

OCCUPIED BANDWIDTH

TEST DESCRIPTION

The emission bandwidth was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

The method in section 5.4 of ANSI C63.26 was used to make this measurement. The spectrum analyzer settings were as follows:

- RBW is 1% - 5% of the occupied bandwidth
- VBW is $\geq 3x$ the RBW
- Peak Detector was used
- Trace max hold was used

RF conducted emissions testing was performed only on one port. The AHFIHA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in this certification testing) and antenna port 1 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i, and 6.4.

FCC 24.238(b), FCC 27.53(h)(3) and FCC 27.53(m)(6) defines the 26dB emission bandwidth requirement.

RSS GEN Section 6.7 defines the 99% emission bandwidth requirement.

The occupied bandwidth was measured with the EUT configured in the modes called out in the data sheets.

FCC and ISED Emission Designators for Band n25 (1930MHz to 1995MHz) Single Carrier									
Ch BW	Radio Channel	5G-NR: QPSK		5G-NR: 16QAM		5G-NR: 64QAM		5G-NR: 256QAM	
		FCC	ISED	FCC	ISED	FCC	ISED	FCC	ISED
5MHz	Low							4M84G7W	4M48G7W
	Mid	4M85G7W	4M47G7W	4M85G7W	4M50G7W	4M84G7W	4M48G7W	4M83G7W	4M48G7W
	High							4M82G7W	4M48G7W
10MHz	Low							9M89G7W	9M31G7W
	Mid	9M91G7W	9M29G7W	9M86G7W	9M24G7W	9M89G7W	9M30G7W	9M92G7W	9M31G7W
	High							9M92G7W	9M30G7W
15MHz	Low							15M0G7W	14M1G7W
	Mid	15M0G7W	14M1G7W	14M9G7W	14M2G7W	14M9G7W	14M1G7W	15M0G7W	14M2G7W
	High							15M0G7W	14M1G7W
20MHz	Low							20M1G7W	19M0G7W
	Mid	20M1G7W	19M0G7W	20M0G7W	19M0G7W	20M1G7W	19M0G7W	20M1G7W	18M9G7W
	High							20M0G7W	19M0G7W
25MHz	Low							25M2G7W	23M8G7W
	Mid	25M2G7W	23M8G7W	25M2G7W	23M9G7W	25M2G7W	23M8G7W	25M3G7W	23M8G7W
	High							25M2G7W	23M8G7W
30MHz	Low							30M2G7W	28M6G7W
	Mid	30M2G7W	28M6G7W	30M1G7W	28M4G7W	30M2G7W	28M6G7W	30M2G7W	28M6G7W
	High							30M2G7W	28M6G7W
40MHz	Low							40M6G7W	38M6G7W
	Mid	40M6G7W	38M6G7W	40M6G7W	38M7G7W	40M6G7W	38M6G7W	40M6G7W	38M6G7W
	High							40M7G7W	38M6G7W
FCC emission designators are based on 26dB emission bandwidth. ISED emission designators are based on 99% emission bandwidth.									

OCCUPIED BANDWIDTH

FCC and ISED Emission Designators for Band n66 (2110MHz to 2200MHz) Single Carrier									
Ch BW	Radio Channel	5G-NR: QPSK		5G-NR: 16QAM		5G-NR: 64QAM		5G-NR: 256QAM	
		FCC	ISED	FCC	ISED	FCC	ISED	FCC	ISED
5MHz	Low							4M82G7W	4M48G7W
	Mid	4M82G7W	4M48G7W	4M81G7W	4M51G7W	4M85G7W	4M49G7W	4M83G7W	4M48G7W
	High							4M83G7W	4M48G7W
10MHz	Low							9M90G7W	9M30G7W
	Mid	9M89G7W	9M30G7W	9M89G7W	9M26G7W	9M92G7W	9M30G7W	9M90G7W	9M31G7W
	High							9M91G7W	9M31G7W
15MHz	Low							15M0G7W	14M1G7W
	Mid	15M0G7W	14M1G7W	15M0G7W	14M2G7W	15M0G7W	14M1G7W	15M0G7W	14M1G7W
	High							15M0G7W	14M1G7W
20MHz	Low							20M1G7W	19M0G7W
	Mid	20M1G7W	19M0G7W	20M0G7W	19M0G7W	20M1G7W	18M9G7W	20M1G7W	18M9G7W
	High							20M1G7W	18M9G7W
25MHz	Low							25M2G7W	23M8G7W
	Mid	25M2G7W	23M8G7W	25M2G7W	23M9G7W	25M2G7W	23M8G7W	25M2G7W	23M8G7W
	High							25M2G7W	23M8G7W
30MHz	Low							30M2G7W	28M6G7W
	Mid	30M3G7W	28M6G7W	30M0G7W	28M5G7W	30M2G7W	28M6G7W	30M3G7W	28M7G7W
	High							30M2G7W	28M7G7W
40MHz	Low							40M6G7W	38M7G7W
	Mid	40M6G7W	38M7G7W	40M6G7W	38M8G7W	40M6G7W	38M6G7W	40M6G7W	38M6G7W
	High							40M6G7W	38M6G7W

FCC emission designators are based on 26dB emission bandwidth. ISED emission designators are based on 99% emission bandwidth.

FCC and ISED Emission Designators for Band n7 (2620MHz to 2690MHz) Single Carrier									
Ch BW	Radio Channel	5G-NR: QPSK		5G-NR: 16QAM		5G-NR: 64QAM		5G-NR: 256QAM	
		FCC	ISED	FCC	ISED	FCC	ISED	FCC	ISED
5MHz	Low							4M83G7W	4M47G7W
	Mid	4M84G7W	4M47G7W	4M85G7W	4M50G7W	4M83G7W	4M45G7W	4M83G7W	4M48G7W
	High							4M82G7W	4M47G7W
10MHz	Low							9M90G7W	9M30G7W
	Mid	9M90G7W	9M29G7W	9M84G7W	9M24G7W	9M89G7W	9M30G7W	9M91G7W	9M31G7W
	High							9M89G7W	9M30G7W
15MHz	Low							15M0G7W	14M1G7W
	Mid	15M0G7W	14M1G7W	15M0G7W	14M2G7W	15M0G7W	14M1G7W	15M0G7W	14M1G7W
	High							15M0G7W	14M1G7W
20MHz	Low							20M0G7W	19M0G7W
	Mid	20M1G7W	18M9G7W	20M1G7W	19M0G7W	20M1G7W	19M0G7W	20M1G7W	19M0G7W
	High							20M1G7W	19M0G7W
25MHz	Low							25M2G7W	23M8G7W
	Mid	25M2G7W	23M8G7W	25M2G7W	23M9G7W	25M2G7W	23M8G7W	25M2G7W	23M8G7W
	High							25M2G7W	23M8G7W
30MHz	Low							30M2G7W	28M6G7W
	Mid	30M3G7W	28M6G7W	30M1G7W	28M4G7W	30M2G7W	28M6G7W	30M2G7W	28M6G7W
	High							30M2G7W	28M7G7W
40MHz	Low							40M6G7W	38M7G7W
	Mid	40M6G7W	38M6G7W	40M6G7W	38M7G7W	40M6G7W	38M6G7W	40M6G7W	38M7G7W
	High							40M6G7W	38M6G7W

FCC emission designators are based on 26dB emission bandwidth. ISED emission designators are based on 99% emission bandwidth.

OCCUPIED BANDWIDTH

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17
Block - DC	Fairview Microwave	SD3379	AMM	2023-08-04	2024-08-04
Generator - Signal	Keysight	N5182B	TES	2021-09-14	2024-09-14

OCCUPIED BANDWIDTH

EUT:	AirScale Base Transceiver Station Remote Radio Head Model AHFIHA	Work Order:	NOKI0072
Serial Number:	RW233403213	Date:	2023-12-04
Customer:	Nokia Solutions and Networks	Temperature:	22.2°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	35.4%
Customer Project:	None	Bar. Pressure (PMSL):	1022 mbar
Tested By:	Jarrold Brenden	Job Site:	TX07
Power:	54VDC	Configuration:	NOKI0072-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 24E:2024	ANSI C63.26:2015
FCC 27:2024	ANSI C63.26:2015
RSS-133 Issue 6:2013 +A1:2018	ANSI C63.26:2015
RSS-199 Issue 4:2023	ANSI C63.26:2015
RSS139 Issue 4:2022	ANSI C63.26:2015

COMMENTS

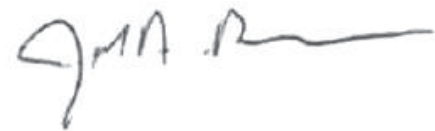
Losses in the measurement path were accounted for: DC Block, attenuators, filters, and cables. PCS Band n25, AWS Band n66, and BRS Band n7 carriers are enabled individually at maximum power (40W/carrier for 5 MHz carrier and 60W/carrier for 10 MHz to 40 MHz carriers).

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass



Tested By

TEST RESULTS

		Value	Value		
		99% (MHz)	26db (MHz)	Limit	Result
Port 1					
	PCS Band n25, 1930 MHz - 1995 MHz				
	5 MHz Bandwidth				
	QPSK Modulation				
	Mid Ch, 1962.5 MHz	4.472 MHz	4.851 MHz	Within Band	Pass
	16QAM Modulation				
	Mid Ch, 1962.5 MHz	4.499 MHz	4.846 MHz	Within Band	Pass
	64QAM Modulation				
	Mid Ch, 1962.5 MHz	4.475 MHz	4.838 MHz	Within Band	Pass
	256QAM Modulation				
	Low Ch, 1932.5 MHz	4.483 MHz	4.844 MHz	Within Band	Pass
	Mid Ch, 1962.5 MHz	4.477 MHz	4.829 MHz	Within Band	Pass
	High Ch, 1992.5 MHz	4.475 MHz	4.822 MHz	Within Band	Pass
	10 MHz Bandwidth				
	QPSK Modulation				

OCCUPIED BANDWIDTH

		Value	Value	Limit	Result
		99% (MHz)	26db (MHz)		
Mid Ch, 1962.5 MHz		9.289 MHz	9.914 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 1962.5 MHz		9.238 MHz	9.857 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 1962.5 MHz		9.298 MHz	9.889 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 1935.0 MHz		9.305 MHz	9.889 MHz	Within Band	Pass
Mid Ch, 1962.5 MHz		9.312 MHz	9.919 MHz	Within Band	Pass
High Ch, 1990.0 MHz		9.298 MHz	9.92 MHz	Within Band	Pass
15 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 1962.5 MHz		14.128 MHz	15.035 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 1962.5 MHz		14.172 MHz	14.94 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 1962.5 MHz		14.111 MHz	14.916 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 1937.5 MHz		14.13 MHz	14.952 MHz	Within Band	Pass
Mid Ch, 1962.5 MHz		14.155 MHz	14.99 MHz	Within Band	Pass
High Ch, 1987.5 MHz		14.136 MHz	14.96 MHz	Within Band	Pass
20 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 1962.5 MHz		18.955 MHz	20.09 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 1962.5 MHz		19.023 MHz	20.035 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 1962.5 MHz		18.998 MHz	20.097 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 1940.0 MHz		18.953 MHz	20.094 MHz	Within Band	Pass
Mid Ch, 1962.5 MHz		18.944 MHz	20.083 MHz	Within Band	Pass
High Ch, 1985.0 MHz		18.956 MHz	20.016 MHz	Within Band	Pass
25 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 1962.5 MHz		23.772 MHz	25.241 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 1962.5 MHz		23.872 MHz	25.226 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 1962.5 MHz		23.773 MHz	25.171 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 1942.5 MHz		23.792 MHz	25.203 MHz	Within Band	Pass
Mid Ch, 1962.5 MHz		23.824 MHz	25.26 MHz	Within Band	Pass
High Ch, 1982.5 MHz		23.819 MHz	25.204 MHz	Within Band	Pass
30 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 1962.5 MHz		28.598 MHz	30.241 MHz	Within Band	Pass
16QAM Modulation					

OCCUPIED BANDWIDTH

		Value	Value	Limit	Result
		99% (MHz)	26db (MHz)		
Mid Ch, 1962.5 MHz		28.408 MHz	30.105 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 1962.5 MHz		28.604 MHz	30.221 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 1945.0 MHz		28.598 MHz	30.198 MHz	Within Band	Pass
Mid Ch, 1962.5 MHz		28.623 MHz	30.223 MHz	Within Band	Pass
High Ch, 1980.0 MHz		28.617 MHz	30.233 MHz	Within Band	Pass
40 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 1962.5 MHz		38.615 MHz	40.643 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 1962.5 MHz		38.718 MHz	40.634 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 1962.5 MHz		38.639 MHz	40.647 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 1950.0 MHz		38.647 MHz	40.593 MHz	Within Band	Pass
Mid Ch, 1962.5 MHz		38.619 MHz	40.596 MHz	Within Band	Pass
High Ch, 1975.0 MHz		38.614 MHz	40.664 MHz	Within Band	Pass
AWS Band n66, 2110 MHz - 2200 MHz					
5 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 2155.0 MHz		4.478 MHz	4.819 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 2155.0 MHz		4.508 MHz	4.809 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 2155.0 MHz		4.491 MHz	4.85 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 2112.5 MHz		4.481 MHz	4.818 MHz	Within Band	Pass
Mid Ch, 2155.0 MHz		4.477 MHz	4.833 MHz	Within Band	Pass
High Ch, 2197.5 MHz		4.481 MHz	4.826 MHz	Within Band	Pass
10 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 2155.0 MHz		9.301 MHz	9.888 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 2155.0 MHz		9.256 MHz	9.892 MHz	Within Band	Pass
64QAM Modulation					
Mid Ch, 2155.0 MHz		9.295 MHz	9.924 MHz	Within Band	Pass
256QAM Modulation					
Low Ch, 2115.0 MHz		9.302 MHz	9.904 MHz	Within Band	Pass
Mid Ch, 2155.0 MHz		9.31 MHz	9.9 MHz	Within Band	Pass
High Ch, 2195.0 MHz		9.312 MHz	9.908 MHz	Within Band	Pass
15 MHz Bandwidth					
QPSK Modulation					
Mid Ch, 2155.0 MHz		14.125 MHz	14.99 MHz	Within Band	Pass
16QAM Modulation					
Mid Ch, 2155.0 MHz		14.177 MHz	14.961 MHz	Within Band	Pass

OCCUPIED BANDWIDTH

	Value	Value		
	99% (MHz)	26db (MHz)	Limit	Result
64QAM Modulation				
Mid Ch, 2155.0 MHz	14.112 MHz	14.964 MHz	Within Band	Pass
256QAM Modulation				
Low Ch, 2117.5 MHz	14.127 MHz	14.961 MHz	Within Band	Pass
Mid Ch, 2155.0 MHz	14.117 MHz	14.986 MHz	Within Band	Pass
High Ch, 2192.5 MHz	14.127 MHz	14.973 MHz	Within Band	Pass
20 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2155.0 MHz	18.98 MHz	20.091 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2155.0 MHz	19.037 MHz	20.033 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2155.0 MHz	18.949 MHz	20.068 MHz	Within Band	Pass
256QAM Modulation				
Low Ch, 2120.0 MHz	18.96 MHz	20.116 MHz	Within Band	Pass
Mid Ch, 2155.0 MHz	18.947 MHz	20.059 MHz	Within Band	Pass
High Ch, 2190.0 MHz	18.947 MHz	20.085 MHz	Within Band	Pass
25 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2155.0 MHz	23.822 MHz	25.241 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2155.0 MHz	23.877 MHz	25.183 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2155.0 MHz	23.791 MHz	25.202 MHz	Within Band	Pass
256QAM Modulation				
Low Ch, 2122.5 MHz	23.792 MHz	25.215 MHz	Within Band	Pass
Mid Ch, 2155.0 MHz	23.788 MHz	25.228 MHz	Within Band	Pass
High Ch, 2187.5 MHz	23.792 MHz	25.23 MHz	Within Band	Pass
30 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2155.0 MHz	28.644 MHz	30.287 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2155.0 MHz	28.466 MHz	30.048 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2155.0 MHz	28.589 MHz	30.243 MHz	Within Band	Pass
256QAM Modulation				
Low Ch, 2125.0 MHz	28.626 MHz	30.157 MHz	Within Band	Pass
Mid Ch, 2155.0 MHz	28.657 MHz	30.264 MHz	Within Band	Pass
High Ch, 2185.0 MHz	28.652 MHz	30.179 MHz	Within Band	Pass
40 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2155.0 MHz	38.676 MHz	40.628 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2155.0 MHz	38.806 MHz	40.638 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2155.0 MHz	38.601 MHz	40.622 MHz	Within Band	Pass

OCCUPIED BANDWIDTH

	Value	Value	Limit	Result
	99% (MHz)	26db (MHz)		
256QAM Modulation				
Low Ch, 2130.0 MHz	38.652 MHz	40.599 MHz	Within Band	Pass
Mid Ch, 2155.0 MHz	38.616 MHz	40.615 MHz	Within Band	Pass
High Ch, 2180.0 MHz	38.643 MHz	40.6 MHz	Within Band	Pass
BRS Band n7, 2620 MHz - 2690 MHz				
5 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2655.0 MHz	4.474 MHz	4.837 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2655.0 MHz	4.5 MHz	4.85 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2655.0 MHz	4.45 MHz	4.834 MHz	Within Band	Pass
256QAM Modulation				
Low Ch, 2622.5 MHz	4.474 MHz	4.829 MHz	Within Band	Pass
Mid Ch, 2655.0 MHz	4.475 MHz	4.826 MHz	Within Band	Pass
High Ch, 2687.5 MHz	4.474 MHz	4.818 MHz	Within Band	Pass
10 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2655.0 MHz	9.293 MHz	9.897 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2655.0 MHz	9.24 MHz	9.843 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2655.0 MHz	9.297 MHz	9.889 MHz	Within Band	Pass
256QAM Modulation				
Low Ch, 2625.0 MHz	9.304 MHz	9.899 MHz	Within Band	Pass
Mid Ch, 2655.0 MHz	9.306 MHz	9.912 MHz	Within Band	Pass
High Ch, 2685.0 MHz	9.301 MHz	9.892 MHz	Within Band	Pass
15 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2655.0 MHz	14.12 MHz	15.001 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2655.0 MHz	14.181 MHz	14.963 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2655.0 MHz	14.11 MHz	14.96 MHz	Within Band	Pass
256QAM Modulation				
Low Ch, 2627.5 MHz	14.135 MHz	14.967 MHz	Within Band	Pass
Mid Ch, 2655.0 MHz	14.145 MHz	14.975 MHz	Within Band	Pass
High Ch, 2682.5 MHz	14.133 MHz	14.969 MHz	Within Band	Pass
20 MHz Bandwidth				
QPSK Modulation				
Mid Ch, 2655.0 MHz	18.945 MHz	20.088 MHz	Within Band	Pass
16QAM Modulation				
Mid Ch, 2655.0 MHz	19.018 MHz	20.074 MHz	Within Band	Pass
64QAM Modulation				
Mid Ch, 2655.0 MHz	18.981 MHz	20.121 MHz	Within Band	Pass
256QAM Modulation				

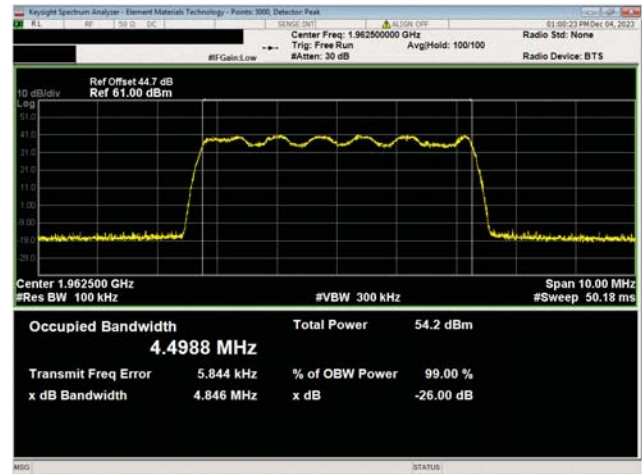
OCCUPIED BANDWIDTH

		Value	Value	Limit	Result
		99% (MHz)	26db (MHz)		
	Low Ch, 2630.0 MHz	18.951 MHz	20.035 MHz	Within Band	Pass
	Mid Ch, 2655.0 MHz	18.958 MHz	20.084 MHz	Within Band	Pass
	High Ch, 2680.0 MHz	18.955 MHz	20.082 MHz	Within Band	Pass
25 MHz Bandwidth					
QPSK Modulation					
	Mid Ch, 2655.0 MHz	23.768 MHz	25.237 MHz	Within Band	Pass
16QAM Modulation					
	Mid Ch, 2655.0 MHz	23.878 MHz	25.242 MHz	Within Band	Pass
64QAM Modulation					
	Mid Ch, 2655.0 MHz	23.779 MHz	25.214 MHz	Within Band	Pass
256QAM Modulation					
	Low Ch, 2632.5 MHz	23.844 MHz	25.225 MHz	Within Band	Pass
	Mid Ch, 2655.0 MHz	23.814 MHz	25.235 MHz	Within Band	Pass
	High Ch, 2677.5 MHz	23.806 MHz	25.236 MHz	Within Band	Pass
30 MHz Bandwidth					
QPSK Modulation					
	Mid Ch, 2655.0 MHz	28.613 MHz	30.314 MHz	Within Band	Pass
16QAM Modulation					
	Mid Ch, 2655.0 MHz	28.421 MHz	30.075 MHz	Within Band	Pass
64QAM Modulation					
	Mid Ch, 2655.0 MHz	28.622 MHz	30.199 MHz	Within Band	Pass
256QAM Modulation					
	Low Ch, 2635.0 MHz	28.633 MHz	30.243 MHz	Within Band	Pass
	Mid Ch, 2655.0 MHz	28.613 MHz	30.216 MHz	Within Band	Pass
	High Ch, 2675.0 MHz	28.652 MHz	30.233 MHz	Within Band	Pass
40 MHz Bandwidth					
QPSK Modulation					
	Mid Ch, 2655.0 MHz	38.621 MHz	40.622 MHz	Within Band	Pass
16QAM Modulation					
	Mid Ch, 2655.0 MHz	38.73 MHz	40.599 MHz	Within Band	Pass
64QAM Modulation					
	Mid Ch, 2655.0 MHz	38.628 MHz	40.642 MHz	Within Band	Pass
256QAM Modulation					
	Low Ch, 2640.0 MHz	38.658 MHz	40.62 MHz	Within Band	Pass
	Mid Ch, 2655.0 MHz	38.657 MHz	40.607 MHz	Within Band	Pass
	High Ch, 2670.0 MHz	38.63 MHz	40.618 MHz	Within Band	Pass

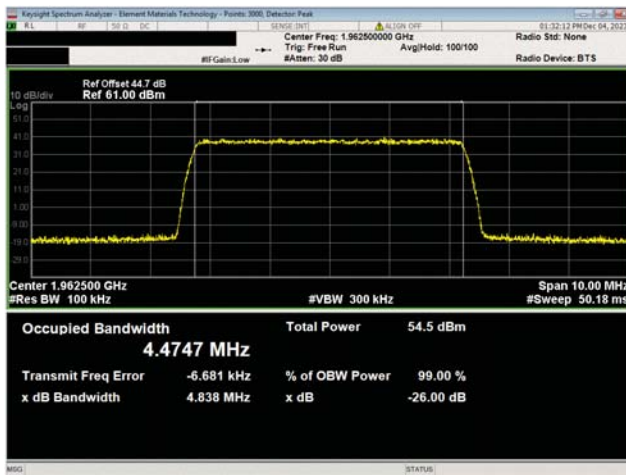
OCCUPIED BANDWIDTH



PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
QPSK Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
16QAM Modulation
Mid Ch, 1962.5 MHz

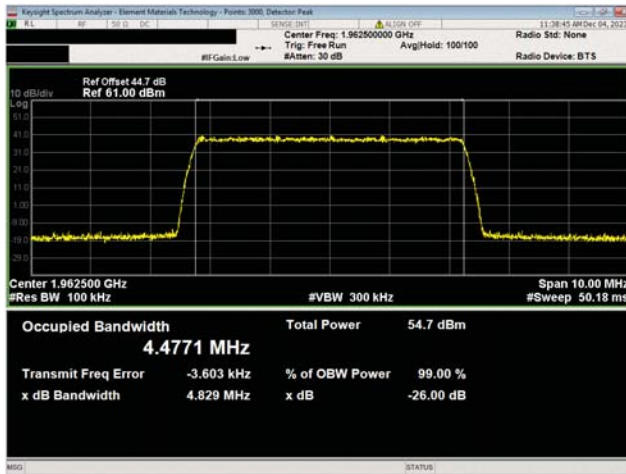


PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
64QAM Modulation
Mid Ch, 1962.5 MHz

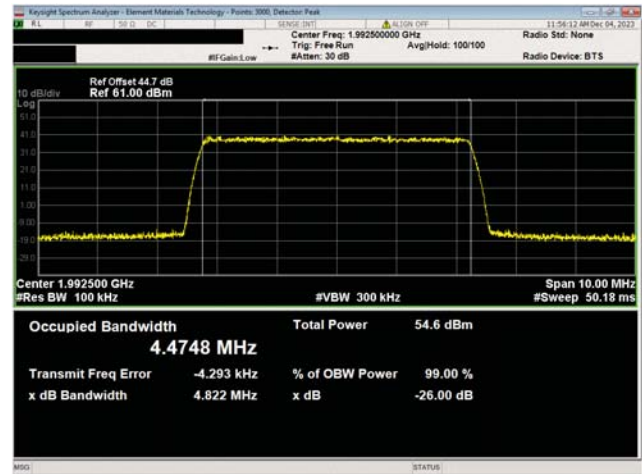


PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
256QAM Modulation
Low Ch, 1932.5 MHz

OCCUPIED BANDWIDTH



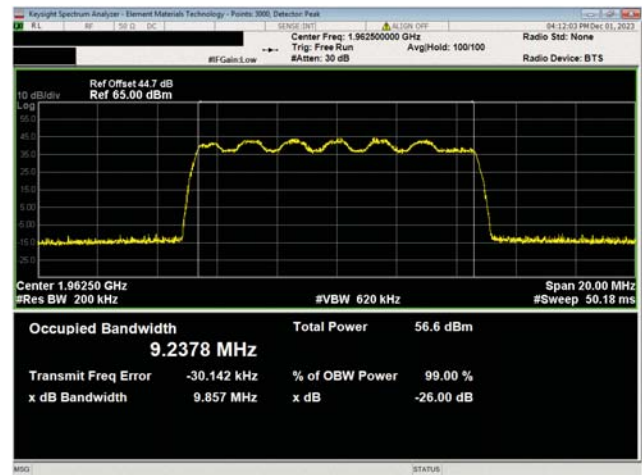
PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
256QAM Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 1992.5 MHz

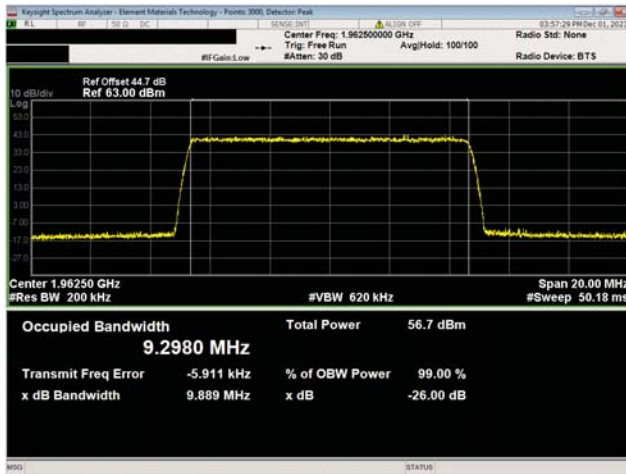


PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
QPSK Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
16QAM Modulation
Mid Ch, 1962.5 MHz

OCCUPIED BANDWIDTH



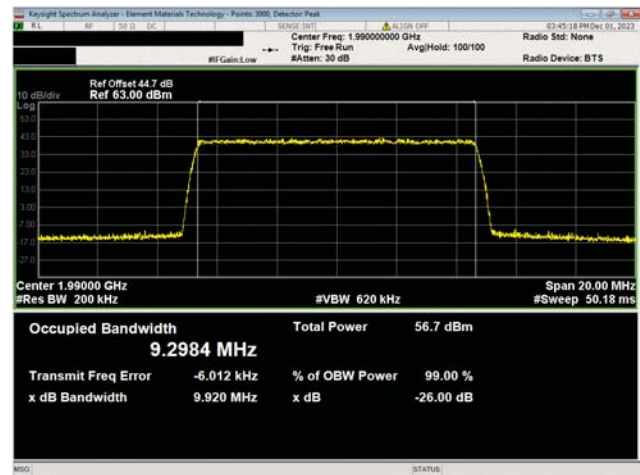
PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
64QAM Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 1935.0 MHz

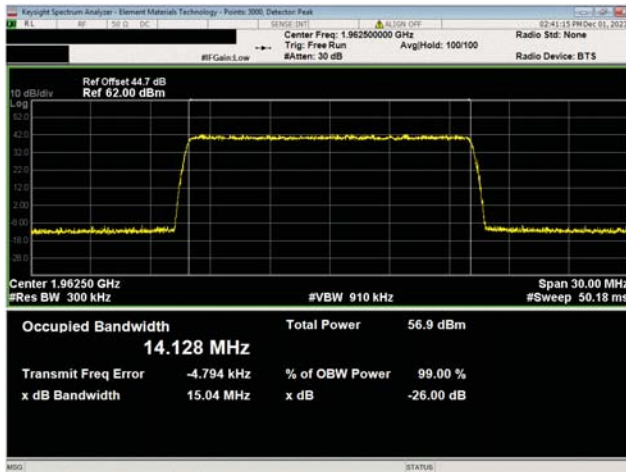


PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
Mid Ch, 1962.5 MHz

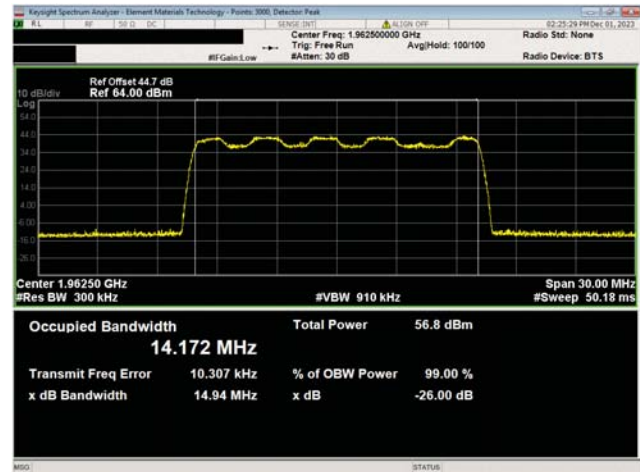


PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 1990.0 MHz

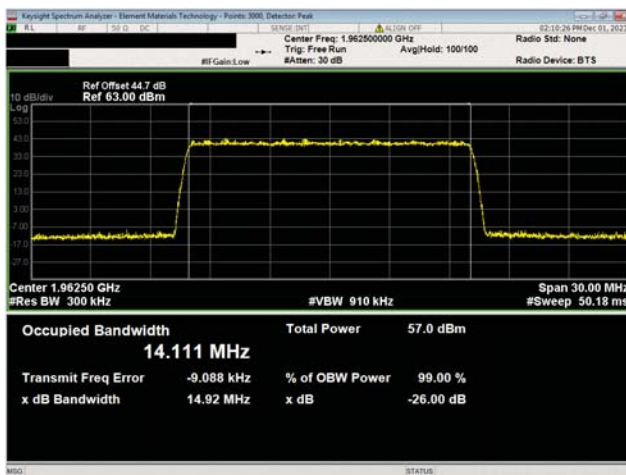
OCCUPIED BANDWIDTH



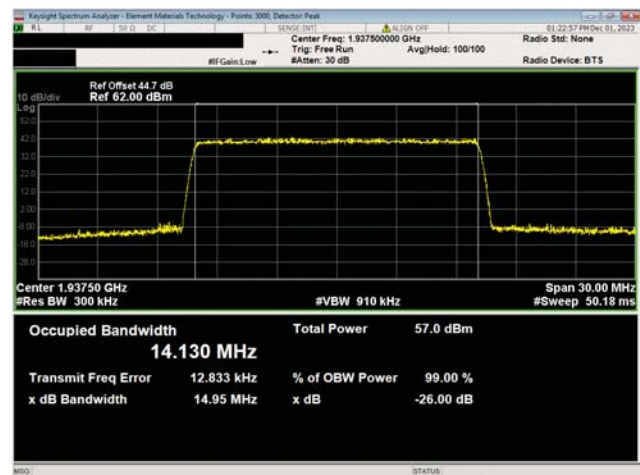
PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
QPSK Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
16QAM Modulation
Mid Ch, 1962.5 MHz

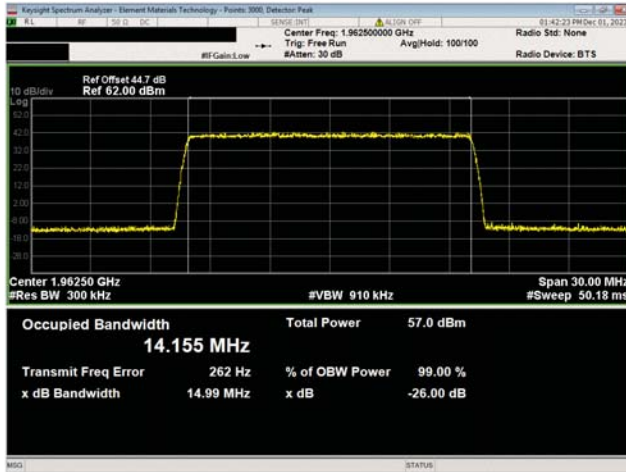


PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
64QAM Modulation
Mid Ch, 1962.5 MHz

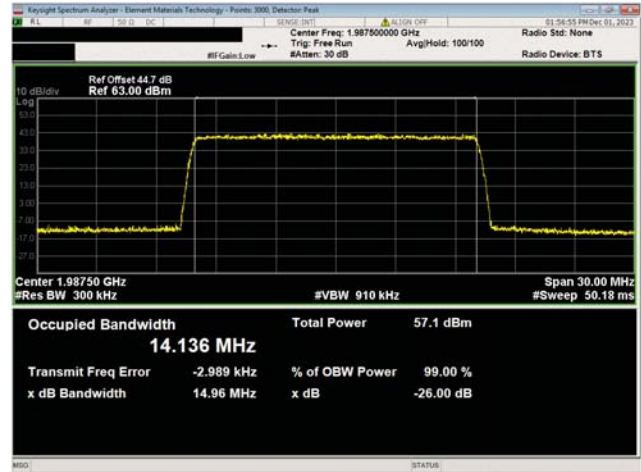


PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
256QAM Modulation
Low Ch, 1937.5 MHz

OCCUPIED BANDWIDTH



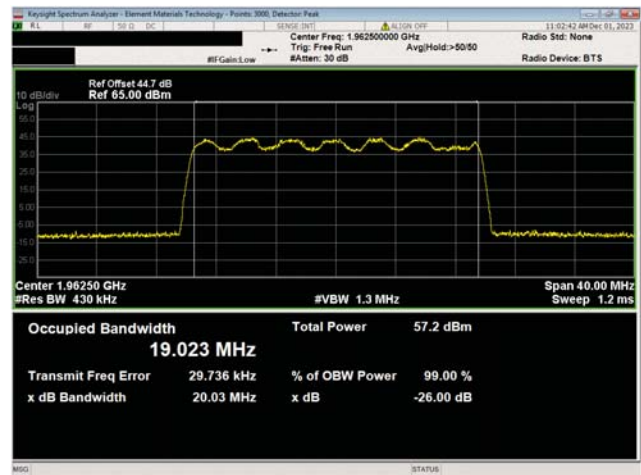
PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
256QAM Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 1987.5 MHz

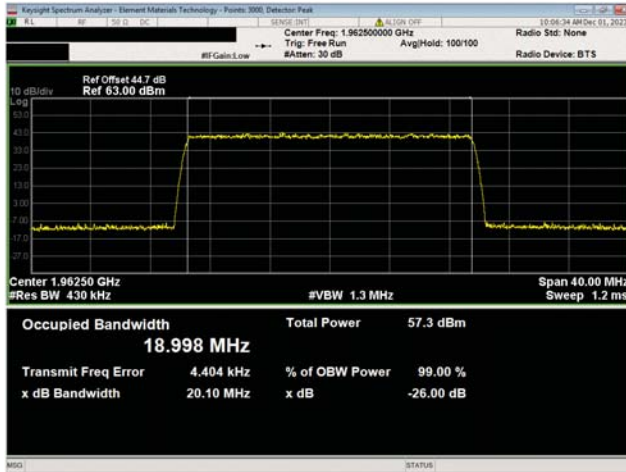


PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
QPSK Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
16QAM Modulation
Mid Ch, 1962.5 MHz

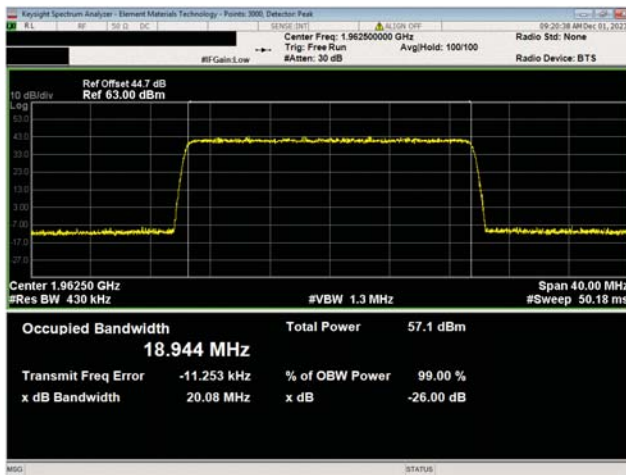
OCCUPIED BANDWIDTH



PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
64QAM Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 1940.0 MHz

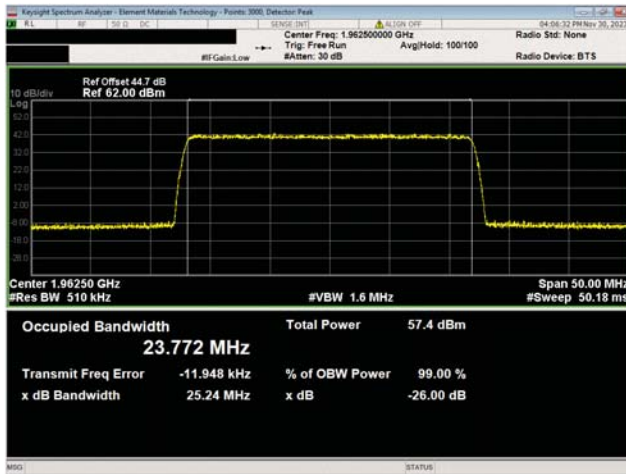


PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
256QAM Modulation
Mid Ch, 1962.5 MHz

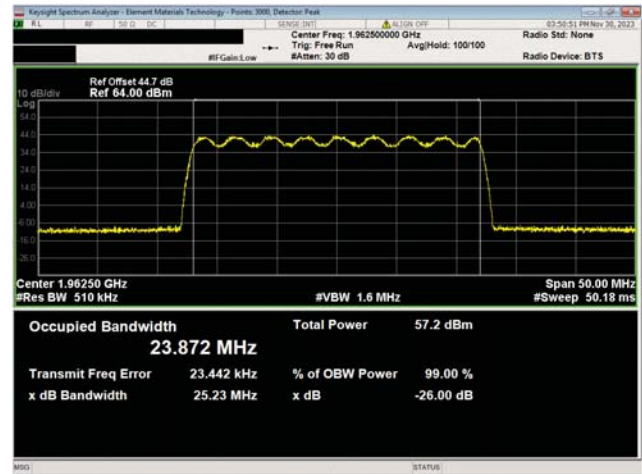


PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 1985.0 MHz

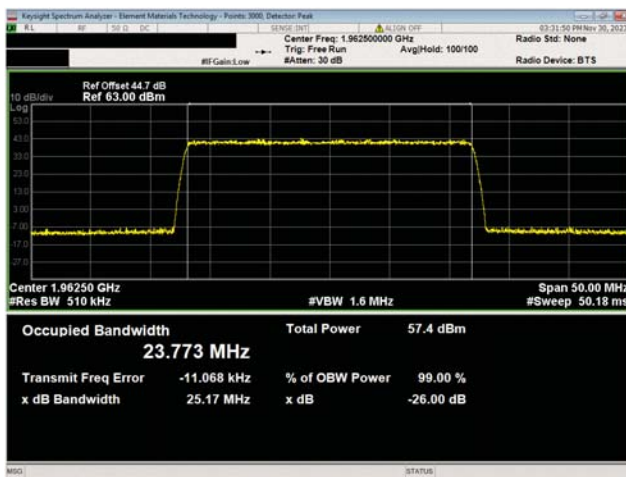
OCCUPIED BANDWIDTH



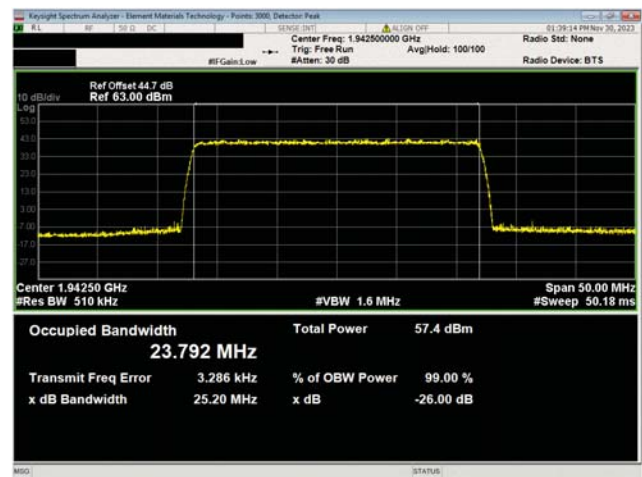
PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
QPSK Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
16QAM Modulation
Mid Ch, 1962.5 MHz

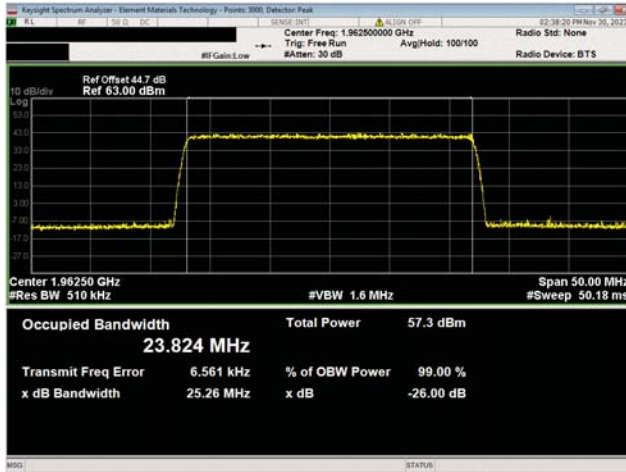


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
64QAM Modulation
Mid Ch, 1962.5 MHz

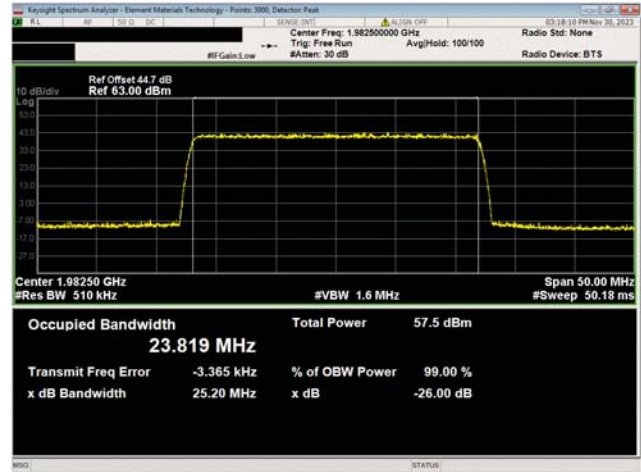


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 1942.5 MHz

OCCUPIED BANDWIDTH



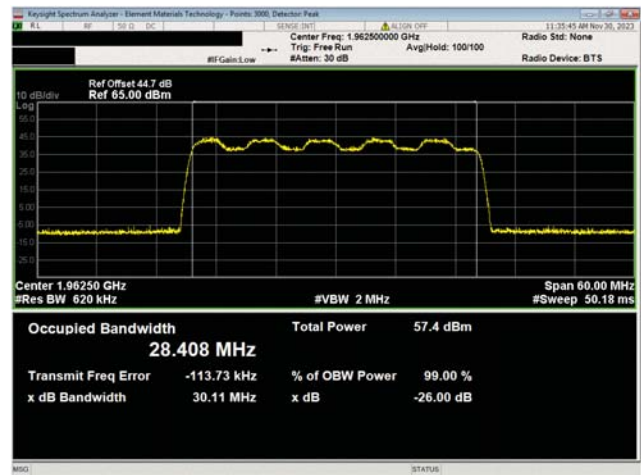
PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 1982.5 MHz

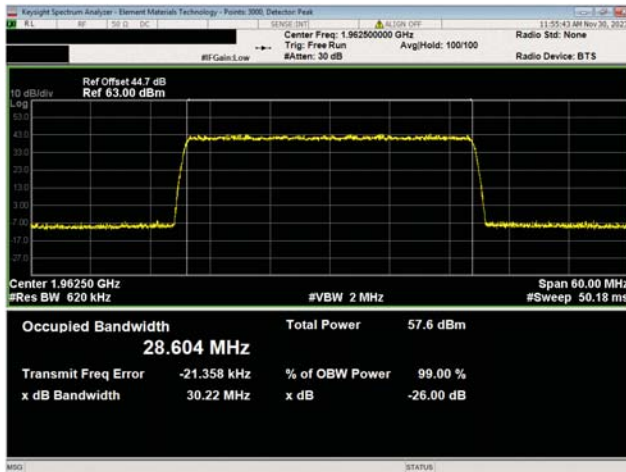


PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
QPSK Modulation
Mid Ch, 1962.5 MHz

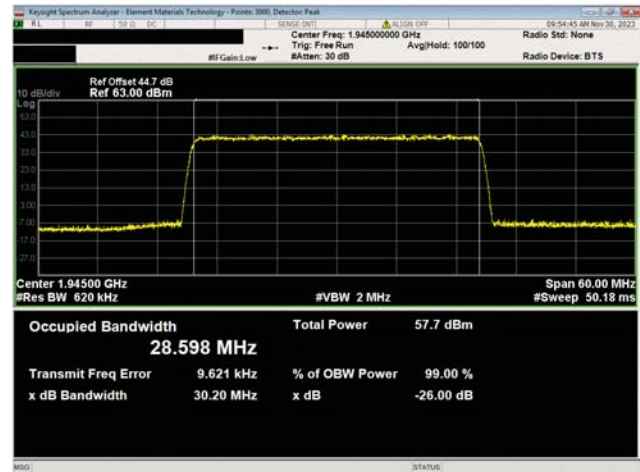


PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
16QAM Modulation
Mid Ch, 1962.5 MHz

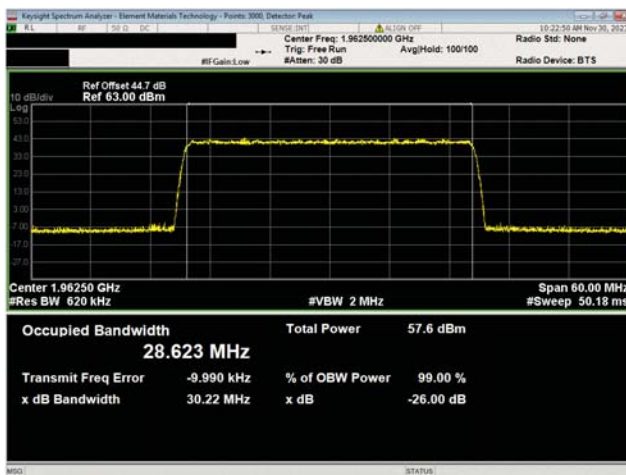
OCCUPIED BANDWIDTH



PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
64QAM Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 1945.0 MHz

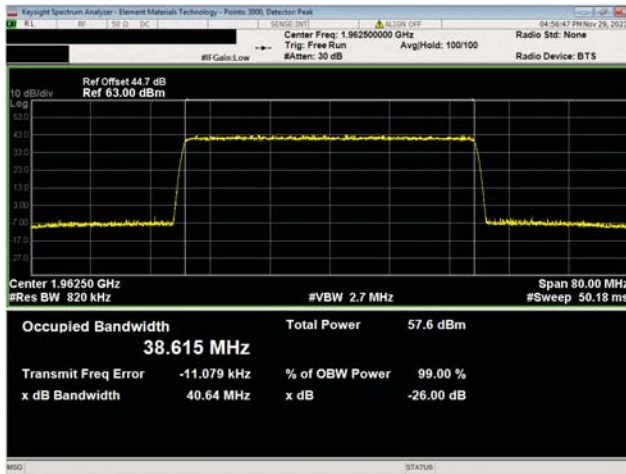


PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
256QAM Modulation
Mid Ch, 1962.5 MHz

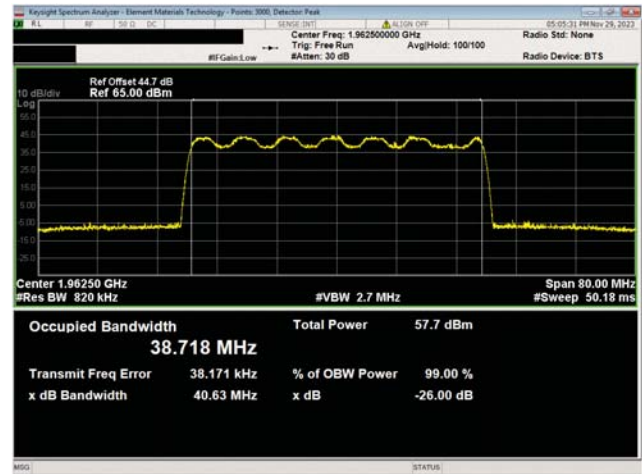


PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 1980.0 MHz

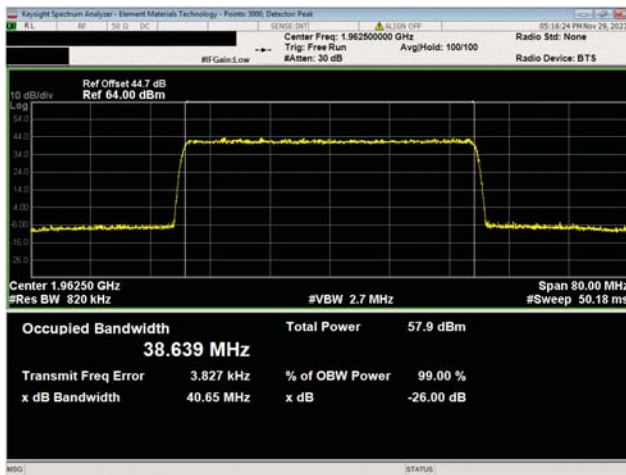
OCCUPIED BANDWIDTH



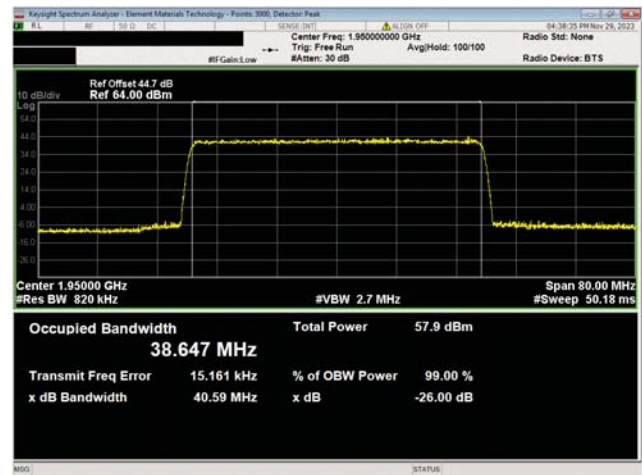
PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
QPSK Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
16QAM Modulation
Mid Ch, 1962.5 MHz

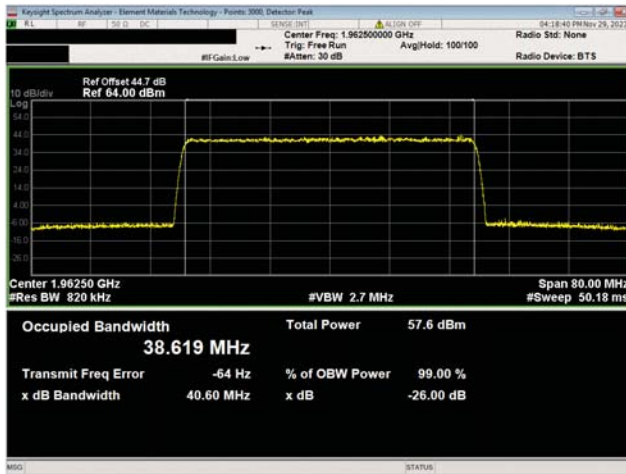


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
64QAM Modulation
Mid Ch, 1962.5 MHz

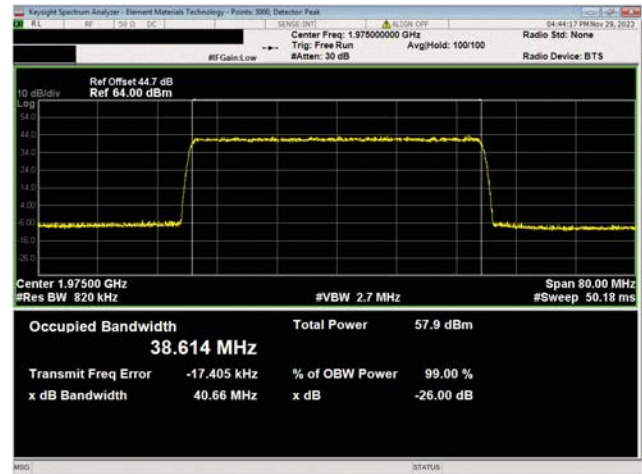


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 1950.0 MHz

OCCUPIED BANDWIDTH



PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
Mid Ch, 1962.5 MHz



PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 1975.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
QPSK Modulation
Mid Ch, 2155.0 MHz

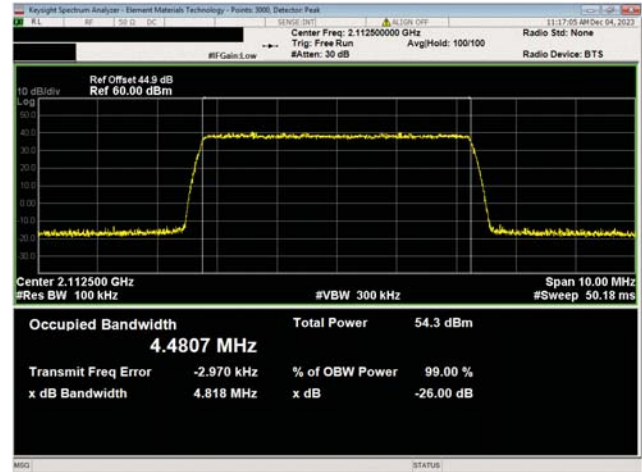


AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
16QAM Modulation
Mid Ch, 2155.0 MHz

OCCUPIED BANDWIDTH



AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
64QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
256QAM Modulation
Low Ch, 2112.5 MHz

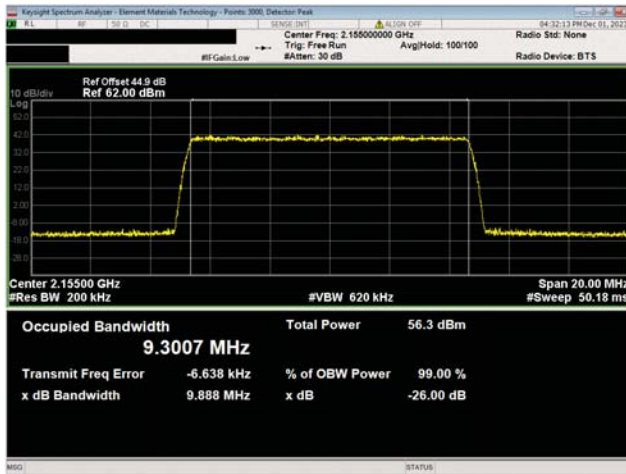


AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
256QAM Modulation
Mid Ch, 2155.0 MHz

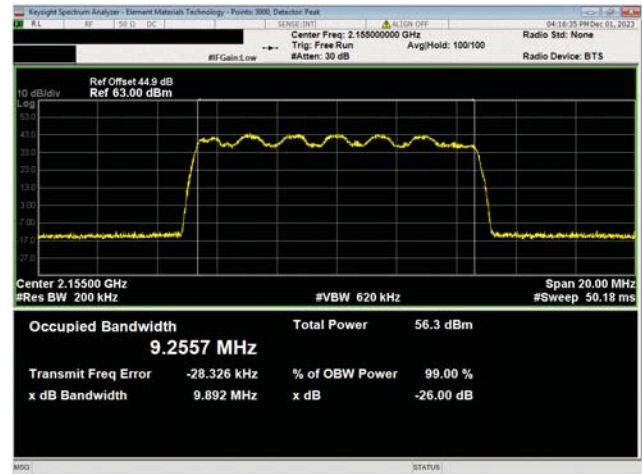


AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 2197.5 MHz

OCCUPIED BANDWIDTH



AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
QPSK Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
16QAM Modulation
Mid Ch, 2155.0 MHz

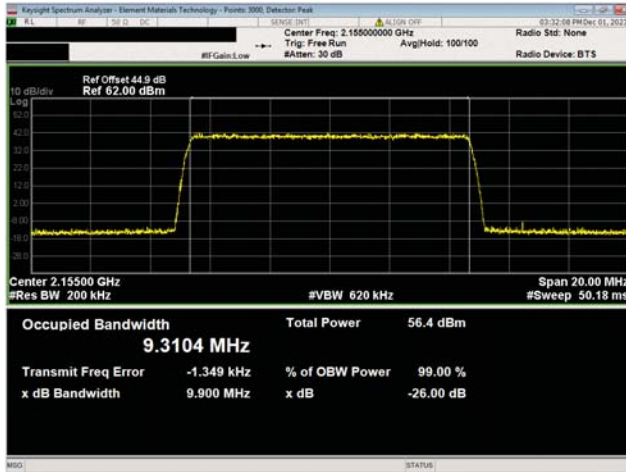


AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
64QAM Modulation
Mid Ch, 2155.0 MHz

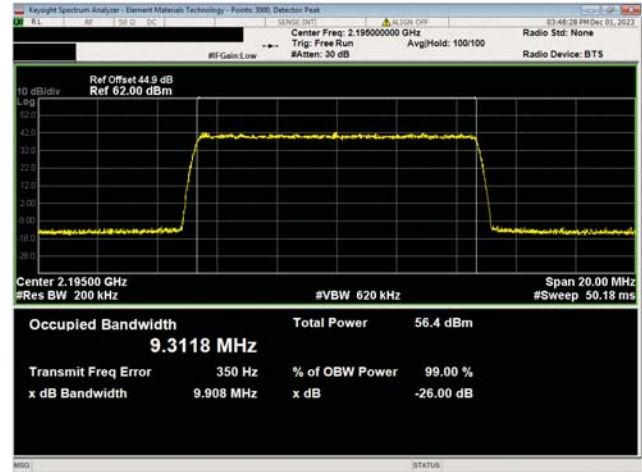


AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 2115.0 MHz

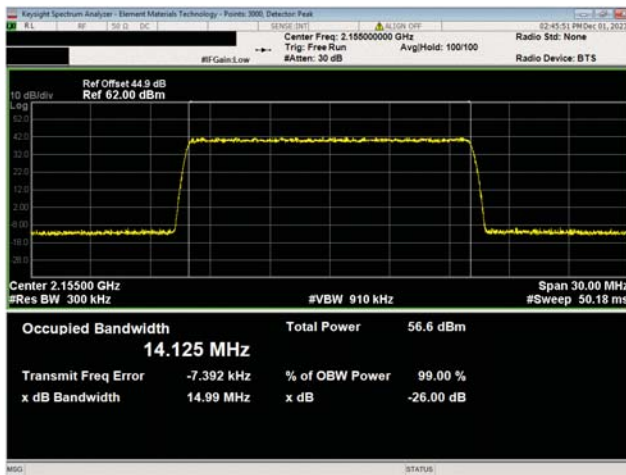
OCCUPIED BANDWIDTH



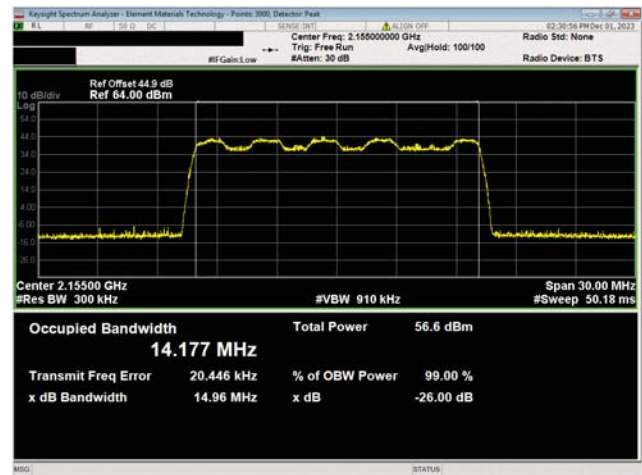
AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
256QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 2195.0 MHz

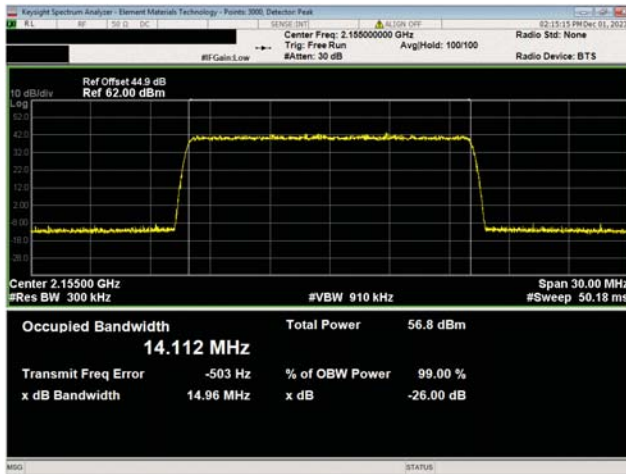


AWS Band n66, 2110 MHz - 2200 MHz
15 MHz Bandwidth
QPSK Modulation
Mid Ch, 2155.0 MHz

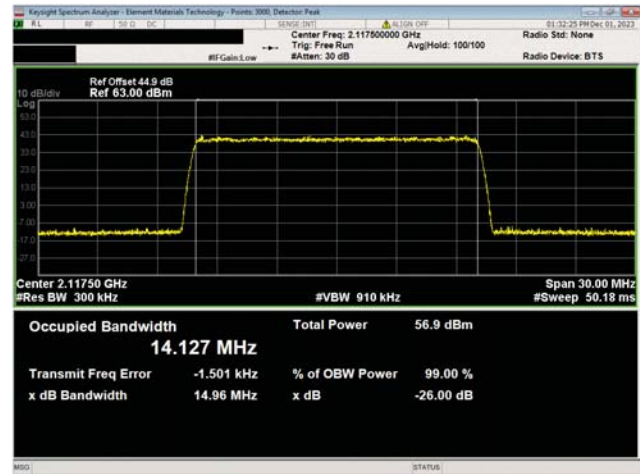


AWS Band n66, 2110 MHz - 2200 MHz
15 MHz Bandwidth
16QAM Modulation
Mid Ch, 2155.0 MHz

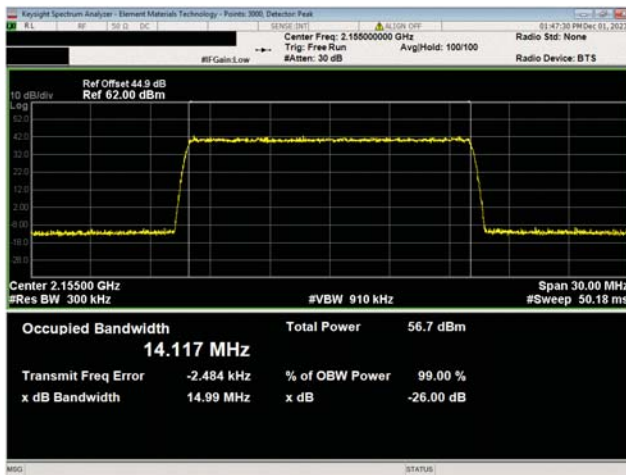
OCCUPIED BANDWIDTH



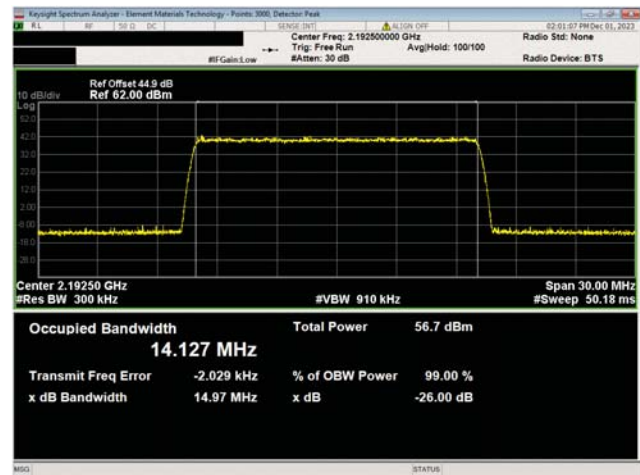
AWS Band n66, 2110 MHz - 2200 MHz
15 MHz Bandwidth
64QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
15 MHz Bandwidth
256QAM Modulation
Low Ch, 2117.5 MHz

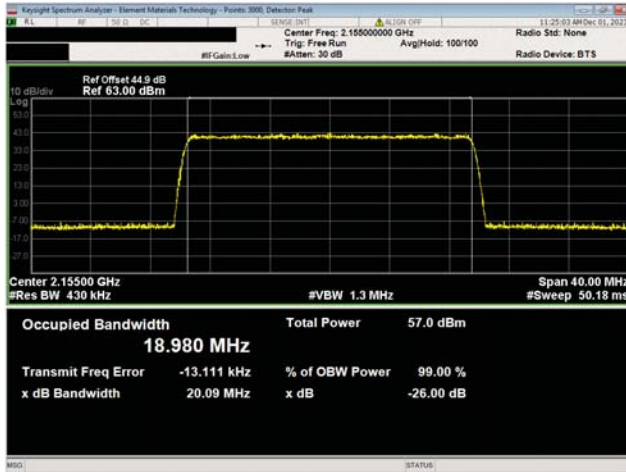


AWS Band n66, 2110 MHz - 2200 MHz
15 MHz Bandwidth
256QAM Modulation
Mid Ch, 2155.0 MHz

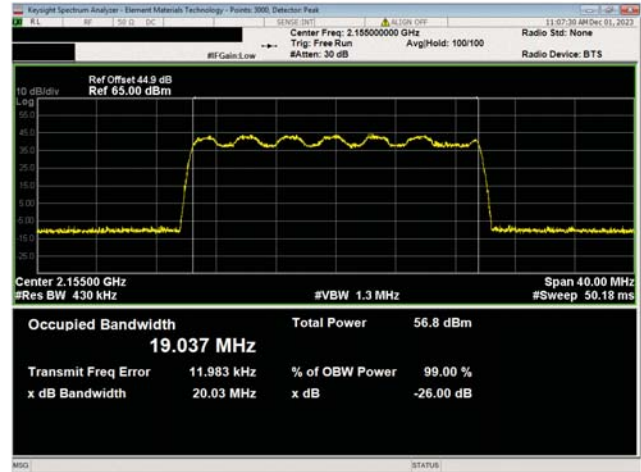


AWS Band n66, 2110 MHz - 2200 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 2192.5 MHz

OCCUPIED BANDWIDTH



AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
QPSK Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
16QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
64QAM Modulation
Mid Ch, 2155.0 MHz

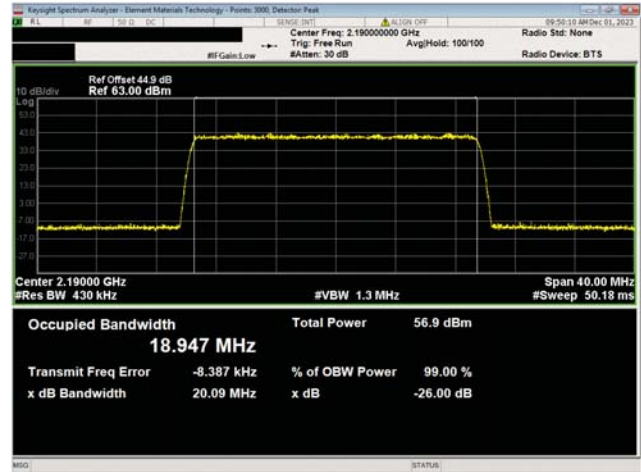


AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 2120.0 MHz

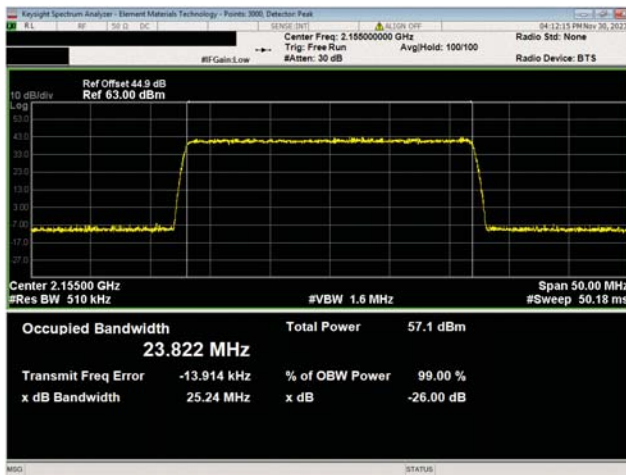
OCCUPIED BANDWIDTH



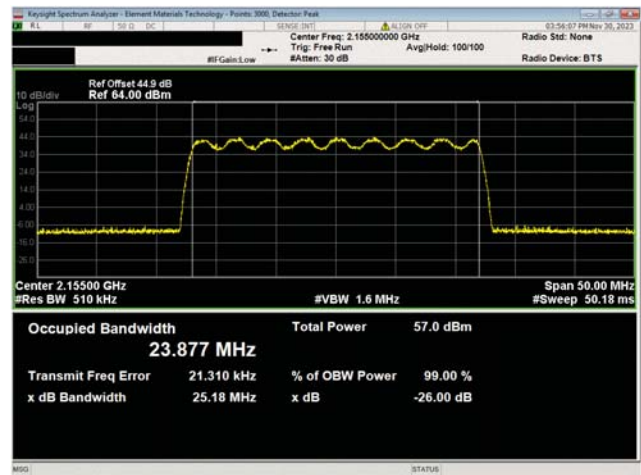
AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
256QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 2190.0 MHz

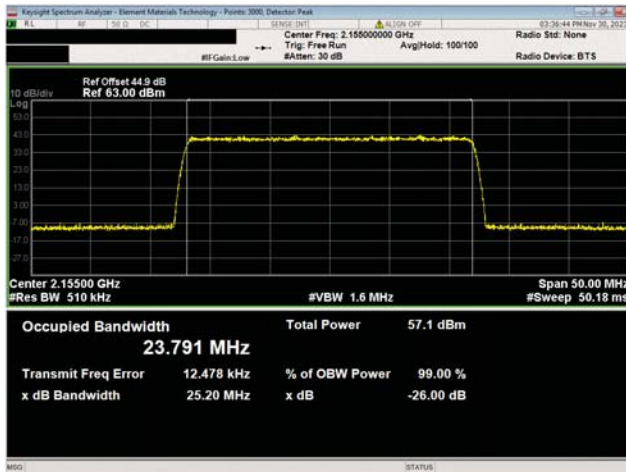


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
QPSK Modulation
Mid Ch, 2155.0 MHz

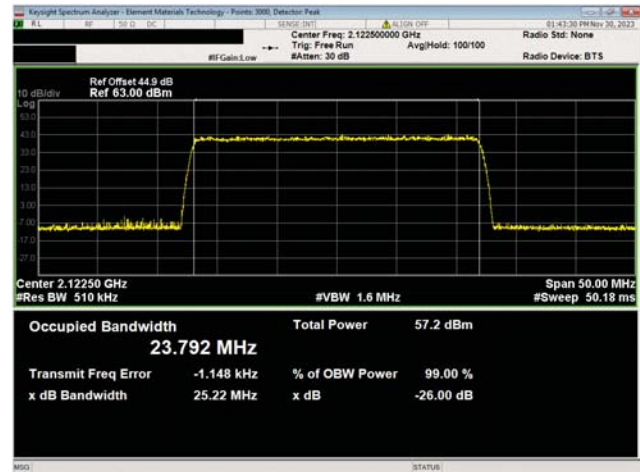


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
16QAM Modulation
Mid Ch, 2155.0 MHz

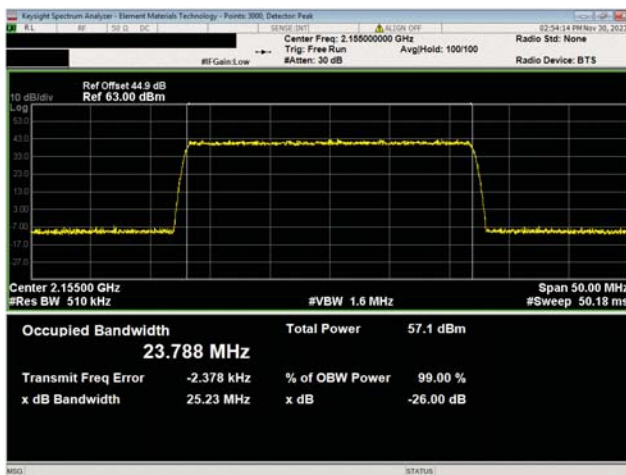
OCCUPIED BANDWIDTH



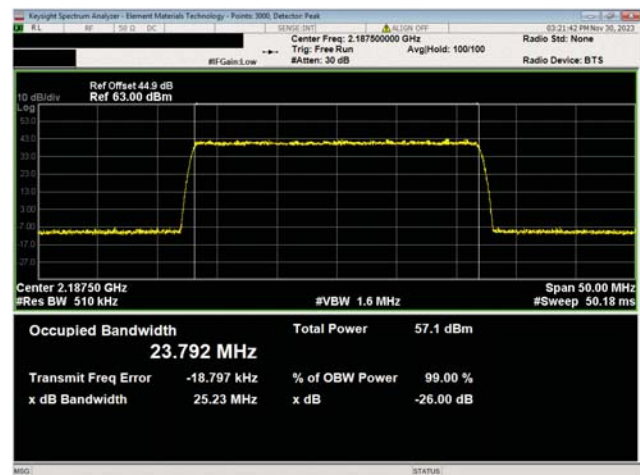
AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
64QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2122.5 MHz

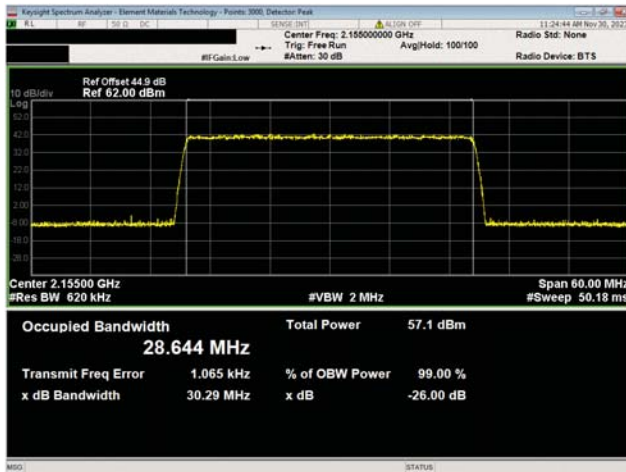


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
Mid Ch, 2155.0 MHz

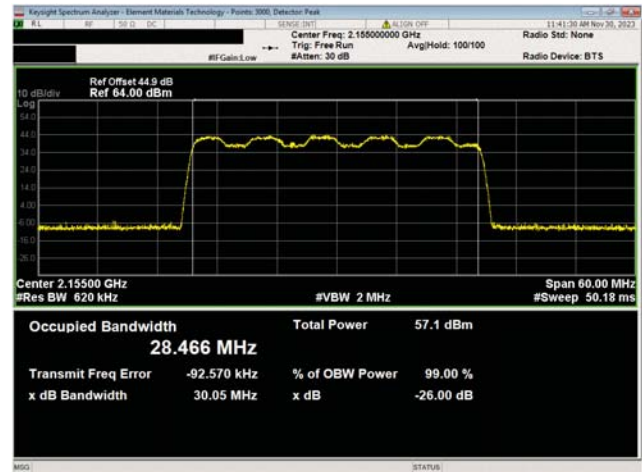


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2187.5 MHz

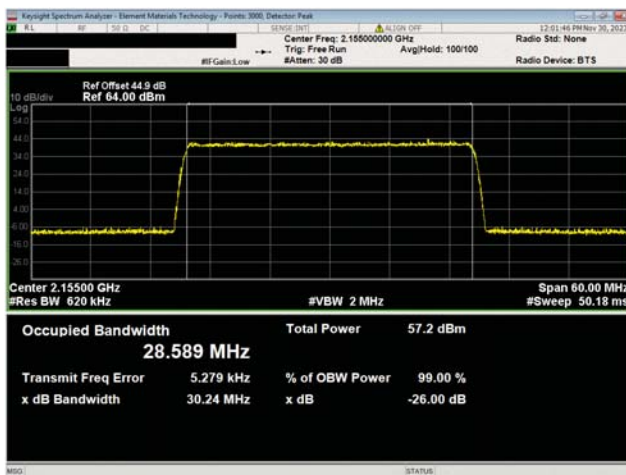
OCCUPIED BANDWIDTH



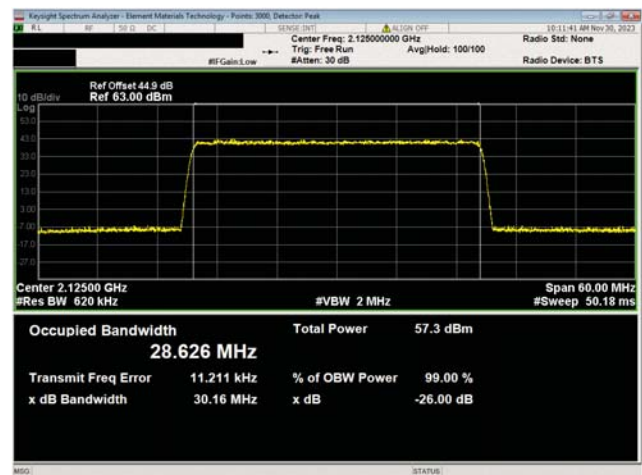
AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
QPSK Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
16QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
64QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 2125.0 MHz

OCCUPIED BANDWIDTH



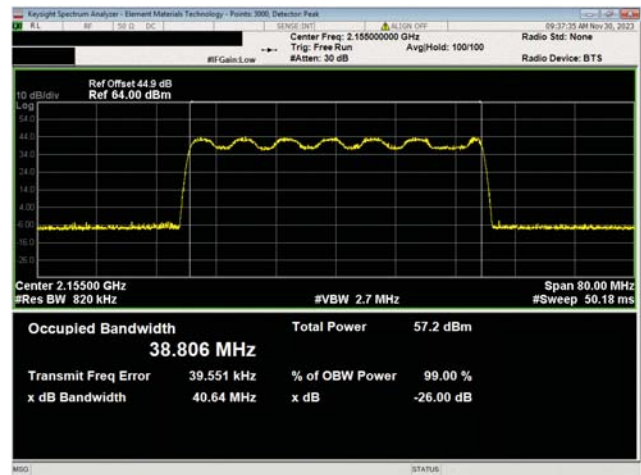
AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 2185.0 MHz

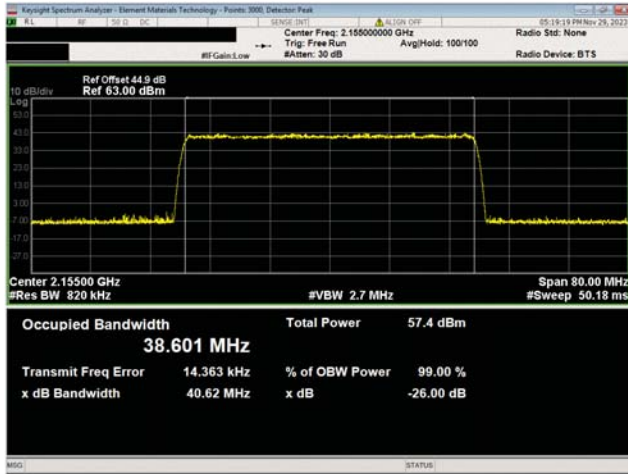


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
QPSK Modulation
Mid Ch, 2155.0 MHz

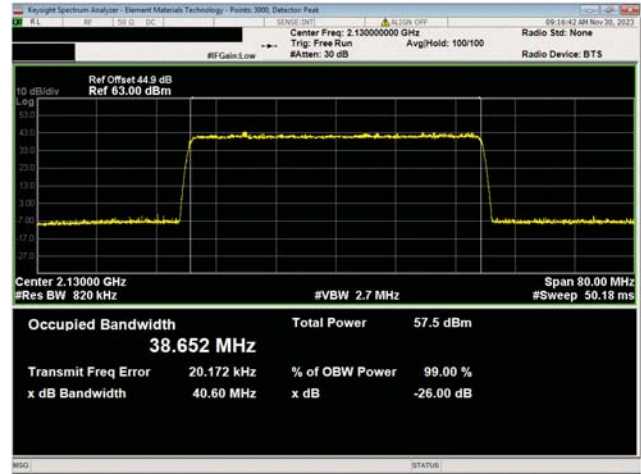


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
16QAM Modulation
Mid Ch, 2155.0 MHz

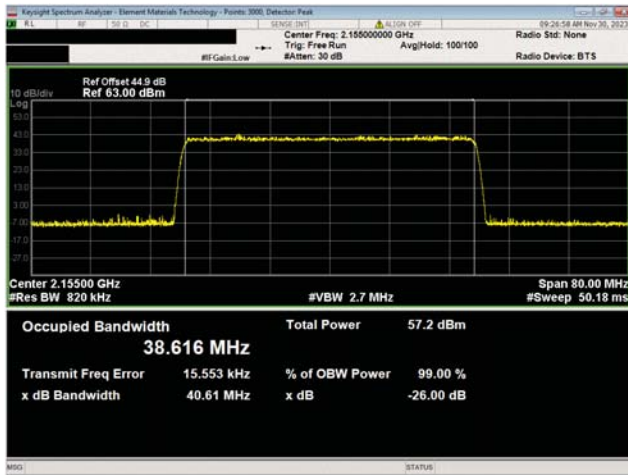
OCCUPIED BANDWIDTH



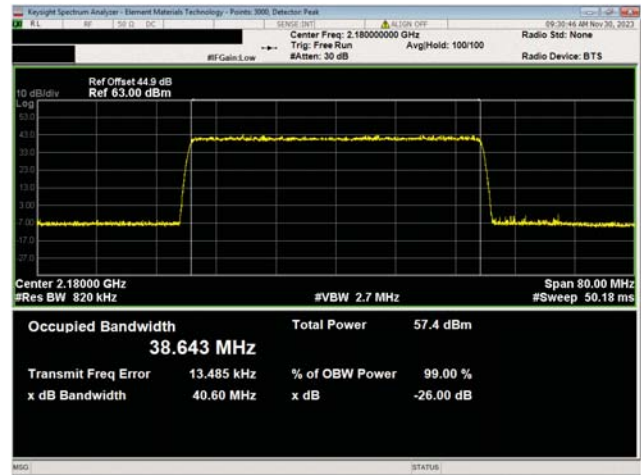
AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
64QAM Modulation
Mid Ch, 2155.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2130.0 MHz

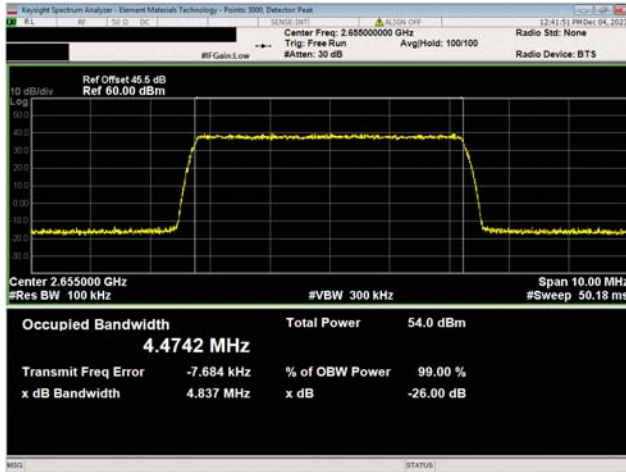


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
Mid Ch, 2155.0 MHz

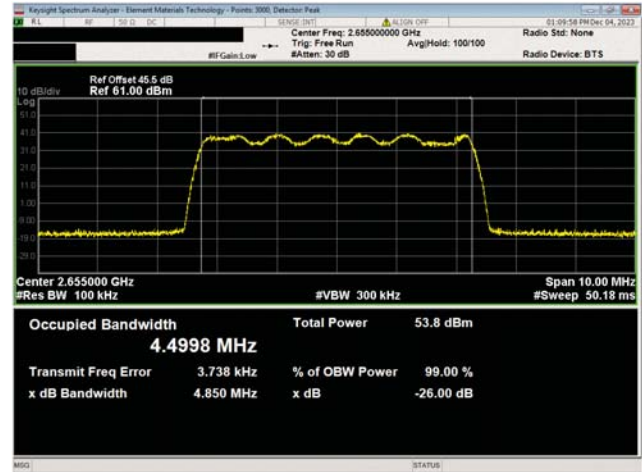


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2180.0 MHz

OCCUPIED BANDWIDTH



BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
QPSK Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
16QAM Modulation
Mid Ch, 2655.0 MHz

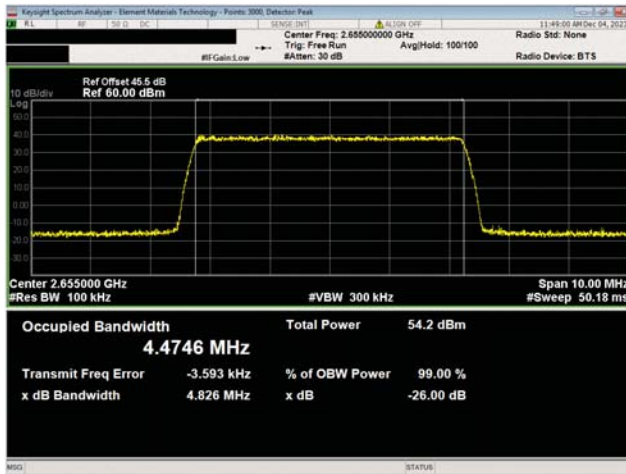


BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
64QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
256QAM Modulation
Low Ch, 2622.5 MHz

OCCUPIED BANDWIDTH



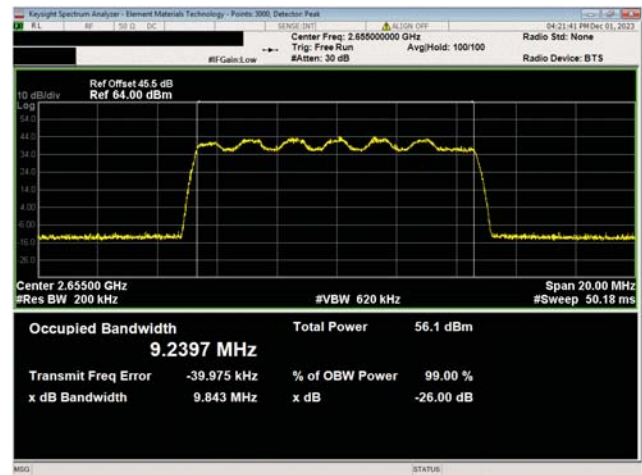
BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
256QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 2687.5 MHz



BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
QPSK Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
16QAM Modulation
Mid Ch, 2655.0 MHz

OCCUPIED BANDWIDTH



BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
64QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 2625.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
256QAM Modulation
Mid Ch, 2655.0 MHz

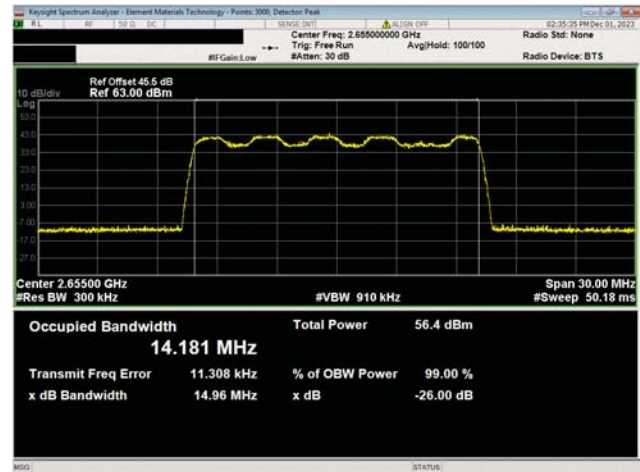


BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 2685.0 MHz

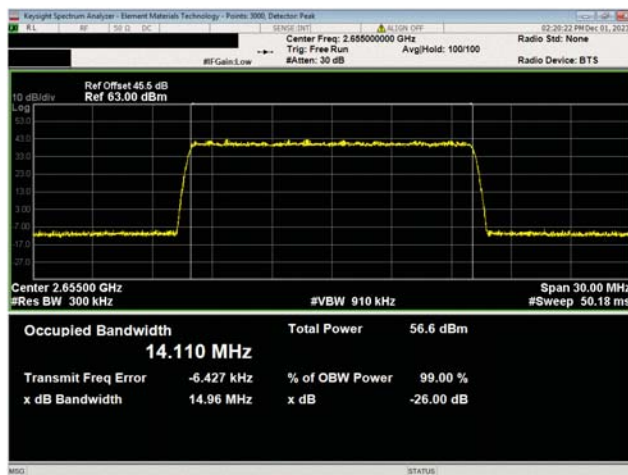
OCCUPIED BANDWIDTH



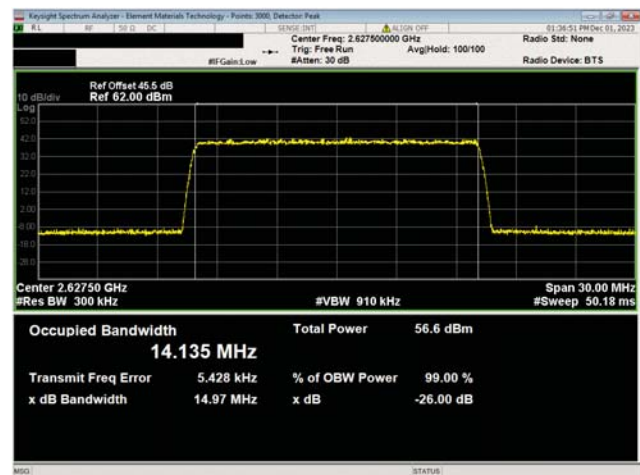
BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
QPSK Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
16QAM Modulation
Mid Ch, 2655.0 MHz

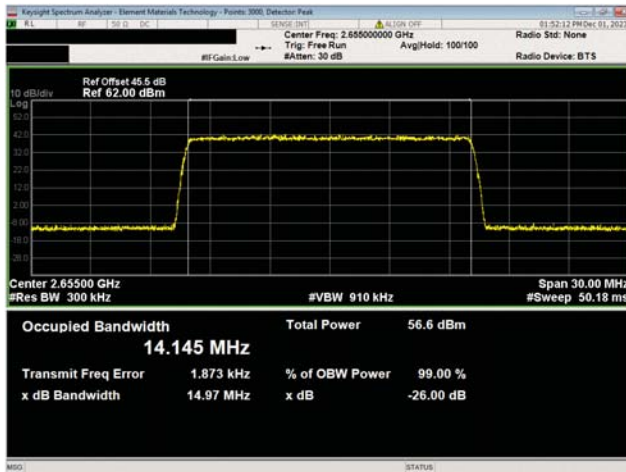


BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
64QAM Modulation
Mid Ch, 2655.0 MHz

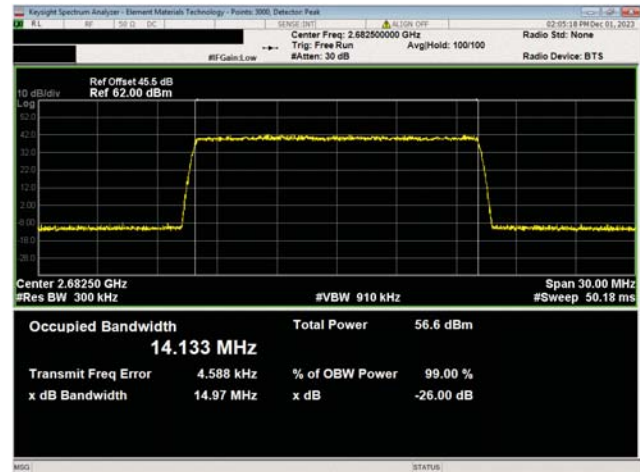


BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
256QAM Modulation
Low Ch, 2627.5 MHz

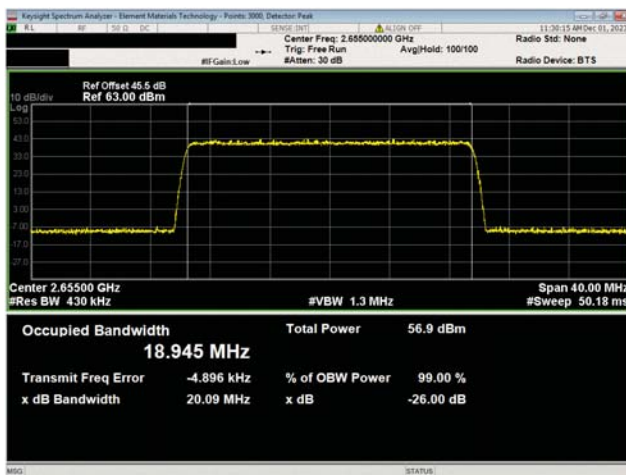
OCCUPIED BANDWIDTH



BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
256QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 2682.5 MHz



BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
QPSK Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
16QAM Modulation
Mid Ch, 2655.0 MHz

OCCUPIED BANDWIDTH



BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
64QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 2630.0 MHz

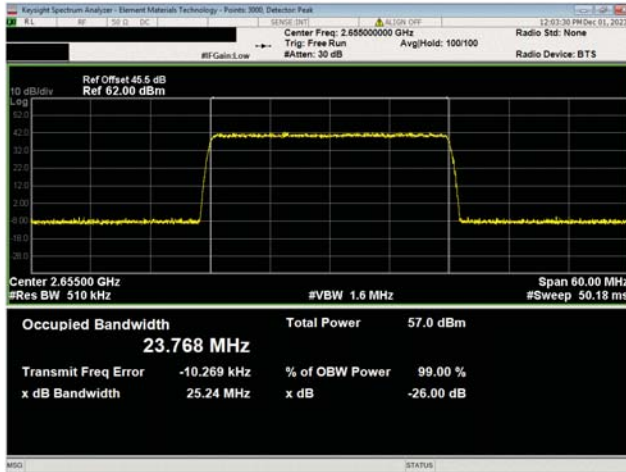


BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
256QAM Modulation
Mid Ch, 2655.0 MHz

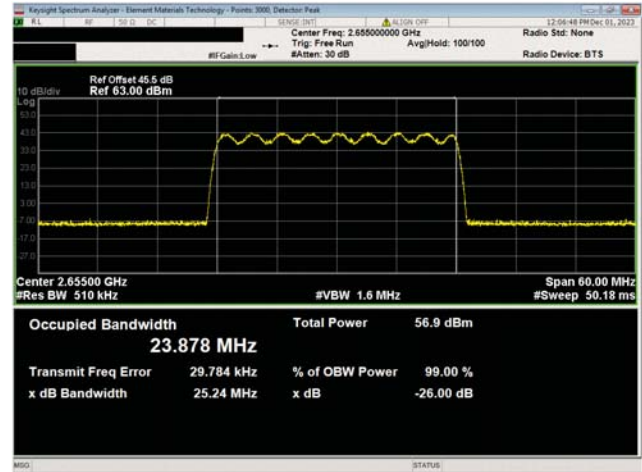


BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 2680.0 MHz

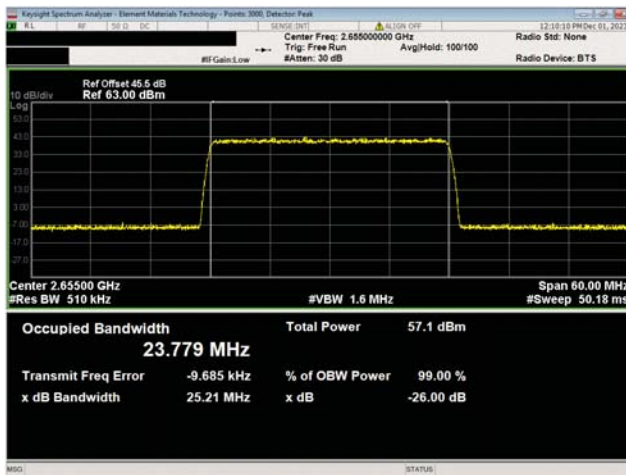
OCCUPIED BANDWIDTH



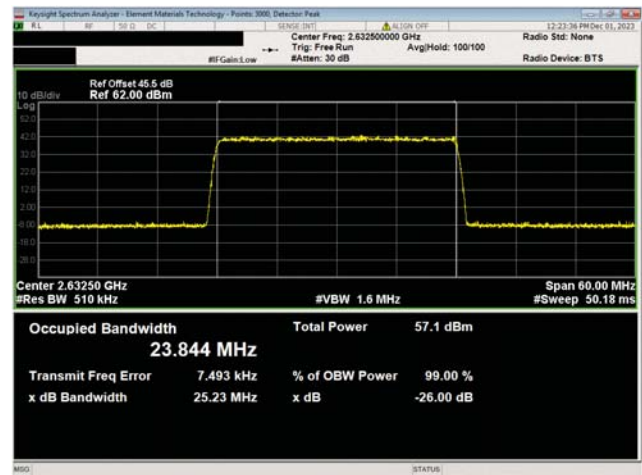
BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
QPSK Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
16QAM Modulation
Mid Ch, 2655.0 MHz

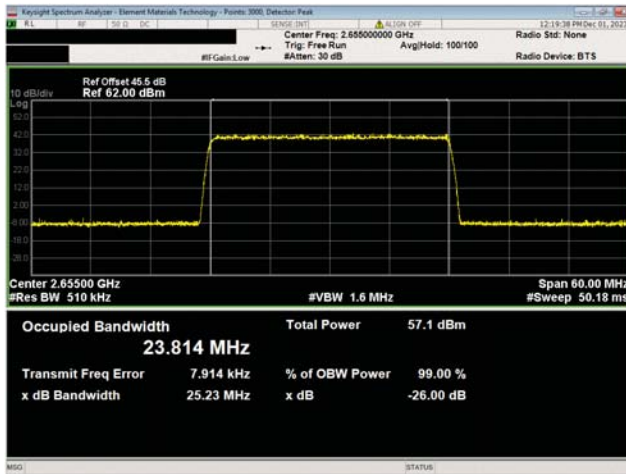


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
64QAM Modulation
Mid Ch, 2655.0 MHz

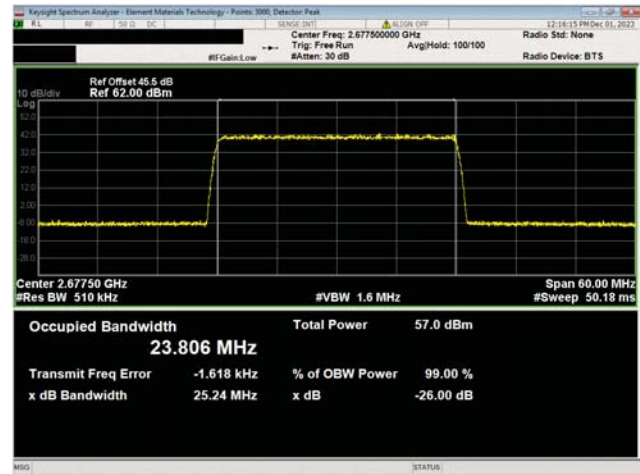


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2632.5 MHz

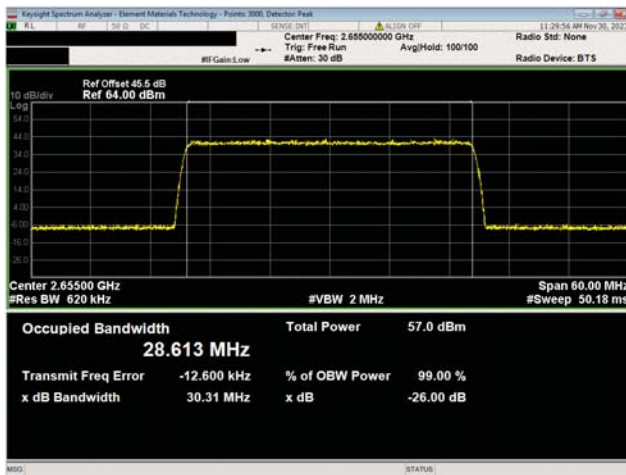
OCCUPIED BANDWIDTH



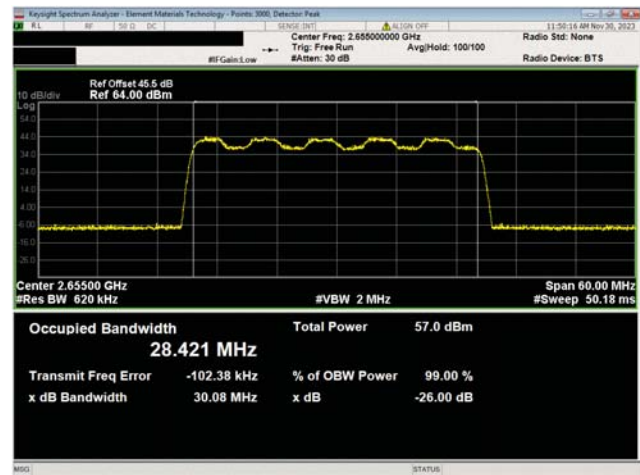
BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2677.5 MHz

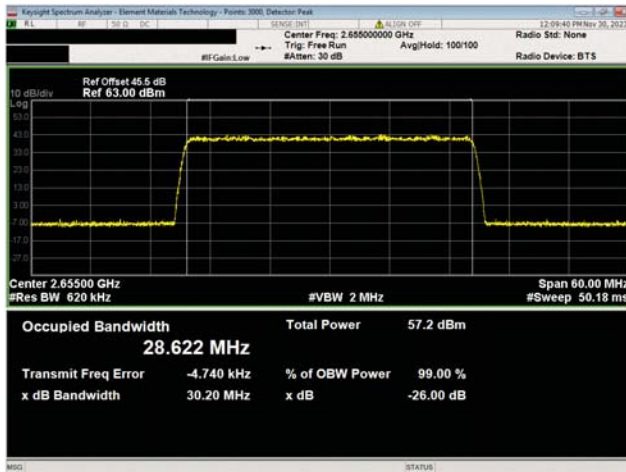


BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
QPSK Modulation
Mid Ch, 2655.0 MHz

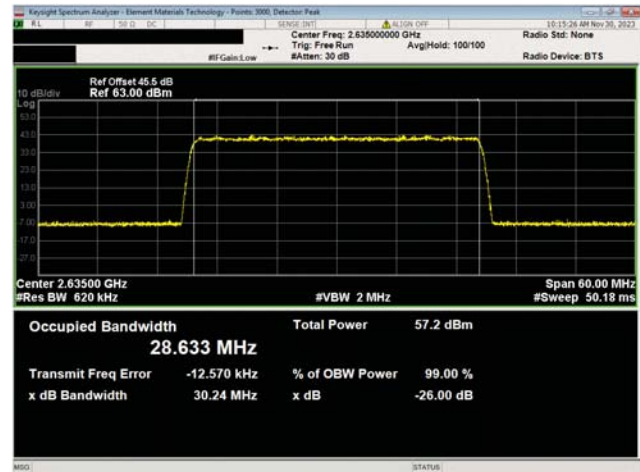


BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
16QAM Modulation
Mid Ch, 2655.0 MHz

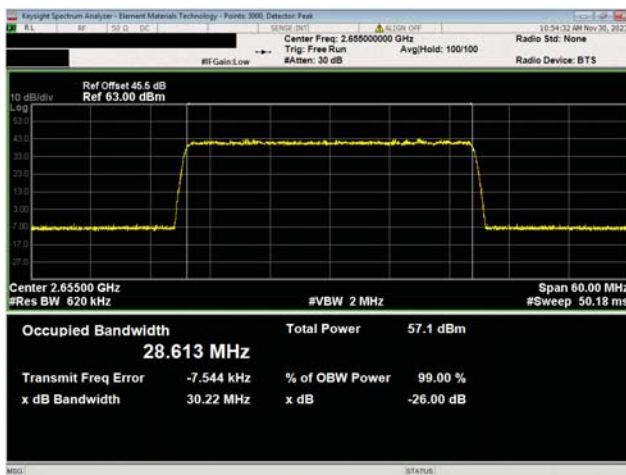
OCCUPIED BANDWIDTH



BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
64QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 2635.0 MHz

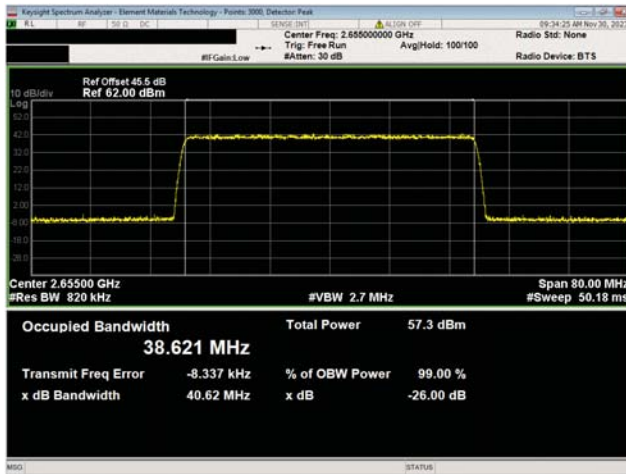


BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
256QAM Modulation
Mid Ch, 2655.0 MHz

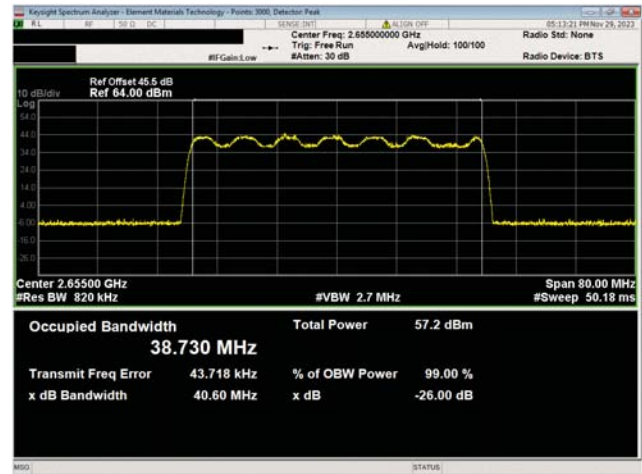


BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 2675.0 MHz

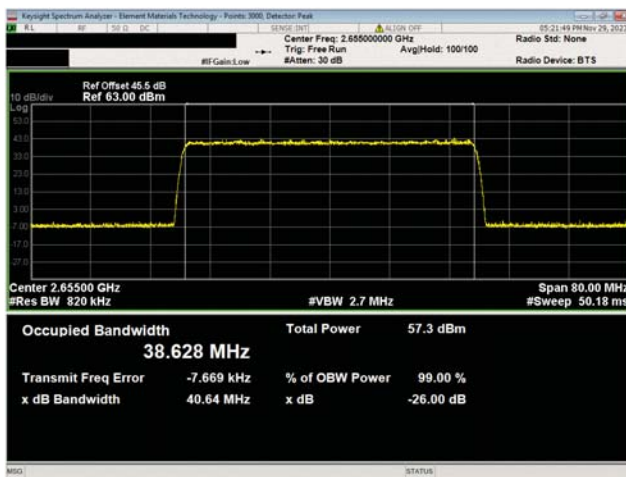
OCCUPIED BANDWIDTH



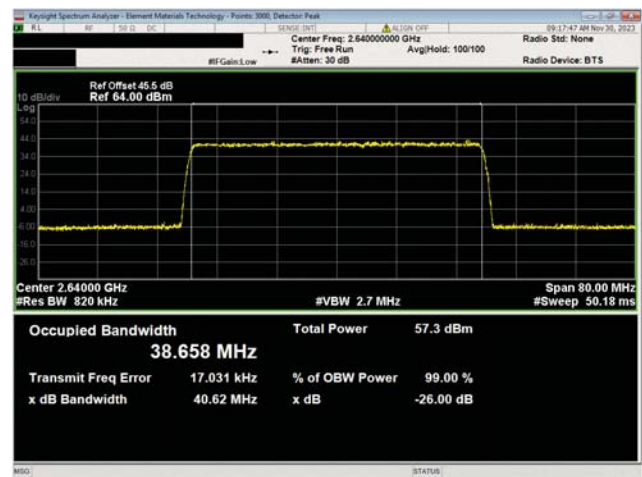
BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
QPSK Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
16QAM Modulation
Mid Ch, 2655.0 MHz

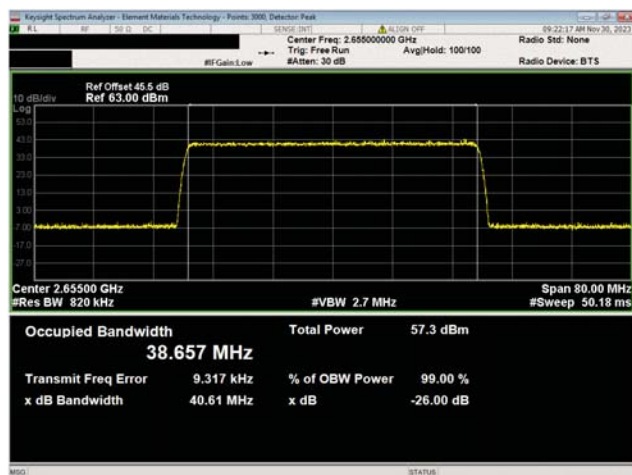


BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
64QAM Modulation
Mid Ch, 2655.0 MHz

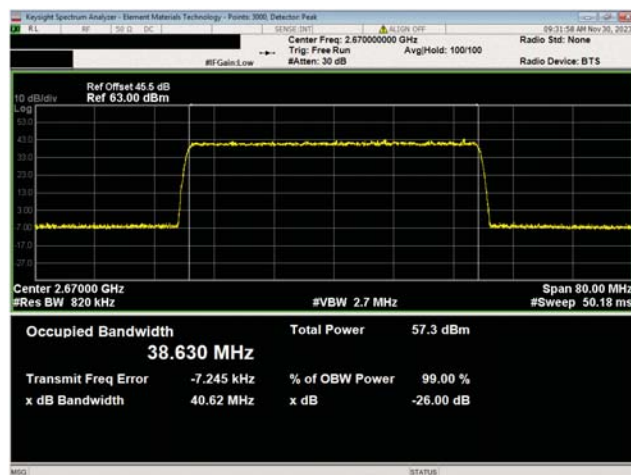


BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2640.0 MHz

OCCUPIED BANDWIDTH



BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
Mid Ch, 2655.0 MHz



BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2670.0 MHz