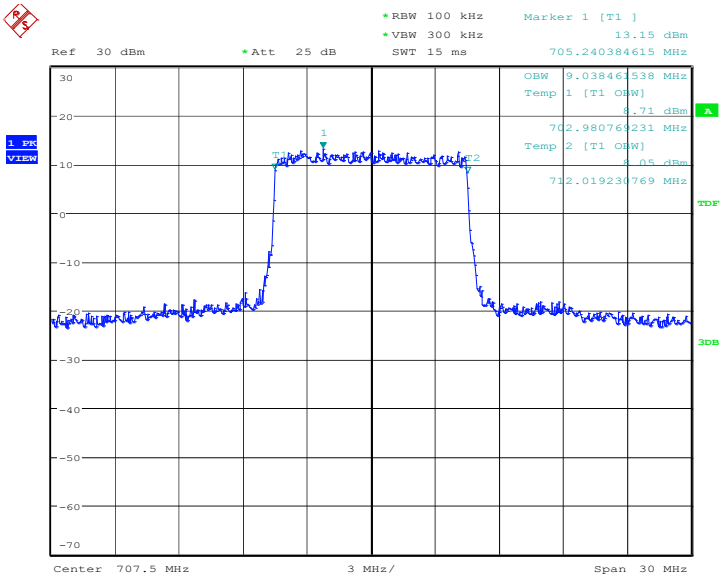
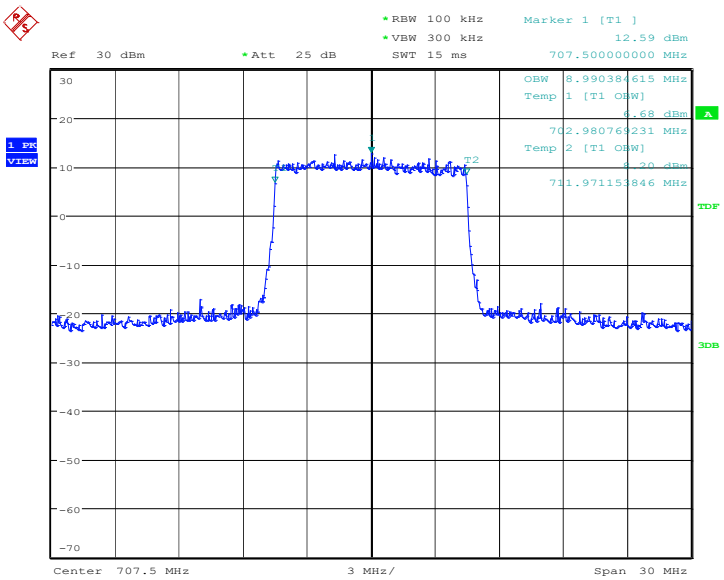
LTE band 12, 10MHz (99%)

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

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



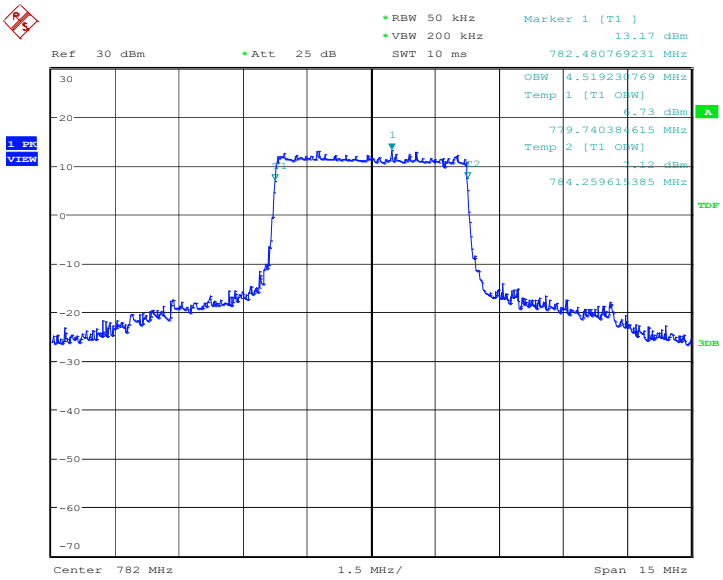
LTE band 12, 10MHz Bandwidth, 16QAM (99% BW)



LTE band 13, 5MHz (99%)

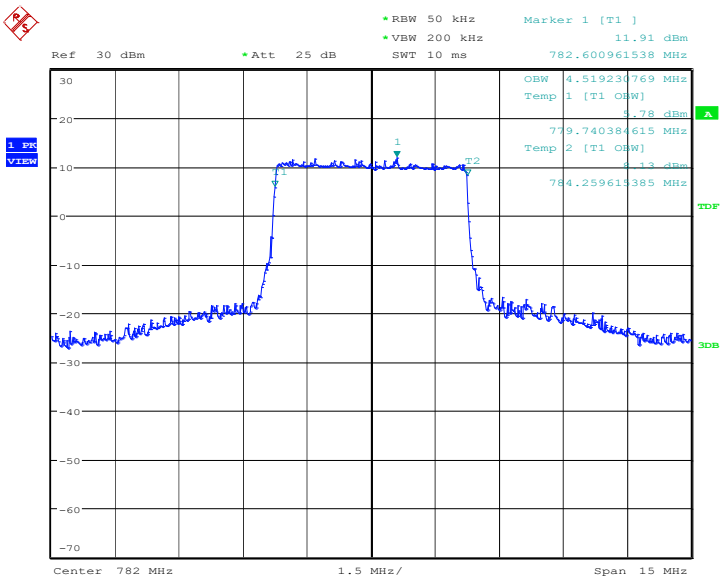
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
782.0	QPSK	16QAM
	4519.23	4519.23

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



Date: 14.NOV.2017 17:14:23

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

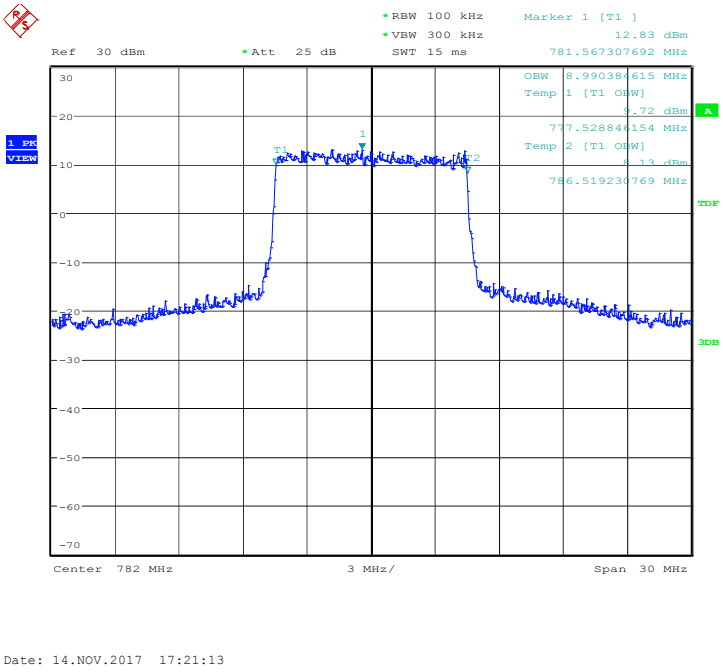


Date: 14.NOV.2017 17:14:38

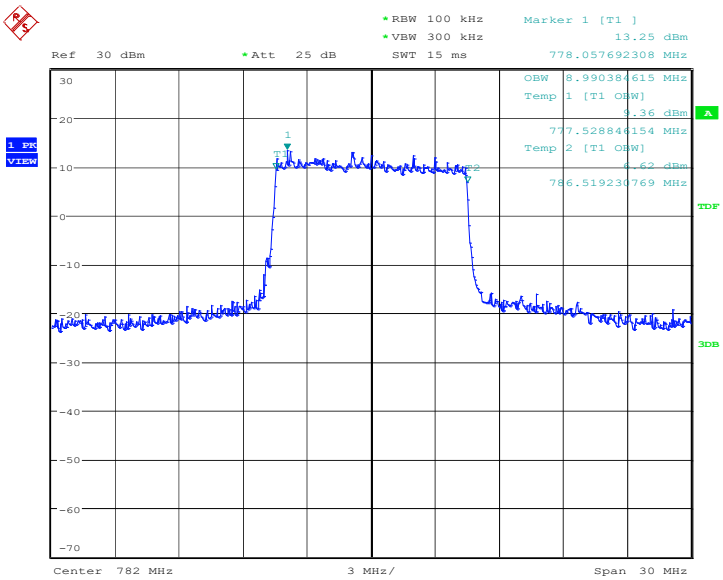
LTE band 13, 10MHz (99%)

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

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



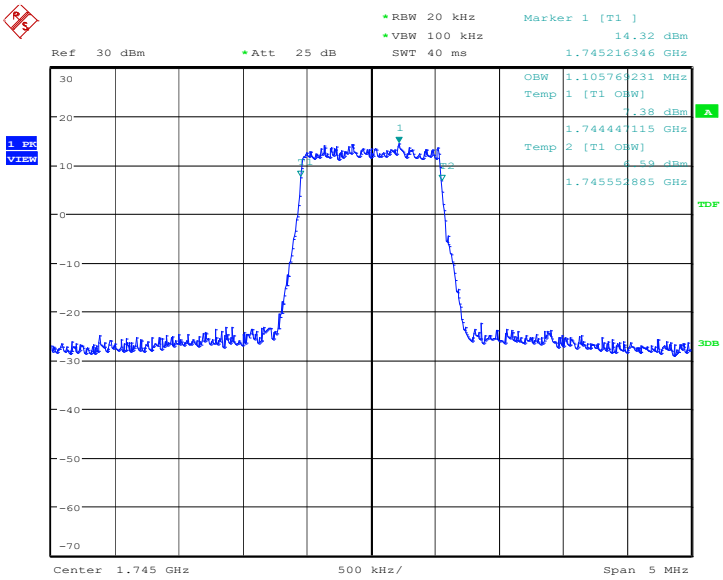
LTE band 13, 10MHz Bandwidth, 16QAM (99% BW)



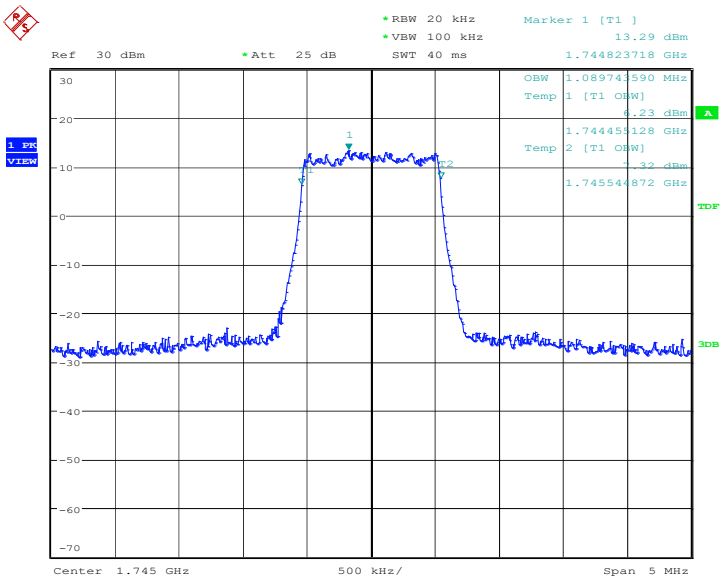
LTE band 66, 1.4MHz (99%)

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

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



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

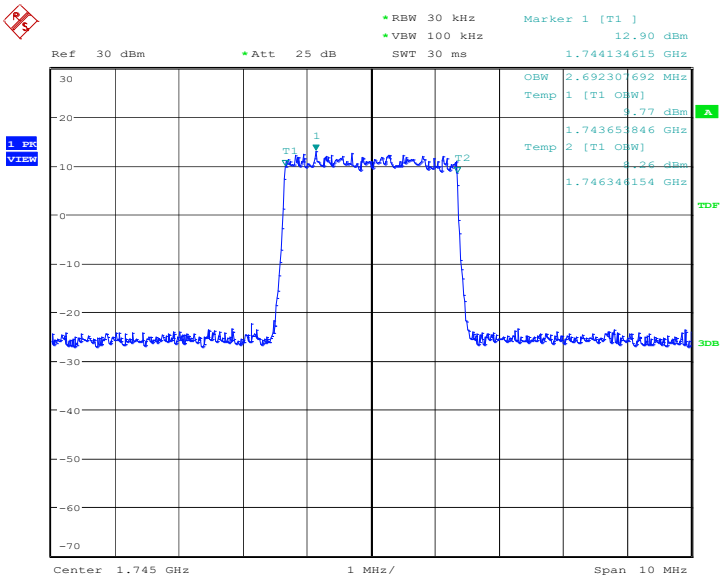


Date: 15.NOV.2017 08:47:15

LTE band 66, 3MHz (99%)

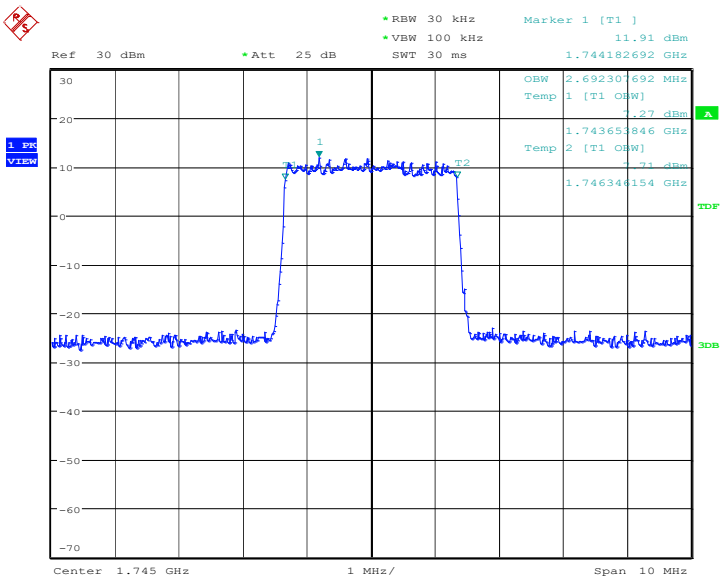
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	2692.31	2692.31

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



Date: 15.NOV.2017 08:52:42

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

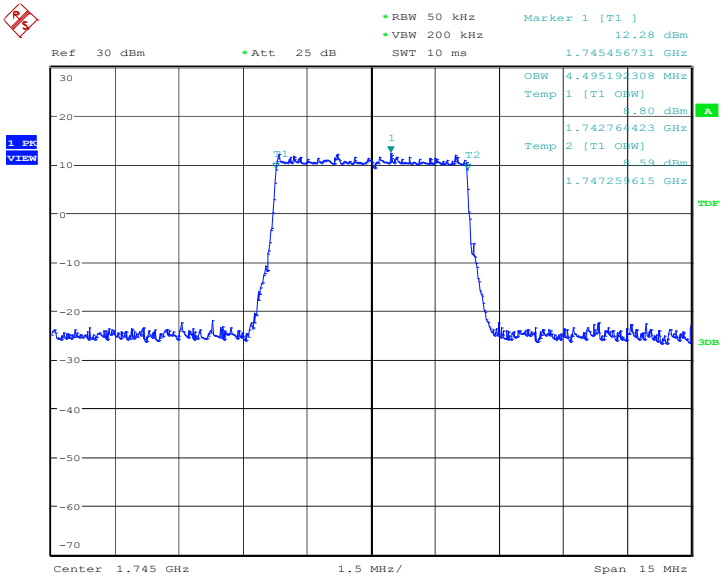


Date: 15.NOV.2017 08:52:57

LTE band 66, 5MHz (99%)

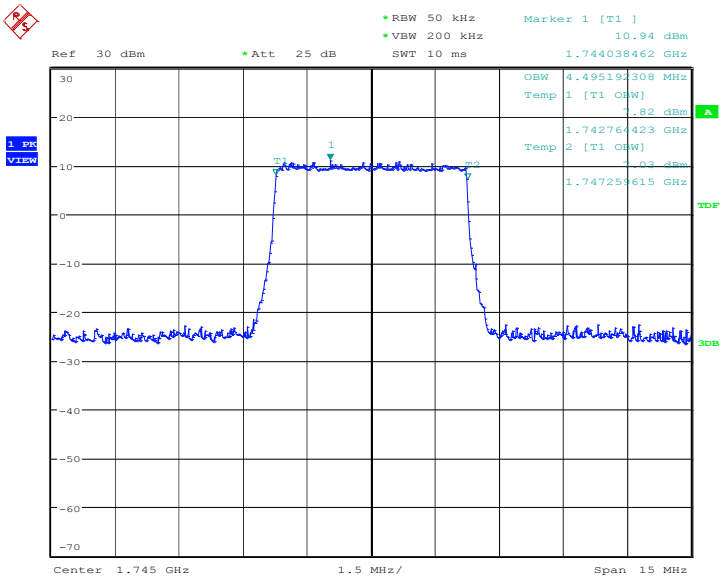
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	4495.19	4495.19

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



Date: 15.NOV.2017 08:58:25

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

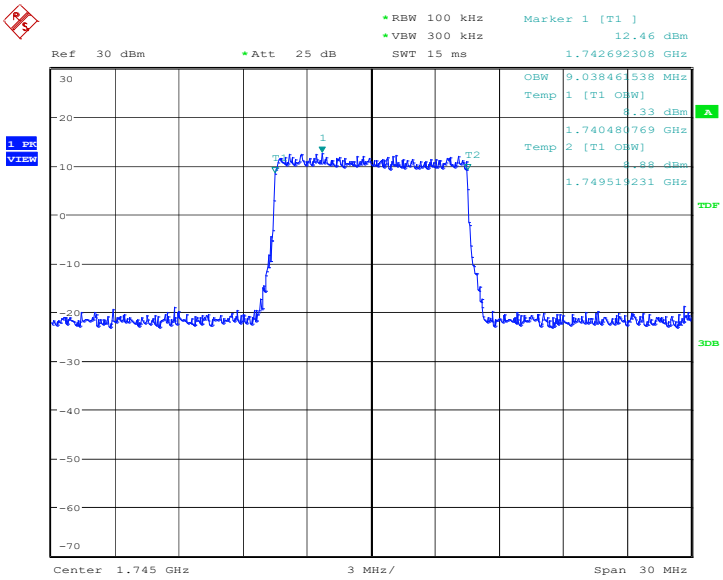


Date: 15.NOV.2017 08:58:40

LTE band 66, 10MHz (99%)

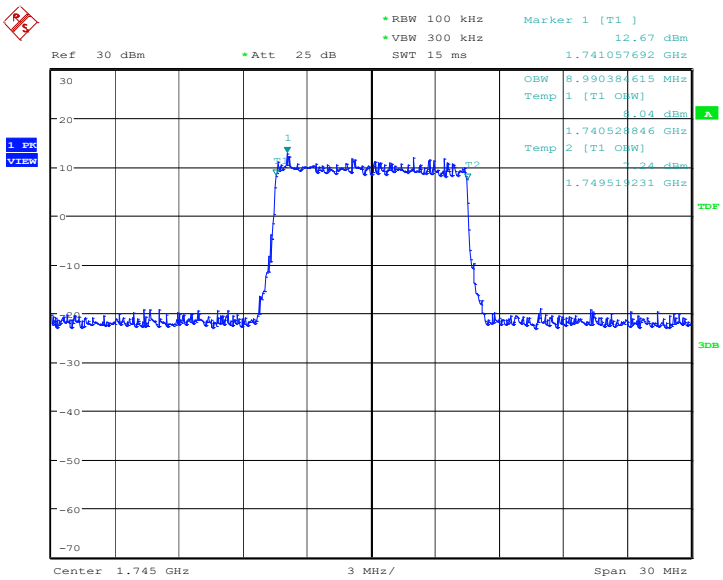
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	9038.46	8990.38

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



Date: 15.NOV.2017 09:04:07

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

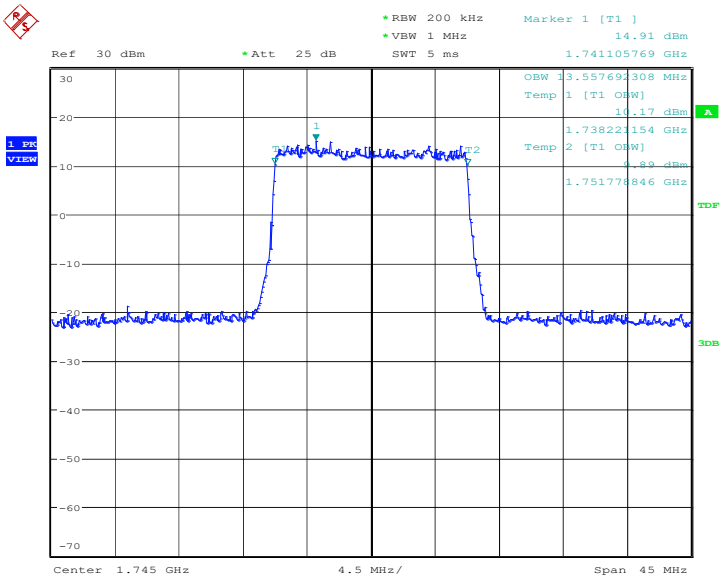


Date: 15.NOV.2017 09:04:22

LTE band 66, 15MHz (99%)

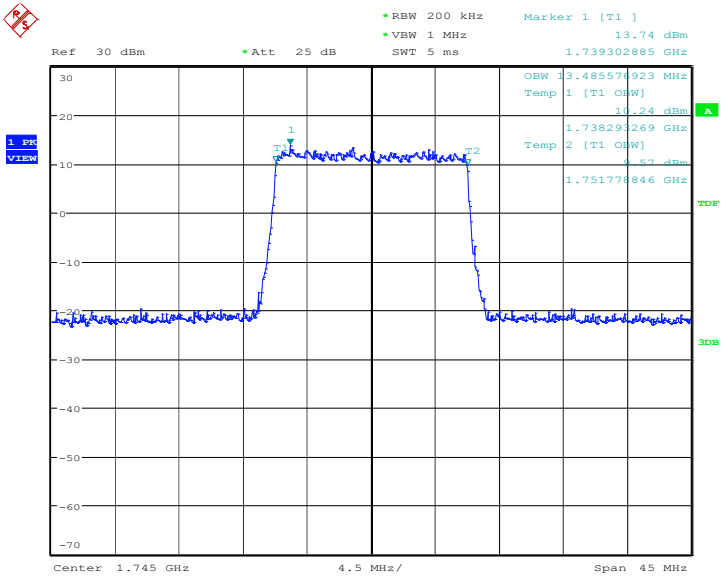
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	13557.69	13485.58

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



Date: 15.NOV.2017 09:10:27

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

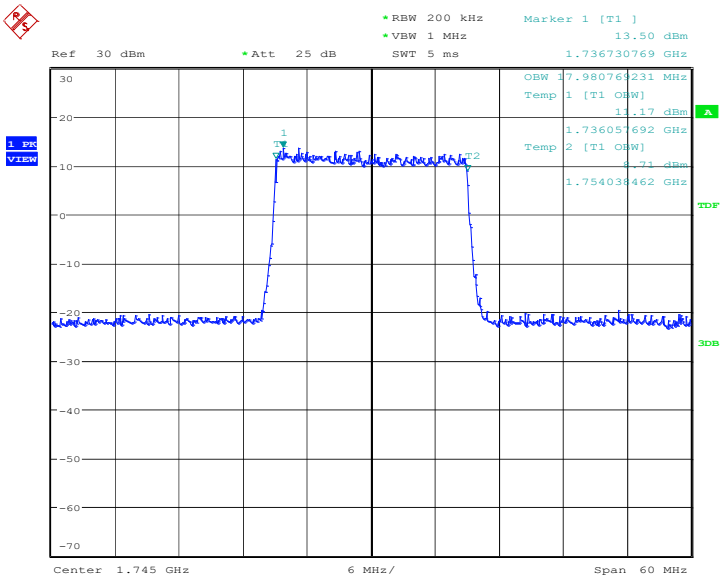


Date: 15.NOV.2017 09:10:42

LTE band 66, 20MHz (99%)

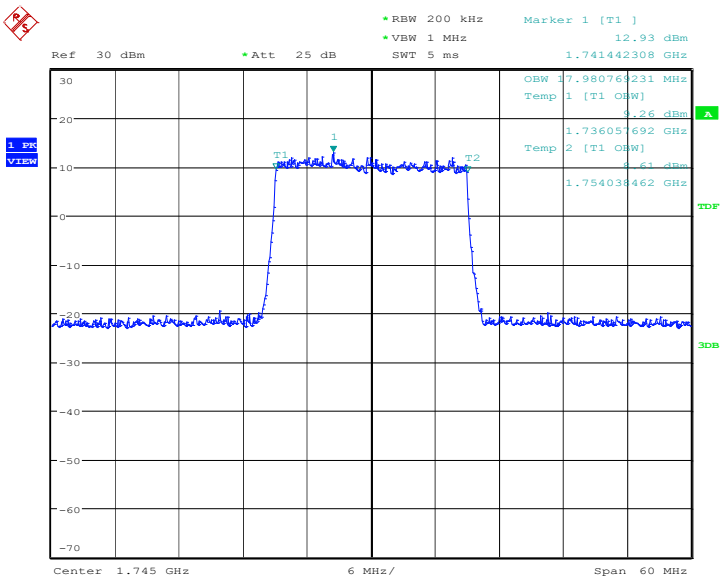
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
1745.0	QPSK	16QAM
	17980.77	17980.77

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



Date: 15.NOV.2017 09:16:51

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

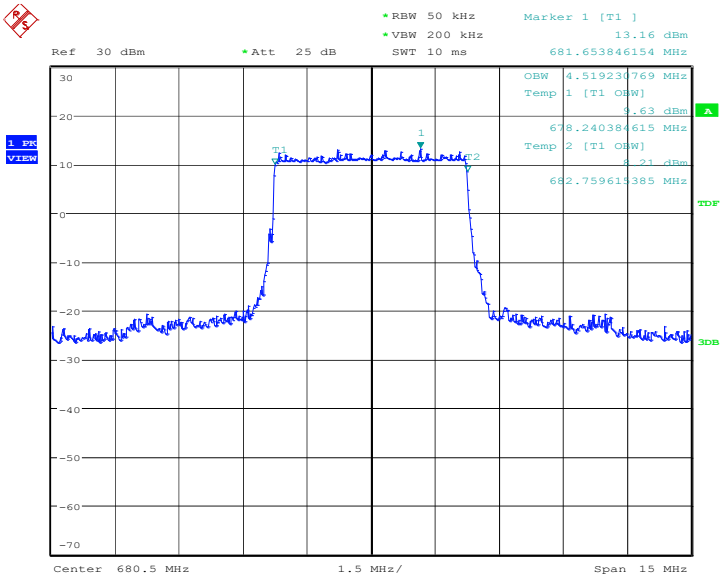


Date: 15.NOV.2017 09:17:06

LTE band 71, 5MHz (99%)

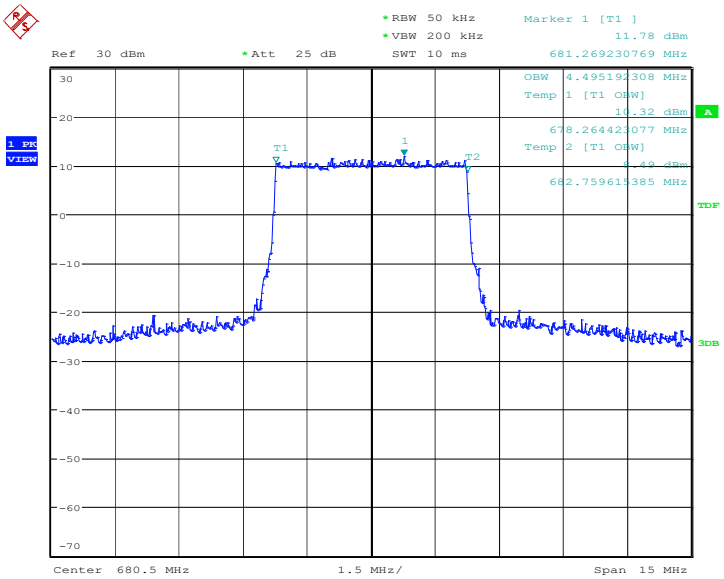
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	4519.23	4495.19

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



Date: 13.DEC.2017 15:02:43

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

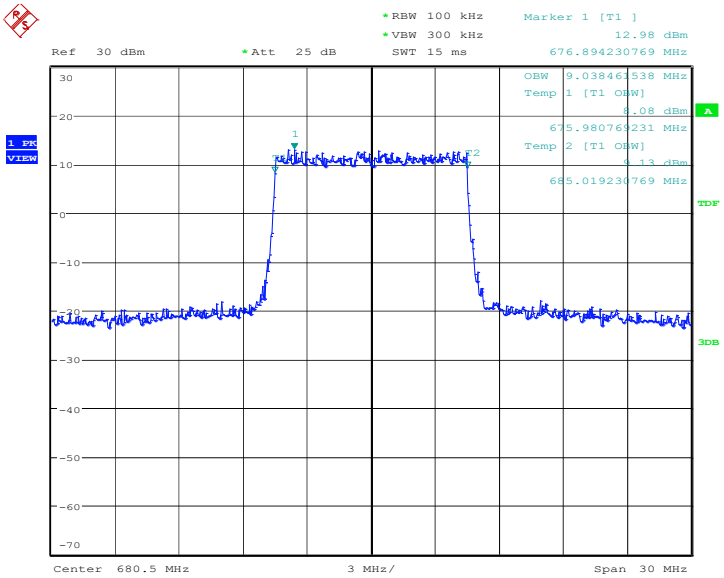


Date: 13.DEC.2017 15:02:58

LTE band 71, 10MHz (99%)

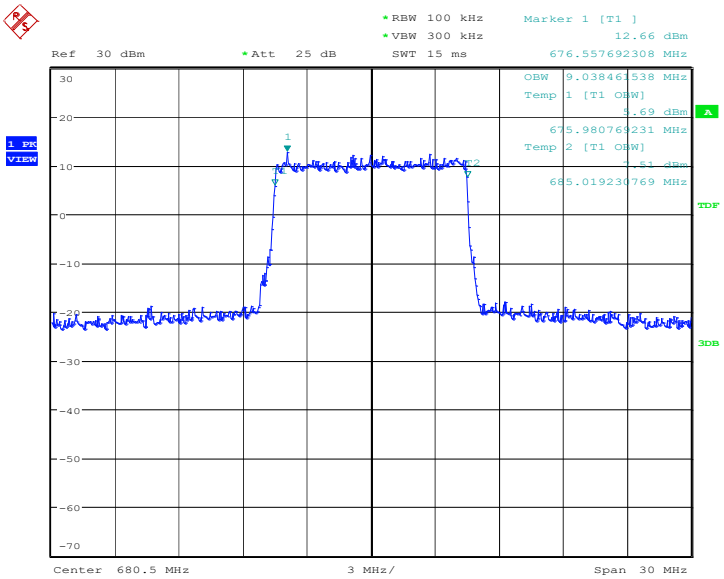
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	9038.46	9038.46

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



Date: 13.DEC.2017 15:08:30

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

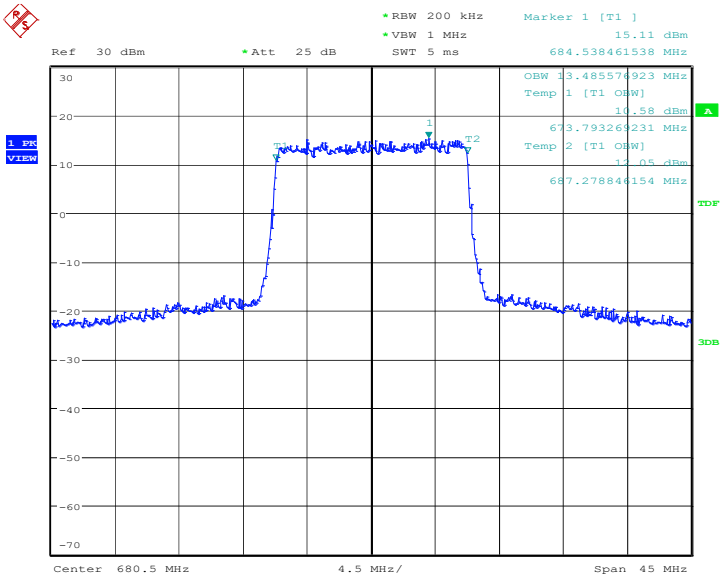


Date: 13.DEC.2017 15:08:45

LTE band 71, 15MHz (99%)

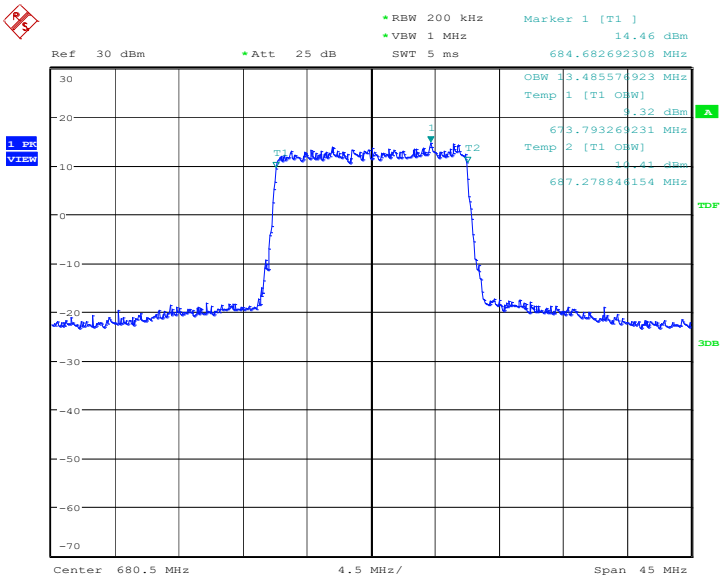
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	13485.58	13485.58

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



Date: 13.DEC.2017 15:14:56

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

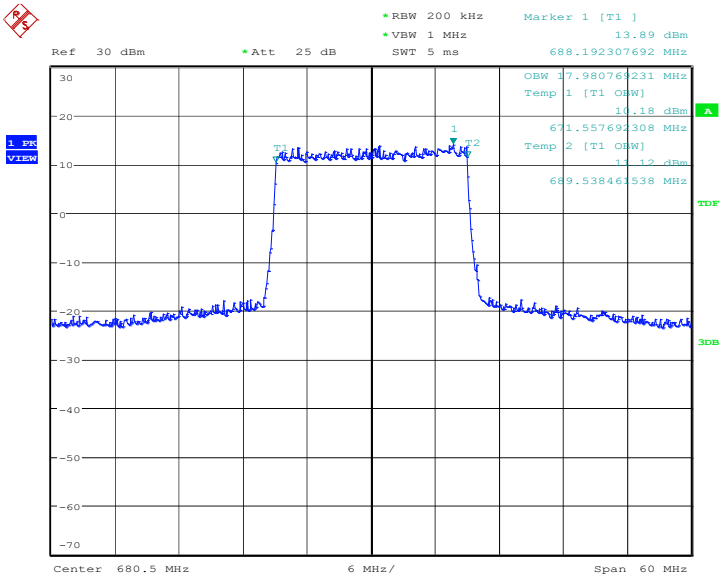


Date: 13.DEC.2017 15:15:11

LTE band 71, 20MHz (99%)

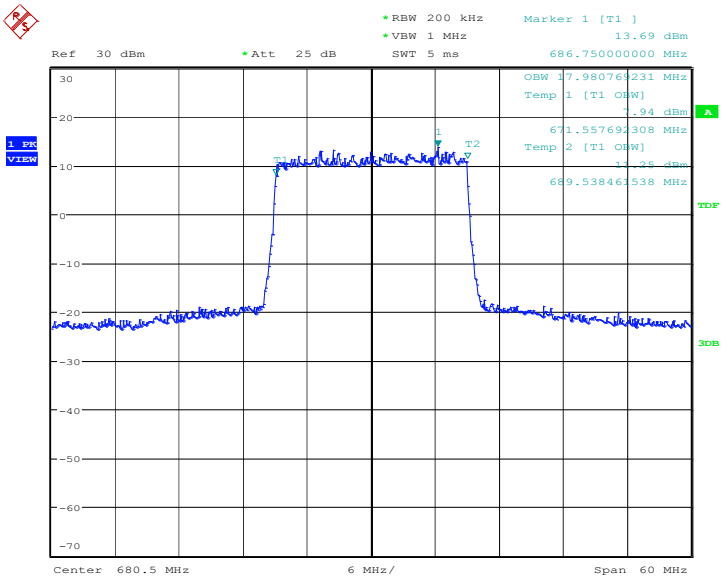
Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
680.5	QPSK	16QAM
	17980.77	17980.77

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



Date: 13.DEC.2017 15:21:26

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



Date: 13.DEC.2017 15:21:41

A.5 EMISSION BANDWIDTH

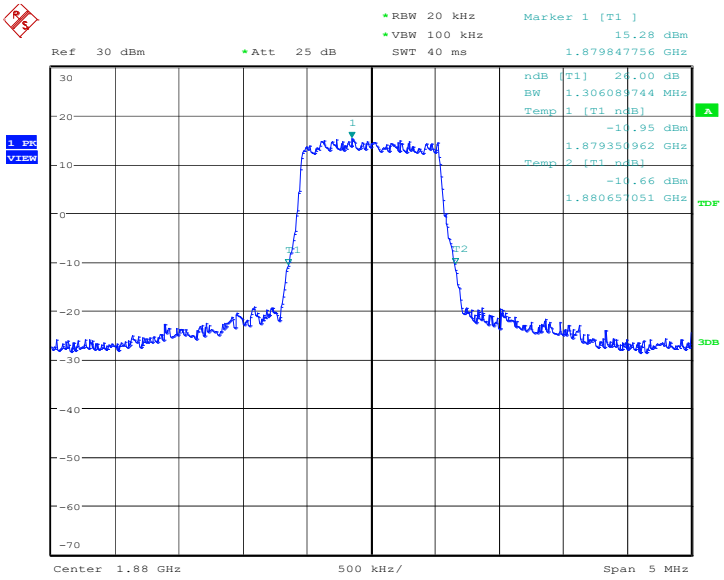
A.5.1Emission Bandwidth Results

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)

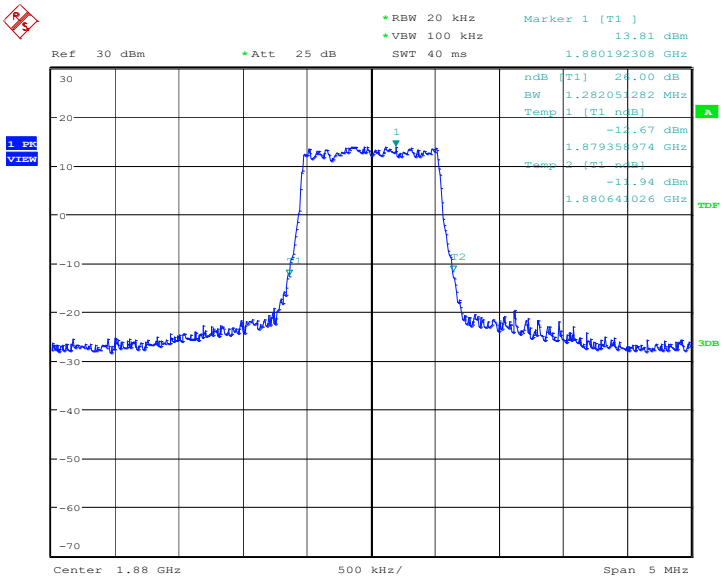
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	1306.09	1282.05

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



Date: 14.NOV.2017 17:56:42

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

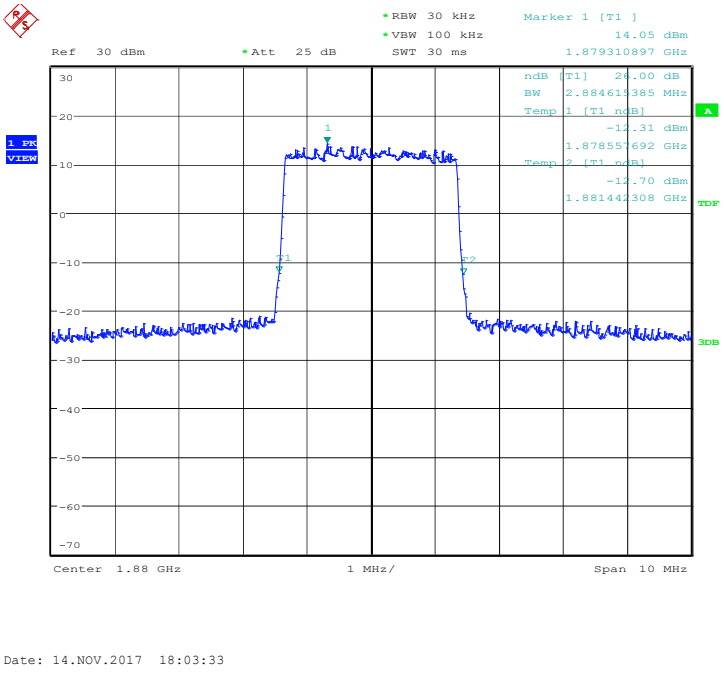


Date: 14.NOV.2017 17:56:59

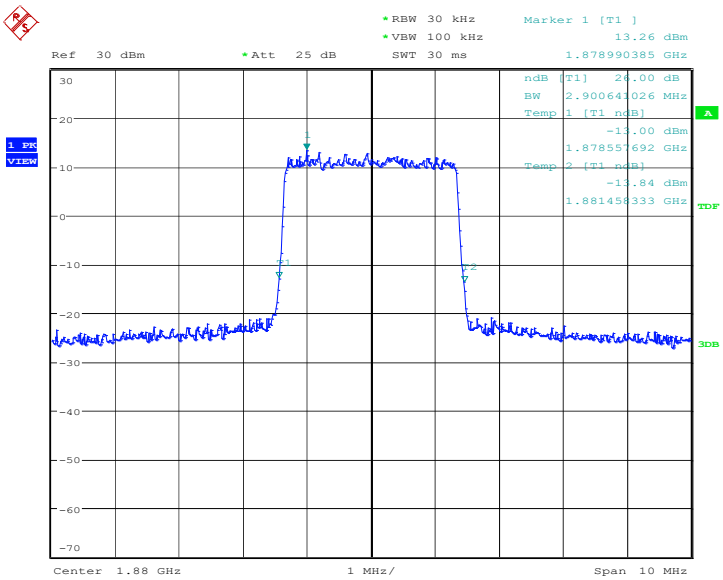
LTE band 2, 3MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	2884.62	2900.64

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



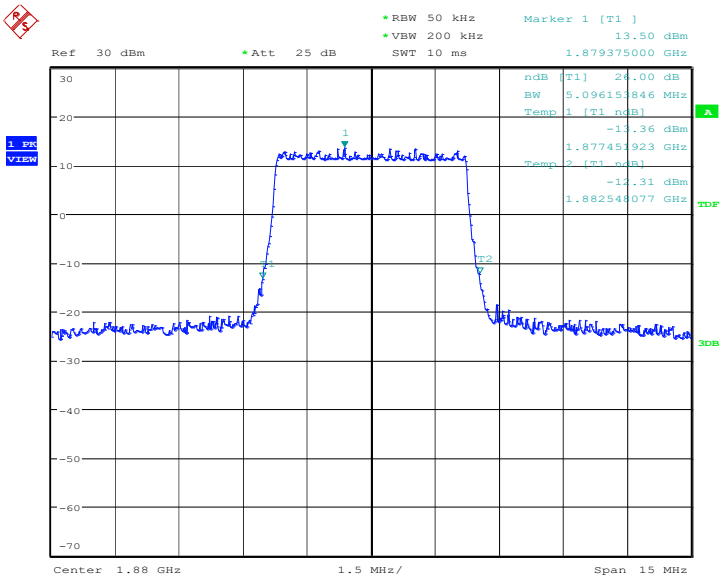
LTE band 2, 3MHz Bandwidth, 16QAM (-26dBc BW)



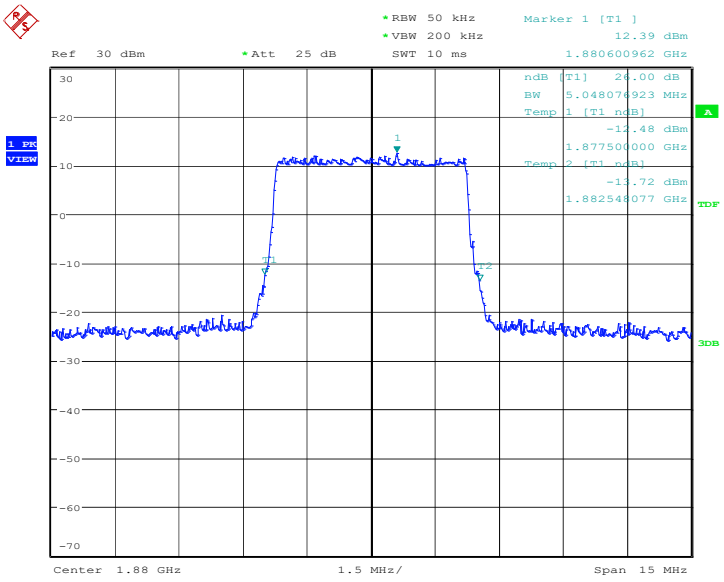
LTE band 2, 5MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1880.0	QPSK	16QAM
	5096.15	5048.08

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



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

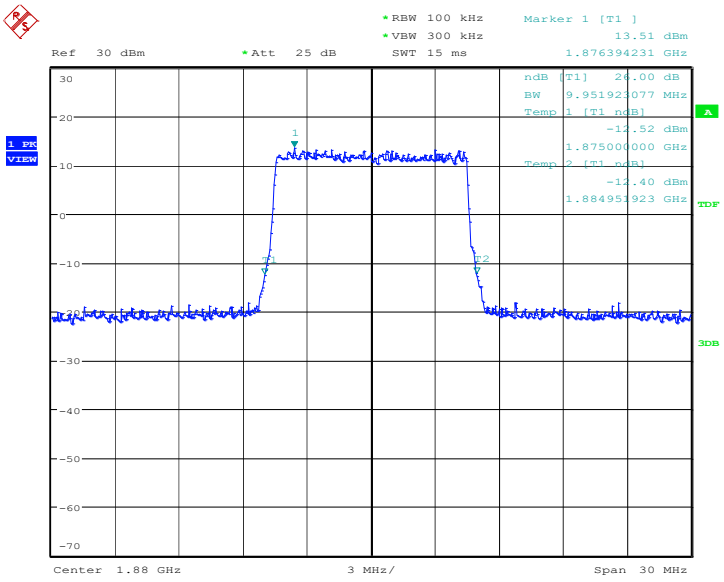


Date: 14.NOV.2017 18:10:40

LTE band 2, 10MHz (-26dBc)

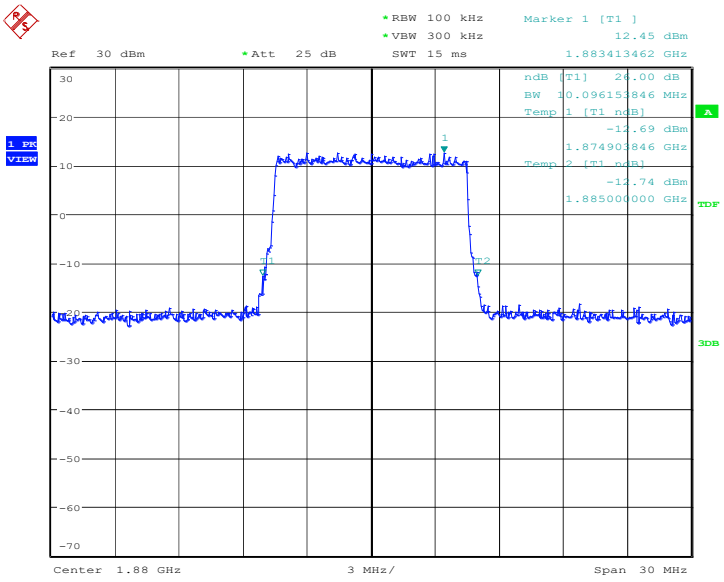
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
	QPSK	16QAM
1880.0	9951.92	10096.15

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



Date: 14.NOV.2017 18:17:14

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

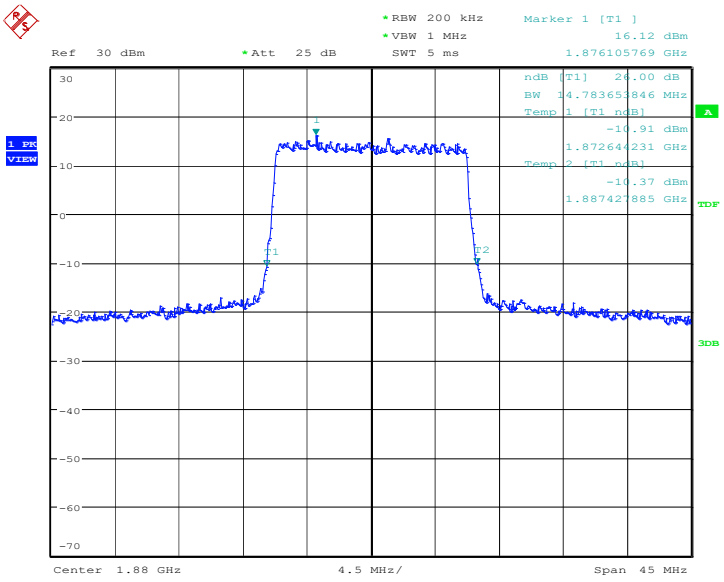


Date: 14.NOV.2017 18:17:31

LTE band 2, 15MHz (-26dBc)

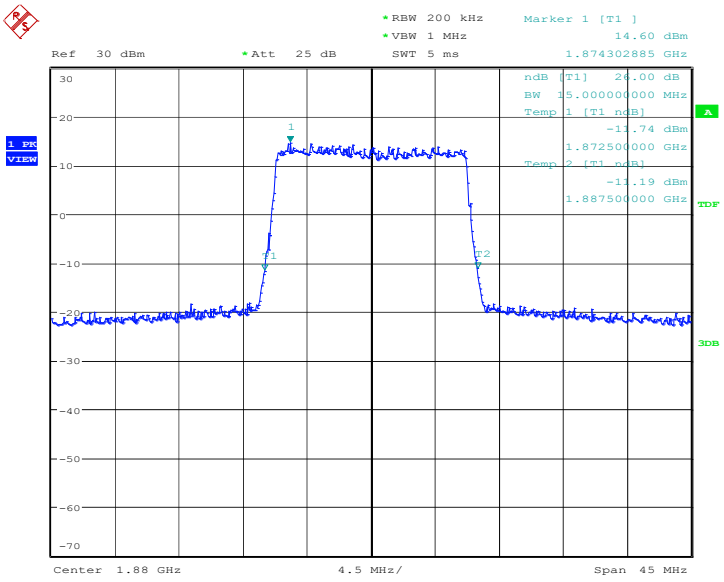
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
	QPSK	16QAM
1880.0	14783.65	15000.00

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



Date: 14.NOV.2017 18:24:43

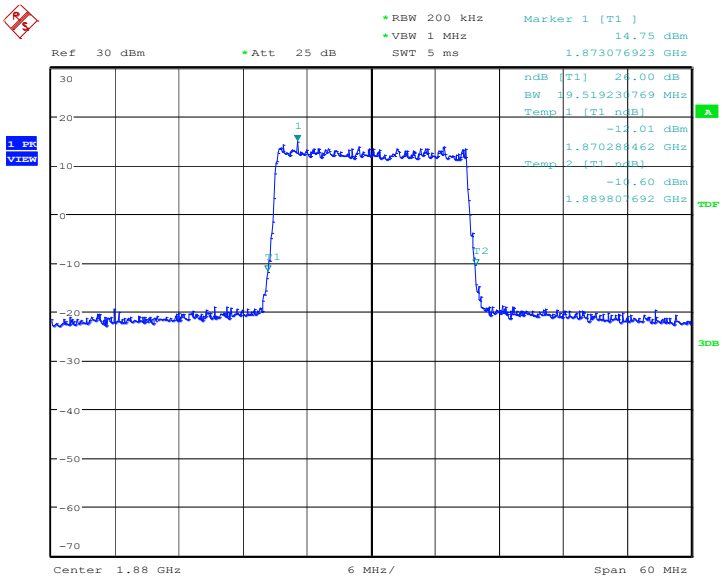
LTE band 2, 15MHz Bandwidth, 16QAM (-26dBc BW)



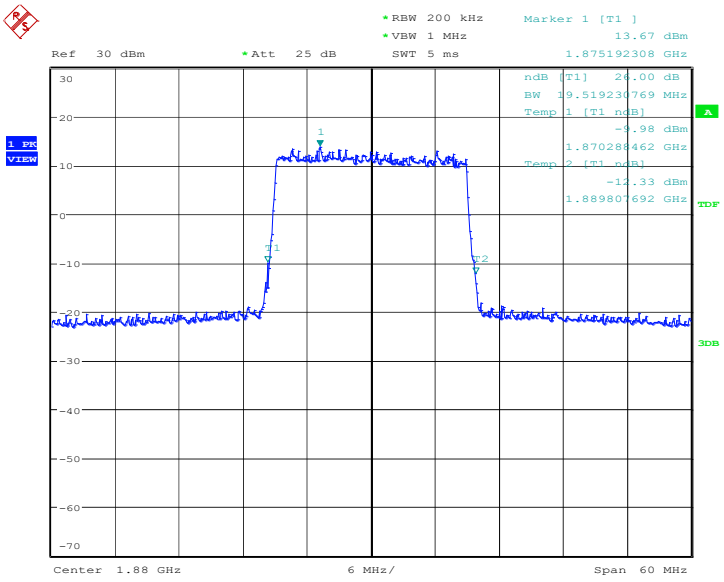
LTE band 2, 20MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
	QPSK	16QAM
1880.0	19519.23	19519.23

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



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

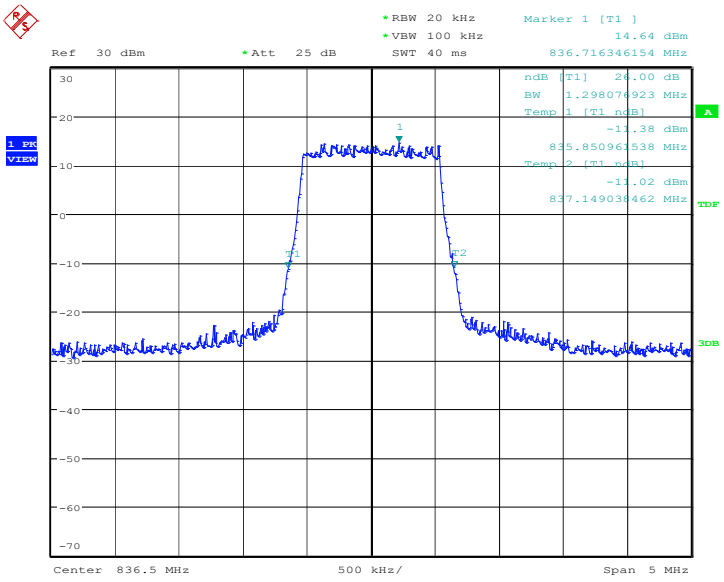


Date: 14.NOV.2017 18:32:31

LTE band 5, 1.4MHz (-26dBc)

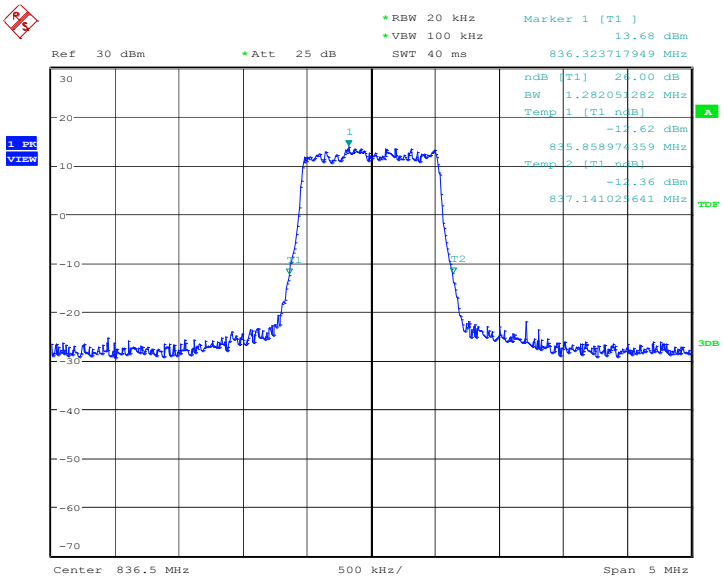
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	1298.08	1282.05

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



Date: 14.NOV.2017 17:29:16

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

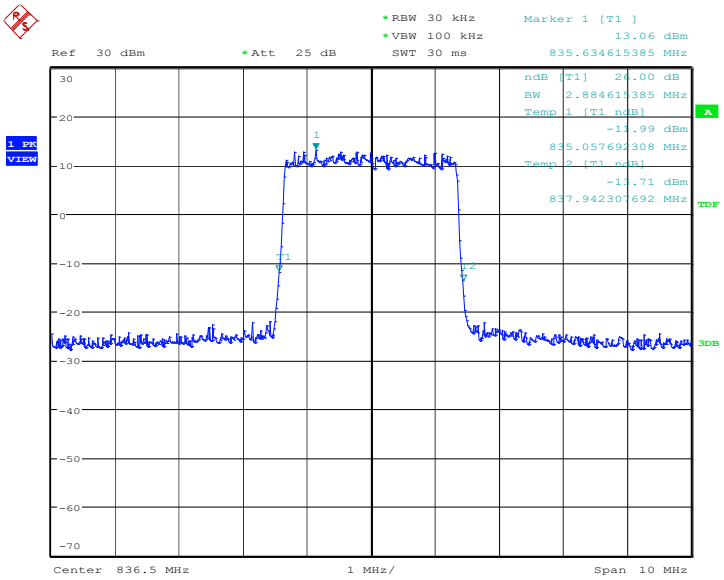


Date: 14.NOV.2017 17:29:33

LTE band 5, 3MHz (-26dBc)

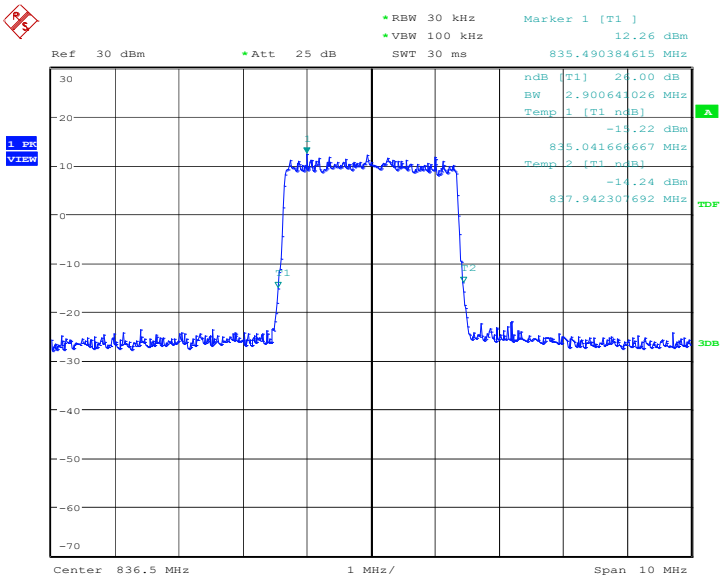
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	2884.62	2900.64

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



Date: 14.NOV.2017 17:36:06

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

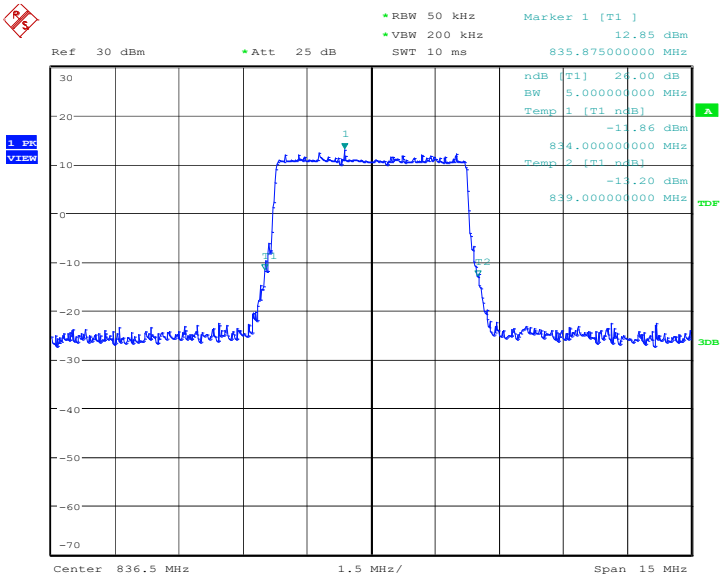


Date: 14.NOV.2017 17:36:23

LTE band 5, 5MHz (-26dBc)

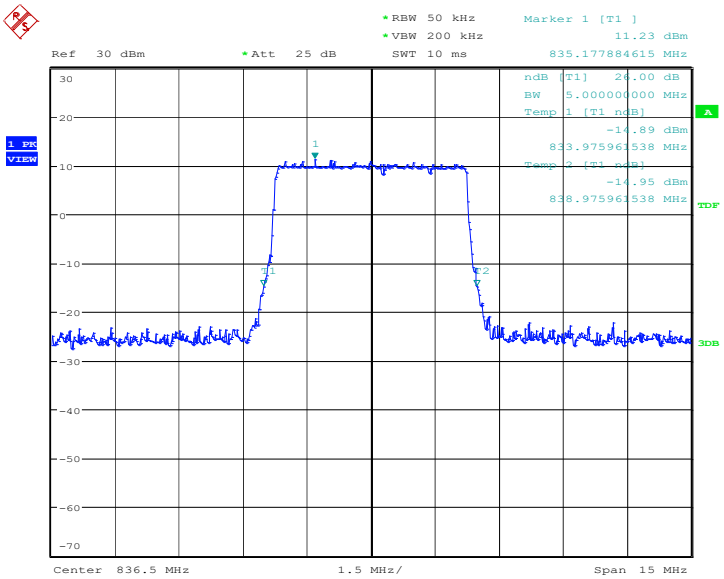
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	5000.00	5000.00

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



Date: 14.NOV.2017 17:42:57

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

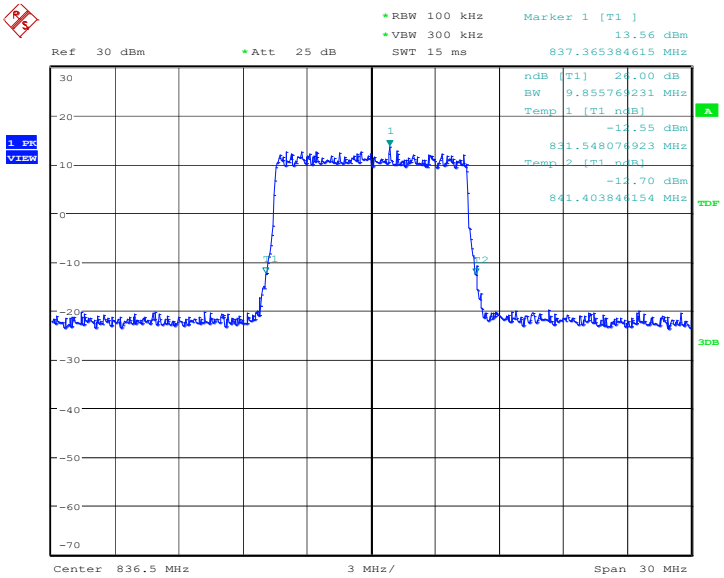


Date: 14.NOV.2017 17:43:14

LTE band 5, 10MHz (-26dBc)

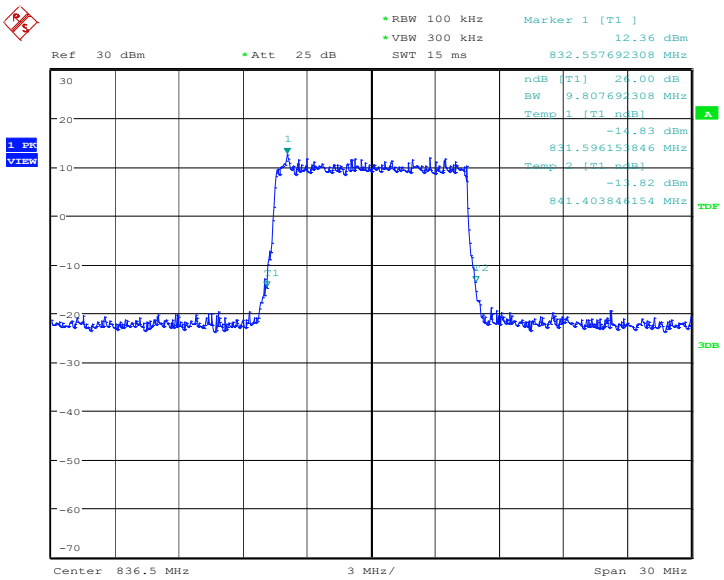
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
836.5	QPSK	16QAM
	9855.77	9807.69

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



Date: 14.NOV.2017 17:49:48

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

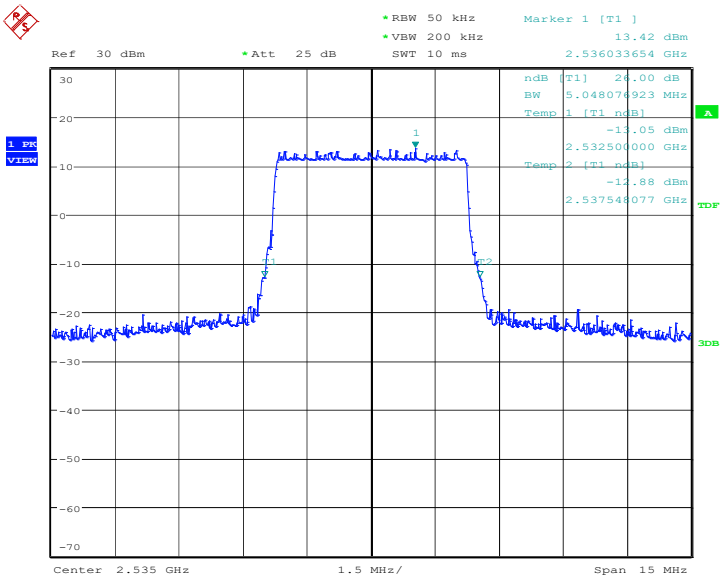


Date: 14.NOV.2017 17:50:04

LTE band 7, 5MHz (-26dBc)

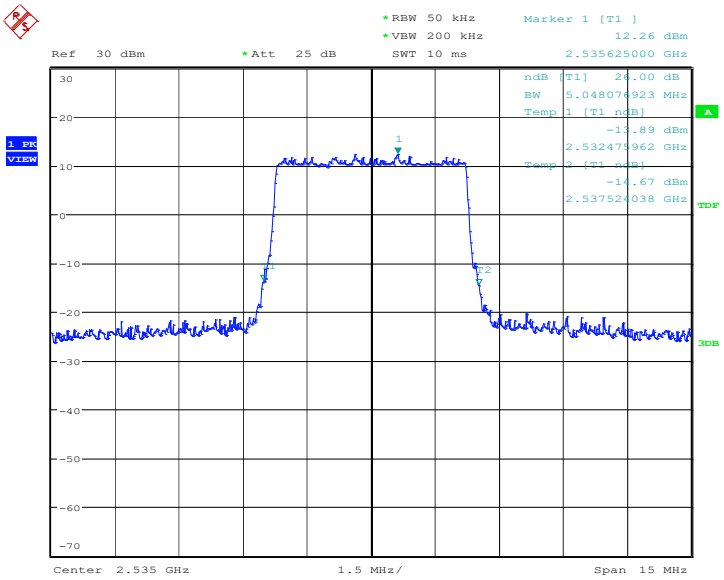
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	5048.08	5048.08

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



Date: 14.NOV.2017 16:46:45

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

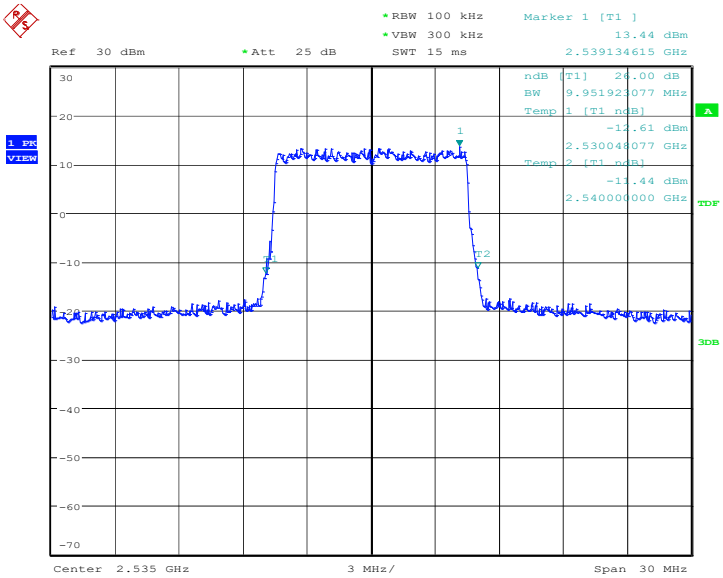


Date: 14.NOV.2017 16:47:02

LTE band 7, 10MHz (-26dBc)

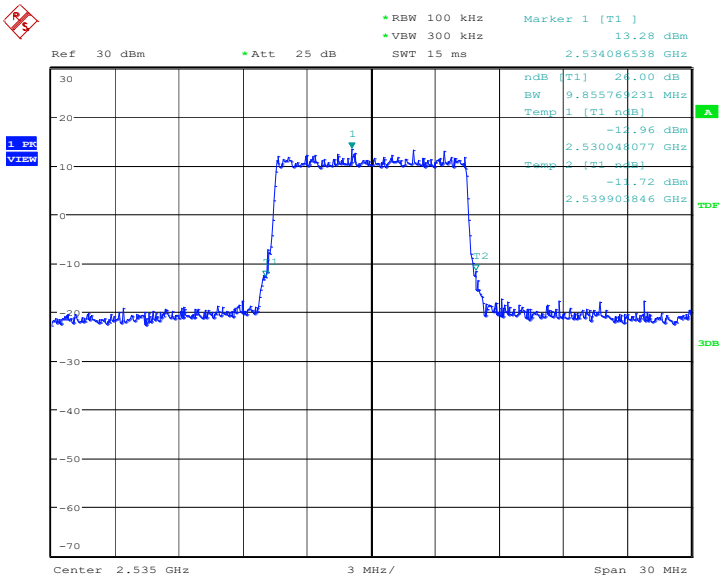
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	9951.92	9855.77

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



Date: 14.NOV.2017 16:53:36

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

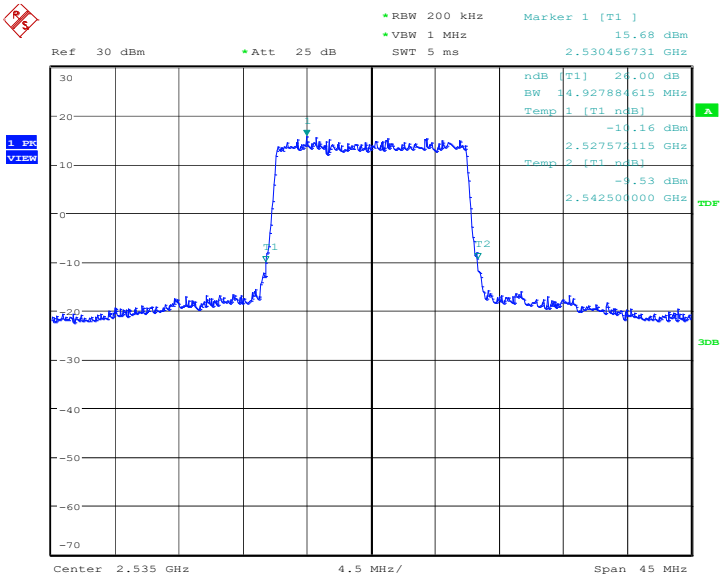


Date: 14.NOV.2017 16:53:53

LTE band 7, 15MHz (-26dBc)

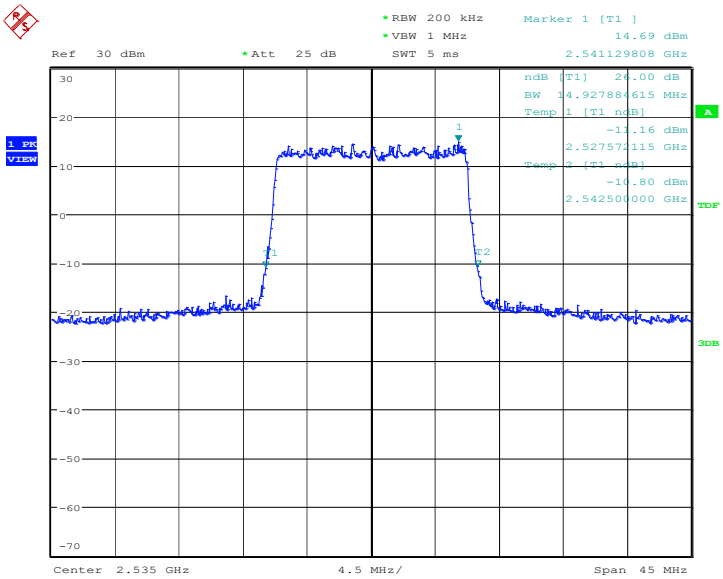
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	14927.88	14927.88

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



Date: 14.NOV.2017 17:01:05

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

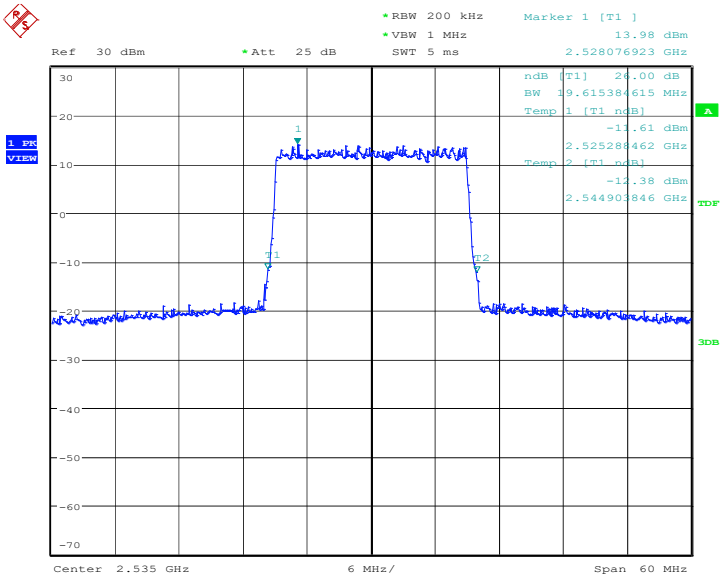


Date: 14.NOV.2017 17:01:22

LTE band 7, 20MHz (-26dBc)

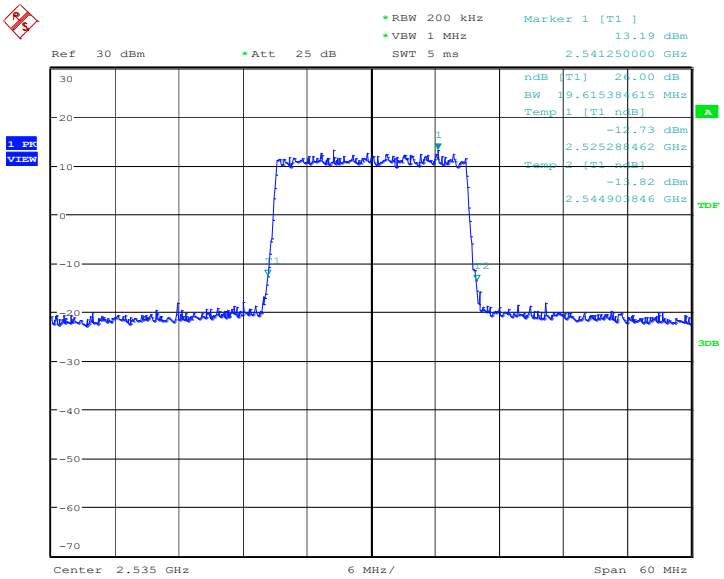
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
2535.0	QPSK	16QAM
	19615.38	19615.38

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



Date: 14.NOV.2017 17:08:36

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

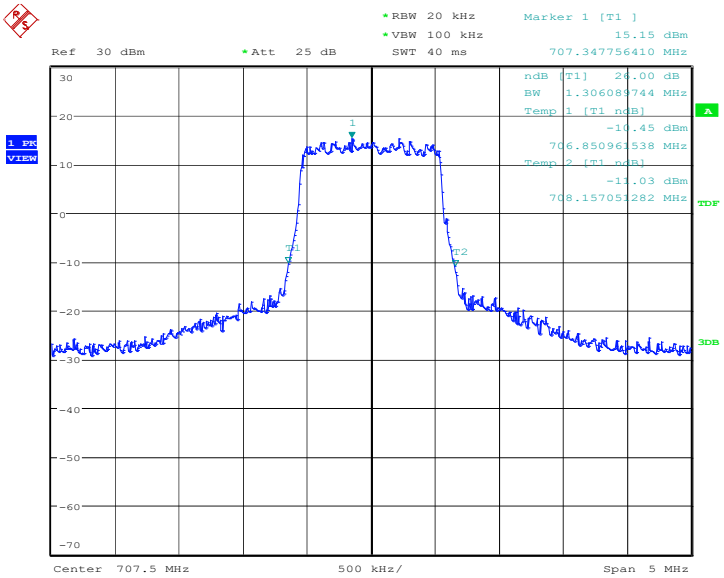


Date: 14.NOV.2017 17:08:53

LTE band 12, 1.4MHz (-26dBc)

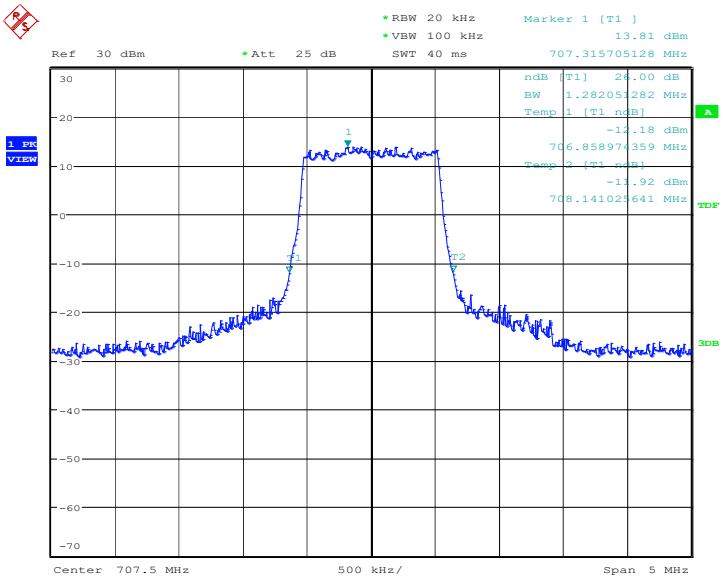
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	1306.09	1282.05

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



Date: 24.NOV.2017 13:21:56

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

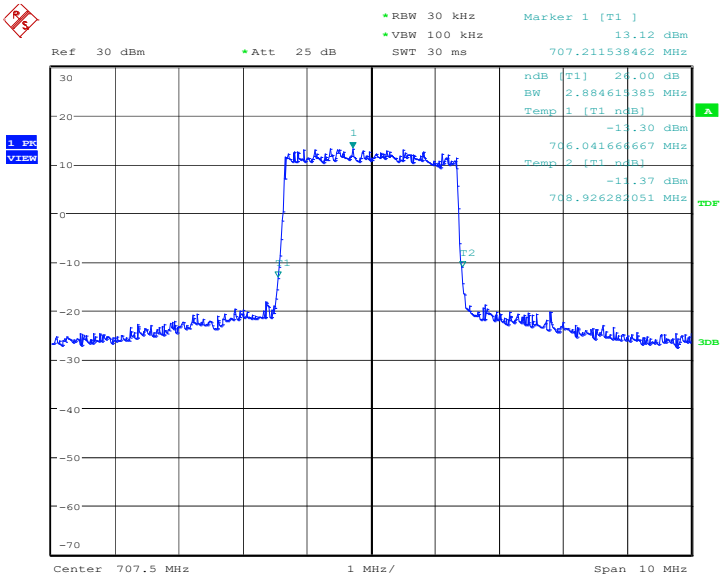


Date: 24.NOV.2017 13:22:13

LTE band 12, 3MHz (-26dBc)

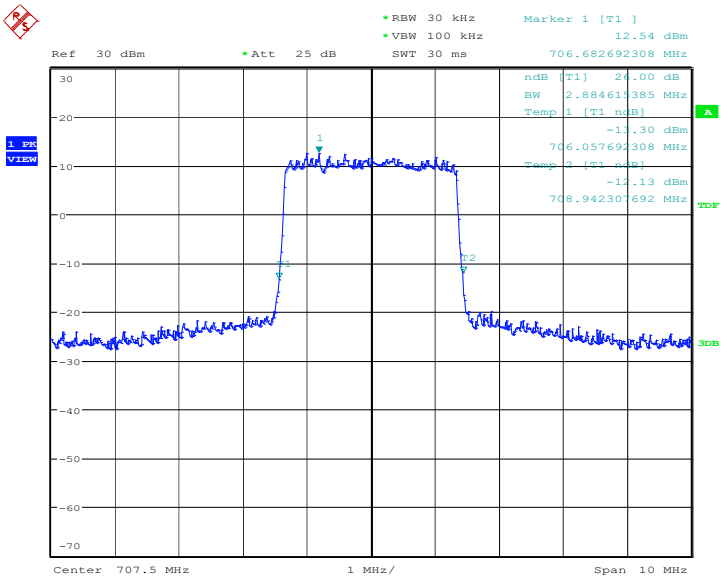
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	2884.62	2884.62

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



Date: 24.NOV.2017 13:27:38

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

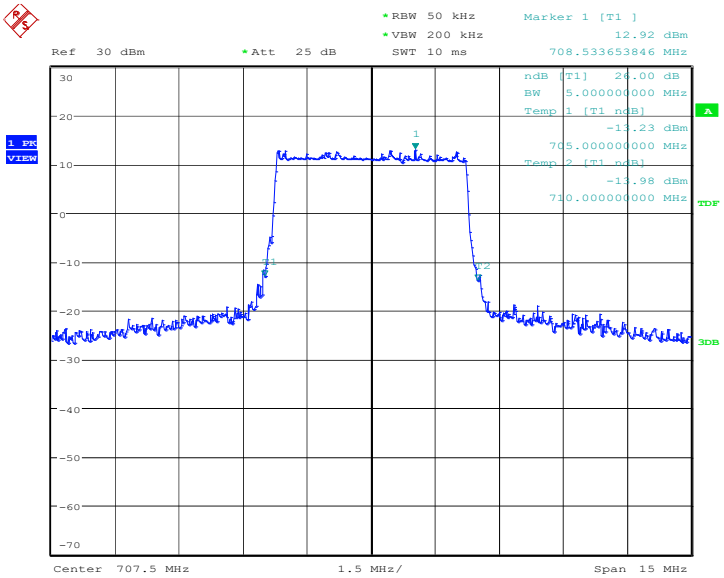


Date: 24.NOV.2017 13:27:55

LTE band 12, 5MHz (-26dBc)

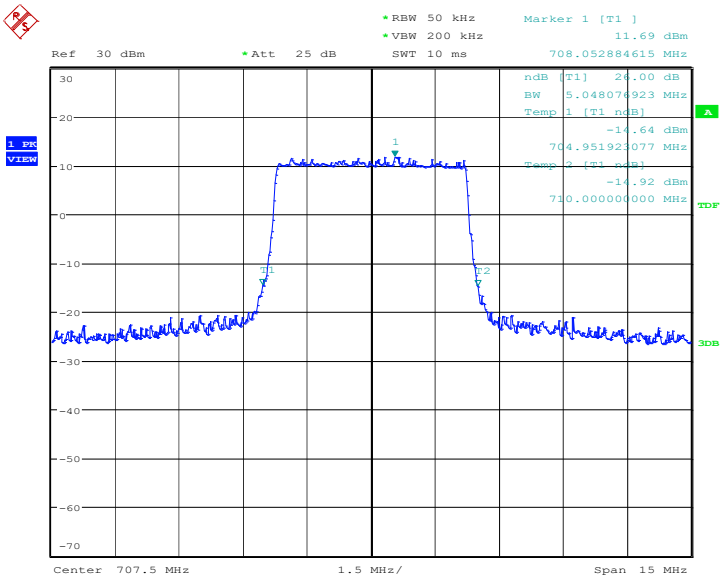
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	5000.00	5048.08

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



Date: 24.NOV.2017 13:33:21

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

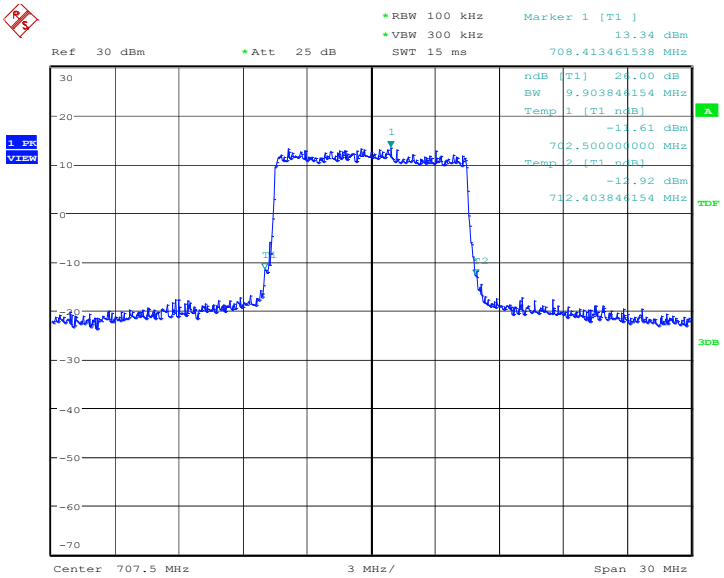


Date: 24.NOV.2017 13:33:38

LTE band 12, 10MHz (-26dBc)

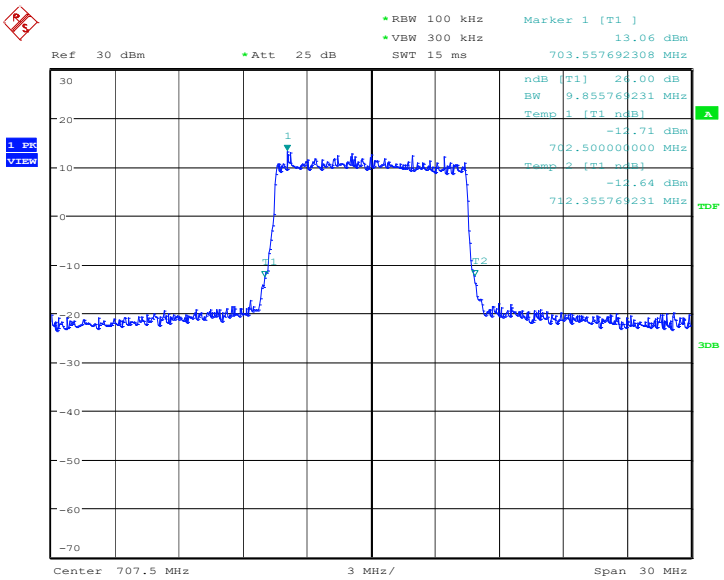
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
707.5	QPSK	16QAM
	9903.85	9855.77

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



Date: 24.NOV.2017 13:39:03

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

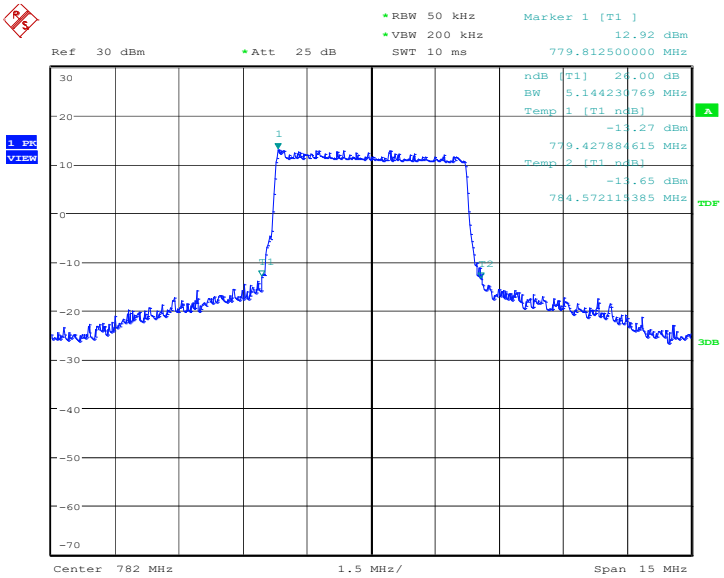


Date: 24.NOV.2017 13:39:20

LTE band 13, 5MHz (-26dBc)

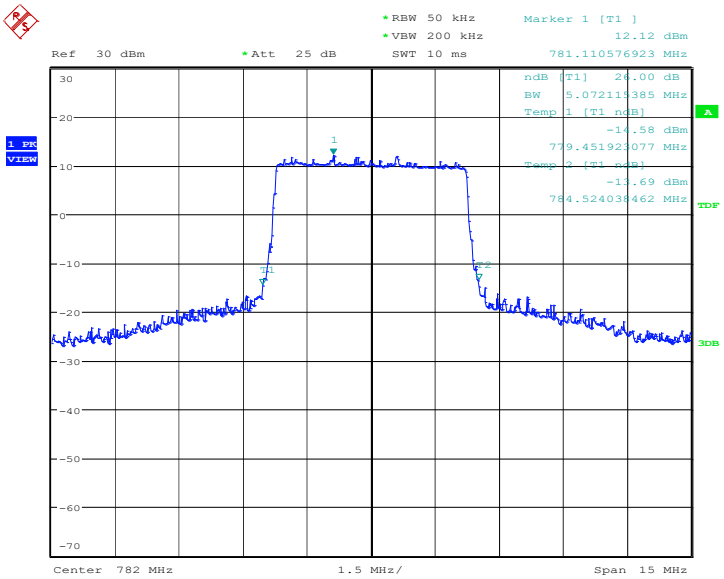
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
782.0	QPSK	16QAM
	5144.23	5072.12

LTE band 13, 5MHz Bandwidth, QPSK (-26dBc BW)



Date: 14.NOV.2017 17:15:31

LTE band 13, 5MHz Bandwidth,16QAM (-26dBc BW)

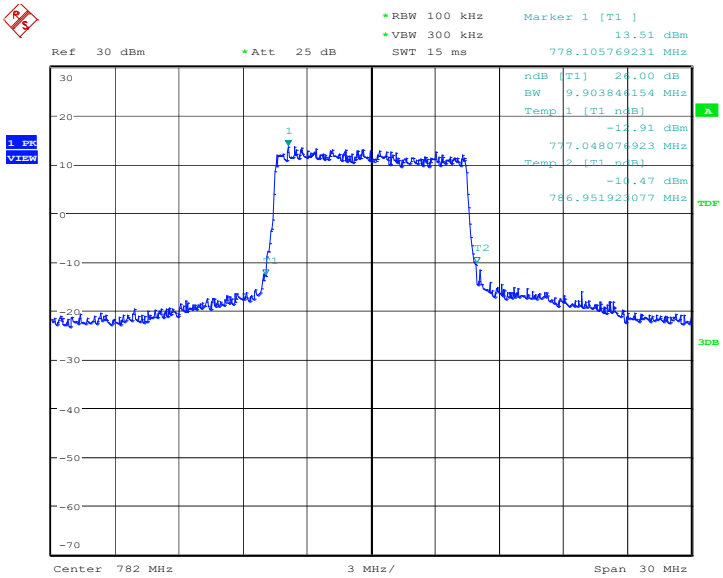


Date: 14.NOV.2017 17:15:48

LTE band 13, 10MHz (-26dBc)

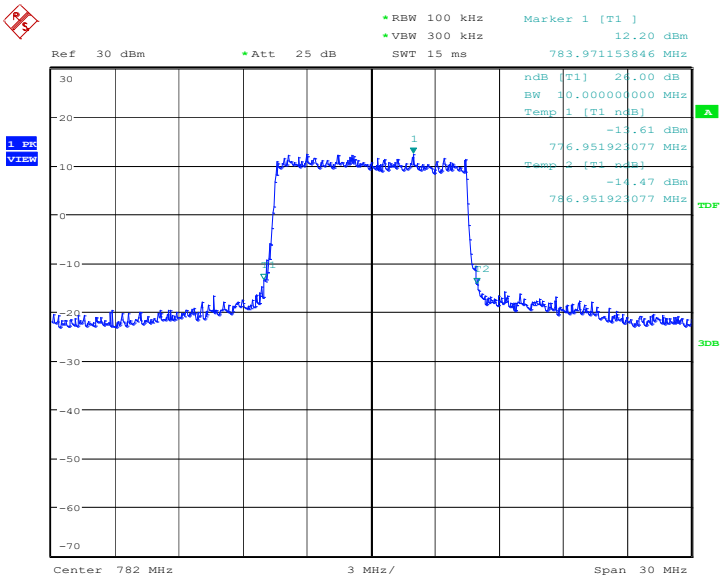
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
782.0	QPSK	16QAM
	9903.85	10000.00

LTE band 13, 10MHz Bandwidth, QPSK (-26dBc BW)



Date: 14.NOV.2017 17:22:21

LTE band 13, 10MHz Bandwidth, 16QAM (-26dBc BW)

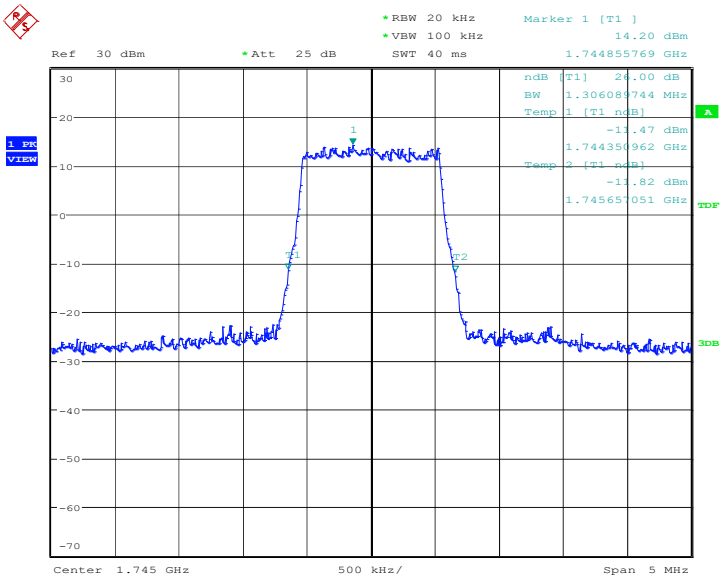


Date: 14.NOV.2017 17:22:38

LTE band 66, 1.4MHz (-26dBc)

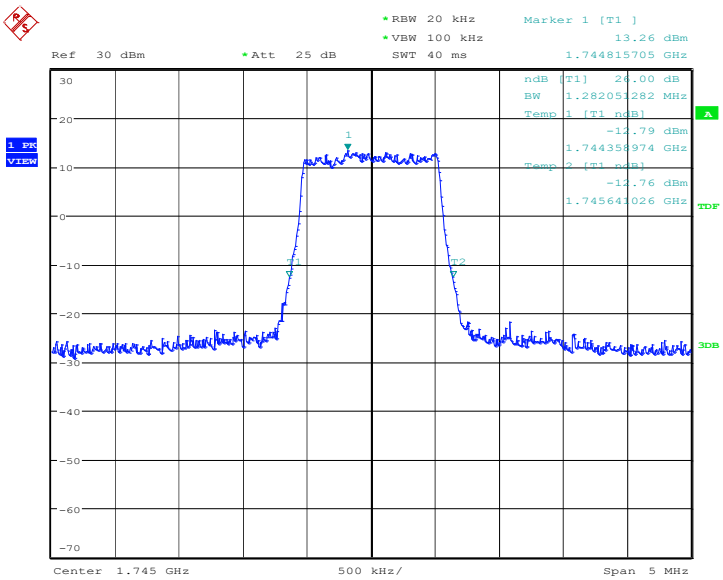
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	1306.09	1282.05

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



Date: 15.NOV.2017 08:48:08

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

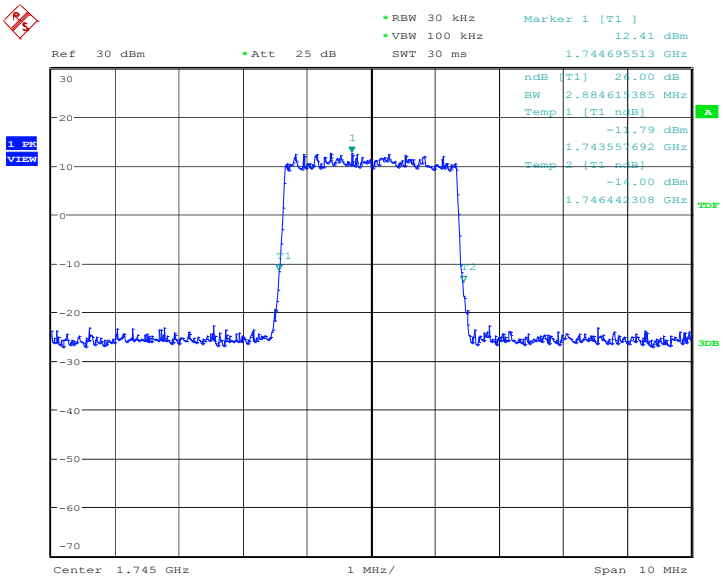


Date: 15.NOV.2017 08:48:25

LTE band 66, 3MHz (-26dBc)

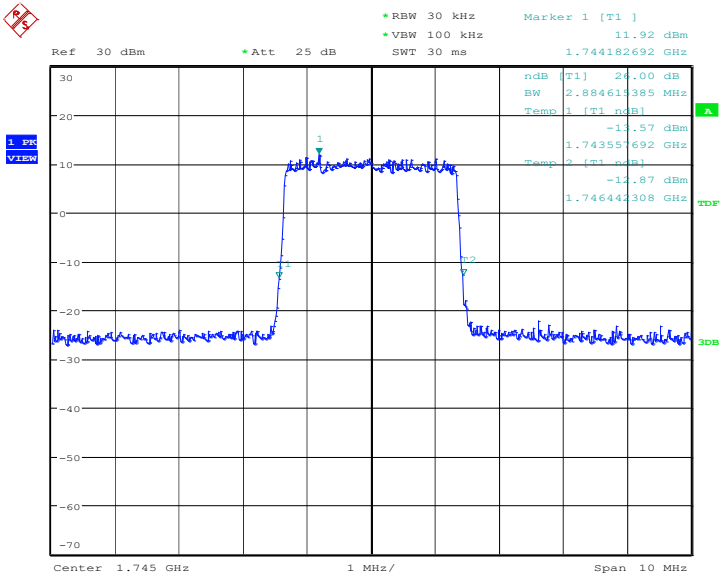
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	2884.62	2884.62

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



Date: 15.NOV.2017 08:53:50

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

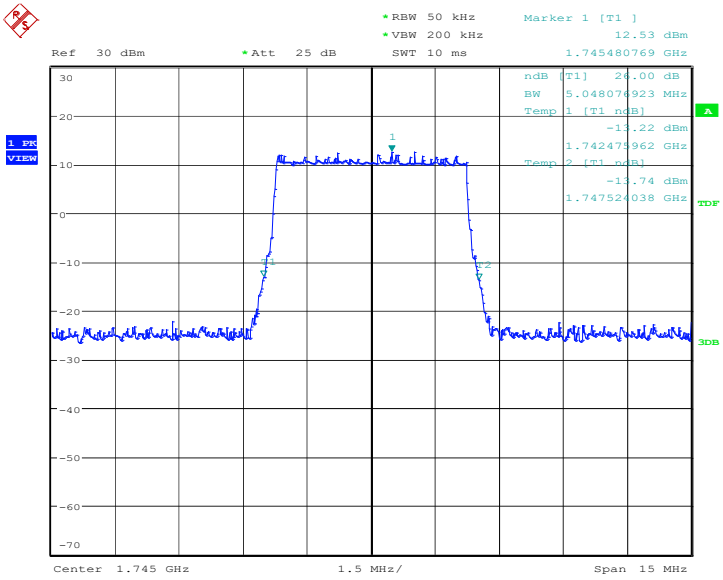


Date: 15.NOV.2017 08:54:07

LTE band 66, 5MHz (-26dBc)

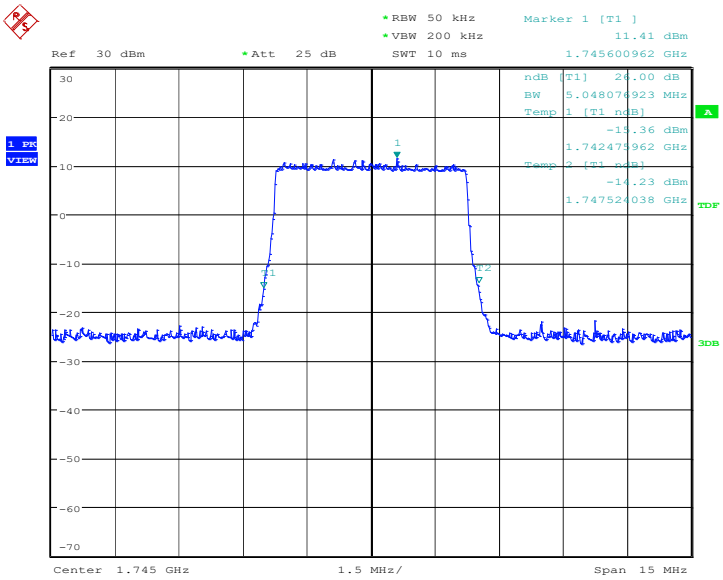
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	5048.08	5048.08

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



Date: 15.NOV.2017 08:59:33

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

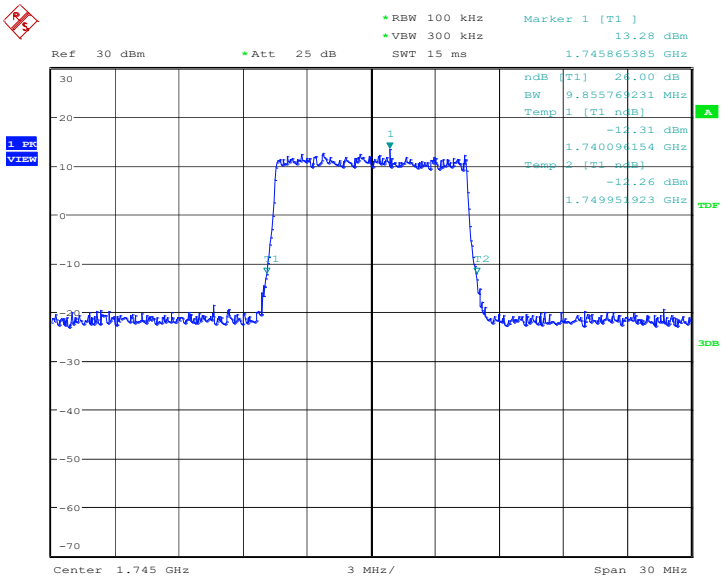


Date: 15.NOV.2017 08:59:50

LTE band 66, 10MHz (-26dBc)

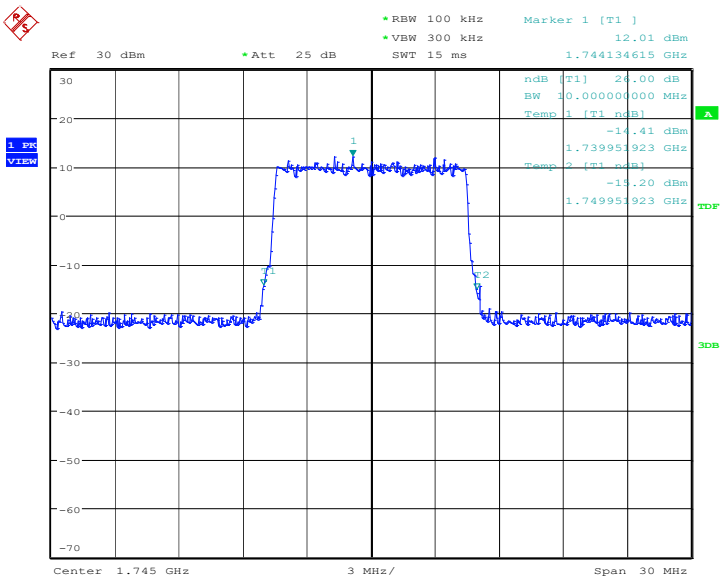
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	9855.77	10000.00

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



Date: 15.NOV.2017 09:05:15

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

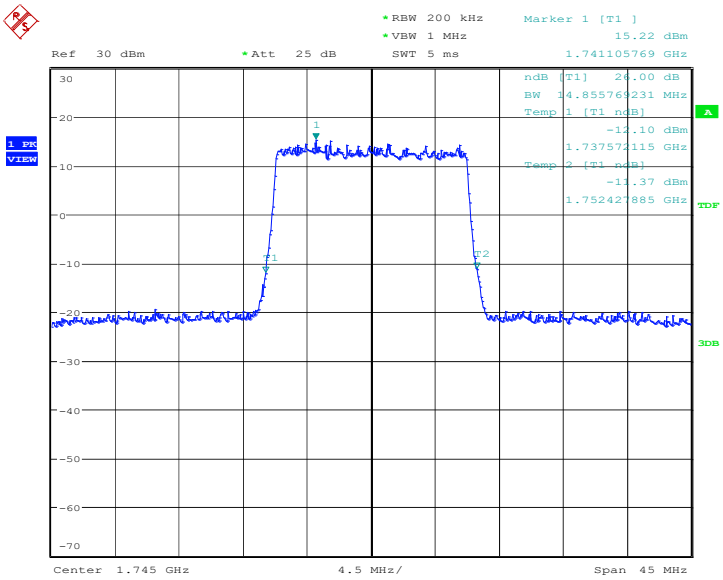


Date: 15.NOV.2017 09:05:32

LTE band 66, 15MHz (-26dBc)

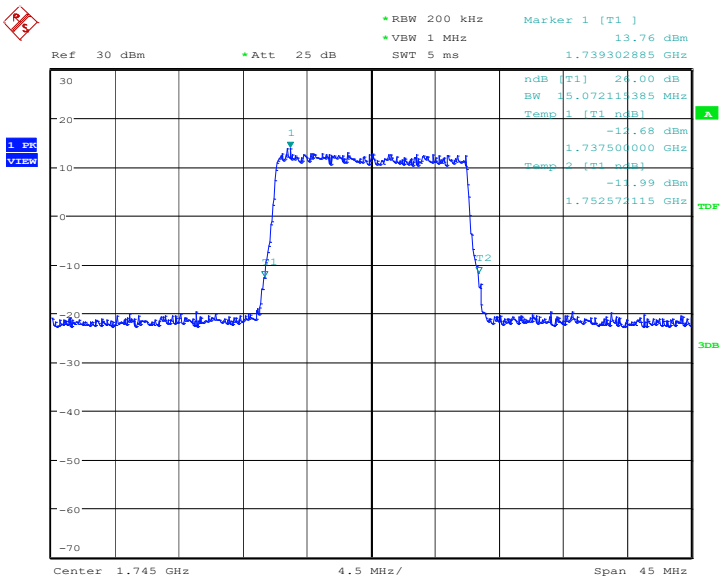
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	14855.77	15072.12

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



Date: 15.NOV.2017 09:11:35

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

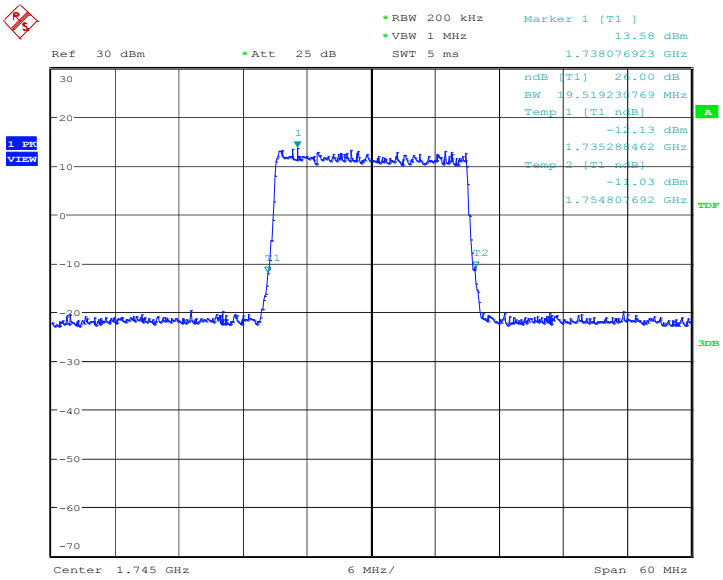


Date: 15.NOV.2017 09:11:52

LTE band 66, 20MHz (-26dBc)

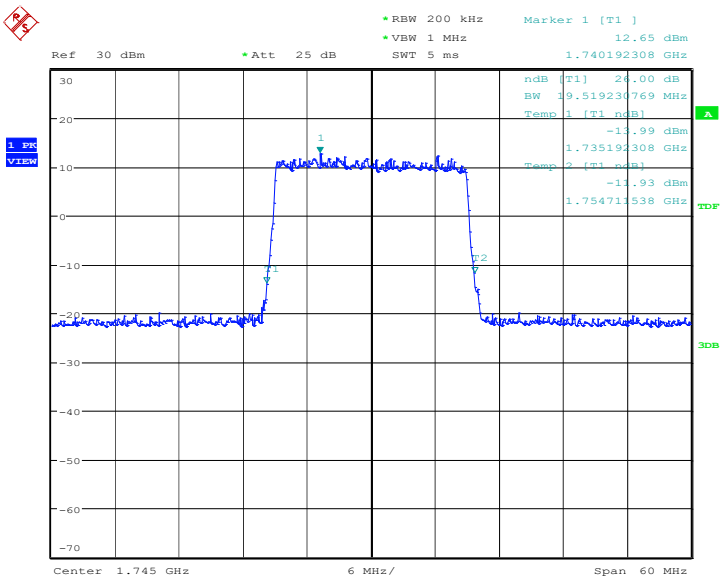
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
1745.0	QPSK	16QAM
	19519.23	19519.23

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



Date: 15.NOV.2017 09:17:59

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

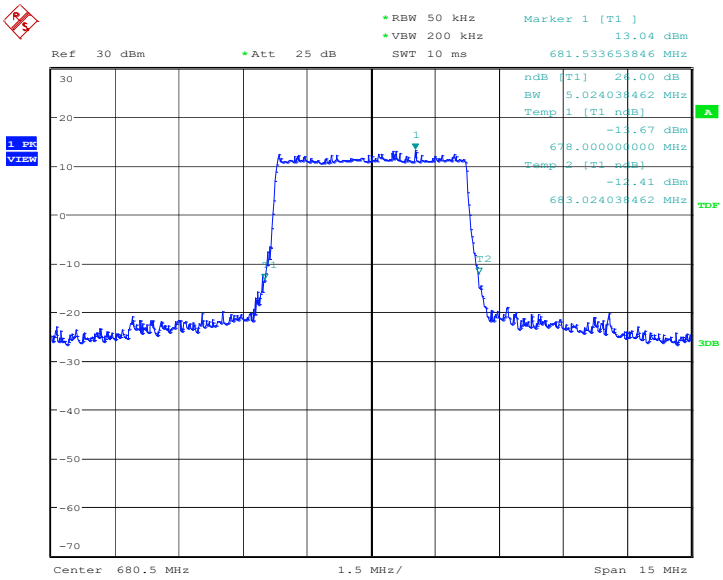


Date: 15.NOV.2017 09:18:16

LTE band 71, 5MHz (-26dBc)

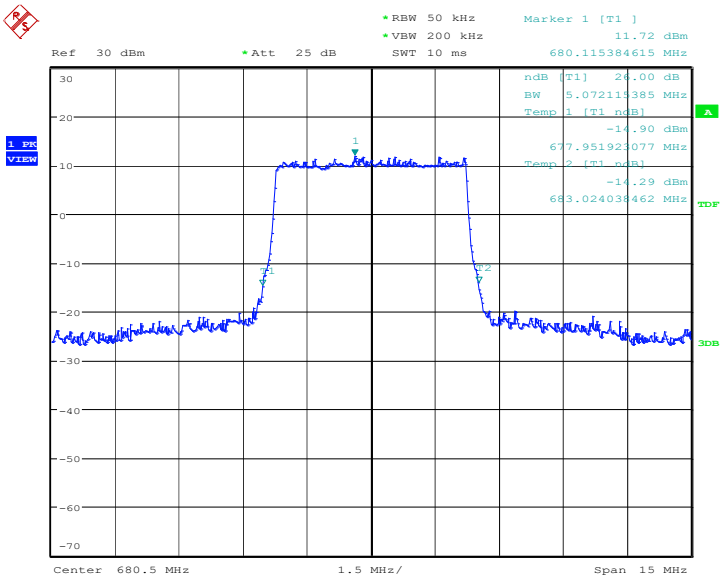
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	5024.04	5072.12

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



Date: 13.DEC.2017 15:03:53

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

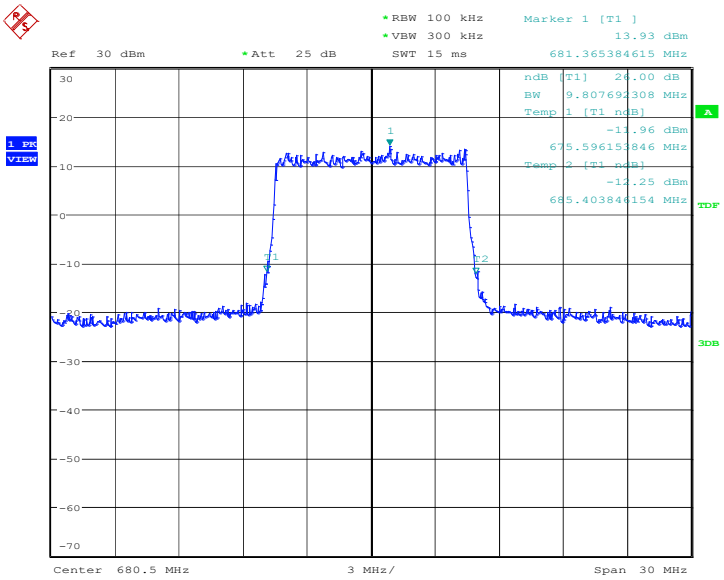


Date: 13.DEC.2017 15:04:10

LTE band 71, 10MHz (-26dBc)

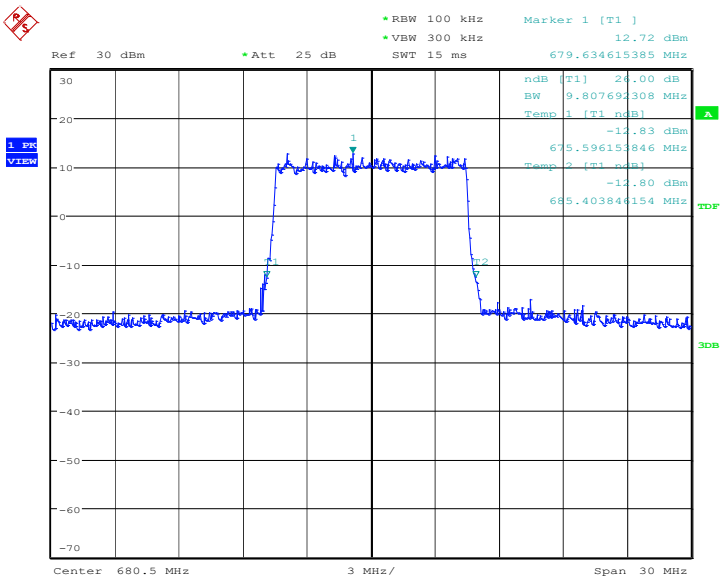
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	9807.69	9807.69

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



Date: 13.DEC.2017 15:09:40

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

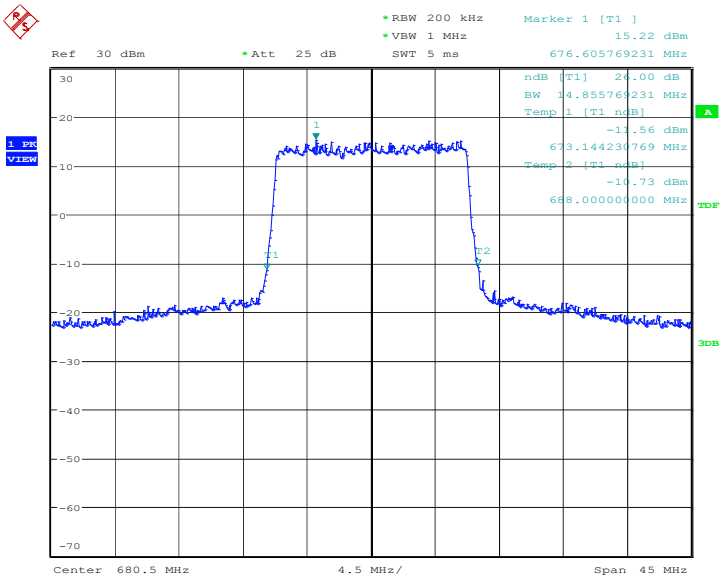


Date: 13.DEC.2017 15:09:57

LTE band 71, 15MHz (-26dBc)

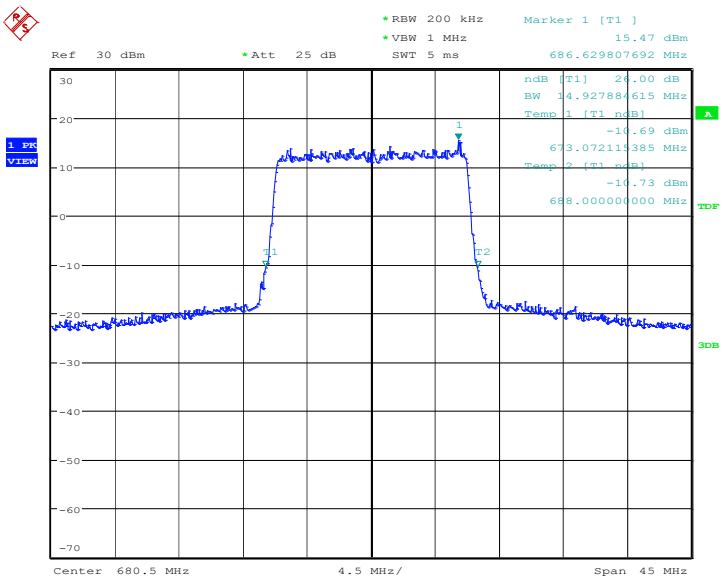
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	14855.77	14927.88

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



Date: 13.DEC.2017 15:16:07

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

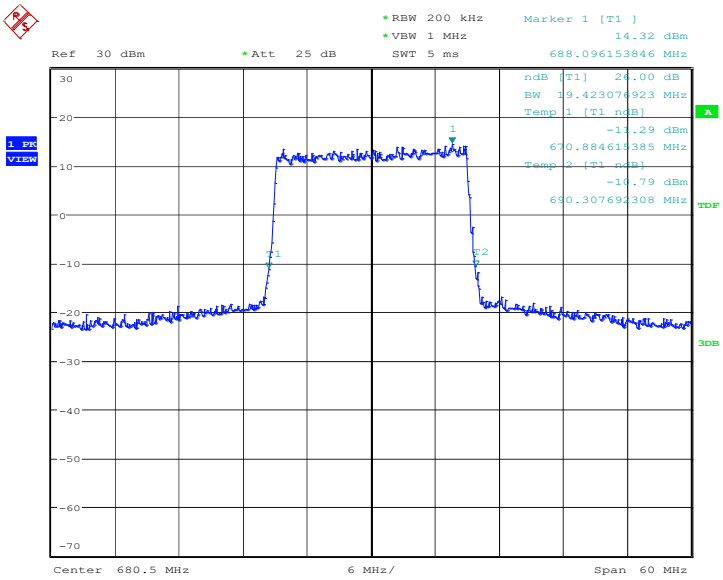


Date: 13.DEC.2017 15:16:24

LTE band 71, 20MHz (-26dBc)

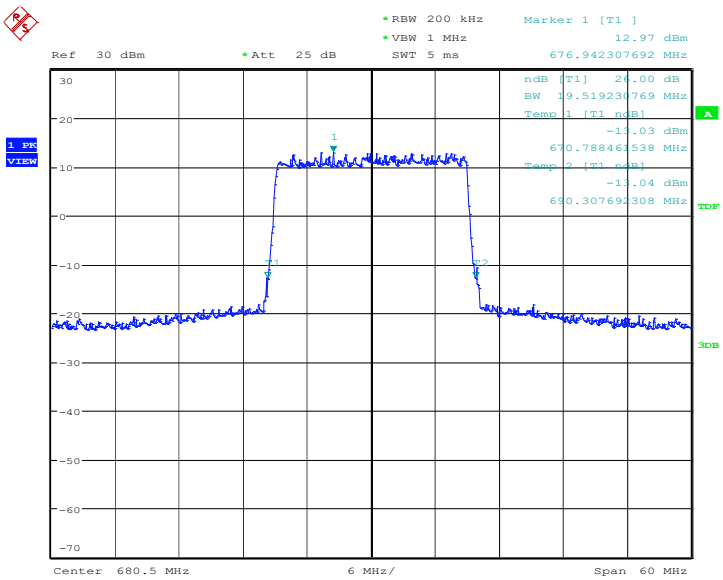
Frequency(MHz)	Occupied Bandwidth (-26dBc)(kHz)	
680.5	QPSK	16QAM
	19423.08	19519.23

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



Date: 13.DEC.2017 15:22:37

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



Date: 13.DEC.2017 15:22:54

A.6 BAND EDGE COMPLIANCE

A.6.1 Measurement limit

Part 22.917(b), 24.238(a), 27.53(h) state that on any frequency outside frequency band of the US Cellular/PCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log (P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

According to KDB 971168 6.0, 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.

Part 27.53(m) states that for mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. 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(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 onall 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 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)

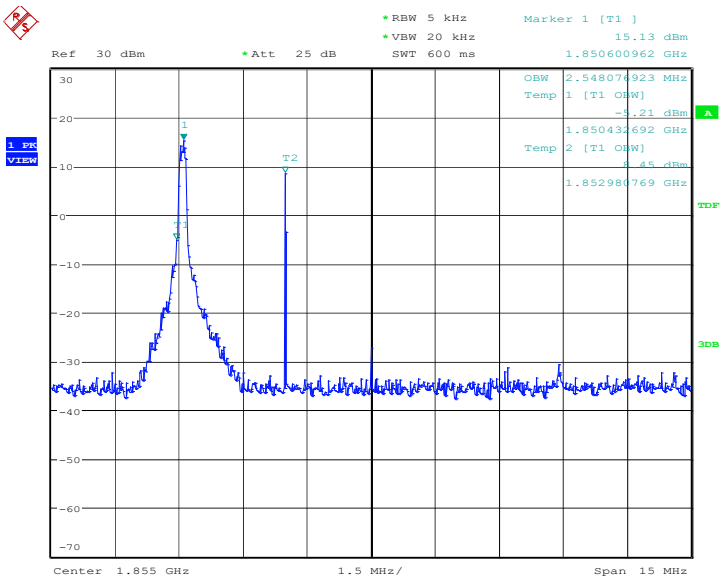
dB;(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations

A.6.2 Measurement result

Only worst case result is given below

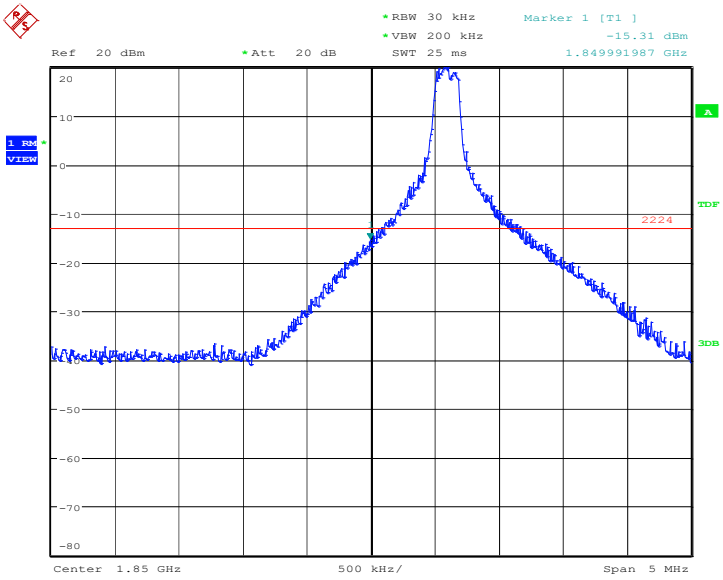
LTE band 2

OBW: 1RB-low_offset



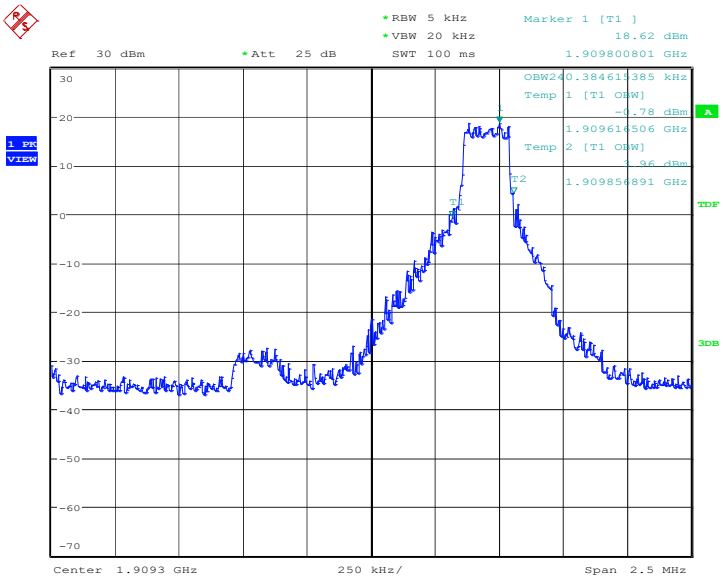
Date: 18.JAN.2018 19:57:14

LOW BAND EDGE BLOCK-1RB-low_offset



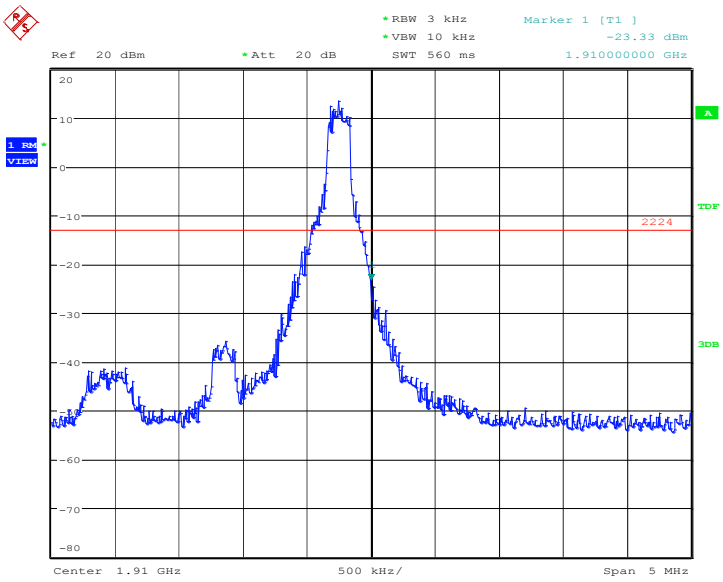
Date: 18.JAN.2018 19:58:08

OBW: 1RB-high_offset



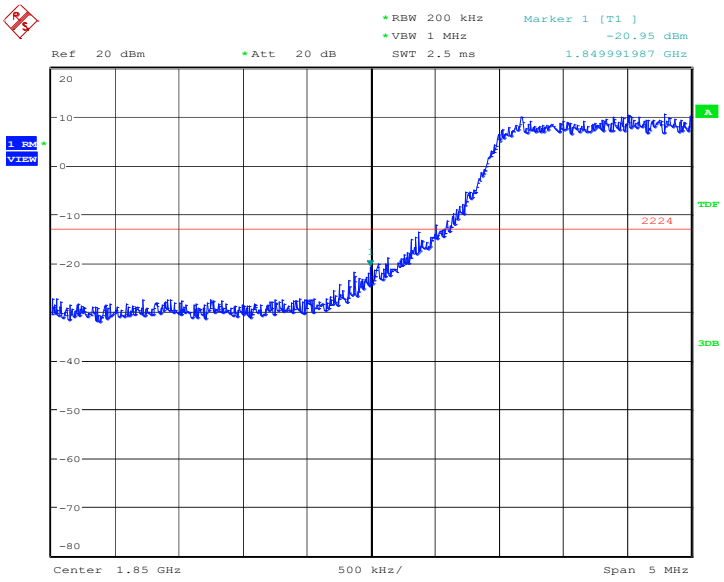
Date: 18.JAN.2018 19:37:32

HIGH BAND EDGE BLOCK-1RB-high_offset



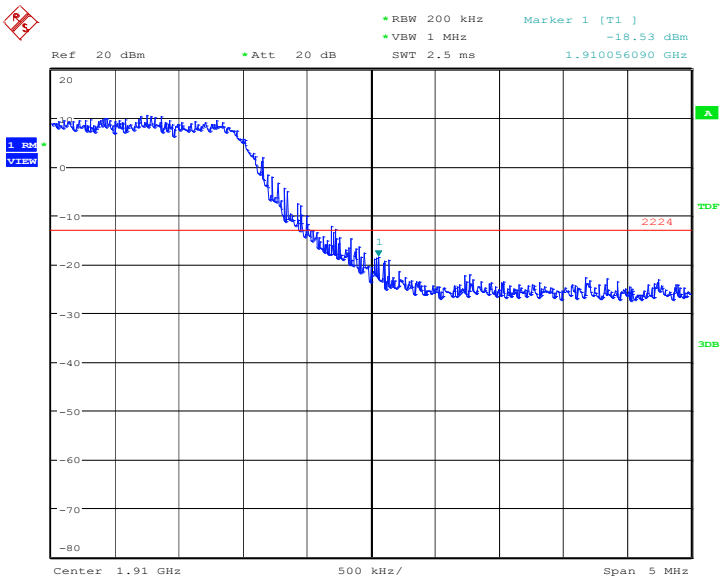
Date: 18.JAN.2018 19:38:25

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 23.JAN.2018 16:27:08

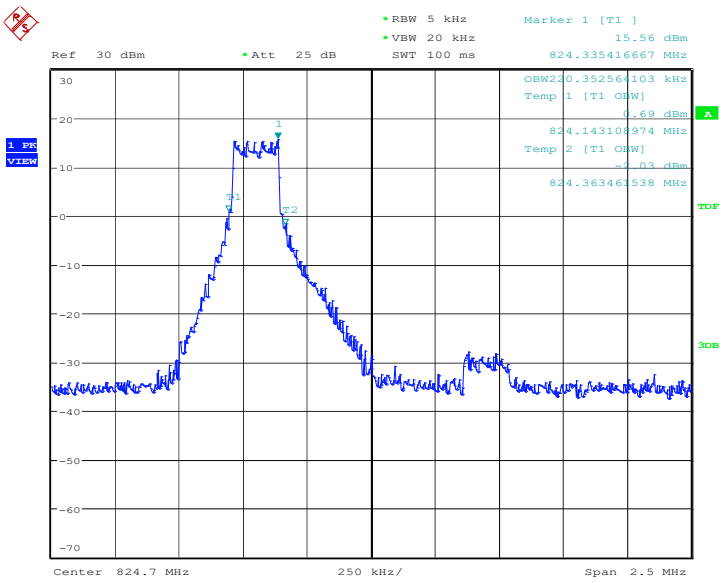
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 23.JAN.2018 16:28:04

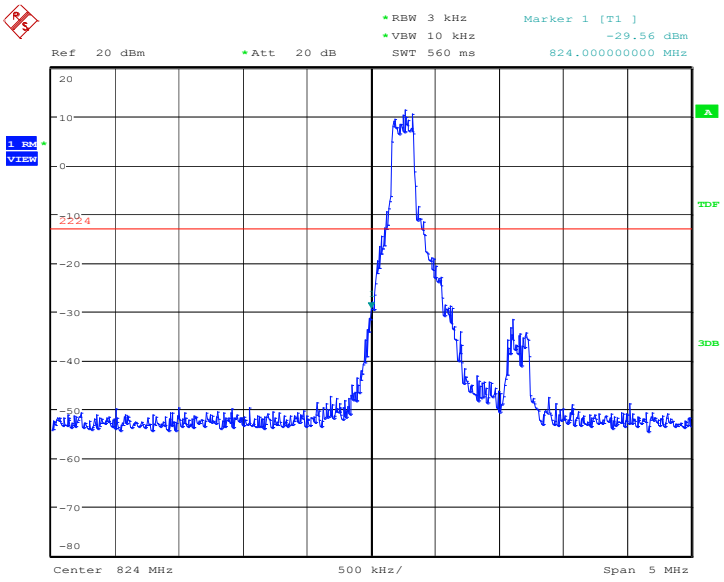
LTE band 5

OBW: 1RB-low_offset



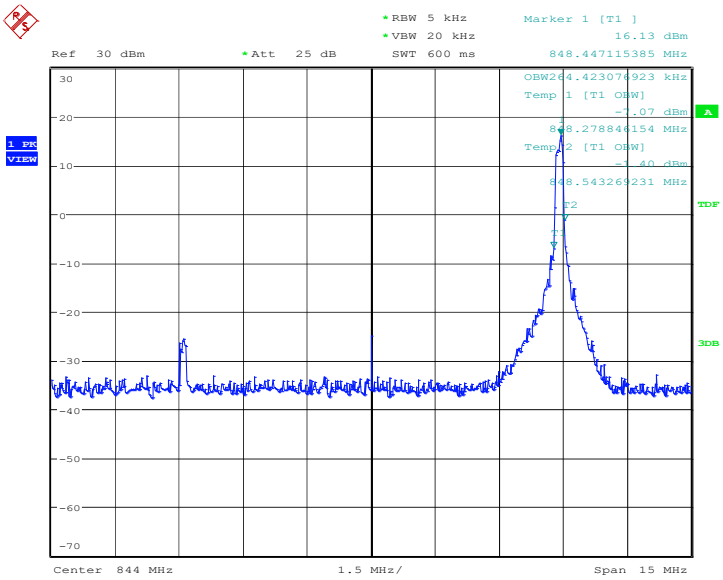
Date: 18.JAN.2018 20:00:33

LOW BAND EDGE BLOCK-1RB-low_offset



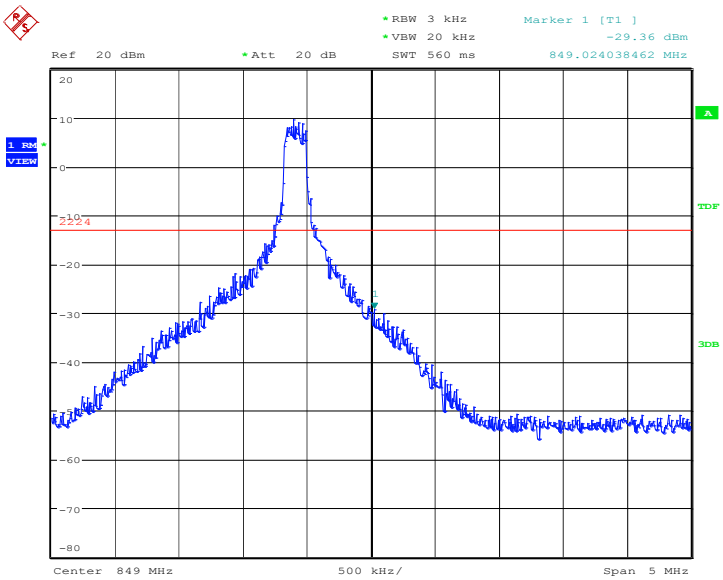
Date: 18.JAN.2018 20:01:26

OBW: 1RB-high_offset



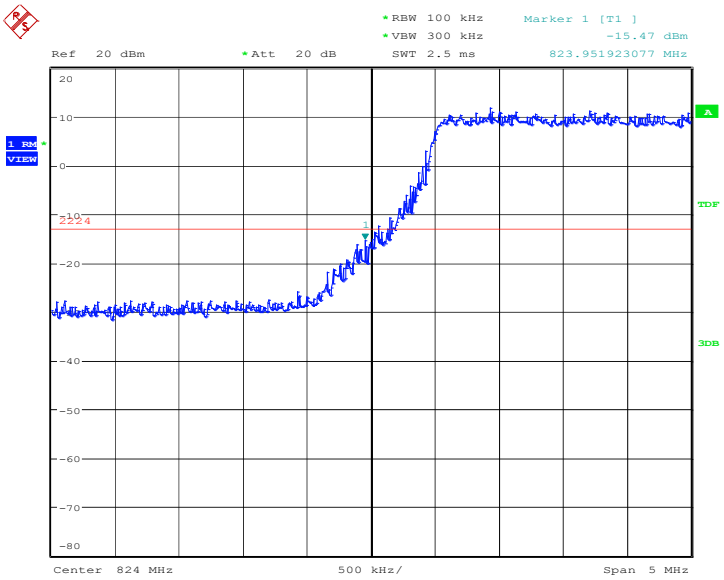
Date: 18.JAN.2018 19:24:27

HIGH BAND EDGE BLOCK-1RB-high_offset



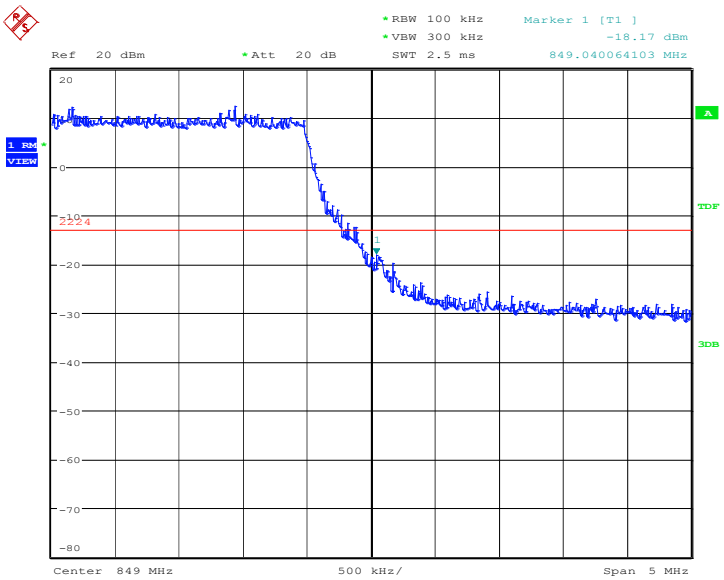
Date: 18.JAN.2018 19:25:20

LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 23.JAN.2018 16:37:23

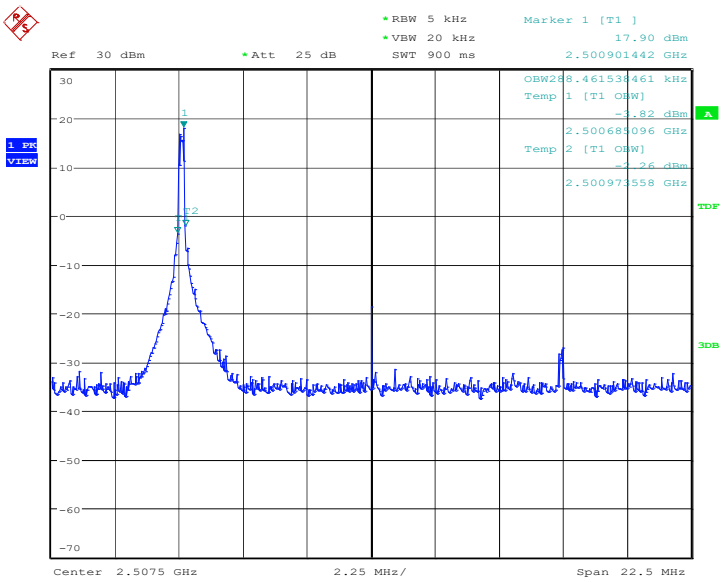
HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 23.JAN.2018 16:38:16

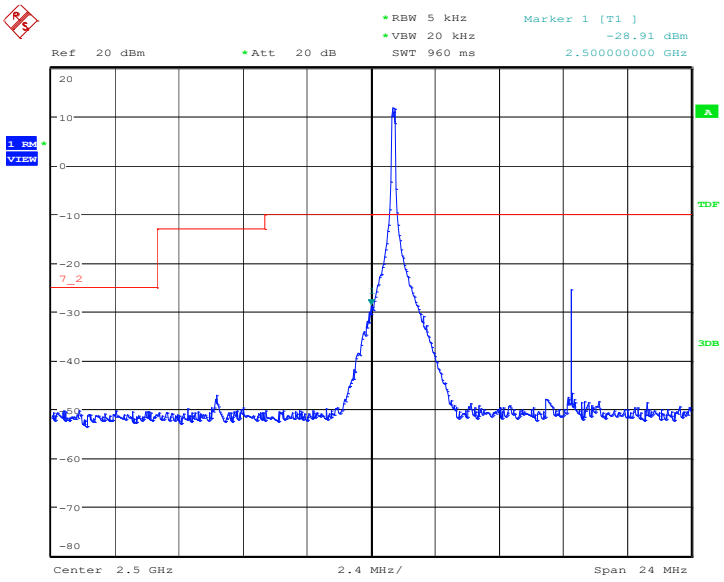
LTE band 7

OBW: 1RB-low_offset



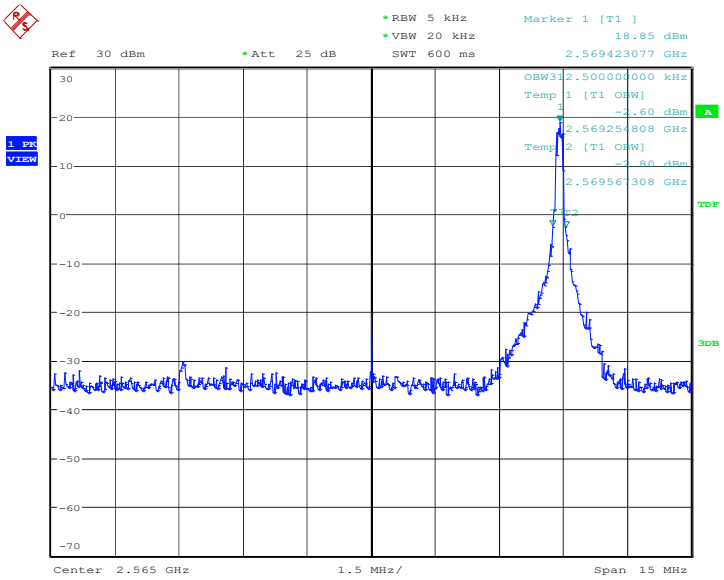
Date: 18.JAN.2018 19:45:50

LOW BAND EDGE BLOCK-1RB-low_offset



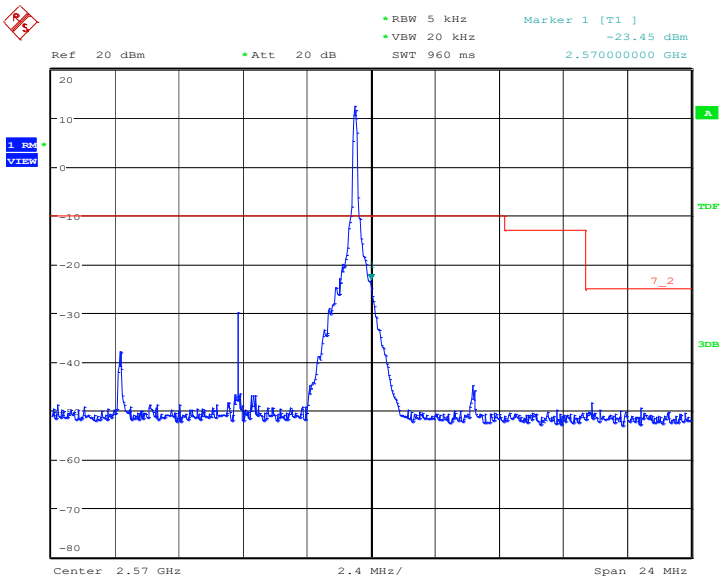
Date: 18.JAN.2018 19:46:44

OBW: 1RB-high_offset



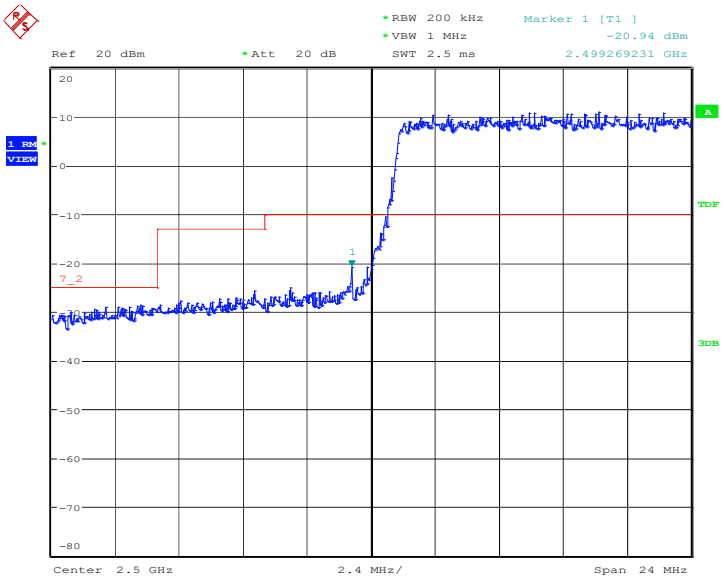
Date: 18.JAN.2018 19:34:37

HIGH BAND EDGE BLOCK-1RB-high_offset



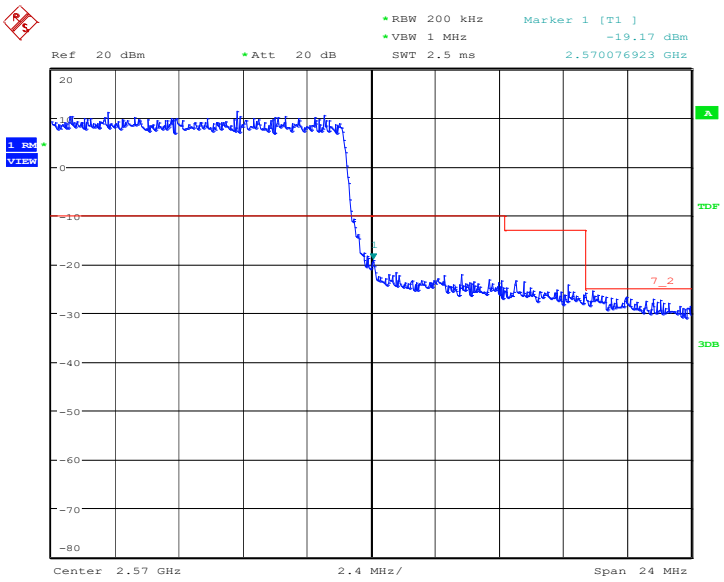
Date: 18.JAN.2018 19:35:29

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 23.JAN.2018 16:25:15

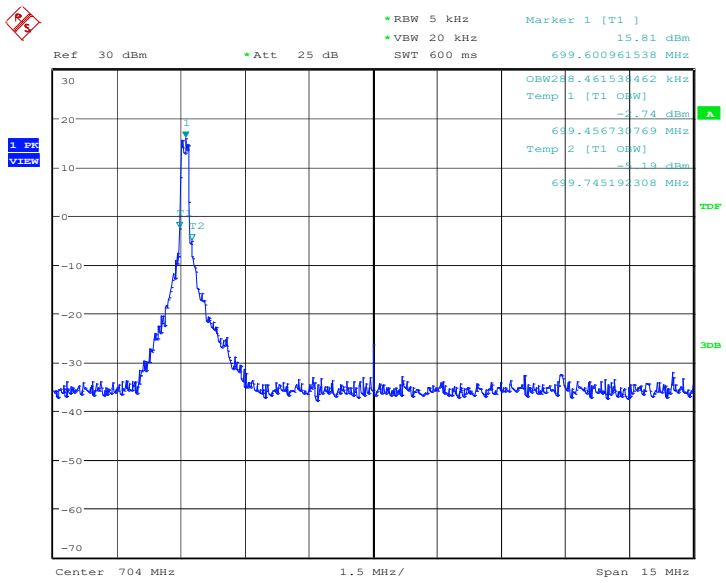
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 23.JAN.2018 16:42:20

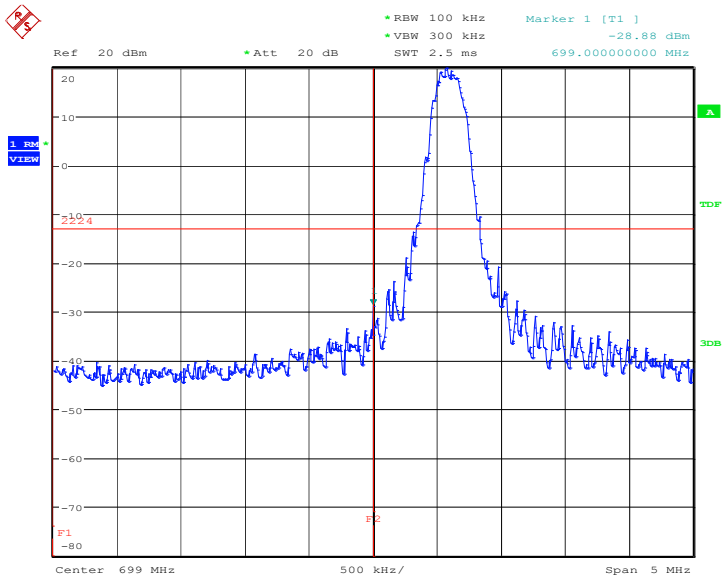
LTE band 12

OBW: 1RB-low_offset



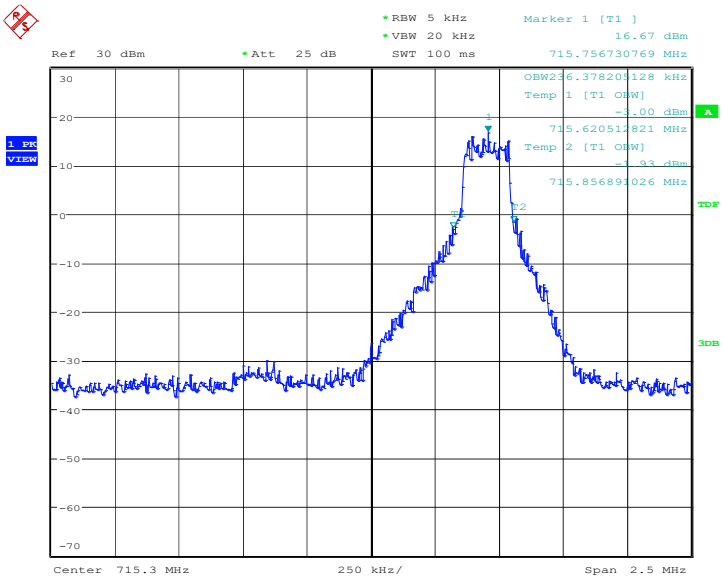
Date: 23.JAN.2018 09:45:35

LOW BAND EDGE BLOCK-1RB-low_offset



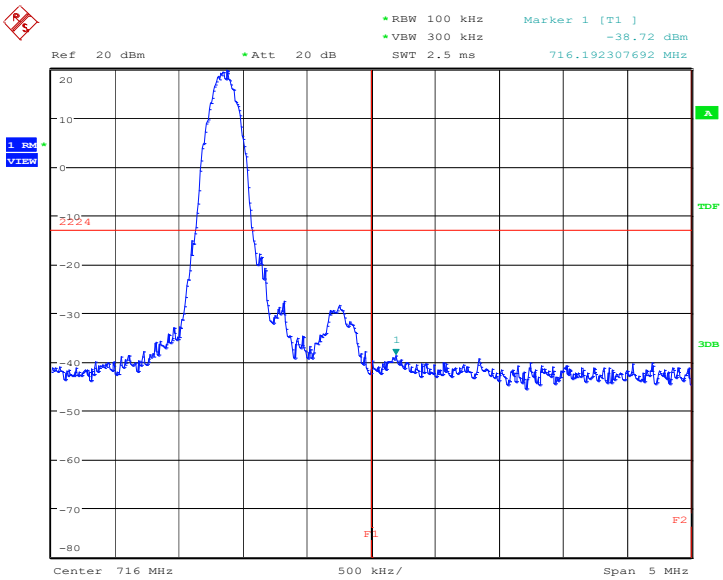
Date: 23.JAN.2018 09:49:37

OBW: 1RB-high_offset



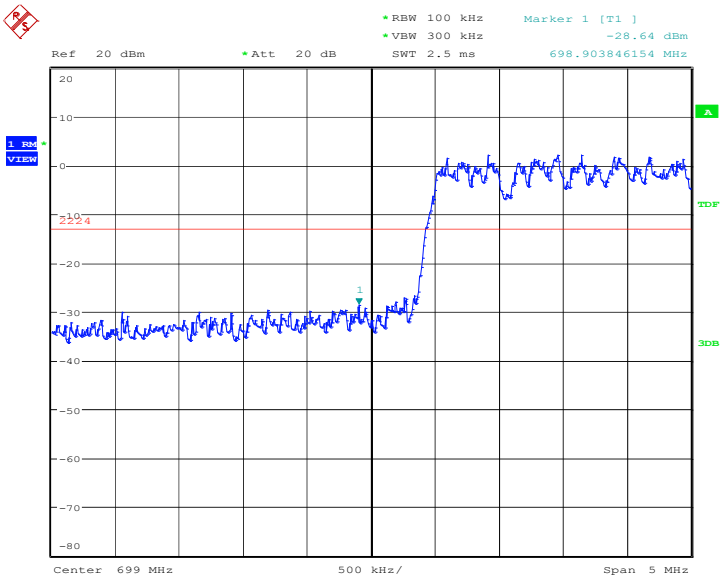
Date: 23.JAN.2018 09:53:06

HIGH BAND EDGE BLOCK-1RB-high_offset

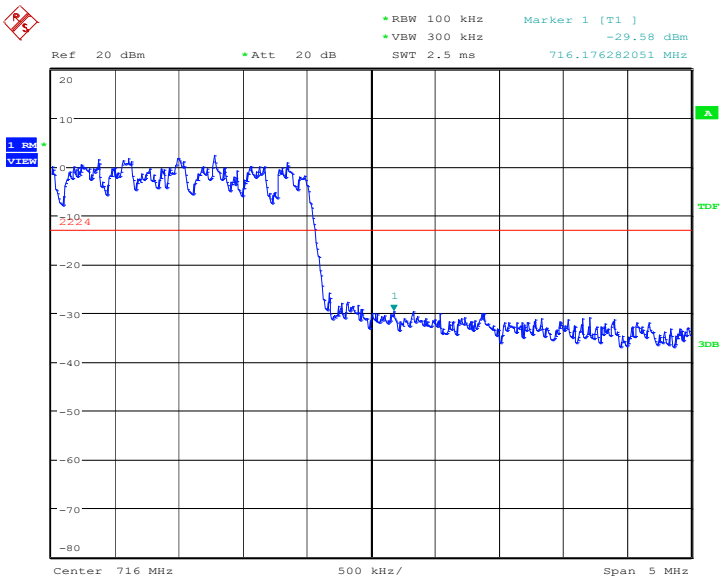


Date: 23.JAN.2018 09:55:56

LOW BAND EDGE BLOCK-10MHz-100%RB

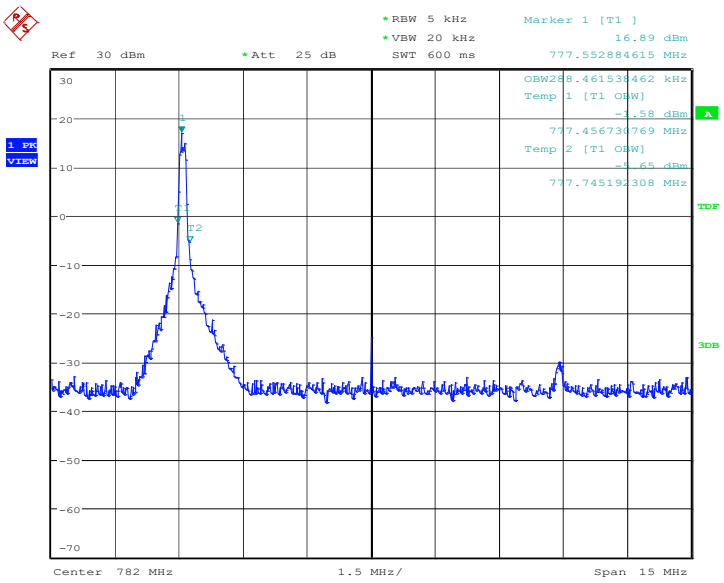


HIGH BAND EDGE BLOCK-10MHz-100%RB



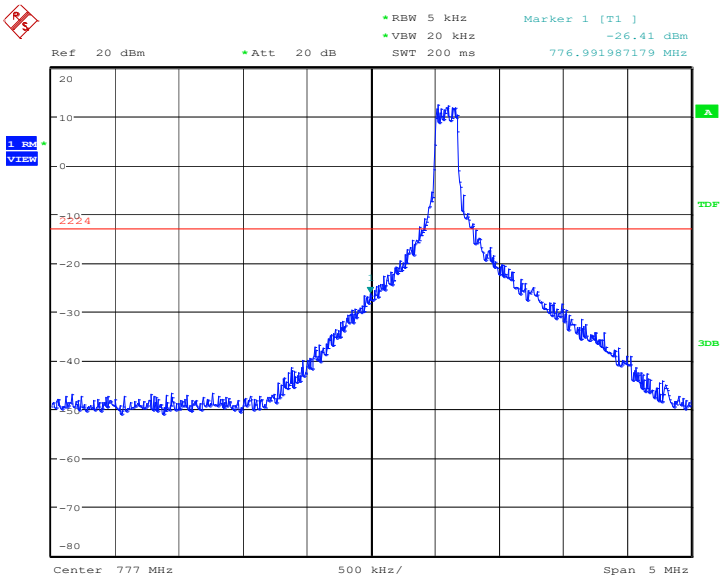
LTE band 13

OBW: 1RB-low_offset

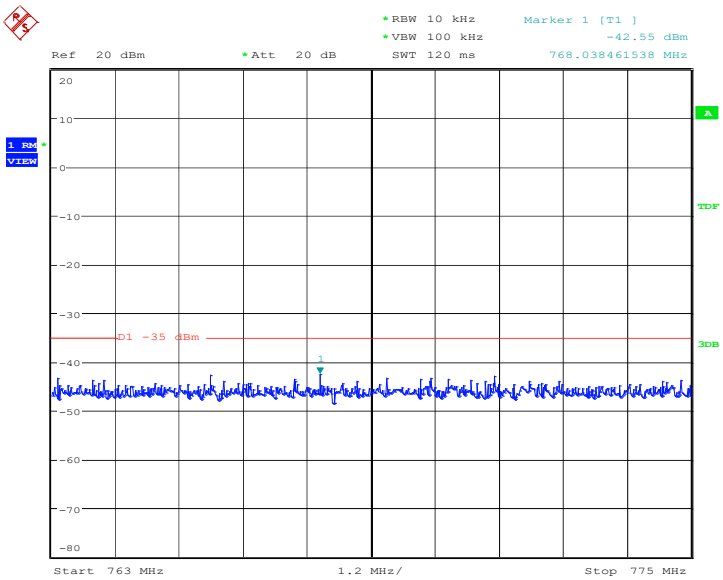


Date: 18.JAN.2018 19:54:16

LOW BAND EDGE BLOCK-1RB-low_offset

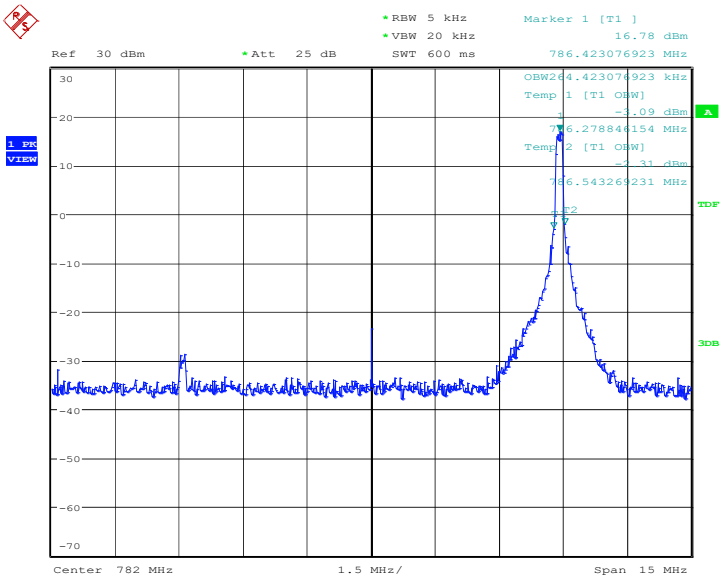


Date: 18.JAN.2018 19:55:09



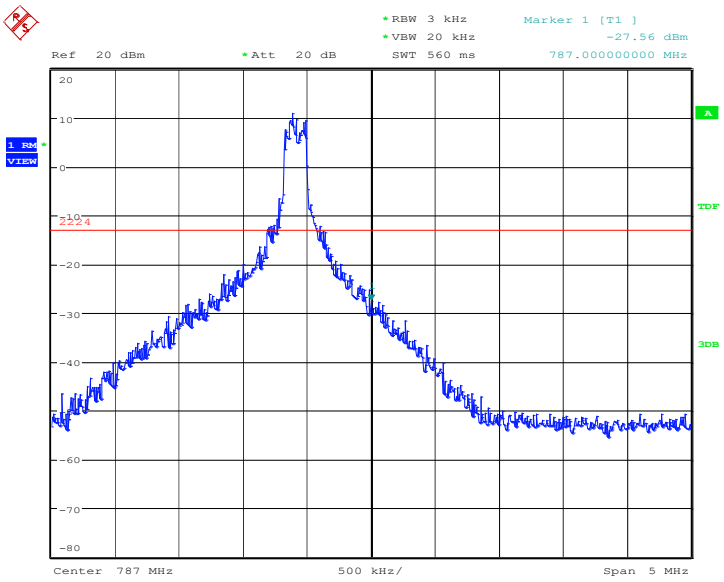
Date: 24.JAN.2018 13:59:24

OBW: 1RB-high_offset

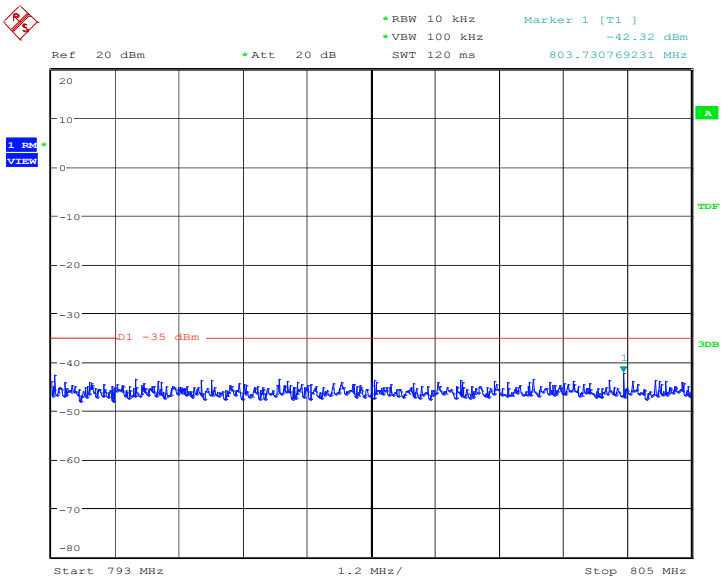


Date: 18.JAN.2018 19:22:40

HIGH BAND EDGE BLOCK-1RB-high_offset

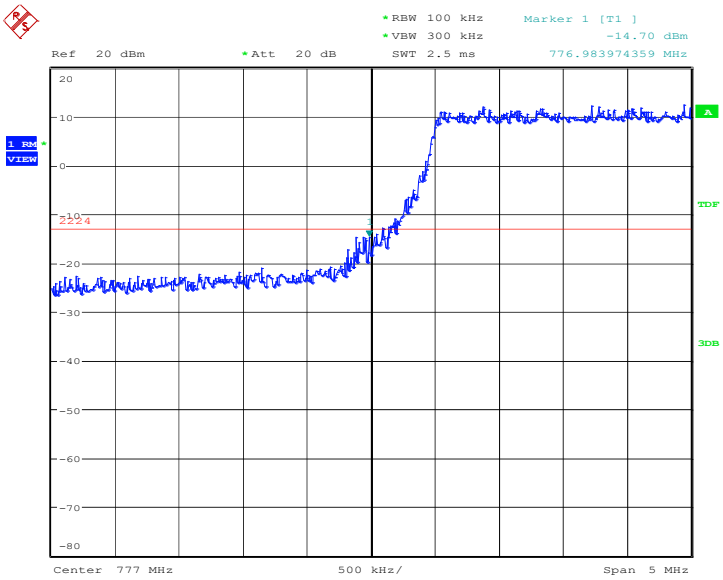


Date: 18.JAN.2018 19:23:31

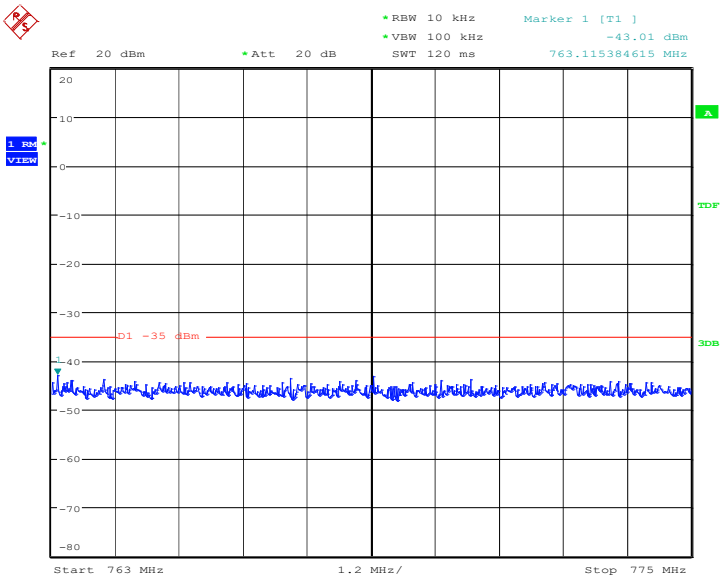


Date: 24.JAN.2018 14:00:30

LOW BAND EDGE BLOCK-10MHz-100%RB

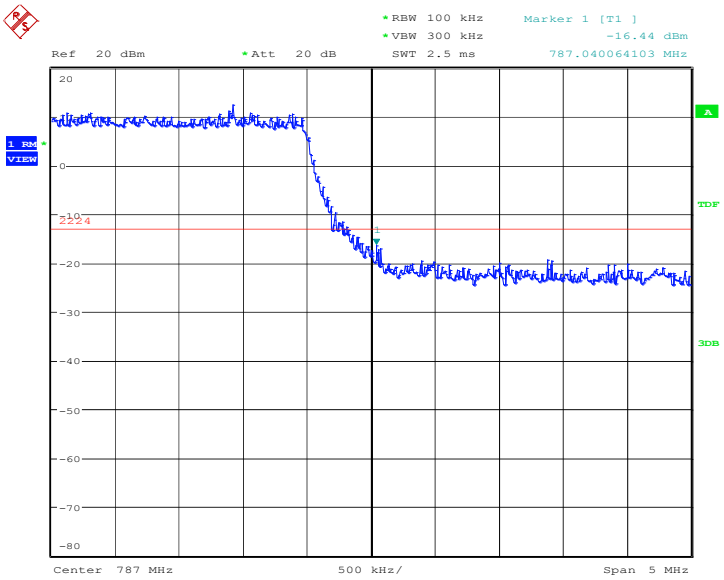


Date: 24.JAN.2018 08:34:25

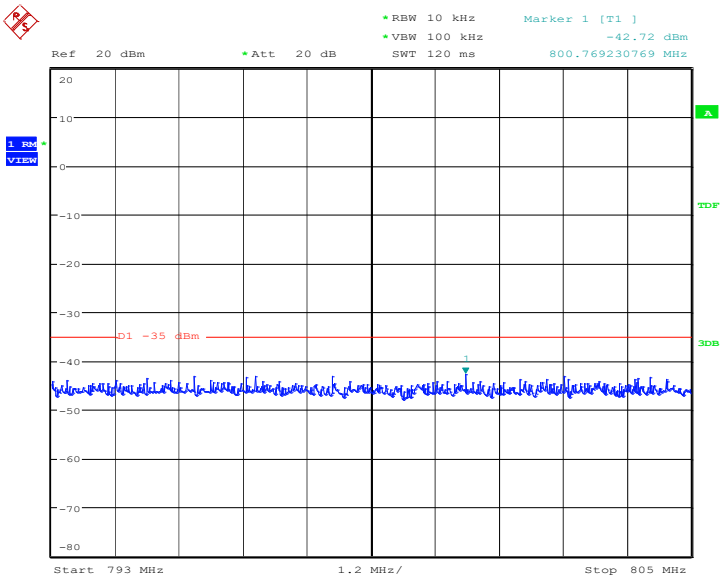


Date: 24.JAN.2018 14:02:32

HIGH BAND EDGE BLOCK-10MHz-100%RB



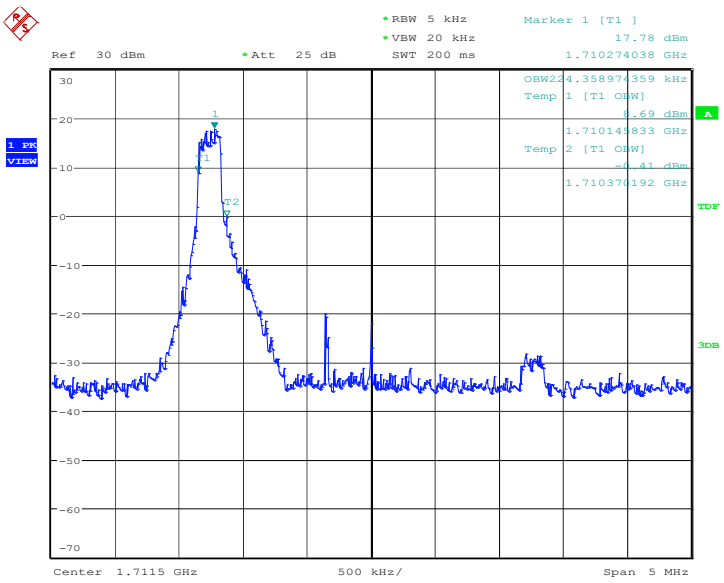
Date: 24.JAN.2018 08:29:57



Date: 24.JAN.2018 14:01:27

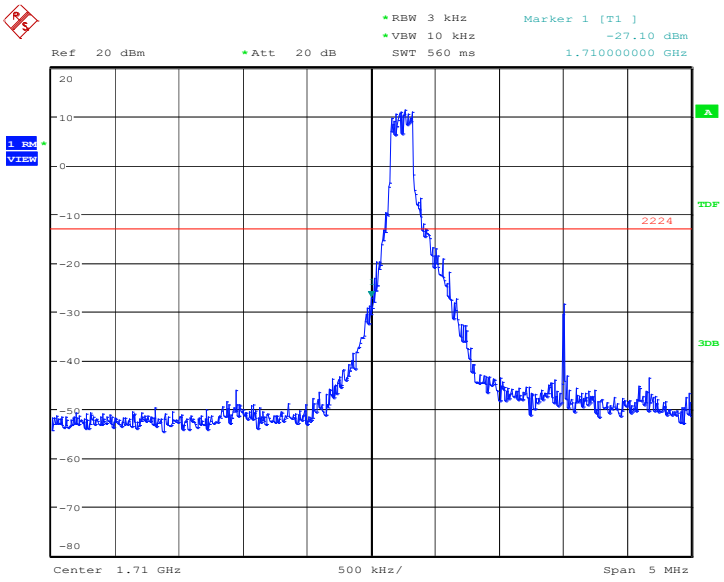
LTE band 66

OBW: 1RB-low_offset



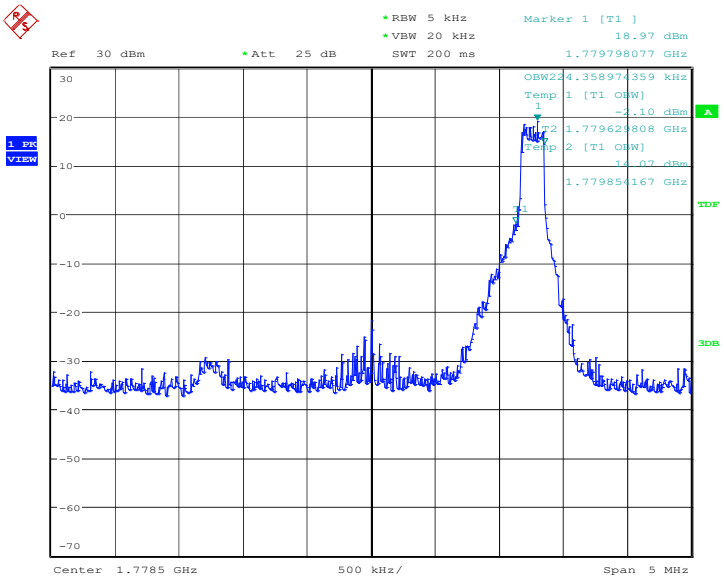
Date: 18.JAN.2018 20:08:18

LOW BAND EDGE BLOCK-1RB-low_offset



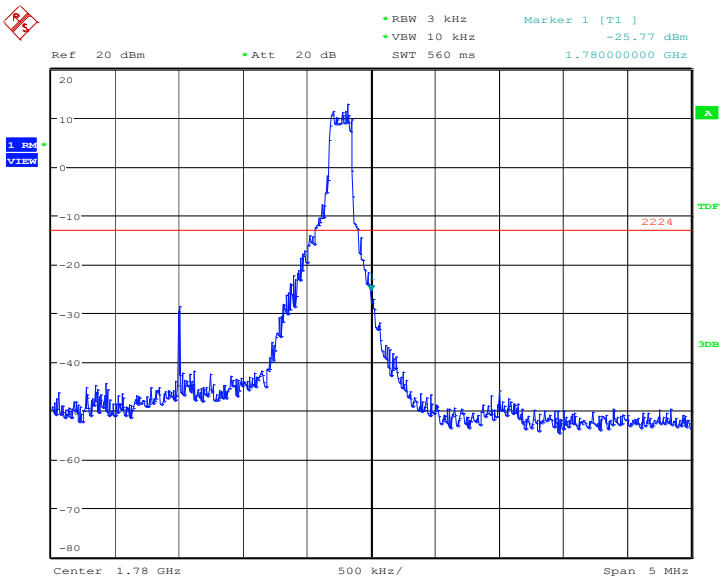
Date: 18.JAN.2018 20:09:12

OBW: 1RB-high_offset



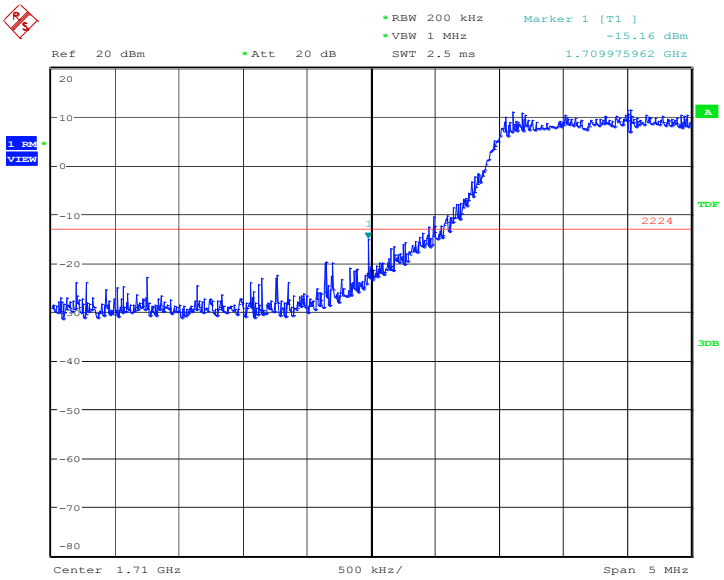
Date: 18.JAN.2018 19:19:18

HIGH BAND EDGE BLOCK-1RB-high_offset



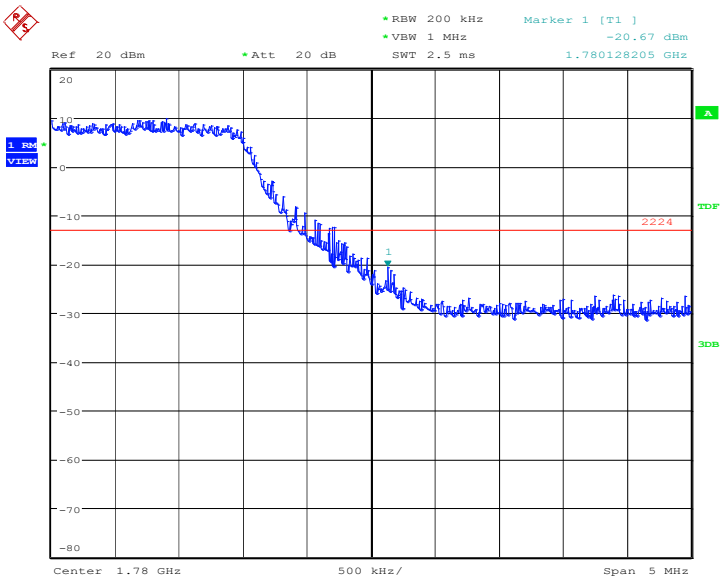
Date: 18.JAN.2018 19:20:09

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 23.JAN.2018 16:29:03

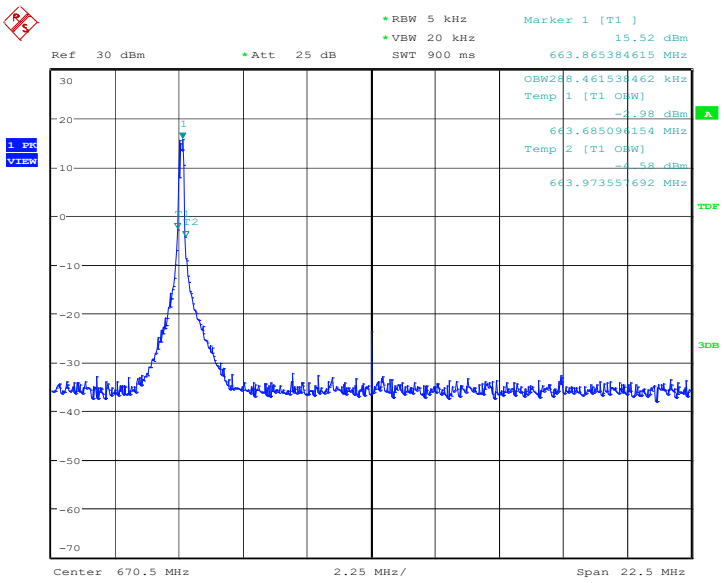
HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 23.JAN.2018 16:29:58

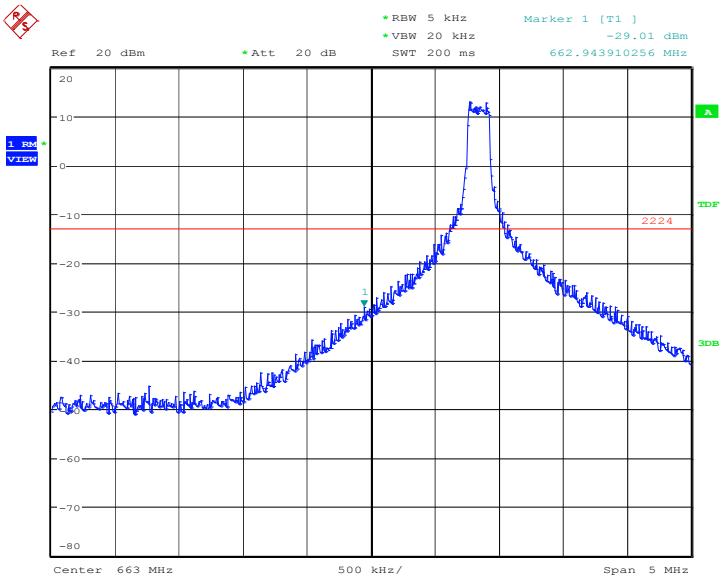
LTE band 71

OBW: 1RB-low_offset



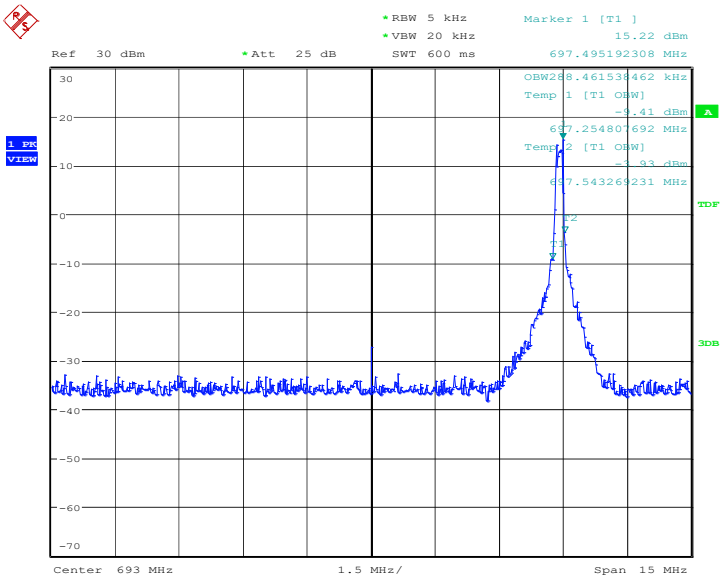
Date: 23.JAN.2018 08:45:25

LOW BAND EDGE BLOCK-1RB-low_offset



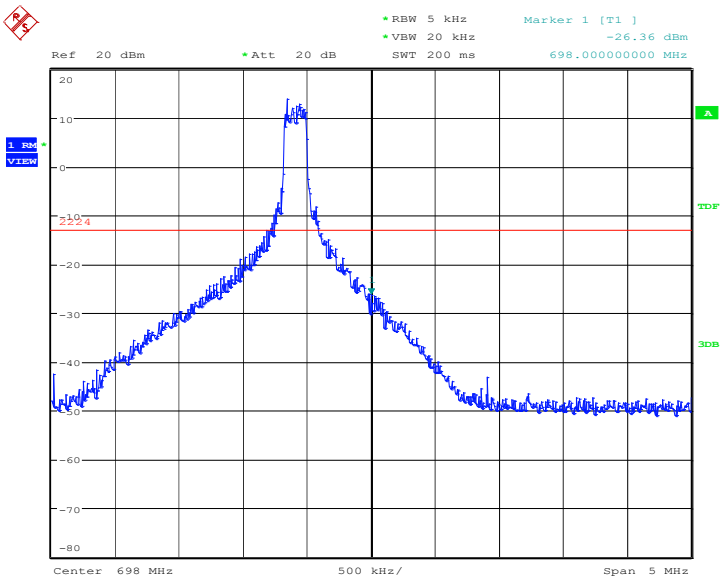
Date: 23.JAN.2018 08:46:17

OBW: 1RB-high_offset



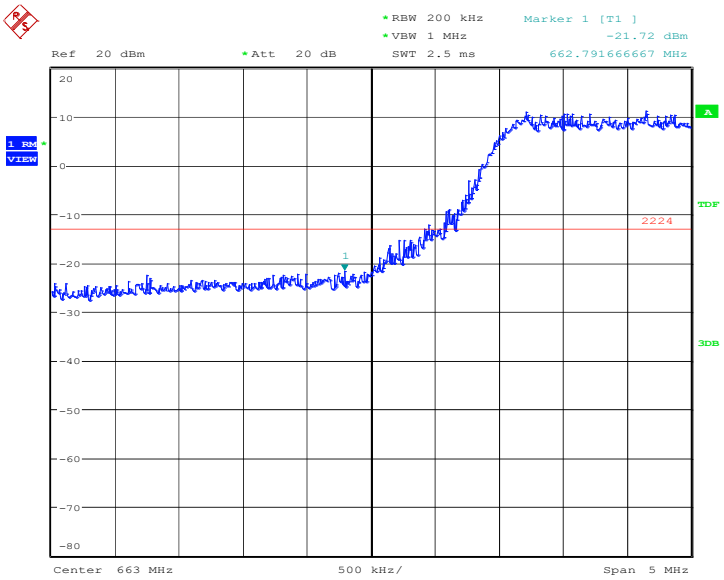
Date: 23.JAN.2018 08:43:19

HIGH BAND EDGE BLOCK-1RB-high_offset



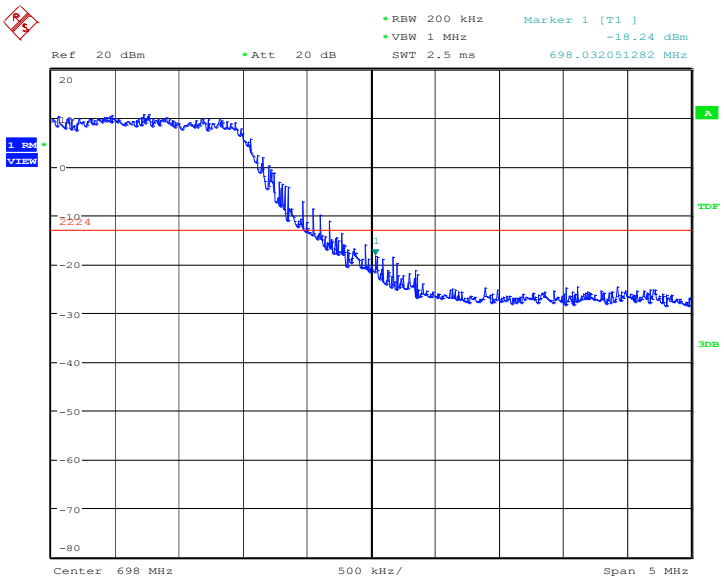
Date: 23.JAN.2018 08:44:13

LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 23.JAN.2018 16:21:19

HIGH BAND EDGE BLOCK-20MHz-100%RB



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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 that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. 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(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

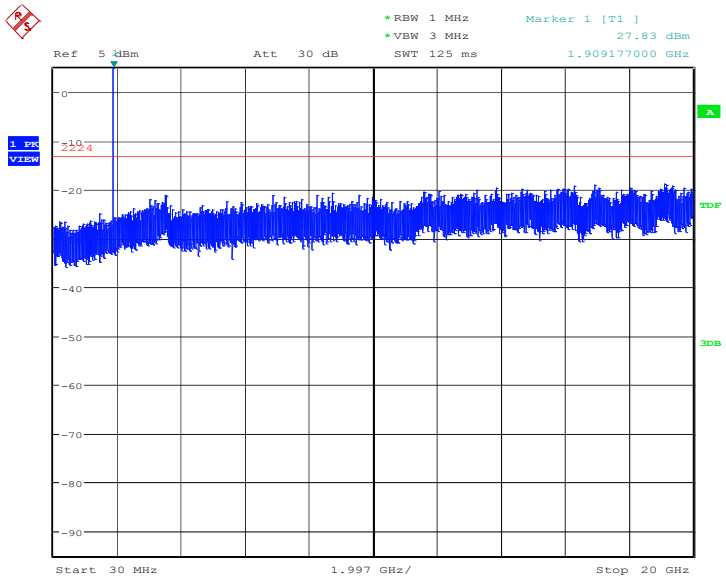
+ 10 log (P) dB on all frequencies between 2296 and 2300MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz; By a factor of not less than 43 + 10 log (P) dB on all frequencies between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

A. 7.3 Measurement result

Only worst case result is given below

LTE band 2: 30MHz – 20GHz

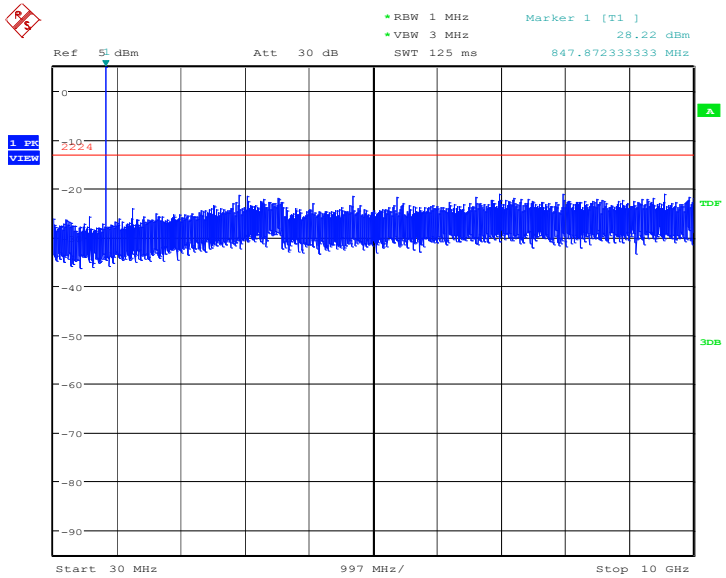
Spurious emission limit –13dBm.



Date: 18.JAN.2018 20:32:29

LTE band 5: 30MHz – 10GHz

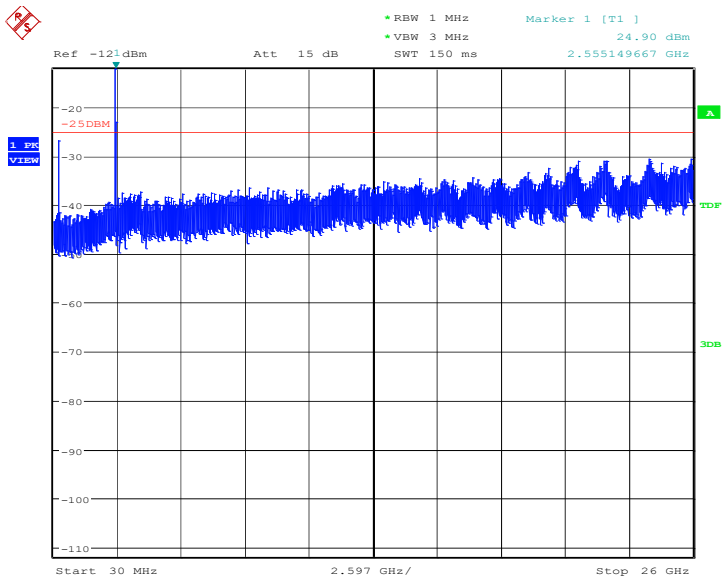
Spurious emission limit –13dBm.



Date: 18.JAN.2018 20:30:37

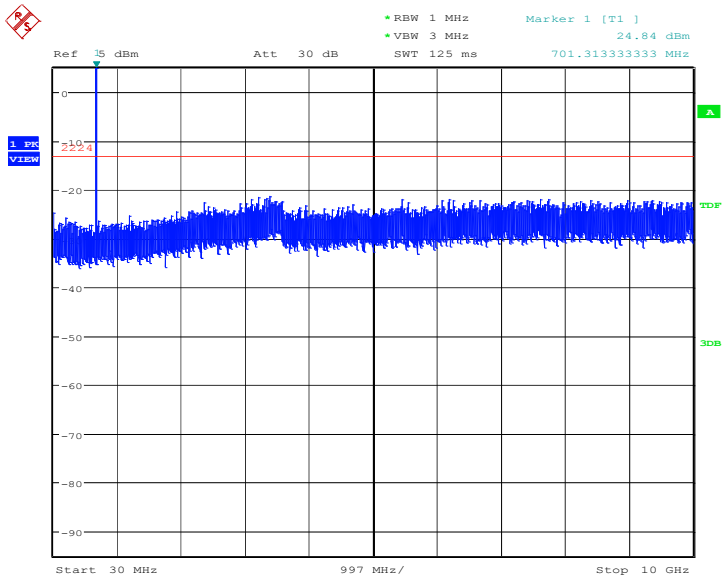
LTE band 7: 30MHz – 26GHz

Spurious emission limit –13dBm.



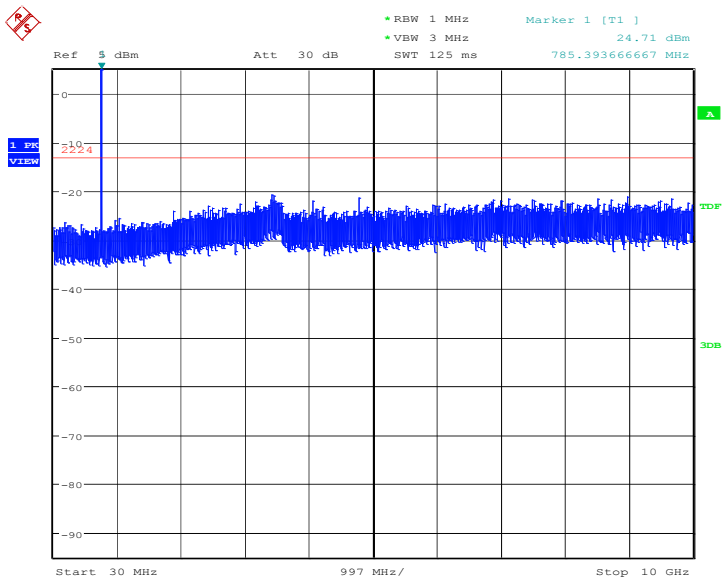
LTE band 12: 30MHz – 10GHz

Spurious emission limit –13dBm.

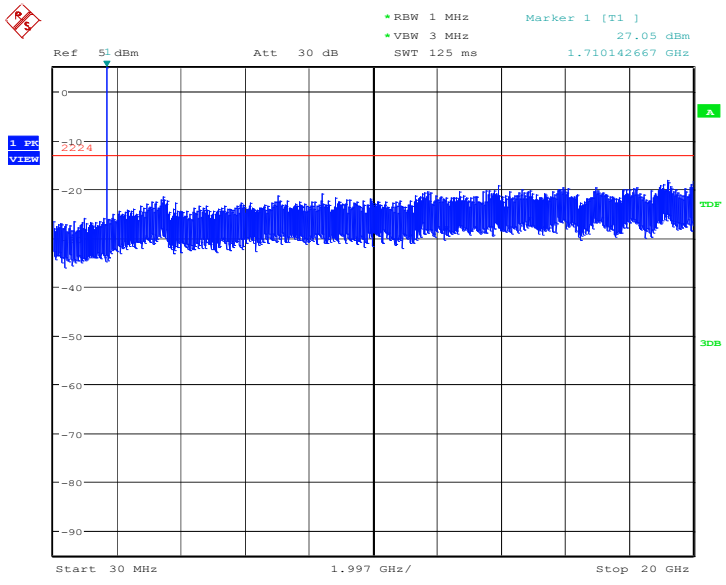


LTE band 13: 30MHz – 10GHz

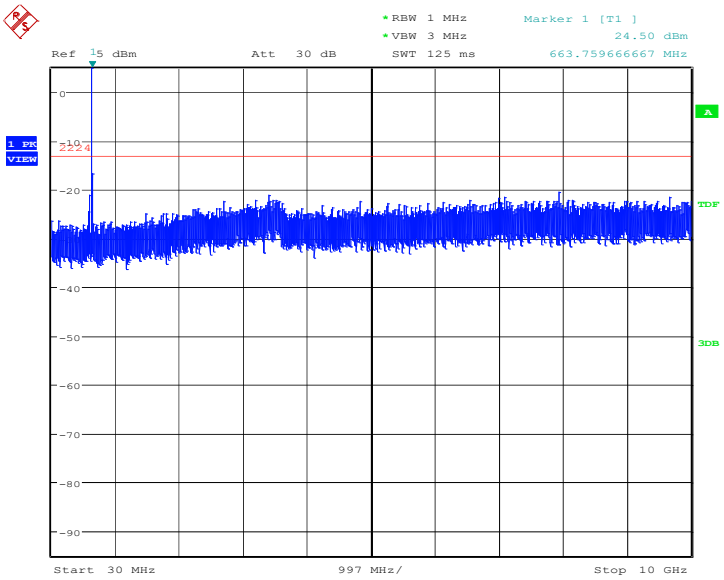
Spurious emission limit –13dBm.



LTE band 66: 30MHz – 20GHz



LTE band 71: 30MHz – 10GHz



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A.8 PEAK-TO-AVERAGE POWER RATIO

Reference

FCC: CFR Part 24.232 (d), 27.50(a)

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 ≥ 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 2, 20MHz

Frequency(MHz)	PAPR(dB)	
1860.0	QPSK	16QAM
	6.79	7.34

LTE band 7, 20MHz

Frequency(MHz)	PAPR(dB)	
2510.0	QPSK	16QAM
	6.76	7.40

LTE band 12,10MHz

Frequency(MHz)	PAPR(dB)	
707.5	QPSK	16QAM
	5.26	6.25

LTE band 13,10MHz

Frequency(MHz)	PAPR(dB)	
782.0	QPSK	16QAM
	5.13	5.90

LTE band 66, 20MHz

Frequency(MHz)	PAPR(dB)	
1745.0	QPSK	16QAM
	6.70	7.37

LTE band 71, 20MHz

Frequency(MHz)	PAPR(dB)	
680.5	QPSK	16QAM
	6.60	7.28

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

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

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).

2017-08-22 through 2018-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

*****END OF REPORT*****