LTE band 12, 3MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
707.5	2.88	2.88

LTE band 12, 3MHz Bandwidth, QPSK (-26dBc BW)
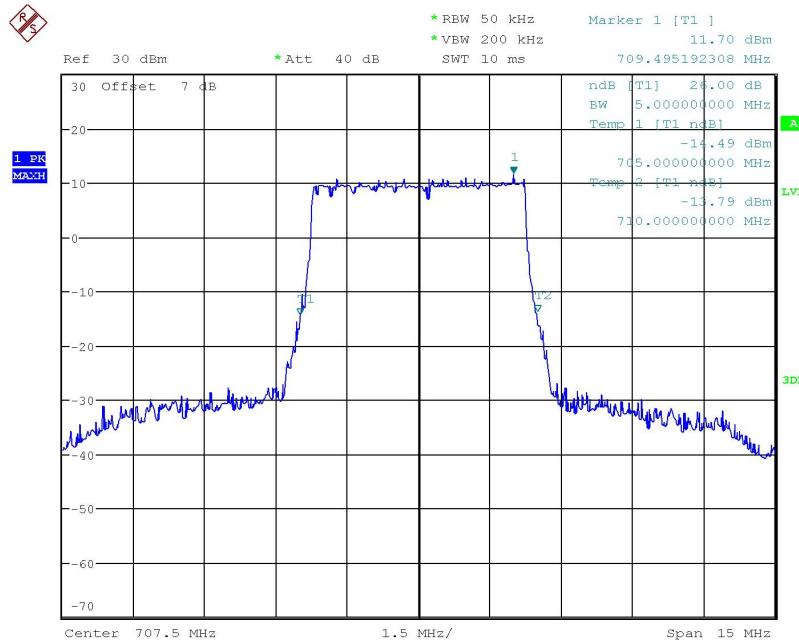
Date: 8.JUN.2018 13:49:30

**LTE band 12, 3MHz Bandwidth, 16QAM (-26dBc BW)**
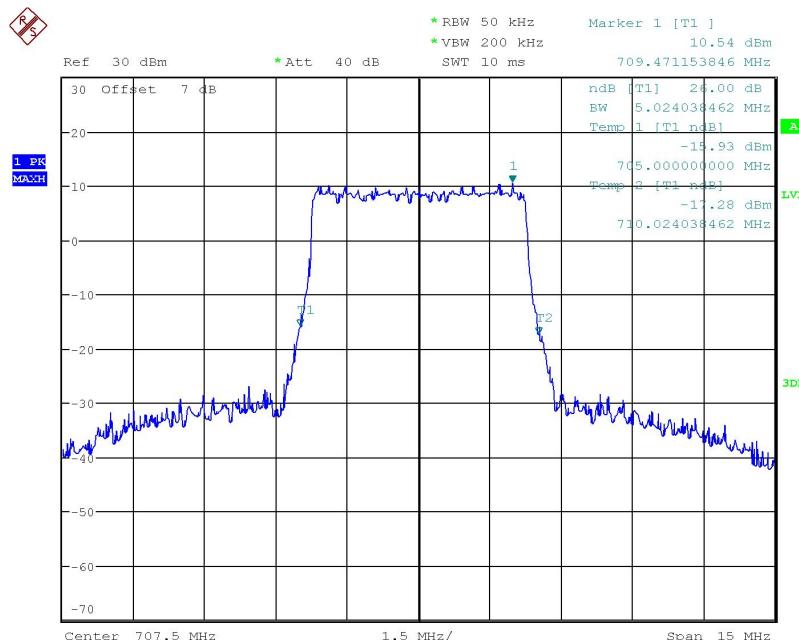
Date: 8.JUN.2018 13:49:46

LTE band 12, 5MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
707.5	5.00	4.98

LTE band 12, 5MHz Bandwidth, QPSK (-26dBc BW)
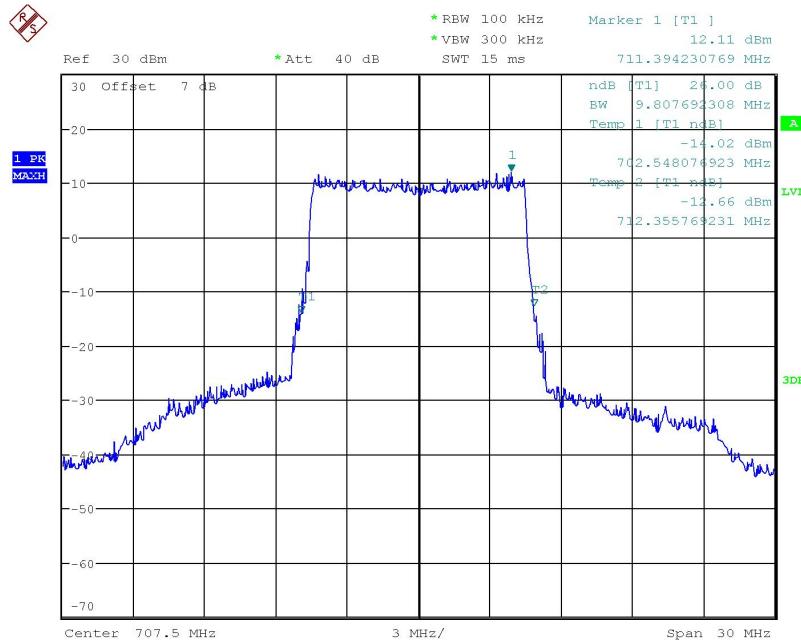
Date: 8.JUN.2018 13:51:47

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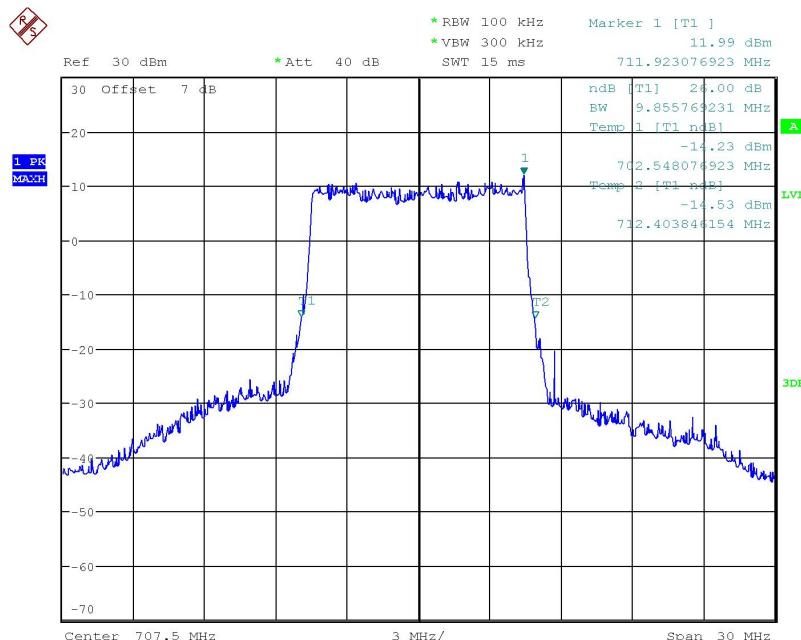

Date: 8.JUN.2018 13:52:03

LTE band 12, 10MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
707.5	9.81	9.86

LTE band 12, 10MHz Bandwidth, QPSK (-26dBc BW)
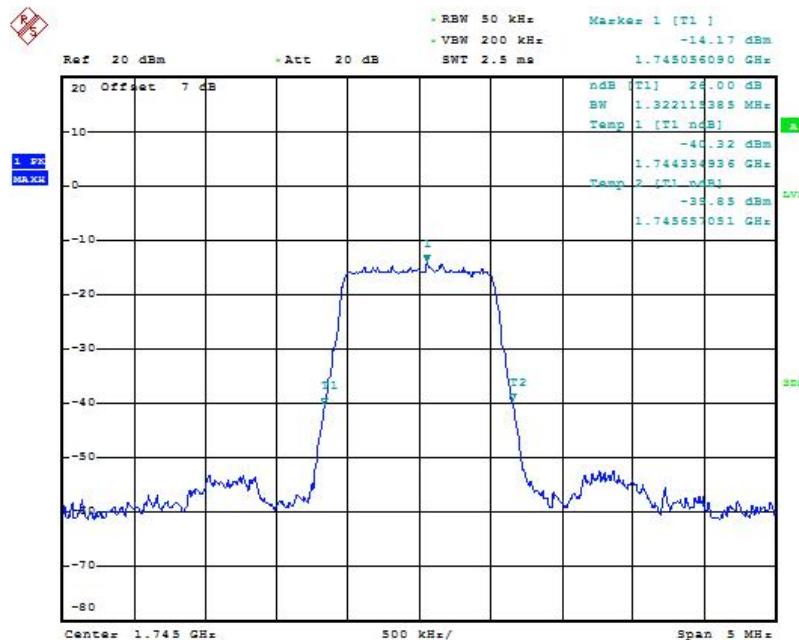
Date: 8.JUN.2018 13:54:37

LTE band 12, 10MHz Bandwidth, 16QAM (-26dBc BW)
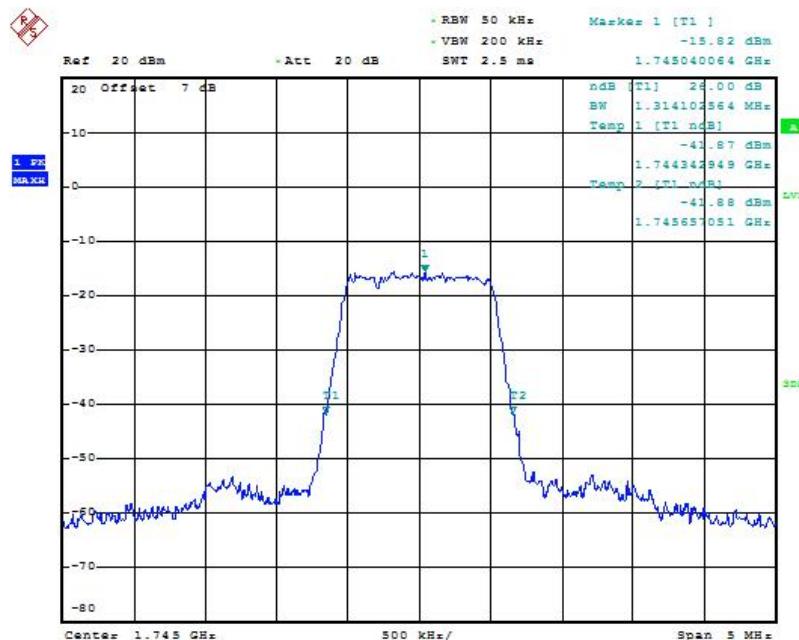
Date: 8.JUN.2018 13:54:53

LTE band 66, 1.4MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
1745.0	1.32	1.31

LTE band 66, 1.4MHz Bandwidth, QPSK (-26dBc BW)
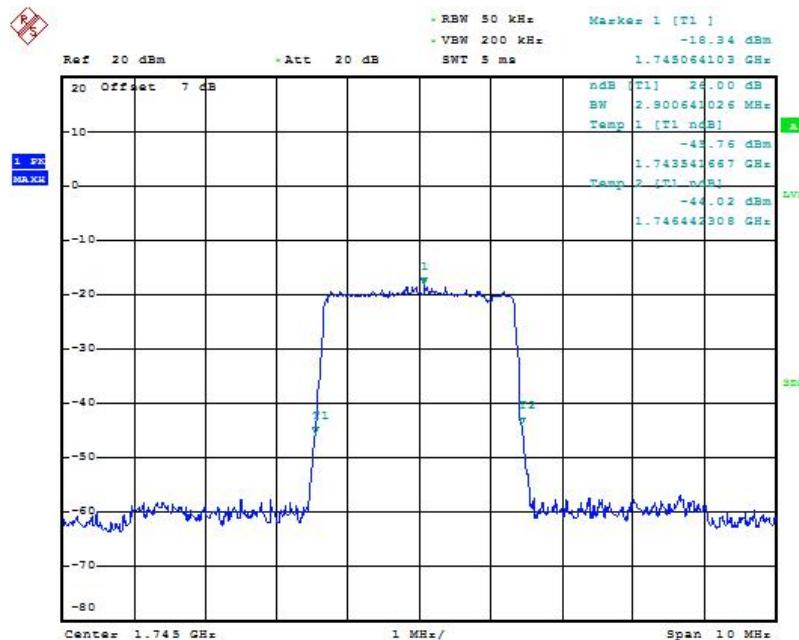
Date: 4.SEP.2018 15:26:37

LTE band 66, 1.4MHz Bandwidth,16QAM (-26dBc BW)
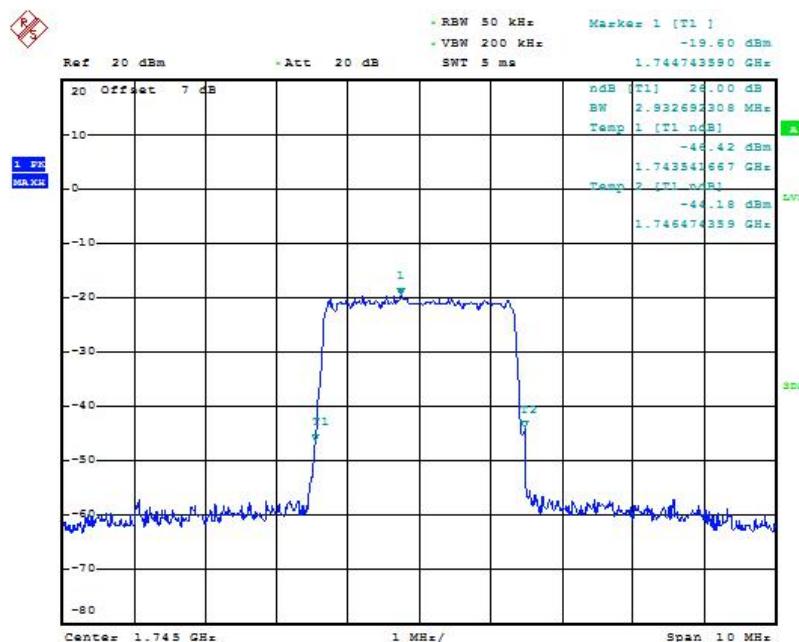
Date: 4.SEP.2018 15:26:51

LTE band 66, 3MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
1745.0	2.90	2.93

LTE band 66, 3MHz Bandwidth, QPSK (-26dBc BW)
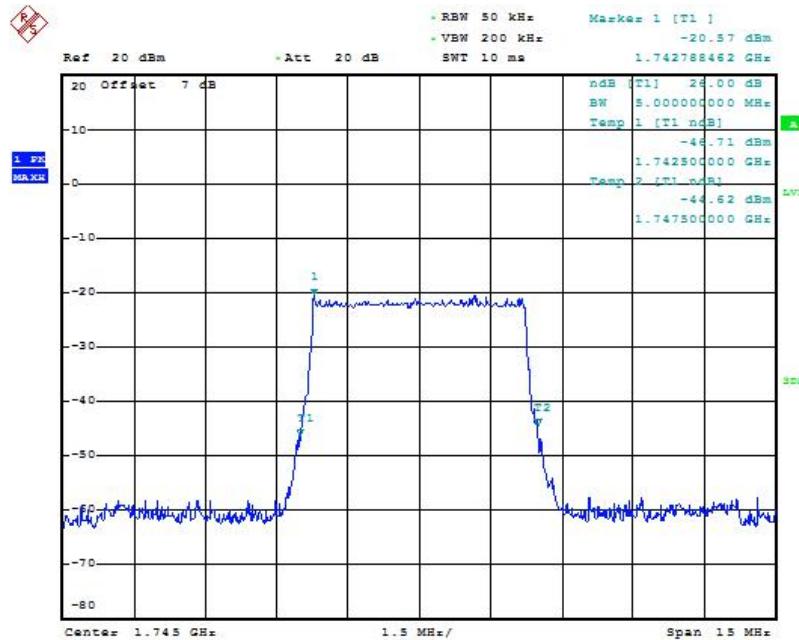
Date: 4.SEP.2018 15:27:13

LTE band 66, 3MHz Bandwidth,16QAM (-26dBc BW)
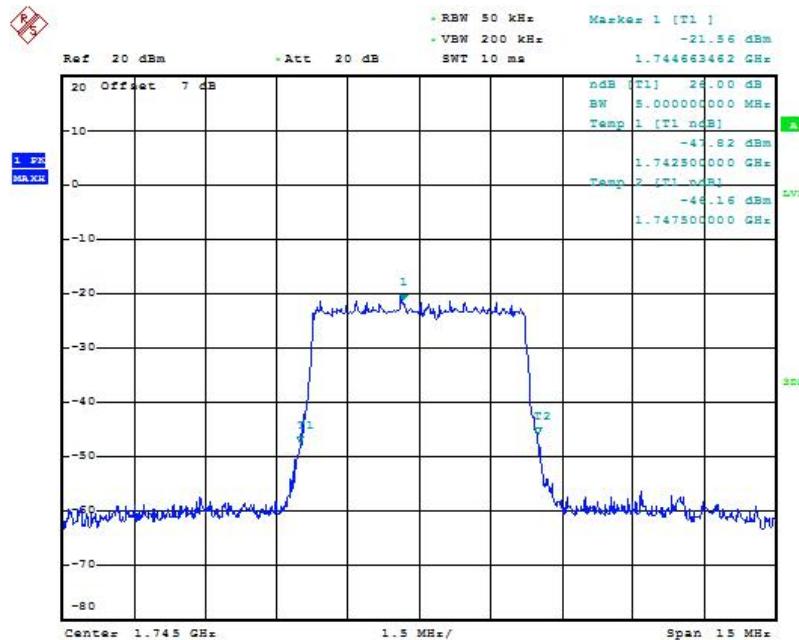
Date: 4.SEP.2018 15:27:28

LTE band 66, 5MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
1745.0	5.00	5.00

LTE band 66, 5MHz Bandwidth, QPSK (-26dBc BW)
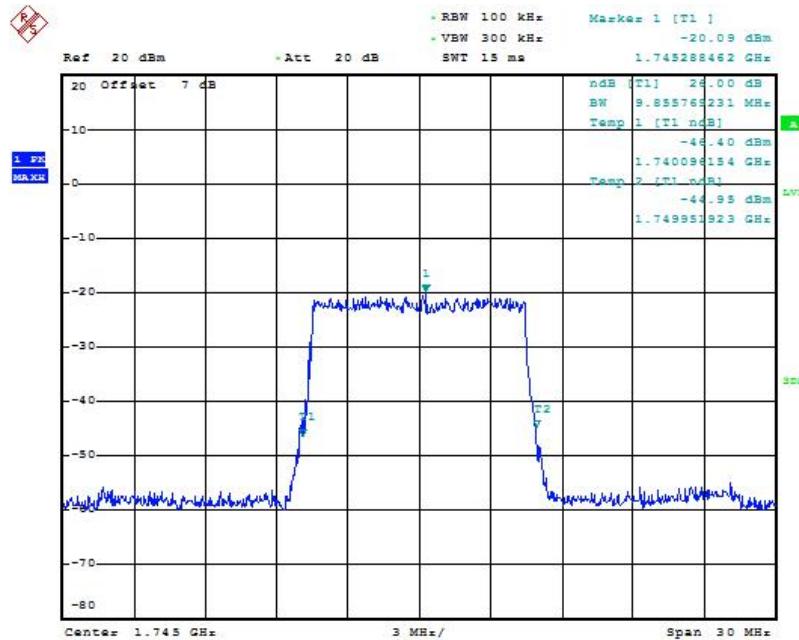
Date: 4.SEP.2018 15:27:50

LTE band 66, 5MHz Bandwidth,16QAM (-26dBc BW)
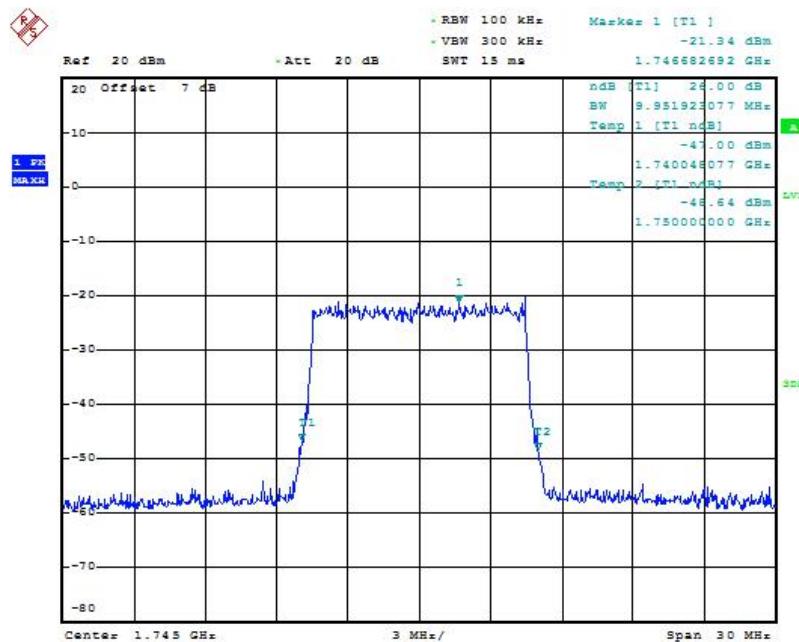
Date: 4.SEP.2018 15:28:04

LTE band 66, 10MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
1745.0	9.86	9.95

LTE band 66, 10MHz Bandwidth, QPSK (-26dBc BW)
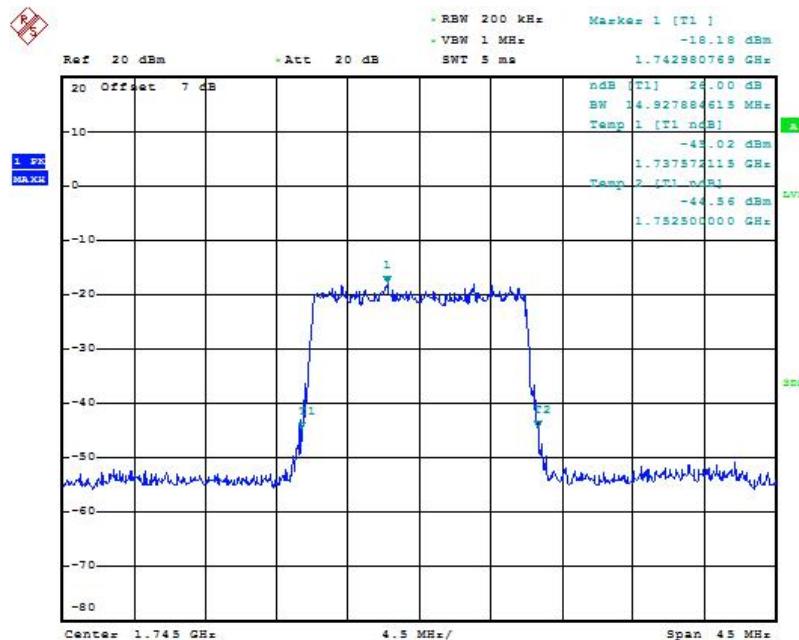
Date: 4.SEP.2018 15:28:26

LTE band 66, 10MHz Bandwidth,16QAM (-26dBc BW)
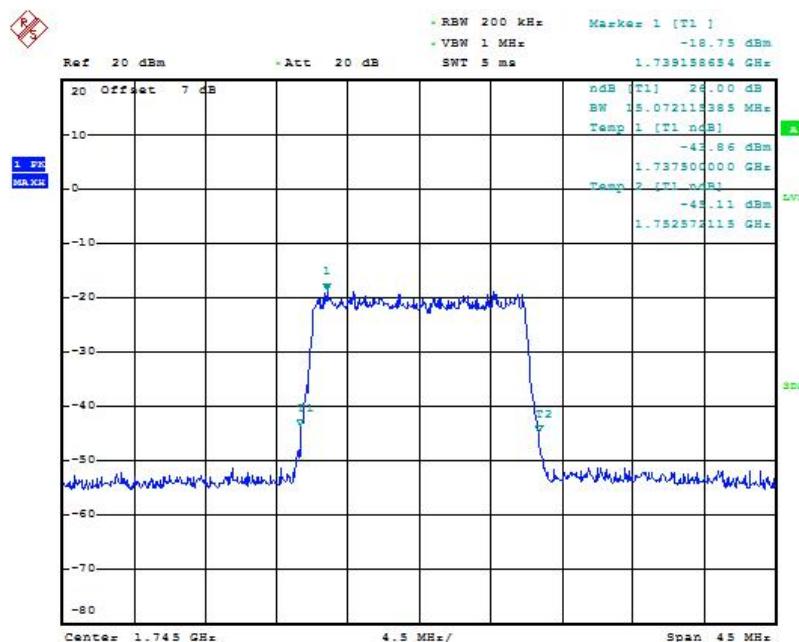
Date: 4.SEP.2018 15:28:40

LTE band 66, 15MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
1745.0	14.86	15.07

LTE band 66, 15MHz Bandwidth, QPSK (-26dBc BW)
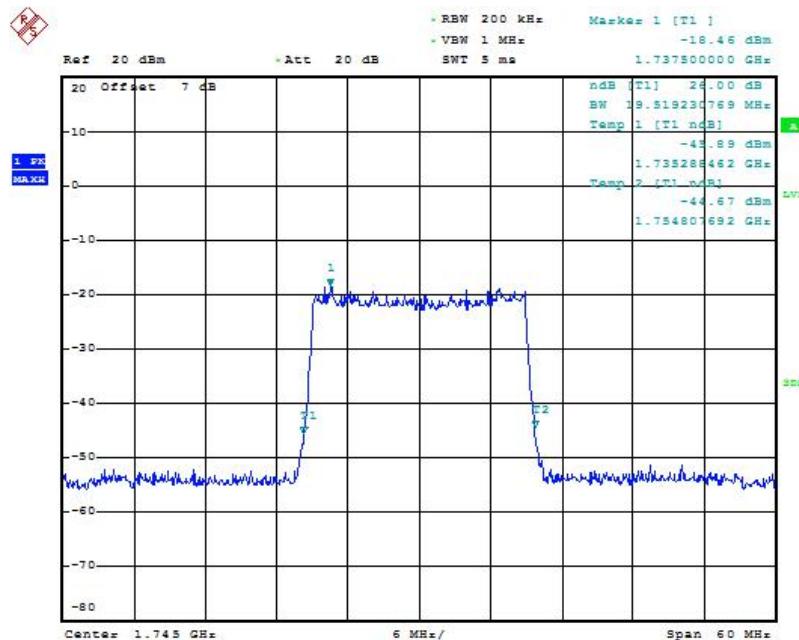
Date: 4.SEP.2018 15:29:02

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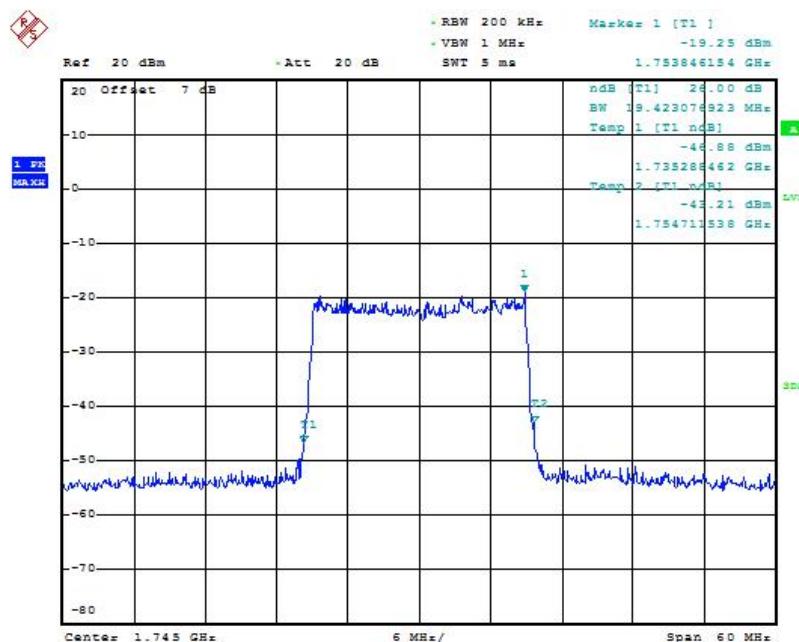


Date: 4.SEP.2018 15:29:16

LTE band 66, 20MHz (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
1745.0	19.52	19.42

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

Date: 4.SEP.2018 15:29:38

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

Date: 4.SEP.2018 15:29:52

ANNEX A.6.   BAND EDGE COMPLIANCE

Reference

FCC: CFR Part 22.917(b),24.238(a), 27.53(g),27.53(h), 27.53(m)

A.6.1 Measurement limit

Part 22.917(b),24.238(a), 27.53(g),27.53(h), 27.53(m) 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, 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.
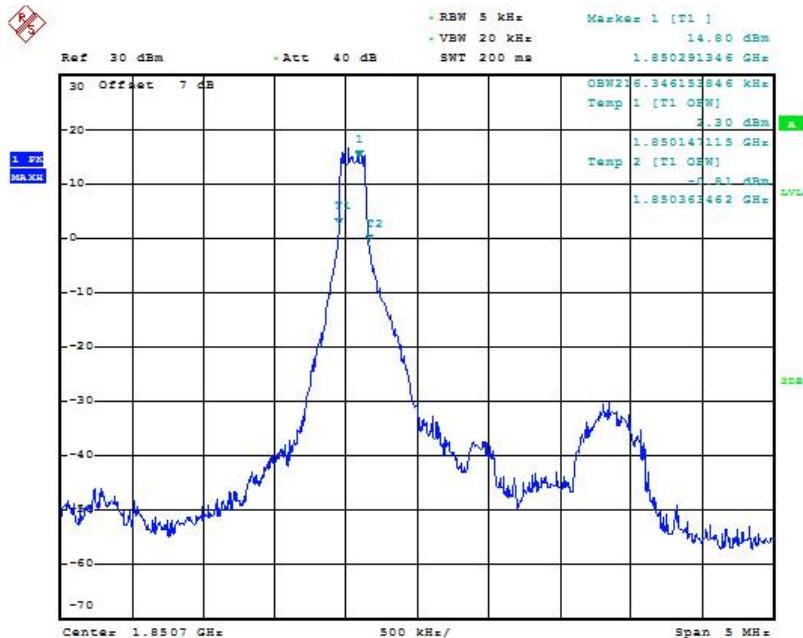
Part 27.53(m) states that for mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 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.

A.6.2 Measurement result

**Only worst case result is given below**
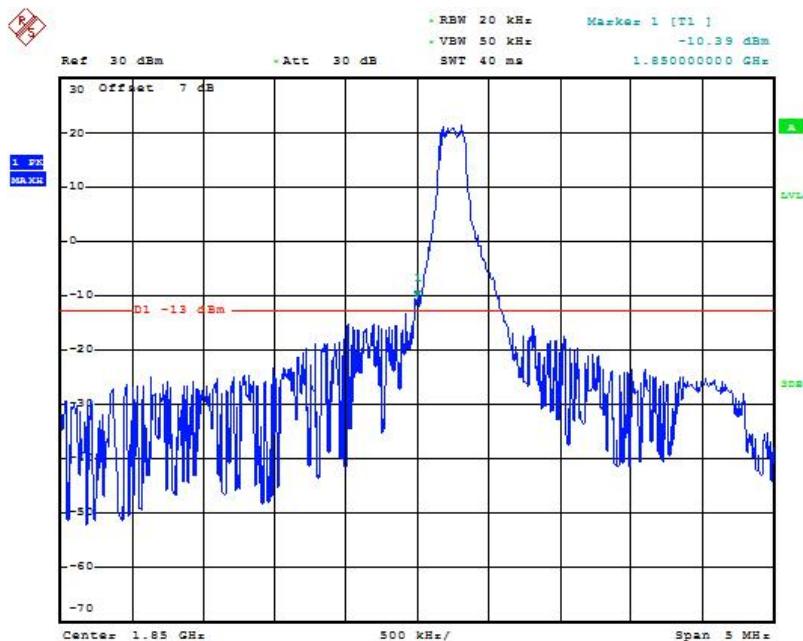
LTE band 2

**OBW: 1RB-low_offset**
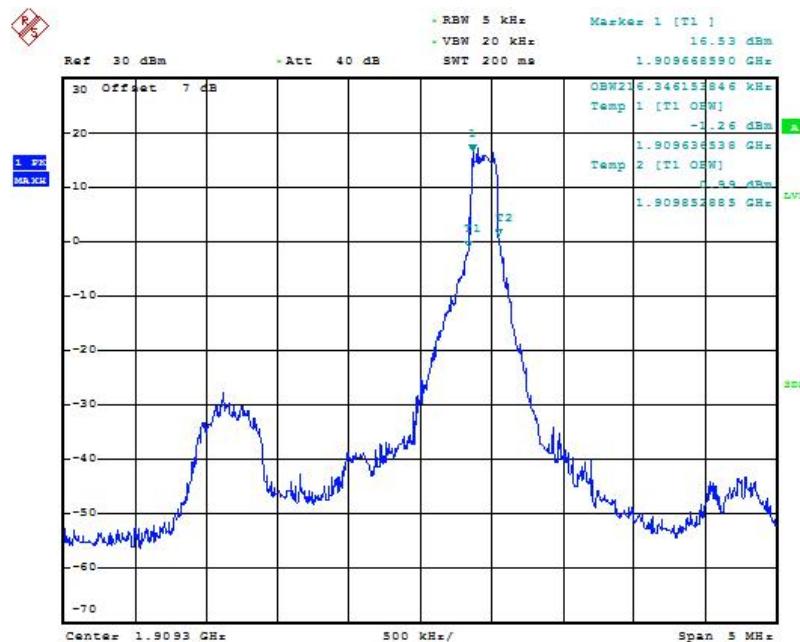
Date: 10.JUL.2018 10:55:52
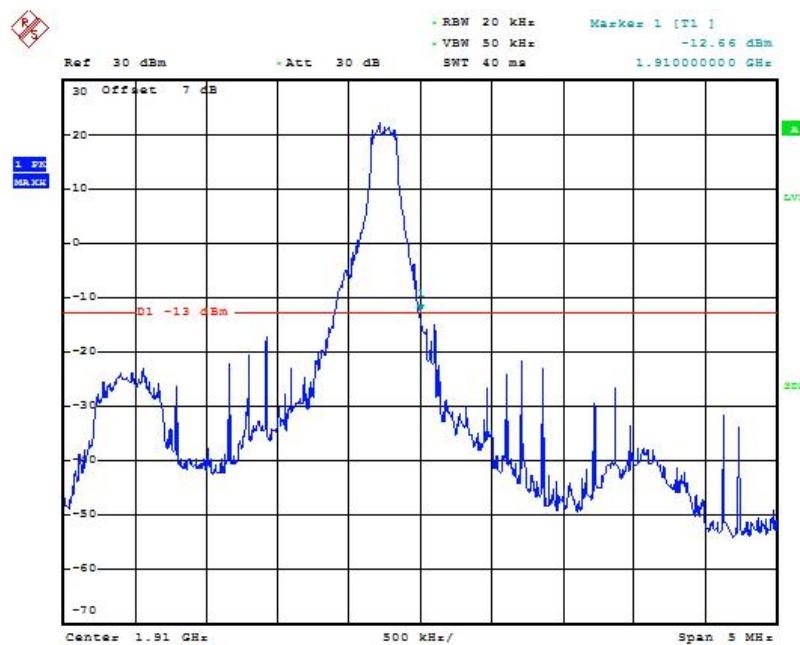
LOW BAND EDGE BLOCK-1RB-low_offset
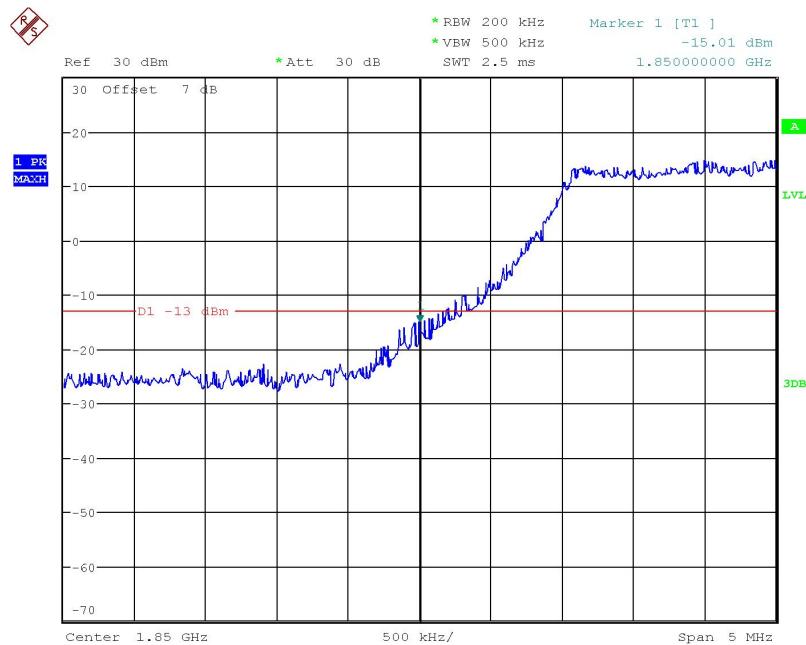
Date: 10.JUL.2018 13:13:59

OBW: 1RB-high_offset
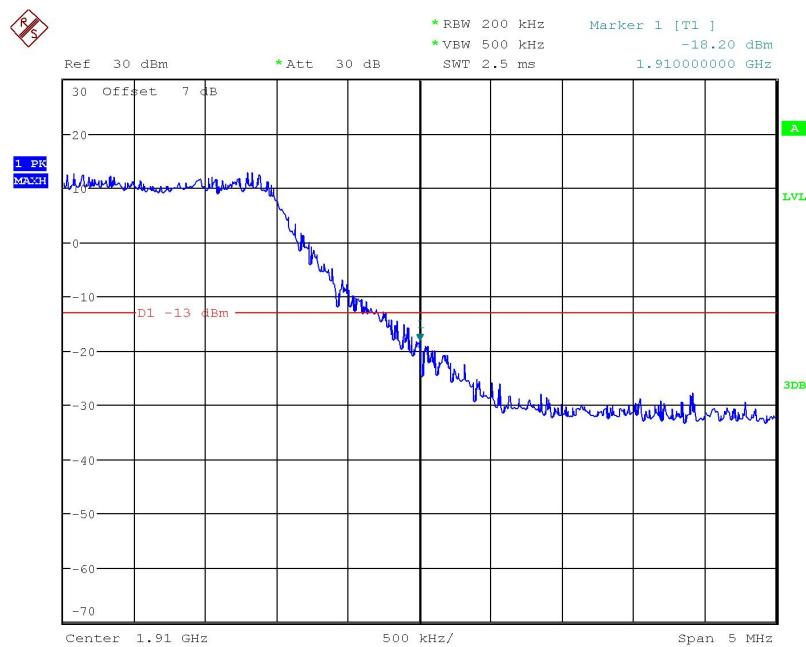
Date: 10.JUL.2018 13:14:57

HIGH BAND EDGE BLOCK-1RB-high_offset
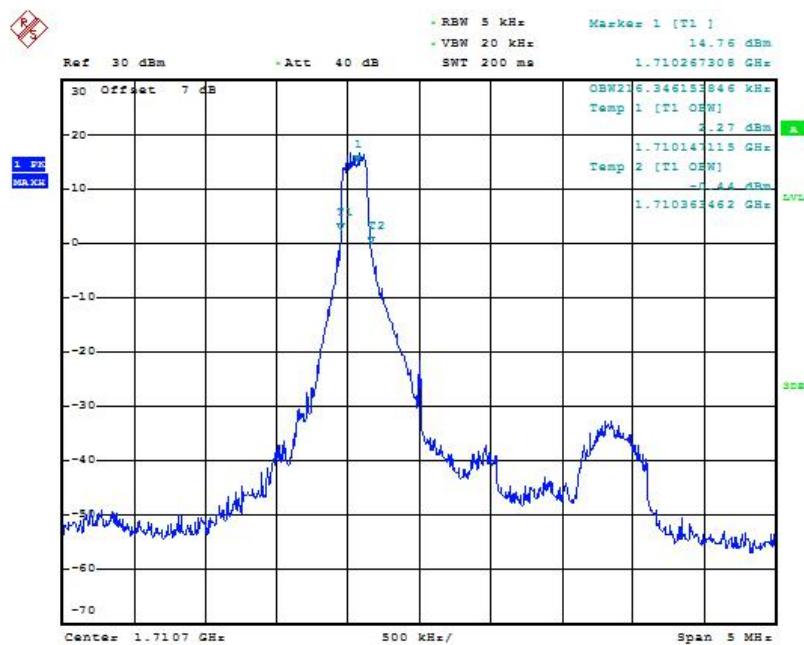
Date: 10.JUL.2018 13:15:25

LOW BAND EDGE BLOCK-20MHz-100%RB


```
                              * RBW  200 kHz    Marker 1 [T1 ]
                              * VBW  500 kHz           -15.01 dBm
 Ref  30 dBm      * Att  30 dB  SWT 2.5 ms        1.850000000 GHz
 30  Offset   7 dB
```
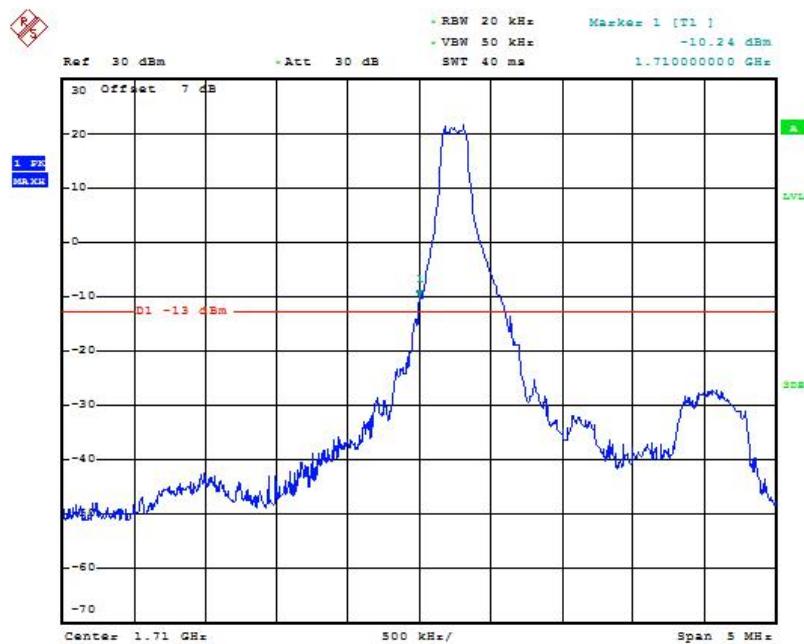
Date: 8.JUN.2018 14:08:25

HIGH BAND EDGE BLOCK-20MHz-100%RB


```
                              * RBW  200 kHz    Marker 1 [T1 ]
                              * VBW  500 kHz           -18.20 dBm
 Ref  30 dBm      * Att  30 dB  SWT 2.5 ms        1.910000000 GHz
 30  Offset   7 dB
```
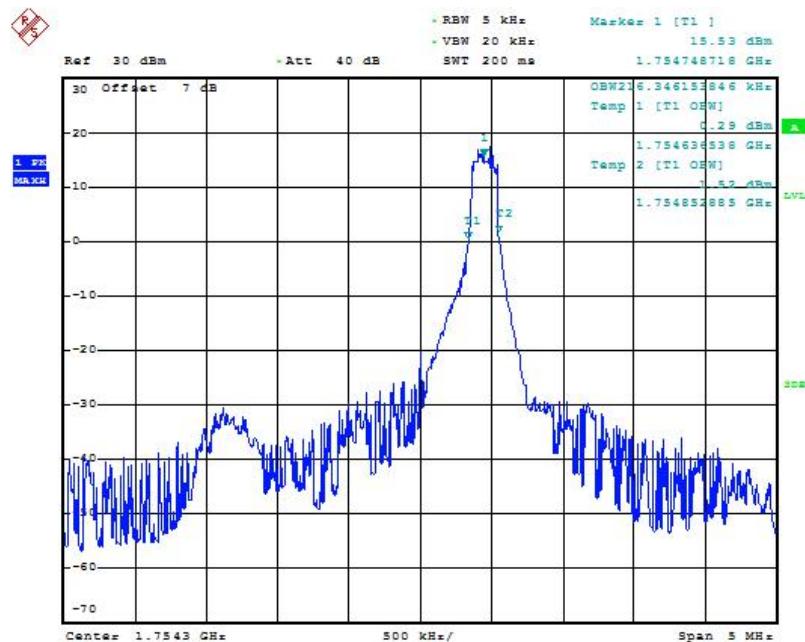
Date: 8.JUN.2018 14:09:39

LTE band 4
OBW: 1RB-low_offset
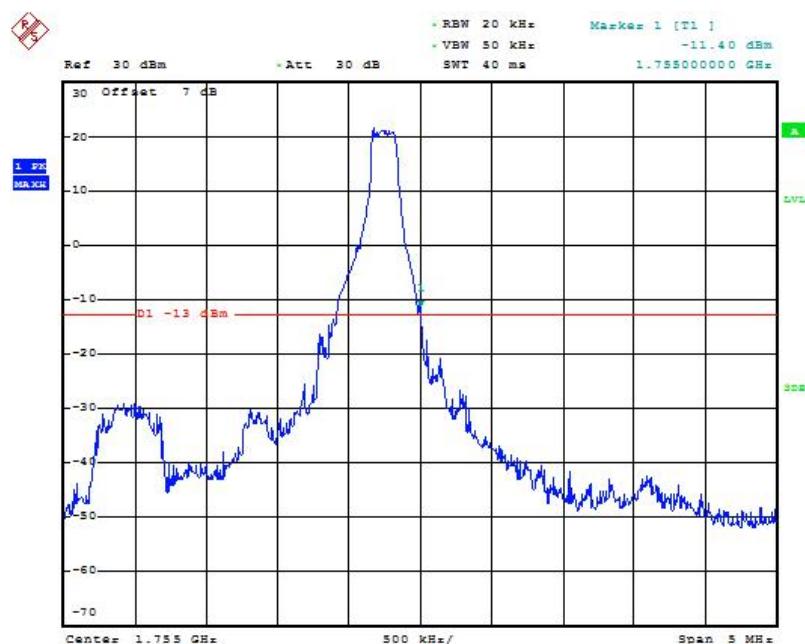
Date: 10.JUL.2018 13:06:45

LOW BAND EDGE BLOCK-1RB-low_offset
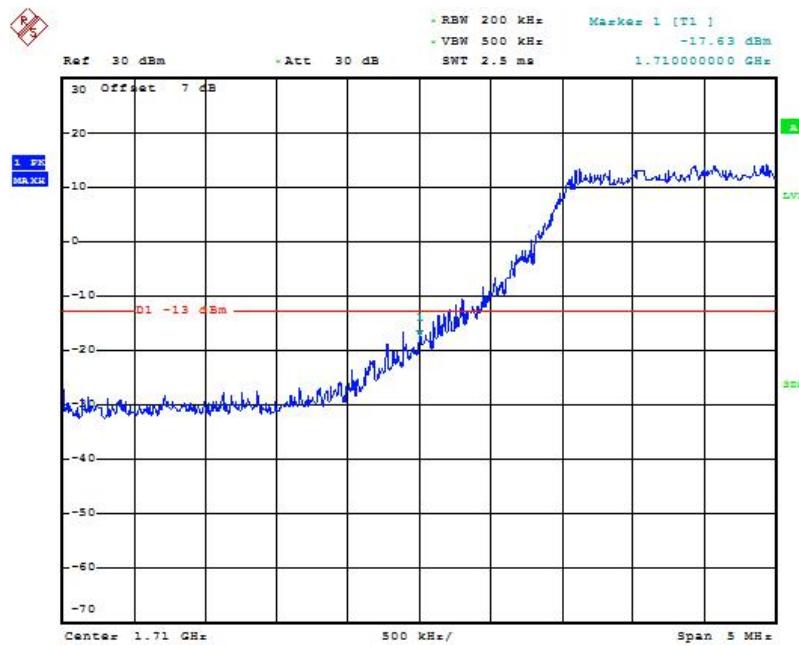
Date: 10.JUL.2018 13:07:12

OBW: 1RB-high_offset
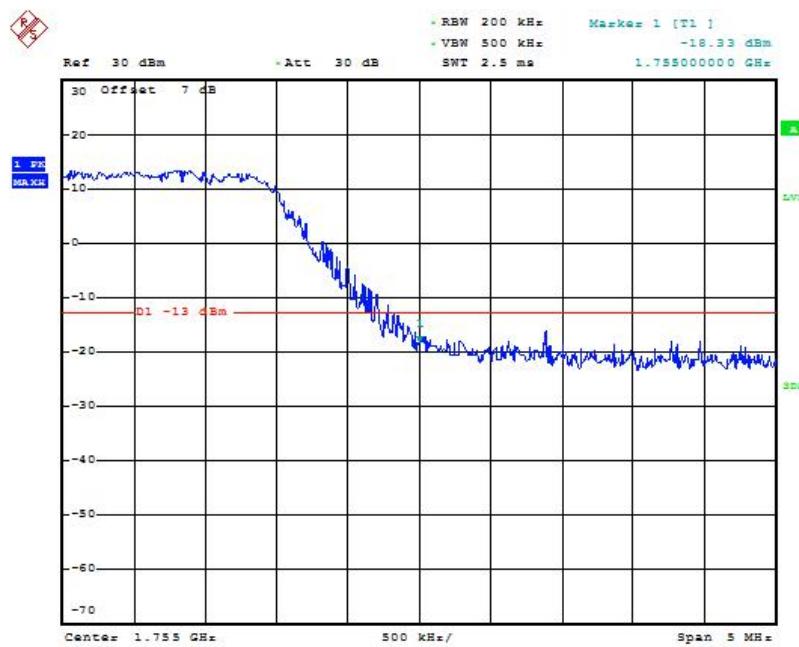
Date: 10.JUL.2018 13:08:12

## HIGH BAND EDGE BLOCK-1RB-high_offset
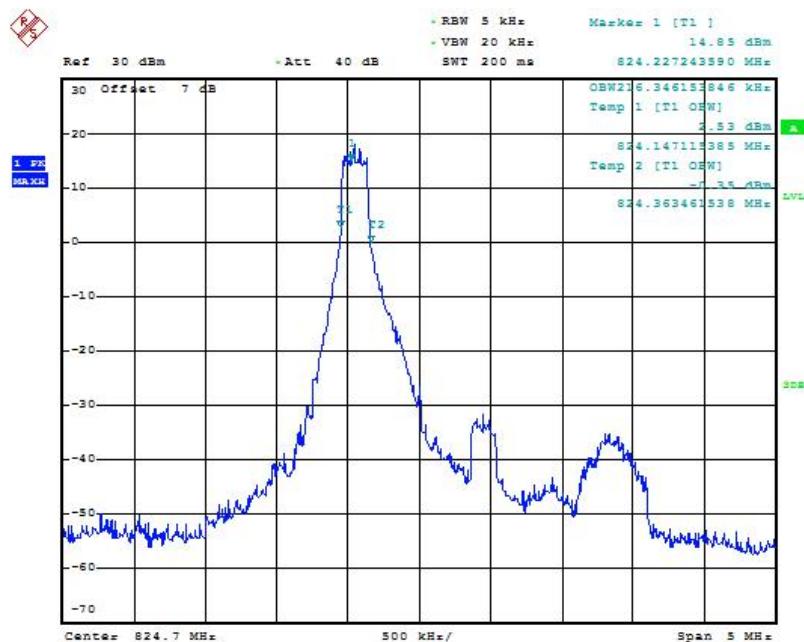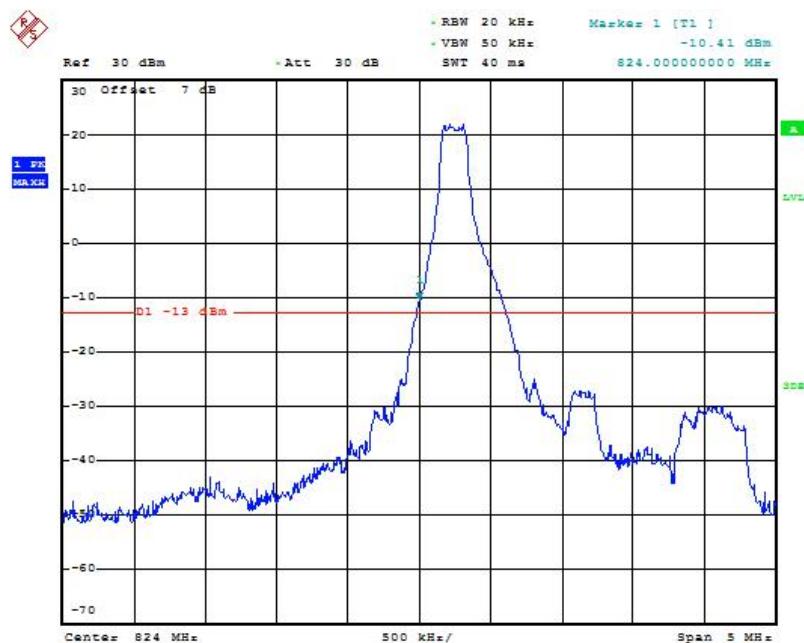
Date: 10.JUL.2018 13:08:40
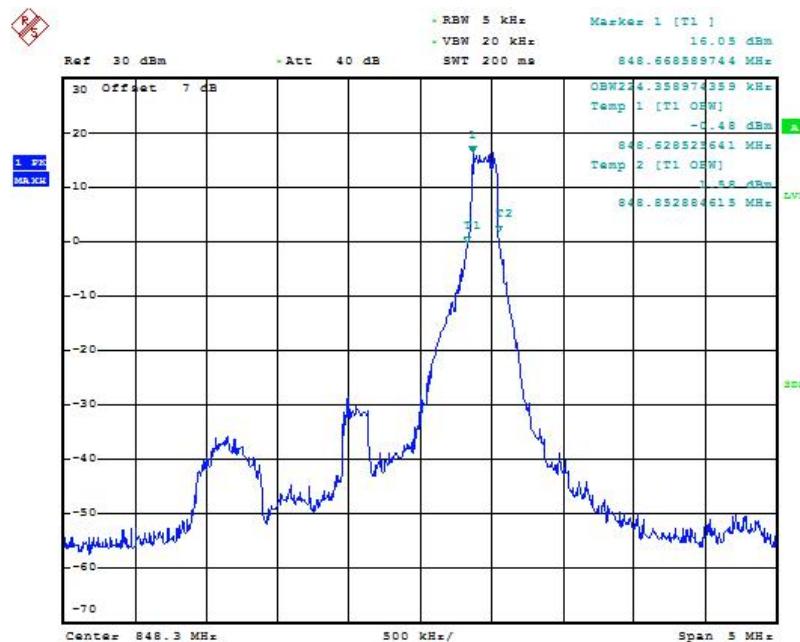
## LOW BAND EDGE BLOCK-20MHz-100%RB

Date: 10.JUL.2018 11:04:00
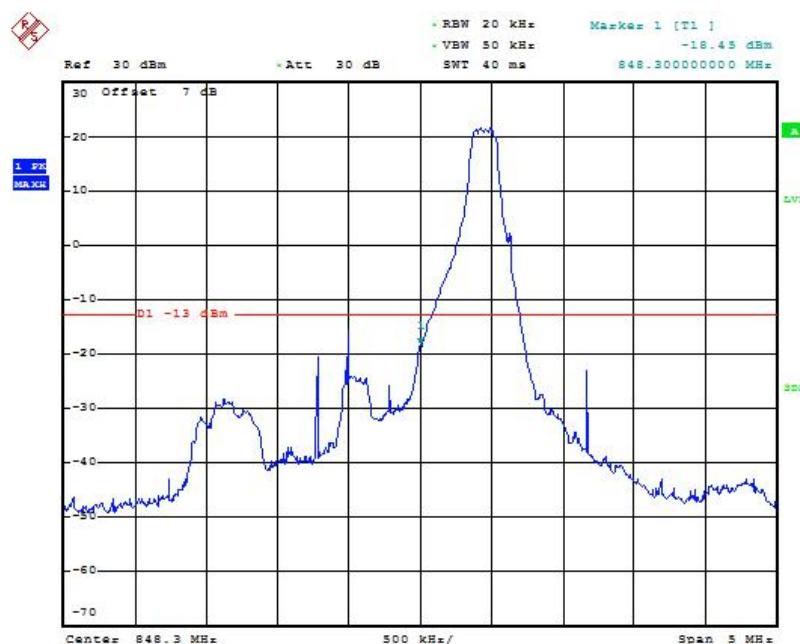
HIGH BAND EDGE BLOCK-20MHz-100%RB

Date: 4.AUG.2018 11:09:49

LTE band 5
OBW: 1RB-low_offset

Date: 10.JUL.2018 11:11:25

LOW BAND EDGE BLOCK-1RB-low_offset

Date: 10.JUL.2018 11:11:53

OBW: 1RB-high_offset

Date: 10.JUL.2018 11:12:53

HIGH BAND EDGE BLOCK-1RB-high_offset
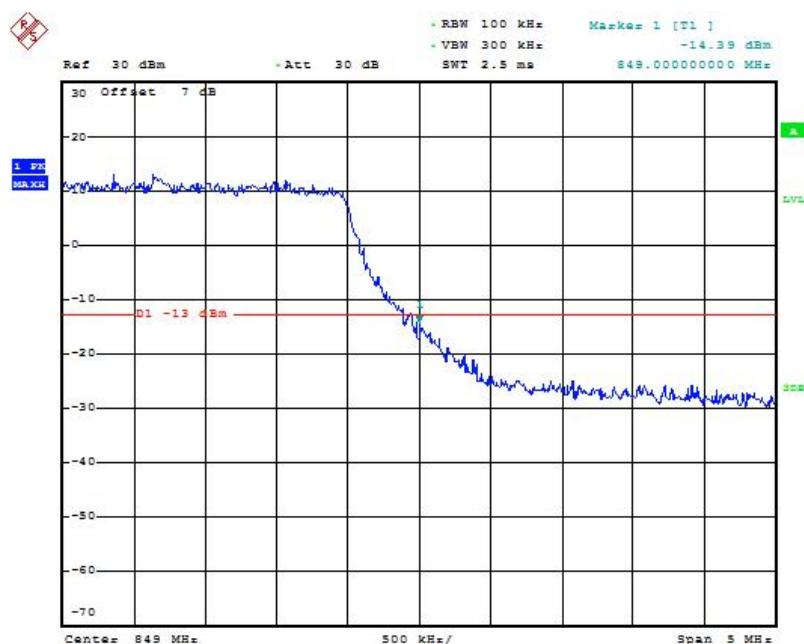
Date: 10.JUL.2018 11:28:12

LOW BAND EDGE BLOCK-QPSK-10MHz-100%RB
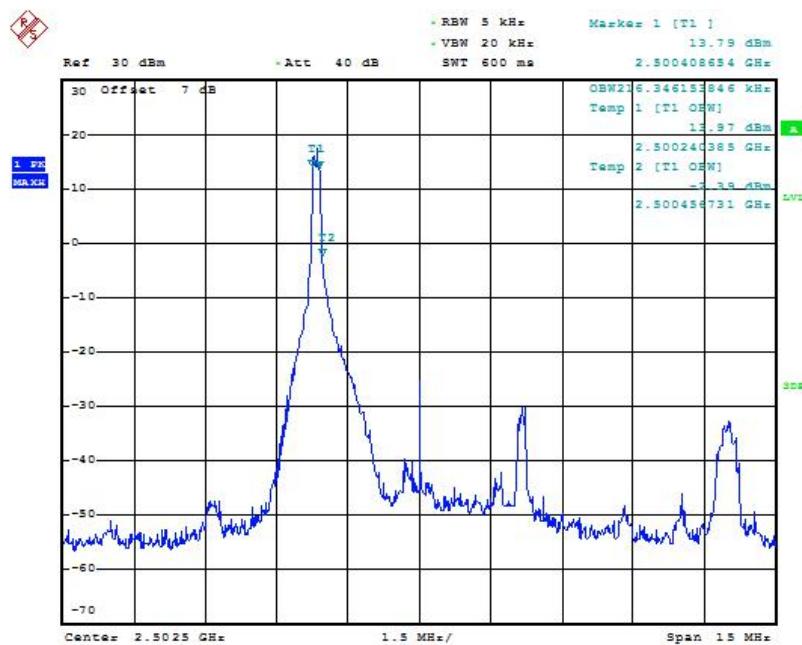
Date: 10.JUL.2018 11:07:09
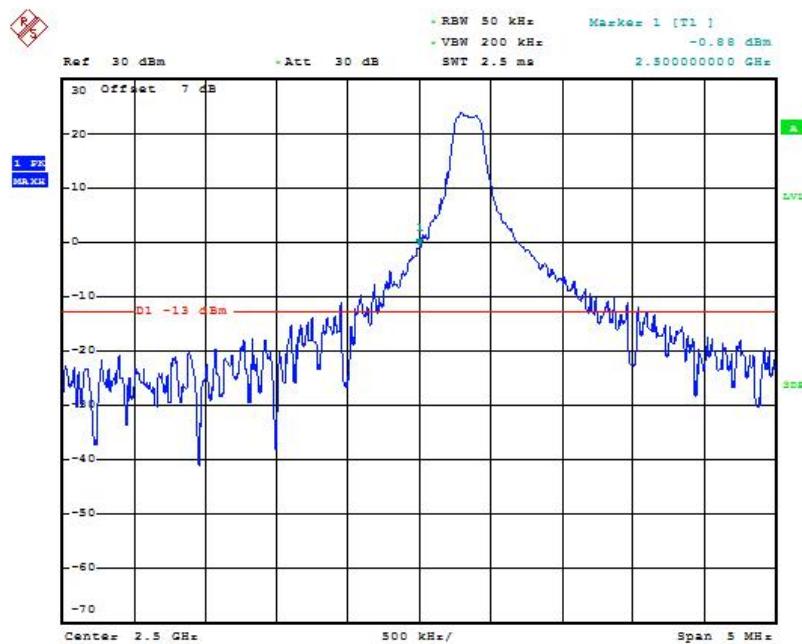
HIGH BAND EDGE BLOCK-QPSK-10MHz-100%RB
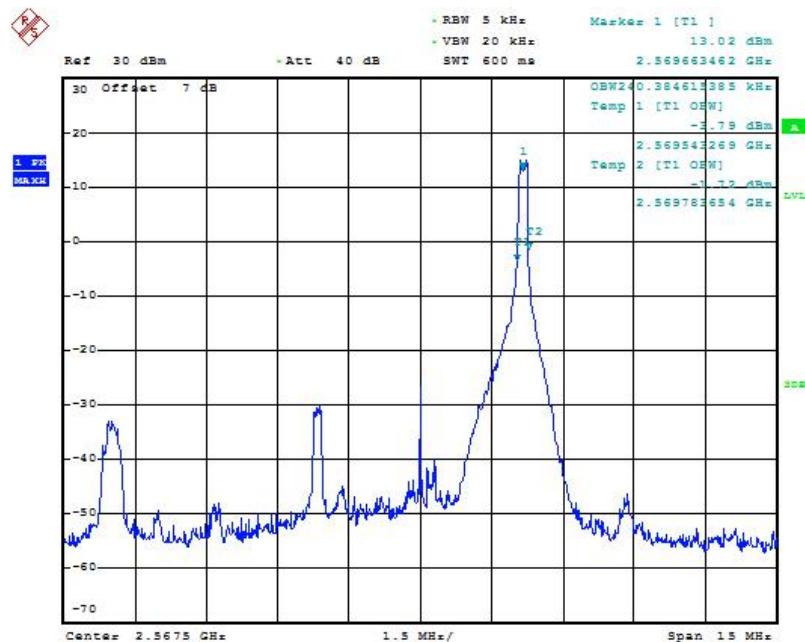
Date: 10.JUL.2018 11:07:45

LTE band 7
OBW: 1RB-low_offset
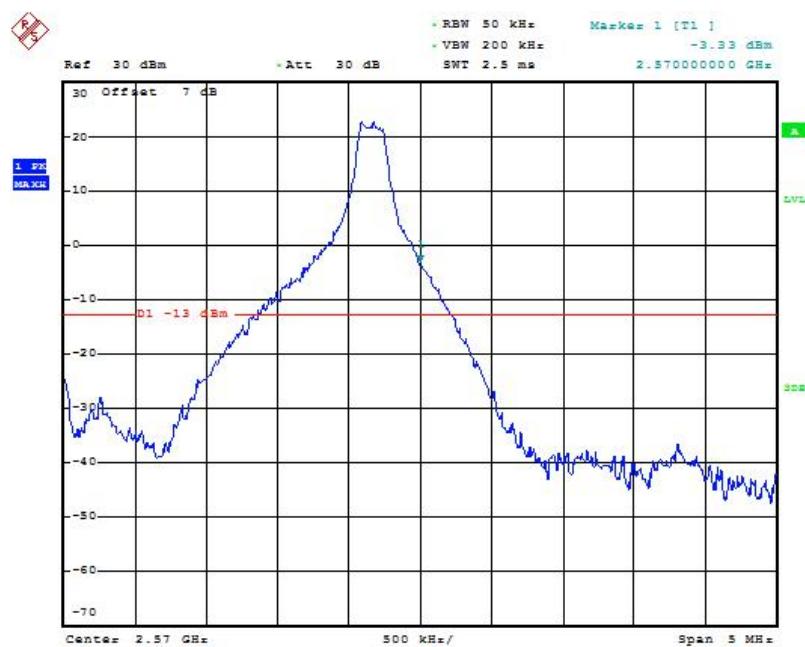
Date: 11.JUL.2018 16:48:57

LOW BAND EDGE BLOCK-1RB-low_offset

Date: 11.JUL.2018 16:49:25
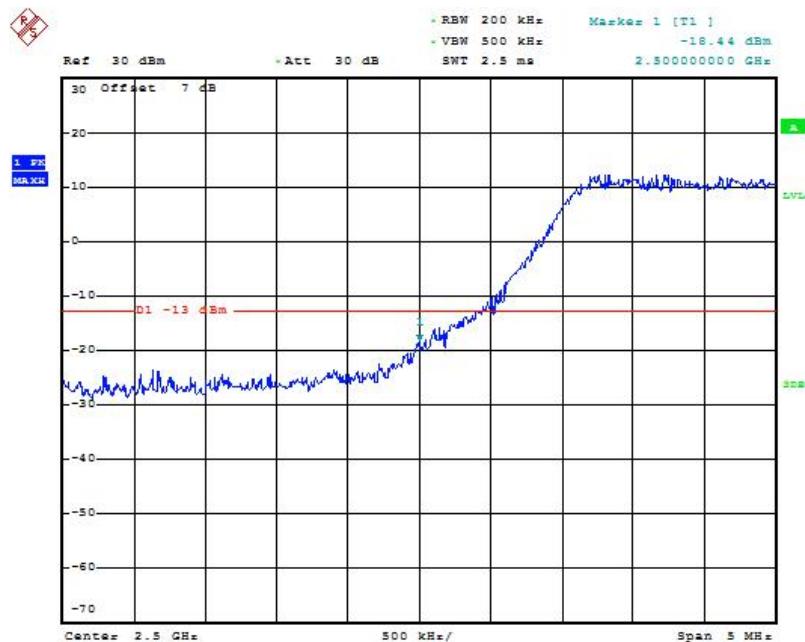
OBW: 1RB-high_offset

Date: 11.JUL.2018 16:49:59

HIGH BAND EDGE BLOCK-1RB-high_offset
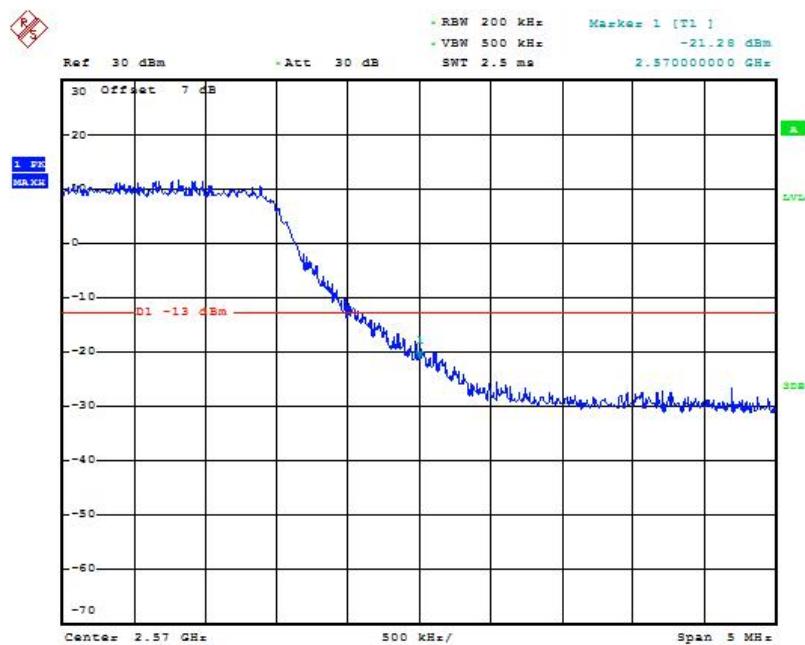
Date: 11.JUL.2018 16:50:27

LOW BAND EDGE BLOCK-20MHz-100%RB
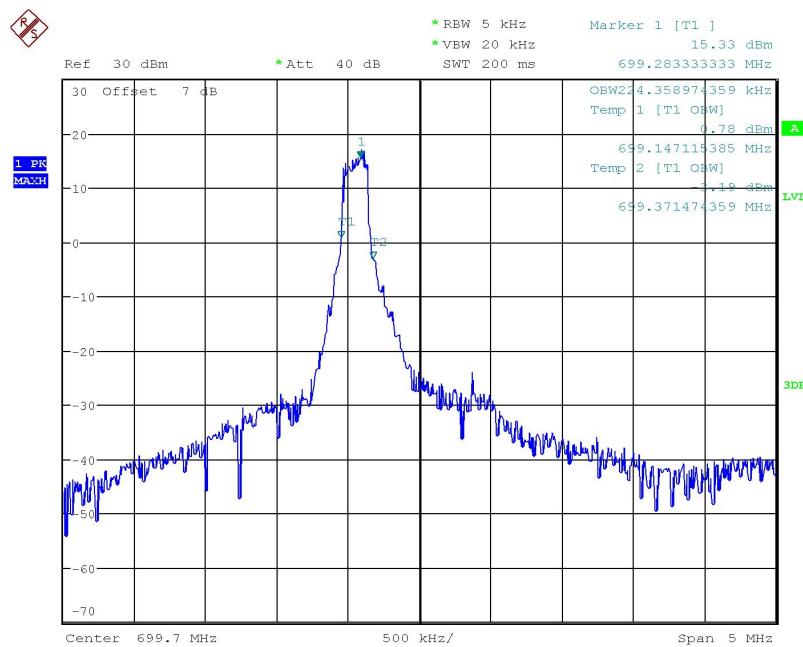
Date: 11.JUL.2018 15:47:09
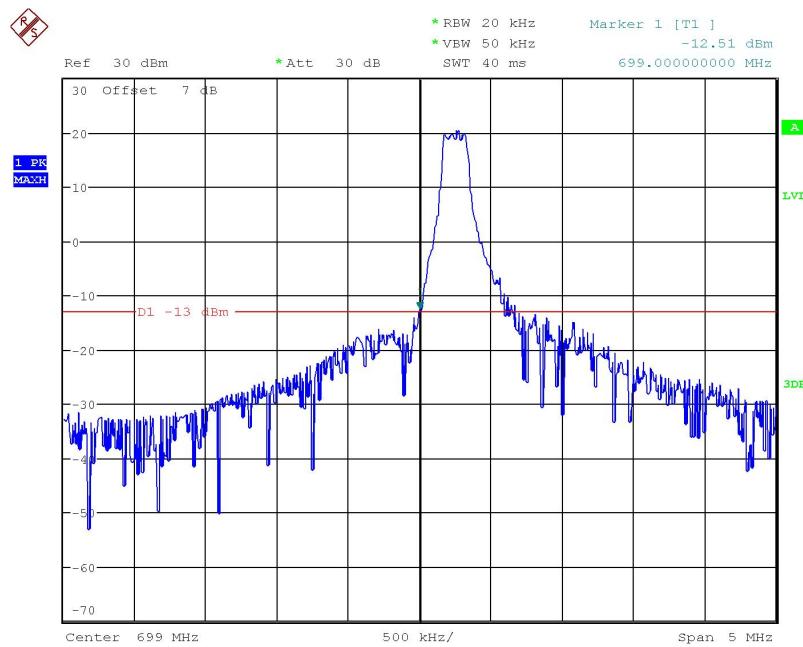
HIGH BAND EDGE BLOCK-20MHz-100%RB
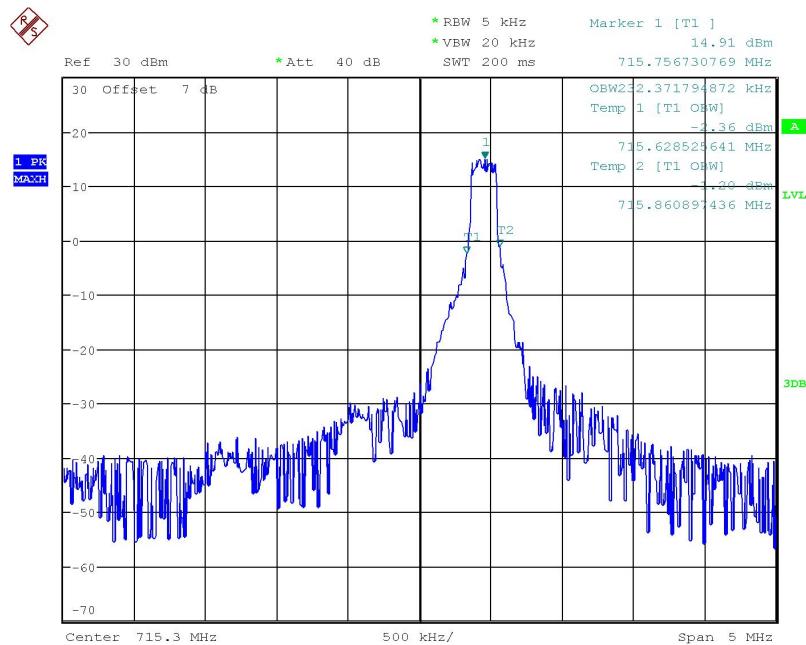
Date: 11.JUL.2018 15:48:38

LTE band 12
OBW: 1RB-low_offset
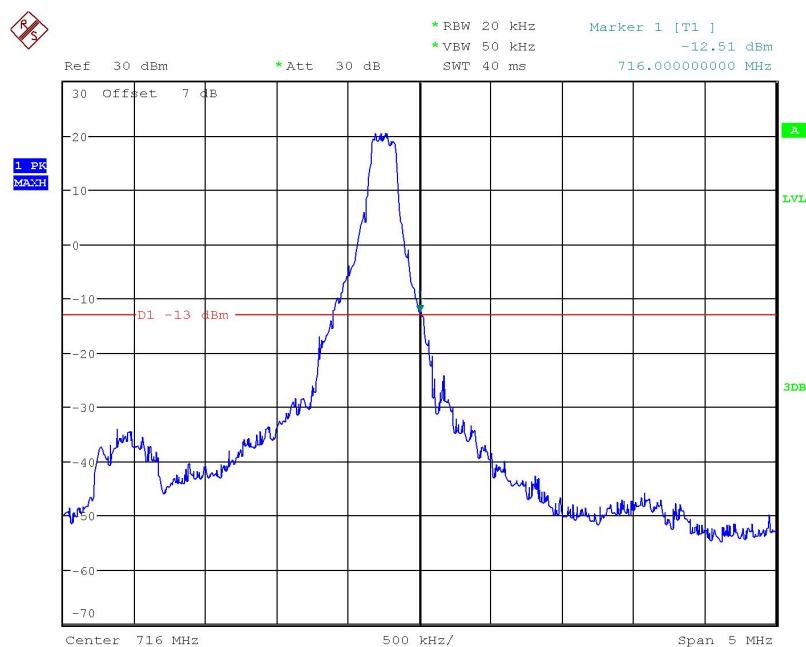
Date: 5.JUL.2018 17:23:26

LOW BAND EDGE BLOCK-1RB-low_offset
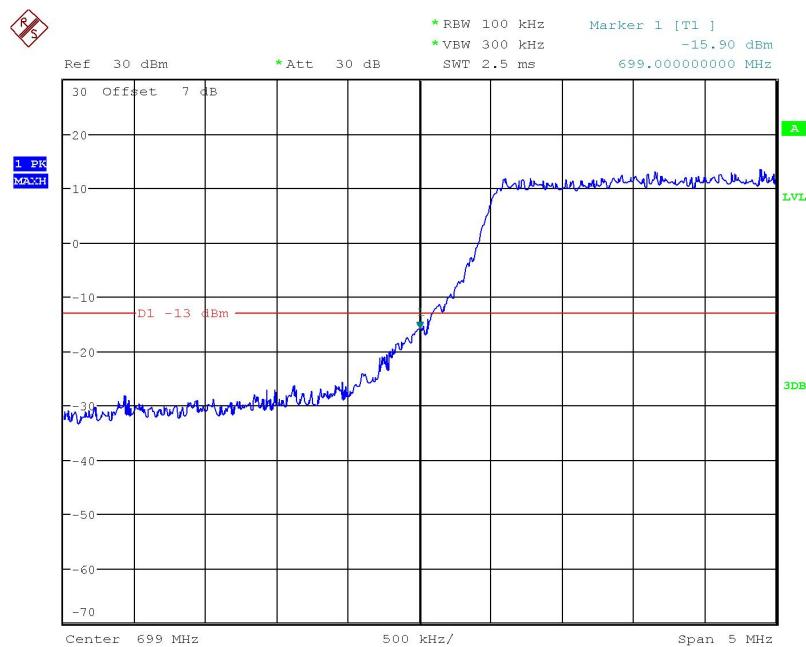

Date: 5.JUL.2018 17:23:56

OBW: 1RB-high_offset
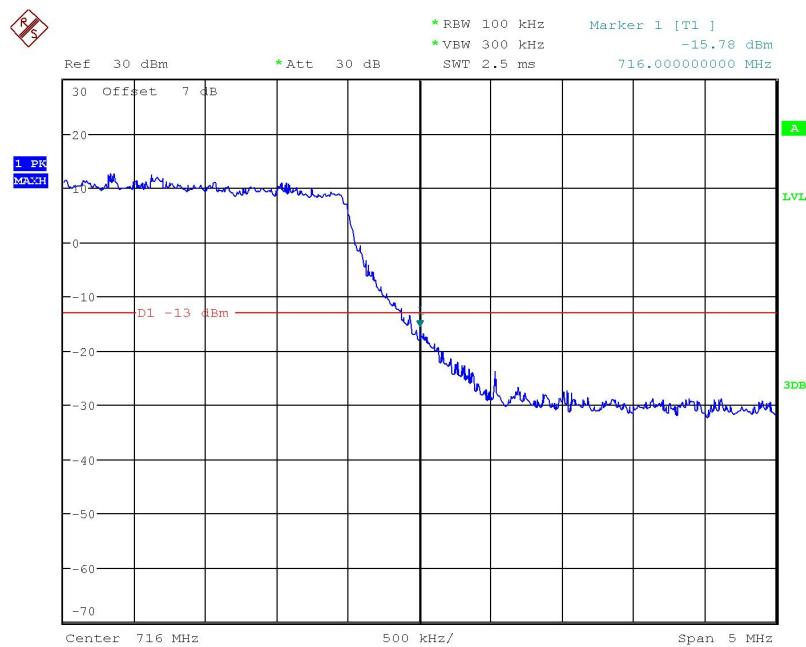
HIGH BAND EDGE BLOCK-1RB-high_offset

LOW BAND EDGE BLOCK-10MHz-100%RB


```
                                    * RBW 100 kHz    Marker 1 [T1 ]
                                    * VBW 300 kHz              -15.90 dBm
 Ref  30 dBm          * Att  30 dB   SWT 2.5 ms       699.000000000 MHz
 30 Offset   7 dB                                                        A
  -20
1 PK                                                                    LVL
MAXH                                                            
  10
  0
  -10
D1 -13 dBm
  -20                                                                  3DB
  -30
  -40
  -50
  -60
  -70
 Center  699 MHz            500 kHz/              Span  5 MHz
```
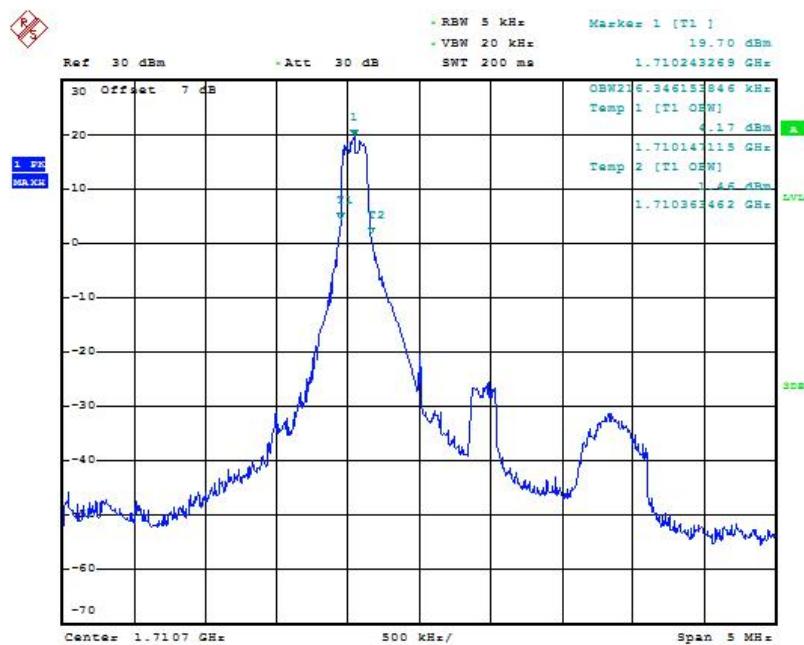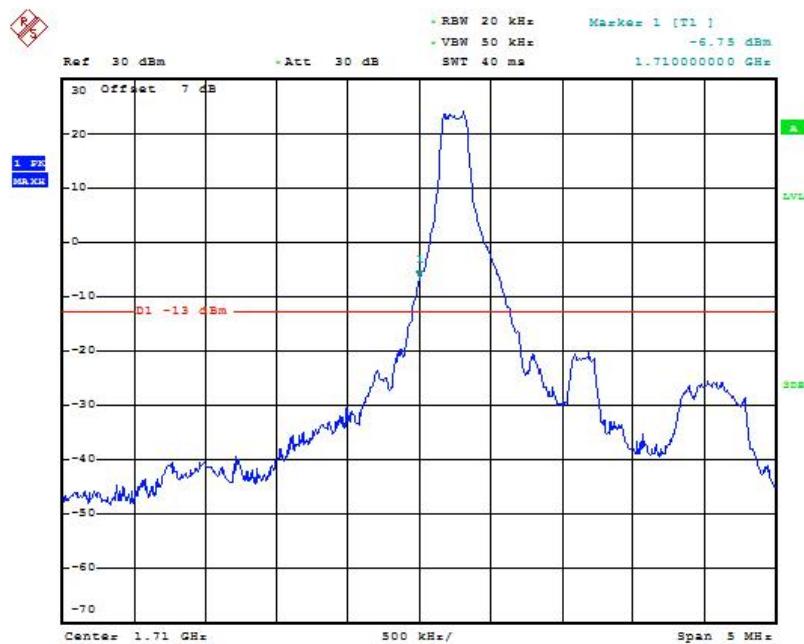
Date: 5.JUL.2018 17:47:29

HIGH BAND EDGE BLOCK-10MHz-100%RB


```
                                    * RBW 100 kHz    Marker 1 [T1 ]
                                    * VBW 300 kHz              -15.78 dBm
 Ref  30 dBm          * Att  30 dB   SWT 2.5 ms       716.000000000 MHz
 30 Offset   7 dB                                                        A
  -20
1 PK                                                                    LVL
MAXH
  10
  0
  -10
D1 -13 dBm
  -20                                                                  3DB
  -30
  -40
  -50
  -60
  -70
 Center  716 MHz            500 kHz/              Span  5 MHz
```
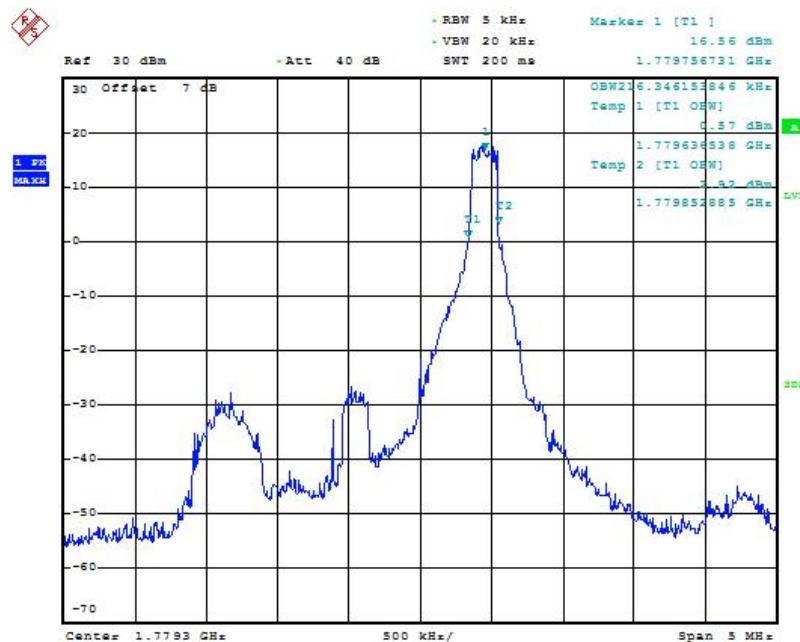
Date: 5.JUL.2018 17:48:08

LTE band 66
OBW: 1RB-low_offset
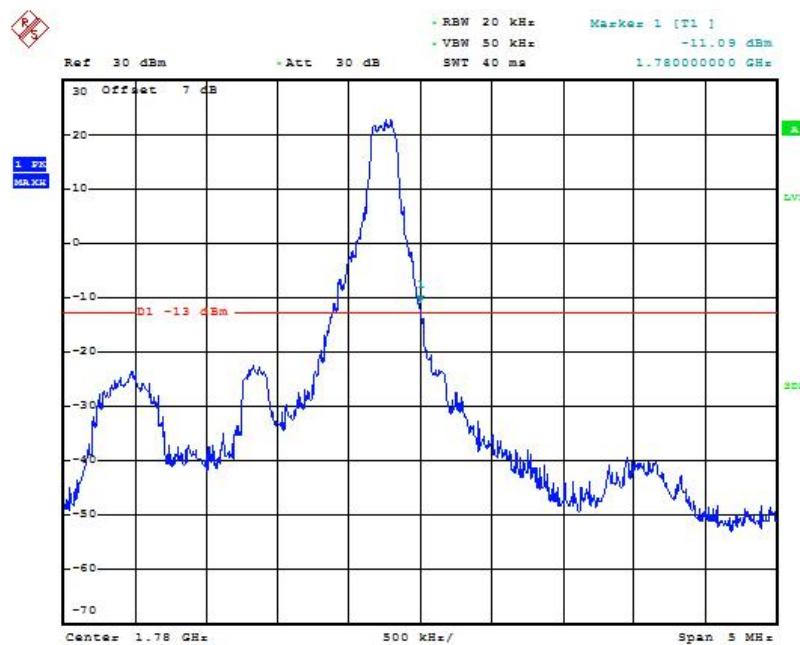
Date: 5.SEP.2018 13:56:40

LOW BAND EDGE BLOCK-1RB-low_offset

Date: 5.SEP.2018 14:00:32
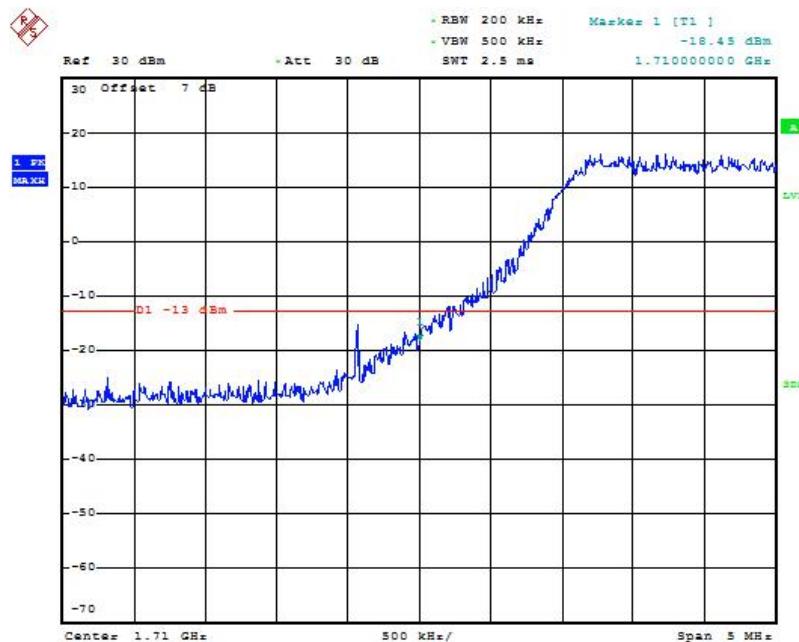
OBW: 1RB-high_offset

Date: 4.SEP.2018 16:26:40

HIGH BAND EDGE BLOCK-1RB-high_offset
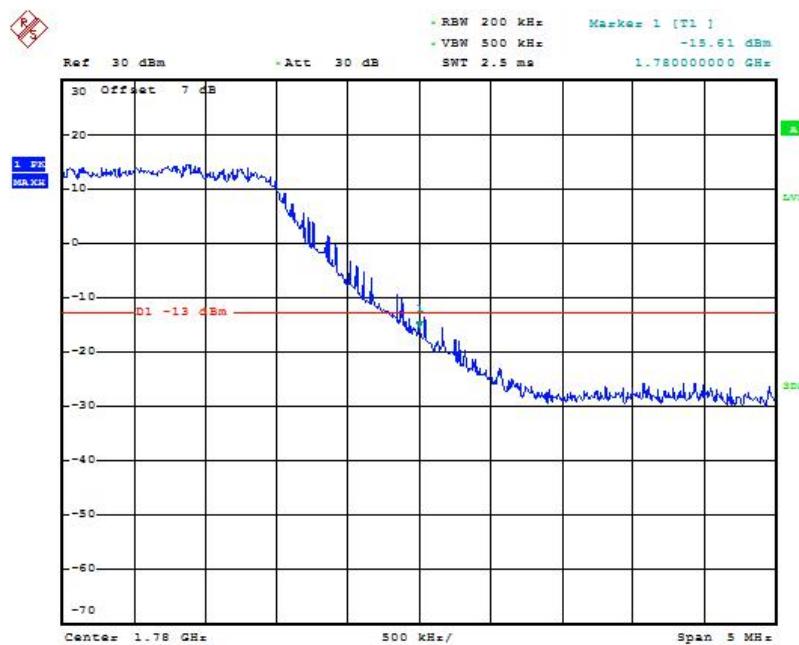
Date: 4.SEP.2018 16:27:08

LOW BAND EDGE BLOCK-QPSK-10MHz-100%RB

Date: 4.SEP.2018 16:08:55

HIGH BAND EDGE BLOCK-QPSK-10MHz-100%RB

Date: 4.SEP.2018 16:09:30

ANNEX A.7.   CONDUCTED SPURIOUS EMISSION

Reference

FCC: CFR Part 22.917(b),24.238(a), 27.53(g),27.53(h), 27.53(m)

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(b),24.238(a), 27.53(g),27.53(h), 27.53(m) 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.
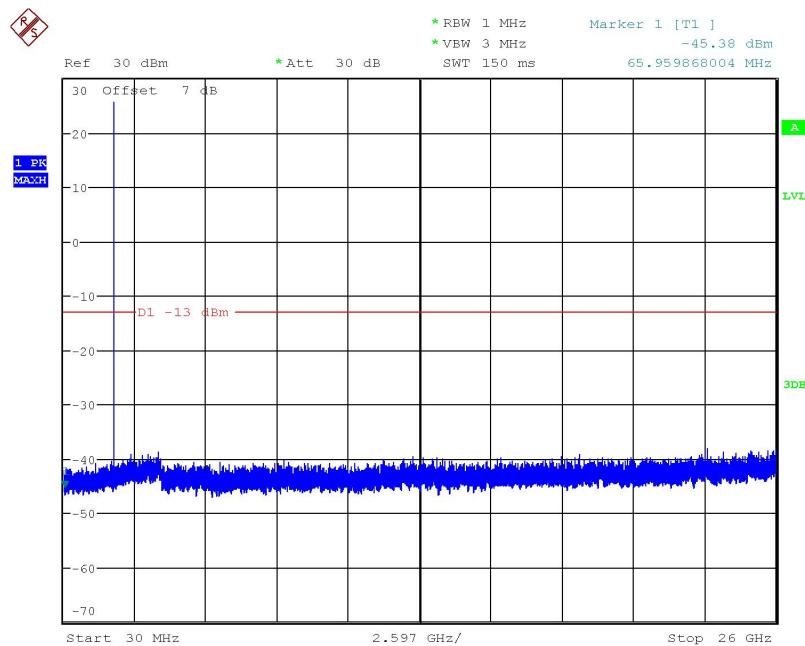
Part 27.53(m)(4) specifies for mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, 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.

A. 7.3 Measurement result

Only worst case result is given below

LTE band 2: 30MHz – 26GHz
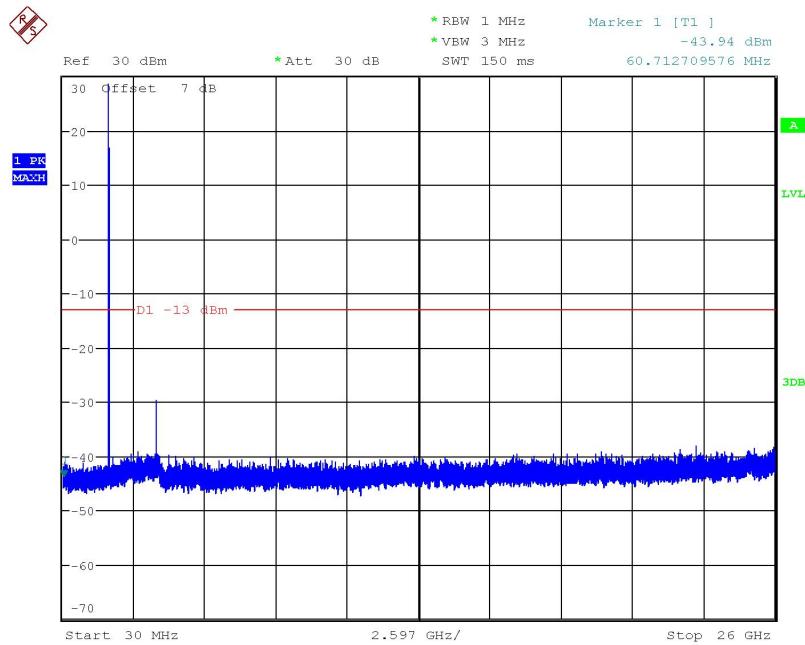
Spurious emission limit –13dBm.

Date: 9.JUN.2018 10:57:50

LTE band 4: 30MHz – 26GHz
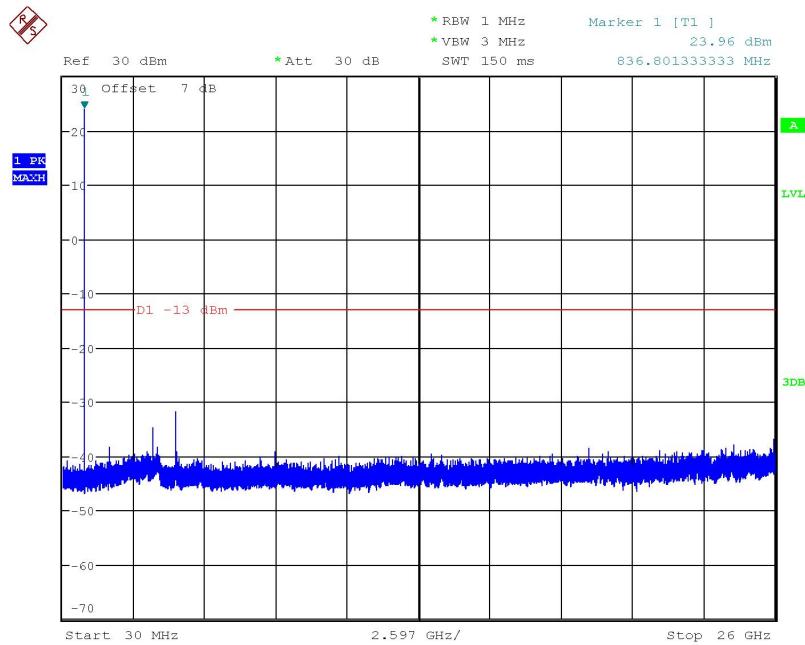
Spurious emission limit –13dBm

Date: 9.JUN.2018 11:03:14

LTE band 5: 30MHz – 26GHz
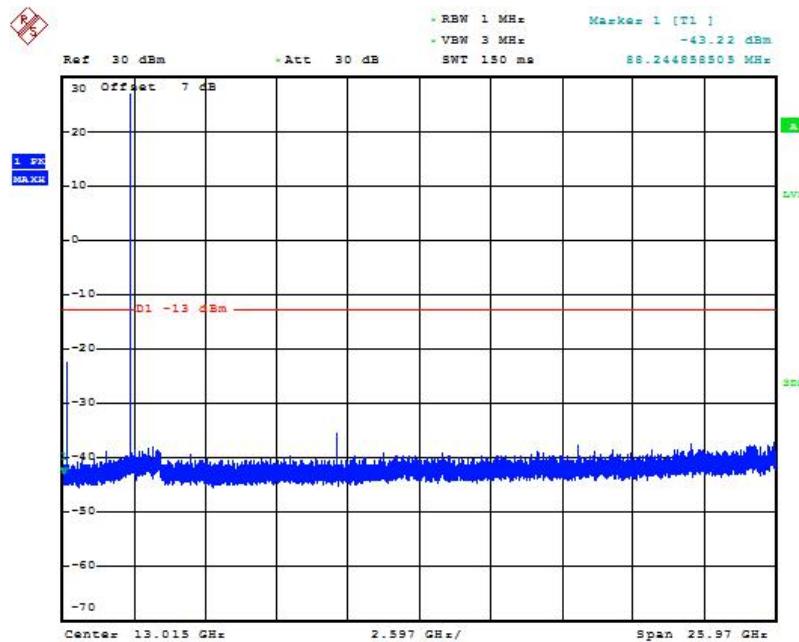
Spurious emission limit –13dBm.

Date: 9.JUN.2018 11:06:21

LTE band 7: 30MHz – 26GHz
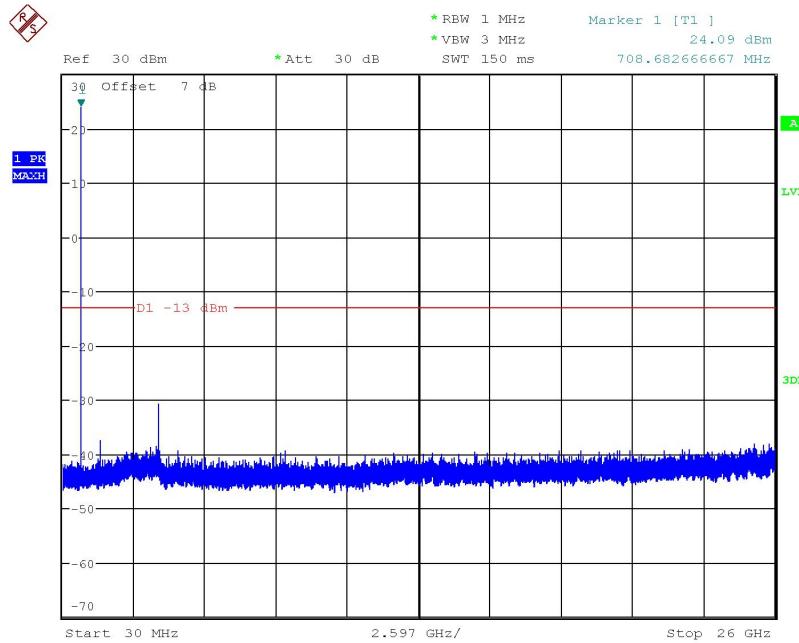
Spurious emission limit –13dBm.

Date: 11.JUL.2018 16:40:09

LTE band 12: 30MHz – 26GHz

Spurious emission limit –13dBm.

Date: 9.JUN.2018 11:09:05