



Spectrum

Ref Level 0.00 dBm Offset 12.00 dB Mode Auto Sweep

SGL Count 100/100

1 AvgPwr

Limit Check

SPURIOUS\_LINE\_ABS PASS

SPURIOUS\_LINE\_ABS

Start 30.0 MHz 40006 pts Stop 19.5 GHz

Spurious Emissions

| Range Low  | Range Up   | RBW       | Frequency     | Power Abs  | ΔLimit    |
|------------|------------|-----------|---------------|------------|-----------|
| 30.000 MHz | 1.000 GHz  | 1.000 MHz | 912.01649 MHz | -47.26 dBm | -34.26 dB |
| 1.000 GHz  | 1.840 GHz  | 1.000 MHz | 1.61142 GHz   | -47.24 dBm | -34.24 dB |
| 1.920 GHz  | 3.000 GHz  | 1.000 MHz | 2.53845 GHz   | -45.99 dBm | -32.99 dB |
| 3.000 GHz  | 9.000 GHz  | 1.000 MHz | 6.91342 GHz   | -41.94 dBm | -28.94 dB |
| 9.000 GHz  | 13.000 GHz | 1.000 MHz | 10.63905 GHz  | -42.07 dBm | -29.07 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.78604 GHz  | -38.97 dBm | -25.97 dB |

## Lowest Channel / QPSK

**Spectrum**

REF

**Ref Level** 0.00 dBm    **Offset** 12.00 dB    **Mode** Auto Sweep

**SGL Count** 100/100

● 1 AvgPwr

**Start** 30.0 MHz    **40006 pts**    **Stop** 19.5 GHz

**Spurious Emissions**

| Range Low  | Range Up   | RBW       | Frequency     | Power Abs  | ΔLimit    |
|------------|------------|-----------|---------------|------------|-----------|
| 30.000 MHz | 1.000 GHz  | 1.000 MHz | 940.13243 MHz | -47.11 dBm | -34.11 dB |
| 1.000 GHz  | 1.840 GHz  | 1.000 MHz | 1.76927 GHz   | -47.38 dBm | -34.38 dB |
| 1.920 GHz  | 3.000 GHz  | 1.000 MHz | 2.99730 GHz   | -45.80 dBm | -32.80 dB |
| 3.000 GHz  | 9.000 GHz  | 1.000 MHz | 6.93942 GHz   | -41.88 dBm | -28.88 dB |
| 9.000 GHz  | 13.000 GHz | 1.000 MHz | 10.58655 GHz  | -42.06 dBm | -29.06 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 17.61340 GHz  | -38.91 dBm | -25.91 dB |

**2 / 10MHz**

**Lowest Channel / 16QAM**

**Spectrum**

Ref Level 0.00 dBm Offset 12.00 dB Mode Auto Sweep

SGL Count 100/100

1 AvgPwr

Limit Check

SPURIOUS LINE\_ABS

PASS PASS

Start 30.0 MHz Stop 19.5 GHz

40006 pts

**Spurious Emissions**

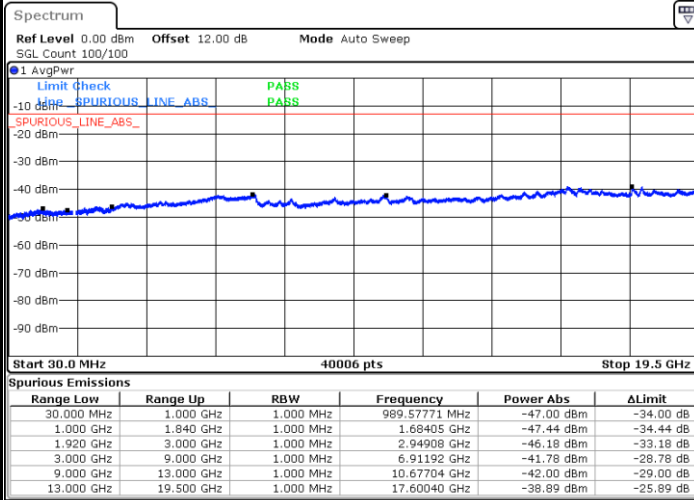
| Range Low  | Range Up   | RBW       | Frequency     | Power Abs  | ΔLimit    |
|------------|------------|-----------|---------------|------------|-----------|
| 30.000 MHz | 1.000 GHz  | 1.000 MHz | 992.97101 MHz | -46.99 dBm | -33.99 dB |
| 1.000 GHz  | 1.840 GHz  | 1.000 MHz | 1.59799 GHz   | -47.44 dBm | -34.44 dB |
| 1.920 GHz  | 3.000 GHz  | 1.000 MHz | 2.51938 GHz   | -45.79 dBm | -32.79 dB |
| 3.000 GHz  | 9.000 GHz  | 1.000 MHz | 6.91892 GHz   | -41.82 dBm | -28.82 dB |
| 9.000 GHz  | 13.000 GHz | 1.000 MHz | 10.65304 GHz  | -42.08 dBm | -29.08 dB |
| 13.000 GHz | 19.500 GHz | 1.000 MHz | 15.78804 GHz  | -39.04 dBm | -26.04 dB |

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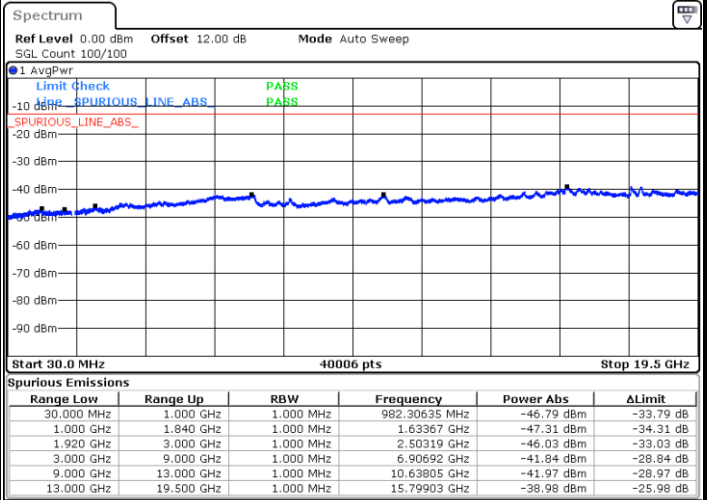
## LTE Band 2 / 10MHz

## Middle Channel / QPSK



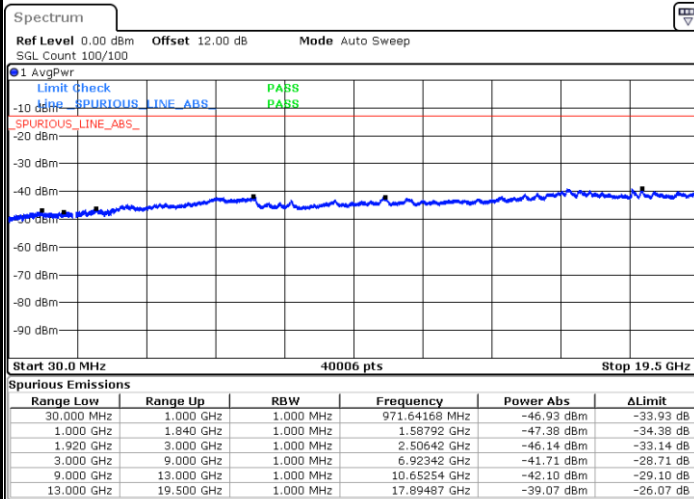
Date: 21.MAY.2020 13:35:24

## Middle Channel / 16QAM



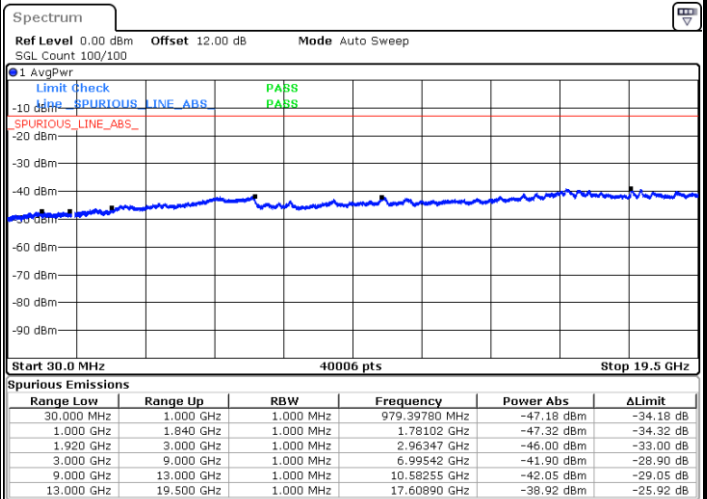
Date: 21.MAY.2020 13:36:24

## Highest Channel / QPSK



Date: 21.MAY.2020 13:42:51

## Highest Channel / 16QAM

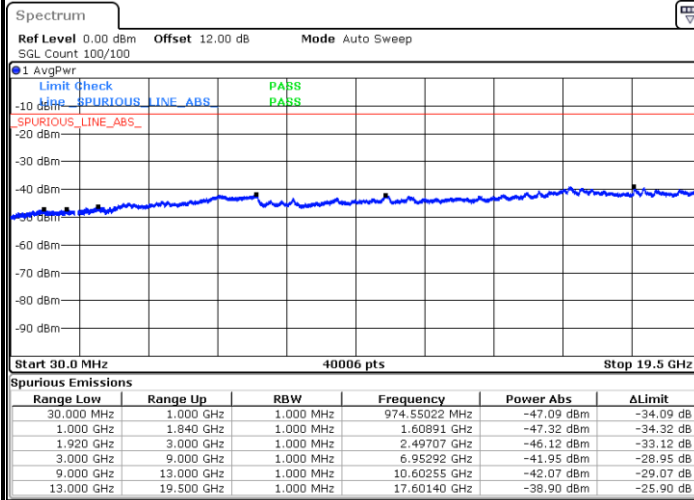


Date: 21.MAY.2020 13:43:51



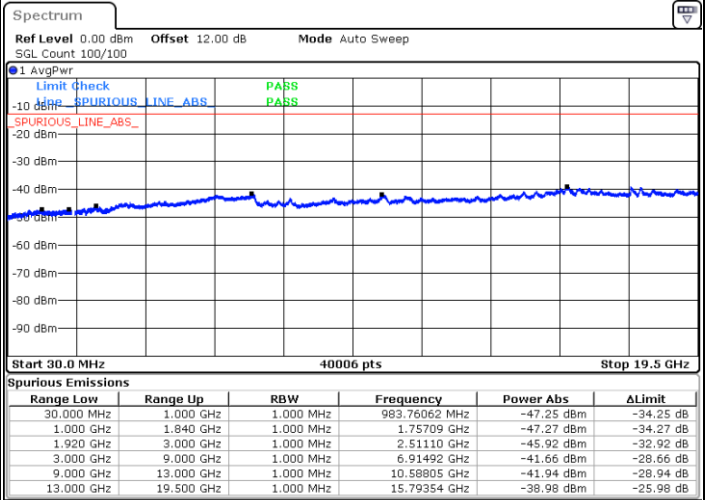
## LTE Band 2 / 15MHz

## Lowest Channel / QPSK



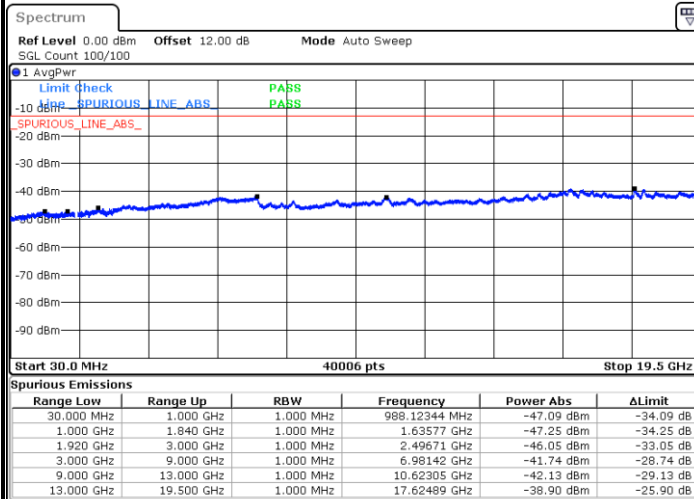
Date: 21.MAY.2020 13:50:20

## Lowest Channel / 16QAM



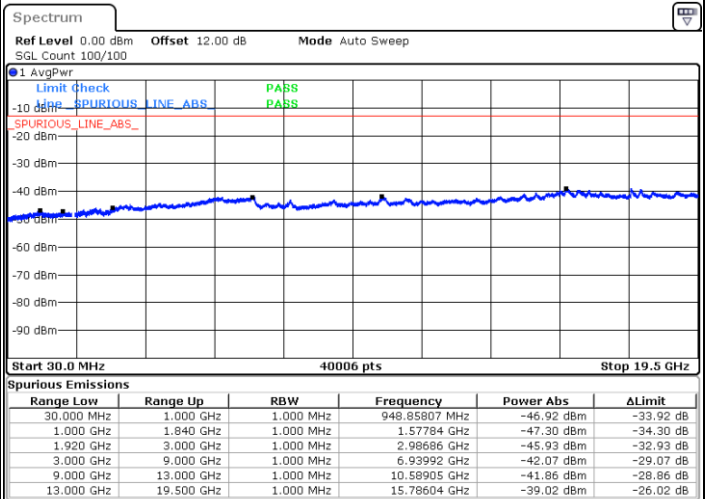
Date: 21.MAY.2020 13:51:21

## Middle Channel / QPSK



Date: 21.MAY.2020 13:53:05

## Middle Channel / 16QAM

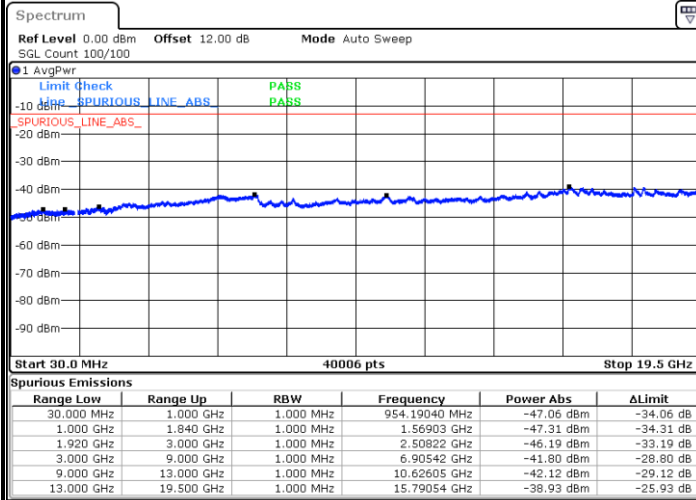


Date: 21.MAY.2020 13:54:05



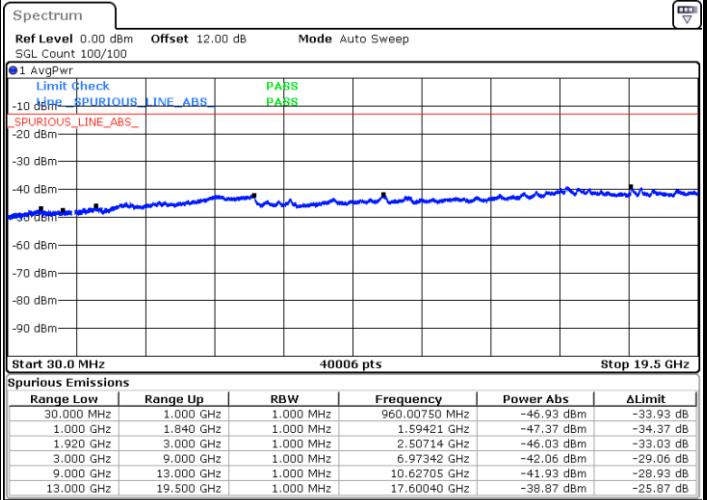
## LTE Band 2 / 15MHz

## Highest Channel / QPSK



Date: 21.MAY.2020 14:00:32

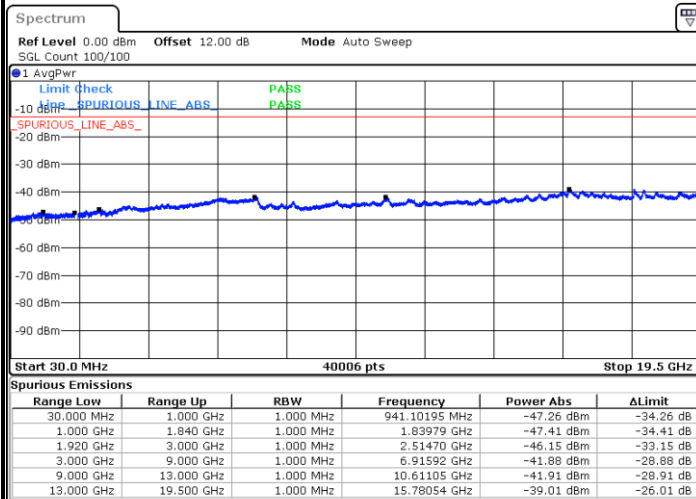
## Highest Channel / 16QAM



Date: 21.MAY.2020 14:01:32

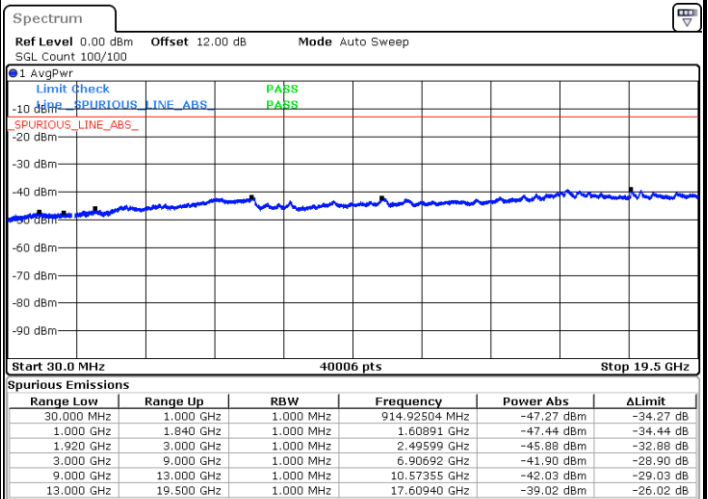
## LTE Band 2 / 20MHz

## Lowest Channel / QPSK



Date: 21.MAY.2020 14:08:01

## Lowest Channel / 16QAM

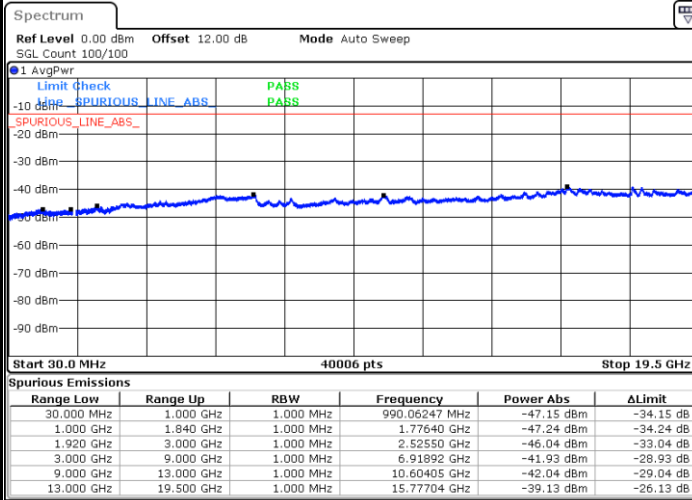


Date: 21.MAY.2020 14:09:02



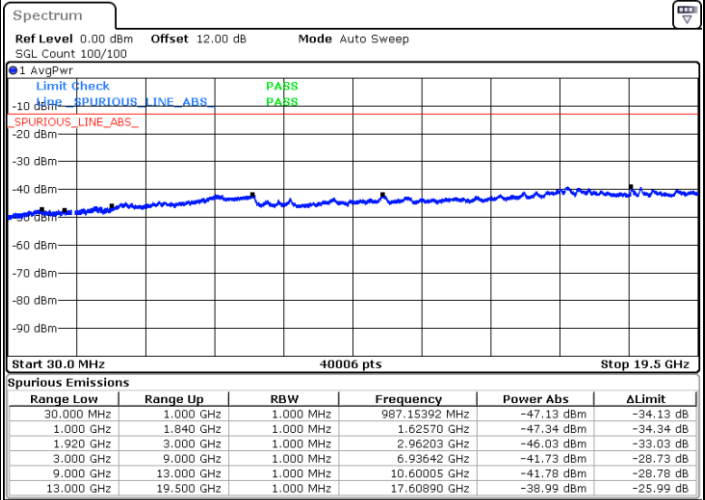
## LTE Band 2 / 20MHz

## Middle Channel / QPSK



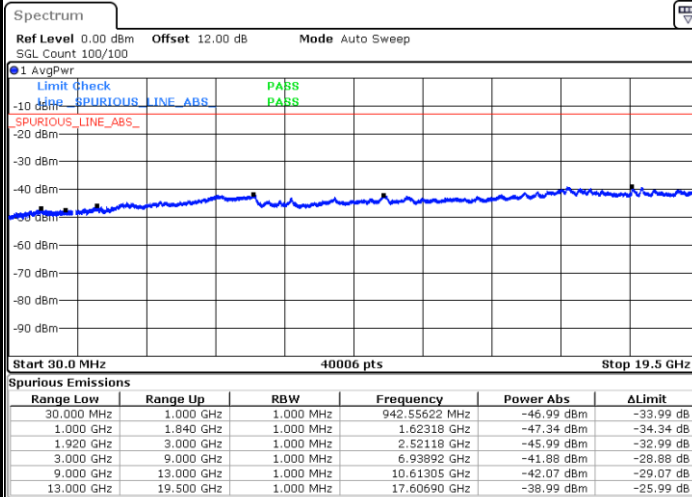
Date: 21.MAY.2020 14:10:47

## Middle Channel / 16QAM



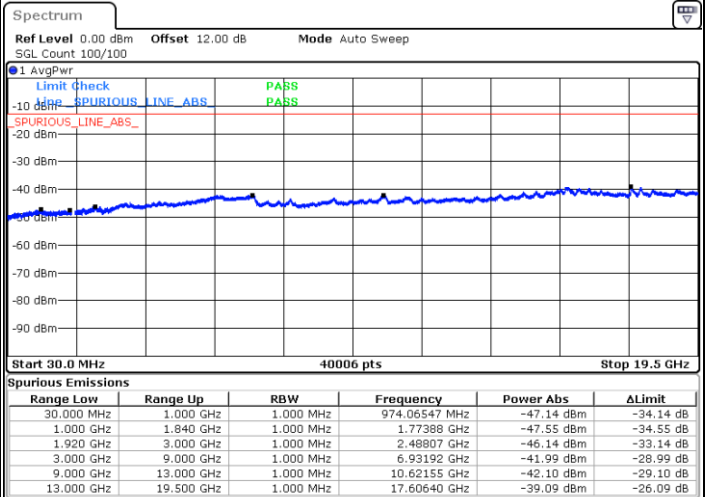
Date: 21.MAY.2020 14:11:46

## Highest Channel / QPSK



Date: 21.MAY.2020 14:18:14

## Highest Channel / 16QAM

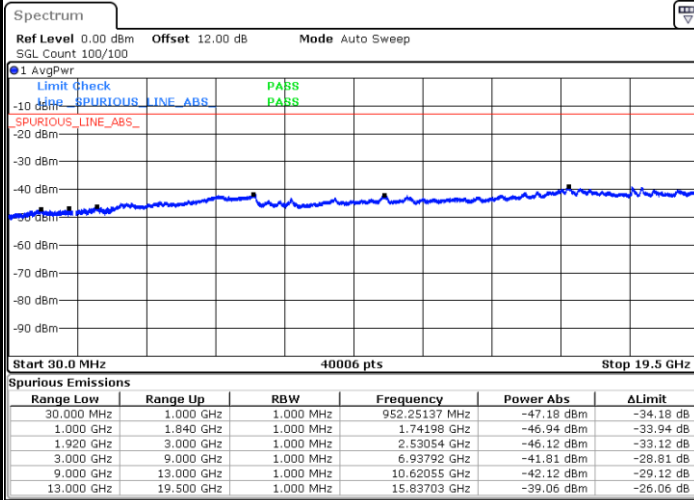


Date: 21.MAY.2020 14:19:14



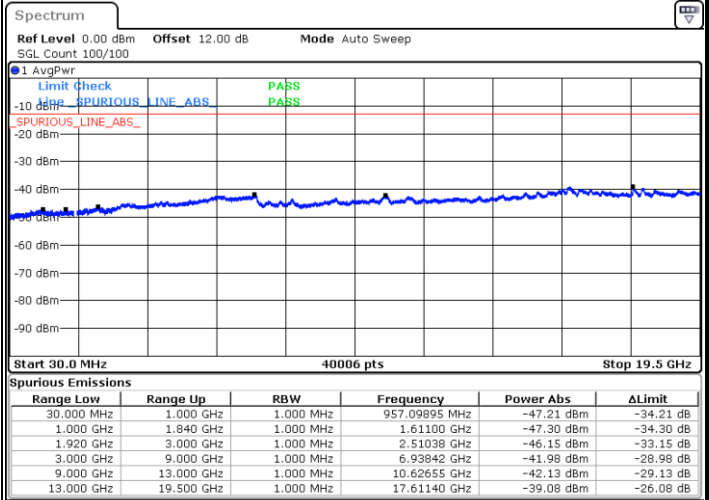
## LTE Band 2 / 1.4MHz

## Lowest Channel / 64QAM



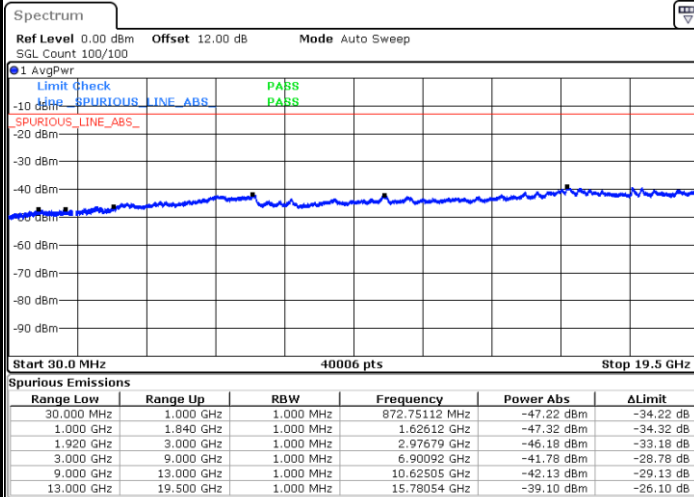
Date: 21.MAY.2020 15:07:16

## Middle Channel / 64QAM



Date: 21.MAY.2020 15:08:38

## Highest Channel / 64QAM

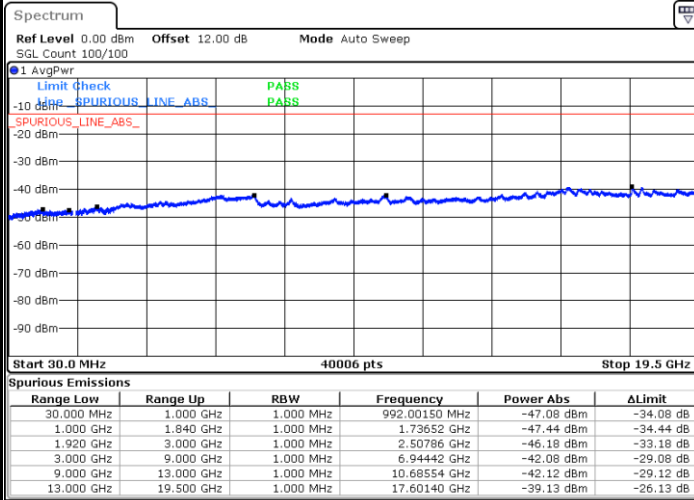


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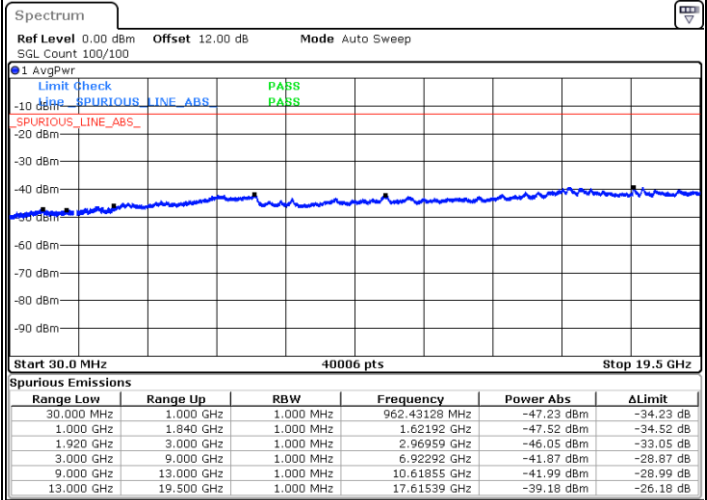
## LTE Band 2 / 3MHz

## Lowest Channel / 64QAM



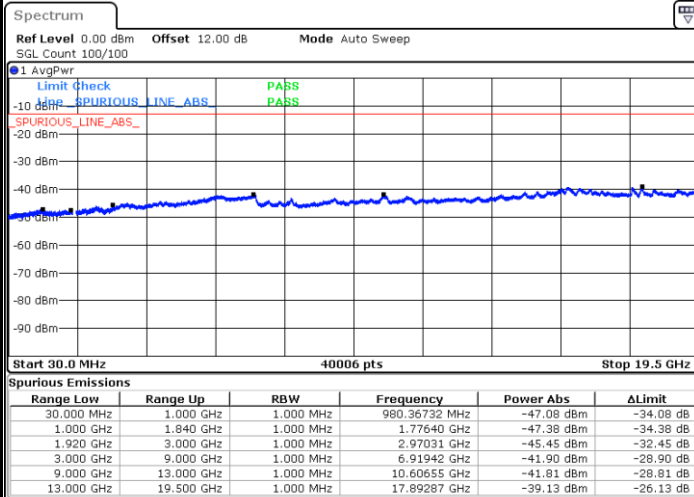
Date: 21.MAY.2020 14:22:59

## Middle Channel / 64QAM



Date: 21.MAY.2020 14:24:21

## Highest Channel / 64QAM

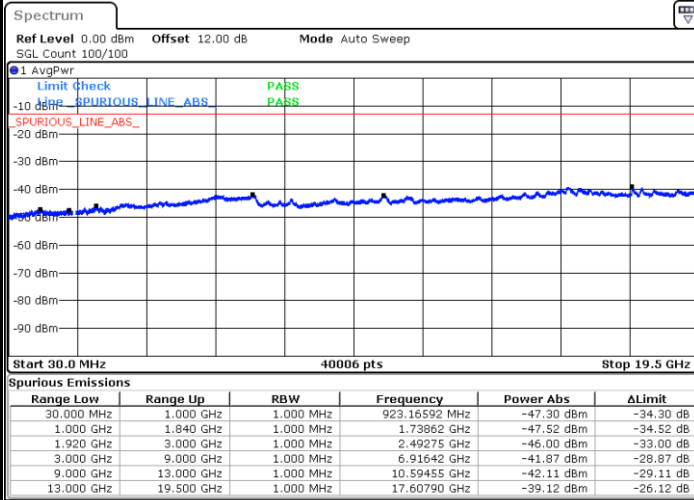


Date: 21.MAY.2020 14:28:05



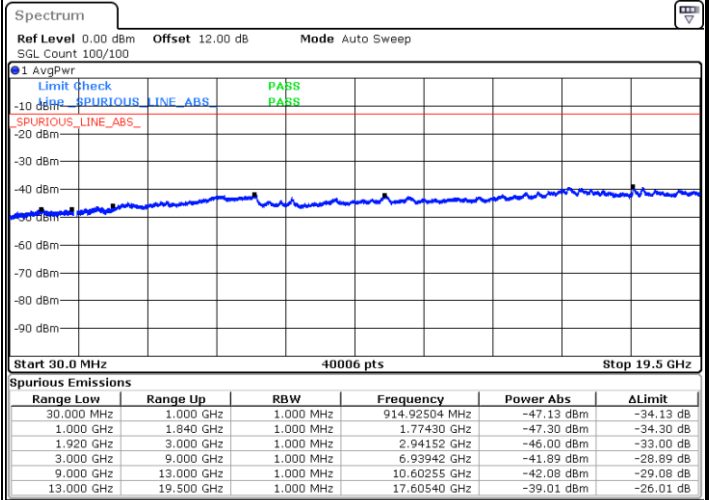
## LTE Band 2 / 5MHz

## Lowest Channel / 64QAM



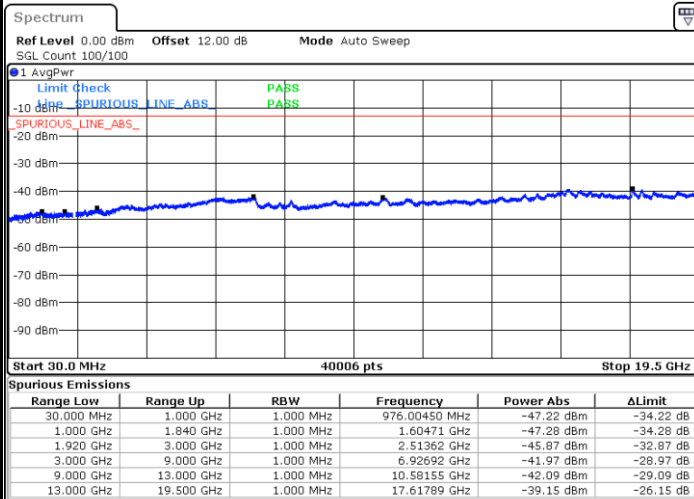
Date: 21.MAY.2020 14:31:50

## Middle Channel / 64QAM



Date: 21.MAY.2020 14:33:13

## Highest Channel / 64QAM

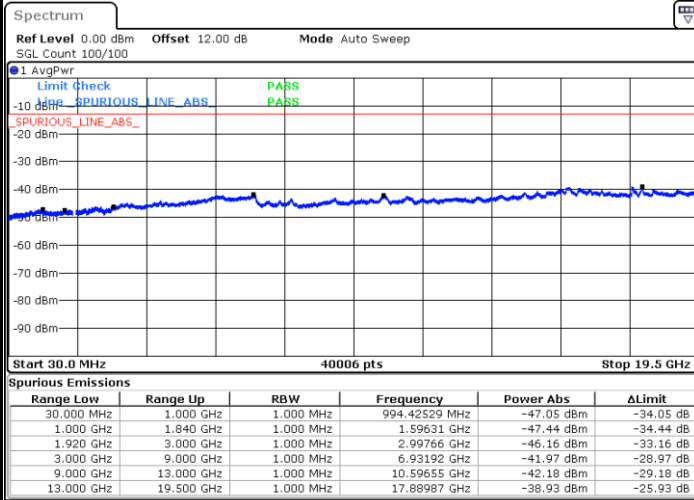


Date: 21.MAY.2020 14:36:56



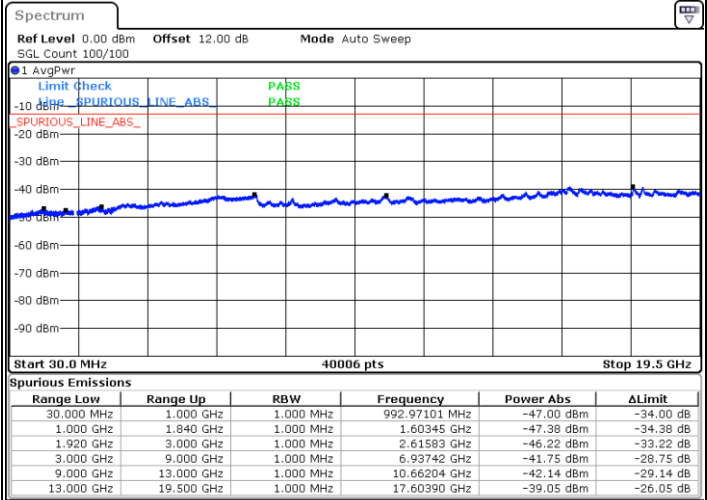
## LTE Band 2 / 10MHz

## Lowest Channel / 64QAM



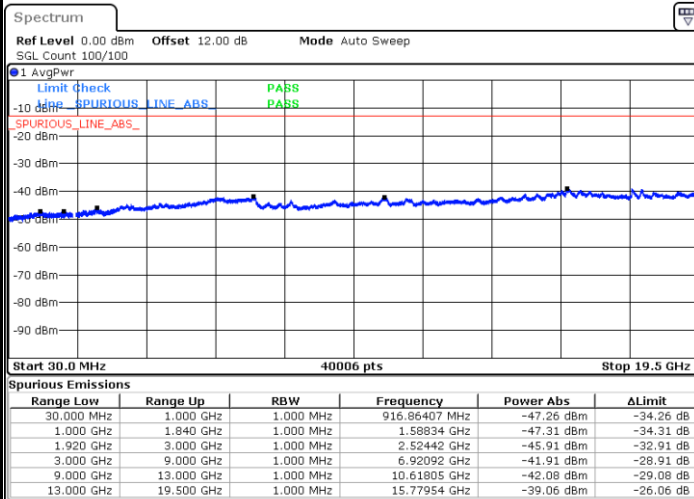
Date: 21.MAY.2020 14:40:41

## Middle Channel / 64QAM



Date: 21.MAY.2020 14:42:04

## Highest Channel / 64QAM

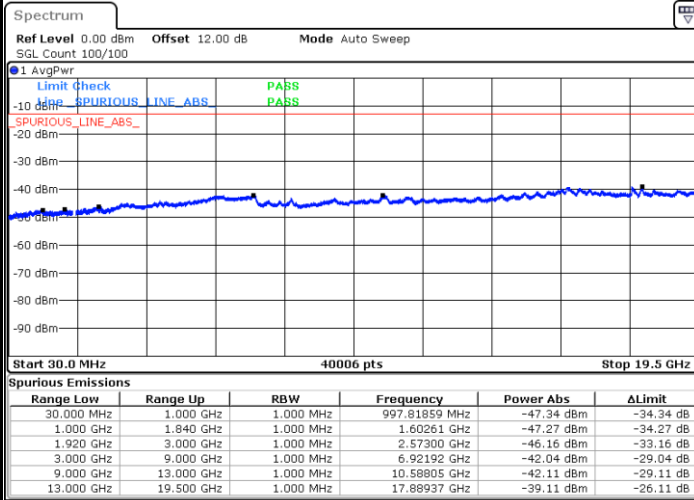


Date: 21.MAY.2020 14:45:47



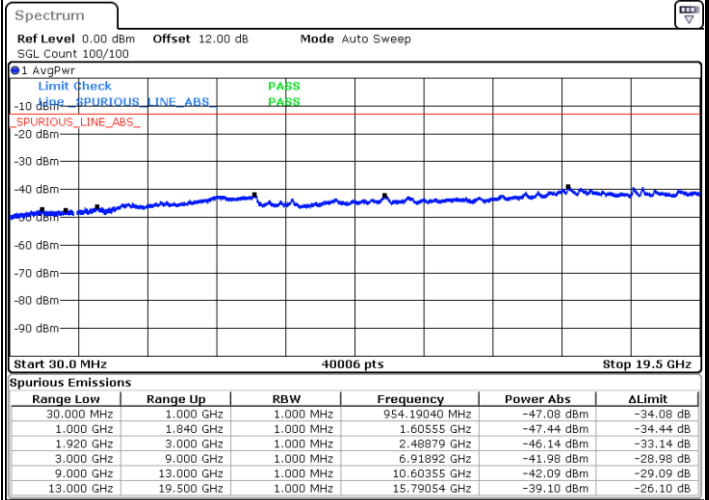
## LTE Band 2 / 15MHz

## Lowest Channel / 64QAM



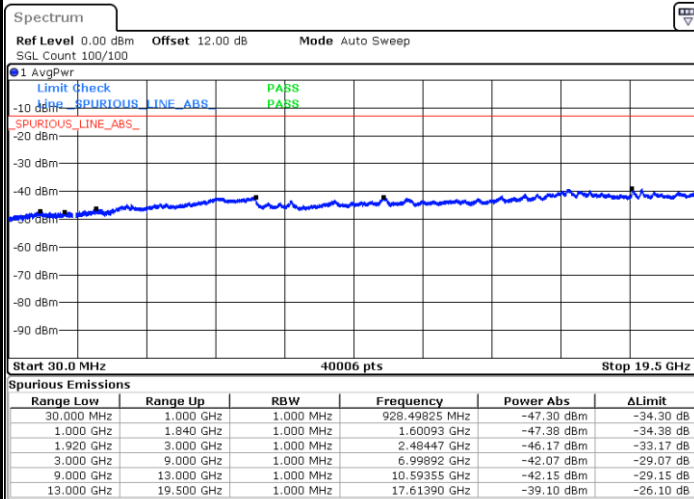
Date: 21.MAY.2020 14:49:32

## Middle Channel / 64QAM



Date: 21.MAY.2020 14:50:55

## Highest Channel / 64QAM

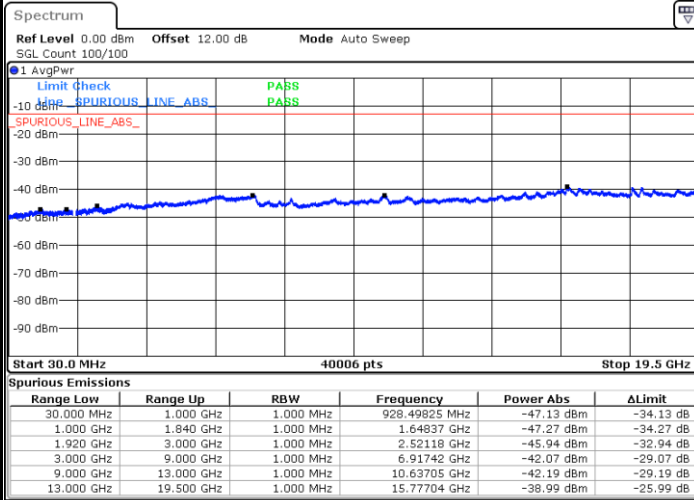


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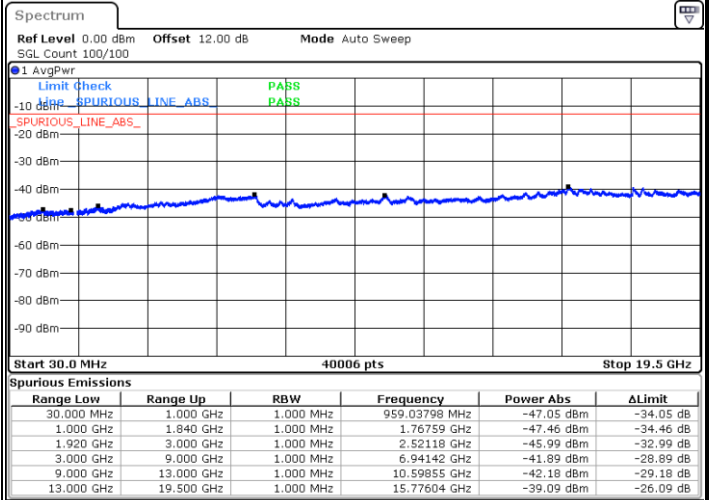
## LTE Band 2 / 20MHz

## Lowest Channel / 64QAM



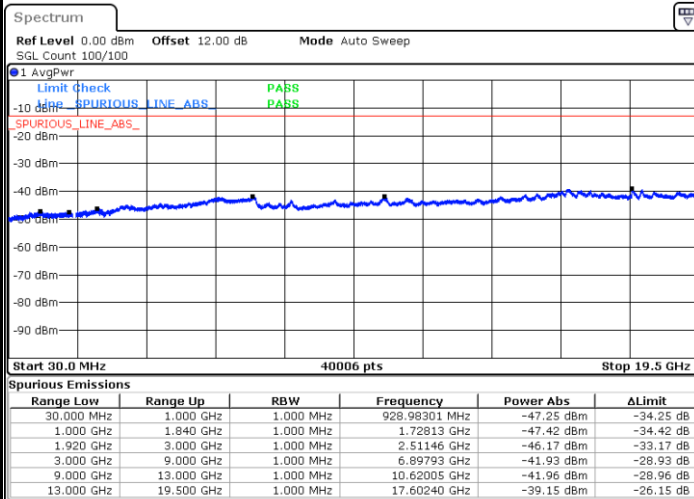
Date: 21.MAY.2020 14:58:24

## Middle Channel / 64QAM



Date: 21.MAY.2020 14:59:47

## Highest Channel / 64QAM



Date: 21.MAY.2020 15:03:30

## Frequency Stability

| Test Conditions  |                   | LTE Band 2 (QPSK) / Middle Channel | Limit   |
|------------------|-------------------|------------------------------------|---------|
| Temperature (°C) | Voltage (Volt)    | BW 10MHz                           | Note 2. |
|                  |                   | Deviation (ppm)                    | Result  |
| 50               | Normal Voltage    | 0.0014                             | PASS    |
| 40               | Normal Voltage    | 0.0009                             |         |
| 30               | Normal Voltage    | 0.0018                             |         |
| 20(Ref.)         | Normal Voltage    | 0.0000                             |         |
| 10               | Normal Voltage    | 0.0003                             |         |
| 0                | Normal Voltage    | 0.0003                             |         |
| -10              | Normal Voltage    | 0.0005                             |         |
| -20              | Normal Voltage    | 0.0001                             |         |
| -30              | Normal Voltage    | 0.0009                             |         |
| 20               | Maximum Voltage   | 0.0016                             |         |
| 20               | Normal Voltage    | 0.0000                             |         |
| 20               | Battery End Point | 0.0003                             |         |

**Note:**

1. Normal Voltage =3.8 V. ; Battery End Point (BEP) =3.4 V. ; Maximum Voltage =4.35 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

## LTE Band 4

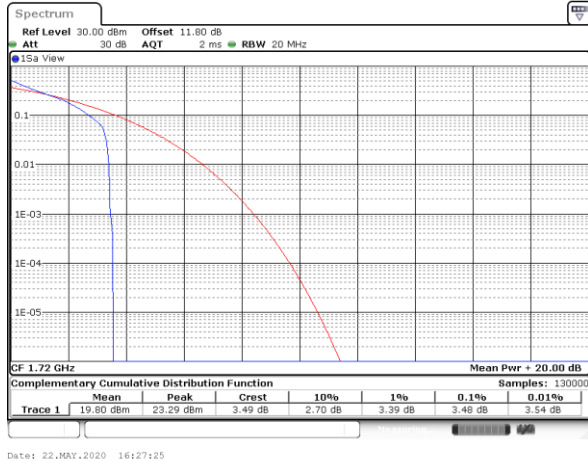
### Peak-to-Average Ratio

| Mode       | LTE Band 4 / 20MHz |         |       |         |             |
|------------|--------------------|---------|-------|---------|-------------|
| Mod.       | QPSK               |         | 16QAM |         | Limit: 13dB |
| RB Size    | 1RB                | Full RB | 1RB   | Full RB | Result      |
| Lowest CH  | 3.48               | 4.26    | 4.70  | 5.51    | PASS        |
| Middle CH  | 3.19               | 4.29    | 3.91  | 5.45    |             |
| Highest CH | 3.68               | 4.41    | 4.90  | 5.68    |             |
| Mode       | LTE Band 4 / 20MHz |         |       |         |             |
| Mod.       | 64QAM              |         |       |         | Limit: 13dB |
| RB Size    | 1RB                | Full RB |       |         | Result      |
| Lowest CH  | 5.68               | 6.17    | -     | -       | PASS        |
| Middle CH  | 5.13               | 6.17    | -     | -       |             |
| Highest CH | 5.77               | 6.49    | -     | -       |             |

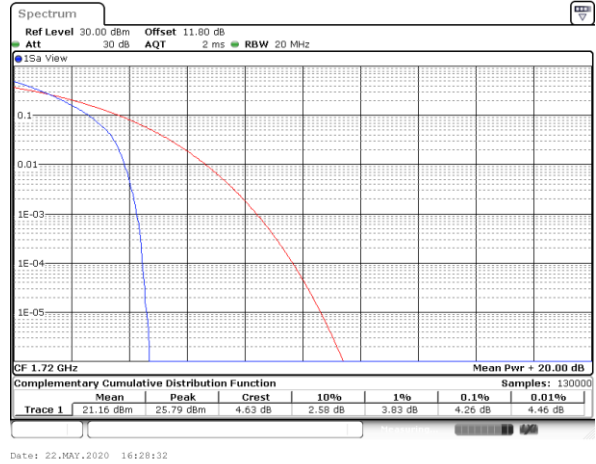


## LTE Band 4 / 20MHz / QPSK

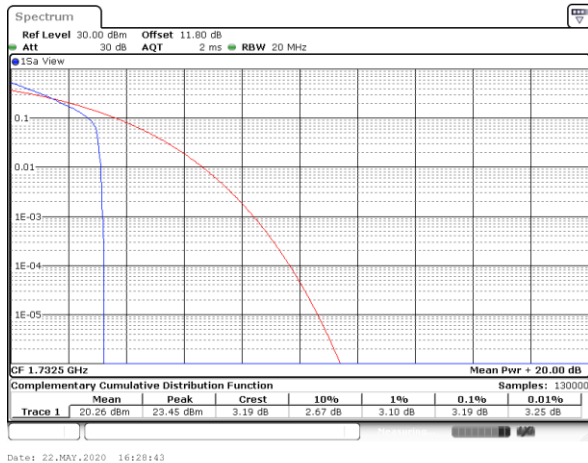
## Lowest Channel / 1RB



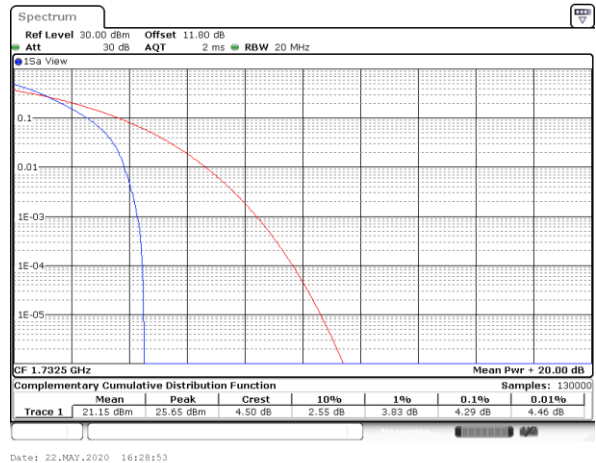
## Lowest Channel / Full RB



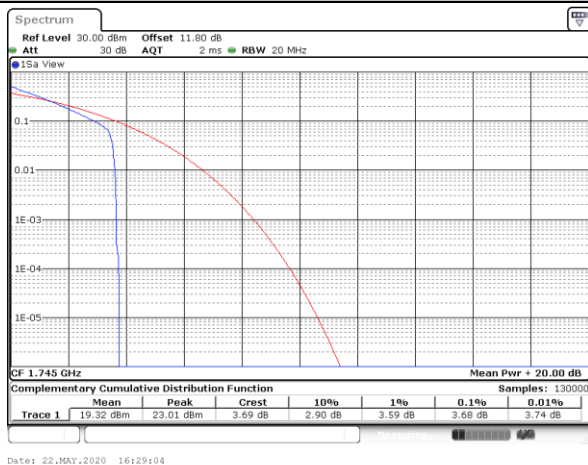
## Middle Channel / 1RB



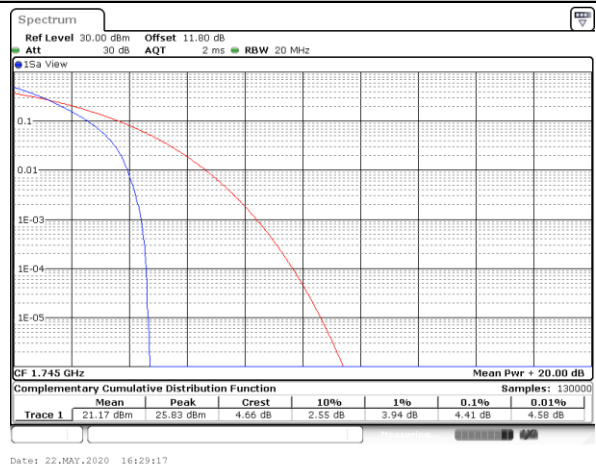
## Middle Channel / Full RB



## Highest Channel / 1RB



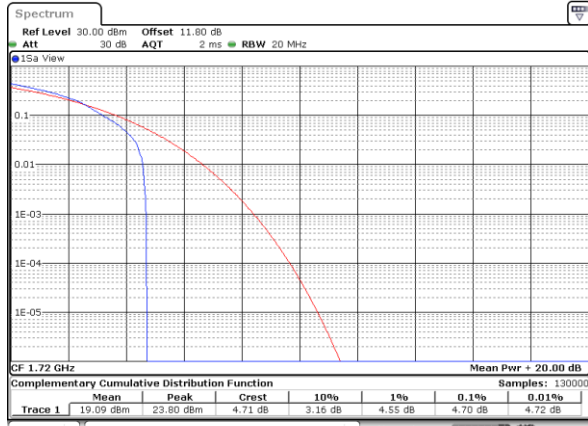
## Highest Channel / Full RB



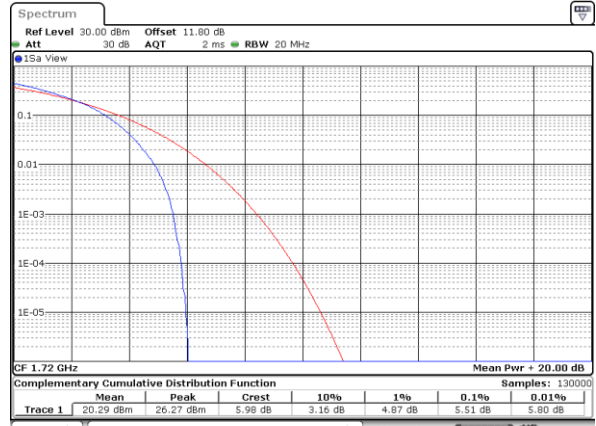


## LTE Band 4 / 20MHz / 16QAM

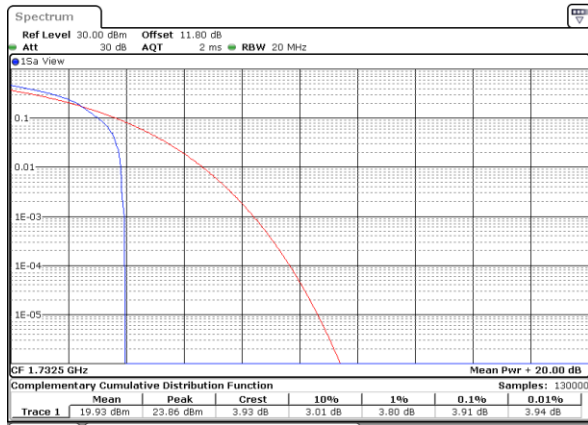
## Lowest Channel / 1RB



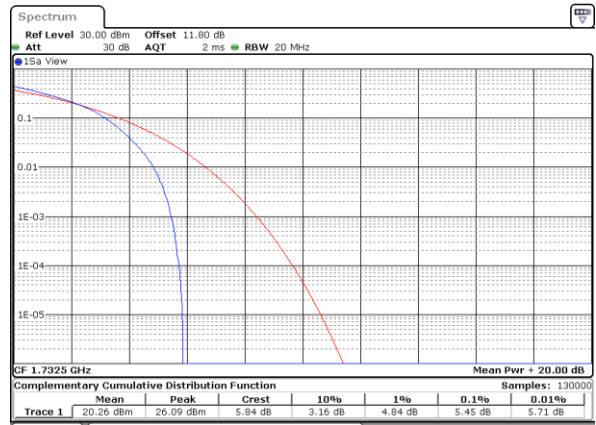
## Lowest Channel / Full RB



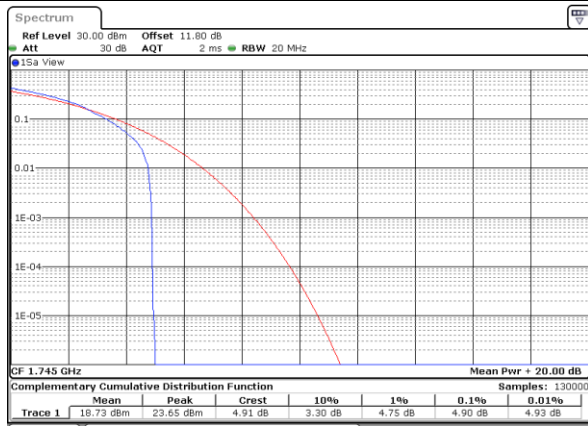
## Middle Channel / 1RB



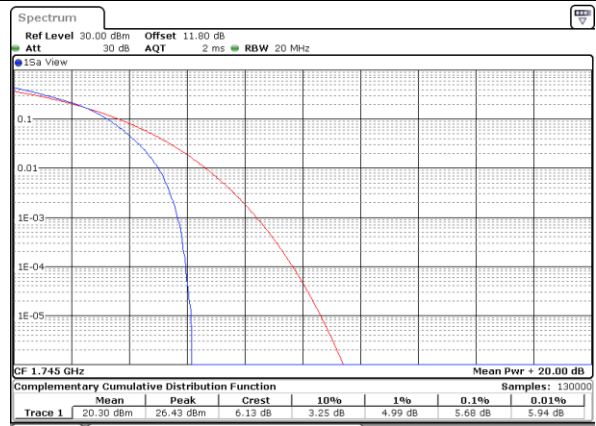
## Middle Channel / Full RB



## Highest Channel / 1RB

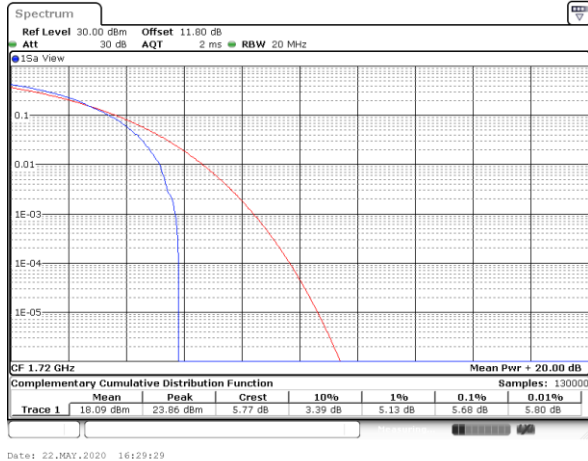


## Highest Channel / Full RB

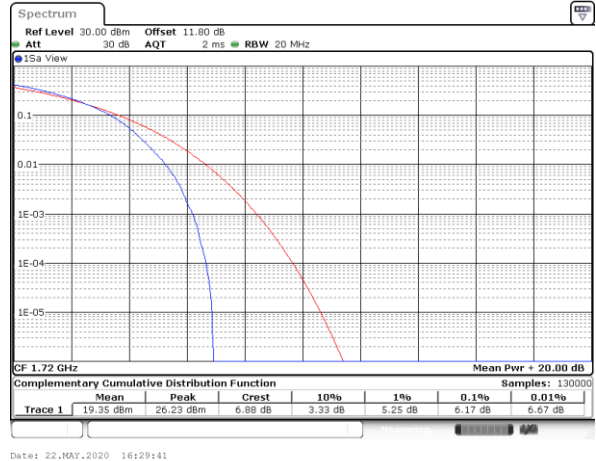


## LTE Band 4 / 20MHz / 64QAM

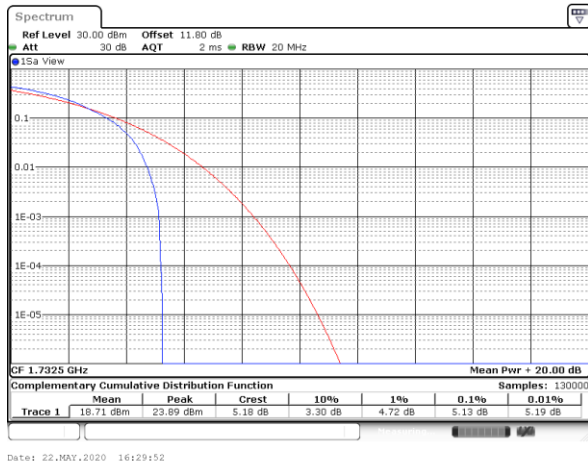
### Lowest Channel / 1RB



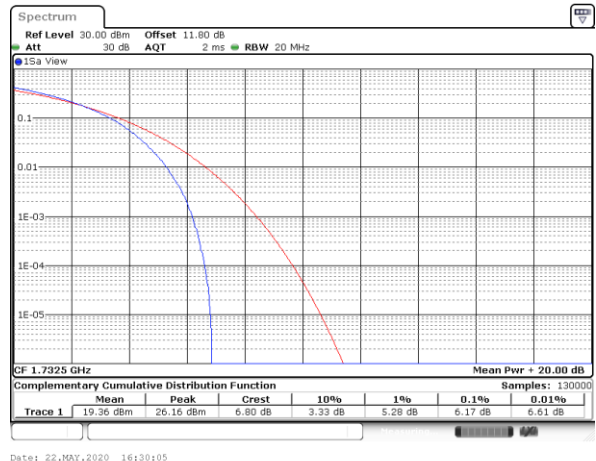
### Lowest Channel / Full RB



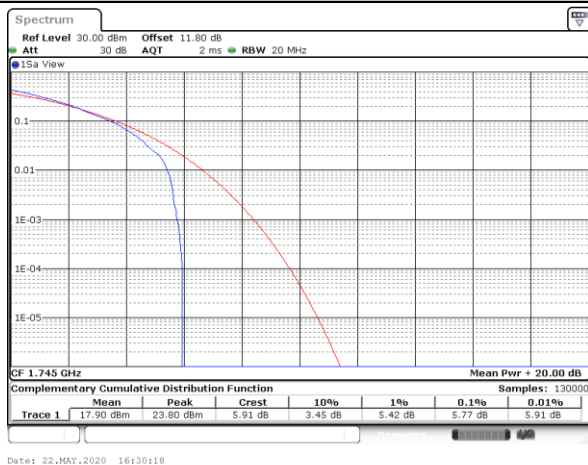
### Middle Channel / 1RB



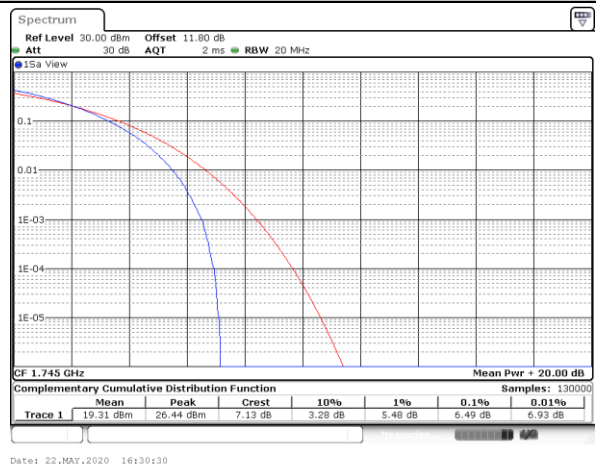
### Middle Channel / Full RB



### Highest Channel / 1RB



### Highest Channel / Full RB



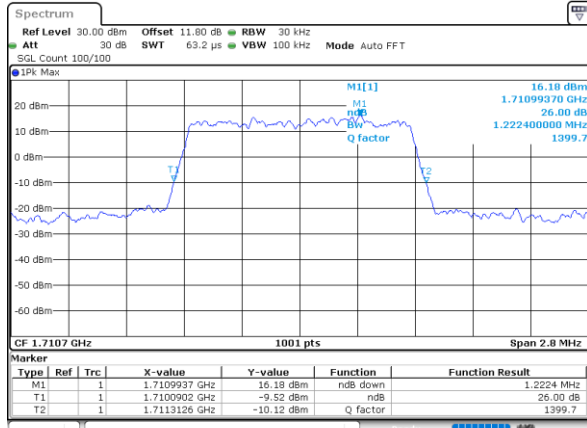
**26dB Bandwidth**

| Mode       | LTE Band 4 : 26dB BW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
|------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BW         | 1.4MHz                    |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | QPSK                      | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM |
| Lowest CH  | 1.22                      | 1.21  | 3.03  | 3.02  | 4.87  | 4.95  | 9.69  | 9.87  | 14.51 | 14.30 | 18.78 | 18.62 |
| Middle CH  | 1.22                      | 1.22  | 3.07  | 3.00  | 4.99  | 4.93  | 9.73  | 9.99  | 14.60 | 14.60 | 18.94 | 18.94 |
| Highest CH | 1.24                      | 1.22  | 2.94  | 3.03  | 4.91  | 4.88  | 9.75  | 9.87  | 14.24 | 14.69 | 18.94 | 19.18 |
| Mode       | LTE Band 4 : 26dB BW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                    |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                     |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | 1.21                      | -     | 3.02  | -     | 4.95  | -     | 9.79  | -     | 14.42 | -     | 18.86 | -     |
| Middle CH  | 1.23                      | -     | 3.04  | -     | 4.90  | -     | 9.71  | -     | 14.39 | -     | 18.90 | -     |
| Highest CH | 1.22                      | -     | 3.04  | -     | 5.03  | -     | 9.85  | -     | 14.42 | -     | 18.82 | -     |



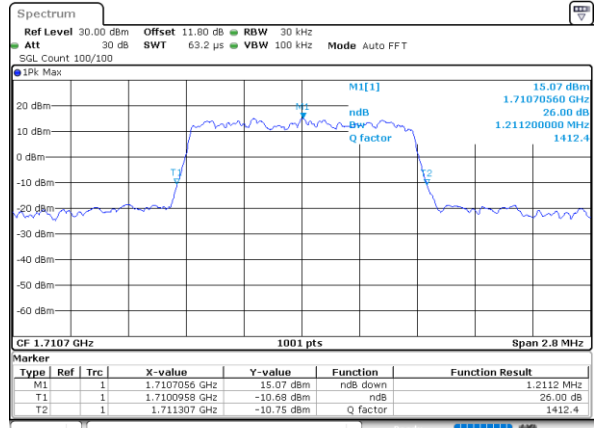
## LTE Band 4

## Lowest Channel / 1.4MHz / QPSK



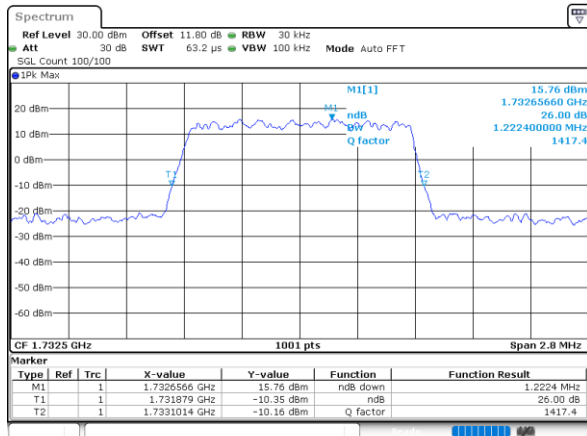
Date: 22.MAY.2020 16:09:27

## Lowest Channel / 1.4MHz / 16QAM



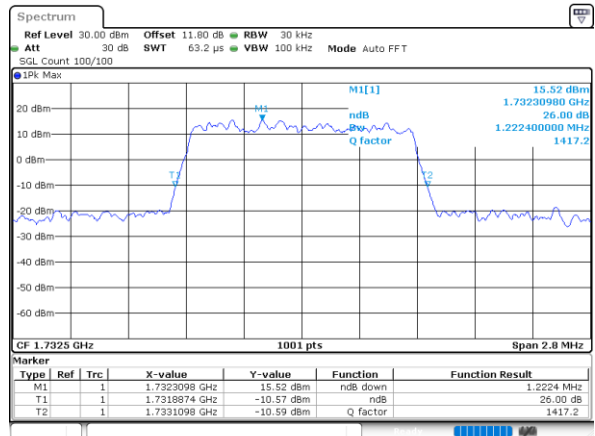
Date: 22.MAY.2020 16:09:39

## Middle Channel / 1.4MHz / QPSK



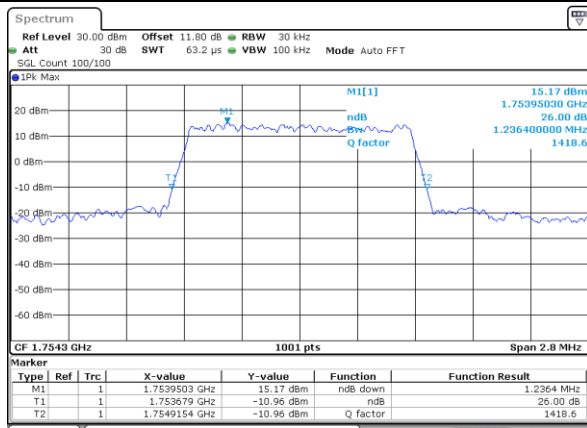
Date: 22.MAY.2020 16:16:34

## Middle Channel / 1.4MHz / 16QAM



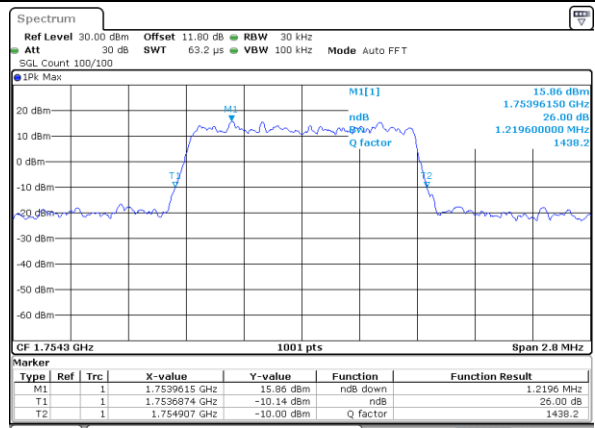
Date: 22.MAY.2020 16:16:45

## Highest Channel / 1.4MHz / QPSK



Date: 22.MAY.2020 16:19:01

## Highest Channel / 1.4MHz / 16QAM

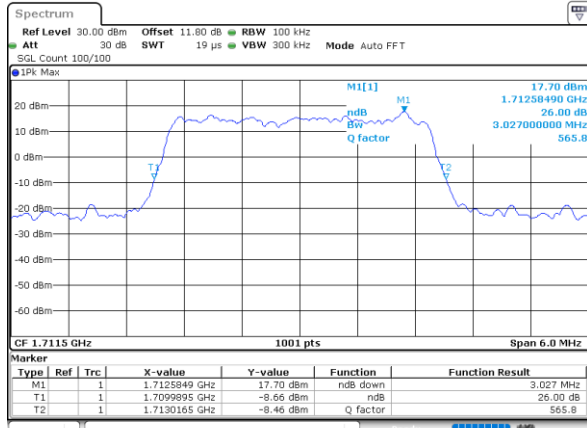


Date: 22.MAY.2020 16:19:12



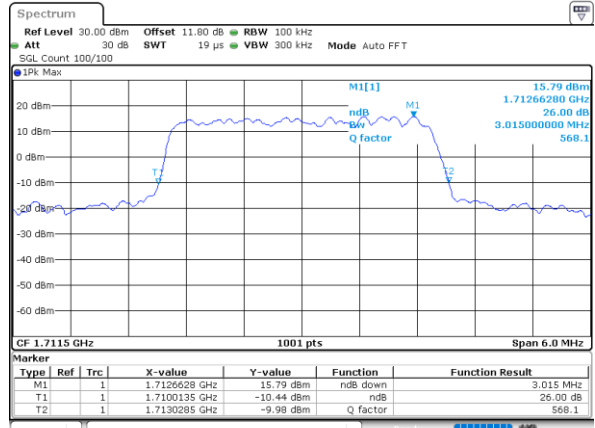
## LTE Band 4

## Lowest Channel / 3MHz / QPSK



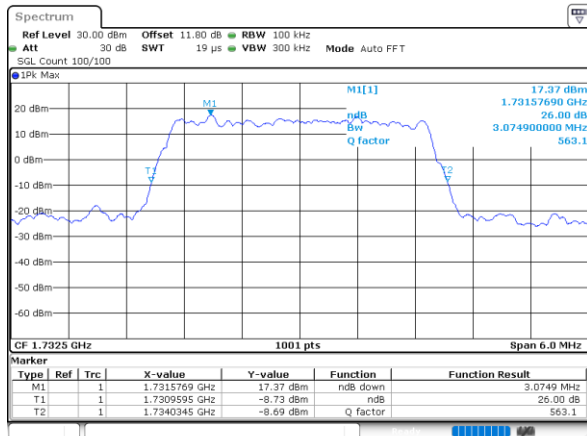
Date: 22.MAY.2020 03:15:47

## Lowest Channel / 3MHz / 16QAM



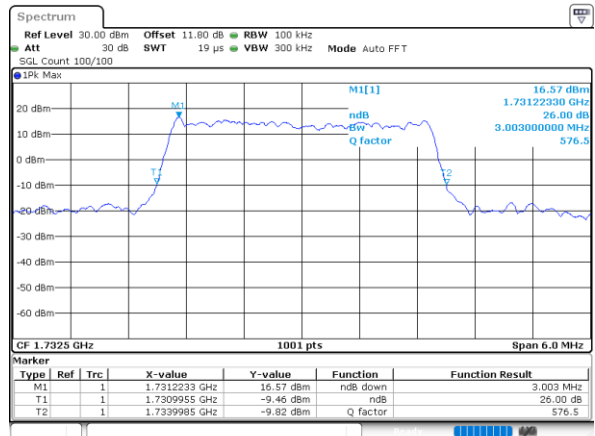
Date: 22.MAY.2020 03:15:59

## Middle Channel / 3MHz / QPSK



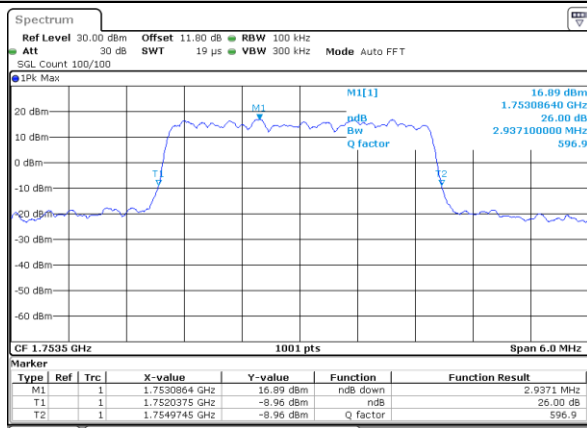
Date: 22.MAY.2020 03:23:15

## Middle Channel / 3MHz / 16QAM



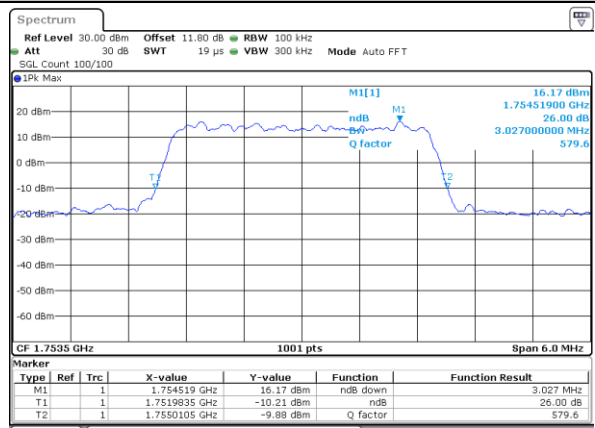
Date: 22.MAY.2020 03:23:26

## Highest Channel / 3MHz / QPSK



Date: 22.MAY.2020 03:26:01

## Highest Channel / 3MHz / 16QAM

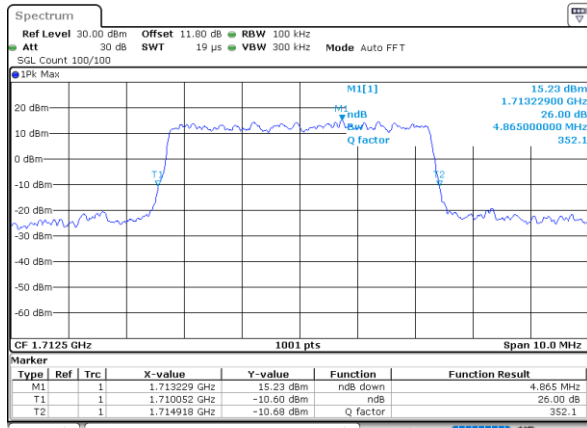


Date: 22.MAY.2020 03:26:14



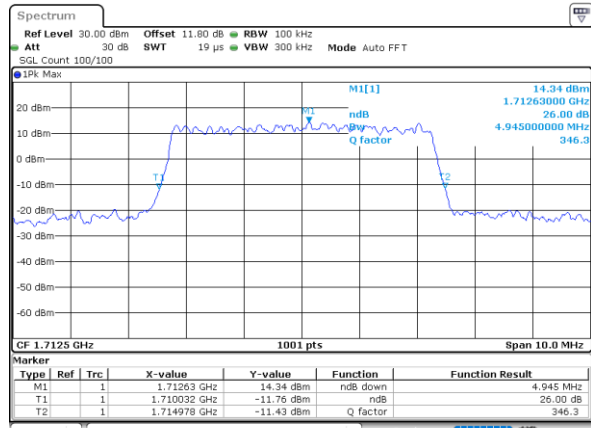
## LTE Band 4

## Lowest Channel / 5MHz / QPSK



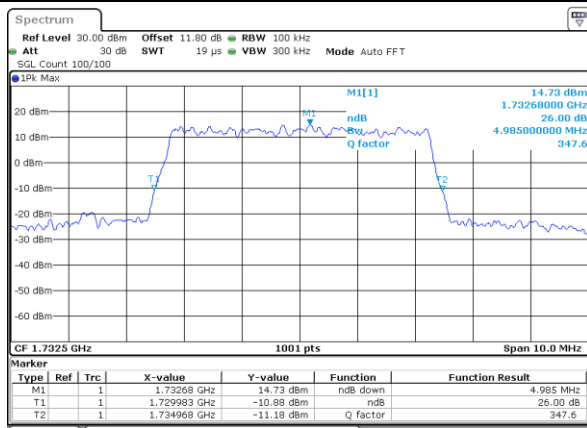
Date: 22.MAY.2020 03:33:31

## Lowest Channel / 5MHz / 16QAM



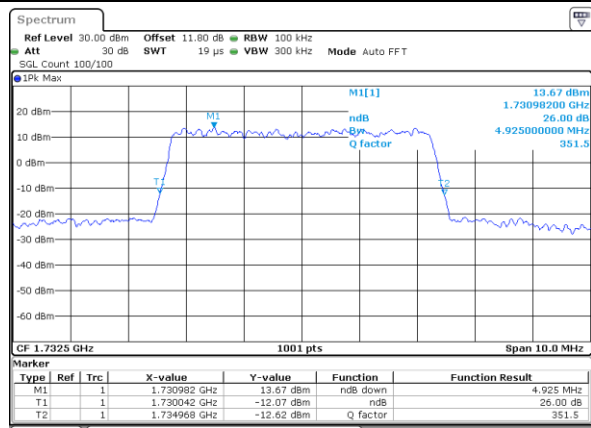
Date: 22.MAY.2020 03:33:43

## Middle Channel / 5MHz / QPSK



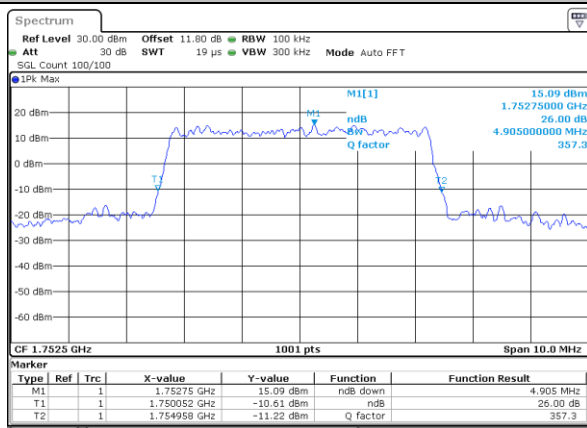
Date: 22.MAY.2020 03:40:58

## Middle Channel / 5MHz / 16QAM



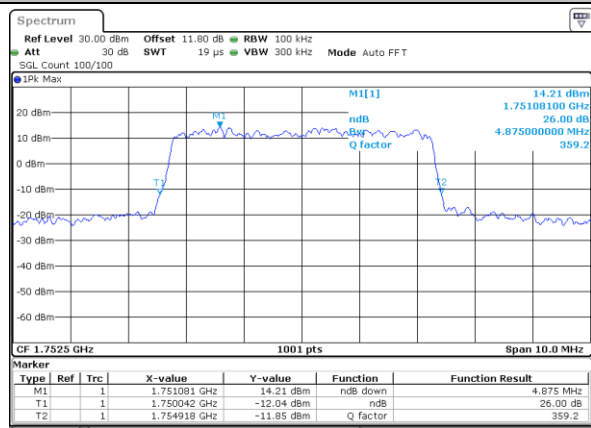
Date: 22.MAY.2020 03:41:09

## Highest Channel / 5MHz / QPSK



Date: 22.MAY.2020 03:43:44

## Highest Channel / 5MHz / 16QAM

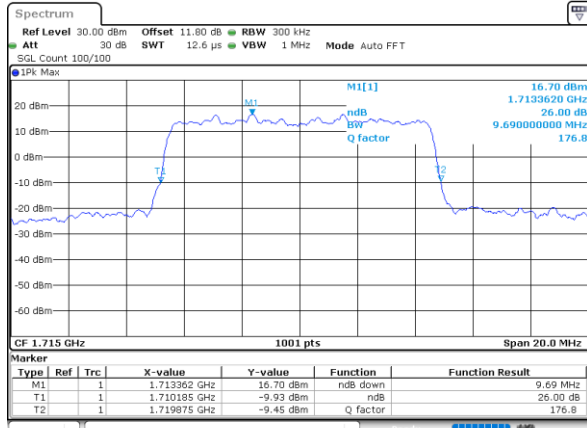


Date: 22.MAY.2020 03:43:56



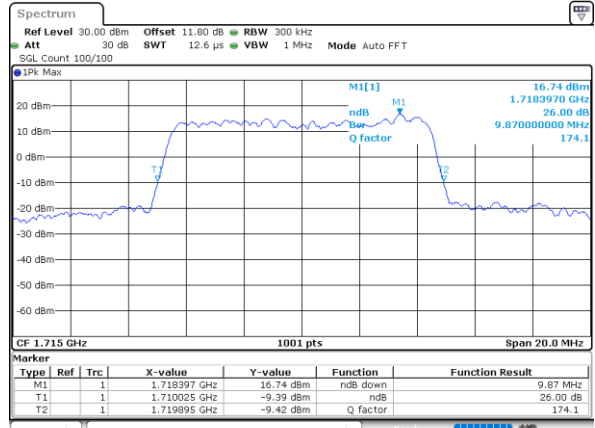
## LTE Band 4

## Lowest Channel / 10MHz / QPSK



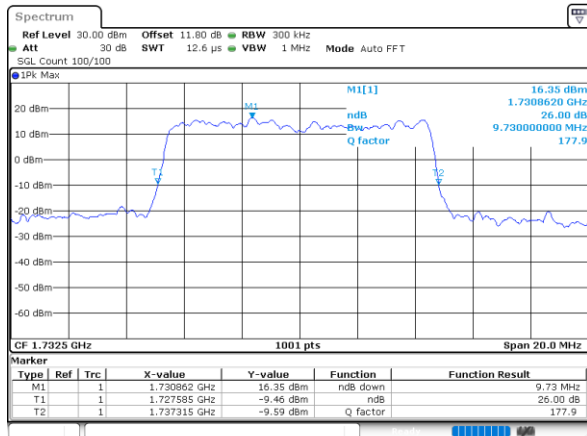
Date: 22.MAY.2020 14:28:13

## Lowest Channel / 10MHz / 16QAM



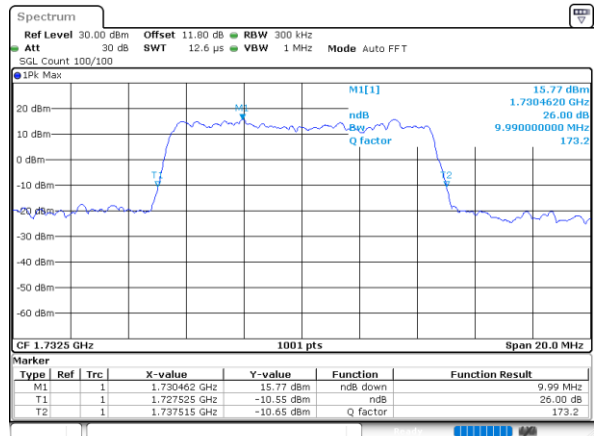
Date: 22.MAY.2020 14:28:25

## Middle Channel / 10MHz / QPSK



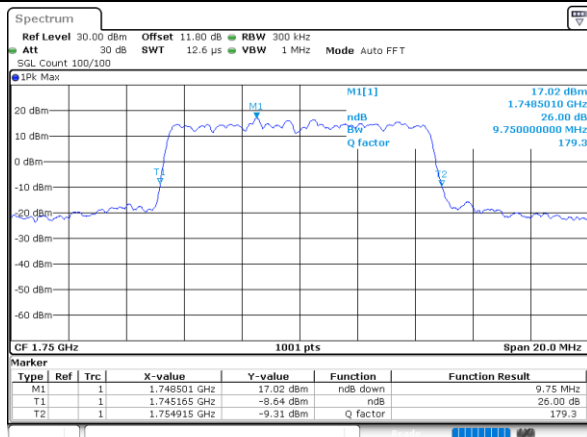
Date: 22.MAY.2020 14:35:20

## Middle Channel / 10MHz / 16QAM



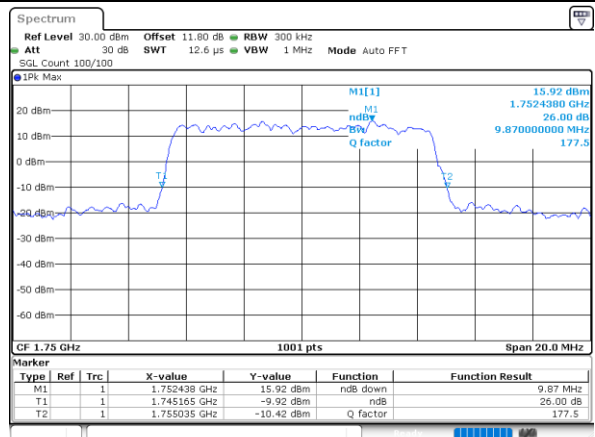
Date: 22.MAY.2020 14:35:32

## Highest Channel / 10MHz / QPSK



Date: 22.MAY.2020 14:37:47

## Highest Channel / 10MHz / 16QAM

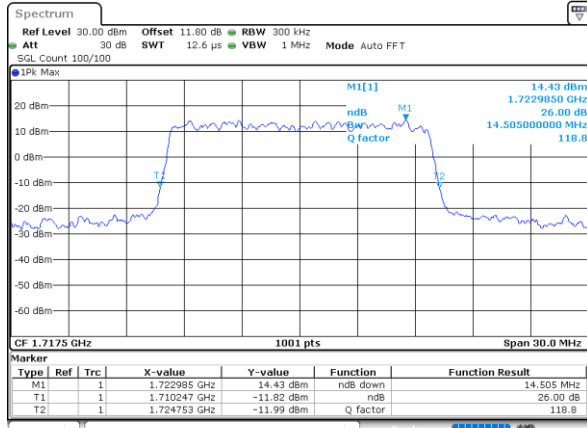


Date: 22.MAY.2020 14:37:59



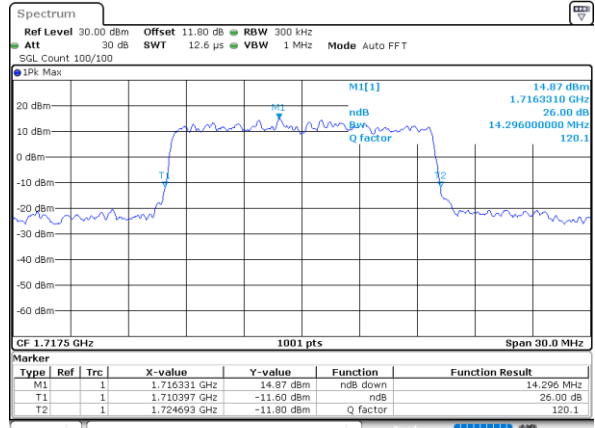
## LTE Band 4

## Lowest Channel / 15MHz / QPSK



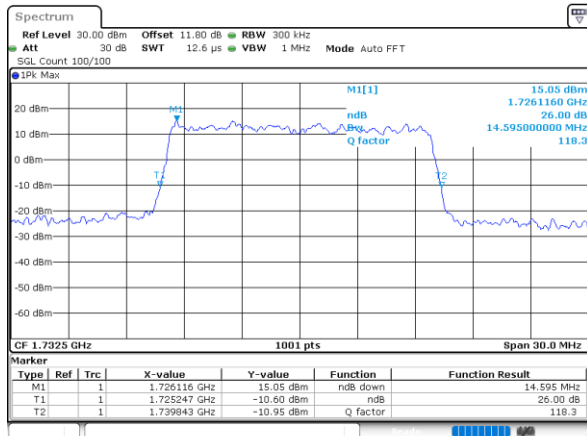
Date: 22.MAY.2020 14:44:57

## Lowest Channel / 15MHz / 16QAM



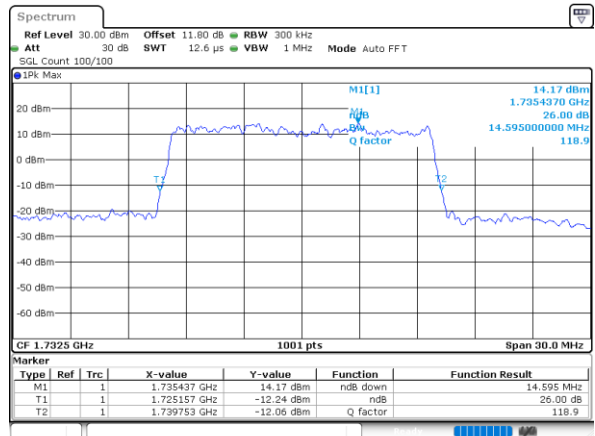
Date: 22.MAY.2020 14:45:09

## Middle Channel / 15MHz / QPSK



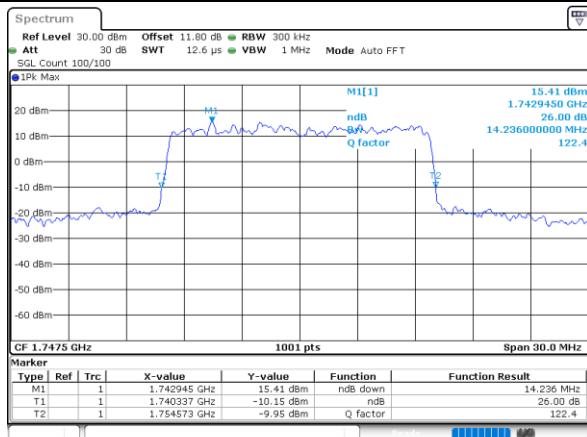
Date: 22.MAY.2020 14:52:05

## Middle Channel / 15MHz / 16QAM



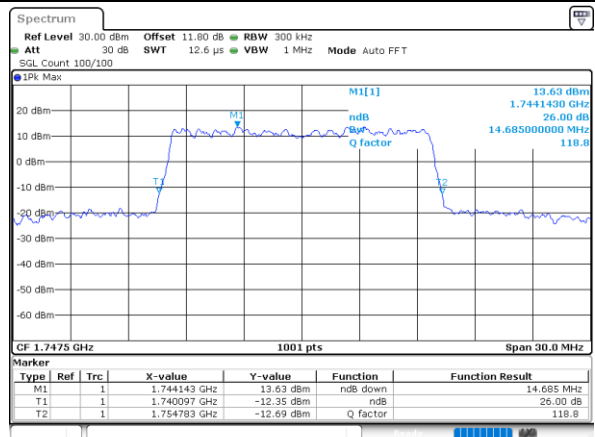
Date: 22.MAY.2020 14:52:16

## Highest Channel / 15MHz / QPSK



Date: 22.MAY.2020 14:54:31

## Highest Channel / 15MHz / 16QAM

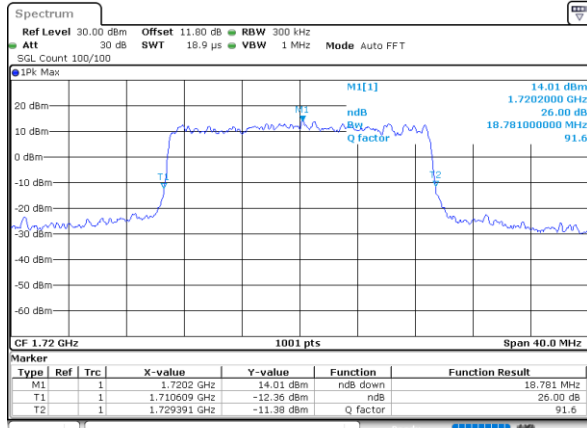


Date: 22.MAY.2020 14:54:43



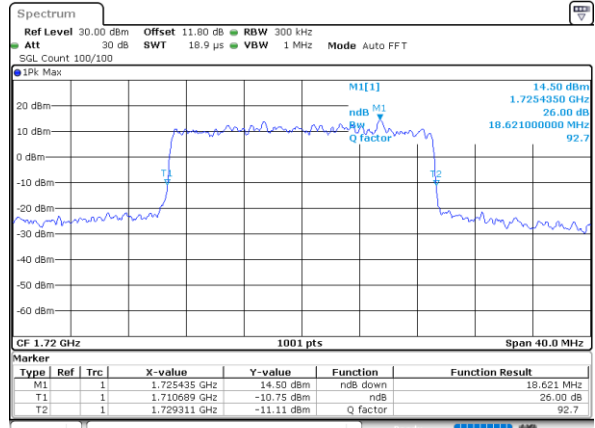
## LTE Band 4

## Lowest Channel / 20MHz / QPSK



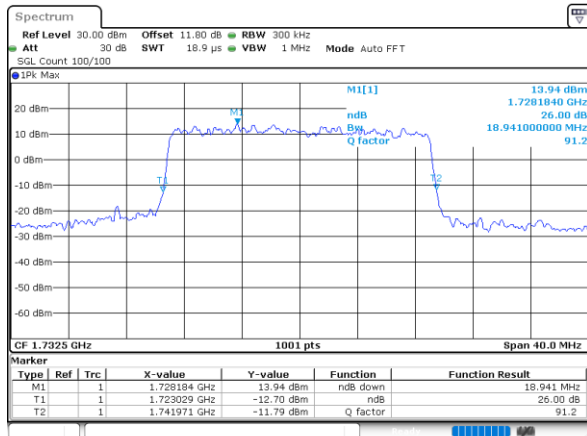
Date: 22.MAY.2020 15:01:40

## Lowest Channel / 20MHz / 16QAM



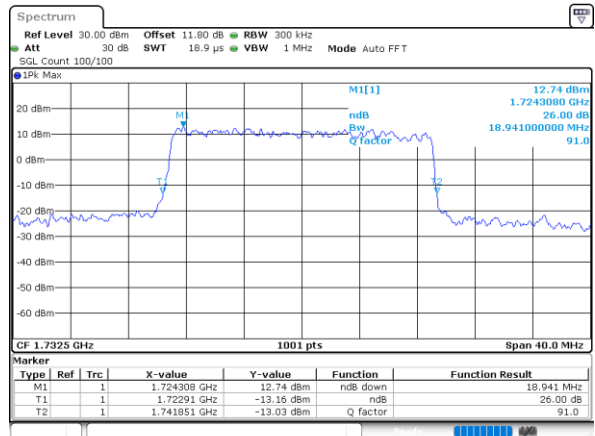
Date: 22.MAY.2020 15:01:51

## Middle Channel / 20MHz / QPSK



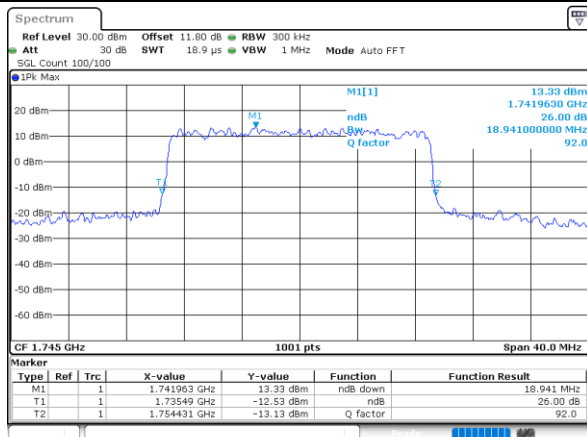
Date: 22.MAY.2020 15:08:46

## Middle Channel / 20MHz / 16QAM



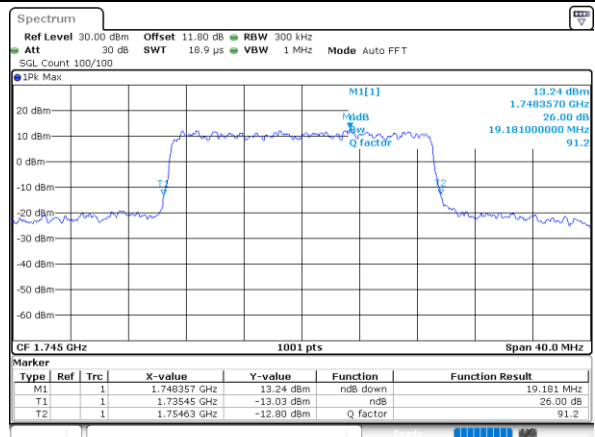
Date: 22.MAY.2020 15:08:57

## Highest Channel / 20MHz / QPSK



Date: 22.MAY.2020 15:11:12

## Highest Channel / 20MHz / 16QAM

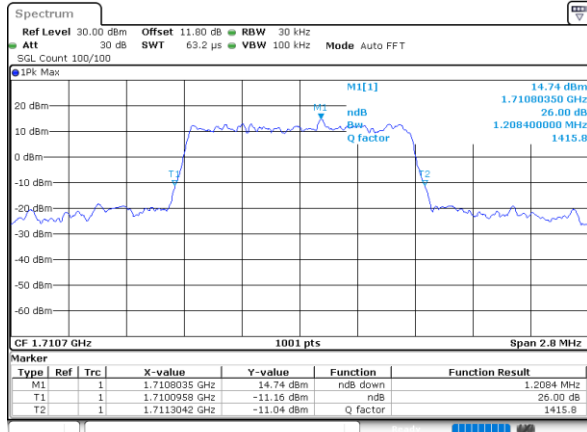


Date: 22.MAY.2020 15:11:24

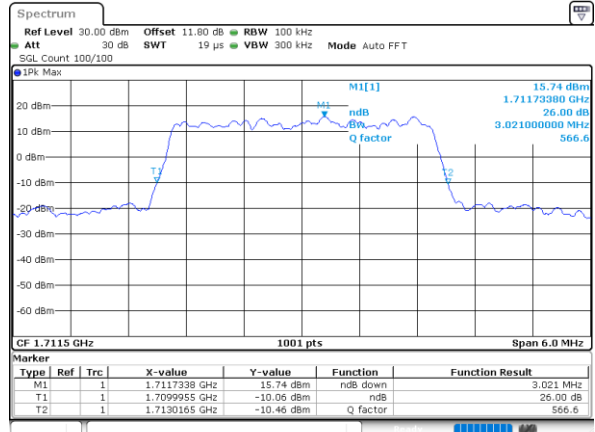


## LTE Band 4

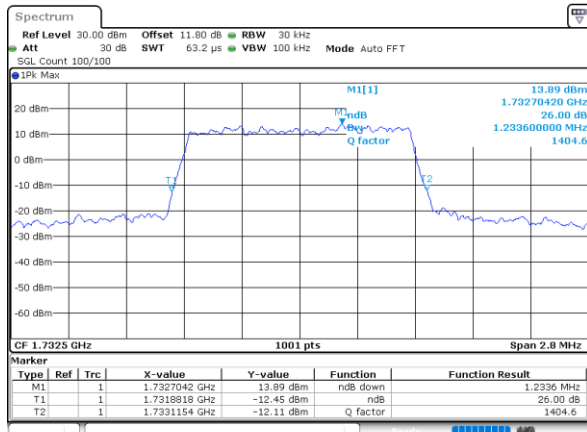
## Lowest Channel / 1.4MHz / 64QAM



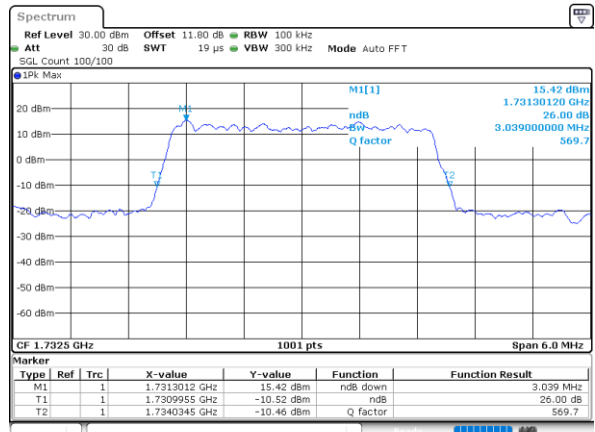
## Lowest Channel / 3MHz / 64QAM



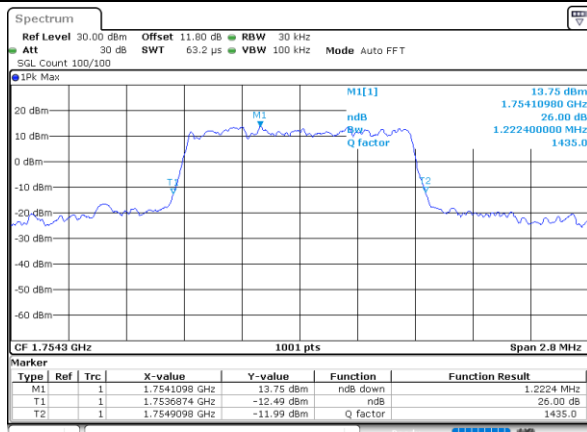
## Middle Channel / 1.4MHz / 64QAM



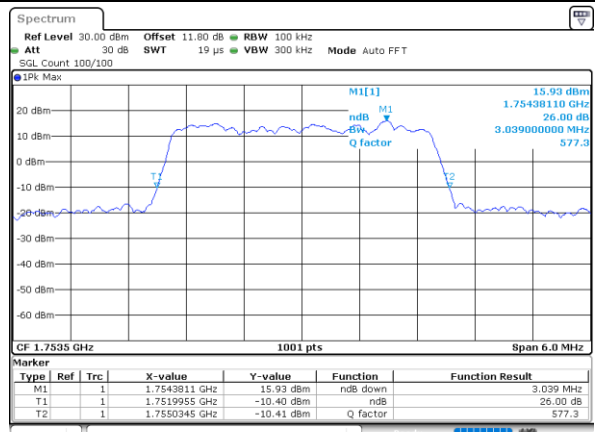
## Middle Channel / 3MHz / 64QAM



## Highest Channel / 1.4MHz / 64QAM



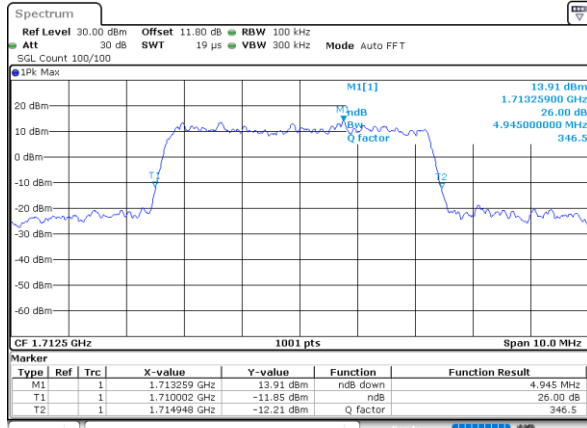
## Highest Channel / 3MHz / 64QAM





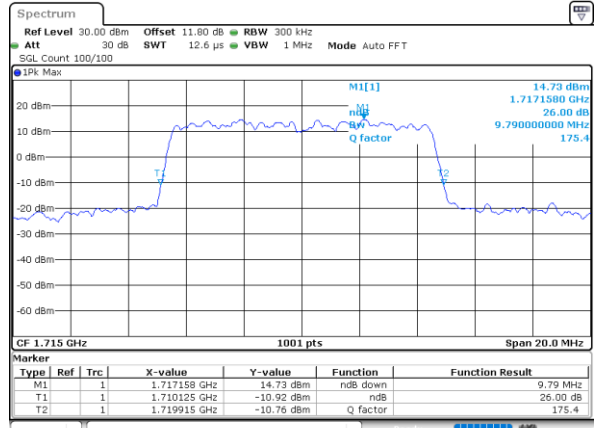
## LTE Band 4

## Lowest Channel / 5MHz / 64QAM



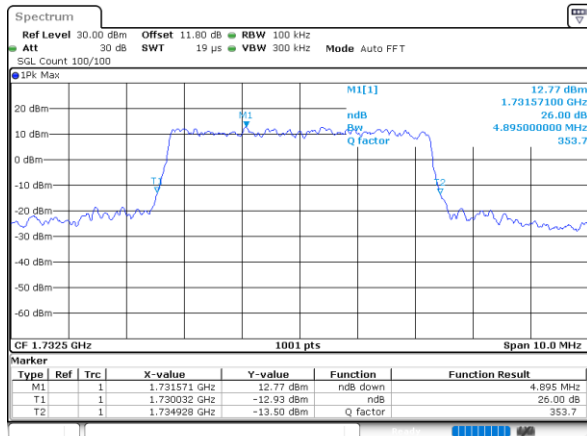
Date: 22.MAY.2020 15:26:30

## Lowest Channel / 10MHz / 64QAM



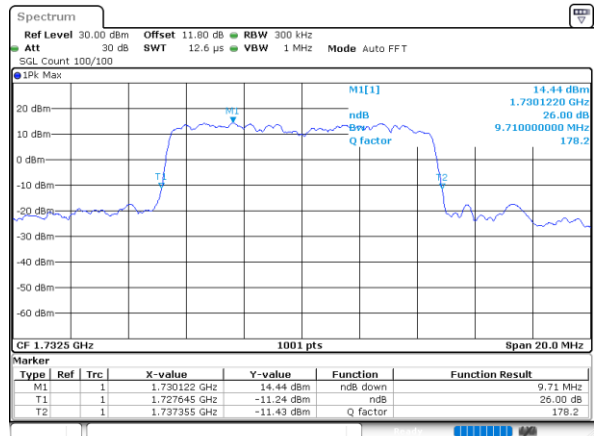
Date: 22.MAY.2020 15:34:51

## Middle Channel / 5MHz / 64QAM



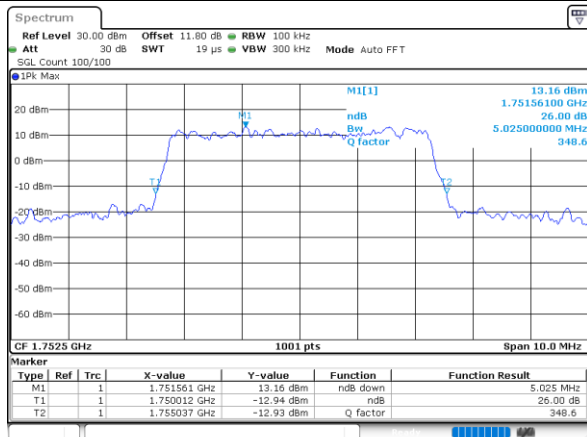
Date: 22.MAY.2020 15:38:04

## Middle Channel / 10MHz / 64QAM



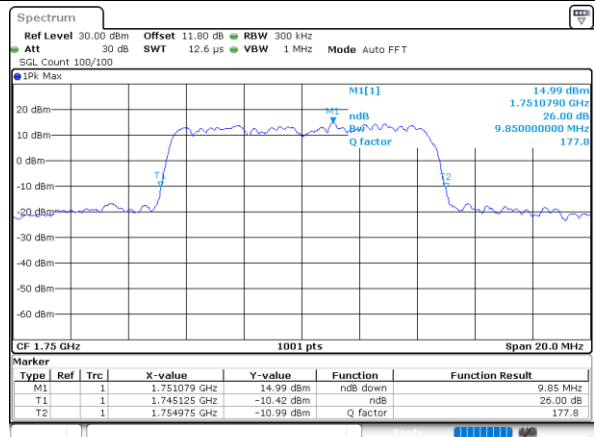
Date: 22.MAY.2020 15:38:24

## Highest Channel / 5MHz / 64QAM



Date: 22.MAY.2020 15:31:17

## Highest Channel / 10MHz / 64QAM

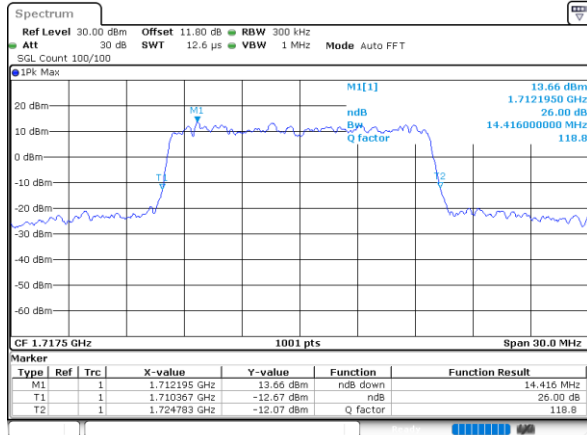


Date: 22.MAY.2020 15:39:38



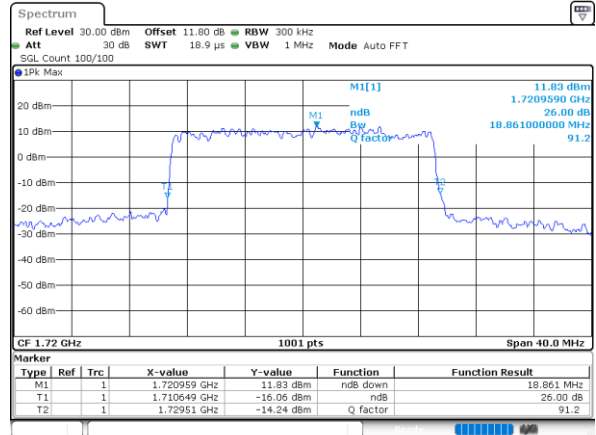
## LTE Band 4

## Lowest Channel / 15MHz / 64QAM



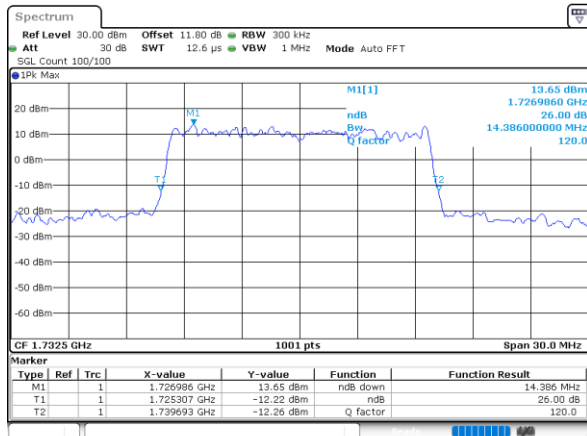
Date: 22.MAY.2020 15:43:12

## Lowest Channel / 20MHz / 64QAM



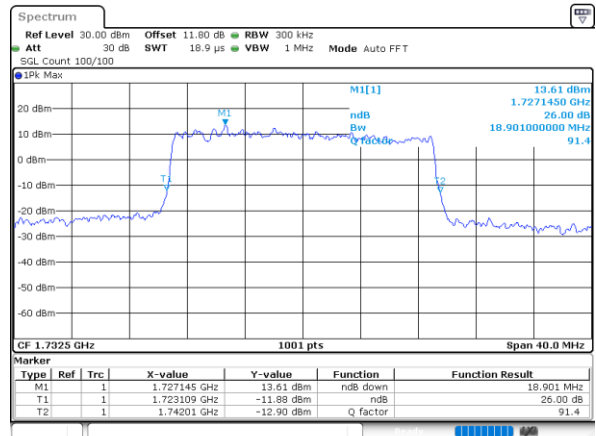
Date: 22.MAY.2020 15:51:33

## Middle Channel / 15MHz / 64QAM



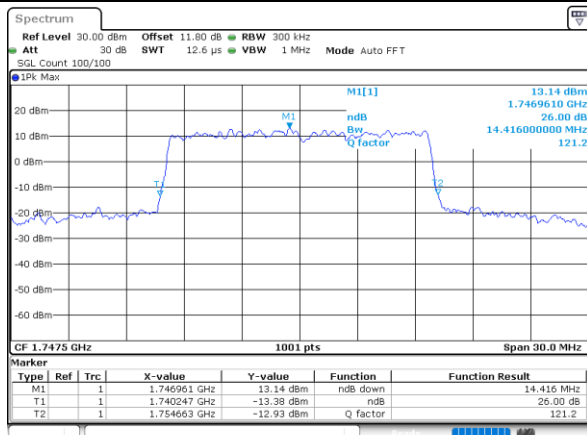
Date: 22.MAY.2020 15:46:45

## Middle Channel / 20MHz / 64QAM



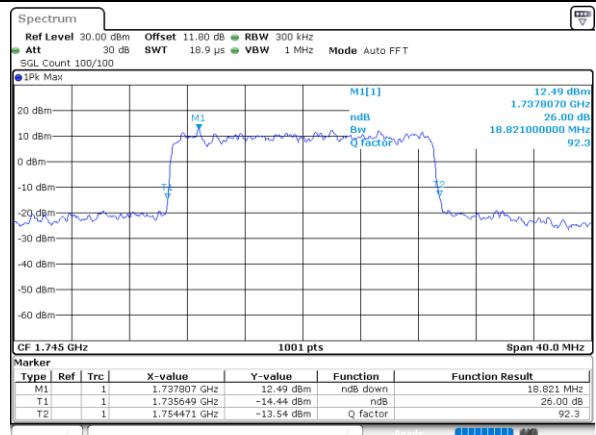
Date: 22.MAY.2020 15:55:06

## Highest Channel / 15MHz / 64QAM



Date: 22.MAY.2020 15:47:58

## Highest Channel / 20MHz / 64QAM



Date: 22.MAY.2020 15:56:18

**Occupied Bandwidth**

| Mode       | LTE Band 4 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
|------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BW         | 1.4MHz                   |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | QPSK                     | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM |
| Lowest CH  | 1.09                     | 1.08  | 2.72  | 2.73  | 4.48  | 4.51  | 9.05  | 9.07  | 13.43 | 13.43 | 17.82 | 17.86 |
| Middle CH  | 1.09                     | 1.10  | 2.73  | 2.73  | 4.49  | 4.51  | 9.09  | 9.03  | 13.52 | 13.49 | 17.94 | 17.82 |
| Highest CH | 1.09                     | 1.09  | 2.71  | 2.73  | 4.51  | 4.50  | 9.05  | 9.03  | 13.43 | 13.40 | 17.86 | 17.82 |
| Mode       | LTE Band 4 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                   |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                    |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | 1.09                     | -     | 2.73  | -     | 4.52  | -     | 9.01  | -     | 13.40 | -     | 17.82 | -     |
| Middle CH  | 1.09                     | -     | 2.72  | -     | 4.50  | -     | 9.03  | -     | 13.49 | -     | 17.90 | -     |
| Highest CH | 1.09                     | -     | 2.73  | -     | 4.50  | -     | 9.01  | -     | 13.43 | -     | 17.86 | -     |