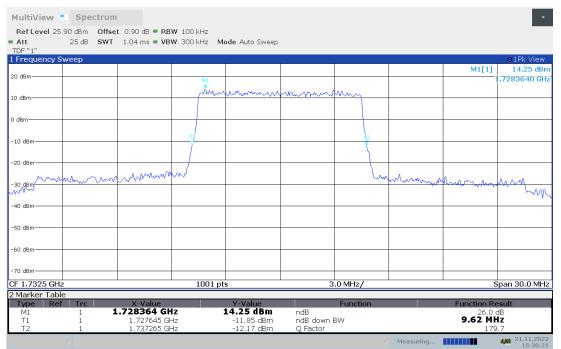


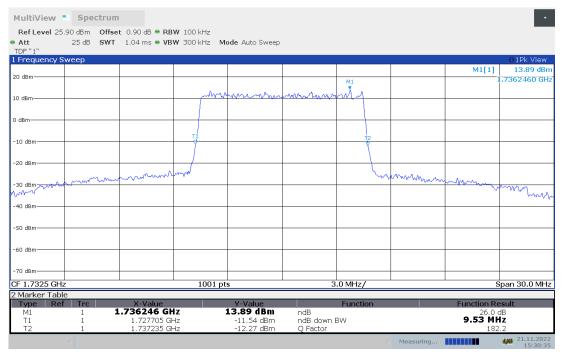
#### LTE band 4,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	9.620	9.530

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



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

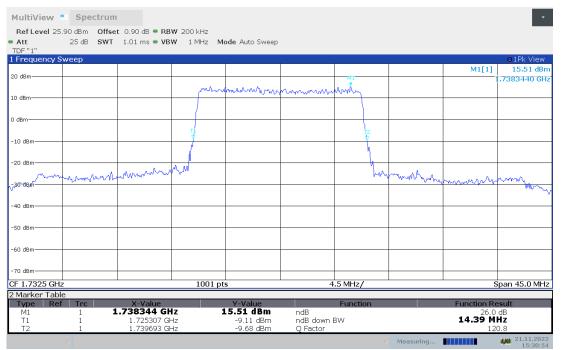




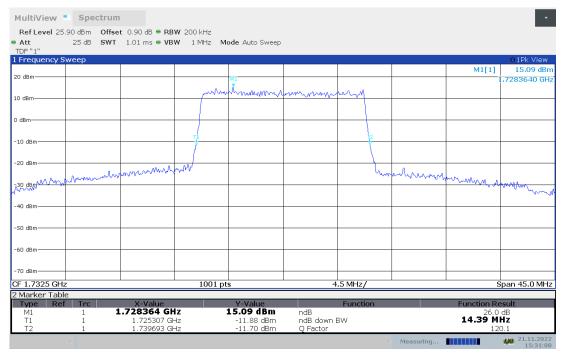
#### LTE band 4,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	14.386	14.386

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



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

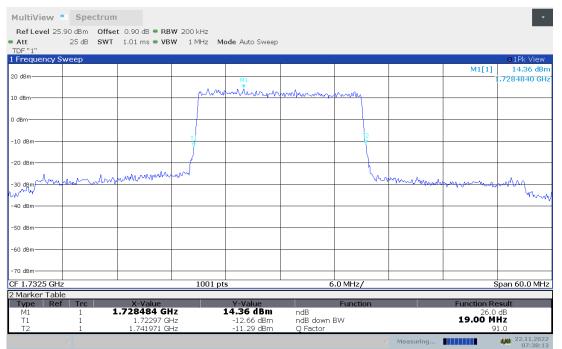




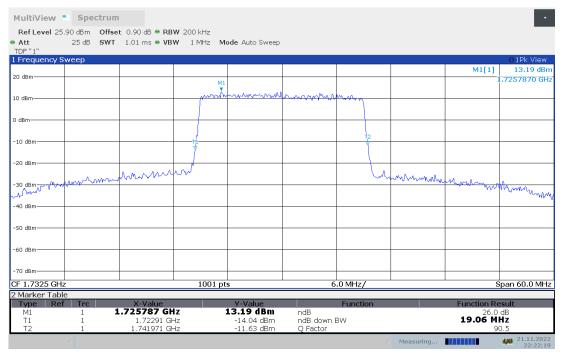
#### LTE band 4,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1732.5	19.001	19.061

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



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





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

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
836.5	1.263	1.280

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



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

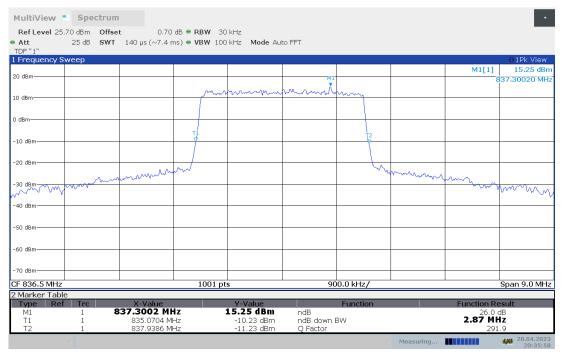




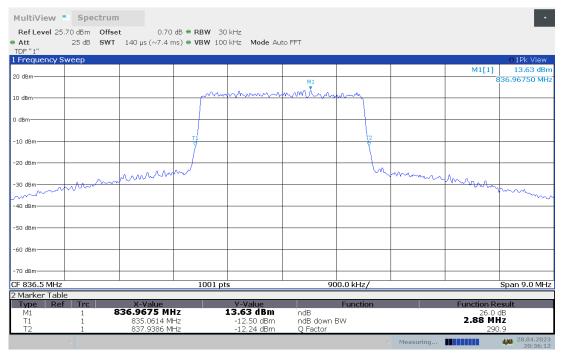
#### LTE band 5,3MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
836.5	2.868	2.877

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



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

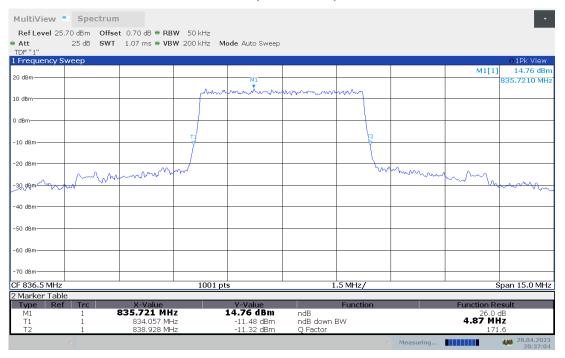




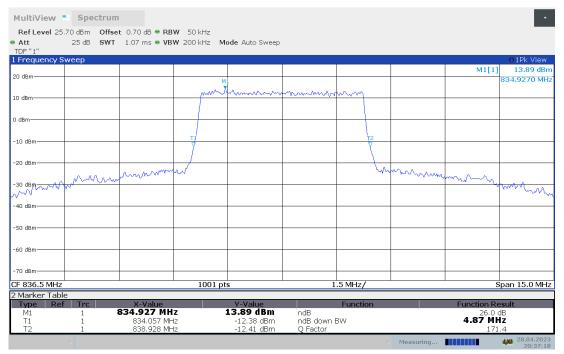
#### LTE band 5,5MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
836.5	4.870	4.870

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



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

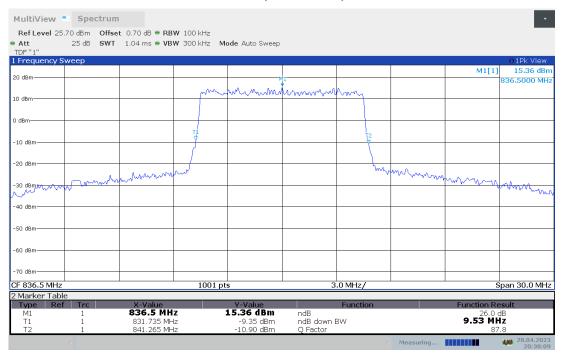




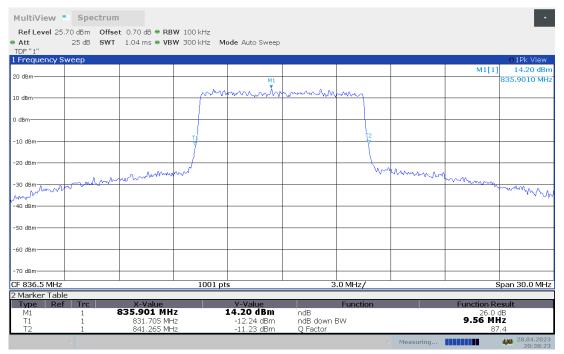
#### LTE band 5,10MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
836.5	9.530	9.560

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



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

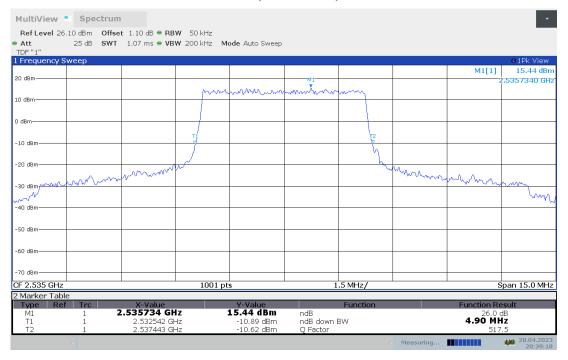




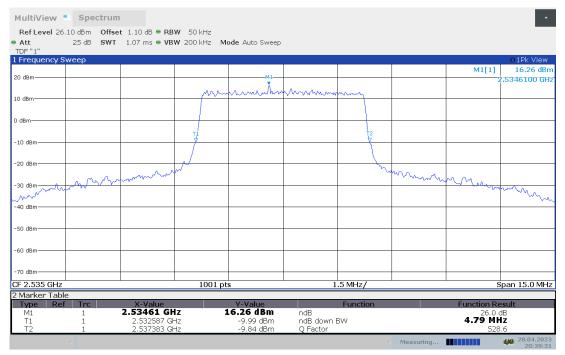
#### LTE band 7,5MHz(-26dBc)

	Emission Bandwidth (-26dBc)(MHz)	
Frequency(MHz)	QPSK	16QAM
2535	4.900	4.795

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



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

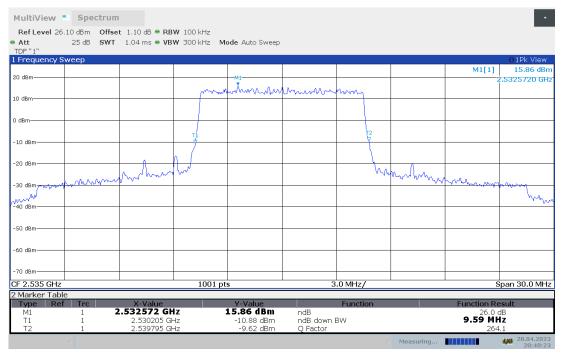




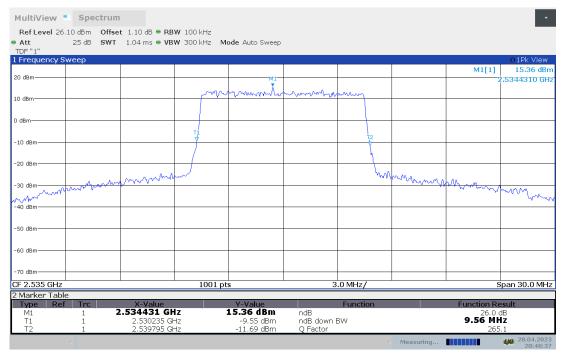
#### LTE band 7,10MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
2535	9.590	9.560

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



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

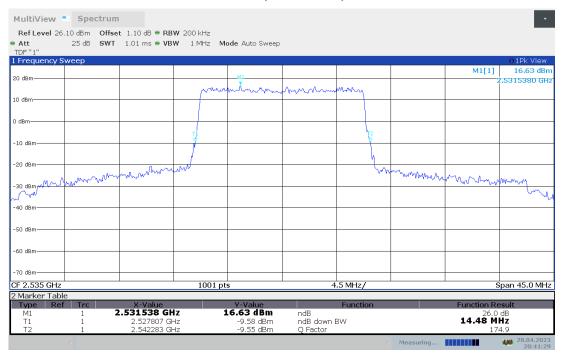




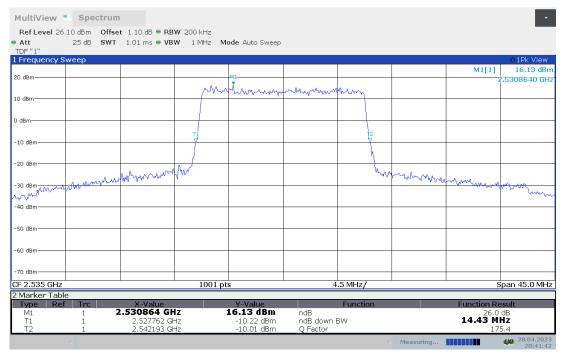
#### LTE band 7,15MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
2535	14.476	14.431

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



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

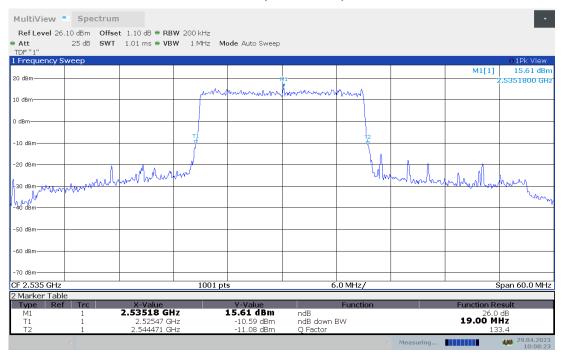




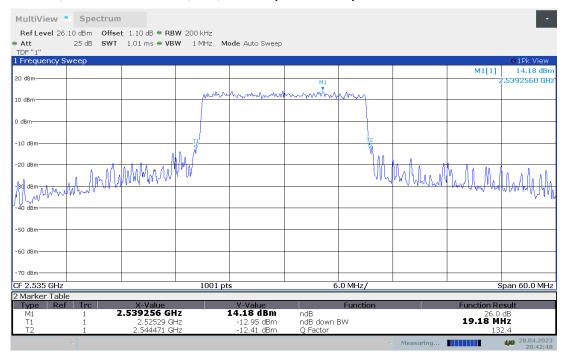
#### LTE band 7,20MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
2535	19.001	19.181

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



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





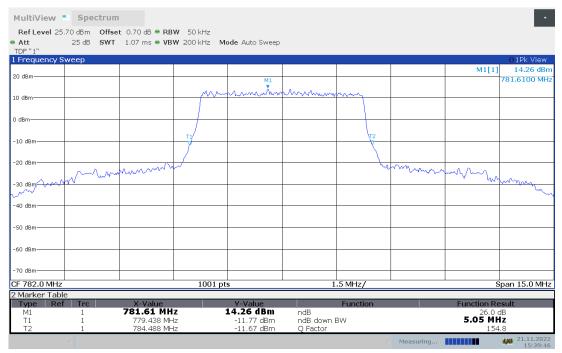
#### LTE band 13,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
782	5.095	5.050

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



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

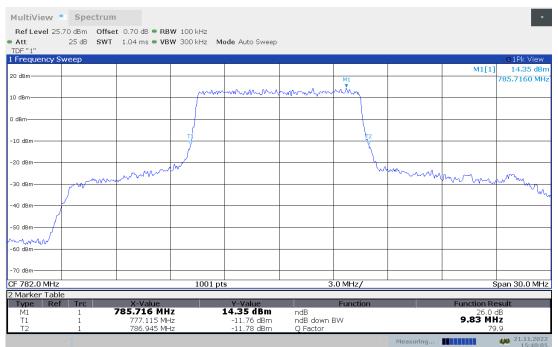




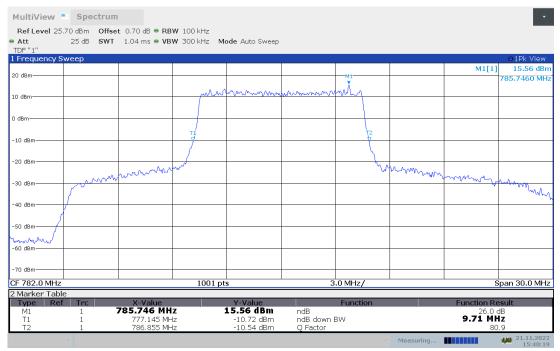
#### LTE band 13,10MHz(-26dBc BW)

	Emission Bandwidth (-26dBc BW)(MHz)	
Frequency(MHz)	QPSK	16QAM
782	9.830	9.710

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



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





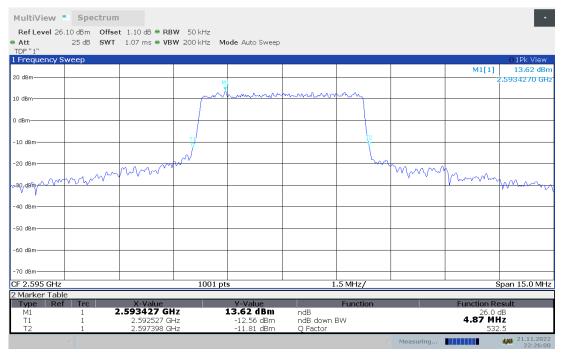
#### LTE band 38,5MHz(-26dBc BW)

	Emission Bandwidth (-26dBc BW)(MHz)	
Frequency(MHz)	QPSK	16QAM
2595	4.765	4.870

### LTE band 38 , 5MHz Bandwidth,QPSK (-26dBc BW)



# LTE band 38, 5MHz Bandwidth,16QAM (-26dBc BW)

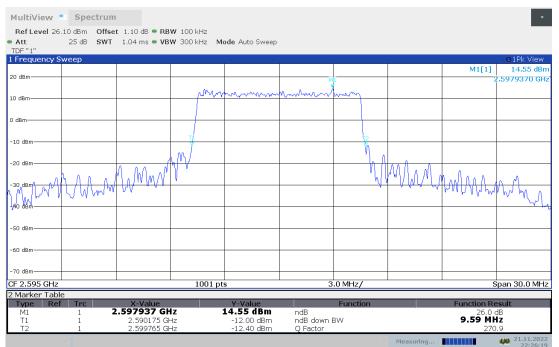




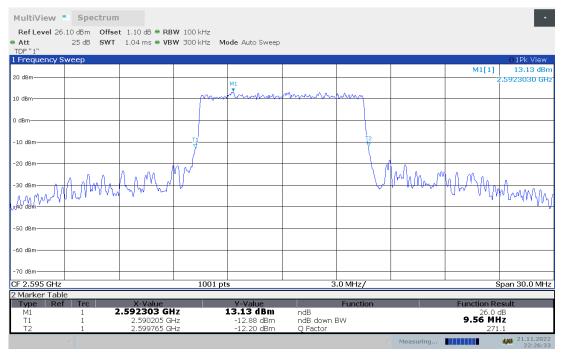
#### LTE band 38,10MHz(-26dBc BW)

	Emission Bandwidth (-26dBc BW)(MHz)	
Frequency(MHz)	QPSK	16QAM
2595	9.590	9.560

# LTE band 38 , 10MHz Bandwidth, QPSK (-26dBc BW)



# LTE band 38, 10MHz Bandwidth,16QAM (-26dBc BW)

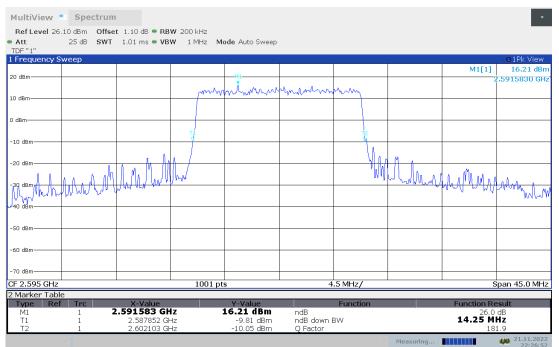




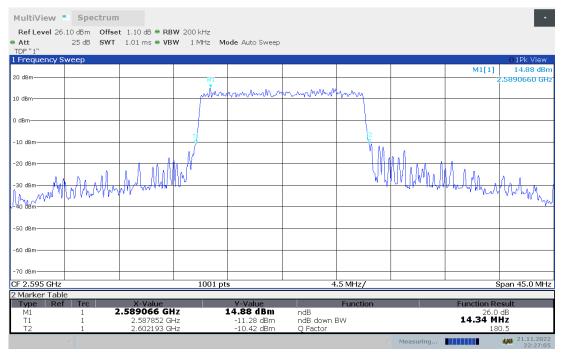
#### LTE band 38,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2595	14.251	14.341

### LTE band 38, 15MHz Bandwidth, QPSK (-26dBc BW)



# LTE band 38, 15MHz Bandwidth,16QAM (-26dBc BW)

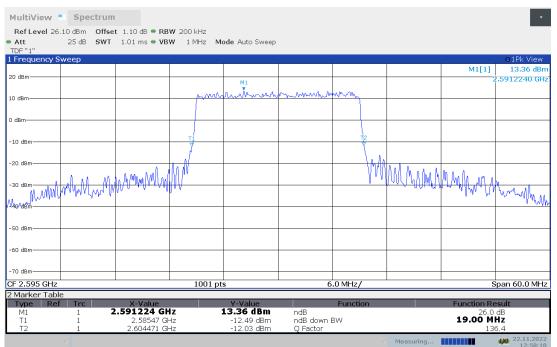




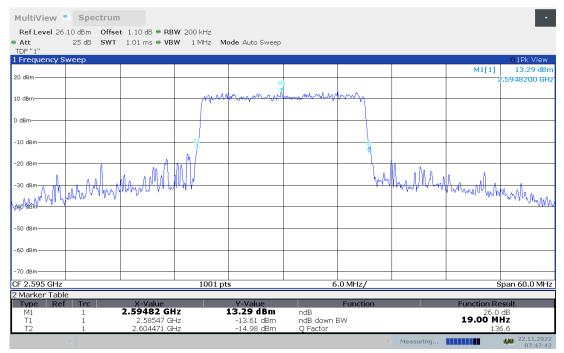
#### LTE band 38,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
2595	19.001	19.001

### LTE band 38 , 20MHz Bandwidth, QPSK (-26dBc BW)



# LTE band 38, 20MHz Bandwidth,16QAM (-26dBc BW)

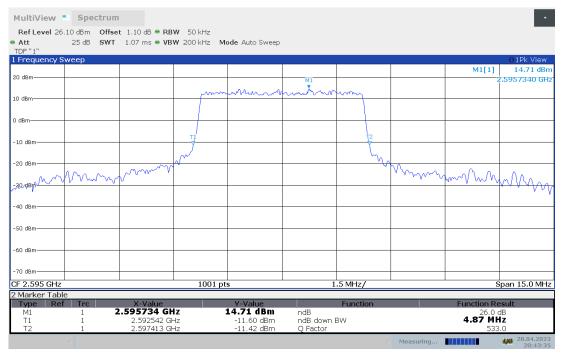




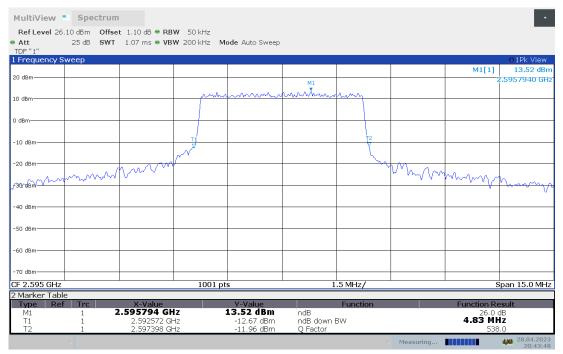
#### LTE band 41,5MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
2595	4.870	4.825

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



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

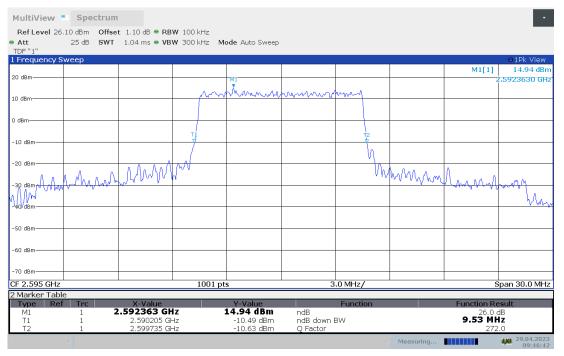




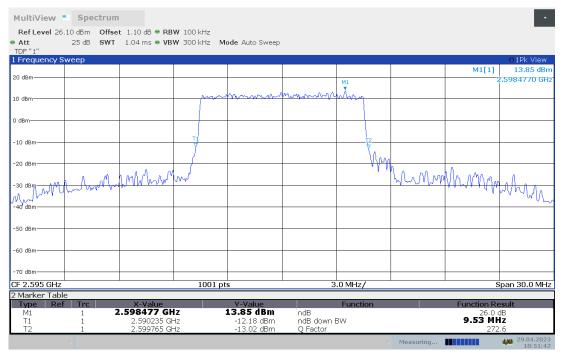
#### LTE band 41,10MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
2595	9.530	9.530

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



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

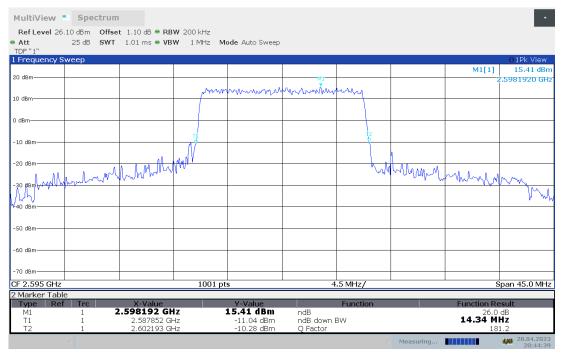




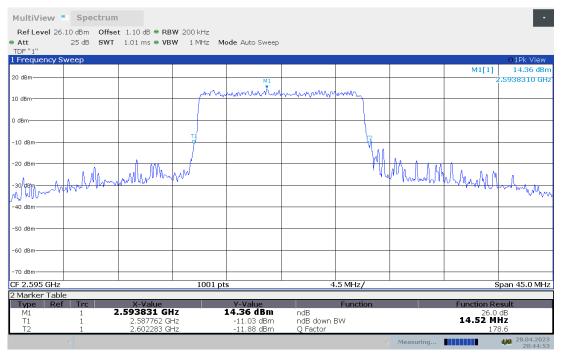
### LTE band 41,15MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
2595	14.341	14.520

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



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

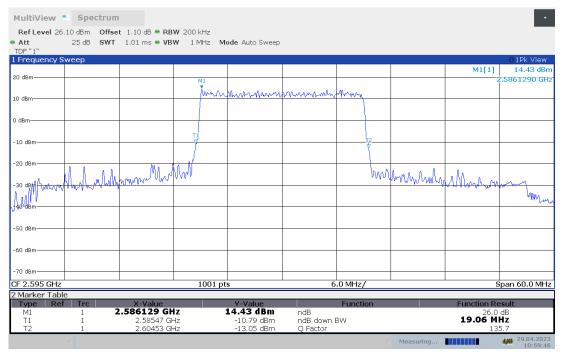




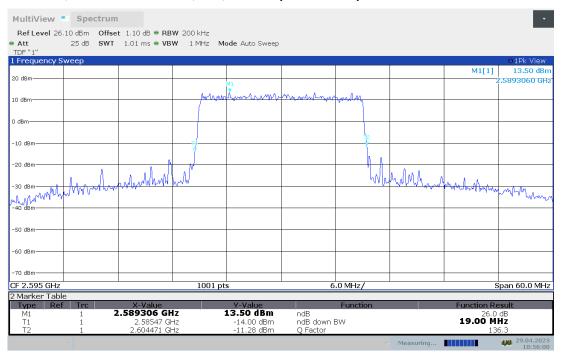
#### LTE band 41,20MHz(-26dBc)

Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)	
	QPSK	16QAM
2595	19.061	19.001

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



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





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

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1745	1.263	1.288

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



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

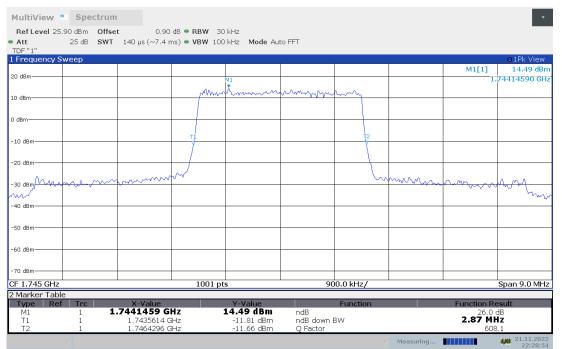




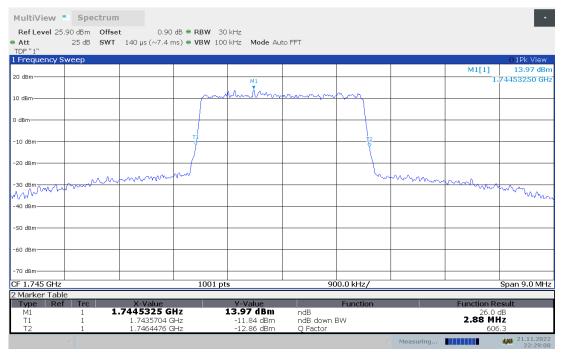
#### LTE band 66,3MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1745	2.868	2.877

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



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

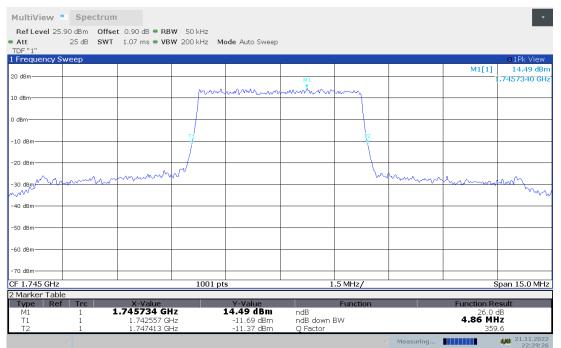




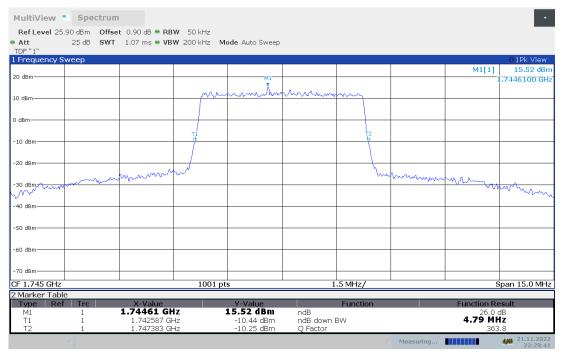
#### LTE band 66,5MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1745	4.855	4.795

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



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

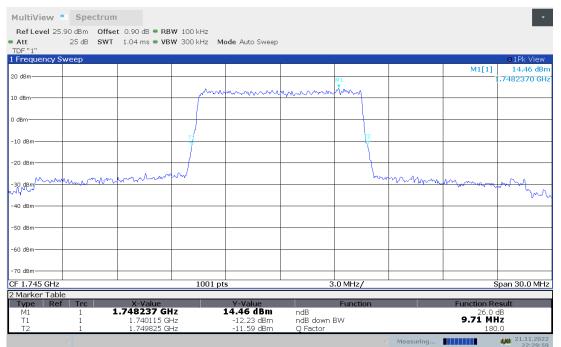




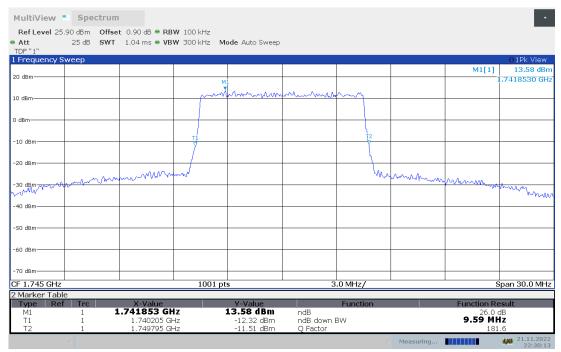
#### LTE band 66,10MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1745	9.710	9.590

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



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

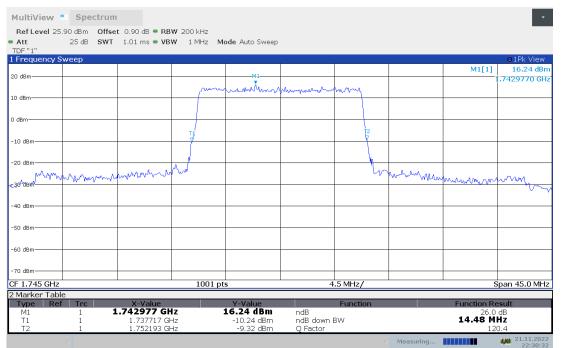




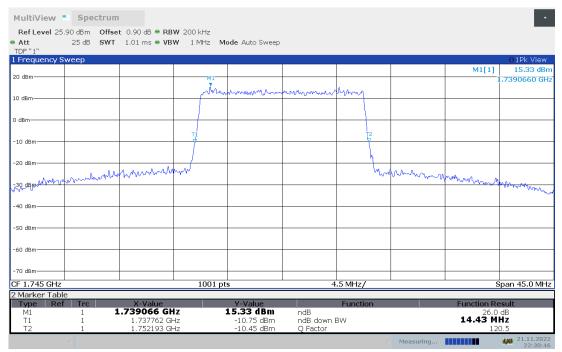
#### LTE band 66,15MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1745	14.476	14.431

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



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

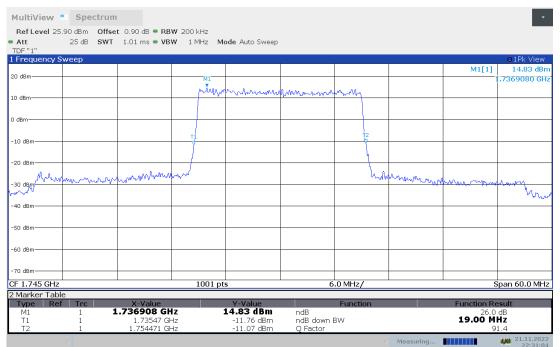




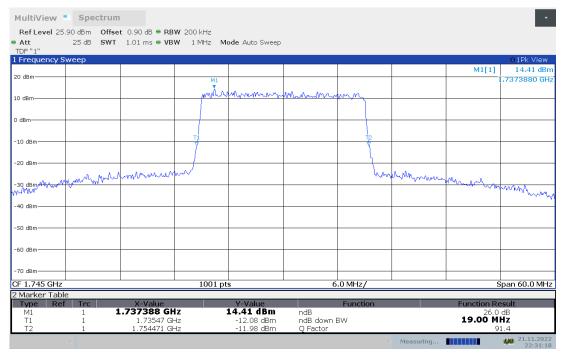
#### LTE band 66,20MHz(-26dBc BW)

Frequency(MHz)	Emission Bandwidth (-26dBc BW)(MHz)	
	QPSK	16QAM
1745	19.001	19.001

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



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



Note: Expanded measurement uncertainty is U = 3428 Hz, k = 2



# A.6 BAND EDGE COMPLIANCE

# Reference

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

### A.6.1 Measurement limit

Part 22.917 For operations in the 824–849MHz band, the FCC limit is 43 +10 log (P)dB below the transmitter power(P) in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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  $43 + 10 \log(P) dB$ .

Part 27.53(m) 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 + 10log (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(g) states for operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a 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, by at least 43 +10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

# A.6.2Measurement Procedure

The testing follows ANSI C63.26

a) The EUT was connected to spectrum analyzer and system simulator via a power divider.

b) The band edges of low and high channels for the highest RF powers were measured.

c) Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.

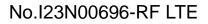
d) Set spectrum analyzer with RMS detector.

e) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

f) Checked that all the results comply with the emission limit line.

# A.6.3 Measurement result

Only worst case result is given below



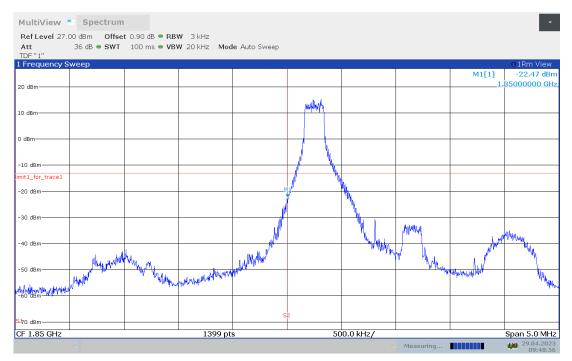


#### LTE band 2

# OBW: 1RB-LOW\_offset

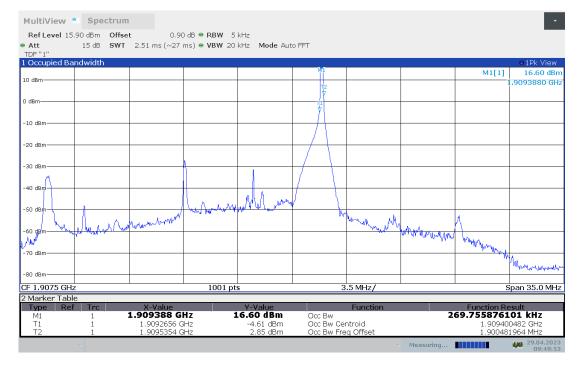


# LOW BAND EDGE BLOCK-1RB-LOW\_offset

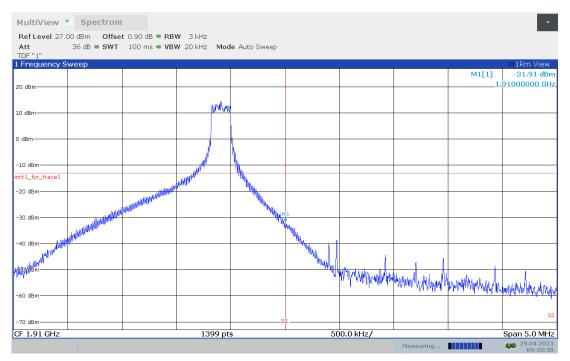




# OBW: 1RB-HIGH\_offset

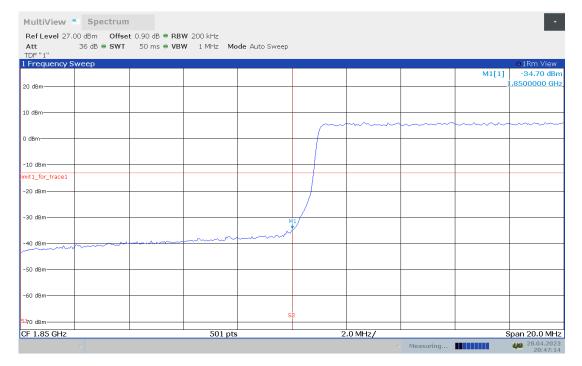


### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

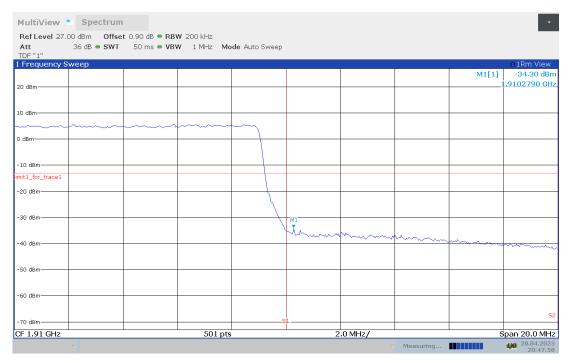


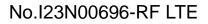


# LOW BAND EDGE BLOCK-20M-100%RB



#### HIGH BAND EDGE BLOCK-20M-100%RB





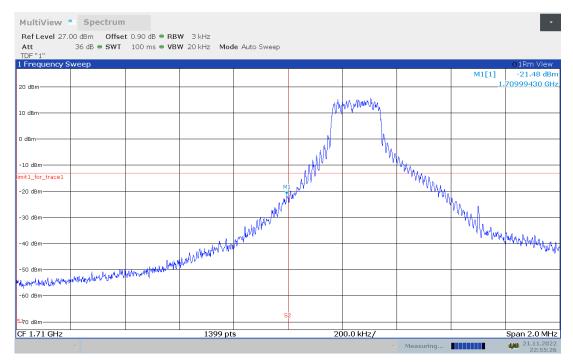


#### LTE band 4

# OBW: 1RB-LOW\_offset

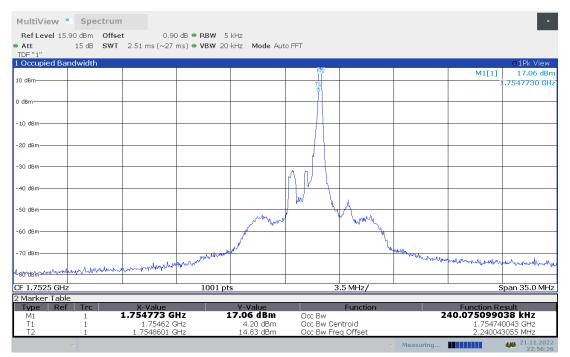


# LOW BAND EDGE BLOCK-1RB-LOW\_offset

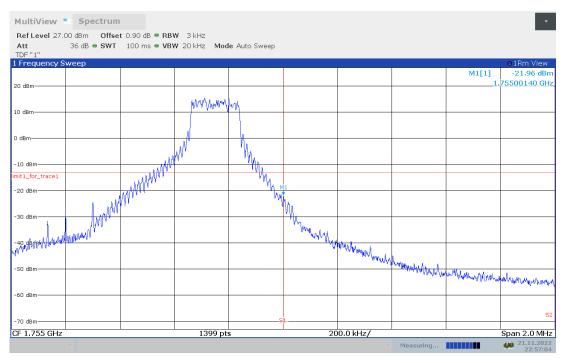




# OBW: 1RB-HIGH\_offset

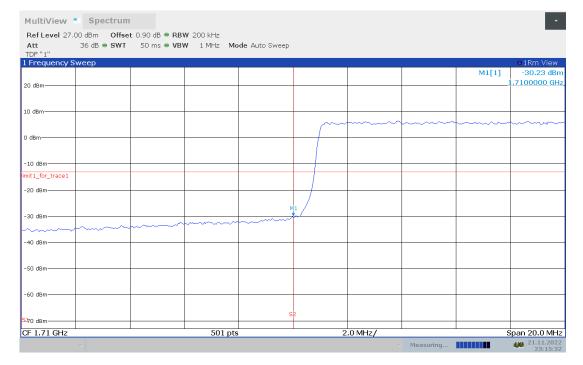


# HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

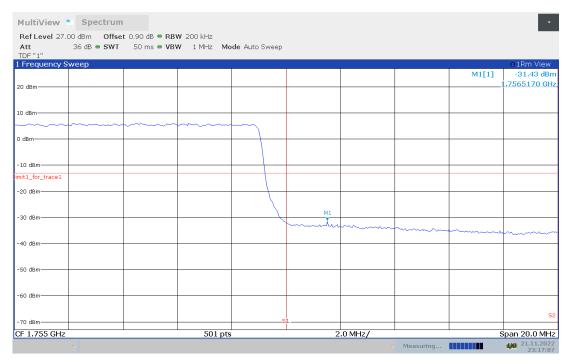


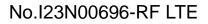


# LOW BAND EDGE BLOCK-20M-100%RB



#### HIGH BAND EDGE BLOCK-20M-100%RB

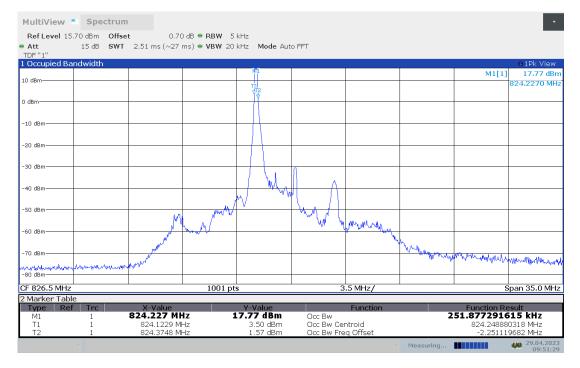




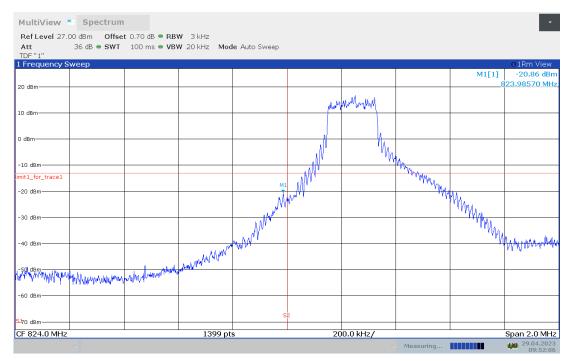


### LTE band 5

# OBW: 1RB-LOW\_offset



### LOW BAND EDGE BLOCK-1RB-LOW\_offset

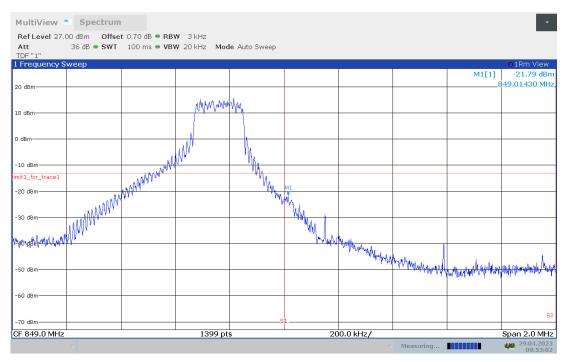




# OBW: 1RB-HIGH\_offset

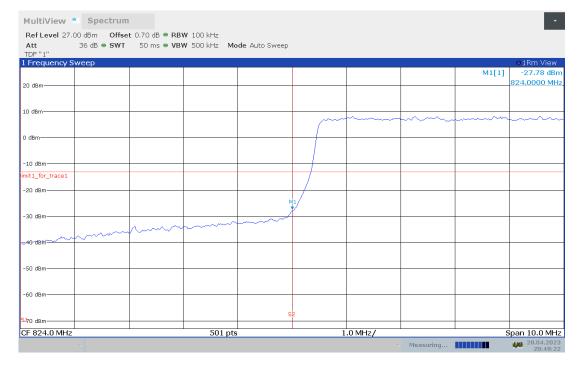


### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

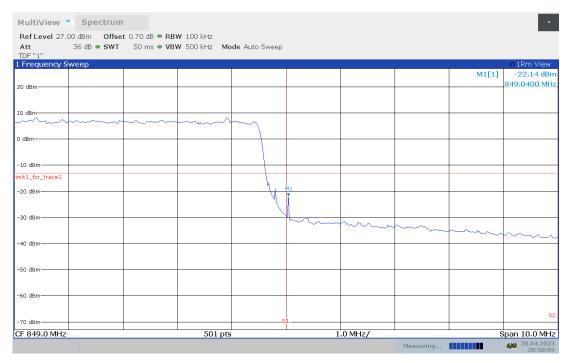




# LOW BAND EDGE BLOCK-10M-100%RB

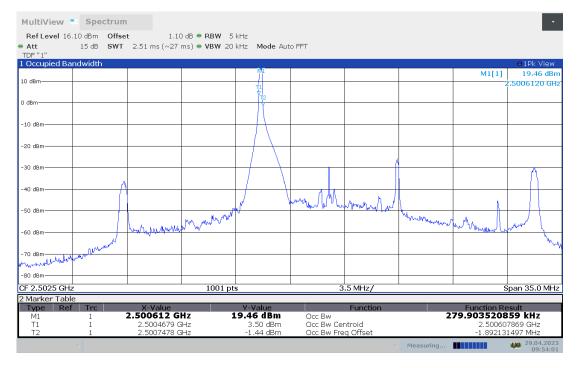


#### HIGH BAND EDGE BLOCK-10M-100%RB

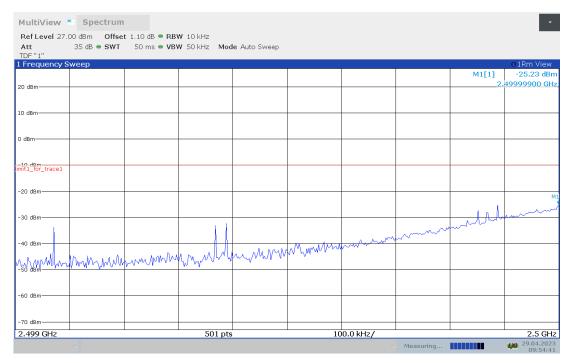




# OBW: 1RB-LOW\_offset

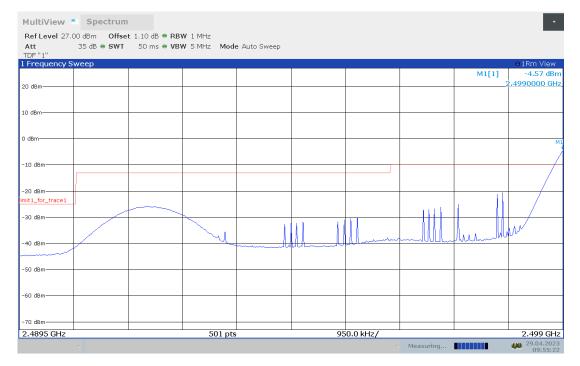


# LOW BAND EDGE BLOCK-1RB-LOW\_offset

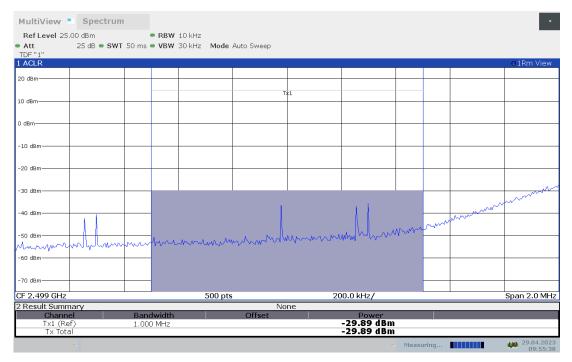




## LOW BAND EDGE BLOCK-1RB-LOW\_offset



#### **Channel power**

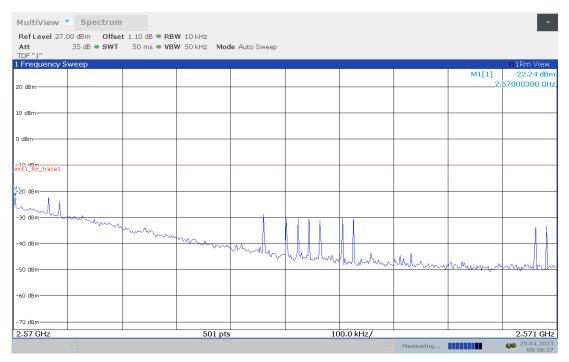




# OBW: 1RB-HIGH\_offset

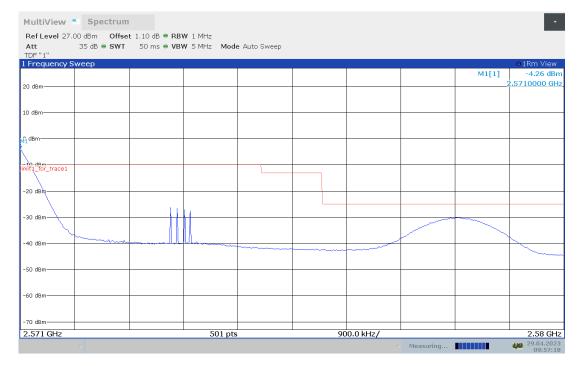


#### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

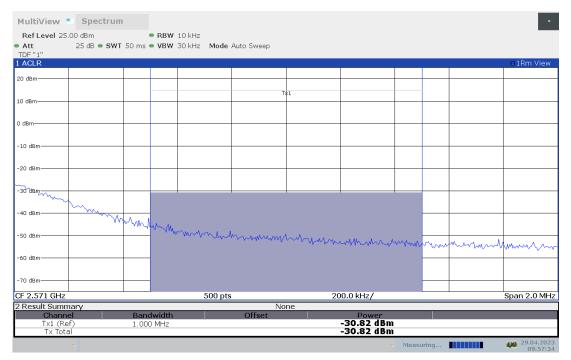




#### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

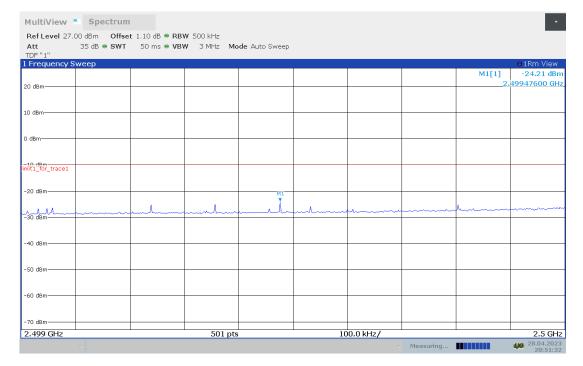


#### **Channel power**





## LOW BAND EDGE BLOCK-20M-100%RB

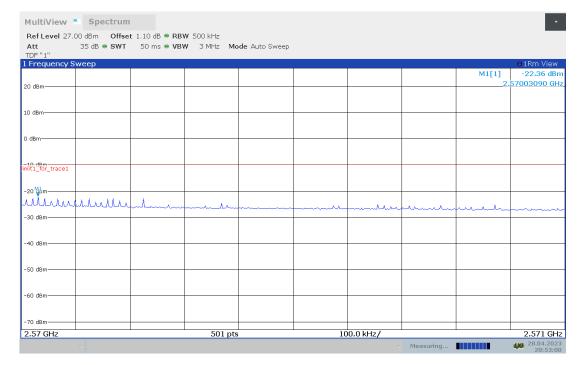


#### LOW BAND EDGE BLOCK-20M-100%RB

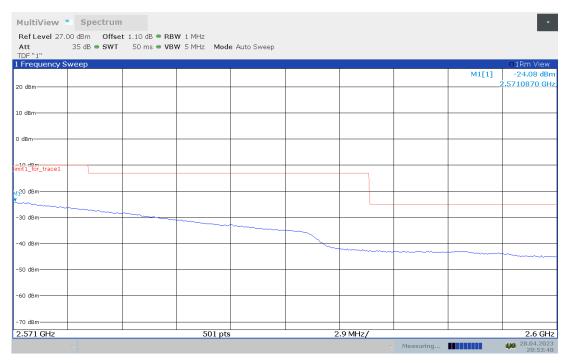
Att 35 (		RBW 1 MHz				
TDF "1"	dB 🖷 SWT 🛛 50 ms 🖷	VBW 5 MHz Mode	e Auto Sweep			
Frequency Swee	D					●1Rm View
					M1[1]	-25.55 dB
0 dBm						2.4989530 GI
0 dBm						
dBm						
ubm						
10 dBm						
20 dBm						
hit1_for_trace1					 	
30 dBm				 		
40 dBm						
50 dBm						
o ubiii						
60 dBm						
70 dBm				 		+

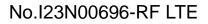


#### HIGH BAND EDGE BLOCK-20M-100%RB



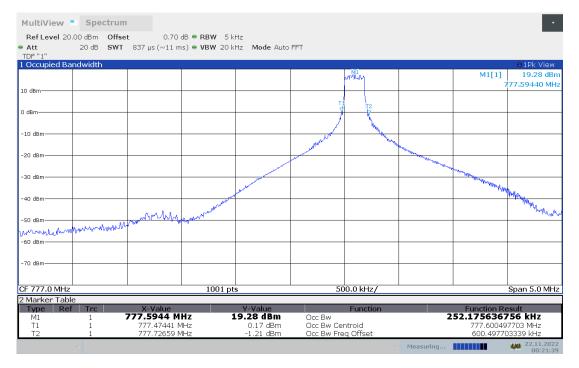
#### HIGH BAND EDGE BLOCK-20M-100%RB



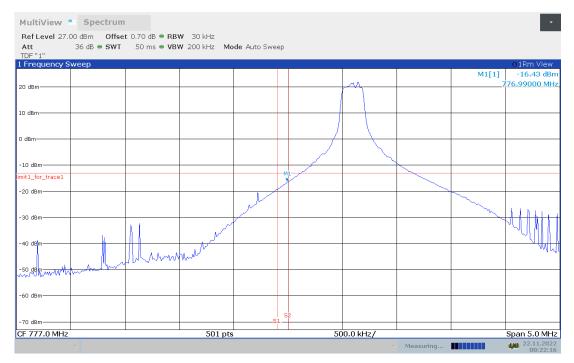




# OBW: 1RB-LOW\_offset



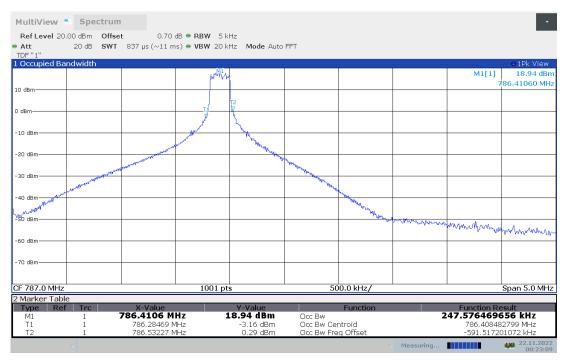
# LOW BAND EDGE BLOCK-1RB-LOW\_offset





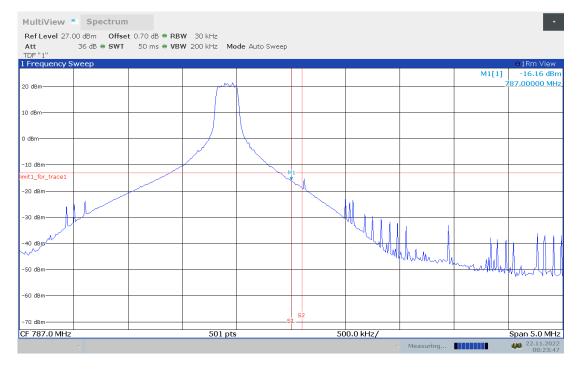
MultiView	Spectrum	I							•
Ref Level 20 Att TDF "1"	0.00 dBm Offse 29 dB • SWT	t 0.70 dB ● RBV 2 s ● VBV		ode Auto Sweep					
Frequency	Sweep								●1Pk Max
								M1[1]	-52.28 dBm 775.0000 MHz
LO dBm									
) dBm									
-10 dBm									
-20 dBm									
-30 dBm									
40 dBm									
-50 dBm									м
-60 dBm								M	mm
1783BM	maning	mannon	man	month	www.ww	mmm	mmm	w	
ro dom									
763.0 MHz	1	1	501 pts	1	1	.2 MHz/	L	1	775.0 MHz
	7					~	Measuring		23.11.2022 10:19:08

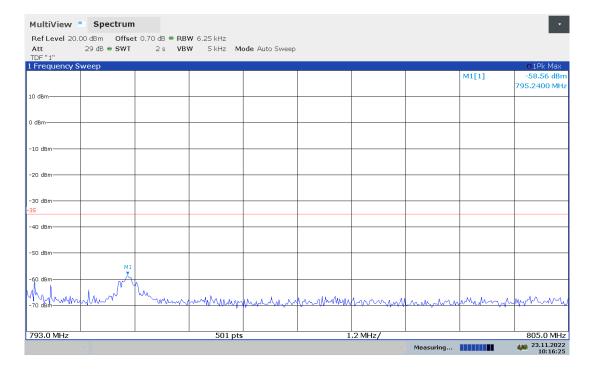
## OBW: 1RB-HIGH\_offset





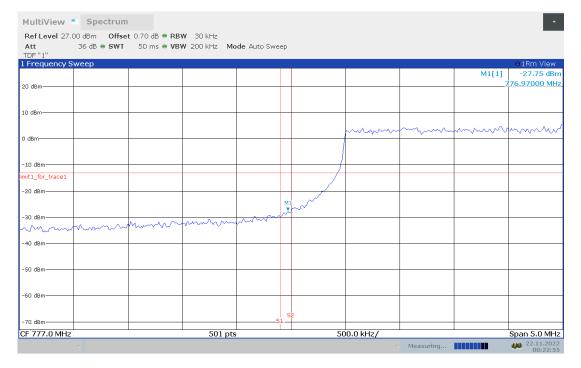
#### HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

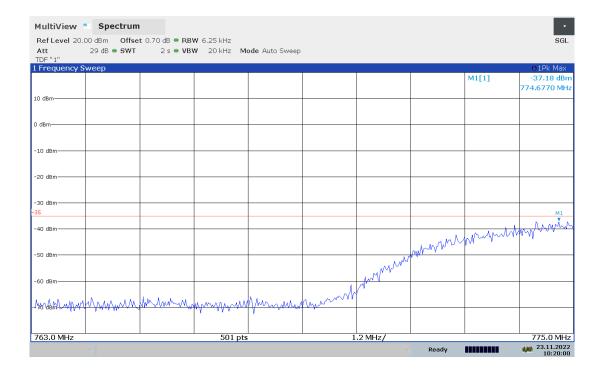






## LOW BAND EDGE BLOCK-10M-100%RB

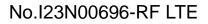






# HIGH BAND EDGE BLOCK-10M-100%RB

AultiView Spect								
RefLevel 27.00 dBm C Att 36 dB = S	Hfset 0.70 dB ● RBV WT 50 ms ● VBV	¥ 30 kHz ¥ 200 kHz <b>Mo</b>	de Auto Sweep					
DF "1"								O I Dan Mar
Frequency Sweep							M1[1]	01Rm Vie -27.04 di
) dBm								787.03000 M
dBm								
man man	n a man							
IBm								
0 dBm								
t1_for_trace1			$\lambda$					
0 dBm			$\sim$	41				
			~~~					
0 dBm				march	mmm	~ mm.	-	
								him
D dBm								
) dBm								
10								
) dBm								
) dBm				52				
o upini			1					Crass E O M
787 0 MHz		501 nts		50	10 0 kHz/			
ultiView = Spect		501 pts		50	00.0 kHz/	Measuring		22.11.20 00:24
ultiView = Spect tef Level 20.00 dBm C	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ada Auto Succes	5(	00.0 KHz/	Measuring		22.11.2 00:24
ultiView <b>Spect</b> ef Level 20.00 dBm C tt 29 dB <b>S</b> F "1"	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep		00.0 kHz/	Measuring		22.11.2 00:24
ultiView Spect ef Level 20.00 dBm C tt 29 dB S	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	5(	)0.0 kHz/	Measuring		22.11.2 00:24 S
ultiView Spect f Level 20.00 dBm C tt 29 dB S	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	00.0 kHz/	Measuring	M1[1]	22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S p <sup>=</sup> "1" requency Sweep	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	00.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S p <sup>=</sup> "1" requency Sweep	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S F "1" requency Sweep dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S F "1" requency Sweep dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S F"1" requency Sweep dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S F"1" requency Sweep dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S F"1" requency Sweep dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep	50	0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S pF "1" requency Sweep dBm dBm dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep		0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView Spect ef Level 20.00 dBm C tt 29 dB S pF "1" requency Sweep dBm dBm dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep		0.0 kHz/	Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
UltiView ■ Spect  f Level 20.00 dBm C  tt 29 dB ● S  j="1" requency Sweep  dBm  b dBm  b dBm  c c c c c c c c c c c c c c c c c c c	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep			Measuring		22.11.2 00:22 S 01Pk M -52.85 c
ultiView ■ Spect ef Level 20.00 dBm C tt 29 dB ● S p="1" requency Sweep dBm bm dBm dBm dBm	offset 0.70 dB = RBV	<b>V</b> 6.25 kHz	ode Auto Sweep			Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
UltiView ■ Spect  f Level 20.00 dBm C  tt 29 dB ● S  j="1" requency Sweep  dBm  bm  dBm  dBm  dBm  dBm  dBm  dBm	offset 0.70 dB • RBV WT 2 s VBV	<b>V</b> 6.25 kHz	ode Auto Sweep			Measuring		22.11.2 00:24 S 01Pk Ma -52.85 d
UltiView ■ Spect  f Level 20.00 dBm C  tt 29 dB ● S  j="1" requency Sweep  dBm  bm  dBm  dBm  dBm  dBm  dBm  dBm	Affset 0.70 dB = RBV WT 2 s VBV	V 6.25 kHz V 5 kHz M					MI[1]	22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView         Spect           ef Level 20.00 dBm         C           tt         29 dB ≤ S           p" 1"         29 dB ≤ S           prequency Sweep         Bm           dBm         Bm	Affset 0.70 dB = RBV WT 2 s VBV	V 6.25 kHz V 5 kHz M					MI[1]	22.11.2 00:24 S 01Pk Ma -52.85 d
UltiView ■ Spect  fLevel 20.00 dBm C  tt 29 dB ● S  j="1"  dBm  dBm  dBm  dBm  dBm  dBm  dBm  dB	Affset 0.70 dB = RBV WT 2 s VBV	V 6.25 kHz V 5 kHz M					MI[1]	22.11.2 00:24 S 01Pk Ma -52.85 d
ultiView         Spect           ef Level 20.00 dBm         C           tt         29 dB         s           p="1"         30 dBm         dBm           dBm         0 dBm         0 dBm         0 dBm           0 dBm         0 dBm         0 dBm         0 dBm           0 dBm         0 dBm         0 dBm         0 dBm           0 dBm         0 dBm         0 dBm         0 dBm	Affset 0.70 dB = RBV WT 2 s VBV	V 6.25 kHz V 5 kHz M					MI[1]	22.11.2( 00:24 St 01Pk Ma -52.85 d
ultiView         Spect           ef Level 20.00 dBm         C           tt         29 dB         s           p="1"         30 dBm         dBm           dBm         0 dBm         0 dBm         0 dBm           0 dBm         0 dBm         0 dBm         0 dBm           0 dBm         0 dBm         0 dBm         0 dBm           0 dBm         0 dBm         0 dBm         0 dBm	Affset 0.70 dB = RBV WT 2 s VBV	V 6.25 kHz V 5 kHz M	ode Auto Sweep				MI[1]	22.11.2( 00:24 St 01Pk Ma -52.85 d
kef Level 20.00 dBm         C           ttt         29 dB         S           p="1"         "1"           requency Sweep         dBm           dBm	Affset 0.70 dB = RBV WT 2 s VBV	V 6.25 kHz V 5 kHz M	WWW/W/W/				MI[1]	Span 5.0 M 22.11.20 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24: 00:24:

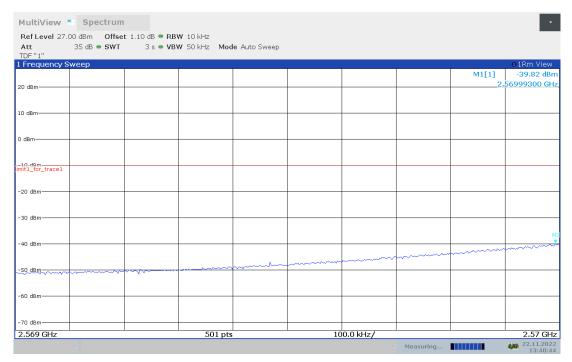




# OBW: 1RB-LOW\_offset

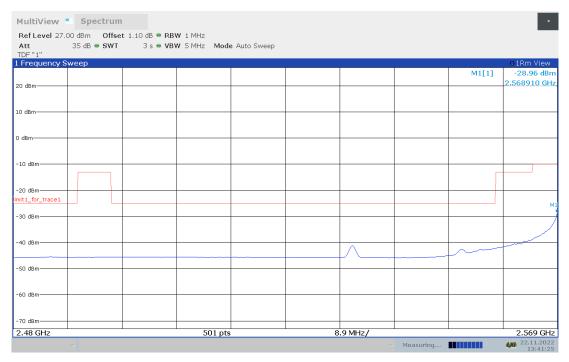
MultiView								-
Ref Level 1 Att TDF "1"		fset 1.10 dB ● RB VT 10 ms (~53 ms) ● VB'		FFT				
1 Occupied B	andwidth							o1Pk View
			Mr.				M1[1]	18.41 dBn
10 dBm								2.5711010 GH
			T					
0 dBm			- T					
-10 dBm								
-20 dBm								
-30 dBm								
				$\left  \right\rangle$				A
-40 dBm				- Martine Are				<u>n</u>
		mannen	~	" "mey	man. As	Mrs.		4 11
-50 dBm		Augurant			and when the second sec	Munina	Mary Martin	mound
walker at when the								
-60 dBm								
-70 dBm								
-80 dBm								
CF 2.5725 GH	lz	1	001 pts	3.	5 MHz/			Span 35.0 MHz
2 Marker Tab			· ·		· · · ·			•
Type Re		X-Value	Y-Value		Function		Function R	tesult
M1	1	2.571101 GHz	18.41 dBm	Occ Bw		2	78.904696	
T1 T2	1	2.5709574 GHz 2.5712364 GHz	0.52 dBm -3.03 dBm	Occ Bw Cer Occ Bw Free				96898 GHz 01728 MHz
14	1	2.0712004 012	5.05 GDH	000 044 1180				22.11.2022
						Measuring		13:40:04

## LOW BAND EDGE BLOCK-1RB-LOW\_offset

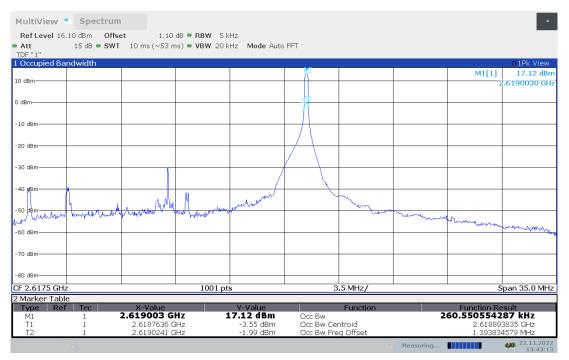




# LOW BAND EDGE BLOCK-1RB-LOW\_offset



# OBW: 1RB-HIGH\_offset

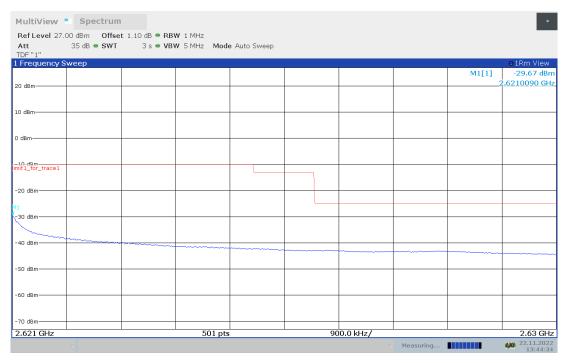




## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

MultiView	Spectrur	m							•
		et 1.10 dB 🖷 RB							_
Att TDF "1"	35 dB 😐 SWT	Γ 3 s ● VBN	№ 50 kHz Mod	le Auto Sweep					
1 Frequency S	Sweep								●1Rm View
								M1[1]	-42.27 dBm 62000300 GHz
20 dBm									
10 dBm									
0 dBm									
-10 dBm imit1_for_trace1									
-20 dBm									
-30 dBm									
40 dBm									
hanne	······								
-50 dBm		m	man						
				mm	mmm	American			
-60 dBm									
-70 dBm									
2.62 GHz			501 pts		10	0.0 kHz/			2.621 GHz
2102 0112	~		501 pts				Measuring		22.11.2022 13:43:54
							mousaring		13:43:54

## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

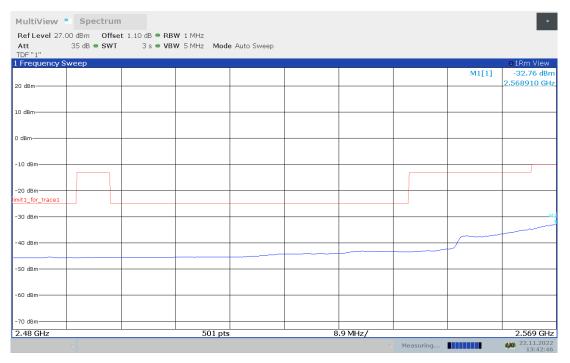




# LOW BAND EDGE BLOCK-20M-100%RB

MultiView	Spectrum								-
Ref Level 27. Att	00 dBm Offse 35 dB = SWT	t 1.10 dB • RBV 3 s • VBV		de Auto Cuson					
TDF "1" 1 Frequency S		J S 🛎 (B)	• 314112 1 <b>410</b>	de Auto Sweep					o1Rm View
T Frequency a	weep							M1[1]	-33.77 dBm
20 dBm									56996110 GHz
20 00.0									
10.40.0									
10 dBm									
0 dBm									
10-dBm limit1_for_trace1									
-20 dBm									
-30 dBm									MI
-40 dBm									
-50 dBm									
-50 UBII									
-60 dBm									
-70 dBm									
2.569 GHz			501 pts		10	0.0 kHz/			2.57 GHz
							Measuring		22.11.2022 13:42:06

# LOW BAND EDGE BLOCK-20M-100%RB

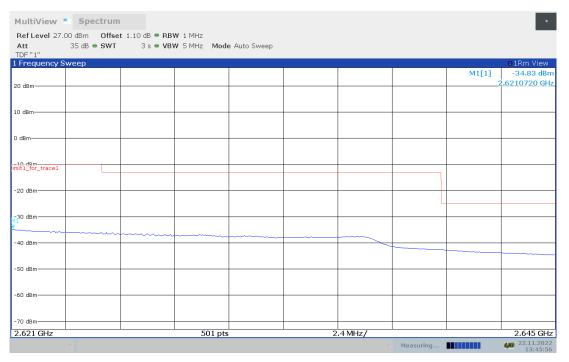




# HIGH BAND EDGE BLOCK-20M-100%RB

MultiView	Spectrum								
Ref Level 27.00 Att	)dBm Offse 35 dB ● SWT	t 1.10 dB • RBV 3 s • VBV		de Auto Swoon					
TDF "1" 1 Frequency Sw		J S 🔍 (B)		de Auto Sweep					o1Rm View
I Frequency Sw	veep							M1[1]	-35.10 dBm
20 dBm									62004490 GHz
10 dBm									
0 dBm									
_10_dBm limit1_for_trace1									
limit1_for_trace1									
-20 dBm									
-30 dBm									
M1									
-40 dBm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	······						······	········
-50 dBm									
-60 dBm									
-70 dBm									
2.62 GHz			501 pts		10	)0.0 kHz/			2.621 GHz
	v		001 ptd				Measuring		22.11.2022 13:45:15

## HIGH BAND EDGE BLOCK-20M-100%RB

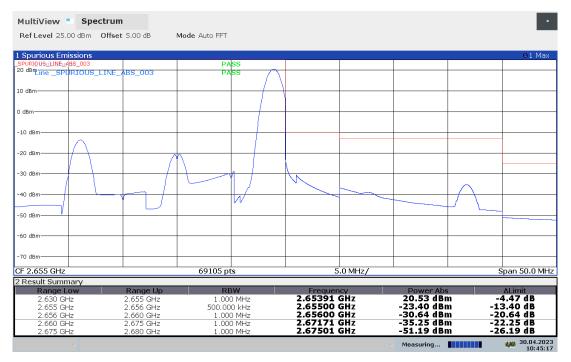




# LOW BAND EDGE BLOCK-1RB-LOW\_offset



## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset



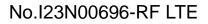


# LOW BAND EDGE BLOCK-20M-100%RB



## HIGH BAND EDGE BLOCK-20M-100%RB



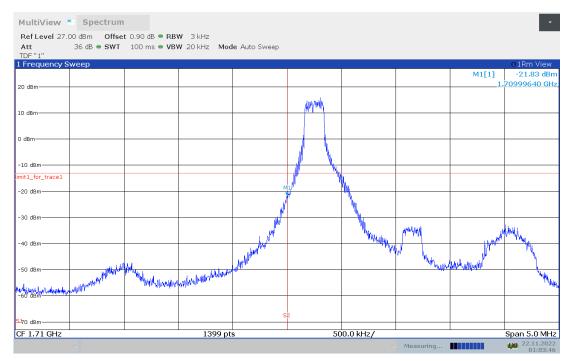




# OBW: 1RB-LOW\_offset

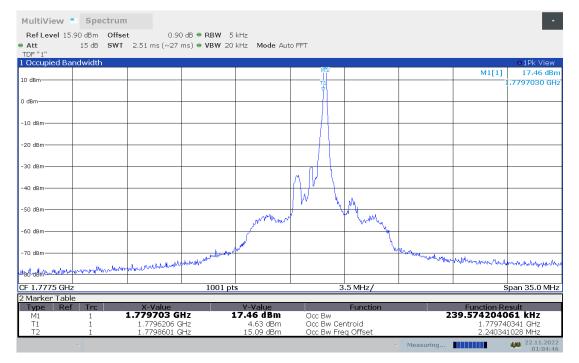


# LOW BAND EDGE BLOCK-1RB-LOW\_offset

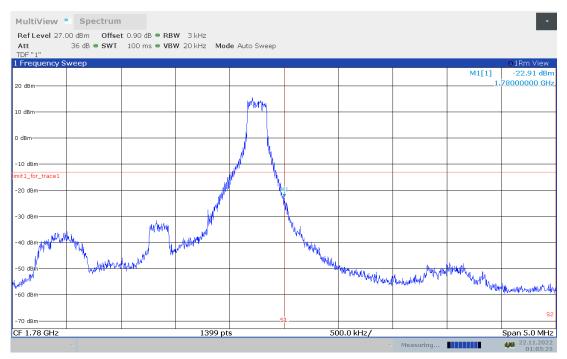




# OBW: 1RB-HIGH\_offset

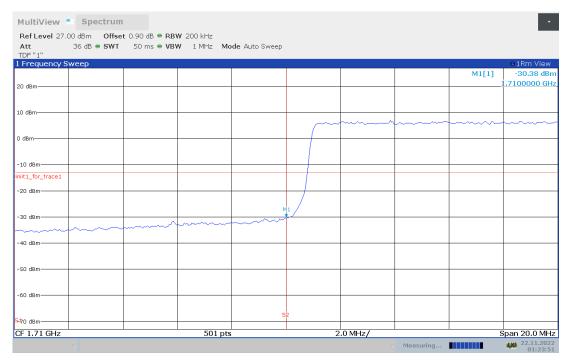


## HIGH BAND EDGE BLOCK-1RB-HIGH\_offset

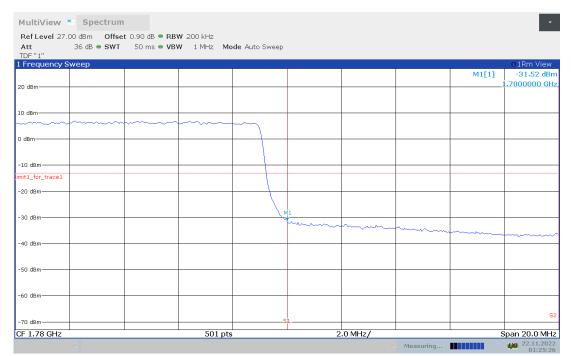




#### LOW BAND EDGE BLOCK-20M-100%RB



#### HIGH BAND EDGE BLOCK-20M-100%RB



Note: Expanded measurement uncertainty is U = 0.49dB(100KHz-2GHz)/1.21dB(2GHz-26.5GHz), k = 1.96



# 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.

- 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 2327 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 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2206 and 2300 MHz, 61 + 10 log (P) dB on all



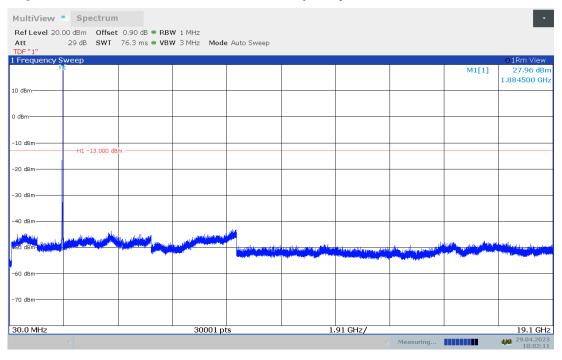
frequencies between 2292 and 2296 MHz,  $67 + 10 \log (P) dB$  on all frequencies between 2288 and 2292 MHz, and  $70 + 10 \log (P) dB$  below 2288 MHz; By a factor of not less than  $43 + 10 \log (P) dB$  on all frequencies between 2360 and 2365 MHz, and not less than  $70 + 10 \log (P) dB$  above 2365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

#### A. 7.3 Measurement result

Only worst case result is given below

#### LTE band 2 10MHz QPSK:: 30MHz – 19.1GHz

Spurious emission limit –13dBm.

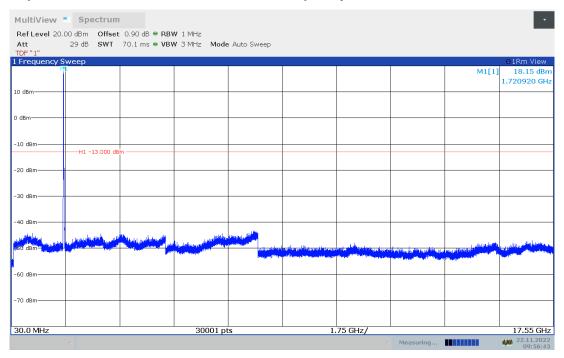




## LTE band 4 5MHz QPSK: : 30MHz – 17.55GHz

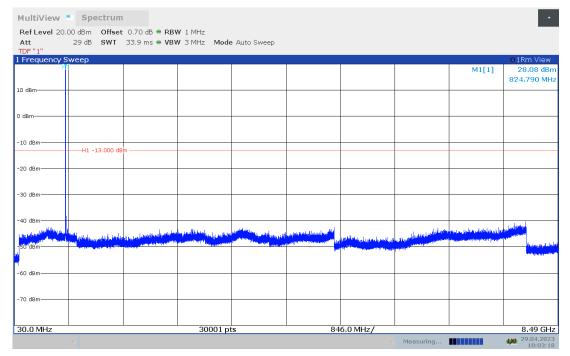
Spurious emission limit –13dBm.

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



#### LTE band 5 1.4MHz QPSK: 30MHz - 8.49GHz

#### Spurious emission limit -25dBm.

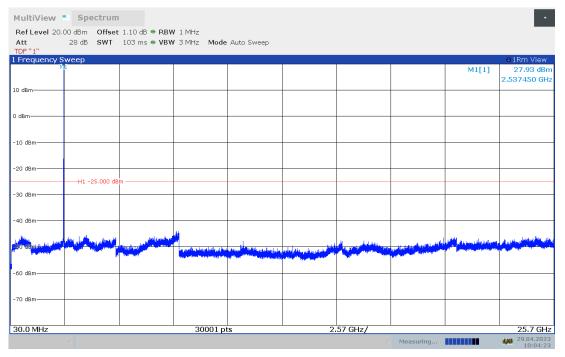




# LTE band 7 5MHz QPSK: 30MHz – 25.7GHz

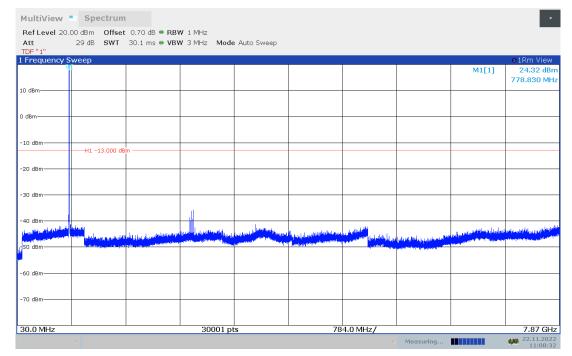
Spurious emission limit -25dBm.

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



## LTE band 13 5MHz QPSK: 30MHz – 7.87GHz

Spurious emission limit –13dBm.

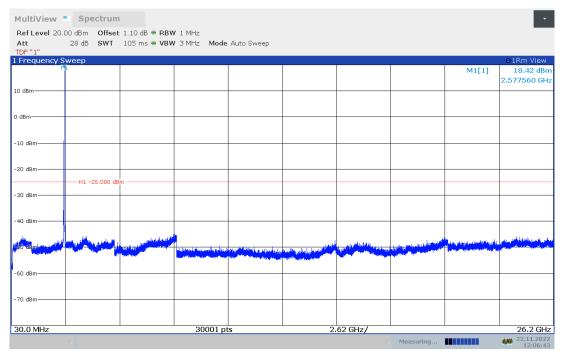




## LTE band 38 20MHz QPSK: 30MHz – 26.2GHz

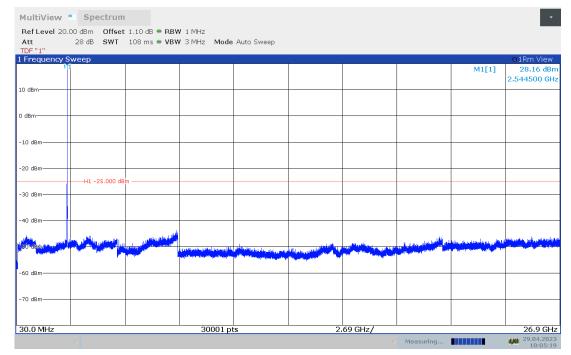
Spurious emission limit -25dBm.

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



## LTE band 41 20MHz QPSK: 30MHz – 26.55GHz

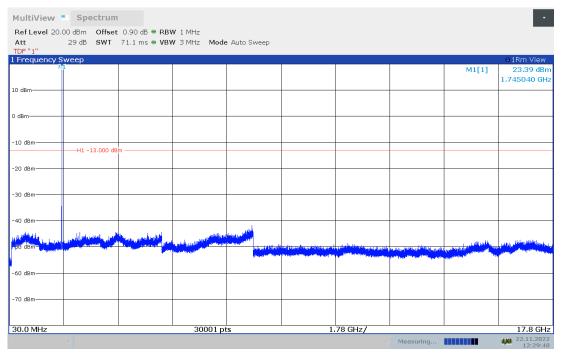
Spurious emission limit –25dBm.





# LTE Band 66 1.4MHz QPSK: 30MHz – 17.8GHz

Spurious emission limit –13dBm.





# A.8 PEAK-TO-AVERAGE POWER RATIO

#### Reference

FCC: CFR Part 24.232, 27.50(d), KDB971168 D01(5.7).

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

	Bandwidth(MHz)	PAPR(dB)		
Frequency(MHz)		QPSK	16QAM	
1880.0	20	5.66	6.46	

## LTE band 2, 20MHz Bandwidth, QPSK (PAPR)





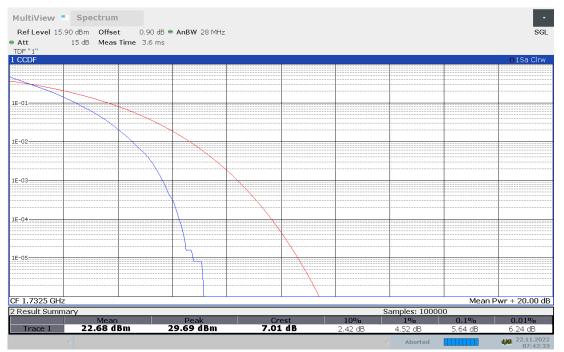


## LTE band 2, 20MHz Bandwidth, 16QAM (PAPR)



	Bandwidth(MHz)	PAPR(dB)		
Frequency(MHz)		QPSK	16QAM	
1732.5	20	5.64	6.34	

## LTE band 4, 20MHz Bandwidth, QPSK (PAPR)



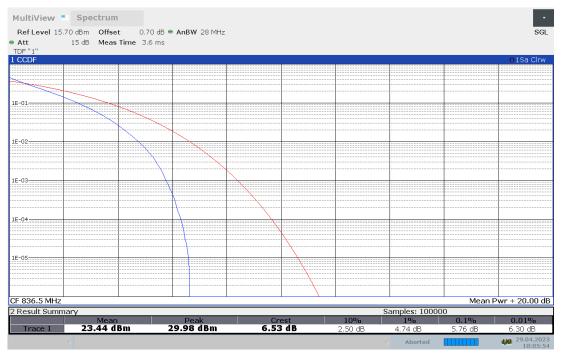
## LTE band 4, 20MHz Bandwidth, 16QAM (PAPR)



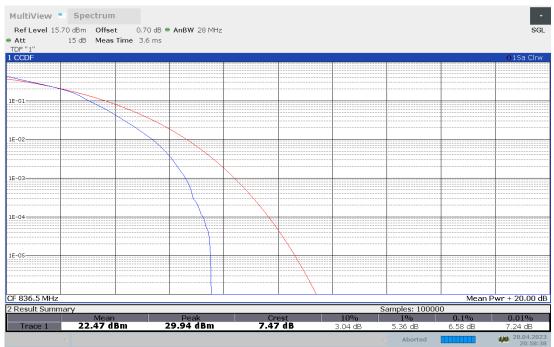


Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
Frequency(MHZ)		QPSK	16QAM	
826.5	10	5.76	6.58	

## LTE band 5, 10MHz Bandwidth, QPSK (PAPR)



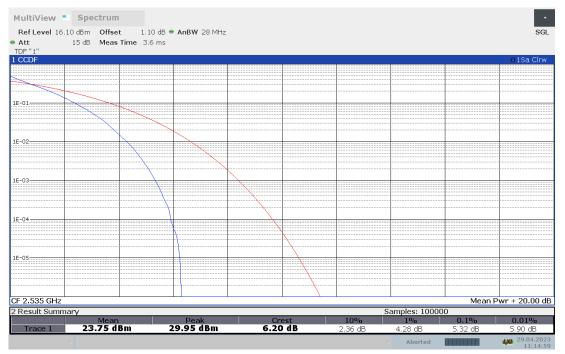




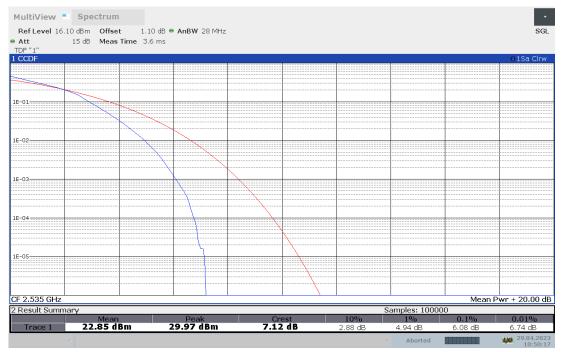


Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
Frequency(MHZ)		QPSK	16QAM	
2535.0	20	5.32	6.08	

## LTE band 7, 20MHz Bandwidth, QPSK (PAPR)



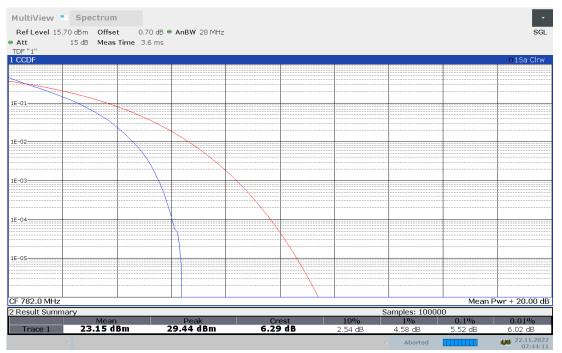
# LTE band 7, 20MHz Bandwidth, 16QAM (PAPR)





Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)		
Frequency(MHZ)		QPSK	16QAM	
782.0	10	5.52	6.36	

## LTE band 13, 10MHz Bandwidth, QPSK (PAPR)



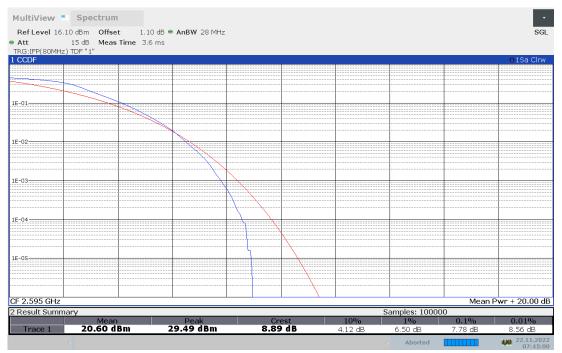
# LTE band 13, 10MHz Bandwidth, 16QAM (PAPR)





Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
2595.0	20	7.78	8.48

#### LTE band 38, 20MHz Bandwidth, QPSK (PAPR)



# LTE band 38, 20MHz Bandwidth, 16QAM (PAPR)



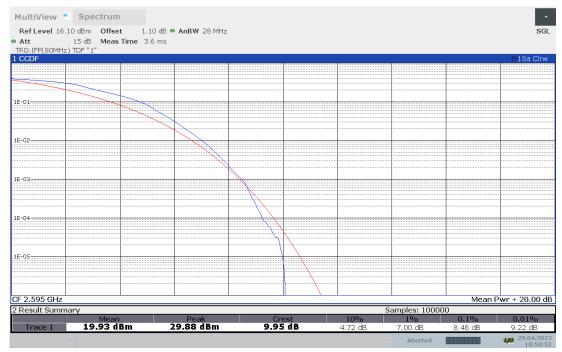


Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
2335.0	20	12.54	8.46

## LTE band 41, 20MHz Bandwidth, QPSK (PAPR)



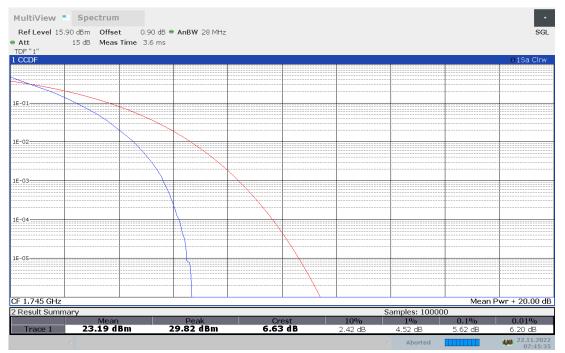
# LTE band 41, 20MHz Bandwidth, 16QAM (PAPR)



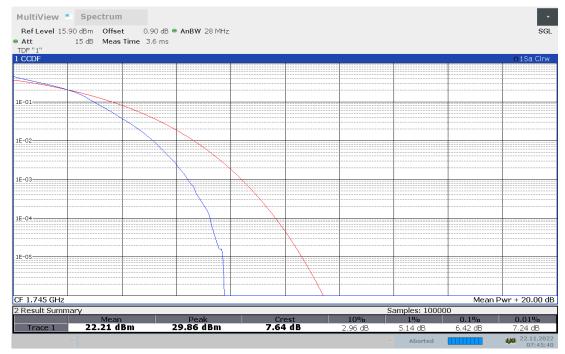


Frequency(MHz)	Bandwidth(MHz)	PAPR(dB)	
		QPSK	16QAM
1745.0	20	5.62	6.42

#### LTE band 66, 20MHz Bandwidth, QPSK (PAPR)



# LTE band 66, 20MHz Bandwidth, 16QAM (PAPR)



Note: Expanded measurement uncertainty is U = 0.48, k = 2

#### \*\*\*END OF REPORT\*\*\*