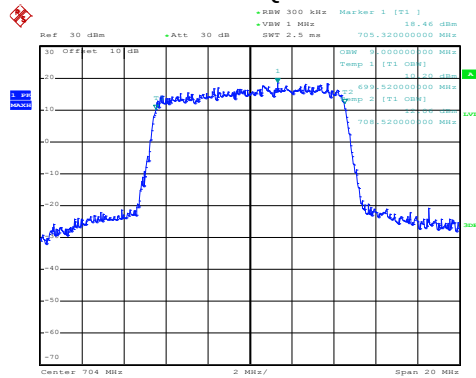


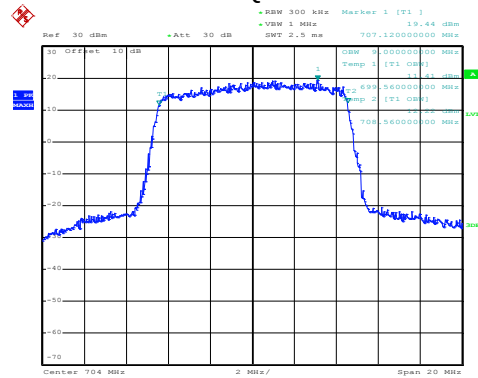
LTE Band 12: 99% Occupancy bandwidth
BW: 10MHz

16QAM



Date: 14.MAY.2020 16:21:12

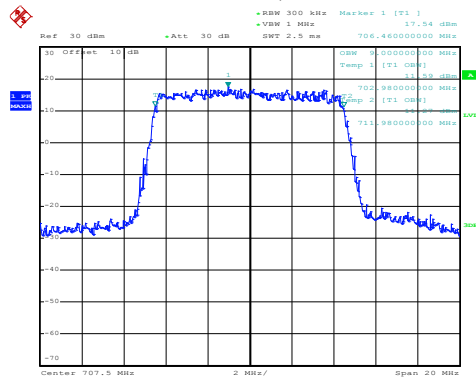
QPSK



Date: 14.MAY.2020 16:21:17

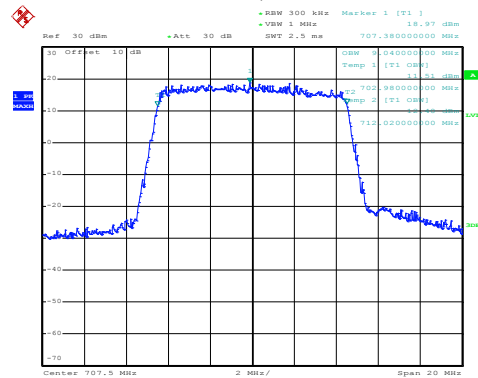
Lowest channel

16QAM



Date: 14.MAY.2020 16:21:57

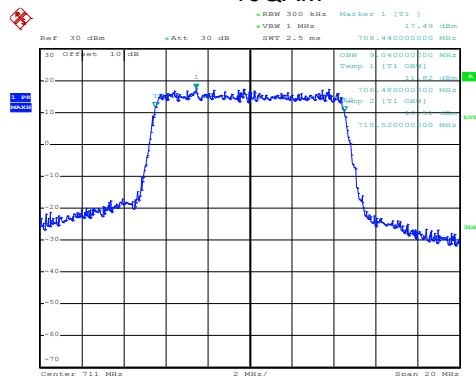
QPSK



Date: 14.MAY.2020 16:21:53

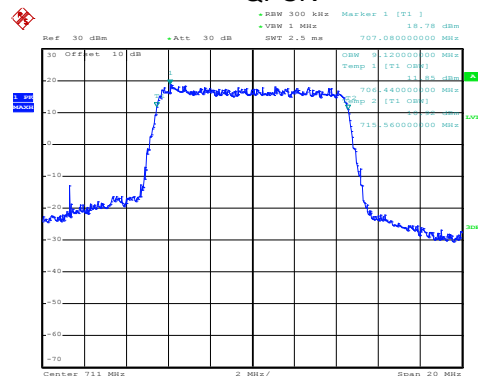
Middle channel

16QAM



Date: 14.MAY.2020 16:22:12

QPSK

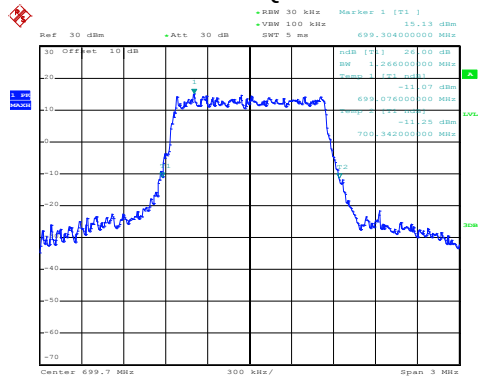


Date: 14.MAY.2020 16:22:08

Highest channel

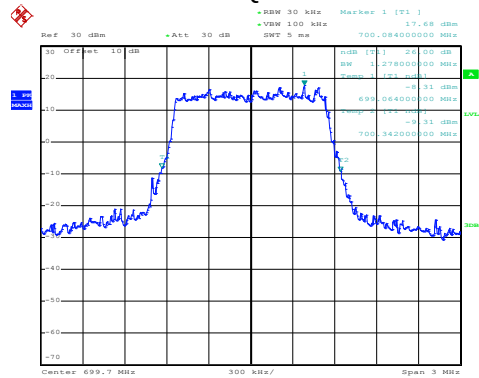
LTE Band 12: -26dBc bandwidth
BW: 1.4MHz

16QAM



Date: 14.MAY.2020 16:26:13

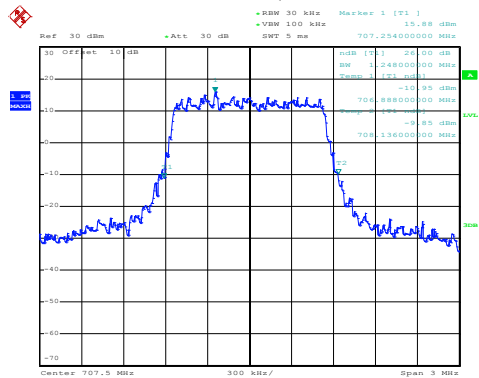
QPSK



Date: 14.MAY.2020 16:26:08

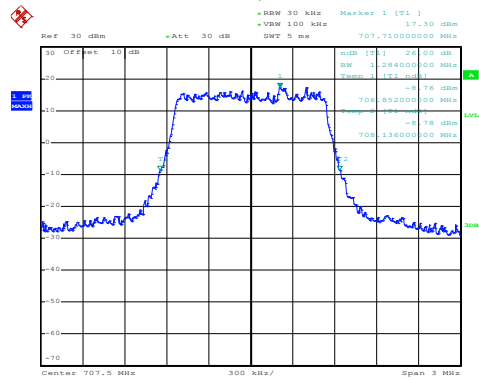
Lowest channel

16QAM



Date: 14.MAY.2020 16:27:11

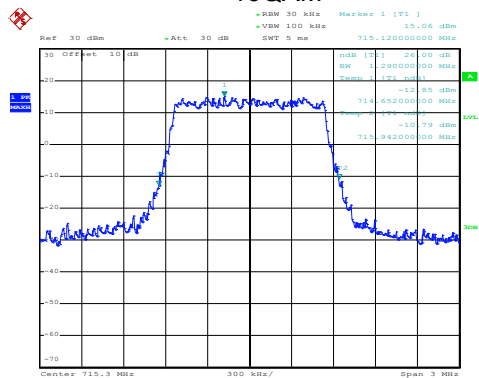
QPSK



Date: 14.MAY.2020 16:27:07

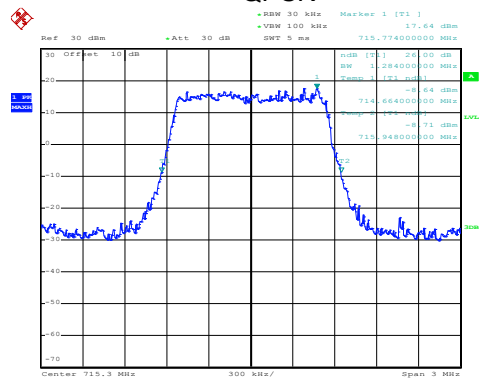
Middle channel

16QAM



Date: 14.MAY.2020 16:27:25

QPSK

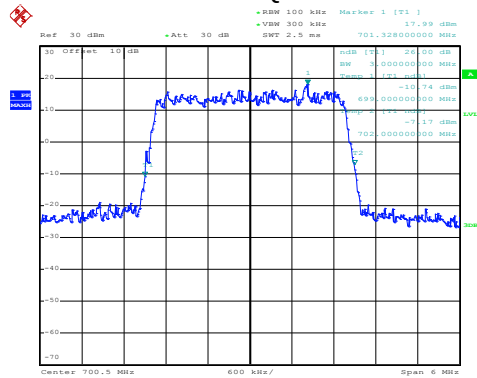


Date: 14.MAY.2020 16:27:31

Highest channel

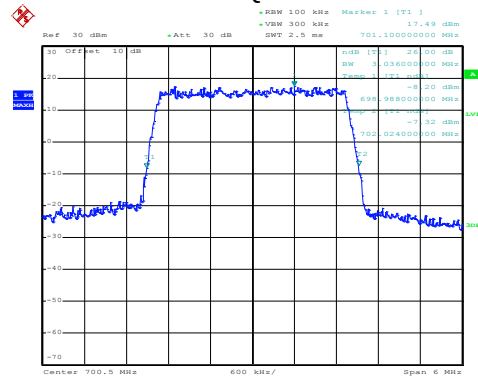
LTE Band 12: -26dBc bandwidth
BW: 3MHz

16QAM



Date: 14.MAY.2020 16:24:39

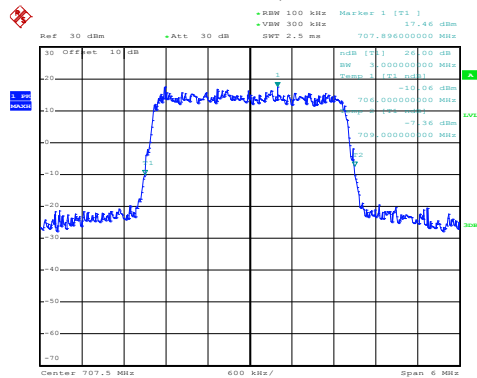
QPSK



Date: 14.MAY.2020 16:24:35

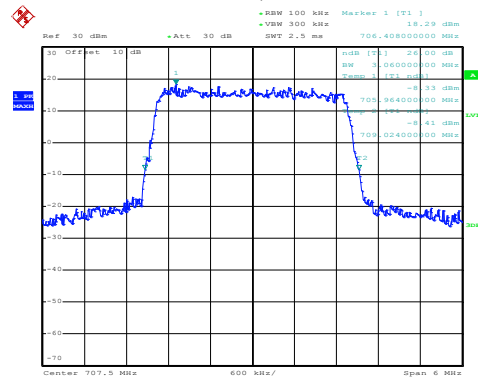
Lowest channel

16QAM



Date: 14.MAY.2020 16:24:52

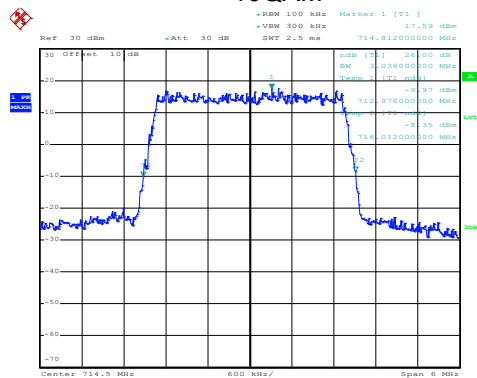
QPSK



Date: 14.MAY.2020 16:24:49

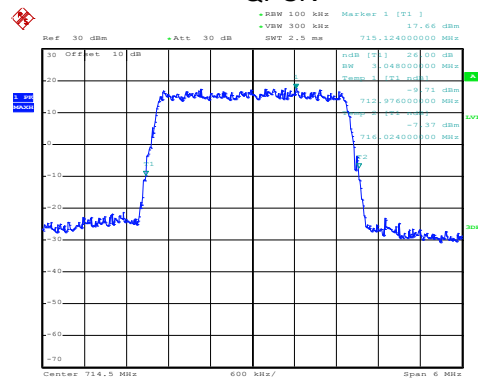
Middle channel

16QAM



Date: 14.MAY.2020 16:25:30

QPSK



Date: 14.MAY.2020 16:25:36

Highest channel

16QAM



QPSK



Lowest channel

16QAM



QPSK

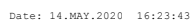


Middle channel

16QAM



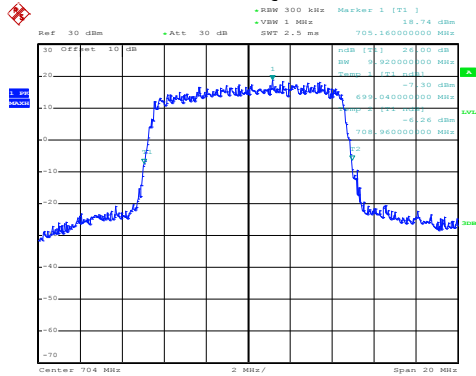
QPSK



Highest channel

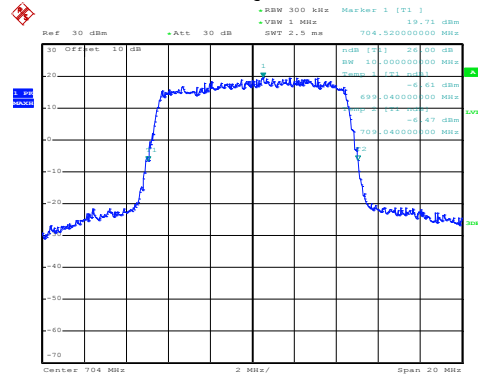
LTE Band 12: -26dBc bandwidth
BW: 10MHz

16QAM



Date: 14.MAY.2020 16:21:30

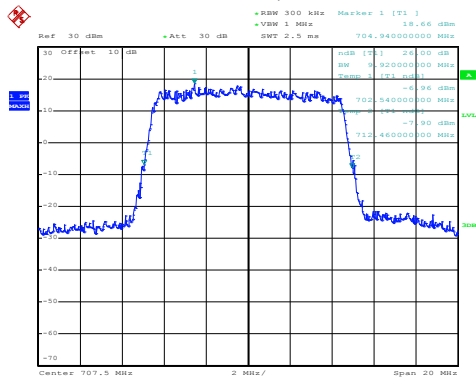
QPSK



Date: 14.MAY.2020 16:21:25

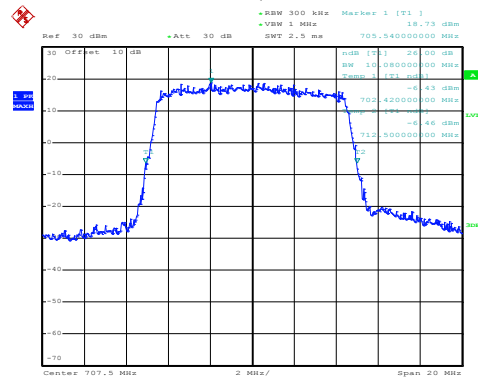
Lowest channel

16QAM



Date: 14.MAY.2020 16:21:46

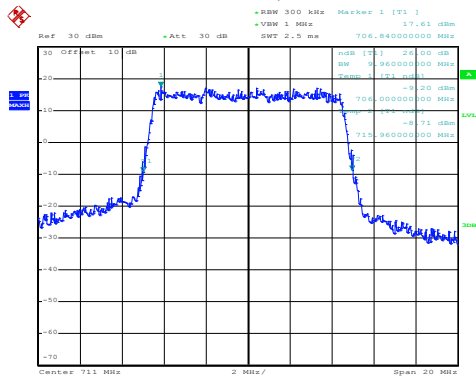
QPSK



Date: 14.MAY.2020 16:21:42

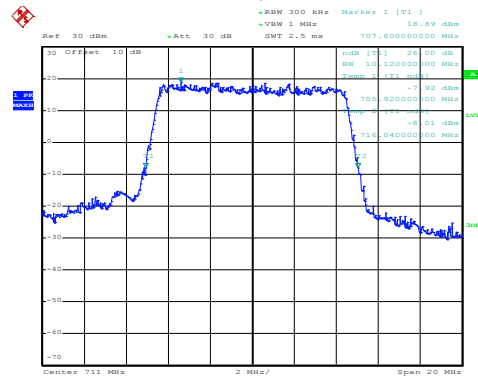
Middle channel

16QAM



Date: 14.MAY.2020 16:22:21

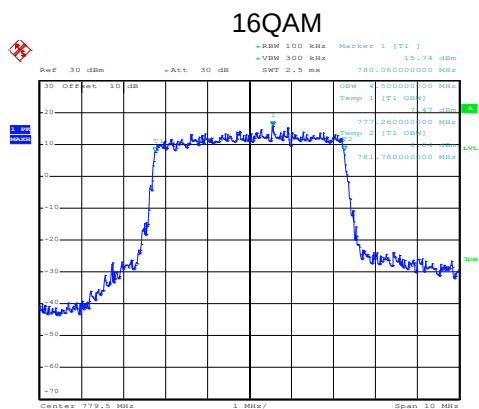
QPSK



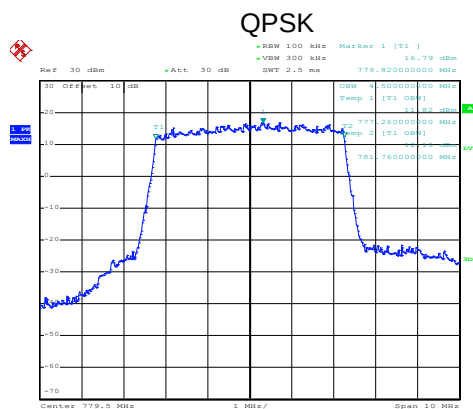
Date: 14.MAY.2020 16:22:18

Highest channel

LTE Band 13 part:

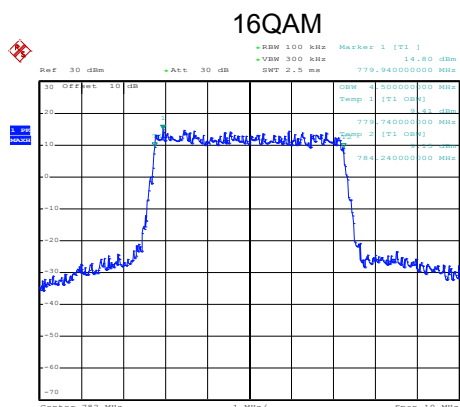
LTE Band 13: 99% Occupy bandwidth
BW: 5MHz

Date: 14.MAY.2020 16:17:59

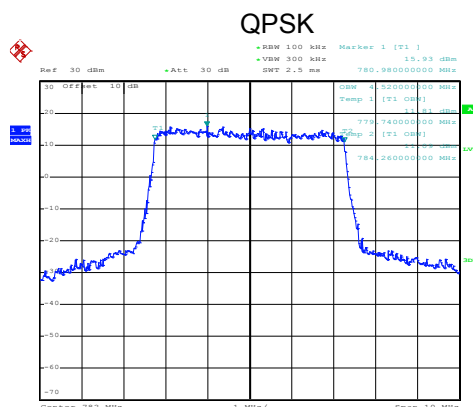


Date: 14.MAY.2020 16:17:56

Lowest channel

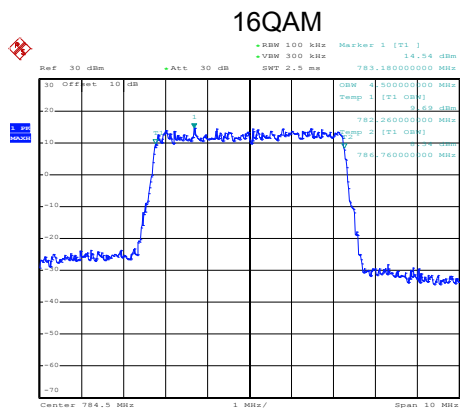


Date: 14.MAY.2020 16:18:40

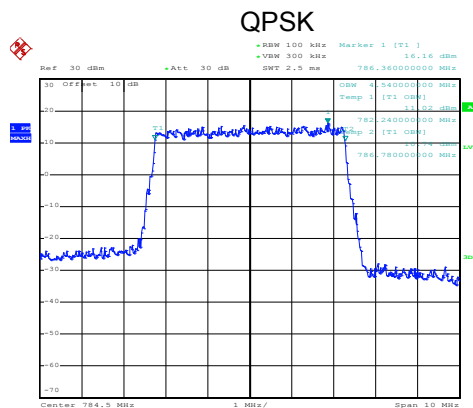


Date: 14.MAY.2020 16:18:37

Middle channel



Date: 14.MAY.2020 16:18:56

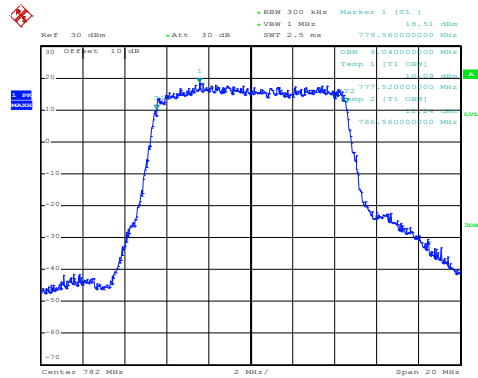


Date: 14.MAY.2020 16:18:51

Highest channel

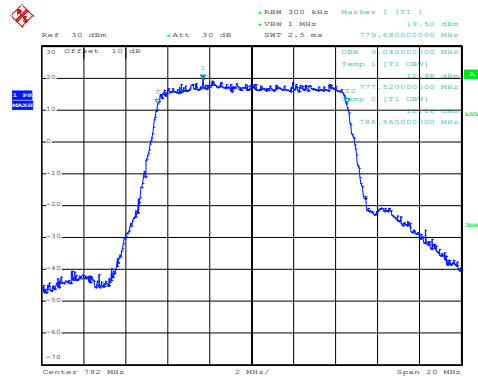
LTE Band 13: 99% Occupancy bandwidth
BW: 10MHz

16QAM



Date: 14.MAY.2020 16:19:57

QPSK

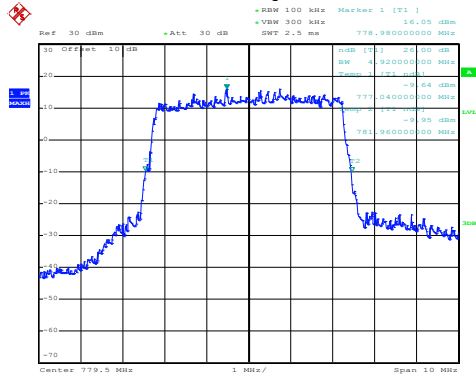


Date: 14.MAY.2020 16:19:52

Middle channel

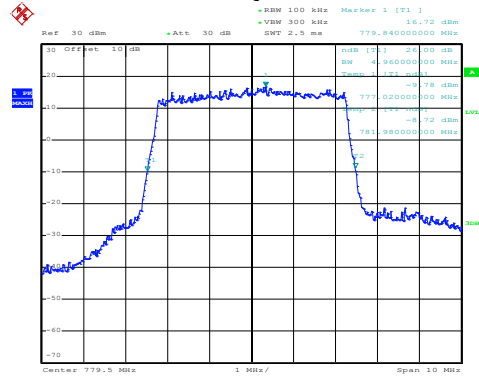
LTE Band 13: -26dBc bandwidth
BW: 5MHz

16QAM



Date: 14.MAY.2020 16:18:13

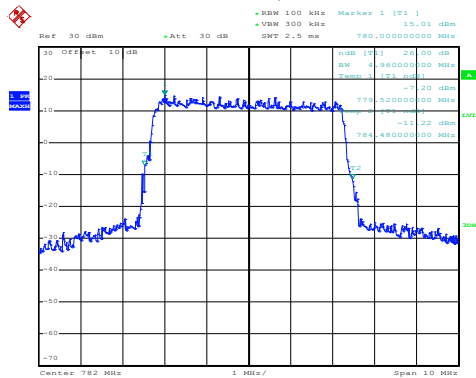
QPSK



Date: 14.MAY.2020 16:18:09

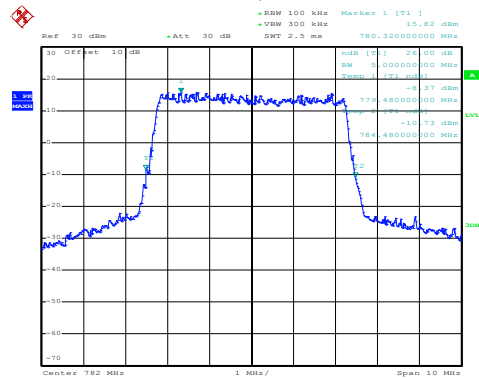
Lowest channel

16QAM



Date: 14.MAY.2020 16:18:32

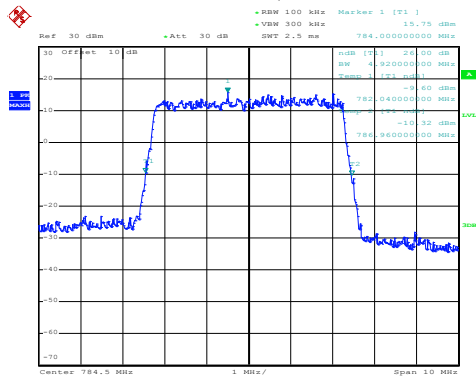
QPSK



Date: 14.MAY.2020 16:18:27

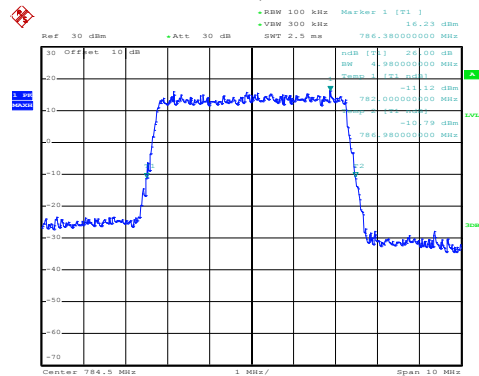
Middle channel

16QAM



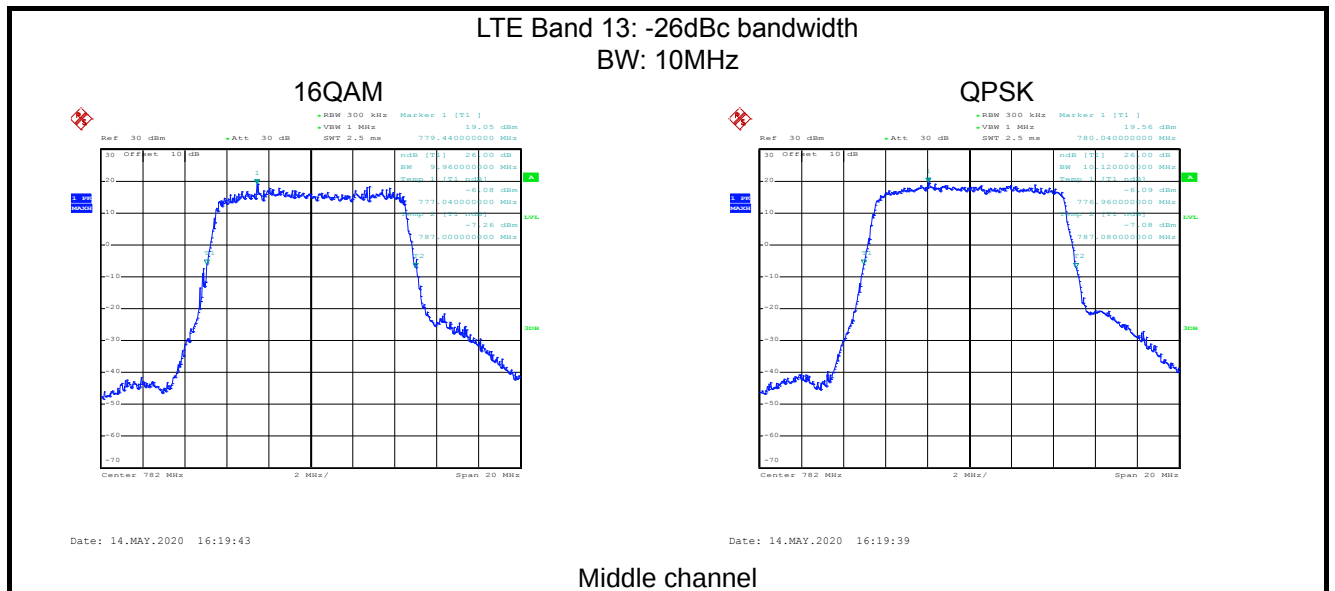
Date: 14.MAY.2020 16:19:07

QPSK

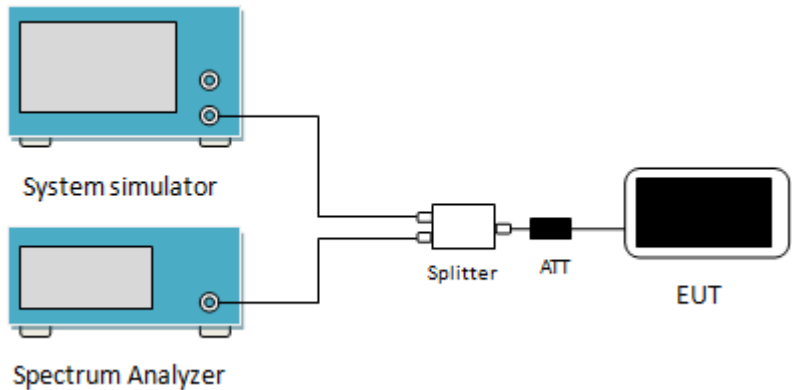


Date: 14.MAY.2020 16:19:03

Highest channel

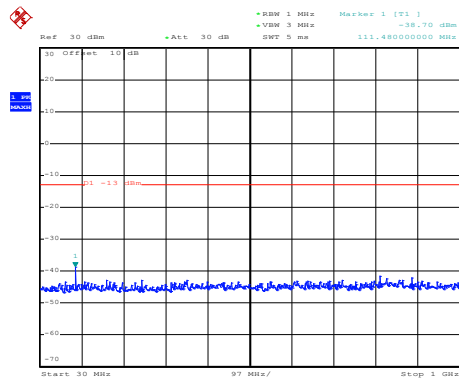


6.4 Out of band emission at antenna terminals

Test Requirement:	Part 22.917(a), Part 24.238 (a), part 27.53(g), part 27.53(h), Part 27.53(m)
Limit:	LTE Band 2 & 4 & 5 & 12 & 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 $43 + 10 \log_{10}(P)$ dB (-13 dBm). LTE Band 7: For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ 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 than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.
Test Setup:	 The diagram illustrates the test setup. On the left, there are two blue rectangular units: the top one is labeled 'System simulator' and the bottom one is labeled 'Spectrum Analyzer'. Both have a single output port. These two ports are connected to a central 'Splitter' unit, which is a small white rectangle with two input ports and one output port. The output of the Splitter is connected to a black rectangular unit labeled 'ATT' (Attenuator). Finally, the output of the ATT is connected to a white rectangular unit with a black screen, labeled 'EUT' (Equipment Under Test).
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 For the out of band: For Band 5 & 12 & 17 set the RBW=100 kHz, VBW=300 kHz and for Band 2 & 4 & 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. 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.
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.

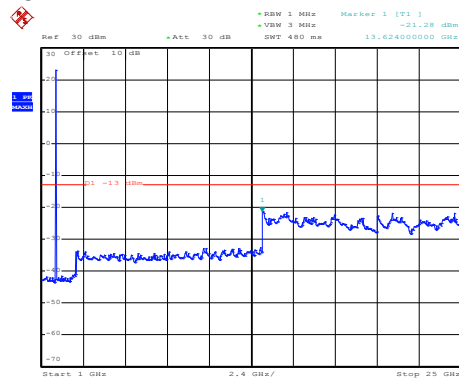
Test plots as follows (Conducted spurious emission) (worst case):
LTE Band 2 part:

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



Date: 14.MAY.2020 16:01:23

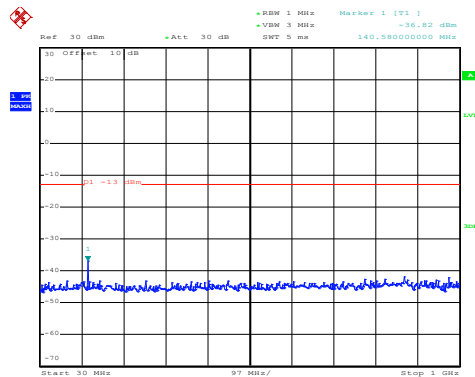
30MHz~1GHz



Date: 14.MAY.2020 15:59:40

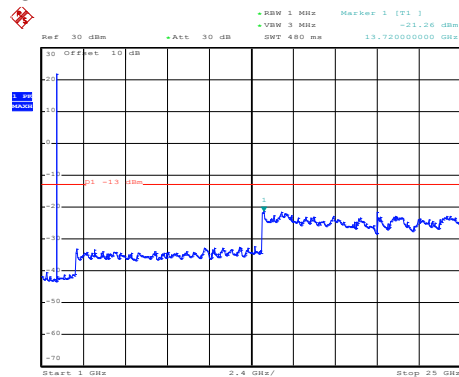
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 16:01:06

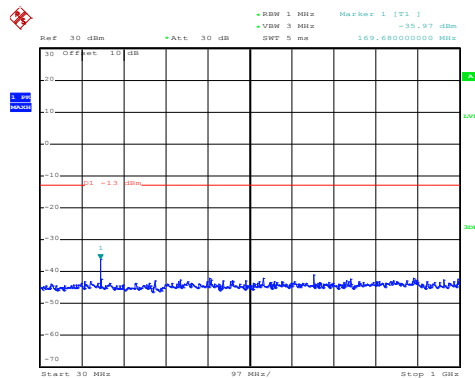
30MHz~1GHz



Date: 14.MAY.2020 16:00:00

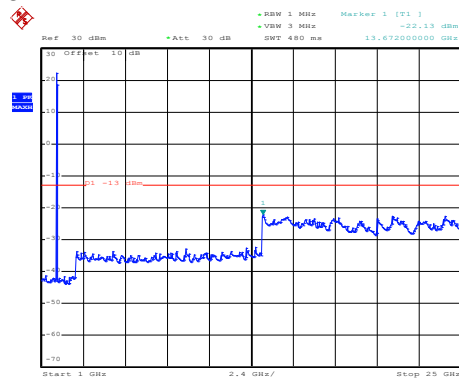
1GHz~25GHz

High channel



Date: 14.MAY.2020 16:00:50

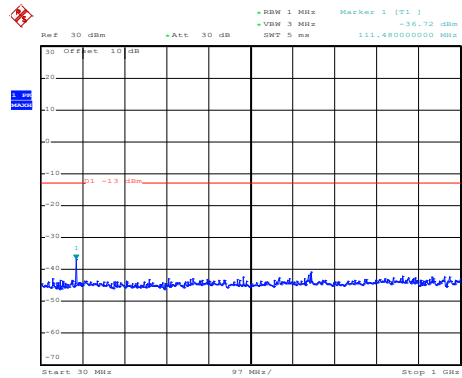
30MHz~1GHz



Date: 14.MAY.2020 16:00:18

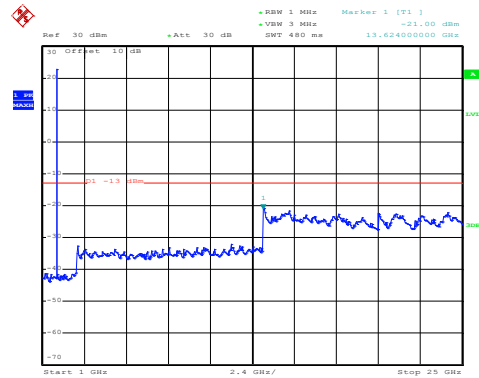
1GHz~25GHz

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



Date: 14.MAY.2020 16:01:17

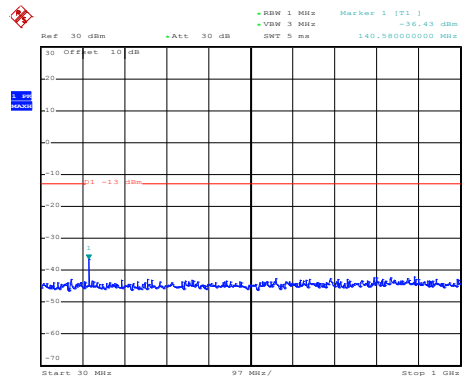
30MHz~1GHz



Date: 14.MAY.2020 15:59:32

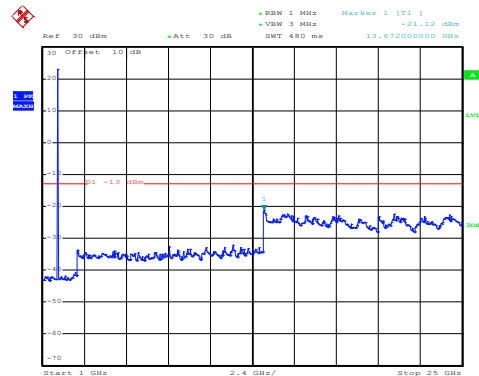
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 16:00:59

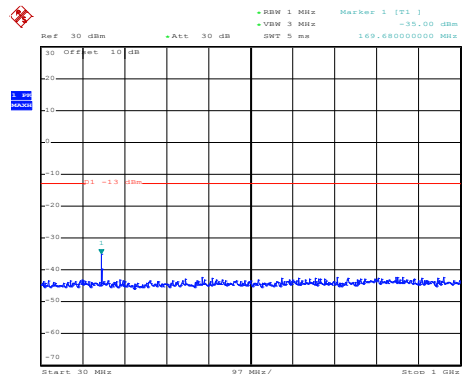
30MHz~1GHz



Date: 14.MAY.2020 15:59:49

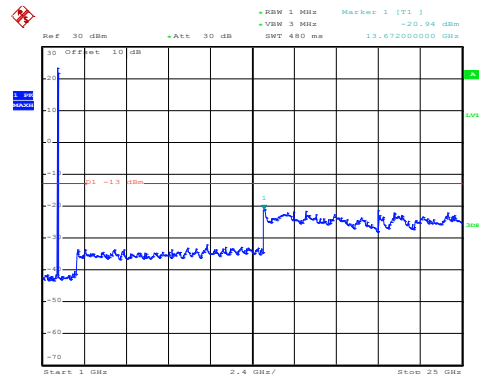
1GHz~25GHz

High channel



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

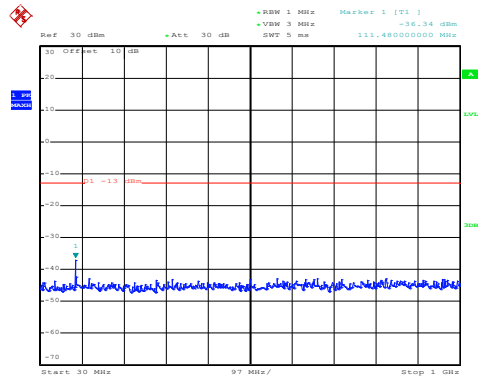
30MHz~1GHz



Date: 14.MAY.2020 16:00:12

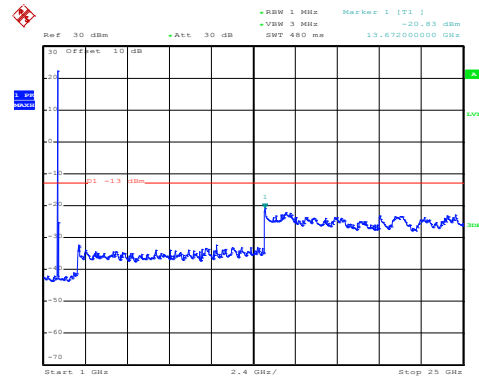
1GHz~25GHz

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



Date: 14.MAY.2020 15:46:04

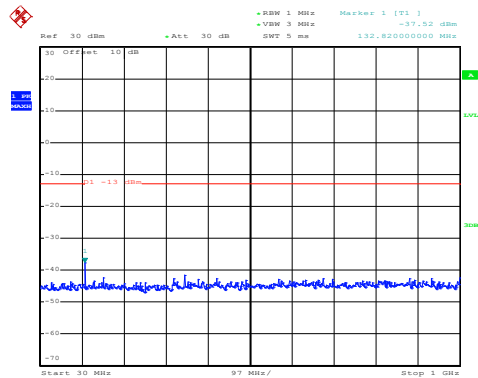
30MHz~1GHz



Date: 14.MAY.2020 15:46:29

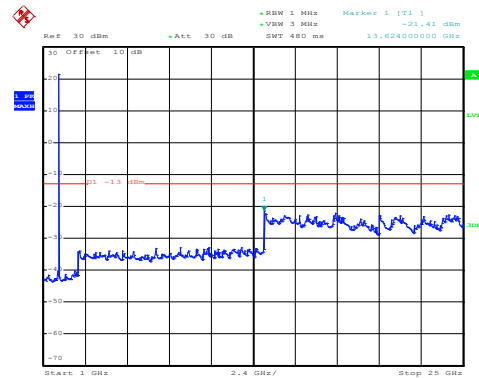
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 15:45:50

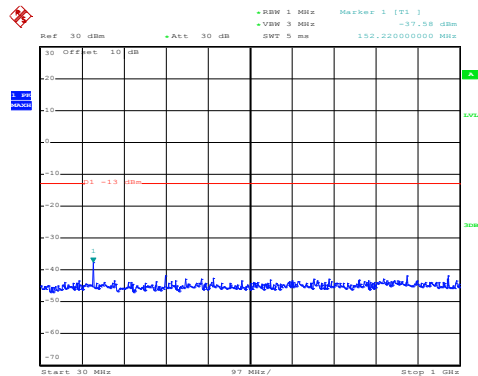
30MHz~1GHz



Date: 14.MAY.2020 15:46:52

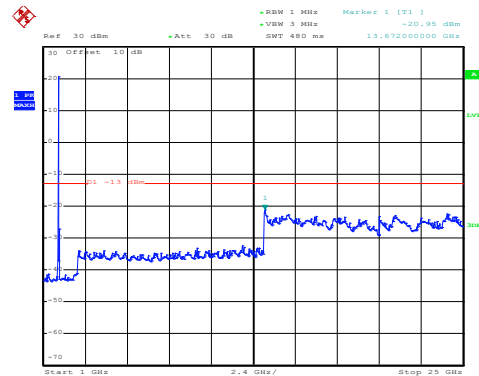
1GHz~25GHz

High channel



Date: 14.MAY.2020 15:45:35

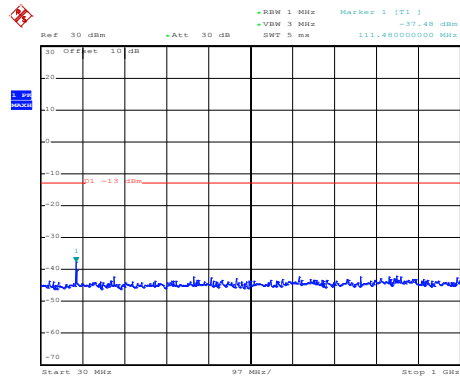
30MHz~1GHz



Date: 14.MAY.2020 15:47:11

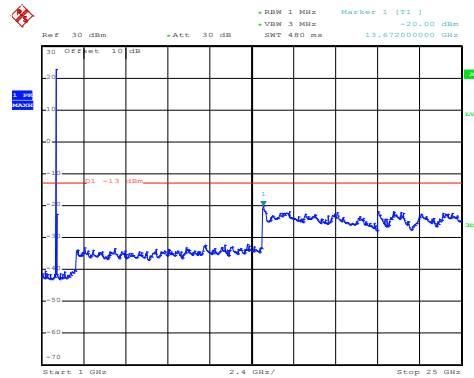
1GHz~25GHz

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



Date: 14.MAY.2020 15:46:00

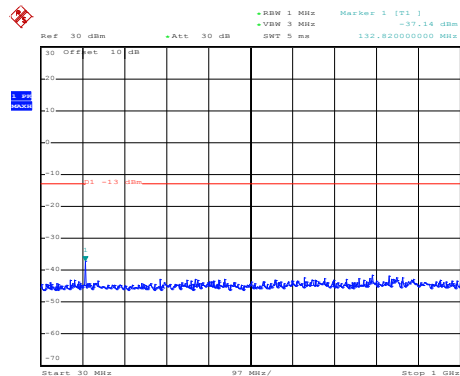
30MHz~1GHz



Date: 14.MAY.2020 15:46:23

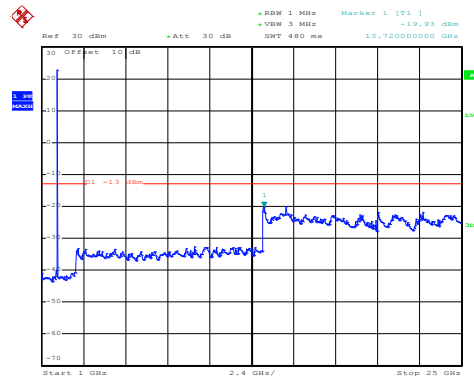
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 15:45:44

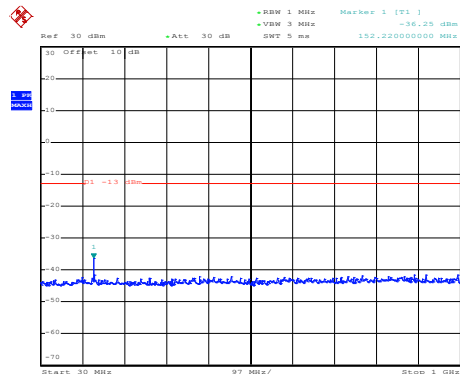
30MHz~1GHz



Date: 14.MAY.2020 15:46:44

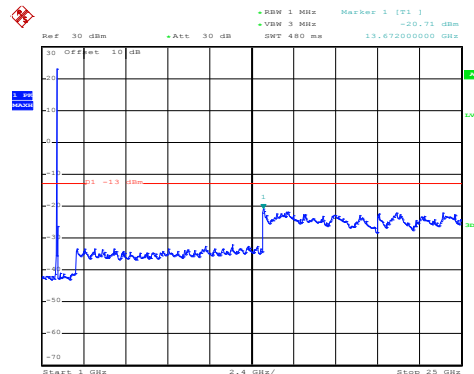
1GHz~25GHz

High channel



Date: 14.MAY.2020 15:45:28

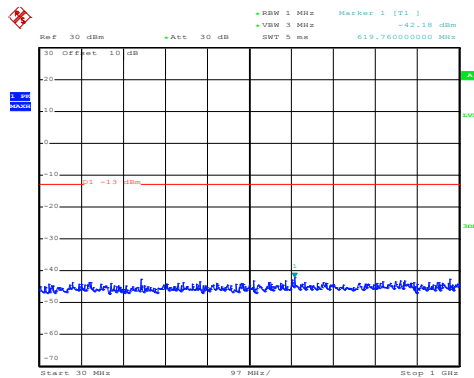
30MHz~1GHz



Date: 14.MAY.2020 15:47:06

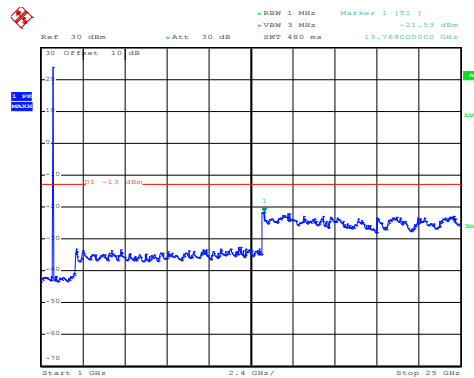
1GHz~25GHz

LTE Band 4 part:

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

Date: 14.MAY.2020 15:57:08

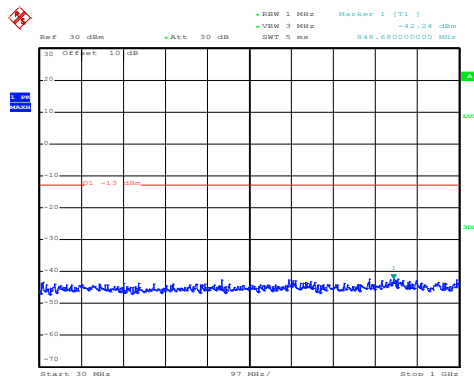
30MHz~1GHz



Date: 14.MAY.2020 15:59:19

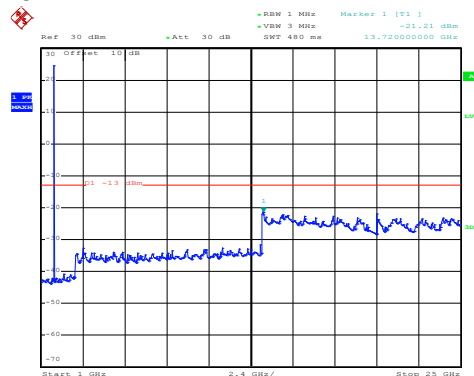
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 15:57:20

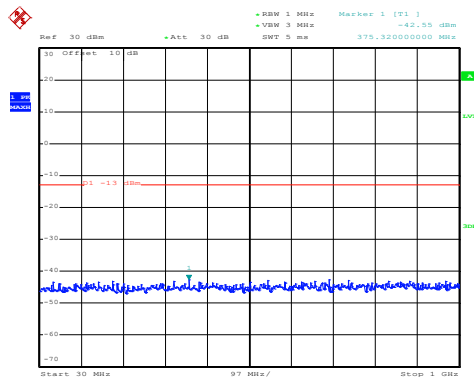
30MHz~1GHz



Date: 14.MAY.2020 15:58:23

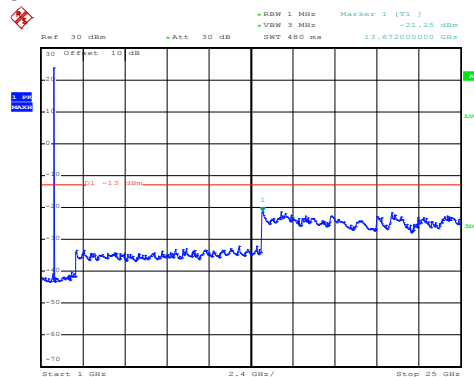
1GHz~25GHz

High channel



Date: 14.MAY.2020 15:57:32

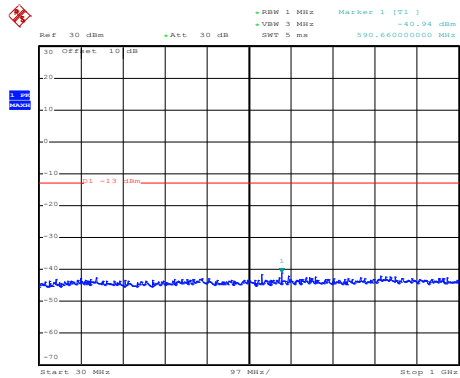
30MHz~1GHz



Date: 14.MAY.2020 15:58:04

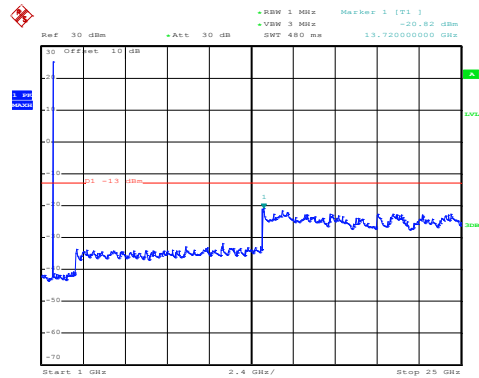
1GHz~25GHz

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



Date: 14.MAY.2020 15:57:04

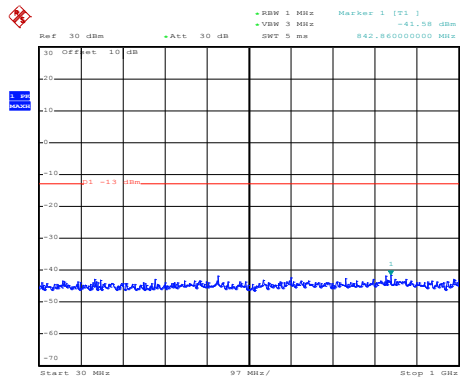
30MHz~1GHz



Date: 14.MAY.2020 15:59:11

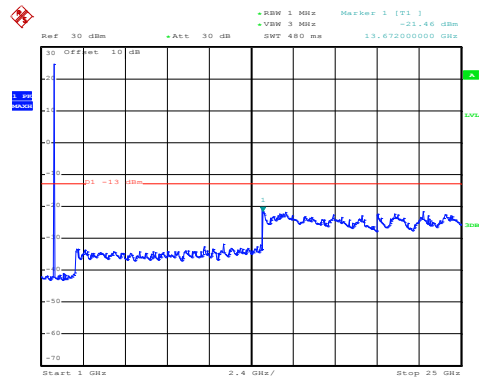
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 15:57:16

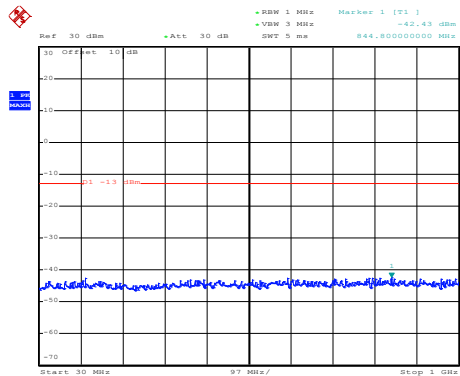
30MHz~1GHz



Date: 14.MAY.2020 15:58:15

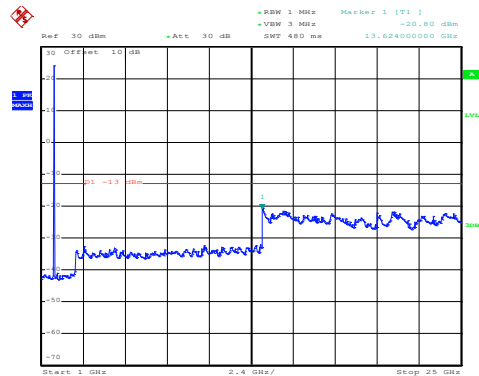
1GHz~25GHz

High channel



Date: 14.MAY.2020 15:57:28

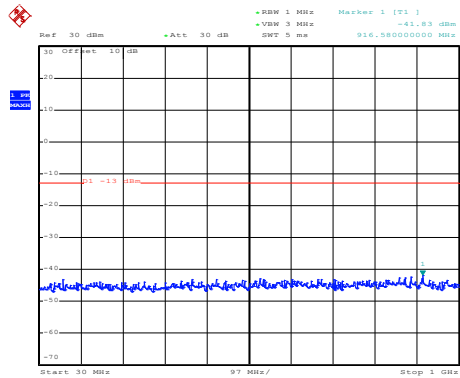
30MHz~1GHz



Date: 14.MAY.2020 15:57:51

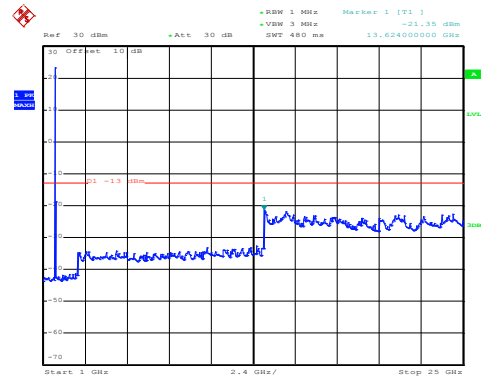
1GHz~25GHz

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



Date: 14.MAY.2020 15:56:08

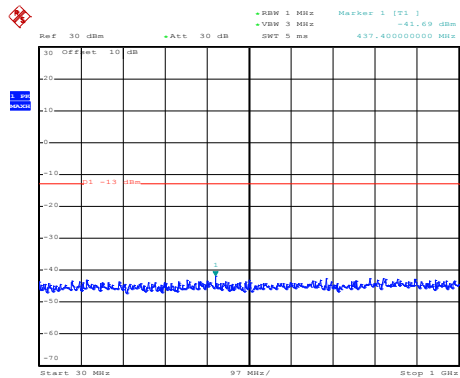
30MHz~1GHz



Date: 14.MAY.2020 15:55:51

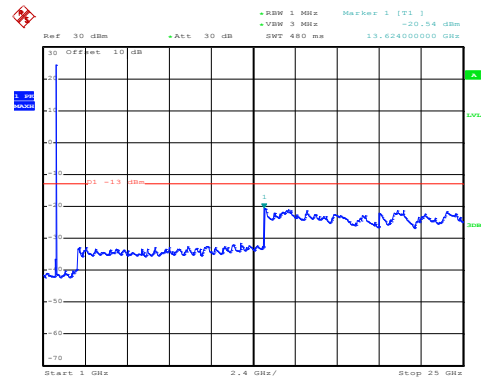
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 15:56:22

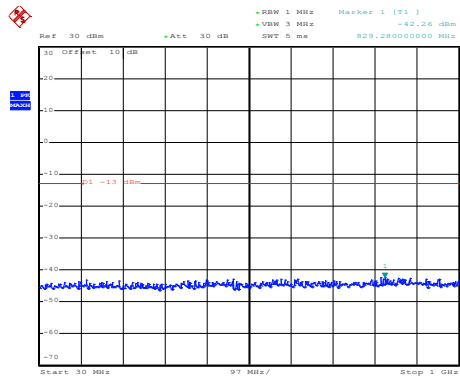
30MHz~1GHz



Date: 14.MAY.2020 15:48:25

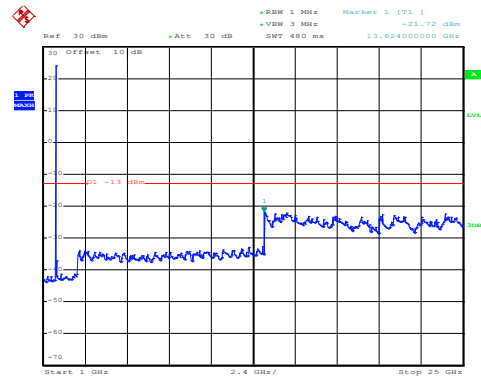
1GHz~25GHz

High channel



Date: 14.MAY.2020 15:56:35

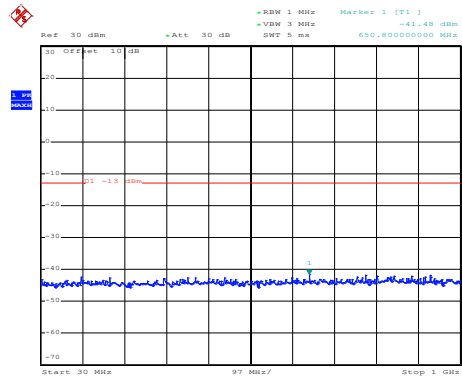
30MHz~1GHz



Date: 14.MAY.2020 15:47:37

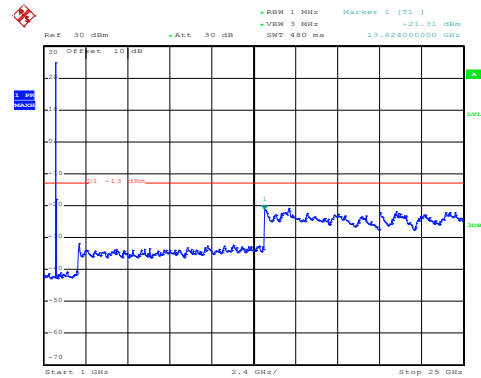
1GHz~25GHz

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



Date: 14.MAY.2020 15:56:04

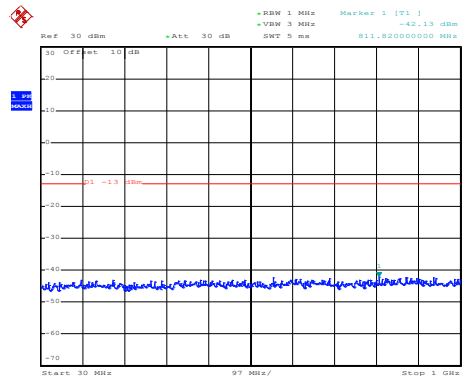
30MHz~1GHz



Date: 14.MAY.2020 15:55:44

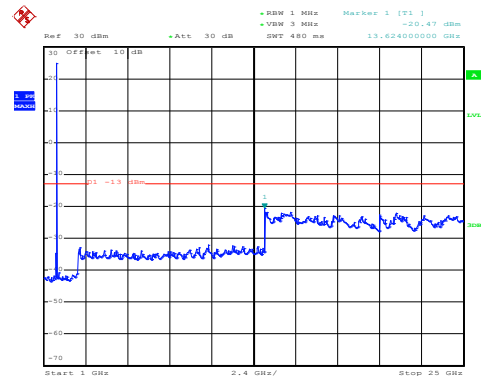
1GHz~25GHz

Middle channel



Date: 14.MAY.2020 15:56:18

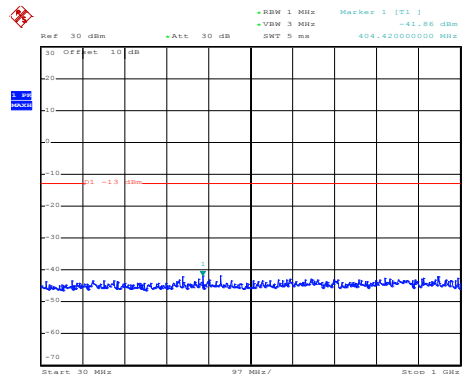
30MHz~1GHz



Date: 14.MAY.2020 15:47:48

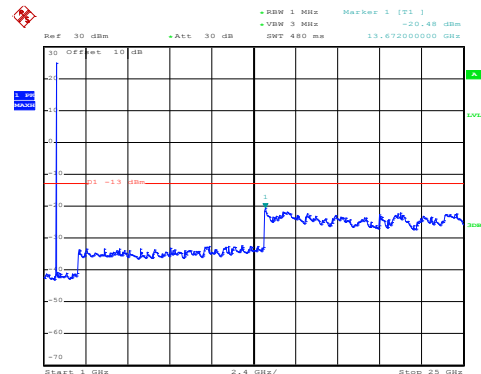
1GHz~25GHz

High channel



Date: 14.MAY.2020 15:56:30

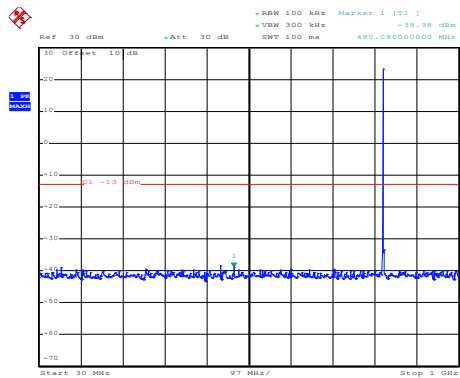
30MHz~1GHz



Date: 14.MAY.2020 15:47:32

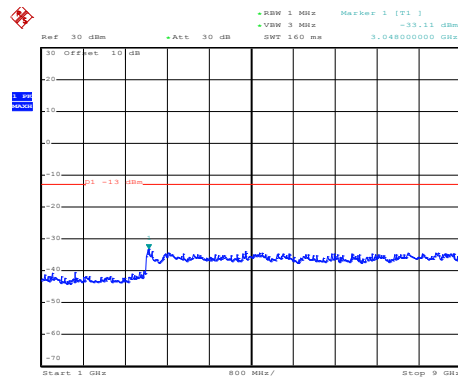
1GHz~25GHz

LTE Band 5 part:

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

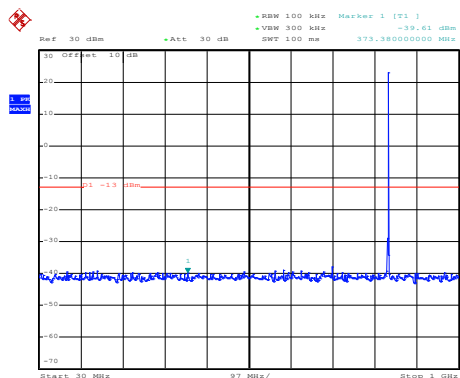
Date: 14.MAY.2020 16:01:50

30MHz~1GHz



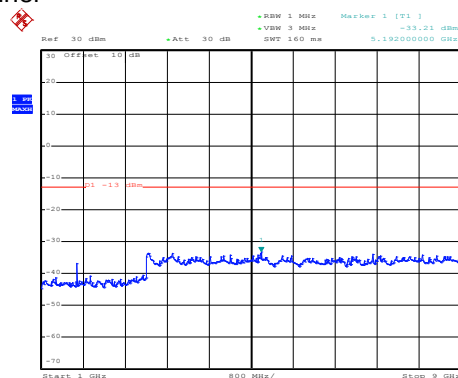
Date: 14.MAY.2020 16:03:30

1GHz~9GHz



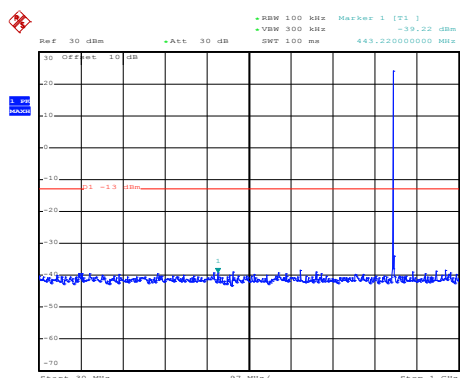
Date: 14.MAY.2020 16:02:10

30MHz~1GHz



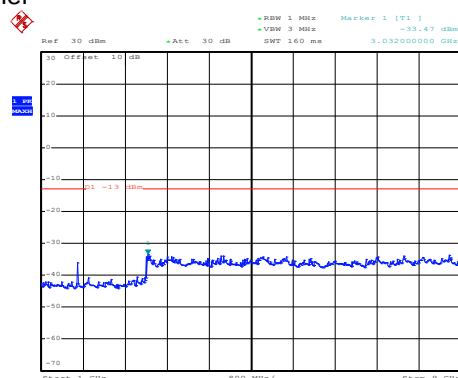
Date: 14.MAY.2020 16:03:13

1GHz~9GHz



Date: 14.MAY.2020 16:02:36

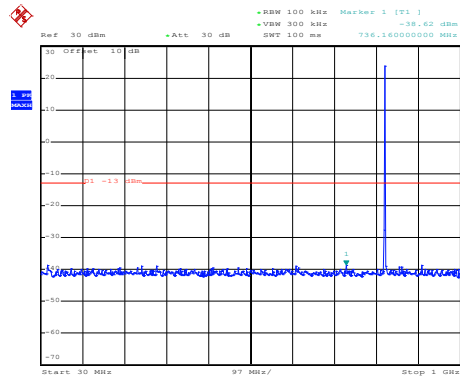
30MHz~1GHz



Date: 14.MAY.2020 16:02:58

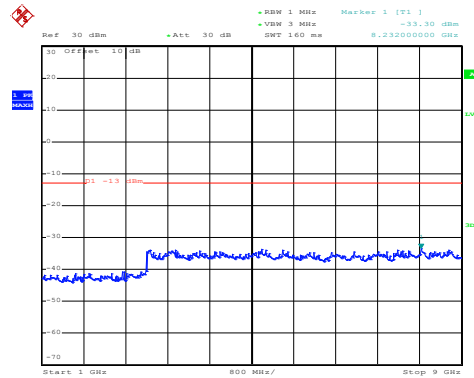
1GHz~9GHz

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



Date: 14.MAY.2020 16:01:42

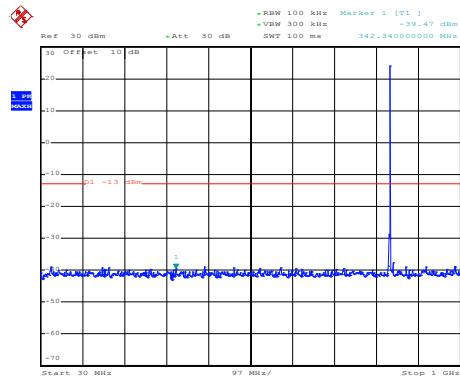
30MHz~1GHz



Date: 14.MAY.2020 16:03:24

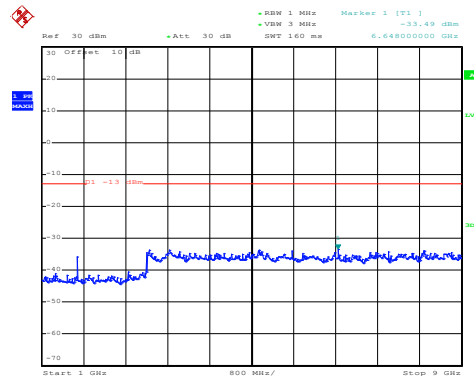
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:02:02

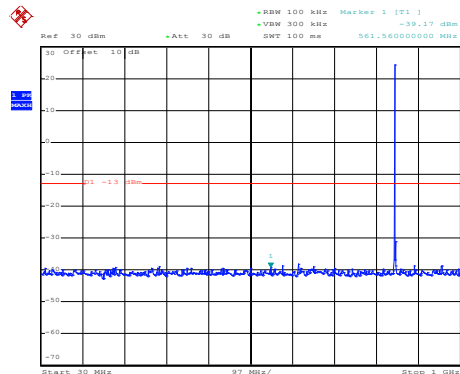
30MHz~1GHz



Date: 14.MAY.2020 16:03:07

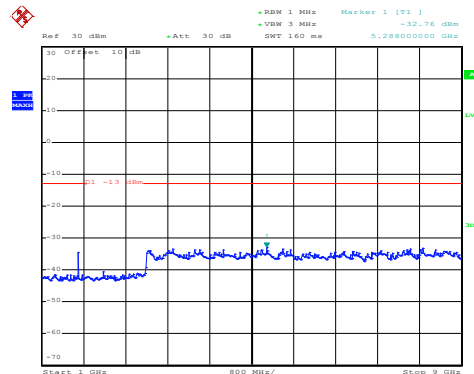
1GHz~9GHz

High channel



Date: 14.MAY.2020 16:02:28

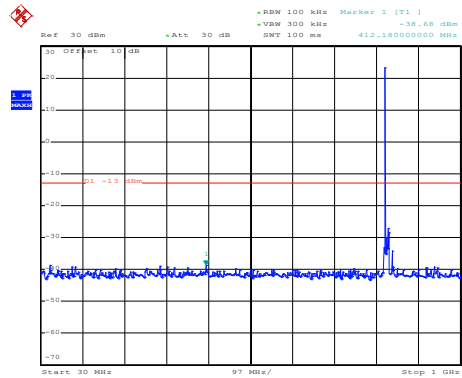
30MHz~1GHz



Date: 14.MAY.2020 16:02:52

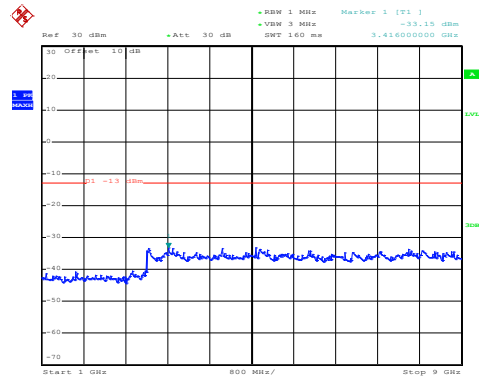
1GHz~9GHz

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



Date: 14.MAY.2020 16:11:29

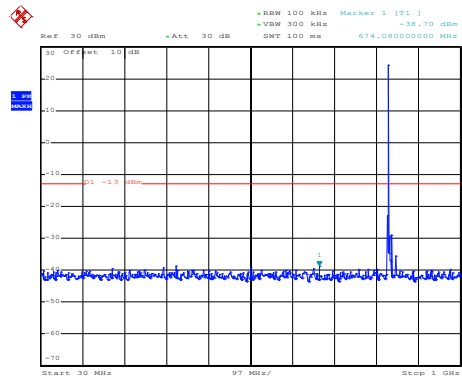
30MHz~1GHz



Date: 14.MAY.2020 16:08:59

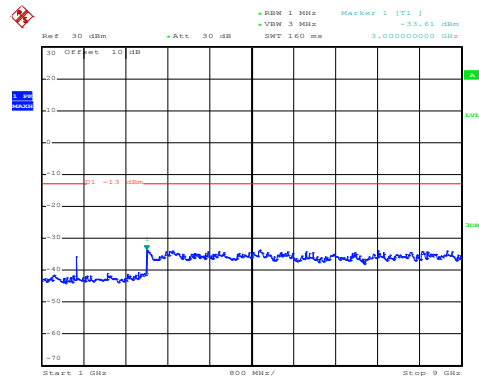
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:11:09

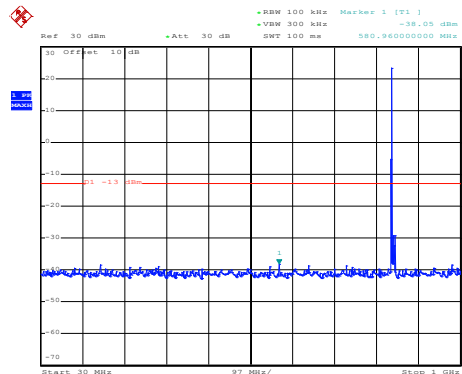
30MHz~1GHz



Date: 14.MAY.2020 16:09:18

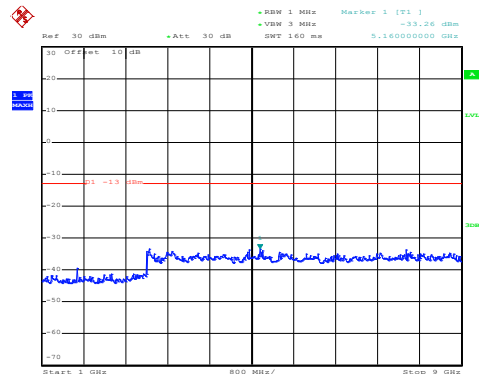
1GHz~9GHz

High channel



Date: 14.MAY.2020 16:10:51

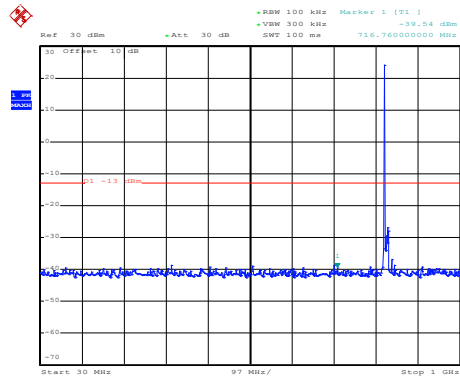
30MHz~1GHz



Date: 14.MAY.2020 16:10:18

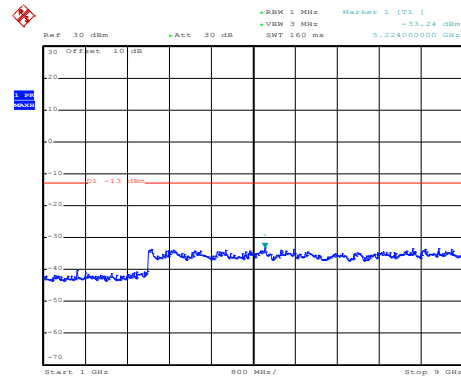
1GHz~9GHz

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



Date: 14.MAY.2020 16:11:21

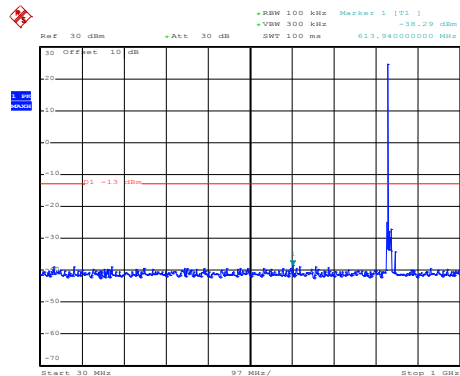
30MHz~1GHz



Date: 14.MAY.2020 16:09:52

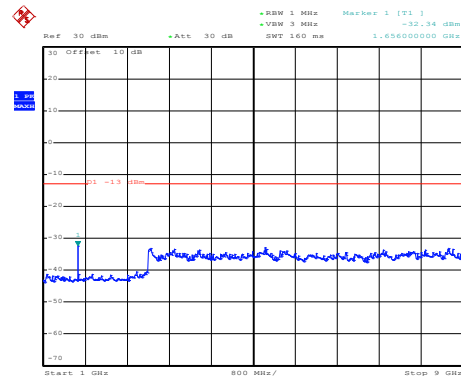
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:11:03

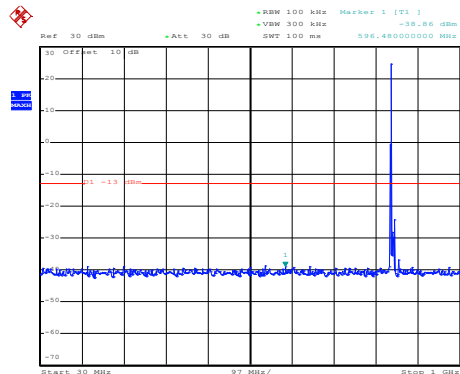
30MHz~1GHz



Date: 14.MAY.2020 16:09:10

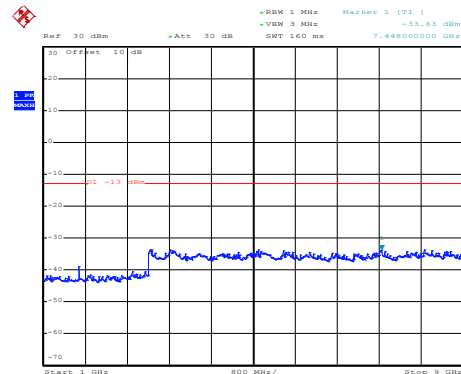
1GHz~9GHz

High channel



Date: 14.MAY.2020 16:10:42

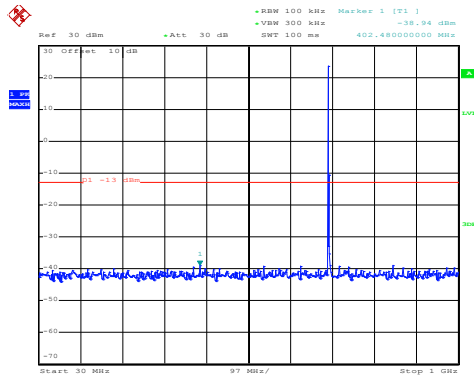
30MHz~1GHz



Date: 14.MAY.2020 16:10:13

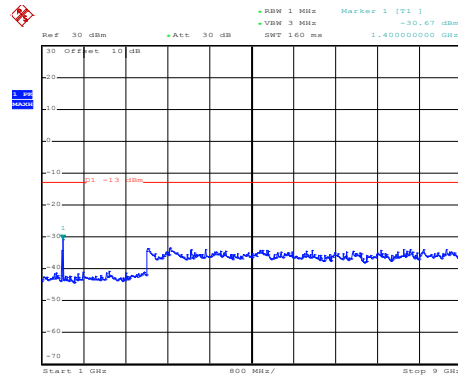
1GHz~9GHz

LTE Band 12 part:

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

Date: 14.MAY.2020 16:05:41

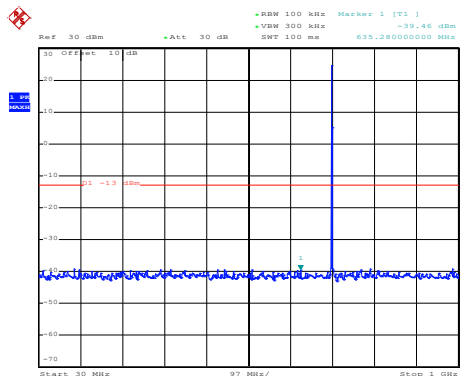
30MHz~1GHz



Date: 14.MAY.2020 16:04:04

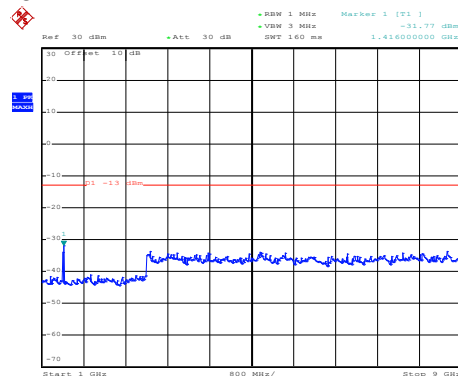
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:05:23

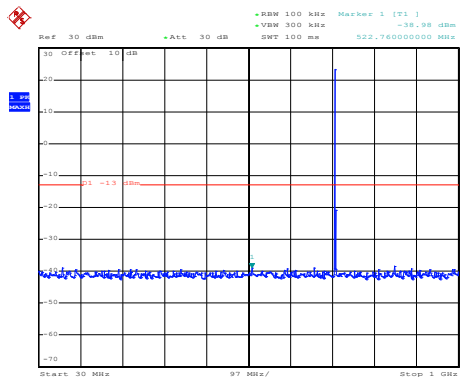
30MHz~1GHz



Date: 14.MAY.2020 16:04:18

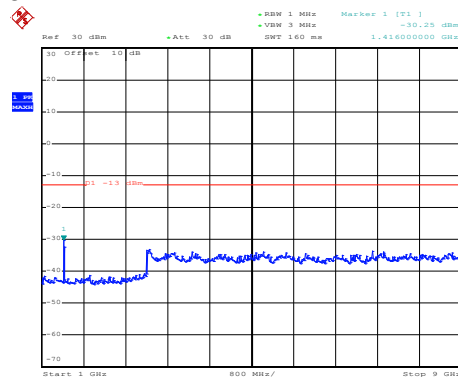
1GHz~9GHz

High channel



Date: 14.MAY.2020 16:05:03

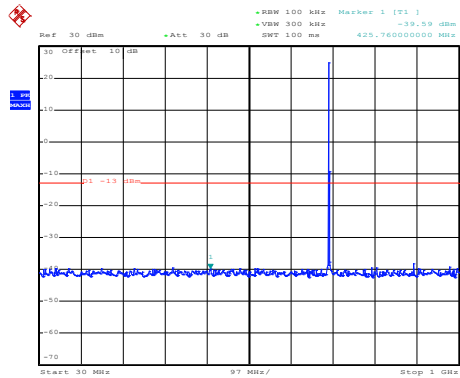
30MHz~1GHz



Date: 14.MAY.2020 16:04:34

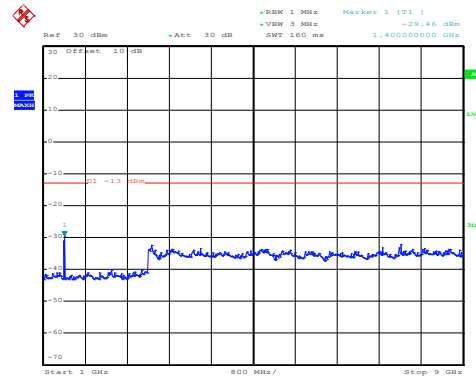
1GHz~9GHz

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



Date: 14.MAY.2020 16:05:35

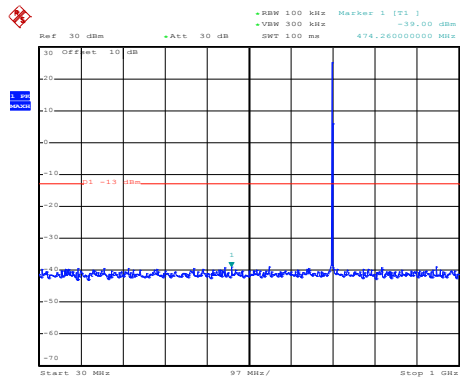
30MHz~1GHz



Date: 14.MAY.2020 16:03:58

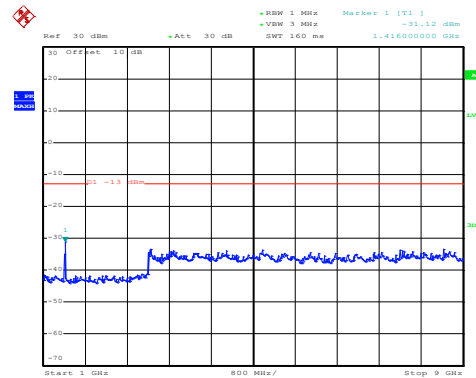
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:05:14

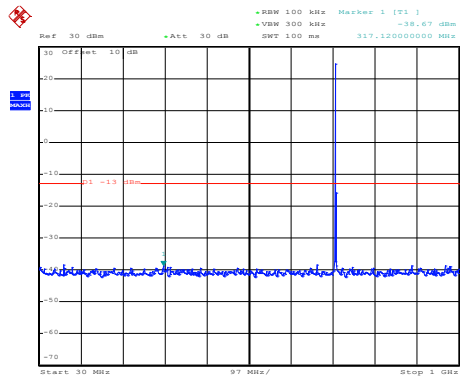
30MHz~1GHz



Date: 14.MAY.2020 16:04:13

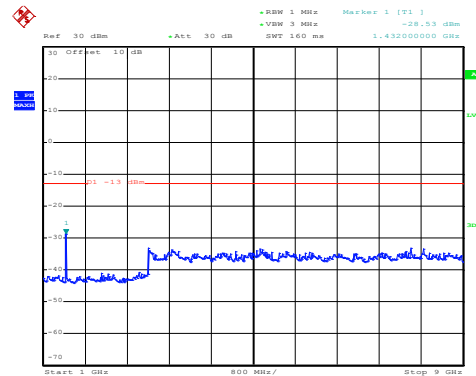
1GHz~9GHz

High channel



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

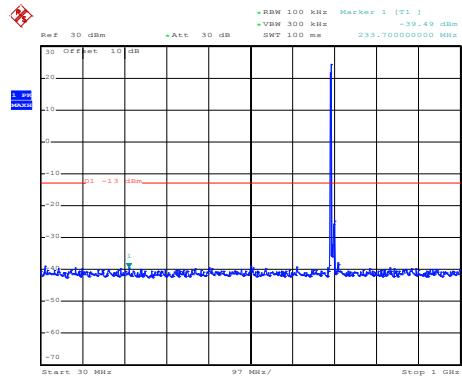
30MHz~1GHz



Date: 14.MAY.2020 16:04:27

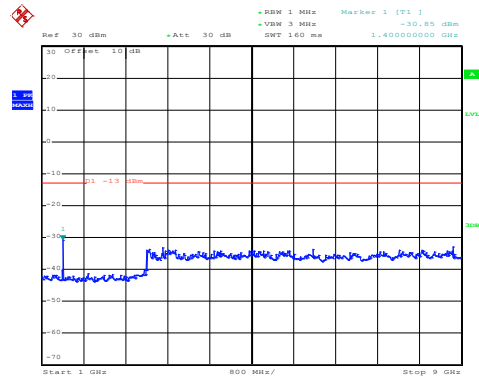
1GHz~9GHz

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



Date: 14.MAY.2020 16:06:34

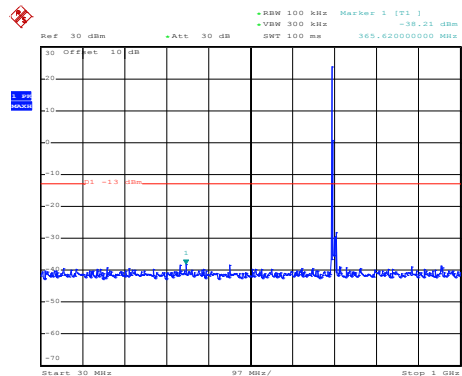
30MHz~1GHz



Date: 14.MAY.2020 16:08:20

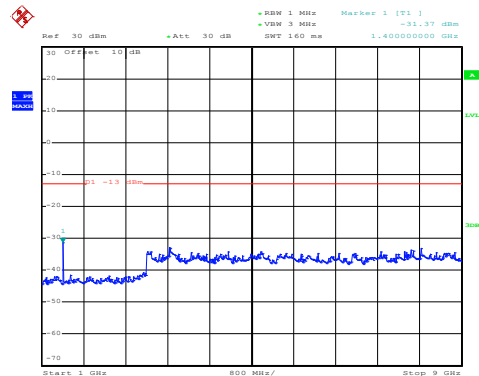
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:06:53

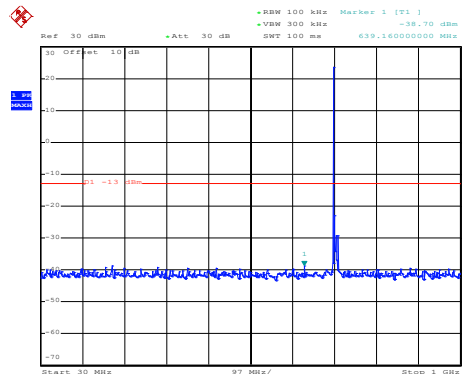
30MHz~1GHz



Date: 14.MAY.2020 16:08:01

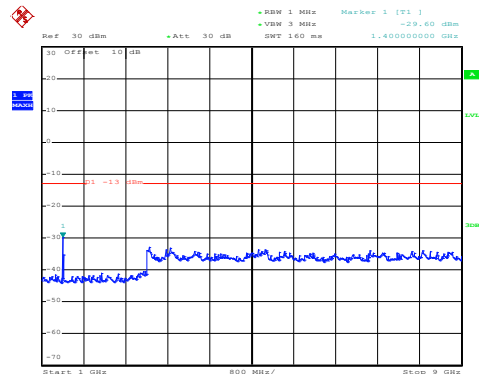
1GHz~9GHz

High channel



Date: 14.MAY.2020 16:07:15

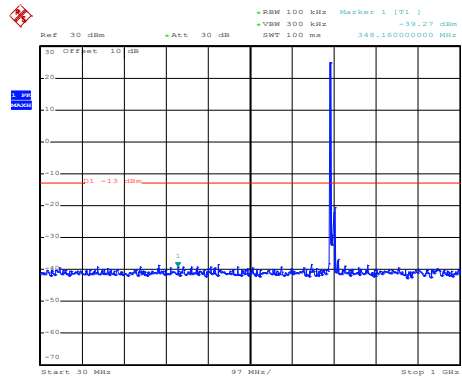
30MHz~1GHz



Date: 14.MAY.2020 16:07:47

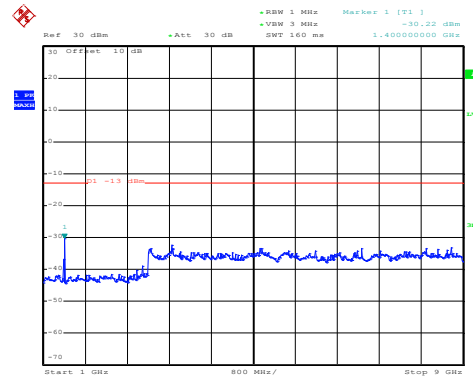
1GHz~9GHz

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



Date: 14.MAY.2020 16:06:24

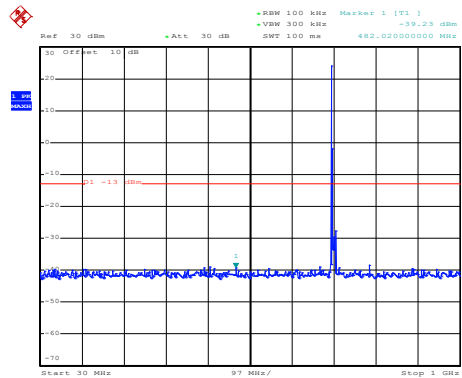
30MHz~1GHz



Date: 14.MAY.2020 16:08:11

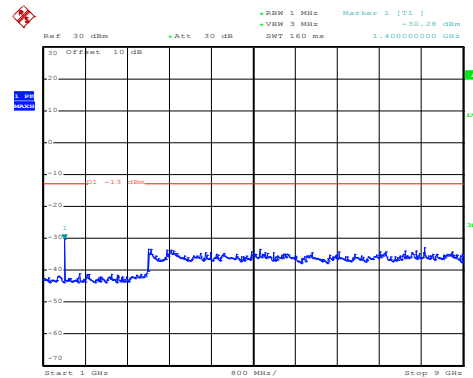
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:06:44

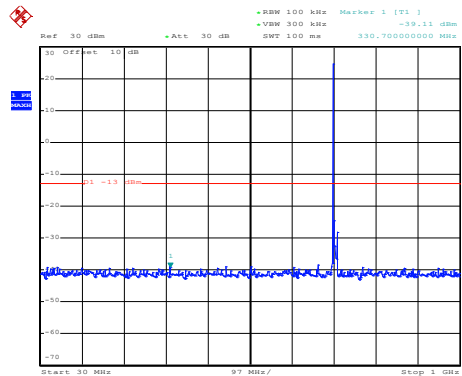
30MHz~1GHz



Date: 14.MAY.2020 16:07:56

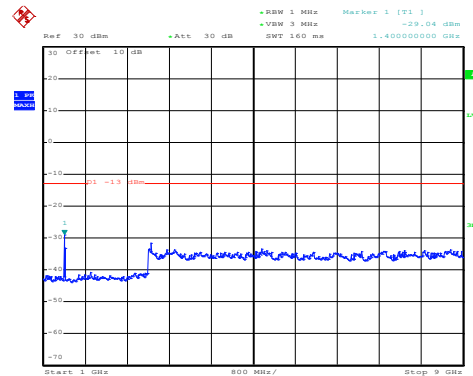
1GHz~9GHz

High channel



Date: 14.MAY.2020 16:07:07

30MHz~1GHz



Date: 14.MAY.2020 16:07:41

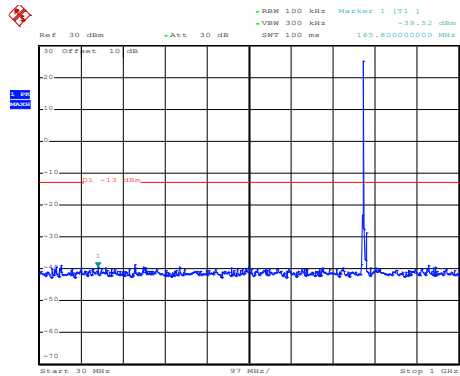
1GHz~9GHz

LTE Band 13 part:

LTE Band 13: 16 QAM & RB Size 1

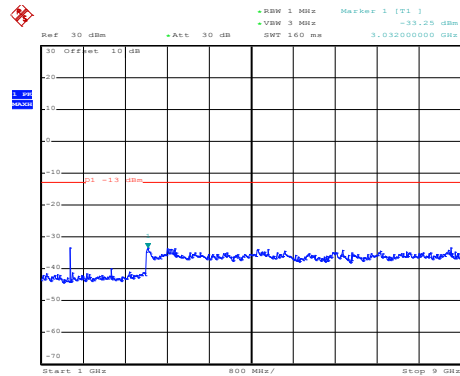
BW: 5MHz

Lowest channel



Date: 14.MAY.2020 16:15:04

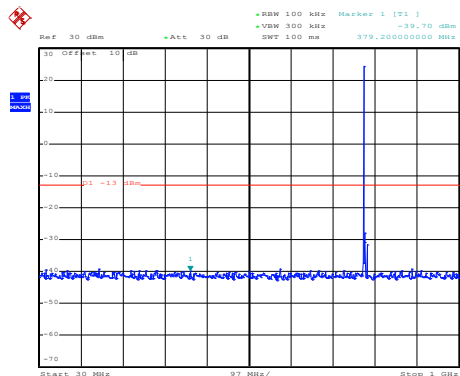
30MHz~1GHz



Date: 14.MAY.2020 16:13:12

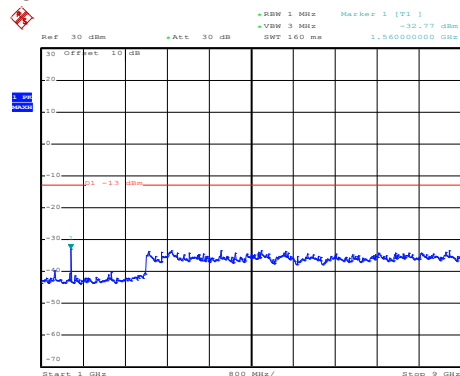
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:14:43

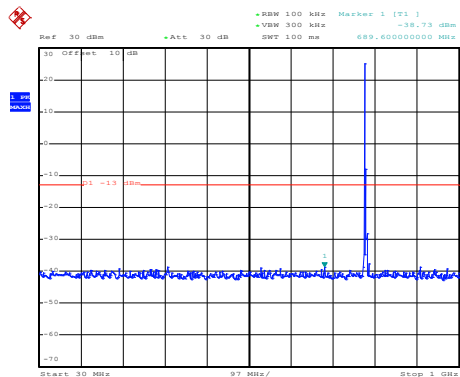
30MHz~1GHz



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

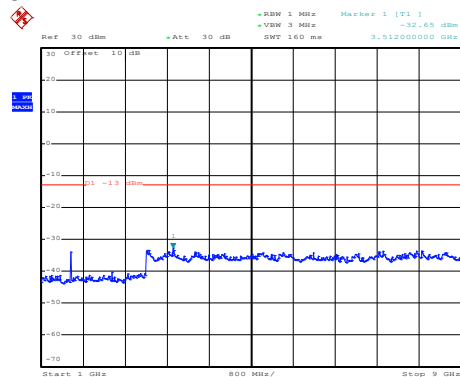
1GHz~9GHz

High channel



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

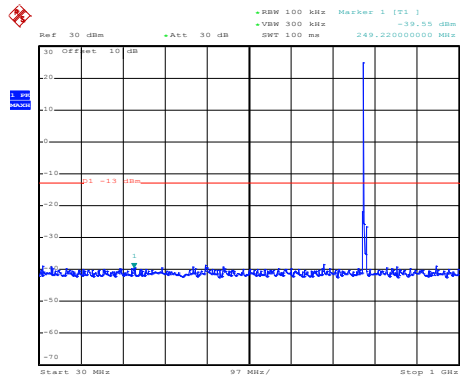
30MHz~1GHz



Date: 14.MAY.2020 16:13:55

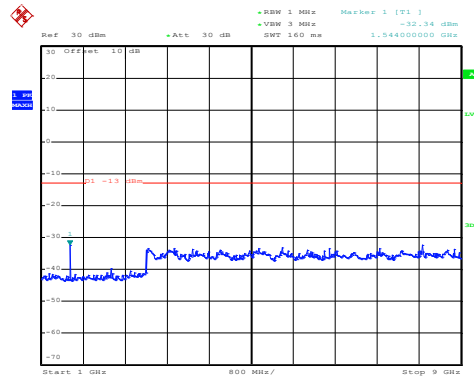
1GHz~9GHz

LTE Band 13: QPSK & RB Size 1
BW: 5MHz
Lowest channel



Date: 14.MAY.2020 16:14:55

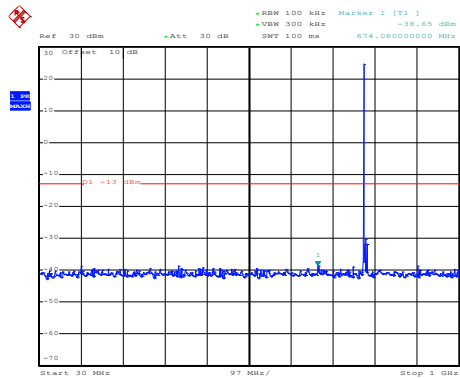
30MHz~1GHz



Date: 14.MAY.2020 16:13:06

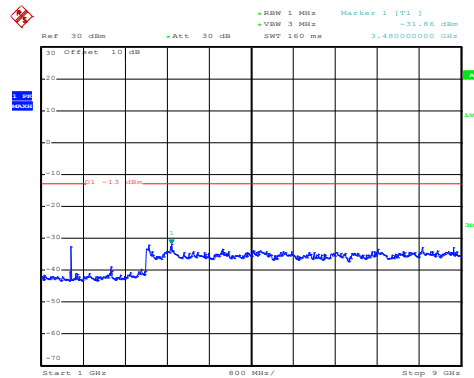
1GHz~9GHz

Middle channel



Date: 14.MAY.2020 16:14:34

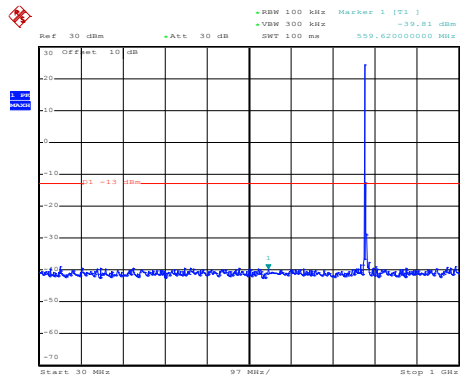
30MHz~1GHz



Date: 14.MAY.2020 16:13:28

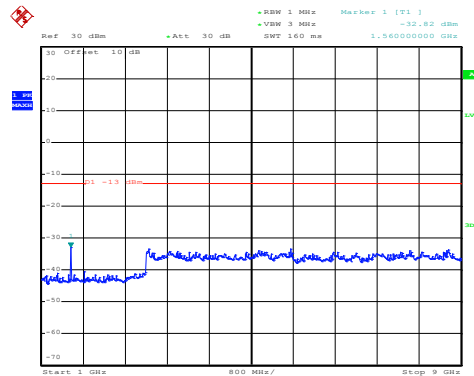
1GHz~9GHz

High channel



Date: 14.MAY.2020 16:14:11

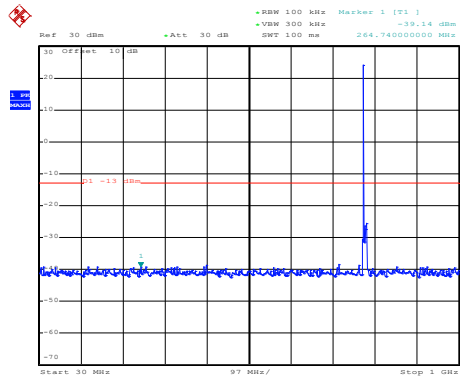
30MHz~1GHz



Date: 14.MAY.2020 16:13:45

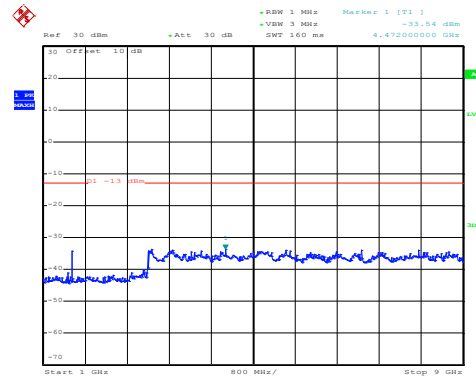
1GHz~9GHz

LTE Band 13: 16 QAM & RB Size 1
BW: 10MHz
Middle channel



Date: 14.MAY.2020 16:12:15

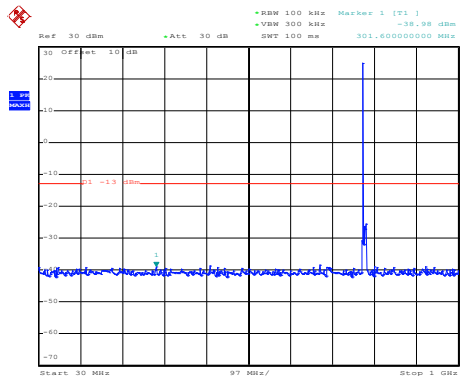
30MHz~1GHz



Date: 14.MAY.2020 16:12:42

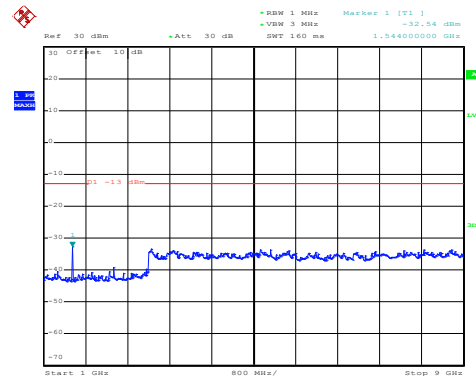
1GHz~9GHz

LTE Band 13: QPSK & RB Size 1
BW: 10MHz
Middle channel



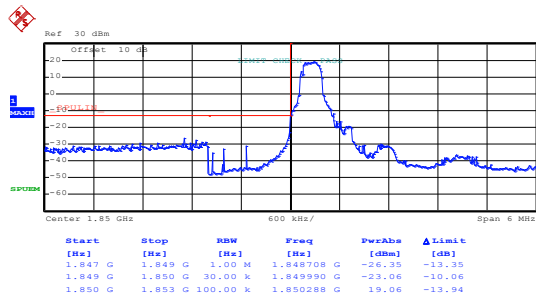
Date: 14.MAY.2020 16:12:02

30MHz~1GHz



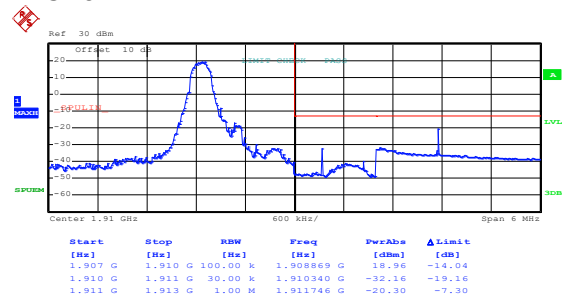
Date: 14.MAY.2020 16:12:36

1GHz~9GHz

Band edge emission:**LTE Band 2 part:****LTE Band 2, BW: 1.4MHz
16QAM & RB Size 1**

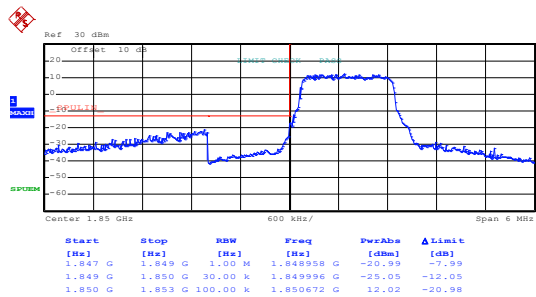
Date: 14.MAY.2020 15:16:56

Lowest channel



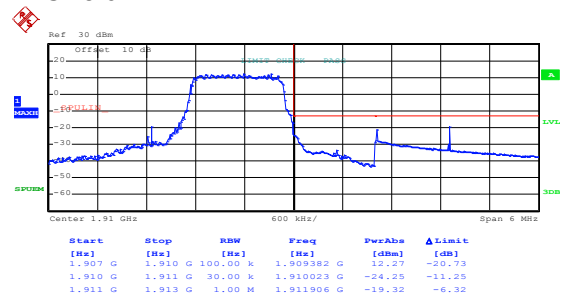
Date: 14.MAY.2020 15:18:34

Highest channel

16QAM & RB Size 6

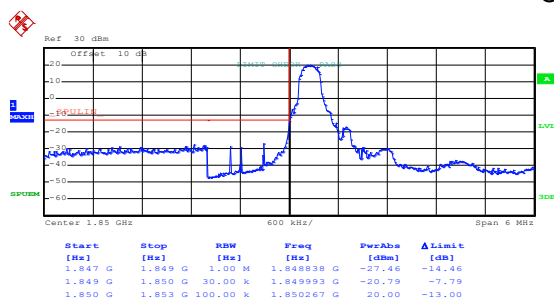
Date: 14.MAY.2020 15:17:57

Lowest channel



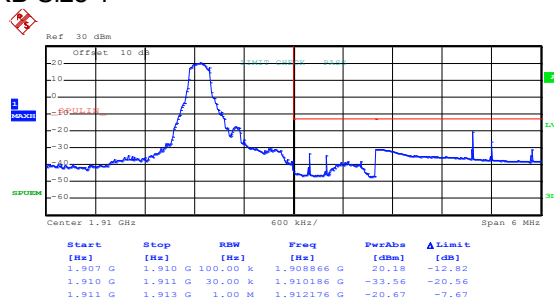
Date: 14.MAY.2020 15:18:20

Highest channel

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

Date: 14.MAY.2020 15:16:44

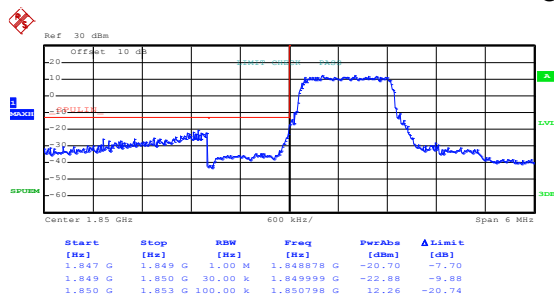
Lowest channel



Date: 14.MAY.2020 15:18:29

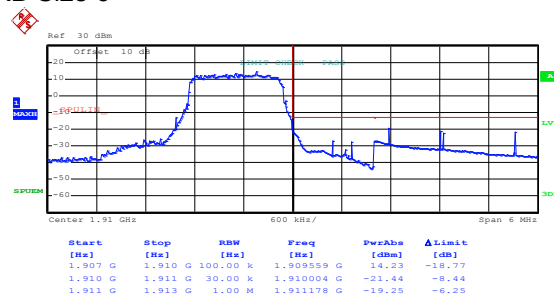
Highest channel

QPSK & RB Size 6



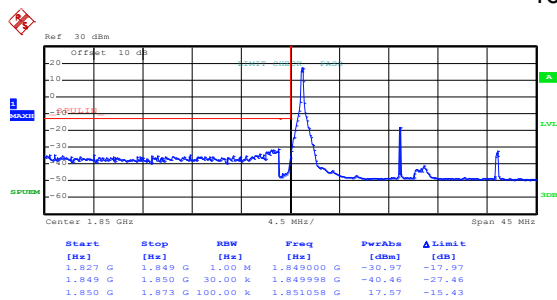
Date: 14.MAY.2020 15:17:50

Lowest channel



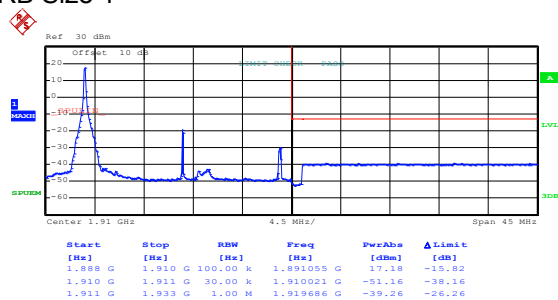
Date: 14.MAY.2020 15:18:14

Highest channel

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

Date: 14.MAY.2020 15:38:37

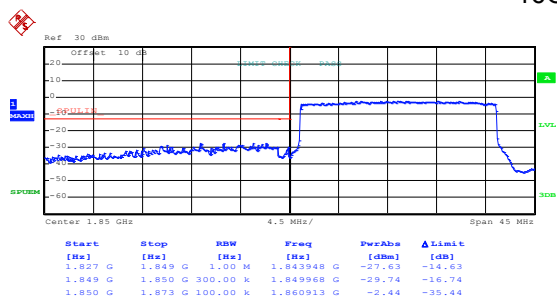
Lowest channel



Date: 14.MAY.2020 15:39:20

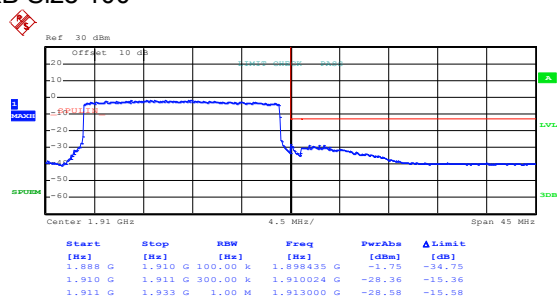
Highest channel

16QAM & RB Size 100



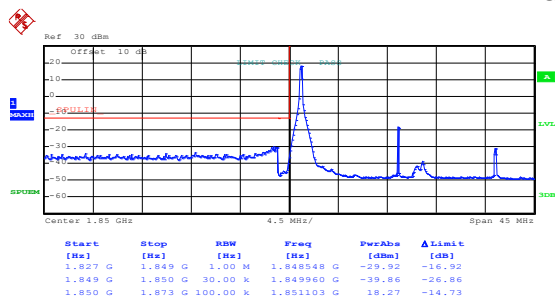
Date: 14.MAY.2020 15:39:02

Lowest channel



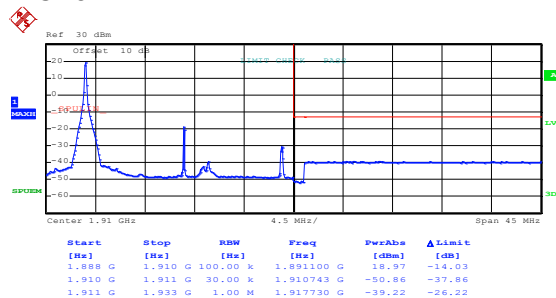
Date: 14.MAY.2020 15:42:22

Highest channel

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

Date: 14.MAY.2020 15:38:29

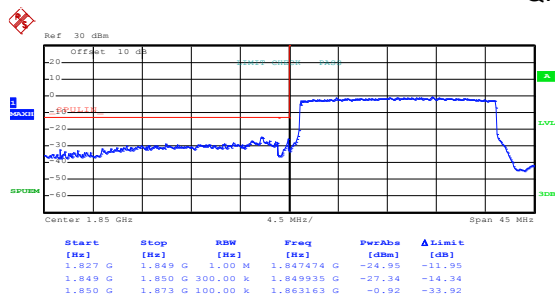
Lowest channel



Date: 14.MAY.2020 15:39:15

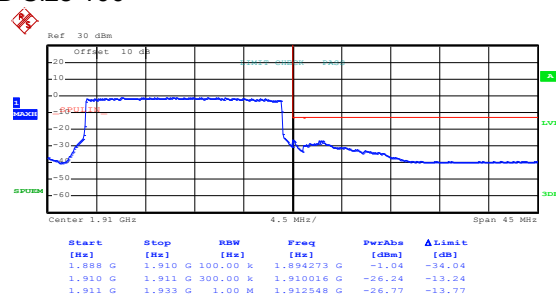
Highest channel

QPSK & RB Size 100



Date: 14.MAY.2020 15:38:57

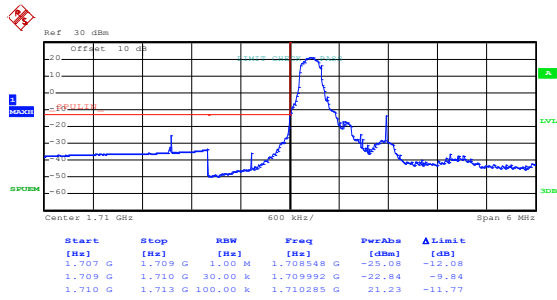
Lowest channel



Date: 14.MAY.2020 15:39:34

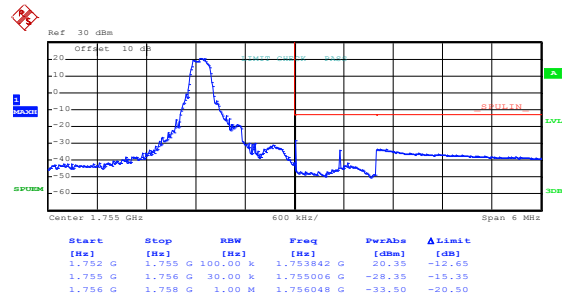
Highest channel

LTE Band 4 part:

LTE Band 4, BW: 1.4MHz
16QAM & RB Size 1

Date: 14.MAY.2020 15:19:19

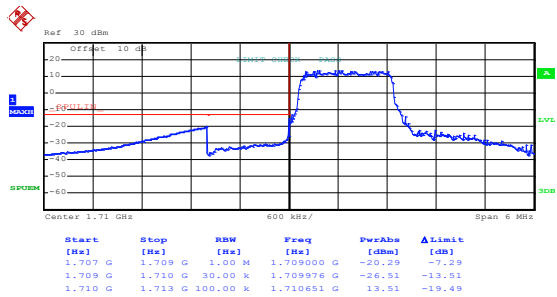
Lowest channel



Date: 14.MAY.2020 15:20:05

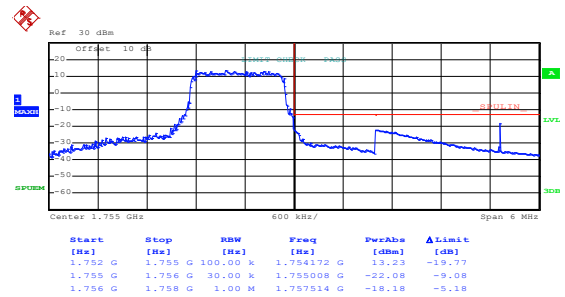
Highest channel

16QAM & RB Size 6



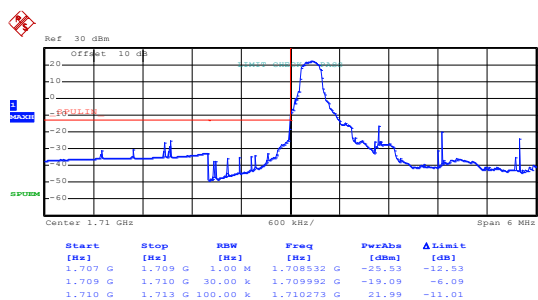
Date: 14.MAY.2020 15:19:30

Lowest channel



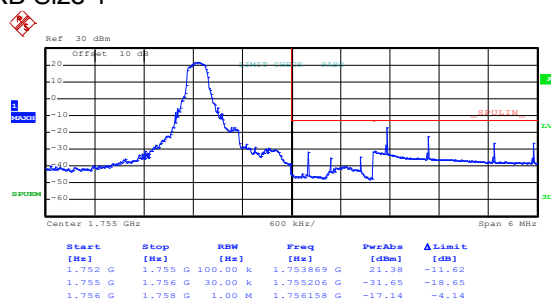
Date: 14.MAY.2020 15:19:52

Highest channel

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

Date: 14.MAY.2020 15:19:11

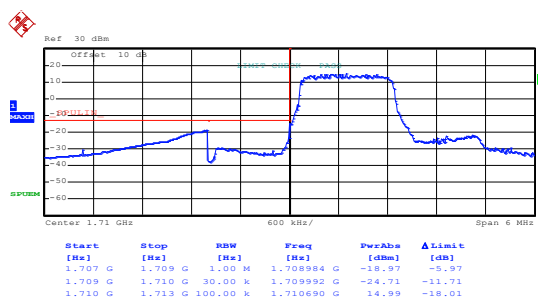
Lowest channel



Date: 14.MAY.2020 15:20:00

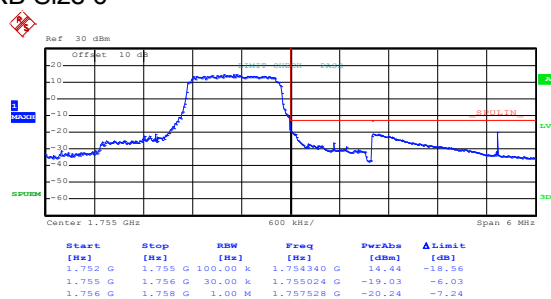
Highest channel

QPSK & RB Size 6



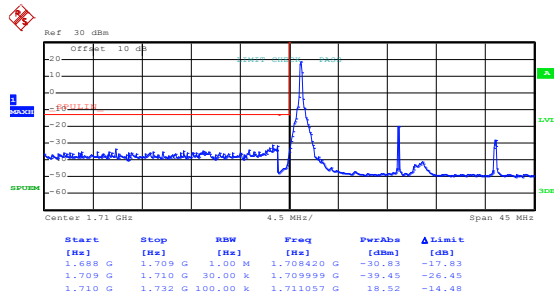
Date: 14.MAY.2020 15:19:26

Lowest channel



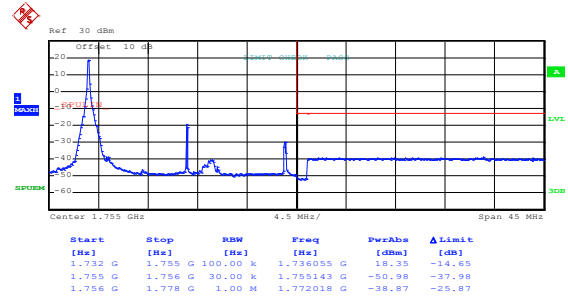
Date: 14.MAY.2020 15:19:48

Highest channel

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

Date: 14.MAY.2020 15:35:49

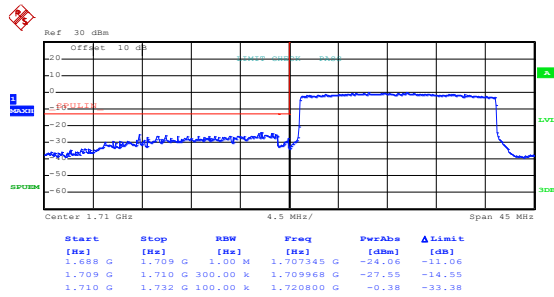
Lowest channel



Date: 14.MAY.2020 15:36:29

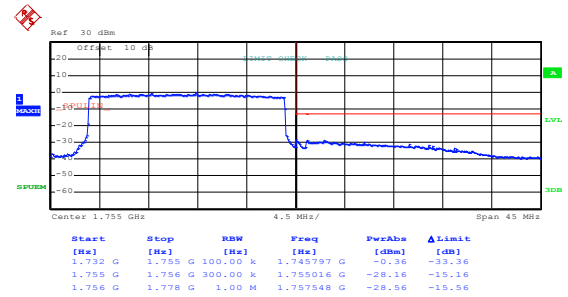
Highest channel

16QAM & RB Size 100



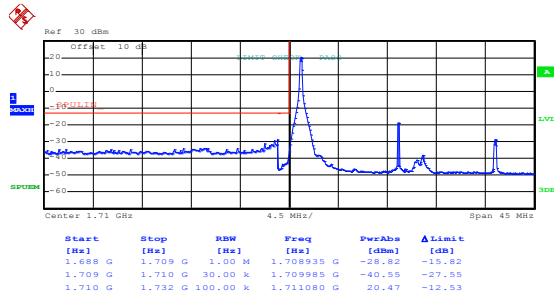
Date: 14.MAY.2020 15:36:09

Lowest channel



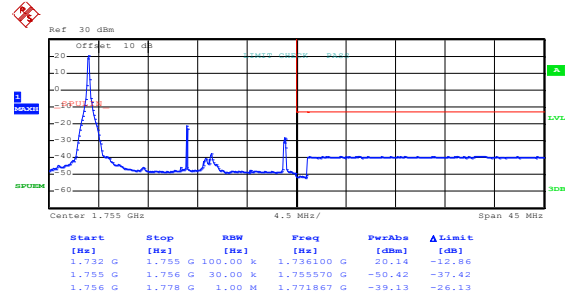
Date: 14.MAY.2020 15:36:48

Highest channel

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

Date: 14.MAY.2020 15:35:44

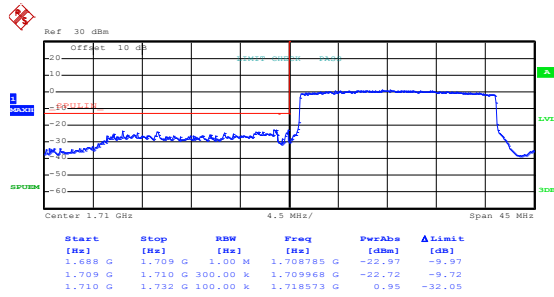
Lowest channel



Date: 14.MAY.2020 15:36:24

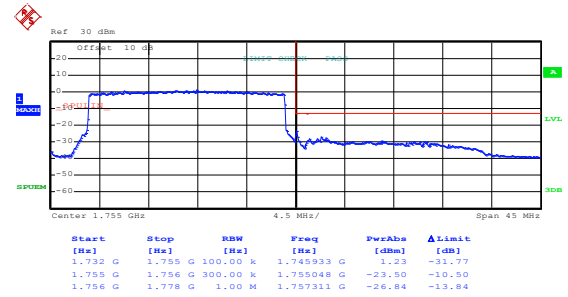
Highest channel

QPSK & RB Size 100



Date: 14.MAY.2020 15:36:04

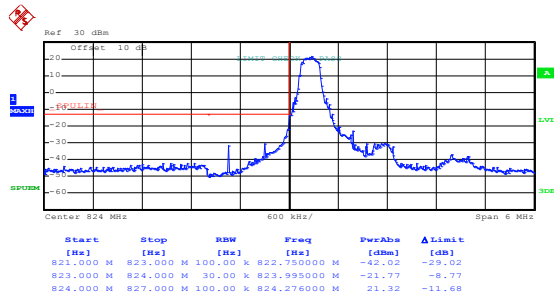
Lowest channel



Date: 14.MAY.2020 15:36:44

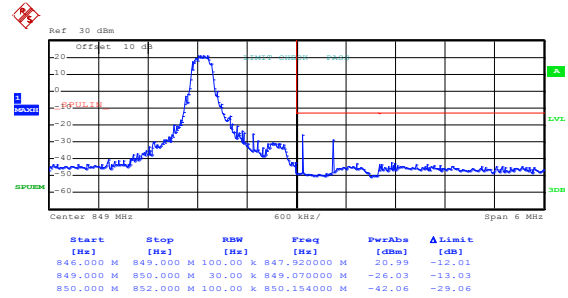
Highest channel

LTE Band 5 part:

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

Date: 14.MAY.2020 15:20:41

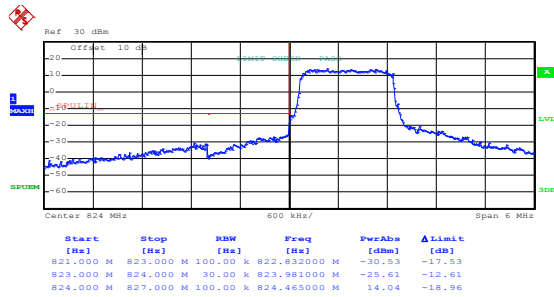
Lowest channel



Date: 14.MAY.2020 15:21:25

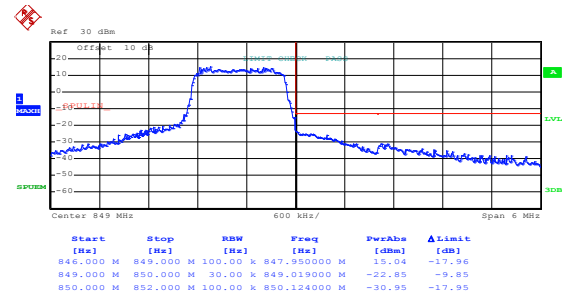
Highest channel

16QAM & RB Size 6



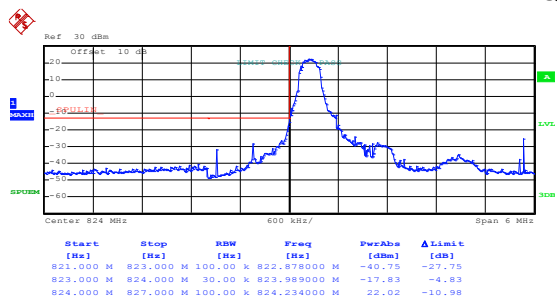
Date: 14.MAY.2020 15:20:52

Lowest channel



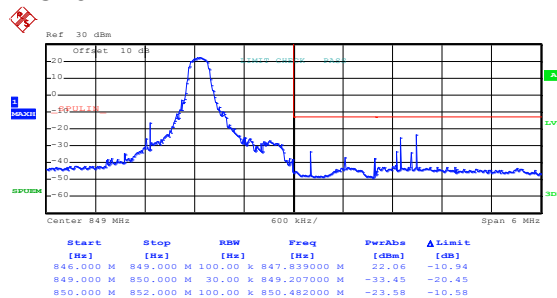
Date: 14.MAY.2020 15:21:07

Highest channel

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

Date: 14.MAY.2020 15:20:36

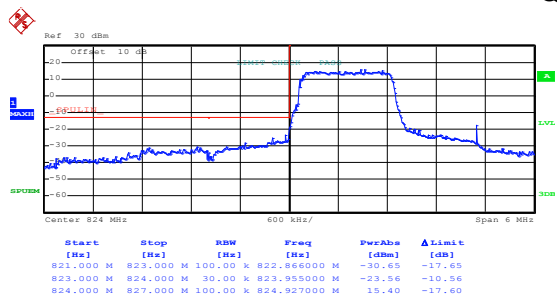
Lowest channel



Date: 14.MAY.2020 15:21:14

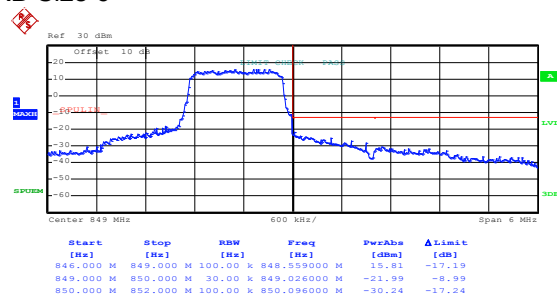
Highest channel

QPSK & RB Size 6



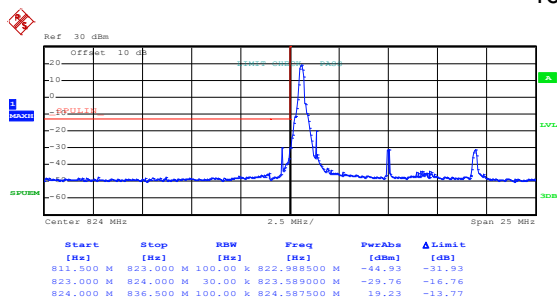
Date: 14.MAY.2020 15:20:48

Lowest channel



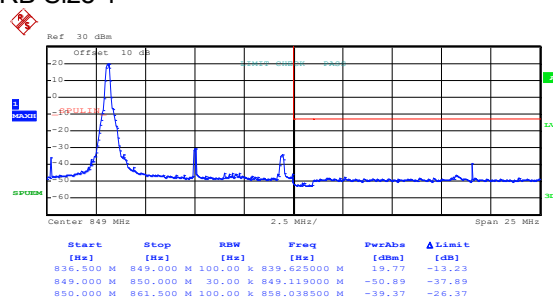
Date: 14.MAY.2020 15:21:03

Highest channel

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

Date: 14.MAY.2020 15:33:54

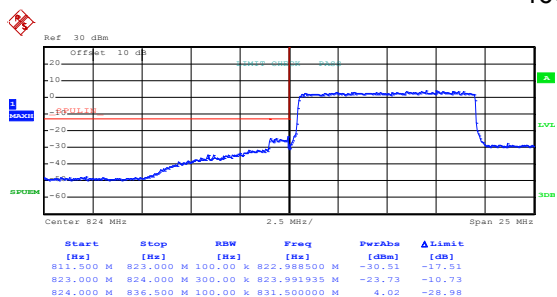
Lowest channel



Date: 14.MAY.2020 15:34:39

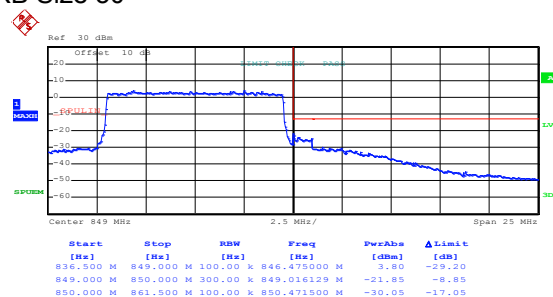
Highest channel

16QAM & RB Size 50



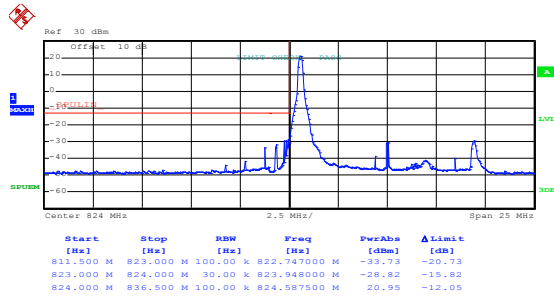
Date: 14.MAY.2020 15:34:19

Lowest channel



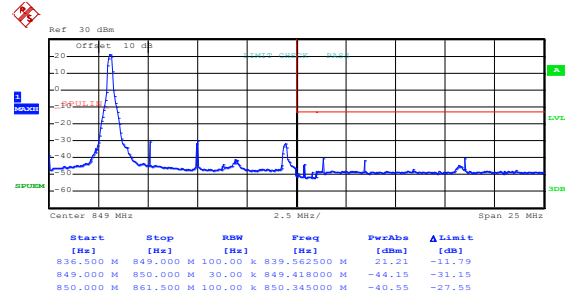
Date: 14.MAY.2020 15:34:58

Highest channel

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

Date: 14.MAY.2020 15:33:48

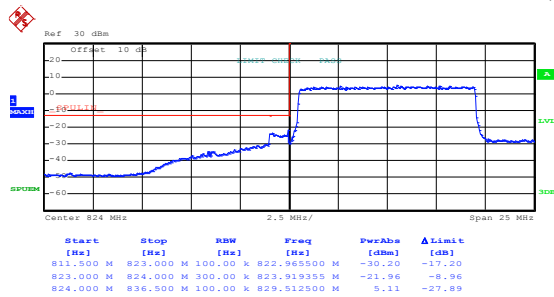
Lowest channel



Date: 14.MAY.2020 15:34:34

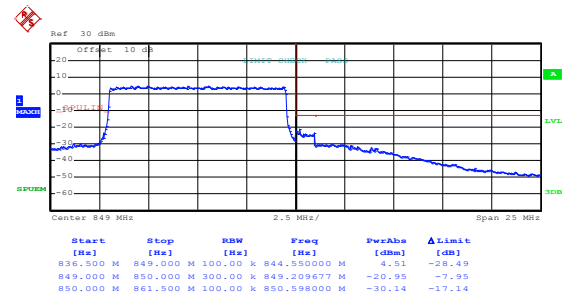
Highest channel

QPSK & RB Size 50



Date: 14.MAY.2020 15:34:14

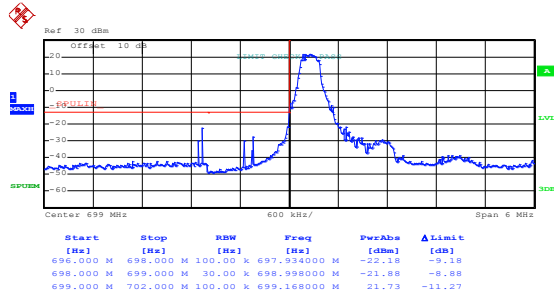
Lowest channel



Date: 14.MAY.2020 15:34:54

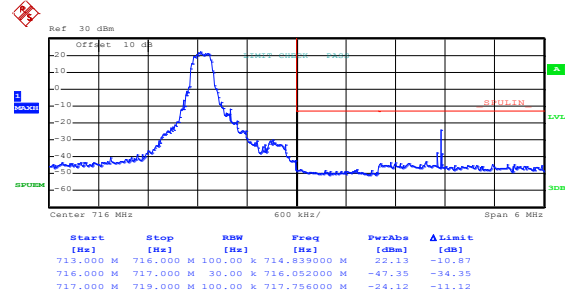
Highest channel

LTE band 12 part:

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

Date: 14.MAY.2020 15:22:13

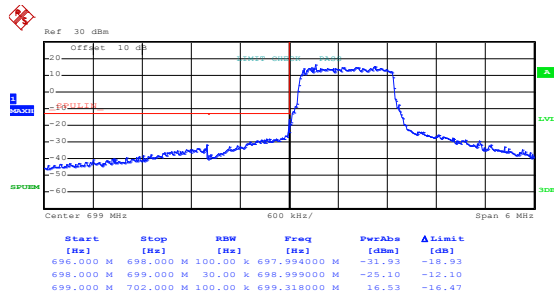
Lowest channel



Date: 14.MAY.2020 15:22:58

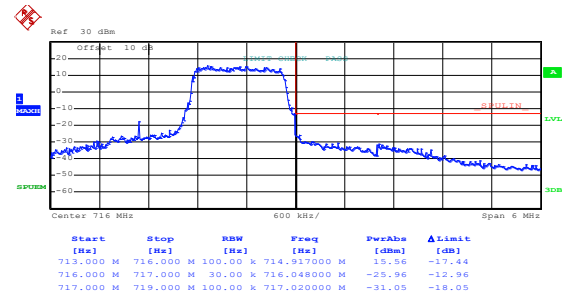
Highest channel

16QAM & RB Size 6



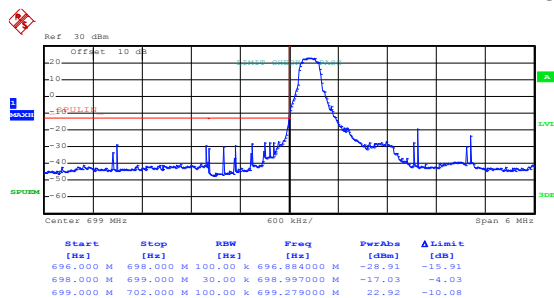
Date: 14.MAY.2020 15:22:24

Lowest channel



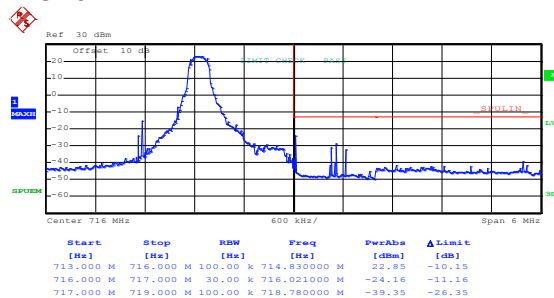
Date: 14.MAY.2020 15:22:43

Highest channel

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

Date: 14.MAY.2020 15:22:07

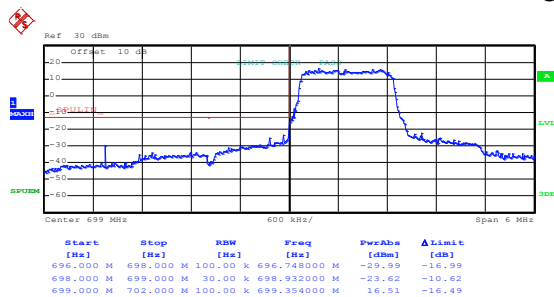
Lowest channel



Date: 14.MAY.2020 15:22:52

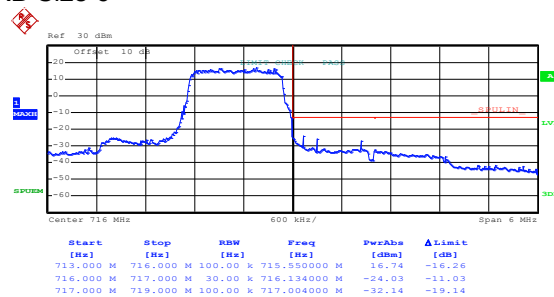
Highest channel

QPSK & RB Size 6



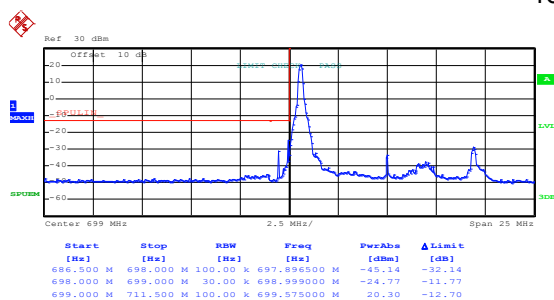
Date: 14.MAY.2020 15:22:20

Lowest channel



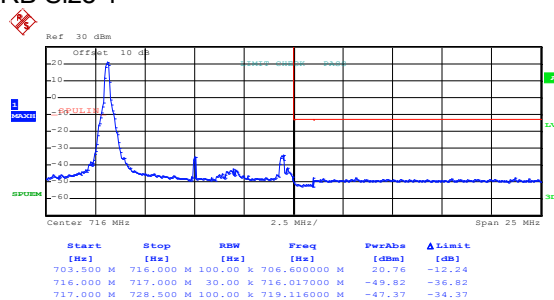
Date: 14.MAY.2020 15:22:39

Highest channel

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

Date: 14.MAY.2020 15:28:03

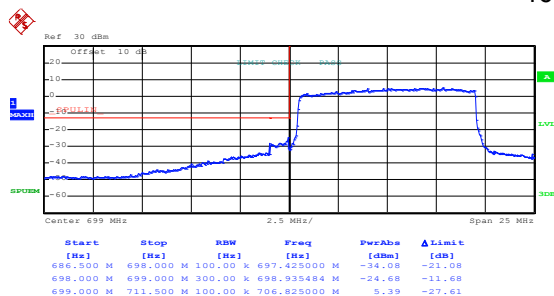
Lowest channel



Date: 14.MAY.2020 15:26:38

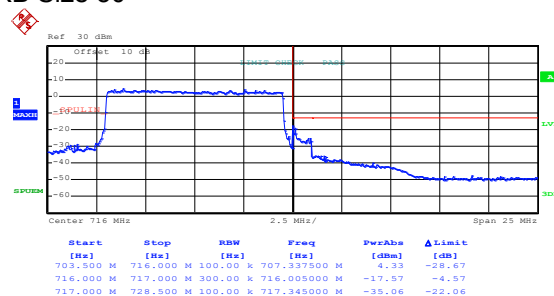
Highest channel

16QAM & RB Size 50



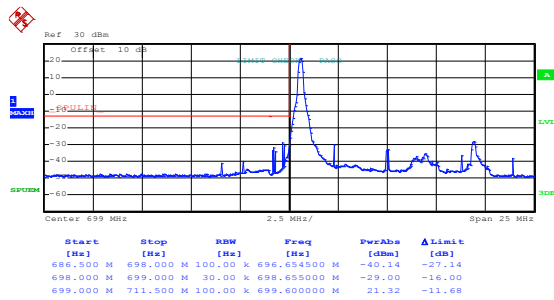
Date: 14.MAY.2020 15:28:29

Lowest channel



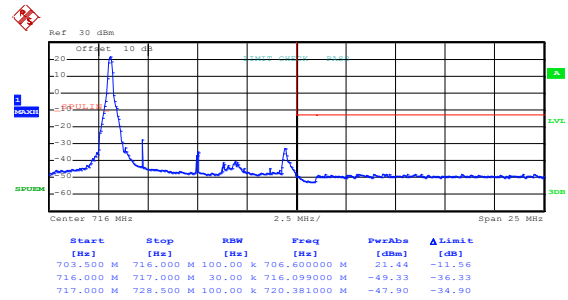
Date: 14.MAY.2020 15:27:31

Highest channel

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

Date: 14.MAY.2020 15:27:54

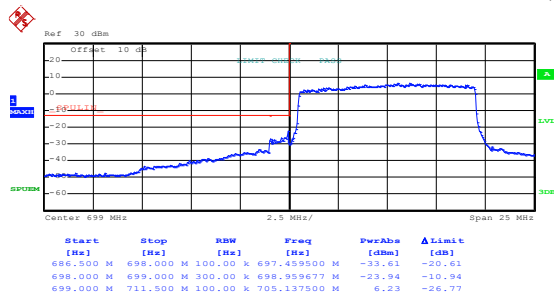
Lowest channel



Date: 14.MAY.2020 15:26:32

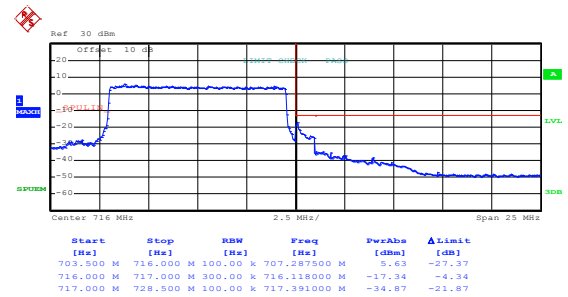
Highest channel

QPSK & RB Size 50



Date: 14.MAY.2020 15:28:22

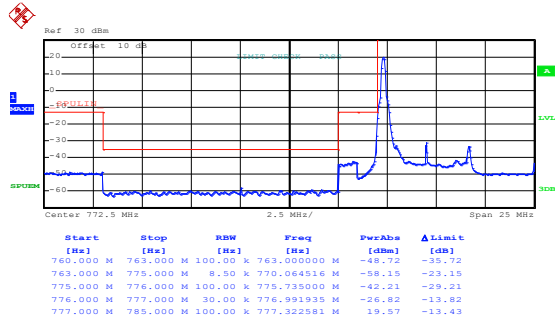
Lowest channel



Date: 14.MAY.2020 15:27:26

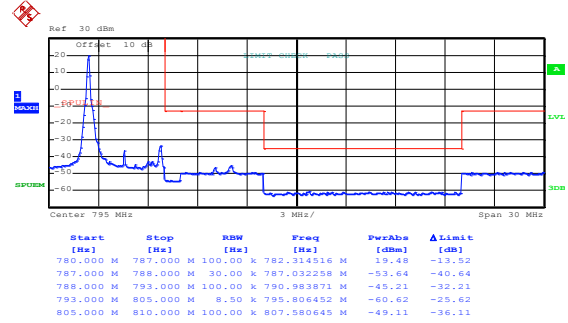
Highest channel

LTE Band 13 part:

LTE Band 13, BW: 5MHz
16QAM & RB Size 1

Date: 14.MAY.2020 15:31:07

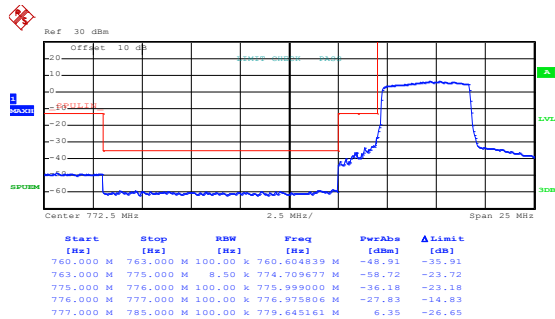
Lowest channel



Date: 14.MAY.2020 15:32:11

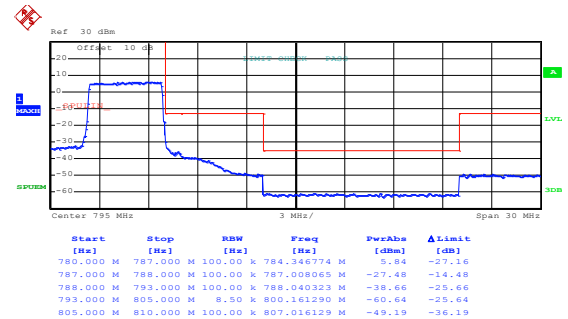
Highest channel

16QAM & RB Size 25



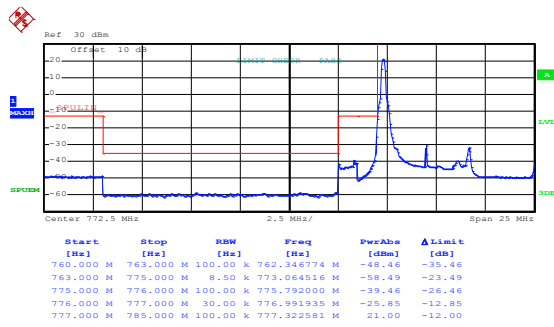
Date: 14.MAY.2020 15:31:35

Lowest channel



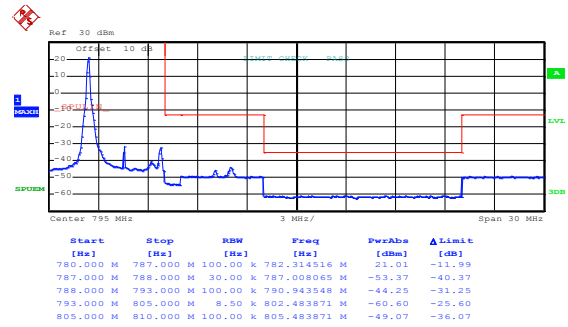
Date: 14.MAY.2020 15:32:44

Highest channel

LTE Band 13, BW: 5MHz
QPSK & RB Size 1

Date: 14.MAY.2020 15:31:01

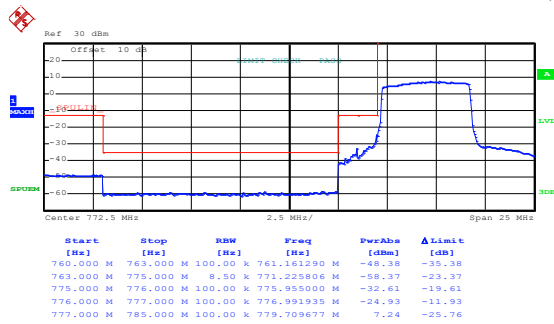
Lowest channel



Date: 14.MAY.2020 15:32:03

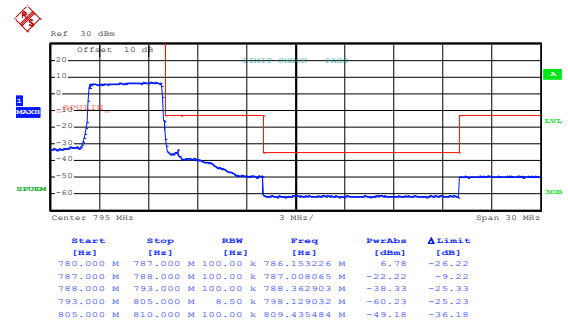
Highest channel

QPSK & RB Size 25



Date: 14.MAY.2020 15:31:29

Lowest channel

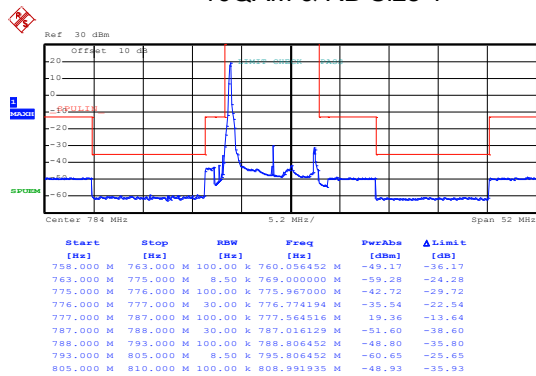


Date: 14.MAY.2020 15:32:38

Highest channel

LTE Band 13, BW: 10MHz

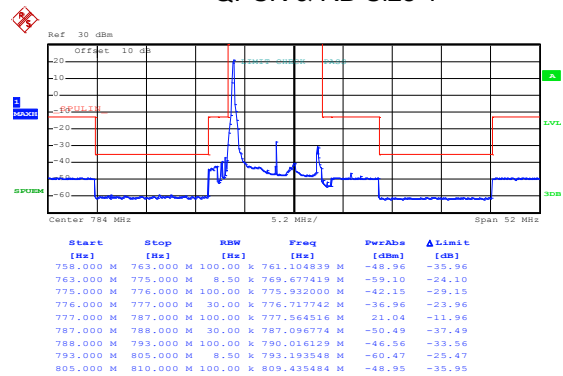
16QAM & RB Size 1



Date: 14.MAY.2020 15:29:36

Middle channel

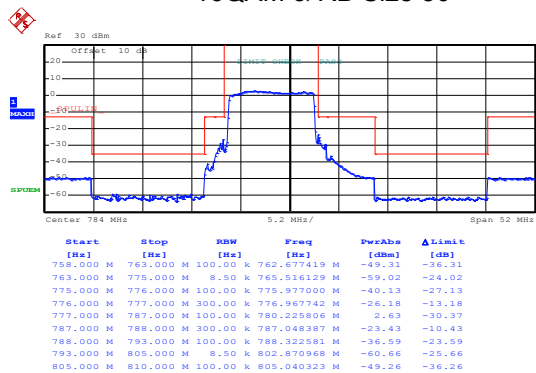
QPSK & RB Size 1



Date: 14.MAY.2020 15:29:14

Middle channel

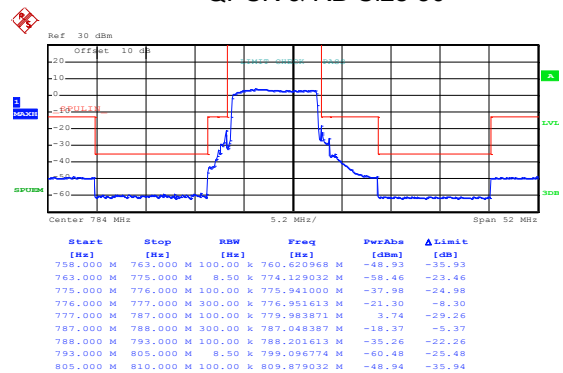
16QAM & RB Size 50



Date: 15.MAY.2020 10:31:37

Middle channel

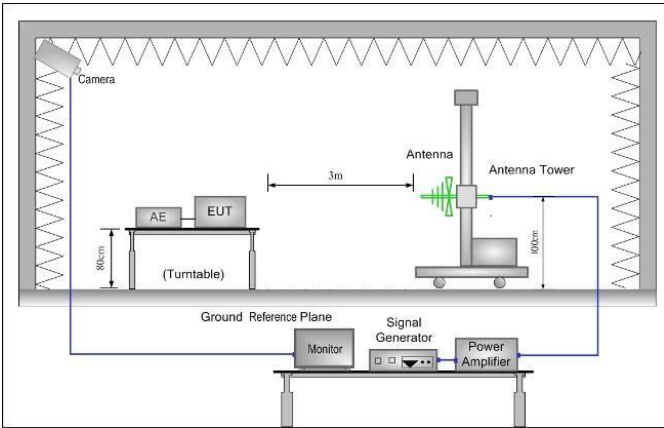
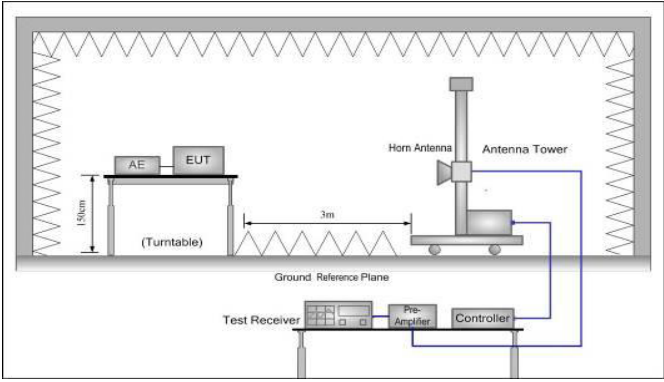
QPSK & RB Size 50



Date: 15.MAY.2020 10:31:30

Middle channel

6.5 Field strength of spurious radiation measurement

Test Requirement:	Part 22.917(a), Part 24.238 (a), Part 27.53(g), Part 27.53(m), Part 27.53(h)
Limit:	LTE Band 2 & 4 & 5 & 12 & 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 $43 + 10 \log_{10}(P)$ dB (-13 dBm). LTE Band 7: For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ 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 $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.
Test setup:	Below 1GHz  Above 1GHz 
Test Procedure:	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. 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. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels).

	Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. $\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$
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	-60.12	12.26	0.75	-48.61	-13.00	-35.61	Vertical
5552.10	-55.24	12.47	1.13	-43.90	-13.00	-30.90	Vertical
7402.00	-48.62	11.26	1.63	-38.99	-13.00	-25.99	Vertical
3701.40	-61.81	12.26	0.75	-50.30	-13.00	-37.30	Horizontal
5552.10	-55.24	12.47	1.13	-43.90	-13.00	-30.90	Horizontal
7402.00	-48.46	11.26	1.63	-38.83	-13.00	-25.83	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	-59.81	12.19	0.79	-48.41	-13.00	-35.41	Vertical
5640.00	-55.84	12.60	1.15	-44.39	-13.00	-31.39	Vertical
7520.00	-48.49	11.18	1.66	-38.97	-13.00	-25.97	Vertical
3760.00	-62.03	12.19	0.79	-50.63	-13.00	-37.63	Horizontal
5640.00	-54.87	12.60	1.15	-43.42	-13.00	-30.42	Horizontal
7520.00	-48.05	11.18	1.66	-38.53	-13.00	-25.53	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	-59.83	12.12	0.81	-48.52	-13.00	-35.52	Vertical
5724.90	-55.74	12.71	1.19	-44.22	-13.00	-31.22	Vertical
7633.20	-47.95	11.09	1.71	-38.57	-13.00	-25.57	Vertical
3816.60	-61.14	12.12	0.81	-49.83	-13.00	-36.83	Horizontal
5724.90	-55.57	12.71	1.19	-44.05	-13.00	-31.05	Horizontal
7633.20	-48.40	11.09	1.71	-39.02	-13.00	-26.02	Horizontal
Remark:							
The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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	-60.24	12.24	0.77	-48.77	-13.00	-35.77	Vertical
5580.00	-55.71	12.51	1.15	-44.35	-13.00	-31.35	Vertical
7440.00	-48.15	11.24	1.64	-38.55	-13.00	-25.55	Vertical
3720.00	-61.77	12.24	0.77	-50.30	-13.00	-37.30	Horizontal
5580.00	-55.17	12.51	1.15	-43.81	-13.00	-30.81	Horizontal
7440.00	-48.28	11.24	1.64	-38.68	-13.00	-25.68	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	-60.23	12.19	0.79	-48.83	-13.00	-35.83	Vertical
5640.00	-55.41	12.60	1.15	-43.96	-13.00	-30.96	Vertical
7520.00	-48.42	11.18	1.66	-38.90	-13.00	-25.90	Vertical
3760.00	-61.56	12.19	0.79	-50.16	-13.00	-37.16	Horizontal
5640.00	-54.87	12.60	1.15	-43.42	-13.00	-30.42	Horizontal
7520.00	-48.35	11.18	1.66	-38.83	-13.00	-25.83	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	-59.84	12.14	0.79	-48.49	-13.00	-35.49	Vertical
5700.00	-55.83	12.68	1.18	-44.33	-13.00	-31.33	Vertical
7600.00	-48.41	11.12	1.69	-38.98	-13.00	-25.98	Vertical
3800.00	-61.97	12.14	0.79	-50.62	-13.00	-37.62	Horizontal
5700.00	-55.03	12.68	1.18	-43.53	-13.00	-30.53	Horizontal
7600.00	-48.44	11.12	1.69	-39.01	-13.00	-26.01	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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	-61.86	12.30	0.70	-50.26	-13.00	-37.26	Vertical
5132.10	-55.45	12.69	1.01	-43.77	-13.00	-30.77	Vertical
6842.80	-48.43	11.56	1.53	-38.40	-13.00	-25.40	Vertical
3421.40	-61.91	12.30	0.70	-50.31	-13.00	-37.31	Horizontal
5132.10	-55.72	12.69	1.01	-44.04	-13.00	-31.04	Horizontal
6842.80	-48.91	11.56	1.53	-38.88	-13.00	-25.88	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	-62.31	12.41	0.72	-50.62	-13.00	-37.62	Vertical
5197.50	-55.00	12.64	1.04	-43.40	-13.00	-30.40	Vertical
6930.00	-47.91	11.53	1.56	-37.94	-13.00	-24.94	Vertical
3465.00	-61.57	12.41	0.72	-49.88	-13.00	-36.88	Horizontal
5197.50	-56.06	12.64	1.04	-44.46	-13.00	-31.46	Horizontal
6930.00	-48.64	11.53	1.56	-38.67	-13.00	-25.67	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	-62.05	12.49	0.74	-50.30	-13.00	-37.30	Vertical
5262.90	-55.68	12.59	1.07	-44.16	-13.00	-31.16	Vertical
7017.20	-48.20	11.49	1.58	-38.29	-13.00	-25.29	Vertical
3508.60	-62.38	12.49	0.74	-50.63	-13.00	-37.63	Horizontal
5262.90	-55.55	12.59	1.07	-44.03	-13.00	-31.03	Horizontal
7017.20	-48.74	11.49	1.58	-38.83	-13.00	-25.83	Horizontal
Remark:							
The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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	-61.94	12.34	0.71	-50.31	-13.00	-37.31	Vertical
5160.00	-55.08	12.67	1.03	-43.44	-13.00	-30.44	Vertical
6880.00	-48.77	11.55	1.54	-38.76	-13.00	-25.76	Vertical
3440.00	-62.06	12.34	0.71	-50.43	-13.00	-37.43	Horizontal
5160.00	-55.53	12.67	1.03	-43.89	-13.00	-30.89	Horizontal
6880.00	-49.28	11.55	1.54	-39.27	-13.00	-26.27	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	-61.66	12.41	0.72	-49.97	-13.00	-36.97	Vertical
5197.50	-55.18	12.64	1.04	-43.58	-13.00	-30.58	Vertical
6930.00	-48.99	11.53	1.56	-39.02	-13.00	-26.02	Vertical
3465.00	-61.78	12.41	0.72	-50.09	-13.00	-37.09	Horizontal
5197.50	-55.15	12.64	1.04	-43.55	-13.00	-30.55	Horizontal
6930.00	-49.55	11.53	1.56	-39.58	-13.00	-26.58	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	-61.71	12.49	0.73	-49.95	-13.00	-36.95	Vertical
5235.00	-55.12	12.61	1.06	-43.57	-13.00	-30.57	Vertical
6980.00	-48.63	11.51	1.57	-38.69	-13.00	-25.69	Vertical
3490.00	-62.47	12.49	0.73	-50.71	-13.00	-37.71	Horizontal
5235.00	-54.97	12.61	1.06	-43.42	-13.00	-30.42	Horizontal
6980.00	-49.05	11.51	1.57	-39.11	-13.00	-26.11	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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	-60.85	9.58	0.20	-51.47	-13.00	-38.47	Vertical
2474.10	-66.26	10.79	0.43	-55.90	-13.00	-42.90	Vertical
3298.80	-61.58	12.14	0.64	-50.08	-13.00	-37.08	Vertical
1649.40	-63.70	9.58	0.20	-54.32	-13.00	-41.32	Horizontal
2474.10	-66.16	10.79	0.43	-55.80	-13.00	-42.80	Horizontal
3298.80	-62.54	12.14	0.64	-51.04	-13.00	-38.04	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	-60.80	9.62	0.22	-51.40	-13.00	-38.40	Vertical
2509.50	-66.28	10.83	0.46	-55.91	-13.00	-42.91	Vertical
3346.00	-61.89	12.23	0.66	-50.32	-13.00	-37.32	Vertical
1673.30	-63.54	9.62	0.22	-54.14	-13.00	-41.14	Horizontal
2509.50	-66.18	10.83	0.46	-55.81	-13.00	-42.81	Horizontal
3346.00	-62.80	12.23	0.66	-51.23	-13.00	-38.23	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
1696.60	-60.98	9.66	0.23	-51.55	-13.00	-38.55	Vertical
2544.90	-66.17	10.88	0.49	-55.78	-13.00	-42.78	Vertical
3393.20	-61.93	12.32	0.68	-50.29	-13.00	-37.29	Vertical
1696.60	-63.97	9.66	0.23	-54.54	-13.00	-41.54	Horizontal
2544.90	-66.64	10.88	0.49	-56.25	-13.00	-43.25	Horizontal
3393.20	-62.39	12.32	0.68	-50.75	-13.00	-37.75	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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	-61.30	9.58	0.21	-51.93	-13.00	-38.93	Vertical
2487.00	-65.79	10.79	0.45	-55.45	-13.00	-42.45	Vertical
3316.00	-61.34	12.14	0.65	-49.85	-13.00	-36.85	Vertical
1658.00	-64.04	9.58	0.21	-54.67	-13.00	-41.67	Horizontal
2487.00	-65.68	10.79	0.45	-55.34	-13.00	-42.34	Horizontal
3316.00	-62.25	12.14	0.65	-50.76	-13.00	-37.76	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	-61.83	9.62	0.21	-52.42	-13.00	-39.42	Vertical
2509.50	-66.04	10.83	0.46	-55.67	-13.00	-42.67	Vertical
3346.00	-60.98	12.23	0.66	-49.41	-13.00	-36.41	Vertical
1673.30	-63.65	9.62	0.21	-54.24	-13.00	-41.24	Horizontal
2509.50	-65.79	10.83	0.46	-55.42	-13.00	-42.42	Horizontal
3346.00	-61.86	12.23	0.66	-50.29	-13.00	-37.29	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	-61.86	9.66	0.23	-52.43	-13.00	-39.43	Vertical
2532.00	-66.00	10.88	0.48	-55.60	-13.00	-42.60	Vertical
3376.00	-61.50	12.32	0.67	-49.85	-13.00	-36.85	Vertical
1688.00	-63.32	9.66	0.23	-53.89	-13.00	-40.89	Horizontal
2532.00	-65.52	10.88	0.48	-55.12	-13.00	-42.12	Horizontal
3376.00	-61.76	12.32	0.67	-50.11	-13.00	-37.11	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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	-66.37	8.30	0.11	-58.18	-13.00	-45.18	Vertical
2099.10	-66.56	10.48	0.29	-56.37	-13.00	-43.37	Vertical
2798.80	-63.43	11.04	0.53	-52.92	-13.00	-39.92	Vertical
1399.40	-67.19	8.30	0.11	-59.00	-13.00	-46.00	Horizontal
2099.10	-67.86	10.48	0.29	-57.67	-13.00	-44.67	Horizontal
2798.80	-63.48	11.04	0.53	-52.97	-13.00	-39.97	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
1415.00	-66.26	8.35	0.13	-58.04	-13.00	-45.04	Vertical
2122.50	-66.29	10.50	0.32	-56.11	-13.00	-43.11	Vertical
2830.00	-63.40	11.06	0.55	-52.89	-13.00	-39.89	Vertical
1415.00	-67.00	8.35	0.13	-58.78	-13.00	-45.78	Horizontal
2122.50	-67.79	10.50	0.32	-57.61	-13.00	-44.61	Horizontal
2830.00	-63.40	11.06	0.55	-52.89	-13.00	-39.89	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	-66.73	8.39	0.16	-58.50	-13.00	-45.50	Vertical
2145.90	-66.31	10.52	0.35	-56.14	-13.00	-43.14	Vertical
2861.20	-63.20	11.09	0.58	-52.69	-13.00	-39.69	Vertical
1430.60	-66.74	8.39	0.16	-58.51	-13.00	-45.51	Horizontal
2145.90	-67.84	10.52	0.35	-57.67	-13.00	-44.67	Horizontal
2861.20	-63.13	11.09	0.58	-52.62	-13.00	-39.62	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

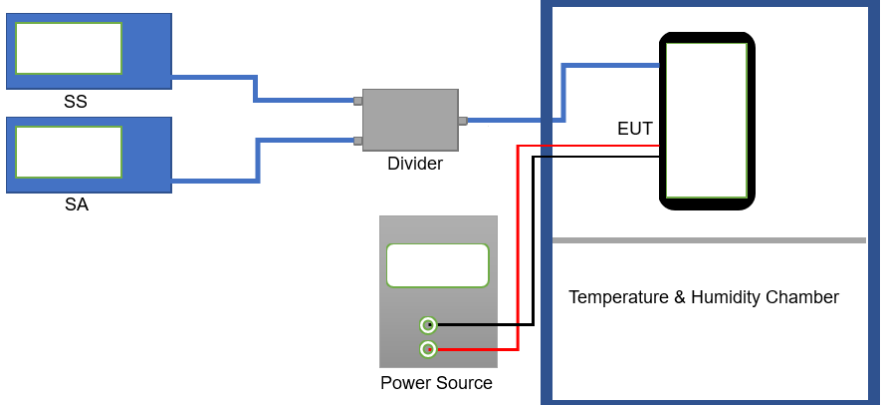
Band 12 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1408.00	-66.22	8.32	0.12	-58.02	-13.00	-45.02	Vertical
2112.00	-66.53	10.49	0.30	-56.34	-13.00	-43.34	Vertical
2816.00	-63.88	11.05	0.54	-53.37	-13.00	-40.37	Vertical
1408.00	-66.88	8.32	0.12	-58.68	-13.00	-45.68	Horizontal
2112.00	-67.59	10.49	0.30	-57.40	-13.00	-44.40	Horizontal
2816.00	-63.33	11.05	0.54	-52.82	-13.00	-39.82	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	-65.88	8.35	0.13	-57.66	-13.00	-44.66	Vertical
2122.50	-66.22	10.50	0.32	-56.04	-13.00	-43.04	Vertical
2830.00	-64.14	11.06	0.55	-53.63	-13.00	-40.63	Vertical
1415.00	-66.91	8.35	0.13	-58.69	-13.00	-45.69	Horizontal
2122.50	-67.12	10.50	0.32	-56.94	-13.00	-43.94	Horizontal
2830.00	-68.14	11.06	0.55	-57.63	-13.00	-44.63	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	-65.98	8.37	0.15	-57.76	-13.00	-44.76	Vertical
2133.00	-66.02	10.51	0.34	-55.85	-13.00	-42.85	Vertical
2844.00	-64.34	11.08	0.57	-53.83	-13.00	-40.83	Vertical
1422.00	-67.07	8.37	0.15	-58.85	-13.00	-45.85	Horizontal
2133.00	-67.31	10.51	0.34	-57.14	-13.00	-44.14	Horizontal
2844.00	-63.05	11.08	0.57	-52.54	-13.00	-39.54	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

LTE Band 13 part:

Band 13 (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
1559.00	-68.08	8.78	0.17	-59.47	-13.00	-46.47	Vertical
2338.50	-67.06	10.67	0.40	-56.79	-13.00	-43.79	Vertical
3118.00	-62.06	11.51	0.59	-51.14	-13.00	-38.14	Vertical
1559.00	-67.86	8.78	0.17	-59.25	-13.00	-46.25	Horizontal
2338.50	-67.37	10.67	0.40	-57.10	-13.00	-44.10	Horizontal
3118.00	-61.23	11.51	0.59	-50.31	-13.00	-37.31	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
1564.00	-67.64	8.79	0.18	-59.03	-13.00	-46.03	Vertical
2346.00	-66.71	10.68	0.40	-56.43	-13.00	-43.43	Vertical
3128.00	-61.94	11.53	0.60	-51.01	-13.00	-38.01	Vertical
1564.00	-68.23	8.79	0.18	-59.62	-13.00	-46.62	Horizontal
2346.00	-67.21	10.68	0.40	-56.93	-13.00	-43.93	Horizontal
3128.00	-61.25	11.53	0.60	-50.32	-13.00	-37.32	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
1569.00	-67.72	8.81	0.18	-59.09	-13.00	-46.09	Vertical
2353.50	-67.48	10.68	0.41	-57.21	-13.00	-44.21	Vertical
3138.00	-61.82	11.56	0.61	-50.87	-13.00	-37.87	Vertical
1569.00	-67.62	8.81	0.18	-58.99	-13.00	-45.99	Horizontal
2353.50	-67.36	10.68	0.41	-57.09	-13.00	-44.09	Horizontal
3138.00	-61.52	11.56	0.61	-50.57	-13.00	-37.57	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

Band 13 (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
1564.00	-67.74	8.79	0.18	-59.13	-13.00	-46.13	Vertical
2346.00	-67.28	10.68	0.40	-57.00	-13.00	-44.00	Vertical
3128.00	-62.05	11.53	0.60	-51.12	-13.00	-38.12	Vertical
1564.00	-67.56	8.79	0.18	-58.95	-13.00	-45.95	Horizontal
2346.00	-67.44	10.68	0.40	-57.16	-13.00	-44.16	Horizontal
3128.00	-60.95	11.53	0.60	-50.02	-13.00	-37.02	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
1564.00	-67.47	8.79	0.18	-58.86	-13.00	-45.86	Vertical
2346.00	-67.07	10.68	0.40	-56.79	-13.00	-43.79	Vertical
3128.00	-62.41	11.53	0.60	-51.48	-13.00	-38.48	Vertical
1564.00	-67.66	8.79	0.18	-59.05	-13.00	-46.05	Horizontal
2346.00	-67.07	10.68	0.40	-56.79	-13.00	-43.79	Horizontal
3128.00	-60.74	11.53	0.60	-49.81	-13.00	-36.81	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
1564.00	-67.81	8.79	0.18	-59.20	-13.00	-46.20	Vertical
2346.00	-67.12	10.68	0.40	-56.84	-13.00	-43.84	Vertical
3128.00	-61.81	11.53	0.60	-50.88	-13.00	-37.88	Vertical
1564.00	-68.04	8.79	0.18	-59.43	-13.00	-46.43	Horizontal
2346.00	-67.51	10.68	0.40	-57.23	-13.00	-44.23	Horizontal
3128.00	-61.00	11.53	0.60	-50.07	-13.00	-37.07	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached
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	178	0.094681	Within authorized band for Band 2	Pass
	-20	169	0.089894		
	-10	163	0.086702		
	0	156	0.082979		
	10	149	0.079255		
	20	143	0.076064		
	30	137	0.072872		
	40	131	0.069681		
	50	120	0.063830		
16QAM					
3.80	-30	173	0.092021	Within authorized band for Band 2	Pass
	-20	114	0.060638		
	-10	123	0.065426		
	0	130	0.069149		
	10	137	0.072872		
	20	146	0.077660		
	30	153	0.081383		
	40	159	0.084574		
	50	166	0.088298		
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		
QPSK					
3.80	-30	173	0.099856	Within authorized band for Band 4	Pass
	-20	143	0.082540		
	-10	136	0.078499		
	0	129	0.074459		
	10	150	0.086580		
	20	123	0.070996		
	30	113	0.065224		
	40	155	0.089466		
	50	160	0.092352		
16QAM					
3.80	-30	170	0.098124	Within authorized band for Band 4	Pass
	-20	162	0.093506		
	-10	153	0.088312		
	0	143	0.082540		
	10	134	0.077345		
	20	127	0.073304		
	30	120	0.069264		
	40	115	0.066378		
	50	108	0.062338		
Note: Only the worst case shown in the report.					

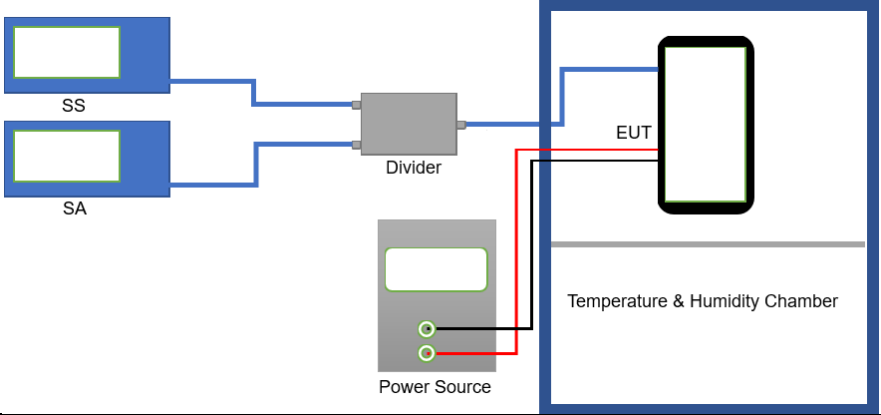
LTE Band 5 part:

Reference Frequency: LTE Band 5 (10MHz) Middle channel=20525 channel=836.50MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	168	0.200837	±2.5	Pass
	-20	160	0.191273		
	-10	154	0.184100		
	0	146	0.174537		
	10	137	0.163778		
	20	132	0.157800		
	30	124	0.148237		
	40	116	0.138673		
	50	107	0.127914		
16QAM					
3.80	-30	164	0.196055	±2.5	Pass
	-20	158	0.188882		
	-10	150	0.179319		
	0	143	0.170950		
	10	136	0.162582		
	20	128	0.153019		
	30	121	0.144650		
	40	113	0.135087		
	50	102	0.121937		
Note: Only the worst case shown in the report.					

LTE Band 13 part:

Reference Frequency: LTE Band 13 (10MHz) Middle channel=23230 channel=782.00MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.70	-30	165	0.210997	±2.5	Pass
	-20	143	0.182864		
	-10	120	0.153453		
	0	157	0.200767		
	10	150	0.191816		
	20	136	0.173913		
	30	131	0.167519		
	40	124	0.158568		
	50	115	0.147059		
16QAM					
3.70	-30	160	0.204604	±2.5	Pass
	-20	106	0.135550		
	-10	114	0.145780		
	0	126	0.161125		
	10	120	0.153453		
	20	134	0.171355		
	30	139	0.177749		
	40	146	0.186701		
	50	154	0.196931		
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:	 The diagram illustrates the test setup. A Signal Source (SS) and a Spectrum Analyzer (SA) are connected to a Divider. The output of the Divider is connected to the EUT (Equipment Under Test) inside a Temperature & Humidity Chamber. A Power Source is also connected to the EUT.
Test procedure:	1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
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 (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	80	0.042553	Within authorized band for Band 2	Pass
	3.80	70	0.037234		
	3.50	50	0.026596		
16QAM					
25	4.35	76	0.040426	Within authorized band for Band 2	Pass
	3.80	67	0.035638		
	3.50	56	0.029787		
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 (℃)	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	77	0.044444		
	3.50	66	0.038095		
16QAM					
25	4.35	80	0.046176	Within authorized band for Band 4	Pass
	3.80	73	0.042136		
	3.50	62	0.035786		
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	4.35	85	0.101614	±2.5	Pass
	3.80	72	0.086073		
	3.50	59	0.070532		
16QAM					
25	4.35	80	0.095637	±2.5	Pass
	3.80	68	0.081291		
	3.50	50	0.059773		
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 (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	80	0.113074	Within authorized band for Band 12	Pass
	3.80	72	0.101767		
	3.50	61	0.086219		
16QAM					
25	4.35	76	0.107420	Within authorized band for Band 12	Pass
	3.80	68	0.096113		
	3.50	56	0.079152		
Note: Only the worst case shown in the report.					

LTE Band 13 part:

Reference Frequency: LTE Band 13(10MHz) Middle channel=23230 channel=782.00MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.20	83	0.106138	±2.5	Pass
	3.70	74	0.094629		
	3.50	60	0.076726		
16QAM					
25	4.20	79	0.101023	±2.5	Pass
	3.70	69	0.088235		
	3.50	50	0.063939		
Note: Only the worst case shown in the report.					