



#### n77H,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	38.600	38.840

# n77H,40MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



10:33:42 07.11.2023

# n77H,40MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







#### n77H,50MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	48.700	49.000

# n77H,50MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



10:34:46 07.11.2023

# n77H,50MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







#### n77H,60MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	60.960	61.140

# n77H,60MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



10:35:44 07.11.2023

# n77H,60MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







#### n77H,70MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	67.340	67.760

## n77H,70MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



10:36:42 07.11.2023

# n77H,70MHz Bandwidth,DFT-s-QPSK (-26dBc BW)



10:36:59 07.11.2023





#### n77H,80MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	82.480	82.240

# n77H,80MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



10:37:40 07.11.2023

# n77H,80MHz Bandwidth,DFT-s-QPSK (-26dBc BW)



10:37:56 07.11.2023





#### n77H,90MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	92.250	92.250

# n77H,90MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



10:38:37 07.11.2023

# n77H,90MHz Bandwidth,DFT-s-QPSK (-26dBc BW)



10:38:54 07.11.2023





#### n77H,100MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	102.200	102.200

#### n77H,100MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



10:39:35 07.11.2023

#### n77H,100MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,10MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	9.770	9.890

#### n78L,10MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:50:15 07.11.2023

#### n78L,10MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,20MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	19.660	19.241

#### n78L,20MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:51:13 07.11.2023

#### n78L,20MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,30MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	28.681	28.501

#### n78L,30MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:52:11 07.11.2023

#### n78L,30MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,40MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	38.720	38.840

#### n78L,40MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:53:09 07.11.2023

#### n78L,40MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,50MHz(-26dBc)

Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	48.850	48.850

#### n78L,50MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:54:07 07.11.2023

#### n78L,50MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,60MHz(-26dBc)

	Emission Bandwidth (-26dBc) (MHz)				
	DFT-s-pi/2 BPSK	DFT-s-QPSK			
3500.01	60.780	61.140			

#### n78L,60MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:55:05 07.11.2023

#### n78L,60MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,70MHz(-26dBc)

	Emission Bandwidth (-26dBc) (MHz)				
	DFT-s-pi/2 BPSK	DFT-s-QPSK			
3500.01	67.550	67.760			

#### n78L,70MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:57:51 07.11.2023

#### n78L,70MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,80MHz(-26dBc)

	Emission Bandwidth (-26dBc) (MHz)				
	DFT-s-pi/2 BPSK	DFT-s-QPSK			
3500.01	82.480	82.240			

#### n78L,80MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



14:59:45 07.11.2023

#### n78L,80MHz Bandwidth,DFT-s-QPSK (-26dBc BW)







n78L,90MHz(-26dBc)

	Emission Bandwidth (-26dBc) (MHz)				
	DFT-s-pi/2 BPSK	DFT-s-QPSK			
3500.01	92.250	92.250			

#### n78L,90MHz Bandwidth,DFT-s-pi/2 BPSK (-26dBc BW)



15:00:43 07.11.2023

#### n78L,90MHz Bandwidth,DFT-s-QPSK (-26dBc BW)



Note: The maximum value of expanded measurement uncertainty for this test item is U = 0.626 kHz, k = 2. ©Copyright. All rights reserved by CTTL. Page 541 of 601





# A.6 Band Edge Compliance

#### A.6.1 Measurement limit

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

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 + 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(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.

Part 27.53(n) states for mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed –13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz 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, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Part 27.53(I) states for mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.

Compliance with this paragraph (I)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall





be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The spectrum analyzer readings are corrected by [10 log (1/duty cycle)] for the non-continuous transmitting scenario.





# A.6.2 Measurement result NR n2

#### OBW: 1RB-LOW\_offset



14:37:10 14.11.2023

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







#### OBW: 1RB-HIGH\_offset



14:38:45 14.11.2023

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



14:39:33 14.11.2023





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



14:40:53 14.11.2023

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



14:42:04 14.11.2023





#### NR n5

#### OBW: 1RB-LOW\_offset



08:55:59 08.11.2023

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







#### OBW: 1RB-HIGH\_offset



08:57:38 08.11.2023

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







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



08:59:45 08.11.2023

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



09:00:53 08.11.2023





# NR n7 OBW: 1RB-LOW\_offset



16:13:23 07.11.2023

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

MultiView	Spectrum								
Ref Level 26.00	dBm Offsel	t 1.20 dB • RB	N 10 kHz N 50 kHz Moo	a Auto Sween				5	GL
TDF "1"	54 GD © 5111	50 ms <b>- 4</b> 5	1 30 KHZ 1400	e Ado owcop					Sount 1007 100
1 Frequency Swi	еер					1		M1[1]	-39.58 dBm
20 dBm								2.	499 995 00 GHz
10 dBm									
0 dBm									
-10 dBm									
imiti_for_trace1									
-20 dBm									
-30 dBm									
-40 dBm									
								1	frank
-50 dBm									
				mmm	~~~~~~~				
~60'd8m~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man	manute						
-70 dBm									
2 499 GHz			501 pts		10	0 0 kHz/			2.5.GHz
21122 0112			501 pts	•		7010 Ki 12/	Ready		07.11.2023
									16:14:09

16:14:09 07.11.2023





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



16:14:55 07.11.2023

#### **Channel power**



16:15:12 07.11.2023





#### OBW: 1RB-HIGH\_offset



16:15:58 07.11.2023

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



16:16:44 07.11.2023





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



16:17:30 07.11.2023

#### **Channel power**



16:17:47 07.11.2023





## LOW BAND EDGE BLOCK-40M-100%RB



16:19:10 07.11.2023

#### **Channel power**



16:19:27 07.11.2023





## LOW BAND EDGE BLOCK-40M-100%RB



16:20:13 07.11.2023

## HIGH BAND EDGE BLOCK-40M-100%RB

MultiView     Spectrum     SGL Count 100/100       Ref Level 25.00 dBm     Offset 1.20 dB = RBW 1 MHz Att     3d B = SWT     50 ms = VBW 5 MHz     Mode Auto Sweep     Count 100/100       IF requency Sweep     Offen Avg     M1[1]     -3.01 dBm       20 dBm     M1     -3.01 dBm     -2.570002 00 GHz       10 dBm     M1     -3.01 dBm     -2.570002 00 GHz       -00 dBm     M1     -3.01 dBm     -3.01 dBm       -20 dBm     M1     -3.01 dBm     -3.01 dBm       -30 dBm     M1     -4.01 dBm     -4.01 dBm     -4.01 dBm       -50 dBm     M1     -4.01 dBm     -4.01 dBm     -4.01 dBm       -50 dBm     M1										<b>\$</b>
SGL Count 100/100     Att 34 9 SWT 50 ms VBW 5 MHz Mode Auto Sweep   SGL Count 100/100     D IPrequency Sweep   SGL Count 100/100     Count 100/100     D IPrequency Sweep   OIPR Avg     20 dbm   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0	MultiView	Spectrum								
Att     Studie SWI     SUINS VEW SMILE Wold Addo Sweep     Count 100/100       IFrequency Sweep     M1[1]     -3.01 dBm     -2.570 002 00 GHz       20 dBm     2.570 002 00 GHz     -2.570 002 00 GHz     -2.570 002 00 GHz       10 dbm     -2.570 002 00 GHz     -2.570 002 00 GHz     -2.570 002 00 GHz       10 dbm     -2.570 002 00 GHz     -2.570 002 00 GHz     -2.570 002 00 GHz       10 dbm     -2.570 002 00 GHz     -2.570 002 00 GHz     -2.570 002 00 GHz       10 dbm     -2.570 002 00 GHz     -2.570 002 00 GHz     -2.570 002 00 GHz       10 dbm     -2.570 GHz     -2.571 GHz     -2.571 GHz     -2.571 GHz	Ref Level 26.	00 dBm Offse	t 1.20 dB • RBV	V 1 MHz	Auto Curren				S	GL
If requency Sweep     0 IBm Avg       20 dBm     M1[1]     -3.01 dBm       10 dBm     2.570 002 00 GHz       10 dBm     2.571 GHz       20 dBm     2.571 GHz       20 dBm     2.571 GHz	TDF "1"	34 0D 🖶 3 W I	50 ms 🖶 VBY	Y SIMINZ MODE	: Auto Sweep					ount 100/100
20 dbm 2.570 dbm   10 dbm 2.570 dbm   20 dbm 2.571 dbm   2.57 GHz 501 pts	1 Frequency S	weep								O 1Rm Avg
10 dbm <td>20 dBm</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>MI[1]</td> <td>-3.01 dBm</td>	20 dBm								MI[1]	-3.01 dBm
10 dam Image: Constraint of the second sec	Lo dom									
10 dem	10 40-									
Idem	10 UBM									
11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0										
-20 dBm	dBm									
-20 dBm -30 dBm -40 dBm -50 dB										
-20 dBm	limit1_for_trace1									
20 dBm										
-30 dBm -40 dBm -40 dBm -50 dBm -60 dBm -70 dBm -70 dBm -2.57 GHz 501 pts 100.0 kHz/ 2.571 GHz 2.571 GHz	-20 dBm									
-30 dBm										
-40 dBm	-30 dBm									
-40 dBm										
-50 dBm	-40 dBm									
50 dBm										
-60 dBm	-50 dBm									
-60 d8m										
-70 dBm 2.57 GHz 501 pts 100.0 kHz/ 2.571 GHz	-60 dBm									
-70 dBm 257 GHz 501 pts 100.0 kHz/ 2.571 GHz										
2.57 GHz 501 pts 100.0 kHz/ 2.571 GHz	-70 dBm									
	2.57 GHz	1		501 pts		10	) 00.0 kHz/			2.571 GHz
Ready		~					-	Ready		07.11.2023

16:21:24 07.11.2023





#### **Channel power**



16:21:41 07.11.2023

#### HIGH BAND EDGE BLOCK-40M-100%RB



16:22:27 07.11.2023





#### NR n25

#### OBW: 1RB-LOW\_offset



17:48:49 07.11.2023

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



17:49:36 07.11.2023





#### OBW: 1RB-HIGH\_offset



17:50:27 07.11.2023

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







## LOW BAND EDGE BLOCK-40M-100%RB



17:52:31 07.11.2023

#### HIGH BAND EDGE BLOCK-40M-100%RB



17:53:40 07.11.2023





#### NR n38

#### OBW: 1RB-LOW\_offset



11:16:40 15.11.2023

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



11:17:23 15.11.2023





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



#### OBW: 1RB-HIGH\_offset



11:18:51 15.11.2023




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



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



11:20:15 15.11.2023





## LOW BAND EDGE BLOCK-40M-100%RB



11:21:30 15.11.2023

#### **Channel power**



11:21:47 15.11.2023





## LOW BAND EDGE BLOCK-40M-100%RB



#### HIGH BAND EDGE BLOCK-40M-100%RB

									<b></b>
MultiView	Spectrum								
Ref Level 26.0 Att	00 dBm Offse 27 dB • SWT	t 8.20 dB ● RB 3 s ● VBV	N/1 MHz N/5 MHz Mode	e Auto Sweep					
TDF "1"									o 1Des Maria
I Frequency S	weep							M1[1]	-31.22 dBm
20 dBm								2.6	20 342 30 GHz
10 dBm									
0 dBm									
imit1 for trace1									
-20 dBm									
-30 dBm			M1						
	hand be have a second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man		roman	·	m
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
2.62 GHz	1	1	501 pts		10	1 00.0 kHz/		1	2.621 GHz
	~					~	Measuring		15.11.2023 11:23:36

11:23:36 15.11.2023





#### HIGH BAND EDGE BLOCK-40M-100%RB



11:24:17 15.11.2023





#### NR n41

### OBW: 1RB-LOW\_offset



08:20:37 08.11.2023

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



08:23:36 08.11.2023





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



08:24:18 08.11.2023

#### **Channel power**



08:24:35 08.11.2023





#### OBW: 1RB-HIGH\_offset



08:27:35 08.11.2023

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







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



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

									<b></b>
MultiView	Spectrum								
Deflevel 26	00 dBm Offee	t 8 20 dB 🖷 DBV	N 1 MHz						
Att	27 dB • SWT	3 s = VBV	V 5 MHz Mode	e Auto Sweep					
TDF "1"									
1 Frequency S	Sweep					L			IRm View
00.40.0								M1[1]	-10.74 dBm
20 dBm-								-2.4	95 998 00 GHZ
10 dBm									
0 dBm									
10.45.0									M1
-10 dBm-									······································
limit1_for_trace1								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
-20 dBm									
-30 dBm			mun						
······································									
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
2.495 GHz			501 pts		10	0.0 kHz/			2.496 GHz
							Measuring		07.11.2023
									10,00,24

18:00:24 07.11.2023





## **Channel power**



18:00:41 07.11.2023

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

									<b>I</b>
MultiView	Spectrum								
Ref Level 26.	00 dBm Offse	t 8.20 dB • RB	W 1 MHz	Auto Curre					
TDF "1"	27 00 - 5W	5 S 🖷 VB1		e Auto sweep					- 15 11
1 Frequency S	weep							M1[1]	-33,11 dBm
20 dBm								2	494 973 0 GHz-
10 dBm									
0 dam									
o dom									
-10 dBm									
-20 dBm									
limit1_for_trace1									
-30 dBm					· · · · · · · · · · · · · · · · · · ·	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			M1
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
2.489 5 GHz			501 pts		55	0.0 kHz/			2.495 GHz
							Measuring		07.11.2023 18:01:22

18:01:23 07.11.2023





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



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



18:03:11 07.11.2023





#### **NR n66**

### OBW: 1RB-LOW\_offset



18:04:58 07.11.2023

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







### OBW: 1RB-HIGH\_offset



18:06:33 07.11.2023

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



18:07:21 07.11.2023





## LOW BAND EDGE BLOCK-40M-100%RB



18:08:41 07.11.2023

#### HIGH BAND EDGE BLOCK-40M-100%RB

									<b></b>
MultiView	Spectrum								
Ref Level 26.	00 dBm Offse	t 0.80 dB 🖷 RBV	<b>V</b> 500 kHz					5	GL
Att TDF "1"	35 dB 👄 SWT	50 ms 🖷 VBV	V 2 MHz Mo	de Auto Sweep				(	ount 100/100
1 Frequency S	weep							M1[1]	O 1Rm Avg 10 OF dBee
20 dBm								MI[I]	-18.35 dBm 780 000 0 GHz
10 dBm									
<u> </u>									
0 dBm									
-10 dBm									
limit1_for_trace1					1				
-20 dBm									
-30 dBm									
10 40-1									
-40 UBM									
-50 d8m									
-60 dBm									
-70 dBm				s	1				S2
CF 1.78 GHz	1		501 pts		:	1 2.0 MHz/	I	:	5pan 20.0 MHz
	v					~	Ready		07.11.2023 18:09:48

18:09:49 07.11.2023





# NR n71 OBW: 1RB-LOW\_offset



09:01:47 08.11.2023

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



09:02:29 08.11.2023





#### OBW: 1RB-HIGH\_offset



09:03:20 08.11.2023

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



09:04:02 08.11.2023





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



09:05:21 08.11.2023

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







## NR n77L OBW: 1RB-LOW\_offset



11:00:49 07.11.2023

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



11:01:45 07.11.2023





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



11:02:25 07.11.2023

#### OBW: 1RB-HIGH\_offset



11:03:10 07.11.2023





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



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



11:04:42 07.11.2023





## LOW BAND EDGE BLOCK-90M-100%RB



## LOW BAND EDGE BLOCK-90M-100%RB

									- 📀
MultiView	Spectrum								
Ref Level 26.	00 dBm Offse	t 8.50 dB 🖷 RBN	<b>V</b> 500 kHz						
Att	27 dB 🖷 SWT	3 s 🗢 VBN	N 3 MHz Mo	de Auto Sweep					
TDF "1" 1 Frequency S	weep								●1Rm View
								M1[1]	-36.67 dBm
20 dBm								3.4	47 231 50 GHz-
10 dBm									
0 dBm									
-10 dBm									
limit1_for_trace1									
-20 dBm									
-30 dBm									
					M1				
-40 dBm	mon	m	mannen	www.	mmulin	man	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mann	
-40 UBIN									
FR dRa									
-50 UBIN									
-6U dBm									
-70 dBm-									
3.445 GHz		•	501 pts		40	0.0 kHz/			3.449 GHz
	~					~	Measuring		07.11.2023 10:45:54

10:45:54 07.11.2023





#### HIGH BAND EDGE BLOCK-90M-100%RB



#### HIGH BAND EDGE BLOCK-90M-100%RB

									<b></b>
MultiView	Spectrum								•
Ref Level 26	00 dBm Offse	t 8.50 dB 🖷 RBV	<b>∀</b> 500 kHz						
Att	27 dB 🖷 SWT	3 s 🖷 VBN	N 3 MHz Mo	de Auto Sweep					
TDF "1" 1 Frequency S	Sweep								●1Rm View
								M1[1]	-33.36 dBm
20 dBm								3.5	54 101 80 GHz
10 dBm									
0 dBm									
-10 dBm									
limit1_for_trace1									
-20 dBm									
-30 dBm							M1		
mmm	mono	······	mound		mm	mm	momm	munit	mm
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
3.551 GHz			501 pts		40	00.0 kHz/			3.555 GHz
							Measuring		10:47:40

10:47:40 07.11.2023





## NR n77H OBW: 1RB-LOW\_offset



10:51:50 07.11.2023

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



10:52:31 07.11.2023





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



10:53:10 07.11.2023

#### OBW: 1RB-HIGH\_offset



10:53:50 07.11.2023





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



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

MultiView	Spectrum								-
RefLevel 27	00 dBm Offse	t 8 50 dB 🖷 BB	₩ 500 kHz						
Att	28 dB • SWT	3 s = VB	V 3 MHz Mo	de Auto Sweep					
TDF "1"									
1 Frequency S	weep	1				1	1		O1Rm View
								MI[I]	-34,43 dBm
20 dBm									8101200 GHZ
10 dBm									
0 dBm									
-10 dBm									
limit1_for_trace1									
-20 dBm									
- 30 dBm									
MI Z.									
mon									
-4U dBm-		· · · · · · · · · · · · · · · · · · ·	· ····································						
					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	*******		
-50 dBm									
-60 dBm									
-70 dBm			504						0.005.011
3.981 GHz			501 pts		40	JU.U KHZ/			3.985 GHz
	~					~	Measuring		10:55:47

10:55:48 07.11.2023





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



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



10:58:07 07.11.2023





#### NR n78L

## OBW: 1RB-LOW\_offset



15:01:46 07.11.2023

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



15:02:29 07.11.2023





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



15:03:08 07.11.2023

#### OBW: 1RB-HIGH\_offset



15:03:52 07.11.2023





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



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

MultiView     Spectrum       Ref Level 27.00 dfm     Offset 8.50 db * RBW 500 kHz       Att     2 d db * SWT     3 s * VBW     3 MHz     Mode Auto Sweep       IFrequency Sweep     IFrequency Sweep     IFrequency Sweep     IFrequency Sweep     IFrequency Sweep       20 dbm     IFrequency Sweep										<b>I</b>
Ref Level 27.00 dBm   Offset 8.50 dB @ RBW 500 kH2     Att   28 dB & SW1   3 s & VBW   3 MH2   Mode Auto Sweep     Image: Constraint of the state of	MultiView	Spectrum								•
Att   28 dB + SWT   3 s + VBW   3 Mitz   Mode Auto Sweep     TDF "L"   Infequency Sweep   Official and	Ref Level 27.	00 dBm Offse	t 8.50 dB 🖷 RBN	<b>№</b> 500 kHz						_
O IRM View     O IRM View     10 dm   3.5 1027 90 GHz     10 dm   1   1   3.5 1027 90 GHz     10 dm   1   1   1   1   1     0 dm   1   1   1   1   1   1     10 dm   1   1   1   1   1   1   1     0 dm   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1 <td>Att</td> <td>28 dB 🖷 SWT</td> <td>3 s 👄 VBN</td> <td>N 3 MHz Mo</td> <td>de Auto Sweep</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Att	28 dB 🖷 SWT	3 s 👄 VBN	N 3 MHz Mo	de Auto Sweep					
20 dbm   M1[1]   -31.41 dbm     20 dbm   3.551 027.90 GHz   3.551 027.90 GHz     10 dbm   10 dbm   10 dbm   10 dbm     0 dbm   10 dbm   10 dbm   10 dbm   10 dbm     0 dbm   10 dbm   10 dbm   10 dbm   10 dbm   10 dbm     -10 dbm   10 dbm   10 dbm   10 dbm   10 dbm   10 dbm     -10 dbm   10 dbm   10 dbm   10 dbm   10 dbm   10 dbm   10 dbm     -10 dbm   10 db	TDF "1" 1 Erequency S	weep								o 1Rm View
20 dBm   Image: state									M1[1]	-31.41 dBm
10 dm   Image: state s	20 dBm								3.5	51 027 90 GHz
10 dm   Image: state s										
0 dBm   Image: state s	10 dBm									
0 dbm   Image: state s										
-10 dBm	0 dBm									
-10 dsm -1										
-10 dam -10 a	-10 d8m									
-20 dBm	limit1 for trace1									
-20 dBm Mi do dBm -40 dBm -50 dBm -50 dBm -70 dBm -	Inner_Ior_cracer									
Minor Image: Solution of the second	-20 dBm									
-40 dBm -40 dBm -50 dBm -50 dBm -50 dBm -70	M1									
-40 dBm -40 dBm -50 dBm -50 dBm -60 dBm -60 dBm -70 dBm -50	▼30 dBm									
-40 dBm	"man	mm.								
-50 dBm -60 dBm -70	-40 dBm		······································	~~~~~~						
-50 dBm							· ····································	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
-60 dBm	-50 dBm									
-60 d8m										
-70 dBm 3.551 GHz 501 pts 400.0 kHz/ 3.555 GHz 0.11.2023	-60 dBm									
-70 dBm										
3.551 GHz 501 pts 400.0 kHz/ 3.555 GHz	-70 dBm									
Measuring 07.11.2023	3.551 GHz	1	1	501 pts		40	0.0 kHz/	1		3.555 GHz
LITER DATE OF CONTRACT OF C								Measuring		••• 07.11.2023 15:05:19

15:05:20 07.11.2023





## LOW BAND EDGE BLOCK-90M-100%RB



## LOW BAND EDGE BLOCK-90M-100%RB

									- 🗞
MultiView	Spectrum								
Ref Level 26.	00 dBm Offse	t 8.50 dB 🖷 RBV	<b>V</b> 500 kHz						
Att	27 dB 🖷 SWT	3 s 👄 VBV	V 3 MHz Mo	de Auto Sweep					
TDF "1"	ween								0 1Rm View
								M1[1]	-36,48 dBm
20 dBm								3.4	48 908 20 GHz
10 dBm									
0 dBm									
-10 dBm									
limit1_for_trace1									
00. d0m									
-20 uBm									
-30 dBm									M1
mon	mon	mann	~~~~~	and the second second	human	minim			mount
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
3.445 GHz			501 pts		40	0.0 kHz/			3.449 GHz
	~					~	Measuring		07.11.2023
									10107109

15:07:10 07.11.2023





#### HIGH BAND EDGE BLOCK-90M-100%RB



## HIGH BAND EDGE BLOCK-90M-100%RB



15:08:56 07.11.2023

Note: The maximum value of expanded measurement uncertainty for this test item is U = 0.626 kHz, k = 2.





## A.7 Conducted Spurious Emission

### A.7.1 Measurement Method

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

1. In measuring unwanted emissions, the spectrum shall be investigated from 30 MHz or the lowest radio frequency signal generated in the equipment, whichever is lower, without going below 9 kHz, up to at least the frequency given below:

(a) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(b) If the equipment operates at or above 10 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

- 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 greater than  $2 \times \text{span/RBW}$ .

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

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 + 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(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.

Part 27.53(n) states for mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz 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, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Part 27.53(I) states for mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (I)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.





### A. 7.3 Measurement result

#### n5

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



### n7

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







## n25 NOTE: peak above the limit line is the carrier frequency.



## n41 NOTE: peak above the limit line is the carrier frequency.







## n66 NOTE: peak above the limit line is the carrier frequency.



## n71 NOTE: peak above the limit line is the carrier frequency.







# n77L NOTE: peak above the limit line is the carrier frequency.



## n77H NOTE: peak above the limit line is the carrier frequency.






## n78L NOTE: peak above the limit line is the carrier frequency.



Note: The maximum value of expanded measurement uncertainty for this test item is U = 0.372 dB, k = 2.





### A.8 Peak-to-Average Power Ratio

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB

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) Record the maximum PAPR level associated with a probability of 0.1%.

#### Measurement results

#### n7,40MHz

Frequency (MHz)		PAPR (dB)									
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM		
2535	4.78	5.00	6.08	6.48	6.54	7.82	7.72	8.04	8.36		

#### n25,40MHz

Frequency (MHz)		PAPR (dB)									
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM		
1882.5	4.88	5.04	6.20	6.58	6.52	8.06	8.08	8.40	8.34		

#### n41,100MHz

Frequency (MHz)		PAPR (dB)									
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM		
2592.99	4.34	5.58	6.33	6.44	6.59	7.60	7.44	7.58	8.31		

#### n66,40MHz

Frequency (MHz)		PAPR (dB)								
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM	
1745	4.88	4.98	6.10	6.48	6.58	8.12	8.28	8.42	8.34	

#### n71,20MHz

Frequency (MHz)		PAPR (dB)									
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM		
680.5	4.40	5.46	6.40	6.44	6.54	7.68	7.88	8.26	8.34		

#### n77L,90MHz

Frequency (MHz)		PAPR (dB)									
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM		
3500.01	4.37	4.99	5.93	6.69	6.78	8.52	6.85	8.51	8.62		





#### n77H,100MHz

Frequency (MHz)		PAPR (dB)									
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM		
3840	4.80	4.84	6.20	6.58	6.68	8.25	8.27	8.69	8.48		

#### n78L,90MHz

Frequency (MHz)		PAPR (dB)									
	DFT-s-pi/2 BPSK	DFT-s-QPSK	DFT-s-16QAM	DFT-s-64QAM	DFT-s-256QAM	CP-QPSK	CP-16QAM	CP-64QAM	CP-256QAM		
3500.01	4.50	5.85	6.51	6.65	6.76	8.47	8.44	8.51	8.69		

Note: The maximum value of expanded measurement uncertainty for this test item is U = 0.356 dB, k = 2.





# **Annex B: Accreditation Certificate**





# **Accredited Laboratory**

A2LA has accredited

## **TELECOMMUNICATION TECHNOLOGY LABS, CAICT**

Beijing, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 26<sup>th</sup> day of June 2023.

Mr. Trace McInturff, Vice President, Accreditation Services For the Accreditation Council Certificate Number 7049.01 Valid to July 31, 2024

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

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