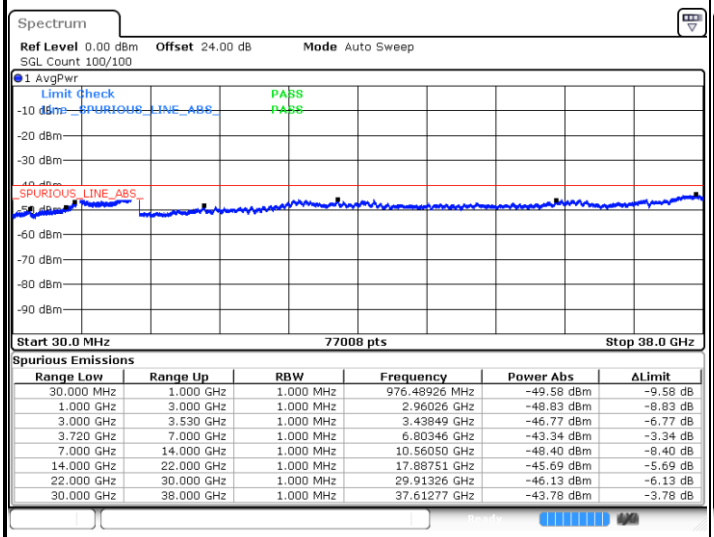
## LTE Band 48 / 20MHz

### 64QAM

#### Middle Channel / 1RB0

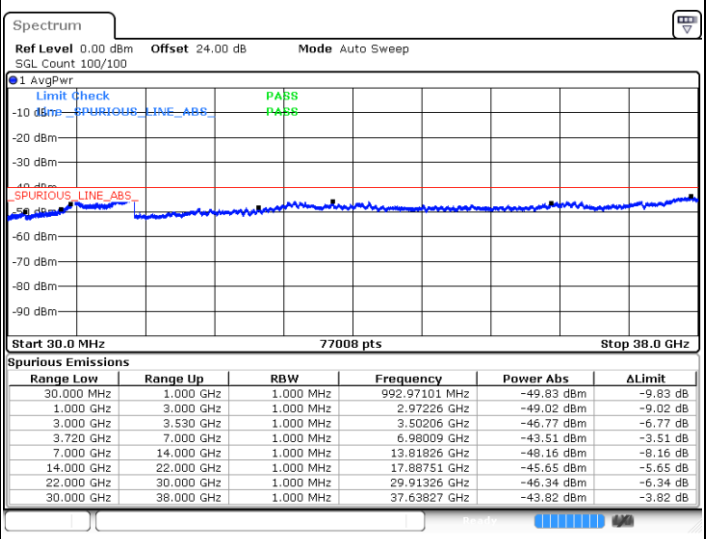



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 976.48926 MHz | -49.58 dBm | -9.58 dB |
| 1.000 GHz | 3.000 GHz | 1.000 MHz | 2.96026 GHz | -48.83 dBm | -8.83 dB |
| 3.000 GHz | 3.530 GHz | 1.000 MHz | 3.43849 GHz | -46.77 dBm | -6.77 dB |
| 3.720 GHz | 7.000 GHz | 1.000 MHz | 6.80346 GHz | -43.34 dBm | -3.34 dB |
| 7.000 GHz | 14.000 GHz | 1.000 MHz | 10.56050 GHz | -48.40 dBm | -8.40 dB |
| 14.000 GHz | 22.000 GHz | 1.000 MHz | 17.88751 GHz | -45.69 dBm | -5.69 dB |
| 22.000 GHz | 30.000 GHz | 1.000 MHz | 29.91326 GHz | -46.13 dBm | -6.13 dB |
| 30.000 GHz | 38.000 GHz | 1.000 MHz | 37.61277 GHz | -43.78 dBm | -3.78 dB |

Date: 4.AUG.2020 03:00:01

#### Middle Channel / 1RBmax

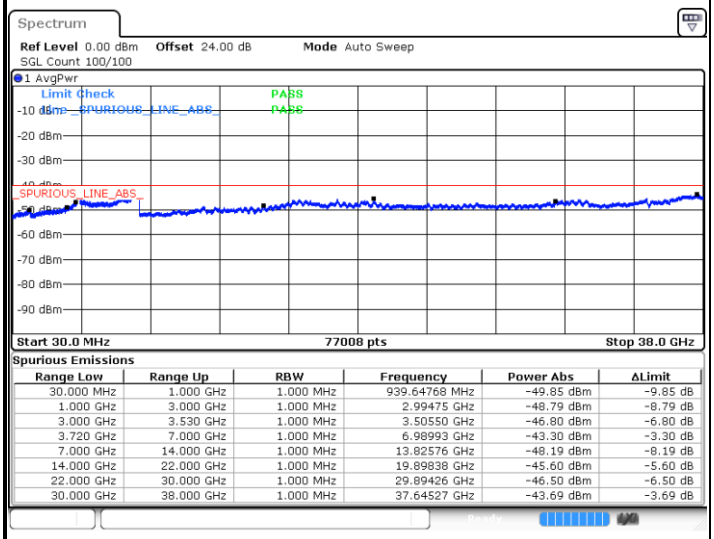



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 992.97101 MHz | -49.83 dBm | -9.83 dB |
| 1.000 GHz | 3.000 GHz | 1.000 MHz | 2.97226 GHz | -49.02 dBm | -9.02 dB |
| 3.000 GHz | 3.530 GHz | 1.000 MHz | 3.50206 GHz | -46.77 dBm | -6.77 dB |
| 3.720 GHz | 7.000 GHz | 1.000 MHz | 6.98009 GHz | -43.51 dBm | -3.51 dB |
| 7.000 GHz | 14.000 GHz | 1.000 MHz | 13.81826 GHz | -48.16 dBm | -8.16 dB |
| 14.000 GHz | 22.000 GHz | 1.000 MHz | 17.88751 GHz | -45.65 dBm | -5.65 dB |
| 22.000 GHz | 30.000 GHz | 1.000 MHz | 29.91326 GHz | -46.34 dBm | -6.34 dB |
| 30.000 GHz | 38.000 GHz | 1.000 MHz | 37.63827 GHz | -43.82 dBm | -3.82 dB |

Date: 4.AUG.2020 03:09:59

#### Middle Channel / FullRB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 939.64768 MHz | -49.85 dBm | -9.85 dB |
| 1.000 GHz | 3.000 GHz | 1.000 MHz | 2.99475 GHz | -48.79 dBm | -8.79 dB |
| 3.000 GHz | 3.530 GHz | 1.000 MHz | 3.50550 GHz | -46.80 dBm | -6.80 dB |
| 3.720 GHz | 7.000 GHz | 1.000 MHz | 6.98993 GHz | -43.30 dBm | -3.30 dB |
| 7.000 GHz | 14.000 GHz | 1.000 MHz | 13.82576 GHz | -48.19 dBm | -8.19 dB |
| 14.000 GHz | 22.000 GHz | 1.000 MHz | 19.89838 GHz | -45.60 dBm | -5.60 dB |
| 22.000 GHz | 30.000 GHz | 1.000 MHz | 29.89426 GHz | -46.50 dBm | -6.50 dB |
| 30.000 GHz | 38.000 GHz | 1.000 MHz | 37.64527 GHz | -43.69 dBm | -3.69 dB |

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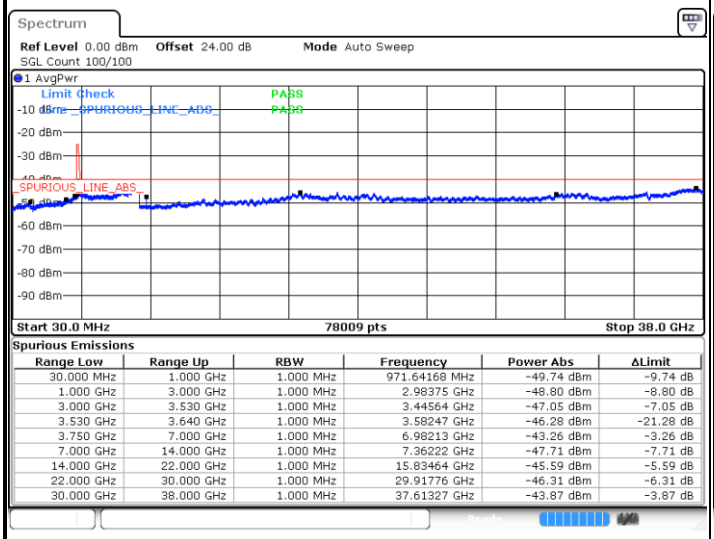
#### N/A

## LTE Band 48 / 20MHz

### 64QAM

#### Highest Channel / 1RB0

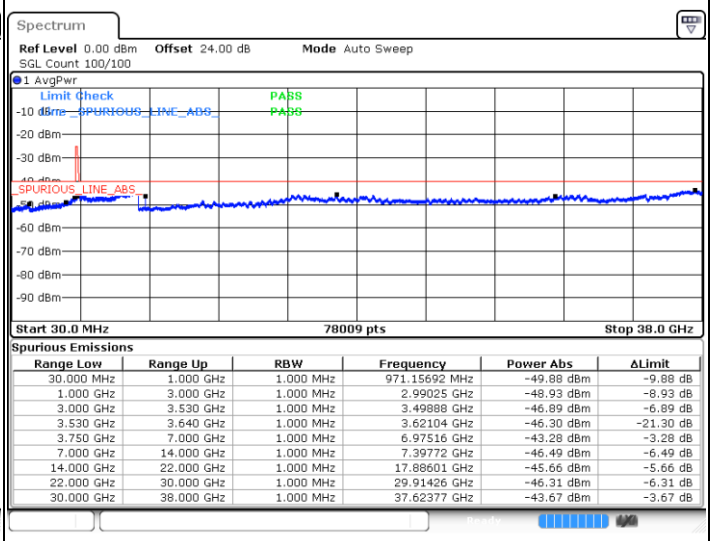



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 971.64168 MHz | -49.74 dBm | -9.74 dB |
| 1.000 GHz | 3.000 GHz | 1.000 MHz | 2.98375 GHz | -48.80 dBm | -8.80 dB |
| 3.000 GHz | 3.530 GHz | 1.000 MHz | 3.44564 GHz | -47.05 dBm | -7.05 dB |
| 3.530 GHz | 3.640 GHz | 1.000 MHz | 3.58247 GHz | -46.28 dBm | -21.28 dB |
| 3.750 GHz | 7.000 GHz | 1.000 MHz | 6.98213 GHz | -43.26 dBm | -3.26 dB |
| 7.000 GHz | 14.000 GHz | 1.000 MHz | 7.36222 GHz | -47.71 dBm | -7.71 dB |
| 14.000 GHz | 22.000 GHz | 1.000 MHz | 15.83464 GHz | -45.59 dBm | -5.59 dB |
| 22.000 GHz | 30.000 GHz | 1.000 MHz | 29.91776 GHz | -46.31 dBm | -6.31 dB |
| 30.000 GHz | 38.000 GHz | 1.000 MHz | 37.61327 GHz | -43.87 dBm | -3.87 dB |

Date: 4.AUG.2020 03:01:07

#### Highest Channel / 1RBmax

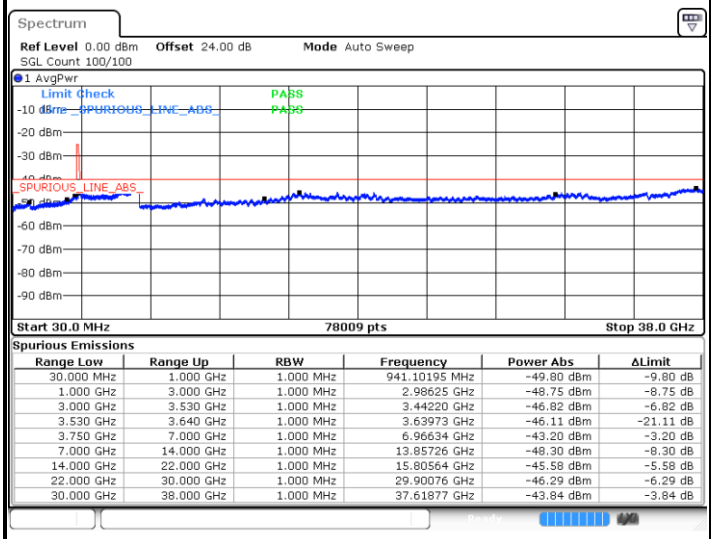



Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 971.15692 MHz | -49.88 dBm | -9.88 dB |
| 1.000 GHz | 3.000 GHz | 1.000 MHz | 2.99025 GHz | -48.93 dBm | -8.93 dB |
| 3.000 GHz | 3.530 GHz | 1.000 MHz | 3.49888 GHz | -46.89 dBm | -6.89 dB |
| 3.530 GHz | 3.640 GHz | 1.000 MHz | 3.62104 GHz | -46.30 dBm | -21.30 dB |
| 3.750 GHz | 7.000 GHz | 1.000 MHz | 6.97516 GHz | -43.28 dBm | -3.28 dB |
| 7.000 GHz | 14.000 GHz | 1.000 MHz | 7.39772 GHz | -46.49 dBm | -6.49 dB |
| 14.000 GHz | 22.000 GHz | 1.000 MHz | 17.88601 GHz | -45.66 dBm | -5.66 dB |
| 22.000 GHz | 30.000 GHz | 1.000 MHz | 29.91426 GHz | -46.31 dBm | -6.31 dB |
| 30.000 GHz | 38.000 GHz | 1.000 MHz | 37.62377 GHz | -43.67 dBm | -3.67 dB |

Date: 4.AUG.2020 03:11:06

#### Highest Channel / FullRB




Spurious Emissions

| Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit |
|---|---|---|---|---|---|
| 30.000 MHz | 1.000 GHz | 1.000 MHz | 941.10195 MHz | -49.80 dBm | -9.80 dB |
| 1.000 GHz | 3.000 GHz | 1.000 MHz | 2.98625 GHz | -48.75 dBm | -8.75 dB |
| 3.000 GHz | 3.530 GHz | 1.000 MHz | 3.44220 GHz | -46.82 dBm | -6.82 dB |
| 3.530 GHz | 3.640 GHz | 1.000 MHz | 3.63973 GHz | -46.11 dBm | -21.11 dB |
| 3.750 GHz | 7.000 GHz | 1.000 MHz | 6.96634 GHz | -43.20 dBm | -3.20 dB |
| 7.000 GHz | 14.000 GHz | 1.000 MHz | 13.85726 GHz | -48.30 dBm | -8.30 dB |
| 14.000 GHz | 22.000 GHz | 1.000 MHz | 15.80564 GHz | -45.58 dBm | -5.58 dB |
| 22.000 GHz | 30.000 GHz | 1.000 MHz | 29.90076 GHz | -46.29 dBm | -6.29 dB |
| 30.000 GHz | 38.000 GHz | 1.000 MHz | 37.61877 GHz | -43.84 dBm | -3.84 dB |

Date: 4.AUG.2020 02:51:08

#### N/A

# Frequency Stability

| Test Conditions | | LTE Band 48 (QPSK) / Middle Channel | Limit |
|---|---|---|---|
| Temperature (°C) | Voltage (Volt) | BW 10MHz | Note 2. |
| | | Deviation (ppm) | Result |
| 50 | Normal Voltage | 0.0030 | PASS |
| 40 | Normal Voltage | 0.0044 | |
| 30 | Normal Voltage | 0.0008 | |
| 20(Ref.) | Normal Voltage | 0.0000 | |
| 10 | Normal Voltage | 0.0029 | |
| 0 | Normal Voltage | 0.0015 | |
| -10 | Normal Voltage | 0.0049 | |
| -20 | Normal Voltage | 0.0048 | |
| -30 | Normal Voltage | 0.0036 | |
| 20 | Maximum Voltage | 0.0050 | |
| 20 | Normal Voltage | 0.0000 | |
| 20 | Battery End Point | 0.0032 | |

**Note:**

1. Normal Voltage = DC 48 V.；Battery End Point (BEP) = DC 36 V.；Maximum Voltage = DC 55 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

# LTE Band 48C

**<CA Mode for Sample 2>**

## 26dB Bandwidth

| Mode | LTE Band 48C : 26dB BW(MHz) | | | |
|---|---|---|---|---|
| QPSK | | | | |
| BW | 5MHz+20MHz | 10MHz+20MHz | 15MHz+20MHz | 20MHz+5MHz |
| Lowest CH | 24.93 | 30.15 | 35.18 | 24.93 |
| Middle CH | 24.93 | 29.91 | 35.18 | 24.83 |
| Highest CH | 24.88 | 29.85 | 34.97 | 24.88 |
| BW | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz | N/A |
| Lowest CH | 30.09 | 34.90 | 39.96 | - |
| Middle CH | 30.03 | 34.90 | 39.88 | - |
| Highest CH | 30.03 | 34.97 | 39.80 | - |

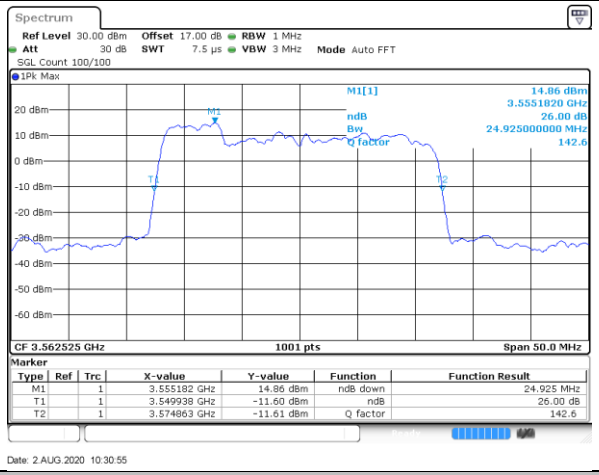
| Mode | LTE Band 48C : 26dB BW(MHz) | | | |
|---|---|---|---|---|
| 16QAM | | | | |
| BW | 5MHz+20MHz | 10MHz+20MHz | 15MHz+20MHz | 20MHz+5MHz |
| Lowest CH | 24.83 | 29.91 | 34.83 | 24.88 |
| Middle CH | 24.78 | 30.03 | 35.11 | 24.93 |
| Highest CH | 24.78 | 29.85 | 34.90 | 24.73 |
| BW | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz | N/A |
| Lowest CH | 30.09 | 34.90 | 39.88 | - |
| Middle CH | 29.85 | 34.90 | 39.88 | - |
| Highest CH | 30.03 | 35.04 | 40.04 | - |

| Mode | LTE Band 48C : 26dB BW(MHz) | | | |
|---|---|---|---|---|
| 64QAM | | | | |
| BW | 5MHz+20MHz | 10MHz+20MHz | 15MHz+20MHz | 20MHz+5MHz |
| Lowest CH | 24.83 | 29.97 | 35.04 | 24.78 |
| Middle CH | 24.78 | 30.15 | 34.97 | 24.88 |
| Highest CH | 24.93 | 29.97 | 34.97 | 24.93 |
| BW | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz | N/A |
| Lowest CH | 29.97 | 34.90 | 40.04 | - |
| Middle CH | 29.97 | 34.97 | 39.96 | - |
| Highest CH | 30.03 | 34.83 | 39.88 | - |

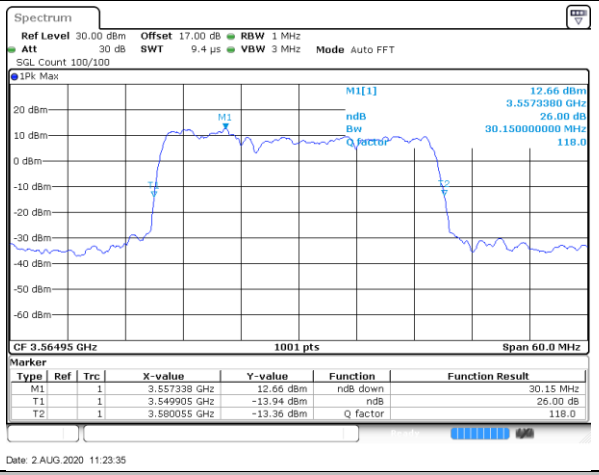
## LTE Band 48C

### QPSK

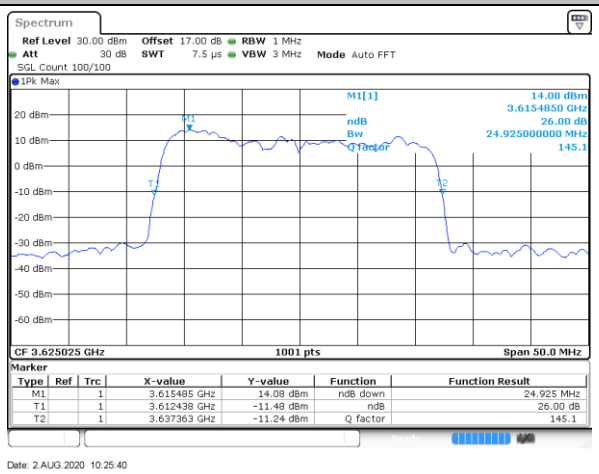
#### Lowest Channel / 5MHz+20MHz



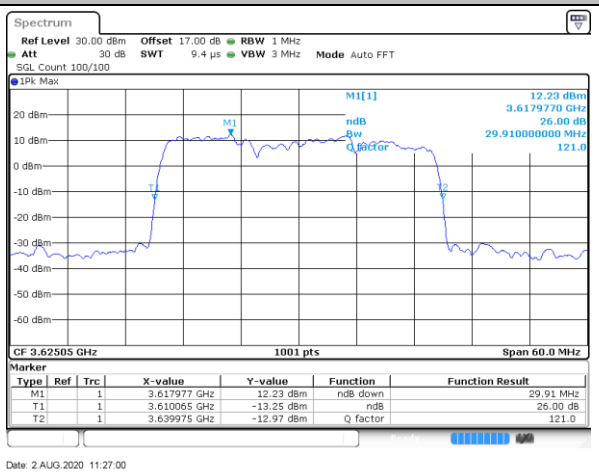

#### Lowest Channel / 10MHz+20MHz



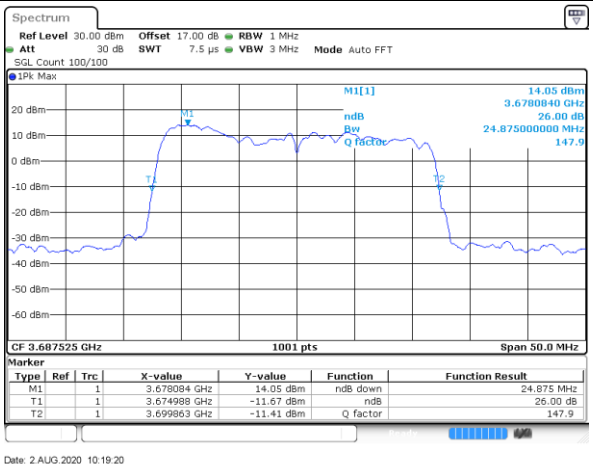

#### Middle Channel / 5MHz+20MHz



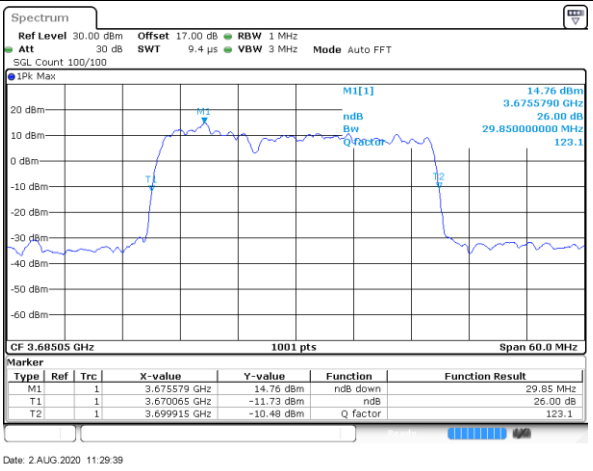

#### Middle Channel / 10MHz+20MHz




#### Highest Channel / 5MHz+20MHz



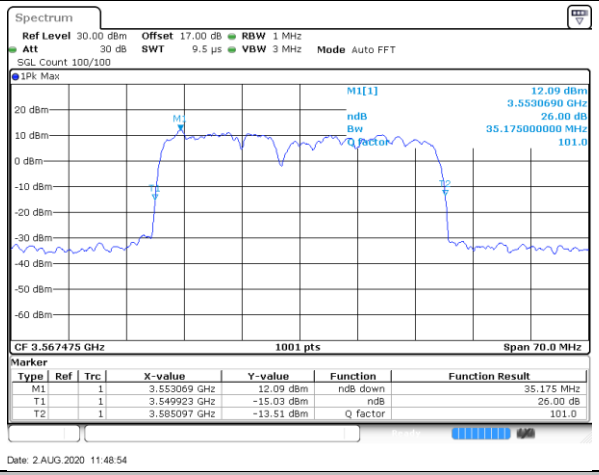

#### Highest Channel / 10MHz+20MHz



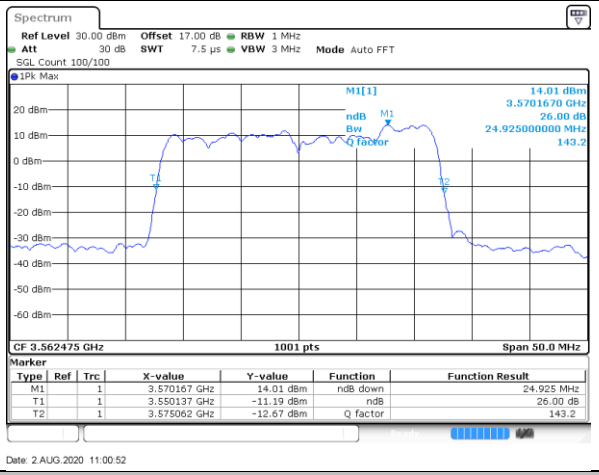
## LTE Band 48C

### QPSK

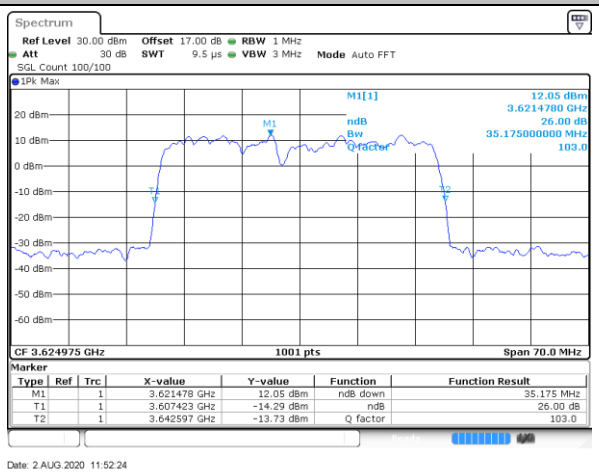
#### Lowest Channel / 15MHz+20MHz



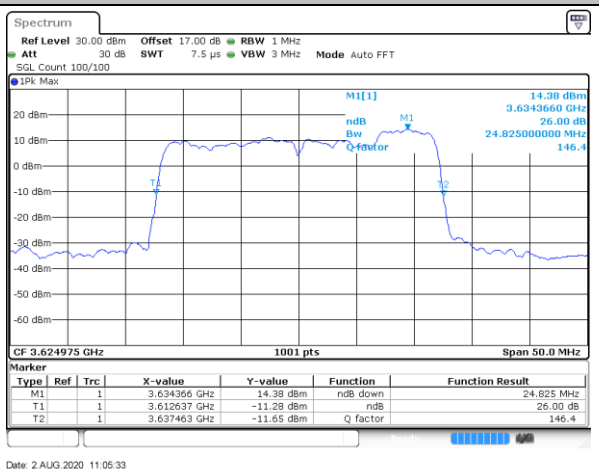

#### Lowest Channel / 20MHz+5MHz



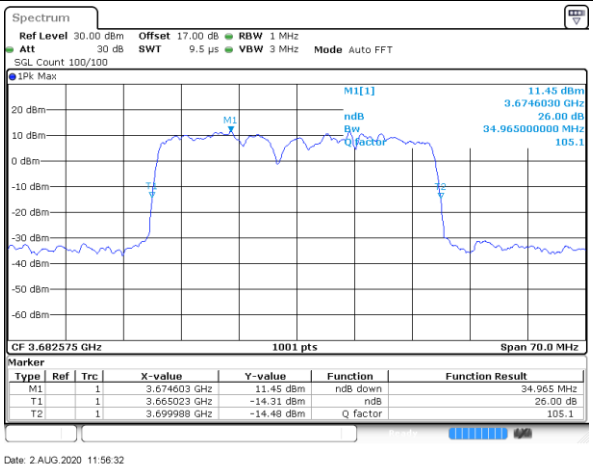

#### Middle Channel / 15MHz+20MHz



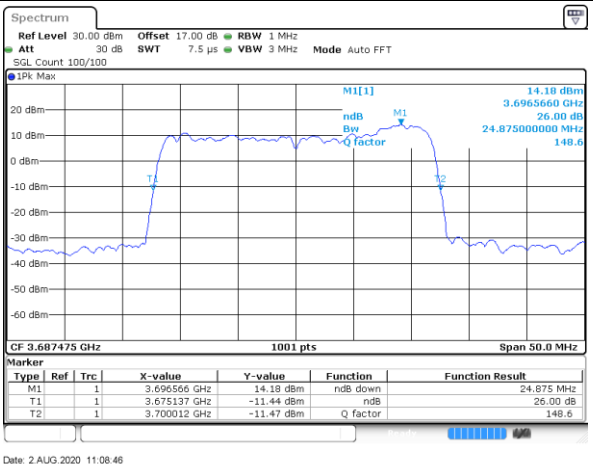

#### Middle Channel / 20MHz+5MHz




#### Highest Channel / 15MHz+20MHz



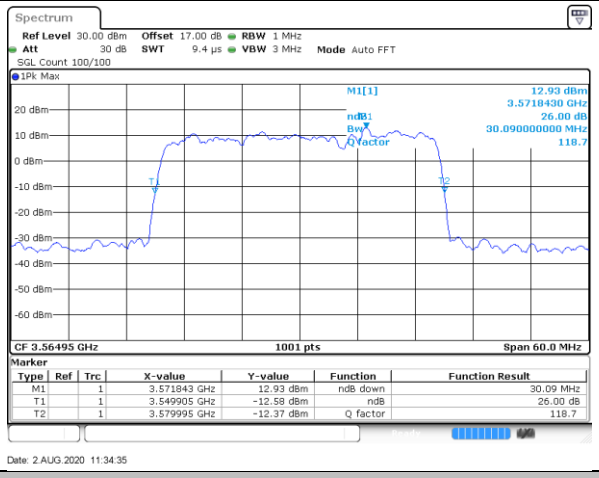

#### Highest Channel / 20MHz+5MHz



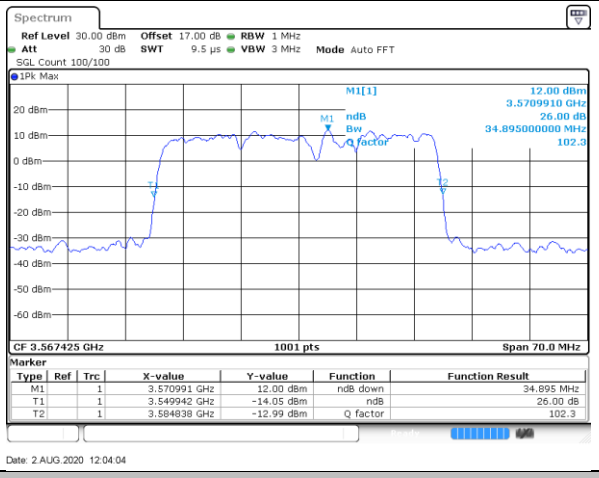
## LTE Band 48C

### QPSK

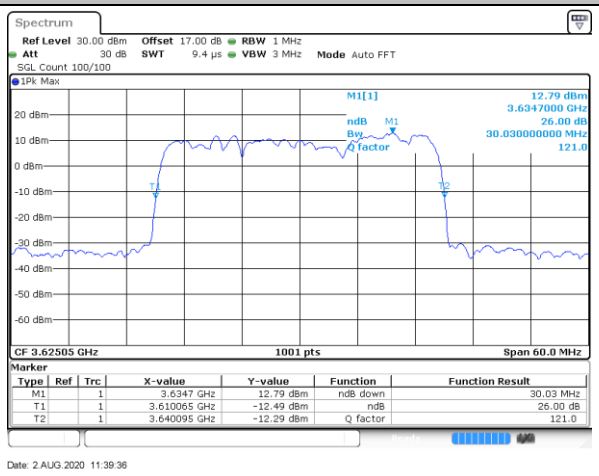
#### Lowest Channel / 20MHz+10MHz



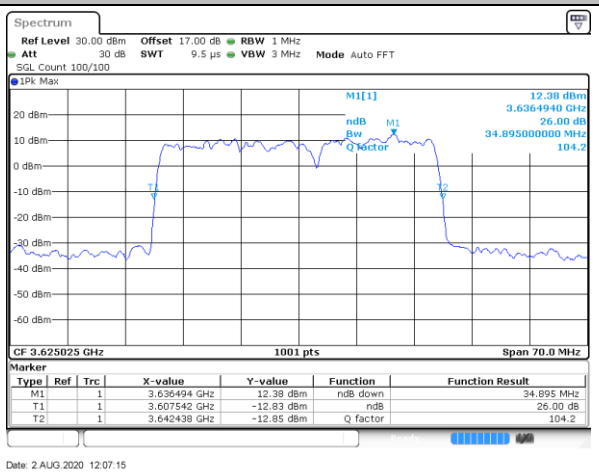

#### Lowest Channel / 20MHz+15MHz



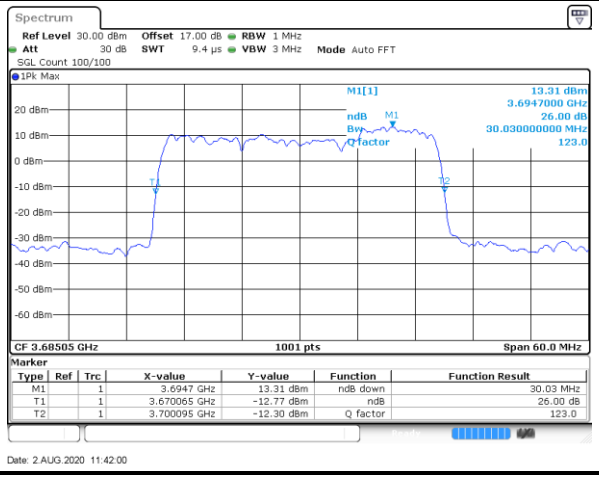

#### Middle Channel / 20MHz+10MHz



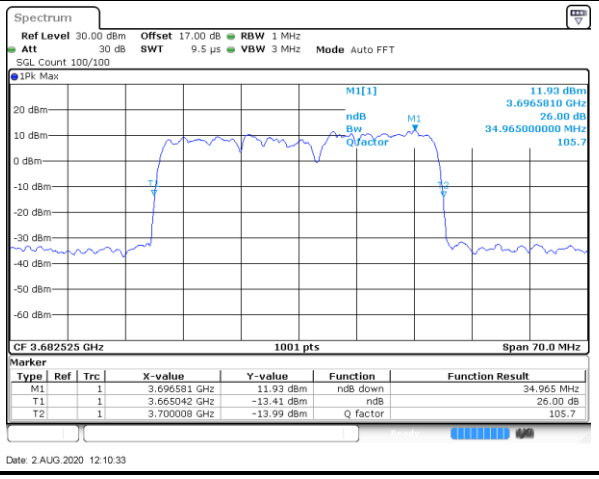

#### Middle Channel / 20MHz+15MHz



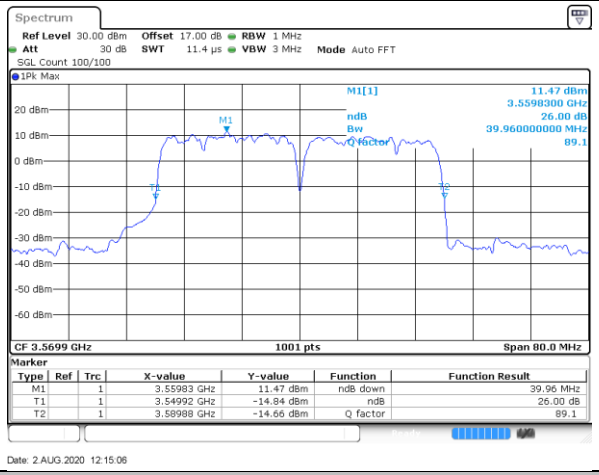

#### Highest Channel / 20MHz+10MHz



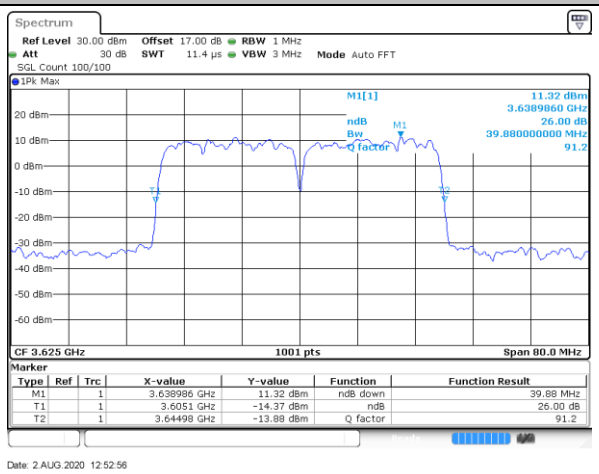

#### Highest Channel / 20MHz+15MHz



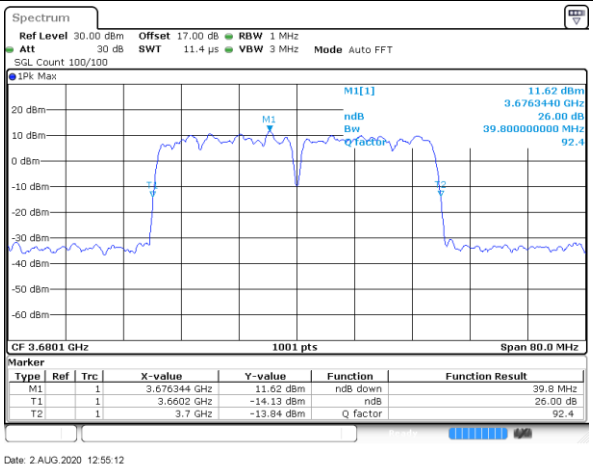
| LTE Band 48C | |
|---|---|
| QPSK | |
| Lowest Channel / 20MHz+20MHz | N/A |




| Middle Channel / 20MHz+20MHz | N/A |
|---|---|



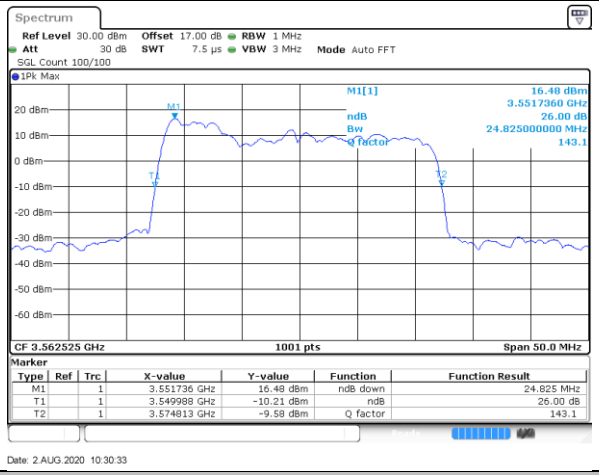

| Highest Channel / 20MHz+20MHz | N/A |
|---|---|



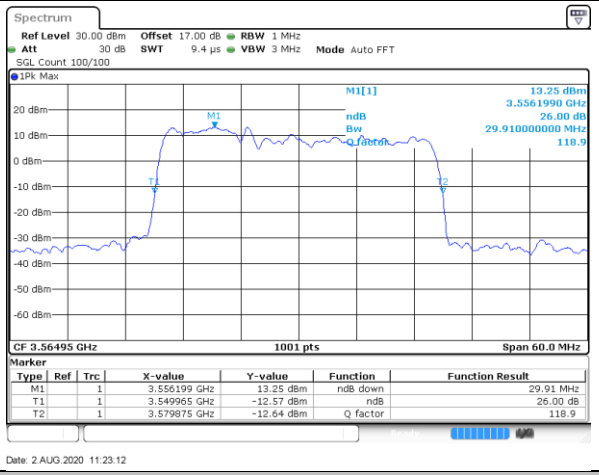
## LTE Band 48C

### 16QAM

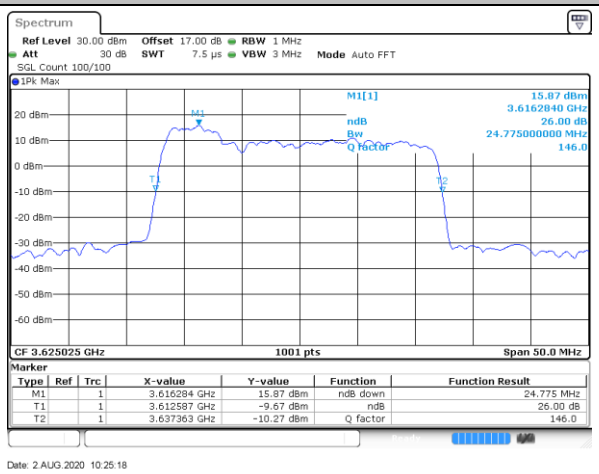
#### Lowest Channel / 5MHz+20MHz



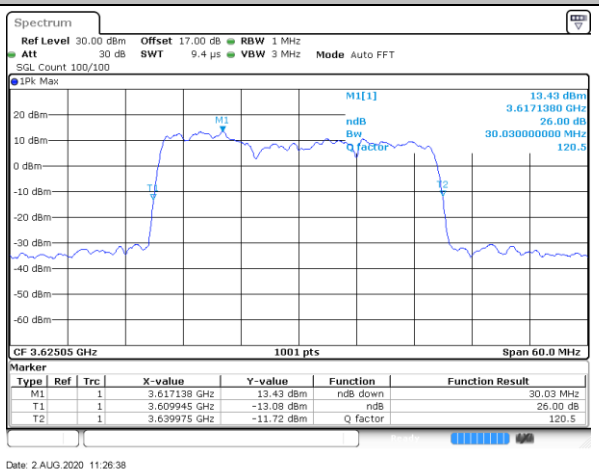

#### Lowest Channel / 10MHz+20MHz



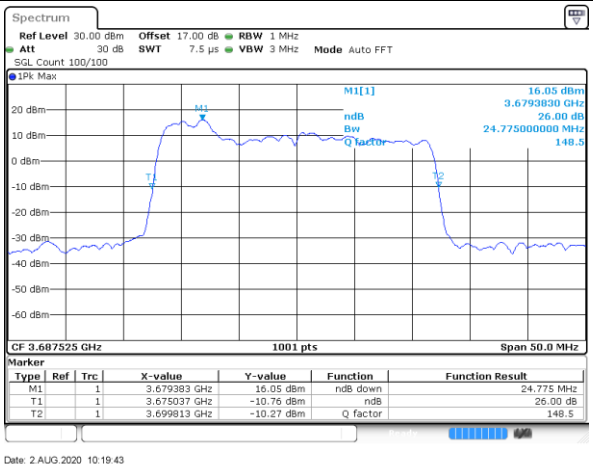

#### Middle Channel / 5MHz+20MHz



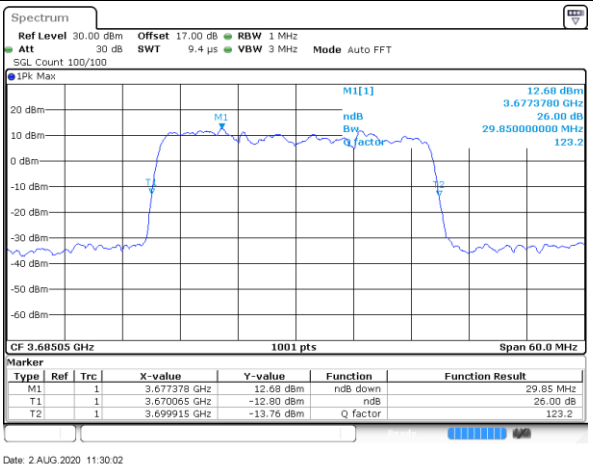

#### Middle Channel / 10MHz+20MHz




#### Highest Channel / 5MHz+20MHz



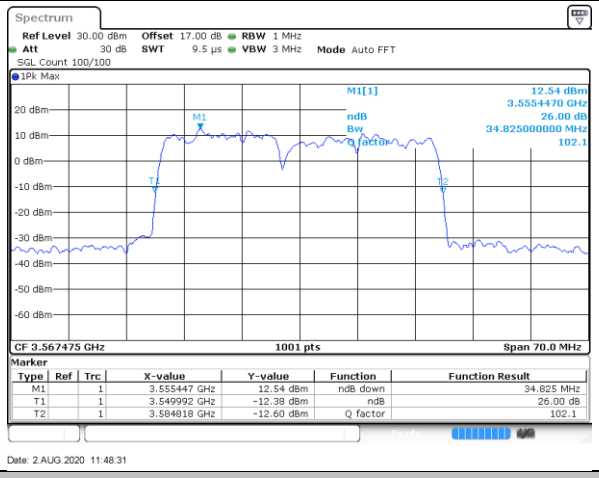

#### Highest Channel / 10MHz+20MHz



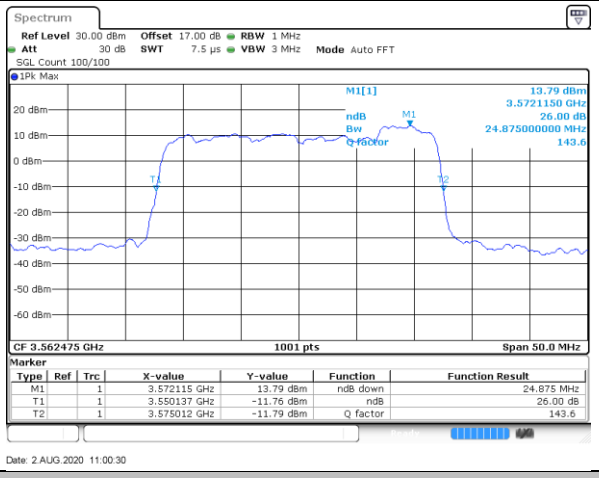
## LTE Band 48C

### 16QAM

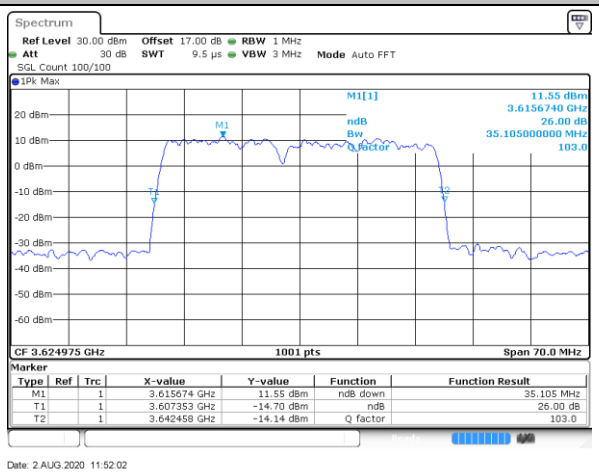
#### Lowest Channel / 15MHz+20MHz



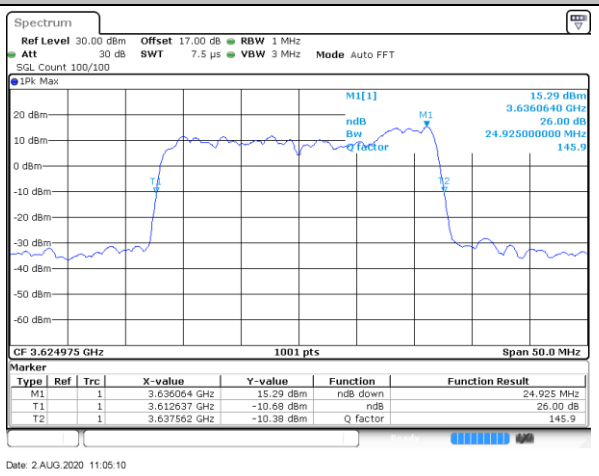

#### Lowest Channel / 20MHz+5MHz



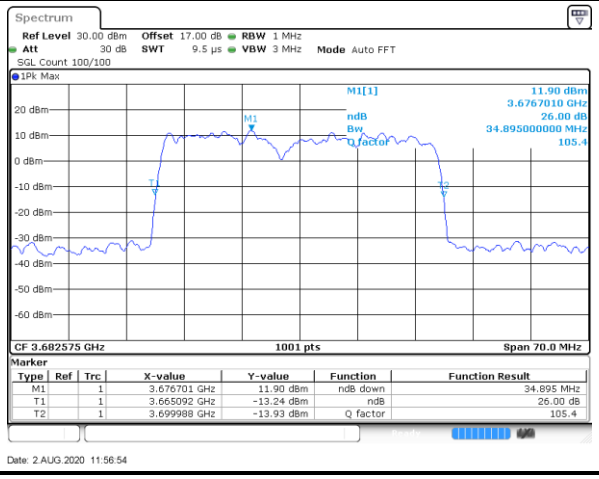

#### Middle Channel / 15MHz+20MHz



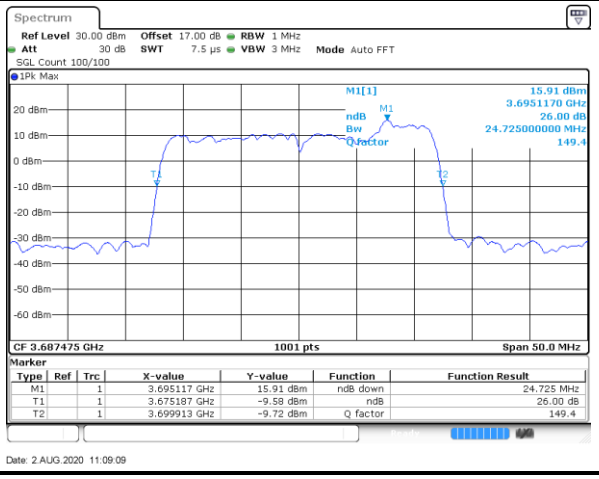

#### Middle Channel / 20MHz+5MHz




#### Highest Channel / 15MHz+20MHz



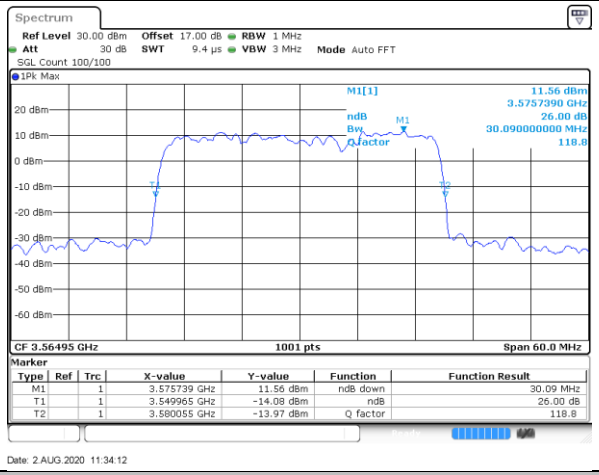

#### Highest Channel / 20MHz+5MHz



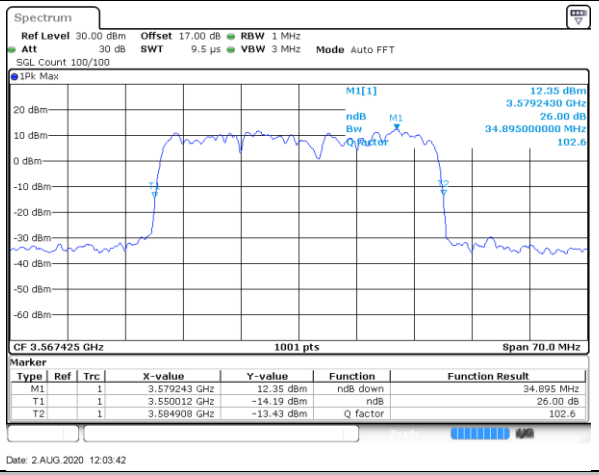
## LTE Band 48C

### 16QAM

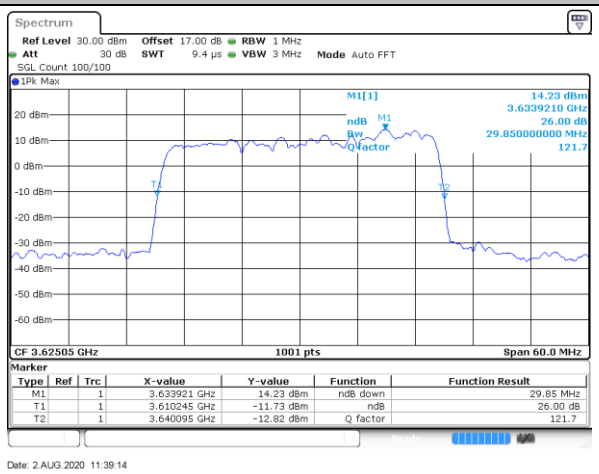
#### Lowest Channel / 20MHz+10MHz



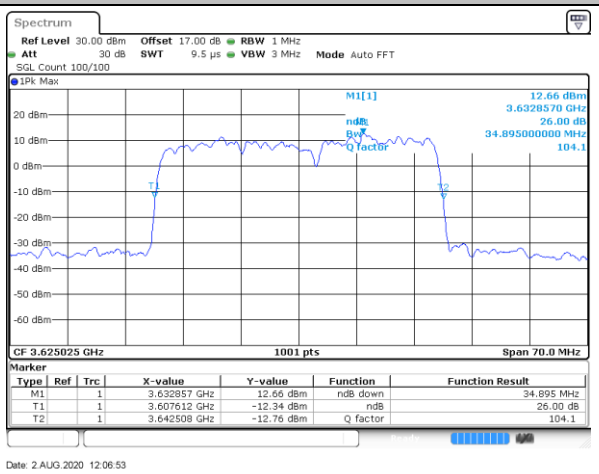

#### Lowest Channel / 20MHz+15MHz



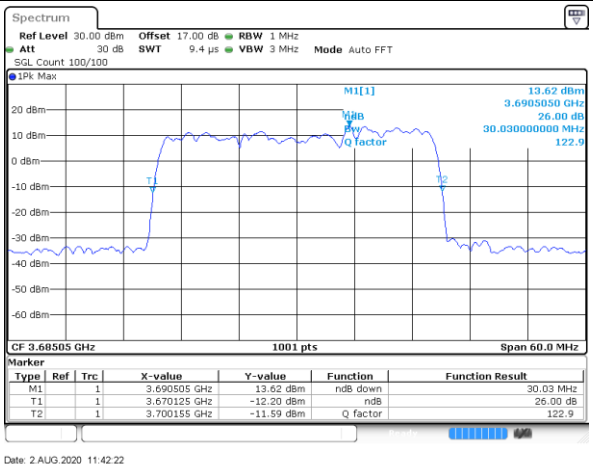

#### Middle Channel / 20MHz+10MHz



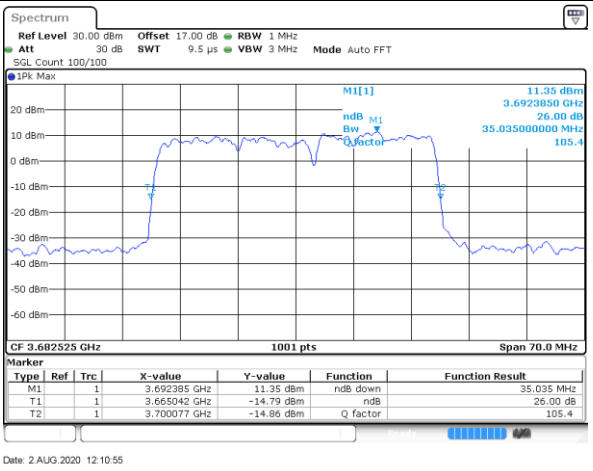

#### Middle Channel / 20MHz+15MHz



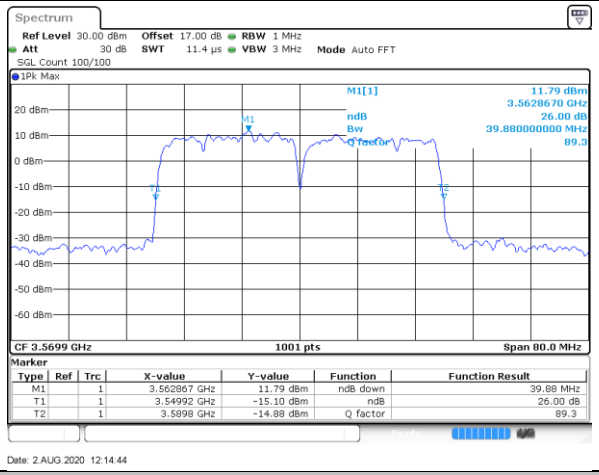

#### Highest Channel / 20MHz+10MHz



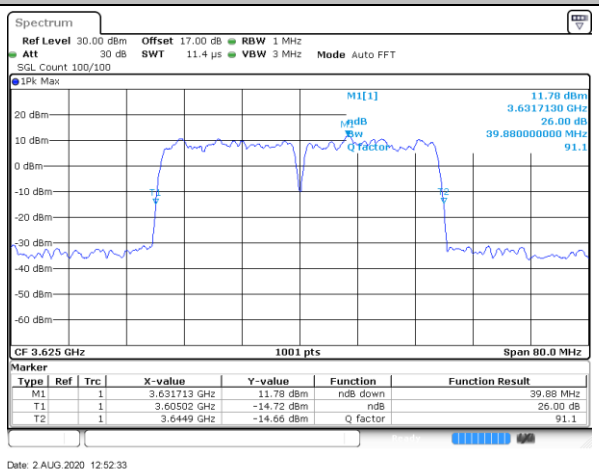

#### Highest Channel / 20MHz+15MHz



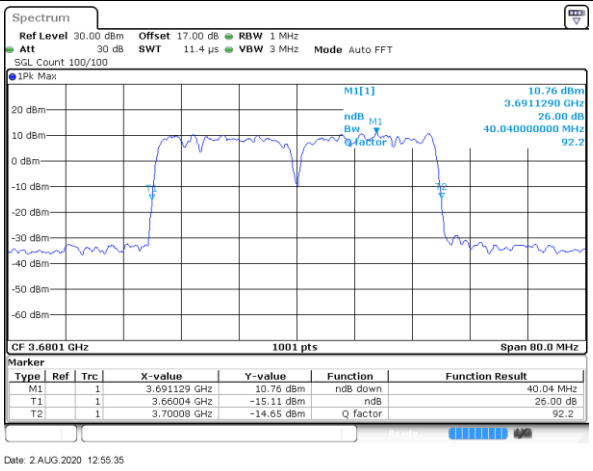
| LTE Band 48C | |
|---|---|
| 16QAM | |
| Lowest Channel / 20MHz+20MHz | N/A |




| Middle Channel / 20MHz+20MHz | N/A |
|---|---|



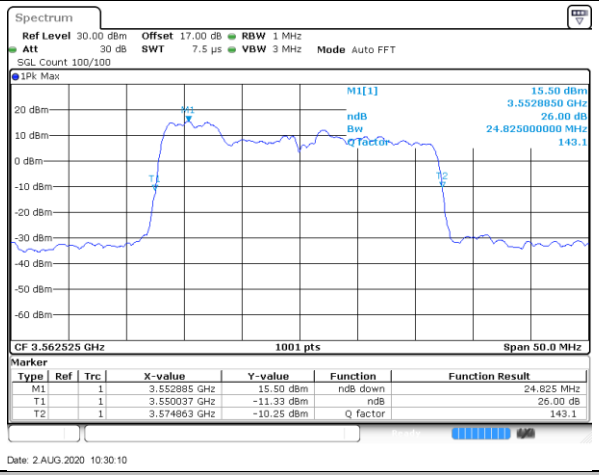

| Highest Channel / 20MHz+20MHz | N/A |
|---|---|



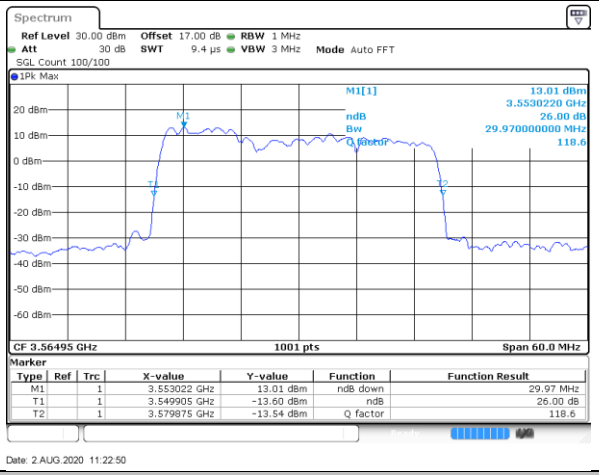
## LTE Band 48C

### 64QAM

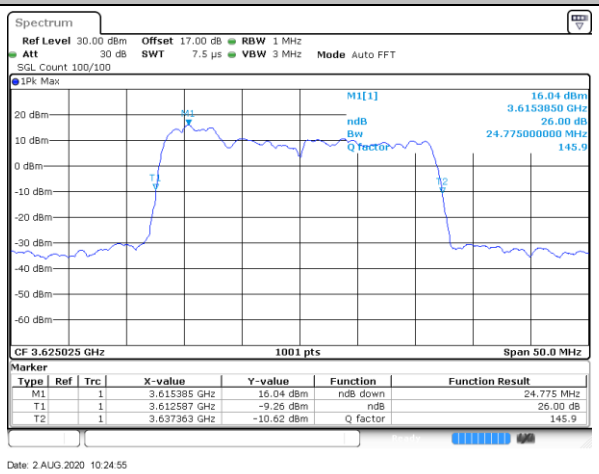
#### Lowest Channel / 5MHz+20MHz



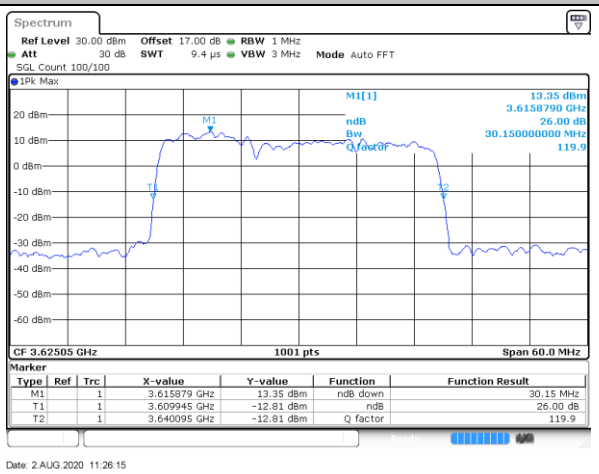

#### Lowest Channel / 10MHz+20MHz



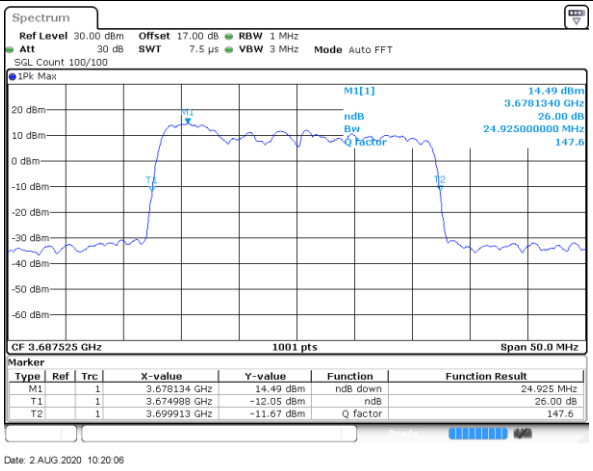

#### Middle Channel / 5MHz+20MHz



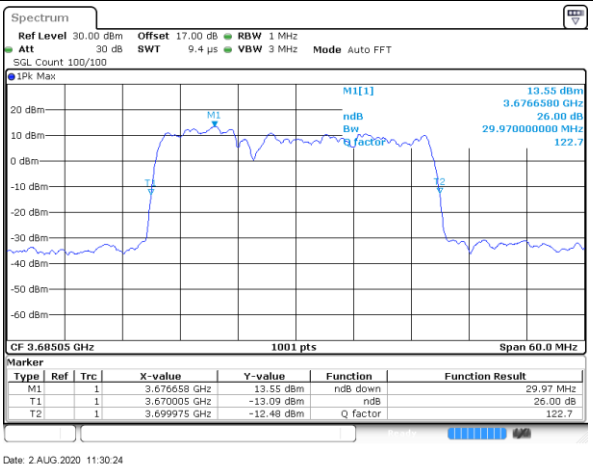

#### Middle Channel / 10MHz+20MHz




#### Highest Channel / 5MHz+20MHz



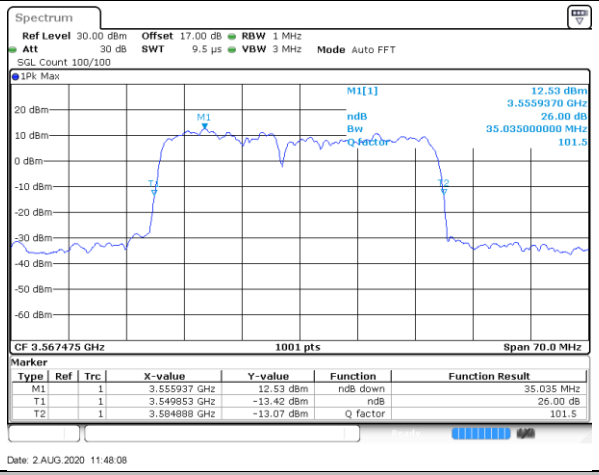

#### Highest Channel / 10MHz+20MHz



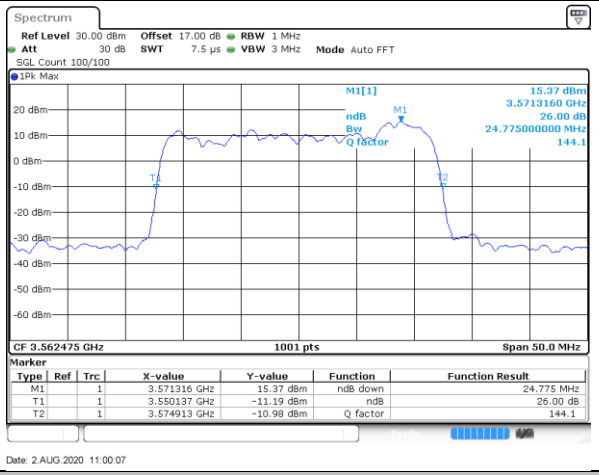
## LTE Band 48C

### 64QAM

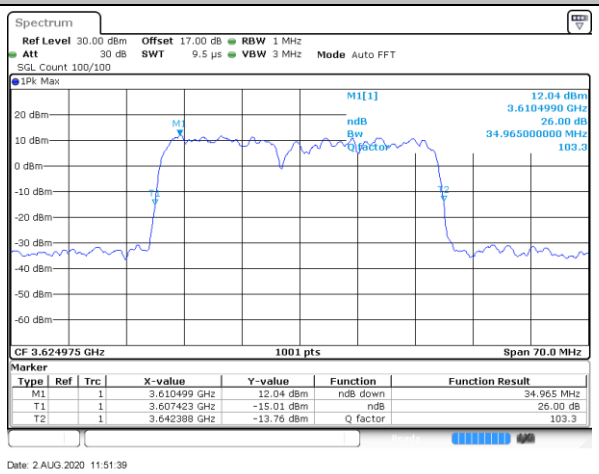
#### Lowest Channel / 15MHz+20MHz



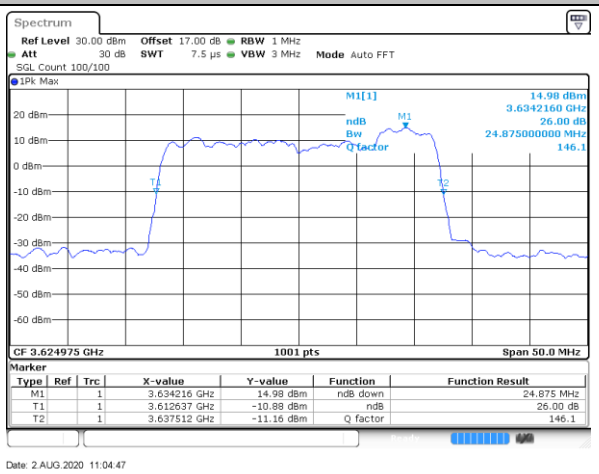

#### Lowest Channel / 20MHz+5MHz



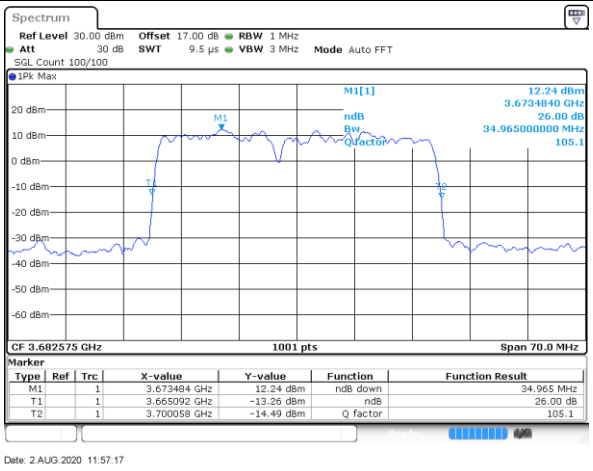

#### Middle Channel / 15MHz+20MHz



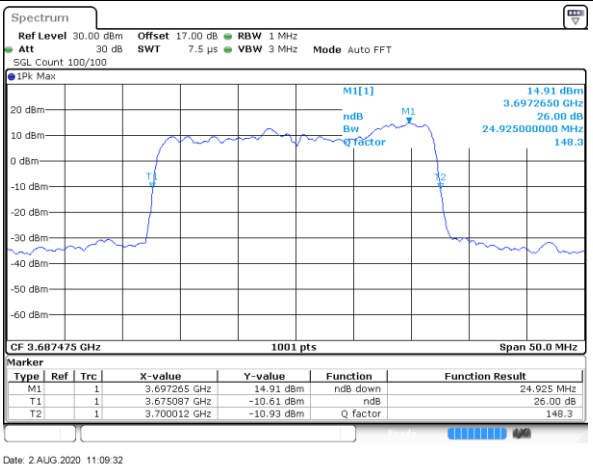

#### Middle Channel / 20MHz+5MHz




#### Highest Channel / 15MHz+20MHz



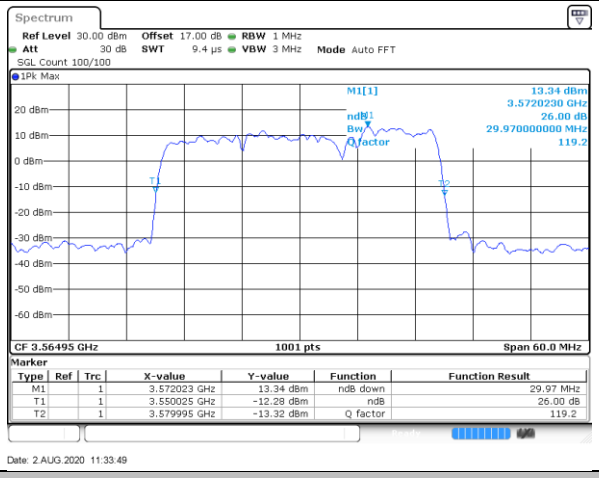

#### Highest Channel / 20MHz+5MHz



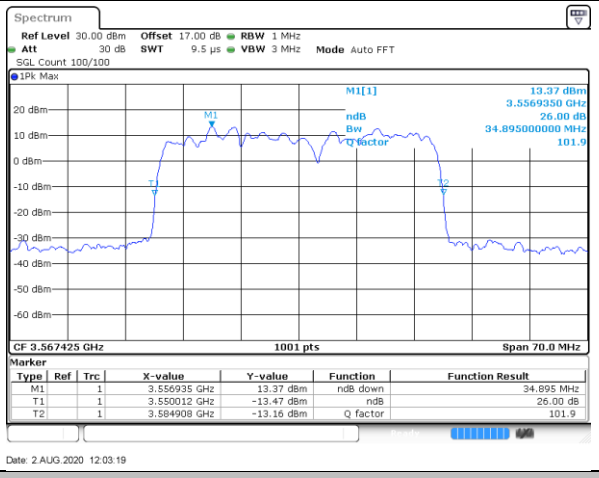
## LTE Band 48C

### 64QAM

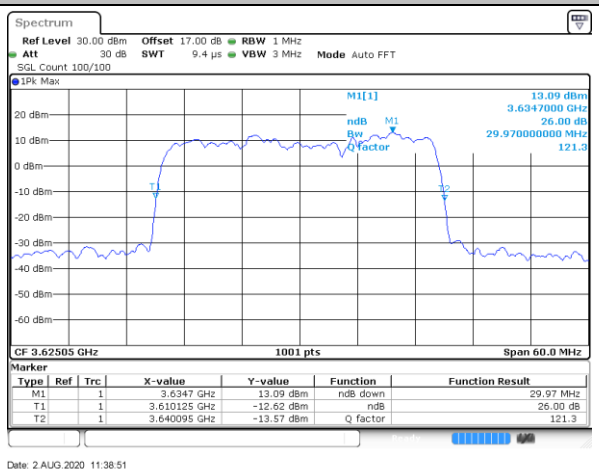
#### Lowest Channel / 20MHz+10MHz



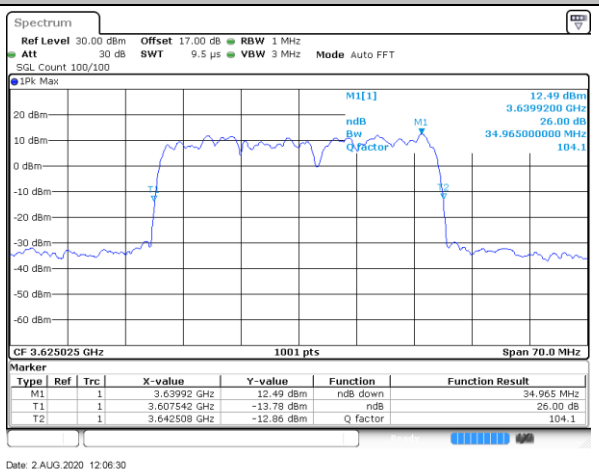

#### Lowest Channel / 20MHz+15MHz



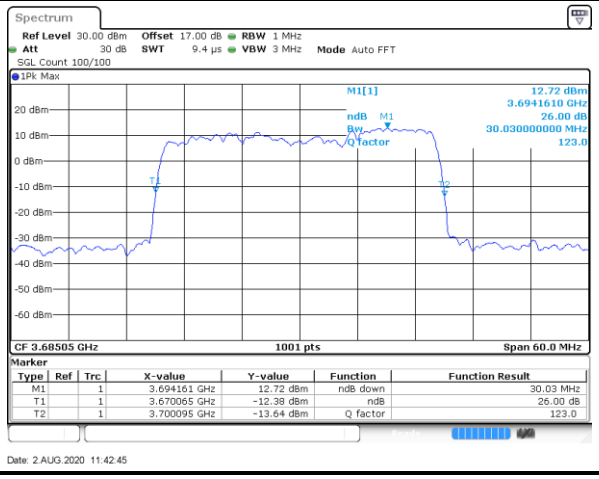

#### Middle Channel / 20MHz+10MHz



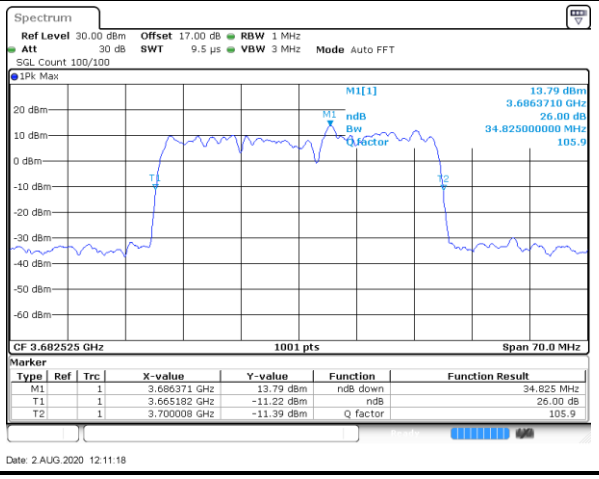

#### Middle Channel / 20MHz+15MHz



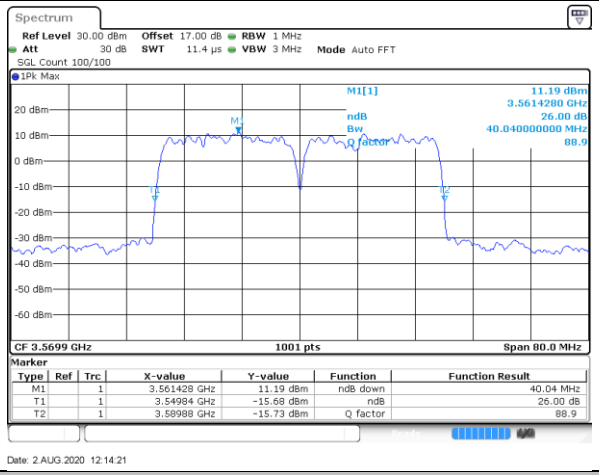

#### Highest Channel / 20MHz+10MHz



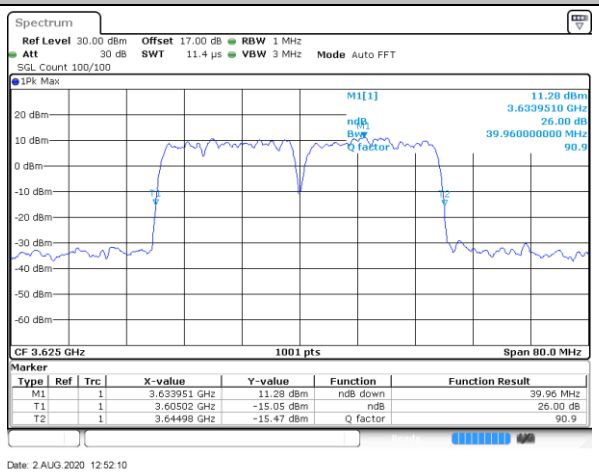

#### Highest Channel / 20MHz+15MHz



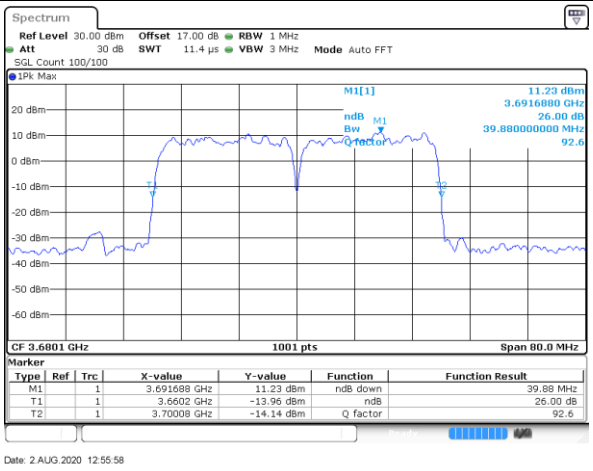
| LTE Band 48C | |
|---|---|
| 64QAM | |
| Lowest Channel / 20MHz+20MHz | N/A |




| Middle Channel / 20MHz+20MHz | N/A |
|---|---|




| Highest Channel / 20MHz+20MHz | N/A |
|---|---|



# Occupied Bandwidth

| Mode | LTE Band 48C : 99%OBW(MHz) | | | |
|---|---|---|---|---|
| QPSK | | | | |
| BW | 5MHz+20MHz | 10MHz+20MHz | 15MHz+20MHz | 20MHz+5MHz |
| Lowest CH | 23.18 | 27.93 | 32.73 | 23.18 |
| Middle CH | 23.23 | 27.87 | 32.80 | 23.33 |
| Highest CH | 23.23 | 28.05 | 32.80 | 23.23 |
| BW | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz | N/A |
| Lowest CH | 27.99 | 32.80 | 37.72 | - |
| Middle CH | 28.11 | 32.80 | 37.72 | - |
| Highest CH | 27.99 | 32.87 | 37.48 | - |

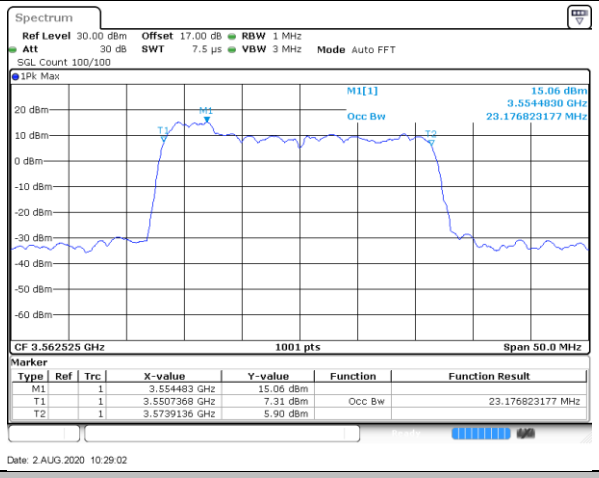
| Mode | LTE Band 48C : 99%OBW(MHz) | | | |
|---|---|---|---|---|
| 16QAM | | | | |
| BW | 5MHz+20MHz | 10MHz+20MHz | 15MHz+20MHz | 20MHz+5MHz |
| Lowest CH | 23.13 | 28.11 | 32.87 | 23.18 |
| Middle CH | 23.33 | 27.93 | 32.87 | 23.23 |
| Highest CH | 23.23 | 27.87 | 32.73 | 23.28 |
| BW | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz | N/A |
| Lowest CH | 28.05 | 32.80 | 37.56 | - |
| Middle CH | 28.11 | 32.80 | 37.56 | - |
| Highest CH | 27.93 | 32.94 | 37.80 | - |

| Mode | LTE Band 48C : 99%OBW(MHz) | | | |
|---|---|---|---|---|
| 64QAM | | | | |
| BW | 5MHz+20MHz | 10MHz+20MHz | 15MHz+20MHz | 20MHz+5MHz |
| Lowest CH | 23.28 | 27.93 | 32.94 | 23.28 |
| Middle CH | 23.08 | 28.17 | 33.01 | 23.38 |
| Highest CH | 23.38 | 27.87 | 32.66 | 23.38 |
| BW | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz | N/A |
| Lowest CH | 28.11 | 32.80 | 37.40 | - |
| Middle CH | 28.23 | 32.66 | 37.56 | - |
| Highest CH | 28.11 | 32.94 | 37.88 | - |

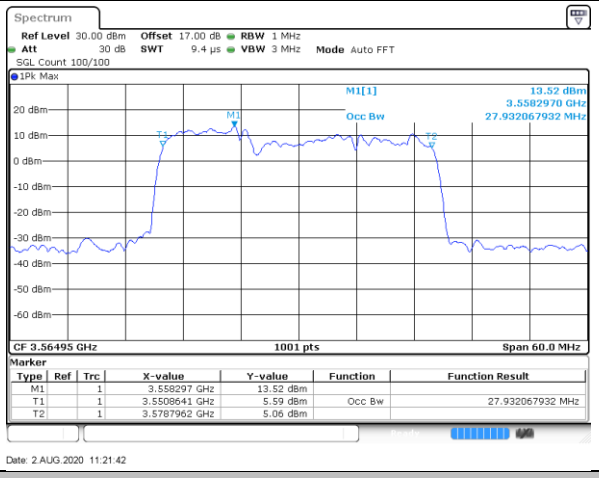
## LTE Band 48C

### QPSK

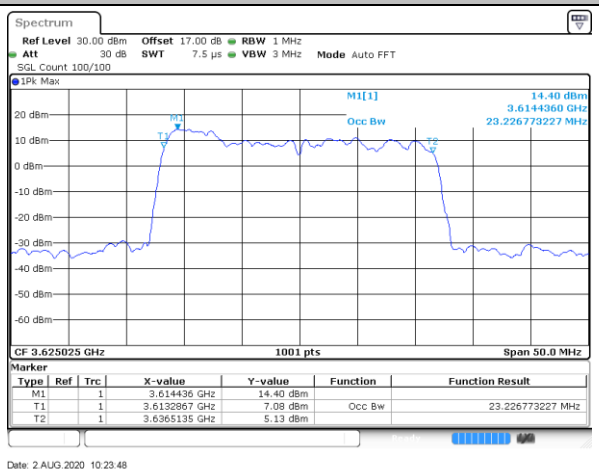
#### Lowest Channel / 5MHz+20MHz



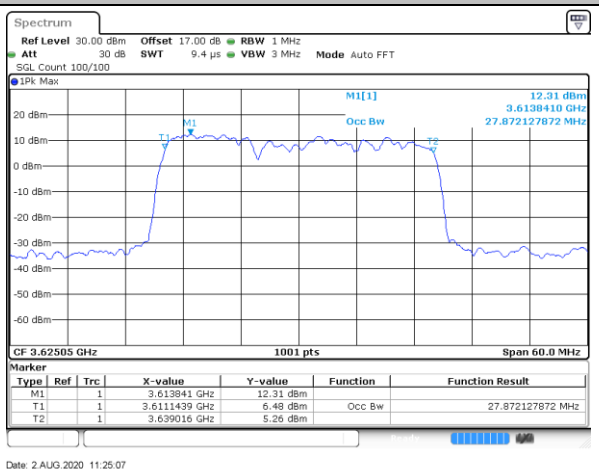

#### Lowest Channel / 10MHz+20MHz



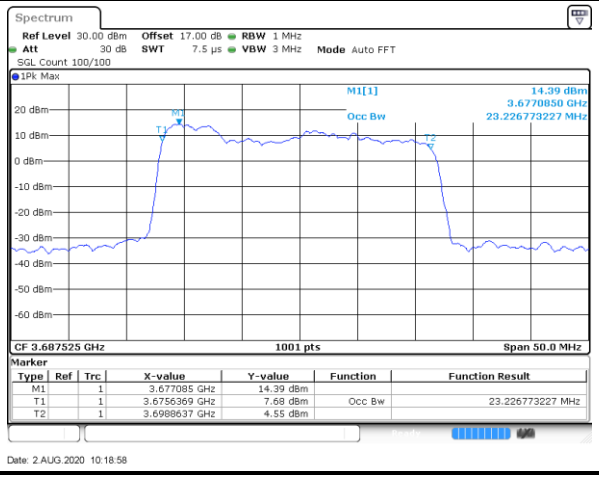

#### Middle Channel / 5MHz+20MHz



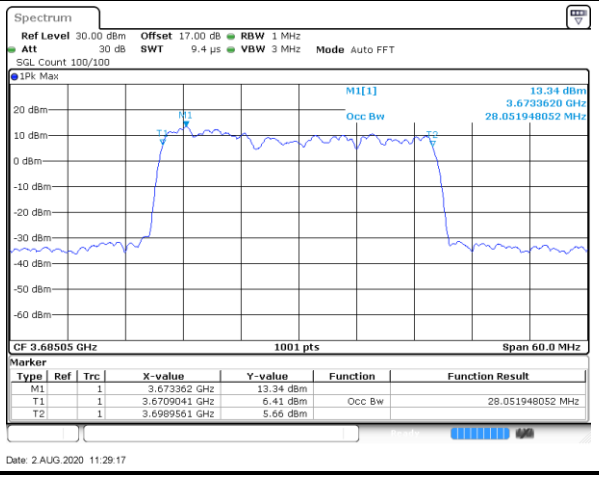

#### Middle Channel / 10MHz+20MHz




#### Highest Channel / 5MHz+20MHz



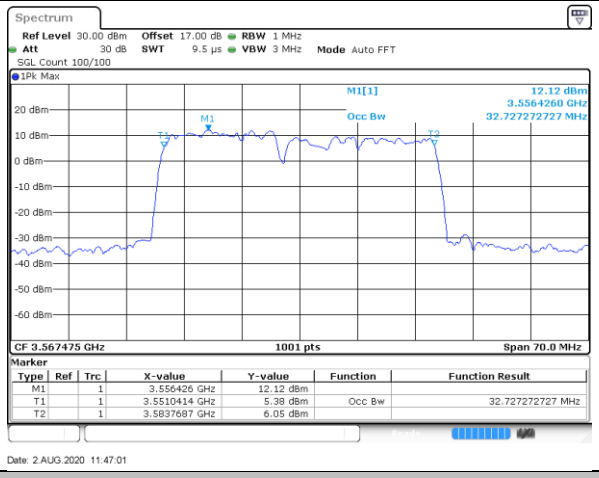

#### Highest Channel / 10MHz+20MHz



## LTE Band 48C

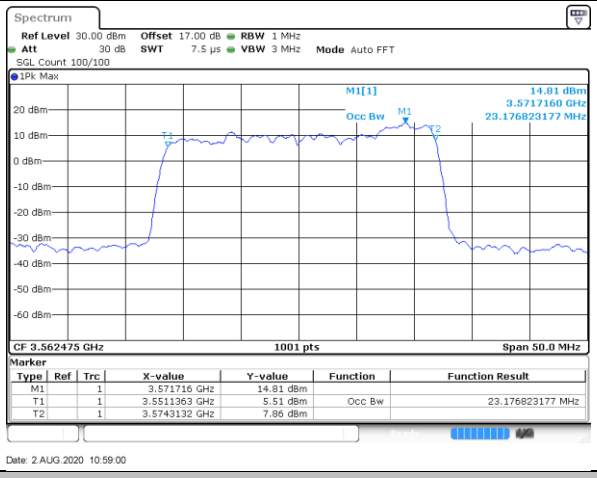
### QPSK

#### Lowest Channel / 15MHz+20MHz



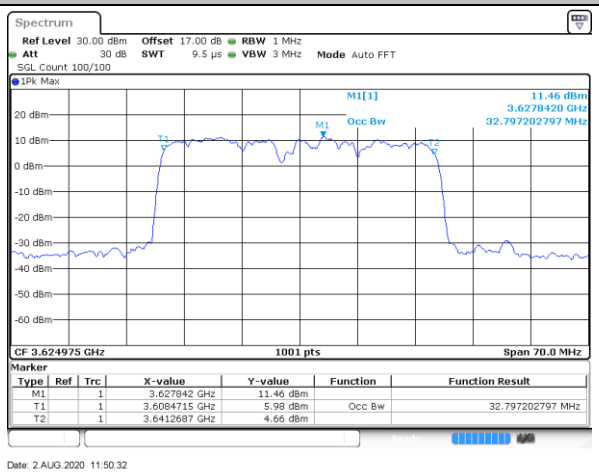

Date: 2.AUG.2020 11:47:01

#### Lowest Channel / 20MHz+5MHz



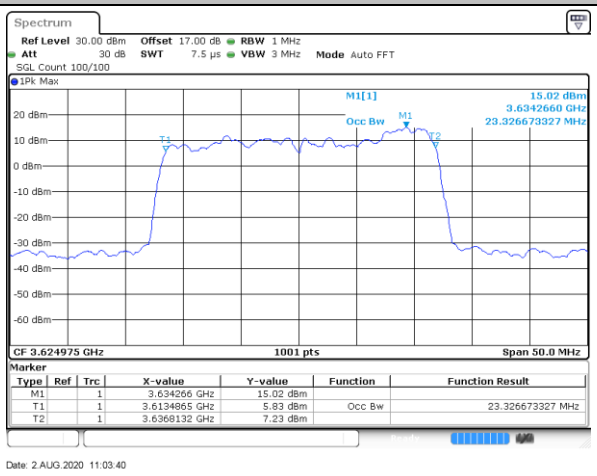

Date: 2.AUG.2020 10:59:00

#### Middle Channel / 15MHz+20MHz



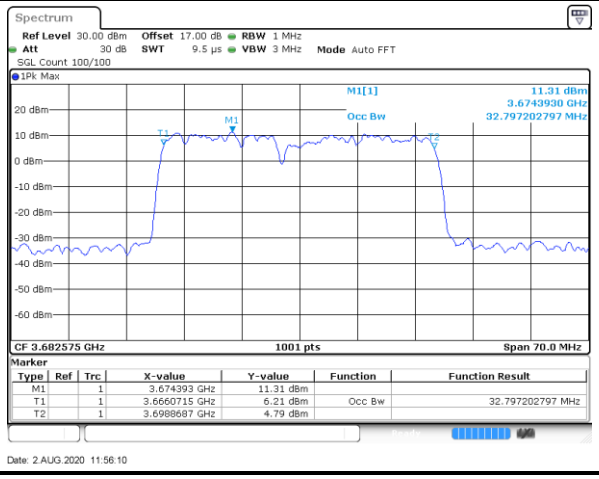

Date: 2.AUG.2020 11:50:32

#### Middle Channel / 20MHz+5MHz



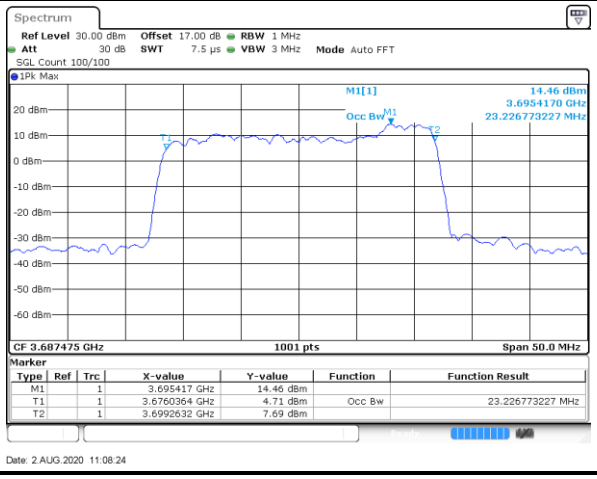

Date: 2.AUG.2020 11:03:40

#### Highest Channel / 15MHz+20MHz




Date: 2.AUG.2020 11:56:10

#### Highest Channel / 20MHz+5MHz

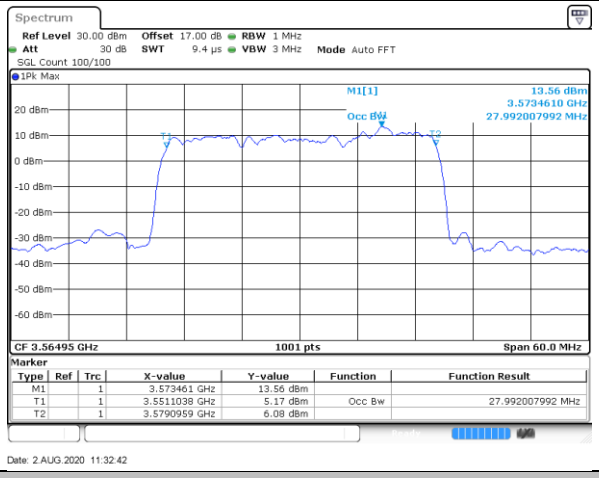



Date: 2.AUG.2020 11:08:24

## LTE Band 48C

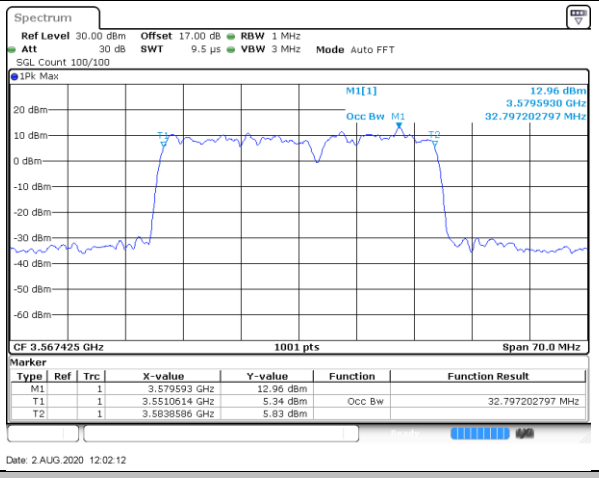
### QPSK

#### Lowest Channel / 20MHz+10MHz



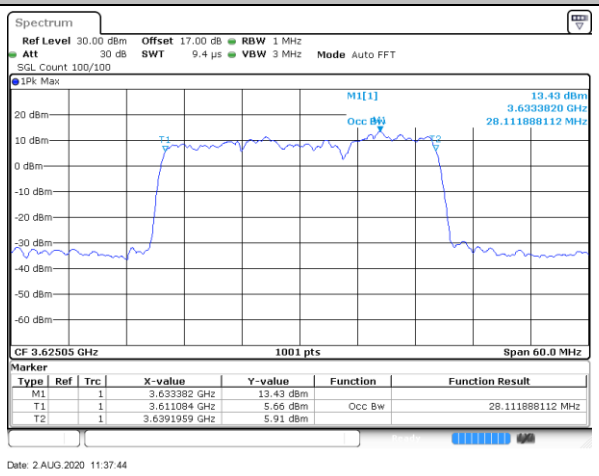

Date: 2.AUG.2020 11:32:42

#### Lowest Channel / 20MHz+15MHz



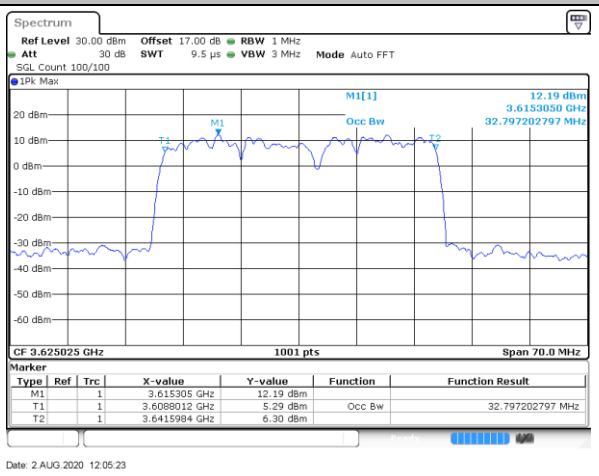

Date: 2.AUG.2020 12:02:12

#### Middle Channel / 20MHz+10MHz



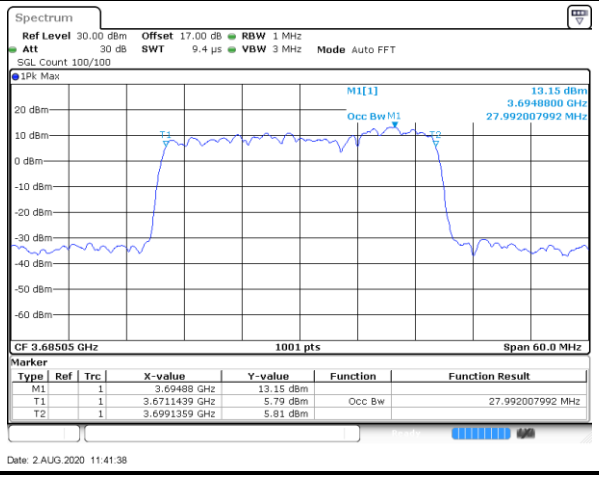

Date: 2.AUG.2020 11:37:44

#### Middle Channel / 20MHz+15MHz



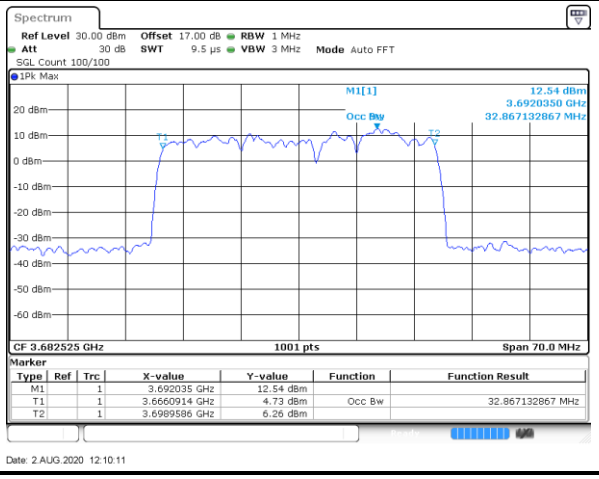

Date: 2.AUG.2020 12:05:23

#### Highest Channel / 20MHz+10MHz



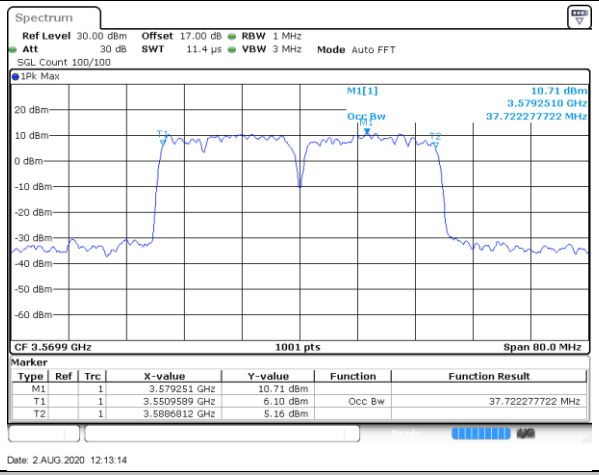

Date: 2.AUG.2020 11:41:38

#### Highest Channel / 20MHz+15MHz

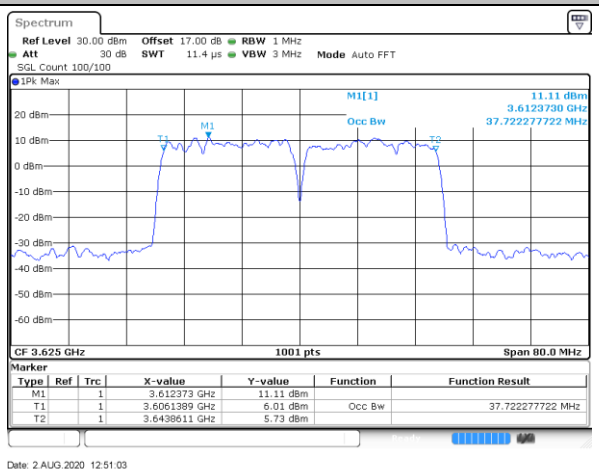



Date: 2.AUG.2020 12:10:11

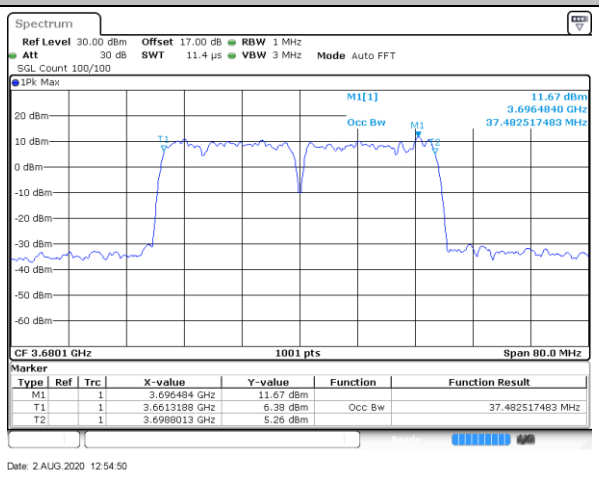
| LTE Band 48C | |
|---|---|
| QPSK | |
| Lowest Channel / 20MHz+20MHz | N/A |




| Middle Channel / 20MHz+20MHz | N/A |
|---|---|



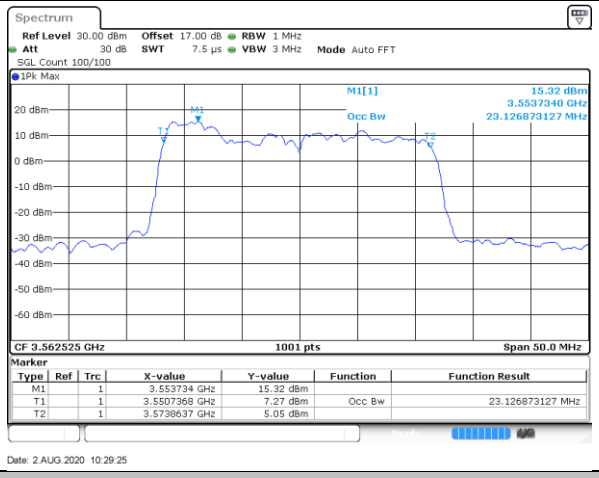

| Highest Channel / 20MHz+20MHz | N/A |
|---|---|



## LTE Band 48C

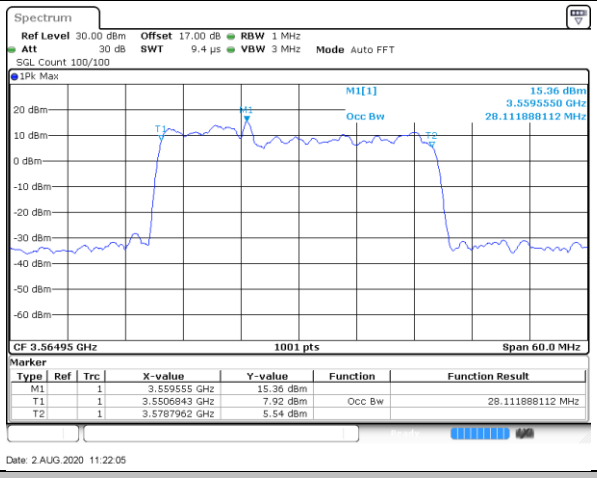
### 16QAM

#### Lowest Channel / 5MHz+20MHz



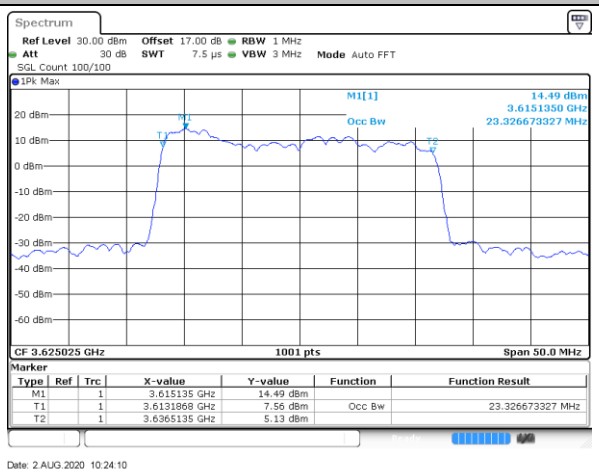

Date: 2.AUG.2020 10:29:25

#### Lowest Channel / 10MHz+20MHz



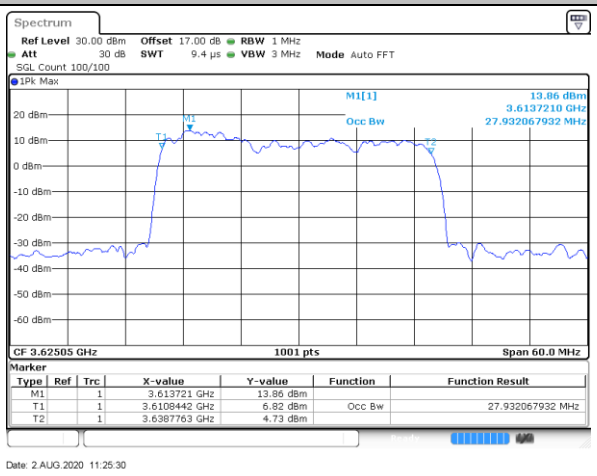

Date: 2.AUG.2020 11:22:05

#### Middle Channel / 5MHz+20MHz



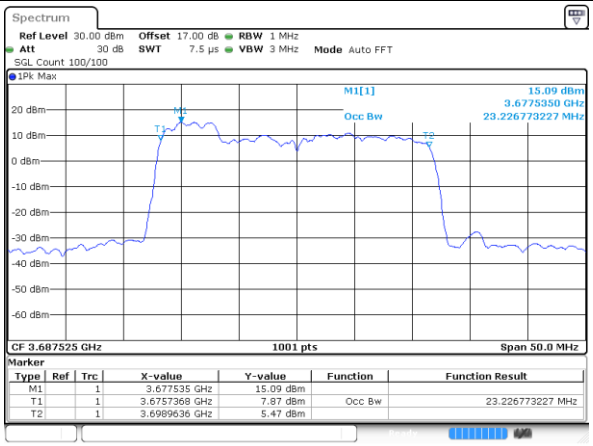

Date: 2.AUG.2020 10:24:10

#### Middle Channel / 10MHz+20MHz



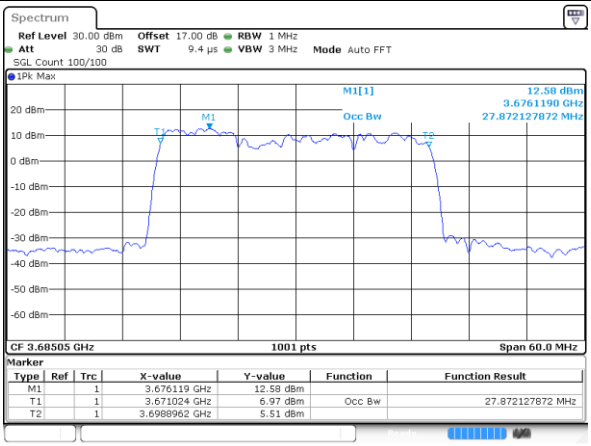

Date: 2.AUG.2020 11:25:30

#### Highest Channel / 5MHz+20MHz




Date: 2.AUG.2020 10:18:36

#### Highest Channel / 10MHz+20MHz

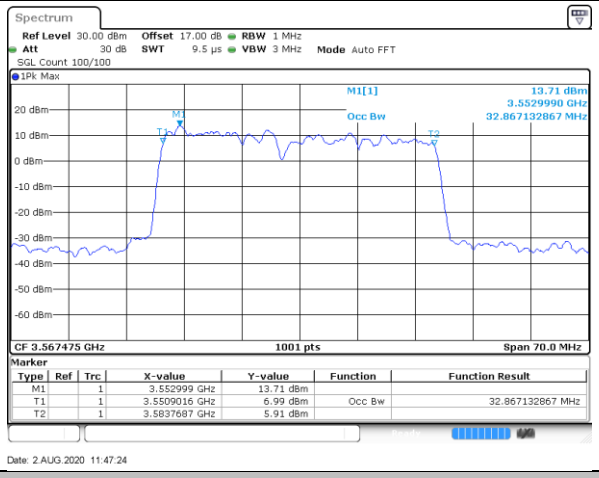



Date: 2.AUG.2020 11:28:54

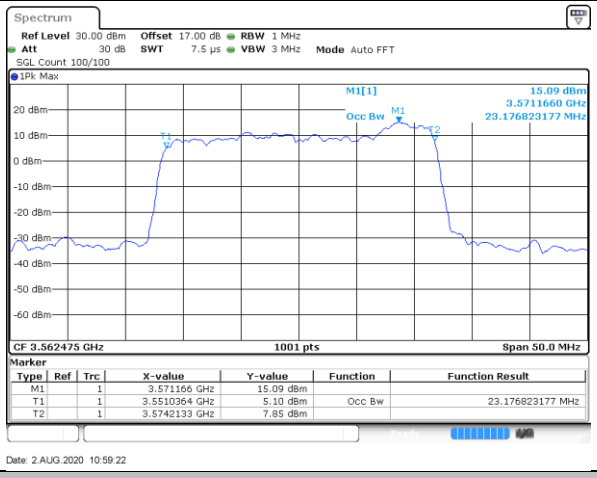
## LTE Band 48C

### 16QAM

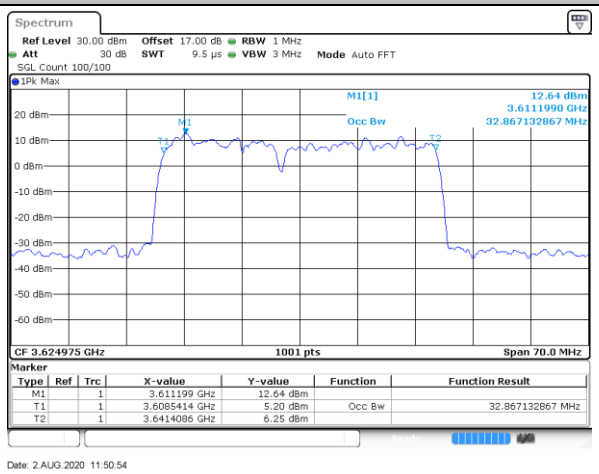
#### Lowest Channel / 15MHz+20MHz



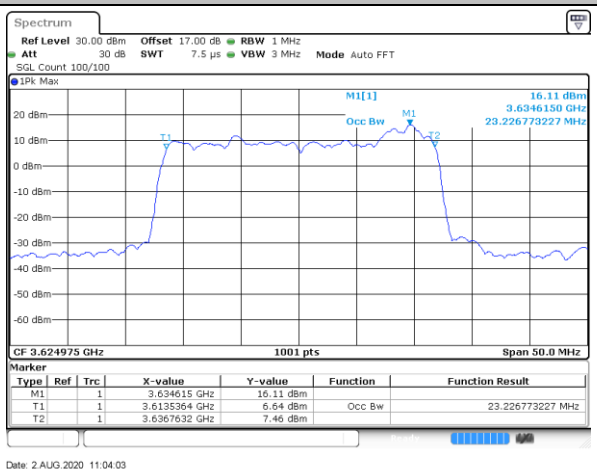

#### Lowest Channel / 20MHz+5MHz



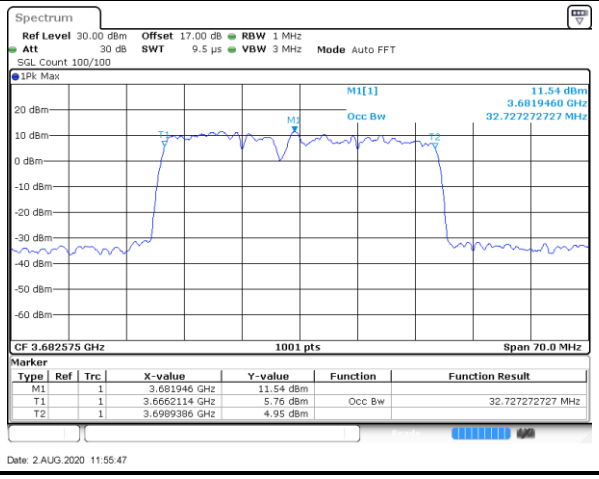

#### Middle Channel / 15MHz+20MHz



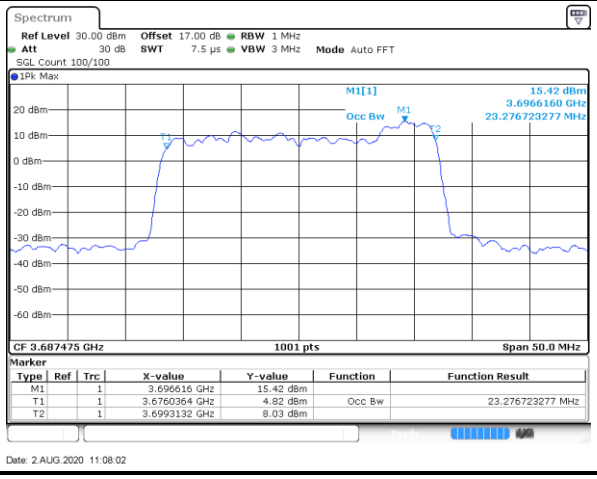

#### Middle Channel / 20MHz+5MHz




#### Highest Channel / 15MHz+20MHz



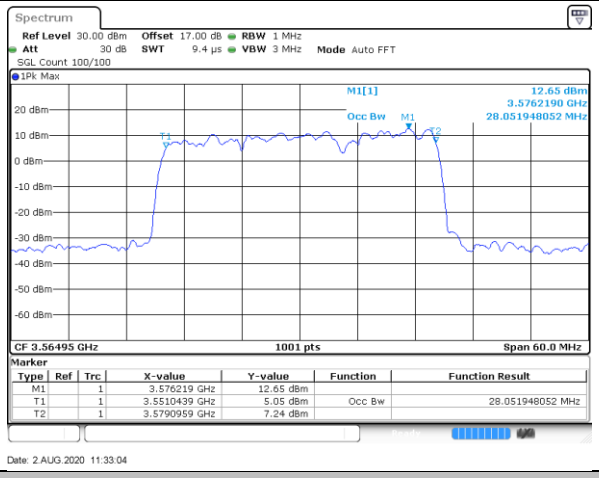

#### Highest Channel / 20MHz+5MHz



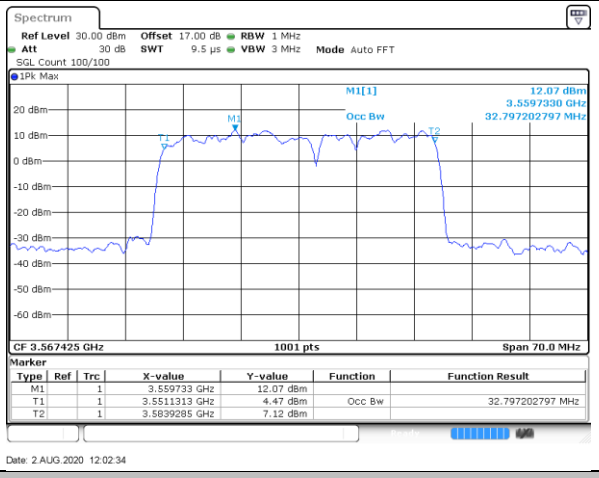
## LTE Band 48C

### 16QAM

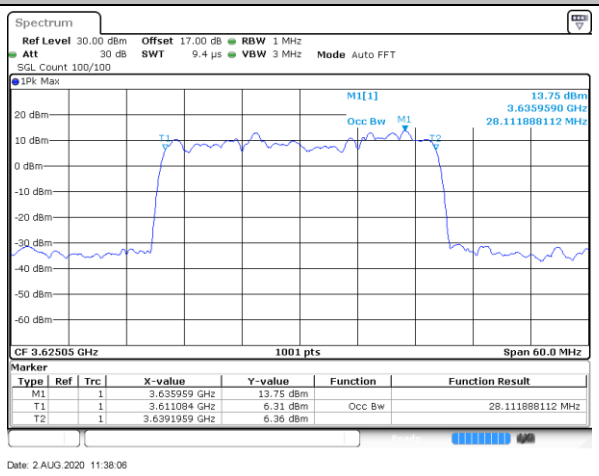
#### Lowest Channel / 20MHz+10MHz



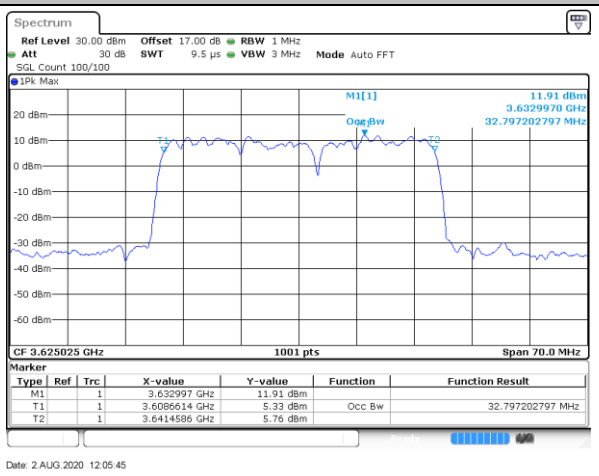

#### Lowest Channel / 20MHz+15MHz



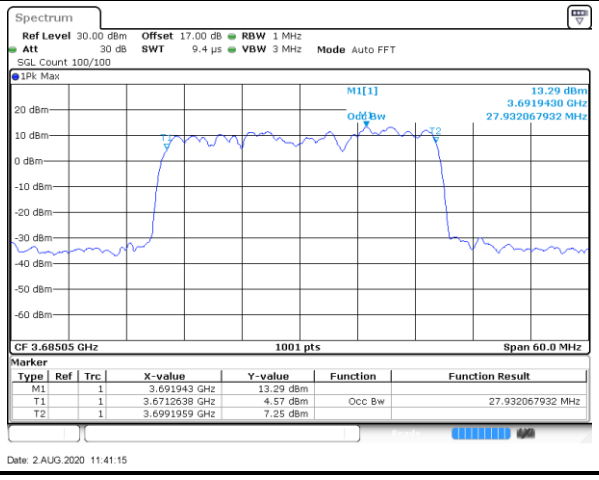

#### Middle Channel / 20MHz+10MHz



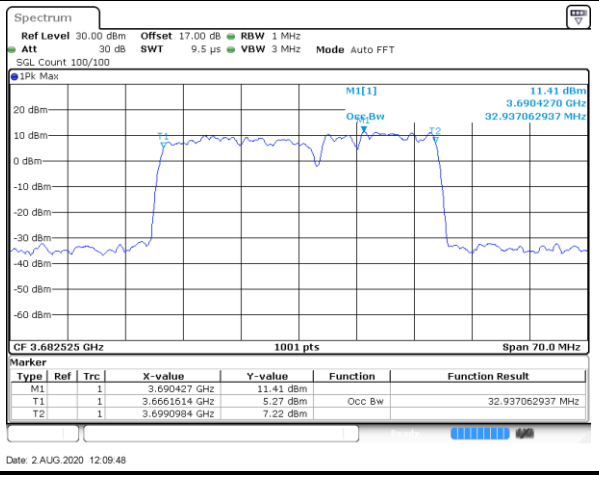

#### Middle Channel / 20MHz+15MHz

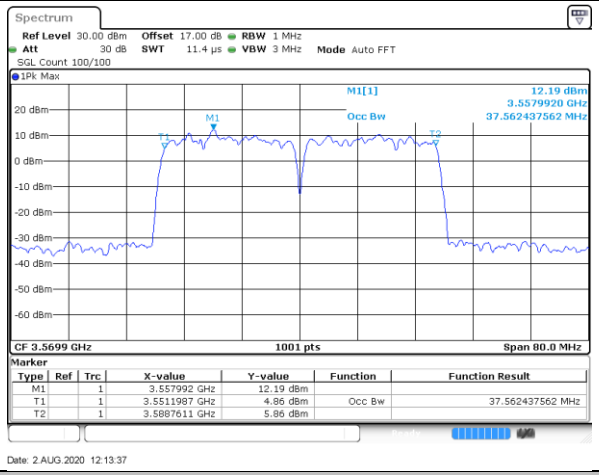
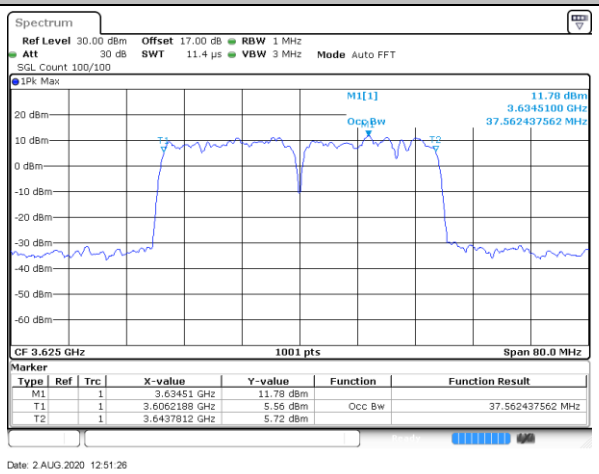
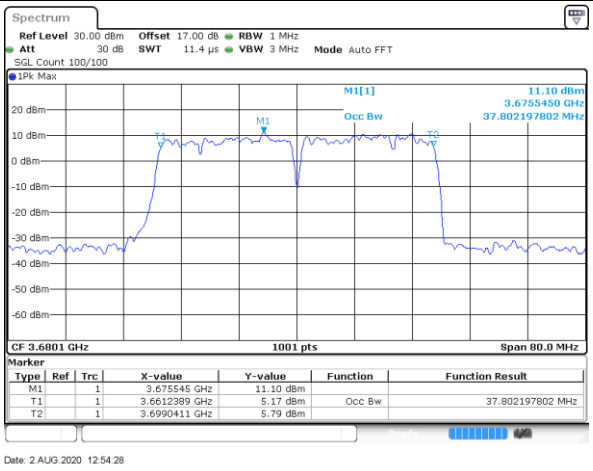



#### Highest Channel / 20MHz+10MHz




#### Highest Channel / 20MHz+15MHz

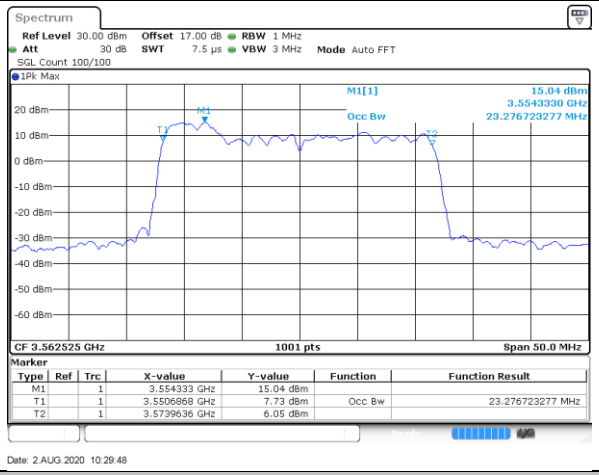


| LTE Band 48C | |
|---|---|
| 16QAM | |
| Lowest Channel / 20MHz+20MHz | N/A |
|  | |
| Middle Channel / 20MHz+20MHz | N/A |
|  | |
| Highest Channel / 20MHz+20MHz | N/A |
|  | |

## LTE Band 48C

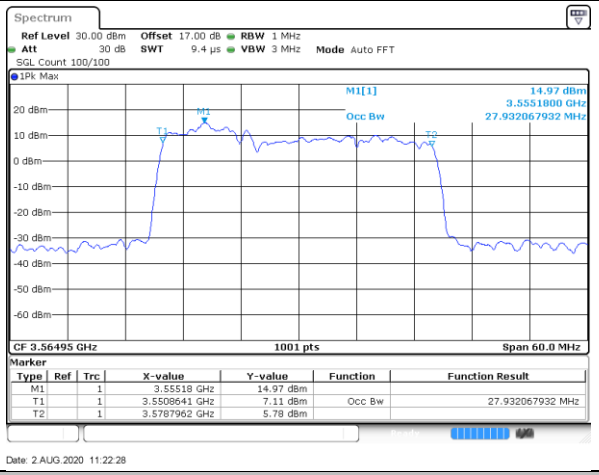
### 64QAM

#### Lowest Channel / 5MHz+20MHz



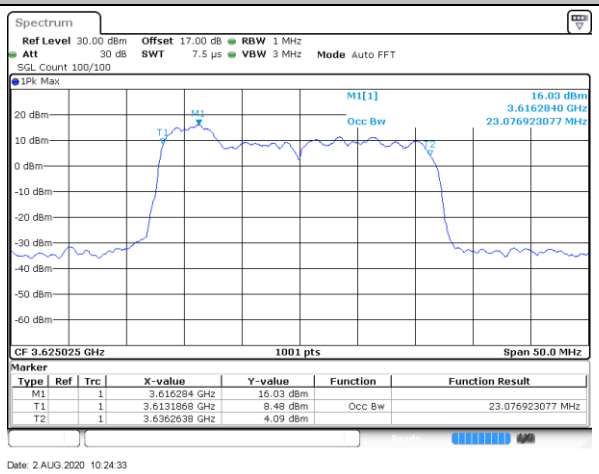

Date: 2.AUG.2020 10:29:48

#### Lowest Channel / 10MHz+20MHz



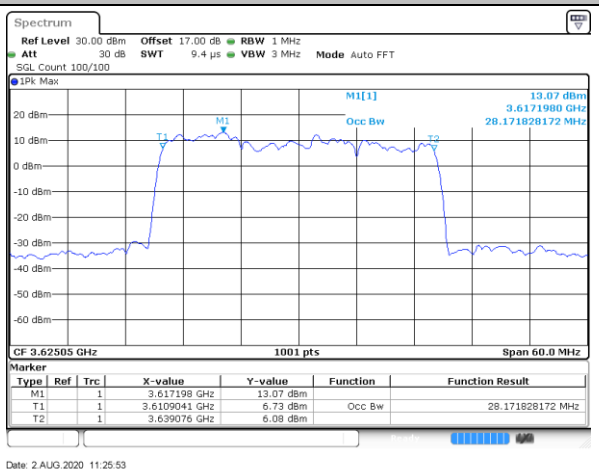

Date: 2.AUG.2020 11:22:28

#### Middle Channel / 5MHz+20MHz



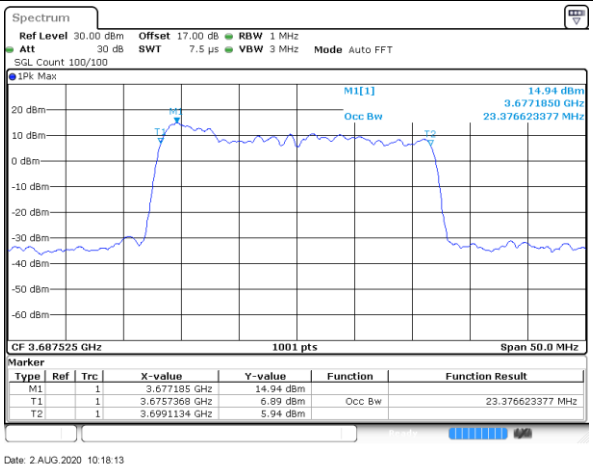

Date: 2.AUG.2020 10:24:33

#### Middle Channel / 10MHz+20MHz



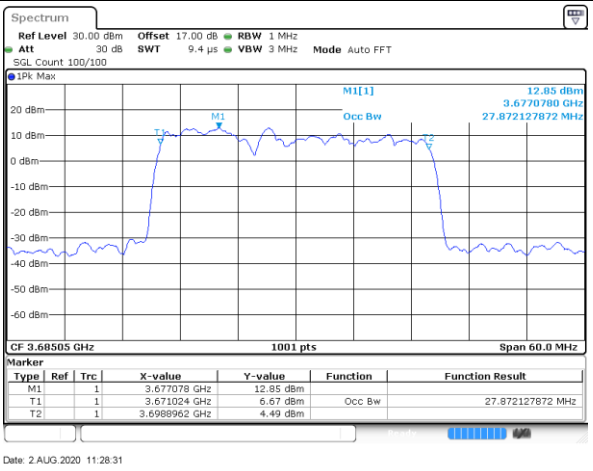

Date: 2.AUG.2020 11:25:53

#### Highest Channel / 5MHz+20MHz




Date: 2.AUG.2020 10:18:13

#### Highest Channel / 10MHz+20MHz

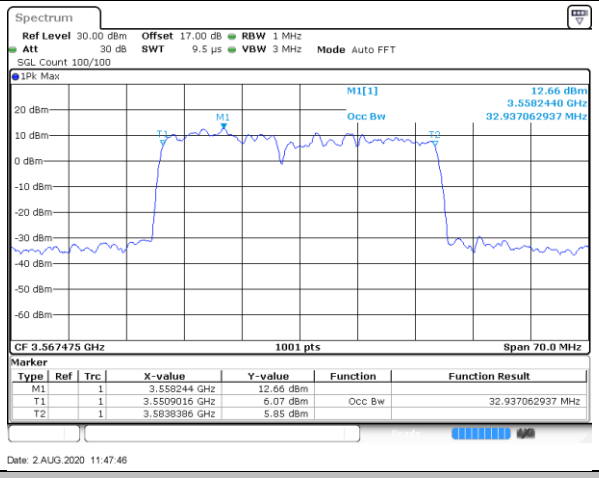



Date: 2.AUG.2020 11:28:31

## LTE Band 48C

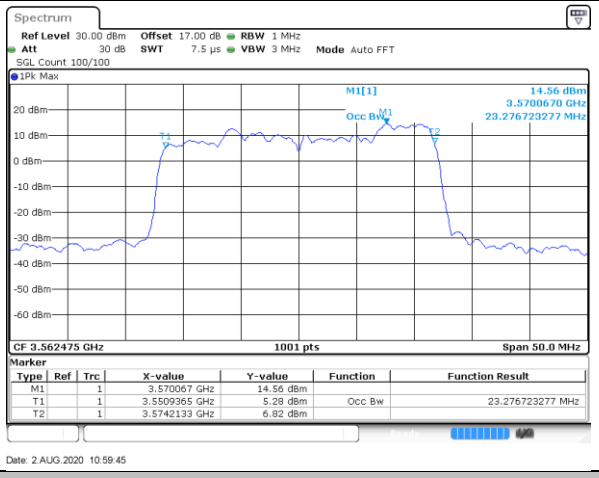
### 64QAM

#### Lowest Channel / 15MHz+20MHz



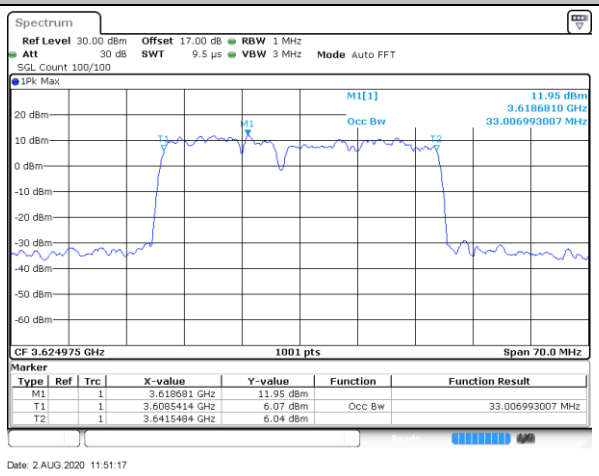

Date: 2.AUG.2020 11:47:46

#### Lowest Channel / 20MHz+5MHz



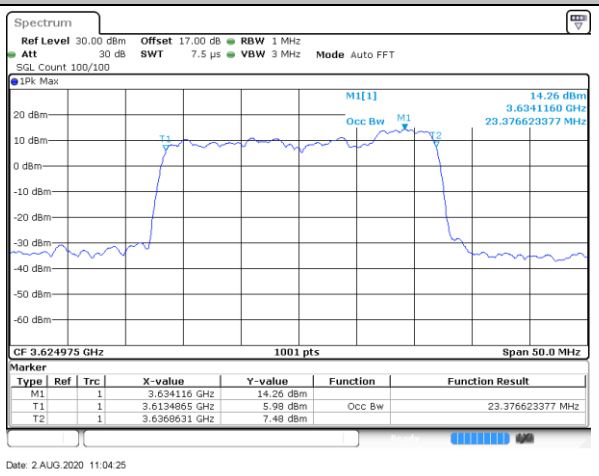

Date: 2.AUG.2020 10:59:45

#### Middle Channel / 15MHz+20MHz



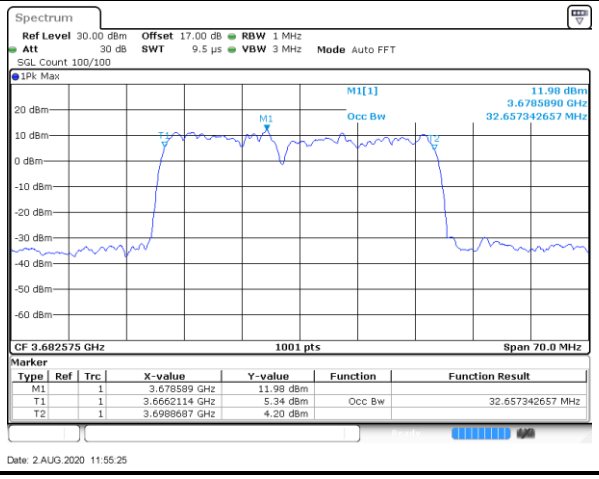

Date: 2.AUG.2020 11:51:17

#### Middle Channel / 20MHz+5MHz



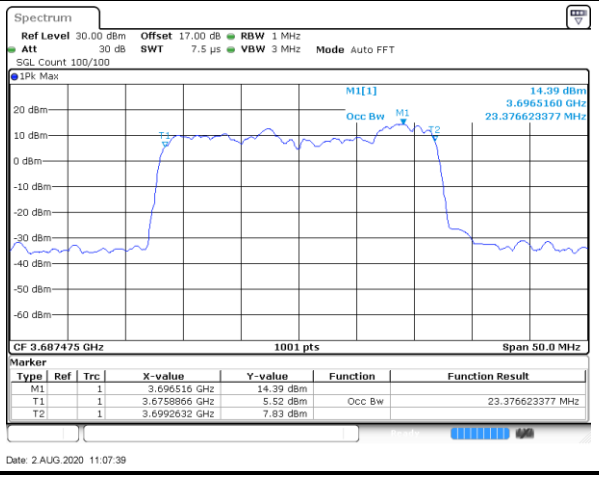

Date: 2.AUG.2020 11:04:25

#### Highest Channel / 15MHz+20MHz




Date: 2.AUG.2020 11:55:25

#### Highest Channel / 20MHz+5MHz

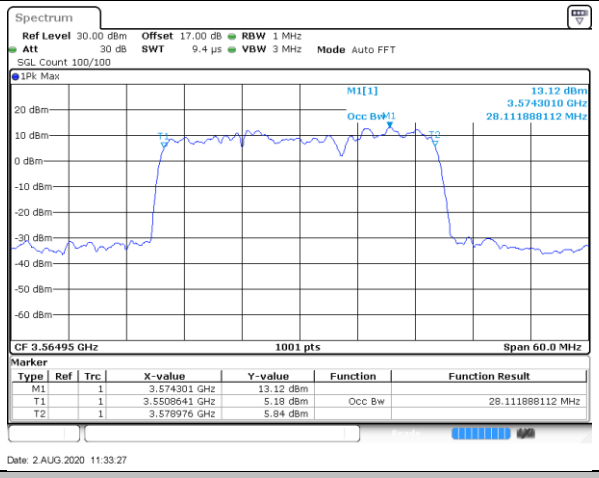



Date: 2.AUG.2020 11:07:39

## LTE Band 48C

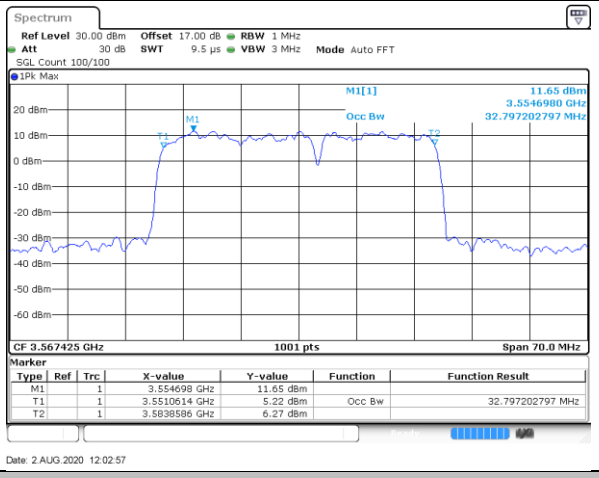
### 64QAM

#### Lowest Channel / 20MHz+10MHz



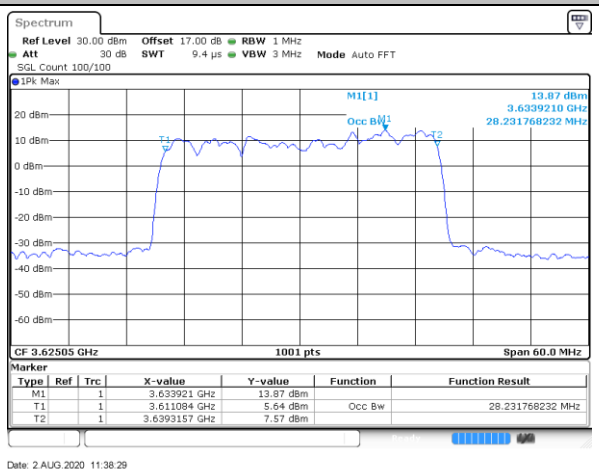

Date: 2.AUG.2020 11:33:27

#### Lowest Channel / 20MHz+15MHz



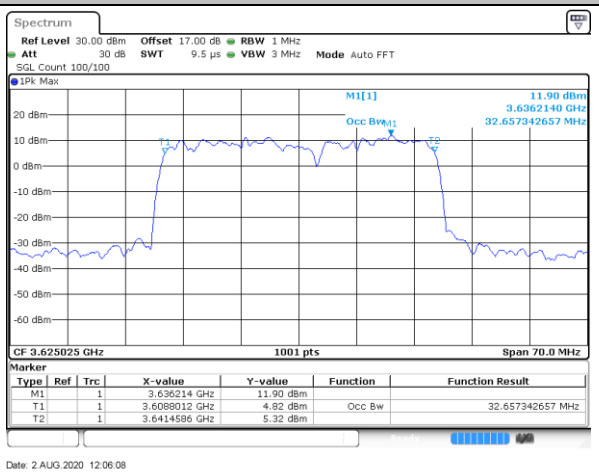

Date: 2.AUG.2020 12:02:57

#### Middle Channel / 20MHz+10MHz



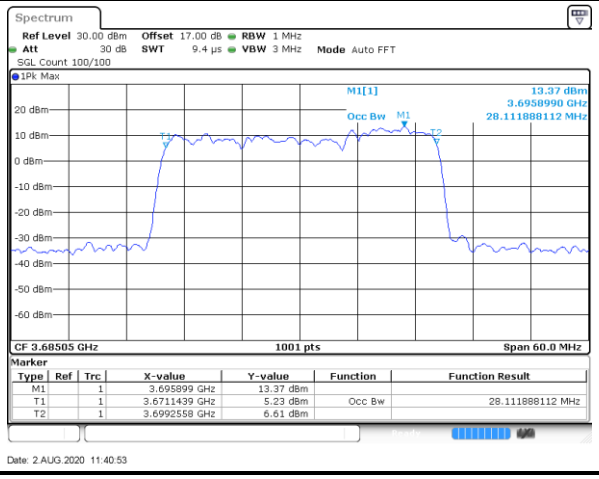

Date: 2.AUG.2020 11:38:29

#### Middle Channel / 20MHz+15MHz



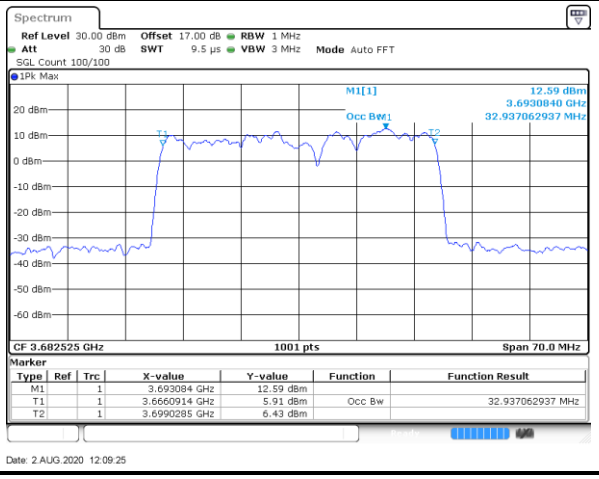

Date: 2.AUG.2020 12:06:08

#### Highest Channel / 20MHz+10MHz




Date: 2.AUG.2020 11:40:53

#### Highest Channel / 20MHz+15MHz




Date: 2.AUG.2020 12:09:25