

## 8.5 CONDUCTED BAND EDGE MEASUREMENT

### Limit

#### **FCC §22.917(a), Band 5**

For operations in the 824-849 MHz band ,Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

#### **FCC §24.238(a), Band 2**

For operations in the 1850-1910 and 1930-1950 MHz band , Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

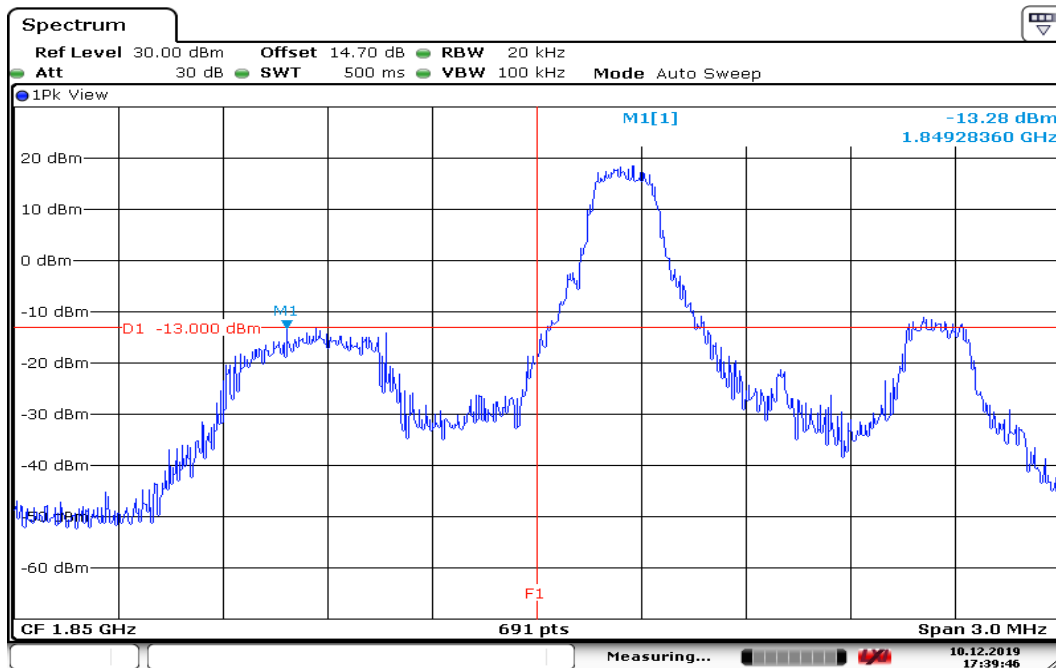
#### **RSS-132 section 5.5 and RSS-133 section 6.5**

In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} p$  (watts).

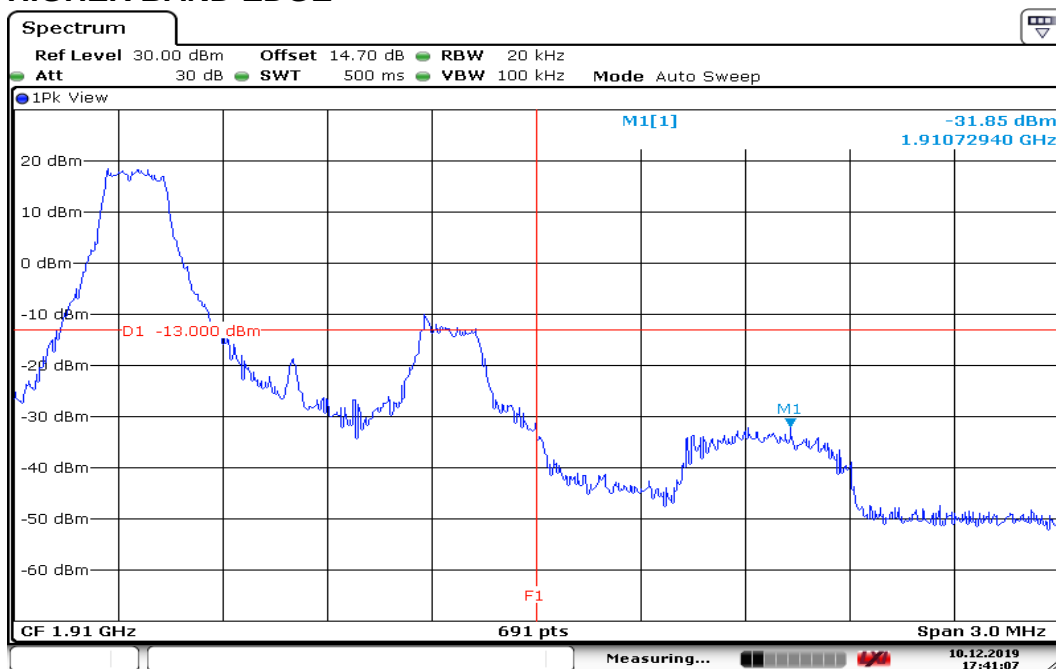
### Test Procedures

KDB 971168 D01,

1. RBW  $\geq$  1% of the emission bandwidth
2. VBW  $\geq$  3 x RBW
3. Span was set large enough so as to capture all out of emissions near the band edge.

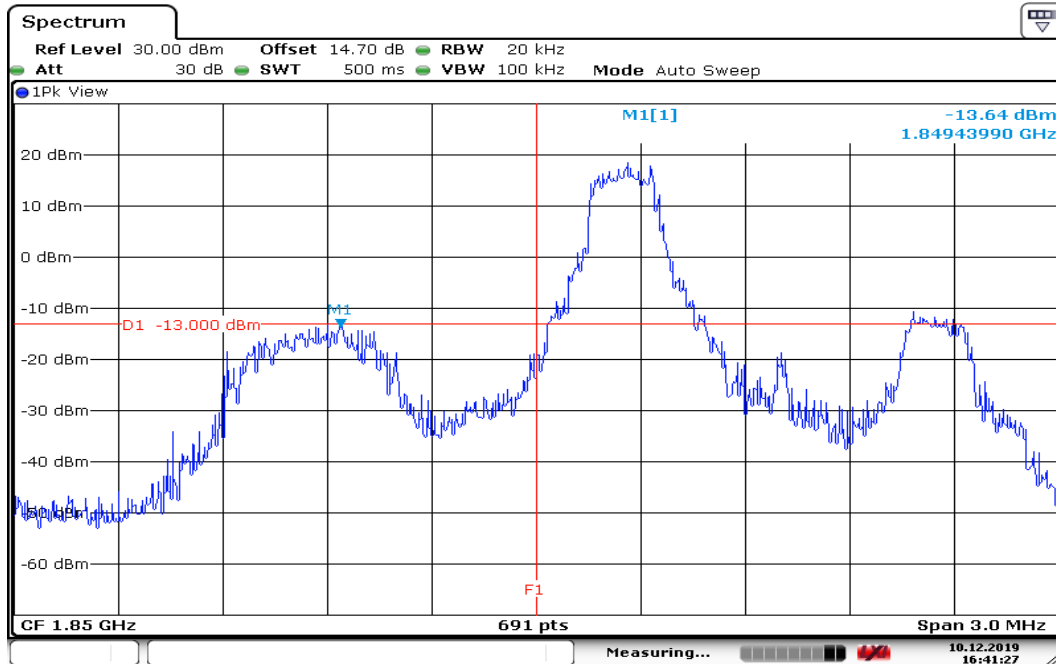
**Test Results:****LTE Band 2****CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB ALLOCATED****LOWER BAND EDGE**

Date: 10.DEC.2019 17:39:47

**HIGHER BAND EDGE**

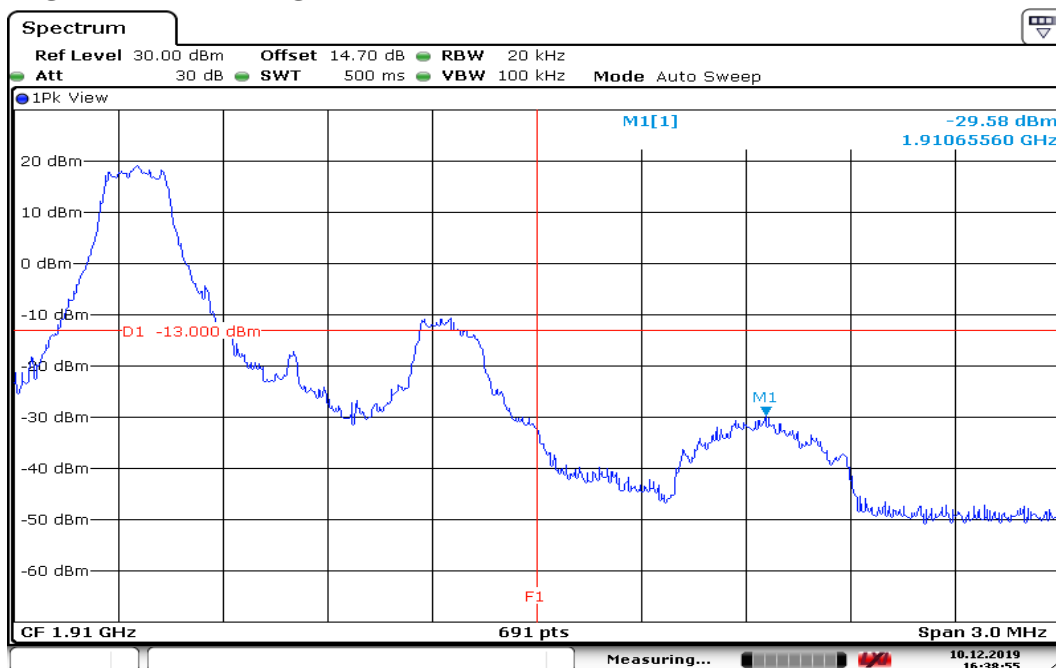
Date: 10.DEC.2019 17:41:08

## CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE

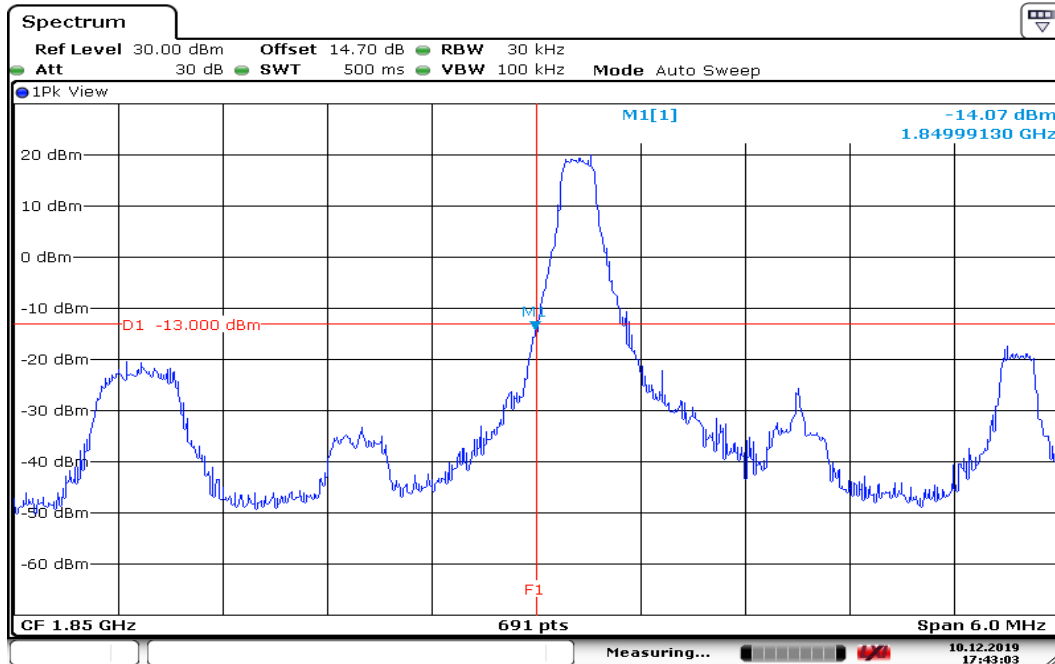


Date: 10.DEC.2019 16:41:27

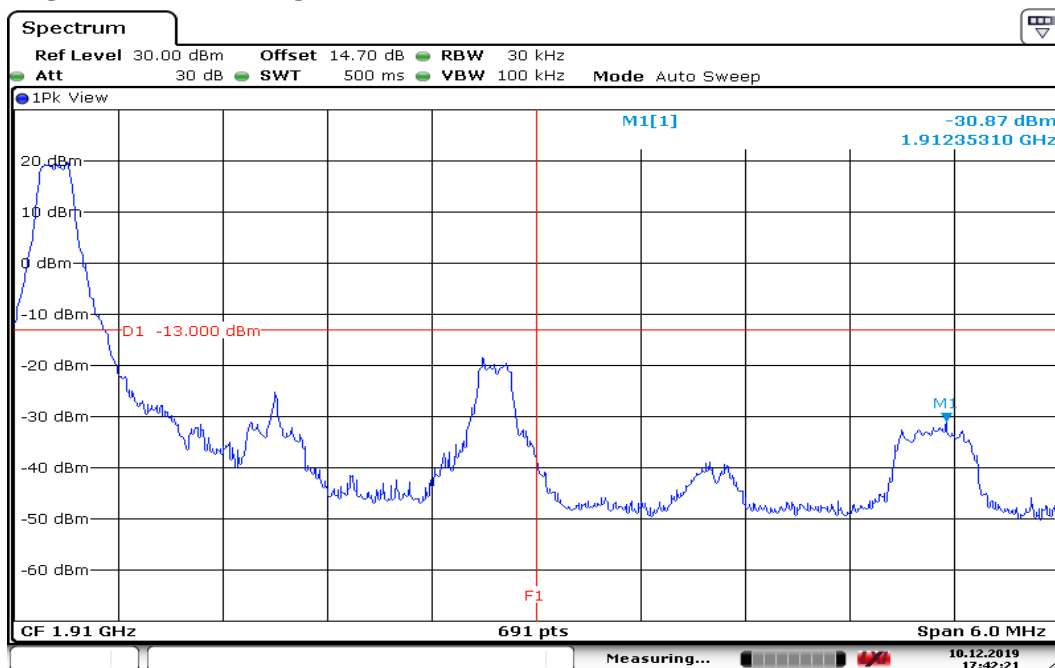
## HIGHER BAND EDGE



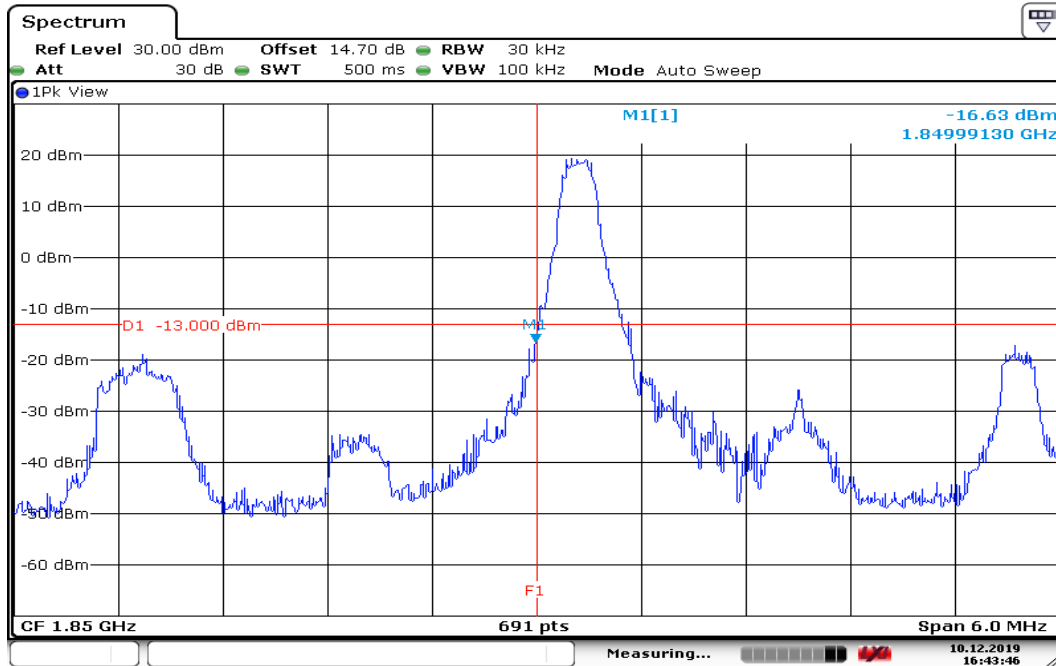
Date: 10.DEC.2019 16:38:56

**CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB ALLOCATED  
LOWER BAND EDGE**

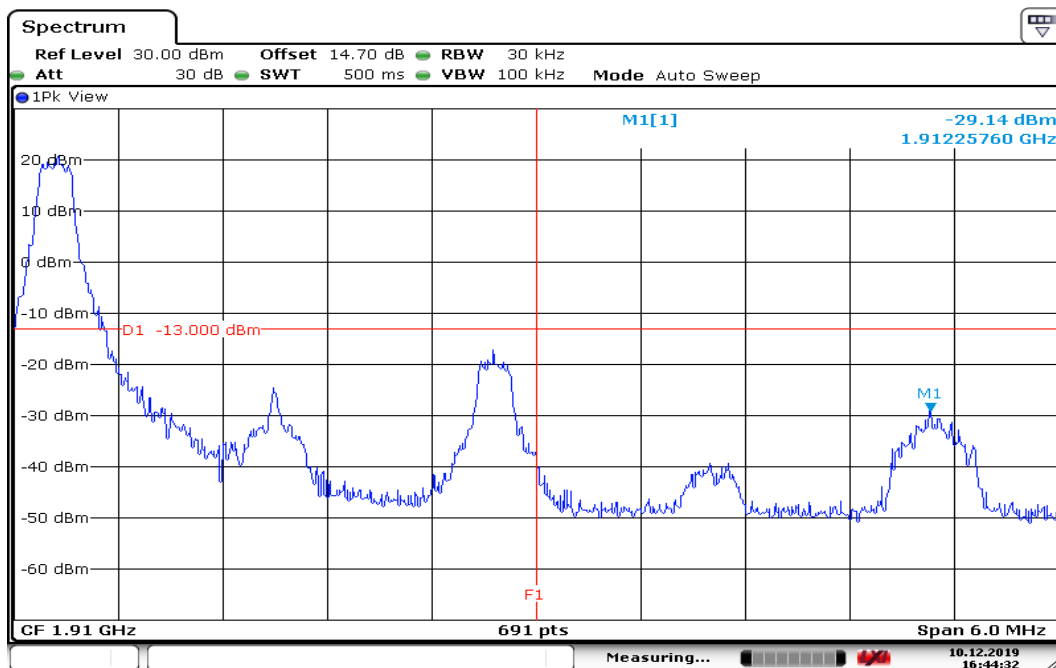
Date: 10.DEC.2019 17:43:04

**HIGHER BAND EDGE**

Date: 10.DEC.2019 17:42:22

**CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB ALLOCATED  
LOWER BAND EDGE**

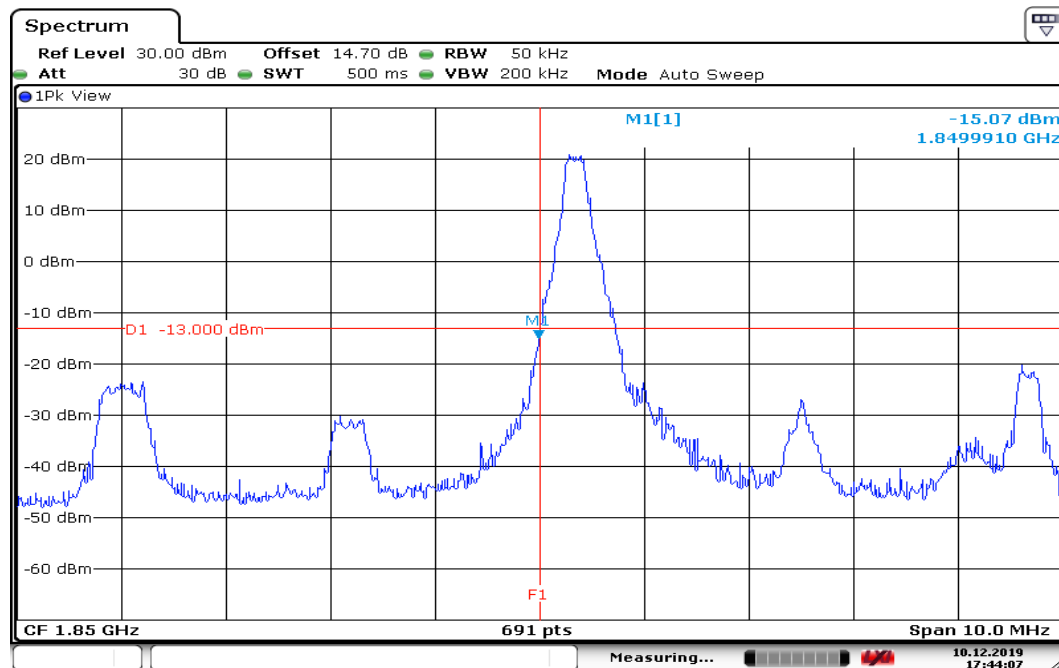
Date: 10.DEC.2019 16:43:46

**HIGHER BAND EDGE**

Date: 10.DEC.2019 16:44:33

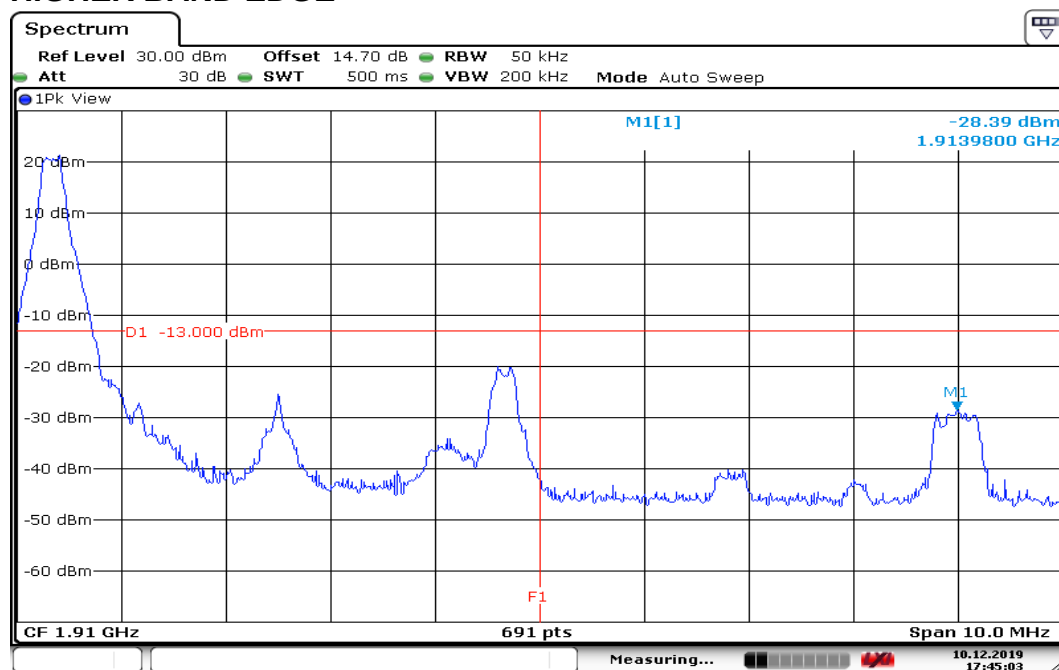
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATED LOWER BAND EDGE



Date: 10.DEC.2019 17:44:08

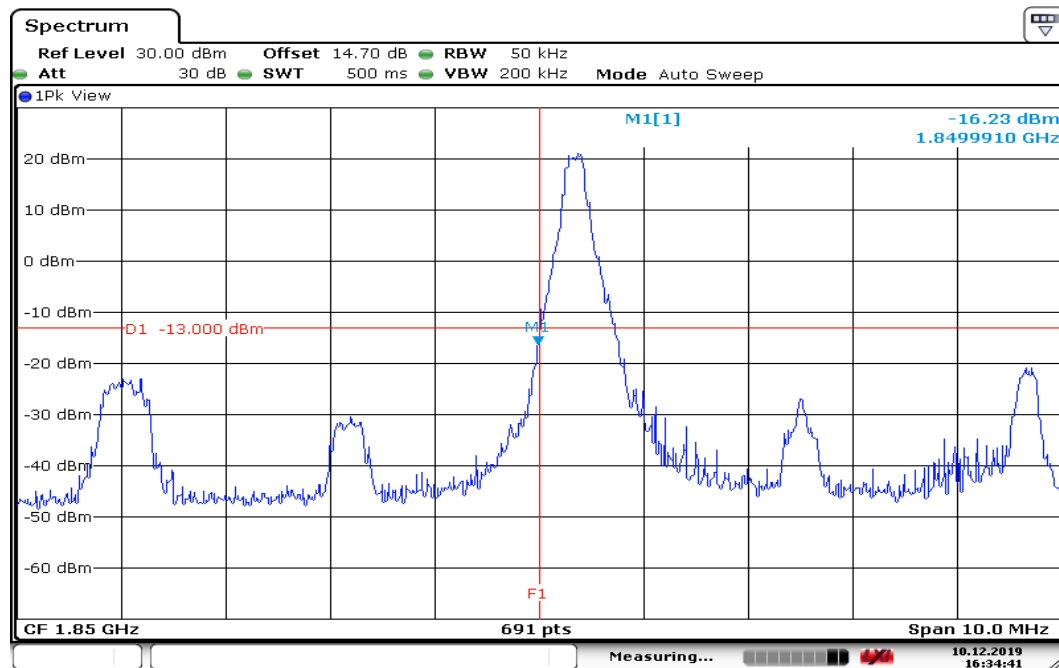
## HIGHER BAND EDGE



Date: 10.DEC.2019 17:45:04

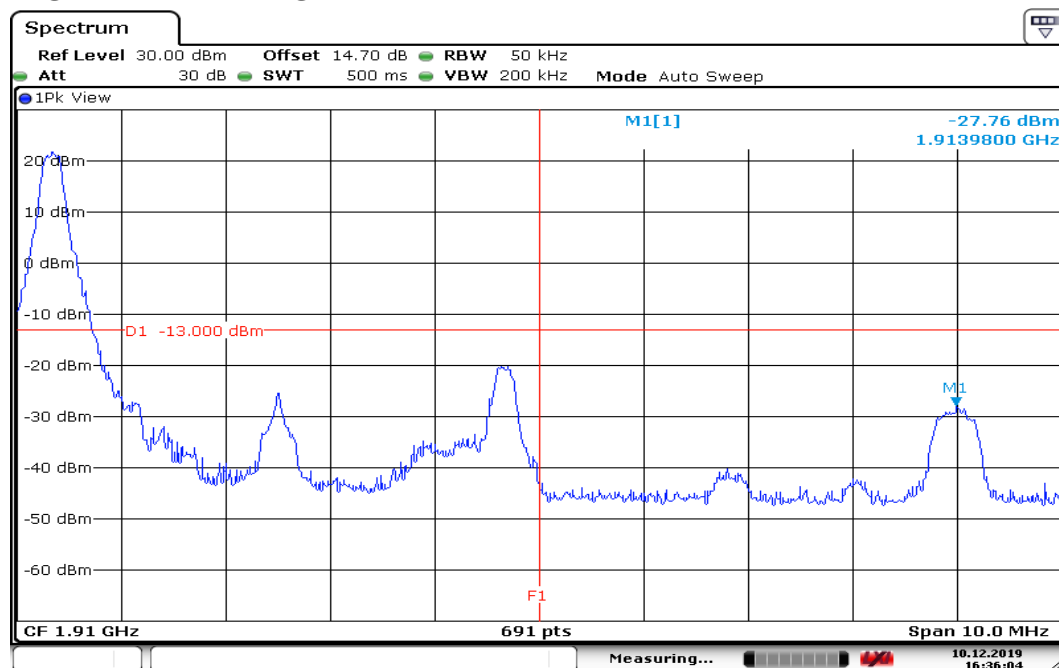
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE

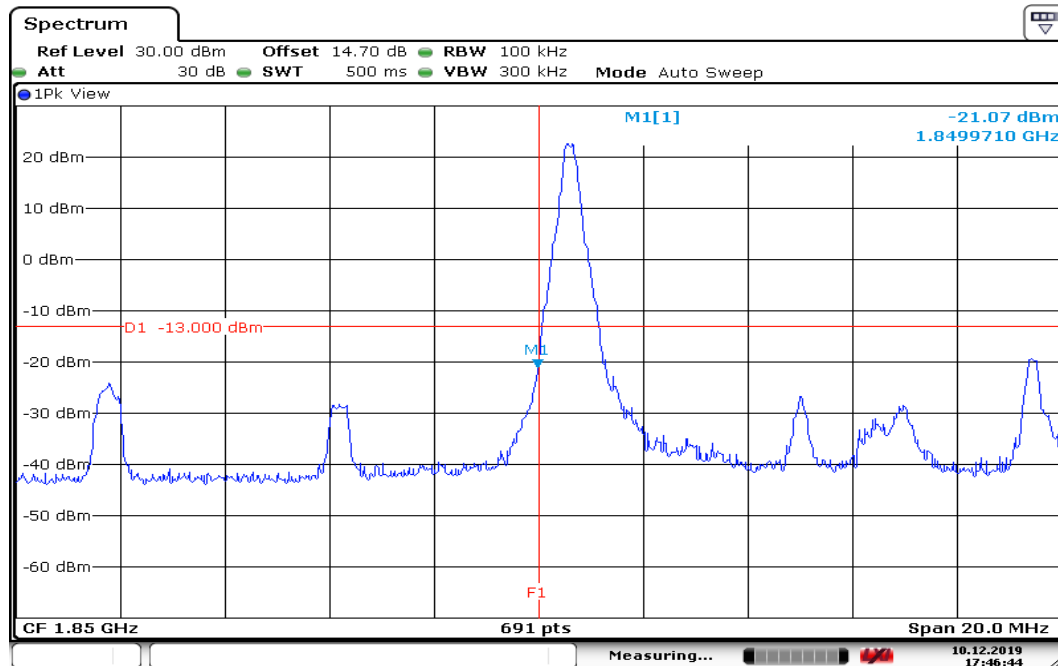


Date: 10.DEC.2019 16:34:40

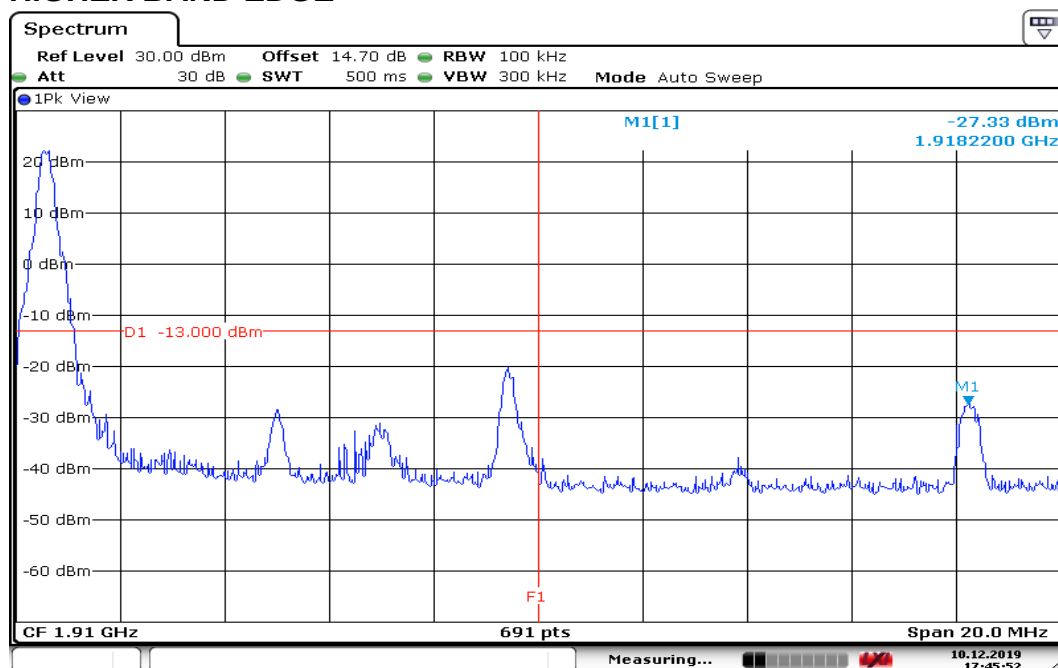
## HIGHER BAND EDGE



Date: 10.DEC.2019 16:36:04

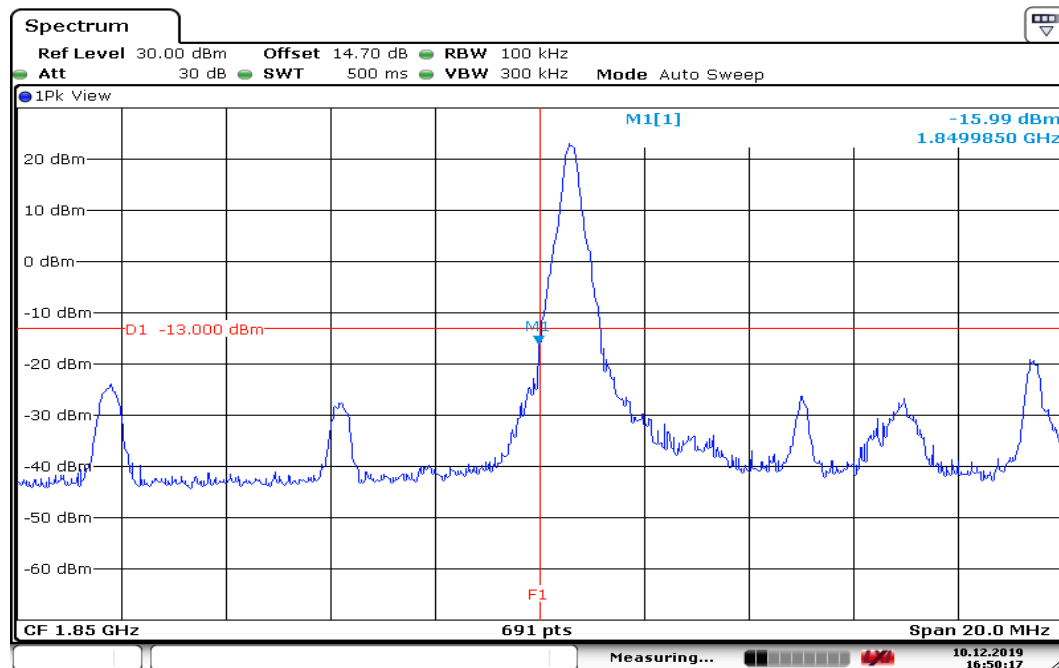
**CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB ALLOCATED  
LOWER BAND EDGE**

Date: 10.DEC.2019 17:46:43

**HIGHER BAND EDGE**

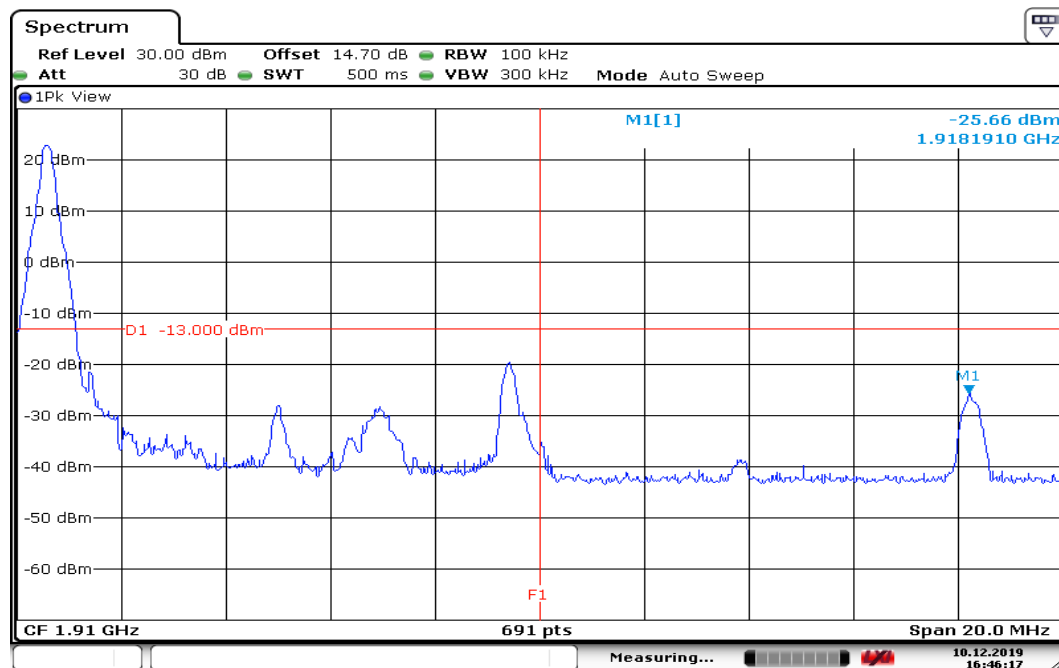
Date: 10.DEC.2019 17:45:53

## CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



Date: 10.DEC.2019 16:50:17

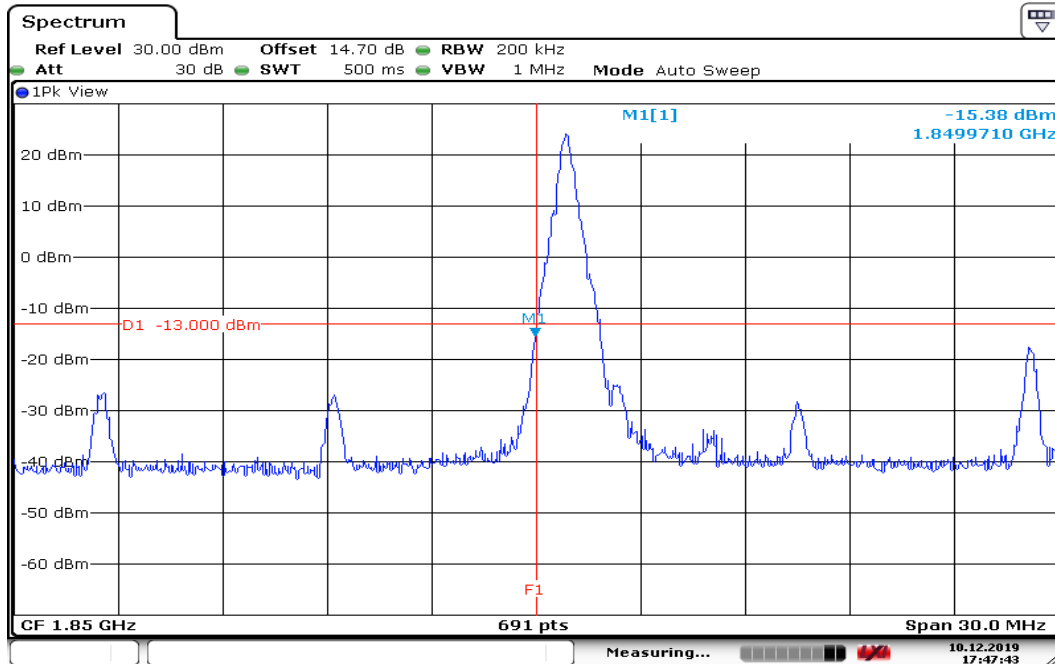
## HIGHER BAND EDGE



Date: 10.DEC.2019 16:46:17

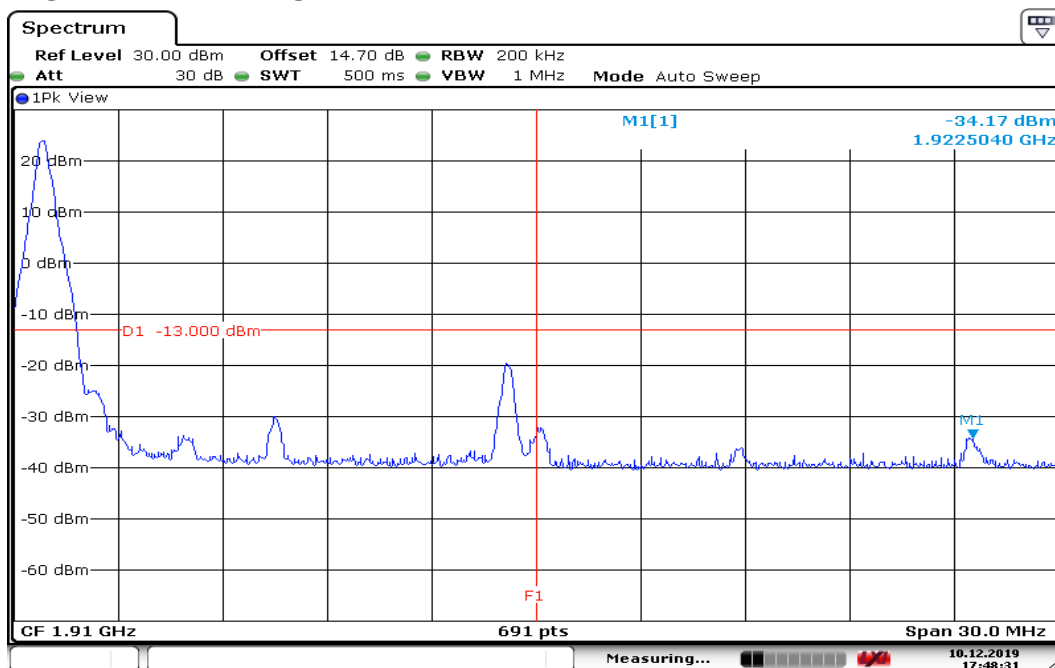
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB ALLOCATED LOWER BAND EDGE



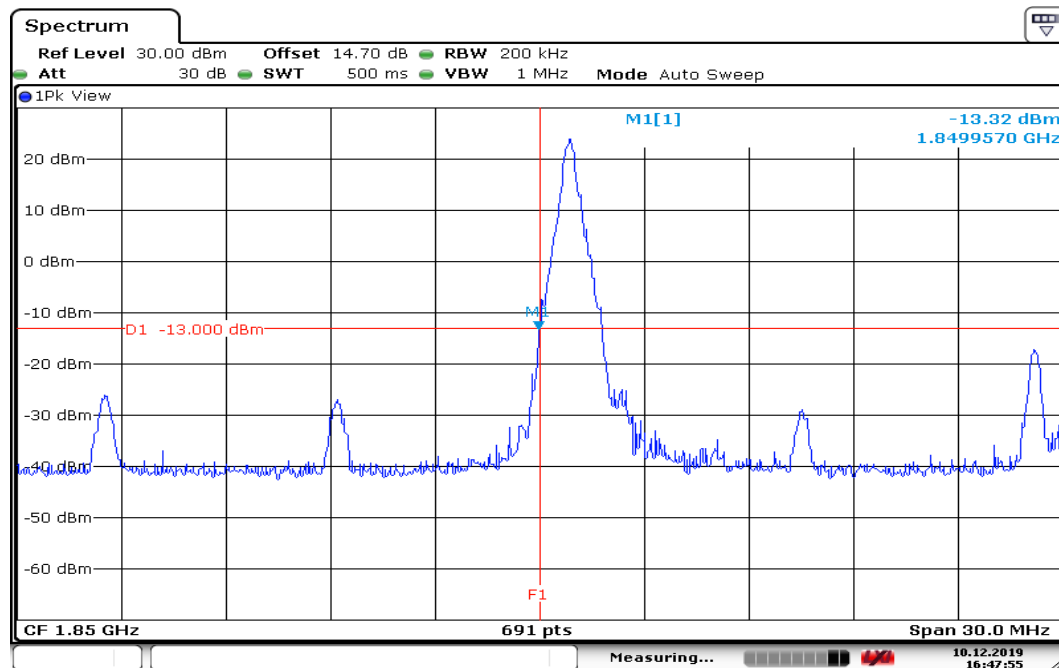
Date: 10.DEC.2019 17:47:44

## HIGHER BAND EDGE



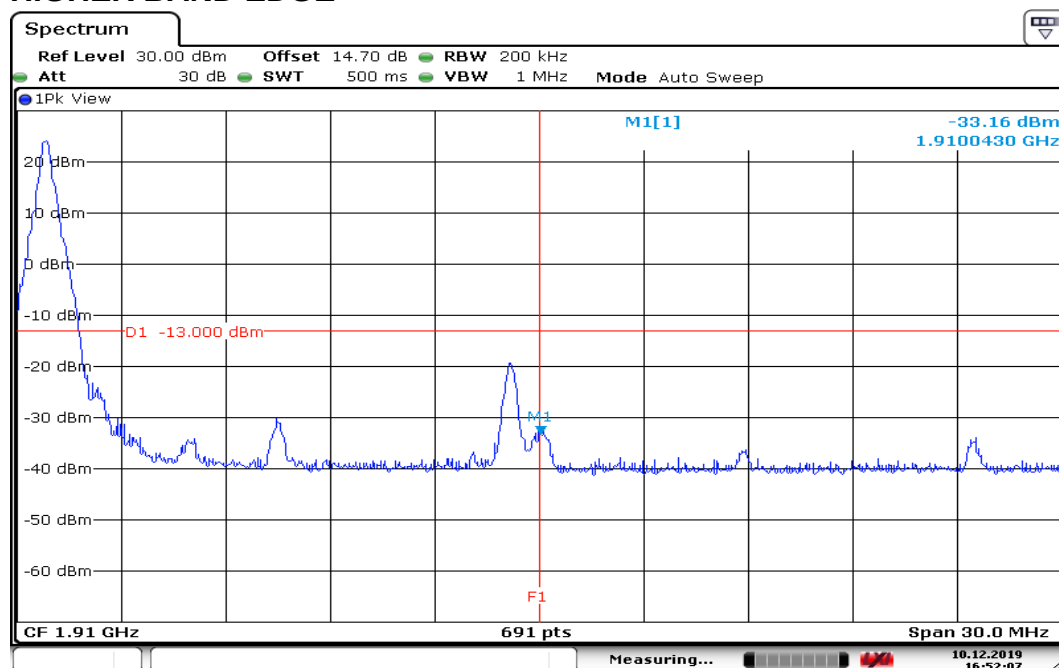
Date: 10.DEC.2019 17:48:32

## CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



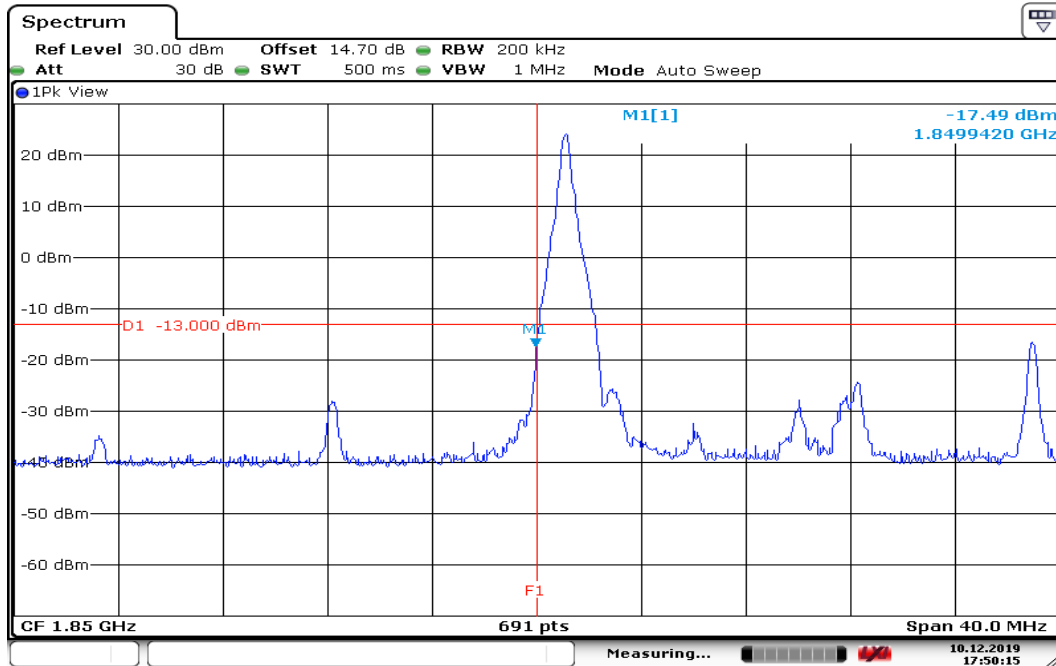
Date: 10.DEC.2019 16:47:56

## HIGHER BAND EDGE



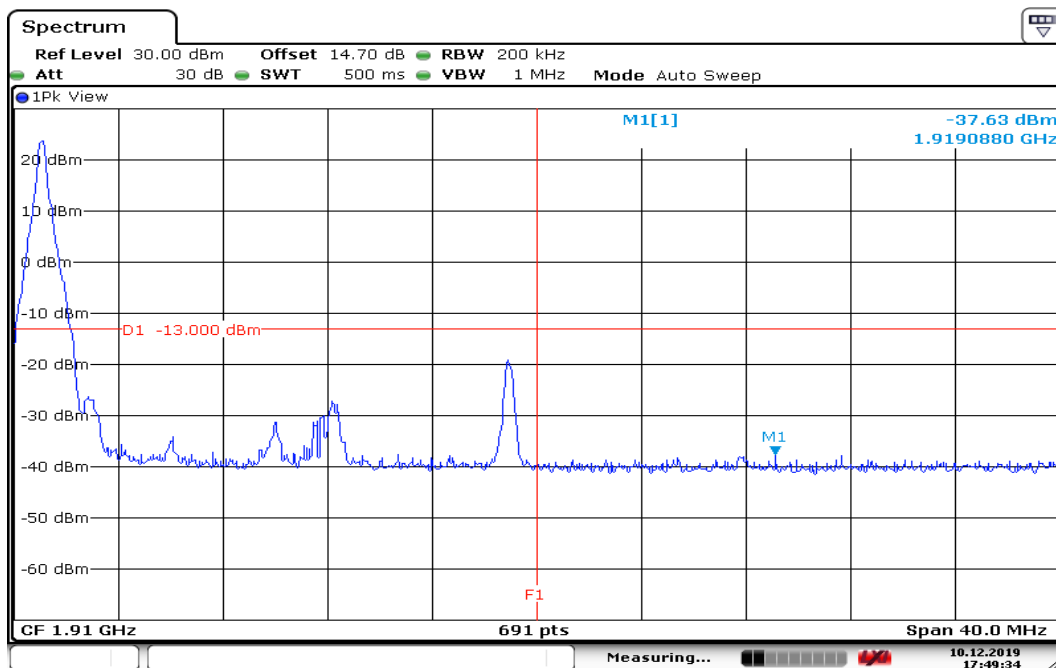
Date: 10.DEC.2019 16:52:08

## CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB ALLOCATED LOWER BAND EDGE



Date: 10.DEC.2019 17:50:16

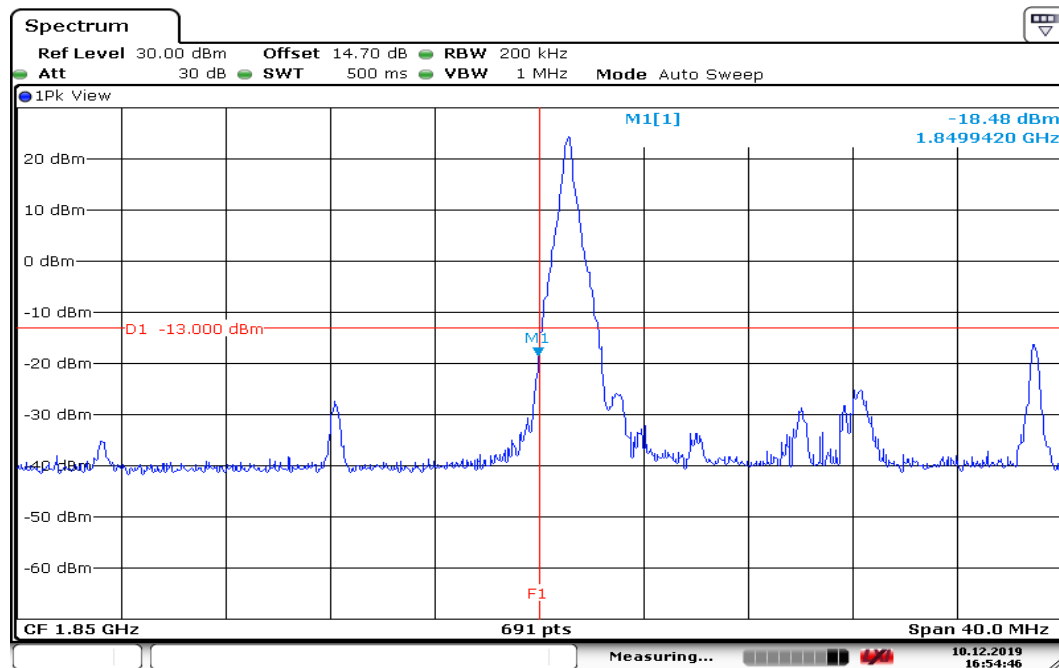
## HIGHER BAND EDGE



Date: 10.DEC.2019 17:49:35

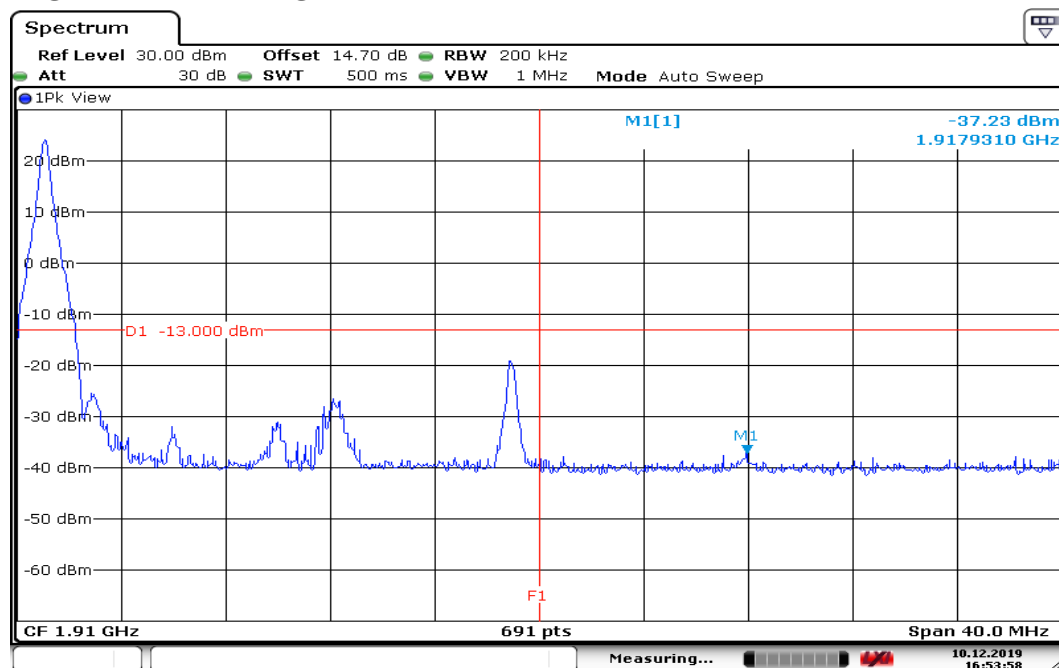
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



Date: 10.DEC.2019 16:54:47

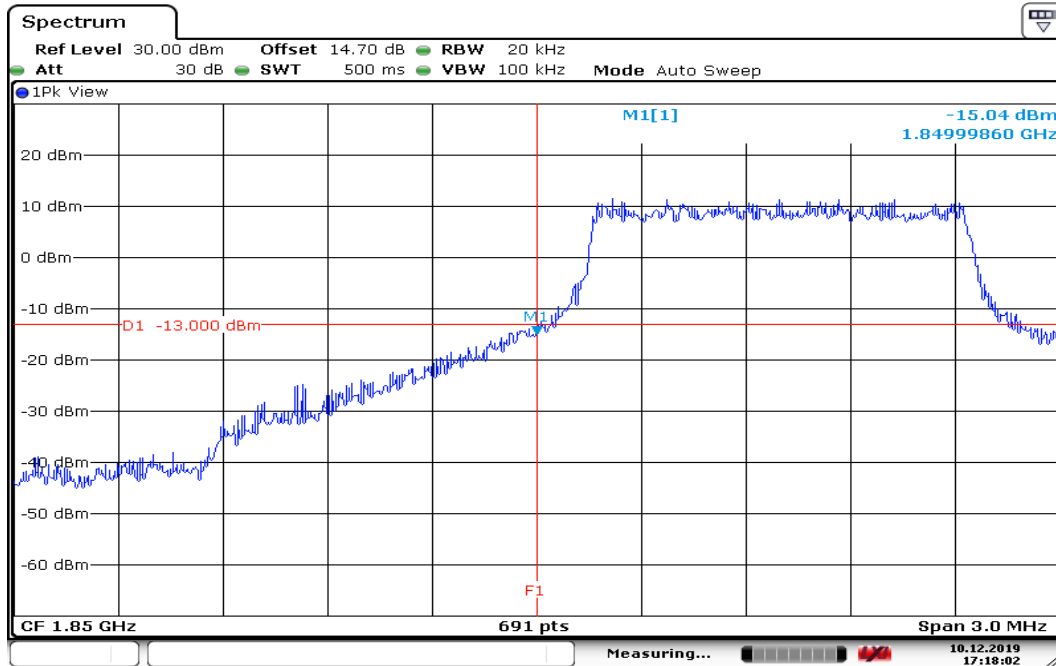
## HIGHER BAND EDGE



Date: 10.DEC.2019 16:53:58

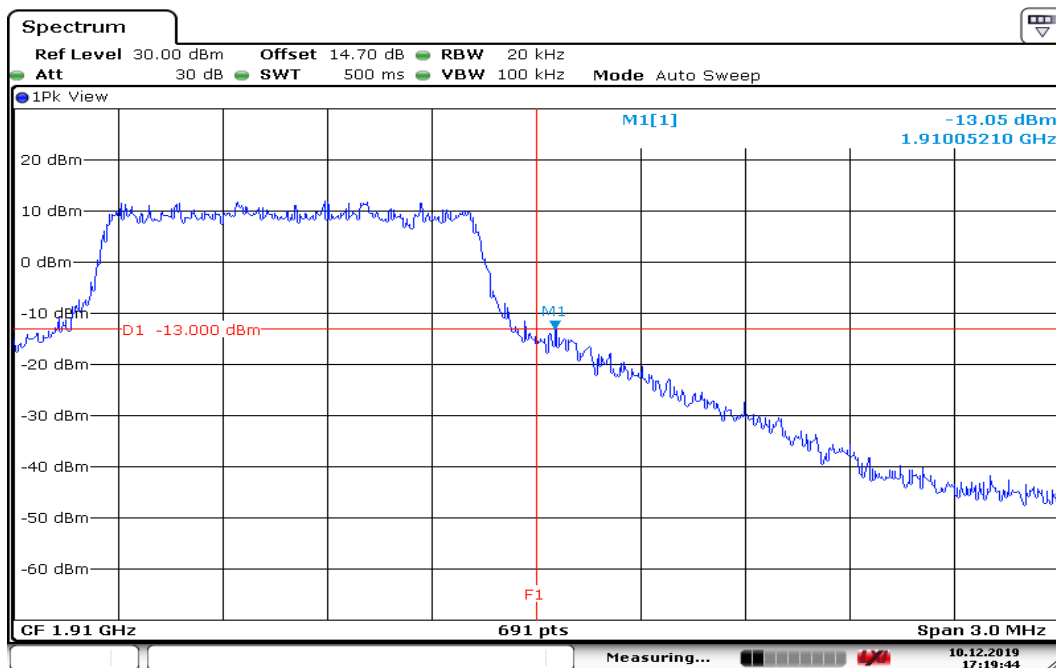
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



Date: 10.DEC.2019 17:18:02

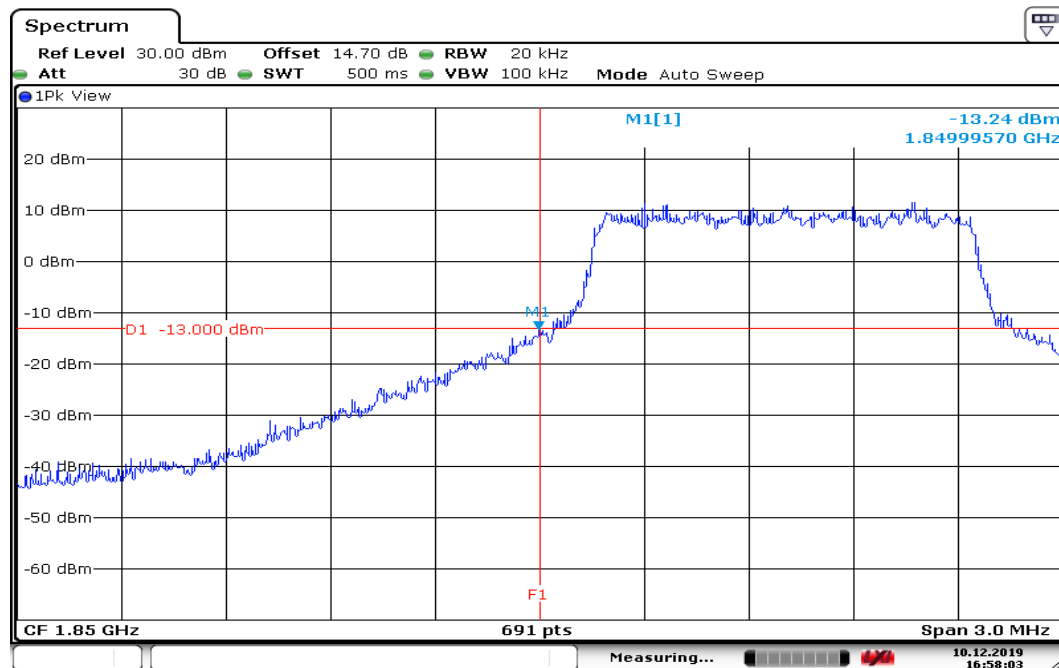
## HIGHER BAND EDGE



Date: 10.DEC.2019 17:19:45

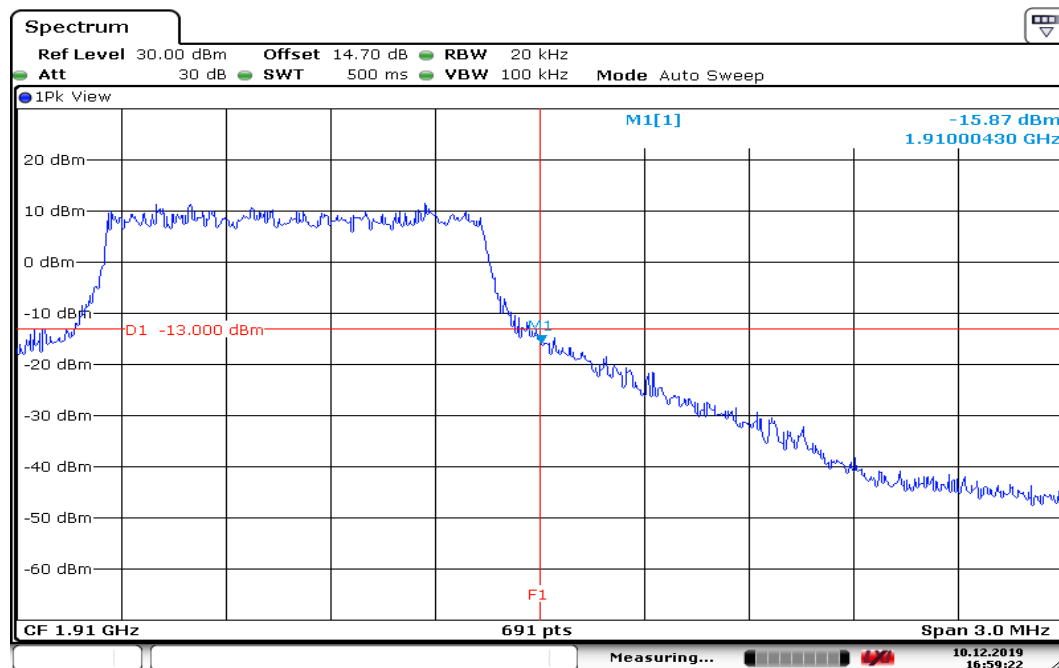
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



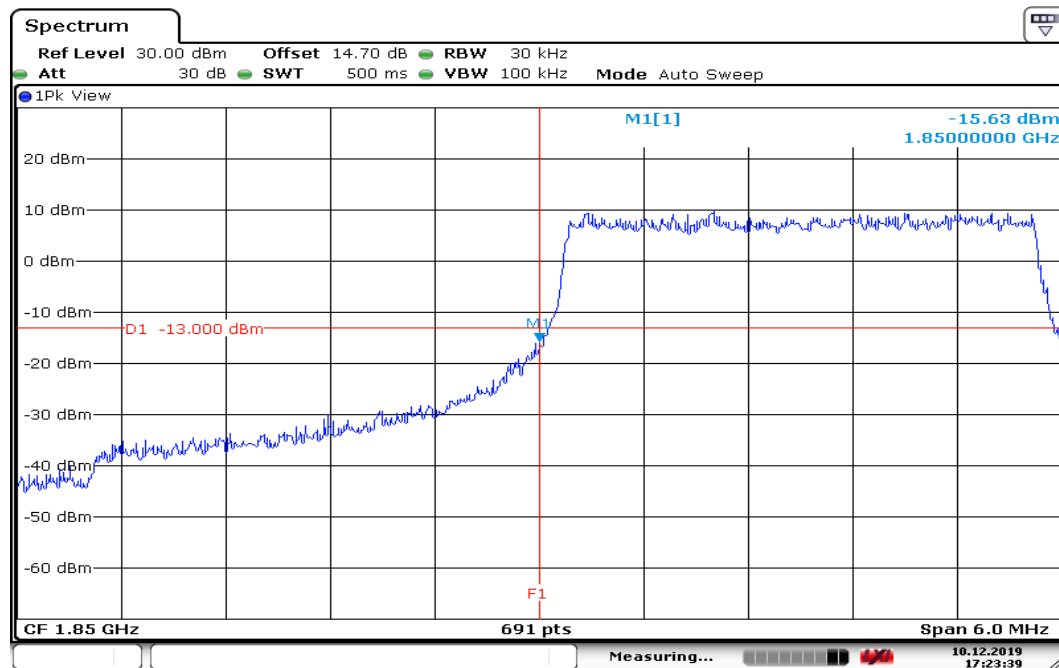
Date: 10.DEC.2019 16:58:03

## HIGHER BAND EDGE



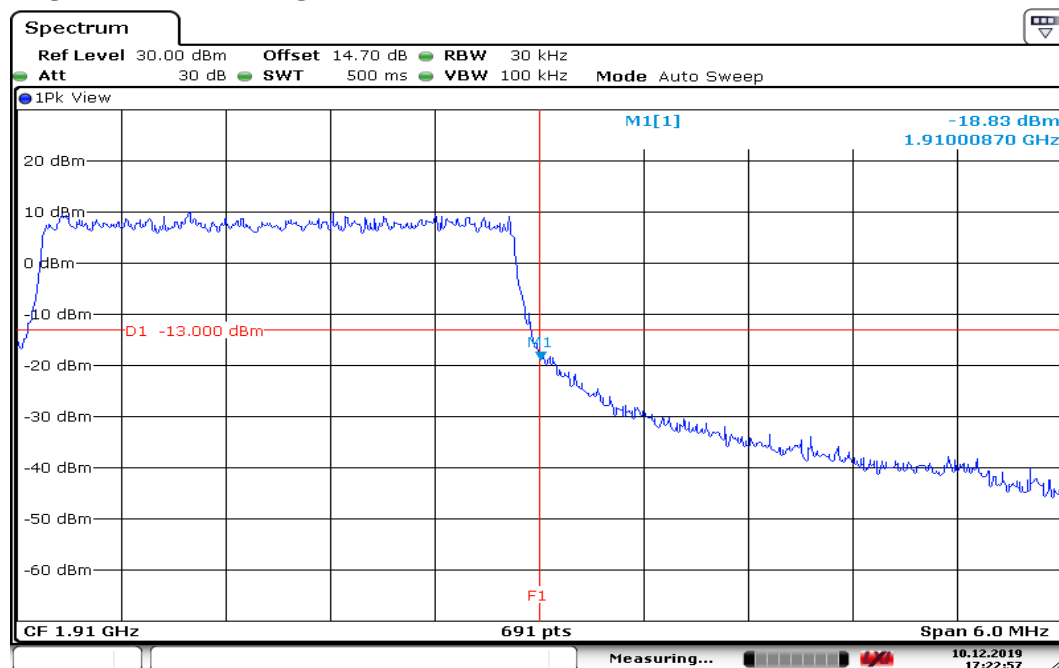
Date: 10.DEC.2019 16:59:22

## CHANNEL BANDWIDTH: 3MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



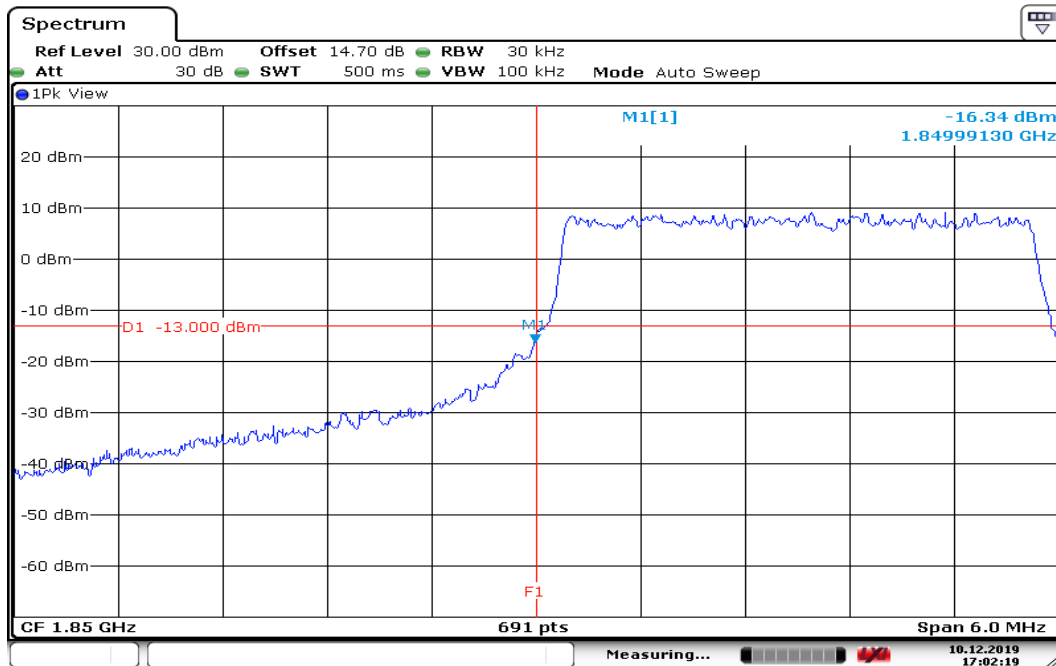
Date: 10.DEC.2019 17:23:40

## HIGHER BAND EDGE



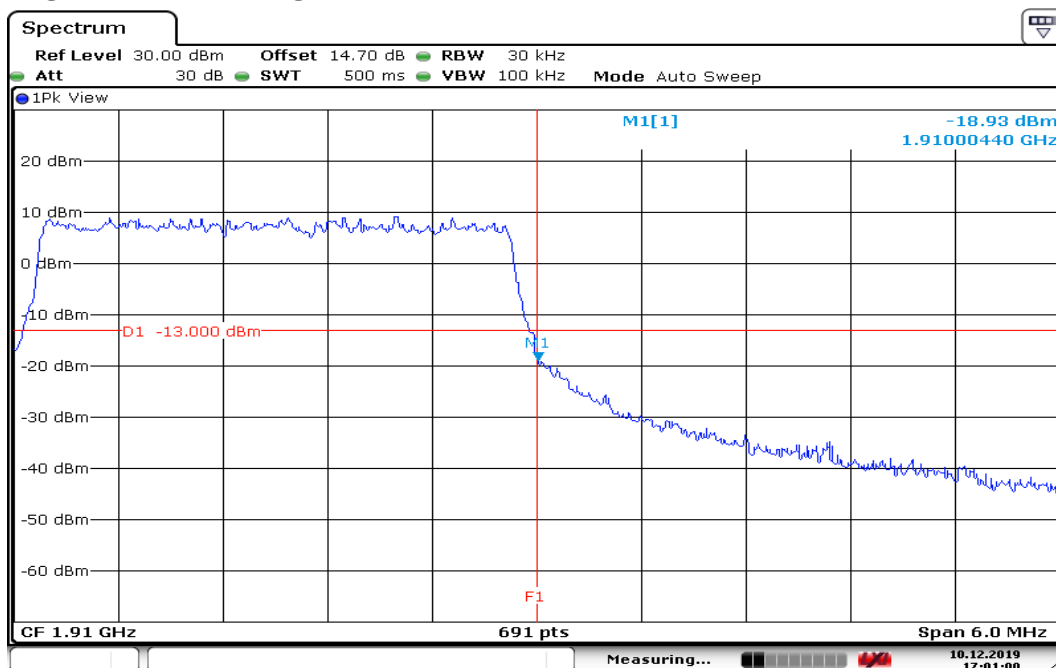
Date: 10.DEC.2019 17:22:57

## CHANNEL BANDWIDTH: 3MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



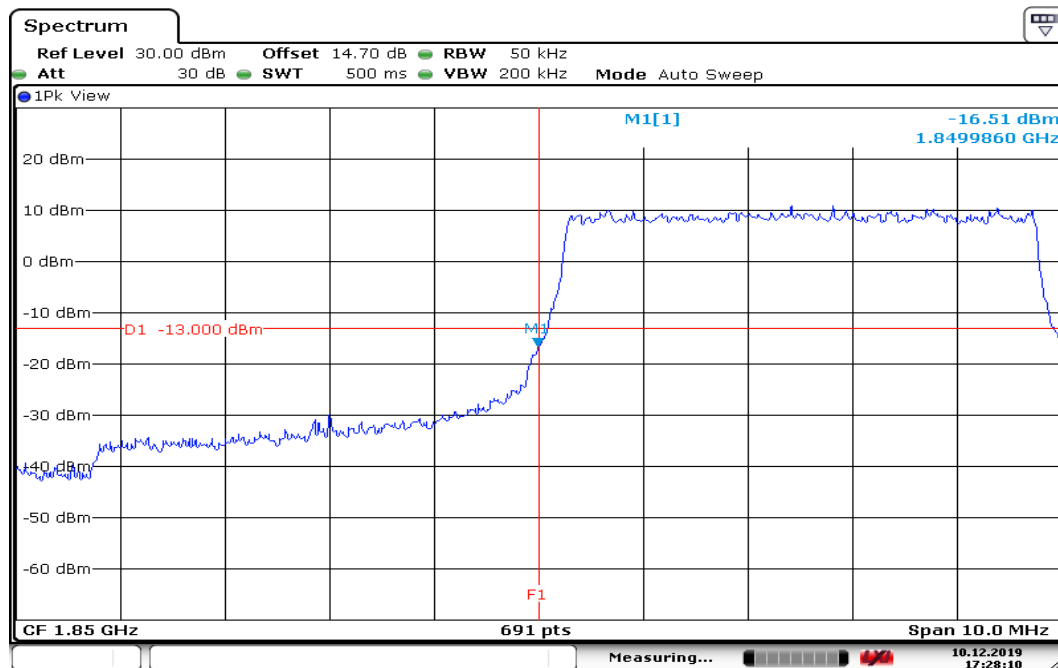
Date: 10.DEC.2019 17:02:19

## HIGHER BAND EDGE



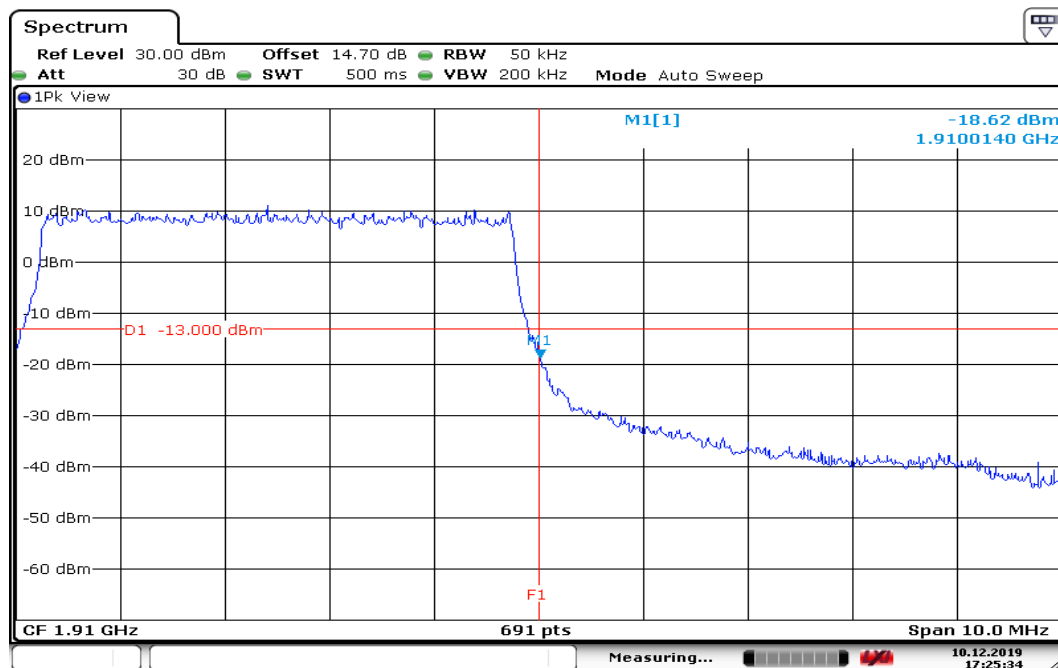
Date: 10.DEC.2019 17:01:00

## CHANNEL BANDWIDTH: 5MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE

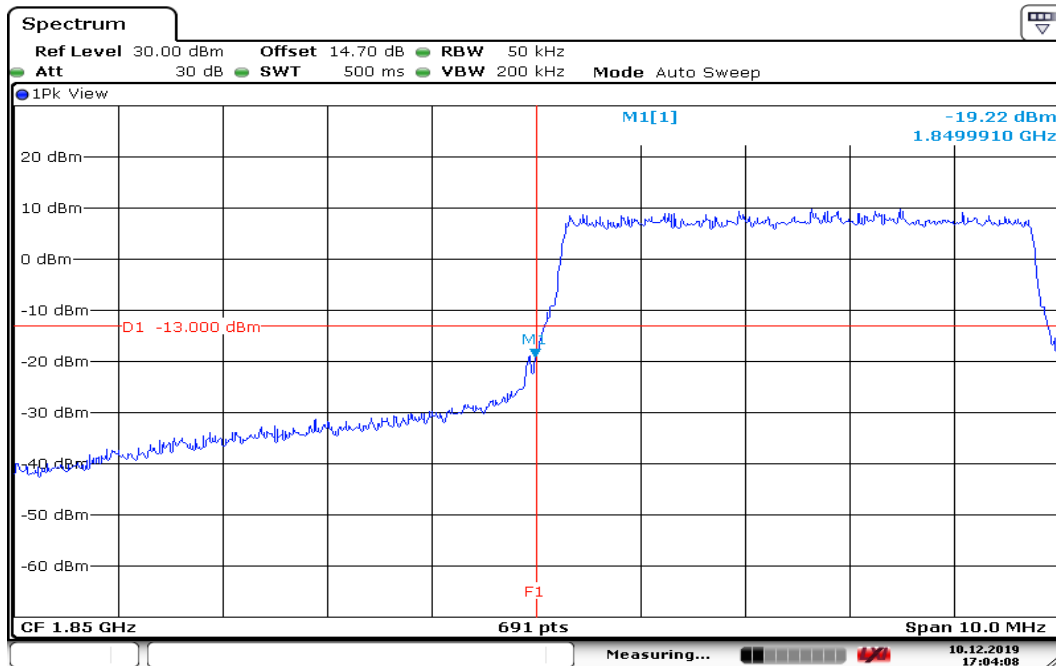


Date: 10.DEC.2019 17:28:10

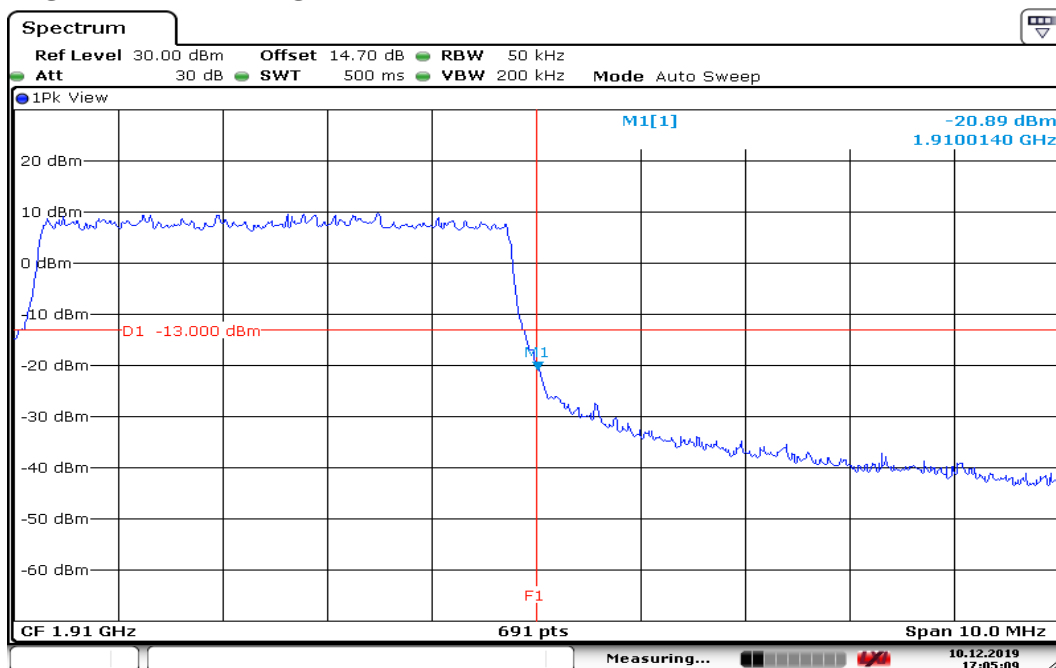
## HIGHER BAND EDGE



Date: 10.DEC.2019 17:25:34

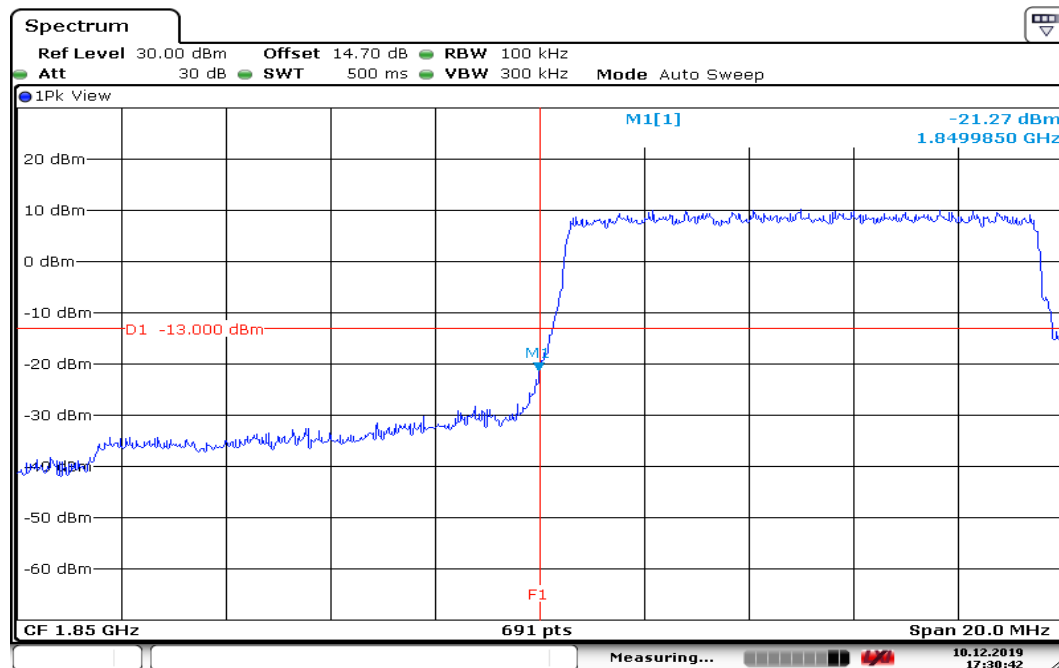
**CHANNEL BANDWIDTH: 5MHz / 16QAM / 100% RB ALLOCATED  
LOWER BAND EDGE**

Date: 10.DEC.2019 17:04:08

**HIGHER BAND EDGE**

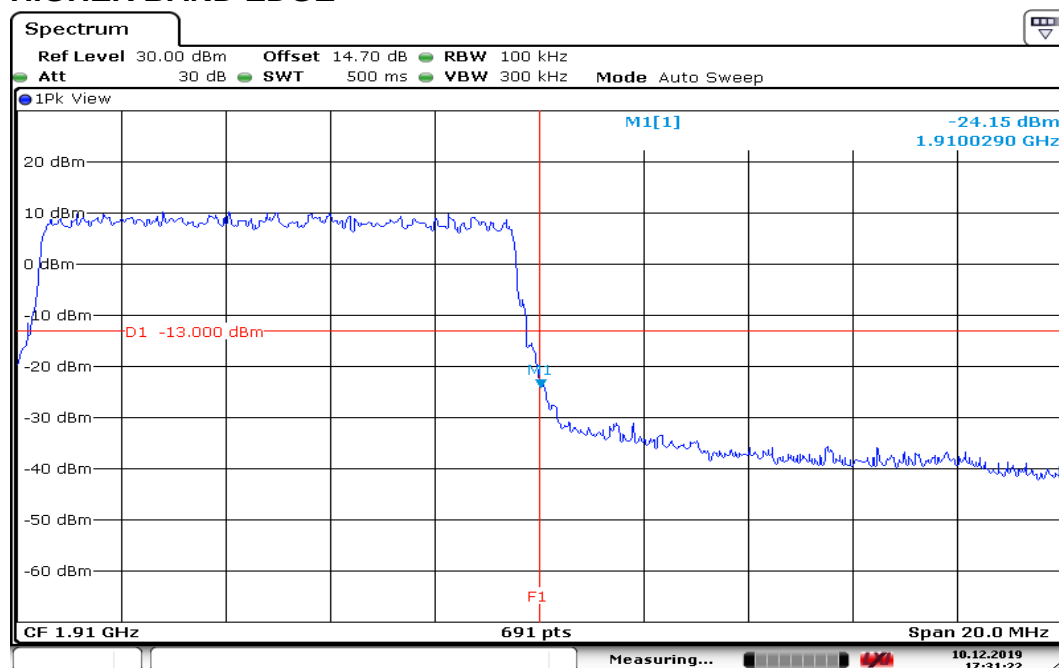
Date: 10.DEC.2019 17:05:09

## CHANNEL BANDWIDTH: 10MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



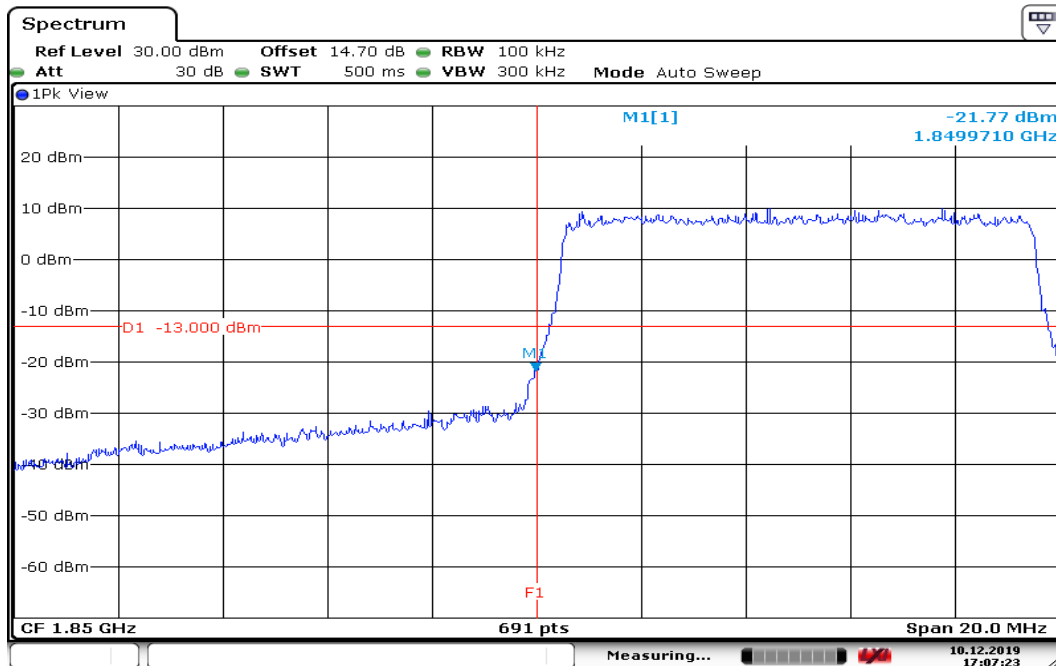
Date: 10.DEC.2019 17:30:43

## HIGHER BAND EDGE



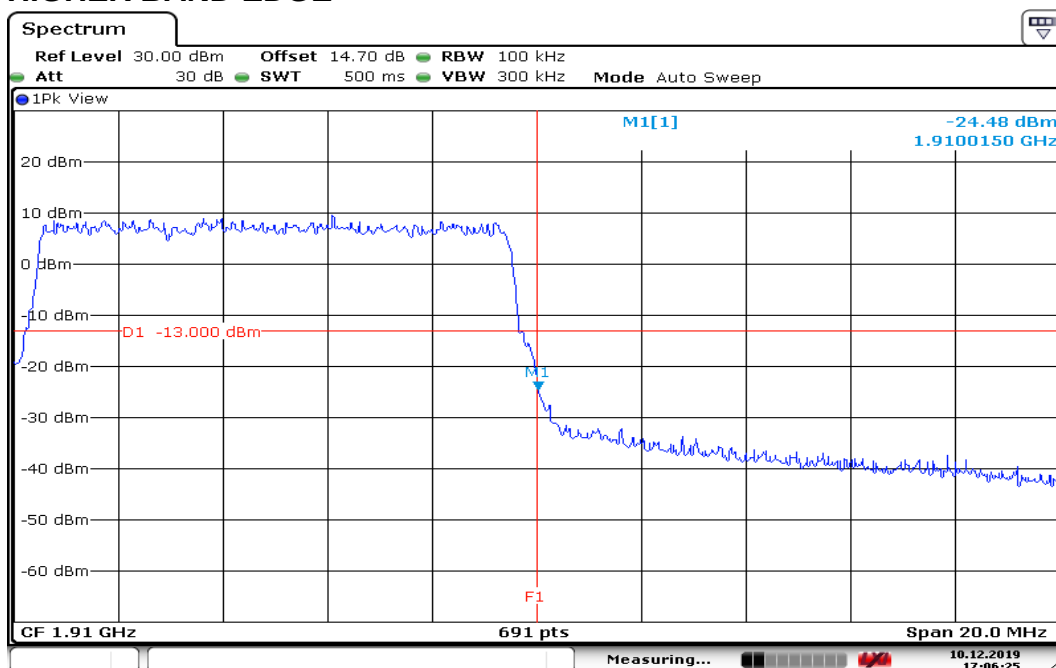
Date: 10.DEC.2019 17:31:22

## CHANNEL BANDWIDTH: 10MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



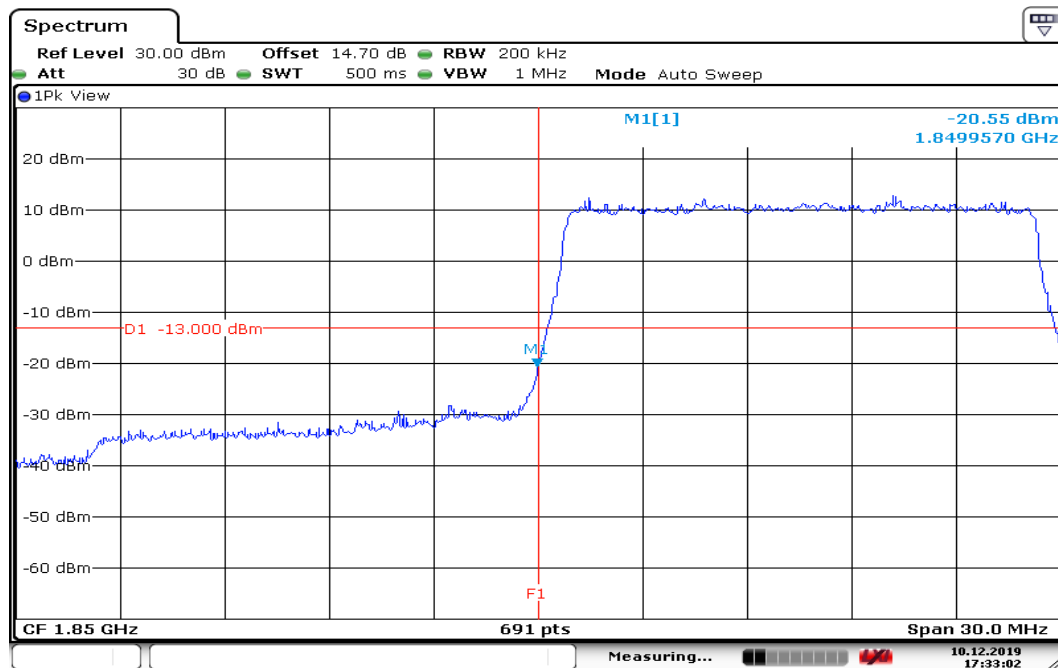
Date: 10.DEC.2019 17:07:23

## HIGHER BAND EDGE



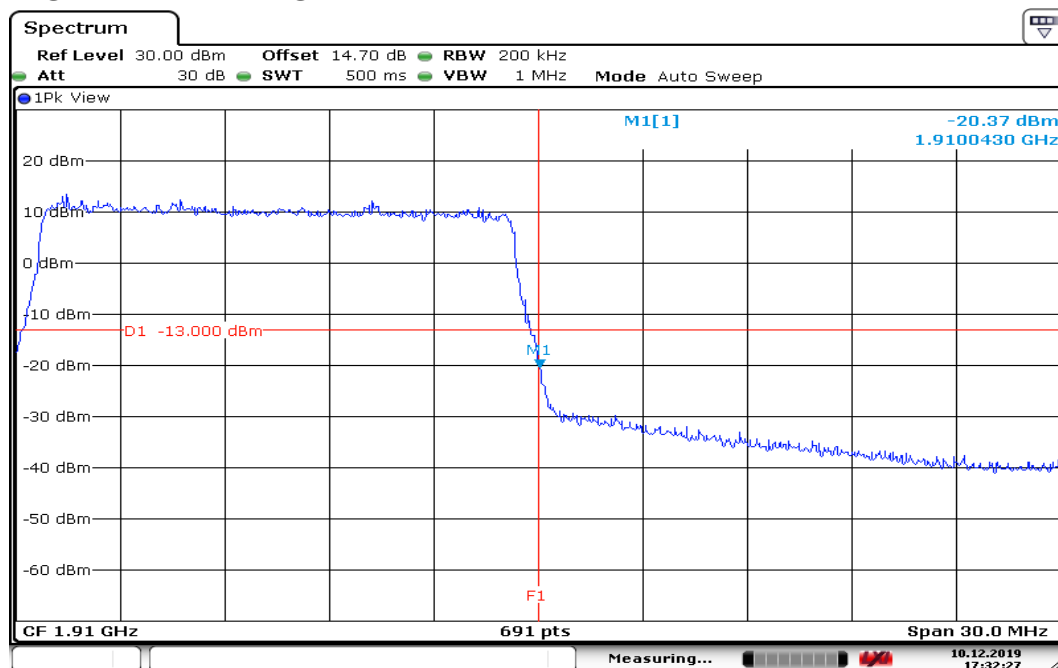
Date: 10.DEC.2019 17:06:25

## CHANNEL BANDWIDTH: 15MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



Date: 10.DEC.2019 17:33:02

## HIGHER BAND EDGE

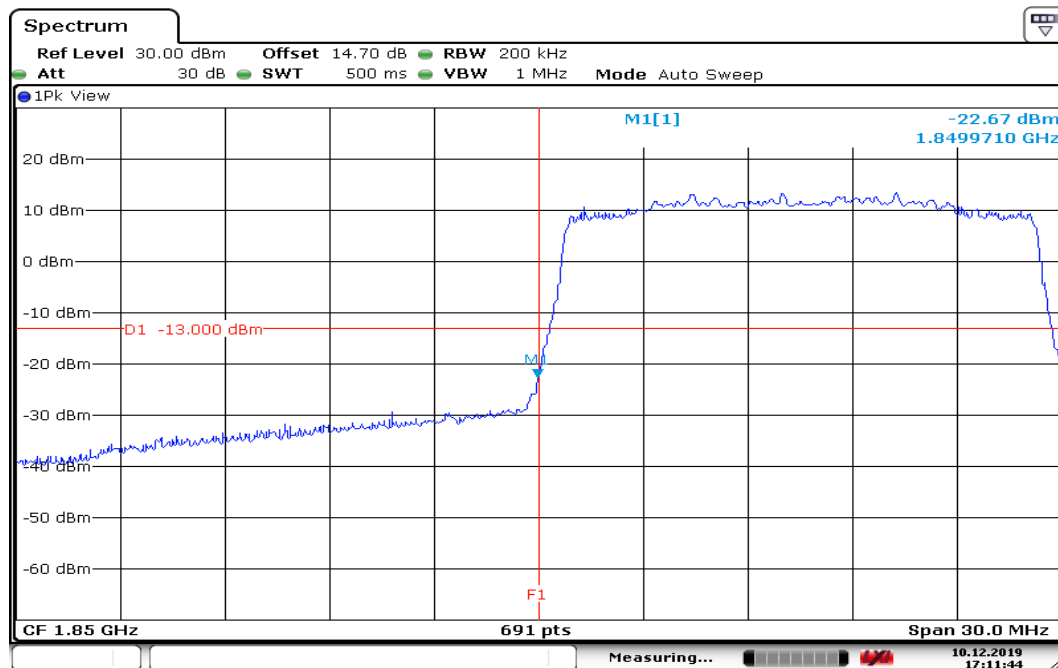


Date: 10.DEC.2019 17:32:28



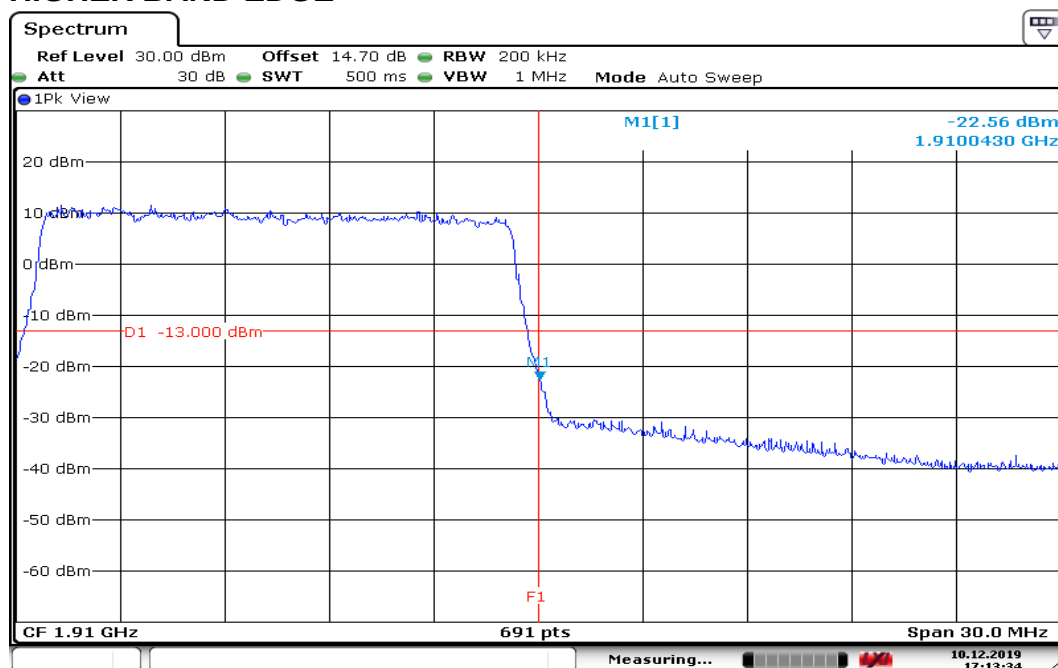
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 15MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



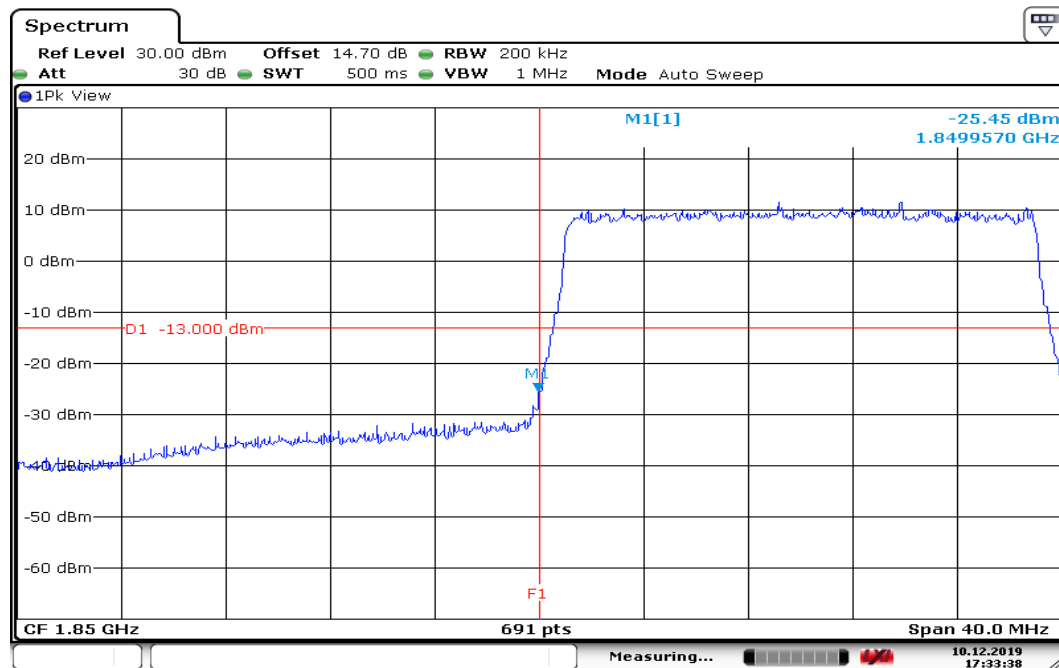
Date: 10.DEC.2019 17:11:44

## HIGHER BAND EDGE



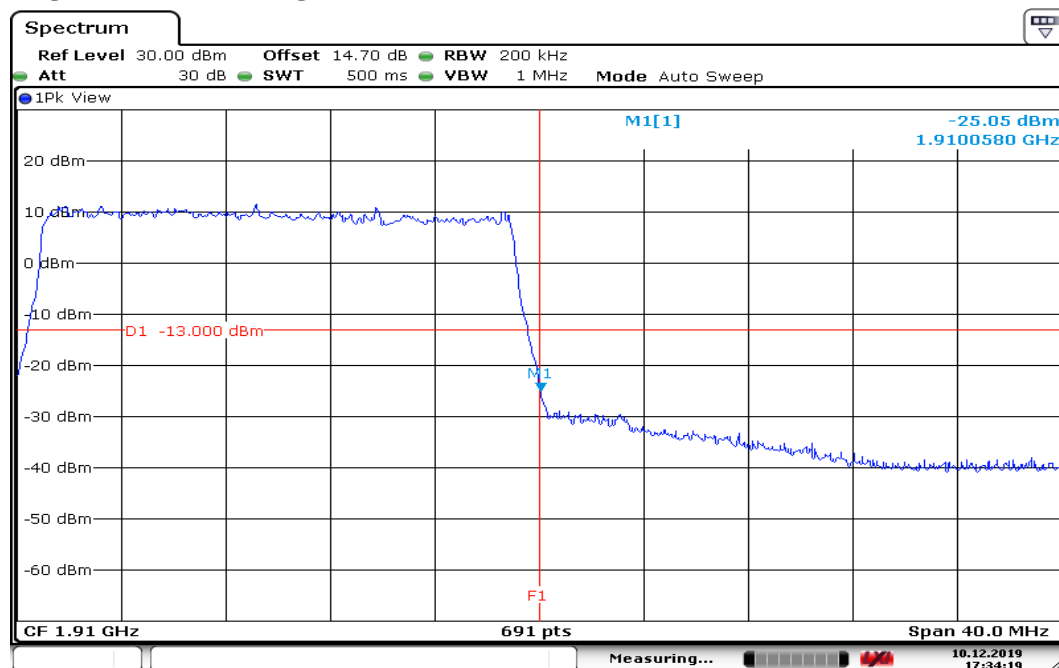
Date: 10.DEC.2019 17:13:34

## CHANNEL BANDWIDTH: 20MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE



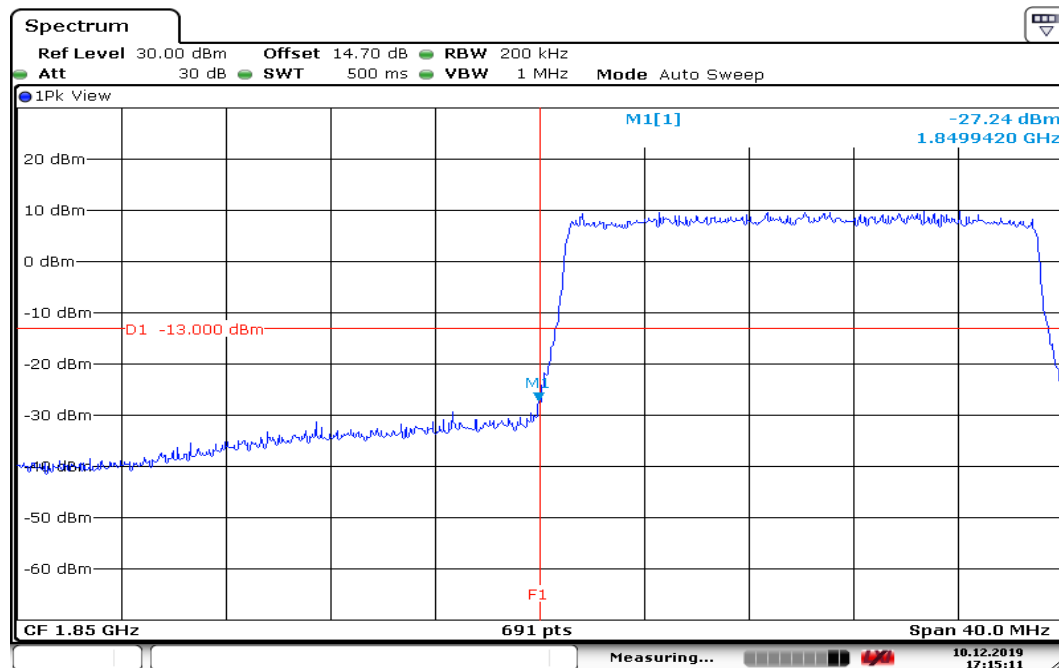
Date: 10.DEC.2019 17:33:39

## HIGHER BAND EDGE



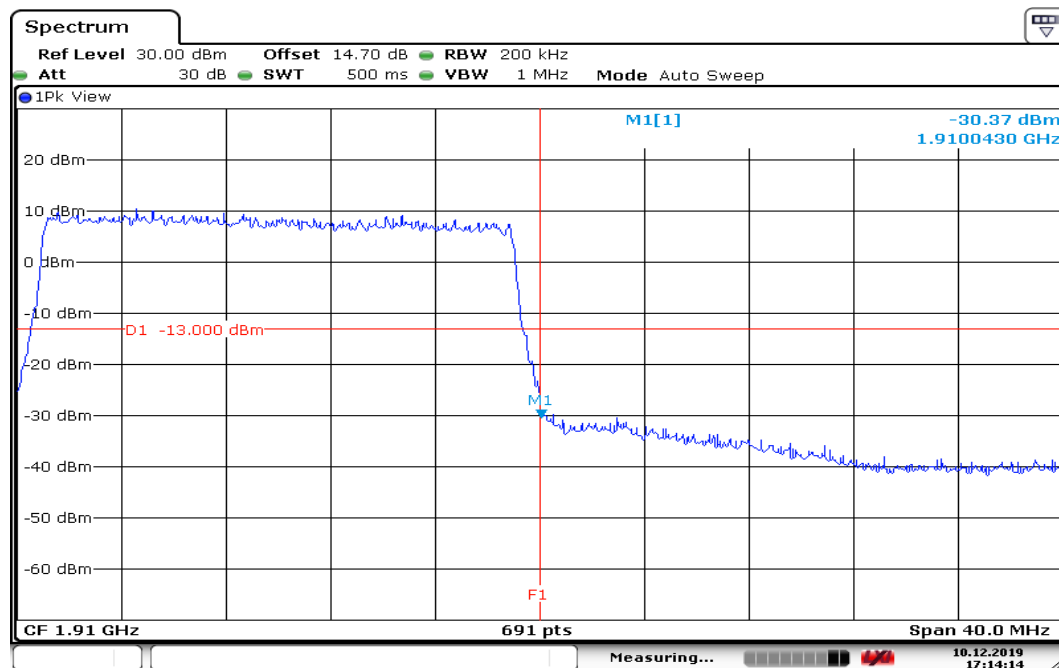
Date: 10.DEC.2019 17:34:19

## CHANNEL BANDWIDTH: 20MHz / 16QAM / 100% RB ALLOCATED LOWER BAND EDGE



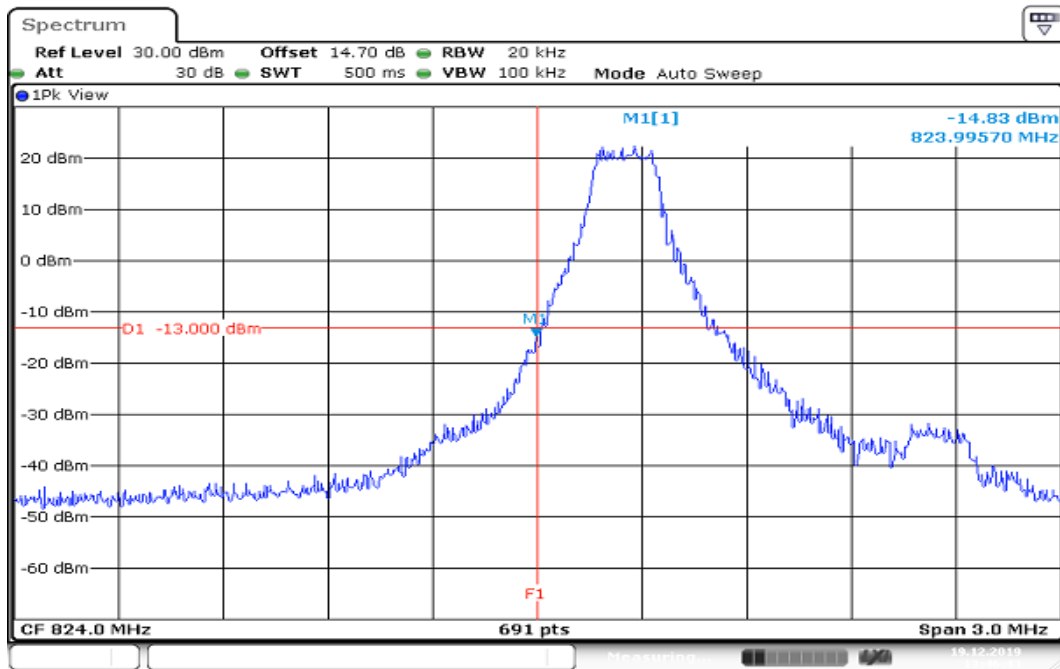
Date: 10.DEC.2019 17:15:11

## HIGHER BAND EDGE

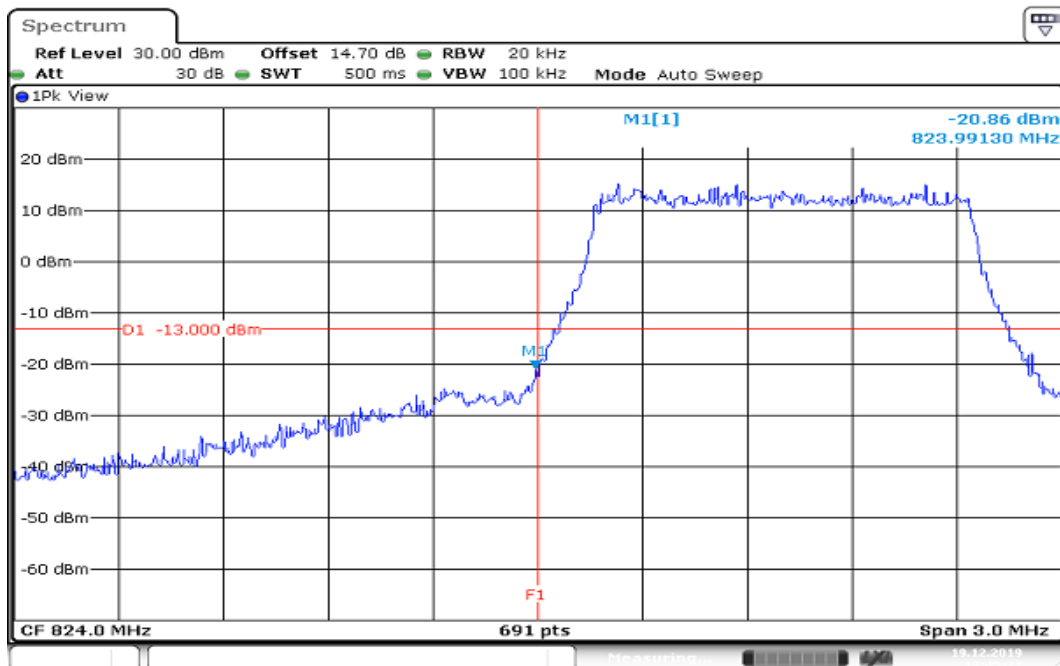


Date: 10.DEC.2019 17:14:15

Report No.: T191105W01-RP8

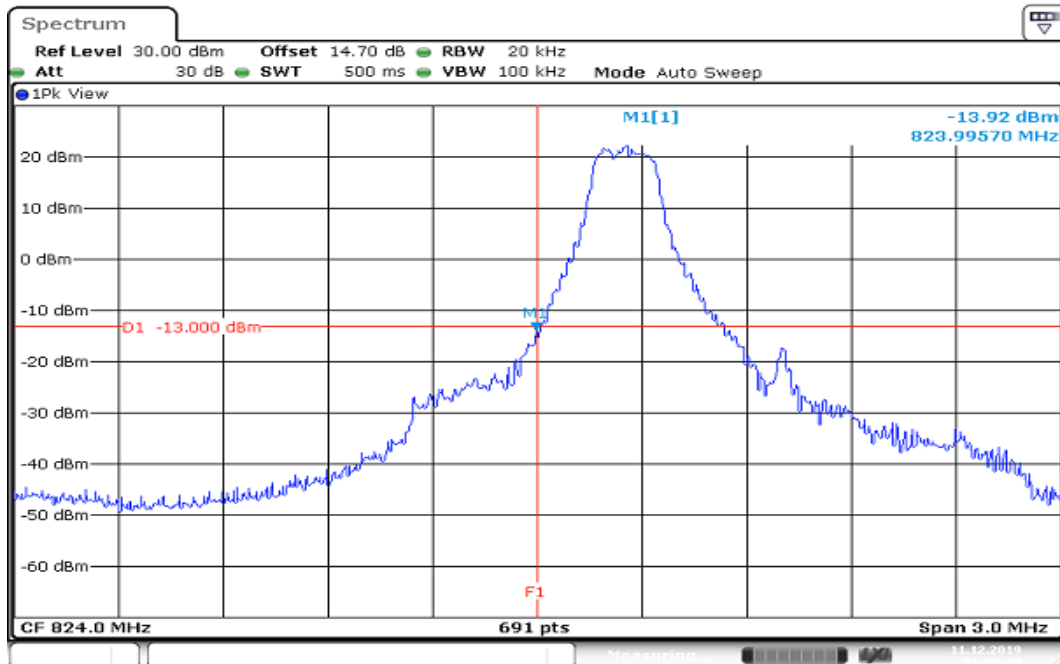
**LTE Band 5****CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB ALLOCATED****LOWER BAND EDGE**

Date: 19.DEC.2019 13:46:43

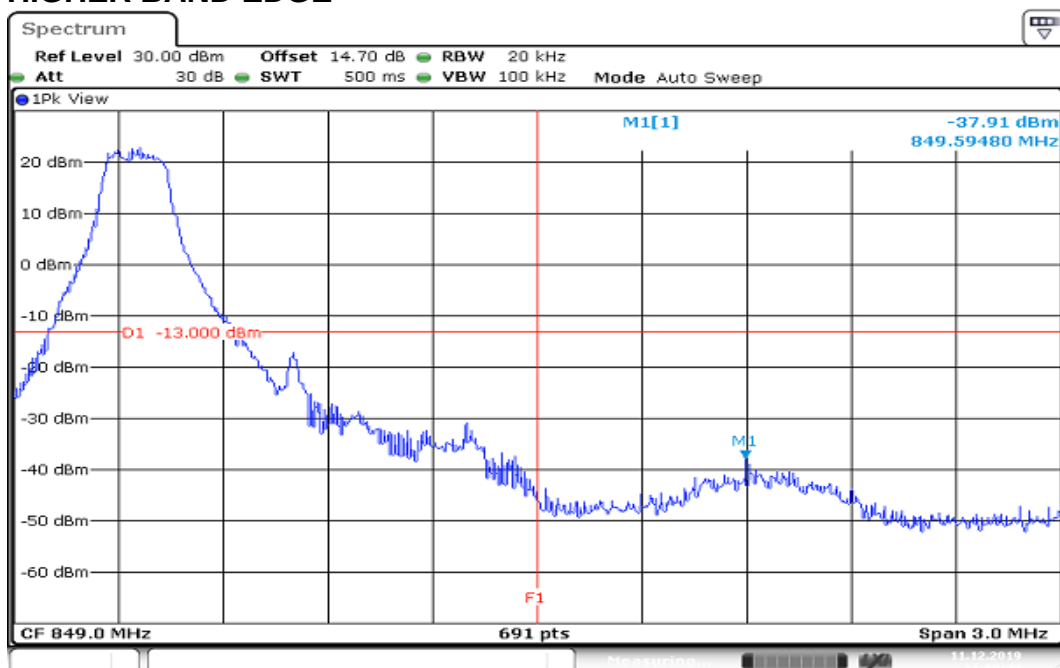
**HIGHER BAND EDGE**

Date: 19.DEC.2019 13:45:38

Report No.: T191105W01-RP8

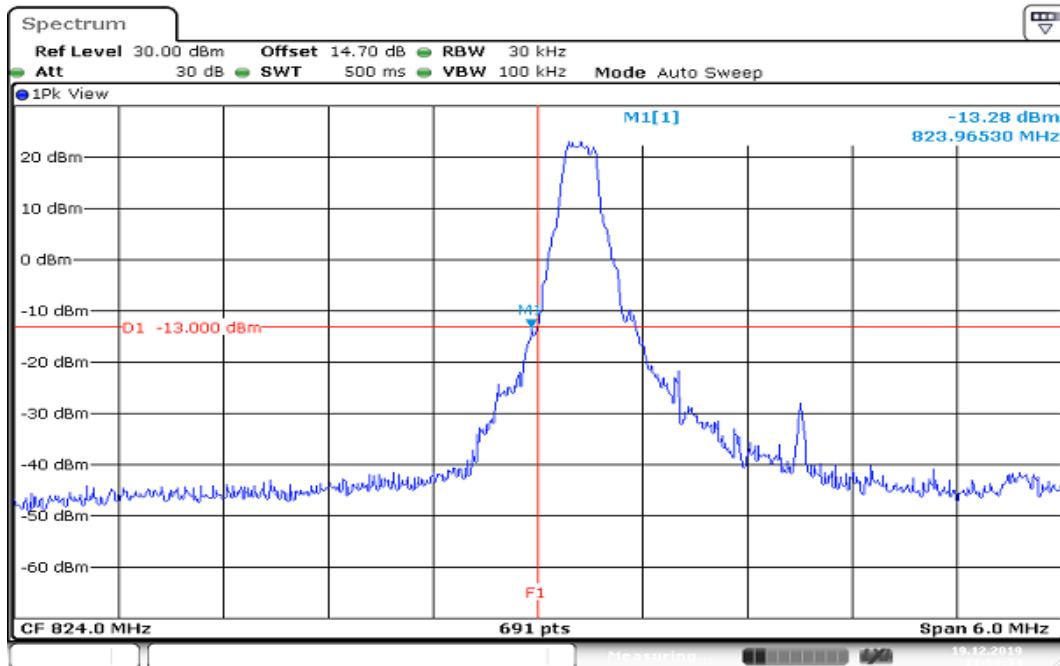
**CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB ALLOCATED  
LOWER BAND EDGE**

Date: 11.DEC.2019 11:06:31

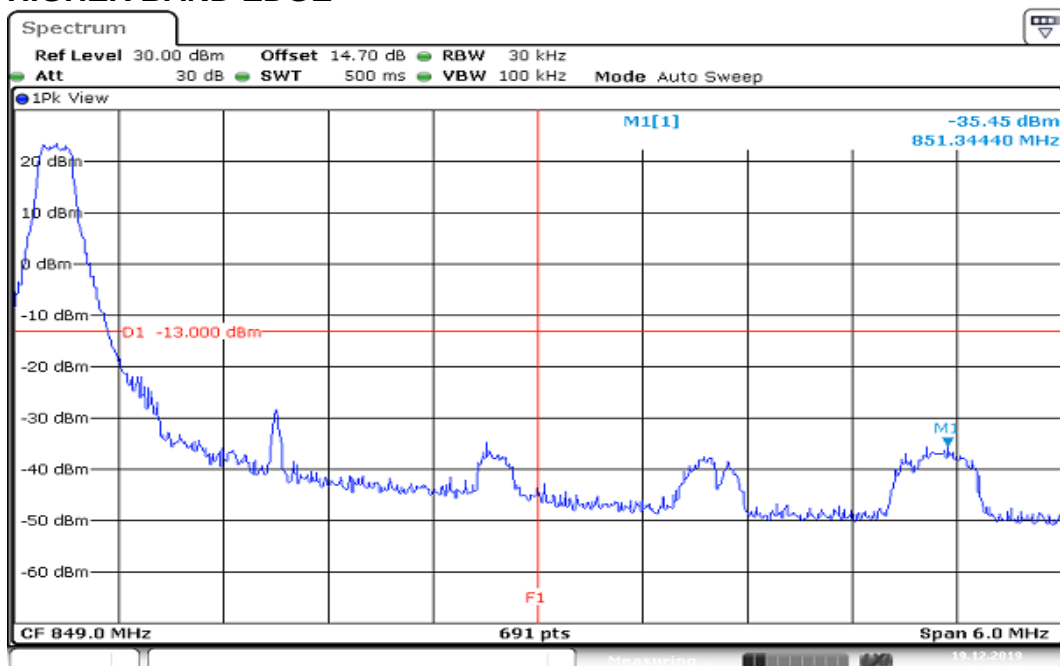
**HIGHER BAND EDGE**

Date: 11.DEC.2019 11:09:49

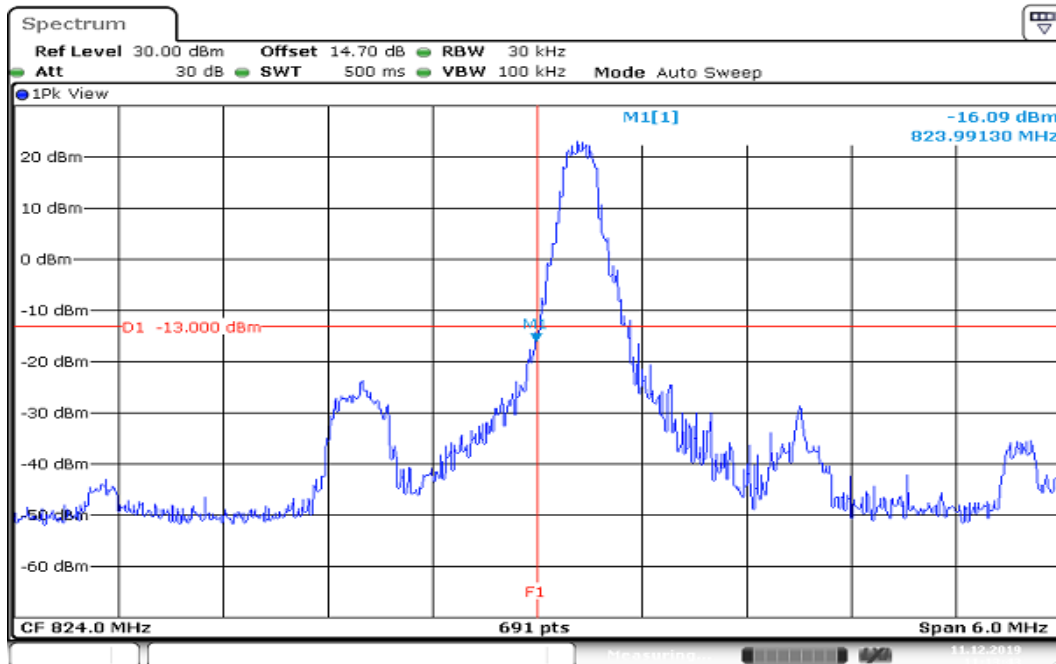
Report No.: T191105W01-RP8

**CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB ALLOCATED  
LOWER BAND EDGE**

Date: 19.DEC.2019 13:53:35

**HIGHER BAND EDGE**

Date: 19.DEC.2019 13:39:11

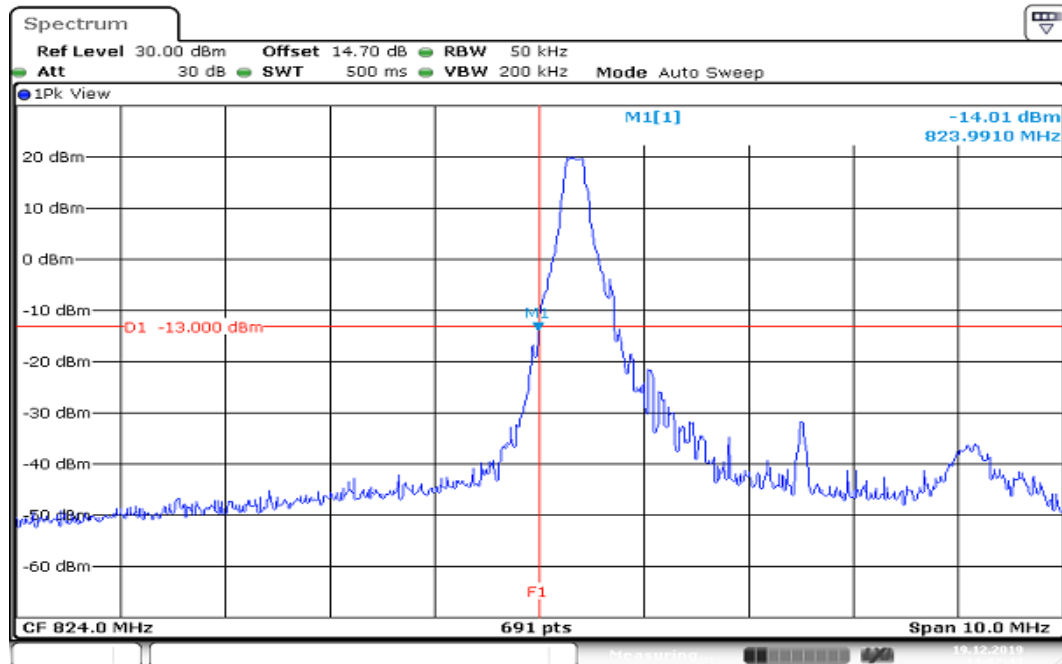
**CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB ALLOCATED  
LOWER BAND EDGE**

Date: 11.DEC.2019 11:13:44

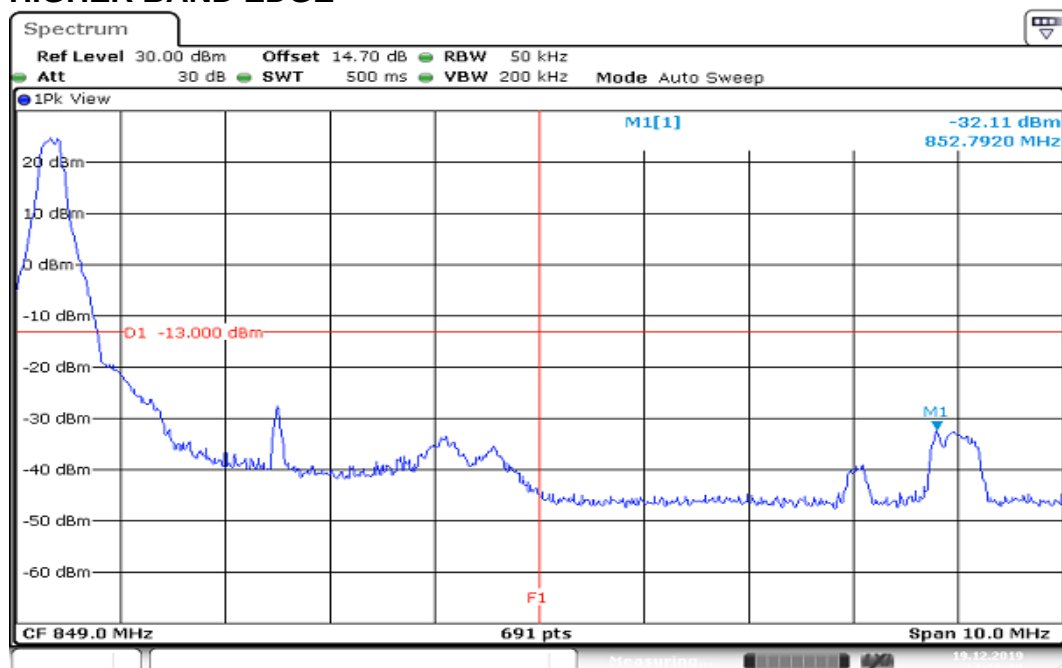
**HIGHER BAND EDGE**

Date: 11.DEC.2019 11:12:41

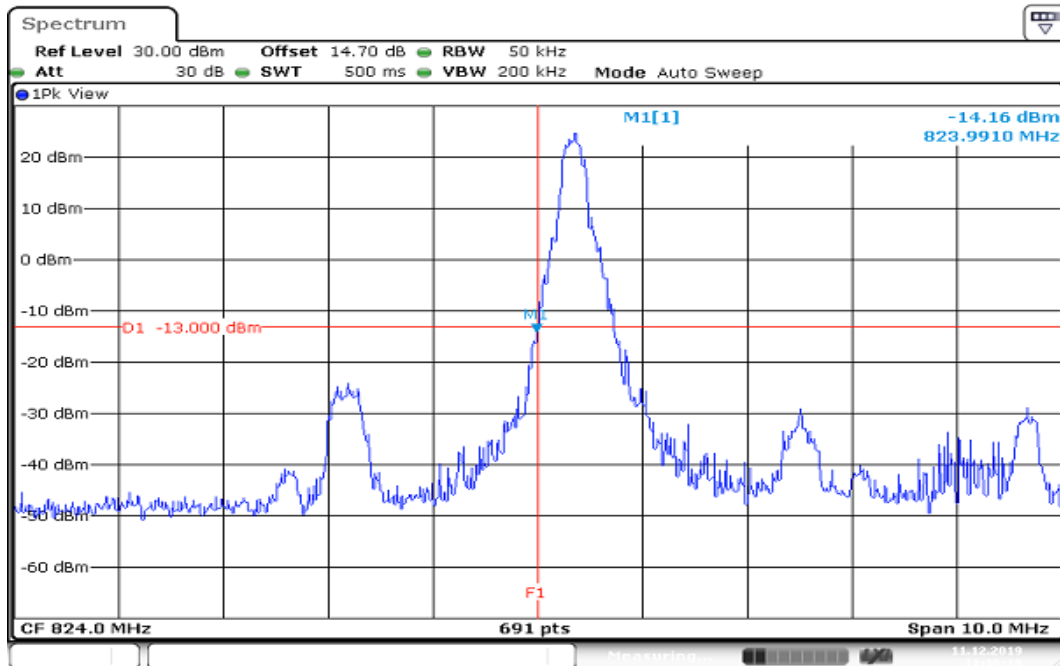
Report No.: T191105W01-RP8

**CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATED  
LOWER BAND EDGE**

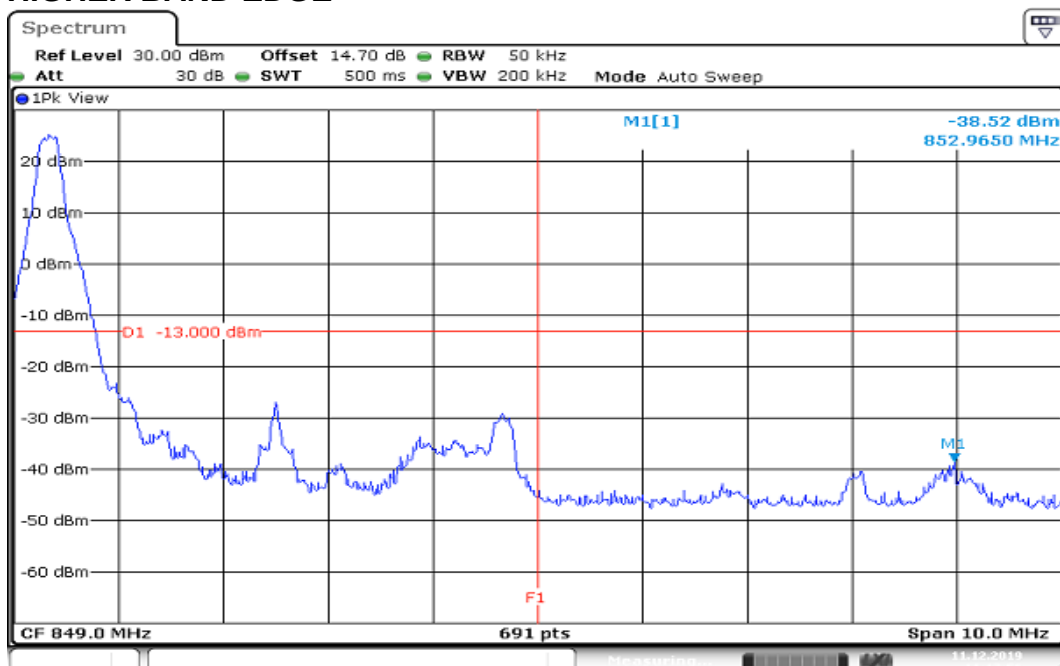
Date: 19.DEC.2019 14:02:44

**HIGHER BAND EDGE**

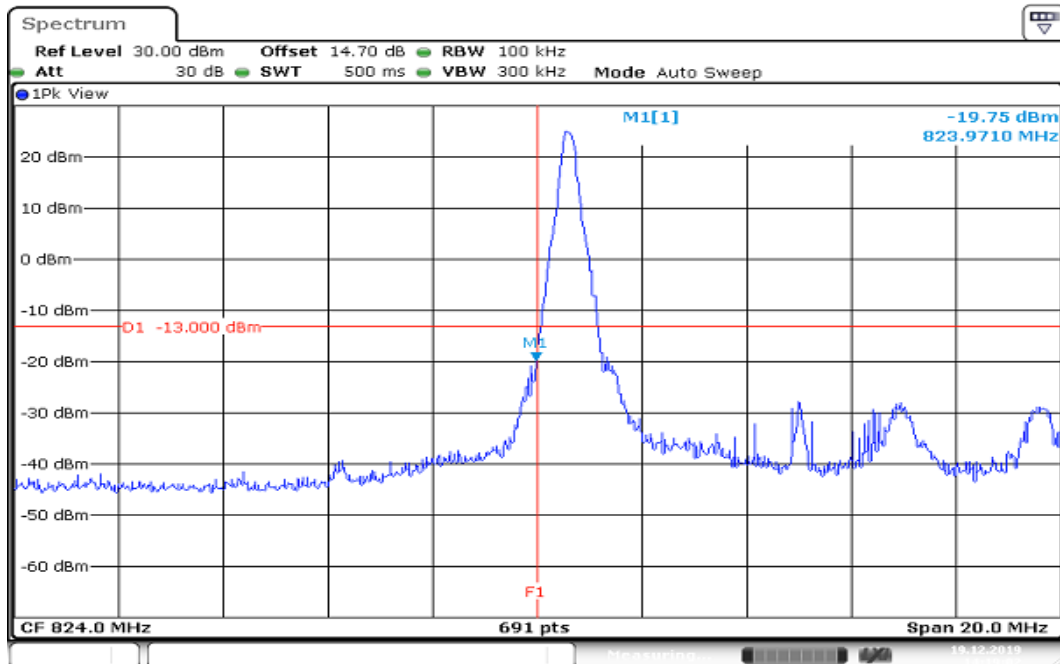
Date: 19.DEC.2019 14:10:29

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB ALLOCATED  
LOWER BAND EDGE**

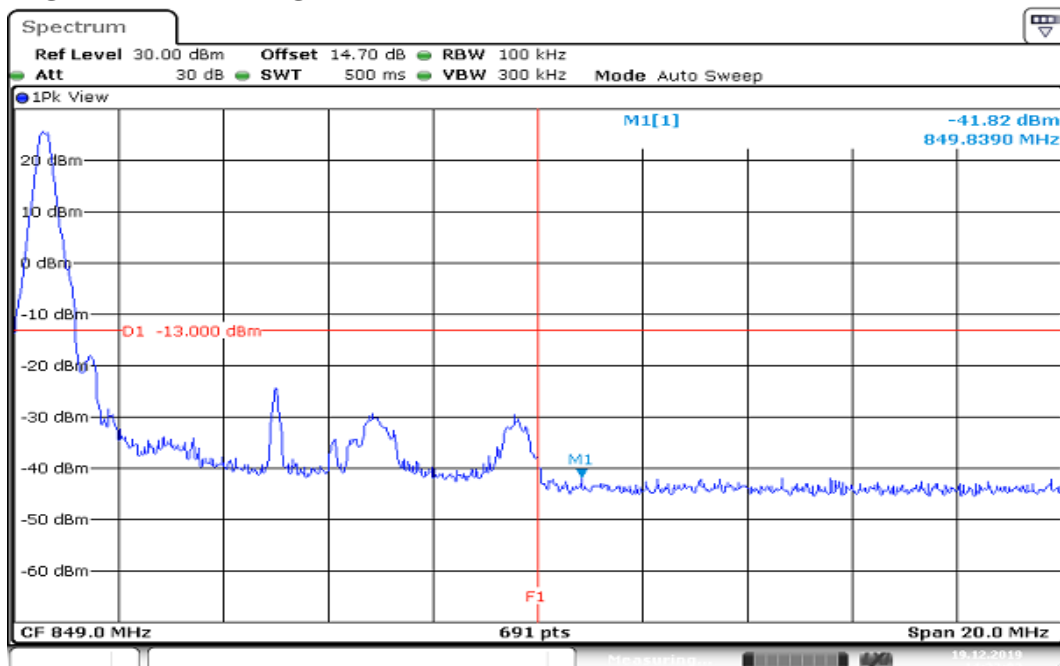
Date: 11.DEC.2019 11:16:19

**HIGHER BAND EDGE**

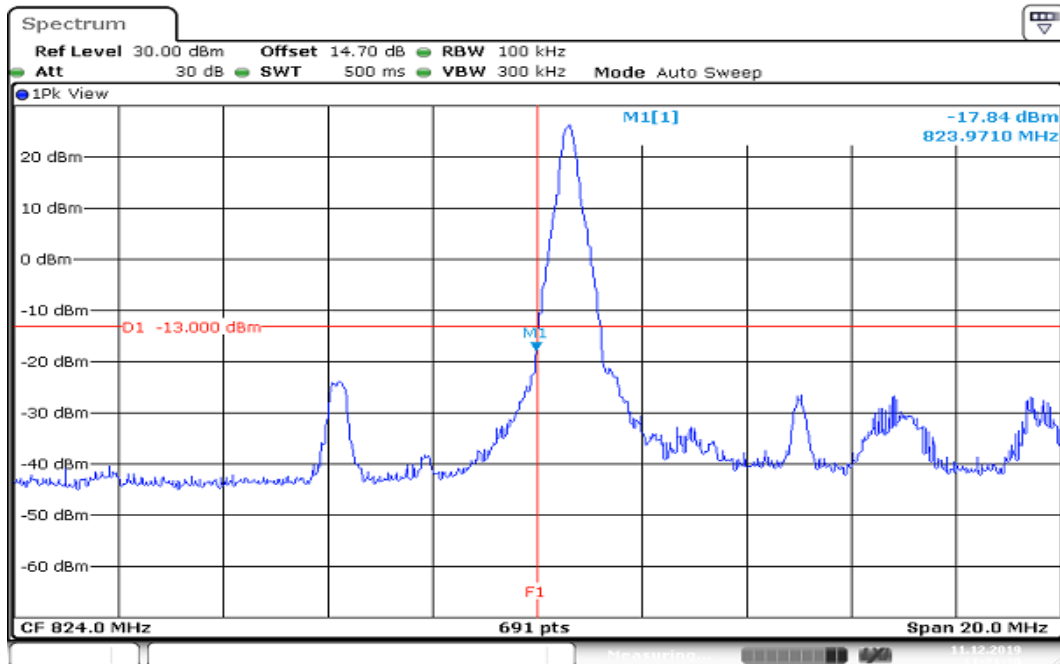
Date: 11.DEC.2019 11:17:57

**CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB ALLOCATED  
LOWER BAND EDGE**

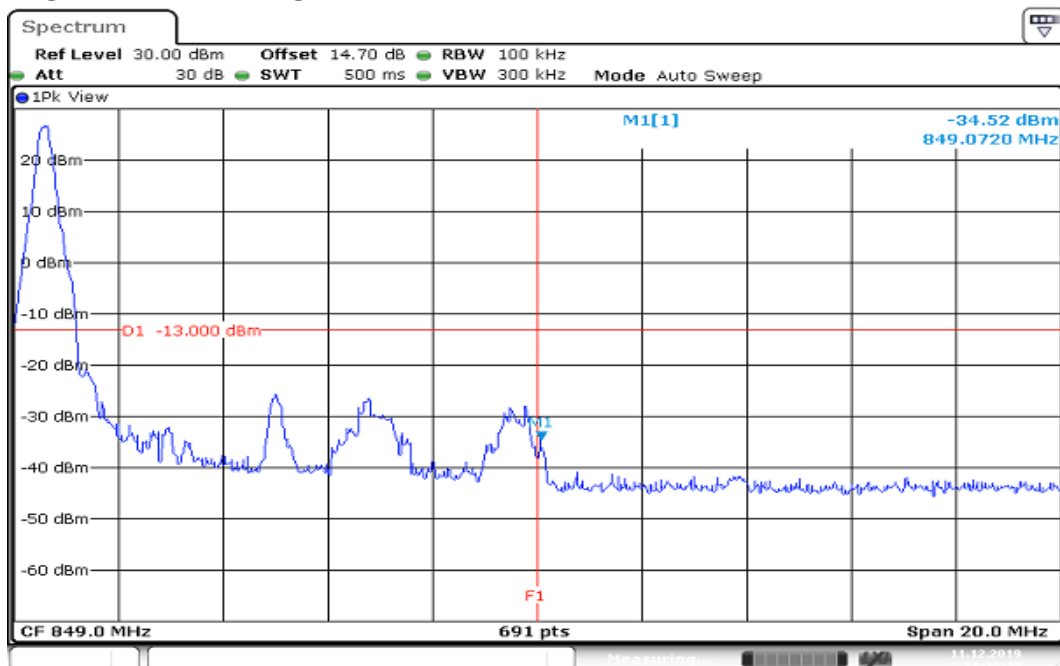
Date: 19.DEC.2019 14:19:03

**HIGHER BAND EDGE**

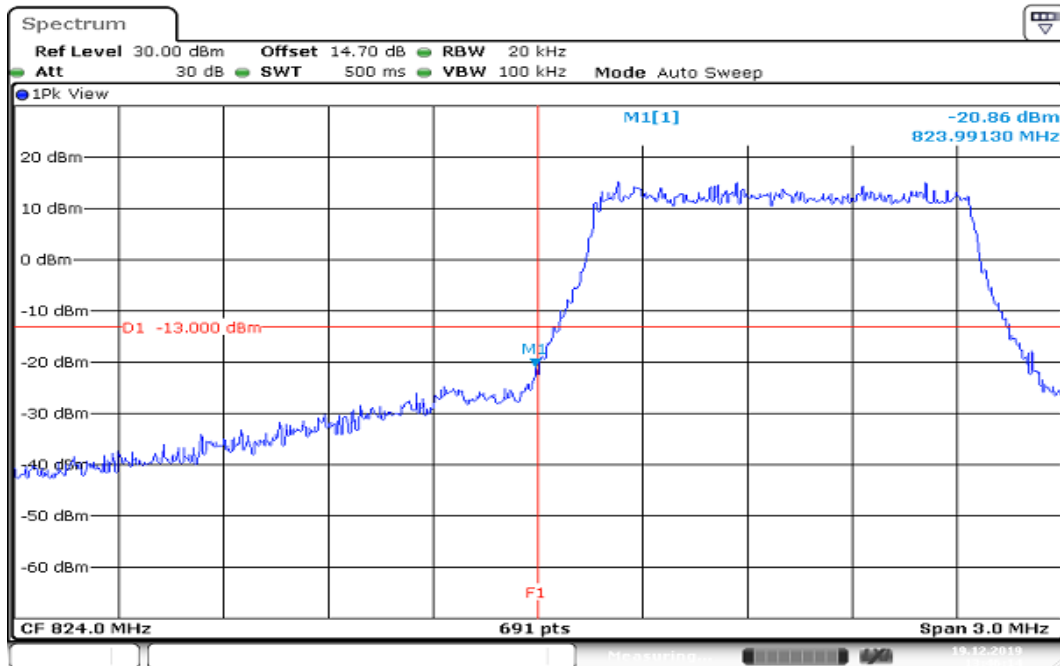
Date: 19.DEC.2019 14:22:03

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB ALLOCATED  
LOWER BAND EDGE**

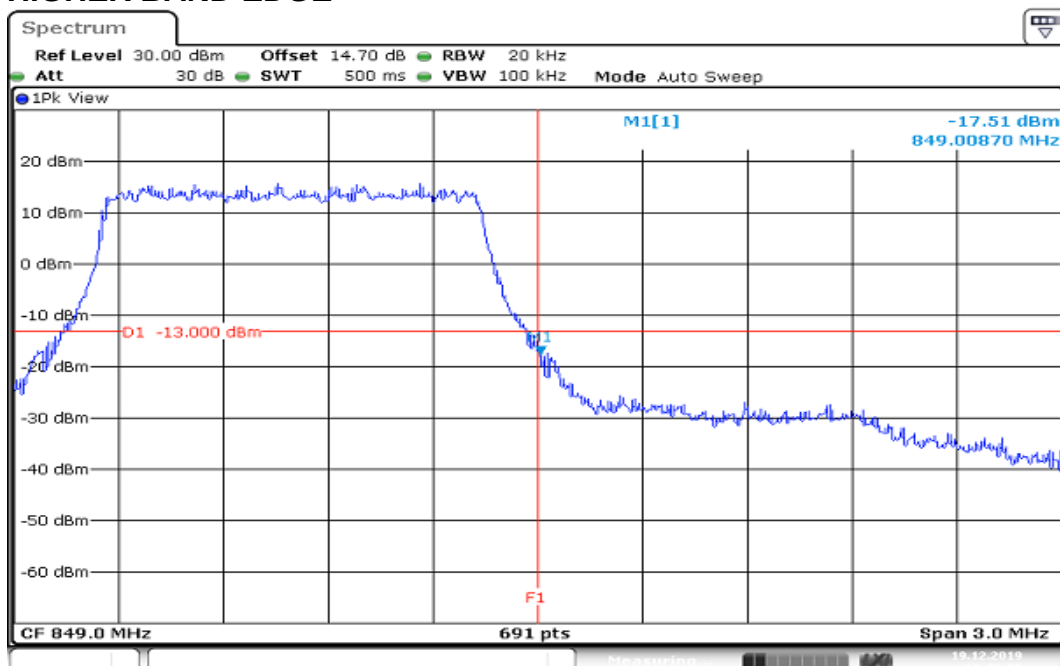
Date: 11.DEC.2019 11:21:31

**HIGHER BAND EDGE**

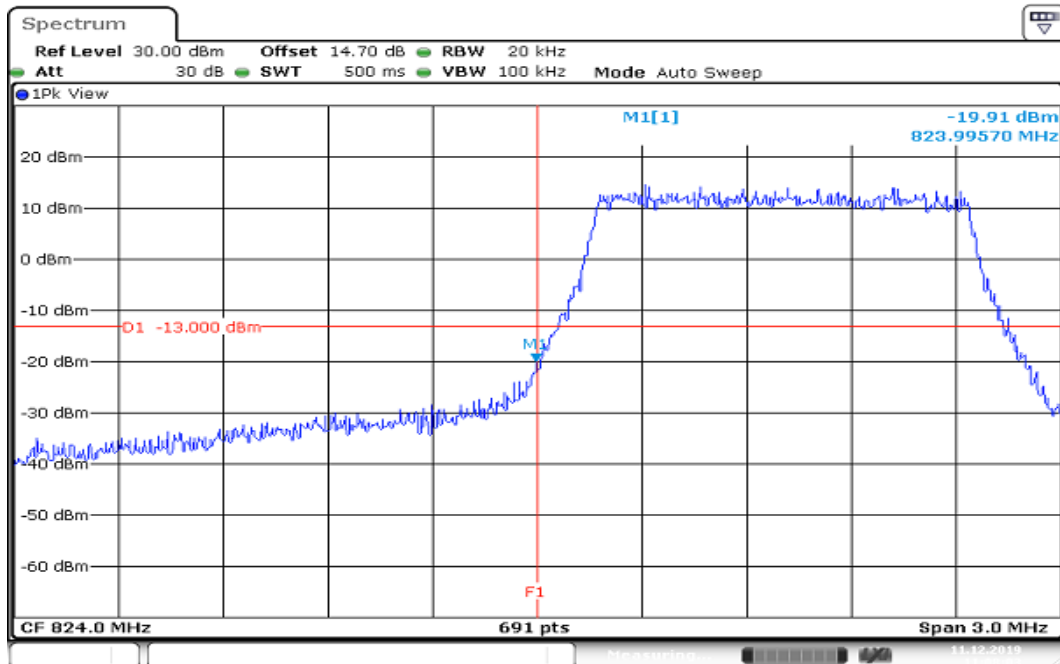
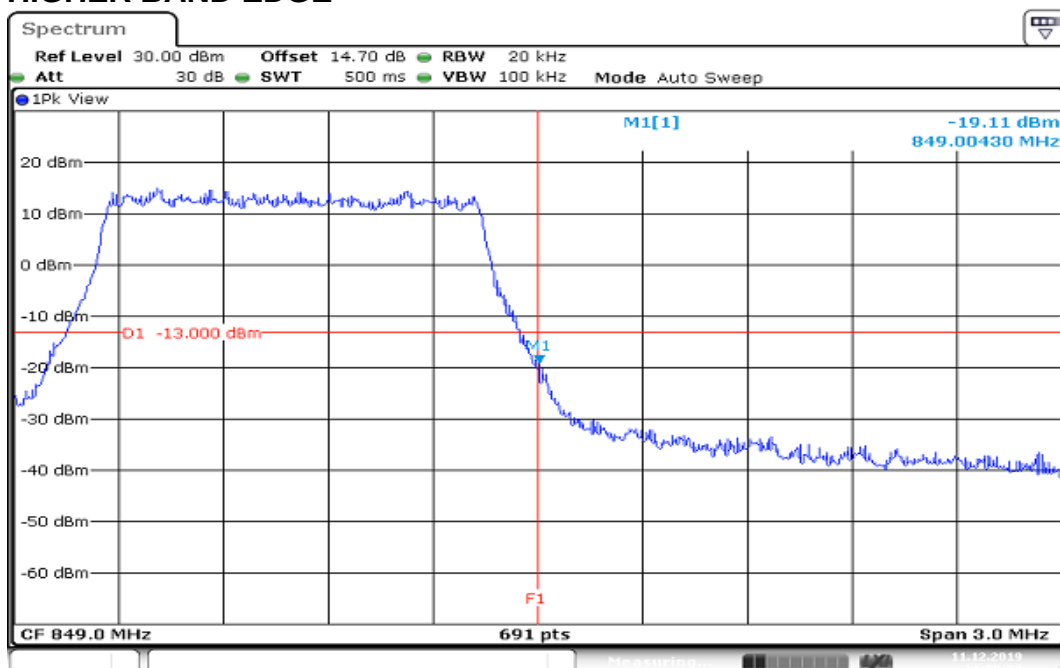
Date: 11.DEC.2019 11:20:34

**CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100% RB ALLOCATED  
LOWER BAND EDGE**

Date: 19.DEC.2019 13:46:14

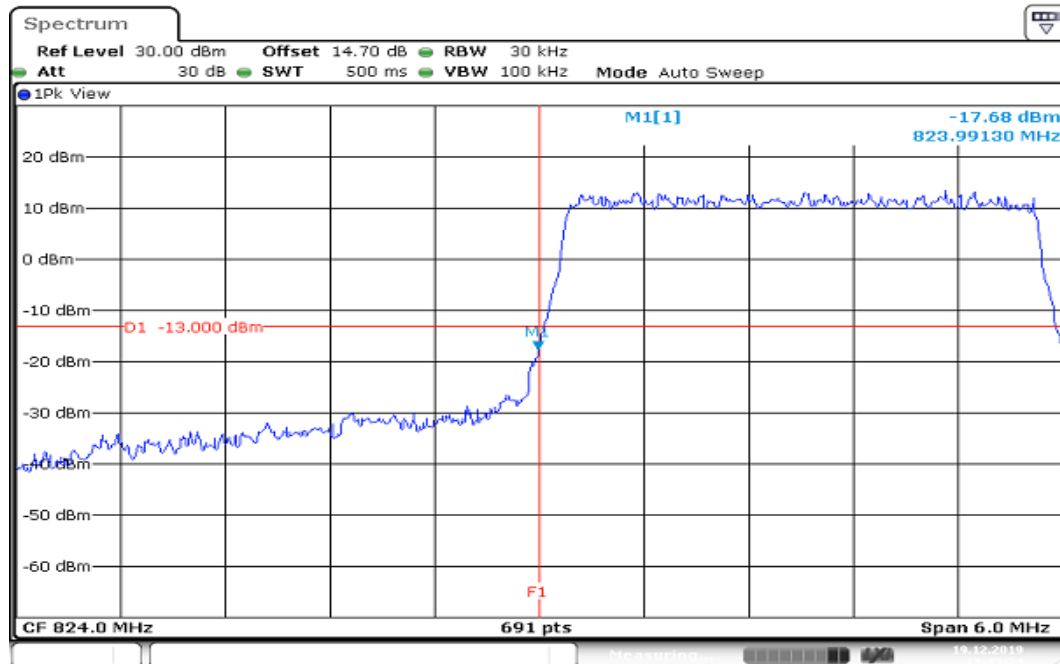
**HIGHER BAND EDGE**

Date: 19.DEC.2019 13:48:05

**CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100% RB ALLOCATED  
LOWER BAND EDGE****HIGHER BAND EDGE**

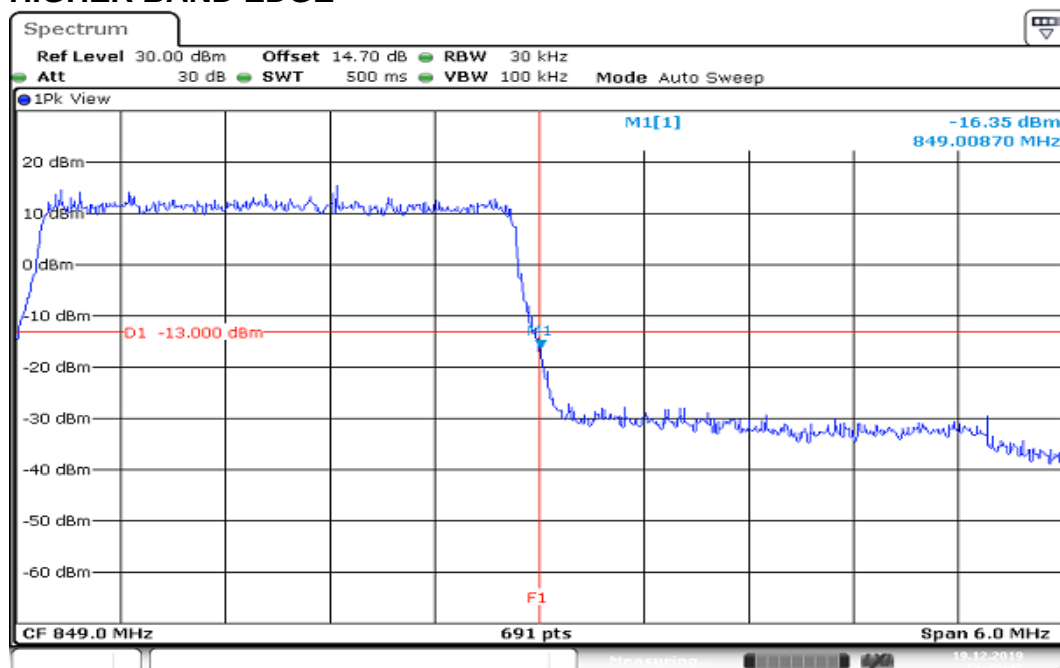
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 3MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE

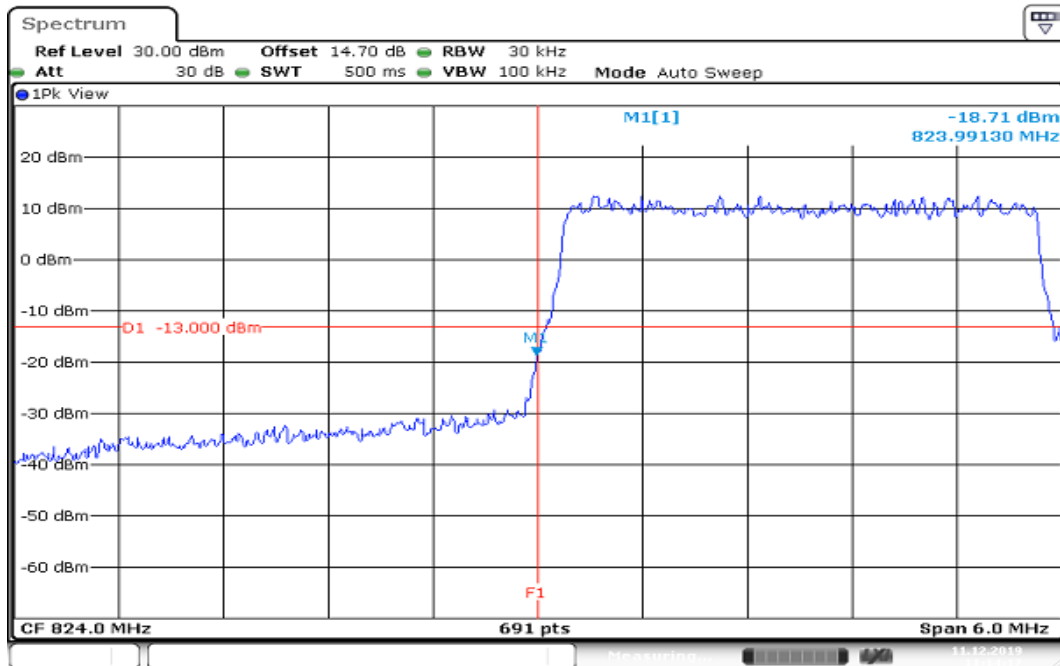


Date: 19.DEC.2019 13:43:25

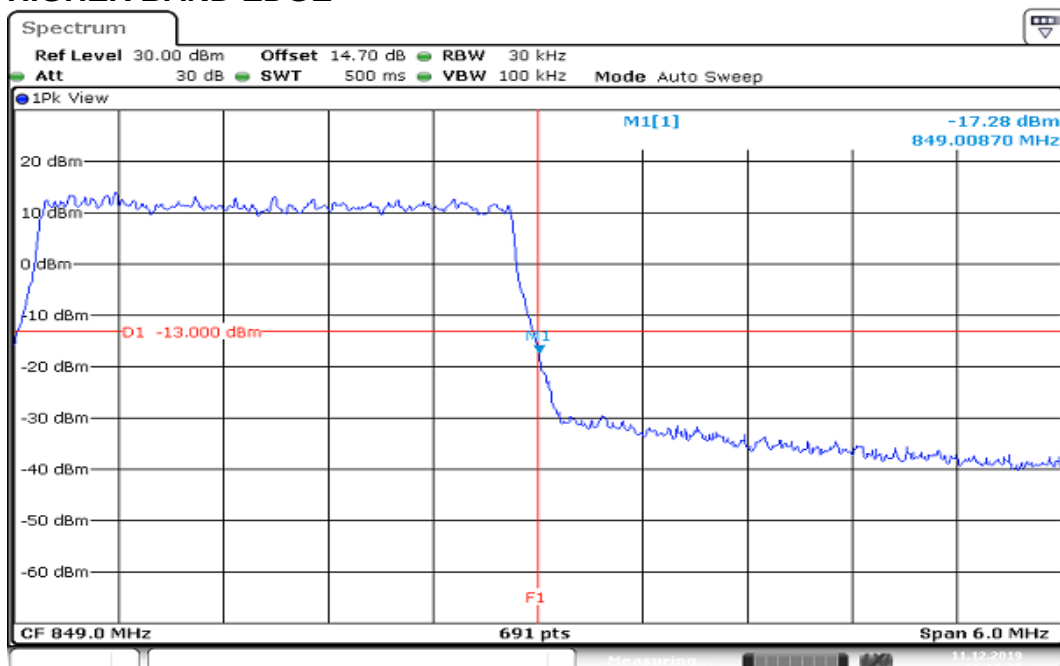
## HIGHER BAND EDGE



Date: 19.DEC.2019 13:40:46

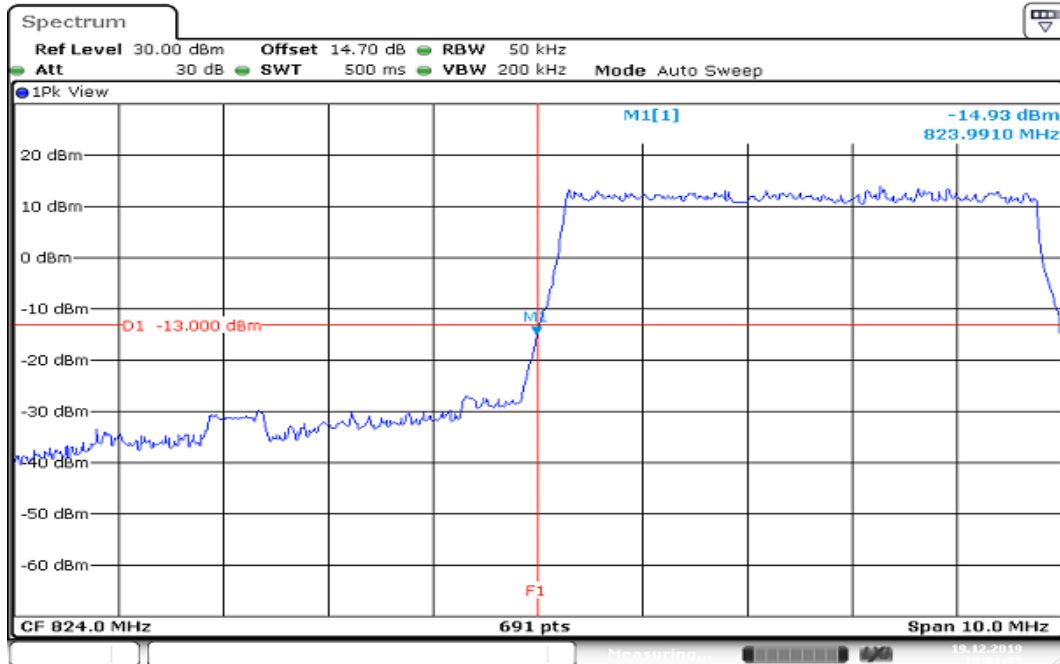
**CHANNEL BANDWIDTH: 3MHz / 16QAM / 100% RB ALLOCATED  
LOWER BAND EDGE**

Date: 11-DEC-2019 11:14:18

**HIGHER BAND EDGE**

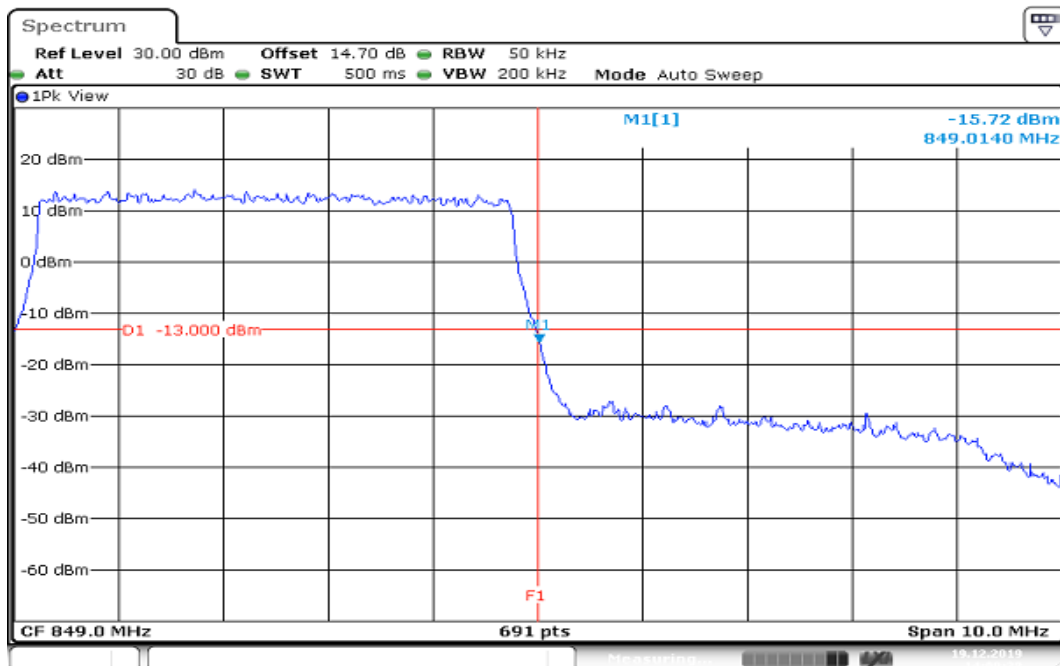
Date: 11-DEC-2019 11:11:38

## CHANNEL BANDWIDTH: 5MHz / QPSK / 100% RB ALLOCATED LOWER BAND EDGE

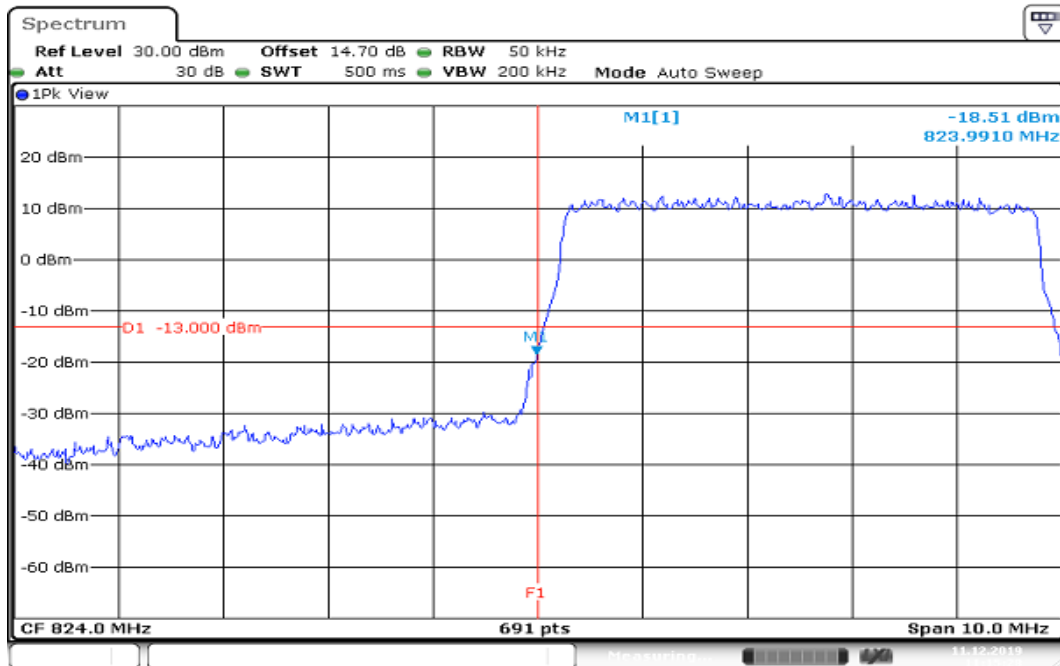


Date: 19.DEC.2019 14:01:34

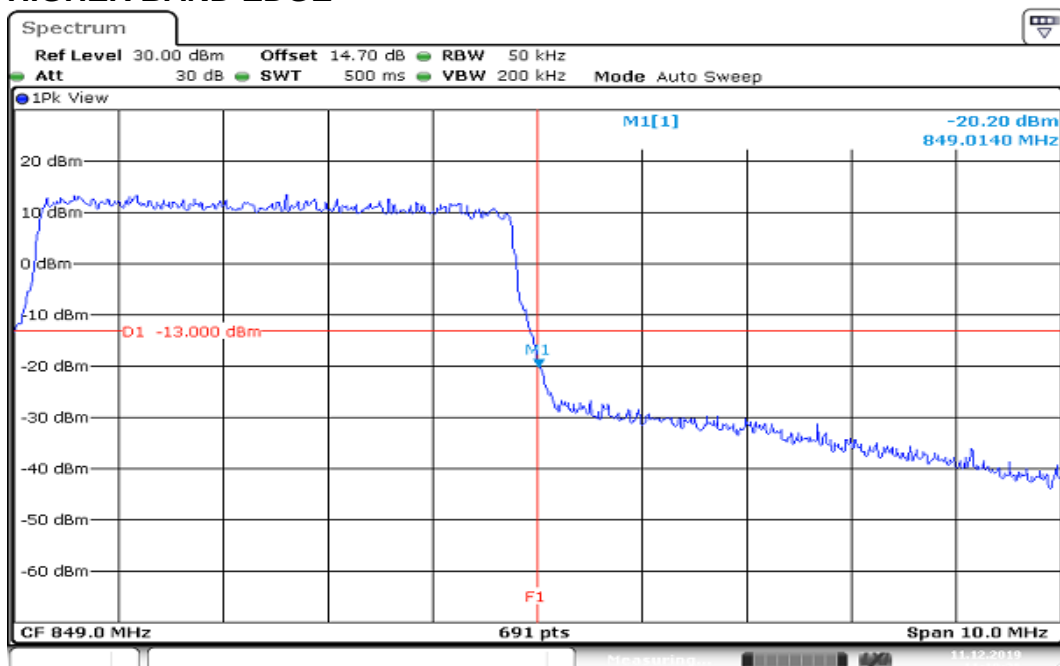
## HIGHER BAND EDGE



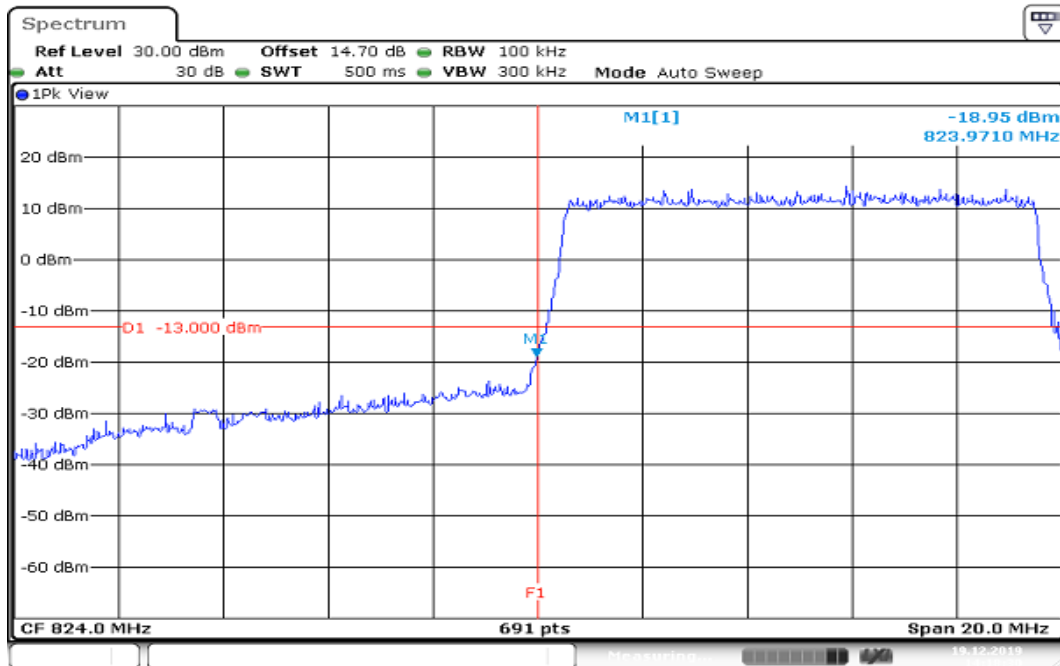
Date: 19.DEC.2019 14:09:39

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 100% RB ALLOCATED  
LOWER BAND EDGE**

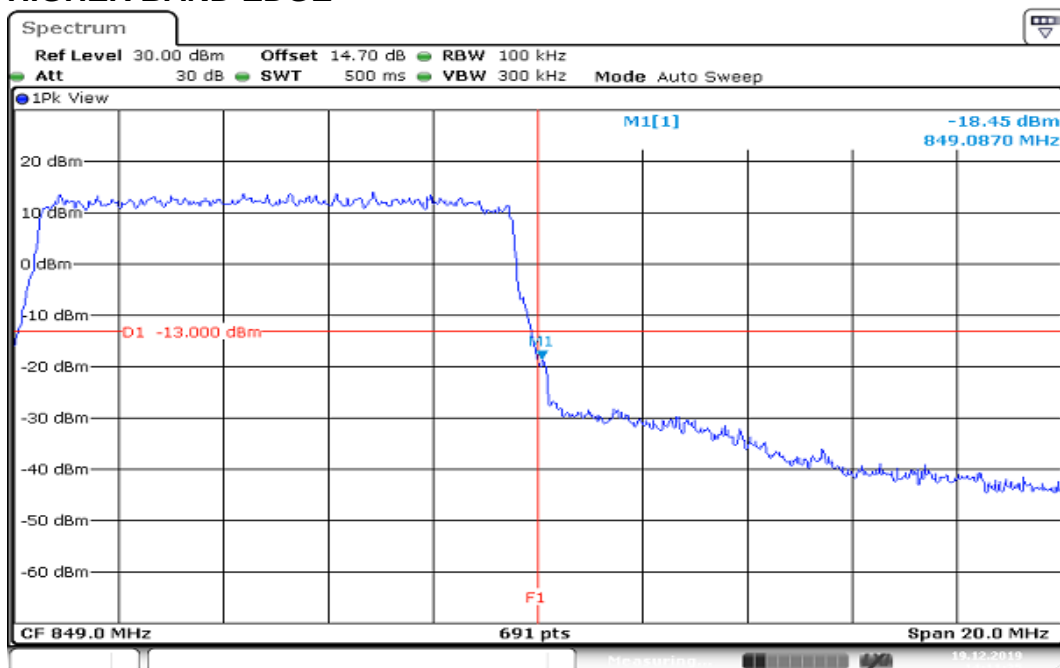
Date: 11.DEC.2019 11:15:29

**HIGHER BAND EDGE**

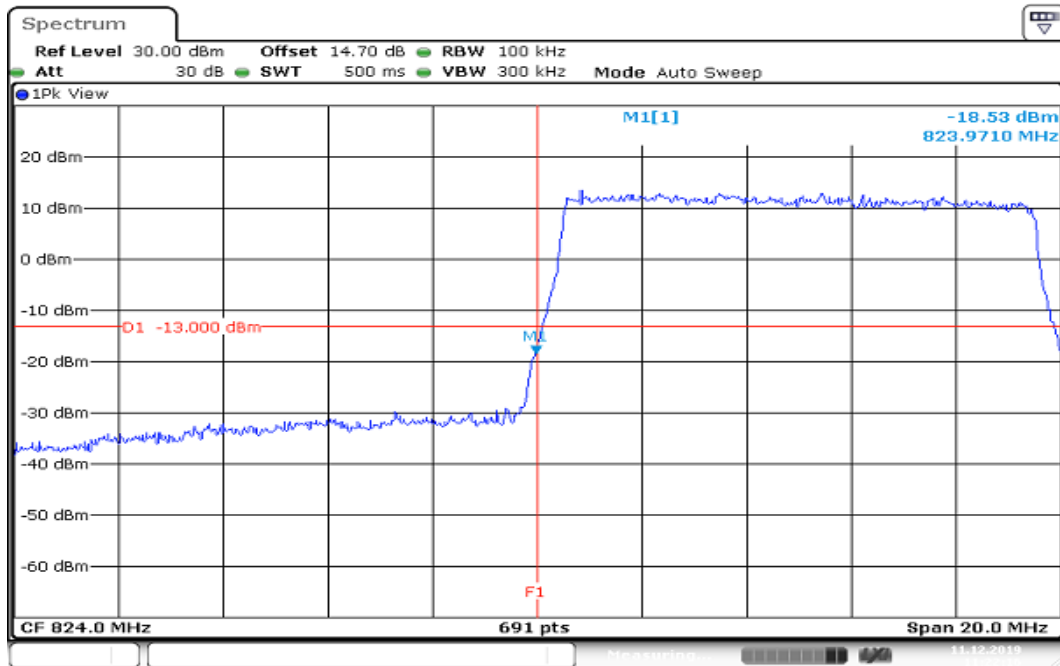
Date: 11.DEC.2019 11:18:37

**CHANNEL BANDWIDTH: 10MHz / QPSK / 100% RB ALLOCATED  
LOWER BAND EDGE**

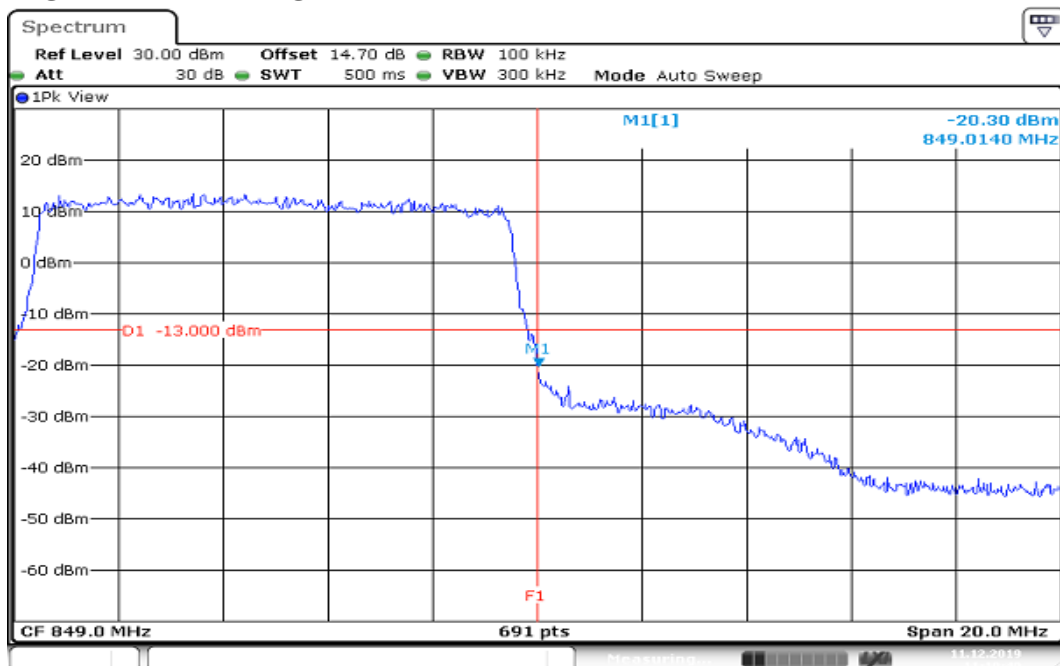
Date: 19.DEC.2019 14:18:31

**HIGHER BAND EDGE**

Date: 19.DEC.2019 14:11:36

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 100% RB ALLOCATED  
LOWER BAND EDGE**

Date: 11.DEC.2019 11:22:17

**HIGHER BAND EDGE**

Date: 11.DEC.2019 11:19:50

## 8.6 CONDUCTED SPURIOUS EMISSIONS

### Limits

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

### Test Procedures

1. According to KDB 971168 D01,
2. The EUT was connect to spectrum analyzer and call box.
3. The RF output of EUT was connected to the spectrum analyzer.
4. Set the spectrum analyzer , RBW=1MHz, VBW=3MHz.
5. Record the maximum spurious emission.
6. The fundamental frequency should be excluded against the limit in operating band.

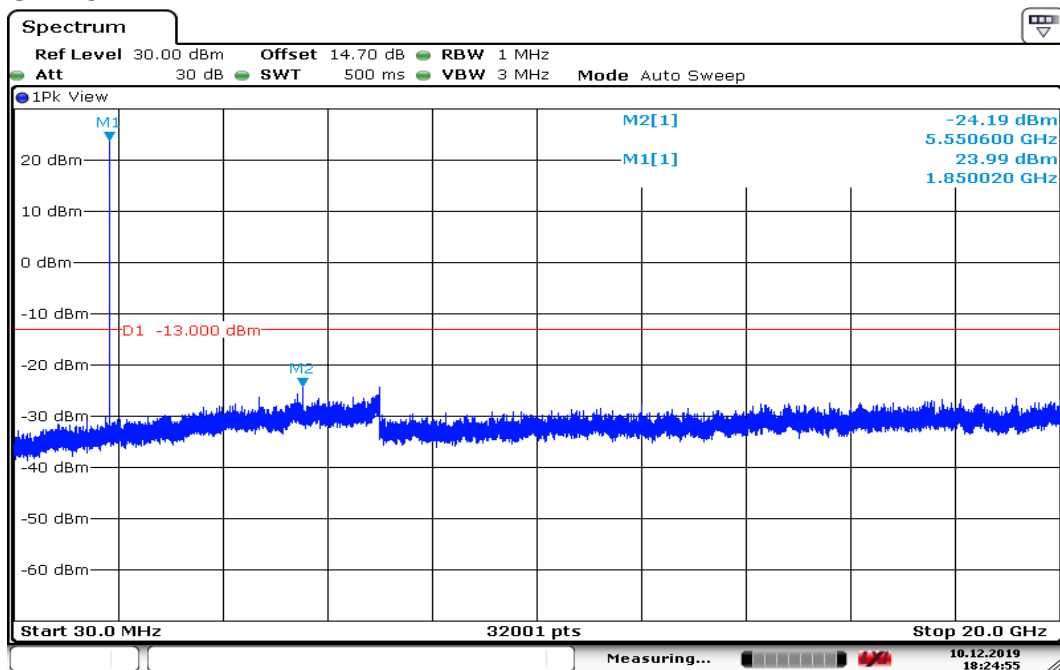
Report No.: T191105W01-RP8

## Test Results

### LTE Band 2

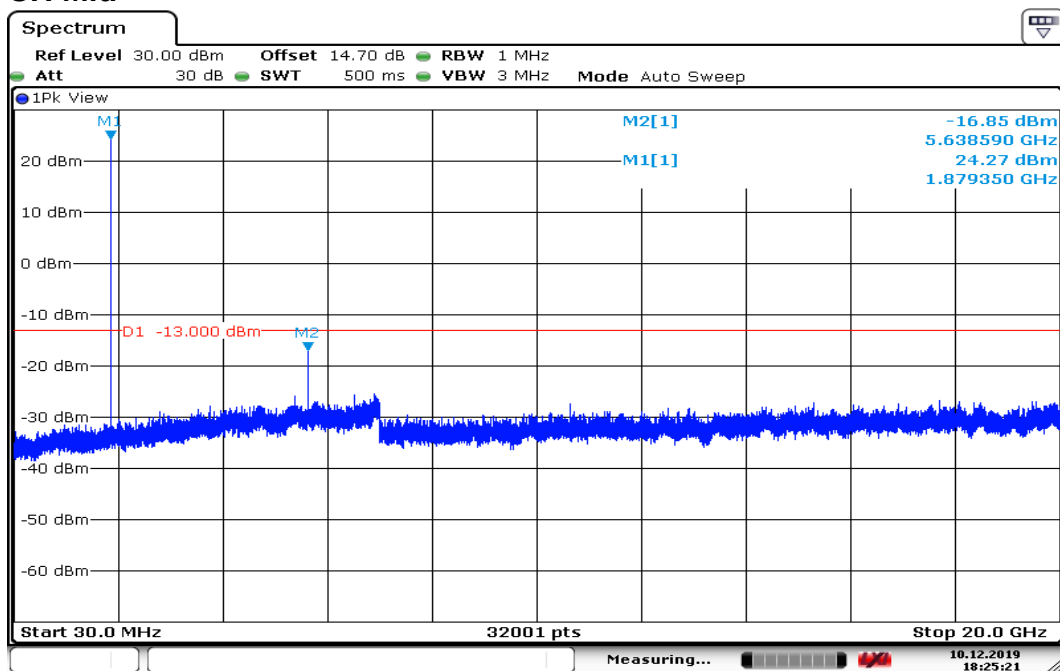
CHANNEL BANDWIDTH: 1.4MHz / QPSK

#### CH Low



Date: 10.DEC.2019 18:24:55

#### CH Mid



Date: 10.DEC.2019 18:25:21

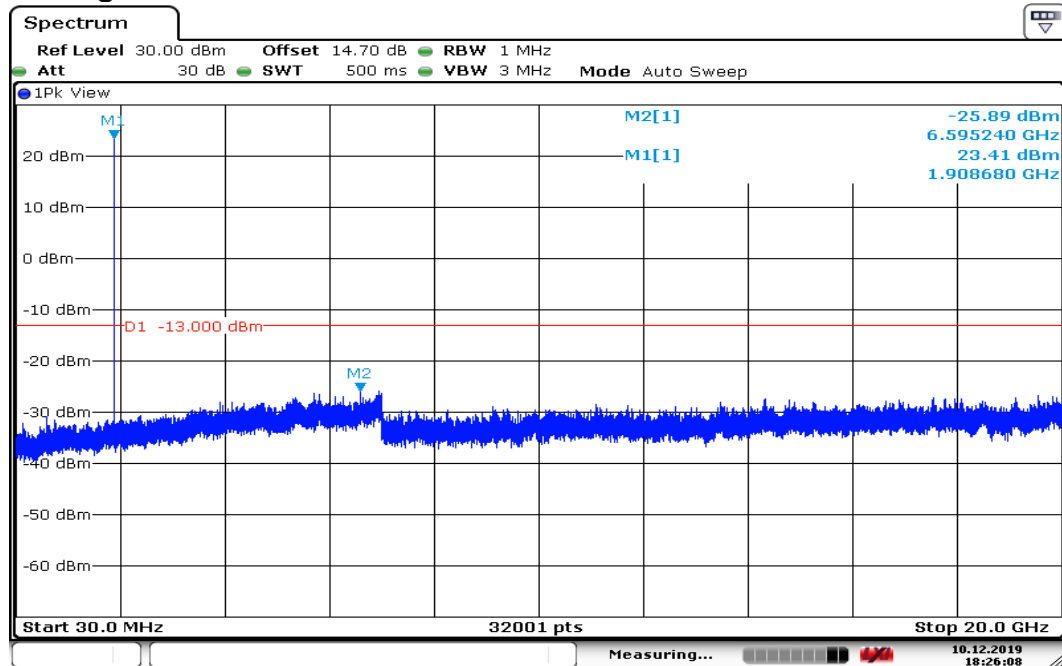


Report No.: T191105W01-RP8

Page: 123 / 175

Rev.: 00

## CH High

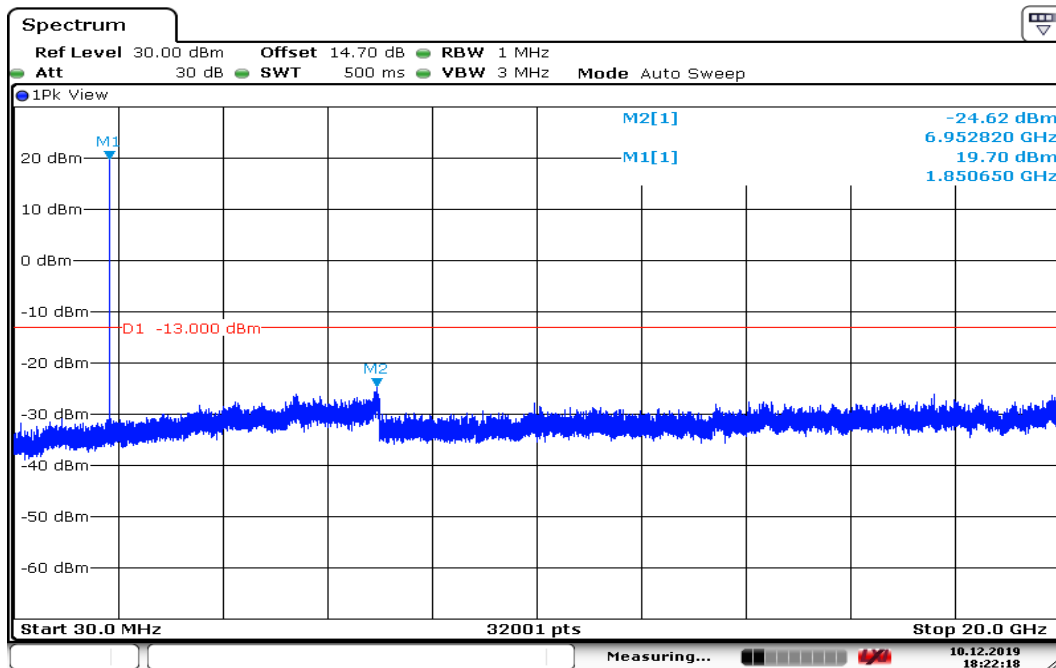


Date: 10.DEC.2019 18:26:08

Report No.: T191105W01-RP8

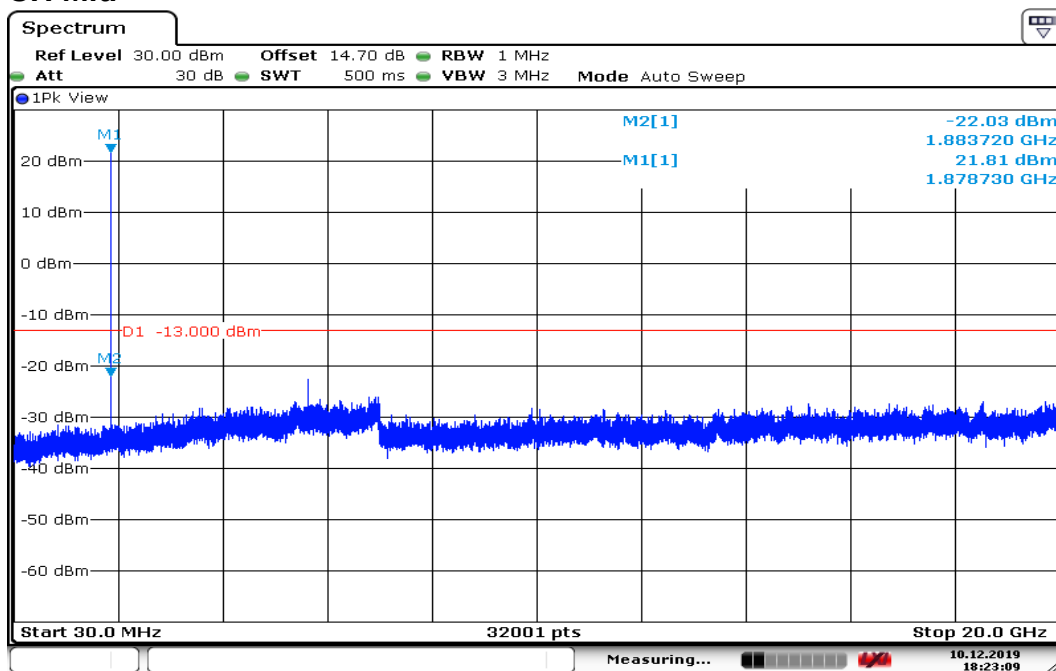
## CHANNEL BANDWIDTH: 3MHz / QPSK

### CH Low



Date: 10.DEC.2019 18:22:18

### CH Mid



Date: 10.DEC.2019 18:23:09

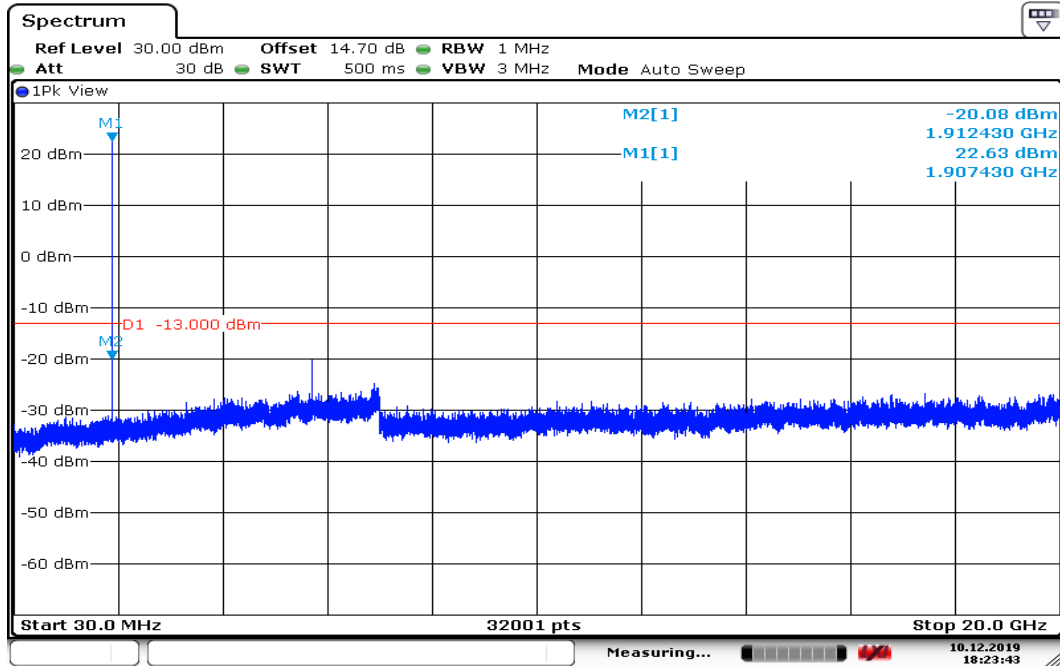


Report No.: T191105W01-RP8

Page: 125 / 175

Rev.: 00

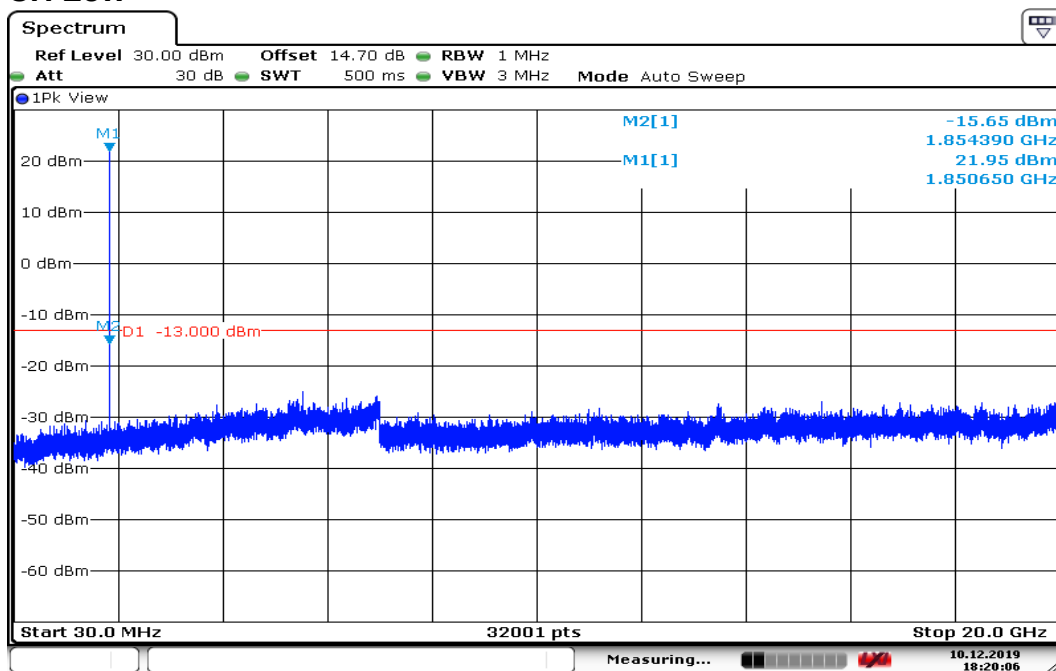
## CH High



Date: 10.DEC.2019 18:23:43

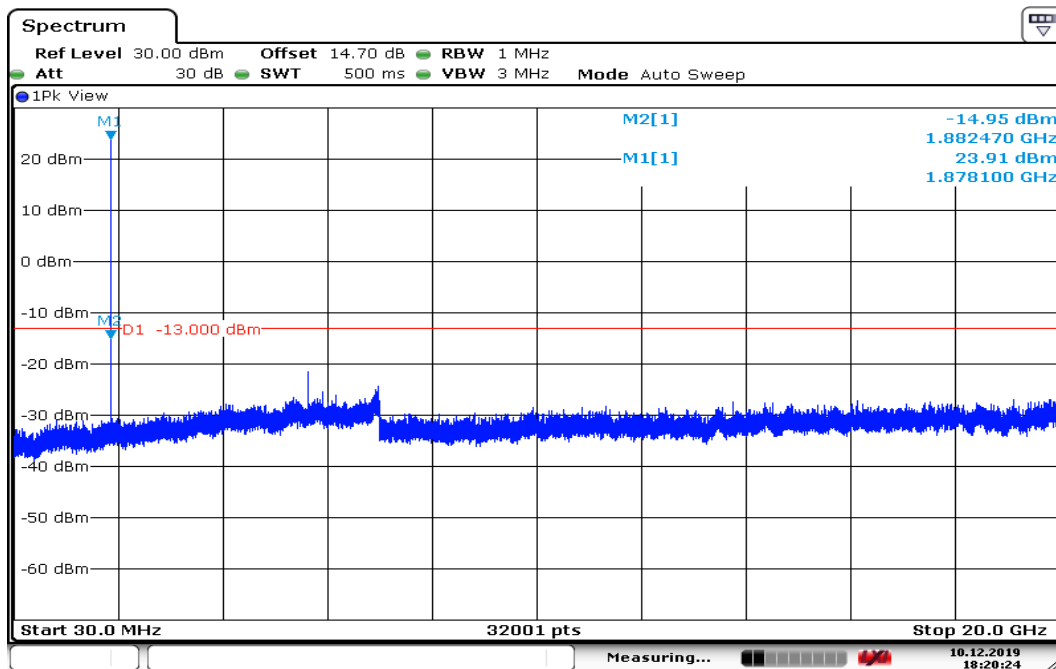
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 5MHz / QPSK CH Low



Date: 10.DEC.2019 18:20:06

## CH Mid



Date: 10.DEC.2019 18:20:24

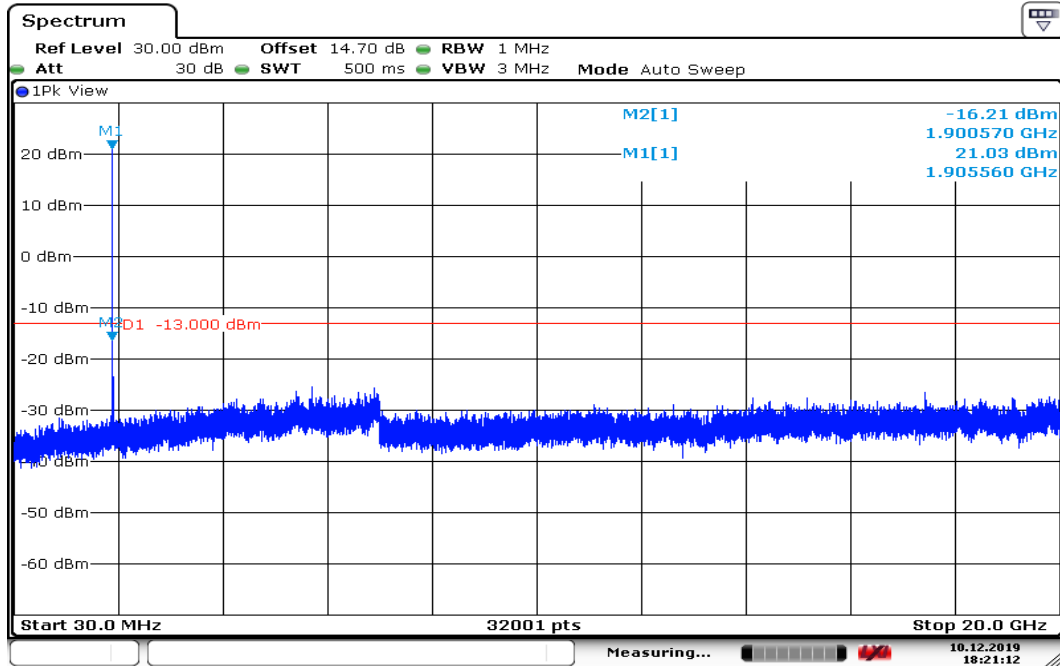


Report No.: T191105W01-RP8

Page: 127 / 175

Rev.: 00

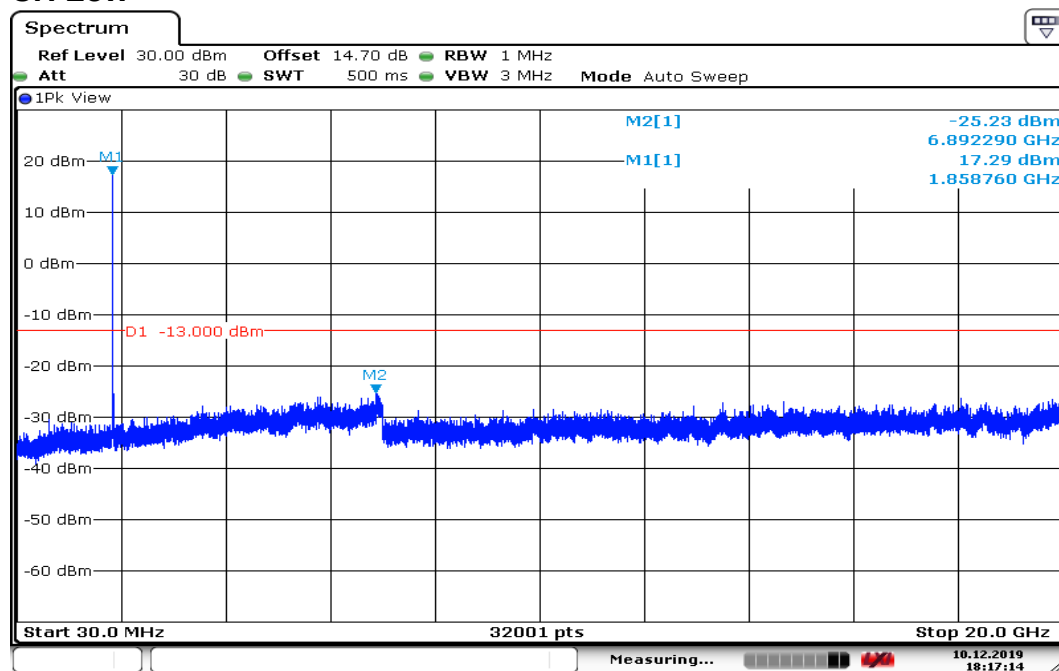
## CH High



Date: 10.DEC.2019 18:21:12

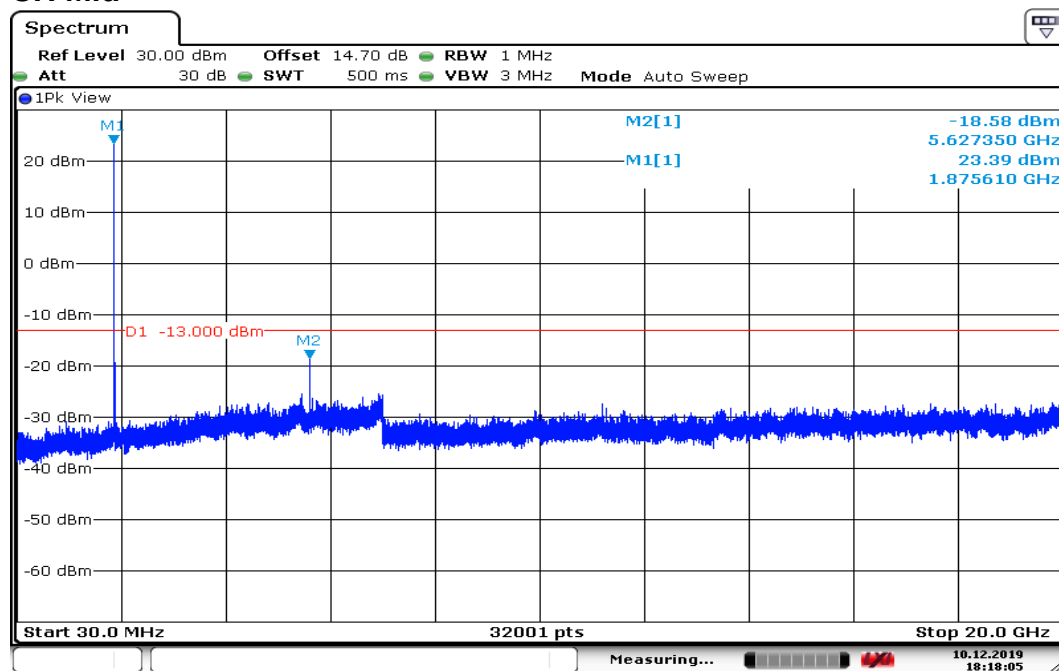
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 10MHz / QPSK CH Low



Date: 10.DEC.2019 18:17:14

## CH Mid



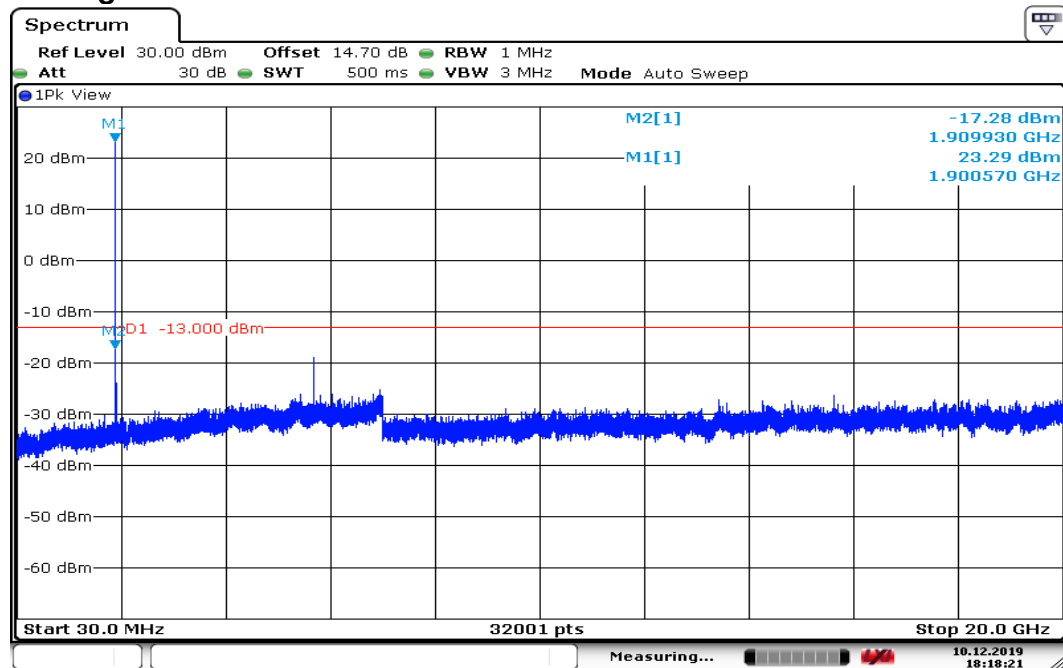
Date: 10.DEC.2019 18:18:05



Report No.: T191105W01-RP8

Page: 129 / 175  
Rev.: 00

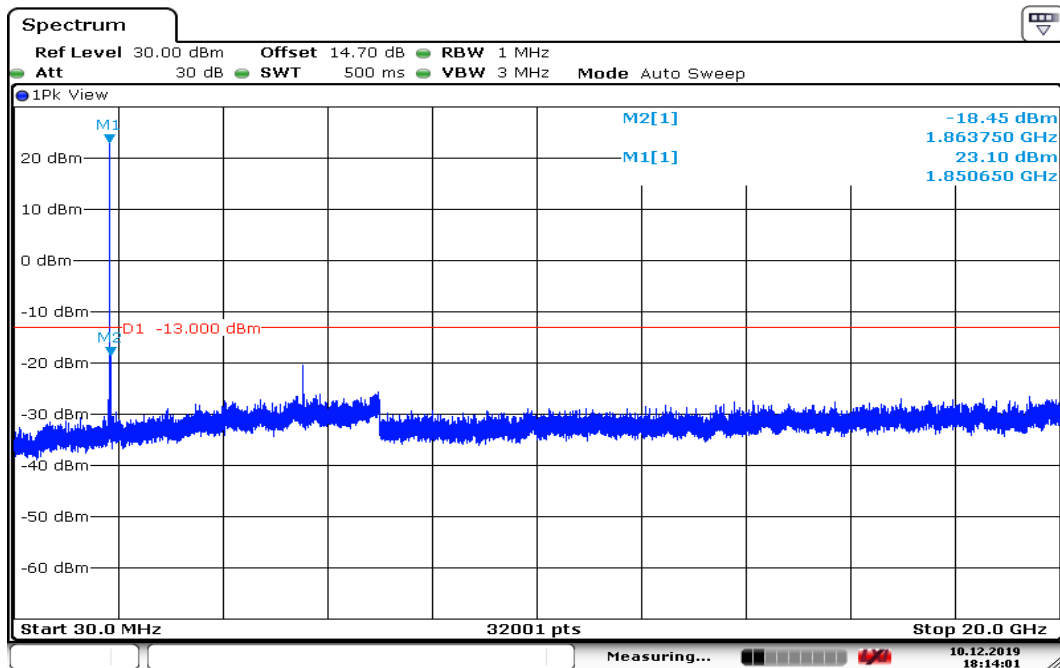
## CH High



Date: 10.DEC.2019 18:18:21

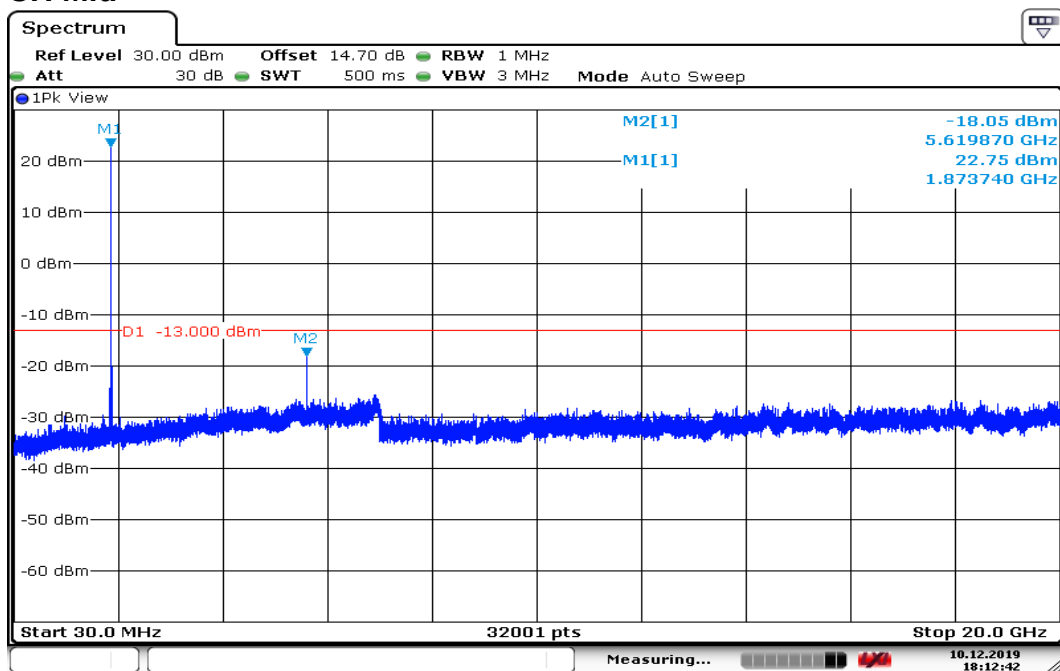
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 15MHz / QPSK CH Low



Date: 10.DEC.2019 18:14:02

## CH Mid



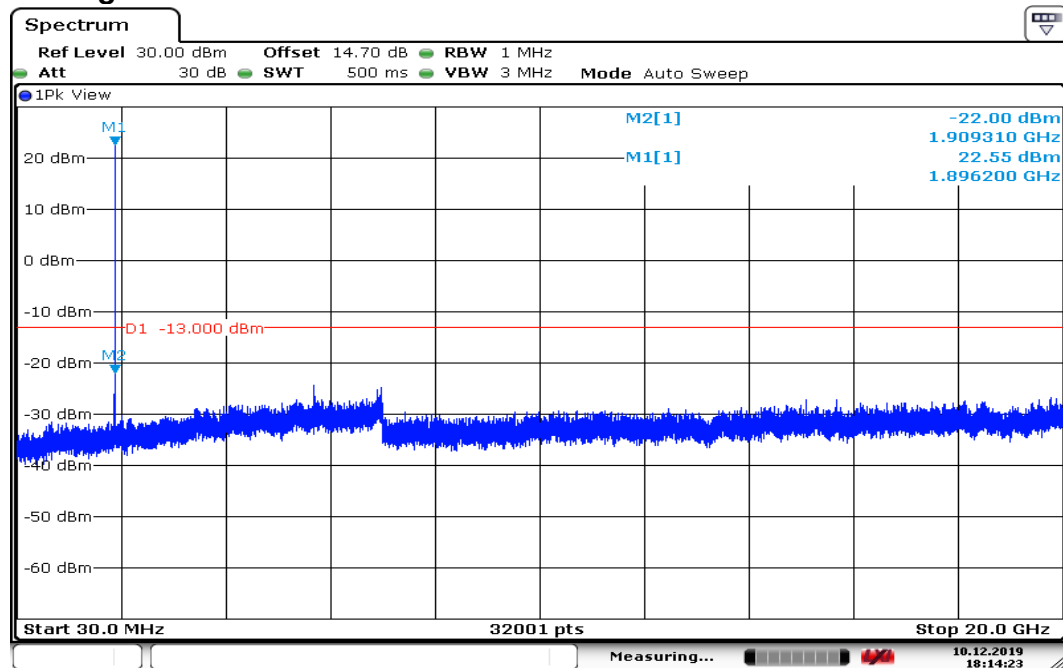
Date: 10.DEC.2019 18:12:43



Report No.: T191105W01-RP8

Page: 131 / 175  
Rev.: 00

## CH High

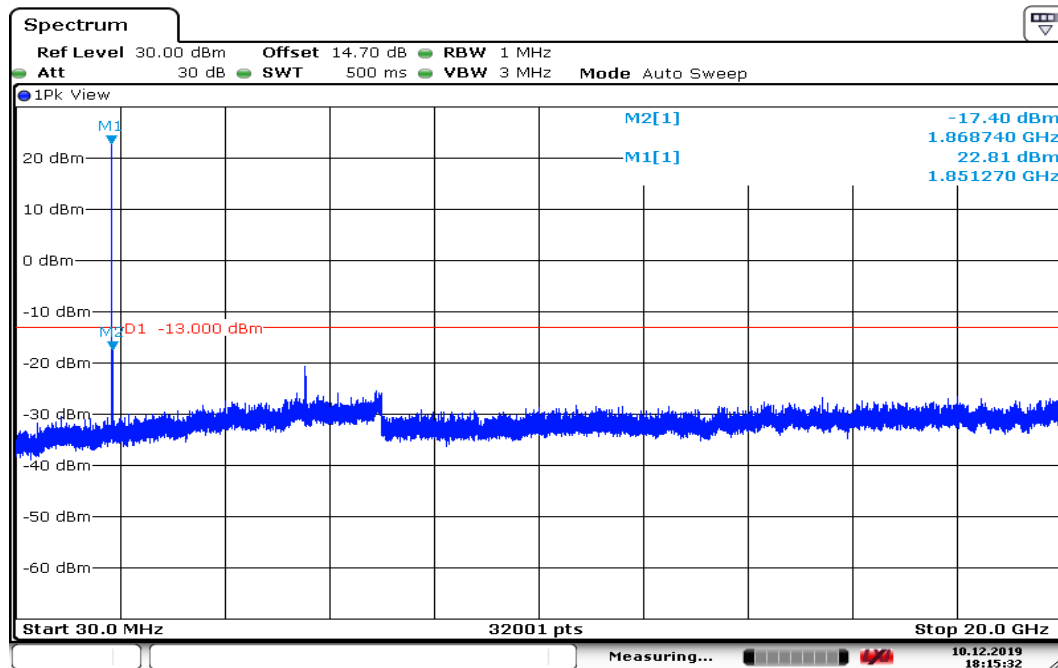


Date: 10.DEC.2019 18:14:24



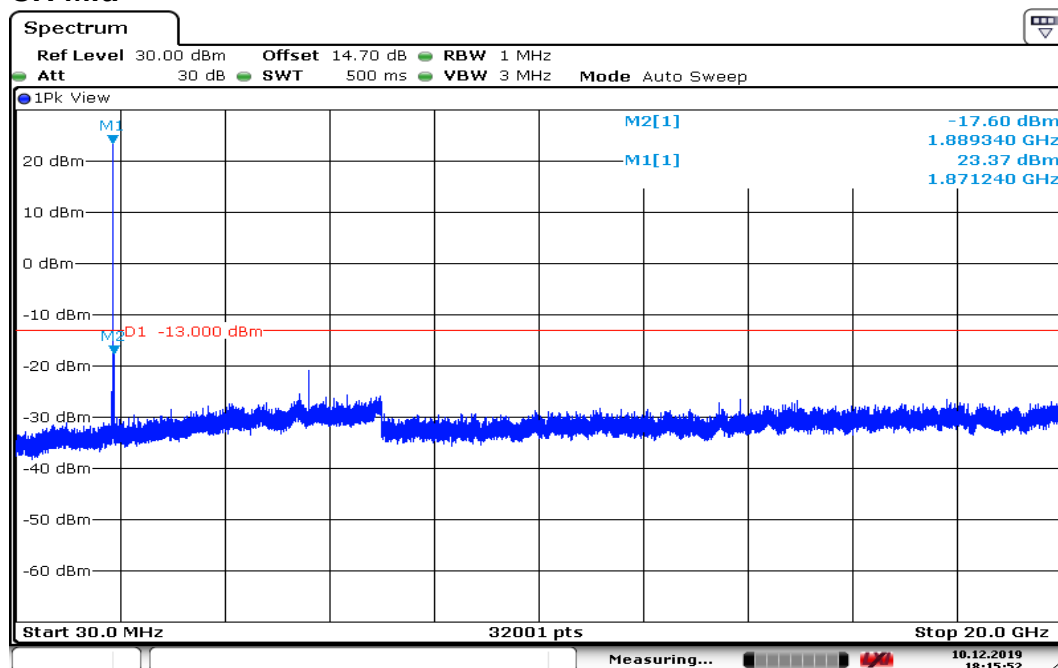
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 20MHz / QPSK CH Low



Date: 10.DEC.2019 18:15:33

## CH Mid



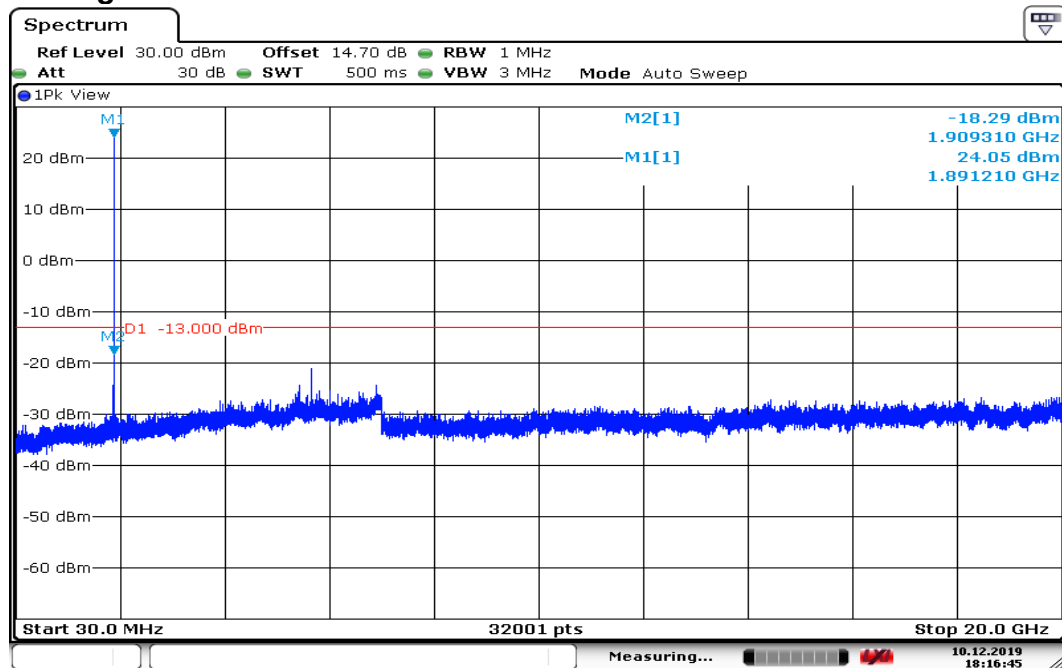
Date: 10.DEC.2019 18:15:51



Report No.: T191105W01-RP8

Page: 133 / 175  
Rev.: 00

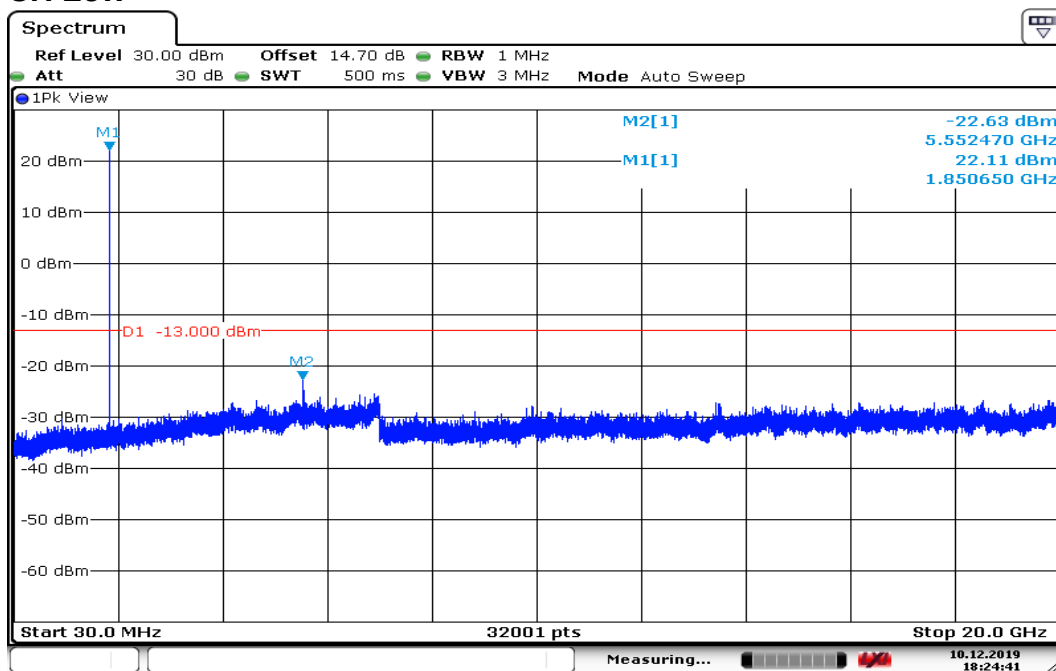
## CH High



Date: 10.DEC.2019 18:16:46

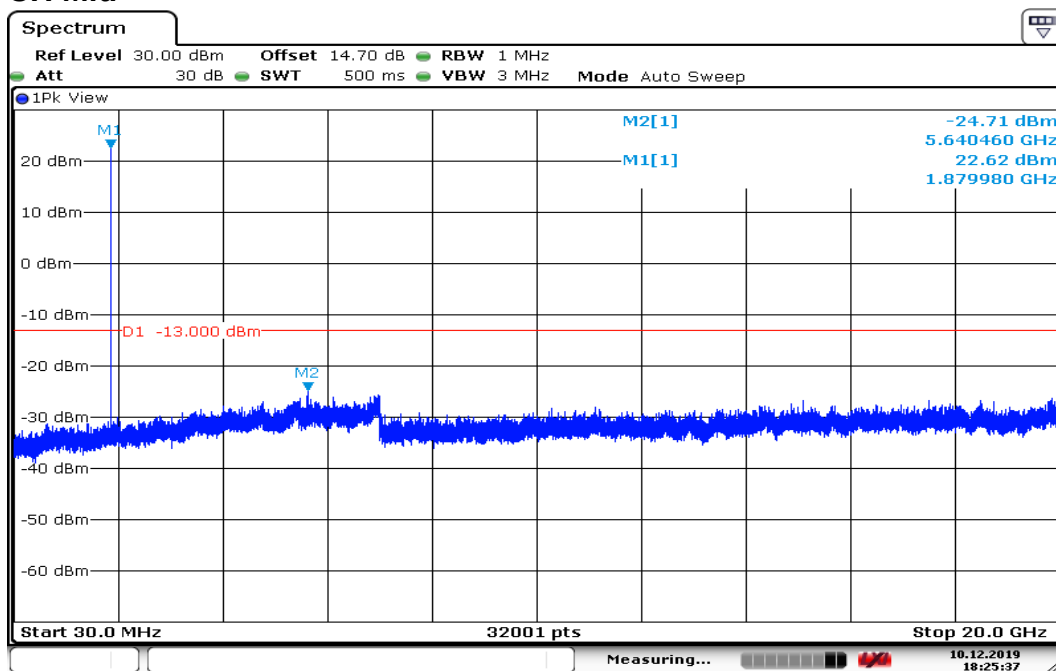
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 1.4MHz / 16QAM CH Low



Date: 10.DEC.2019 18:24:41

## CH Mid



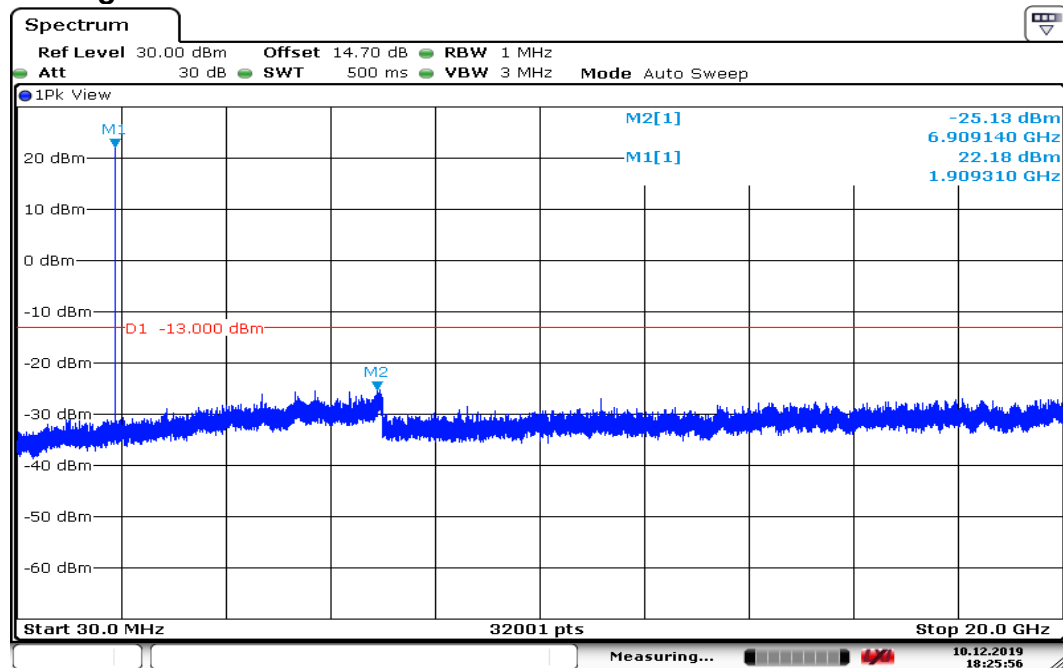
Date: 10.DEC.2019 18:25:37



Report No.: T191105W01-RP8

Page: 135 / 175  
Rev.: 00

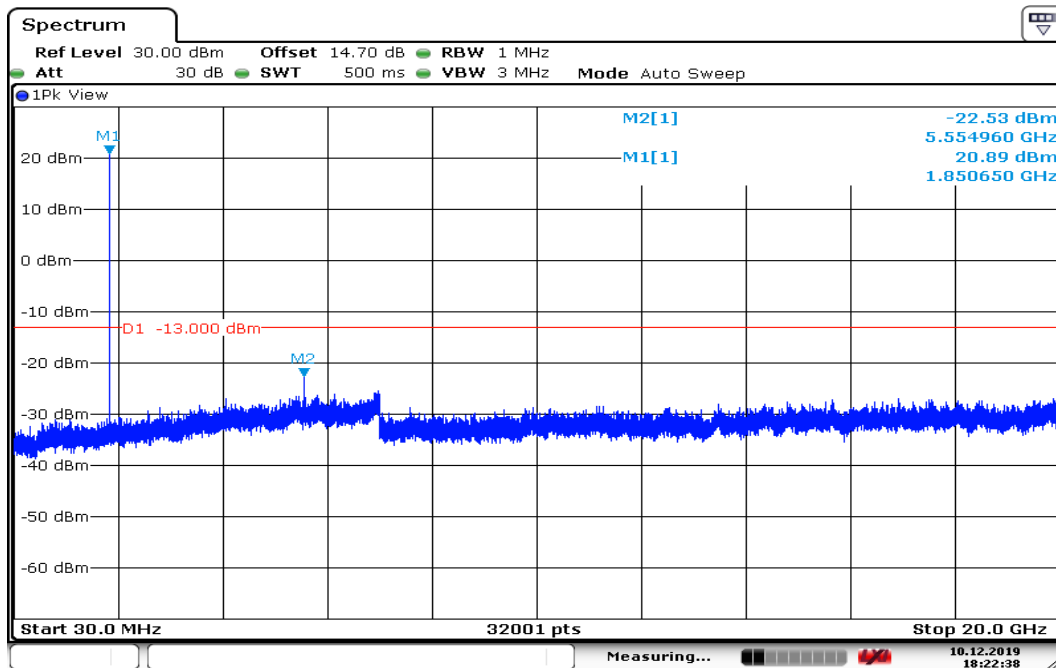
## CH High



Date: 10.DEC.2019 18:25:56

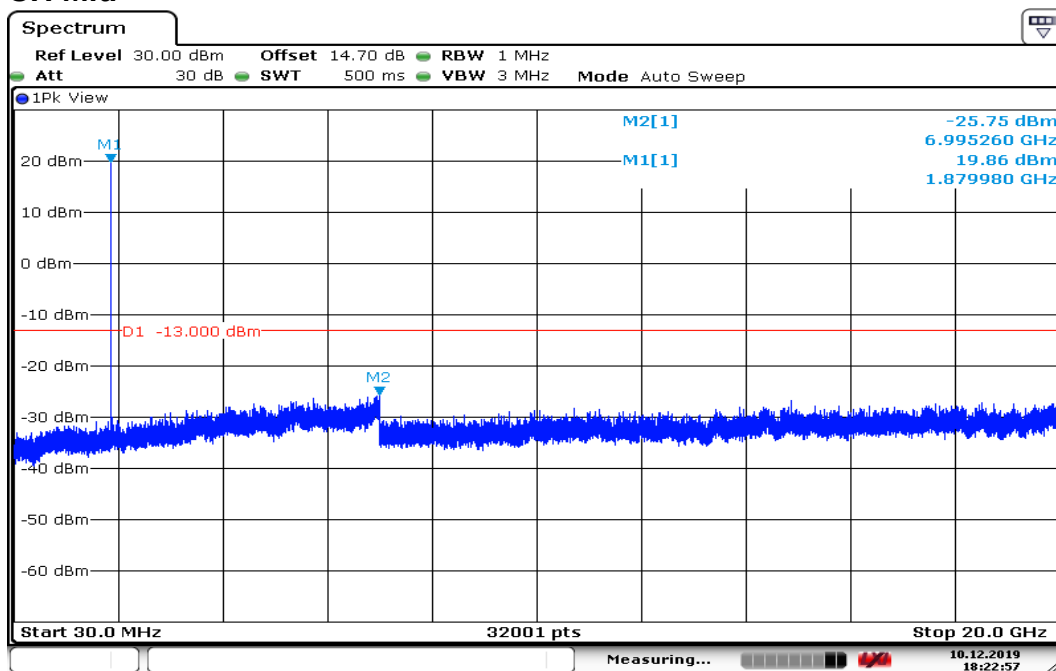
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 3MHz / 16QAM CH Low



Date: 10.DEC.2019 18:22:38

## CH Mid



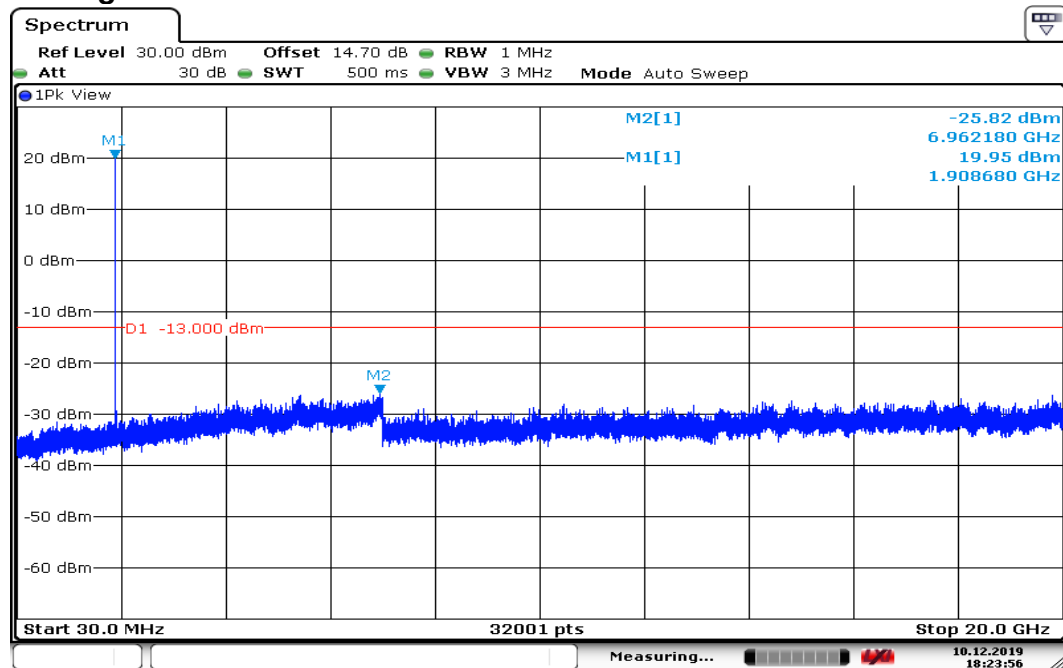
Date: 10.DEC.2019 18:22:57



Report No.: T191105W01-RP8

Page: 137 / 175  
Rev.: 00

## CH High

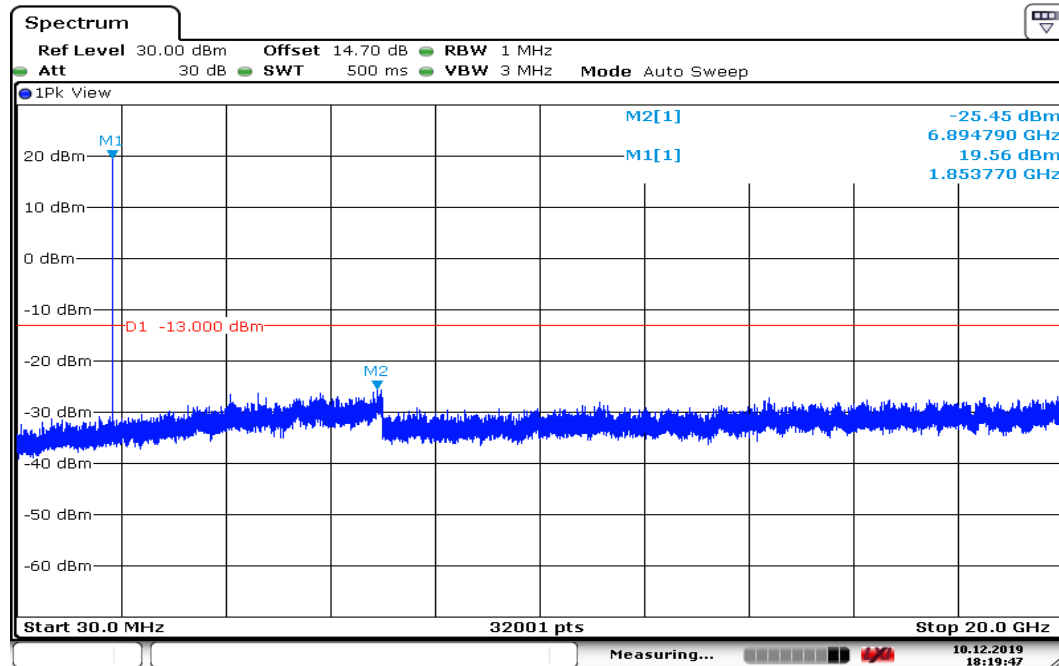


Date: 10.DEC.2019 18:23:56

Report No.: T191105W01-RP8

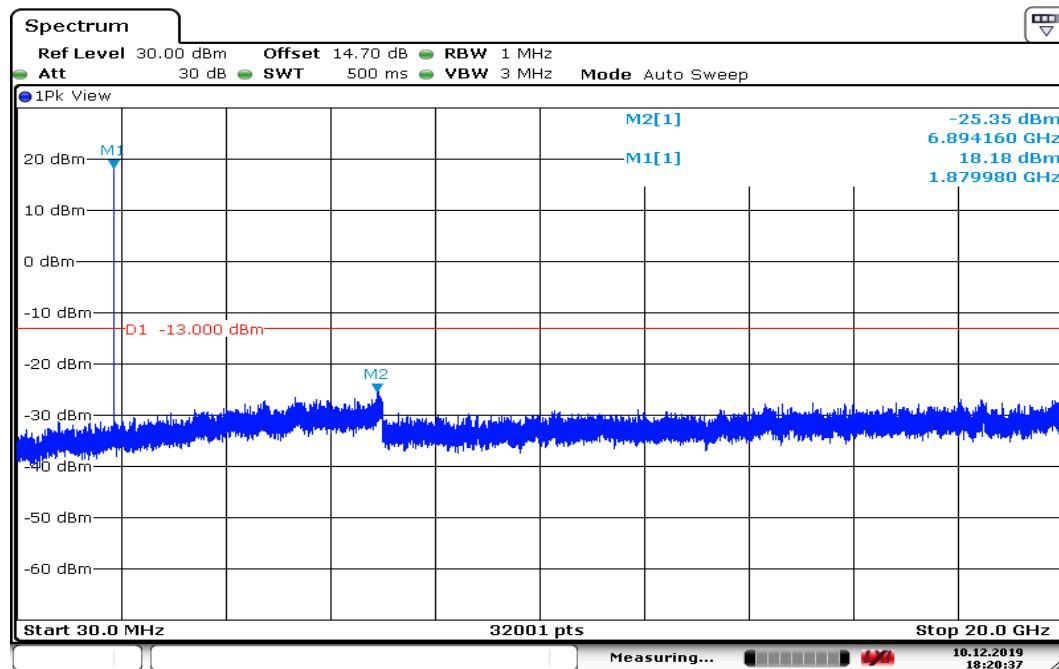
## CHANNEL BANDWIDTH: 5MHz / 16QAM

### CH Low



Date: 10.DEC.2019 18:19:47

### CH Mid



Date: 10.DEC.2019 18:20:37

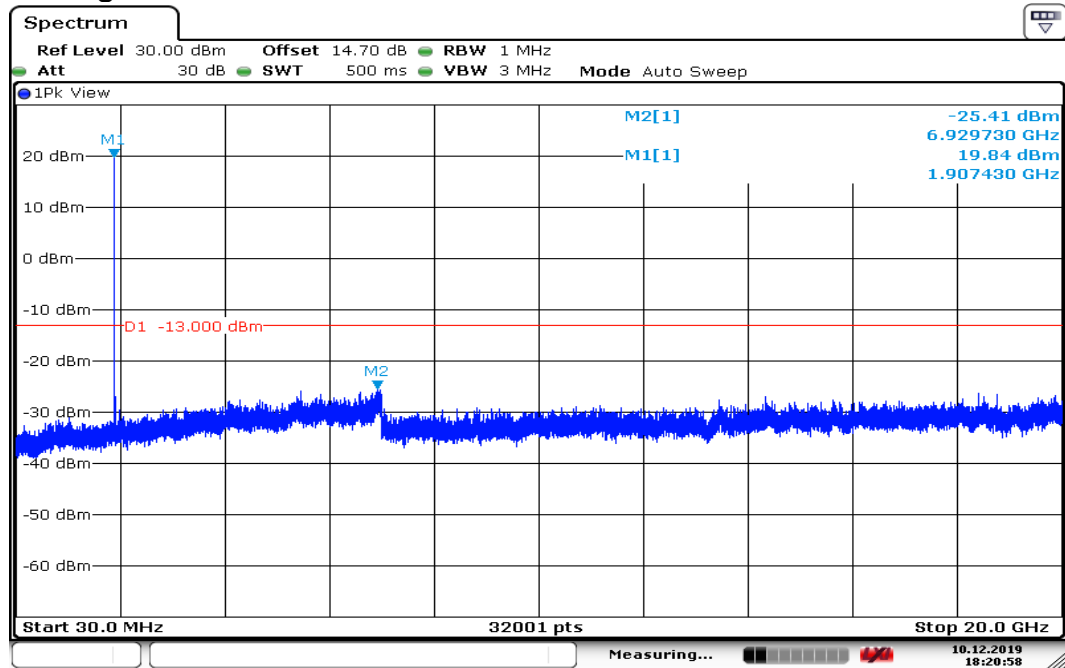


Report No.: T191105W01-RP8

Page: 139 / 175

Rev.: 00

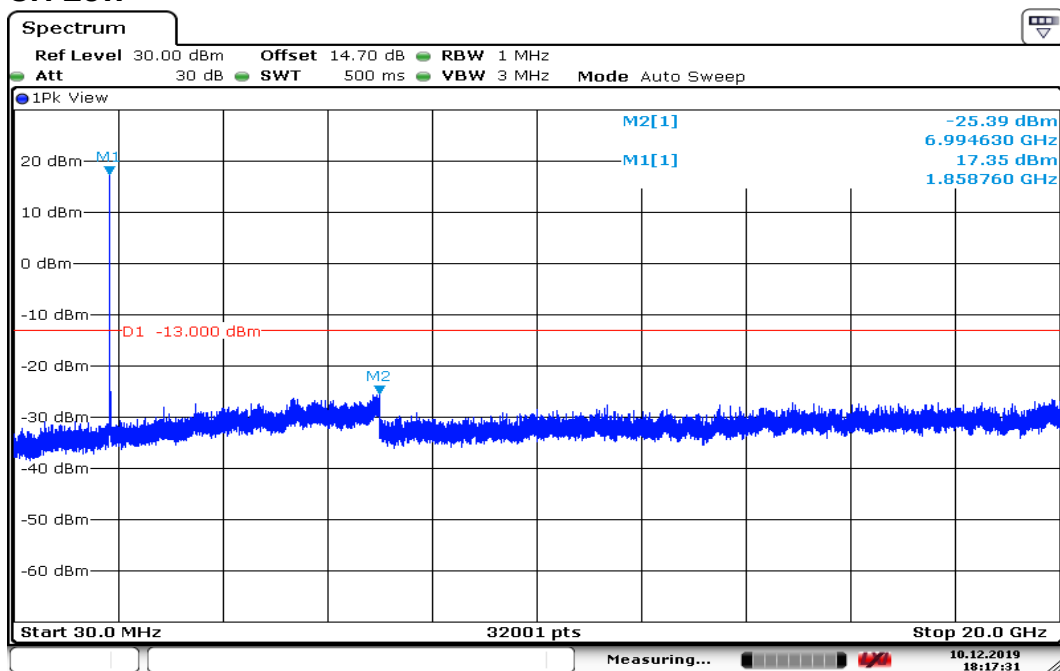
## CH High



Date: 10.DEC.2019 18:20:58

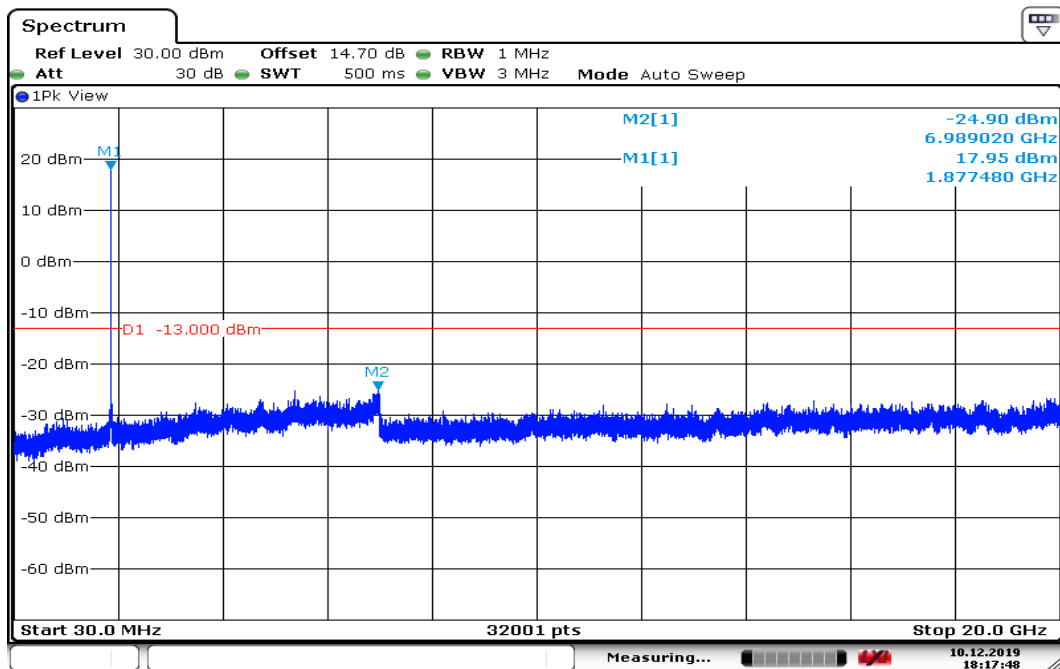
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 10MHz / 16QAM CH Low



Date: 10.DEC.2019 18:17:31

## CH Mid



Date: 10.DEC.2019 18:17:48

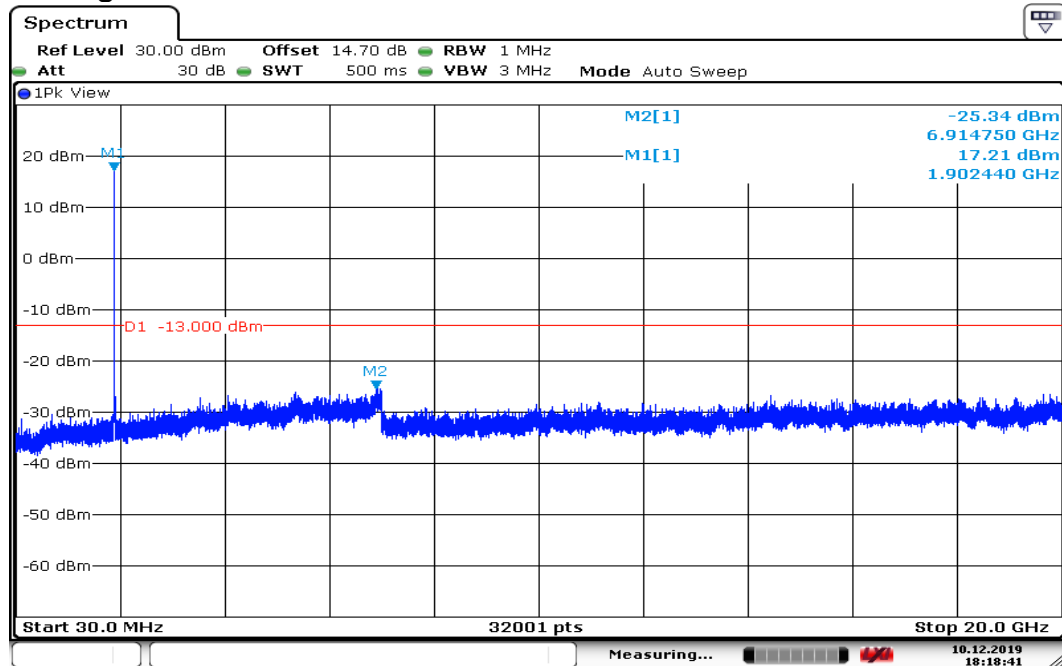


Report No.: T191105W01-RP8

Page: 141 / 175

Rev.: 00

## CH High



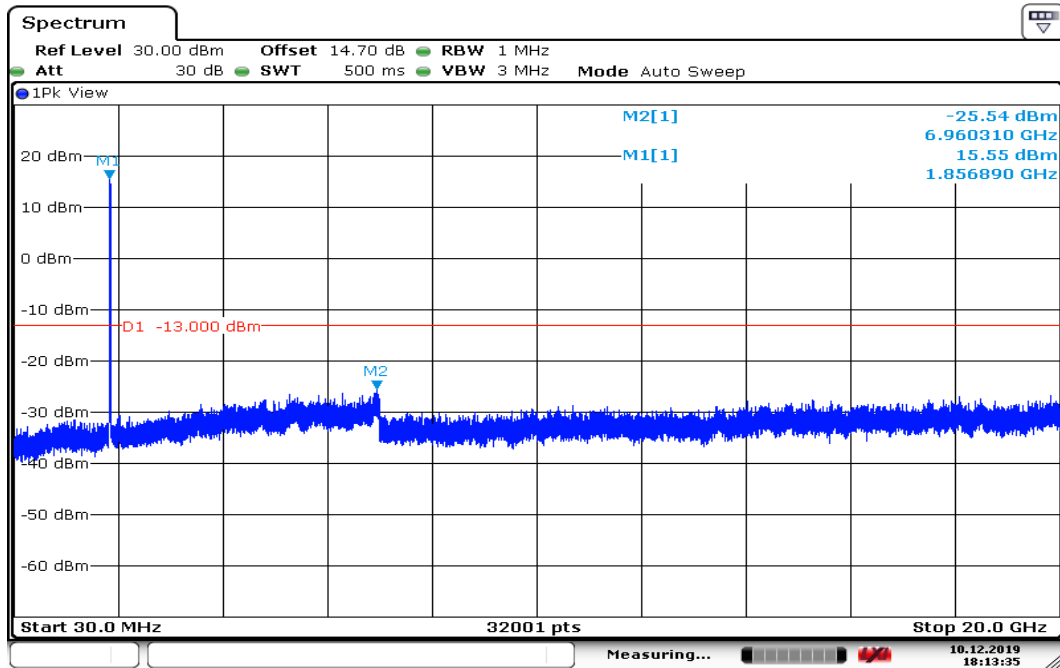
Date: 10.DEC.2019 18:18:41



Report No.: T191105W01-RP8

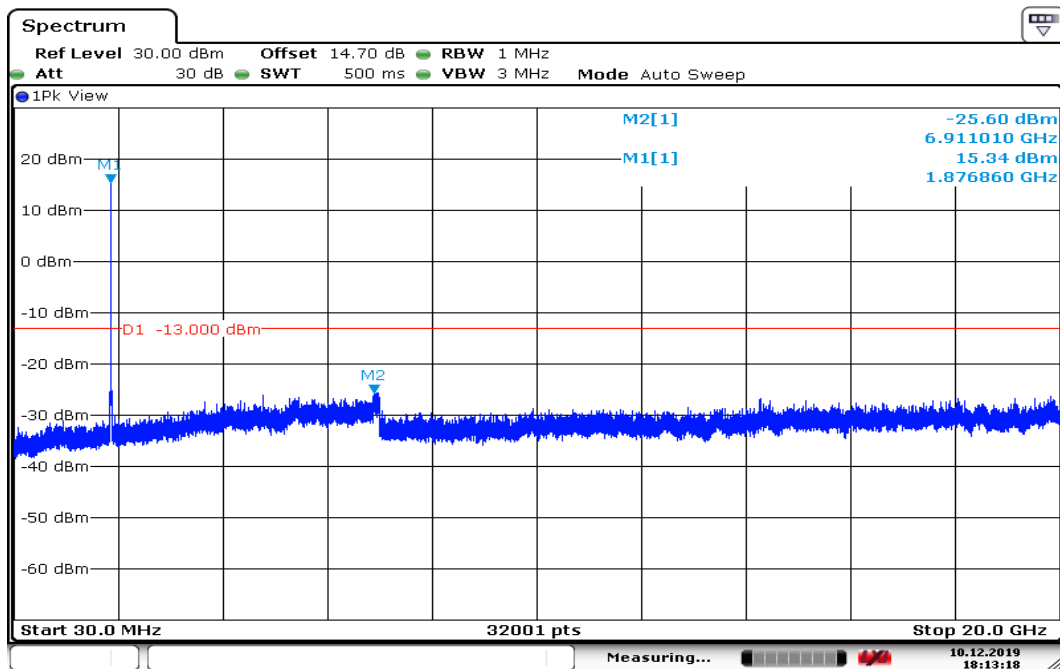
## CHANNEL BANDWIDTH: 15MHz / 16QAM

### CH Low



Date: 10.DEC.2019 18:13:36

### CH Mid



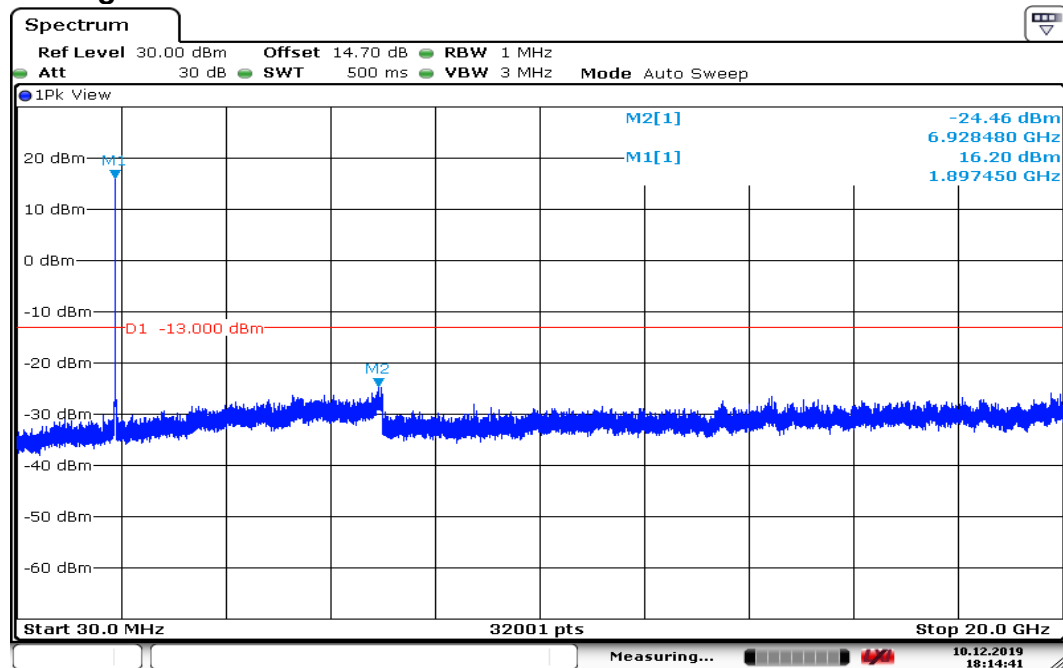
Date: 10.DEC.2019 18:13:19



Report No.: T191105W01-RP8

Page: 143 / 175  
Rev.: 00

## CH High

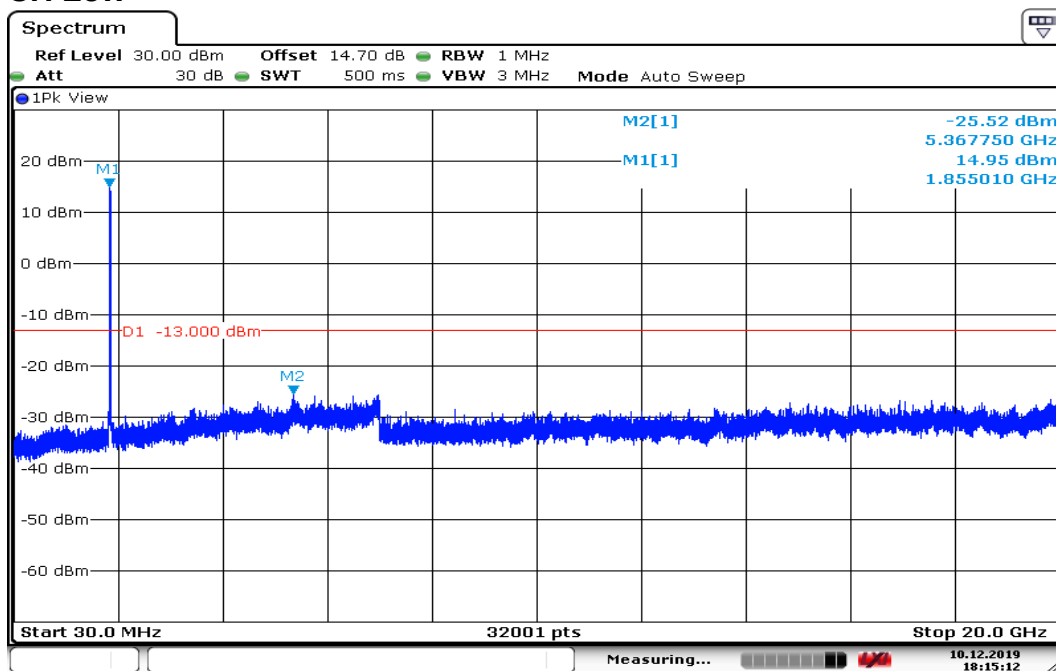


Date: 10.DEC.2019 18:14:42



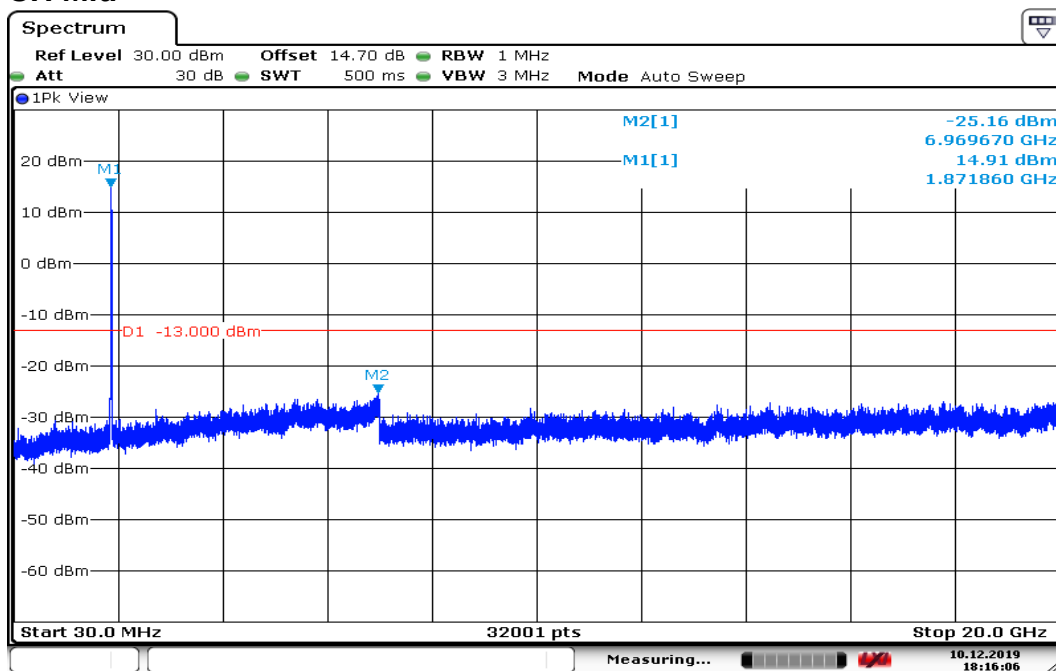
Report No.: T191105W01-RP8

## CHANNEL BANDWIDTH: 20MHz / 16QAM CH Low



Date: 10.DEC.2019 18:15:11

## CH Mid



Date: 10.DEC.2019 18:16:07

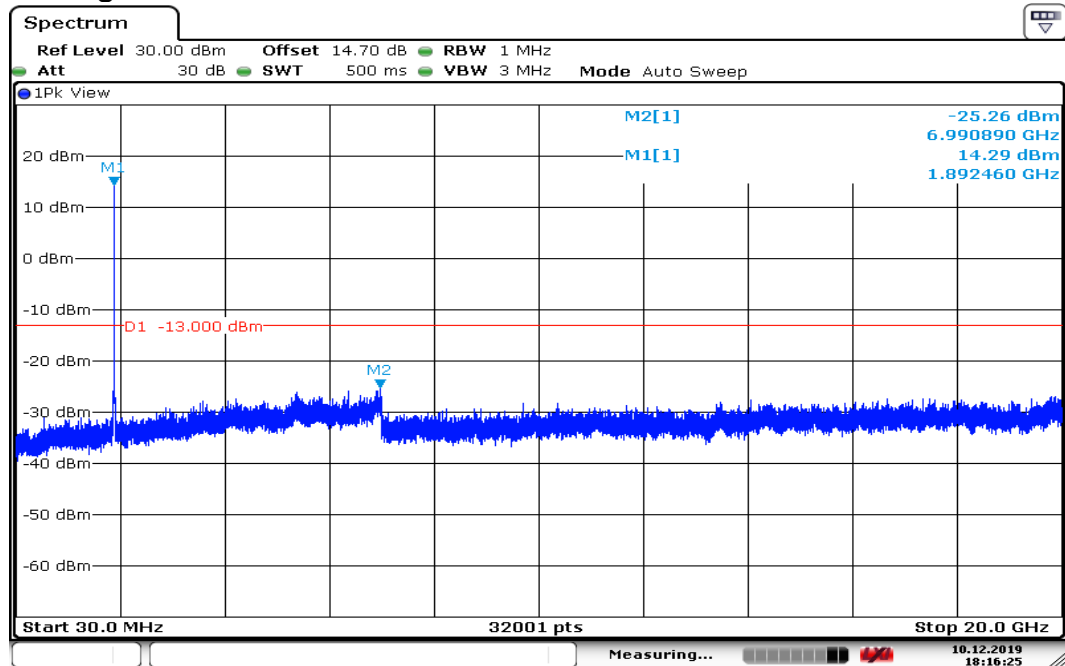


Report No.: T191105W01-RP8

Page: 145 / 175

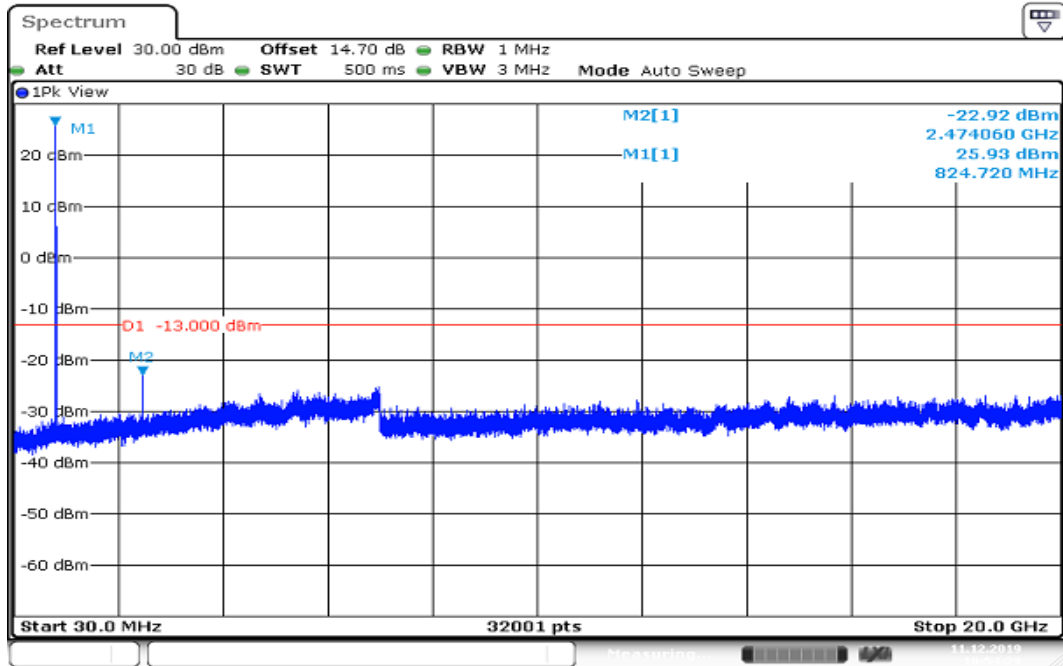
Rev.: 00

## CH High

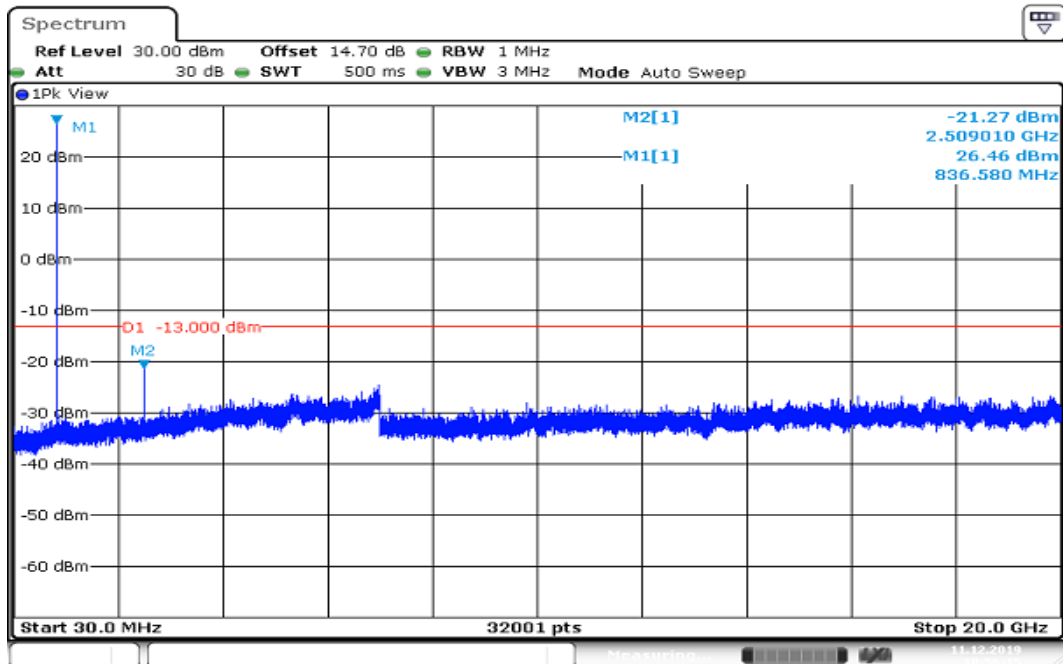


Date: 10.DEC.2019 18:16:26

Report No.: T191105W01-RP8

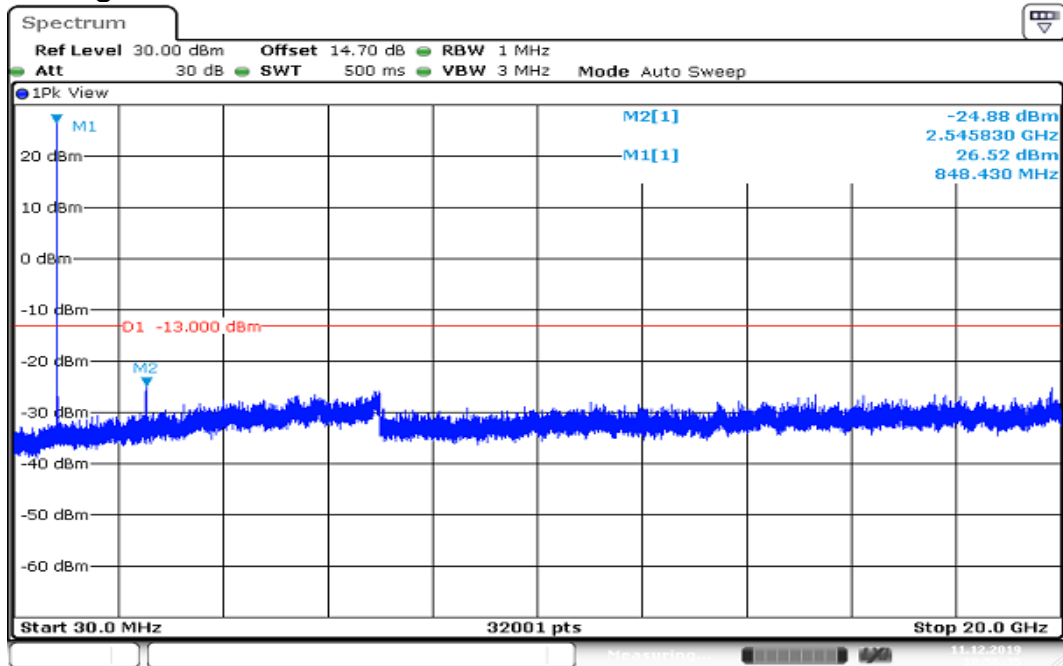
**LTE Band 5****CHANNEL BANDWIDTH: 1.4MHz / QPSK****CH Low**

Date: 11.DEC.2019 10:54:29

**CH Mid**

Date: 11.DEC.2019 10:56:15

## CH High

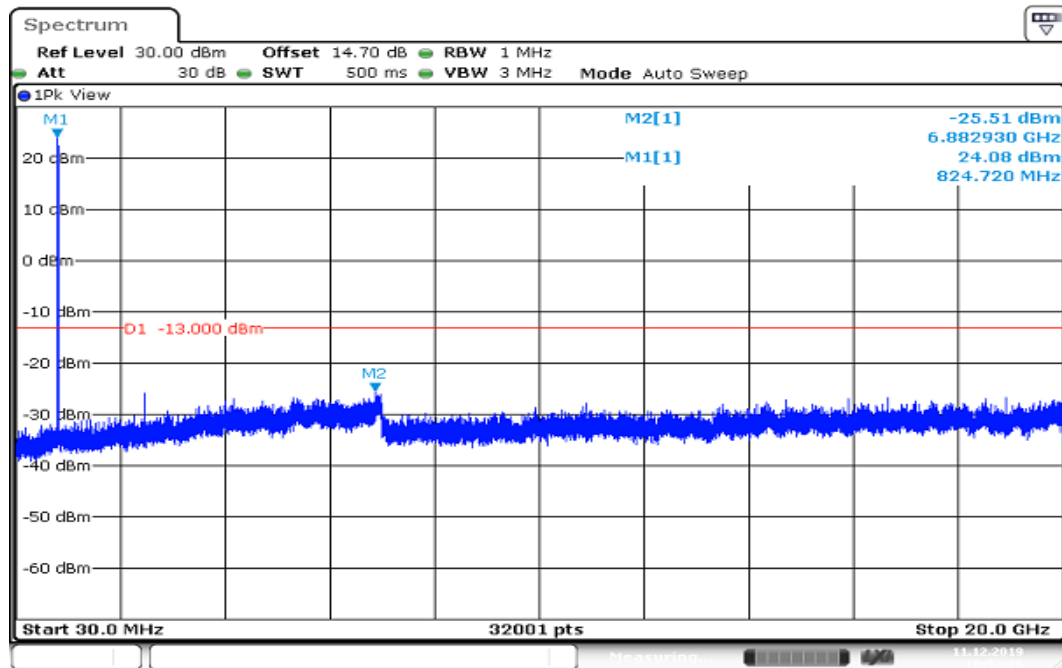


Date: 11.DEC.2019 10:56:36

Report No.: T191105W01-RP8

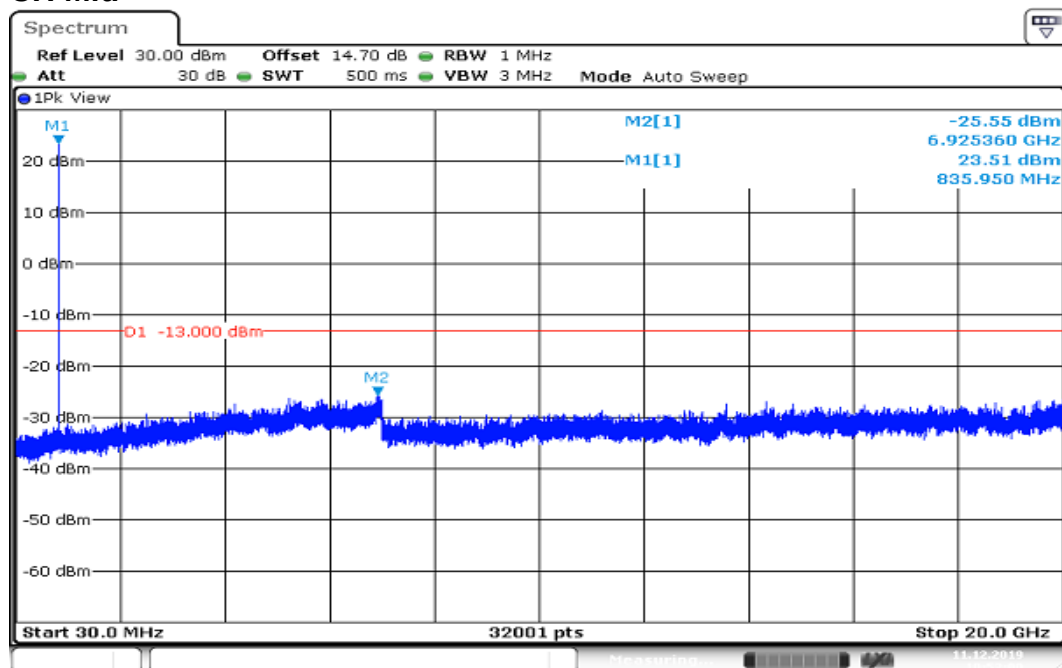
## CHANNEL BANDWIDTH: 3MHz / QPSK

## CH Low



Date: 11.DEC.2019 10:52:27

## CH Mid



Date: 11.DEC.2019 10:53:00

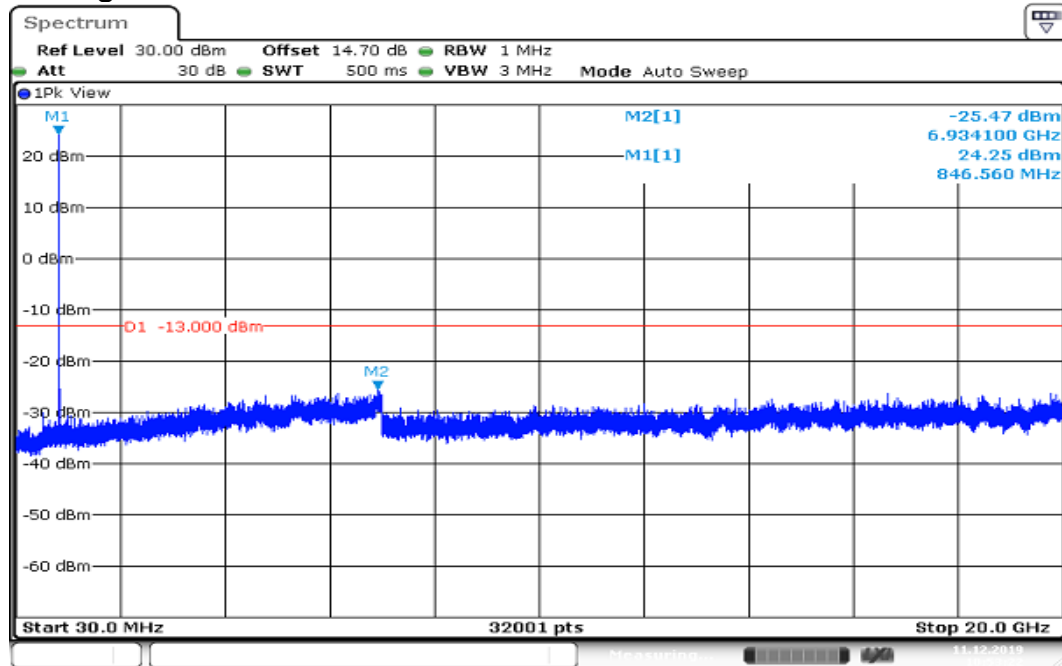


Report No.: T191105W01-RP8

Page: 149 / 175

Rev.: 00

## CH High

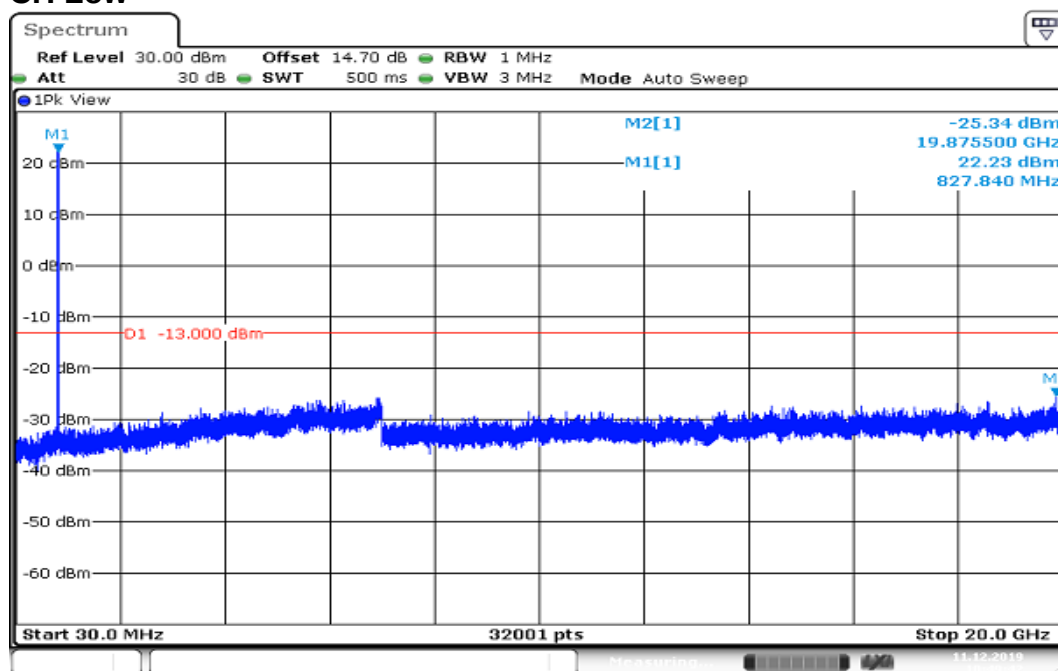


Date: 11.DEC.2019 10:53:22

Report No.: T191105W01-RP8

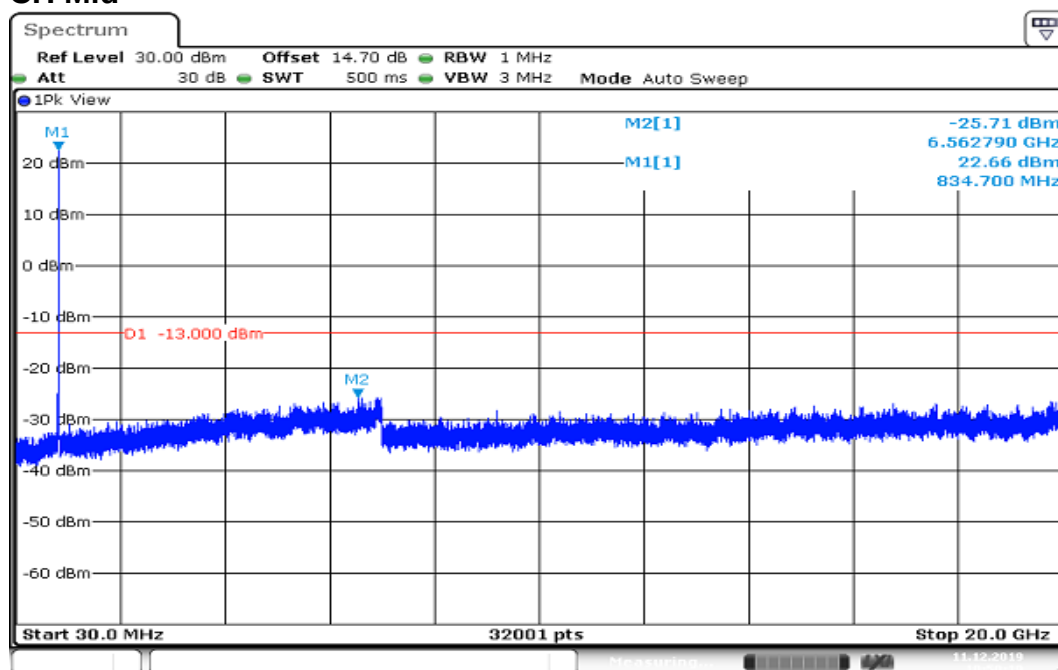
**CHANNEL BANDWIDTH: 5MHz / QPSK**

## CH Low



Date: 11.DEC.2019 10:49:43

## CH Mid



Date: 11.DEC.2019 10:50:19

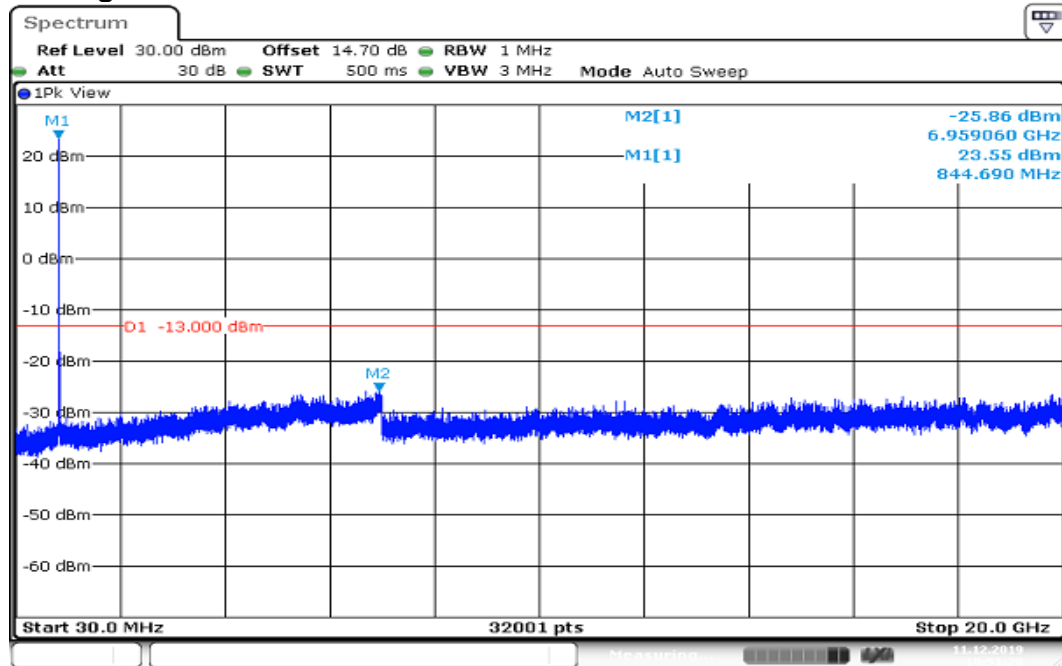


Report No.: T191105W01-RP8

Page: 151 / 175

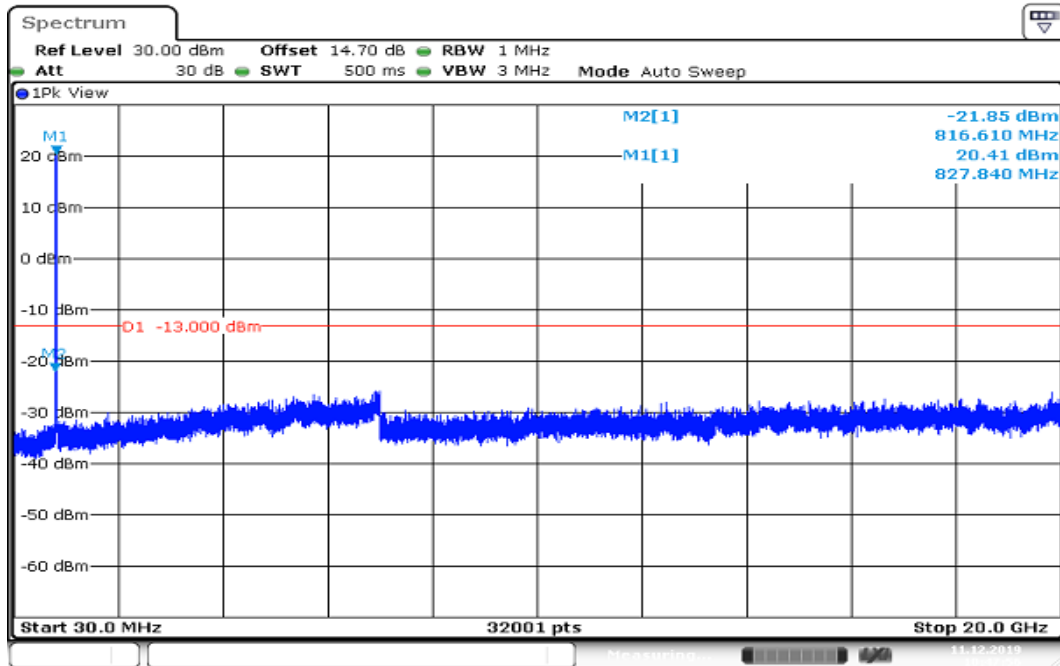
Rev.: 00

## CH High

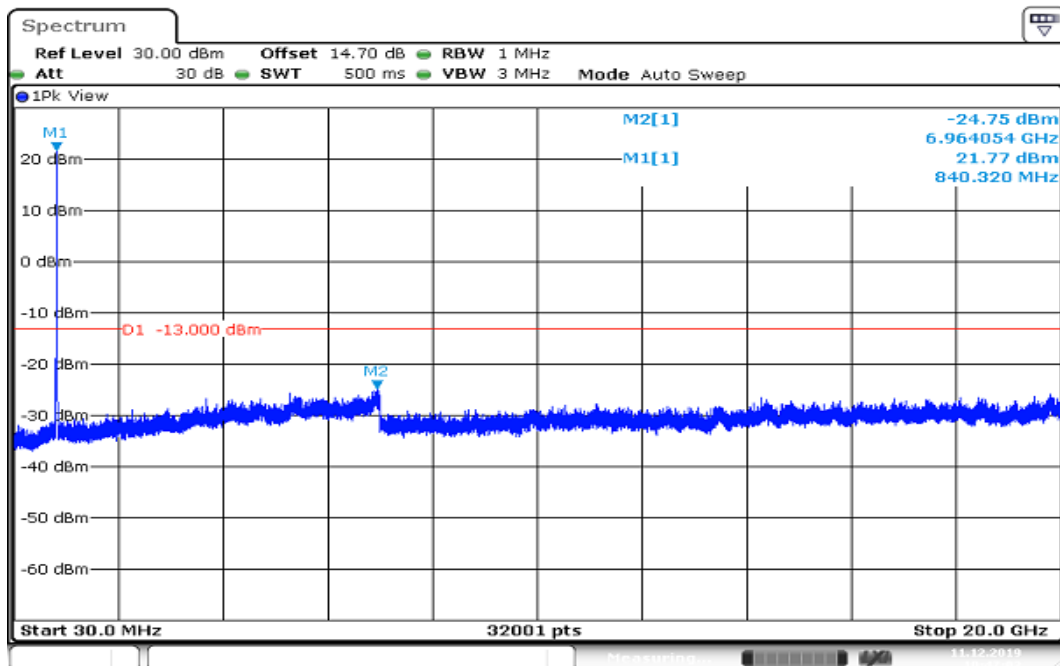


Date: 11.DEC.2019 10:51:28

Report No.: T191105W01-RP8

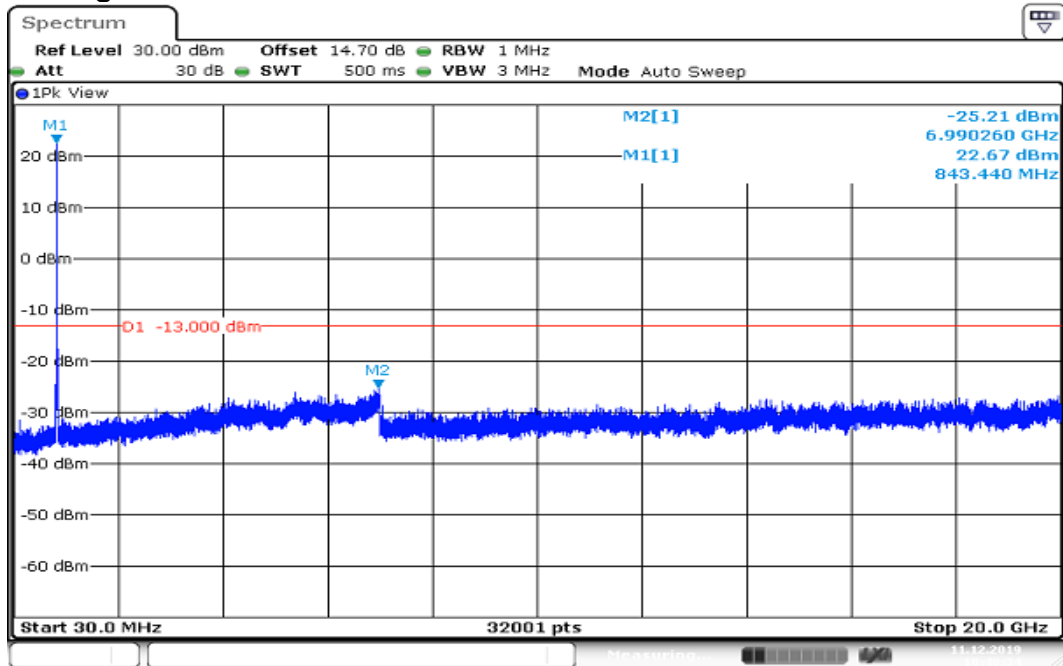
**CHANNEL BANDWIDTH: 10MHz / QPSK****CH Low**

Date: 11.DEC.2019 10:47:57

**CH Mid**

Date: 11.DEC.2019 10:47:03

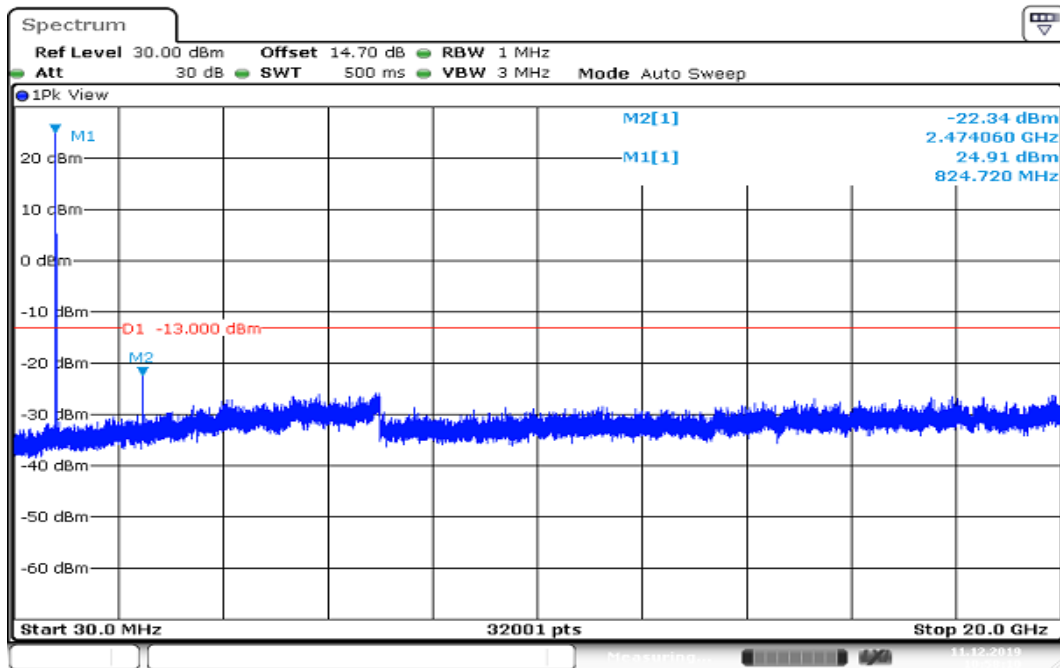
## CH High



Date: 11.DEC.2019 10:48:34

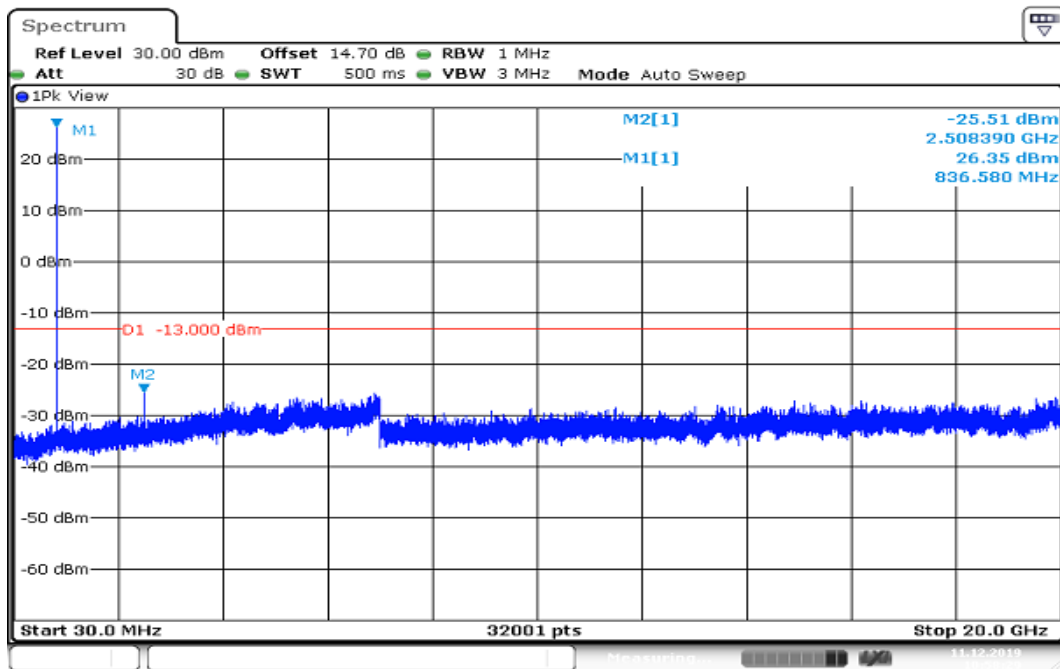
## CHANNEL BANDWIDTH: 1.4MHz / 16QAM

## CH Low



Date: 11.DEC.2019 10:58:11

## CH Mid



Date: 11.DEC.2019 10:58:30

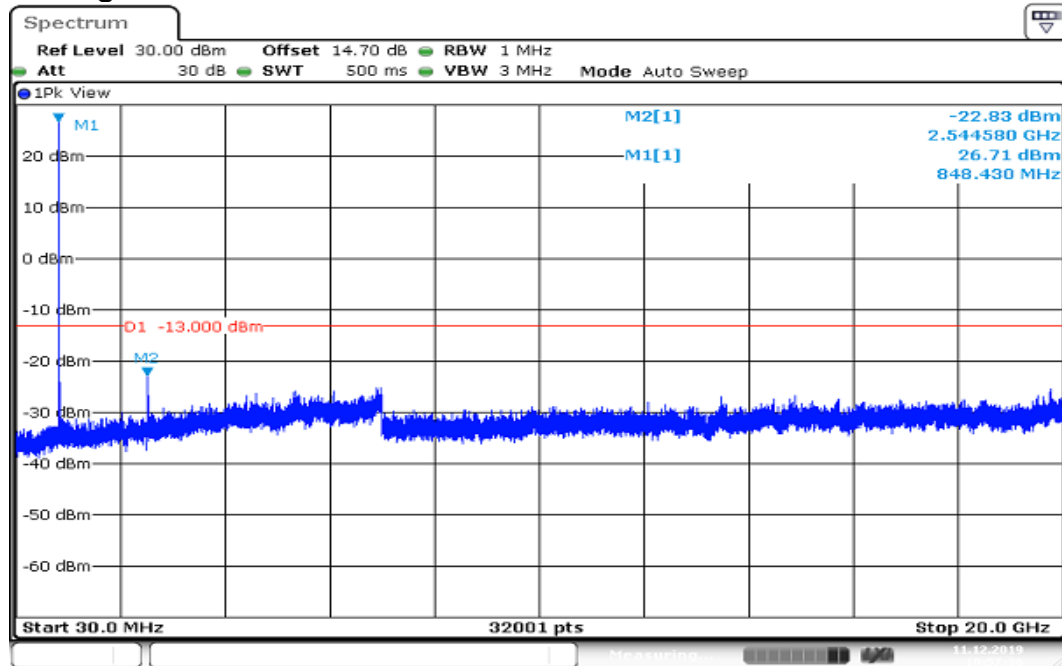


Report No.: T191105W01-RP8

Page: 155 / 175

Rev.: 00

## CH High

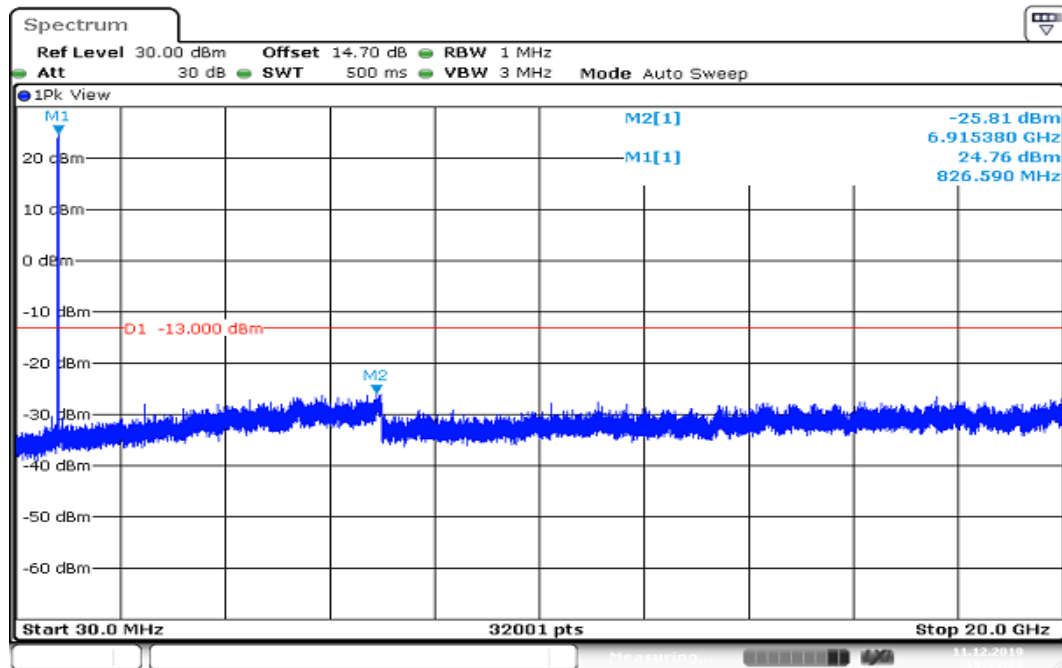


Date: 11.DEC.2019 10:57:36

Report No.: T191105W01-RP8

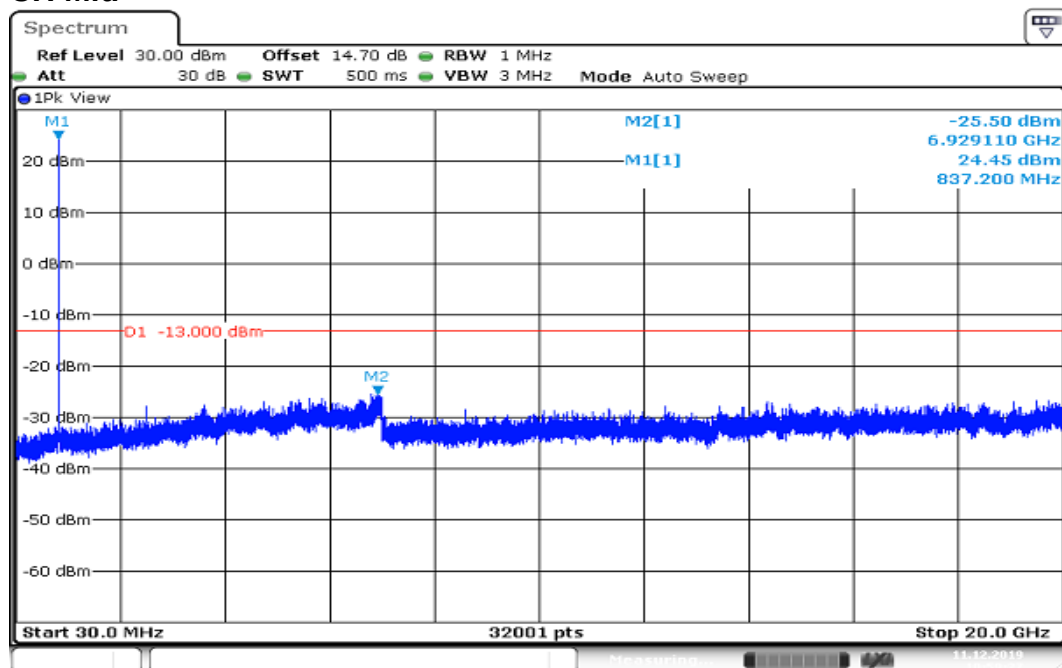
## CHANNEL BANDWIDTH: 3MHz / 16QAM

## CH Low



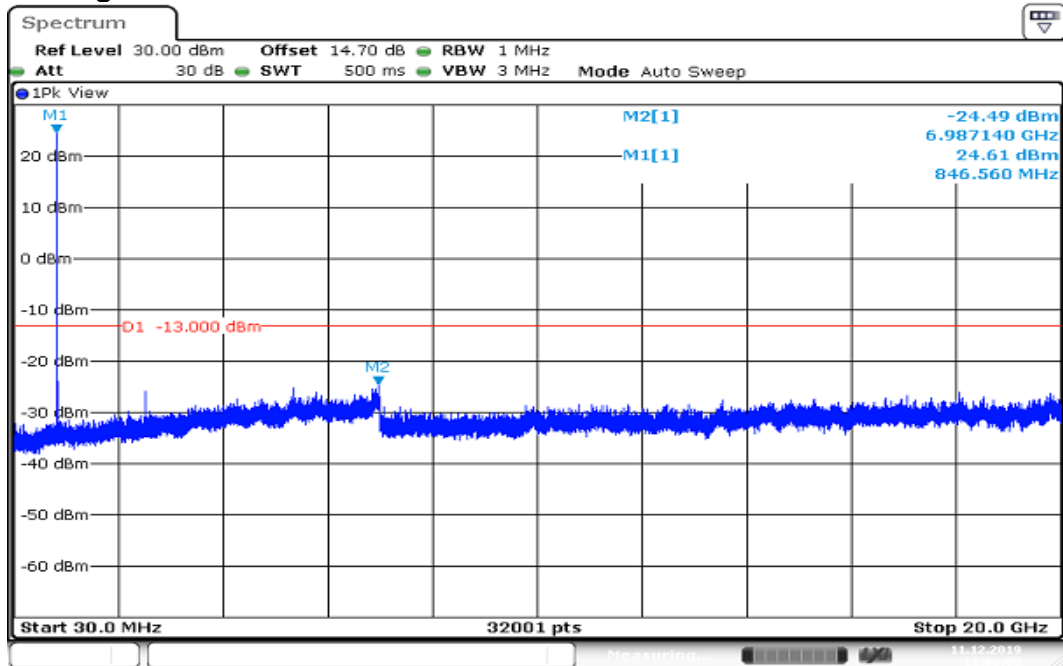
Date: 11.DEC.2019 10:59:03

## CH Mid



Date: 11.DEC.2019 10:59:37

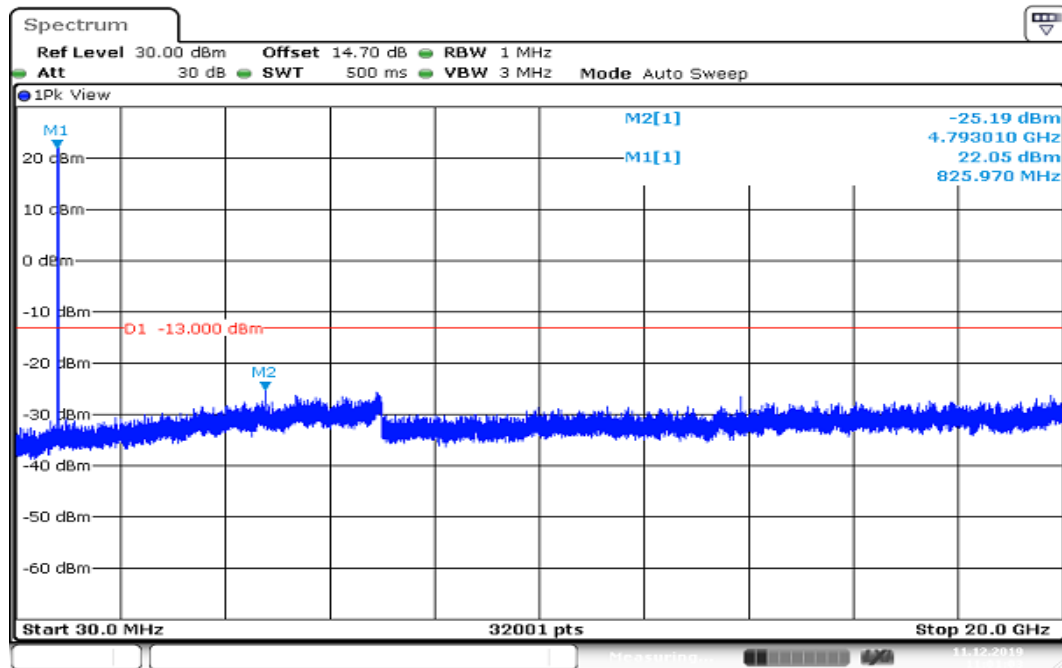
## CH High



Date: 11.DEC.2019 11:00:09

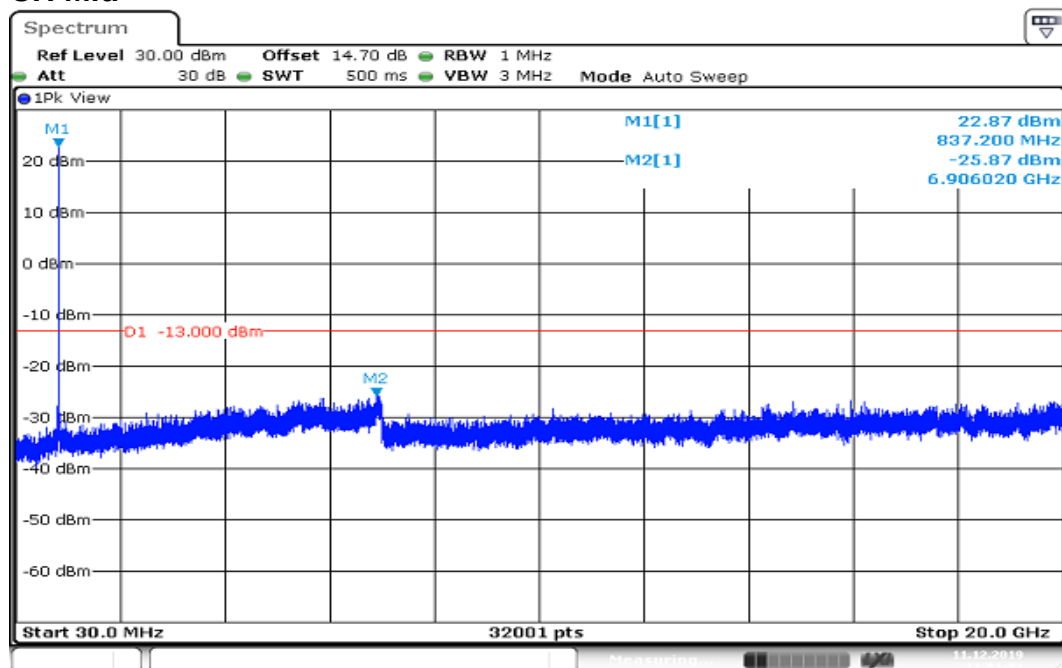
## CHANNEL BANDWIDTH: 5MHz / 16QAM

## CH Low



Date: 11.DEC.2019 11:01:04

## CH Mid



Date: 11.DEC.2019 11:01:34

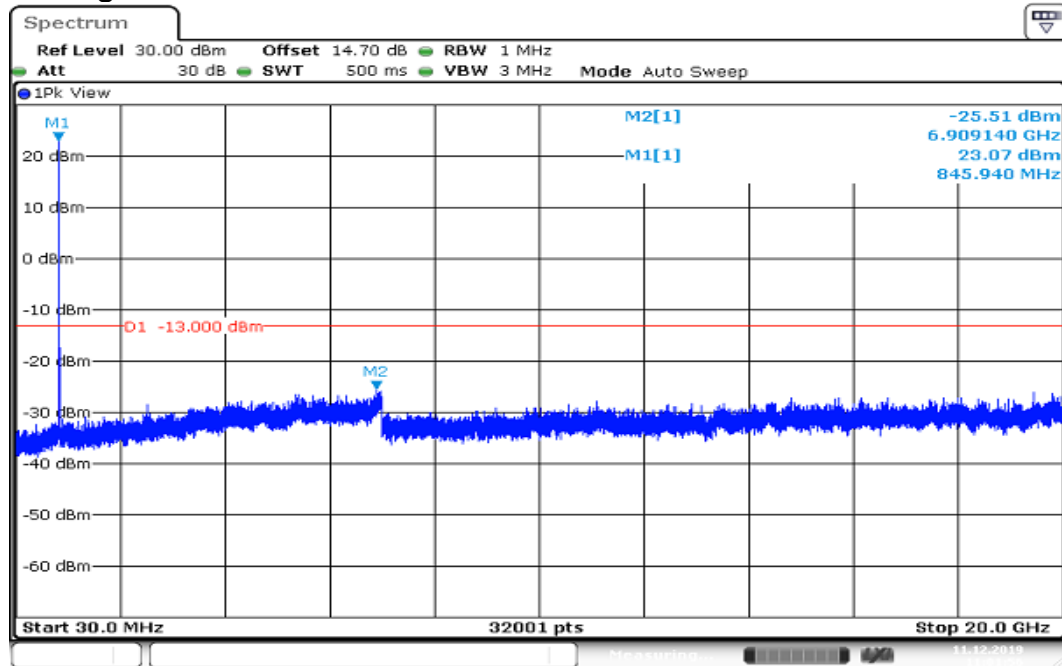


Report No.: T191105W01-RP8

Page: 159 / 175

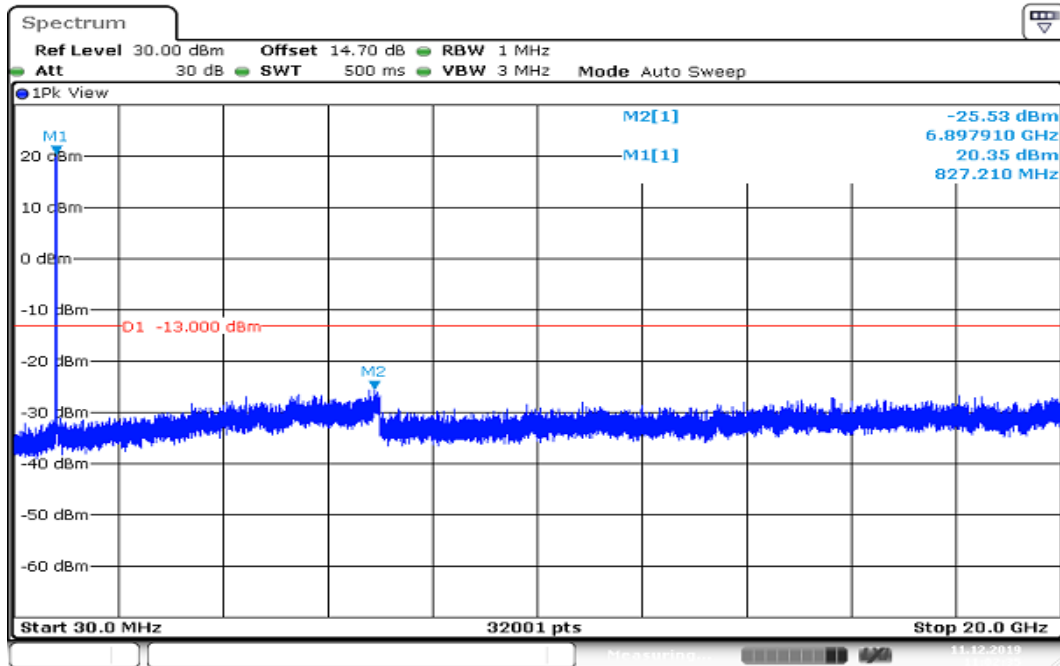
Rev.: 00

## CH High

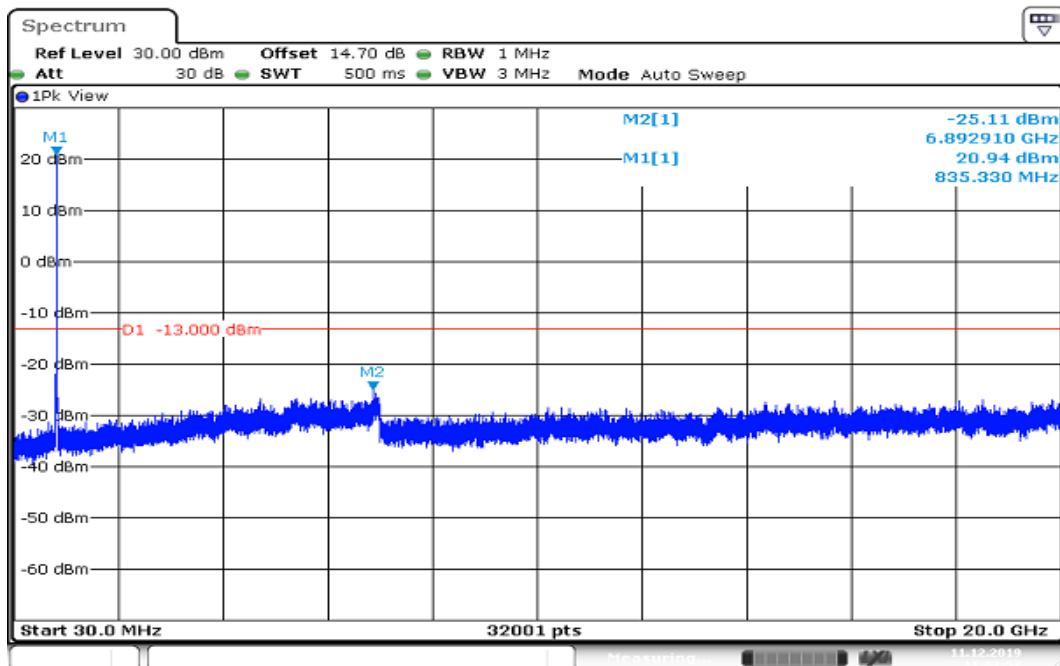


Date: 11.DEC.2019 11:01:57

Report No.: T191105W01-RP8

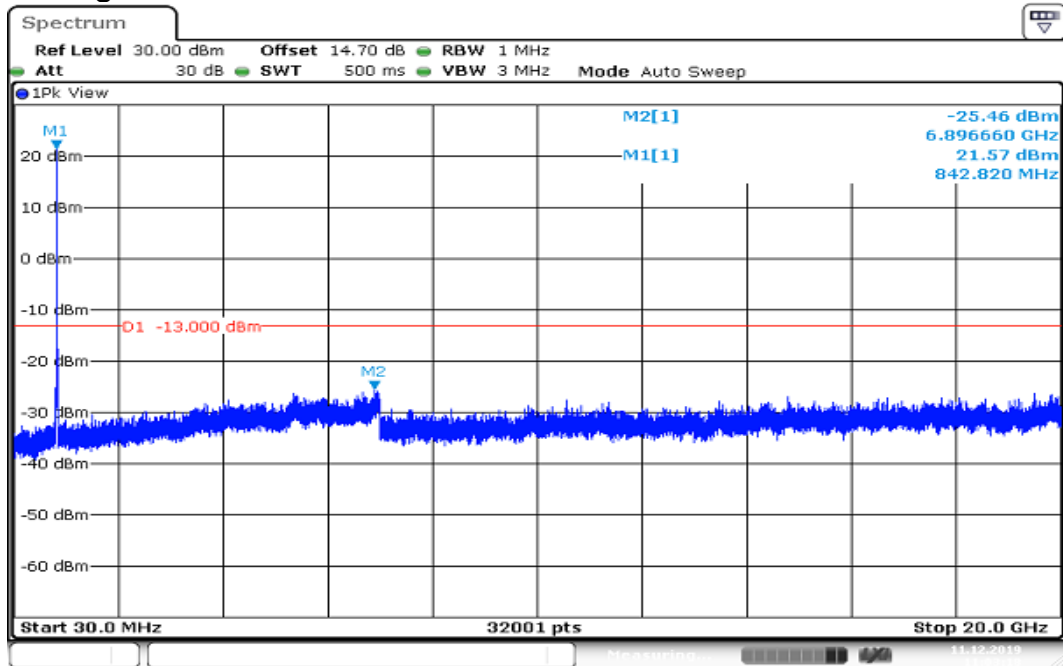
**CHANNEL BANDWIDTH: 10MHz / 16QAM****CH Low**

Date: 11.DEC.2019 11:02:36

**CH Mid**

Date: 11.DEC.2019 11:02:58

## CH High



Date: 11.DEC.2019 11:03:19

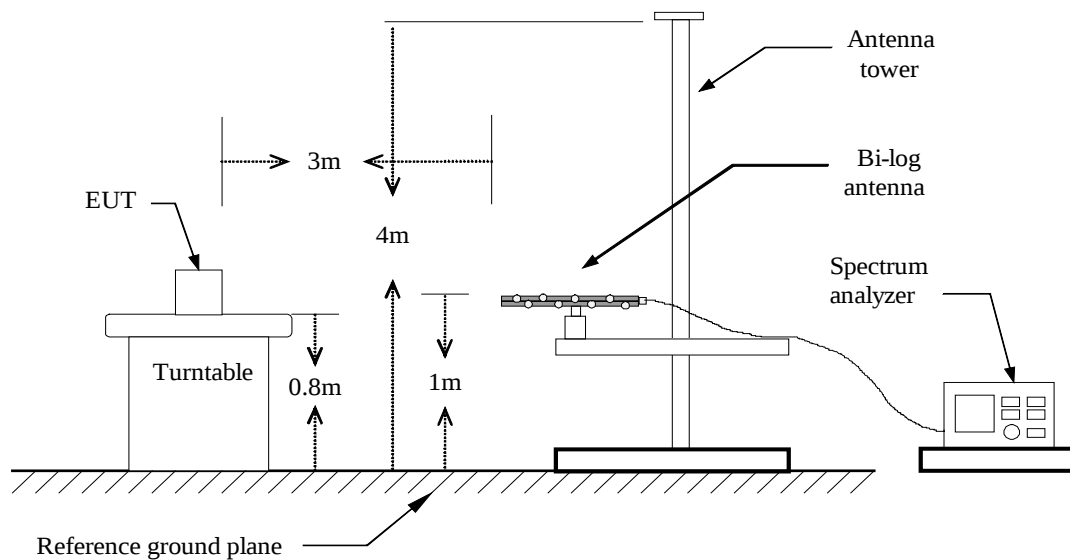
## 8.7 SPURIOUS RADIATION MEASUREMENT

### LIMIT

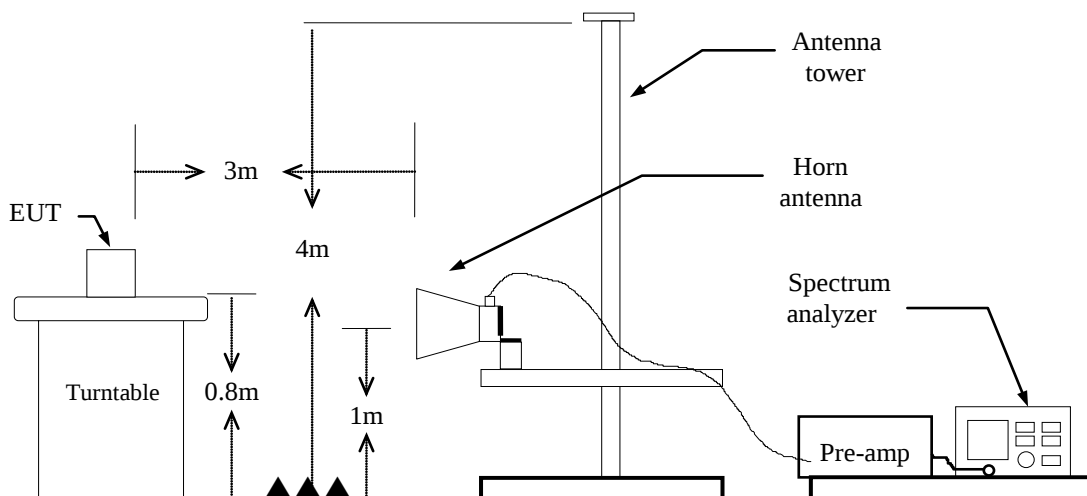
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

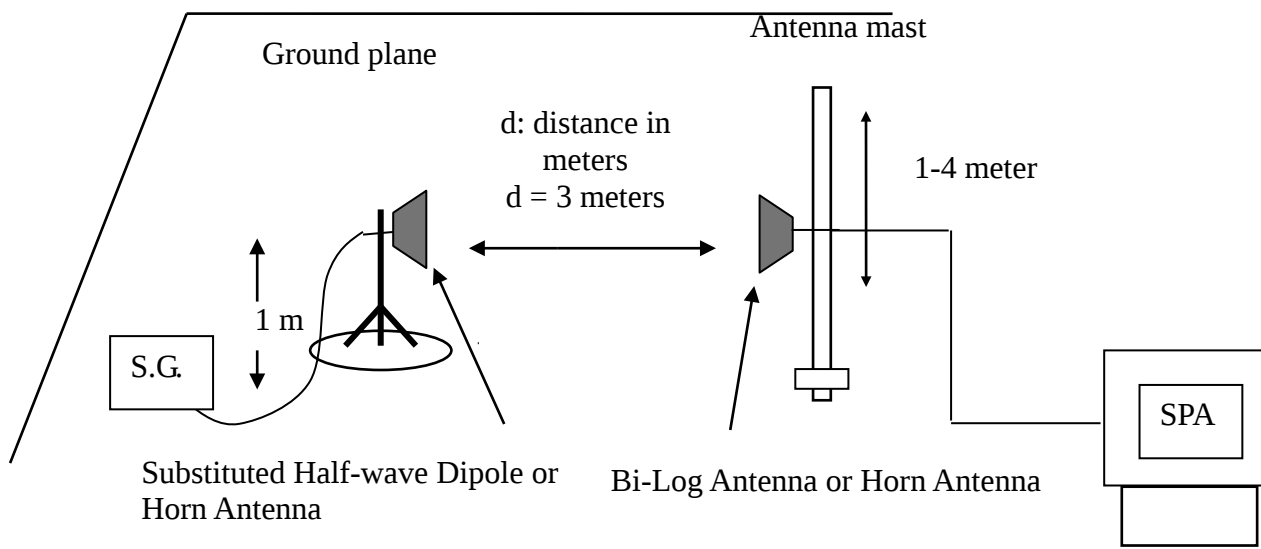
### Test Configuration

#### Below 1 GHz



#### Above 1 GHz



**Substituted Method Test Set-up****TEST PROCEDURE**

1. According to KDB 971168 D01 Power Meas License Digital Systems and TIA-603-E Section 2.2.12.
2. The EUT was placed on a turntable
  - (1) Below 1G : 0.8m
  - (2) Above 1G : 0.8m
  - (3) EUT set 3m from the receiving antenna
  - (4) The table was rotated 360 degrees of the highest spurious emission to determine the position.
3. Set the spectrum analyzer , RBW=1MHz, VBW=3MHz.
4. A horn antenna was driven by a signal generator.
5. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

**TEST RESULTS**

*Refer to the attached tabular data sheets.*

**Remark: Above 1GHz**

*Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

## Test Results

LTE Band 5 / BW: 10MHz / QPSK / RB =1, RB Offset = 0

Operation Mode: Tx / Low CH

Test Date:

December 18, 2019

Temperature: 18.6°C

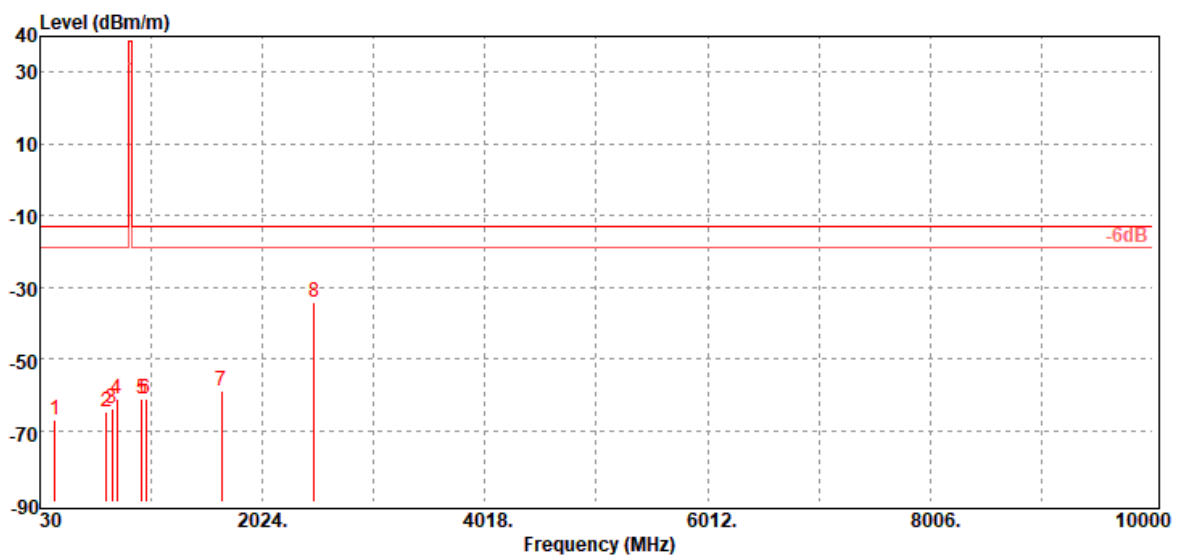
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Ver.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 165.80         | -67.19            | -60.39                      | -5.74                        | -1.06                 | -13.00         | -54.19         | V                                |
| 628.49         | -64.60            | -61.02                      | -1.47                        | -2.11                 | -13.00         | -51.60         | V                                |
| 672.14         | -63.85            | -60.3                       | -1.36                        | -2.19                 | -13.00         | -50.85         | V                                |
| 716.76         | -61.36            | -57.71                      | -1.40                        | -2.25                 | -13.00         | -48.36         | V                                |
| 944.71         | -61.07            | -57.25                      | -1.21                        | -2.61                 | -13.00         | -48.07         | V                                |
| 978.66         | -61.00            | -57.02                      | -1.33                        | -2.65                 | -13.00         | -48.00         | V                                |
| 1658.00        | -58.93            | -65.12                      | 9.75                         | -3.56                 | -13.00         | -45.93         | V                                |
| 2487.00        | -34.07            | -40.26                      | 10.75                        | -4.56                 | -13.00         | -21.07         | V                                |

Operation Mode: Tx / Low CH

Test Date:

December 18, 2019

Temperature: 18.6°C

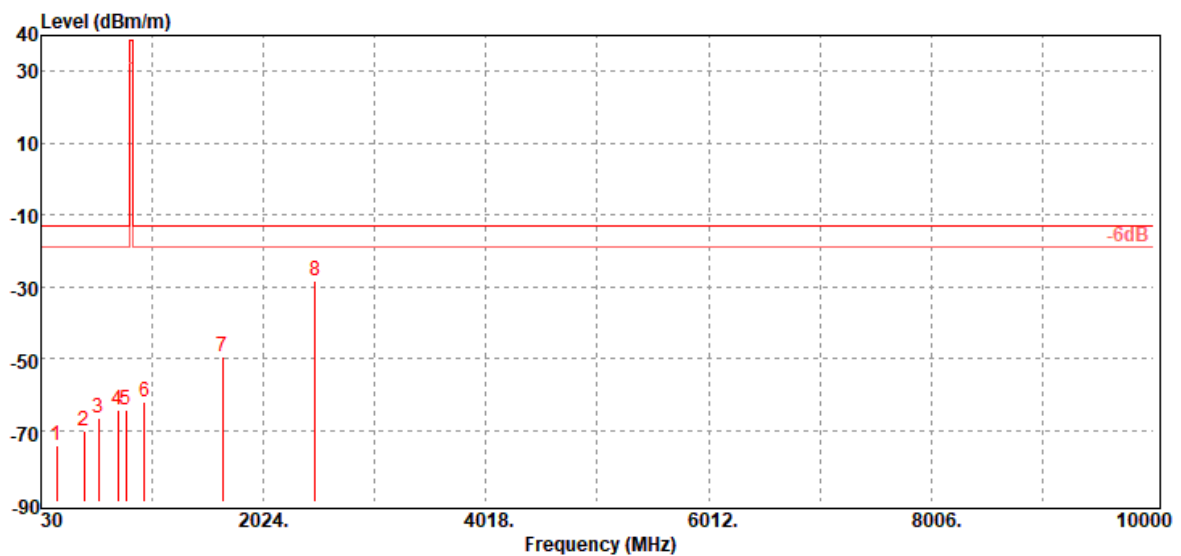
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Hor.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 168.71         | -74.45            | -67.95                      | -5.43                        | -1.07                 | -13.00         | -61.45         | H                                |
| 413.15         | -70.18            | -66.64                      | -1.86                        | -1.68                 | -13.00         | -57.18         | H                                |
| 546.04         | -66.48            | -63.34                      | -1.20                        | -1.94                 | -13.00         | -53.48         | H                                |
| 721.61         | -64.54            | -60.88                      | -1.40                        | -2.26                 | -13.00         | -51.54         | H                                |
| 793.39         | -64.20            | -60.61                      | -1.23                        | -2.36                 | -13.00         | -51.20         | H                                |
| 953.44         | -61.93            | -58.11                      | -1.20                        | -2.62                 | -13.00         | -48.93         | H                                |
| 1658.00        | -49.57            | -55.76                      | 9.75                         | -3.56                 | -13.00         | -36.57         | H                                |
| 2487.00        | -28.41            | -34.6                       | 10.75                        | -4.56                 | -13.00         | -15.41         | H                                |

Operation Mode: Tx / Mid CH

Test Date:

December 18, 2019

Temperature: 18.6°C

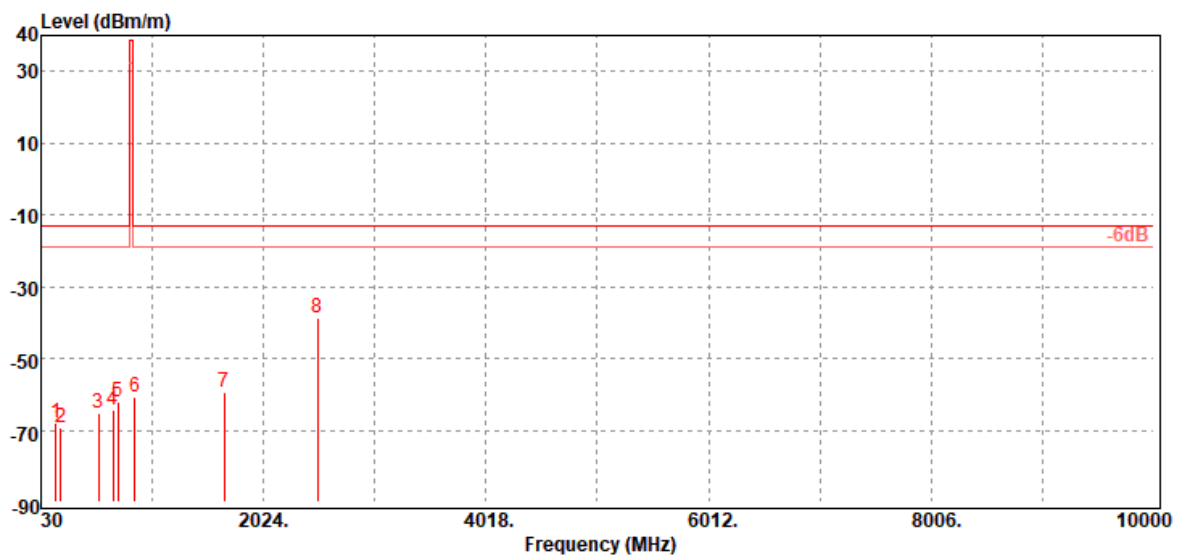
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Ver.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 163.86         | -67.82            | -60.86                      | -5.91                        | -1.05                 | -13.00         | -54.82         | V                                |
| 207.51         | -69.50            | -65.87                      | -2.45                        | -1.18                 | -13.00         | -56.50         | V                                |
| 546.04         | -65.15            | -62.01                      | -1.20                        | -1.94                 | -13.00         | -52.15         | V                                |
| 673.11         | -64.19            | -60.66                      | -1.34                        | -2.19                 | -13.00         | -51.19         | V                                |
| 721.61         | -61.98            | -58.32                      | -1.40                        | -2.26                 | -13.00         | -48.98         | V                                |
| 873.90         | -60.66            | -56.88                      | -1.28                        | -2.50                 | -13.00         | -47.66         | V                                |
| 1673.00        | -59.42            | -65.68                      | 9.84                         | -3.58                 | -13.00         | -46.42         | V                                |
| 2509.50        | -38.89            | -45.1                       | 10.80                        | -4.59                 | -13.00         | -25.89         | V                                |

Operation Mode: Tx / Mid CH

Test Date:

December 18, 2019

Temperature: 18.6°C

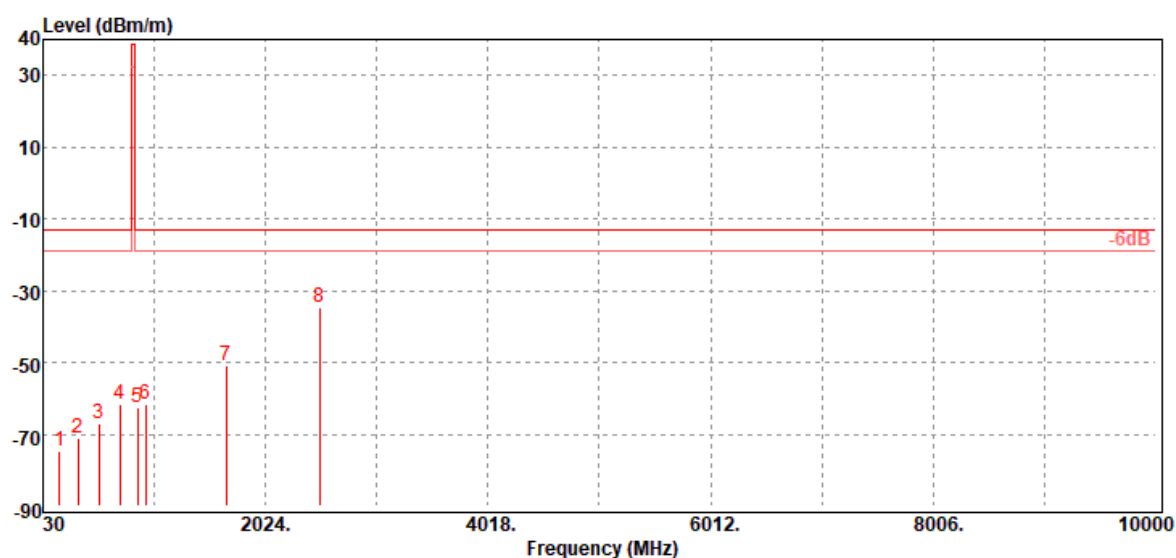
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Hor.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 175.50         | -74.54            | -68.6                       | -4.85                        | -1.09                 | -13.00         | -61.54         | H                                |
| 347.19         | -70.96            | -67.92                      | -1.50                        | -1.54                 | -13.00         | -57.96         | H                                |
| 531.49         | -67.05            | -63.83                      | -1.30                        | -1.92                 | -13.00         | -54.05         | H                                |
| 718.70         | -61.51            | -57.85                      | -1.40                        | -2.26                 | -13.00         | -48.51         | H                                |
| 875.84         | -62.65            | -58.87                      | -1.28                        | -2.50                 | -13.00         | -49.65         | H                                |
| 948.59         | -61.78            | -57.97                      | -1.20                        | -2.61                 | -13.00         | -48.78         | H                                |
| 1673.00        | -50.80            | -57.06                      | 9.84                         | -3.58                 | -13.00         | -37.80         | H                                |
| 2509.50        | -34.50            | -40.71                      | 10.80                        | -4.59                 | -13.00         | -21.50         | H                                |

Operation Mode: Tx / High CH

Test Date:

December 18, 2019

Temperature: 18.6°C

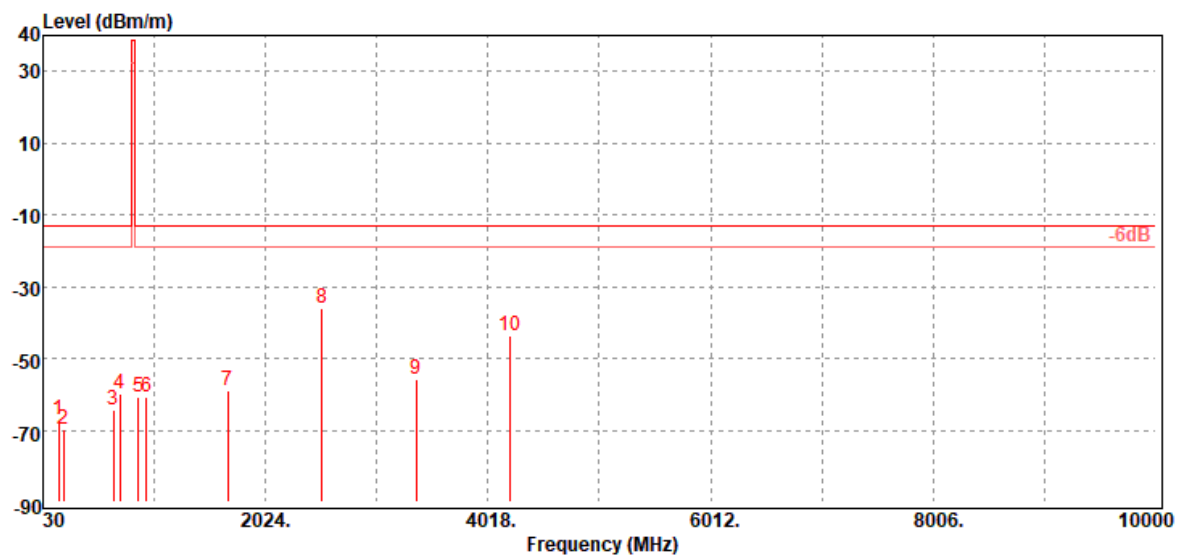
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Ver.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 168.71         | -66.90            | -60.4                       | -5.43                        | -1.07                 | -13.00         | -53.90         | V                                |
| 216.24         | -69.90            | -66.61                      | -2.08                        | -1.21                 | -13.00         | -56.90         | V                                |
| 658.56         | -64.35            | -60.73                      | -1.46                        | -2.16                 | -13.00         | -51.35         | V                                |
| 715.79         | -59.97            | -56.32                      | -1.40                        | -2.25                 | -13.00         | -46.97         | V                                |
| 888.45         | -60.84            | -57.09                      | -1.23                        | -2.52                 | -13.00         | -47.84         | V                                |
| 953.44         | -60.94            | -57.12                      | -1.20                        | -2.62                 | -13.00         | -47.94         | V                                |
| 1688.00        | -58.81            | -65.14                      | 9.93                         | -3.60                 | -13.00         | -45.81         | V                                |
| 2532.00        | -35.86            | -42.05                      | 10.80                        | -4.61                 | -13.00         | -22.86         | V                                |
| 3376.00        | -55.64            | -63.03                      | 12.85                        | -5.46                 | -13.00         | -42.64         | V                                |
| 4220.00        | -43.63            | -50.39                      | 12.86                        | -6.10                 | -13.00         | -30.63         | V                                |

Operation Mode: Tx / High CH

Test Date:

December 18, 2019

Temperature: 18.6°C

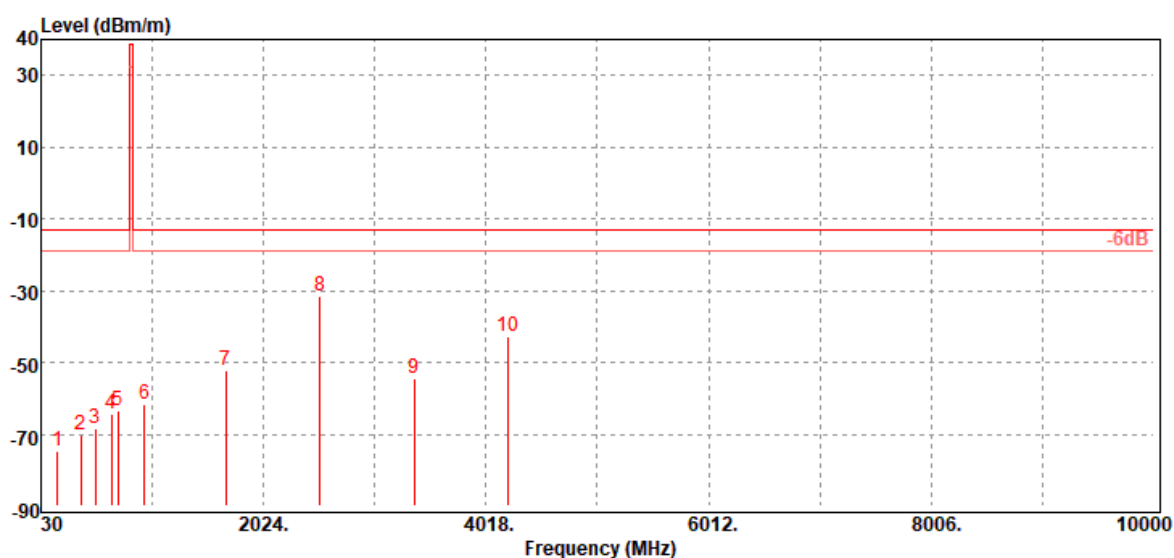
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Hor.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 175.50         | -74.57            | -68.63                      | -4.85                        | -1.09                 | -13.00         | -61.57         | H                                |
| 385.99         | -70.18            | -67.15                      | -1.40                        | -1.63                 | -13.00         | -57.18         | H                                |
| 519.85         | -68.27            | -64.96                      | -1.40                        | -1.91                 | -13.00         | -55.27         | H                                |
| 662.44         | -64.45            | -60.83                      | -1.45                        | -2.17                 | -13.00         | -51.45         | H                                |
| 721.61         | -63.53            | -59.87                      | -1.40                        | -2.26                 | -13.00         | -50.53         | H                                |
| 958.29         | -61.71            | -57.82                      | -1.27                        | -2.62                 | -13.00         | -48.71         | H                                |
| 1688.00        | -52.02            | -58.35                      | 9.93                         | -3.60                 | -13.00         | -39.02         | H                                |
| 2532.00        | -31.34            | -37.53                      | 10.80                        | -4.61                 | -13.00         | -18.34         | H                                |
| 3376.00        | -54.25            | -61.64                      | 12.85                        | -5.46                 | -13.00         | -41.25         | H                                |
| 4220.00        | -42.68            | -49.44                      | 12.86                        | -6.10                 | -13.00         | -29.68         | H                                |

**LTE Band 2 / BW: 20MHz / QPSK / RB =1, RB Offset = 0****Operation Mode:** Tx / Low CH**Test Date:**

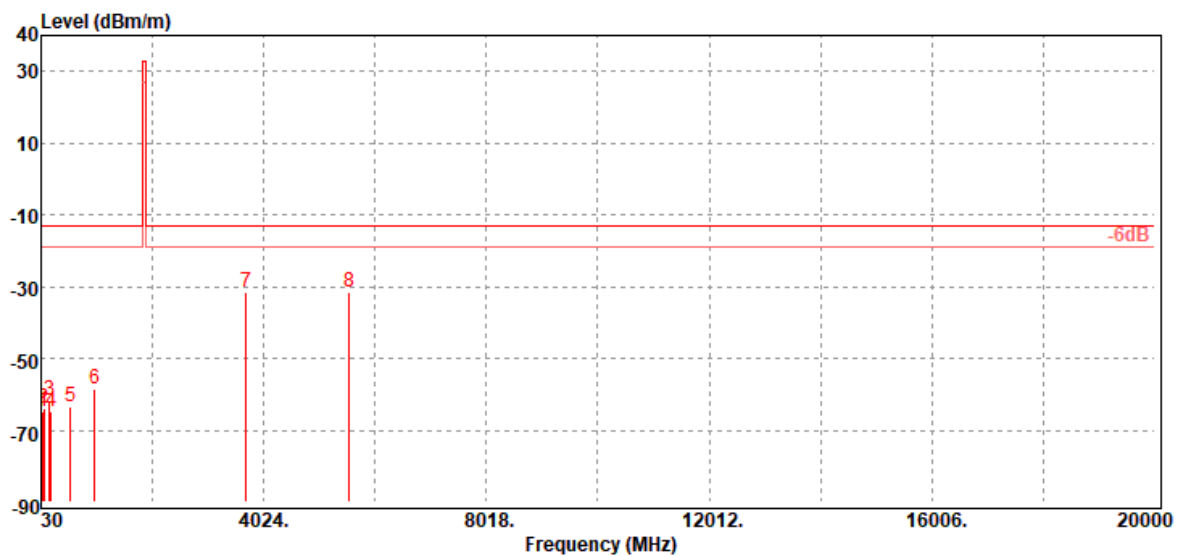
December 17, 2019

**Temperature:** 18.6°C**Tested by:**

Jerry Chang

**Humidity:** 59% RH**Polarity:**

Ver.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 59.10          | -64.72            | -53.78                      | -10.31                       | -0.63                 | -13.00         | -51.72         | V                                |
| 78.50          | -64.00            | -54.72                      | -8.55                        | -0.73                 | -13.00         | -51.00         | V                                |
| 177.44         | -61.76            | -56.01                      | -4.66                        | -1.09                 | -13.00         | -48.76         | V                                |
| 204.60         | -64.85            | -60.71                      | -2.96                        | -1.18                 | -13.00         | -51.85         | V                                |
| 563.50         | -63.62            | -60.24                      | -1.40                        | -1.98                 | -13.00         | -50.62         | V                                |
| 990.30         | -58.64            | -54.58                      | -1.40                        | -2.66                 | -13.00         | -45.64         | V                                |
| 3701.40        | -31.66            | -38.45                      | 12.50                        | -5.71                 | -13.00         | -18.66         | V                                |
| 5552.10        | -31.75            | -37.86                      | 13.20                        | -7.09                 | -13.00         | -18.75         | V                                |

Operation Mode: Tx / Low CH

Test Date:

December 17, 2019

Temperature: 18.6°C

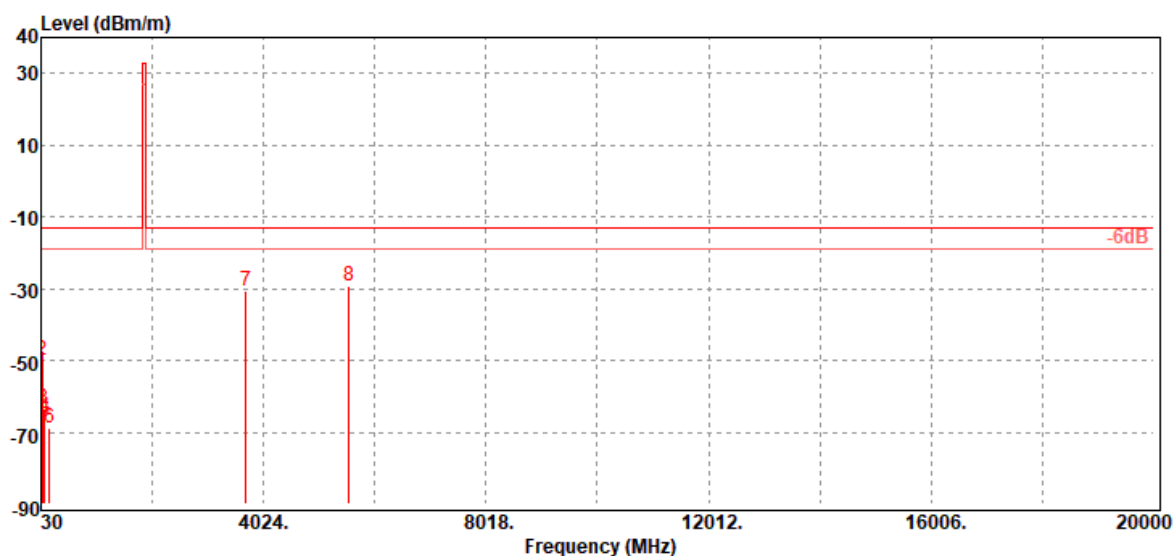
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Hor.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 46.49          | -53.20            | -38.29                      | -14.36                       | -0.55                 | -13.00         | -40.20         | H                                |
| 57.16          | -50.16            | -39.08                      | -10.47                       | -0.61                 | -13.00         | -37.16         | H                                |
| 77.53          | -63.40            | -54.03                      | -8.65                        | -0.72                 | -13.00         | -50.40         | H                                |
| 88.20          | -65.83            | -57.9                       | -7.16                        | -0.77                 | -13.00         | -52.83         | H                                |
| 99.84          | -66.87            | -57.8                       | -8.25                        | -0.82                 | -13.00         | -53.87         | H                                |
| 175.50         | -69.01            | -63.07                      | -4.85                        | -1.09                 | -13.00         | -56.01         | H                                |
| 3701.40        | -30.63            | -37.42                      | 12.50                        | -5.71                 | -13.00         | -17.63         | H                                |
| 5552.10        | -29.16            | -35.27                      | 13.20                        | -7.09                 | -13.00         | -16.16         | H                                |

Report No.: T191105W01-RP8

Page: 172 / 175

Rev.: 00

**Operation Mode:** Tx / Mid CH

**Test Date:**

December 17, 2019

**Temperature:** 18.6°C

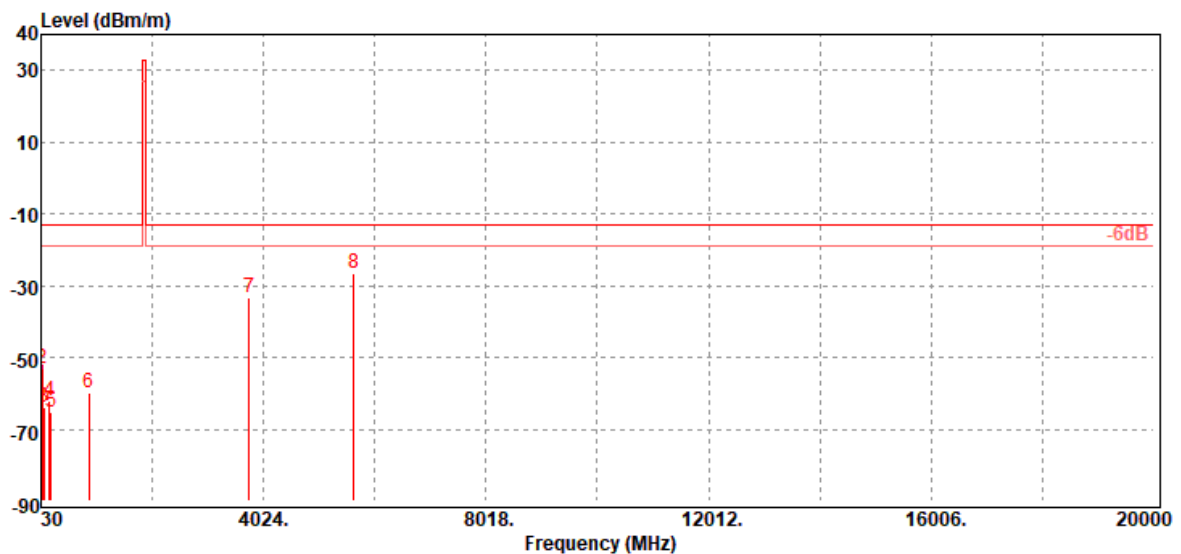
**Tested by:**

Jerry Chang

**Humidity:** 59% RH

**Polarity:**

Ver.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 47.46          | -57.39            | -43.3                       | -13.53                       | -0.56                 | -13.00         | -44.39         | V                                |
| 58.13          | -53.03            | -42.11                      | -10.30                       | -0.62                 | -13.00         | -40.03         | V                                |
| 78.50          | -63.95            | -54.67                      | -8.55                        | -0.73                 | -13.00         | -50.95         | V                                |
| 177.44         | -62.24            | -56.49                      | -4.66                        | -1.09                 | -13.00         | -49.24         | V                                |
| 206.54         | -65.13            | -61.37                      | -2.58                        | -1.18                 | -13.00         | -52.13         | V                                |
| 890.39         | -59.94            | -56.2                       | -1.21                        | -2.53                 | -13.00         | -46.94         | V                                |
| 3760.00        | -33.24            | -39.9                       | 12.42                        | -5.76                 | -13.00         | -20.24         | V                                |
| 5640.00        | -26.40            | -32.52                      | 13.26                        | -7.14                 | -13.00         | -13.40         | V                                |

Operation Mode: Tx / Mid CH

Test Date:

December 17, 2019

Temperature: 18.6°C

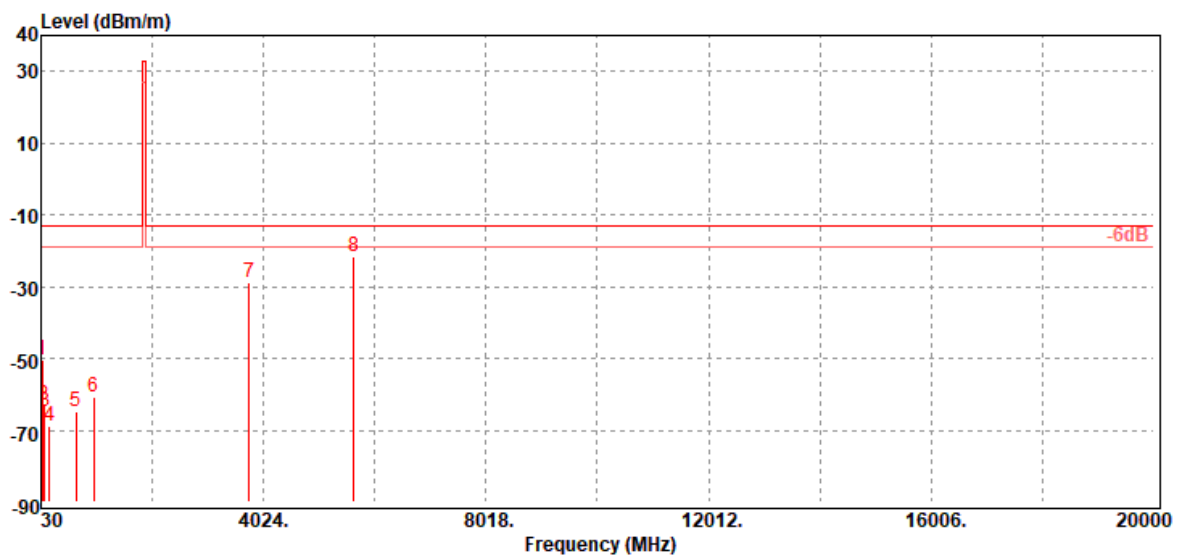
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Hor.



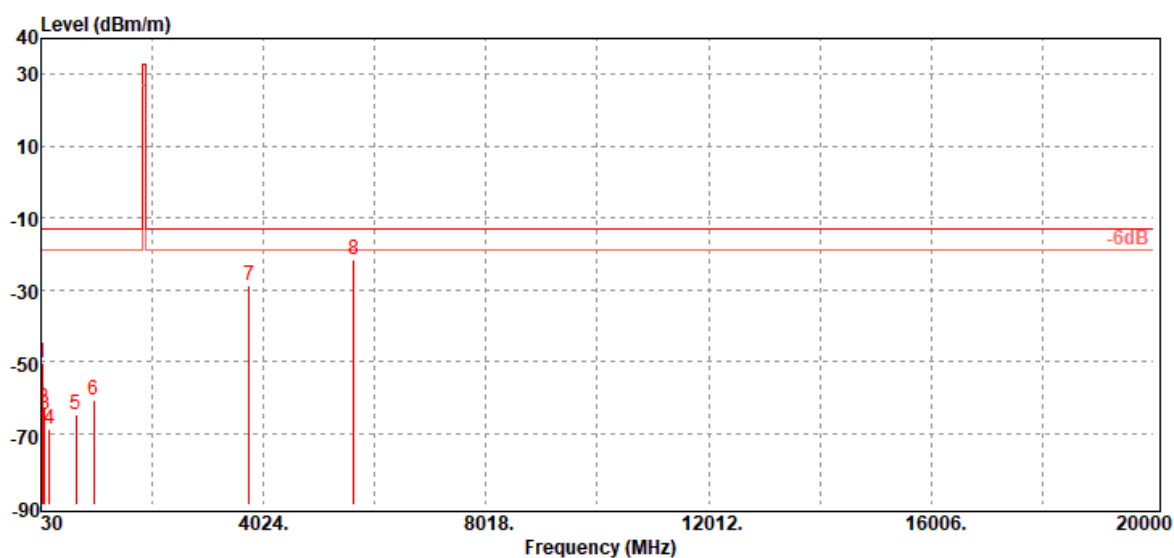
| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 57.16          | -50.52            | -39.44                      | -10.47                       | -0.61                 | -13.00         | -37.52         | H                                |
| 78.50          | -63.15            | -53.87                      | -8.55                        | -0.73                 | -13.00         | -50.15         | H                                |
| 88.20          | -64.61            | -56.68                      | -7.16                        | -0.77                 | -13.00         | -51.61         | H                                |
| 175.50         | -68.75            | -62.81                      | -4.85                        | -1.09                 | -13.00         | -55.75         | H                                |
| 657.59         | -64.87            | -61.21                      | -1.50                        | -2.16                 | -13.00         | -51.87         | H                                |
| 980.60         | -60.72            | -56.76                      | -1.31                        | -2.65                 | -13.00         | -47.72         | H                                |
| 3760.00        | -28.80            | -35.46                      | 12.42                        | -5.76                 | -13.00         | -15.80         | H                                |
| 5640.00        | -21.52            | -27.64                      | 13.26                        | -7.14                 | -13.00         | -8.52          | H                                |

Report No.: T191105W01-RP8

Page: 174 / 175  
Rev.: 00

**Operation Mode:** Tx / High CH  
**Temperature:** 18.6°C  
**Humidity:** 59% RH

**Test Date:** December 17, 2019  
**Tested by:** Jerry Chang  
**Polarity:** Ver.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 46.49          | -48.93            | -34.02                      | -14.36                       | -0.55                 | -13.00         | -35.93         | V                                |
| 59.10          | -50.27            | -39.33                      | -10.31                       | -0.63                 | -13.00         | -37.27         | V                                |
| 173.56         | -62.61            | -56.54                      | -4.99                        | -1.08                 | -13.00         | -49.61         | V                                |
| 211.39         | -63.76            | -60.47                      | -2.10                        | -1.19                 | -13.00         | -50.76         | V                                |
| 253.10         | -66.20            | -63.21                      | -1.68                        | -1.31                 | -13.00         | -53.20         | V                                |
| 990.30         | -59.67            | -55.61                      | -1.40                        | -2.66                 | -13.00         | -46.67         | V                                |
| 3818.40        | -34.52            | -41.17                      | 12.46                        | -5.81                 | -13.00         | -21.52         | V                                |
| 5727.60        | -21.01            | -26.92                      | 13.10                        | -7.19                 | -13.00         | -8.01          | V                                |
| 7636.80        | -36.26            | -39.28                      | 11.20                        | -8.18                 | -13.00         | -23.26         | V                                |

Operation Mode: Tx / High CH

Test Date:

December 17, 2019

Temperature: 18.6°C

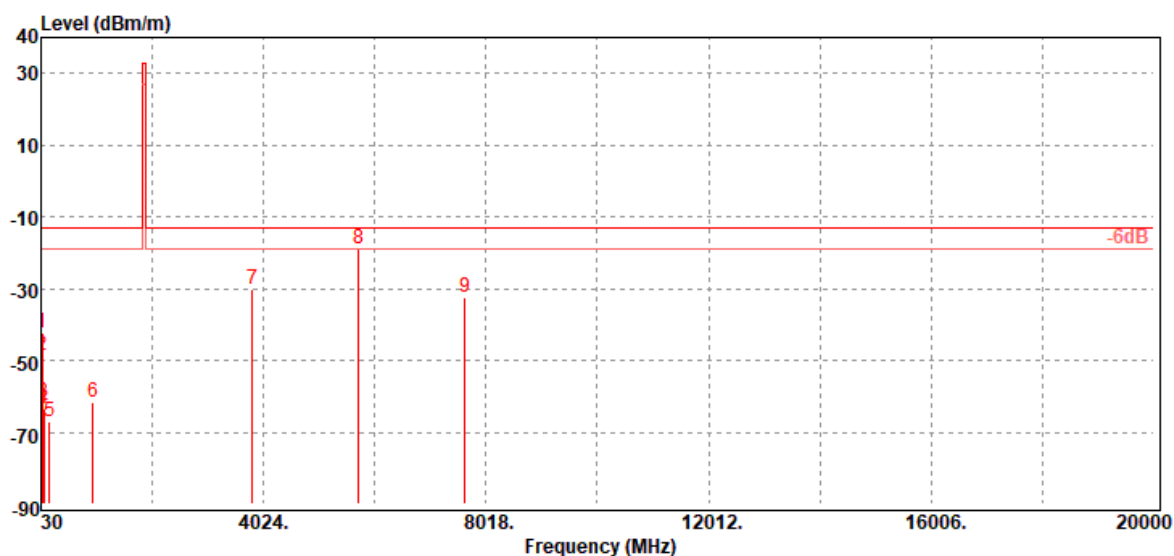
Tested by:

Jerry Chang

Humidity: 59% RH

Polarity:

Hor.



| Freq.<br>(MHz) | ERP/EIRP<br>(dBm) | SG<br>Output Level<br>(dBm) | Antenna<br>Gain<br>(dBd/dBi) | Cable<br>Loss<br>(dB) | Limit<br>(dBm) | Margin<br>(dB) | Antenna<br>Polarization<br>(V/H) |
|----------------|-------------------|-----------------------------|------------------------------|-----------------------|----------------|----------------|----------------------------------|
| 44.55          | -42.27            | -25.87                      | -15.86                       | -0.54                 | -13.00         | -29.27         | H                                |
| 57.16          | -48.79            | -37.71                      | -10.47                       | -0.61                 | -13.00         | -35.79         | H                                |
| 66.86          | -61.86            | -51.22                      | -9.97                        | -0.67                 | -13.00         | -48.86         | H                                |
| 78.50          | -63.60            | -54.32                      | -8.55                        | -0.73                 | -13.00         | -50.60         | H                                |
| 177.44         | -66.98            | -61.23                      | -4.66                        | -1.09                 | -13.00         | -53.98         | H                                |
| 959.26         | -61.53            | -57.61                      | -1.29                        | -2.63                 | -13.00         | -48.53         | H                                |
| 3818.40        | -30.32            | -36.97                      | 12.46                        | -5.81                 | -13.00         | -17.32         | H                                |
| 5727.60        | -19.03            | -24.94                      | 13.10                        | -7.19                 | -13.00         | -6.03          | H                                |
| 7636.80        | -32.53            | -35.55                      | 11.20                        | -8.18                 | -13.00         | -19.53         | H                                |

- End of Test Report -