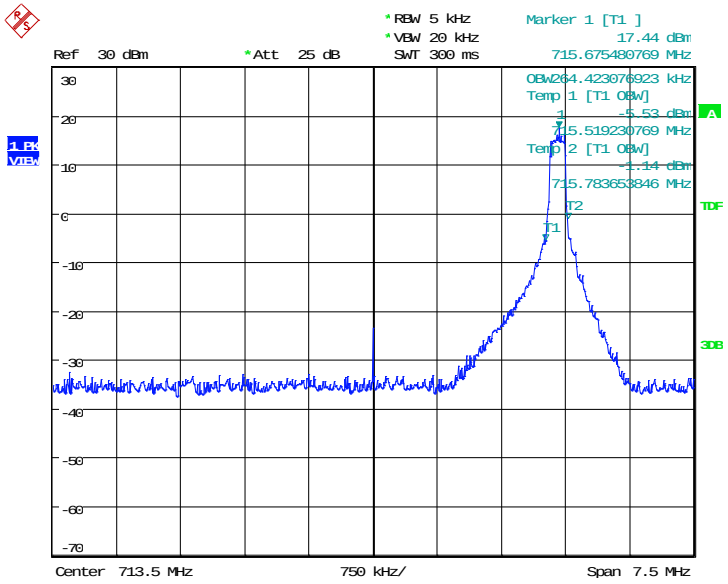
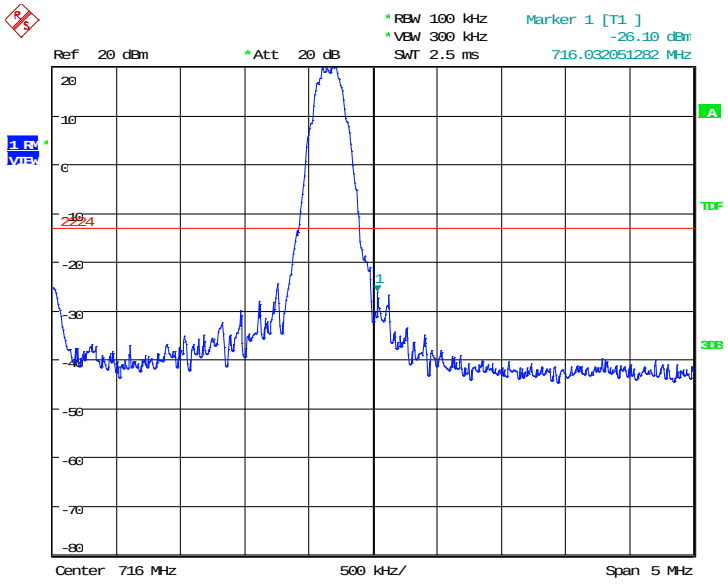
OBW: 1RB-high_offset



Date: 31.MAY.2019 17:07:11

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 31.MAY.2019 17:07:55

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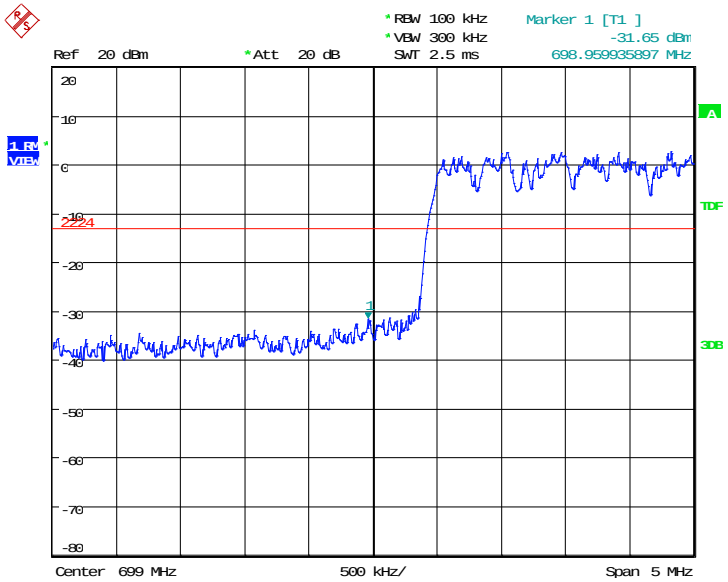
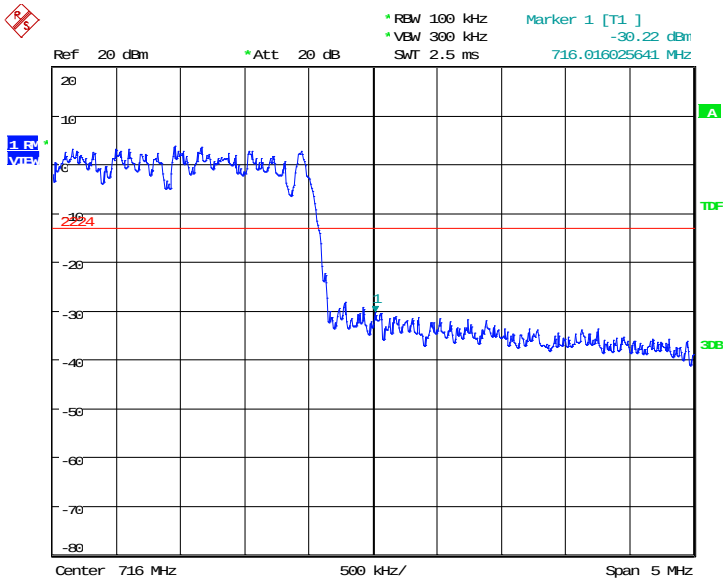
LOW BAND EDGE BLOCK-10MHz-100%RB



Date: 31.MAY.2019 16:49:16

HIGH BAND EDGE BLOCK-10MHz-100%RB



Date: 31.MAY.2019 16:50:02

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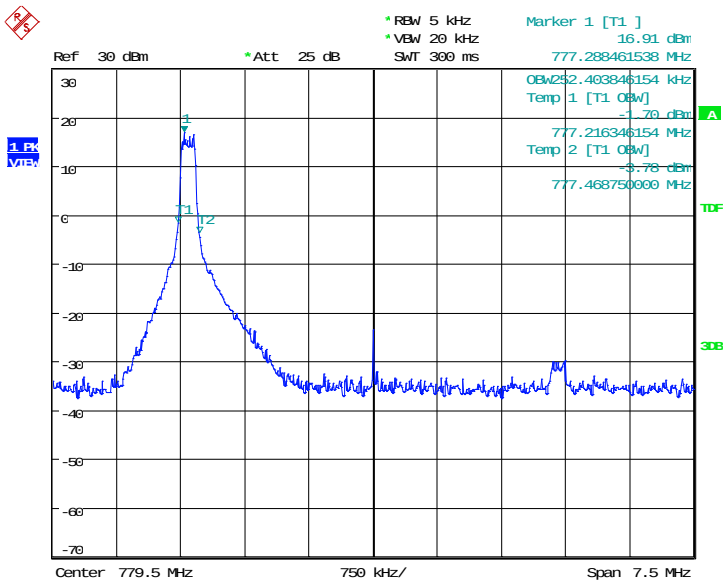
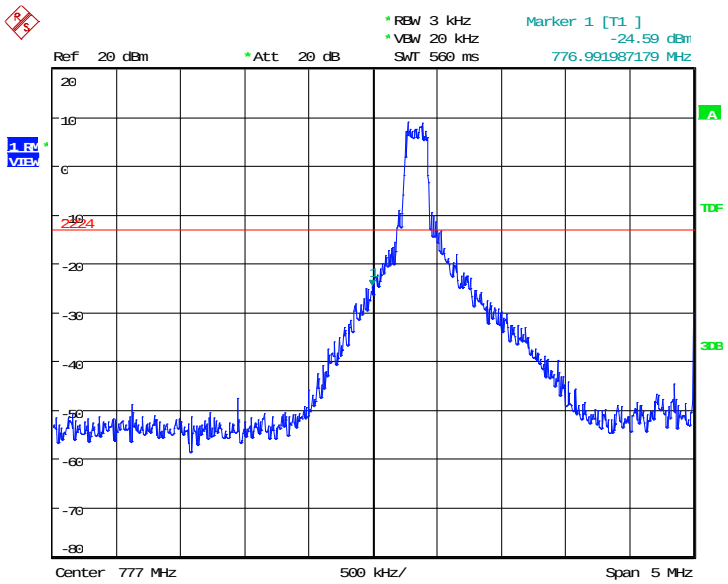
LTE band 13

OBW: 1RB-low_offset



Date: 31.MAY.2019 17:14:35

LOW BAND EDGE BLOCK-1RB-low_offset



Date: 31.MAY.2019 17:15:19

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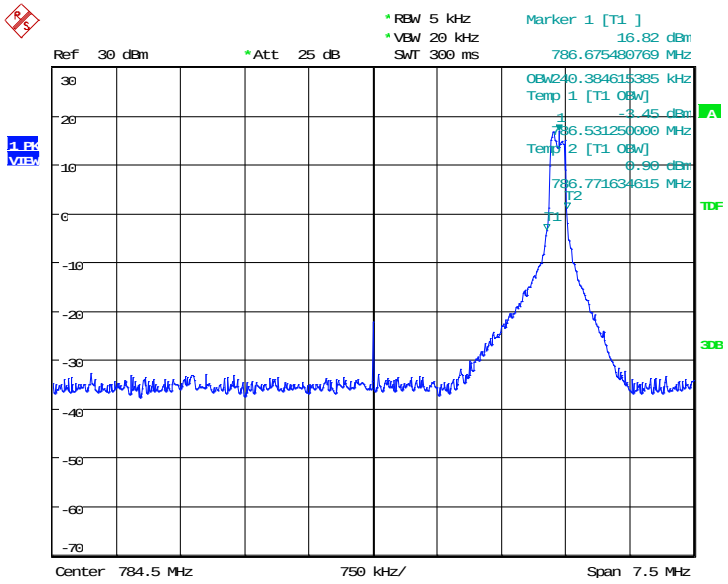
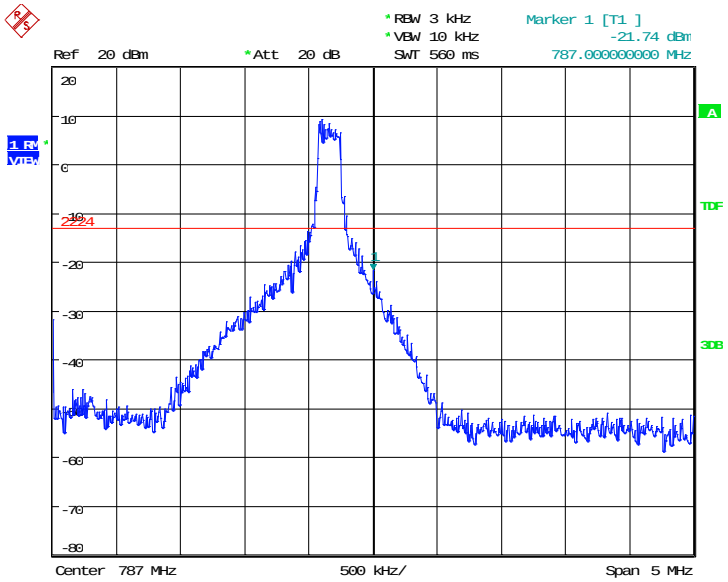
OBW: 1RB-high_offset



Date: 31.MAY.2019 17:00:25

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 31.MAY.2019 17:01:09

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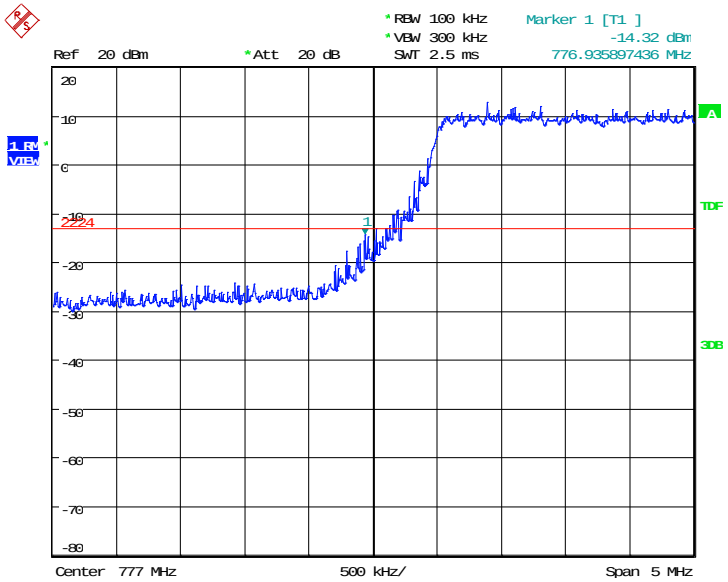
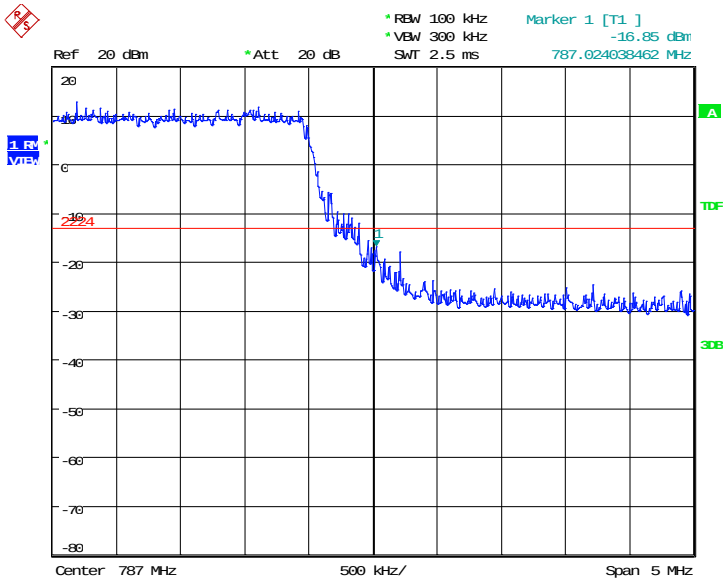
LOW BAND EDGE BLOCK-5MHz-100%RB



Date: 31.MAY.2019 16:46:09

HIGH BAND EDGE BLOCK-5MHz-100%RB



Date: 31.MAY.2019 16:46:55

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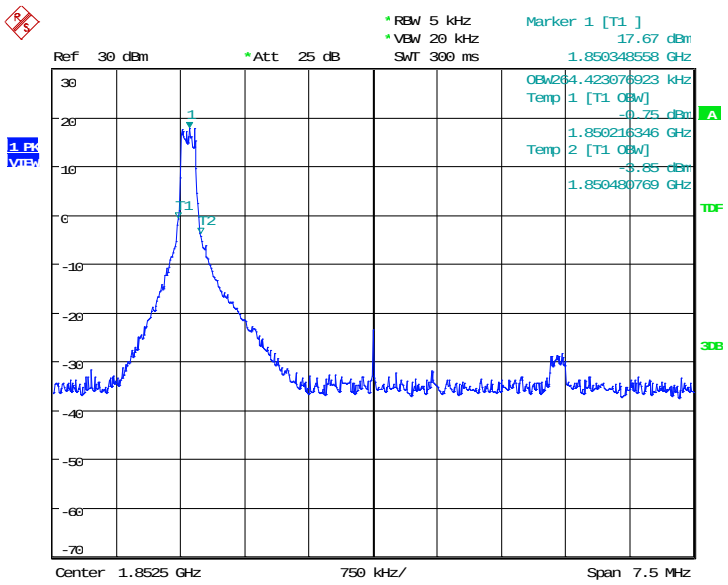
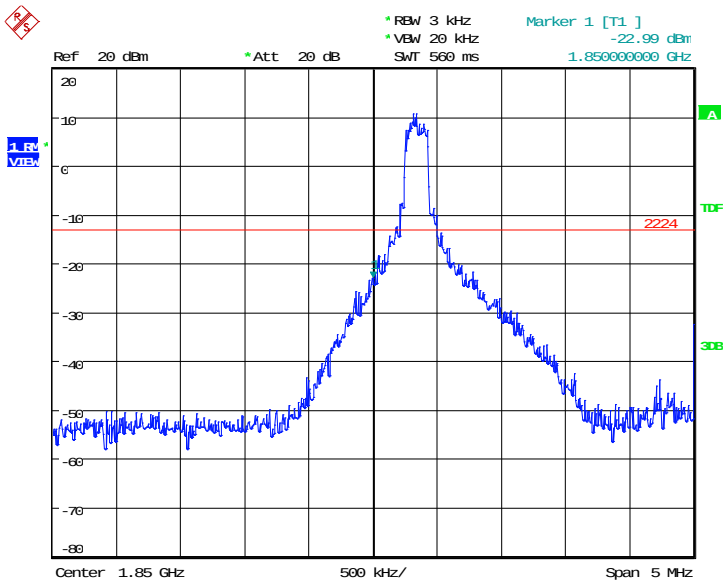
LTE band 25

OBW: 1RB-low_offset



Date: 31.MAY.2019 17:23:01

LOW BAND EDGE BLOCK-1RB-low_offset



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

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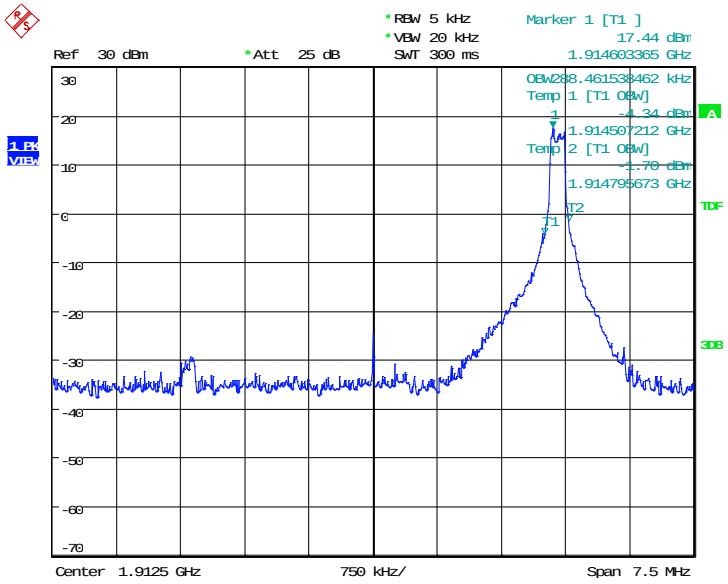
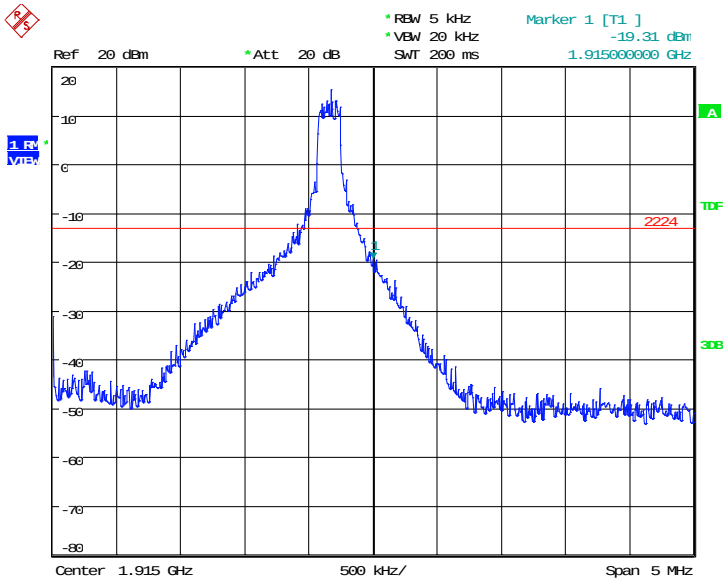
OBW: 1RB-high_offset



HIGH BAND EDGE BLOCK-1RB-high_offset



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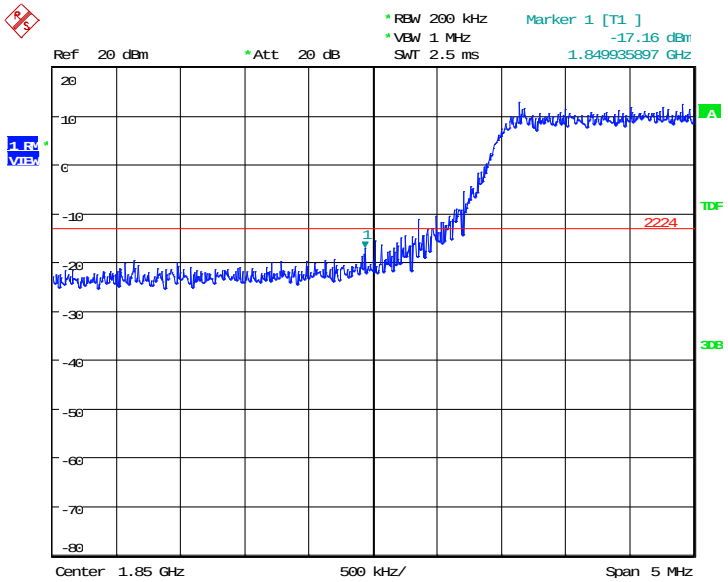
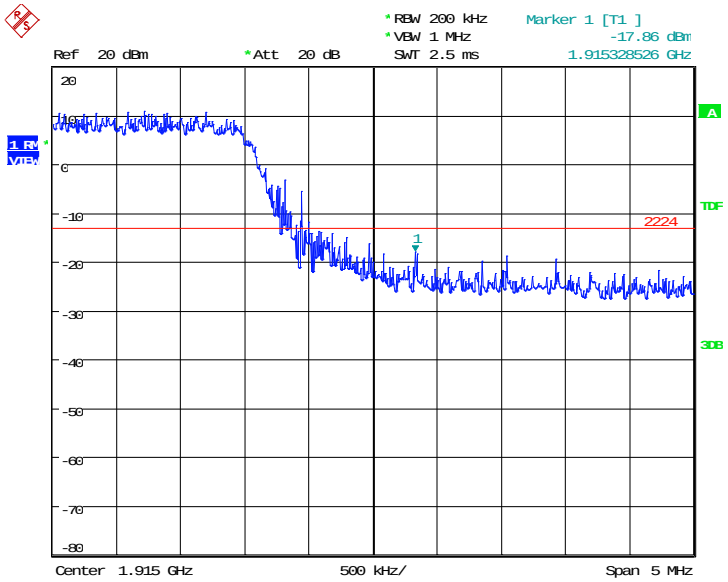
LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 31.MAY.2019 16:54:47

HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 31.MAY.2019 16:55:33

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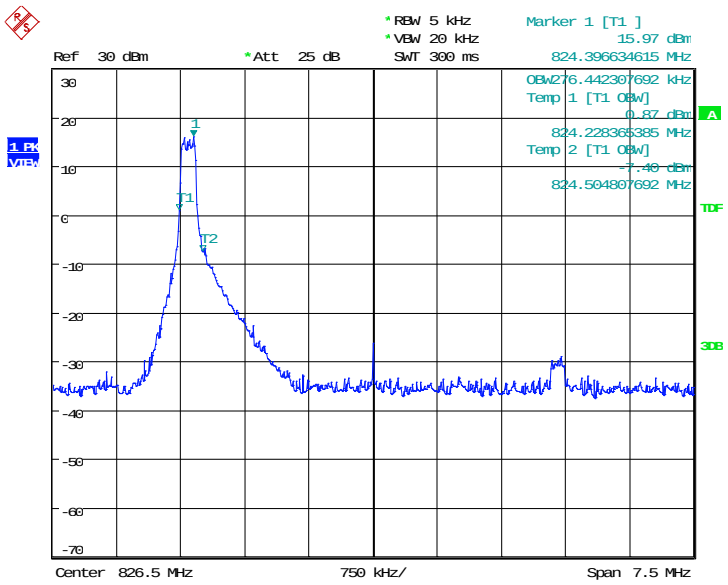
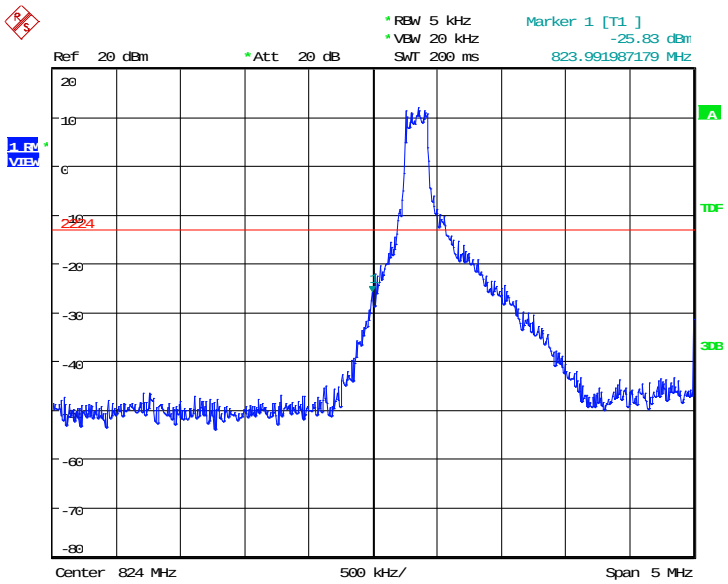
LTE band 26(824MHz-849MHz)

OBW: 1RB-low_offset



Date: 31.MAY.2019 17:24:40

LOW BAND EDGE BLOCK-1RB-low_offset



Date: 31.MAY.2019 17:25:24

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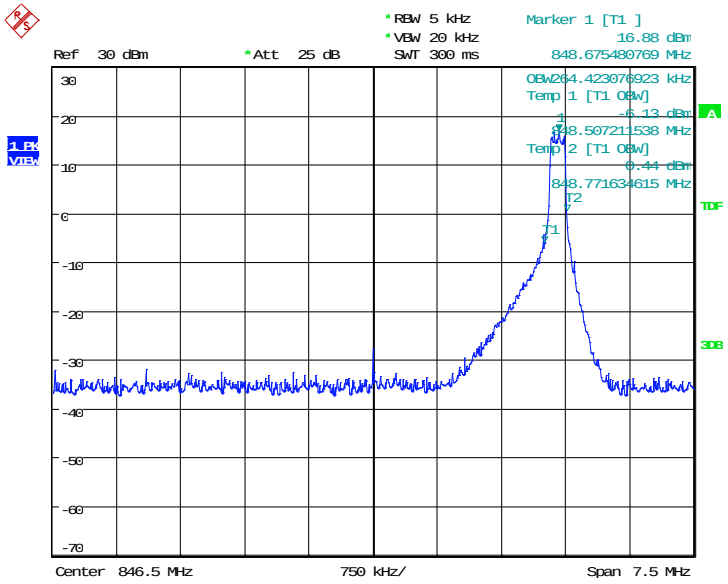
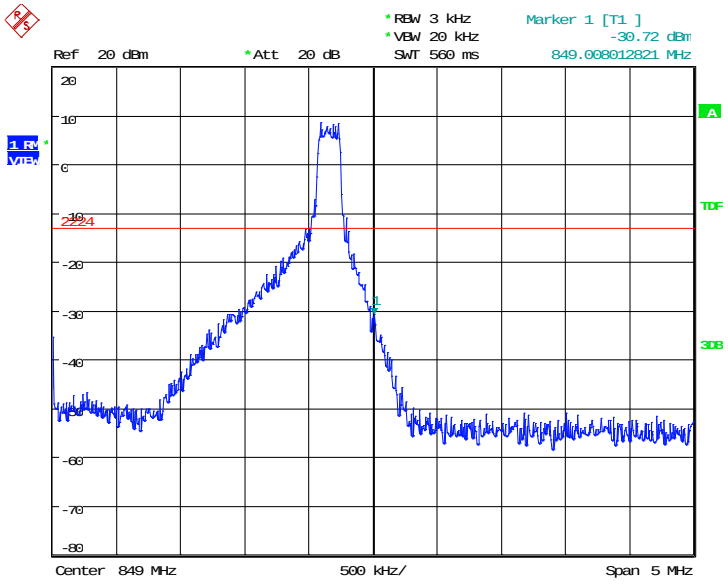
OBW: 1RB-high_offset



Date: 31.MAY.2019 17:10:30

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 31.MAY.2019 17:11:14

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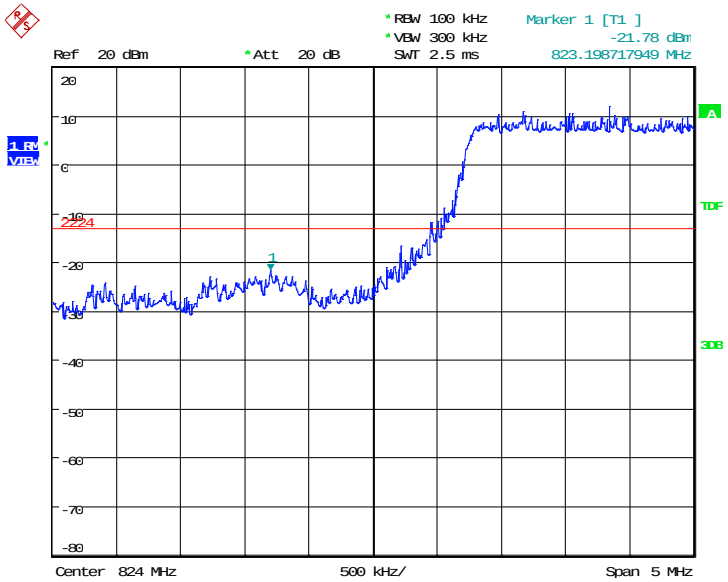
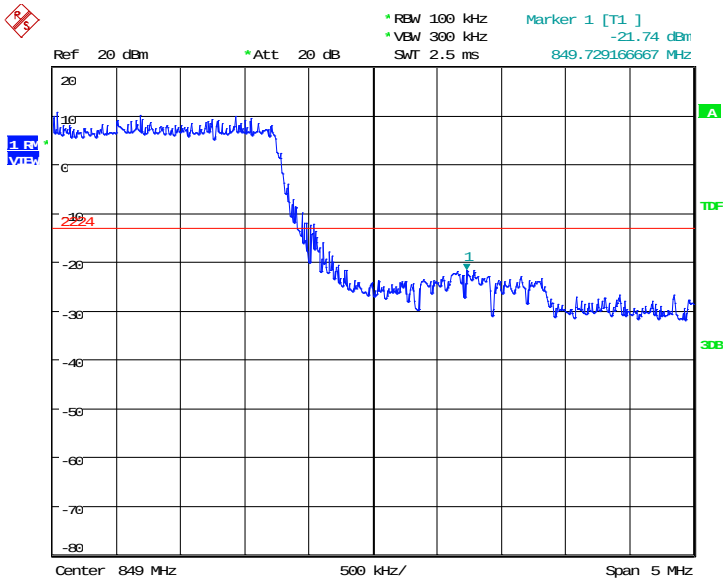
LOW BAND EDGE BLOCK-15MHz-100%RB



Date: 31.MAY.2019 16:42:28

HIGH BAND EDGE BLOCK-15MHz-100%RB



Date: 31.MAY.2019 16:43:14

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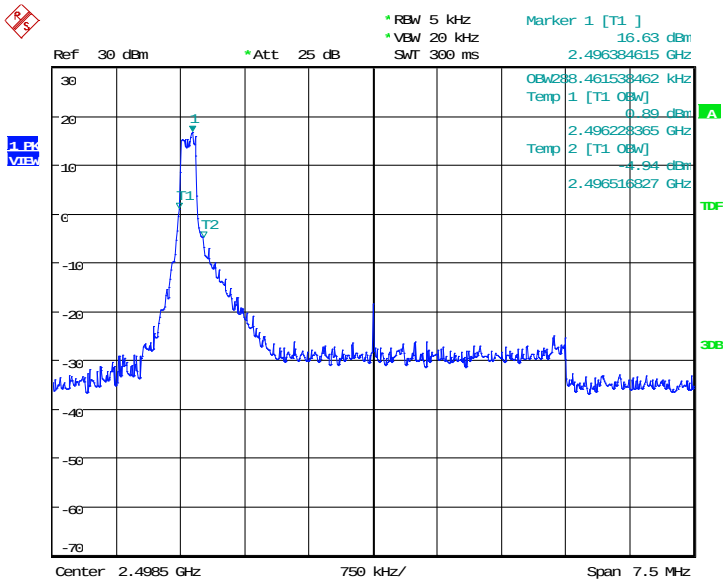
Normal Power

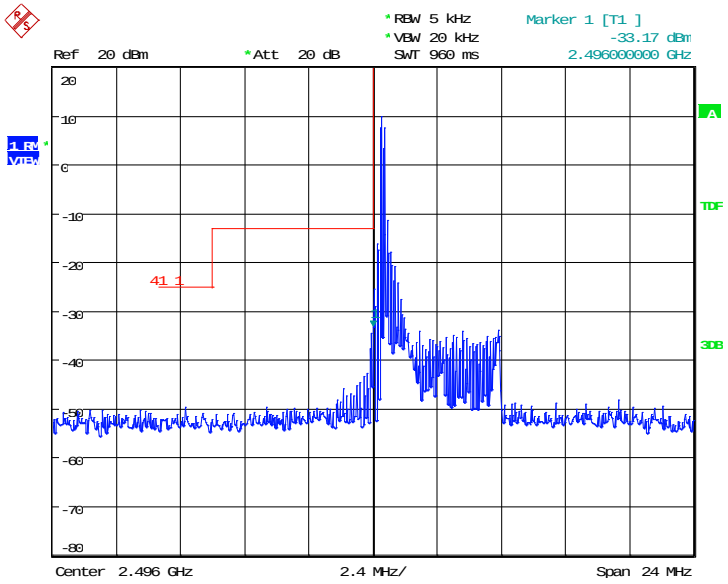
LTE band 41

OBW: 1RB-low_offset



Date: 3.JUN.2019 12:17:59

LOW BAND EDGE BLOCK-1RB-low_offset



Date: 3.JUN.2019 12:18:43

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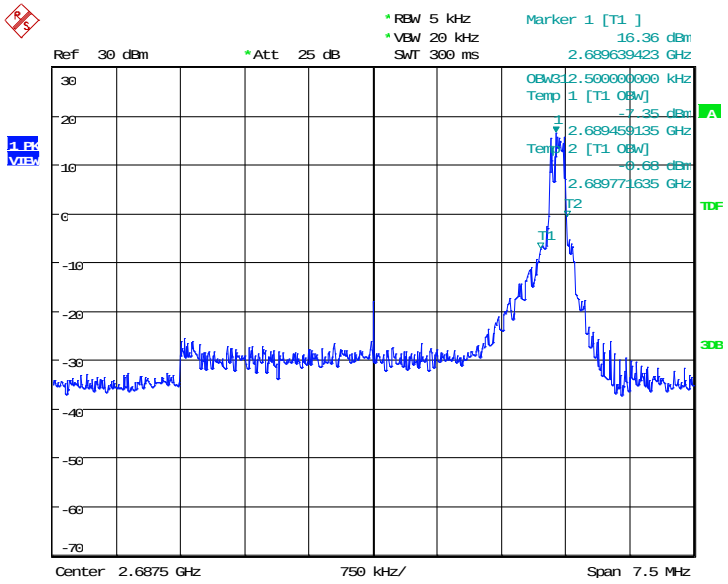
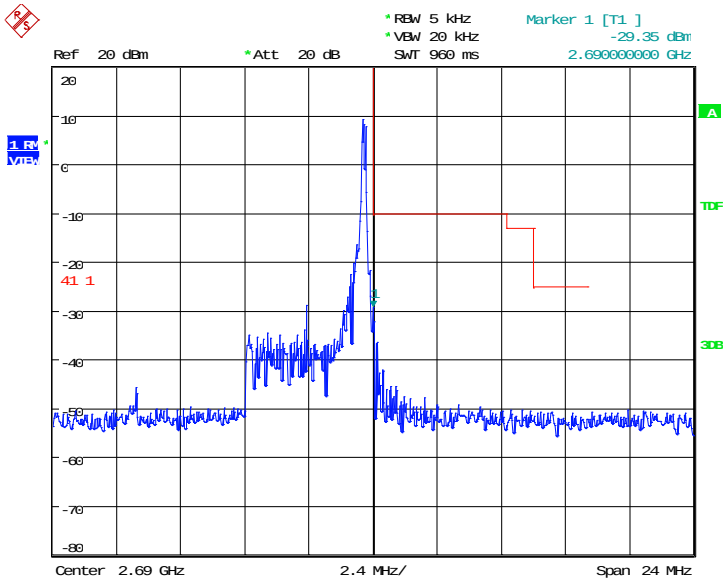
OBW: 1RB-high_offset



Date: 3.JUN.2019 12:15:47

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 3.JUN.2019 12:16:31

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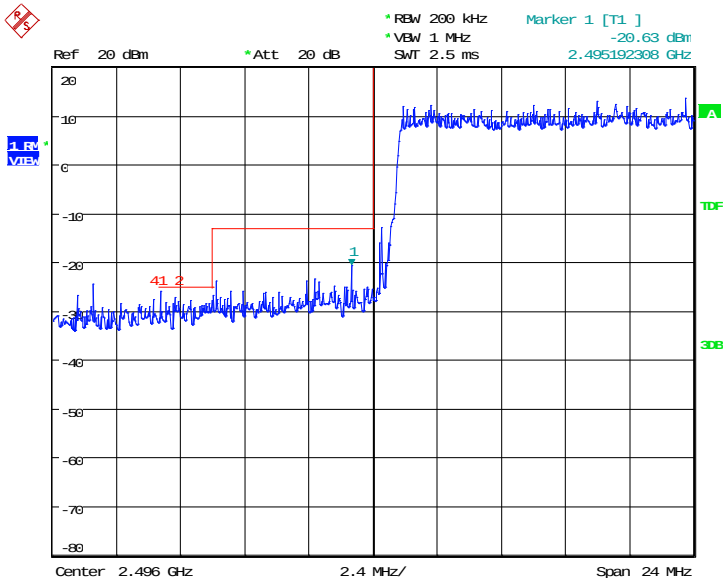
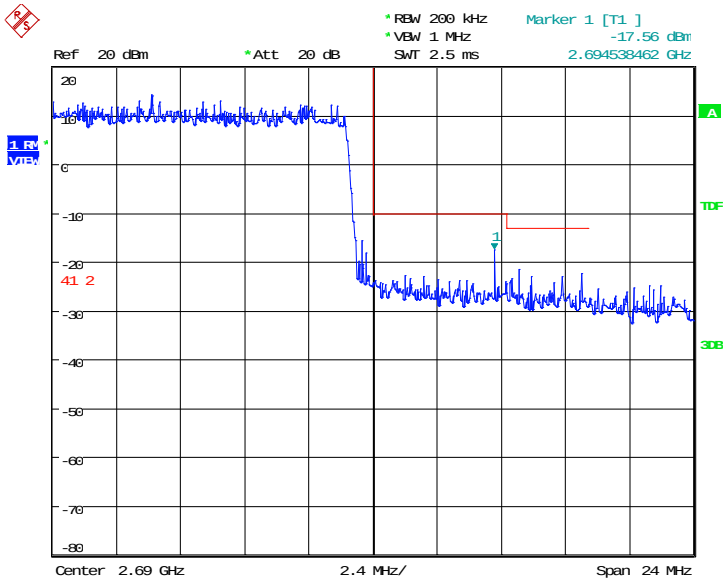
LOW BAND EDGE BLOCK-10MHz-100%RB



HIGH BAND EDGE BLOCK-10MHz-100%RB



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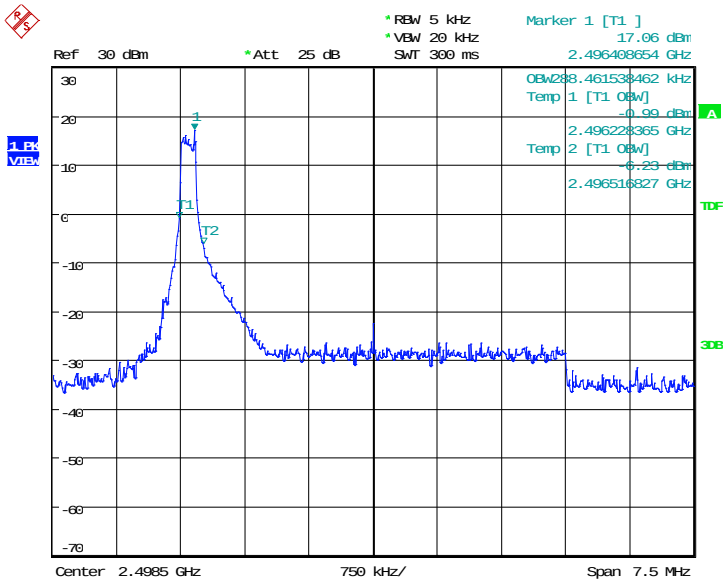
HPUE

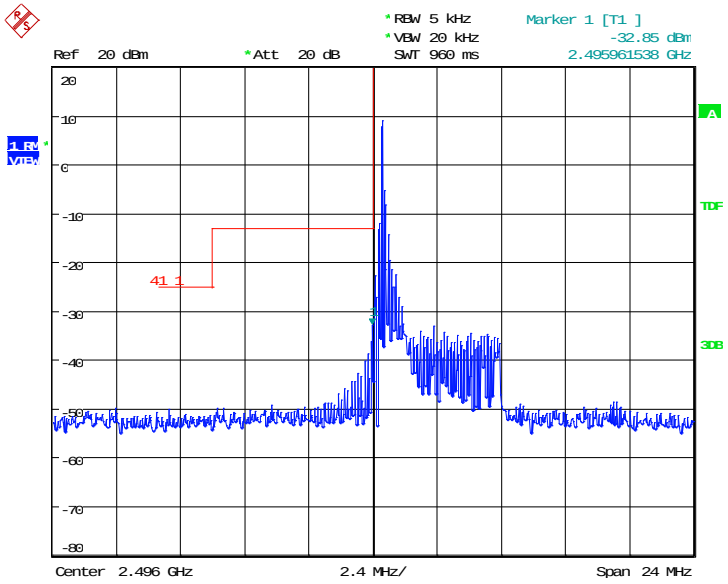
LTE band 41

OBW: 1RB-low_offset



Date: 31.MAY.2019 16:18:51

LOW BAND EDGE BLOCK-1RB-low_offset



Date: 31.MAY.2019 16:19:35

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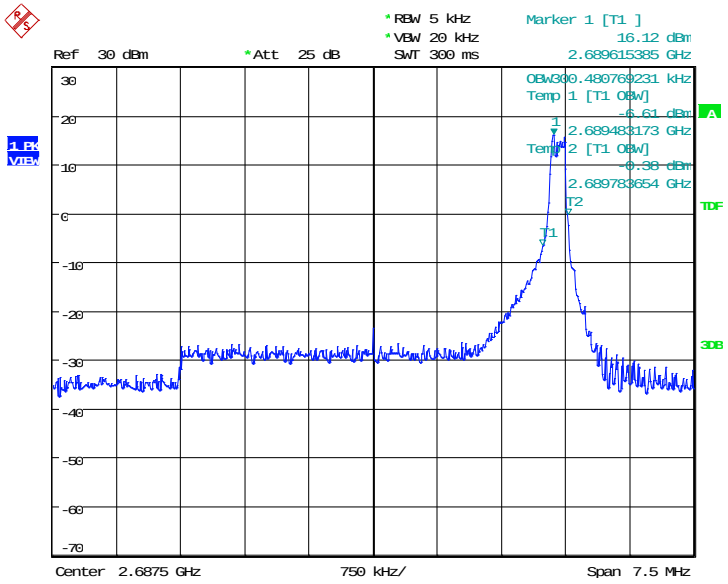
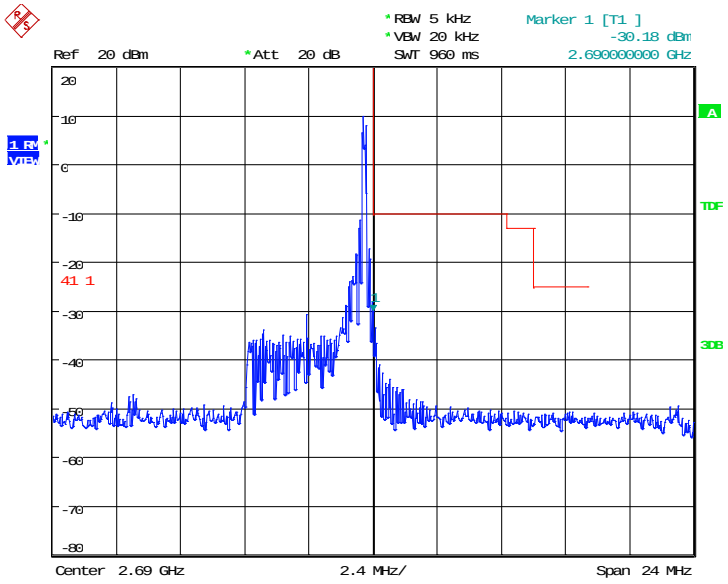
OBW: 1RB-high_offset



Date: 31.MAY.2019 16:16:56

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 31.MAY.2019 16:17:40

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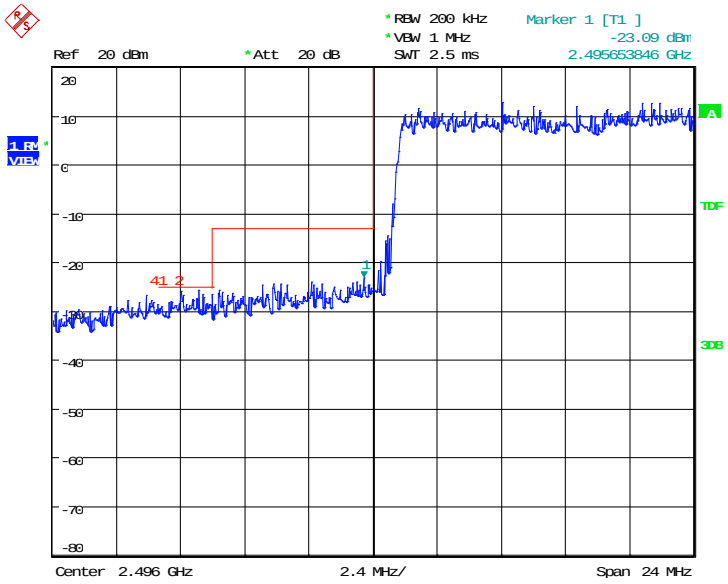
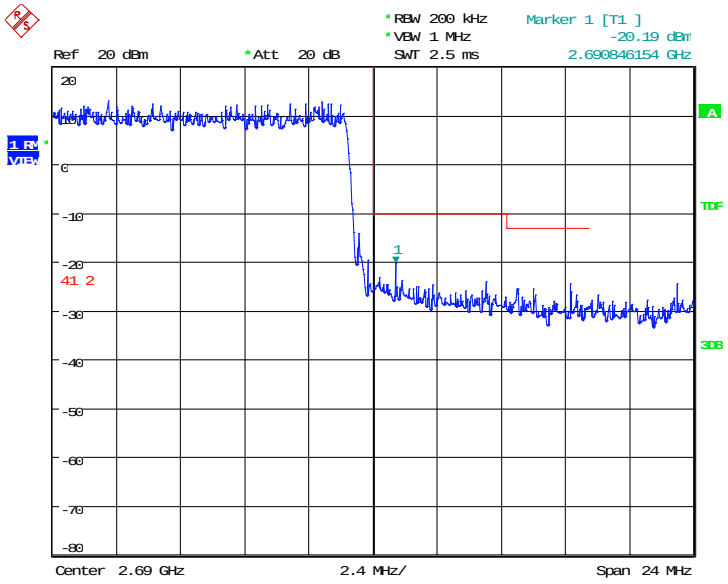
LOW BAND EDGE BLOCK-10MHz-100%RB



HIGH BAND EDGE BLOCK-10MHz-100%RB



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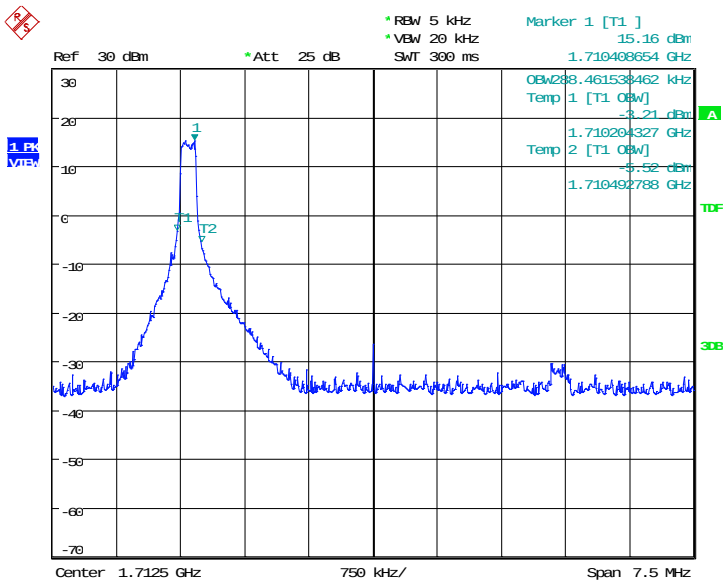
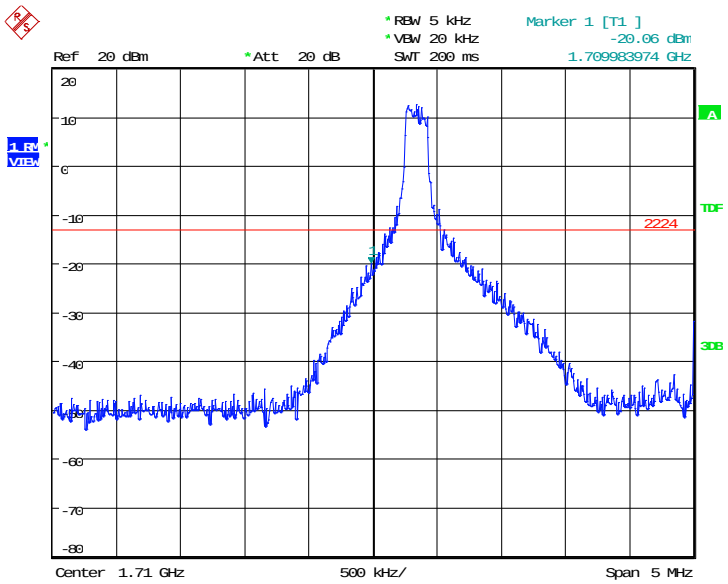
LTE band 66

OBW: 1RB-low_offset



Date: 31.MAY.2019 17:26:20

LOW BAND EDGE BLOCK-1RB-low_offset



Date: 31.MAY.2019 17:27:04

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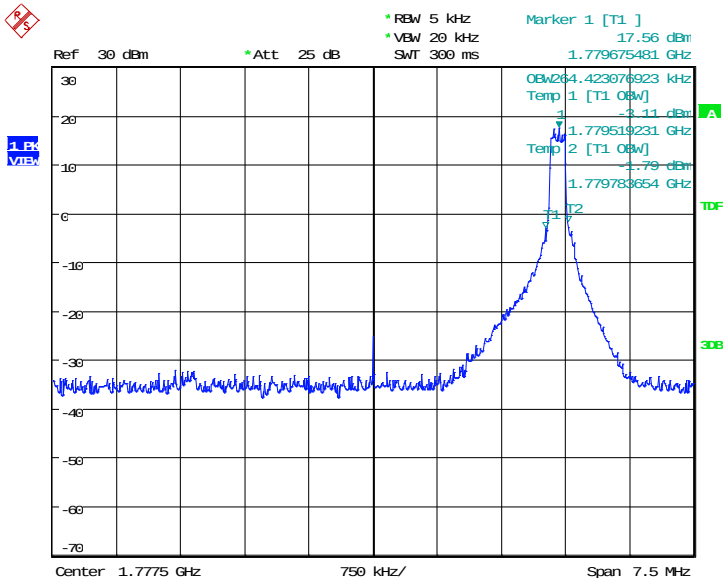
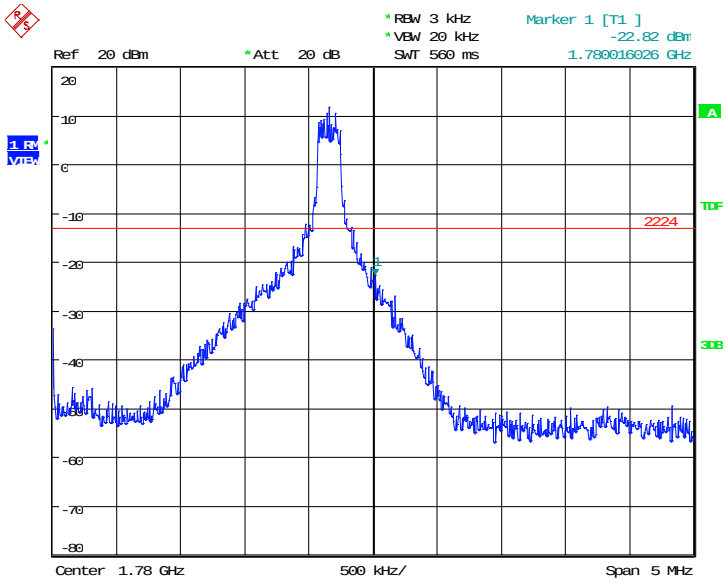
OBW: 1RB-high_offset



Date: 31.MAY.2019 17:12:10

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 31.MAY.2019 17:12:54

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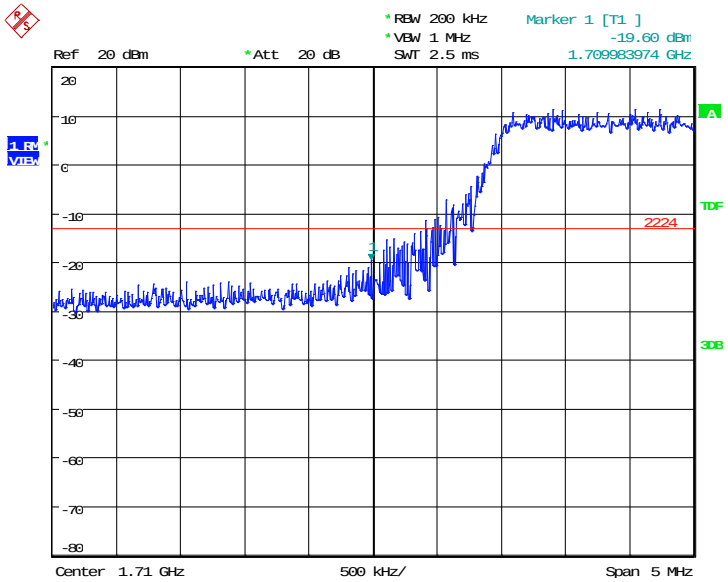
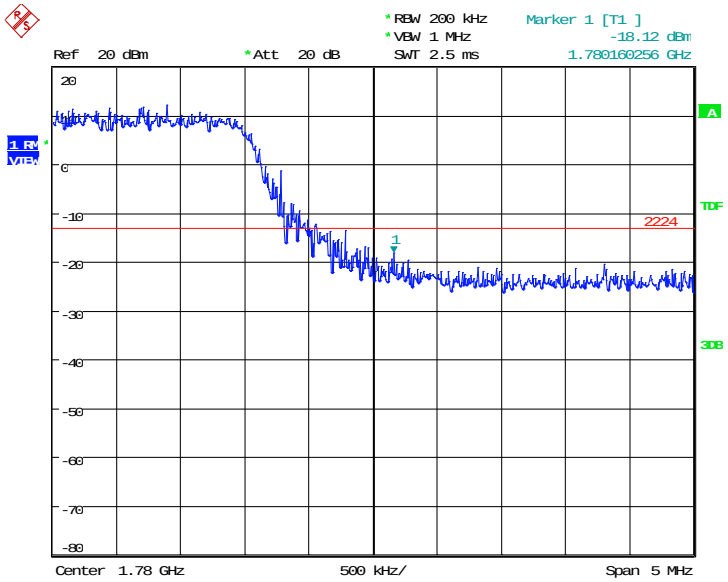
LOW BAND EDGE BLOCK-20MHz-100%RB



HIGH BAND EDGE BLOCK-20MHz-100%RB



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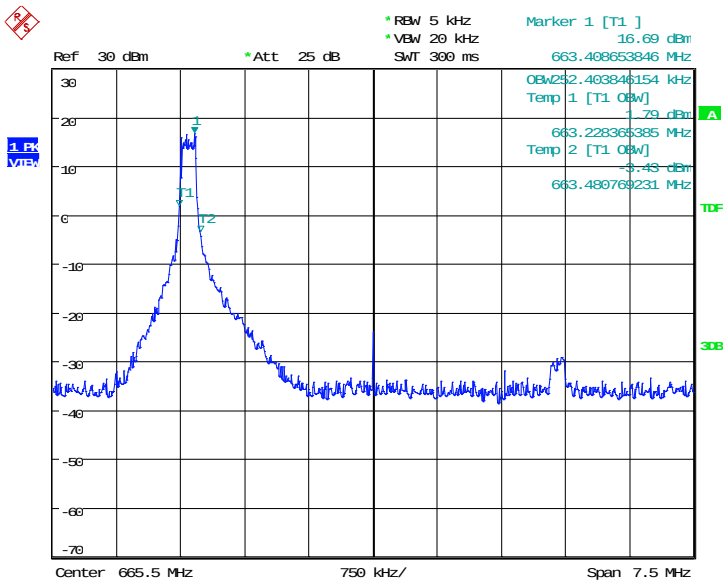
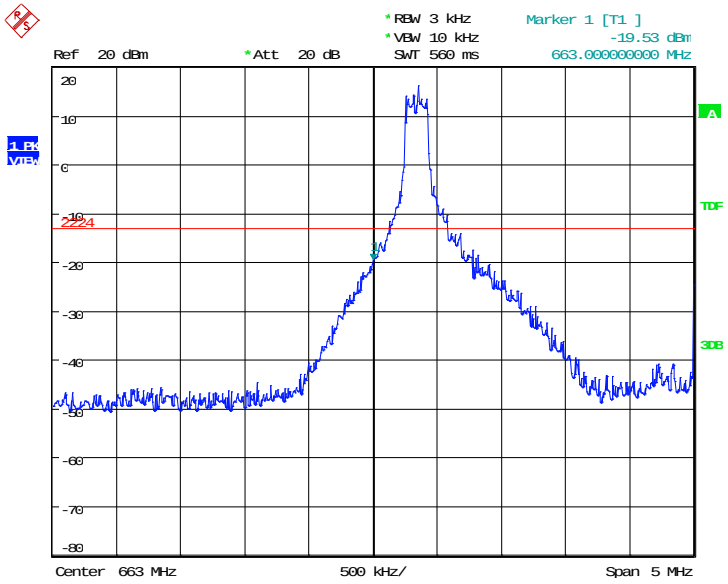
LTE band 71

OBW: 1RB-low_offset



LOW BAND EDGE BLOCK-1RB-low_offset



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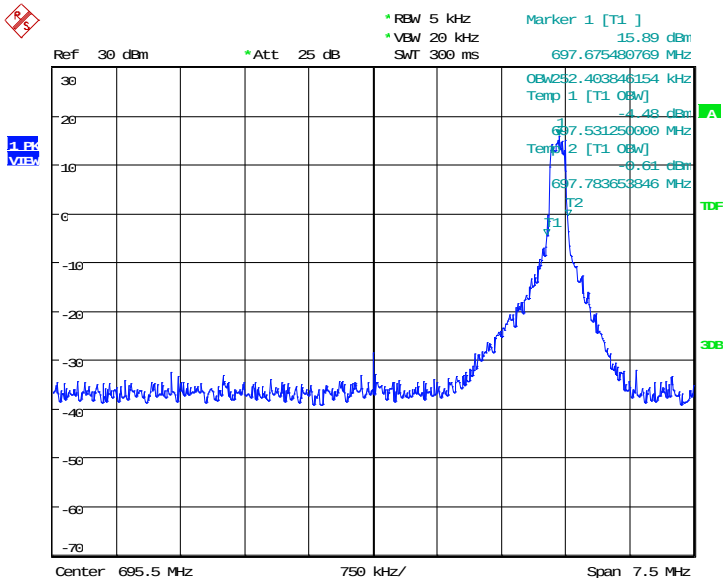
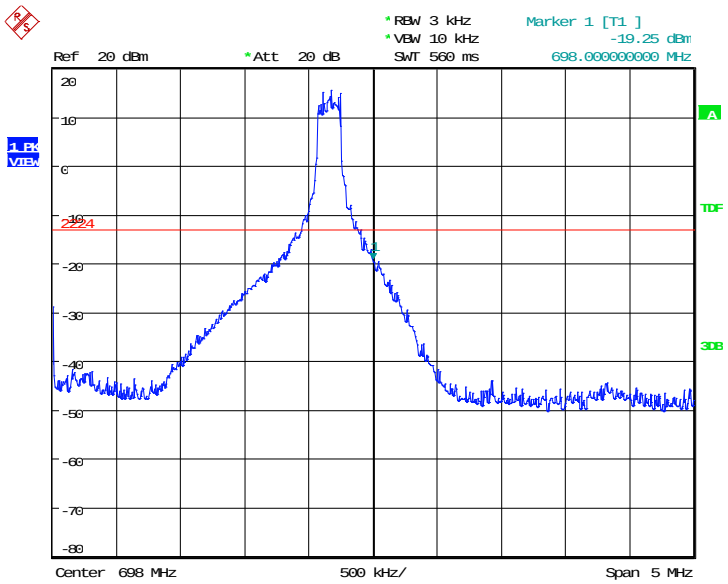
OBW: 1RB-high_offset



Date: 10.JUN.2019 14:07:54

HIGH BAND EDGE BLOCK-1RB-high_offset



Date: 10.JUN.2019 14:08:55

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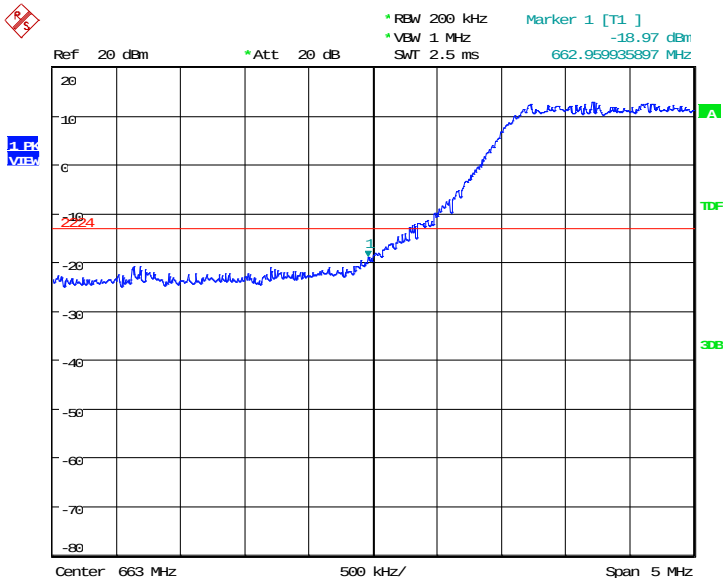
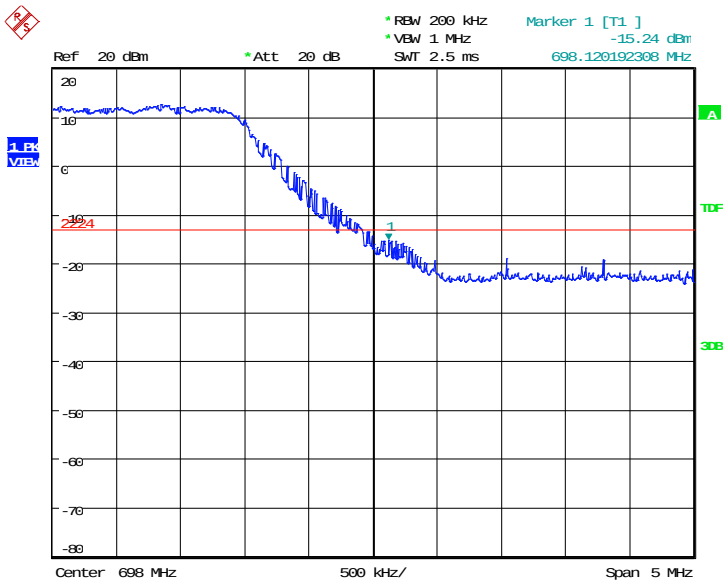
LOW BAND EDGE BLOCK-20MHz-100%RB



Date: 10.JUN.2019 14:11:17

HIGH BAND EDGE BLOCK-20MHz-100%RB



Date: 10.JUN.2019 14:13:16

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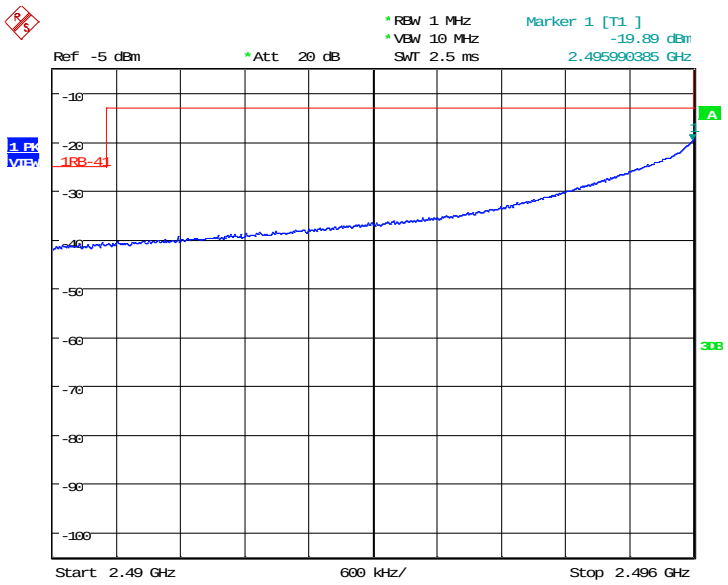
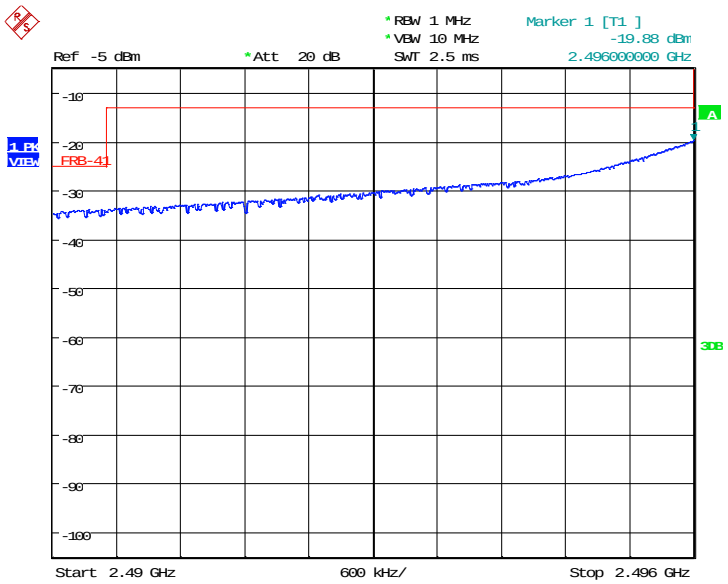
LTE Band CA_41C

LOW BAND EDGE BLOCK-5MHz+20MHz-1RB



Date: 11.JUN.2019 07:28:50

LOW BAND EDGE BLOCK-5MHz+20MHz-100%RB



Date: 11.JUN.2019 07:35:23

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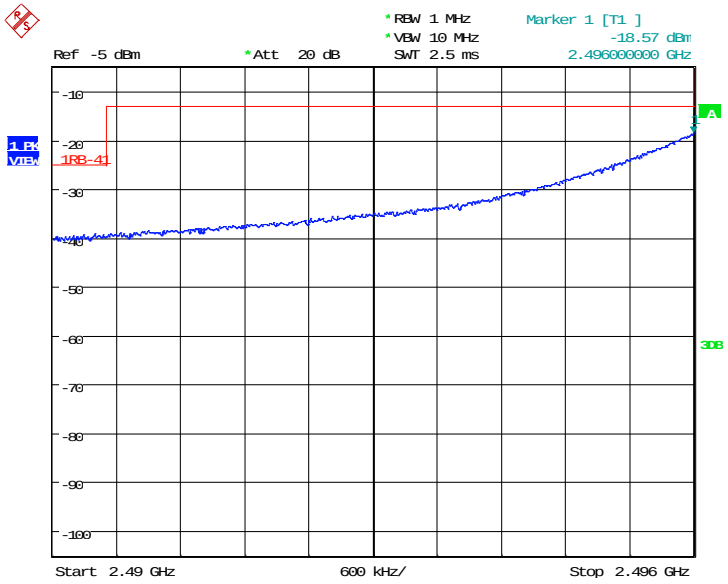
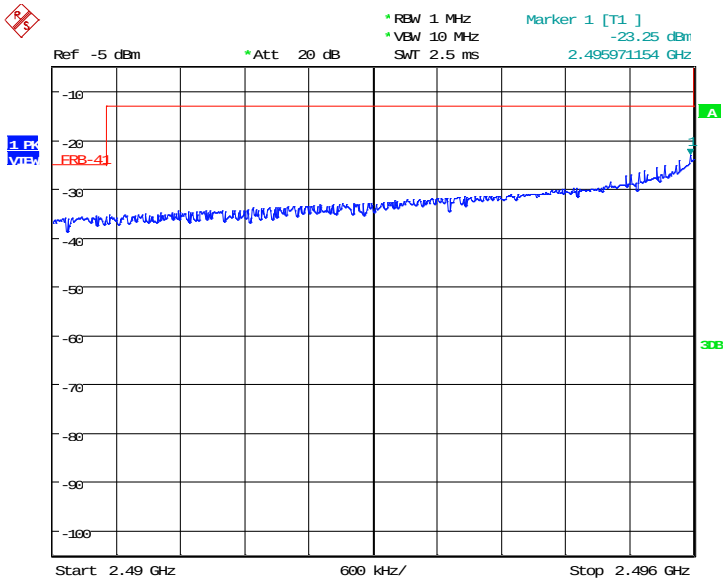
LOW BAND EDGE BLOCK-10MHz+20MHz-1RB



Date: 11.JUN.2019 07:49:08

LOW BAND EDGE BLOCK-10MHz+20MHz-100%RB



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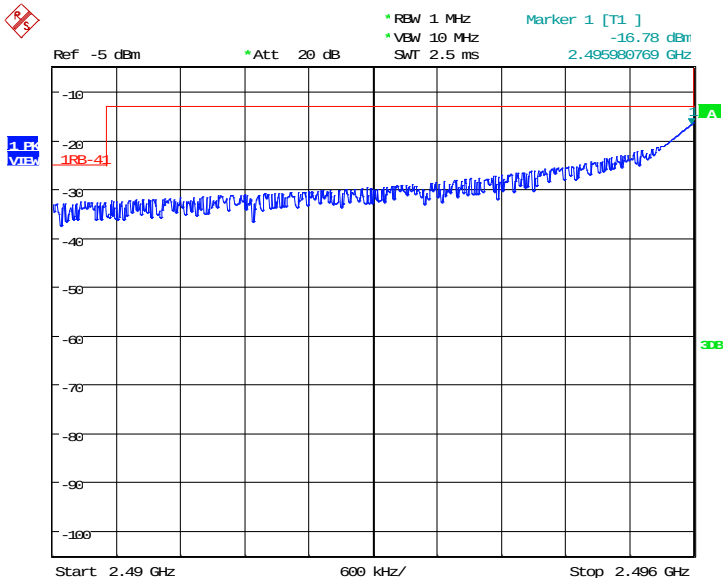
LOW BAND EDGE BLOCK-15MHz+15MHz-1RB



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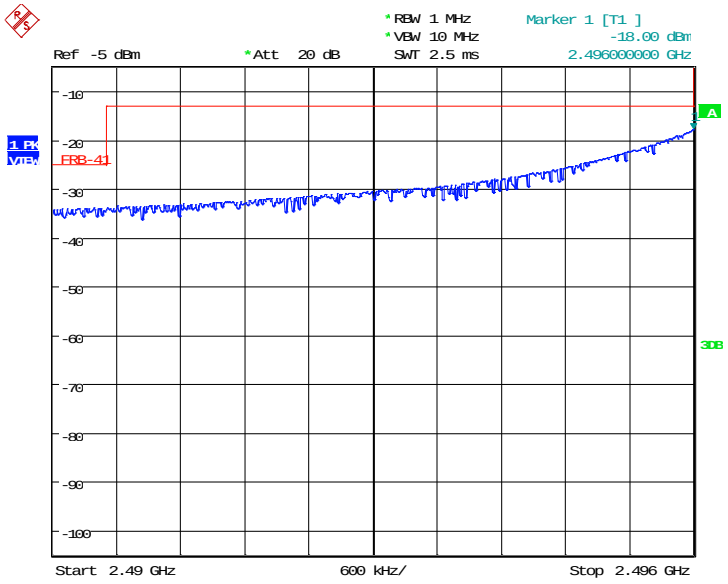
LOW BAND EDGE BLOCK-15MHz+15MHz-100%RB



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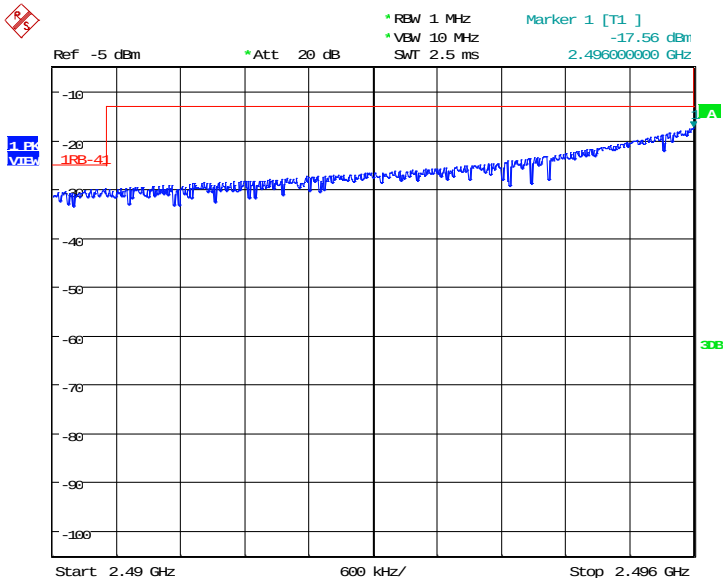
LOW BAND EDGE BLOCK-15MHz+20MHz-1RB



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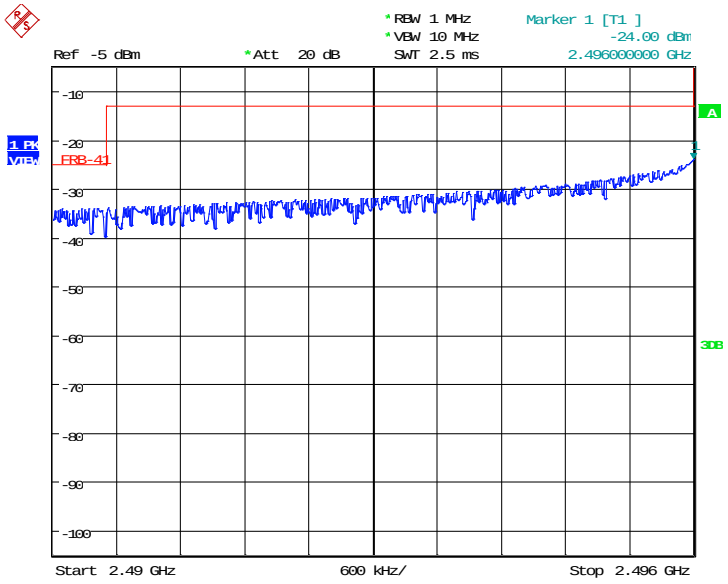
LOW BAND EDGE BLOCK-15MHz+20MHz-100%RB



Date: 11.JUN.2019 08:20:35

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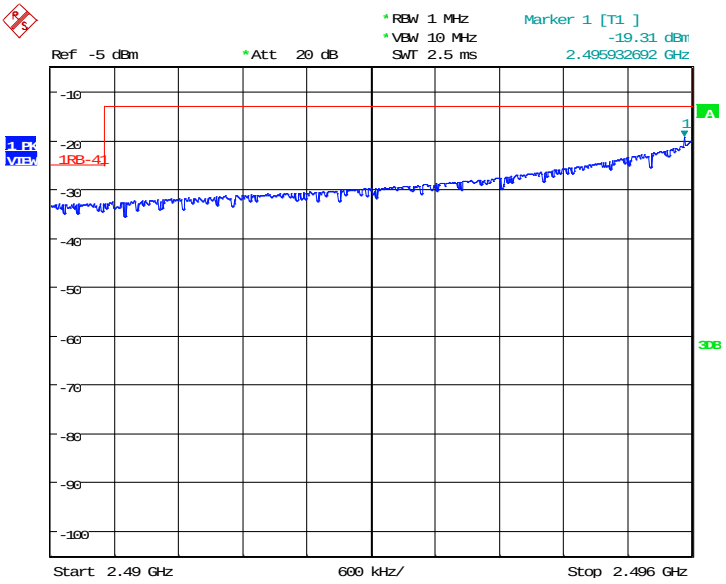
LOW BAND EDGE BLOCK-20MHz+20MHz-1RB



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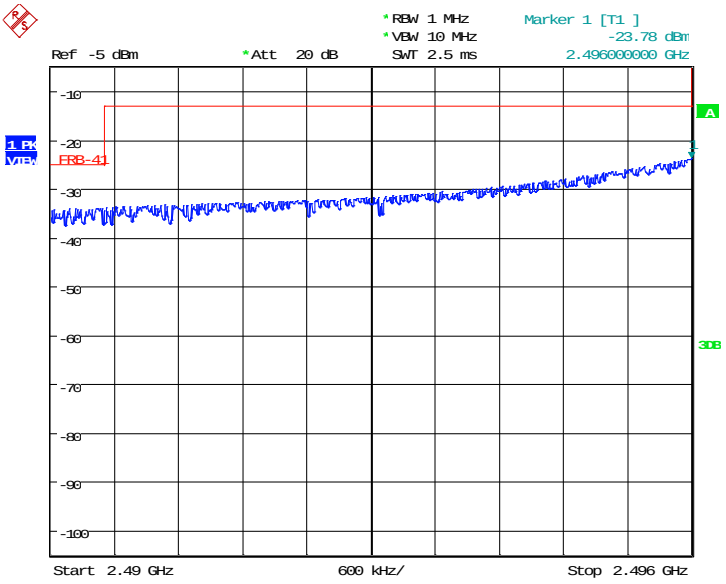
LOW BAND EDGE BLOCK-20MHz+20MHz-100%RB



Date: 11.JUN.2019 08:25:25

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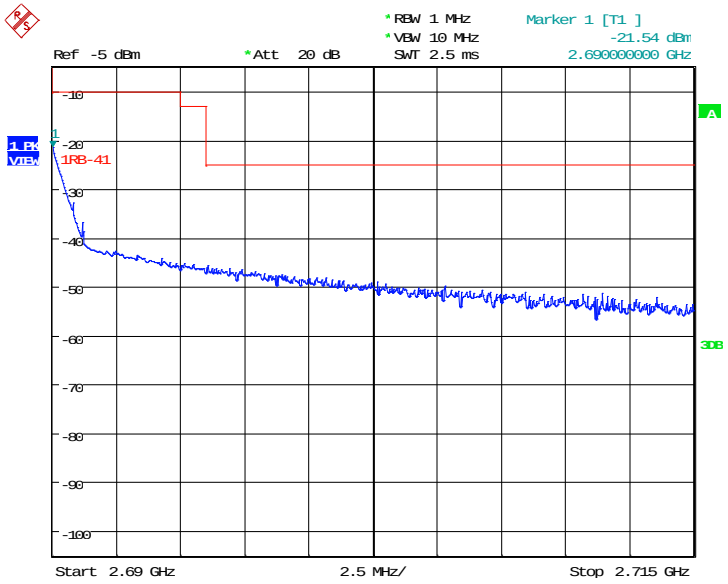
HIGH BAND EDGE BLOCK-20MHz+5MHz-1RB



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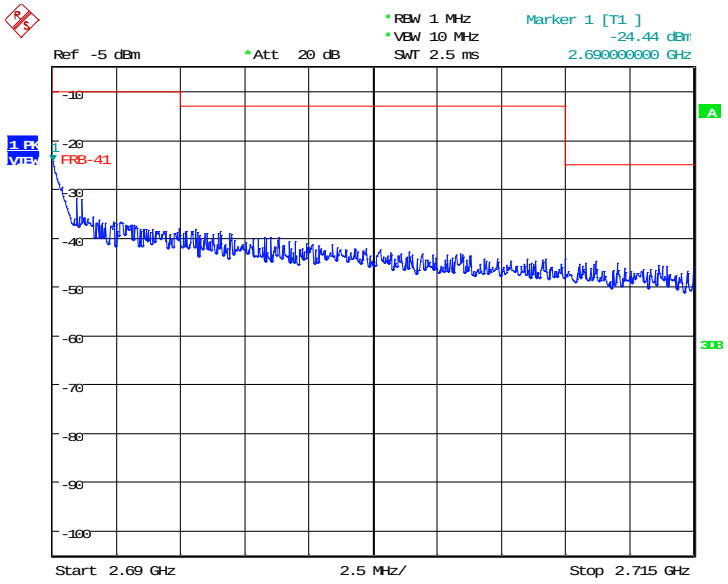
HIGH BAND EDGE BLOCK-20MHz+5MHz-100%RB



Date: 11.JUN.2019 09:08:42

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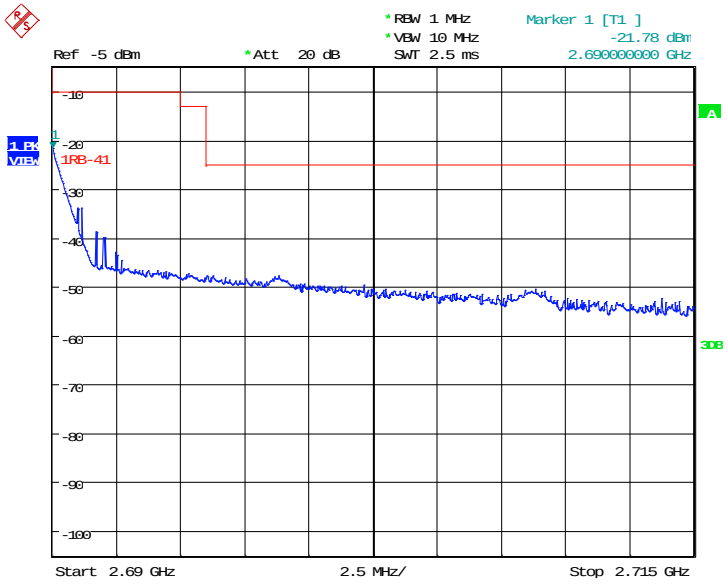
HIGH BAND EDGE BLOCK-20MHz+10MHz-1RB



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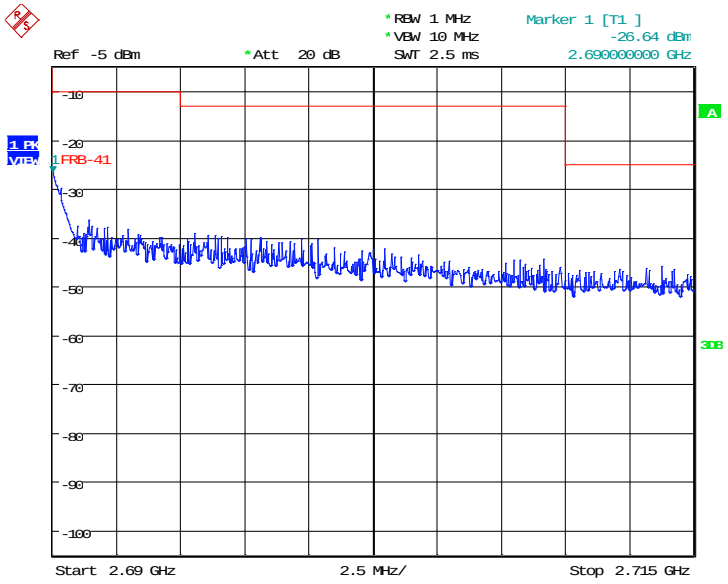
HIGH BAND EDGE BLOCK-20MHz+10MHz-100%RB



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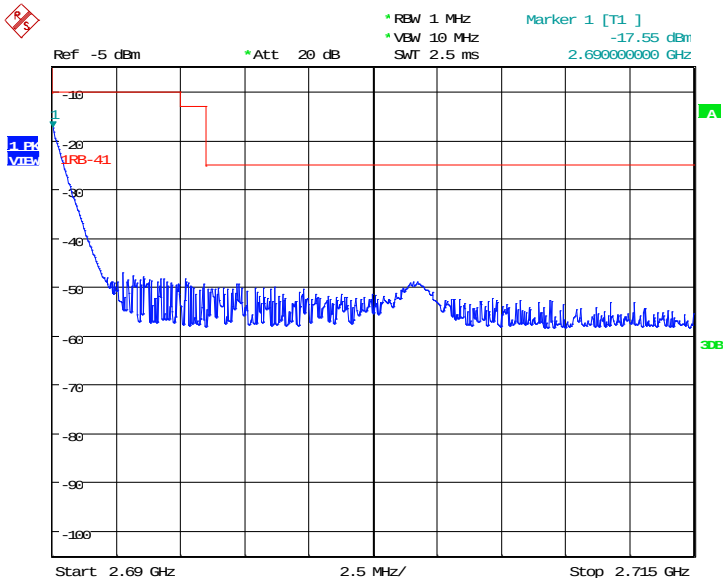
HIGH BAND EDGE BLOCK-15MHz+15MHz-1RB



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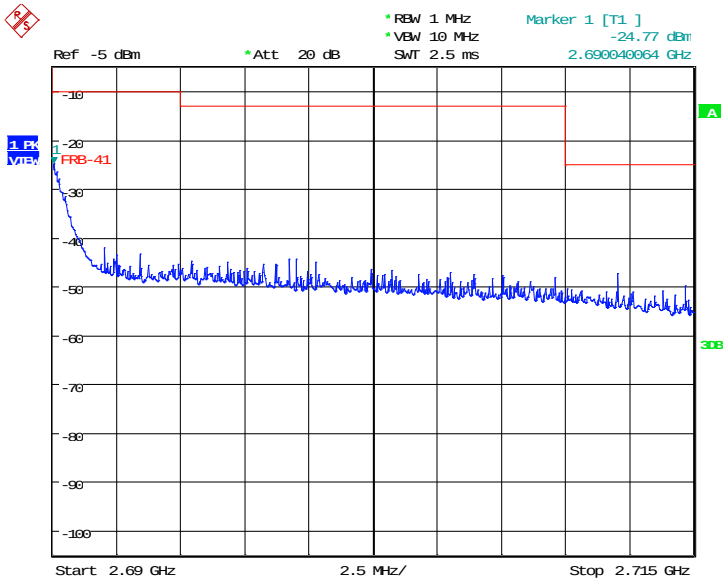
HIGH BAND EDGE BLOCK-15MHz+15MHz-100%RB



Date: 11.JUN.2019 09:23:52

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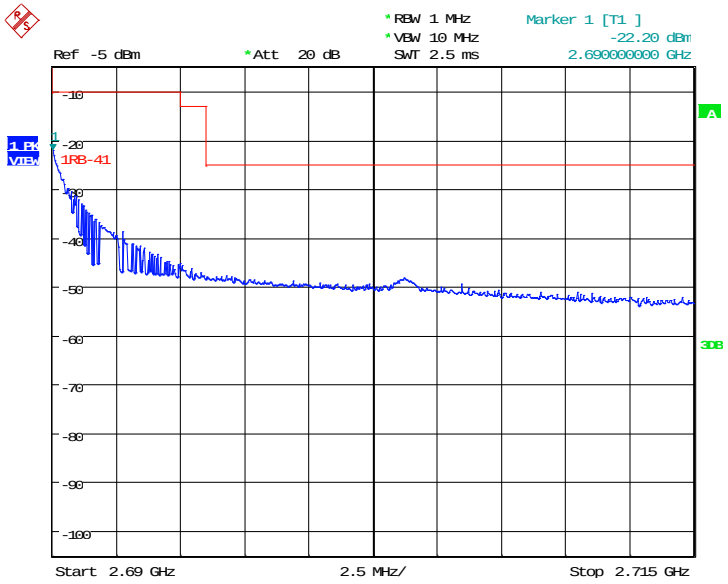
HIGH BAND EDGE BLOCK-20MHz+15MHz-1RB



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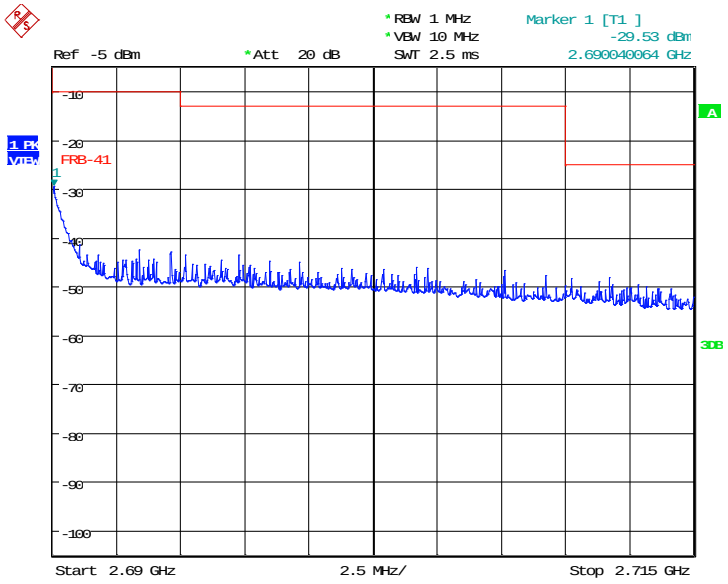
HIGH BAND EDGE BLOCK-20MHz+15MHz-100%RB



Date: 11.JUN.2019 09:25:22

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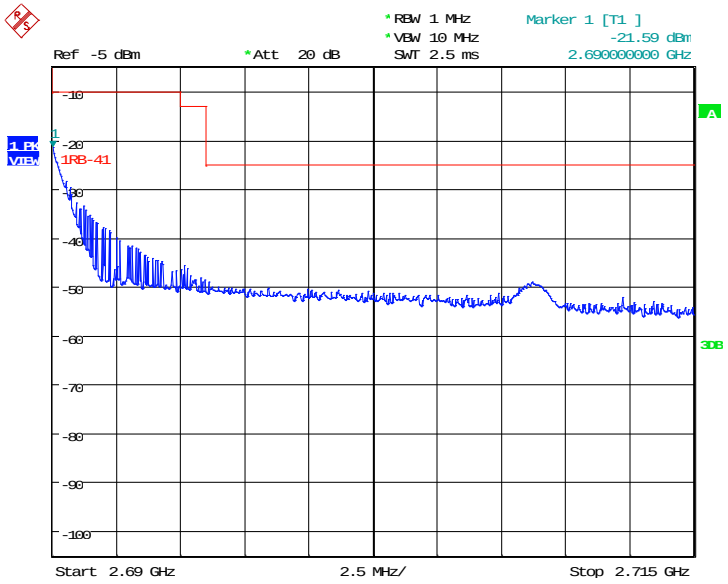
HIGH BAND EDGE BLOCK-20MHz+20MHz-1RB



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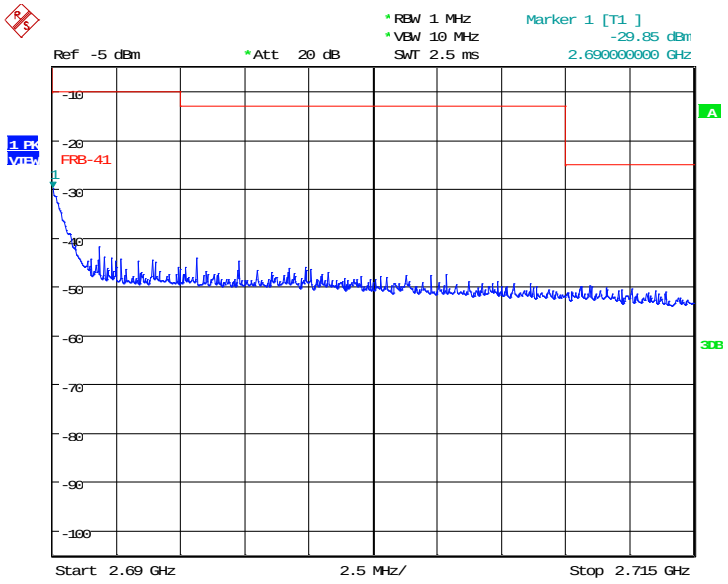
HIGH BAND EDGE BLOCK-20MHz+20MHz-100%RB



Date: 11.JUN.2019 10:40:36

Note: Expanded measurement uncertainty is U = 0.488dB(100KHz-2GHz)/1.211dB(2GHz-26.5GHz), k = 1.96

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A.7 CONDUCTED SPURIOUS EMISSION

Reference

FCC: CFR Part 2.1051, 22.917, 24.238, 27.53.

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 2.1051 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 onall frequencies between 2328 and 2337MHz;

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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.

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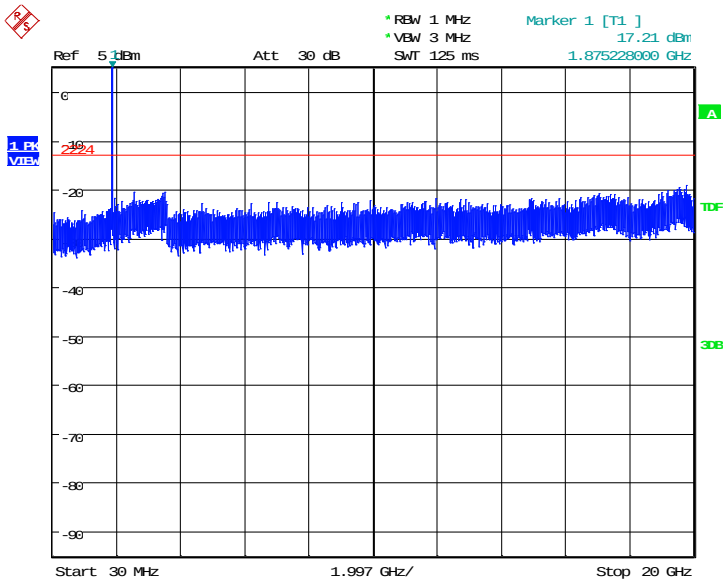
A. 7.3 Measurement result

Only worst case result is given below

LTE band 2 : 30MHz – 20GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.

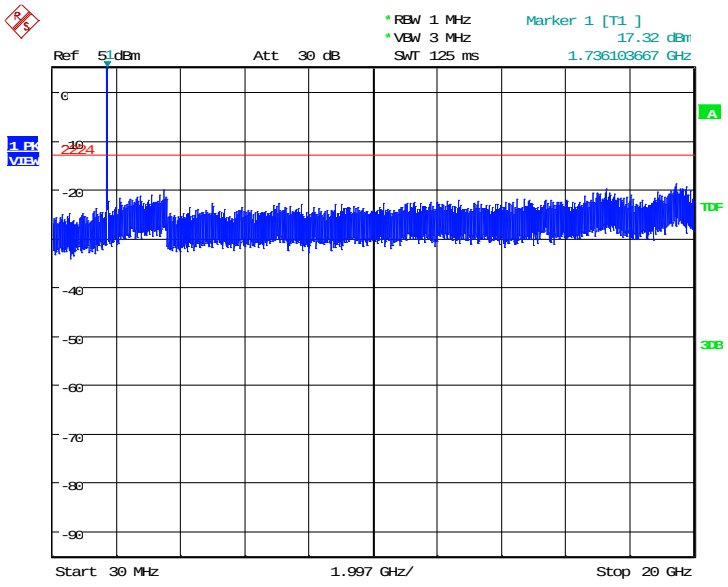


Date: 31.MAY.2019 16:27:48

LTE band 4 : 30MHz – 20GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



Date: 31.MAY.2019 16:28:44

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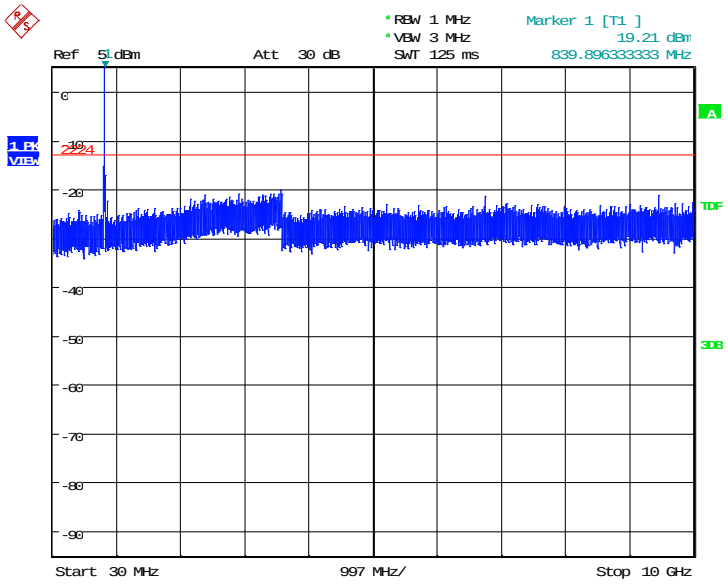
LTE band 5 : 30MHz – 10GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.

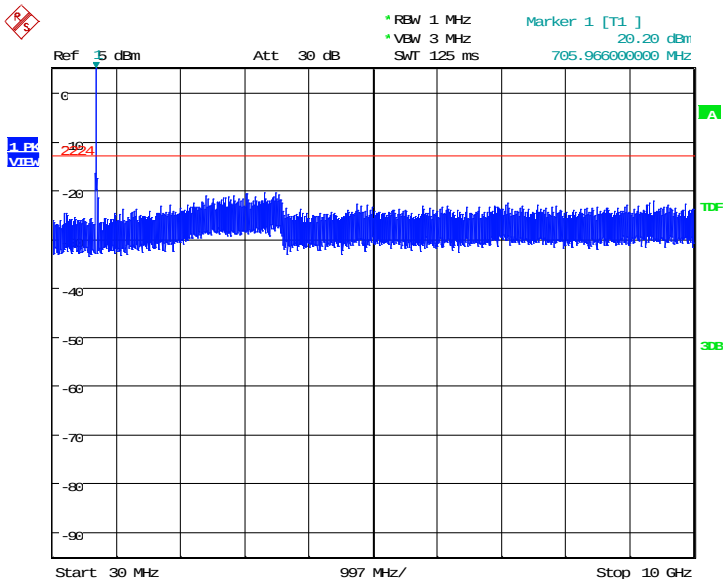


Date: 31.MAY.2019 16:34:01

LTE band 12: 30MHz – 10GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



Date: 31.MAY.2019 16:35:29

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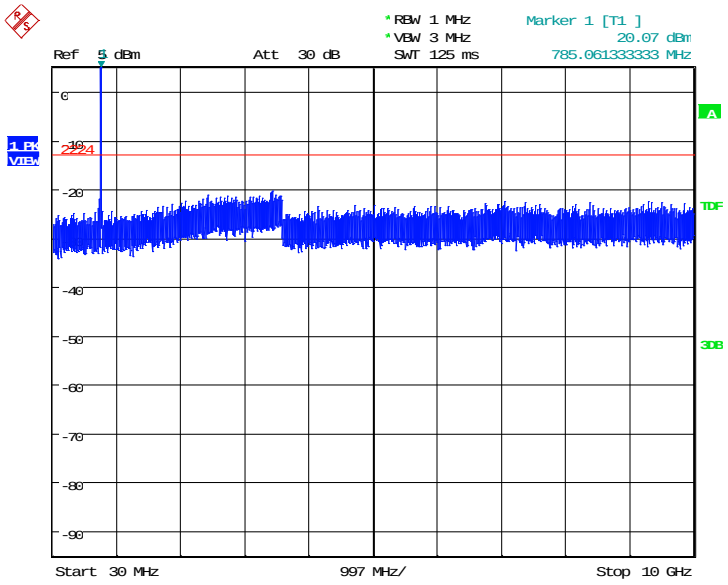
LTE band 13: 30MHz – 10GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.

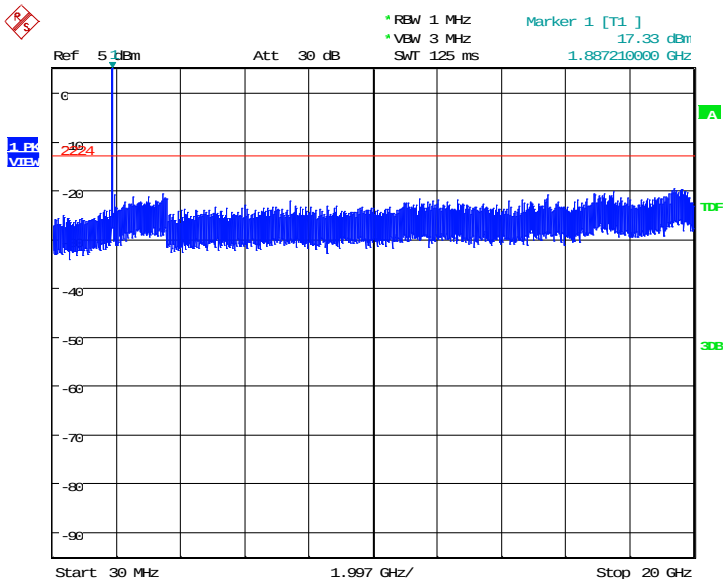


Date: 31.MAY.2019 16:33:05

LTE band 25: 30MHz – 20GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



Date: 31.MAY.2019 16:29:42

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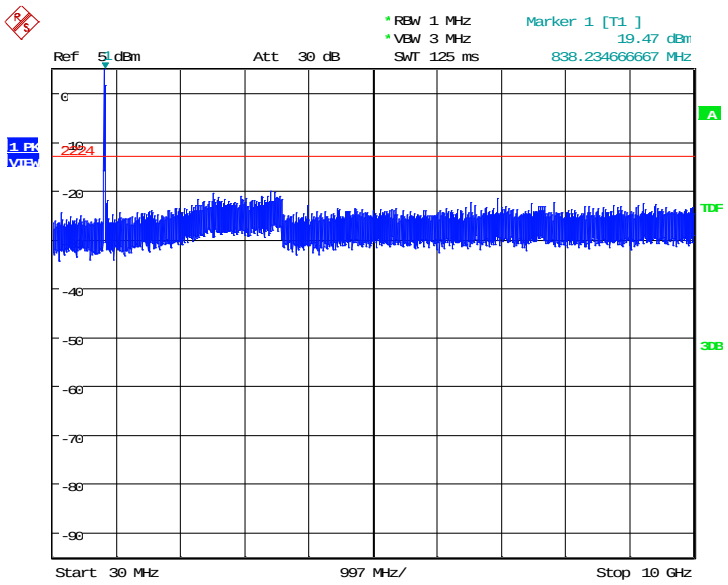
LTE band 26(824MHz-849MHz): 30MHz – 10GHz

Spurious emission limit –13dBm.

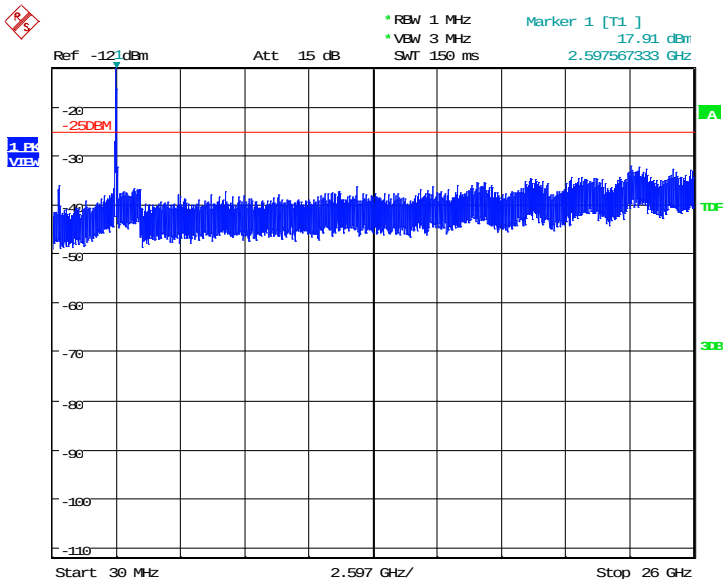


Normal Power

LTE band 41: 30MHz – 26GHz

Spurious emission limit –25dBm.

NOTE: peak above the limit line is the carrier frequency.



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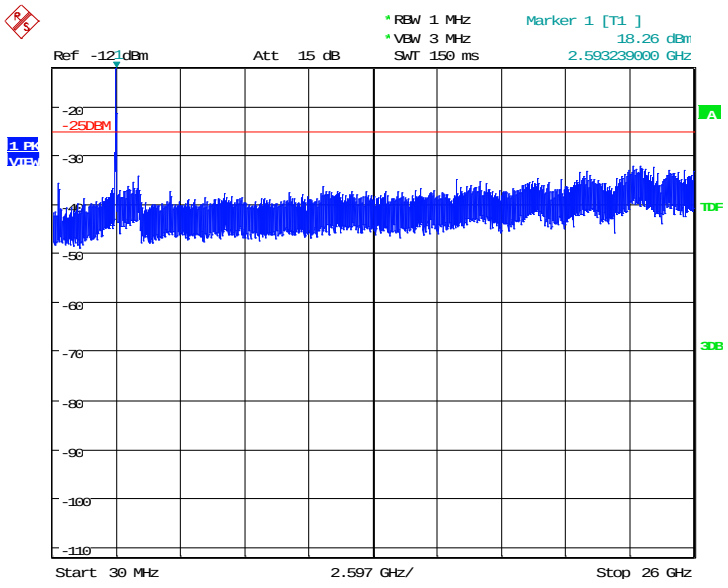
HPUE

LTE band 41: 30MHz – 26GHz

Spurious emission limit –25dBm.

NOTE: peak above the limit line is the carrier frequency.

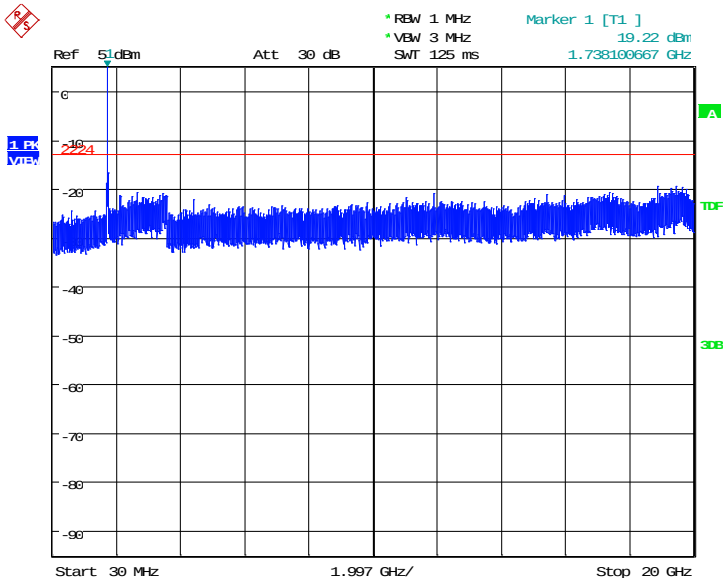


Date: 31.MAY.2019 15:59:49

LTE band 66: 30MHz – 20GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



Date: 31.MAY.2019 16:30:38

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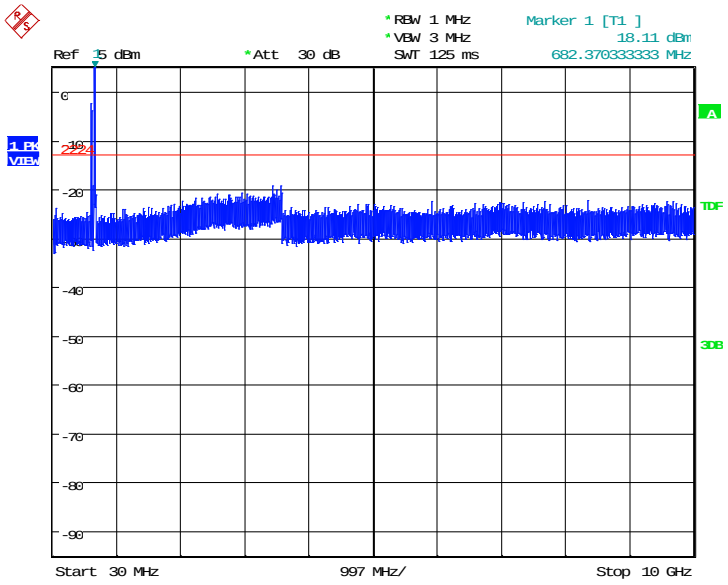
LTE band 71: 30MHz – 10GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.

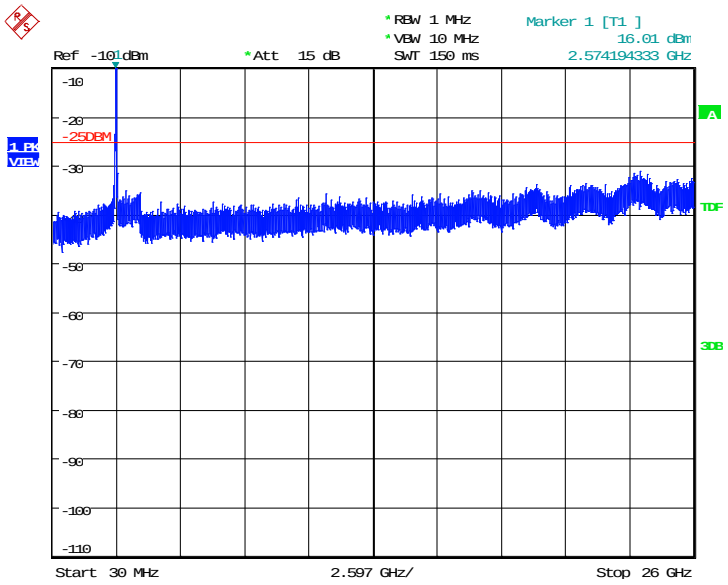


Date: 10.JUN.2019 14:16:17

LTE Band CA_41C: 30MHz – 26GHz

Spurious emission limit –25dBm.

NOTE: peak above the limit line is the carrier frequency.



Date: 11.JUN.2019 10:50:35

Note: Expanded measurement uncertainty is U = 0.488dB(100KHz-2GHz)/1.211dB(2GHz-26.5GHz), k = 1.96

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A.8 PEAK-TO-AVERAGE POWER RATIO

Reference

FCC: CFR Part 24.232, 27.50(d).

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.

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

Only worst case result is given below

LTE band 2

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
1880.0	20	6.99	7.50	7.37

LTE band 4

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
1732.5	20	6.99	7.31	7.37

LTE band 5

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
836.5	10	5.77	6.44	6.51

LTE band 12

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
707.5	10	5.80	6.60	6.54

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LTE band 13

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
782.0	10	5.74	6.51	6.60

LTE band 25

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
1882.5	20	6.92	7.44	7.44

LTE band 26(824MHz -849MHz)

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
836.5	15	6.38	7.08	7.12

Normal Power

LTE band 41

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
2593.0	20	8.11	8.85	9.39

HPUE

LTE band 41

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
2593.0	20	8.27	9.90	10.60

LTE band 66

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
1745.0	20	6.99	7.40	7.47

LTE band 71

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
683.0	20	6.32	7.02	7.16

LTE Band CA_41C

Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
		QPSK	16QAM	64QAM
2593.0	20+20	9.07	10.06	11.06

Note: Expanded measurement uncertainty is $U = 0.483$, $k = 2$

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

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