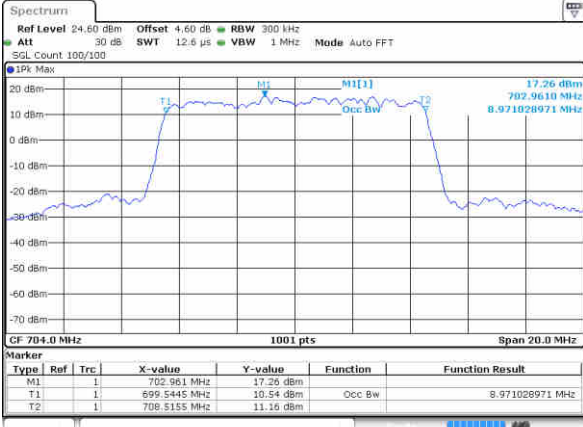




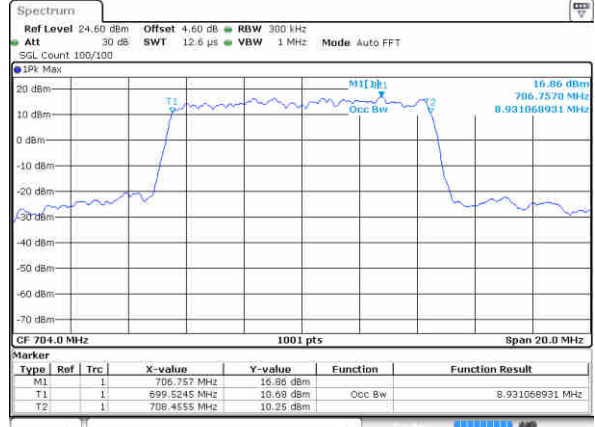
LTE Band 12

Lowest Channel / 10MHz / QPSK



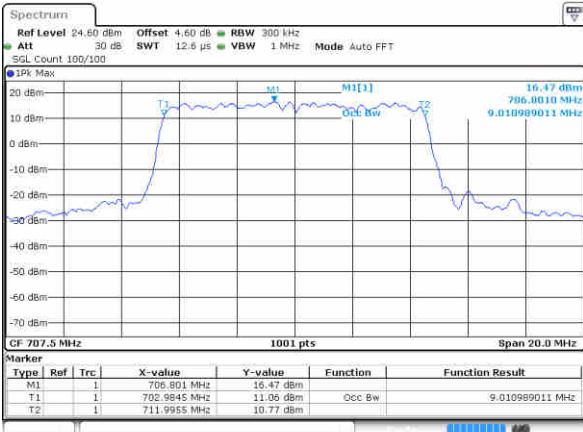
Date: 16 JAN 2020 18:23:29

Lowest Channel / 10MHz / 16QAM



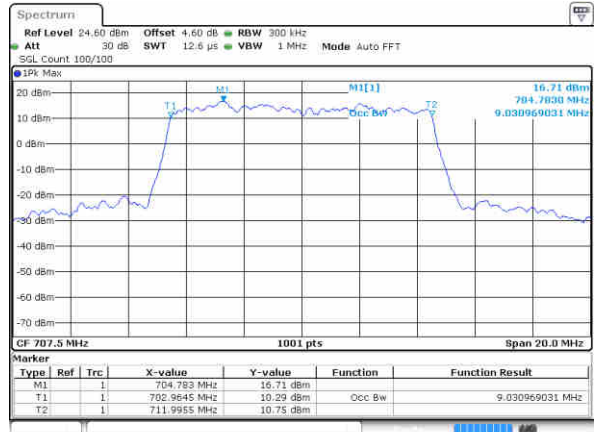
Date: 16 JAN 2020 18:23:39

Middle Channel / 10MHz / QPSK



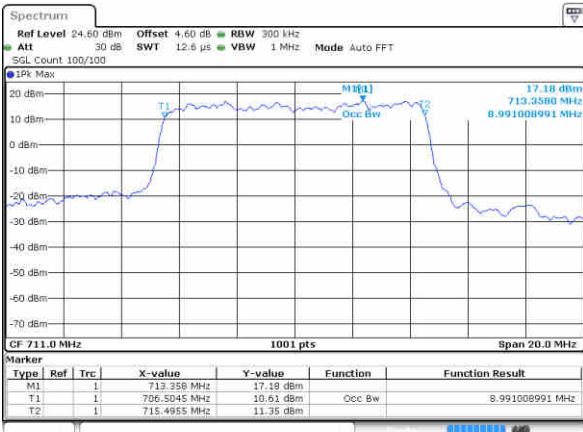
Date: 16 JAN 2020 18:23:59

Middle Channel / 10MHz / 16QAM



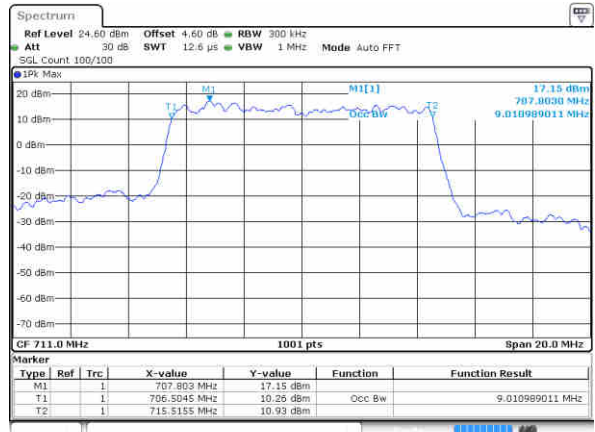
Date: 16 JAN 2020 18:23:49

Highest Channel / 10MHz / QPSK



Date: 16 JAN 2020 18:24:09

Highest Channel / 10MHz / 16QAM

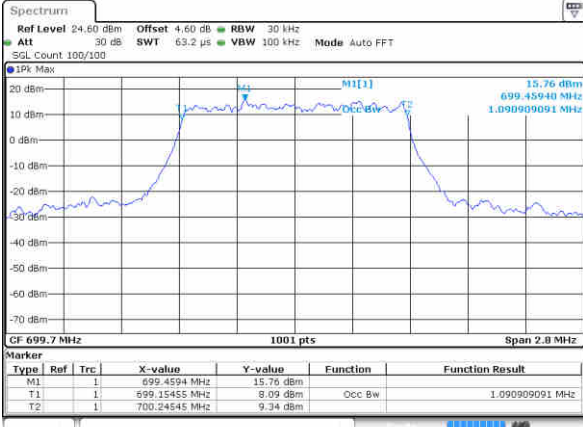


Date: 16 JAN 2020 18:24:19



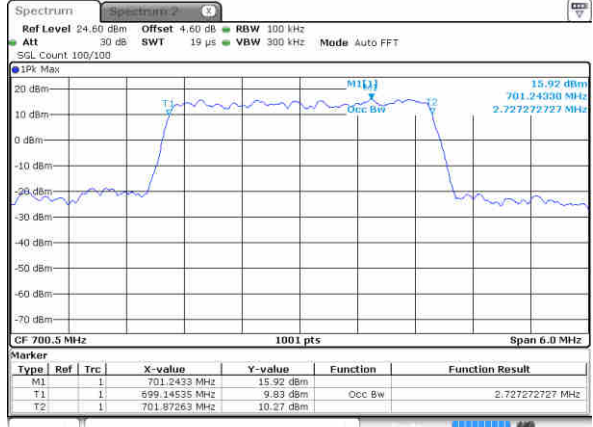
LTE Band 12

Lowest Channel / 1.4MHz / 64QAM



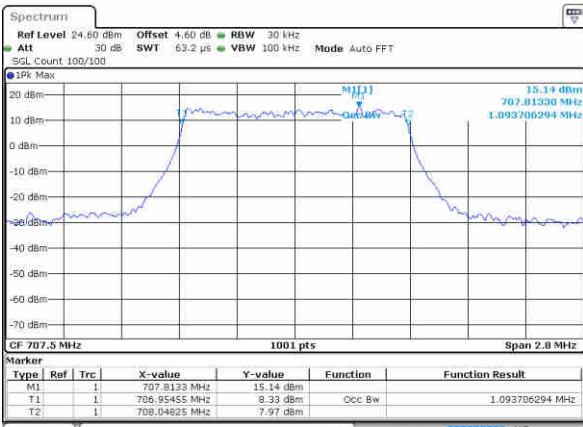
Date: 16 JAN 2020 19:05:14

Lowest Channel / 3MHz / 64QAM



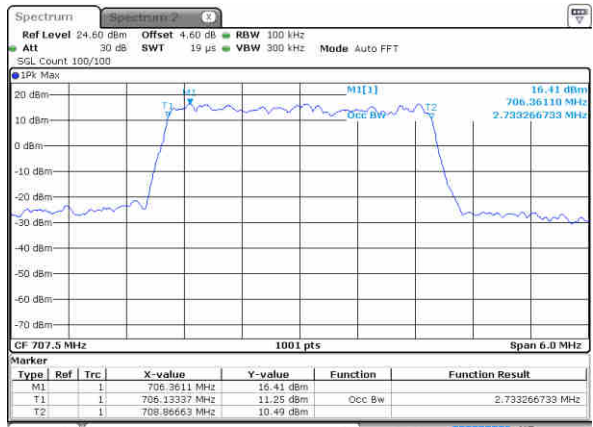
Date: 16 JAN 2020 19:53:02

Middle Channel / 1.4MHz / 64QAM



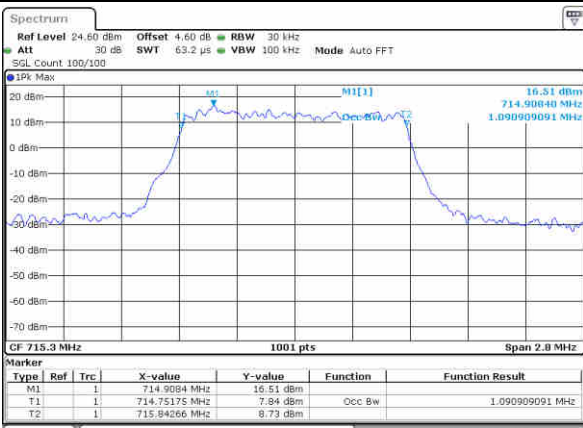
Date: 16 JAN 2020 19:05:34

Middle Channel / 3MHz / 64QAM



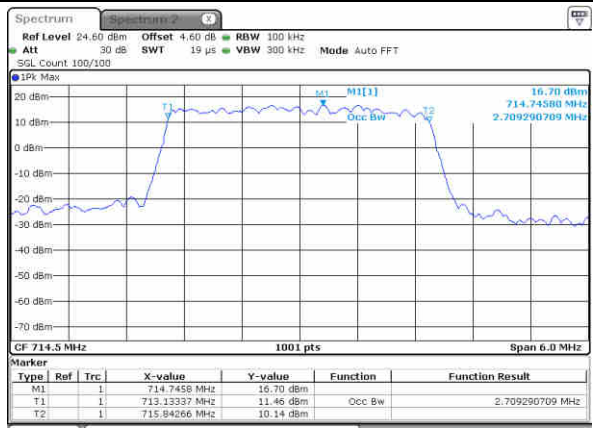
Date: 16 JAN 2020 19:53:22

Highest Channel / 1.4MHz / 64QAM



Date: 16 JAN 2020 19:05:54

Highest Channel / 3MHz / 64QAM

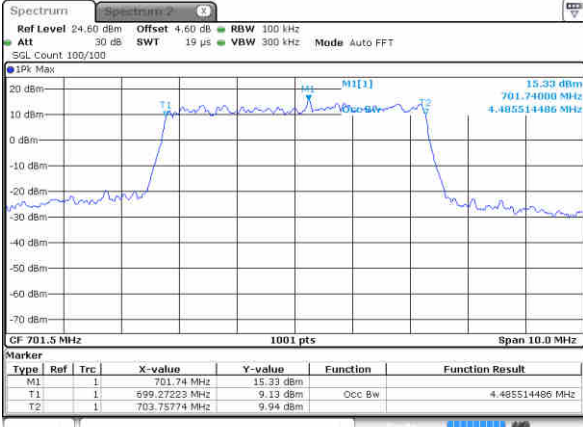


Date: 16 JAN 2020 19:53:42



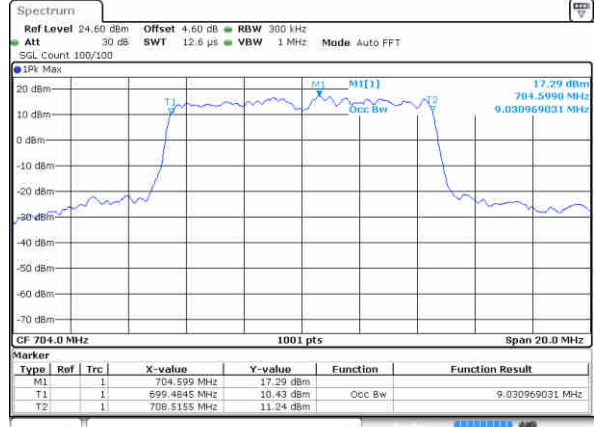
LTE Band 12

Lowest Channel / 5MHz / 64QAM



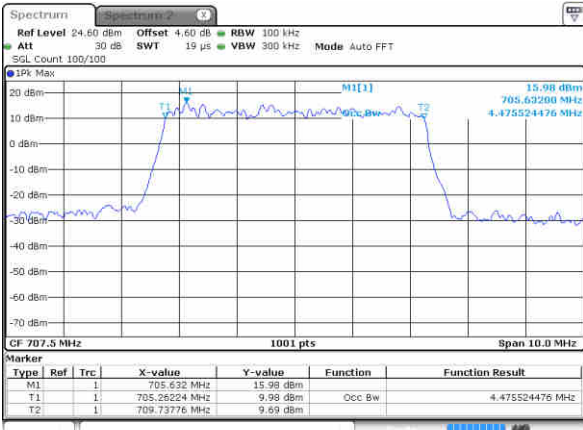
Date: 16 JAN 2020 19:58:32

Lowest Channel / 10MHz / 64QAM



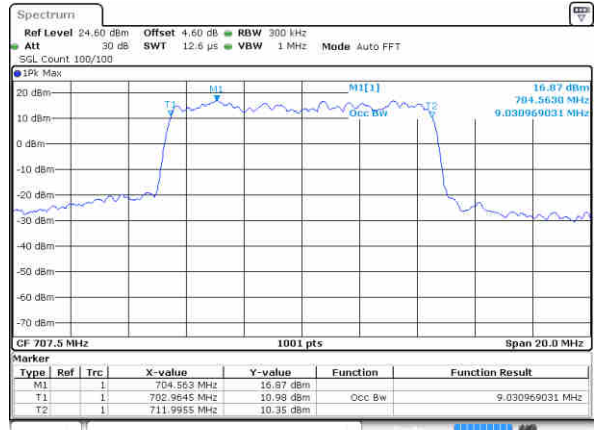
Date: 17 JAN 2020 09:22:20

Middle Channel / 5MHz / 64QAM



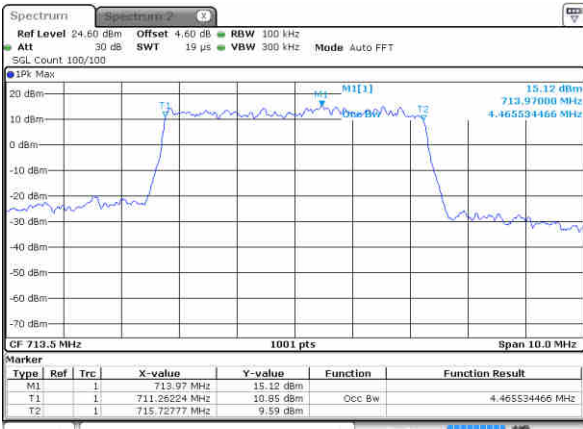
Date: 16 JAN 2020 19:58:52

Middle Channel / 10MHz / 64QAM



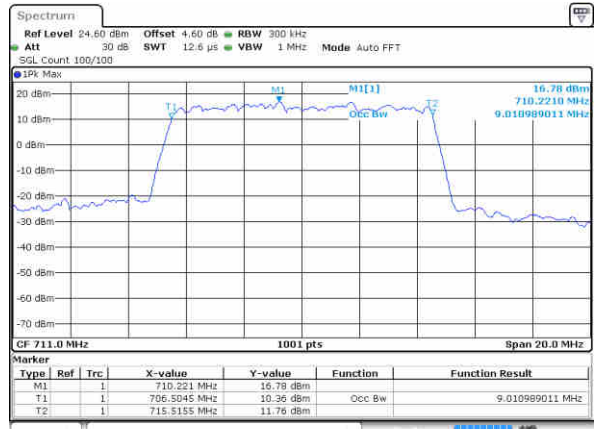
Date: 17 JAN 2020 09:22:40

Highest Channel / 5MHz / 64QAM



Date: 16 JAN 2020 19:59:12

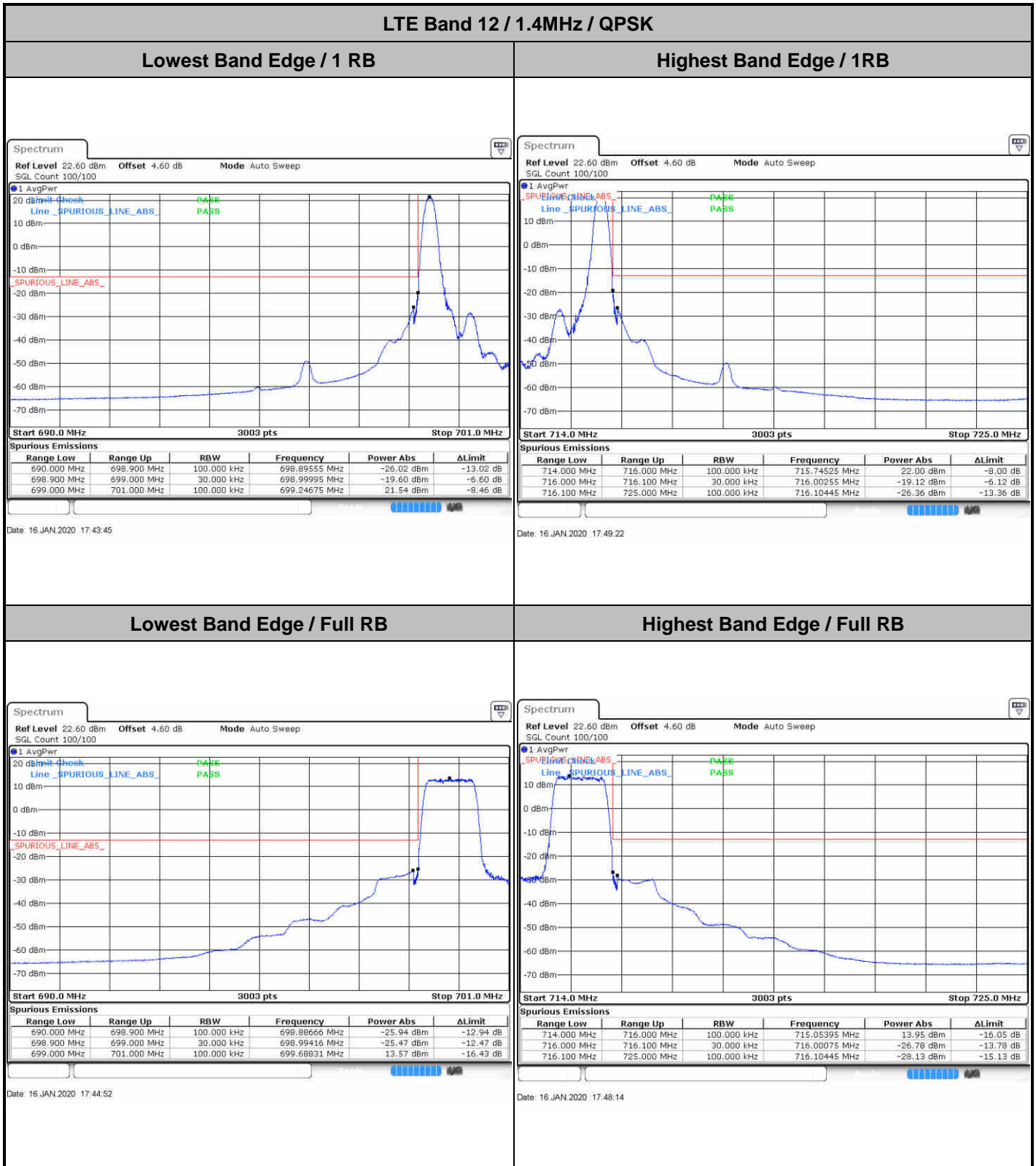
Highest Channel / 10MHz / 64QAM



Date: 17 JAN 2020 09:23:01



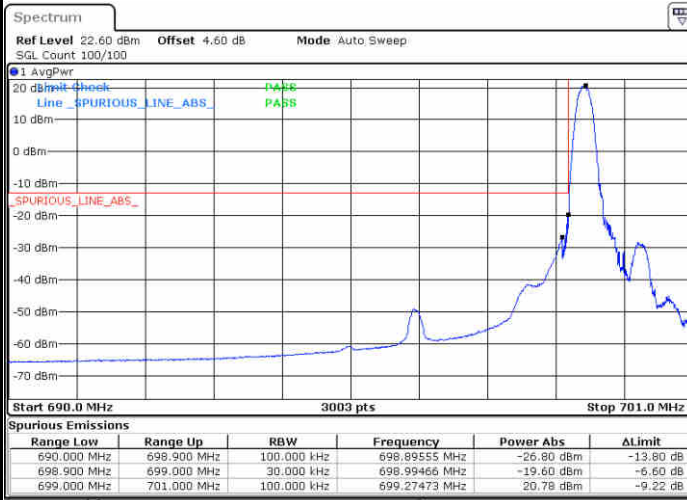
# Conducted Band Edge





LTE Band 12 / 1.4MHz / 16QAM

Lowest Band Edge / 1 RB



Date: 16 JAN 2020 17:42:38

Highest Band Edge / 1 RB



Date: 16 JAN 2020 17:50:29

Lowest Band Edge / Full RB



Date: 16 JAN 2020 17:46:00

Highest Band Edge / Full RB



Date: 16 JAN 2020 17:47:07



LTE Band 12 / 1.4MHz / 64QAM

Lowest Band Edge / 1 RB



Date: 16 JAN 2020 19:46:19

Highest Band Edge / 1 RB



Date: 16 JAN 2020 19:44:05

Lowest Band Edge / Full RB



Date: 16 JAN 2020 19:47:27

Highest Band Edge / Full RB

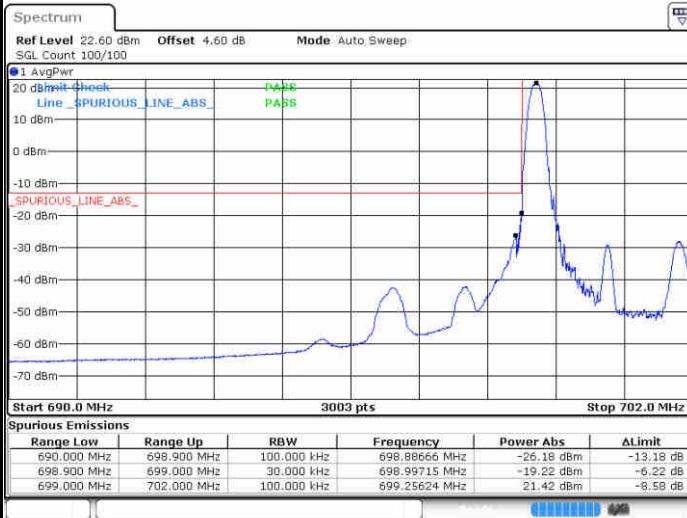


Date: 16 JAN 2020 19:45:12



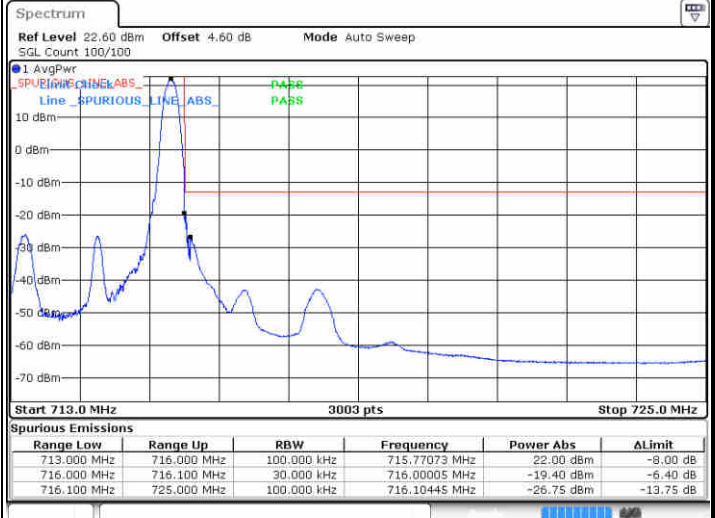
LTE Band 12 / 3MHz / QPSK

Lowest Band Edge / 1RB



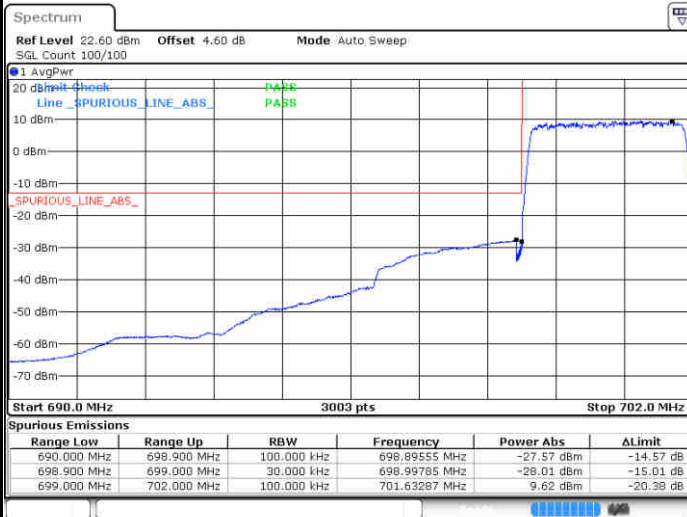
Date: 16 JAN 2020 18:00:09

Highest Band Edge / 1 RB



Date: 16 JAN 2020 18:05:46

Lowest Band Edge / Full RB



Date: 16 JAN 2020 18:01:17

Highest Band Edge / Full RB

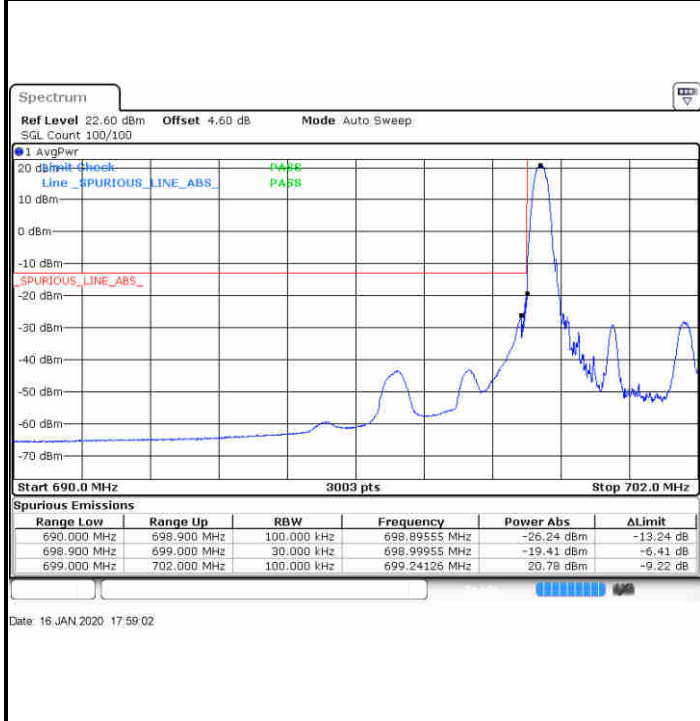


Date: 16 JAN 2020 18:04:39

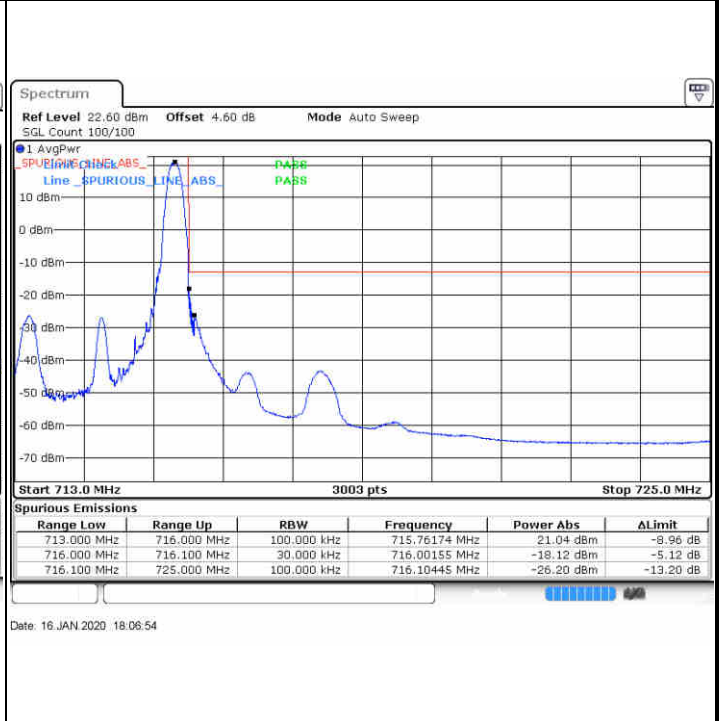


**LTE Band 12 / 3MHz / 16QAM**

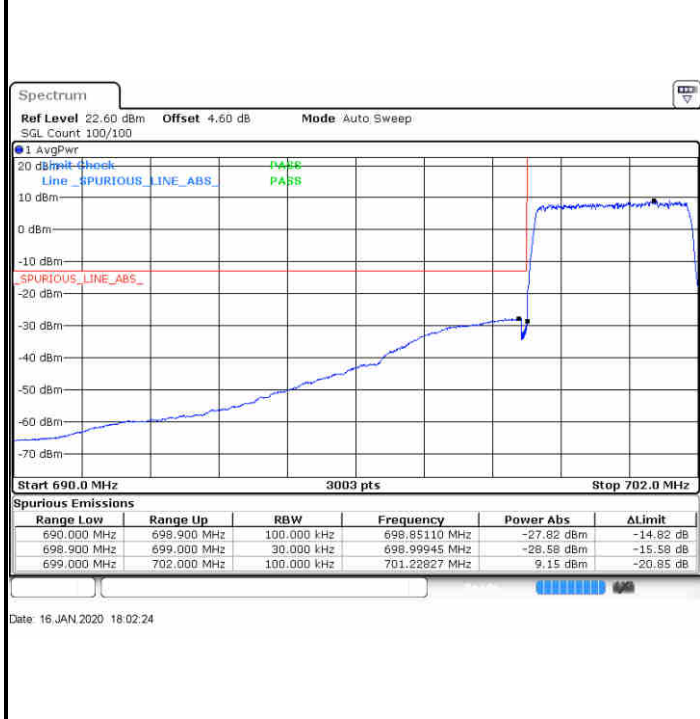
**Lowest Band Edge / 1 RB**



**Highest Band Edge / 1 RB**



**Lowest Band Edge / Full RB**



**Highest Band Edge / Full RB**

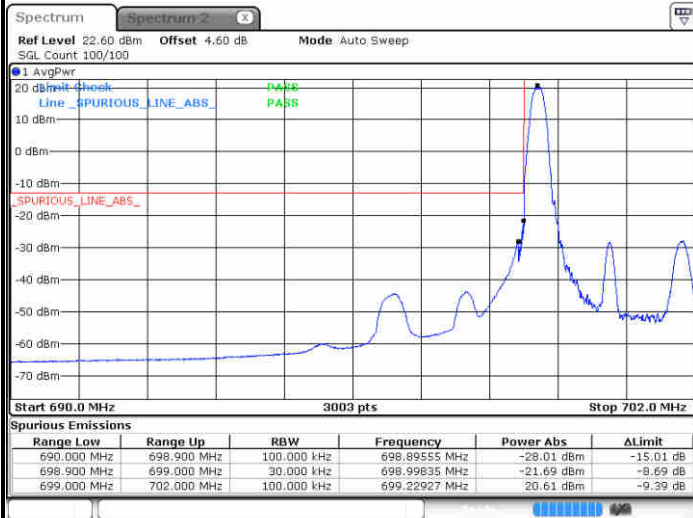




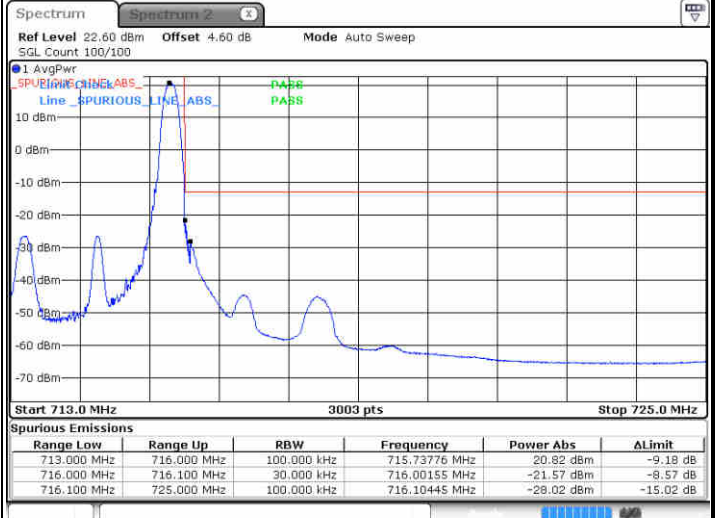


LTE Band 12 / 3MHz / 64QAM

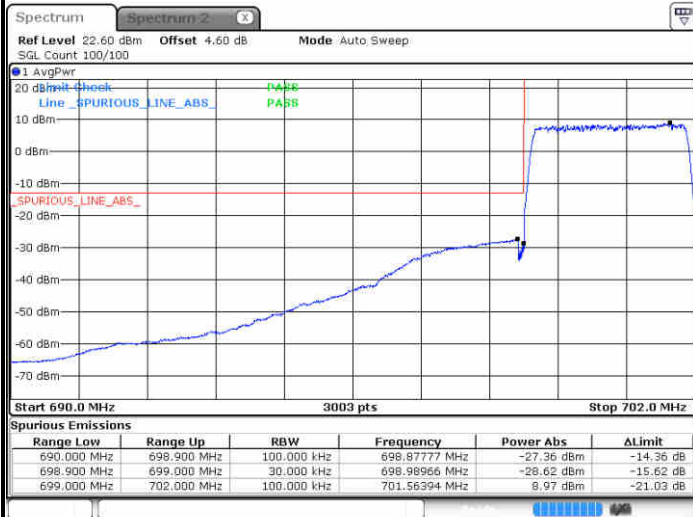
Lowest Band Edge / 1 RB



Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



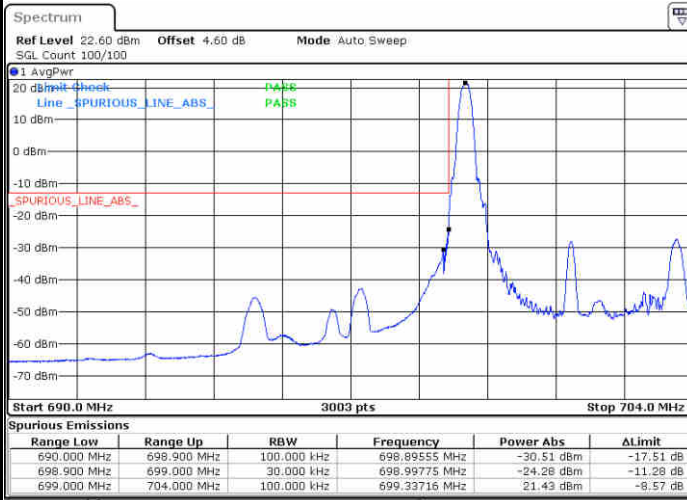
Highest Band Edge / Full RB





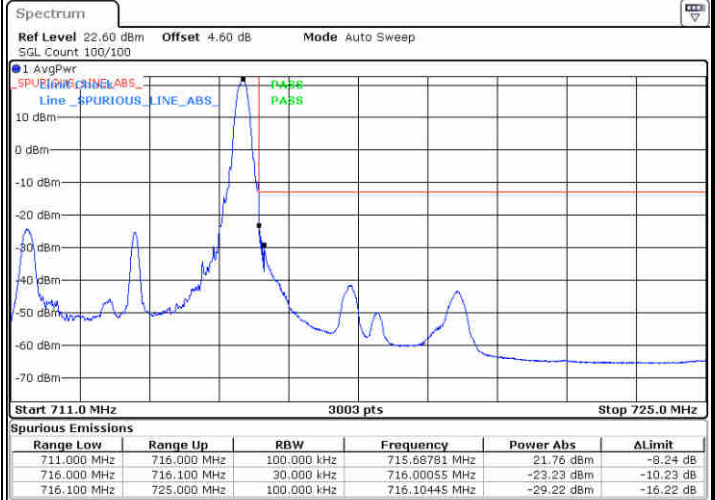
LTE Band 12 / 5MHz / QPSK

Lowest Band Edge / 1 RB



Date: 16 JAN 2020 18:16:35

Highest Band Edge / 1 RB



Date: 16 JAN 2020 18:22:12

Lowest Band Edge / Full RB



Date: 16 JAN 2020 18:17:42

Highest Band Edge / Full RB

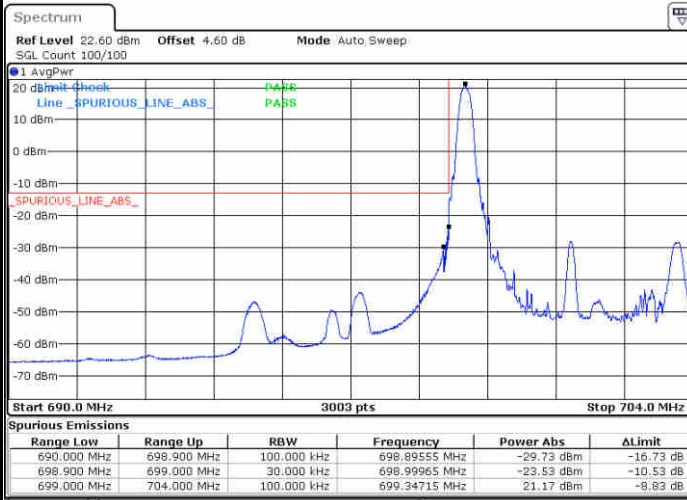


Date: 16 JAN 2020 18:21:04



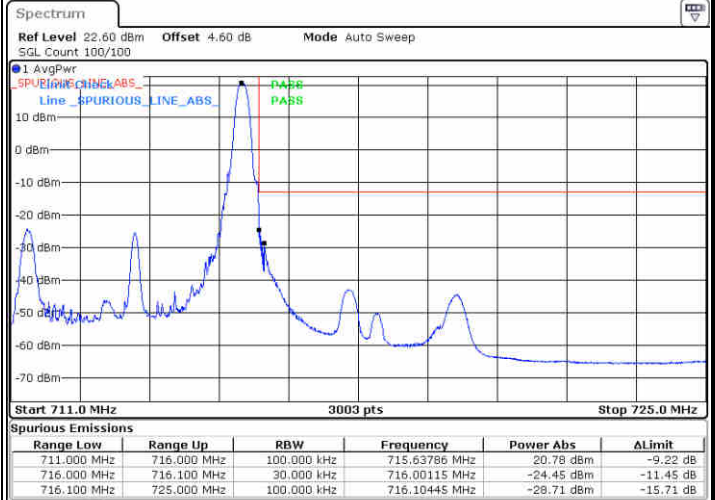
LTE Band 12 / 5MHz / 16QAM

Lowest Band Edge / 1RB



Date: 16 JAN 2020 18:15:27

Highest Band Edge / 1 RB



Date: 16 JAN 2020 18:23:19

Lowest Band Edge / Full RB



Date: 16 JAN 2020 18:18:50

Highest Band Edge / Full RB

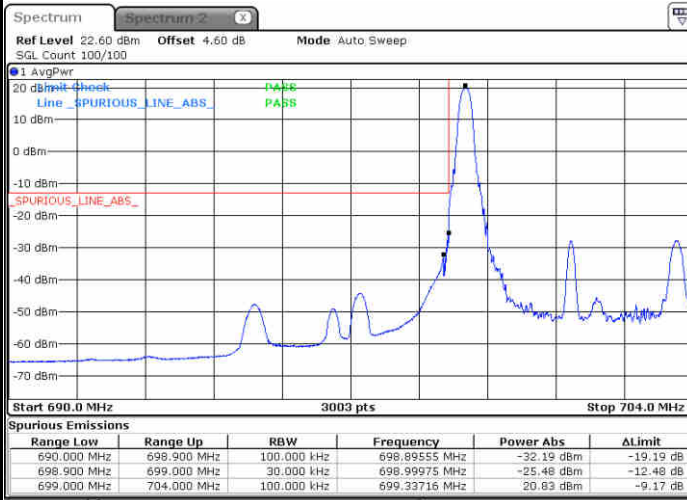


Date: 16 JAN 2020 18:19:57



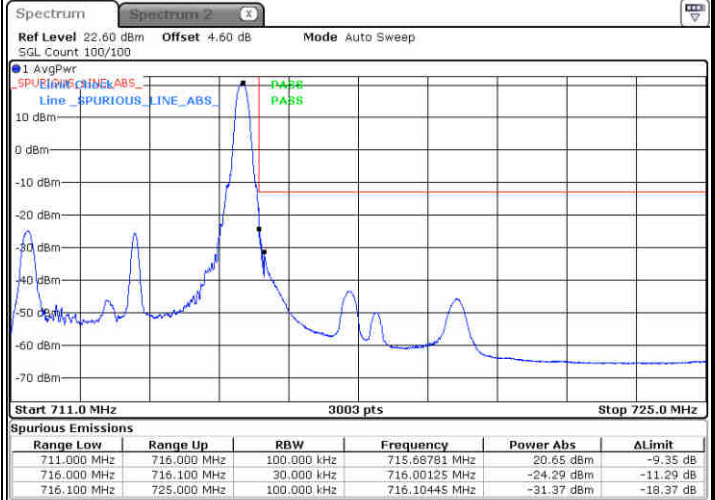
LTE Band 12 / 5MHz / 64QAM

Lowest Band Edge / 1RB



Date: 16 JAN 2020 20:02:44

Highest Band Edge / 1 RB



Date: 16 JAN 2020 20:01:37

Lowest Band Edge / Full RB



Date: 16 JAN 2020 20:03:52

Highest Band Edge / Full RB

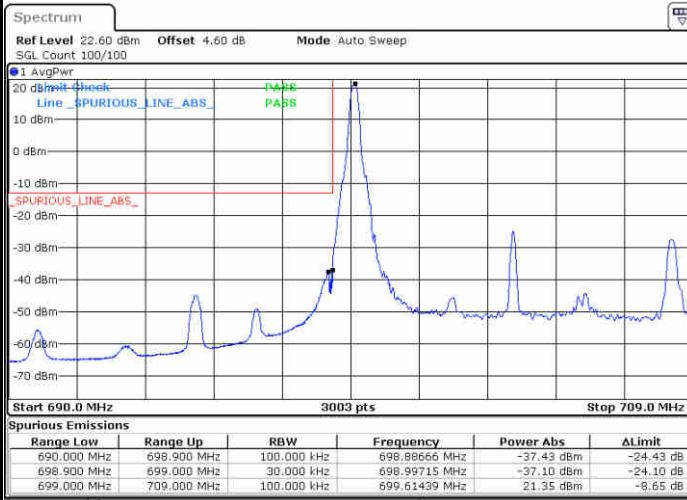


Date: 16 JAN 2020 20:00:30



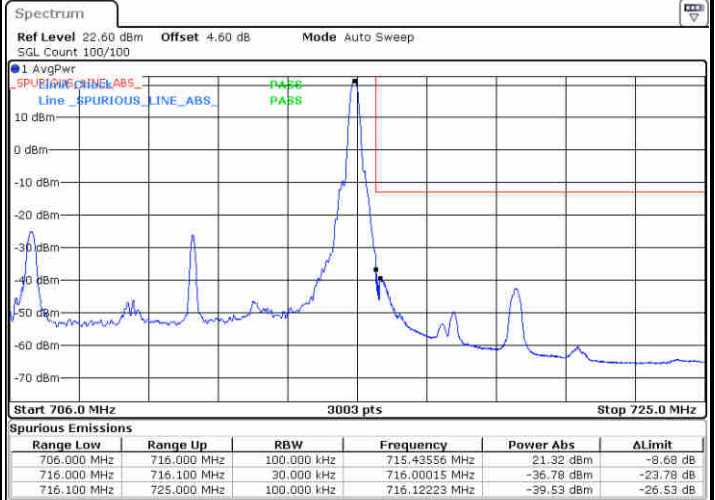
LTE Band 12 / 10MHz / QPSK

Lowest Band Edge / 1 RB



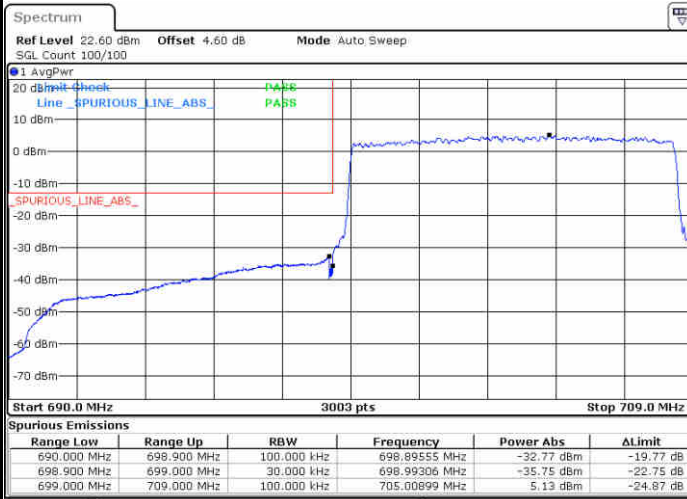
Date: 16 JAN 2020 18:58:20

Highest Band Edge / 1 RB



Date: 16 JAN 2020 19:03:57

Lowest Band Edge / Full RB



Date: 16 JAN 2020 18:59:27

Highest Band Edge / Full RB

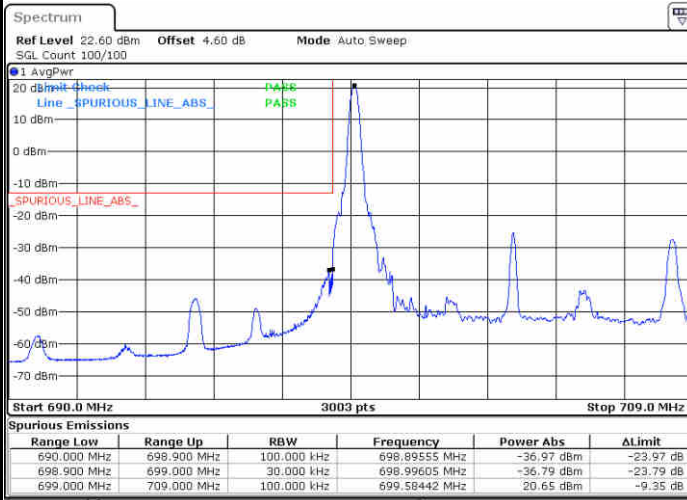


Date: 16 JAN 2020 19:02:49



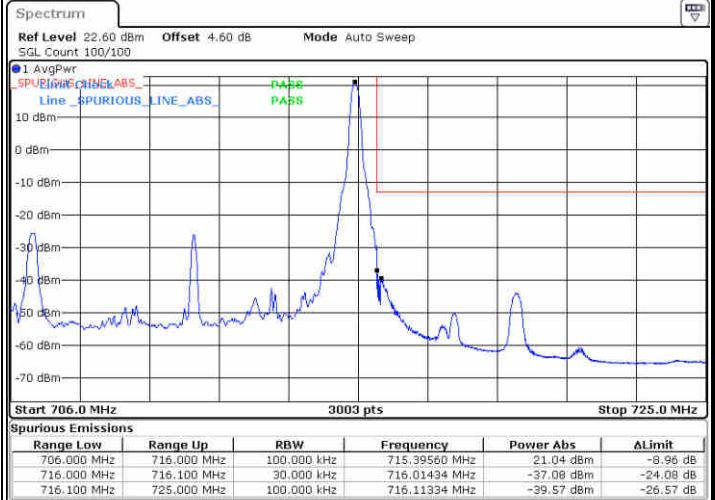
LTE Band 12 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



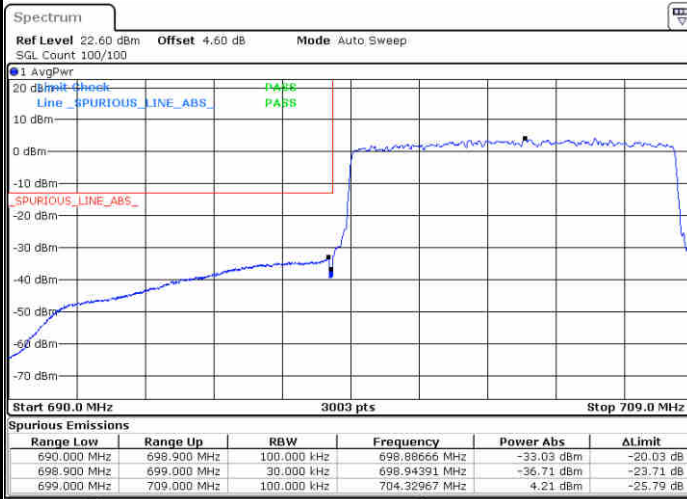
Date: 16 JAN 2020 18:57:12

Highest Band Edge / 1 RB



Date: 16 JAN 2020 19:05:04

Lowest Band Edge / Full RB



Date: 16 JAN 2020 19:00:34

Highest Band Edge / Full RB

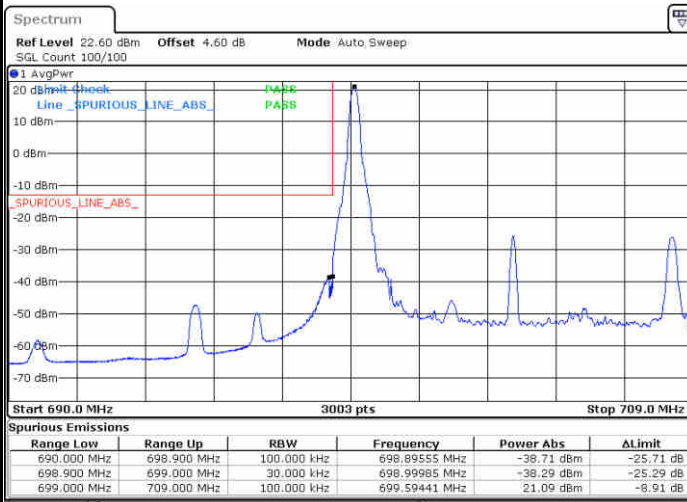


Date: 16 JAN 2020 19:01:42



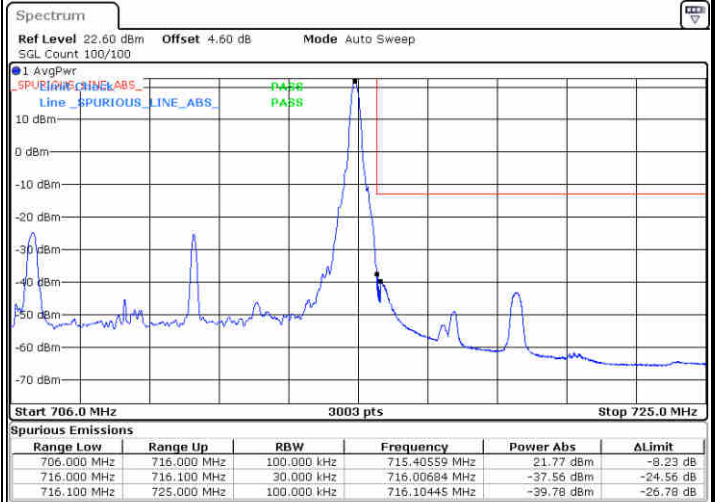
LTE Band 12 / 10MHz / 64QAM

Lowest Band Edge / 1 RB



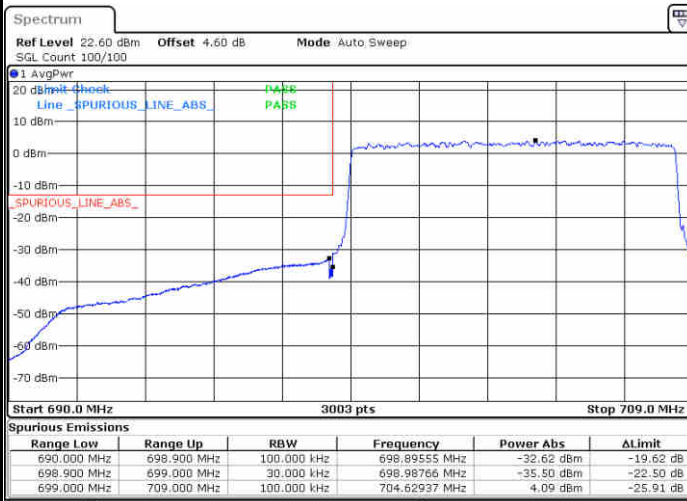
Date: 17.JAN.2020 09:26:33

Highest Band Edge / 1 RB



Date: 17.JAN.2020 09:25:26

Lowest Band Edge / Full RB



Date: 17.JAN.2020 09:27:41

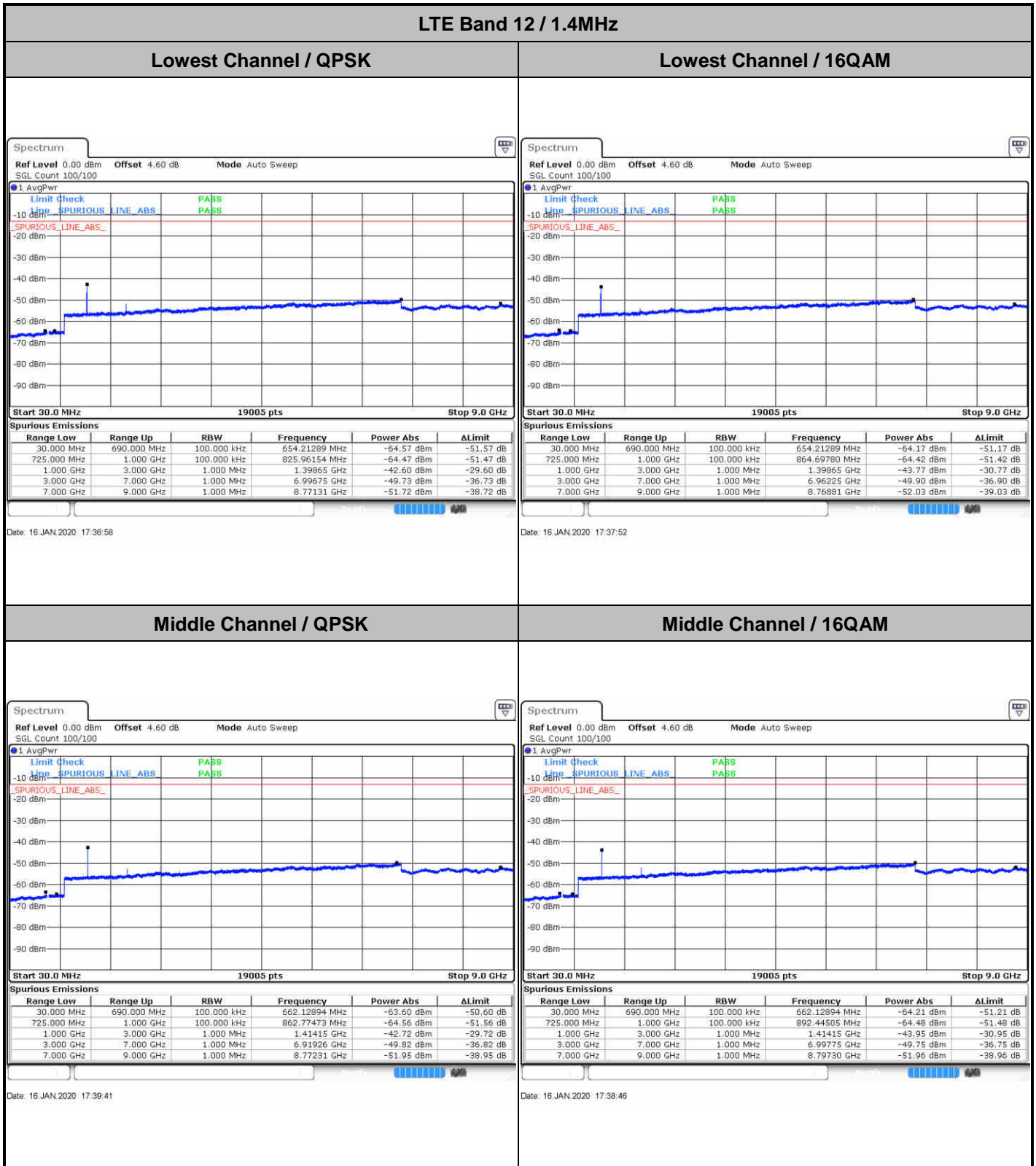
Highest Band Edge / Full RB



Date: 17.JAN.2020 09:24:18



# Conducted Spurious Emission

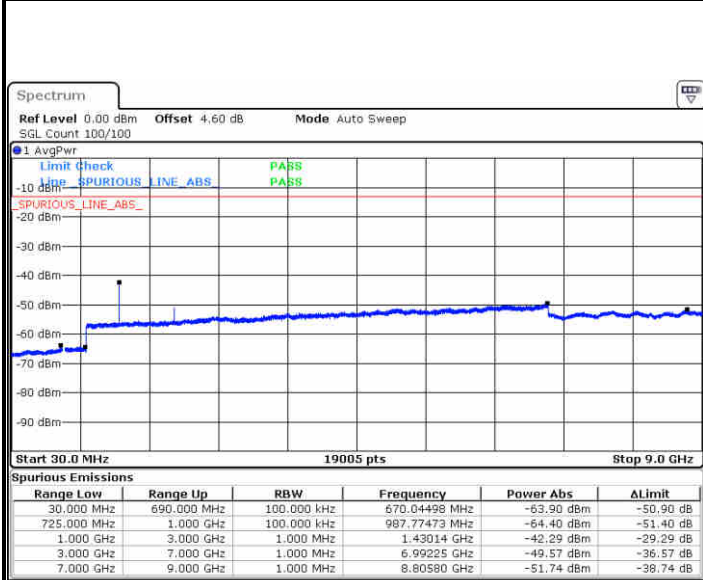






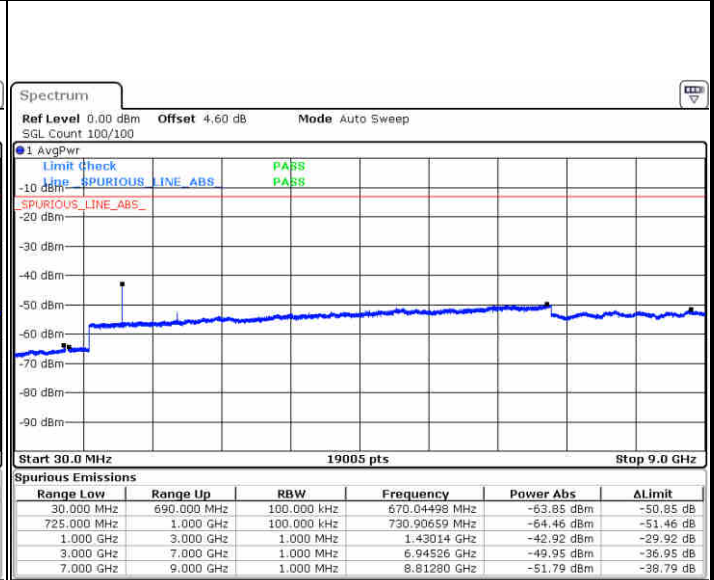
LTE Band 12 / 1.4MHz

Highest Channel / QPSK



Date: 16 JAN 2020 17:40:35

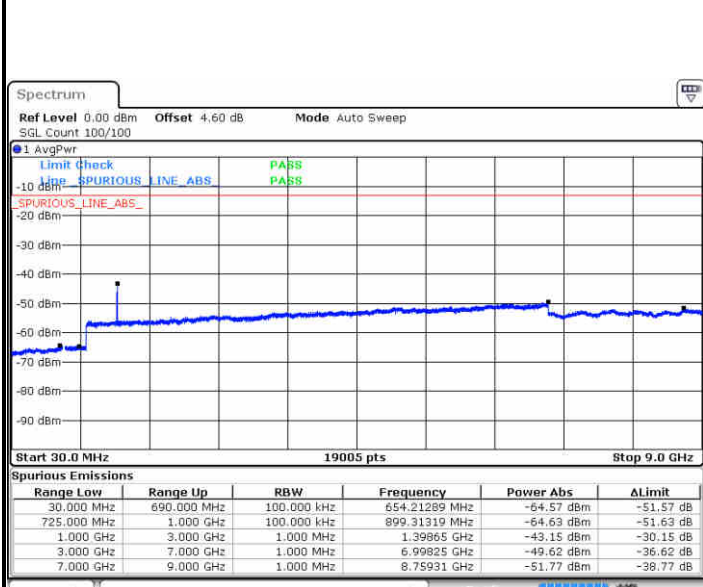
Highest Channel / 16QAM



Date: 16 JAN 2020 17:41:29

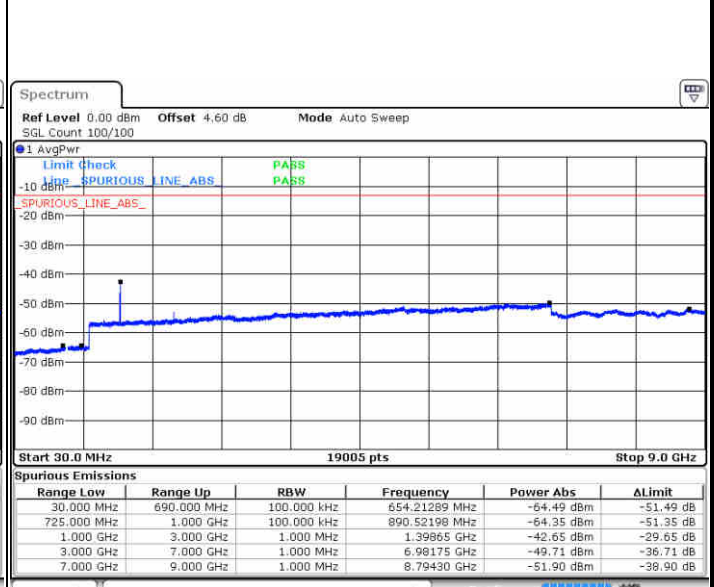
LTE Band 12 / 3MHz

Lowest Channel / QPSK



Date: 16 JAN 2020 17:53:22

Lowest Channel / 16QAM

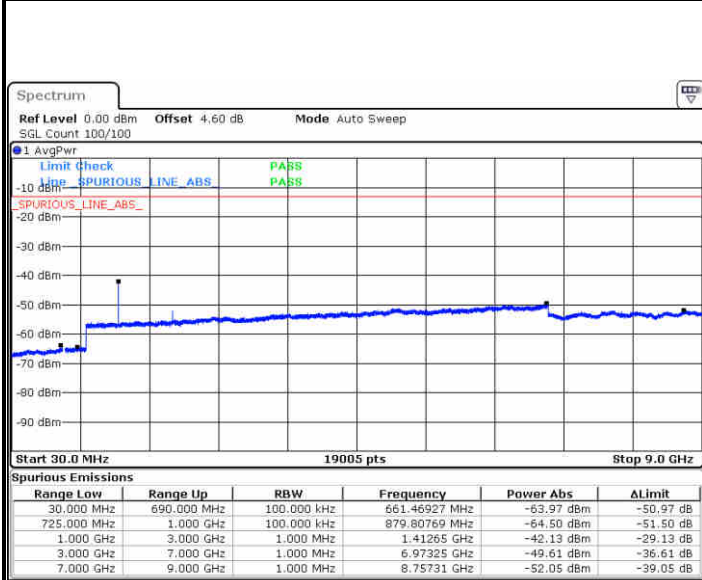


Date: 16 JAN 2020 17:54:16



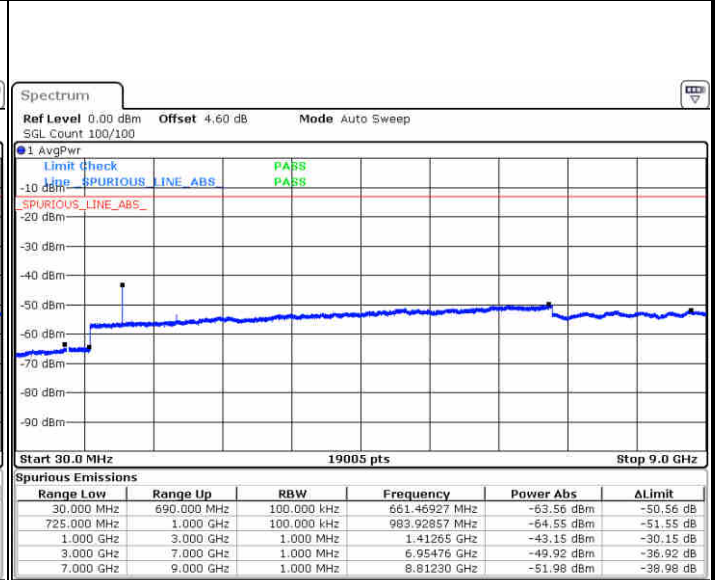
LTE Band 12 / 3MHz

Middle Channel / QPSK



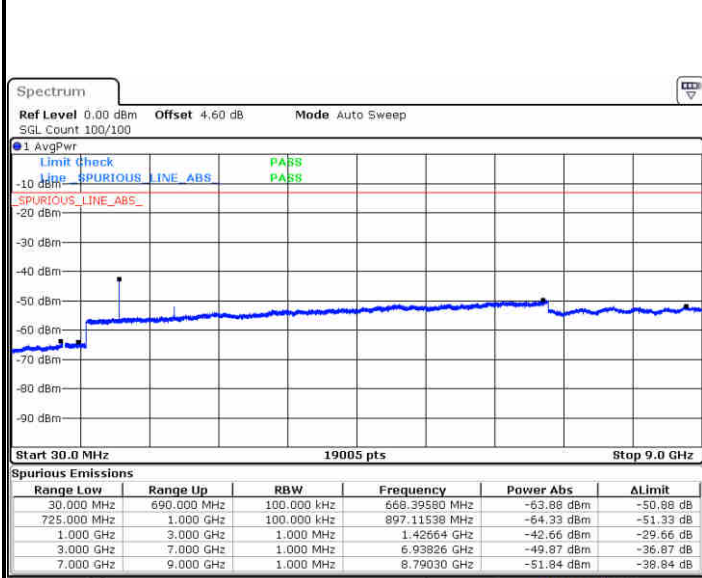
Date: 16 JAN 2020 17:56:05

Middle Channel / 16QAM



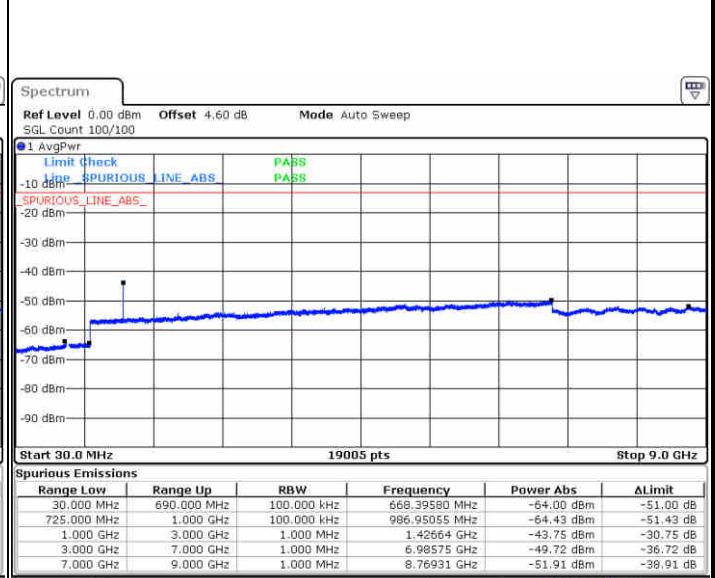
Date: 16 JAN 2020 17:55:11

Highest Channel / QPSK



Date: 16 JAN 2020 17:56:59

Highest Channel / 16QAM



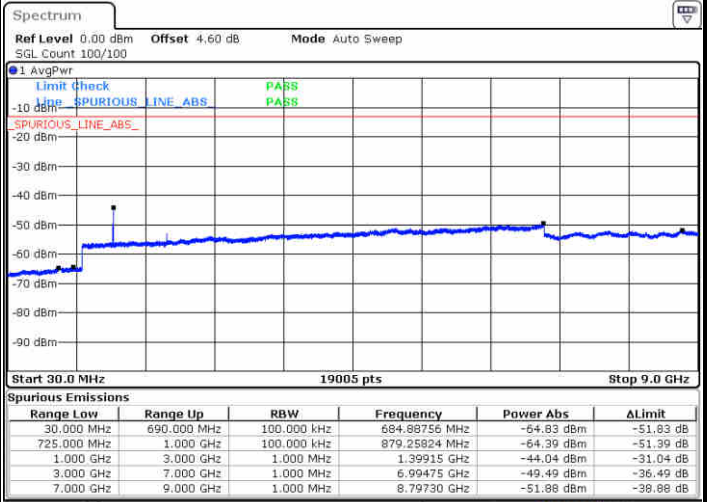
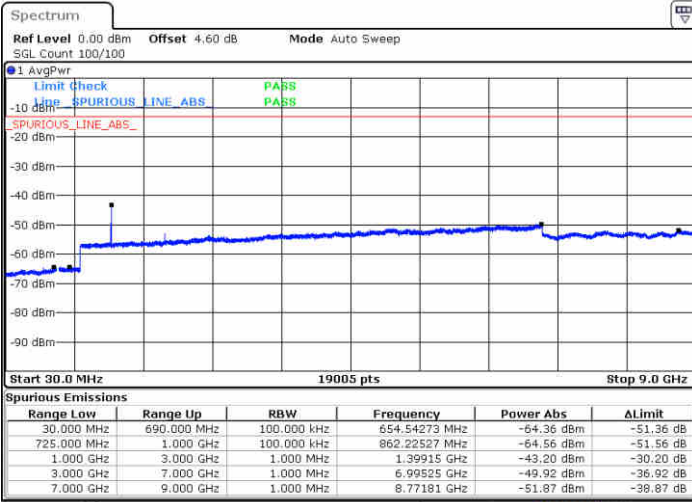
Date: 16 JAN 2020 17:57:54



LTE Band 12 / 5MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM

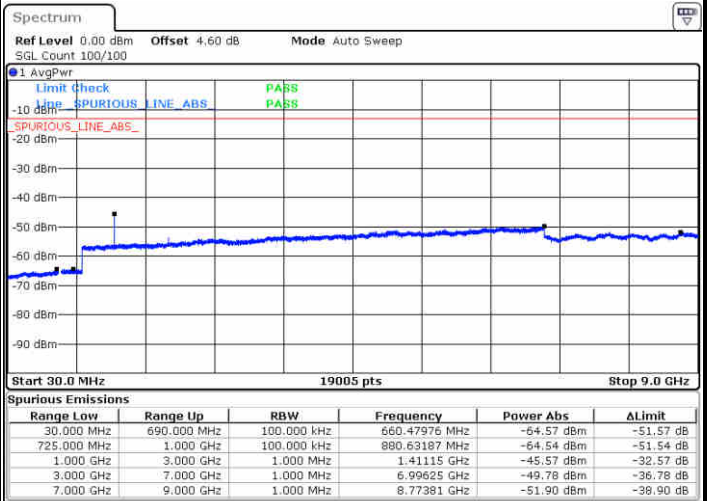
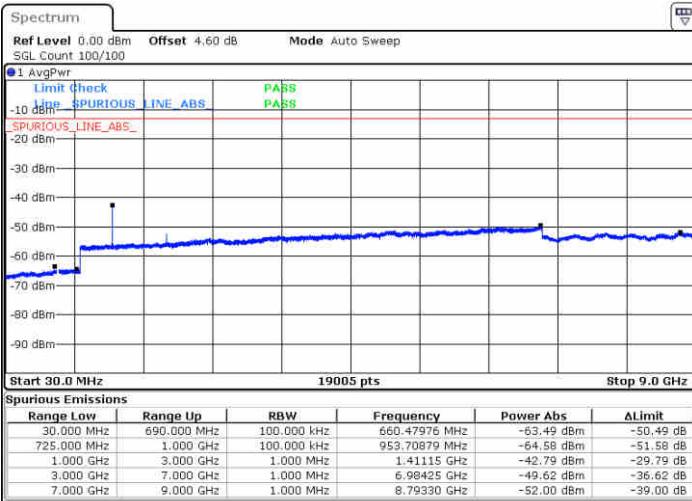


Date: 16 JAN 2020 18:09:47

Date: 16 JAN 2020 18:10:42

Middle Channel / QPSK

Middle Channel / 16QAM



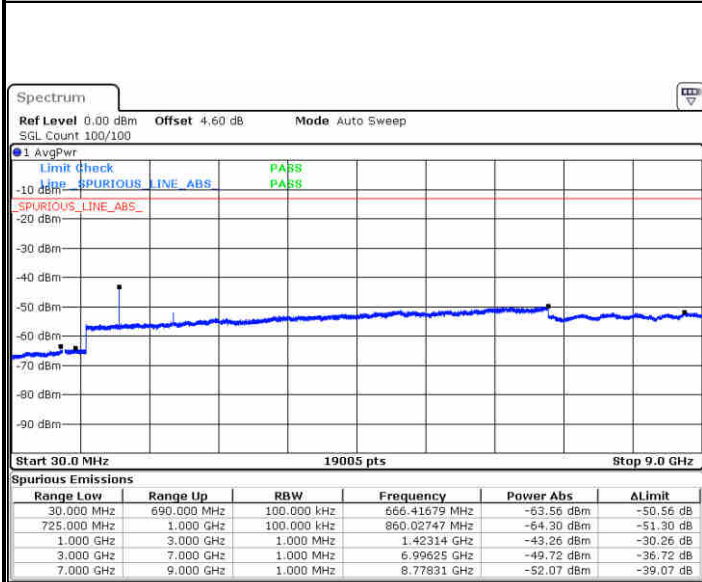
Date: 16 JAN 2020 18:12:30

Date: 16 JAN 2020 18:11:36



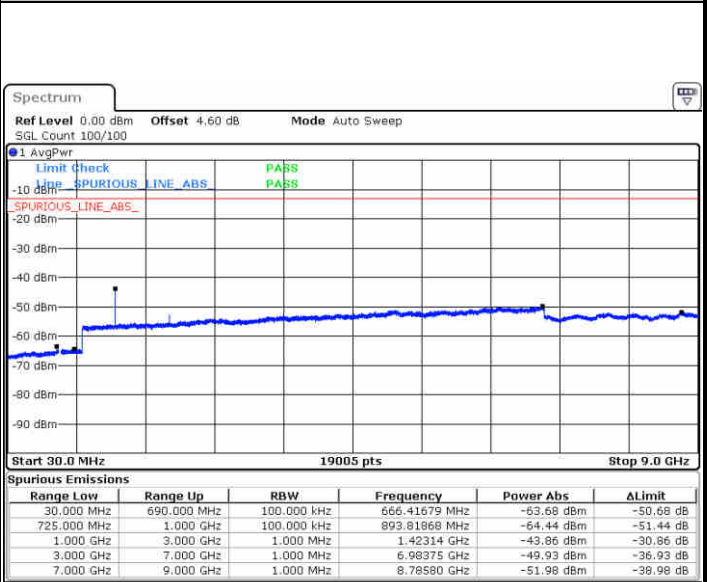
LTE Band 12 / 5MHz

Highest Channel / QPSK



Date: 16 JAN 2020 18:13:25

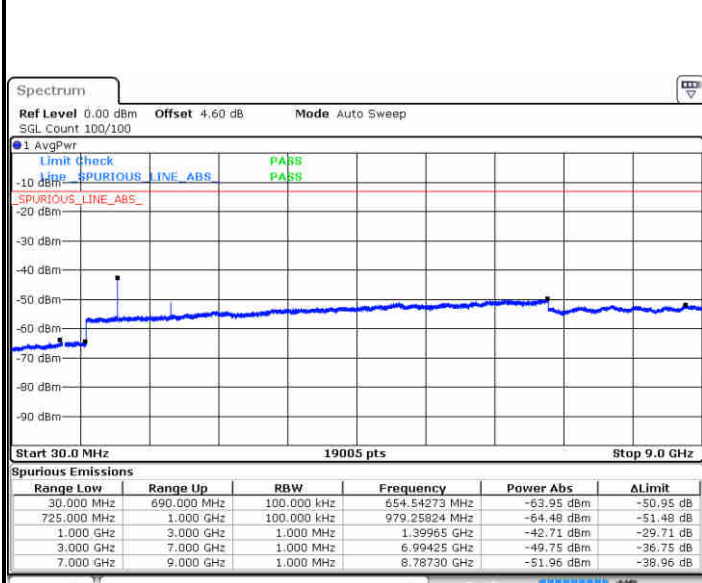
Highest Channel / 16QAM



Date: 16 JAN 2020 18:14:19

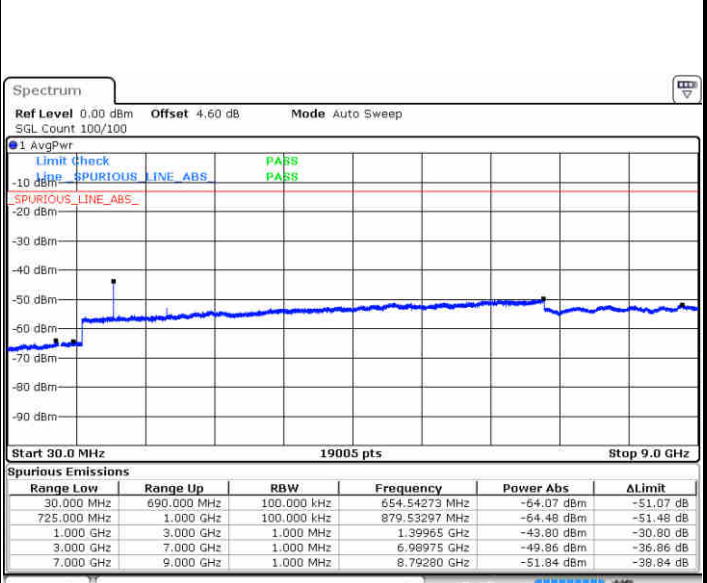
LTE Band 12 / 10MHz

Lowest Channel / QPSK



Date: 16 JAN 2020 17:32:31

Lowest Channel / 16QAM



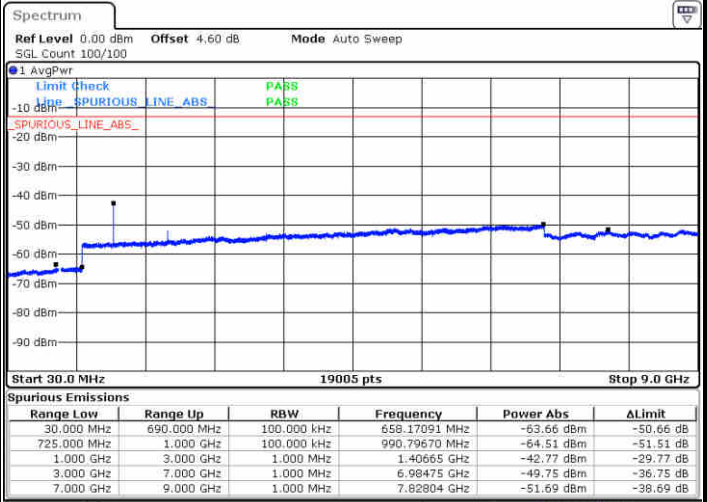
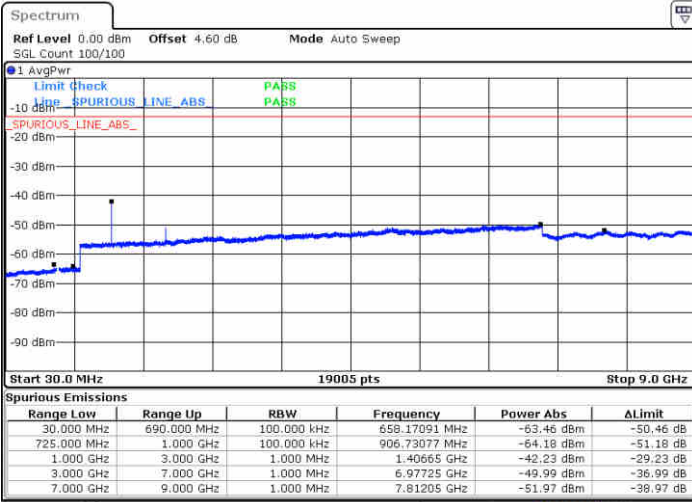
Date: 16 JAN 2020 18:52:26



LTE Band 12 / 10MHz

Middle Channel / QPSK

Middle Channel / 16QAM

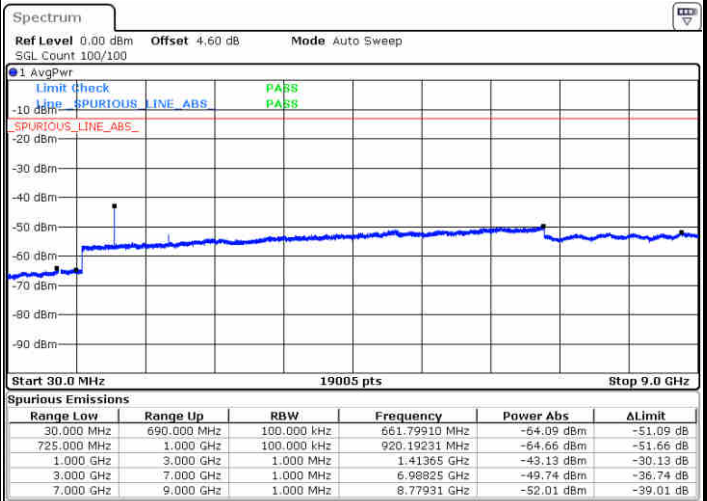
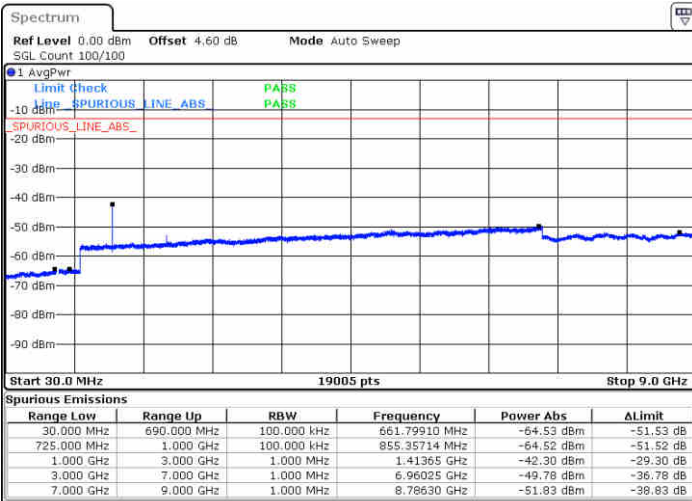


Date: 16 JAN 2020 18:54:15

Date: 16 JAN 2020 18:53:21

Highest Channel / QPSK

Highest Channel / 16QAM

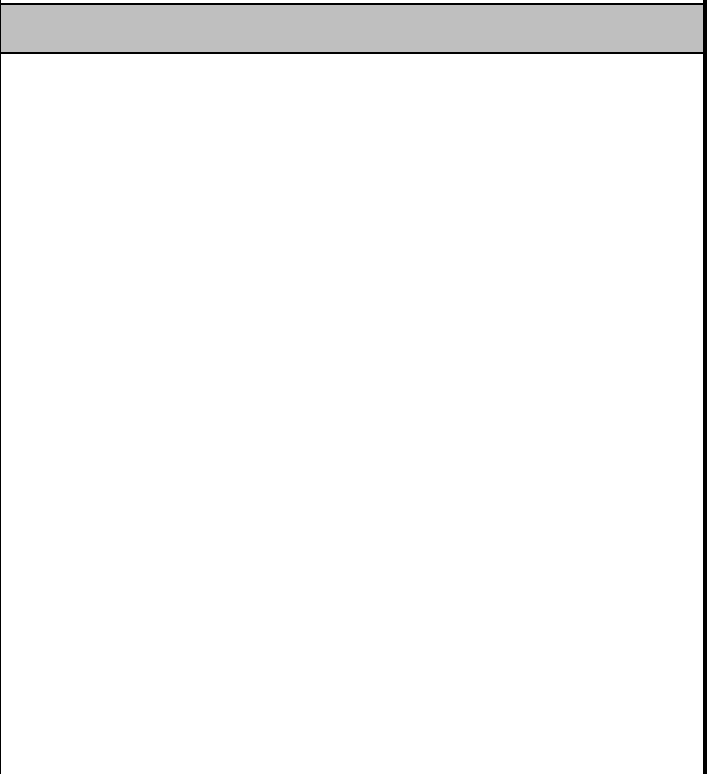
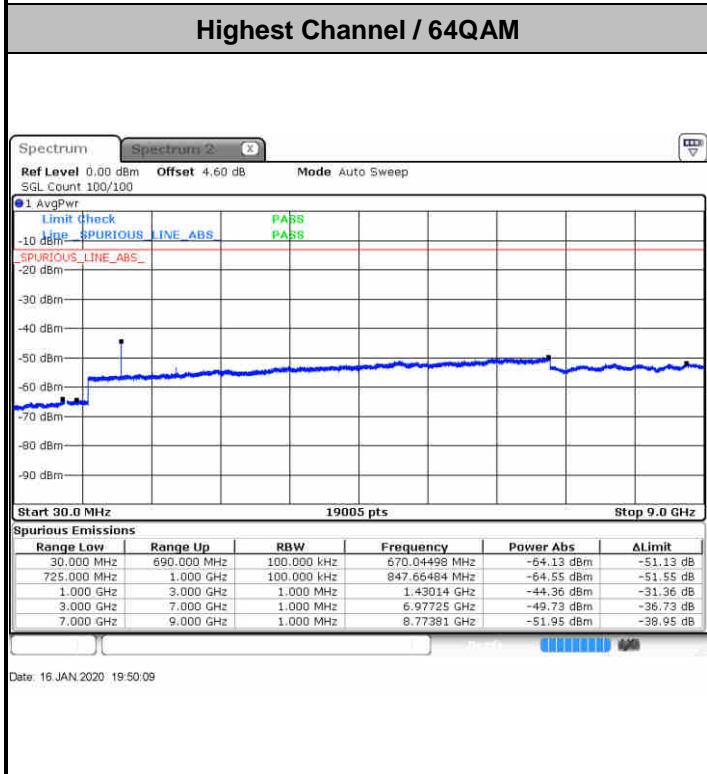
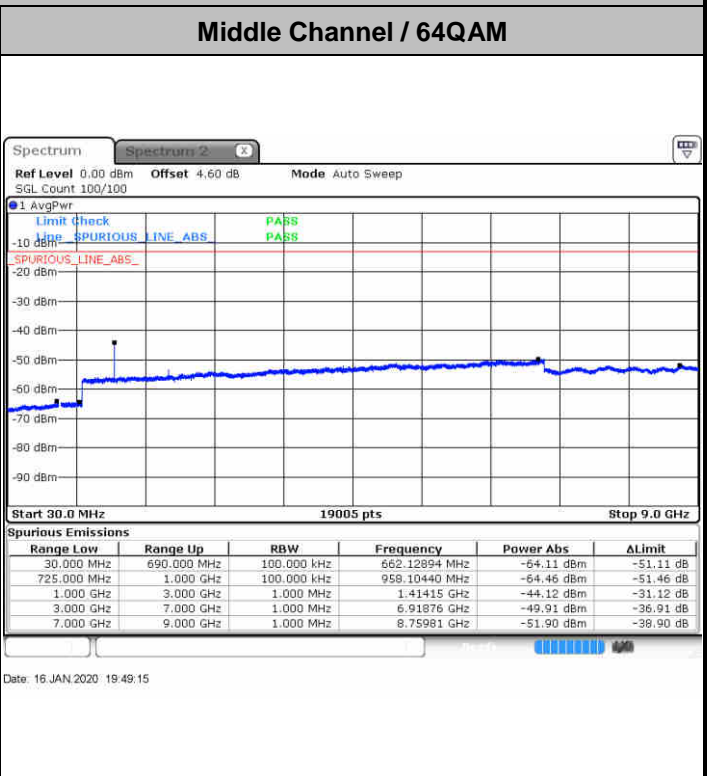
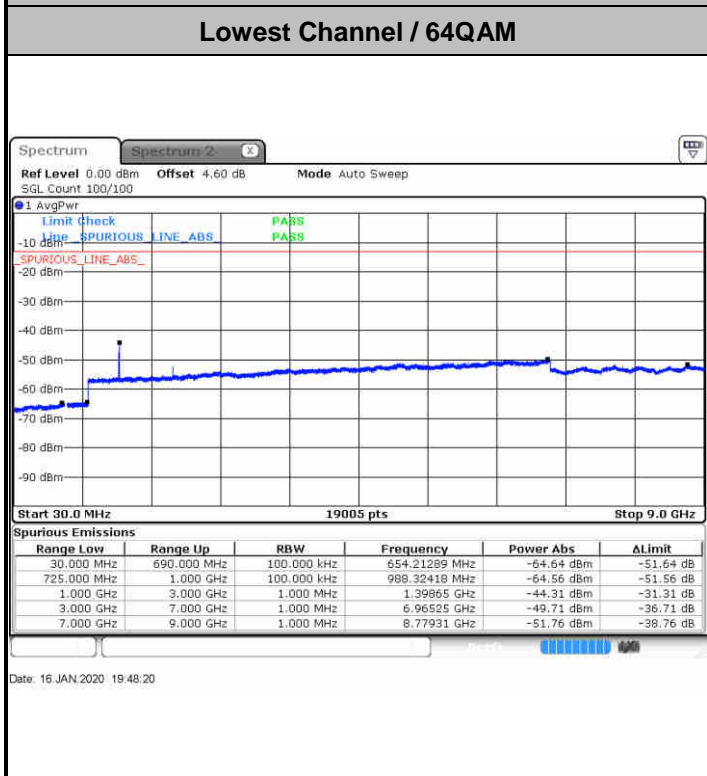


Date: 16 JAN 2020 18:55:09

Date: 16 JAN 2020 18:56:04



**LTE Band 12 / 1.4MHz**

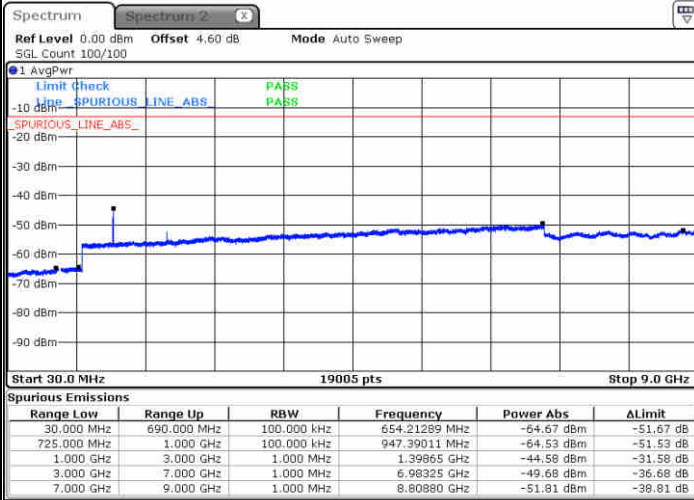




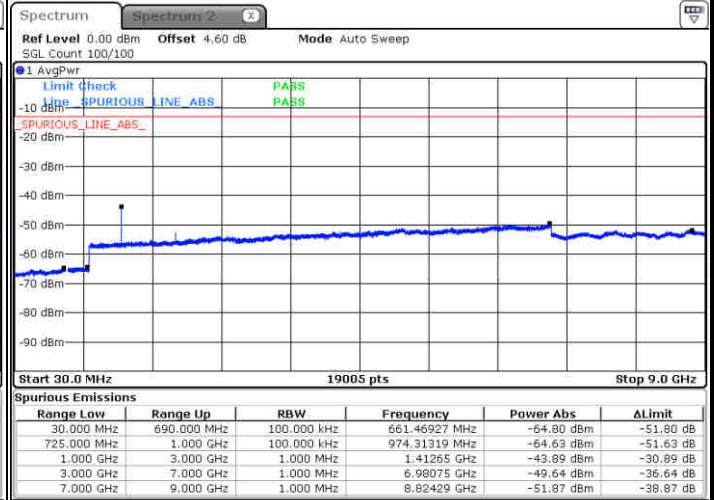
LTE Band 12 / 3MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

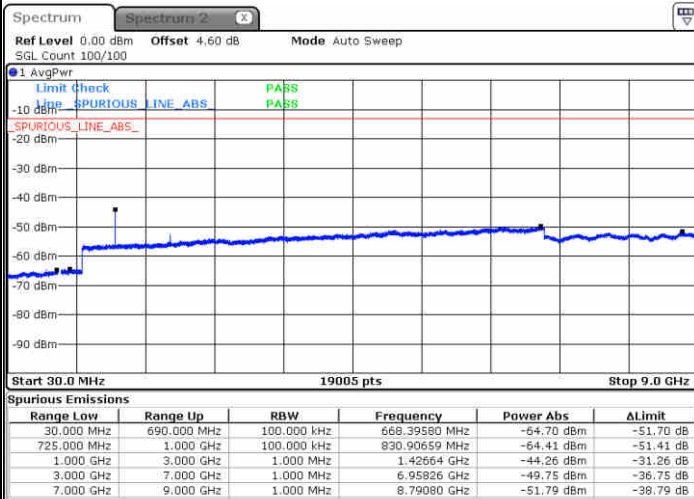


Date: 16 JAN 2020 19:51:03



Date: 16 JAN 2020 19:51:58

Highest Channel / 64QAM



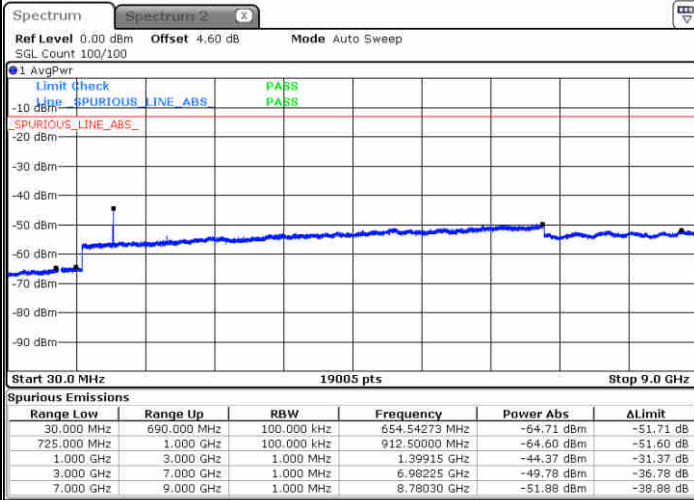
Date: 16 JAN 2020 19:52:52



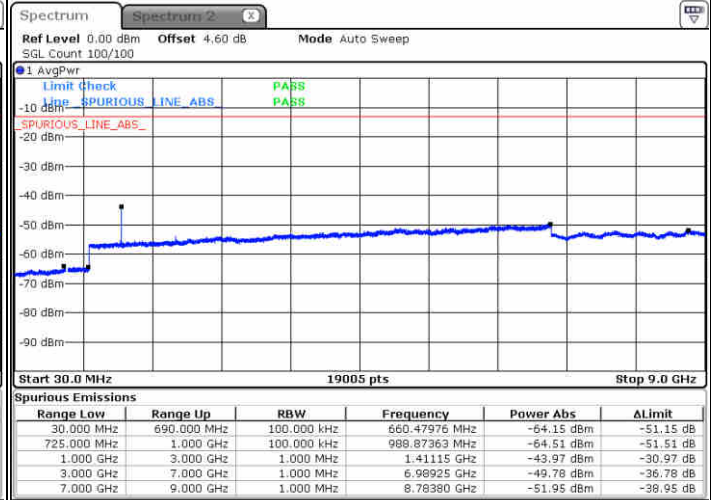
LTE Band 12 / 5MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

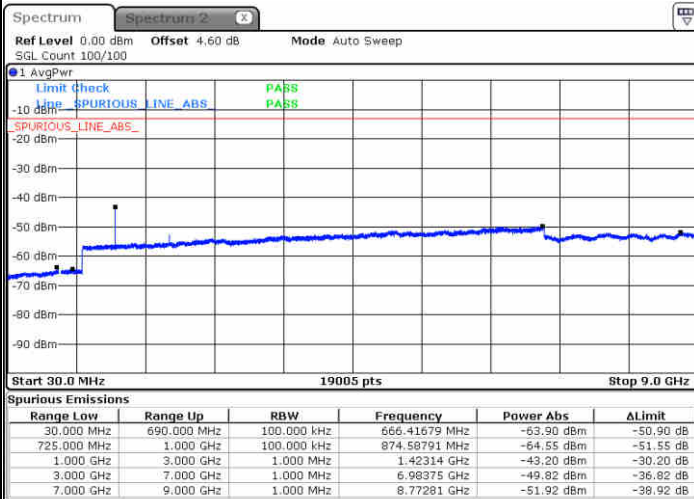


Date: 16 JAN 2020 20 04:45



Date: 16 JAN 2020 20 05:39

Highest Channel / 64QAM



Date: 16 JAN 2020 20 06:34

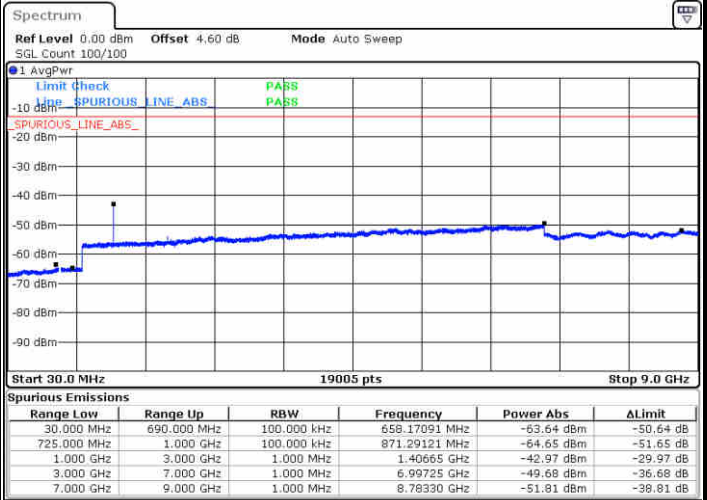
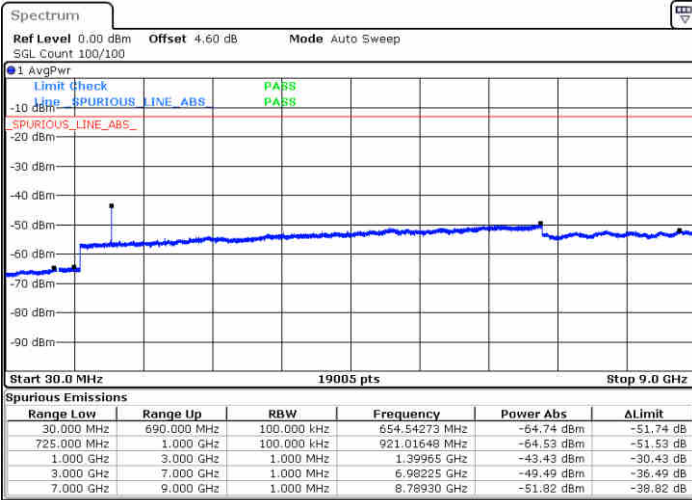




LTE Band 12 / 10MHz

Lowest Channel / 64QAM

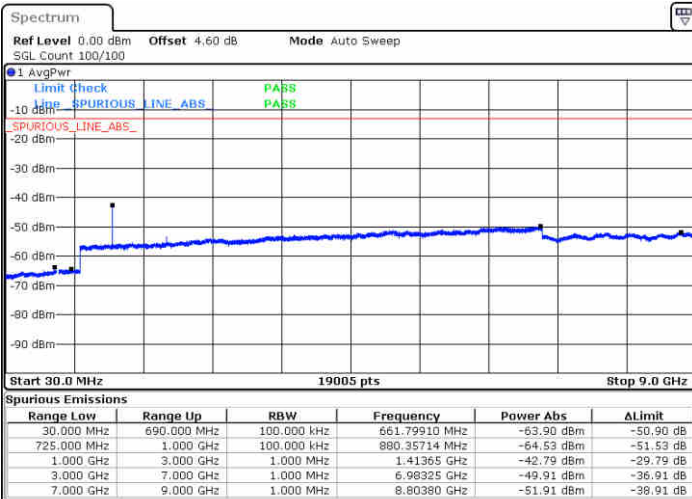
Middle Channel / 64QAM



Date: 17.JAN.2020 09:20:21

Date: 17.JAN.2020 09:21:15

Highest Channel / 64QAM



Date: 17.JAN.2020 09:22:10



### Frequency Stability

| Test Conditions  |                   | LTE Band 12 (QPSK) / Middle Channel | Limit   |
|------------------|-------------------|-------------------------------------|---------|
| Temperature (°C) | Voltage (Volt)    | BW 10MHz                            | Note 2. |
|                  |                   | Deviation (ppm)                     | Result  |
| 50               | Normal Voltage    | 0.0031                              | PASS    |
| 40               | Normal Voltage    | 0.0044                              |         |
| 30               | Normal Voltage    | 0.0050                              |         |
| 20(Ref.)         | Normal Voltage    | 0.0000                              |         |
| 10               | Normal Voltage    | 0.0102                              |         |
| 0                | Normal Voltage    | 0.0006                              |         |
| -10              | Normal Voltage    | 0.0023                              |         |
| -20              | Normal Voltage    | 0.0076                              |         |
| -30              | Normal Voltage    | 0.0068                              |         |
| 20               | Maximum Voltage   | 0.0011                              |         |
| 20               | Normal Voltage    | 0.0007                              |         |
| 20               | Battery End Point | 0.0006                              |         |

**Note:**

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.65 V. ; Maximum Voltage =4.40 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



# LTE Band 13

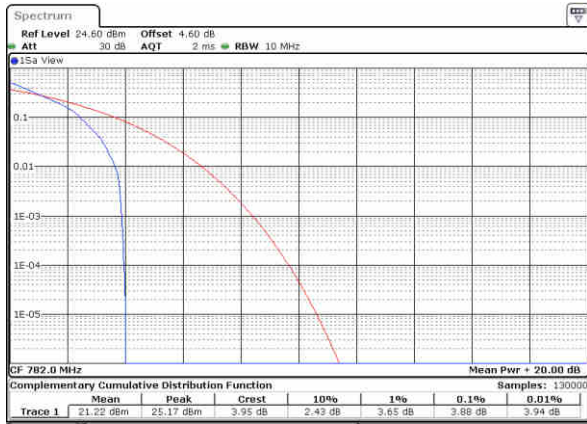
## Peak-to-Average Ratio

| Mode       | LTE Band 13 / 10MHz |         |             |         |             |
|------------|---------------------|---------|-------------|---------|-------------|
| Mod.       | QPSK                |         | 16QAM       |         | Limit: 13dB |
| RB Size    | 1RB                 | Full RB | 1RB         | Full RB | Result      |
| Lowest CH  | -                   | -       | -           | -       | <b>PASS</b> |
| Middle CH  | 3.88                | 4.78    | 4.78        | 5.68    |             |
| Highest CH | -                   | -       | -           | -       |             |
| Mod.       | 64QAM               |         | Limit: 13dB |         |             |
| RB Size    | 1RB                 | Full RB | Result      |         |             |
| Lowest CH  | -                   | -       | <b>PASS</b> |         |             |
| Middle CH  | 4.84                | 5.65    |             |         |             |
| Highest CH | -                   | -       |             |         |             |



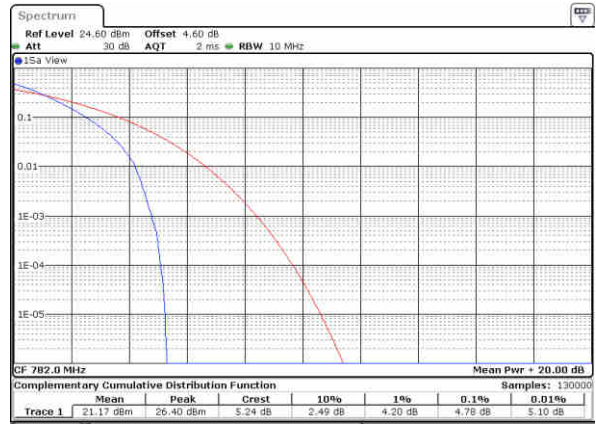
LTE Band 13 / 10MHz / QPSK

Middle Channel / 1RB



Date: 16 JAN 2020 16:57:33

Middle Channel / Full RB



Date: 16 JAN 2020 16:58:02

LTE Band 13 / 10MHz / 16QAM

Middle Channel / 1RB



Date: 16 JAN 2020 16:57:42

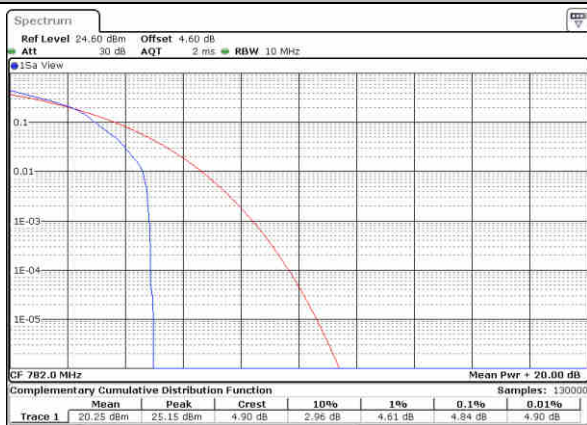
Middle Channel / Full RB



Date: 16 JAN 2020 16:57:51

LTE Band 13 / 10MHz / 64QAM

Middle Channel / 1RB



Date: 16 JAN 2020 17:30:44

Middle Channel / Full RB



Date: 16 JAN 2020 17:31:32



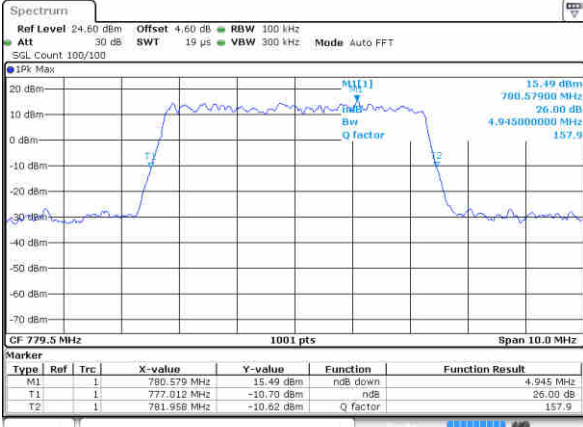
**26dB Bandwidth**

| Mode       | LTE Band 13 : 26dB BW(MHz) |       |       |       |       |   |       |   |   |   |   |   |
|------------|----------------------------|-------|-------|-------|-------|---|-------|---|---|---|---|---|
| BW         | 5MHz                       |       | 10MHz |       | 5MHz  |   | 10MHz |   | - |   | - |   |
| Mod.       | QPSK                       | 16QAM | QPSK  | 16QAM | 64QAM | - | 64QAM | - | - | - | - | - |
| Lowest CH  | 4.95                       | 4.92  | -     | -     | 4.92  | - | -     | - | - | - | - | - |
| Middle CH  | 4.88                       | 4.90  | 9.91  | 9.97  | 4.95  | - | 9.63  | - | - | - | - | - |
| Highest CH | 5.00                       | 5.05  | -     | -     | 4.90  | - | -     | - | - | - | - | - |



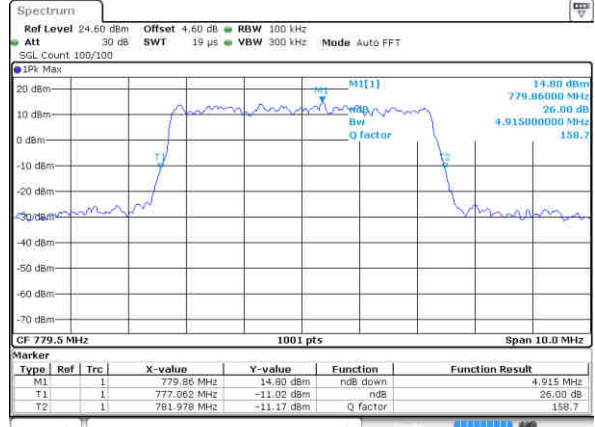
LTE Band 13

Lowest Channel / 5MHz / QPSK



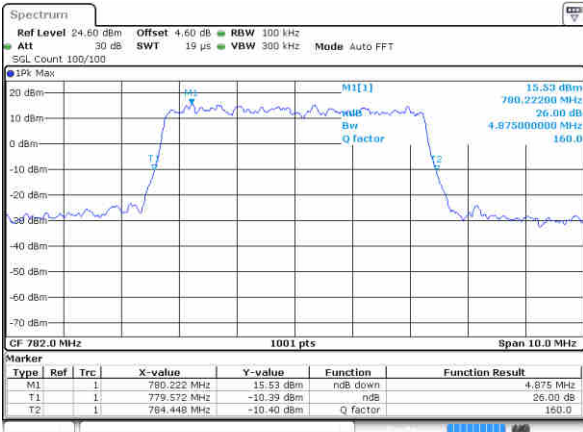
Date: 16 JAN 2020 16:25:21

Lowest Channel / 5MHz / 16QAM



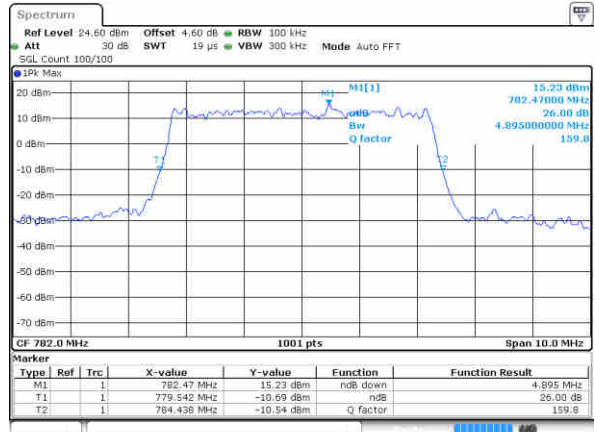
Date: 16 JAN 2020 16:25:31

Middle Channel / 5MHz / QPSK



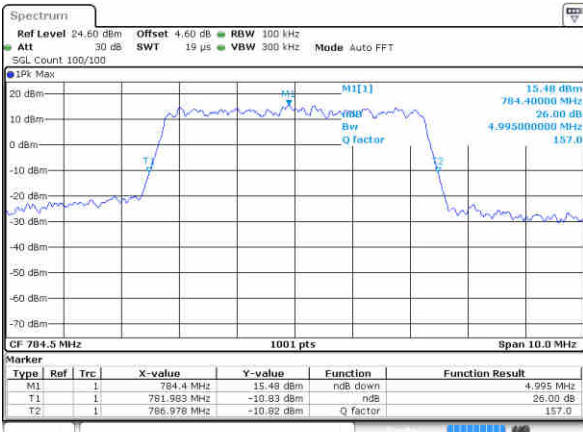
Date: 16 JAN 2020 16:34:20

Middle Channel / 5MHz / 16QAM



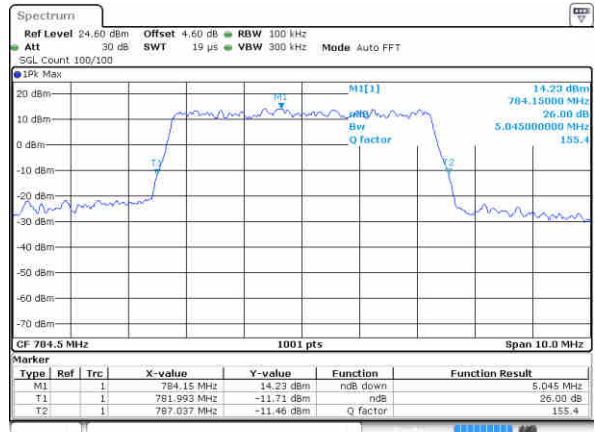
Date: 16 JAN 2020 16:34:29

Highest Channel / 5MHz / QPSK



Date: 16 JAN 2020 16:36:58

Highest Channel / 5MHz / 16QAM

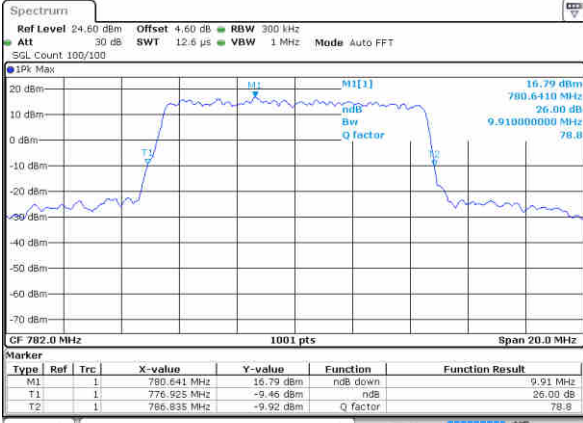


Date: 16 JAN 2020 16:36:48



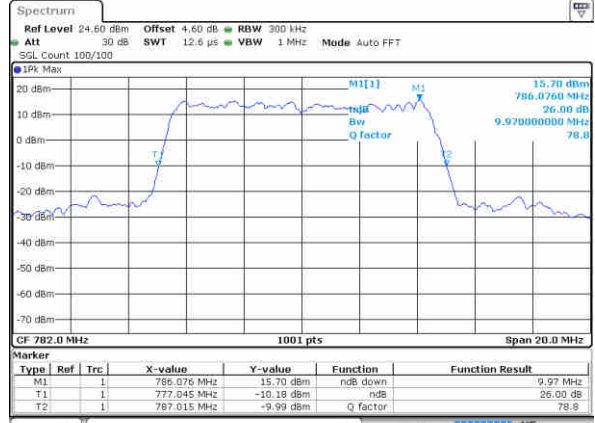
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 16 JAN 2020 16:45:56

Middle Channel / 10MHz / 16QAM

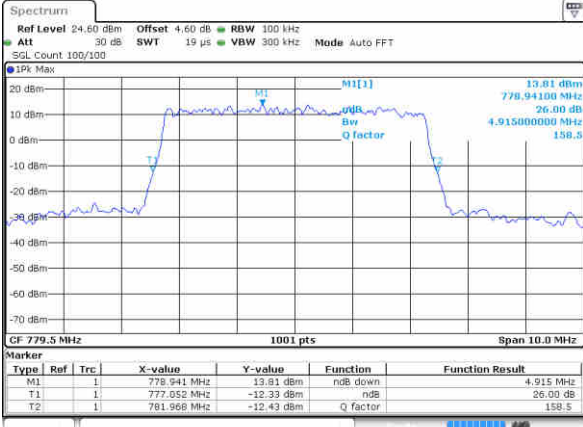


Date: 16 JAN 2020 16:45:46



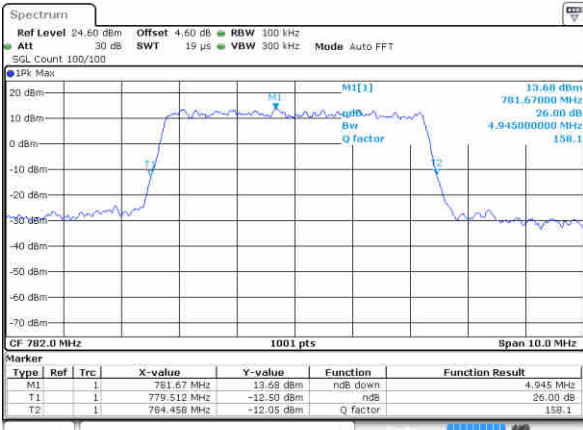
LTE Band 13

Lowest Channel / 5MHz / 64QAM



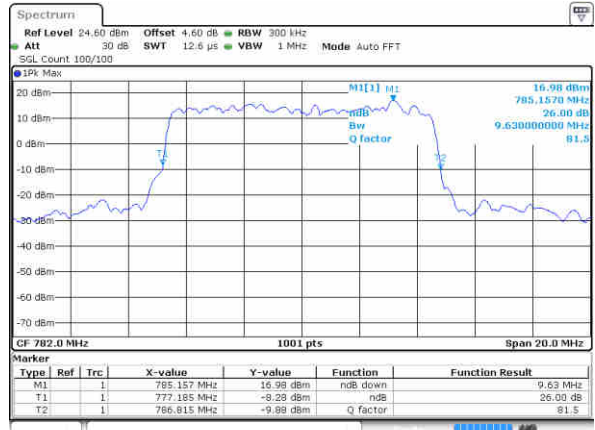
Date: 16 JAN 2020 16:58:41

Middle Channel / 5MHz / 64QAM



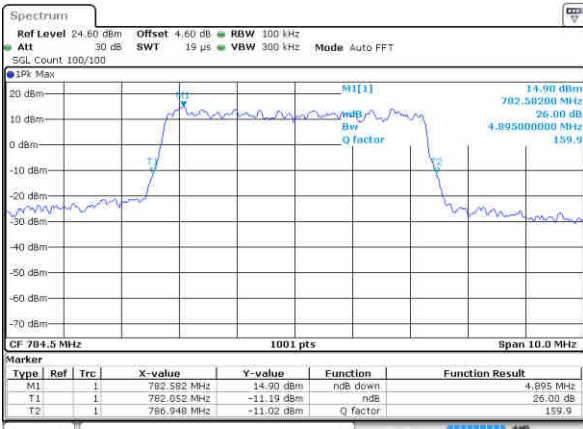
Date: 16 JAN 2020 16:58:51

Middle Channel / 10MHz / 64QAM



Date: 16 JAN 2020 17:08:34

Highest Channel / 5MHz / 64QAM



Date: 16 JAN 2020 16:59:01





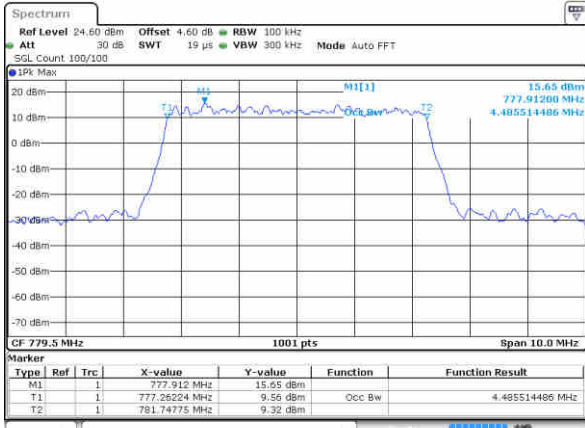
### Occupied Bandwidth

| Mode       | LTE Band 13 : 99%OBW(MHz) |       |       |       |       |   |       |   |   |   |   |   |
|------------|---------------------------|-------|-------|-------|-------|---|-------|---|---|---|---|---|
| BW         | 5MHz                      |       | 10MHz |       | 5MHz  |   | 10MHz |   | - |   | - |   |
| Mod.       | QPSK                      | 16QAM | QPSK  | 16QAM | 64QAM | - | 64QAM | - | - | - | - | - |
| Lowest CH  | 4.49                      | 4.50  | -     | -     | 4.50  | - | -     | - | - | - | - | - |
| Middle CH  | 4.49                      | 4.49  | 9.05  | 9.03  | 4.50  | - | 8.97  | - | - | - | - | - |
| Highest CH | 4.48                      | 4.48  | -     | -     | 4.49  | - | -     | - | - | - | - | - |



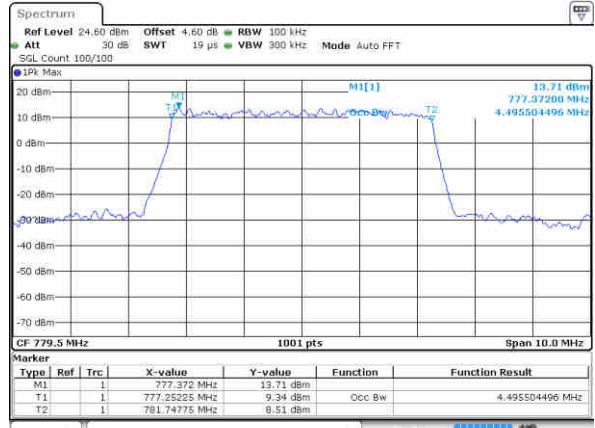
LTE Band 13

Lowest Channel / 5MHz / QPSK



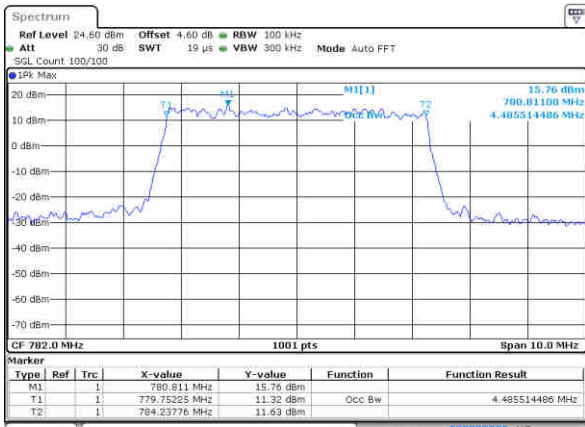
Date: 16 JAN 2020 16:25:51

Lowest Channel / 5MHz / 16QAM



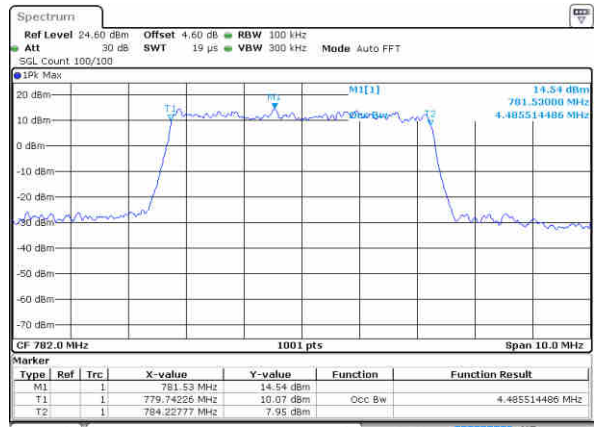
Date: 16 JAN 2020 16:25:41

Middle Channel / 5MHz / QPSK



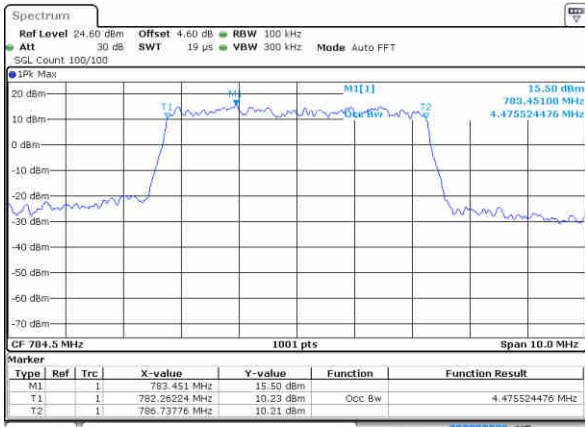
Date: 16 JAN 2020 16:34:39

Middle Channel / 5MHz / 16QAM



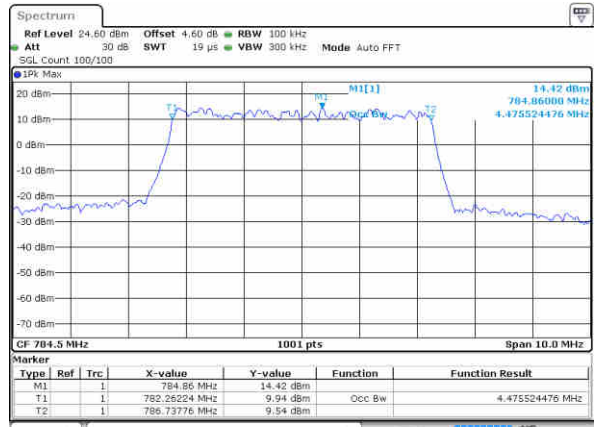
Date: 16 JAN 2020 16:34:49

Highest Channel / 5MHz / QPSK



Date: 16 JAN 2020 16:37:08

Highest Channel / 5MHz / 16QAM

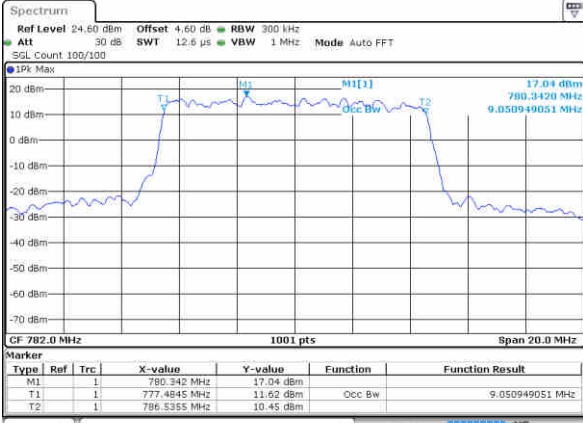


Date: 16 JAN 2020 16:37:18



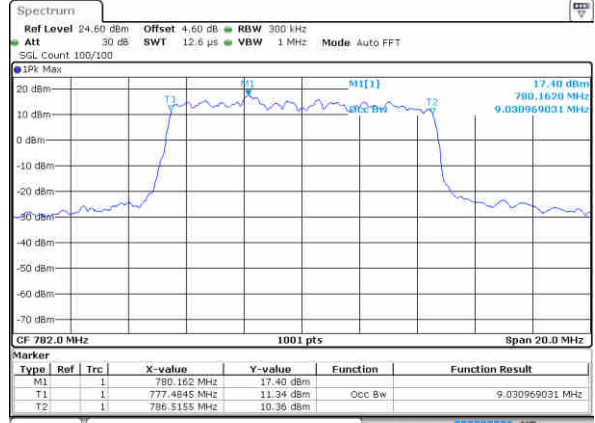
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 16 JAN 2020 16:46:06

Middle Channel / 10MHz / 16QAM

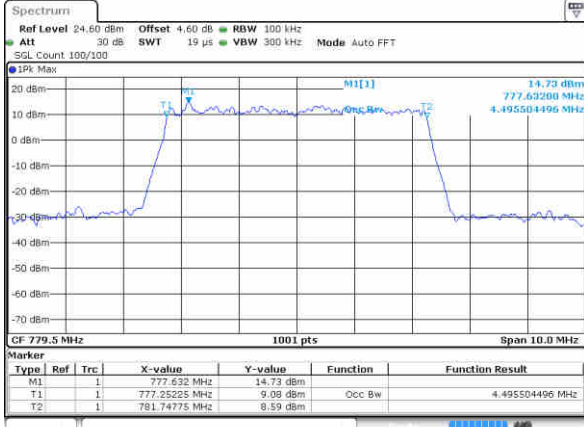


Date: 16 JAN 2020 16:46:16



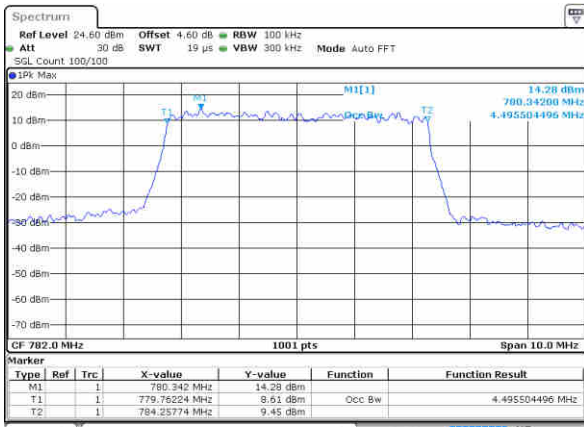
LTE Band 13

Lowest Channel / 5MHz / 64QAM



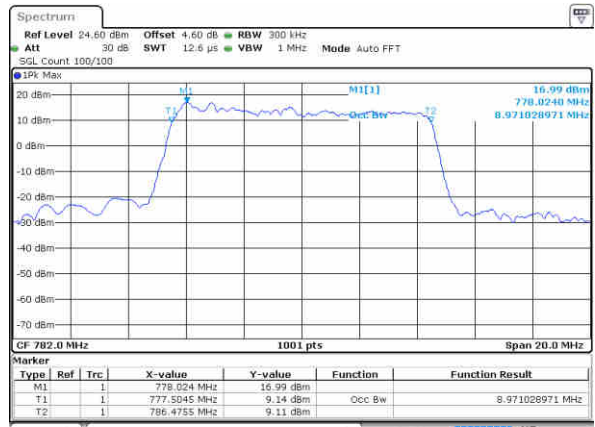
Date: 16 JAN 2020 16:58:12

Middle Channel / 5MHz / 64QAM



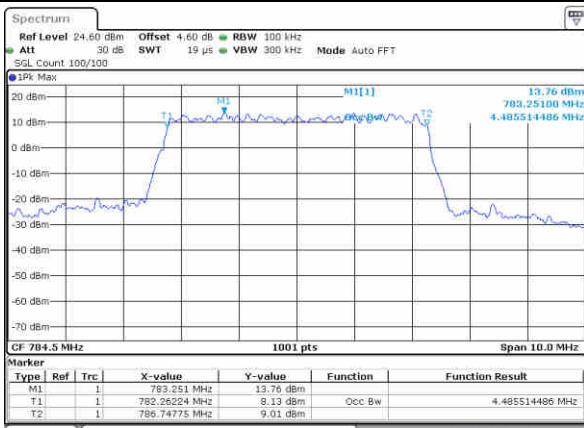
Date: 16 JAN 2020 16:58:21

Middle Channel / 10MHz / 64QAM



Date: 16 JAN 2020 17:08:24

Highest Channel / 5MHz / 64QAM



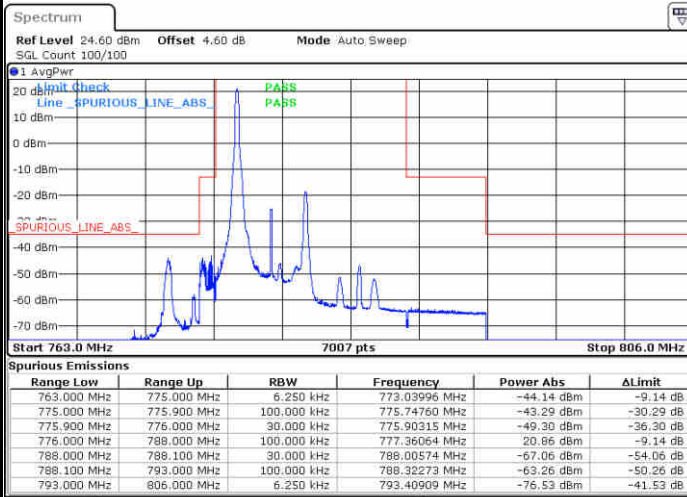
Date: 16 JAN 2020 16:58:31



# Conducted Band Edge

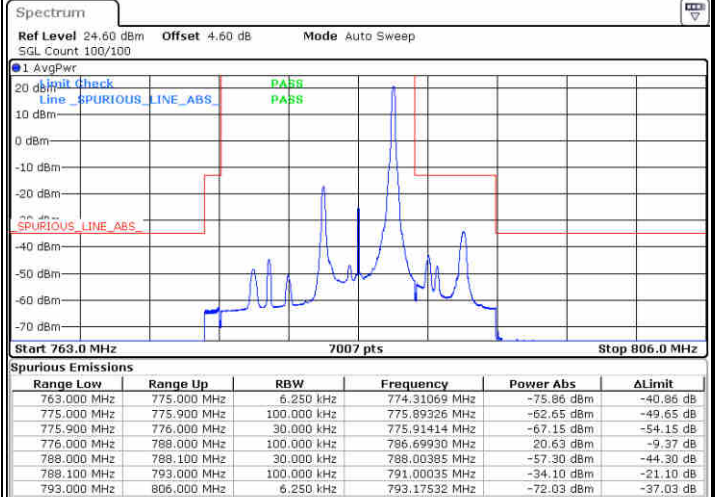
## LTE Band 13 / 5MHz / QPSK

### Lowest Band Edge / 1 RB



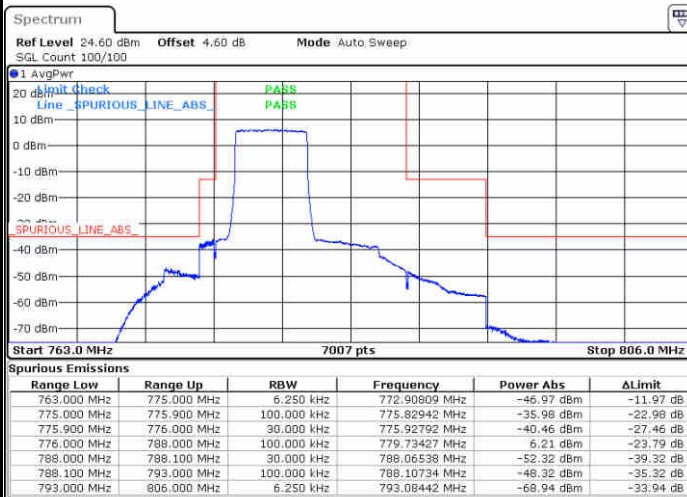
Date: 16 JAN 2020 16:30:44

### Highest Band Edge / 1 RB



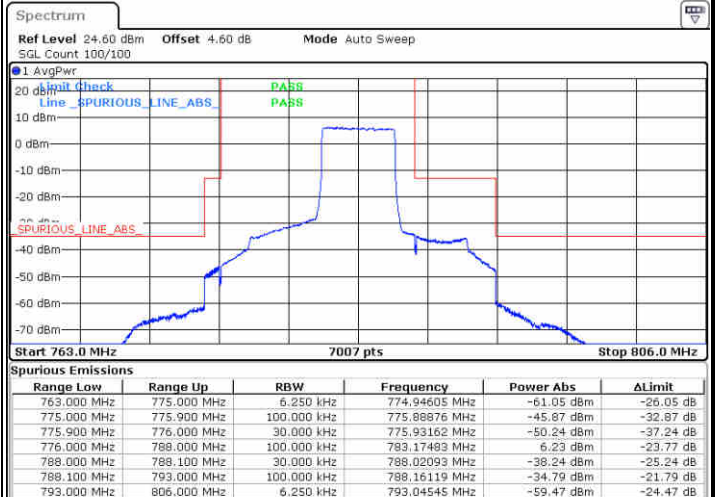
Date: 16 JAN 2020 16:42:11

### Lowest Band Edge / Full RB



Date: 16 JAN 2020 16:29:07

### Highest Band Edge / Full RB



Date: 16 JAN 2020 16:40:33