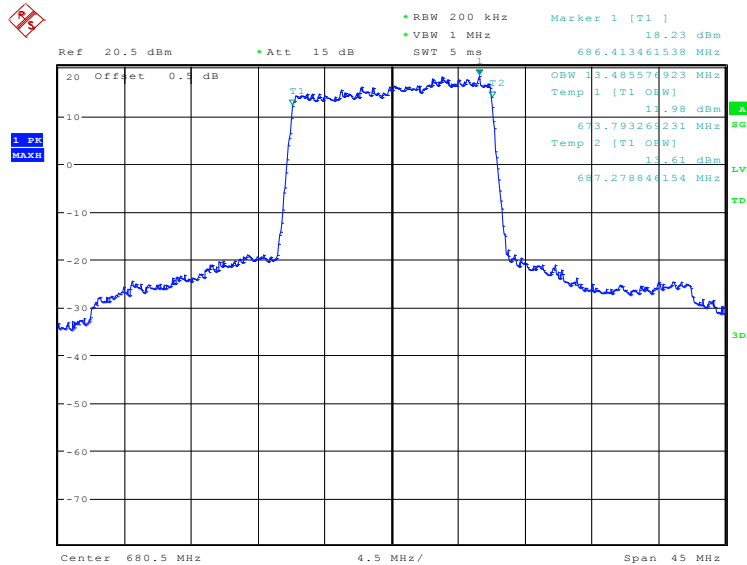


LTE band 71, 15MHz (99%)

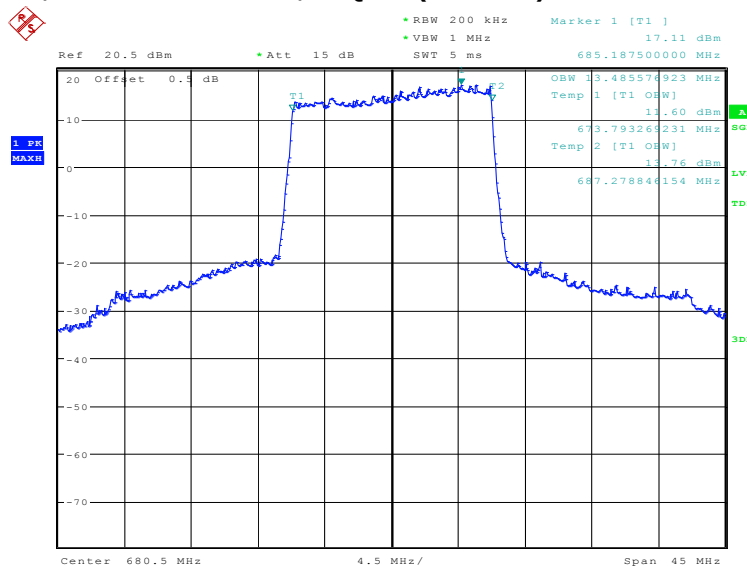
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)	
680.5	QPSK	16QAM
	13485.58	13485.58

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



Date: 15.NOV.2019 13:30:07

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

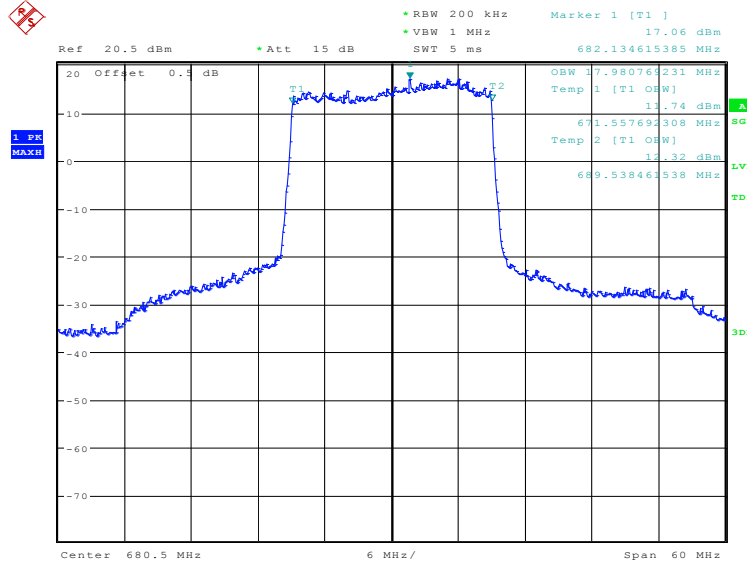


Date: 15.NOV.2019 13:31:31

LTE band 71, 20MHz (99%)

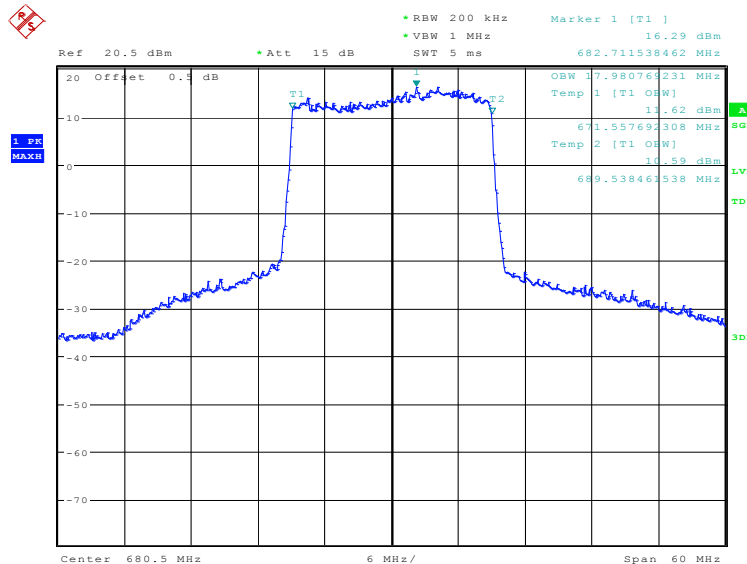
Frequency (MHz)	Occupied Bandwidth (99%) (kHz)	
680.5	QPSK	16QAM
	17980.77	17980.77

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



Date: 15.NOV.2019 13:32:57

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



Date: 15.NOV.2019 13:34:21

A.5 EMISSION BANDWIDTH

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.

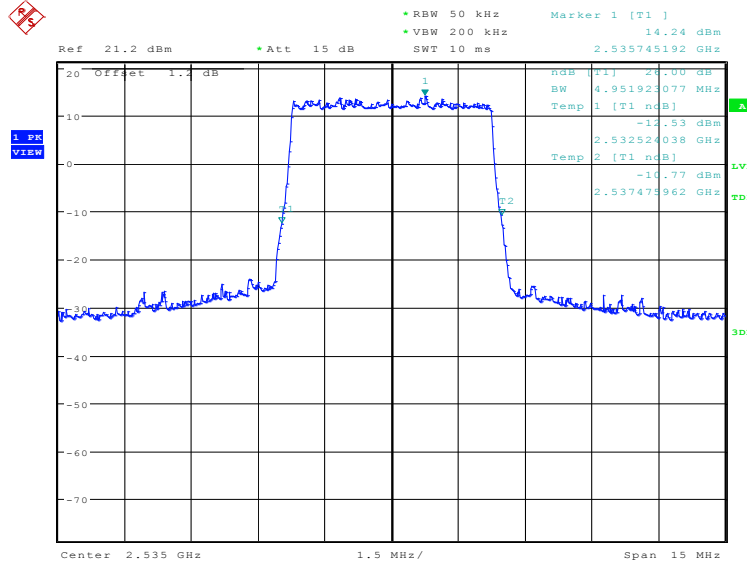
The measurement method is from ANSI C63.26:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold.

LTE band 7, 5MHz (-26dBc)

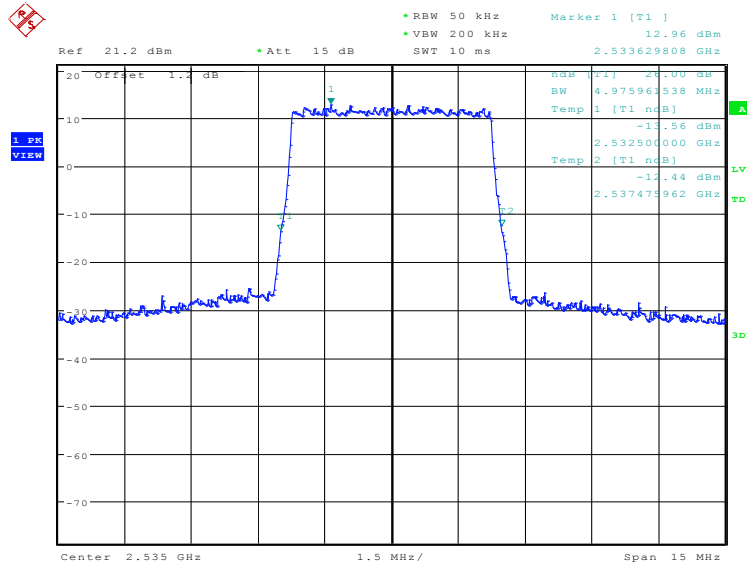
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	4951.92	4975.96

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



Date: 10.SEP.2019 20:20:37

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

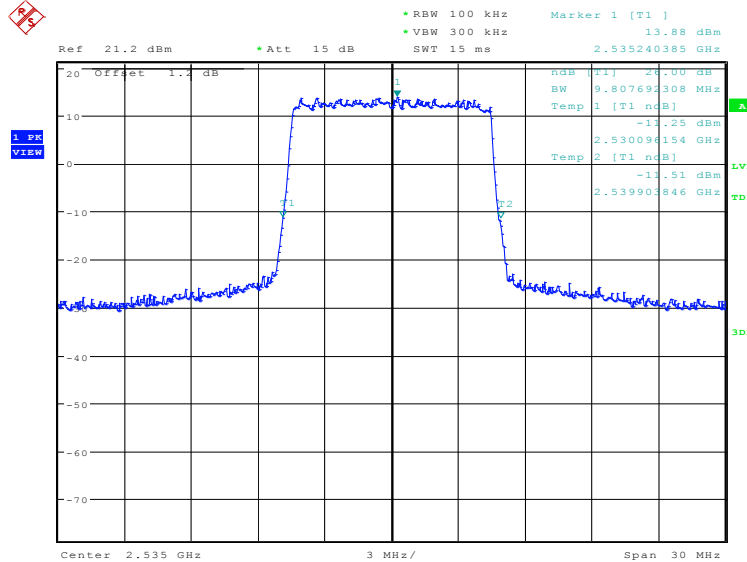


Date: 10.SEP.2019 20:22:02

LTE band 7, 10MHz (-26dBc)

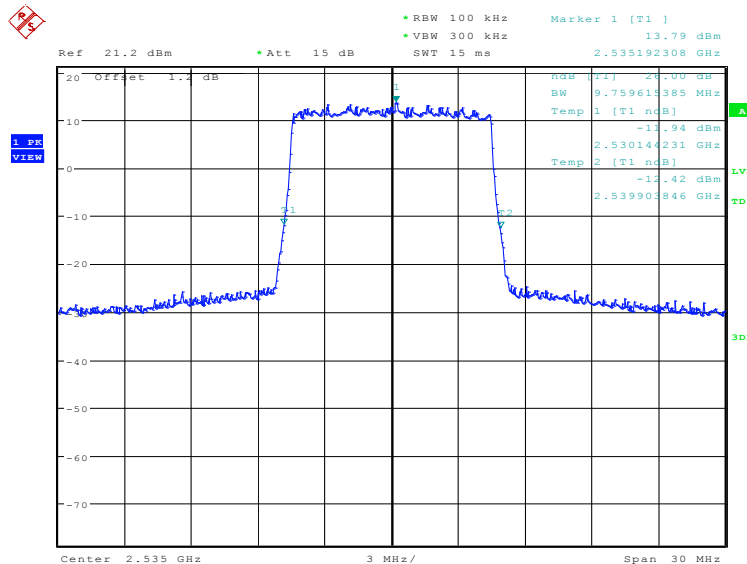
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	9807.69	9759.62

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



Date: 10.SEP.2019 20:23:28

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



Date: 10.SEP.2019 20:24:52

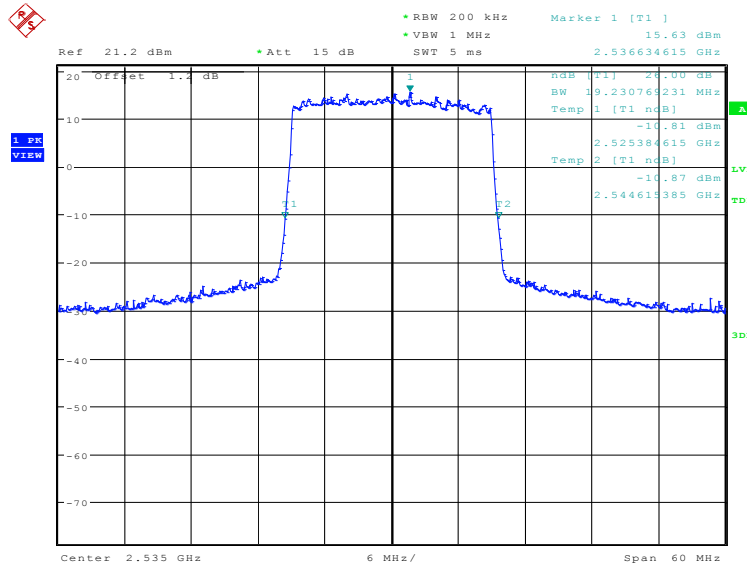
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	14783.65	14711.54



LTE band 7, 20MHz (-26dBc)

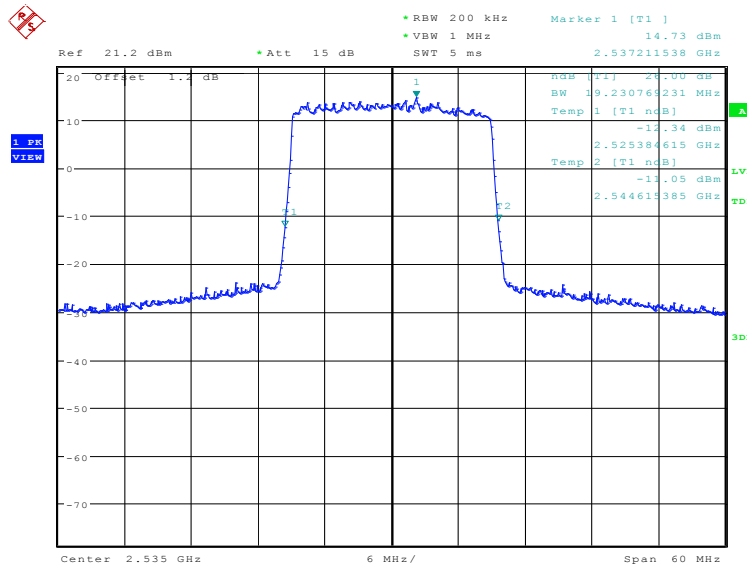
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2535.0	QPSK	16QAM
	19230.77	19230.77

LTE band 7, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:29:09

LTE band 7, 20MHz Bandwidth, 16QAM (-26dBc BW)

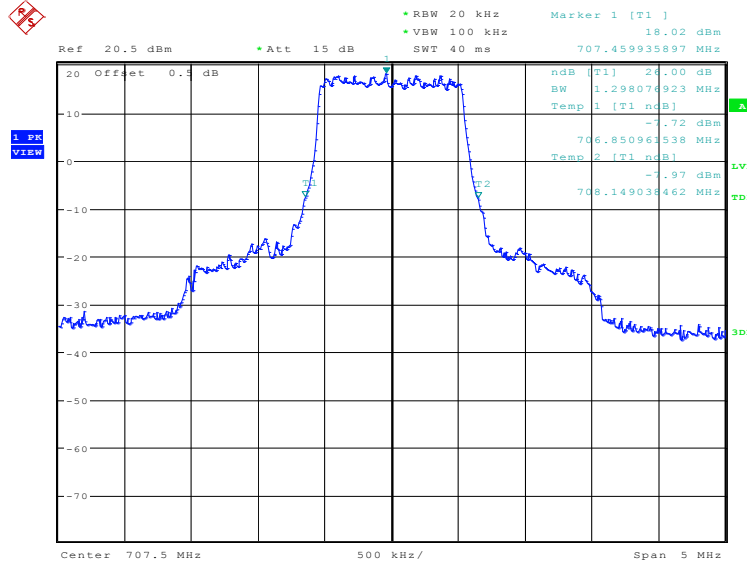


Date: 10.SEP.2019 20:30:34

LTE band 12, 1.4MHz (-26dBc)

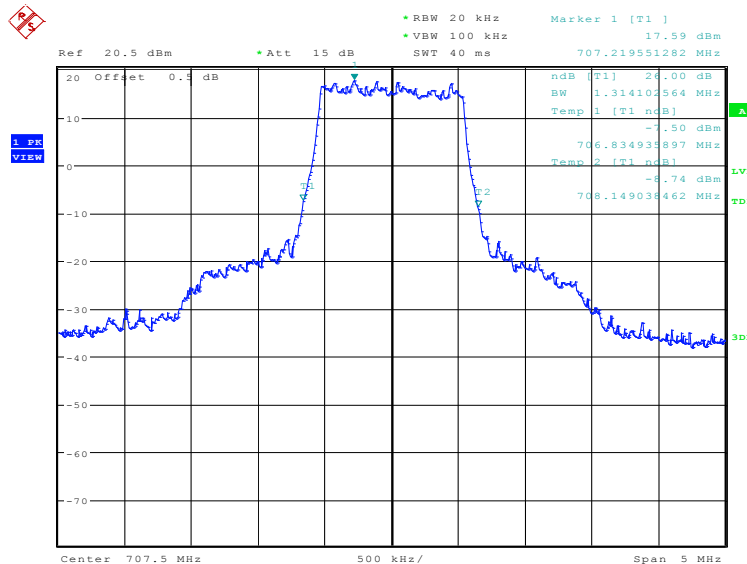
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	1298.08	1314.10

LTE band 12, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:32:49

LTE band 12, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

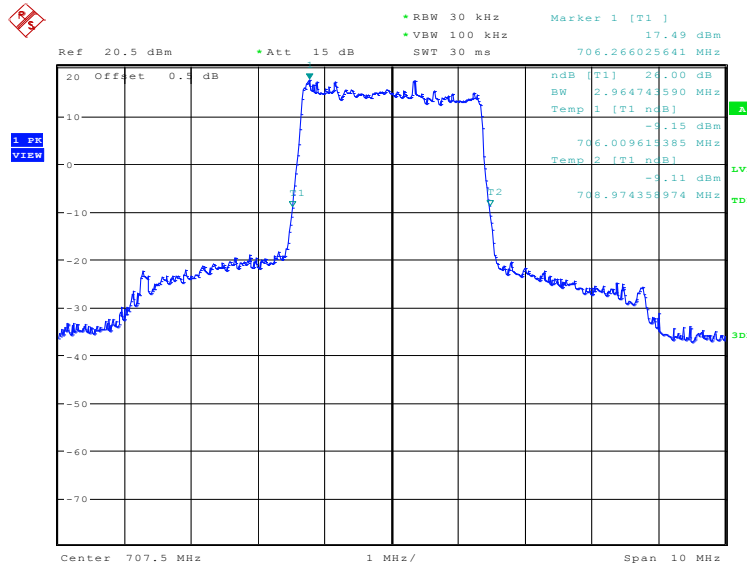


Date: 10.SEP.2019 20:34:13

LTE band 12, 3MHz (-26dBc)

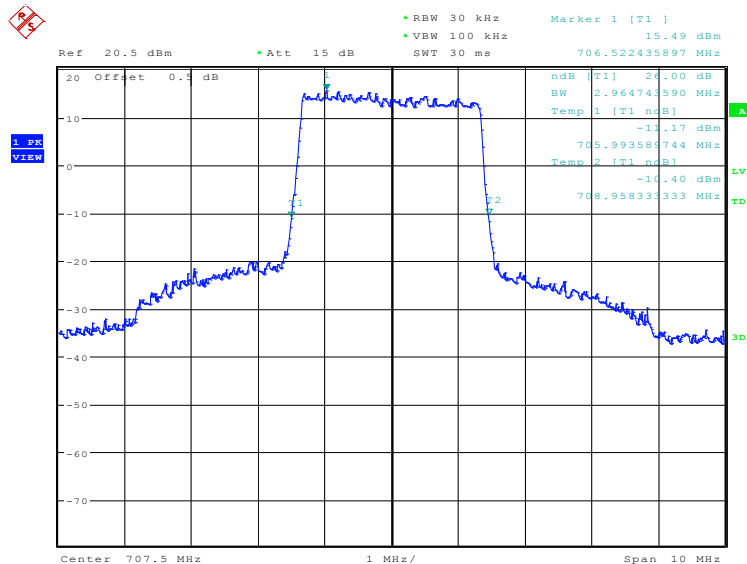
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	2964.74	2964.74

LTE band 12, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:35:39

LTE band 12, 3MHz Bandwidth, 16QAM (-26dBc BW)

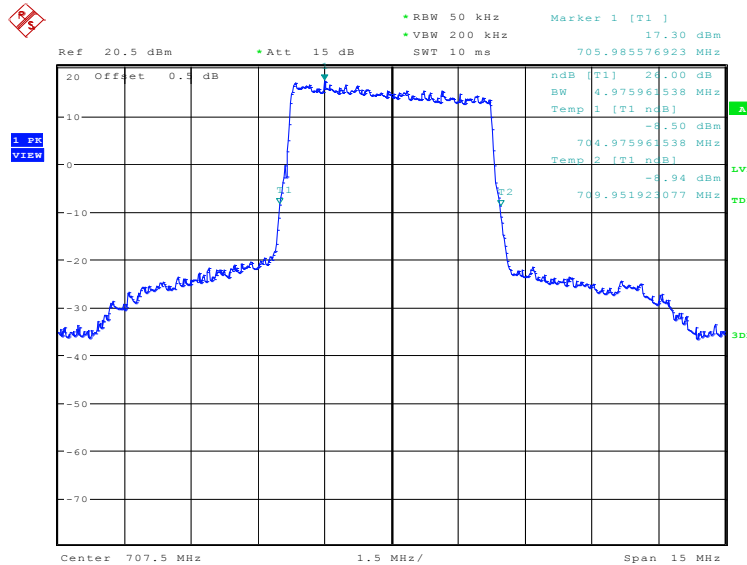


Date: 10.SEP.2019 20:37:04

LTE band 12, 5MHz (-26dBc)

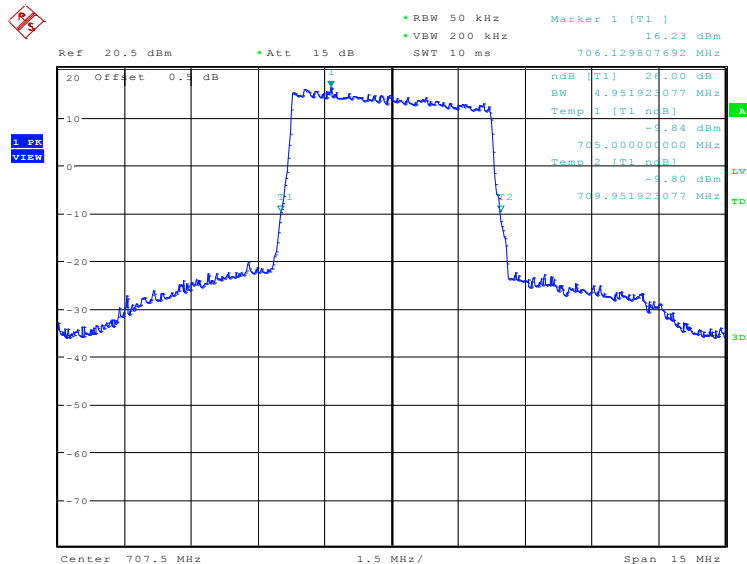
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	4975.96	4951.92

LTE band 12, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:38:30

LTE band 12, 5MHz Bandwidth, 16QAM (-26dBc BW)

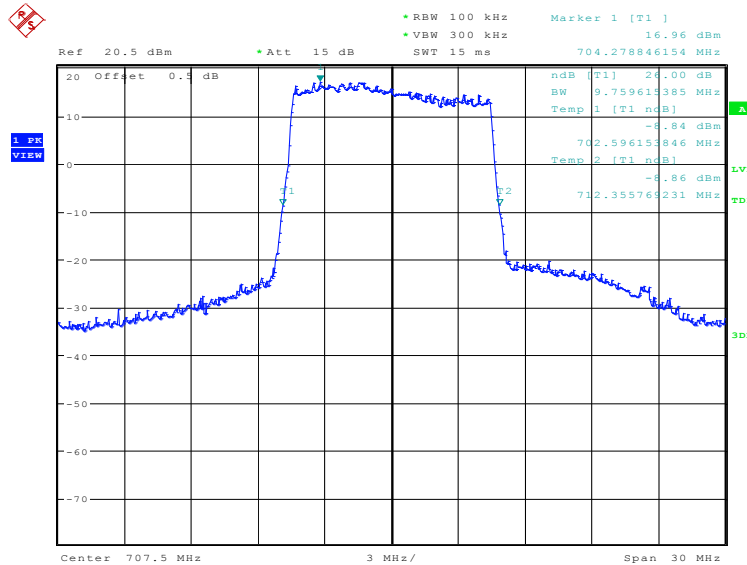


Date: 10.SEP.2019 20:39:55

LTE band 12, 10MHz (-26dBc)

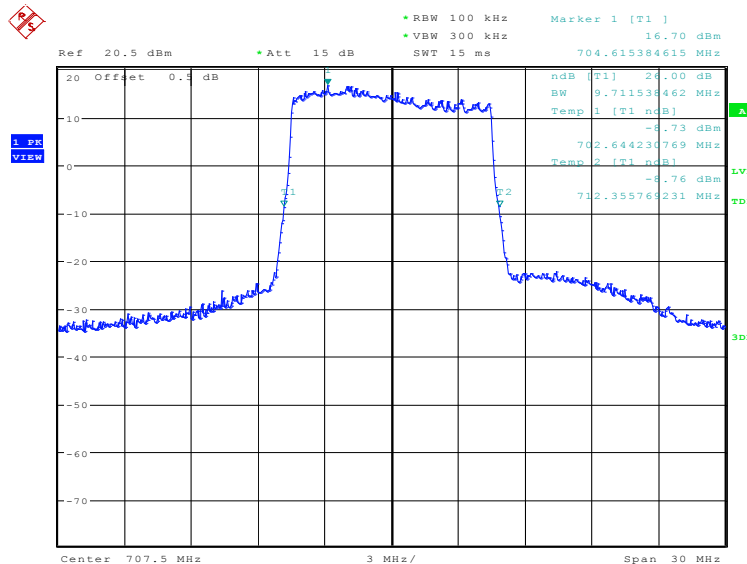
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
707.5	QPSK	16QAM
	9759.62	9711.54

LTE band 12, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:41:21

LTE band 12, 10MHz Bandwidth, 16QAM (-26dBc BW)

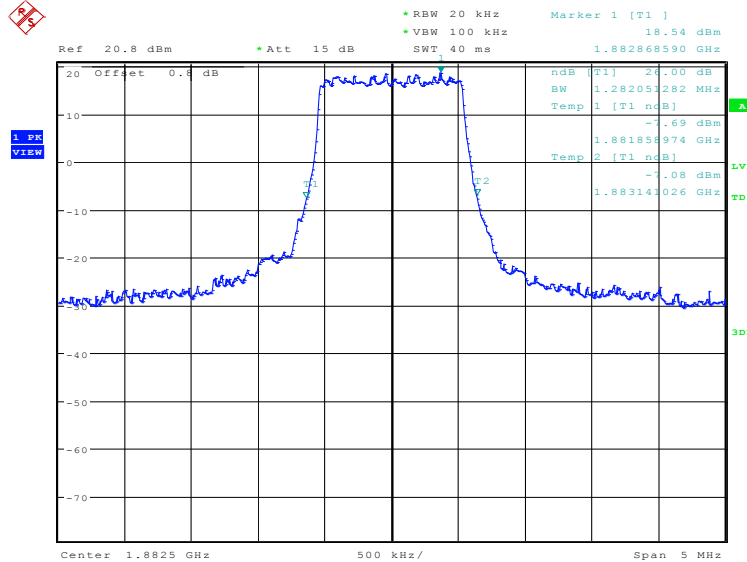


Date: 10.SEP.2019 20:42:46

/LTE band 25, 1.4MHz (-26dBc)

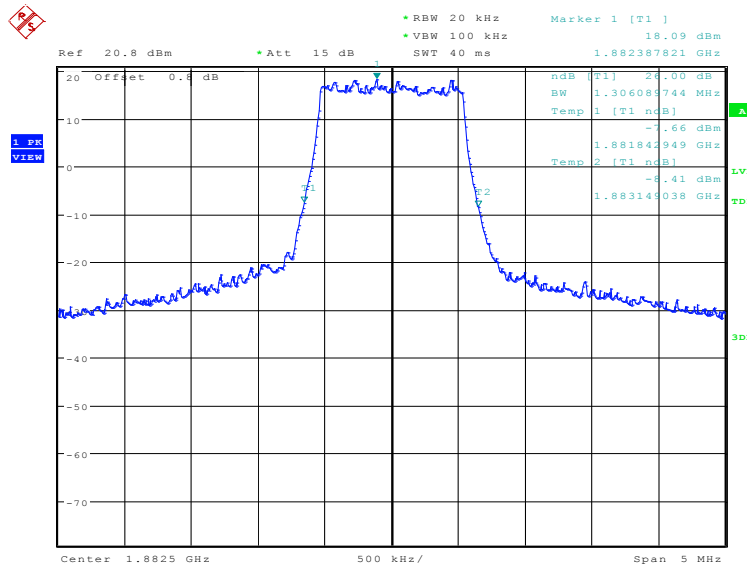
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	1282.05	1306.09

LTE band 25, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:08:33

LTE band 25, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

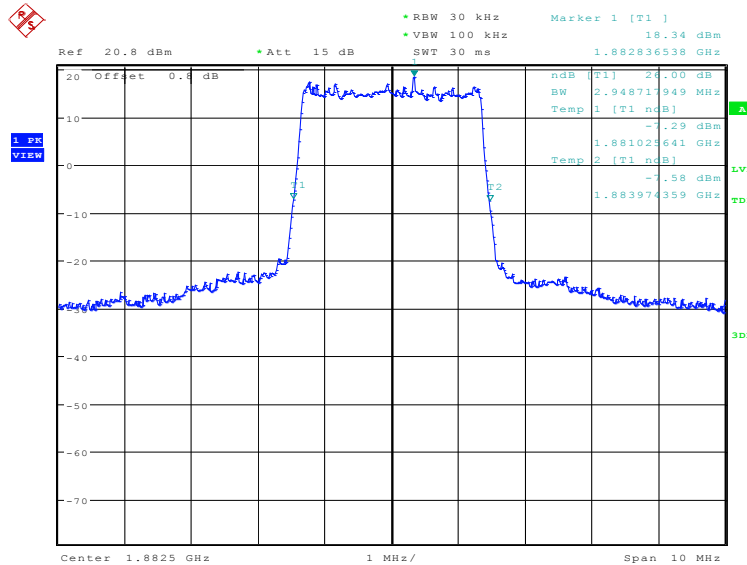


Date: 11.SEP.2019 17:09:57

LTE band 25, 3MHz (-26dBc)

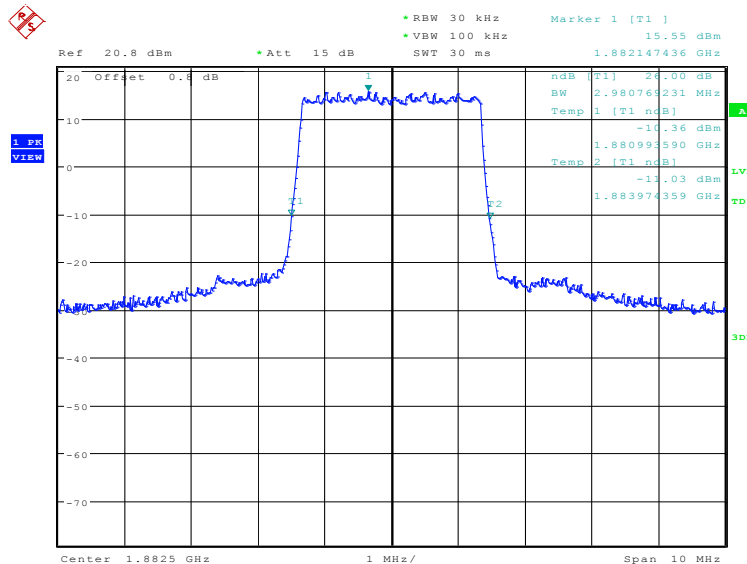
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	2948.72	2980.77

LTE band 25, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:11:22

LTE band 25, 3MHz Bandwidth, 16QAM (-26dBc BW)

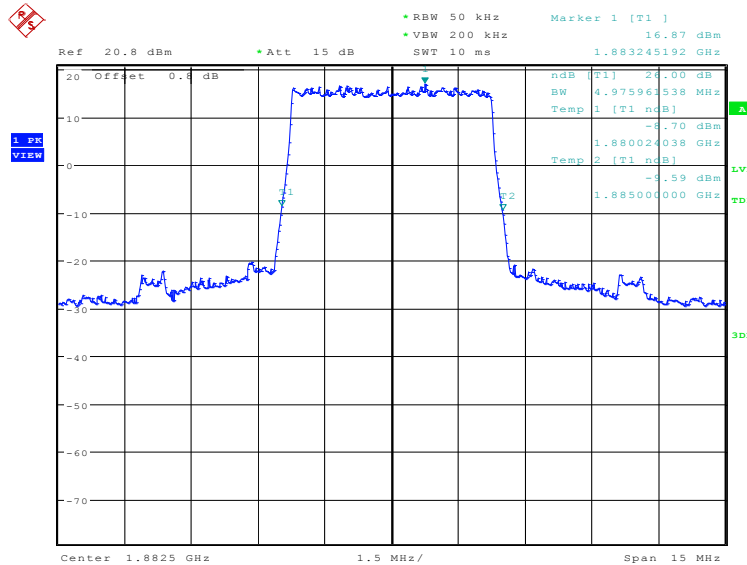


Date: 11.SEP.2019 17:12:46

LTE band 25, 5MHz (-26dBc)

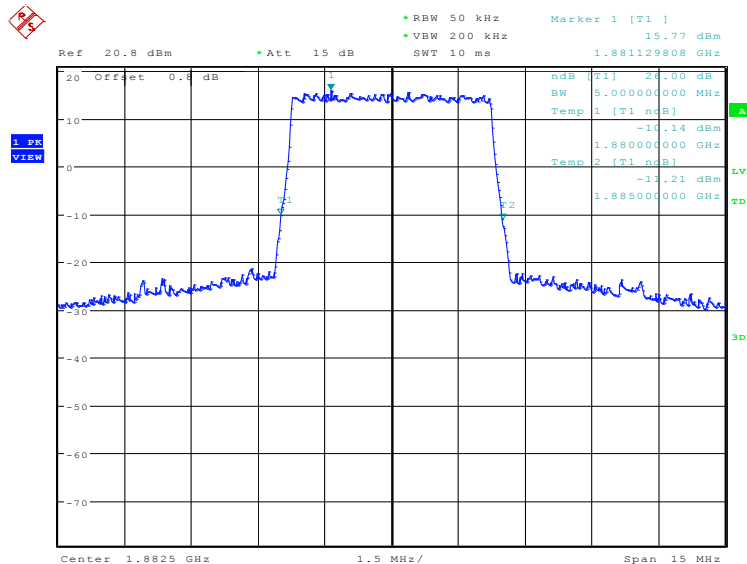
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	4975.96	5000.00

LTE band 25, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:14:12

LTE band 25, 5MHz Bandwidth, 16QAM (-26dBc BW)

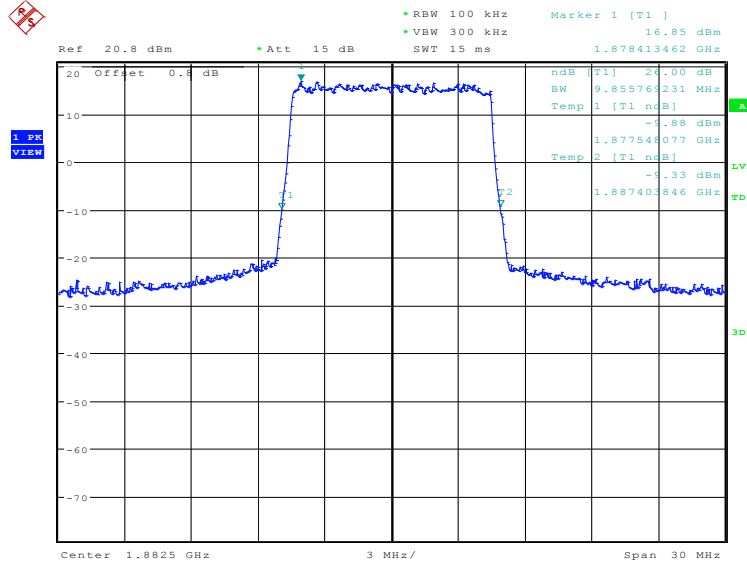


Date: 11.SEP.2019 17:15:36

LTE band 25, 10MHz (-26dBc)

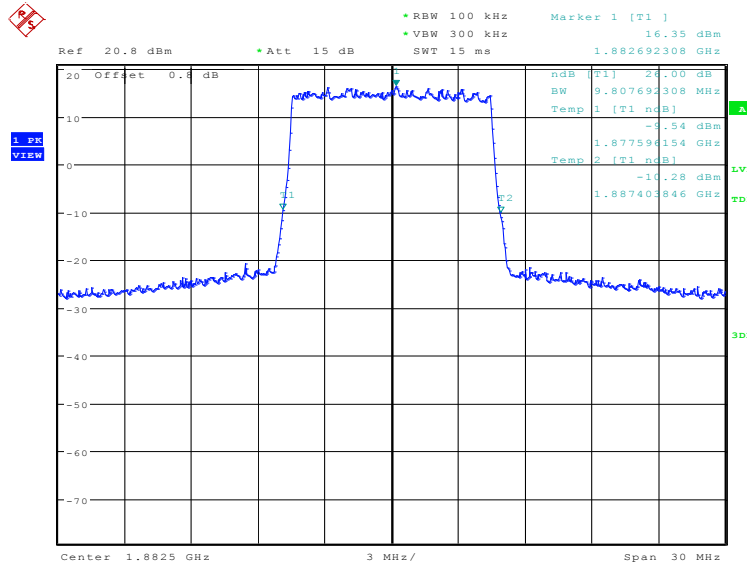
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	9855.77	9807.69

LTE band 25, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:17:02

LTE band 25, 10MHz Bandwidth, 16QAM (-26dBc BW)

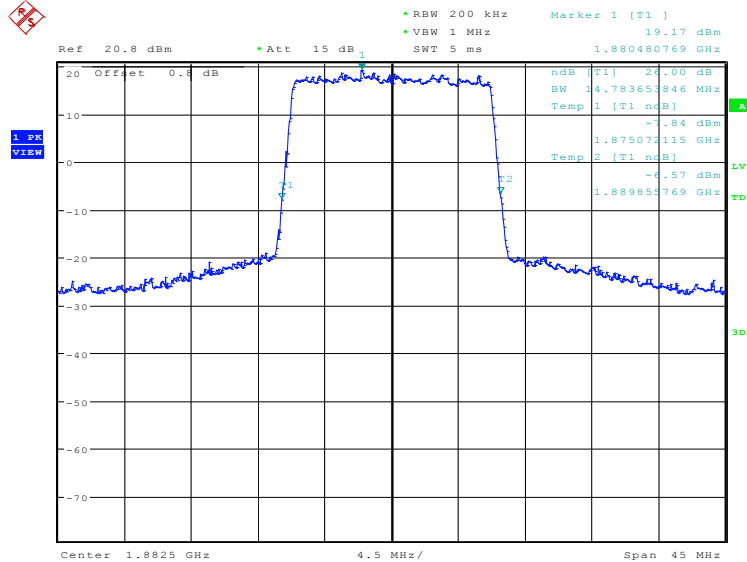


Date: 11.SEP.2019 17:18:26

LTE band 25, 15MHz (-26dBc)

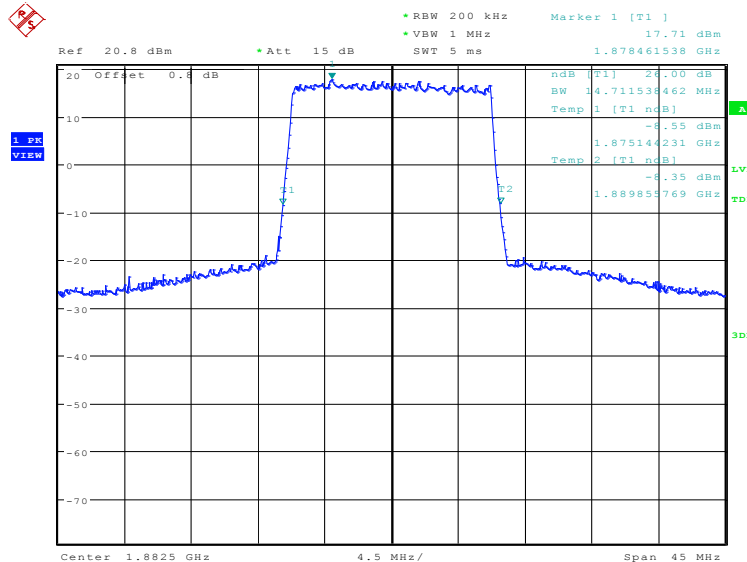
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	14783.65	14711.54

LTE band 25, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:19:55

LTE band 25, 15MHz Bandwidth, 16QAM (-26dBc BW)

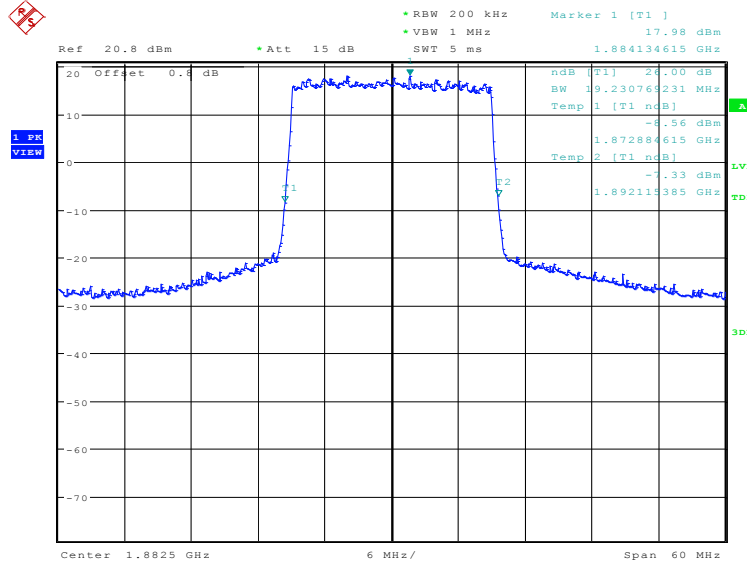


Date: 11.SEP.2019 17:21:19

LTE band 25, 20MHz (-26dBc)

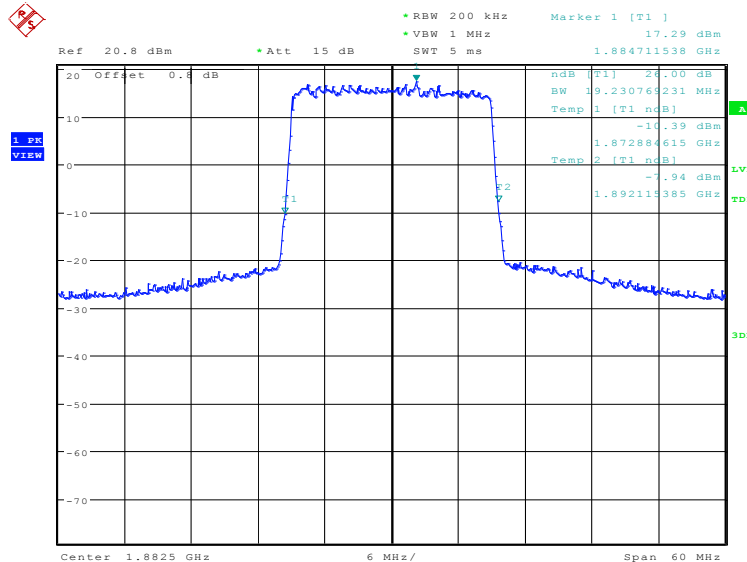
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1882.5	QPSK	16QAM
	19230.77	19230.77

LTE band 25, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:22:44

LTE band 25, 20MHz Bandwidth, 16QAM (-26dBc BW)

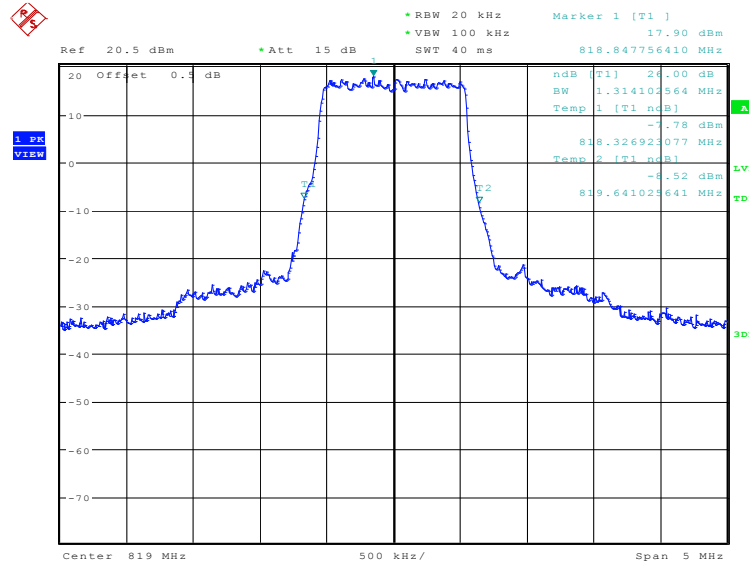


Date: 11.SEP.2019 17:24:09

LTE band 26(814MHz~824MHz), 1.4MHz (-26dBc)

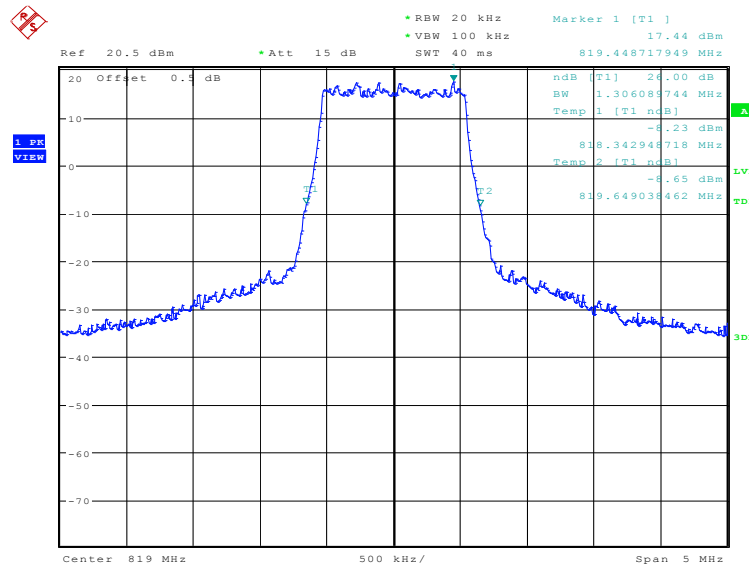
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	1314.10	1306.09

LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:01:00

LTE band 26(814MHz~824MHz), 1.4MHz Bandwidth, 16QAM (-26dBc BW)

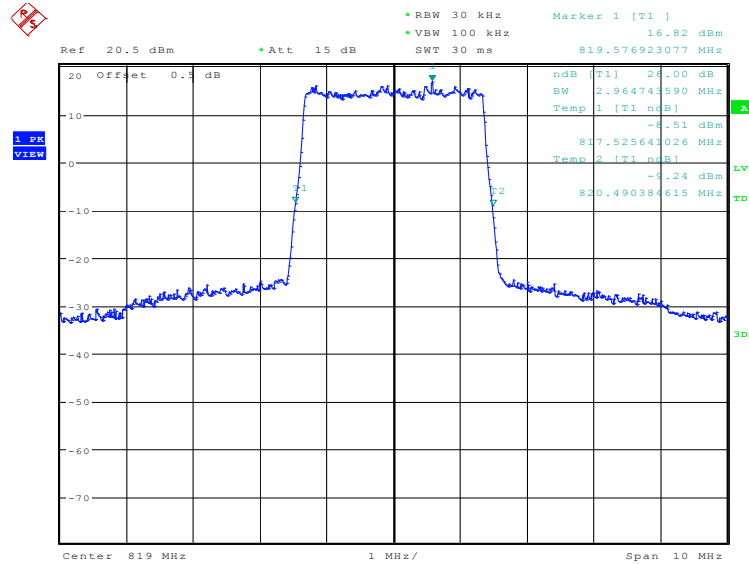


Date: 10.SEP.2019 21:02:25

LTE band 26(814MHz~824MHz), 3MHz (-26dBc)

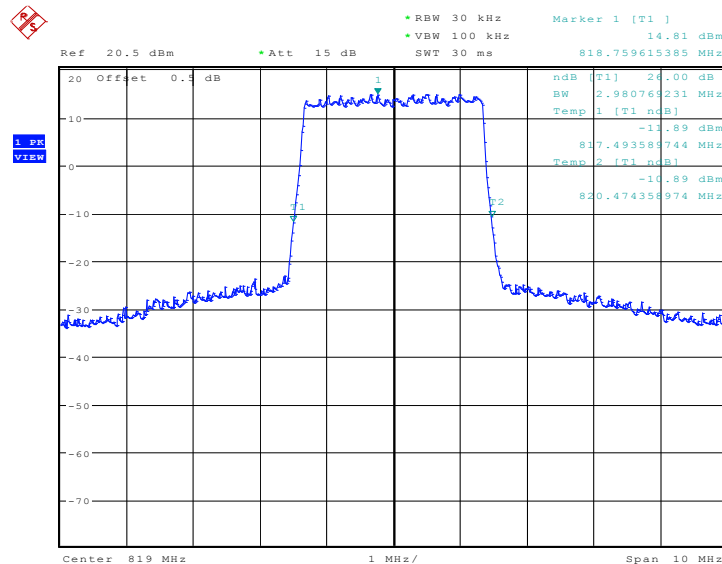
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	2964.74	2980.77

LTE band 26(814MHz~824MHz), 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:03:51

LTE band 26(814MHz~824MHz), 3MHz Bandwidth, 16QAM (-26dBc BW)

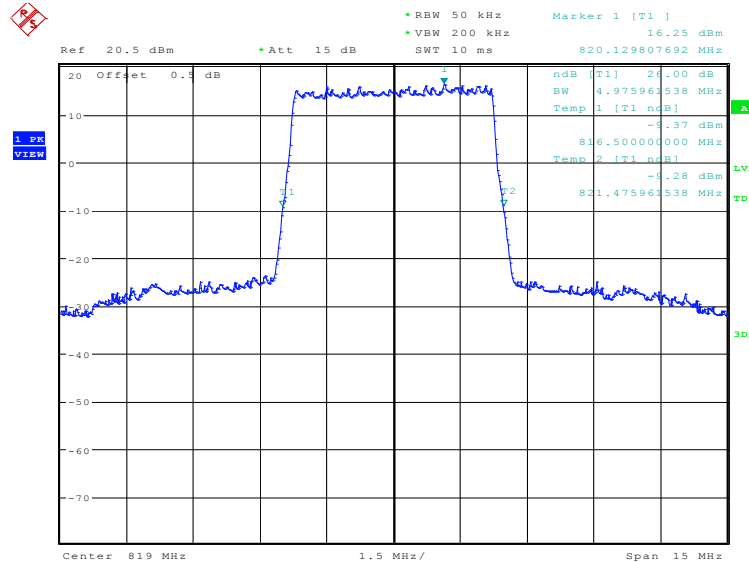


Date: 10.SEP.2019 21:05:15

LTE band 26(814MHz~824MHz), 5MHz (-26dBc)

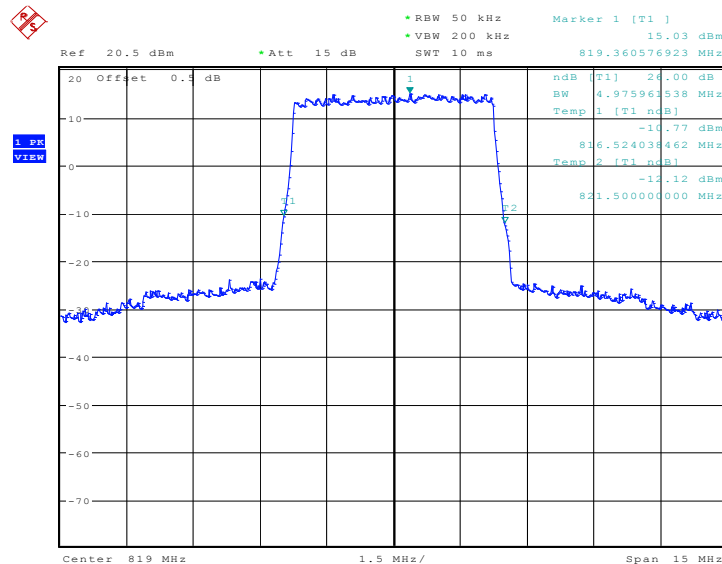
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	4975.96	4975.96

LTE band 26(814MHz~824MHz), 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:06:42

LTE band 26(814MHz~824MHz), 5MHz Bandwidth, 16QAM (-26dBc BW)

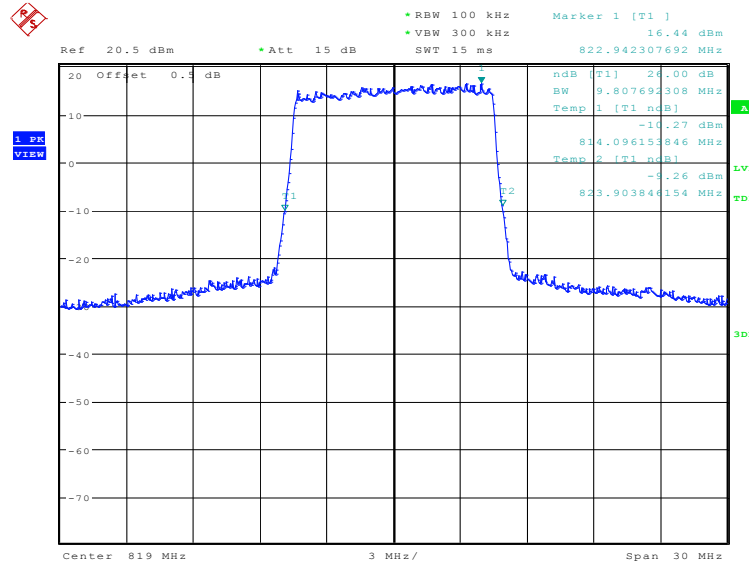


Date: 10.SEP.2019 21:08:07

LTE band 26(814MHz~824MHz), 10MHz (-26dBc)

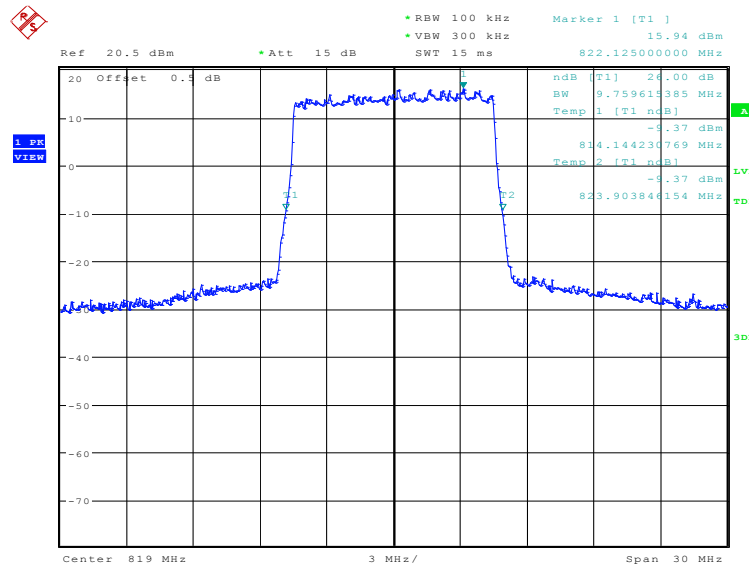
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
819.0	QPSK	16QAM
	9807.69	9759.62

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:09:33

LTE band 26(814MHz~824MHz), 10MHz Bandwidth, 16QAM (-26dBc BW)

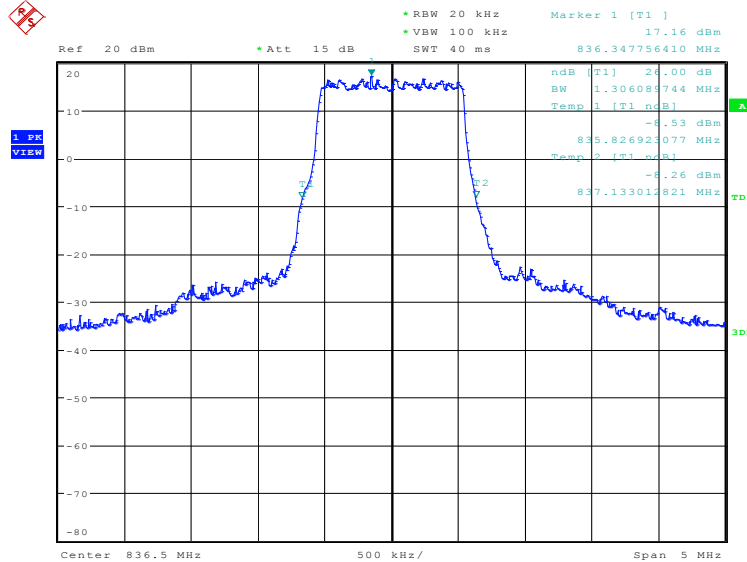


Date: 10.SEP.2019 21:10:58

LTE band 26(824MHz~849MHz), 1.4MHz (-26dBc)

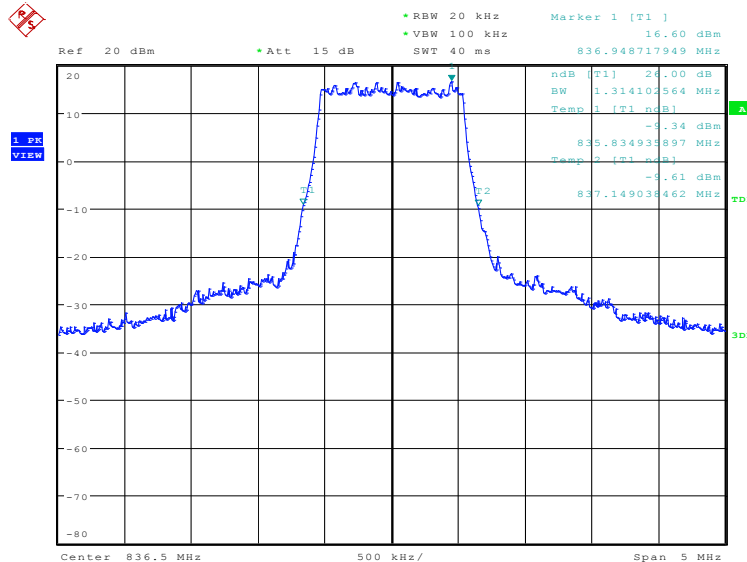
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	1306.09	1314.10

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:44:17

LTE band 26(824MHz~849MHz), 1.4MHz Bandwidth, 16QAM (-26dBc BW)

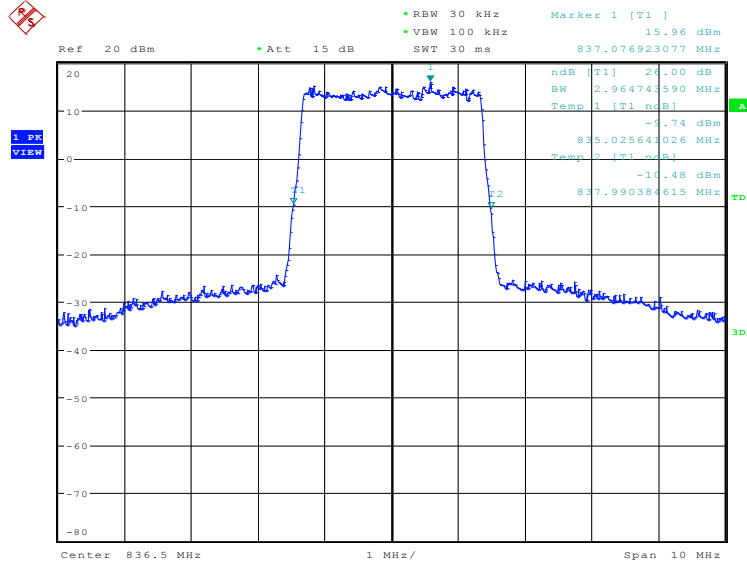


Date: 10.SEP.2019 20:45:42

LTE band 26(824MHz~849MHz), 3MHz (-26dBc)

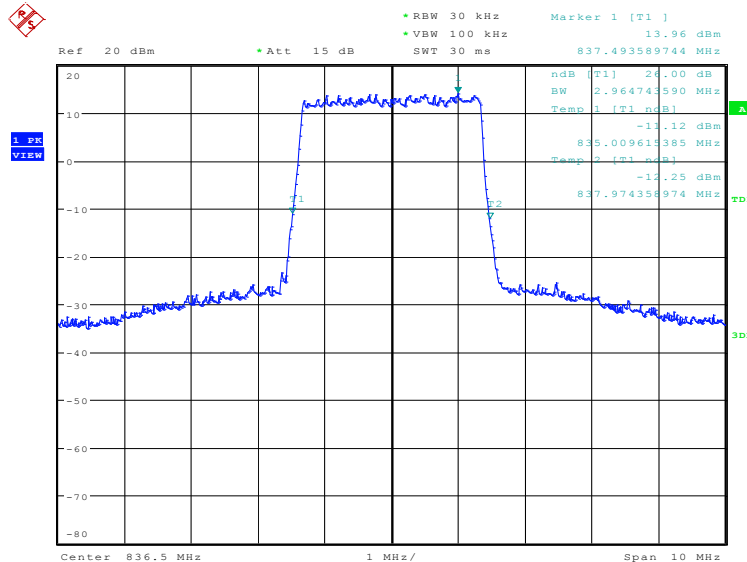
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	2964.74	2964.74

LTE band 26(824MHz~849MHz), 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:47:08

LTE band 26(824MHz~849MHz), 3MHz Bandwidth, 16QAM (-26dBc BW)

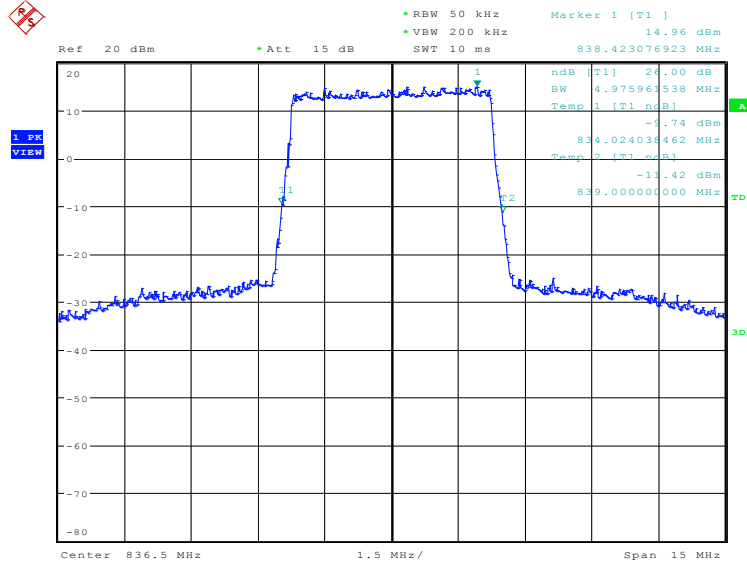


Date: 10.SEP.2019 20:48:33

LTE band 26(824MHz~849MHz), 5MHz (-26dBc)

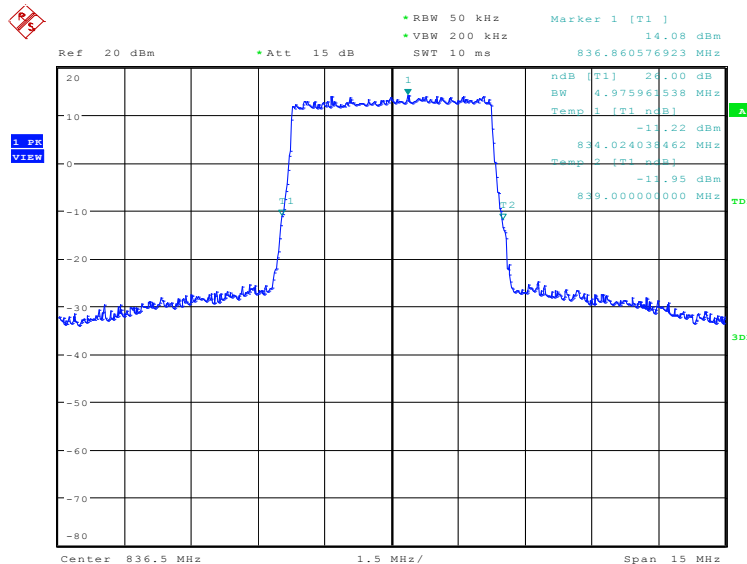
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	4975.96	4975.96

LTE band 26(824MHz~849MHz), 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:49:59

LTE band 26(824MHz~849MHz), 5MHz Bandwidth, 16QAM (-26dBc BW)

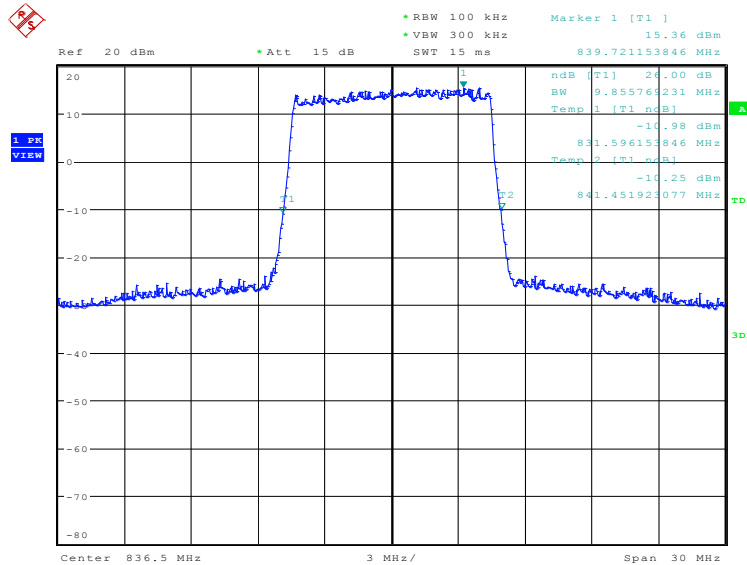


Date: 10.SEP.2019 20:51:24

LTE band 26(824MHz~849MHz), 10MHz (-26dBc)

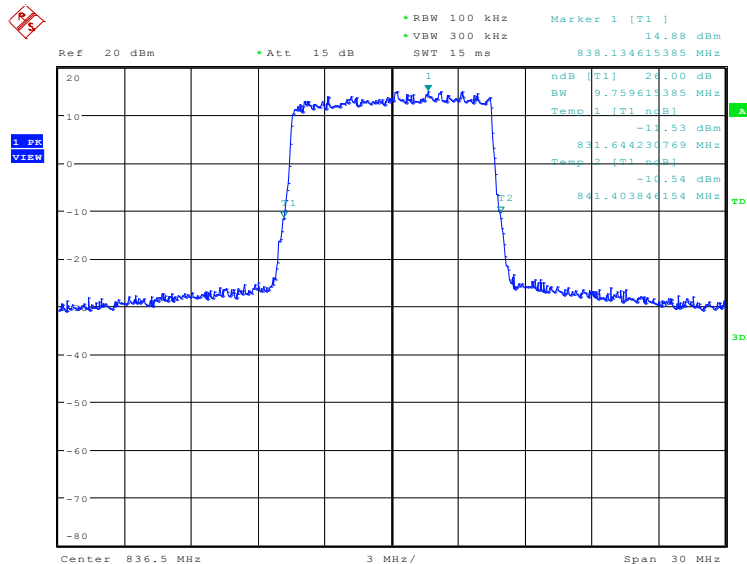
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	9855.77	9759.62

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:52:50

LTE band 26(824MHz~849MHz), 10MHz Bandwidth, 16QAM (-26dBc BW)

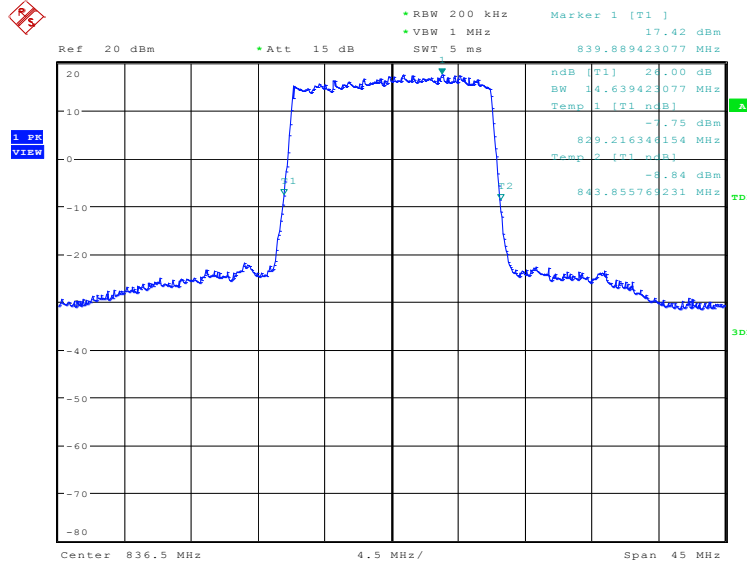


Date: 10.SEP.2019 20:54:14

LTE band 26(824MHz~849MHz), 15MHz (-26dBc)

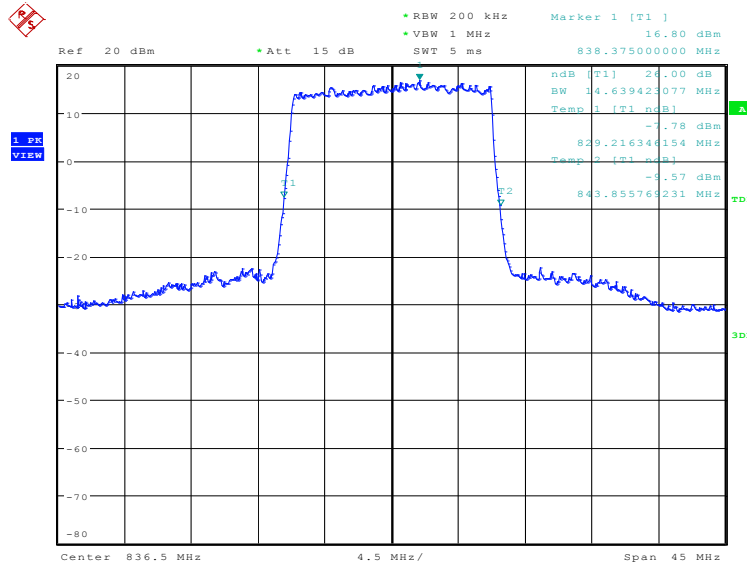
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
836.5	QPSK	16QAM
	14639.42	14639.42

LTE band 26(824MHz~849MHz), 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 20:55:41

LTE band 26(824MHz~849MHz), 15MHz Bandwidth, 16QAM (-26dBc BW)

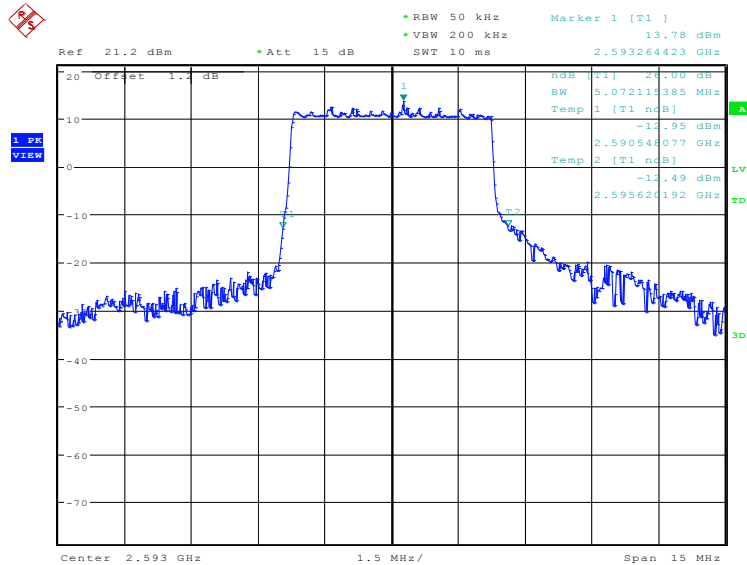


Date: 10.SEP.2019 20:57:05

LTE band 41, 5MHz (-26dBc)

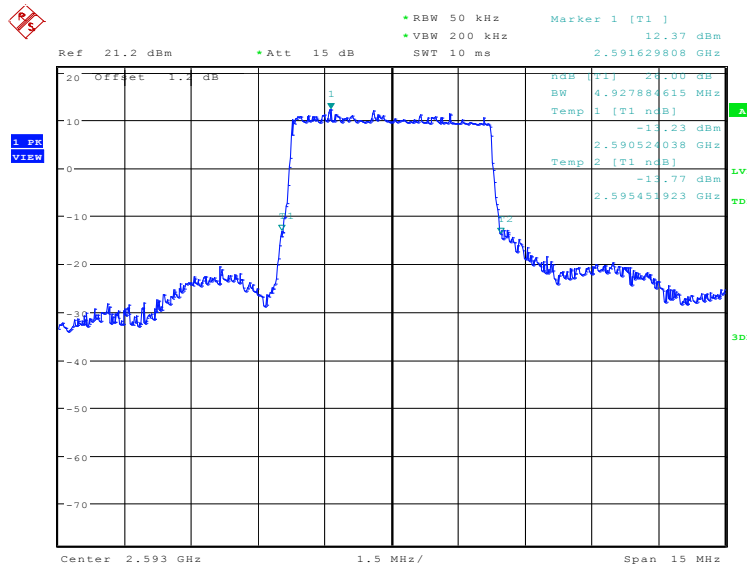
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	5072.12	4927.88

LTE band 41, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:13:04

LTE band 41, 5MHz Bandwidth, 16QAM (-26dBc BW)

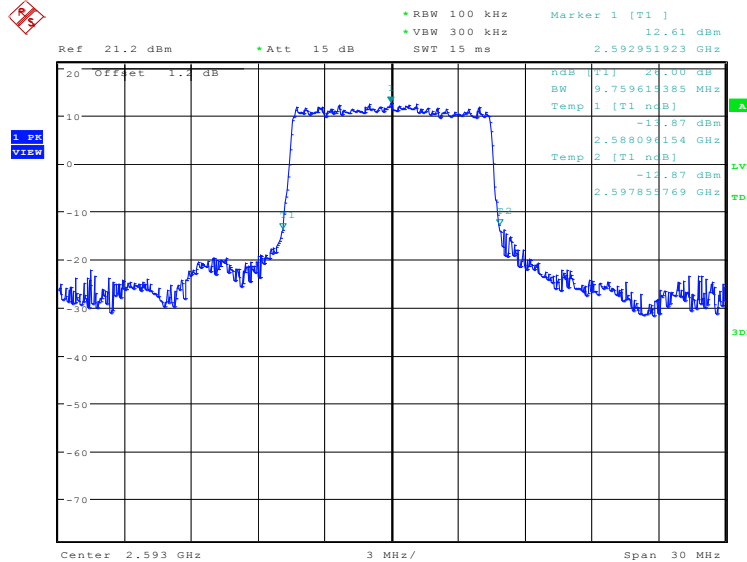


Date: 10.SEP.2019 21:14:28

LTE band 41, 10MHz (-26dBc)

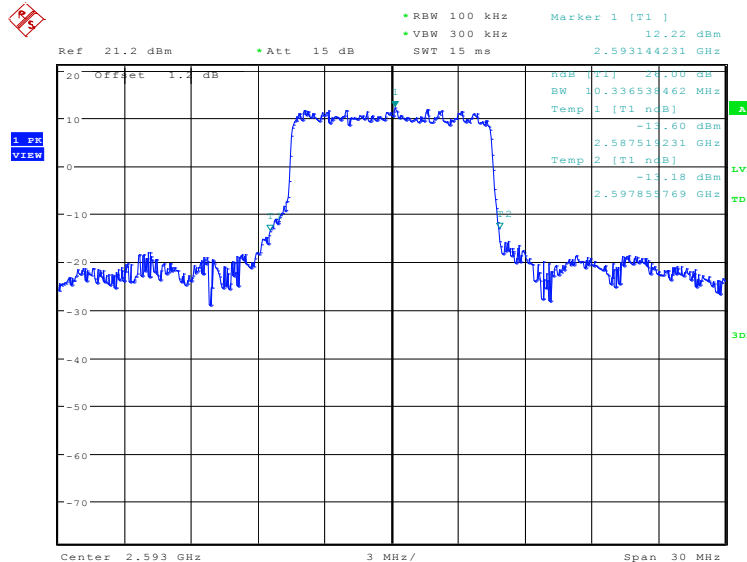
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	9759.62	10336.54

LTE band 41, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:15:55

LTE band 41, 10MHz Bandwidth, 16QAM (-26dBc BW)

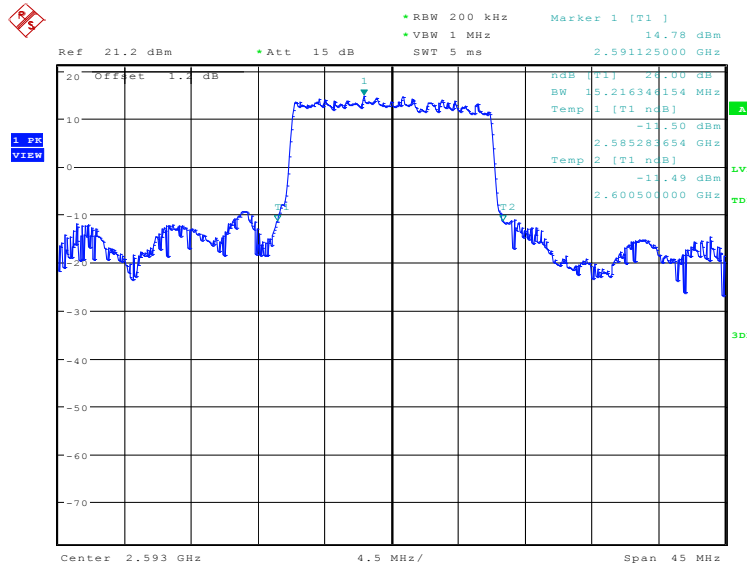


Date: 10.SEP.2019 21:17:19

LTE band 41, 15MHz (-26dBc)

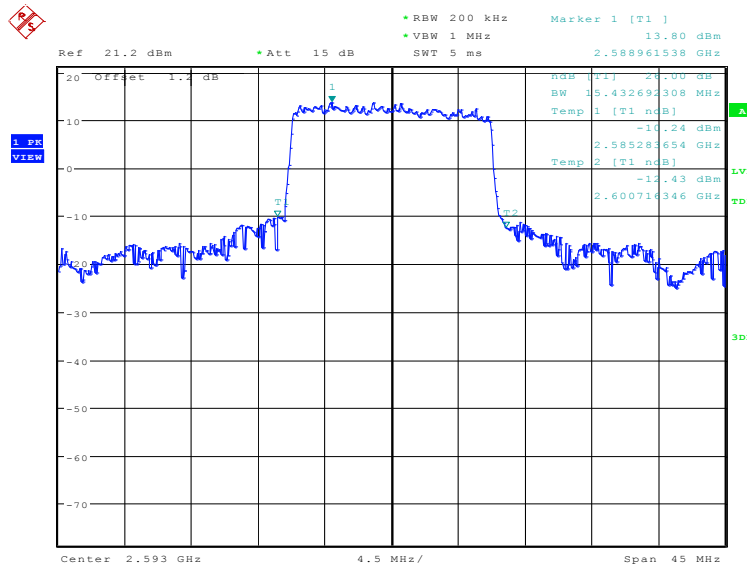
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	15216.35	15432.69

LTE band 41, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:18:46

LTE band 41, 15MHz Bandwidth,16QAM (-26dBc BW)

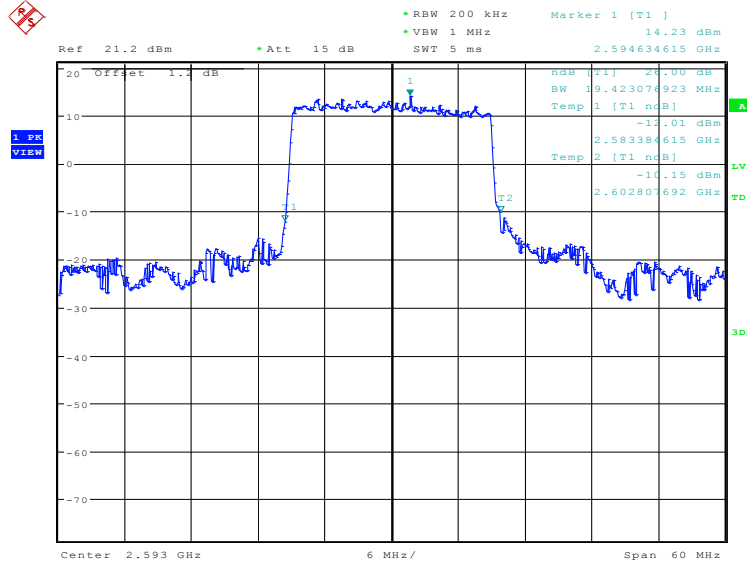


Date: 10.SEP.2019 21:20:11

LTE band 41, 20MHz (-26dBc)

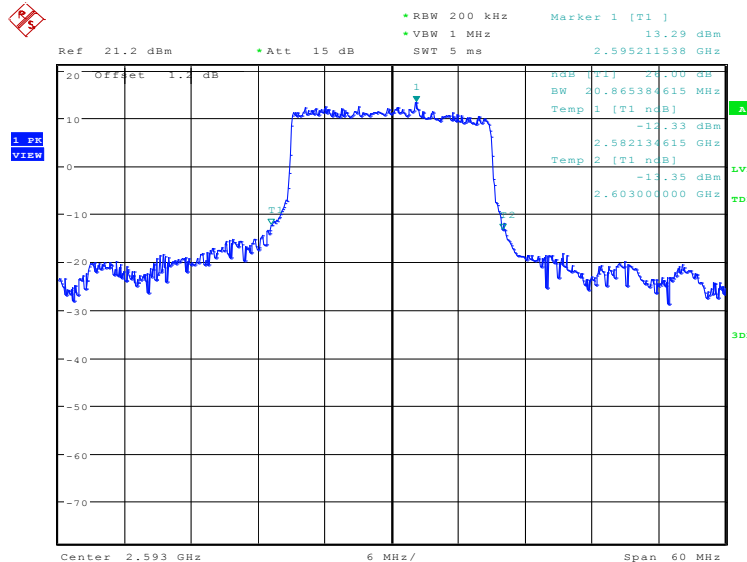
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
2593.0	QPSK	16QAM
	19423.08	20865.38

LTE band 41, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 10.SEP.2019 21:21:38

LTE band 41, 20MHz Bandwidth, 16QAM (-26dBc BW)

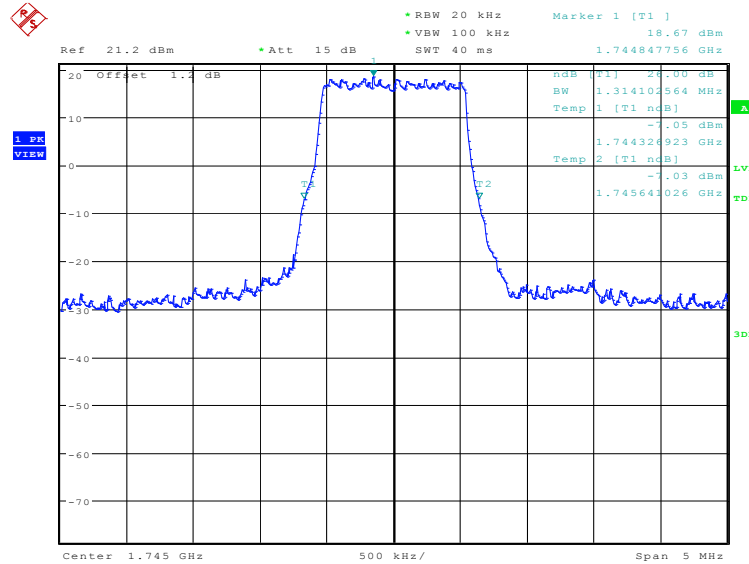


Date: 10.SEP.2019 21:23:02

LTE band 66, 1.4MHz (-26dBc)

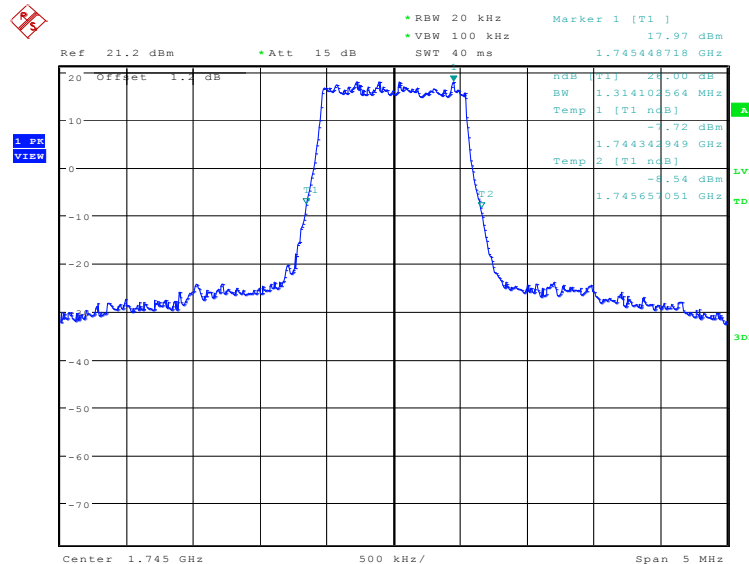
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	1314.10	1314.10

LTE band 66, 1.4MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:25:39

LTE band 66, 1.4MHz Bandwidth, 16QAM (-26dBc BW)

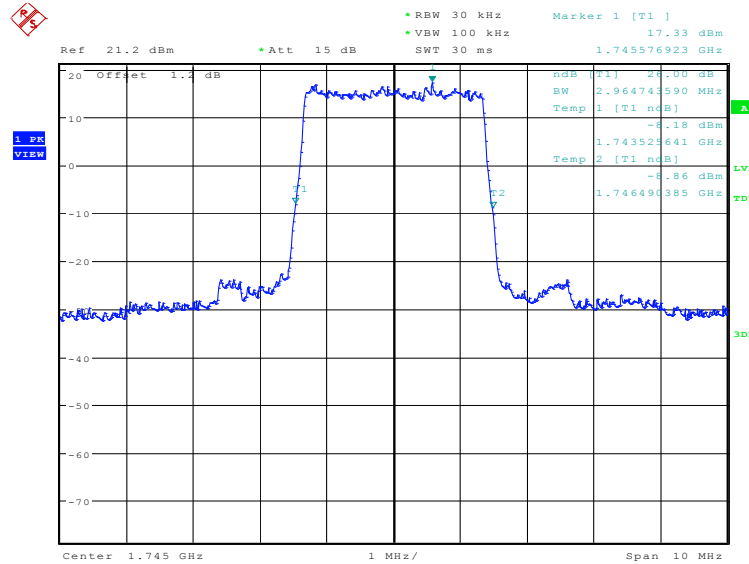


Date: 11.SEP.2019 17:27:03

LTE band 66, 3MHz (-26dBc)

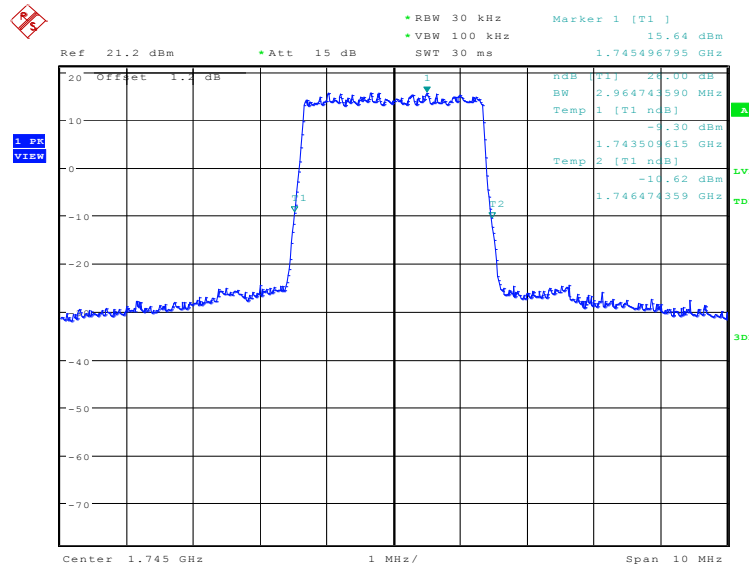
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	2964.74	2964.74

LTE band 66, 3MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:28:29

LTE band 66, 3MHz Bandwidth, 16QAM (-26dBc BW)

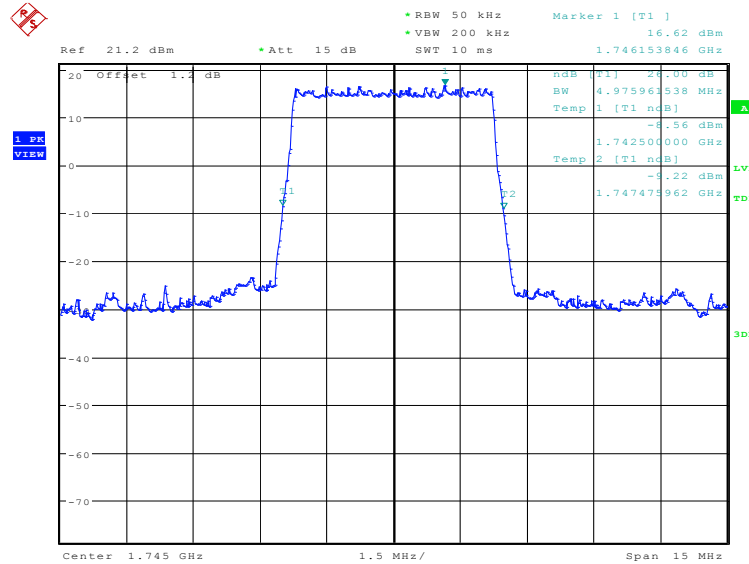


Date: 11.SEP.2019 17:29:53

LTE band 66, 5MHz (-26dBc)

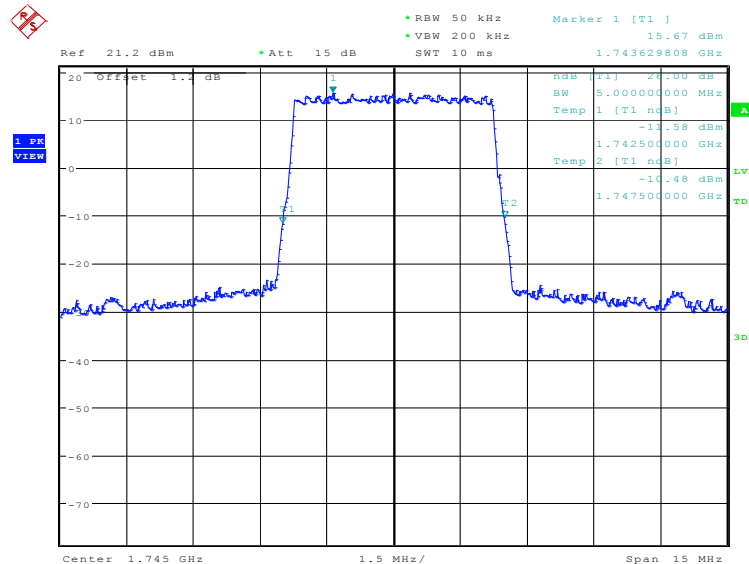
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	4975.96	5000.00

LTE band 66, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:31:19

LTE band 66, 5MHz Bandwidth, 16QAM (-26dBc BW)

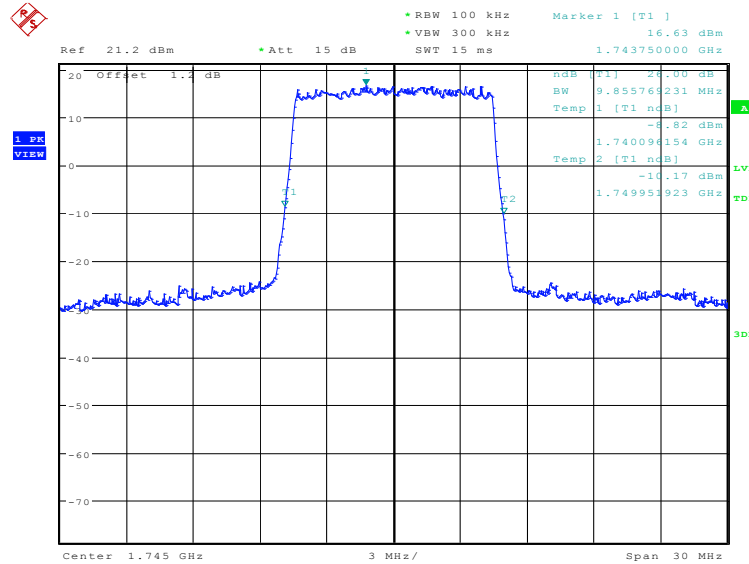


Date: 11.SEP.2019 17:32:43

LTE band 66, 10MHz (-26dBc)

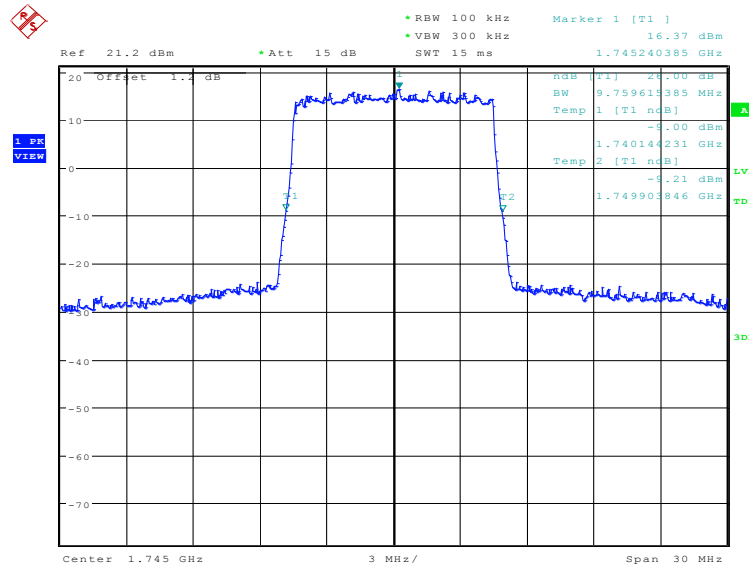
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	9855.77	9759.62

LTE band 66, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:34:09

LTE band 66, 10MHz Bandwidth, 16QAM (-26dBc BW)

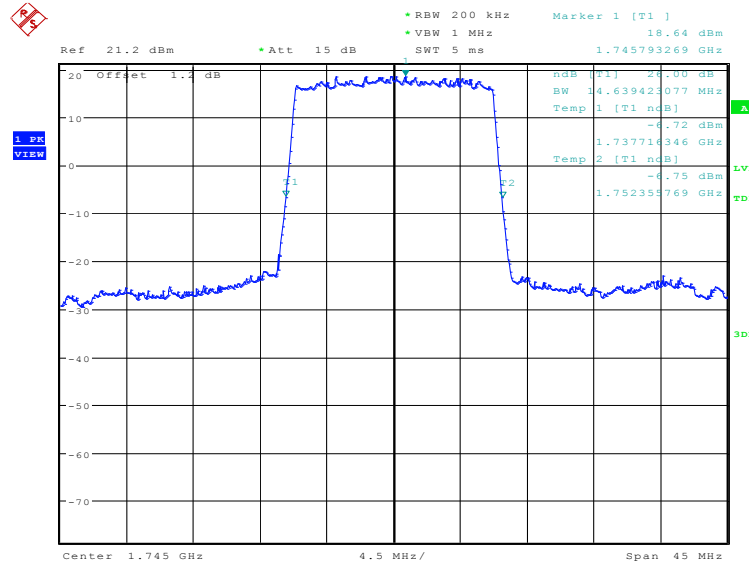


Date: 11.SEP.2019 17:35:33

LTE band 66, 15MHz (-26dBc)

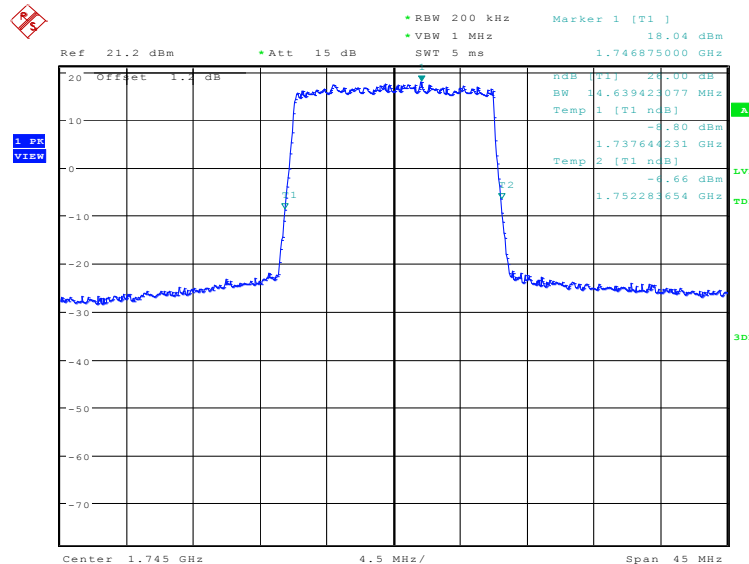
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	14639.42	14639.42

LTE band 66, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:36:58

LTE band 66, 15MHz Bandwidth, 16QAM (-26dBc BW)

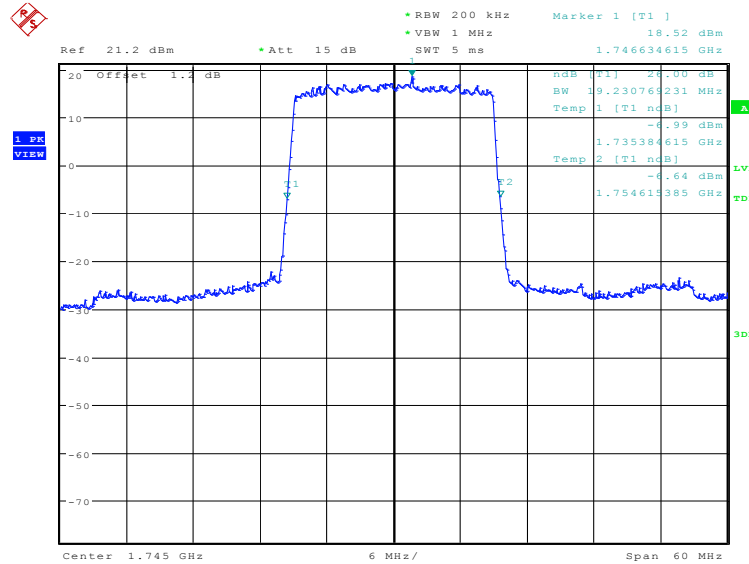


Date: 11.SEP.2019 17:38:23

LTE band 66, 20MHz (-26dBc)

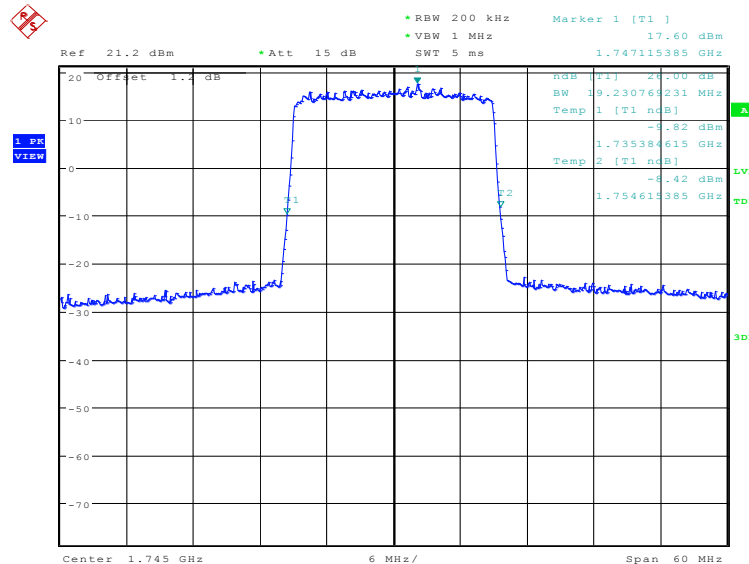
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
1745.0	QPSK	16QAM
	19230.77	19230.77

LTE band 66, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 17:39:48

LTE band 66, 20MHz Bandwidth, 16QAM (-26dBc BW)

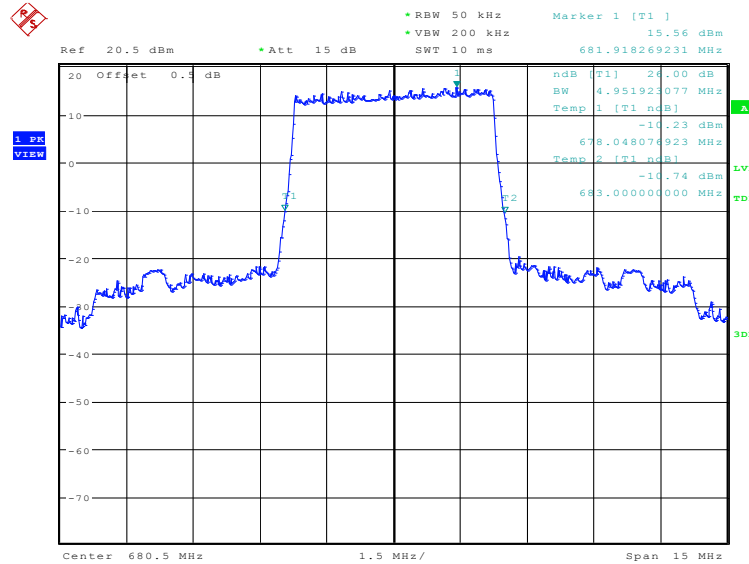


Date: 11.SEP.2019 17:41:13

LTE band 71, 5MHz (-26dBc)

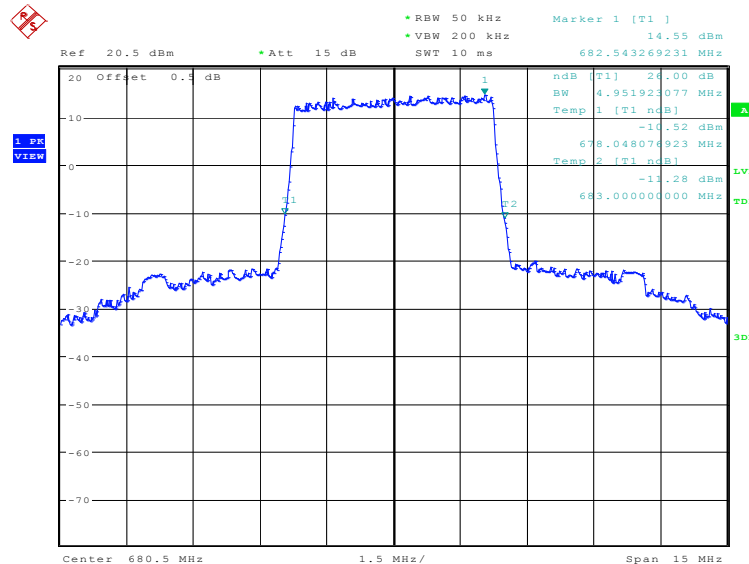
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	4951.92	4951.92

LTE band 71, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 07:59:55

LTE band 71, 5MHz Bandwidth, 16QAM (-26dBc BW)

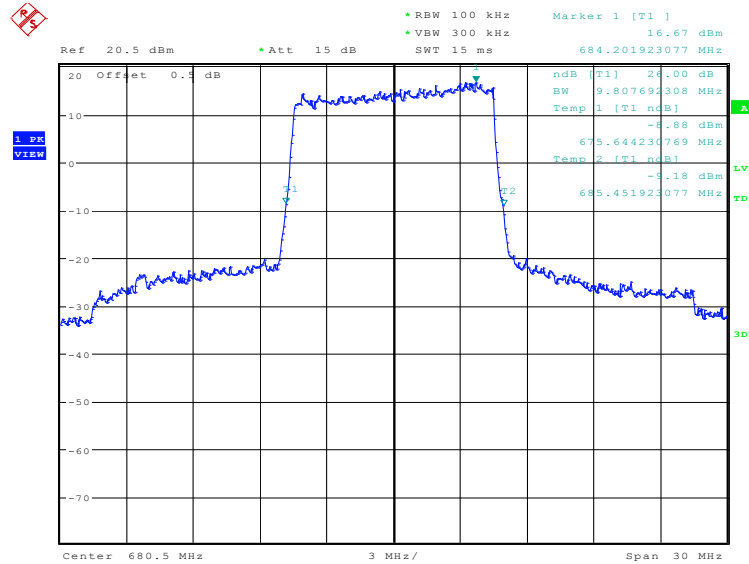


Date: 11.SEP.2019 08:01:19

LTE band 71, 10MHz (-26dBc)

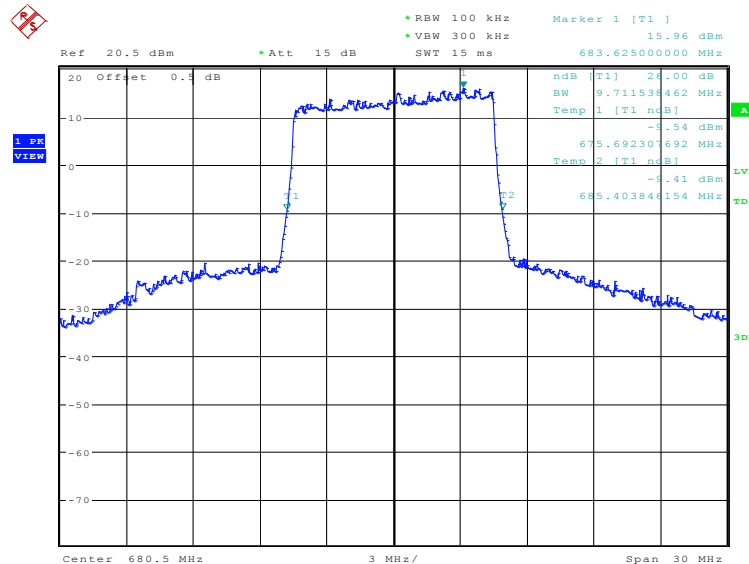
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	9807.69	9711.54

LTE band 71, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 08:02:45

LTE band 71, 10MHz Bandwidth, 16QAM (-26dBc BW)

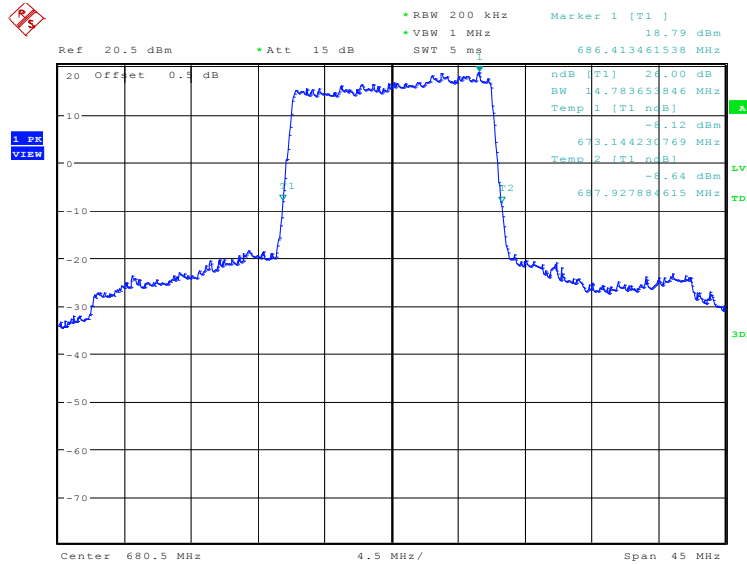


Date: 11.SEP.2019 08:04:09

LTE band 71, 15MHz (-26dBc)

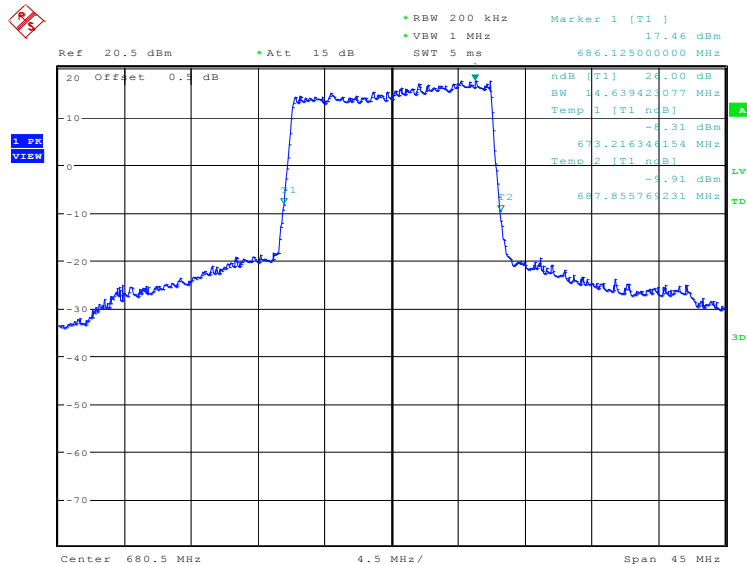
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	14783.65	14639.42

LTE band 71, 15MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 08:05:35

LTE band 71, 15MHz Bandwidth, 16QAM (-26dBc BW)

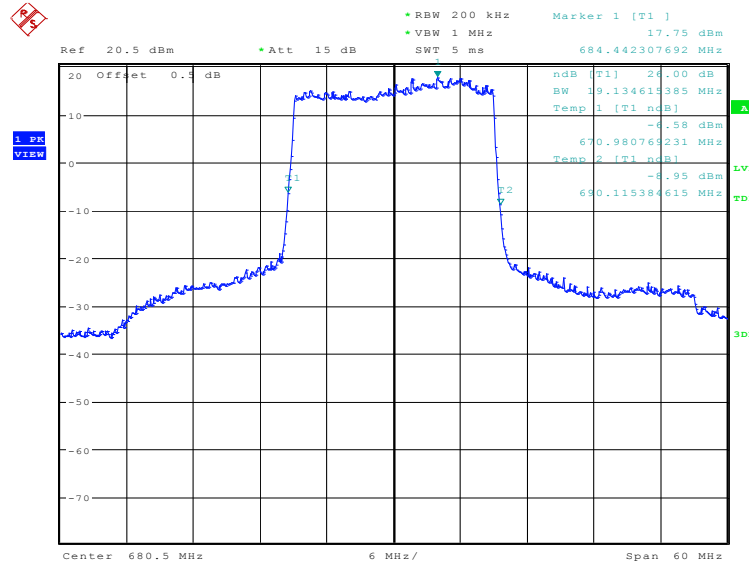


Date: 11.SEP.2019 08:07:00

LTE band 71, 20MHz (-26dBc)

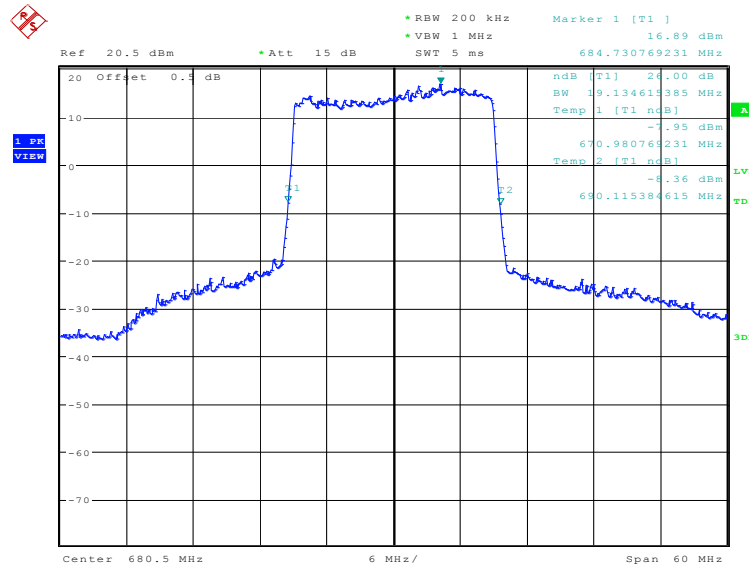
Frequency(MHz)	Occupied Bandwidth (-26dBc) (kHz)	
680.5	QPSK	16QAM
	19134.62	19134.62

LTE band 71, 20MHz Bandwidth, QPSK (-26dBc BW)



Date: 11.SEP.2019 08:08:26

LTE band 71, 20MHz Bandwidth, 16QAM (-26dBc BW)



Date: 11.SEP.2019 08:09:50

A.6 BAND EDGE COMPLIANCE

A.6.1 Measurement limit

Part 22.917, Part 24.238 and Part 27.53(h) specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to KDB 971168, a relaxation of the reference bandwidth is often provided for measurements within a specified frequency range at the edge of the authorized frequency block/band. This is often implemented by permitting the use of a narrower RBW (typically limited to a minimum RBW of 1% of the OBW) for measuring the out-of-band emissions without a requirement to integrate the result over the full reference bandwidth.

The specification that emissions shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Part 27.53(m)(4) specifies for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 27.53(c) states for operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following: (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

Part 27.53(a) states for mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: By a factor of not less than: $43 + 10 \log(P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log(P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log(P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and

2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337MHz; By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz; By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

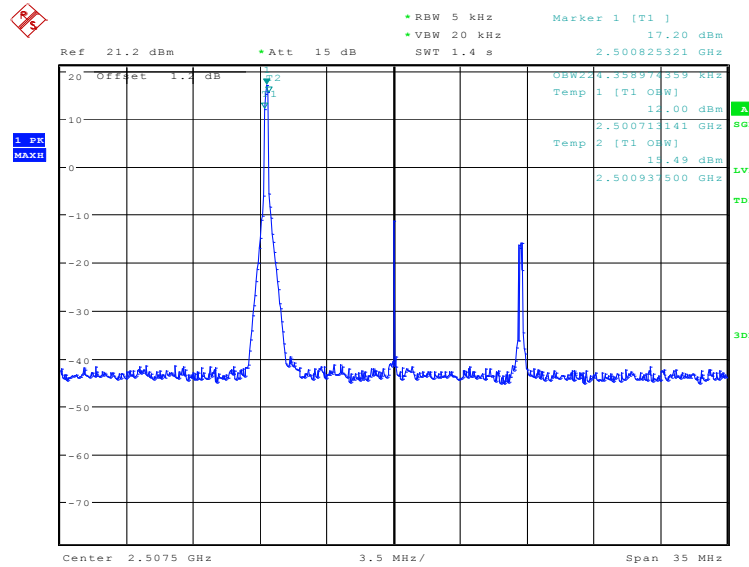
Part 90.691 states that out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows: For any frequency removed from the EA licensee’s frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee’s frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

A.6.2 Measurement result

Only the worst case result is given below

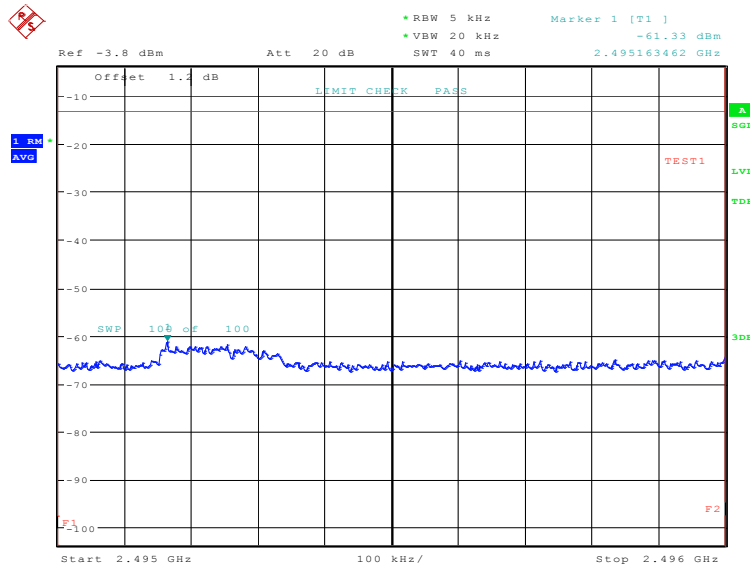
LTE band 7

OBW: 1RB-low_offset

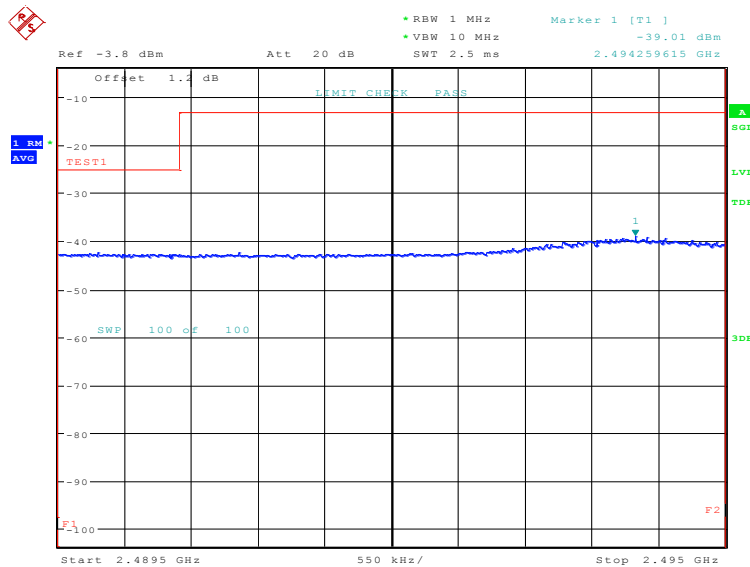


Date: 31.OCT.2019 15:58:44

LOW BAND EDGE BLOCK-1RB-low_offset

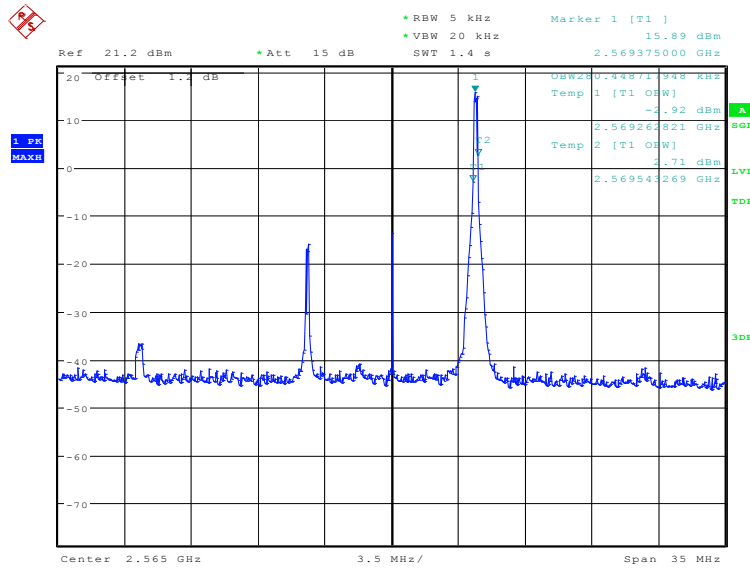


Date: 31.OCT.2019 15:59:05



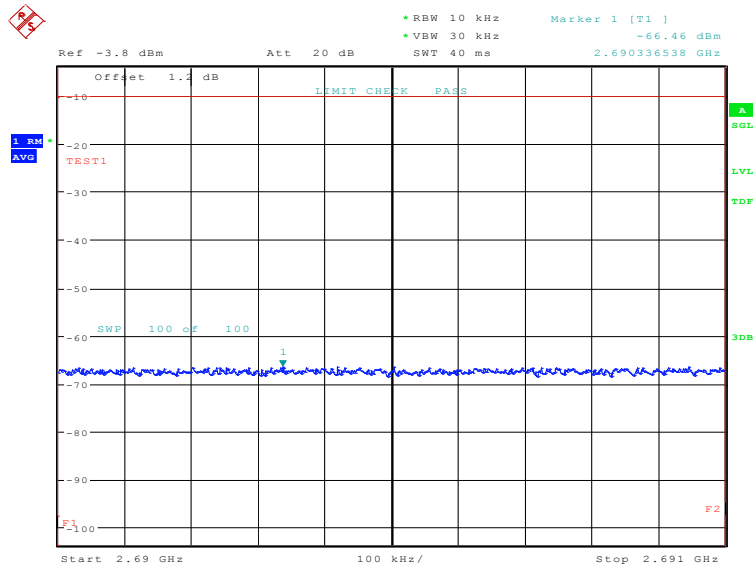
Date: 31.OCT.2019 15:59:20

OBW: 1RB-high_offset

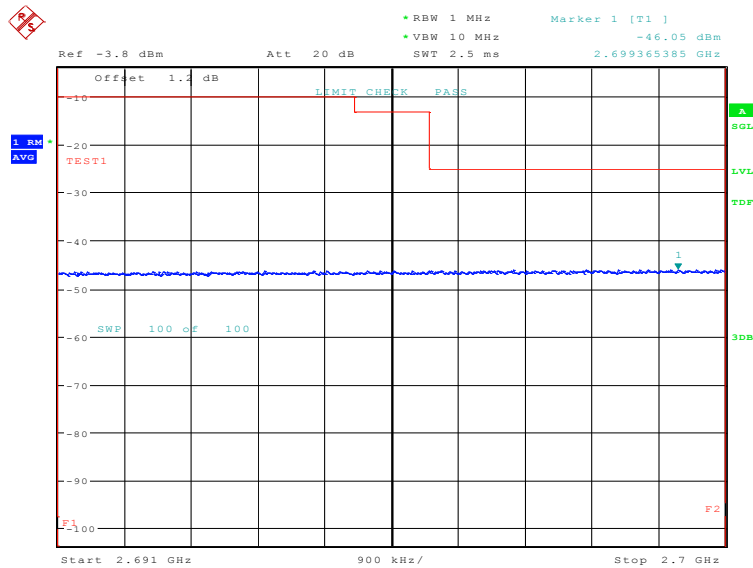


Date: 31.OCT.2019 16:02:12

HIGH BAND EDGE BLOCK-1RB-high_offset

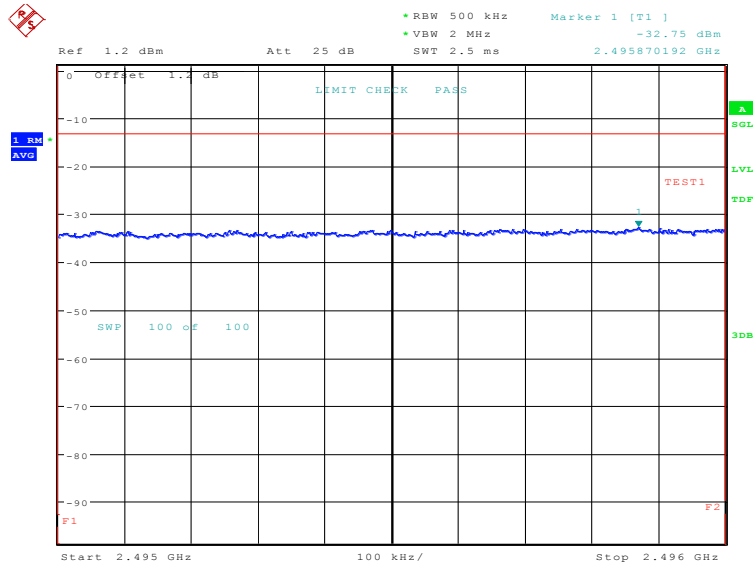


Date: 31.OCT.2019 16:02:32

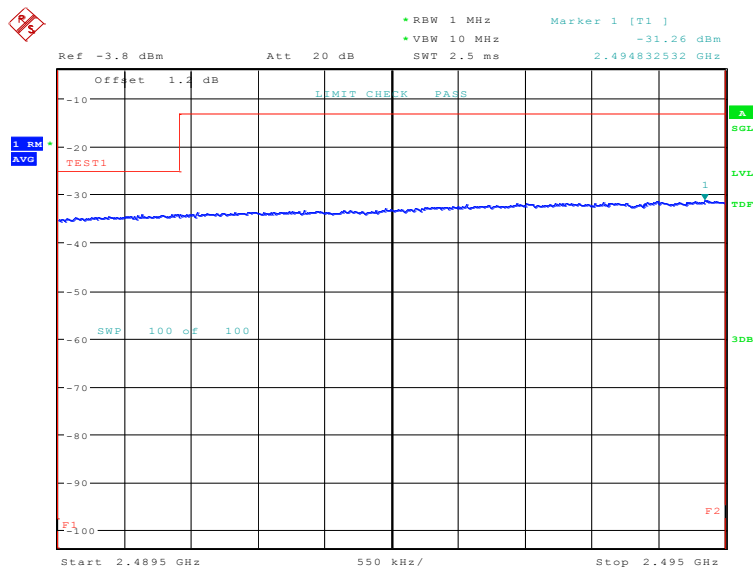


Date: 31.OCT.2019 16:02:47

LOW BAND EDGE BLOCK-20MHz-100%RB

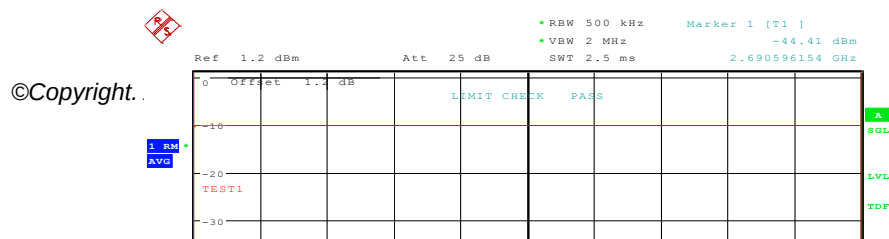


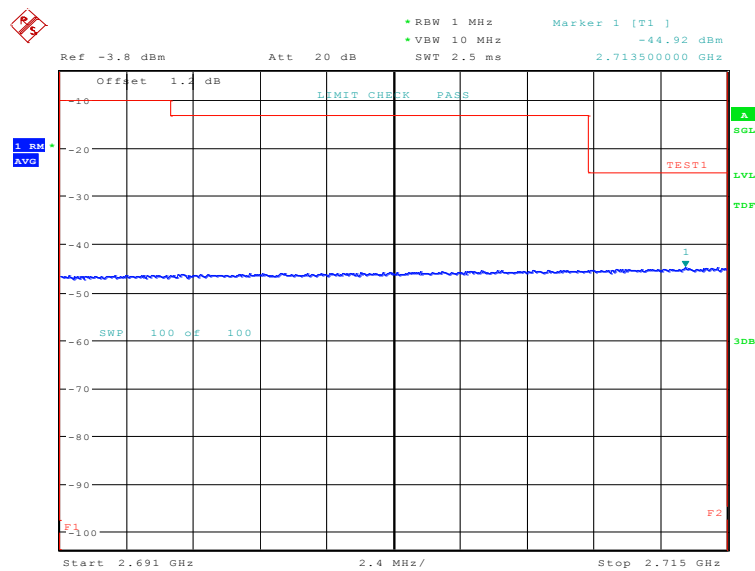
Date: 31.OCT.2019 15:59:56



Date: 31.OCT.2019 16:00:11

HIGH BAND EDGE BLOCK-20MHz-100%RB

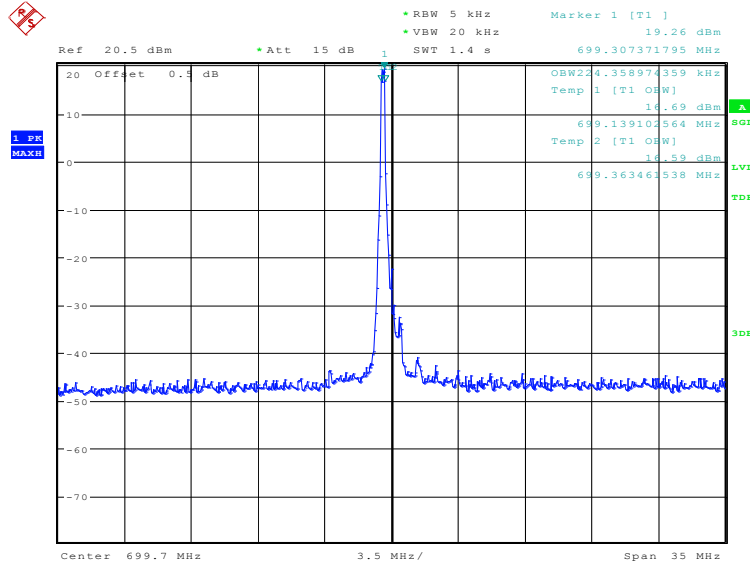




Date: 31.OCT.2019 16:03:38

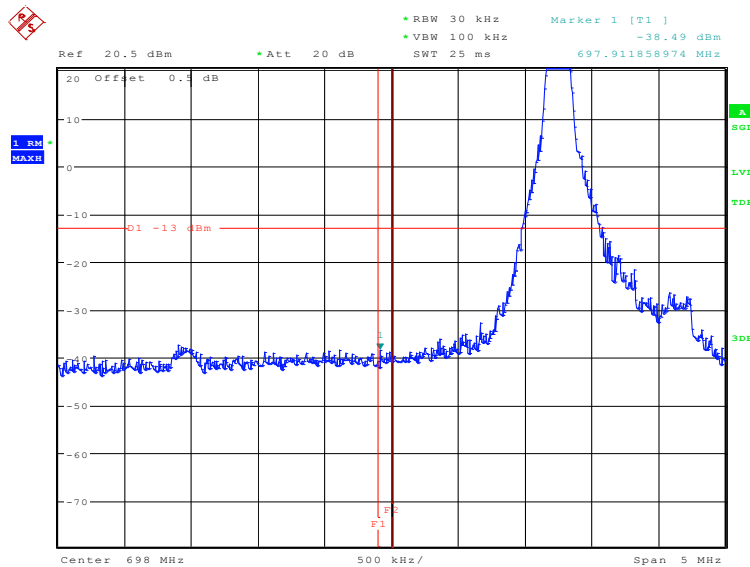
LTE band 12

OBW: 1RB-low_offset



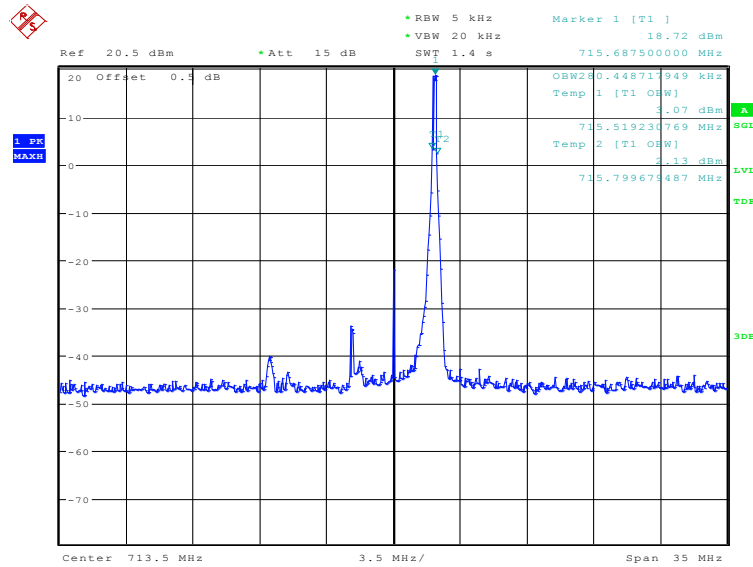
Date: 31.OCT.2019 15:42:22

LOW BAND EDGE BLOCK-1RB-low_offset



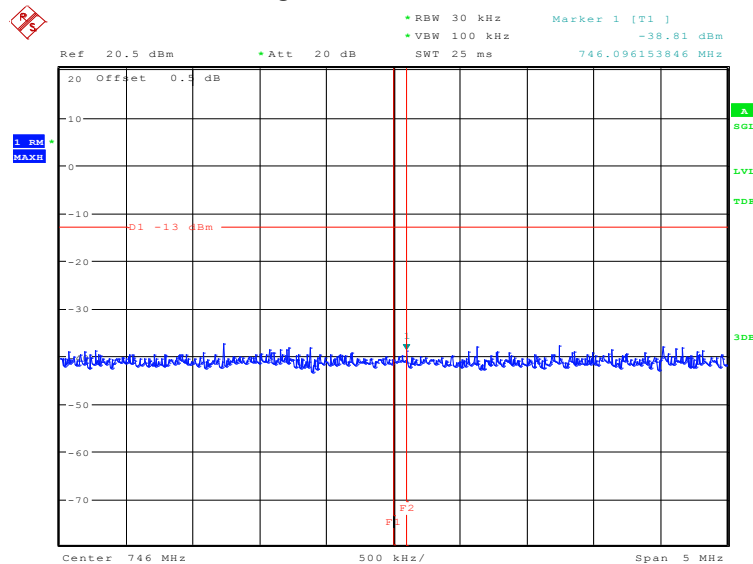
Date: 31.OCT.2019 15:42:37

OBW: 1RB-high_offset



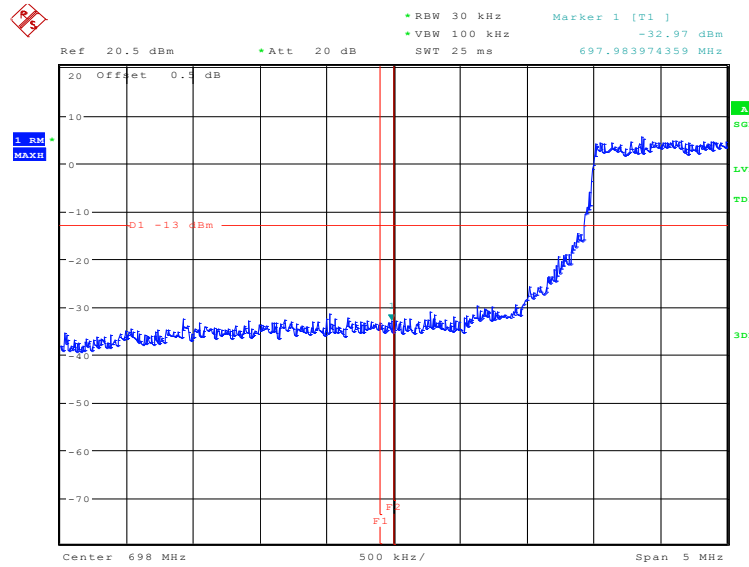
Date: 1.NOV.2019 09:09:36

HIGH BAND EDGE BLOCK-1RB-high_offset



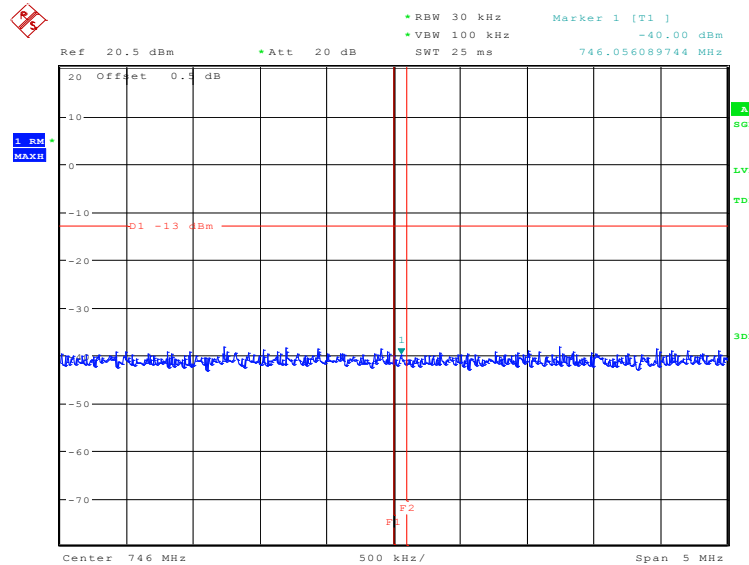
Date: 1.NOV.2019 09:09:51

LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 31.OCT.2019 15:43:09

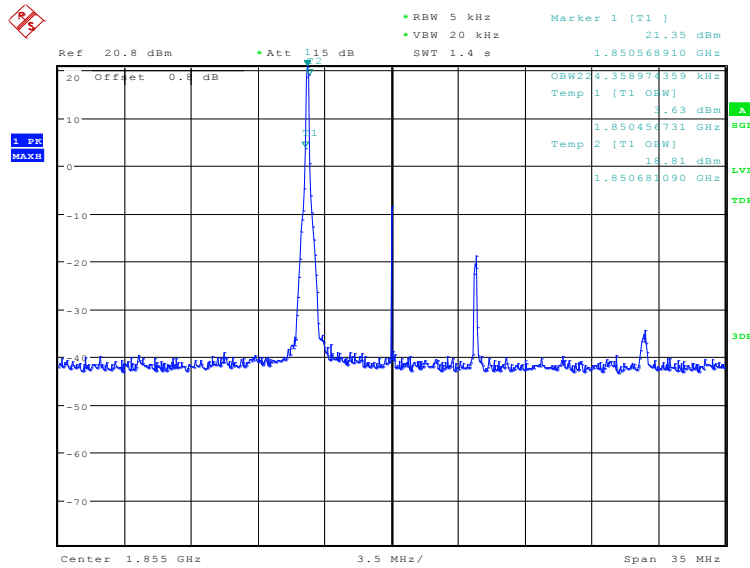
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 31.OCT.2019 15:45:55

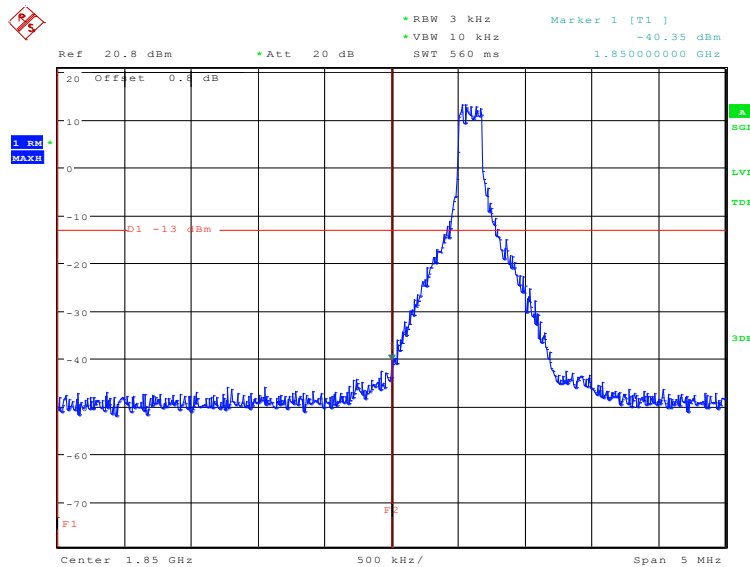
LTE band 25

OBW: 1RB-low_offset



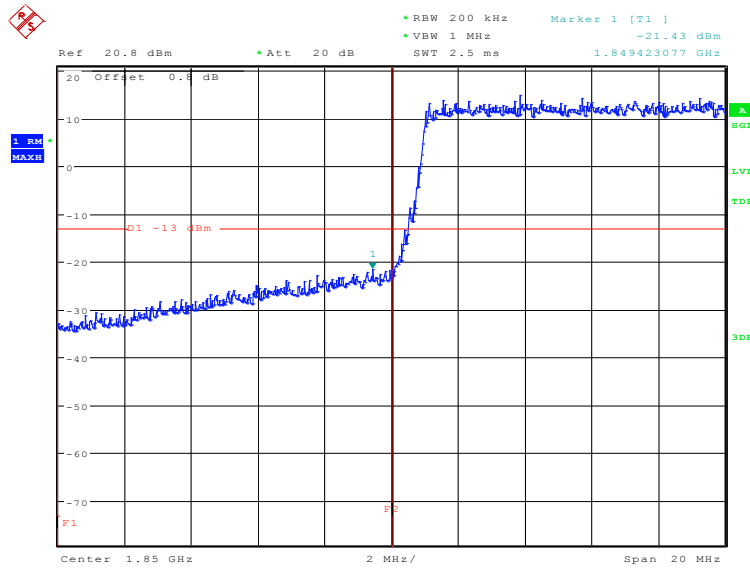
Date: 31.OCT.2019 17:40:50

LOW BAND EDGE BLOCK-1RB-low_offset



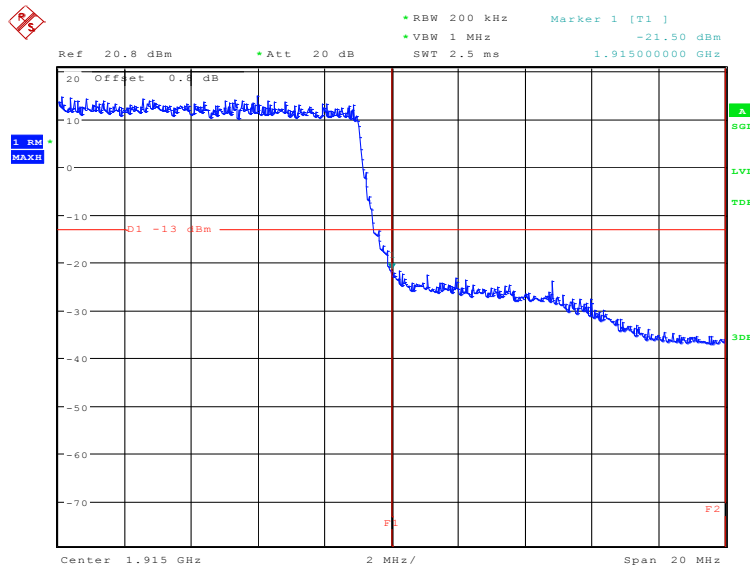
Date: 31.OCT.2019 17:41:05

LOW BAND EDGE BLOCK-20MHz-100%RB



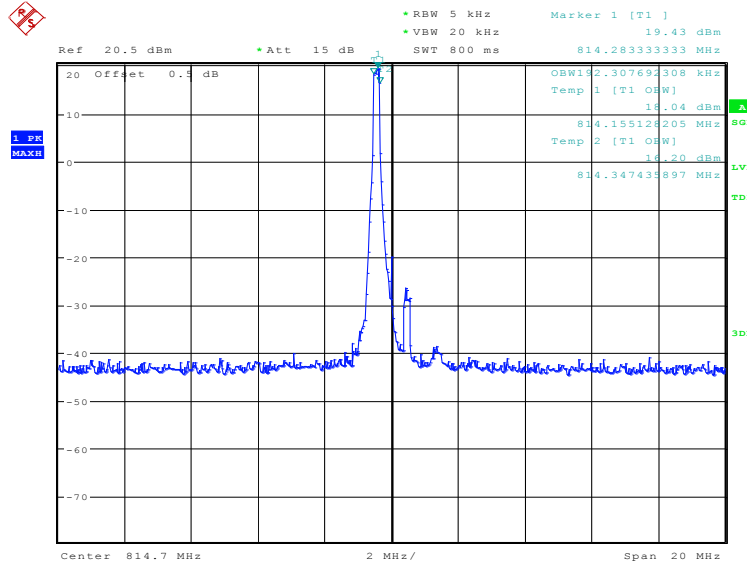
Date: 31.OCT.2019 17:41:37

HIGH BAND EDGE BLOCK-20MHz-100%RB



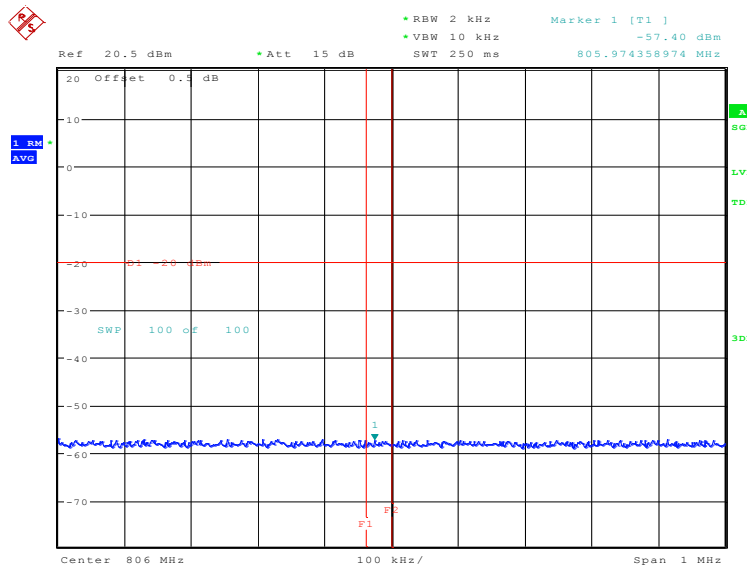
Date: 31.OCT.2019 17:44:22

LTE band 26(814MHz~824MHz) OBW: 1RB-low_offset



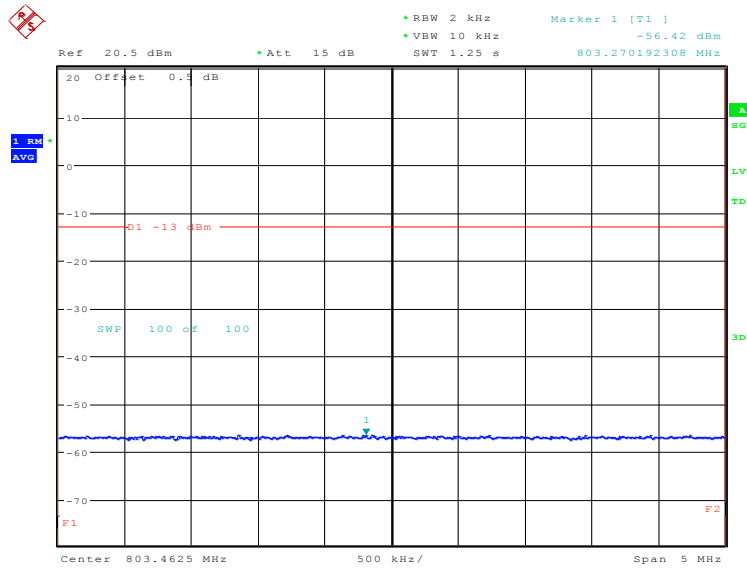
Date: 1.NOV.2019 09:45:37

LOW BAND EDGE BLOCK-1RB-low_offset



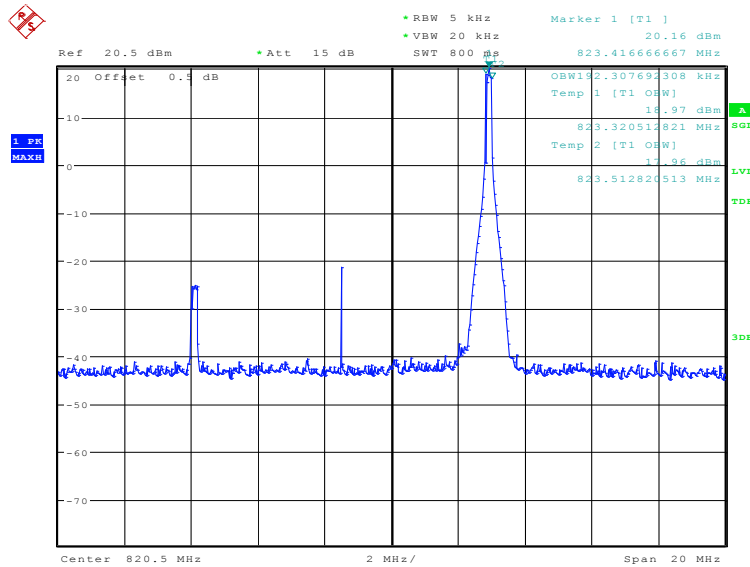
Date: 1.NOV.2019 09:46:17

LOW Emission Mask -1RB-low_offset



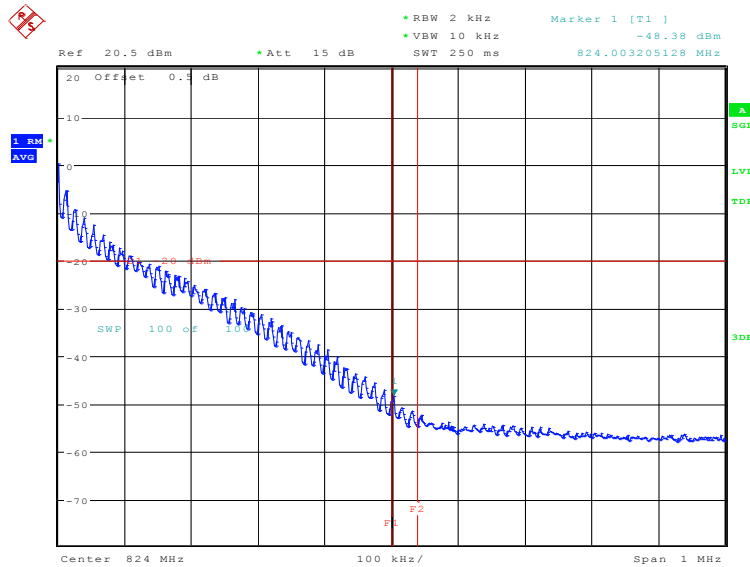
Date: 1.NOV.2019 09:48:39

OBW: 1RB-high_offset



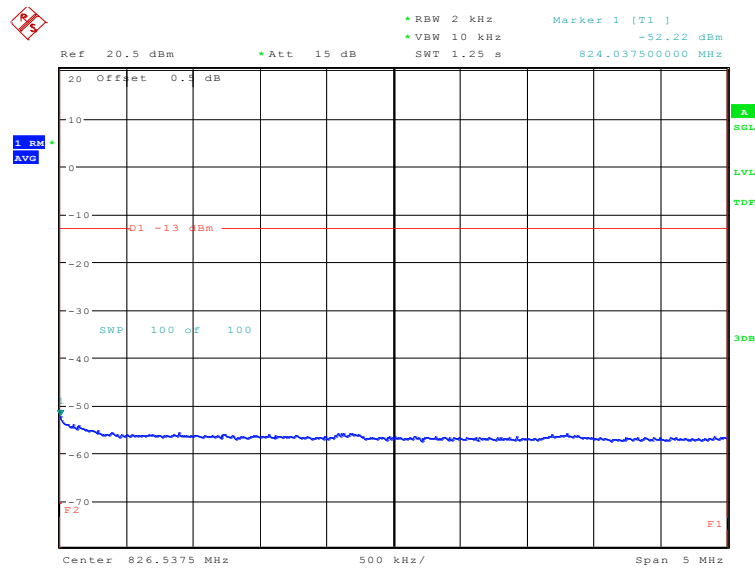
Date: 1.NOV.2019 09:50:49

HIGH BAND EDGE BLOCK-1RB-high_offset



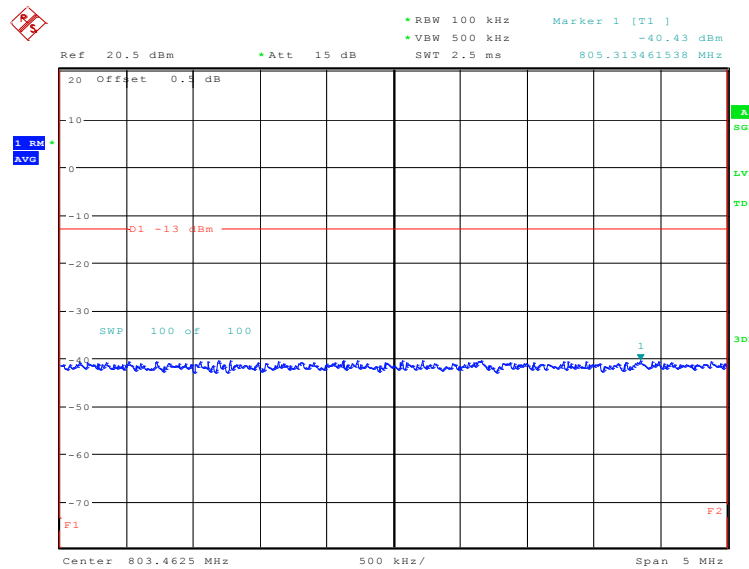
Date: 1.NOV.2019 09:51:28

HIGH Emission Mask -1RB-high_offset



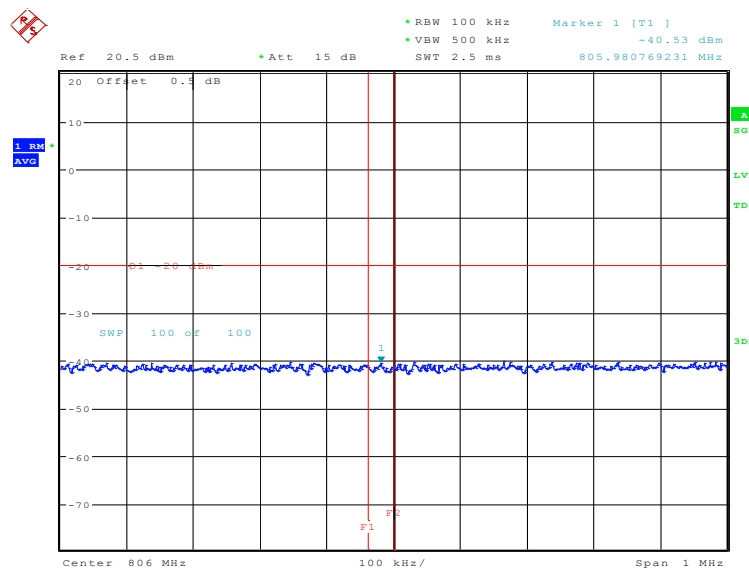
Date: 1.NOV.2019 09:53:48

LOW Emission Mask -10MHz-100%RB



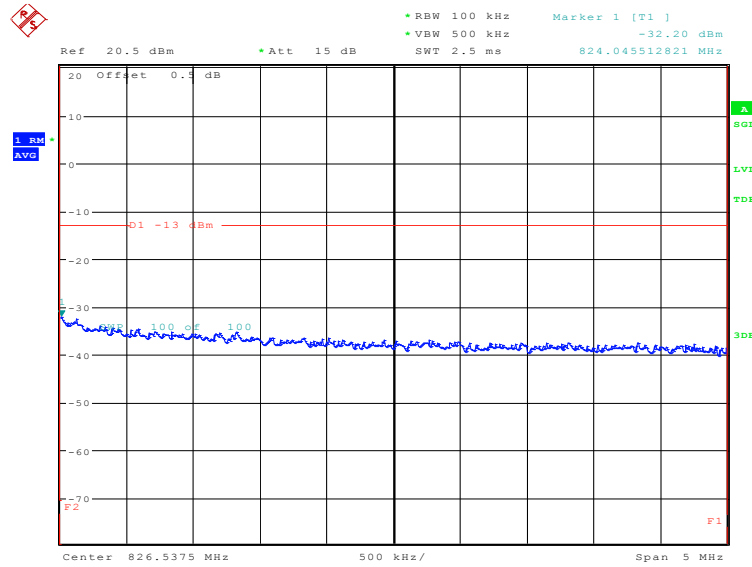
Date: 1.NOV.2019 09:49:29

LOW BAND EDGE BLOCK-10MHz-100%RB



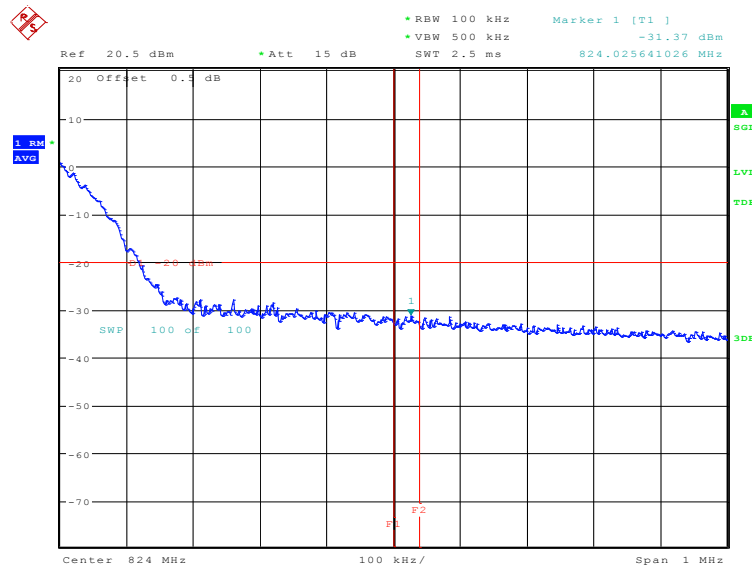
Date: 1.NOV.2019 09:49:11

HIGH Emission Mask -10MHz-100%RB



Date: 1.NOV.2019 09:54:34

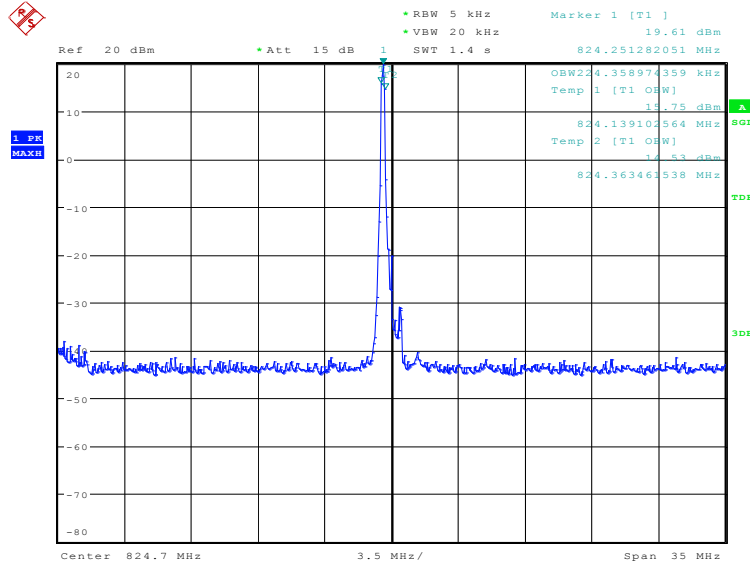
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 1.NOV.2019 09:54:17

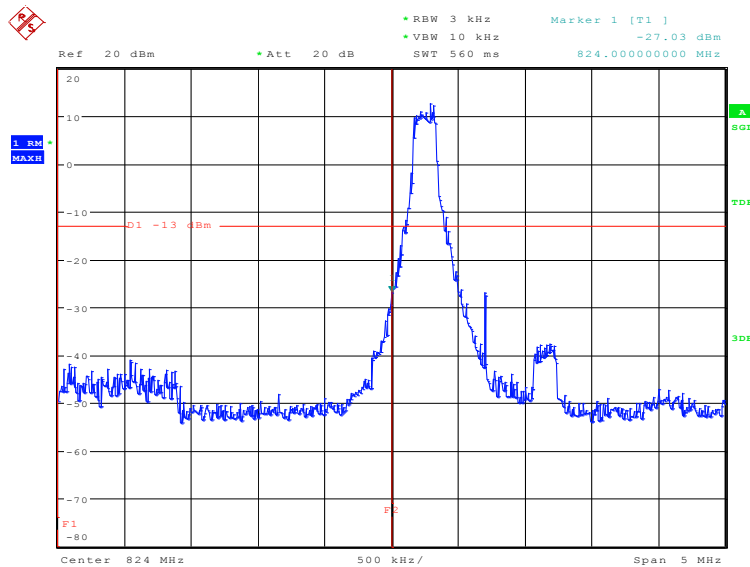
LTE band 26(824MHz~849MHz)

OBW: 1RB-low_offset



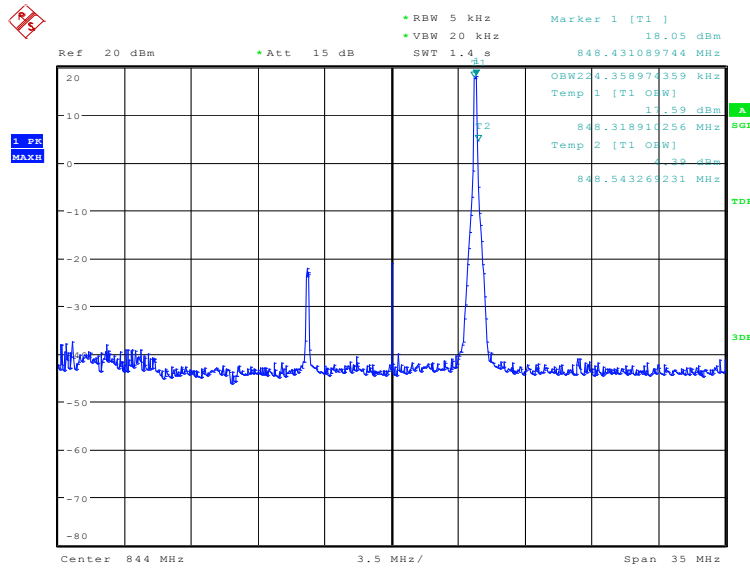
Date: 31.OCT.2019 17:01:58

LOW BAND EDGE BLOCK-1RB-low_offset



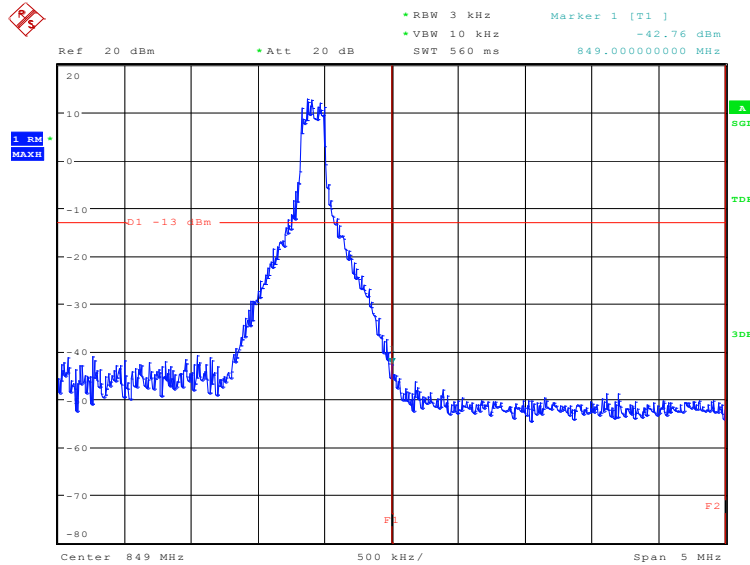
Date: 31.OCT.2019 17:02:14

OBW: 1RB-high_offset



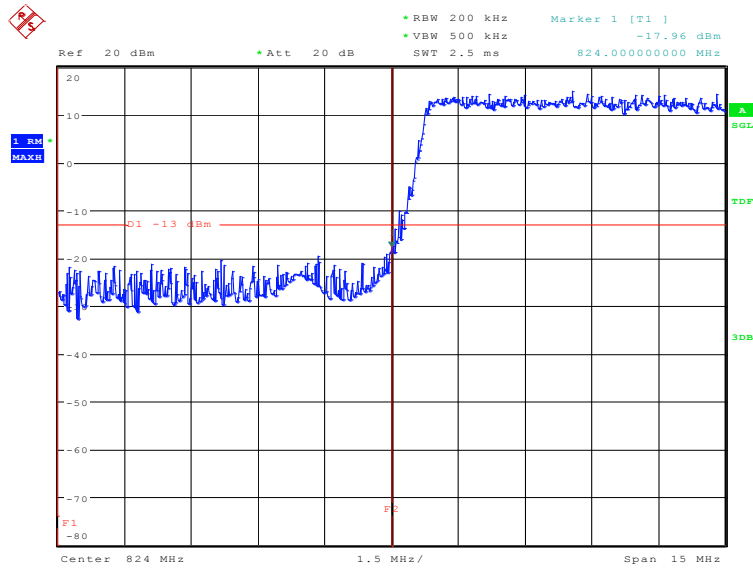
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HIGH BAND EDGE BLOCK-1RB-high_offset



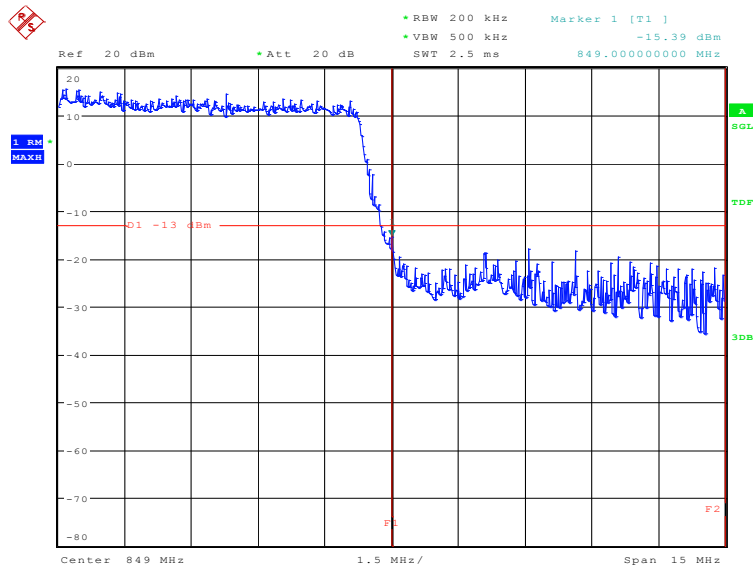
Date: 31.OCT.2019 17:05:00

LOW BAND EDGE BLOCK-15MHz-100%RB



Date: 31.OCT.2019 17:02:45

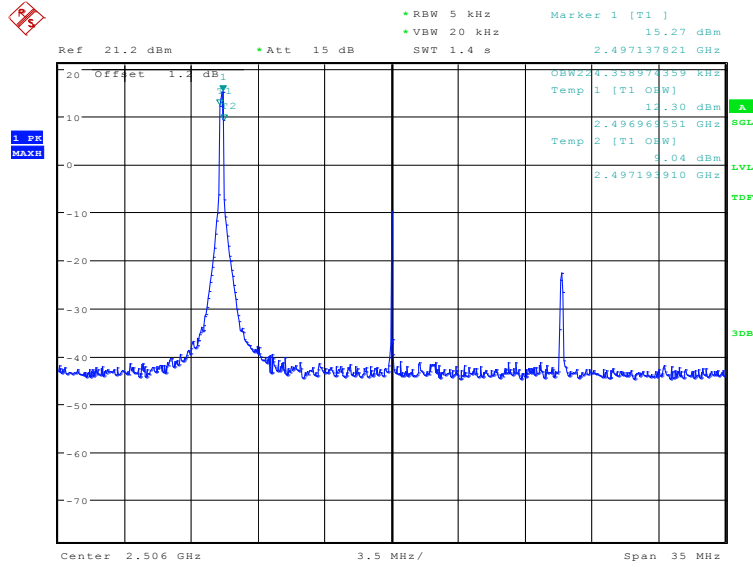
HIGH BAND EDGE BLOCK-15MHz-100%RB



Date: 31.OCT.2019 17:05:31

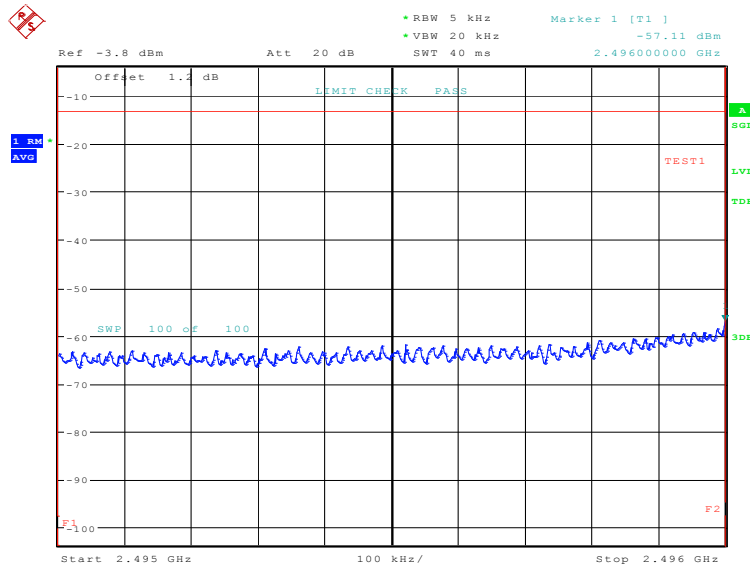
LTE band 41

OBW: 1RB-low_offset

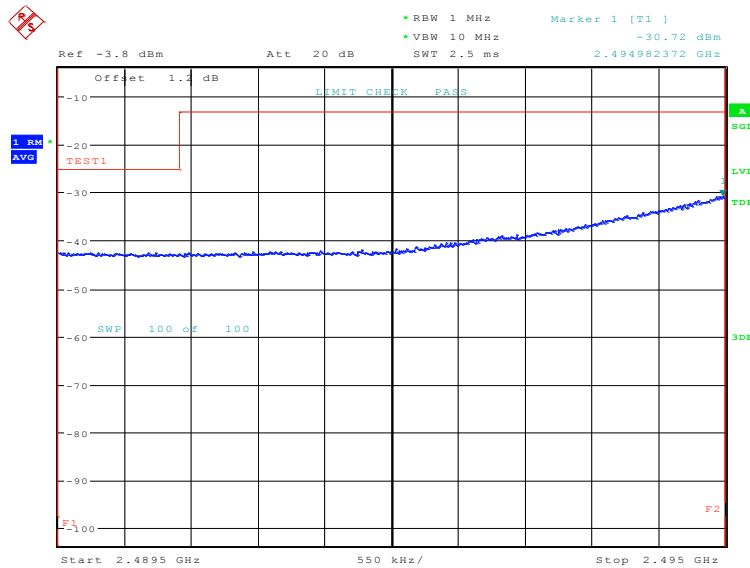


Date: 31.OCT.2019 15:21:59

LOW BAND EDGE BLOCK-1RB-low_offset

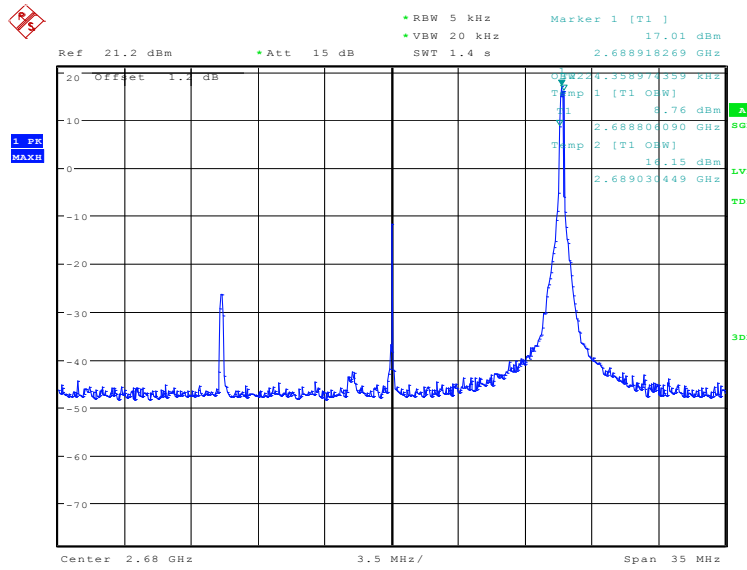


Date: 31.OCT.2019 15:22:19



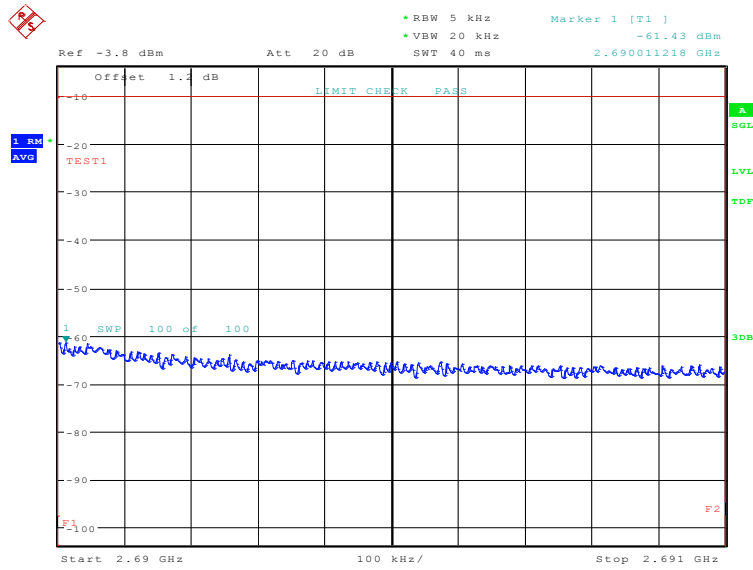
Date: 31.OCT.2019 15:22:34

OBW: 1RB-high_offset

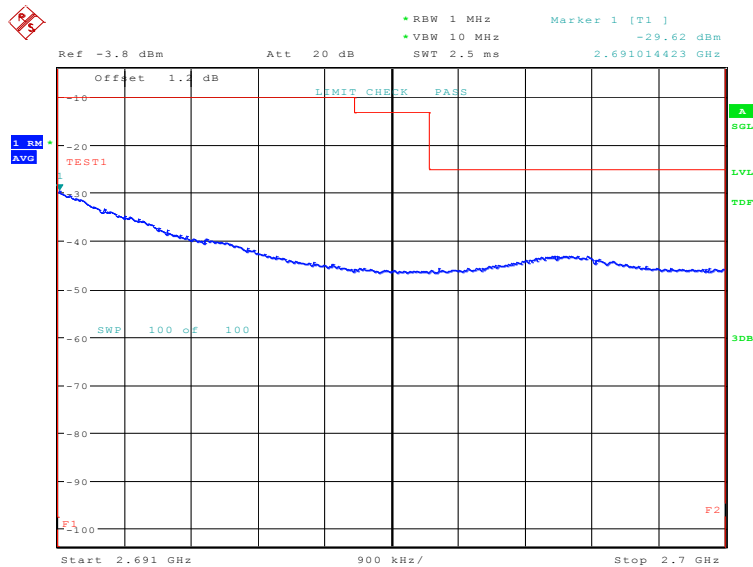


Date: 31.OCT.2019 15:24:44

HIGH BAND EDGE BLOCK-1RB-high_offset

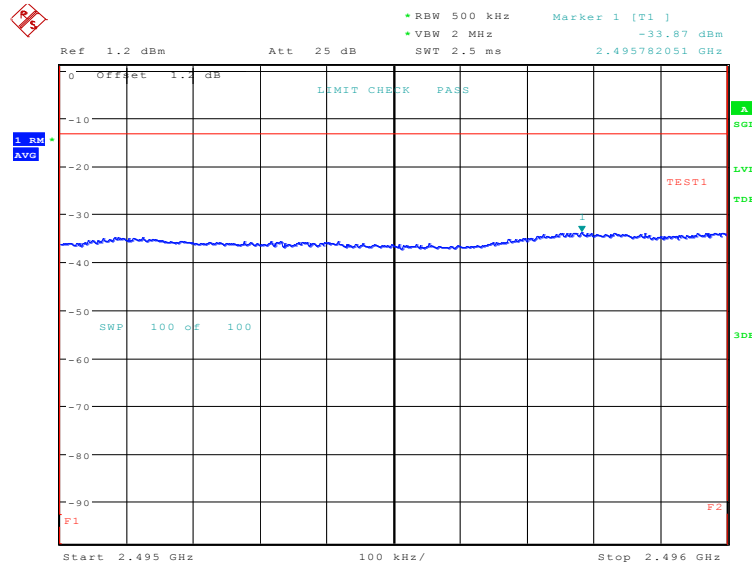


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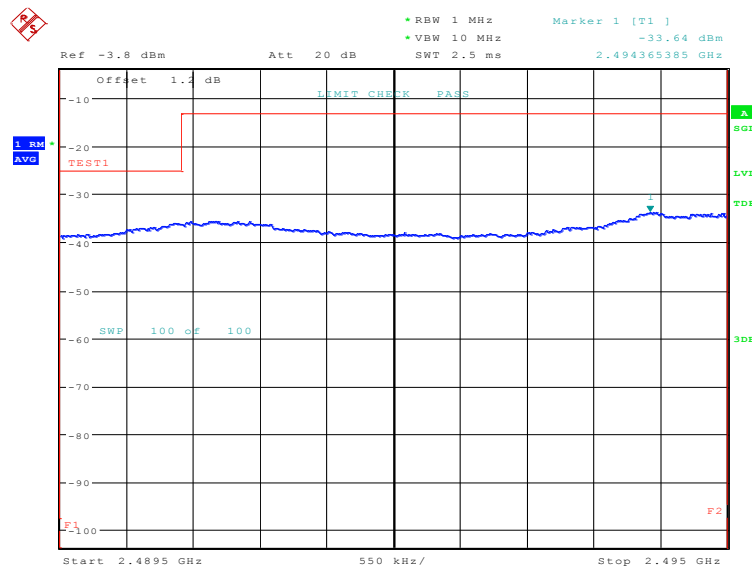


Date: 31.OCT.2019 15:25:20

LOW BAND EDGE BLOCK-20MHz-100%RB

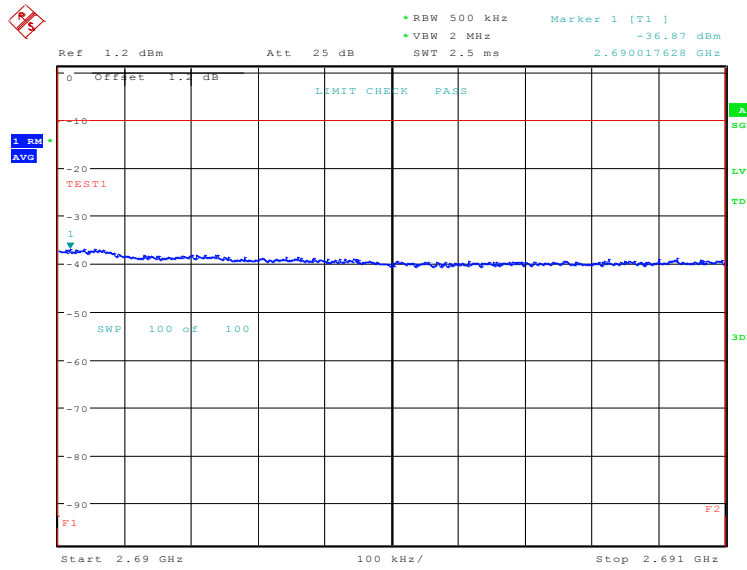


Date: 31.OCT.2019 15:23:08

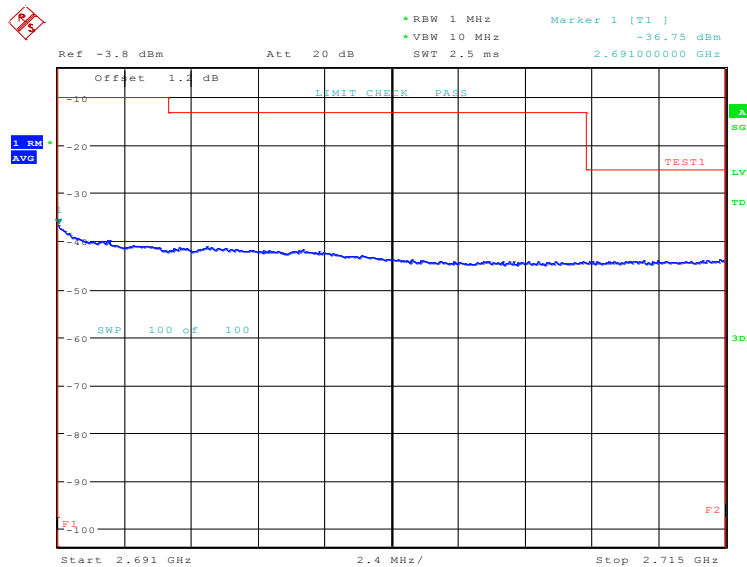


Date: 31.OCT.2019 15:23:23

HIGH BAND EDGE BLOCK-20MHz-100%RB



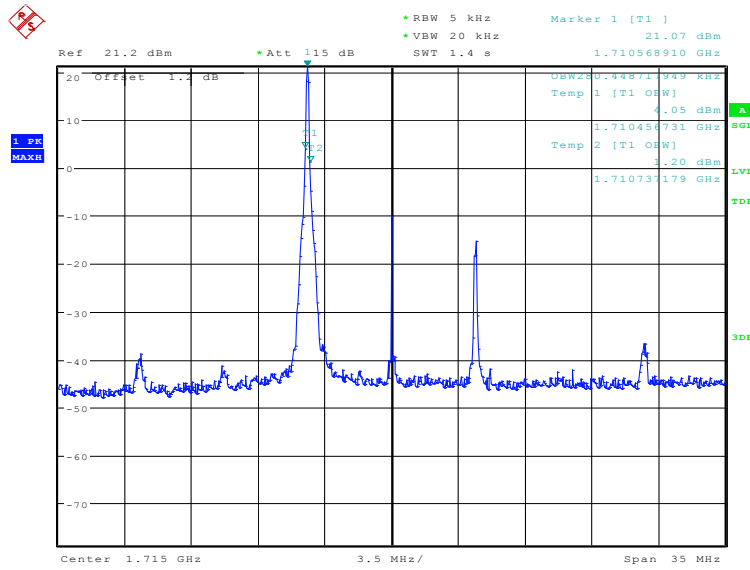
Date: 31.OCT.2019 15:25:54



Date: 31.OCT.2019 15:26:09

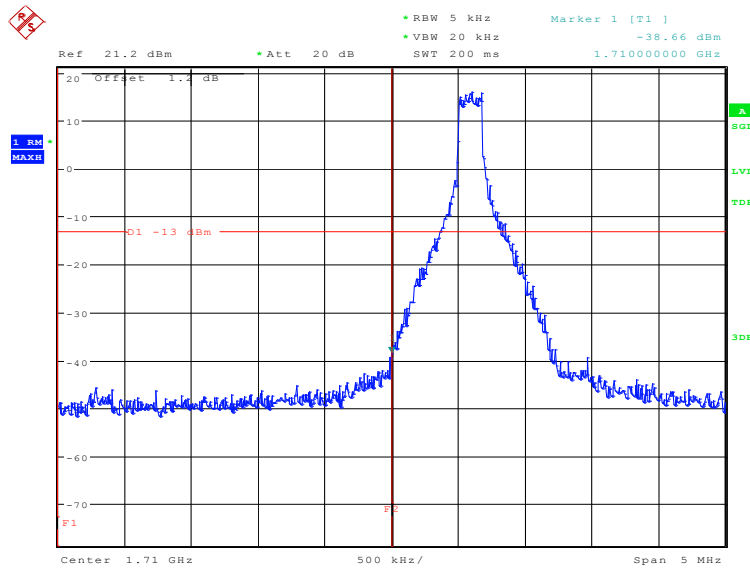
LTE band 66

OBW: 1RB-low_offset



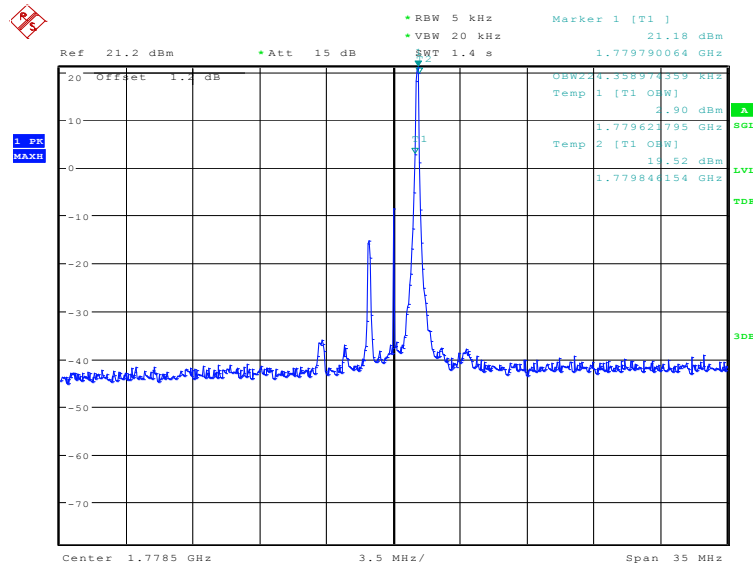
Date: 31.OCT.2019 18:03:59

LOW BAND EDGE BLOCK-1RB-low_offset



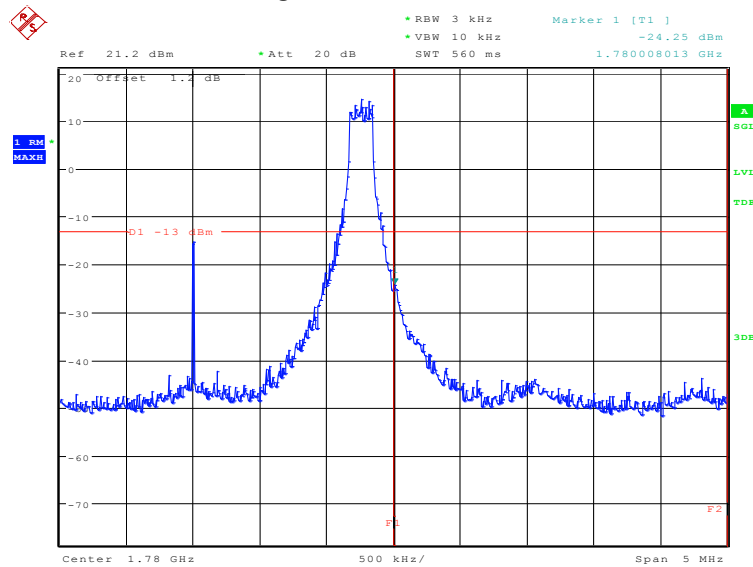
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OBW: 1RB-high_offset



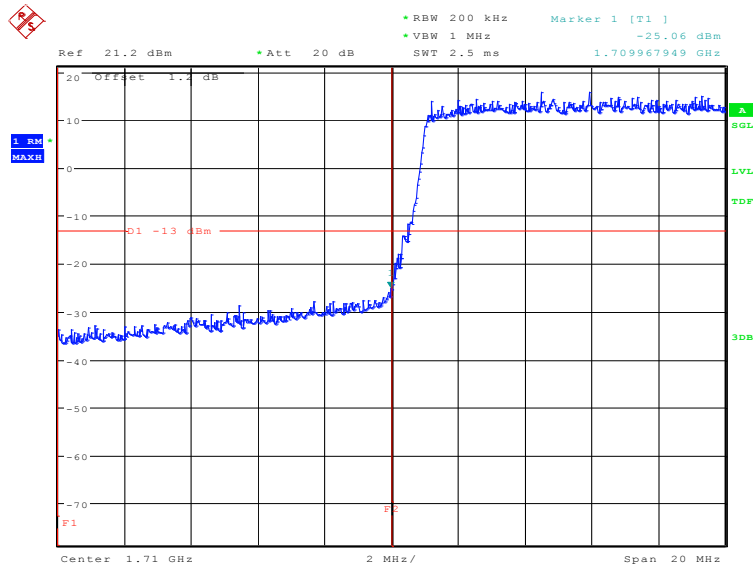
Date: 1.NOV.2019 16:51:53

HIGH BAND EDGE BLOCK-1RB-high_offset



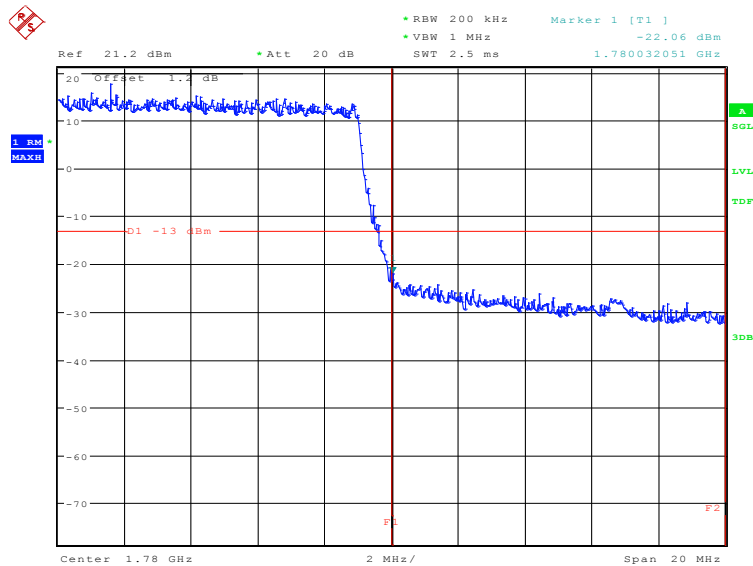
Date: 1.NOV.2019 16:52:08

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 31.OCT.2019 18:07:14

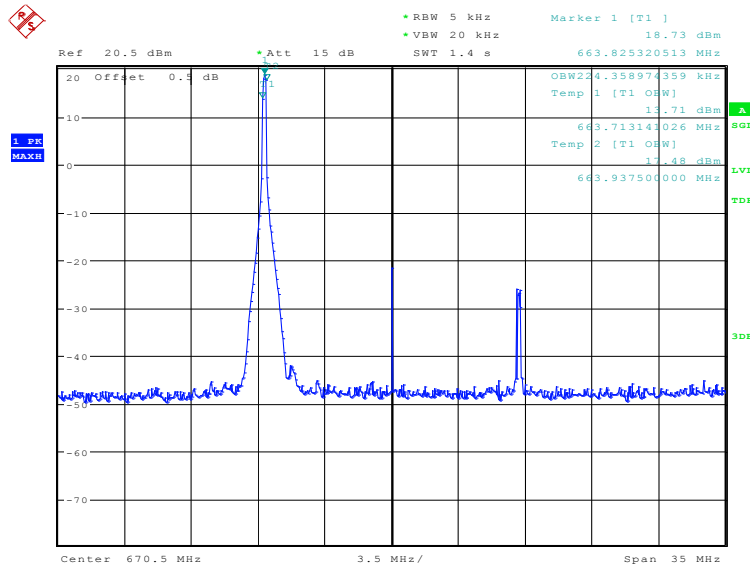
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 1.NOV.2019 16:57:59

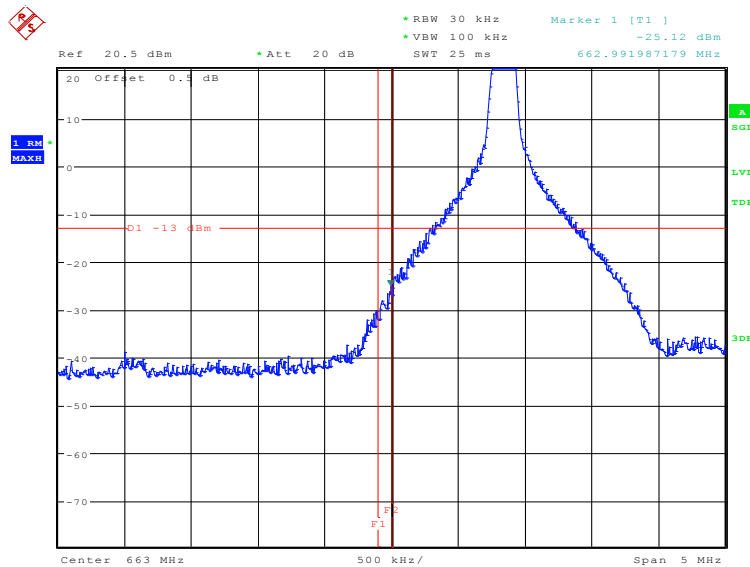
LTE band 71

OBW: 1RB-low_offset



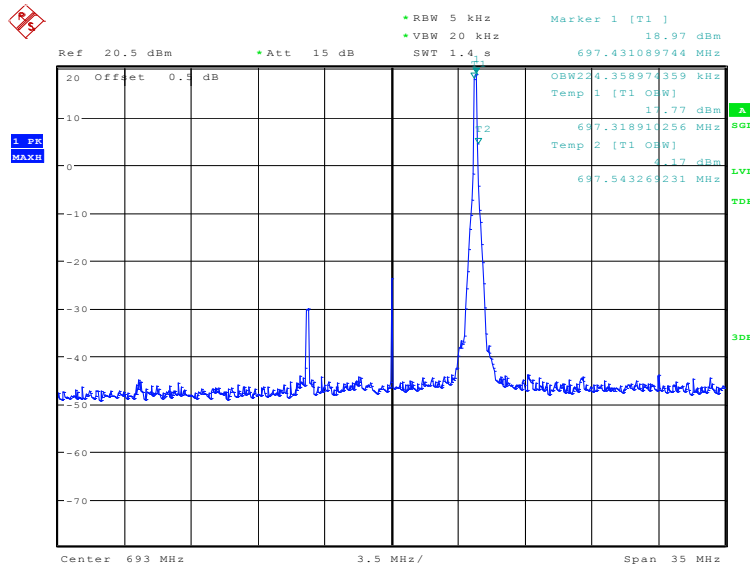
Date: 31.OCT.2019 16:08:06

LOW BAND EDGE BLOCK-1RB-low_offset



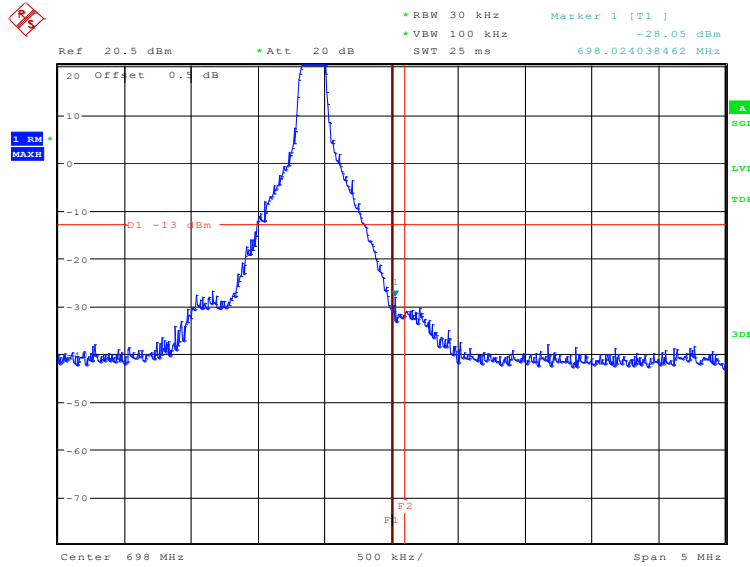
Date: 31.OCT.2019 16:08:21

OBW: 1RB-high_offset



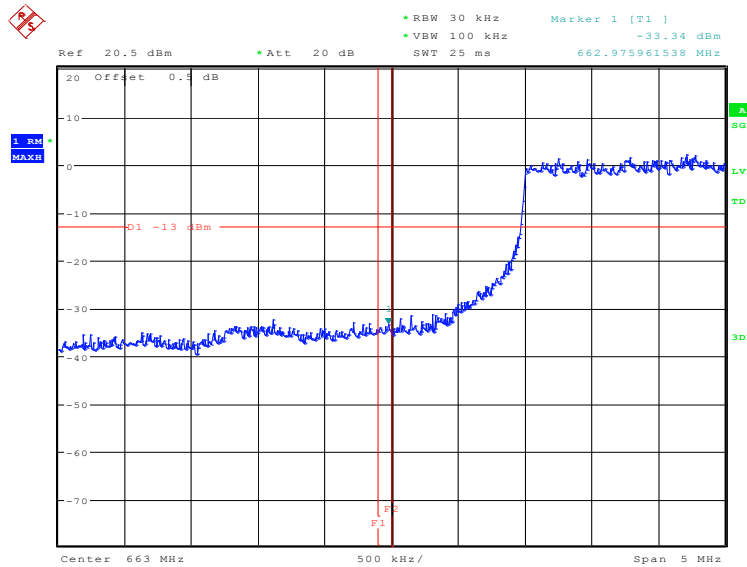
Date: 31.OCT.2019 16:12:41

HIGH BAND EDGE BLOCK-1RB-high_offset



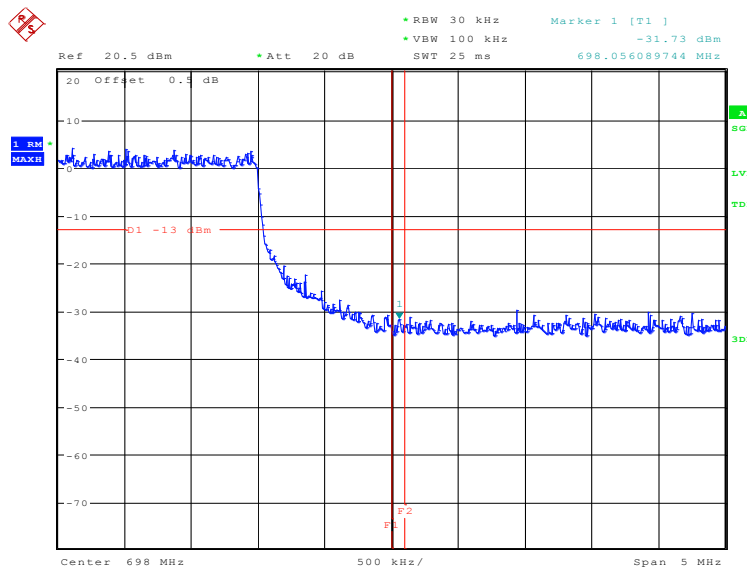
Date: 31.OCT.2019 16:12:57

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 31.OCT.2019 16:08:52

HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 31.OCT.2019 16:13:28

A.7 CONDUCTED SPURIOUS EMISSION

A.7.1 Measurement Method

The following steps outline the procedure used to measure the conducted emissions from the EUT.

1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the mobile station equipment tested, this equates to a frequency range of 13 MHz to 9 GHz, data taken from 10 MHz to 25 GHz.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.
3. The number of sweep points of spectrum analyzer is set to 30001 which is greater than span/RBW.

A. 7.2 Measurement Limit

Part 22.917, Part 24.238 and Part 27.53(h) specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

The specification that emissions shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Part 27.53(m)(4) specifies for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 27.53(c) states for operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following: (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB; (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

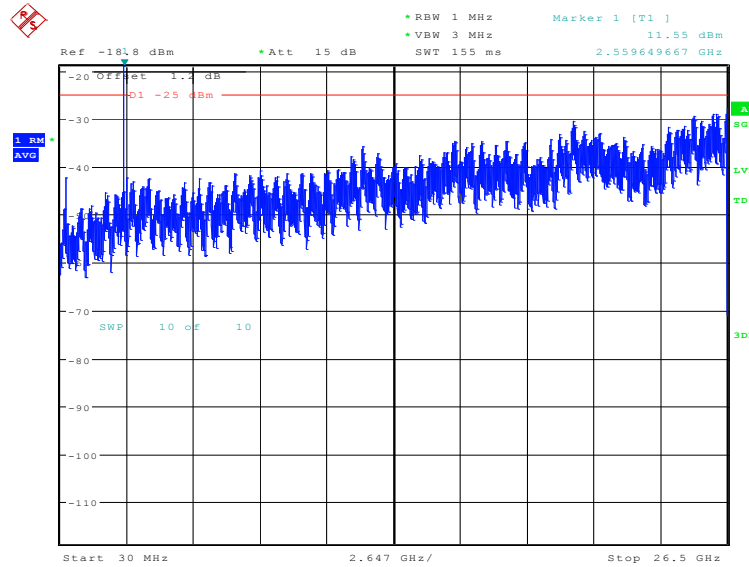
Part 27.53(a) states for mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands: By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz; By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz; By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

Part 90.691 states that out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows: For any frequency removed from the EA licensee’s frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee’s frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

A. 7.2 Measurement result

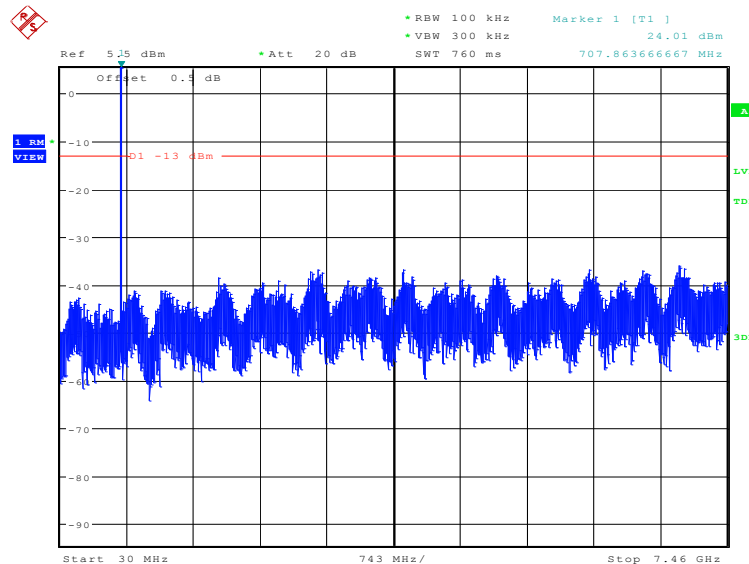
Only the worst case result is given below

LTE band 7: 30MHz – 26.5GHz



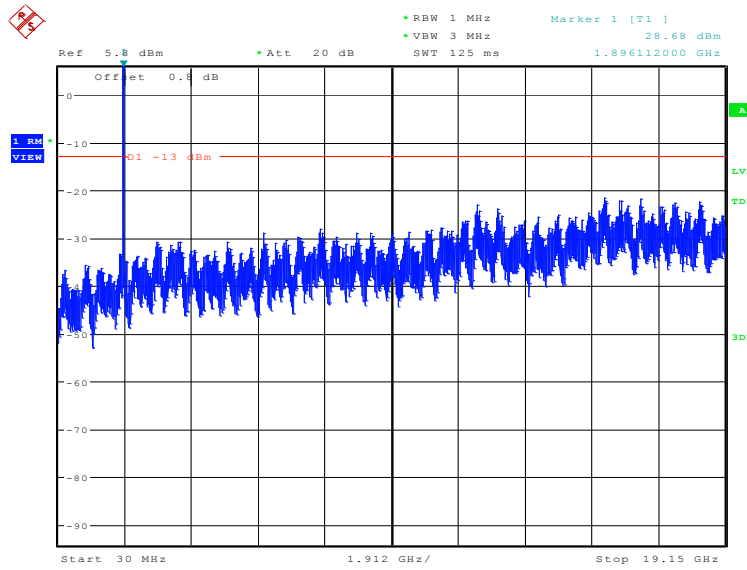
Date: 31.OCT.2019 16:04:39

LTE band 12: 30MHz – 7.46GHz



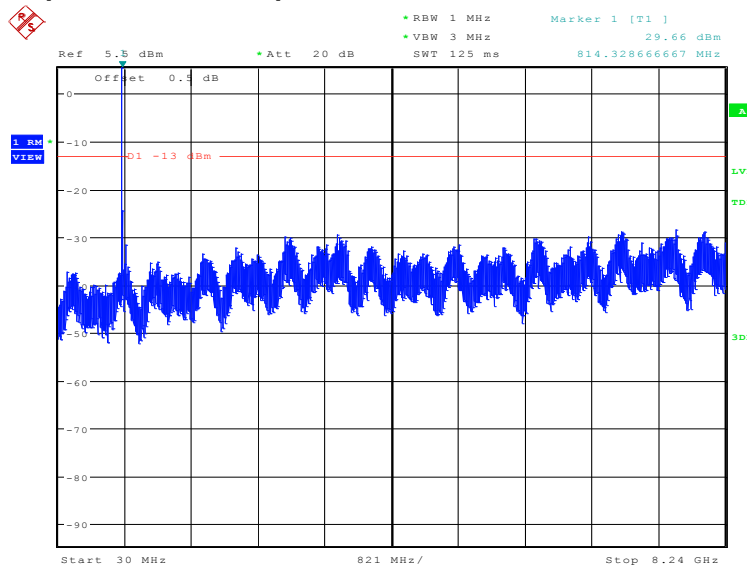
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LTE band 25: 30MHz – 19.15GHz



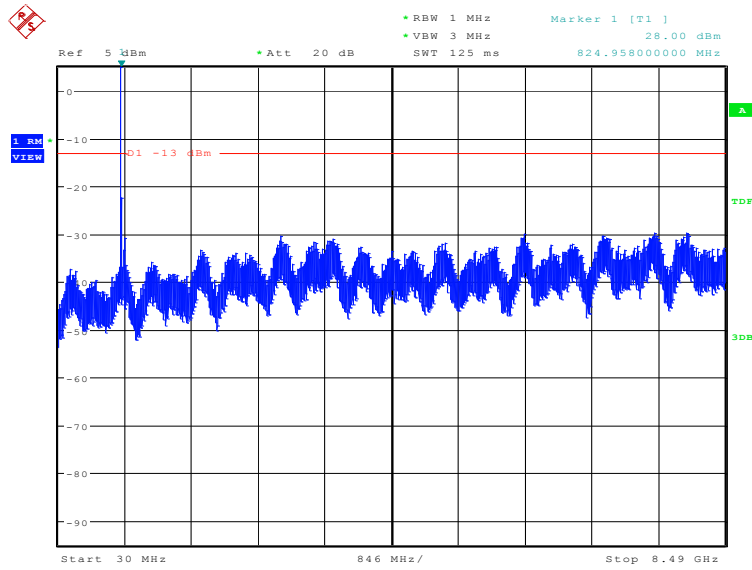
Date: 31.OCT.2019 17:45:23

LTE band 26(814MHz~824MHz): 30MHz – 8.24GHz



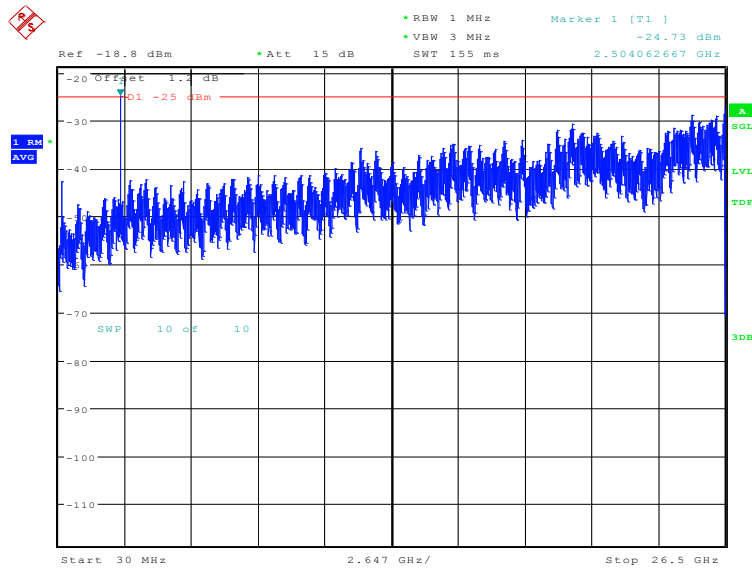
Date: 1.NOV.2019 09:37:42

LTE band 26(824MHz~849MHz): 30MHz – 8.49GHz



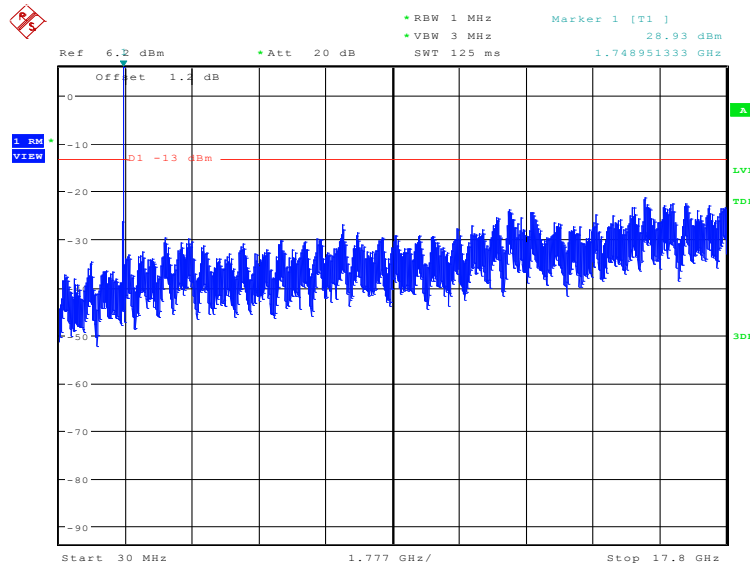
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LTE band 41: 30MHz – 26.5GHz



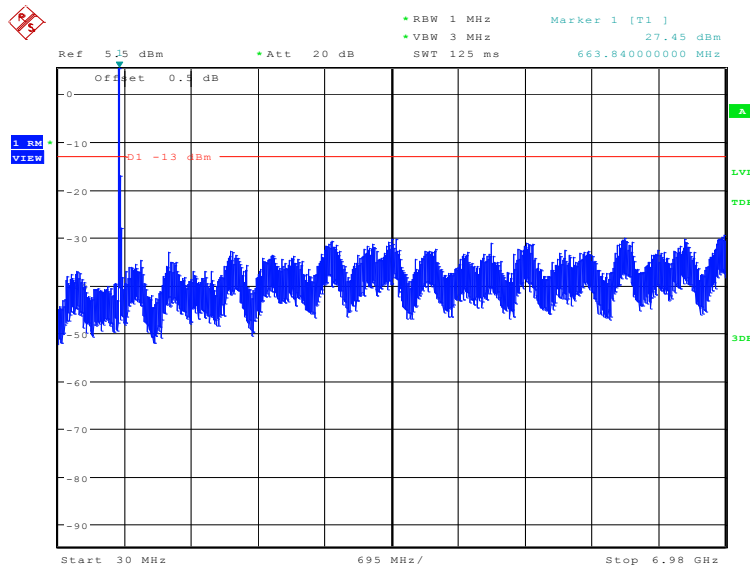
Date: 31.OCT.2019 15:27:21

LTE band 66: 30MHz – 17.8GHz



Date: 4.NOV.2019 09:05:25

LTE band 71: 30MHz – 6.98GHz



Date: 31.OCT.2019 16:16:34

A.8 PEAK-TO-AVERAGE POWER RATIO

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

According to KDB 971168 5.7.1:

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval to 1 ms
- e) Record the maximum PAPR level associated with a probability of 0.1%

A.8.1 Measurement limit

not exceed 13 dB

A.8.2 Measurement results

LTE band 7, 20MHz

Frequency(MHz)	PAPR(dB)	
2535.0	QPSK	16QAM
	6.67	7.31

LTE band 12, 10MHz

Frequency(MHz)	PAPR(dB)	
707.5	QPSK	16QAM
	5.26	6.09

LTE band 25, 20MHz

Frequency(MHz)	PAPR(dB)	
1882.5	QPSK	16QAM
	6.67	7.40

LTE band 41, 20MHz

Frequency(MHz)	PAPR(dB)	
2593.0	QPSK	16QAM
	8.17	8.94

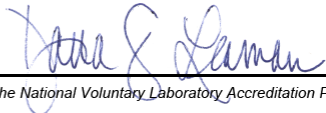
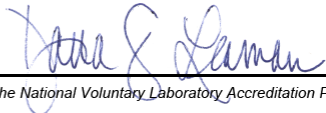
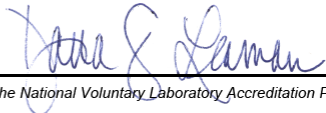
LTE band 66, 20MHz

Frequency(MHz)	PAPR(dB)	
1745.0	QPSK	16QAM
	6.51	7.21

LTE band 71, 20MHz

Frequency(MHz)	PAPR(dB)	
680.5	QPSK	16QAM
	8.40	8.40

ANNEX B: Accreditation Certificate

United States Department of Commerce National Institute of Standards and Technology NVLAP[®] Certificate of Accreditation to ISO/IEC 17025:2005 NVLAP LAB CODE: 600118-0 Telecommunication Technology Labs, CAICT Beijing China <i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i> Electromagnetic Compatibility & Telecommunications <i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).</i> <table><tr><td> 2019-09-26 through 2020-09-30 Effective Dates </td><td></td><td>  For the National Voluntary Laboratory Accreditation Program </td></tr></table>		2019-09-26 through 2020-09-30 Effective Dates		 For the National Voluntary Laboratory Accreditation Program
2019-09-26 through 2020-09-30 Effective Dates		 For the National Voluntary Laboratory Accreditation Program		

END OF REPORT