

LTE Band 41 (HPUE) , 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Voltage (V)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
3.6	36	28	35	0.014	0.011	0.013
3.85	41	27	26	0.016	0.010	0.010
4.3	45	33	40	0.017	0.013	0.015

Frequency Error vs Temperature

Temperature (°C)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
-20	32	47	30	0.012	0.018	0.012
-10	42	25	23	0.016	0.010	0.009
0	29	28	26	0.011	0.011	0.010
10	28	39	34	0.011	0.015	0.013
20	35	34	29	0.013	0.013	0.011
30	36	31	41	0.014	0.012	0.016
40	43	44	27	0.017	0.017	0.010
50	30	36	33	0.012	0.014	0.013

Expanded measurement uncertainty is 10 Hz, $k = 2$

LTE Band 66, 1.4MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Voltage (V)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
3.6	28	10	31	0.016	0.006	0.018
3.85	15	20	25	0.009	0.011	0.014
4.3	35	26	16	0.020	0.015	0.009

Frequency Error vs Temperature

Temperature (°C)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
-20	33	25	23	0.019	0.014	0.013
-10	26	30	26	0.015	0.017	0.015
0	24	24	15	0.014	0.014	0.009
10	18	41	18	0.010	0.023	0.010
20	20	31	16	0.011	0.018	0.009
30	25	36	17	0.014	0.021	0.010
40	19	22	28	0.011	0.013	0.016
50	35	27	22	0.020	0.015	0.013

Expanded measurement uncertainty is 10Hz, $k = 2$

LTE Band 71, 5MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Voltage (V)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
3.6	11	23	19	0.016	0.034	0.028
3.85	21	24	16	0.031	0.035	0.024
4.3	24	28	28	0.035	0.041	0.041

Frequency Error vs Temperature

Temperature (°C)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
-20	27	14	24	0.040	0.021	0.035
-10	26	12	15	0.038	0.018	0.022
0	14	31	18	0.021	0.046	0.026
10	28	22	26	0.041	0.032	0.038
20	25	26	23	0.037	0.038	0.034
30	23	16	24	0.034	0.024	0.035
40	16	18	30	0.024	0.026	0.044
50	17	27	15	0.025	0.040	0.022

Expanded measurement uncertainty is 10Hz, k = 2

LTE Band CA_41C, 5MHz+20MHz bandwidth (worst case of all bandwidths)

Frequency Error vs Voltage

Voltage (V)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
3.6	49	28	30	0.019	0.011	0.012
3.85	36	41	26	0.014	0.016	0.010
4.3	27	32	37	0.010	0.012	0.014

Frequency Error vs Temperature

Temperature (°C)	Frequency error (Hz)			Frequency error (ppm)		
	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
-20	21	37	27	0.008	0.014	0.010
-10	26	35	41	0.010	0.013	0.016
0	35	29	46	0.013	0.011	0.018
10	34	24	42	0.013	0.009	0.016
20	46	27	33	0.018	0.010	0.013
30	28	27	38	0.011	0.010	0.015
40	36	33	37	0.014	0.013	0.014
50	38	23	28	0.015	0.009	0.011

Expanded measurement uncertainty is 10 Hz, k = 2

A.4 OCCUPIED BANDWIDTH

Reference

FCC: CFR Part 2.1049, 22.917, 24.238, 27.53, 90.1215.

A.4.1 Occupied Bandwidth Results

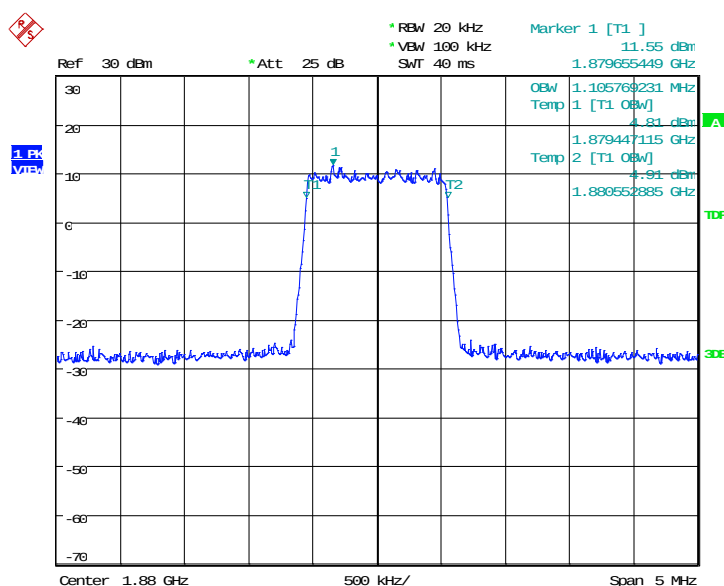
Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the US Cellular/PCS frequency bands. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the OBW).
- The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
- Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least $10\log(\text{OBW} / \text{RBW})$ below the reference level.
- Set the detection mode to peak, and the trace mode to max hold.
- Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

LTE band 2, 1.4MHz (99% BW)

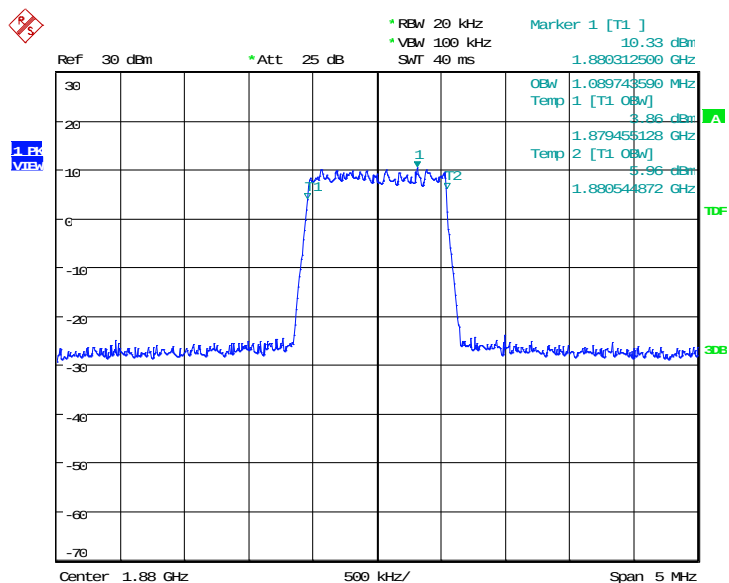
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	1105.77	1089.74	1097.76

LTE band 2, 1.4MHz Bandwidth, QPSK (99% BW)



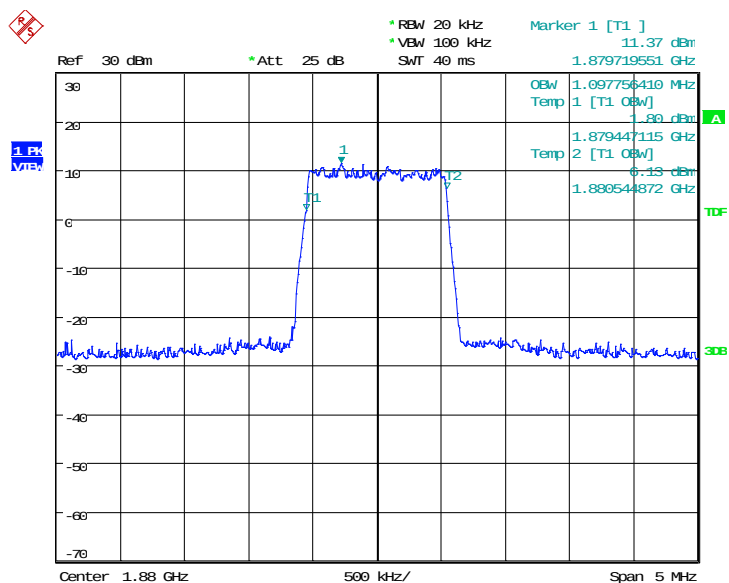
Date: 4.DEC.2019 06:58:55

LTE band 2, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:59:09

LTE band 2, 1.4MHz Bandwidth, 64QAM (99% BW)

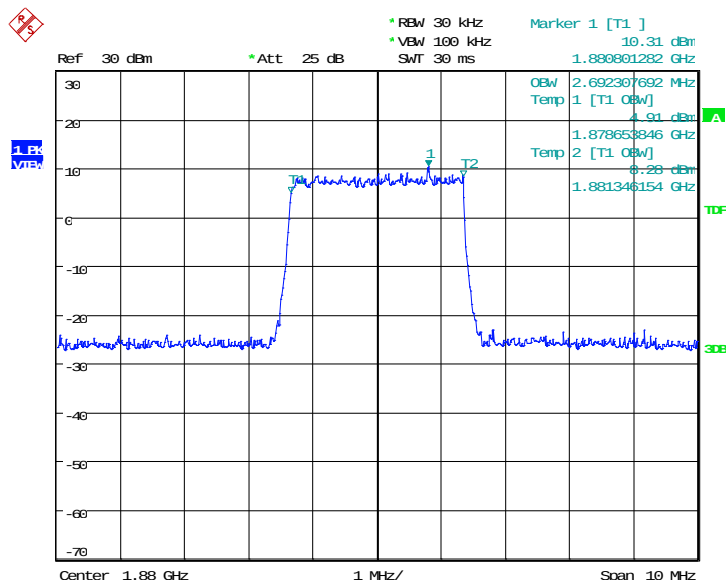


Date: 5.DEC.2019 13:28:50

LTE band 2, 3MHz (99% BW)

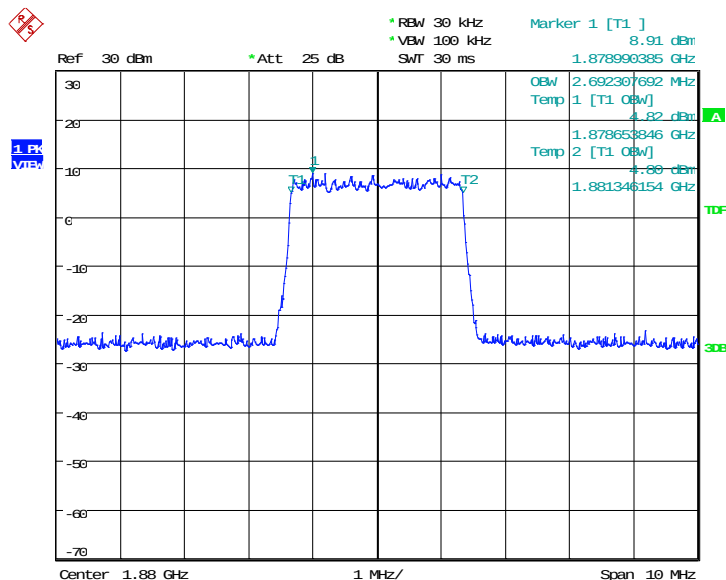
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	2692.31	2692.31	2692.31

LTE band 2, 3MHz Bandwidth, QPSK (99% BW)



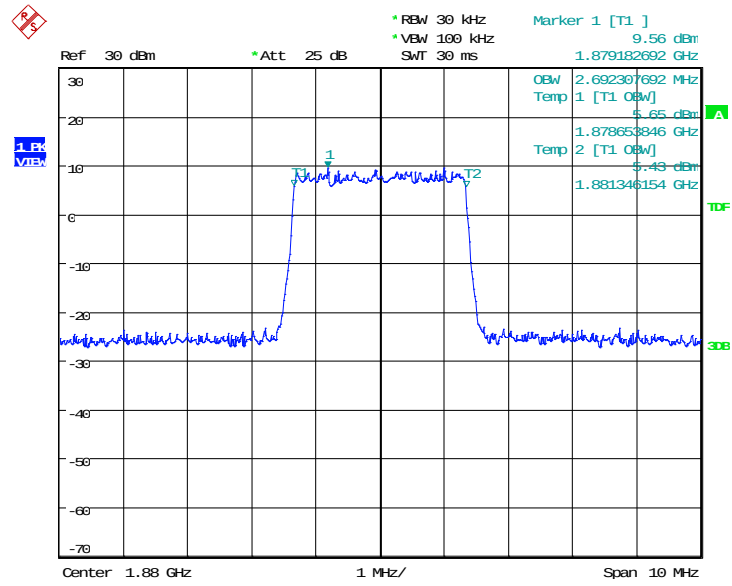
Date: 4.DEC.2019 07:03:16

LTE band 2, 3MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:03:29

LTE band 2, 3MHz Bandwidth, 64QAM (99% BW)

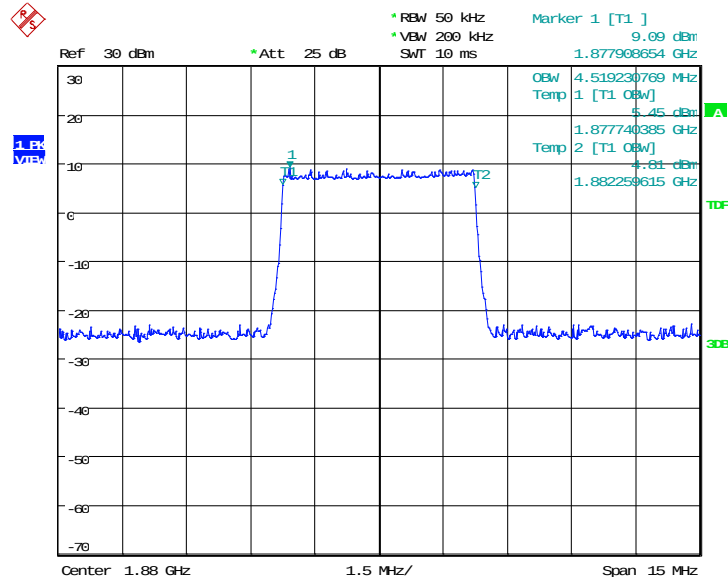


Date: 5.DEC.2019 13:32:20

LTE band 2, 5MHz (99% BW)

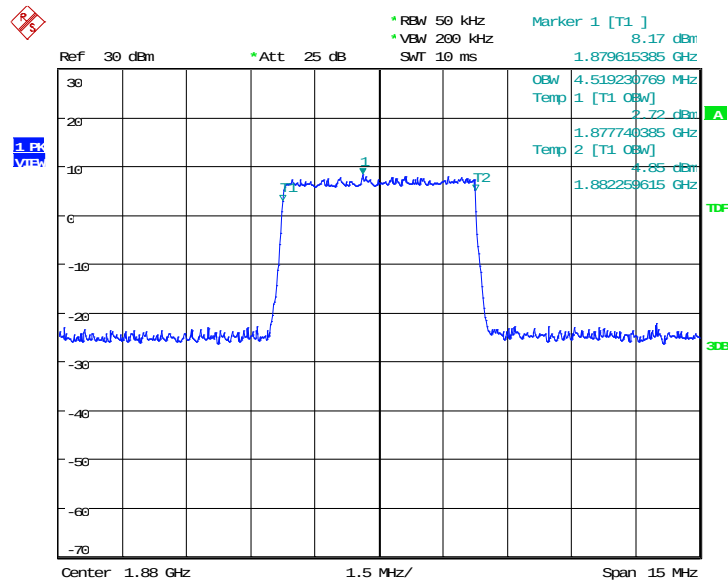
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	4519.23	4519.23	4519.23

LTE band 2, 5MHz Bandwidth, QPSK (99% BW)



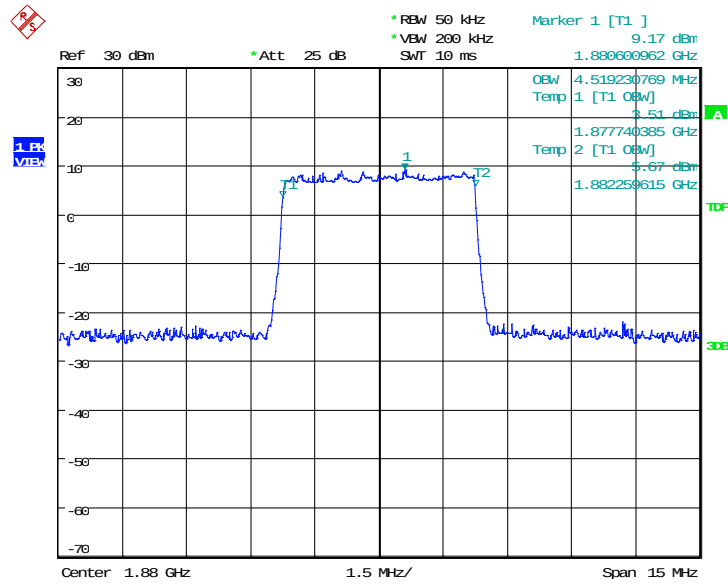
Date: 4.DEC.2019 07:07:36

LTE band 2, 5MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:07:49

LTE band 2, 5MHz Bandwidth,64QAM (99% BW)

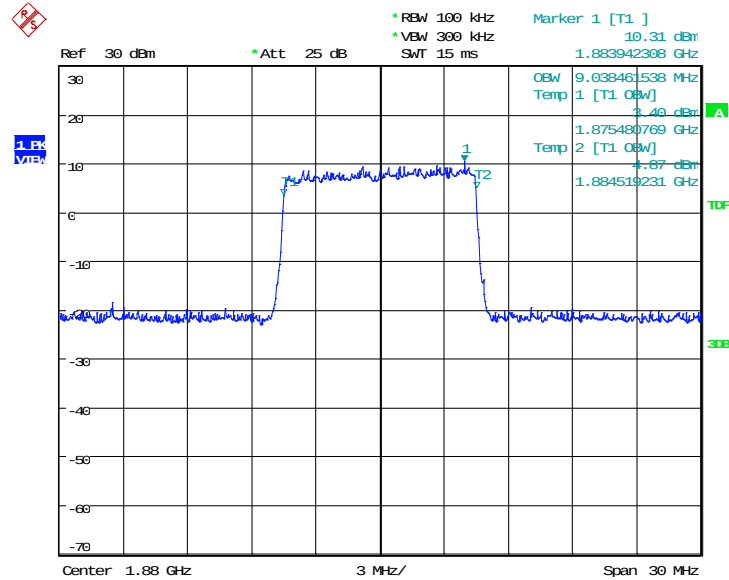


Date: 5.DEC.2019 13:35:52

LTE band 2, 10MHz (99% BW)

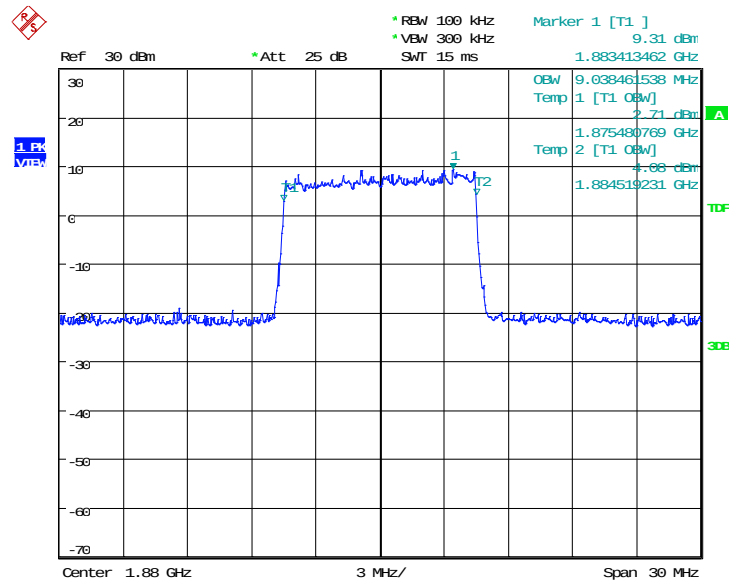
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	9038.46	9038.46	8990.38

LTE band 2, 10MHz Bandwidth, QPSK (99% BW)



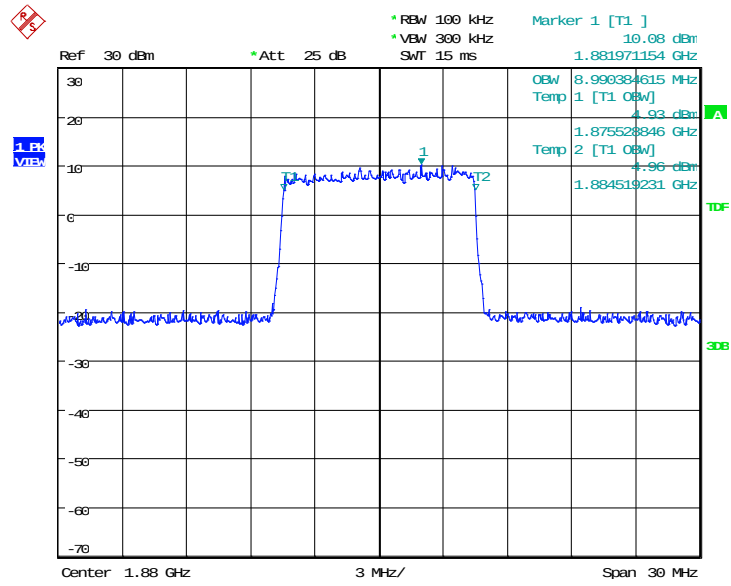
Date: 4.DEC.2019 07:11:54

LTE band 2, 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:12:07

LTE band 2, 10MHz Bandwidth, 64QAM (99% BW)

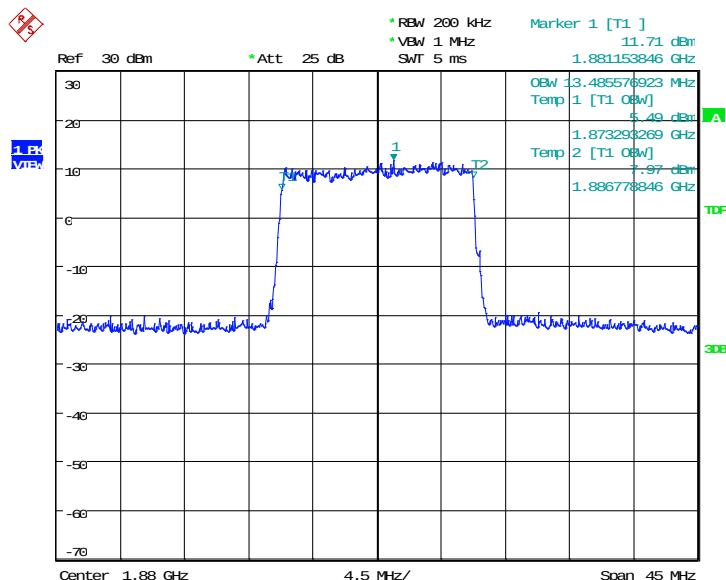


Date: 5.DEC.2019 13:39:22

LTE band 2, 15MHz (99% BW)

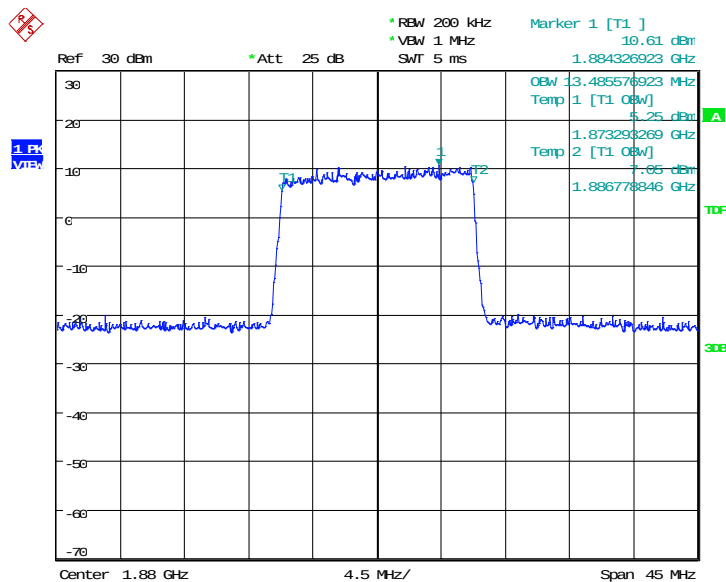
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

LTE band 2, 15MHz Bandwidth, QPSK (99% BW)



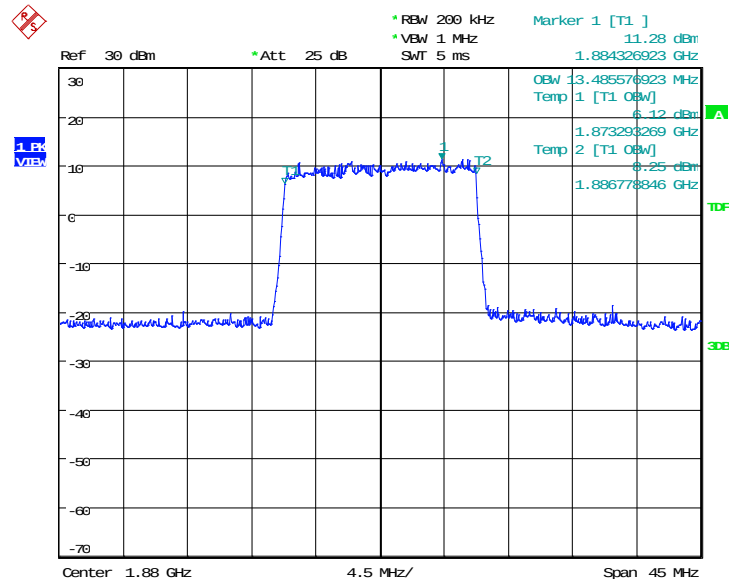
Date: 4.DEC.2019 07:16:12

LTE band 2, 15MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:16:26

LTE band 2, 15MHz Bandwidth, 64QAM (99% BW)

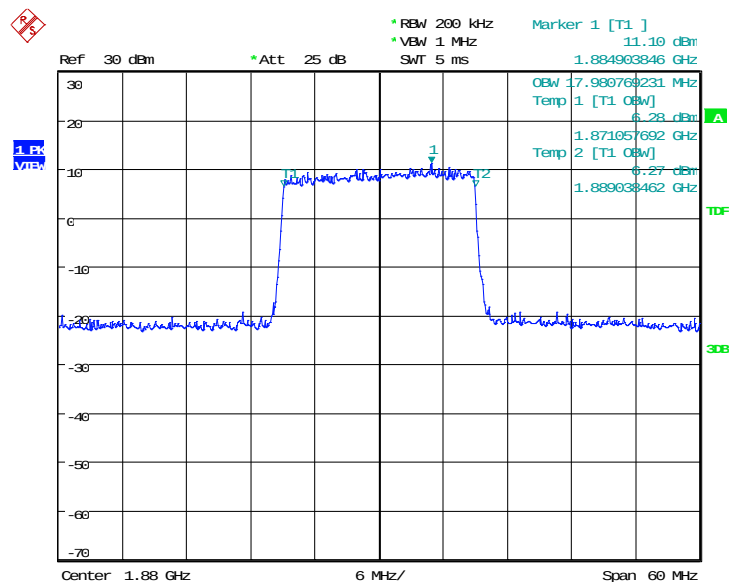


Date: 5.DEC.2019 13:42:53

LTE band 2, 20MHz (99% BW)

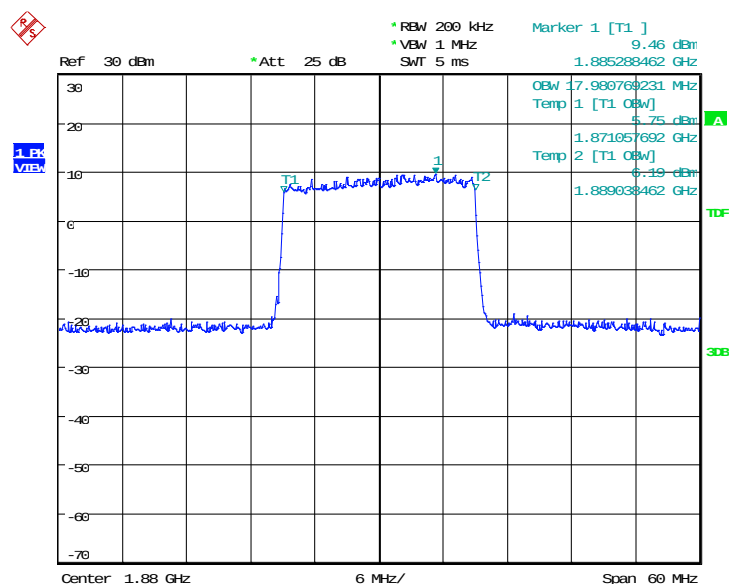
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	17980.77	17980.77	17980.77

LTE band 2, 20MHz Bandwidth, QPSK (99% BW)



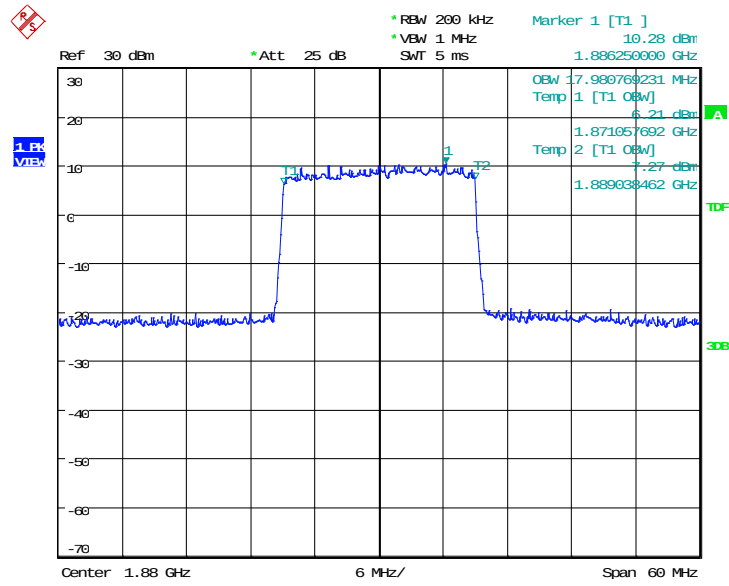
Date: 4.DEC.2019 07:21:00

LTE band 2, 20MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:21:14

LTE band 2, 20MHz Bandwidth, 64QAM (99% BW)

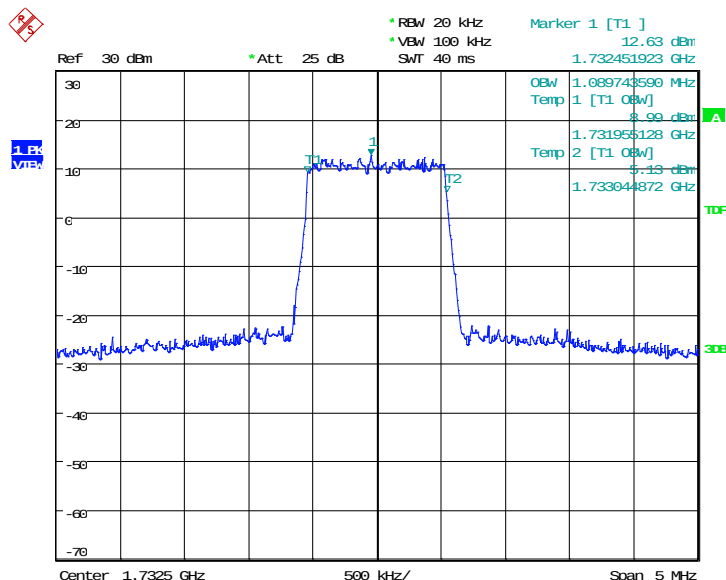


Date: 5.DEC.2019 13:46:20

LTE band 4, 1.4MHz (99% BW)

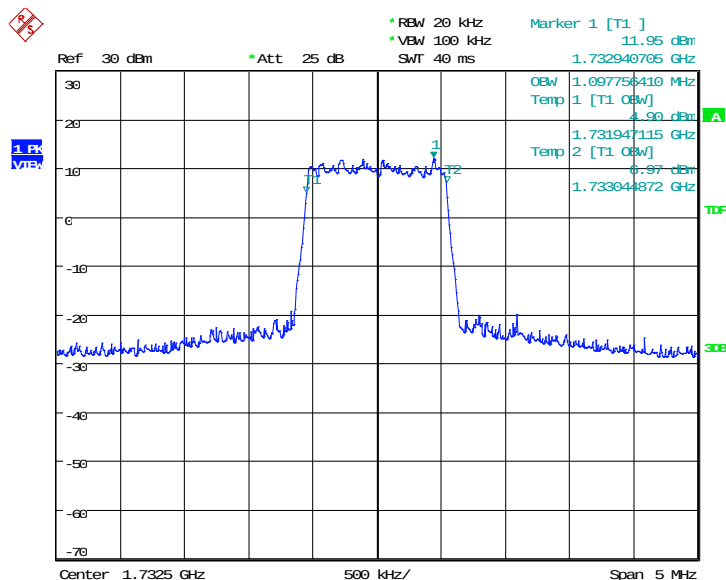
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	1089.74	1097.76	1097.76

LTE band 4, 1.4MHz Bandwidth, QPSK (99% BW)



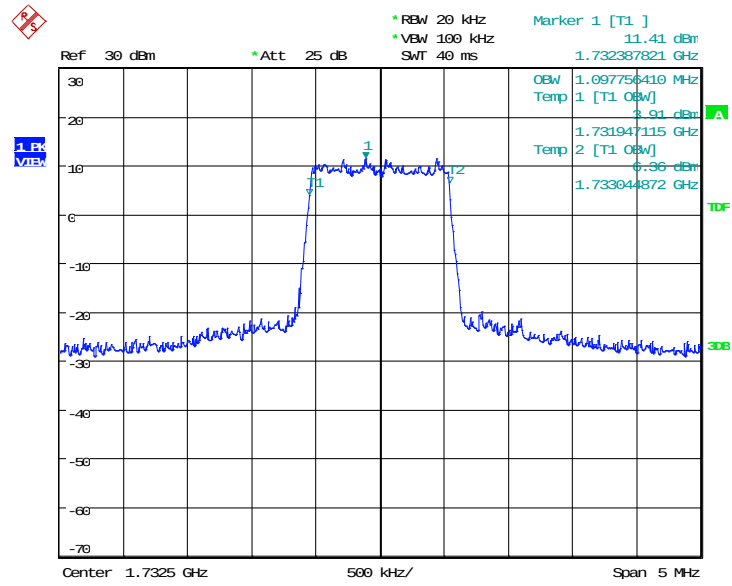
Date: 4.DEC.2019 07:26:55

LTE band 4, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:27:09

LTE band 4, 1.4MHz Bandwidth, 64QAM (99% BW)

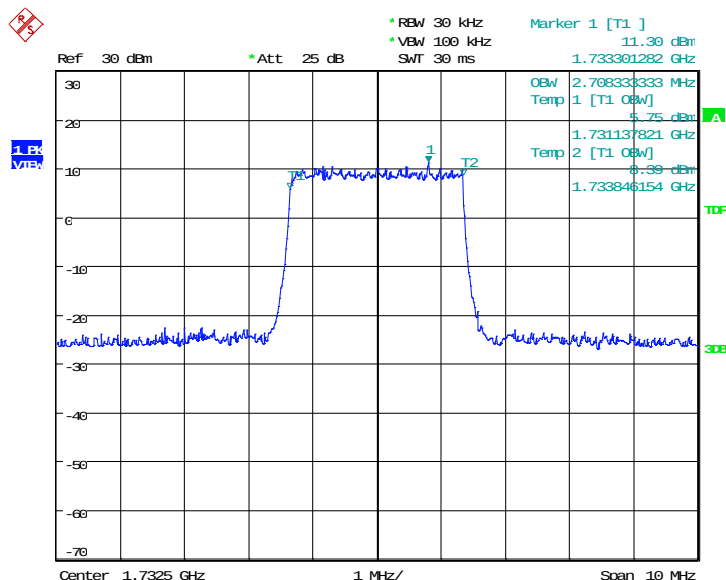


Date: 5.DEC.2019 13:50:57

LTE band 4, 3MHz (99% BW)

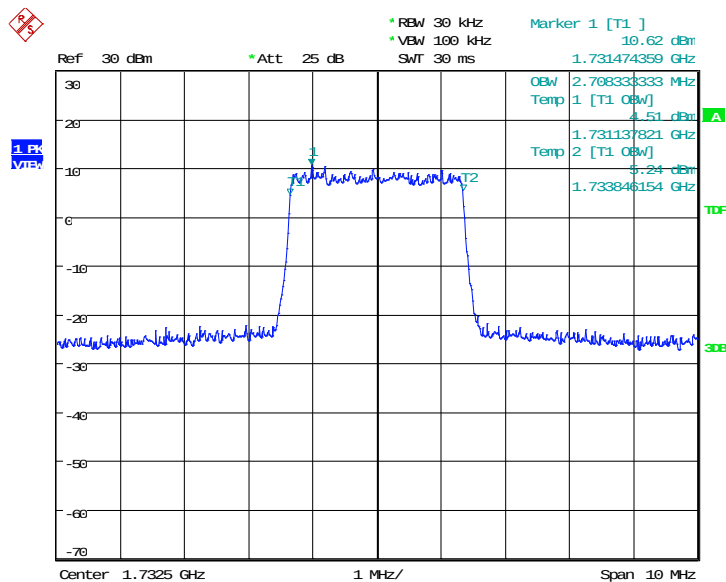
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	2708.33	2708.33	2708.33

LTE band 4, 3MHz Bandwidth, QPSK (99% BW)



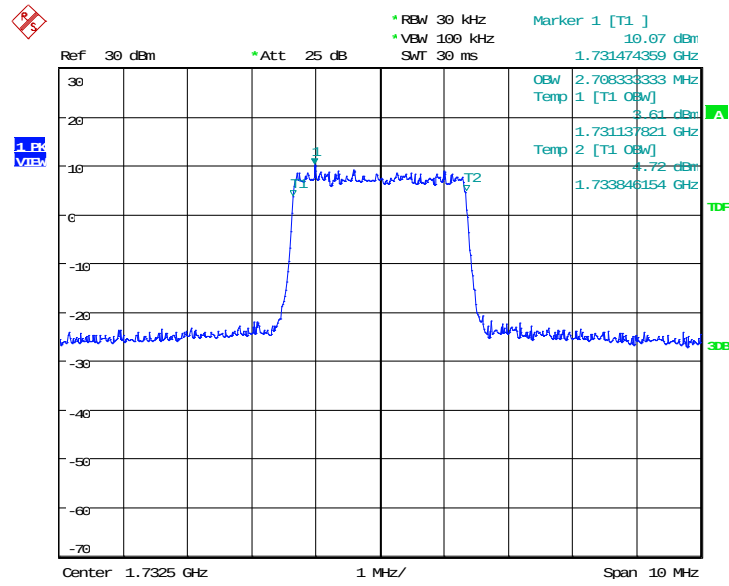
Date: 4.DEC.2019 07:31:13

LTE band 4, 3MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:31:27

LTE band 4, 3MHz Bandwidth, 64QAM (99% BW)

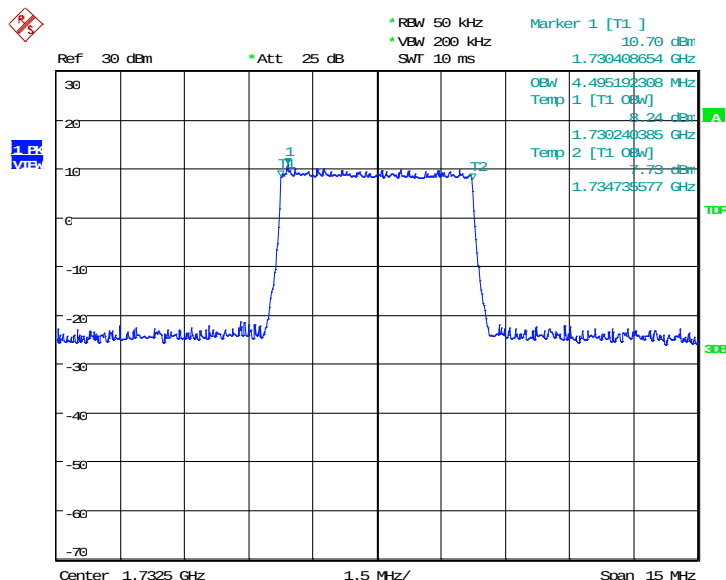


Date: 5.DEC.2019 13:54:27

LTE band 4, 5MHz (99% BW)

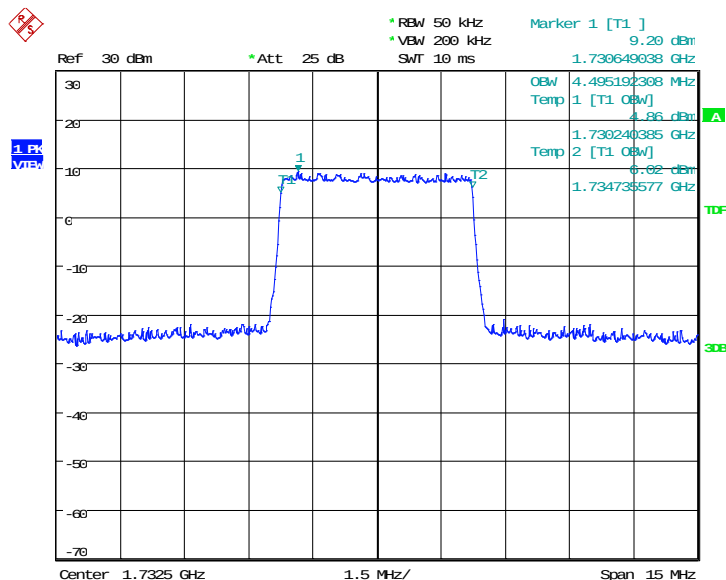
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	4495.19	4495.19	4519.23

LTE band 4, 5MHz Bandwidth, QPSK (99% BW)



Date: 4.DEC.2019 07:35:31

LTE band 4, 5MHz Bandwidth,16QAM (99% BW)



Date: 4.DEC.2019 07:35:44

The screenshot displays a spectrum analyzer interface. The main plot shows a signal with two markers, T1 and T2, indicating a frequency range. The y-axis represents power in dBm, ranging from -70 to 30. The x-axis represents frequency in GHz, with a center frequency of 1.7325 GHz and a span of 15 MHz. The signal is a narrowband pulse centered around 1.7316 GHz. The peak power is approximately -4.43 dBm. The noise floor is around -25 dBm. The signal is labeled '1.731610577 GHz' and '1.734759615 GHz'.

Parameters and Measurements:

- Ref: 30 dBm
- *Att: 25 dB
- *RBW: 50 kHz
- *VBW: 200 kHz
- SWT: 10 ms
- Marker 1 [T1]: 9.09 dBm, 1.731610577 GHz
- Marker 2 [T2]: 9.19 dBm, 1.734759615 GHz
- OBW: 4.519230769 MHz
- Temp: 1.730240385 GHz

Buttons: 1. Pk, VIEW, TDF, 3DB

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Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	8990.38	8990.38	9038.46

* RBW 100 kHz
 * VBW 300 kHz
 SWT 15 ms
 Marker 1 [T1]
 11.73 dBm
 1.730384615 GHz

Ref 30 dBm
 * Att 25 dB

30
 20
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

1
 2

OBW 8.990384615 MHz
 Temp 1 [T1 OBW] -5.86 dBm
 1.727980769 GHz
 Temp 2 [T1 OBW] -6.82 dBm
 1.736971154 GHz

Center 1.7325 GHz
 3 MHz/
 Span 30 MHz

* RBW 100 kHz
 * VBW 300 kHz
 SWT 15 ms

Ref 30 dBm
 * Att 25 dB

Marker 1 [T1]
 10.63 dBm
 1.728557692 GHz

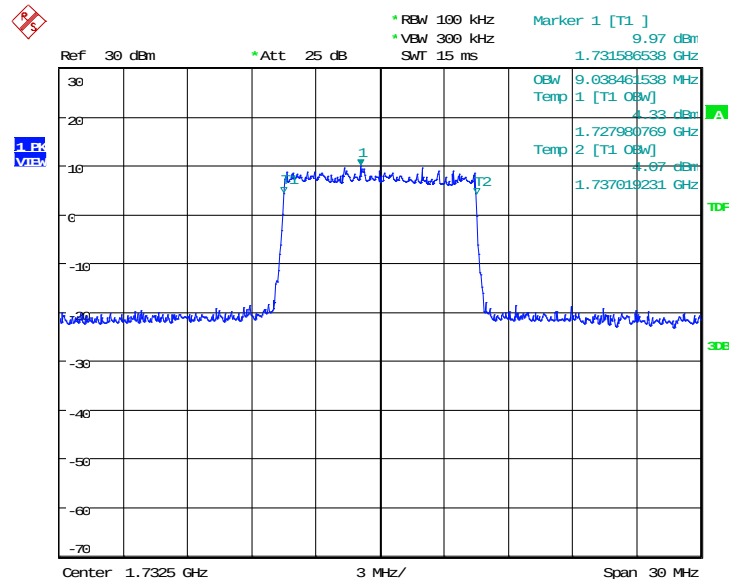
1.728557692 GHz
 8.998381615 MHz
 1 [T1 OBW]
 1.727980769 GHz
 2 [T1 OBW]
 6.63 dBm
 1.736971154 GHz

1. Pk
 VdB

Center 1.7325 GHz
 3 MHz/
 Span 30 MHz

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LTE band 4, 10MHz Bandwidth, 64QAM (99% BW)

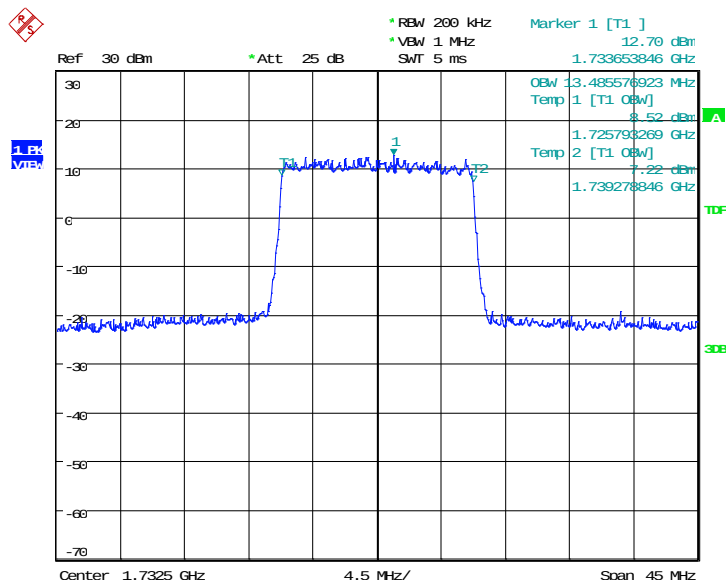


Date: 5.DEC.2019 14:01:24

LTE band 4, 15MHz (99% BW)

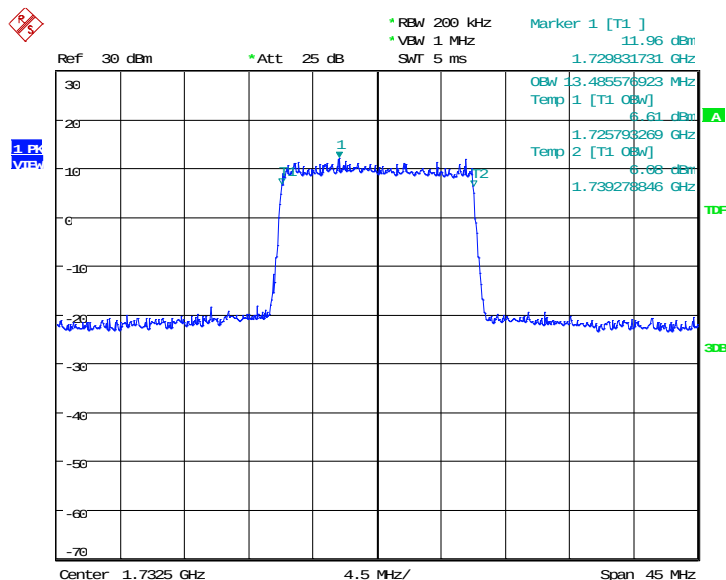
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

LTE band 4, 15MHz Bandwidth, QPSK (99% BW)



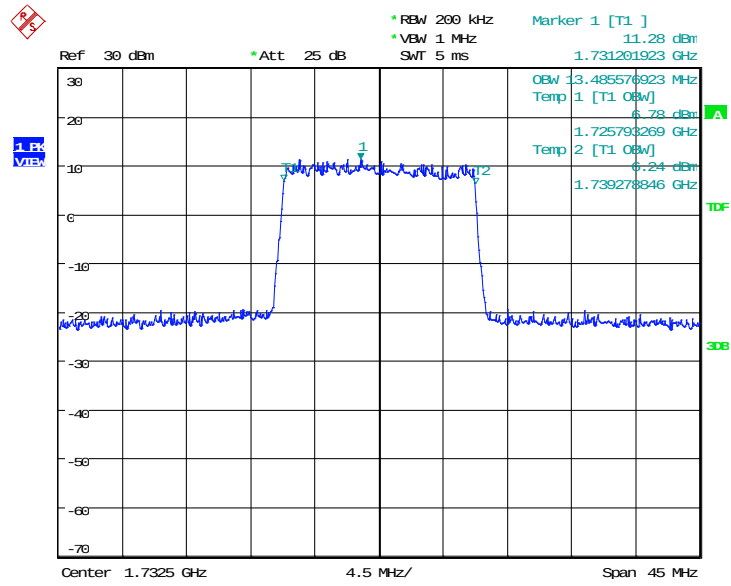
Date: 4.DEC.2019 07:44:12

LTE band 4, 15MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 07:44:26

LTE band 4, 15MHz Bandwidth, 64QAM (99% BW)

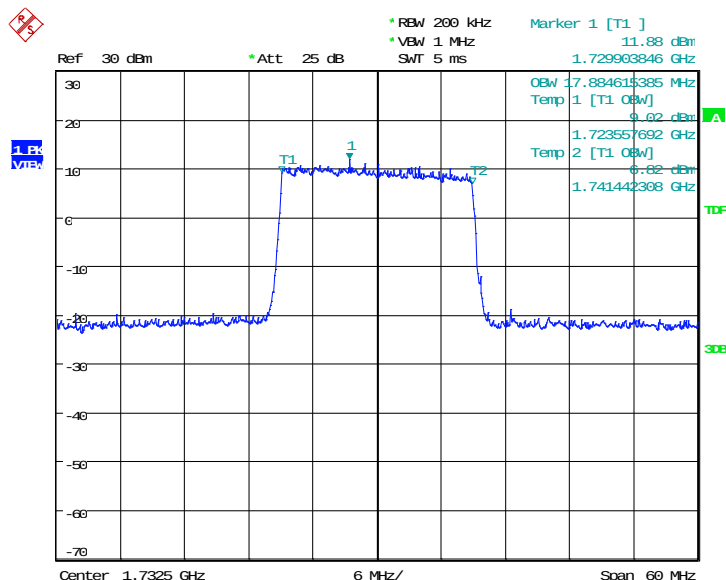


Date: 5.DEC.2019 14:04:54

LTE band 4, 20MHz (99% BW)

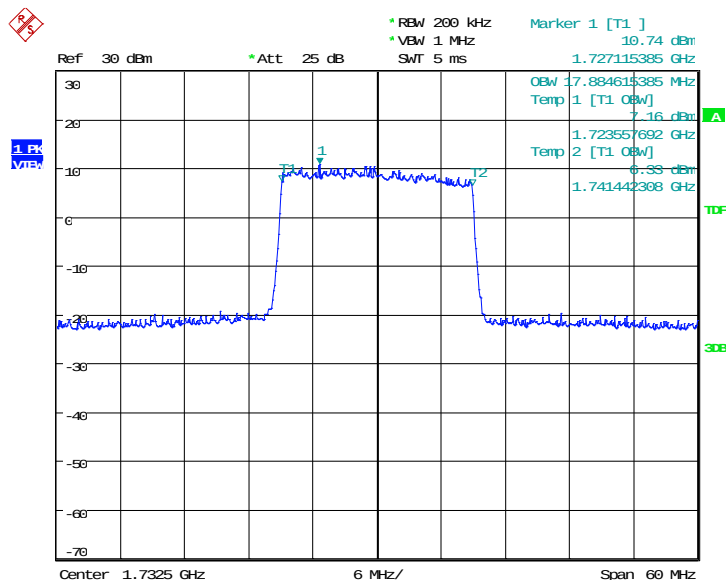
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	17884.62	17884.62	17884.62

LTE band 4, 20MHz Bandwidth, QPSK (99% BW)



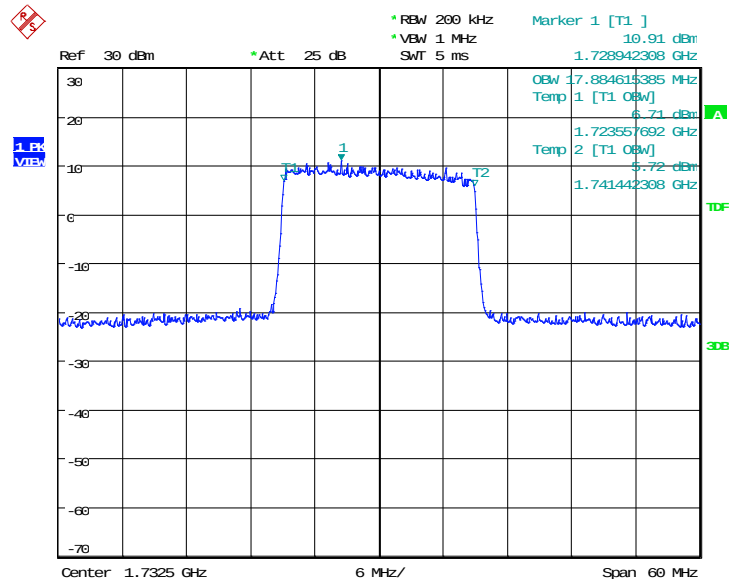
Date: 5.DEC.2019 12:47:33

LTE band 4, 20MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 12:47:47

LTE band 4, 20MHz Bandwidth, 64QAM (99% BW)

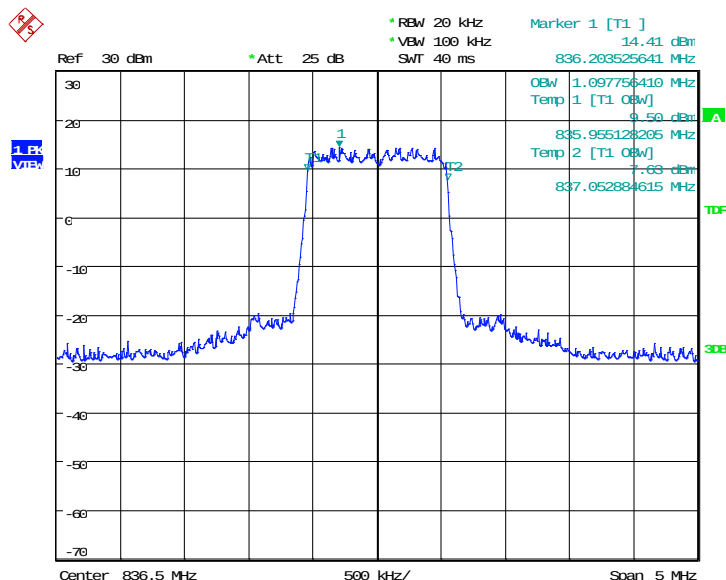


Date: 5.DEC.2019 14:24:45

LTE band 5, 1.4MHz (99% BW)

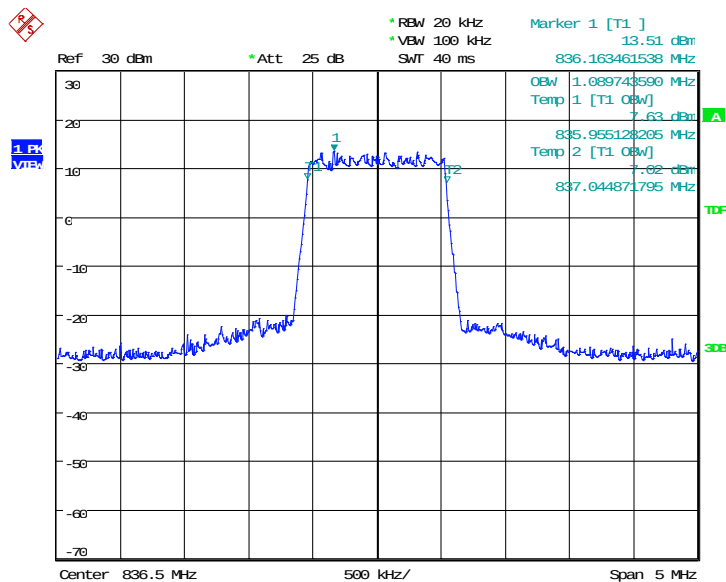
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	1097.76	1089.74	1097.76

LTE band 5, 1.4MHz Bandwidth, QPSK (99% BW)



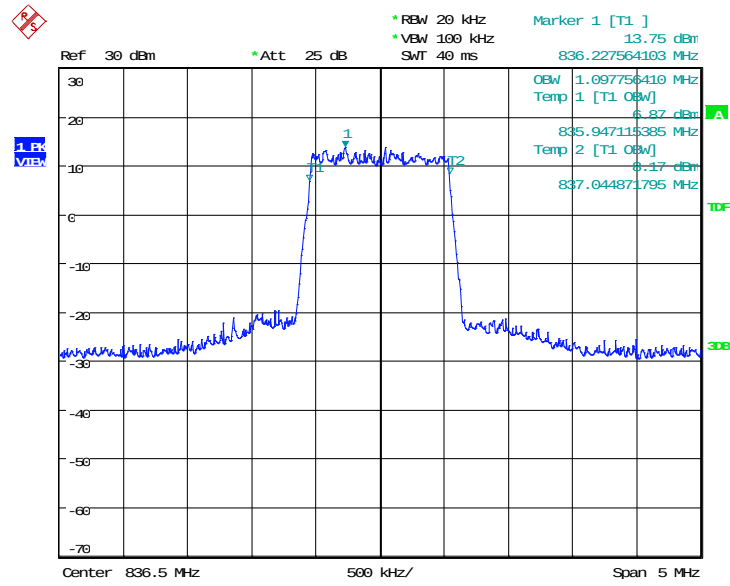
Date: 4.DEC.2019 06:41:31

LTE band 5, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:41:44

LTE band 5, 1.4MHz Bandwidth, 64QAM (99% BW)

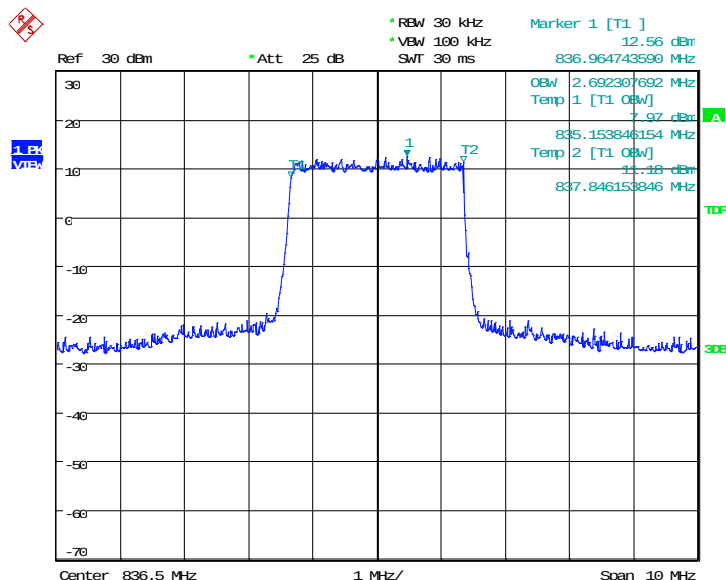


Date: 5.DEC.2019 13:14:51

LTE band 5, 3MHz (99% BW)

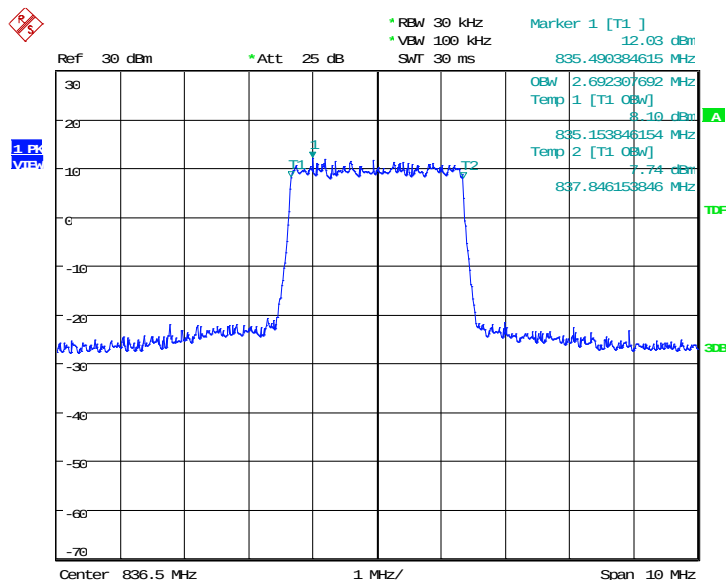
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	2692.31	2692.31	2692.31

LTE band 5, 3MHz Bandwidth, QPSK (99% BW)



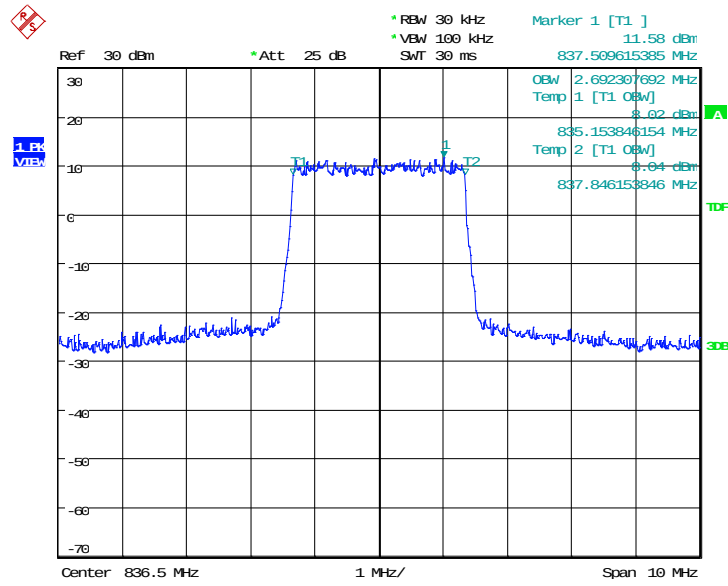
Date: 4.DEC.2019 06:45:52

LTE band 5, 3MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:46:05

LTE band 5, 3MHz Bandwidth, 64QAM (99% BW)

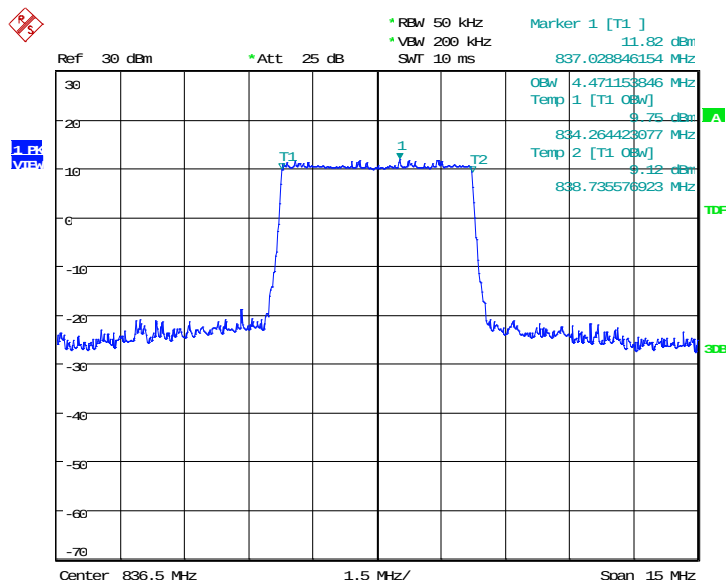


Date: 5.DEC.2019 13:18:19

LTE band 5, 5MHz (99% BW)

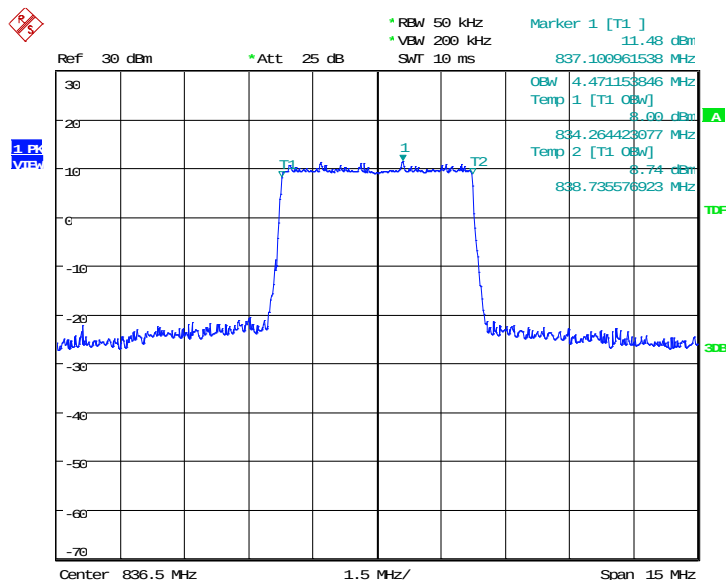
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	4471.15	4471.15	4519.23

LTE band 5, 5MHz Bandwidth, QPSK (99% BW)



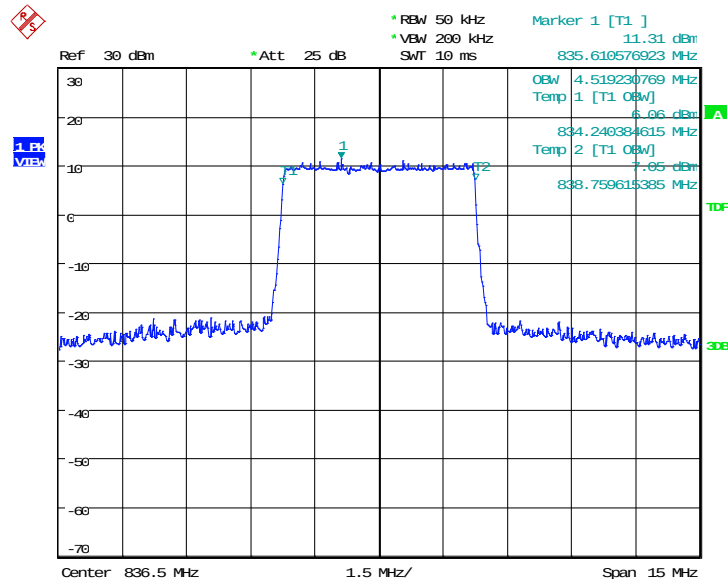
Date: 4.DEC.2019 06:50:12

LTE band 5, 5MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:50:26

LTE band 5, 5MHz Bandwidth,64QAM (99% BW)

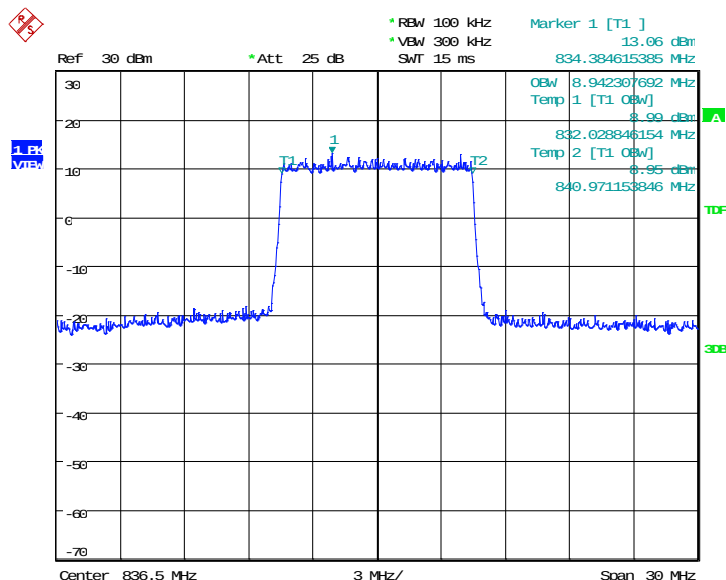


Date: 5.DEC.2019 13:21:46

LTE band 5, 10MHz (99% BW)

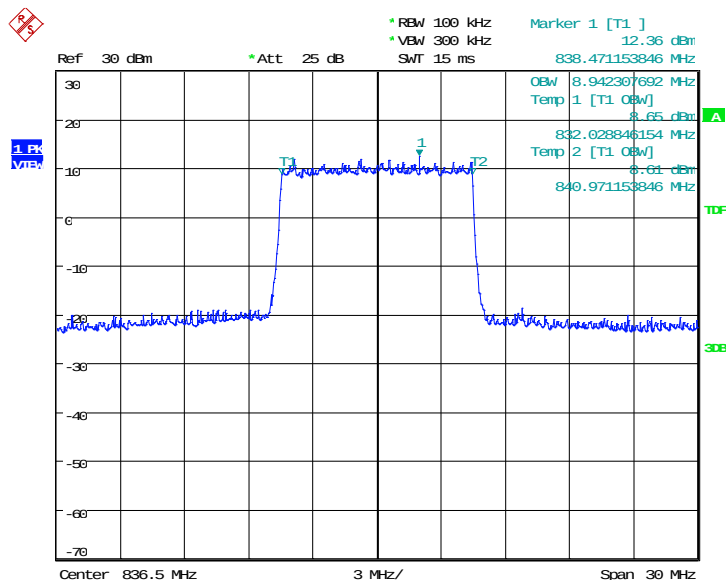
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	8942.31	8942.31	8942.31

LTE band 5, 10MHz Bandwidth, QPSK (99% BW)



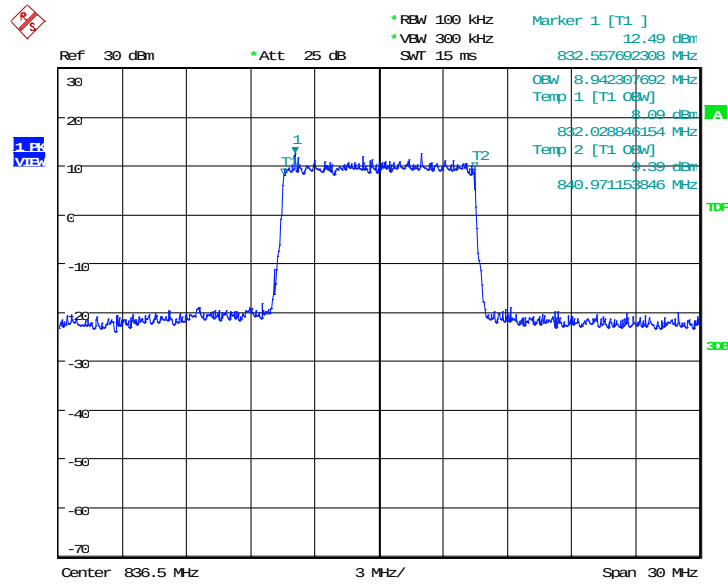
Date: 4.DEC.2019 06:54:33

LTE band 5, 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:54:47

LTE band 5, 10MHz Bandwidth, 64QAM (99% BW)

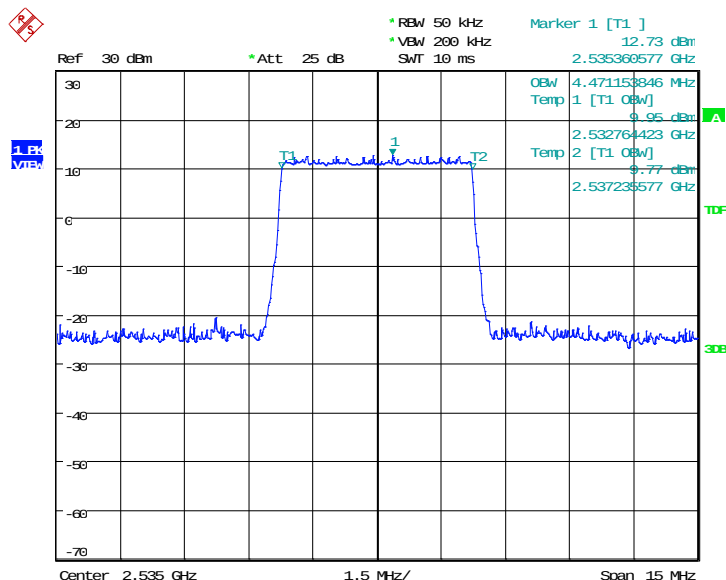


Date: 5.DEC.2019 13:25:16

LTE band 7, 5MHz (99% BW)

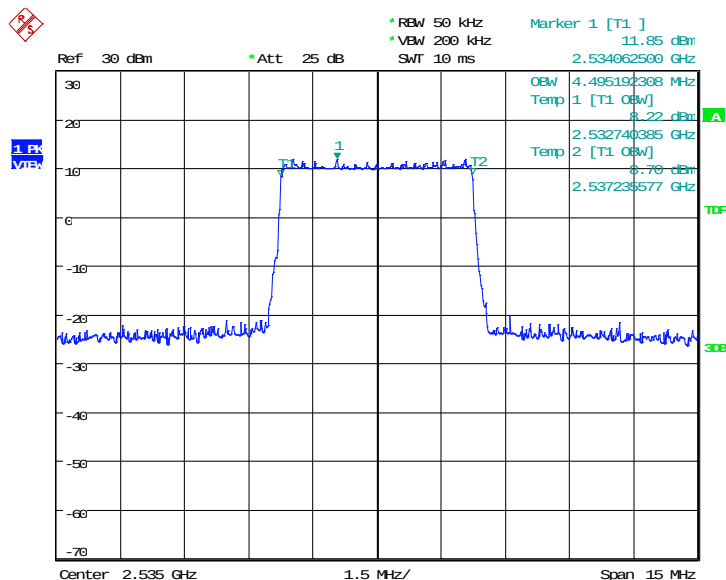
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2535.0	QPSK	16QAM	64QAM
	4471.15	4495.19	4495.19

LTE band 7, 5MHz Bandwidth, QPSK (99% BW)



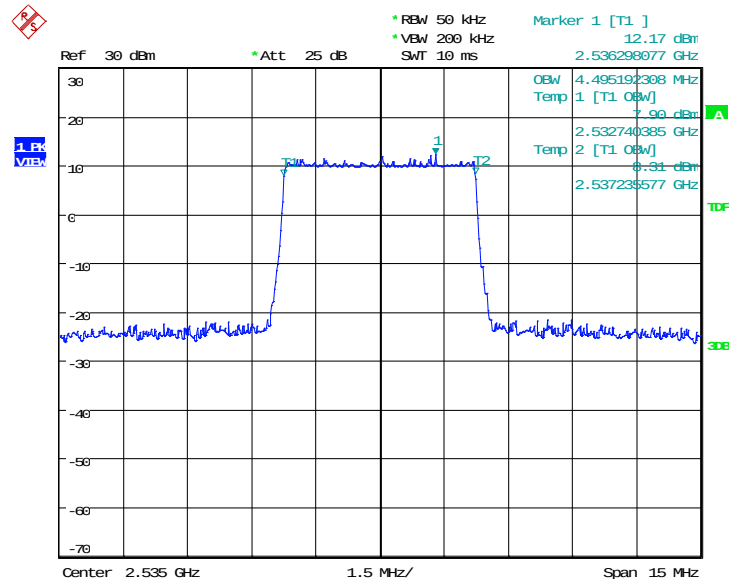
Date: 4.DEC.2019 06:15:24

LTE band 7, 5MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:15:37

LTE band 7, 5MHz Bandwidth,64QAM (99% BW)

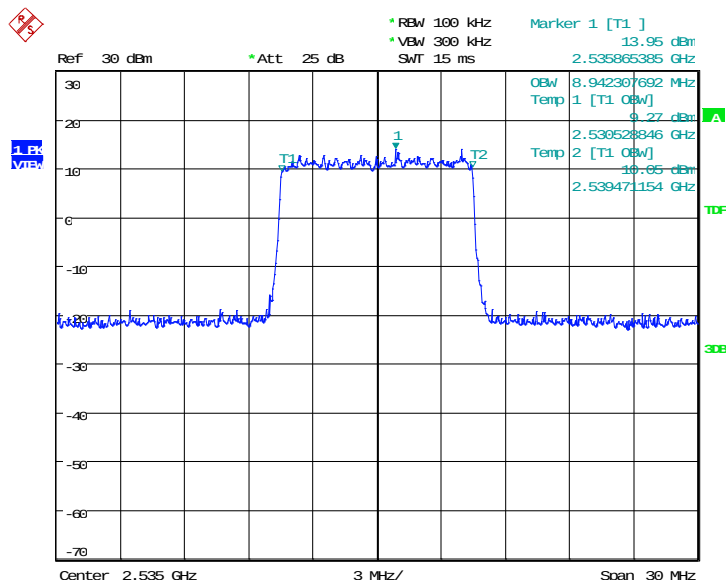


Date: 5.DEC.2019 12:59:44

LTE band 7, 10MHz (99% BW)

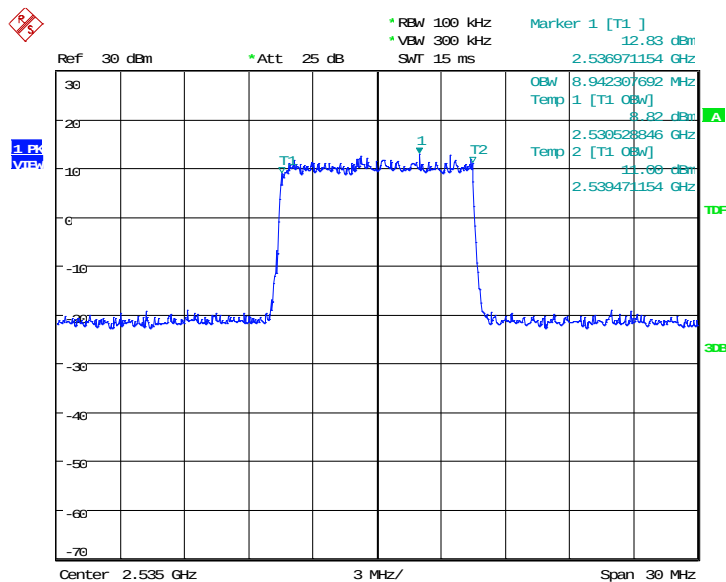
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2535.0	QPSK	16QAM	64QAM
	8942.31	8942.31	8942.31

LTE band 7, 10MHz Bandwidth, QPSK (99% BW)



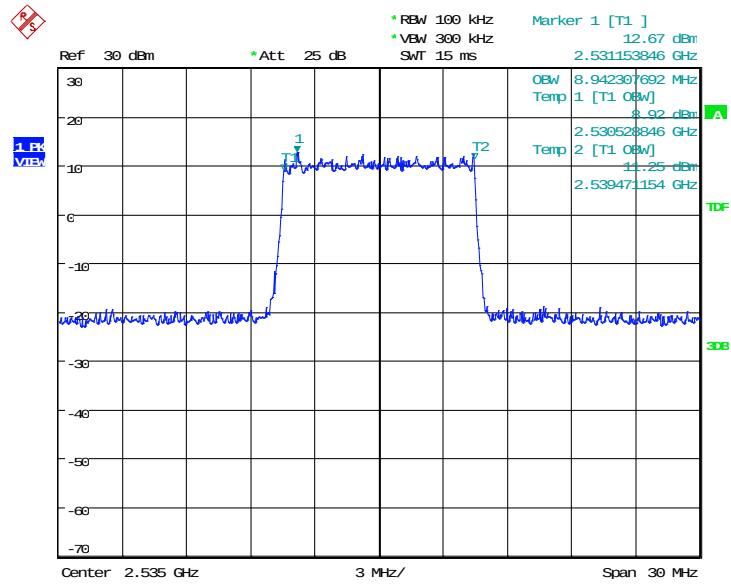
Date: 4.DEC.2019 06:19:44

LTE band 7, 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:19:58

LTE band 7, 10MHz Bandwidth, 64QAM (99% BW)

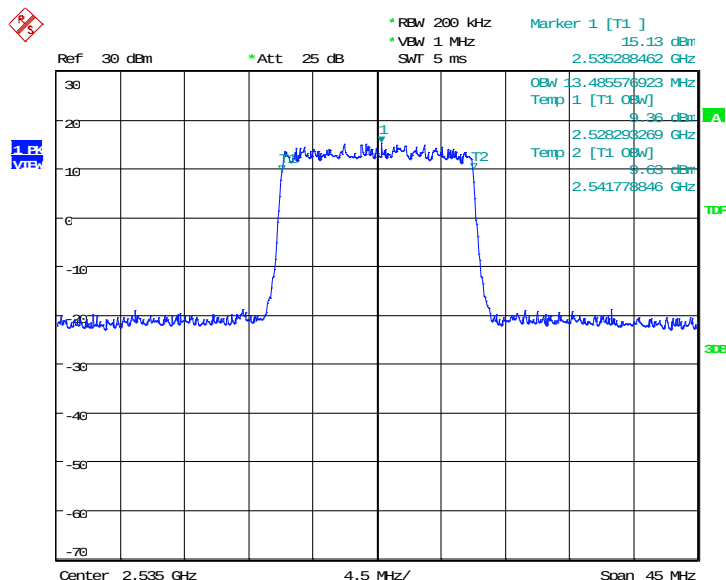


Date: 5.DEC.2019 13:03:14

LTE band 7, 15MHz (99% BW)

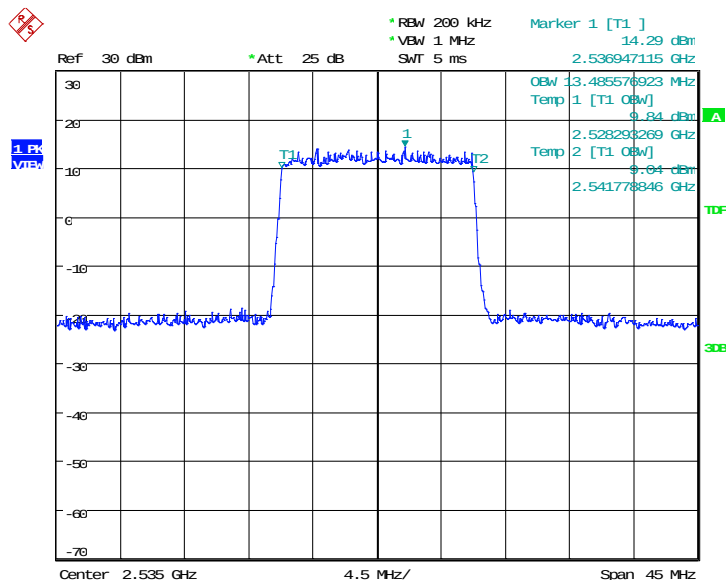
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2535.0	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

LTE band 7, 15MHz Bandwidth, QPSK (99% BW)



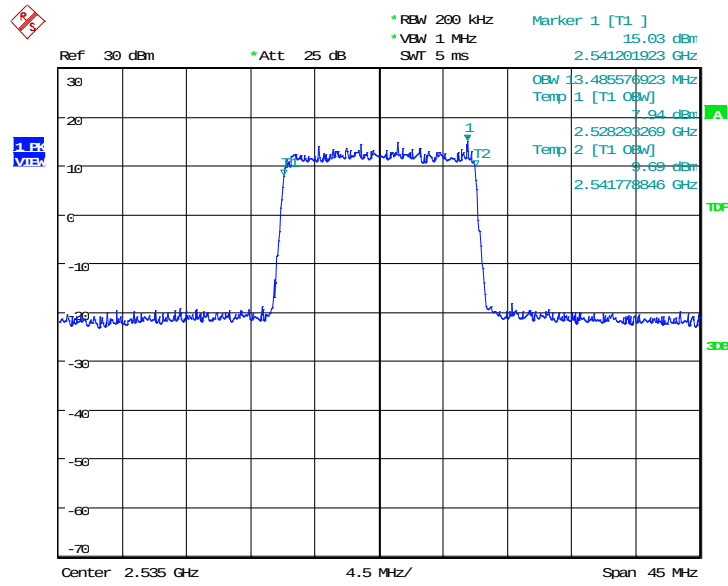
Date: 4.DEC.2019 06:24:02

LTE band 7, 15MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:24:16

LTE band 7, 15MHz Bandwidth, 64QAM (99% BW)

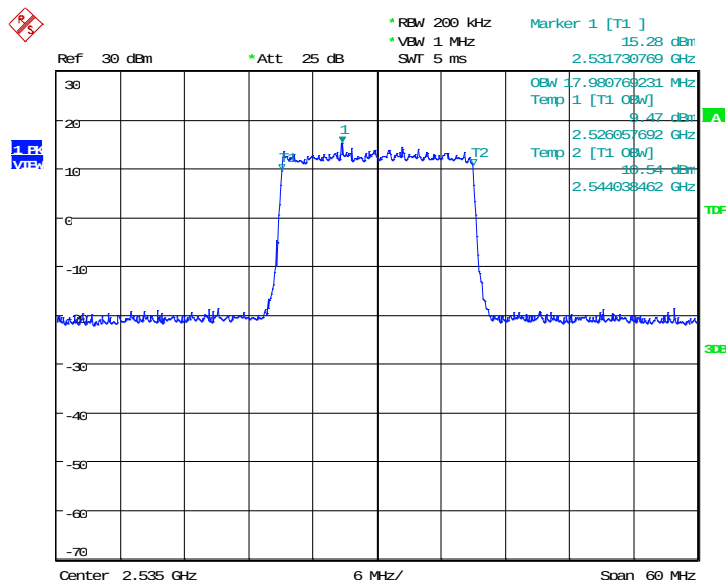


Date: 5.DEC.2019 13:06:41

LTE band 7, 20MHz (99% BW)

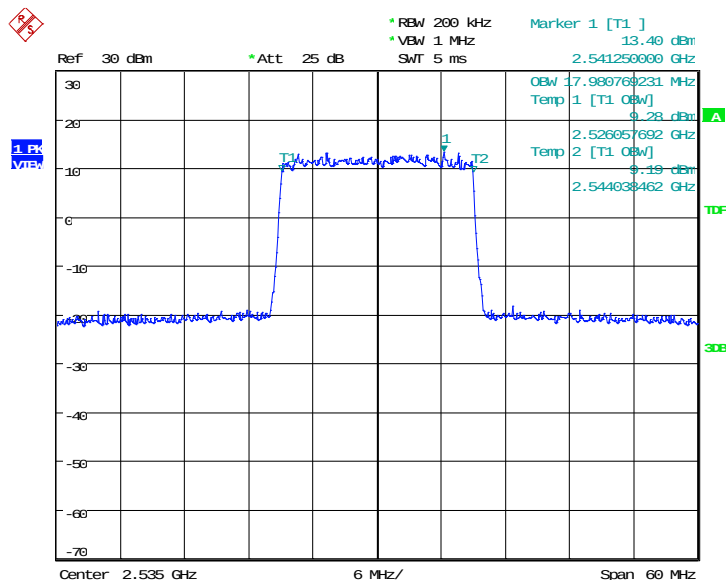
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2535.0	QPSK	16QAM	64QAM
	17980.77	17980.77	17980.77

LTE band 7, 20MHz Bandwidth, QPSK (99% BW)



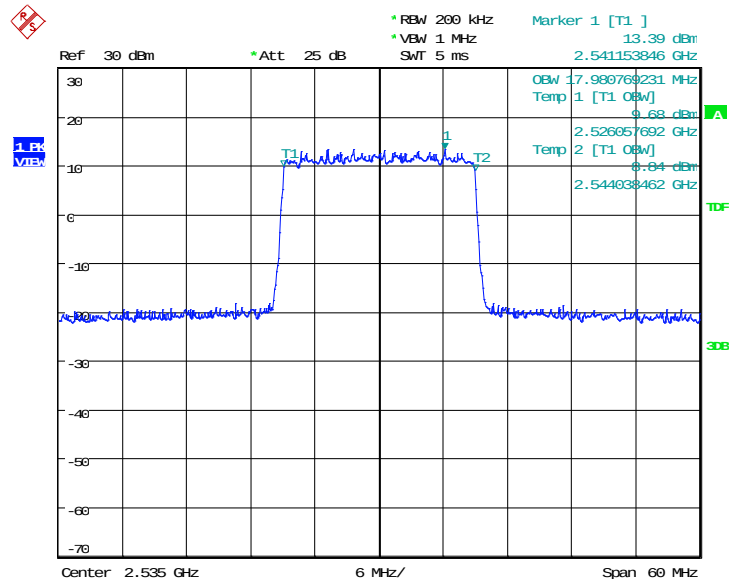
Date: 4.DEC.2019 06:28:23

LTE band 7, 20MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:28:37

LTE band 7, 20MHz Bandwidth, 64QAM (99% BW)



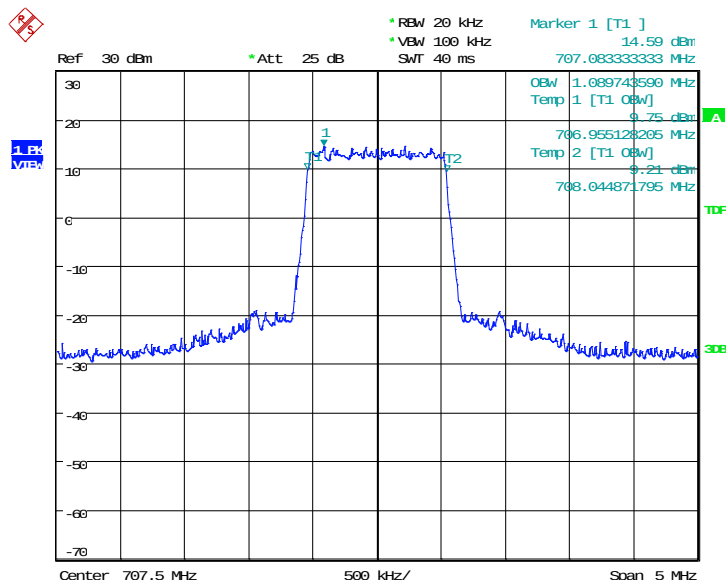
Date: 5.DEC.2019 13:10:12

Note: Expanded measurement uncertainty is $U = 3428\text{Hz}$, $k = 2$

LTE band 12, 1.4MHz (99% BW)

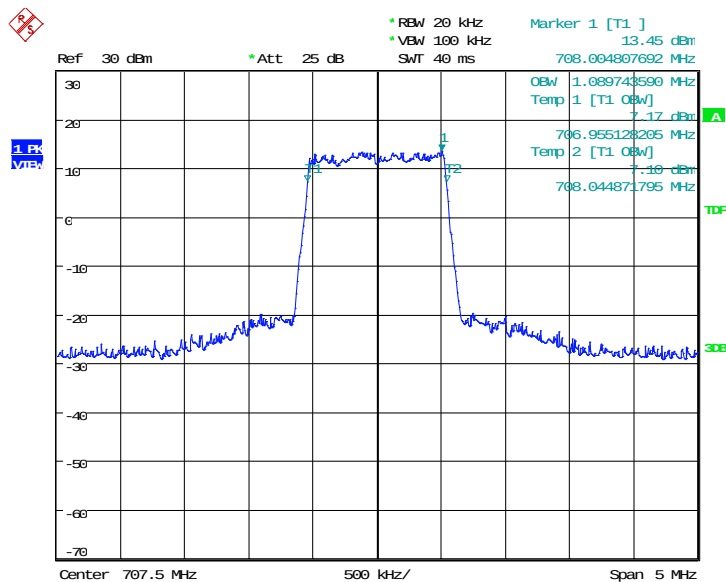
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
707.5	QPSK	16QAM	64QAM
	1089.74	1089.74	1089.74

LTE band 12, 1.4MHz Bandwidth, QPSK (99% BW)



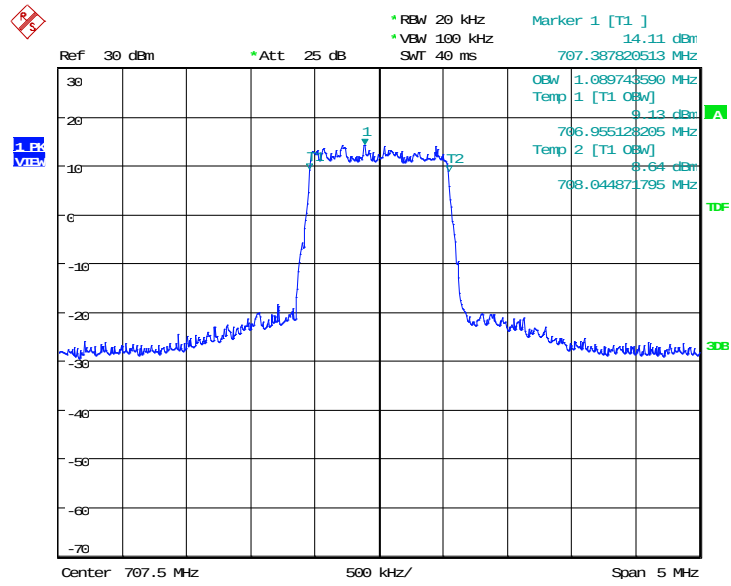
Date: 4.DEC.2019 11:17:17

LTE band 12, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 11:17:30

LTE band 12, 1.4MHz Bandwidth, 64QAM (99% BW)

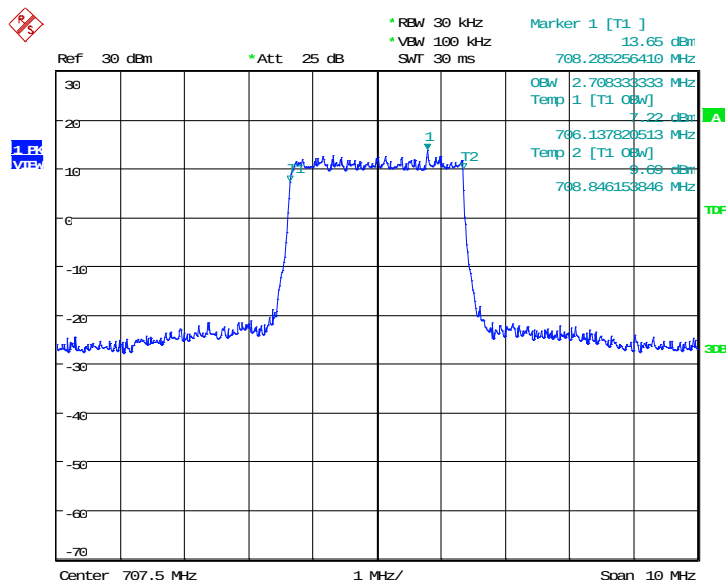


Date: 5.DEC.2019 19:09:51

LTE band 12, 3MHz (99% BW)

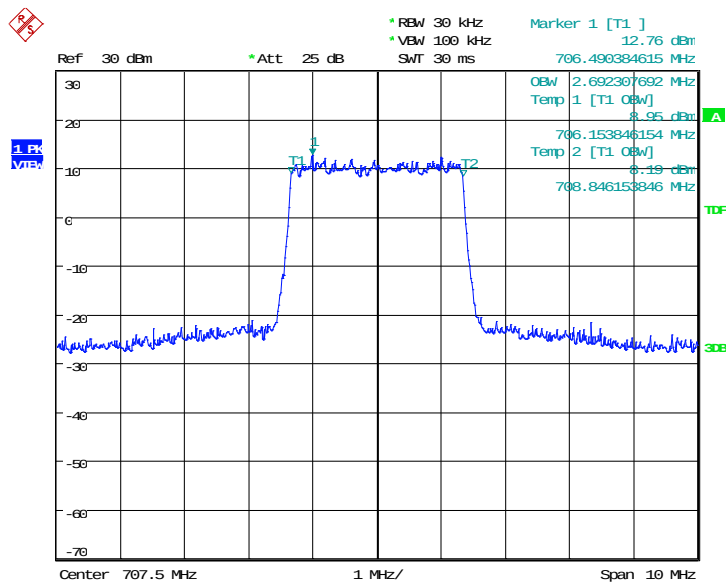
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
707.5	QPSK	16QAM	64QAM
	2708.33	2692.31	2692.31

LTE band 12, 3MHz Bandwidth, QPSK (99% BW)



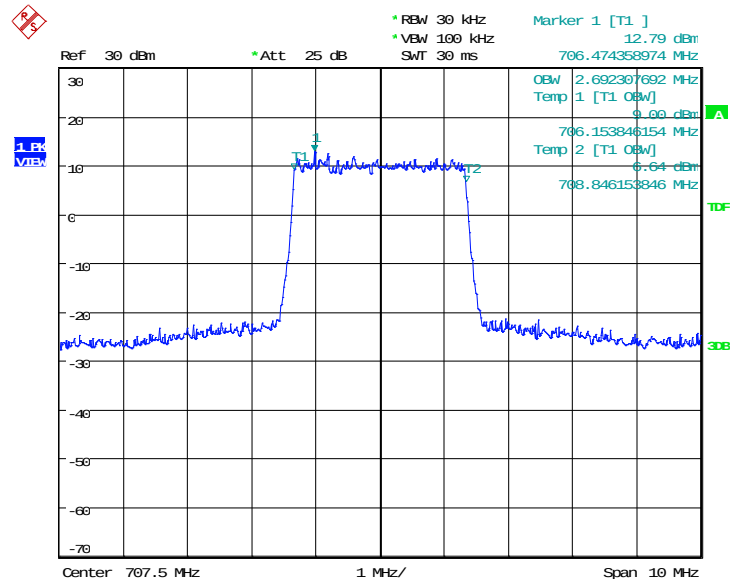
Date: 4.DEC.2019 11:21:37

LTE band 12, 3MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 11:21:51

LTE band 12, 3MHz Bandwidth, 64QAM (99% BW)

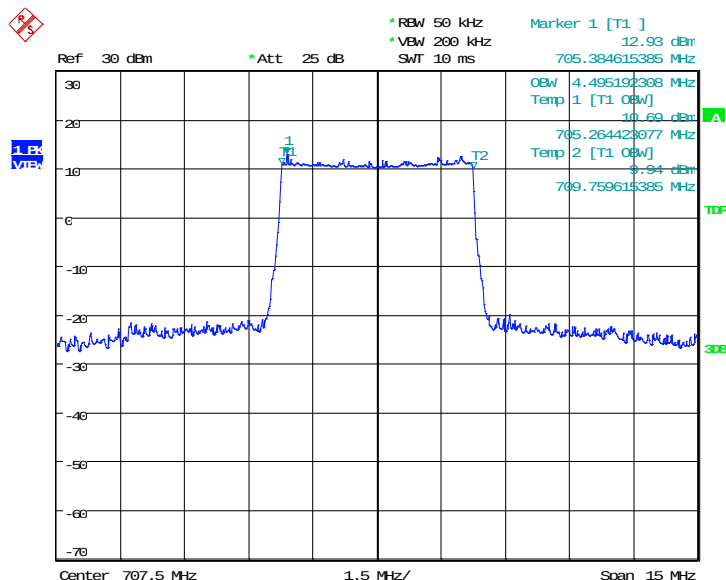


Date: 5.DEC.2019 19:13:22

LTE band 12, 5MHz (99% BW)

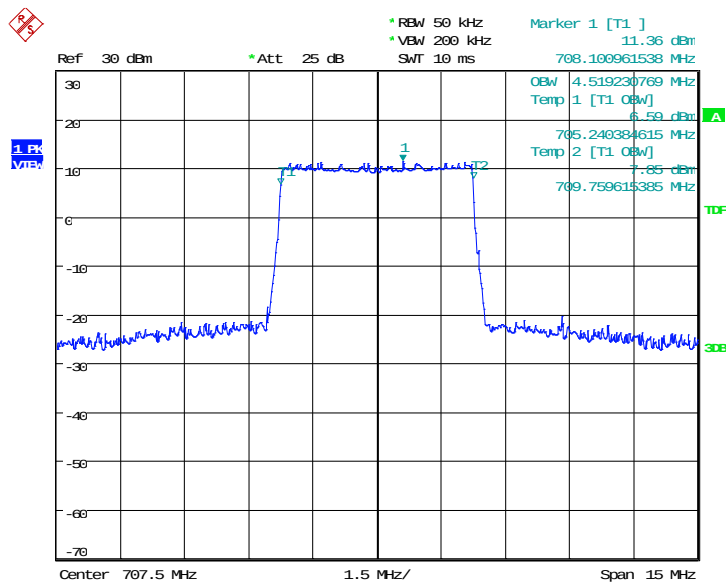
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
707.5	QPSK	16QAM	64QAM
	4495.19	4519.23	4495.19

LTE band 12, 5MHz Bandwidth, QPSK (99% BW)



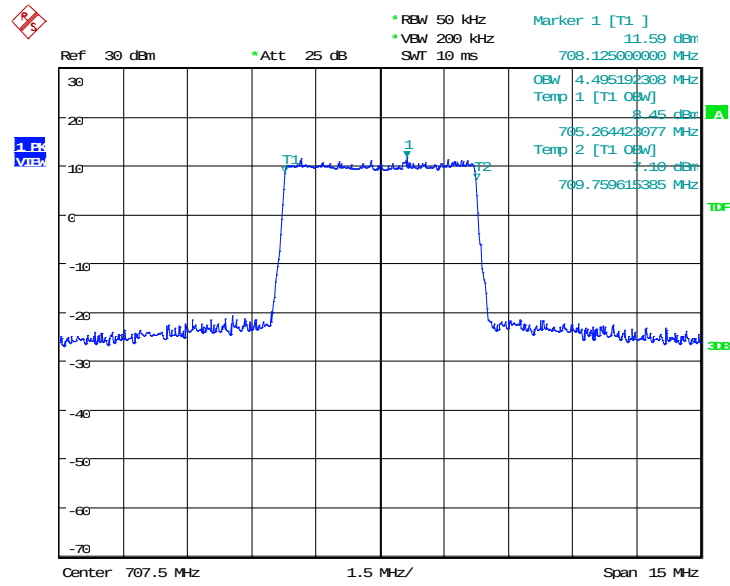
Date: 4.DEC.2019 11:25:55

LTE band 12, 5MHz Bandwidth,16QAM (99% BW)



Date: 4.DEC.2019 11:26:09

LTE band 12, 5MHz Bandwidth,64QAM (99% BW)

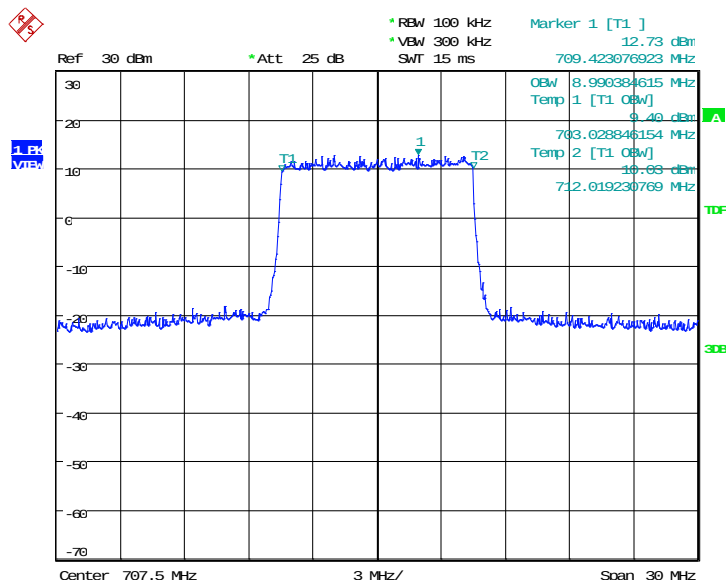


Date: 5.DEC.2019 19:16:49

LTE band 12, 10MHz (99% BW)

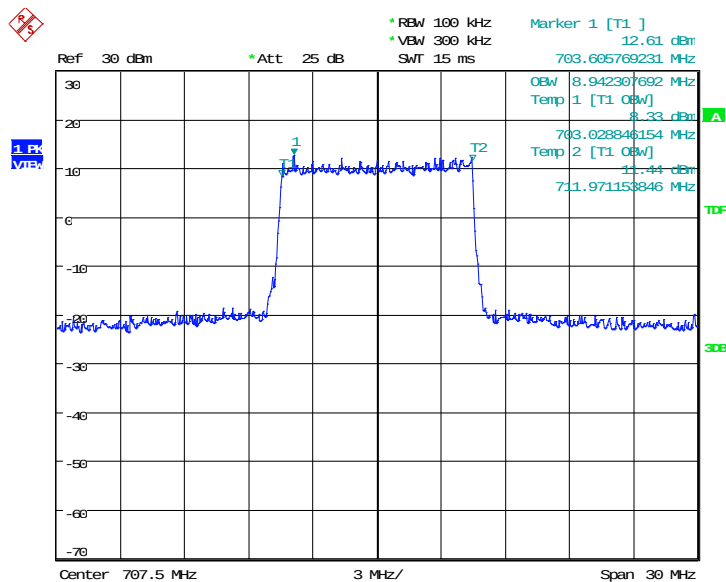
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
707.5	QPSK	16QAM	64QAM
	8990.38	8942.31	9038.46

LTE band 12, 10MHz Bandwidth, QPSK (99% BW)



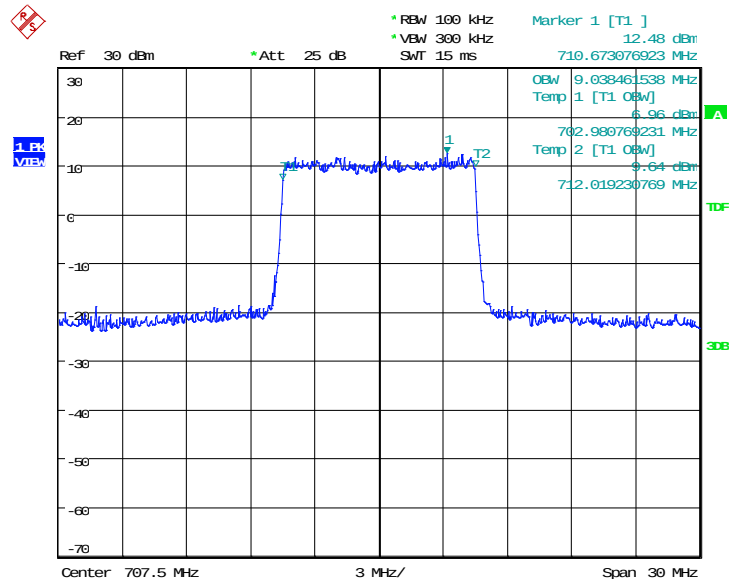
Date: 4.DEC.2019 11:30:13

LTE band 12, 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 11:30:27

LTE band 12, 10MHz Bandwidth, 64QAM (99% BW)

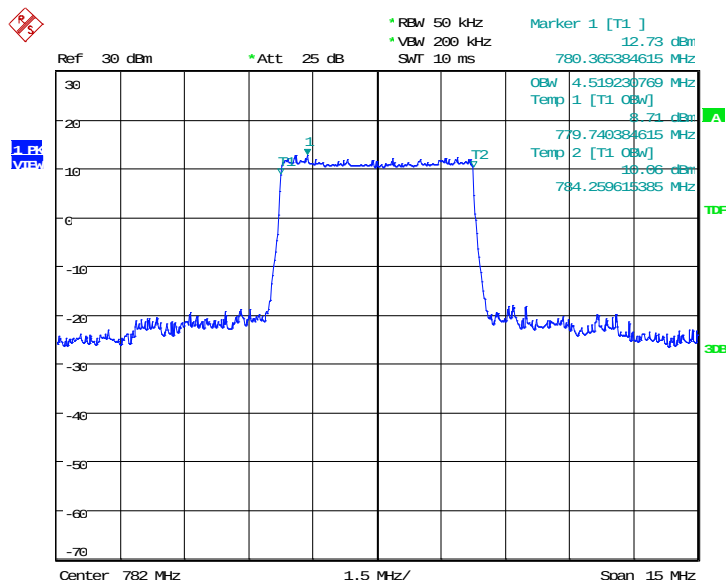


Date: 5.DEC.2019 19:20:19

LTE band 13, 5MHz (99% BW)

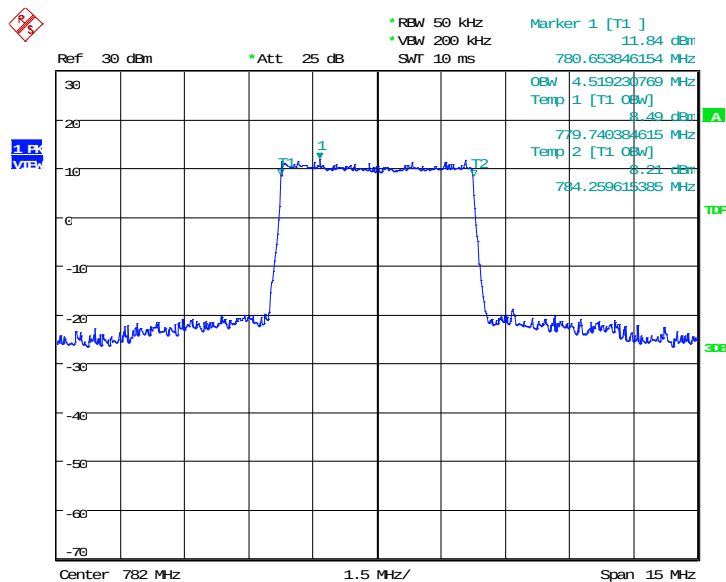
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
782.0	QPSK	16QAM	64QAM
	4519.23	4519.23	4471.15

LTE band 13, 5MHz Bandwidth, QPSK (99% BW)



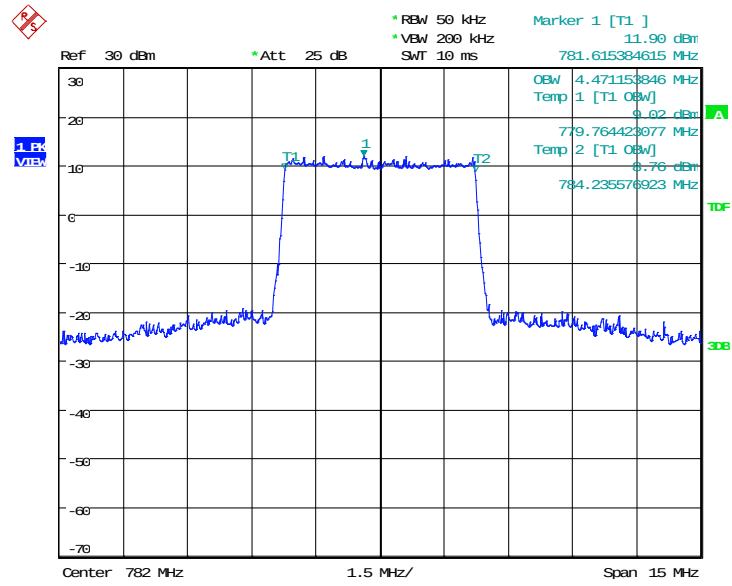
Date: 4.DEC.2019 06:32:48

LTE band 13, 5MHz Bandwidth,16QAM (99% BW)



Date: 4.DEC.2019 06:33:02

LTE band 13, 5MHz Bandwidth,64QAM (99% BW)

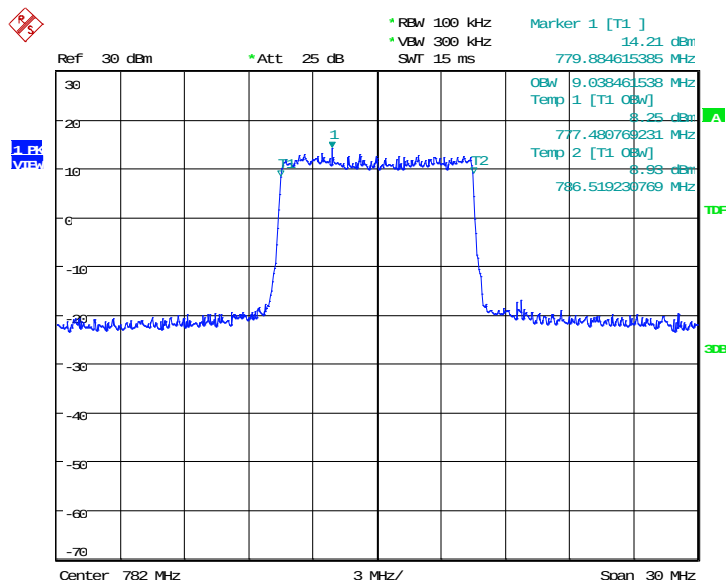


Date: 6.DEC.2019 12:10:21

LTE band 13, 10MHz (99% BW)

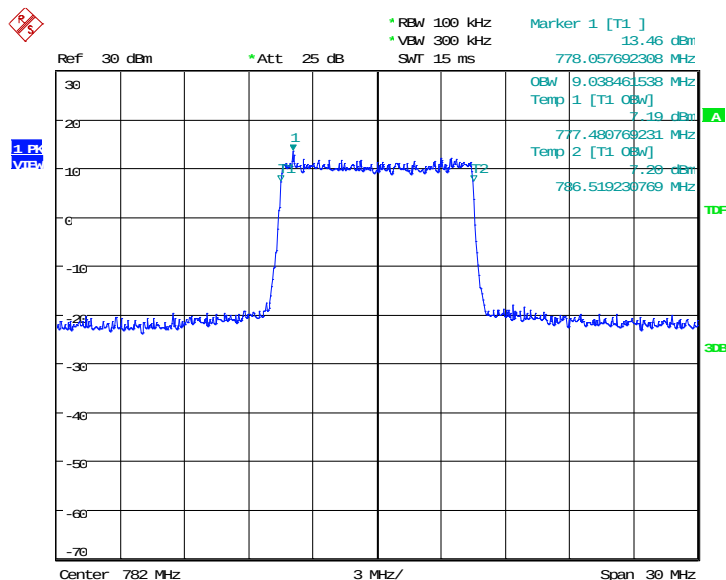
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
782.0	QPSK	16QAM	64QAM
	9038.46	9038.46	8990.38

LTE band 13, 10MHz Bandwidth, QPSK (99% BW)



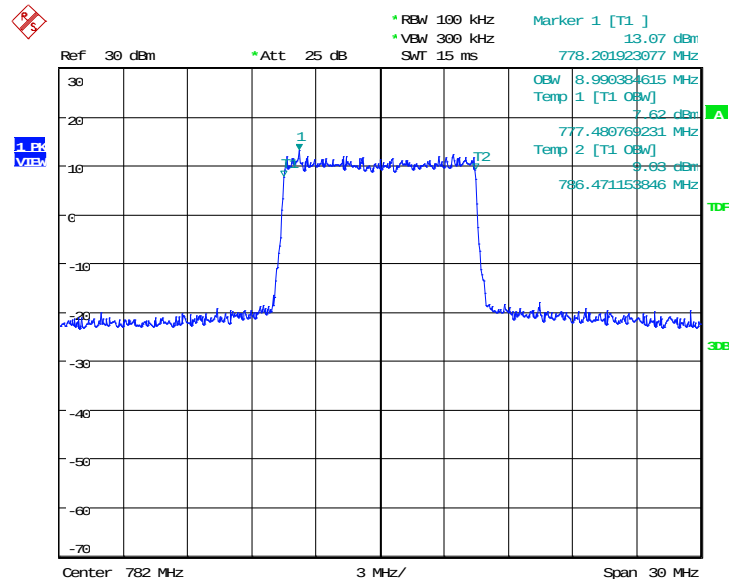
Date: 4.DEC.2019 06:37:08

LTE band 13, 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 06:37:22

LTE band 13, 10MHz Bandwidth, 64QAM (99% BW)

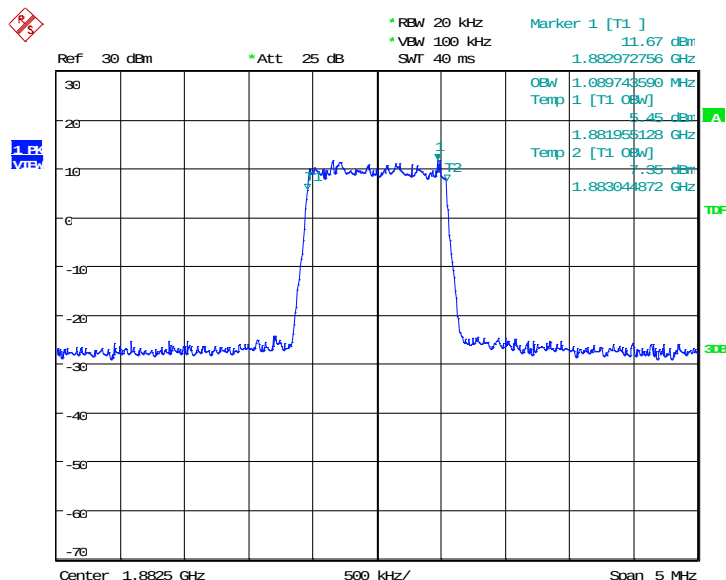


Date: 6.DEC.2019 12:13:51

LTE band 25, 1.4MHz (99% BW)

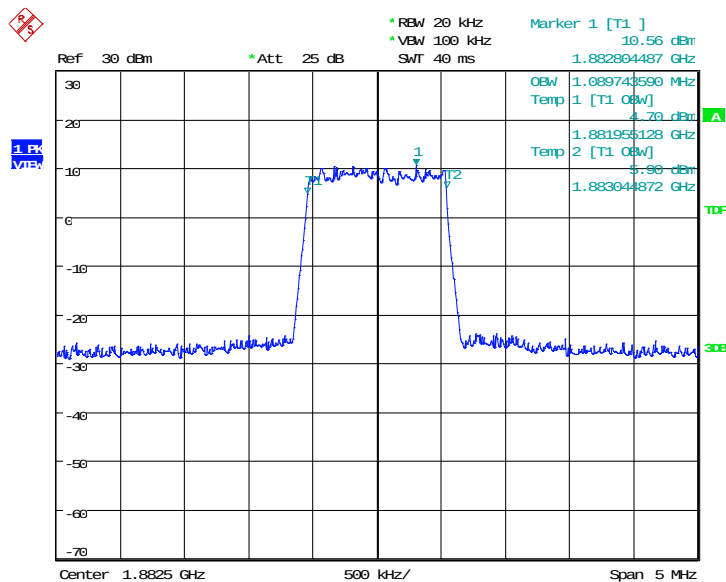
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1882.5	QPSK	16QAM	64QAM
	1089.74	1089.74	1089.74

LTE band 25, 1.4MHz Bandwidth, QPSK (99% BW)



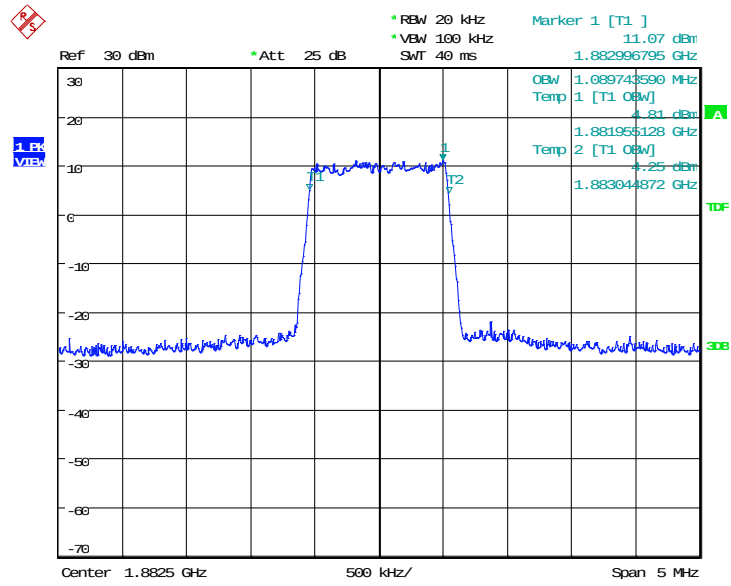
Date: 4.DEC.2019 11:34:33

LTE band 25, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 11:34:47

LTE band 25, 1.4MHz Bandwidth, 64QAM (99% BW)

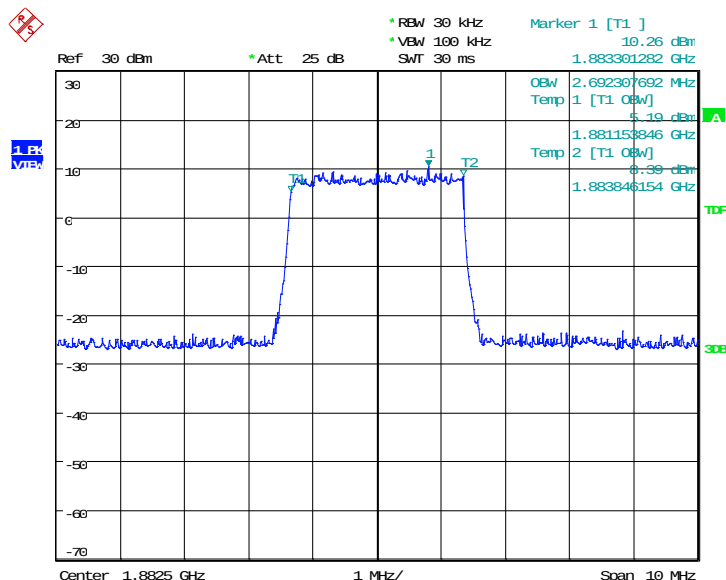


Date: 6.DEC.2019 05:01:13

LTE band25, 3MHz (99% BW)

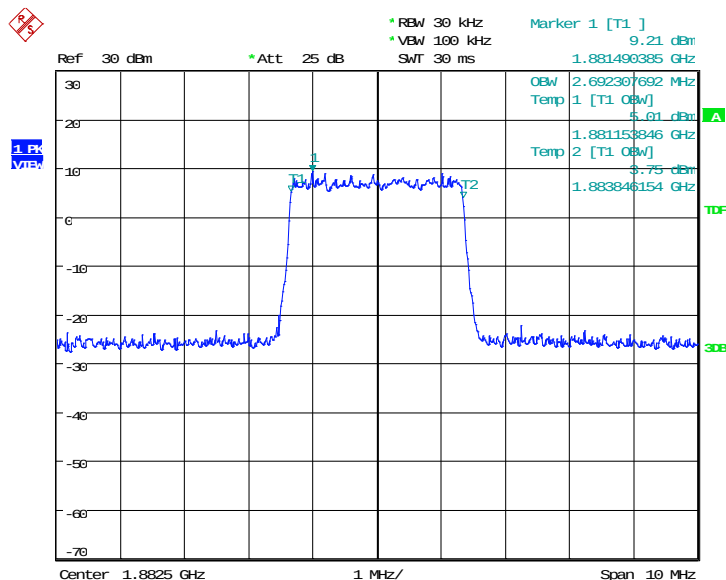
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1882.5	QPSK	16QAM	64QAM
	2692.31	2692.31	2692.31

LTE band 25, 3MHz Bandwidth, QPSK (99% BW)



Date: 4.DEC.2019 11:38:53

LTE band 25, 3MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 11:39:07

*RBW 30 kHz
 *VBW 100 kHz
 SWF 30 ms

Ref 30 dBm
 *Att 25 dB

Marker 1 [T1]
 9.95 dBm
 1.881490385 GHz

2.692307692 MHz
 Temp 1 [T1 0BW] -42 dBm
 1.881153846 GHz
 Temp 2 [T1 0BW] -31 dBm
 1.883846154 GHz

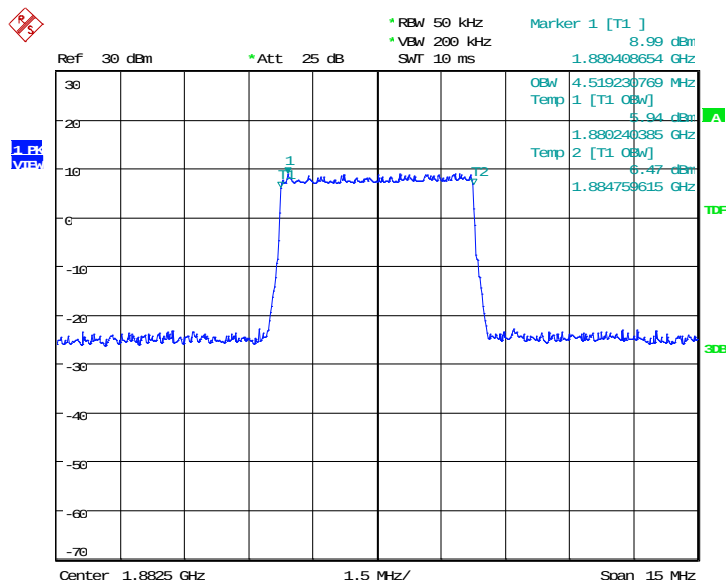
Center 1.8825 GHz
 1 MHz/
 Span 10 MHz

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LTE band 25, 5MHz (99% BW)

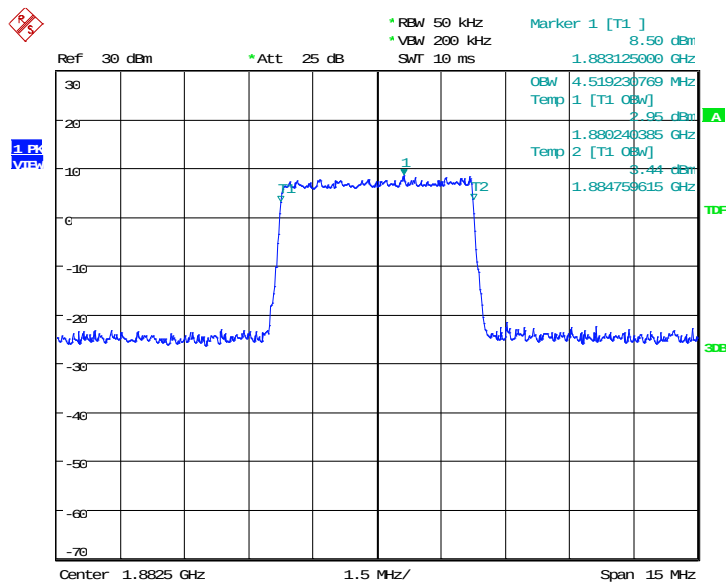
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1882.5	QPSK	16QAM	64QAM
	4519.23	4519.23	4495.19

LTE band 25, 5MHz Bandwidth, QPSK (99% BW)



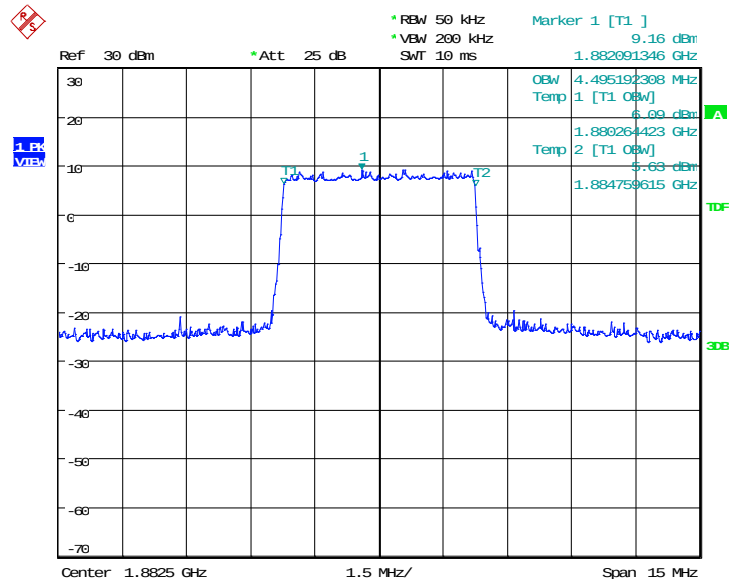
Date: 4.DEC.2019 11:43:14

LTE band 25, 5MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 11:43:27

LTE band 25, 5MHz Bandwidth,64QAM (99% BW)

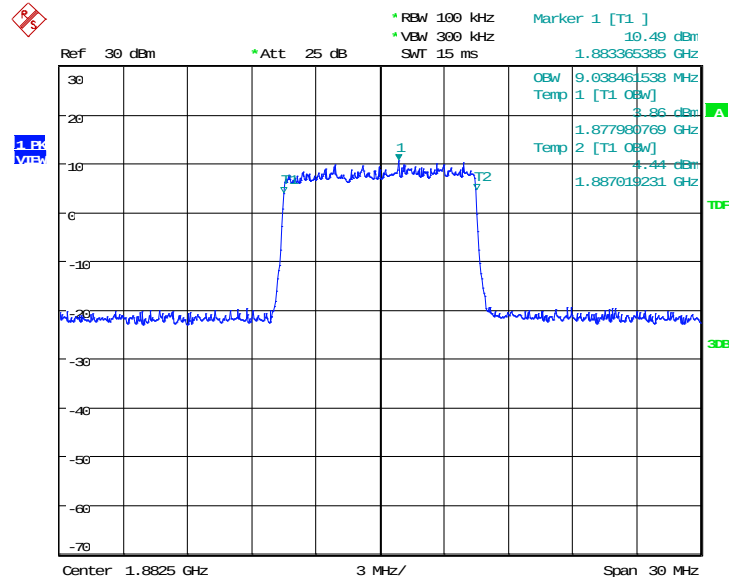


Date: 6.DEC.2019 05:08:40

LTE band 25, 10MHz (99% BW)

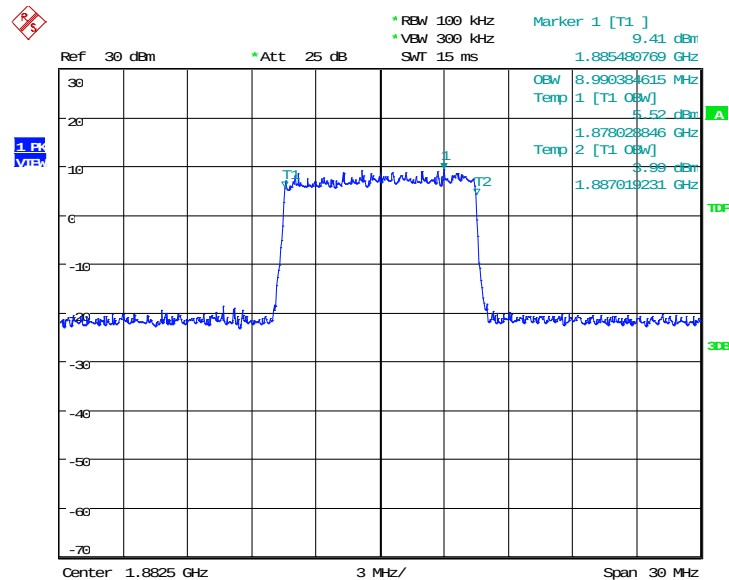
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1882.5	QPSK	16QAM	64QAM
	9038.46	8990.38	8990.38

LTE band 25, 10MHz Bandwidth, QPSK (99% BW)



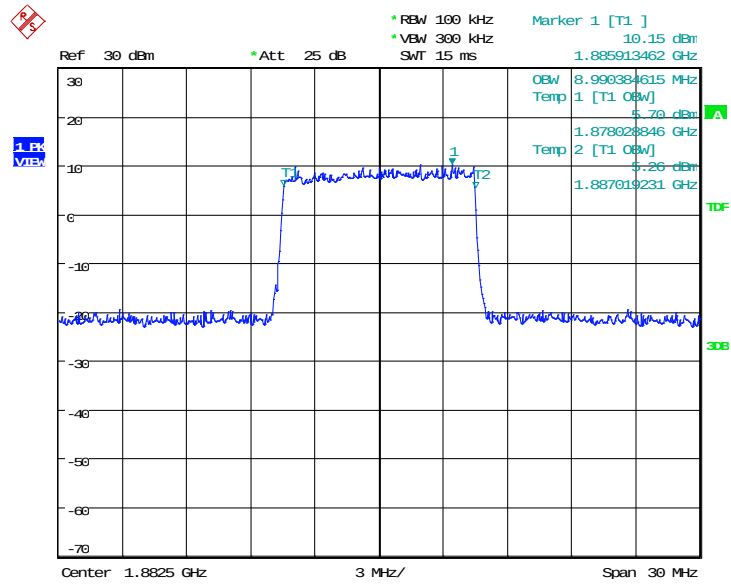
Date: 4.DEC.2019 11:47:34

LTE band 25, 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 11:47:48

LTE band 25, 10MHz Bandwidth, 64QAM (99% BW)

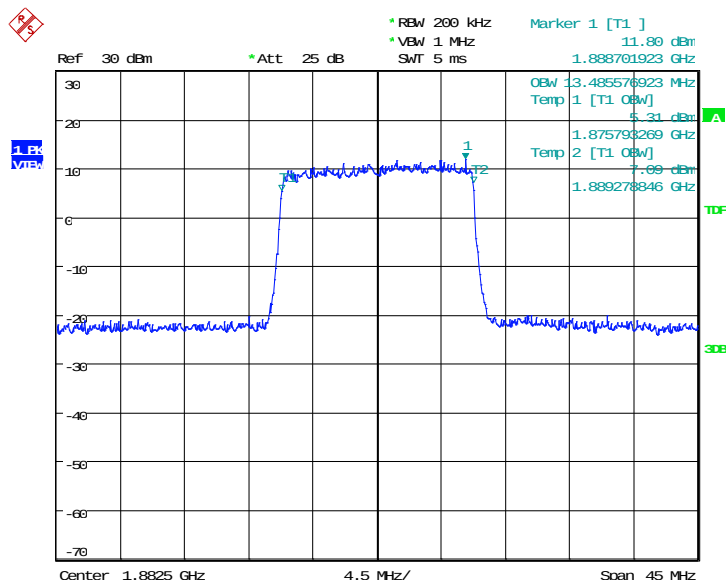


Date: 6.DEC.2019 05:12:10

LTE band 25, 15MHz (99% BW)

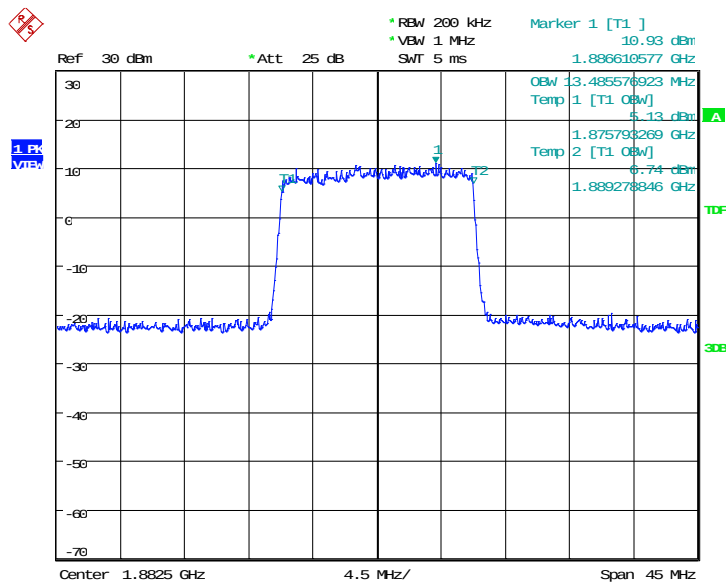
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1882.5	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

LTE band 25, 15MHz Bandwidth, QPSK (99% BW)



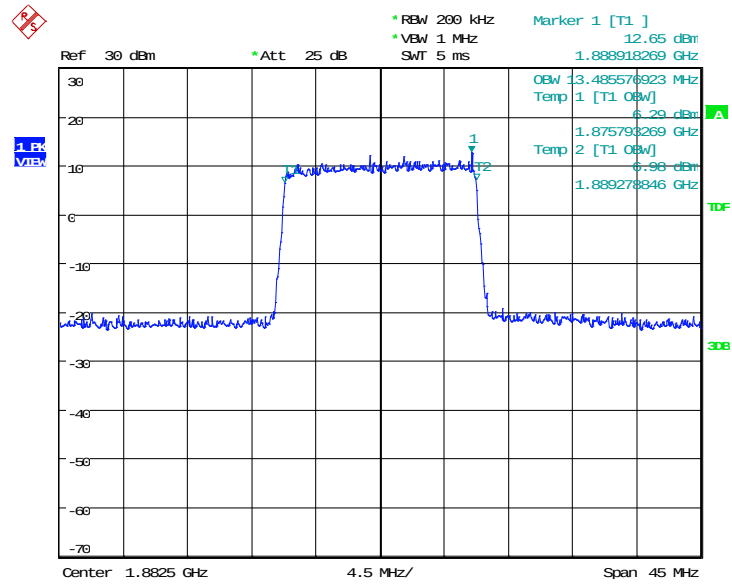
Date: 4.DEC.2019 12:01:02

LTE band 25, 15MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 12:01:16

LTE band 25, 15MHz Bandwidth, 64QAM (99% BW)

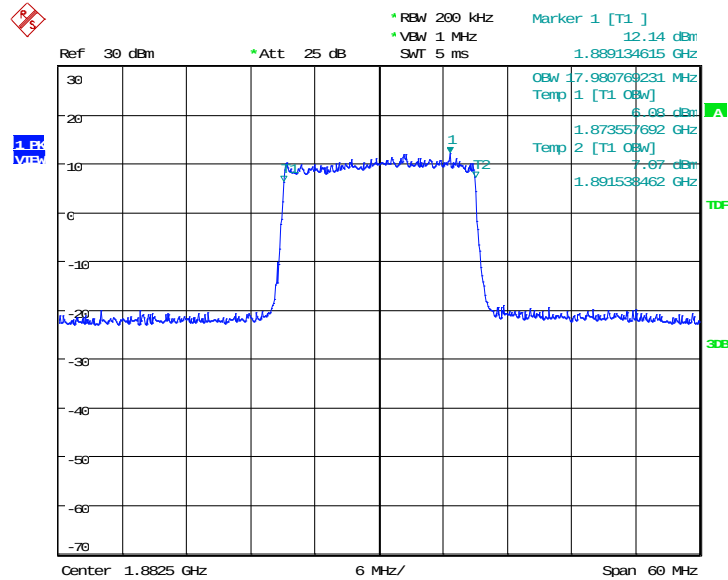


Date: 6.DEC.2019 05:33:22

LTE band 25, 20MHz (99% BW)

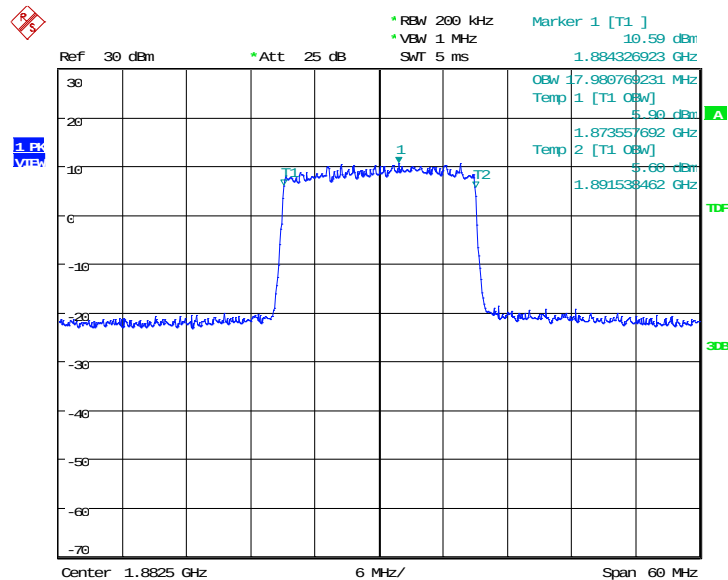
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1882.5	QPSK	16QAM	64QAM
	17980.77	17980.77	17980.77

LTE band 25, 20MHz Bandwidth, QPSK (99% BW)



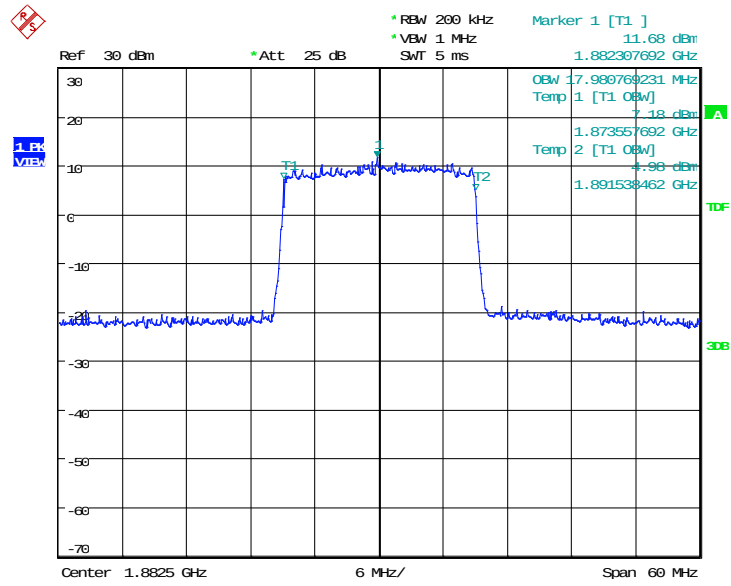
Date: 5.DEC.2019 12:51:03

LTE band 25, 20MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 12:51:16

LTE band 25, 20MHz Bandwidth, 64QAM (99% BW)

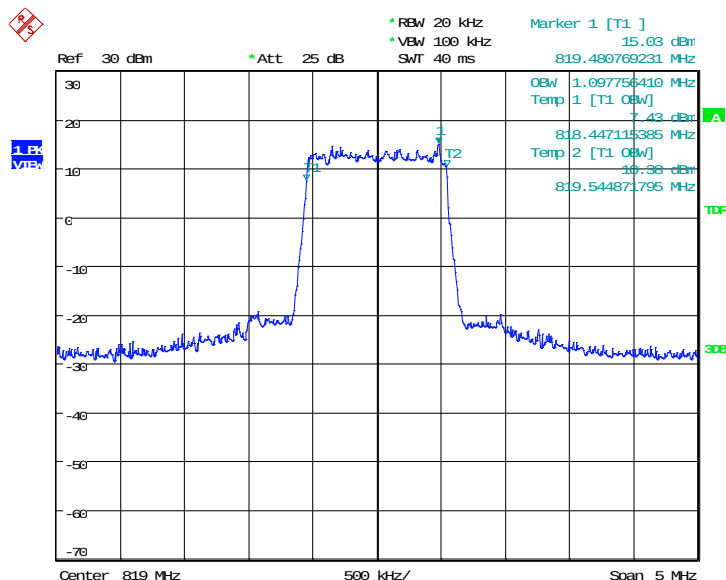


Date: 6.DEC.2019 05:42:36

LTE band 26(814MHz-824MHz), 1.4MHz (99% BW)

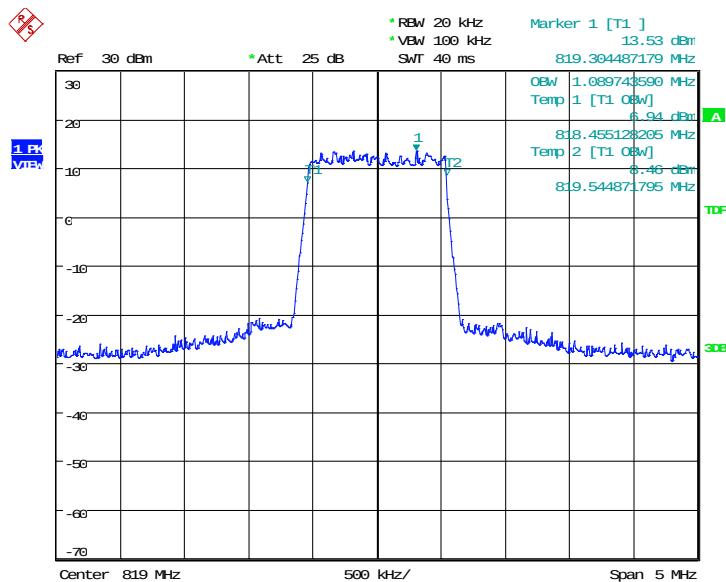
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
819.0	QPSK	16QAM	64QAM
	1097.76	1089.74	1089.74

LTE band 26(814MHz-824MHz), 1.4MHz Bandwidth, QPSK (99% BW)



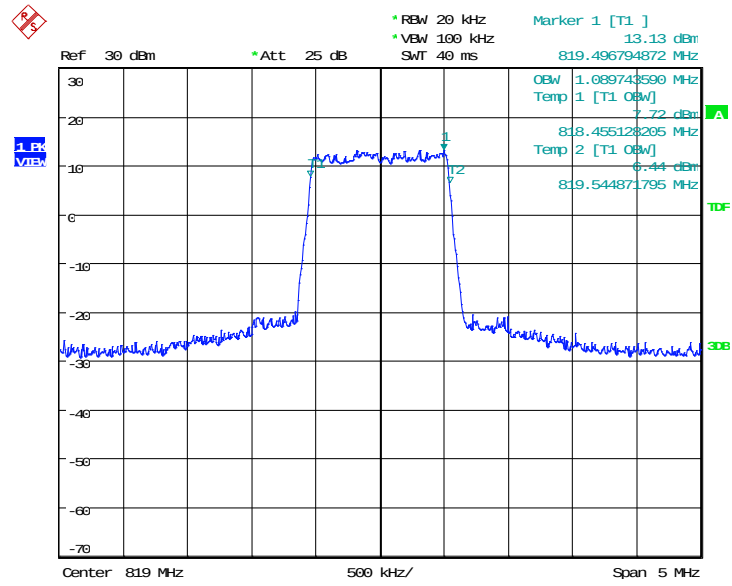
Date: 4.DEC.2019 14:01:21

LTE band 26(814MHz-824MHz), 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 14:01:35

LTE band 26(814MHz-824MHz), 1.4MHz Bandwidth, 64QAM (99% BW)

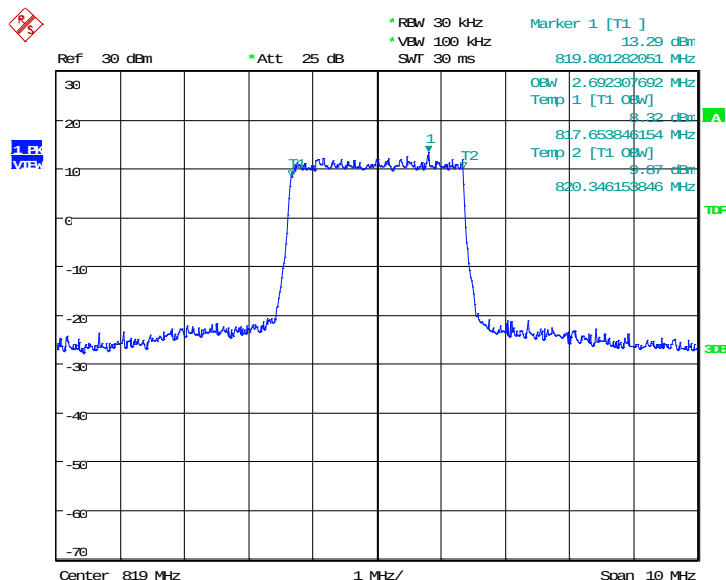


Date: 6.DEC.2019 06:10:49

LTE band 26(814MHz-824MHz), 3MHz (99% BW)

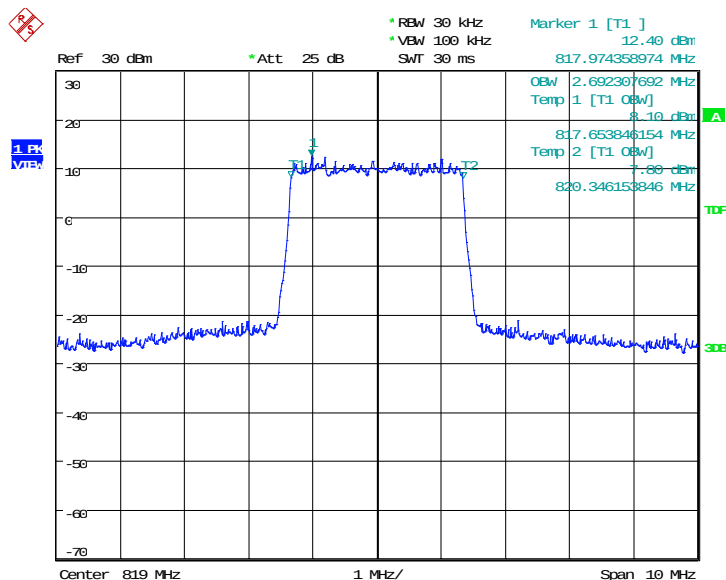
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
819.0	QPSK	16QAM	64QAM
	2692.31	2692.31	2708.33

LTE band 26(814MHz-824MHz), 3MHz Bandwidth, QPSK (99% BW)



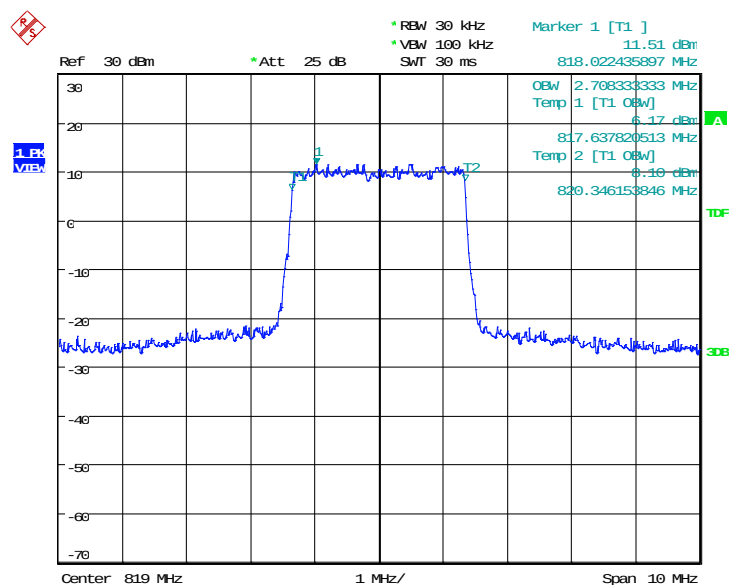
Date: 4.DEC.2019 14:05:42

LTE band 26(814MHz-824MHz), 3MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 14:05:56

LTE band 26(814MHz-824MHz), 3MHz Bandwidth, 64QAM (99% BW)

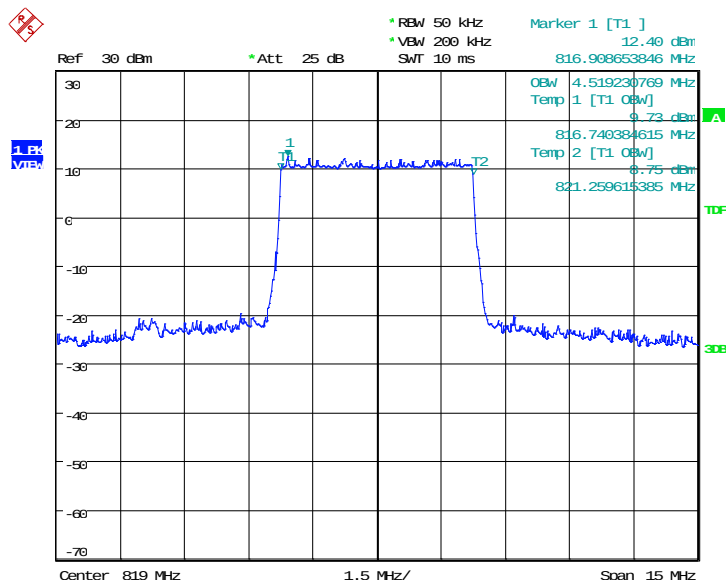


Date: 6.DEC.2019 06:14:05

LTE band 26(814MHz-824MHz), 5MHz (99% BW)

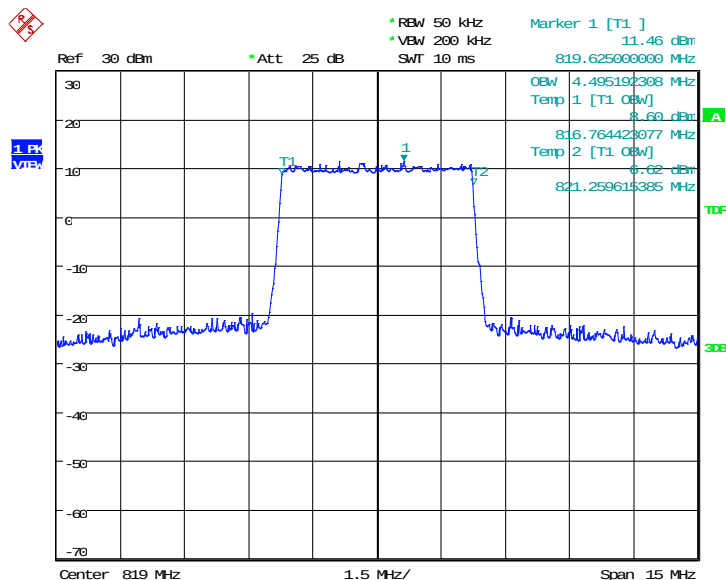
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
819.0	QPSK	16QAM	64QAM
	4519.23	4495.19	4495.19

LTE band 26(814MHz-824MHz), 5MHz Bandwidth, QPSK (99% BW)



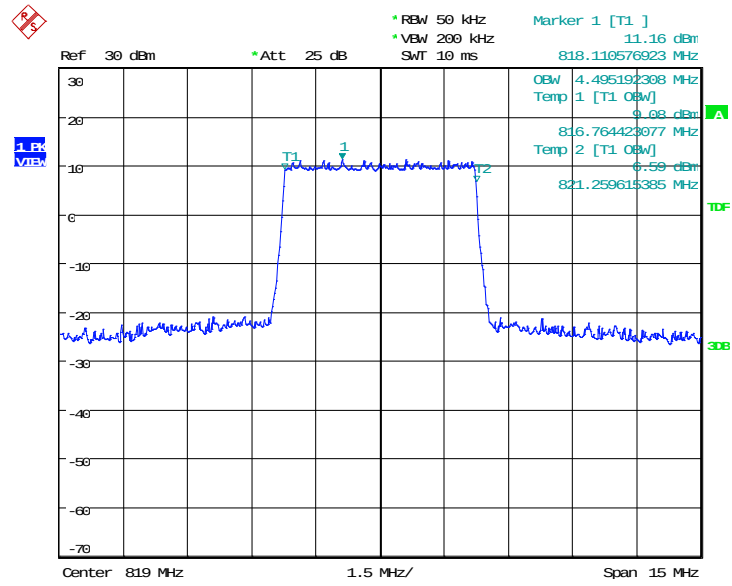
Date: 4.DEC.2019 14:10:02

LTE band 26(814MHz-824MHz), 5MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 14:10:16

LTE band 26(814MHz-824MHz), 5MHz Bandwidth,64QAM (99% BW)

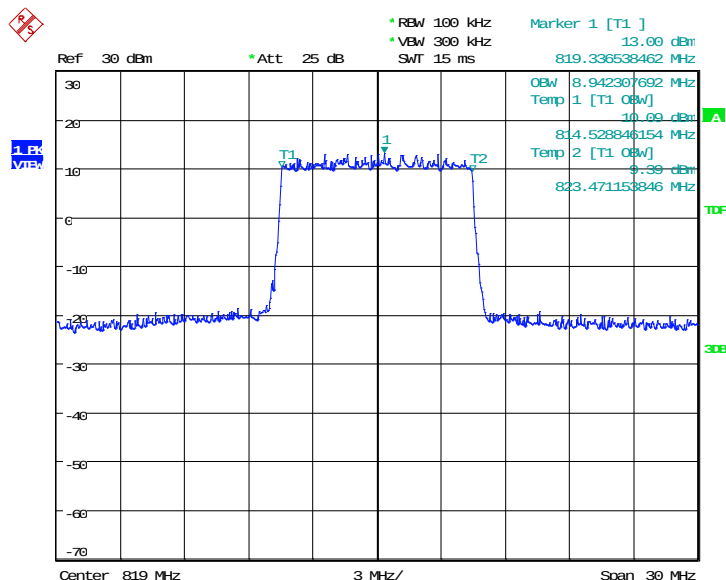


Date: 6.DEC.2019 06:16:47

LTE band 26(814MHz-824MHz), 10MHz (99% BW)

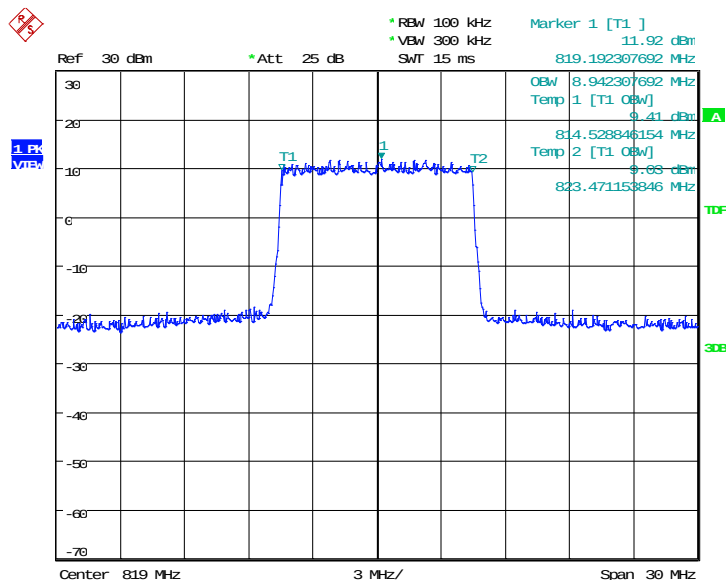
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
819.0	QPSK	16QAM	64QAM
	8942.31	8942.31	8990.38

LTE band 26(814MHz-824MHz), 10MHz Bandwidth, QPSK (99% BW)



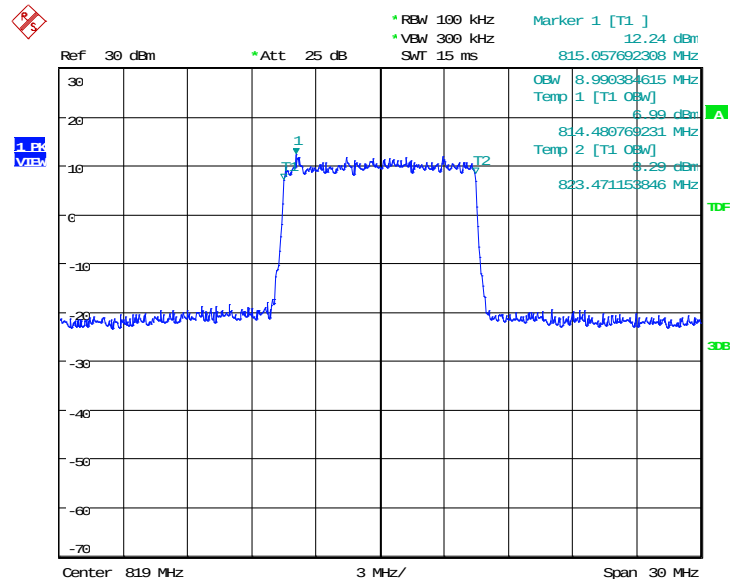
Date: 5.DEC.2019 12:42:31

LTE band 26(814MHz-824MHz), 10MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 12:42:45

LTE band 26(814MHz-824MHz), 10MHz Bandwidth, 64QAM (99% BW)

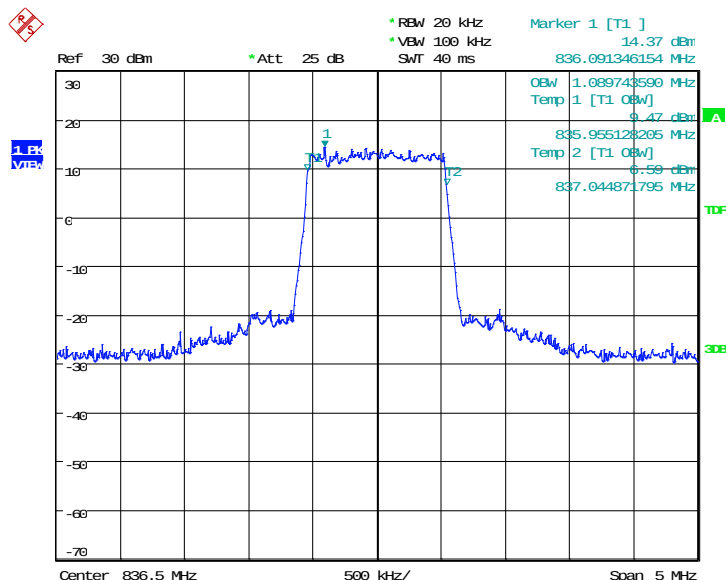


Date: 6.DEC.2019 06:19:33

LTE band 26(824MHz-849MHz), 1.4MHz (99% BW)

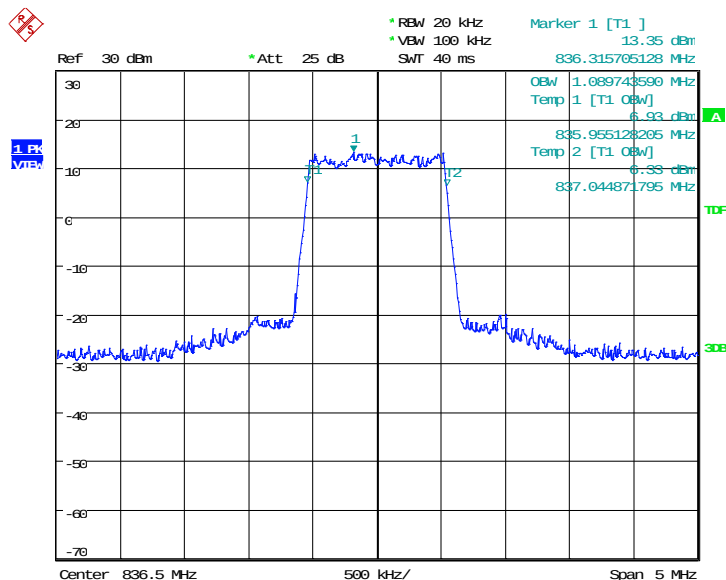
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	1089.74	1089.74	1097.76

LTE band 26(824MHz-849MHz), 1.4MHz Bandwidth, QPSK (99% BW)



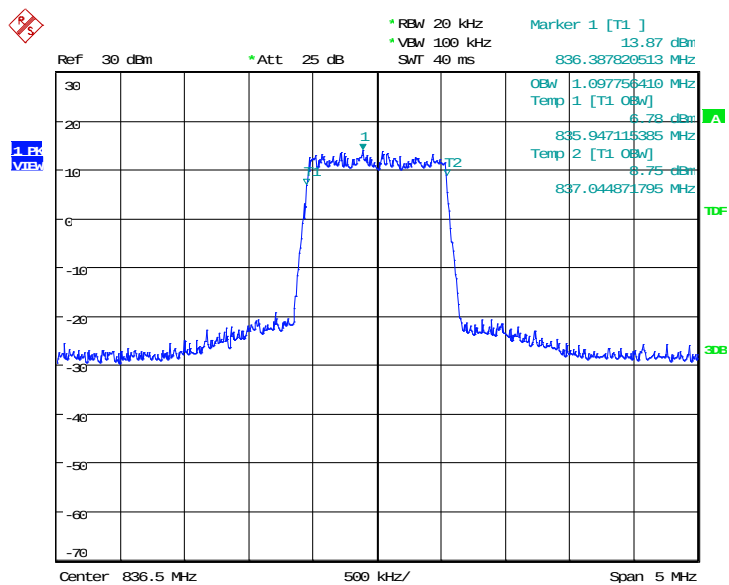
Date: 4.DEC.2019 13:39:40

LTE band 26(824MHz-849MHz), 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 13:39:53

LTE band 26(824MHz-849MHz), 1.4MHz Bandwidth, 64QAM (99% BW)

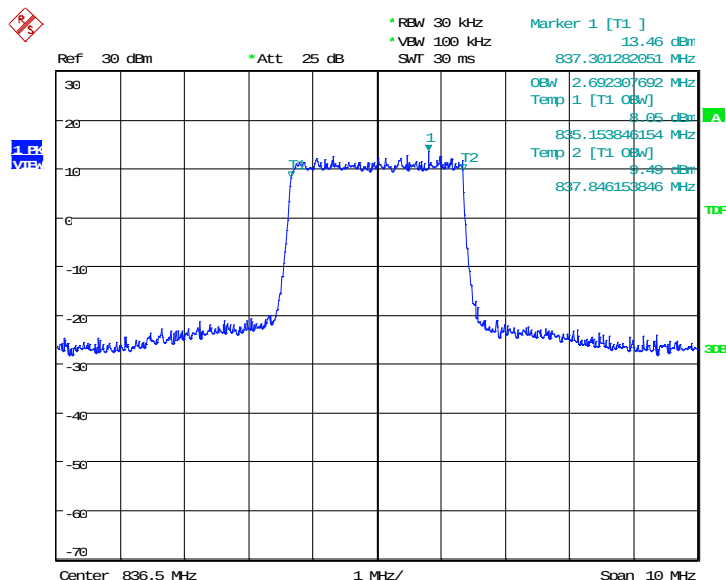


Date: 6.DEC.2019 05:57:08

LTE band 26(824MHz-849MHz), 3MHz (99% BW)

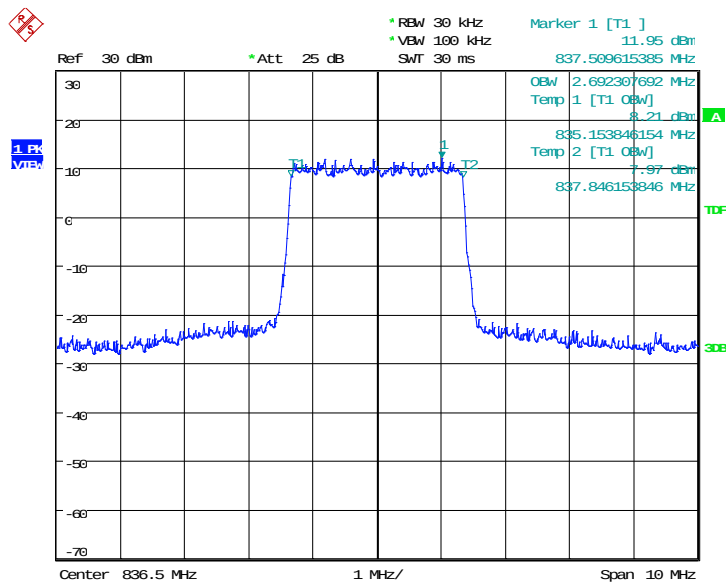
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	2692.31	2692.31	2708.33

LTE band 26(824MHz-849MHz), 3MHz Bandwidth, QPSK (99% BW)



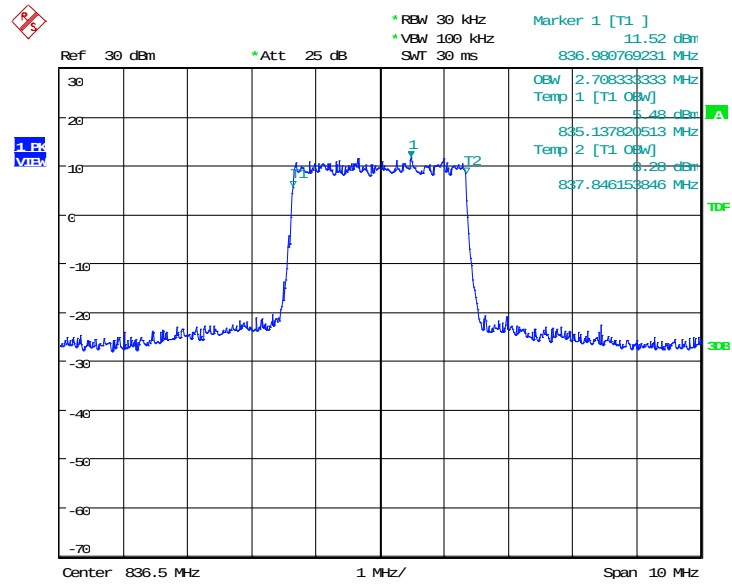
Date: 4.DEC.2019 13:44:00

LTE band 26(824MHz-849MHz), 3MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 13:44:14

LTE band 26(824MHz-849MHz), 3MHz Bandwidth, 64QAM (99% BW)

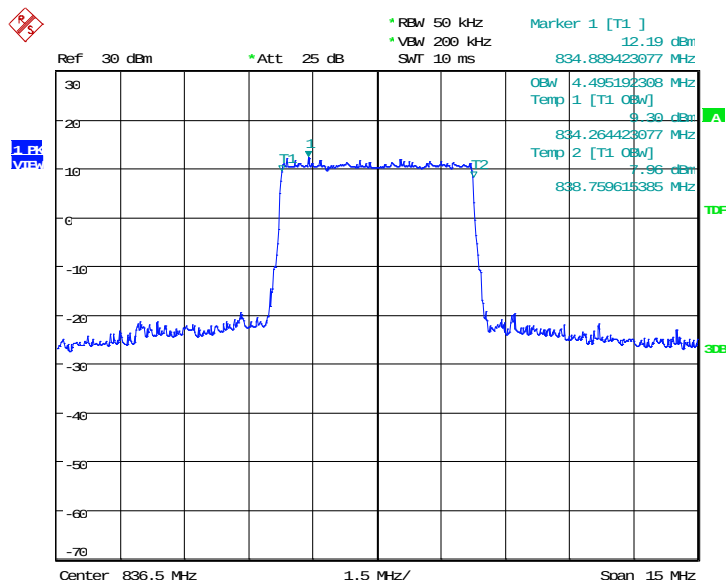


Date: 6.DEC.2019 05:59:55

LTE band 26(824MHz-849MHz), 5MHz (99% BW)

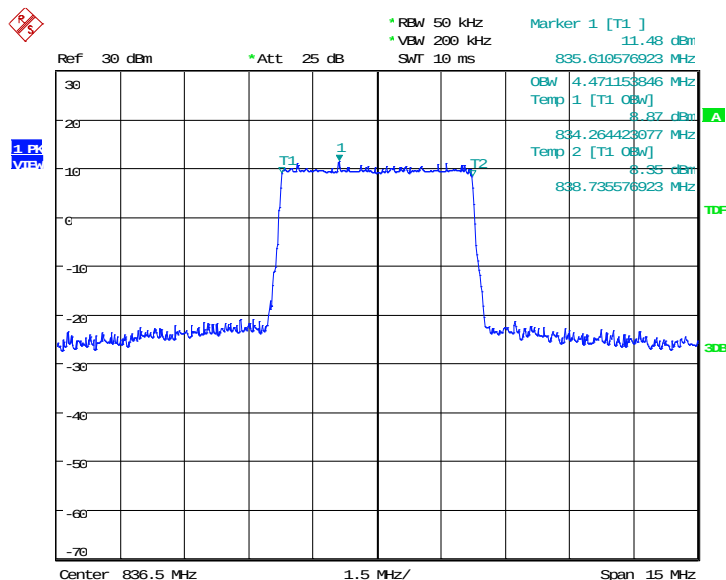
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	4495.19	4471.15	4471.15

LTE band 26(824MHz-849MHz), 5MHz Bandwidth, QPSK (99% BW)



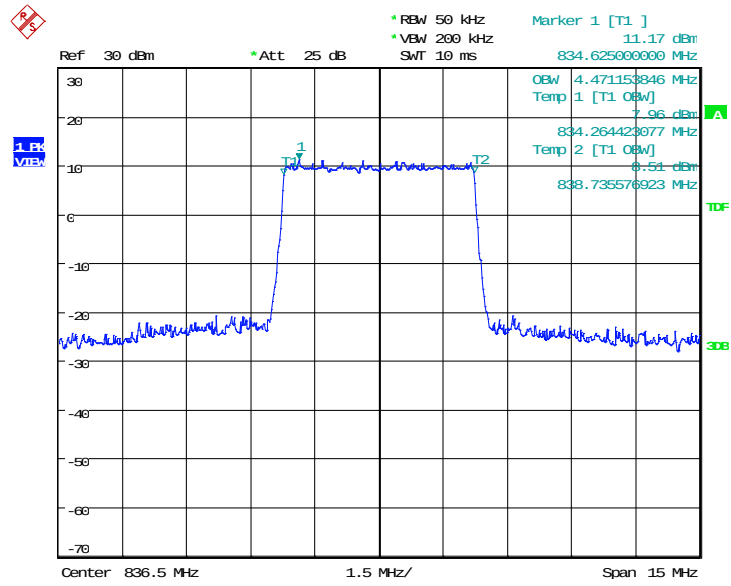
Date: 4.DEC.2019 13:48:23

LTE band 26(824MHz-849MHz), 5MHz Bandwidth,16QAM (99% BW)



Date: 4.DEC.2019 13:48:36

LTE band 26(824MHz-849MHz), 5MHz Bandwidth,64QAM (99% BW)

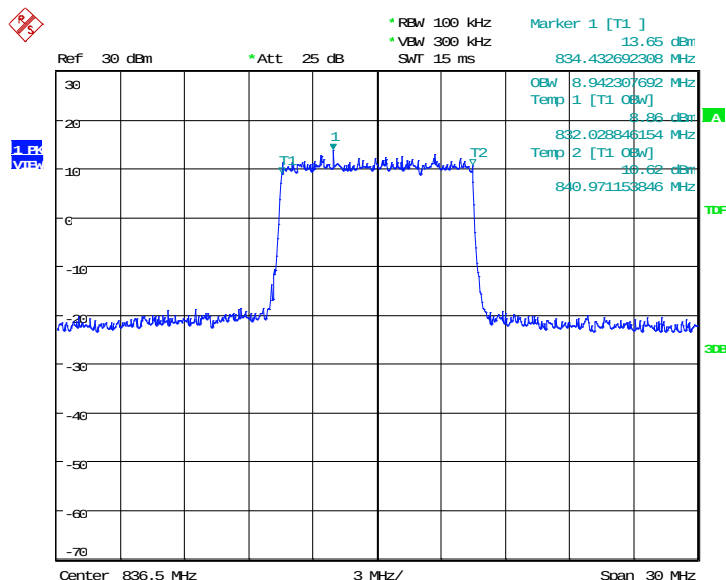


Date: 6.DEC.2019 06:02:38

LTE band 26(824MHz-849MHz), 10MHz (99% BW)

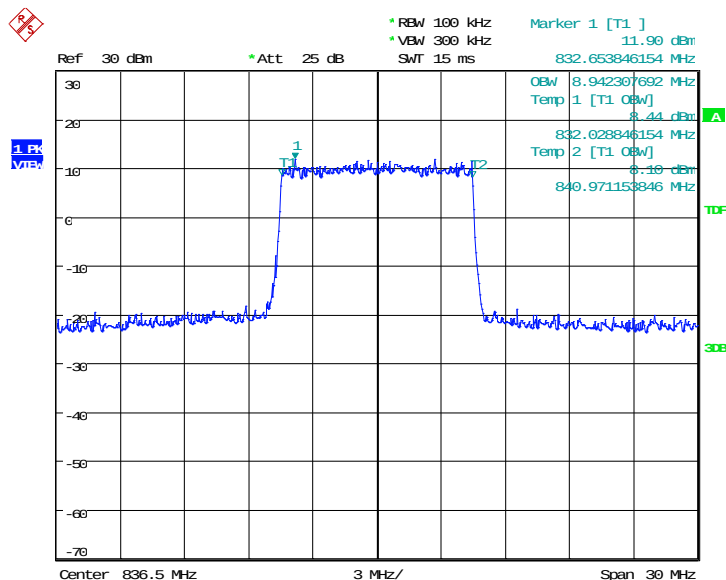
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	8942.31	8942.31	8942.31

LTE band 26(824MHz-849MHz), 10MHz Bandwidth, QPSK (99% BW)



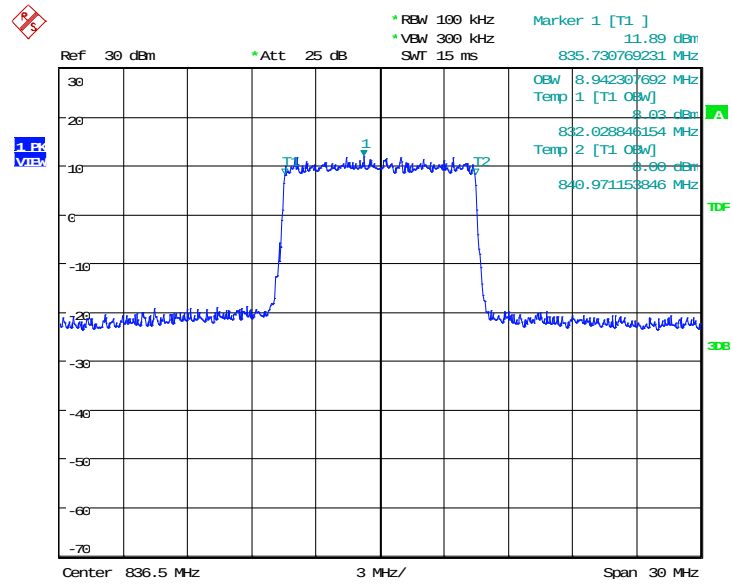
Date: 4.DEC.2019 13:52:43

LTE band 26(824MHz-849MHz), 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 13:52:57

LTE band 26(824MHz-849MHz), 10MHz Bandwidth, 64QAM (99% BW)

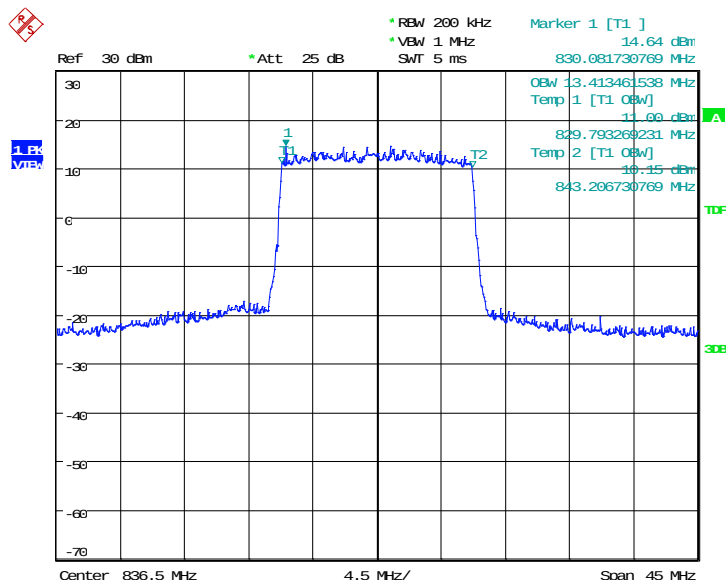


Date: 6.DEC.2019 06:05:21

LTE band 26(824MHz-849MHz), 15MHz (99% BW)

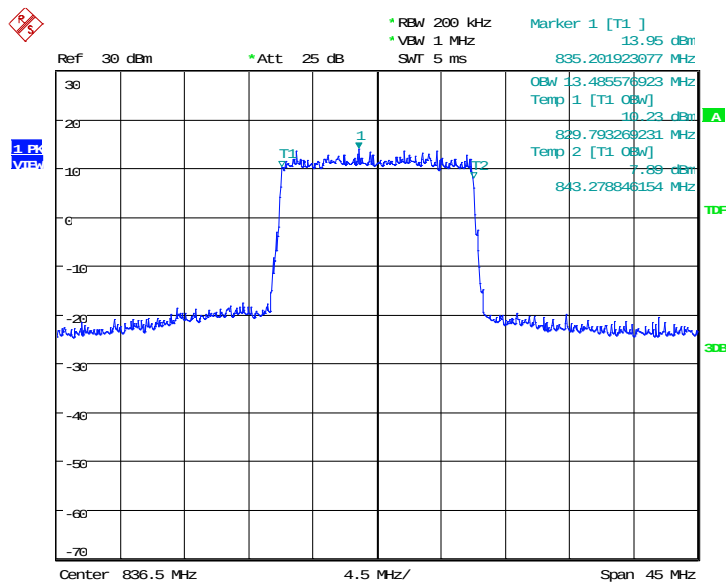
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	13413.46	13485.58	13485.58

LTE band 26(824MHz-849MHz), 15MHz Bandwidth, QPSK (99% BW)



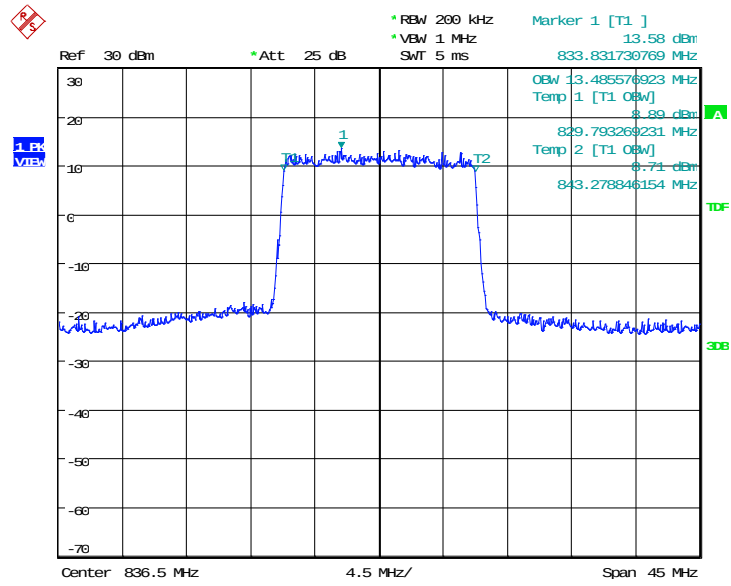
Date: 4.DEC.2019 13:57:01

LTE band 26(824MHz-849MHz), 15MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 13:57:15

LTE band 26(824MHz-849MHz), 15MHz Bandwidth, 64QAM (99% BW)



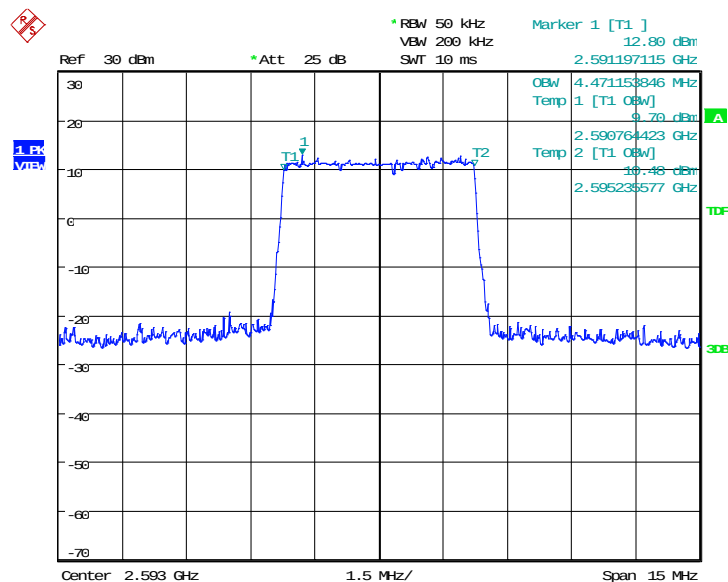
Date: 6.DEC.2019 06:08:04

Normal Power

LTE band 41, 5MHz (99% BW)

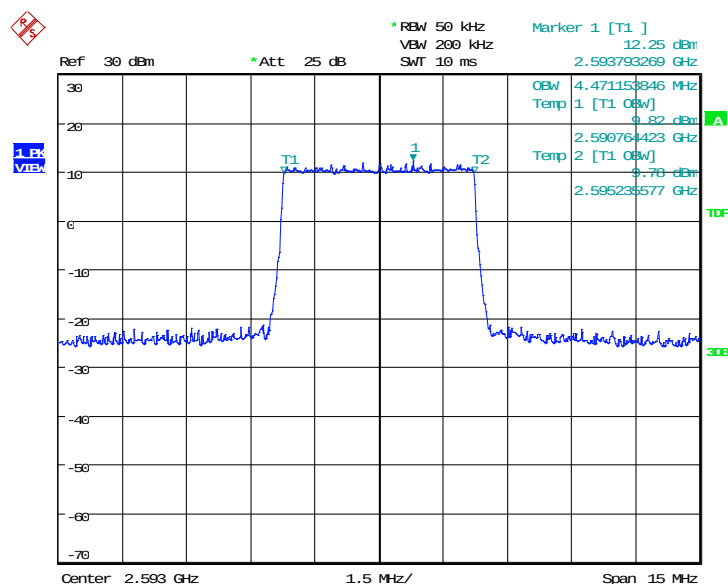
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	4471.15	4471.15	4471.15

LTE band 41, 5MHz Bandwidth, QPSK (99% BW)



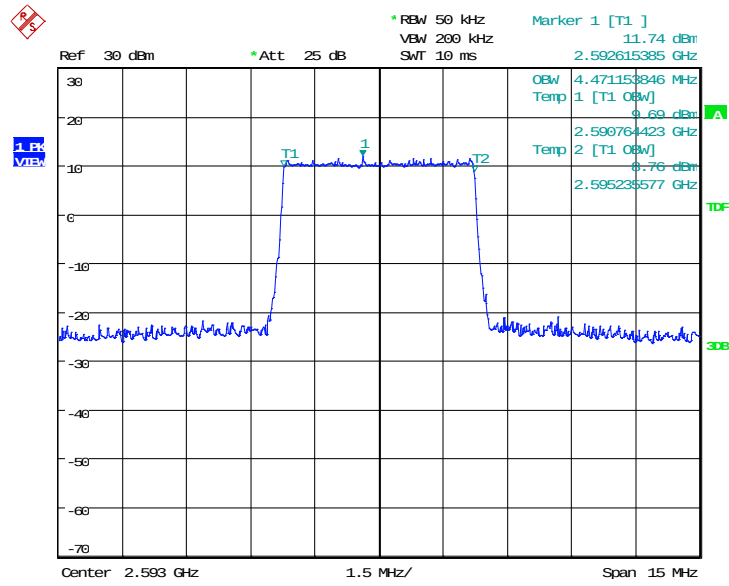
Date: 15.DEC.2019 07:47:39

LTE band 41, 5MHz Bandwidth, 16QAM (99% BW)



Date: 15.DEC.2019 07:50:09

LTE band 41, 5MHz Bandwidth,64QAM (99% BW)

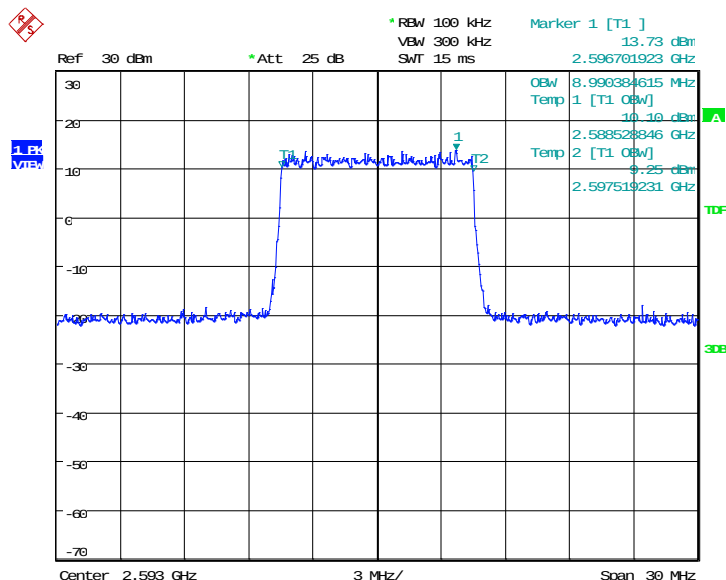


Date: 15.DEC.2019 07:50:34

LTE band 41, 10MHz (99% BW)

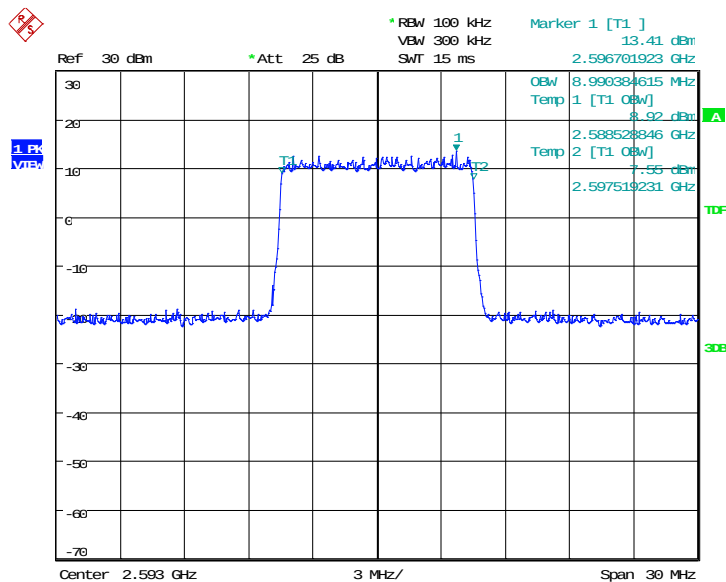
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	8990.38	8990.38	8990.38

LTE band 41, 10MHz Bandwidth, QPSK (99% BW)



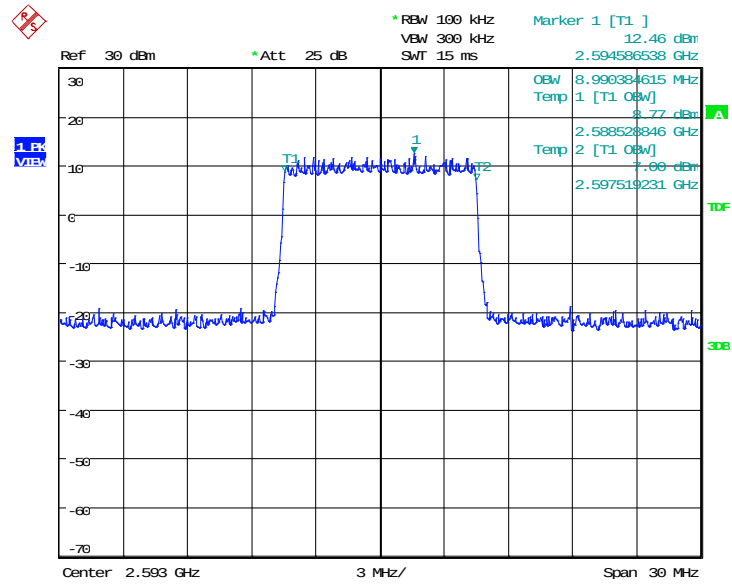
Date: 15.DEC.2019 07:52:03

LTE band 41, 10MHz Bandwidth, 16QAM (99% BW)



Date: 15.DEC.2019 07:54:04

LTE band 41, 10MHz Bandwidth, 64QAM (99% BW)

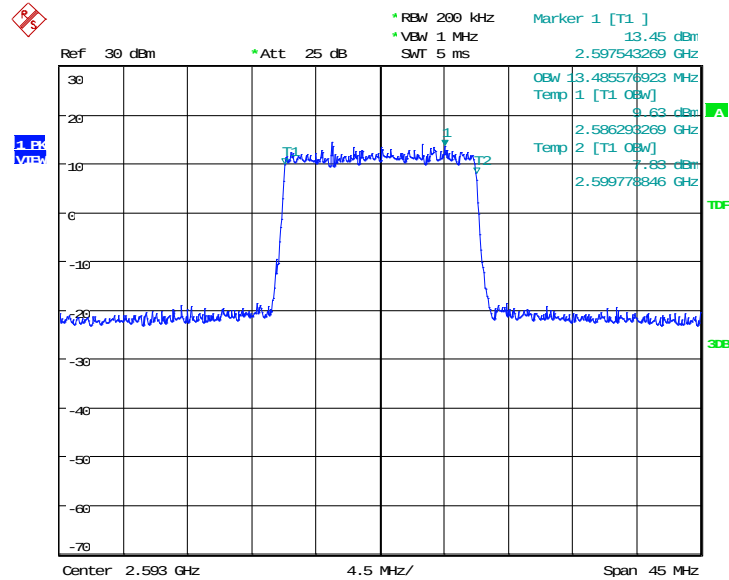


Date: 15.DEC.2019 07:54:19

LTE band 41, 15MHz (99% BW)

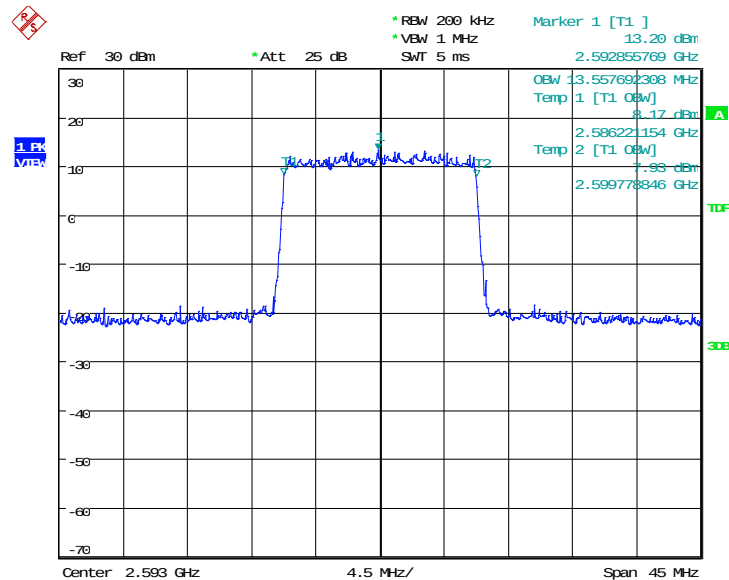
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	13485.58	13557.69	13485.58

LTE band 41, 15MHz Bandwidth, QPSK (99% BW)



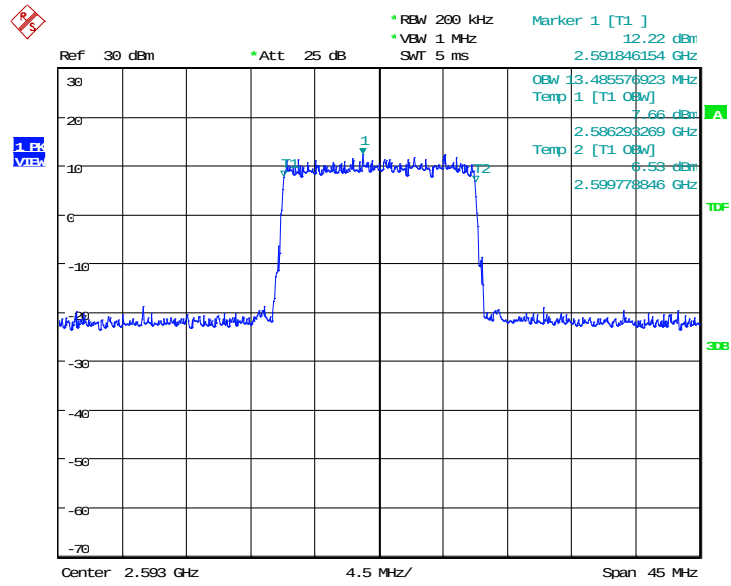
Date: 15.DEC.2019 07:57:05

LTE band 41, 15MHz Bandwidth, 16QAM (99% BW)



Date: 15.DEC.2019 08:00:41

LTE band 41, 15MHz Bandwidth, 64QAM (99% BW)

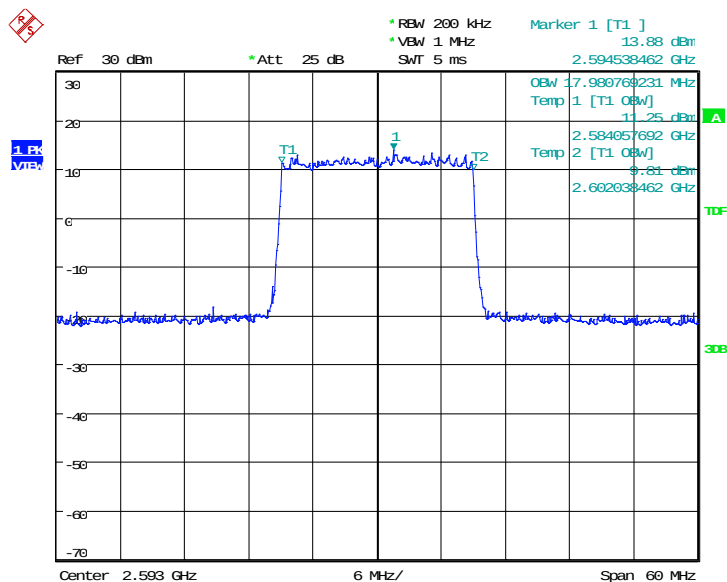


Date: 15.DEC.2019 07:59:46

LTE band 41, 20MHz (99% BW)

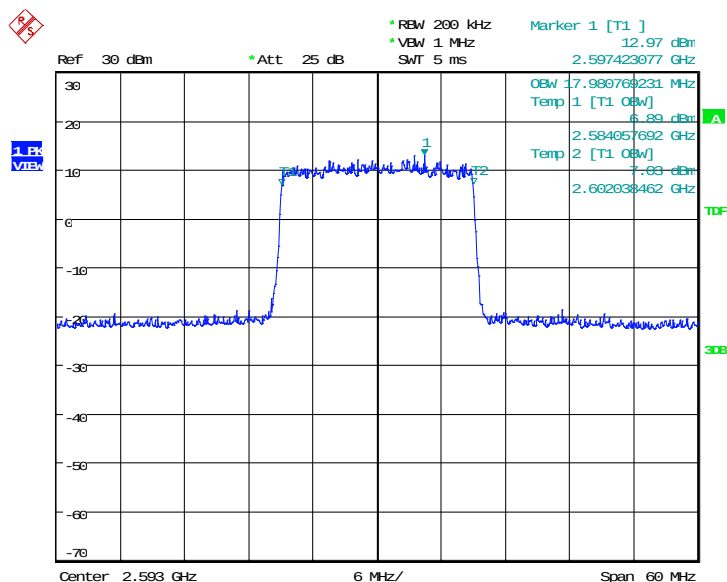
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	17980.77	17980.77	17884.62

LTE band 41, 20MHz Bandwidth, QPSK (99% BW)



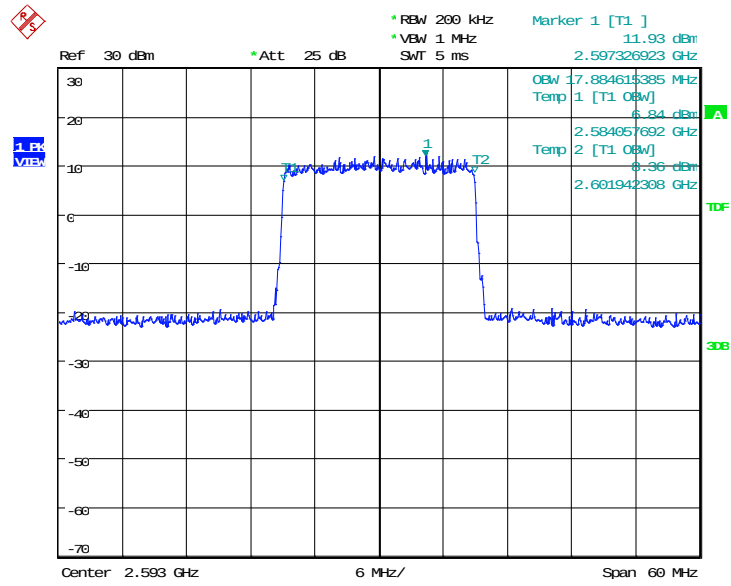
Date: 15.DEC.2019 08:01:47

LTE band 41, 20MHz Bandwidth, 16QAM (99% BW)



Date: 15.DEC.2019 08:04:34

LTE band 41, 20MHz Bandwidth, 64QAM (99% BW)



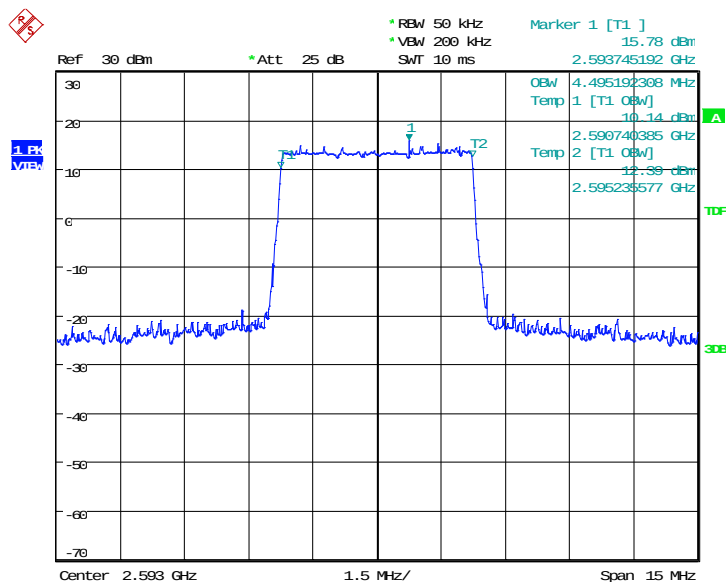
Date: 15.DEC.2019 08:04:15

HPUE

LTE band 41, 5MHz (99% BW)

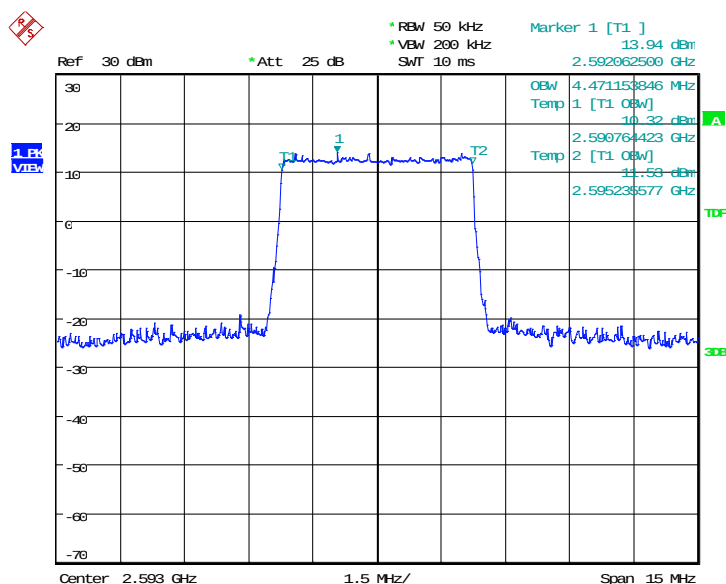
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	4495.19	4471.15	4471.15

LTE band 41, 5MHz Bandwidth, QPSK (99% BW)



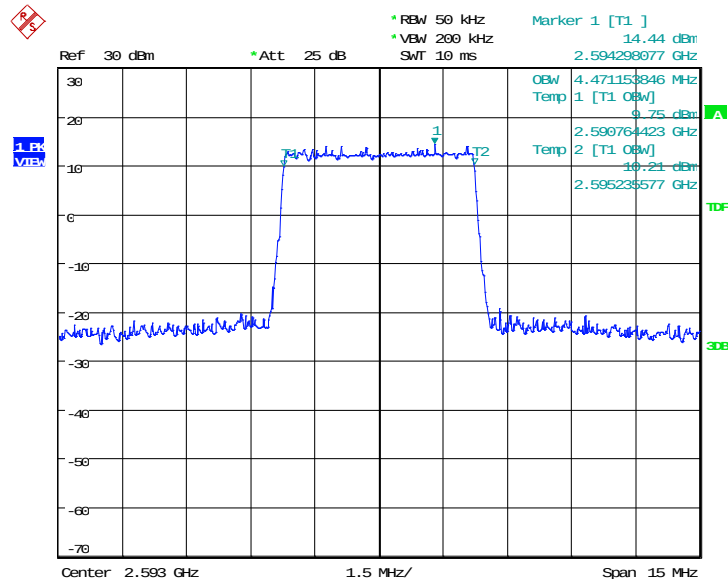
Date: 4.DEC.2019 12:49:21

LTE band 41, 5MHz Bandwidth,16QAM (99% BW)



Date: 4.DEC.2019 12:49:35

LTE band 41, 5MHz Bandwidth,64QAM (99% BW)

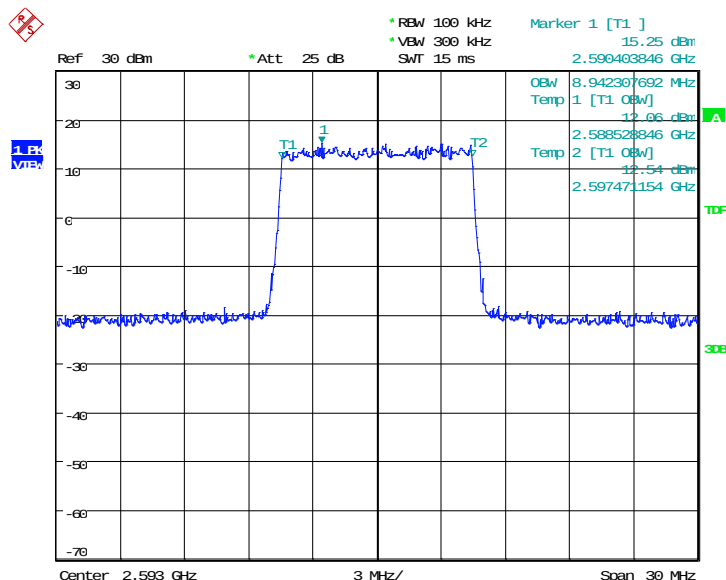


Date: 6.DEC.2019 05:46:06

LTE band 41, 10MHz (99% BW)

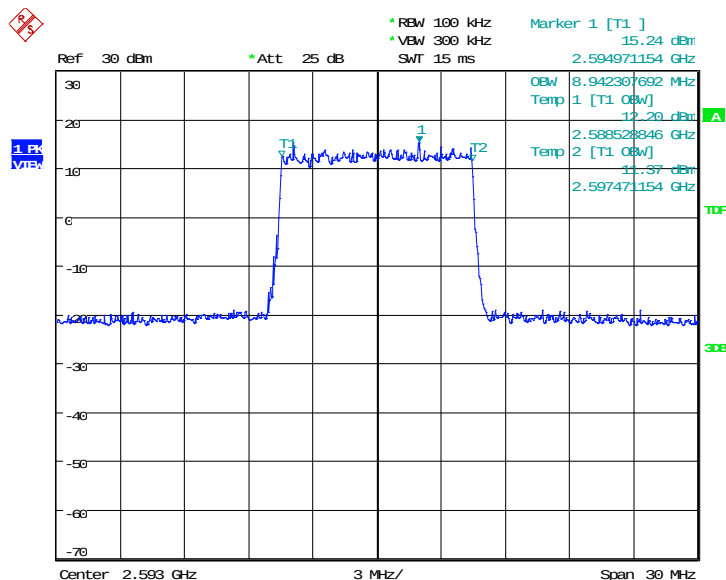
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	8942.31	8942.31	8942.31

LTE band 41, 10MHz Bandwidth, QPSK (99% BW)



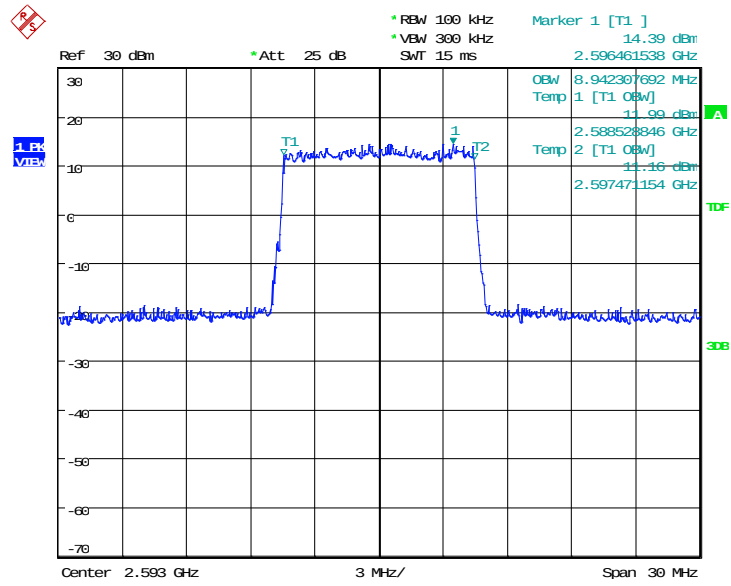
Date: 4.DEC.2019 12:53:42

LTE band 41, 10MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 12:53:56

LTE band 41, 10MHz Bandwidth, 64QAM (99% BW)

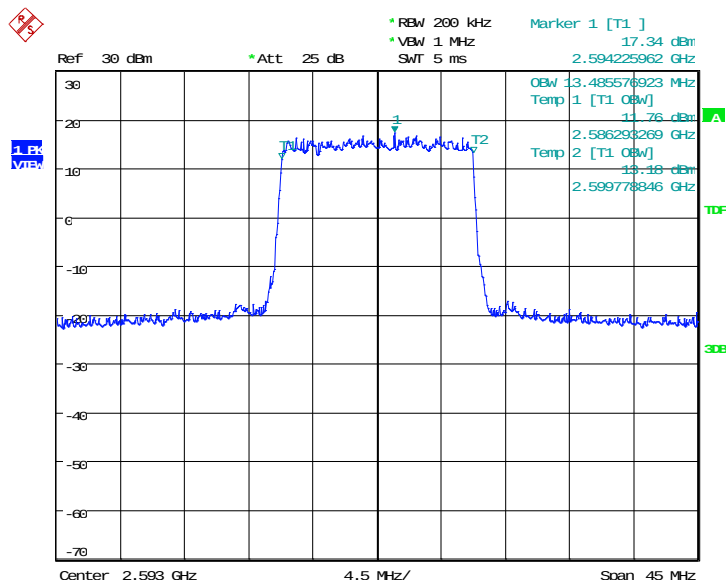


Date: 6.DEC.2019 05:48:49

LTE band 41, 15MHz (99% BW)

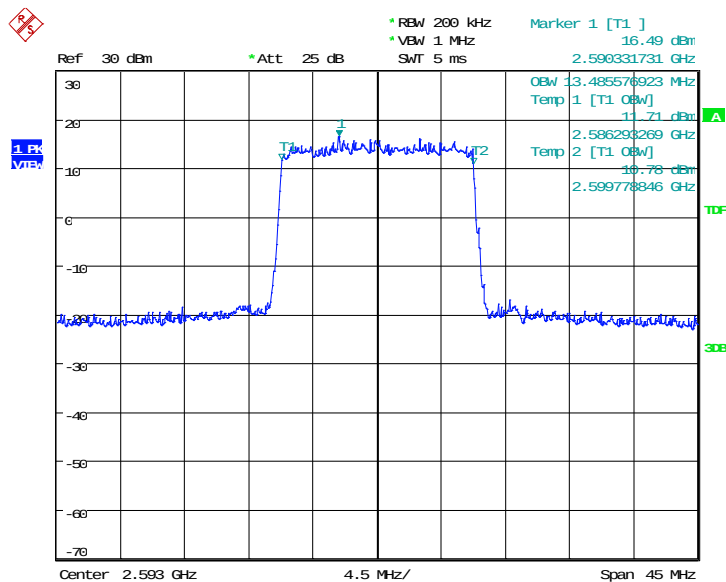
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

LTE band 41, 15MHz Bandwidth, QPSK (99% BW)



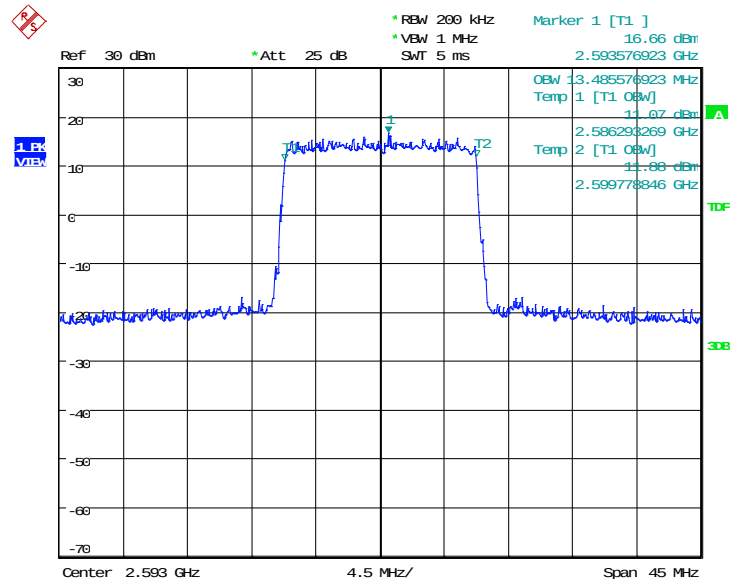
Date: 4.DEC.2019 12:58:01

LTE band 41, 15MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 12:58:14

LTE band 41, 15MHz Bandwidth, 64QAM (99% BW)

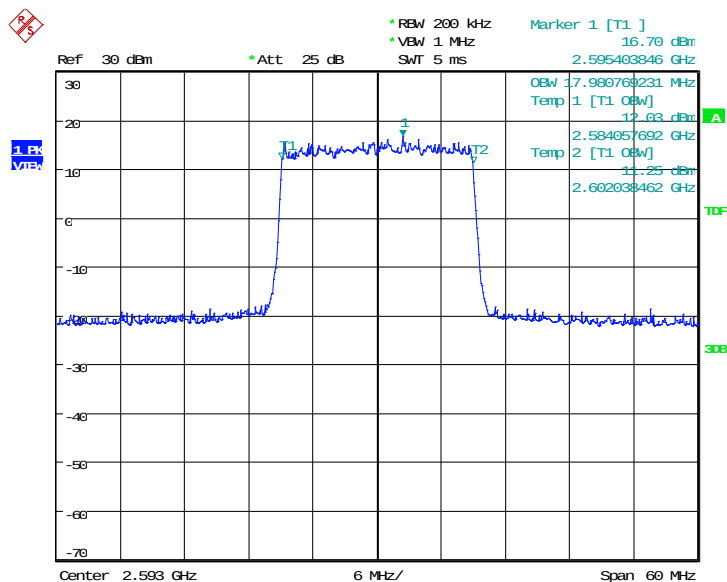


Date: 6.DEC.2019 05:51:34

LTE band 41, 20MHz (99% BW)

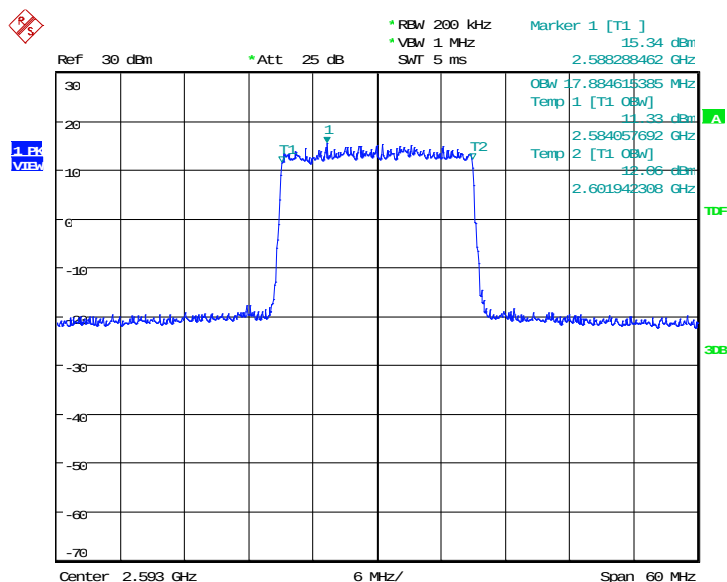
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	17980.77	17884.62	17884.62

LTE band 41, 20MHz Bandwidth, QPSK (99% BW)



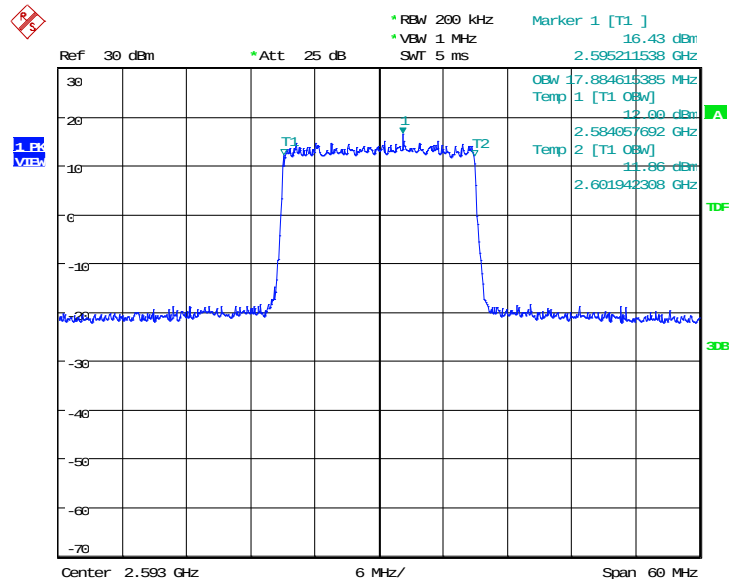
Date: 4.DEC.2019 13:02:22

LTE band 41, 20MHz Bandwidth, 16QAM (99% BW)



Date: 4.DEC.2019 13:02:36

LTE band 41, 20MHz Bandwidth, 64QAM (99% BW)

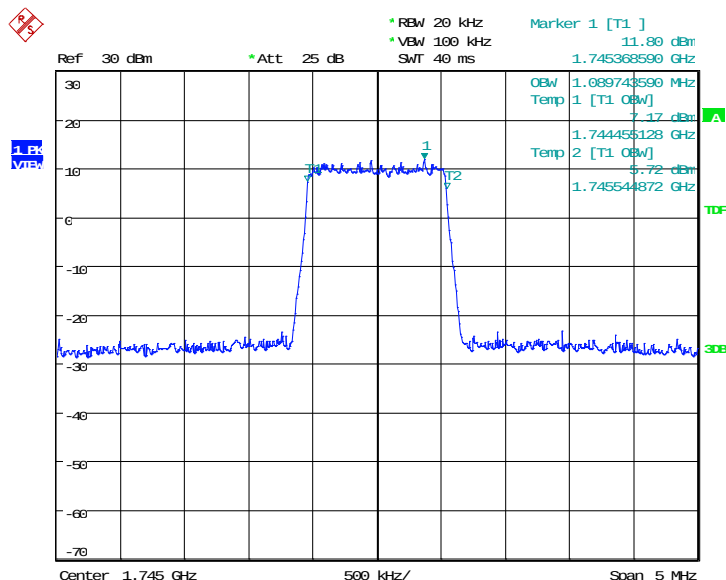


Date: 6.DEC.2019 05:54:20

LTE band 66, 1.4MHz (99% BW)

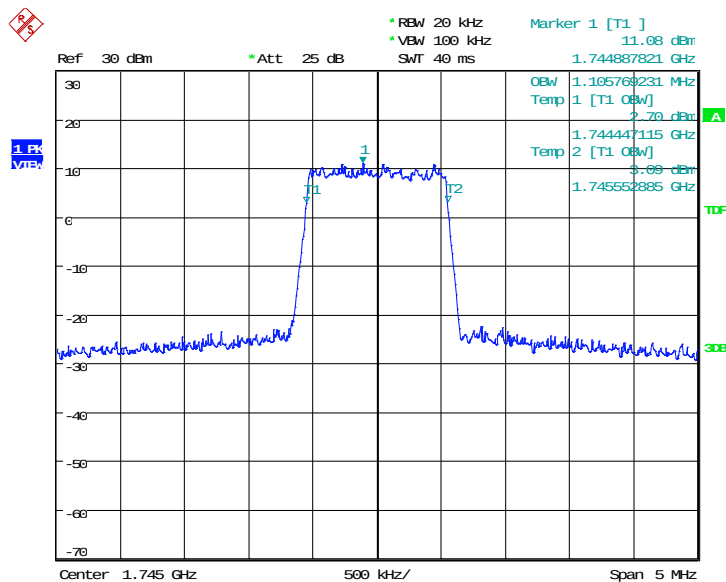
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1745.0	QPSK	16QAM	64QAM
	1089.74	1105.77	1089.74

LTE band 66, 1.4MHz Bandwidth, QPSK (99% BW)



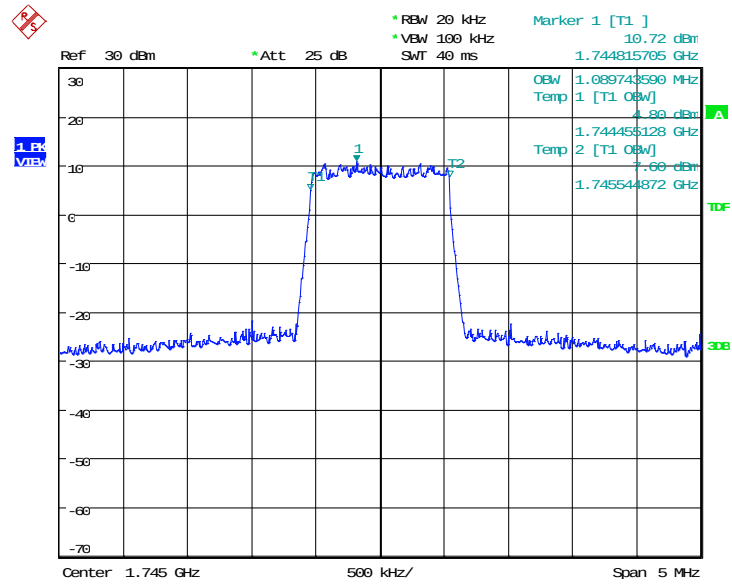
Date: 5.DEC.2019 11:20:20

LTE band 66, 1.4MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 11:20:34

LTE band 66, 1.4MHz Bandwidth, 64QAM (99% BW)

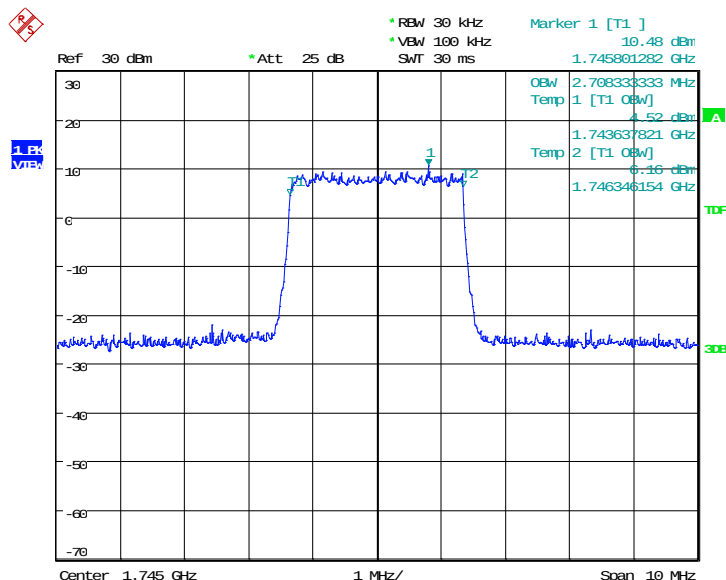


Date: 6.DEC.2019 06:22:20

LTE band 66, 3MHz (99% BW)

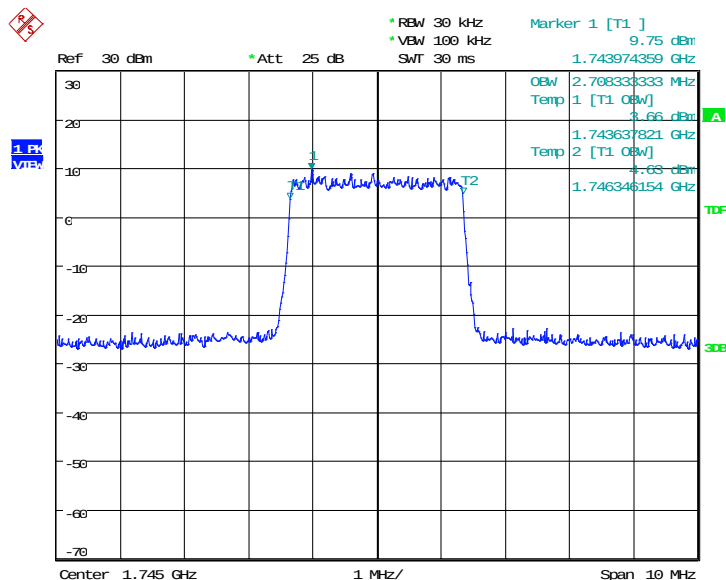
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1745.0	QPSK	16QAM	64QAM
	2708.33	2708.33	2692.31

LTE band 66, 3MHz Bandwidth, QPSK (99% BW)



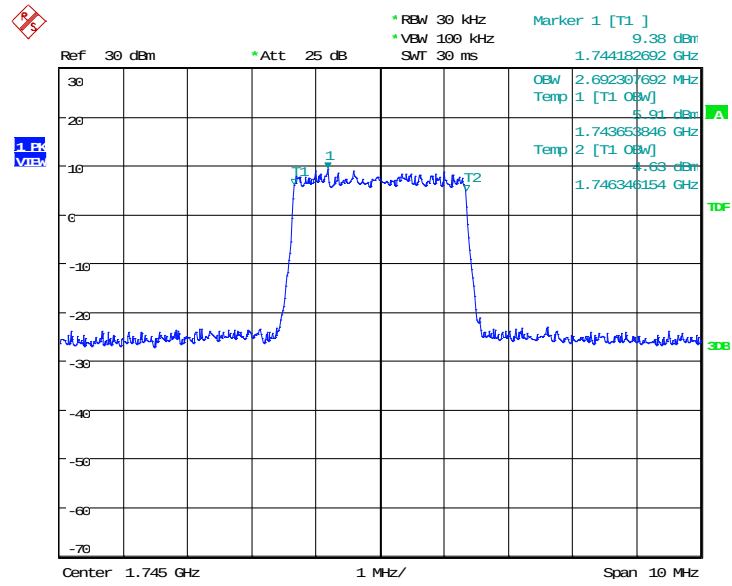
Date: 5.DEC.2019 11:24:41

LTE band 66, 3MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 11:24:55

LTE band 66, 3MHz Bandwidth, 64QAM (99% BW)

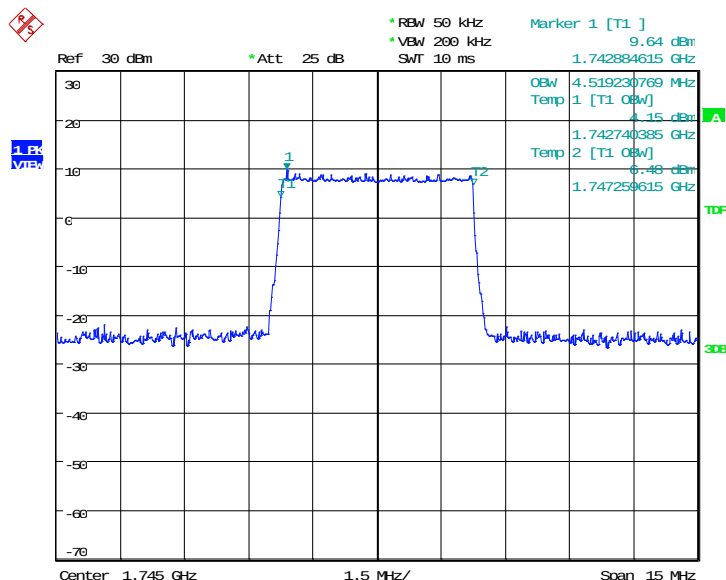


Date: 6.DEC.2019 06:25:03

LTE band 66, 5MHz (99% BW)

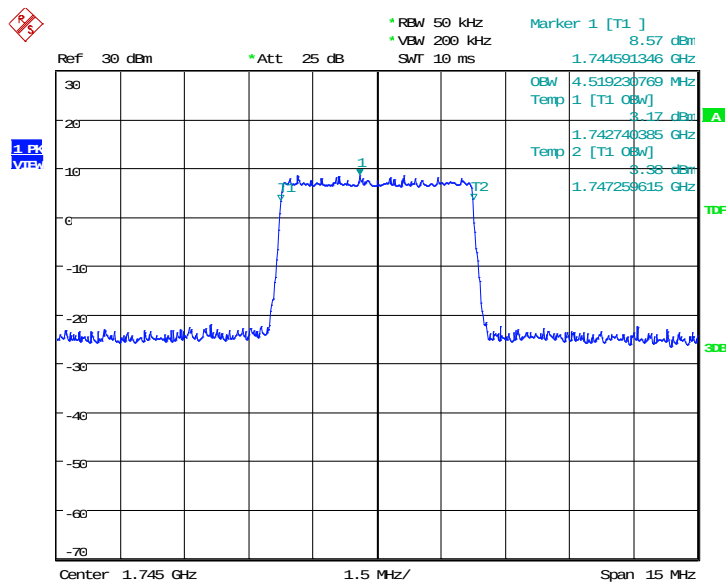
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1745.0	QPSK	16QAM	64QAM
	4519.23	4519.23	4519.23

LTE band 66, 5MHz Bandwidth, QPSK (99% BW)



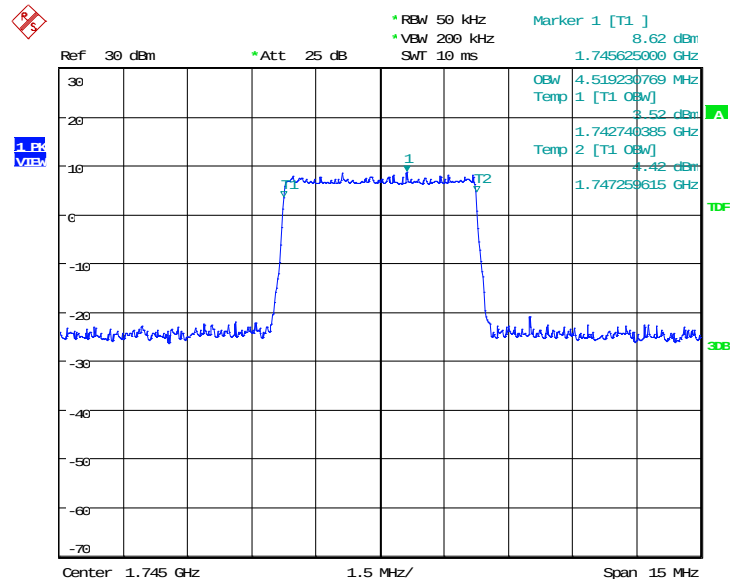
Date: 5.DEC.2019 11:28:59

LTE band 66, 5MHz Bandwidth,16QAM (99% BW)



Date: 5.DEC.2019 11:29:13

LTE band 66, 5MHz Bandwidth,64QAM (99% BW)

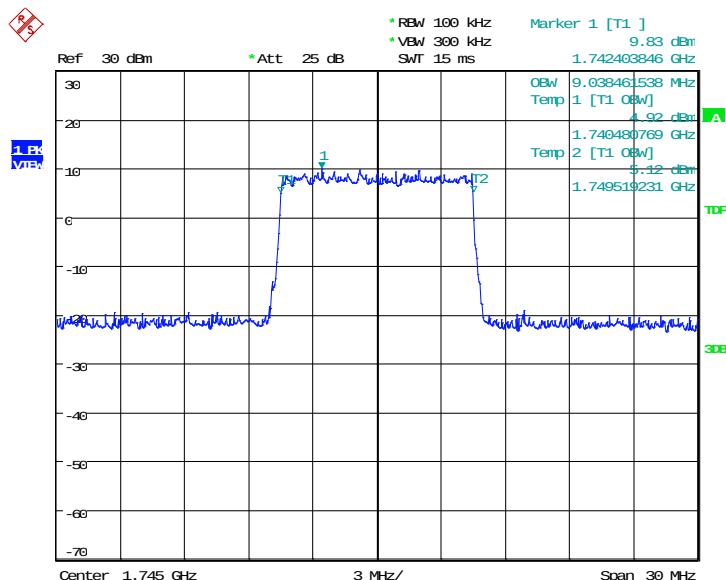


Date: 6.DEC.2019 06:27:48

LTE band 66, 10MHz (99% BW)

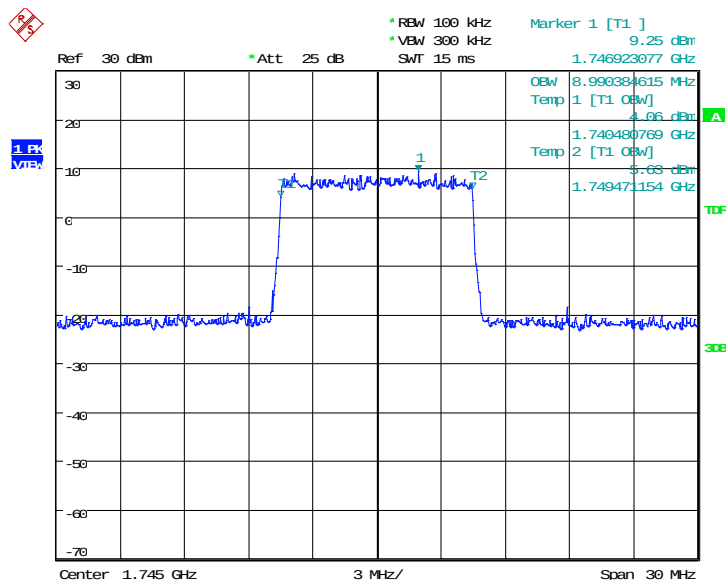
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1745.0	QPSK	16QAM	64QAM
	9038.46	8990.38	9038.46

LTE band 66, 10MHz Bandwidth, QPSK (99% BW)



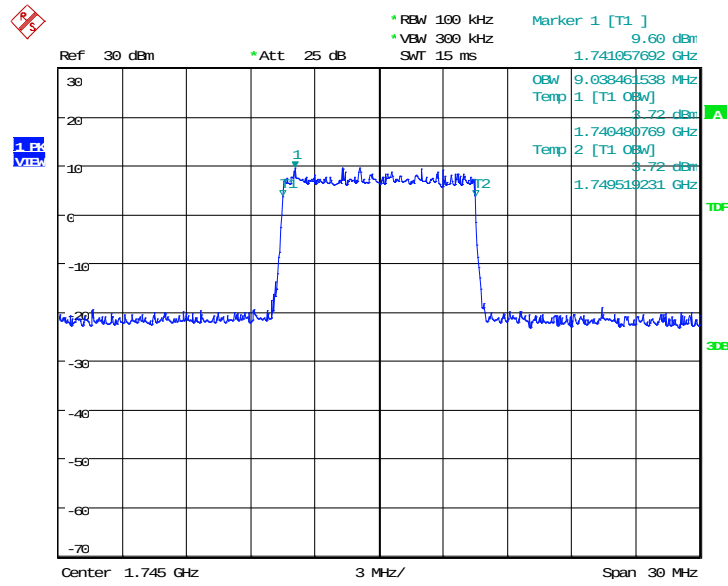
Date: 5.DEC.2019 11:33:20

LTE band 66, 10MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 11:33:33

LTE band 66, 10MHz Bandwidth, 64QAM (99% BW)

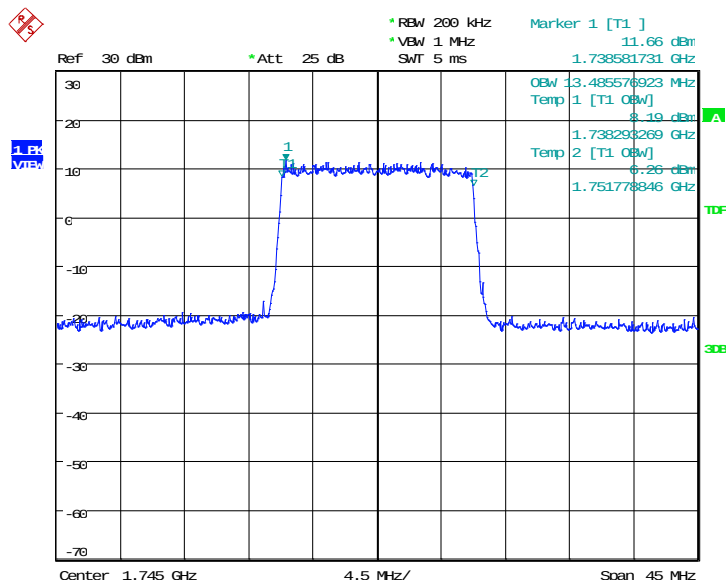


Date: 6.DEC.2019 06:30:33

LTE band 66, 15MHz (99% BW)

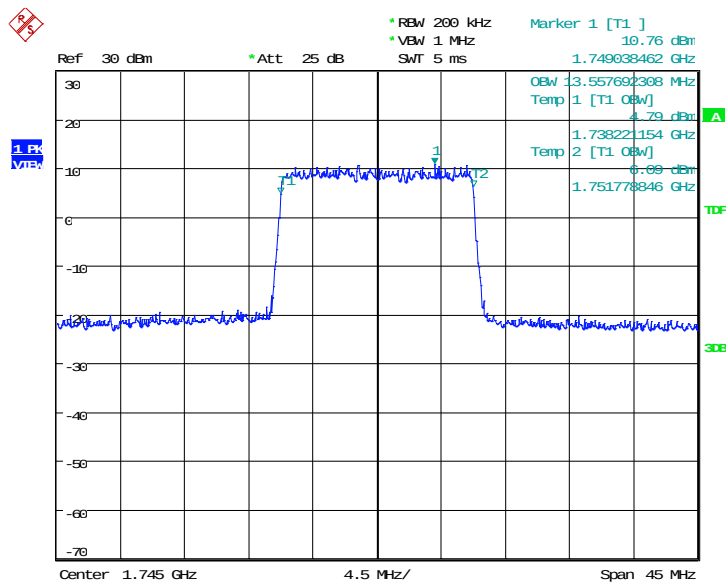
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1745.0	QPSK	16QAM	64QAM
	13485.58	13557.69	13485.58

LTE band 66, 15MHz Bandwidth, QPSK (99% BW)



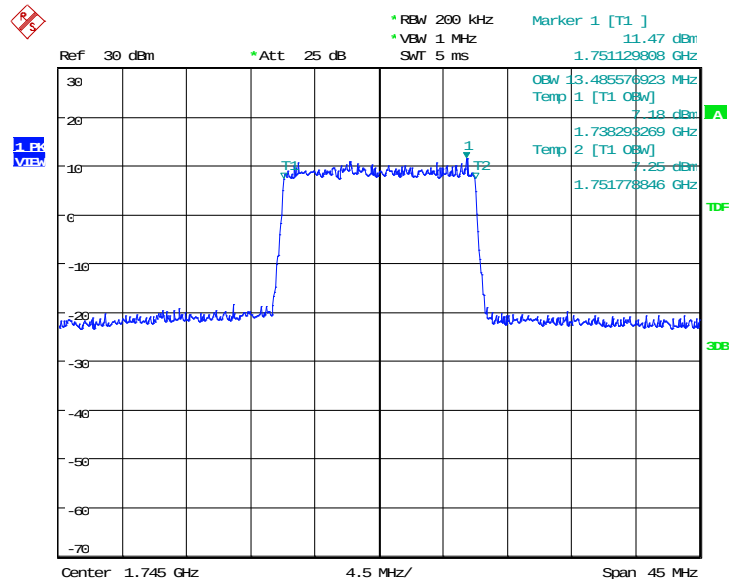
Date: 5.DEC.2019 11:37:40

LTE band 66, 15MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 11:37:54

LTE band 66, 15MHz Bandwidth, 64QAM (99% BW)

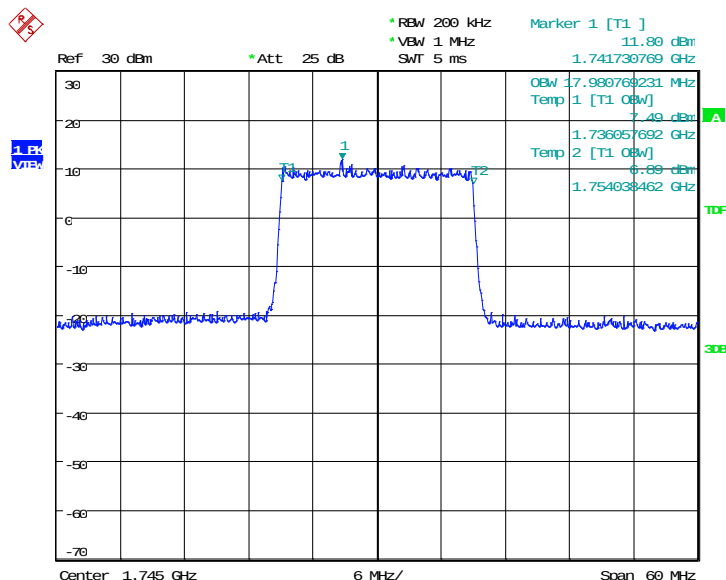


Date: 6.DEC.2019 06:33:16

LTE band 66, 20MHz (99% BW)

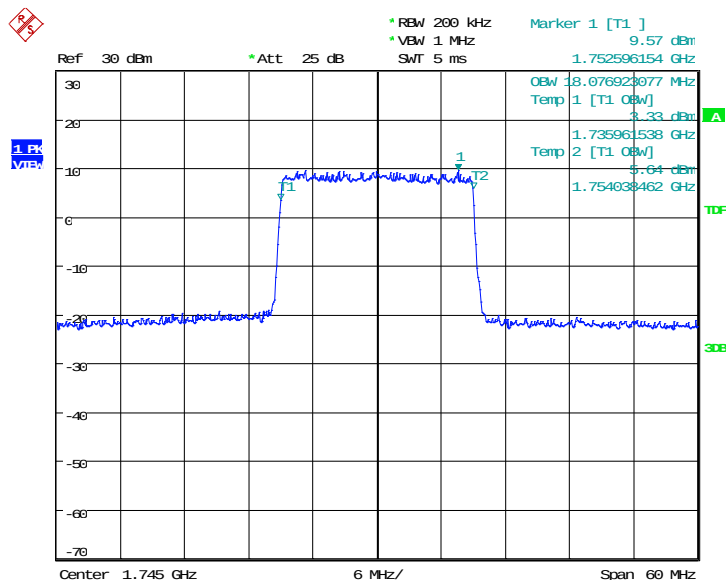
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
1745.0	QPSK	16QAM	64QAM
	17980.77	18076.92	17980.77

LTE band 66, 20MHz Bandwidth, QPSK (99% BW)



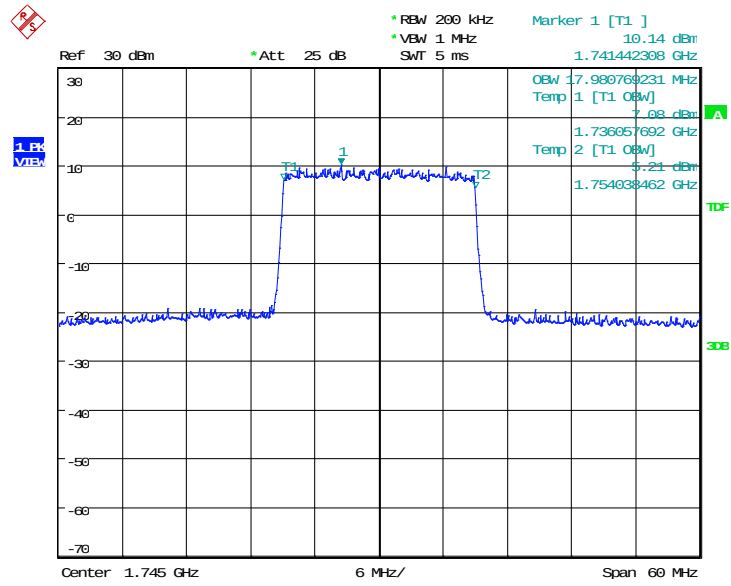
Date: 5.DEC.2019 11:42:30

LTE band 66, 20MHz Bandwidth, 16QAM (99% BW)



Date: 5.DEC.2019 11:42:44

LTE band 66, 20MHz Bandwidth, 64QAM (99% BW)

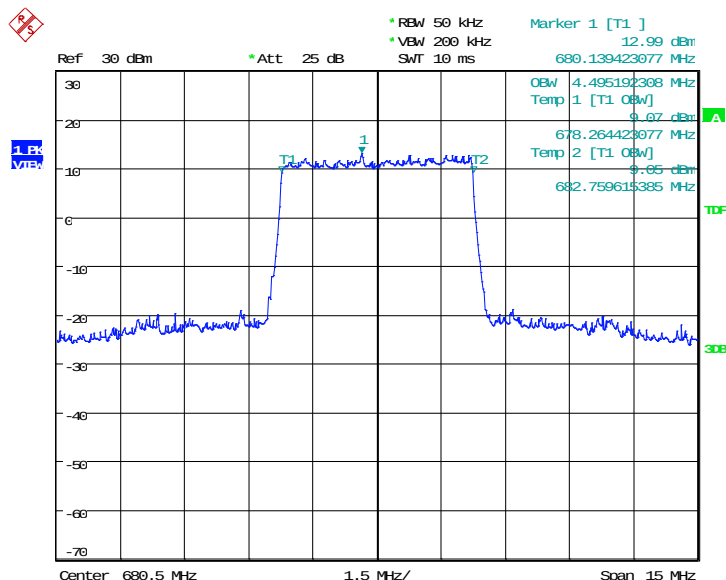


Date: 6.DEC.2019 06:35:59

LTE band 71, 5MHz (99% BW)

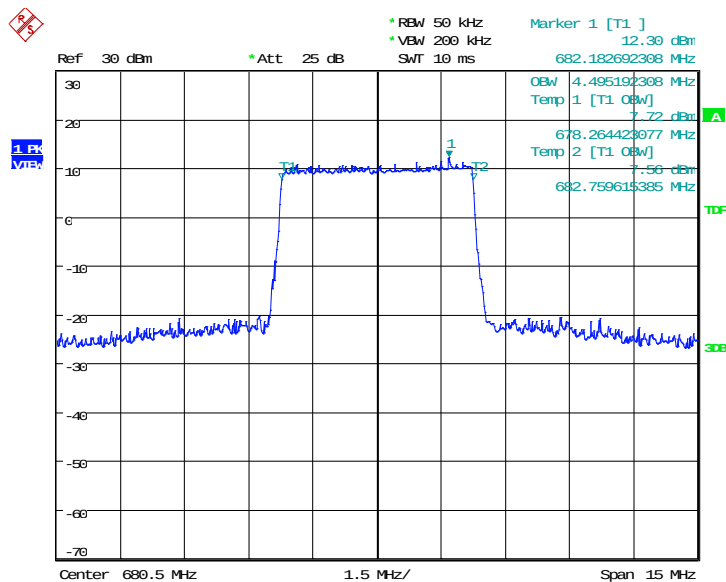
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
680.5	QPSK	16QAM	64QAM
	4495.19	4495.19	4495.19

LTE band 71, 5MHz Bandwidth, QPSK (99% BW)



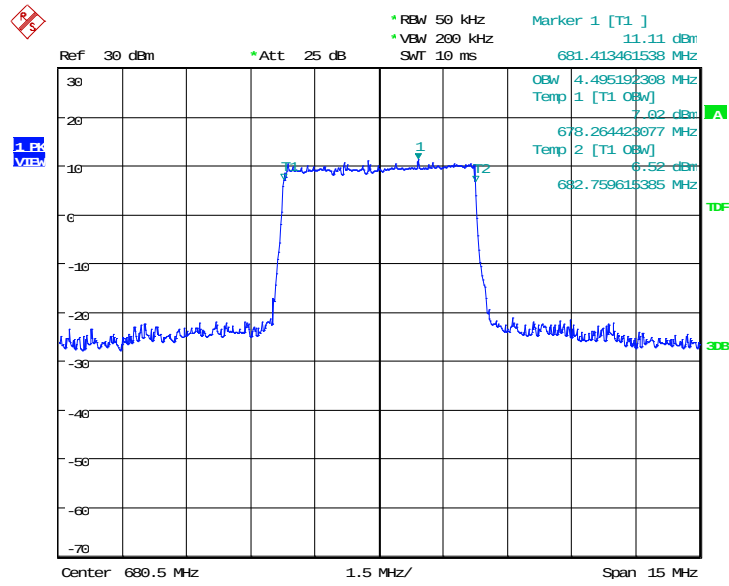
Date: 15.DEC.2019 09:59:27

LTE band 71, 5MHz Bandwidth,16QAM (99% BW)



Date: 15.DEC.2019 10:01:35

LTE band 71, 5MHz Bandwidth,64QAM (99% BW)

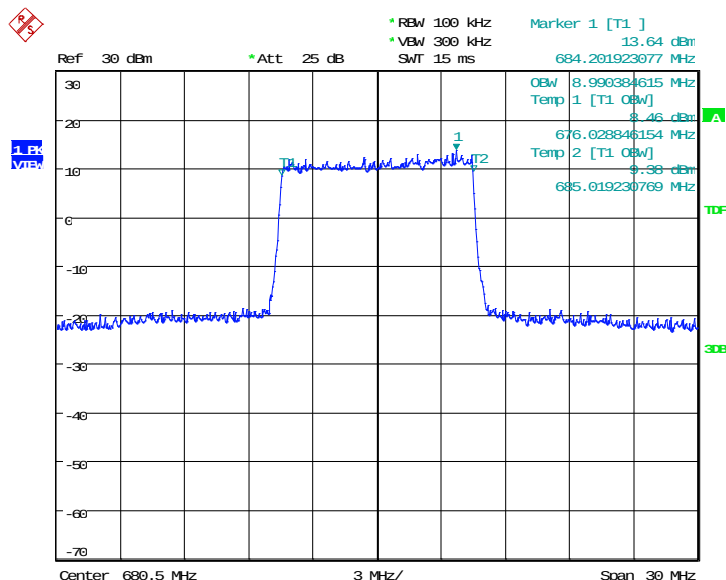


Date: 15.DEC.2019 10:01:57

LTE band 71, 10MHz (99% BW)

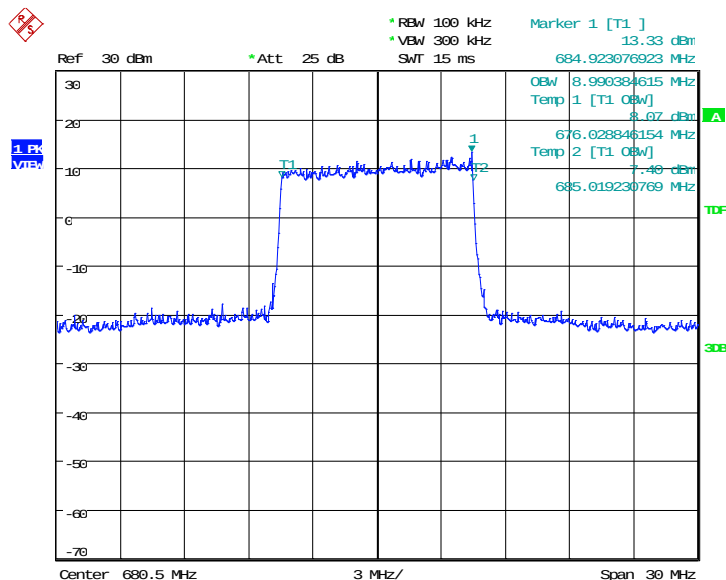
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
680.5	QPSK	16QAM	64QAM
	8990.38	8990.38	9038.46

LTE band 71, 10MHz Bandwidth, QPSK (99% BW)



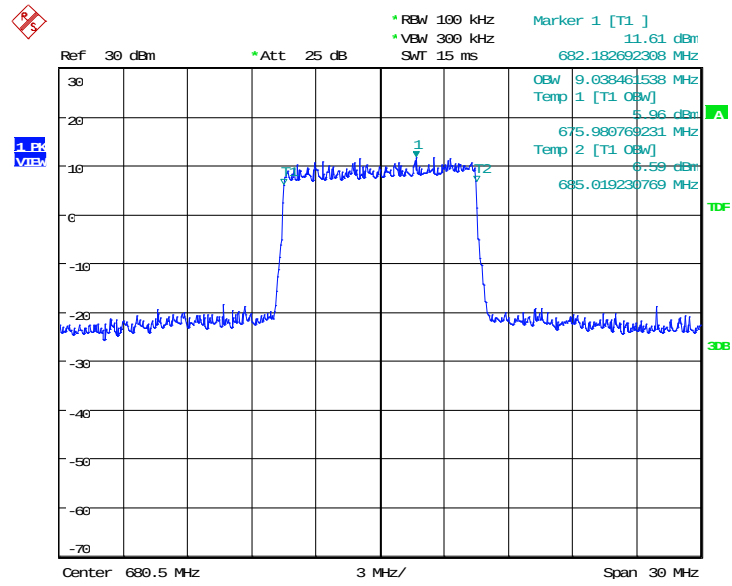
Date: 15.DEC.2019 10:03:03

LTE band 71, 10MHz Bandwidth, 16QAM (99% BW)



Date: 15.DEC.2019 10:05:28

LTE band 71, 10MHz Bandwidth, 64QAM (99% BW)

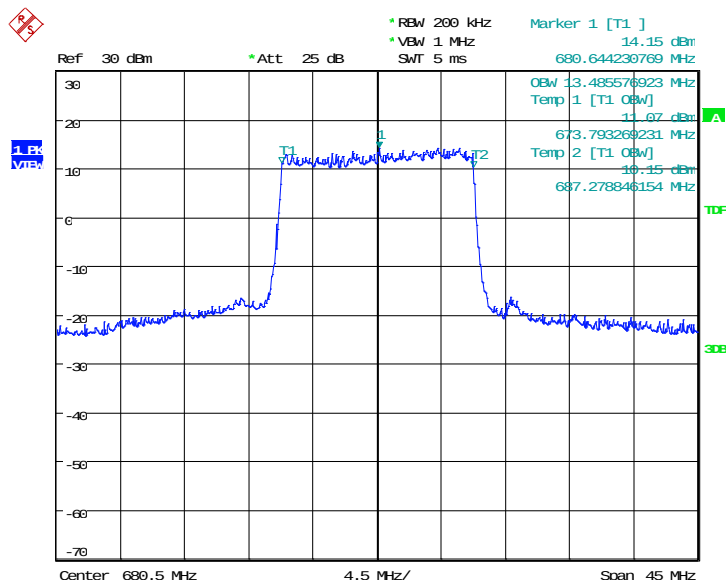


Date: 15.DEC.2019 10:05:02

LTE band 71, 15MHz (99% BW)

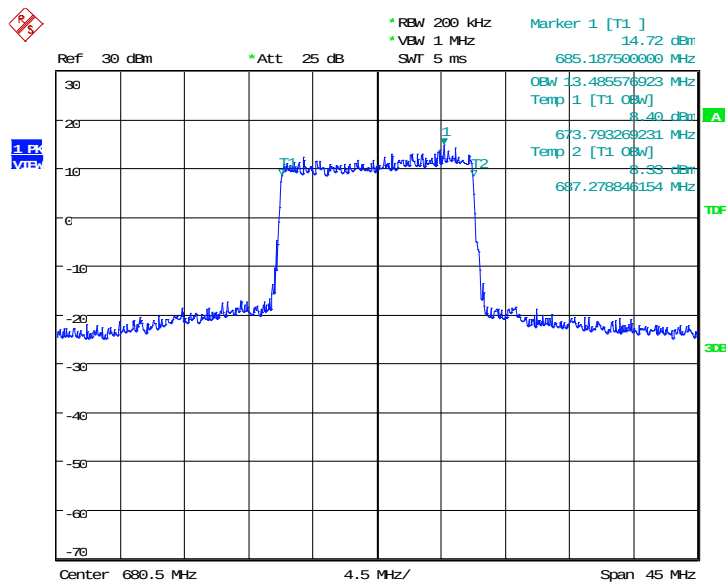
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
680.5	QPSK	16QAM	64QAM
	13485.58	13485.58	13485.58

LTE band 71, 15MHz Bandwidth, QPSK (99% BW)



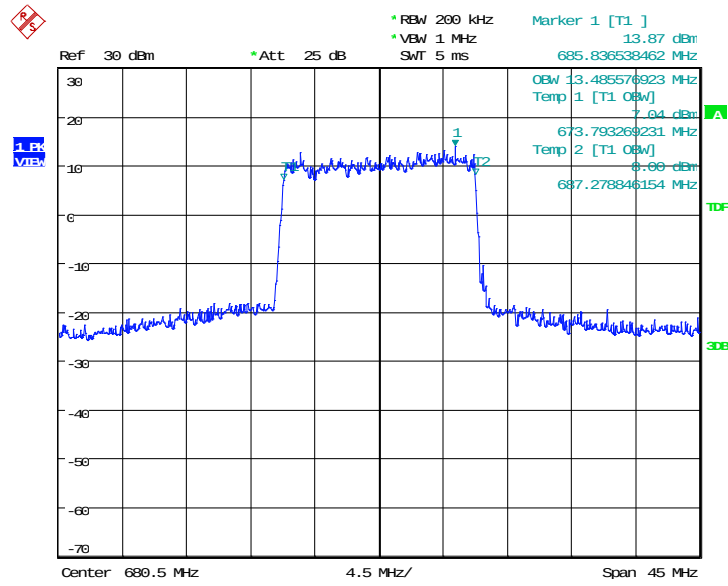
Date: 15.DEC.2019 10:06:32

LTE band 71, 15MHz Bandwidth, 16QAM (99% BW)



Date: 15.DEC.2019 10:08:32

LTE band 71, 15MHz Bandwidth, 64QAM (99% BW)

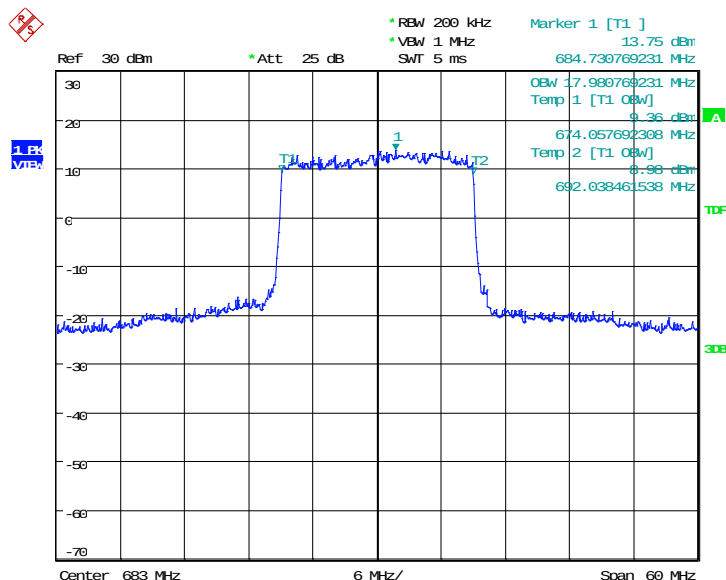


Date: 15.DEC.2019 10:08:48

LTE band 71, 20MHz (99% BW)

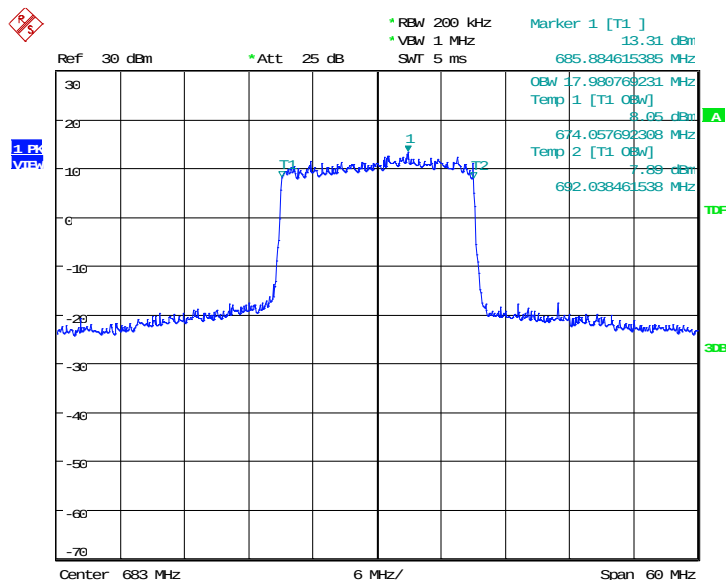
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
683.0	QPSK	16QAM	64QAM
	17980.77	17980.77	17980.77

LTE band 71, 20MHz Bandwidth, QPSK (99% BW)



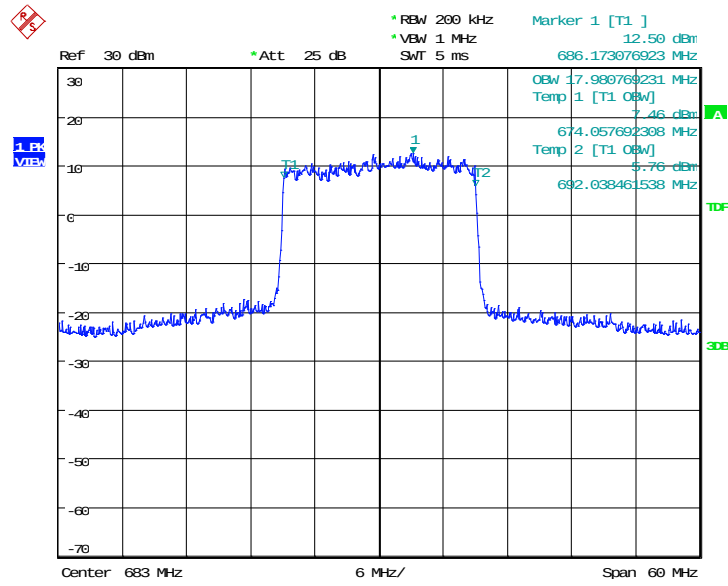
Date: 15.DEC.2019 10:27:21

LTE band 71, 20MHz Bandwidth, 16QAM (99% BW)



Date: 15.DEC.2019 10:29:25

LTE band 71, 20MHz Bandwidth, 64QAM (99% BW)

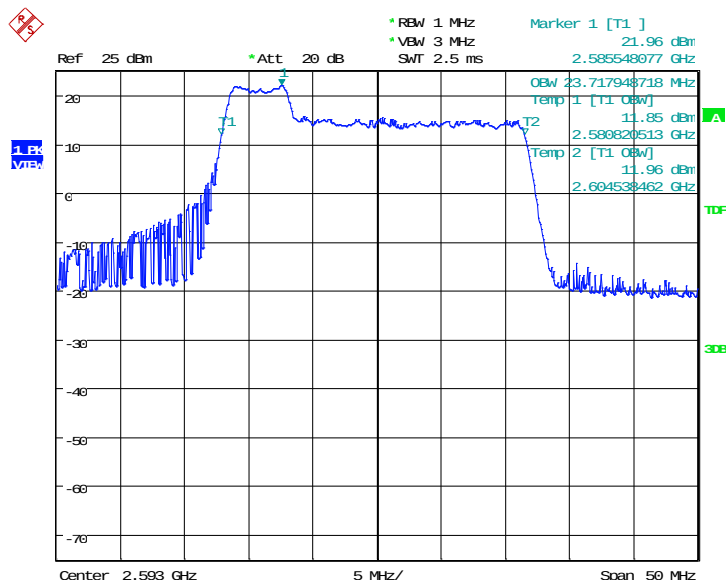


Date: 15.DEC.2019 10:29:52

LTE Band CA_41C, 5MHz+20MHz (99% BW)

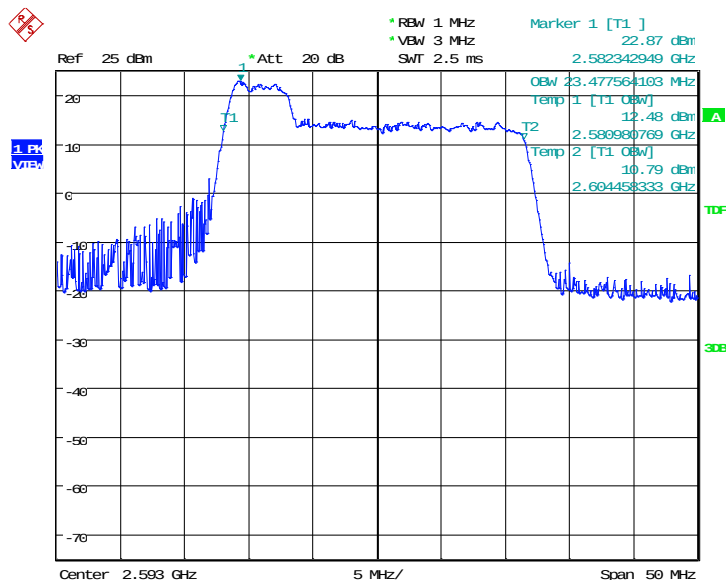
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	23717.95	23477.56	23477.56

LTE Band CA_41C, 5MHz+20MHz Bandwidth, QPSK (99% BW)



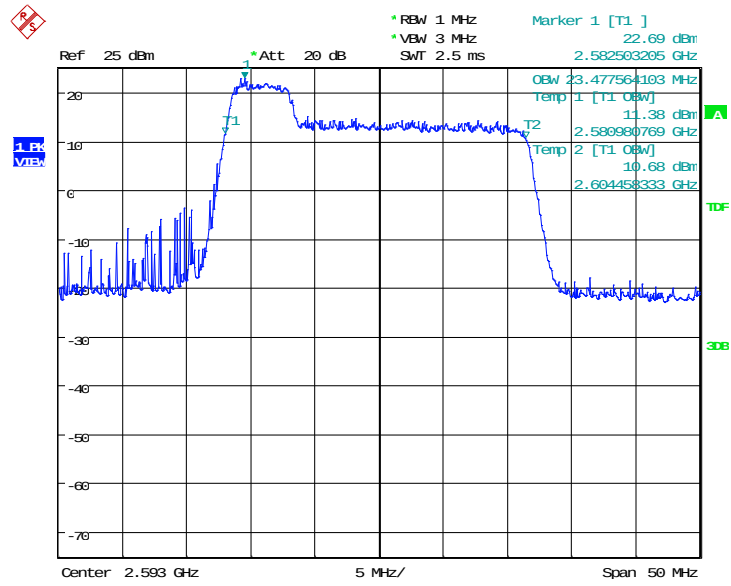
Date: 11. JUN. 2019 06:20:42

LTE Band CA_41C, 5MHz+20MHz Bandwidth, 16QAM (99% BW)



Date: 11. JUN. 2019 06:22:02

LTE Band CA_41C, 5MHz+20MHz Bandwidth, 64QAM (99% BW)

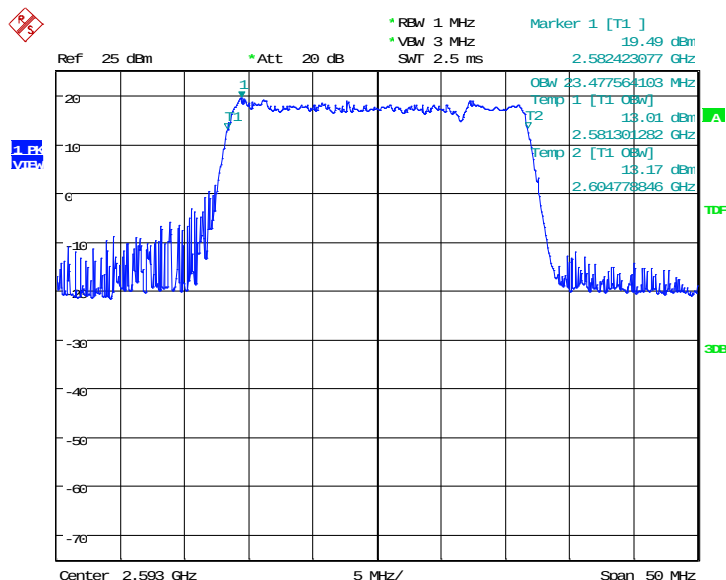


Date: 11.JUN.2019 06:22:19

LTE Band CA_41C, 20MHz+5MHz (99% BW)

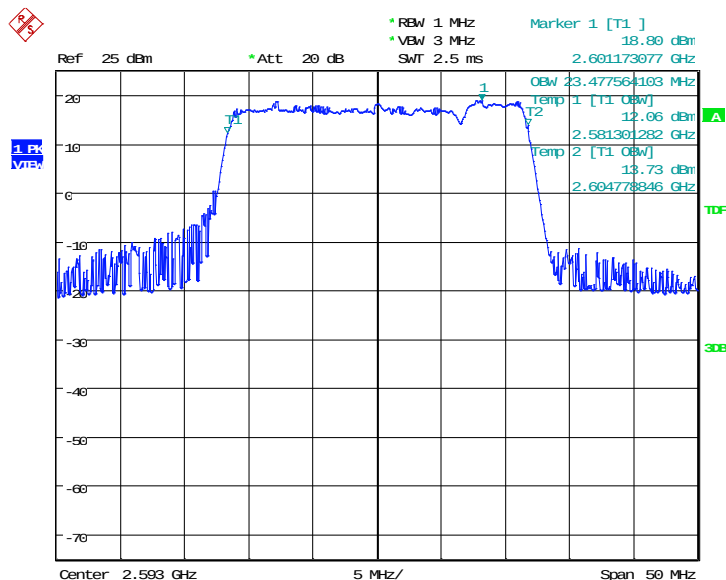
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	23477.56	23477.56	23397.44

LTE Band CA_41C, 20MHz+5MHz Bandwidth, QPSK (99% BW)



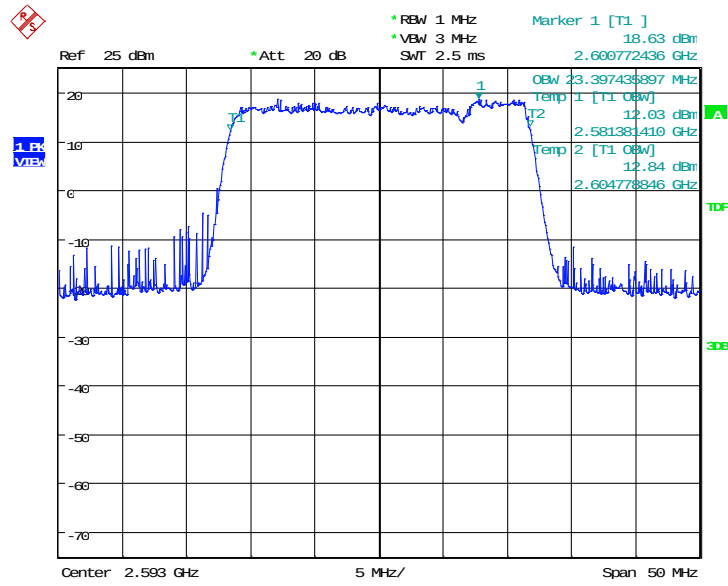
Date: 11. JUN. 2019 06:34:32

LTE Band CA_41C, 20MHz+5MHz Bandwidth, 16QAM (99% BW)



Date: 11. JUN. 2019 06:33:52

LTE Band CA_41C, 20MHz+5MHz Bandwidth, 64QAM (99% BW)

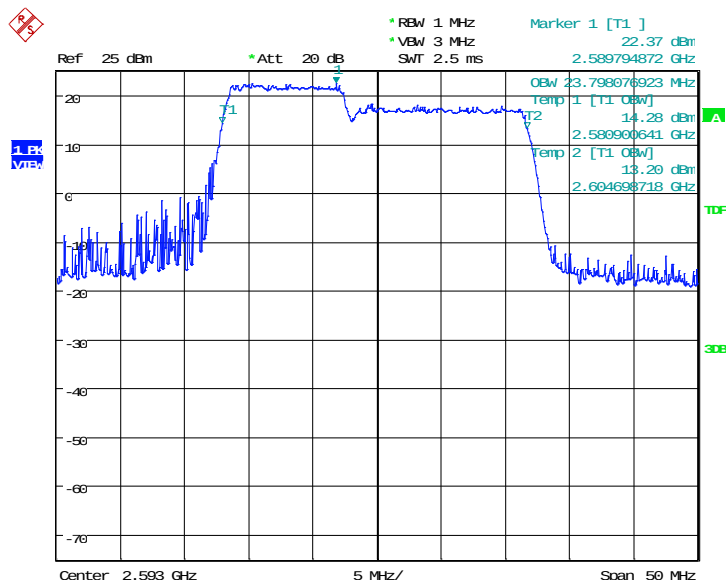


Date: 11.JUN.2019 06:33:10

LTE Band CA_41C, 10MHz+15MHz (99% BW)

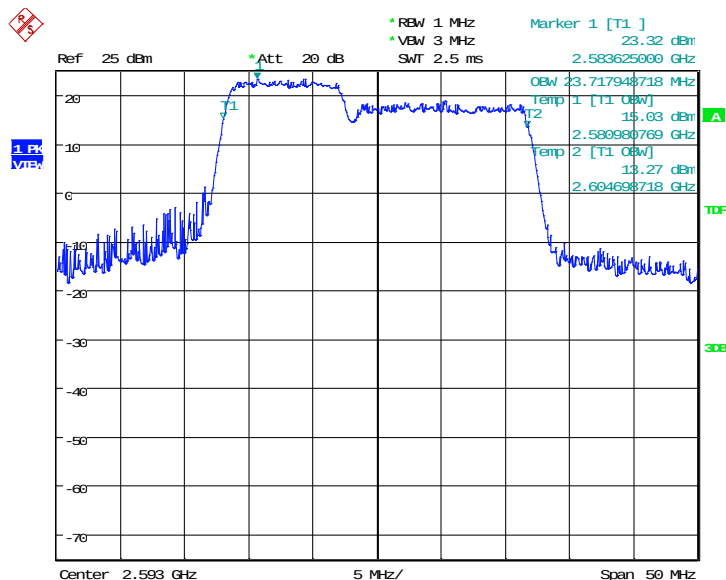
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	23798.08	23717.95	23717.95

LTE Band CA_41C, 10MHz+15MHz Bandwidth, QPSK (99% BW)



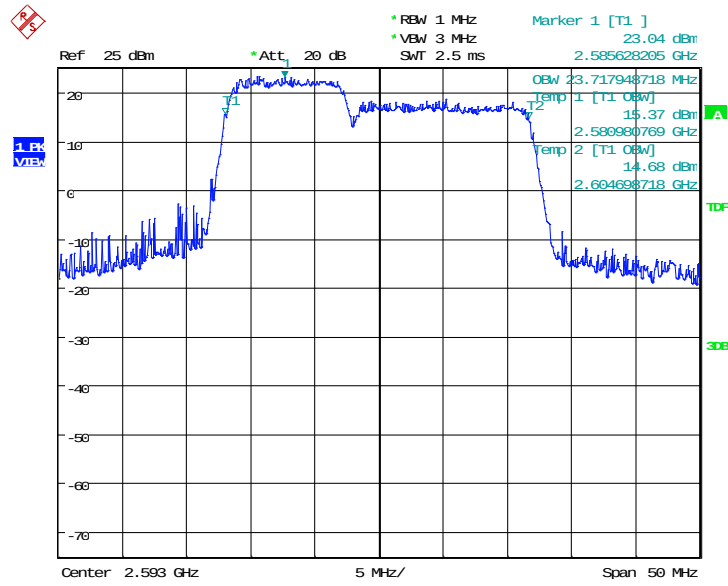
Date: 11. JUN. 2019 06:36:57

LTE Band CA_41C, 10MHz+15MHz Bandwidth, 16QAM (99% BW)



Date: 11. JUN. 2019 06:37:37

LTE Band CA_41C, 10MHz+15MHz Bandwidth, 64QAM (99% BW)

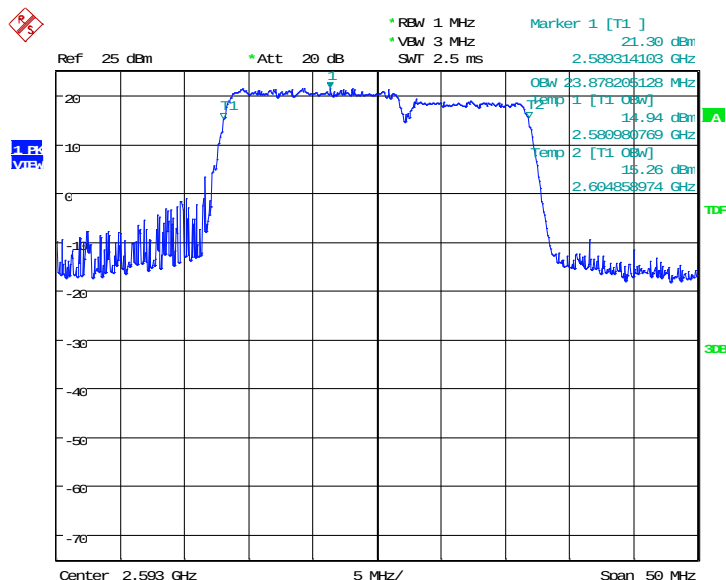


Date: 11.JUN.2019 06:37:51

LTE Band CA_41C, 15MHz+10MHz (99% BW)

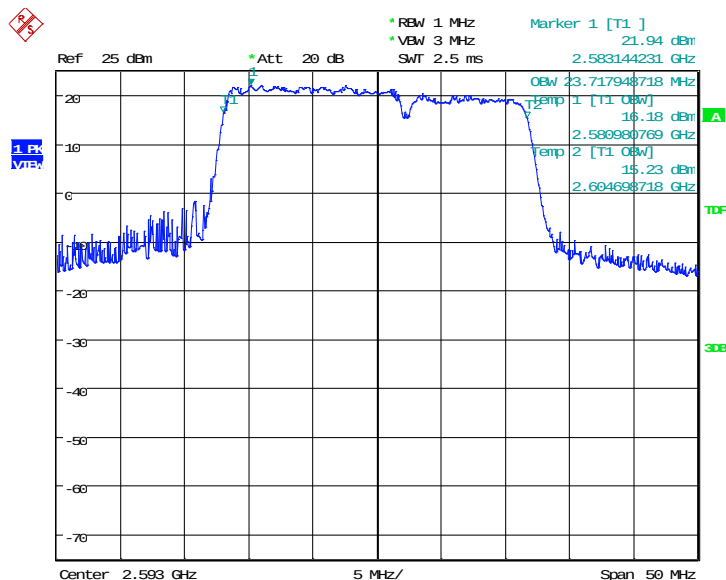
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	23878.21	23717.95	23637.82

LTE Band CA_41C, 15MHz+10MHz Bandwidth, QPSK (99% BW)



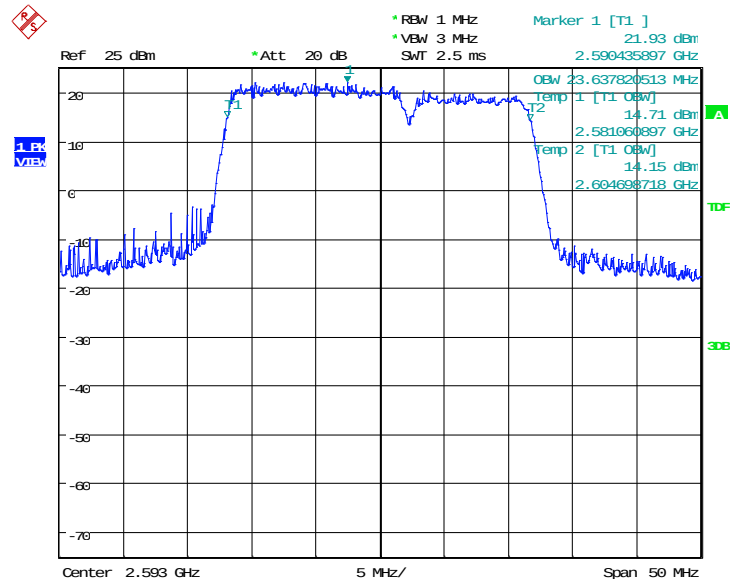
Date: 11. JUN. 2019 06:44:04

LTE Band CA_41C, 15MHz+10MHz Bandwidth, 16QAM (99% BW)



Date: 11. JUN. 2019 06:43:22

LTE Band CA_41C, 15MHz+10MHz Bandwidth, 64QAM (99% BW)

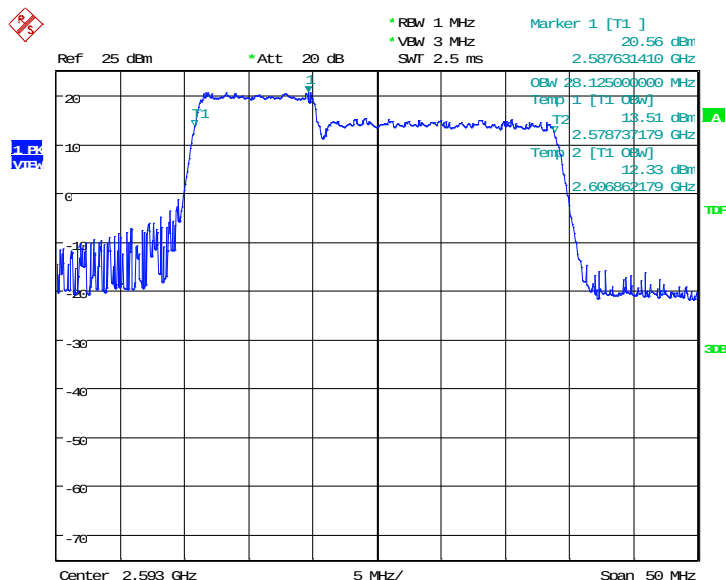


Date: 11.JUN.2019 06:42:41

LTE Band CA_41C, 10MHz+20MHz (99% BW)

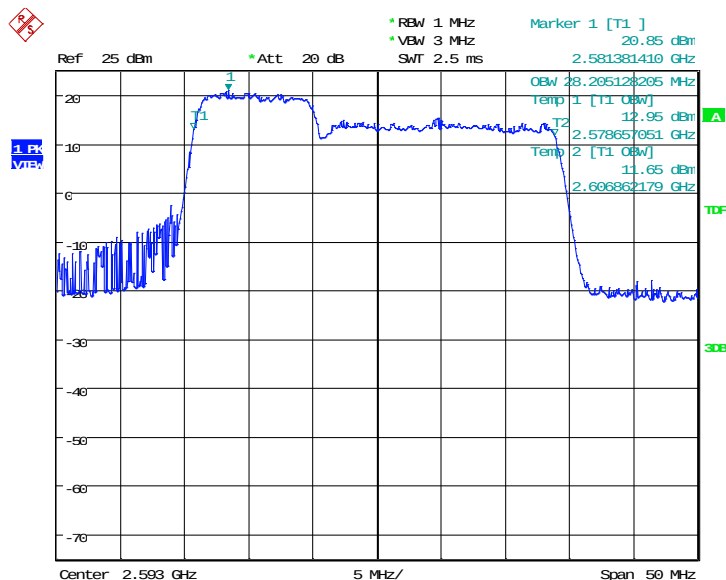
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	28125.00	28205.13	28125.00

LTE Band CA_41C, 10MHz+20MHz Bandwidth, QPSK (99% BW)



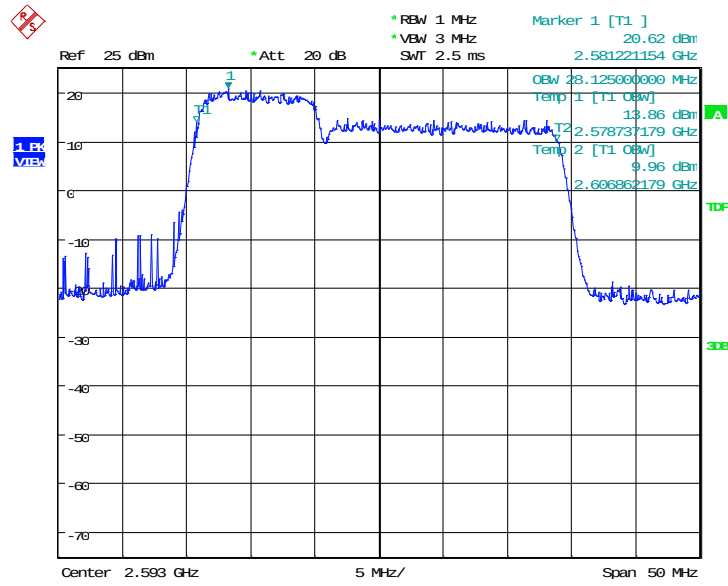
Date: 11. JUN. 2019 06:46:09

LTE Band CA_41C, 10MHz+20MHz Bandwidth, 16QAM (99% BW)



Date: 11. JUN. 2019 06:46:55

LTE Band CA_41C, 10MHz+20MHz Bandwidth, 64QAM (99% BW)

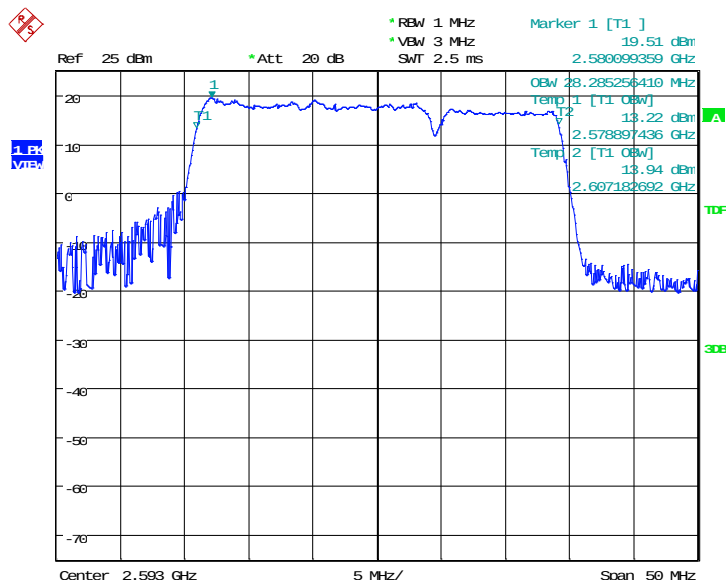


Date: 11.JUN.2019 06:47:09

LTE Band CA_41C, 20MHz+10MHz (99% BW)

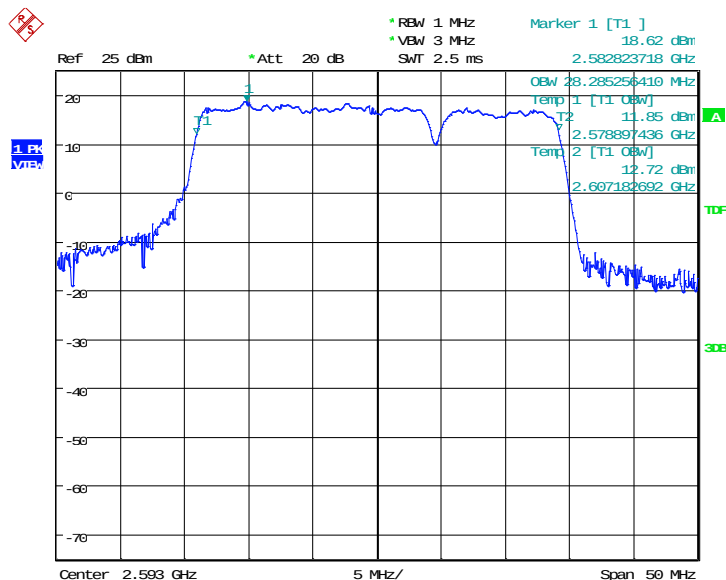
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	28285.26	28285.26	28205.13

LTE Band CA_41C, 20MHz+10MHz Bandwidth, QPSK (99% BW)



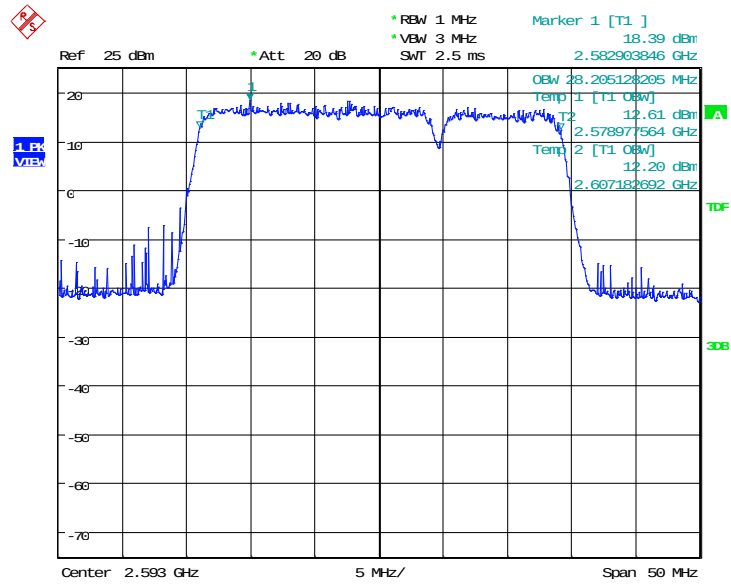
Date: 11. JUN. 2019 06:56:41

LTE Band CA_41C, 20MHz+10MHz Bandwidth, 16QAM (99% BW)



Date: 11. JUN. 2019 06:55:19

LTE Band CA_41C, 20MHz+10MHz Bandwidth, 64QAM (99% BW)



Date: 11.JUN.2019 06:53:18

Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	28926.28	28846.15	28685.90

Ref 25 dBm *Att 20 dB

*RBW 1 MHz *VBW 3 MHz

SWT 2.5 ms

Marker 1 [T1] 19.37 dBm

2.586669872 GHz

OBW 28.926282051 MHz

Temp 1 [T1 OBW]

T2 12.74 dBm

2.578336538 GHz

Temp 2 [T1 OBW]

12.66 dBm

2.607262821 GHz

Center 2.593 GHz 5 MHz/ Span 50 MHz

Date: 11.JUN.2019 06:58:43

Ref 25 dBm *Att 20 dB *RBW 1 MHz *VBW 3 MHz SWT 2.5 ms Marker 1 [T1.]

18.94 dBm

OBW 28.846153846 MHz

Temp 1 [T1 OBW]

T2 12.27 dBm

2.578416667 GHz

Temp 2 [T1 OBW]

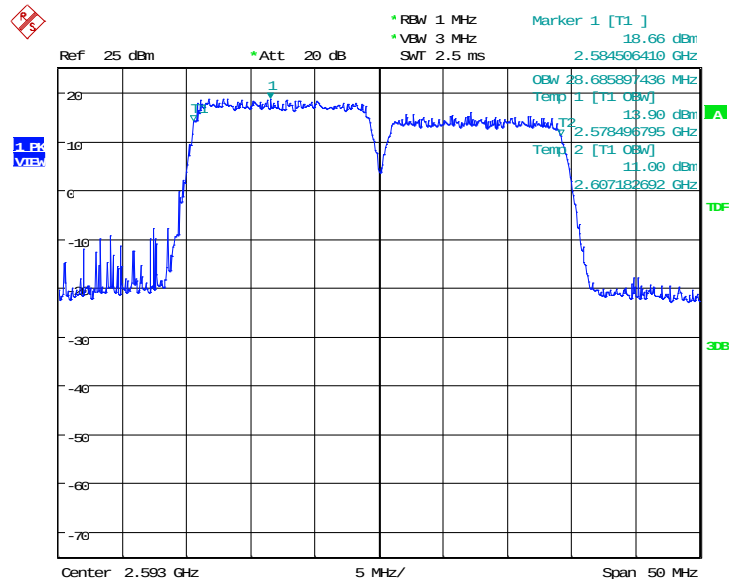
11.86 dBm

2.607262821 GHz

Center 2.593 GHz 5 MHz/ Span 50 MHz

Date: 11.JUN.2019 06:59:26

LTE Band CA_41C, 15MHz+15MHz Bandwidth, 64QAM (99% BW)

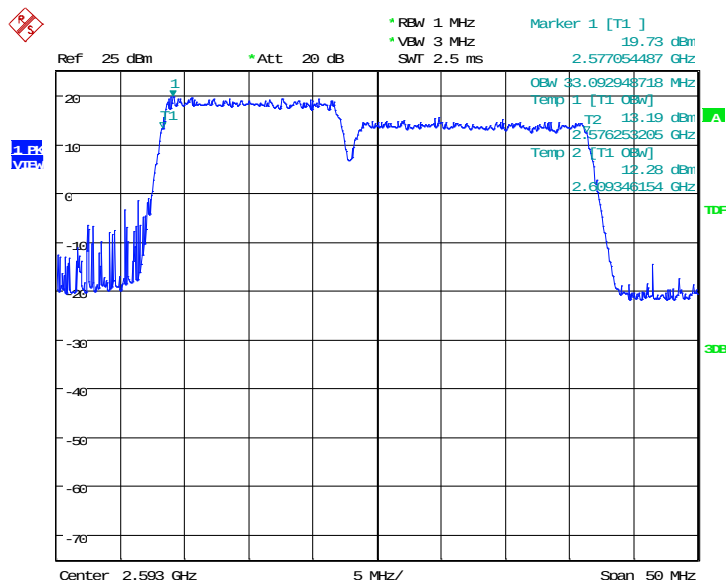


Date: 11.JUN.2019 06:59:42

LTE Band CA_41C, 15MHz+20MHz (99% BW)

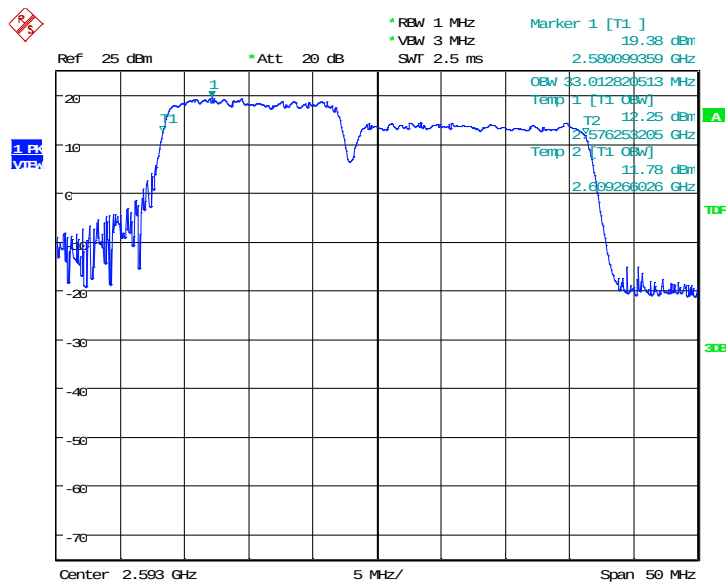
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	33092.95	33012.82	32852.56

LTE Band CA_41C, 15MHz+20MHz Bandwidth, QPSK (99% BW)



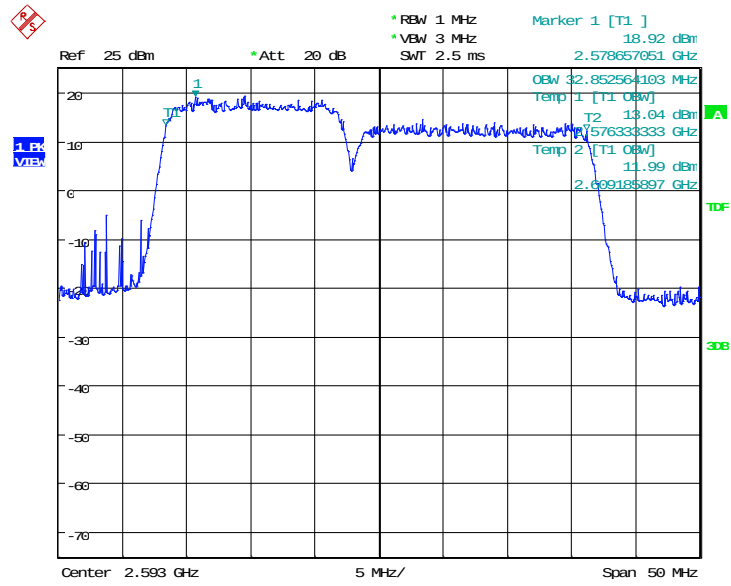
Date: 11.JUN.2019 07:07:56

LTE Band CA_41C, 15MHz+20MHz Bandwidth, 16QAM (99% BW)



Date: 11.JUN.2019 07:07:20

LTE Band CA_41C, 15MHz+20MHz Bandwidth, 64QAM (99% BW)

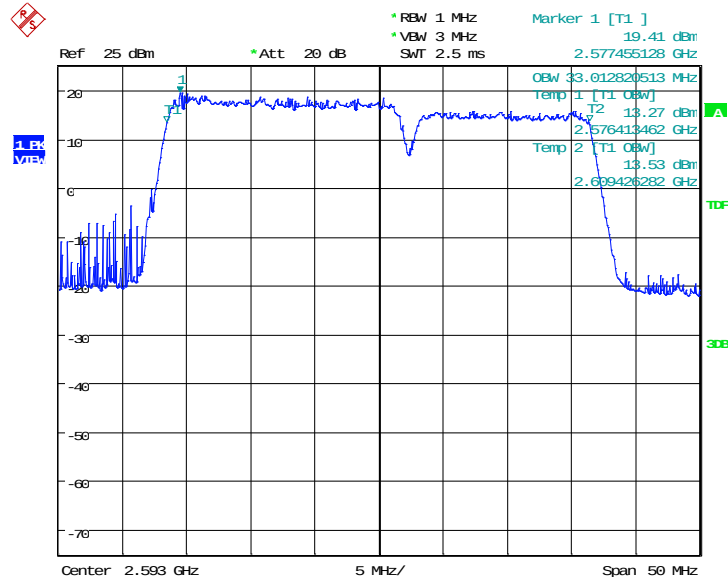


Date: 11.JUN.2019 07:06:01

LTE Band CA_41C, 20MHz+15MHz (99% BW)

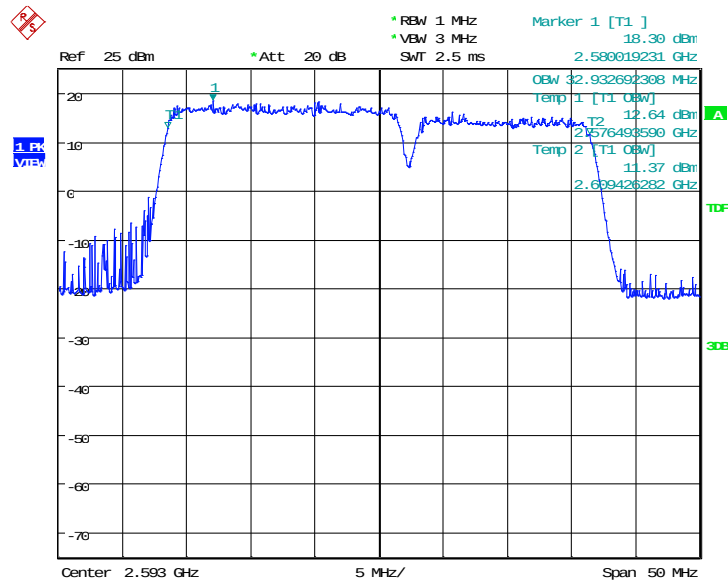
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	33012.82	32932.69	33012.82

LTE Band CA_41C, 20MHz+15MHz Bandwidth, QPSK (99% BW)



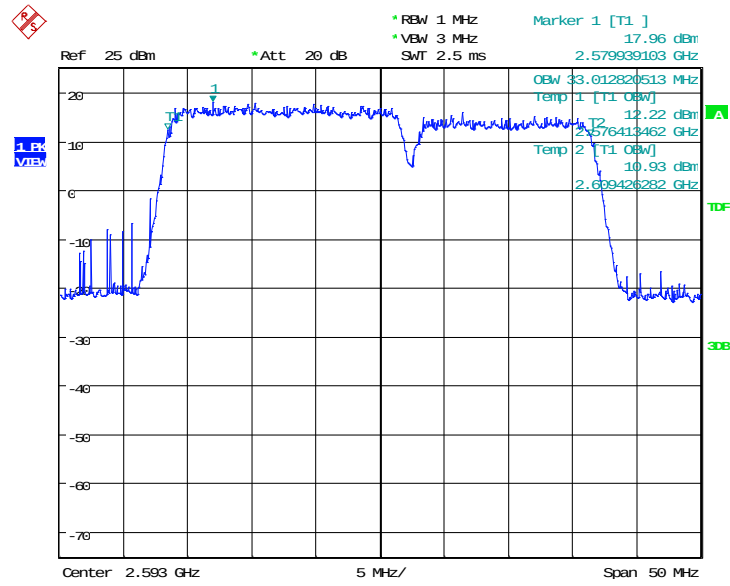
Date: 11.JUN.2019 07:09:07

LTE Band CA_41C, 20MHz+15MHz Bandwidth, 16QAM (99% BW)



Date: 11.JUN.2019 07:09:42

LTE Band CA_41C, 20MHz+15MHz Bandwidth, 64QAM (99% BW)

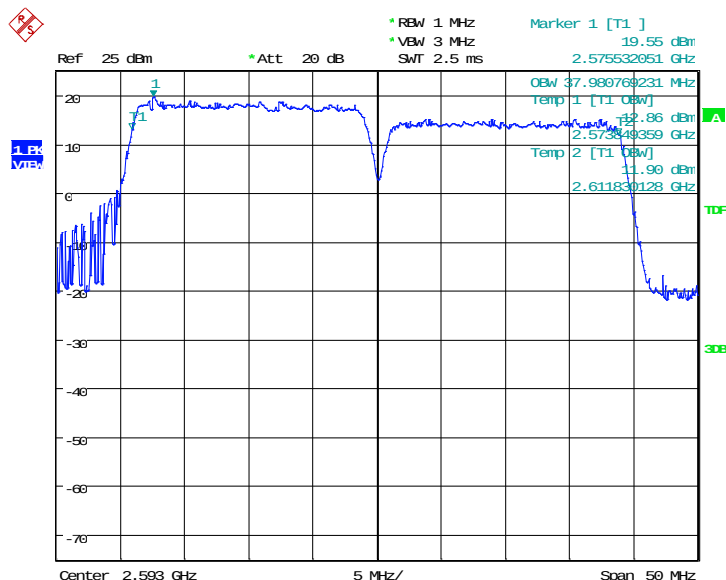


Date: 11.JUN.2019 07:09:56

LTE Band CA_41C, 20MHz+20MHz (99% BW)

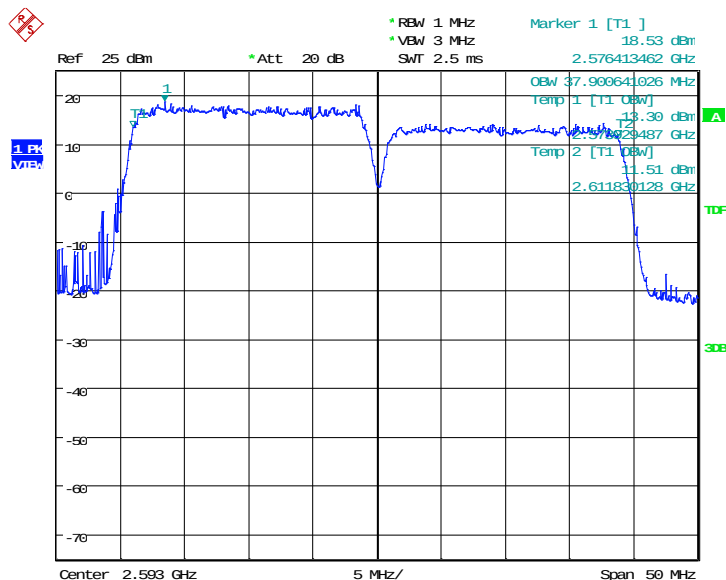
Frequency(MHz)	Occupied Bandwidth (99% BW)(kHz)		
2593.0	QPSK	16QAM	64QAM
	37980.77	37900.64	37820.51

LTE Band CA_41C, 20MHz+20MHz Bandwidth, QPSK (99% BW)



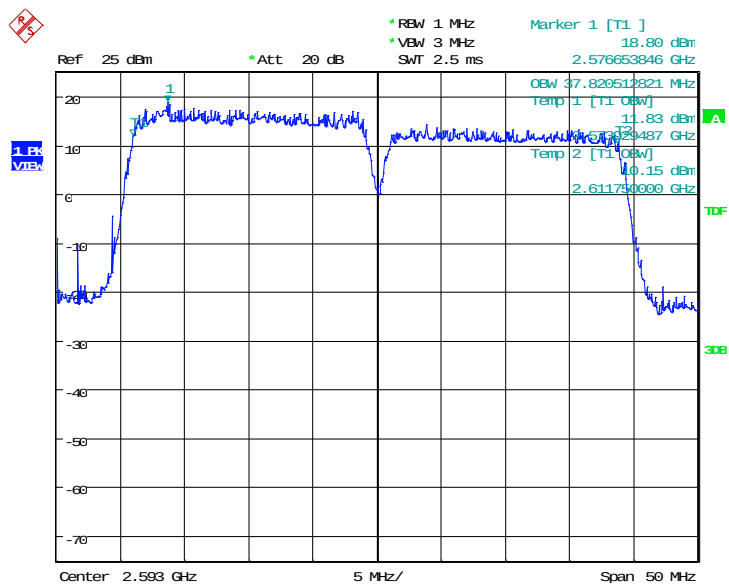
Date: 11.JUN.2019 07:15:52

LTE Band CA_41C, 20MHz+20MHz Bandwidth, 16QAM (99% BW)



Date: 11.JUN.2019 07:15:14

LTE Band CA_41C, 20MHz+20MHz Bandwidth, 64QAM (99% BW)



Date: 11.JUN.2019 07:14:56

Note: Expanded measurement uncertainty is $U = 3428 \text{ Hz}$, $k = 2$

A.5 EMISSION BANDWIDTH

Reference

FCC: CFR Part 2.1049, 22.917, 24.238, 27.53, 90.1215.

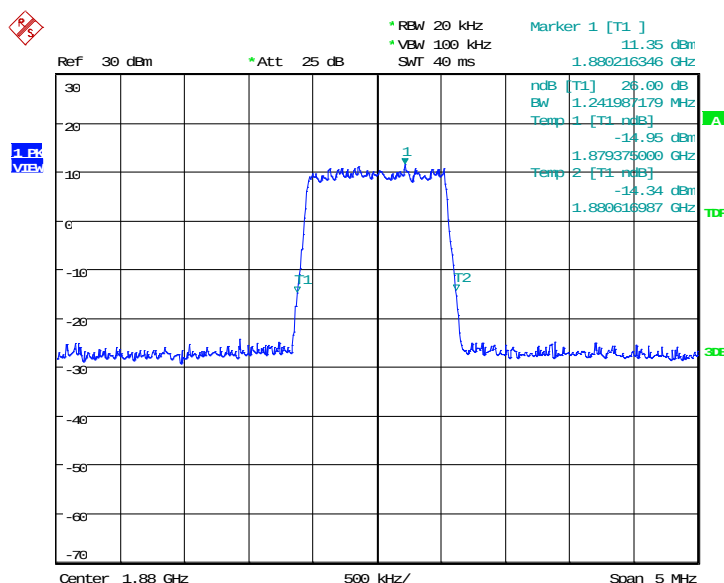
A.5.1 Emission Bandwidth Results

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

LTE band 2, 1.4MHz (-26dBc BW)

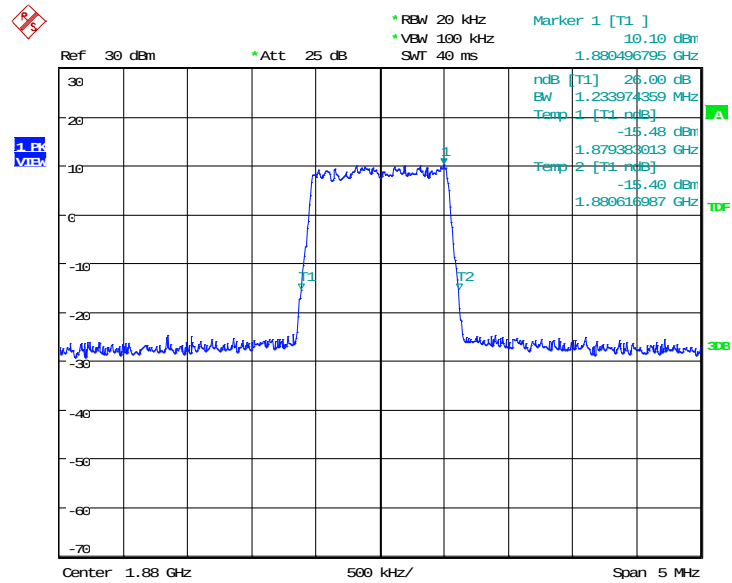
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	1241.99	1233.97	1241.99

LTE band 2, 1.4MHz Bandwidth, QPSK (-26dBc BW)



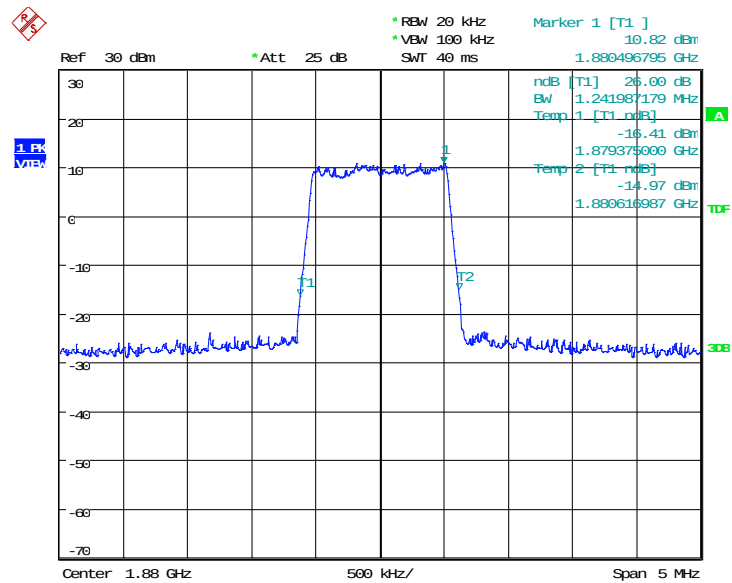
Date: 4.DEC.2019 07:00:03

LTE band 2, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:00:19

LTE band 2, 1.4MHz Bandwidth, 64QAM (-26dBc BW)

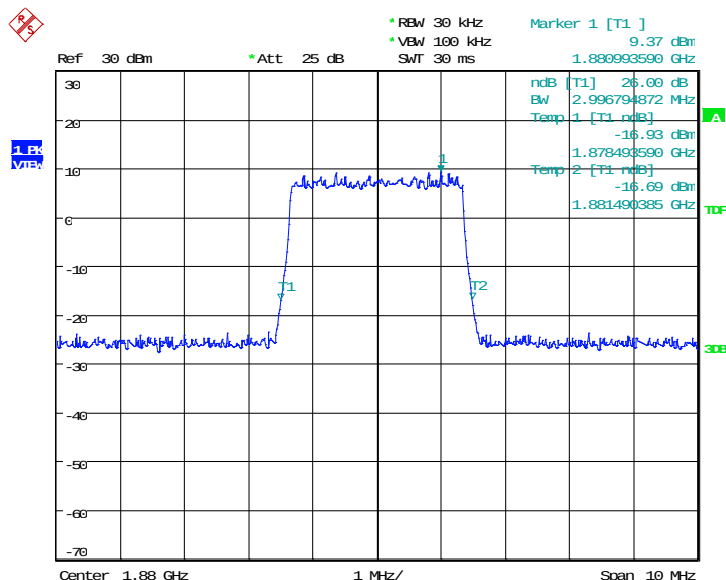


Date: 5.DEC.2019 13:29:44

LTE band 2, 3MHz (-26dBc BW)

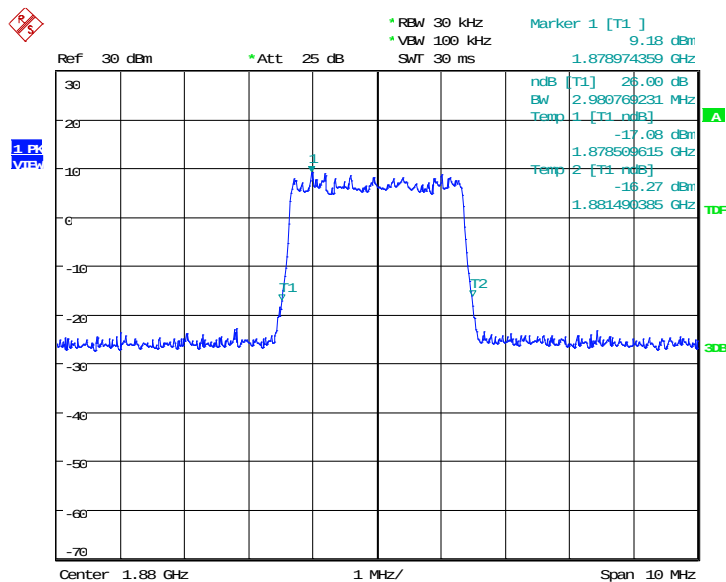
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
	QPSK	16QAM	64QAM
1880.0	2996.79	2980.77	2996.79

LTE band 2, 3MHz Bandwidth, QPSK (-26dBc BW)



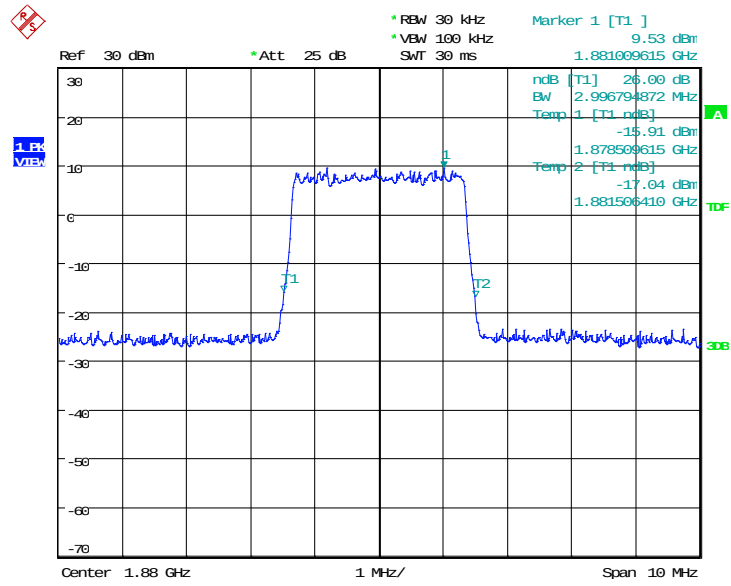
Date: 4.DEC.2019 07:04:23

LTE band 2, 3MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:04:39

LTE band 2, 3MHz Bandwidth, 64QAM (-26dBc BW)

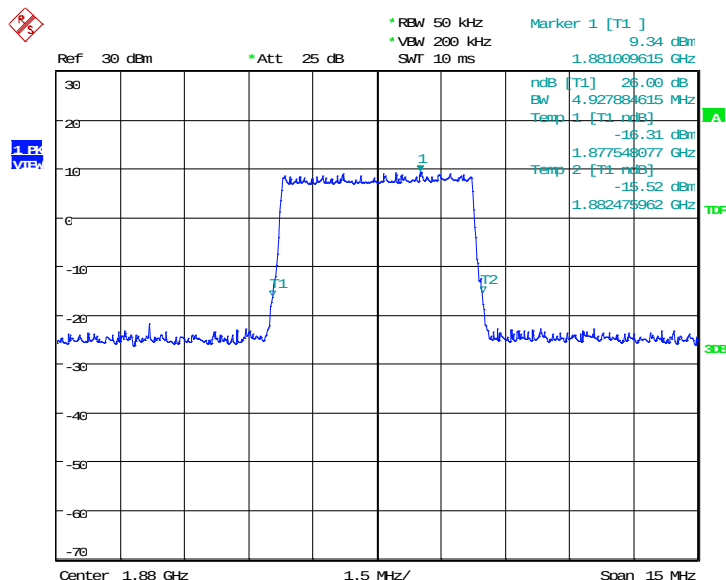


Date: 5.DEC.2019 13:33:14

LTE band 2, 5MHz (-26dBc BW)

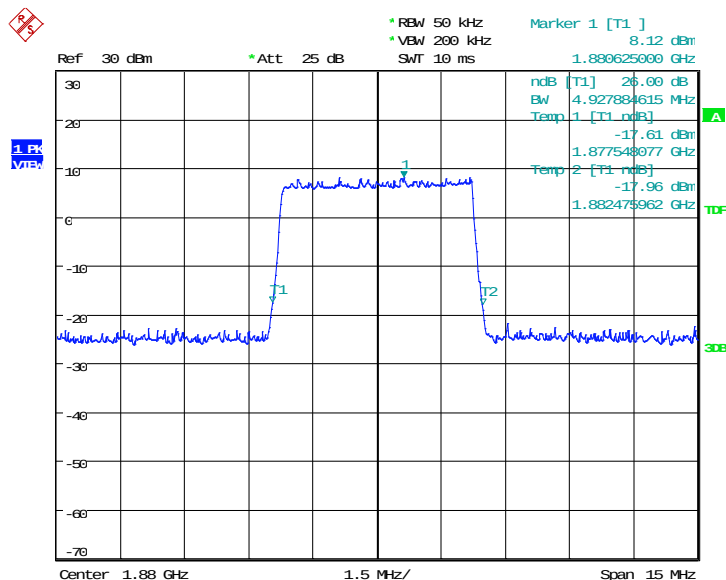
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	4927.88	4927.88	4927.88

LTE band 2, 5MHz Bandwidth, QPSK (-26dBc BW)



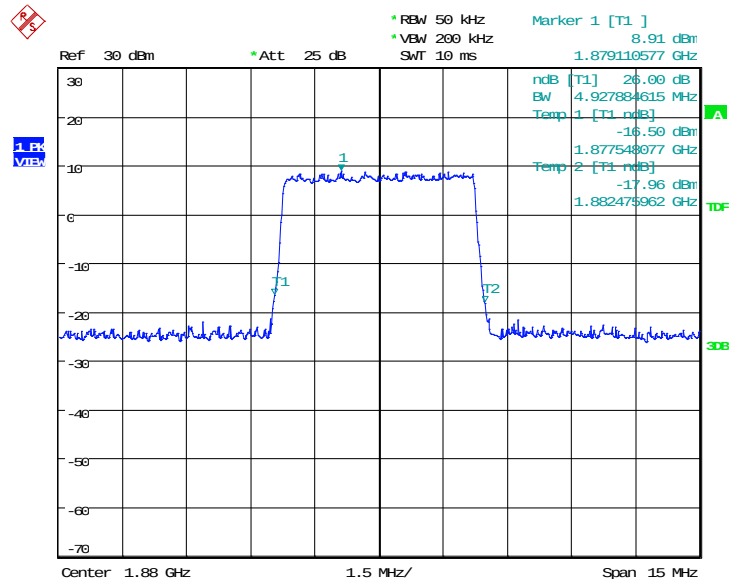
Date: 4.DEC.2019 07:08:43

LTE band 2, 5MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:08:59

LTE band 2, 5MHz Bandwidth,64QAM (-26dBc BW)

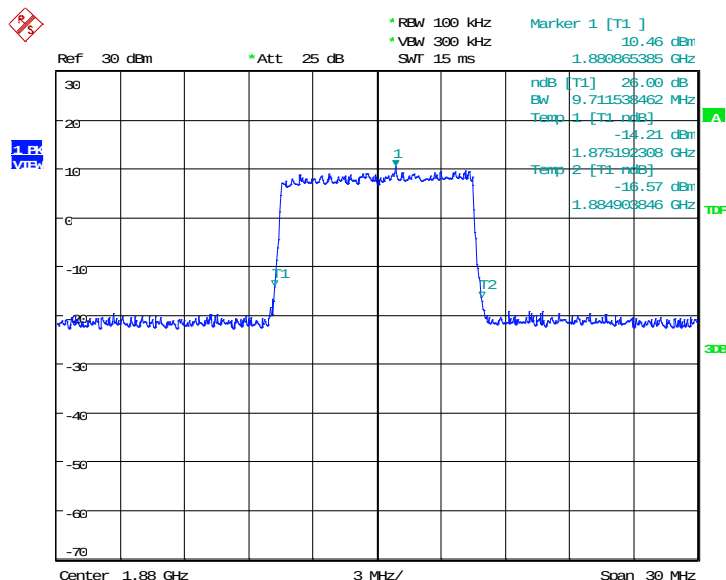


Date: 5.DEC.2019 13:36:46

LTE band 2, 10MHz (-26dBc BW)

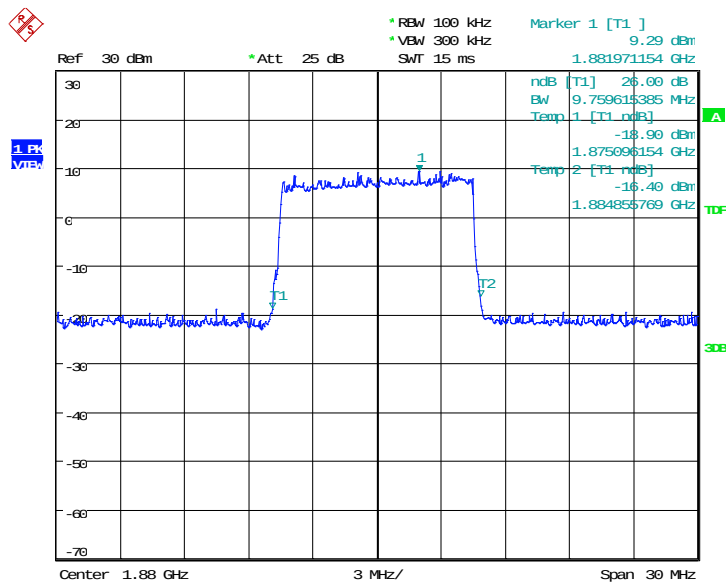
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	9711.54	9759.62	9807.69

LTE band 2, 10MHz Bandwidth, QPSK (-26dBc BW)



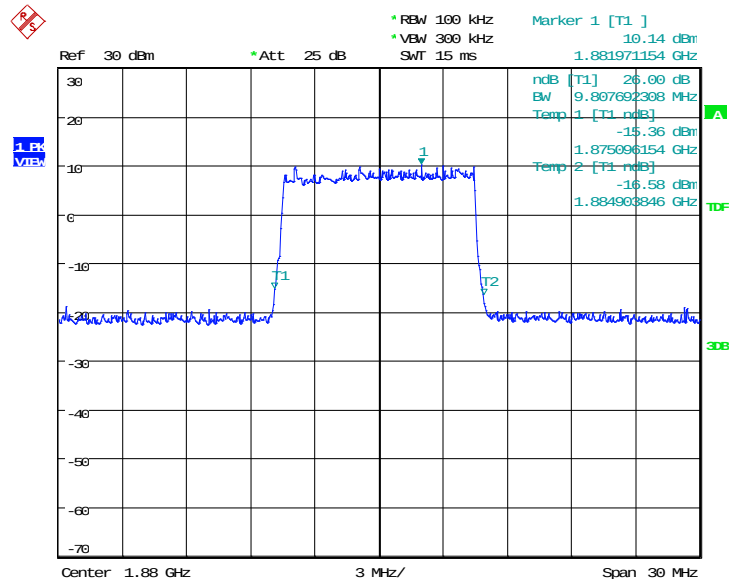
Date: 4.DEC.2019 07:13:01

LTE band 2, 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:13:17

LTE band 2, 10MHz Bandwidth, 64QAM (-26dBc BW)

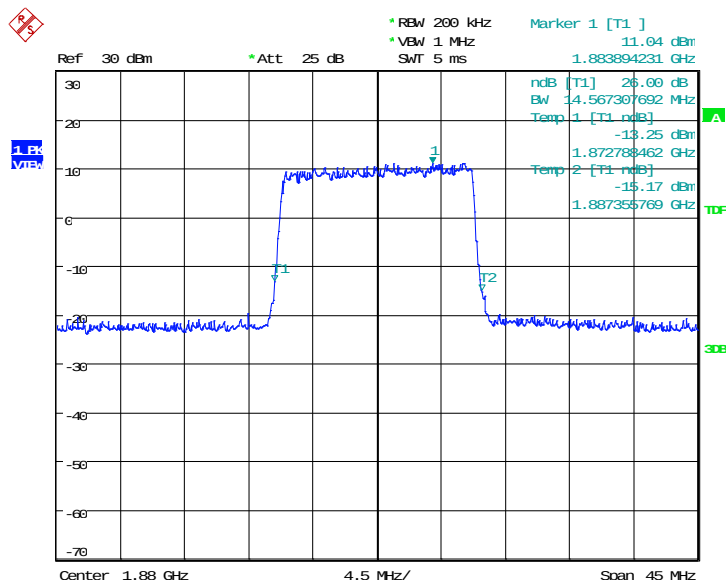


Date: 5.DEC.2019 13:40:16

LTE band 2, 15MHz (-26dBc BW)

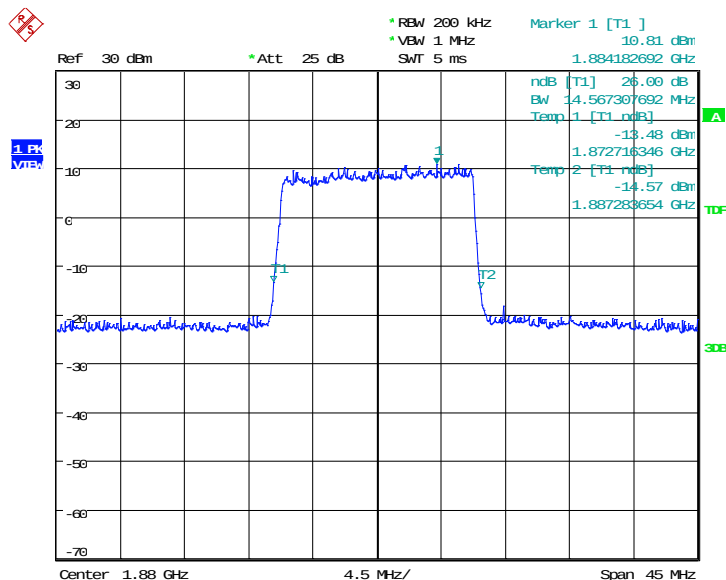
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	14567.31	14567.31	14495.19

LTE band 2, 15MHz Bandwidth, QPSK (-26dBc BW)



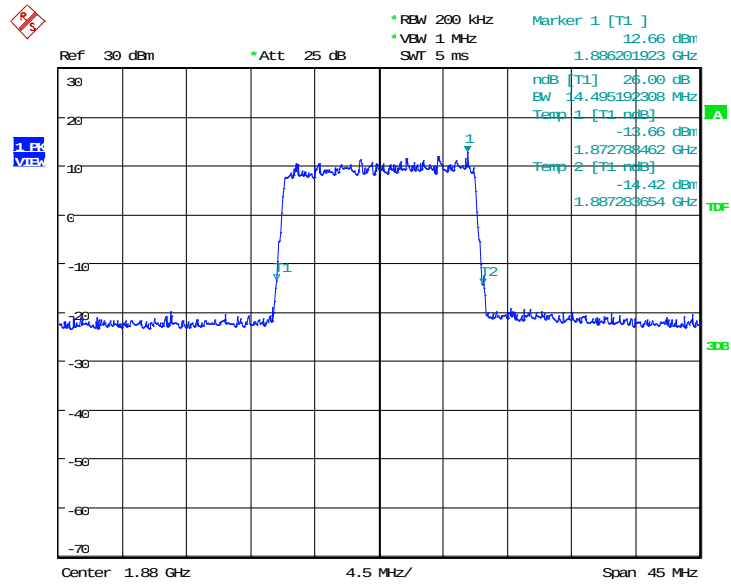
Date: 4.DEC.2019 07:17:20

LTE band 2, 15MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:17:36

LTE band 2, 15MHz Bandwidth, 64QAM (-26dBc BW)

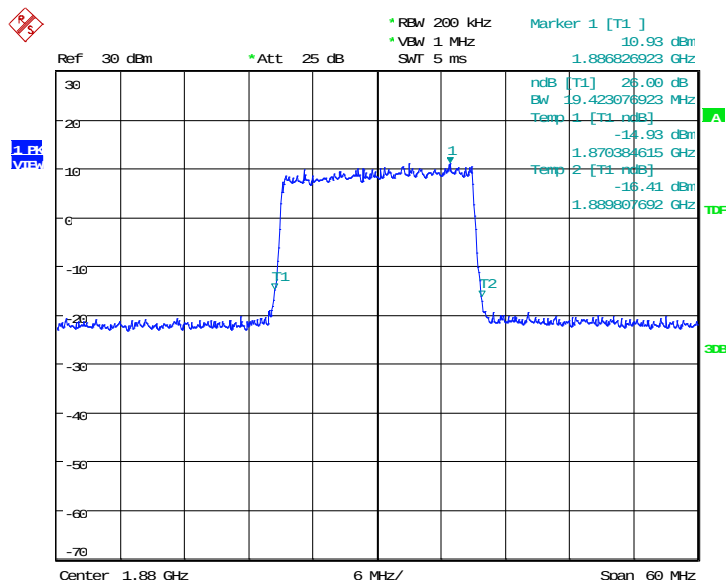


Date: 5.DEC.2019 13:43:47

LTE band 2, 20MHz (-26dBc BW)

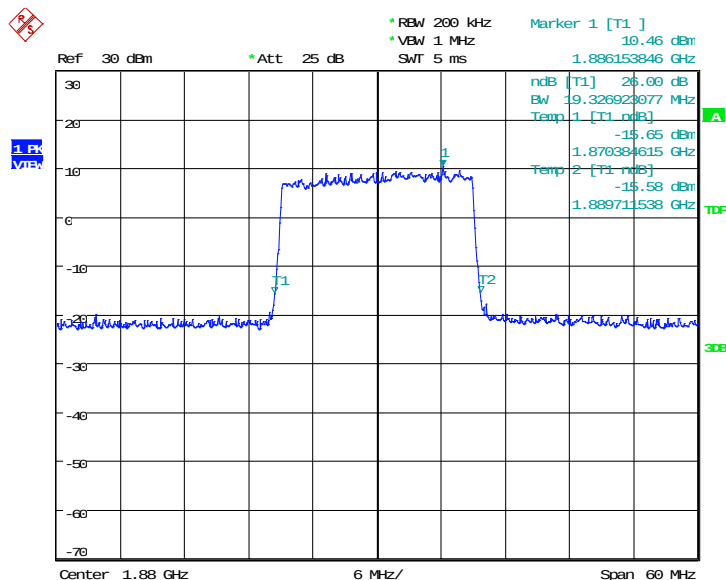
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1880.0	QPSK	16QAM	64QAM
	19423.08	19326.92	19423.08

LTE band 2, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.DEC.2019 07:22:08

LTE band 2, 20MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:22:24

* RBW 200 kHz
 * VBW 1 MHz
 * Att 25 dB
 * SWT 5 ms

Marker 1 [T1]
 10.34 dBm
 1.881826923 GHz

Ref 30 dBm
 ndB [T1] 26.00 dB
 BW 19.423076923 MHz
 Temp 1 [T1-nB] -15.22 dBm
 1.870384615 GHz
 Temp 2 [T1-nB] -16.59 dBm
 1.889807692 GHz

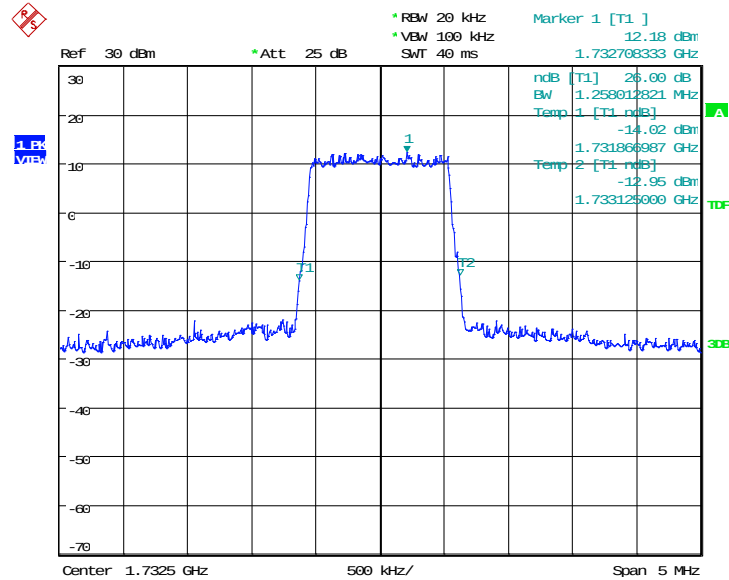
Center 1.88 GHz
 6 MHz/
 Span 60 MHz

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LTE band 4, 1.4MHz (-26dBc BW)

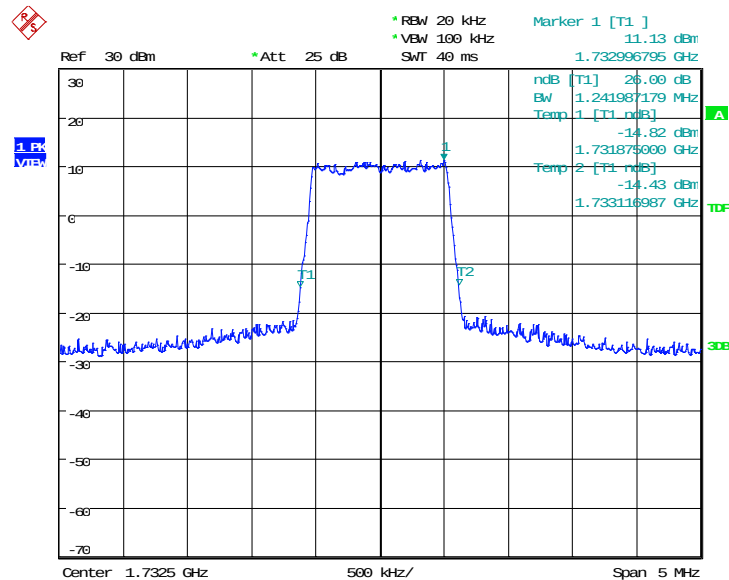
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	1258.01	1241.99	1241.99

LTE band 4, 1.4MHz Bandwidth, QPSK (-26dBc BW)



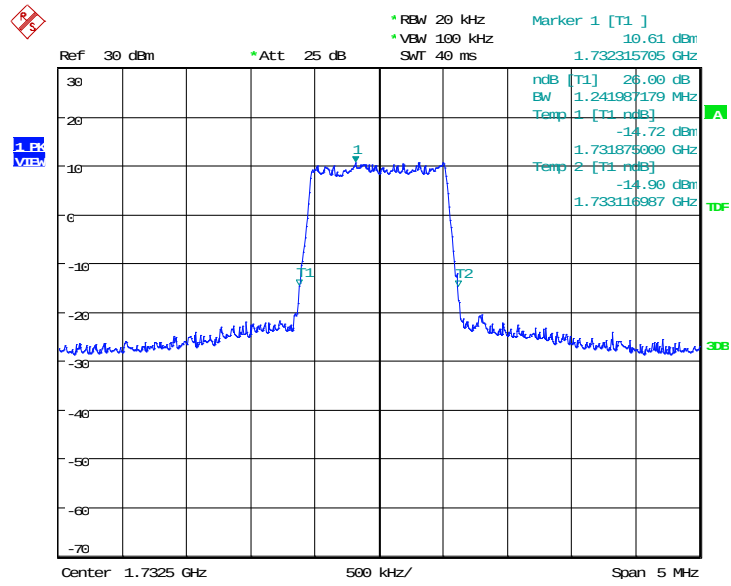
Date: 4.DEC.2019 07:28:03

LTE band 4, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:28:19

LTE band 4, 1.4MHz Bandwidth, 64QAM (-26dBc BW)

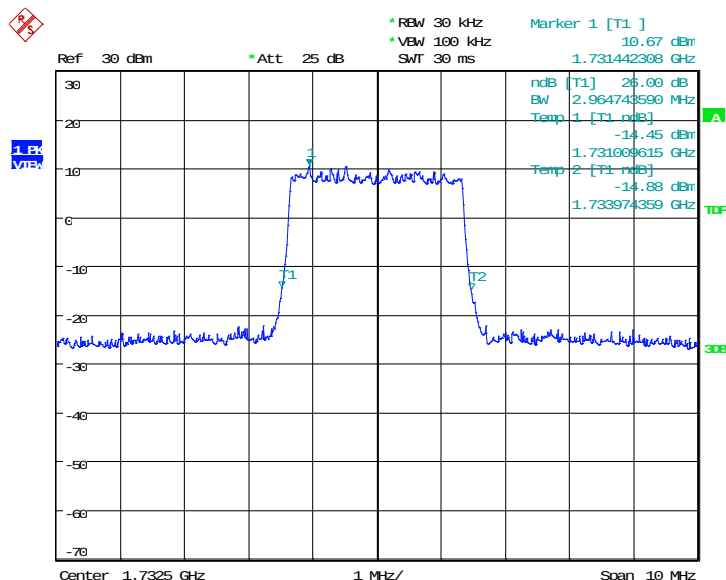


Date: 5.DEC.2019 13:51:52

LTE band 4, 3MHz (-26dBc BW)

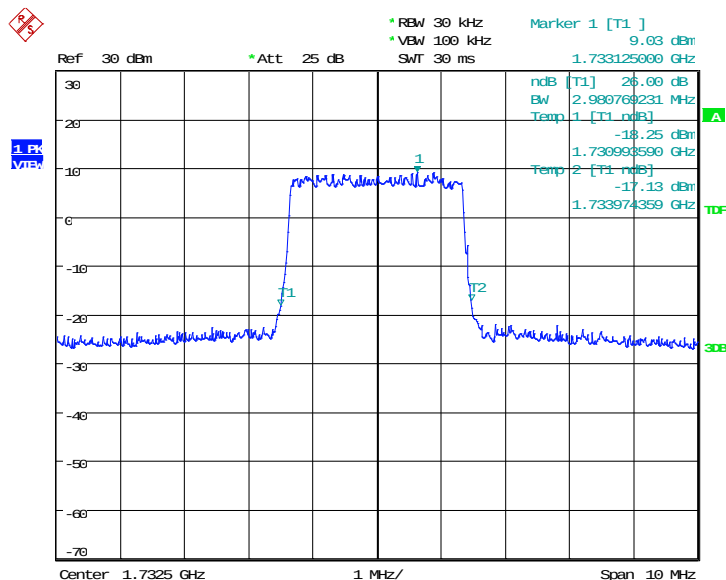
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	2964.74	2980.77	2980.77

LTE band 4, 3MHz Bandwidth, QPSK (-26dBc BW)



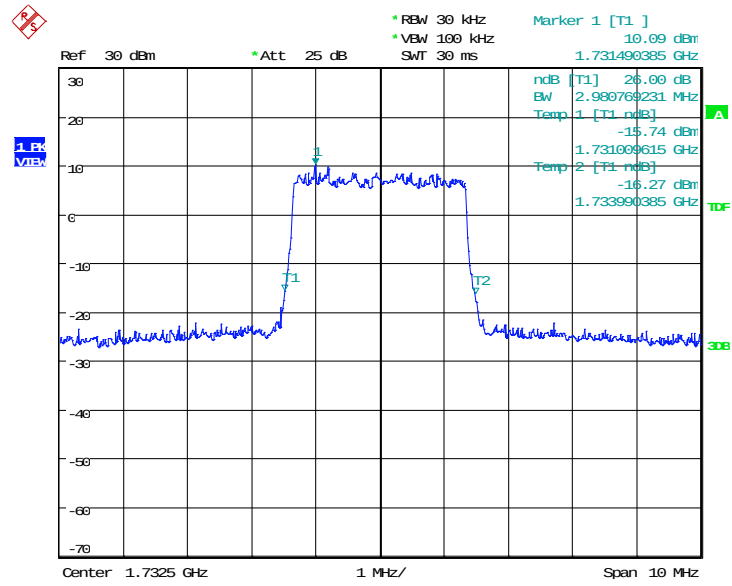
Date: 4.DEC.2019 07:32:21

LTE band 4, 3MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:32:36

LTE band 4, 3MHz Bandwidth, 64QAM (-26dBc BW)

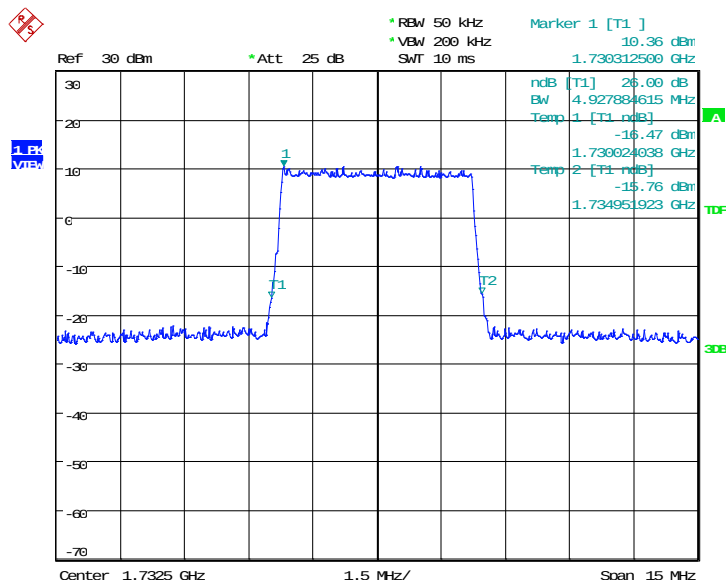


Date: 5.DEC.2019 13:55:21

LTE band 4, 5MHz (-26dBc BW)

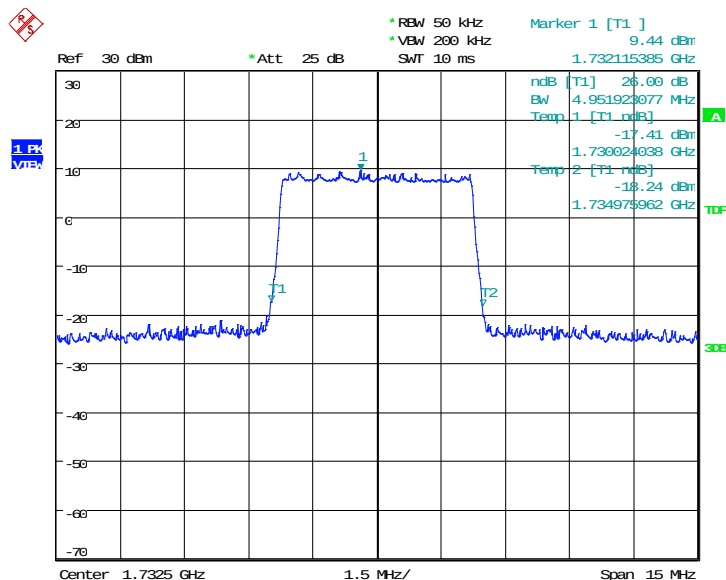
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	4927.88	4951.92	4951.92

LTE band 4, 5MHz Bandwidth, QPSK (-26dBc BW)



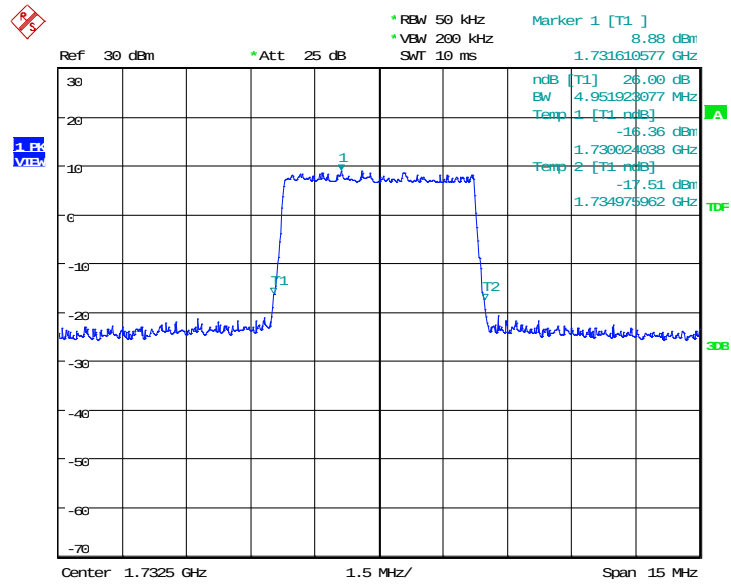
Date: 4.DEC.2019 07:36:39

LTE band 4, 5MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:36:54

LTE band 4, 5MHz Bandwidth,64QAM (-26dBc BW)

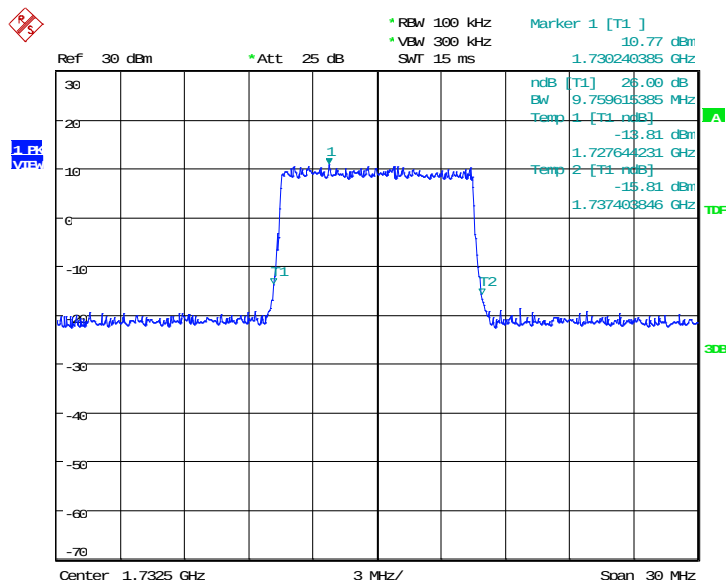


Date: 5.DEC.2019 13:58:49

LTE band 4, 10MHz (-26dBc BW)

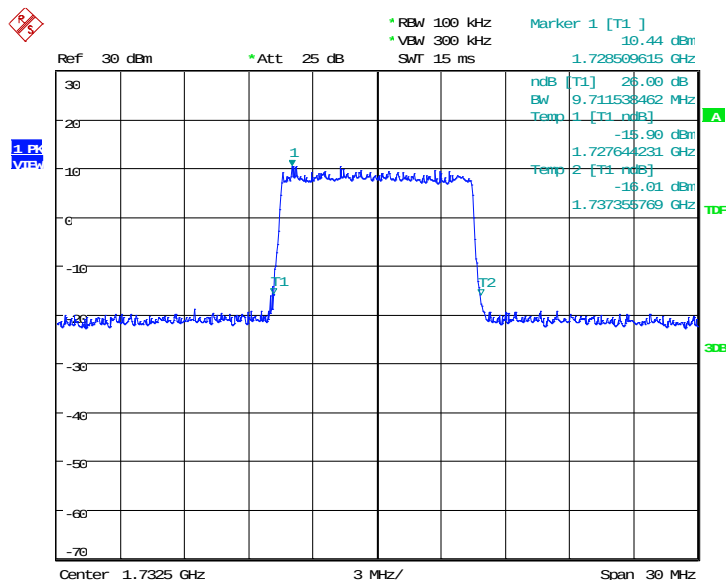
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	9759.62	9711.54	9711.54

LTE band 4, 10MHz Bandwidth, QPSK (-26dBc BW)



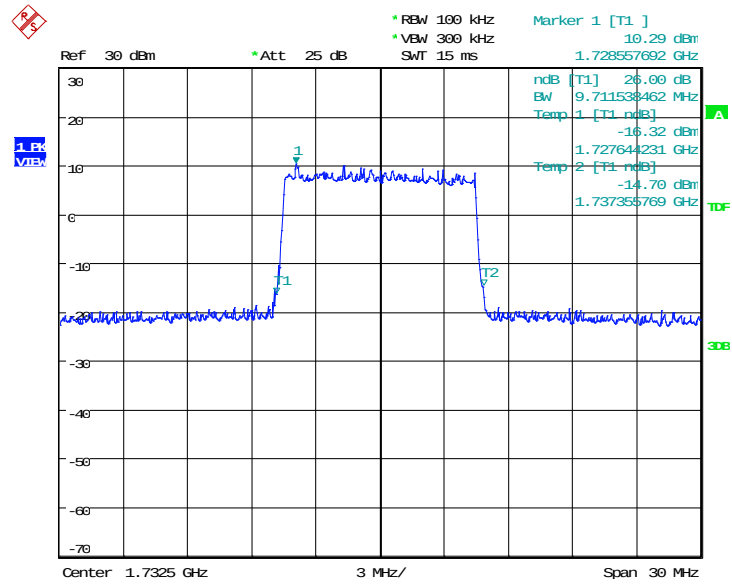
Date: 4.DEC.2019 07:40:59

LTE band 4, 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:41:15

LTE band 4, 10MHz Bandwidth, 64QAM (-26dBc BW)

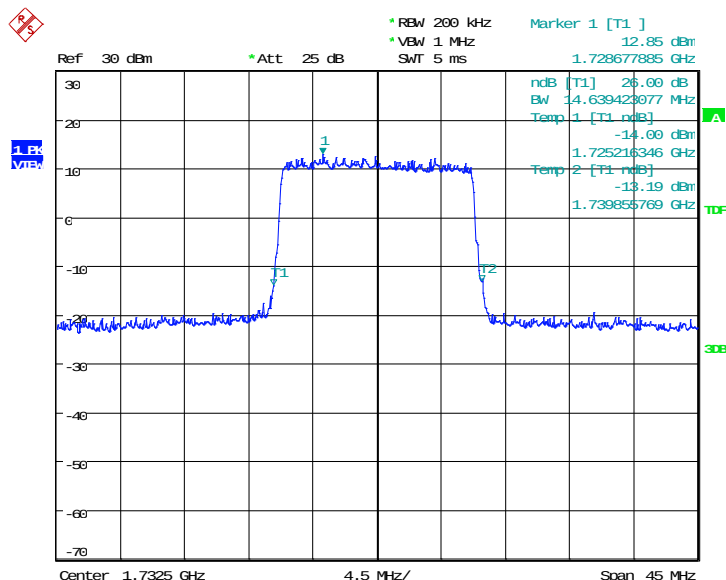


Date: 5.DEC.2019 14:02:18

LTE band 4, 15MHz (-26dBc BW)

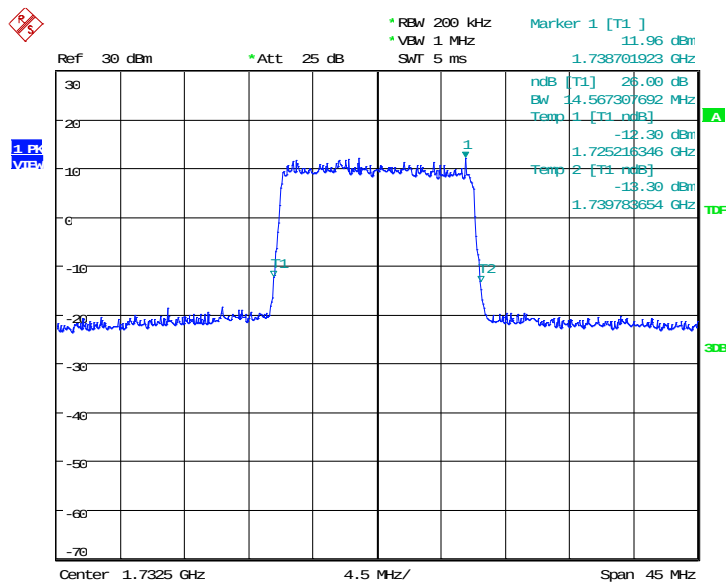
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
1732.5	QPSK	16QAM	64QAM
	14639.42	14567.31	14711.54

LTE band 4, 15MHz Bandwidth, QPSK (-26dBc BW)



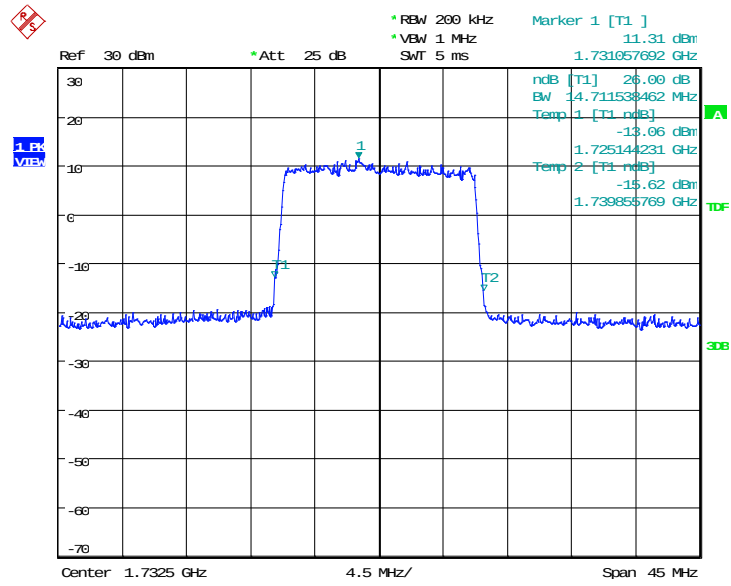
Date: 4.DEC.2019 07:45:20

LTE band 4, 15MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 07:45:36

LTE band 4, 15MHz Bandwidth, 64QAM (-26dBc BW)

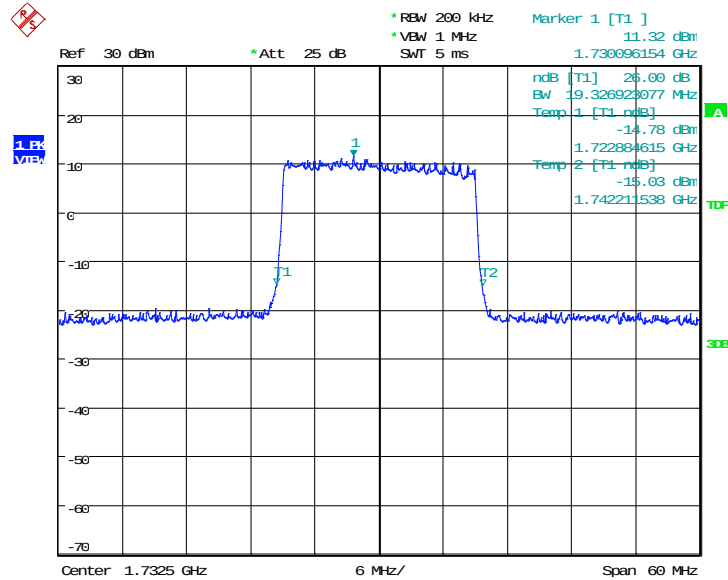


Date: 5.DEC.2019 14:05:48

LTE band 4, 20MHz (-26dBc BW)

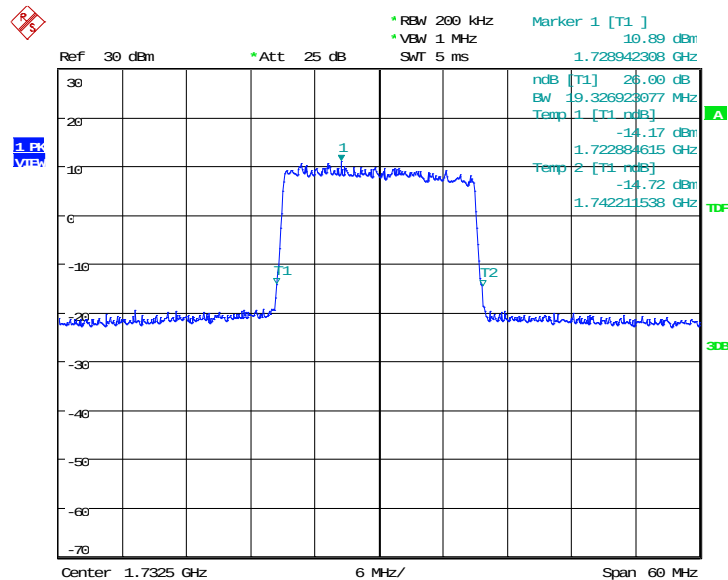
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
	QPSK	16QAM	64QAM
1732.5	19326.92	19326.92	19423.08

LTE band 4, 20MHz Bandwidth, QPSK (-26dBc BW)



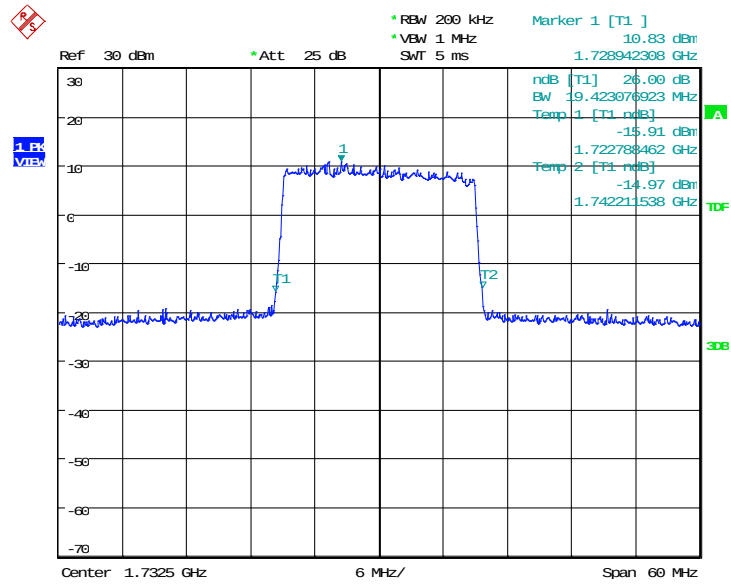
Date: 5.DEC.2019 12:48:41

LTE band 4, 20MHz Bandwidth, 16QAM (-26dBc BW)



Date: 5.DEC.2019 12:48:57

LTE band 4, 20MHz Bandwidth, 64QAM (-26dBc BW)

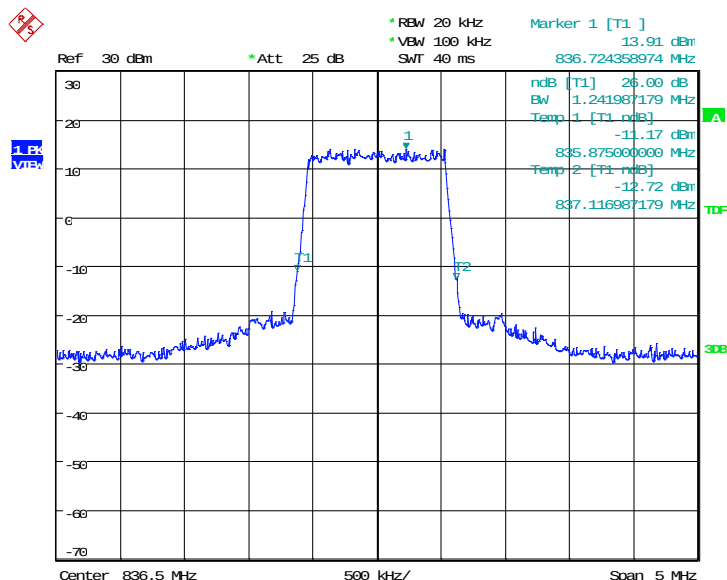


Date: 5.DEC.2019 14:25:40

LTE band 5, 1.4MHz (-26dBc BW)

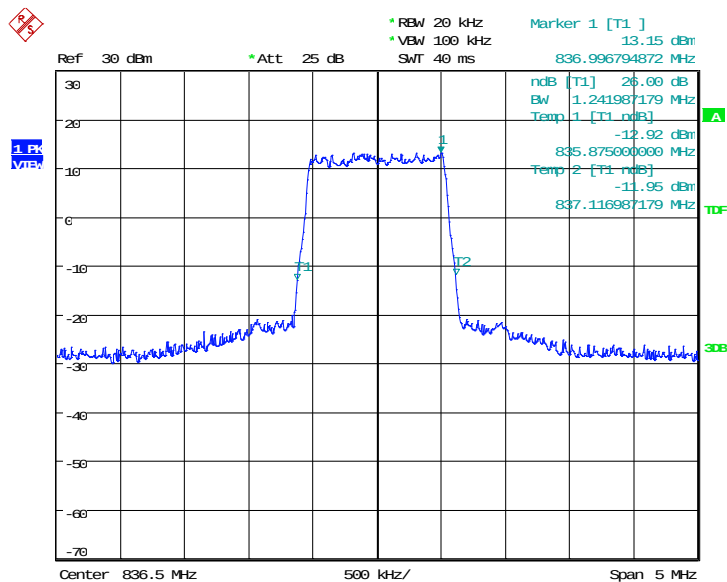
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	1241.99	1241.99	1241.99

LTE band 5, 1.4MHz Bandwidth, QPSK (-26dBc BW)



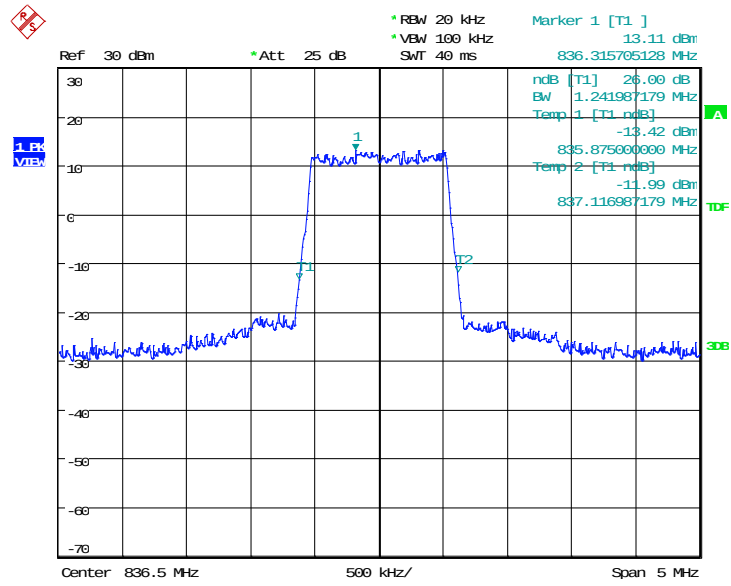
Date: 4.DEC.2019 06:42:39

LTE band 5, 1.4MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 06:42:54

LTE band 5, 1.4MHz Bandwidth, 64QAM (-26dBc BW)

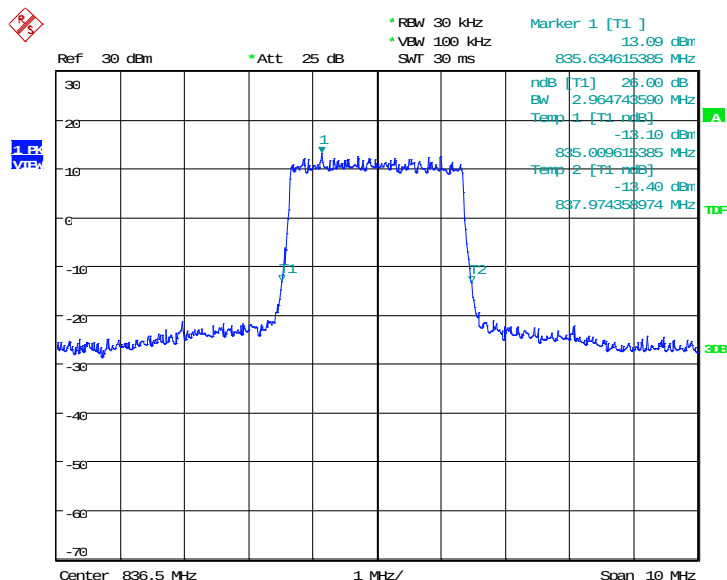


Date: 5.DEC.2019 13:15:45

LTE band 5, 3MHz (-26dBc BW)

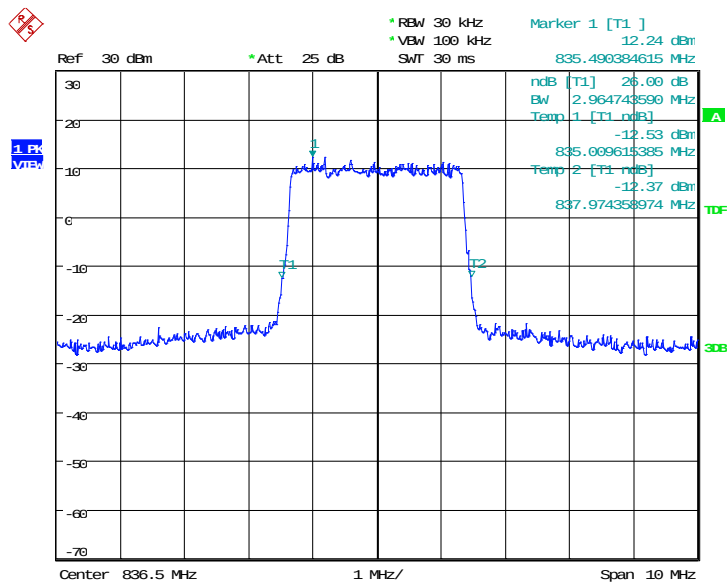
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	2964.74	2964.74	2964.74

LTE band 5, 3MHz Bandwidth, QPSK (-26dBc BW)



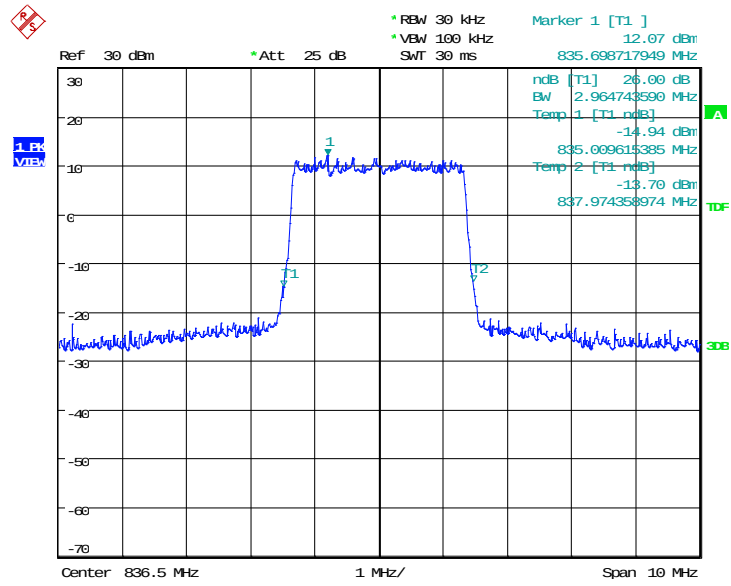
Date: 4.DEC.2019 06:46:59

LTE band 5, 3MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 06:47:15

LTE band 5, 3MHz Bandwidth, 64QAM (-26dBc BW)

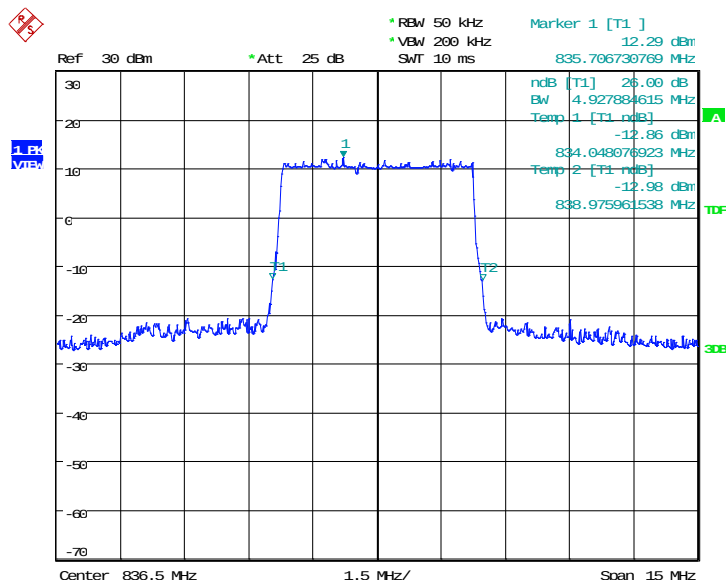


Date: 5.DEC.2019 13:19:13

LTE band 5, 5MHz (-26dBc BW)

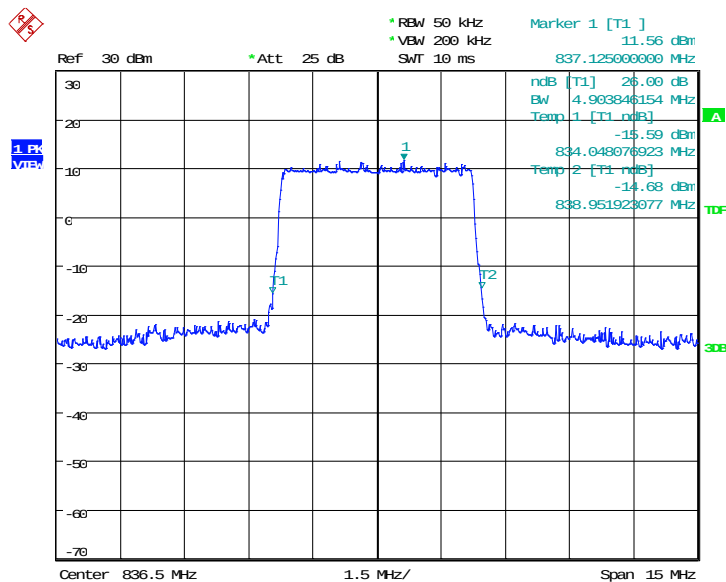
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	4927.88	4903.85	4879.81

LTE band 5, 5MHz Bandwidth, QPSK (-26dBc BW)



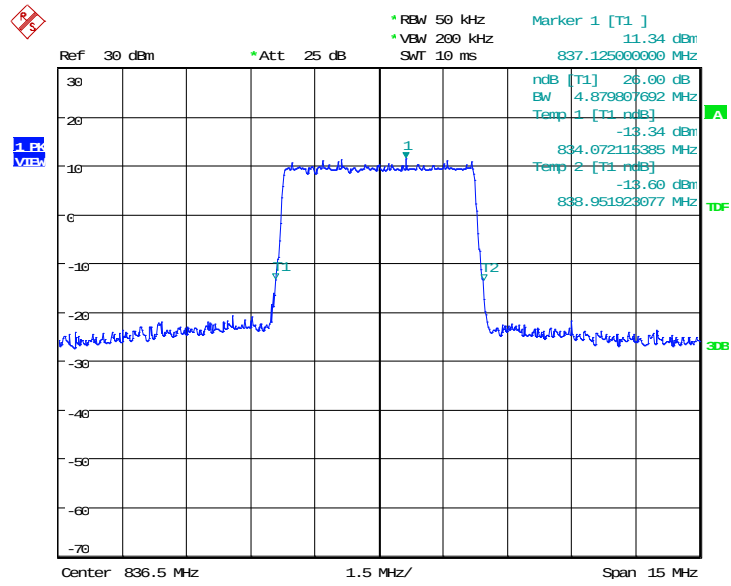
Date: 4.DEC.2019 06:51:20

LTE band 5, 5MHz Bandwidth,16QAM (-26dBc BW)



Date: 4.DEC.2019 06:51:36

LTE band 5, 5MHz Bandwidth,64QAM (-26dBc BW)

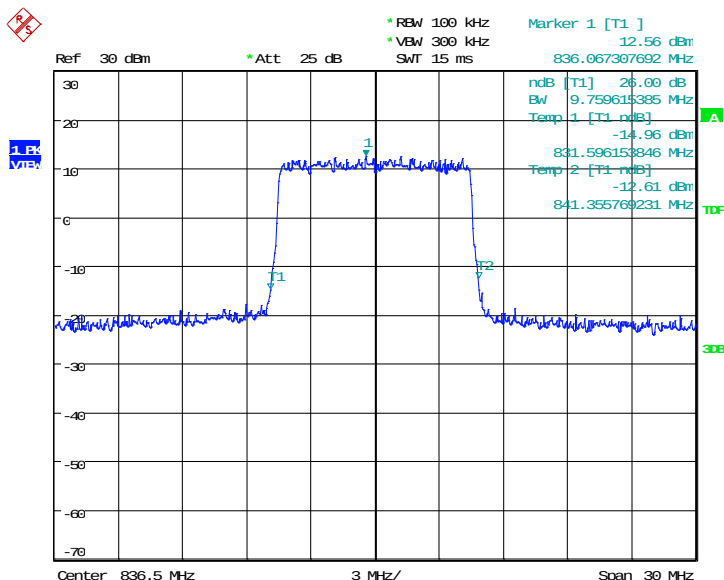


Date: 5.DEC.2019 13:22:40

LTE band 5, 10MHz (-26dBc BW)

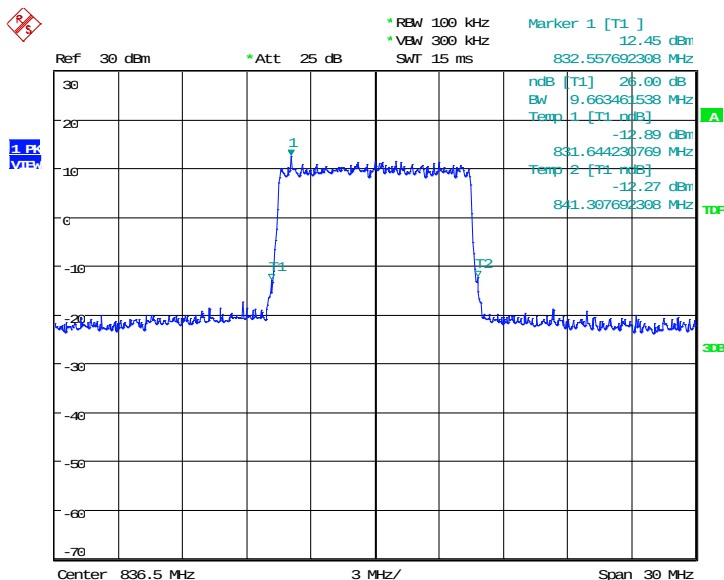
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
836.5	QPSK	16QAM	64QAM
	9759.62	9663.46	9711.54

LTE band 5, 10MHz Bandwidth, QPSK (-26dBc BW)



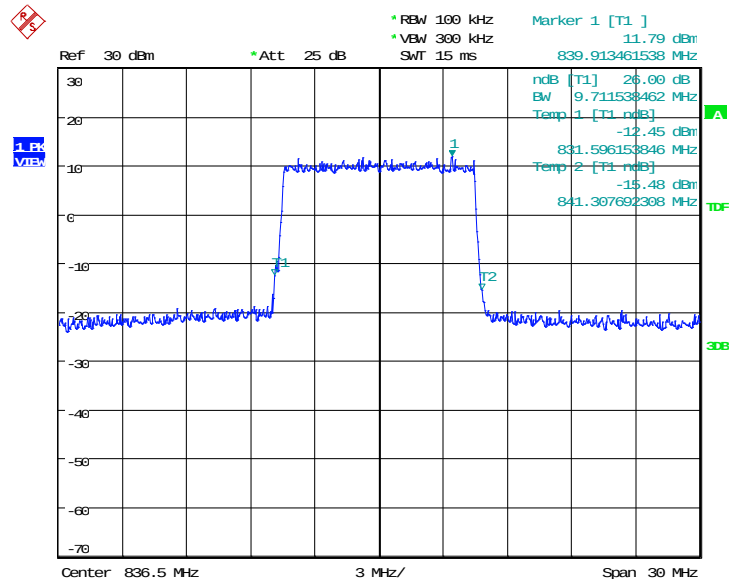
Date: 4.DEC.2019 06:55:41

LTE band 5, 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 06:55:57

LTE band 5, 10MHz Bandwidth, 64QAM (-26dBc BW)

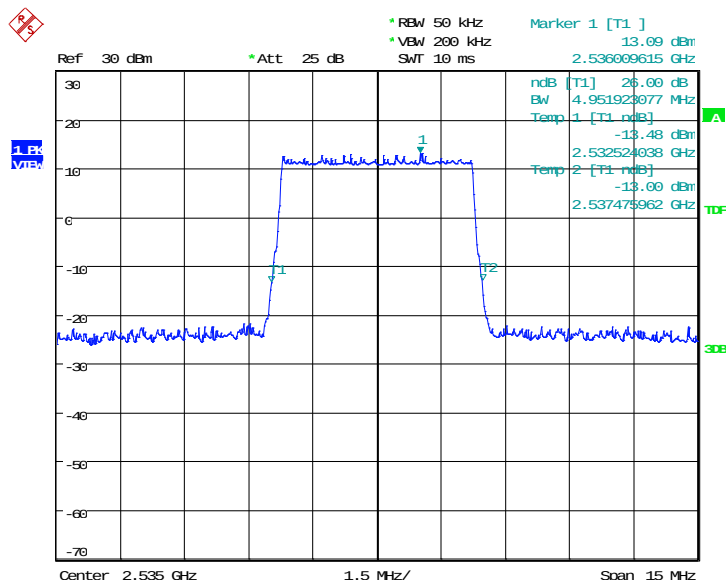


Date: 5.DEC.2019 13:26:10

LTE band 7, 5MHz (-26dBc BW)

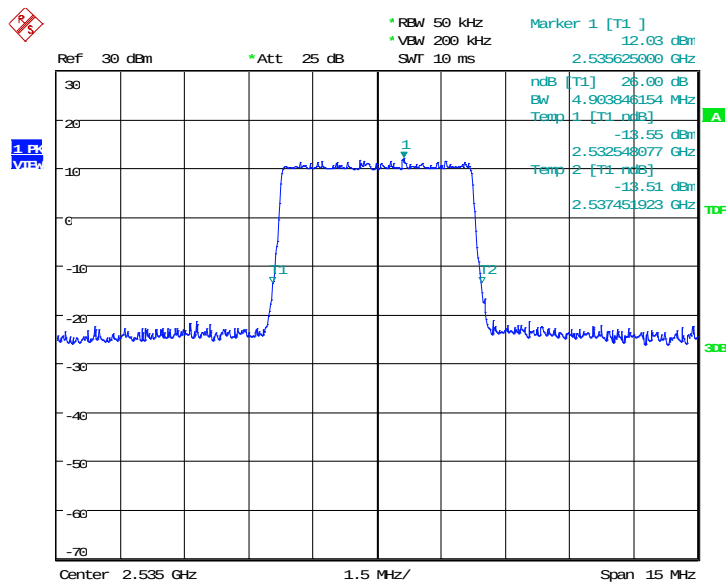
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
2535.0	QPSK	16QAM	64QAM
	4951.92	4903.85	4927.88

LTE band 7, 5MHz Bandwidth, QPSK (-26dBc BW)



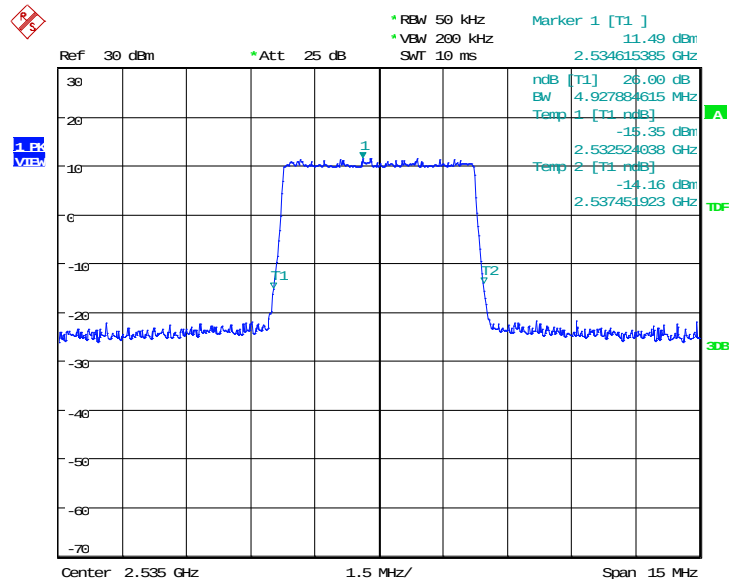
Date: 4.DEC.2019 06:16:32

LTE band 7, 5MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 06:16:47

LTE band 7, 5MHz Bandwidth,64QAM (-26dBc BW)

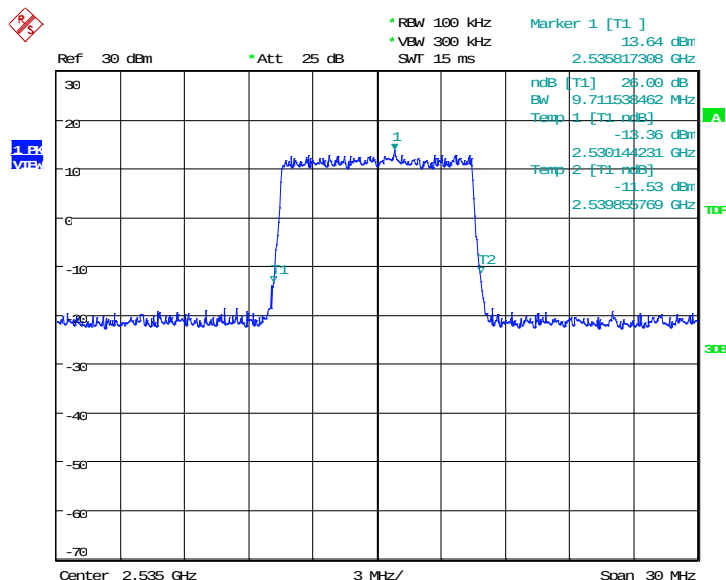


Date: 5.DEC.2019 13:00:38

LTE band 7, 10MHz (-26dBc BW)

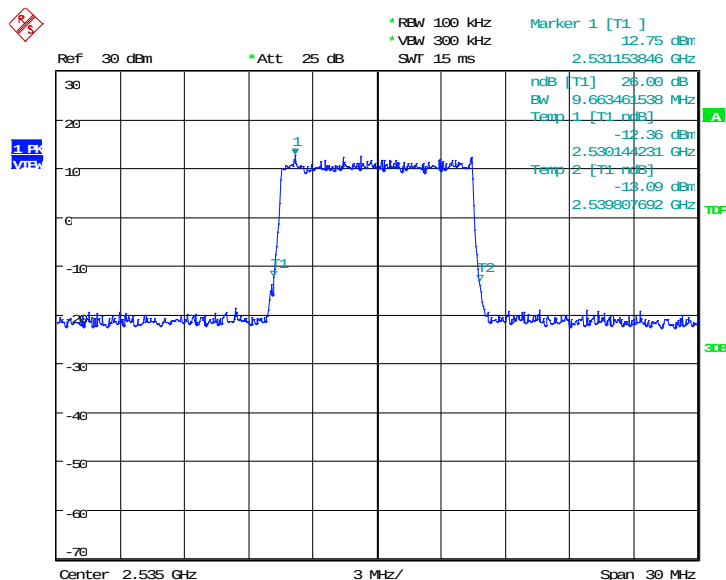
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
2535.0	QPSK	16QAM	64QAM
	9711.54	9663.46	9663.46

LTE band 7, 10MHz Bandwidth, QPSK (-26dBc BW)



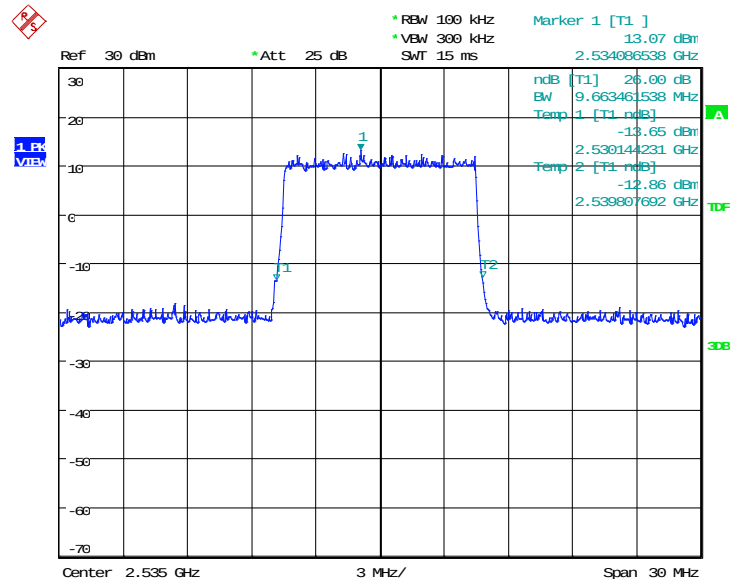
Date: 4.DEC.2019 06:20:52

LTE band 7, 10MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 06:21:08

LTE band 7, 10MHz Bandwidth, 64QAM (-26dBc BW)

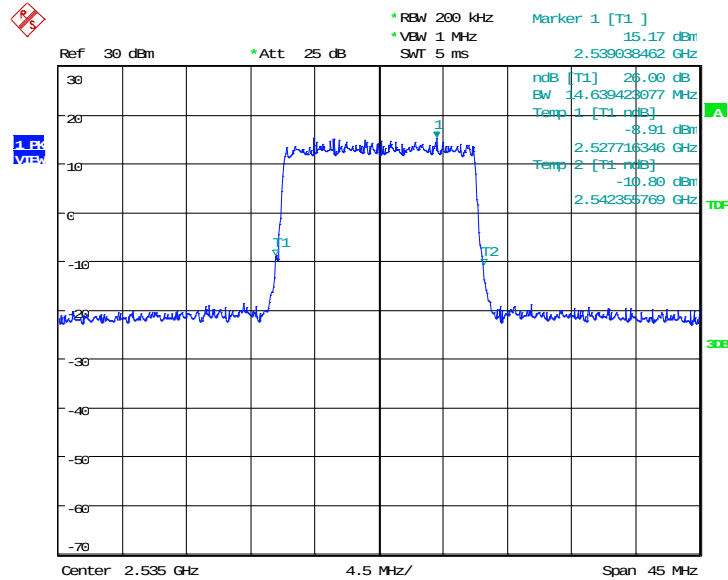


Date: 5.DEC.2019 13:04:08

LTE band 7, 15MHz (-26dBc BW)

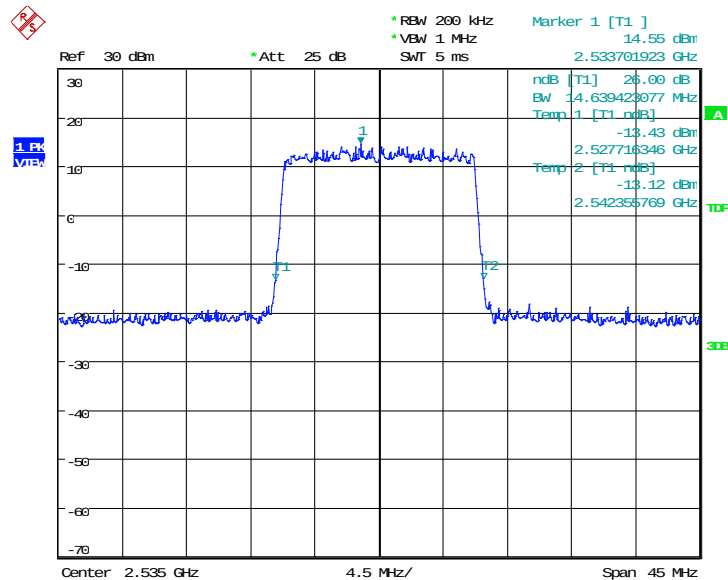
Frequency(MHz)	Emission Bandwidth (-26dBc BW)(kHz)		
2535.0	QPSK	16QAM	64QAM
	14639.42	14639.42	14567.31

LTE band 7, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 4.DEC.2019 06:25:10

LTE band 7, 15MHz Bandwidth, 16QAM (-26dBc BW)



Date: 4.DEC.2019 06:25:26

* RBW 200 kHz
 * VBW 1 MHz
 * SWT 5 ms

Marker 1 [T1]
 14.95 dBm
 2.541201923 GHz

Ref 30 dBm
 * Att 25 dB

ndB [T1] 26.00 dB
 BW 14.567307692 MHz
 Temp 1 [T1 ndB] -11.58 dBm
 2.527788462 GHz
 Temp 2 [T1 ndB] -11.08 dBm
 2.542355769 GHz

Center 2.535 GHz
 4.5 MHz/
 Span 45 MHz

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