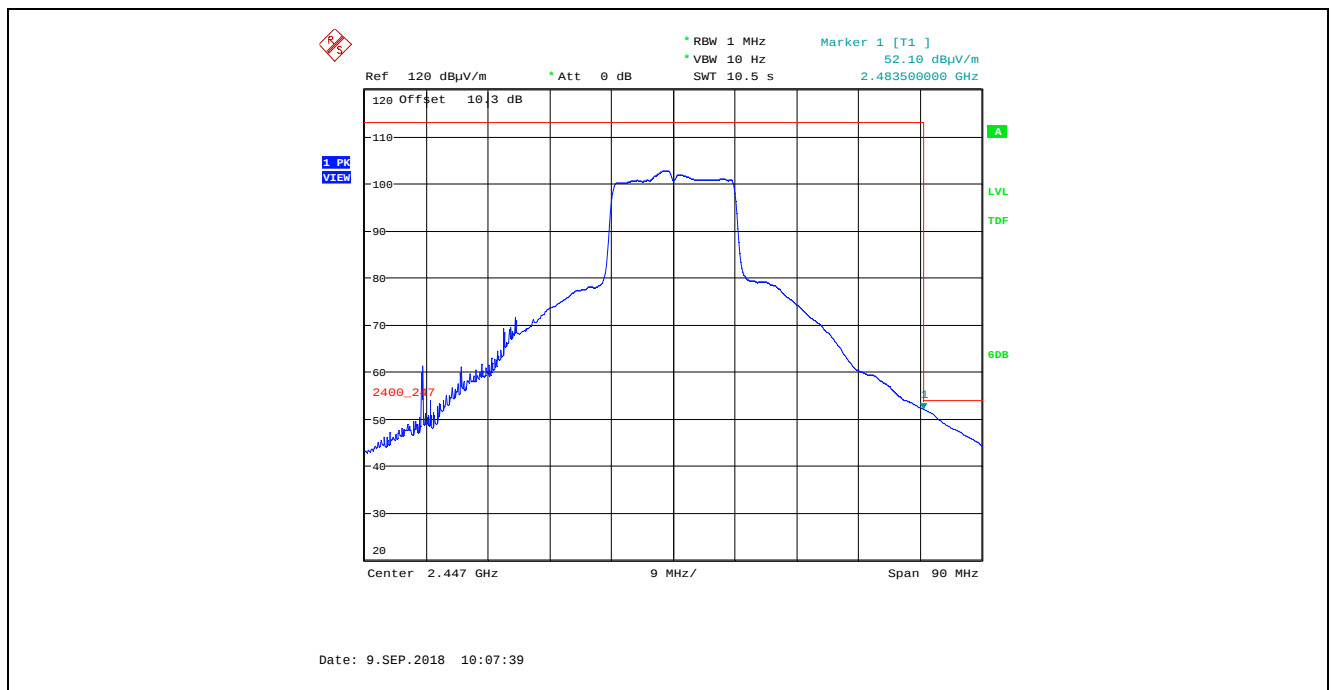
**Plot 5.4.4.1.6.68.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average MCS2, Power Setting 29, Channel 4, 2427 MHz



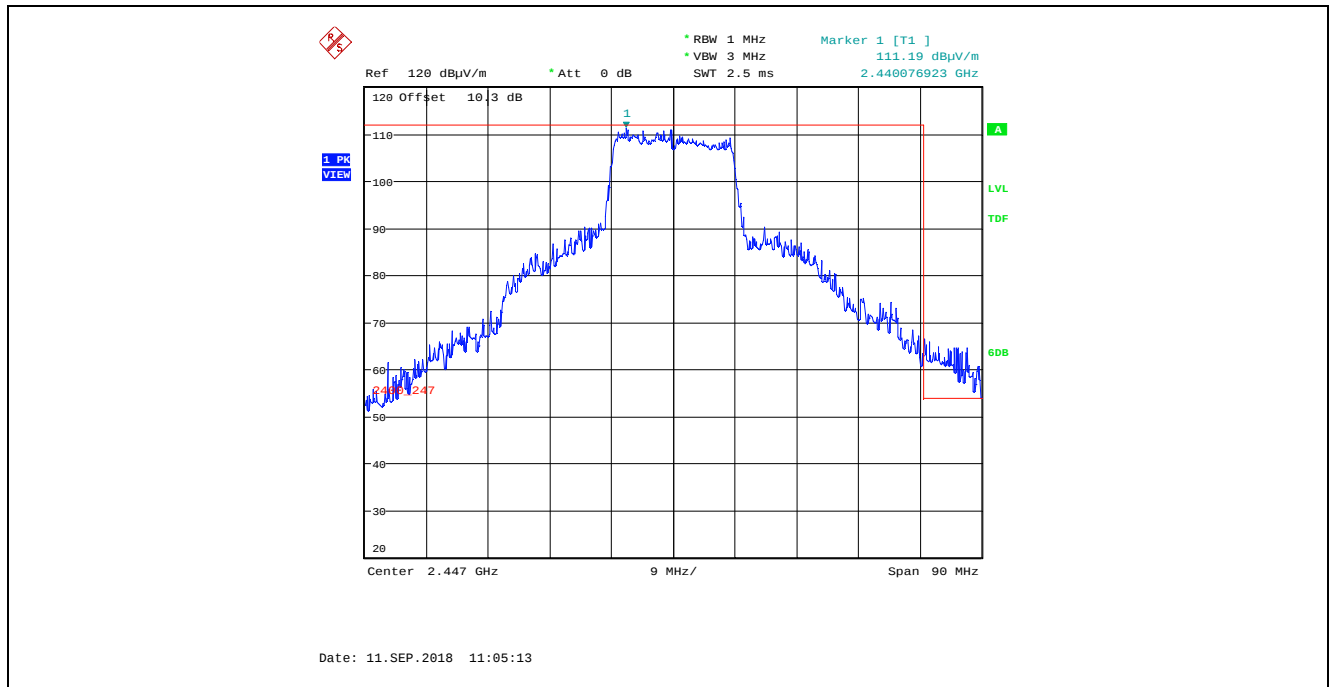
**Plot 5.4.4.1.6.69.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 28, Channel 8, 2447 MHz



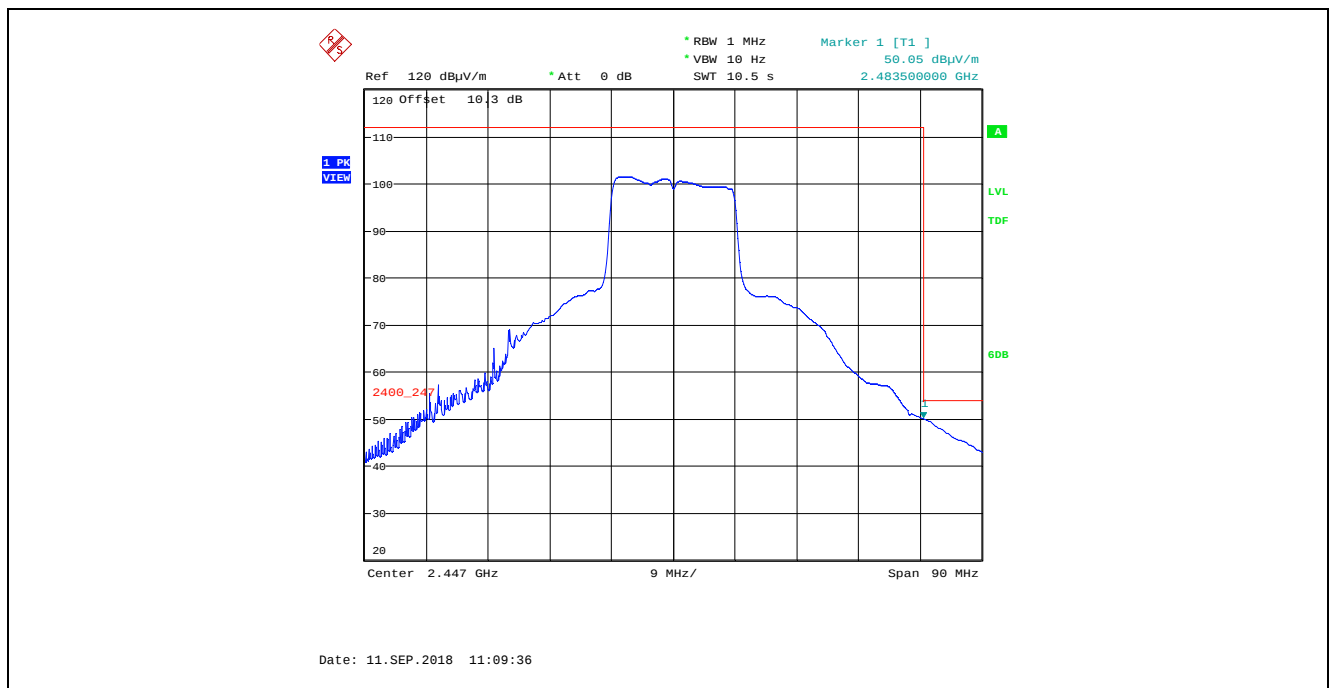
**Plot 5.4.4.1.6.70.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 28, Channel 8, 2447 MHz



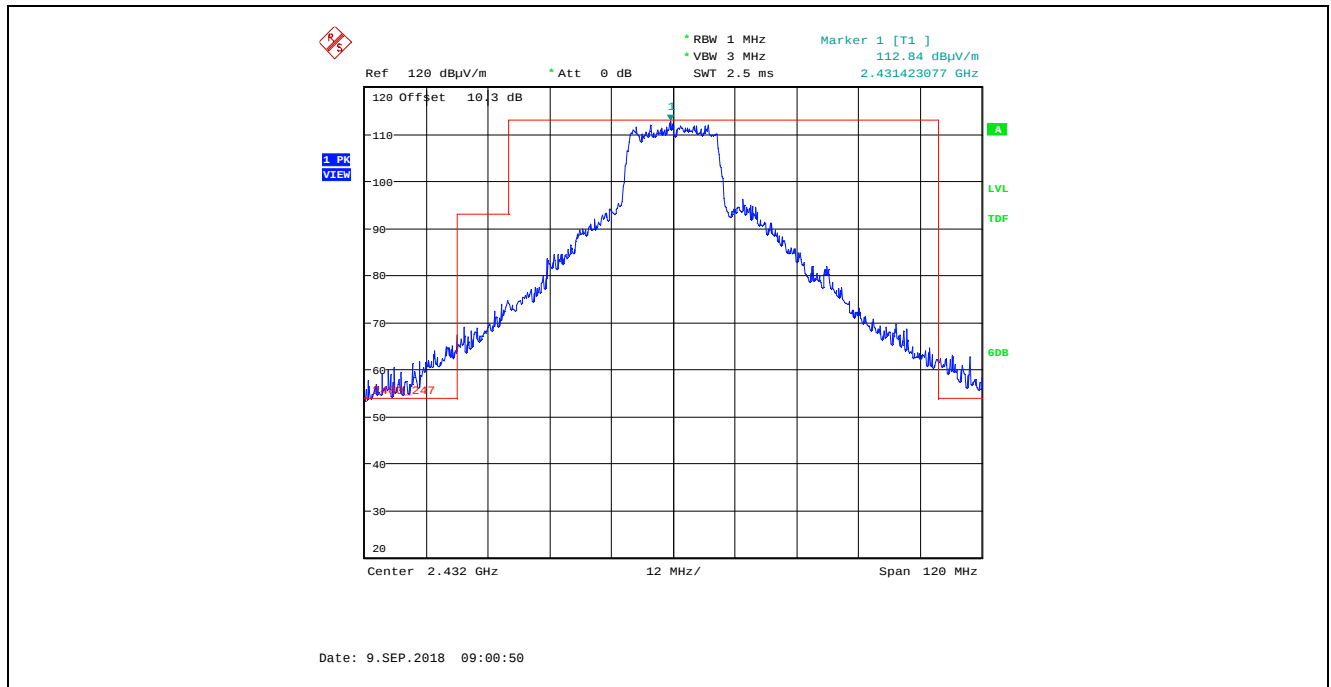
**Plot 5.4.4.1.6.71.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 28, Channel 8, 2447 MHz



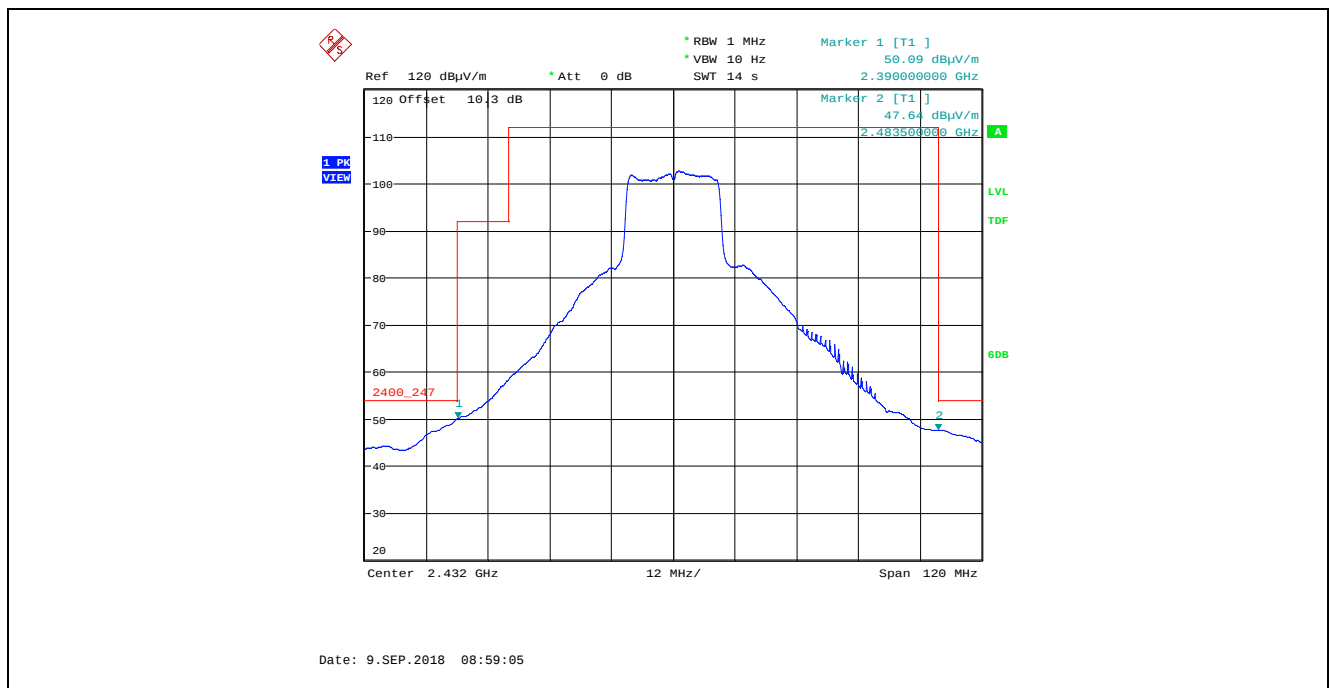
**Plot 5.4.4.1.6.72.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 28, Channel 8, 2447 MHz



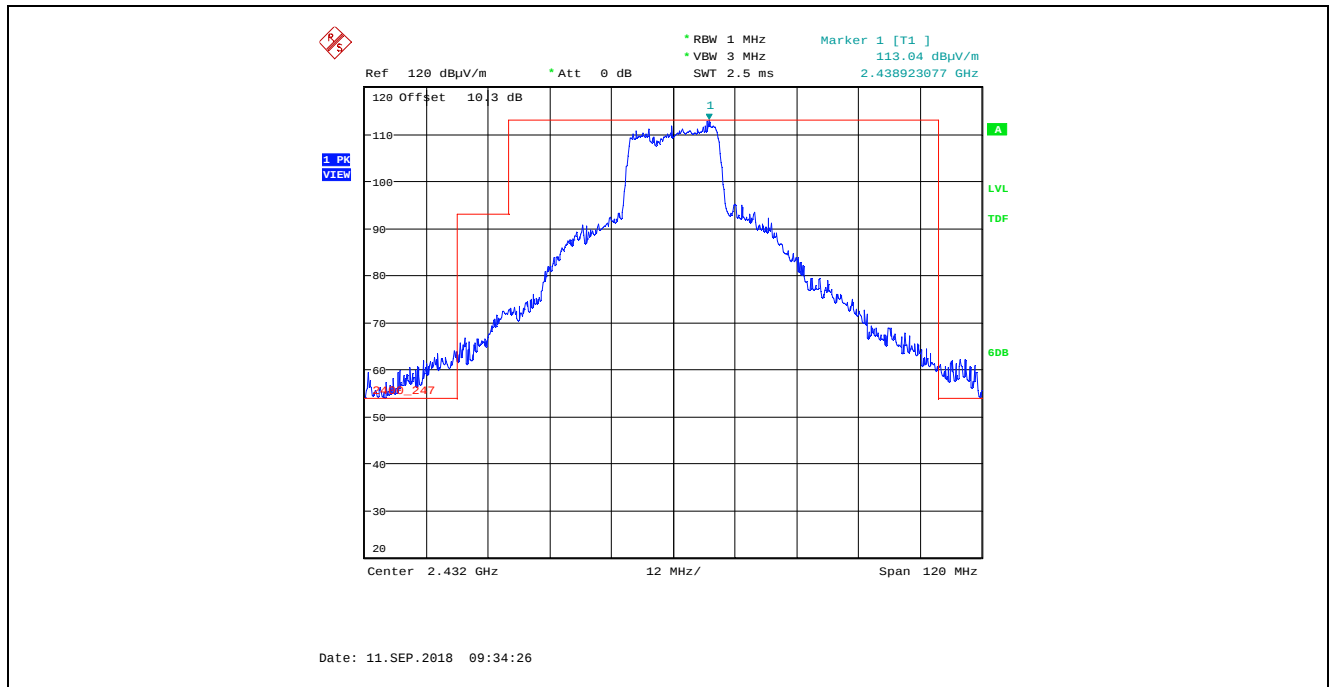
**Plot 5.4.4.1.6.73.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 30, Channel 5, 2432 MHz



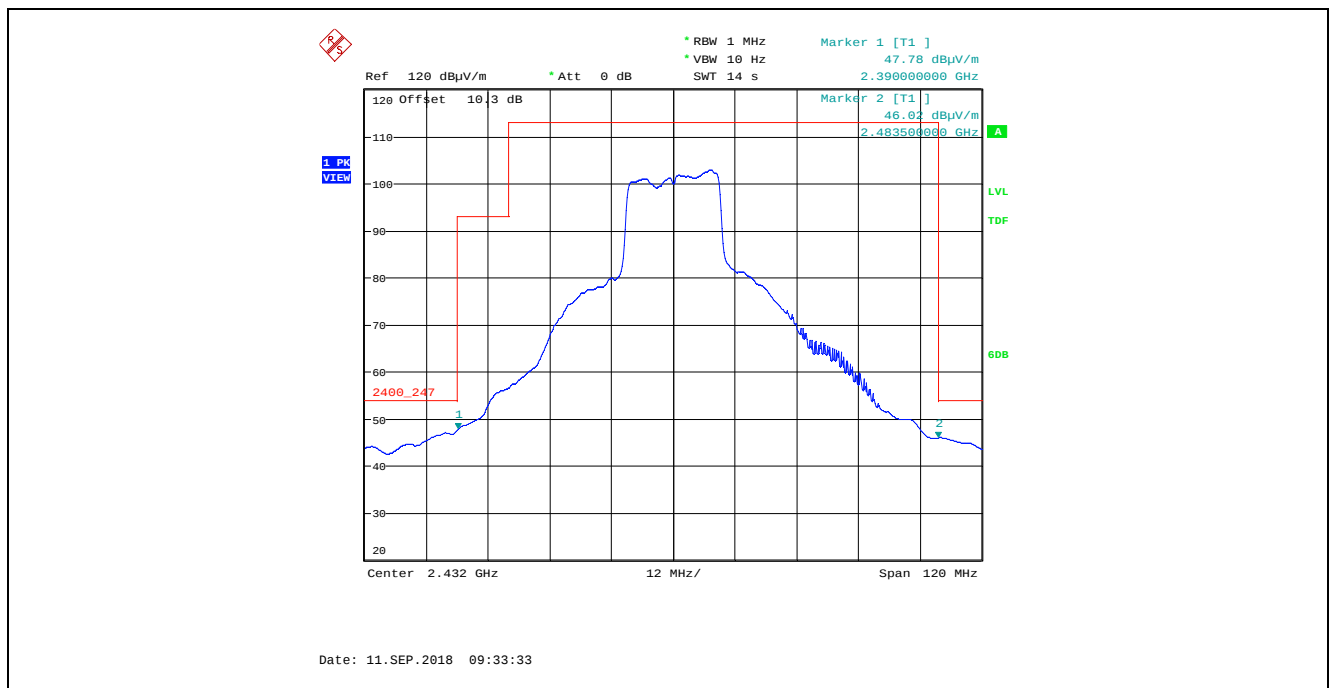
**Plot 5.4.4.1.6.74.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 30, Channel 5, 2432 MHz



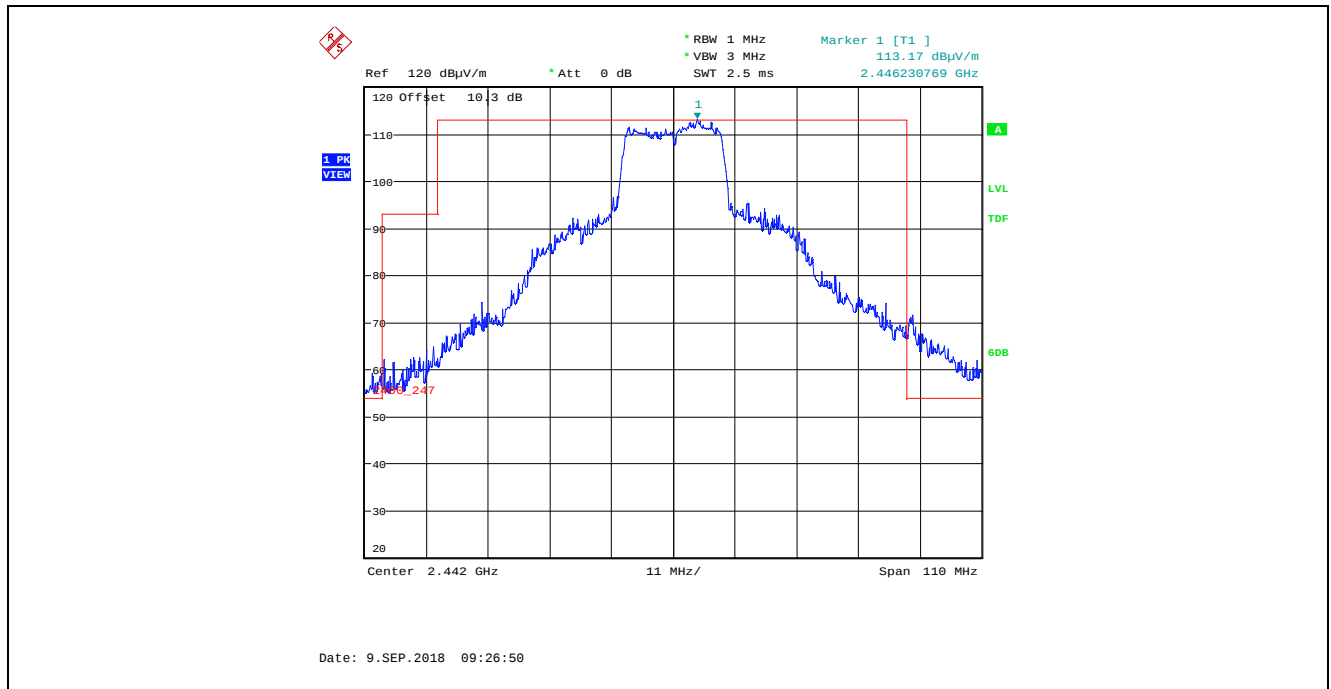
**Plot 5.4.4.1.6.75.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 30, Channel 5, 2432 MHz



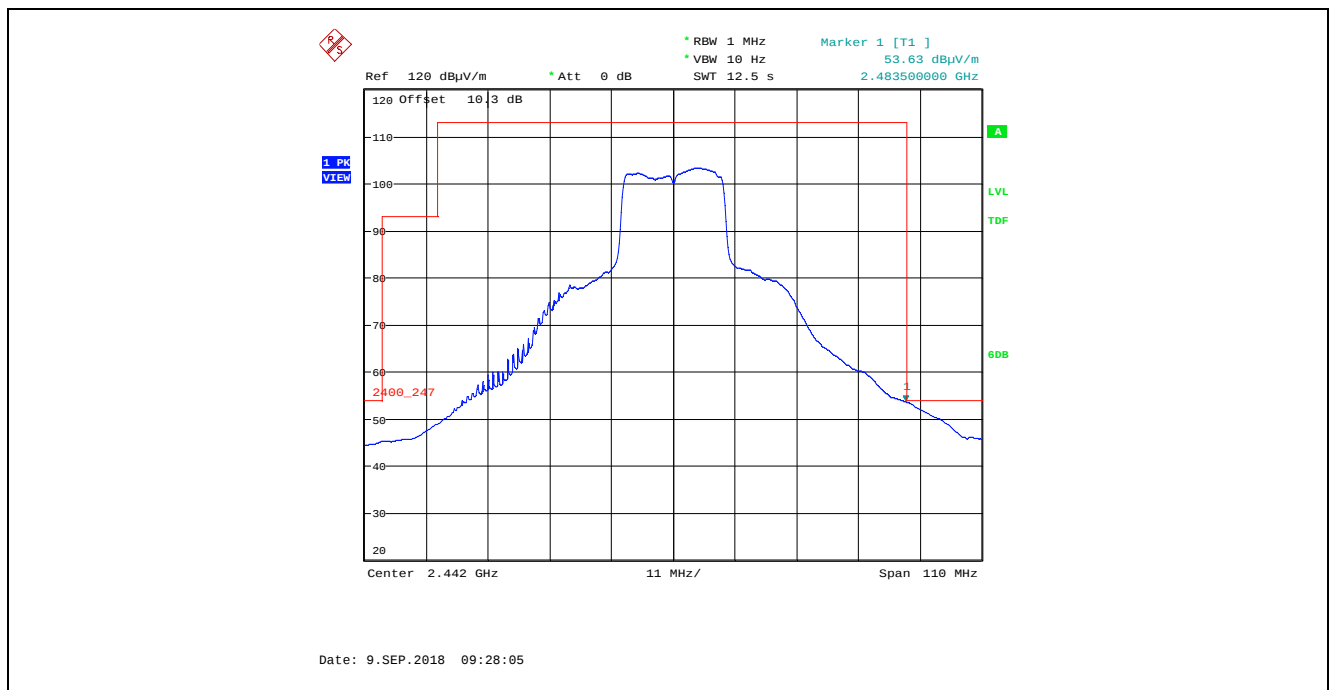
**Plot 5.4.4.1.6.76.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 30, Channel 5, 2432 MHz



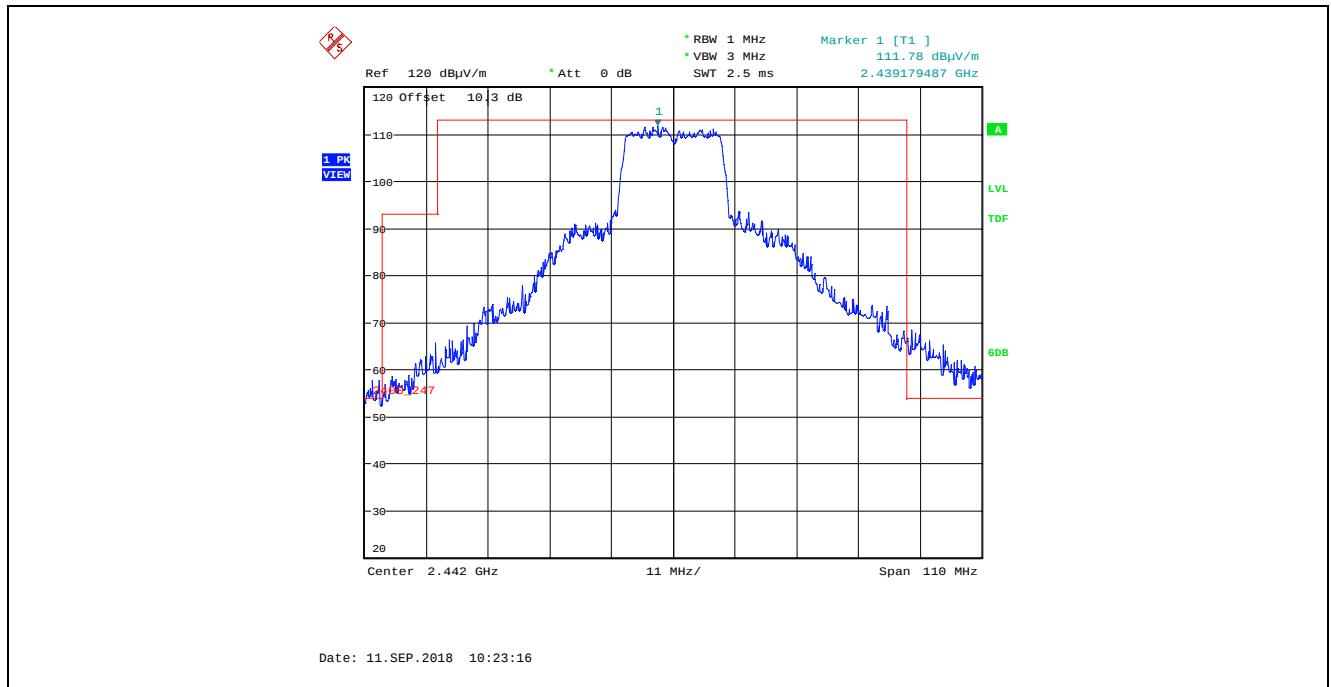
**Plot 5.4.4.1.6.77.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 30, Channel 7, 2442 MHz



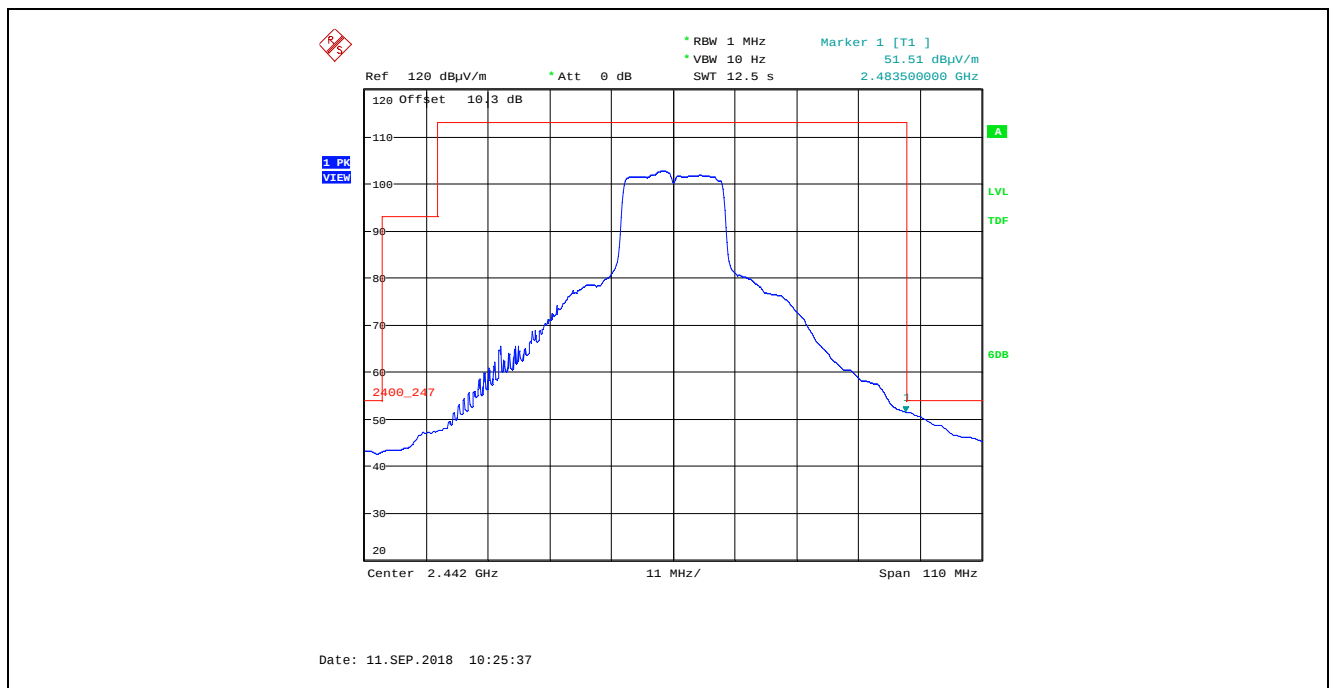
**Plot 5.4.4.1.6.78.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 30, Channel 7, 2442 MHz



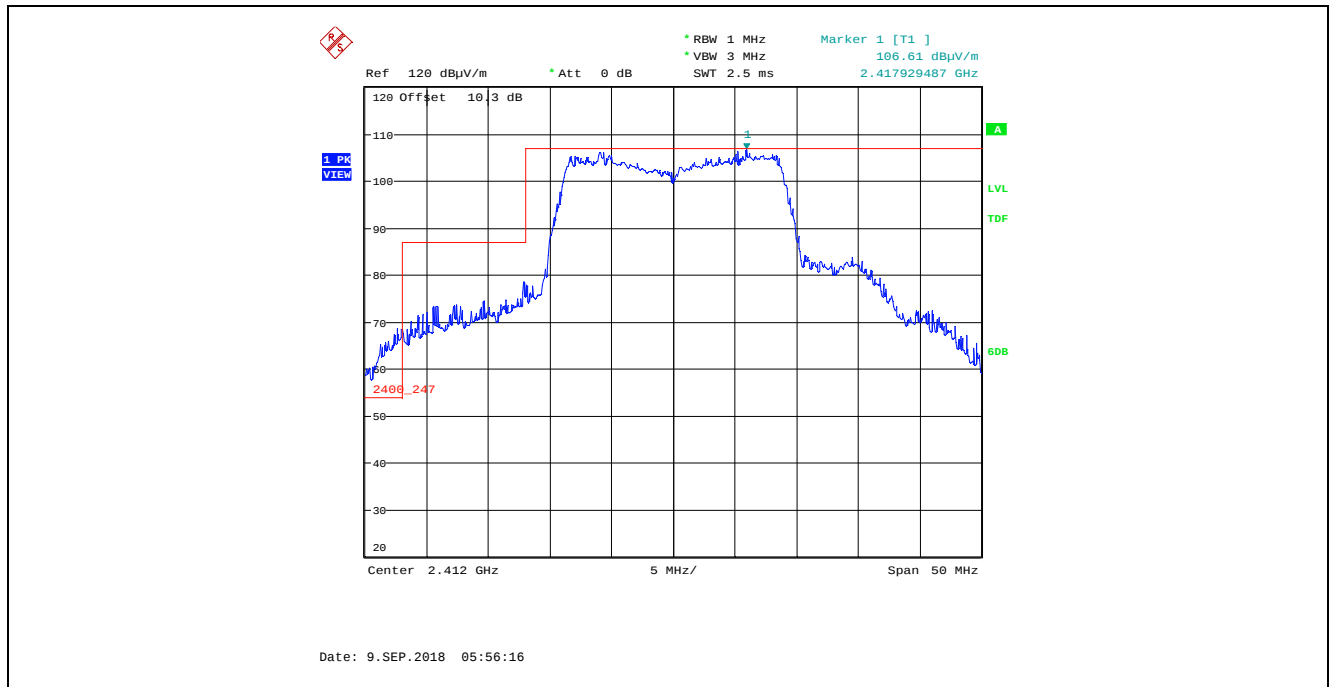
**Plot 5.4.4.1.6.79.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 30, Channel 7, 2442 MHz



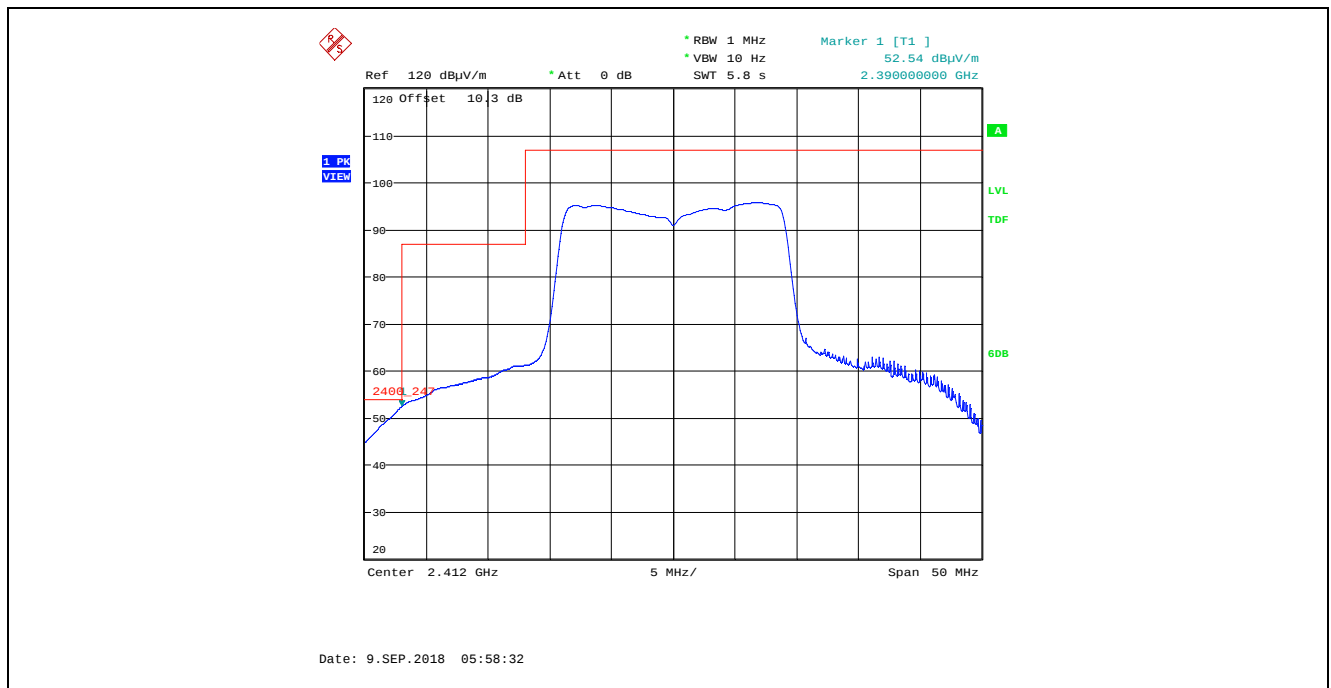
**Plot 5.4.4.1.6.80.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 30, Channel 7, 2442 MHz



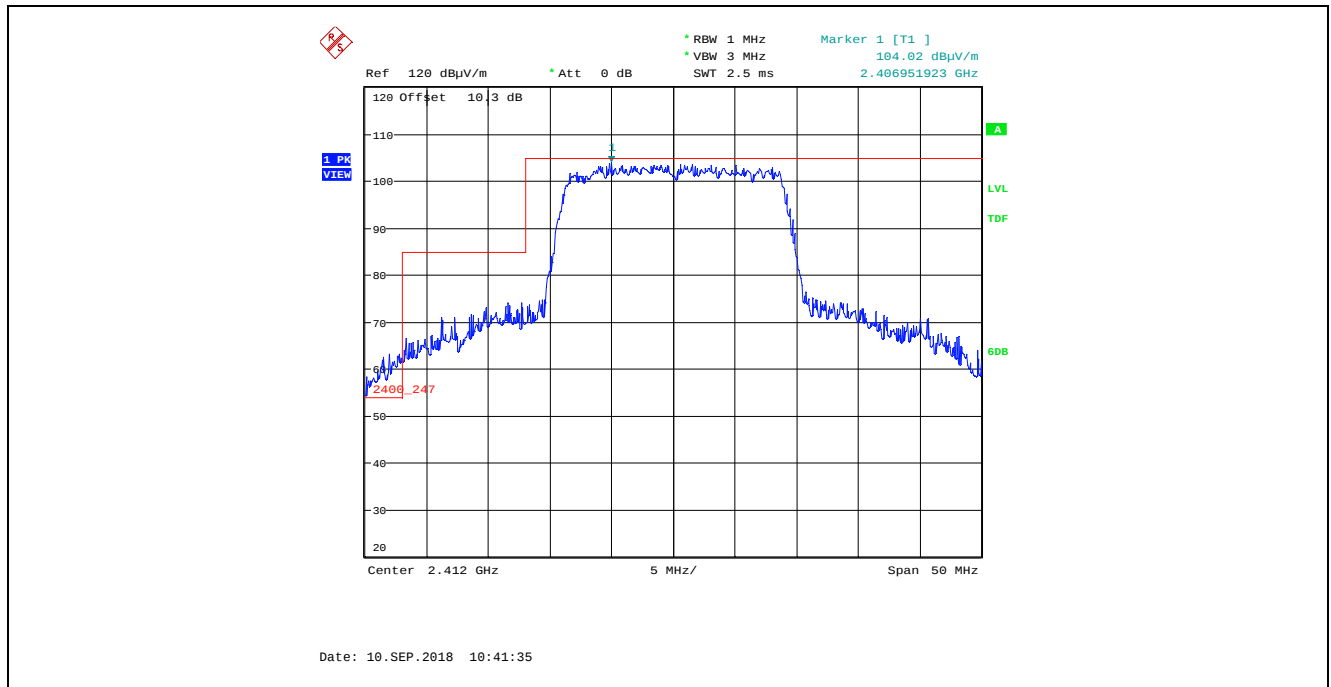
**Plot 5.4.4.1.6.81.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 19, Channel 1, 2412 MHz



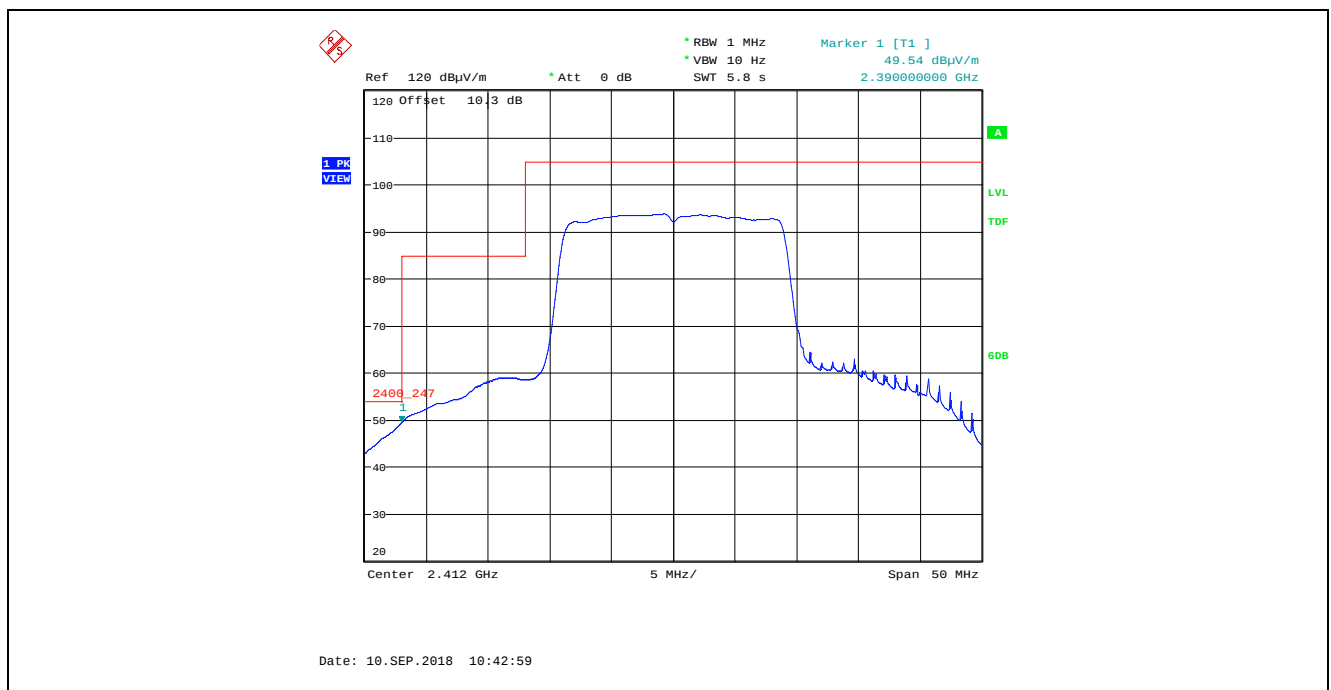
**Plot 5.4.4.1.6.82.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 19, Channel 1, 2412 MHz



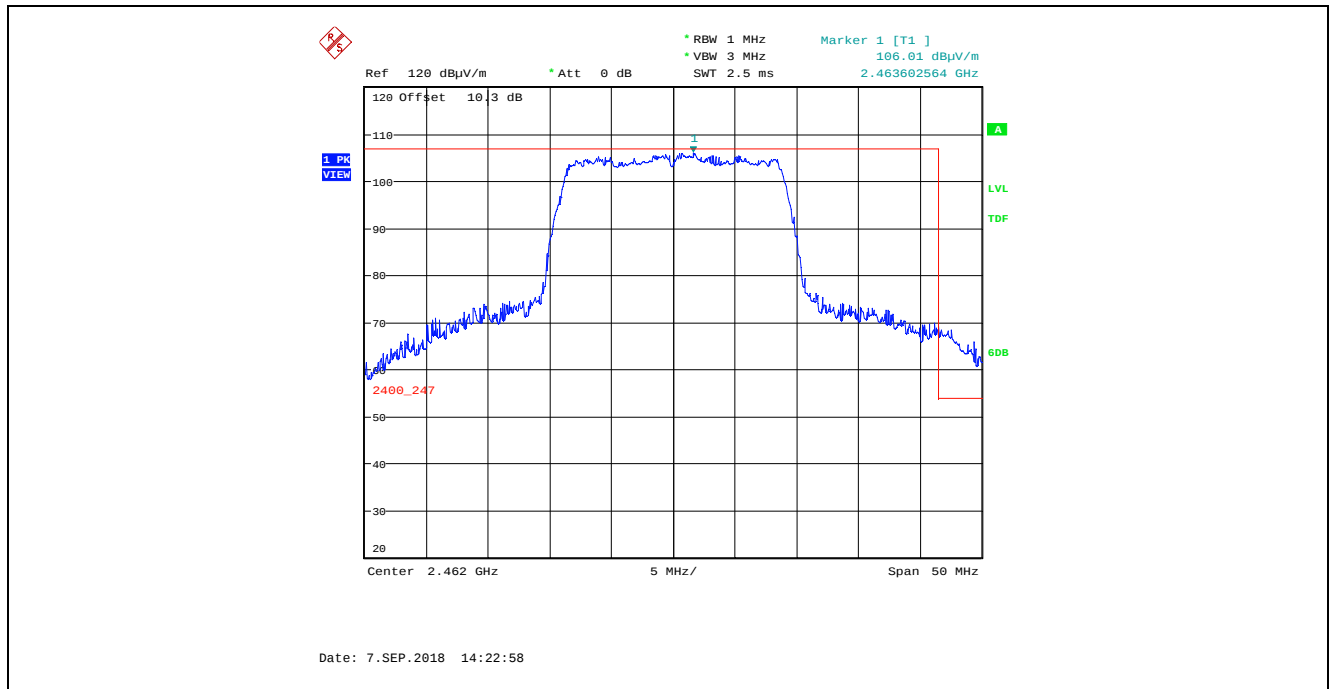
**Plot 5.4.4.1.6.83.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 19, Channel 1, 2412 MHz



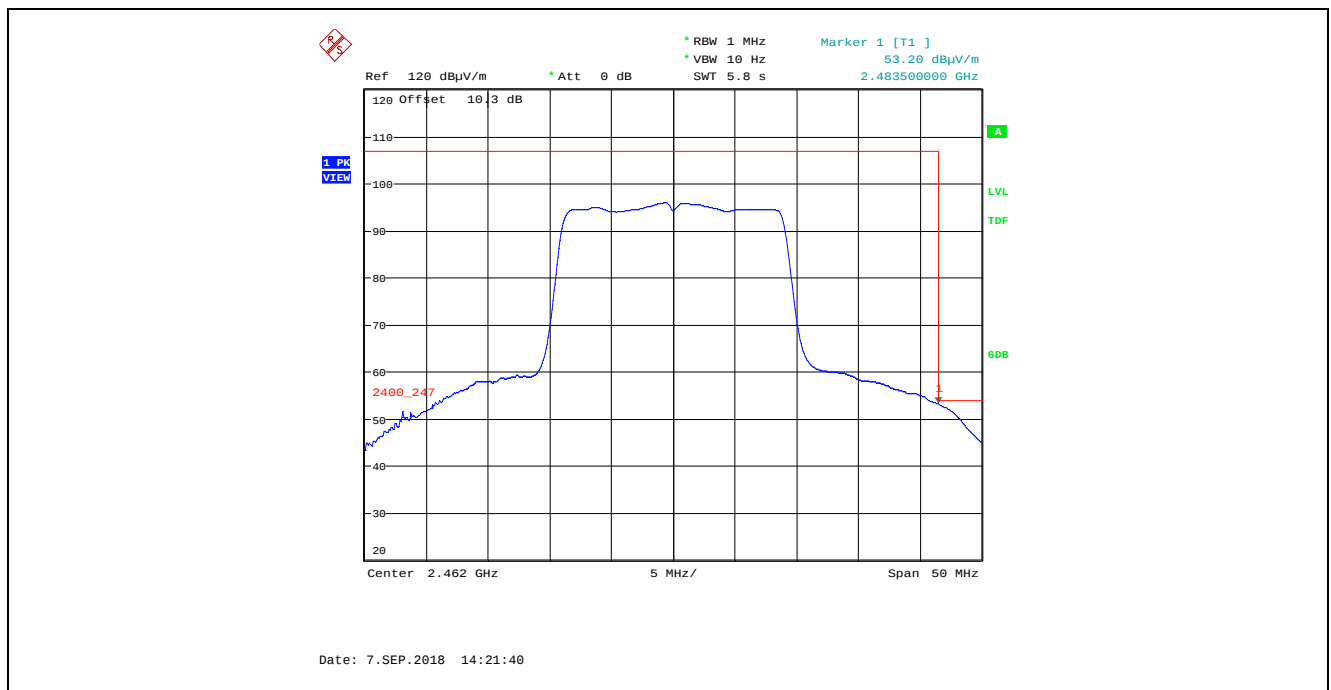
**Plot 5.4.4.1.6.84.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 19, Channel 1, 2412 MHz



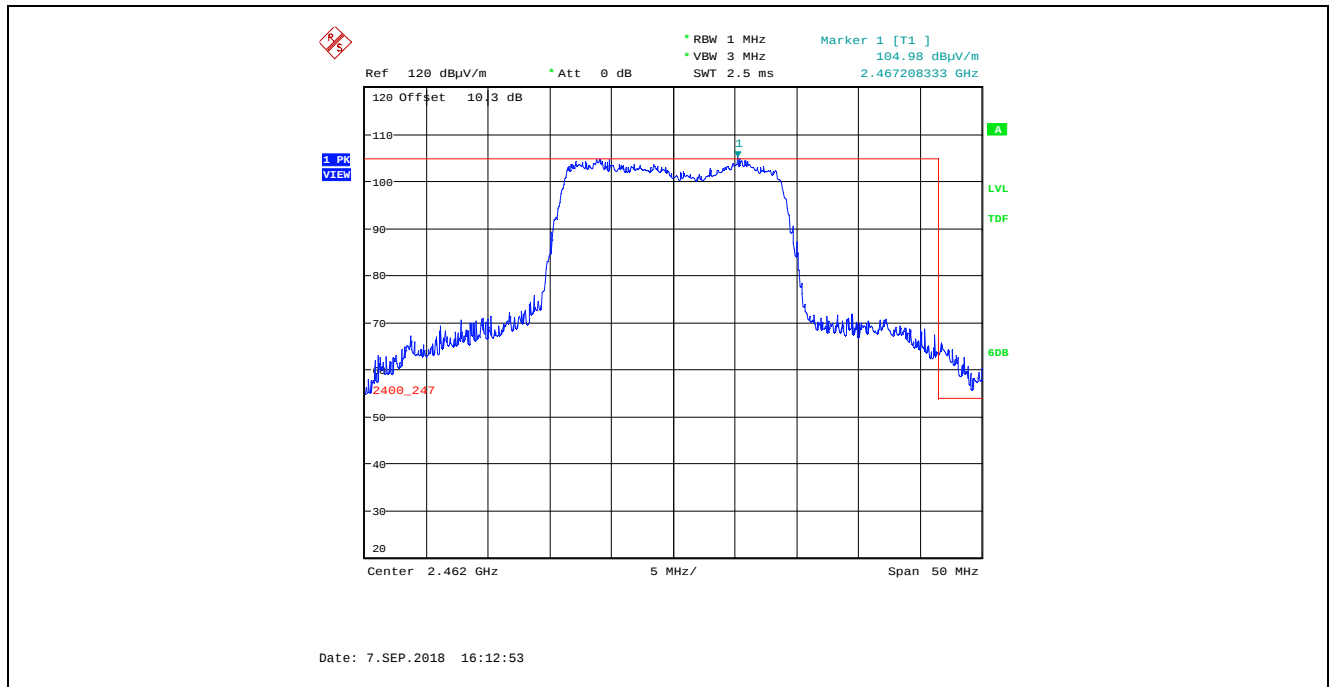
**Plot 5.4.4.1.6.85.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 20, Channel 11, 2462 MHz



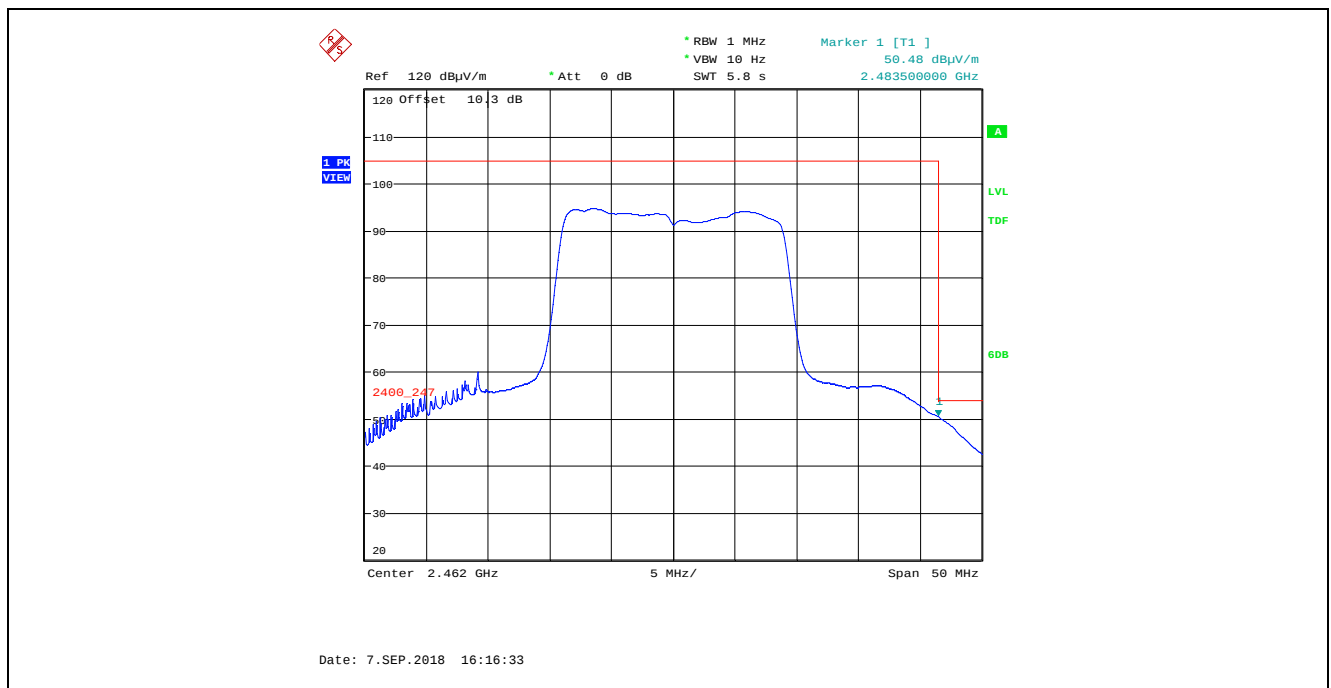
**Plot 5.4.4.1.6.86.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 20, Channel 11, 2462 MHz



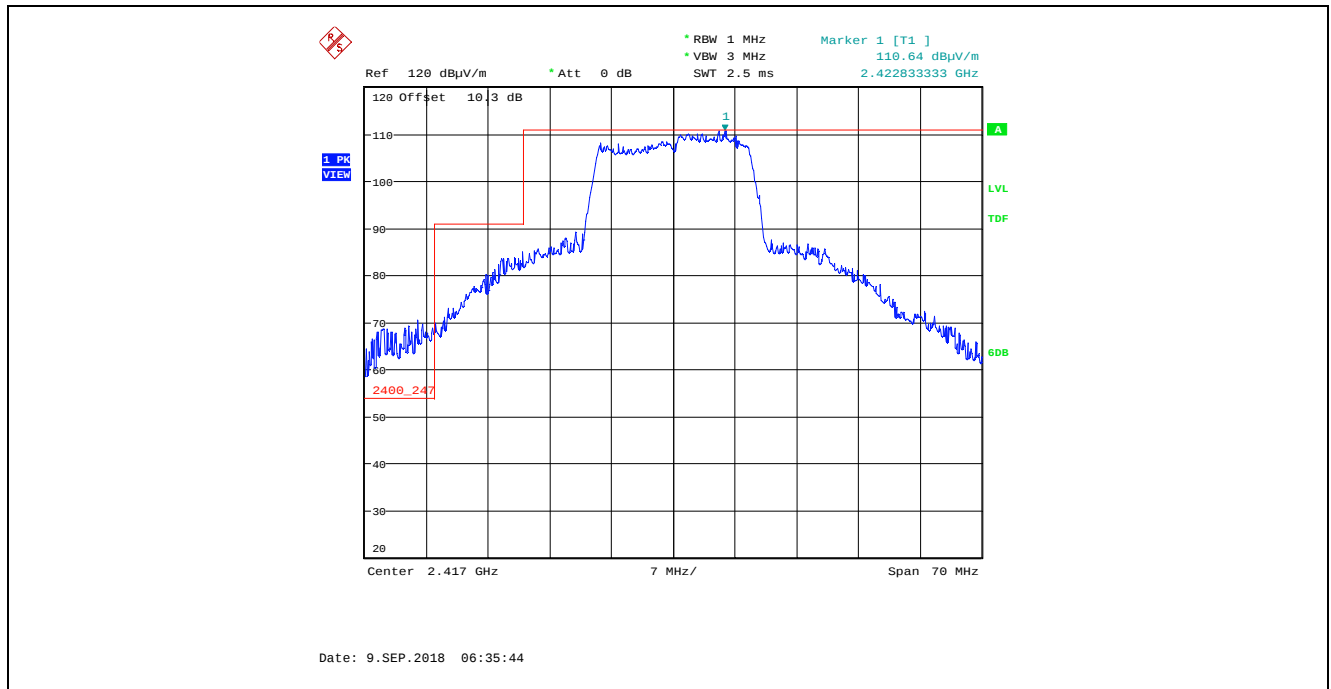
**Plot 5.4.4.1.6.87.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
MCS4, Power Setting 20, Channel 11, 2462 MHz



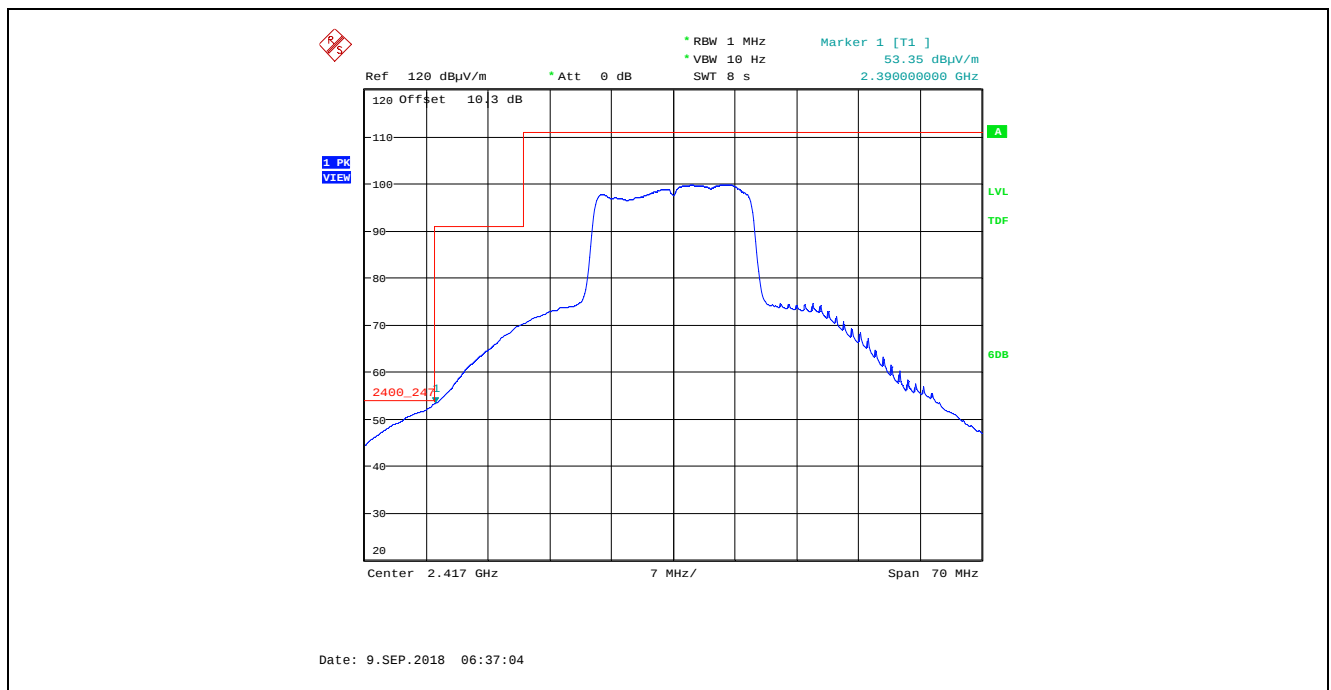
**Plot 5.4.4.1.6.88.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
MCS4, Power Setting 20, Channel 11, 2462 MHz



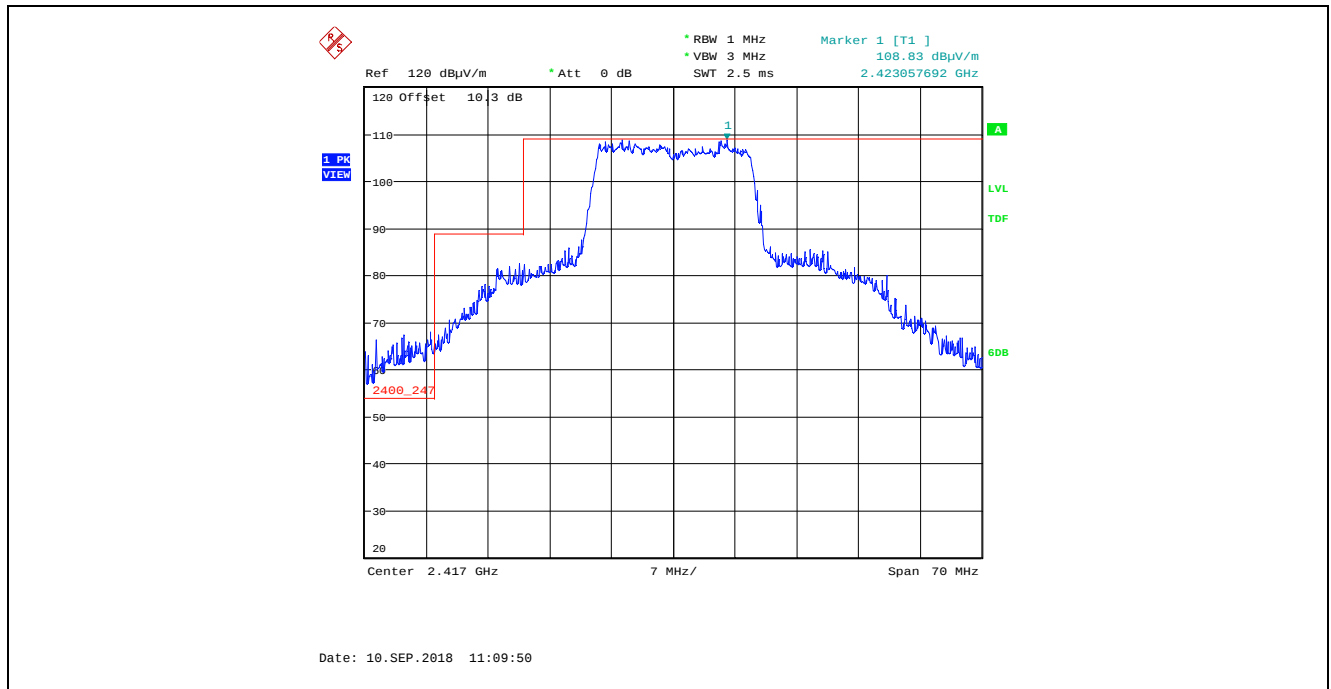
**Plot 5.4.4.1.6.89.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 25, Channel 2, 2417 MHz



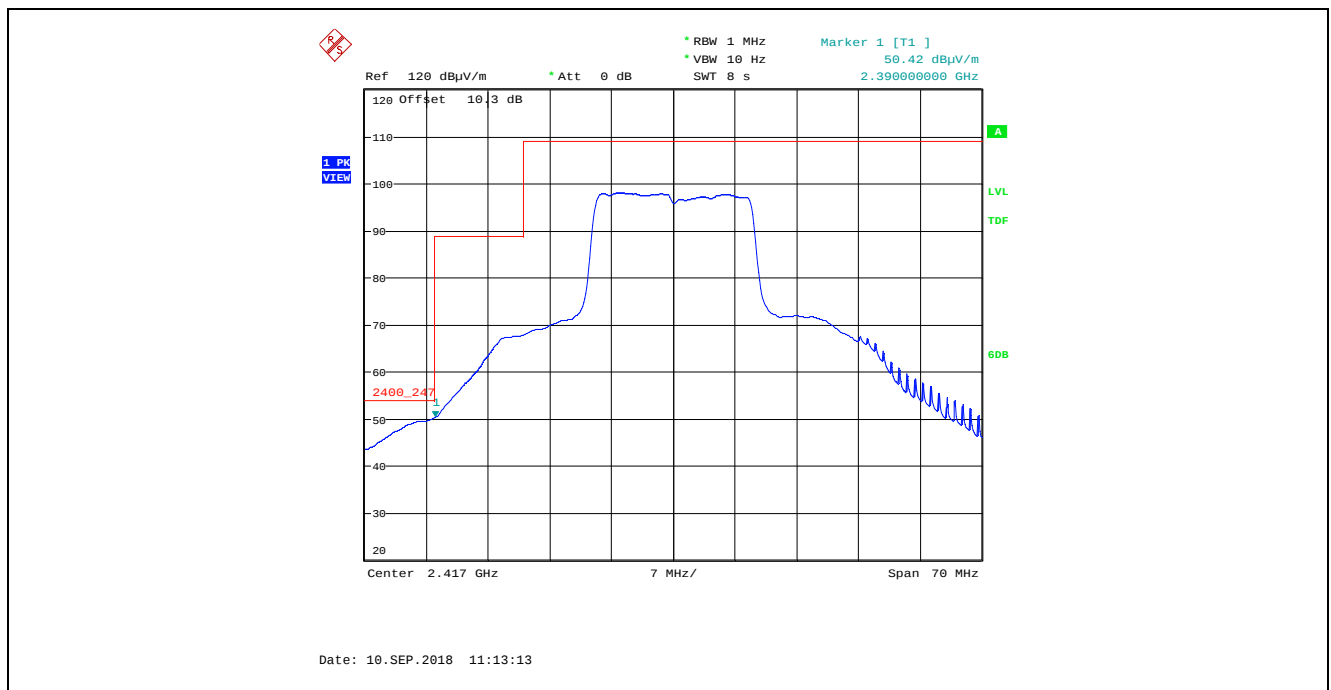
**Plot 5.4.4.1.6.90.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 25, Channel 2, 2417 MHz



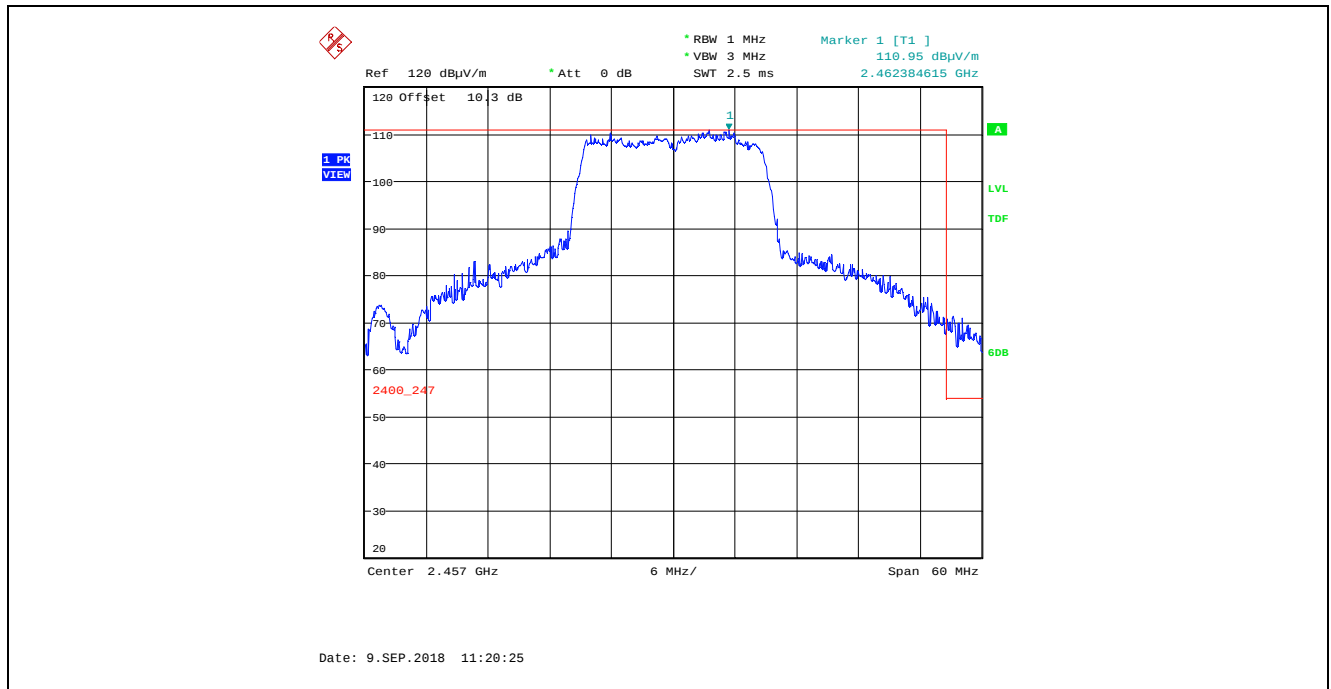
**Plot 5.4.4.1.6.91.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 25, Channel 2, 2417 MHz



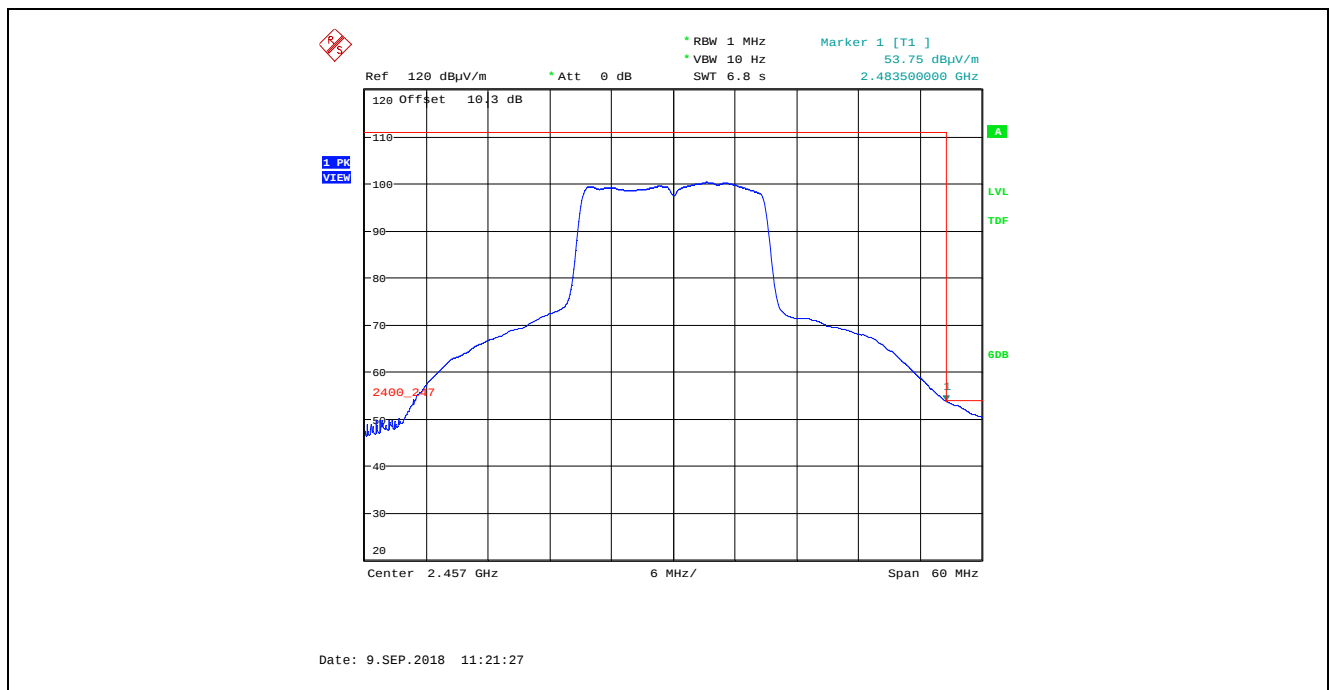
**Plot 5.4.4.1.6.92.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 25, Channel 2, 2417 MHz



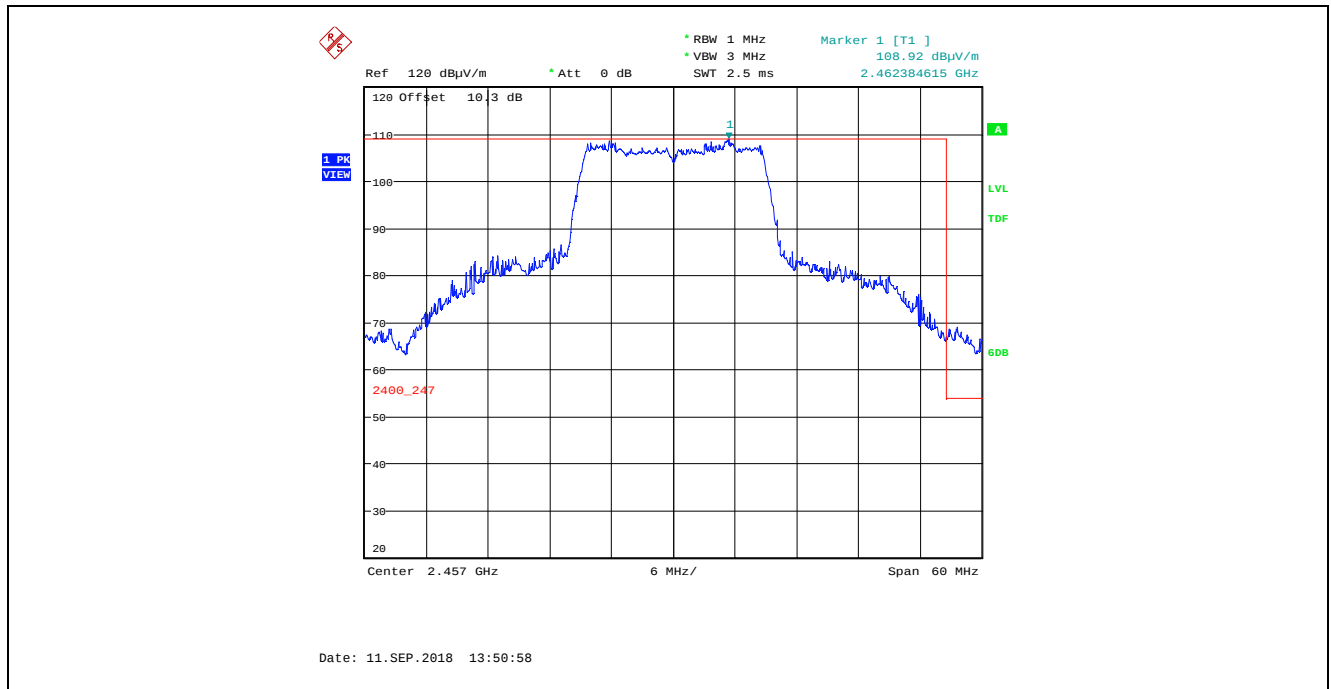
**Plot 5.4.4.1.6.93.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 25, Channel 10, 2457 MHz



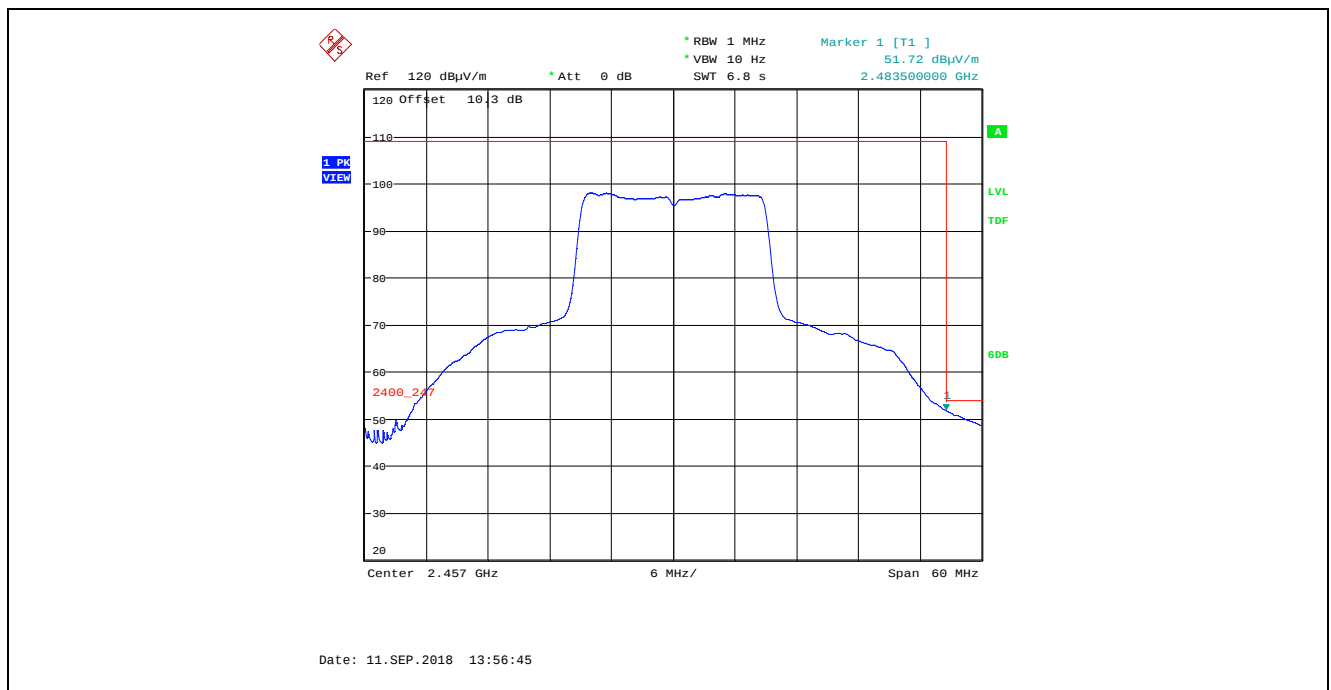
**Plot 5.4.4.1.6.94.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 25, Channel 10, 2457 MHz



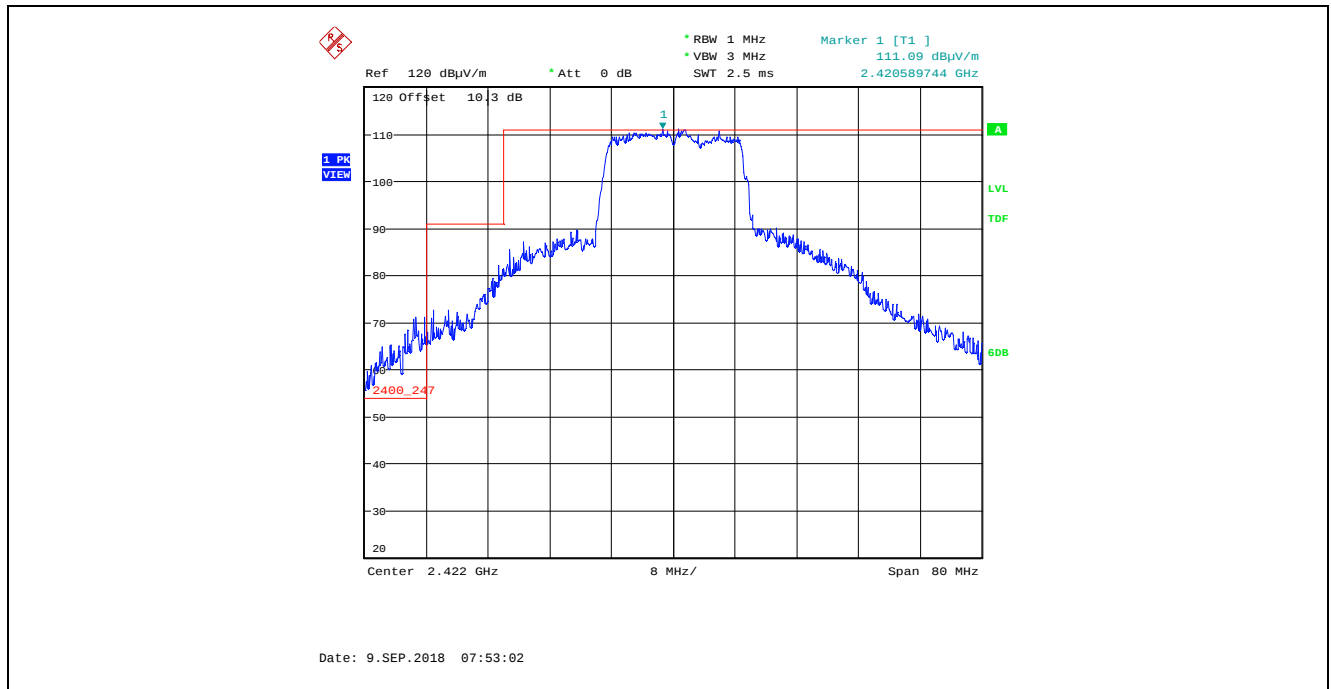
**Plot 5.4.4.1.6.95.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 25, Channel 10, 2457 MHz



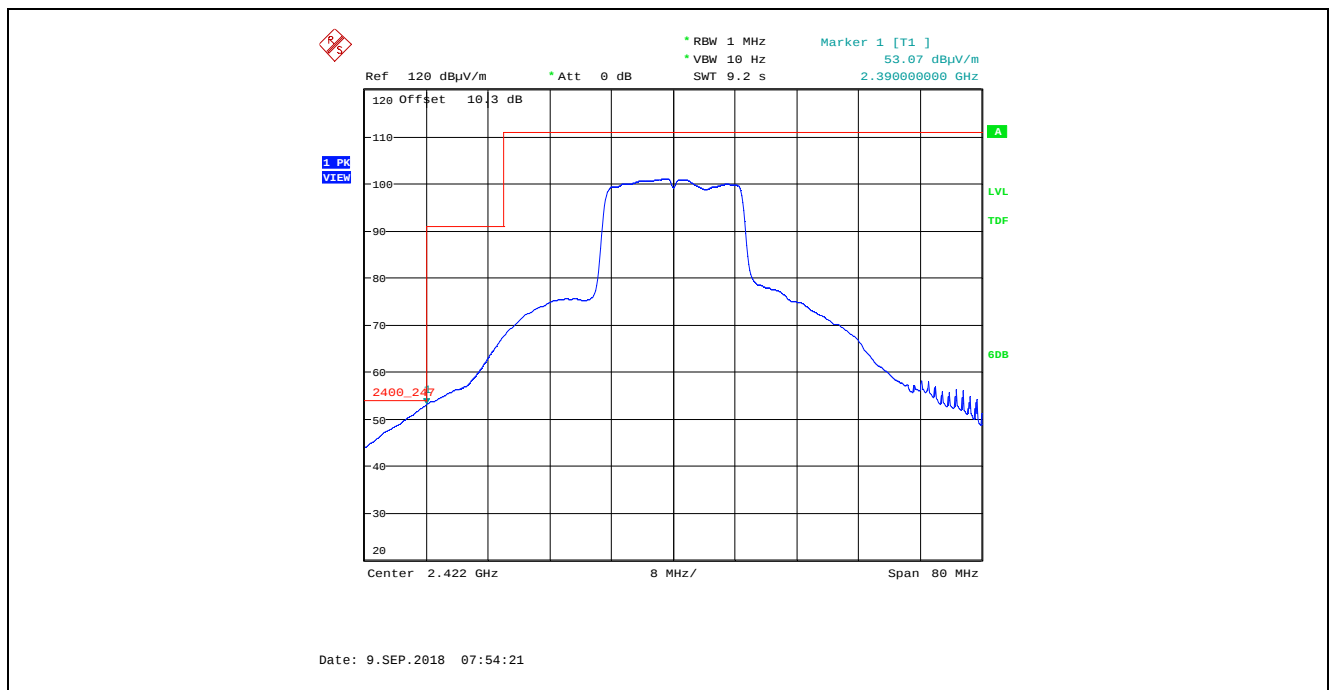
**Plot 5.4.4.1.6.96.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 25, Channel 10, 2457 MHz



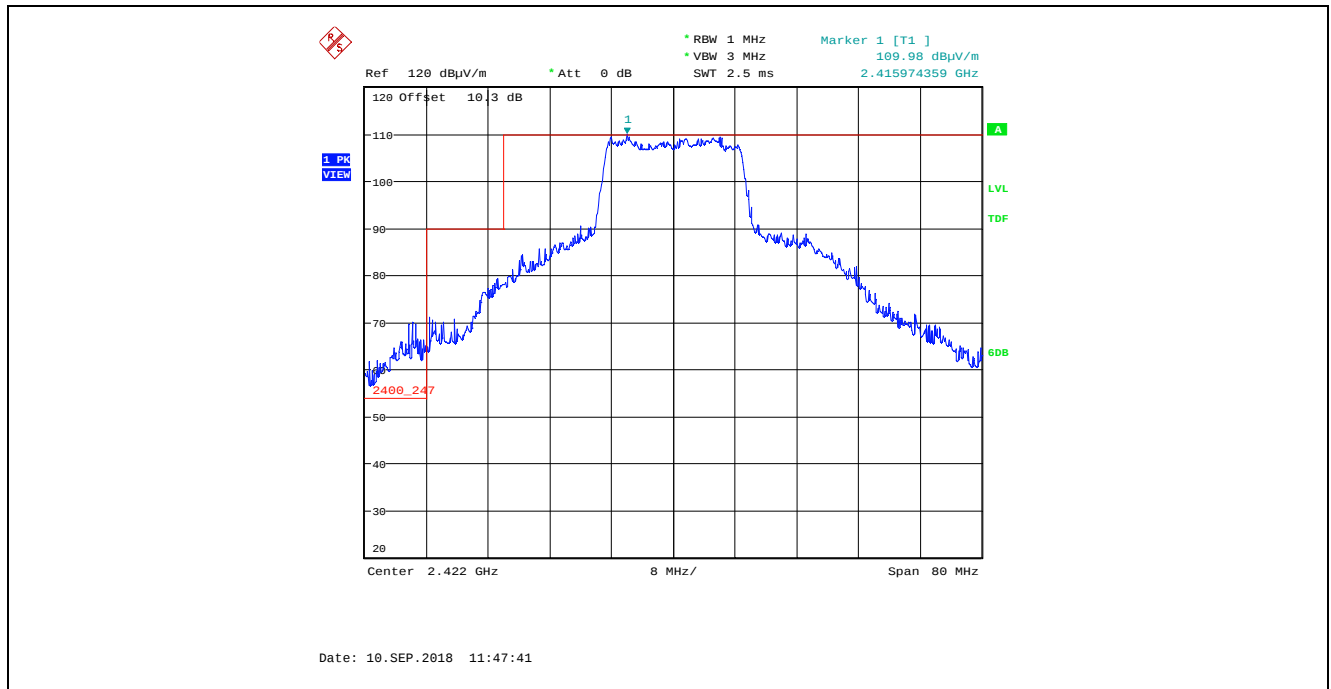
**Plot 5.4.4.1.6.97.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 27, Channel 3, 2422 MHz



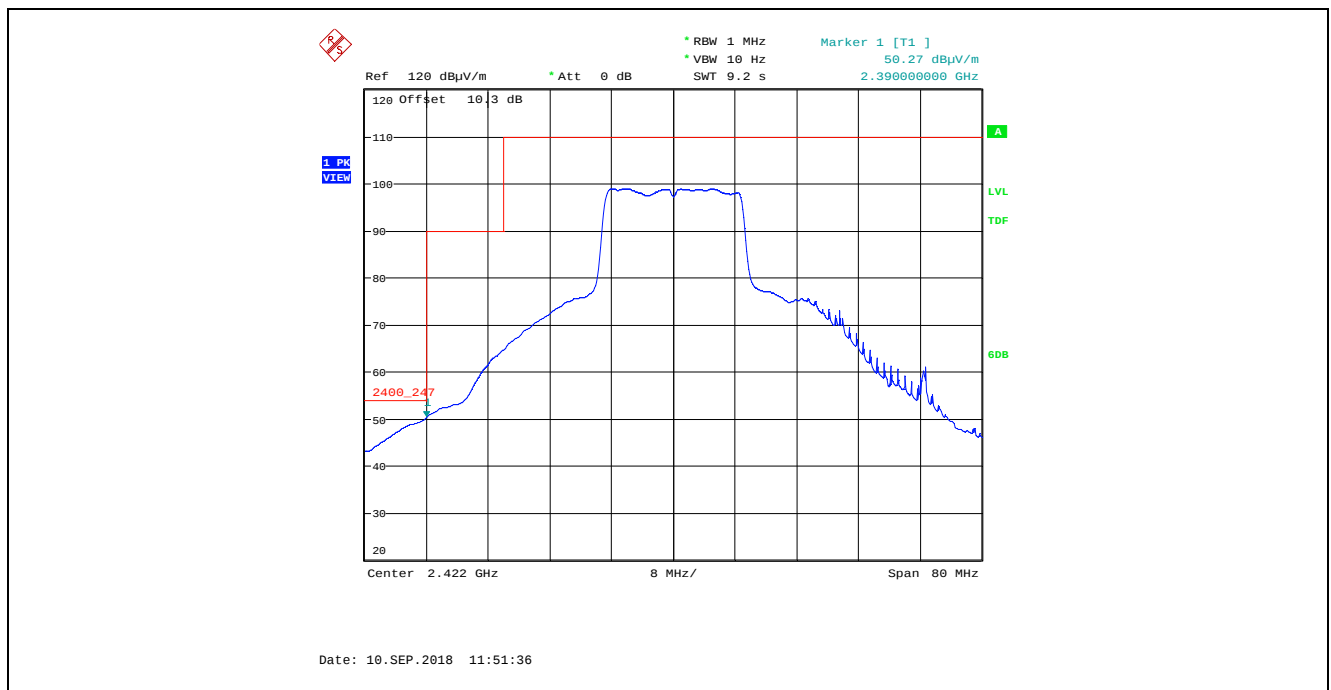
**Plot 5.4.4.1.6.98.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 27, Channel 3, 2422 MHz



**Plot 5.4.4.1.6.99.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 27, Channel 3, 2422 MHz



**Plot 5.4.4.1.6.100.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 27, Channel 3, 2422 MHz



Ref 120 dBμV/m Att 0 dB SWT 2.5 ms

RBW 1 MHz VBW 3 MHz

Marker 1 [T1] 111.40 dBμV/m 2.458025641 GHz

120 Offset 10 3 dB

1 PK VIEW

1

A

LVL

TDF

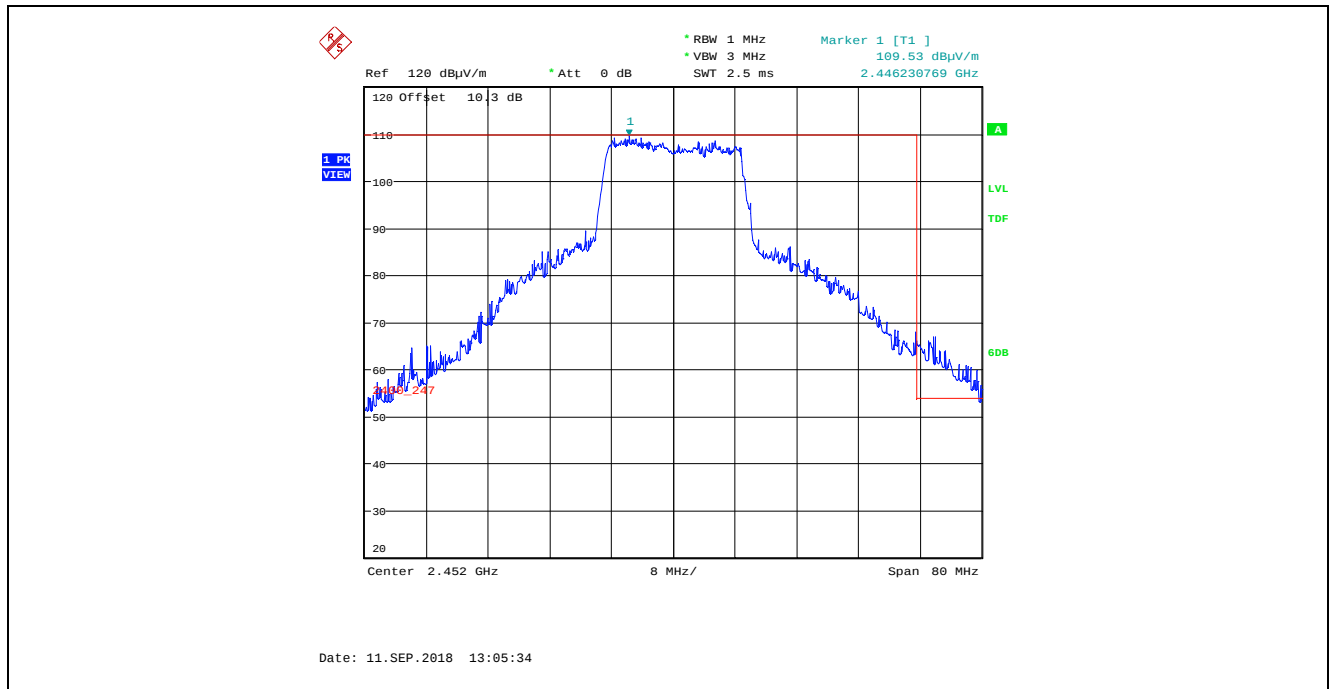
6dB

2416\_247

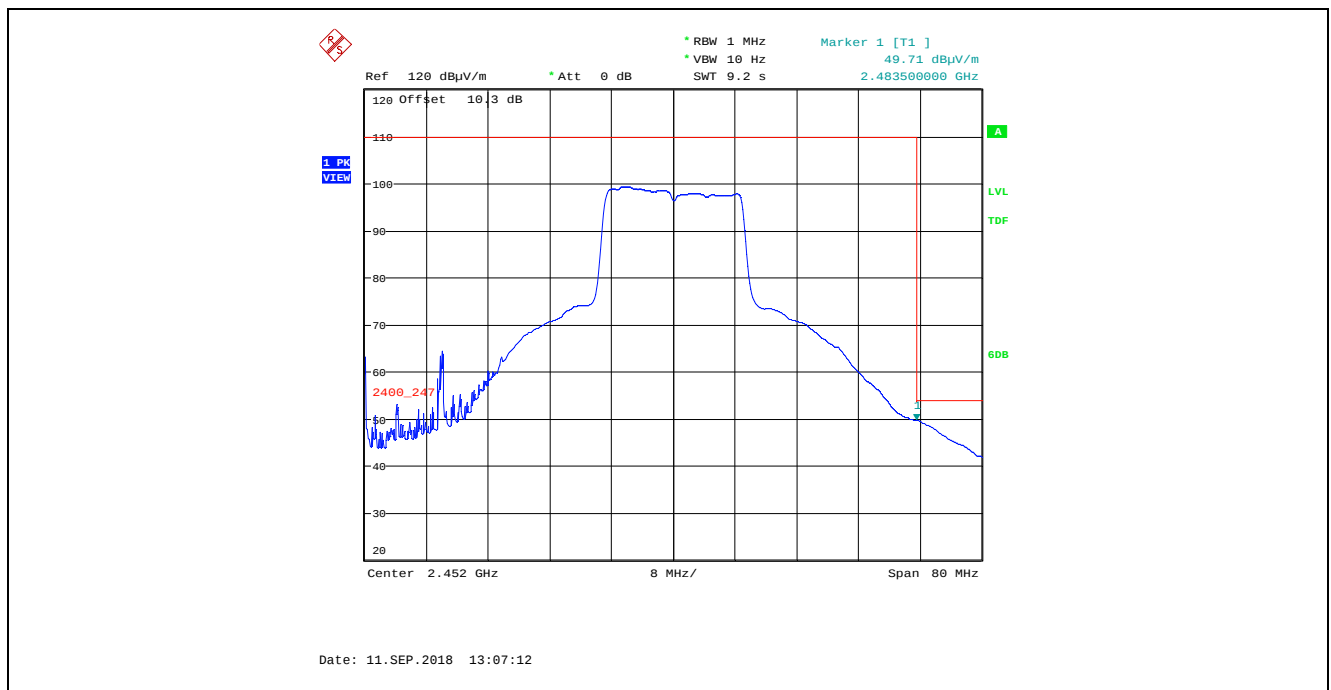
Center 2.452 GHz 8 MHz/ Span 80 MHz

Date: 9.SEP.2018 10:49:04

**Plot 5.4.4.1.6.103.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 26, Channel 9, 2452 MHz



**Plot 5.4.4.1.6.104.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 26, Channel 9, 2452 MHz



Ref 120 dBμV/m \* Att 0 dB SWT 2.5 ms

Marker 1 [T1] 112.24 dBμV/m 2.421086538 GHz

1 PK VIEW

120 Offset 103 dB

1 112.24

NVL

TDF

6dB

2400\_247

Center 2.427 GHz 9 MHz/ Span 90 MHz

Ref 120 dBμV/m Att 0 dB SWT 10.5 s

RBW 1 MHz VBW 10 Hz

Marker 1 [T1] 52.17 dBμV/m 2.390000000 GHz

1 PK VIEW

120 Offset 103 dB

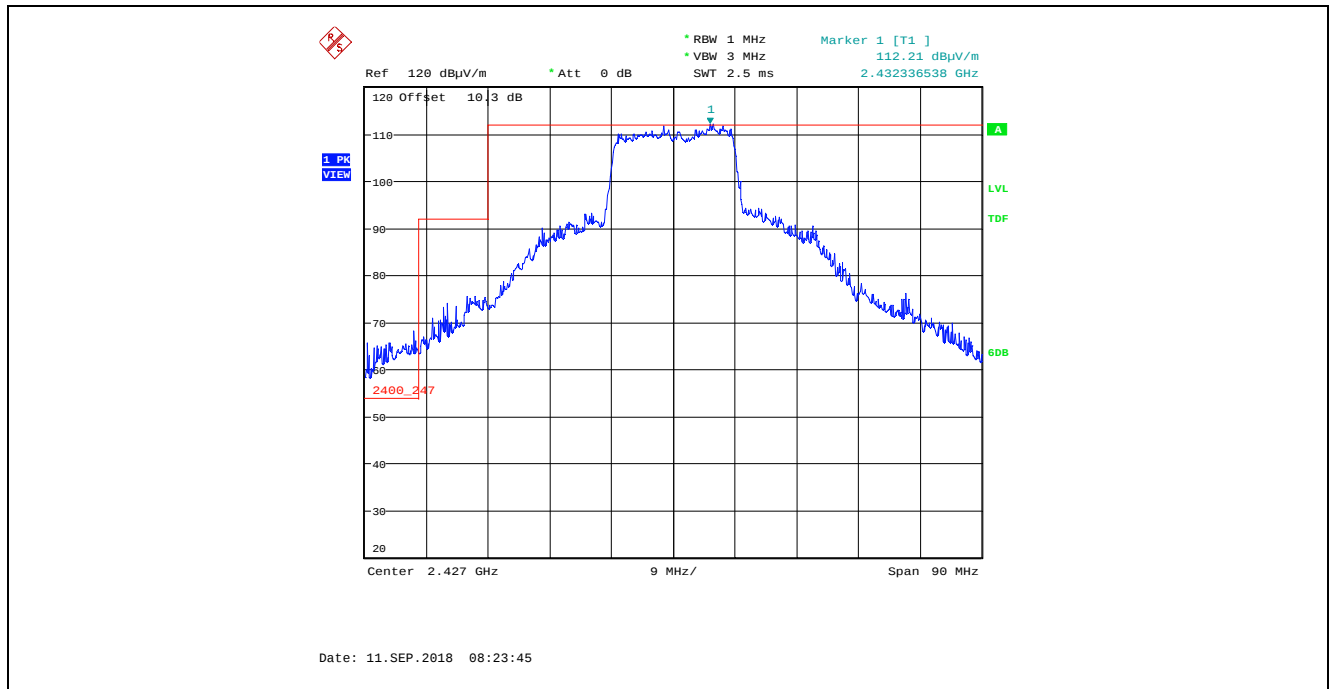
2400 247

LVL TDF 6DB

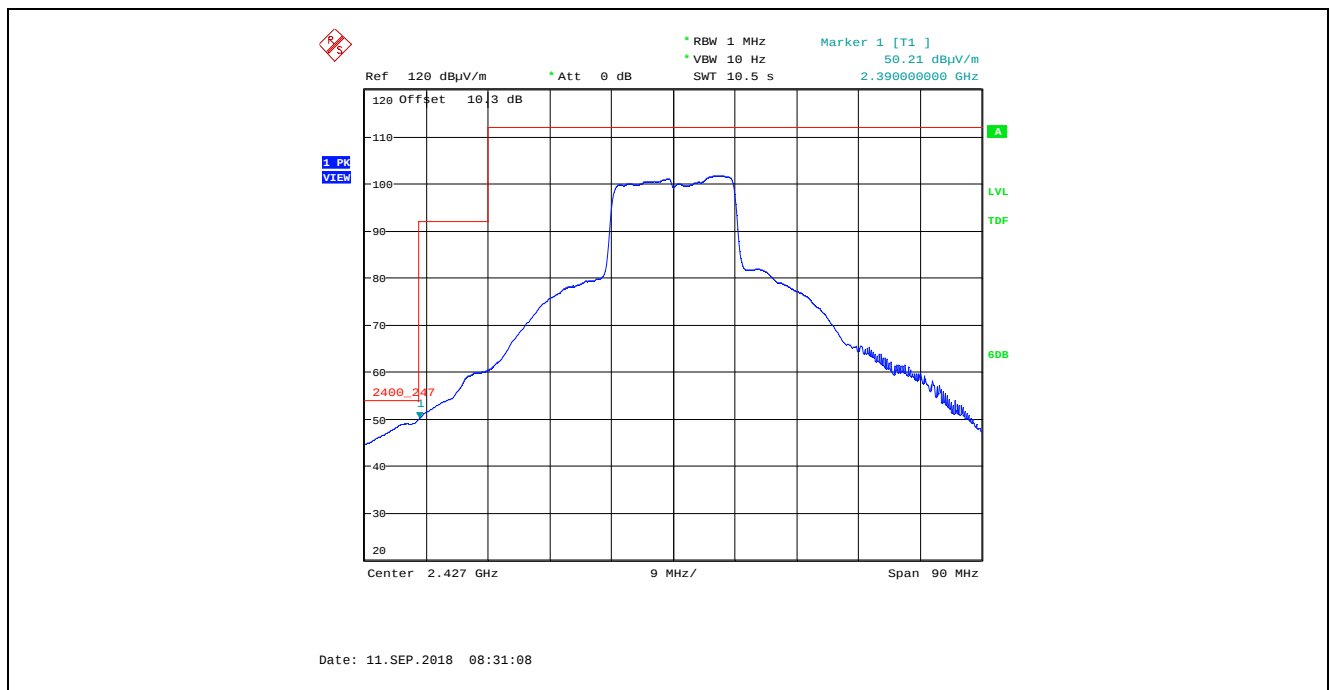
Center 2.427 GHz 9 MHz/ Span 90 MHz

Date: 9.SEP.2018 08:30:39

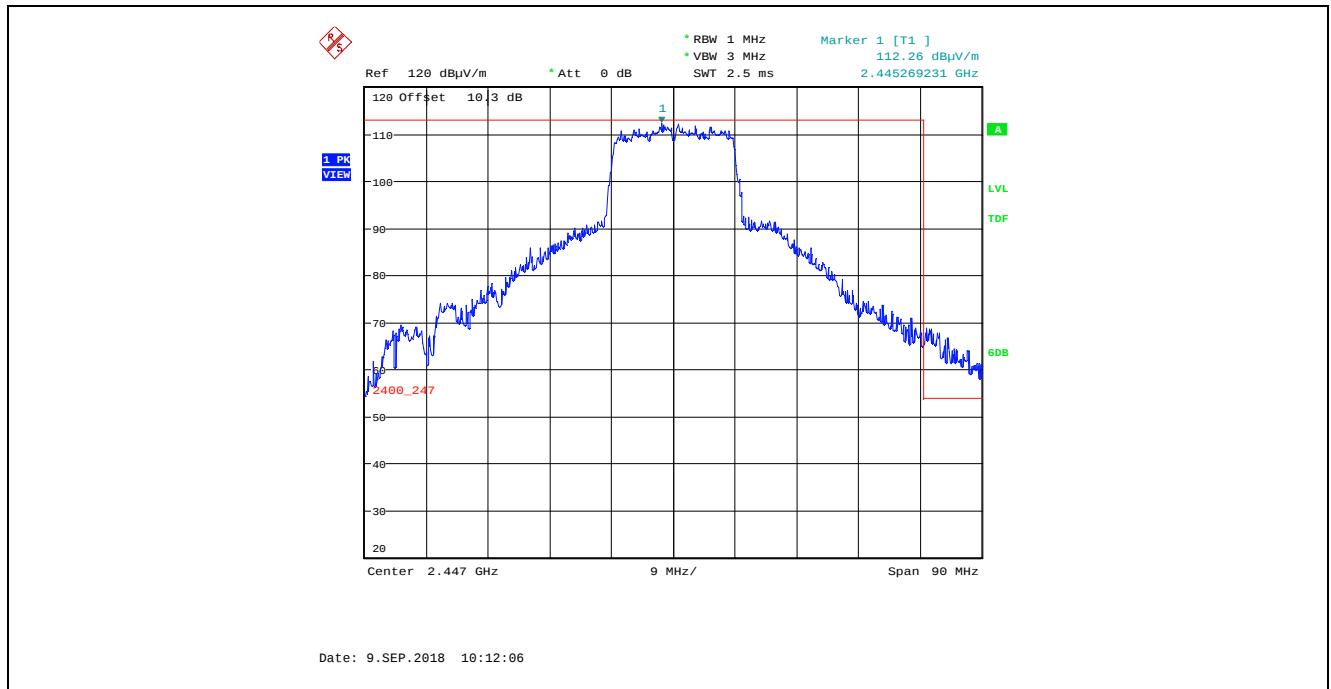
**Plot 5.4.4.1.6.107.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 29, Channel 4, 2427 MHz



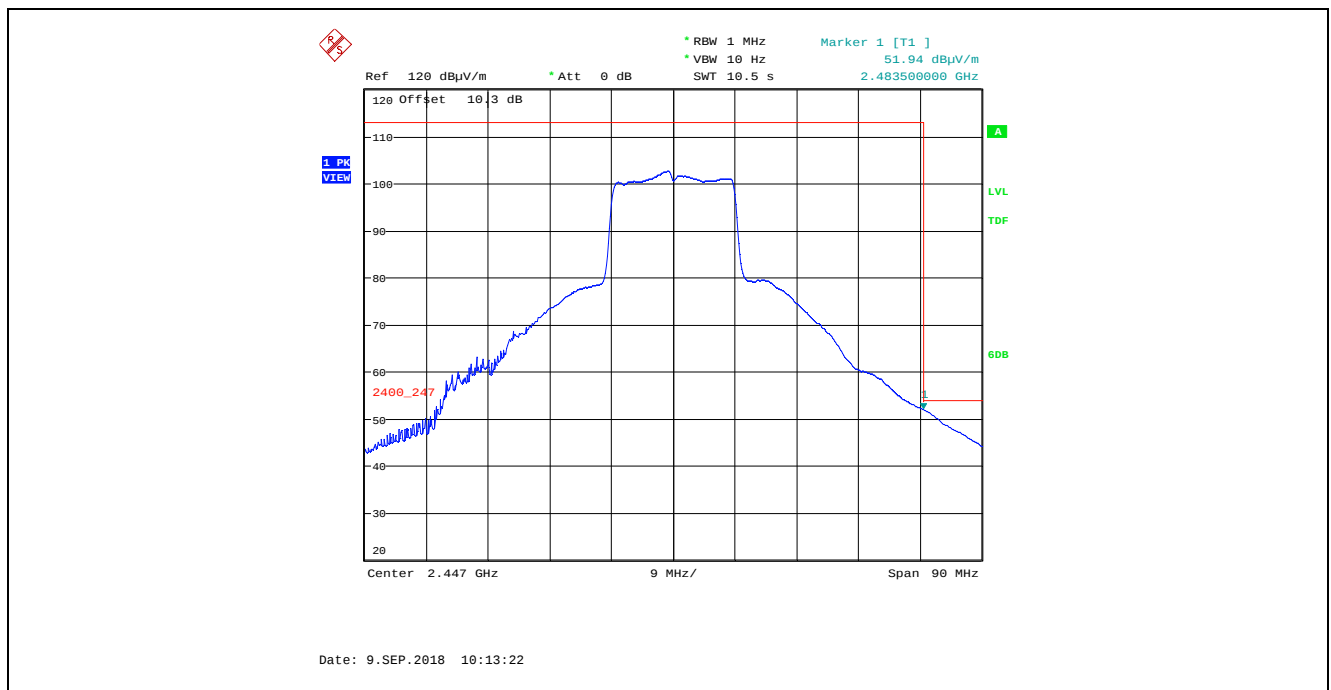
**Plot 5.4.4.1.6.108.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 29, Channel 4, 2427 MHz



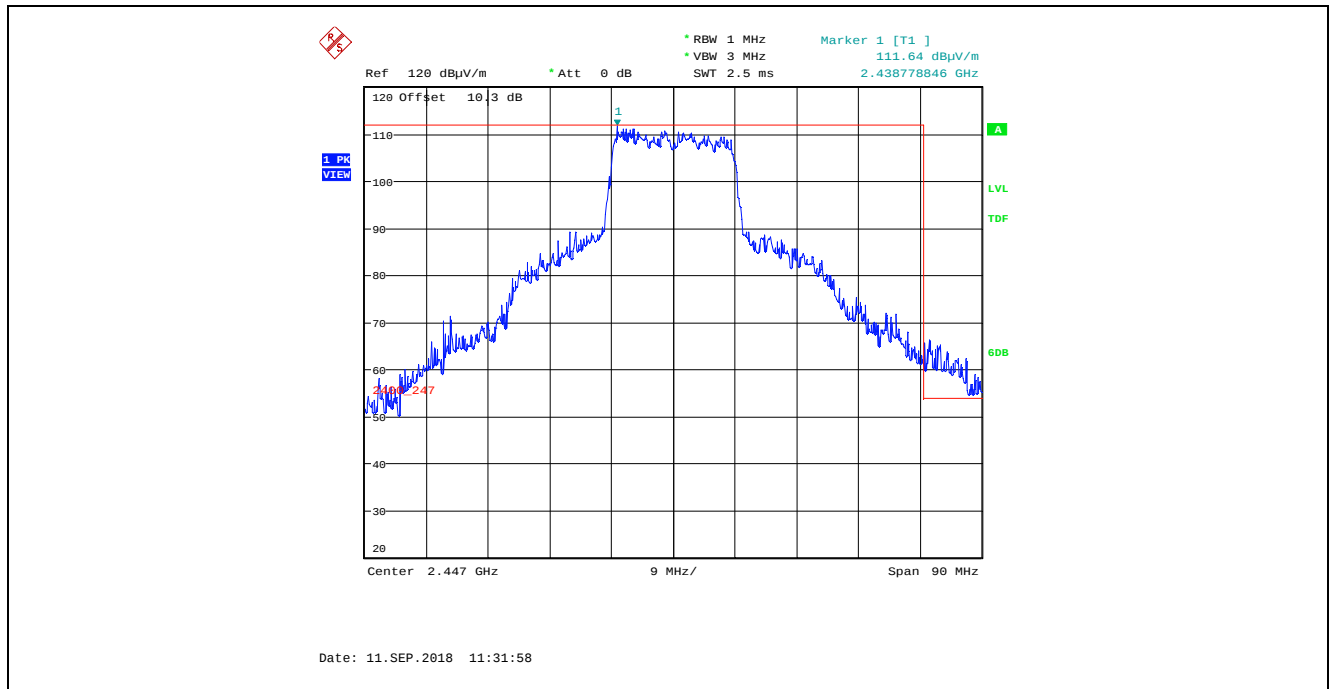
**Plot 5.4.4.1.6.109.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 28, Channel 8, 2447 MHz



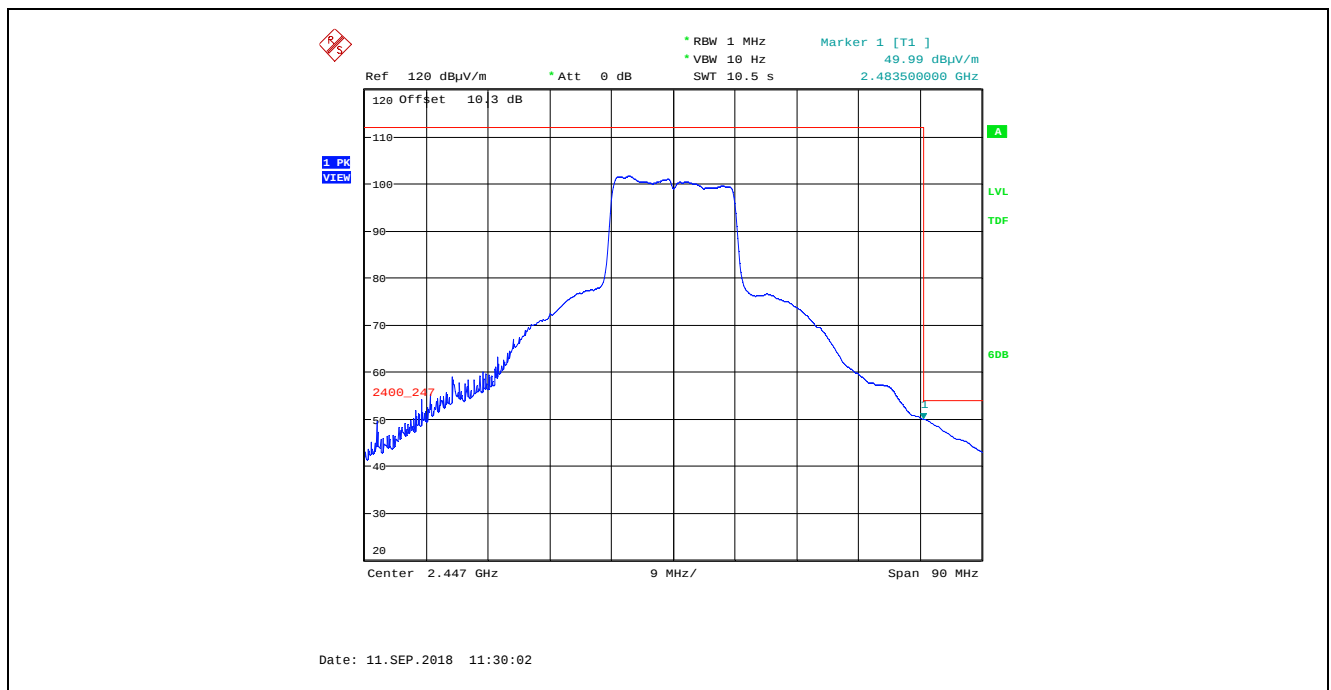
**Plot 5.4.4.1.6.110.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 28, Channel 8, 2447 MHz



**Plot 5.4.4.1.6.111.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 28, Channel 8, 2447 MHz



**Plot 5.4.4.1.6.112.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 28, Channel 8, 2447 MHz



Ref 120 dBμV/m    Att 0 dB    RBW 1 MHz    VBW 3 MHz    SWT 2.5 ms    Marker 1 [T1]    112.69 dBμV/m    2.433153846 GHz

120 Offset    103 dB    1    A    LVL    TDF    6DB

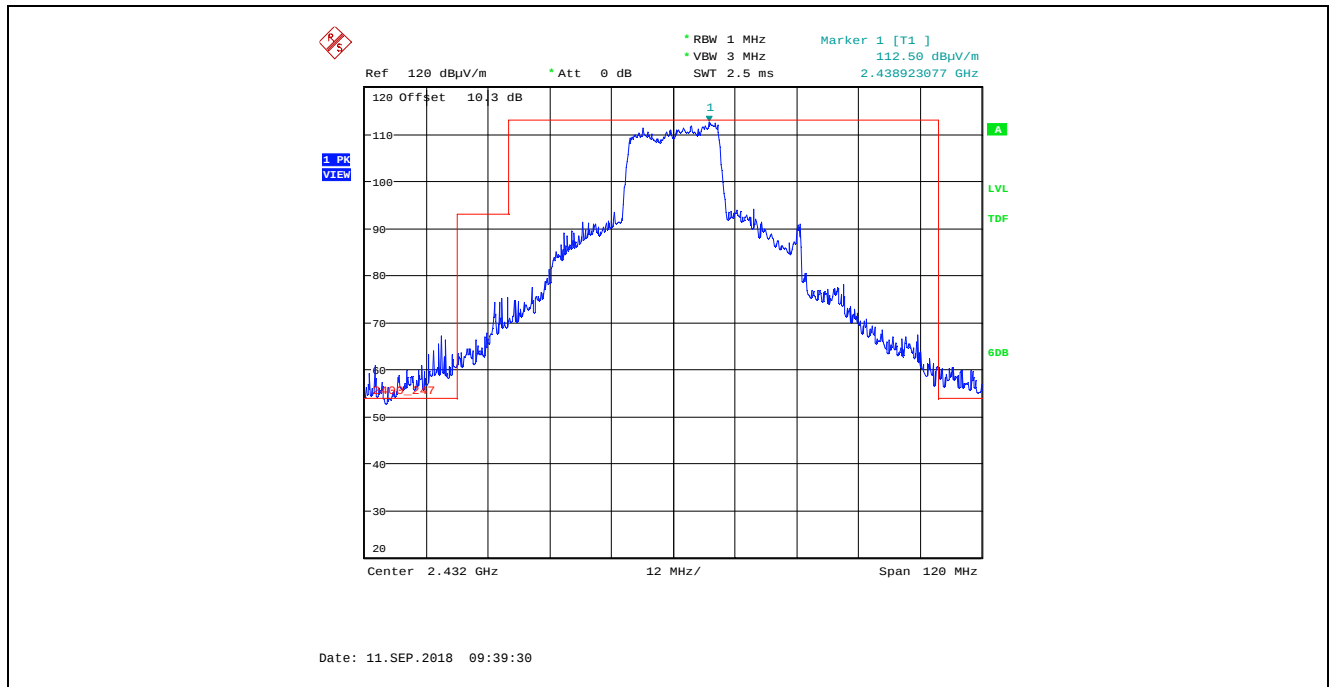
1 PK VIEW

Center 2.432 GHz    12 MHz/    Span 120 MHz

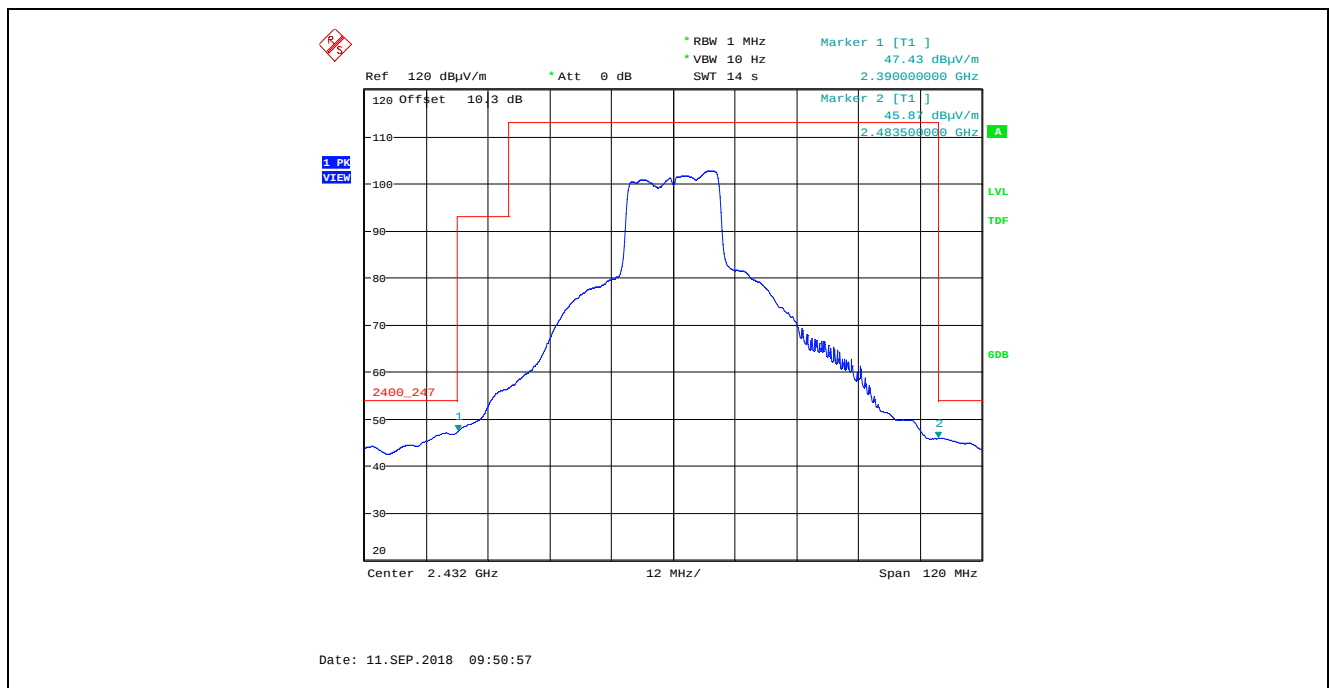
Date: 9.SEP.2018 09:03:21

[illegible]

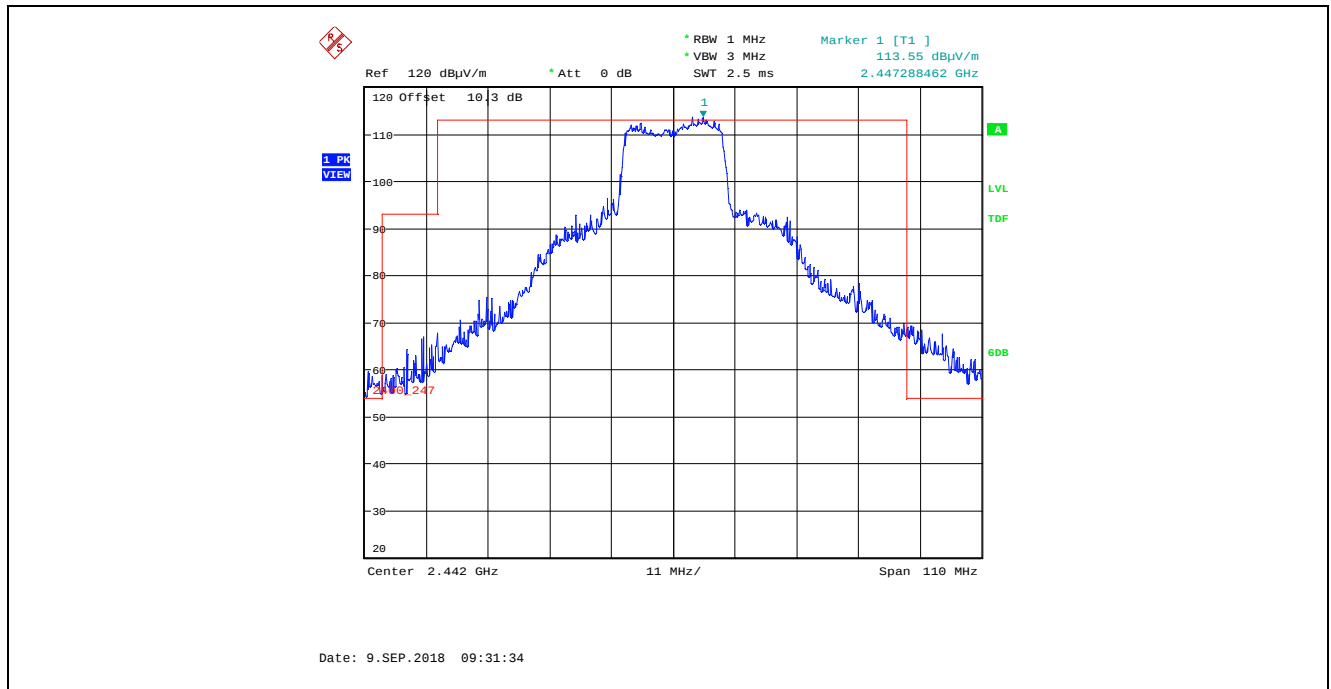
**Plot 5.4.4.1.6.115.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 30, Channel 5, 2432 MHz



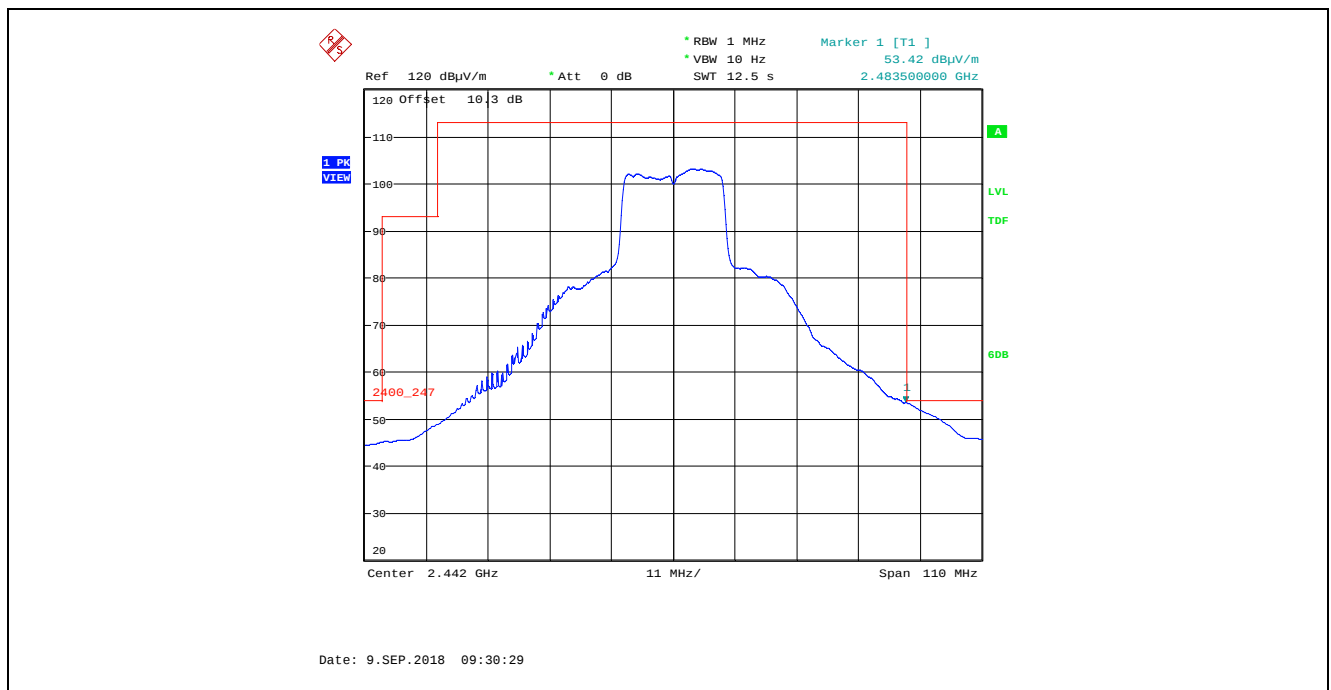
**Plot 5.4.4.1.6.116.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 30, Channel 5, 2432 MHz



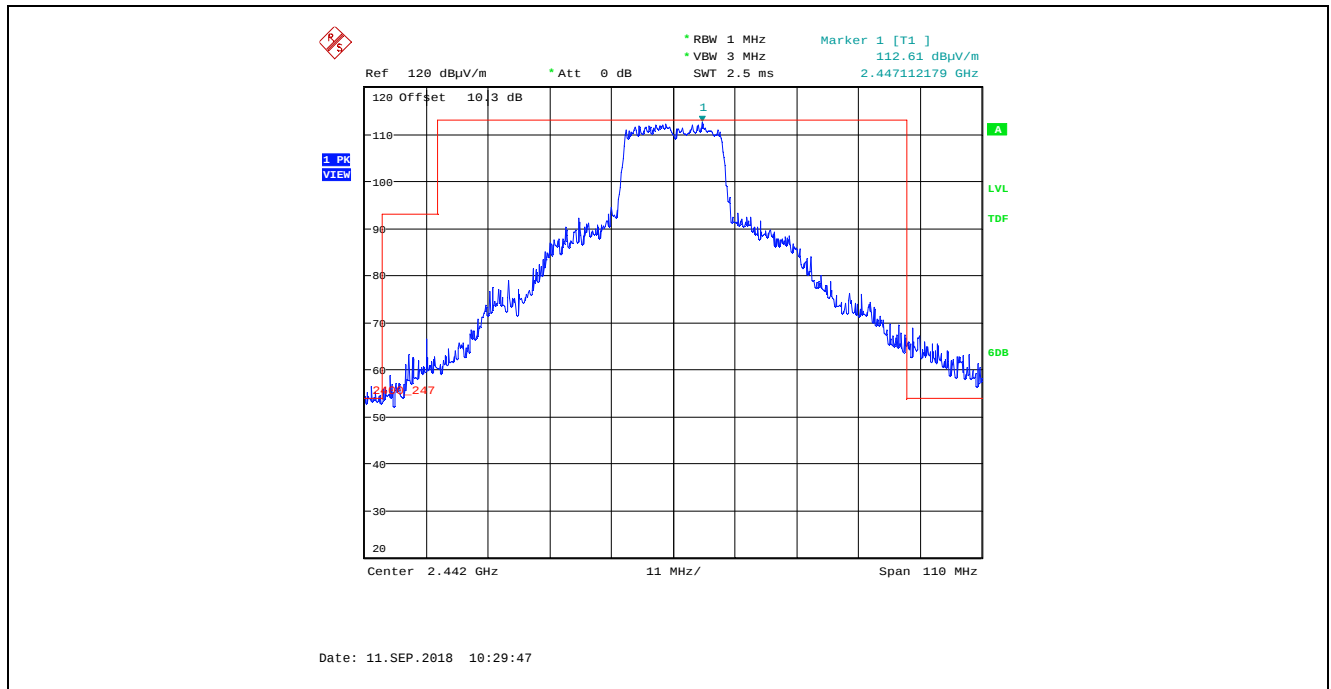
**Plot 5.4.4.1.6.117.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 30, Channel 7, 2442 MHz



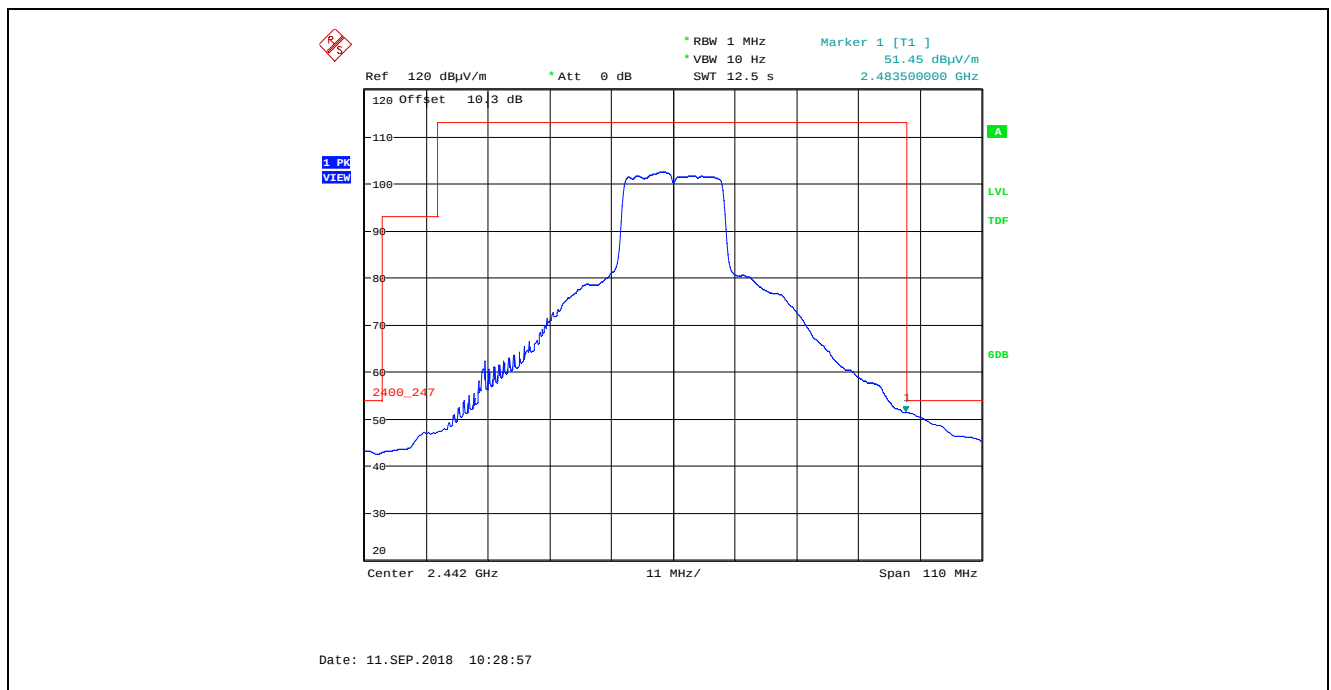
**Plot 5.4.4.1.6.118.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 30, Channel 7, 2442 MHz



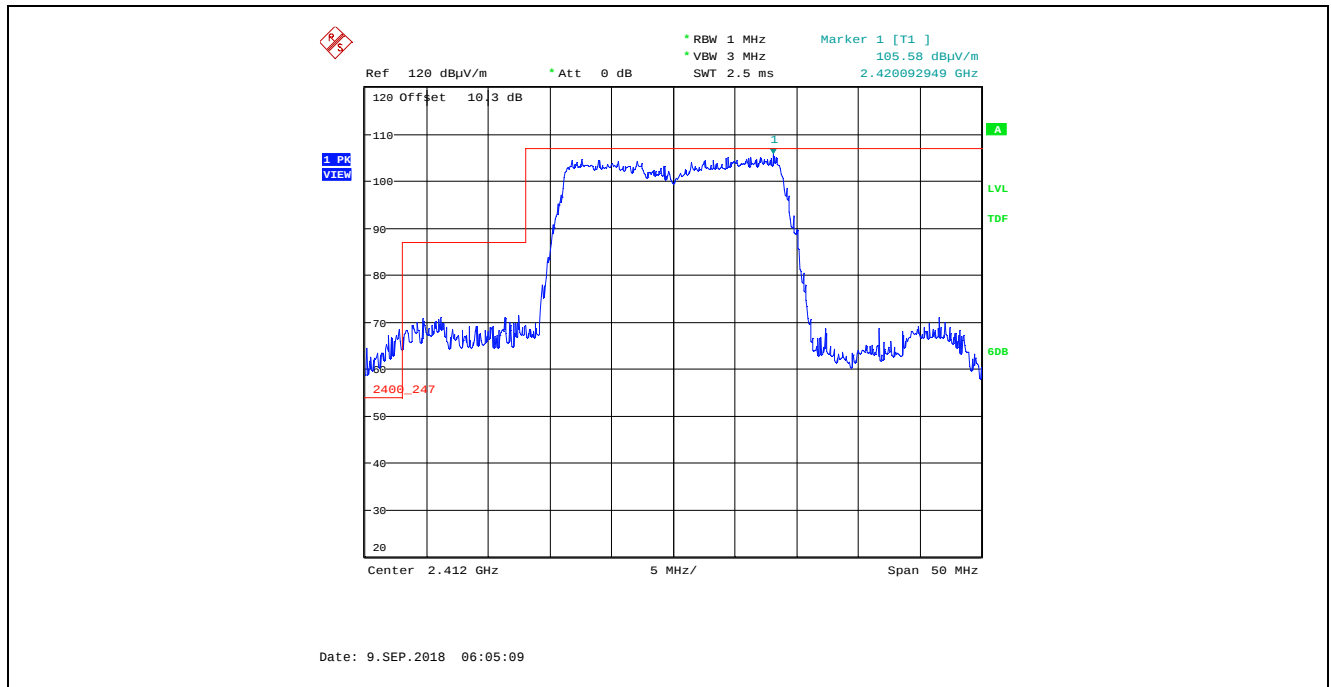
**Plot 5.4.4.1.6.119.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 30, Channel 7, 2442 MHz



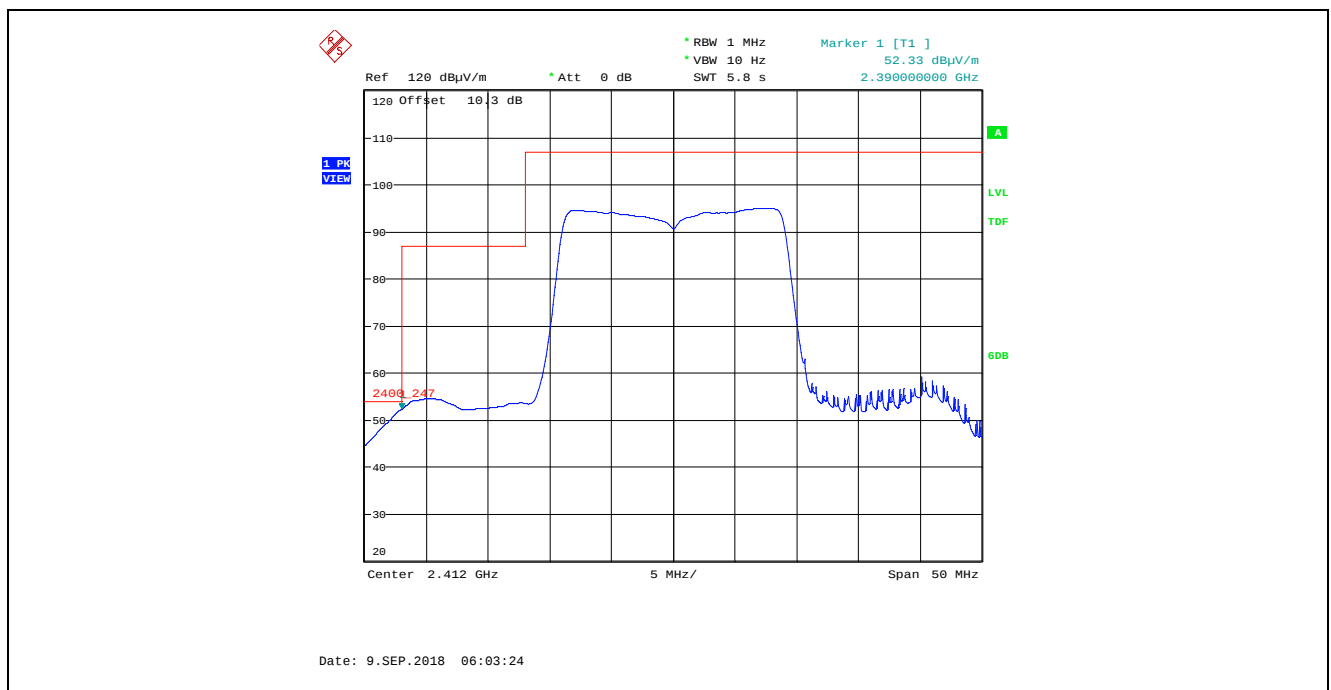
**Plot 5.4.4.1.6.120.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 30, Channel 7, 2442 MHz



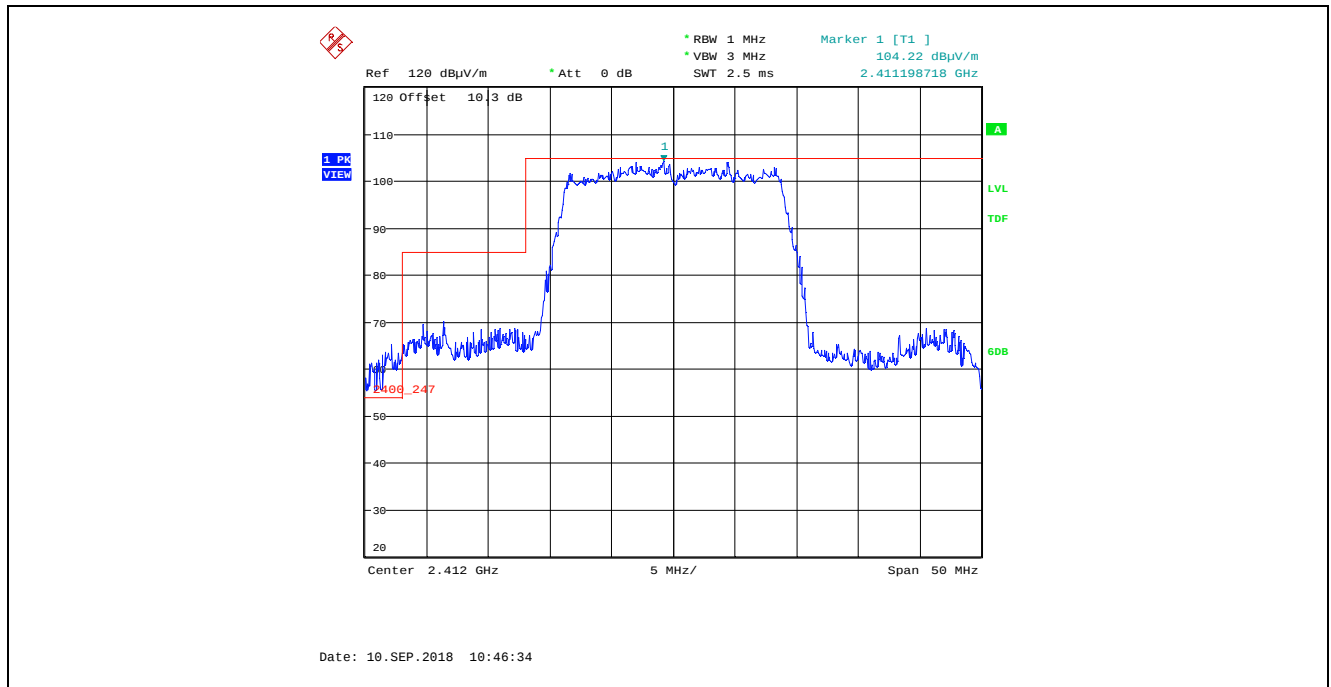
**Plot 5.4.4.1.6.121.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 19, Channel 1, 2412 MHz



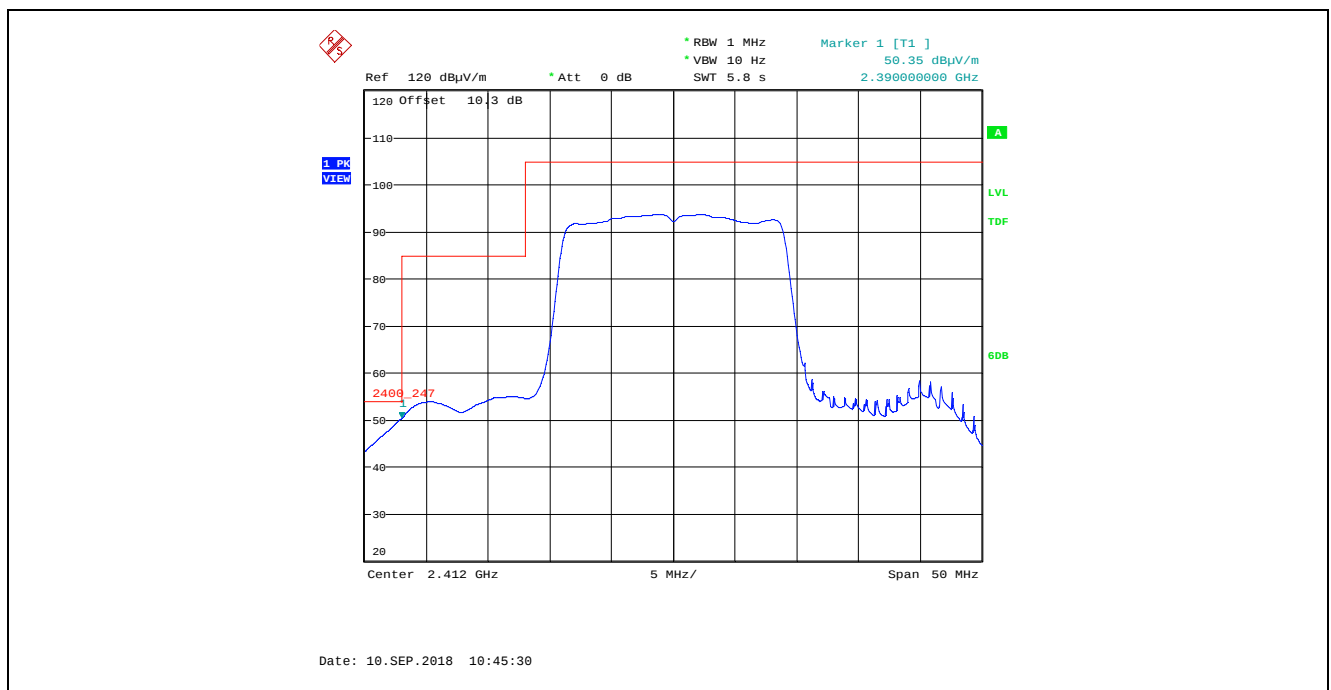
**Plot 5.4.4.1.6.122.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 19, Channel 1, 2412 MHz



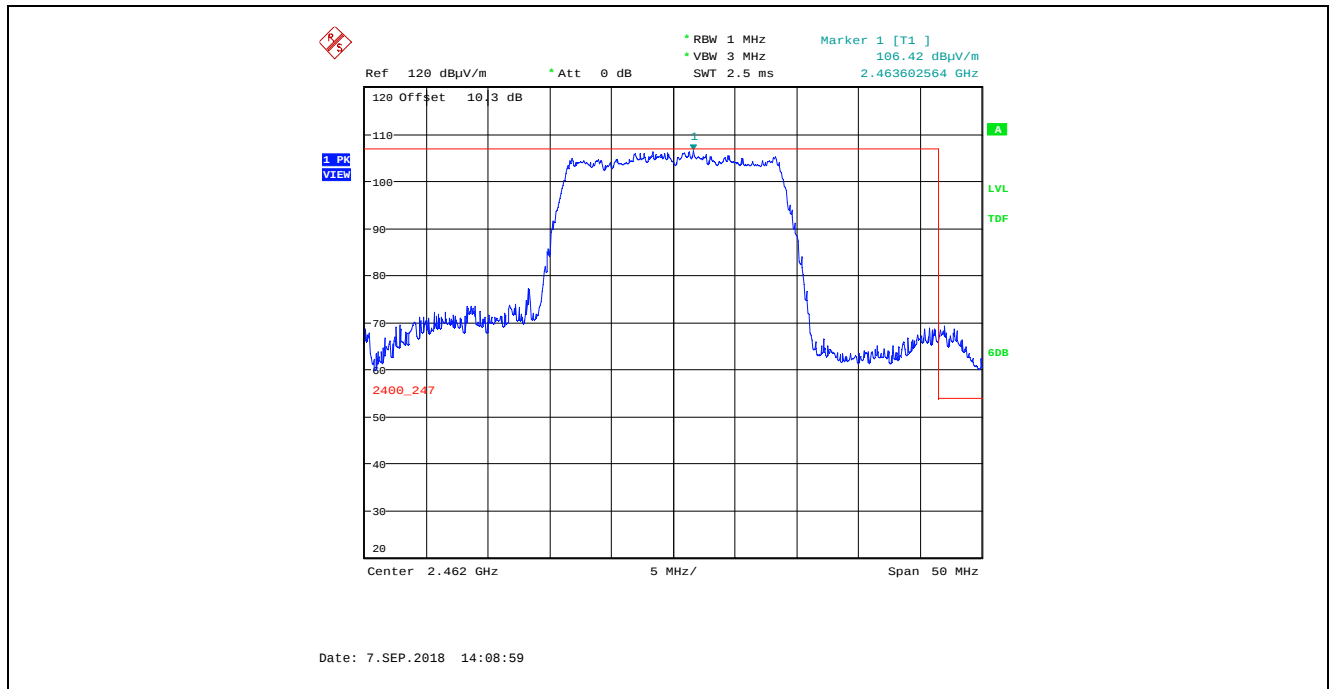
**Plot 5.4.4.1.6.123.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 19, Channel 1, 2412 MHz



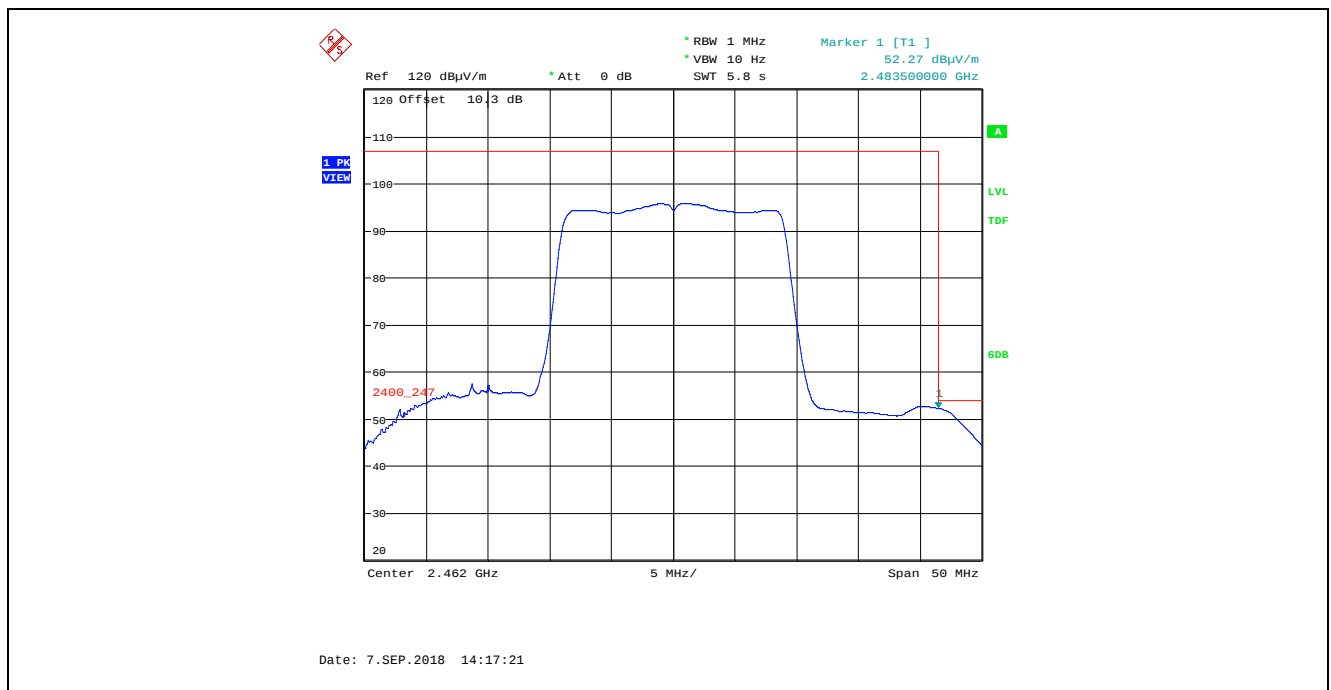
**Plot 5.4.4.1.6.124.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 19, Channel 1, 2412 MHz



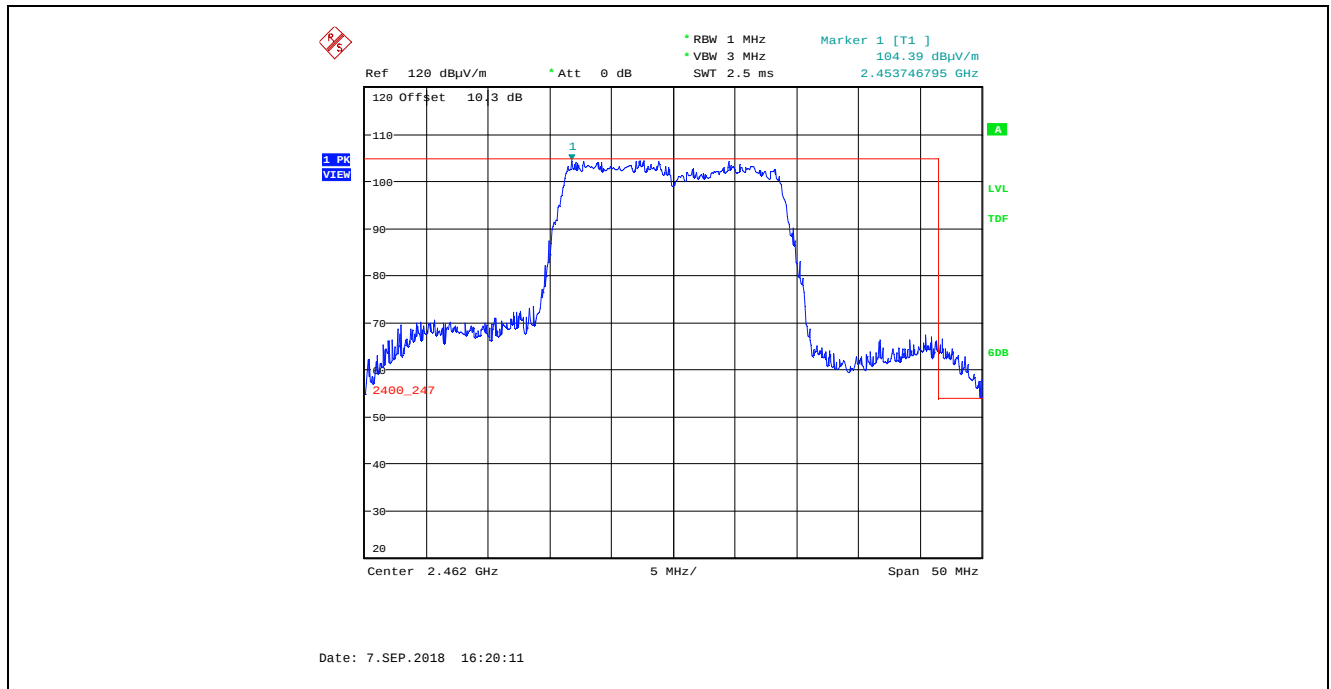
**Plot 5.4.4.1.6.125.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 20, Channel 11, 2462 MHz



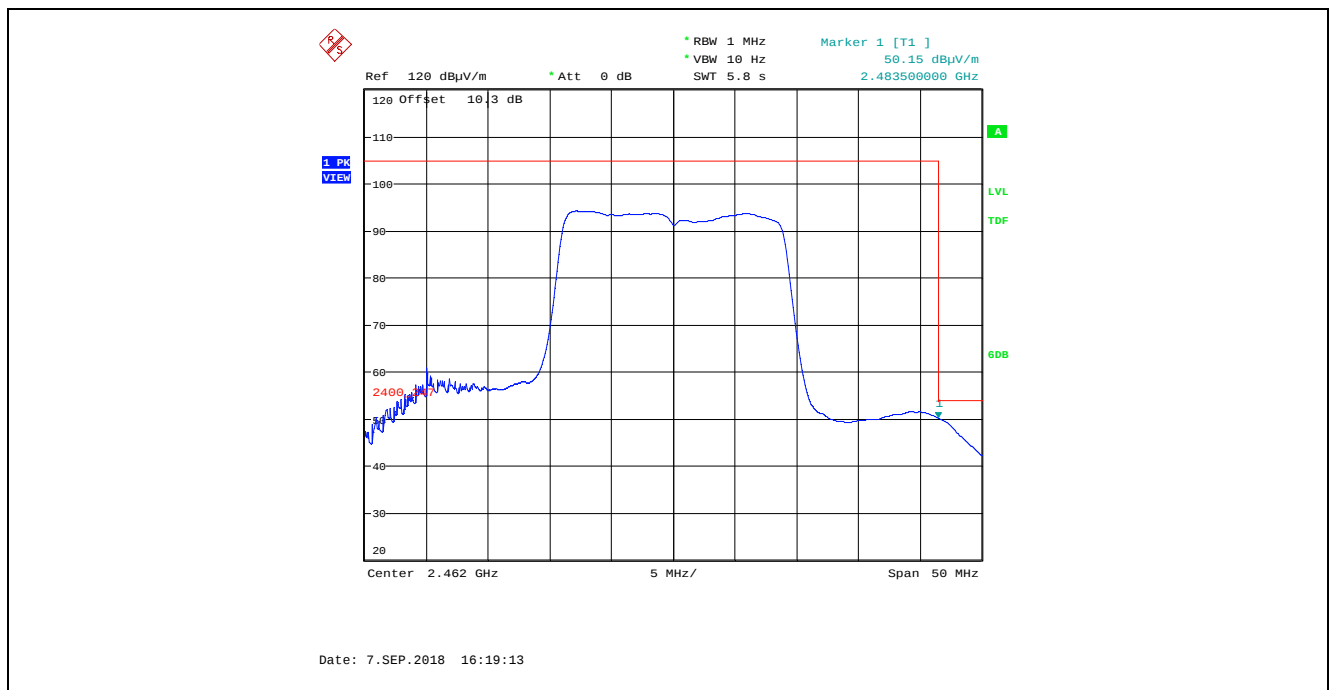
**Plot 5.4.4.1.6.126.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 20, Channel 11, 2462 MHz



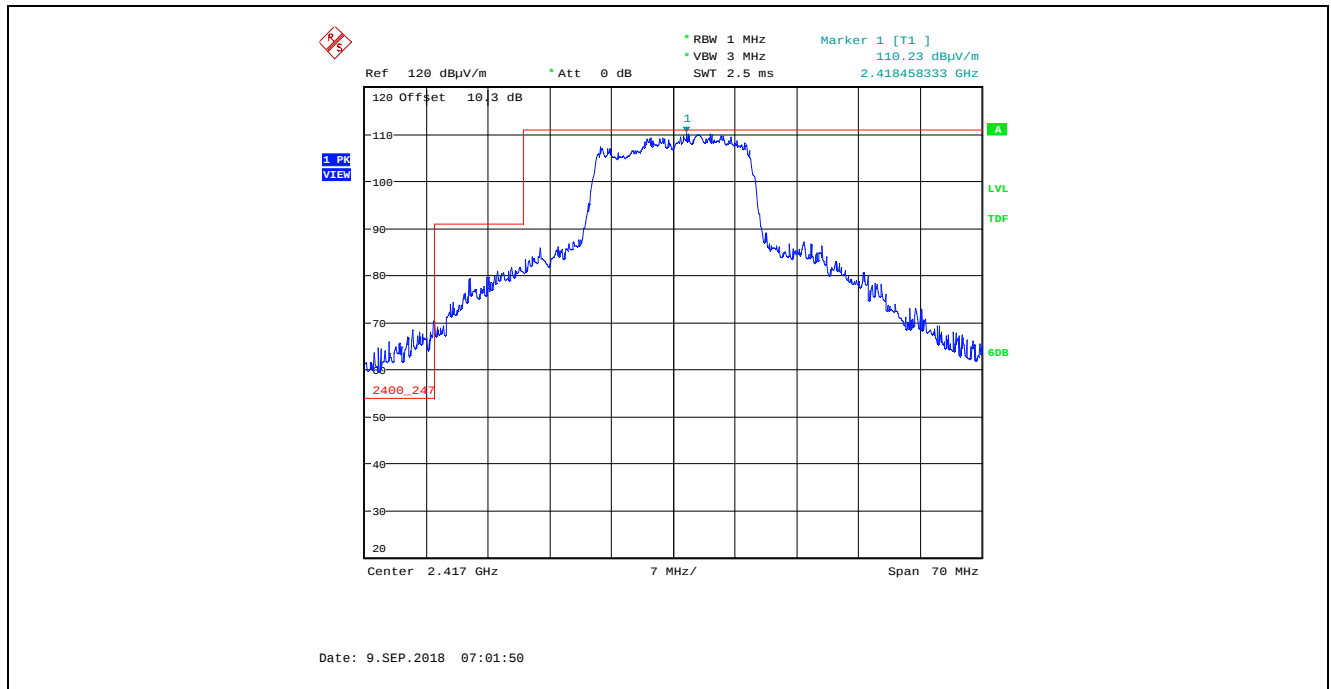
**Plot 5.4.4.1.6.127.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 20, Channel 11, 2462 MHz



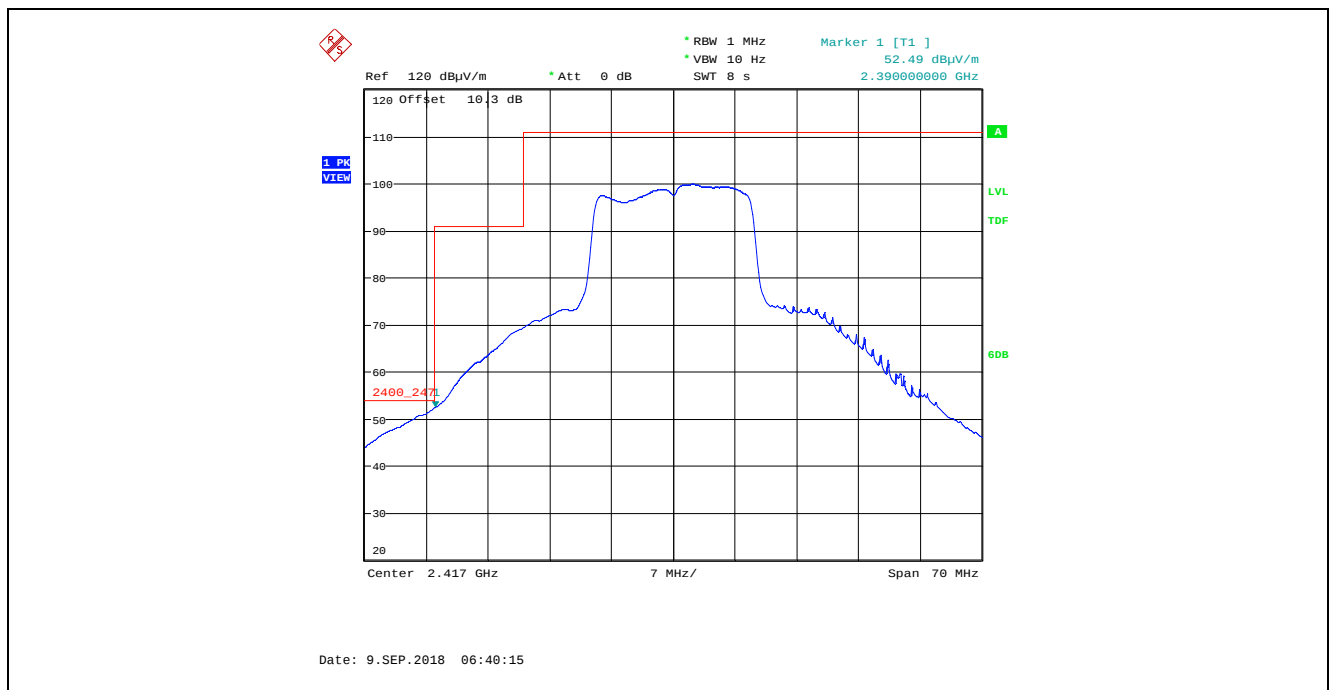
**Plot 5.4.4.1.6.128.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 20, Channel 11, 2462 MHz



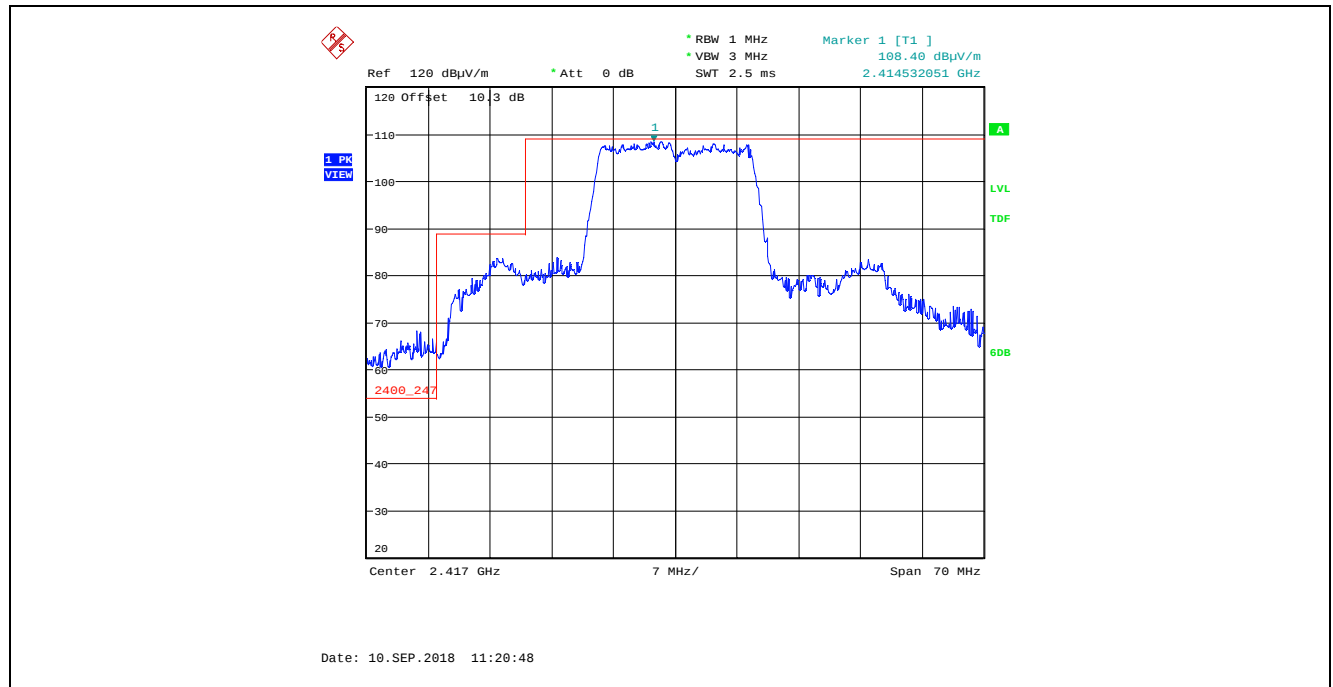
**Plot 5.4.4.1.6.129.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 25, Channel 2, 2417 MHz



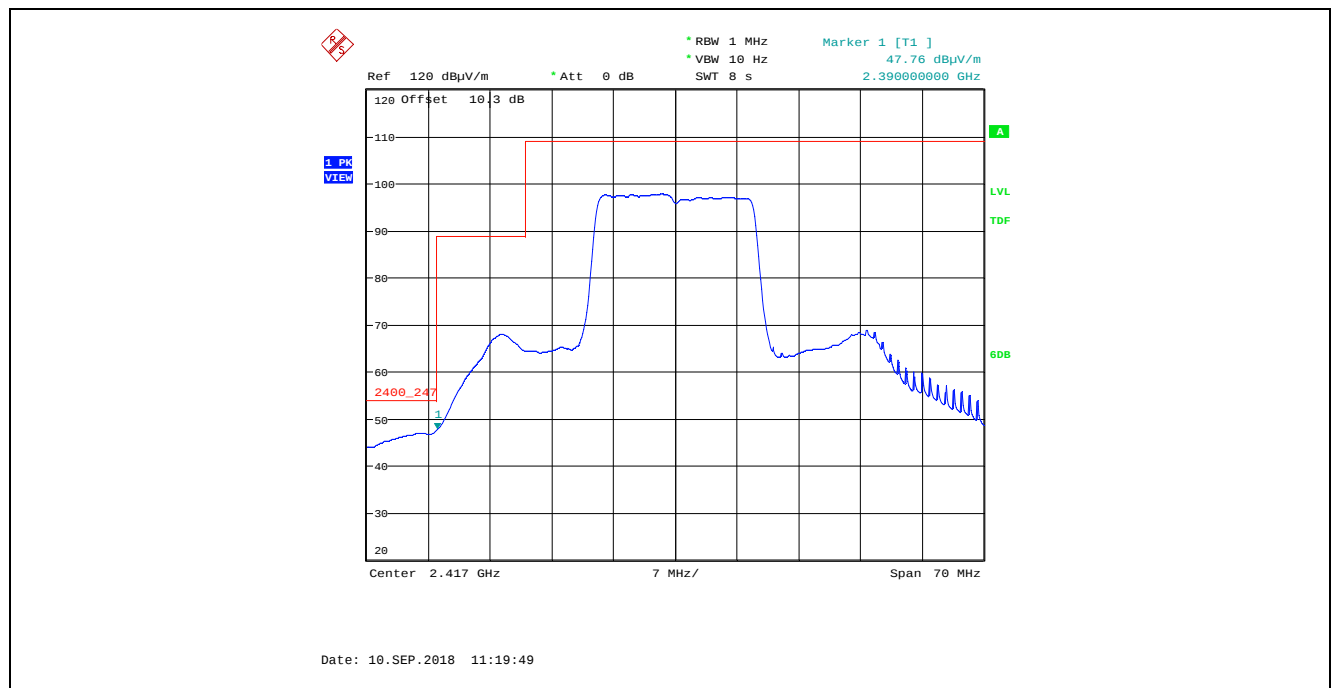
**Plot 5.4.4.1.6.130.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 25, Channel 2, 2417 MHz



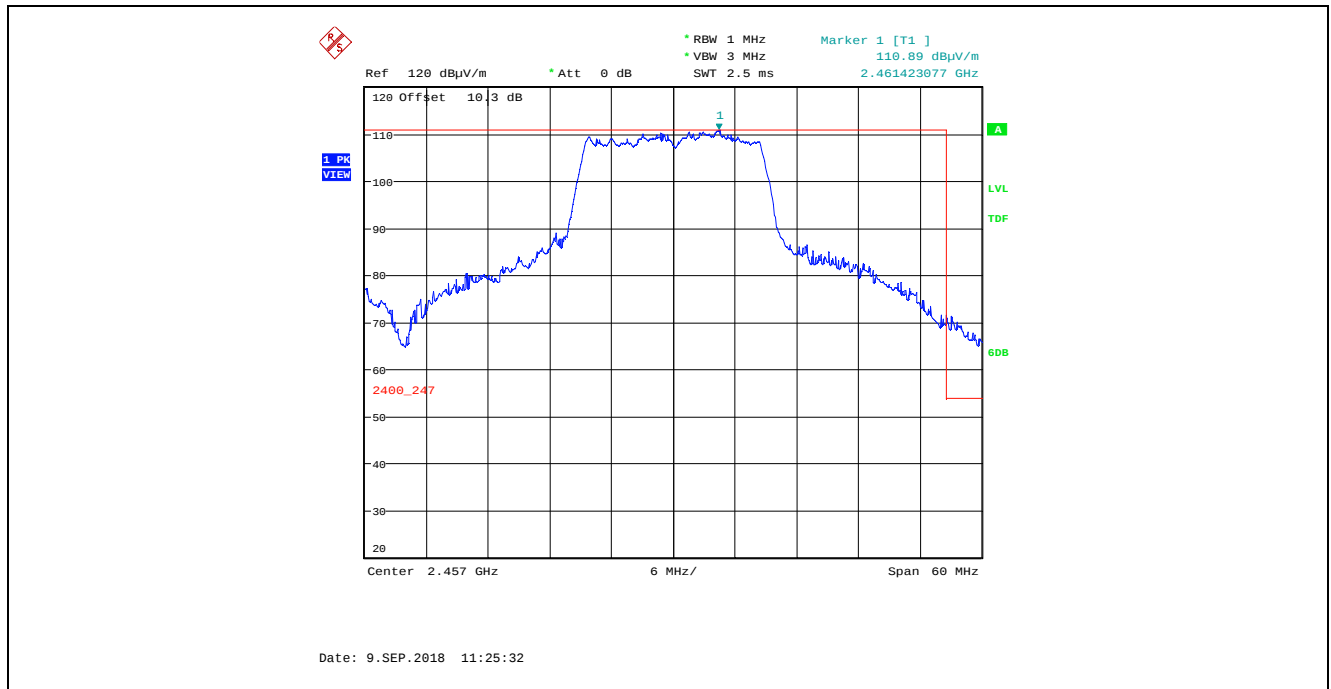
**Plot 5.4.4.1.6.131.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 25, Channel 2, 2417 MHz



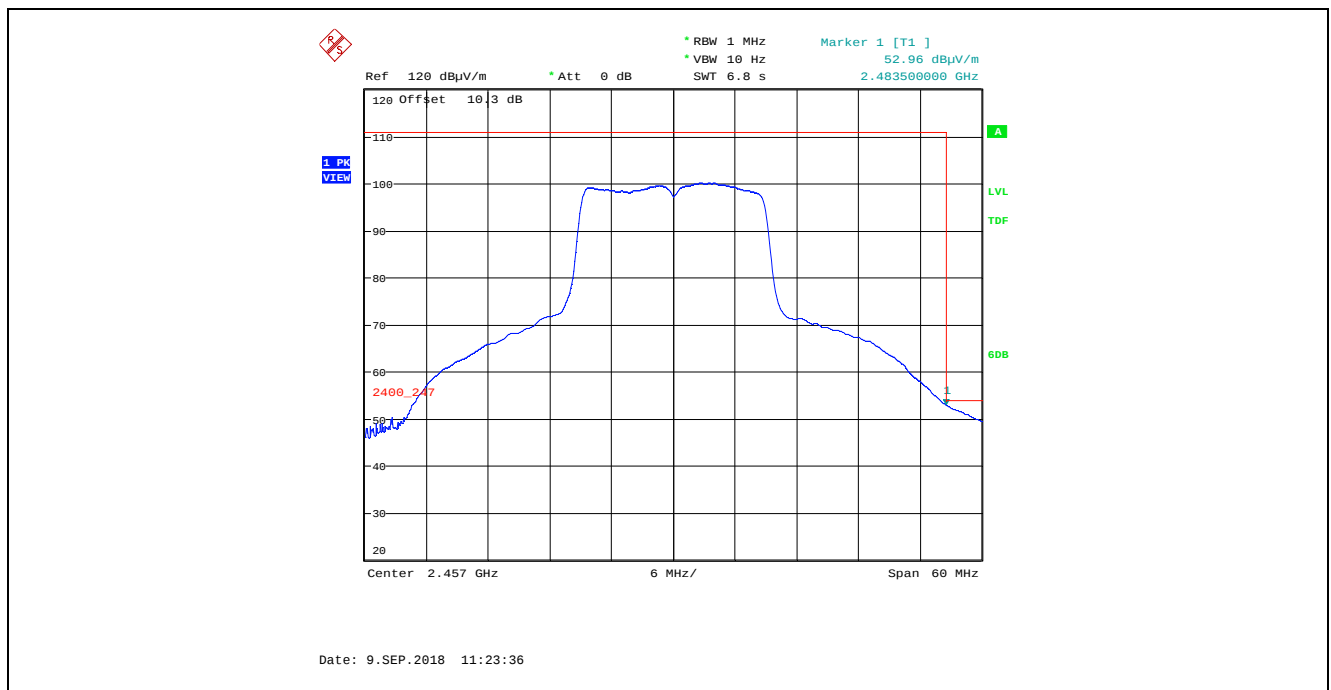
**Plot 5.4.4.1.6.132.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 25, Channel 2, 2417 MHz



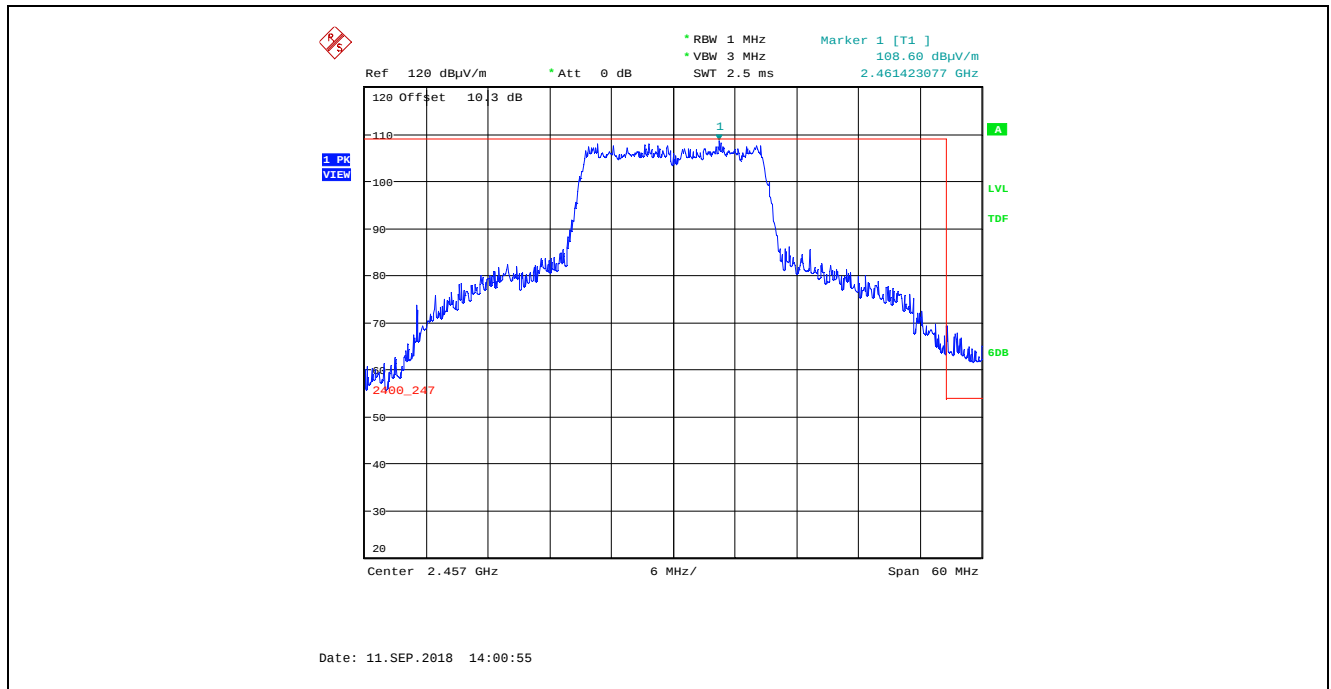
**Plot 5.4.4.1.6.133.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 25, Channel 10, 2457 MHz



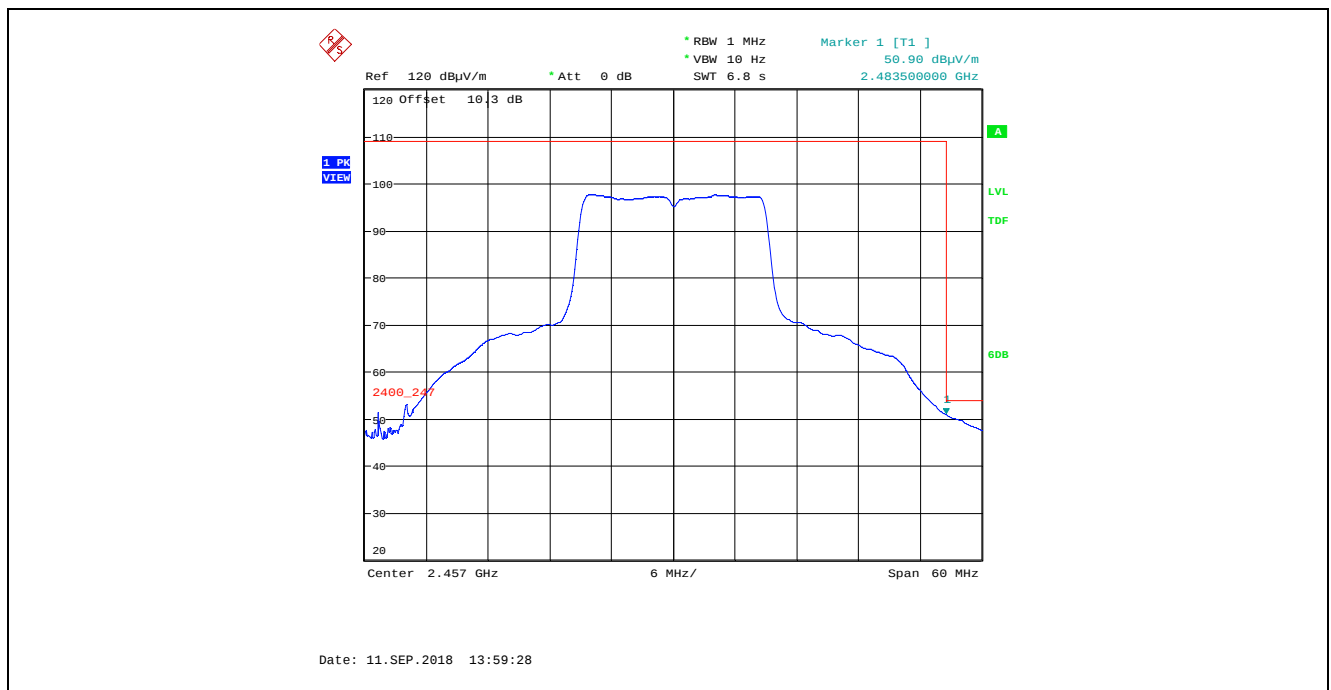
**Plot 5.4.4.1.6.134.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 25, Channel 10, 2457 MHz



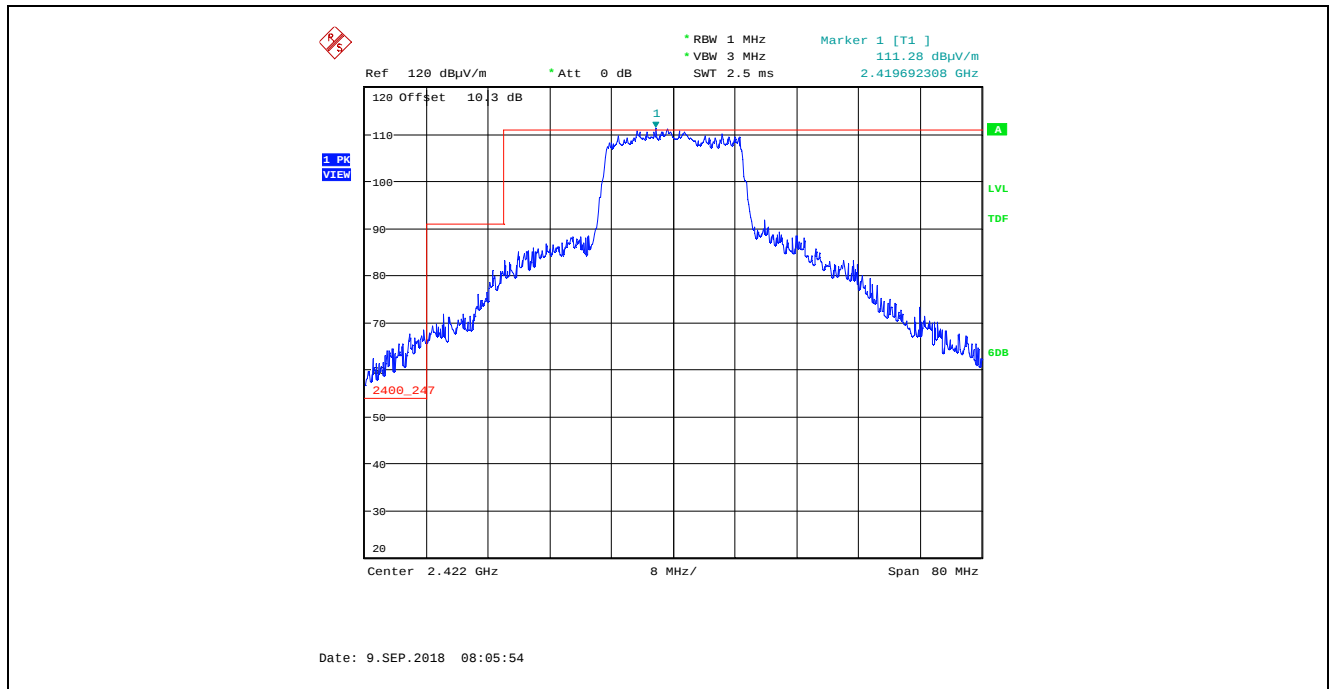
**Plot 5.4.4.1.6.135.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 25, Channel 10, 2457 MHz



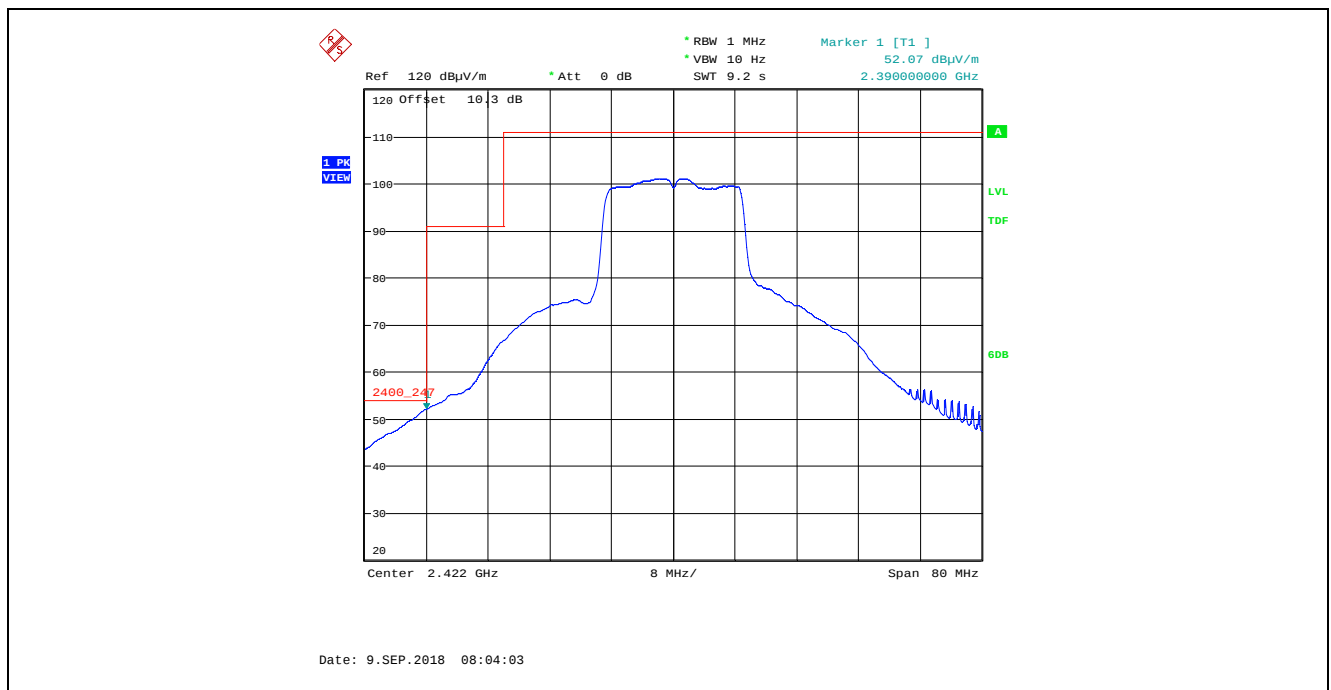
**Plot 5.4.4.1.6.136.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 25, Channel 10, 2457 MHz



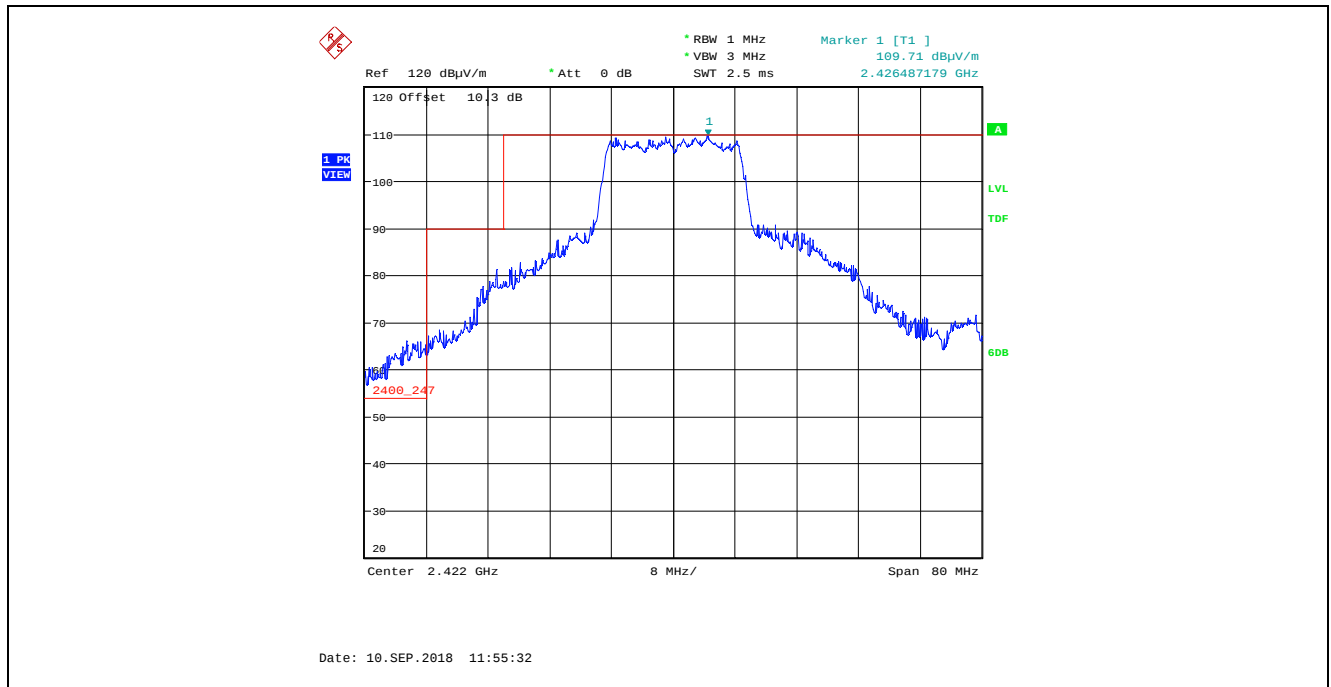
**Plot 5.4.4.1.6.137.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 27, Channel 3, 2422 MHz



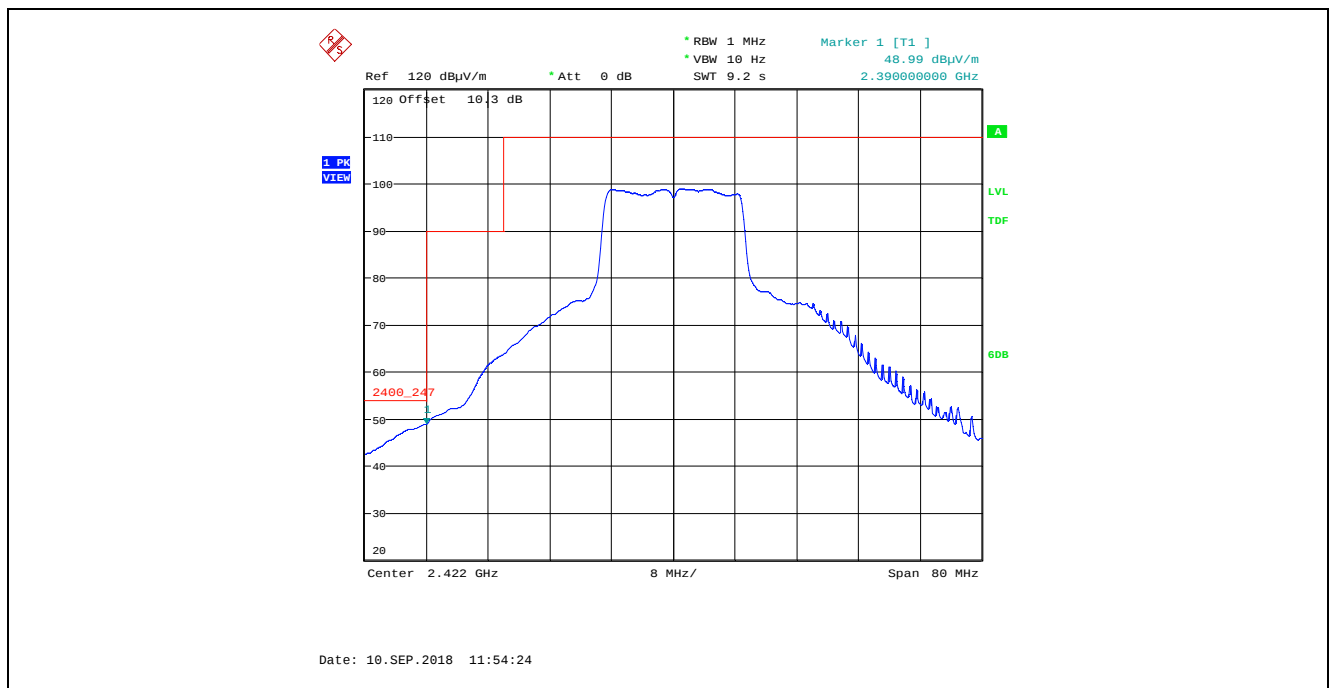
**Plot 5.4.4.1.6.138.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 27, Channel 3, 2422 MHz



**Plot 5.4.4.1.6.139.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 27, Channel 3, 2422 MHz



**Plot 5.4.4.1.6.140.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 27, Channel 3, 2422 MHz



Ref 120 dBμV/m Att 0 dB RBW 1 MHz VBW 3 MHz SWT 2.5 ms

Marker 1 [T1] 110.51 dBμV/m 2.44866667 GHz

1 PK VIEW

120 Offset 10.3 dB

110

100

90

80

70

60

50

40

30

20

Center 2.452 GHz 8 MHz/ Span 80 MHz

2400 247

1

A

LVL

TDF

6DB

Date: 9.SEP.2018 10:52:01

Ref 120 Offset 10.3 dB Att 0 dB RBW 1 MHz VBW 10 Hz SWT 9.2 s Marker 1 [T1] 50.52 dBμV/m 2.48350000 GHz

1 PK VIEW

2400.247

120 Offset 10.3 dB

110

100

90

80

70

60

50

40

30

20

Center 2.452 GHz 8 MHz/ Span 80 MHz

A

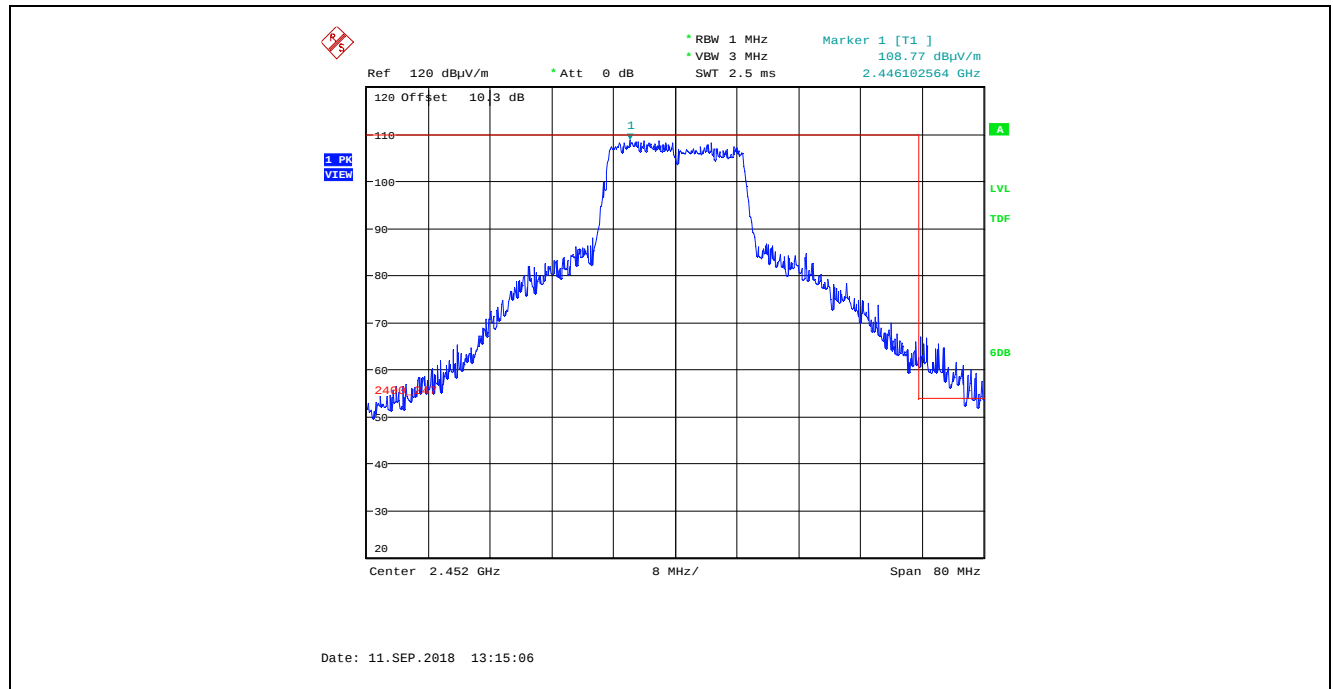
LVL

TDF

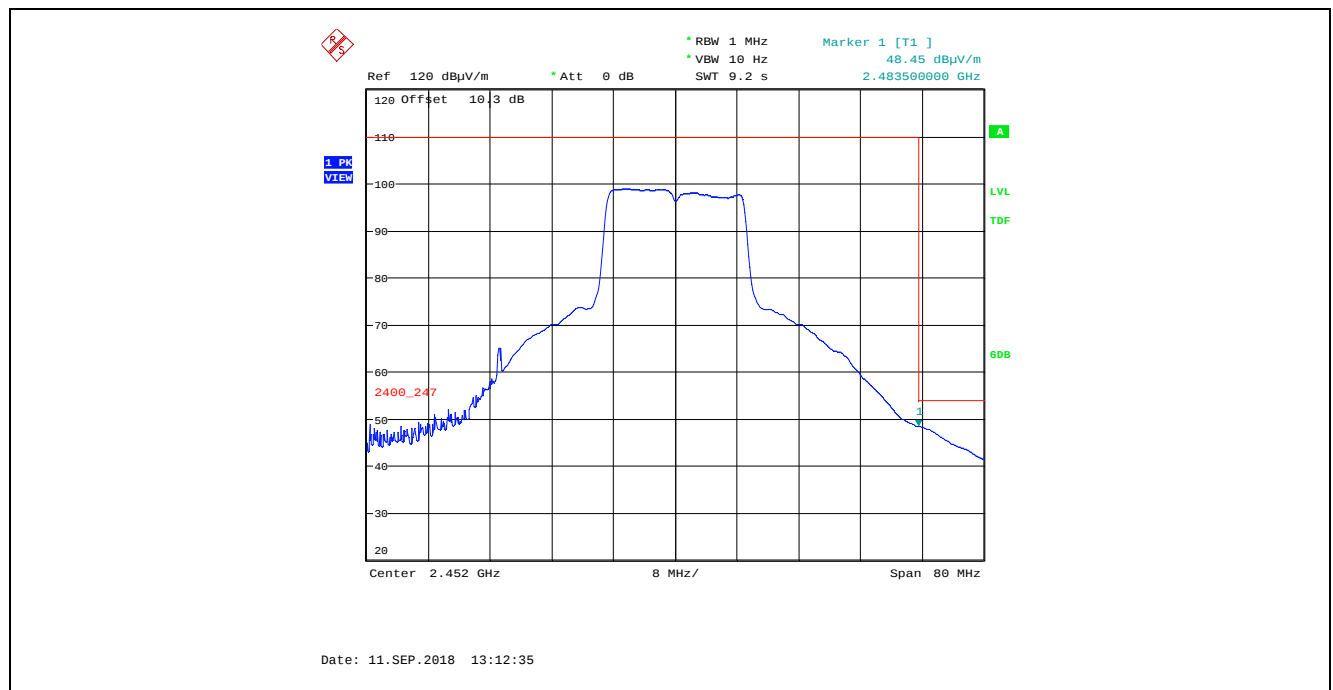
6DB

Date: 9.SEP.2018 10:53:12

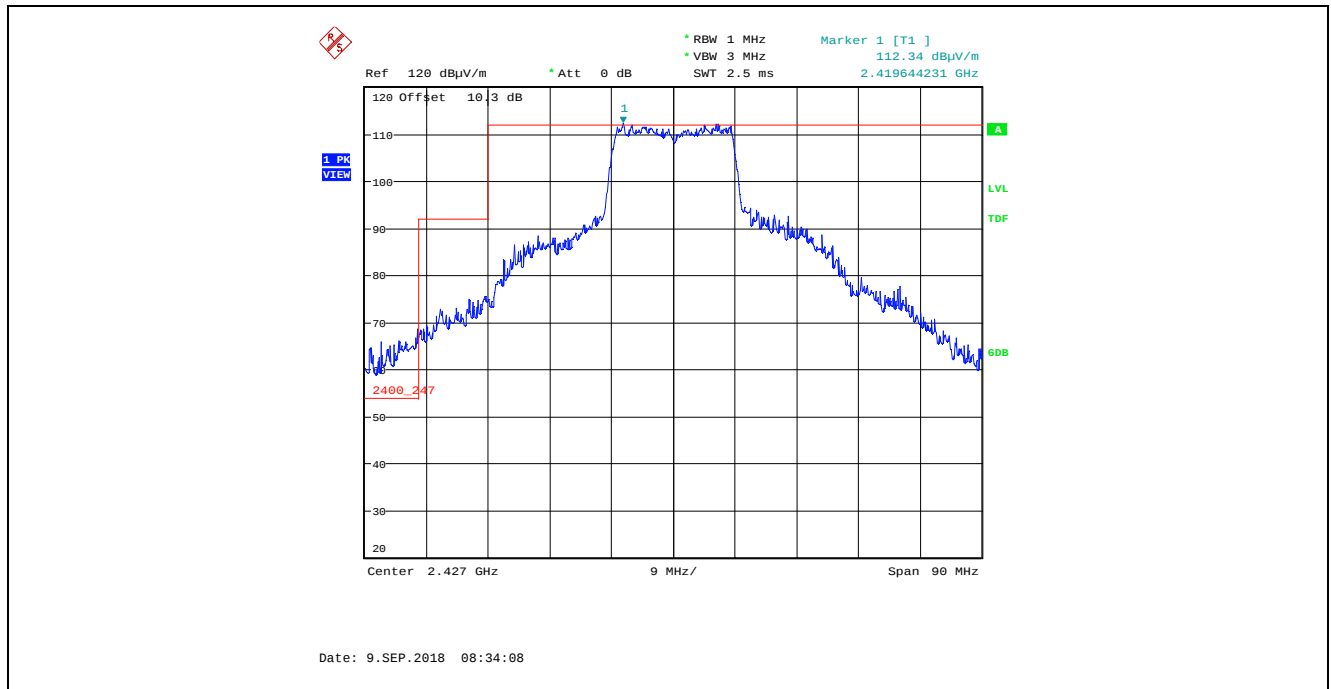
**Plot 5.4.4.1.6.143.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 26, Channel 9, 2452 MHz



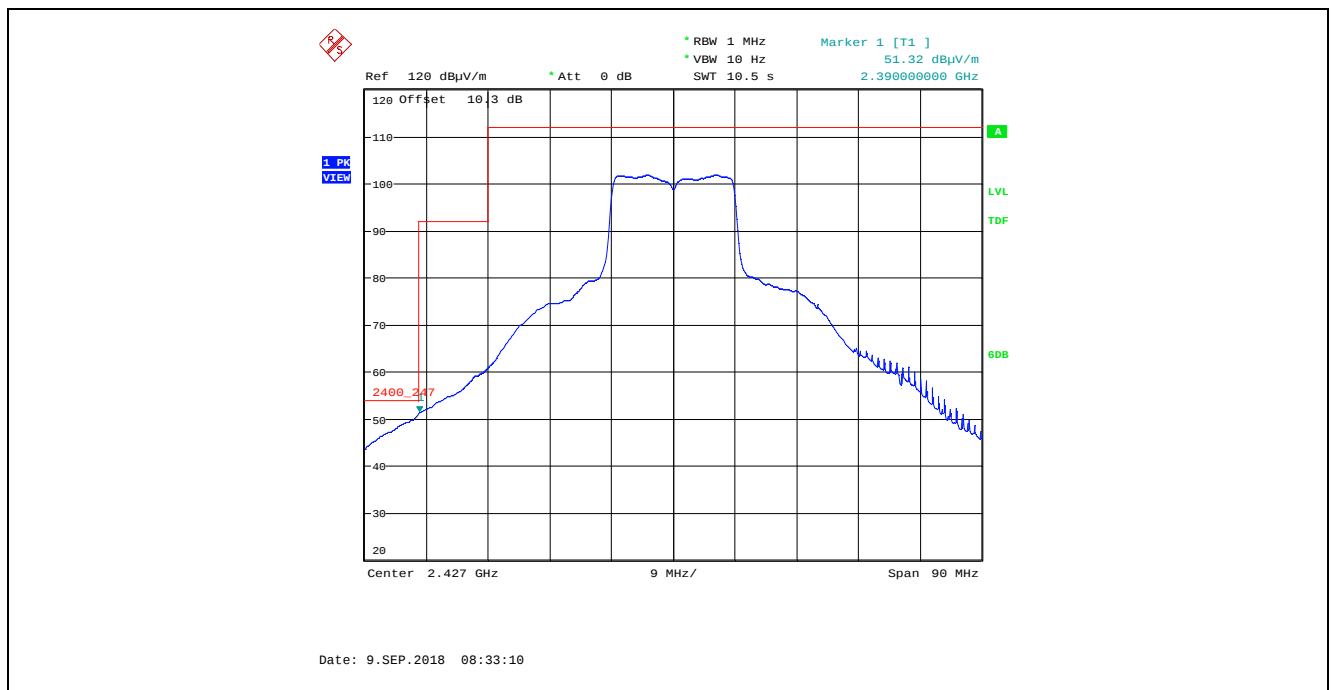
**Plot 5.4.4.1.6.144.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 26, Channel 9, 2452 MHz



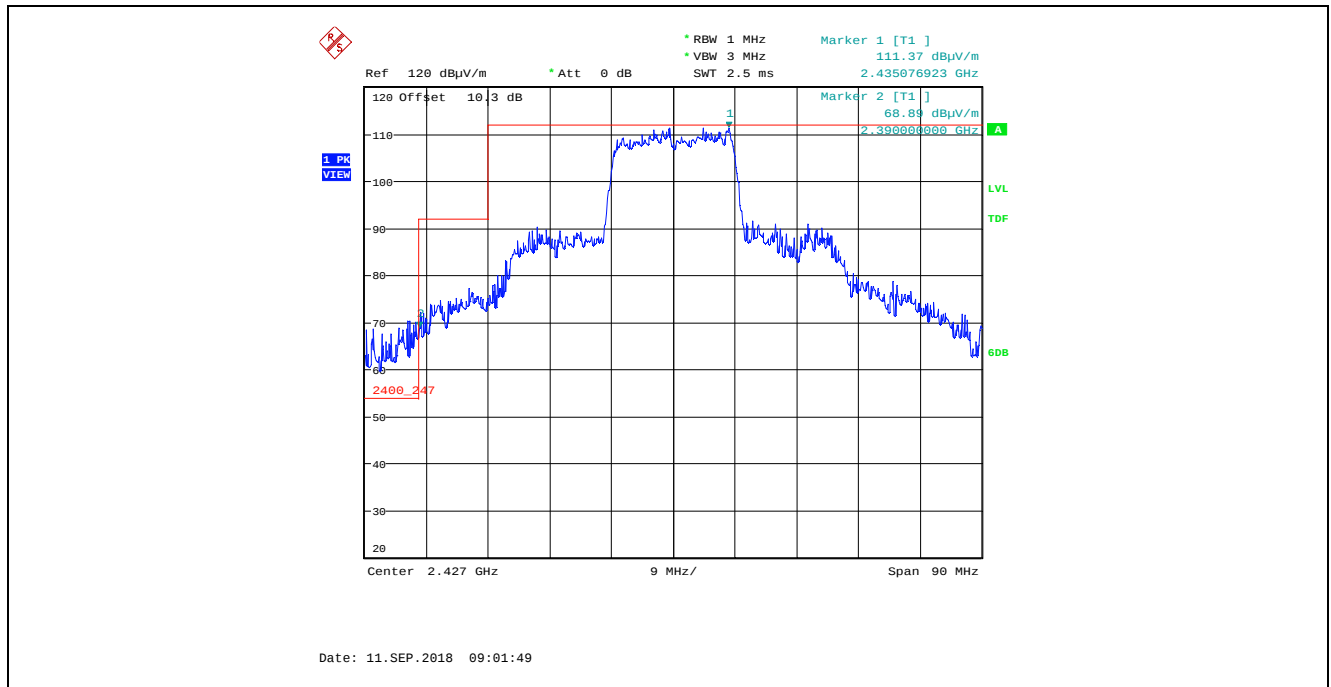
**Plot 5.4.4.1.6.145.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 29, Channel 4, 2427 MHz



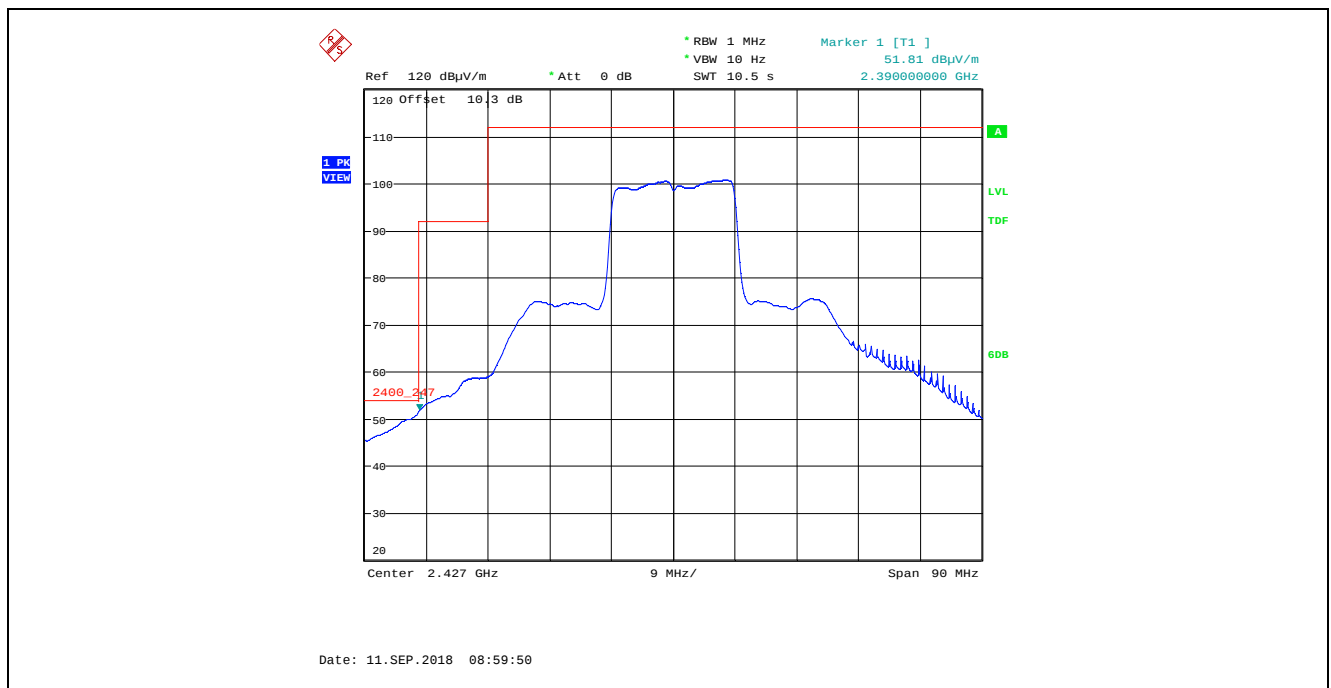
**Plot 5.4.4.1.6.146.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 29, Channel 4, 2427 MHz



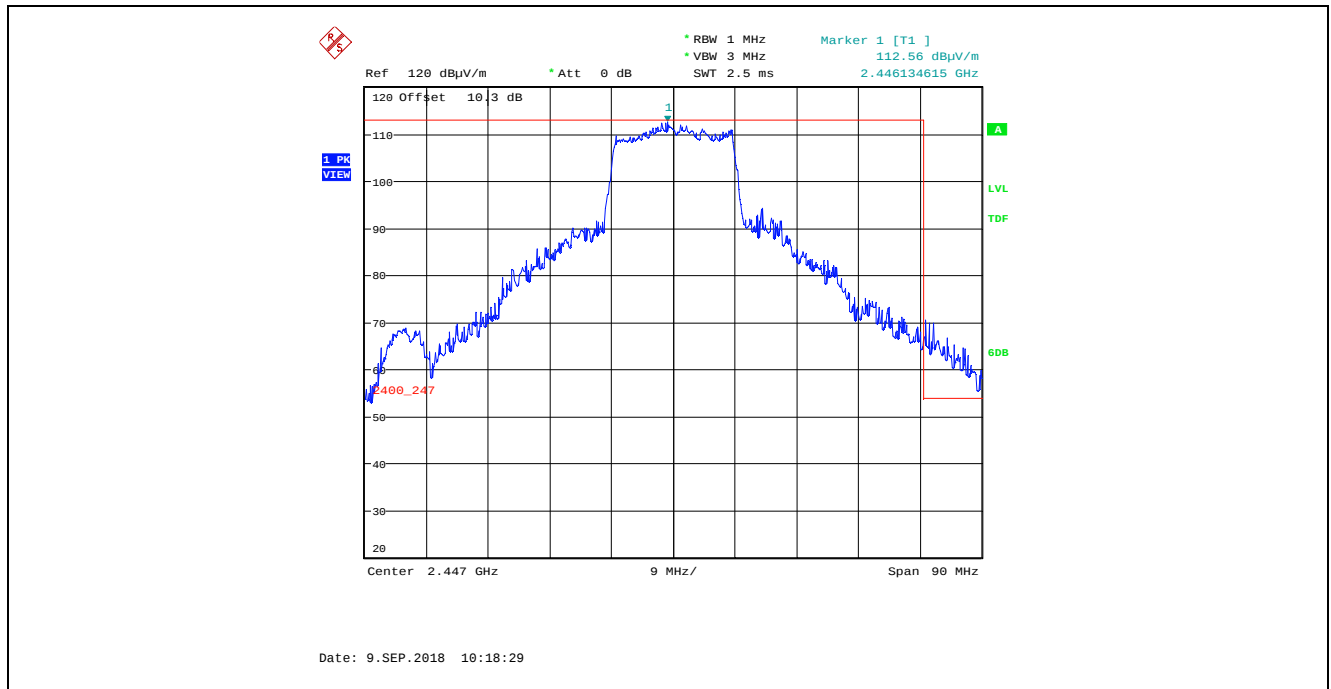
**Plot 5.4.4.1.6.147.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 29, Channel 4, 2427 MHz



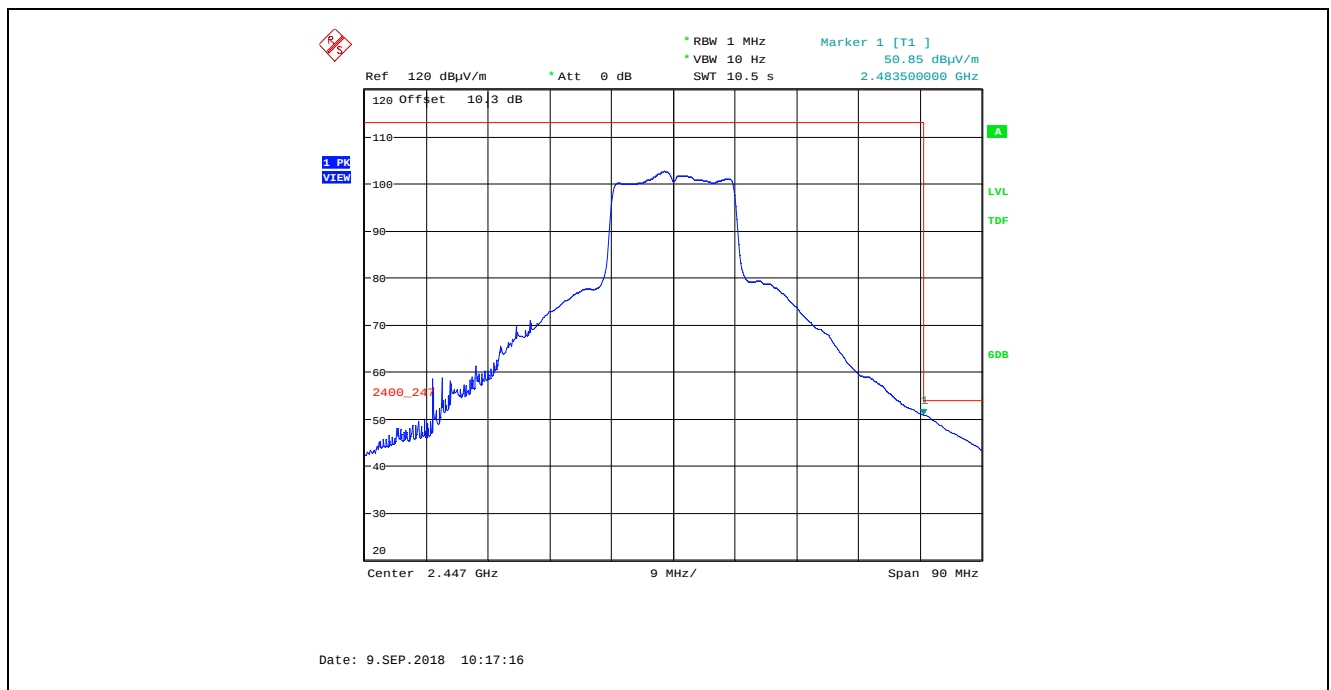
**Plot 5.4.4.1.6.148.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 29, Channel 4, 2427 MHz



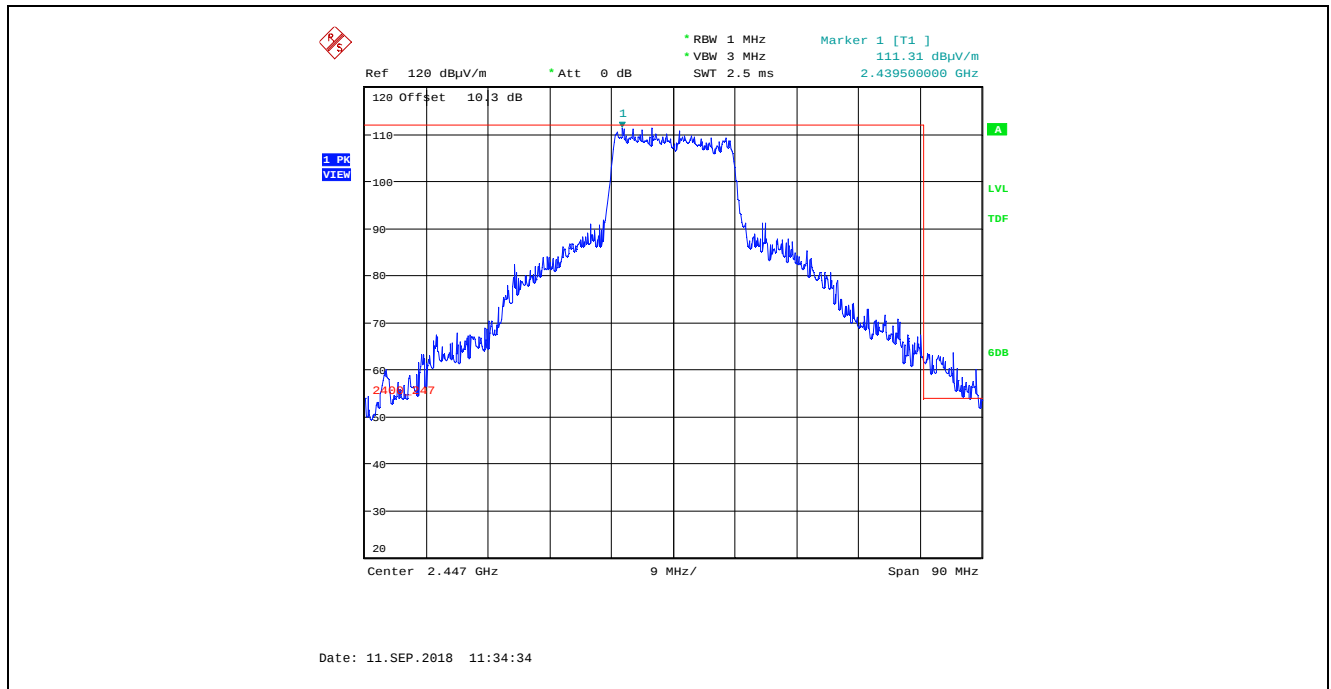
**Plot 5.4.4.1.6.149.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 28, Channel 8, 2447 MHz



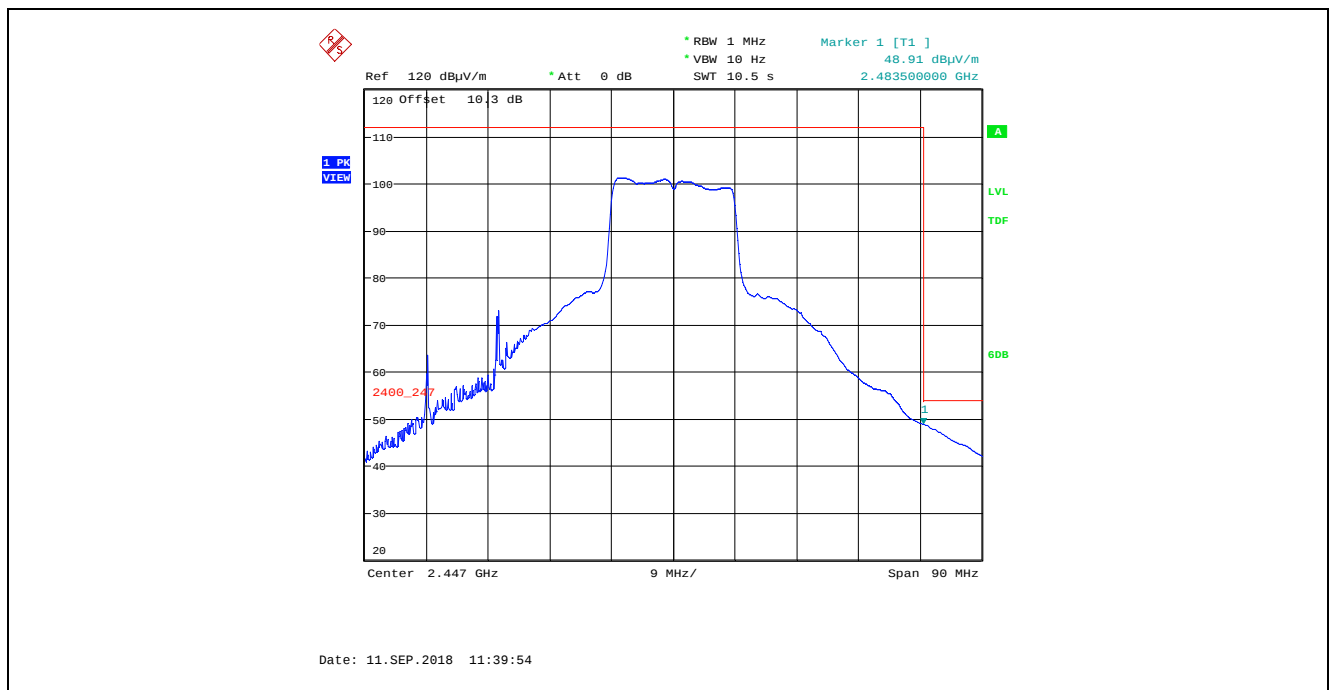
**Plot 5.4.4.1.6.150.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 28, Channel 8, 2447 MHz



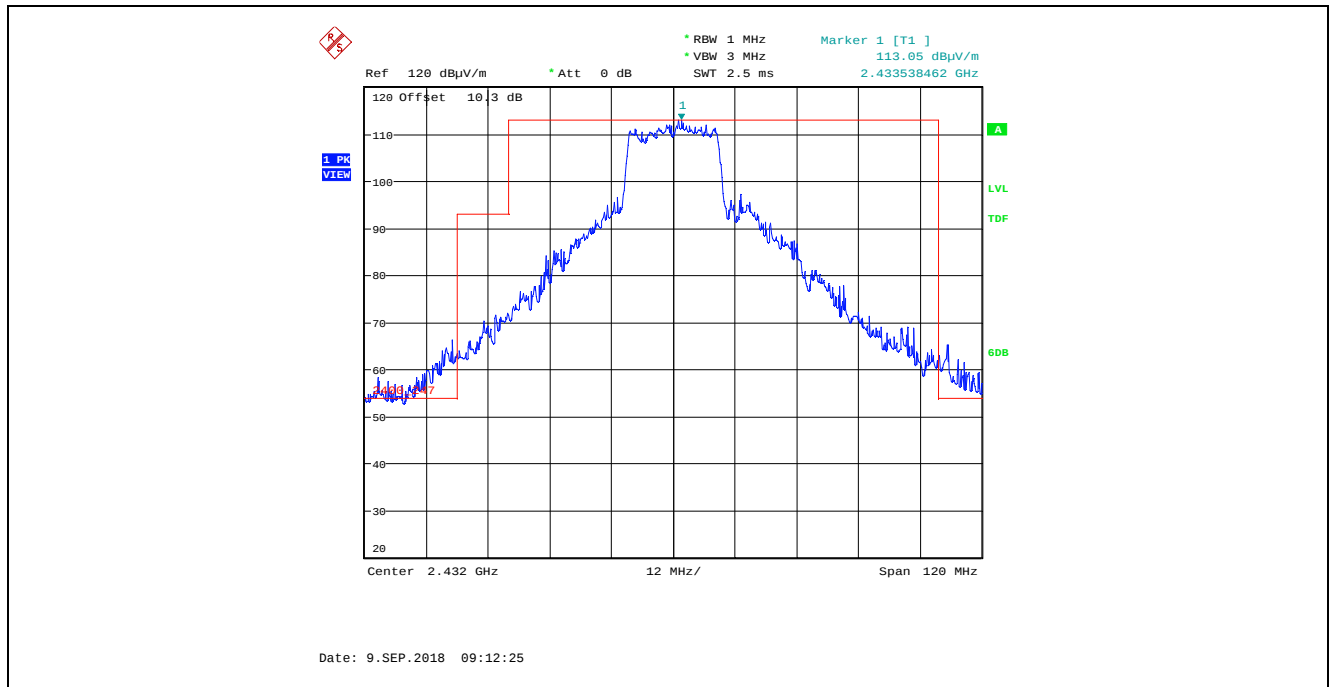
**Plot 5.4.4.1.6.151.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 28, Channel 8, 2447 MHz



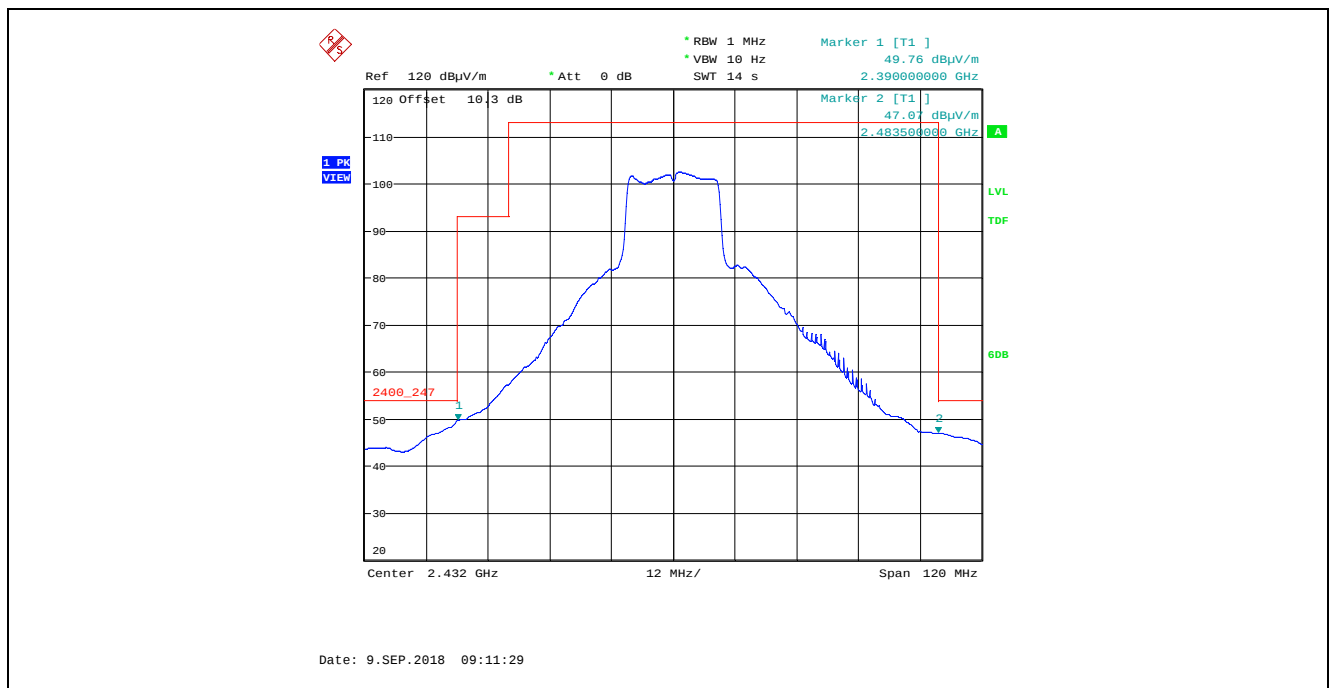
**Plot 5.4.4.1.6.152.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 28, Channel 8, 2447 MHz



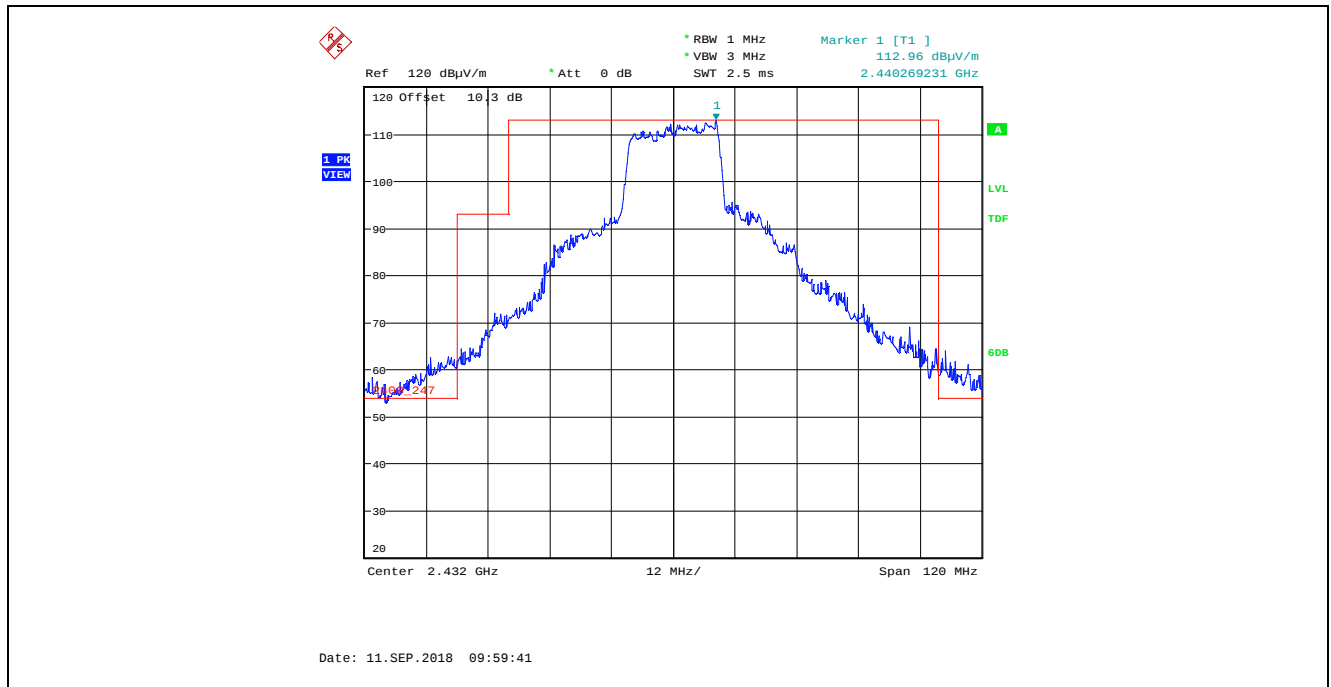
**Plot 5.4.4.1.6.153.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 30, Channel 5, 2432 MHz



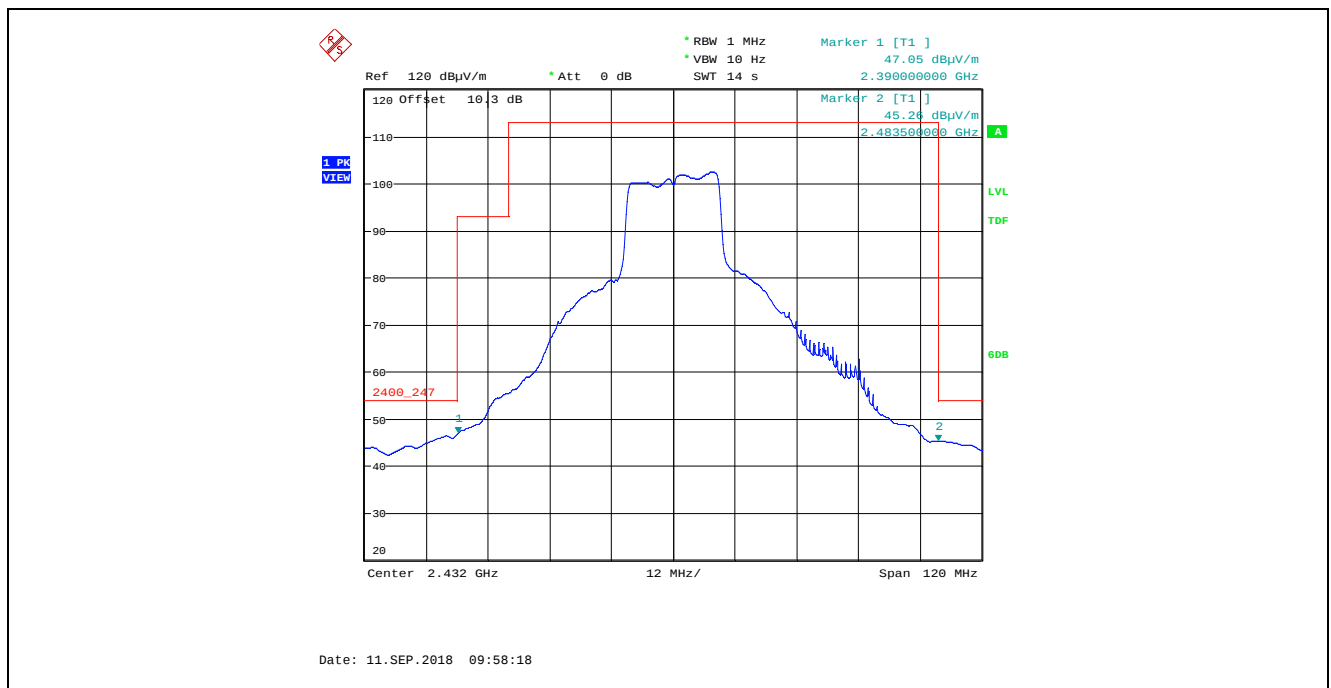
**Plot 5.4.4.1.6.154.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 30, Channel 5, 2432 MHz



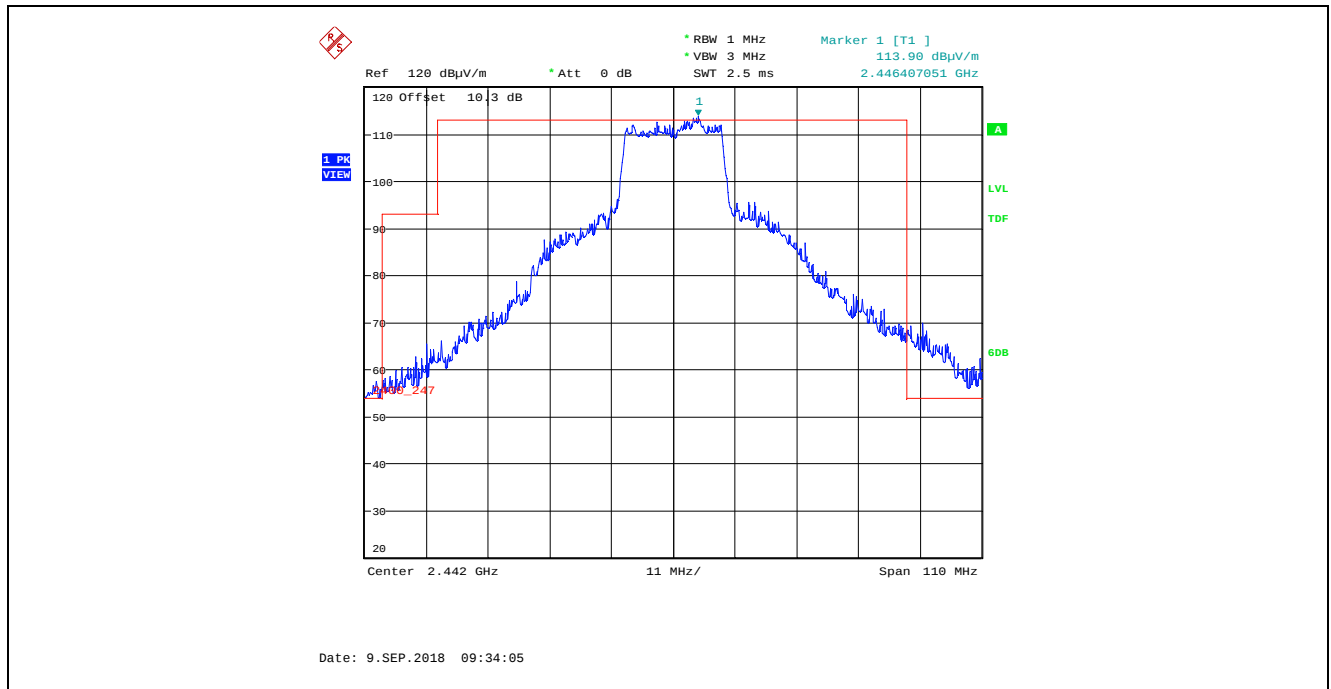
**Plot 5.4.4.1.6.155.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 30, Channel 5, 2432 MHz



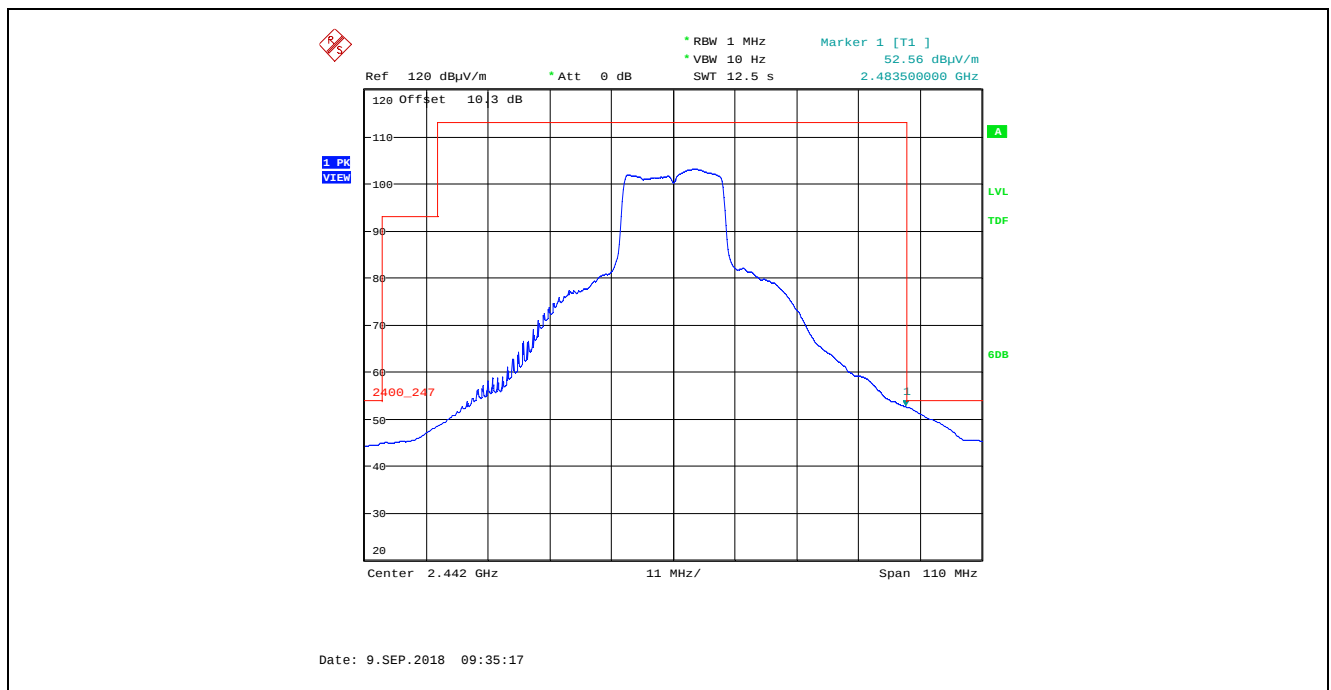
**Plot 5.4.4.1.6.156.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 30, Channel 5, 2432 MHz



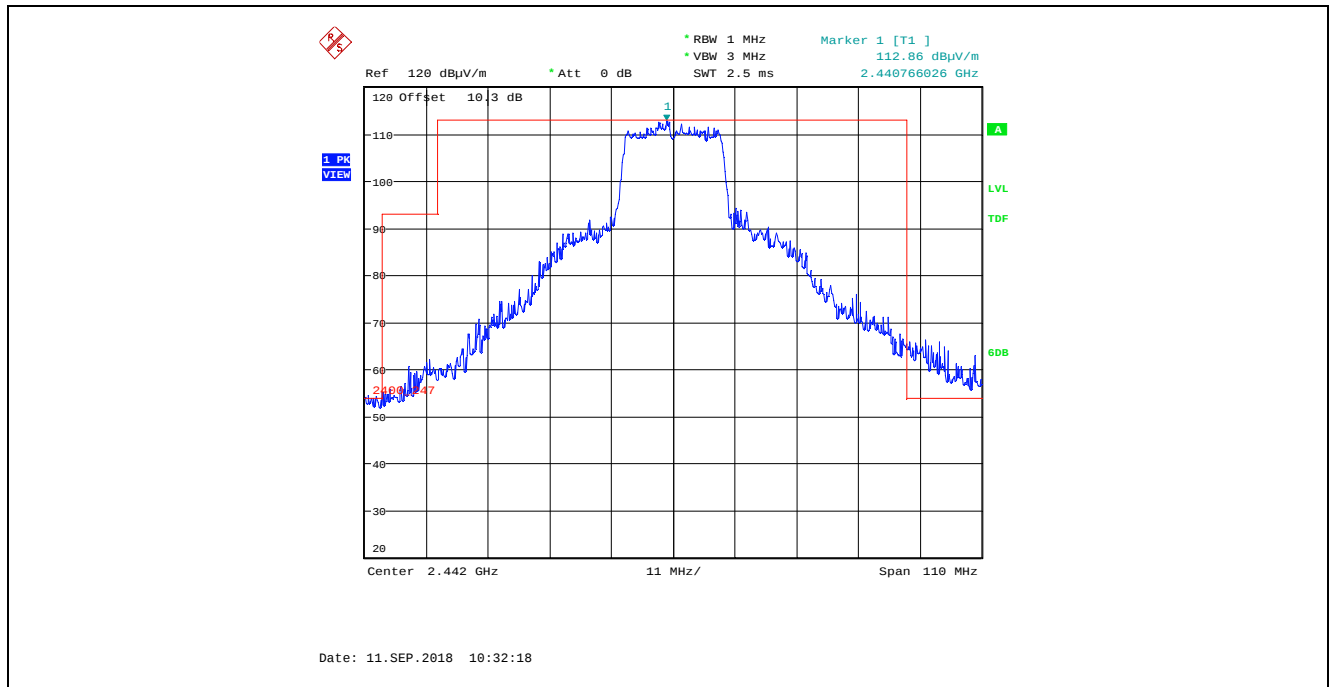
**Plot 5.4.4.1.6.157.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 30, Channel 7, 2442 MHz



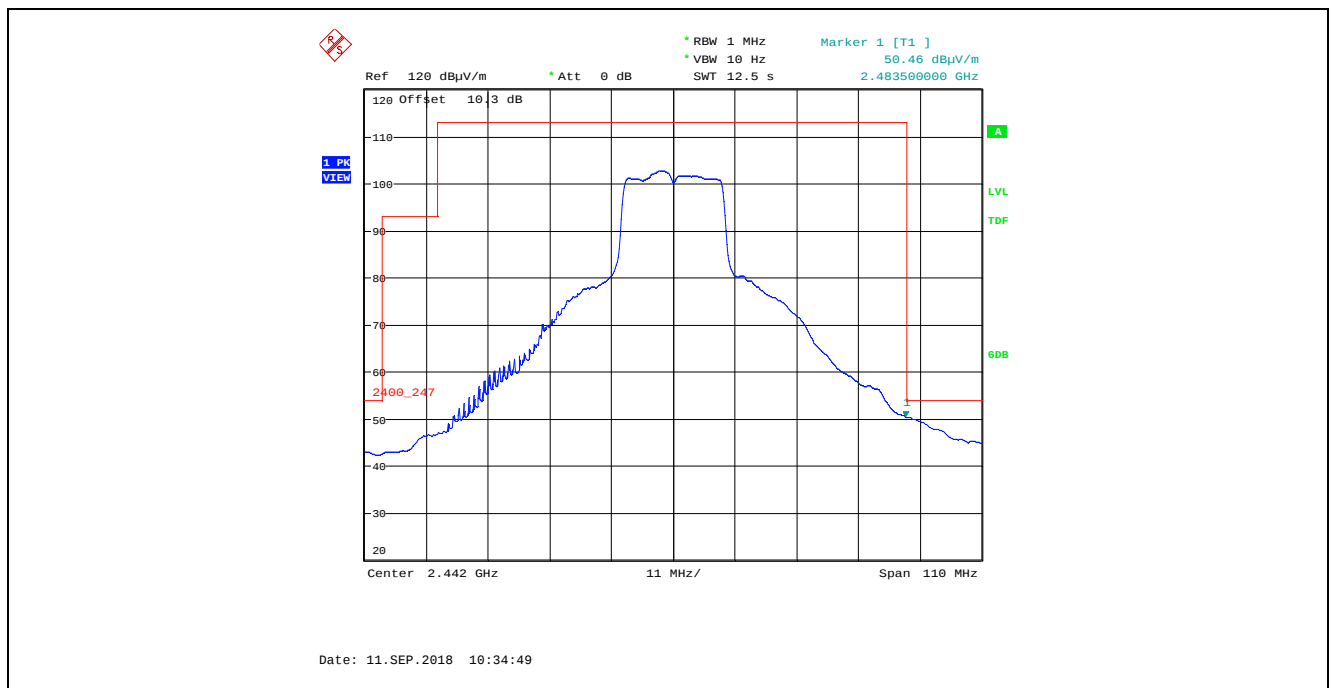
**Plot 5.4.4.1.6.158.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 30, Channel 7, 2442 MHz



**Plot 5.4.4.1.6.159.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 30, Channel 7, 2442 MHz



**Plot 5.4.4.1.6.160.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 30, Channel 7, 2442 MHz



#### 5.4.4.2. Test Configuration 2: EUT with Airgain 1.6 dBi FPC Dipole Antenna

##### 5.4.4.2.1. Spurious Radiated Emissions for 802.11b 1Mbps DBPSK

| Fundamental Frequency: |                        | 2412 MHz              |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz       |                     |                       |                       |             |           |
| Power Setting:         |                        | 22                    |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBµV/m) | RF Avg Level (dBµV/m) | Antenna Plane (H/V) | Limit 15.209 (dBµV/m) | Limit 15.247 (dBµV/m) | Margin (dB) | Pass/Fail |
| 2412                   | 111.68                 | --                    | V                   | --                    | --                    | --          | --        |
| 2412                   | 114.15                 | --                    | H                   | --                    | --                    | --          | --        |
| 4824                   | 49.23                  | 38.83                 | V                   | 54.0                  | 94.2                  | -15.2       | Pass*     |
| 4824                   | 48.69                  | 38.53                 | H                   | 54.0                  | 94.2                  | -15.5       | Pass*     |

\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

| Fundamental Frequency: |                        | 2437 MHz              |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz       |                     |                       |                       |             |           |
| Power Setting:         |                        | 22                    |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBµV/m) | RF Avg Level (dBµV/m) | Antenna Plane (H/V) | Limit 15.209 (dBµV/m) | Limit 15.247 (dBµV/m) | Margin (dB) | Pass/Fail |
| 2437                   | 109.22                 | --                    | V                   | --                    | --                    | --          | --        |
| 2437                   | 114.84                 | --                    | H                   | --                    | --                    | --          | --        |
| 4874                   | 49.88                  | 37.12                 | V                   | 54.0                  | 94.8                  | -16.9       | Pass*     |
| 4874                   | 50.10                  | 37.59                 | H                   | 54.0                  | 94.8                  | -16.4       | Pass*     |

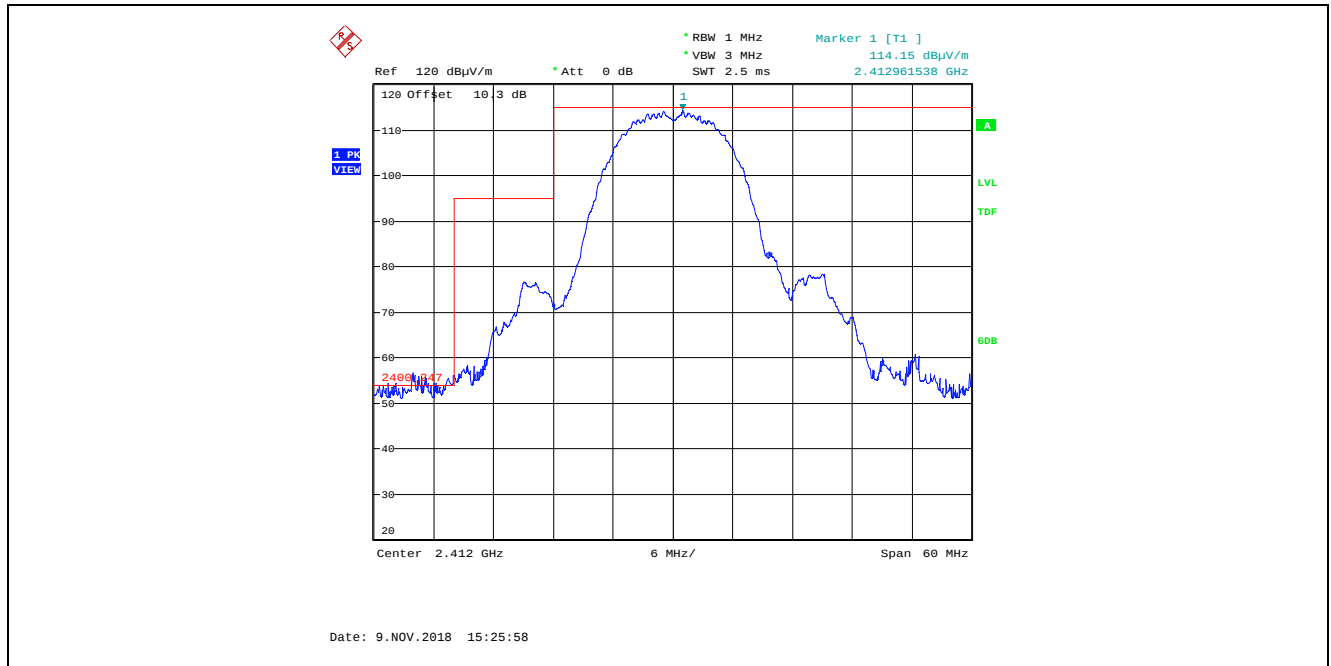
\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

| Fundamental Frequency: |                        | 2462 MHz              |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz       |                     |                       |                       |             |           |
| Power Setting:         |                        | 22 (for fundamental)  |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBµV/m) | RF Avg Level (dBµV/m) | Antenna Plane (H/V) | Limit 15.209 (dBµV/m) | Limit 15.247 (dBµV/m) | Margin (dB) | Pass/Fail |
| 2462                   | 108.55                 | --                    | V                   | --                    | --                    | --          | --        |
| 2462                   | 114.77                 | --                    | H                   | --                    | --                    | --          | --        |
| 4924                   | 48.25                  | 36.33                 | V                   | 54.0                  | 94.8                  | -17.7       | Pass*     |
| 4924                   | 48.56                  | 36.57                 | H                   | 54.0                  | 94.8                  | -17.4       | Pass*     |

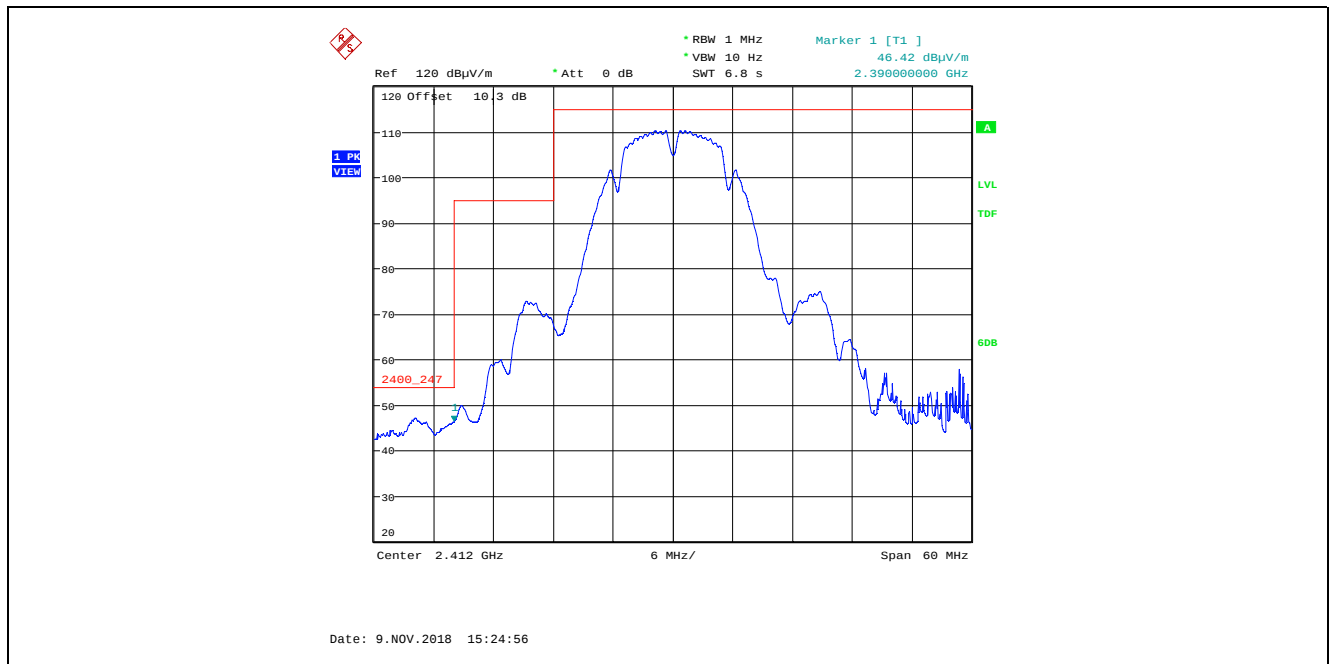
\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

#### 5.4.4.2.2. Band-Edge RF Radiated Emissions for 802.11b

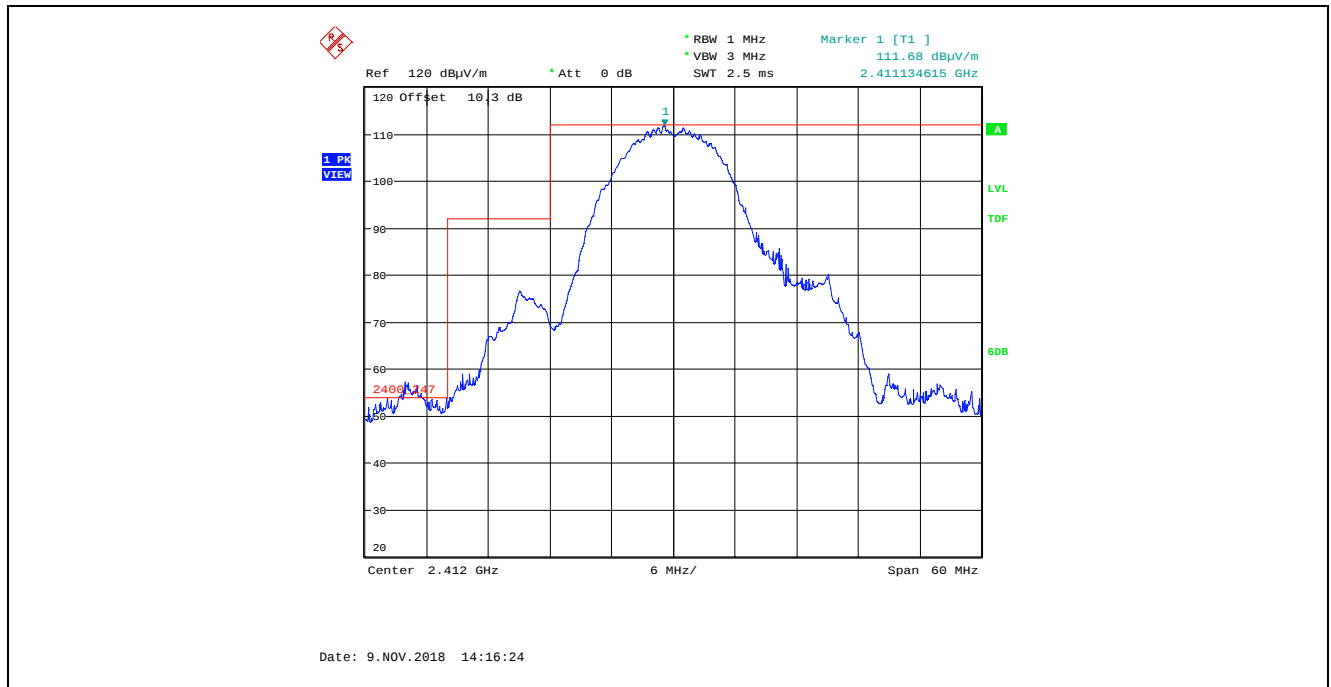
**Plot 5.4.4.2.1.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
1 Mbps DBPSK, Power Setting 22, Channel 1, 2412 MHz



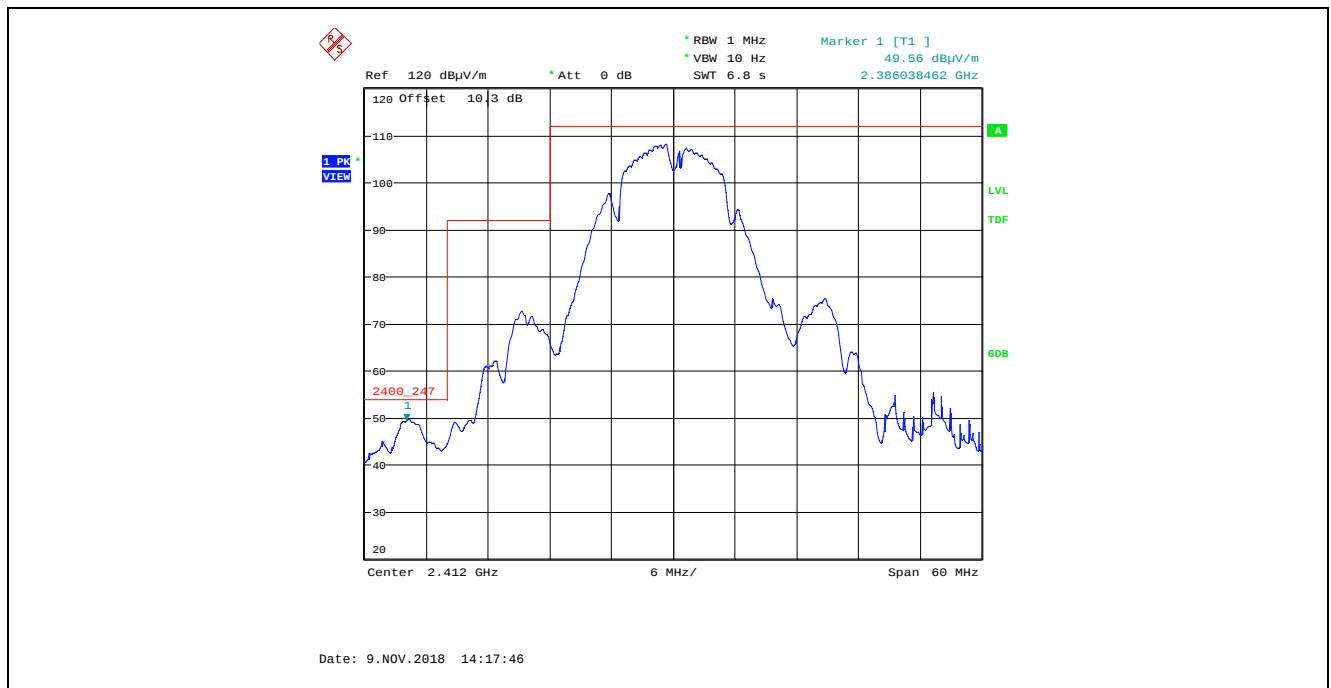
**Plot 5.4.4.2.2.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
1 Mbps DBPSK, Power Setting 22, Channel 1, 2412 MHz



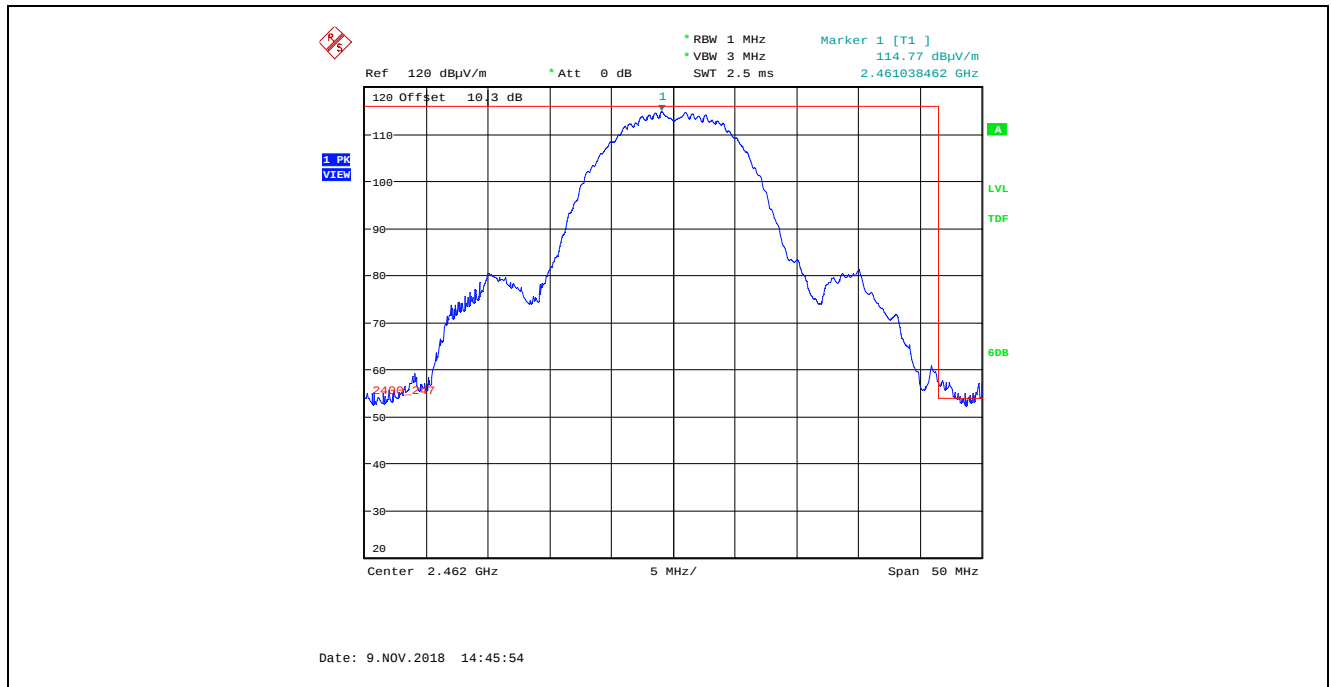
**Plot 5.4.4.2.2.3.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 1 Mbps DBPSK, Power Setting 22, Channel 1, 2412 MHz



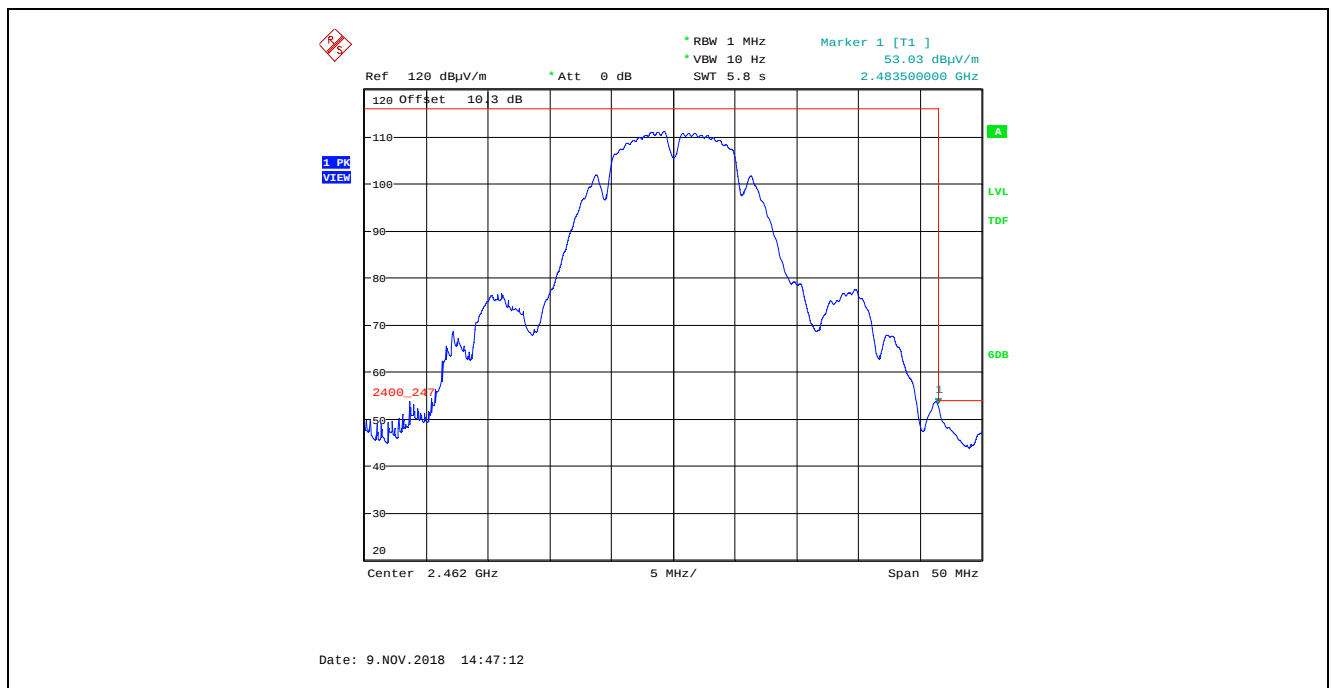
**Plot 5.4.4.2.2.4.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 1 Mbps DBPSK, Power Setting 22, Channel 1, 2412 MHz



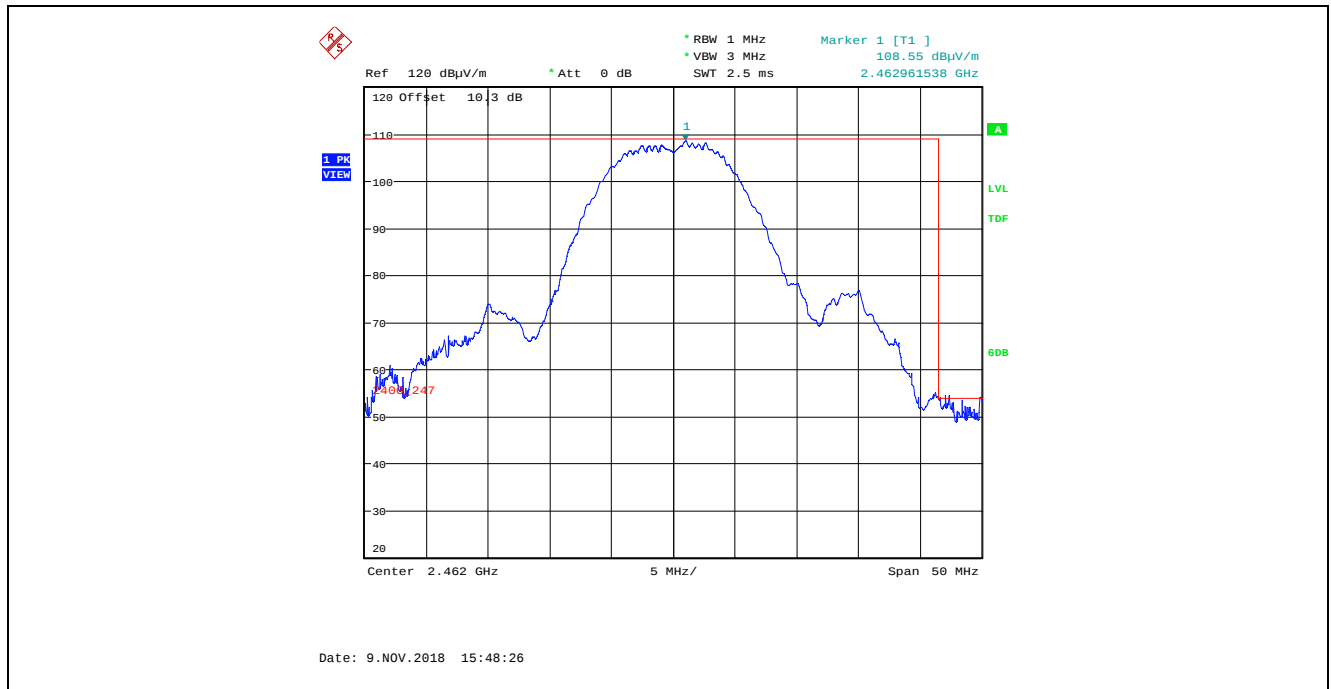
**Plot 5.4.4.2.2.5. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak 1 Mbps DBPSK, Power Setting 22, Channel 11, 2462 MHz**



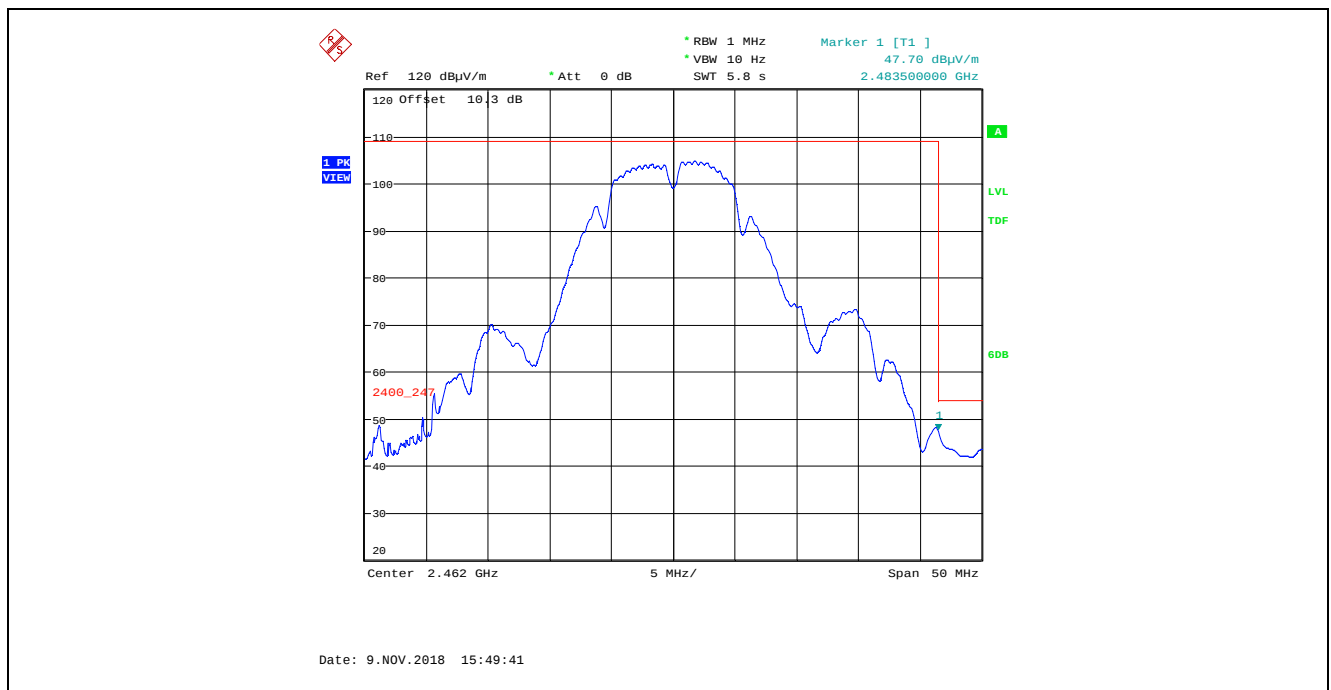
**Plot 5.4.4.2.2.6. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average 1 Mbps DBPSK, Power Setting 22, Channel 11, 2462 MHz**



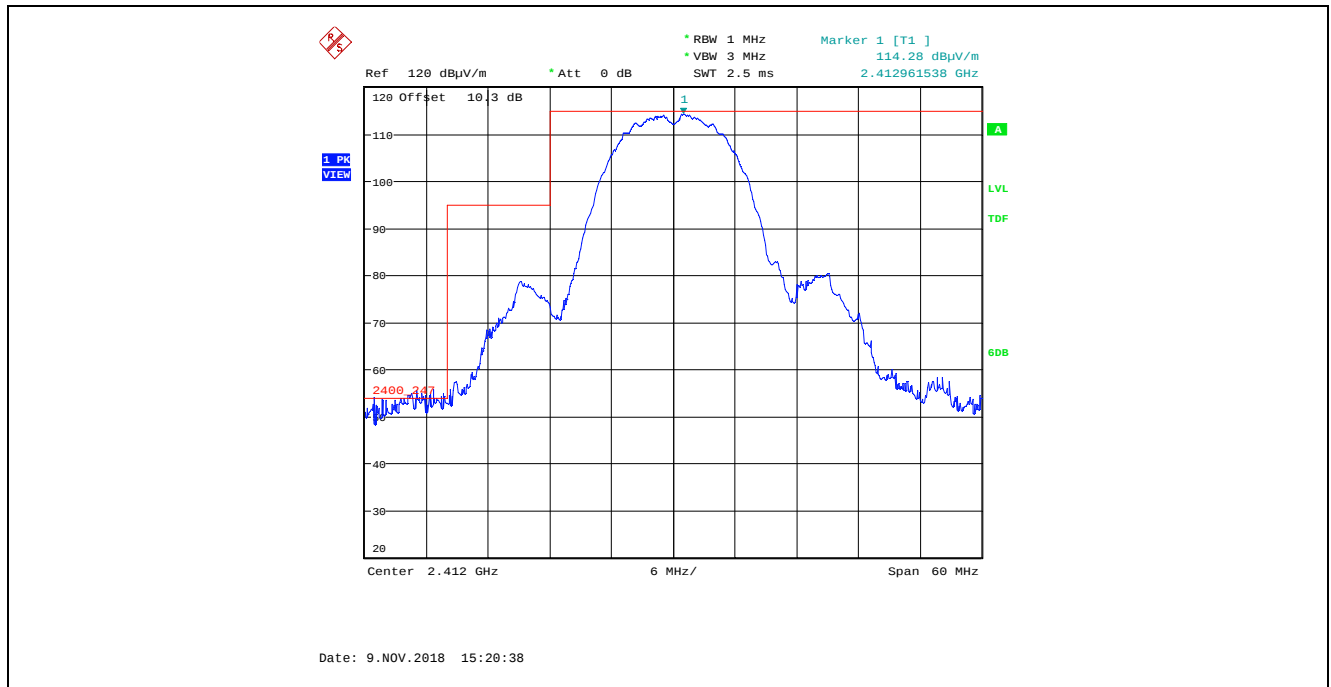
**Plot 5.4.4.2.7.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 1 Mbps DBPSK, Power Setting 22, Channel 11, 2462 MHz



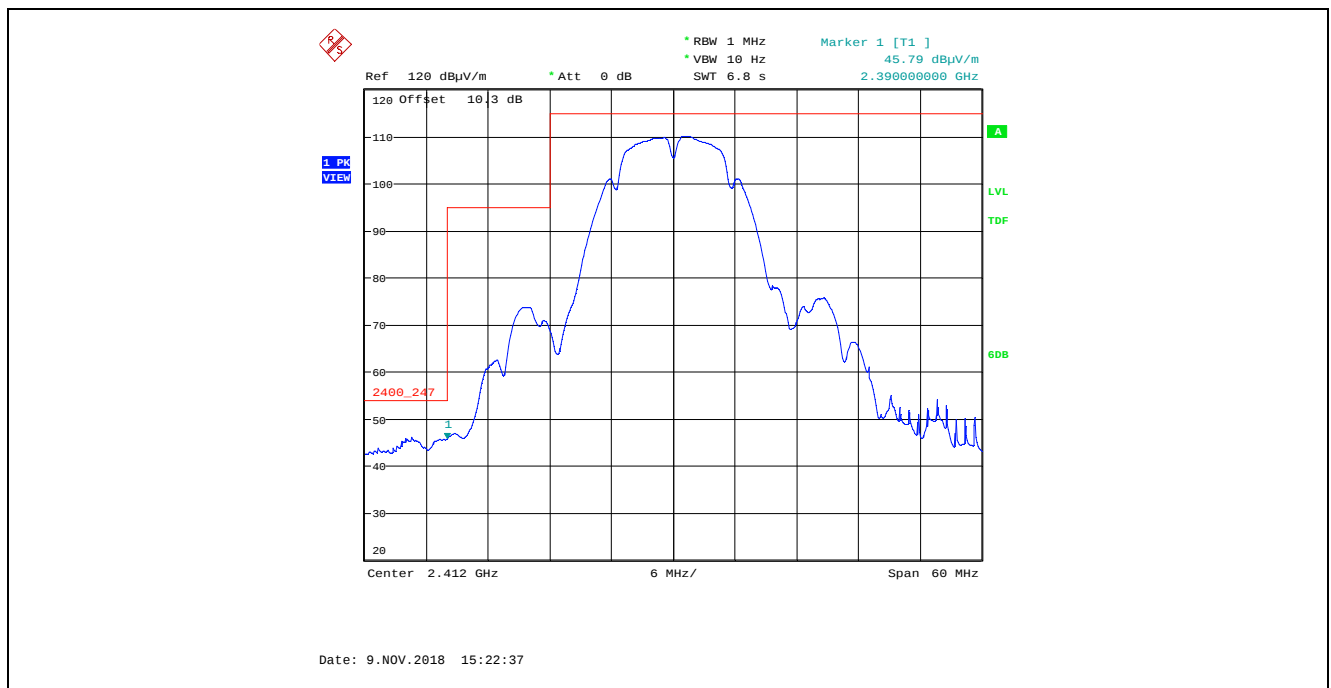
**Plot 5.4.4.2.8.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 1 Mbps DBPSK, Power Setting 22, Channel 11, 2462 MHz



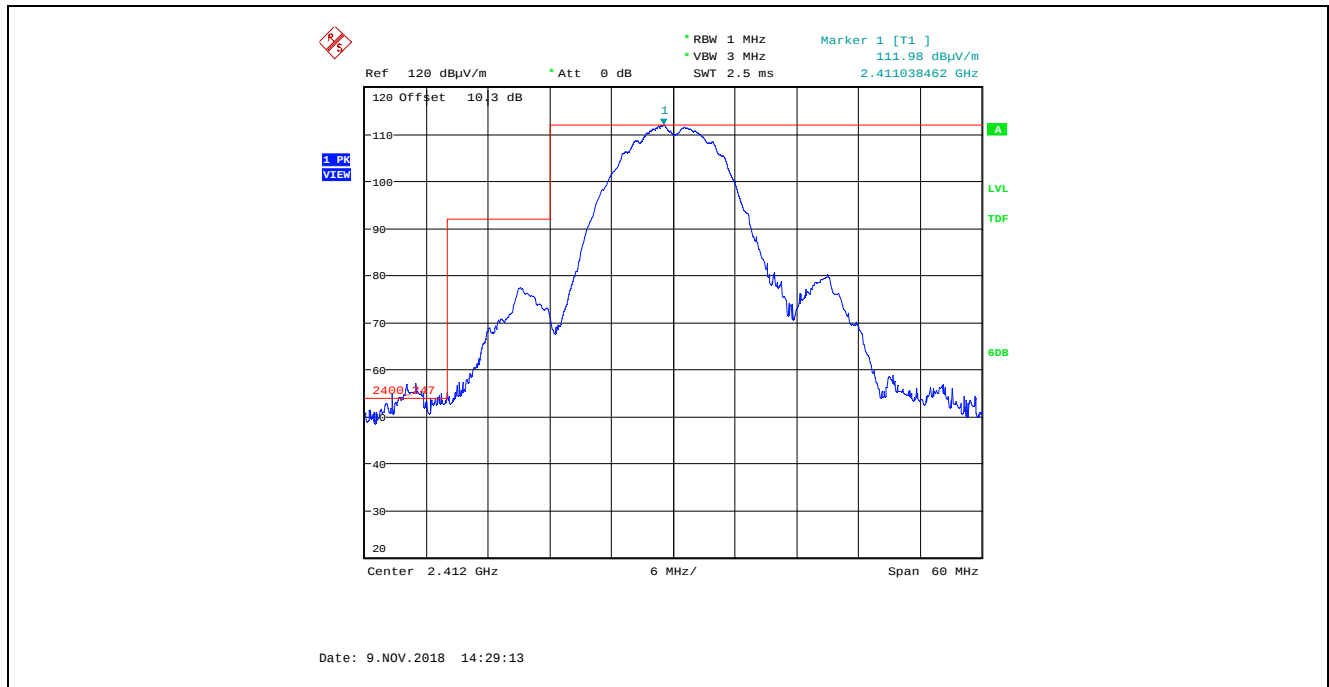
**Plot 5.4.4.2.9.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 2 Mbps DQPSK, Power Setting 22, Channel 1, 2412 MHz



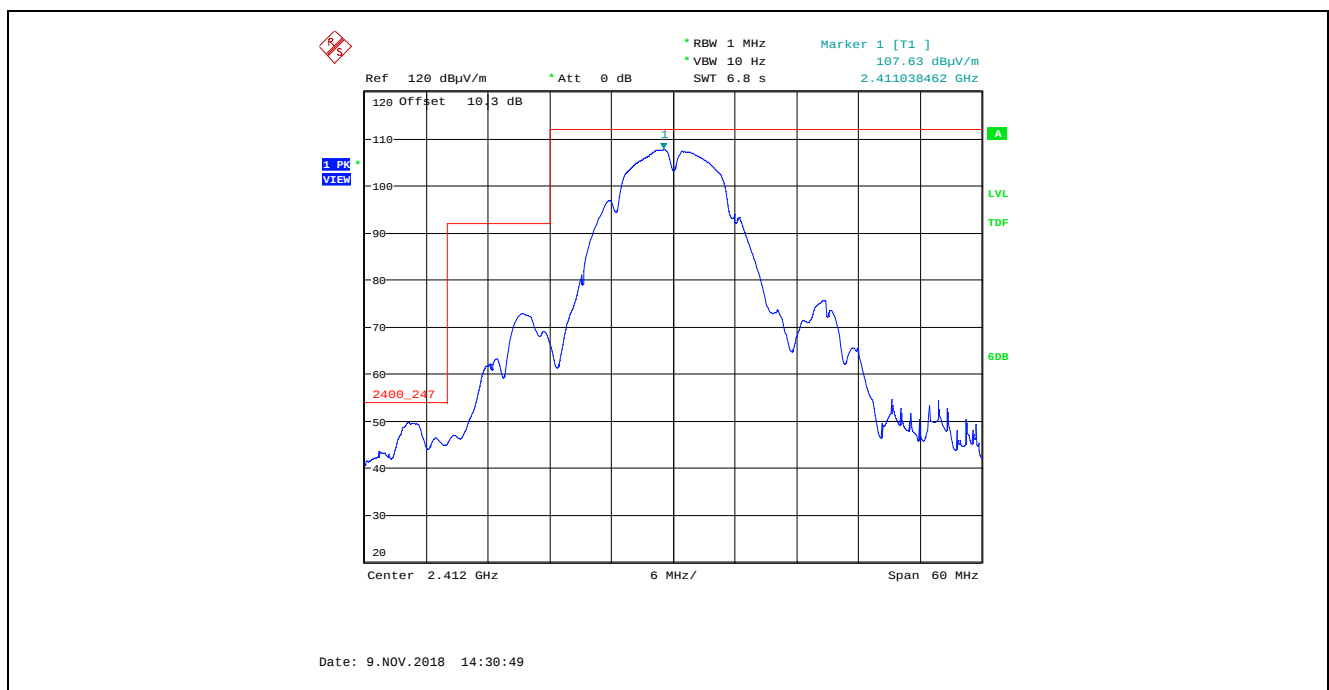
**Plot 5.4.4.2.10.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 2 Mbps DQPSK, Power Setting 22, Channel 1, 2412 MHz



**Plot 5.4.4.2.2.11.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 2 Mbps DQPSK, Power Setting 22, Channel 1, 2412 MHz



**Plot 5.4.4.2.2.12.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 2 Mbps DQPSK, Power Setting 22, Channel 1, 2412 MHz



Ref 120 dBμV/m Att 0 dB SWT 2.5 ms

RBW 1 MHz VBW 3 MHz

Marker 1 [T1] 114.84 dBμV/m 2.461038462 GHz

120 Offset 10 3 dB

1

1 PK VIEW

LVL

TDF

6dB

Center 2.462 GHz 5 MHz/ Span 50 MHz

Date: 9.NOV.2018 15:05:34

Ref 120 dBμV/m \* Att 0 dB SWT 5.8 s

\* RBW 1 MHz \* VBW 10 Hz

Marker 1 [T1] 52.83 dBμV/m 2.48350000 GHz

120 Offset 10.3 dB

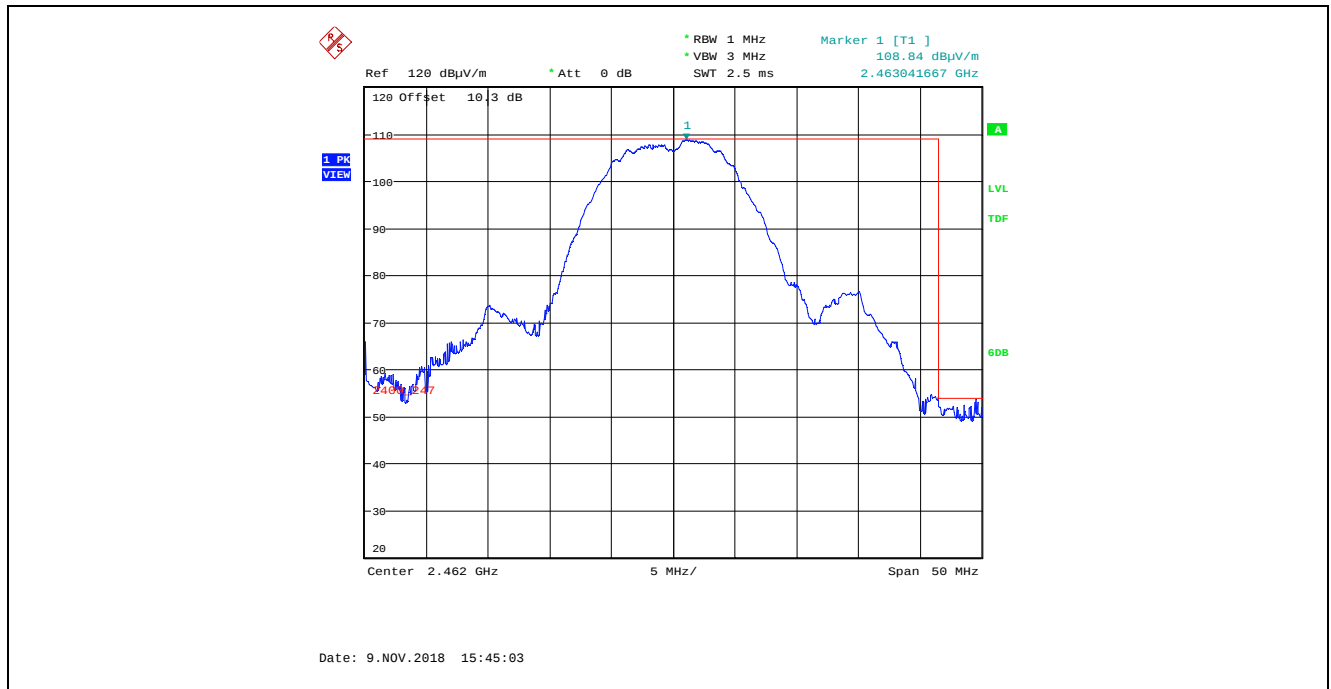
1 PK VIEW

2400\_247

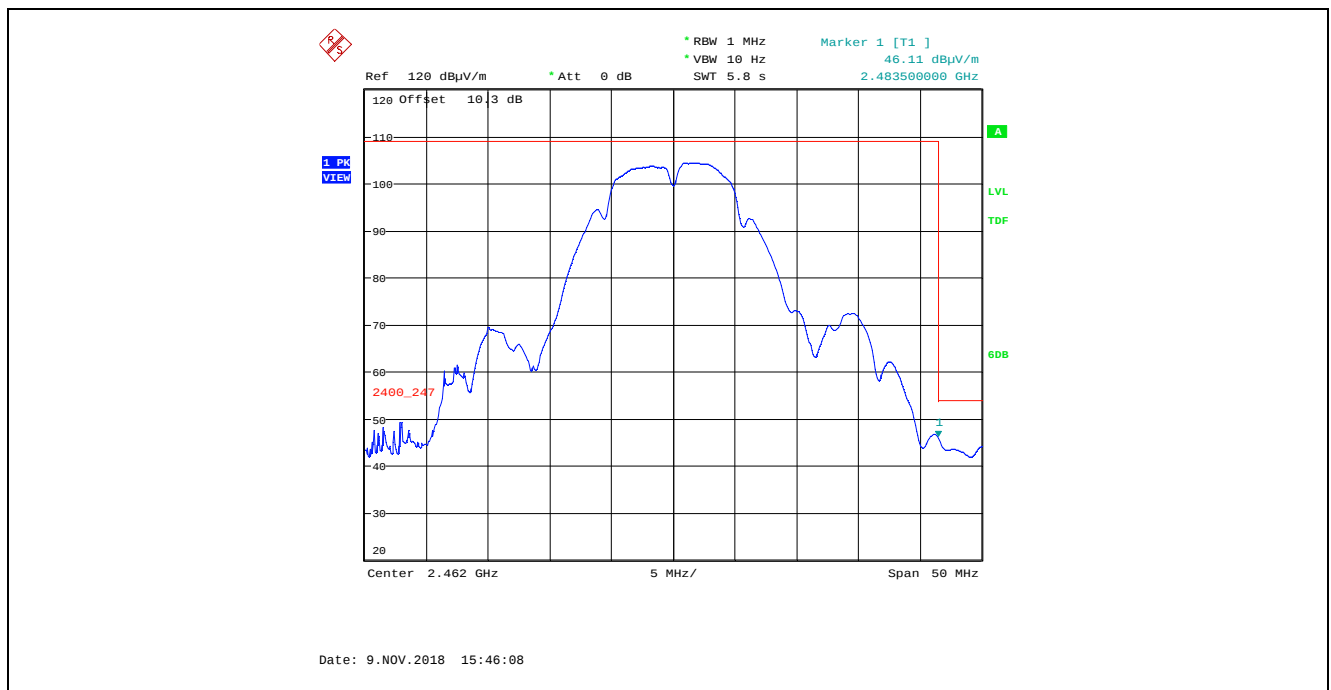
60 dB

Center 2.462 GHz 5 MHz/ Span 50 MHz

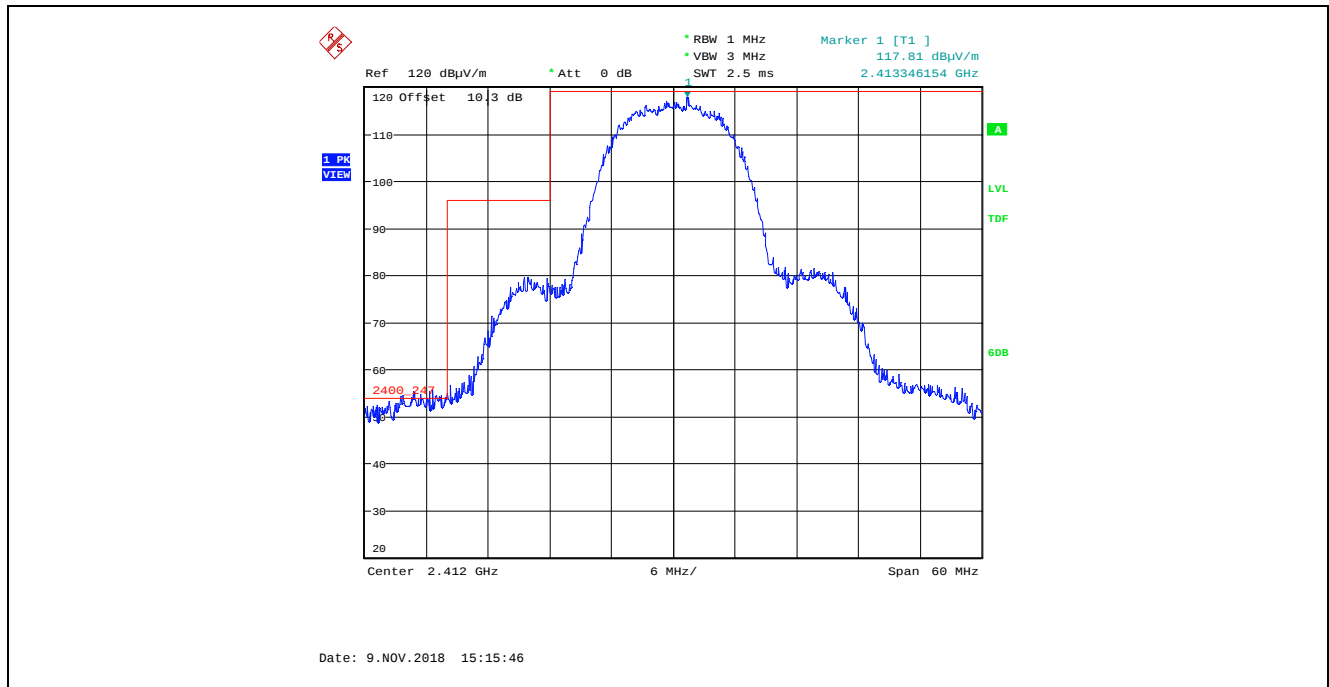
**Plot 5.4.4.2.2.15.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak 2 Mbps DQPSK, Power Setting 22, Channel 11, 2462 MHz



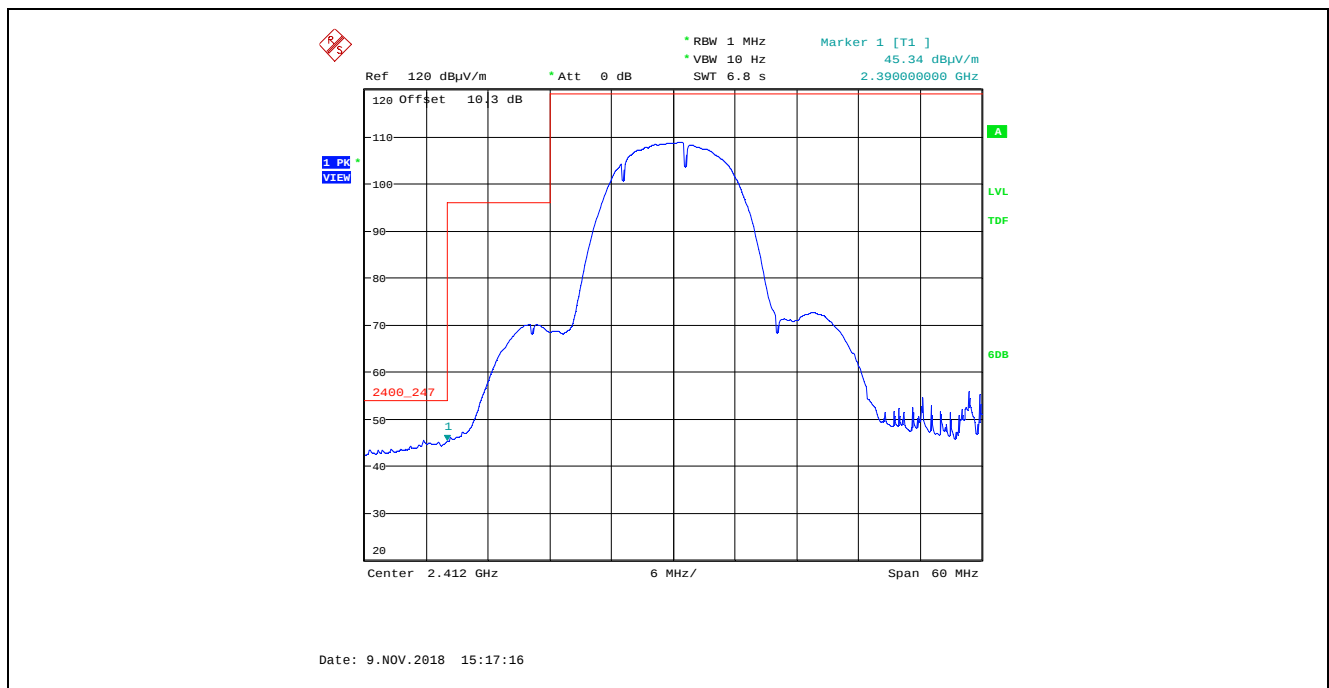
**Plot 5.4.4.2.2.16.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average 2 Mbps DQPSK, Power Setting 22, Channel 11, 2462 MHz



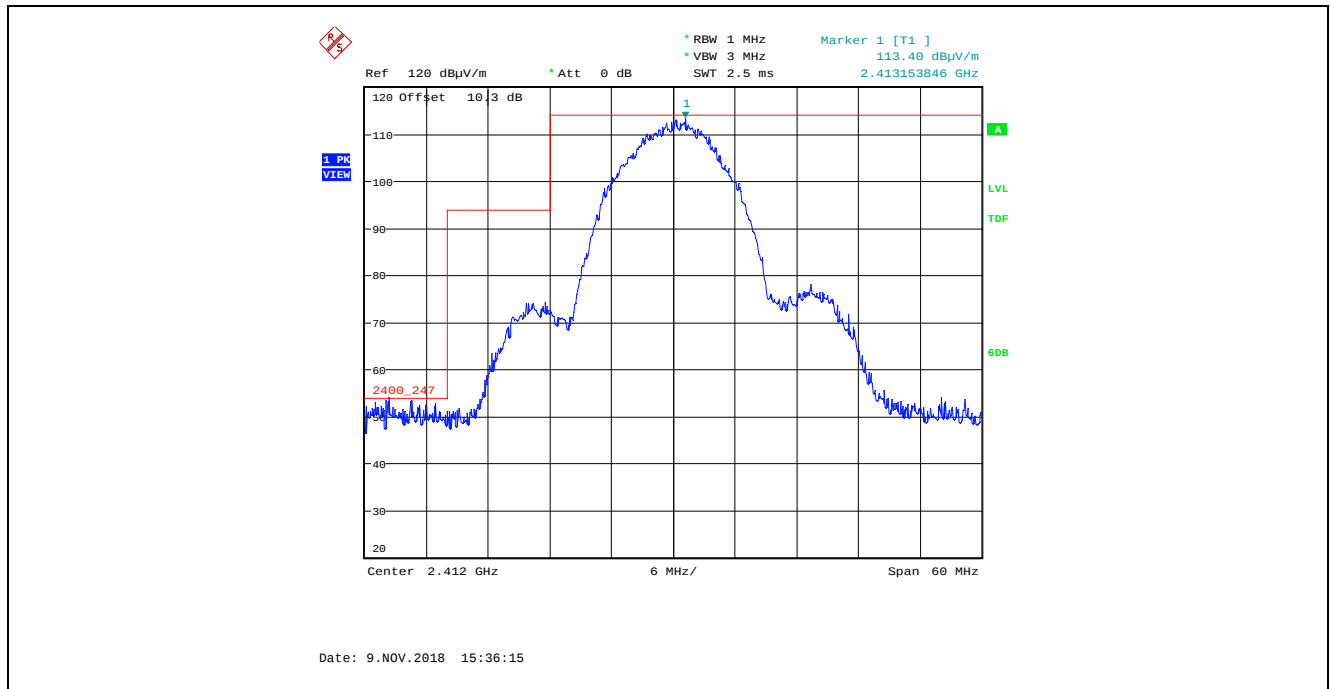
**Plot 5.4.4.2.2.17.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 11 Mbps CCK, Power Setting 22, Channel 1, 2412 MHz



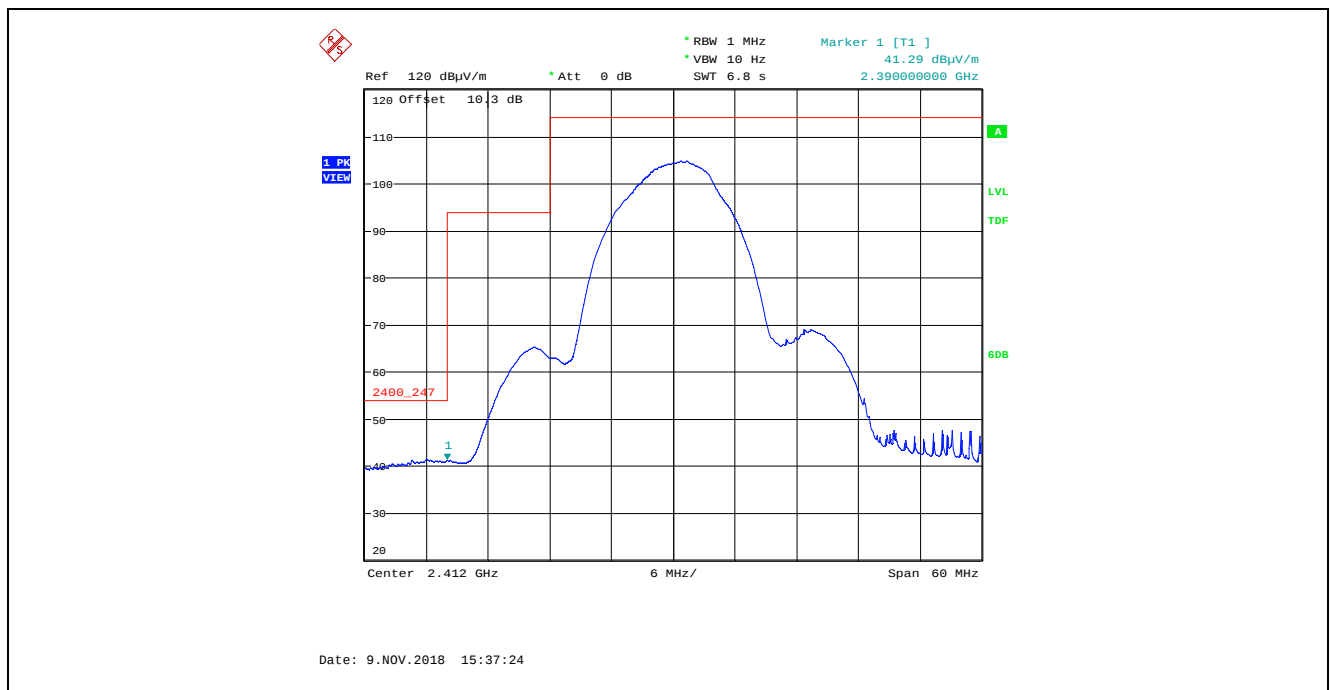
**Plot 5.4.4.2.2.18.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 11 Mbps CCK, Power Setting 22, Channel 1, 2412 MHz



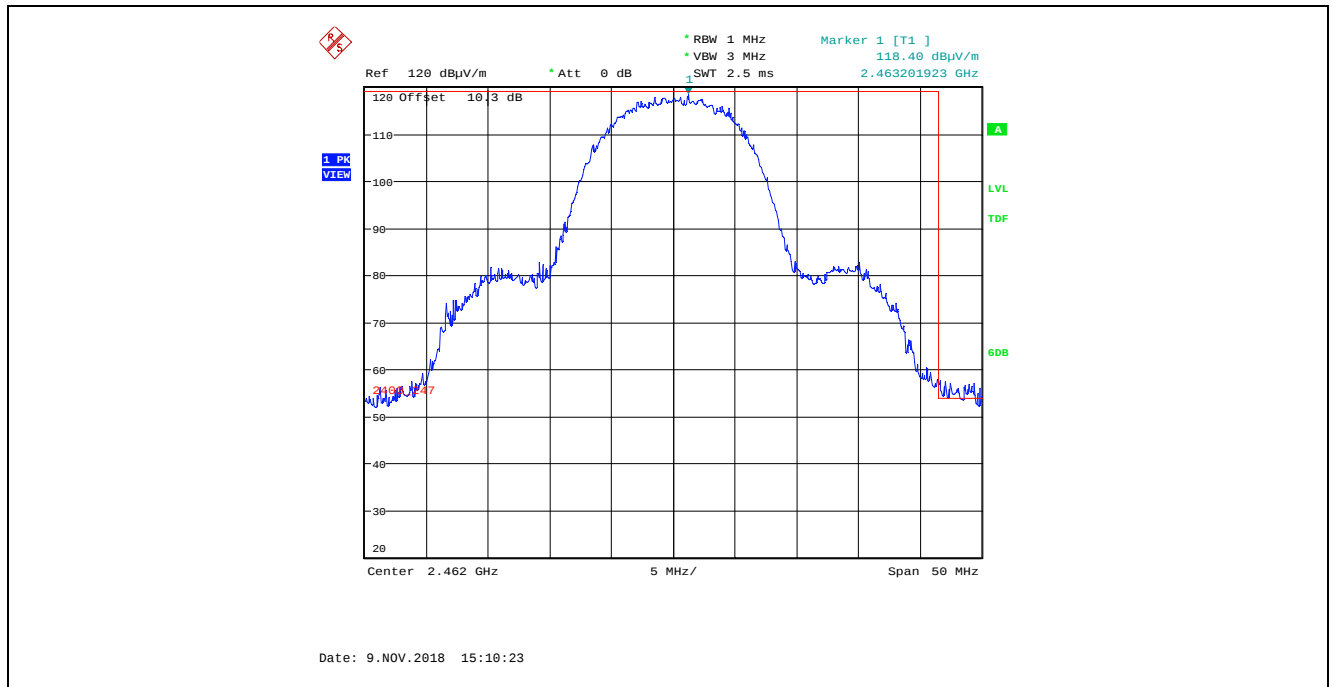
**Plot 5.4.4.2.2.19.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
11 Mbps CCK, Power Setting 22, Channel 1, 2412 MHz



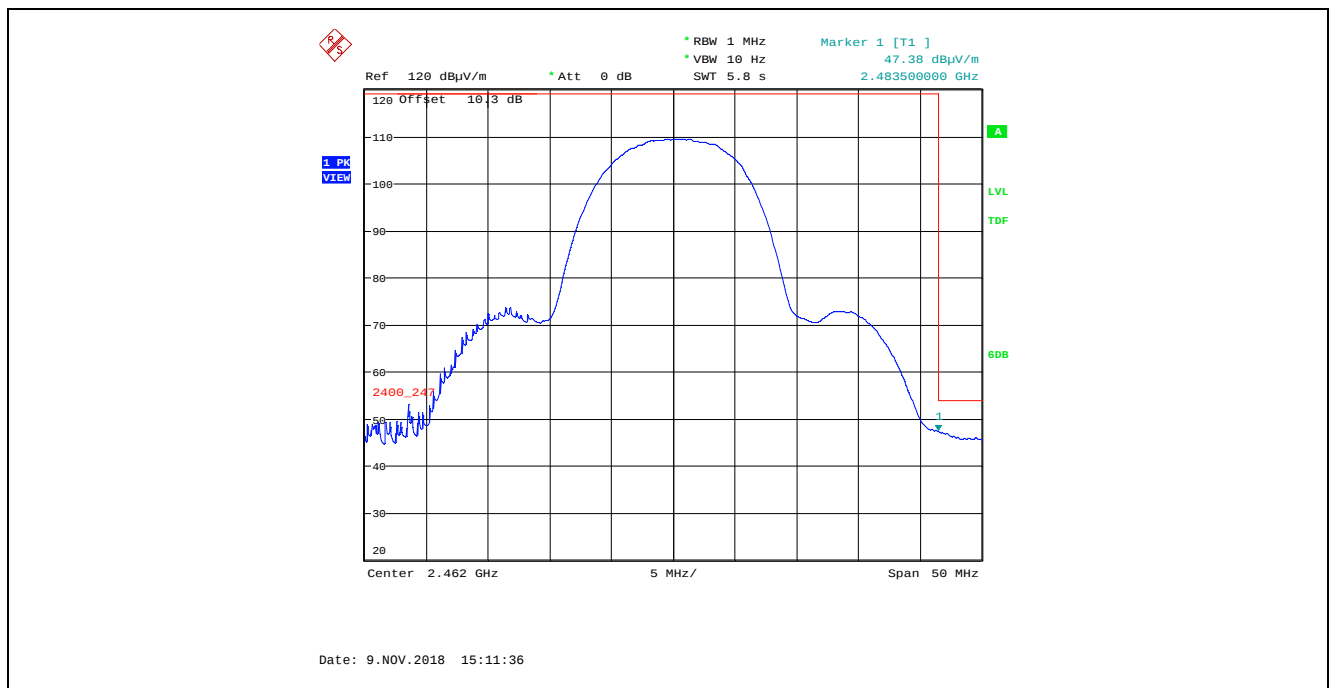
**Plot 5.4.4.2.2.20.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
11 Mbps CCK, Power Setting 22, Channel 1, 2412 MHz



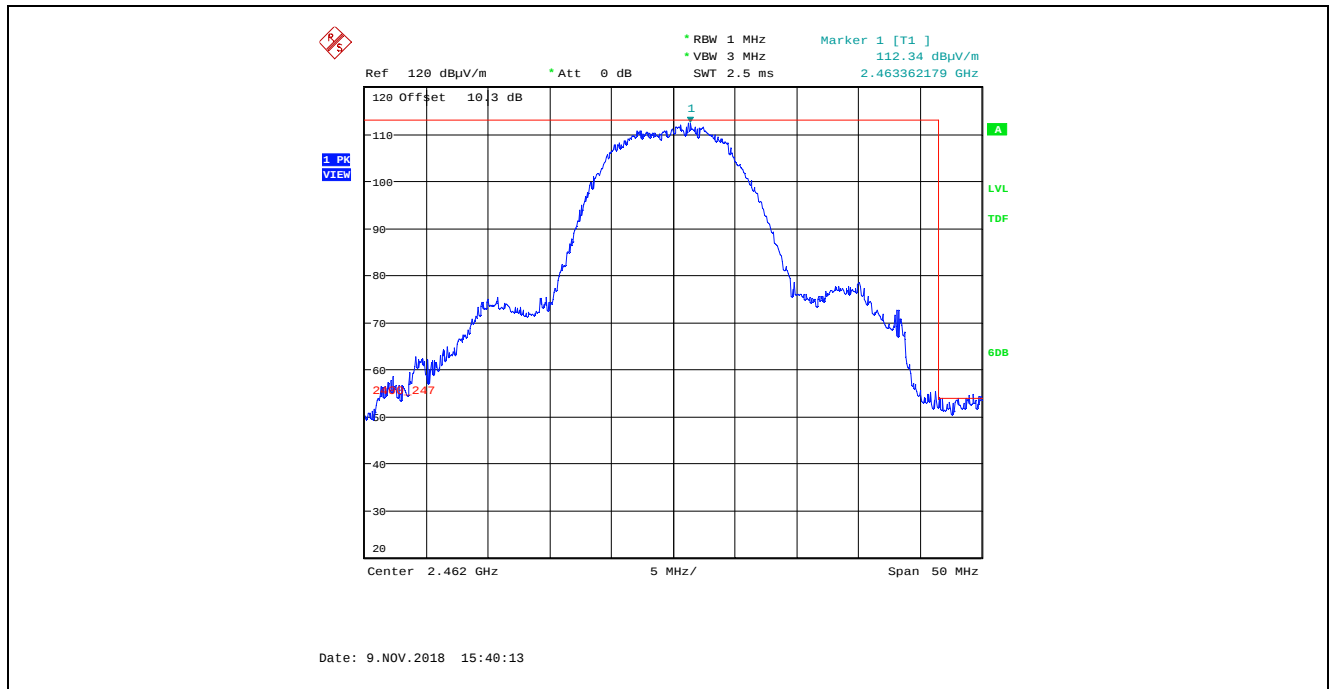
**Plot 5.4.4.2.2.21.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 11 Mbps CCK, Power Setting 22, Channel 11, 2462 MHz



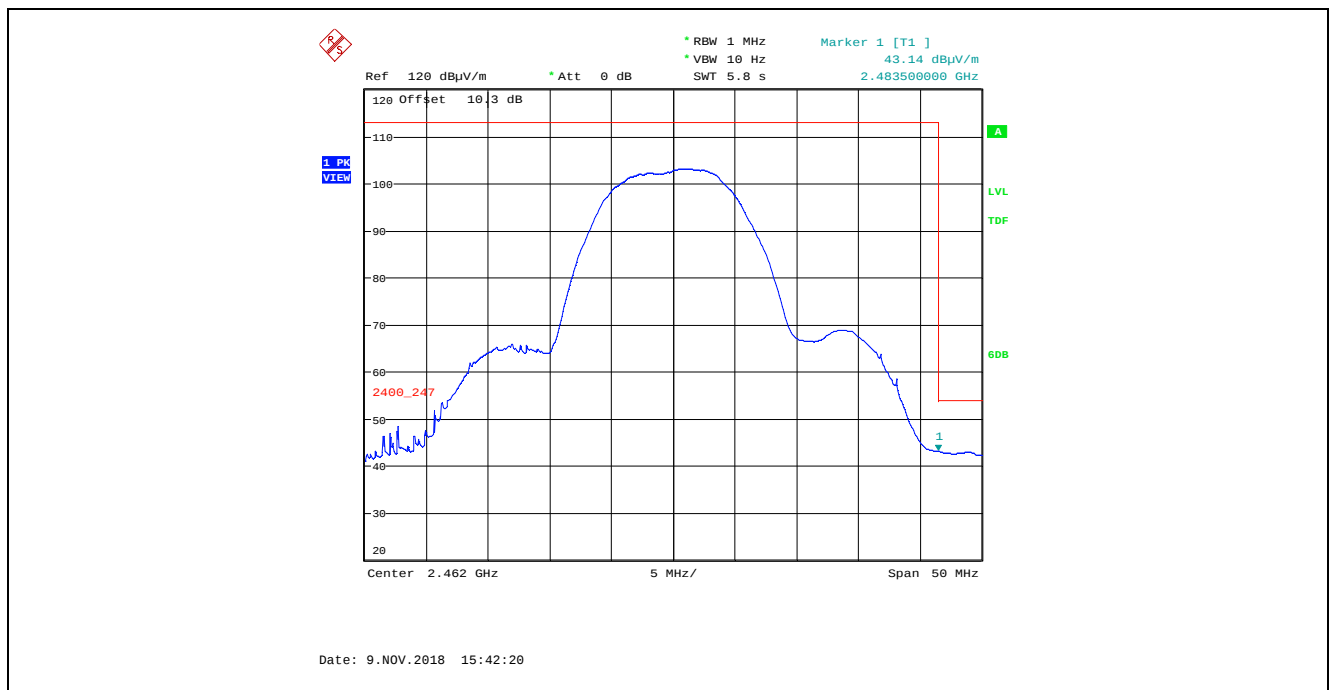
**Plot 5.4.4.2.2.22.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 11 Mbps CCK, Power Setting 22, Channel 11, 2462 MHz



**Plot 5.4.4.2.2.23.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 11 Mbps CCK, Power Setting 22, Channel 11, 2462 MHz



**Plot 5.4.4.2.2.24.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 11 Mbps CCK, Power Setting 22, Channel 11, 2462 MHz



#### 5.4.4.2.3. Spurious Radiated Emissions for 802.11g 54 Mbps 64-QAM

| Fundamental Frequency: 2412 MHz       |                        |                       |                     |                       |                       |             |           |
|---------------------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range: 30 MHz – 25 GHz |                        |                       |                     |                       |                       |             |           |
| Power Setting: 16                     |                        |                       |                     |                       |                       |             |           |
| Frequency (MHz)                       | RF Peak Level (dBμV/m) | RF Avg Level (dBμV/m) | Antenna Plane (H/V) | Limit 15.209 (dBμV/m) | Limit 15.247 (dBμV/m) | Margin (dB) | Pass/Fail |
| 2412                                  | 101.37                 | --                    | V                   | --                    | --                    | --          | --        |
| 2412                                  | 108.82                 | --                    | H                   | --                    | --                    | --          | --        |
| *                                     | *                      | *                     | V/H                 | *                     | *                     | *           | *         |

\*Spurious emissions are more than 20 dB below the applicable limit.

| Fundamental Frequency: 2437 MHz       |                        |                       |                     |                       |                       |             |           |
|---------------------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range: 30 MHz – 25 GHz |                        |                       |                     |                       |                       |             |           |
| Power Setting: 16                     |                        |                       |                     |                       |                       |             |           |
| Frequency (MHz)                       | RF Peak Level (dBμV/m) | RF Avg Level (dBμV/m) | Antenna Plane (H/V) | Limit 15.209 (dBμV/m) | Limit 15.247 (dBμV/m) | Margin (dB) | Pass/Fail |
| 2437                                  | 103.24                 | --                    | V                   | --                    | --                    | --          | --        |
| 2437                                  | 109.73                 | --                    | H                   | --                    | --                    | --          | --        |
| *                                     | *                      | *                     | V/H                 | *                     | *                     | *           | *         |

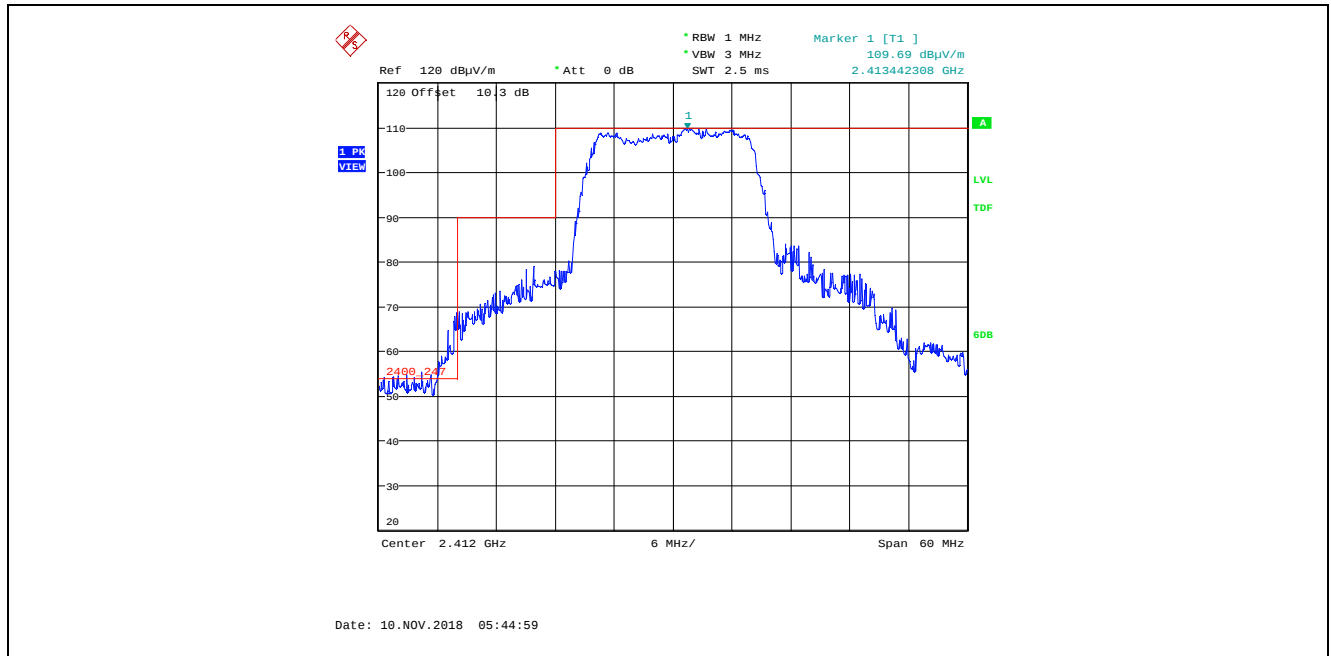
\*Spurious emissions are more than 20 dB below the applicable limit.

| Fundamental Frequency: 2462 MHz       |                        |                       |                     |                       |                       |             |           |
|---------------------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range: 30 MHz – 25 GHz |                        |                       |                     |                       |                       |             |           |
| Power Setting: 16                     |                        |                       |                     |                       |                       |             |           |
| Frequency (MHz)                       | RF Peak Level (dBμV/m) | RF Avg Level (dBμV/m) | Antenna Plane (H/V) | Limit 15.209 (dBμV/m) | Limit 15.247 (dBμV/m) | Margin (dB) | Pass/Fail |
| 2462                                  | 105.08                 | --                    | V                   | --                    | --                    | --          | --        |
| 2462                                  | 110.93                 | --                    | H                   | --                    | --                    | --          | --        |
| *                                     | *                      | *                     | V/H                 | *                     | *                     | *           | *         |

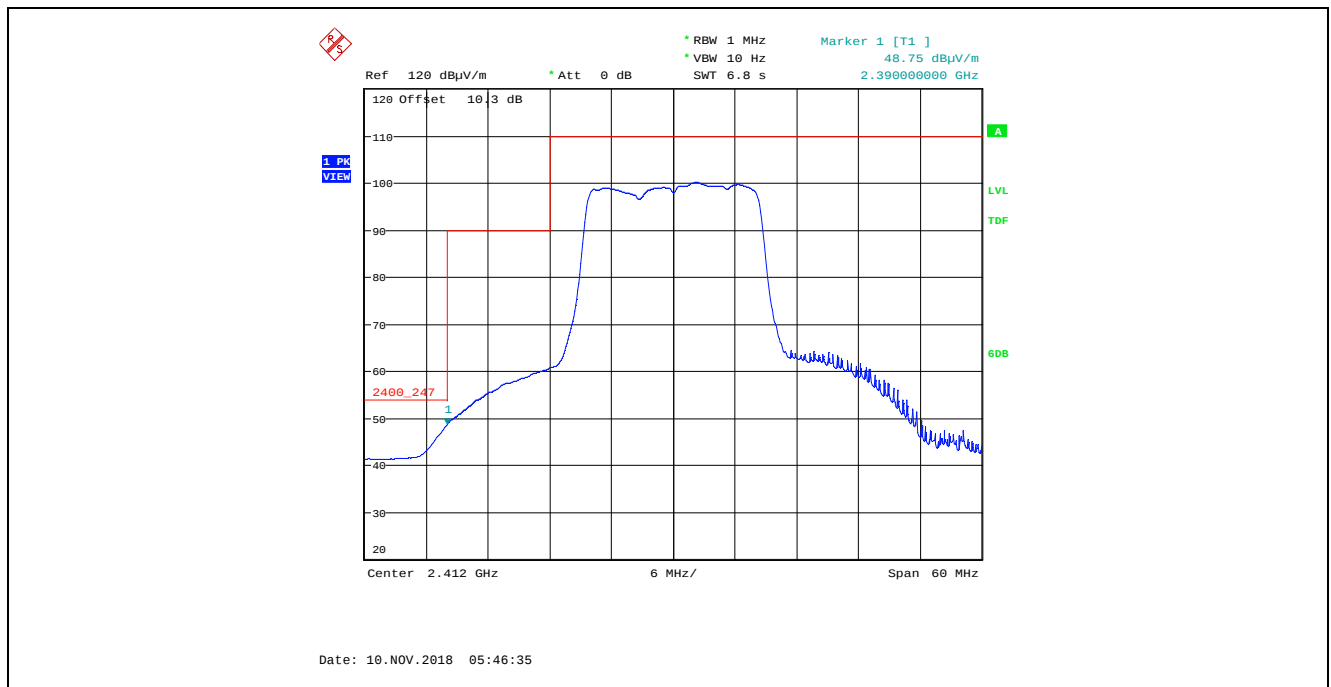
\*Spurious emissions are more than 20 dB below the applicable limit.

#### 5.4.4.2.4. Band-Edge RF Radiated Emissions for 802.11g

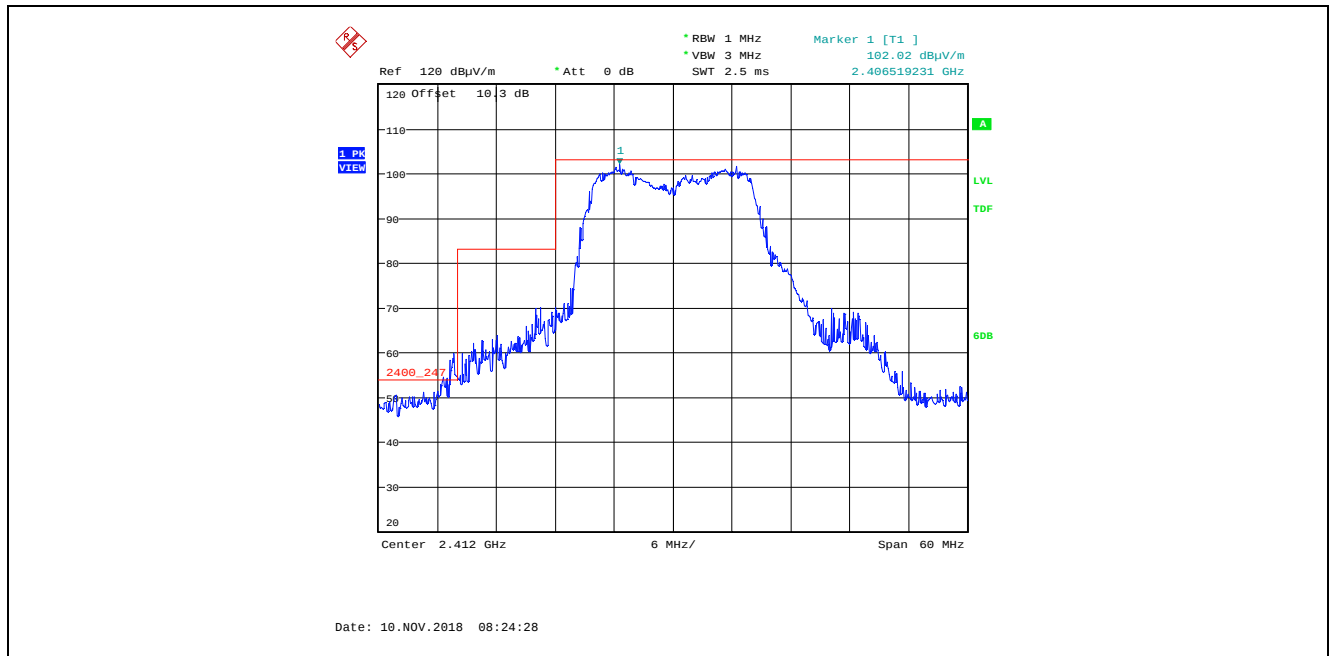
**Plot 5.4.4.2.4.1.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 9 Mbps BPSK, Power Setting 16, Channel 1, 2412 MHz



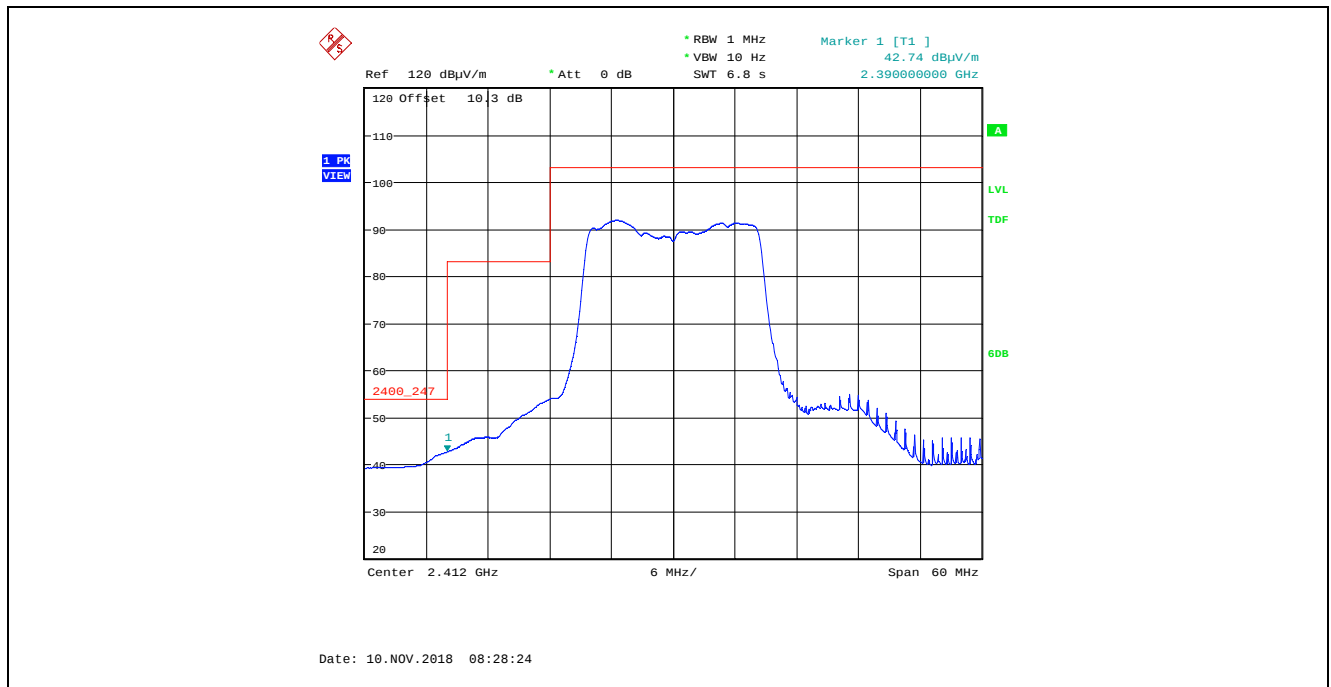
**Plot 5.4.4.2.4.2.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 9 Mbps BPSK, Power Setting 16, Channel 1, 2412 MHz



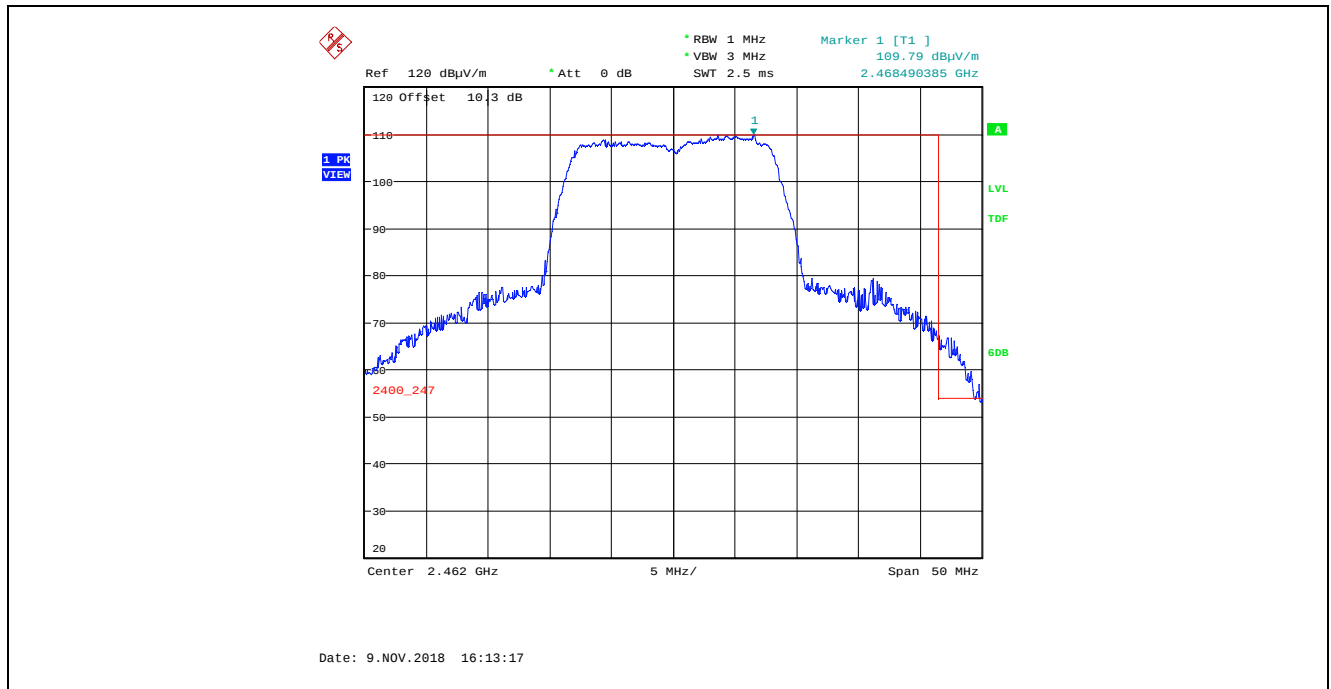
**Plot 5.4.4.2.4.3.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 9 Mbps BPSK, Power Setting 16, Channel 1, 2412 MHz



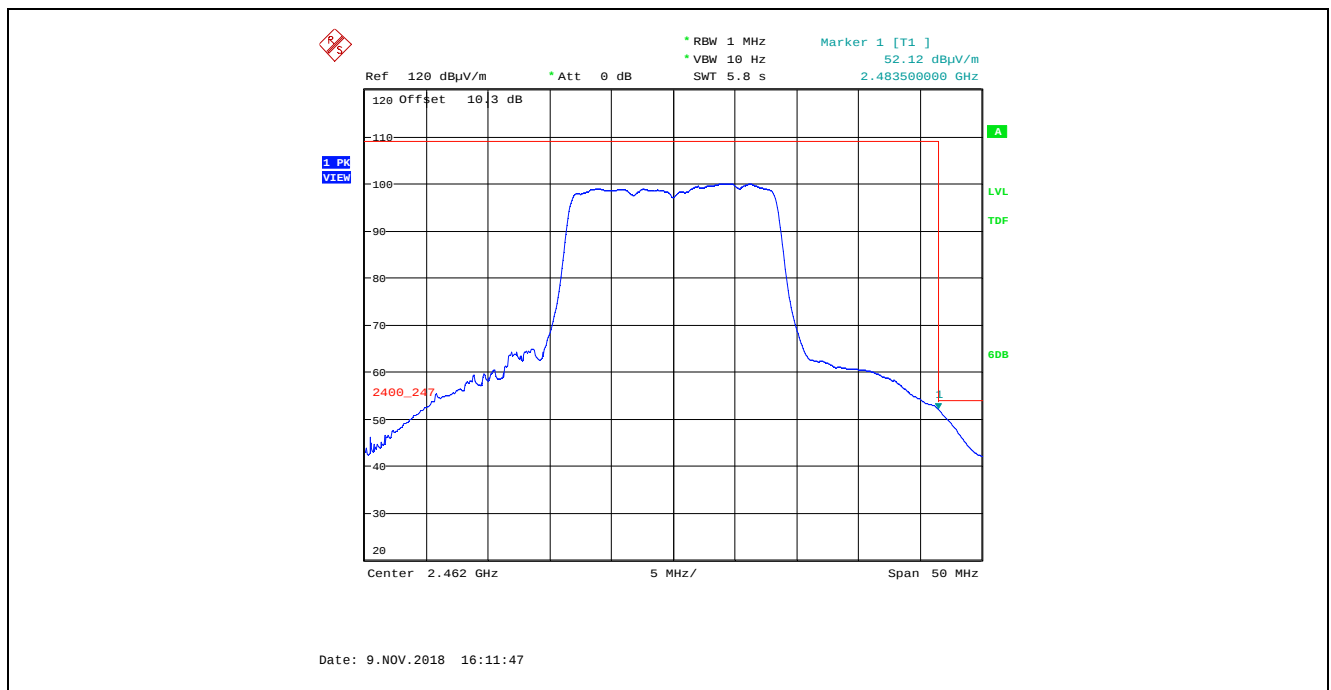
**Plot 5.4.4.2.4.4.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 9 Mbps BPSK, Power Setting 16, Channel 1, 2412 MHz



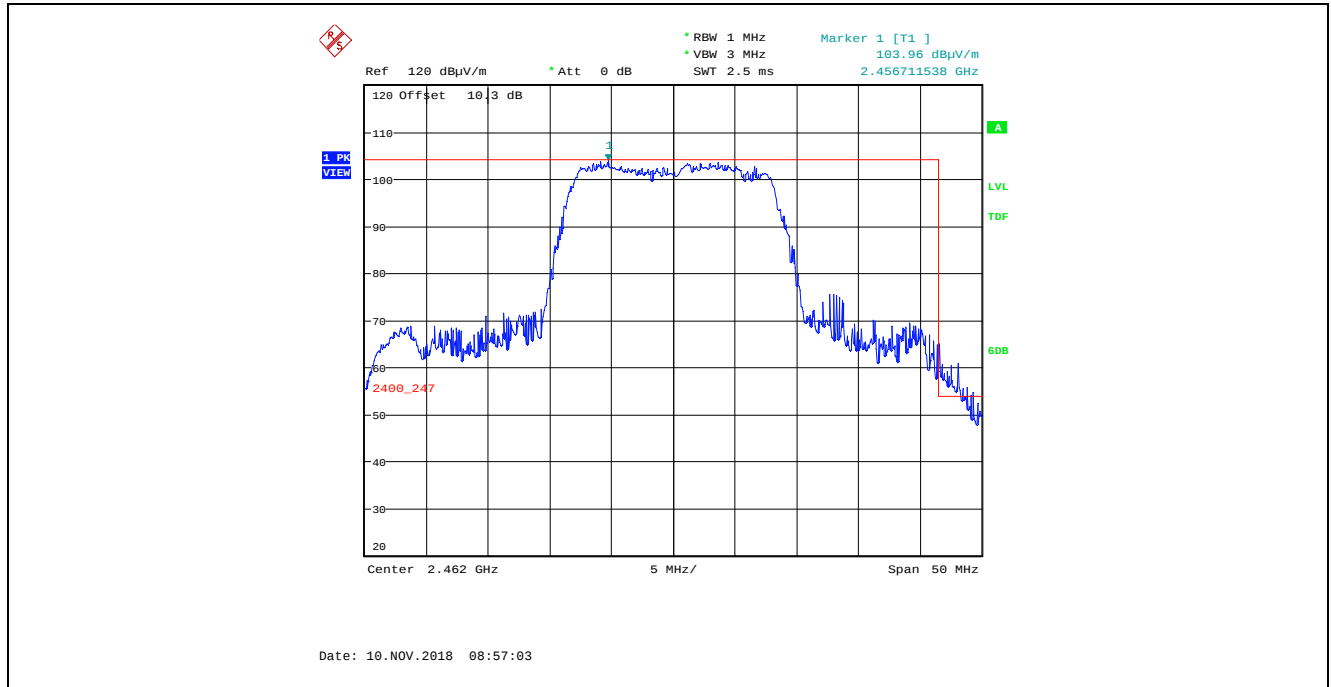
**Plot 5.4.4.2.4.5.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 9 Mbps BPSK, Power Setting 16, Channel 11, 2462 MHz



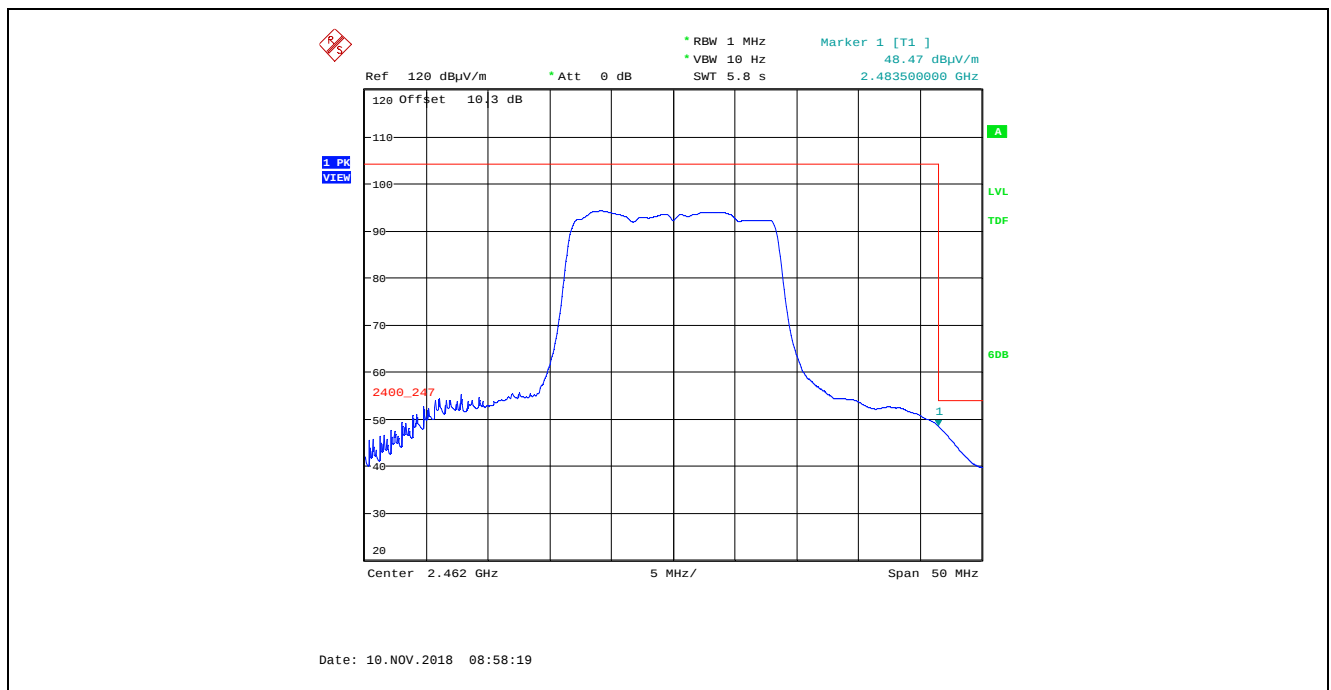
**Plot 5.4.4.2.4.6.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 9 Mbps BPSK, Power Setting 16, Channel 11, 2462 MHz



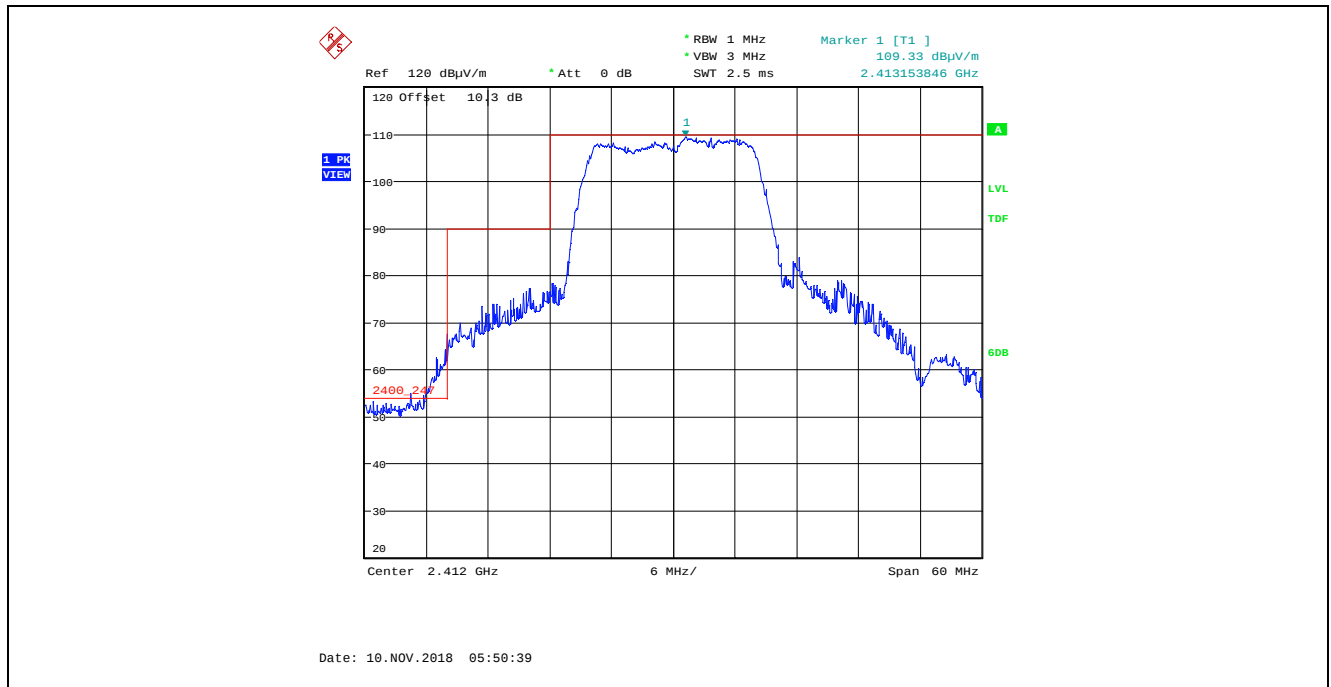
**Plot 5.4.4.2.4.7.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 9 Mbps BPSK, Power Setting 16, Channel 11, 2462 MHz



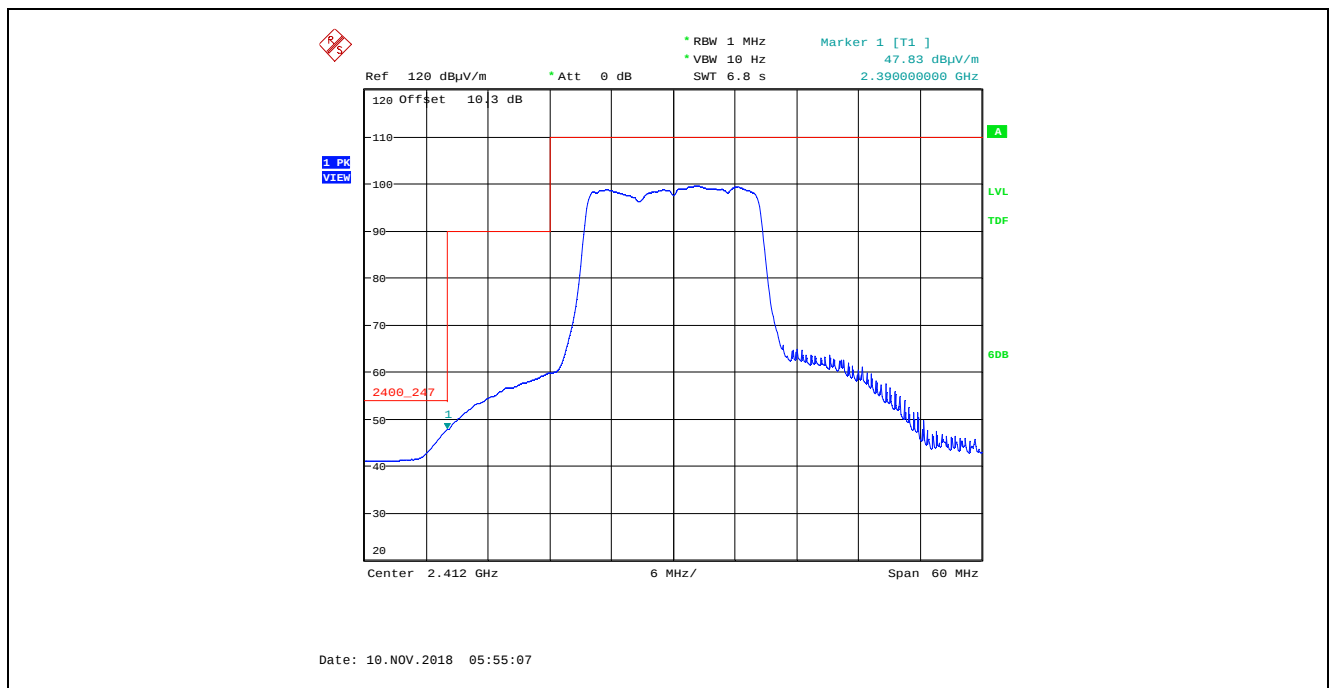
**Plot 5.4.4.2.4.8.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 9 Mbps BPSK, Power Setting 16, Channel 11, 2462 MHz



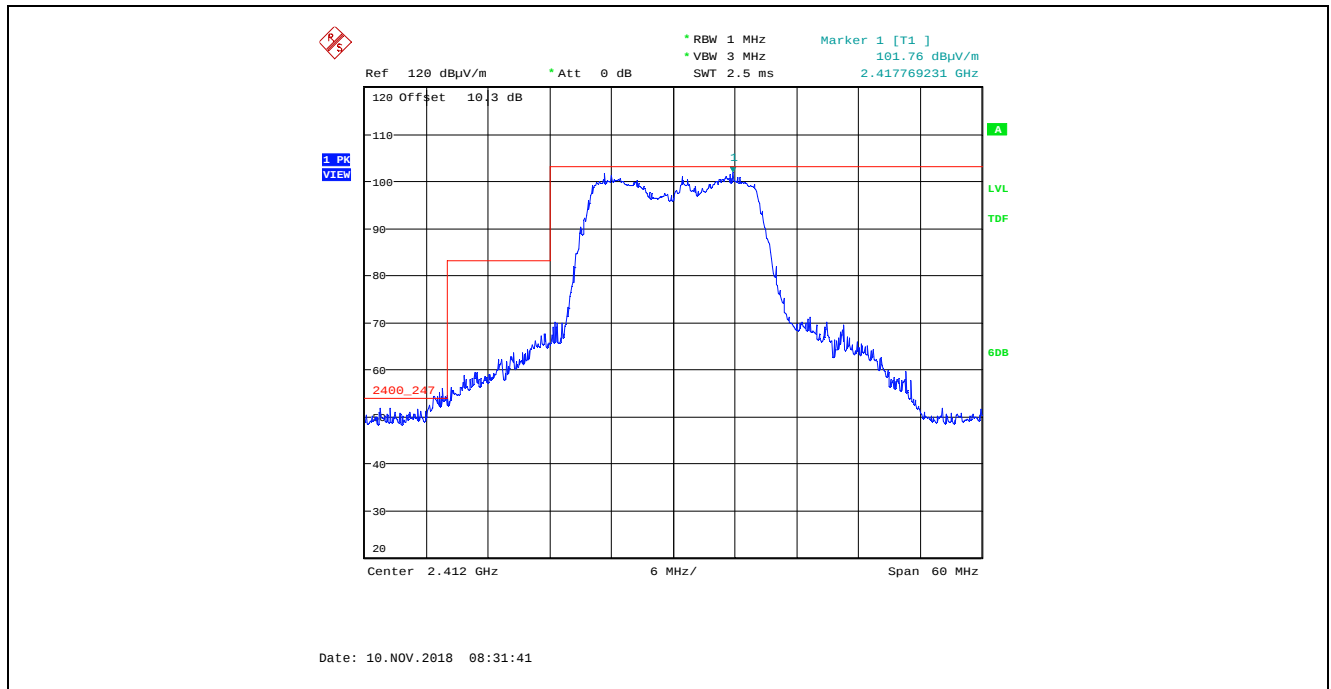
**Plot 5.4.4.2.4.9.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 18 Mbps QPSK, Power Setting 16, Channel 1, 2412 MHz



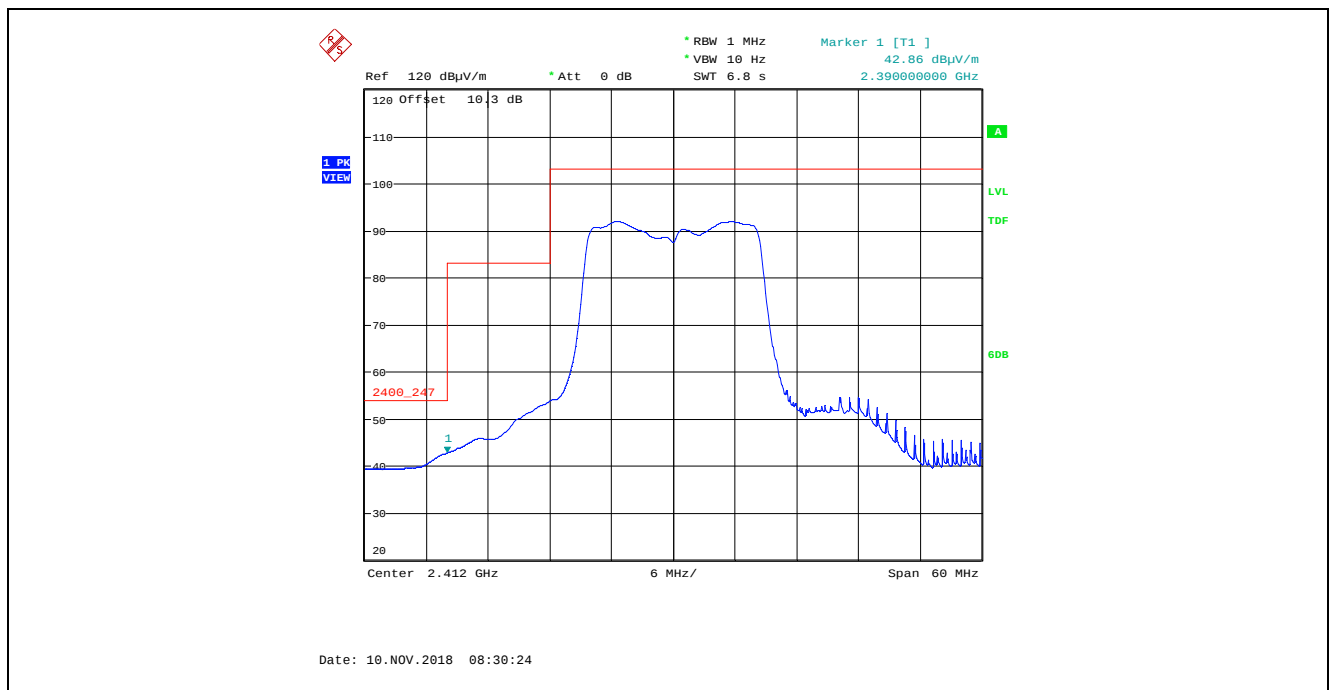
**Plot 5.4.4.2.4.10.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 18 Mbps QPSK, Power Setting 16, Channel 1, 2412 MHz



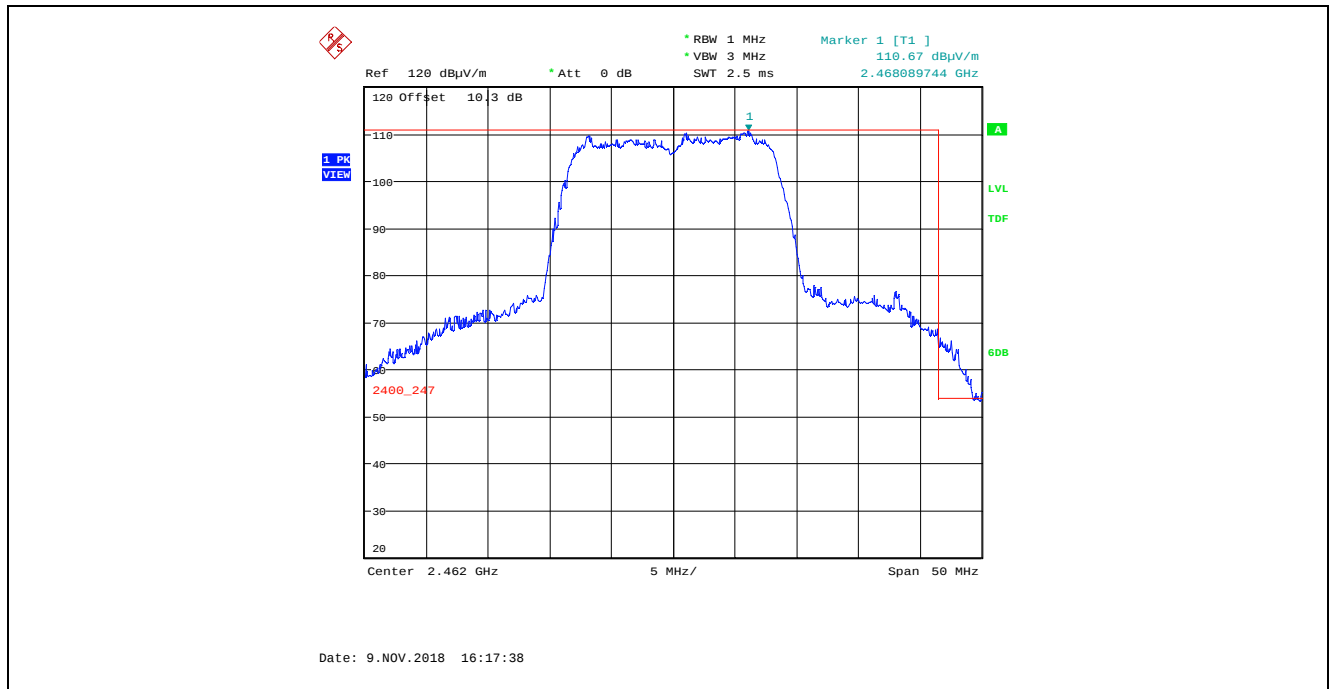
**Plot 5.4.4.2.4.11.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 18 Mbps QPSK, Power Setting 16, Channel 1, 2412 MHz



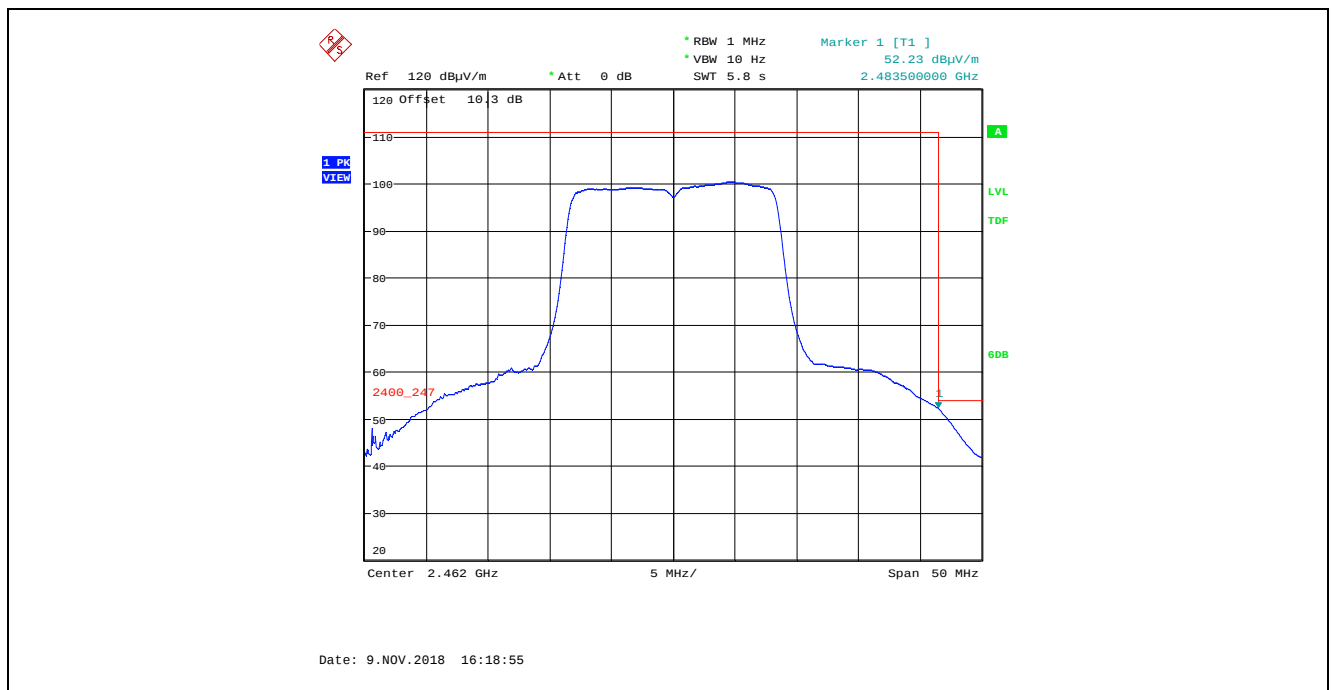
**Plot 5.4.4.2.4.12.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 18 Mbps QPSK, Power Setting 16, Channel 1, 2412 MHz



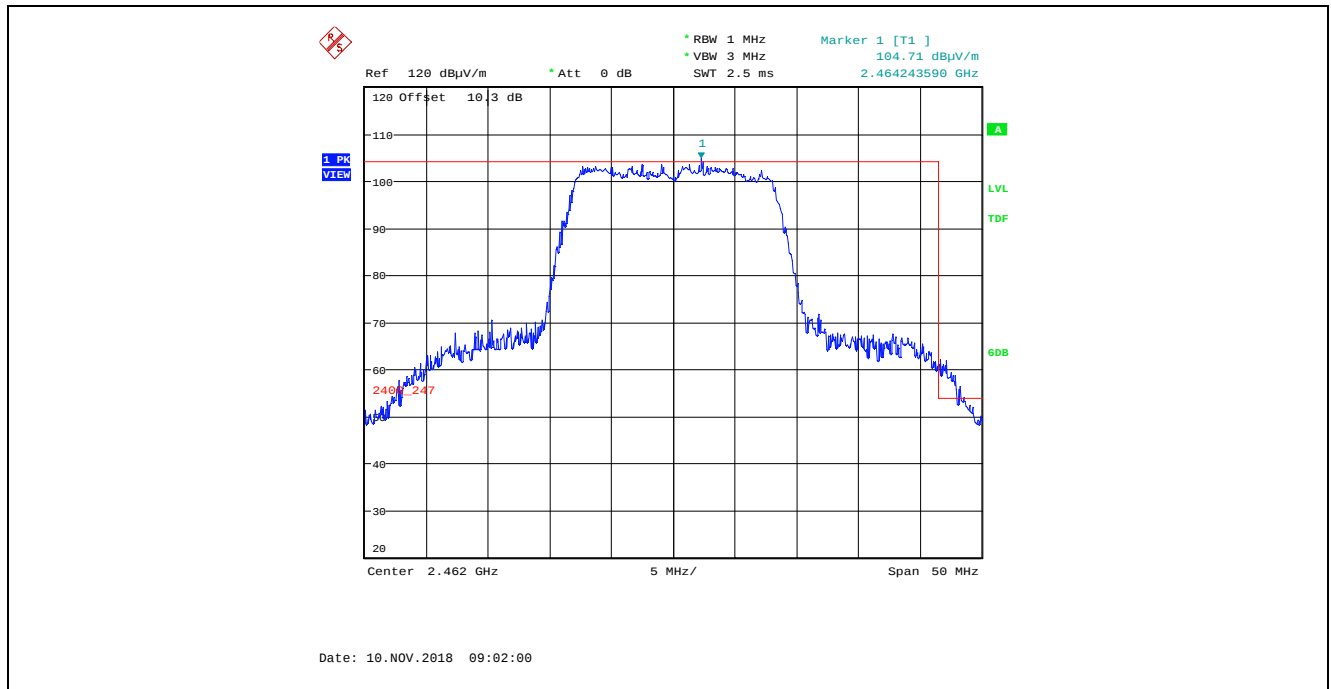
**Plot 5.4.4.2.4.13.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 18 Mbps QPSK, Power Setting 16, Channel 11, 2462 MHz



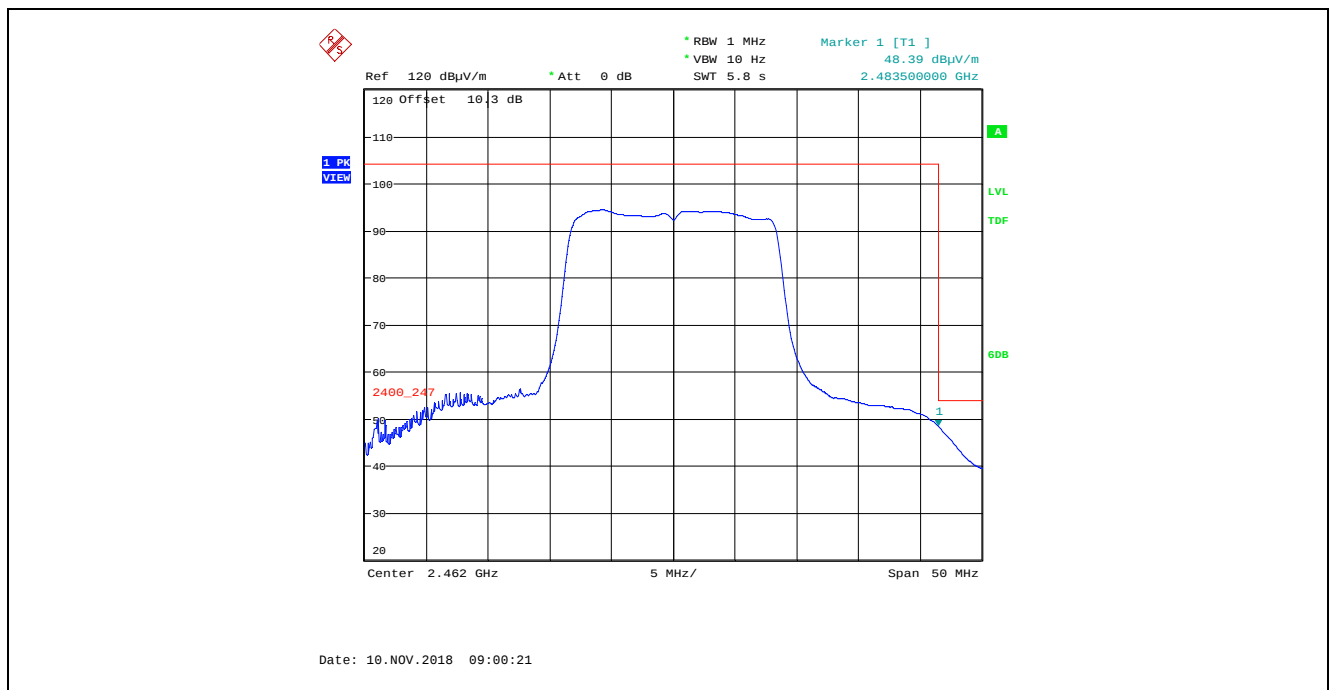
**Plot 5.4.4.2.4.14.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 18 Mbps QPSK, Power Setting 16, Channel 11, 2462 MHz



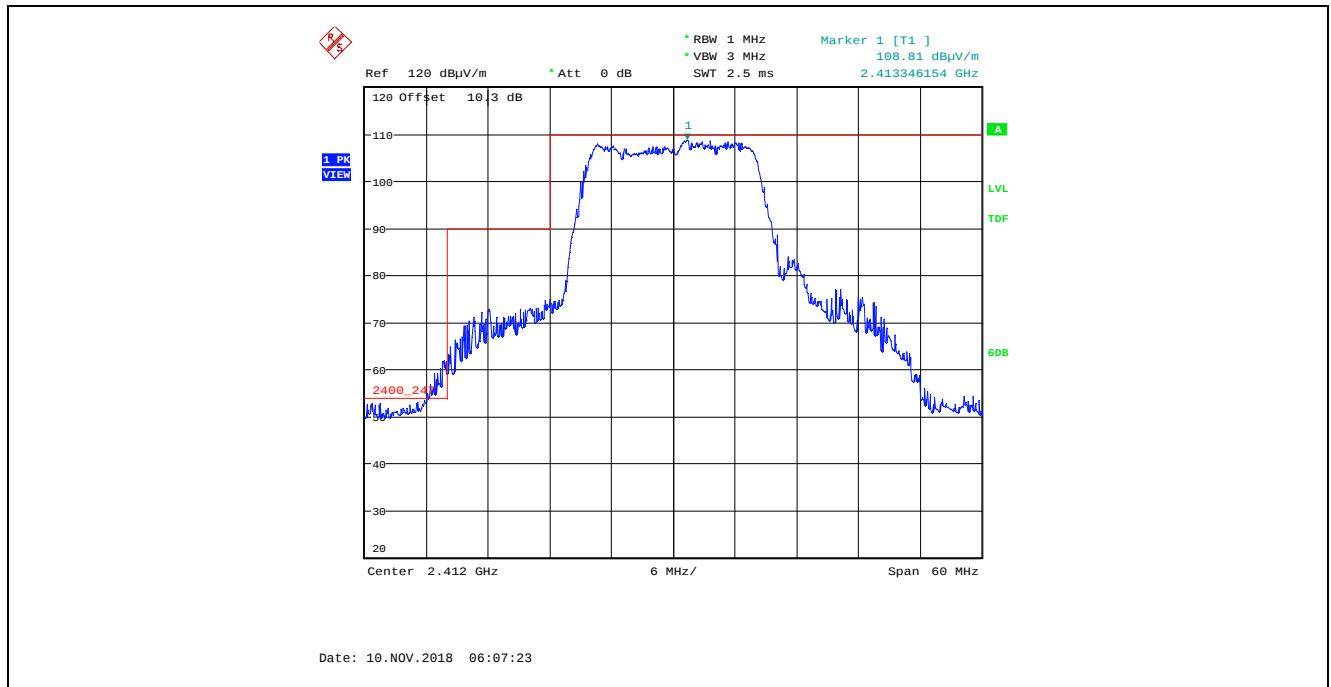
**Plot 5.4.4.2.4.15.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 18 Mbps QPSK, Power Setting 16, Channel 11, 2462 MHz



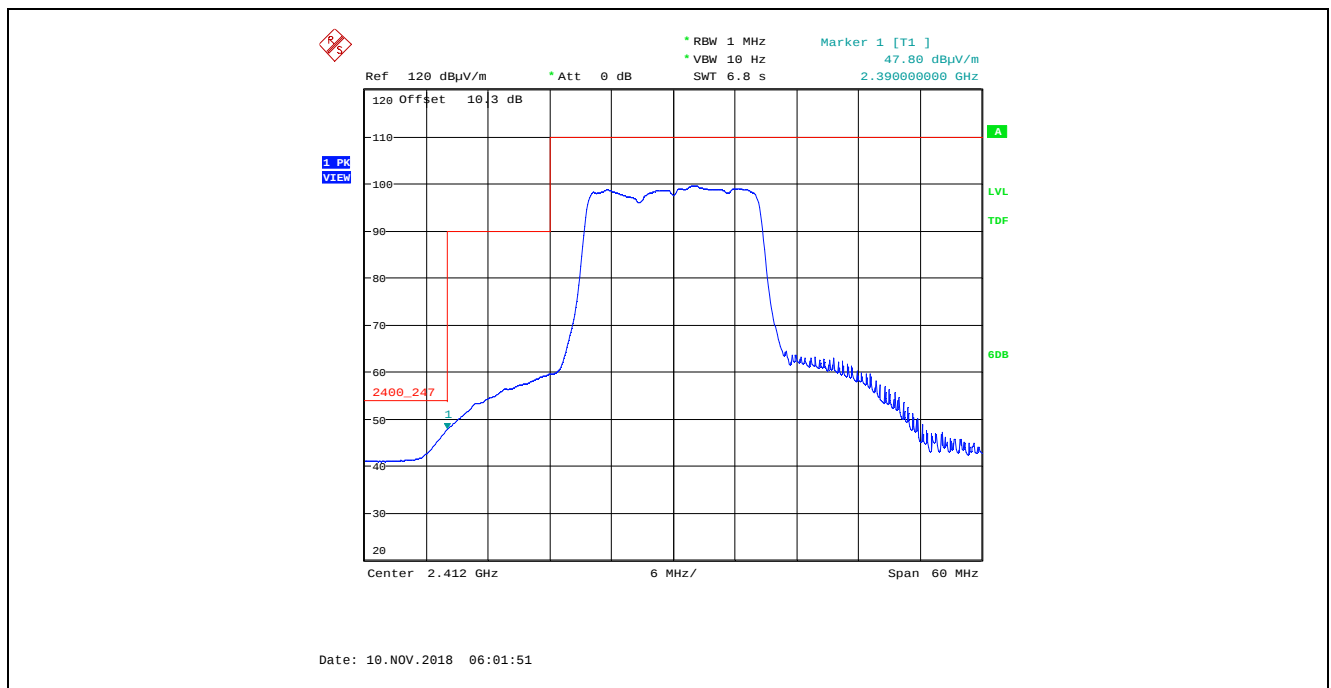
**Plot 5.4.4.2.4.16.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 18 Mbps QPSK, Power Setting 16, Channel 11, 2462 MHz



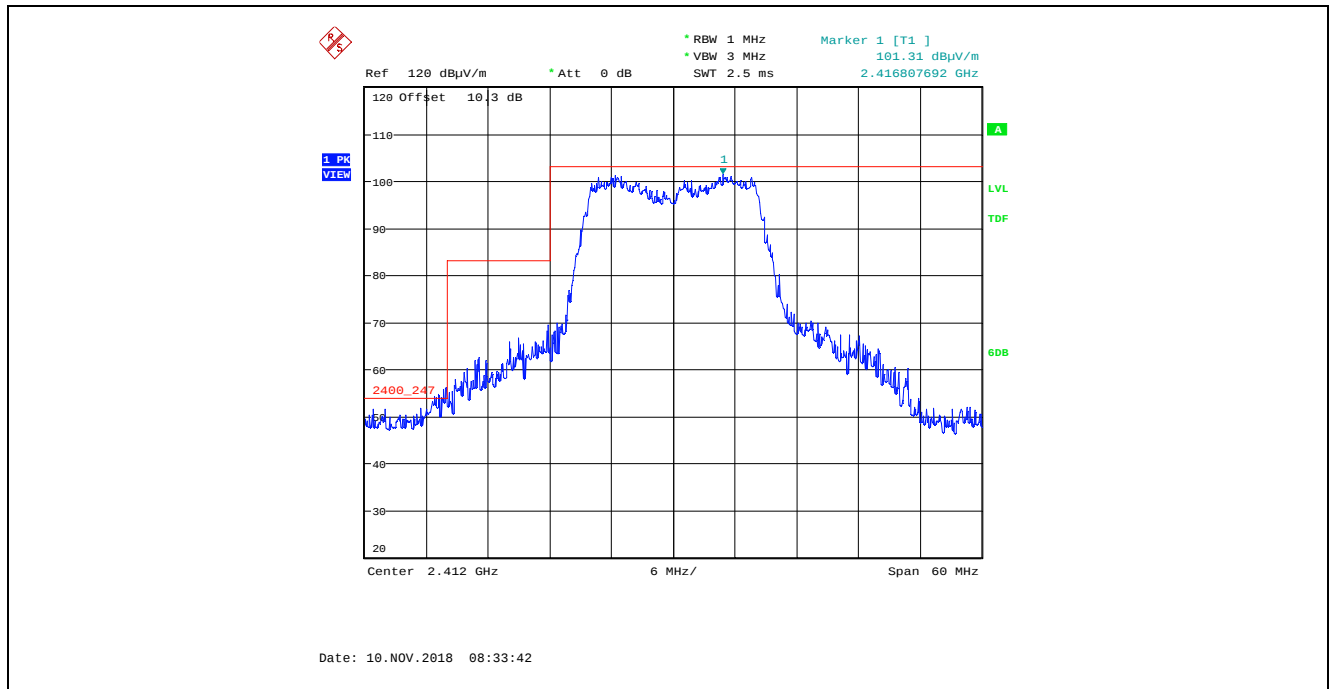
**Plot 5.4.4.2.4.17.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 36 Mbps 16-QAM, Power Setting 16, Channel 1, 2412 MHz



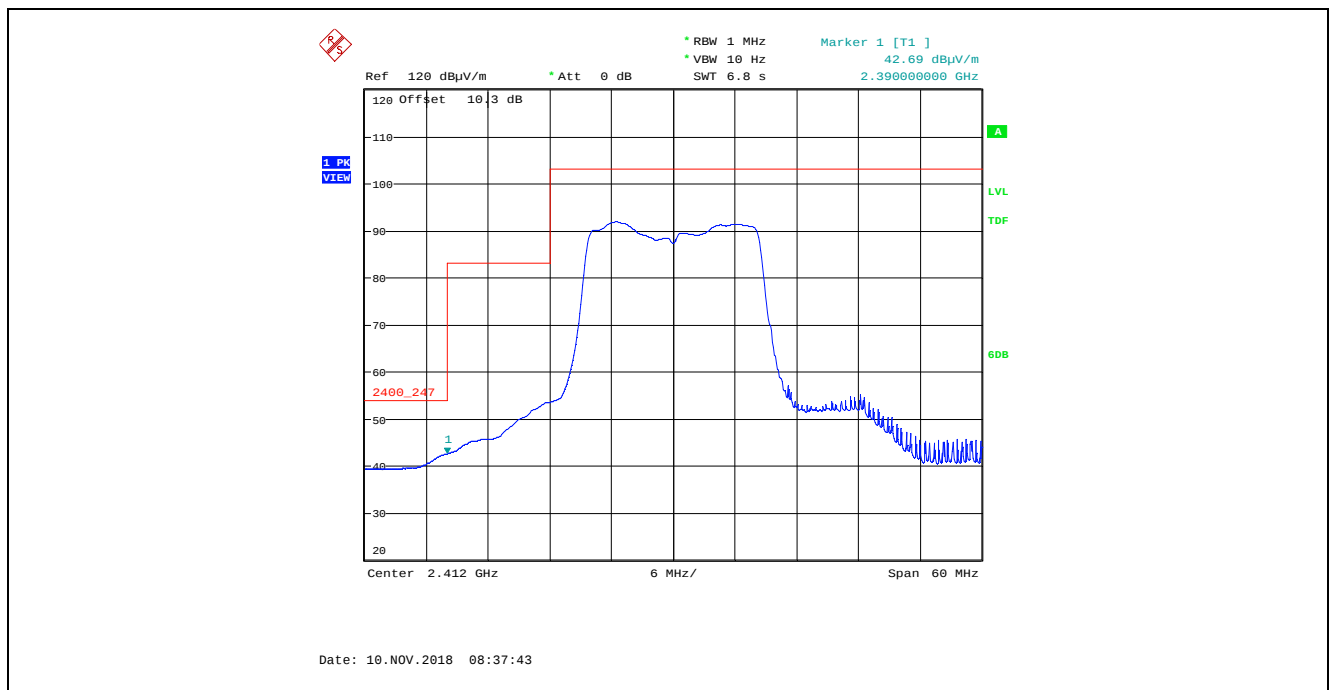
**Plot 5.4.4.2.4.18.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 36 Mbps 16-QAM, Power Setting 16, Channel 1, 2412 MHz



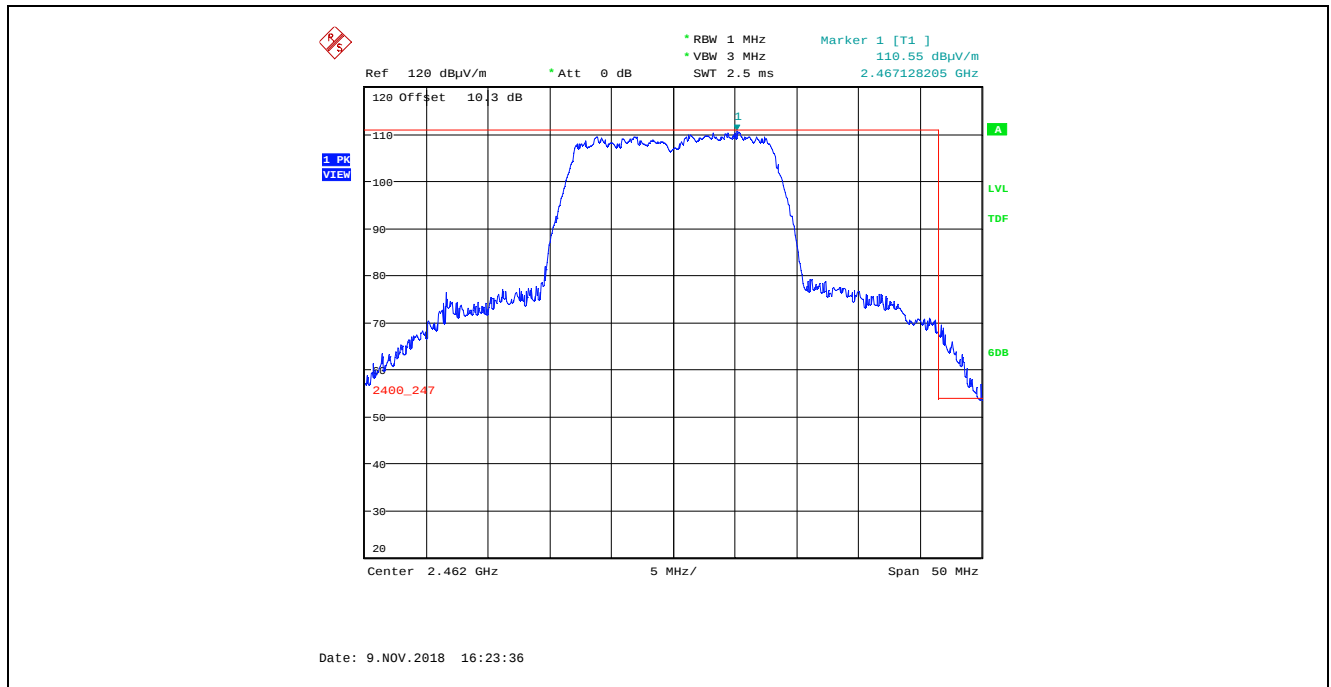
**Plot 5.4.4.2.4.19.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 36 Mbps 16-QAM, Power Setting 16, Channel 1, 2412 MHz



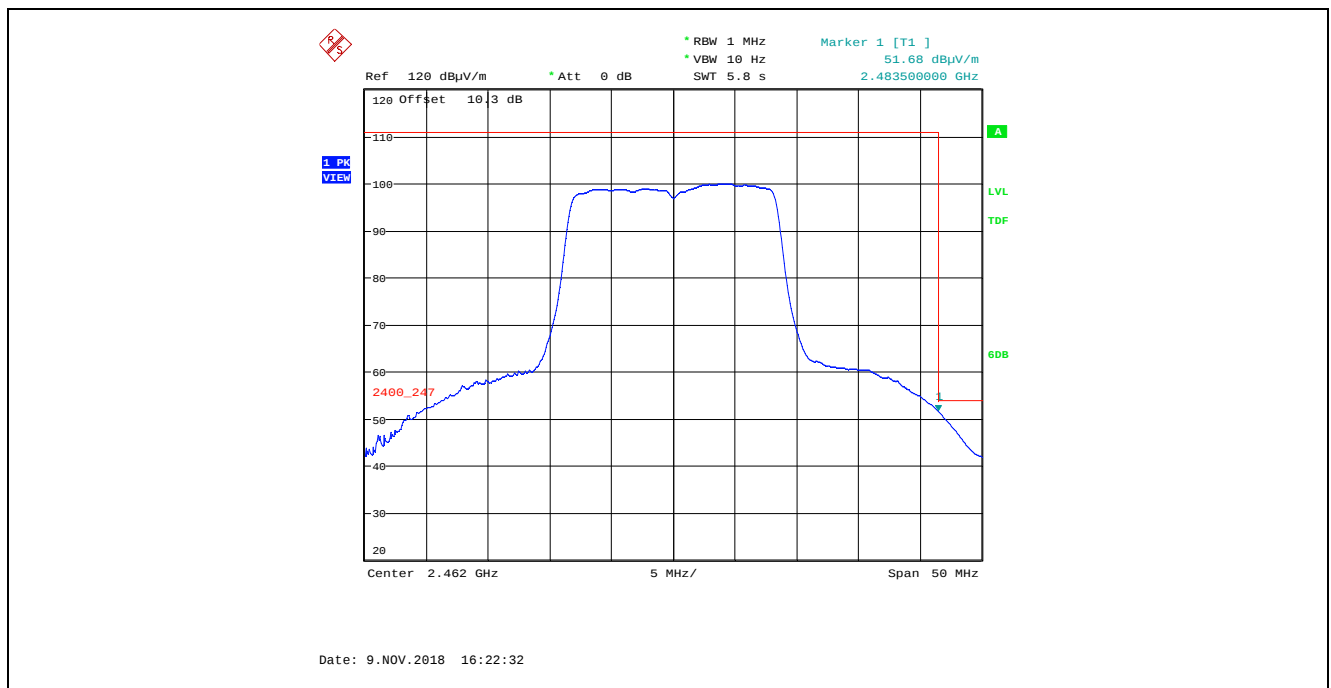
**Plot 5.4.4.2.4.20.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 36 Mbps 16-QAM, Power Setting 16, Channel 1, 2412 MHz



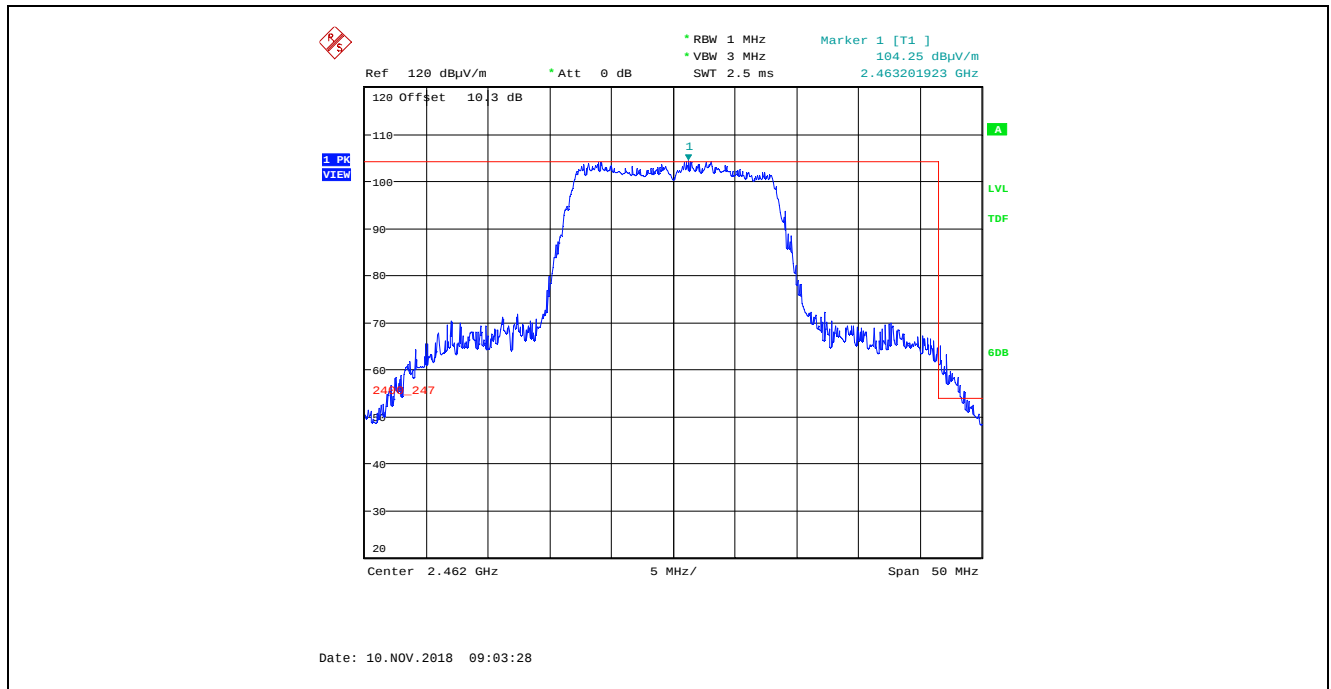
**Plot 5.4.4.2.4.21.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 36 Mbps 16-QAM, Power Setting 16, Channel 11, 2462 MHz



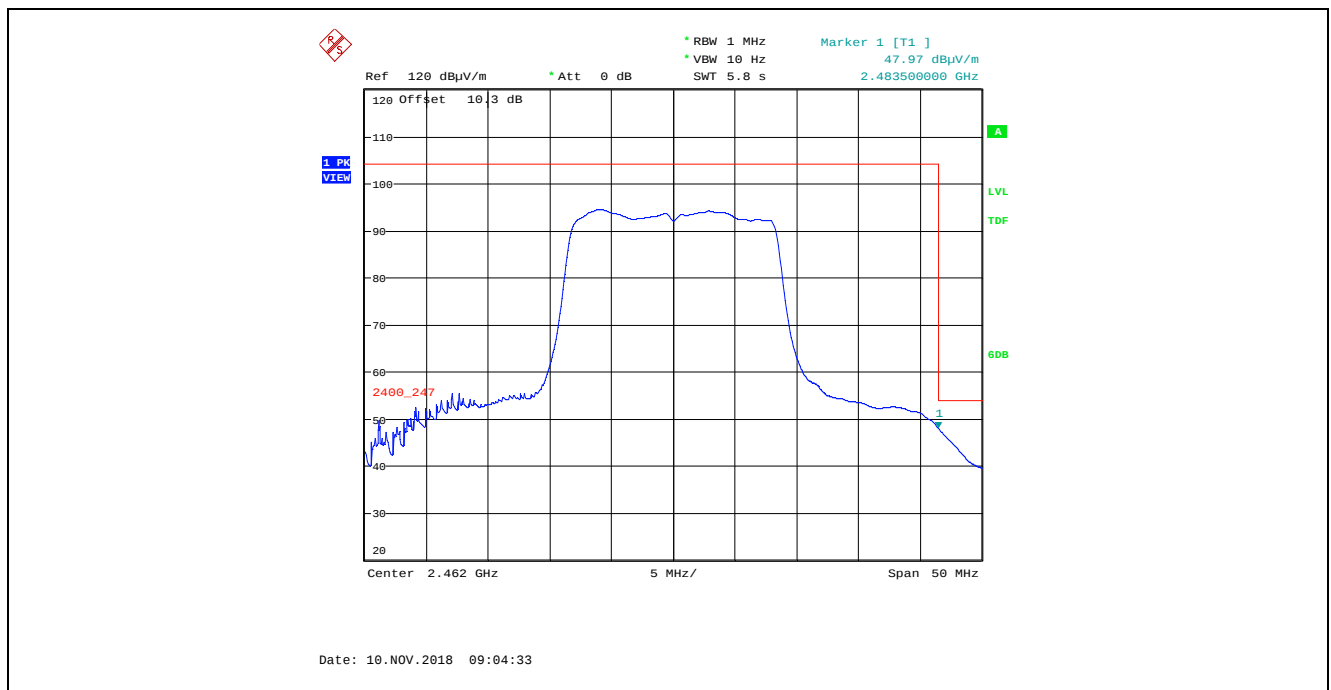
**Plot 5.4.4.2.4.22.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 36 Mbps 16-QAM, Power Setting 16, Channel 11, 2462 MHz



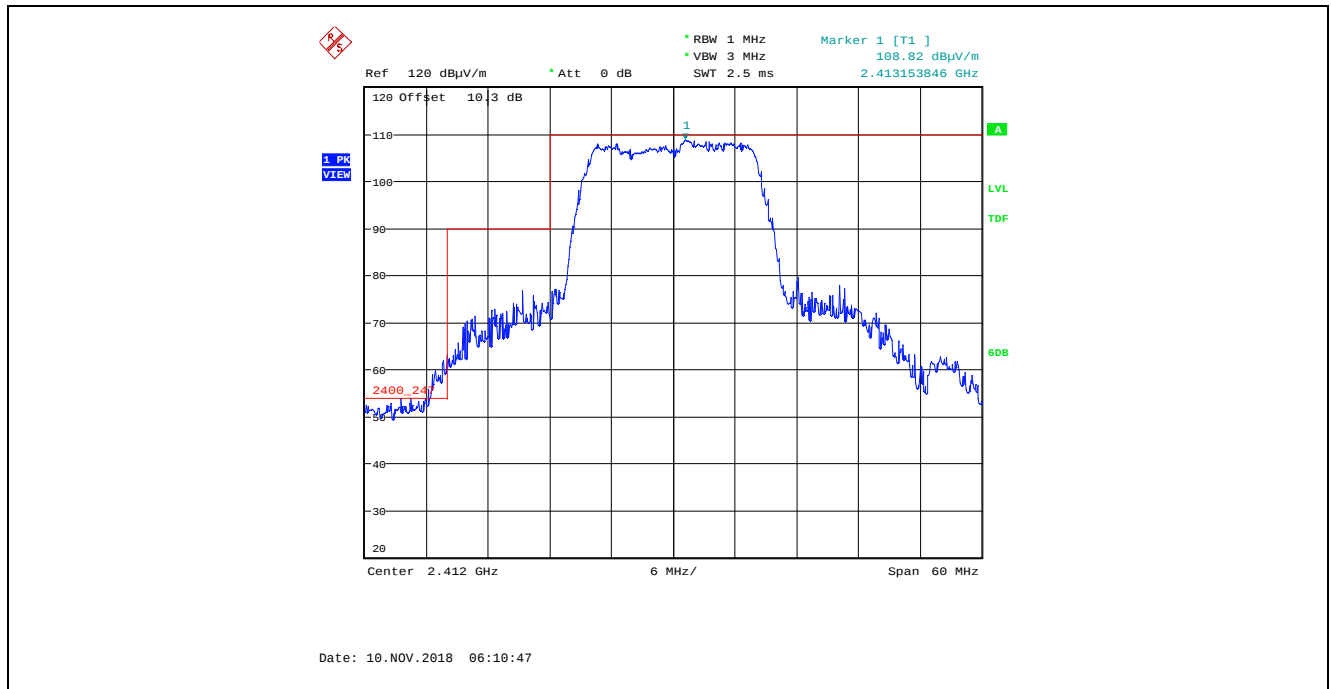
**Plot 5.4.4.2.4.23.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 36 Mbps 16-QAM, Power Setting 16, Channel 11, 2462 MHz



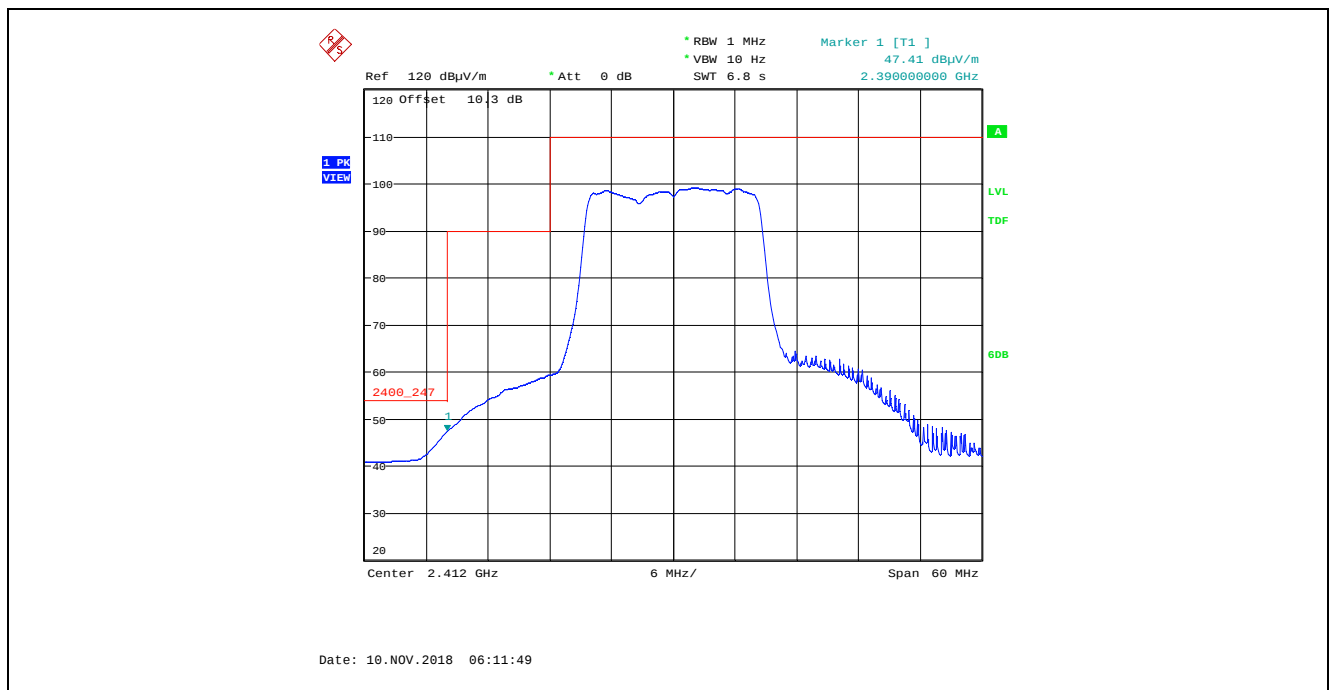
**Plot 5.4.4.2.4.24.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 36 Mbps 16-QAM, Power Setting 16, Channel 11, 2462 MHz



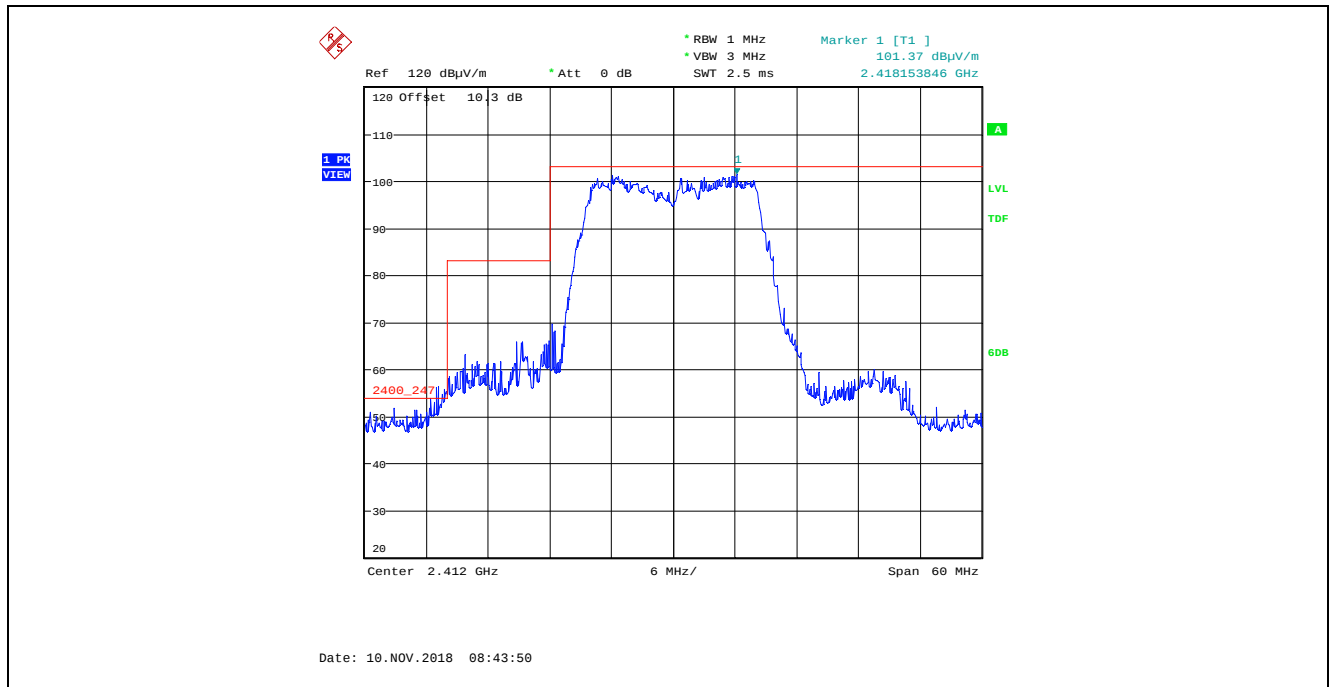
**Plot 5.4.4.2.4.25.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 54 Mbps 64-QAM, Power Setting 16, Channel 1, 2412 MHz



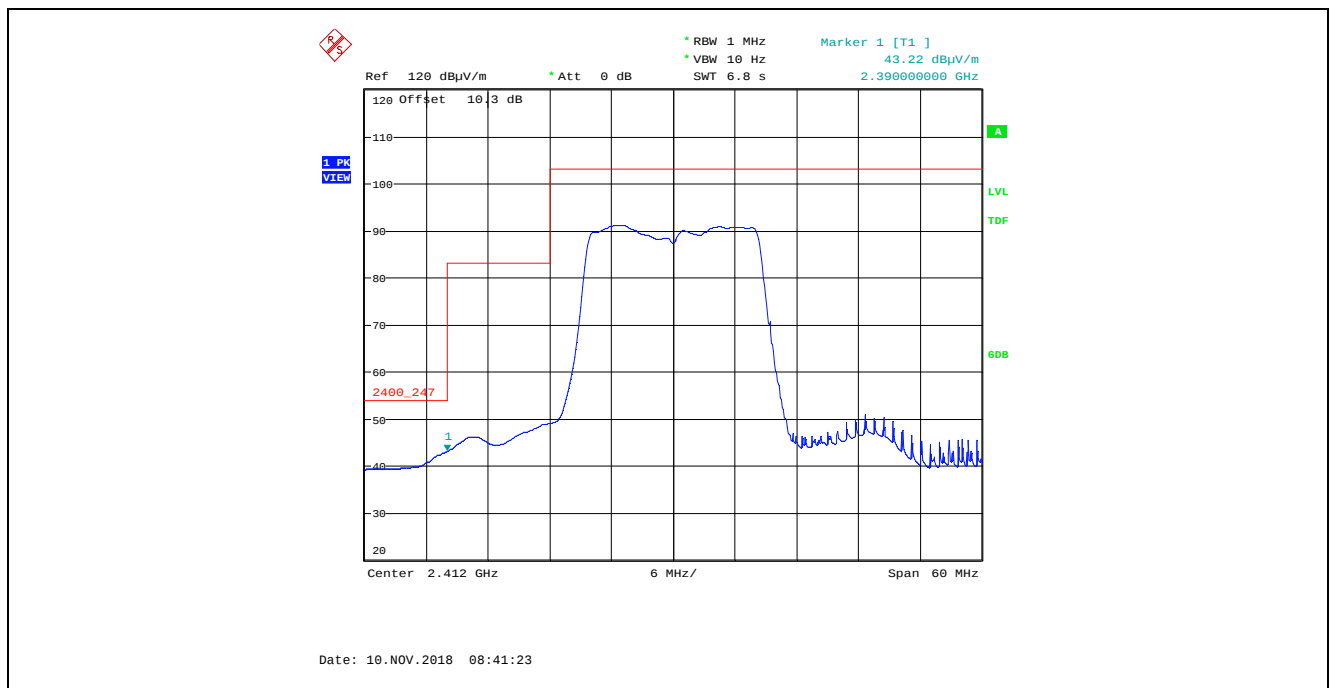
**Plot 5.4.4.2.4.26.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 54 Mbps 64-QAM, Power Setting 16, Channel 1, 2412 MHz



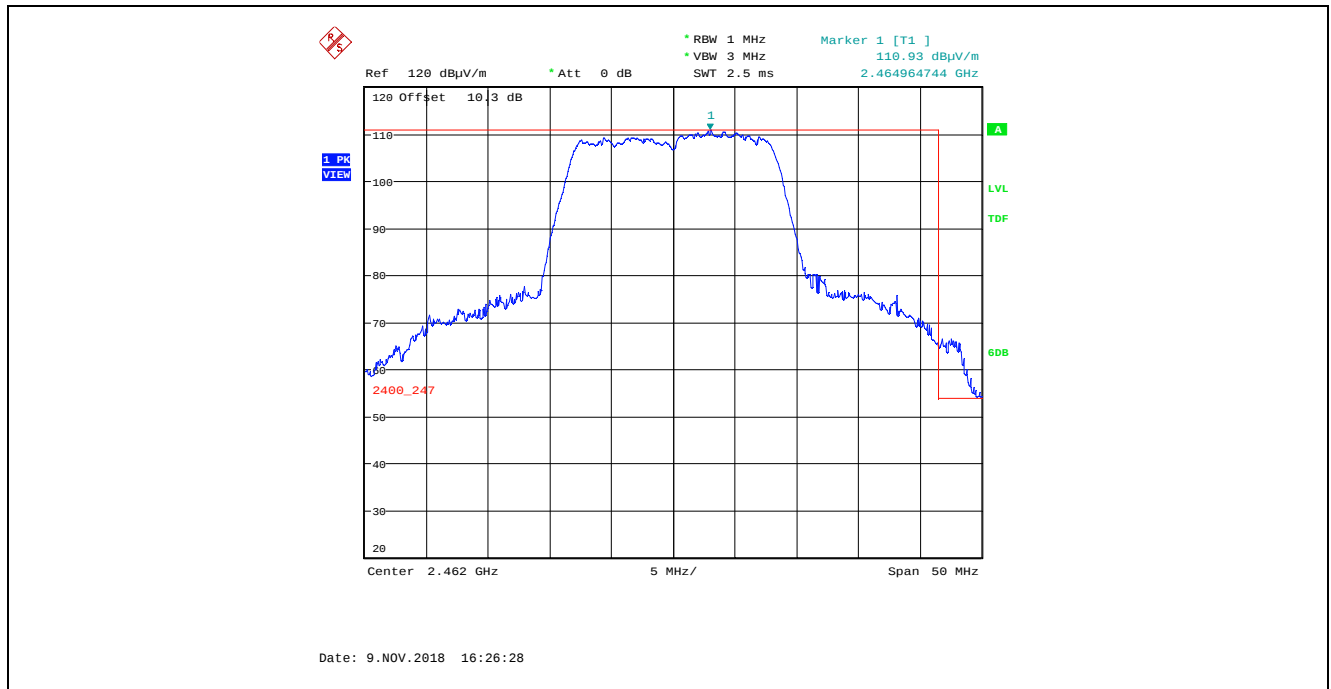
**Plot 5.4.4.2.4.27.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak 54 Mbps 64-QAM, Power Setting 16, Channel 1, 2412 MHz



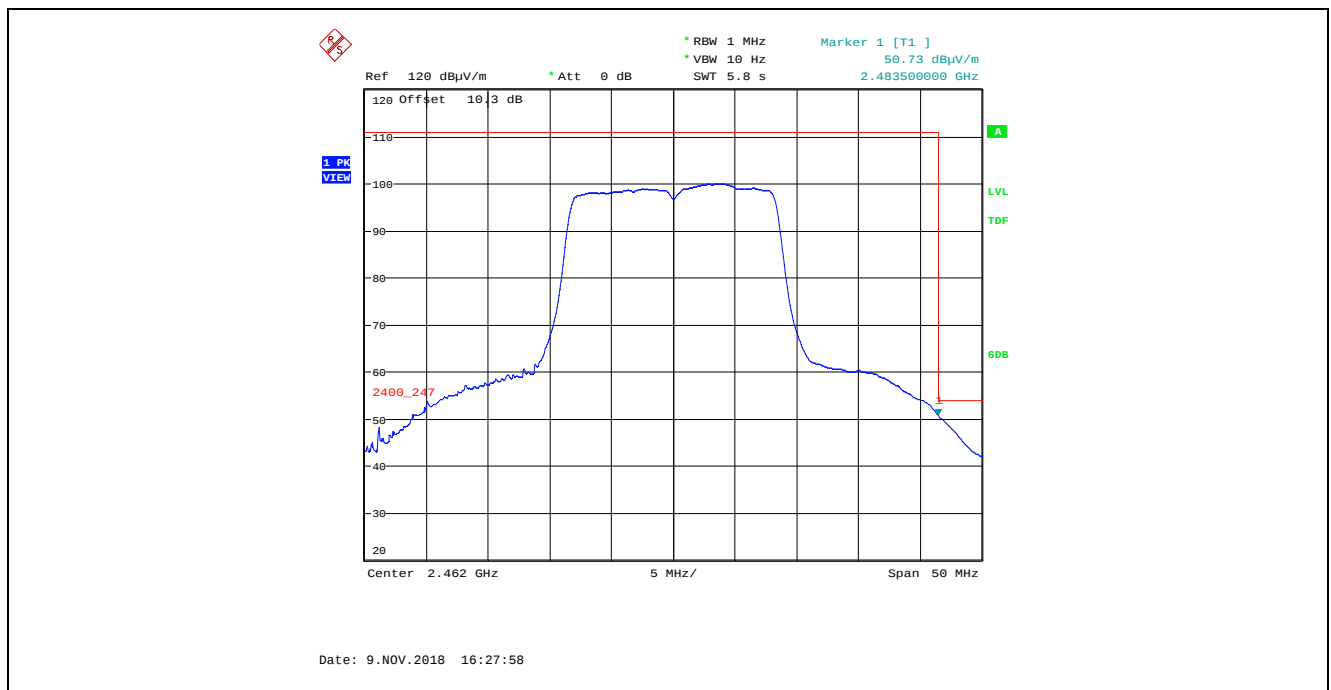
**Plot 5.4.4.2.4.28.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average 54 Mbps 64-QAM, Power Setting 16, Channel 1, 2412 MHz



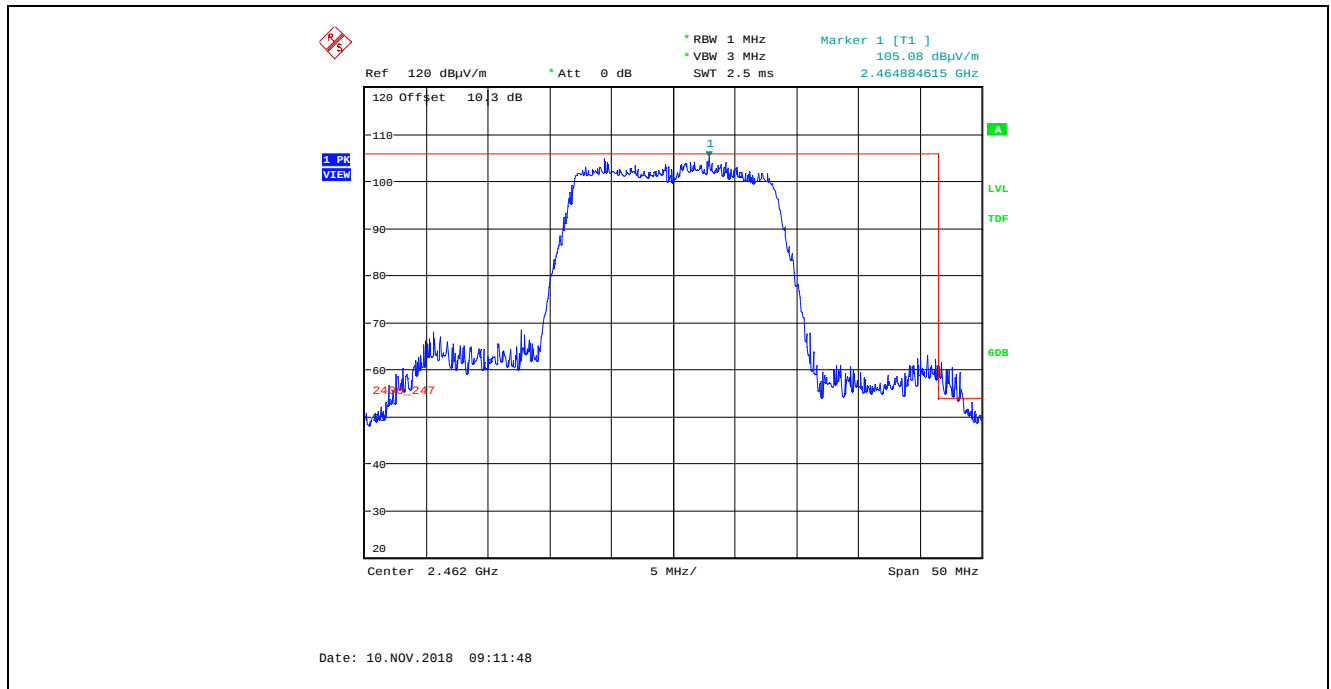
**Plot 5.4.4.2.4.29.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 54 Mbps 64-QAM, Power Setting 16, Channel 11, 2462 MHz



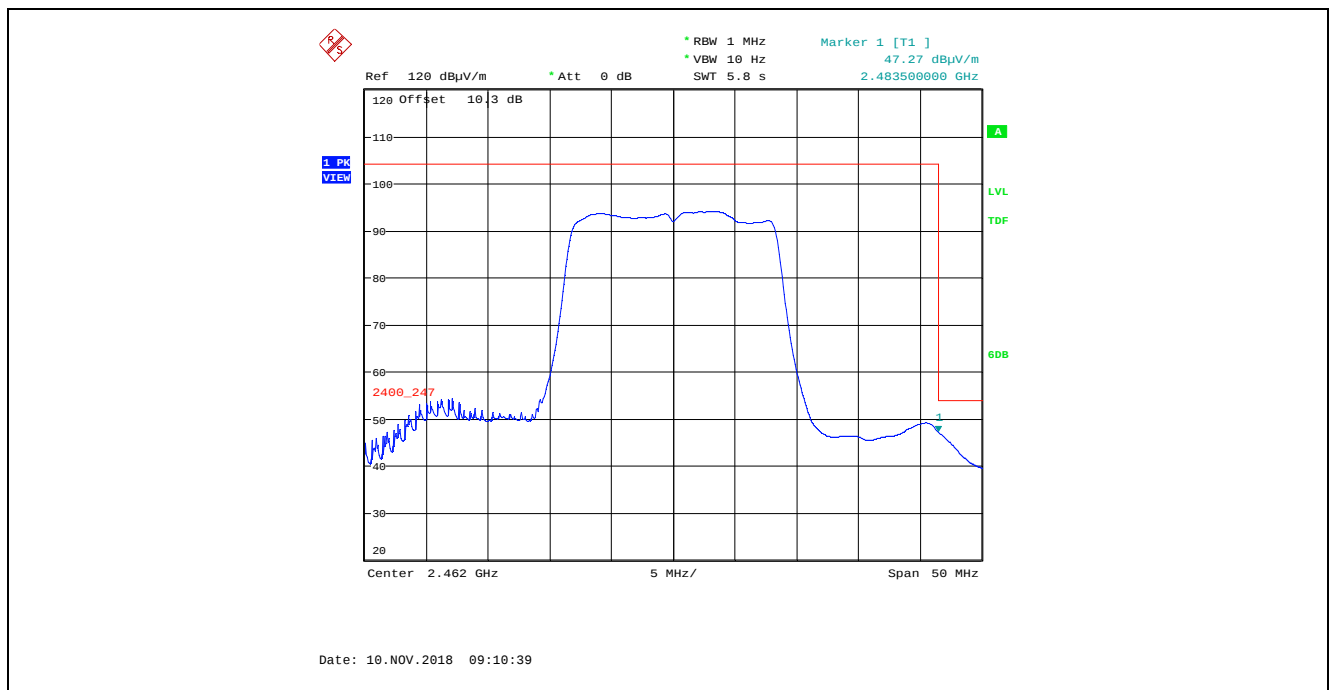
**Plot 5.4.4.2.4.30.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 54 Mbps 64-QAM, Power Setting 16, Channel 11, 2462 MHz



**Plot 5.4.4.2.4.31.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 54 Mbps 64-QAM, Power Setting 16, Channel 11, 2462 MHz



**Plot 5.4.4.2.4.32.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 54 Mbps 64-QAM, Power Setting 16, Channel 11, 2462 MHz



#### 5.4.4.2.5. Spurious Radiated Emissions for 802.11n MCS7

| Fundamental Frequency: |                        | 2412 MHz              |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz       |                     |                       |                       |             |           |
| Power Setting:         |                        | 15                    |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBμV/m) | RF Avg Level (dBμV/m) | Antenna Plane (H/V) | Limit 15.209 (dBμV/m) | Limit 15.247 (dBμV/m) | Margin (dB) | Pass/Fail |
| 2412                   | 100.18                 | --                    | V                   | --                    | --                    | --          | --        |
| 2412                   | 109.08                 | --                    | H                   | --                    | --                    | --          | --        |
| *                      | *                      | *                     | V/H                 | *                     | *                     | *           | *         |

\*Spurious emissions are more than 20 dB below the applicable limit.

| Fundamental Frequency: |                        | 2437 MHz              |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz       |                     |                       |                       |             |           |
| Power Setting:         |                        | 15                    |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBμV/m) | RF Avg Level (dBμV/m) | Antenna Plane (H/V) | Limit 15.209 (dBμV/m) | Limit 15.247 (dBμV/m) | Margin (dB) | Pass/Fail |
| 2437                   | 102.33                 | --                    | V                   | --                    | --                    | --          | --        |
| 2437                   | 109.21                 | --                    | H                   | --                    | --                    | --          | --        |
| *                      | *                      | *                     | V/H                 | *                     | *                     | *           | *         |

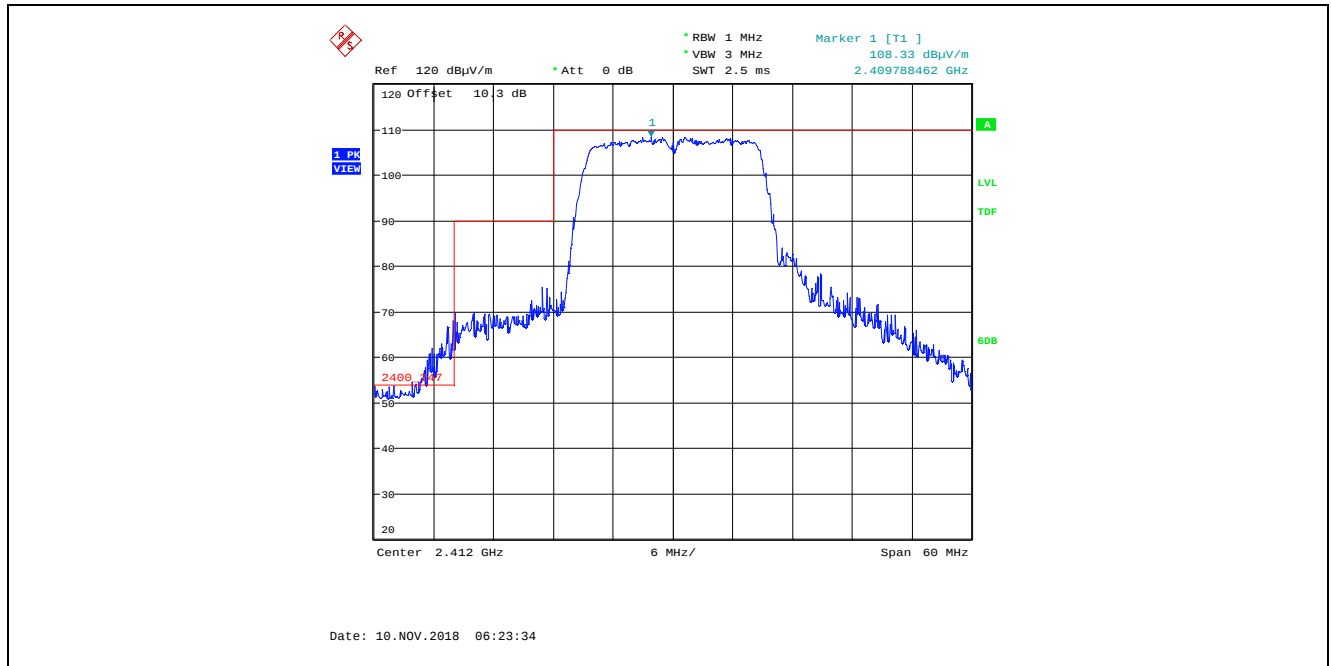
\*Spurious emissions are more than 20 dB below the applicable limit.

| Fundamental Frequency: |                        | 2462 MHz              |                     |                       |                       |             |           |
|------------------------|------------------------|-----------------------|---------------------|-----------------------|-----------------------|-------------|-----------|
| Frequency Test Range:  |                        | 30 MHz – 25 GHz       |                     |                       |                       |             |           |
| Power Setting:         |                        | 15                    |                     |                       |                       |             |           |
| Frequency (MHz)        | RF Peak Level (dBμV/m) | RF Avg Level (dBμV/m) | Antenna Plane (H/V) | Limit 15.209 (dBμV/m) | Limit 15.247 (dBμV/m) | Margin (dB) | Pass/Fail |
| 2462                   | 103.78                 | --                    | V                   | --                    | --                    | --          | --        |
| 2462                   | 109.62                 | --                    | H                   | --                    | --                    | --          | --        |
| *                      | *                      | *                     | V/H                 | *                     | *                     | *           | *         |

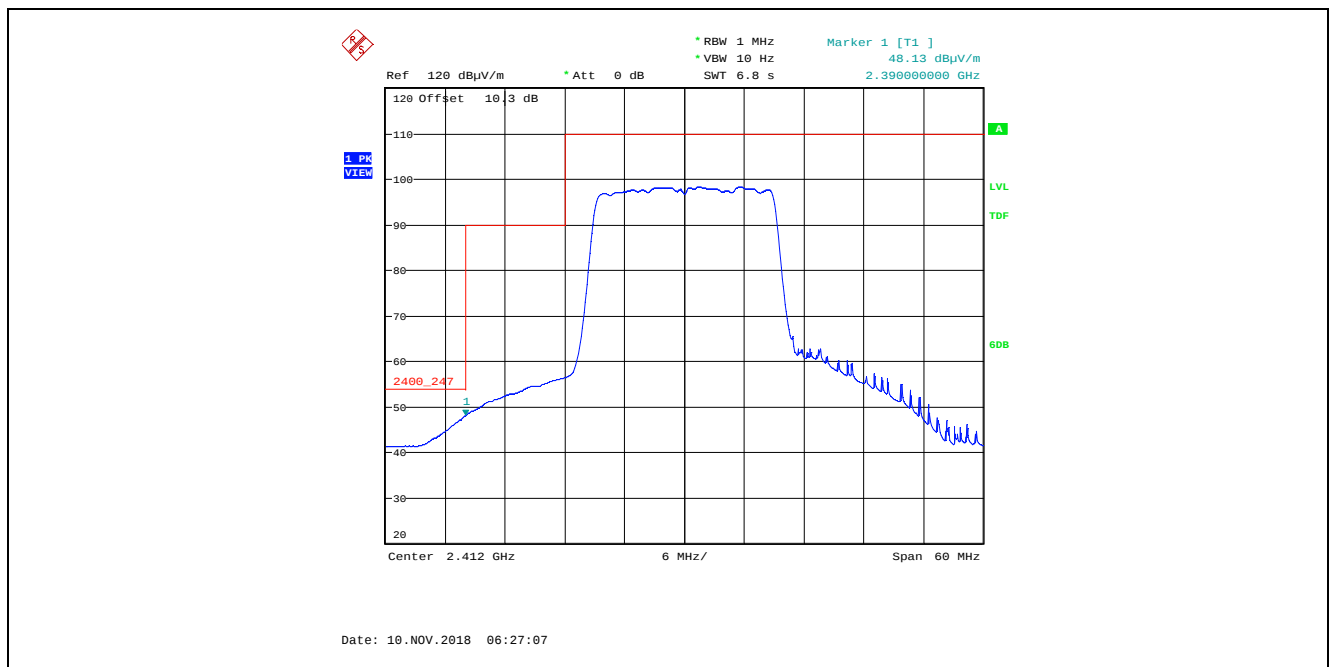
\*Spurious emissions are more than 20 dB below the applicable limit.

#### 5.4.4.2.6. Band-Edge RF Radiated Emissions for 802.11n

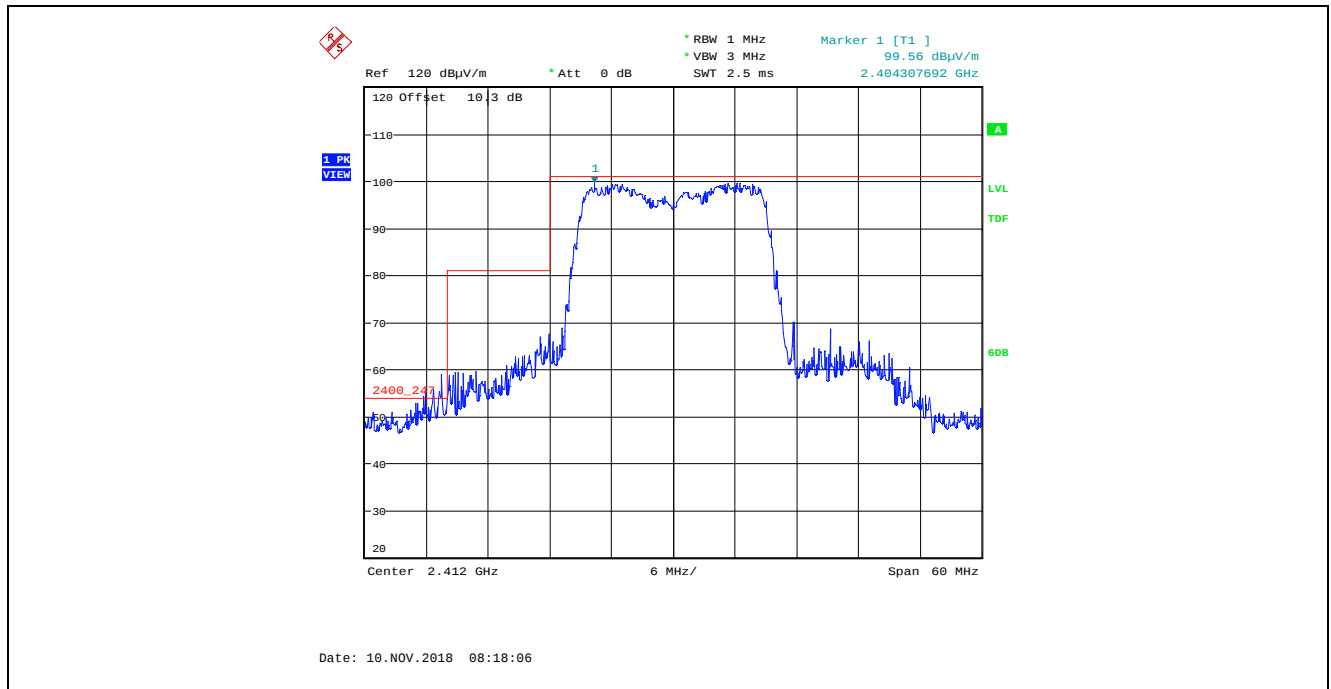
**Plot 5.4.4.2.6.1.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 15, Channel 1, 2412 MHz



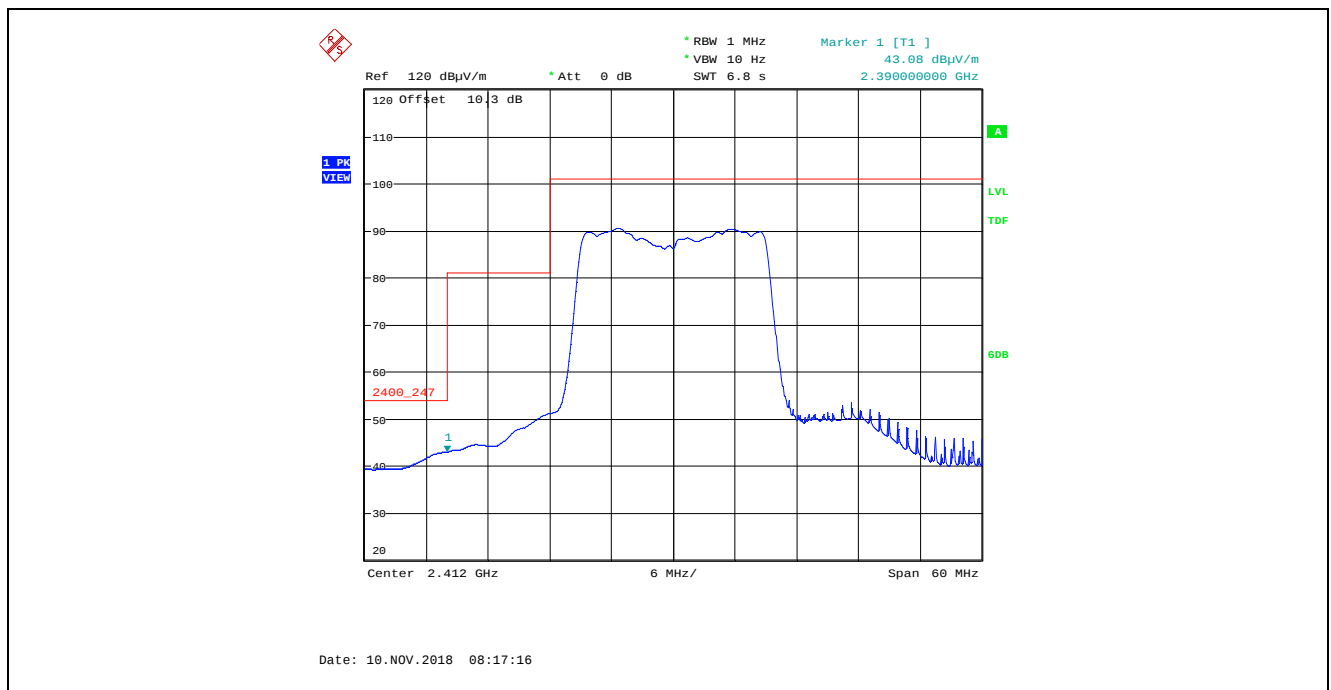
**Plot 5.4.4.2.6.2.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 15, Channel 1, 2412 MHz



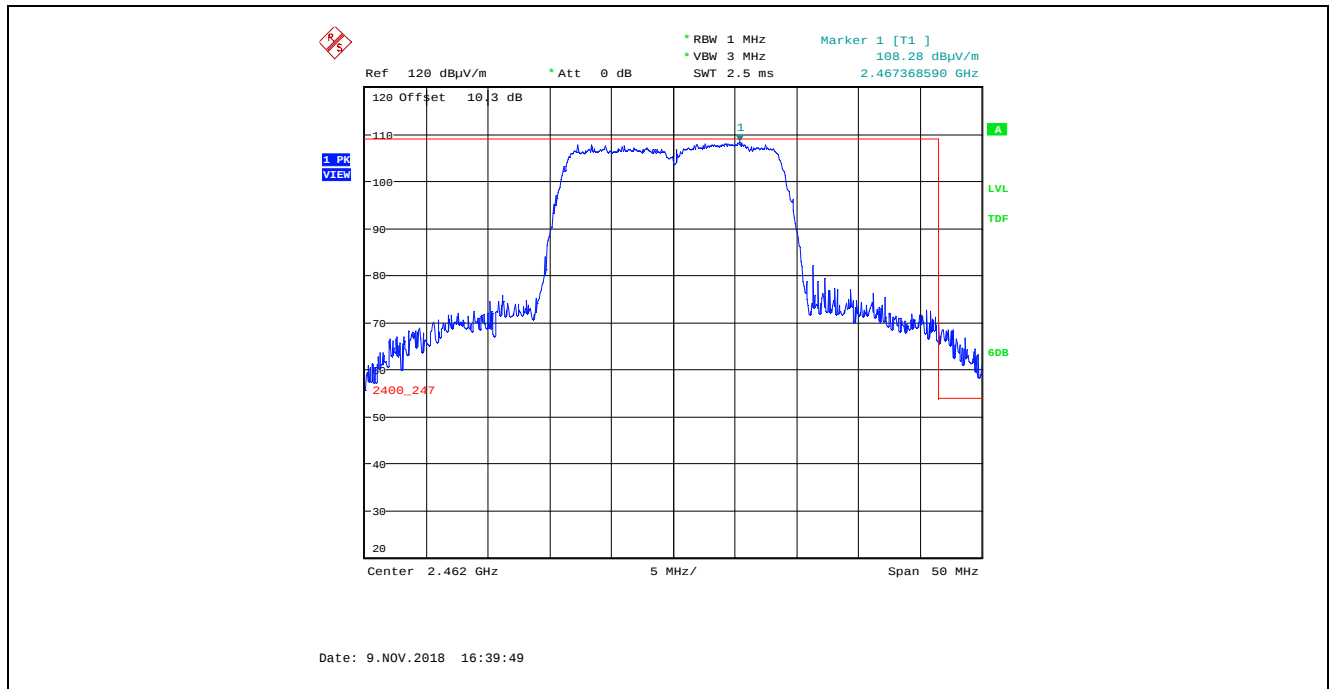
**Plot 5.4.4.2.6.3.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 15, Channel 1, 2412 MHz



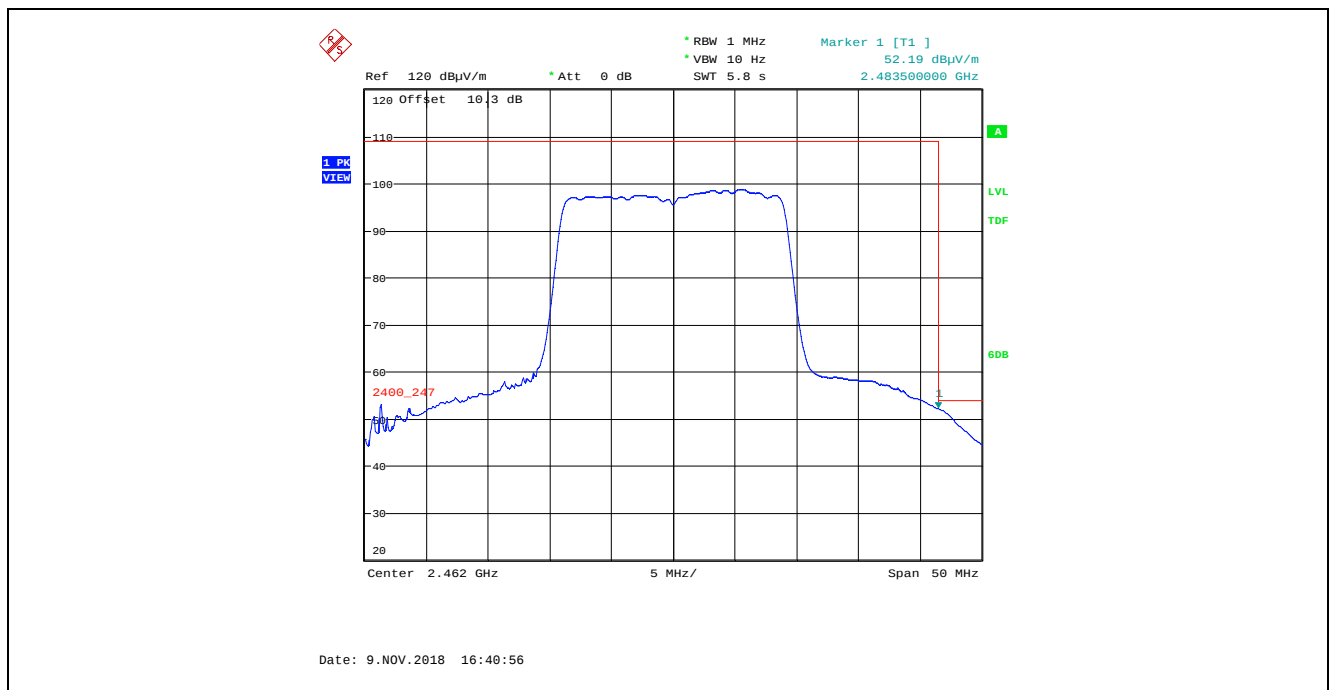
**Plot 5.4.4.2.6.4.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 15, Channel 1, 2412 MHz



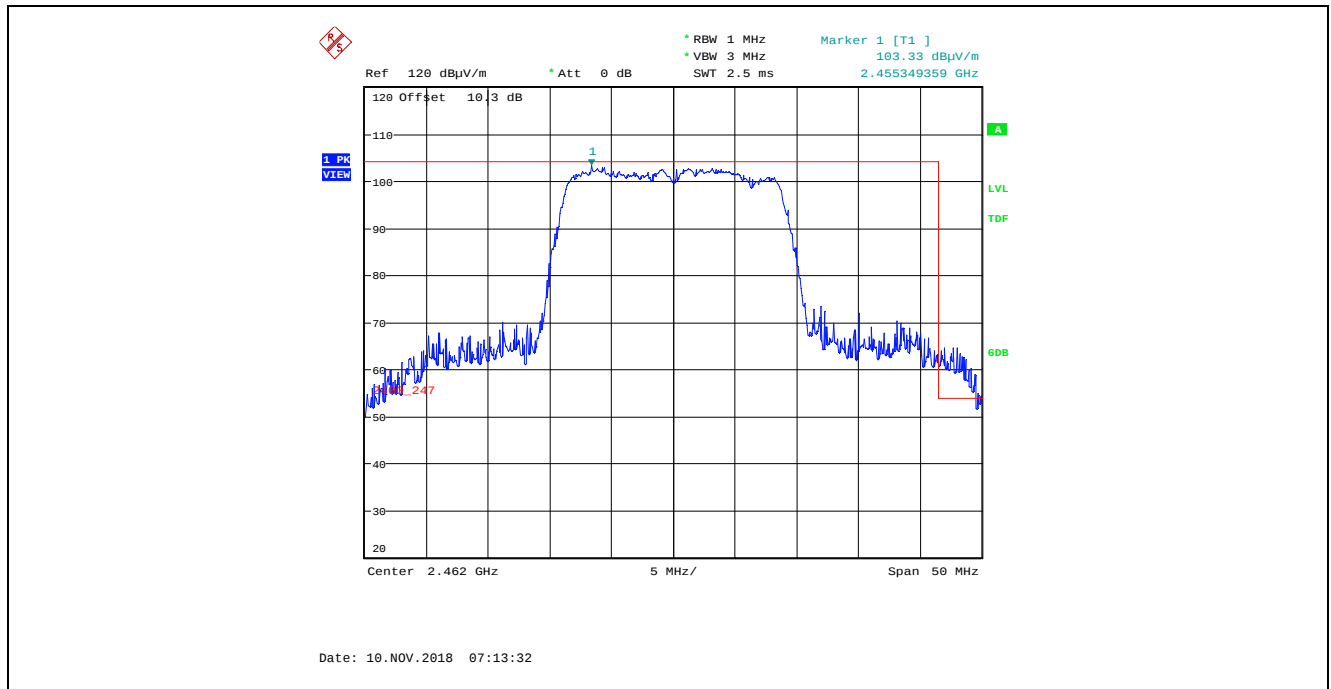
**Plot 5.4.4.2.6.5.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS0, Power Setting 15, Channel 11, 2462 MHz



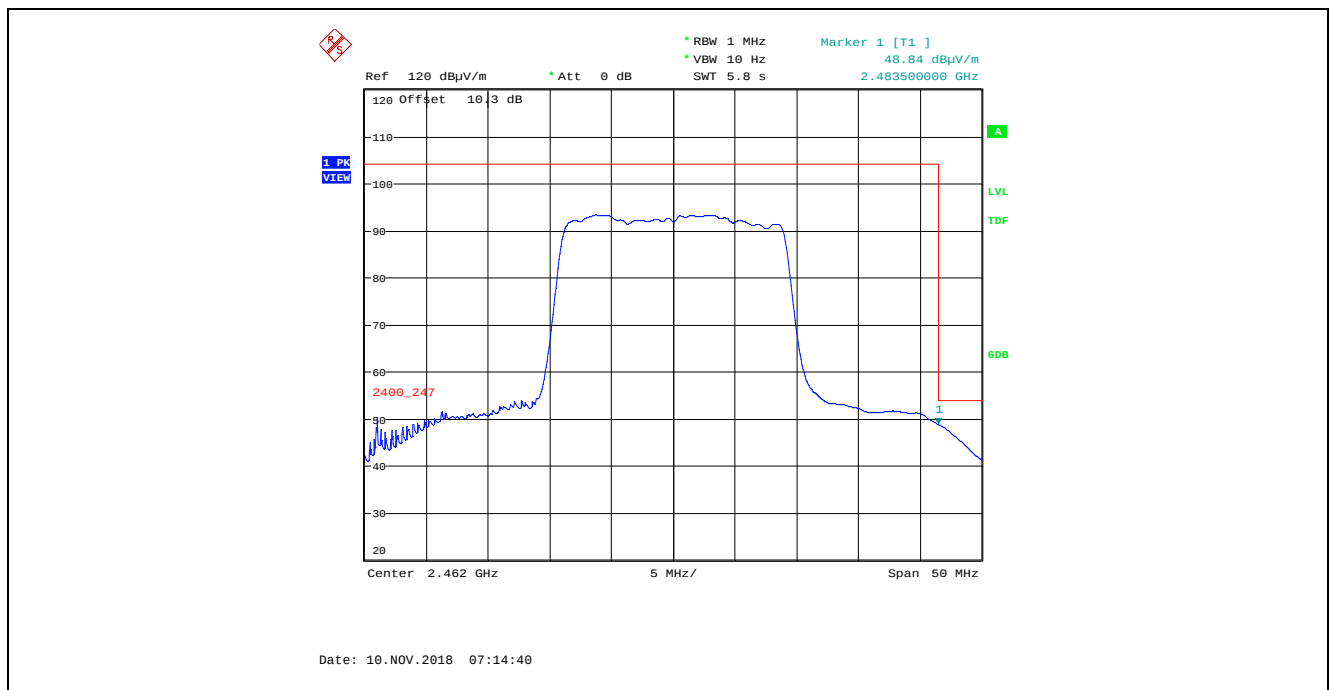
**Plot 5.4.4.2.6.6.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS0, Power Setting 15, Channel 11, 2462 MHz



**Plot 5.4.4.2.6.7.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS0, Power Setting 15, Channel 11, 2462 MHz



**Plot 5.4.4.2.6.8.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS0, Power Setting 15, Channel 11, 2462 MHz



Ref 120 dBuV/m \* Att 0 dB \* RBW 1 MHz \* VBW 10 Hz \* SWT 6.8 s Marker 1 [T1] 48.13 dBuV/m 2.390000000 GHz

1. PK VIEW

120 Offset 10.3 dB

-110

-100

-90

-80

-70

-60

-50

-40

-30

20

2.490\_247

1

Center 2.412 GHz 6 MHz/ Span 60 MHz

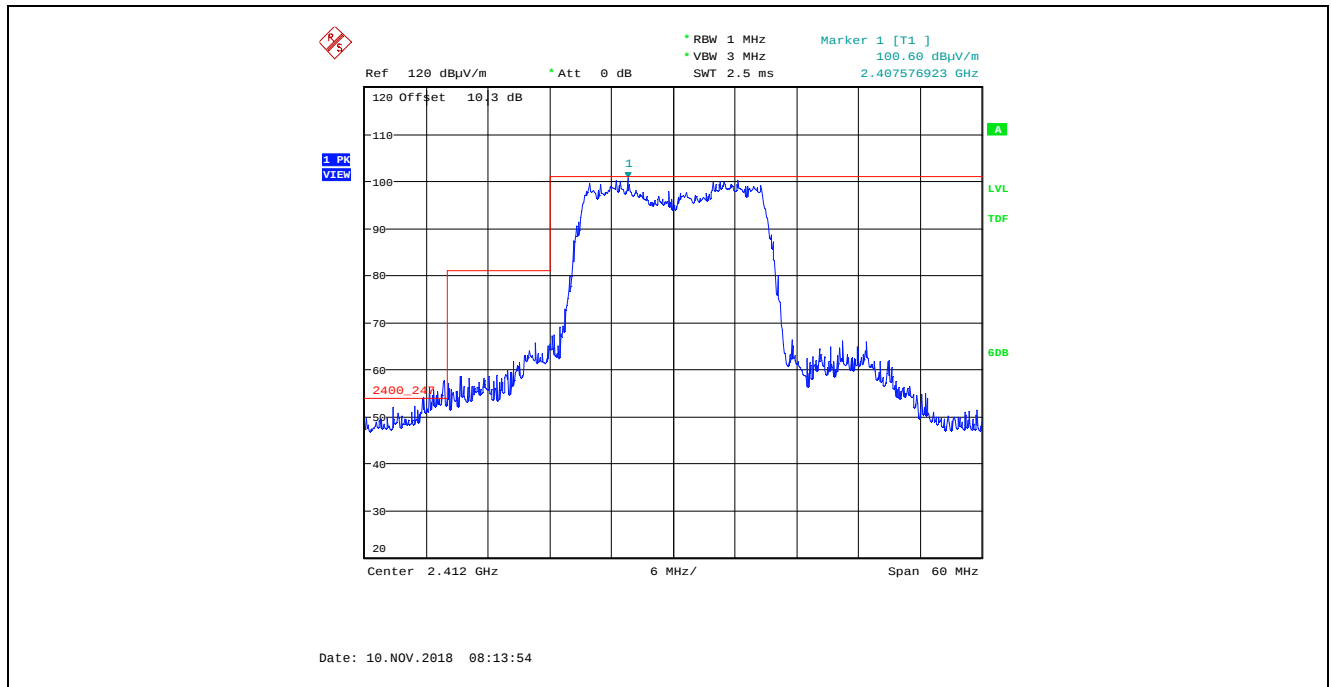
A

LVL

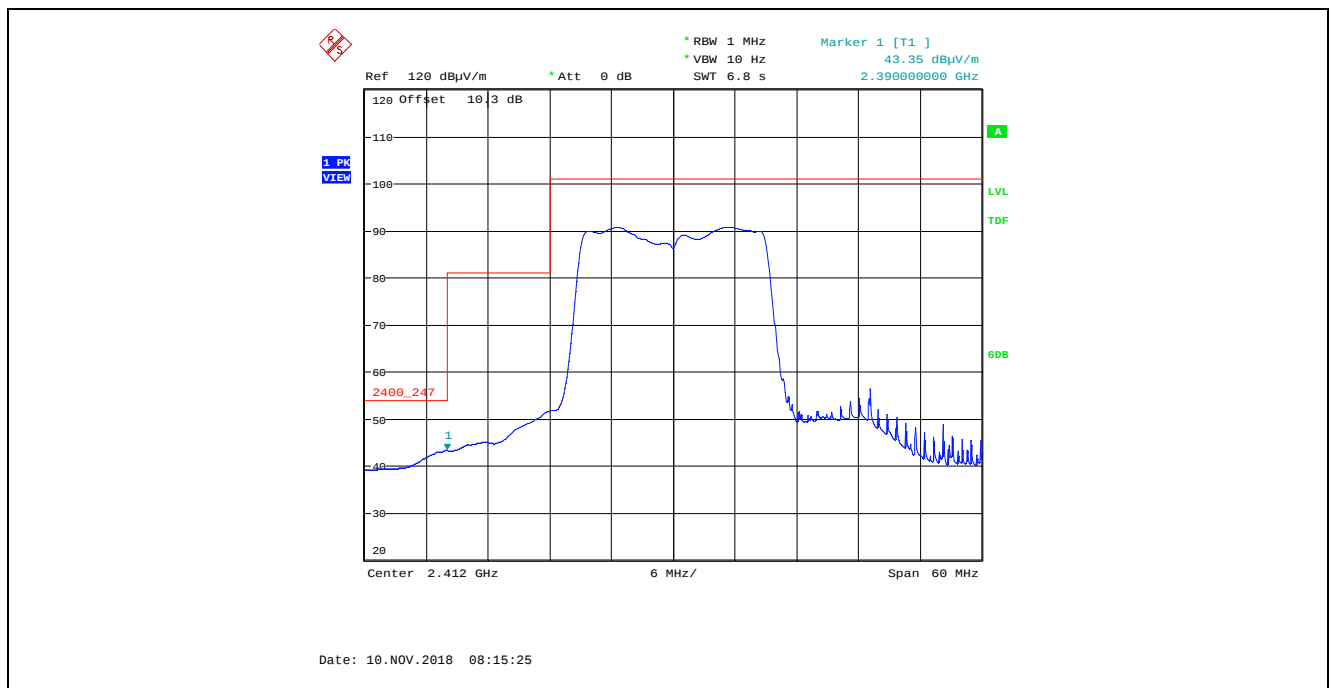
TDF

6dB

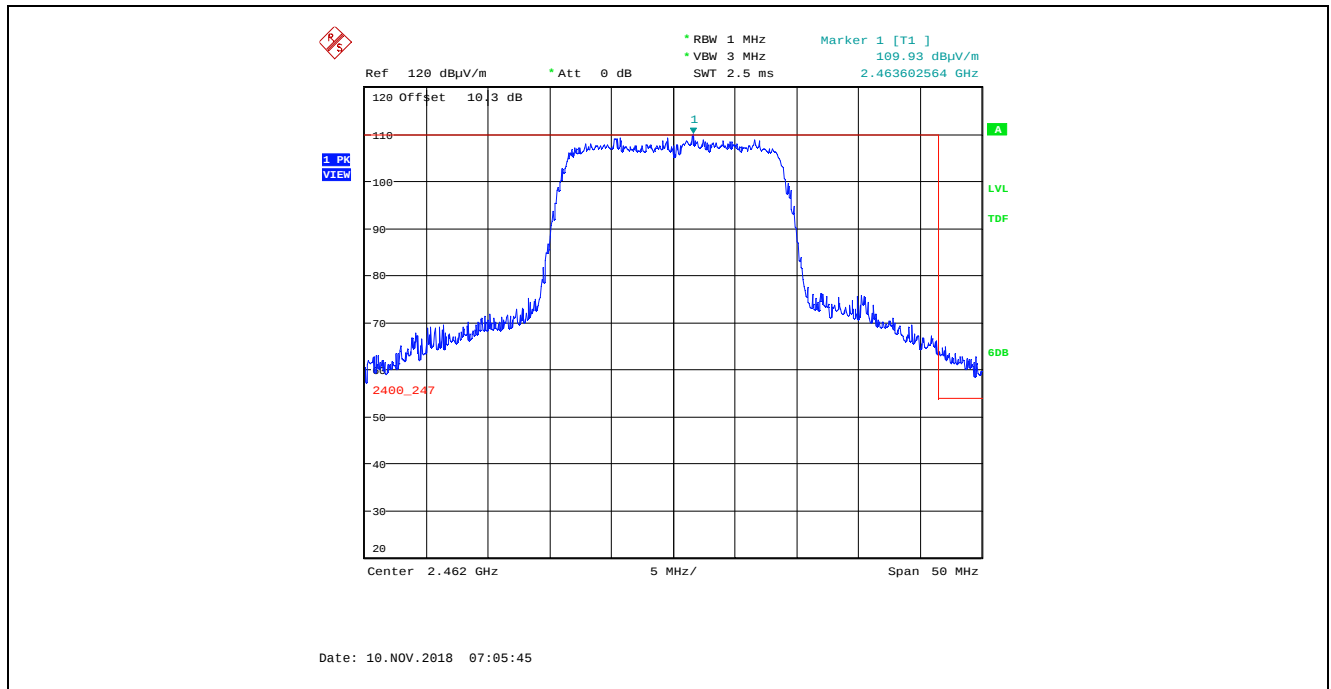
**Plot 5.4.4.2.6.11.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 15, Channel 1, 2412 MHz



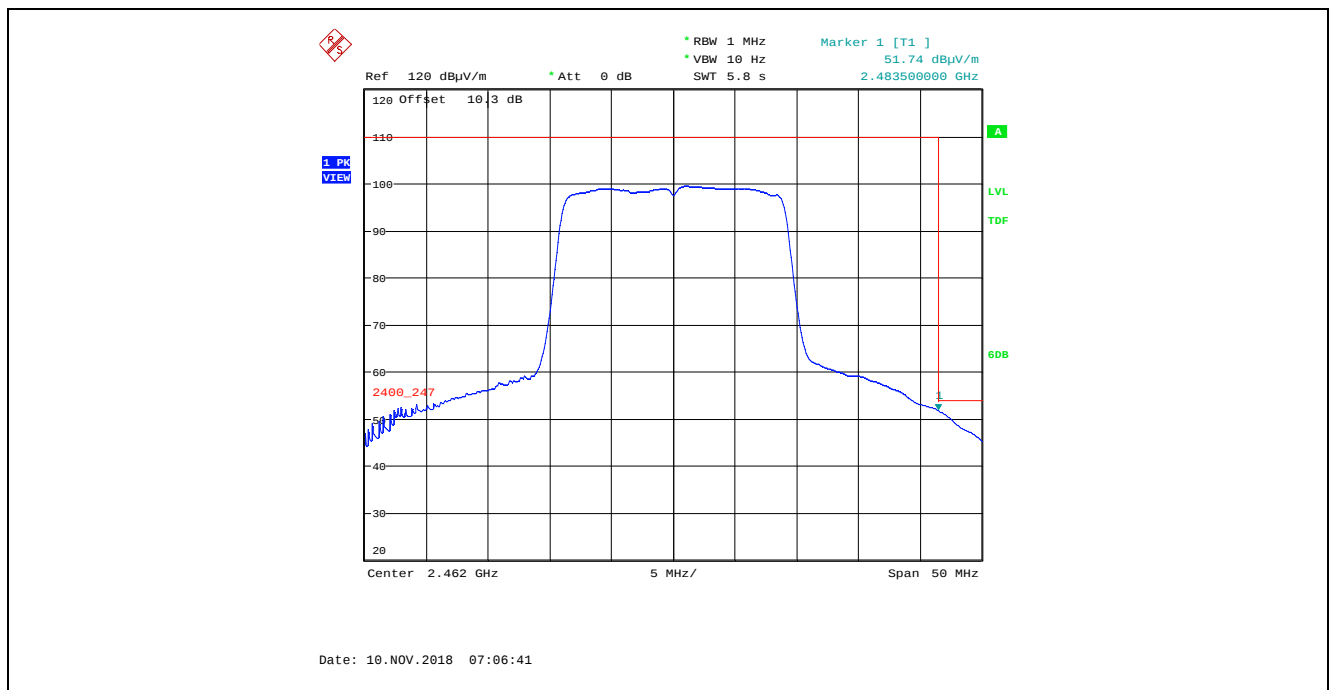
**Plot 5.4.4.2.6.12.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 15, Channel 1, 2412 MHz



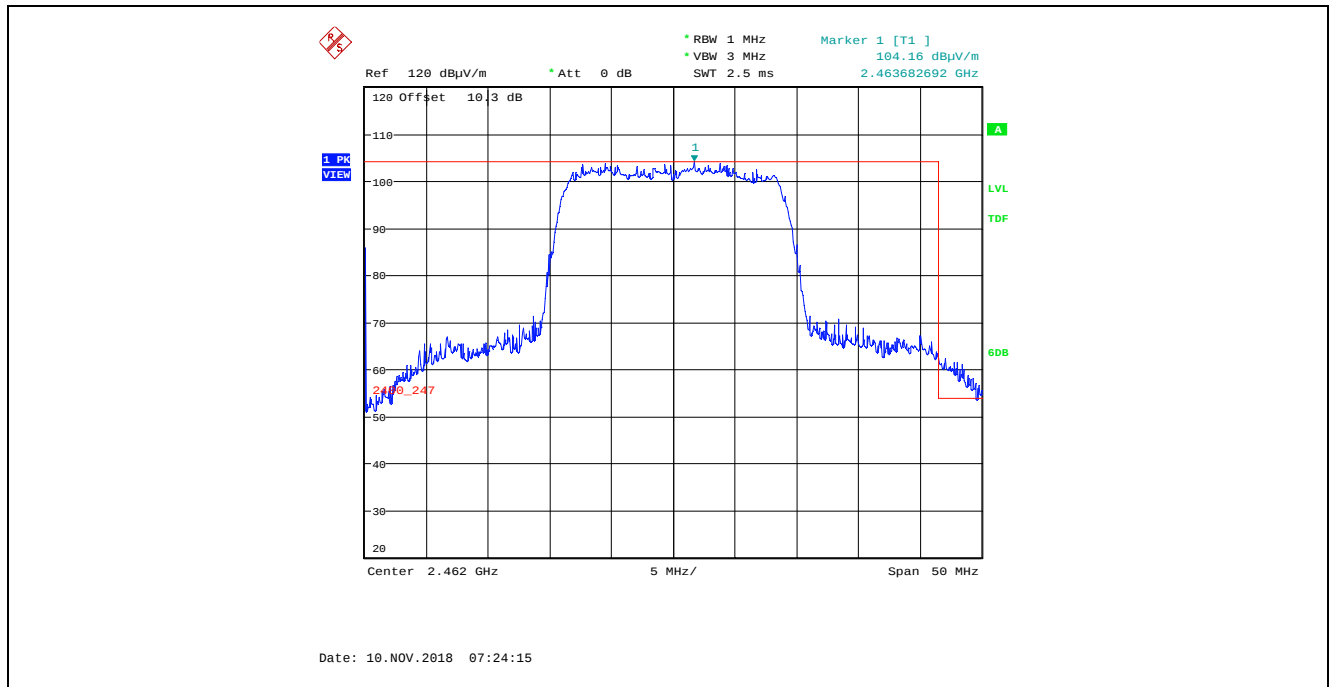
**Plot 5.4.4.2.6.13.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS2, Power Setting 15, Channel 11, 2462 MHz



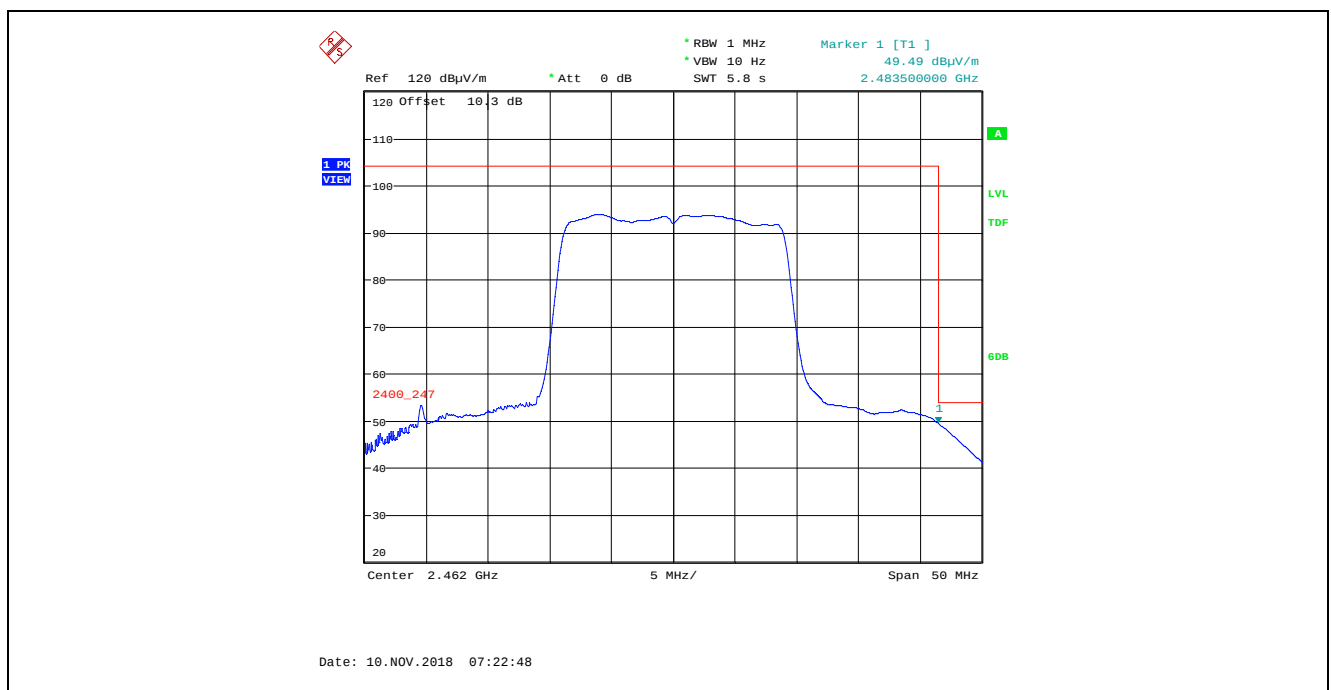
**Plot 5.4.4.2.6.14.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS2, Power Setting 15, Channel 11, 2462 MHz



**Plot 5.4.4.2.6.15.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS2, Power Setting 15, Channel 11, 2462 MHz



**Plot 5.4.4.2.6.16.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS2, Power Setting 15, Channel 11, 2462 MHz



Ref 120 dBuV/m \* Att 0 dB SWT 6.8 s

\* RBW 1 MHz \* VBW 10 Hz

Marker 1 [T1] 48.08 dBuV/m 2.390000000 GHz

120 Offset 10.3 dB

1 PK VIEW

2490\_247

1

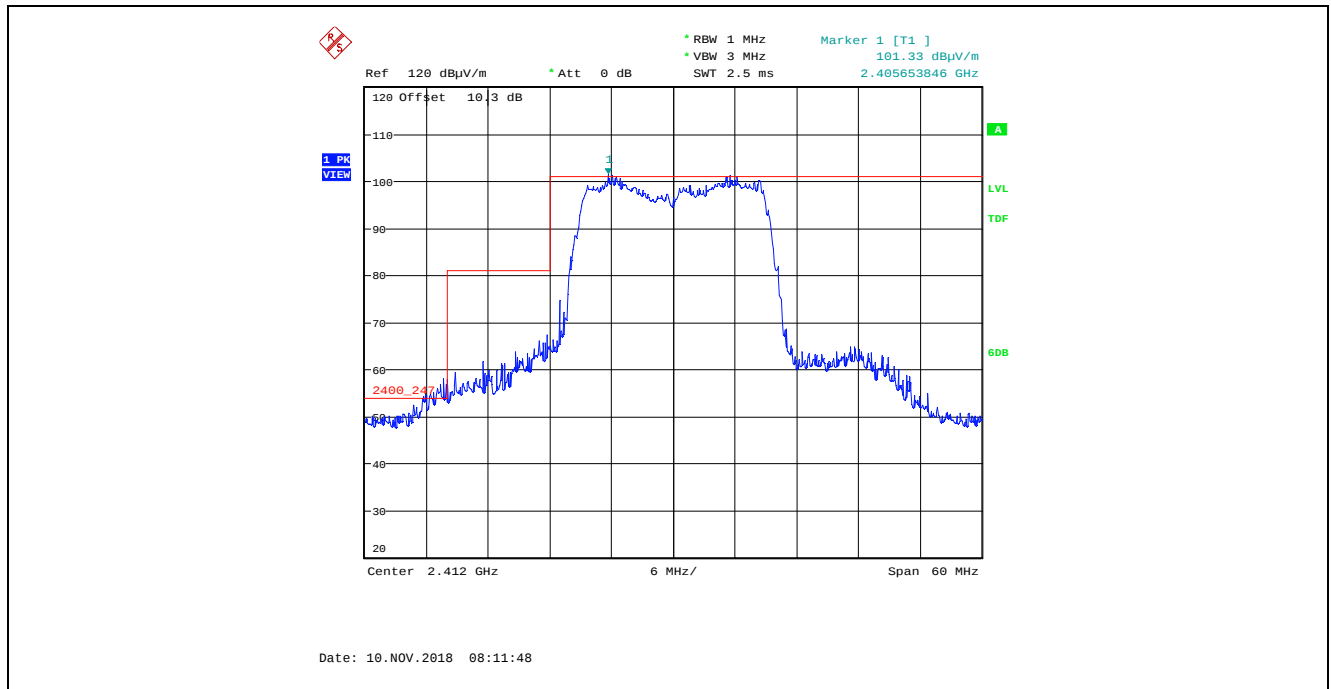
LVL

TDF

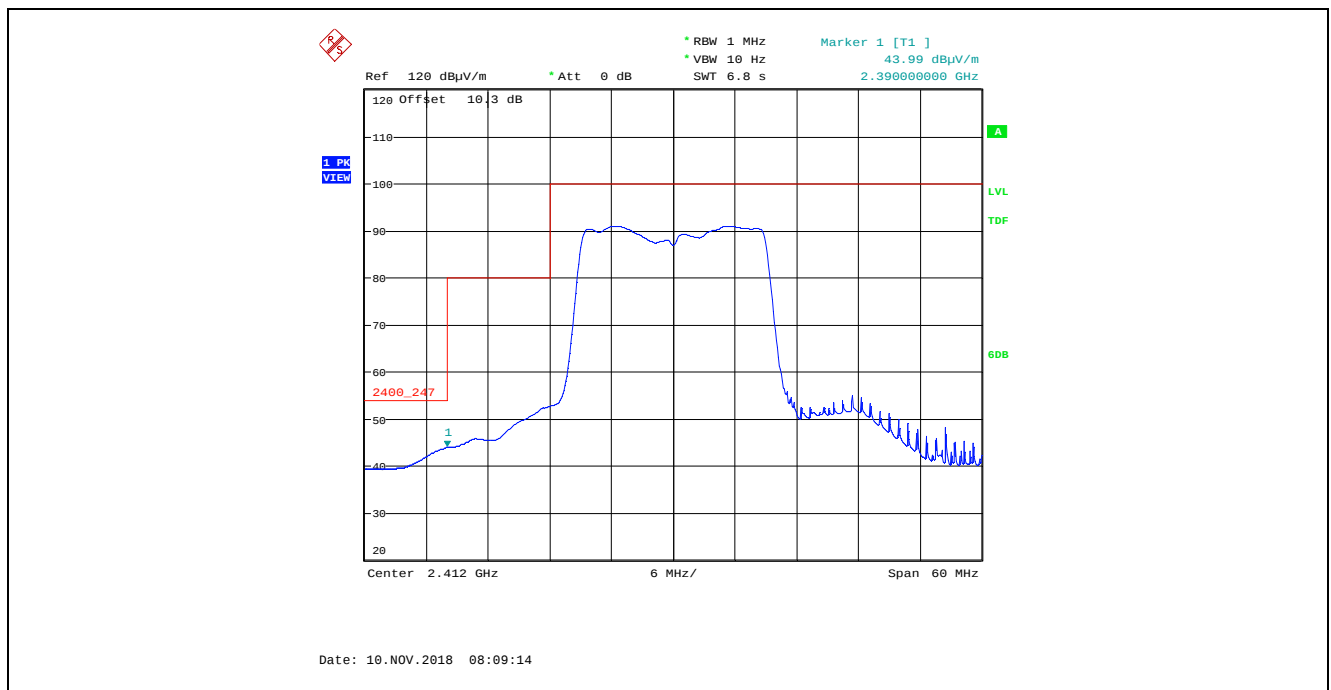
60dB

Center 2.412 GHz 6 MHz/ Span 60 MHz

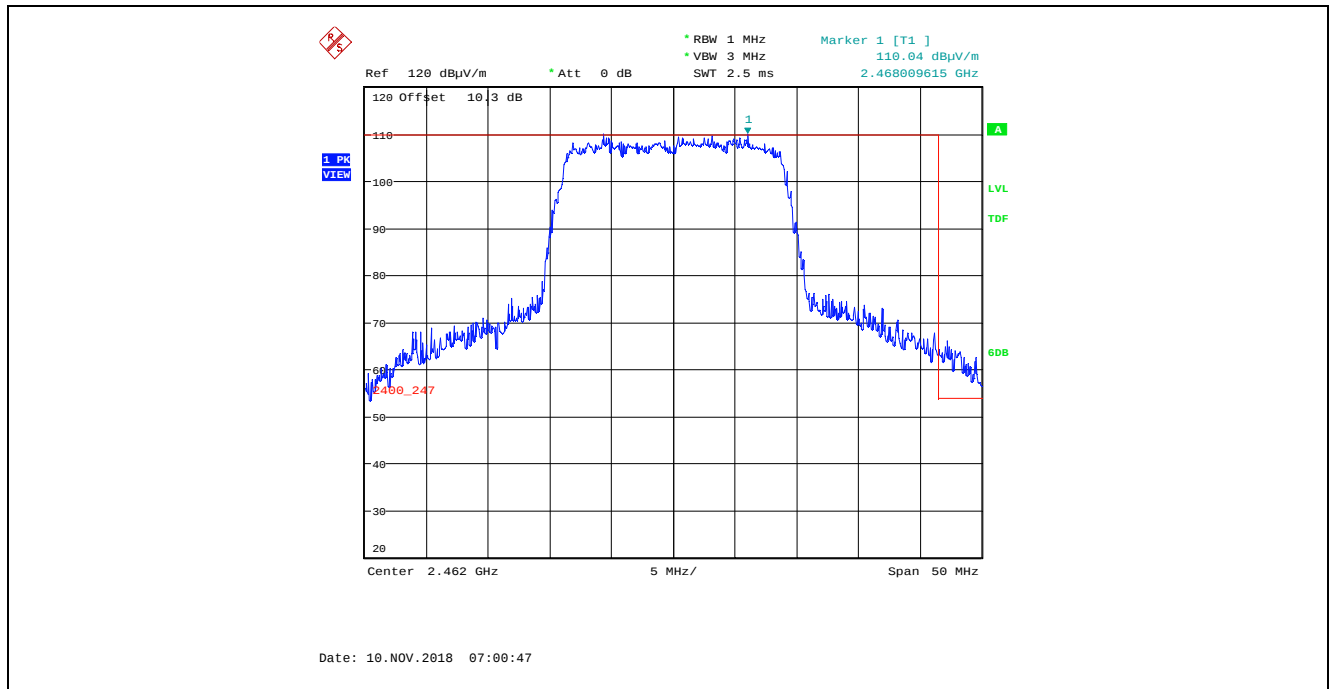
**Plot 5.4.4.2.6.19.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 15, Channel 1, 2412 MHz



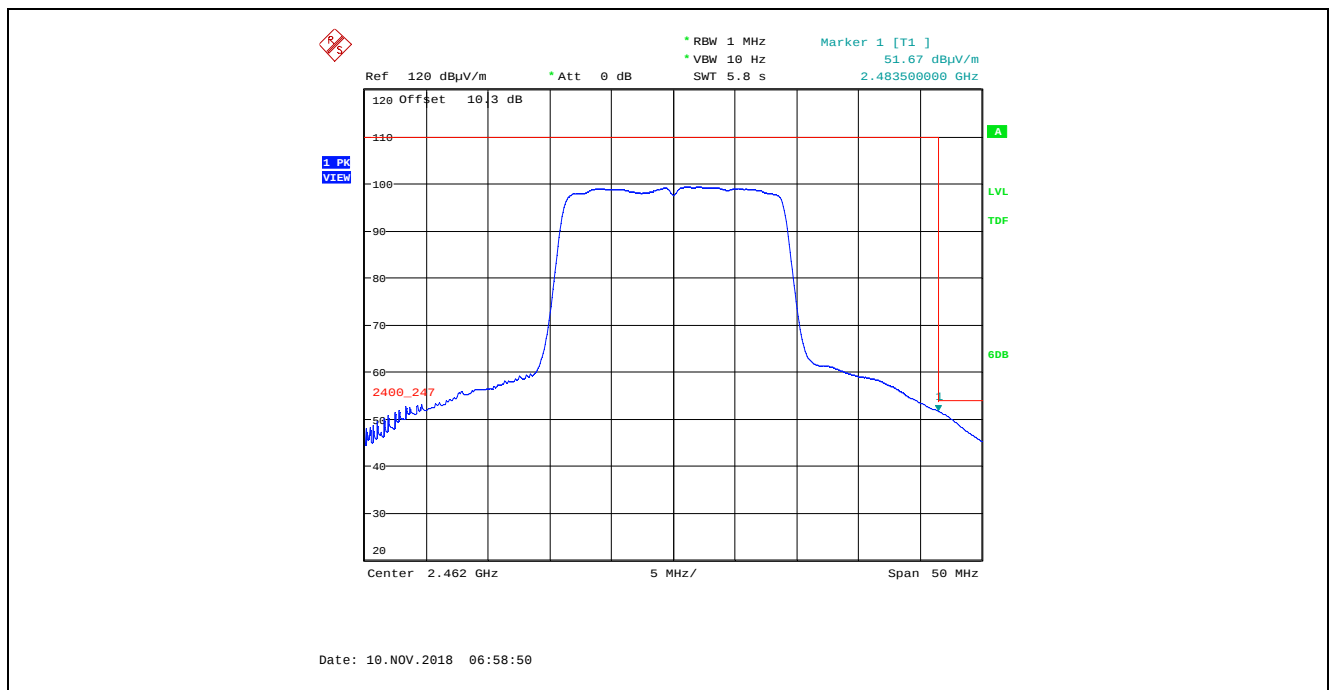
**Plot 5.4.4.2.6.20.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 15, Channel 1, 2412 MHz



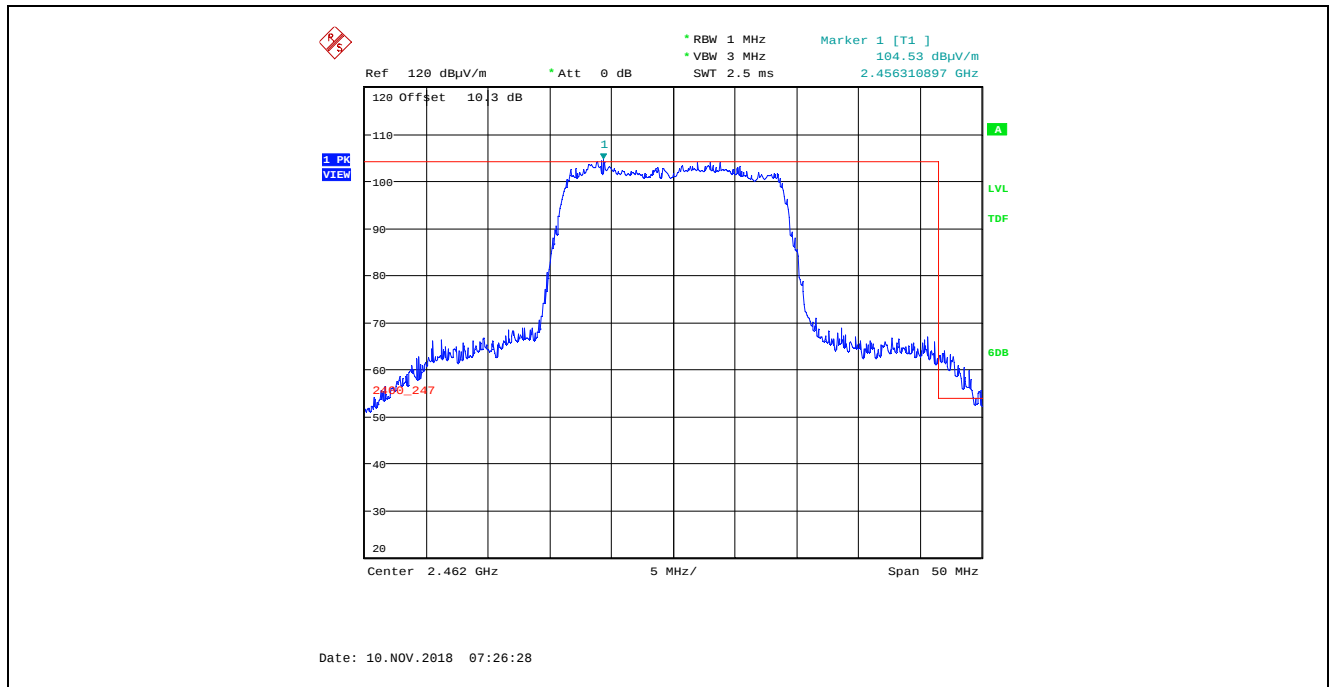
**Plot 5.4.4.2.6.21.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS4, Power Setting 15, Channel 11, 2462 MHz



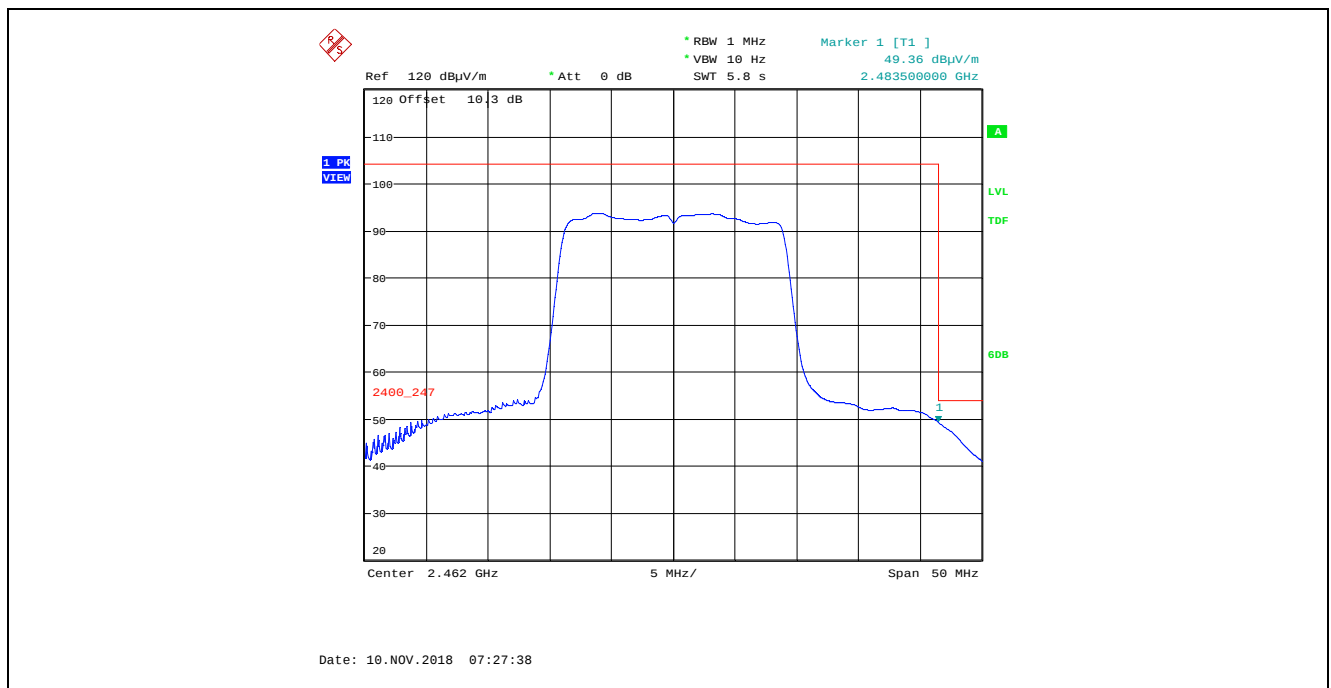
**Plot 5.4.4.2.6.22.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS4, Power Setting 15, Channel 11, 2462 MHz



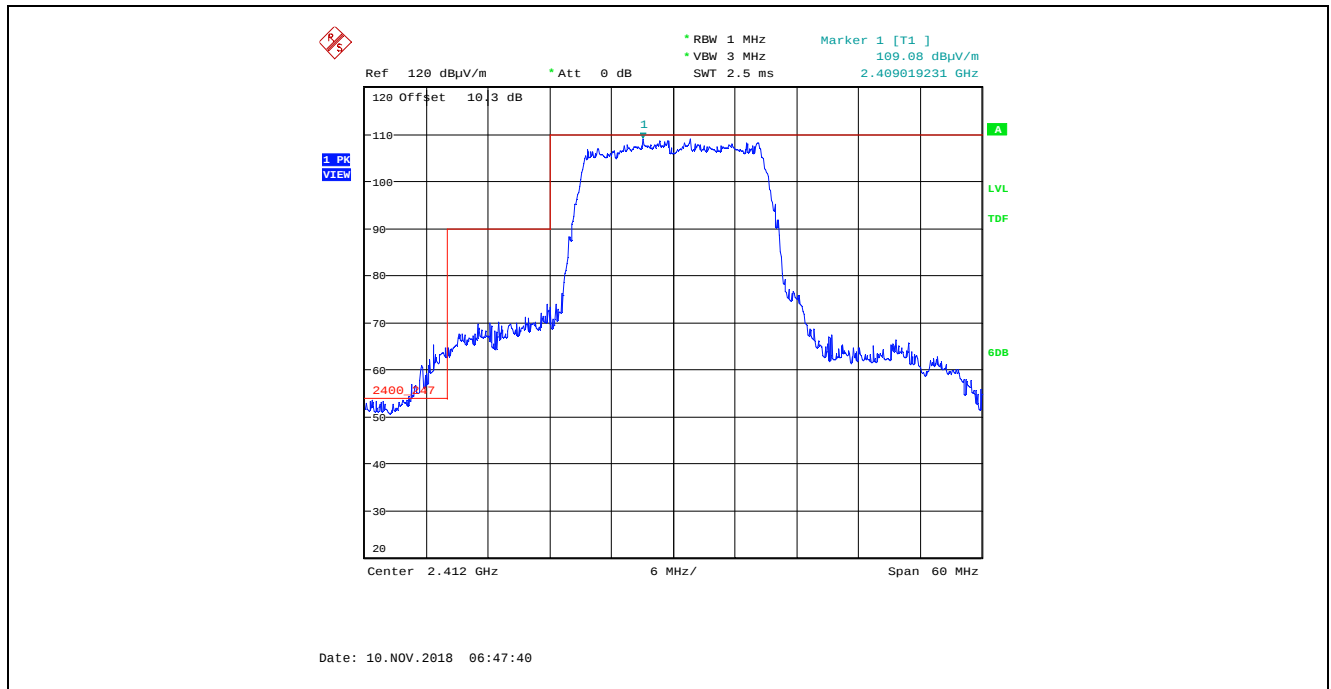
**Plot 5.4.4.2.6.23.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS4, Power Setting 15, Channel 11, 2462 MHz



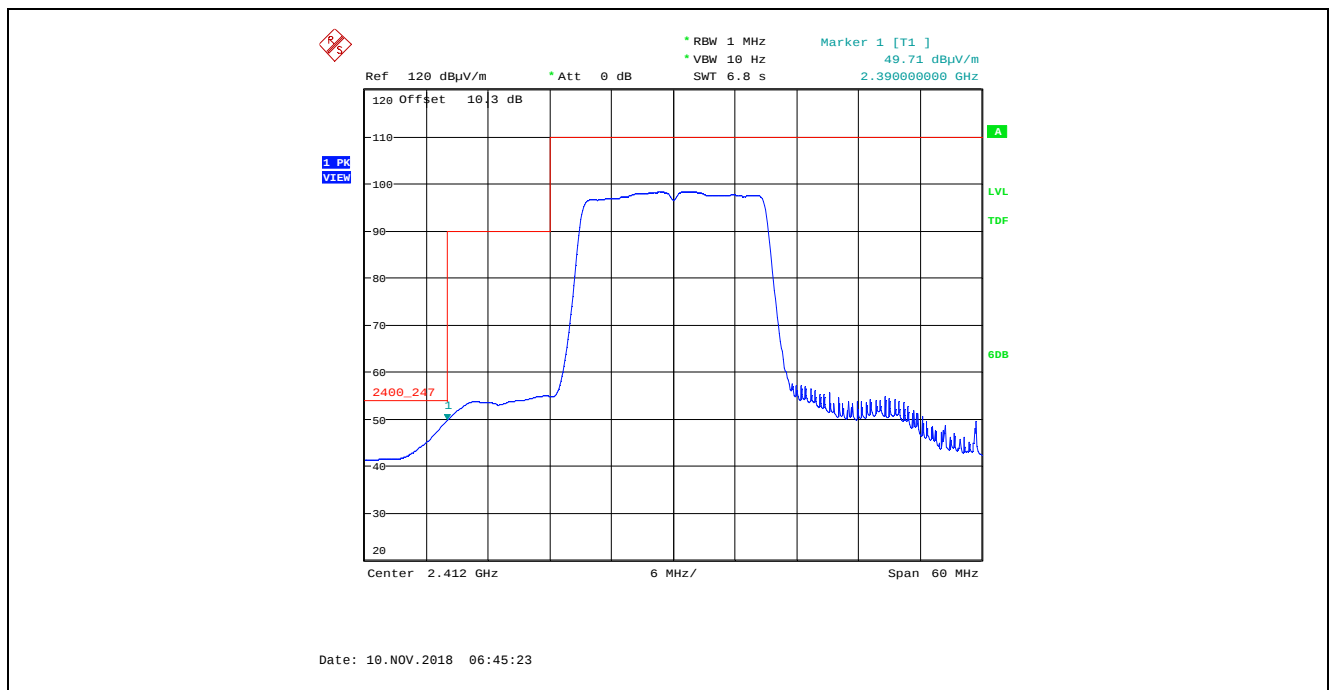
**Plot 5.4.4.2.6.24.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS4, Power Setting 15, Channel 11, 2462 MHz



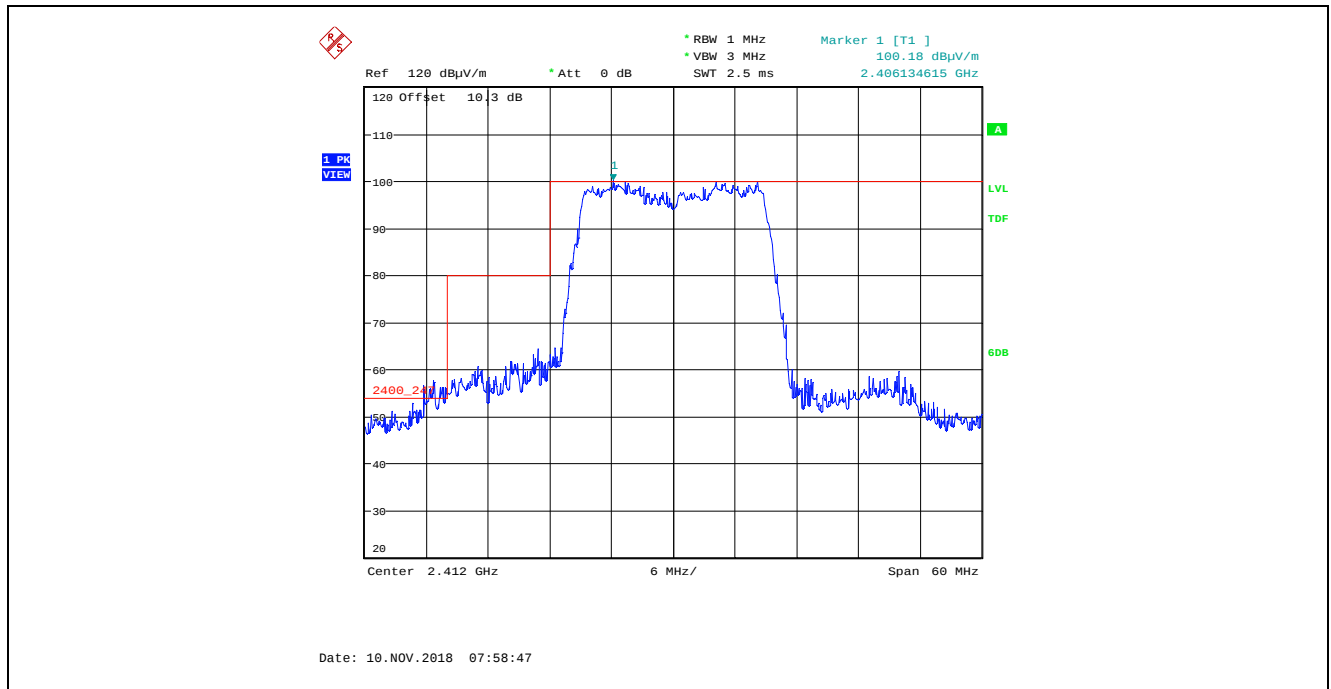
**Plot 5.4.4.2.6.25.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Peak  
 MCS7, Power Setting 15, Channel 1, 2412 MHz



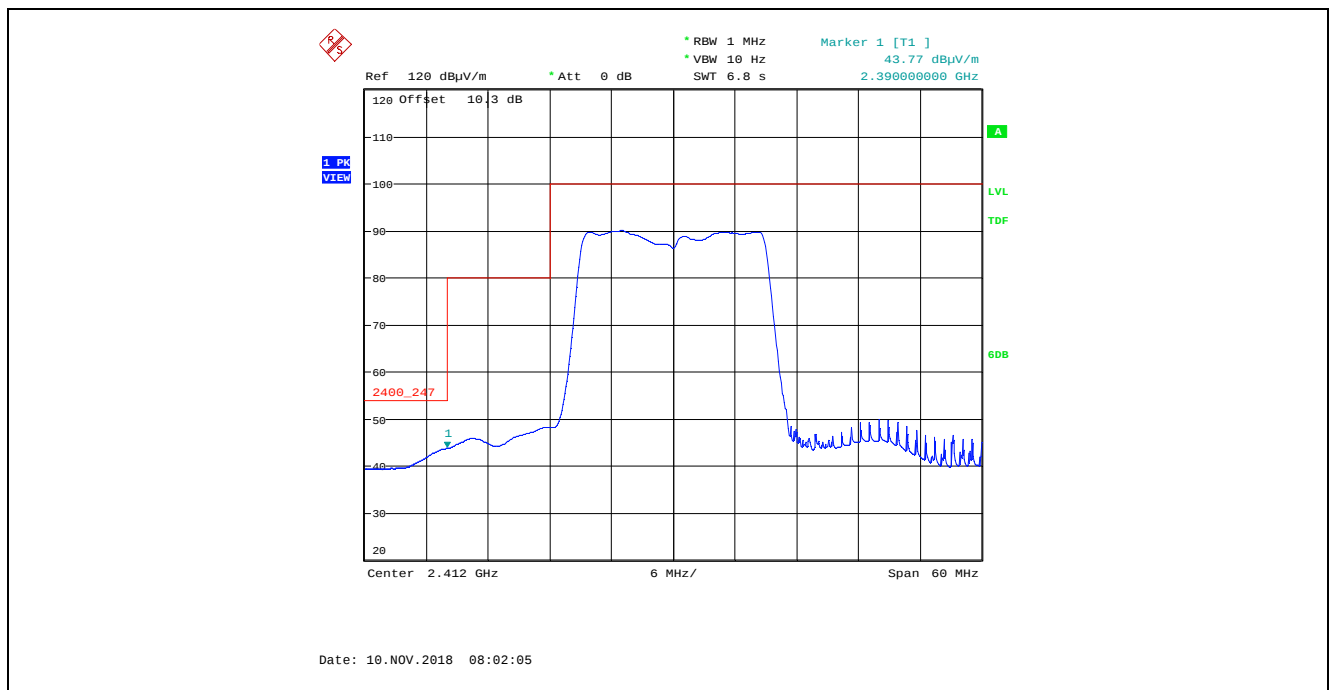
**Plot 5.4.4.2.6.26.** Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization, Average  
 MCS7, Power Setting 15, Channel 1, 2412 MHz



**Plot 5.4.4.2.6.27.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 15, Channel 1, 2412 MHz



**Plot 5.4.4.2.6.28.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 15, Channel 1, 2412 MHz



Ref 120 dBμV/m Att 0 dB RBW 1 MHz VBW 10 Hz SWT 5.8 s Marker 1 [T1] 50.39 dBμV/m 2.48350000 GHz

120 Offset 10.3 dB

1 PK VIEW

2400 247

60dB

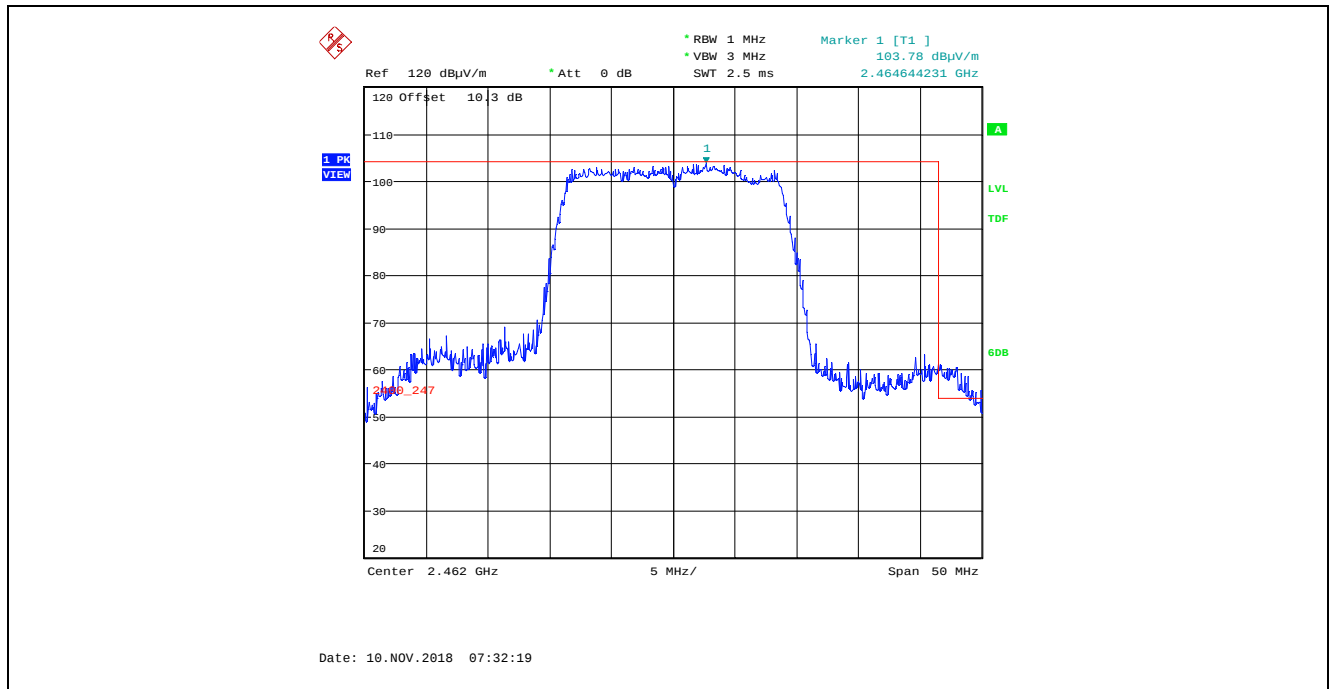
LVL TDF

60B

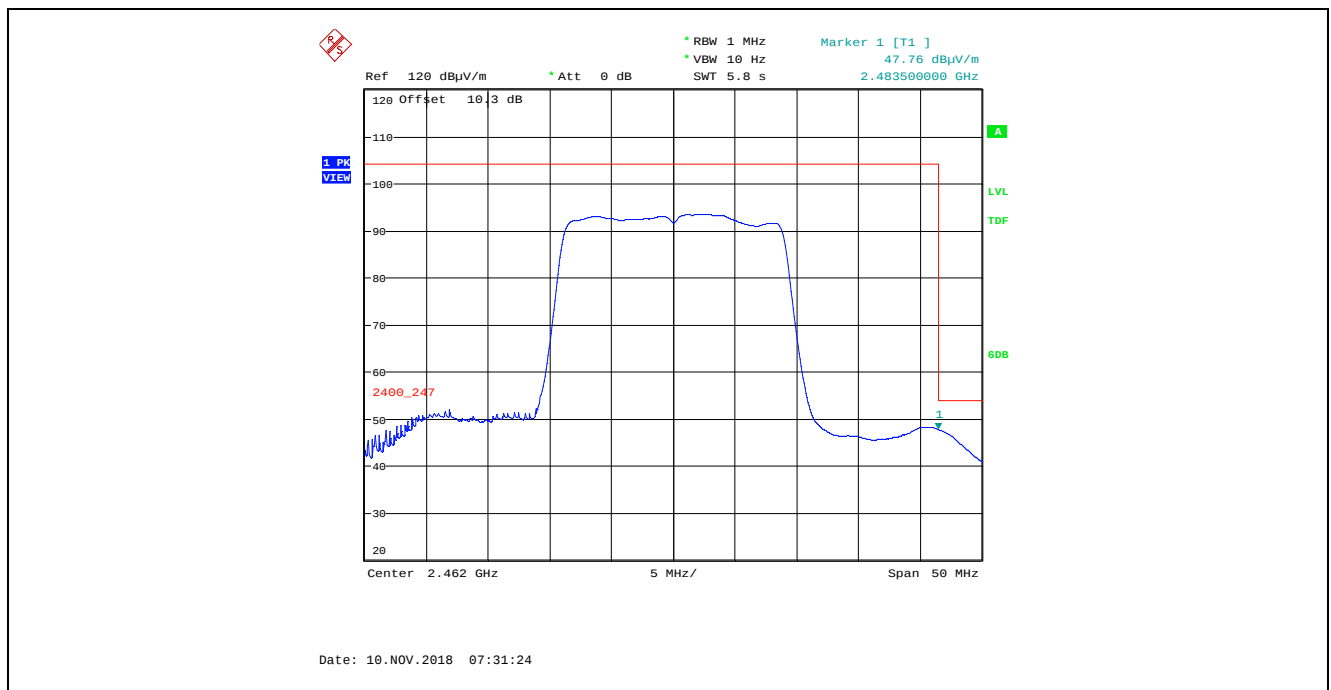
Center 2.462 GHz 5 MHz/ Span 50 MHz

Date: 10.NOV.2018 06:53:17

**Plot 5.4.4.2.6.31.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Peak  
 MCS7, Power Setting 15, Channel 11, 2462 MHz



**Plot 5.4.4.2.6.32.** Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization, Average  
 MCS7, Power Setting 15, Channel 11, 2462 MHz



## 5.5. POWER SPECTRAL DENSITY [§ 15.247(e)]

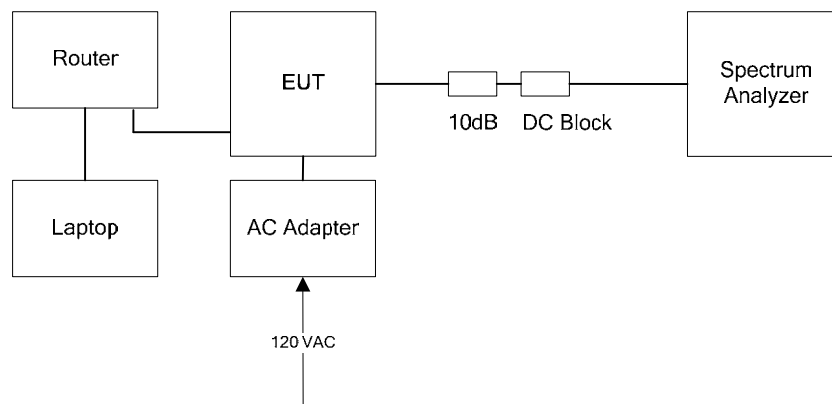
### 5.5.1. Limit(s)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### 5.5.2. Method of Measurements

FCC KDB 558074 D01 15.247 Meas Guidance v05, Section 8.4 / ANSI C63.10 Subclause 11.10.2 Method PKPSD (peak PSD).

### 5.5.3. Test Arrangement



### 5.5.4. Test Data

**Remark:** For worst case, the test conducted with the highest power setting at 30 to demonstrate compliance with power spectral density limit.

| Operating Mode |              | Power Setting | Frequency (MHz) | PSD (dBm) | Max. Limit (dBm) |
|----------------|--------------|---------------|-----------------|-----------|------------------|
| 802.11b        | 1 Mbps DBPSK | 30            | 2412            | -4.95     | 8                |
|                |              | 30            | 2437            | -5.19     | 8                |
|                |              | 30            | 2462            | -5.16     | 8                |
|                | 2 Mbps DQPSK | 30            | 2412            | 1.69      | 8                |
|                |              | 30            | 2437            | 1.45      | 8                |
|                |              | 30            | 2462            | 1.57      | 8                |
|                | 11 Mbps CCK  | 30            | 2412            | 1.18      | 8                |
|                |              | 30            | 2437            | 1.32      | 8                |
|                |              | 30            | 2462            | 1.34      | 8                |

| Operating Mode |                | Power Setting | Frequency (MHz) | PSD (dBm) | Max. Limit (dBm) |
|----------------|----------------|---------------|-----------------|-----------|------------------|
| 802.11g        | 9 Mbps BPSK    | 30            | 2412            | -4.33     | 8                |
|                |                | 30            | 2437            | -4.43     | 8                |
|                |                | 30            | 2462            | -4.31     | 8                |
|                | 18 Mbps QPSK   | 30            | 2412            | -3.69     | 8                |
|                |                | 30            | 2437            | -4.02     | 8                |
|                |                | 30            | 2462            | -3.70     | 8                |
|                | 36 Mbps 16-QAM | 30            | 2412            | -3.13     | 8                |
|                |                | 30            | 2437            | -2.83     | 8                |
|                |                | 30            | 2462            | -2.74     | 8                |
|                | 54 Mbps 64-QAM | 30            | 2412            | -3.09     | 8                |
|                |                | 30            | 2437            | -3.19     | 8                |
|                |                | 30            | 2462            | -2.91     | 8                |
| 802.11n        | MCS0           | 30            | 2412            | -2.71     | 8                |
|                |                | 30            | 2437            | -2.70     | 8                |
|                |                | 30            | 2462            | -2.90     | 8                |
|                | MCS2           | 30            | 2412            | -3.78     | 8                |
|                |                | 30            | 2437            | -3.29     | 8                |
|                |                | 30            | 2462            | -3.38     | 8                |
|                | MCS4           | 30            | 2412            | -3.93     | 8                |
|                |                | 30            | 2437            | -3.47     | 8                |
|                |                | 30            | 2462            | -3.12     | 8                |
|                | MCS7           | 30            | 2412            | -3.69     | 8                |
|                |                | 30            | 2437            | -3.71     | 8                |
|                |                | 30            | 2462            | -3.26     | 8                |

**ULTRATECH GROUP OF LABS**

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4

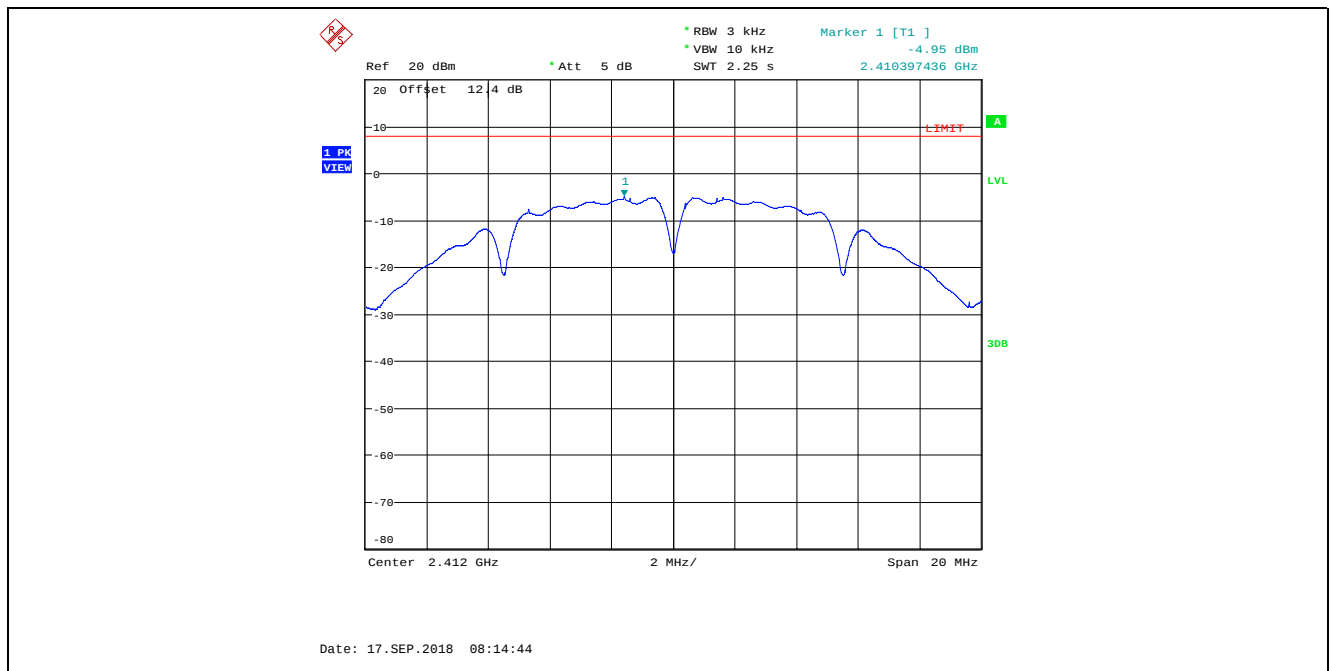
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: [vic@ultratech-labs.com](mailto:vic@ultratech-labs.com), Website: <http://www.ultratech-labs.com>

File #: 18MMBN004\_FCC15C247W

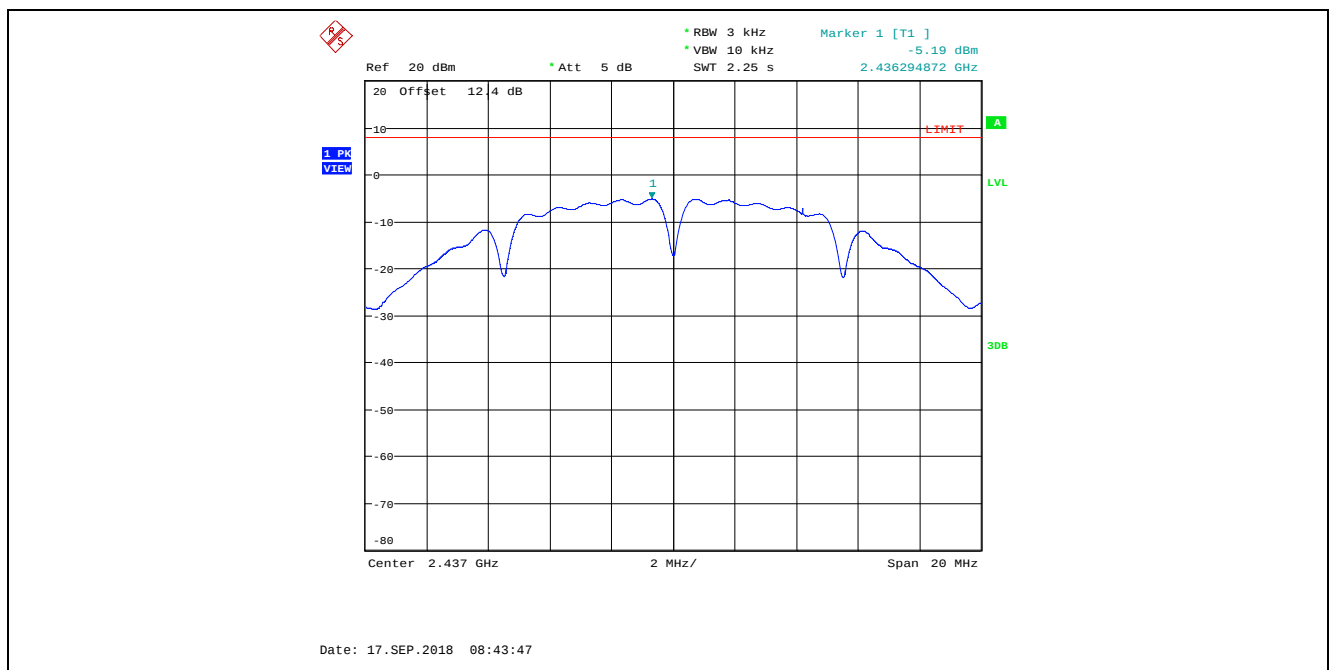
November 29, 2018

*All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)*

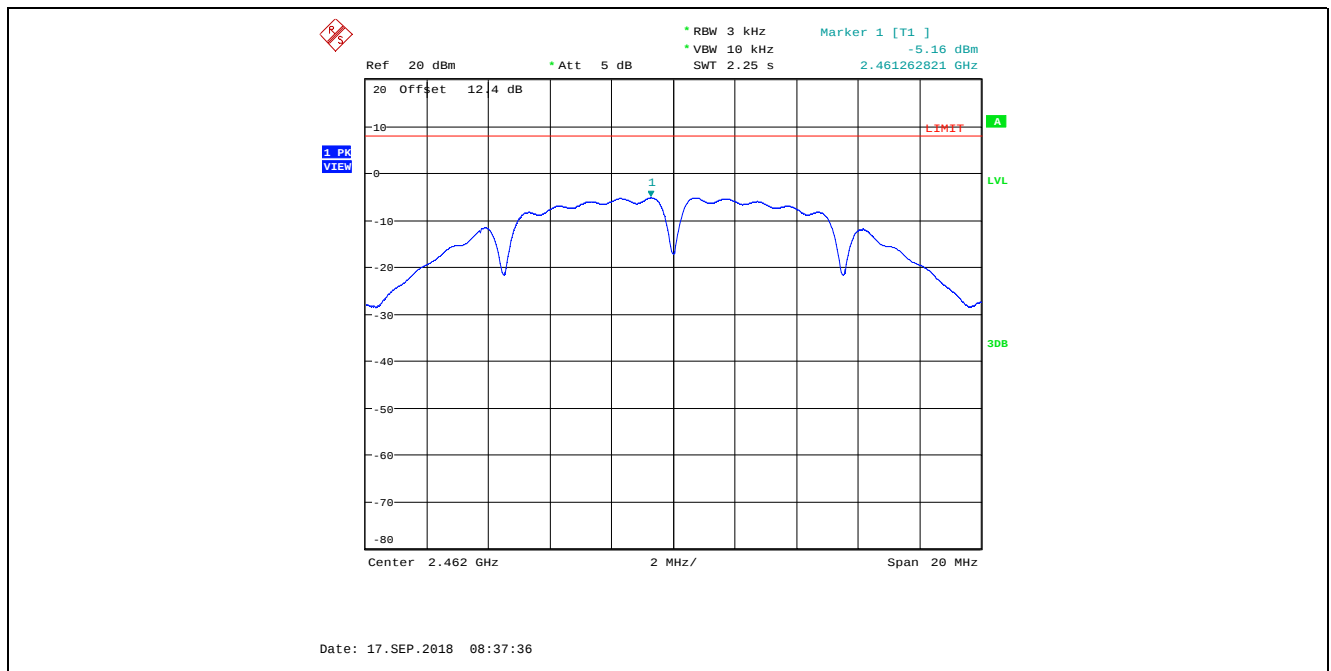
**Plot 5.5.4.1. Power Spectral Density**  
802.11b, 1 Mbps DBPSK, Power Setting 30, Channel 1, 2412 MHz



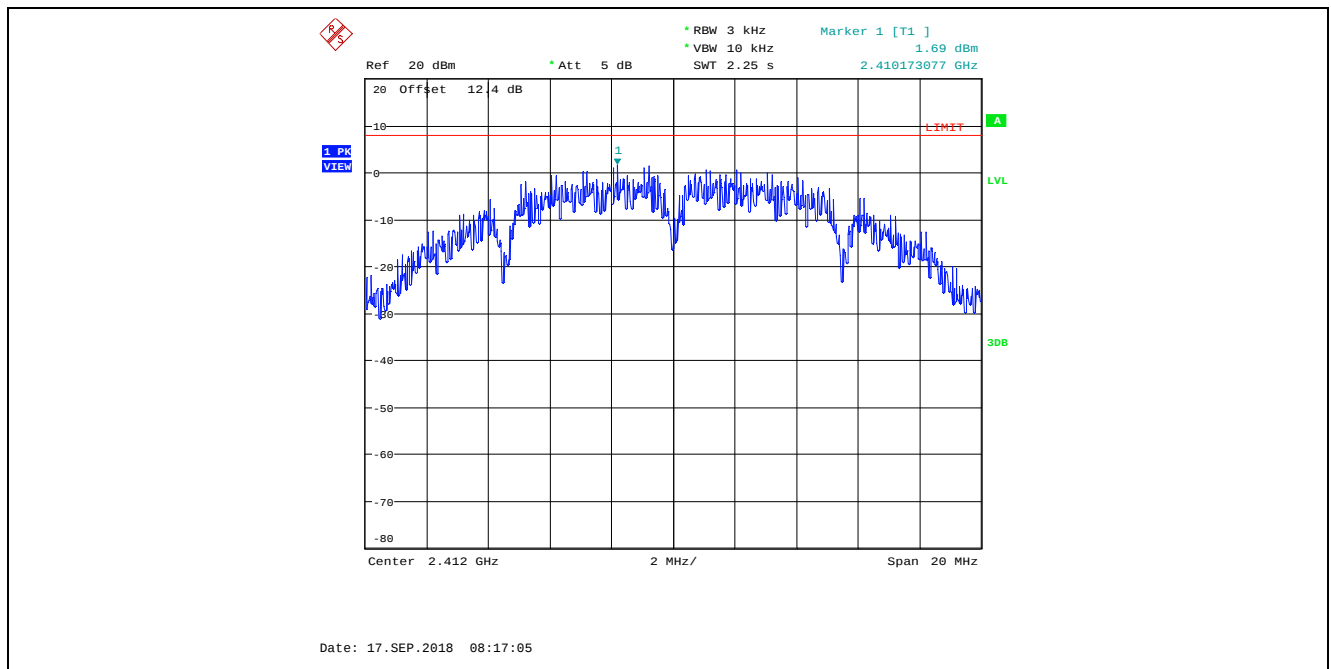
**Plot 5.5.4.2. Power Spectral Density**  
802.11b, 1 Mbps DBPSK, Power Setting 30, Channel 6, 2437 MHz



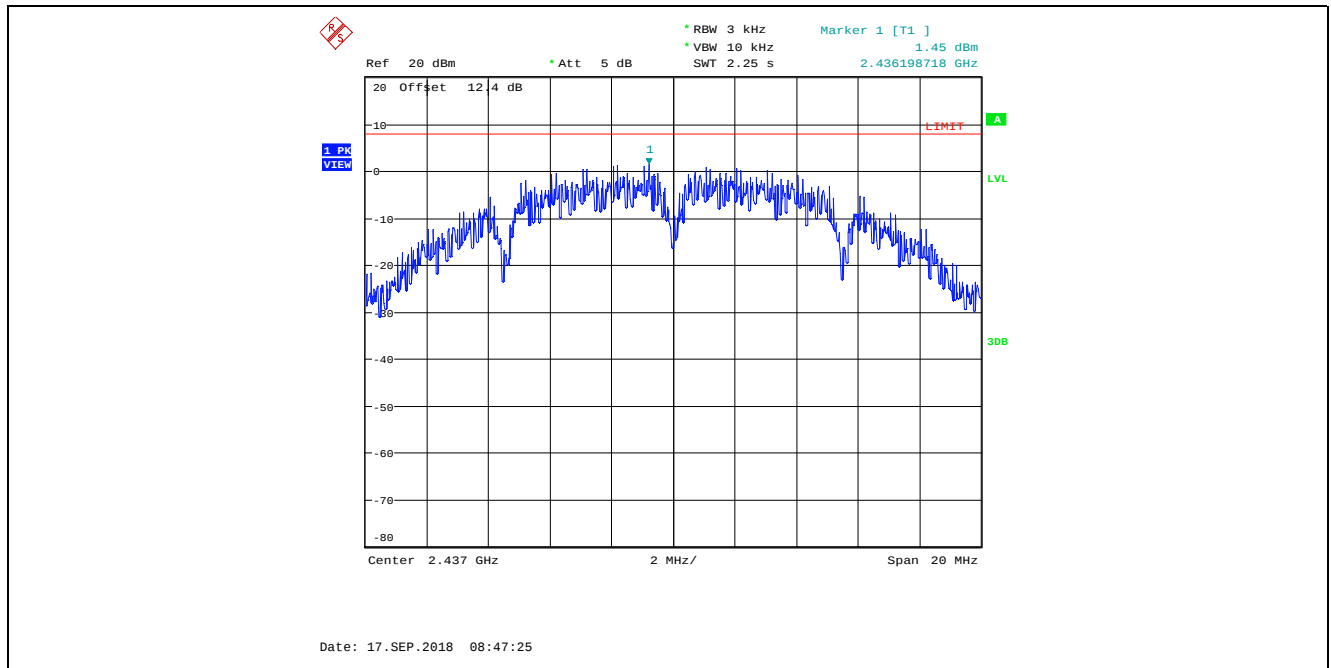
**Plot 5.5.4.3. Power Spectral Density**  
802.11b, 1 Mbps DBPSK, Power Setting 30, Channel 11, 2462 MHz



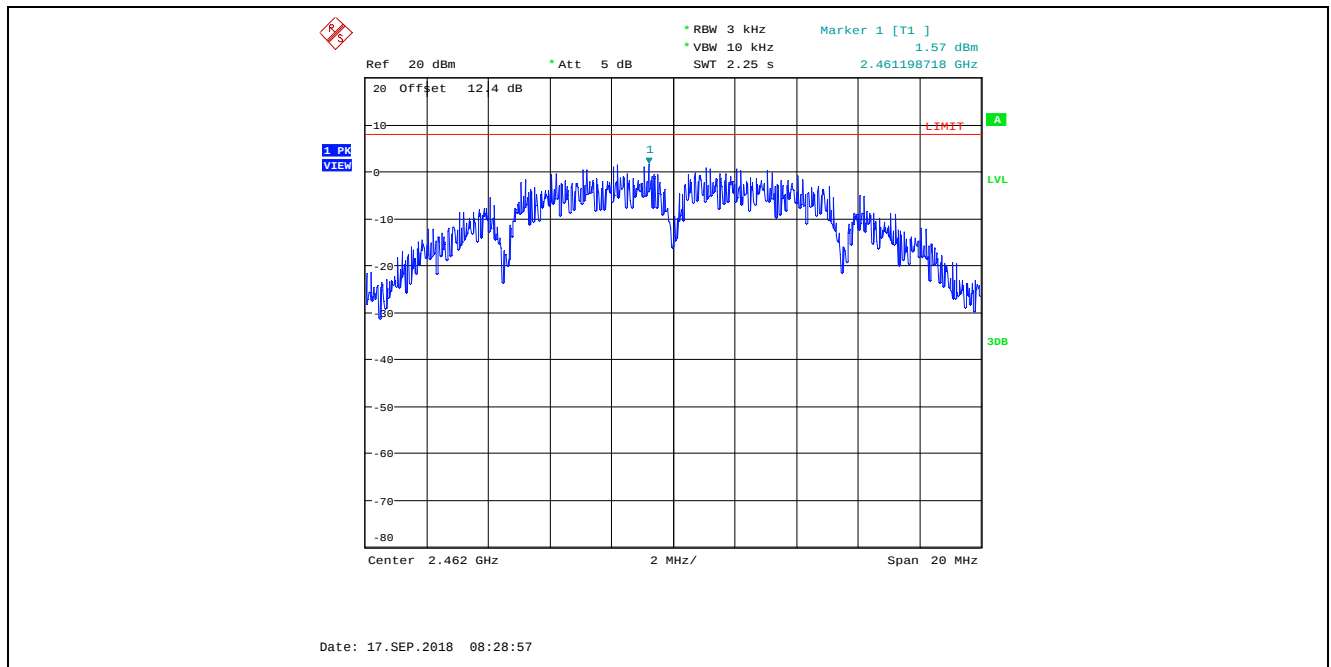
**Plot 5.5.4.4. Power Spectral Density**  
802.11b, 2 Mbps DQPSK, Power Setting 30, Channel 1, 2412 MHz,



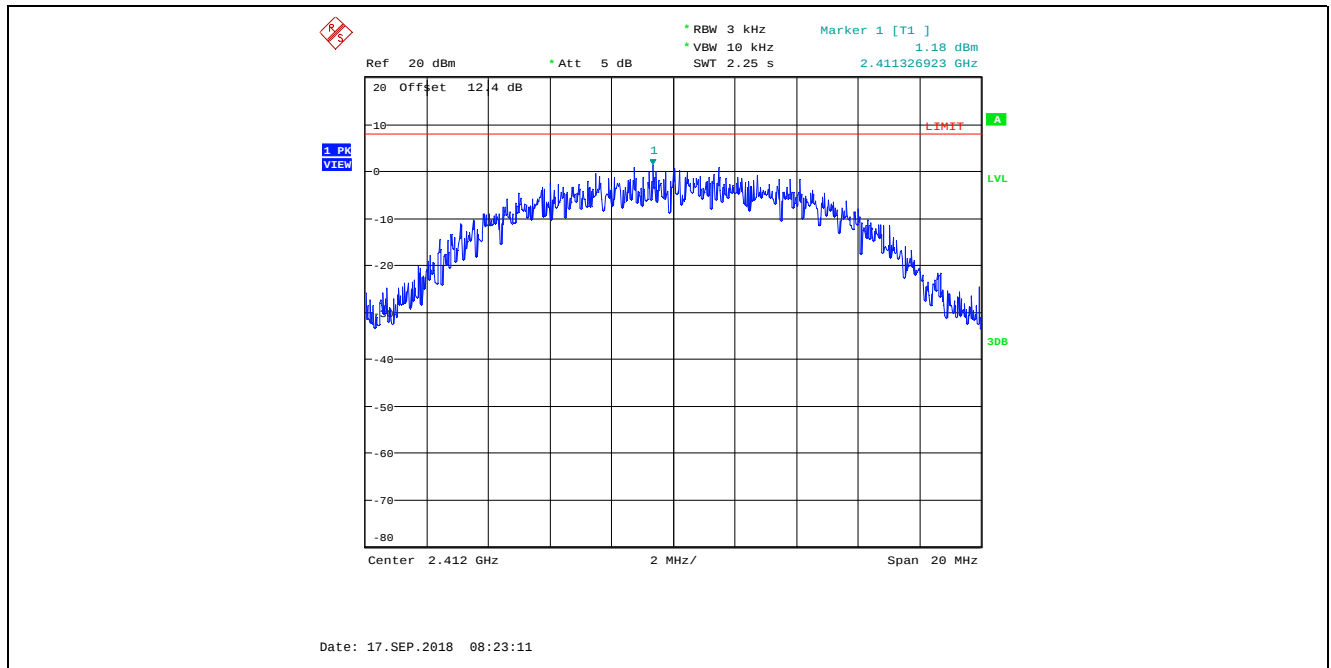
**Plot 5.5.4.5. Power Spectral Density**  
802.11b, 2 Mbps DQPSK, Power Setting 30, Channel 6, 2437 MHz,



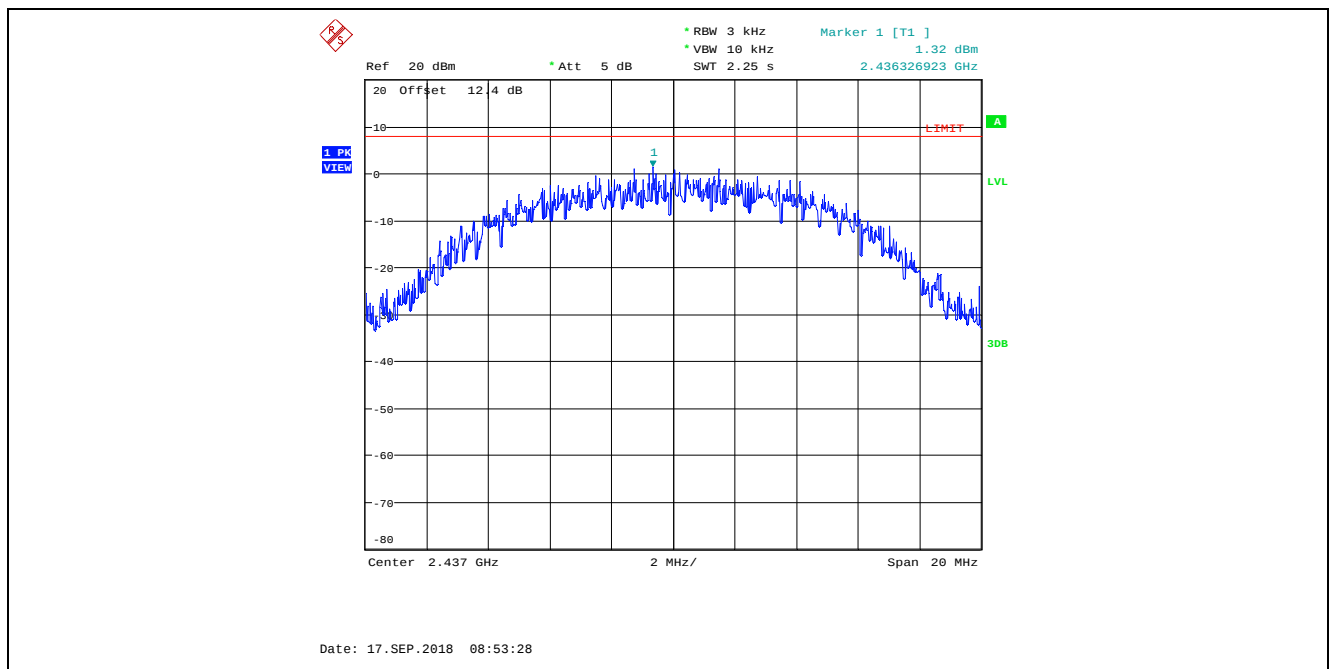
**Plot 5.5.4.6. Power Spectral Density**  
802.11b, 2 Mbps DQPSK, Power Setting 30, Channel 11, 2462 MHz,



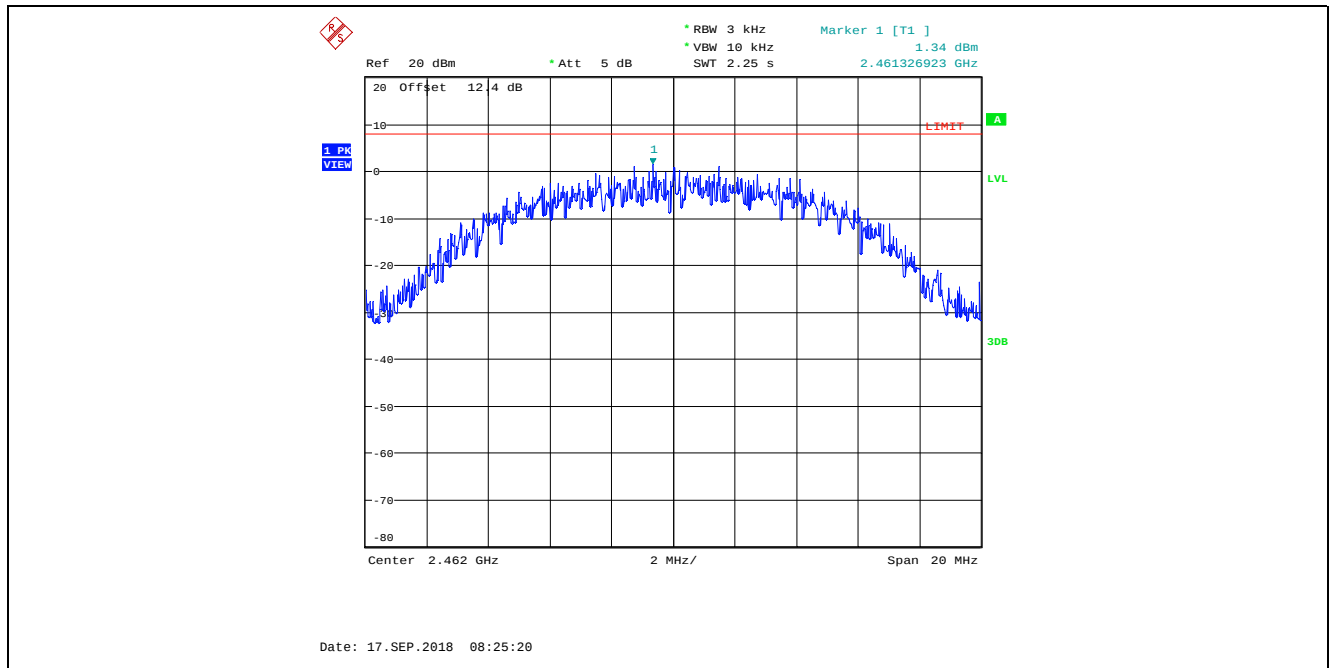
**Plot 5.5.4.7. Power Spectral Density**  
 802.11b, 11 Mbps CCK, Power Setting 30, Channel 1, 2412 MHz



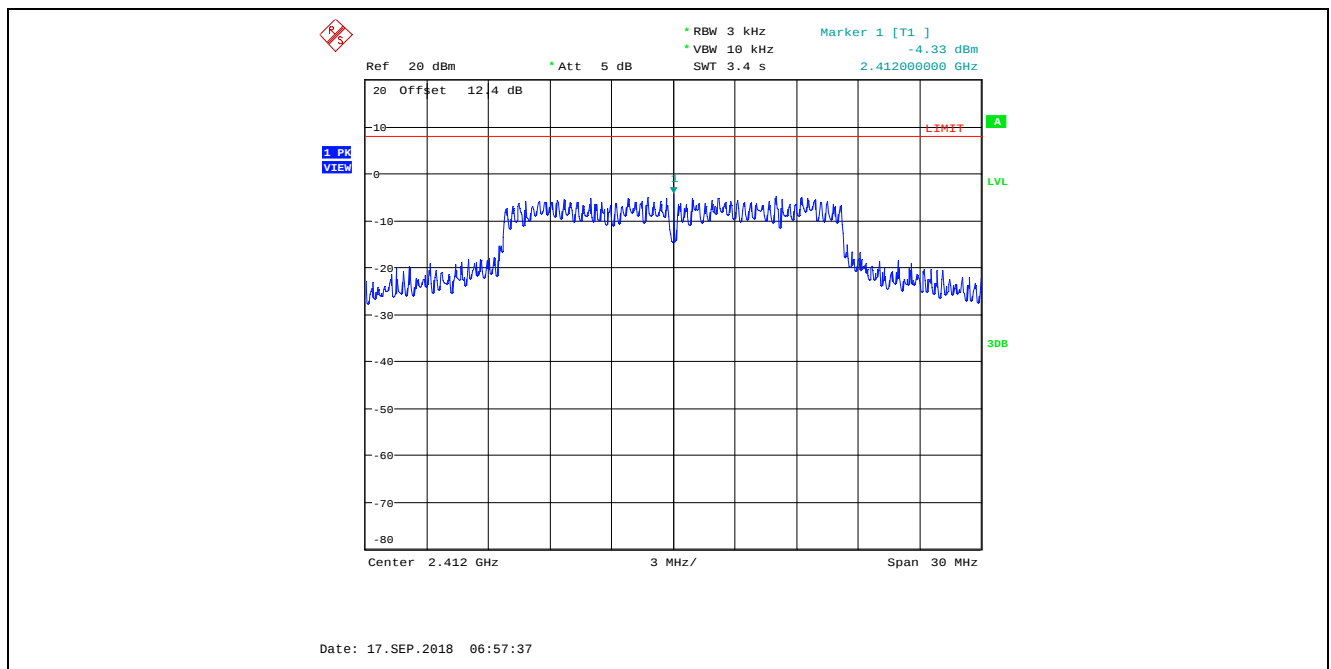
**Plot 5.5.4.8. Power Spectral Density**  
 802.11b, 11 Mbps CCK, Power Setting 30, Channel 6, 2437 MHz



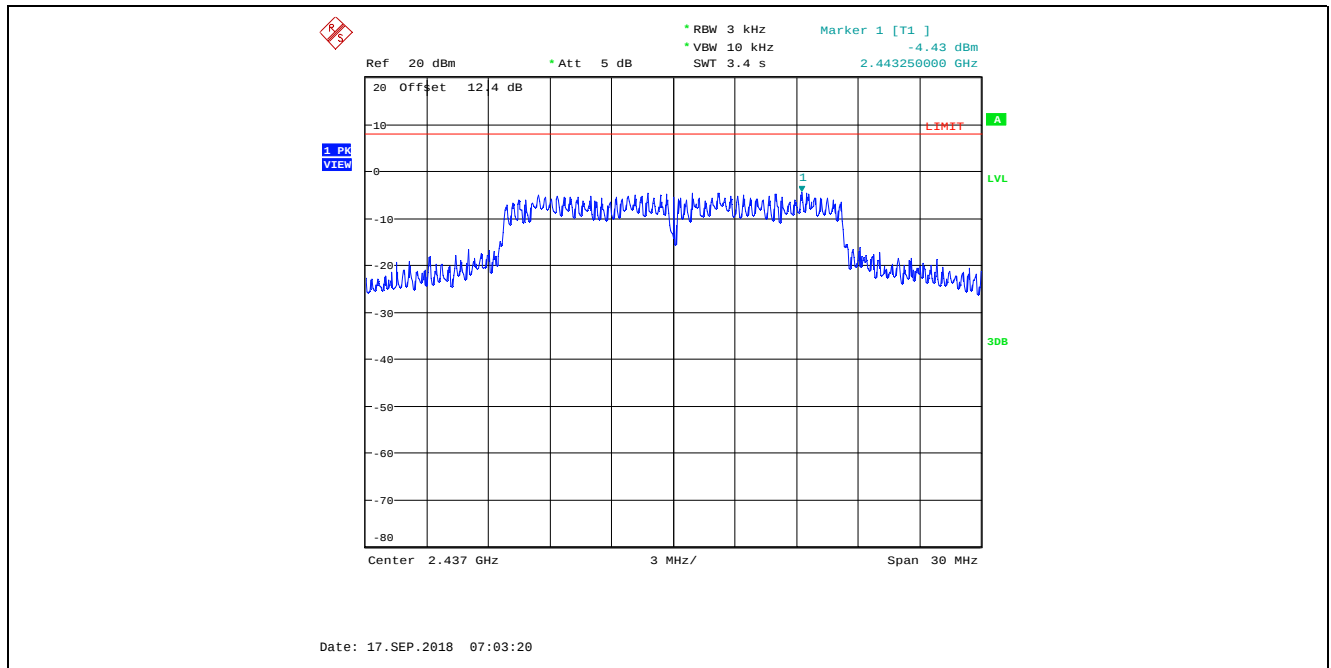
**Plot 5.5.4.9. Power Spectral Density**  
 802.11b, 11 Mbps CCK, Power Setting 30, Channel 11, 2462 MHz



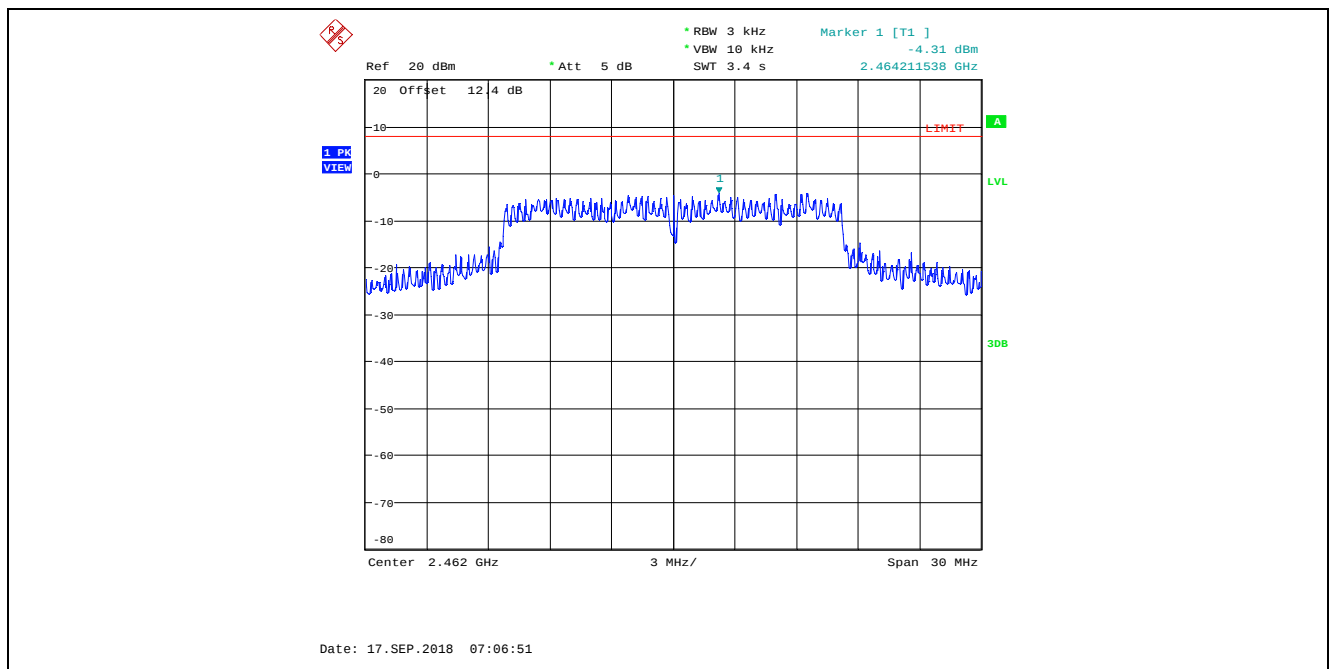
**Plot 5.5.4.10. Power Spectral Density**  
 802.11g, 9 Mbps BPSK, Power Setting 30, Channel 1, 2412 MHz



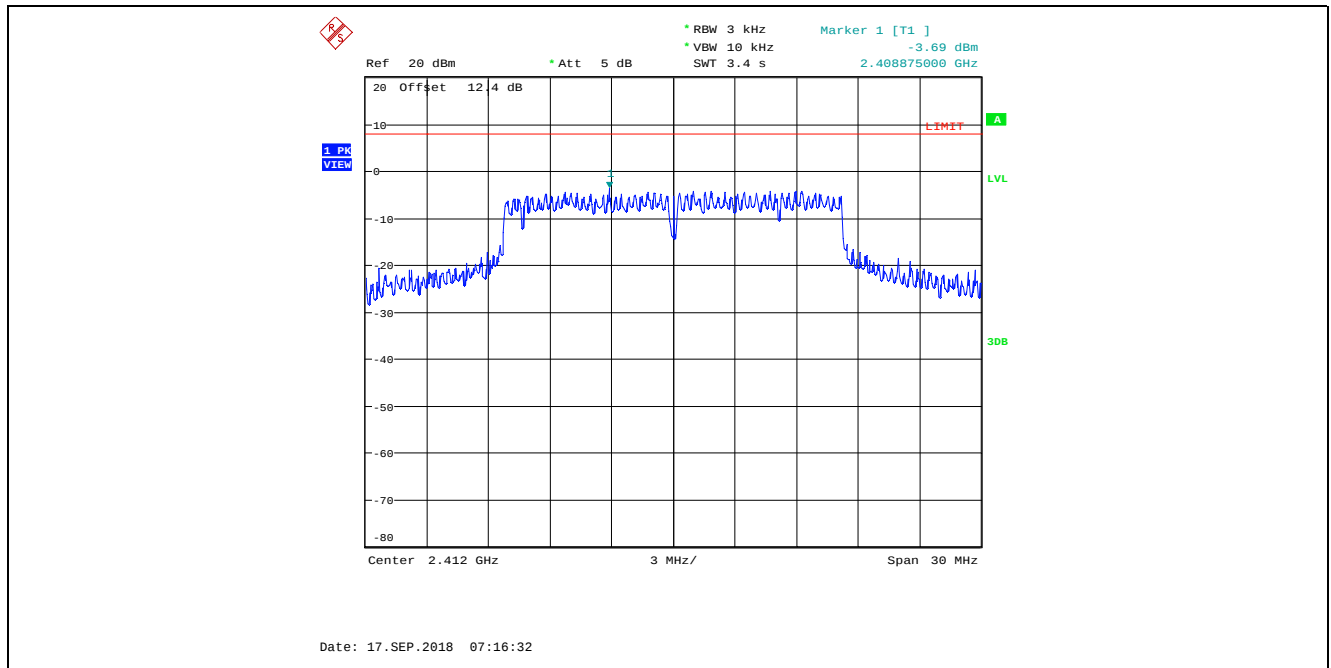
**Plot 5.5.4.11. Power Spectral Density**  
 802.11g, 9 Mbps BPSK, Power Setting 30, Channel 6, 2437 MHz



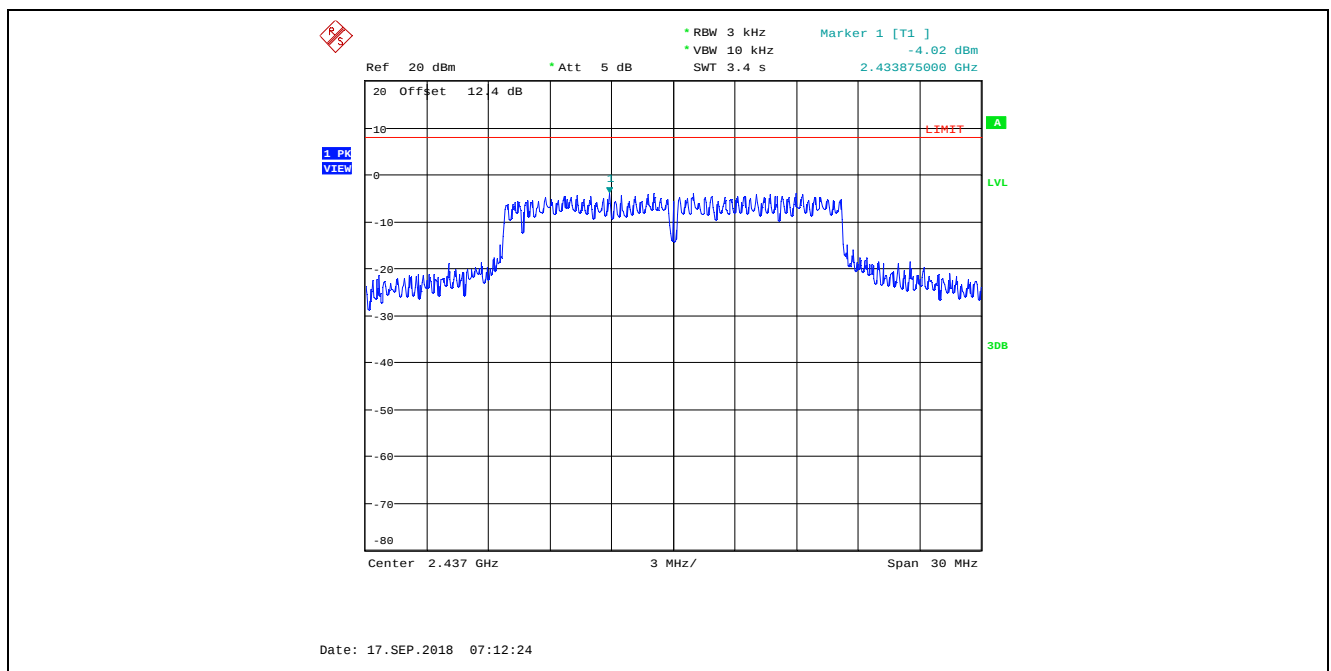
**Plot 5.5.4.12. Power Spectral Density**  
 802.11g, 9 Mbps BPSK, Power Setting 30, Channel 11, 2462 MHz



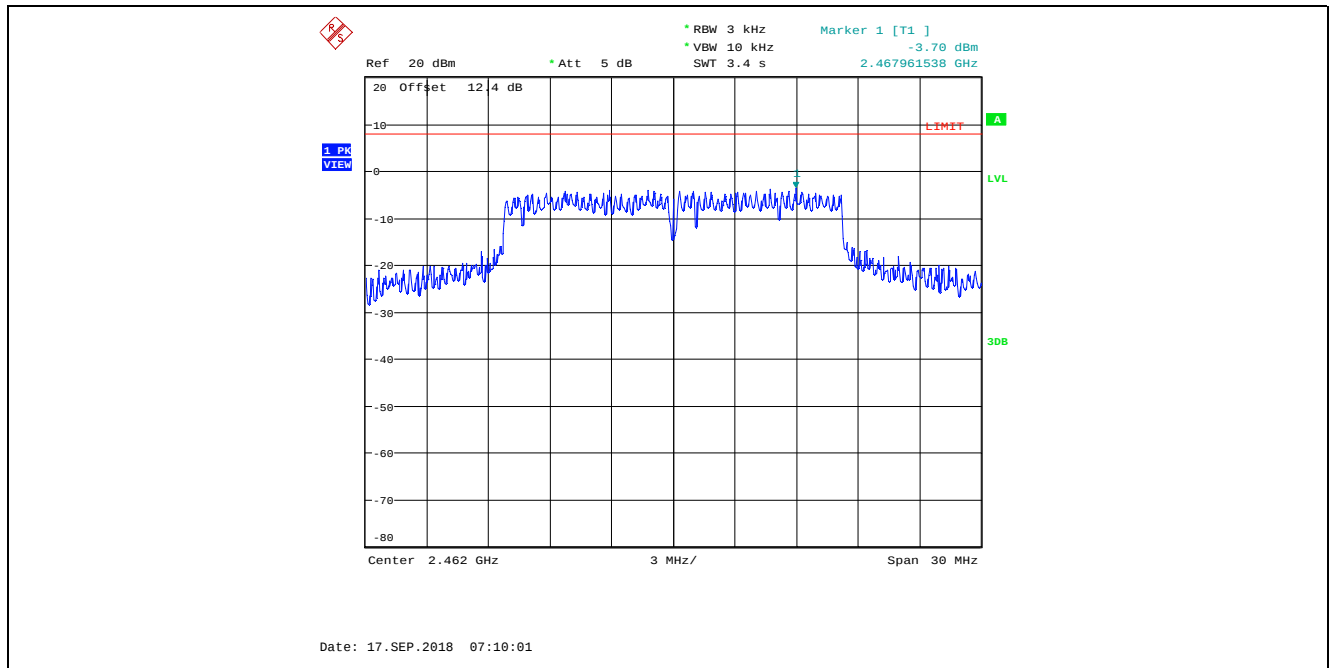
**Plot 5.5.4.13. Power Spectral Density**  
 802.11g, 18 Mbps QPSK, Power Setting 30, Channel 1, 2412 MHz



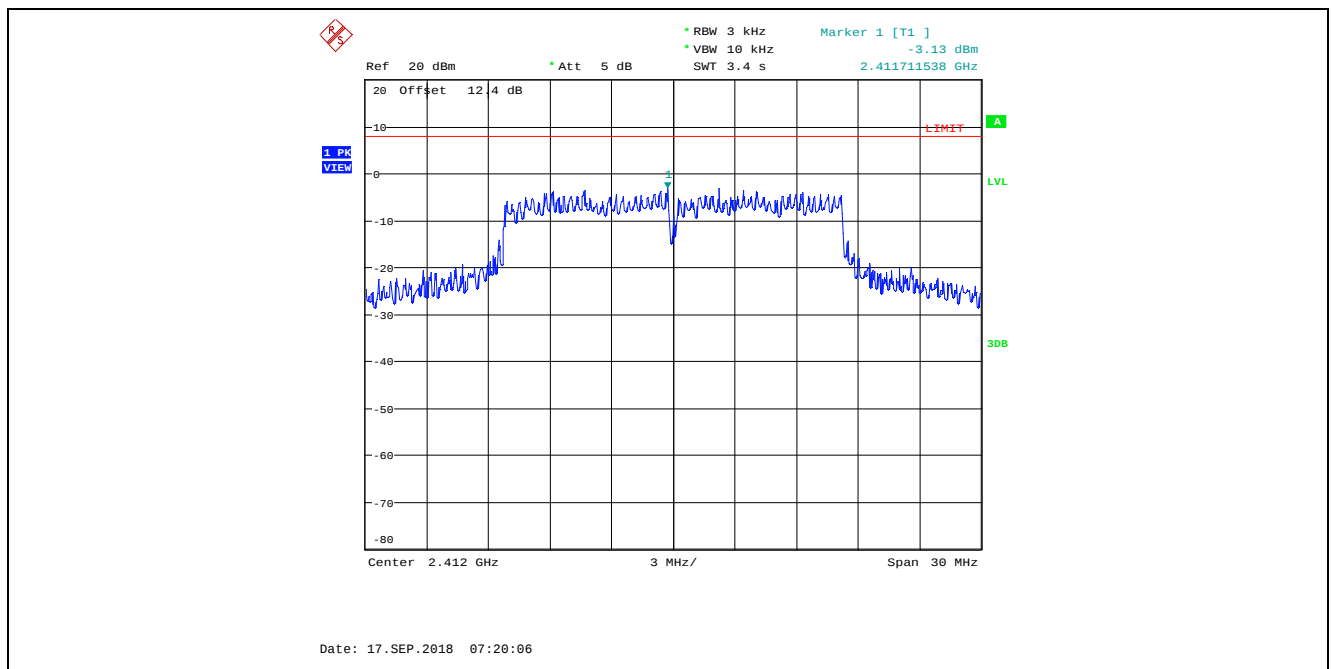
**Plot 5.5.4.14. Power Spectral Density**  
 802.11g, 18 Mbps QPSK, Power Setting 30, Channel 6, 2437 MHz



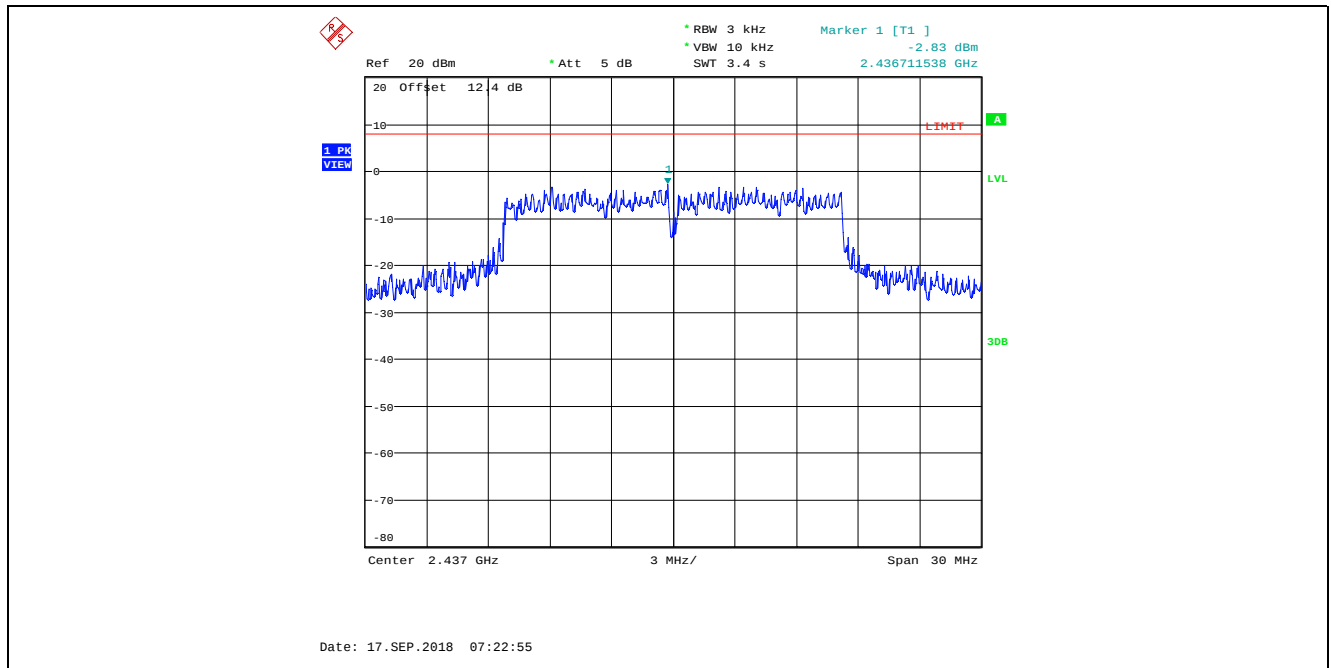
**Plot 5.5.4.15. Power Spectral Density**  
802.11g, 18 Mbps QPSK, Power Setting 30, Channel 11, 2462 MHz



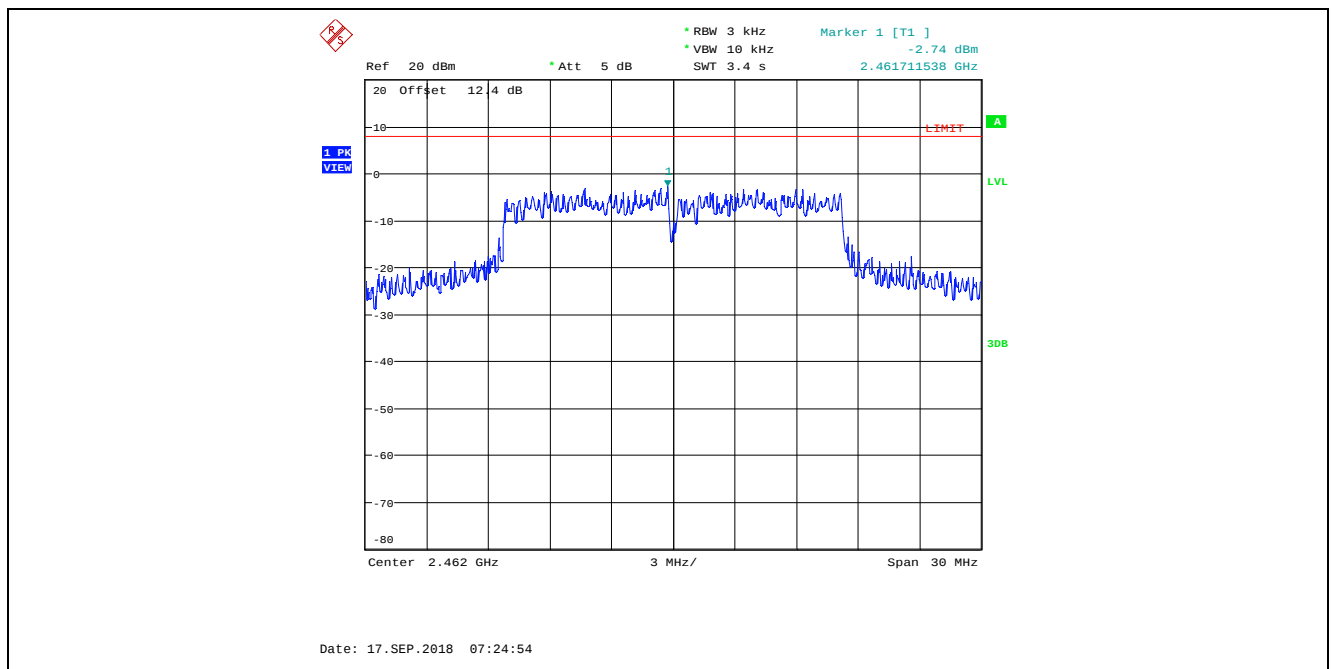
**Plot 5.5.4.16. Power Spectral Density**  
802.11g, 36 Mbps 16-QAM, Power Setting 30, Channel 1, 2412 MHz



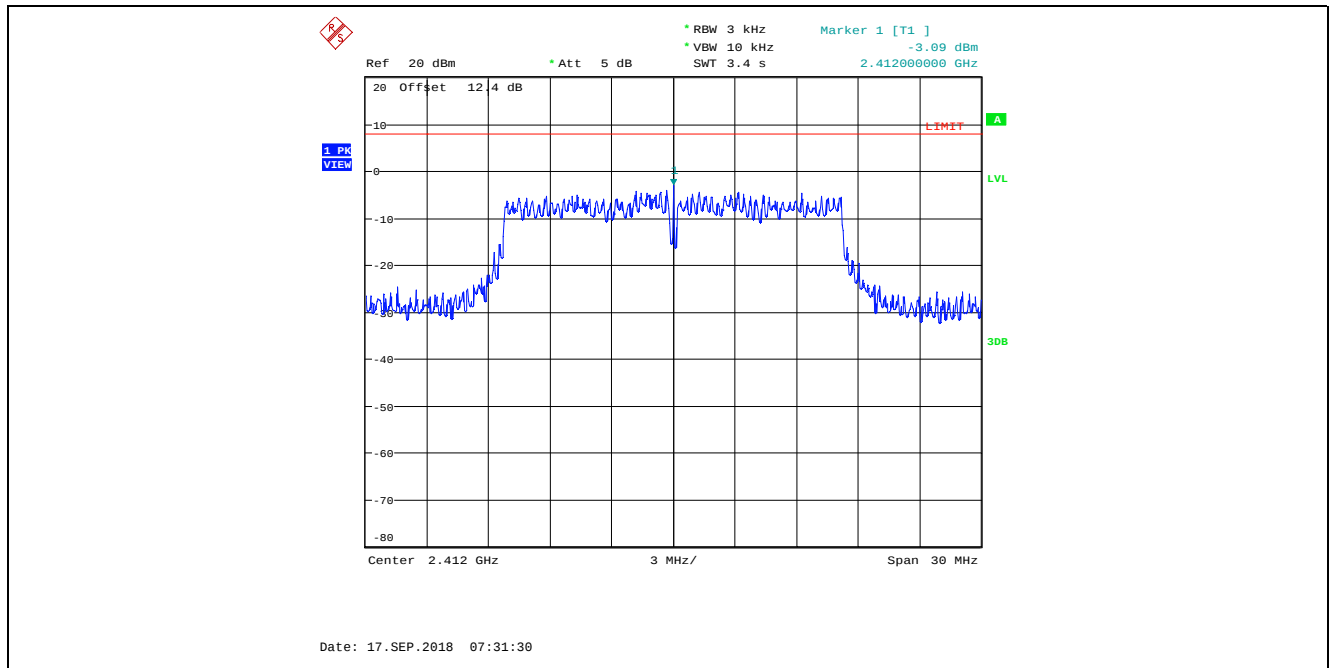
**Plot 5.5.4.17. Power Spectral Density**  
 802.11g, 36 Mbps 16-QAM, Power Setting 30, Channel 6, 2437 MHz



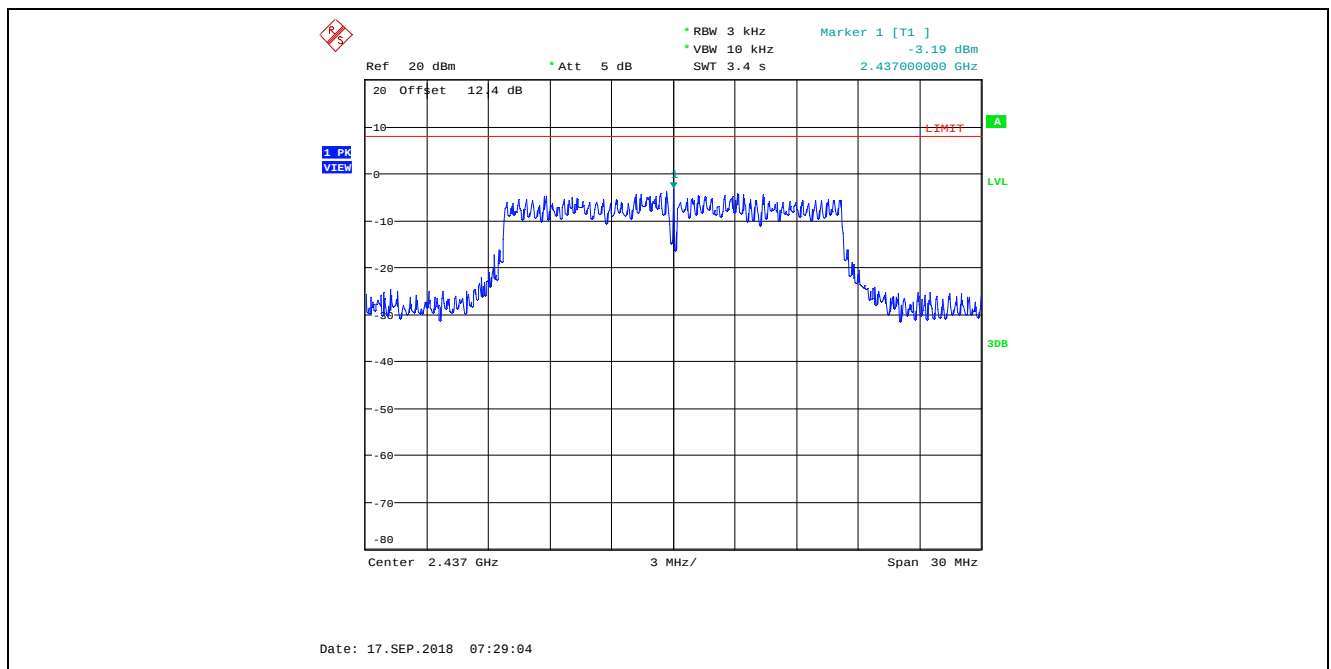
**Plot 5.5.4.18. Power Spectral Density**  
 802.11g, 36 Mbps 16-QAM, Power Setting 30, Channel 11, 2462 MHz



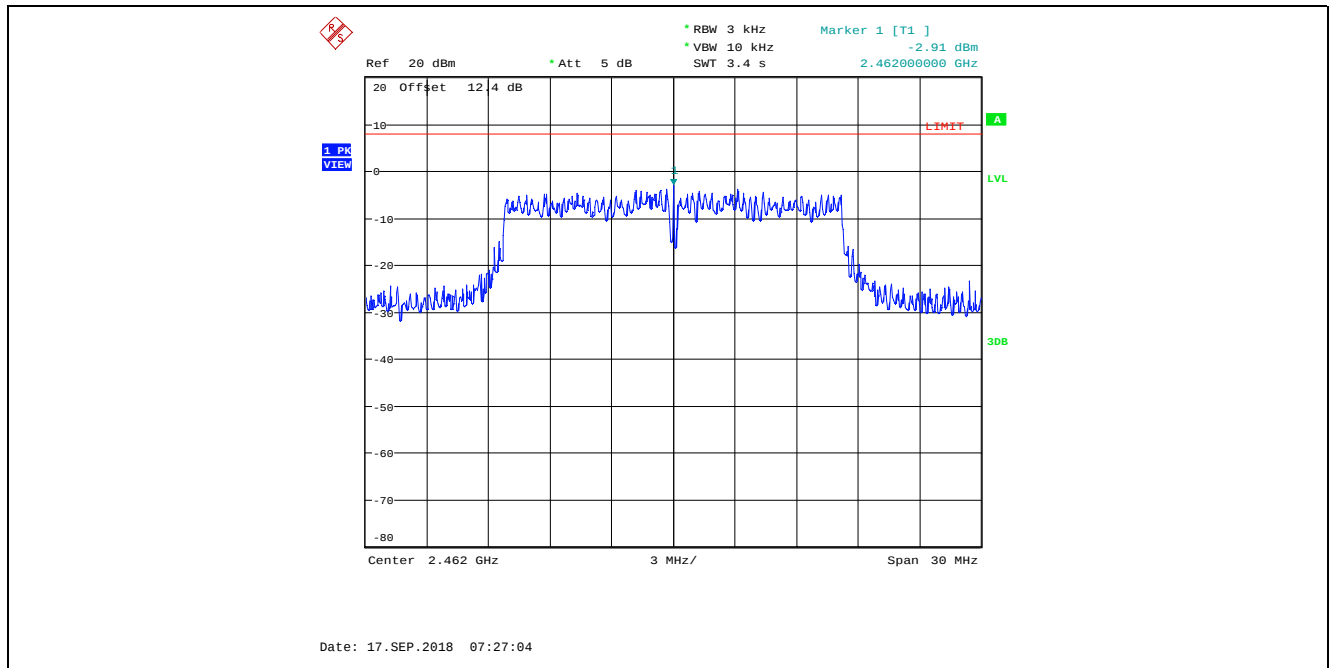
**Plot 5.5.4.19. Power Spectral Density**  
802.11g, 54 Mbps 64-QAM, Power Setting 30, Channel 1, 2412 MHz



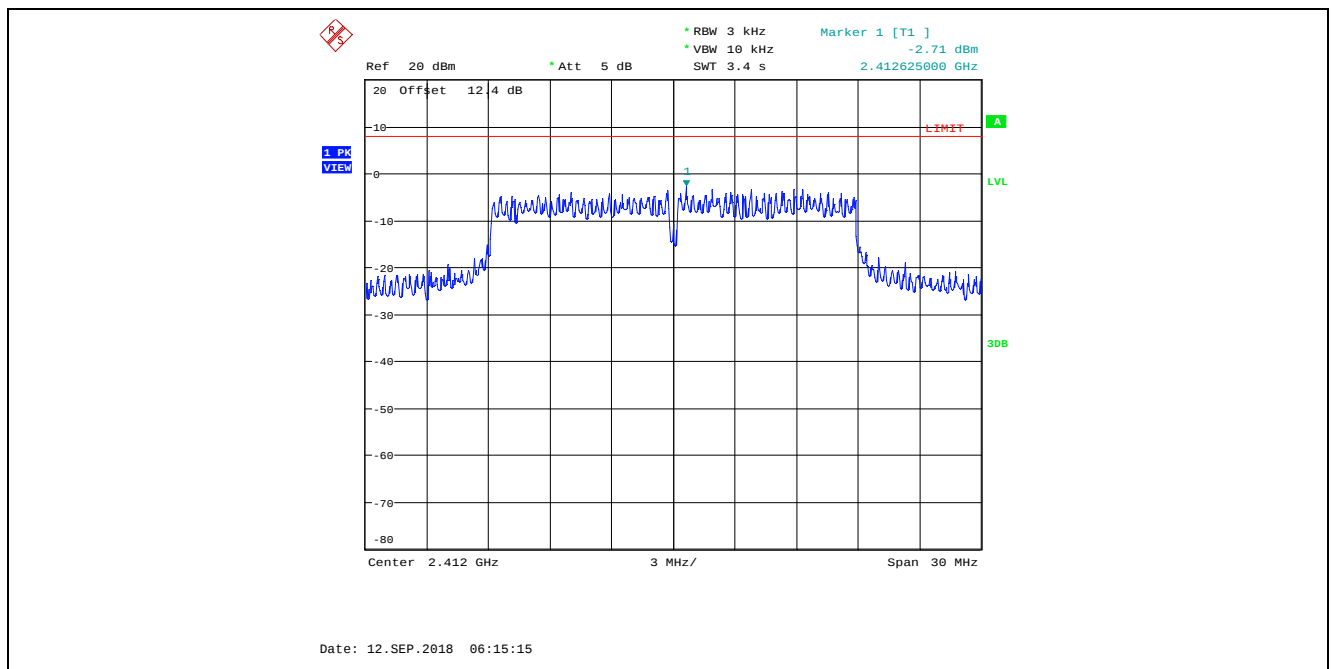
**Plot 5.5.4.20. Power Spectral Density**  
802.11g, 54 Mbps 64-QAM, Power Setting 30, Channel 6, 2437 MHz



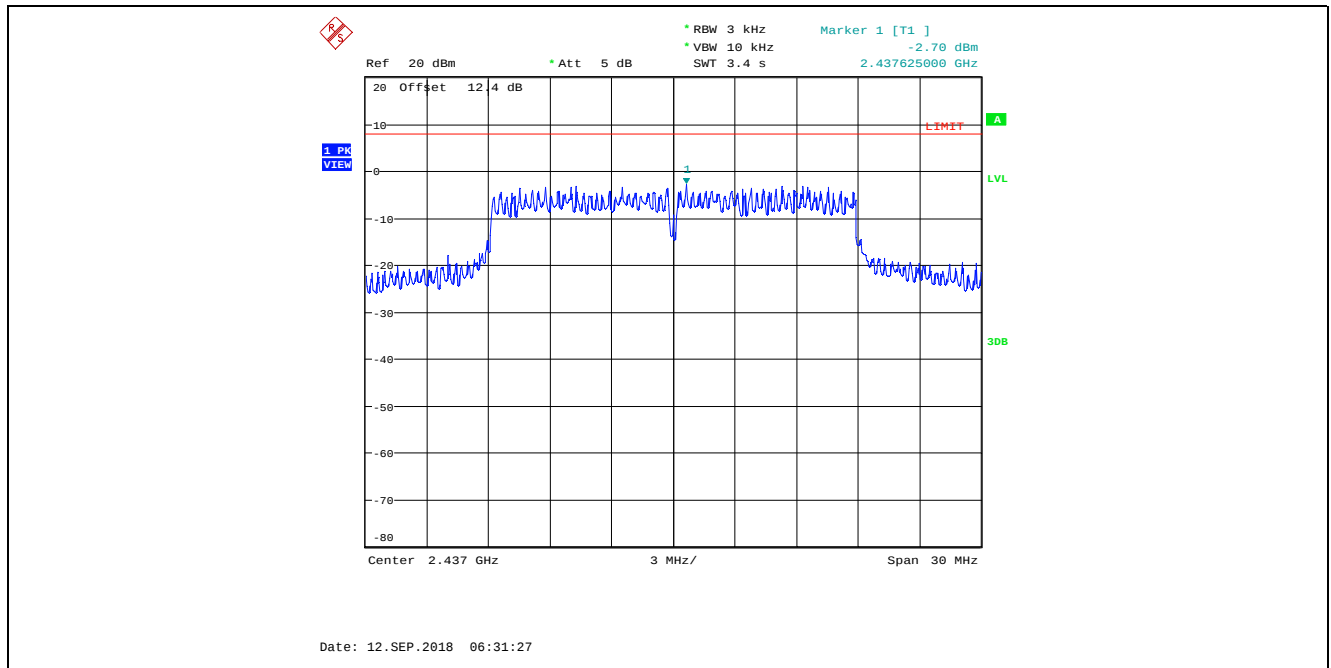
**Plot 5.5.4.21. Power Spectral Density**  
 802.11g, 54 Mbps 64-QAM, Power Setting 30, Channel 11, 2462 MHz



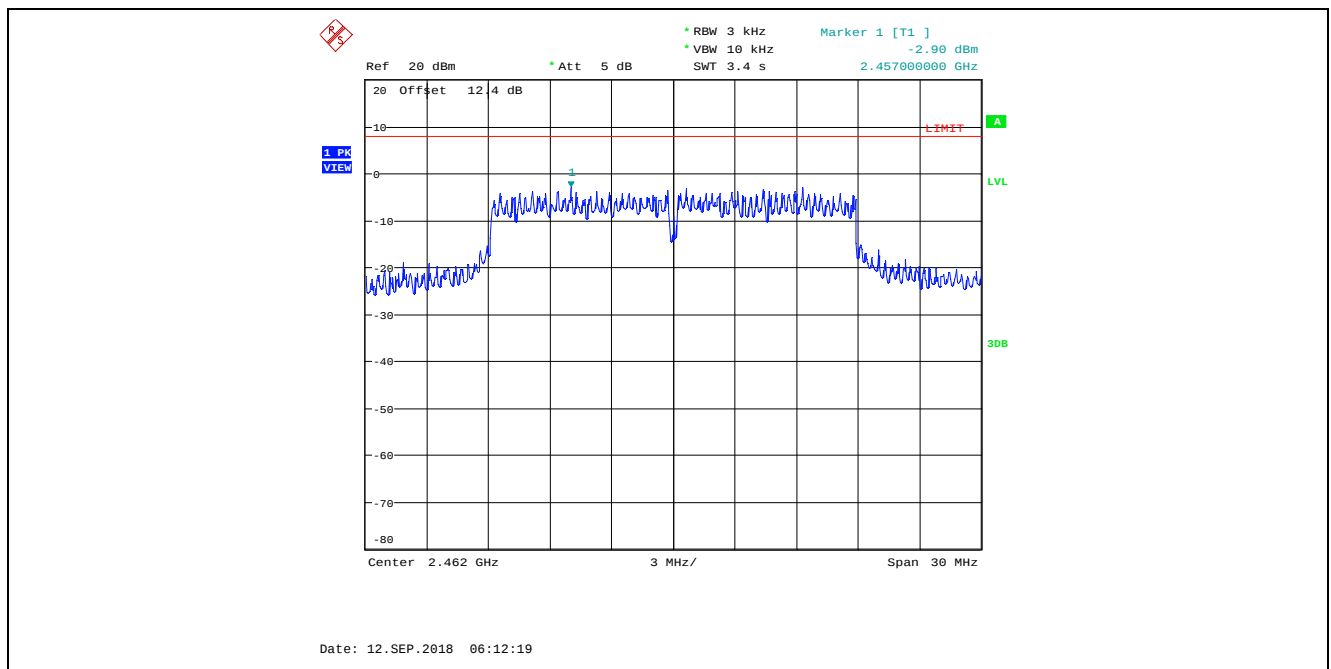
**Plot 5.5.4.22. Power Spectral Density**  
 802.11n, MCS0, Power Setting 30, Channel 1, 2412 MHz



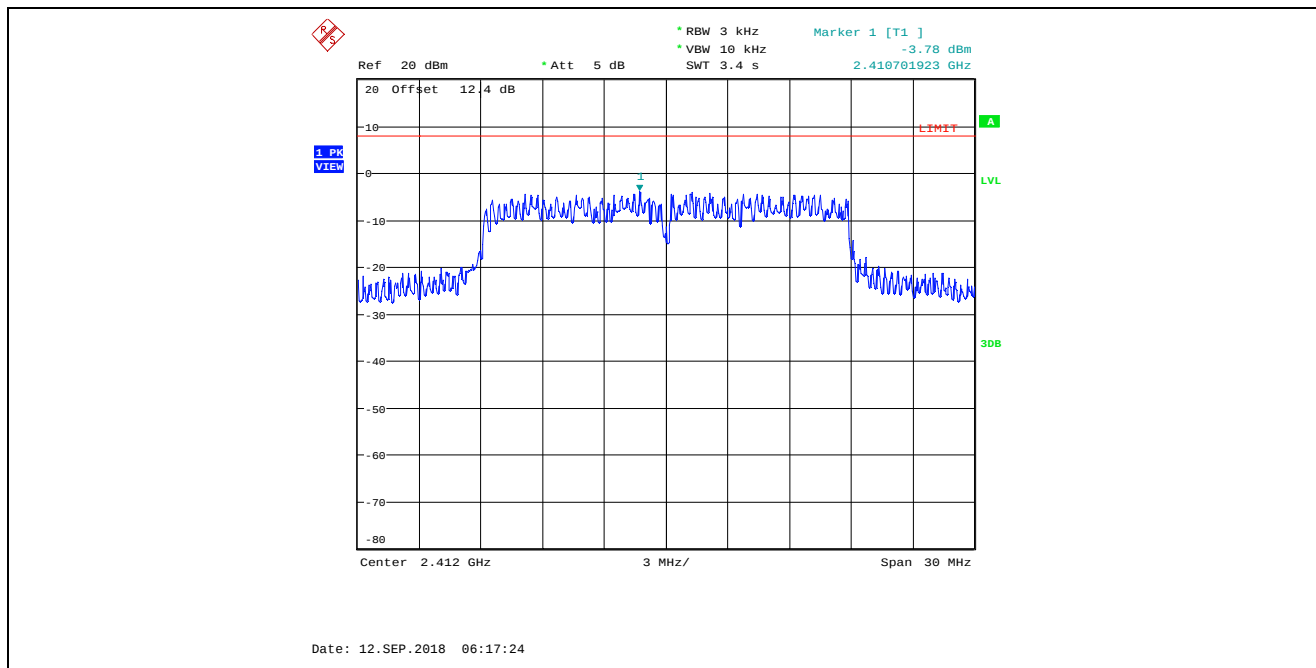
**Plot 5.5.4.23. Power Spectral Density**  
 802.11n, MCS0, Power Setting 30, Channel 6, 2437 MHz



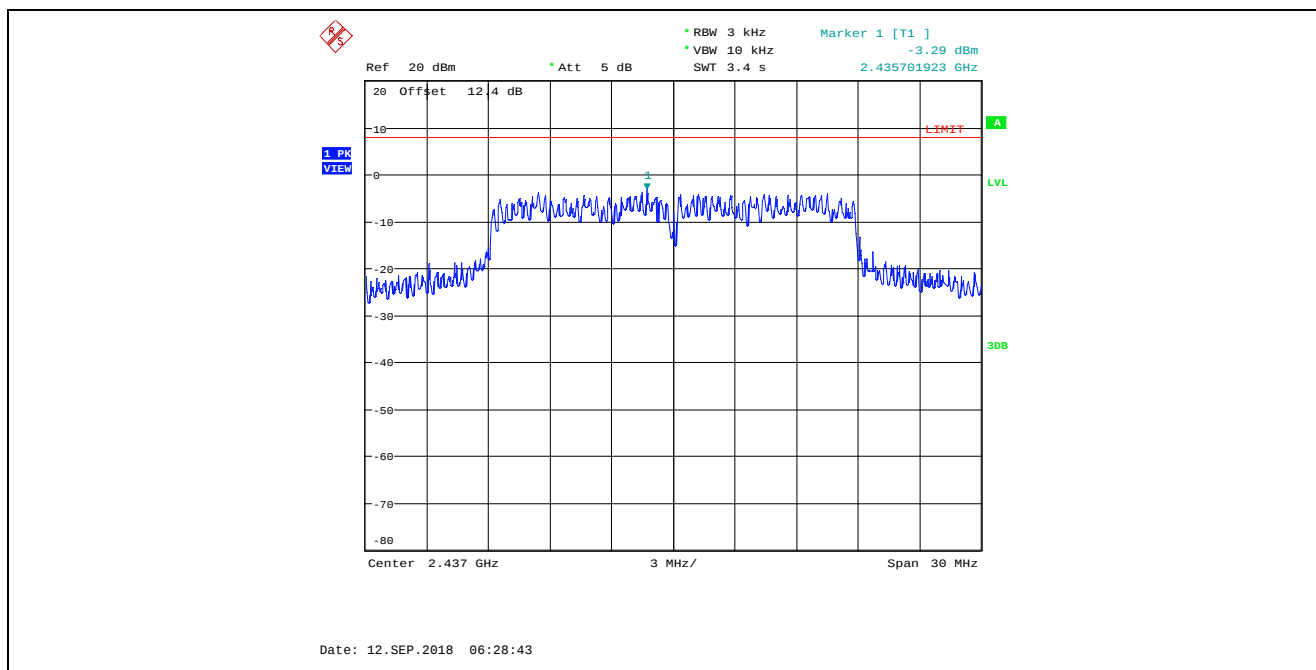
**Plot 5.5.4.24. Power Spectral Density**  
 802.11n, MCS0, Power Setting 30, Channel 11, 2462 MHz



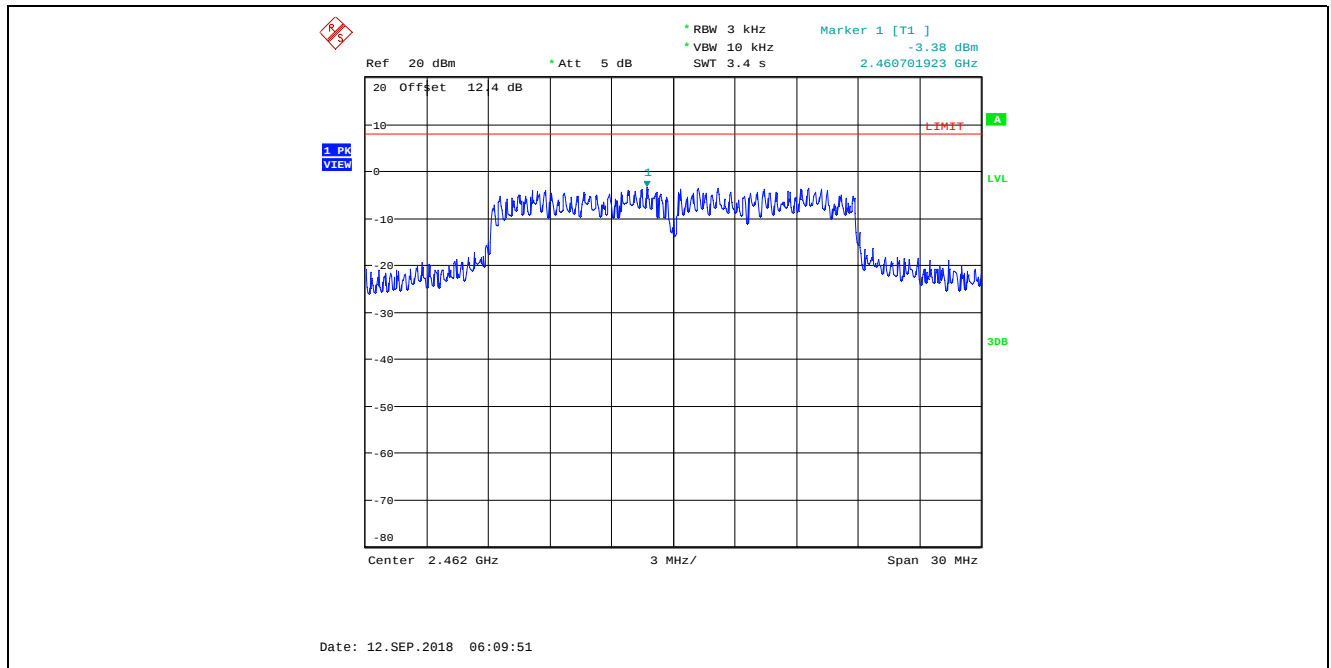
**Plot 5.5.4.25. Power Spectral Density**  
802.11n, MCS2, Power Setting 30, Channel 1, 2412 MHz



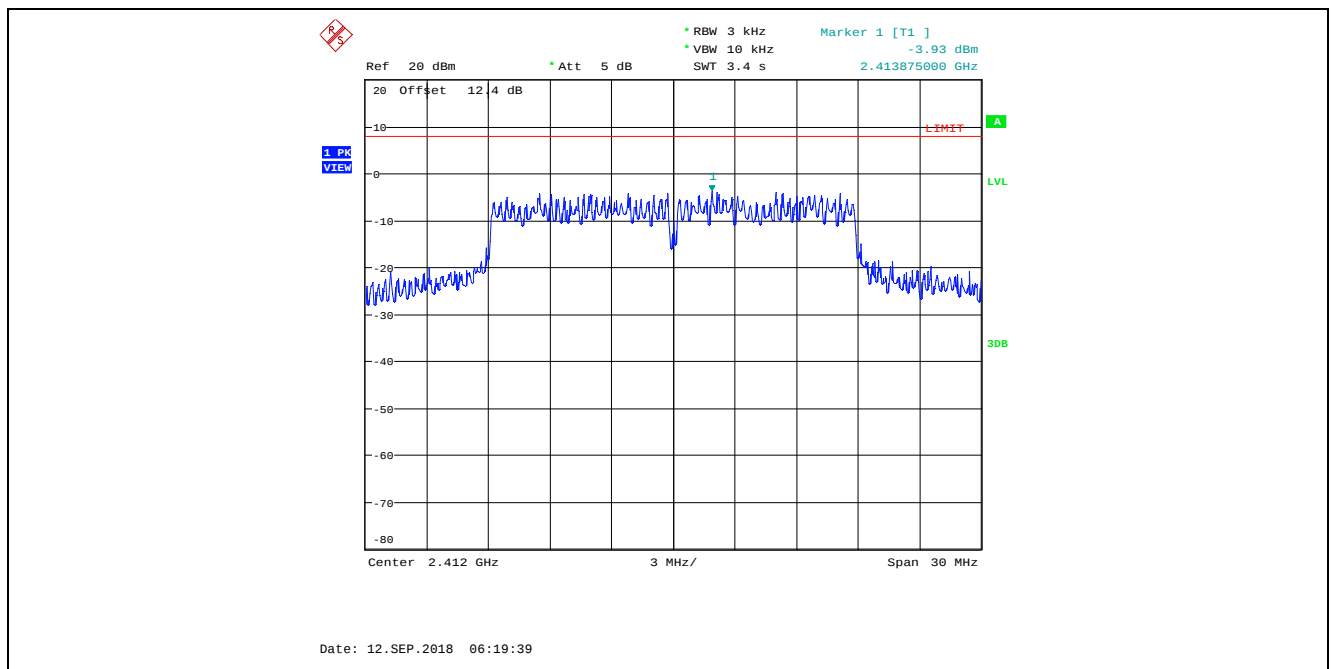
**Plot 5.5.4.26.** Power Spectral Density  
802.11n, MCS2, Power Setting 30, Channel 6, 2437 MHz



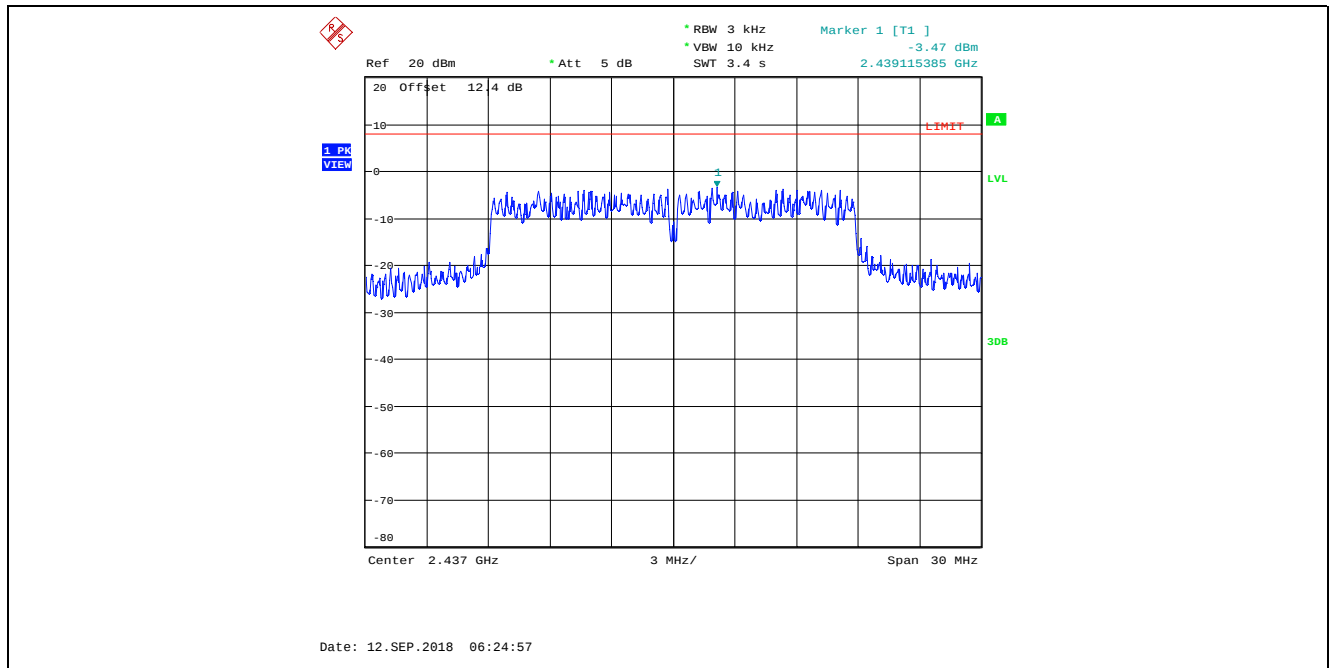
**Plot 5.5.4.27. Power Spectral Density**  
802.11n, MCS2, Power Setting 30, Channel 11, 2462 MHz



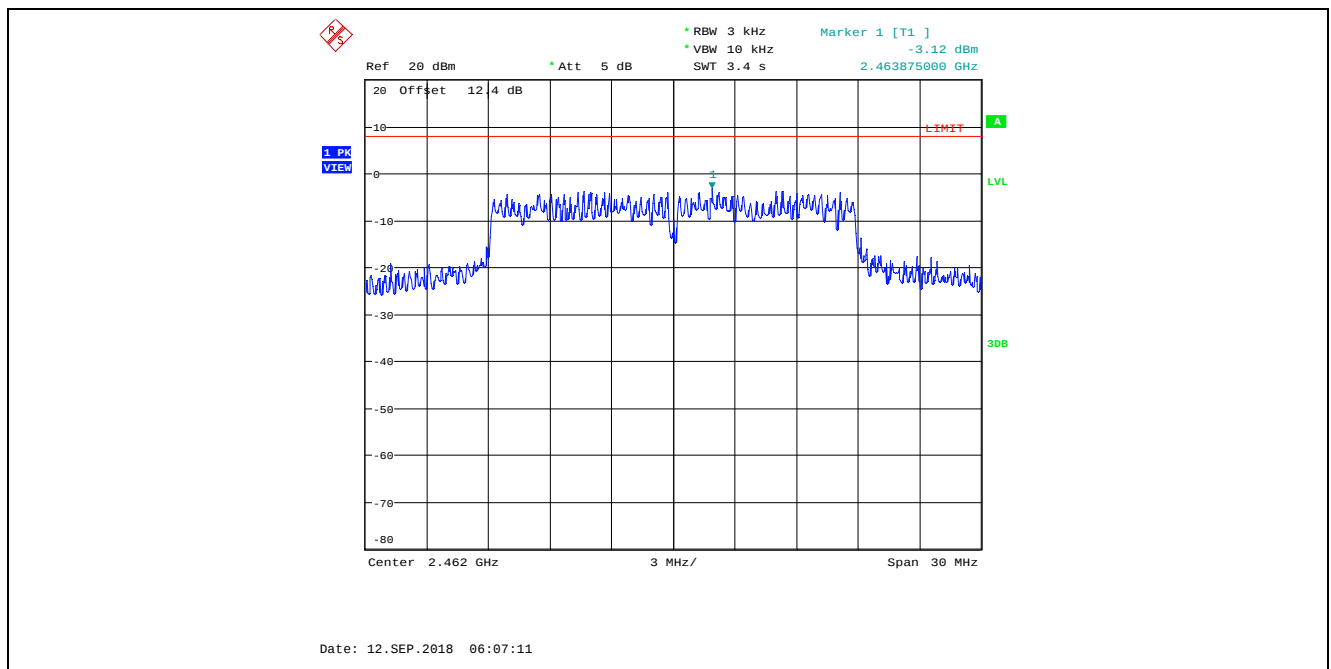
**Plot 5.5.4.28. Power Spectral Density**  
802.11n, MCS4, Power Setting 30, Channel 1, 2412 MHz



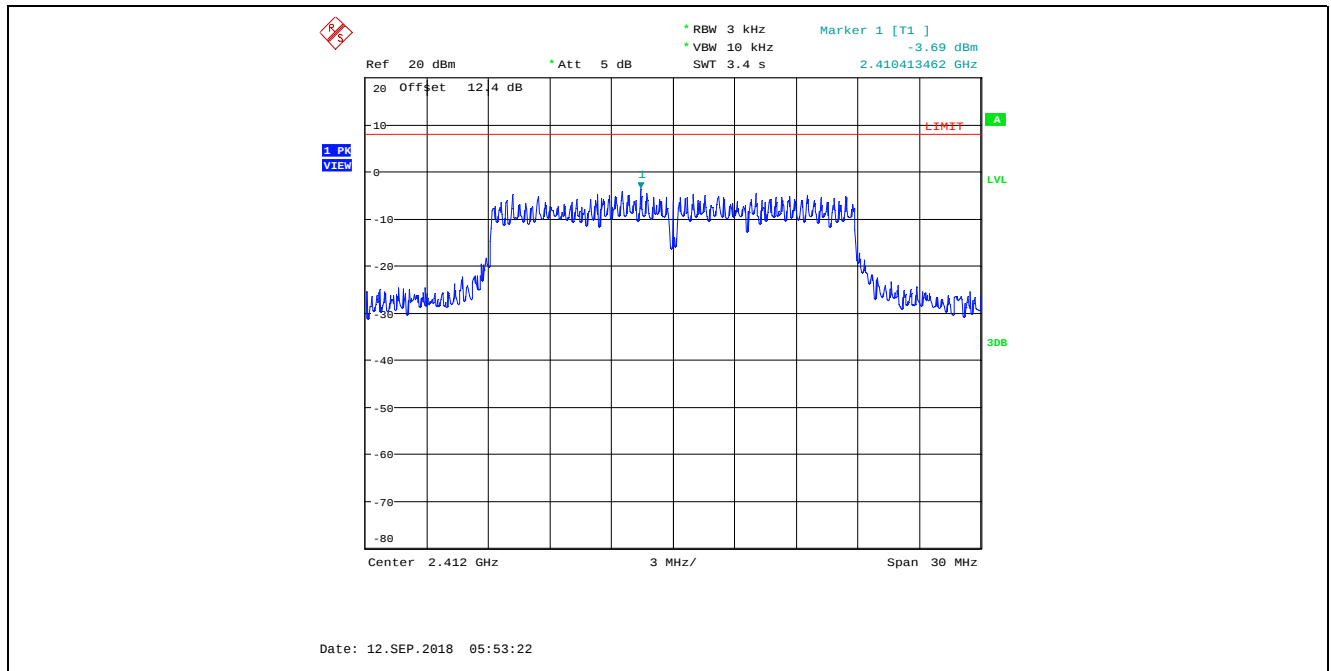
**Plot 5.5.4.29. Power Spectral Density**  
802.11n, MCS4, Power Setting 30, Channel 6, 2437 MHz



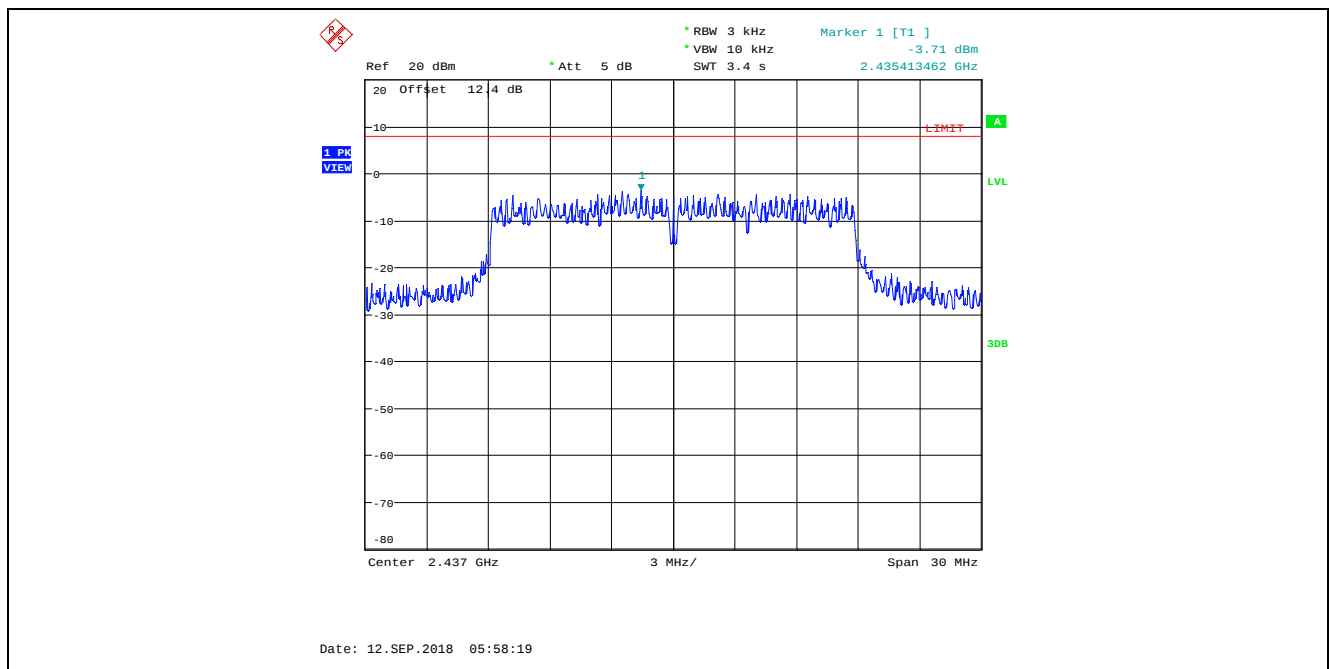
**Plot 5.5.4.30. Power Spectral Density**  
802.11n, MCS4, Power Setting 30, Channel 11, 2462 MHz



**Plot 5.5.4.31. Power Spectral Density**  
802.11n, MCS7, Power Setting 30, Channel 1, 2412 MHz



**Plot 5.5.4.32. Power Spectral Density**  
802.11n, MCS7, Power Setting 30, Channel 6, 2437 MHz



Date: 12.SEP.2018 06:00:05

## 5.6. RF EXPOSURE REQUIRMENTS [§§ 15.247(i), 1.1310 & 2.1091]

### 5.6.1. Limits

§ 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b).

#### Limits for Maximum Permissible Exposure (MPE)

| Frequency range (MHz)                                          | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|----------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                               |                               |                                     |                          |
| 0.3-3.0                                                        | 614                           | 1.63                          | *(100)                              | 6                        |
| 3.0-30                                                         | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | 6                        |
| 30-300                                                         | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300-1500                                                       |                               |                               | f/300                               | 6                        |
| 1500-100,000                                                   |                               |                               | 5                                   | 6                        |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3-1.34                                                       | 614                           | 1.63                          | *(100)                              | 30                       |
| 1.34-30                                                        | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | 30                       |
| 30-300                                                         | 27.5                          | 0.073                         | 0.2                                 | 30                       |
| 300-1500                                                       |                               |                               | f/1500                              | 30                       |
| 1500-100,000                                                   |                               |                               | 1.0                                 | 30                       |

f = frequency in MHz

\* = Plane-wave equivalent power density

Note 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

## 5.6.2. Method of Measurements

### Calculation Method of Power Density/RF Safety Distance:

$$S = \frac{PG}{4\pi \cdot r^2} = \frac{EIRP}{4\pi \cdot r^2}$$

Where,  
P: power input to the antenna in mW  
EIRP: Equivalent (effective) isotropic radiated power.  
S: power density mW/cm<sup>2</sup>  
G: numeric gain of antenna relative to isotropic radiator  
r: distance to centre of radiation in cm

## 5.6.3. RF Evaluation

Remark(s):

The EUT contained ZigBee/ BLE and WiFi radio modules with the following operating conditions:

- BLE and WiFi may transmit at the same time
- Zigbee and WiFi may transmit at the same time
- BLE and Zigbee will NOT transmit at the same time

Pursuant to KDB 447498 D01 General RF Exposure Guidance v06, Section 7.2:

*Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0, according to calculated/estimated, numerically modeled, or measured field strengths or power density.*

The sum of the MPE ratios for all simultaneously transmitting antennas incorporated in the EUT is ≤ 1.0 as calculated in the following table.

| EUT Co-located MPE for BLE/Zigbee with WiFi Radio     |                      |           |                 |                |                          |                                     |                                           |                         |
|-------------------------------------------------------|----------------------|-----------|-----------------|----------------|--------------------------|-------------------------------------|-------------------------------------------|-------------------------|
| Transmitter                                           | Frequency Band (MHz) | Frequency | Max. EIRP (dBm) | Max. EIRP (mW) | Evaluation Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Power Density Limit (mW/cm <sup>2</sup> ) | Power Density MPE Ratio |
| BLE                                                   | 2402-2480            | 2402      | 25.53           | 357.273        | 20                       | 0.071                               | 1.0                                       | 0.071                   |
| Zigbee                                                | 2405-2480            | 2405      | 25.47           | 352.371        | 20                       | 0.070                               | 1.0                                       | 0.070                   |
| 802.11b                                               | 2412-2462            | 2412      | 28.36           | 685.488        | 20                       | 0.136                               | 1.0                                       | 0.136                   |
| 802.11g                                               | 2412-2462            | 2412      | 28.83           | 763.836        | 20                       | 0.152                               | 1.0                                       | 0.152                   |
| 802.11n                                               | 2412-2462            | 2412      | 28.65           | 732.825        | 20                       | 0.146                               | 1.0                                       | 0.146                   |
| Worst Case Combination (BLE with WiFi 802.11g mode) : |                      |           |                 |                |                          |                                     |                                           | 0.223                   |

## ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4  
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: [vic@ultratech-labs.com](mailto:vic@ultratech-labs.com), Website: <http://www.ultratech-labs.com>

File #: 18MMBN004\_FCC15C247W  
November 29, 2018

*All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)*

## EXHIBIT 6. TEST EQUIPMENT LIST

| Test Instruments                                | Manufacturer    | Model No.          | Serial No. | Frequency Range       | Cal. Due Date |
|-------------------------------------------------|-----------------|--------------------|------------|-----------------------|---------------|
| Spectrum Analyzer                               | Agilent         | E7405A             | US39440181 | 9 kHz–26.5 GHz        | 04 Feb 2019   |
| Attenuator                                      | Pasternack      | PE7010-20          | ATT13      | DC–2 GHz              | 21 Mar 2019   |
| LISN                                            | EMCO            | 3825/2R            | 1165       | 10 kHz–30 MHz         | 03 Nov 2018   |
| Spectrum Analyzer                               | Rohde & Schwarz | FSU26              | 200946     | 20Hz–26.5 GHz         | 25 Jul 2020   |
| DC Block                                        | Hewlett Packard | 11742A             | 12460      | 0.045 – 26.5 GHz      | See Note 1    |
| Attenuator                                      | Hewlett Packard | 8493C              | 0465       | DC - 26.5 GHz         | See Note 1    |
| EMI Receiver                                    | Rohde & Schwarz | ESU40              | 100037     | 20Hz–40 GHz           | 04 May 2019   |
| RF Amplifier                                    | Com-Power       | PAM-0118A          | 551052     | 0.5 – 18 GHz          | 26 Jun 2019   |
| RF Amplifier                                    | Hewlett Packard | 84498              | 3008A00769 | 1 – 26.5 GHz          | 01 Oct 2019   |
| Biconilog                                       | EMCO            | 3142C              | 00026873   | 26-3000 MHz           | 27 Apr 2020   |
| Horn Antenna                                    | EMCO            | 3155               | 5061       | 1 – 18 GHz            | 30 Apr 2020   |
| Horn Antenna                                    | ETS-Lindgren    | 3160-09            | 001183858  | 18 – 26.5 GHz         | 11 Oct 2019   |
| High Pass Filter                                | K & L           | 11SH10-4000/T12000 | 4          | Cut off 2.4 GHz       | See Note 1    |
| Band Reject Filter                              | Micro-Tronics   | BRM50701           | 105        | Cut off 2.4-2.483 GHz | See Note 1    |
| Attenuator                                      | Pasternack      | PE7024-10          | 4          | DC–26.5 GHz           | See Note 1    |
| Peak Power Analyzer                             | Hewlett Packard | 8991A              | 3342A00657 | 0.5 - 40 GHz          | 18 Aug 2019   |
| Peak Power Sensor                               | Hewlett Packard | 84814A             | 3205A00175 | 0.5 - 40 GHz          | 18 Aug 2019   |
| Attenuator                                      | Hewlett Packard | 8493C              | 0461       | DC - 26.5 GHz         | See Note 1    |
| Note 1: Internal Verification/Calibration check |                 |                    |            |                       |               |

### ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4  
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: [vic@ultratech-labs.com](mailto:vic@ultratech-labs.com), Website: <http://www.ultratech-labs.com>

File #: 18MMBN004\_FCC15C247W  
 November 29, 2018

*All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)*

## EXHIBIT 7. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2003 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement.

### 7.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY

|                      | Line Conducted Emission Measurement Uncertainty<br>(9 kHz – 30 MHz):             | Measured      | Limit        |
|----------------------|----------------------------------------------------------------------------------|---------------|--------------|
| <b>u<sub>c</sub></b> | <b>Combined standard uncertainty:</b><br>$u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$ | <b>± 1.44</b> | <b>± 1.8</b> |
| <b>U</b>             | <b>Expanded uncertainty U:</b><br>$U = 2u_c(y)$                                  | <b>± 2.89</b> | <b>± 3.6</b> |

### 7.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY

|                      | Radiated Emission Measurement Uncertainty @ 3m, Horizontal<br>(30-1000 MHz):     | Measured<br>(dB) | Limit<br>(dB) |
|----------------------|----------------------------------------------------------------------------------|------------------|---------------|
| <b>u<sub>c</sub></b> | <b>Combined standard uncertainty:</b><br>$u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$ | <b>± 2.39</b>    | <b>± 2.6</b>  |
| <b>U</b>             | <b>Expanded uncertainty U:</b><br>$U = 2u_c(y)$                                  | <b>± 4.79</b>    | <b>± 5.2</b>  |

|                      | Radiated Emission Measurement Uncertainty @ 3m, Vertical<br>(30-1000 MHz):       | Measured<br>(dB) | Limit<br>(dB) |
|----------------------|----------------------------------------------------------------------------------|------------------|---------------|
| <b>u<sub>c</sub></b> | <b>Combined standard uncertainty:</b><br>$u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$ | <b>± 2.39</b>    | <b>± 2.6</b>  |
| <b>U</b>             | <b>Expanded uncertainty U:</b><br>$U = 2u_c(y)$                                  | <b>± 4.78</b>    | <b>± 5.2</b>  |

|                      | Radiated Emission Measurement Uncertainty @ 3 m, Horizontal &<br>Vertical (1 – 18 GHz): | Measured<br>(dB) | Limit<br>(dB)                  |
|----------------------|-----------------------------------------------------------------------------------------|------------------|--------------------------------|
| <b>u<sub>c</sub></b> | <b>Combined standard uncertainty:</b><br>$u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$        | <b>± 1.87</b>    | <b>Under<br/>consideration</b> |
| <b>U</b>             | <b>Expanded uncertainty U:</b><br>$U = 2u_c(y)$                                         | <b>± 3.75</b>    | <b>Under<br/>consideration</b> |

## ULTRATECH GROUP OF LABS

3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4  
 Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: [vic@ultratech-labs.com](mailto:vic@ultratech-labs.com), Website: <http://www.ultratech-labs.com>

File #: 18MMBN004\_FCC15C247W  
 November 29, 2018

All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)