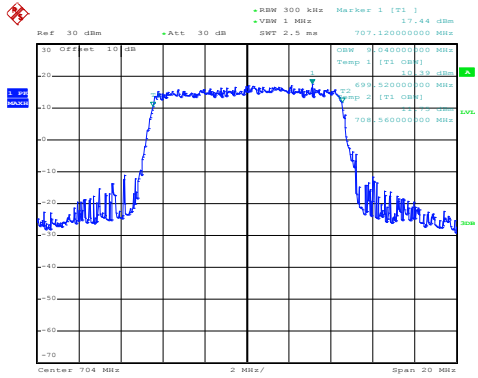


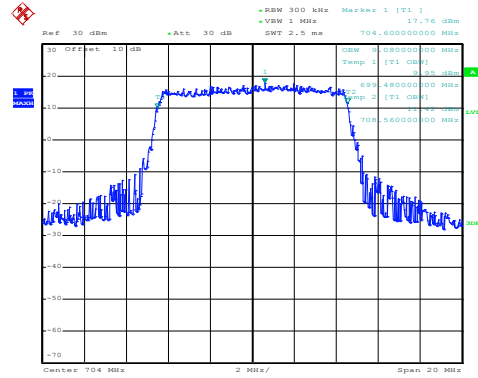
## LTE Band 12: 99% Occupancy bandwidth BW: 10MHz

### 16QAM



Date: 16.JUL.2020 17:21:22

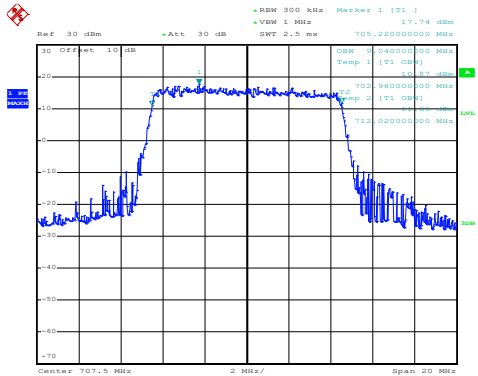
### QPSK



Date: 16.JUL.2020 17:21:17

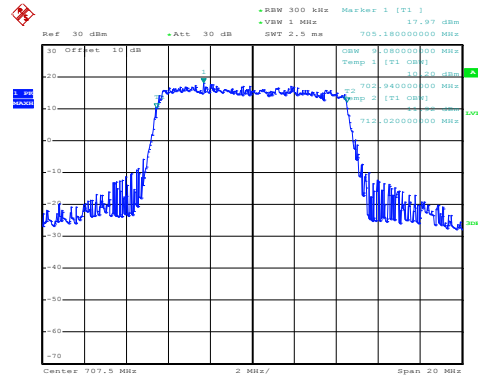
### Lowest channel

### 16QAM



Date: 16.JUL.2020 17:21:43

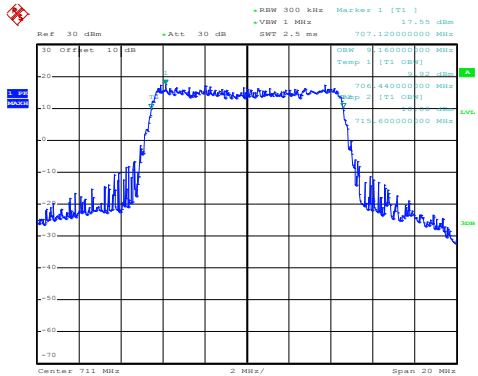
### QPSK



Date: 16.JUL.2020 17:21:37

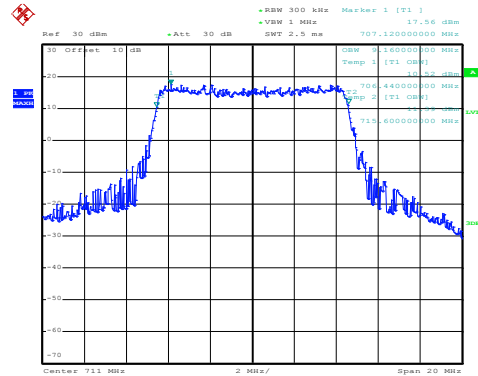
### Middle channel

### 16QAM



Date: 16.JUL.2020 17:22:32

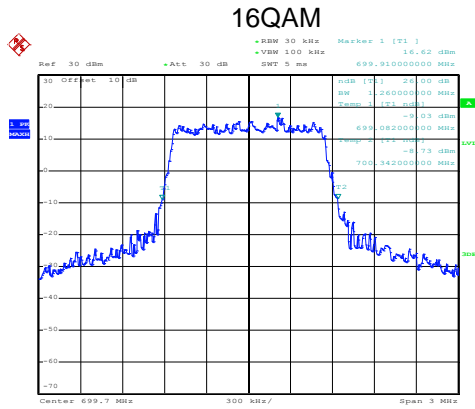
### QPSK



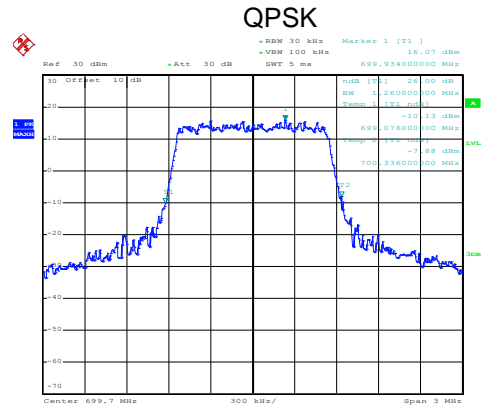
Date: 16.JUL.2020 17:22:27

### Highest channel

LTE Band 12: -26dBc bandwidth  
BW: 1.4MHz

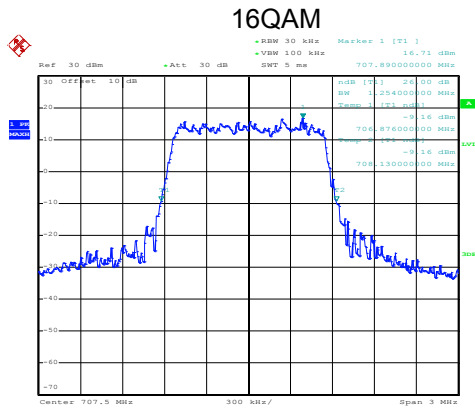


Date: 16.JUL.2020 17:11:59

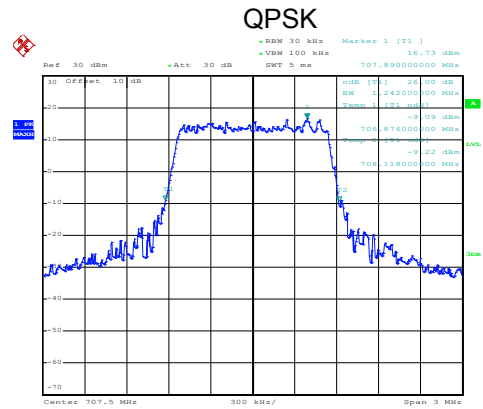


Date: 16.JUL.2020 17:11:52

Lowest channel

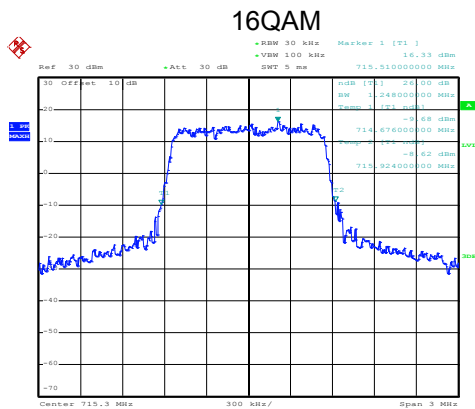


Date: 16.JUL.2020 17:12:18

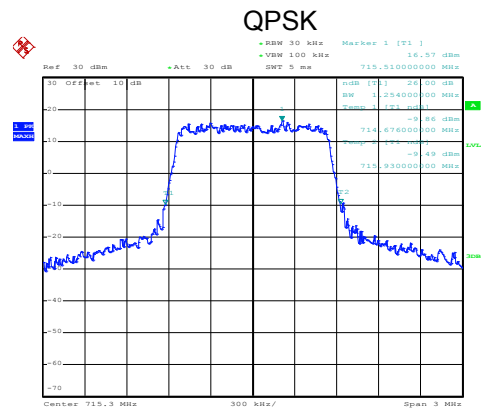


Date: 16.JUL.2020 17:12:13

Middle channel



Date: 16.JUL.2020 17:13:14

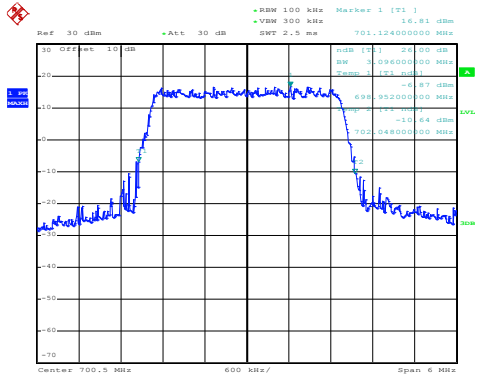


Date: 16.JUL.2020 17:13:09

Highest channel

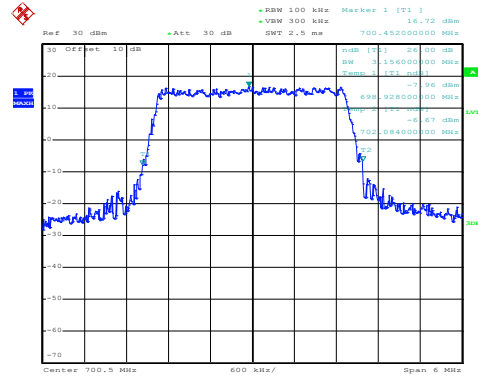
LTE Band 12: -26dBc bandwidth  
BW: 3MHz

16QAM



Date: 16.JUL.2020 17:14:44

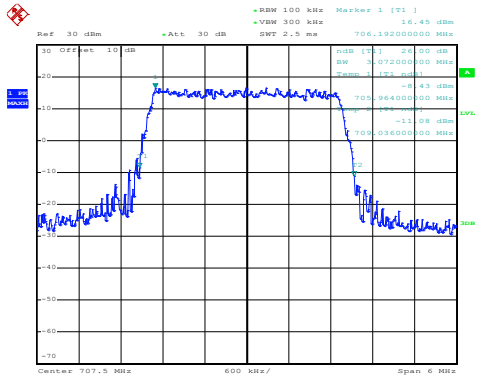
QPSK



Date: 16.JUL.2020 17:14:38

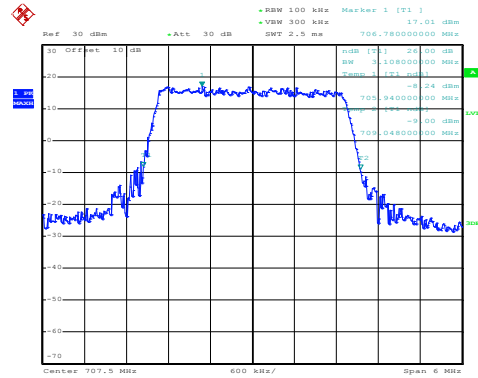
Lowest channel

16QAM



Date: 16.JUL.2020 17:15:35

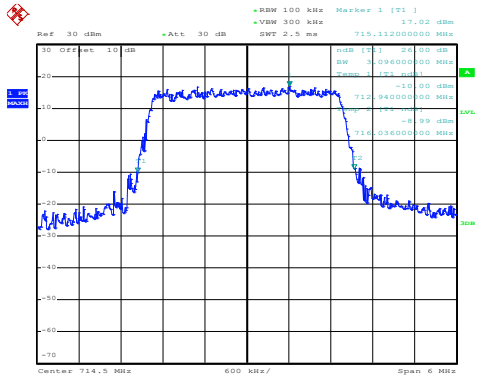
QPSK



Date: 16.JUL.2020 17:15:29

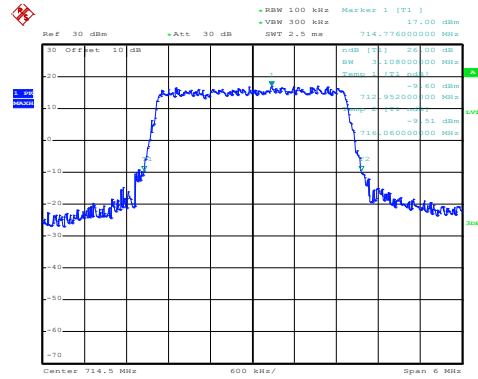
Middle channel

16QAM



Date: 16.JUL.2020 17:15:59

QPSK

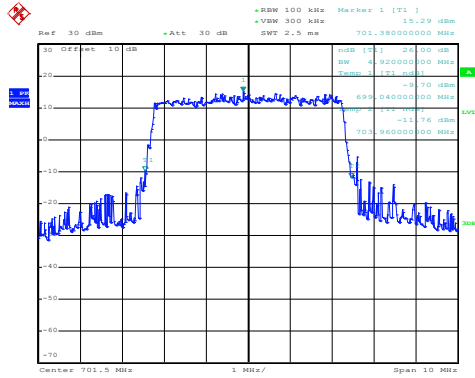


Date: 16.JUL.2020 17:15:53

Highest channel

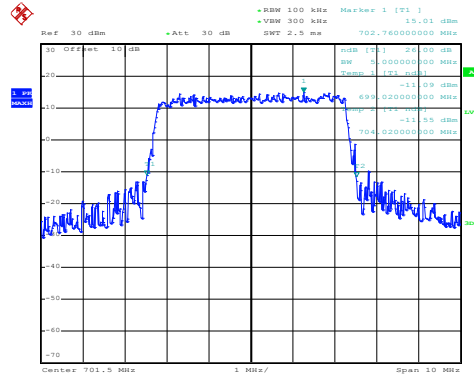
### LTE Band 12: -26dBc bandwidth BW: 5MHz

#### 16QAM



Date: 16.JUL.2020 17:17:03

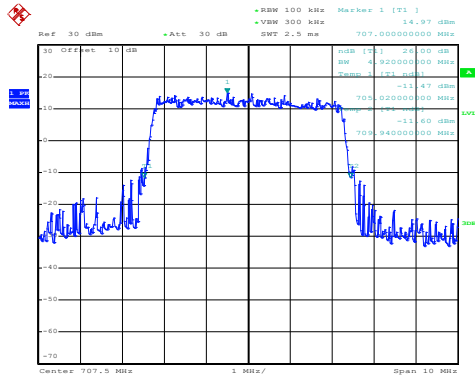
#### QPSK



Date: 16.JUL.2020 17:16:57

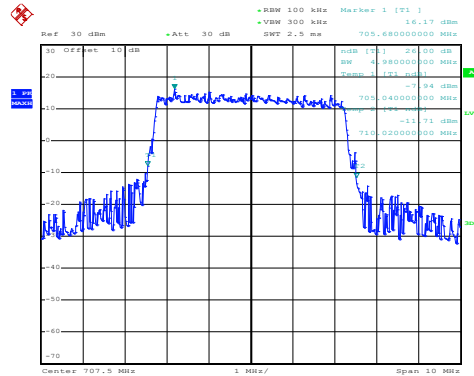
#### Lowest channel

#### 16QAM



Date: 16.JUL.2020 17:17:23

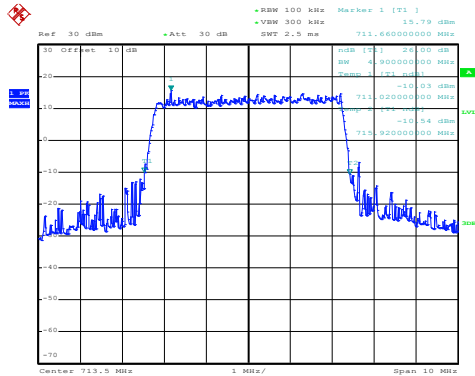
#### QPSK



Date: 16.JUL.2020 17:17:18

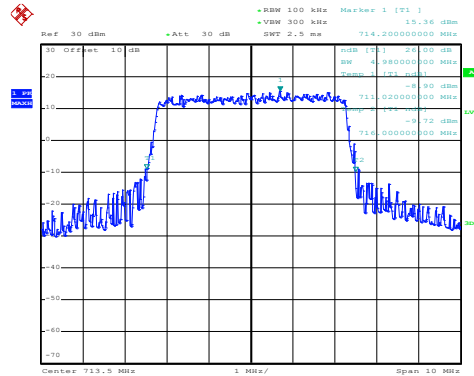
#### Middle channel

#### 16QAM



Date: 16.JUL.2020 17:18:13

#### QPSK

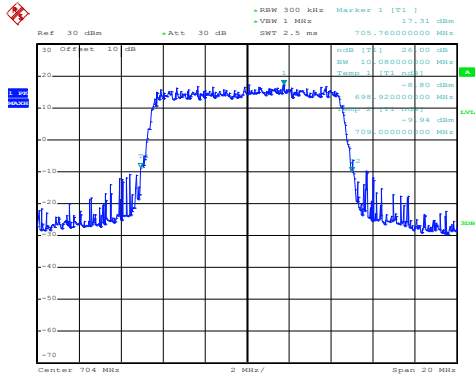


Date: 16.JUL.2020 17:18:08

#### Highest channel

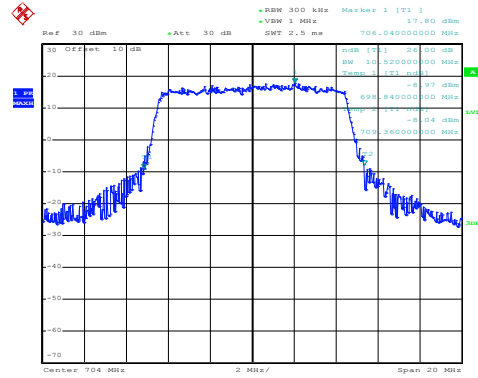
LTE Band 12: -26dBc bandwidth  
BW: 10MHz

16QAM



Date: 16.JUL.2020 17:21:09

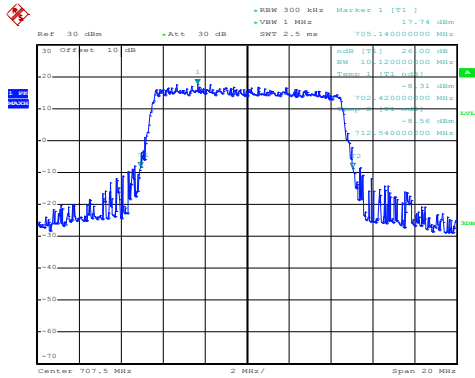
QPSK



Date: 16.JUL.2020 17:21:03

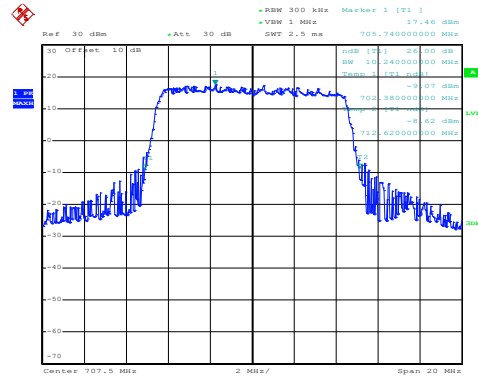
Lowest channel

16QAM



Date: 16.JUL.2020 17:21:58

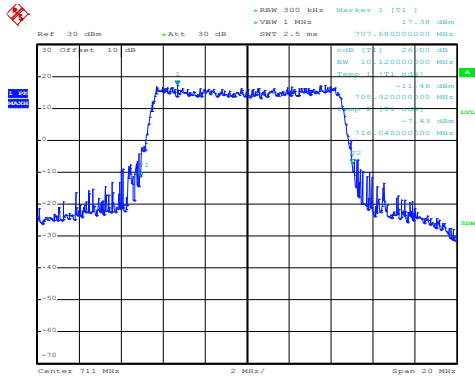
QPSK



Date: 16.JUL.2020 17:21:52

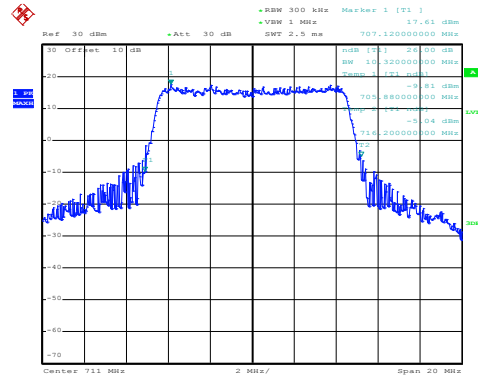
Middle channel

16QAM



Date: 16.JUL.2020 17:22:19

QPSK

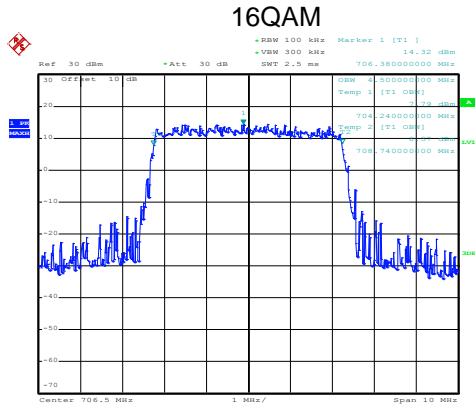


Date: 16.JUL.2020 17:22:13

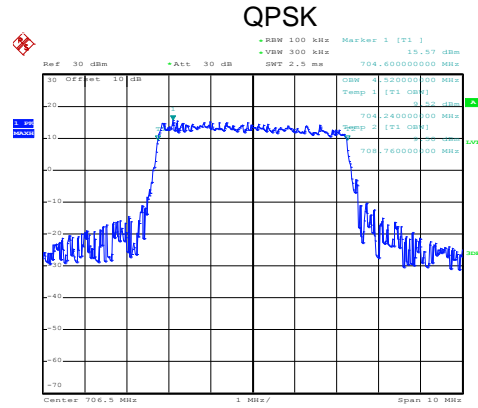
Highest channel

## LTE Band 17 part:

### LTE Band 17: 99% Occupancy bandwidth BW: 5MHz

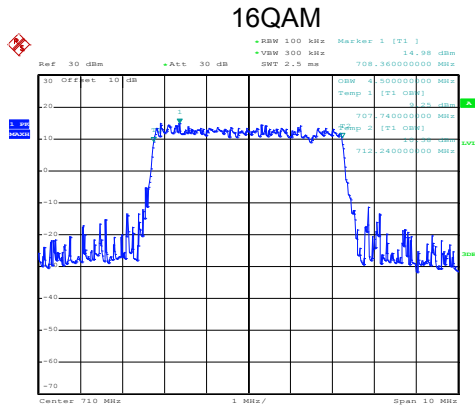


Date: 16.JUL.2020 17:34:08

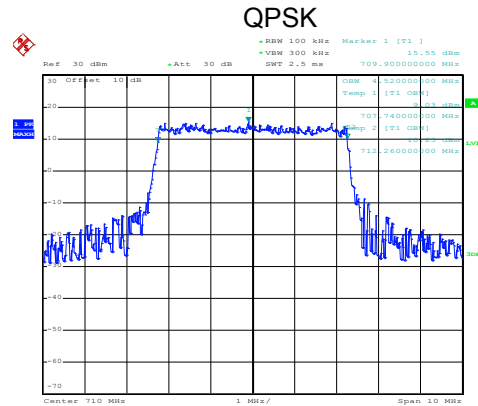


Date: 16.JUL.2020 17:34:03

### Lowest channel

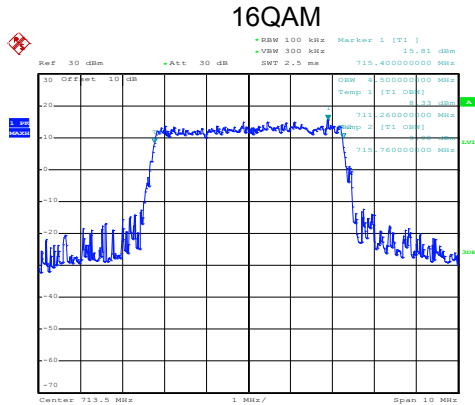


Date: 16.JUL.2020 17:34:54

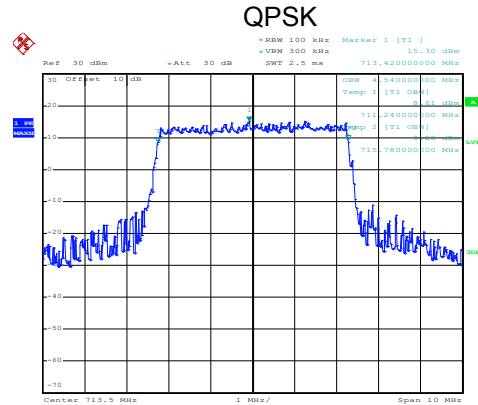


Date: 16.JUL.2020 17:34:50

### Middle channel



Date: 16.JUL.2020 17:35:15

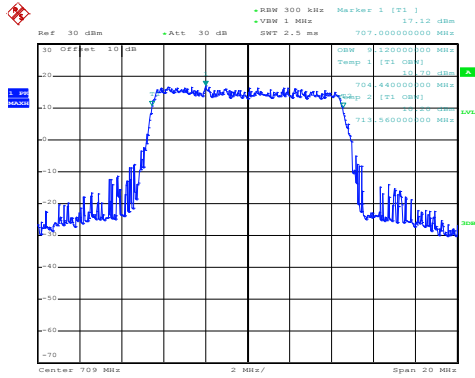


Date: 16.JUL.2020 17:35:09

### Highest channel

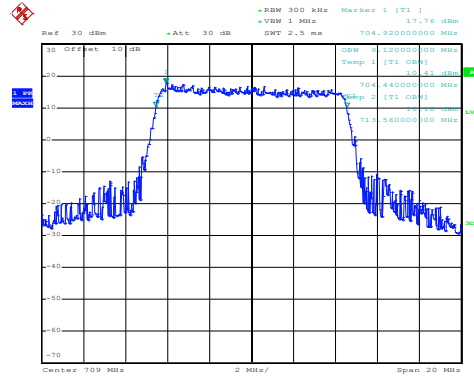
## LTE Band 17: 99% Occupancy bandwidth BW: 10MHz

### 16QAM



Date: 16.JUL.2020 17:36:25

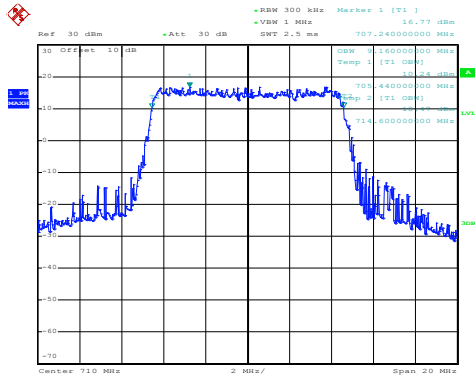
### QPSK



Date: 16.JUL.2020 17:36:20

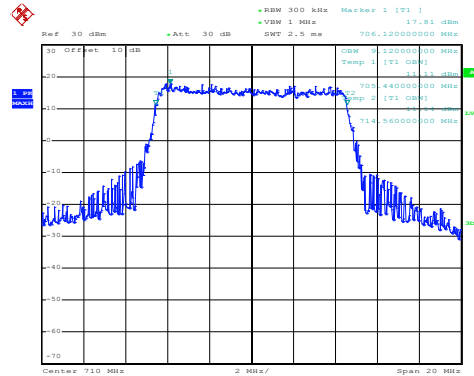
### Lowest channel

### 16QAM



Date: 16.JUL.2020 17:36:44

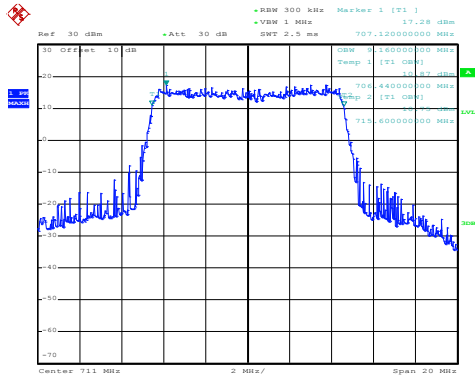
### QPSK



Date: 16.JUL.2020 17:36:39

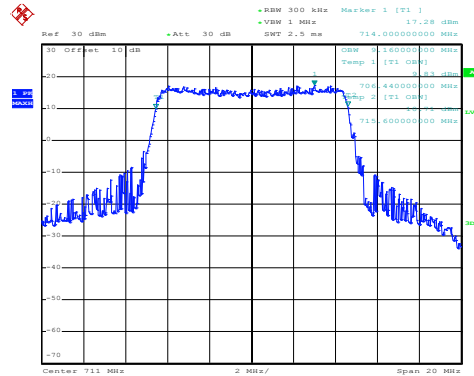
### Middle channel

### 16QAM



Date: 16.JUL.2020 17:37:31

### QPSK



Date: 16.JUL.2020 17:37:26

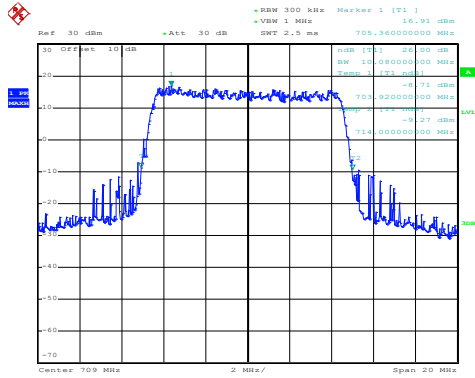
### Highest channel





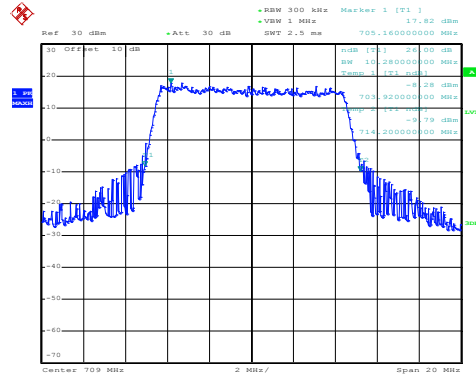
LTE Band 17: -26dBc bandwidth  
BW: 10MHz

16QAM



Date: 16.JUL.2020 17:36:12

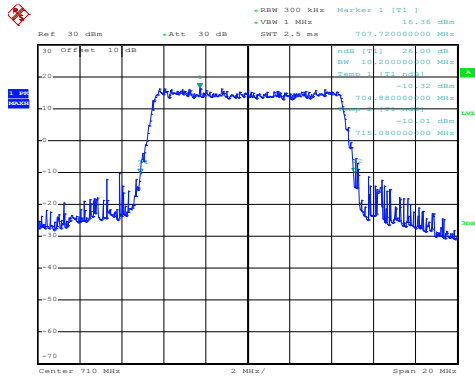
QPSK



Date: 16.JUL.2020 17:36:08

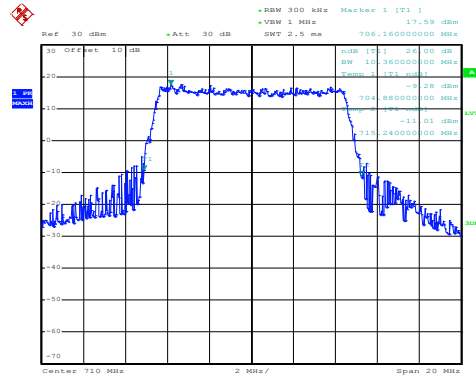
Lowest channel

16QAM



Date: 16.JUL.2020 17:36:57

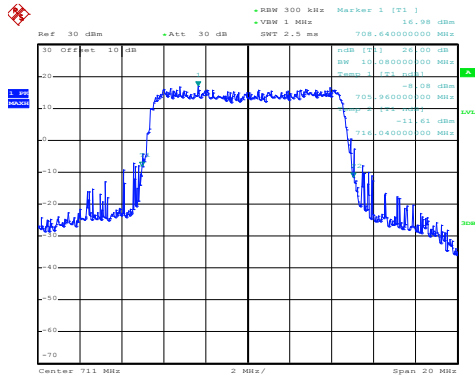
QPSK



Date: 16.JUL.2020 17:36:53

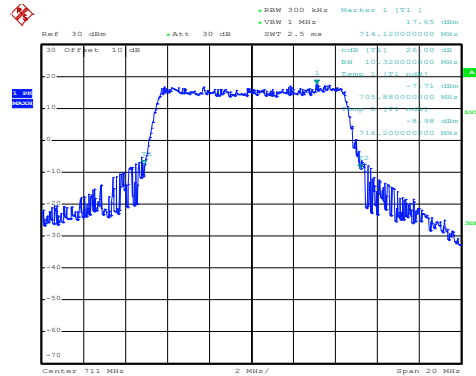
Middle channel

16QAM



Date: 16.JUL.2020 17:37:17

QPSK



Date: 16.JUL.2020 17:37:13

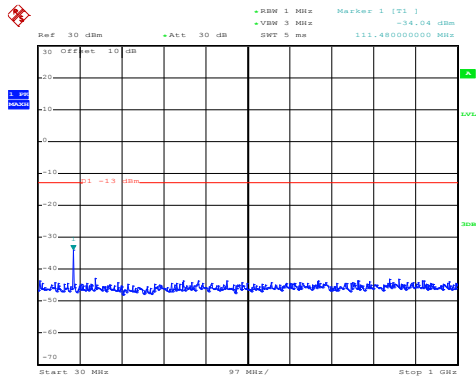
Highest channel

## 6.4 Out of band emission at antenna terminals

Test Requirement:	Part 22.917(a), Part 24.238 (a), part 27.53(g), part 27.53(h), Part 27.53(m)
Limit:	<p>LTE Band 2 &amp; 4 &amp; 5 &amp; 12 &amp; 17: The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least <math>43 + 10 \log_{10}(P)</math> dB (-13 dBm).</p> <p>LTE Band 7: For mobile digital stations, the attenuation factor shall be not less than <math>40 + 10 \log (P)</math> dB on all frequencies between the channel edge and 5 megahertz from the channel edge, <math>43 + 10 \log (P)</math> dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and <math>55 + 10 \log (P)</math> dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that <math>43 + 10 \log (P)</math> dB on all frequencies between 2490.5 MHz and 2496 MHz and <math>55 + 10 \log (P)</math> dB at or below 2490.5 MHz.</p>
Test Setup:	
Test Procedure:	<ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.</li> <li>2 For the out of band: For Band 5 &amp; 12 &amp; 17 set the RBW=100 kHz, VBW=300 kHz and for Band 2 &amp; 4 &amp; 7 set the RBW=1 MHz, VBW=3 MHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic.</li> <li>3 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.</li> </ol>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	Pre-scan all RB Size and offset, and found the RB Size and offset of worst case, so the report shows only the worst case test data.

Test plots as follows (Conducted spurious emission) (worst case):  
**LTE Band 2 part:**

LTE Band 2: 16 QAM & RB Size 1  
 BW: 1.4MHz  
 Lowest channel



Date: 16.JUL.2020 15:26:25

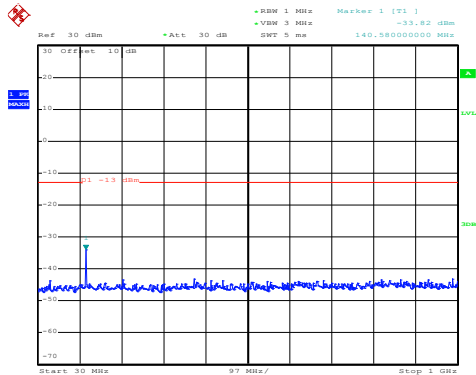
30MHz~1GHz



Date: 16.JUL.2020 15:04:46

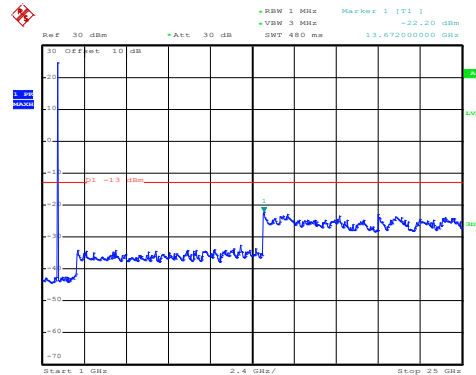
1GHz~25GHz

Middle channel



Date: 16.JUL.2020 15:26:40

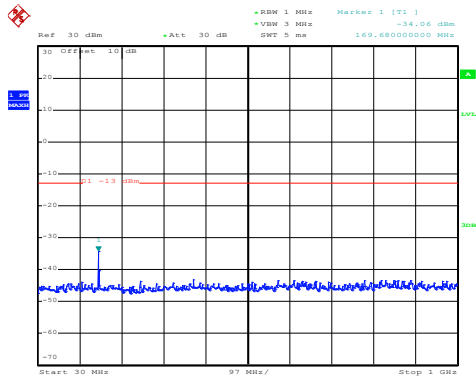
30MHz~1GHz



Date: 16.JUL.2020 15:05:14

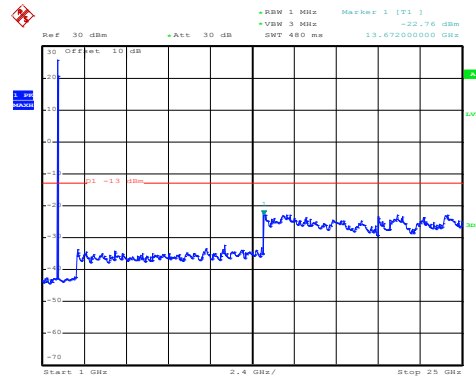
1GHz~25GHz

High channel



Date: 16.JUL.2020 15:26:58

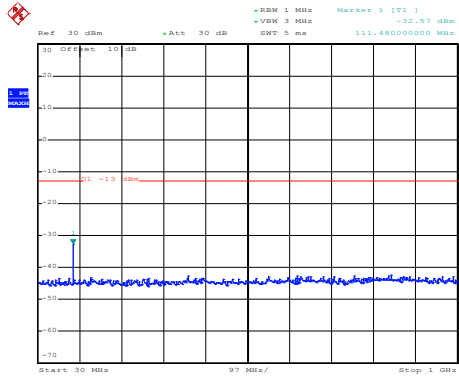
30MHz~1GHz



Date: 16.JUL.2020 15:05:39

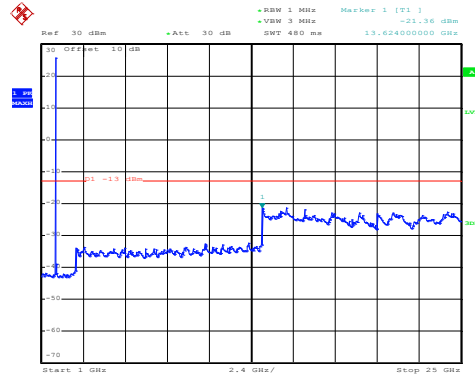
1GHz~25GHz

## LTE Band 2: QPSK & RB Size 1 BW: 1.4MHz Lowest channel



Date: 16.JUL.2020 15:26:20

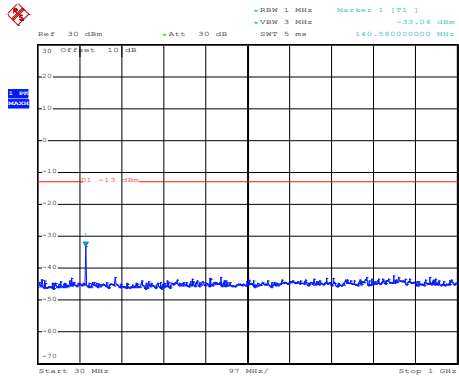
30MHz~1GHz



Date: 16.JUL.2020 15:04:37

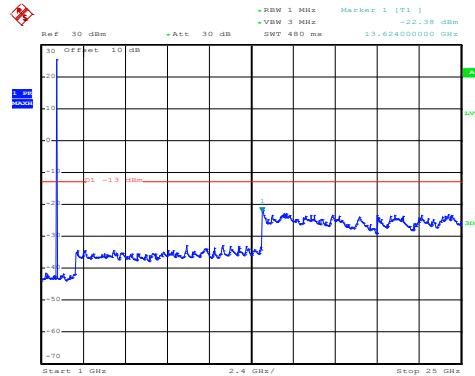
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:26:36

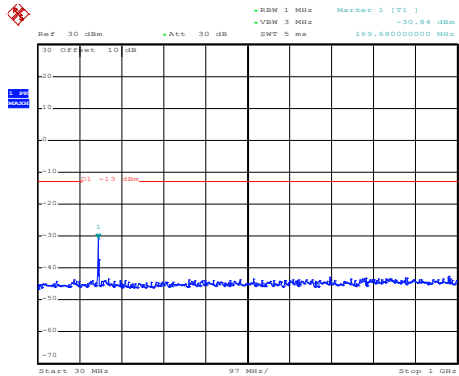
30MHz~1GHz



Date: 16.JUL.2020 15:05:08

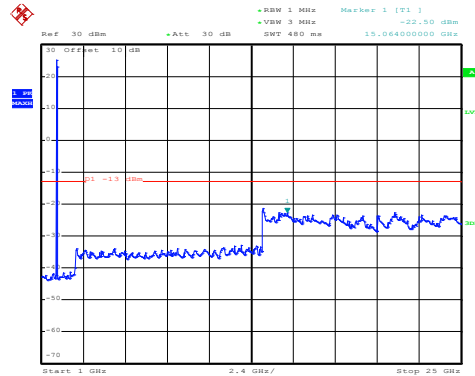
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:26:54

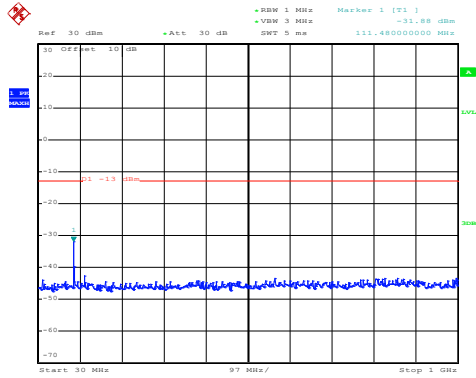
30MHz~1GHz



Date: 16.JUL.2020 15:05:32

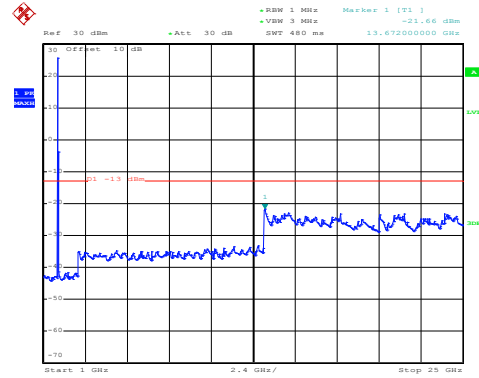
1GHz~25GHz

## LTE Band 2: 16 QAM & RB Size 1 BW: 20MHz Lowest channel



Date: 16.JUL.2020 15:27:30

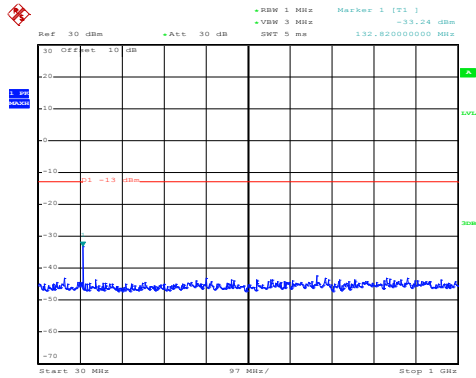
30MHz~1GHz



Date: 16.JUL.2020 15:06:17

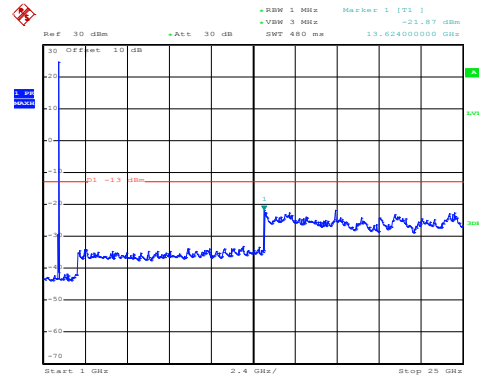
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:27:45

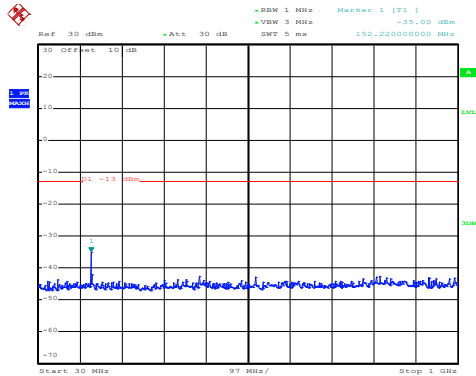
30MHz~1GHz



Date: 16.JUL.2020 15:06:39

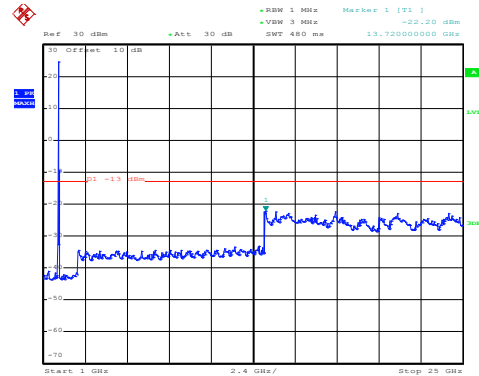
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:28:01

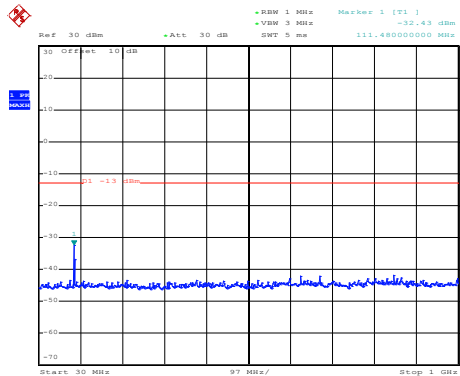
30MHz~1GHz



Date: 16.JUL.2020 15:07:04

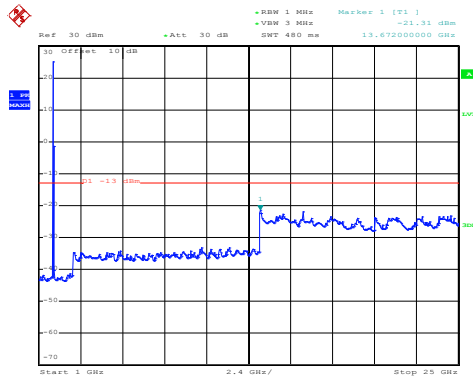
1GHz~25GHz

## LTE Band 2: QPSK & RB Size 1 BW: 20MHz Lowest channel



Date: 16.JUL.2020 15:27:27

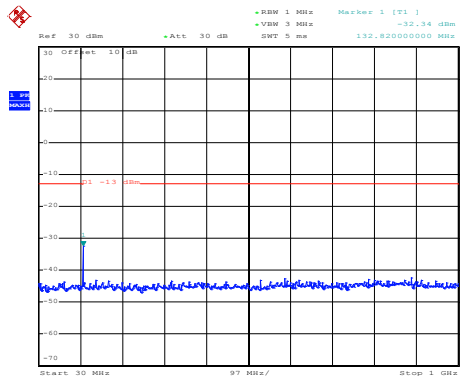
30MHz~1GHz



Date: 16.JUL.2020 15:06:09

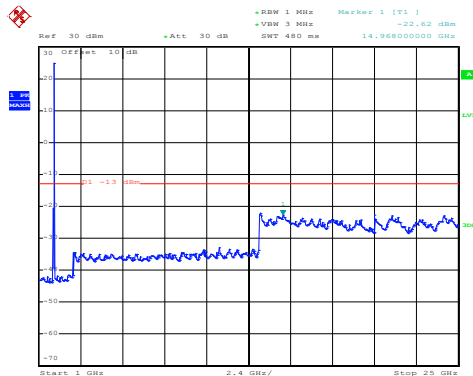
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:27:42

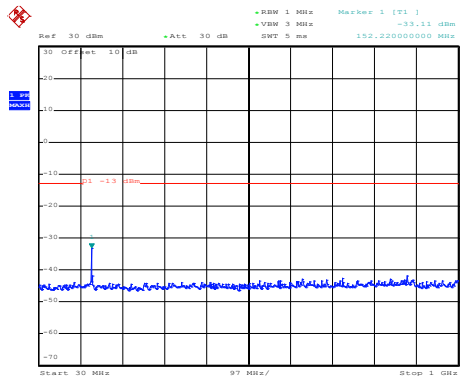
30MHz~1GHz



Date: 16.JUL.2020 15:06:31

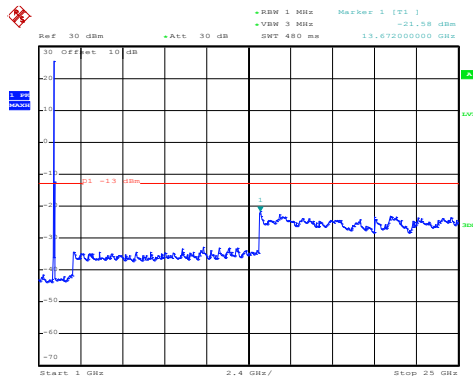
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:27:57

30MHz~1GHz

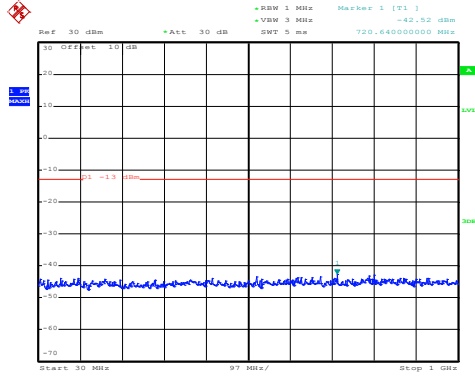


Date: 16.JUL.2020 15:06:55

1GHz~25GHz

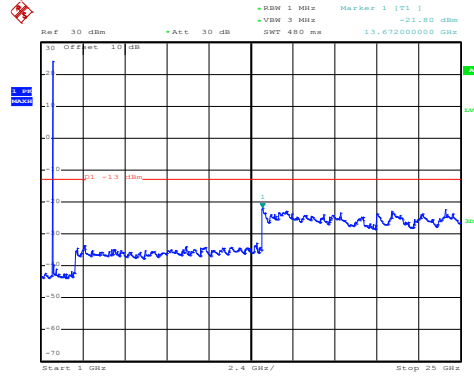
### LTE Band 4 part:

#### LTE Band 4: 16 QAM & RB Size 1 BW: 1.4MHz Lowest channel



Date: 16.JUL.2020 15:29:06

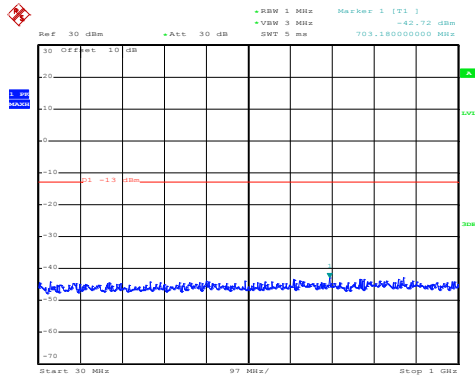
30MHz~1GHz



Date: 16.JUL.2020 15:07:49

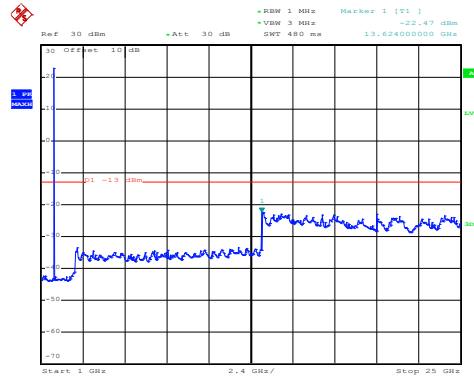
1GHz~25GHz

#### Middle channel



Date: 16.JUL.2020 15:29:18

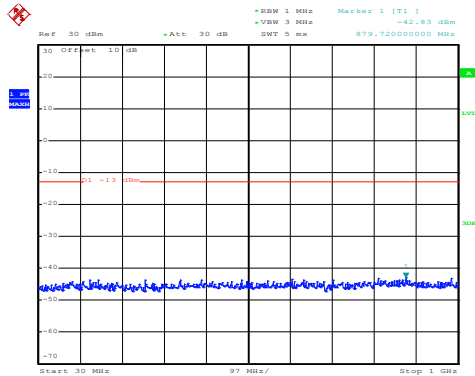
30MHz~1GHz



Date: 16.JUL.2020 15:08:12

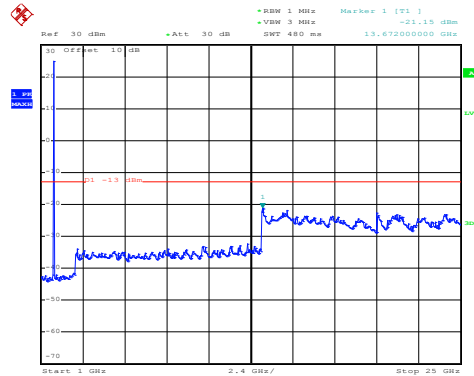
1GHz~25GHz

#### High channel



Date: 16.JUL.2020 15:29:30

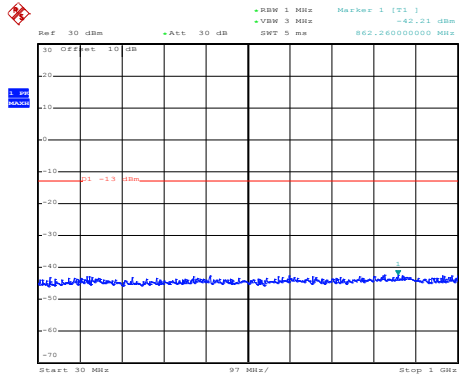
30MHz~1GHz



Date: 16.JUL.2020 15:08:37

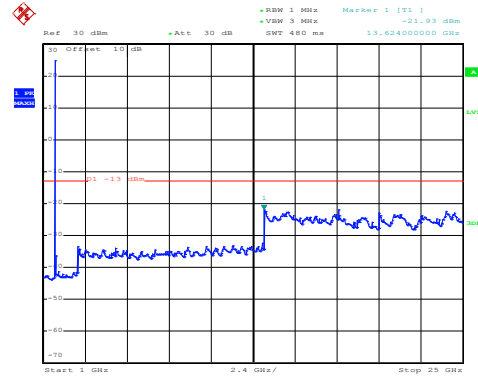
1GHz~25GHz

## LTE Band 4: QPSK & RB Size 1 BW: 1.4MHz Lowest channel



Date: 16.JUL.2020 15:29:02

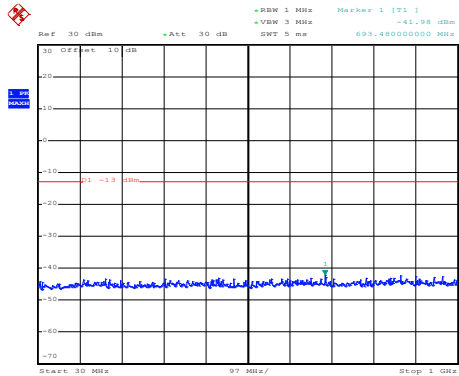
30MHz~1GHz



Date: 16.JUL.2020 15:07:41

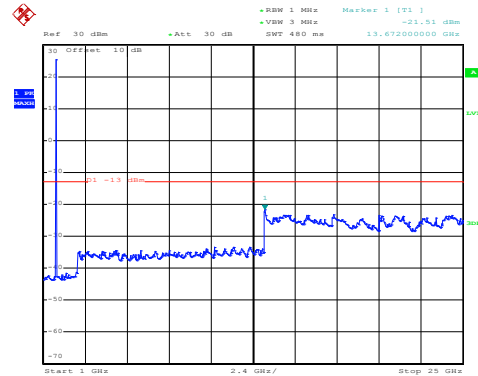
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:29:14

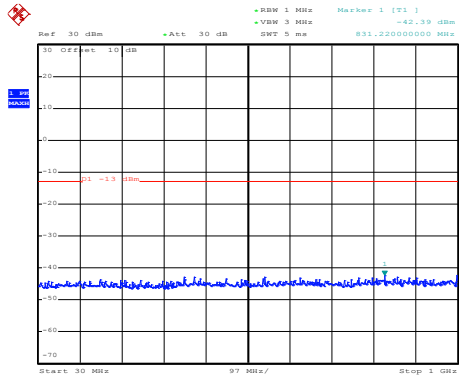
30MHz~1GHz



Date: 16.JUL.2020 15:08:05

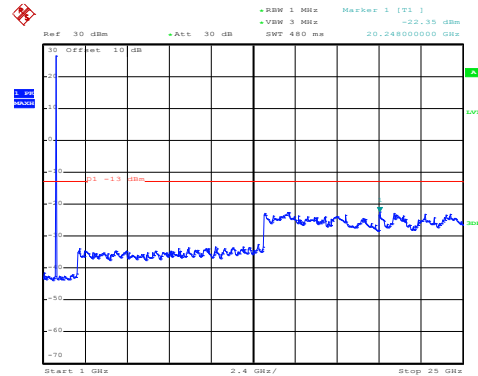
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:29:25

30MHz~1GHz

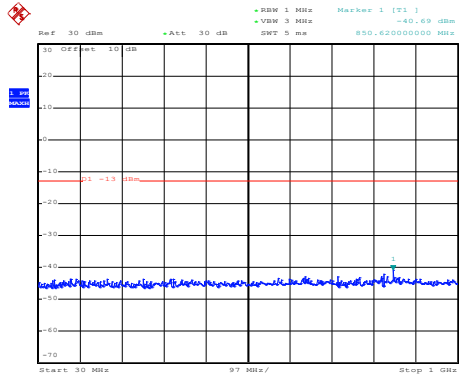


Date: 16.JUL.2020 15:08:26

1GHz~25GHz

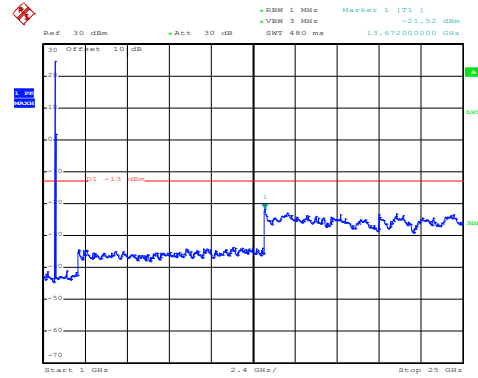


## LTE Band 4: 16 QAM & RB Size 1 BW: 20MHz Lowest channel



Date: 16.JUL.2020 15:29:47

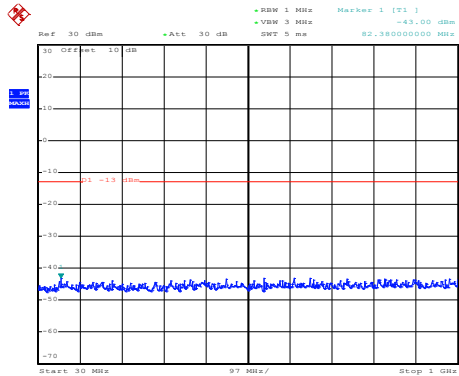
30MHz~1GHz



Date: 16.JUL.2020 15:09:06

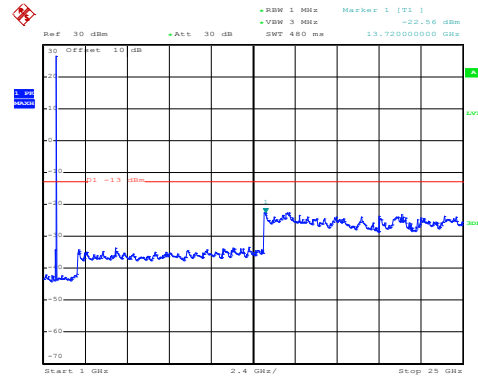
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:30:26

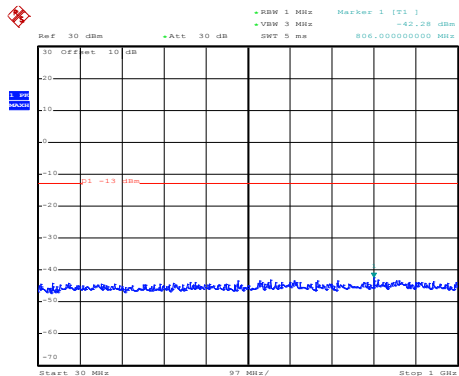
30MHz~1GHz



Date: 16.JUL.2020 15:09:27

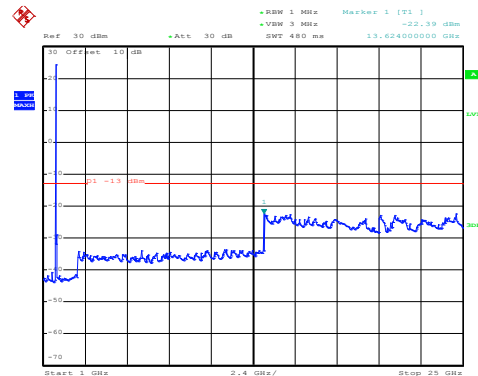
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:30:40

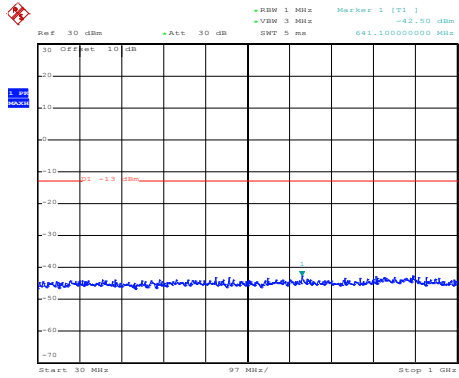
30MHz~1GHz



Date: 16.JUL.2020 15:09:50

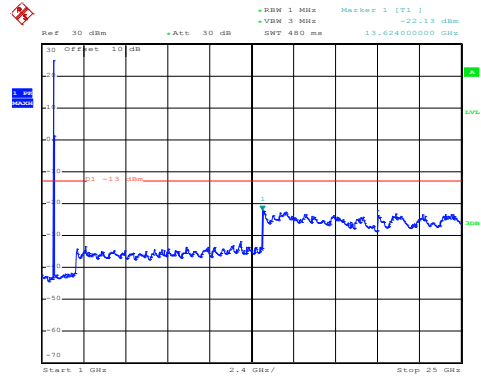
1GHz~25GHz

## LTE Band 4: QPSK & RB Size 1 BW: 20MHz Lowest channel



Date: 16.JUL.2020 15:29:39

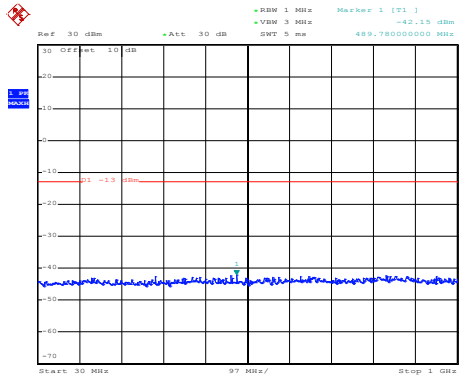
30MHz~1GHz



Date: 16.JUL.2020 15:08:58

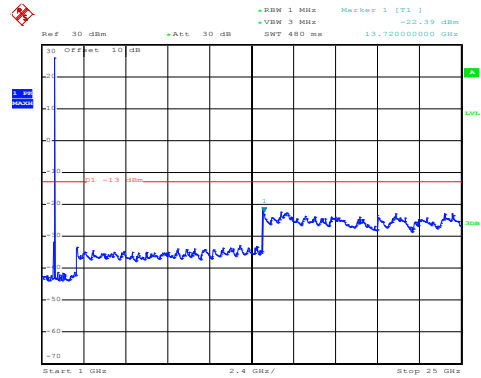
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:30:22

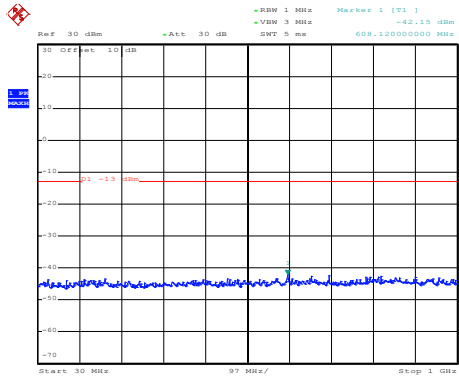
30MHz~1GHz



Date: 16.JUL.2020 15:09:20

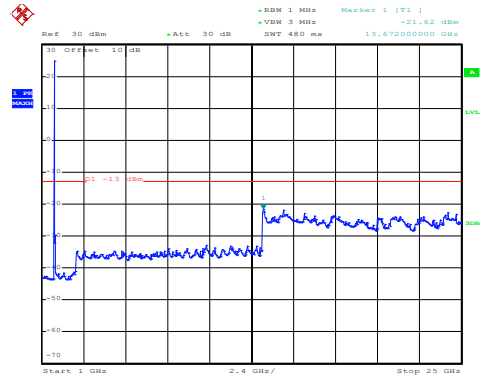
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:30:35

30MHz~1GHz

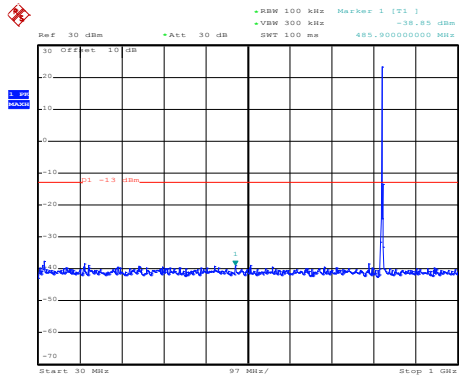


Date: 16.JUL.2020 15:09:41

1GHz~25GHz

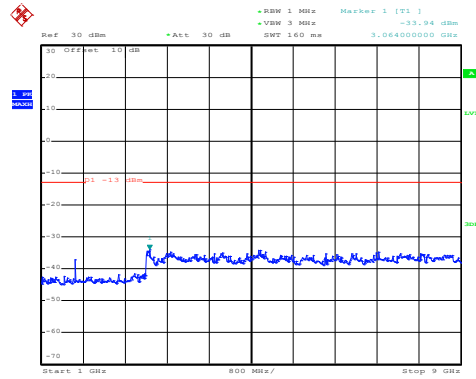
LTE Band 5 part:

LTE Band 5: 16 QAM & RB Size 1  
 BW: 1.4MHz  
 Lowest channel



Date: 16.JUL.2020 15:34:51

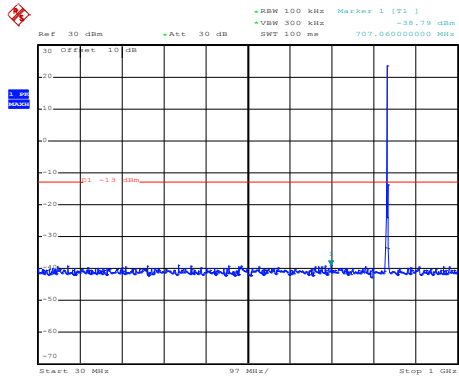
30MHz~1GHz



Date: 16.JUL.2020 15:10:31

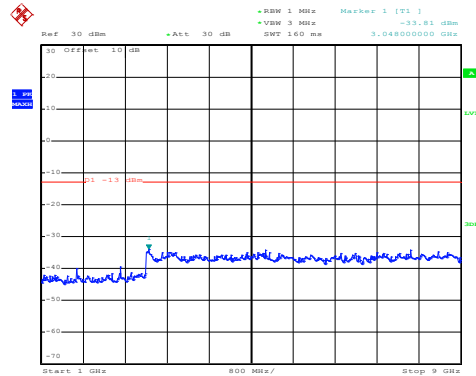
1GHz~9GHz

Middle channel



Date: 16.JUL.2020 15:35:17

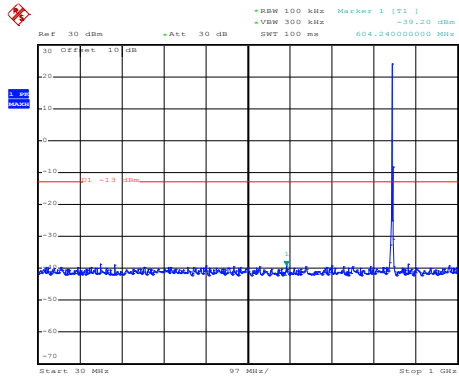
30MHz~1GHz



Date: 16.JUL.2020 15:10:54

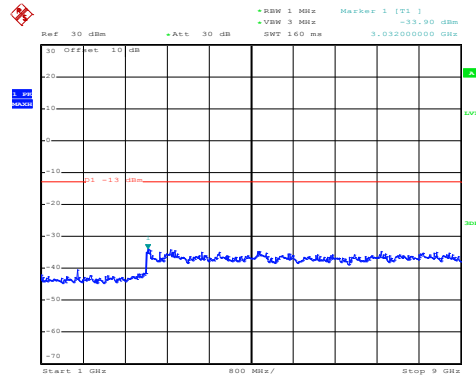
1GHz~9GHz

High channel



Date: 16.JUL.2020 15:35:40

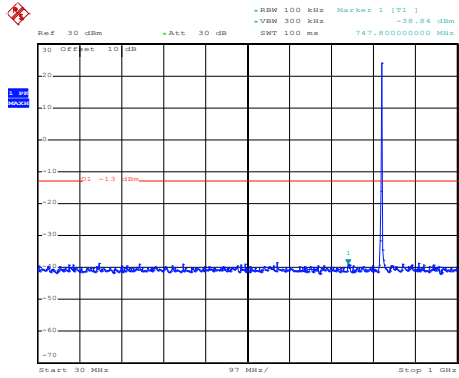
30MHz~1GHz



Date: 16.JUL.2020 15:11:11

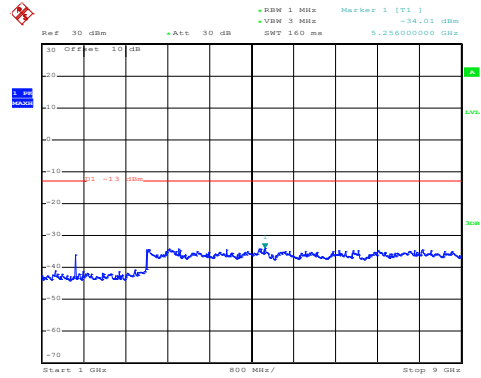
1GHz~9GHz

## LTE Band 5: QPSK & RB Size 1 BW: 1.4MHz Lowest channel



Date: 16.JUL.2020 15:34:39

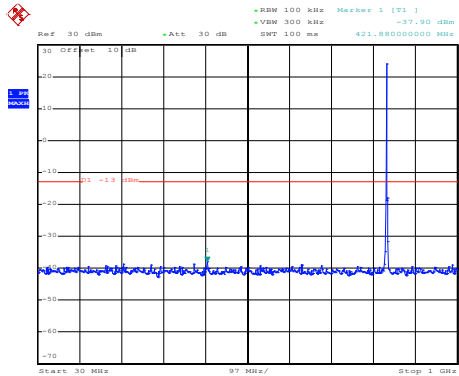
30MHz~1GHz



Date: 16.JUL.2020 15:10:27

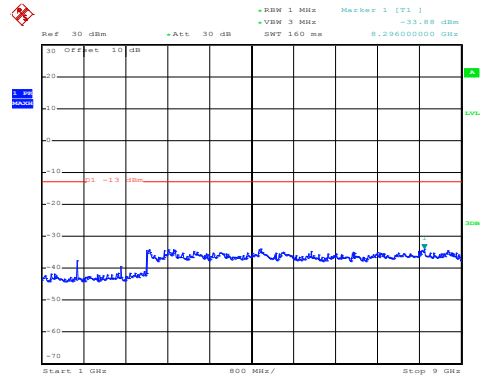
1GHz~9GHz

## Middle channel



Date: 16.JUL.2020 15:35:07

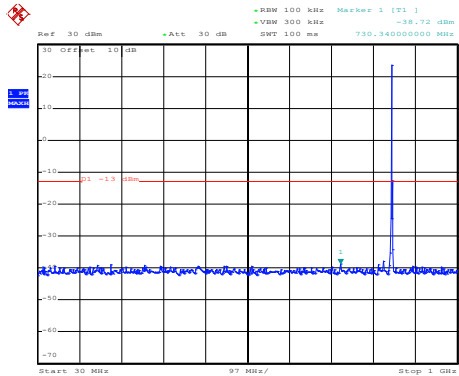
30MHz~1GHz



Date: 16.JUL.2020 15:10:48

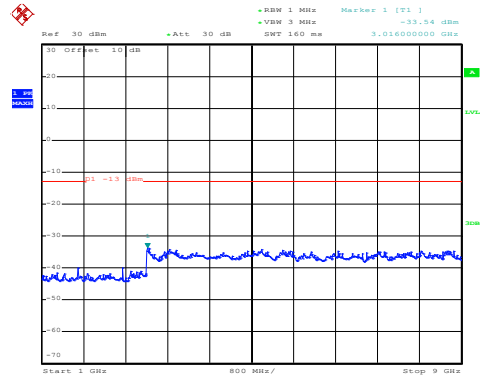
1GHz~9GHz

## High channel



Date: 16.JUL.2020 15:35:31

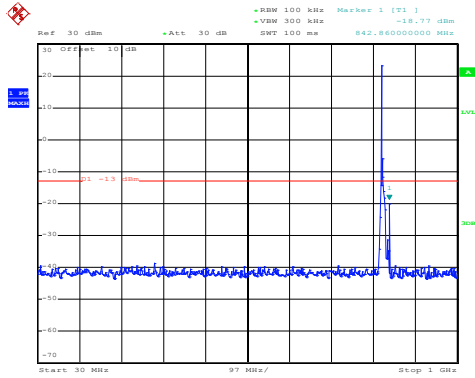
30MHz~1GHz



Date: 16.JUL.2020 15:11:06

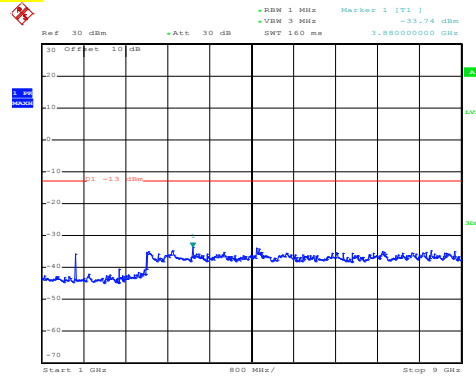
1GHz~9GHz

**LTE Band 5: 16 QAM & RB Size 1**  
**BW: 10MHz**  
**Lowest channel**



Date: 16.JUL.2020 15:38:52

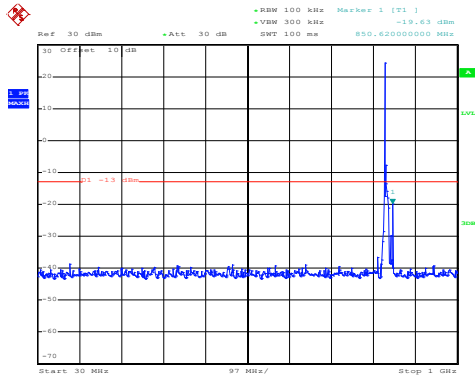
30MHz~1GHz



Date: 16.JUL.2020 15:11:45

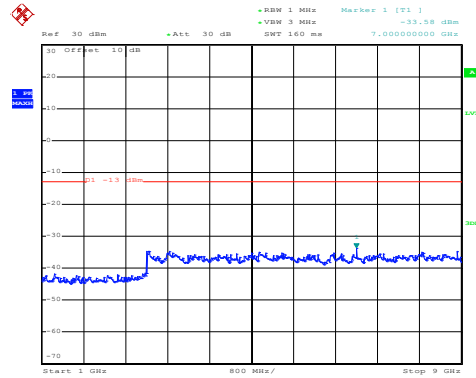
1GHz~9GHz

**Middle channel**



Date: 16.JUL.2020 15:39:09

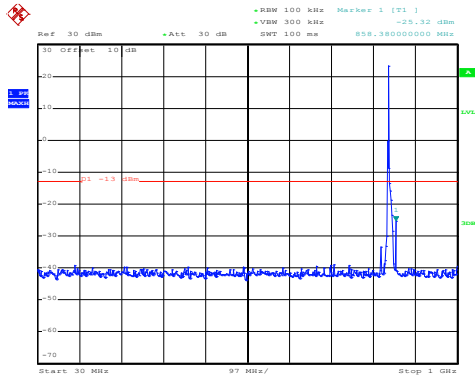
30MHz~1GHz



Date: 16.JUL.2020 15:12:03

1GHz~9GHz

**High channel**

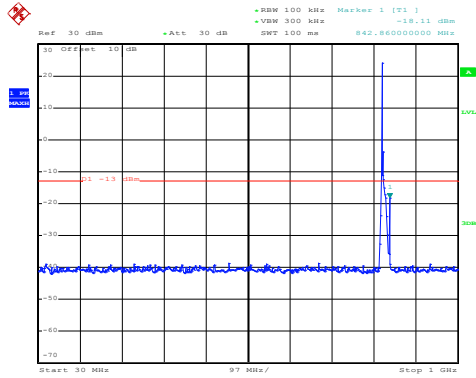


Date: 16.JUL.2020 15:39:26

30MHz~1GHz

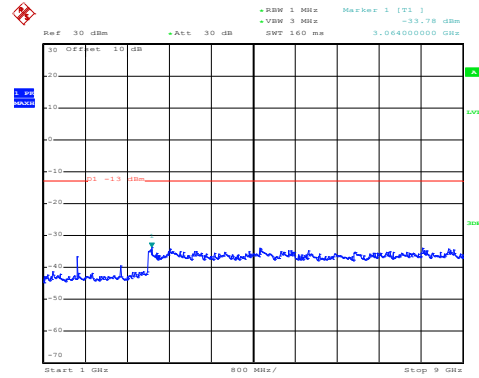
1GHz~9GHz

## LTE Band 5: QPSK & RB Size 1 BW: 10MHz Lowest channel



Date: 16.JUL.2020 15:38:48

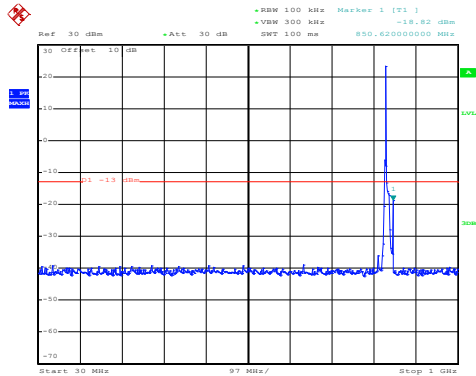
30MHz~1GHz



Date: 16.JUL.2020 15:11:41

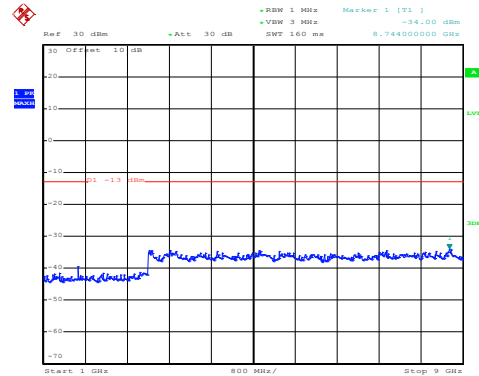
1GHz~9GHz

## Middle channel



Date: 16.JUL.2020 15:39:05

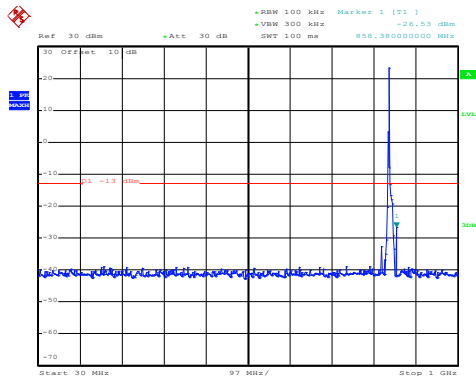
30MHz~1GHz



Date: 16.JUL.2020 15:11:59

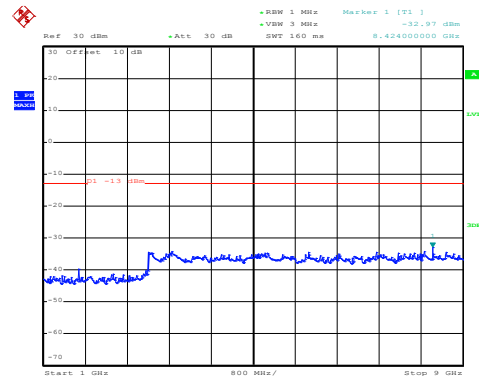
1GHz~9GHz

## High channel



Date: 16.JUL.2020 15:39:22

30MHz~1GHz

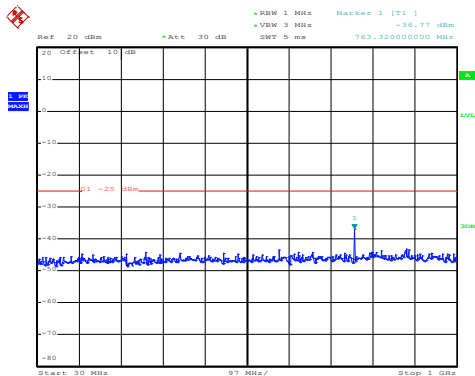


Date: 16.JUL.2020 15:12:19

1GHz~9GHz

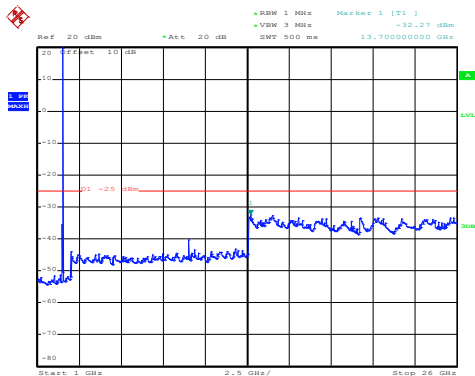
LTE Band 7 part:

LTE Band 7: 16 QAM & RB Size 1  
 BW: 5MHz  
 Lowest channel



Date: 16.JUL.2020 15:31:30

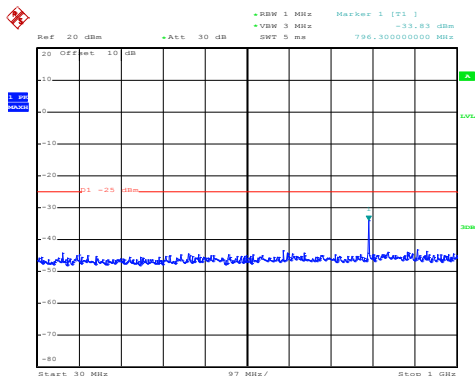
30MHz~1GHz



Date: 16.JUL.2020 15:15:11

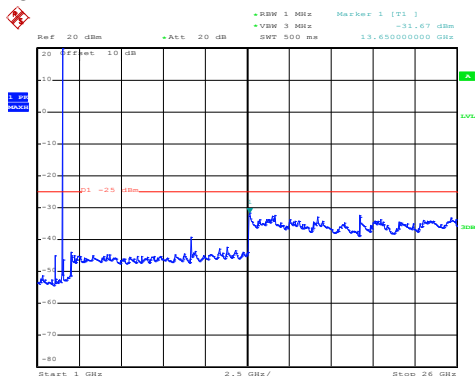
1GHz~25GHz

Middle channel



Date: 16.JUL.2020 15:31:44

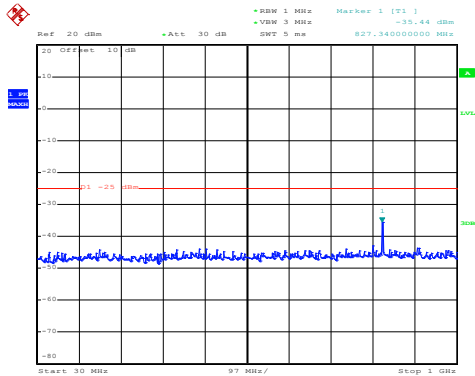
30MHz~1GHz



Date: 16.JUL.2020 15:15:35

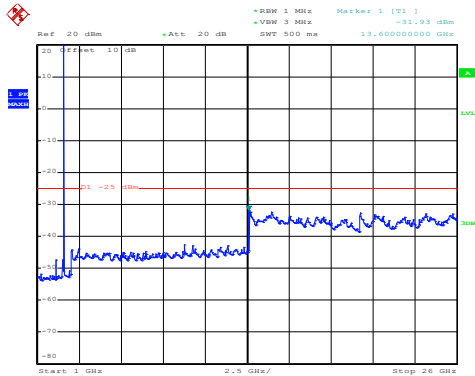
1GHz~25GHz

High channel



Date: 16.JUL.2020 15:32:00

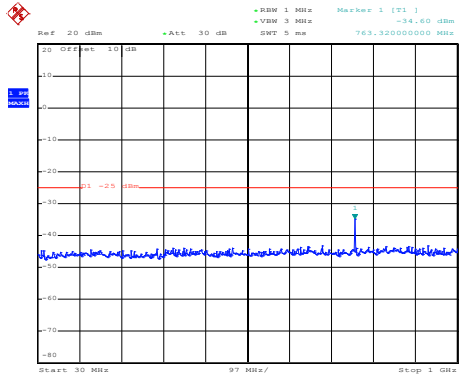
30MHz~1GHz



Date: 16.JUL.2020 15:15:56

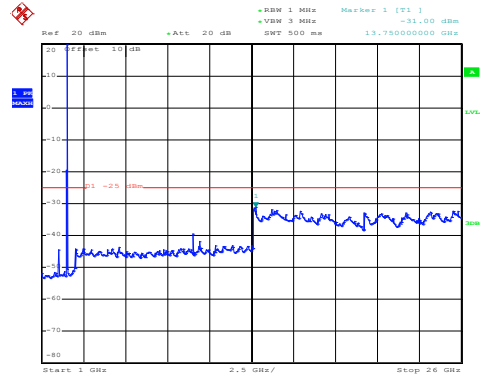
1GHz~25GHz

## LTE Band 7: QPSK & RB Size 1 BW: 5MHz Lowest channel



Date: 16.JUL.2020 15:31:25

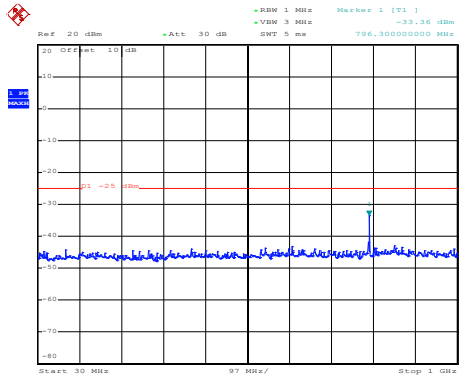
30MHz~1GHz



Date: 16.JUL.2020 15:15:05

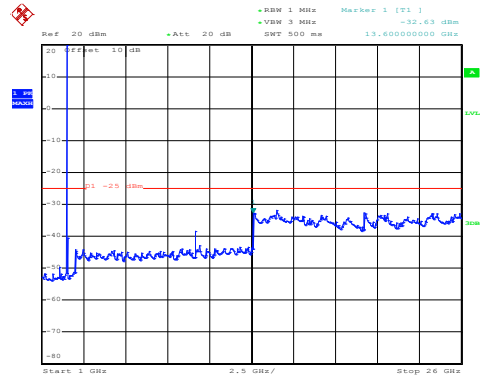
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:31:39

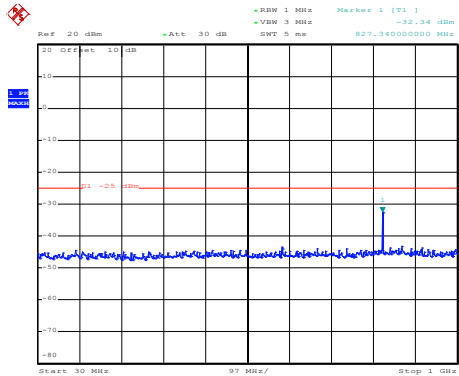
30MHz~1GHz



Date: 16.JUL.2020 15:15:26

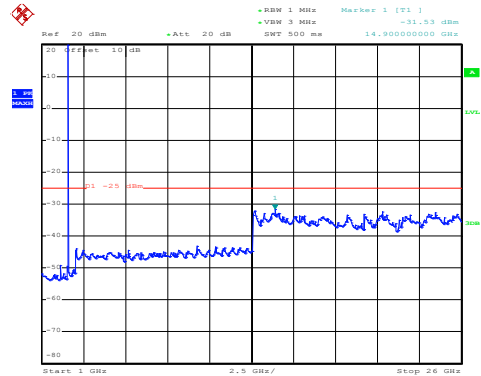
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:31:56

30MHz~1GHz

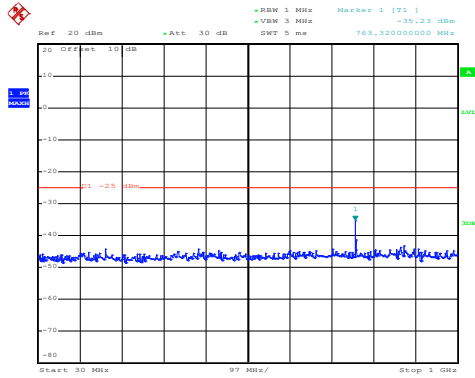


Date: 16.JUL.2020 15:15:48

1GHz~25GHz

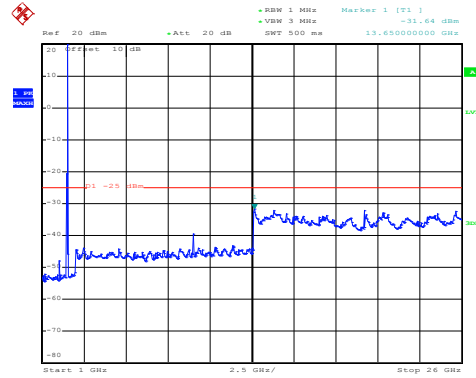


## LTE Band 7: 16 QAM & RB Size 1 BW: 20MHz Lowest channel



Date: 16.JUL.2020 15:33:18

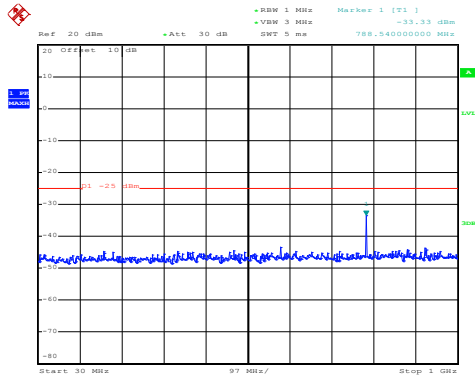
30MHz~1GHz



Date: 16.JUL.2020 15:16:29

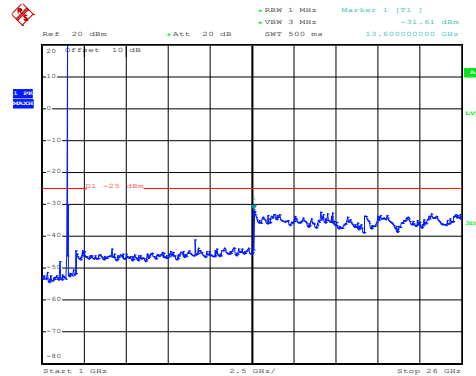
1GHz~25GHz

## Middle channel



Date: 16.JUL.2020 15:33:34

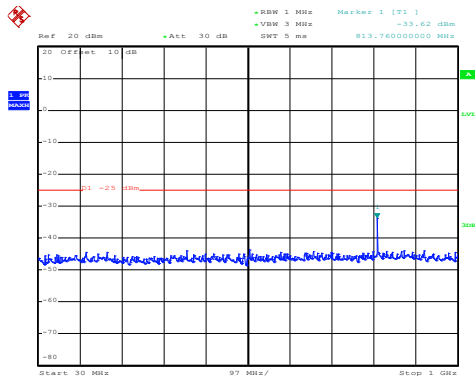
30MHz~1GHz



Date: 16.JUL.2020 15:16:52

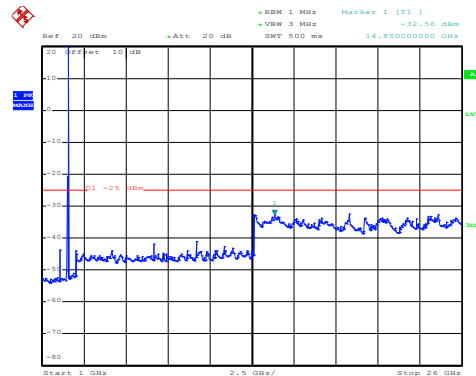
1GHz~25GHz

## High channel



Date: 16.JUL.2020 15:33:51

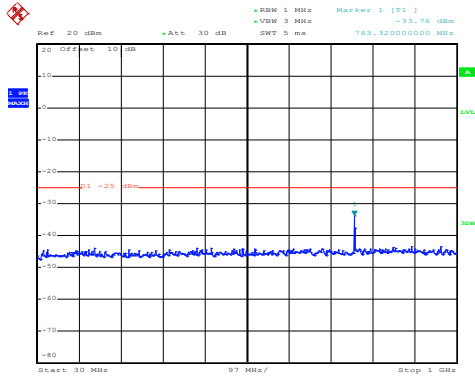
30MHz~1GHz



Date: 16.JUL.2020 15:17:12

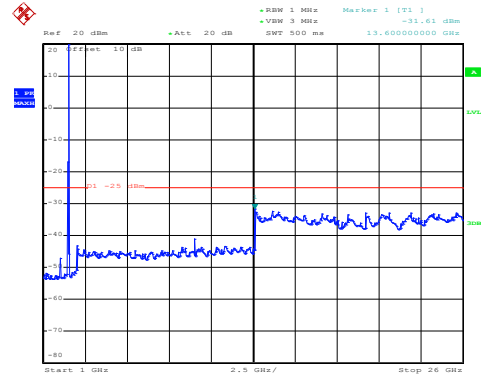
1GHz~25GHz

### LTE Band 7: QPSK & RB Size 1 BW: 20MHz Lowest channel



Date: 16.JUL.2020 15:33:14

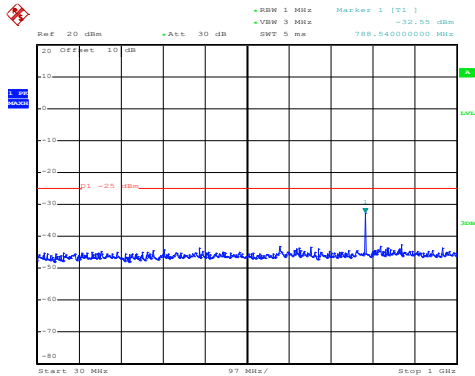
30MHz~1GHz



Date: 16.JUL.2020 15:16:21

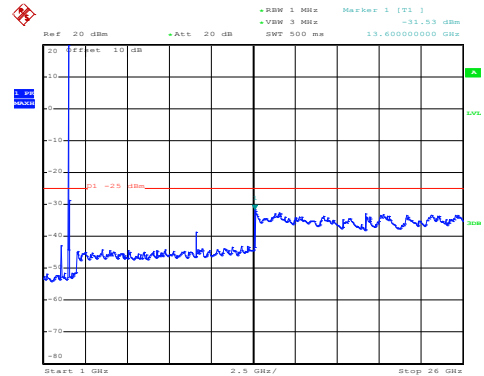
1GHz~25GHz

### Middle channel



Date: 16.JUL.2020 15:33:31

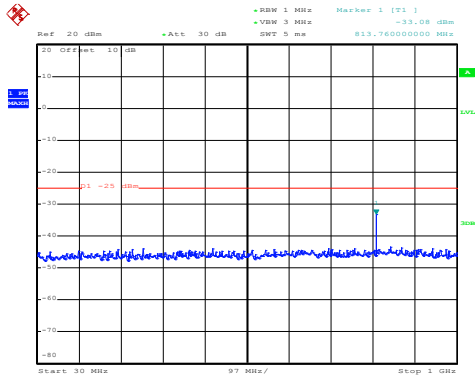
30MHz~1GHz



Date: 16.JUL.2020 15:16:43

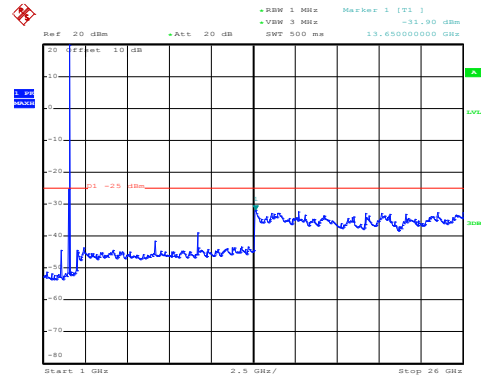
1GHz~25GHz

### High channel



Date: 16.JUL.2020 15:33:45

30MHz~1GHz

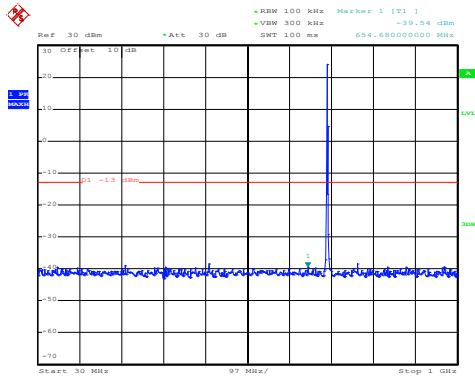


Date: 16.JUL.2020 15:17:05

1GHz~25GHz

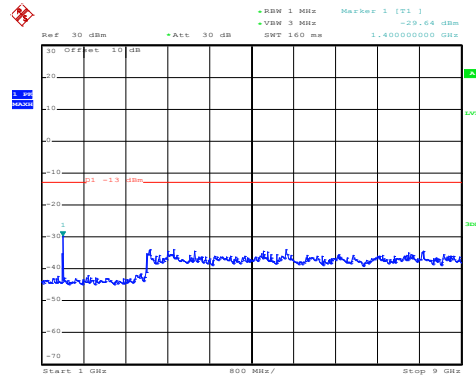
LTE Band 12 part:

LTE Band 12: 16 QAM & RB Size 1  
 BW: 1.4MHz  
 Lowest channel



Date: 16.JUL.2020 15:40:12

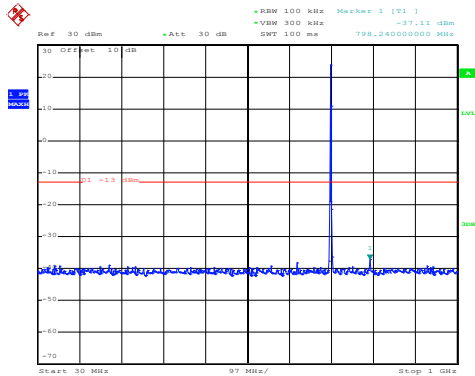
30MHz~1GHz



Date: 16.JUL.2020 15:18:27

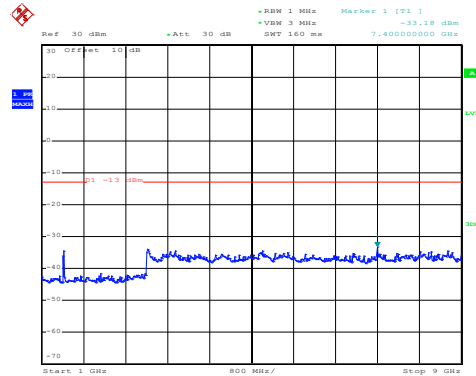
1GHz~9GHz

Middle channel



Date: 16.JUL.2020 15:40:39

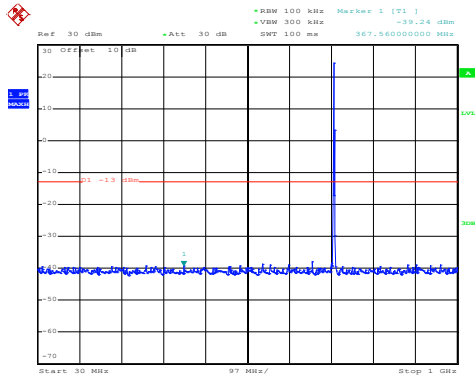
30MHz~1GHz



Date: 16.JUL.2020 15:18:44

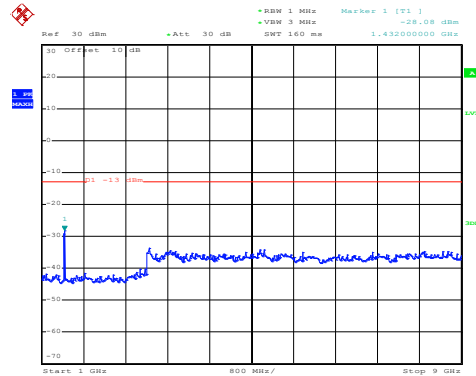
1GHz~9GHz

High channel



Date: 16.JUL.2020 15:41:12

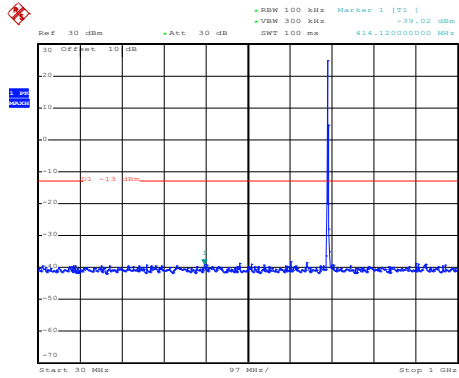
30MHz~1GHz



Date: 16.JUL.2020 15:19:04

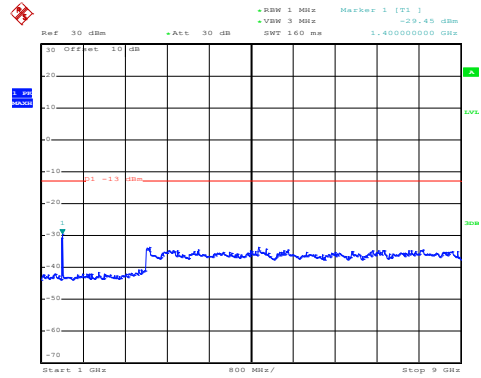
1GHz~9GHz

## LTE Band 12: QPSK & RB Size 1 BW: 1.4MHz Lowest channel



Date: 16.JUL.2020 15:40:05

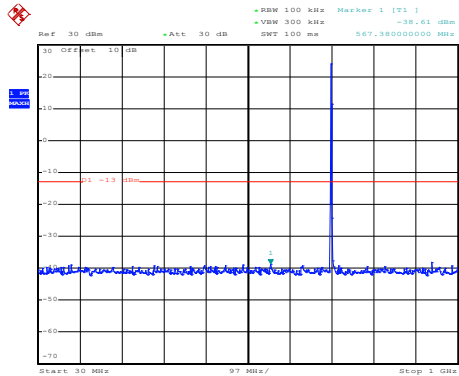
30MHz~1GHz



Date: 16.JUL.2020 15:18:23

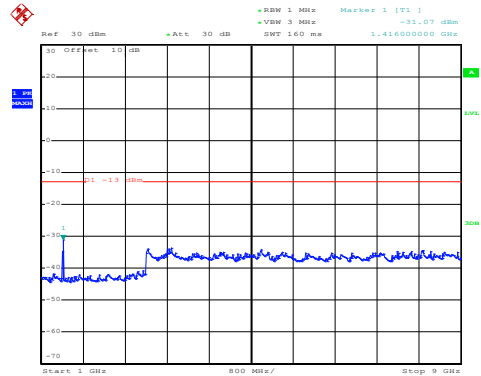
1GHz~9GHz

## Middle channel



Date: 16.JUL.2020 15:40:27

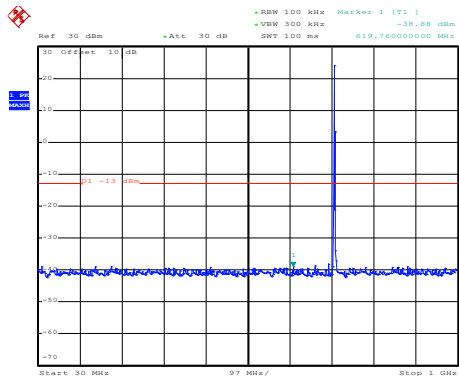
30MHz~1GHz



Date: 16.JUL.2020 15:18:39

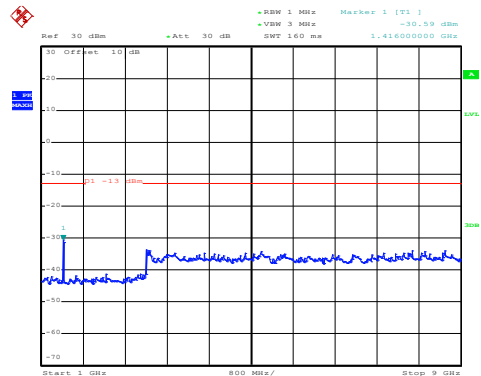
1GHz~9GHz

## High channel



Date: 16.JUL.2020 15:40:59

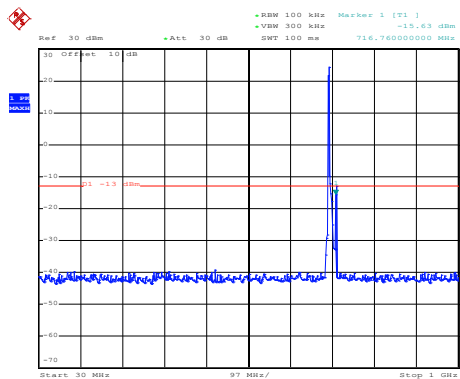
30MHz~1GHz



Date: 16.JUL.2020 15:18:58

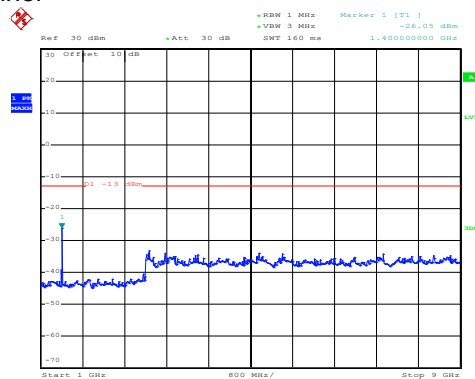
1GHz~9GHz

## LTE Band 12: 16 QAM & RB Size 1 BW: 10MHz Lowest channel



Date: 16.JUL.2020 15:42:41

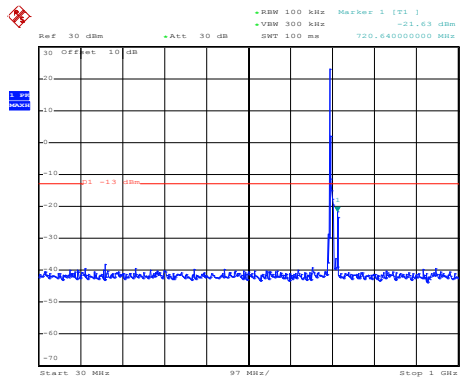
30MHz~1GHz



Date: 16.JUL.2020 15:19:41

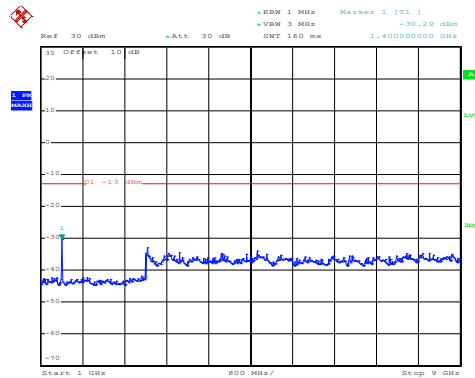
1GHz~9GHz

## Middle channel



Date: 16.JUL.2020 15:43:05

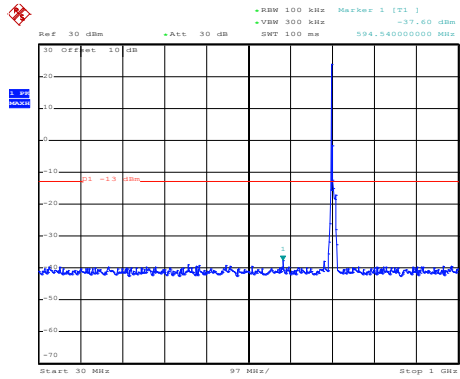
30MHz~1GHz



Date: 16.JUL.2020 15:20:01

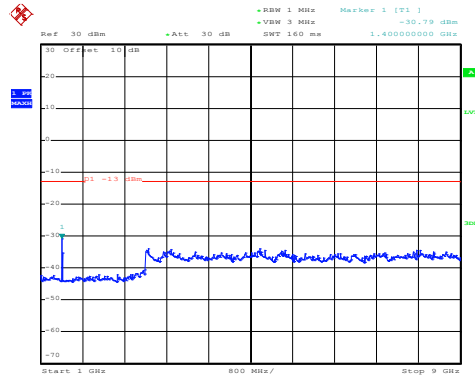
1GHz~9GHz

## High channel



Date: 16.JUL.2020 15:43:35

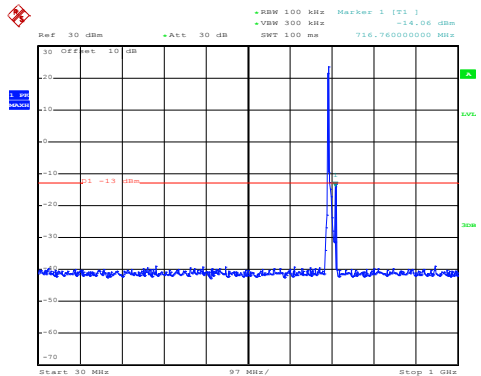
30MHz~1GHz



Date: 16.JUL.2020 15:20:21

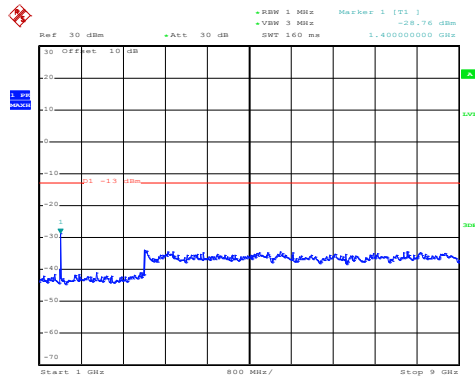
1GHz~9GHz

## LTE Band 12: QPSK & RB Size 1 BW: 10MHz Lowest channel



Date: 16.JUL.2020 15:42:36

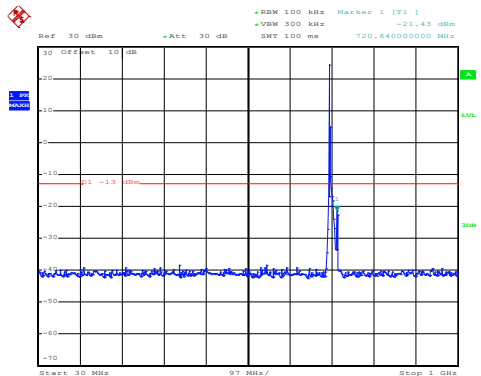
30MHz~1GHz



Date: 16.JUL.2020 15:19:34

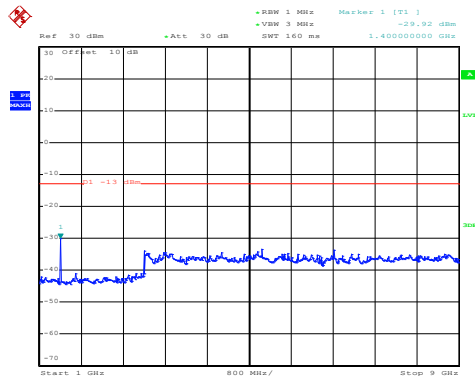
1GHz~9GHz

## Middle channel



Date: 16.JUL.2020 15:43:01

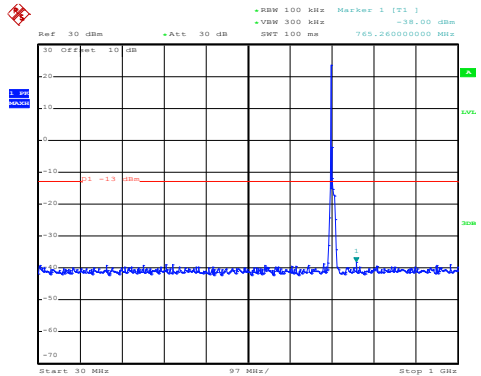
30MHz~1GHz



Date: 16.JUL.2020 15:19:53

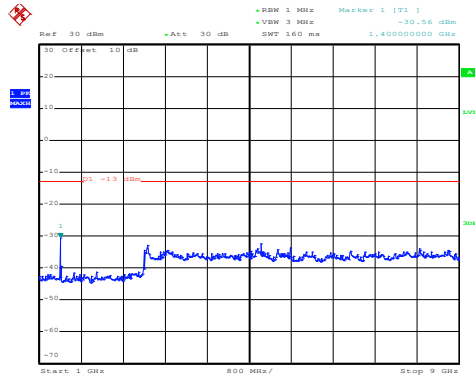
1GHz~9GHz

## High channel



Date: 16.JUL.2020 15:43:24

30MHz~1GHz

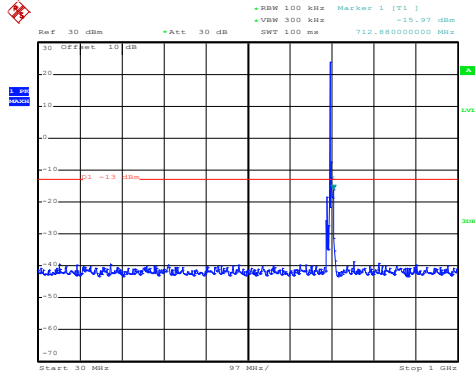


Date: 16.JUL.2020 15:20:14

1GHz~9GHz

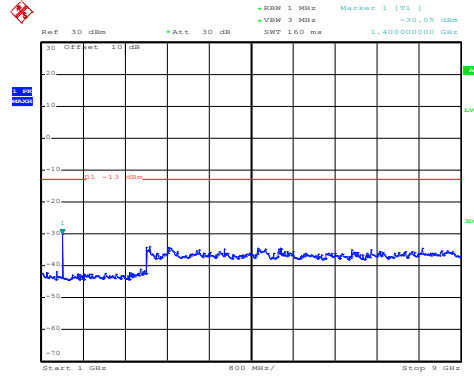
LTE Band 17 part:

LTE Band 17: 16 QAM & RB Size 1  
 BW: 5MHz  
 Lowest channel



Date: 16.JUL.2020 15:44:41

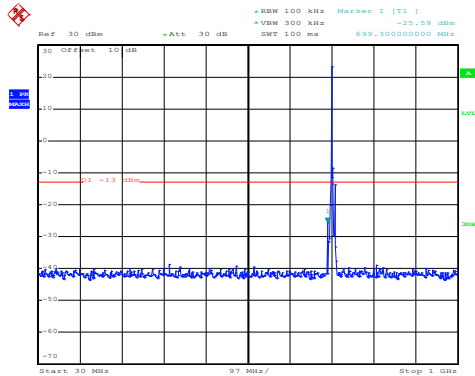
30MHz~1GHz



Date: 16.JUL.2020 15:21:14

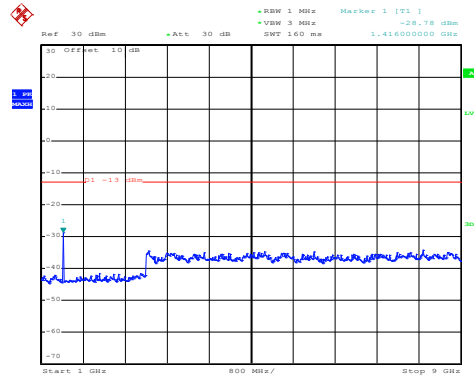
1GHz~9GHz

Middle channel



Date: 16.JUL.2020 15:45:13

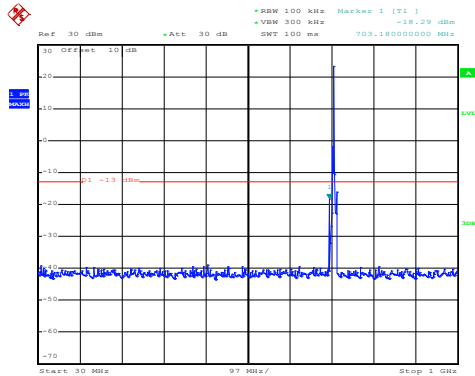
30MHz~1GHz



Date: 16.JUL.2020 15:21:36

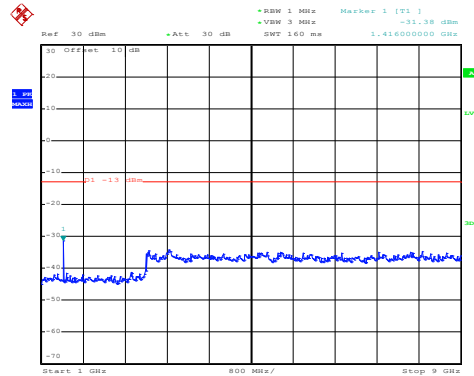
1GHz~9GHz

High channel



Date: 16.JUL.2020 15:45:34

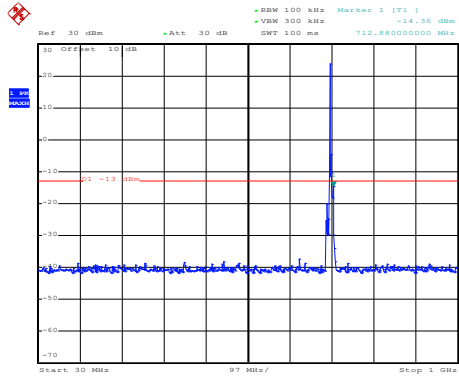
30MHz~1GHz



Date: 16.JUL.2020 15:21:55

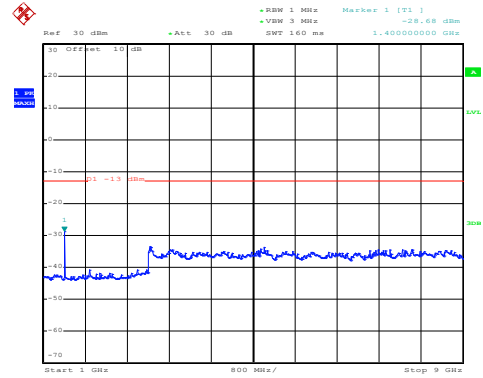
1GHz~9GHz

### LTE Band 17: QPSK & RB Size 1 BW: 5MHz Lowest channel



Date: 16.JUL.2020 15:44:33

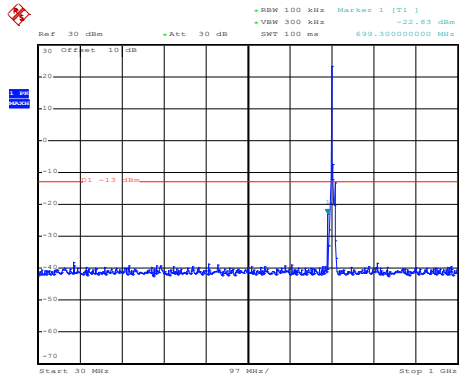
30MHz~1GHz



Date: 16.JUL.2020 15:21:08

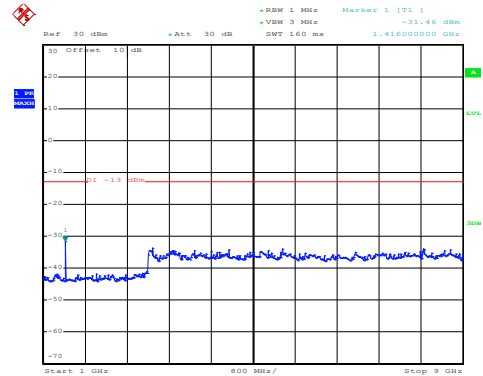
1GHz~9GHz

### Middle channel



Date: 16.JUL.2020 15:45:08

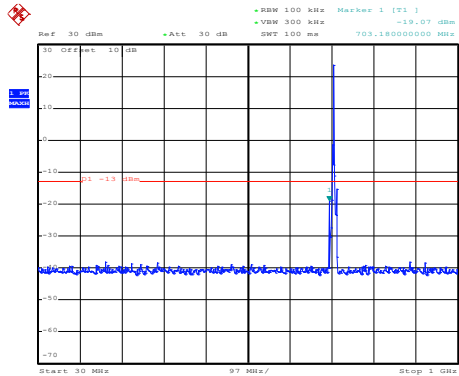
30MHz~1GHz



Date: 16.JUL.2020 15:21:30

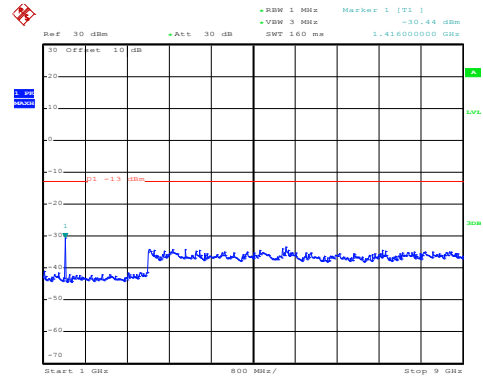
1GHz~9GHz

### High channel



Date: 16.JUL.2020 15:45:30

30MHz~1GHz

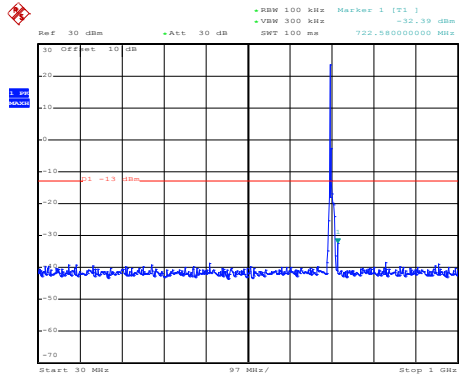


Date: 16.JUL.2020 15:21:49

1GHz~9GHz

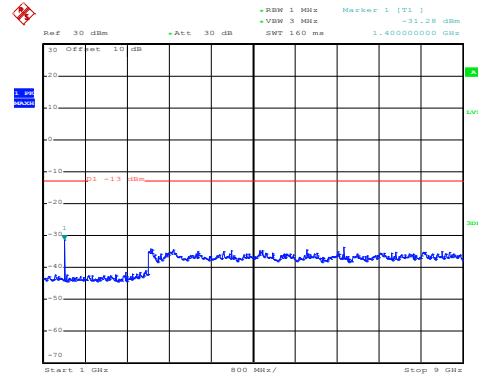


## LTE Band 17: 16 QAM & RB Size 1 BW: 10MHz Lowest channel



Date: 16.JUL.2020 15:46:06

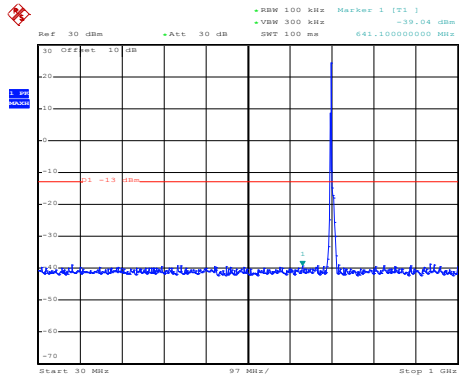
30MHz~1GHz



Date: 16.JUL.2020 15:22:26

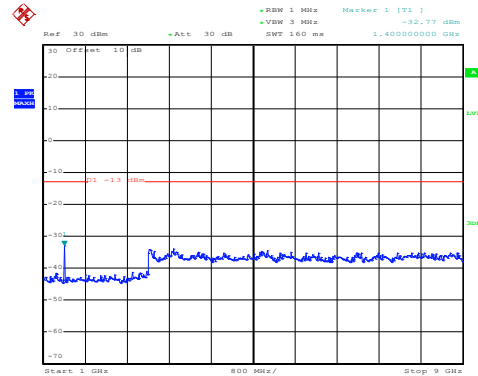
1GHz~9GHz

## Middle channel



Date: 16.JUL.2020 15:46:30

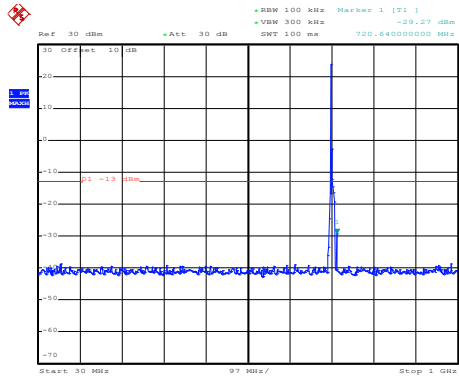
30MHz~1GHz



Date: 16.JUL.2020 15:22:43

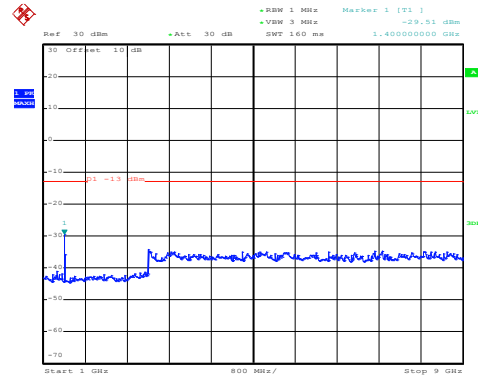
1GHz~9GHz

## High channel



Date: 16.JUL.2020 15:46:52

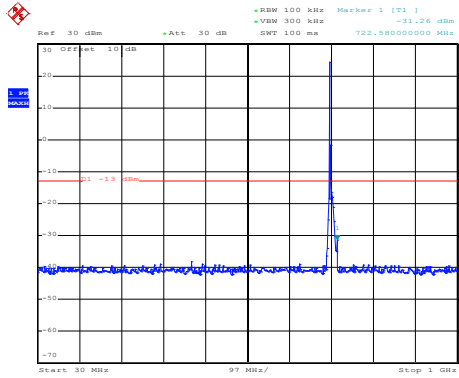
30MHz~1GHz



Date: 16.JUL.2020 15:23:02

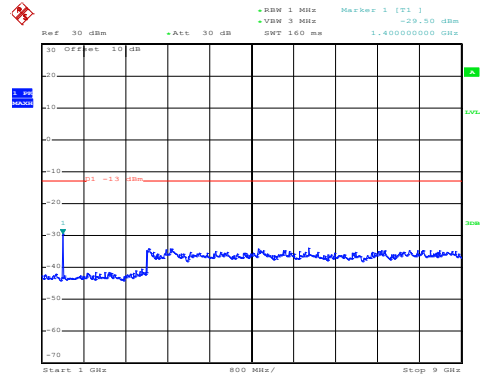
1GHz~9GHz

## LTE Band 17: QPSK & RB Size 1 BW: 10MHz Lowest channel



Date: 16.JUL.2020 15:46:01

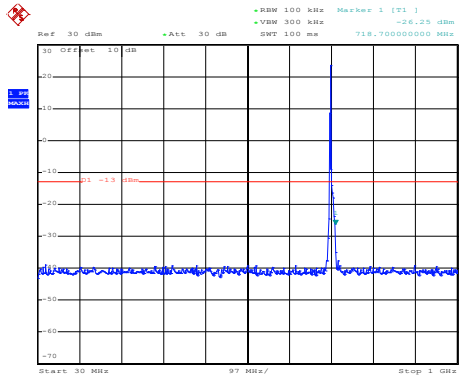
30MHz~1GHz



Date: 16.JUL.2020 15:22:20

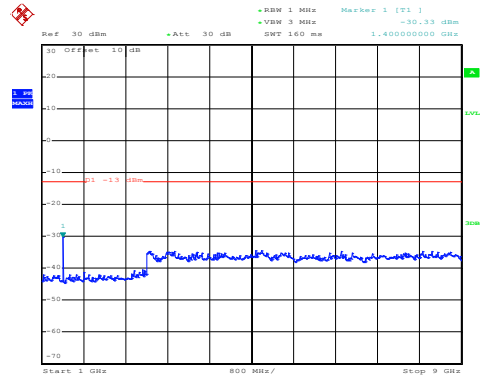
1GHz~9GHz

## Middle channel



Date: 16.JUL.2020 15:46:19

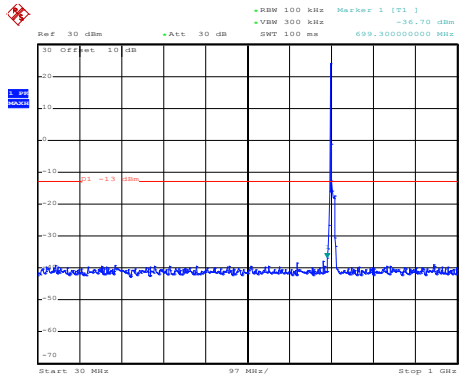
30MHz~1GHz



Date: 16.JUL.2020 15:22:37

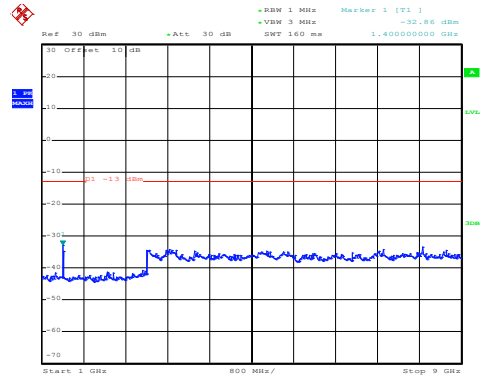
1GHz~9GHz

## High channel



Date: 16.JUL.2020 15:46:43

30MHz~1GHz



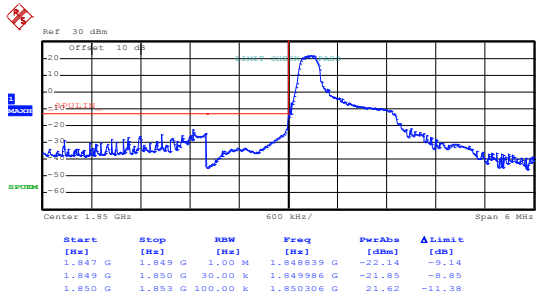
Date: 16.JUL.2020 15:22:56

1GHz~9GHz

**Band edge emission:**

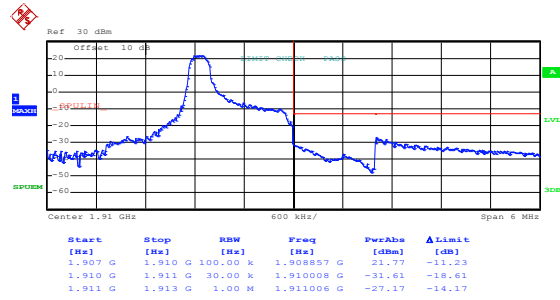
**LTE Band 2 part:**

LTE Band 2, BW: 1.4MHz  
16QAM & RB Size 1



Date: 16.JUL.2020 14:10:12

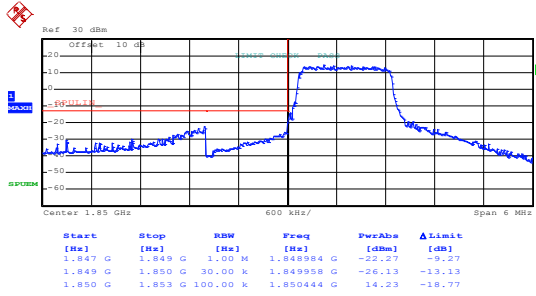
Lowest channel



Date: 16.JUL.2020 14:11:31

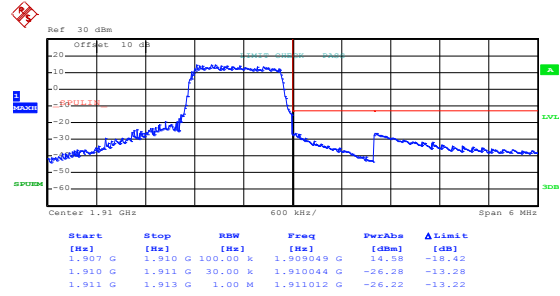
Highest channel

16QAM & RB Size 6



Date: 16.JUL.2020 14:10:32

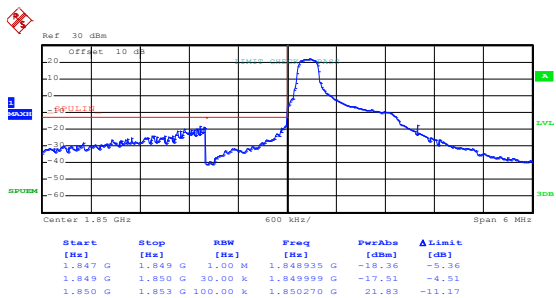
Lowest channel



Date: 16.JUL.2020 14:11:52

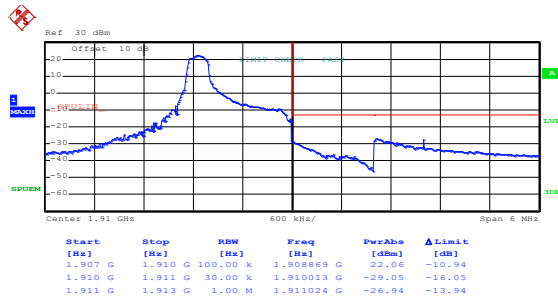
Highest channel

## LTE Band 2, BW: 1.4MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:09:46

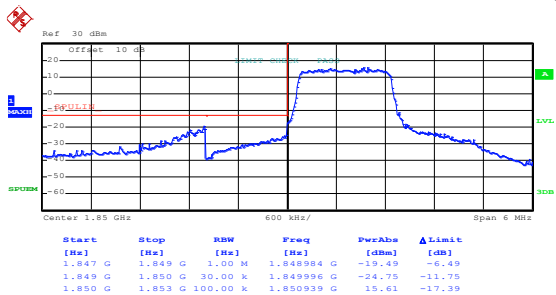
Lowest channel



Date: 16.JUL.2020 14:11:18

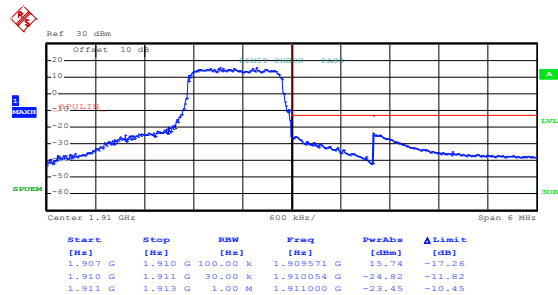
Highest channel

## QPSK & RB Size 6



Date: 16.JUL.2020 14:10:23

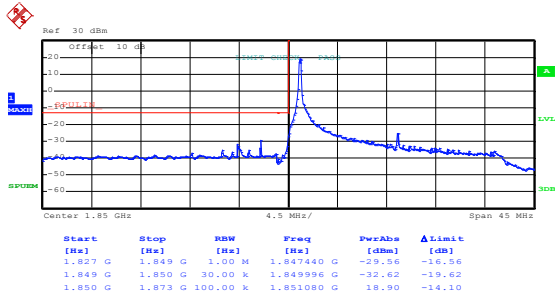
Lowest channel



Date: 16.JUL.2020 14:11:44

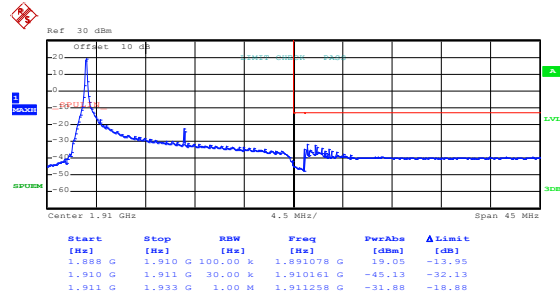
Highest channel

## LTE Band 2, BW: 20MHz 16QAM & RB Size 1



Date: 16.JUL.2020 14:13:44

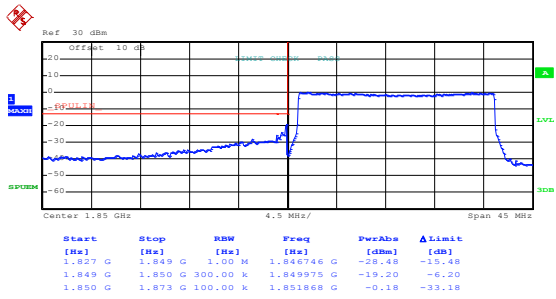
Lowest channel



Date: 16.JUL.2020 14:14:38

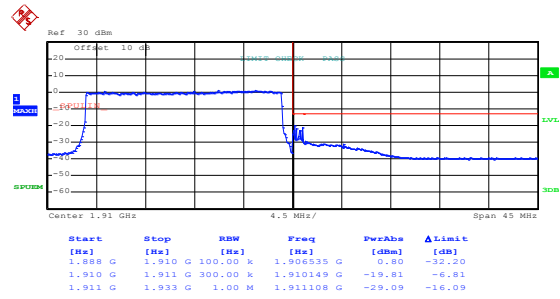
Highest channel

## 16QAM & RB Size 100



Date: 16.JUL.2020 14:14:07

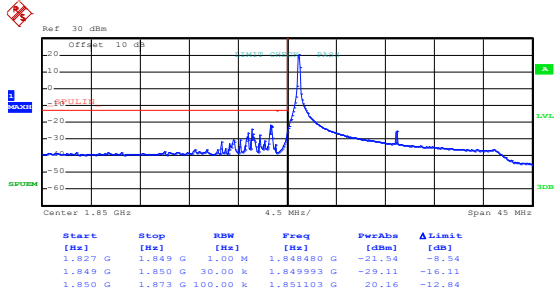
Lowest channel



Date: 16.JUL.2020 14:15:10

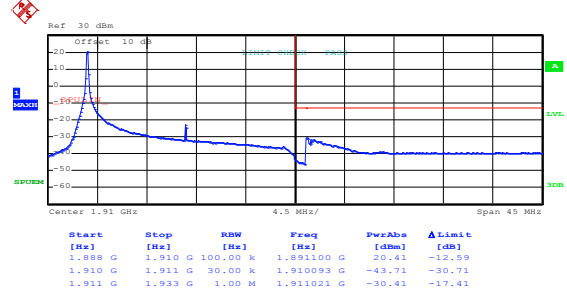
Highest channel

## LTE Band 2, BW: 20MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:13:36

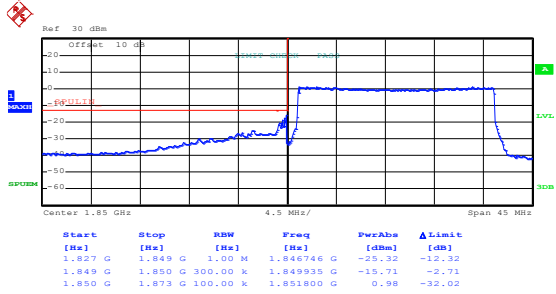
Lowest channel



Date: 16.JUL.2020 14:14:30

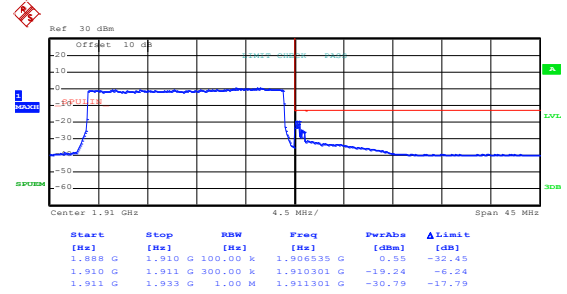
Highest channel

## QPSK & RB Size 100



Date: 16.JUL.2020 14:14:00

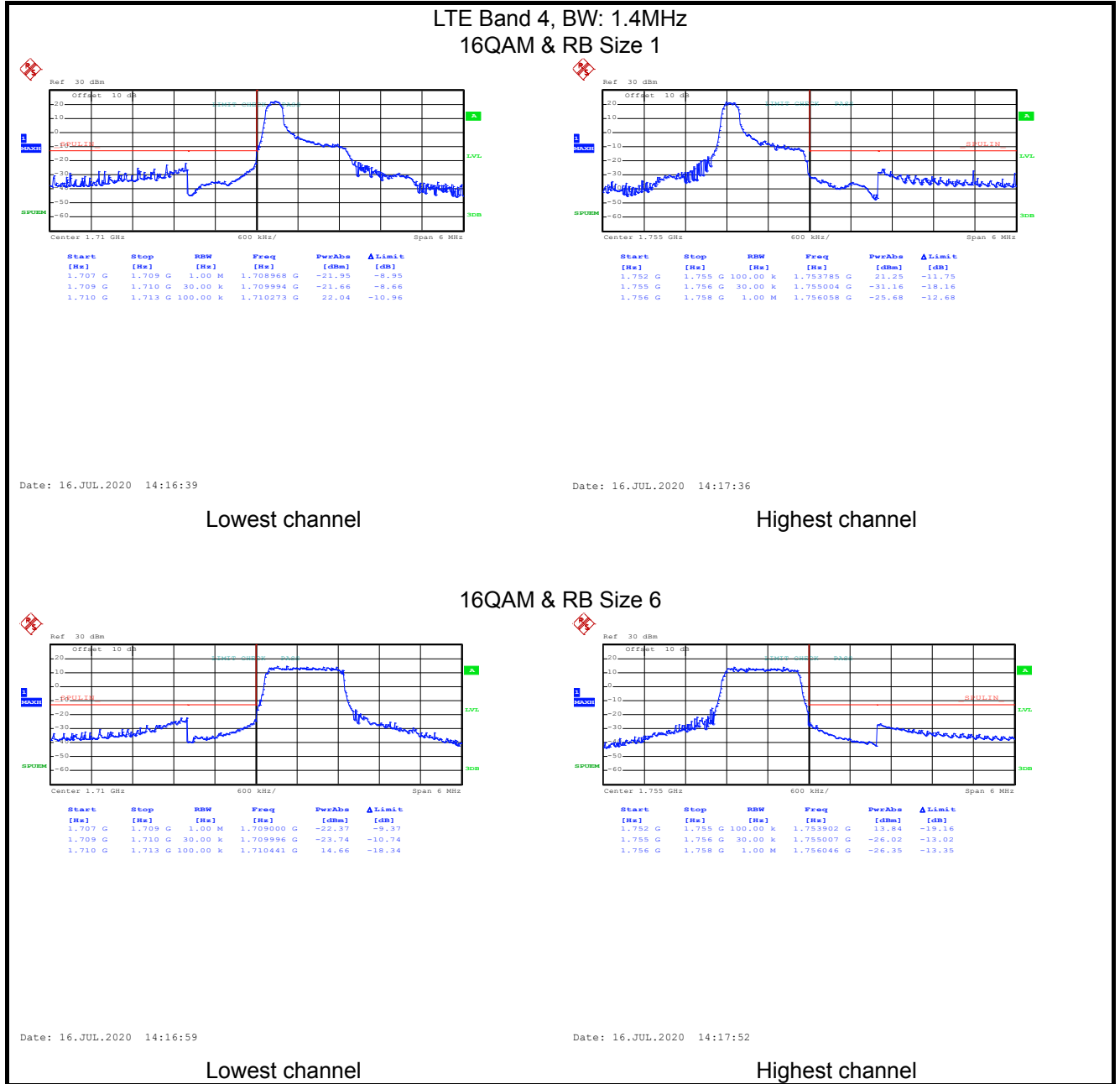
Lowest channel



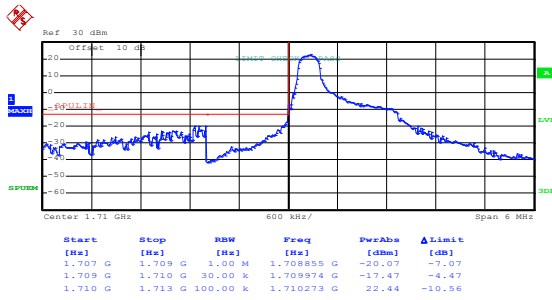
Date: 16.JUL.2020 14:14:59

Highest channel

LTE Band 4 part:

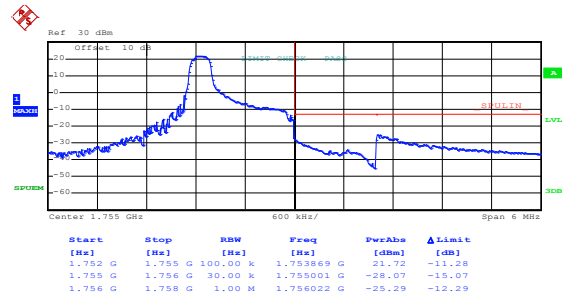


## LTE Band 4, BW: 1.4MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:16:25

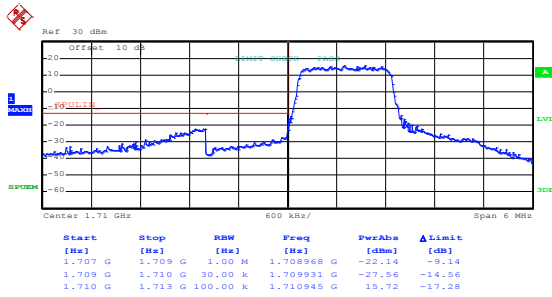
Lowest channel



Date: 16.JUL.2020 14:17:28

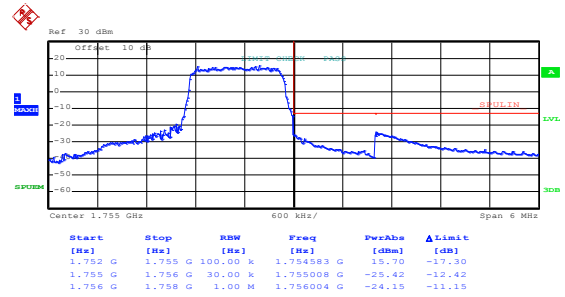
Highest channel

## QPSK & RB Size 6



Date: 16.JUL.2020 14:16:48

Lowest channel

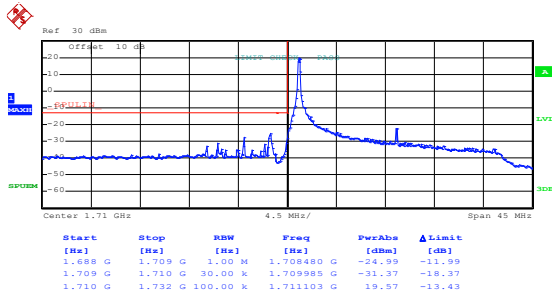


Date: 16.JUL.2020 14:17:45

Highest channel

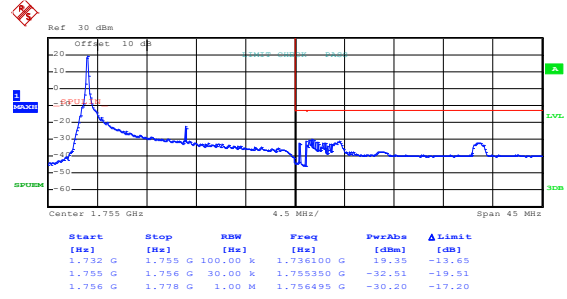


## LTE Band 4, BW: 20MHz 16QAM & RB Size 1



Date: 16.JUL.2020 14:18:45

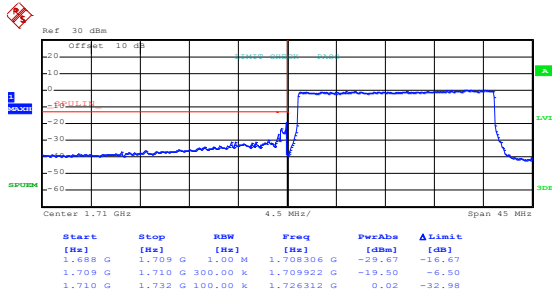
Lowest channel



Date: 16.JUL.2020 14:19:39

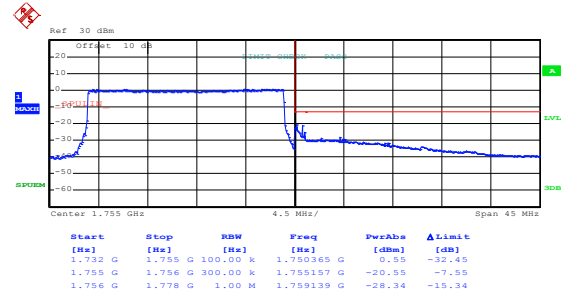
Highest channel

## 16QAM & RB Size 100



Date: 16.JUL.2020 14:20:46

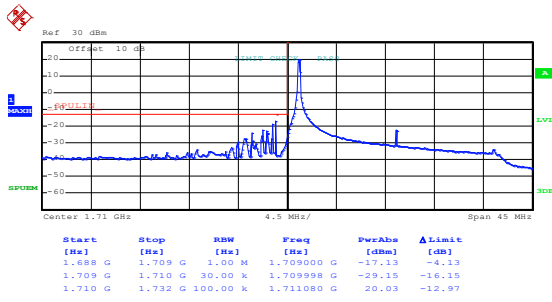
Lowest channel



Date: 16.JUL.2020 14:20:04

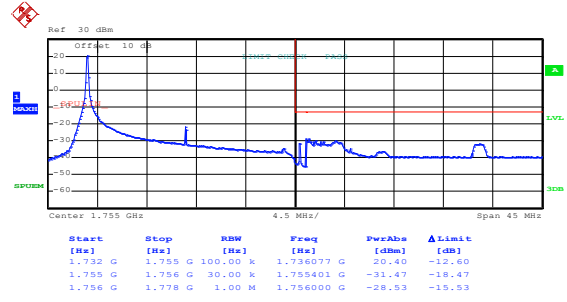
Highest channel

## LTE Band 4, BW: 20MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:18:37

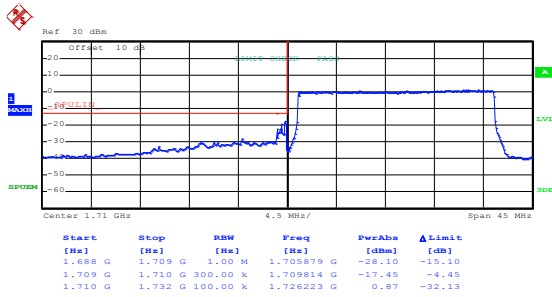
Lowest channel



Date: 16.JUL.2020 14:19:30

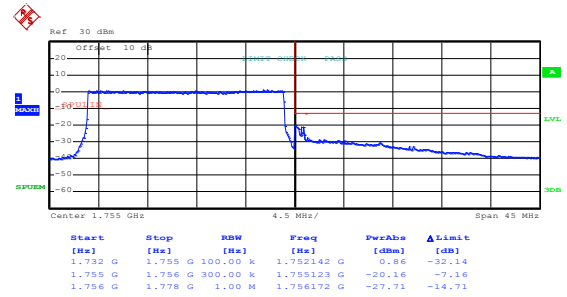
Highest channel

## QPSK & RB Size 100



Date: 16.JUL.2020 14:20:36

Lowest channel

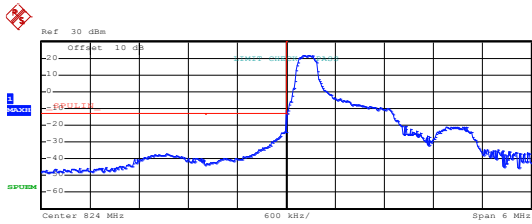


Date: 16.JUL.2020 14:19:58

Highest channel

LTE Band 5 part:

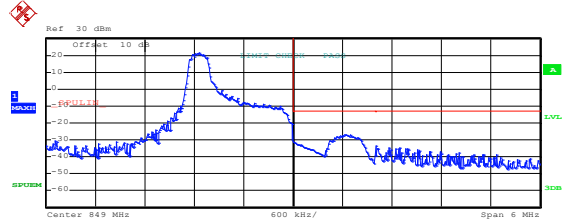
LTE Band 5, BW: 1.4MHz  
16QAM & RB Size 1



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
821.000 M	823.000 M	100.00 k	822.532258 M	-36.91	-23.91
823.000 M	824.000 M	30.00 k	823.995000 M	-23.81	-10.81
824.000 M	827.000 M	100.00 k	824.276000 M	21.63	-11.37

Date: 16.JUL.2020 14:22:15

Lowest channel

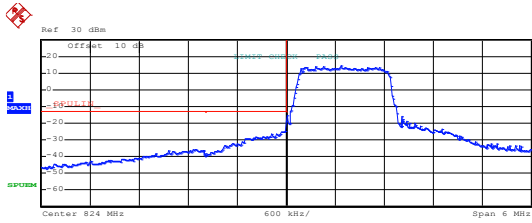


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
846.000 M	849.000 M	100.00 k	847.857000 M	21.49	-11.51
849.000 M	850.000 M	30.00 k	849.638000 M	-27.00	-14.00
850.000 M	852.000 M	100.00 k	850.006000 M	-33.73	-20.73

Date: 16.JUL.2020 14:23:06

Highest channel

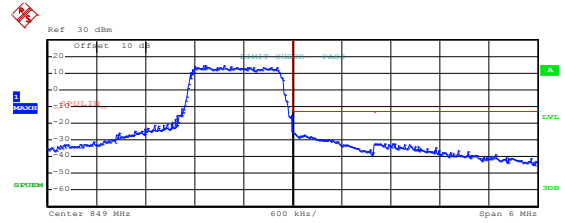
16QAM & RB Size 6



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
821.000 M	823.000 M	100.00 k	822.897097 M	-35.71	-22.71
823.000 M	824.000 M	30.00 k	823.997000 M	-24.44	-11.44
824.000 M	827.000 M	100.00 k	824.666000 M	14.25	-18.75

Date: 16.JUL.2020 14:22:34

Lowest channel

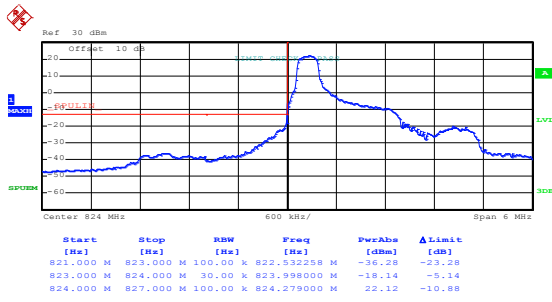


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
846.000 M	849.000 M	100.00 k	847.958000 M	19.81	-18.59
849.000 M	850.000 M	30.00 k	849.008000 M	-25.77	-12.77
850.000 M	852.000 M	100.00 k	850.218000 M	-32.06	-19.06

Date: 16.JUL.2020 14:23:24

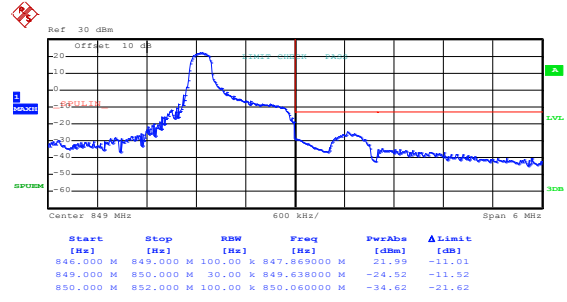
Highest channel

## LTE Band 5, BW: 1.4MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:22:00

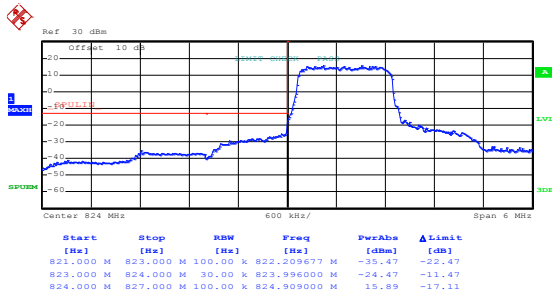
Lowest channel



Date: 16.JUL.2020 14:22:57

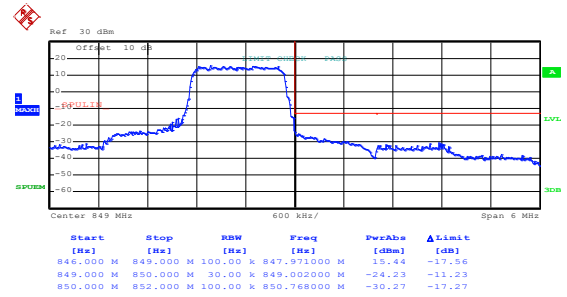
Highest channel

## QPSK & RB Size 6



Date: 16.JUL.2020 14:22:26

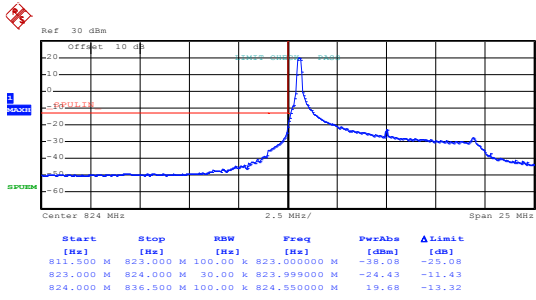
Lowest channel



Date: 16.JUL.2020 14:23:17

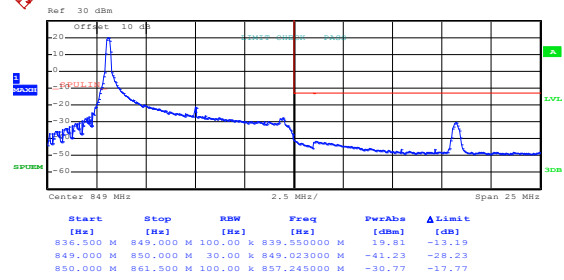
Highest channel

## LTE Band 5, BW: 10MHz 16QAM & RB Size 1



Date: 16.JUL.2020 14:25:04

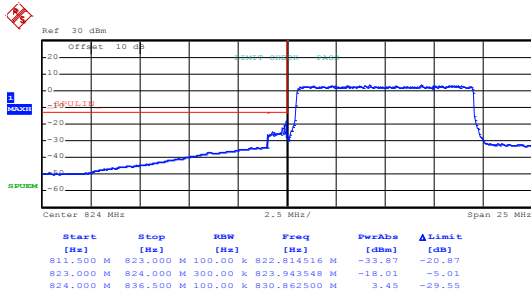
Lowest channel



Date: 16.JUL.2020 14:29:46

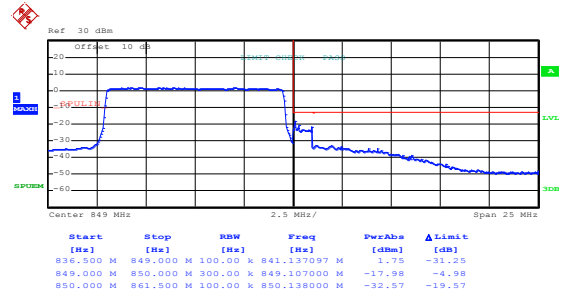
Highest channel

## 16QAM & RB Size 50



Date: 16.JUL.2020 14:29:05

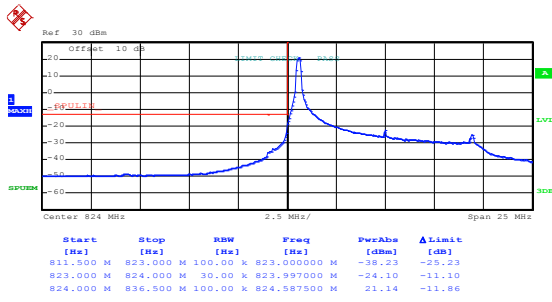
Lowest channel



Date: 16.JUL.2020 14:31:09

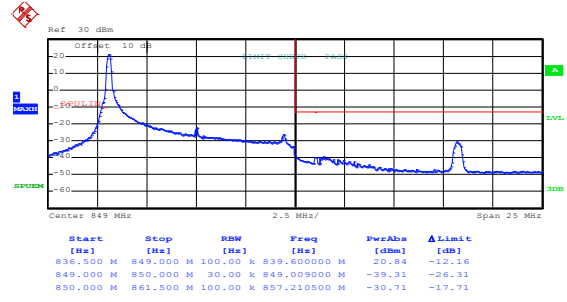
Highest channel

## LTE Band 5, BW: 10MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:24:55

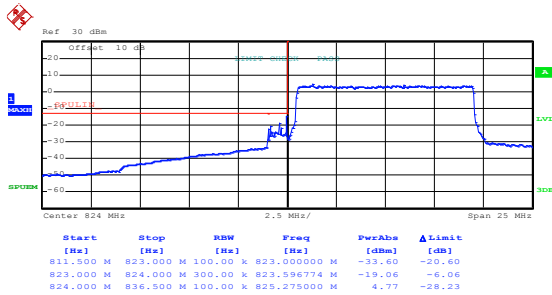
Lowest channel



Date: 16.JUL.2020 14:29:35

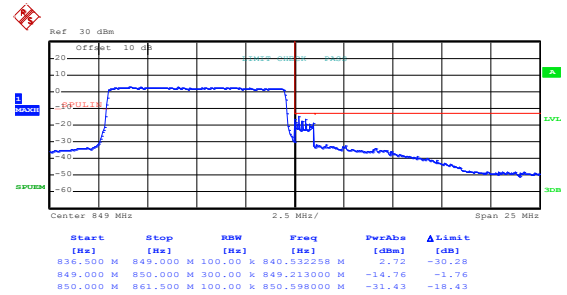
Highest channel

## QPSK & RB Size 50



Date: 16.JUL.2020 14:28:45

Lowest channel

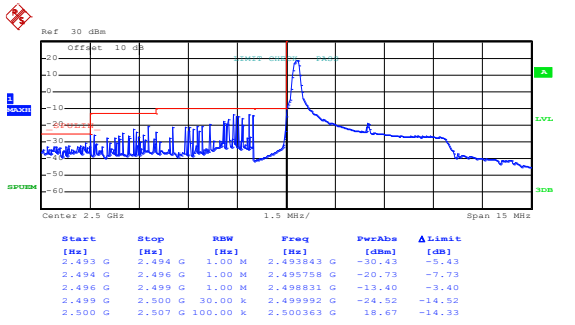


Date: 16.JUL.2020 14:31:02

Highest channel

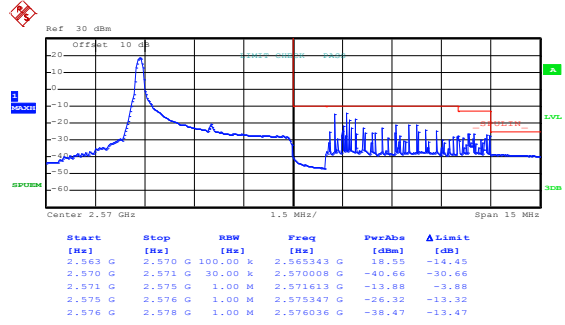
LTE Band 7 part:

LTE Band 7, BW: 5MHz  
16QAM & RB Size 1



Date: 16.JUL.2020 14:34:17

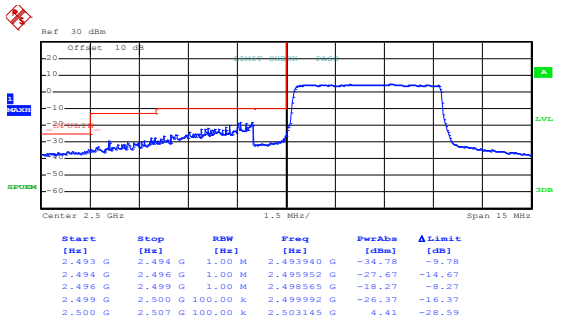
Lowest channel



Date: 16.JUL.2020 14:36:35

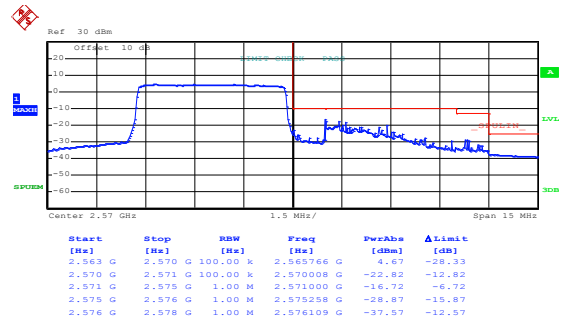
Highest channel

16QAM & RB Size 25



Date: 16.JUL.2020 14:34:52

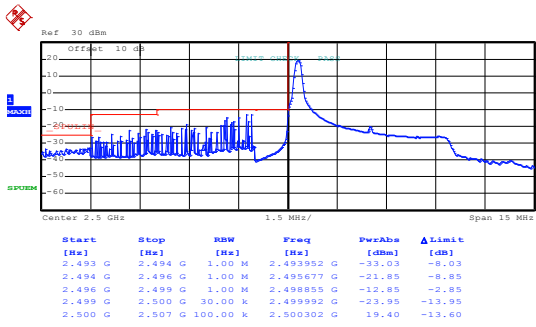
Lowest channel



Date: 16.JUL.2020 14:37:07

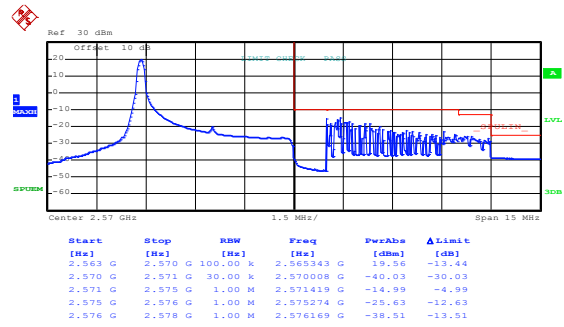
Highest channel

## LTE Band 7, BW: 5MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:34:03

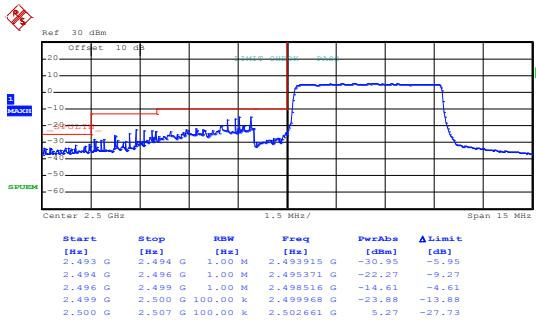
Lowest channel



Date: 16.JUL.2020 14:36:21

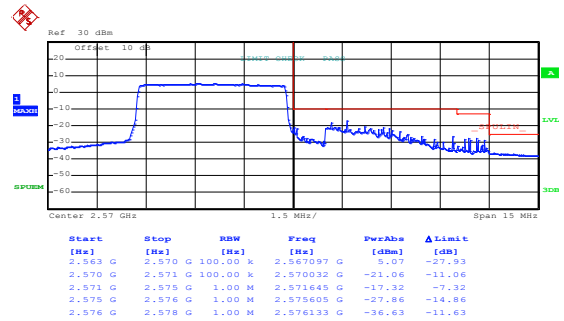
Highest channel

## QPSK & RB Size 25



Date: 16.JUL.2020 14:34:42

Lowest channel

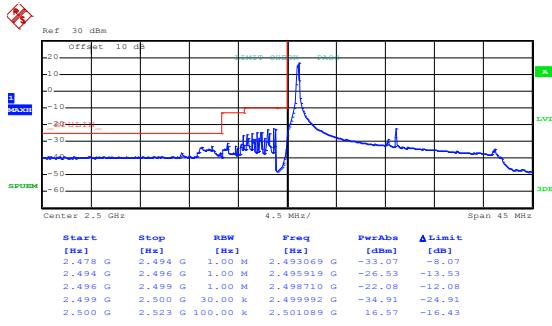


Date: 16.JUL.2020 14:36:58

Highest channel

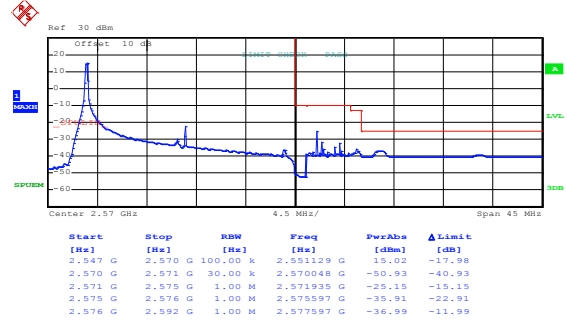


## LTE Band 7, BW: 20MHz 16QAM & RB Size 1



Date: 16.JUL.2020 14:38:35

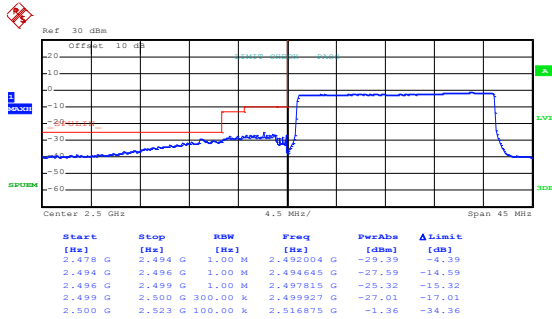
Lowest channel



Date: 16.JUL.2020 14:40:28

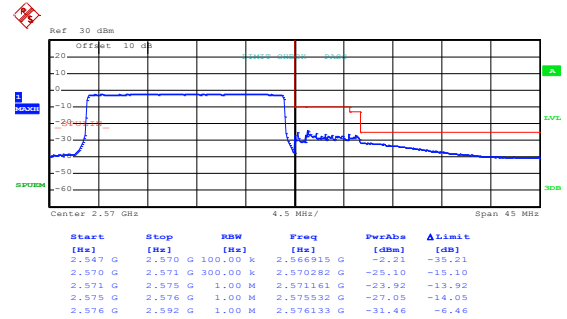
Highest channel

## 16QAM & RB Size 100



Date: 16.JUL.2020 14:39:50

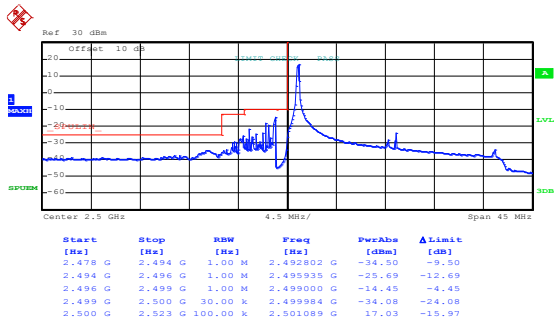
Lowest channel



Date: 16.JUL.2020 14:41:00

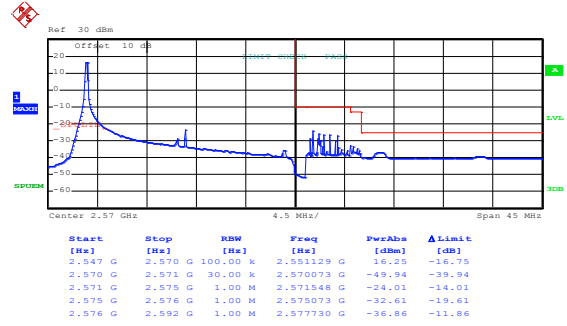
Highest channel

## LTE Band 7, BW: 20MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:38:25

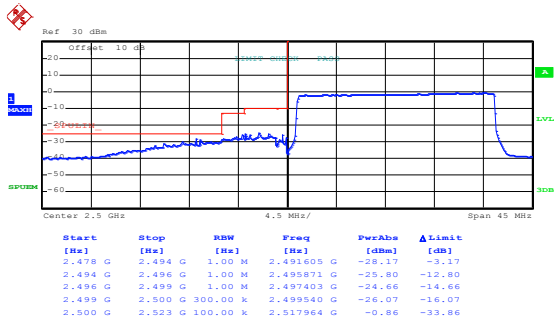
Lowest channel



Date: 16.JUL.2020 14:40:20

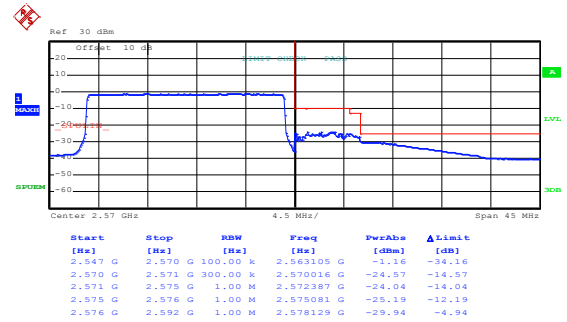
Highest channel

## QPSK & RB Size 100



Date: 16.JUL.2020 14:39:33

Lowest channel

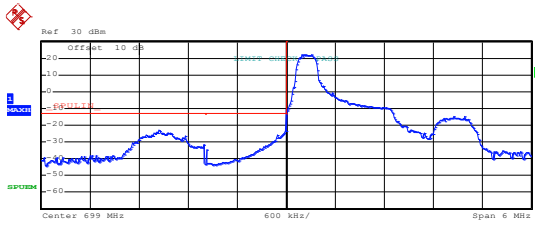


Date: 16.JUL.2020 14:40:51

Highest channel

LTE band 12 part:

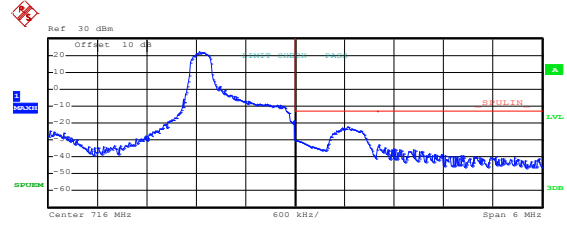
LTE Band 12, BW: 1.4MHz  
16QAM & RB Size 1



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
696.000 M	698.000 M	100.00 k	697.442000 M	-22.83	-9.83
698.000 M	699.000 M	30.00 k	698.992000 M	-23.44	-10.44
699.000 M	702.000 M	100.00 k	699.243000 M	22.13	-10.87

Date: 16.JUL.2020 14:42:52

Lowest channel

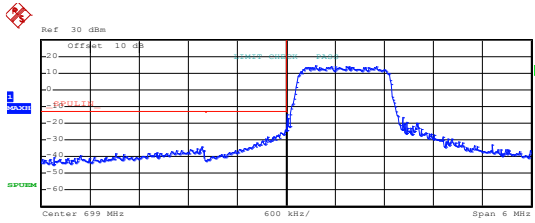


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
713.000 M	716.000 M	100.00 k	714.833000 M	22.17	-10.83
716.000 M	717.000 M	30.00 k	716.650000 M	-22.54	-9.54
717.000 M	719.000 M	100.00 k	717.016000 M	-33.01	-20.01

Date: 16.JUL.2020 14:47:39

Highest channel

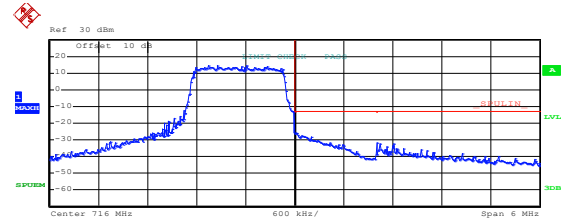
16QAM & RB Size 6



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
696.000 M	699.000 M	100.00 k	697.972000 M	-23.95	-20.95
698.000 M	699.000 M	30.00 k	698.994000 M	-23.95	-10.95
699.000 M	702.000 M	100.00 k	699.363000 M	14.48	-18.52

Date: 16.JUL.2020 14:43:13

Lowest channel

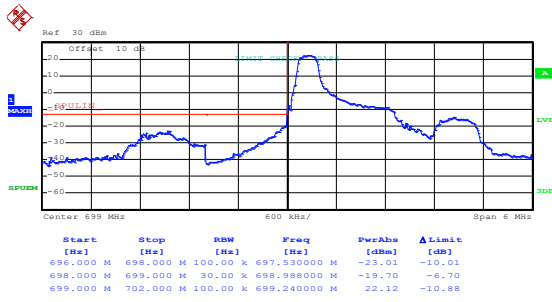


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
713.000 M	716.000 M	100.00 k	715.049000 M	19.88	-18.32
716.000 M	717.000 M	30.00 k	716.016000 M	-25.47	-12.47
717.000 M	719.000 M	100.00 k	717.004000 M	-31.92	-18.92

Date: 16.JUL.2020 14:47:56

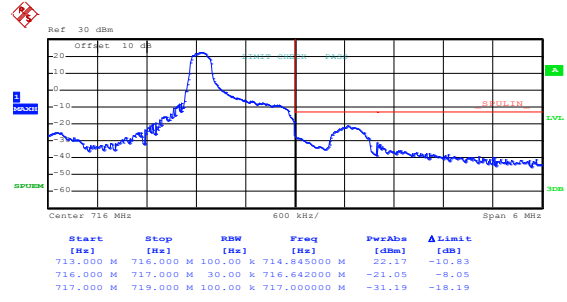
Highest channel

## LTE Band 12, BW: 1.4MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:42:22

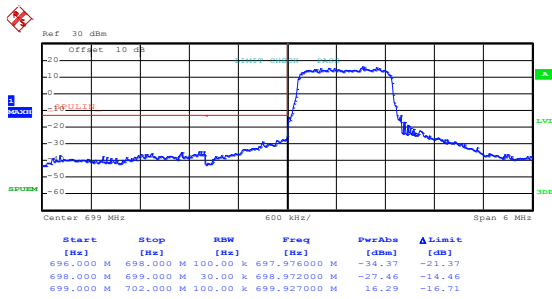
Lowest channel



Date: 16.JUL.2020 14:47:26

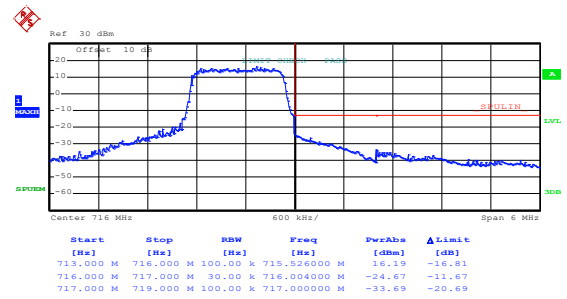
Highest channel

## QPSK & RB Size 6



Date: 16.JUL.2020 14:43:06

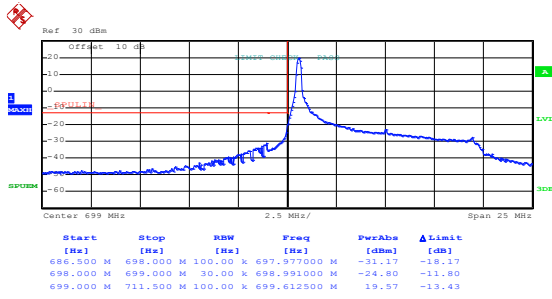
Lowest channel



Date: 16.JUL.2020 14:47:49

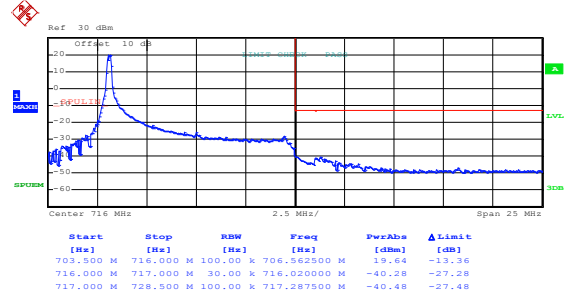
Highest channel

## LTE Band 12, BW: 10MHz 16QAM & RB Size 1



Date: 16.JUL.2020 14:48:48

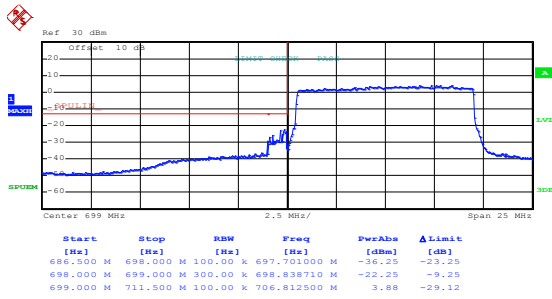
Lowest channel



Date: 16.JUL.2020 14:50:02

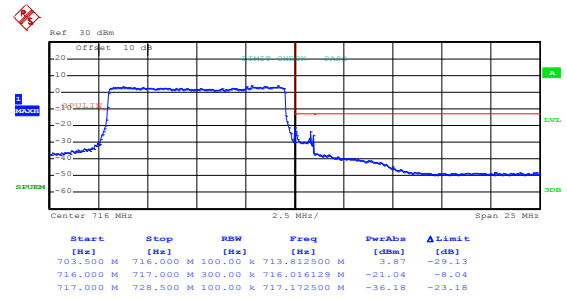
Highest channel

## 16QAM & RB Size 50



Date: 16.JUL.2020 14:49:26

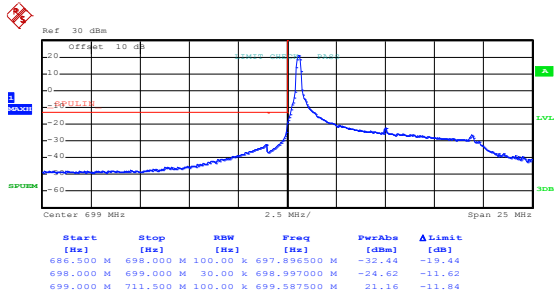
Lowest channel



Date: 16.JUL.2020 14:50:32

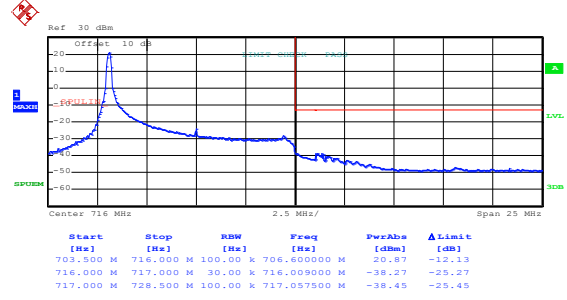
Highest channel

## LTE Band 12, BW: 10MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:48:38

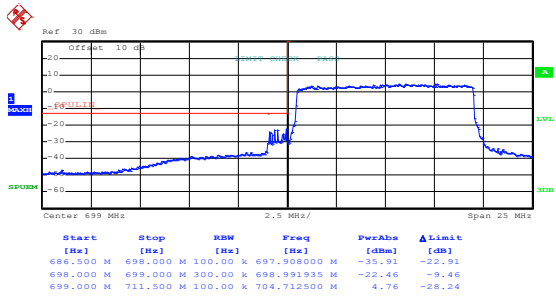
Lowest channel



Date: 16.JUL.2020 14:49:52

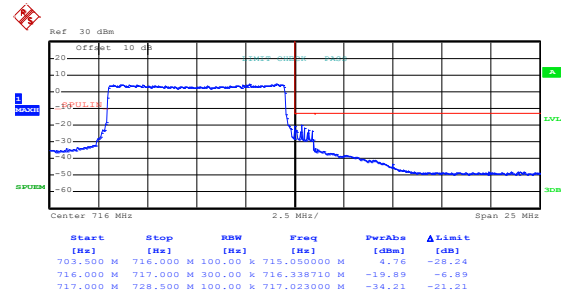
Highest channel

## QPSK & RB Size 50



Date: 16.JUL.2020 14:49:19

Lowest channel

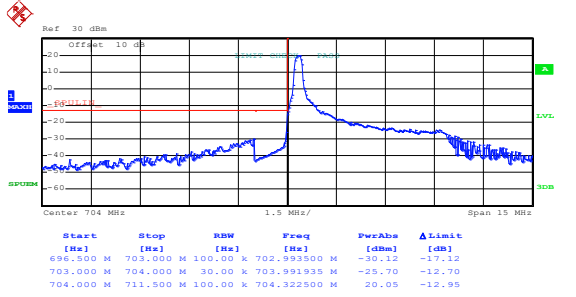


Date: 16.JUL.2020 14:50:26

Highest channel

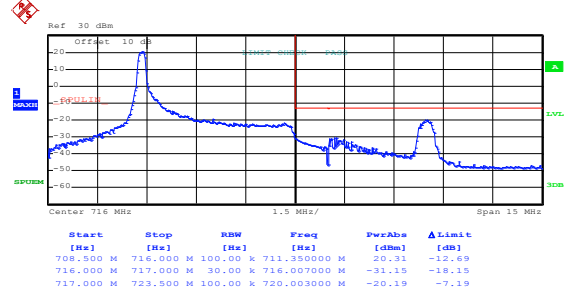
LTE Band 17 part:

LTE Band 17, BW: 5MHz  
16QAM & RB Size 1



Date: 16.JUL.2020 14:52:21

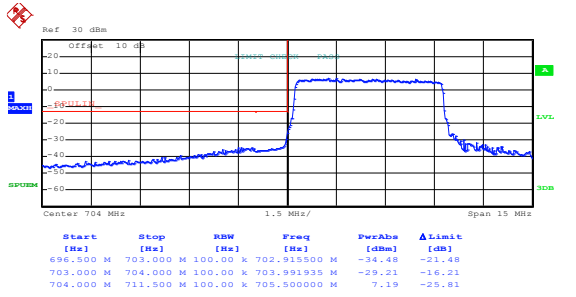
Lowest channel



Date: 16.JUL.2020 14:53:33

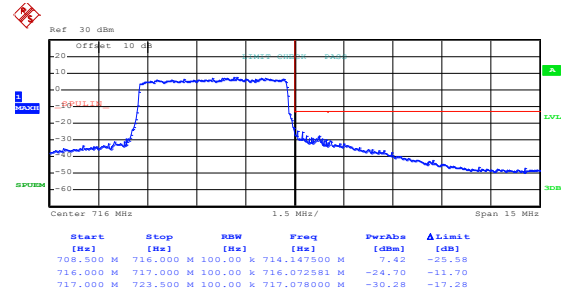
Highest channel

16QAM & RB Size 25



Date: 16.JUL.2020 14:52:44

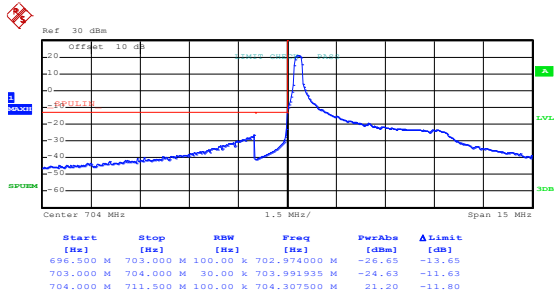
Lowest channel



Date: 16.JUL.2020 14:54:04

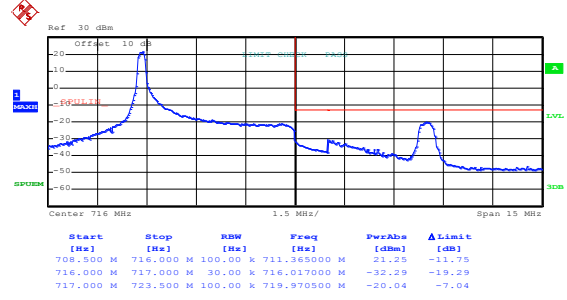
Highest channel

## LTE Band 17, BW: 5MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:52:06

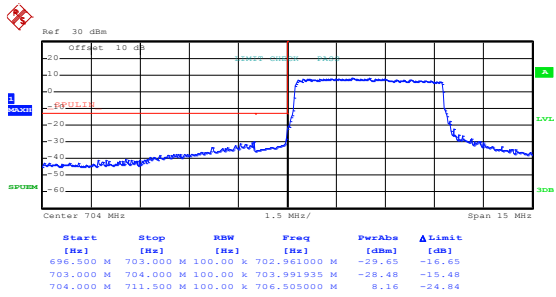
Lowest channel



Date: 16.JUL.2020 14:53:22

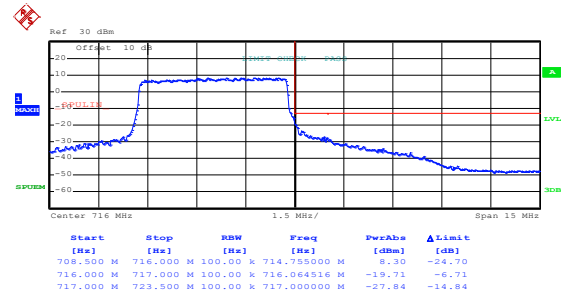
Highest channel

## QPSK & RB Size 25



Date: 16.JUL.2020 14:52:38

Lowest channel

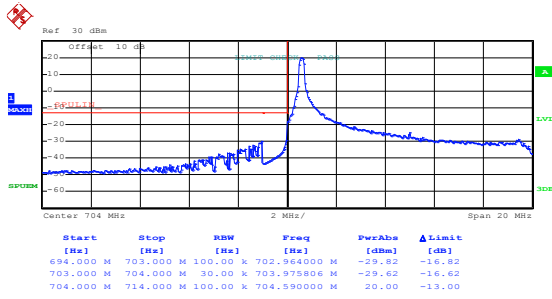


Date: 16.JUL.2020 14:53:57

Highest channel

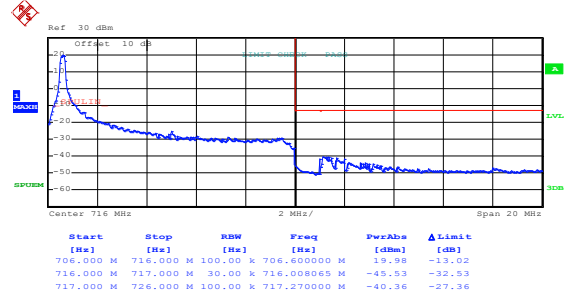


## LTE Band 17, BW: 10MHz 16QAM & RB Size 1



Date: 16.JUL.2020 14:55:05

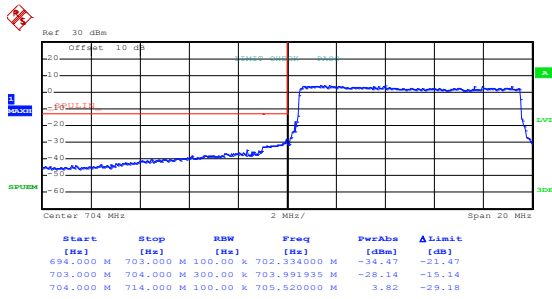
Lowest channel



Date: 16.JUL.2020 14:56:08

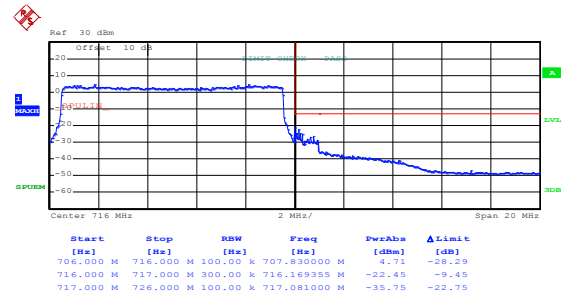
Highest channel

## 16QAM & RB Size 50



Date: 16.JUL.2020 14:55:36

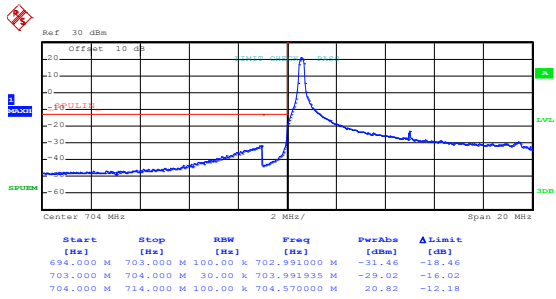
Lowest channel



Date: 16.JUL.2020 14:56:34

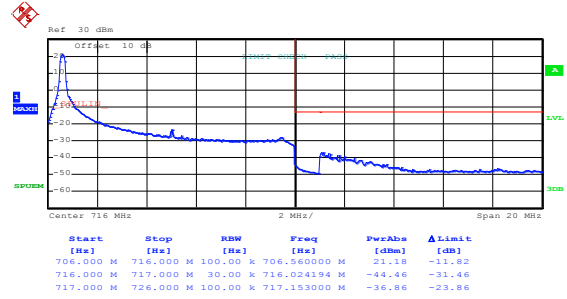
Highest channel

## LTE Band 17, BW: 10MHz QPSK & RB Size 1



Date: 16.JUL.2020 14:54:54

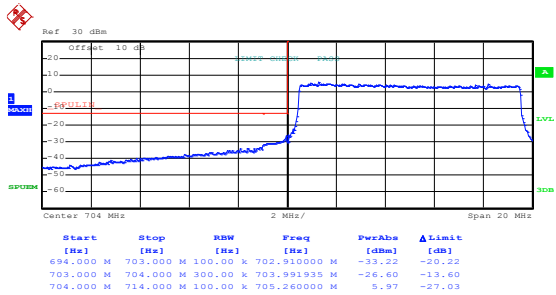
Lowest channel



Date: 16.JUL.2020 14:56:01

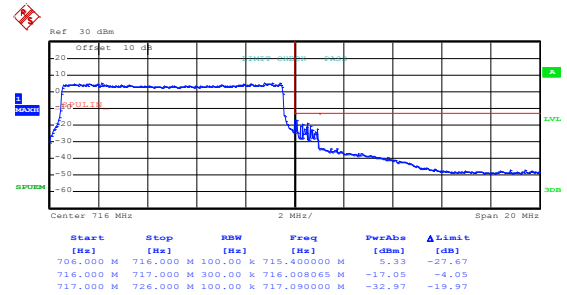
Highest channel

## QPSK & RB Size 50



Date: 16.JUL.2020 14:55:29

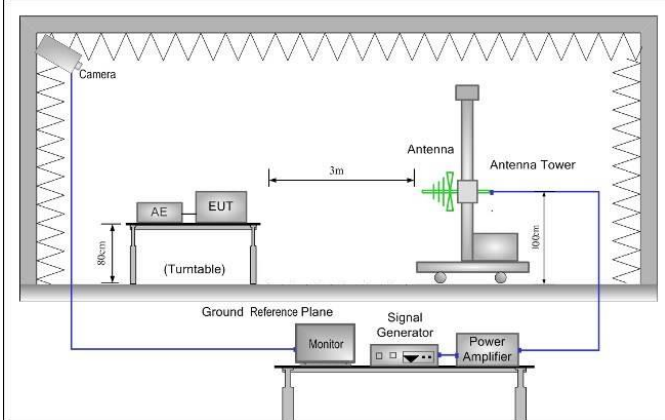
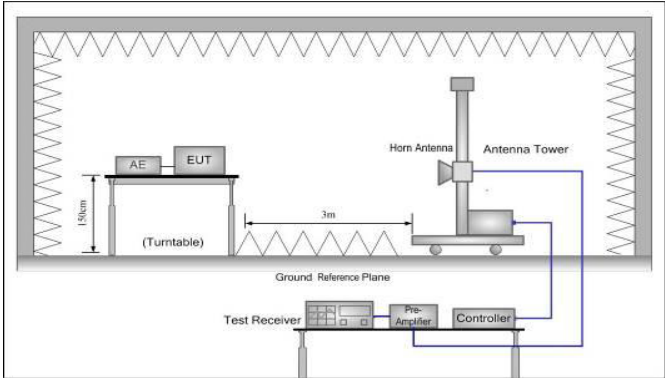
Lowest channel



Date: 16.JUL.2020 14:56:26

Highest channel

## 6.5 Field strength of spurious radiation measurement

<p>Test Requirement:</p>	<p>Part 22.917(a), Part 24.238 (a), Part 27.53(g), Part 27.53(m), Part 27.53(h)</p>
<p>Limit:</p>	<p>LTE Band 2 &amp; 4 &amp; 5 &amp; 12 &amp; 17:          The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least <math>43 + 10 \log_{10}(P)</math> dB (-13 dBm).          LTE Band 7:          For mobile digital stations, the attenuation factor shall be not less than <math>40 + 10 \log (P)</math> dB on all frequencies between the channel edge and 5 megahertz from the channel edge, <math>43 + 10 \log (P)</math> dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and <math>55 + 10 \log (P)</math> dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that <math>43 + 10 \log (P)</math> dB on all frequencies between 2490.5 MHz and 2496 MHz and <math>55 + 10 \log (P)</math> dB at or below 2490.5 MHz.</p>
<p>Test setup:</p>	<p>Below 1GHz</p>  <p>Above 1GHz</p> 
<p>Test Procedure:</p>	<ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.</li> <li>2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.</li> <li>3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels).</li> </ol>

	<p>Once spurious emission was identified, the power of the emission was determined using the substitution method.</p> <p>4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.</p> $\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

**Measurement Data:**

**LTE Band 2 part:**

Band 2 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3701.40	-63.70	12.64	0.75	-51.81	-13.00	-38.81	Vertical
5552.10	-56.01	12.76	1.13	-44.38	-13.00	-31.38	Vertical
7402.00	-49.86	11.44	1.63	-40.05	-13.00	-27.05	Vertical
3701.40	-62.59	12.64	0.75	-50.70	-13.00	-37.70	Horizontal
5552.10	-55.75	12.76	1.13	-44.12	-13.00	-31.12	Horizontal
7402.00	-48.75	11.44	1.63	-38.94	-13.00	-25.94	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-62.17	12.71	0.79	-50.25	-13.00	-37.25	Vertical
5640.00	-57.08	12.87	1.15	-45.36	-13.00	-32.36	Vertical
7520.00	-49.47	11.48	1.66	-39.65	-13.00	-26.65	Vertical
3760.00	-61.76	12.71	0.79	-49.84	-13.00	-36.84	Horizontal
5640.00	-56.83	12.87	1.15	-45.11	-13.00	-32.11	Horizontal
7520.00	-48.56	11.48	1.66	-38.74	-13.00	-25.74	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3816.60	-62.22	12.78	0.81	-50.25	-13.00	-37.25	Vertical
5724.90	-56.97	12.97	1.19	-45.19	-13.00	-32.19	Vertical
7633.20	-49.28	11.34	1.71	-39.65	-13.00	-26.65	Vertical
3816.60	-61.49	12.78	0.81	-49.52	-13.00	-36.52	Horizontal
5724.90	-57.03	12.97	1.19	-45.25	-13.00	-32.25	Horizontal
7633.20	-46.81	11.34	1.71	-37.18	-13.00	-24.18	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							

Band 2 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3720.00	-62.28	12.66	0.77	-50.39	-13.00	-37.39	Vertical
5580.00	-55.84	12.80	1.15	-44.19	-13.00	-31.19	Vertical
7440.00	-49.47	11.46	1.64	-39.65	-13.00	-26.65	Vertical
3720.00	-61.76	12.66	0.77	-49.87	-13.00	-36.87	Horizontal
5580.00	-56.80	12.80	1.15	-45.15	-13.00	-32.15	Horizontal
7440.00	-48.29	11.46	1.64	-38.47	-13.00	-25.47	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-61.24	12.71	0.79	-49.32	-13.00	-36.32	Vertical
5640.00	-56.53	12.87	1.15	-44.81	-13.00	-31.81	Vertical
7520.00	-48.29	11.48	1.66	-38.47	-13.00	-25.47	Vertical
3760.00	-61.77	12.71	0.79	-49.85	-13.00	-36.85	Horizontal
5640.00	-56.43	12.87	1.15	-44.71	-13.00	-31.71	Horizontal
7520.00	-48.47	11.48	1.66	-38.65	-13.00	-25.65	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3800.00	-61.29	12.76	0.79	-49.32	-13.00	-36.32	Vertical
5700.00	-56.93	12.94	1.18	-45.17	-13.00	-32.17	Vertical
7600.00	-48.34	11.38	1.69	-38.65	-13.00	-25.65	Vertical
3800.00	-60.73	12.76	0.79	-48.76	-13.00	-35.76	Horizontal
5700.00	-56.98	12.94	1.18	-45.22	-13.00	-32.22	Horizontal
7600.00	-46.24	11.38	1.69	-36.55	-13.00	-23.55	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							

**LTE Band 4 part:**

Band 4 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3421.40	-58.80	12.24	0.70	-47.26	-13.00	-34.26	Vertical
5132.10	-58.01	12.92	1.01	-46.10	-13.00	-33.10	Vertical
6842.80	-52.51	11.42	1.53	-42.62	-13.00	-29.62	Vertical
3421.40	-61.58	12.24	0.70	-50.04	-13.00	-37.04	Horizontal
5132.10	-58.44	12.92	1.01	-46.53	-13.00	-33.53	Horizontal
6842.80	-53.08	11.42	1.53	-43.19	-13.00	-30.19	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3465.00	-57.94	12.33	0.72	-46.33	-13.00	-33.33	Vertical
5197.50	-57.61	12.88	1.04	-45.77	-13.00	-32.77	Vertical
6930.00	-52.43	11.30	1.56	-42.69	-13.00	-29.69	Vertical
3465.00	-61.26	12.33	0.72	-49.65	-13.00	-36.65	Horizontal
5197.50	-57.57	12.88	1.04	-45.73	-13.00	-32.73	Horizontal
6930.00	-52.50	11.30	1.56	-42.76	-13.00	-29.76	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3508.60	-59.29	12.41	0.74	-47.62	-13.00	-34.62	Vertical
5262.90	-55.39	12.84	1.07	-43.62	-13.00	-30.62	Vertical
7017.20	-51.22	11.21	1.58	-41.59	-13.00	-28.59	Vertical
3508.60	-60.22	12.41	0.74	-48.55	-13.00	-35.55	Horizontal
5262.90	-56.56	12.84	1.07	-44.79	-13.00	-31.79	Horizontal
7017.20	-51.39	11.21	1.58	-41.76	-13.00	-28.76	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

Band 4 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3440.00	-57.89	12.28	0.71	-46.32	-13.00	-33.32	Vertical
5160.00	-56.98	12.90	1.03	-45.11	-13.00	-32.11	Vertical
6880.00	-51.57	11.37	1.54	-41.74	-13.00	-28.74	Vertical
3440.00	-61.22	12.28	0.71	-49.65	-13.00	-36.65	Horizontal
5160.00	-57.26	12.90	1.03	-45.39	-13.00	-32.39	Horizontal
6880.00	-51.94	11.37	1.54	-42.11	-13.00	-29.11	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3465.00	-57.23	12.33	0.72	-45.62	-13.00	-32.62	Vertical
5197.50	-58.83	12.88	1.04	-46.99	-13.00	-33.99	Vertical
6930.00	-51.08	11.30	1.56	-41.34	-13.00	-28.34	Vertical
3465.00	-59.80	12.33	0.72	-48.19	-13.00	-35.19	Horizontal
5197.50	-56.16	12.88	1.04	-44.32	-13.00	-31.32	Horizontal
6930.00	-51.51	11.30	1.56	-41.77	-13.00	-28.77	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3490.00	-58.27	12.38	0.73	-46.62	-13.00	-33.62	Vertical
5235.00	-53.96	12.86	1.06	-42.16	-13.00	-29.16	Vertical
6980.00	-49.30	11.23	1.57	-39.64	-13.00	-26.64	Vertical
3490.00	-58.81	12.38	0.73	-47.16	-13.00	-34.16	Horizontal
5235.00	-55.05	12.86	1.06	-43.25	-13.00	-30.25	Horizontal
6980.00	-51.43	11.23	1.57	-41.77	-13.00	-28.77	Horizontal
<p><i>Remark:</i>                      The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							



Band 5 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1649.40	-66.11	9.57	0.20	-56.74	-13.00	-43.74	Vertical
2474.10	-63.91	10.86	0.43	-53.48	-13.00	-40.48	Vertical
3298.80	-63.09	12.00	0.64	-51.73	-13.00	-38.73	Vertical
1649.40	-68.11	9.57	0.20	-58.74	-13.00	-45.74	Horizontal
2474.10	-64.96	10.86	0.43	-54.53	-13.00	-41.53	Horizontal
3298.80	-62.31	12.00	0.64	-50.95	-13.00	-37.95	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.30	-64.76	9.66	0.22	-55.32	-13.00	-42.32	Vertical
2509.50	-64.57	10.91	0.46	-54.12	-13.00	-41.12	Vertical
3346.00	-63.09	12.09	0.66	-51.66	-13.00	-38.66	Vertical
1673.30	-66.90	9.66	0.22	-57.46	-13.00	-44.46	Horizontal
2509.50	-64.07	10.91	0.46	-53.62	-13.00	-40.62	Horizontal
3346.00	-61.22	12.09	0.66	-49.79	-13.00	-36.79	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1696.60	-63.73	9.74	0.23	-54.22	-13.00	-41.22	Vertical
2544.90	-63.66	10.94	0.49	-53.21	-13.00	-40.21	Vertical
3393.20	-61.49	12.19	0.68	-49.98	-13.00	-36.98	Vertical
1696.60	-65.23	9.74	0.23	-55.72	-13.00	-42.72	Horizontal
2544.90	-61.88	10.94	0.49	-51.43	-13.00	-38.43	Horizontal
3393.20	-60.30	12.19	0.68	-48.79	-13.00	-35.79	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							

Band 5 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1658.00	-64.64	9.60	0.21	-55.25	-13.00	-42.25	Vertical
2487.00	-63.05	10.88	0.45	-52.62	-13.00	-39.62	Vertical
3316.00	-61.00	12.03	0.65	-49.62	-13.00	-36.62	Vertical
1658.00	-66.82	9.60	0.21	-57.43	-13.00	-44.43	Horizontal
2487.00	-63.59	10.88	0.45	-53.16	-13.00	-40.16	Horizontal
3316.00	-61.35	12.03	0.65	-49.97	-13.00	-36.97	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.30	-63.77	9.66	0.21	-54.32	-13.00	-41.32	Vertical
2509.50	-64.06	10.91	0.46	-53.61	-13.00	-40.61	Vertical
3346.00	-62.87	12.09	0.66	-51.44	-13.00	-38.44	Vertical
1673.30	-62.07	9.66	0.21	-52.62	-13.00	-39.62	Horizontal
2509.50	-64.82	10.91	0.46	-54.37	-13.00	-41.37	Horizontal
3346.00	-61.19	12.09	0.66	-49.76	-13.00	-36.76	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1688.00	-63.10	9.71	0.23	-53.62	-13.00	-40.62	Vertical
2532.00	-61.88	10.93	0.48	-51.43	-13.00	-38.43	Vertical
3376.00	-60.00	12.15	0.67	-48.52	-13.00	-35.52	Vertical
1688.00	-63.10	9.71	0.23	-53.62	-13.00	-40.62	Horizontal
2532.00	-62.92	10.93	0.48	-52.47	-13.00	-39.47	Horizontal
3376.00	-58.64	12.15	0.67	-47.16	-13.00	-34.16	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							

**LTE Band 7 part:**

<b>Band 7 (5MHz)</b>							
<b>Lowest channel</b>							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5005.00	-56.92	13.00	0.94	-44.86	-25.00	-19.86	Vertical
7507.50	-49.49	11.49	1.65	-39.65	-25.00	-14.65	Vertical
10010.00	-42.22	11.69	1.91	-32.44	-25.00	-7.44	Vertical
5005.00	-56.57	13.00	0.94	-44.51	-25.00	-19.51	Horizontal
7507.50	-50.17	11.49	1.65	-40.33	-25.00	-15.33	Horizontal
10010.00	-45.47	11.69	1.91	-35.69	-25.00	-10.69	Horizontal
<b>Middle channel</b>							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5070.00	-56.30	12.96	0.98	-44.32	-25.00	-19.32	Vertical
7605.00	-48.33	11.37	1.69	-38.65	-25.00	-13.65	Vertical
10140.00	-41.32	11.62	1.94	-31.64	-25.00	-6.64	Vertical
5070.00	-57.77	12.96	0.98	-45.79	-25.00	-20.79	Horizontal
7605.00	-49.29	11.37	1.69	-39.61	-25.00	-14.61	Horizontal
10140.00	-43.01	11.62	1.94	-33.33	-25.00	-8.33	Horizontal
<b>Highest channel</b>							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5135.00	-57.04	12.92	1.01	-45.13	-25.00	-20.13	Vertical
7702.50	-46.19	11.26	1.72	-36.65	-25.00	-11.65	Vertical
10270.00	-44.20	11.54	1.95	-34.61	-25.00	-9.61	Vertical
5135.00	-58.64	12.92	1.01	-46.73	-25.00	-21.73	Horizontal
7702.50	-50.52	11.26	1.72	-40.98	-25.00	-15.98	Horizontal
10270.00	-42.16	11.54	1.95	-32.57	-25.00	-7.57	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

Band 7 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5020.00	-58.64	12.99	0.97	-46.62	-25.00	-21.62	Vertical
7530.00	-50.09	11.46	1.68	-40.31	-25.00	-15.31	Vertical
10040.00	-44.43	11.68	1.94	-34.69	-25.00	-9.69	Vertical
5020.00	-58.64	12.99	0.97	-46.62	-25.00	-21.62	Horizontal
7530.00	-49.57	11.46	1.68	-39.79	-25.00	-14.79	Horizontal
10040.00	-44.51	11.68	1.94	-34.77	-25.00	-9.77	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5070.00	-58.60	12.96	0.98	-46.62	-25.00	-21.62	Vertical
7605.00	-50.33	11.37	1.69	-40.65	-25.00	-15.65	Vertical
10140.00	-42.24	11.62	1.94	-32.56	-25.00	-7.56	Vertical
5070.00	-58.30	12.96	0.98	-46.32	-25.00	-21.32	Horizontal
7605.00	-57.63	11.37	1.69	-47.95	-25.00	-22.95	Horizontal
10140.00	-41.92	11.62	1.94	-32.24	-25.00	-7.24	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5120.00	-58.55	12.93	1.00	-46.62	-25.00	-21.62	Vertical
7680.00	-47.05	11.28	1.72	-37.49	-25.00	-12.49	Vertical
10240.00	-46.26	11.56	1.95	-36.65	-25.00	-11.65	Vertical
5120.00	-59.09	12.93	1.00	-47.16	-25.00	-22.16	Horizontal
7680.00	-49.51	11.28	1.72	-39.95	-25.00	-14.95	Horizontal
10240.00	-46.28	11.56	1.95	-36.67	-25.00	-11.67	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

**LTE Band 12 part:**

Band 12 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1399.40	-66.67	7.80	0.11	-58.98	-13.00	-45.98	Vertical
2099.10	-67.51	10.34	0.29	-57.46	-13.00	-44.46	Vertical
2798.80	-64.33	11.20	0.53	-53.66	-13.00	-40.66	Vertical
1399.40	-66.86	7.80	0.11	-59.17	-13.00	-46.17	Horizontal
2099.10	-69.39	10.34	0.29	-59.34	-13.00	-46.34	Horizontal
2798.80	-65.95	11.20	0.53	-55.28	-13.00	-42.28	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1415.00	-64.74	7.92	0.13	-56.95	-13.00	-43.95	Vertical
2122.50	-68.80	10.37	0.32	-58.75	-13.00	-45.75	Vertical
2830.00	-64.84	11.23	0.55	-54.16	-13.00	-41.16	Vertical
1415.00	-66.41	7.92	0.13	-58.62	-13.00	-45.62	Horizontal
2122.50	-70.37	10.37	0.32	-60.32	-13.00	-47.32	Horizontal
2830.00	-65.47	11.23	0.55	-54.79	-13.00	-41.79	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1430.60	-67.53	8.04	0.16	-59.65	-13.00	-46.65	Vertical
2145.90	-67.51	10.40	0.35	-57.46	-13.00	-44.46	Vertical
2861.20	-64.29	11.26	0.58	-53.61	-13.00	-40.61	Vertical
1430.60	-65.34	8.04	0.16	-57.46	-13.00	-44.46	Horizontal
2145.90	-70.04	10.40	0.35	-59.99	-13.00	-46.99	Horizontal
2861.20	-64.35	11.26	0.58	-53.67	-13.00	-40.67	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

Band 12 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1408.00	-64.06	7.86	0.12	-56.32	-13.00	-43.32	Vertical
2112.00	-68.67	10.36	0.30	-58.61	-13.00	-45.61	Vertical
2816.00	-63.12	11.22	0.54	-52.44	-13.00	-39.44	Vertical
1408.00	-68.05	7.86	0.12	-60.31	-13.00	-47.31	Horizontal
2112.00	-67.52	10.36	0.30	-57.46	-13.00	-44.46	Horizontal
2816.00	-64.01	11.22	0.54	-53.33	-13.00	-40.33	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1415.00	-63.31	7.92	0.13	-55.52	-13.00	-42.52	Vertical
2122.50	-67.51	10.37	0.32	-57.46	-13.00	-44.46	Vertical
2830.00	-63.84	11.23	0.55	-53.16	-13.00	-40.16	Vertical
1415.00	-65.28	7.92	0.13	-57.49	-13.00	-44.49	Horizontal
2122.50	-69.93	10.37	0.32	-59.88	-13.00	-46.88	Horizontal
2830.00	-62.95	11.23	0.55	-52.27	-13.00	-39.27	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1422.00	-68.15	7.98	0.15	-60.32	-13.00	-47.32	Vertical
2133.00	-66.68	10.39	0.34	-56.63	-13.00	-43.63	Vertical
2844.00	-65.43	11.24	0.57	-54.76	-13.00	-41.76	Vertical
1422.00	-65.99	7.98	0.15	-58.16	-13.00	-45.16	Horizontal
2133.00	-70.38	10.39	0.34	-60.33	-13.00	-47.33	Horizontal
2844.00	-65.46	11.24	0.57	-54.79	-13.00	-41.79	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							

**LTE Band 17 part:**

Band 17 (5MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1413.00	-67.55	7.90	0.12	-59.77	-13.00	-46.77	Vertical
2119.50	-68.01	10.37	0.31	-57.95	-13.00	-44.95	Vertical
2826.00	-65.44	11.23	0.54	-54.75	-13.00	-41.75	Vertical
1413.00	-66.51	7.90	0.12	-58.73	-13.00	-45.73	Horizontal
2119.50	-65.69	10.37	0.31	-55.63	-13.00	-42.63	Horizontal
2826.00	-65.53	11.23	0.54	-54.84	-13.00	-41.84	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1420.00	-68.14	7.96	0.14	-60.32	-13.00	-47.32	Vertical
2130.00	-66.81	10.38	0.33	-56.76	-13.00	-43.76	Vertical
2840.00	-63.84	11.24	0.56	-53.16	-13.00	-40.16	Vertical
1420.00	-67.59	7.96	0.14	-59.77	-13.00	-46.77	Horizontal
2130.00	-64.22	10.38	0.33	-54.17	-13.00	-41.17	Horizontal
2840.00	-62.91	11.24	0.56	-52.23	-13.00	-39.23	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1427.00	-69.18	8.02	0.16	-61.32	-13.00	-48.32	Vertical
2140.50	-69.70	10.40	0.34	-59.64	-13.00	-46.64	Vertical
2854.00	-65.41	11.25	0.57	-54.73	-13.00	-41.73	Vertical
1427.00	-65.98	8.02	0.16	-58.12	-13.00	-45.12	Horizontal
2140.50	-63.68	10.40	0.34	-53.62	-13.00	-40.62	Horizontal
2854.00	-70.47	11.25	0.57	-59.79	-13.00	-46.79	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							

Band 17 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1418.00	-64.13	7.94	0.13	-56.32	-13.00	-43.32	Vertical
2127.00	-69.67	10.38	0.32	-59.61	-13.00	-46.61	Vertical
2836.00	-62.82	11.24	0.56	-52.14	-13.00	-39.14	Vertical
1418.00	-65.25	7.94	0.13	-57.44	-13.00	-44.44	Horizontal
2127.00	-63.71	10.38	0.32	-53.65	-13.00	-40.65	Horizontal
2836.00	-64.87	11.24	0.56	-54.19	-13.00	-41.19	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1420.00	-67.44	7.96	0.14	-59.62	-13.00	-46.62	Vertical
2130.00	-66.49	10.38	0.33	-56.44	-13.00	-43.44	Vertical
2840.00	-62.00	11.24	0.56	-51.32	-13.00	-38.32	Vertical
1420.00	-68.25	7.96	0.14	-60.43	-13.00	-47.43	Horizontal
2130.00	-64.84	10.38	0.33	-54.79	-13.00	-41.79	Horizontal
2840.00	-62.95	11.24	0.56	-52.27	-13.00	-39.27	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1422.00	-71.19	7.98	0.15	-63.36	-13.00	-50.36	Vertical
2133.00	-72.78	10.39	0.34	-62.73	-13.00	-49.73	Vertical
2844.00	-64.86	11.24	0.57	-54.19	-13.00	-41.19	Vertical
1422.00	-68.15	7.98	0.15	-60.32	-13.00	-47.32	Horizontal
2133.00	-64.67	10.39	0.34	-54.62	-13.00	-41.62	Horizontal
2844.00	-72.46	11.24	0.57	-61.79	-13.00	-48.79	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							



## 6.6 Frequency stability V.S. Temperature measurement

Test Requirement:	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(a)(1)(b)
Limit:	±2.5 ppm for Band 5 Within authorized band for Band 2 & 4 & 7 & 12 & 13 & 17
Test setup:	
Test procedure:	<ol style="list-style-type: none"> <li>1. The equipment under test was connected to an external DC power supply and input rated voltage.</li> <li>2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.</li> <li>3. The EUT was placed inside the temperature chamber.</li> <li>4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.</li> <li>5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.</li> <li>6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached</li> </ol>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Measurement Data (worst case):**

**LTE Band 2 part:**

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 channel=1880.00MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	170	0.090426	Within authorized band for Band 2	Pass
	-20	165	0.087766		
	-10	157	0.083511		
	0	134	0.071277		
	10	126	0.067021		
	20	152	0.080851		
	30	146	0.077660		
	40	139	0.073936		
	50	115	0.061170		
16QAM					
3.80	-30	168	0.089362	Within authorized band for Band 2	Pass
	-20	154	0.081915		
	-10	137	0.072872		
	0	160	0.085106		
	10	123	0.065426		
	20	117	0.062234		
	30	110	0.058511		
	40	133	0.070745		
	50	127	0.067553		

*Note: Only the worst case shown in the report.*

**LTE Band 4 part:**

Reference Frequency: LTE Band 4 (10MHz) Middle channel=20175 channel=1732.50MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
3.80	-30	173	0.099856	Within authorized band for Band 4	Pass
	-20	167	0.096392		
	-10	159	0.091775		
	0	130	0.075036		
	10	113	0.065224		
	20	153	0.088312		
	30	124	0.071573		
	40	113	0.065224		
	50	153	0.088312		
<b>16QAM</b>					
3.80	-30	170	0.098124	Within authorized band for Band 4	Pass
	-20	160	0.092352		
	-10	154	0.088889		
	0	124	0.071573		
	10	119	0.068687		
	20	130	0.075036		
	30	112	0.064646		
	40	144	0.083117		
	50	136	0.078499		

*Note: Only the worst case shown in the report.*

**LTE Band 5 part:**

Reference Frequency: LTE Band 5 (10MHz) Middle channel=20525 channel=836.50MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
3.80	-30	168	0.200837	±2.5	Pass
	-20	156	0.186491		
	-10	149	0.178123		
	0	127	0.151823		
	10	162	0.193664		
	20	142	0.169755		
	30	135	0.161387		
	40	121	0.144650		
	50	113	0.135087		
<b>16QAM</b>					
3.80	-30	166	0.198446	±2.5	Pass
	-20	159	0.190078		
	-10	121	0.144650		
	0	111	0.132696		
	10	134	0.160191		
	20	127	0.151823		
	30	153	0.182905		
	40	146	0.174537		
	50	139	0.166169		

*Note: Only the worst case shown in the report.*

**LTE Band 7 part:**

Reference Frequency: LTE Band 7 (10MHz) Middle channel=21100 Frequency=2535.00MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
3.80	-30	180	0.071006	Within authorized band for Band 7	Pass
	-20	173	0.068245		
	-10	165	0.065089		
	0	159	0.062722		
	10	142	0.056016		
	20	138	0.054438		
	30	120	0.047337		
	40	130	0.051282		
	50	150	0.059172		
<b>16QAM</b>					
3.80	-30	176	0.069428	Within authorized band for Band 7	Pass
	-20	154	0.060750		
	-10	149	0.058777		
	0	133	0.052465		
	10	126	0.049704		
	20	160	0.063116		
	30	116	0.045759		
	40	140	0.055227		
	50	169	0.066667		

*Note: Only the worst case shown in the report.*

**LTE Band 12 part:**

Reference Frequency: LTE Band 12 (10MHz) Middle channel=23095 channel=707.50MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
3.80	-30	173	0.244523	Within authorized band for Band 12	Pass
	-20	156	0.220495		
	-10	140	0.197880		
	0	130	0.183746		
	10	120	0.169611		
	20	110	0.155477		
	30	134	0.189399		
	40	148	0.209187		
	50	162	0.228975		
<b>16QAM</b>					
3.80	-30	170	0.240283	Within authorized band for Band 12	Pass
	-20	166	0.234629		
	-10	143	0.202120		
	0	134	0.189399		
	10	125	0.176678		
	20	109	0.154064		
	30	150	0.212014		
	40	157	0.221908		
	50	118	0.166784		
<i>Note: Only the worst case shown in the report.</i>					

**LTE Band 17 part:**

Reference Frequency: LTE Band 17 (10MHz) Middle channel=23790 channel=710.00MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
<b>QPSK</b>					
3.80	-30	170	0.239437	Within authorized band for Band 17	Pass
	-20	160	0.225352		
	-10	153	0.215493		
	0	145	0.204225		
	10	136	0.191549		
	20	130	0.183099		
	30	121	0.170423		
	40	116	0.163380		
	50	107	0.150704		
<b>16QAM</b>					
3.80	-30	167	0.235211	Within authorized band for Band 17	Pass
	-20	159	0.223944		
	-10	154	0.216901		
	0	124	0.174648		
	10	116	0.163380		
	20	105	0.147887		
	30	130	0.183099		
	40	143	0.201408		
	50	136	0.191549		

*Note: Only the worst case shown in the report.*

## 6.7 Frequency stability V.S. Voltage measurement

Test Requirement:	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(d)(2)
Limit:	±2.5 ppm for Band 5 Within authorized band for Band 2 & 4 & 7 & 12 & 13 & 17
Test setup:	<p>The diagram illustrates the test setup. A Power Source is connected to a Divider. The Divider is connected to two Spectrum Analyzers (SS and SA) and an EUT (Equipment Under Test) inside a Temperature &amp; Humidity Chamber. The Power Source is also connected to the EUT.</p>
Test procedure:	<ol style="list-style-type: none"> <li>1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.</li> <li>2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.</li> <li>3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.</li> </ol>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed



**Measurement Data (worst case):**

**LTE Band 2 part:**

Reference Frequency: LTE Band 2(10MHz) Middle channel=18900 channel=1880.00MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	89	0.047340	Within authorized band for Band 2	Pass
	3.80	76	0.040426		
	3.50	65	0.034574		
16QAM					
25	4.35	80	0.042553	Within authorized band for Band 2	Pass
	3.80	70	0.037234		
	3.50	59	0.031383		

*Note: Only the worst case shown in the report.*

**LTE Band 4 part:**

Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	88	0.050794	Within authorized band for Band 4	Pass
	3.80	70	0.040404		
	3.50	60	0.034632		
16QAM					
25	4.35	80	0.046176	Within authorized band for Band 4	Pass
	3.80	53	0.030592		
	3.50	74	0.042713		

*Note: Only the worst case shown in the report.*

**LTE Band 5 part:**

Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 channel=836.50MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.40	90	0.107591	±2.5	Pass
	3.85	76	0.090855		
	3.50	54	0.064555		
16QAM					
25	4.40	83	0.099223	±2.5	Pass
	3.85	62	0.074118		
	3.50	74	0.088464		

*Note: Only the worst case shown in the report.*

**LTE Band 7 part:**

Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.00MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	90	0.035503	Within authorized band for Band 7	Pass
	3.80	79	0.031164		
	3.50	60	0.023669		
16QAM					
25	4.35	87	0.034320	Within authorized band for Band 7	Pass
	3.80	58	0.022880		
	3.50	70	0.027613		

*Note: Only the worst case shown in the report.*

**LTE Band 12 part:**

Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 channel=707.50MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	88	0.124382	Within authorized band for Band 12	Pass
	3.80	66	0.093286		
	3.50	77	0.108834		
16QAM					
25	4.35	83	0.117314	Within authorized band for Band 12	Pass
	3.80	61	0.086219		
	3.50	70	0.098940		

*Note: Only the worst case shown in the report.*

**LTE Band 17 part:**

Reference Frequency: LTE Band 17(10MHz) Middle channel=23790 channel=710.00MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	91	0.128169	Within authorized band for Band 17	Pass
	3.80	50	0.070423		
	3.50	73	0.102817		
16QAM					
25	4.35	84	0.118310	Within authorized band for Band 17	Pass
	3.80	60	0.084507		
	3.50	72	0.101408		

*Note: Only the worst case shown in the report.*