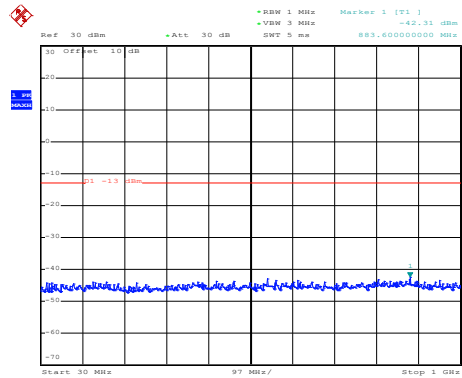
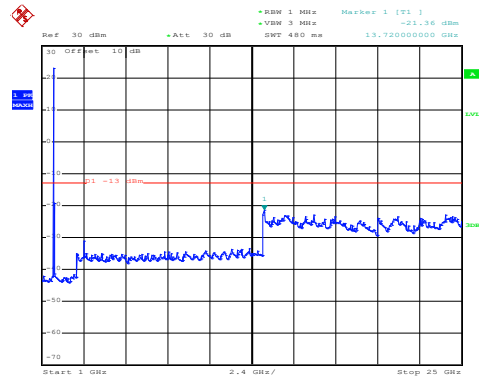


LTE Band 4: QPSK & RB Size 1
BW: 20MHz
Lowest channel



Date: 30.JUL.2020 17:14:38

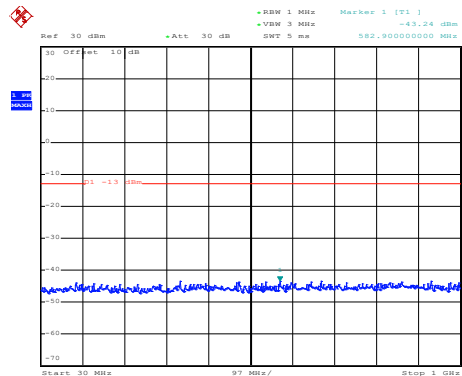
30MHz~1GHz



Date: 30.JUL.2020 17:13:20

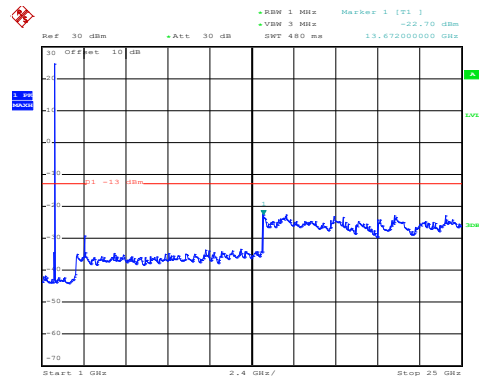
1GHz~25GHz

Middle channel



Date: 30.JUL.2020 17:14:26

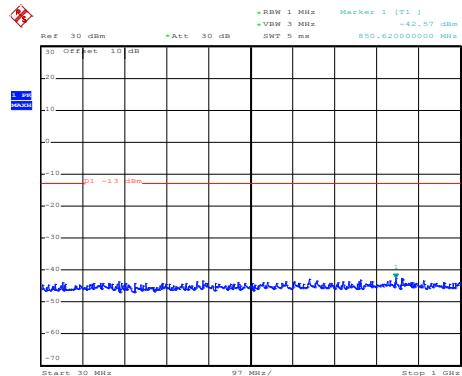
30MHz~1GHz



Date: 30.JUL.2020 17:13:36

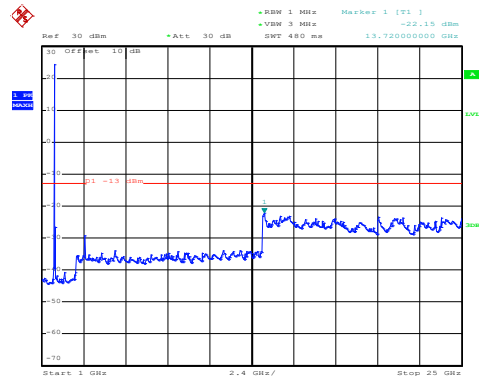
1GHz~25GHz

High channel



Date: 30.JUL.2020 17:14:14

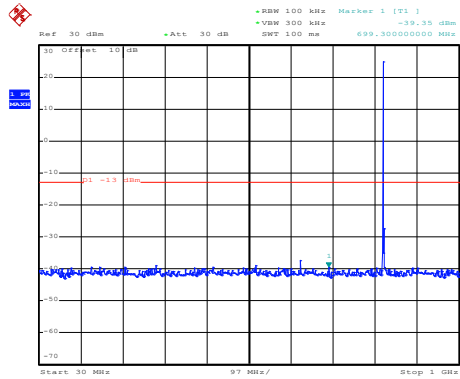
30MHz~1GHz



Date: 30.JUL.2020 17:13:53

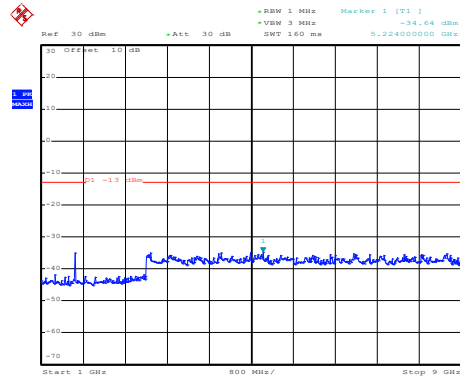
1GHz~25GHz

LTE Band 5 part:

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

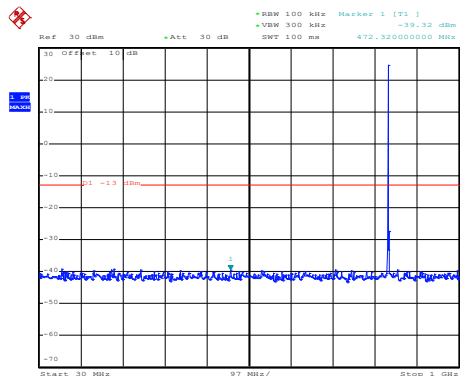
Date: 30.JUL.2020 17:07:21

30MHz~1GHz



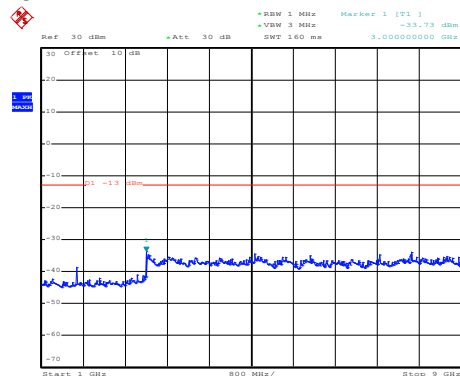
Date: 30.JUL.2020 17:05:30

1GHz~9GHz



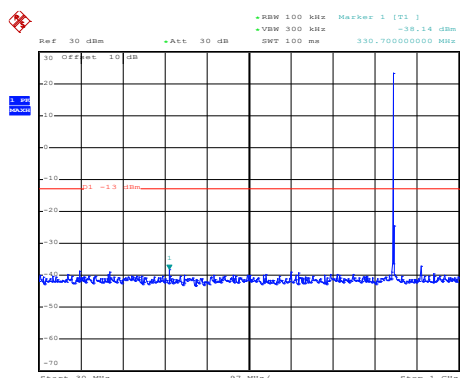
Date: 30.JUL.2020 17:06:55

30MHz~1GHz



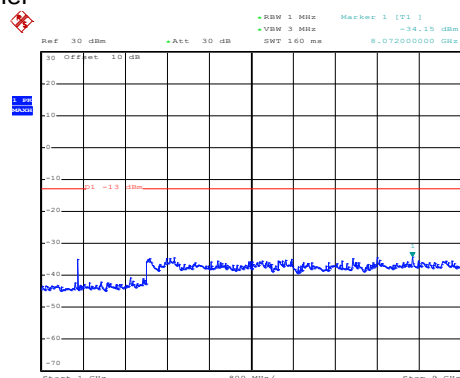
Date: 30.JUL.2020 17:05:43

1GHz~9GHz



Date: 30.JUL.2020 17:06:35

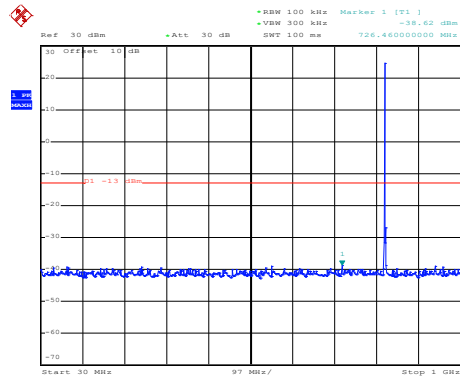
30MHz~1GHz



Date: 30.JUL.2020 17:05:57

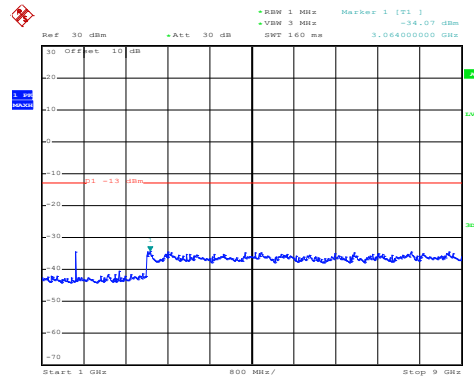
1GHz~9GHz

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



Date: 30.JUL.2020 17:07:12

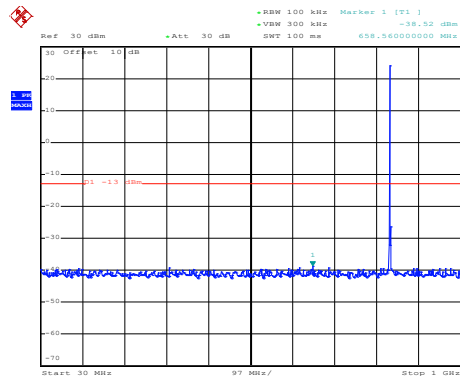
30MHz~1GHz



Date: 30.JUL.2020 17:05:25

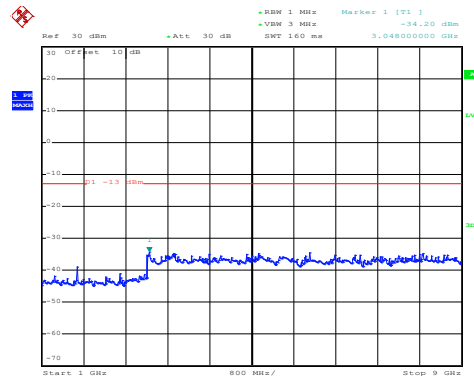
1GHz~9GHz

Middle channel



Date: 30.JUL.2020 17:06:47

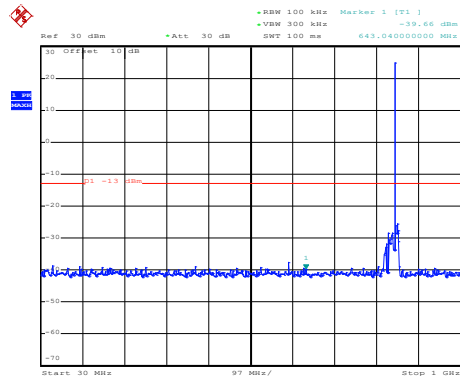
30MHz~1GHz



Date: 30.JUL.2020 17:05:38

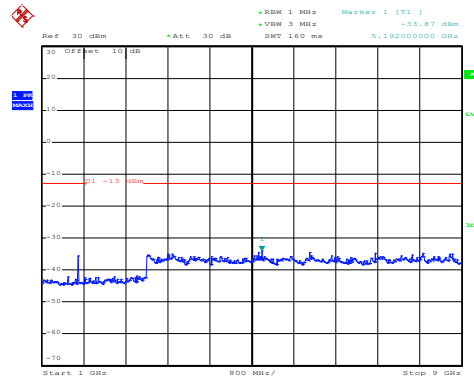
1GHz~9GHz

High channel



Date: 30.JUL.2020 17:06:27

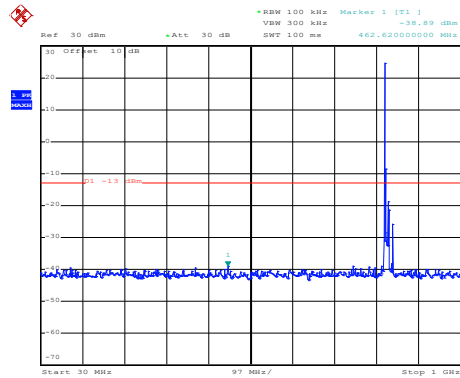
30MHz~1GHz



Date: 30.JUL.2020 17:05:52

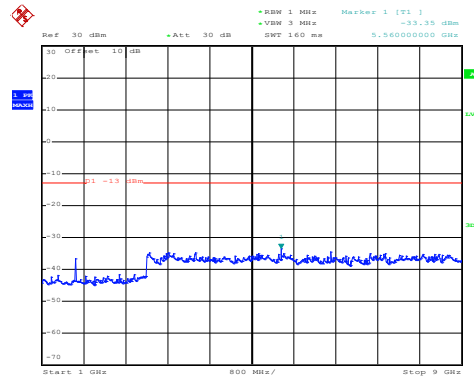
1GHz~9GHz

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



Date: 30.JUL.2020 17:04:05

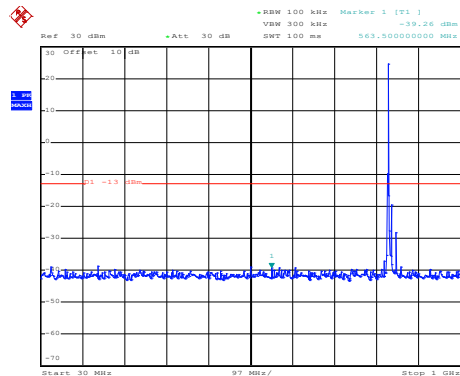
30MHz~1GHz



Date: 30.JUL.2020 17:04:28

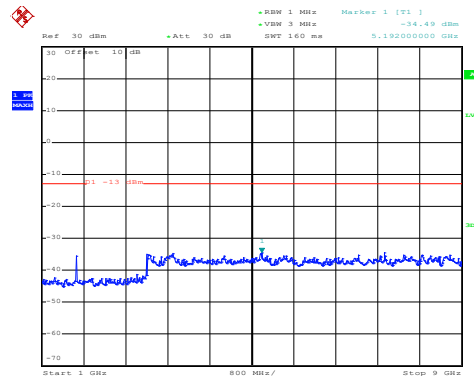
1GHz~9GHz

Middle channel



Date: 30.JUL.2020 17:03:42

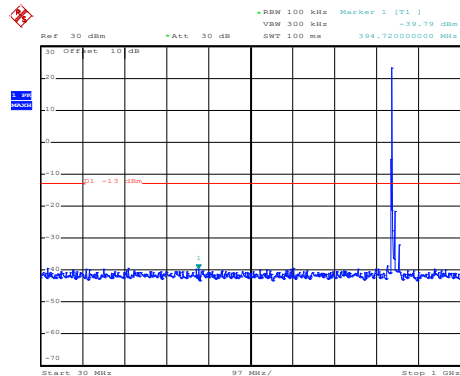
30MHz~1GHz



Date: 30.JUL.2020 17:04:43

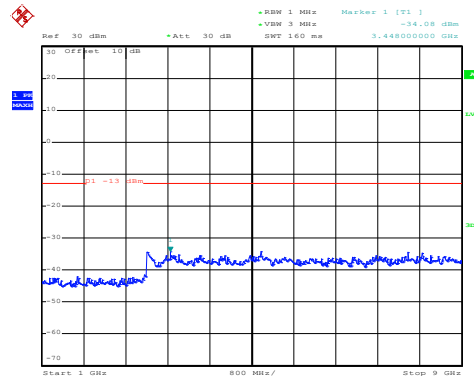
1GHz~9GHz

High channel



Date: 30.JUL.2020 17:03:26

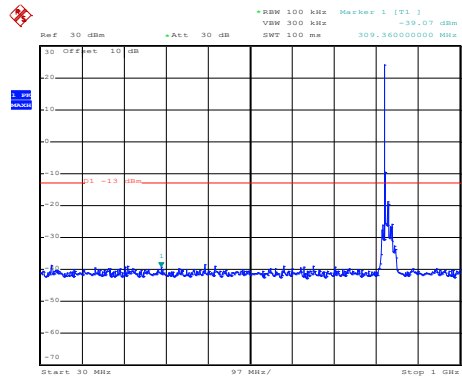
30MHz~1GHz



Date: 30.JUL.2020 17:04:58

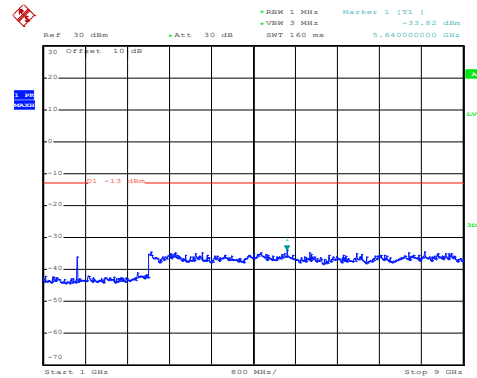
1GHz~9GHz

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



Date: 30.JUL.2020 17:03:57

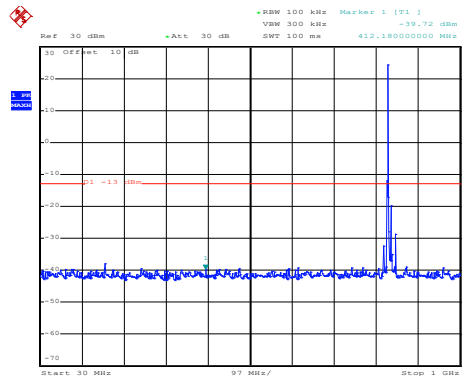
30MHz~1GHz



Date: 30.JUL.2020 17:04:21

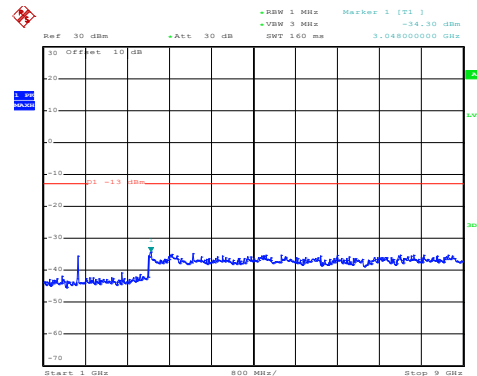
1GHz~9GHz

Middle channel



Date: 30.JUL.2020 17:03:35

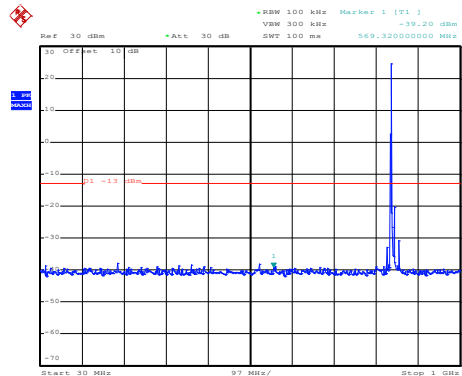
30MHz~1GHz



Date: 30.JUL.2020 17:04:37

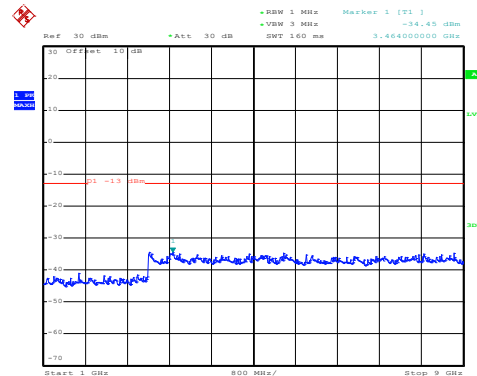
1GHz~9GHz

High channel



Date: 30.JUL.2020 17:03:19

30MHz~1GHz



Date: 30.JUL.2020 17:04:53

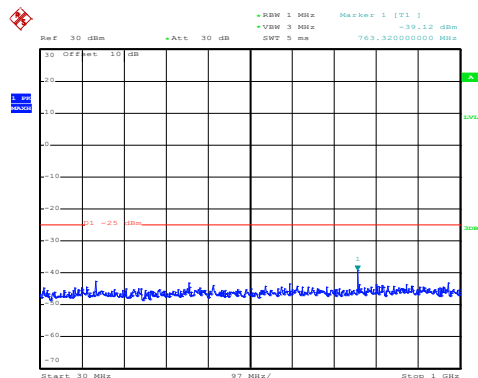
1GHz~9GHz

LTE Band 7 part:

LTE Band 7: 16 QAM & RB Size 1

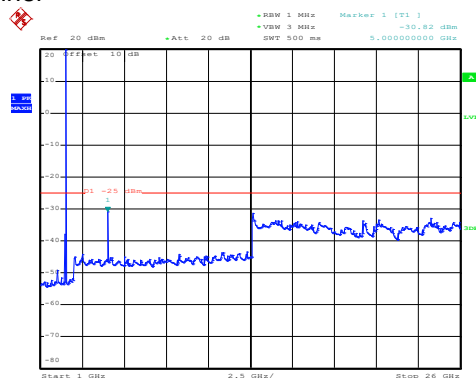
BW: 5MHz

Lowest channel



Date: 30.JUL.2020 17:00:15

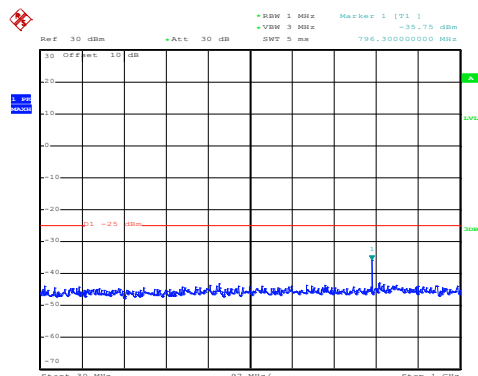
30MHz~1GHz



Date: 30.JUL.2020 16:58:47

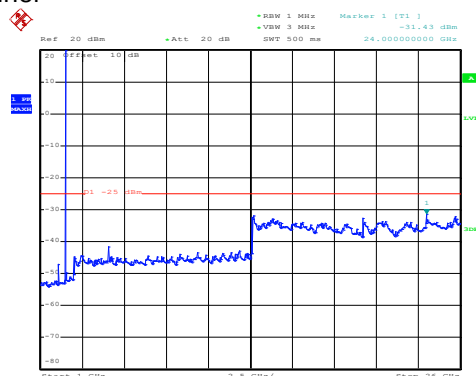
1GHz~26GHz

Middle channel



Date: 30.JUL.2020 17:00:01

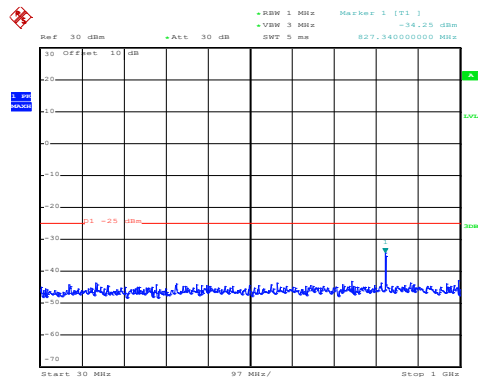
30MHz~1GHz



Date: 30.JUL.2020 16:59:11

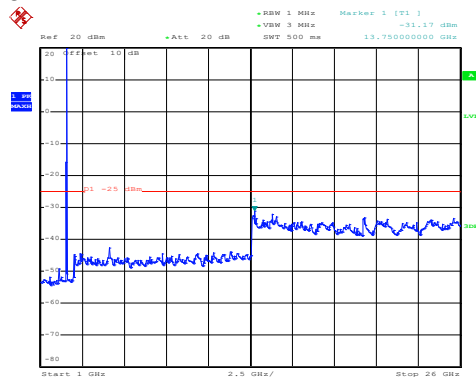
1GHz~26GHz

High channel



Date: 30.JUL.2020 16:59:47

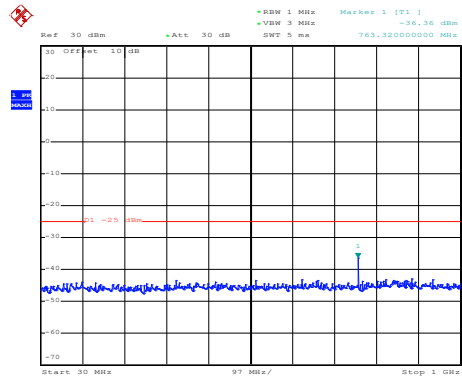
30MHz~1GHz



Date: 30.JUL.2020 16:59:25

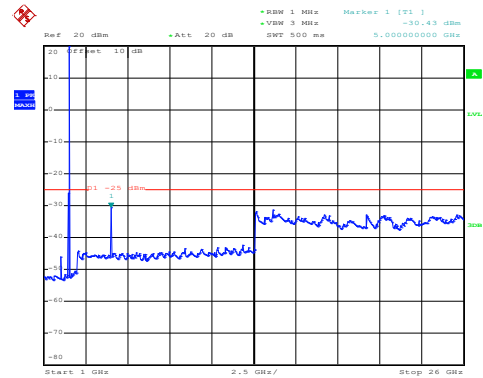
1GHz~26GHz

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



Date: 30.JUL.2020 17:00:10

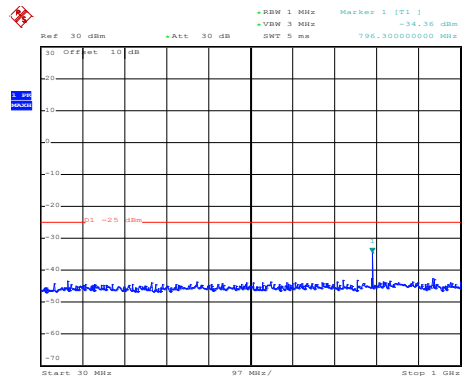
30MHz~1GHz



Date: 30.JUL.2020 16:58:40

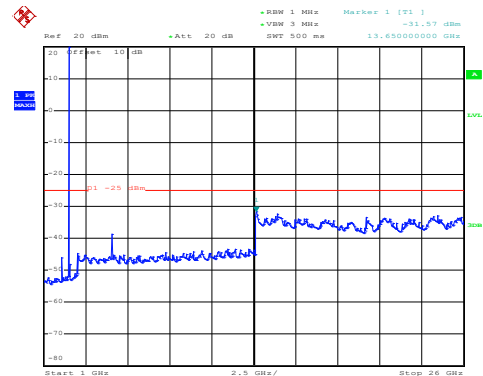
1GHz~26GHz

Middle channel



Date: 30.JUL.2020 16:59:56

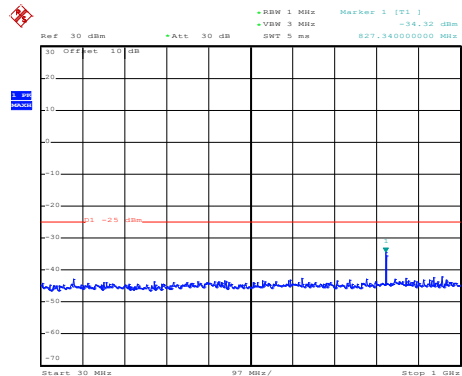
30MHz~1GHz



Date: 30.JUL.2020 16:58:57

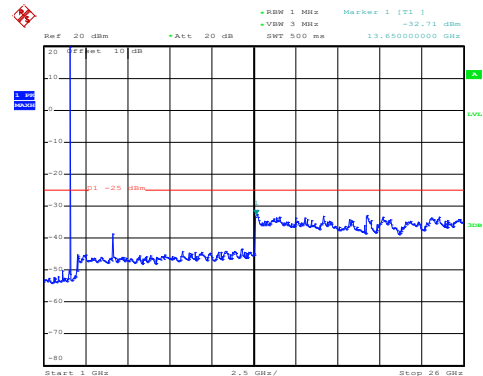
1GHz~26GHz

High channel



Date: 30.JUL.2020 16:59:43

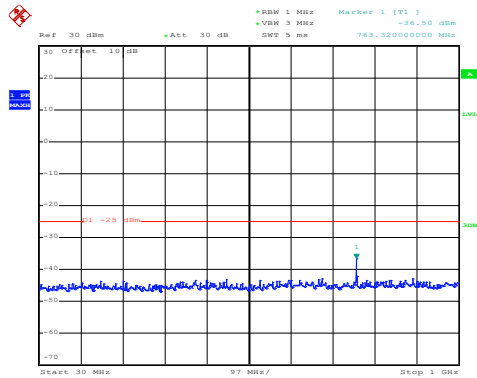
30MHz~1GHz



Date: 30.JUL.2020 16:59:20

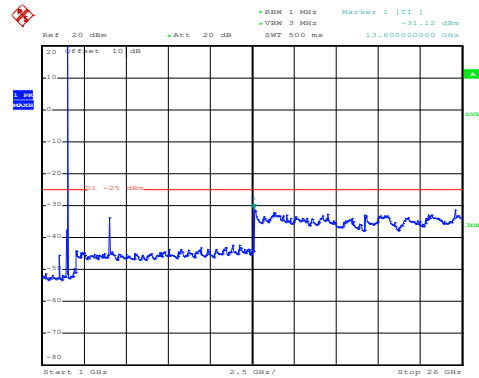
1GHz~26GHz

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



Date: 30.JUL.2020 15:44:06

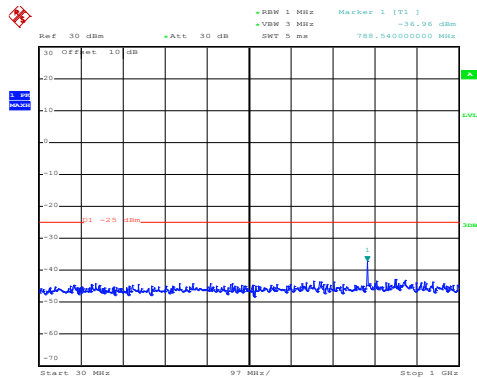
30MHz~1GHz



Date: 30.JUL.2020 15:44:55

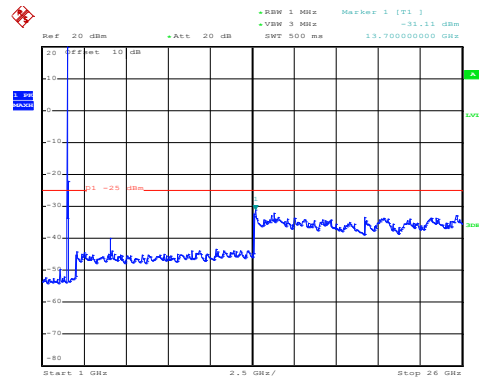
1GHz~26GHz

Middle channel



Date: 30.JUL.2020 15:43:44

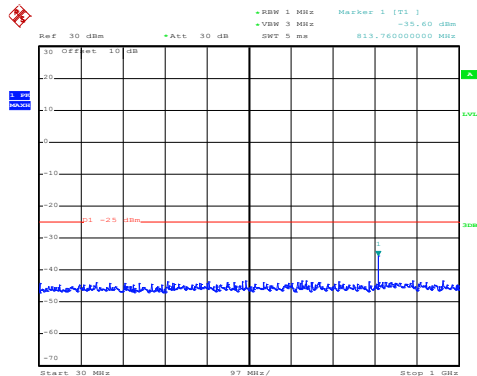
30MHz~1GHz



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

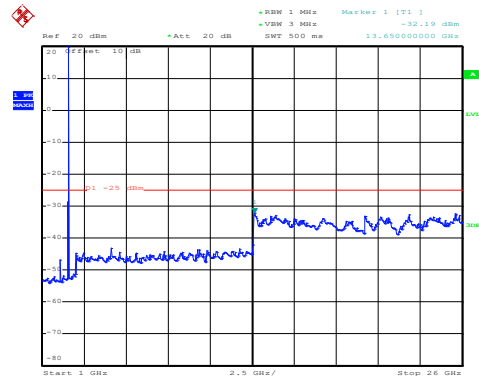
1GHz~26GHz

High channel



Date: 30.JUL.2020 15:43:32

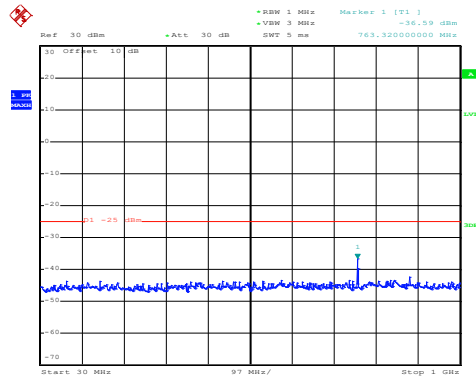
30MHz~1GHz



Date: 30.JUL.2020 15:45:42

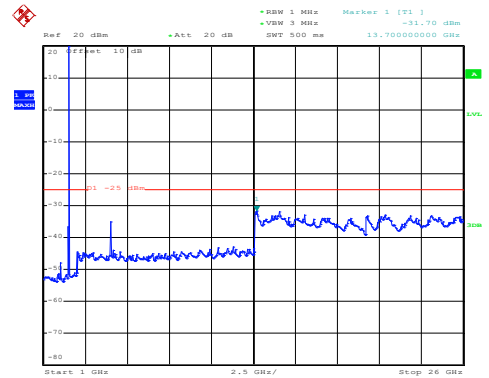
1GHz~26GHz

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



Date: 30.JUL.2020 15:43:59

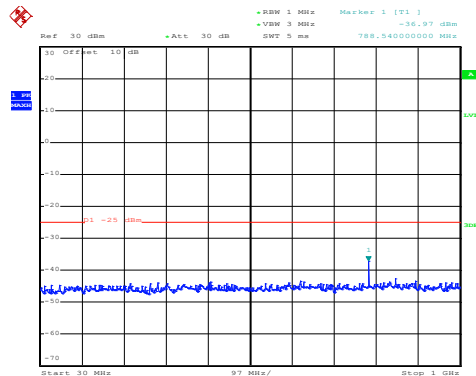
30MHz~1GHz



Date: 30.JUL.2020 15:44:26

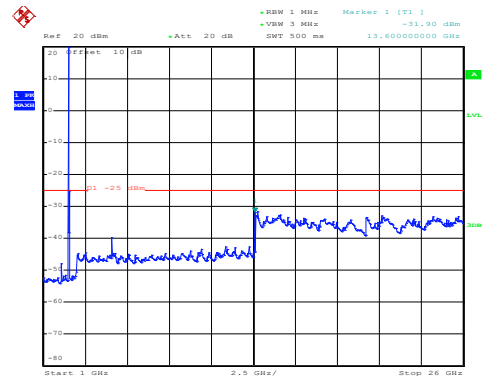
1GHz~26GHz

Middle channel



Date: 30.JUL.2020 15:43:39

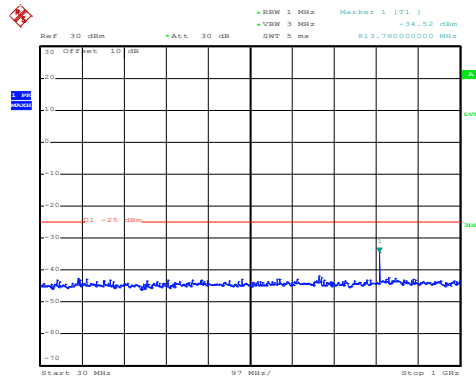
30MHz~1GHz



Date: 30.JUL.2020 15:45:07

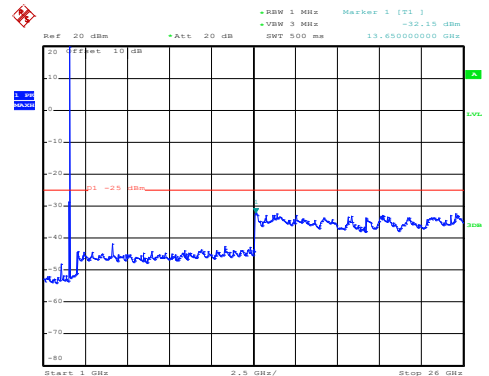
1GHz~26GHz

High channel



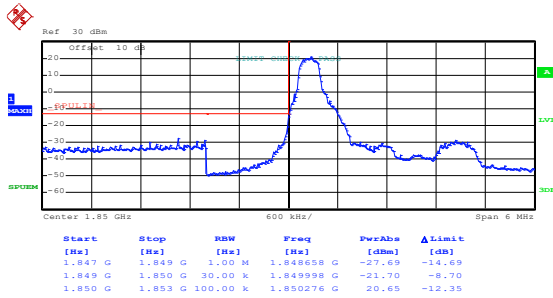
Date: 30.JUL.2020 15:43:24

30MHz~1GHz



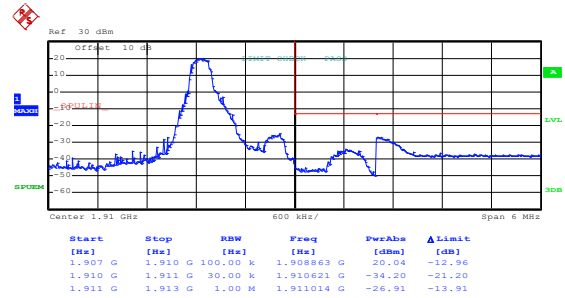
Date: 30.JUL.2020 15:45:32

1GHz~26GHz

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

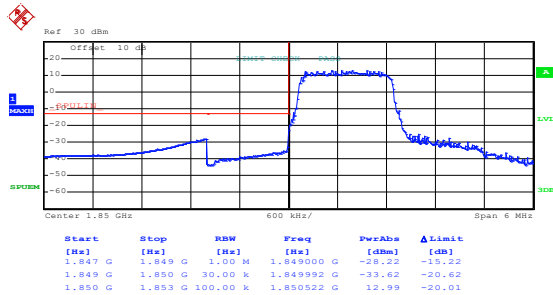
Date: 30.JUL.2020 15:29:34

Lowest channel



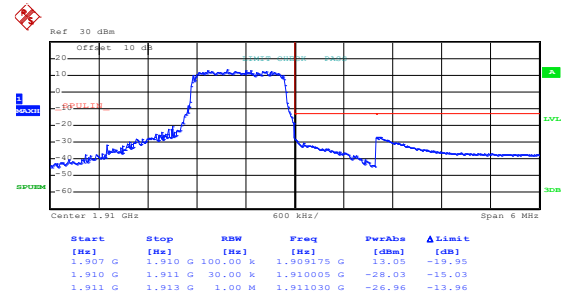
Date: 30.JUL.2020 15:30:30

Highest channel

16QAM & RB Size 6

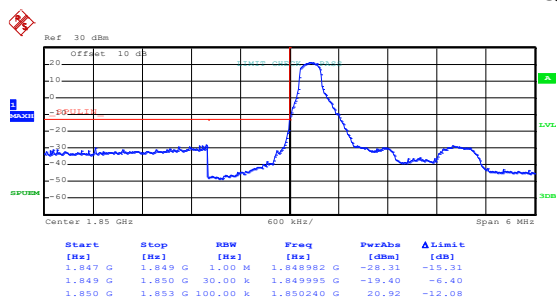
Date: 30.JUL.2020 15:30:01

Lowest channel



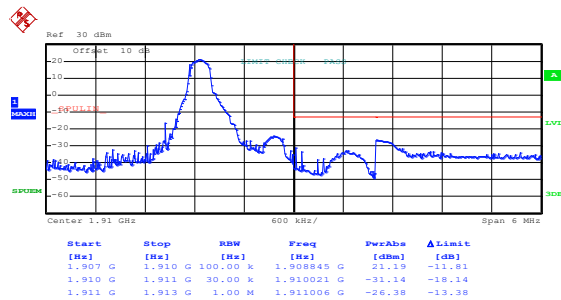
Date: 30.JUL.2020 15:30:18

Highest channel

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

Date: 30.JUL.2020 15:29:27

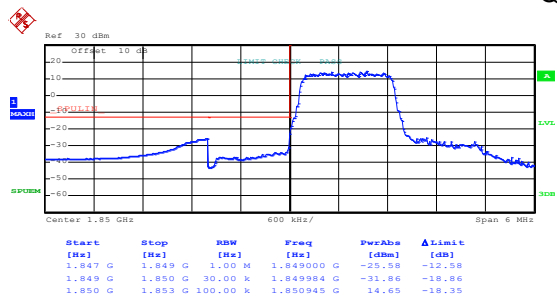
Lowest channel



Date: 30.JUL.2020 15:30:24

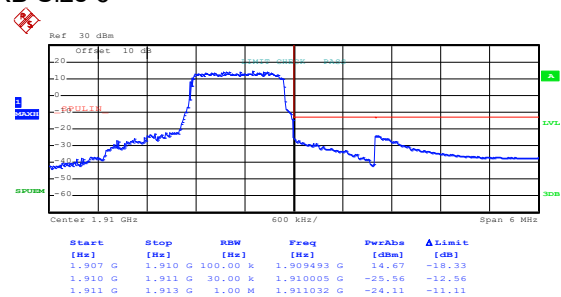
Highest channel

QPSK & RB Size 6



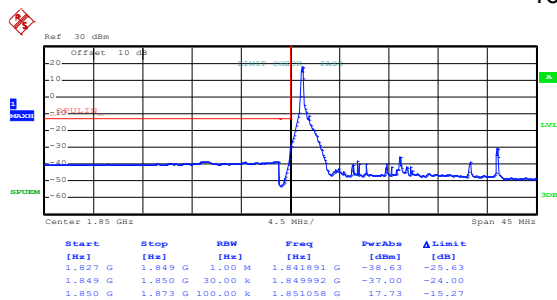
Date: 30.JUL.2020 15:29:56

Lowest channel



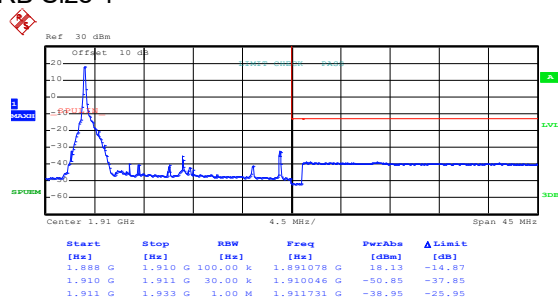
Date: 30.JUL.2020 15:30:13

Highest channel

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

Date: 30.JUL.2020 15:31:42

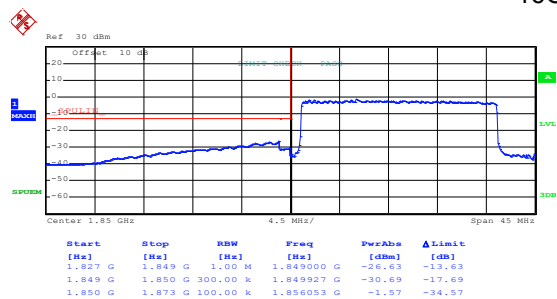
Lowest channel



Date: 30.JUL.2020 15:31:04

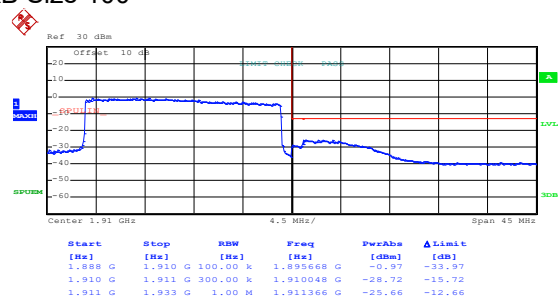
Highest channel

16QAM & RB Size 100



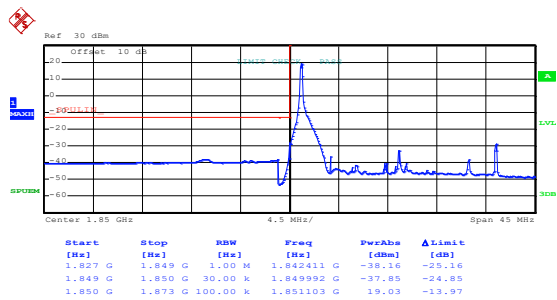
Date: 30.JUL.2020 15:32:00

Lowest channel



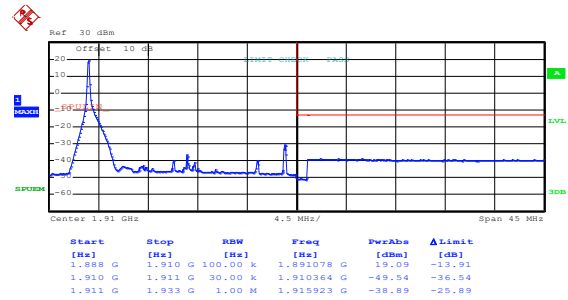
Date: 30.JUL.2020 15:31:24

Highest channel

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

Date: 30.JUL.2020 15:31:37

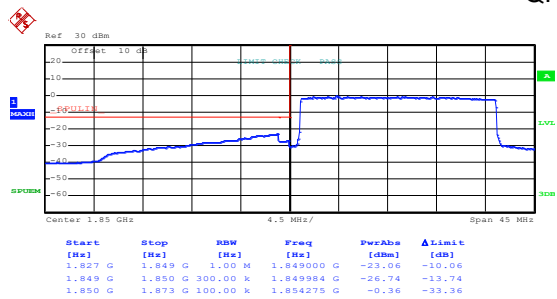
Lowest channel



Date: 30.JUL.2020 15:30:58

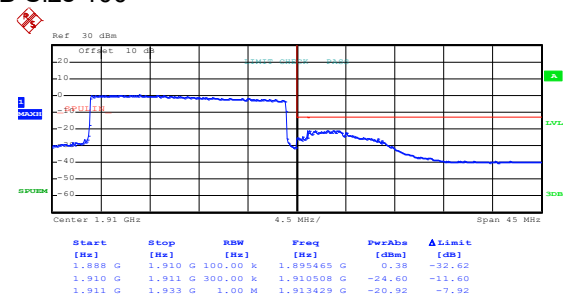
Highest channel

QPSK & RB Size 100



Date: 30.JUL.2020 15:31:56

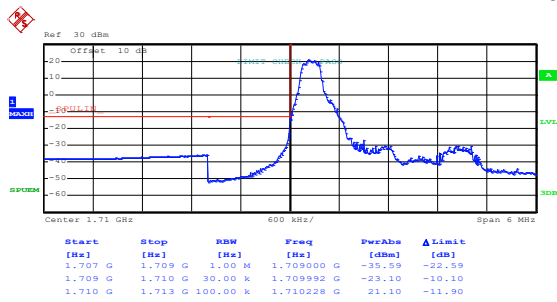
Lowest channel



Date: 30.JUL.2020 15:31:20

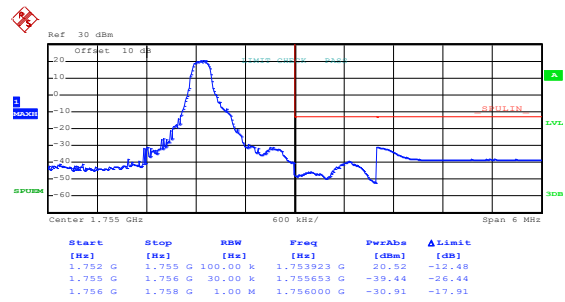
Highest channel

LTE Band 4 part:

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

Date: 30.JUL.2020 15:35:13

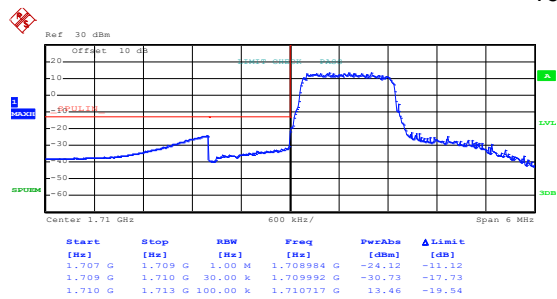
Lowest channel



Date: 30.JUL.2020 15:36:02

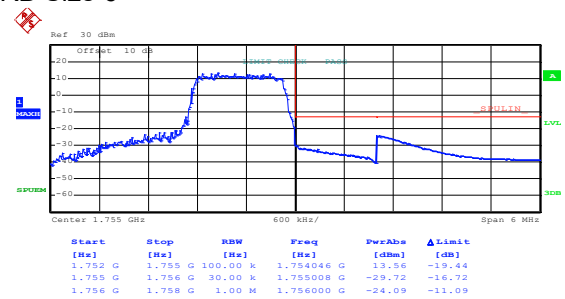
Highest channel

16QAM & RB Size 6



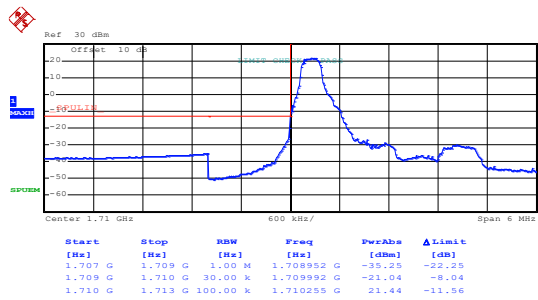
Date: 30.JUL.2020 15:35:24

Lowest channel



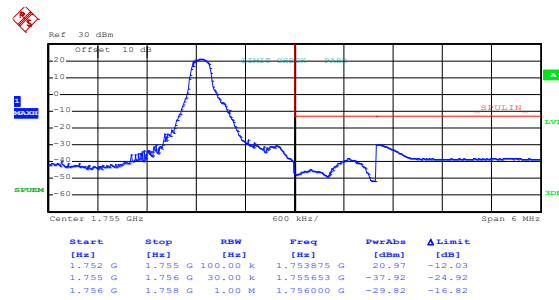
Date: 30.JUL.2020 15:35:48

Highest channel

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

Date: 30.JUL.2020 15:35:08

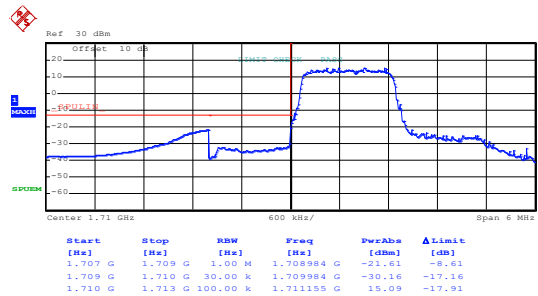
Lowest channel



Date: 30.JUL.2020 15:35:55

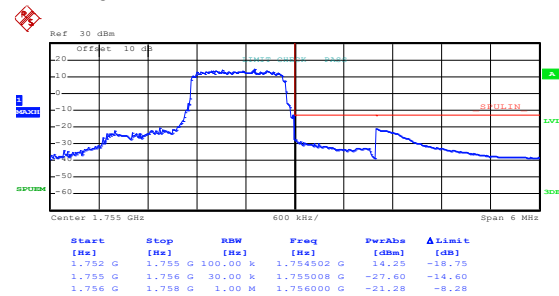
Highest channel

QPSK & RB Size 6



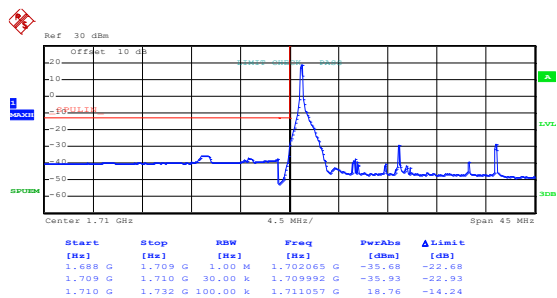
Date: 30.JUL.2020 15:35:20

Lowest channel



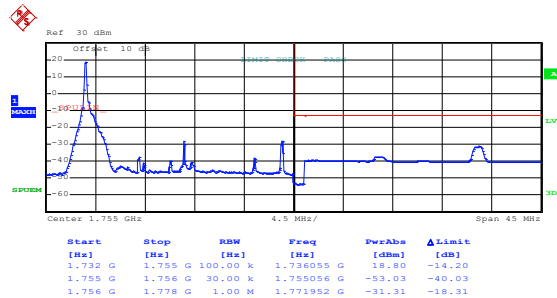
Date: 30.JUL.2020 15:35:44

Highest channel

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

Date: 30.JUL.2020 15:32:46

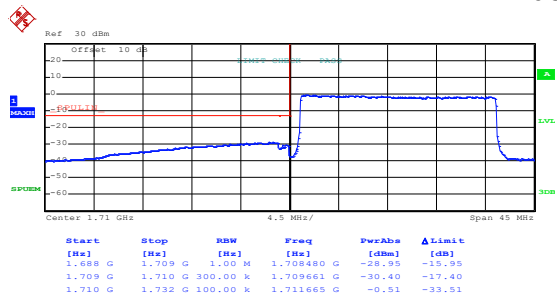
Lowest channel



Date: 30.JUL.2020 15:34:24

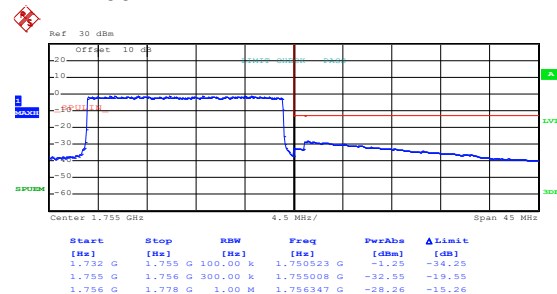
Highest channel

16QAM & RB Size 100



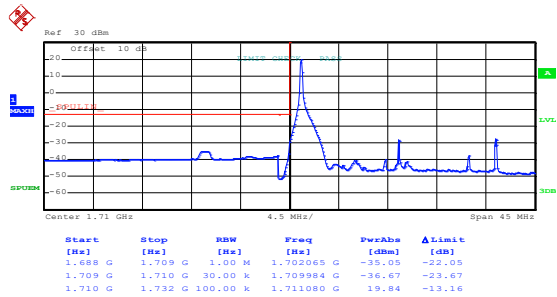
Date: 30.JUL.2020 15:33:05

Lowest channel



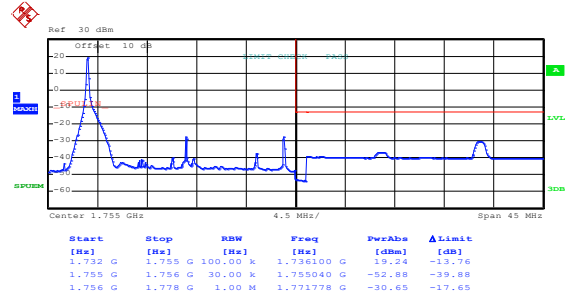
Date: 30.JUL.2020 15:34:02

Highest channel

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

Date: 30.JUL.2020 15:32:38

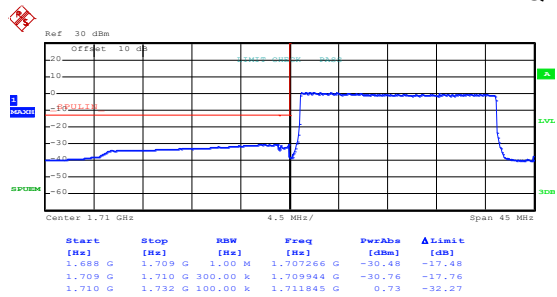
Lowest channel



Date: 30.JUL.2020 15:34:16

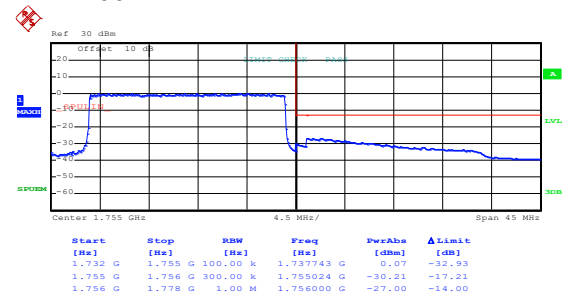
Highest channel

QPSK & RB Size 100



Date: 30.JUL.2020 15:33:00

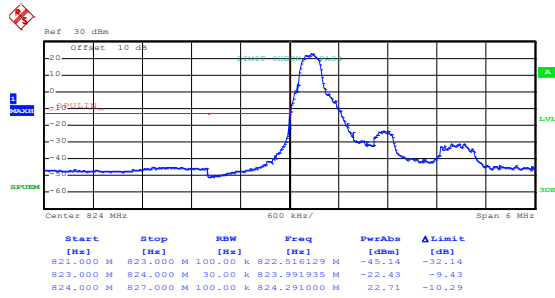
Lowest channel



Date: 30.JUL.2020 15:33:58

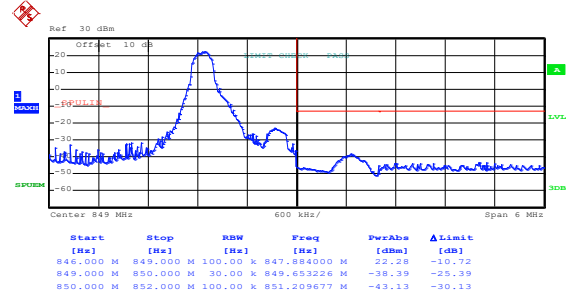
Highest channel

LTE Band 5 part:

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

Date: 30.JUL.2020 15:37:06

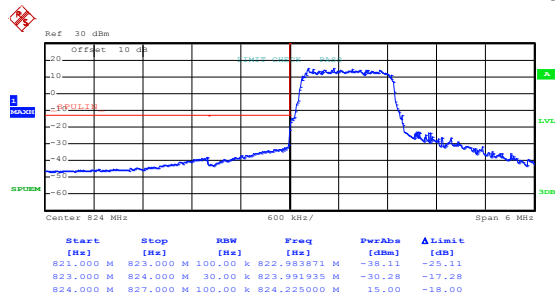
Lowest channel



Date: 30.JUL.2020 15:37:48

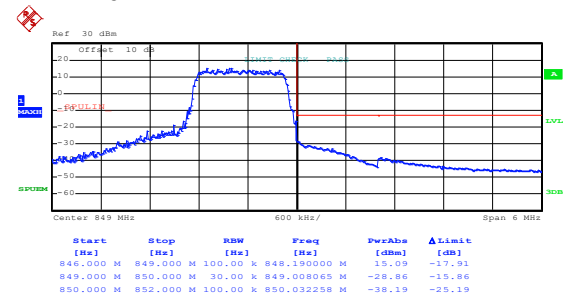
Highest channel

16QAM & RB Size 6



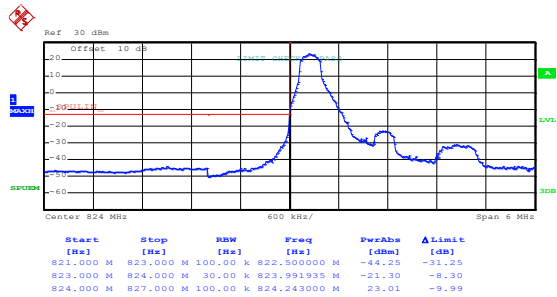
Date: 30.JUL.2020 15:37:17

Lowest channel



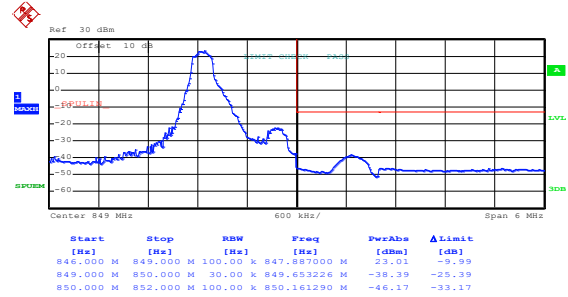
Date: 30.JUL.2020 15:37:36

Highest channel

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

Date: 30.JUL.2020 15:36:59

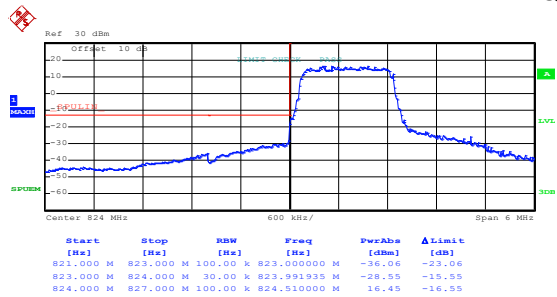
Lowest channel



Date: 30.JUL.2020 15:37:42

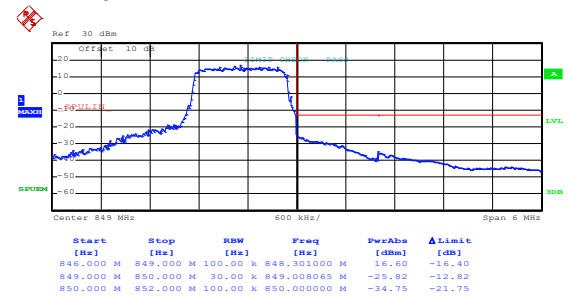
Highest channel

QPSK & RB Size 6



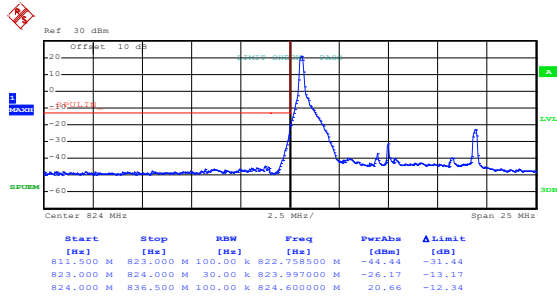
Date: 30.JUL.2020 15:37:13

Lowest channel



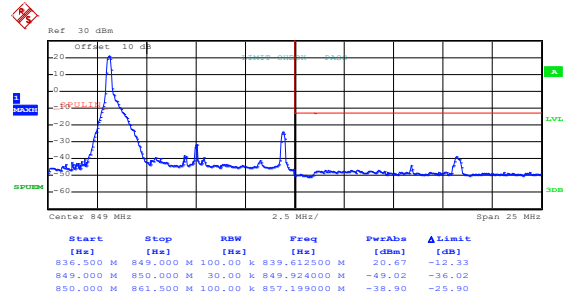
Date: 30.JUL.2020 15:37:29

Highest channel

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

Date: 30.JUL.2020 17:01:46

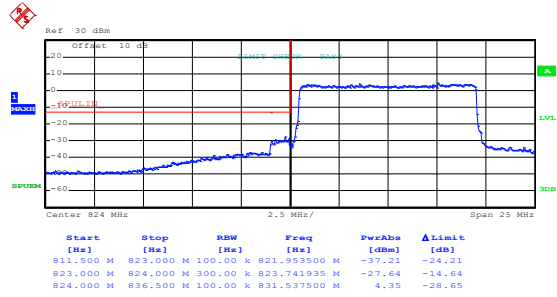
Lowest channel



Date: 30.JUL.2020 17:02:24

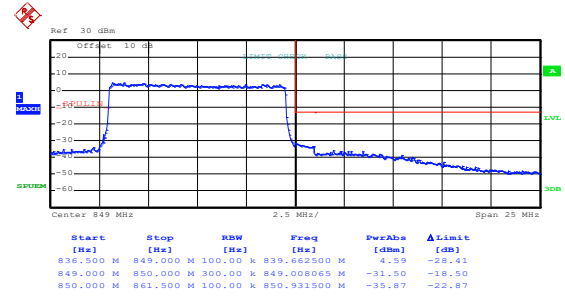
Highest channel

16QAM & RB Size 50



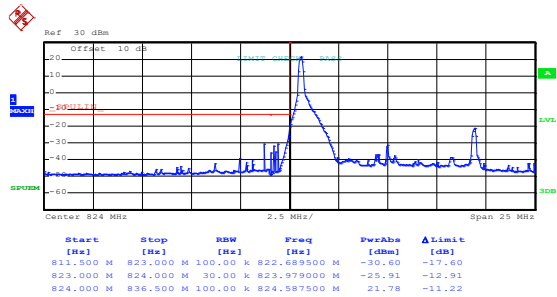
Date: 30.JUL.2020 17:02:06

Lowest channel



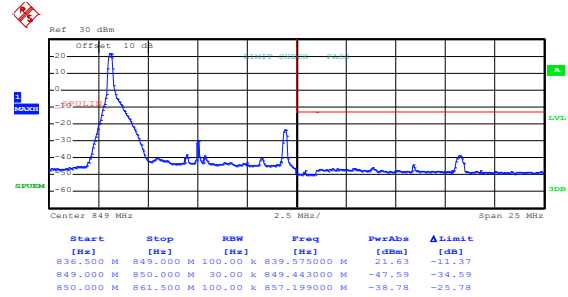
Date: 30.JUL.2020 17:02:49

Highest channel

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

Date: 30.JUL.2020 17:01:40

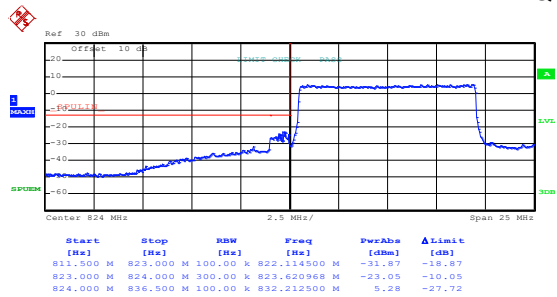
Lowest channel



Date: 30.JUL.2020 17:02:18

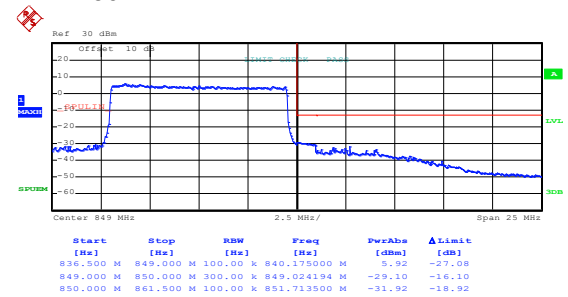
Highest channel

QPSK & RB Size 50



Date: 30.JUL.2020 17:02:01

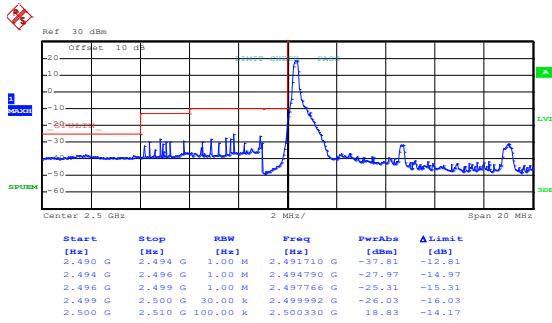
Lowest channel



Date: 30.JUL.2020 17:02:54

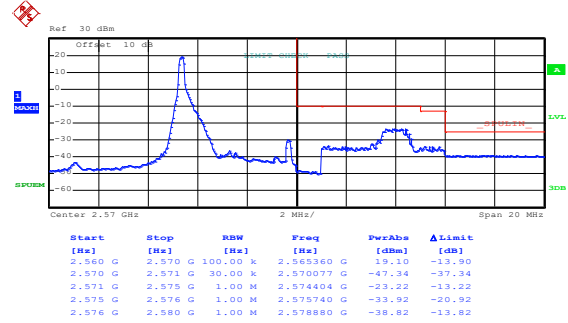
Highest channel

LTE Band 7 part:

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

Date: 30.JUL.2020 15:39:00

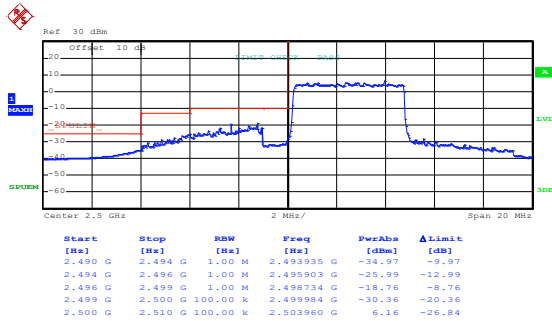
Lowest channel



Date: 30.JUL.2020 15:39:38

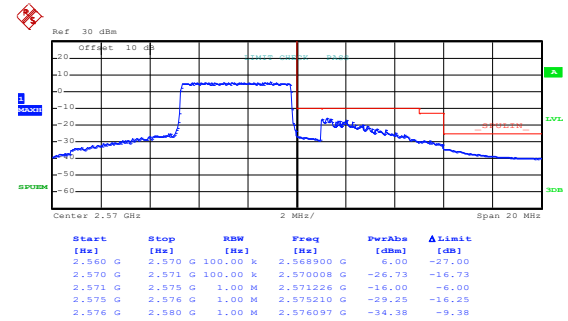
Highest channel

16QAM & RB Size 25



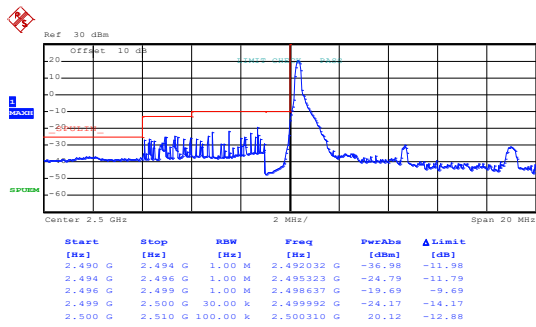
Date: 30.JUL.2020 15:39:18

Lowest channel



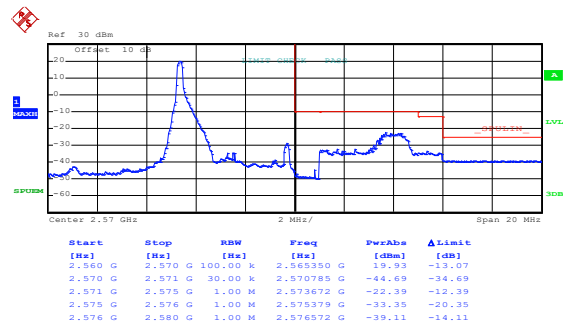
Date: 30.JUL.2020 15:40:34

Highest channel

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

Date: 30.JUL.2020 15:38:51

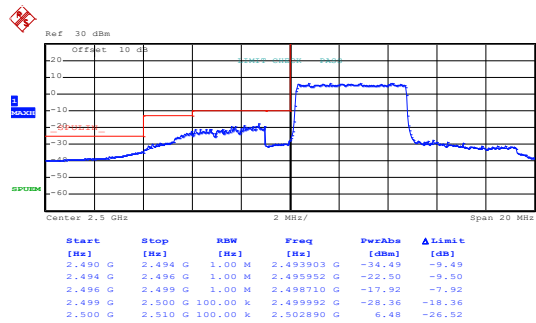
Lowest channel



Date: 30.JUL.2020 15:39:30

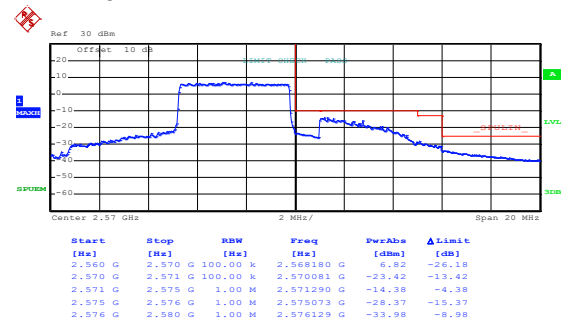
Highest channel

QPSK & RB Size 25



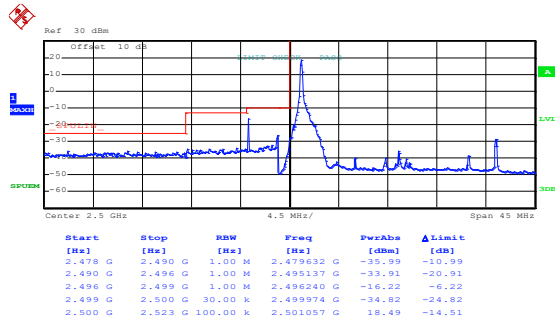
Date: 30.JUL.2020 15:39:13

Lowest channel



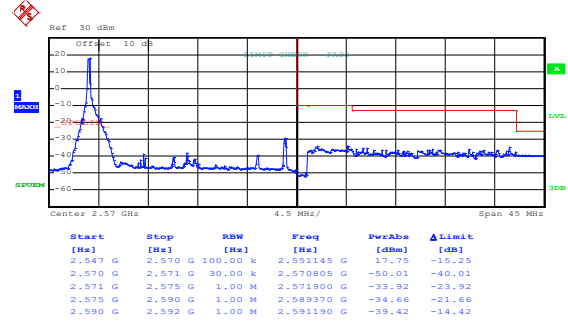
Date: 30.JUL.2020 15:40:27

Highest channel

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

Date: 30.JUL.2020 15:41:44

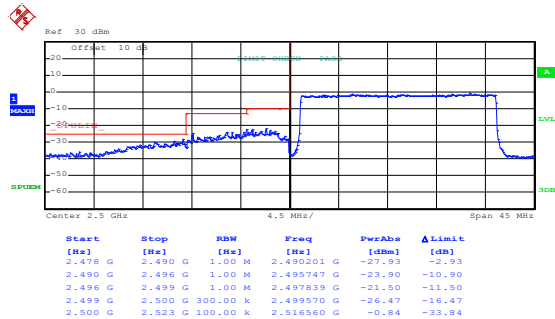
Lowest channel



Date: 30.JUL.2020 15:42:28

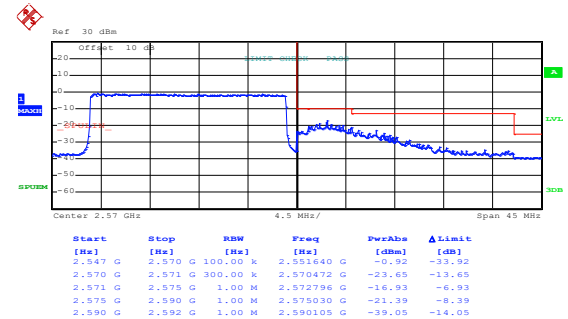
Highest channel

16QAM & RB Size 100



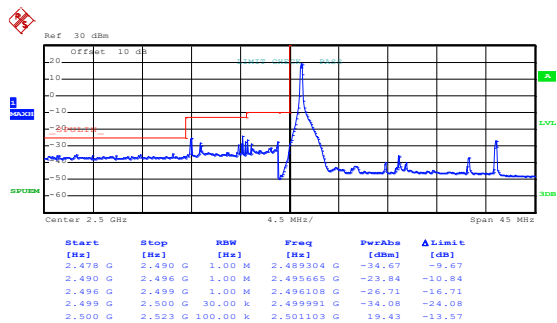
Date: 30.JUL.2020 15:42:05

Lowest channel



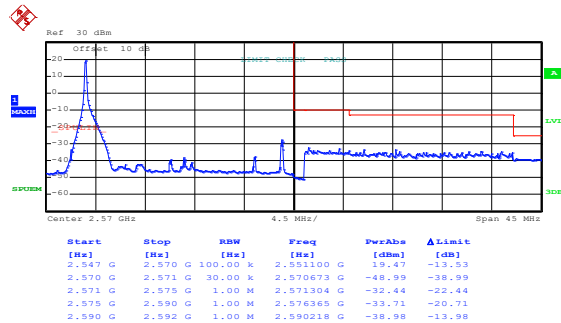
Date: 30.JUL.2020 15:42:47

Highest channel

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

Date: 30.JUL.2020 15:41:39

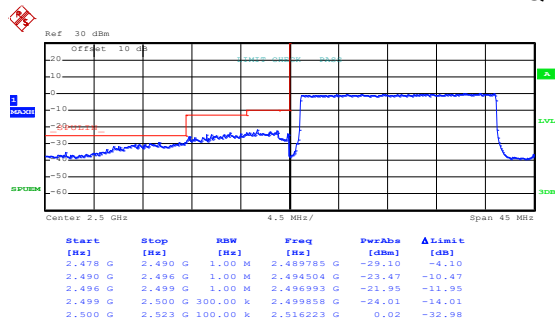
Lowest channel



Date: 30.JUL.2020 15:42:22

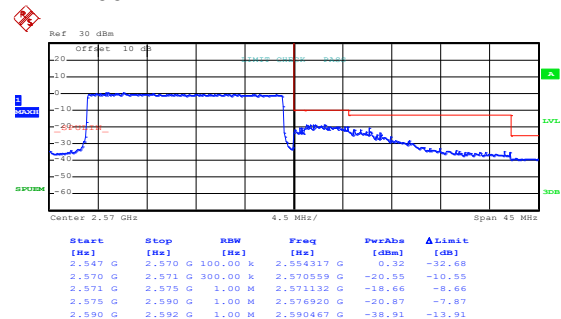
Highest channel

QPSK & RB Size 100



Date: 30.JUL.2020 15:41:59

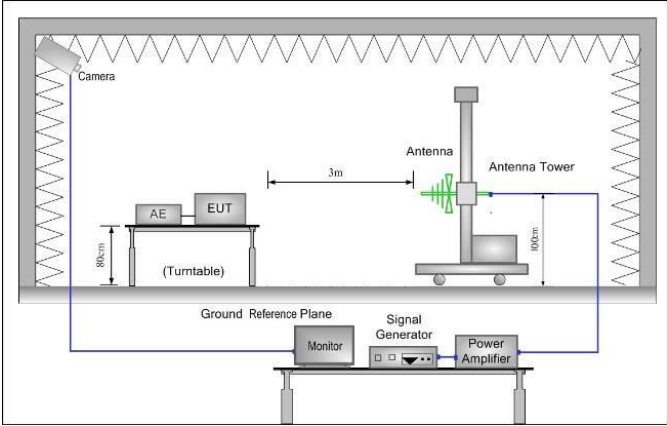
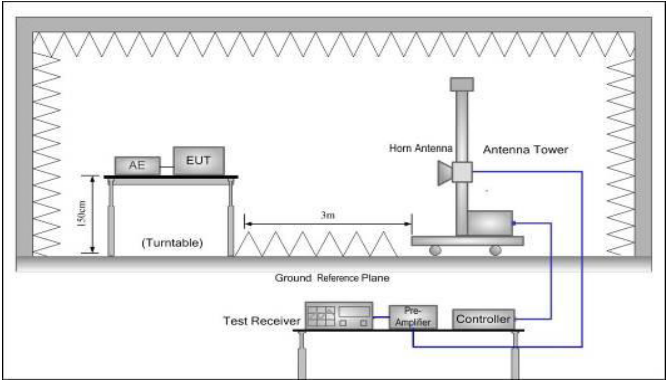
Lowest channel



Date: 30.JUL.2020 15:42:40

Highest channel

6.5 Field strength of spurious radiation measurement

Test Requirement:	Part 22.917(a), Part 24.238 (a) , Part 27.53(m), Part 27.53(h)
Limit:	LTE Band 2 & 4 & 5: 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	-63.63	12.64	0.75	-51.74	-13.00	-38.74	Vertical
5552.10	-56.43	12.76	1.13	-44.80	-13.00	-31.80	Vertical
7402.00	-44.32	11.44	1.63	-34.51	-13.00	-21.51	Vertical
3701.40	-56.85	12.64	0.75	-44.96	-13.00	-31.96	Horizontal
5552.10	-55.79	12.76	1.13	-44.16	-13.00	-31.16	Horizontal
7402.00	-43.97	11.44	1.63	-34.16	-13.00	-21.16	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	-63.81	12.71	0.79	-51.89	-13.00	-38.89	Vertical
5640.00	-56.75	12.87	1.15	-45.03	-13.00	-32.03	Vertical
7520.00	-44.79	11.48	1.66	-34.97	-13.00	-21.97	Vertical
3760.00	-56.94	12.71	0.79	-45.02	-13.00	-32.02	Horizontal
5640.00	-56.30	12.87	1.15	-44.58	-13.00	-31.58	Horizontal
7520.00	-43.78	11.48	1.66	-33.96	-13.00	-20.96	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	-63.45	12.78	0.81	-51.48	-13.00	-38.48	Vertical
5724.90	-57.19	12.97	1.19	-45.41	-13.00	-32.41	Vertical
7633.20	-44.31	11.34	1.71	-34.68	-13.00	-21.68	Vertical
3816.60	-56.71	12.78	0.81	-44.74	-13.00	-31.74	Horizontal
5724.90	-56.32	12.97	1.19	-44.54	-13.00	-31.54	Horizontal
7633.20	-43.80	11.34	1.71	-34.17	-13.00	-21.17	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	-63.43	12.66	0.77	-51.54	-13.00	-38.54	Vertical
5580.00	-56.82	12.80	1.15	-45.17	-13.00	-32.17	Vertical
7440.00	-44.46	11.46	1.64	-34.64	-13.00	-21.64	Vertical
3720.00	-56.70	12.66	0.77	-44.81	-13.00	-31.81	Horizontal
5580.00	-56.01	12.80	1.15	-44.36	-13.00	-31.36	Horizontal
7440.00	-43.84	11.46	1.64	-34.02	-13.00	-21.02	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
3760.00	-63.28	12.71	0.79	-51.36	-13.00	-38.36	Vertical
5640.00	-56.62	12.87	1.15	-44.90	-13.00	-31.90	Vertical
7520.00	-44.69	11.48	1.66	-34.87	-13.00	-21.87	Vertical
3760.00	-57.19	12.71	0.79	-45.27	-13.00	-32.27	Horizontal
5640.00	-55.59	12.87	1.15	-43.87	-13.00	-30.87	Horizontal
7520.00	-43.45	11.48	1.66	-33.63	-13.00	-20.63	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
3800.00	-62.84	12.76	0.79	-50.87	-13.00	-37.87	Vertical
5700.00	-56.22	12.94	1.18	-44.46	-13.00	-31.46	Vertical
7600.00	-44.69	11.38	1.69	-35.00	-13.00	-22.00	Vertical
3800.00	-56.95	12.76	0.79	-44.98	-13.00	-31.98	Horizontal
5700.00	-55.85	12.94	1.18	-44.09	-13.00	-31.09	Horizontal
7600.00	-43.42	11.38	1.69	-33.73	-13.00	-20.73	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	-54.97	12.30	0.70	-43.37	-13.00	-30.37	Vertical
5132.10	-52.32	12.69	1.01	-40.64	-13.00	-27.64	Vertical
6842.80	-37.55	11.56	1.53	-27.52	-13.00	-14.52	Vertical
3421.40	-52.71	12.30	0.70	-41.11	-13.00	-28.11	Horizontal
5132.10	-52.38	12.69	1.01	-40.70	-13.00	-27.70	Horizontal
6842.80	-36.20	11.56	1.53	-26.17	-13.00	-13.17	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	-54.95	12.41	0.72	-43.26	-13.00	-30.26	Vertical
5197.50	-52.17	12.64	1.04	-40.57	-13.00	-27.57	Vertical
6930.00	-37.77	11.53	1.56	-27.80	-13.00	-14.80	Vertical
3465.00	-52.37	12.41	0.72	-40.68	-13.00	-27.68	Horizontal
5197.50	-51.99	12.64	1.04	-40.39	-13.00	-27.39	Horizontal
6930.00	-35.70	11.53	1.56	-25.73	-13.00	-12.73	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	-55.55	12.49	0.74	-43.80	-13.00	-30.80	Vertical
5262.90	-52.60	12.59	1.07	-41.08	-13.00	-28.08	Vertical
7017.20	-37.40	11.49	1.58	-27.49	-13.00	-14.49	Vertical
3508.60	-52.98	12.49	0.74	-41.23	-13.00	-28.23	Horizontal
5262.90	-52.53	12.59	1.07	-41.01	-13.00	-28.01	Horizontal
7017.20	-35.60	11.49	1.58	-25.69	-13.00	-12.69	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	-54.53	12.34	0.71	-42.90	-13.00	-29.90	Vertical
5160.00	-52.32	12.67	1.03	-40.68	-13.00	-27.68	Vertical
6880.00	-37.39	11.55	1.54	-27.38	-13.00	-14.38	Vertical
3440.00	-52.26	12.34	0.71	-40.63	-13.00	-27.63	Horizontal
5160.00	-52.18	12.67	1.03	-40.54	-13.00	-27.54	Horizontal
6880.00	-35.70	11.55	1.54	-25.69	-13.00	-12.69	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	-55.05	12.41	0.72	-43.36	-13.00	-30.36	Vertical
5197.50	-52.12	12.64	1.04	-40.52	-13.00	-27.52	Vertical
6930.00	-38.23	11.53	1.56	-28.26	-13.00	-15.26	Vertical
3465.00	-52.01	12.41	0.72	-40.32	-13.00	-27.32	Horizontal
5197.50	-51.83	12.64	1.04	-40.23	-13.00	-27.23	Horizontal
6930.00	-35.34	11.53	1.56	-25.37	-13.00	-12.37	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	-55.60	12.49	0.73	-43.84	-13.00	-30.84	Vertical
5235.00	-52.63	12.61	1.06	-41.08	-13.00	-28.08	Vertical
6980.00	-37.82	11.51	1.57	-27.88	-13.00	-14.88	Vertical
3490.00	-52.90	12.49	0.73	-41.14	-13.00	-28.14	Horizontal
5235.00	-52.39	12.61	1.06	-40.84	-13.00	-27.84	Horizontal
6980.00	-35.96	11.51	1.57	-26.02	-13.00	-13.02	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	-62.84	9.58	0.22	-53.48	-13.00	-40.48	Vertical
2474.10	-60.88	10.79	0.29	-50.37	-13.00	-37.37	Vertical
3298.80	-57.97	12.14	0.37	-46.20	-13.00	-33.20	Vertical
1649.40	-57.33	9.58	0.22	-47.97	-13.00	-34.97	Horizontal
2474.10	-58.72	10.79	0.29	-48.21	-13.00	-35.21	Horizontal
3298.80	-48.44	12.14	0.37	-36.67	-13.00	-23.67	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	-62.62	9.62	0.25	-53.25	-13.00	-40.25	Vertical
2509.50	-61.06	10.83	0.32	-50.54	-13.00	-37.54	Vertical
3346.00	-57.75	12.23	0.40	-45.92	-13.00	-32.92	Vertical
1673.30	-56.98	9.62	0.25	-47.61	-13.00	-34.61	Horizontal
2509.50	-58.82	10.83	0.32	-48.30	-13.00	-35.30	Horizontal
3346.00	-48.06	12.23	0.40	-36.23	-13.00	-23.23	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	-62.82	9.66	0.26	-53.41	-13.00	-40.41	Vertical
2544.90	-60.62	10.88	0.34	-50.08	-13.00	-37.08	Vertical
3393.20	-57.77	12.32	0.41	-45.85	-13.00	-32.85	Vertical
1696.60	-57.46	9.66	0.26	-48.05	-13.00	-35.05	Horizontal
2544.90	-58.85	10.88	0.34	-48.31	-13.00	-35.31	Horizontal
3393.20	-47.95	12.32	0.41	-36.03	-13.00	-23.03	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	-63.16	9.58	0.22	-53.80	-13.00	-40.80	Vertical
2487.00	-61.08	10.79	0.29	-50.57	-13.00	-37.57	Vertical
3316.00	-58.26	12.14	0.37	-46.49	-13.00	-33.49	Vertical
1658.00	-56.87	9.58	0.22	-47.51	-13.00	-34.51	Horizontal
2487.00	-58.93	10.79	0.29	-48.42	-13.00	-35.42	Horizontal
3316.00	-48.64	12.14	0.37	-36.87	-13.00	-23.87	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	-62.32	9.62	0.25	-52.95	-13.00	-39.95	Vertical
2509.50	-61.01	10.83	0.32	-50.49	-13.00	-37.49	Vertical
3346.00	-57.52	12.23	0.40	-45.69	-13.00	-32.69	Vertical
1673.30	-57.24	9.62	0.25	-47.87	-13.00	-34.87	Horizontal
2509.50	-58.71	10.83	0.32	-48.19	-13.00	-35.19	Horizontal
3346.00	-47.76	12.23	0.40	-35.93	-13.00	-22.93	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	-62.66	9.66	0.26	-53.25	-13.00	-40.25	Vertical
2532.00	-60.30	10.88	0.34	-49.76	-13.00	-36.76	Vertical
3376.00	-57.97	12.32	0.41	-46.05	-13.00	-33.05	Vertical
1688.00	-57.64	9.66	0.26	-48.23	-13.00	-35.23	Horizontal
2532.00	-58.93	10.88	0.34	-48.39	-13.00	-35.39	Horizontal
3376.00	-47.84	12.32	0.41	-35.92	-13.00	-22.92	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

LTE Band 7 part:

Band 7 (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
5005.00	-42.20	12.61	0.64	-30.23	-25.00	-5.23	Vertical
7507.50	-46.39	11.17	0.96	-36.18	-25.00	-11.18	Vertical
10010.00	-43.49	11.62	1.12	-32.99	-25.00	-7.99	Vertical
5005.00	-37.81	12.61	0.64	-25.84	-25.00	-0.84	Horizontal
7507.50	-46.30	11.17	0.96	-36.09	-25.00	-11.09	Horizontal
10010.00	-44.27	11.62	1.12	-33.77	-25.00	-8.77	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	-41.90	12.62	0.65	-29.93	-25.00	-4.93	Vertical
7605.00	-46.17	11.20	0.98	-35.95	-25.00	-10.95	Vertical
10140.00	-43.17	11.64	1.14	-32.67	-25.00	-7.67	Vertical
5070.00	-38.02	12.62	0.65	-26.05	-25.00	-1.05	Horizontal
7605.00	-46.80	11.20	0.98	-36.58	-25.00	-11.58	Horizontal
10140.00	-44.34	11.64	1.14	-33.84	-25.00	-8.84	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
5135.00	-41.73	12.64	0.66	-29.75	-25.00	-4.75	Vertical
7702.50	-46.86	11.21	0.92	-36.57	-25.00	-11.57	Vertical
10270.00	-43.68	11.66	1.18	-33.20	-25.00	-8.20	Vertical
5135.00	-37.80	12.64	0.66	-25.82	-25.00	-0.82	Horizontal
7702.50	-46.78	11.21	0.92	-36.49	-25.00	-11.49	Horizontal
10270.00	-44.37	11.66	1.18	-33.89	-25.00	-8.89	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

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	-41.90	12.61	0.65	-29.94	-25.00	-4.94	Vertical
7530.00	-46.25	11.19	0.97	-36.03	-25.00	-11.03	Vertical
10040.00	-43.12	11.63	1.13	-32.62	-25.00	-7.62	Vertical
5020.00	-38.30	12.61	0.65	-26.34	-25.00	-1.34	Horizontal
7530.00	-46.31	11.19	0.97	-36.09	-25.00	-11.09	Horizontal
10040.00	-43.78	11.63	1.13	-33.28	-25.00	-8.28	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
5070.00	-42.23	12.62	0.65	-30.26	-25.00	-5.26	Vertical
7605.00	-46.63	11.20	0.98	-36.41	-25.00	-11.41	Vertical
10140.00	-43.24	11.64	1.14	-32.74	-25.00	-7.74	Vertical
5070.00	-37.74	12.62	0.65	-25.77	-25.00	-0.77	Horizontal
7605.00	-46.33	11.20	0.98	-36.11	-25.00	-11.11	Horizontal
10140.00	-44.56	11.64	1.14	-34.06	-25.00	-9.06	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	-42.20	12.64	0.66	-30.22	-25.00	-5.22	Vertical
7680.00	-47.05	11.21	0.92	-36.76	-25.00	-11.76	Vertical
10240.00	-43.43	11.66	1.18	-32.95	-25.00	-7.95	Vertical
5120.00	-37.84	12.64	0.66	-25.86	-25.00	-0.86	Horizontal
7680.00	-46.90	11.21	0.92	-36.61	-25.00	-11.61	Horizontal
10240.00	-43.93	11.66	1.18	-33.45	-25.00	-8.45	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
Test setup:	The diagram illustrates the test setup. A Power Source is connected to a Divider. The Divider is connected to two feed-through attenuators, labeled SS and SA. The SA is connected to the EUT (Equipment Under Test) inside a Temperature & Humidity Chamber. The SS is connected to a Spectrum Analyzer (SA).
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					
3.85	-30	168	0.089362	Within authorized band for Band 2	Pass
	-20	162	0.086170		
	-10	153	0.081383		
	0	146	0.077660		
	10	137	0.072872		
	20	131	0.069681		
	30	126	0.067021		
	40	120	0.063830		
	50	114	0.060638		
16QAM					
3.85	-30	173	0.092021	Within authorized band for Band 2	Pass
	-20	113	0.060106		
	-10	137	0.072872		
	0	159	0.084574		
	10	150	0.079787		
	20	140	0.074468		
	30	145	0.077128		
	40	132	0.070213		
	50	126	0.067021		
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					
3.85	-30	165	0.095238	Within authorized band for Band 4	Pass
	-20	158	0.091198		
	-10	152	0.087734		
	0	146	0.084271		
	10	140	0.080808		
	20	134	0.077345		
	30	128	0.073882		
	40	122	0.070418		
	50	113	0.065224		
16QAM					
3.85	-30	170	0.098124	Within authorized band for Band 4	Pass
	-20	164	0.094661		
	-10	159	0.091775		
	0	153	0.088312		
	10	140	0.080808		
	20	136	0.078499		
	30	129	0.074459		
	40	123	0.070996		
	50	144	0.083117		
Note: Only the worst case shown in the report.					

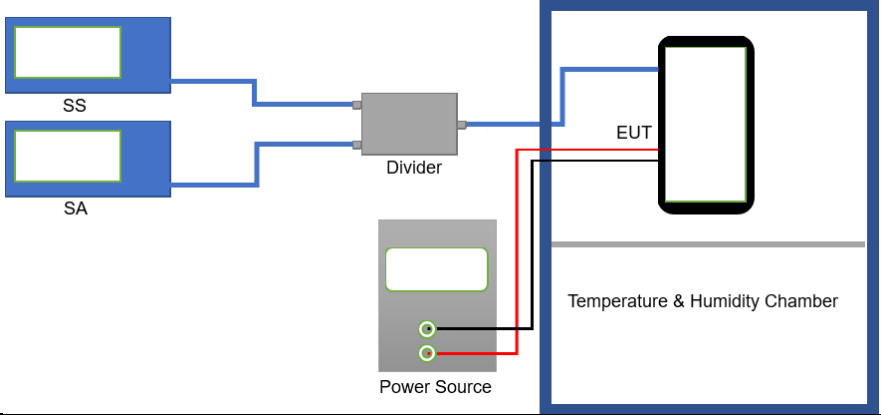
LTE Band 5 part:

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					
3.85	-30	170	0.203228	±2.5	Pass
	-20	116	0.138673		
	-10	124	0.148237		
	0	130	0.155409		
	10	136	0.162582		
	20	142	0.169755		
	30	149	0.178123		
	40	156	0.186491		
	50	163	0.194860		
16QAM					
3.85	-30	177	0.211596	±2.5	Pass
	-20	169	0.202032		
	-10	163	0.194860		
	0	150	0.179319		
	10	154	0.184100		
	20	143	0.170950		
	30	137	0.163778		
	40	132	0.157800		
	50	121	0.144650		
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		
QPSK					
3.85	-30	197	0.077712	Within authorized band for Band 7	Pass
	-20	180	0.071006		
	-10	155	0.061144		
	0	123	0.048521		
	10	131	0.051677		
	20	120	0.047337		
	30	145	0.057199		
	40	177	0.069822		
	50	100	0.039448		
16QAM					
3.85	-30	195	0.076923	Within authorized band for Band 7	Pass
	-20	155	0.061144		
	-10	161	0.063511		
	0	123	0.048521		
	10	138	0.054438		
	20	177	0.069822		
	30	180	0.071006		
	40	145	0.057199		
	50	100	0.039448		
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 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	4.40	73	0.038830	Within authorized band for Band 2	Pass
	3.85	62	0.032979		
	3.50	52	0.027660		
16QAM					
25	4.40	80	0.042553	Within authorized band for Band 2	Pass
	3.85	70	0.037234		
	3.50	60	0.031915		
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	4.40	80	0.046176	Within authorized band for Band 4	Pass
	3.85	65	0.037518		
	3.50	50	0.028860		
16QAM					
25	4.40	83	0.047908	Within authorized band for Band 4	Pass
	3.85	74	0.042713		
	3.50	60	0.034632		
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	84	0.100418	±2.5	Pass
	3.85	73	0.087268		
	3.50	50	0.059773		
16QAM					
25	4.40	88	0.105200	±2.5	Pass
	3.85	58	0.069337		
	3.50	78	0.093246		
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	4.40	80	0.031558	Within authorized band for Band 7	Pass
	3.85	95	0.037475		
	3.50	74	0.029191		
16QAM					
25	4.40	96	0.037870	Within authorized band for Band 7	Pass
	3.85	85	0.033531		
	3.50	79	0.031164		
Note: Only the worst case shown in the report.					

8 EUT Constructional Details

Reference to the test report No. CCISE200709001

-----End of report-----