

BAND EDGE COMPLIANCE

TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies of the available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

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 paragraph 5.7.2i.

Per FCC 24.238(a), RSS 133 6.5 (i), FCC 27.53(h)(1), RSS-139 5.6, FCC 27.53(m)(2), and RSS-199 5.6, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm [-13 dBm -10 log (4)] per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter. The resolution bandwidth to be used for these measurements are per FCC 24.238(b), RSS 133 6.5 (i), FCC 27.53(h)(3), RSS-139 5.6, FCC 27.53(m)(6), and RSS-199 5.6. Compliance 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e.: 1 MHz or 1 percent of emission bandwidth, as specified).

The band edge testing was performed using only one modulation type because the Occupied Bandwidth variation between modulation types is small, the average output power variation between modulation types is small, and there was small variation in band edge measurements over modulation types from previous certification testing efforts. The highest rate modulation type (256QAM) was used. (See ANSI C63.26. clause 5.7.2e).

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

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EUT:	AirScale Base Transceiver Station Remote Radio Head Model AHFIHA	Work Order:	NOKI0072
Serial Number:	RW233403213	Date:	2023-12-21
Customer:	Nokia Solutions and Networks	Temperature:	21.4°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	33.7%
Customer Project:	None	Bar. Pressure (PMSL):	1027 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, cables, and filters were used. 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

		Frequency Range	Value (dBm)	Limit (dB)	Result
Port 1	PCS Band n25, 1930 MHz - 1995 MHz				
	5 MHz Bandwidth				
	256QAM Modulation				
	Low Ch, 1932.5 MHz	1929 - 1931 MHz	-26.156	-19	Pass
		1928 - 1929 MHz	-23.780	-19	Pass
		1918 - 1928 MHz	-24.243	-19	Pass
	High Ch, 1992.5 MHz	1994 - 1996 MHz	-24.841	-19	Pass
		1996 - 1997 MHz	-22.960	-19	Pass
		1997 - 2017 MHz	-22.973	-19	Pass
	10 MHz Bandwidth				
	256QAM Modulation				
	Low Ch, 1935.0 MHz	1929 - 1931 MHz	-26.722	-19	Pass
		1928 - 1929 MHz	-24.120	-19	Pass
		1918 - 1928 MHz	-23.631	-19	Pass
	High Ch, 1990.0 MHz	1994 - 1996 MHz	-25.332	-19	Pass
		1996 - 1997 MHz	-22.920	-19	Pass

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	Frequency Range	Value (dBm)	Limit (dB)	Result
15 MHz Bandwidth	1997 - 2017 MHz	-23.071	-19	Pass
256QAM Modulation				
Low Ch, 1937.5 MHz	1929 - 1931 MHz	-26.528	-19	Pass
	1928 - 1929 MHz	-23.580	-19	Pass
	1918 - 1928 MHz	-24.028	-19	Pass
High Ch, 1987.5 MHz	1994 - 1996 MHz	-25.297	-19	Pass
	1996 - 1997 MHz	-22.540	-19	Pass
	1997 - 2017 MHz	-23.140	-19	Pass
20 MHz Bandwidth				
256QAM Modulation				
Low Ch, 1940.0 MHz	1929 - 1931 MHz	-26.410	-19	Pass
	1928 - 1929 MHz	-24.210	-19	Pass
	1918 - 1928 MHz	-24.192	-19	Pass
High Ch, 1985.0 MHz	1994 - 1996 MHz	-24.861	-19	Pass
	1996 - 1997 MHz	-22.310	-19	Pass
	1997 - 2017 MHz	-22.730	-19	Pass
25 MHz Bandwidth				
256QAM Modulation				
Low Ch, 1942.5 MHz	1929.875 MHz	-25.750	-19	Pass
	1929.625 MHz	-29.950	-19	Pass
	1929.375 MHz	-30.320	-19	Pass
	1929.125 MHz	-30.390	-19	Pass
	1928 - 1929 MHz	-24.410	-19	Pass
	1918 - 1928 MHz	-24.411	-19	Pass
High Ch, 1982.5 MHz	1995.125 MHz	-24.510	-19	Pass
	1995.375 MHz	-27.660	-19	Pass
	1995.625 MHz	-28.120	-19	Pass
	1995.875 MHz	-28.270	-19	Pass
	1996 - 1997 MHz	-22.950	-19	Pass
	1997 - 2017 MHz	-22.645	-19	Pass
30 MHz Bandwidth				
256QAM Modulation				
Low Ch, 1945.0 MHz	1929 - 1931 MHz	-23.728	-19	Pass
	1928 - 1929 MHz	-23.910	-19	Pass
	1918 - 1928 MHz	-23.742	-19	Pass
High Ch, 1980.0 MHz	1994 - 1996 MHz	-23.517	-19	Pass
	1996 - 1997 MHz	-22.440	-19	Pass
	1997 - 2017 MHz	-22.660	-19	Pass
40 MHz Bandwidth				
256QAM Modulation				
Low Ch, 1950.0 MHz	1929.8 MHz	-26.700	-19	Pass
	1929.4 MHz	-27.240	-19	Pass
	1929.2 MHz	-27.390	-19	Pass
	1928 - 1929 MHz	-23.520	-19	Pass
	1918 - 1928 MHz	-23.240	-19	Pass
High Ch, 1975.0 MHz	1995.2 MHz	-25.250	-19	Pass
	1995.6 MHz	-25.710	-19	Pass
	1995.8 MHz	-25.940	-19	Pass
	1996 - 1997 MHz	-22.330	-19	Pass
	1997 - 2017 MHz	-22.161	-19	Pass
AWS Band n66, 2110 MHz - 2200 MHz				
5 MHz Bandwidth				

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	Frequency Range	Value (dBm)	Limit (dB)	Result
256QAM Modulation				
Low Ch, 2112.5 MHz	2109 - 2111 MHz	-26.169	-19	Pass
	2108 - 2109 MHz	-24.010	-19	Pass
	2088 - 2108 MHz	-23.751	-19	Pass
High Ch, 2197.5 MHz	2199 - 2201 MHz	-25.271	-19	Pass
	2201 - 2202 MHz	-23.160	-19	Pass
	2202 - 2222 MHz	-22.737	-19	Pass
10 MHz Bandwidth				
256QAM Modulation				
Low Ch, 2115.0 MHz	2109 - 2111 MHz	-26.099	-19	Pass
	2108 - 2109 MHz	-23.630	-19	Pass
	2088 - 2108 MHz	-22.721	-19	Pass
High Ch, 2195.0 MHz	2199 - 2201 MHz	-26.383	-19	Pass
	2201 - 2202 MHz	-22.850	-19	Pass
	2202 - 2222 MHz	-22.851	-19	Pass
15 MHz Bandwidth				
256QAM Modulation				
Low Ch, 2117.5 MHz	2109 - 2111 MHz	-26.471	-19	Pass
	2108 - 2109 MHz	-22.760	-19	Pass
	2088 - 2108 MHz	-22.267	-19	Pass
High Ch, 2192.5 MHz	2199 - 2201 MHz	-26.338	-19	Pass
	2201 - 2202 MHz	-23.270	-19	Pass
	2202 - 2222 MHz	-22.998	-19	Pass
20 MHz Bandwidth				
256QAM Modulation				
Low Ch, 2120.0 MHz	2109 - 2111 MHz	-25.687	-19	Pass
	2108 - 2109 MHz	-21.100	-19	Pass
	2088 - 2108 MHz	-21.901	-19	Pass
High Ch, 2190.0 MHz	2199 - 2201 MHz	-25.898	-19	Pass
	2201 - 2202 MHz	-23.530	-19	Pass
	2202 - 2222 MHz	-23.258	-19	Pass
25 MHz Bandwidth				
256QAM Modulation				
Low Ch, 2122.5 MHz	2109.875 MHz	-25.370	-19	Pass
	2109.625 MHz	-28.100	-19	Pass
	2109.375 MHz	-28.570	-19	Pass
	2109.125 MHz	-28.380	-19	Pass
	2108 - 2109 MHz	-22.280	-19	Pass
	2088 - 2108 MHz	-21.378	-19	Pass
High Ch, 2187.5 MHz	2200.125 MHz	-25.560	-19	Pass
	2200.375 MHz	-29.300	-19	Pass
	2200.625 MHz	-29.360	-19	Pass
	2200.875 MHz	-29.540	-19	Pass
	2201 - 2202 MHz	-23.760	-19	Pass
	2202 - 2222 MHz	-23.319	-19	Pass
30 MHz Bandwidth				
256QAM Modulation				
Low Ch, 2125.0 MHz	2109 - 2111 MHz	-23.255	-19	Pass
	2108 - 2109 MHz	-21.520	-19	Pass
	2088 - 2108 MHz	-20.735	-19	Pass
High Ch, 2185.0 MHz	2199 - 2201 MHz	-23.784	-19	Pass
	2201 - 2202 MHz	-23.890	-19	Pass
	2202 - 2222 MHz	-23.308	-19	Pass

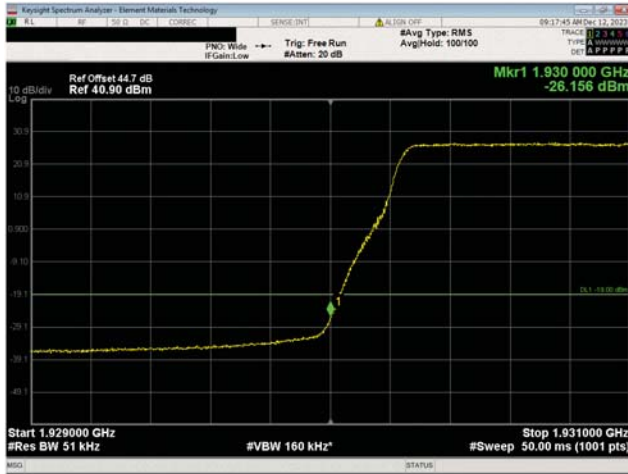
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		Frequency Range	Value (dBm)	Limit (dB)	Result
40 MHz Bandwidth					
256QAM Modulation					
Low Ch, 2130.0 MHz		2109.8 MHz	-23.820	-19	Pass
		2109.4 MHz	-23.740	-19	Pass
		2109.2 MHz	-24.190	-19	Pass
		2108 - 2109 MHz	-20.000	-19	Pass
		2088 - 2108 MHz	-19.687	-19	Pass
High Ch, 2180.0 MHz		2200.2 MHz	-26.940	-19	Pass
		2200.6 MHz	-27.510	-19	Pass
		2200.8 MHz	-27.470	-19	Pass
		2201 - 2202 MHz	-23.750	-19	Pass
		2202 - 2222 MHz	-23.462	-19	Pass
BRS Band n7, 2620 MHz - 2690 MHz					
5 MHz Bandwidth					
256QAM Modulation					
Low Ch, 2622.5 MHz		2619 - 2621 MHz	-25.490	-19	Pass
		2618 - 2619 MHz	-22.050	-19	Pass
		2598 - 2618 MHz	-21.761	-19	Pass
High Ch, 2687.5 MHz		2689 - 2691 MHz	-25.513	-19	Pass
		2691 - 2692 MHz	-21.920	-19	Pass
		2692 - 2712 MHz	-21.986	-19	Pass
10 MHz Bandwidth					
256QAM Modulation					
Low Ch, 2625.0 MHz		2619 - 2621 MHz	-26.185	-19	Pass
		2618 - 2619 MHz	-21.940	-19	Pass
		2598 - 2618 MHz	-21.406	-19	Pass
High Ch, 2685.0 MHz		2689 - 2691 MHz	-25.514	-19	Pass
		2691 - 2692 MHz	-21.390	-19	Pass
		2692 - 2712 MHz	-21.390	-19	Pass
15 MHz Bandwidth					
256QAM Modulation					
Low Ch, 2627.5 MHz		2619 - 2621 MHz	-25.626	-19	Pass
		2618 - 2619 MHz	-21.810	-19	Pass
		2598 - 2618 MHz	-21.390	-19	Pass
High Ch, 2682.5 MHz		2689 - 2691 MHz	-25.118	-19	Pass
		2691 - 2692 MHz	-21.590	-19	Pass
		2692 - 2712 MHz	-21.549	-19	Pass
20 MHz Bandwidth					
256QAM Modulation					
Low Ch, 2630.0 MHz		2619 - 2621 MHz	-25.299	-19	Pass
		2618 - 2619 MHz	-22.260	-19	Pass
		2598 - 2618 MHz	-21.866	-19	Pass
High Ch, 2680.0 MHz		2689 - 2691 MHz	-24.970	-19	Pass
		2691 - 2692 MHz	-22.080	-19	Pass
		2692 - 2712 MHz	-21.895	-19	Pass
25 MHz Bandwidth					
256QAM Modulation					
Low Ch, 2632.5 MHz		2619.875 MHz	-25.230	-19	Pass
		2619.625 MHz	-28.080	-19	Pass
		2619.375 MHz	-28.330	-19	Pass
		2619.125 MHz	-28.540	-19	Pass
		2618 - 2619 MHz	-22.730	-19	Pass
		2598 - 2618 MHz	-22.325	-19	Pass

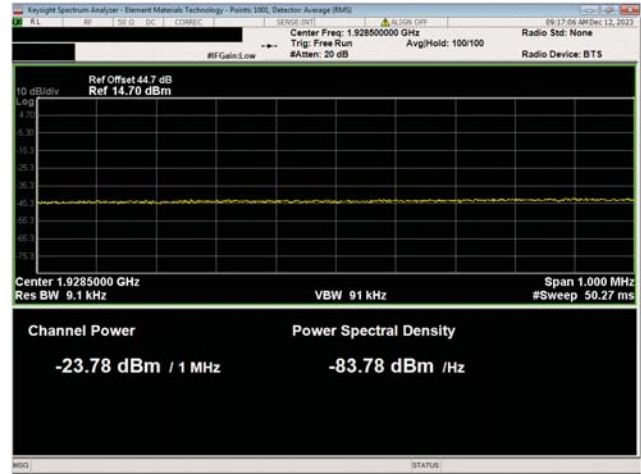
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	Frequency Range	Value (dBm)	Limit (dB)	Result
High Ch, 2677.5 MHz	2690.125 MHz	-24.860	-19	Pass
	2690.375 MHz	-27.470	-19	Pass
	2690.625 MHz	-28.080	-19	Pass
	2690.875 MHz	-28.170	-19	Pass
	2691 - 2692 MHz	-22.370	-19	Pass
	2692 - 2712 MHz	-22.049	-19	Pass
30 MHz Bandwidth				
256QAM Modulation				
Low Ch, 2635.0 MHz	2619 - 2621 MHz	-23.567	-19	Pass
	2618 - 2619 MHz	-22.400	-19	Pass
	2598 - 2618 MHz	-21.958	-19	Pass
High Ch, 2675.0 MHz	2689 - 2691 MHz	-23.349	-19	Pass
	2691 - 2692 MHz	-22.410	-19	Pass
	2692 - 2712 MHz	-22.008	-19	Pass
40 MHz Bandwidth				
256QAM Modulation				
Low Ch, 2640.0 MHz	2619.8 MHz	-25.590	-19	Pass
	2619.4 MHz	-26.310	-19	Pass
	2619.2 MHz	-26.400	-19	Pass
	2618 - 2619 MHz	-22.470	-19	Pass
	2598 - 2618 MHz	-22.000	-19	Pass
High Ch, 2670.0 MHz	2690.2 MHz	-25.650	-19	Pass
	2690.6 MHz	-26.320	-19	Pass
	2690.8 MHz	-26.390	-19	Pass
	2691 - 2692 MHz	-22.360	-19	Pass
	2692 - 2712 MHz	-21.966	-19	Pass

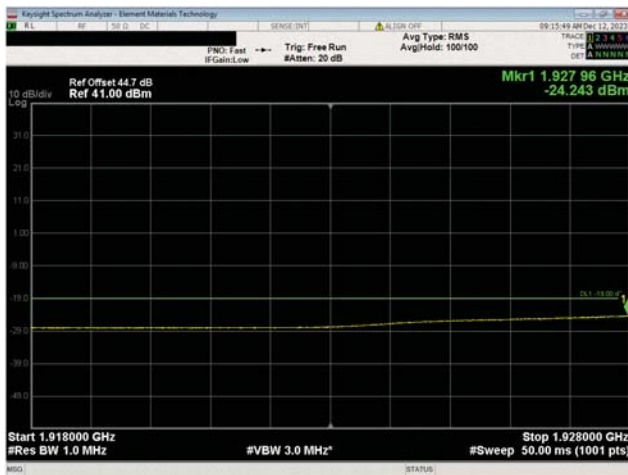
BAND EDGE COMPLIANCE



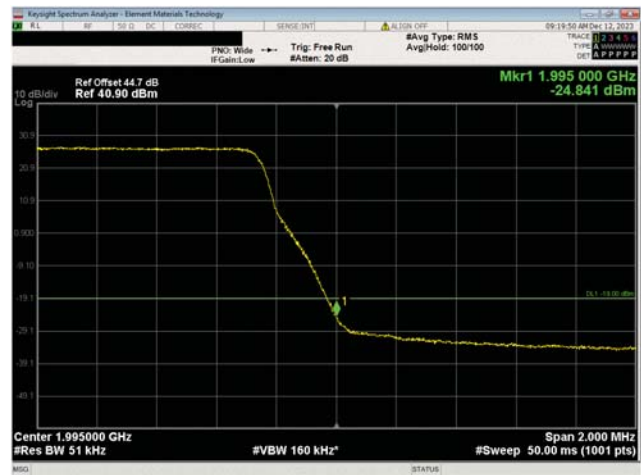
PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
256QAM Modulation
Low Ch, 1932.5 MHz



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

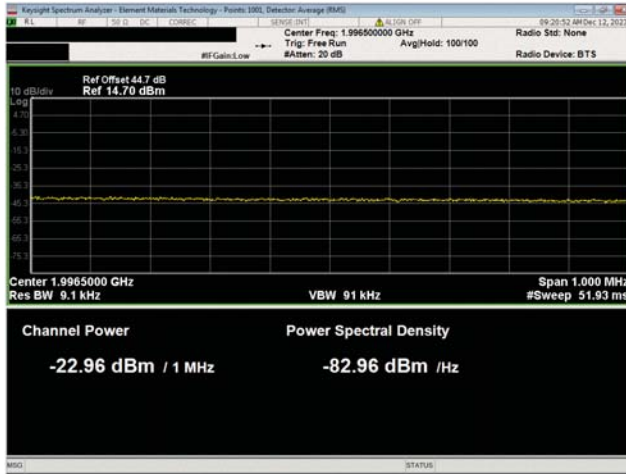


PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
256QAM Modulation
Low Ch, 1932.5 MHz

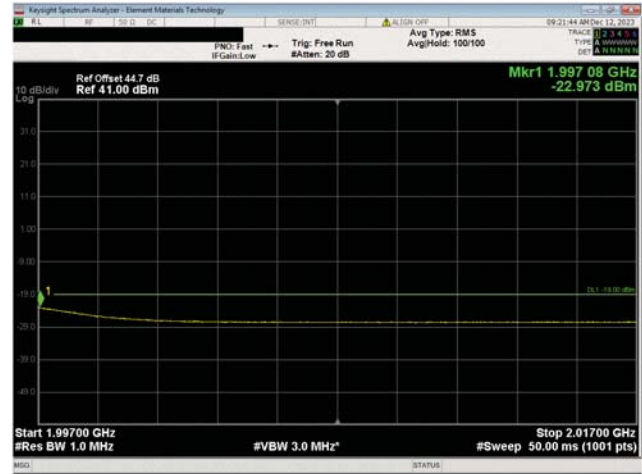


PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 1992.5 MHz

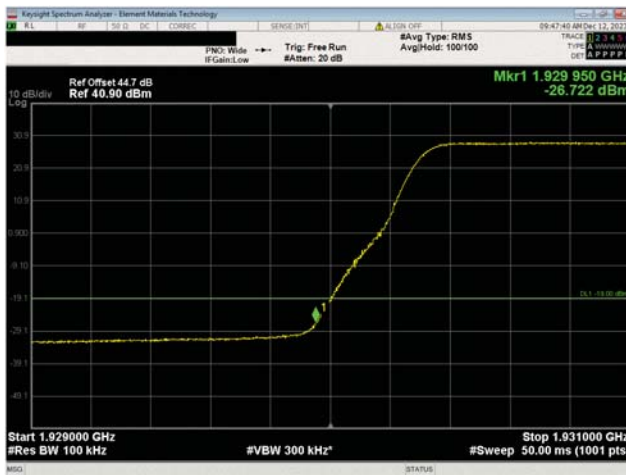
BAND EDGE COMPLIANCE



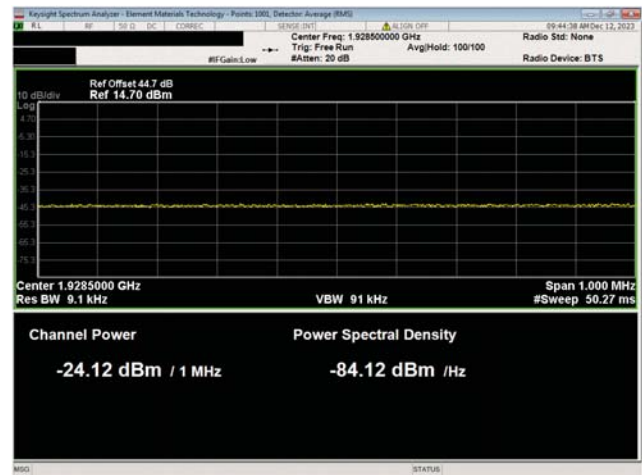
PCS Band n25, 1930 MHz - 1995 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 1992.5 MHz



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

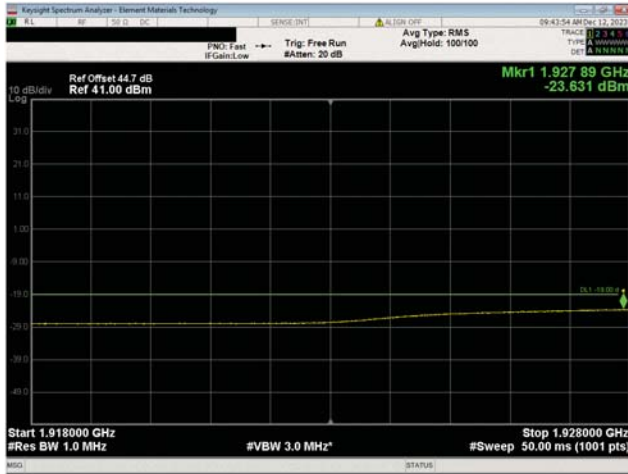


PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 1935.0 MHz

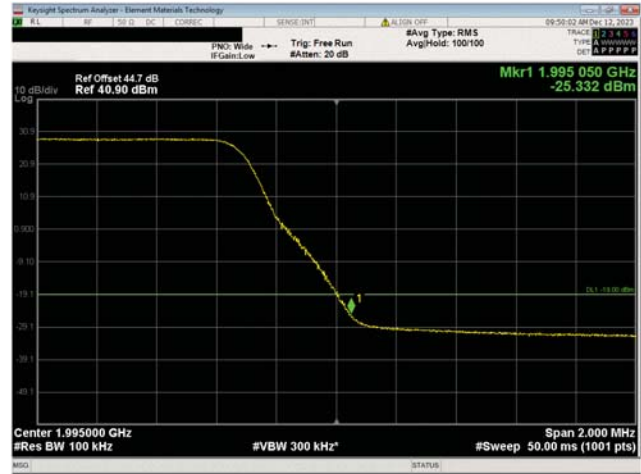


PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 1935.0 MHz

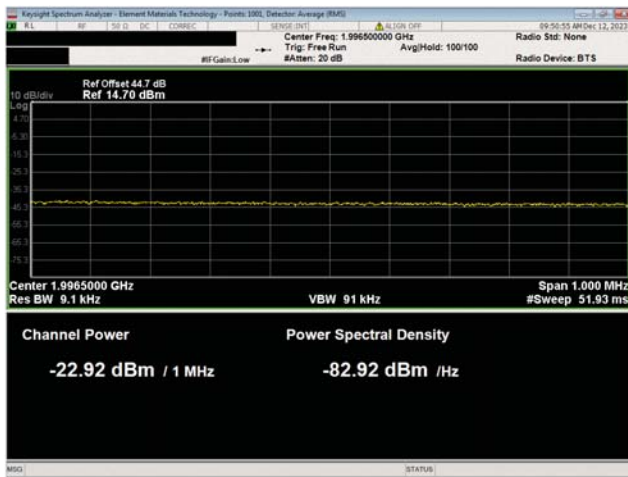
BAND EDGE COMPLIANCE



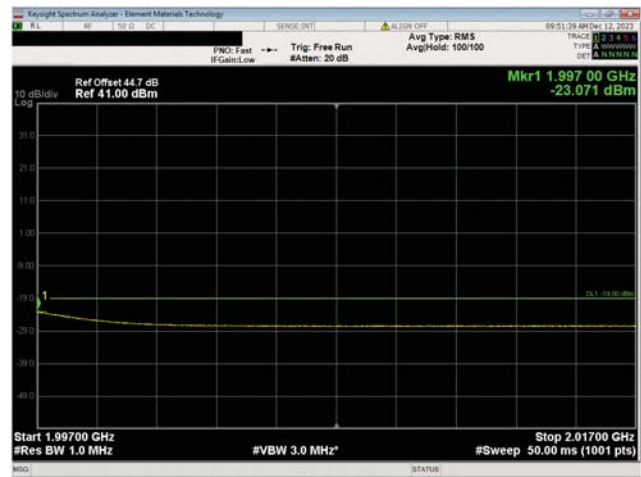
PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 1935.0 MHz



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

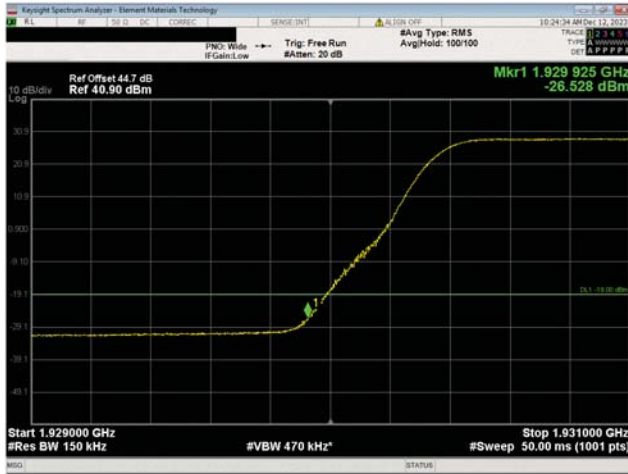


PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 1990.0 MHz

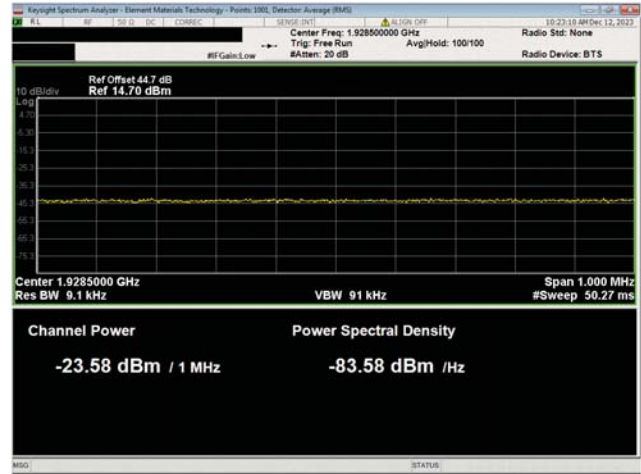


PCS Band n25, 1930 MHz - 1995 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 1990.0 MHz

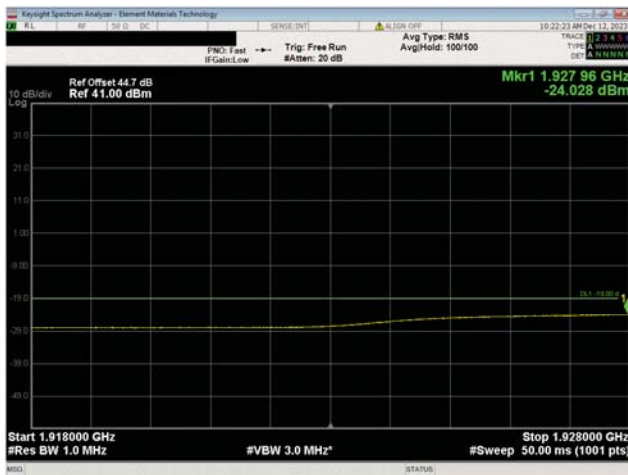
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PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
256QAM Modulation
Low Ch, 1937.5 MHz



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

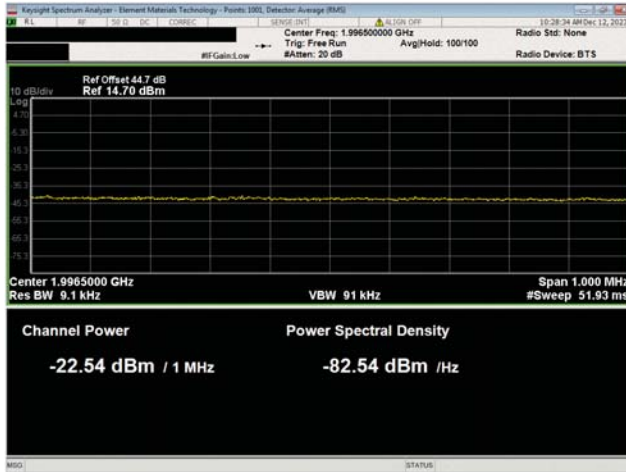


PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
256QAM Modulation
Low Ch, 1937.5 MHz

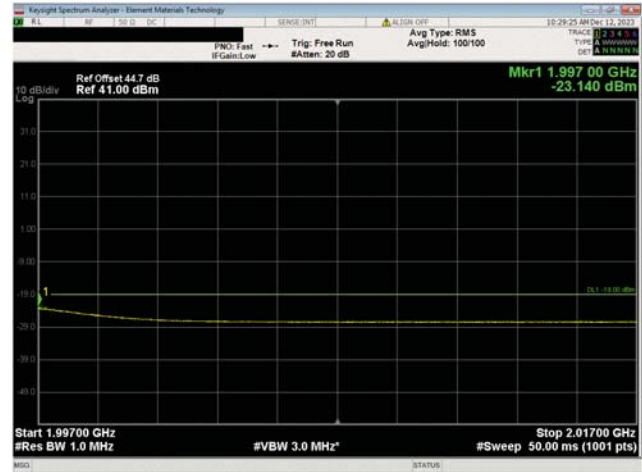


PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 1987.5 MHz

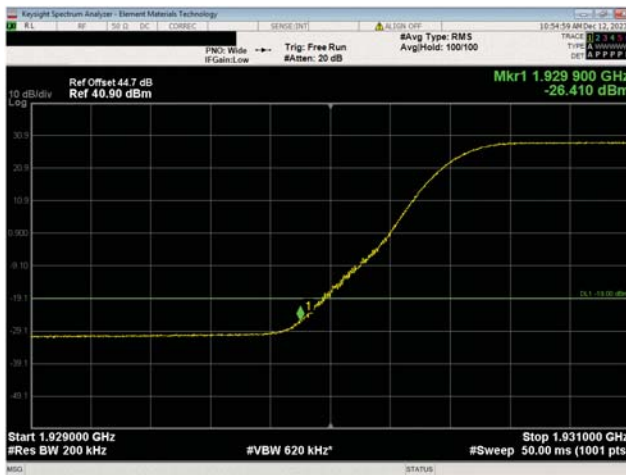
BAND EDGE COMPLIANCE



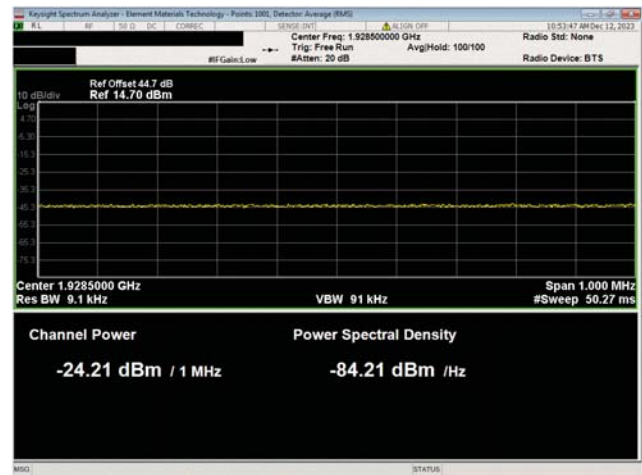
PCS Band n25, 1930 MHz - 1995 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 1987.5 MHz



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

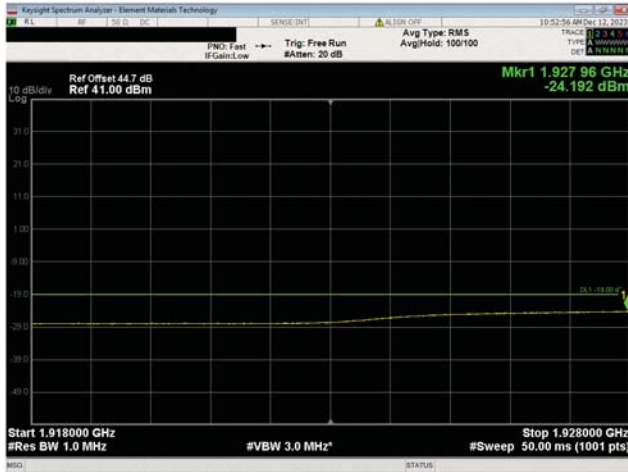


PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 1940.0 MHz



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

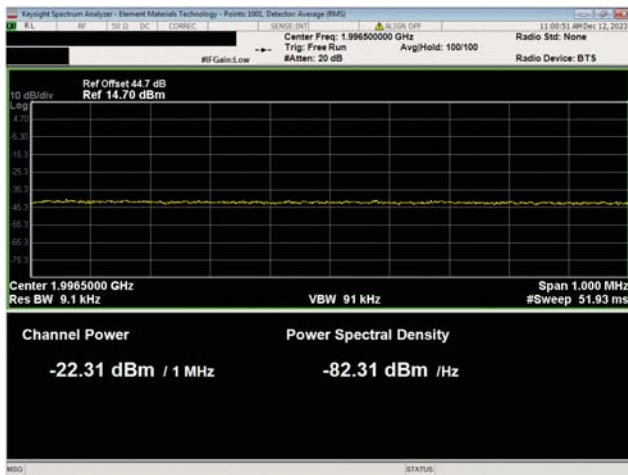
BAND EDGE COMPLIANCE



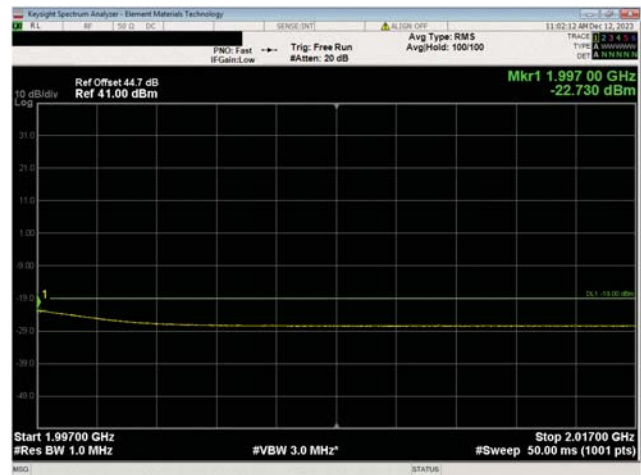
PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 1940.0 MHz



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

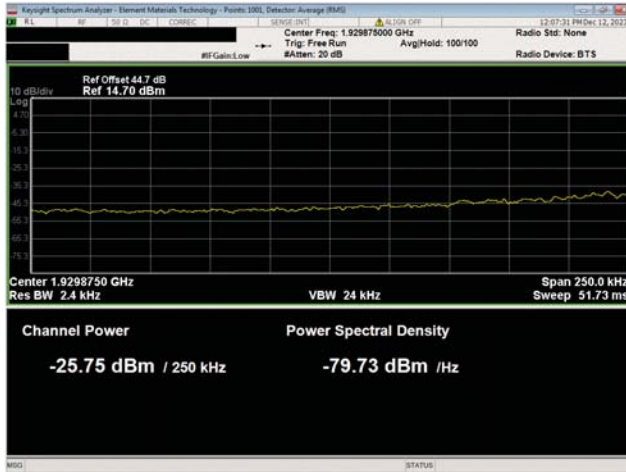


PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 1985.0 MHz

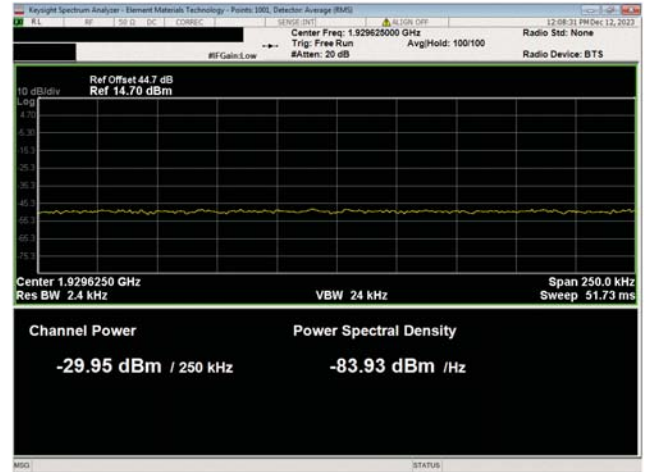


PCS Band n25, 1930 MHz - 1995 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 1985.0 MHz

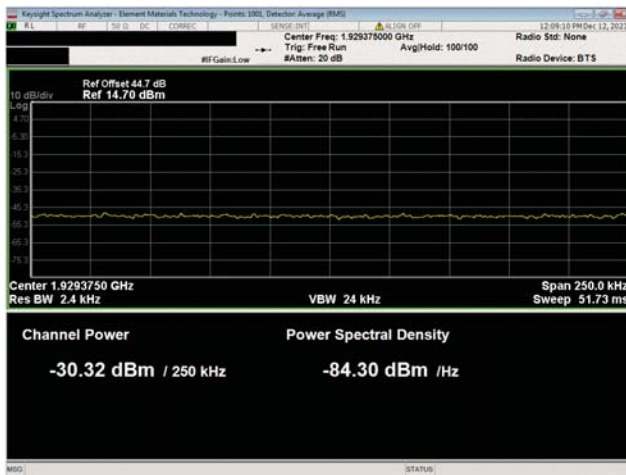
BAND EDGE COMPLIANCE



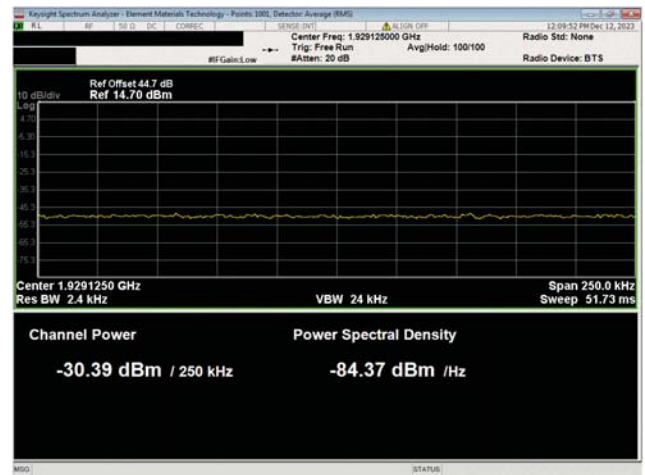
PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 1942.5 MHz



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

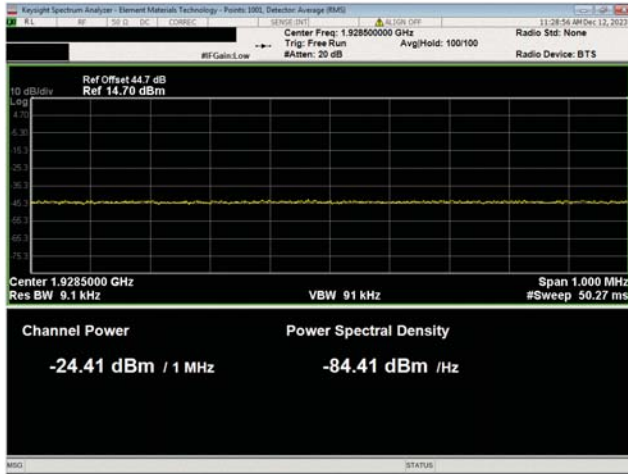


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 1942.5 MHz

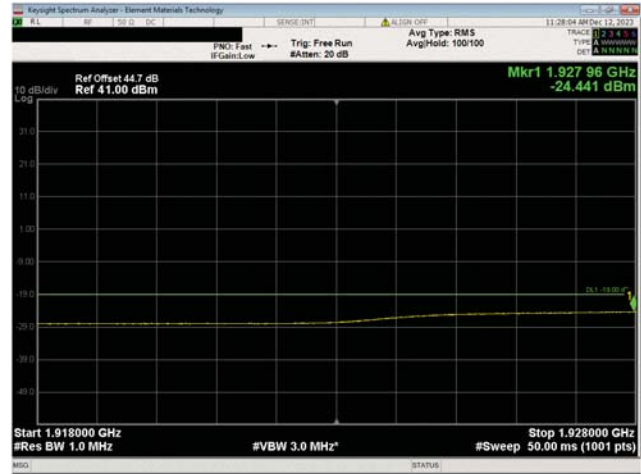


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 1942.5 MHz

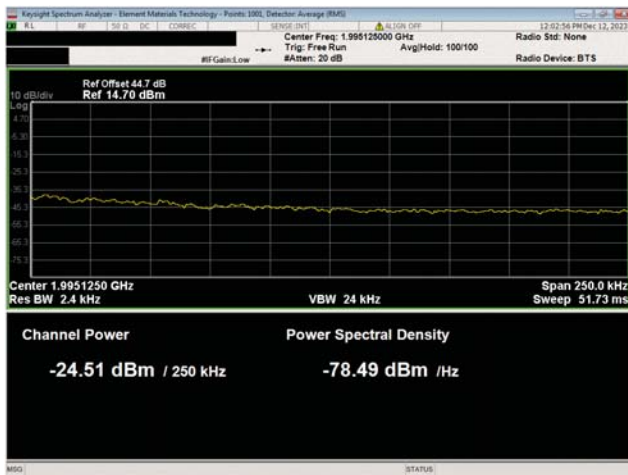
BAND EDGE COMPLIANCE



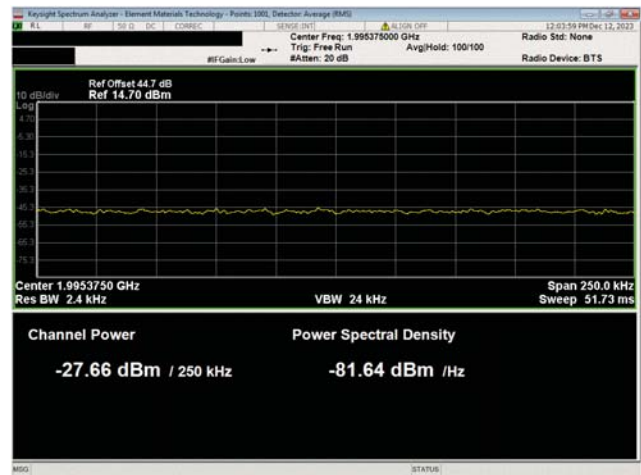
PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 1942.5 MHz



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

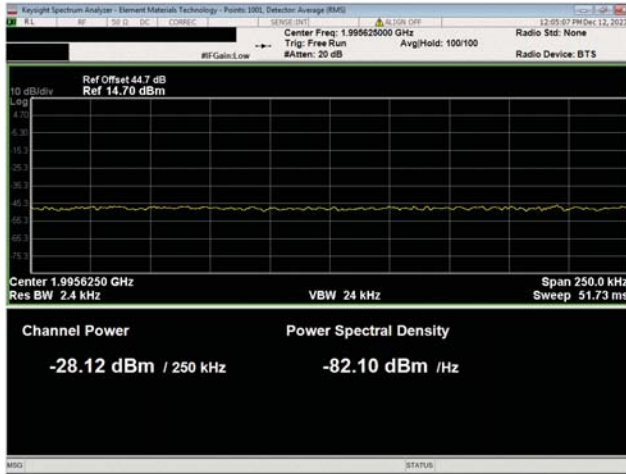


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 1982.5 MHz

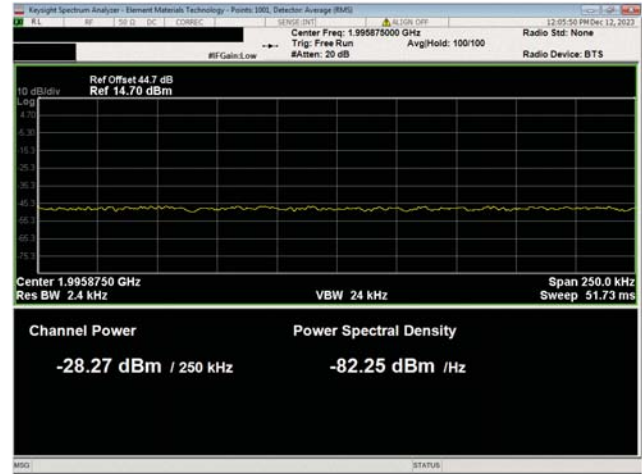


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 1982.5 MHz

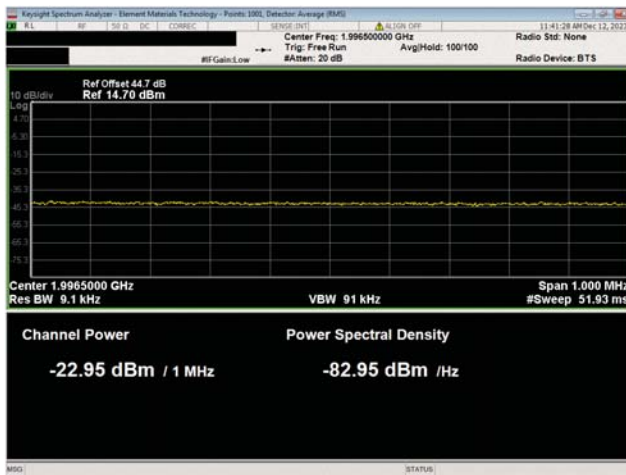
BAND EDGE COMPLIANCE



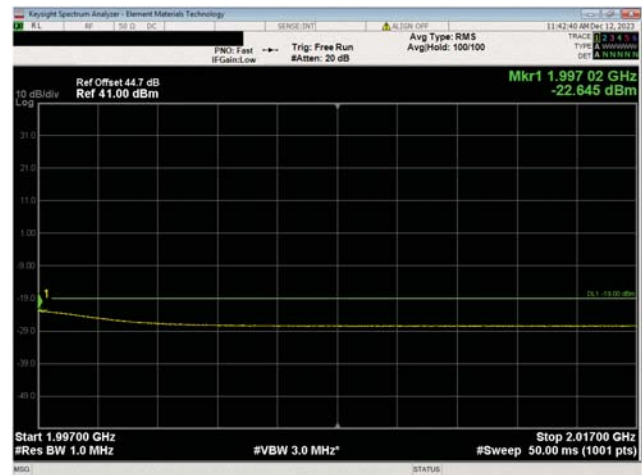
PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 1982.5 MHz



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

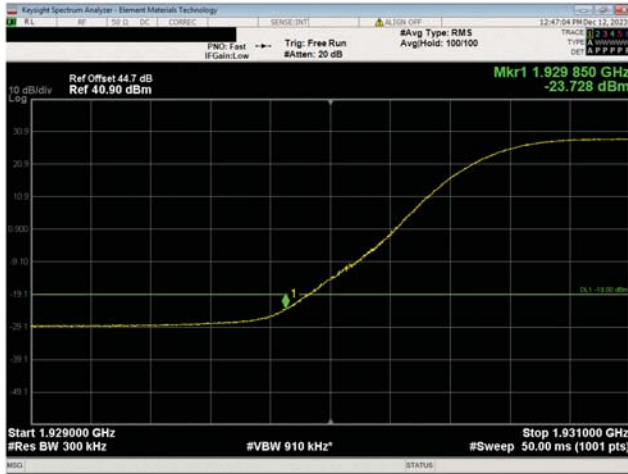


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 1982.5 MHz

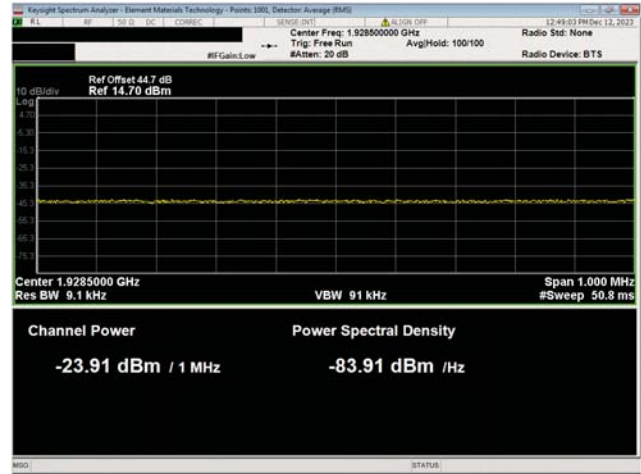


PCS Band n25, 1930 MHz - 1995 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 1982.5 MHz

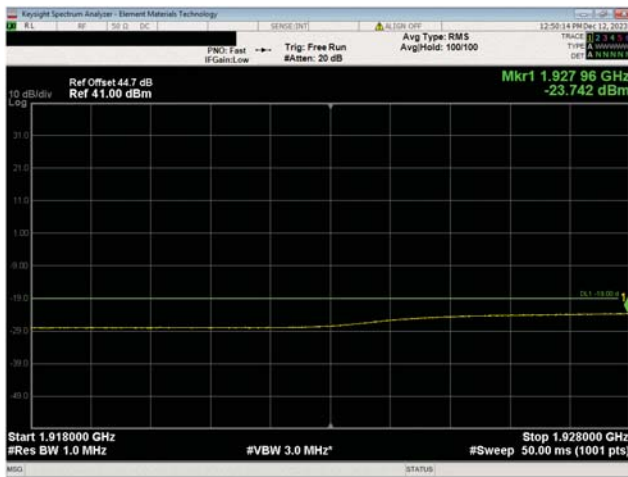
BAND EDGE COMPLIANCE



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
Low Ch, 1945.0 MHz

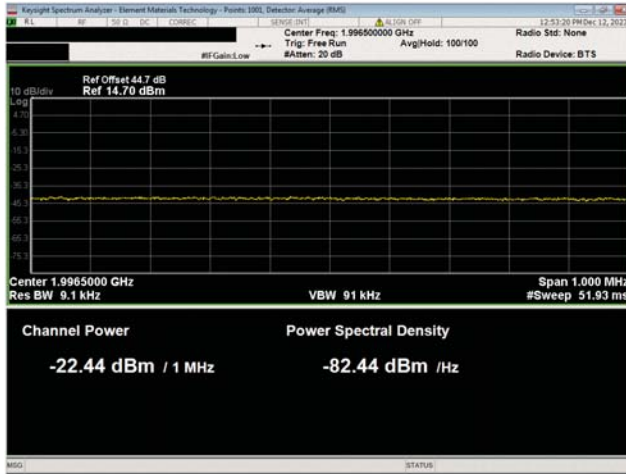


PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 1945.0 MHz

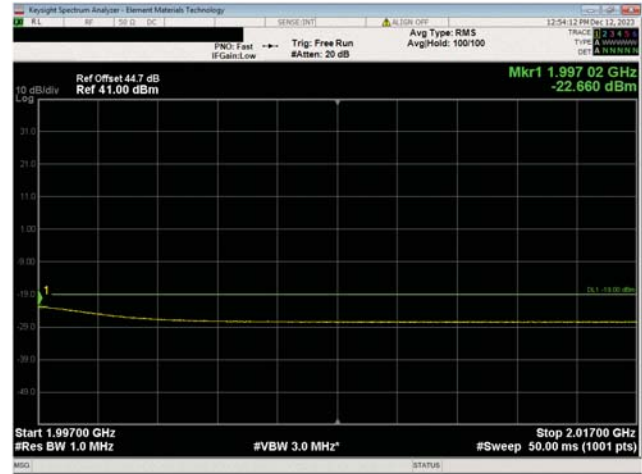


PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 1980.0 MHz

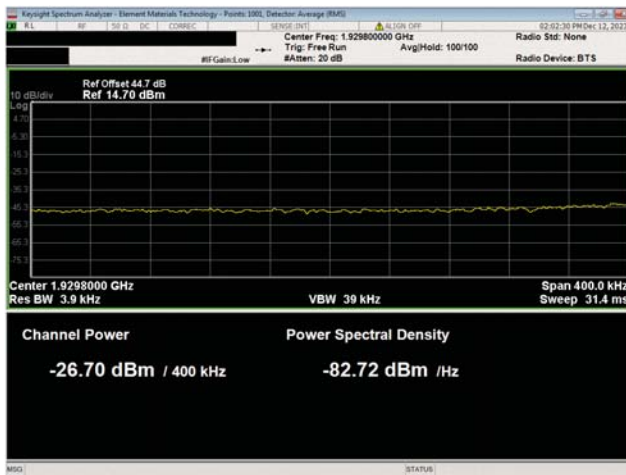
BAND EDGE COMPLIANCE



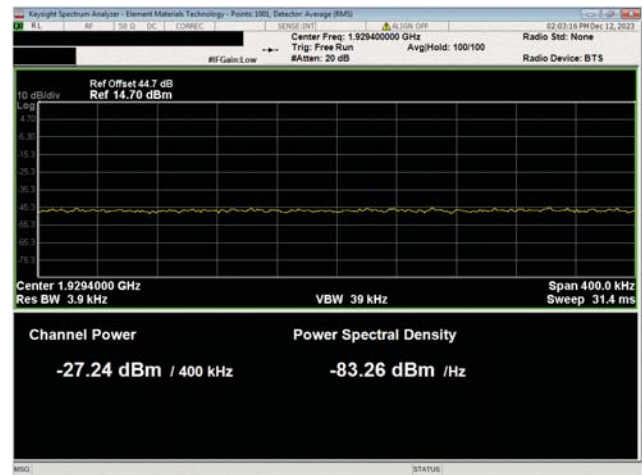
PCS Band n25, 1930 MHz - 1995 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 1980.0 MHz



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

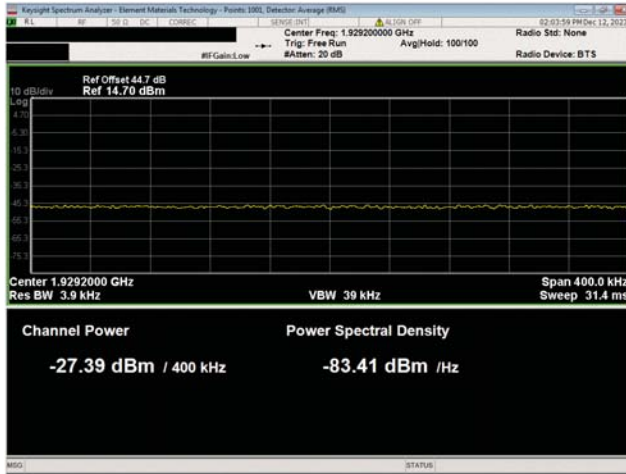


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 1950.0 MHz

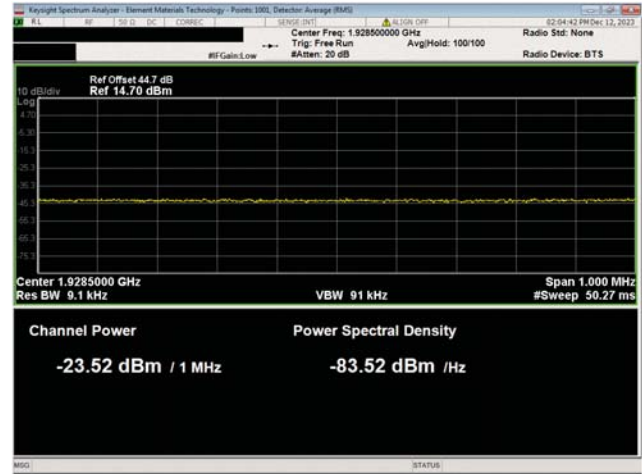


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 1950.0 MHz

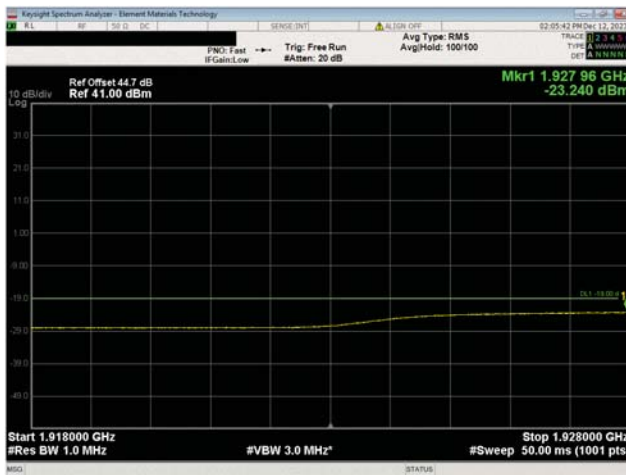
BAND EDGE COMPLIANCE



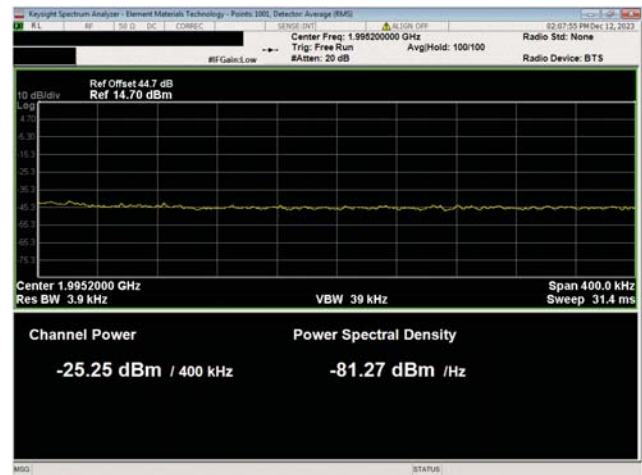
PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 1950.0 MHz



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

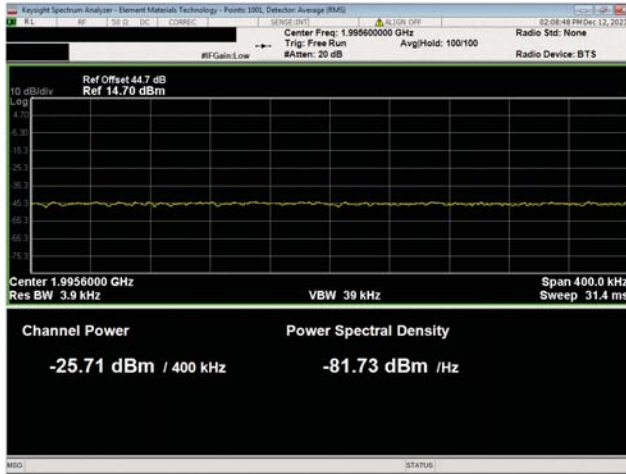


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 1950.0 MHz

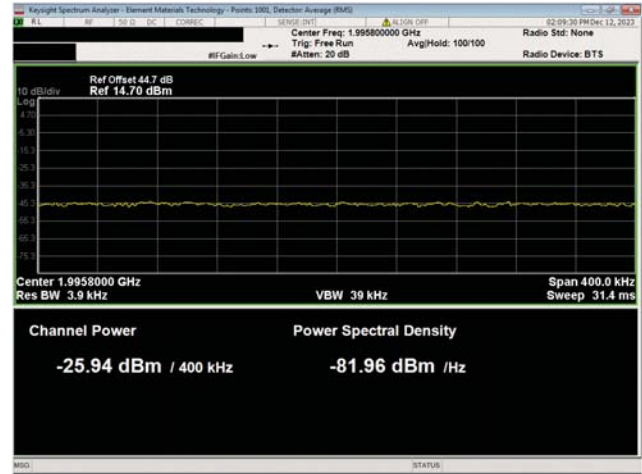


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 1975.0 MHz

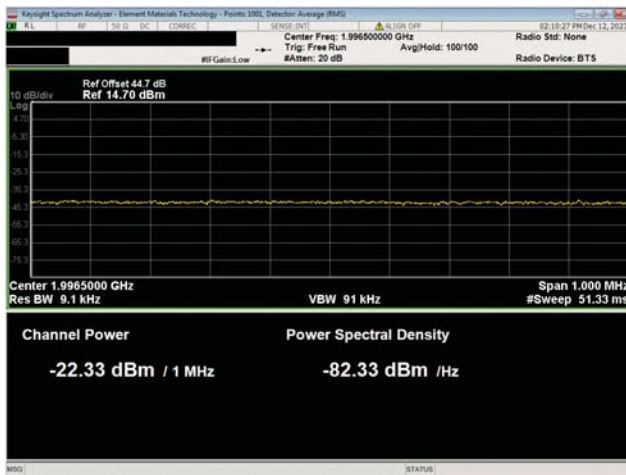
BAND EDGE COMPLIANCE



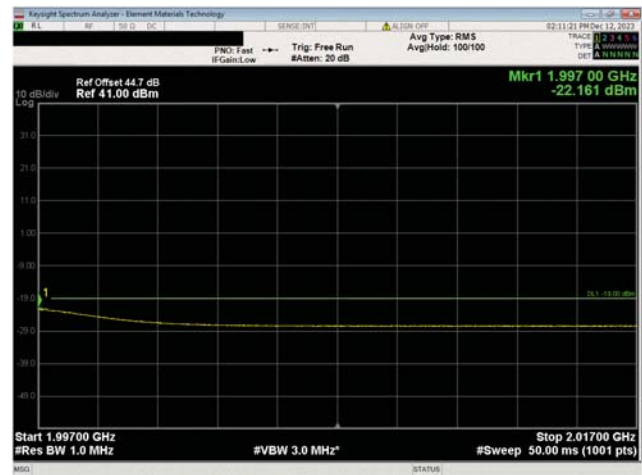
PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 1975.0 MHz



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

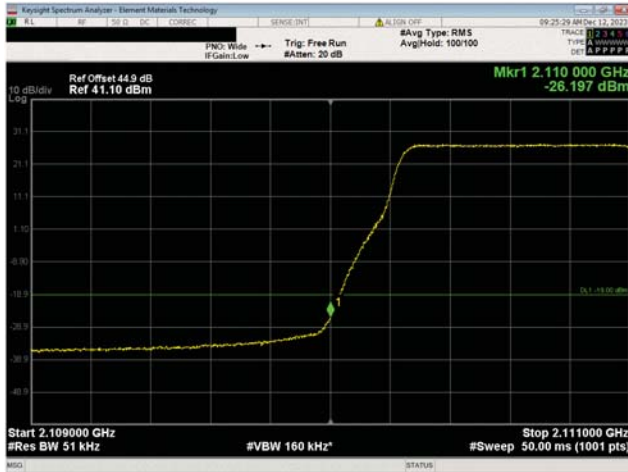


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 1975.0 MHz

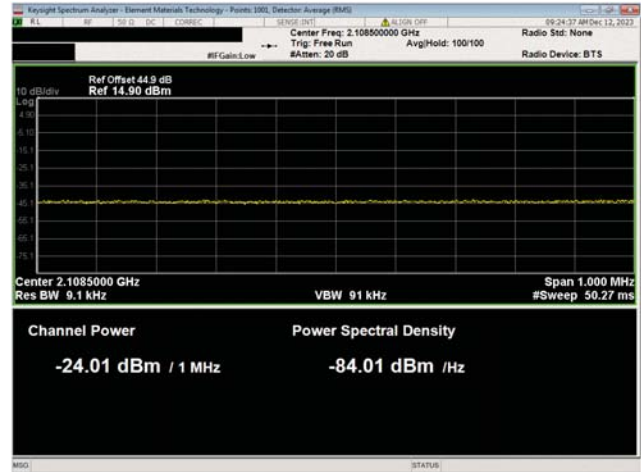


PCS Band n25, 1930 MHz - 1995 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 1975.0 MHz

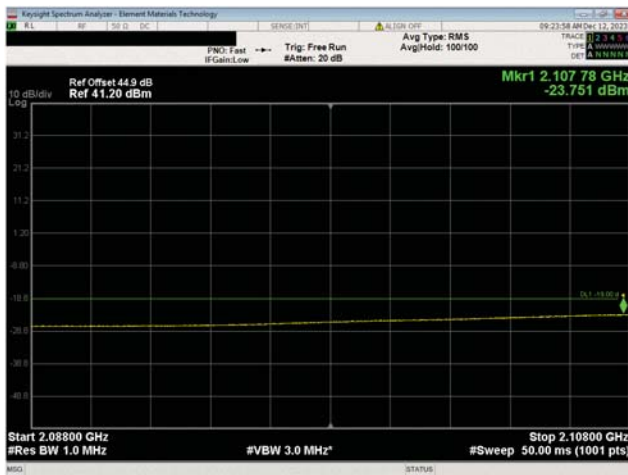
BAND EDGE COMPLIANCE



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
Low Ch, 2112.5 MHz

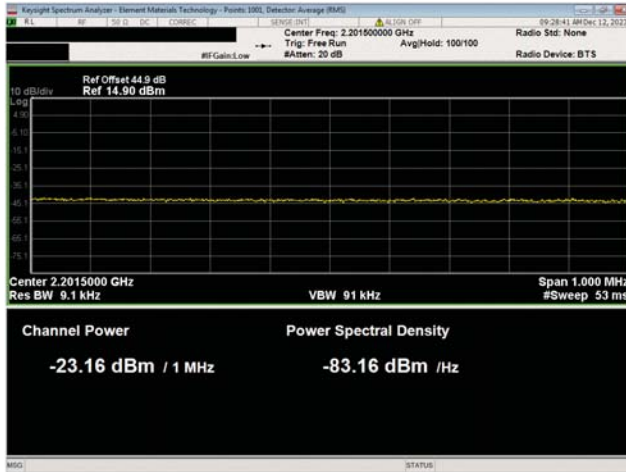


AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
256QAM Modulation
Low Ch, 2112.5 MHz

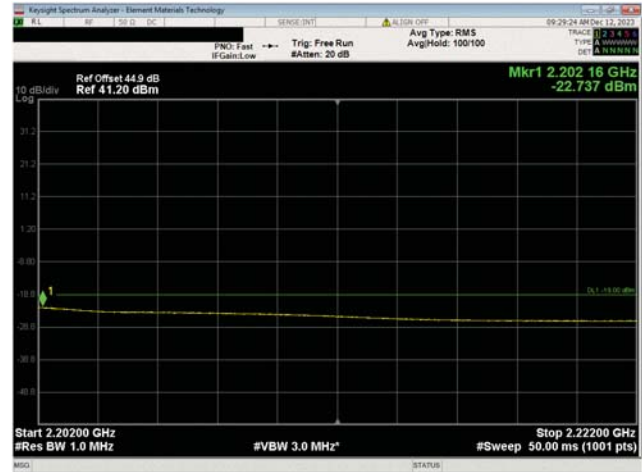


AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 2197.5 MHz

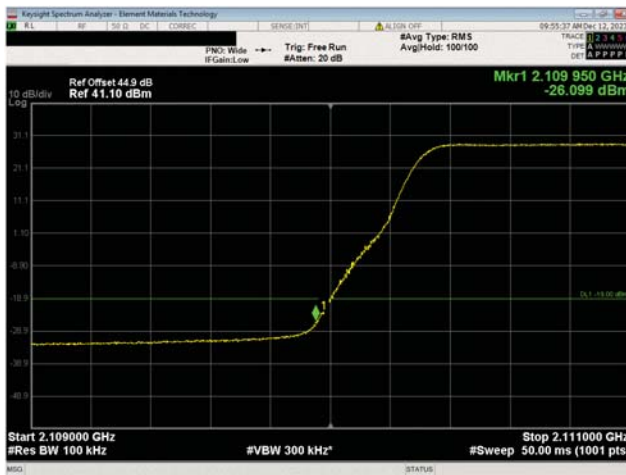
BAND EDGE COMPLIANCE



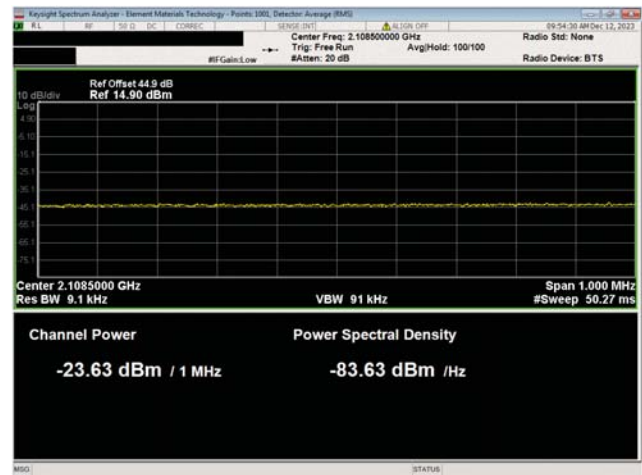
AWS Band n66, 2110 MHz - 2200 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 2197.5 MHz



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

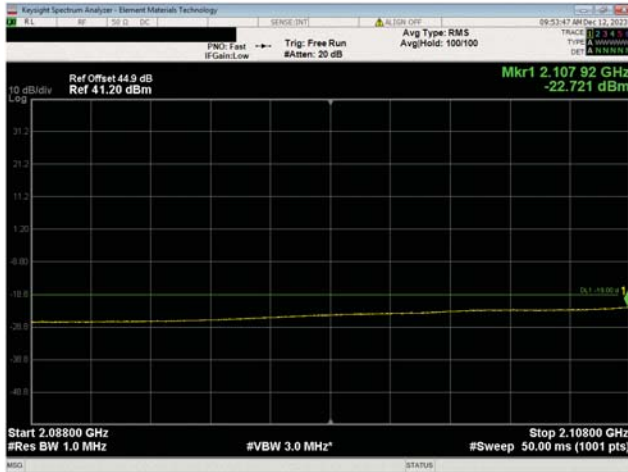


AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 2115.0 MHz



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

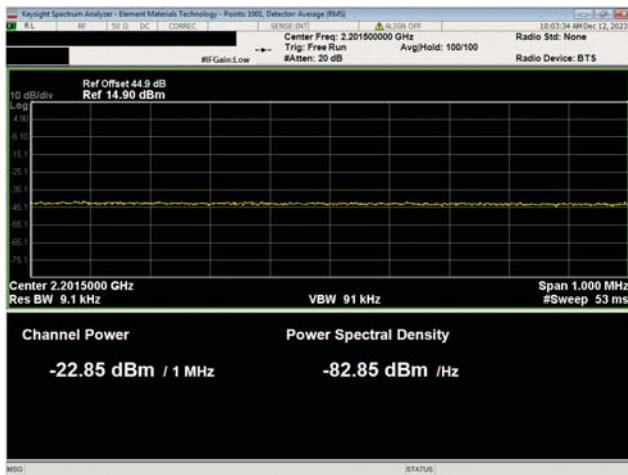
BAND EDGE COMPLIANCE



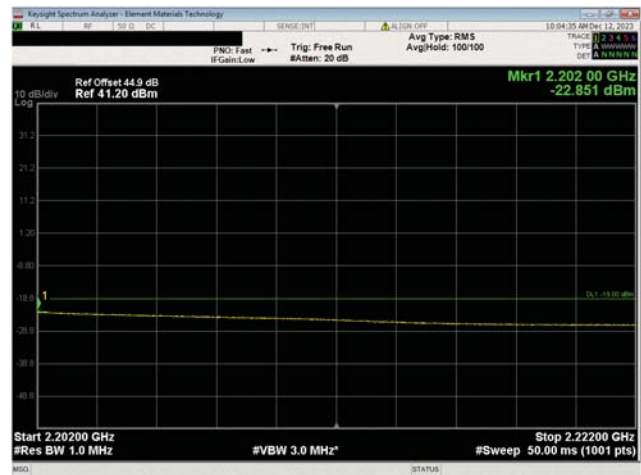
AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 2115.0 MHz



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

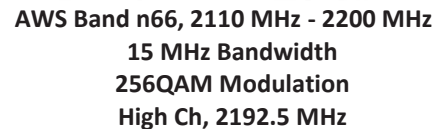
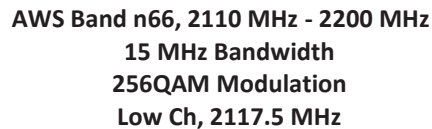
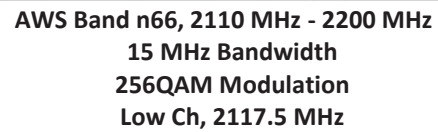
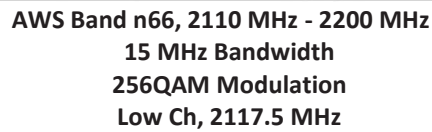


AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 2195.0 MHz

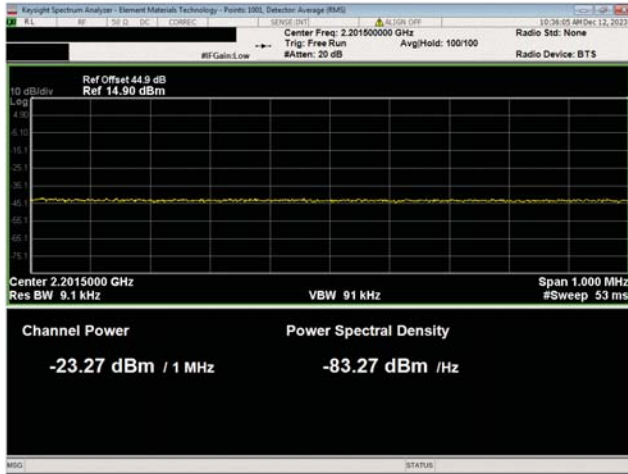


AWS Band n66, 2110 MHz - 2200 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 2195.0 MHz

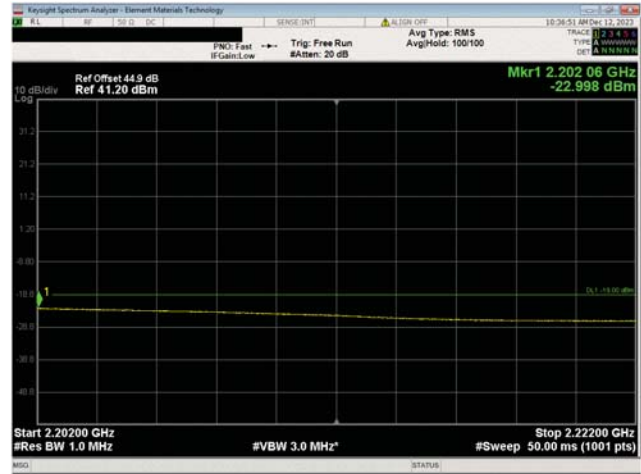
TbtTx 2023.12.05.0
 WTD.2023.11.13.0



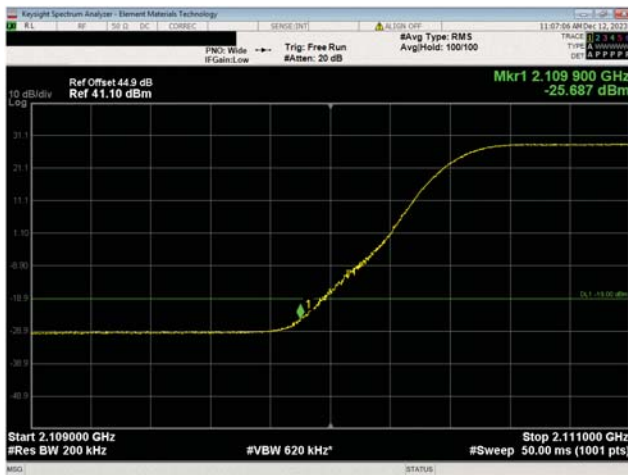
BAND EDGE COMPLIANCE



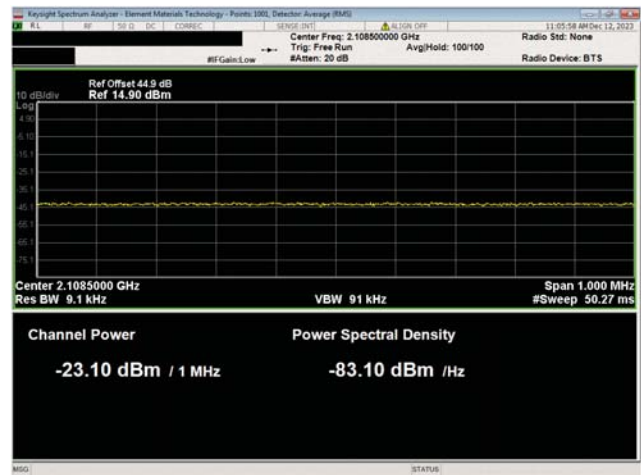
AWS Band n66, 2110 MHz - 2200 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 2192.5 MHz



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

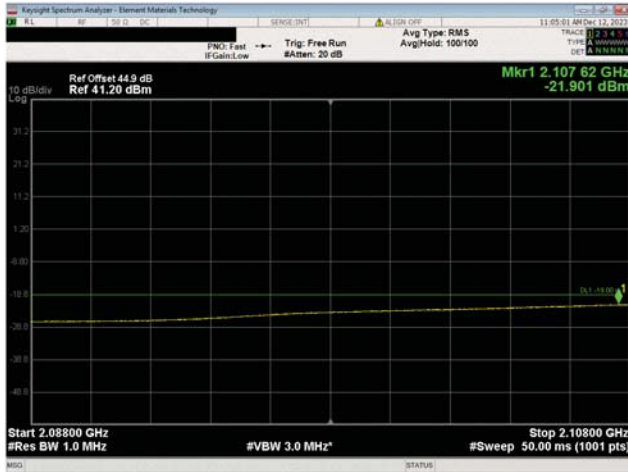


AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 2120.0 MHz



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

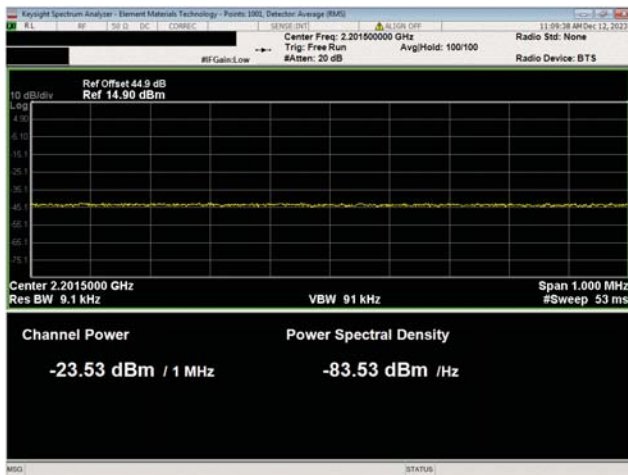
BAND EDGE COMPLIANCE



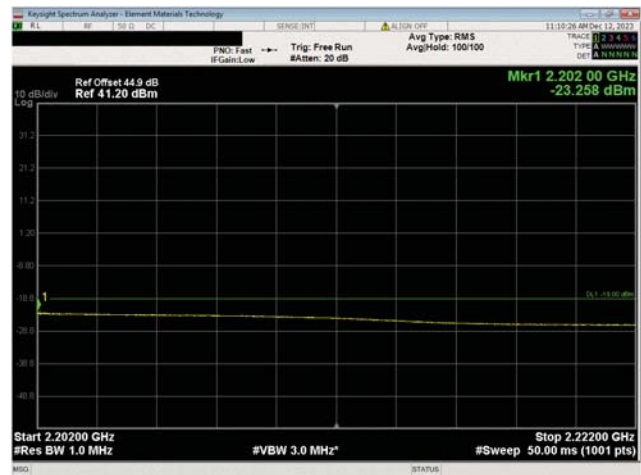
AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 2120.0 MHz



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

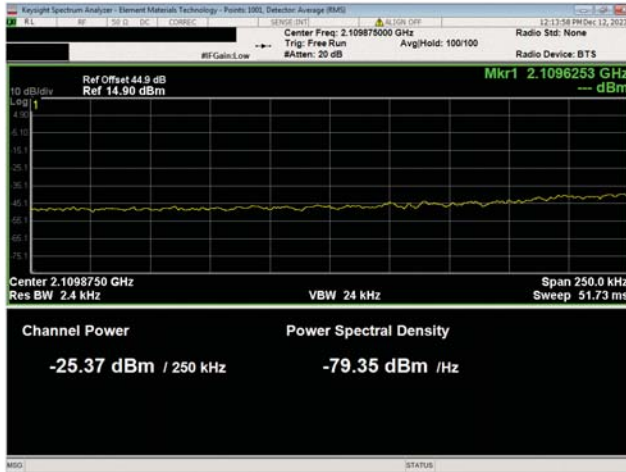


AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 2190.0 MHz

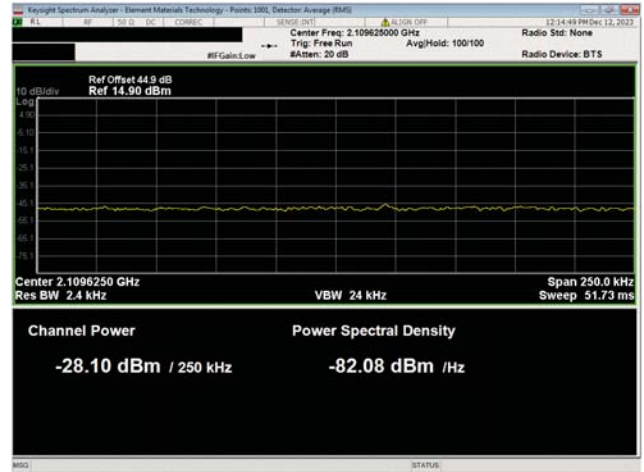


AWS Band n66, 2110 MHz - 2200 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 2190.0 MHz

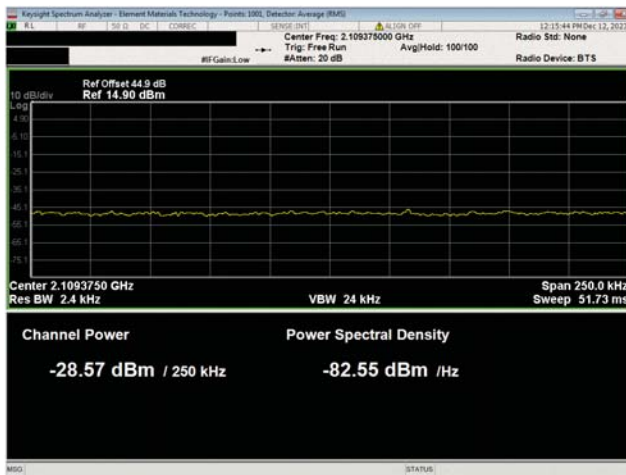
BAND EDGE COMPLIANCE



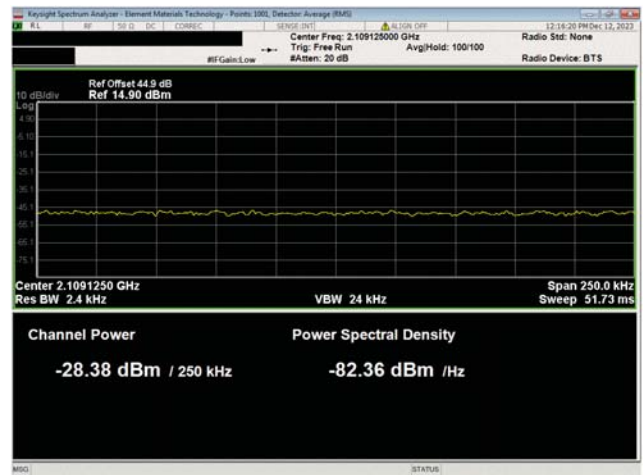
AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2122.5 MHz



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

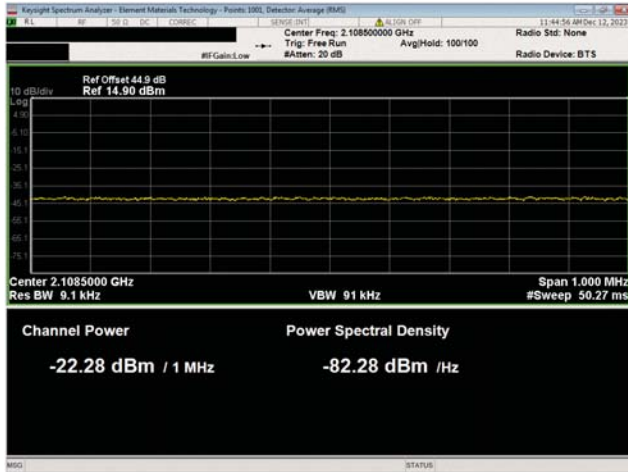


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2122.5 MHz

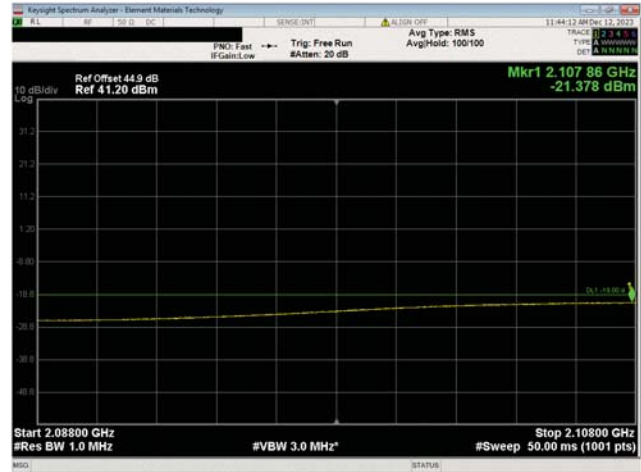


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2122.5 MHz

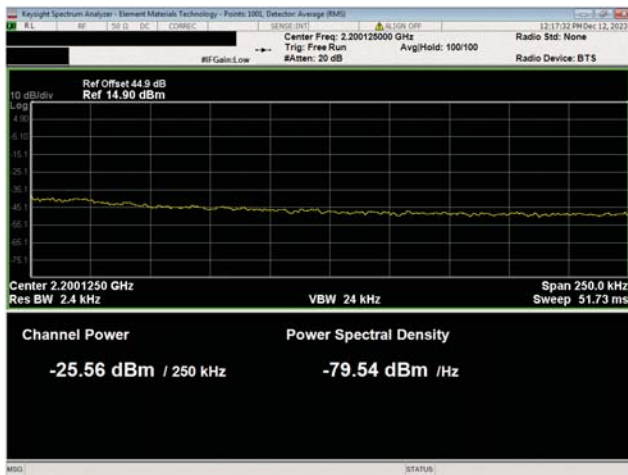
BAND EDGE COMPLIANCE



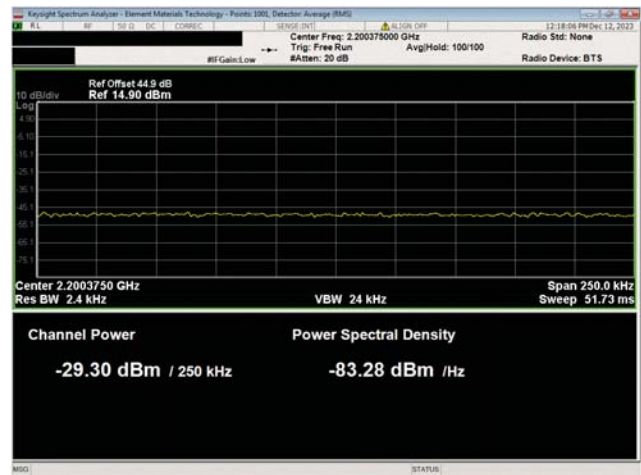
AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2122.5 MHz



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

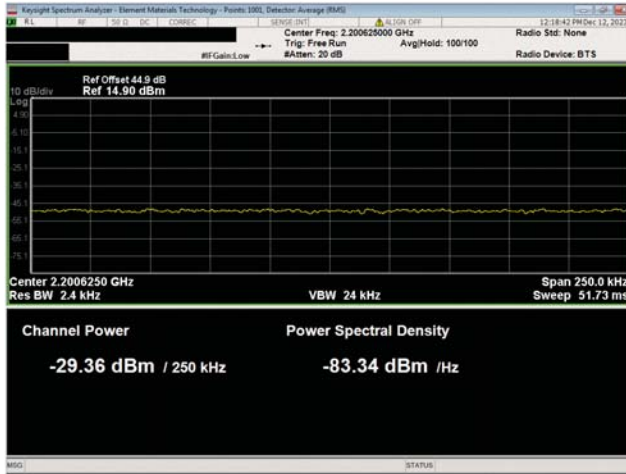


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2187.5 MHz

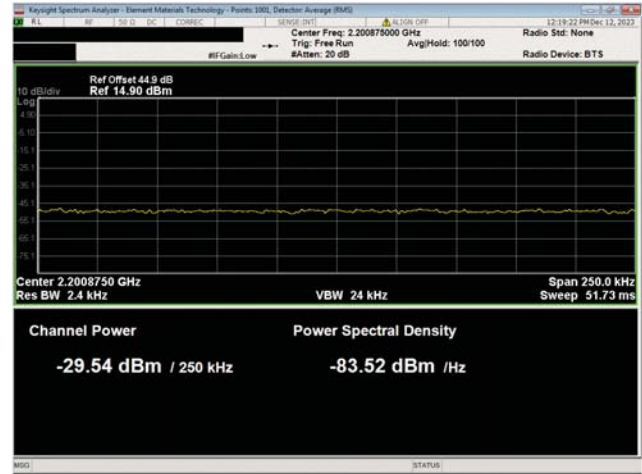


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2187.5 MHz

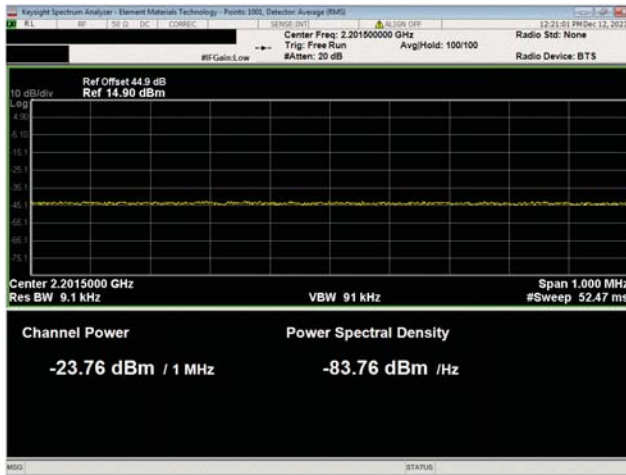
BAND EDGE COMPLIANCE



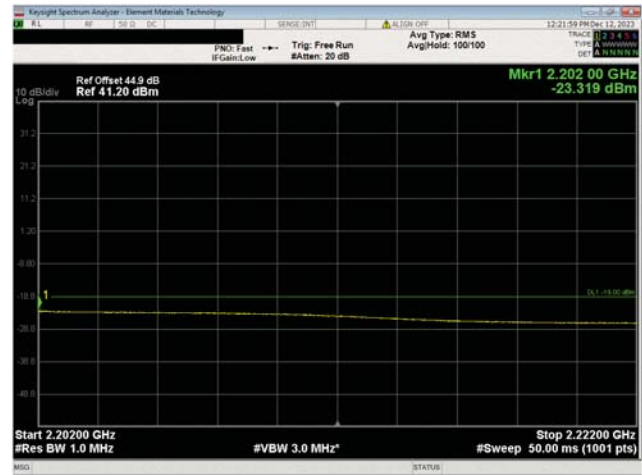
AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2187.5 MHz



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

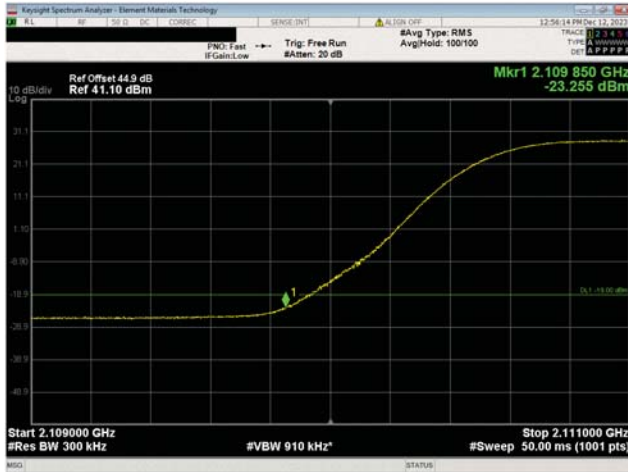


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2187.5 MHz

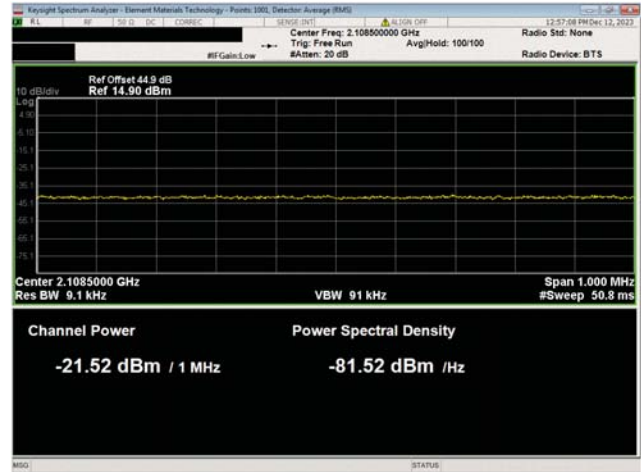


AWS Band n66, 2110 MHz - 2200 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2187.5 MHz

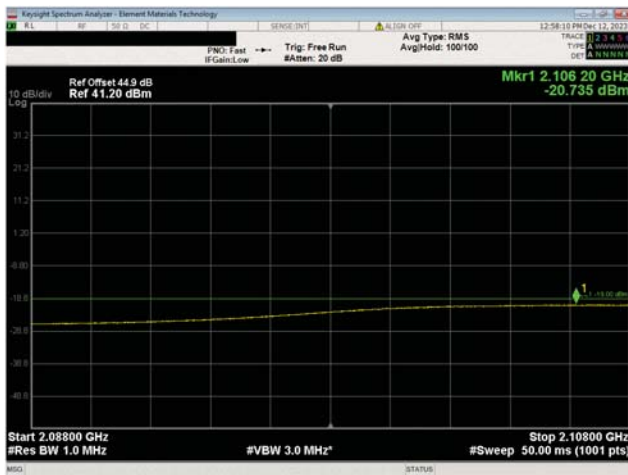
BAND EDGE COMPLIANCE



AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 1215.0 MHz



AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 1215.0 MHz

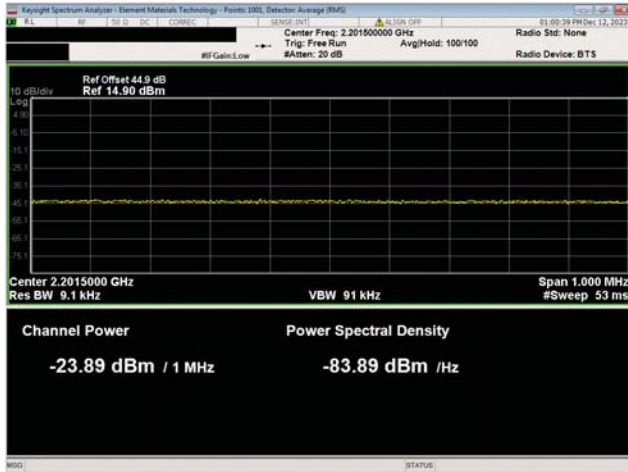


AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 1215.0 MHz

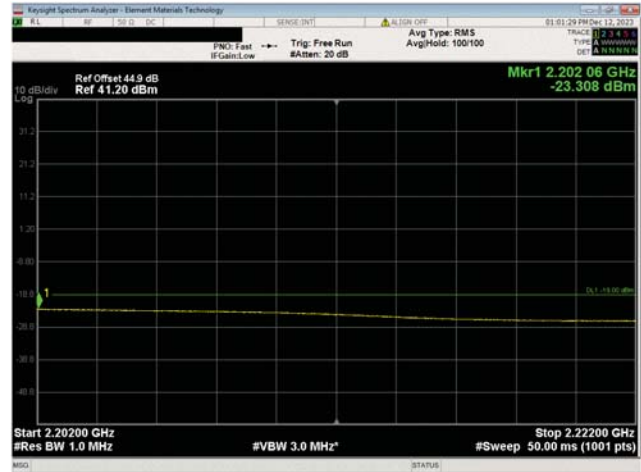


AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 2185.0 MHz

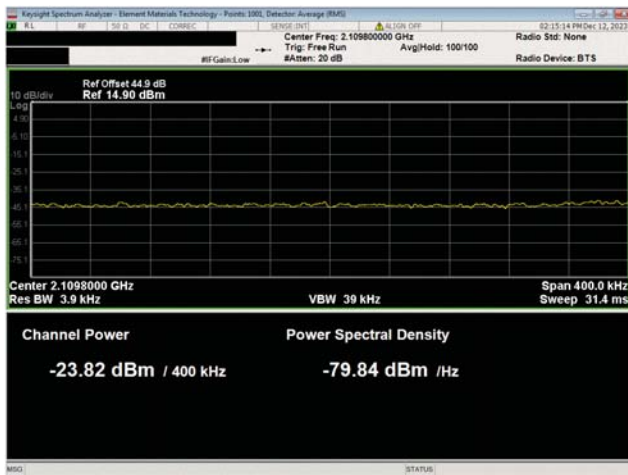
BAND EDGE COMPLIANCE



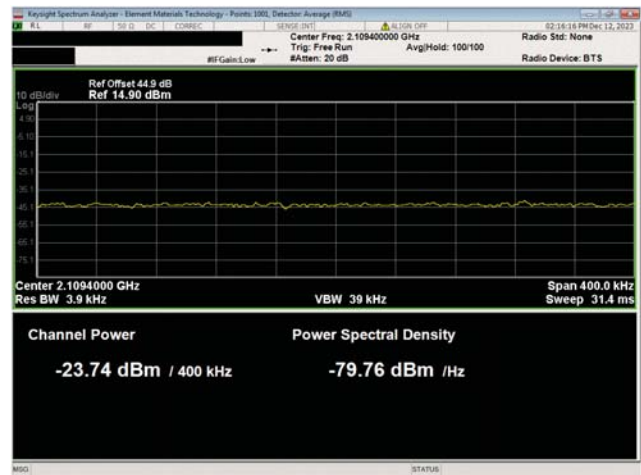
AWS Band n66, 2110 MHz - 2200 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 2185.0 MHz



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

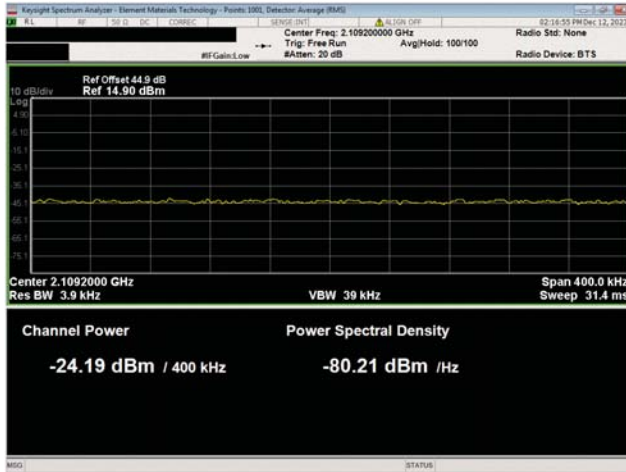


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2130.0 MHz

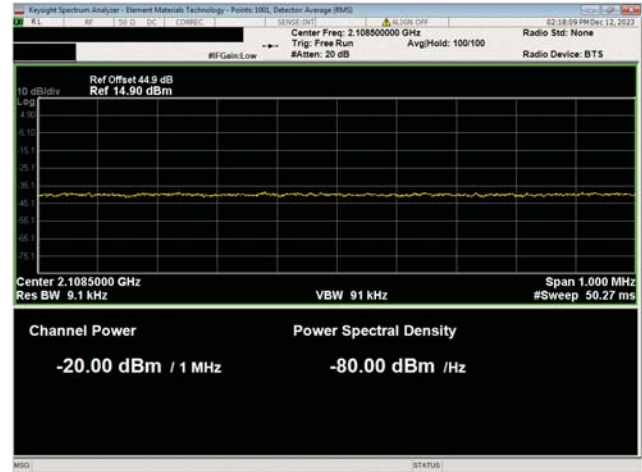


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2130.0 MHz

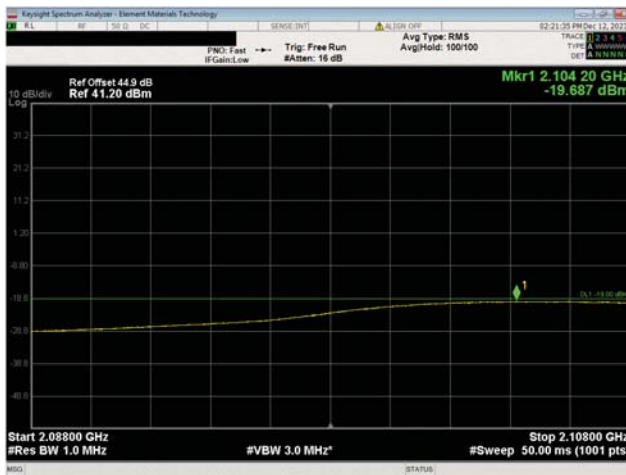
BAND EDGE COMPLIANCE



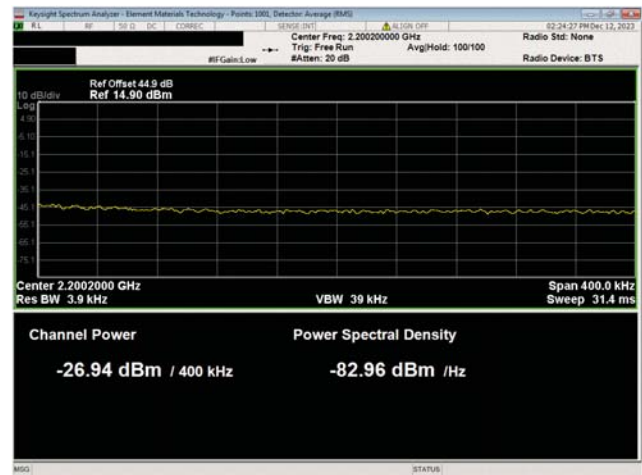
AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2130.0 MHz



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

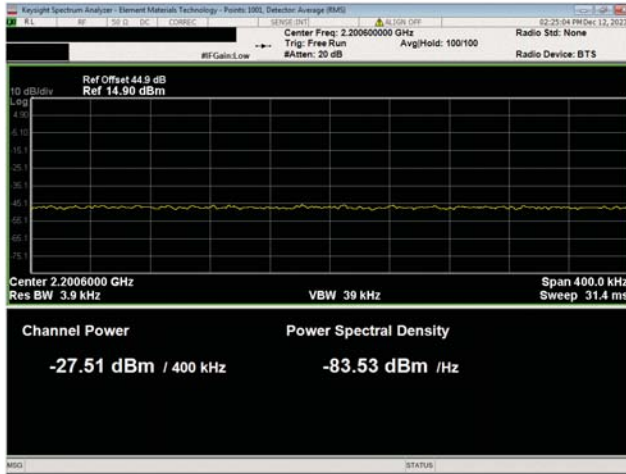


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2130.0 MHz

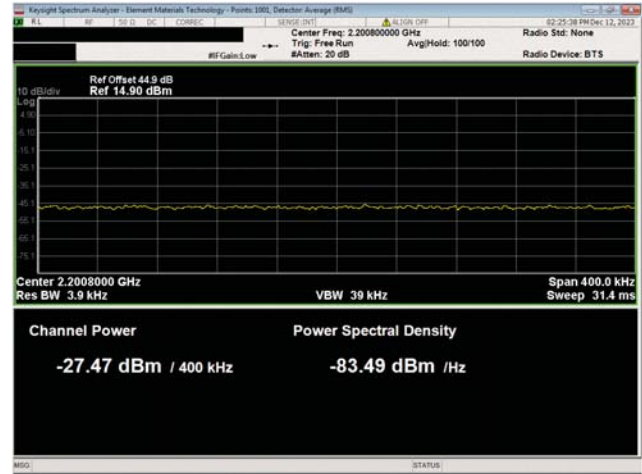


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2180.0 MHz

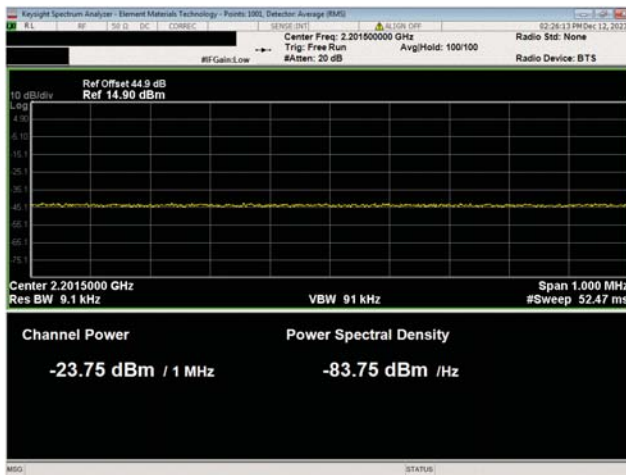
BAND EDGE COMPLIANCE



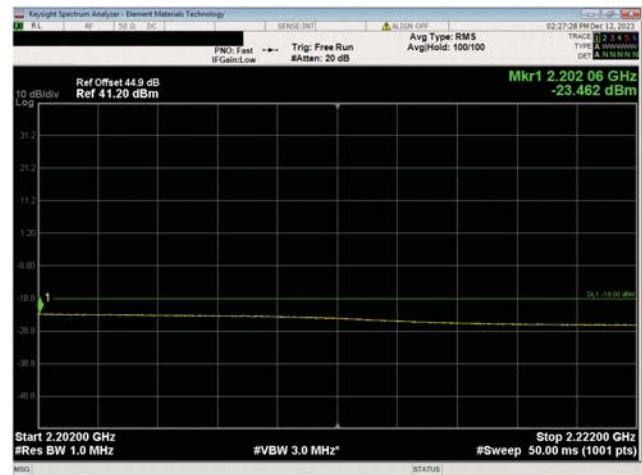
AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2180.0 MHz



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

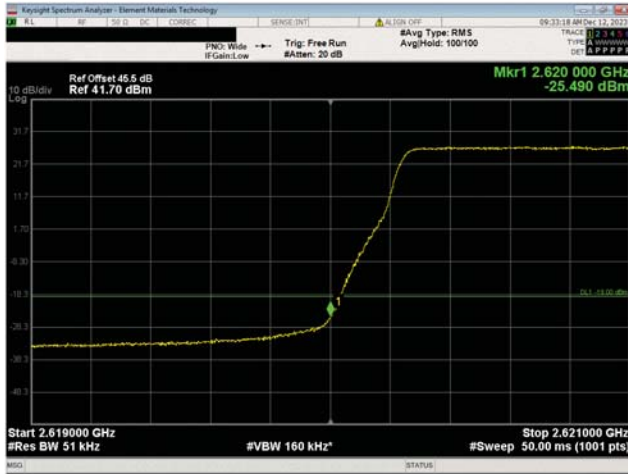


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2180.0 MHz

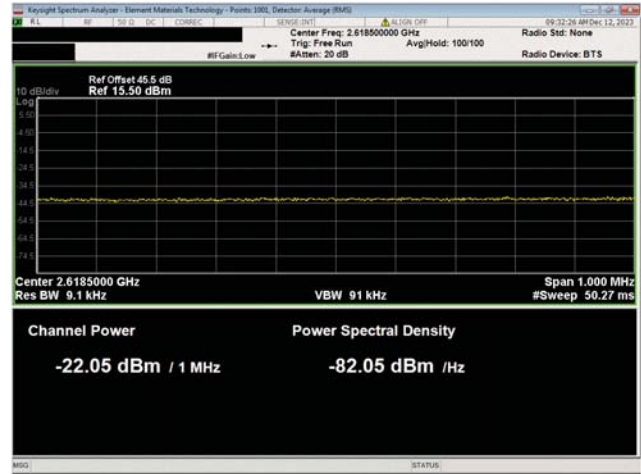


AWS Band n66, 2110 MHz - 2200 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2180.0 MHz

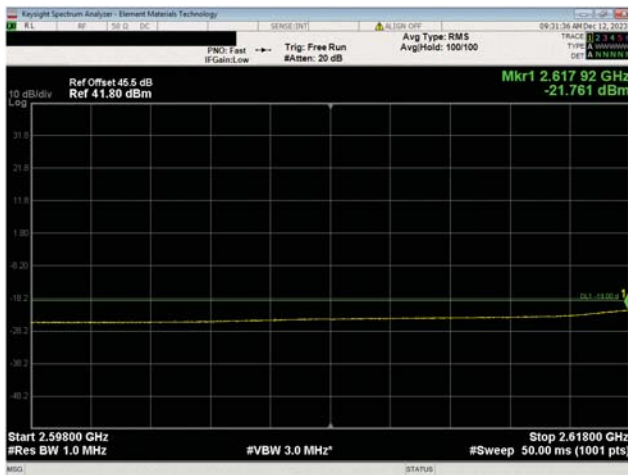
BAND EDGE COMPLIANCE



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



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

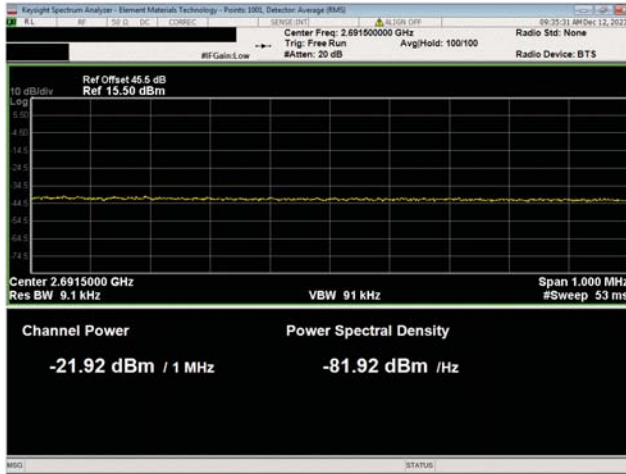


BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
256QAM Modulation
Low Ch, 2622.5 MHz

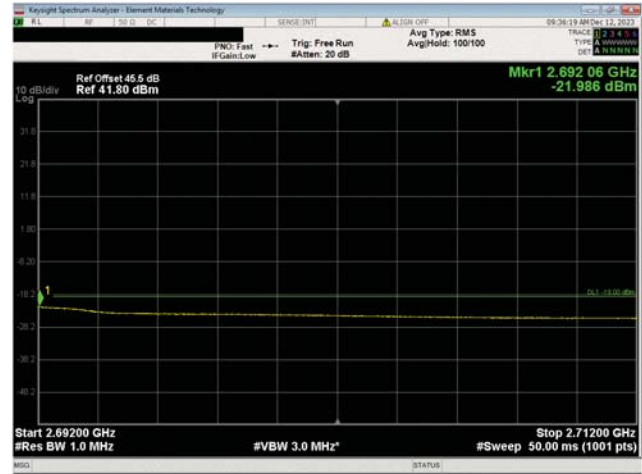


BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 2687.5 MHz

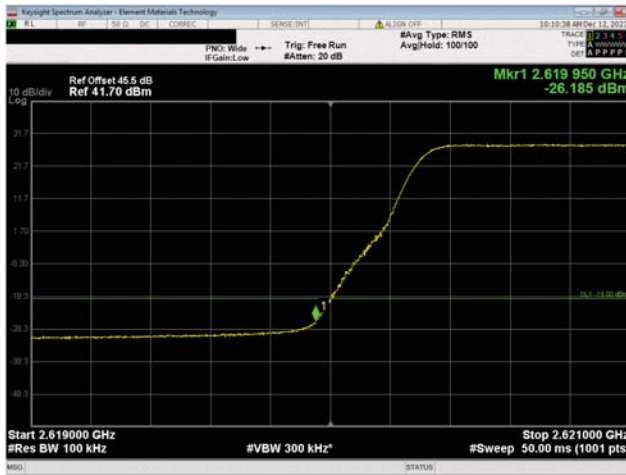
BAND EDGE COMPLIANCE



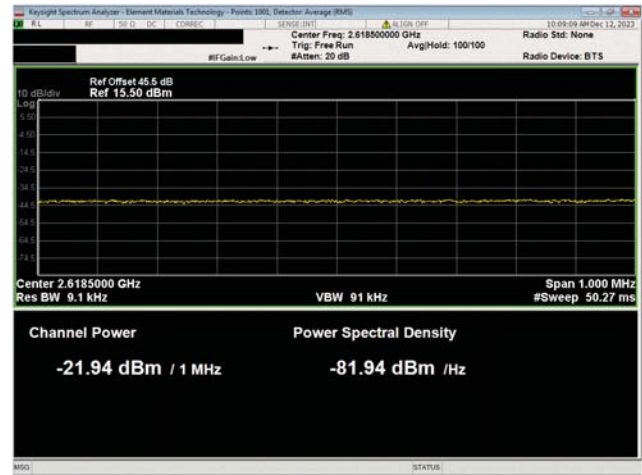
BRS Band n7, 2620 MHz - 2690 MHz
5 MHz Bandwidth
256QAM Modulation
High Ch, 2687.5 MHz



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

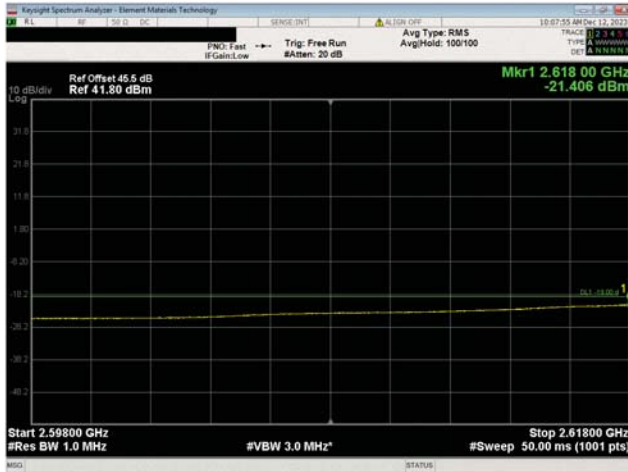


BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 2625.0 MHz



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

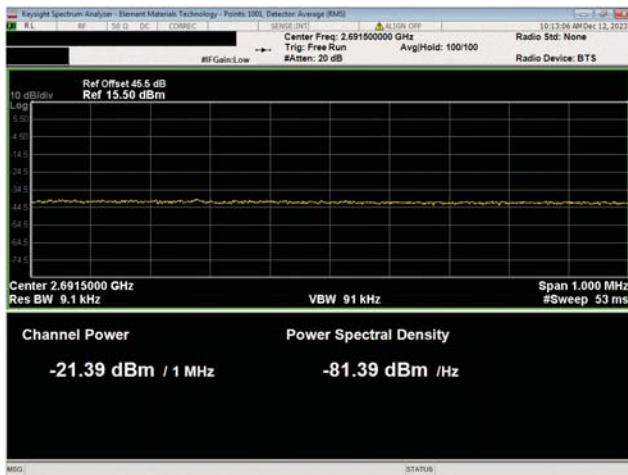
BAND EDGE COMPLIANCE



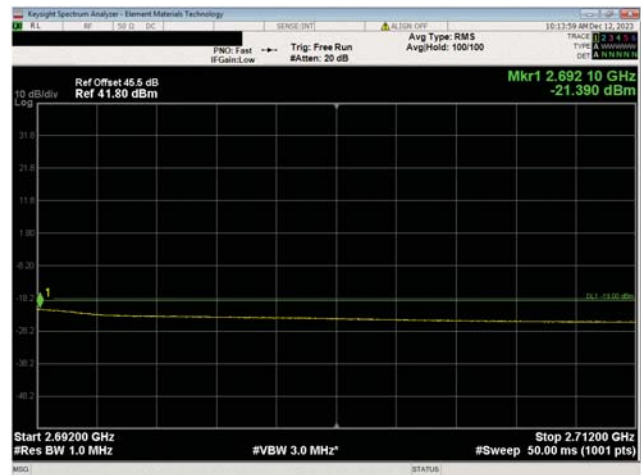
BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
256QAM Modulation
Low Ch, 2625.0 MHz



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

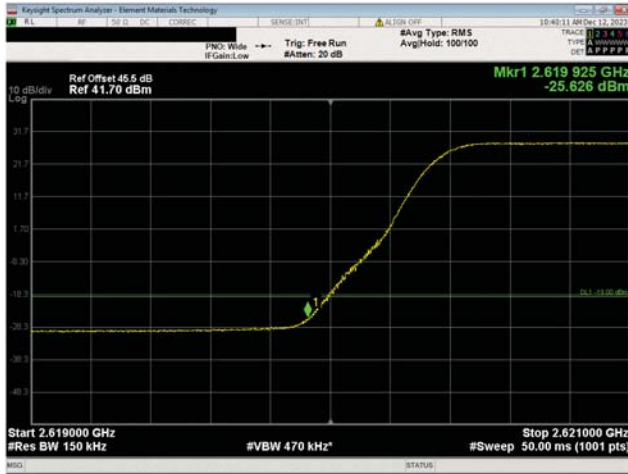


BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 2685.0 MHz

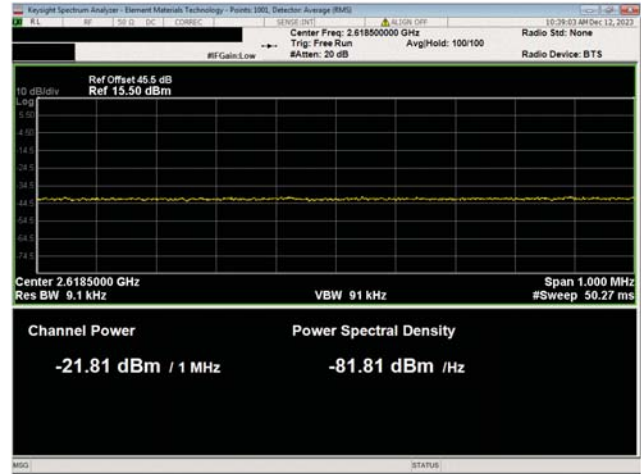


BRS Band n7, 2620 MHz - 2690 MHz
10 MHz Bandwidth
256QAM Modulation
High Ch, 2685.0 MHz

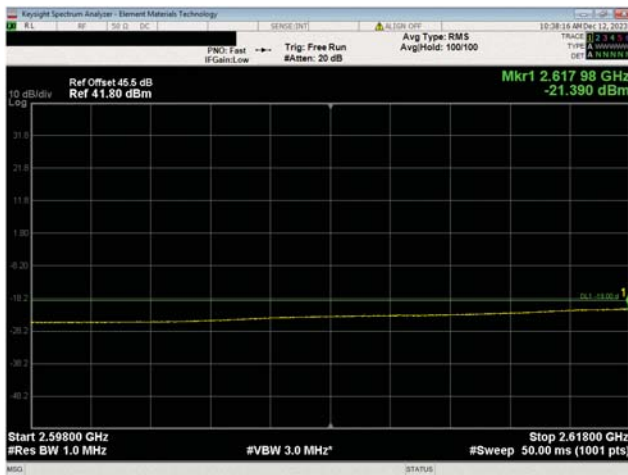
BAND EDGE COMPLIANCE



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



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

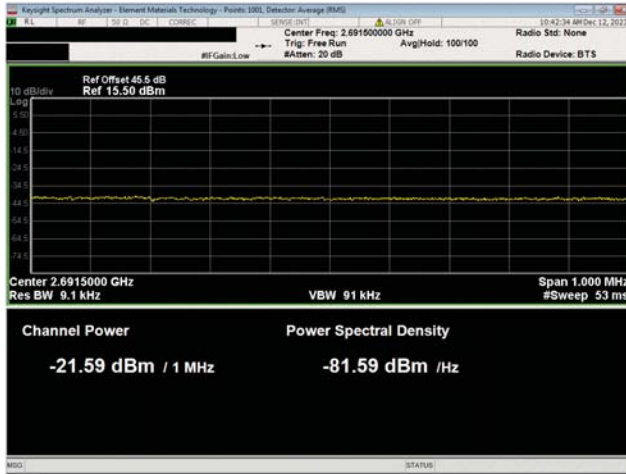


BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
256QAM Modulation
Low Ch, 2627.5 MHz

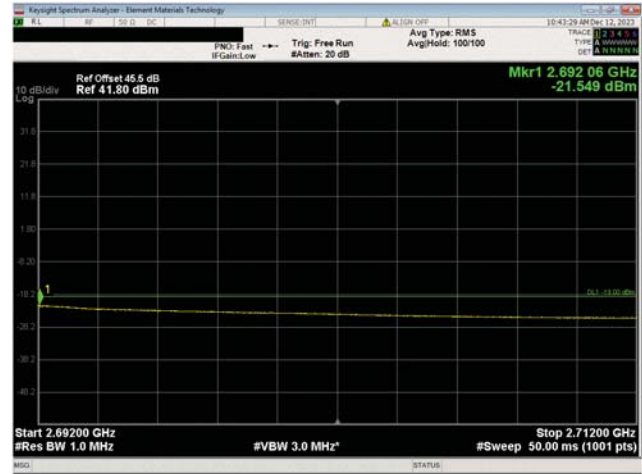


BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 2682.5 MHz

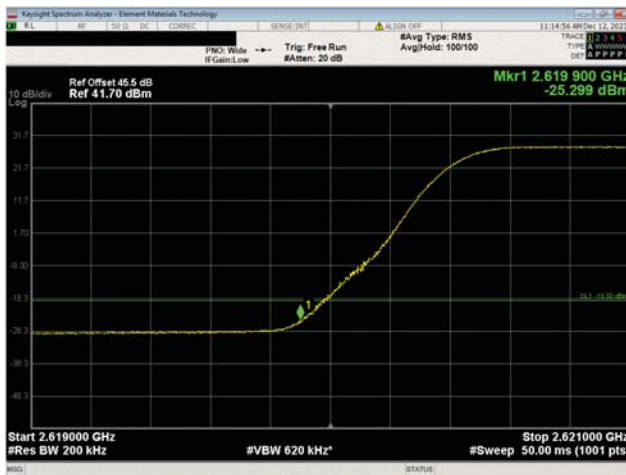
BAND EDGE COMPLIANCE



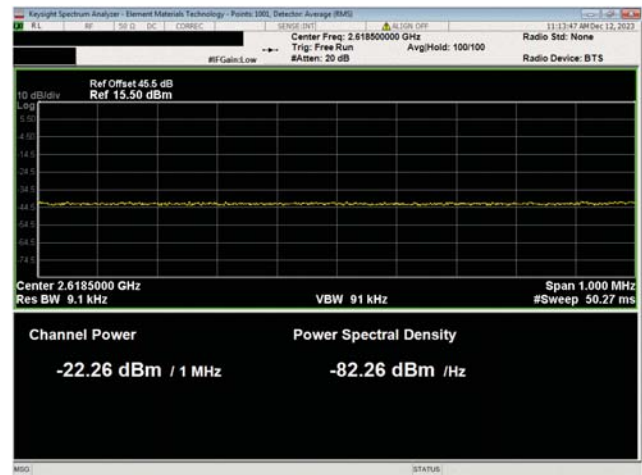
BRS Band n7, 2620 MHz - 2690 MHz
15 MHz Bandwidth
256QAM Modulation
High Ch, 2682.5 MHz



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

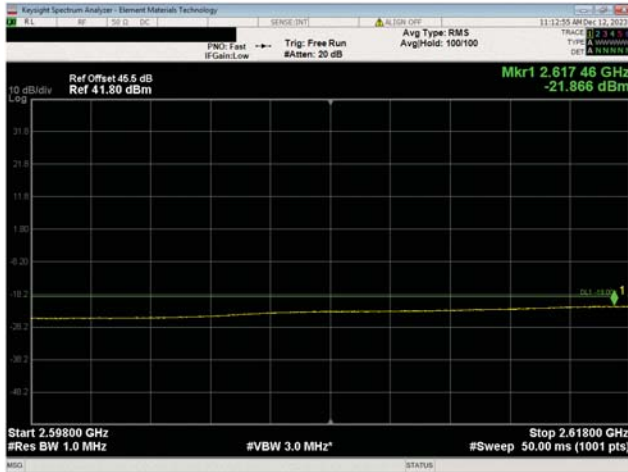


BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 2630.0 MHz



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

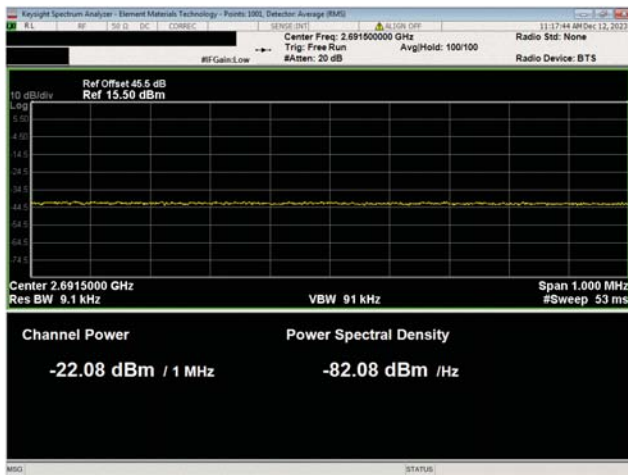
BAND EDGE COMPLIANCE



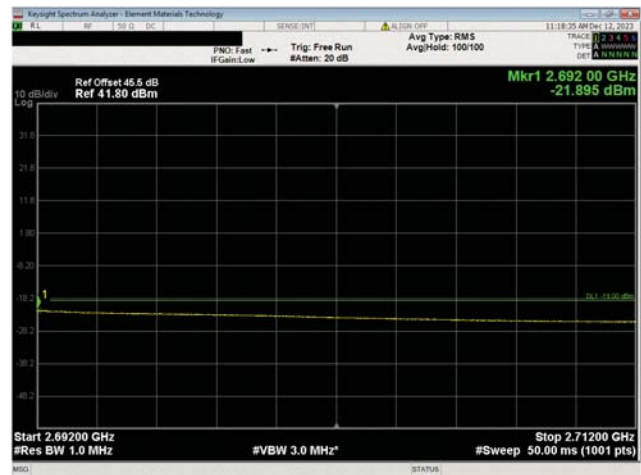
BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
256QAM Modulation
Low Ch, 2630.0 MHz



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

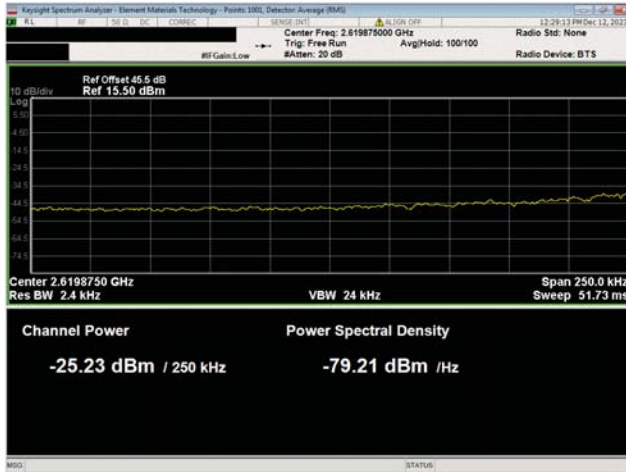


BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 2680.0 MHz

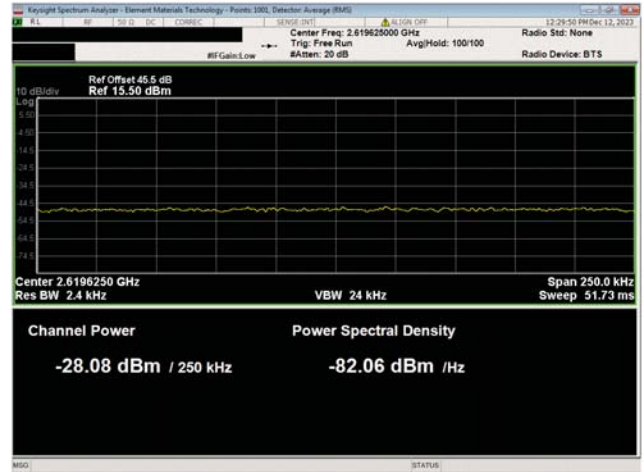


BRS Band n7, 2620 MHz - 2690 MHz
20 MHz Bandwidth
256QAM Modulation
High Ch, 2680.0 MHz

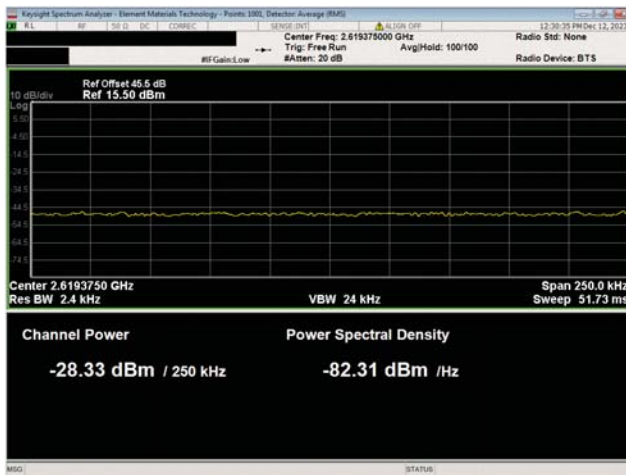
BAND EDGE COMPLIANCE



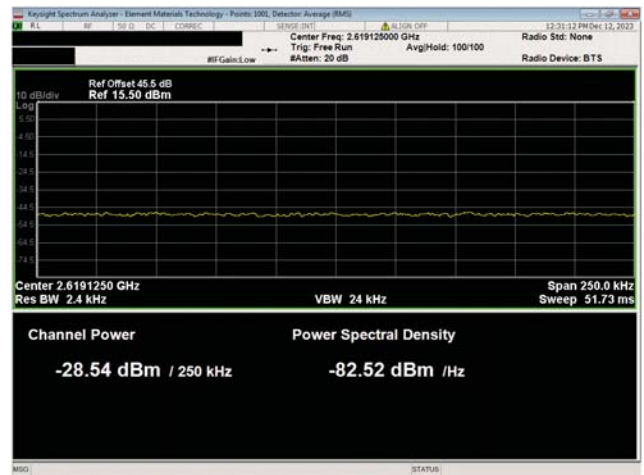
BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2632.5 MHz



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

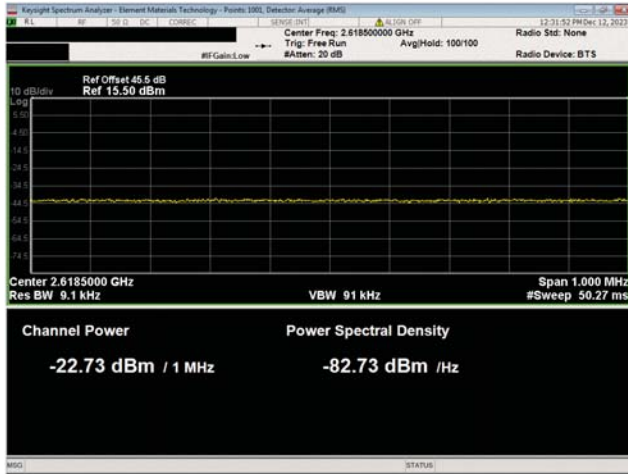


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2632.5 MHz

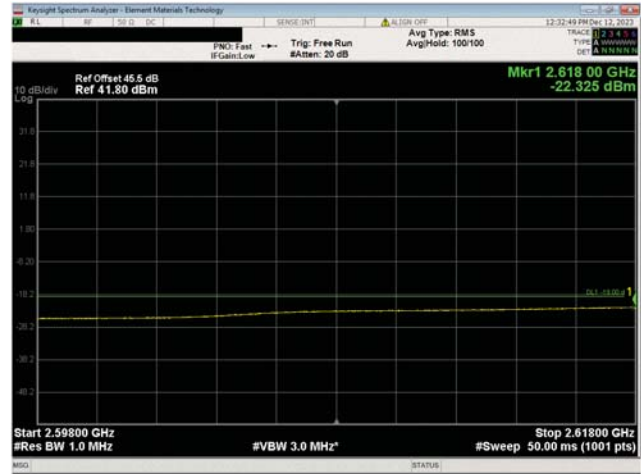


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2632.5 MHz

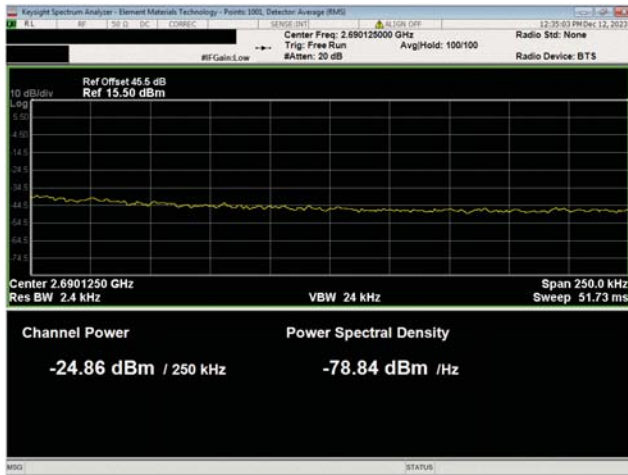
BAND EDGE COMPLIANCE



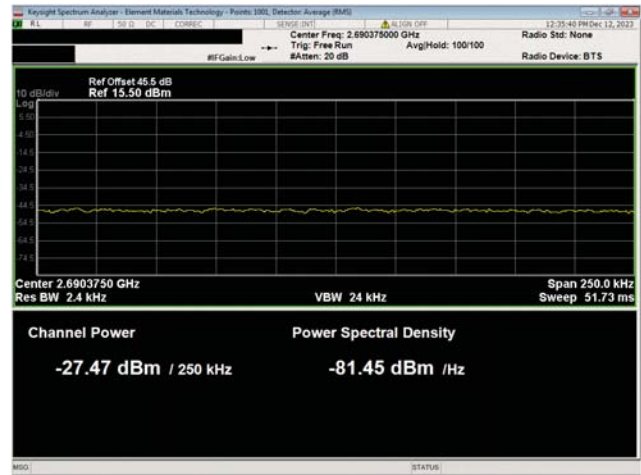
BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
Low Ch, 2632.5 MHz



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

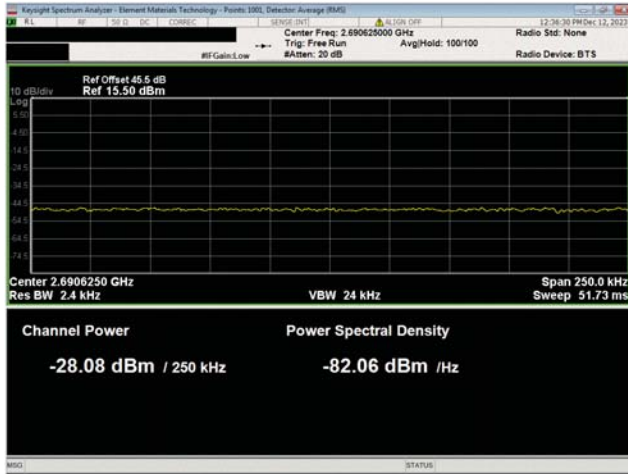


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2677.5 MHz

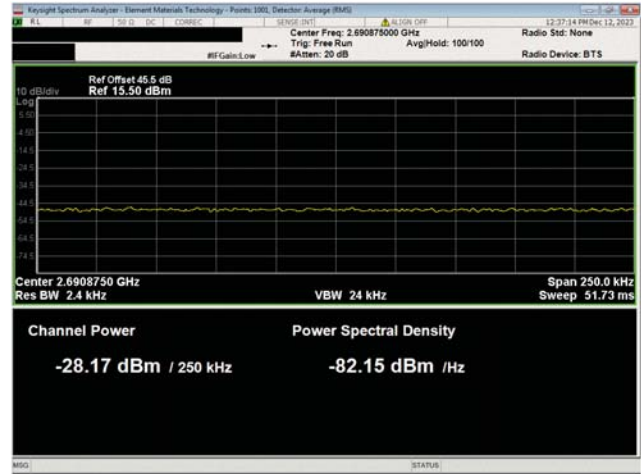


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2677.5 MHz

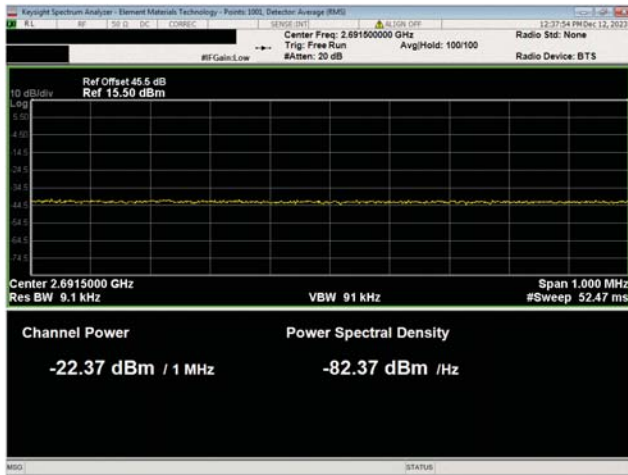
BAND EDGE COMPLIANCE



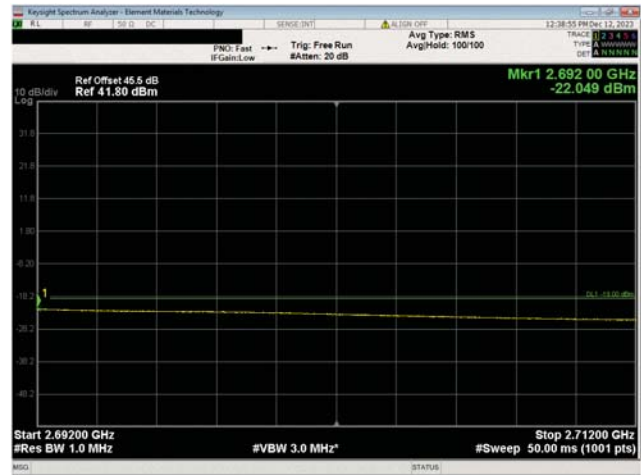
BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2677.5 MHz



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

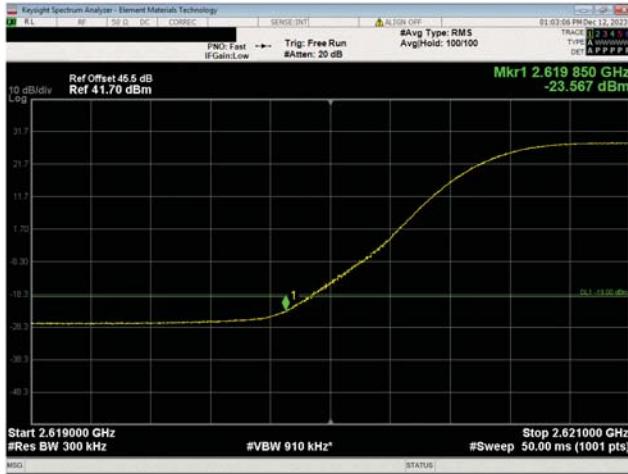


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2677.5 MHz

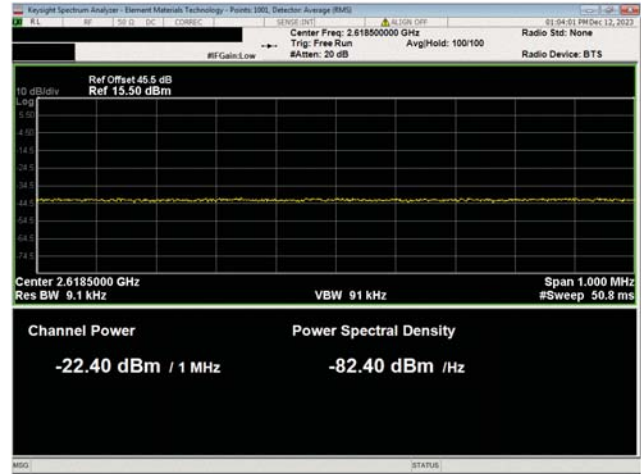


BRS Band n7, 2620 MHz - 2690 MHz
25 MHz Bandwidth
256QAM Modulation
High Ch, 2677.5 MHz

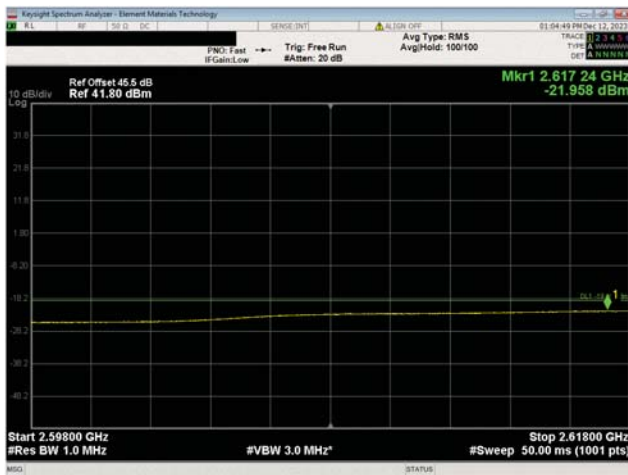
BAND EDGE COMPLIANCE



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
Low Ch, 2635.0 MHz

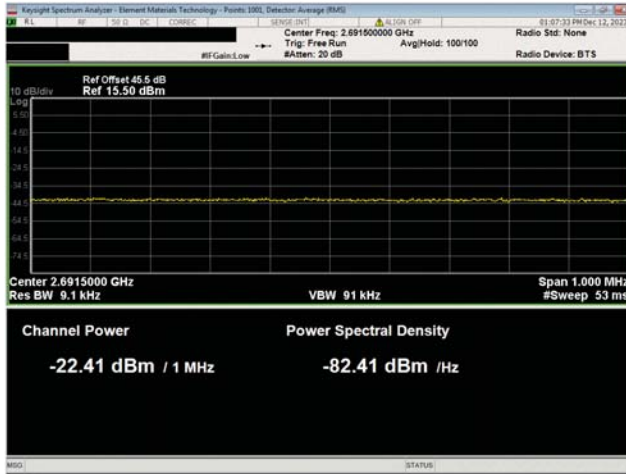


BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
256QAM Modulation
Low Ch, 2635.0 MHz

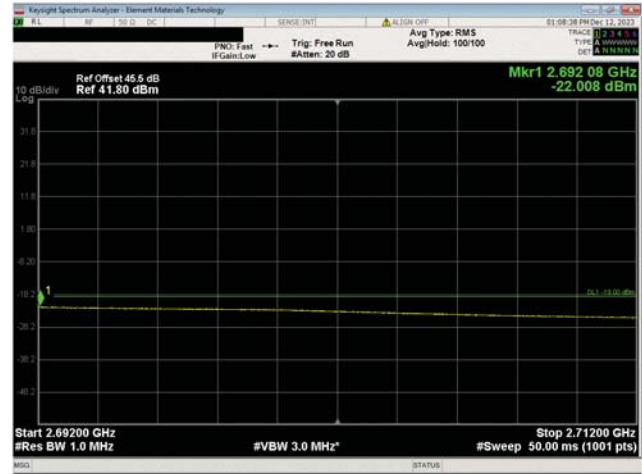


BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 2675.0 MHz

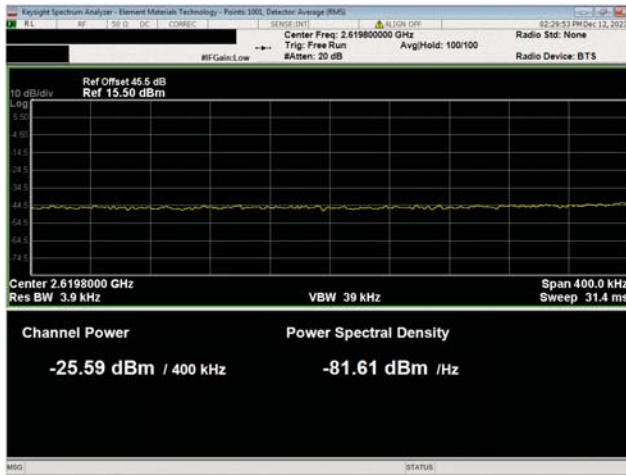
BAND EDGE COMPLIANCE



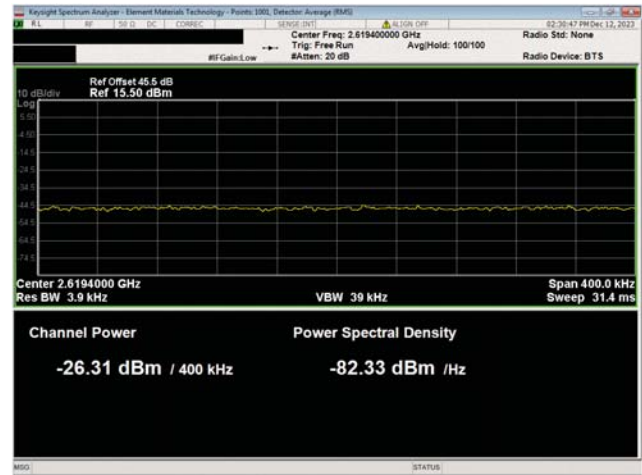
BRS Band n7, 2620 MHz - 2690 MHz
30 MHz Bandwidth
256QAM Modulation
High Ch, 2675.0 MHz



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

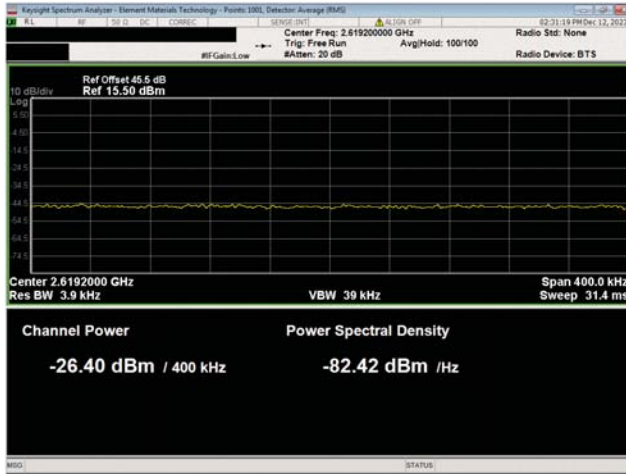


BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2640.0 MHz

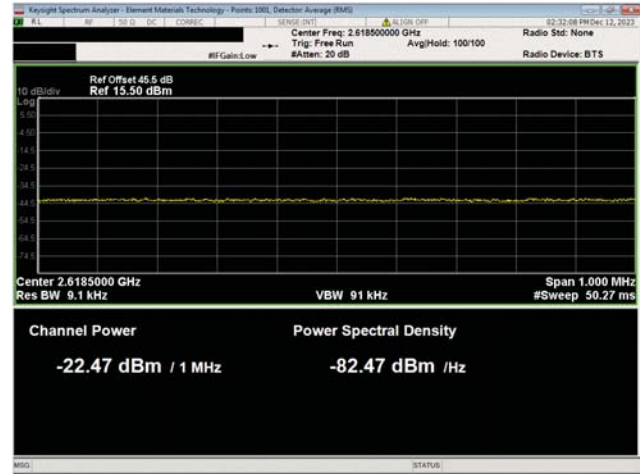


BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2640.0 MHz

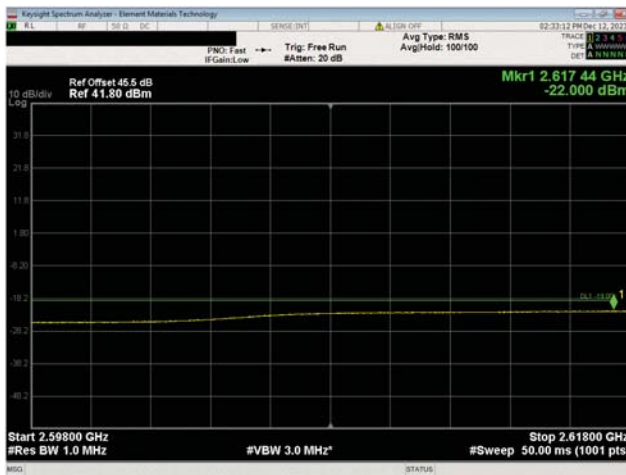
BAND EDGE COMPLIANCE



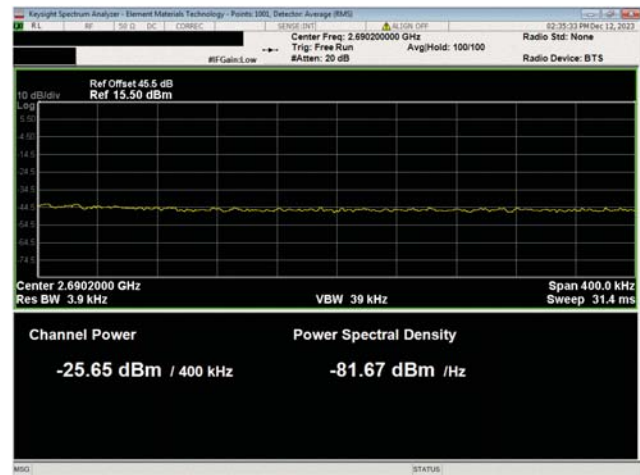
BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2640.0 MHz



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

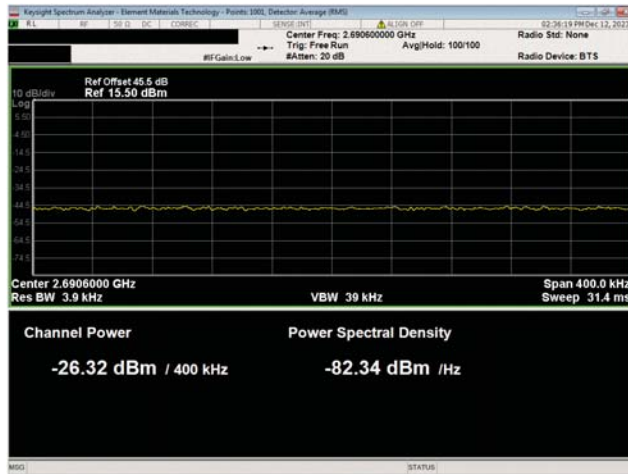


BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
Low Ch, 2640.0 MHz

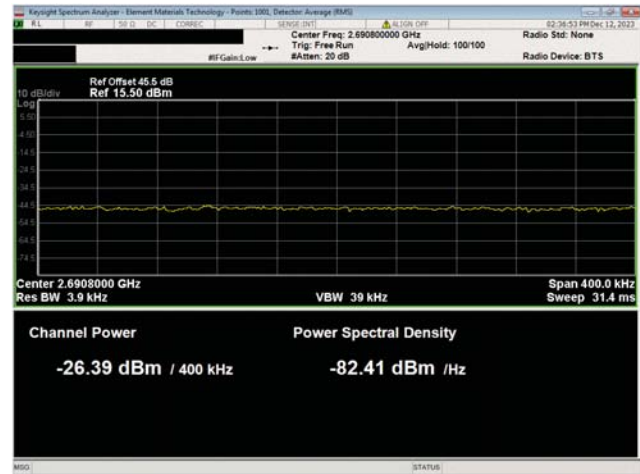


BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2670.0 MHz

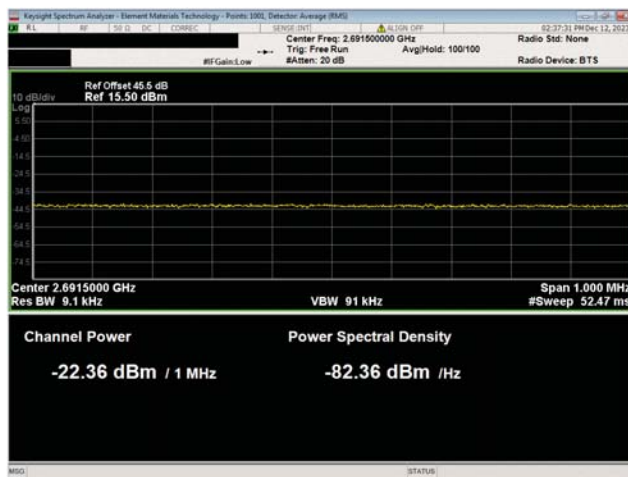
BAND EDGE COMPLIANCE



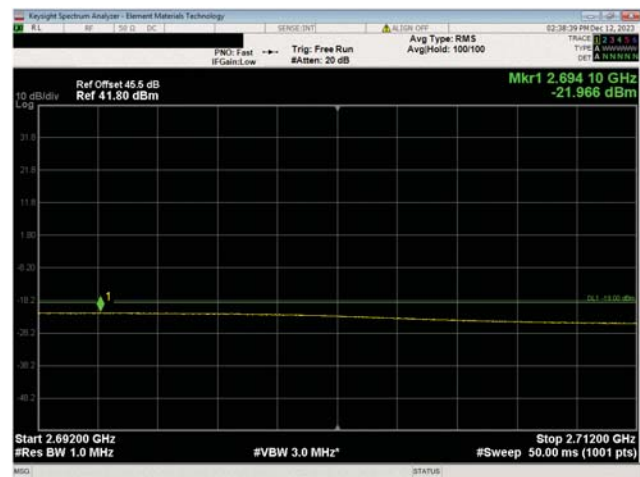
BRS Band n7, 2620 MHz - 2690 MHz
40 MHz Bandwidth
256QAM Modulation
High Ch, 2670.0 MHz



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



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



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

BAND EDGE COMPLIANCE - MULTICARRIER



TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies of the available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

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 paragraph 5.7.2i.

Per FCC 24.238(a), RSS 133 6.5 (i), FCC 27.53(h)(1), RSS-139 5.6, FCC 27.53(m)(2), and RSS-199 5.6, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm [-13 dBm -10 log (4)] per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

The resolution bandwidth to be used for these measurements are per FCC 24.238(b), RSS 133 6.5 (i), FCC 27.53(h)(3), RSS-139 5.6, FCC 27.53(m)(6), and RSS-199 5.6. Compliance 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e.: 1 MHz or 1 percent of emission bandwidth, as specified).

The band edge testing was performed using only one modulation type because the Occupied Bandwidth variation between modulation types is small, the average output power variation between modulation types is small, and there was small variation in band edge measurements over modulation types from previous certification testing efforts. The QPSK modulation type was used. (See ANSI C63.26. clause 5.7.2e).

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

BAND EDGE COMPLIANCE - MULTICARRIER

MULTICARRIER TEST CONFIGURATIONS

- a) *PCS Multicarrier Multiband Test Case 1:* In the PCS band, three NR5 carriers using two carriers (with minimum spacing between carrier frequencies) at the lower band edge (1932.5 MHz and 1937.5 MHz) and a third carrier with maximum spacing between the other two carrier frequencies (1992.5 MHz) at the upper band edge. In the AWS and BRS bands, single NR10 and NR5 carriers at the middle channel (2155.0 MHz and 2655.0 MHz). The smallest channel bandwidth is selected to maximize carrier power spectral density. The carriers are operated at maximum power (~20W/PCS carrier, 60W/AWS carrier and 40W/BRS carrier) with a total port power of 160 watts (60W for PCS band carriers + 60W for AWS band carrier + 40W for BRS band carrier).
- b) *PCS Multicarrier Multiband Test Case 2:* In the PCS band, two NR30 carriers (with minimum spacing between carrier frequencies) at the lower band edge (1945.0 MHz and 1975.0 MHz). In the AWS and BRS bands, single NR40 carriers at the middle channel (2155.0 MHz and 2655.0 MHz). The largest channel bandwidth is selected to maximize carrier OBW. The carriers are operated at maximum power (~30W/PCS carrier, 60W/AWS carrier and 40W/BRS carrier) with a total port power of 160 watts (60W for PCS band carriers + 60W for AWS band carrier + 40W for BRS band carrier).
- c) *PCS Multicarrier Multiband Test Case 3:* In the PCS band, two NR30 carriers (with minimum spacing between carrier frequencies) at the upper band edge (1950.0 MHz and 1980.0 MHz). In the AWS and BRS bands, single NR40 carriers at the middle channel (2155.0 MHz and 2655.0 MHz). The largest channel bandwidth is selected to maximize carrier OBW. The carriers and operated at maximum power (~30W/PCS carrier, 60W/AWS carrier and 40W/BRS carrier) with a total port power of 160 watts (60W for PCS band carriers + 60W for AWS band carrier + 40W for BRS band carrier).
- d) *AWS Multicarrier Multiband Test Case 1:* In the AWS band, three NR5 carriers using two carriers (with minimum spacing between carrier frequencies) at the lower band edge (2112.5 MHz and 2117.5 MHz) and a third carrier with maximum spacing between the other two carrier frequencies (2197.5 MHz) at the upper band edge. In the PCS and BRS bands, single NR10 and NR5 carriers at the middle channel (1962.5 MHz and 2655.0 MHz). The smallest channel bandwidth was selected to maximize carrier power spectral density. The carriers are operated at maximum power (~20W/AWS carrier, 60W/PCS carrier and 40W/BRS carrier) with a total port power of 160 watts (60W for PCS band carrier + 60W for AWS band carriers + 40W for BRS band carrier).
- e) *AWS Multicarrier Multiband Test Case 2:* In the AWS band, two NR40 carriers (with minimum spacing between carrier frequencies) at the lower band edge (2130.0 MHz and 2170.0 MHz). In the PCS and BRS bands, single NR40 carriers at the middle channel (1962.5 MHz and 2655.0 MHz). The largest channel bandwidth is selected to maximize carrier OBW. The carriers are operated at maximum power (~30W/AWS carrier, 60W/PCS carrier and 40W/BRS carrier) with a total port power of 160 watts (60W for PCS band carrier + 60W for AWS band carriers + 40W for BRS band carrier).
- f) *AWS Multicarrier Multiband Test Case 3:* In the AWS band, two NR40 carriers (with minimum spacing between carrier frequencies) at the upper band edge (2140.0 MHz and 2180.0 MHz). In the PCS and BRS bands, single NR40 carriers at the middle channel (1962.5 MHz and 2655.0 MHz). The largest channel bandwidth is selected to maximize carrier OBW. The carriers are operated at maximum power (~30W/AWS carrier, 60W/PCS carrier and 40W/BRS carrier) with a total port power of 160 watts (60W for PCS band carrier + 60W for AWS band carriers + 40W for BRS band carrier).
- g) *BRS Multicarrier Multiband Test Case 1:* In the BRS band, three NR5 carriers using two carriers (with minimum spacing between carrier frequencies) at the lower band edge (2622.5 MHz and 2627.5 MHz) and a third carrier with maximum spacing between the other two carrier frequencies (2687.5 MHz) at the upper band edge. In the PCS and AWS bands, single NR10 and NR5 carriers at the middle channel (1962.5 MHz and 2155.0 MHz). The smallest channel bandwidth was selected to maximize carrier power spectral density. The carriers are operated at maximum power (~20W/BRS carrier, 60W/PCS carrier, and 40W/AWS carrier) with a total port power of 160 watts (60W for PCS band carrier + 60W for BRS band carriers + 40W for AWS band carrier).
- h) *BRS Multicarrier Multiband Test Case 2:* In the BRS band, two NR30 carriers (with minimum spacing between carrier frequencies) at the lower band edge (2635.0 MHz and 2665.0 MHz). In the PCS and AWS bands, single NR40 carriers at the middle channel (1962.5 MHz and 2155.0 MHz). The largest channel bandwidth is selected to maximize carrier OBW. The carriers are operated at maximum power (~30W/BRS carrier, 60W/PCS carrier and

BAND EDGE COMPLIANCE - MULTICARRIER



40W/AWS carrier) with a total port power of 160 watts (60W for PCS band carrier + 60W for BRS band carriers + 40W for AWS band carrier).

- i) *BRS Multicarrier Multiband Test Case 3:* In the BRS band, two NR30 carriers (with minimum spacing between carrier frequencies) at the upper band edge (2645.0 MHz and 2675.0 MHz). In the PCS and AWS bands, single NR40 carriers at the middle channel (1962.5 MHz and 2155.0 MHz). The largest channel bandwidth is selected to maximize carrier OBW. The carriers are operated at maximum power (~30W/BRS carrier, 60W/PCS carrier and 40W/AWS carrier) with a total port power of 160 watts (60W for PCS band carrier + 60W for BRS band carriers + 40W for AWS band carrier).

BAND EDGE COMPLIANCE - MULTICARRIER



EUT:	AirScale Base Transceiver Station Remote Radio Head Model AHFIHA	Work Order:	NOKI0072
Serial Number:	RW233800370	Date:	2024-01-24
Customer:	Nokia Solutions and Networks	Temperature:	22°C
Attendees:	John Rattanavong, Mitch Hill	Relative Humidity:	32.8%
Customer Project:	None	Bar. Pressure (PMSL):	1026 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, cables, and filters where used. Carriers were enables at power and frequency combinations described in test cases.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

Tested By

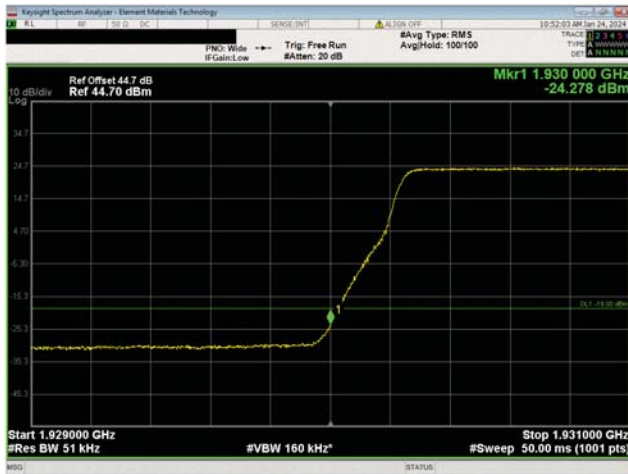
TEST RESULTS

	Frequency Range	Value (dBm)	Limit (dB)	Result
Port 1				
PCS Multicarrier Multiband Test Case 1				
QPSK Modulation				
PCS n25, NR5, Low Ch, 1932.5 MHz	1929.0 MHz - 1931.0 MHz	-24.278	-19	Pass
	1928.0 MHz - 1929.0 MHz	-20.65	-19	Pass
	1918.0 MHz - 1928.0 MHz	-21.648	-19	Pass
PCS n25, NR5, High Ch, 1992.5 MHz	1994.0 MHz - 1996.0 MHz	-24.716	-19	Pass
	1996.0 MHz - 1997.0 MHz	-20.39	-19	Pass
	1997.0 MHz - 2001.0 MHz	-20.466	-19	Pass
PCS Multicarrier Multiband Test Case 2				
QPSK Modulation				
PCS n25, NR30, Low Ch, 1945.0 MHz	1929.0 MHz - 1931.0 MHz	-23.221	-19	Pass
	1928.0 MHz - 1929.0 MHz	-21.75	-19	Pass
	1918.0 MHz - 1928.0 MHz	-21.925	-19	Pass
PCS Multicarrier Multiband Test Case 3				
QPSK Modulation				
PCS n25, NR 30, High Ch, 1980.0 MHz	1994.0 MHz - 1996.0 MHz	-24.277	-19	Pass
	1996.0 MHz - 1997.0 MHz	-21.96	-19	Pass
	1997.0 MHz - 2001.0 MHz	-21.615	-19	Pass

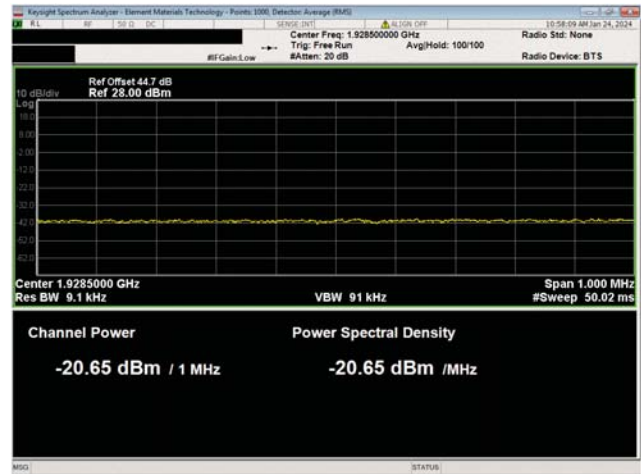
BAND EDGE COMPLIANCE - MULTICARRIER

	Frequency Range	Value (dBm)	Limit (dB)	Result
AWS Multicarrier Multiband Test Case 1				
QPSK Modulation				
AWS n66, NR5, Low Ch, 2112.5 MHz	2109.0 MHz - 2111.0 MHz	-24.592	-19	Pass
	2108.0 MHz - 2109.0 MHz	-19.97	-19	Pass
	2088.0 MHz - 2108.0 MHz	-19.923	-19	Pass
AWS n66, NR5, High Ch, 2197.5 MHz	2199.0 MHz - 2201.0 MHz	-23.707	-19	Pass
	2201.0 MHz - 2202.0 MHz	-19.88	-19	Pass
	2202.0 MHz - 2212.0 MHz	-20.178	-19	Pass
AWS Multicarrier Multiband Test Case 2				
QPSK Modulation				
AWS n66, NR40, Low Ch, 2130.0 MHz	2109.0 MHz - 2111.0 MHz	-20.018	-19	Pass
	2108.0 MHz - 2109.0 MHz	-20.41	-19	Pass
	2088.0 MHz - 2108.0 MHz	-20.172	-19	Pass
AWS Multicarrier Multiband Test Case 3				
QPSK Modulation				
AWS n66, NR40, High Ch, 2140.0 MHz	2199.0 MHz - 2201.0 MHz	-20.638	-19	Pass
	2201.0 MHz - 2202.0 MHz	-21.66	-19	Pass
	2202.0 MHz - 2212.0 MHz	-21.674	-19	Pass
BRS Multicarrier Multiband Test Case 1				
QPSK Modulation				
BRS n7, NR5, Low Ch, 2622.5 MHz	2619.0 MHz - 2621.0 MHz	-25.088	-19	Pass
	2618.0 MHz - 2619.0 MHz	-20.49	-19	Pass
	2608.0 MHz - 2618.0 MHz	-20.065	-19	Pass
BRS n7, NR5, High Ch, 2687.5 MHz	2689.0 MHz - 2691.0 MHz	-24.528	-19	Pass
	2691.0 MHz - 2691.0 MHz	-19.86	-19	Pass
	2691.0 MHz - 2692.0 MHz	-20.16	-19	Pass
	2693.0 MHz - 2702.0 MHz	-19.759	-19	Pass
BRS Multicarrier Multiband Test Case 2				
QPSK Modulation				
BRS n7, NR30, Low Ch, 2635.0 MHz	2619.0 MHz - 2621.0 MHz	-23.629	-19	Pass
	2618.0 MHz - 2619.0 MHz	-20.93	-19	Pass
	2608.0 MHz - 2618.0 MHz	-20.383	-19	Pass
BRS Multicarrier Multiband Test Case 3				
QPSK Modulation				
BRS n7, NR30, High Ch, 2645.0 MHz	2689.0 MHz - 2691.0 MHz	-22.931	-19	Pass
	2691.0 MHz - 2691.0 MHz	-20.14	-19	Pass
	2693.0 MHz - 2702.0 MHz	-20.292	-19	Pass

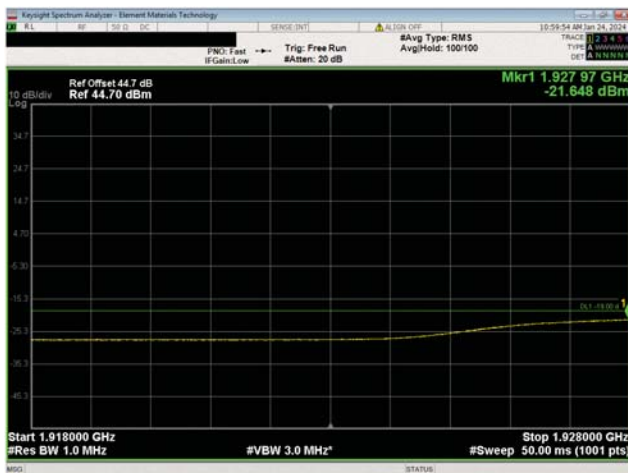
BAND EDGE COMPLIANCE - MULTICARRIER



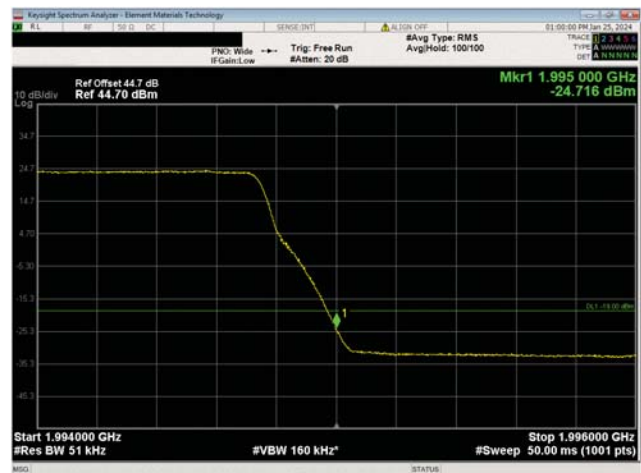
PCS Multicarrier Multiband Test Case 1
QPSK Modulation
PCS n25, NR5, Low Ch, 1932.5 MHz



PCS Multicarrier Multiband Test Case 1
QPSK Modulation
PCS n25, NR5, Low Ch, 1932.5 MHz

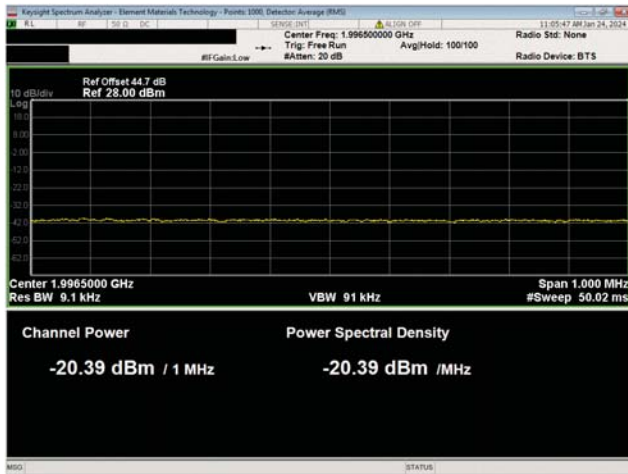


PCS Multicarrier Multiband Test Case 1
QPSK Modulation
PCS n25, NR5, Low Ch, 1932.5 MHz

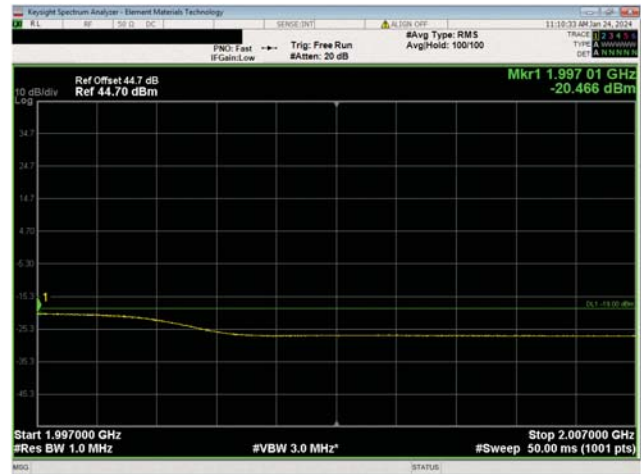


PCS Multicarrier Multiband Test Case 1
QPSK Modulation
PCS n25, NR5, High Ch, 1992.5 MHz

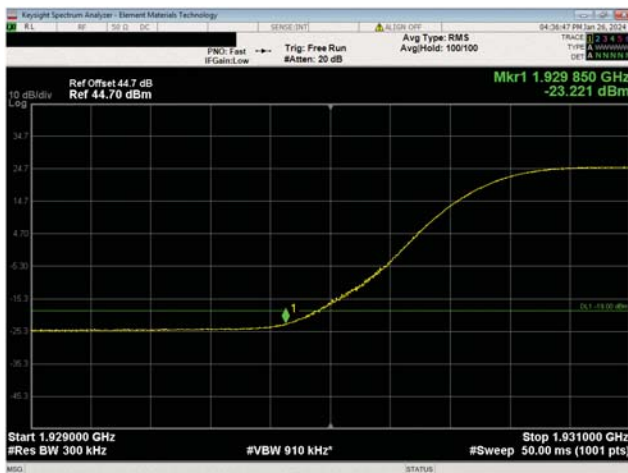
BAND EDGE COMPLIANCE - MULTICARRIER



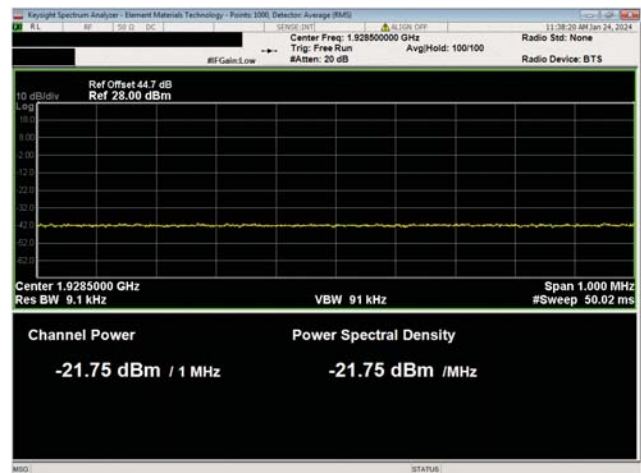
PCS Multicarrier Multiband Test Case 1
QPSK Modulation
PCS n25, NR5, High Ch, 1992.5 MHz



PCS Multicarrier Multiband Test Case 1
QPSK Modulation
PCS n25, NR5, High Ch, 1992.5 MHz

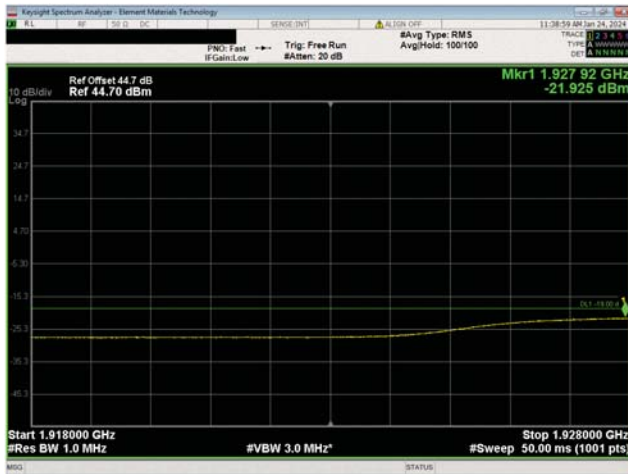


PCS Multicarrier Multiband Test Case 2
QPSK Modulation
PCS n25, NR30, Low Ch, 1945.0 MHz



PCS Multicarrier Multiband Test Case 2
QPSK Modulation
PCS n25, NR30, Low Ch, 1945.0 MHz

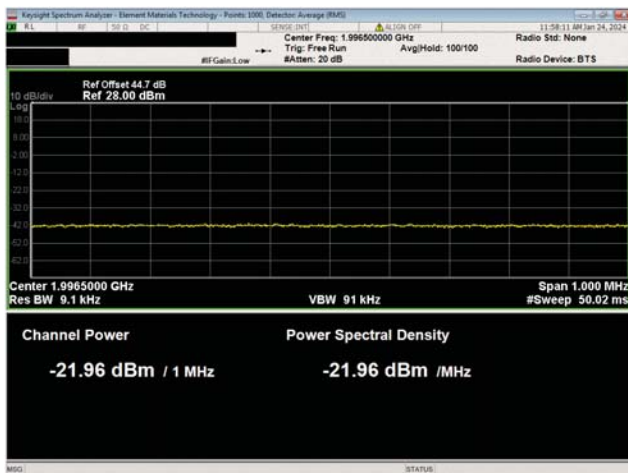
BAND EDGE COMPLIANCE - MULTICARRIER



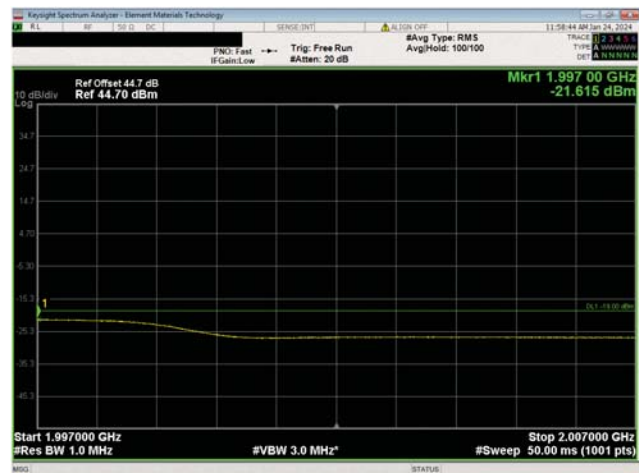
PCS Multicarrier Multiband Test Case 2
QPSK Modulation
PCS n25, NR30, Low Ch, 1945.0 MHz



PCS Multicarrier Multiband Test Case 3
QPSK Modulation
PCS n25, NR 30, High Ch, 1950.0 MHz

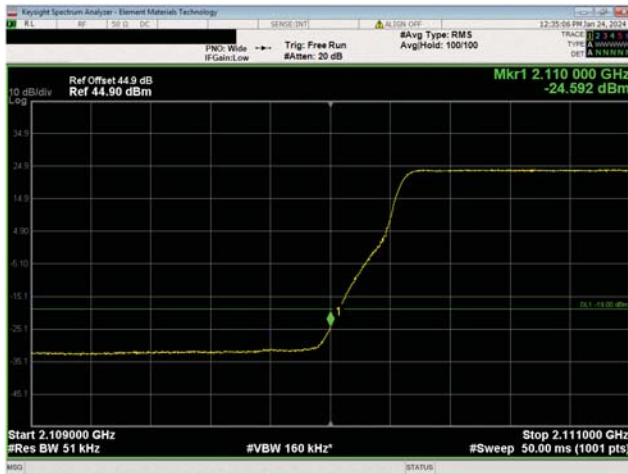


PCS Multicarrier Multiband Test Case 3
QPSK Modulation
PCS n25, NR 30, High Ch, 1950.0 MHz

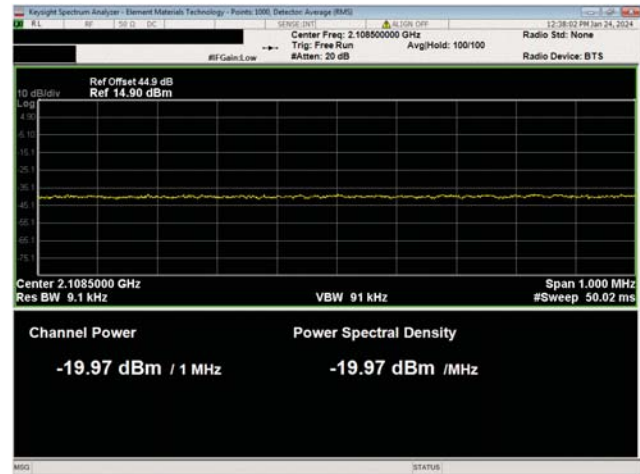


PCS Multicarrier Multiband Test Case 3
QPSK Modulation
PCS n25, NR 30, High Ch, 1950.0 MHz

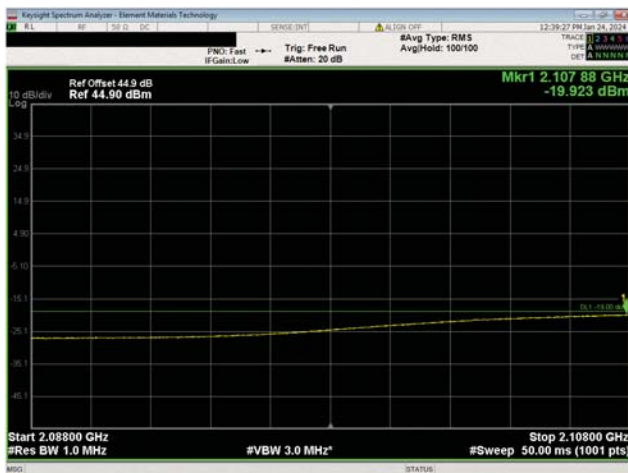
BAND EDGE COMPLIANCE - MULTICARRIER



AWS Multicarrier Multiband Test Case 1
QPSK Modulation
AWS n66, NR5, Low Ch, 2112.5 MHz



AWS Multicarrier Multiband Test Case 1
QPSK Modulation
AWS n66, NR5, Low Ch, 2112.5 MHz

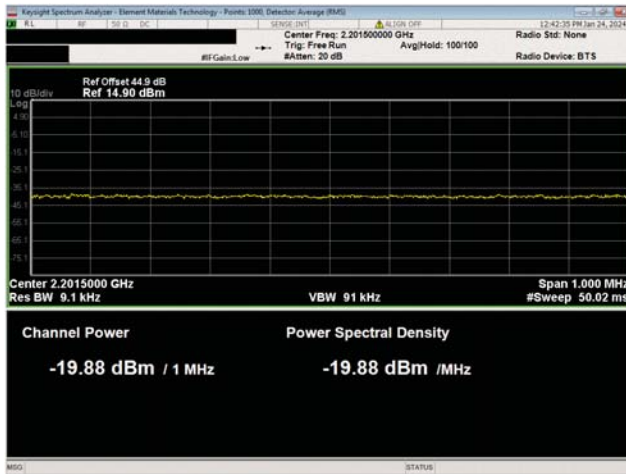


AWS Multicarrier Multiband Test Case 1
QPSK Modulation
AWS n66, NR5, Low Ch, 2112.5 MHz

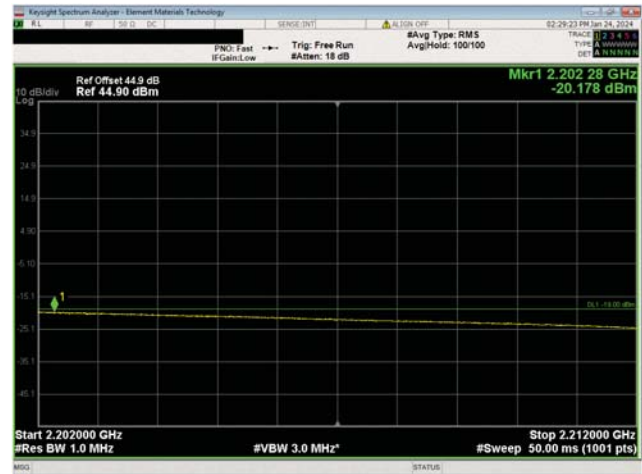


AWS Multicarrier Multiband Test Case 1
QPSK Modulation
AWS n66, NR5, High Ch, 2197.5 MHz

BAND EDGE COMPLIANCE - MULTICARRIER



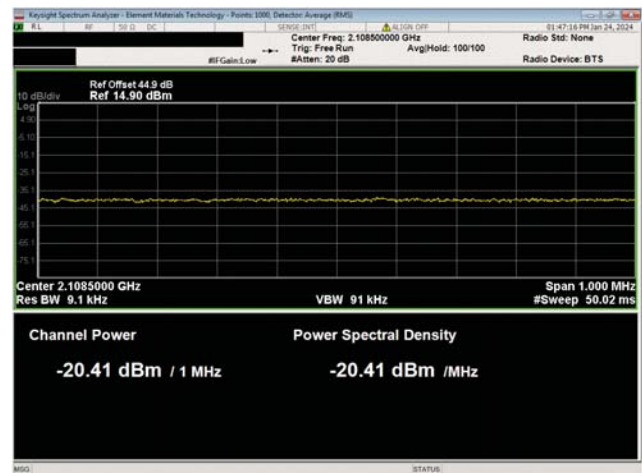
AWS Multicarrier Multiband Test Case 1
QPSK Modulation
AWS n66, NR5, High Ch, 2197.5 MHz



AWS Multicarrier Multiband Test Case 1
QPSK Modulation
AWS n66, NR5, High Ch, 2197.5 MHz

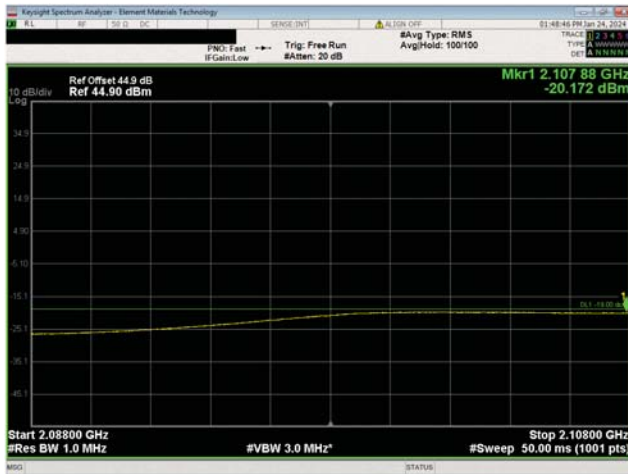


AWS Multicarrier Multiband Test Case 2
QPSK Modulation
AWS n66, NR40, Low Ch, 2130.0 MHz



AWS Multicarrier Multiband Test Case 2
QPSK Modulation
AWS n66, NR40, Low Ch, 2130.0 MHz

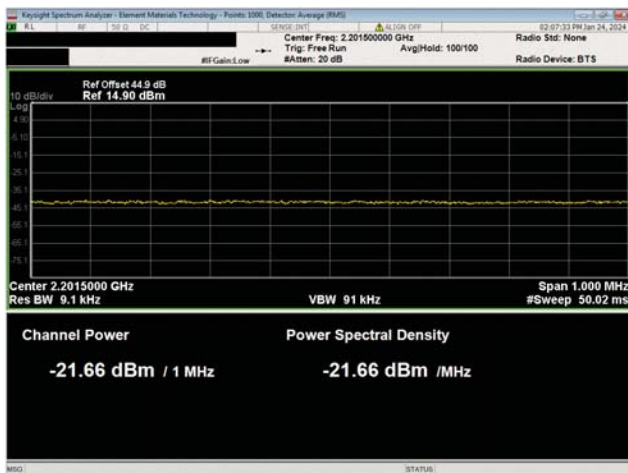
BAND EDGE COMPLIANCE - MULTICARRIER



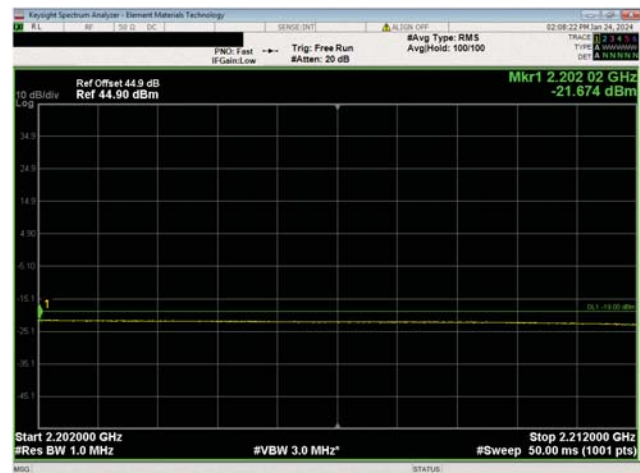
AWS Multicarrier Multiband Test Case 2
QPSK Modulation
AWS n66, NR40, Low Ch, 2130.0 MHz



AWS Multicarrier Multiband Test Case 3
QPSK Modulation
AWS n66, NR40, High Ch, 2140.0 MHz

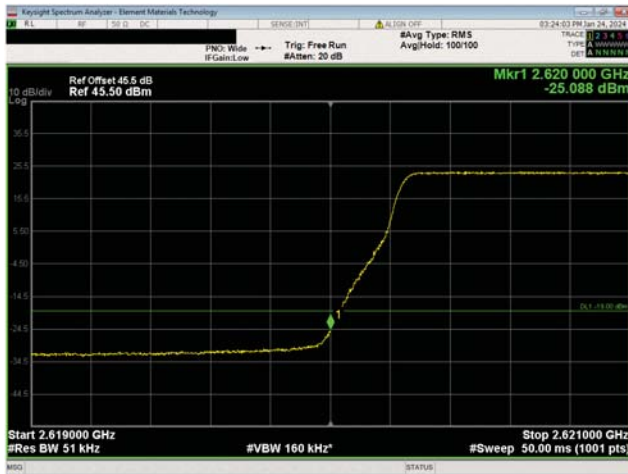


AWS Multicarrier Multiband Test Case 3
QPSK Modulation
AWS n66, NR40, High Ch, 2140.0 MHz

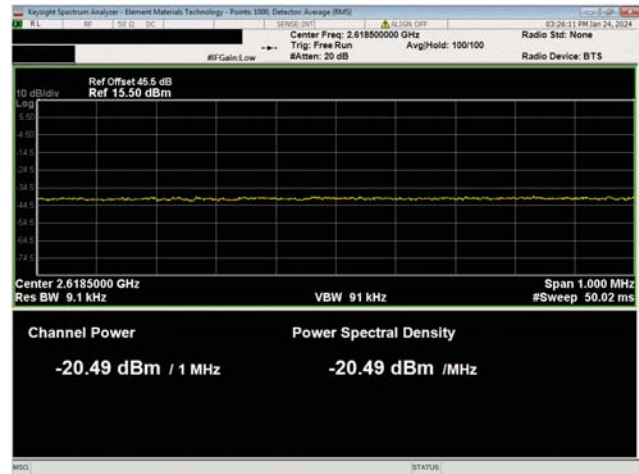


AWS Multicarrier Multiband Test Case 3
QPSK Modulation
AWS n66, NR40, High Ch, 2140.0 MHz

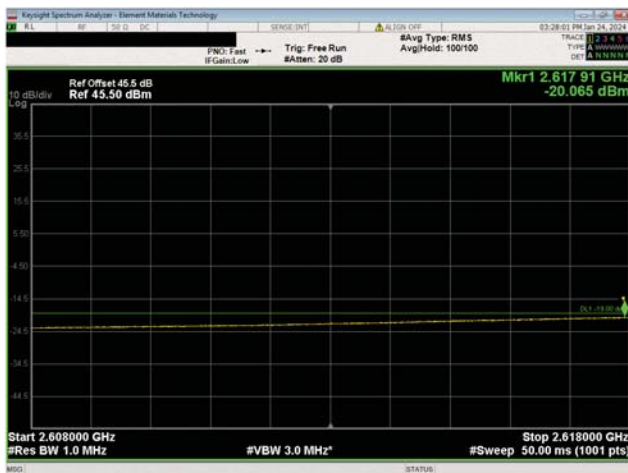
BAND EDGE COMPLIANCE - MULTICARRIER



BRS Multicarrier Multiband Test Case 1
QPSK Modulation
BRS n7, NR5, Low Ch, 2622.5 MHz



BRS Multicarrier Multiband Test Case 1
QPSK Modulation
BRS n7, NR5, Low Ch, 2622.5 MHz

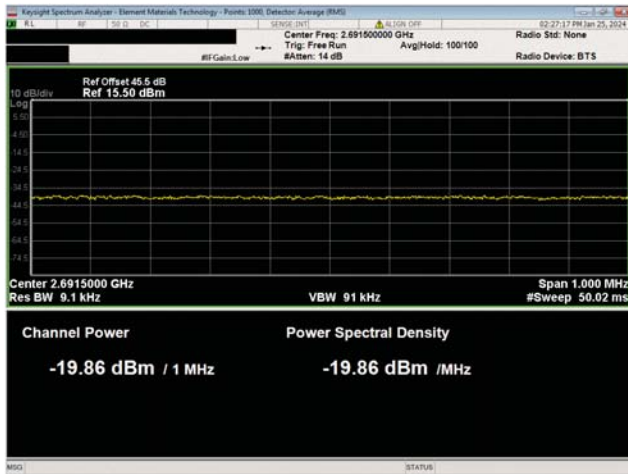


BRS Multicarrier Multiband Test Case 1
QPSK Modulation
BRS n7, NR5, Low Ch, 2622.5 MHz

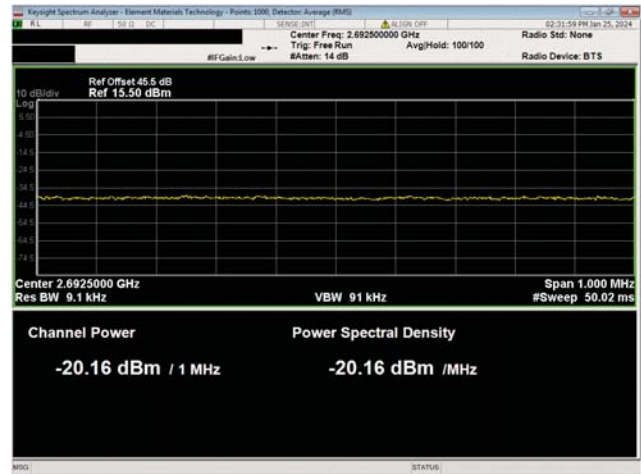


BRS Multicarrier Multiband Test Case 1
QPSK Modulation
BRS n7, NR5, High Ch, 2687.5 MHz

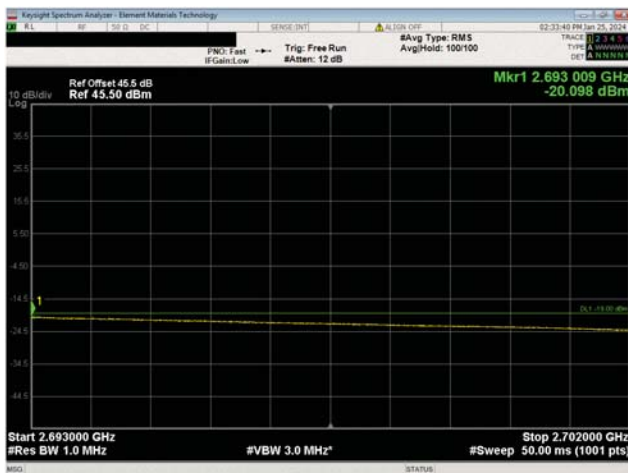
BAND EDGE COMPLIANCE - MULTICARRIER



BRS Multicarrier Multiband Test Case 1
QPSK Modulation
BRS n7, NR5, High Ch, 2687.5 MHz



BRS Multicarrier Multiband Test Case 1
QPSK Modulation
BRS n7, NR5, High Ch, 2687.5 MHz

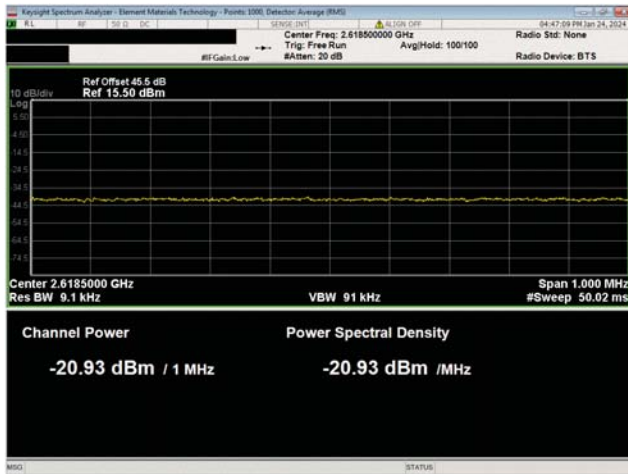


BRS Multicarrier Multiband Test Case 1
QPSK Modulation
BRS n7, NR5, High Ch, 2687.5 MHz

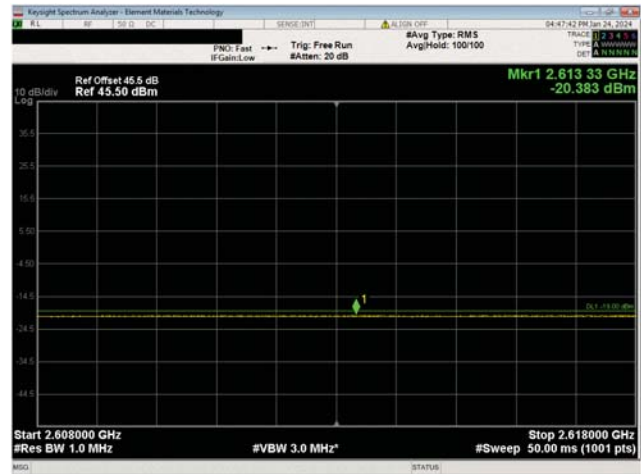


BRS Multicarrier Multiband Test Case 2
QPSK Modulation
BRS n7, NR30, Low Ch, 2635.0 MHz

BAND EDGE COMPLIANCE - MULTICARRIER



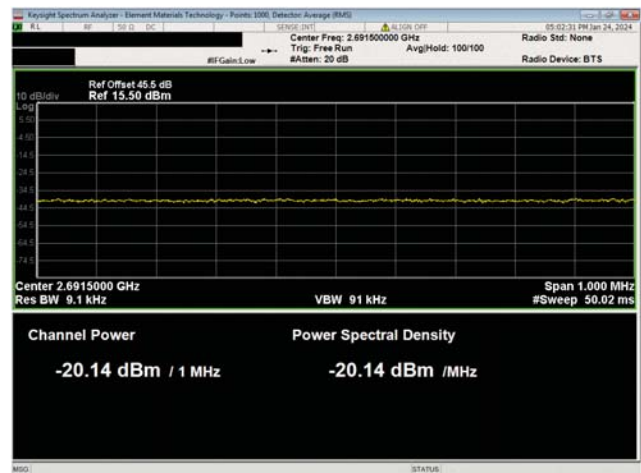
BRS Multicarrier Multiband Test Case 2
QPSK Modulation
BRS n7, NR30, Low Ch, 2635.0 MHz



BRS Multicarrier Multiband Test Case 2
QPSK Modulation
BRS n7, NR30, Low Ch, 2635.0 MHz

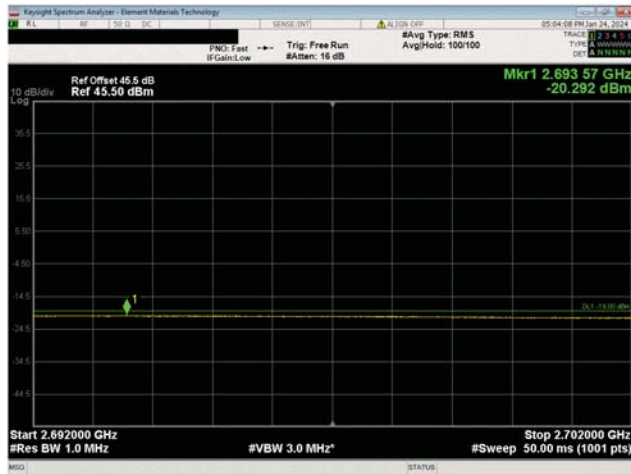


BRS Multicarrier Multiband Test Case 3
QPSK Modulation
BRS n7, NR30, High Ch, 2645.0 MHz



BRS Multicarrier Multiband Test Case 3
QPSK Modulation
BRS n7, NR30, High Ch, 2645.0 MHz

BAND EDGE COMPLIANCE - MULTICARRIER



BRS Multicarrier Multiband Test Case 3
QPSK Modulation
BRS n7, NR30, High Ch, 2645.0 MHz