



FCC RF Test Report

(Booster/5G-NR)

Applicant: Nextivity, Inc.

Address of Applicant: 16550 West Bernardo Drive, Building 5, Suite 550, San Diego, CA 92127 USA

Product Name: Cellphone Signal Booster

Model No.: NU: Q51-SXNU, CU: Q51-SXCU

Brand Name: CEL-FI

FCC ID: NU: YETQ51-SXNU, CU: YETQ51-SXCU

Test Standards: FCC CFR Title 47 Part 2, Part 20 (§20.21), Part 22H, Part 24E, Part 27H, Part 27L, Part 27M, Part 27O, Part 27Q, Part 90R

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Prepared By:

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Report Revision History

Rev.	Issue Date	Description
V00	Jul. 17, 2026	Initial Release
V01	Jul. 31, 2026	1. Added Noise Figure on page 7. 2. Added Noise Figure test data on page 124~125. 3. Updated Remark on Page 115~123.



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1 Laboratory Introduction

1.1 Laboratory Location

Company Name:	Shenzhen Acote Technology Co., Ltd.
Address of Laboratory:	Room 719, Excellence Times Building, No. 27, Xinqiao 3rd Road, Xinqiao Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong Province, China.
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Website:	www.acotelabs.com
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1.2 Laboratory Facility

Our company's laboratory facilities have received accreditation, certification, or authorization from the following organizations:

- **FCC - Designation No.: CN1450**
Shenzhen Acote Technology Co., Ltd. has been certified by the FCC (Federal Communications Commission) as a testing laboratory. Test Firm Registration Number: **832670**.
- **ISED - CAB Identifier: CN0202**
Shenzhen Acote Technology Co., Ltd. is registered with ISED (Innovation, Science and Economic Development Canada) as a Conformity Assessment Body (CAB) for radio equipment testing.
- **A2LA - Accreditation Number: 7697.01**
Shenzhen Acote Technology Co., Ltd. has been accredited by A2LA (American Association for Laboratory Accreditation) in compliance with the internationally recognized standard ISO/IEC 17025:2017, "General Requirements for the Competence of Testing and Calibration Laboratories."

1.3 Announcement

Shenzhen Acote Technology Co., Ltd. tested the equipment in accordance with the requirements set forth in the test standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by Shenzhen Acote Technology Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Shenzhen Acote Technology Co., Ltd. will constitute fraud and shall nullify the document.

1.4 Disclaimer

For the information or data provided by the client in this report, the relevant results or conclusions of this report are only made for these data or information. The testing laboratory is not responsible for the authenticity and accuracy of these data or information.

2 Equipment Under Test Information

2.1 Application Information

Applicant:	Nextivity, Inc.
Address of Applicant:	16550 West Bernardo Drive, Building 5, Suite 550, San Diego, CA 92127 USA
Manufacturer:	Nextivity, Inc.
Address of Manufacturer:	16550 West Bernardo Drive, Building 5, Suite 550, San Diego, CA 92127 USA

2.2 Product Information

Product Name:	Cellphone Signal Booster
Model No.:	NU: Q51-SXNU, CU: Q51-SXCU
Models of Product Family:	N/A
Description of Model Differentiation:	N/A
Hardware Version:	B
Software Version:	6_3_43

2.3 EUT Technical Parameters

Operation Frequency:	NR n2: 1850MHz ~ 1910MHz (UL), 1930MHz ~ 1990MHz (DL) NR n5: 824MHz ~ 849MHz (UL), 869MHz ~ 894MHz (DL) NR n7: 2500MHz ~ 2570MHz (UL), 2620MHz ~ 2690MHz (DL) NR n12: 699MHz ~ 716MHz (UL), 729MHz ~ 746MHz (DL) NR n14: 788MHz ~ 798MHz (UL), 758MHz ~ 768MHz (DL) NR n25: 1850MHz ~ 1915MHz (UL), 1930MHz ~ 1995MHz (DL) NR n66: 1710MHz ~ 1780MHz (UL), 2110MHz ~ 2200MHz (DL) NR n77: 3450MHz ~ 3550MHz (UL), 3450MHz ~ 3550MHz (DL) NR n77: 3700MHz ~ 3980MHz (UL), 3700MHz ~ 3980MHz (DL)	
Antenna Type:	External Antenna Q51-FXNU: LPDA Antenna(A62-V44-200) Q51-FXCU: Omni Whip Antenna(A21-ML3-600)	
Antenna Gain:	Frequency Range	LPDA Antenna A62-V44-200 (with 65 cm Separation)
	617 - 960 MHz	12dBi
	1710 - 2700MHz	14dBi
	3300 - 4000MHz	12dBi
	Frequency Range (Service Bands)	Whip Antenna A21-ML3-600 (with 20 cm Separation)
	600, 700, 800, 850, 900	0.5dBi
	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	2.1dBi
	3300, 3500, 3600, 3700, 3450	1.5dBi
(declare by Applicant)		

Power Supply:	DC 48V (via EPS - POE)
AC/DC Adapter:	Model No.:Q50-XEPU Input: AC90-264V, 50/60Hz 4.85A Output: DC 57V, 1.9A 90W MAX
Test Sample Condition:	The test samples were provided in good working order with no visible defects.



3 Test Information

3.1 Test Methodology

The tests documented in this report were performed in accordance with:

- FCC CFR Title 47 Part 2
- FCC CFR Title 47 Part 20 (§20.21)
- FCC CFR Title 47 Part 22H
- FCC CFR Title 47 Part 24E
- FCC CFR Title 47 Part 27H, 27L, 27M, 27O, 27Q
- FCC CFR Title 47 Part 90R
- ANSI C63.26:2015
- KDB 935210 D03 Signal Booster Measurements v04r04
- KDB 935210 D05 Indus Booster Basic Meas v01r04

3.2 Test Result Summary

Report Section	Test Items	Frequency Band	Standard Clause	Test Result
5.1	AGC Threshold Level	/	KDB 935210 D05 (v01r04) Section 3.2	Pass
5.2	Out-of-band Rejection	/	KDB 935210 D05 (v01r04) Section 3.3	Pass
5.3	Input-versus-output Signal Comparison	/	§2.1049 KDB 935210 D05 (v01r04) Section 3.4	Pass
5.4	Mean Output Power and Amplifier/Booster Gain	/	§2.1046 KDB 935210 D05 (v01r04) Section 3.5	Pass
		n2, n25	§24.232	
		n66	§27.50 (d)	
		n5	§22.913 (a)	
		n7	§27.50 (h)	
		n12	§27.50 (c)	
		n14	§90.541 (a)	
		n77	§27.50 (j), (k)	
5.5	Noise Figure	n14	§90.219 (e)(2)	Pass
5.6	Out-of-Band/Out-of-Block (Including Intermodulation) Emissions and Spurious Emissions	/	§2.1051 KDB 935210 D05 (v01r04) Section 3.6	Pass
		n2, n25	§24.238 (a)	
		n66	§27.53 (h)	
		n5	§22.917 (a)	
		n7	§27.53 (m)	
		n12	§27.53 (g)	
		n14	§90.543 (e)	
		n77	§27.53 (l), (n)	

Report Section	Test Items	Frequency Band	Standard Clause	Test Result
5.7	Frequency Stability	/	§2.1055 KDB 935210 D05 (v01r04) Section 3.7	Pass
		n2, n25	§24.235	
		n7, n12, n66, n77	§27.54	
		n5	§22.355	
		n14	§90.539	
5.8	Radiated Spurious Emissions	/	§2.1053 KDB 935210 D05 (v01r04) Section 3.8	Pass
		n2, n25	§24.238 (a)	
		n66	§27.53 (h)	
		n5	§22.917 (a)	
		n7	§27.53 (m)	
		n12	§27.53 (g)	
		n14	§90.543 (e)	
		n77	§27.53 (l), (n)	
Remark: a) Pass: The EUT complies with the essential requirements in the standard. b) N/A: Not applicable. c) The test cable insertion loss used for RF output power and other conducted measurements is provided by the applicant.				

3.3 Environment of Test

Temperature:	Normal: 15 ~ 35°C Extreme: -35°C(Low), +50°C(High)
Humidity:	20 ~ 75% RH
Atmospheric Pressure:	990 ~ 1010 mbar
Voltage:	Normal: DC 48.0V Extreme: DC 43.2V(Low), DC 52.8V(High)

3.4 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95% ($U = 2U_c(y)$))
Radio Frequency	$\pm 2 \times 10^{-8}$
RF Power, Conducted	± 0.78 dB
Spurious emission, Conducted	± 2.28 dB
Bandwidth, Conducted	$\pm 4\%$
Temperature	± 0.3 °C
Voltage	± 0.1 %
Humidity	± 2 %
Radiated Emission (30MHz ~ 1000MHz) (3m SAC)	± 4.78 dB
Radiated Emission (1GHz ~ 6GHz) (3m SAC)	± 5.16 dB
Radiated Emission (6GHz ~ 18GHz) (3m SAC)	± 5.48 dB
Radiated Emission (18GHz ~ 40GHz) (3m SAC)	± 5.48 dB
Note: All the measurement uncertainty value were shown with a coverage $k=2$ to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.	

3.5 Description of Support Units

Description	Model	Manufacturer	Serial Number
/	/	/	/

3.6 Additions to, Deviations, or Exclusions from the Method

None

3.7 Test Instruments List

Radiated Emission (3m SAC)				
Test Equipment	Manufacturer	Model	Serial No.	Cal Due
3m SAC	YiHeng	9m*6m*6m	20250422	2028/05/28
EMI Test Receiver	Rohde & Schwarz	ESR7	101542	2026/08/31
TRILOG Broad Band Antenna (30MHz – 1000MHz)	Schwarzbeck	VULB 9168	9168-771	2026/09/08
6dB Attenuator	SRTechnology Corporate	N-ATTENUATOR(6dB)	311248	2026/08/31
Preamplifier (30MHz – 1000MHz)	TESTEK	TK-PA06S	190014-L	2026/08/31
Broadband Horn Antenna (1GHz – 18GHz)	Gwave Technology	GHA0118A-11	20251014010	2026/11/16
Preamplifier (1GHz – 18GHz)	Gwave Technology	GWLAN008018-50	20251014010	2026/10/23
Broadband Horn Antenna (18GHz – 40GHz)	Gwave Technology	GHA180400-292F-20	20251014010	2026/11/16
Preamplifier (18GHz – 40GHz)	Gwave Technology	GWLAN018040-45	20251014010	2026/10/23
RF Cable (9kHz – 18GHz)	REBES	SF104/10000MM	805225/4	2026/08/31
RF Cable (9kHz – 18GHz)	REBES	SF104/10000MM	805226/4	2026/08/31
RF Cable (18GHz – 40GHz)	MWRFTTest	UCA400-2.92M2092M-1.5M	004	2026/10/23
RF Cable (18GHz – 40GHz)	Gwave Technology	GAU3-292M292M-3000A1	20251021001-01-01	2026/10/23
RF Cable (18GHz – 40GHz)	Gwave Technology	GAU3-292M292M-600A1	20251021001-01-01	2026/10/23
High-pass filter (1GHz – 18GHz)	K&L MICROWAVE	11SH10-2000/U1800-O/O	350	2026/10/23
High-pass filter (3GHz – 18GHz)	UIY	UIYHPF3025A4T18SF	DL0019131	2026/10/23
High-pass filter (7GHz – 18GHz)	Narda	F4036A	1572	2026/10/23
Spectrum Analyzer	Rohde & Schwarz	FSP40	102129	2027/07/03
Test Software	Frad	EZ EMC	Version: EMEC-3A1	N/A

RF Conducted Measurement				
Test Equipment	Manufacturer	Model	Serial No.	Cal Due
Spectrum Analyzer	Keysight	N9020A	MY56060179	2026/11/13
Spectrum Analyzer	Keysight	N9020B	MY57431500	2027/6/10
Vector Signal Generator	Agilent	N5182A	MY49060467	2026/11/13
Vector Signal Generator	Keysight	N5182B	MY59101242	2027/04/28
Vector Signal Generator	Keysight	N5182B	MY59101235	2027/04/28
DC Power Supply	Agilent	E3632A	MY40026044	2026/11/14
High and low temperature test chamber	TPS	TJR	0806000098	2026/11/14
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	123351	2026/11/13
Automatic control unit	MWRFTest	MW500-RFCB	MW250801ACT	2026/11/13
Filter box	MWRFTest	MW500-SFCB-1	MW250802ACT-1	2026/10/13
Filter box	MWRFTest	MW500-SFCB-2	MW250802ACT-2	2026/10/13
Mobile phone automated testing software	MWRFTest	MTS8200	Version: 2.0.0.0	N/A

4 Test Configuration of EUT

4.1 Channels Selected to Perform the Tests

According to ANSI C63.26-2015 chapter 5.1.2.1 Table 2 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing.

n2 Uplink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	370500	1852.5	Lowest channel	371000	1855.0
Middle channel	376000	1880.0	Middle channel	376000	1880.0
Highest channel	381500	1907.5	Highest channel	381000	1905.0
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	371500	1857.5	Lowest channel	372000	1860.0
Middle channel	376000	1880.0	Middle channel	376000	1880.0
Highest channel	380500	1902.5	Highest channel	380000	1900.0
n2 Downlink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	386500	1932.5	Lowest channel	387000	1935.0
Middle channel	392000	1960.0	Middle channel	392000	1960.0
Highest channel	397500	1987.5	Highest channel	397000	1985.0
15 MHz (SCS 15kHz)			20 MHz (SCS 30kHz)		
Lowest channel	387500	1937.5	Lowest channel	388000	1940.0
Middle channel	392000	1960.0	Middle channel	392000	1960.0
Highest channel	396500	1982.5	Highest channel	396000	1980.0
n5 Uplink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	165300	826.5	Lowest channel	165800	829.0
Middle channel	167300	836.5	Middle channel	167300	836.5
Highest channel	169300	846.5	Highest channel	168800	844.0
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	166300	831.5	Lowest channel	166800	834.0
Middle channel	167300	836.5	Middle channel	167300	836.5
Highest channel	168300	841.5	Highest channel	167800	839.0

n5 Downlink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	174300	871.5	Lowest channel	174800	874.0
Middle channel	176300	881.5	Middle channel	176300	881.5
Highest channel	178300	891.5	Highest channel	177800	889.0
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	175300	876.5	Lowest channel	175800	879.0
Middle channel	176300	881.5	Middle channel	176300	881.5
Highest channel	177300	886.5	Highest channel	176800	884.0
n7 Uplink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	500500	2502.5	Lowest channel	501000	2505.0
Middle channel	507000	2535.0	Middle channel	507000	2535.0
Highest channel	513500	2567.5	Highest channel	513000	2565.0
Channels		Frequency (MHz)	Channels		Frequency (MHz)
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	501500	2507.5	Lowest channel	502000	2510.0
Middle channel	507000	2535.0	Middle channel	507000	2535.0
Highest channel	512500	2562.5	Highest channel	512000	2560.0
n7 Downlink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	524500	2622.5	Lowest channel	525000	2625.0
Middle channel	531000	2655.0	Middle channel	531000	2655.0
Highest channel	537500	2687.5	Highest channel	537000	2685.0
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	525500	2627.5	Lowest channel	526000	2630.0
Middle channel	531000	2655.0	Middle channel	531000	2655.0
Highest channel	536500	2682.5	Highest channel	536000	2680.0

n12 Uplink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	140300	701.5	Lowest channel	140800	704.0
Middle channel	141500	707.5	Middle channel	141500	707.5
Highest channel	142700	713.5	Highest channel	142200	711.0
15 MHz (SCS 15kHz)					
Lowest channel	141300	706.5			
Middle channel	141500	707.5			
Highest channel	141700	708.5			
n12 Downlink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	146300	731.5	Lowest channel	146800	734
Middle channel	147500	737.5	Middle channel	147500	737.5
Highest channel	148700	743.5	Highest channel	148200	741.0
15 MHz (SCS 15kHz)					
Lowest channel	147300	736.5			
Middle channel	147500	737.5			
Highest channel	147700	738.5			
n14 Uplink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	158100	790.5	Lowest channel	/	/
Middle channel	158600	793.0	Middle channel	158600	793.0
Highest channel	159100	795.5	Highest channel	/	/
n14 Downlink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	152100	760.5	Lowest channel	/	/
Middle channel	152600	763.0	Middle channel	152600	763.0
Highest channel	153100	765.5	Highest channel	/	/

n25 Uplink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	370500	1852.5	Lowest channel	371000	1855.0
Middle channel	376500	1882.5	Middle channel	376500	1882.5
Highest channel	382500	1912.5	Highest channel	382000	1910.0
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	371500	1857.5	Lowest channel	372000	1860.0
Middle channel	376500	1882.5	Middle channel	376500	1882.5
Highest channel	381500	1907.5	Highest channel	381000	1905.0
n25 Downlink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	386500	1932.5	Lowest channel	387000	1935.0
Middle channel	392500	1962.5	Middle channel	392500	1962.5
Highest channel	398500	1992.5	Highest channel	398000	1990.0
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	387500	1937.5	Lowest channel	388000	1940.0
Middle channel	392500	1962.5	Middle channel	392500	1962.5
Highest channel	397500	1987.5	Highest channel	397000	1985.0

n66 Uplink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	342500	1712.5	Lowest channel	343000	1715.0
Middle channel	351000	1755.0	Middle channel	351000	1755.0
Highest channel	355500	1777.5	Highest channel	355000	1775.0
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	343500	1717.5	Lowest channel	344000	1720.0
Middle channel	351000	1755.0	Middle channel	351000	1755.0
Highest channel	354500	1772.5	Highest channel	354000	1770.0
n66 Downlink					
Channels		Frequency (MHz)	Channels		Frequency (MHz)
5 MHz (SCS 15kHz)			10 MHz (SCS 15kHz)		
Lowest channel	422500	2112.5	Lowest channel	423000	2115
Middle channel	431000	2155	Middle channel	431000	2155
Highest channel	435500	2177.5	Highest channel	435000	2175
15 MHz (SCS 15kHz)			20 MHz (SCS 15kHz)		
Lowest channel	423500	2117.5	Lowest channel	424000	2120
Middle channel	431000	2155	Middle channel	431000	2155
Highest channel	434500	2172.5	Highest channel	434000	2170

Band n77(3450-3550), SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Low	630334	3455.010	Low	630500	3457.500
Middle	633334	3500.010	Middle	633334	3500.010
High	636332	3544.980	High	636166	3542.490
20 MHz			30 MHz		
Low	630668	3460.020	Low	631000	3465.000
Middle	633334	3500.010	Middle	633334	3500.010
High	636000	3540.000	High	635666	3534.990
40 MHz			50 MHz		
Low	631334	3470.010	Low	631668	3475.020
Middle	633334	3500.010	Middle	633334	3500.010
High	635332	3529.980	High	635000	3525.000
60 MHz			70 MHz		
Low	632000	3480.000	Low	632334	3485.010
Middle	633334	3500.010	Middle	633334	3500.010
High	634666	3519.990	High	634332	3514.980
80 MHz			90 MHz		
Low	632668	3490.020	Low	633000	3495.000
Middle	633334	3500.010	Middle	633334	3500.010
High	634000	3510.000	High	633666	3504.990
100 MHz					
Low	/	/			
Middle	633333	3499.995			
High	/	/			

Band n77(3700-3980), SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Low	647000	3705.000	Low	647168	3707.520
Middle	656000	3840.000	Middle	656000	3840.000
High	665000	3975.000	High	664832	3972.480
20 MHz			30 MHz		
Low	647334	3710.010	Low	647668	3715.020
Middle	656000	3840.000	Middle	656000	3840.000
High	664666	3969.990	High	664332	3964.980
40 MHz			50 MHz		
Low	648000	3720.000	Low	648334	3725.010
Middle	656000	3840.000	Middle	656000	3840.000
High	664000	3960.000	High	663666	3954.990
60 MHz			70 MHz		
Low	648668	3730.020	Low	649000	3735.000
Middle	656000	3840.000	Middle	656000	3840.000
High	663332	3949.980	High	663000	3945.000
80 MHz			90 MHz		
Low	649334	3740.010	Low	649668	3745.020
Middle	656000	3840.000	Middle	656000	3840.000
High	662666	3939.990	High	662332	3934.980
100 MHz					
Low	650000	3750.000			
Middle	656000	3840.000			
High	662000	3930.000			

4.2 Test Mode

TM 1:	Keep the EUT in uplink mode. Apply the input signal to the antenna port of the CU, and monitor the output signal at the antenna port of the NU.
TM 2:	Keep the EUT in downlink mode. Apply the input signal to the antenna port of the NU, and monitor the output signal at the antenna port of the CU.

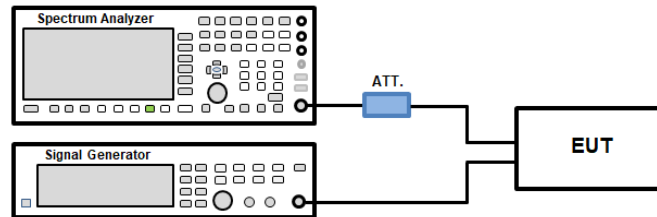
4.3 Worst-case Configuration

The test was performed using a representative band-limited AWGN signal. The AWGN test signal must have a 4.1 MHz 99 % occupied bandwidth (OBW) (representative of a 5 MHz LTE channel). Narrowband test signals shall use a representative MSK modulated signal, with a Gaussian Filter of 0.3 and a data rate of 270 kbps (representative of a GSM-TDMA signal).

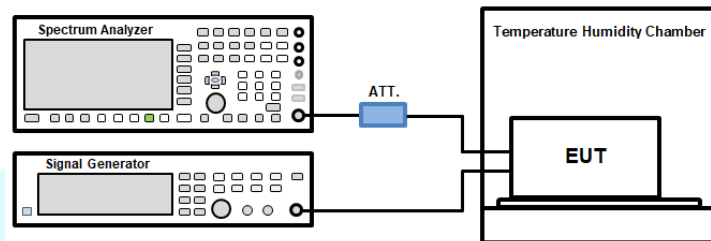
For Radiated Spurious Emissions, measurements were performed from 9 kHz up to the 10th harmonic of the fundamental frequency (or up to 40 GHz, whichever is lower). Frequencies with emission levels at least 20 dB below the applicable limit are not presented in this test report.

4.4 Test Setup Block

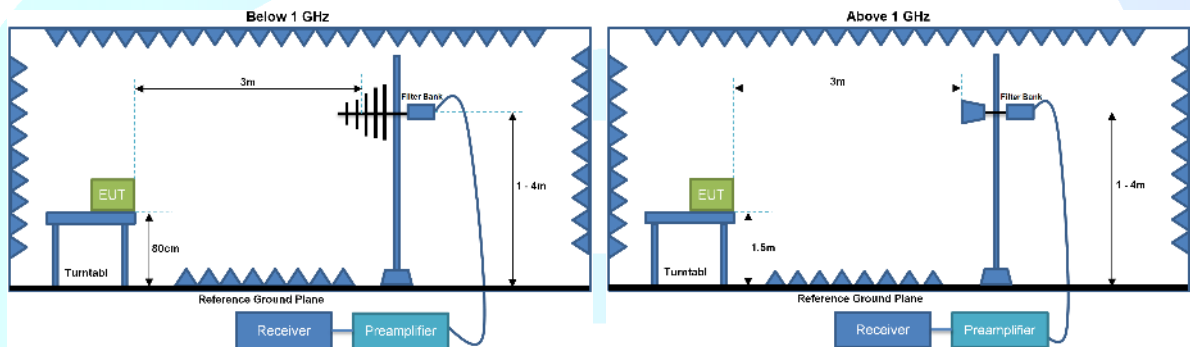
Setup 1:



Setup 2:



Setup 3:



5 Technical requirements specification

5.1 AGC Threshold Level

5.1.1 Limits

N/A

5.1.2 Test Procedure

- a) Connect a signal generator to the input of the EUT.
- b) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.
- c) The signal generator should initially be configured to produce either of the required test signals (i.e., broadband or narrowband).
- d) Set the signal generator frequency to the center frequency of the EUT operating band.
- e) While monitoring the output power of the EUT, increase the input level until a 1 dB increase in the input signal power no longer causes a 1 dB increase in the output signal power.
- f) Record this level as the AGC threshold level.
- g) Repeat the procedure with the remaining test signal.

5.1.3 Test Setup

See setup 1 in section 4.4.

5.1.4 Test Instruments

Refer to section 3.7.

5.1.5 Test Results

Pass.

5.1.6 Test Data

Frequency Band: NR n2			
Mode	BW(MHz)	Channel	AGC Threshold Level (dBm)
Uplink (NU)	5	Lowest	-73.0
		Middle	-73.0
		Highest	-73.0
	20	Lowest	-74.5
		Middle	-74.5
		Highest	-74.5
Downlink (CU)	5	Lowest	-78.0
		Middle	-78.0
		Highest	-78.0
	20	Lowest	-78.0
		Middle	-78.0
		Highest	-78.0
Frequency Band: NR n5			
Mode	BW(MHz)	Channel	AGC Threshold Level (dBm)
Uplink (NU)	5	Lowest	-78.5
		Middle	-78.5
		Highest	-78.5
	20	Lowest	-78.5
		Middle	-78.5
		Highest	-78.5
Downlink (CU)	5	Lowest	-79.2
		Middle	-79.2
		Highest	-79.2
	20	Lowest	-79.2
		Middle	-79.2
		Highest	-79.2
Frequency Band: NR n7			
Mode	BW(MHz)	Channel	AGC Threshold Level (dBm)
Uplink (NU)	5	Lowest	-76.0
		Middle	-76.0
		Highest	-73.5
	20	Lowest	-75.0
		Middle	-76.5
		Highest	-73.5
Downlink (CU)	5	Lowest	-78.0
		Middle	-78.0
		Highest	-78.0
	20	Lowest	-77.5
		Middle	-77.5
		Highest	-77.5

Frequency Band: NR n12			
Mode	BW(MHz)	Channel	AGC Threshold Level (dBm)
Uplink (NU)	5	Lowest	-79.0
		Middle	-79.0
		Highest	-79.0
	15	Lowest	-78.8
		Middle	-78.8
		Highest	-78.8
Downlink (CU)	5	Lowest	-79.2
		Middle	-79.2
		Highest	-79.2
	15	Lowest	-79.2
		Middle	-79.2
		Highest	-79.2
Frequency Band: NR n14			
Mode		Channel	AGC Threshold Level (dBm)
Uplink (NU)	5	Lowest	-78.6
		Middle	-78.6
		Highest	-78.6
	10	Middle	-78.6
Downlink (CU)	5	Lowest	-79.2
		Middle	-79.2
		Highest	-79.2
	10	Middle	-79.2
Frequency Band: NR n25			
Mode		Channel	AGC Threshold Level (dBm)
Uplink (NU)	5	Lowest	-76.0
		Middle	-76.0
		Highest	-75.0
	20	Lowest	-74.5
		Middle	-74.5
		Highest	-74.5
Downlink (CU)	5	Lowest	-78.4
		Middle	-78.4
		Highest	-78.4
	20	Lowest	-78.0
		Middle	-78.0
		Highest	-78.0

Frequency Band: NR n66			
Mode	BW(MHz)	Channel	AGC Threshold Level (dBm)
Uplink (NU)	5	Lowest	-75.0
		Middle	-75.0
		Highest	-75.0
	20	Lowest	-74.5
		Middle	-74.5
		Highest	-74.5
Downlink (CU)	5	Lowest	-78.6
		Middle	-78.6
		Highest	-78.6
	20	Lowest	-78.5
		Middle	-79.0
		Highest	-78.5
Frequency Band: NR n77(3450~3550)			
Mode		Channel	AGC Threshold Level (dBm)
Uplink (NU)	10	Lowest	-73.0
		Middle	-73.0
		Highest	-73.0
	100	Middle	-73.0
Downlink (CU)	10	Lowest	-71.5
		Middle	-71.5
		Highest	-71.5
	100	Middle	-68.0
Frequency Band: NR n77(3700~3980)			
Mode		Channel	AGC Threshold Level (dBm)
Uplink (NU)	10	Lowest	-73.0
		Middle	-73.0
		Highest	-73.0
	100	Lowest	-73.0
		Middle	-73.0
		Highest	-73.0
Downlink (CU)	10	Lowest	-73.0
		Middle	-73.0
		Highest	-73.0
	100	Lowest	-70.0
		Middle	-70.0
		Highest	-70.0

5.2 Out-of-band Rejection

5.2.1 Limits

N/A

5.2.2 Test Procedure

- a) Connect a signal generator to the input of the EUT.
- b) Configure a swept CW signal with the following parameters:
 - 1) Frequency range = $\pm 250\%$ of the passband, for each applicable CMRS band (see also KDB Publication 935210 D02 [R7] and KDB Publication 634817 [R5] about selection of frequencies for testing and for grant listings).
 - 2) Level = a sufficient level to affirm that the out-of-band rejection is > 20 dB above the noise floor and will not engage the AGC during the entire sweep.
 - 3) Dwell time = approximately 10 ms.
 - 4) Number of points = $\text{SPAN}/(\text{RBW}/2)$.
- c) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.
- d) Set the span of the spectrum analyzer to the same as the frequency range of the signal generator.
- e) Set the resolution bandwidth (RBW) of the spectrum analyzer to be 1 % to 5 % of the EUT passband, and the video bandwidth (VBW) shall be set to $\geq 3 \times \text{RBW}$.
- f) Set the detector to Peak Max-Hold and wait for the spectrum analyzer's spectral display to fill.
- g) Place a marker to the peak of the frequency response and record this frequency as f_0 .
- h) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the -20 dB down amplitude, to determine the 20 dB bandwidth.
- i) Capture the frequency response of the EUT.
- j) Repeat for all frequency bands applicable for use by the EUT.

5.2.3 Test Setup

See setup 1 in section 4.4.

5.2.4 Test Instruments

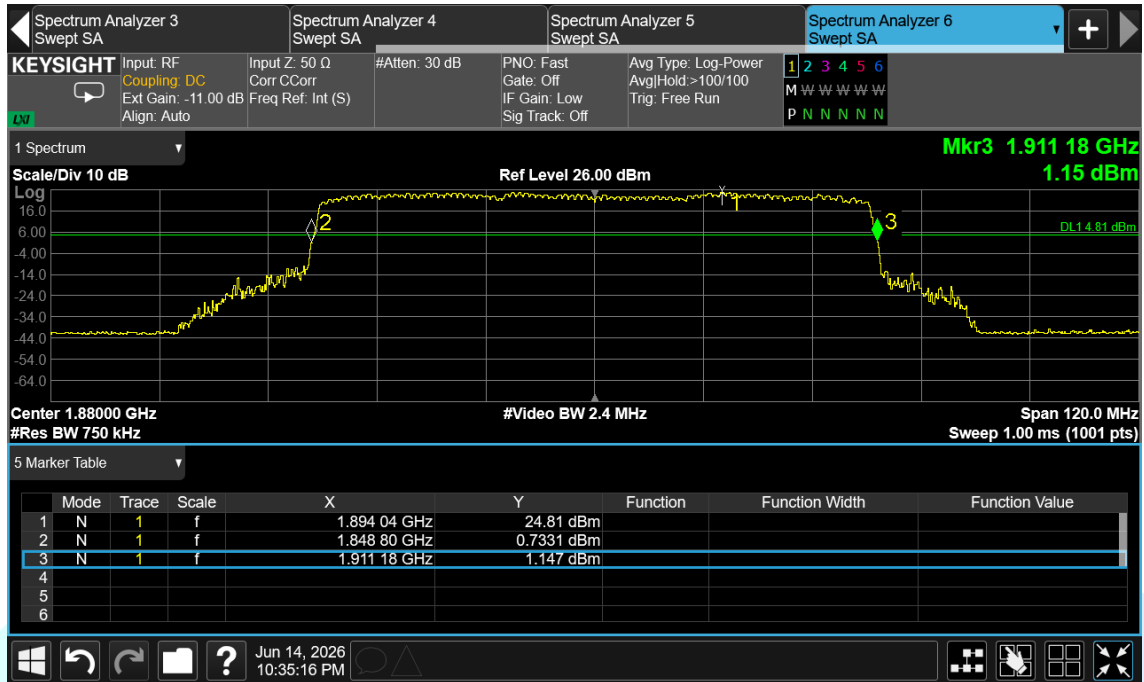
Refer to section 3.7.

5.2.5 Test Results

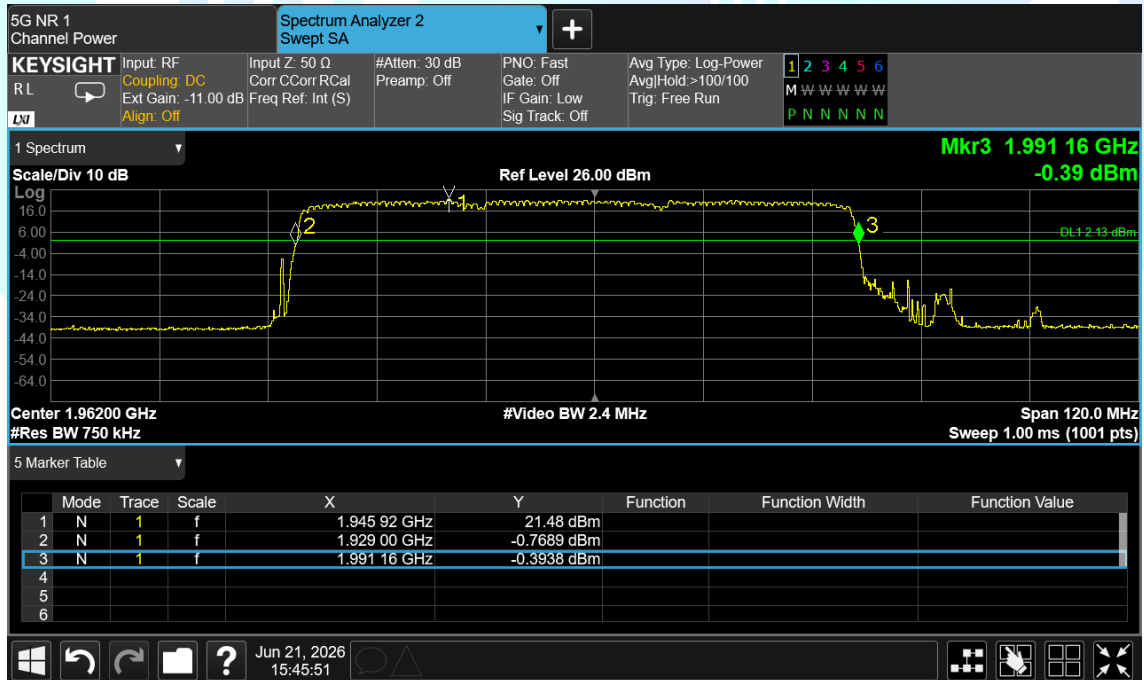
Pass.

5.2.6 Test Data

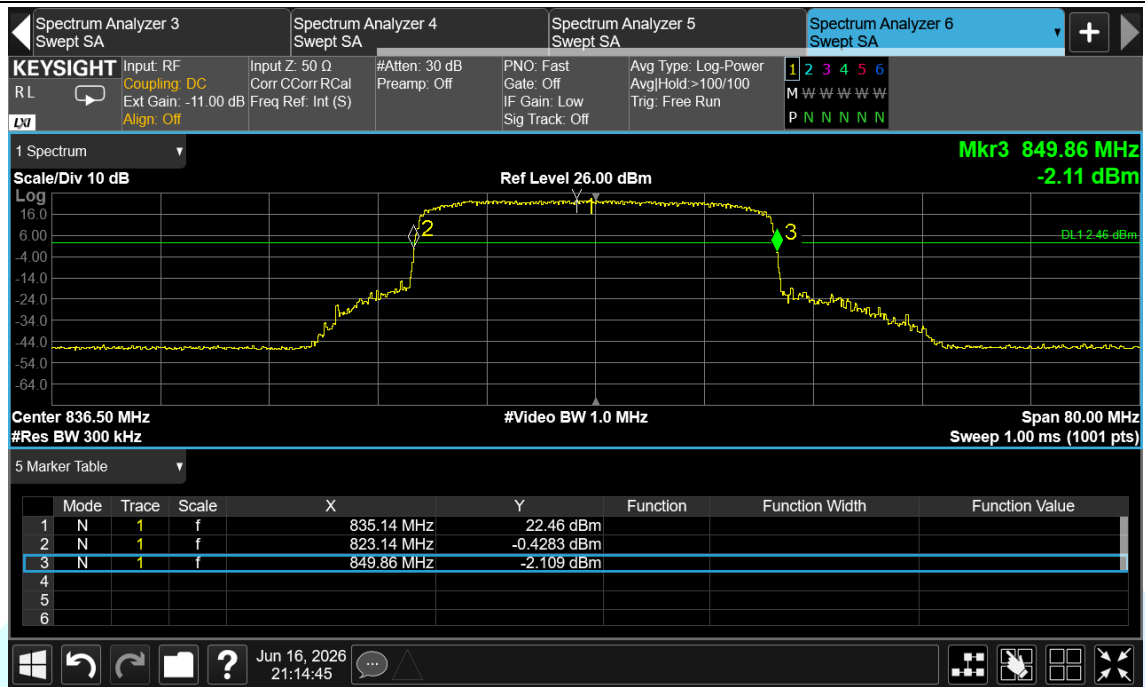
Frequency Band: n2 Uplink (for NU)



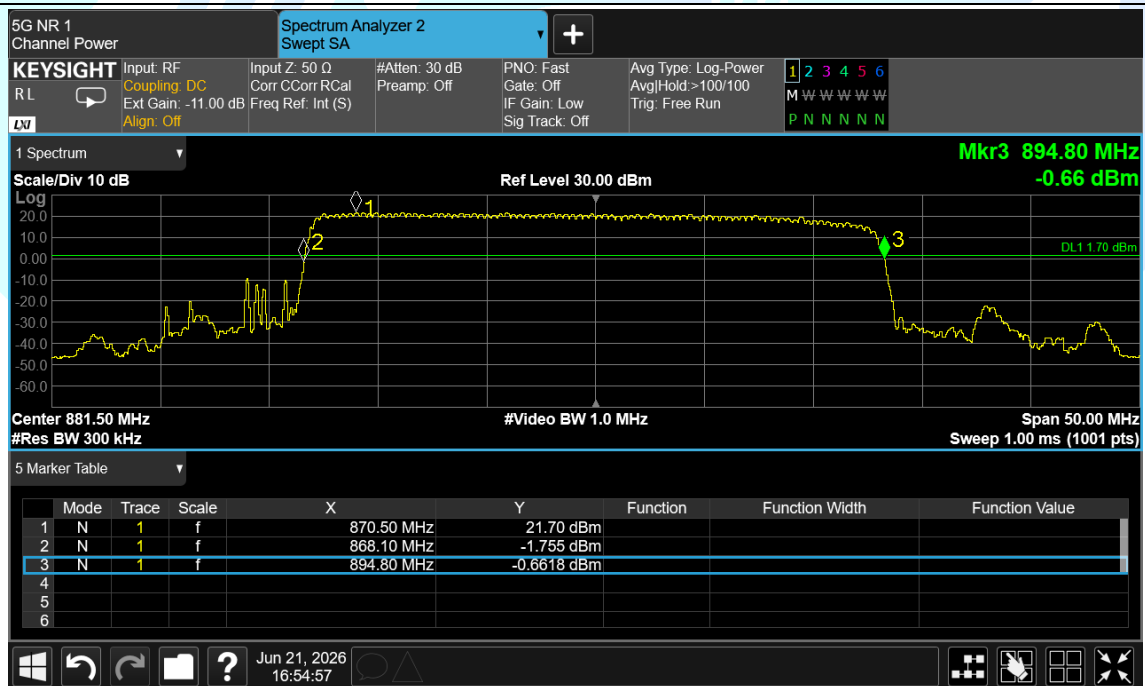
Downlink (for CU)



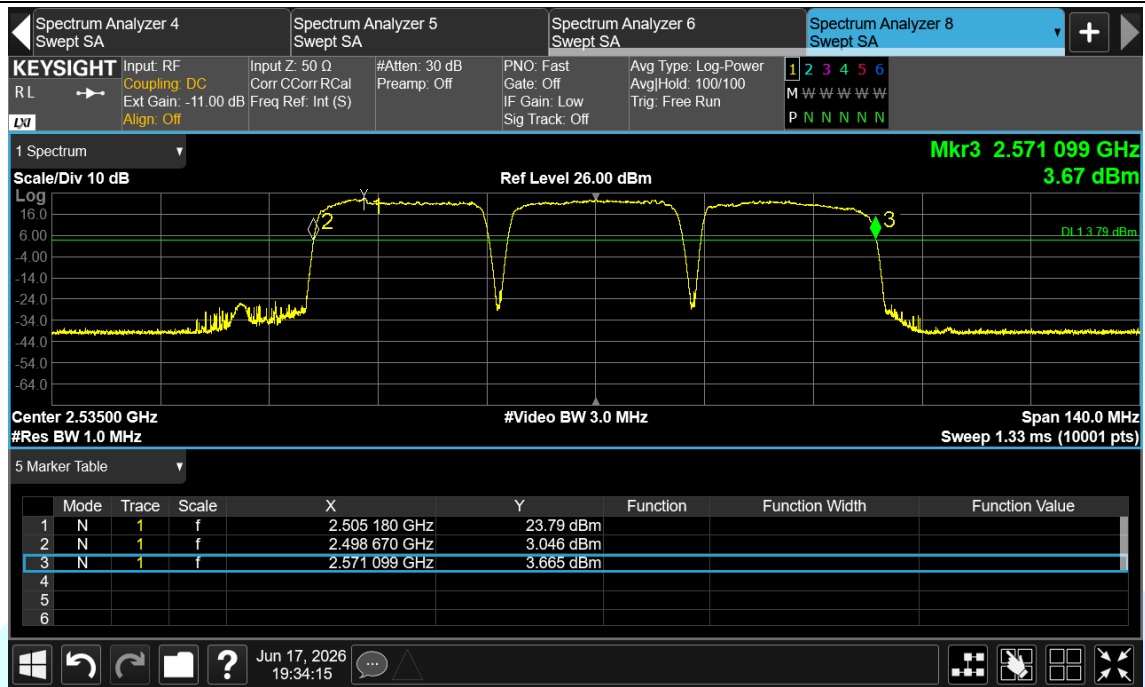
Frequency Band: n5 Uplink (for NU)



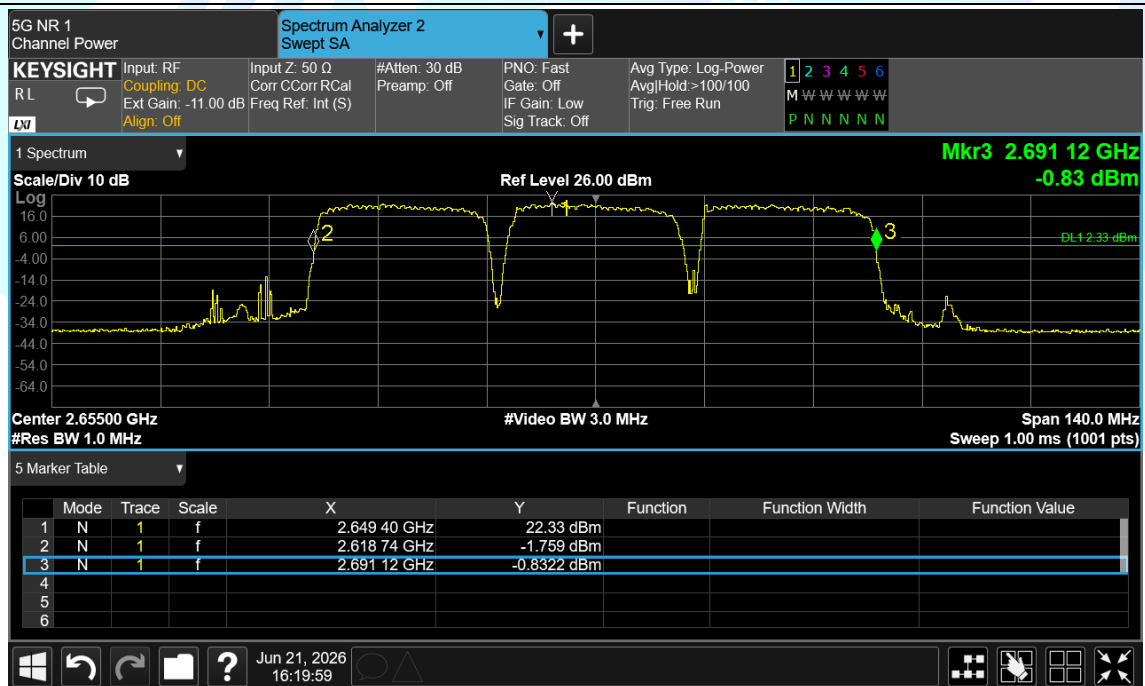
Downlink (for CU)



Frequency Band: n7 Uplink (for NU)

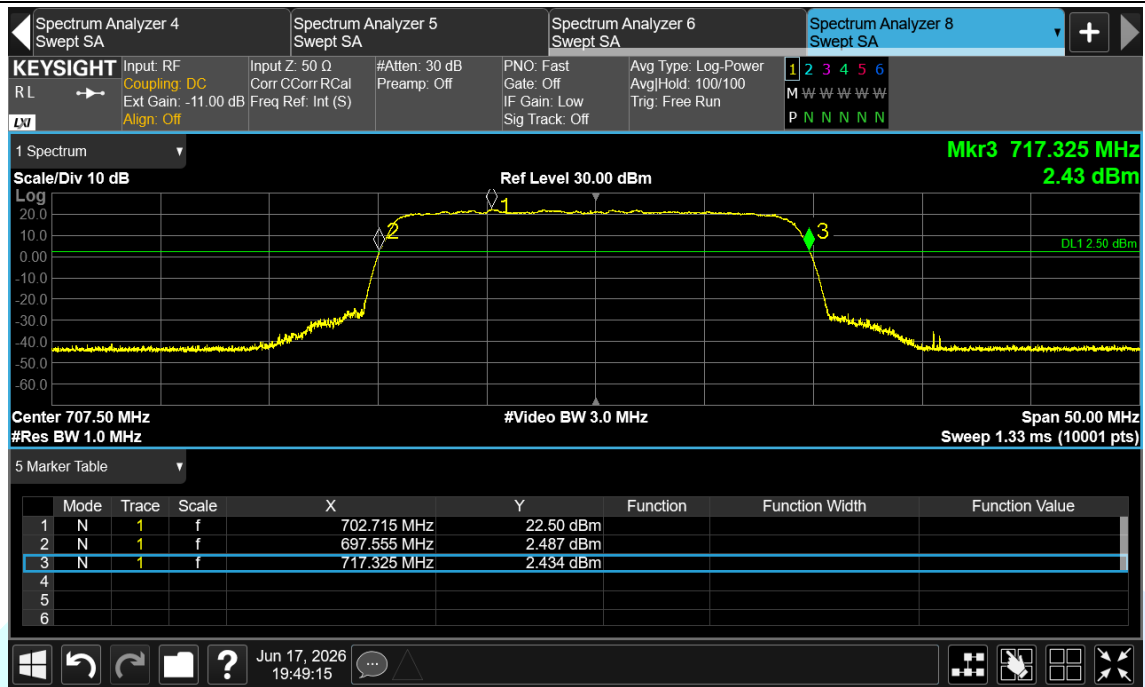


Downlink (for CU)

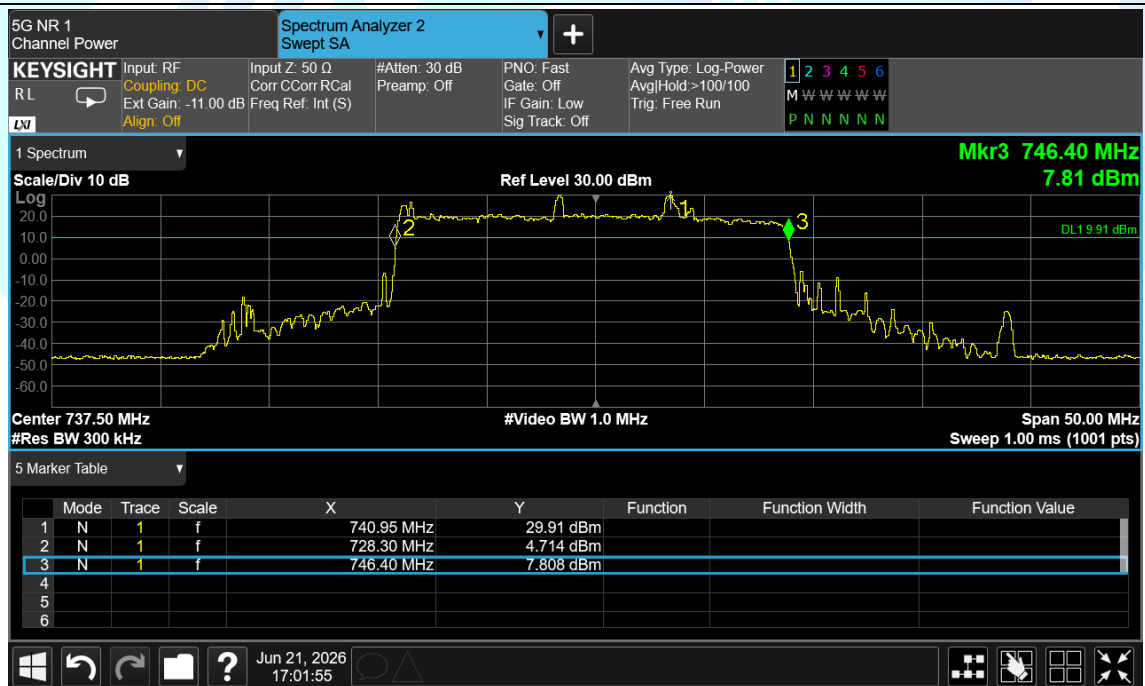


Frequency Band: n12

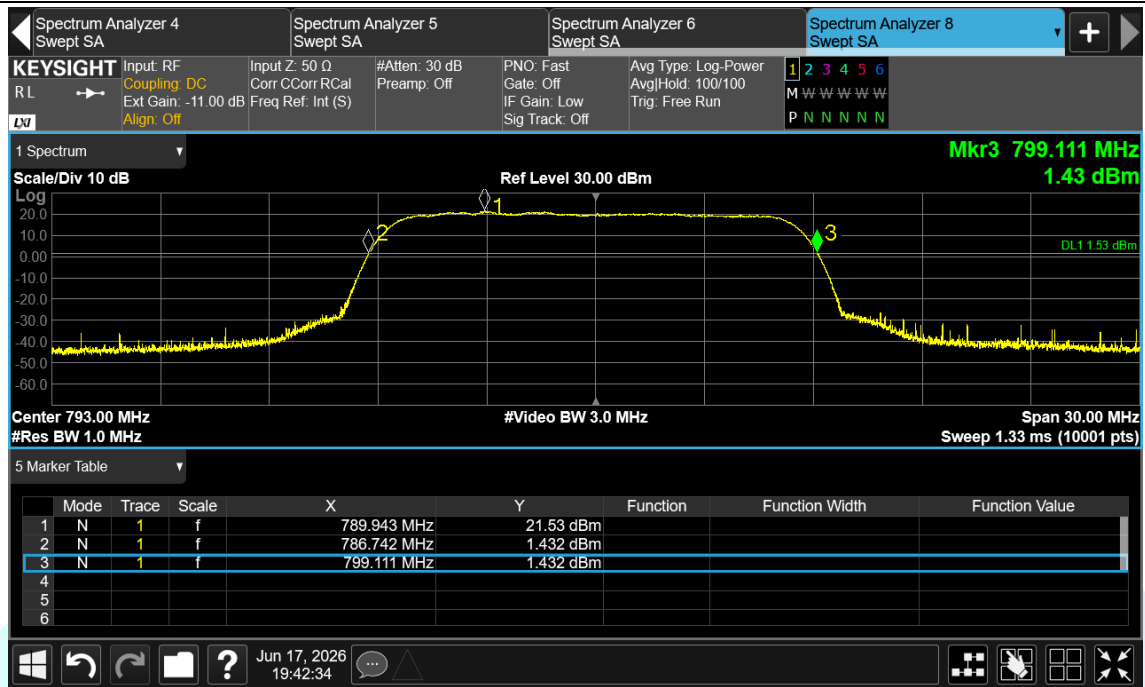
Uplink (for NU)



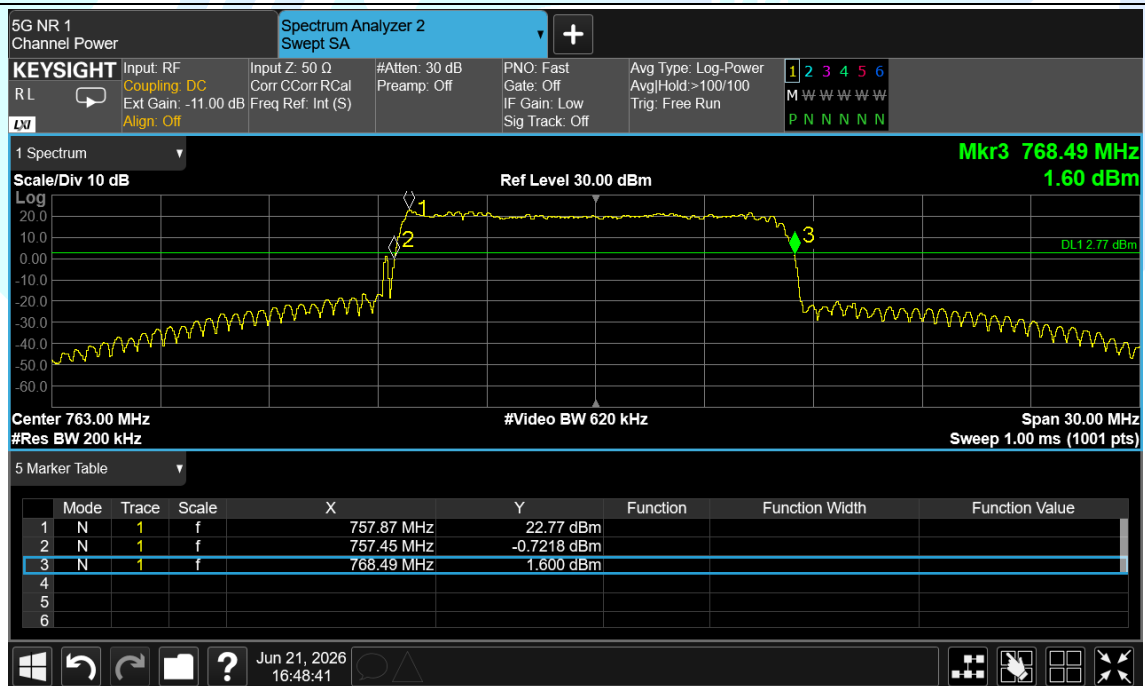
Downlink (for CU)



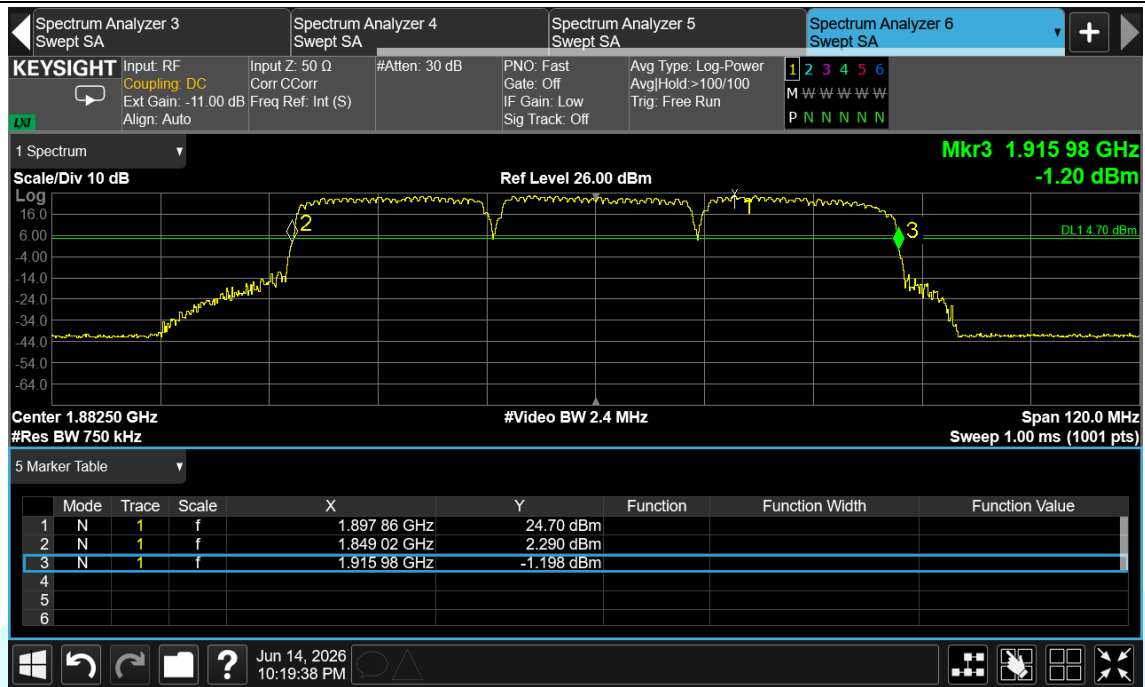
Frequency Band: n14 Uplink (for NU)



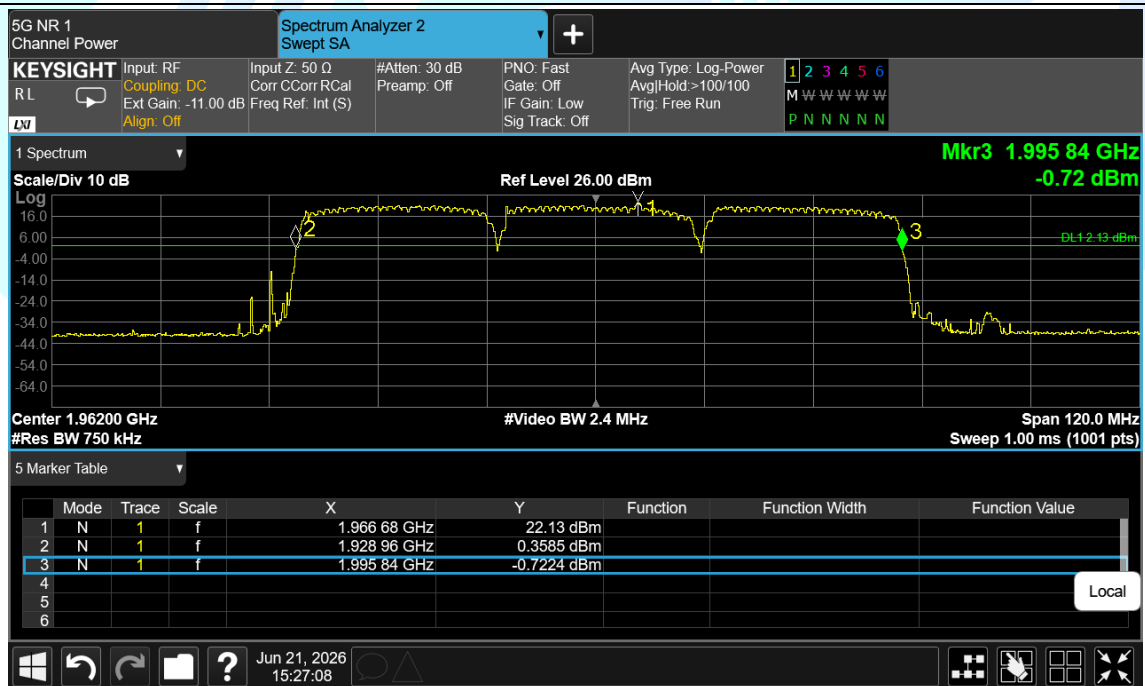
Downlink (for CU)



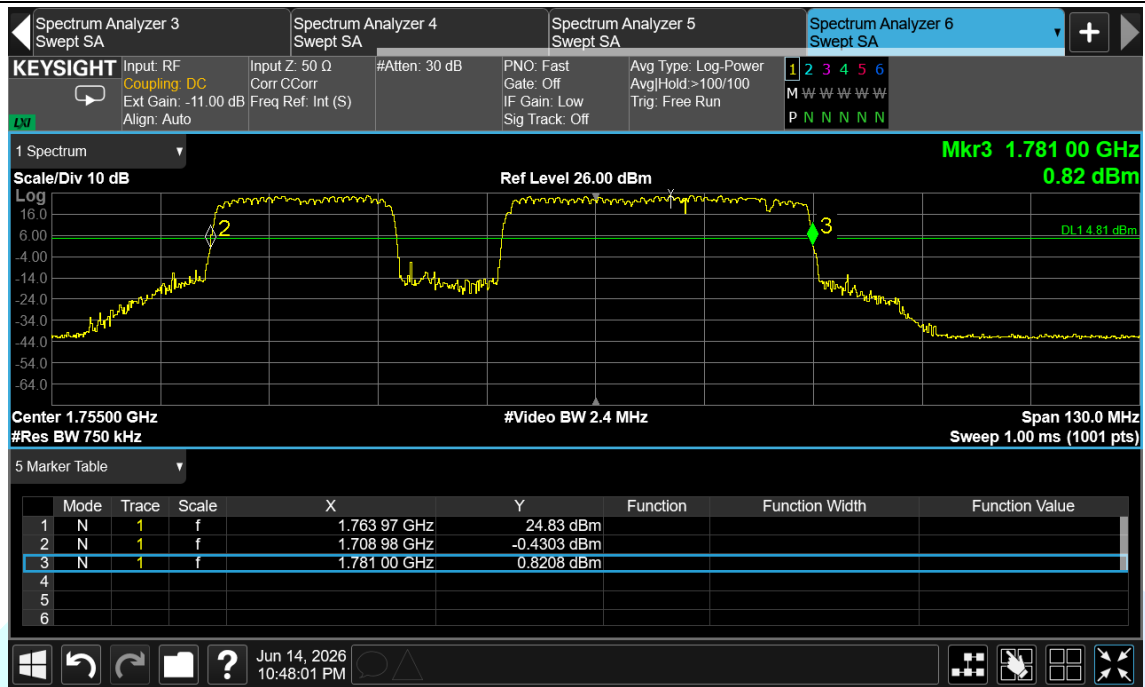
Frequency Band: n25 Uplink (for NU)



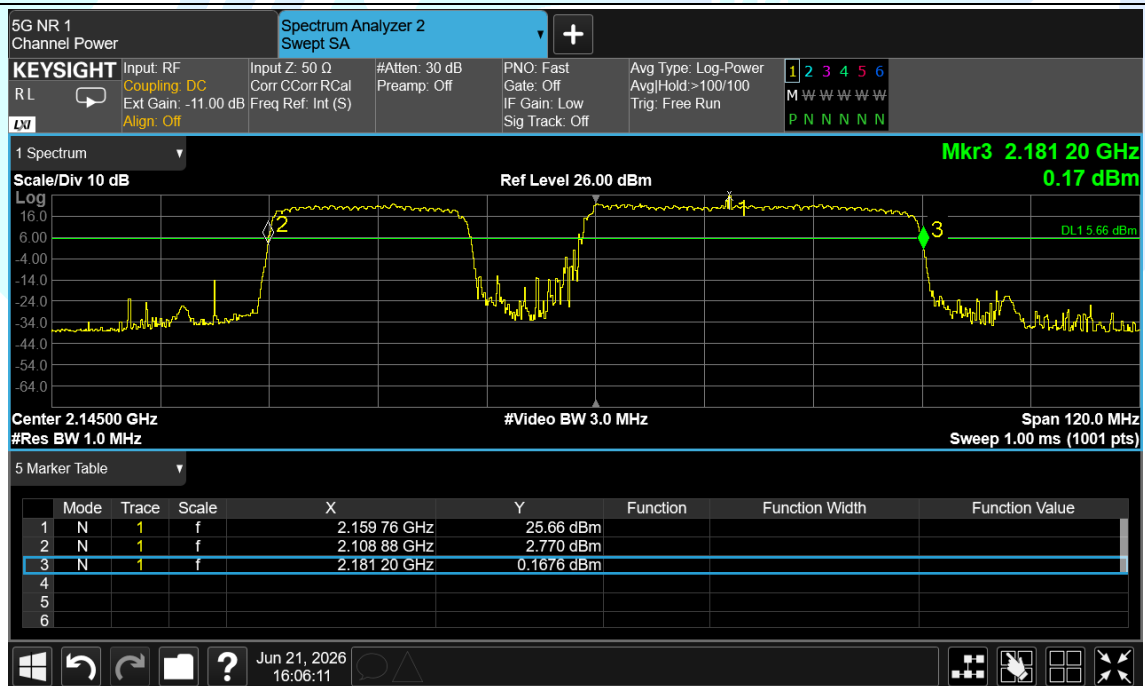
Downlink (for CU)



Frequency Band: n66 Uplink (for NU)

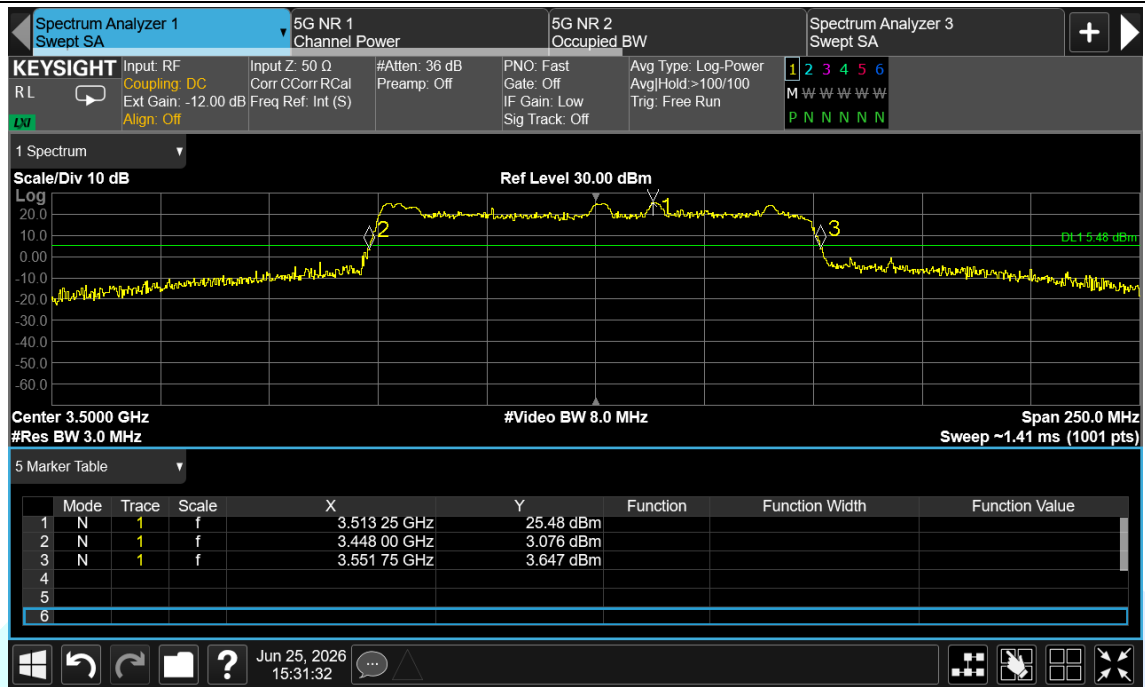


Downlink (for CU)

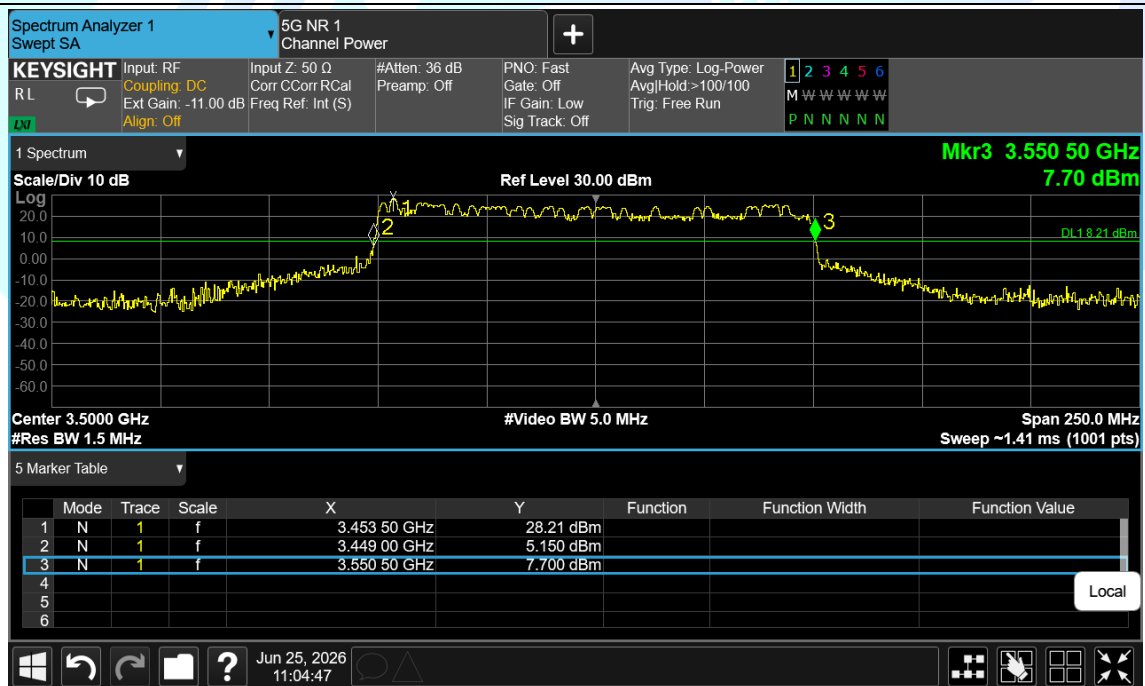


Frequency Band: n77(3450~3550)

Uplink (for NU)

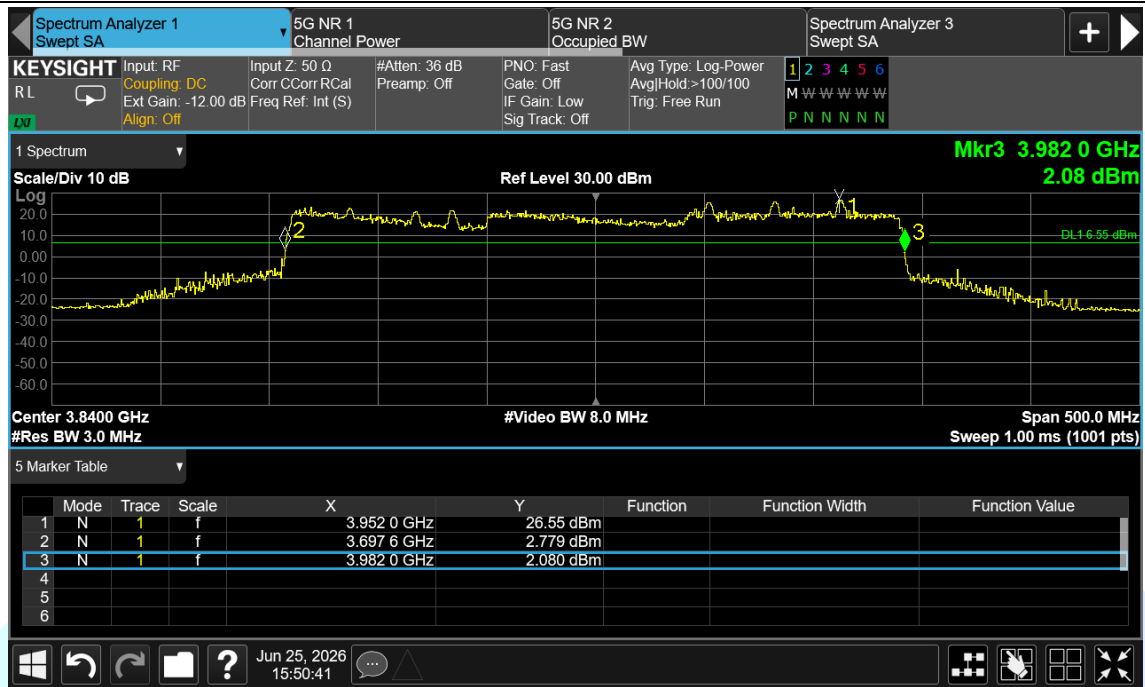


Downlink (for CU)

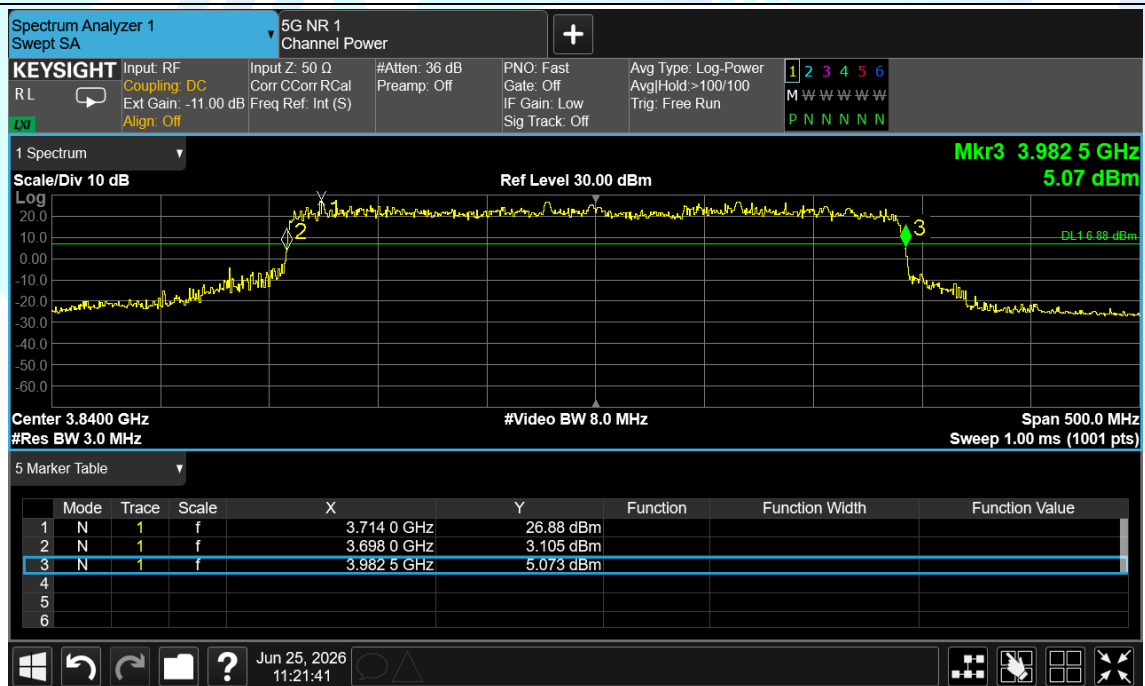


Frequency Band: n77(3700~3980)

Uplink (for NU)



Downlink (for CU)



5.3 Input-versus-output Signal Comparison

5.3.1 Limits

N/A

5.3.2 Test Procedure

- a) Connect a signal generator to the input of the EUT.
- b) Configure the signal generator to transmit the AWGN signal.
- c) Configure the signal amplitude to be just below the AGC threshold level (see 3.2), but not more than 0.5 dB below.
- d) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.
- e) Set the spectrum analyzer center frequency to the center frequency of the operational band under test. The span range of the spectrum analyzer shall be between $2 \times$ to $5 \times$ the emission bandwidth (EBW) or alternatively, the OBW.
- f) The nominal RBW shall be in the range of 1 % to 5 % of the anticipated OBW, and the VBW shall be $\geq 3 \times$ RBW.
- g) Set the reference level of the instrument as required to preclude the signal from exceeding the maximum spectrum analyzer input mixer level for linear operation. In general, the peak of the spectral envelope must be more than $[10 \log (\text{OBW} / \text{RBW})]$ below the reference level. Steps f) and g) may require iteration to enable adjustments within the specified tolerances.
- h) The noise floor of the spectrum analyzer at the selected RBW shall be at least 36 dB below the reference level.
- i) Set spectrum analyzer detection function to positive peak.
- j) Set the trace mode to max hold.
- k) Determine the reference value: Allow the trace to stabilize. Set the spectrum analyzer marker to the highest amplitude level of the displayed trace (this is the reference value) and record the associated frequency.
- l) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the -26 dB down amplitude. The 26 dB EBW (alternatively OBW) is the positive frequency difference between the two markers. If the spectral envelope crosses the -26 dB down amplitude at multiple points, the lowest or highest frequency shall be selected as the frequencies that are the furthest removed from the center frequency at which the spectral envelope crosses the -26 dB down amplitude point.
- m) Repeat steps e) to l) with the input signal connected directly to the spectrum analyzer (i.e., input signal measurement).
- n) Compare the spectral plot of the input signal (determined from step m) to the output signal (determined from step l) to affirm that they are similar (in passband and rolloff characteristic features and relative spectral locations), and include plot(s) and descriptions in test report.
- o) Repeat the procedure [steps e) to n)] with the input signal amplitude set to 3 dB above the AGC threshold.
- p) Repeat steps e) to o) with the signal generator set to the narrowband signal.
- q) Repeat steps e) to p) for all frequency bands authorized for use by the EUT.

5.3.3 Test Setup

See setup 1 in section 4.4.

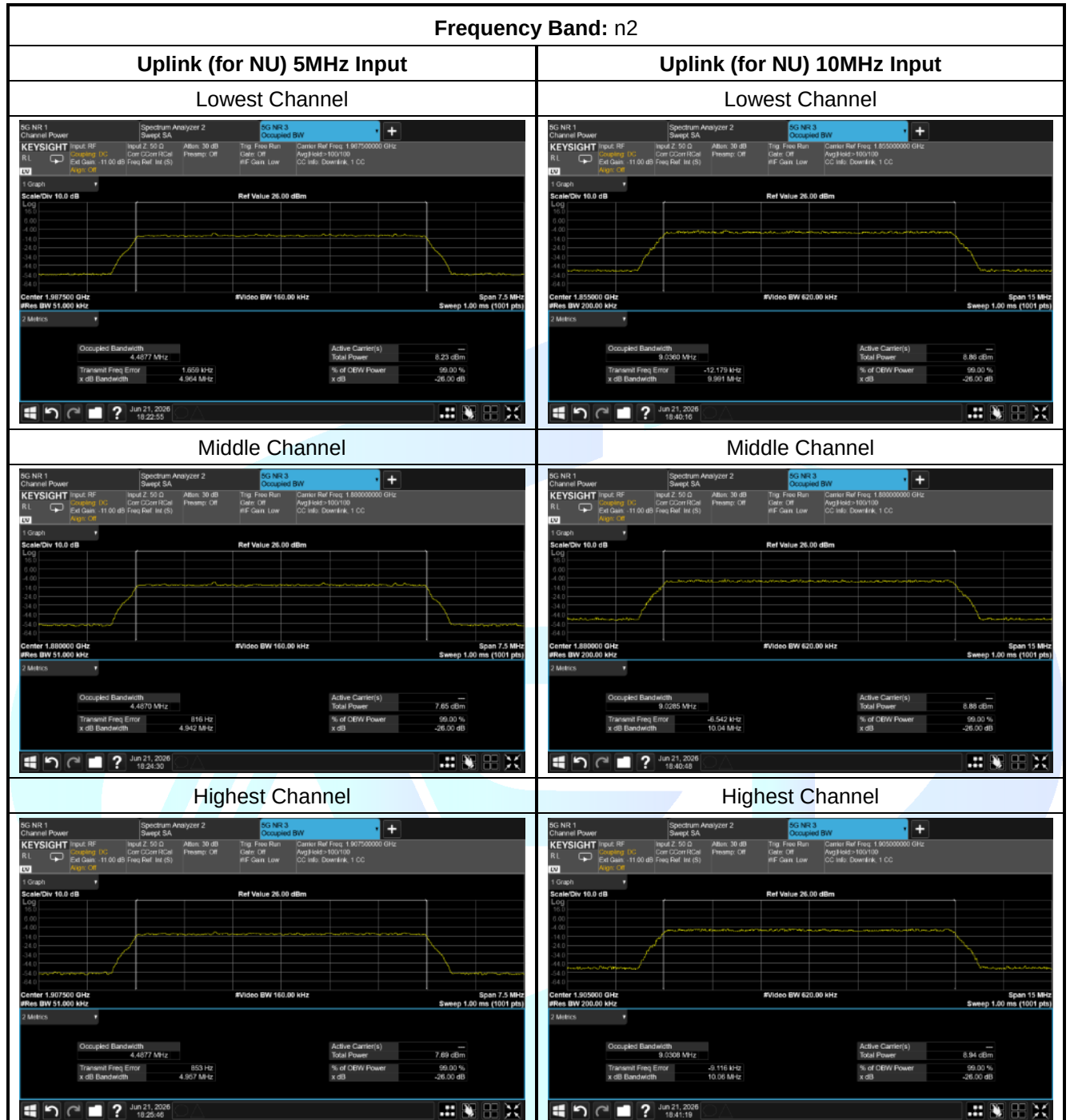
5.3.4 Test Instruments

Refer to section 3.7.

5.3.5 Test Results

Pass.

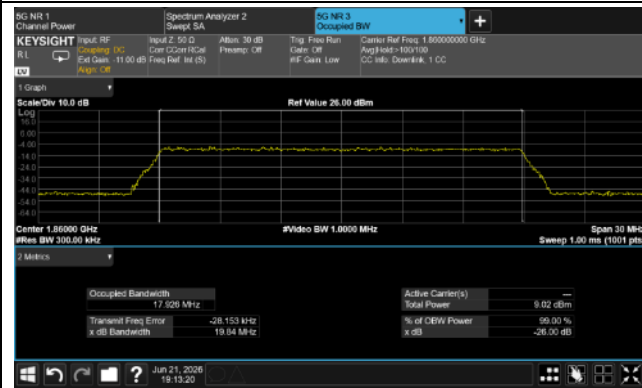
5.3.6 Test Data



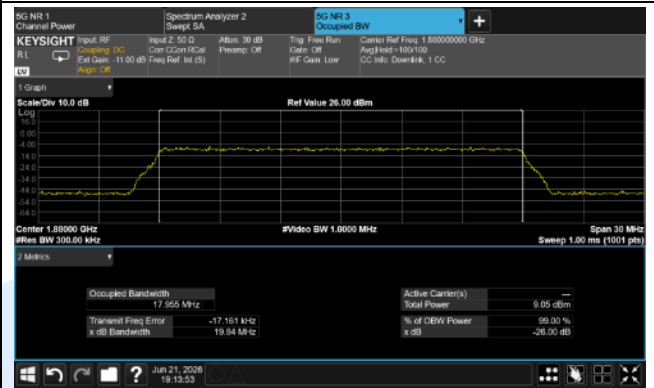
Frequency Band: n2

Uplink (for NU) 20MHz Input

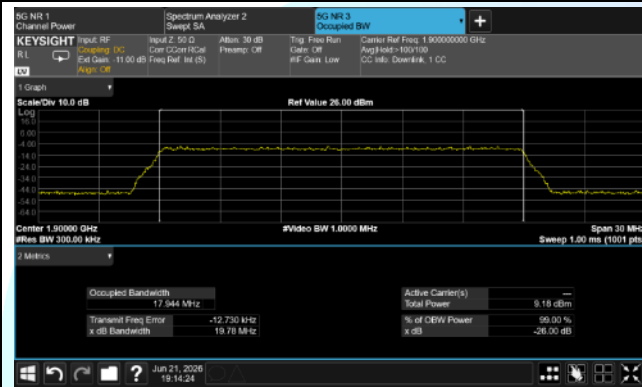
Lowest Channel



Middle Channel



Highest Channel

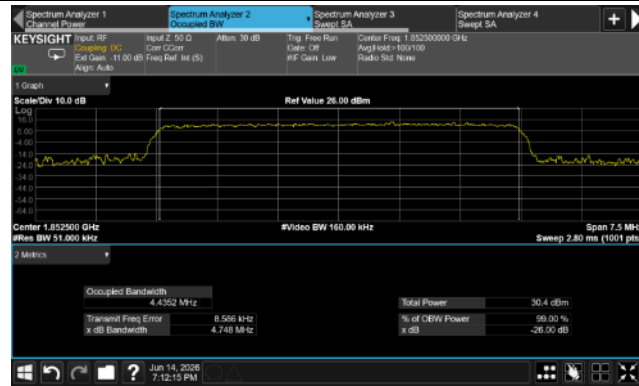


Intentionally Blank

Frequency Band: n2

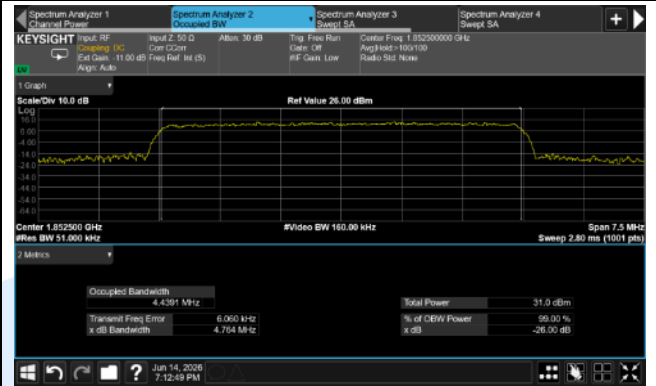
Uplink (for NU) 5MHz Output

Lowest Channel

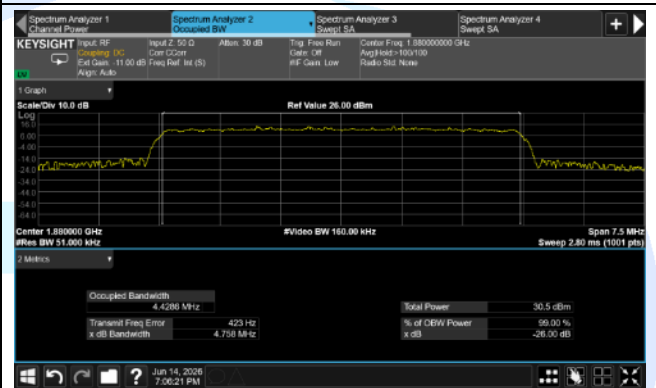
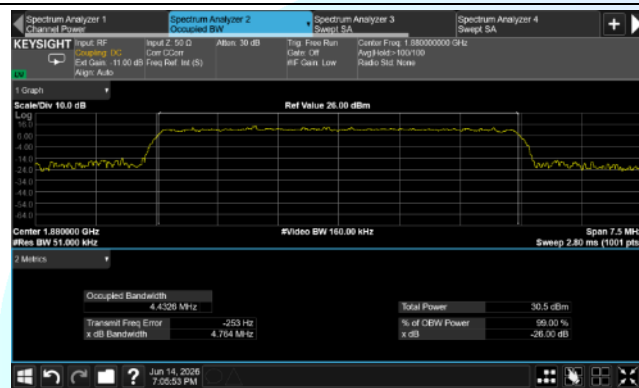


Uplink (for NU) 5MHz Output (AGC+3dB)

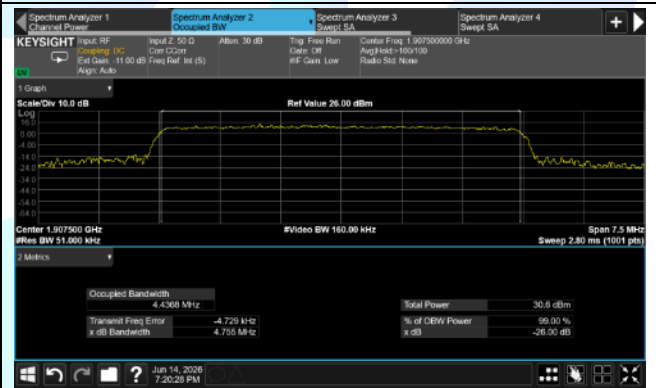
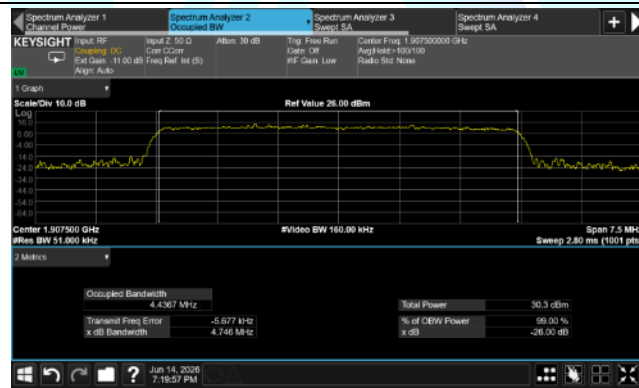
Lowest Channel



Middle Channel



Highest Channel



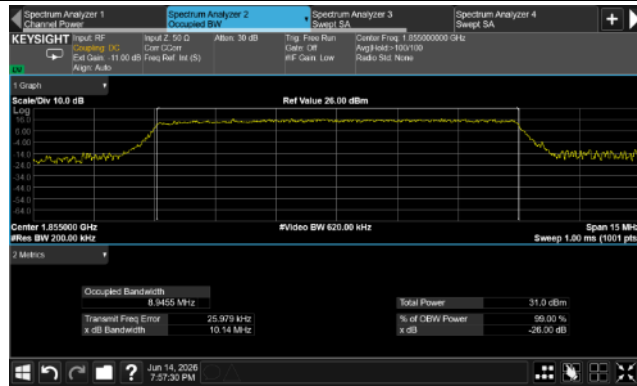
Frequency Band: n2

Uplink (for NU) 10MHz Output

Uplink (for NU) 10MHz Output (AGC+3dB)

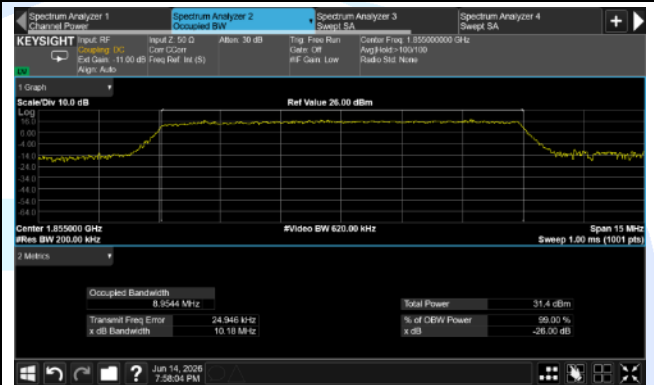
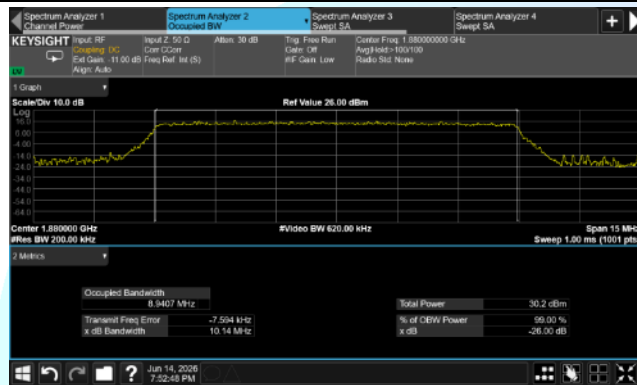
Lowest Channel

Lowest Channel



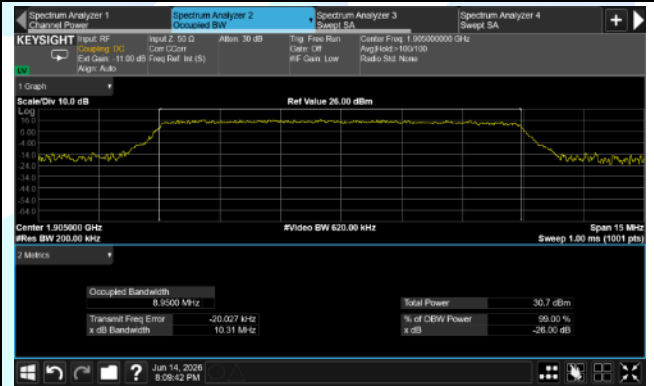
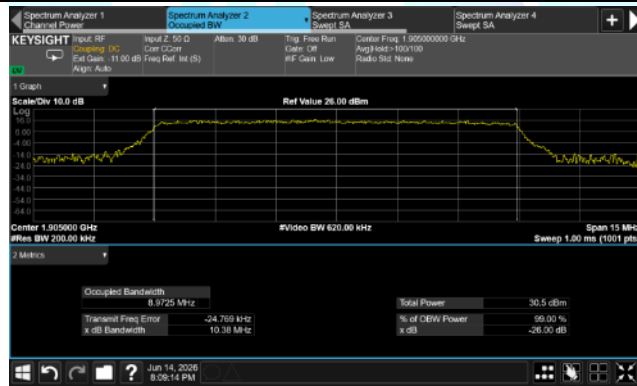
Middle Channel

Middle Channel



Highest Channel

Highest Channel



Frequency Band: n2

Uplink (for NU) 20MHz Output

Lowest Channel

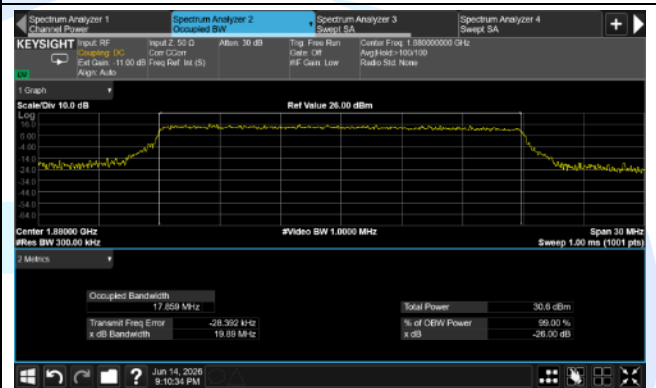
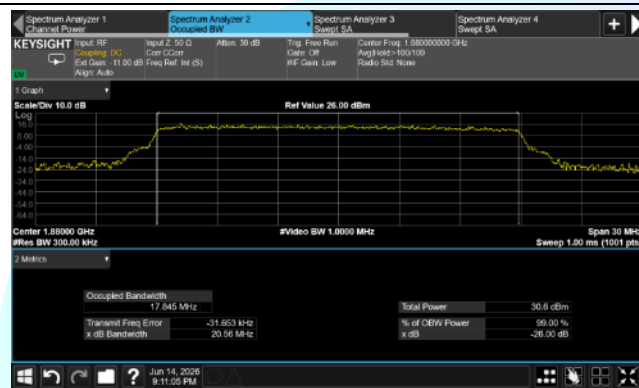


Uplink (for NU) 20MHz Output (AGC+3dB)

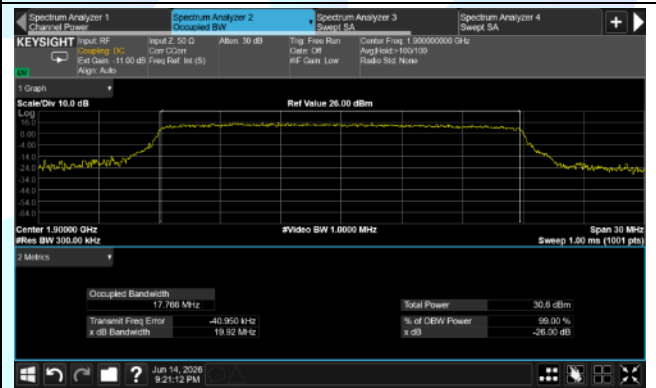
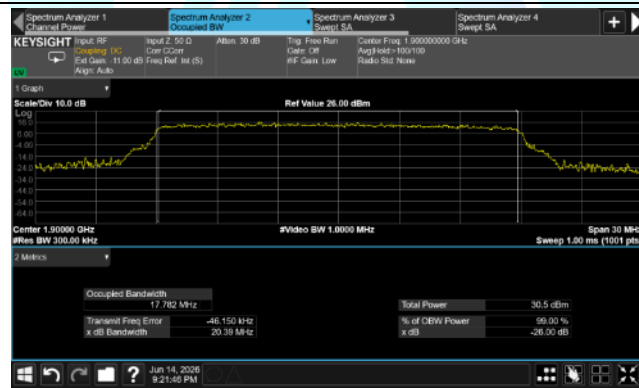
Lowest Channel



Middle Channel



Highest Channel



Frequency Band: n2

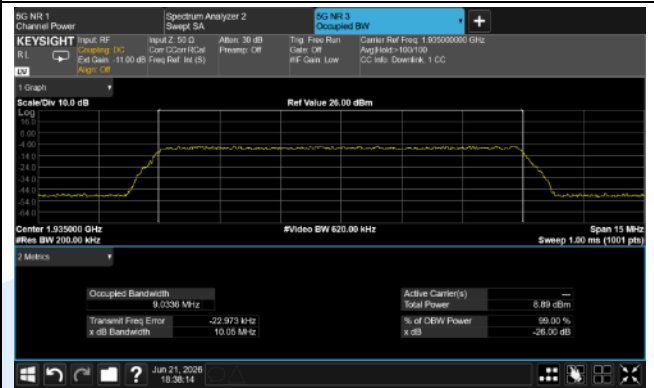
Downlink (for CU) 5MHz Input

Lowest Channel



Downlink (for CU) 10MHz Input

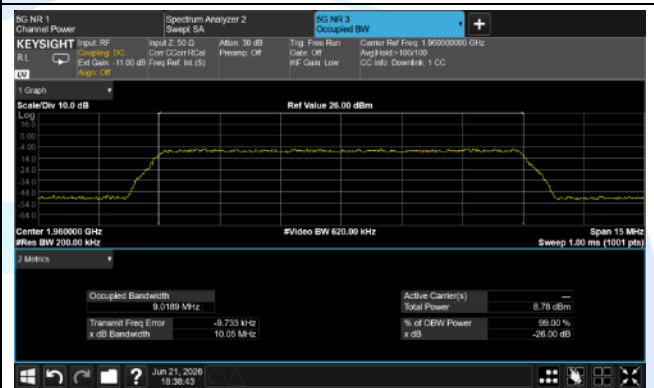
Lowest Channel



Middle Channel



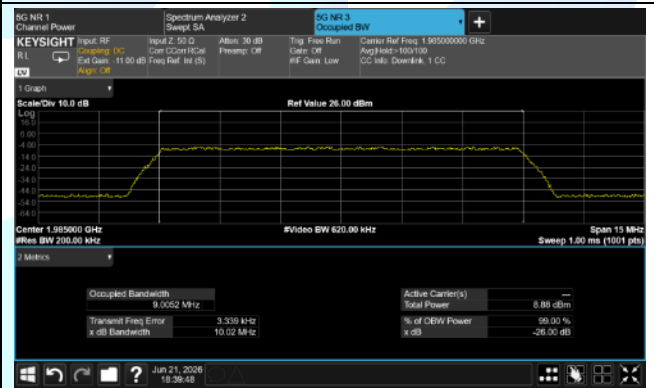
Middle Channel



Highest Channel



Highest Channel



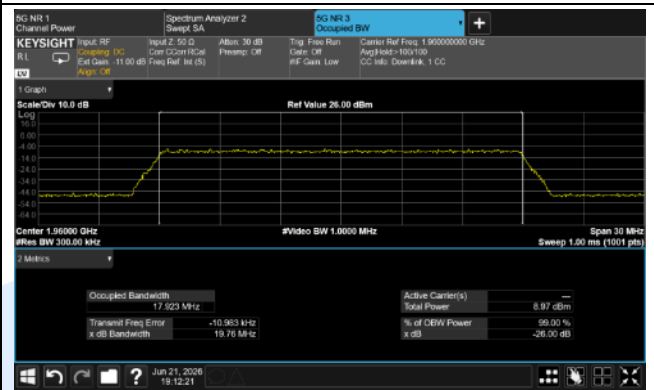
Frequency Band: n2

Downlink (for CU) 20MHz Input

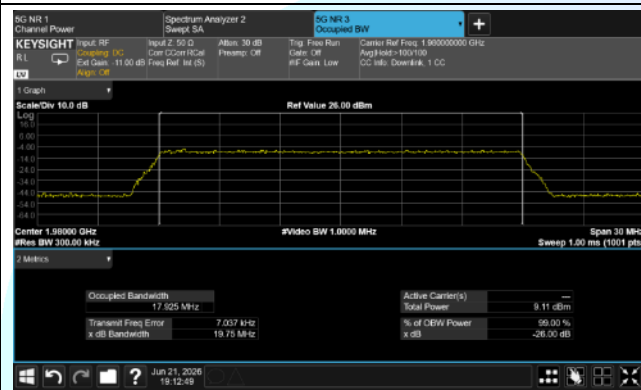
Lowest Channel



Middle Channel



Highest Channel

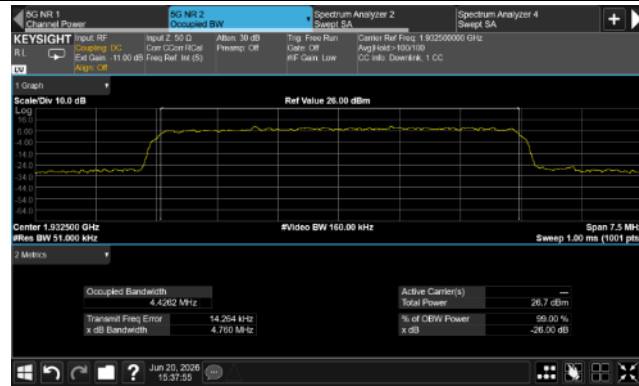


Intentionally Blank

Frequency Band: n2

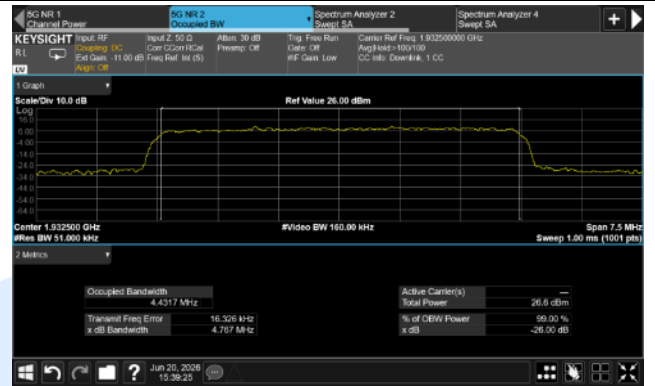
Downlink (for CU) 5MHz Output

Lowest Channel

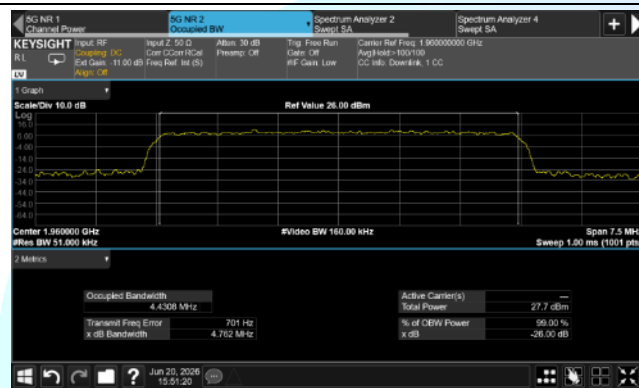


Downlink (for CU) 5MHz Output (AGC+3dB)

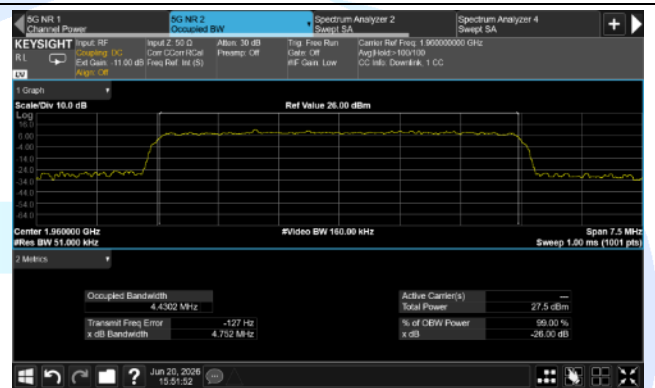
Lowest Channel



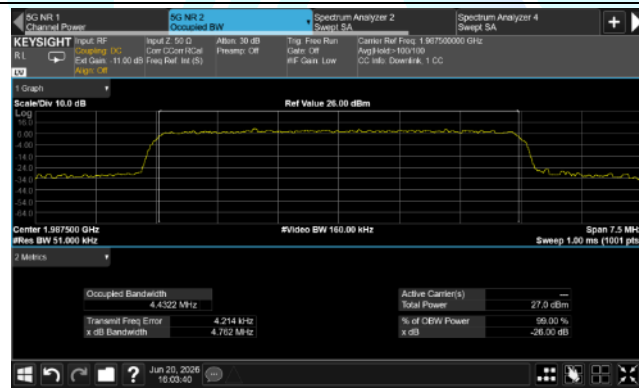
Middle Channel



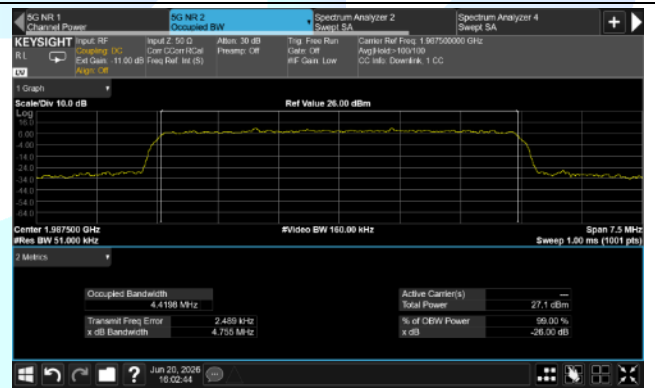
Middle Channel



Highest Channel



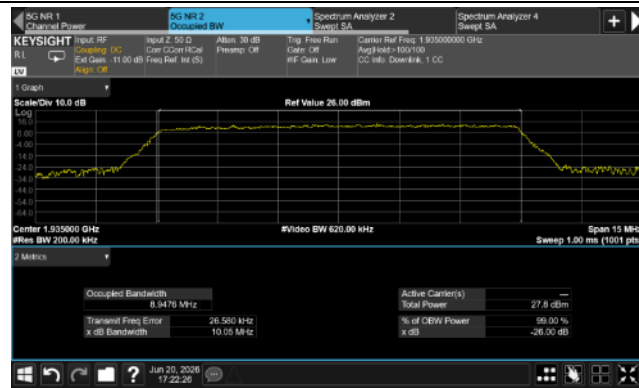
Highest Channel



Frequency Band: n2

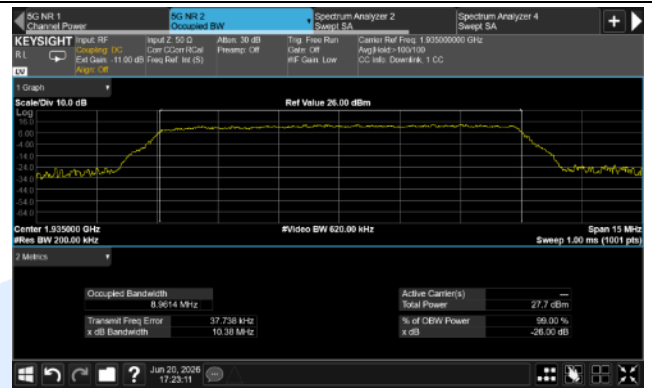
Downlink (for CU) 10MHz Output

Lowest Channel

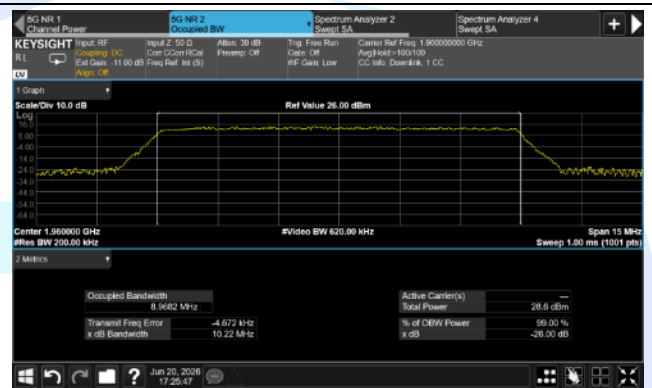
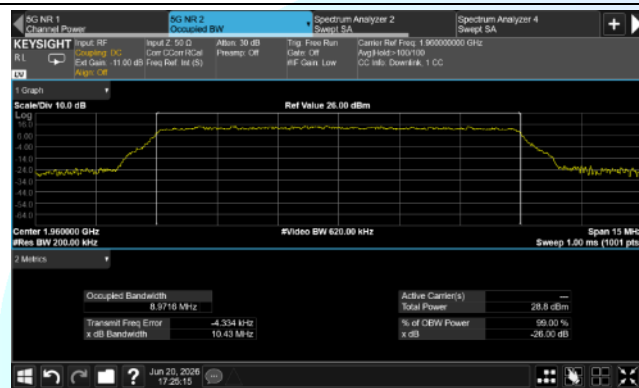


Downlink (for CU) 10MHz Output (AGC+3dB)

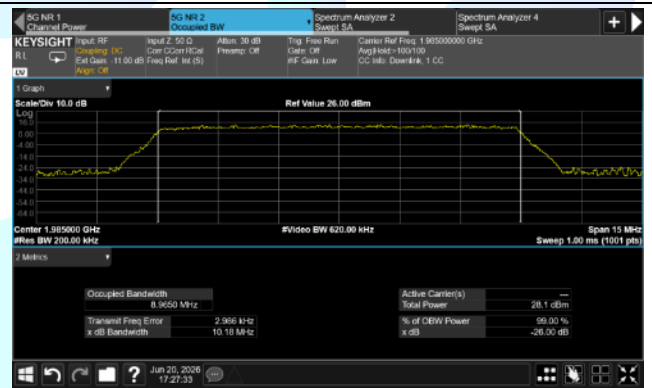
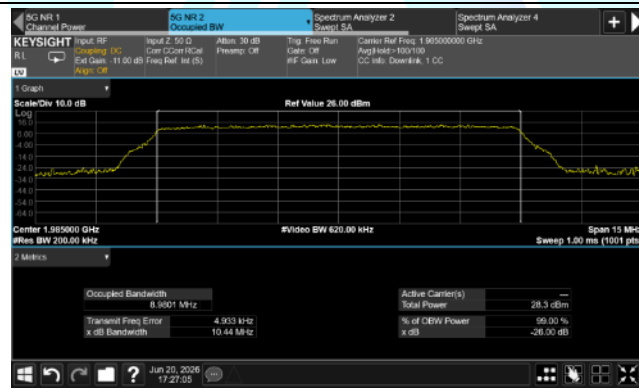
Lowest Channel



Middle Channel



Highest Channel



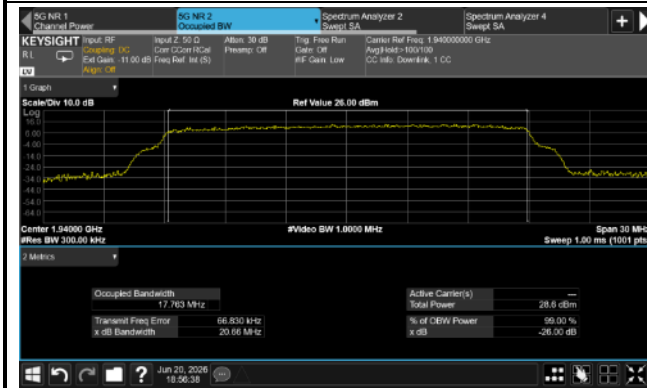
Frequency Band: n2

Downlink (for CU) 20MHz Output

Downlink (for CU) 20MHz Output (AGC+3dB)

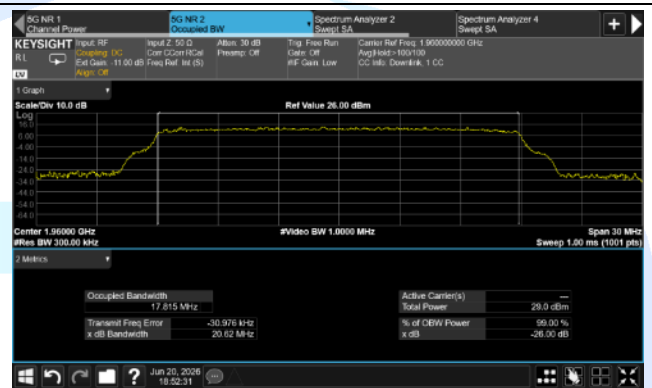
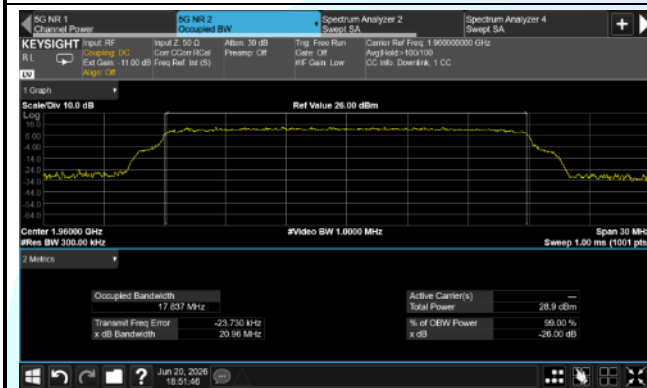
Lowest Channel

Lowest Channel



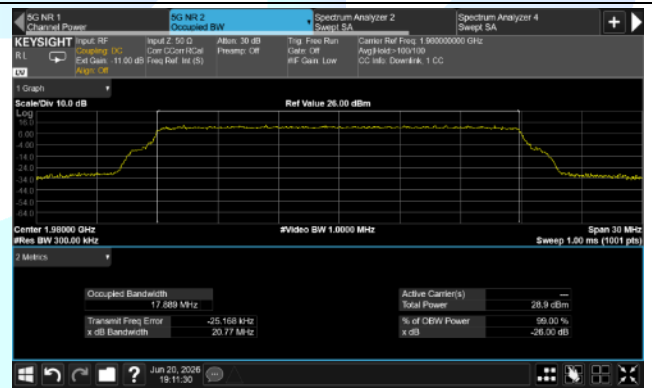
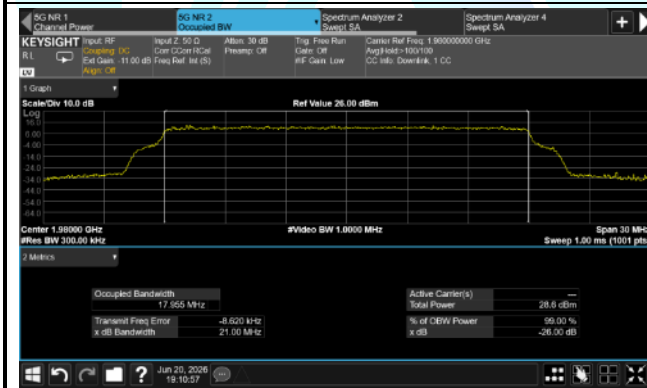
Middle Channel

Middle Channel



Highest Channel

Highest Channel



Frequency Band: n5

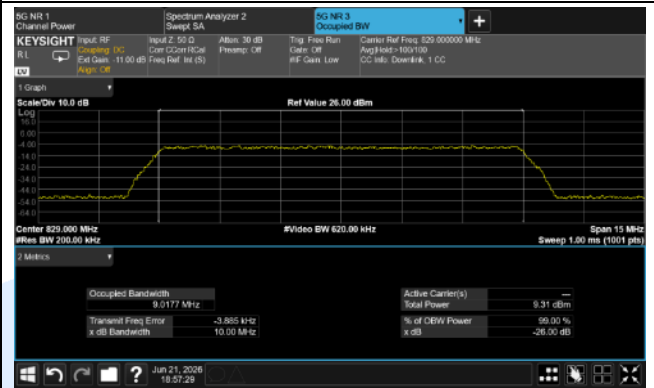
Uplink (for NU) 5MHz Input

Lowest Channel



Uplink (for NU) 10MHz Input

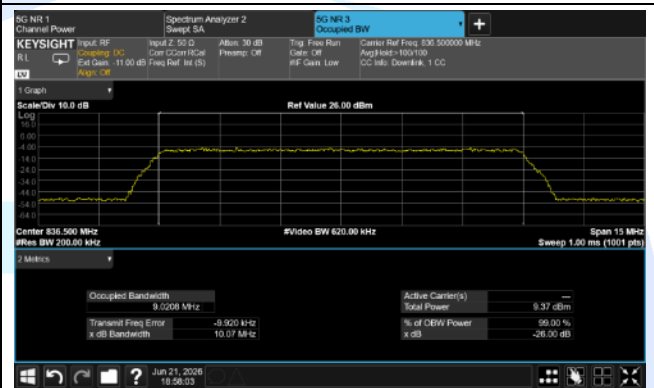
Lowest Channel



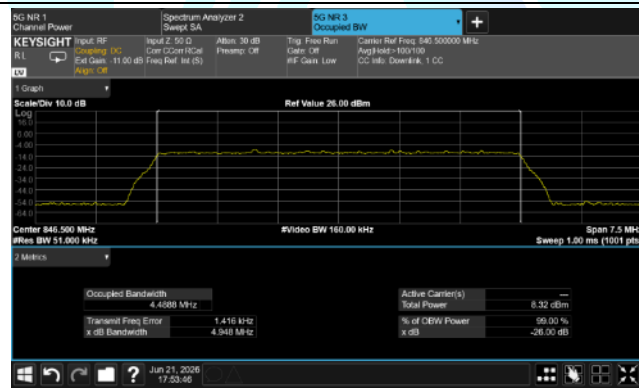
Middle Channel



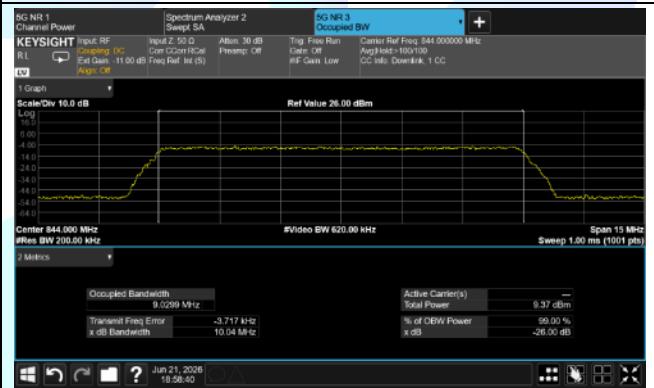
Middle Channel



Highest Channel



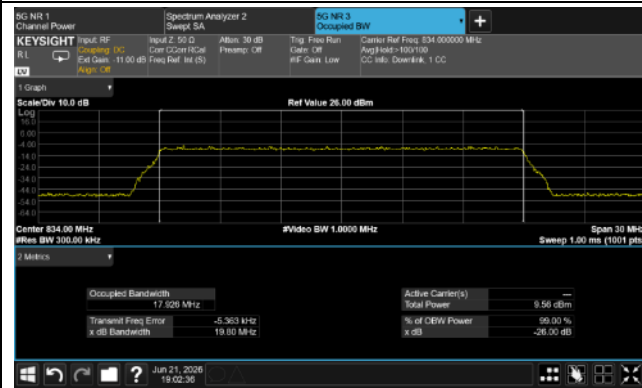
Highest Channel



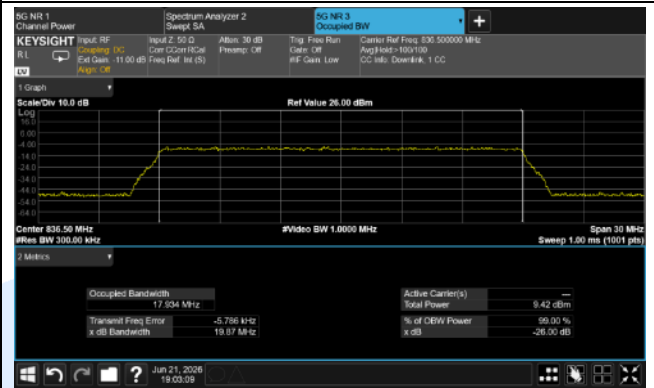
Frequency Band: n5

Uplink (for NU) 20MHz Input

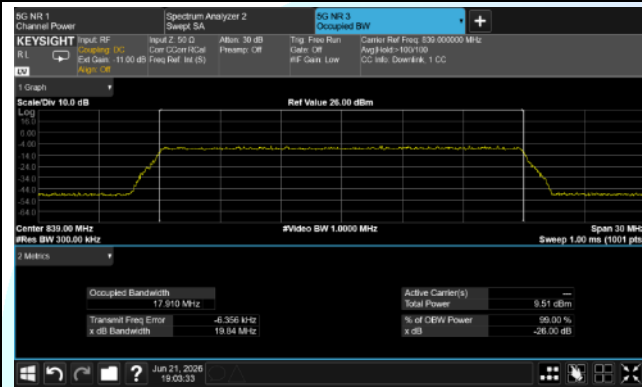
Lowest Channel



Middle Channel



Highest Channel

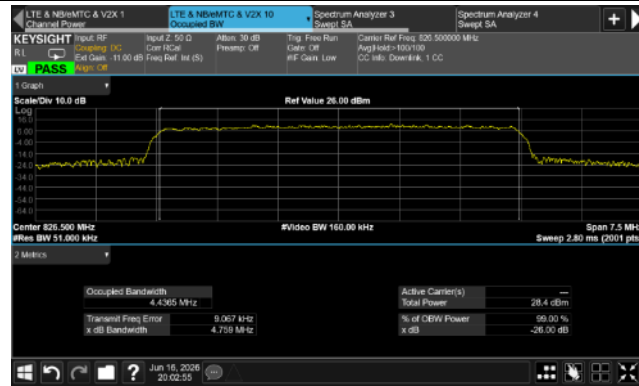


Intentionally Blank

Frequency Band: n5

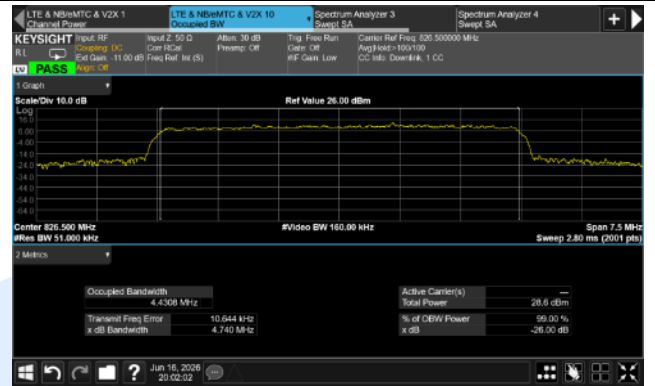
Uplink (for NU) 5MHz Output

Lowest Channel

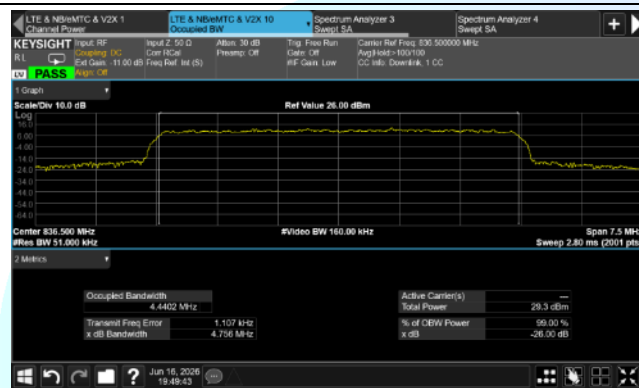


Uplink (for NU) 5MHz Output (AGC+3dB)

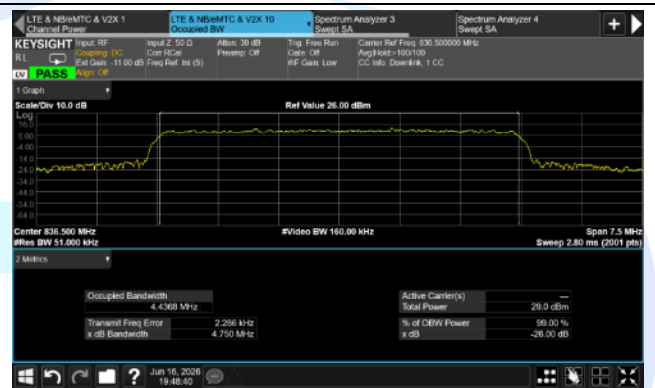
Lowest Channel



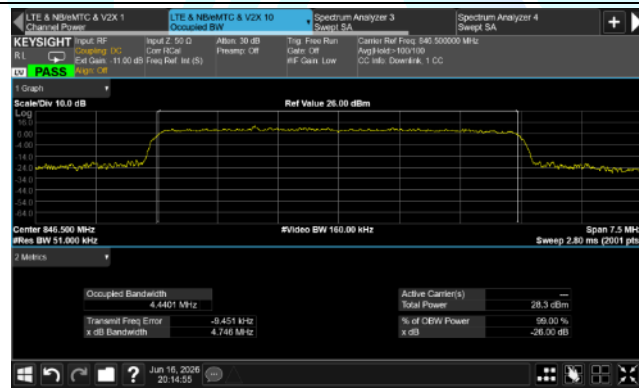
Middle Channel



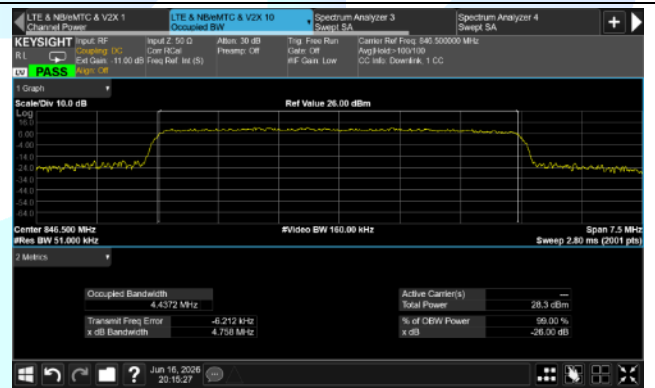
Middle Channel



Highest Channel



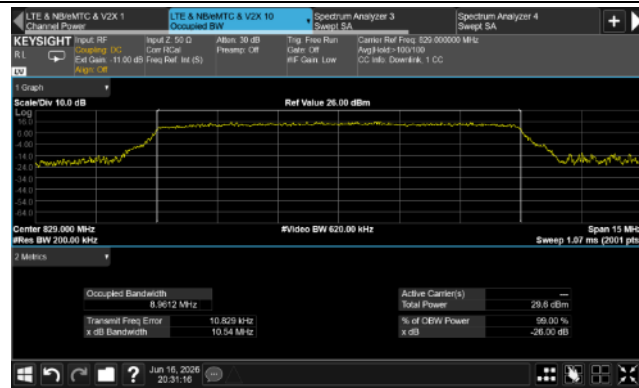
Highest Channel



Frequency Band: n5

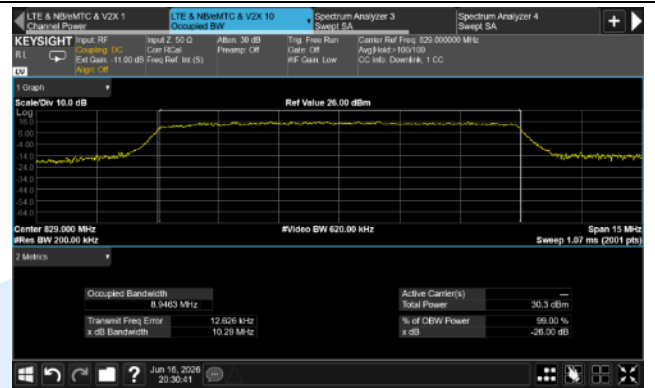
Uplink (for NU) 10MHz Output

Lowest Channel

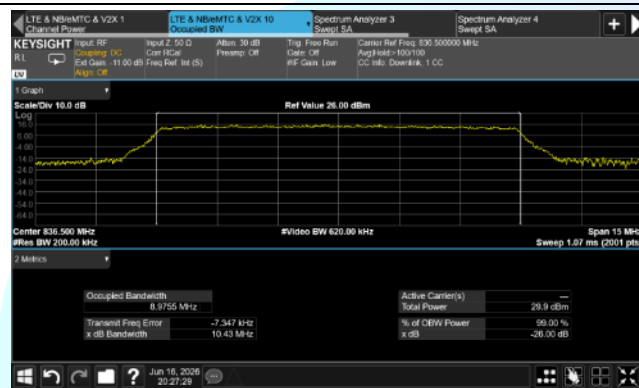


Uplink (for NU) 10MHz Output (AGC+3dB)

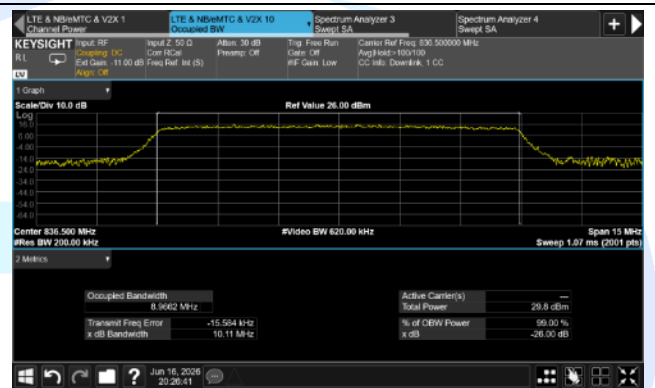
Lowest Channel



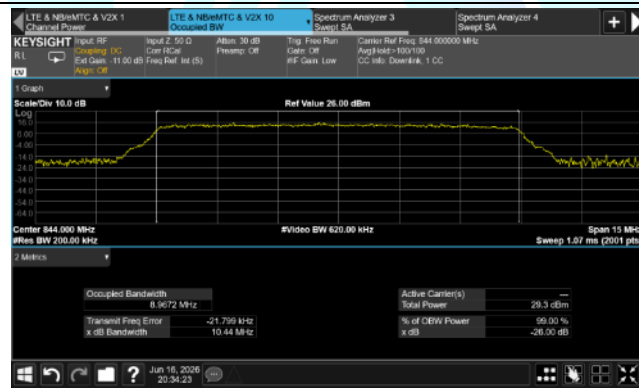
Middle Channel



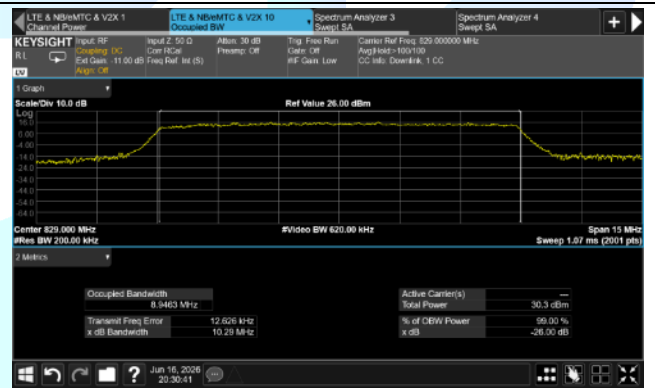
Middle Channel



Highest Channel



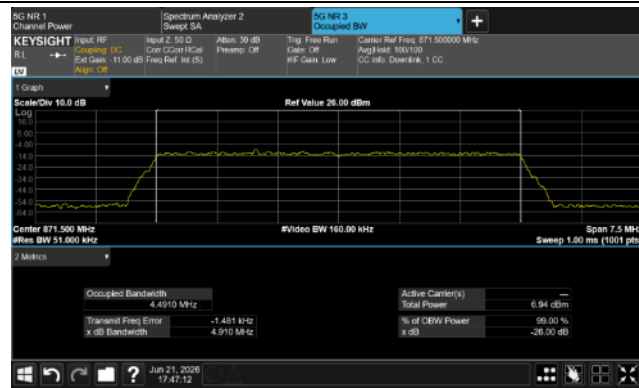
Highest Channel



Frequency Band: n5

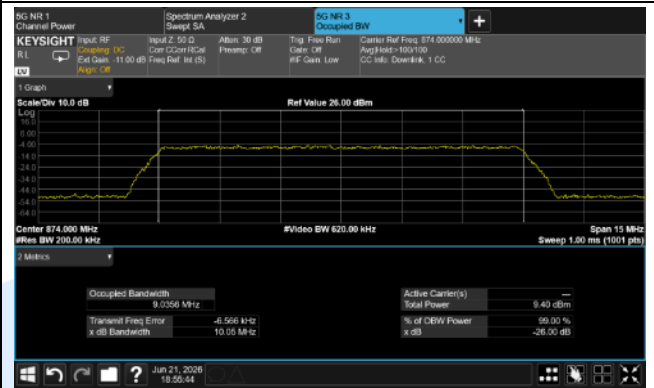
Downlink (for CU) 5MHz Input

Lowest Channel



Downlink (for CU) 10MHz Input

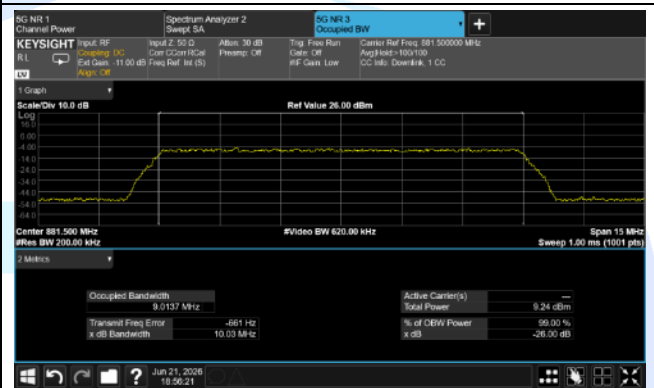
Lowest Channel



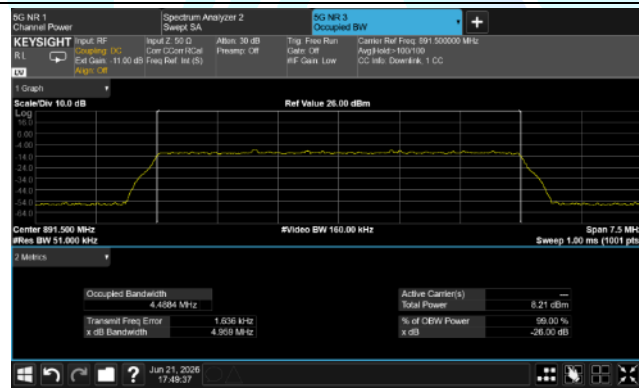
Middle Channel



Middle Channel



Highest Channel



Highest Channel

